



HIGHWAY FACTORS

GROUP CHAIRMAN'S FACTUAL REPORT

FATAL MULTI-VEHICLE REAR-END ACCIDENT IN A WORK ZONE

CRANBURY, NEW JERSEY

HWY14MH012

ATTACHMENT 1, PLANS, SPECIFICATIONS, AND ESTIMATES FOR
CONSTRUCTION CONTRACT

(695) PAGES

PROPOSAL

NEW JERSEY TURNPIKE AUTHORITY

NEW JERSEY TURNPIKE

Contract No. T869.120.803

Interchange 6 to 9 Widening Program

NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps

Grading, Drainage, Paving, Structures & Lighting

Milepost 70.6 to 82.6

To the CHAIRMAN OF THE NEW JERSEY TURNPIKE AUTHORITY

For Contract No. T869.120.803 which involves Grading, Drainage, Paving, Structures & Lighting for the Interchange 6 to 9 Widening Program NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps from Milepost 70.6 to 82.6 in the Townships of Cranbury, Monroe, South Brunswick and East Brunswick and Borough of Milltown, Middlesex County, New Jersey.

The Undersigned hereby declares that they have carefully examined the Contract Documents for the construction of the project named above; that they have carefully examined the sites of the Project as required; and that they will contract to carry out and complete the said Project as specified and delineated at the price per unit of measure for each scheduled item of work stated in the;

_____ Attached Scheduled Items of Work

_____ Electronically Submitted Scheduled Items of Work (The Firm Name submitting the Scheduled Items of Work shall be the same Firm Name of Bidder in the Proposal)

(Check One)

(Firm Name of Bidder)

(Principal) (Seal)

(Name and Title)

(Date)

Special Notice to Bidders:

Bidders are advised that this contract provides insurance coverage furnished through an Owner Controlled Insurance Program (known as "OCIP" or "Wrap-up" Program) with certain specified insurance coverages, such as Automobile Liability Insurance, to be furnished by the Contractor. Contractors shall exclude the insurance costs in their bid for those coverages that are provided by the New Jersey Turnpike Authority. Requirements that the contractor furnish General Liability, Workers Compensation and other types of insurance have been modified or deleted in this Bid Document. Such modifications or deletions are set forth in Subsection 106.20 and elsewhere in this Bid Document.

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
Contract No. T869.120.803
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6
SCHEDULED ITEMS OF WORK

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
1	1D01LAY	Construction Layout	L.S.	1	-----	--		
2	1D10MOB	Mobilization	L.S.	1	-----	--		
3	1G04SCH	Progress Schedule (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
4	1HFP700	Fuel Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$700,000. Enter a Unit Price of \$700,000 as your bid item for this item.)	L.S.	1	-----	--	700,000	00
5	2A01CAG	Clearing and Grubbing	Acre	109				
6	2B04REX	Roadway Excavation and Embankment	C.Y.	572,902				
7	2B05REX	Roadway Excavation, Muck	C.Y.	4,650				
8	2B15STS	Stripping Topsoil	C.Y.	58,548				
9	N2B0001	Removal of Existing Barrier	L.F.	12,305				
10	2C02EMB	Embankment, Grade A	C.Y.	322,517				
11	2C04EMB	Porous Fill	C.Y.	885				
12	2C15EMB	Basin Sand Layer	C.Y.	30,769				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
13	N2C0005	Settlement Platforms	Each	16				
14	2E01FEX	Foundation Excavation	C.Y.	2,366				
15	2F04TEX	Trench Excavation, Electrical	L.F.	17,441				
16	2G12A07	Riprap Stone Aprons, 6" Thick (D50=3")	Ton	267				
17	2G12A06	Riprap Stone Aprons, 12" Thick (D50=6")	Ton	810				
18	2G00005	Riprap Stone Aprons, 18" Thick (D50=9")	Ton	806				
19	2G12A08	Riprap Stone Aprons, 24" Thick (D50=12")	Ton	326				
20	2G00028	Riprap Stone Aprons, 36" Thick (D50=18")	Ton	100				
21	2G00002	Riprap Stone Slope Protection, 12" Thick, (D50=6")	Ton	311				
22	2G00032	Riprap Stone Slope Protection, 18" Thick, (D50=5")	Ton	1,873				
23	2G10SEC	Filter Blanket	Ton	1,172				
24	2H00007	Heavy Duty Silt Fence, Black	L.F.	58,373				
25	2H00011	Turf Reinforcement Matting	S.Y.	25,000				
26	2H00015	Inlet Filter, Type 1	S.F.	13,000				
27	2H00018	Sediment Control Bags	Each	10				
28	2H25TEC	Hay Bales	C.Y.	100				
29	2H35TEC	Floating Turbidity Barriers	L.F.	1,820				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
30	2H45TEC	Construction Driveway	Ton	1,000				
31	N2H0003	Haybale Check Dam With Temporary Stone Outlet	L.F.	360				
32	N2H0004	Temporary Stone Check Dam	C.Y.	280				
33	2J01DES	Demolition of Existing Structures	L.S.	1	-----	--		
34	2J11DES	Demolition of Existing Structures No. 1 (Str. No. 71.87)	L.S.	1	-----	--		
35	2K01TPF	Temporary Orange Plastic Fence	L.F.	16,222				
36	2M00006	Excavation, Acid Producing Soils	C.Y.	41,000				
37	2M00008	Disposal of Acid Producing Soil	Ton	66,000				
38	2M00009	Testing for Acid Producing Soil Deposits	Each	41				
39	3A05ABC	Aggregate Base Course, 5" Thick	S.Y.	635				
40	3A06ABC	Aggregate Base Course, 6" Thick	S.Y.	707				
41	3A07ABC	Aggregate Base Course, 6.5" Thick	S.Y.	476,499				
42	3B21SUP	Superpave Hot Mix Asphalt 25H 64 Base Course	Ton	234,885				
43	3B24SUP	Superpave Hot Mix Asphalt 19H 76 Intermediate Course	Ton	97,879				
44	3B25SUP	Superpave Hot Mix Asphalt 12.5H 76 Surface Course	Ton	81,519				
45	3B26TAC	Tack Coat	Gallon	28,861				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
46	3B2600APA	Asphalt Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$2,600,000. Enter a Unit Price of \$2,600,000 as your bid item for this item.)	L.S.	1	-----	--	2,600,000	00
47	3B31CLS	Cleaning Outside Shoulders	L.F.	73,500				
48	3C01BRS	Berm Surfacing, 3 inches Thick	S.Y.	39,818				
49	3C02BRS	Berm Surfacing, Crushed Stone, 6" Thick	S.Y.	33,261				
50	3D05APS	Bridge Approach Slab	S.Y.	1,262				
51	3E07PMR	Pavement Removal, 2" Depth	S.Y.	144,157				
52	3F01MRS	Milled Rumble Strip	L.F.	167,000				
53	4A00005	Concrete In Culvert	C.Y.	412				
54	4A04STC	Concrete In Footings	C.Y.	713				
55	4A10AAF	Concrete in Abutments Above Footings	C.Y.	738				
56	4A10PAF	Concrete in Piers Above Footings	C.Y.	190				
57	4A10RWF	Concrete in Retaining Walls Above Footings	C.Y.	360				
58	4A10RFS	Reinforcement Steel	Pound	192,560				
59	4A11RFS	Reinforcement Steel, Epoxy Coated	Pound	747,199				
60	N4A0003	Strip Seal Expansion Joints, 4" Movement	L.F.	376				
61	4A01CCS	Concrete Core Sampling	Each	22				

Proposal - 5 Firm Name of Bidder _____

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
62	4A55CPS	Concrete Penetrating Sealer	S.F.	116,700				
63	N4A0001	Sawcut Grooved Deck Surface	S.Y.	2,735				
64	4C01SSC	Shear Connectors	Each	10,857				
65	4C15SDJ	Structural Steel Deck Joints (Approx. 3,800 Lbs.)	L.S.	1	-----	--		
66	4CSSL01	Structural Steel Structure No. 1 (Str. No. 70.74, Approx. 97,430 Lbs.)	L.S.	1	-----	--		
67	4CSSL02	Structural Steel Structure No. 2 (Str. No. 71.37, Approx. 547,900 Lbs.)	L.S.	1	-----	--		
68	4CSSL03	Structural Steel Structure No. 3 (Str. No. 72.29, Approx. 516,400 Lbs.)	L.S.	1	-----	--		
69	4C34HMR	HLMR Bearings, 200 Kips to 300 Kips, Type E	Each	20				
70	4C35HMR	HLMR Bearings, 250 Kips to 500 Kips, Type E	Each	4				
71	4C36HMR	HLMR Bearings, 1000 Kips to 1700 Kips, Type F	Each	4				
72	4E00082	Furnishing 10-3/4" Diameter Steel Pipe Piles	L.F.	6,937				
73	4E00083	Driving 10-3/4" Diameter Steel Pipe Piles	L.F.	6,937				
74	4E00084	Splices for 10-3/4" Diameter Steel Pipe Piles	Each	120				
75	4E00085	Point Reinforcement for 10-3/4" Diameter Steel Pipe Piles	Each	120				
76	4E00086	10-3/4" Diameter Steel Pipe Test Piles	L.F.	231				
77	4E01EDP	Furnishing Equipment for Driving Piles	L.S.	1	-----	--		
78	4E01PLT	Dynamic Pile Load Tests	Each	4				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
79	4F10OHF	Concrete Foundations for Overhead Sign Structures	C.Y.	356				
80	4F01RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 1 (73.4 NSI)	L.S.	1	-----	--		
81	4F02RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 2 (73.4 NSO)	L.S.	1	-----	--		
82	4F03RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 3 (73.9 SNI)	L.S.	1	-----	--		
83	4F04RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 4 (73.9 SNO)	L.S.	1	-----	--		
84	4F05RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 5 (76.1 NSI)	L.S.	1	-----	--		
85	4F06RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 6 (76.1 NSO)	L.S.	1	-----	--		
86	4F07RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 7 (79.8 NSI)	L.S.	1	-----	--		
87	4F08RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 8 (79.8 NSO)	L.S.	1	-----	--		
88	4F09RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 9 (82.2 NSI)	L.S.	1	-----	--		
89	4F10RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 10 (82.2 NSO)	L.S.	1	-----	--		
90	4F01RCC	Remove Existing Cantilever CMS Sign Structure No. 1 (73.89)	L.S.	1	-----	--		
91	4F01RSC	Remove Existing Span CMS Sign Structure No. 1 (70.8 SNI)	L.S.	1	-----	--		
92	4F02RSC	Remove Existing Span CMS Sign Structure No. 2 (71.9 NSI)	L.S.	1	-----	--		
93	4F03RSC	Remove Existing Span CMS Sign Structure No. 3 (72.8 SNI/SNO)	L.S.	1	-----	--		
94	4F04RSC	Remove Existing Span CMS Sign Structure No. 4 (73.89)	L.S.	1	-----	--		

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
95	4F05RSC	Remove Existing Span CMS Sign Structure No. 5 (78.88)	L.S.	1	-----	--		
96	4F26RES	Remove Existing Span Sign Structure No. 1 (72.6 NSI)	L.S.	1	-----	--		
97	4F27RES	Remove Existing Span Sign Structure No. 2 (72.9 NSI/NSO)	L.S.	1	-----	--		
98	4F28RES	Remove Existing Span Sign Structure No. 3 (75.16N)	L.S.	1	-----	--		
99	4F29RES	Remove Existing Span Sign Structure No. 4 (75.27S)	L.S.	1	-----	--		
100	4F32RES	Remove Existing Span Sign Structure No. 5 (74.33N)	L.S.	1	-----	--		
101	4F33RES	Remove Existing Butterfly Sign Structure No. 1 (73.5 NSI/NSO)	L.S.	1	-----	--		
102	4F34RES	Remove Existing Butterfly Sign Structure No. 2 (76.0 NSI/NSO)	L.S.	1	-----	--		
103	4F01RBS	Remove Existing Bridge Mounted Sign Structure No. 1 (73.4 SNO)	L.S.	1	-----	--		
104	4F02RBS	Remove Existing Bridge Mounted Sign Structure No. 2 (73.9 NSI)	L.S.	1	-----	--		
105	4ZN0037	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 1 (72.08NO)	L.S.	1	-----	--		
106	4ZN0038	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 2 (72.08NI)	L.S.	1	-----	--		
107	4ZN0039	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 3 (73.20SI)	L.S.	1	-----	--		
108	4ZN0040	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 4 (73.21SO)	L.S.	1	-----	--		
109	4ZN0097	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 5 (76.82SI)	L.S.	1	-----	--		
110	4ZN0136	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 6 (76.82SO)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
111	4ZN0137	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 7 (82.33SI)	L.S.	1	-----	--		
112	4ZN0138	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 8 (82.34SO)	L.S.	1	-----	--		
113	4F25IOS	Install Overhead Span Sign Structure No. 1 (73.39NO)	L.S.	1	-----	--		
114	4F26IOS	Install Overhead Span Sign Structure No. 2 (75.16N)	L.S.	1	-----	--		
115	4F27IOS	Install Overhead Span Sign Structure No. 3 (75.27S)	L.S.	1	-----	--		
116	4F28IOS	Install Overhead Span Sign Structure No. 4 (74.33N)	L.S.	1	-----	--		
117	4F29IOS	Install Overhead Span Sign Structure No. 5 (76.11SI)	L.S.	1	-----	--		
118	4F30IOS	Install Overhead Span Sign Structure No. 6 (76.11SO)	L.S.	1	-----	--		
119	4ZN0100	Install Overhead Hybrid Changeable Message Sign Support Structure No. 1 (71.48)	L.S.	1	-----	--		
120	4ZN0118	Install Overhead Hybrid Changeable Message Sign Support Structure No. 2 (73.89C)	L.S.	1	-----	--		
121	4ZN0119	Install Overhead Hybrid Changeable Message Sign Support Structure No. 3 (73.89D)	L.S.	1	-----	--		
122	4ZN0171	Install Overhead Hybrid Changeable Message Sign Support Structure No. 4 (73.89E)	L.S.	1	-----	--		
123	4ZN0172	Install Overhead Hybrid Changeable Message Sign Support Structure No. 5 (78.88)	L.S.	1	-----	--		
124	4F20IOS	Install Overhead Cantilever Sign Structure No. 1 (72.46SO)	L.S.	1	-----	--		
125	4F21IOS	Install Overhead Cantilever Sign Structure No. 2 (72.50SI)	L.S.	1	-----	--		
126	4F22IOS	Install Overhead Cantilever Sign Structure No. 3 (72.57NI)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
127	4F23IOS	Install Overhead Cantilever Sign Structure No. 4 (72.64SO)	L.S.	1	-----	--		
128	4F24IOS	Install Overhead Cantilever Sign Structure No. 5 (72.66NO)	L.S.	1	-----	--		
129	4F38IOS	Install Overhead Cantilever Sign Structure No. 6 (72.69SI)	L.S.	1	-----	--		
130	4F31IOS	Install Overhead Cantilever Sign Structure No. 7 (73.44SO)	L.S.	1	-----	--		
131	4F32IOS	Install Overhead Cantilever Sign Structure No. 8 (73.44SI)	L.S.	1	-----	--		
132	4F15IOS	Install Overhead Butterfly Sign Structure No. 1 (71.45N)	L.S.	1	-----	--		
133	4F16IOS	Install Overhead Butterfly Sign Structure No. 2 (72.35N)	L.S.	1	-----	--		
134	4F17IOS	Install Overhead Butterfly Sign Structure No. 3 (75.54S)	L.S.	1	-----	--		
135	4H02PEP	Plain Elastomeric Bearing Pad, 12" x 16"	Each	32				
136	4J01DAW	Dampproofing	S.Y.	485				
137	4J02DAW	Waterproofing	S.Y.	515				
138	4M00001	Articulated Concrete Block Mattress	S.Y.	1,994				
139	4M00002	Articulated Concrete Block Spillway Lining	S.Y.	1,099				
140	4O01TSP	Temporary Sheeting	S.F.	6,160				
141	4O02TSP	Temporary Sheeting to Remain in Place	S.F.	10,300				
142	4P01PSS	Permanent Steel Sheeting, Type PZ27	S.F.	26,245				
143	4P15PCS	Protective Coating	S.F.	13,740				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
144	4R25BSR	Substructure Membrane Waterproofing	S.F.	3,361				
145	4ZA01NBP	Ground Mounted Noise Barrier Panel, Type A	S.F.	91,120				
146	4ZA06NBP	Ground Mounted Noise Barrier Panel, Type B	S.F.	490				
147	4ZA07NBP	Ground Mounted Noise Barrier Panel, Type C	S.F.	4,460				
148	4ZA00GMP	Ground Mounted Post, Type A	L.F.	5,650				
149	4ZA01GMP	Ground Mounted Post, Type B	L.F.	2,218				
150	4ZA02GMP	Ground Mounted Post, Type C	L.F.	224				
151	4ZA00NBF	Noise Barrier Foundation	L.F.	6,228				
152	4ZA10NBS	Concrete Penetrating Stain	S.F.	96,070				
153	4ZA42CRA	Additional Crushed Stone	C.Y.	145				
154	4ZF0001	MSE Abutment Wall No. 1	S.F.	540				
155	4ZF0024	MSE Abutment Wall No. 2	S.F.	630				
156	4ZF0030	MSE Abutment Wall No. 3	S.F.	1,055				
157	4ZF0025	MSE Abutment Wall No. 4	S.F.	730				
158	4ZG02RET	Retaining Wall, Location No. 2 (803-2)	S.F.	910				
159	4ZG03RET	Retaining Wall, Location No. 3 (803-3)	S.F.	1,005				
160	4ZG04RET	Retaining Wall, Location No. 4 (803-4)	S.F.	23,960				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
161	4ZG05RET	Retaining Wall, Location No. 5 (803-5)	S.F.	1,925				
162	4ZG06RET	Retaining Wall, Location No. 6 (803-6)	S.F.	5,780				
163	4ZG17RET	Retaining Wall, Location No. 7 (803-7)	S.F.	4,935				
164	4ZG08RET	Retaining Wall, Location No. 8 (803-8)	S.F.	16,650				
165	4ZG09RET	Retaining Wall, Location No. 9 (803-9)	S.F.	16,200				
166	4ZG10RET	Retaining Wall, Location No. 10 (803-10)	S.F.	3,215				
167	4ZG11RET	Retaining Wall, Location No. 11 (803-11)	S.F.	2,190				
168	4ZG12RET	Retaining Wall, Location No. 12 (803-12)	S.F.	1,155				
169	4ZG13RET	Retaining Wall, Location No. 13 (803-13)	S.F.	5,980				
170	4ZG14RET	Retaining Wall, Location No. 14 (803-14)	S.F.	580				
171	4ZG15RET	Retaining Wall, Location No. 15 (803-15)	S.F.	1,280				
172	4ZG16RET	Retaining Wall, Location No. 16 (803-16)	S.F.	9,360				
173	4ZG17ARE T	Retaining Wall, Location No. 17 (803-17)	S.F.	7,140				
174	4ZG18RET	Retaining Wall, Location No. 18 (803-18)	S.F.	6,375				
175	4ZG19RET	Retaining Wall, Location No. 19 (803-19)	S.F.	445				
176	4ZG20RET	Retaining Wall, Location No. 20 (803-20)	S.F.	490				
177	4ZG21RET	Retaining Wall, Location No. 21 (803-21)	S.F.	125				

Proposal - 12 Firm Name of Bidder _____

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	190				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,309				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	822				
186	5A00016	10" Outlet Pipe	L.F.	112				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,569				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
195	5B00056	19" X 30" Reinforced Concrete Elliptical Flared End Sections	Each	1				
196	5B00044	19" X 30" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
197	5B00060	22" X 34" Reinforced Concrete Elliptical Pipe	L.F.	106				
198	5B00019	24" X 38" Reinforced Concrete Elliptical Pipe	L.F.	3,801				
199	5B00055	24" X 38" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
200	5B00042	29" X 45" Reinforced Concrete Elliptical Pipe	L.F.	549				
201	5B00057	29" X 45" Reinforced Concrete Elliptical Flared End Sections	Each	1				
202	5B00020	34" X 53" Reinforced Concrete Elliptical Pipe	L.F.	3,756				
203	5B00021	43" X 68" Reinforced Concrete Elliptical Pipe	L.F.	367				
204	5B00061	43" X 68" Reinforced Concrete Elliptical Flared End Sections	Each	1				
205	5B01CSD	Cleaning Existing Storm Drains	L.F.	5,000				
206	5B15RC3	15" Reinforced Concrete Pipe	L.F.	18,566				
207	5B15RC5	15" Reinforced Concrete Pipe, Class V	L.F.	100				
208	5B15RCE	15" Reinforced Concrete Flared End Sections	Each	18				
209	5B18RC3	18" Reinforced Concrete Pipe	L.F.	8,263				
210	5B18RC5	18" Reinforced Concrete Pipe, Class V	L.F.	100				
211	5B18RCE	18" Reinforced Concrete Flared End Sections	Each	6				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
212	5B24RC3	24" Reinforced Concrete Pipe	L.F.	11,719				
213	5B24RCE	24" Reinforced Concrete Flared End Sections	Each	9				
214	5B30RC3	30" Reinforced Concrete Pipe, Class III	L.F.	8,350				
215	5B30RCS	30" Reinforced Concrete Pipe, Class V	L.F.	266				
216	5B30RCE	30" Reinforced Concrete Flared End Sections	Each	4				
217	5B36RC3	36" Reinforced Concrete Pipe, Class III	L.F.	6,969				
218	5B00001	36" Reinforced Concrete Flared End Sections	Each	3				
219	5B42RC3	42" Reinforced Concrete Pipe	L.F.	2,841				
220	5B42FCE	42" Reinforced Concrete Flared End Sections	Each	5				
221	5B48RC3	48" Reinforced Concrete Pipe, Class III	L.F.	56				
222	5B48FCE	48" Reinforced Concrete Flared End Sections	Each	2				
223	5C01ND1	Inlet, Type D1	Each	121				
224	5C01ND2	Inlet, Type D2	Each	114				
225	5C01ND3	Inlet, Type D3	Each	6				
226	5C01ND4	Inlet, Type D4	Each	58				
227	5C00007	Inlet, Type Double D1	Each	3				
228	5C00052	Inlet, Type Double D1 Modified #1	Each	14				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
229	5C02ND3	Inlet, Type Double D3	Each	1				
230	5C00038	Inlets, Type E-1	Each	55				
231	5C01NE2	Inlets, Type E-2	Each	34				
232	5C10INT	Inlet Converted to Manhole	Each	4				
233	5C20NP1	Manhole, Type P-1	Each	95				
234	5C20NP2	Manhole, Type P-2	Each	20				
235	5C00047	Manhole, Type P-3	Each	29				
236	5C10ND1	Reconstructed Inlet, Type D1, Using New Grate and Frame	Each	10				
237	5C10ND2	Reconstructed Inlet, Type D2, Using New Grate and Frame	Each	10				
238	5C10ND3	Reconstructed Inlet, Type D3, Using New Grate and Frame	Each	5				
239	5C05ND1	New Inlet Frame and Grate, Type D-1	Each	101				
240	5C05ND2	New Inlet Frame and Grate, Type D-2	Each	76				
241	5C05ND3	New Inlet Frame and Grate, Type D-3	Each	7				
242	5C40RSF	Reset Frame	Each	10				
243	5C00023	Flow Control Structure	Each	30				
244	5C00027	Drainage Chamber	Each	1				
245	5C01NOS	Outlet Structure	Each	9				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
246	5C00064	Offset Inlet	Each	1				
247	5C01HDF	Heavy Duty Frame with Bolted Grates for D-1 Inlets	Each	6				
248	5C02HDF	Heavy Duty Frame with Bolted Grates for D-2 Inlets	Each	4				
249	5C03HDF	Heavy Duty Filled In Grate	Each	30				
250	5D10INC	Incidental Concrete	C.Y.	24				
251	5E01ALC	Asphalt Concrete Lip Curb	L.F.	33,228				
252	5E02ALC	Asphalt Concrete Lip Curb Inlet	Each	4				
253	5F00002	Concrete Island, 4" Thick	S.Y.	947				
254	5F01VCA	Concrete Curb, Type A	L.F.	4,295				
255	5H00004	VMS Equipment Median	Each	4				
256	5H01CMB	Concrete Median Barrier, Roadway	L.F.	12,129				
257	5H03CMB	Concrete Median Barrier, Protection	L.F.	3,388				
258	5H01REC	Barrier Reconstruction, Type 1	Each	4				
259	5H02REC	Barrier Reconstruction, Type 2	Each	3				
260	5H03REC	Barrier Reconstruction, Type 3	Each	10				
261	5H00006	Existing Median Removal and Reconstruction (Ramp SOT)	L.S.	1	-----	--		
262	5I01SNP	Sign Panels	S.F.	6,066				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
263	5I05SPP	U-channel Post	L.F.	2,700				
264	5I11REM	Remove Signs	Each	8				
265	5I16REL	Relocate Sign Panels	Each	11				
266	5J52BGR	Beam Guide Rail	L.F.	92,320				
267	5J52BGD	Beam Guide Rail, Dual-Faced	L.F.	17,743				
268	5J52ABG	Beam Guide Rail Anchorage	Each	44				
269	5J01PCA	Parapet Connection, Type A	Each	42				
270	5J01PCB	Parapet Connection, Type B	Each	44				
271	5J52BET	Beam Guide Rail Buried End Terminal	Each	1				
272	5J00FGT	Flared Guide Rail Terminal	Each	32				
273	5J51TTS	Tangent Guide Rail Terminal	Each	4				
274	5J01RPW	Beam Guide Rail Post Weldment	Each	81				
275	5J01RBG	Removal of Beam Guide Rail	L.F.	47,280				
276	5J53RRS	Rub Rail	L.F.	915				
277	5K00001	Chain Link Fence, Type II, 84" High	L.F.	21,843				
278	5K00002	Vehicular Gate, Type II, 84" High, 12' Wide	Each	6				
279	5K00004	Vehicular Gate, Type II, 84" High, 24' Wide	Each	1				

Proposal - 18 Firm Name of Bidder _____

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
280	5K00017	Reset Fence	L.F.	436				
281	5K00022	Fence Screening Slats	L.F.	805				
282	5L01MON	Concrete Monuments	Each	6				
283	5O01CAR	Delineator, Type CA-R	Each	2				
284	5O01CAW	Delineator, Type CA-W	Each	95				
285	5O01CAY	Delineator, Type CA-Y	Each	123				
286	5O01PAW	Delineator, Type PA-W	Each	350				
287	5O01PAY	Delineator, Type PA-Y	Each	108				
288	5P01CMT	Preformed Contrast Marking Tape	L.F.	1,600				
289	5P01DMG	Diamond Grinding	L.F.	1,600				
290	5P10TMP	Temporary Pavement Striping	L.F.	251,096				
291	5P31LLM	Traffic Markings, Lines, Long Life, Thermoplastic	L.F.	356,540				
292	5V01PIT	Test Pits	Each	40				
293	5X00002	Quadguard Impact Attenuator, 9 Bays, 24" Wide	Each	5				
294	5X00009	Quadguard Impact Attenuator, 9 Bays, 69" Wide	Each	2				
295	5X00014	Quadguard Impact Attenuator, 2 Bays, 36" Wide	Each	1				
296	5X00017	Quadguard Impact Attenuator, 2 Bays, 24" Wide	Each	1				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
297	5X01FTA	Furnishing Temporary Impact Attenuator, Quadguard, 6 Bays, 24" Wide	Each	3				
298	5X02FTA	Furnishing Temporary Impact Attenuator, Quadguard, 9 Bays, 24" Wide	Each	14				
299	5X00PRA	Placing and Removing Temporary Impact Attenuator, Quadguard	Each	23				
300	5X00RPR	Repair Temporary Impact Attenuator, Quadguard	Each	8				
301	5Y01MMC	Mile Marker, Type MC	Each	6				
302	5Y01MMP	Mile Marker, Type MP	Each	13				
303	5Y01MRC	Mile Marker, Type RC	Each	29				
304	5Y01MRP	Mile Marker, Type RP	Each	191				
305	5ZD01RPM	Raised Pavement Markers	Each	480				
306	5ZM05FAS	Force Account for Snow Removal (This is a NO-BID, Cost-Plus item for this contract. The Cost-Plus price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
307	5ZG08PJ	24" Steel Pipe Jacking	L.F.	120				
308	5ZG13PJ	36" Steel Pipe Jacking	L.F.	132				
309	5ZL0022	Manufactured Treatment Devices, Type 1	Each	30				
310	5ZO0018	Off-Site Disposal of ID-27 Waste	Ton	66,000				
311	5ZO0019	Environmental Health and Safety Plan	L.S.	1	-----	--		
312	5ZO0066	Transite Duct Removal	L.F.	859				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
313	6A00006	#4/0 A.W.G. Multiple Lighting Cable	L.F.	56,483				
314	6A00008	Concrete Foundations for Transformer	Each	13				
315	6A00019	Junction Box, Type 24"x24"x8", NEMA 4X, Stainless Steel, For Outdoor Use	Each	2				
316	6A00029	4" Rigid Non-Metallic Conduit, PVC - Schedule 80	L.F.	1,549				
317	6A00043	1.5" Rigid Metallic Conduit, Underground	L.F.	80				
318	6A00073	#3/0 A.W.G. Service Cable (600V)	L.F.	624				
319	6A01RMS	1" Rigid Metallic Conduit On Structure	L.F.	73				
320	6A02GWR	#2 A.W.G. Ground Wire	L.F.	167				
321	6A02MLC	#2 A.W.G. Multiple Lighting Cable	L.F.	91,833				
322	6A02RNM	2" Rigid Nonmetallic Conduit, PVC-Schedule 80	L.F.	20				
323	6A03GPC	#300 A.W.G. Power Cable	L.F.	61,662				
324	6A03RMS	3" Rigid Metallic Conduit, on Structures	L.F.	16,903				
325	6A03RMU	3" Rigid Metallic Conduit, Underground	L.F.	1,356				
326	6A03RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 40)	L.F.	30,374				
327	6A04MLC	#4 A.W.G. Multiple Lighting Cable	L.F.	396				
328	6A05RMS	1-1/2" Rigid Metallic Conduit on Structures	L.F.	145				
329	6A06GWR	#6 A.W.G. Ground Wire	L.F.	5,285				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
330	6A06MLC	#6 A.W.G. Multiple Lighting Cable	L.F.	2,185				
331	6A08GWR	#8 A.W.G. Ground Wire	L.F.	54,100				
332	6A09MLC	#3/0 A.W.G. Multiple Lighting Cable	L.F.	13,722				
333	6A10FMC	Concrete Foundation For Meter Cabinet	Each	8				
334	6A10MLC	#1/0 A.W.G. Multiple Lighting Cable	L.F.	16,390				
335	6A10RLM	Lighting Manhole	Each	1				
336	6A13RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 80)	L.F.	8,578				
337	6A20MLC	2 / 0 A.W.G. Multiple Lighting Cable	L.F.	1,068				
338	6A21JF1	Junction Box Foundation, Type 1	Each	61				
339	6A24JBC	Junction Box, Type C	Each	185				
340	6A25JBD	Junction Box, Type D	Each	37				
341	6A25JPS	Junction Box, Type PS	Each	36				
342	6A65RAS	Remove and Salvage Existing Facilities	L.S.	1	-----	--		
343	6B00002	Luminaire, Type A, 150W HPS	Each	13				
344	6B00004	Underbridge Lighting Fixture	Each	4				
345	6B00011	Lighting Standard Base, Type 1	Each	1				
346	6B00013	Lighting Standard, Type L-MG-26-SB	Each	1				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
347	6B00017	Type C Luminaire, 250W HPS	Each	22				
348	6B00018	Lighting Standard, Type 2	Each	1				
349	6B00028	Meter Cabinet, Type F, Voltage 277/480V	Each	4				
350	6B00030	Meter Cabinet, Type G, Voltage 120/240V	Each	4				
351	6B00066	Temporary Lighting Systems	L.S.	1	-----	--		
352	6B06RWL	Relocate Junction Box Foundation Type JBF	Each	25				
353	6B07RWL	Relocate Lighting Standard	Each	25				
354	6B15TP2	Type P2 Luminaire, 150W	Each	76				
355	6B25TP2	Type P2 Luminaire, 250W	Each	6				
356	6B25TP3	Type P3 Luminaire, 250W	Each	30				
357	6B15LMGS	Lighting Standard, Type L-MG-40-SB	Each	32				
358	6B26LMG	Lighting Standard, Type L-MG-26	Each	2				
359	6B45LMG	Lighting Standard, Type L-MG-40	Each	69				
360	6E06ESR	Removal of Emergency Speed Warning and Speed Limit Sign System, Bridge Mounted	Each	10				
361	N6I0001	Toll Plaza Electrical Work	L.S.	1	-----	--		
362	6H090SMI	System Manufacturer Installation and Testing (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$90,000. Enter a Unit Price of \$90,000 as your bid for this item.)	L.S.	1	-----	--	90,000	00

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
363	6J00017	Variable Message Sign Installation	Each	8				
364	6J00018	Variable Speed Limit Sign Installation	Each	8				
365	6J00020	System Control Cabinet Installation	Each	13				
366	6J00023	Transformer, Type 37.5kVA	Each	13				
367	6J00024	CCTV Camera, ITSS Mounted	Each	6				
368	6J00029	4-Way Power/Comm Duct Bank, Soil Encased	L.F.	8,490				
369	6J00030	4-Way Power/Comm Duct Bank, Concrete Encased	L.F.	21,080				
370	6J00049	4-Way Duct Bank, 4" HDPE Conduits Directional Drilled	L.F.	1,820				
371	6J00067	Lighting Standard, Type L-ITS-40	Each	2				
372	6J00068	ITS Power Equipment, Pedestal Mounted	Each	7				
373	6J00071	ITS Equipment Platform, Type 2	Each	4				
374	6J00073	ITS Equipment Platform, Type 4	Each	4				
375	6J00076	Radio Antenna Mount	Each	13				
376	6J00100	Hybrid Changeable Message Sign Installation	Each	9				
377	6J00112	End Node Radio Installation	Each	13				
378	6J00150	End Node Radio Relocation	Each	6				
379	6K01MPT	Install VMS MPT Location No. 1 (72.35N)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
380	6K02MPT	Install VMS MPT Location No. 2 (74.33N)	L.S.	1	-----	--		
381	6K03MPT	Install VMS MPT Location No. 3 (75.16N)	L.S.	1	-----	--		
382	6K00009	Remove and Salvage MPT VMS	L.S.	1	-----	--		
383	6J00165	Furnish Lane Use Signals	Each	8				
384	7C01TOP	Topsoil	S.Y.	160,326				
385	7D01SED	Seeding, Type A	S.Y.	85,726				
386	7D08SED	Seeding, Type L	S.Y.	74,600				
387	7D20MOW	Mowing	Acre	22				
388	7D30WAT	Watering	M.G.	1,799				
389	7F01SSM	Soil Stabilization Matting	S.Y.	74,600				
390	8A06MPT	Repair Temporary Impact Attenuators	Barrel	20				
391	8A07MPT	Repair Truck Mounted Impact Attenuators	Each	7				
392	8A30MPT	Furnishing Portable Variable Message Sign	Each	6				
393	N8A0001	Furnishing Precast Concrete Construction Barrier	L.F.	92,671				
394	N8A0002	Placing and Removing Precast Concrete Construction Barrier	L.F.	110,660				
395	N8A0003	Resetting Precast Concrete Construction Barrier	L.F.	50,474				
396	8B18MPT	Furnishing Temporary Impact Attenuator	Each	8				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
397	8B20MPT	Placing and Removing Temporary Impact Attenuator	Each	21				
398	8B00004	Placing and Removing Portable Variable Message Sign	Each	16				
399	8B15MPT	Traffic Protection Patrol	M.H.	20,880				
400	8B17MPT	Furnishing Truck with Mounted Attenuator	Each	8				
401	8B31MPT	Maintenance and Protection of Traffic	L.S.	1	-----	--		
TOTAL PRICE								

PREQUALIFICATION RECAPITULATION

The undersigned hereby affirms that our firm is prequalified by the New Jersey Turnpike Authority in the classification of _____ and rating of _____ and there has been no material change in our prequalification subsequent to the latest contractor's Qualifying Statement _____ (dated) as required by the Procedure for Prequalification and Award on New Jersey Turnpike Authority Construction Contracts.

DISCLOSURE STATEMENT

The undersigned firm name of Bidder, in compliance with Public Law 1977, Chapter 33, does hereby state and declare the following list of stockholders or partners in this corporation or partnership, as the case may be, with 10 percent or greater interest therein.

<u>Name</u>	<u>Address</u>	<u>Number of Shares of Stock, Corporation or % of Interest in Partnership</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

NON-COLLUSION AFFIDAVIT

The undersigned being duly sworn according to law on my oath depose and say that I am the bidder making this Proposal for the above named project, and that I execute this Proposal with full authority so to do; that said bidder has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in this Proposal and in this affidavit are true and correct, and made with full knowledge that the New Jersey Turnpike Authority relies upon the truth of the statements contained herein and in any statements requested by the Authority showing evidence of qualifications in awarding the contract for said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by our firm.

	Name of Contractor

	Affiant's Name
Subscribed and sworn to before me	_____
	Affiant's Signature
This _____ day of _____, 20_____.	_____
	Affiant's Title

Notary Public of the State of _____
My commission expires _____, 20_____.

ADDENDA

Acknowledgment is hereby made of the following Addenda:

Accompanying this Proposal is a Proposal Guaranty providing for an amount of money which the undersigned agrees to pay as liquidated damages, and not as a penalty, if the Contract is awarded to the undersigned and the undersigned shall fail to execute and deliver the Contract and the Contract Bond and furnish satisfactory evidence of all required insurance coverage, all within the stipulated time; otherwise, the Proposal Guaranty will be void or returned to the Bidder. It is agreed that the New Jersey Turnpike Authority may collect such damages in the full amount of money provided for in the Proposal Guaranty.

an Individual)
The undersigned is a Partnership) under the laws of the
a Corporation)

State of _____ having principal

Office at _____

(Corporate Seal)

(Signature) _____

Witness or Attest

(Address) _____

(Date) _____, 20____

NEW JERSEY TURNPIKE AUTHORITY

PROPOSAL BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as PRINCIPAL: and

_____ as Surety and duly
qualified to transact business in the State of New Jersey, are hereby held and firmly bound unto the New
Jersey Turnpike Authority in the sum of

_____ Dollars and

_____ Cents (\$_____) for the payment
of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors,
administrators, successors and assigns.

Signed, this _____ day of _____ A.D.

two thousand and _____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the Principal has
submitted to the New Jersey Turnpike Authority a certain Proposal, attached hereto and hereby made a
part hereof, to enter into a Contract in writing for Contract No. _____ of the New Jersey
Turnpike Authority;

NOW, THEREFORE,

- (a) If said Proposal shall be rejected by the New Jersey Turnpike Authority, or in the alternative,
- (b) If said Proposal shall be accepted by the New Jersey Turnpike Authority, and the Principal shall duly execute the Contract Agreement and furnish the required Contract Bond, within the stipulated time,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Authority may accept such proposal; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

[Corporate Seal]

WITNESS OR ATTEST

Principal

[Corporate Seal]

WITNESS OR ATTEST:

Surety

NEW JERSEY TURNPIKE AUTHORITY

LETTER OF SURETY

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as PRINCIPAL: and

_____ as Surety and duly qualified to transact business in the State of New Jersey, are hereby held and firmly bound unto the New Jersey Turnpike Authority in the sum by which the amount of the Contract, covering the attached proposal, properly and lawfully executed by and between the New Jersey Turnpike Authority and some third party, may exceed the amount bid by the Principal for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this _____ day of _____ A.D.

two thousand and _____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the Principal has submitted to the New Jersey Turnpike Authority a certain Proposal, attached hereto and hereby made a part hereof, to enter into a Contract in writing for Contract No. _____ of the New Jersey Turnpike Authority;

NOW, THEREFORE,

- (a) If said Proposal shall be rejected by the New Jersey Turnpike Authority, or in the alternative,
- (b) If said Proposal shall be accepted by the New Jersey Turnpike Authority, and the Principal shall duly execute the Contract Agreement and furnish the required Contract Bond, within the stipulated time,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Authority may accept such Proposal; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

[Corporate Seal]

WITNESS OR ATTEST:

Principal

[Corporate Seal]

WITNESS OR ATTEST:

Surety

CONTRACT NO. T869.120.803

NEW JERSEY TURNPIKE AUTHORITY

CONTRACT NO. T869.120.803

**INTERCHANGE 6 TO 9 WIDENING
PROGRAM
NSO/NSI/SNI/SNO ROADWAYS AND
SERVICE AREA 7S RAMPS
GRADING, DRAINAGE, PAVING,
STRUCTURES & LIGHTING
MILEPOST 70.6 TO 82.6**

January 2012

Prepared by:

Jacobs Engineering Group

NEW JERSEY TURNPIKE AUTHORITY

James SimpsonChairman
Ronald Gravino.....Vice Chairman
Michael DupontTreasurer
Harold Hodes..... Commissioner
Raymond Pocino..... Commissioner
Ulises E. Diaz..... Commissioner
Daniel F. Becht Commissioner
Veronique Hakim Executive Director
Gage Andretta..... General Counsel
Richard J. Raczynski, P.E.Chief Engineer

CONTRACT NO. T869.120.803

**INTERCHANGE 6 TO 9 WIDENING
PROGRAM
NSO/NSI/SNI/SNO ROADWAYS AND
SERVICE AREA 7S RAMPS
GRADING, DRAINAGE, PAVING,
STRUCTURES & LIGHTING
MILEPOST 70.6 TO 82.6**

January 2012

**HNTB Corporation
General Consultants**

NEW JERSEY TURNPIKE AUTHORITY

**NEW JERSEY TURNPIKE
Contract No. T869.120.803
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6**

TABLE OF CONTENTS

Table Of Contents 1
Advertisement For Proposals 1
Proposal 1
Proposal Bond 1
Letter Of Surety..... 1
Contract Agreement 1
Contract Bond..... 1
Power Of Execution..... 1
Standard Specifications..... 1
Supplementary Specifications 1
Division 100 - General Provisions 2
 SECTION 101 - GENERAL INFORMATION..... 2
 101.02 Definitions..... 2
 SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS 4
 102.03 Proposals 4
 102.04 Familiarity With Work..... 4
 102.05 Examination Of Contract Documents 5
 102.09 Submitting Proposals 6
 102.11 Causes For Rejection 6
 102.16 Business Registration Act..... 6
 102.17 Public Law 2005, Chapter 51 and (Executive Order 134) and Executive Order 117..... 7
 SECTION 103 - AWARD AND EXECUTION OF CONTRACT 7
 103.04 Subletting And Assigning Contract 7
 SECTION 104 - CONTROL OF WORK..... 8
 104.01 Intent Of Contract 8
 104.04 Change Of Plans And Specifications 8
 104.06 Contractor's Organization 8
 104.07 Cooperation By Contractor 9
 104.08 Shop And Working Drawings..... 10
 104.09 Construction Layout 10
 104.13 Sanitary, Health And Safety Provisions 11
 104.14 Construction Safety..... 12
 104.15 Protection Of Wetlands And Transition Areas During Construction 13
 104.20 Environmental Health and Safety..... 14

104.21	<i>Diesel Equipment Operation</i>	21
SECTION 105 - CONTROL OF MATERIALS		21
105.01	<i>Materials</i>	21
105.02	<i>Local Material Sources</i>	22
105.07	<i>Storage Of Materials And Staging Areas</i>	22
105.14	<i>Material Handling Plan</i>	23
105.15	<i>Timber Grading and Certification</i>	24
SECTION 106 - LEGAL RELATIONS AND RESPONSIBILITY		25
106.02	<i>Laws And Ordinances</i>	25
106.10	<i>Permits, Licenses And Taxes</i>	25
106.11	<i>Measurement</i>	27
106.18	<i>Utilities</i>	27
106.20	<i>Insurance</i>	40
106.24	<i>Small Business Enterprise Program</i>	56
106.25	<i>Warranties Made By Contractor</i>	56
SECTION 107 - PROSECUTION AND PROGRESS.....		57
107.04	<i>Progress Schedule</i>	57
107.11	<i>Standard and Reference Drawings</i>	63
107.12	<i>Lane Occupancy Charges</i>	63
107.13	<i>Right of Way Information</i>	64
SECTION 108 - MEASUREMENT AND PAYMENT		65
108.03	<i>Partial Payments</i>	65
108.08	<i>Fuel Price Adjustment</i>	66
Division 200 - Earthwork		68
SECTION 201 - CLEARING AND GRUBBING		68
201.01	<i>Description</i>	68
201.04	<i>Measurement</i>	68
SECTION 202 - ROADWAY EXCAVATION		68
202.01	<i>Description</i>	68
202.03	<i>Methods of Construction</i>	68
202.04	<i>Measurement</i>	70
202.05	<i>Payment</i>	70
SECTION 203 - EMBANKMENT.....		71
203.01	<i>Description</i>	71
203.02	<i>Materials</i>	71
203.03	<i>Methods of Construction</i>	71
203.04	<i>Measurement</i>	72
203.05	<i>Payment</i>	72
SECTION 205 - FOUNDATION EXCAVATION		72
205.01	<i>Description</i>	72
205.03	<i>Methods of Construction</i>	72
205.04	<i>Measurement</i>	73
205.05	<i>Payment</i>	73
SECTION 206 - TRENCH EXCAVATION		73
206.03	<i>Methods of Construction</i>	73
206.05	<i>Payment</i>	73
SECTION 208 - TEMPORARY SOIL EROSION AND DUST CONTROL.....		73
208.02	<i>Materials</i>	74
208.03	<i>Methods of Construction</i>	74
208.04	<i>Measurement</i>	77
208.05	<i>Payment</i>	77

SECTION 210 – DEMOLITION OF EXISTING STRUCTURES.....	77
210.01 Description.....	77
210.02 Methods of Construction.....	78
210.03 Disposal of Debris.....	78
210.05 Payment.....	78
SECTION 212 – TURF REINFORCEMENT MATTING.....	79
212.01 Description.....	79
212.02 Materials.....	79
212.03 Methods of Construction.....	79
212.04 Measurement.....	79
212.05 Payment.....	79
SECTION 213 – ACID PRODUCING SOILS.....	79
213.01 Description.....	79
213.02 Methods of Construction.....	80
213.03 Measurement.....	86
213.04 Payment.....	86
SECTION 214 – NON-HAZARDOUS MATERIAL HANDLING.....	87
214.01 Description.....	87
214.02 Additional Requirements.....	87
214.03 Execution.....	89
214.04 Measurement.....	92
214.05 Payment.....	92
SECTION 215 – PROTECTION OF WETLANDS AND TRANSITION AREAS.....	93
215.01 Description.....	93
215.02 Utility Line Installation within wetlands.....	96
SECTION 216 – PROTECTION OF THREATENED & ENDANGERED SPECIES.....	97
216.01 Protection of Threatened and Endangered Species Habitat.....	97
216.02 Payment.....	98
SECTION 217 – GEOTECHNICAL INSTRUMENTATION AND MONITORING.....	99
217.01 Description.....	99
217.02 Responsibilities.....	99
217.03 Instruments.....	99
217.04 Instrument Monitoring.....	100
217.05 Quality Assurance.....	100
217.06 Submittals.....	101
217.07 Job Conditions.....	102
217.08 Materials.....	102
217.09 Construction Requirements.....	103
217.10 Measurement.....	104
217.11 Payment.....	105
Division 300 – Pavement.....	106
SECTION 302 – HOT MIX ASPHALT [HMA] PAVEMENTS.....	106
302.02 Materials.....	106
302.03 Contractor's Quality Control.....	106
302.04 Asphalt Plant and Equipment.....	106
302.05 Methods Of Construction.....	107
302.07 Air Voids Acceptance Plan.....	108
302.09 Measurement.....	108
302.10 Payment.....	108
SECTION 303 – SHOULDER AND BERM SURFACING.....	109
303.01 Description.....	109
303.02 Materials.....	109

303.03	<i>Methods of Construction</i>	109
303.04	<i>Measurement</i>	109
303.05	<i>Payment</i>	109
Division 400 - Structures		110
SECTION 401 - CONCRETE STRUCTURES		110
401.12	<i>Machine Finishing of Bridge Deck</i>	110
401.16	<i>Test Specimens</i>	116
401.17	<i>Surface Finish</i>	116
401.18	<i>Curing</i>	117
401.19	<i>Protective Coatings for Concrete Surfaces</i>	117
401.23	<i>Measurement</i>	119
401.24	<i>Payment</i>	119
SECTION 403 - STEEL STRUCTURES		120
403.01	<i>Description</i>	120
403.02	<i>Materials</i>	120
403.03	<i>Inspection and Testing</i>	120
403.05	<i>Workmanship and Finish</i>	125
403.08	<i>Shipping, Handling and Erection</i>	125
403.09	<i>Setting Anchor Bolts and Expansion Bearings</i>	125
403.18	<i>Measurement</i>	125
403.19	<i>Payment</i>	126
SECTION 406 - SIGN SUPPORT STRUCTURES		127
406.01	<i>Description</i>	127
406.04	<i>Fabrication</i>	127
406.05	<i>Erection Of Sign Support Systems</i>	128
406.07	<i>Measurement</i>	131
406.08	<i>Payment</i>	131
SECTION 408 - ELASTOMERIC BEARING PADS		131
408.03	<i>Methods Of Construction</i>	131
408.04	<i>Installation</i>	133
408.05	<i>Measurement</i>	133
408.06	<i>Payment</i>	133
SECTION 411 - PAINTING AND REPAINTING STEEL STRUCTURES		134
411.01	<i>Description</i>	134
411.03	<i>Thickness of Paint</i>	134
411.04	<i>General Precautions</i>	135
411.05	<i>Cleaning and Painting Steel Structures</i>	135
411.06	<i>Cleaning and Painting of New Weathering Steel</i>	136
SECTION 413 - UNDERBRIDGE SLOPE PROTECTION		136
413.01	<i>Description</i>	136
413.02	<i>Materials</i>	136
413.03	<i>Preparation Of Slopes</i>	137
413.04	<i>Preparation Of Slopes Or Channels</i>	137
413.07	<i>Measurement</i>	139
413.08	<i>Payment</i>	139
SECTION 416 - PERMANENT SHEETING		139
416.04	<i>Protective Coating of Steel Sheeting</i>	139
SECTION 417 - BRIDGE DECK REHABILITATION		139
417.04	<i>Concrete Deck Rehabilitation</i>	139
417.09	<i>Installation of Fascia Catch/Deck Support Systems</i>	140
417.10	<i>Measurement</i>	141

417.11	Payment	141
SECTION 418 – BRIDGE STRUCTURAL REPAIR		142
418.02	Materials	142
418.06	Substructure Waterproofing	142
418.08	Measurement.....	144
418.09	Payment	144
SECTION 426 – ANTI-GRAFFITI PROTECTIVE COATING.....		144
SECTION 427 – NOISE BARRIER INSTALLATION		144
427.01	Description	144
427.02	Materials	145
427.05	Precast Concrete Noise Barriers.....	145
427.06	Foundations.....	145
427.08	Measurement.....	146
427.09	Payment	146
SECTION 428 – MECHANICALLY STABILIZED EARTH (MSE) WALLS.....		146
428.01	Description	146
428.02	Materials	147
428.03	Methods Of Construction	152
428.04	Working Drawings.....	155
428.05	Substitutions	156
428.06	Measurement.....	157
428.07	Payment	158
SECTION 429 – PREFABRICATED MODULAR WALLS (PMW).....		158
429.01	Description	158
429.02	Materials	159
429.03	Methods Of Construction	161
429.04	Working Drawings.....	164
429.05	Substitutions	165
429.06	Measurement.....	165
429.07	Payment	166
SECTION 430 – ALTERNATE RETAINING WALL DESIGNS.....		167
430.01	Description	167
430.02	Materials and Methods of Construction	167
430.03	Working Drawings.....	167
430.04	Measurement.....	168
430.05	Payment	168
SECTION 431 – HIGH PERFORMANCE CONCRETE (HPC).....		168
431.01	Description	168
431.02	Materials	169
431.03	Mix Design and Fabrication of the HPC	170
431.04	Production of the HPC.....	172
431.05	HPC Acceptance Requirements	174
431.06	Measurement.....	175
431.07	Payment	175
SECTION 432 – OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURES		175
432.01	Description	175
432.02	Materials	176
432.03	Shop Drawings.....	176
432.04	Erection	176
432.05	Support Structure Foundations	179

432.06	Measurement.....	181
432.07	Payment	181
SECTION 433 – OVERHEAD SPAN HYBRID CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURES		182
433.01	Description.....	182
433.02	Materials	182
433.03	Shop Drawings.....	183
433.04	Erection	183
433.05	Support Structure Foundations	185
433.06	Measurement.....	187
433.07	Payment	187
SECTION 434 – DRILLED SHAFTS FOR SIGN STRUCTURE FOUNDATIONS		188
434.01	Description.....	188
434.02	Materials	188
434.03	Shop Drawings.....	188
434.04	Installation of Drilled Shafts.....	189
434.05	Crosshole Sonic Logging of Drilled Shafts	193
434.06	Measurement.....	195
434.07	Payment	195
SECTION 435 – DRILLED SHAFTS FOR BRIDGE FOUNDATIONS.....		195
435.01	Description.....	195
435.02	Materials	196
435.03	Shop Drawings.....	196
435.04	Installation of Drilled Shafts.....	197
435.05	Crosshole Sonic Logging of Drilled Shafts	201
435.06	Measurement.....	203
435.07	Payment	203
SECTION 436 – HIGH-LOAD MULTI-ROTATIONAL BEARINGS.....		204
436.01	Description.....	204
436.02	Materials	204
436.03	Qualified Manufacturers.....	205
436.04	Working Drawings.....	205
436.05	Fabrication of HLMR Bearing Assemblies.....	206
436.06	Measurement.....	208
436.09	Payment	208
Division 500 – Incidental Construction		209
SECTION 501 – UNDERDRAINS		209
501.05	Payment	209
SECTION 502 – STORM DRAINS		209
502.02	Materials	209
502.03	Methods of Construction.....	209
502.05	Payment	209
SECTION 503 – MANHOLES AND INLETS		210
503.01	Description.....	210
503.03	Methods Of Construction	210
503.04	Measurement.....	210
503.05	Payment	211
SECTION 504 – MINOR CONCRETE STRUCTURES AND INCIDENTAL CONCRETE		211
504.01	Description.....	211
504.02	Materials	211
504.03	Methods of Construction.....	212
504.04	Measurement.....	213

504.05	Payment	213
SECTION 508 - CONCRETE MEDIAN BARRIER.....		214
508.01	Description	214
508.02	Materials	214
508.03	Methods of Construction	214
508.04	Measurement.....	215
508.05	Payment	215
SECTION 509 - SIGN PANELS.....		216
509.03	Methods Of Construction	216
509.04	Measurement.....	216
509.05	Payment	216
SECTION 510 - GUIDE RAIL.....		217
510.01	Description.....	217
510.02	Materials.....	217
510.03	Methods of Construction.....	217
510.04	Measurement.....	219
510.05	Payment	219
SECTION 511 - FENCING.....		220
511.02	Materials	220
511.03	Methods of Construction.....	220
511.04	Measurement.....	220
511.05	Payment	220
SECTION 514 - SIDEWALKS.....		221
514.01	Description.....	221
514.02	Materials	221
514.03	Methods of Construction.....	221
514.04	Measurement.....	221
514.05	Payment	221
SECTION 515 - DELINEATORS.....		221
515.02	Materials.....	221
SECTION 516 - PAVEMENT STRIPES.....		222
516.01	Description.....	222
516.02	Materials	222
516.04	Methods Of Construction	222
516.05	Measurement.....	223
516.06	Payment	224
SECTION 524 - IMPACT ATTENUATOR		224
524.01	Description.....	224
524.02	Materials.....	224
524.03	Methods Of Construction.....	225
524.04	Measurement.....	225
524.05	Payment.....	225
SECTION 532 - FORCE ACCOUNT FOR SNOW REMOVAL.....		226
532.01	Description.....	226
532.02	Methods of Construction.....	226
532.04	Measurement.....	227
532.05	Payment	227
SECTION 533 - PIPE JACKING		227
533.01	Description.....	227
533.02	Materials	227

533.03	<i>Methods Of Construction</i>	227
533.04	<i>Measurement</i>	229
533.05	<i>Payment</i>	229
SECTION 534 – MANUFACTURED TREATMENT DEVICES.....		230
534.01	<i>Description</i>	230
534.02	<i>Material</i>	230
534.03	<i>Methods Of Construction</i>	232
534.04	<i>Measurement</i>	235
534.05	<i>Payment</i>	235
SECTION 535 – TRANSITE DUCT REMOVAL.....		235
535.01	<i>Description</i>	235
535.02	<i>Materials & Qualifications</i>	235
535.03	<i>Methods of Construction</i>	236
535.04	<i>Measurement</i>	237
535.04	<i>Payment</i>	237
Division 600 – Electrical		239
SECTION 601 – COMMON ELECTRICAL PROVISIONS.....		239
601.01	<i>Description</i>	239
601.02	<i>Materials</i>	240
601.03	<i>General Conditions</i>	240
601.05	<i>Conduit</i>	241
601.06	<i>Foundations, Boxes, Manholes And Bases</i>	249
601.07	<i>Cables And Wires</i>	249
601.10	<i>Guarantee</i>	250
601.11	<i>Measurement</i>	250
601.12	<i>Payment</i>	251
SECTION 602 – ROADWAY LIGHTING		252
602.01	<i>Description</i>	252
602.04	<i>Lighting Standards</i>	252
602.07	<i>Power Distribution and Control Equipment</i>	253
602.08	<i>Measurement</i>	253
602.09	<i>Payment</i>	253
SECTION 605 – INTELLIGENT TRANSPORTATION SYSTEMS.....		254
605.01	<i>Description</i>	254
605.02	<i>Materials</i>	261
605.03	<i>Methods of Construction</i>	263
605.04	<i>Measurement</i>	272
605.05	<i>Payment</i>	274
SECTION 606 – TOLL PLAZA ELECTRICAL WORK.....		276
606.01	<i>Description</i>	276
606.02	<i>Materials</i>	276
606.03	<i>Mounting</i>	276
606.04	<i>Power</i>	277
606.05	<i>Assembly and Installation</i>	277
606.06	<i>Measurement</i>	277
606.07	<i>Payment</i>	277
SECTION 607- FURNISH LANE USE SIGNALS.....		278
607.01	<i>Description</i>	278
607.02	<i>Materials</i>	278
607.03	<i>Methods Of Construction</i>	280
607.04	<i>Measurement</i>	280

607.05	Payment	280
SECTION 608- TEMPORARY LIGHTING		282
608.01	Description	282
608.02	Materials	282
608.03	Methods Of Construction	282
608.04	Measurement.....	283
608.05	Payment	283
Division 800 - Traffic Control.....		284
SECTION 801 - GENERAL PROVISIONS.....		284
801.01	General Operation.....	284
801.02	State Police Authority.....	284
801.03	Traffic Permit.....	284
801.04	Movement Of Contractor's Vehicles, Equipment And Personnel.....	286
801.05	Vehicle Access To Work Areas.....	287
801.06	Maintenance Of Existing Traffic Control Devices.....	288
801.07	Traffic Control Coordinator	288
SECTION 802 - LANE AND SHOULDER CLOSINGS.....		289
802.01	Description	289
802.02	Materials	289
802.03	Methods Of Construction	290
802.04	Measurement.....	305
802.05	Payment	307
Division 900 - Materials.....		309
SECTION 902 - AGGREGATES		309
902.04	Fine Aggregate.....	309
902.08	Soil Aggregate.....	309
902.09	Table	311
SECTION 903 - HOT MIX ASPHALT (HMA)		311
903.01	Composition of Mixtures.....	311
903.02	Grading Requirements	312
903.03	Job mix Formula	312
903.04	Sampling and Testing	312
903.05	Tables.....	312
SECTION 905 - CONCRETE, MORTAR AND GROUT		312
905.01	Portland Cement.....	312
905.21	Quality Acceptance Limits for Portland Cement Concrete Pay Adjustments.....	313
905.22	Quality Acceptance Testing, Sampling, and Inspection for Portland Cement Concrete Pay Adjustment.....	313
905.23	Adjustments to Contract Compensation.....	314
SECTION 906 - CONCRETE ADMIXTURES, CURING MATERIALS, AND FILM EVAPORATORS.....		314
906.07	Curing Materials.....	314
SECTION 908 - REINFORCEMENT STEEL.....		315
908.01	Reinforcement Steel for Structures	315
SECTION 909 - STRUCTURAL STEEL AND OTHER FERROUS MATERIALS		315
909.02	Fasteners.....	315
SECTION 912 - SIGN MATERIALS.....		315
912.01	Aluminum Sheet Sign Panels and Incidental Hardware.....	315
SECTION 913 - PAINTS AND COATINGS		316
913.03	Coating System C.....	316

913.05	Traffic Paint and Marking	316
913.07	Coal Tar Epoxy Coating.....	316
913.09	Moisture-Cure Urethane Coating System	317
913.10	Water-Borne Acrylic Coating System.....	317
SECTION 914 - FENCE.....		317
914.01	Chain Link Fence.....	317
SECTION 915 - GUARD RAIL		317
SECTION 915 - BEAM GUIDE RAIL		318
915.01	Rail Element.....	318
915.02	Posts and Recycled/Synthetic Blockouts	318
915.03	Miscellaneous Hardware.....	318
915.04	Sampling and Testing	318
915.05	Rub Rail	318
SECTION 916 - MASONRY UNITS		319
916.01	Concrete Blocks	319
SECTION 917 - PIPE.....		319
917.08	High Density Polyethylene (HDPE) Pipe.....	319
SECTION 918 - ELECTRICAL MATERIAL		319
918.01	General	319
918.07	Cable and Wire	319
918.08	Conduit and Fittings.....	324
918.24	Equipment Distribution Enclosures	324
918.25	Packaged Engine Generator Systems	332
918.31	CCTV Camera.....	344
918.32	CCTV Camera Mount.....	345
918.33	Pole Mounted ITS Enclosure	345
918.34	Video Encoder	346
918.35	HDPE Conduits and Innerducts.....	347
918.36	Directional Drilled Pipe Sleeves.....	348
918.41	Power Injector	348
918.42	Epoxy.....	349
918.43	Media Converter.....	350
918.44	CCTV Remote Power Unit	351
918.45	Fiber Termination Panel	351
918.46	Rodent Blocking	352
918.47	Polymer Concrete Junction Box	352
918.48	Coaxial Cable.....	352
918.49	PoE Surge Protector.....	353
SECTION 919 - LANDSCAPING MATERIALS		353
919.10	Seed	353
919.35	Soil Stabilization Matting.....	354
SECTION 920 - TRAFFIC CONTROL DEVICES.....		355
920.01	Traffic Cones	355
920.03	Safety Vests	356
920.08	Concrete Barrier	357
920.11	Arrow Board.....	357
920.15	Temporary Impact Attenuator	358
920.17	Modular Glare Screen System.....	358
920.18	Truck Mounted Attenuator.....	359
920.19	Portable Variable Message Signs	359
920.20	Non-Gating, Re-Directive Impact Attenuator.....	360

SECTION 923 - MISCELLANEOUS.....	361
923.02 <i>Bearing Pads</i>	361
923.06 <i>Dampproofing and Waterproofing</i>	361
923.18 <i>Reflectors</i>	363
923.27 <i>Pot and Disc Bearings</i>	363
923.30 <i>Silt Fence</i>	363
923.37 <i>Fly Ash</i>	364
923.38 <i>Hydrated Lime</i>	364
923.42 <i>Geotextile</i>	364
SECTION 924 - SUPERPAVE HOT MIX ASPHALT (HMA)	365
924.01 <i>Composition</i>	365
924.02 <i>Job Mix Formula</i>	366
924.04 <i>Tables</i>	366
Appendix A - Affirmative Action Mandatory Language.....	1
Appendix B - Requirements Of Public Law 2005, Chapter 51 (Executive Order 134) and Executive Order 117	1
Appendix C - Lane Closing Request Form.....	1
Appendix D - Escort, Slowdowns Request Form.....	1
Appendix E - Roadway Closing Form.....	1
Appendix F - State Police Supplemental Patrol Construction Request Form	1
Appendix H - Georgia Department of Transportation Test No. 78	1
Appendix I - NJDPES Stormwater Permit Program	1
Appendix J - PSEG Standards for Installation of Fiberglass Pad for Transformers under 500kVA	1
Appendix W - Permissible Lane and Shoulder Closure Hours.....	1
Appendix X - New Jersey Turnpike Authority Requirements For Small Business Enterprise Subcontractors' And Set-Aside Program For Construction Contracts	1
Appendix Y - Traffic Permit Application.....	1
Appendix Z - Colonial Pipeline Company Encroachment Agreement.....	1



New Jersey Turnpike Authority

ADMINISTRATION BUILDING - 581 MAIN STREET
P.O. BOX 5042 WOODBRIDGE, NEW JERSEY 07095-5042
TELEPHONE (732) 750-5300

CHRIS CHRISTIE
GOVERNOR

KIM GUADAGNO
LIEUTENANT GOVERNOR

JAMES R. SIMPSON, *Chairman*
RONALD GRAVINO, *Vice Chairman*
MICHAEL R. DuPONT, *Treasurer*
HAROLD L. HODES, *Commissioner*
RAYMOND M. POCINO, *Commissioner*
ULISES E. DIAZ, *Commissioner*
DANIEL F. BECHT, *Commissioner*
VERONIQUE HAKIM, *Executive Director*

ADVERTISEMENT FOR PROPOSALS

NEW JERSEY TURNPIKE

Contract No. T869.120.803

Interchange 6 to 9 Widening Program

NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps

Grading, Drainage, Paving, Structures & Lighting

Milepost 70.6 to 82.6

Proposals are invited for Contract No. T869.120.803, which involves Grading, Drainage, Paving, Structures & Lighting for the Interchange 6 to 9 Widening Program NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps from Milepost 70.6 to 82.6 in the Townships of Cranbury, Monroe, South Brunswick and East Brunswick and Borough of Milltown, Middlesex County, New Jersey.

The principal items of work include:

Roadway Excavation and Embankment.....	572,902	C.Y.
Embankment, Grade A.....	322,517	C.Y.
Aggregate Base Course.....	477,841	S.Y.
Reinforcing Steel.....	939,759	Pound
Asphalt Paving.....	414,283	Ton
Reinforced Concrete Pipe.....	66,534	L.F.
Beam Guide Rail.....	110,063	L.F.
Concrete Curb.....	37,523	L.F.
Structural Steel.....	1,165,530	Pound
Structural Concrete.....	4,332	C.Y.
Walls.....	211,220	S.F.

The estimated cost of construction is between 125 and 150 million dollars.

Bidders must be prequalified under Classification 3, General Construction, Highway OR Classification 5, Heavy Highway, Rating, Unlimited prior to the receipt of bids. For proposals submitted by joint ventures, each member of the joint venture must be prequalified in at least one of the Contract Classifications, and the sum of the ratings held by each member must be within 10 percent of the total price bid by the joint venture. In case where the sum of the ratings exceeds \$10 million, the Joint Venture's rating will be Unlimited.

Documents for bidder's NJTA prequalification or renewal of prequalification must be in the hands of the New Jersey Turnpike Authority, Engineering Department no later than January 24, 2012. New Jersey Turnpike Authority Prequalification documents are available on the Authority's Web Site (<http://www.state.nj.us/turnpike/construction.html>) under the location entitled "Information and Forms for Construction Contracts". Prequalification documents may be obtained at the Contracts and Specifications Office or will be mailed to prospective bidders upon request.

Bidders shall submit a valid copy of their Certificate of Registration for the "Public Works Contractor Registration Act" to the Authority's Engineering Department with their Proposal.

Bidders shall submit a valid copy of their Business Registration Certificate for the "Business Registration Act Amendment" to the Authority's Engineering Department with their Proposal.

In accordance with Executive Order No. 84 signed by Governor Jim Florio on March 5, 1993 and Executive Order No. 71 signed by Governor James E. McGreevey on October 2, 2003, it is the policy of the New Jersey Turnpike Authority (the "Authority" or "NJTA") that Small Business Enterprises ("SBE"), as determined and defined by the State of New Jersey, Department of the Treasury, Division of Minority & Women Business Development ("Division") in N.J.A.C. 17:13-1.1 et seq and N.J.A.C. 17:14-1.1 et seq., respectively, have the opportunity to compete for and participate in the performance of contracts for the purchase of goods and services and for construction services required by the Authority. The Authority further requires that its contractors shall agree to take all necessary and responsible steps, in accordance with the aforementioned regulations, to ensure that SBEs have these opportunities.

The Contractor agrees to make a good faith effort to award at least 25% of this contract to subcontractors registered by the Division as a SBE. Subcontracting goals are not applicable if the prime contractor is a registered Small Business Enterprise (SBE) firm.

All bidders must comply with the following law relating to affirmative action rules prohibiting discrimination in employment and requiring affirmative action in performance of contracts awarded to the successful bidder.

"Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27."

Proposals will be received at the New Jersey Turnpike Authority's Administration Building, 581 Main Street, Woodbridge, NJ 07095, (732) 750-5300 until 11:00 o'clock Prevailing Time on the morning of February 14, 2012 at which time and place said proposals will be publicly opened and read. The Scheduled Items of Work for this Contract may be submitted electronically through the Electronic Bidding portal on the Authority's website (<http://www.state.nj.us/turnpike/construction.html>) under the location entitled "E-Bidding". Bid results may be obtained through the same portal by the afternoon of the day of the bid for morning bid openings, or by the following morning for afternoon bid openings.

The bidders are advised that the Proposal Bond form or the Letter of Surety form provided in the contract documents must be executed by the bidder when this type of proposal guaranty is selected by the bidder. Bidders are also advised that the Public Law 2005, Chapter 51 (Executive Order 134) and Executive Order 117 Certification and Disclosure forms must be executed by the intended awardee only.

Contract documents may be examined or purchased online starting January 11, 2012, through the electronic bidding link found on the Authority's Web Site (<http://www.state.nj.us/turnpike/construction.html>) under the location entitled "E-Bidding". Contract documents may be ordered via phone, by calling 1-866-PLAN ROOM. The 2004 Standard Specifications, which form an integral part of the Contract, are available from the Authority at an additional cost of Thirty Five Dollars (\$35.00) per copy.

NEW JERSEY TURNPIKE AUTHORITY

Richard J Raczynski, P.E
Chief Engineer

PROPOSAL

NEW JERSEY TURNPIKE AUTHORITY

NEW JERSEY TURNPIKE

Contract No. T869.120.803

Interchange 6 to 9 Widening Program

NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps

Grading, Drainage, Paving, Structures & Lighting

Milepost 70.6 to 82.6

To the CHAIRMAN OF THE NEW JERSEY TURNPIKE AUTHORITY

For Contract No. T869.120.803 which involves Grading, Drainage, Paving, Structures & Lighting for the Interchange 6 to 9 Widening Program NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps from Milepost 70.6 to 82.6 in the Townships of Cranbury, Monroe, South Brunswick and East Brunswick and Borough of Milltown, Middlesex County, New Jersey.

The Undersigned hereby declares that they have carefully examined the Contract Documents for the construction of the project named above; that they have carefully examined the sites of the Project as required; and that they will contract to carry out and complete the said Project as specified and delineated at the price per unit of measure for each scheduled item of work stated in the;

_____ Attached Scheduled Items of Work

_____ Electronically Submitted Scheduled Items of Work (The Firm Name submitting the Scheduled Items of Work shall be the same Firm Name of Bidder in the Proposal)

(Check One)

(Firm Name of Bidder)

(Principal) (Seal)

(Name and Title)

(Date)

Special Notice to Bidders:

Bidders are advised that this contract provides insurance coverage furnished through an Owner Controlled Insurance Program (known as "OCIP" or "Wrap-up" Program) with certain specified insurance coverages, such as Automobile Liability Insurance, to be furnished by the Contractor. Contractors shall exclude the insurance costs in their bid for those coverages that are provided by the New Jersey Turnpike Authority. Requirements that the contractor furnish General Liability, Workers Compensation and other types of insurance have been modified or deleted in this Bid Document. Such modifications or deletions are set forth in Subsection 106.20 and elsewhere in this Bid Document.

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
Contract No. T869.120.803
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6
SCHEDULED ITEMS OF WORK

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
1	1D01LAY	Construction Layout	L.S.	1	-----	--		
2	1D10MOB	Mobilization	L.S.	1	-----	--		
3	1G04SCH	Progress Schedule (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
4	1HFP700	Fuel Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$700,000. Enter a Unit Price of \$700,000 as your bid item for this item.)	L.S.	1	-----	--	700,000	00
5	2A01CAG	Clearing and Grubbing	Acre	109				
6	2B04REX	Roadway Excavation and Embankment	C.Y.	572,902				
7	2B05REX	Roadway Excavation, Muck	C.Y.	4,650				
8	2B15STS	Stripping Topsoil	C.Y.	58,548				
9	N2B0001	Removal of Existing Barrier	L.F.	12,305				
10	2C02EMB	Embankment, Grade A	C.Y.	322,517				
11	2C04EMB	Porous Fill	C.Y.	885				
12	2C15EMB	Basin Sand Layer	C.Y.	30,769				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
13	N2C0005	Settlement Platforms	Each	16				
14	2E01FEX	Foundation Excavation	C.Y.	2,366				
15	2F04TEX	Trench Excavation, Electrical	L.F.	17,441				
16	2G12A07	Riprap Stone Aprons, 6" Thick (D50=3")	Ton	267				
17	2G12A06	Riprap Stone Aprons, 12" Thick (D50=6")	Ton	810				
18	2G00005	Riprap Stone Aprons, 18" Thick (D50=9")	Ton	806				
19	2G12A08	Riprap Stone Aprons, 24" Thick (D50=12")	Ton	326				
20	2G00028	Riprap Stone Aprons, 36" Thick (D50=18")	Ton	100				
21	2G00002	Riprap Stone Slope Protection, 12" Thick, (D50=6")	Ton	311				
22	2G00032	Riprap Stone Slope Protection, 18" Thick, (D50=5")	Ton	1,873				
23	2G10SEC	Filter Blanket	Ton	1,172				
24	2H00007	Heavy Duty Silt Fence, Black	L.F.	58,373				
25	2H00011	Turf Reinforcement Matting	S.Y.	25,000				
26	2H00015	Inlet Filter, Type 1	S.F.	13,000				
27	2H00018	Sediment Control Bags	Each	10				
28	2H25TEC	Hay Bales	C.Y.	100				
29	2H35TEC	Floating Turbidity Barriers	L.F.	1,820				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
30	2H45TEC	Construction Driveway	Ton	1,000				
31	N2H0003	Haybale Check Dam With Temporary Stone Outlet	L.F.	360				
32	N2H0004	Temporary Stone Check Dam	C.Y.	280				
33	2J01DES	Demolition of Existing Structures	L.S.	1	-----	--		
34	2J11DES	Demolition of Existing Structures No. 1 (Str. No. 71.87)	L.S.	1	-----	--		
35	2K01TPF	Temporary Orange Plastic Fence	L.F.	16,222				
36	2M00006	Excavation, Acid Producing Soils	C.Y.	41,000				
37	2M00008	Disposal of Acid Producing Soil	Ton	66,000				
38	2M00009	Testing for Acid Producing Soil Deposits	Each	41				
39	3A05ABC	Aggregate Base Course, 5" Thick	S.Y.	635				
40	3A06ABC	Aggregate Base Course, 6" Thick	S.Y.	707				
41	3A07ABC	Aggregate Base Course, 6.5" Thick	S.Y.	476,499				
42	3B21SUP	Superpave Hot Mix Asphalt 25H 64 Base Course	Ton	234,885				
43	3B24SUP	Superpave Hot Mix Asphalt 19H 76 Intermediate Course	Ton	97,879				
44	3B25SUP	Superpave Hot Mix Asphalt 12.5H 76 Surface Course	Ton	81,519				
45	3B26TAC	Tack Coat	Gallon	28,861				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
46	3B2600APA	Asphalt Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$2,600,000. Enter a Unit Price of \$2,600,000 as your bid item for this item.)	L.S.	1	-----	--	2,600,000	00
47	3B31CLS	Cleaning Outside Shoulders	L.F.	73,500				
48	3C01BRS	Berm Surfacing, 3 inches Thick	S.Y.	39,818				
49	3C02BRS	Berm Surfacing, Crushed Stone, 6" Thick	S.Y.	33,261				
50	3D05APS	Bridge Approach Slab	S.Y.	1,262				
51	3E07PMR	Pavement Removal, 2" Depth	S.Y.	144,157				
52	3F01MRS	Milled Rumble Strip	L.F.	167,000				
53	4A00005	Concrete In Culvert	C.Y.	412				
54	4A04STC	Concrete In Footings	C.Y.	713				
55	4A10AAF	Concrete in Abutments Above Footings	C.Y.	738				
56	4A10PAF	Concrete in Piers Above Footings	C.Y.	190				
57	4A10RWF	Concrete in Retaining Walls Above Footings	C.Y.	360				
58	4A10RFS	Reinforcement Steel	Pound	192,560				
59	4A11RFS	Reinforcement Steel, Epoxy Coated	Pound	747,199				
60	N4A0003	Strip Seal Expansion Joints, 4" Movement	L.F.	376				
61	4A01CCS	Concrete Core Sampling	Each	22				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
62	4A55CPS	Concrete Penetrating Sealer	S.F.	116,700				
63	N4A0001	Sawcut Grooved Deck Surface	S.Y.	2,735				
64	4C01SSC	Shear Connectors	Each	10,857				
65	4C15SDJ	Structural Steel Deck Joints (Approx. 3,800 Lbs.)	L.S.	1	-----	--		
66	4CSSL01	Structural Steel Structure No. 1 (Str. No. 70.74, Approx. 97,430 Lbs.)	L.S.	1	-----	--		
67	4CSSL02	Structural Steel Structure No. 2 (Str. No. 71.37, Approx. 547,900 Lbs.)	L.S.	1	-----	--		
68	4CSSL03	Structural Steel Structure No. 3 (Str. No. 72.29, Approx. 516,400 Lbs.)	L.S.	1	-----	--		
69	4C34HMR	HLMR Bearings, 200 Kips to 300 Kips, Type E	Each	20				
70	4C35HMR	HLMR Bearings, 250 Kips to 500 Kips, Type E	Each	4				
71	4C36HMR	HLMR Bearings, 1000 Kips to 1700 Kips, Type F	Each	4				
72	4E00082	Furnishing 10-3/4" Diameter Steel Pipe Piles	L.F.	6,937				
73	4E00083	Driving 10-3/4" Diameter Steel Pipe Piles	L.F.	6,937				
74	4E00084	Splices for 10-3/4" Diameter Steel Pipe Piles	Each	120				
75	4E00085	Point Reinforcement for 10-3/4" Diameter Steel Pipe Piles	Each	120				
76	4E00086	10-3/4" Diameter Steel Pipe Test Piles	L.F.	231				
77	4E01EDP	Furnishing Equipment for Driving Piles	L.S.	1	-----	--		
78	4E01PLT	Dynamic Pile Load Tests	Each	4				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
79	4F10OHF	Concrete Foundations for Overhead Sign Structures	C.Y.	356				
80	4F01RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 1 (73.4 NSI)	L.S.	1	-----	--		
81	4F02RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 2 (73.4 NSO)	L.S.	1	-----	--		
82	4F03RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 3 (73.9 SNI)	L.S.	1	-----	--		
83	4F04RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 4 (73.9 SNO)	L.S.	1	-----	--		
84	4F05RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 5 (76.1 NSI)	L.S.	1	-----	--		
85	4F06RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 6 (76.1 NSO)	L.S.	1	-----	--		
86	4F07RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 7 (79.8 NSI)	L.S.	1	-----	--		
87	4F08RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 8 (79.8 NSO)	L.S.	1	-----	--		
88	4F09RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 9 (82.2 NSI)	L.S.	1	-----	--		
89	4F10RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 10 (82.2 NSO)	L.S.	1	-----	--		
90	4F01RCC	Remove Existing Cantilever CMS Sign Structure No. 1 (73.89)	L.S.	1	-----	--		
91	4F01RSC	Remove Existing Span CMS Sign Structure No. 1 (70.8 SNI)	L.S.	1	-----	--		
92	4F02RSC	Remove Existing Span CMS Sign Structure No. 2 (71.9 NSI)	L.S.	1	-----	--		
93	4F03RSC	Remove Existing Span CMS Sign Structure No. 3 (72.8 SNI/SNO)	L.S.	1	-----	--		
94	4F04RSC	Remove Existing Span CMS Sign Structure No. 4 (73.89)	L.S.	1	-----	--		

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
95	4F05RSC	Remove Existing Span CMS Sign Structure No. 5 (78.88)	L.S.	1	-----	--		
96	4F26RES	Remove Existing Span Sign Structure No. 1 (72.6 NSI)	L.S.	1	-----	--		
97	4F27RES	Remove Existing Span Sign Structure No. 2 (72.9 NSI/NSO)	L.S.	1	-----	--		
98	4F28RES	Remove Existing Span Sign Structure No. 3 (75.16N)	L.S.	1	-----	--		
99	4F29RES	Remove Existing Span Sign Structure No. 4 (75.27S)	L.S.	1	-----	--		
100	4F32RES	Remove Existing Span Sign Structure No. 5 (74.33N)	L.S.	1	-----	--		
101	4F33RES	Remove Existing Butterfly Sign Structure No. 1 (73.5 NSI/NSO)	L.S.	1	-----	--		
102	4F34RES	Remove Existing Butterfly Sign Structure No. 2 (76.0 NSI/NSO)	L.S.	1	-----	--		
103	4F01RBS	Remove Existing Bridge Mounted Sign Structure No. 1 (73.4 SNO)	L.S.	1	-----	--		
104	4F02RBS	Remove Existing Bridge Mounted Sign Structure No. 2 (73.9 NSI)	L.S.	1	-----	--		
105	4ZN0037	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 1 (72.08NO)	L.S.	1	-----	--		
106	4ZN0038	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 2 (72.08NI)	L.S.	1	-----	--		
107	4ZN0039	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 3 (73.20SI)	L.S.	1	-----	--		
108	4ZN0040	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 4 (73.21SO)	L.S.	1	-----	--		
109	4ZN0097	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 5 (76.82SI)	L.S.	1	-----	--		
110	4ZN0136	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 6 (76.82SO)	L.S.	1	-----	--		

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
111	4ZN0137	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 7 (82.33SI)	L.S.	1	-----	--		
112	4ZN0138	Install Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 8 (82.34SO)	L.S.	1	-----	--		
113	4F25IOS	Install Overhead Span Sign Structure No. 1 (73.39NO)	L.S.	1	-----	--		
114	4F26IOS	Install Overhead Span Sign Structure No. 2 (75.16N)	L.S.	1	-----	--		
115	4F27IOS	Install Overhead Span Sign Structure No. 3 (75.27S)	L.S.	1	-----	--		
116	4F28IOS	Install Overhead Span Sign Structure No. 4 (74.33N)	L.S.	1	-----	--		
117	4F29IOS	Install Overhead Span Sign Structure No. 5 (76.11SI)	L.S.	1	-----	--		
118	4F30IOS	Install Overhead Span Sign Structure No. 6 (76.11SO)	L.S.	1	-----	--		
119	4ZN0100	Install Overhead Hybrid Changeable Message Sign Support Structure No. 1 (71.48)	L.S.	1	-----	--		
120	4ZN0118	Install Overhead Hybrid Changeable Message Sign Support Structure No. 2 (73.89C)	L.S.	1	-----	--		
121	4ZN0119	Install Overhead Hybrid Changeable Message Sign Support Structure No. 3 (73.89D)	L.S.	1	-----	--		
122	4ZN0171	Install Overhead Hybrid Changeable Message Sign Support Structure No. 4 (73.89E)	L.S.	1	-----	--		
123	4ZN0172	Install Overhead Hybrid Changeable Message Sign Support Structure No. 5 (78.88)	L.S.	1	-----	--		
124	4F20IOS	Install Overhead Cantilever Sign Structure No. 1 (72.46SO)	L.S.	1	-----	--		
125	4F21IOS	Install Overhead Cantilever Sign Structure No. 2 (72.50SI)	L.S.	1	-----	--		
126	4F22IOS	Install Overhead Cantilever Sign Structure No. 3 (72.57NI)	L.S.	1	-----	--		

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
127	4F23IOS	Install Overhead Cantilever Sign Structure No. 4 (72.64SO)	L.S.	1	-----	--		
128	4F24IOS	Install Overhead Cantilever Sign Structure No. 5 (72.66NO)	L.S.	1	-----	--		
129	4F38IOS	Install Overhead Cantilever Sign Structure No. 6 (72.69SI)	L.S.	1	-----	--		
130	4F31IOS	Install Overhead Cantilever Sign Structure No. 7 (73.44SO)	L.S.	1	-----	--		
131	4F32IOS	Install Overhead Cantilever Sign Structure No. 8 (73.44SI)	L.S.	1	-----	--		
132	4F15IOS	Install Overhead Butterfly Sign Structure No. 1 (71.45N)	L.S.	1	-----	--		
133	4F16IOS	Install Overhead Butterfly Sign Structure No. 2 (72.35N)	L.S.	1	-----	--		
134	4F17IOS	Install Overhead Butterfly Sign Structure No. 3 (75.54S)	L.S.	1	-----	--		
135	4H02PEP	Plain Elastomeric Bearing Pad, 12" x 16"	Each	32				
136	4J01DAW	Dampproofing	S.Y.	485				
137	4J02DAW	Waterproofing	S.Y.	515				
138	4M00001	Articulated Concrete Block Mattress	S.Y.	1,994				
139	4M00002	Articulated Concrete Block Spillway Lining	S.Y.	1,099				
140	4O01TSP	Temporary Sheeting	S.F.	6,160				
141	4O02TSP	Temporary Sheeting to Remain in Place	S.F.	10,300				
142	4P01PSS	Permanent Steel Sheeting, Type PZ27	S.F.	26,245				
143	4P15PCS	Protective Coating	S.F.	13,740				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
144	4R25BSR	Substructure Membrane Waterproofing	S.F.	3,361				
145	4ZA01NBP	Ground Mounted Noise Barrier Panel, Type A	S.F.	91,120				
146	4ZA06NBP	Ground Mounted Noise Barrier Panel, Type B	S.F.	490				
147	4ZA07NBP	Ground Mounted Noise Barrier Panel, Type C	S.F.	4,460				
148	4ZA00GMP	Ground Mounted Post, Type A	L.F.	5,650				
149	4ZA01GMP	Ground Mounted Post, Type B	L.F.	2,218				
150	4ZA02GMP	Ground Mounted Post, Type C	L.F.	224				
151	4ZA00NBF	Noise Barrier Foundation	L.F.	6,228				
152	4ZA10NBS	Concrete Penetrating Stain	S.F.	96,070				
153	4ZA42CRA	Additional Crushed Stone	C.Y.	145				
154	4ZF0001	MSE Abutment Wall No. 1	S.F.	540				
155	4ZF0024	MSE Abutment Wall No. 2	S.F.	630				
156	4ZF0030	MSE Abutment Wall No. 3	S.F.	1,055				
157	4ZF0025	MSE Abutment Wall No. 4	S.F.	730				
158	4ZG02RET	Retaining Wall, Location No. 2 (803-2)	S.F.	910				
159	4ZG03RET	Retaining Wall, Location No. 3 (803-3)	S.F.	1,005				
160	4ZG04RET	Retaining Wall, Location No. 4 (803-4)	S.F.	23,960				

Proposal - 11 Firm Name of Bidder _____

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
161	4ZG05RET	Retaining Wall, Location No. 5 (803-5)	S.F.	1,925				
162	4ZG06RET	Retaining Wall, Location No. 6 (803-6)	S.F.	5,780				
163	4ZG17RET	Retaining Wall, Location No. 7 (803-7)	S.F.	4,935				
164	4ZG08RET	Retaining Wall, Location No. 8 (803-8)	S.F.	16,650				
165	4ZG09RET	Retaining Wall, Location No. 9 (803-9)	S.F.	16,200				
166	4ZG10RET	Retaining Wall, Location No. 10 (803-10)	S.F.	3,215				
167	4ZG11RET	Retaining Wall, Location No. 11 (803-11)	S.F.	2,190				
168	4ZG12RET	Retaining Wall, Location No. 12 (803-12)	S.F.	1,155				
169	4ZG13RET	Retaining Wall, Location No. 13 (803-13)	S.F.	5,980				
170	4ZG14RET	Retaining Wall, Location No. 14 (803-14)	S.F.	580				
171	4ZG15RET	Retaining Wall, Location No. 15 (803-15)	S.F.	1,280				
172	4ZG16RET	Retaining Wall, Location No. 16 (803-16)	S.F.	9,360				
173	4ZG17ARE T	Retaining Wall, Location No. 17 (803-17)	S.F.	7,140				
174	4ZG18RET	Retaining Wall, Location No. 18 (803-18)	S.F.	6,375				
175	4ZG19RET	Retaining Wall, Location No. 19 (803-19)	S.F.	445				
176	4ZG20RET	Retaining Wall, Location No. 20 (803-20)	S.F.	490				
177	4ZG21RET	Retaining Wall, Location No. 21 (803-21)	S.F.	125				

Proposal - 12 Firm Name of Bidder _____

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	190				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,309				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	822				
186	5A00016	10" Outlet Pipe	L.F.	112				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,569				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
195	5B00056	19" X 30" Reinforced Concrete Elliptical Flared End Sections	Each	1				
196	5B00044	19" X 30" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
197	5B00060	22" X 34" Reinforced Concrete Elliptical Pipe	L.F.	106				
198	5B00019	24" X 38" Reinforced Concrete Elliptical Pipe	L.F.	3,801				
199	5B00055	24" X 38" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
200	5B00042	29" X 45" Reinforced Concrete Elliptical Pipe	L.F.	549				
201	5B00057	29" X 45" Reinforced Concrete Elliptical Flared End Sections	Each	1				
202	5B00020	34" X 53" Reinforced Concrete Elliptical Pipe	L.F.	3,756				
203	5B00021	43" X 68" Reinforced Concrete Elliptical Pipe	L.F.	367				
204	5B00061	43" X 68" Reinforced Concrete Elliptical Flared End Sections	Each	1				
205	5B01CSD	Cleaning Existing Storm Drains	L.F.	5,000				
206	5B15RC3	15" Reinforced Concrete Pipe	L.F.	18,566				
207	5B15RC5	15" Reinforced Concrete Pipe, Class V	L.F.	100				
208	5B15RCE	15" Reinforced Concrete Flared End Sections	Each	18				
209	5B18RC3	18" Reinforced Concrete Pipe	L.F.	8,263				
210	5B18RC5	18" Reinforced Concrete Pipe, Class V	L.F.	100				
211	5B18RCE	18" Reinforced Concrete Flared End Sections	Each	6				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
212	5B24RC3	24" Reinforced Concrete Pipe	L.F.	11,719				
213	5B24RCE	24" Reinforced Concrete Flared End Sections	Each	9				
214	5B30RC3	30" Reinforced Concrete Pipe, Class III	L.F.	8,350				
215	5B30RCS	30" Reinforced Concrete Pipe, Class V	L.F.	266				
216	5B30RCE	30" Reinforced Concrete Flared End Sections	Each	4				
217	5B36RC3	36" Reinforced Concrete Pipe, Class III	L.F.	6,969				
218	5B00001	36" Reinforced Concrete Flared End Sections	Each	3				
219	5B42RC3	42" Reinforced Concrete Pipe	L.F.	2,841				
220	5B42FCE	42" Reinforced Concrete Flared End Sections	Each	5				
221	5B48RC3	48" Reinforced Concrete Pipe, Class III	L.F.	56				
222	5B48FCE	48" Reinforced Concrete Flared End Sections	Each	2				
223	5C01ND1	Inlet, Type D1	Each	121				
224	5C01ND2	Inlet, Type D2	Each	114				
225	5C01ND3	Inlet, Type D3	Each	6				
226	5C01ND4	Inlet, Type D4	Each	58				
227	5C00007	Inlet, Type Double D1	Each	3				
228	5C00052	Inlet, Type Double D1 Modified #1	Each	14				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
229	5C02ND3	Inlet, Type Double D3	Each	1				
230	5C00038	Inlets, Type E-1	Each	55				
231	5C01NE2	Inlets, Type E-2	Each	34				
232	5C10INT	Inlet Converted to Manhole	Each	4				
233	5C20NP1	Manhole, Type P-1	Each	95				
234	5C20NP2	Manhole, Type P-2	Each	20				
235	5C00047	Manhole, Type P-3	Each	29				
236	5C10ND1	Reconstructed Inlet, Type D1, Using New Gate and Frame	Each	10				
237	5C10ND2	Reconstructed Inlet, Type D2, Using New Gate and Frame	Each	10				
238	5C10ND3	Reconstructed Inlet, Type D3, Using New Gate and Frame	Each	5				
239	5C05ND1	New Inlet Frame and Gate, Type D-1	Each	101				
240	5C05ND2	New Inlet Frame and Gate, Type D-2	Each	76				
241	5C05ND3	New Inlet Frame and Gate, Type D-3	Each	7				
242	5C40RSF	Reset Frame	Each	10				
243	5C00023	Flow Control Structure	Each	30				
244	5C00027	Drainage Chamber	Each	1				
245	5C01NOS	Outlet Structure	Each	9				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
246	5C00064	Offset Inlet	Each	1				
247	5C01HDF	Heavy Duty Frame with Bolted Grates for D-1 Inlets	Each	6				
248	5C02HDF	Heavy Duty Frame with Bolted Grates for D-2 Inlets	Each	4				
249	5C03HDF	Heavy Duty Filled In Grate	Each	30				
250	5D10INC	Incidental Concrete	C.Y.	24				
251	5E01ALC	Asphalt Concrete Lip Curb	L.F.	33,228				
252	5E02ALC	Asphalt Concrete Lip Curb Inlet	Each	4				
253	5F00002	Concrete Island, 4" Thick	S.Y.	947				
254	5F01VCA	Concrete Curb, Type A	L.F.	4,295				
255	5H00004	VMS Equipment Median	Each	4				
256	5H01CMB	Concrete Median Barrier, Roadway	L.F.	12,129				
257	5H03CMB	Concrete Median Barrier, Protection	L.F.	3,388				
258	5H01REC	Barrier Reconstruction, Type 1	Each	4				
259	5H02REC	Barrier Reconstruction, Type 2	Each	3				
260	5H03REC	Barrier Reconstruction, Type 3	Each	10				
261	5H00006	Existing Median Removal and Reconstruction (Ramp SOT)	L.S.	1	-----	---		
262	5I01SNP	Sign Panels	S.F.	6,066				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
263	5I05SPP	U-channel Post	L.F.	2,700				
264	5I11REM	Remove Signs	Each	8				
265	5I16REL	Relocate Sign Panels	Each	11				
266	5J52BGR	Beam Guide Rail	L.F.	92,320				
267	5J52BGD	Beam Guide Rail, Dual-Faced	L.F.	17,743				
268	5J52ABG	Beam Guide Rail Anchorage	Each	44				
269	5J01PCA	Parapet Connection, Type A	Each	42				
270	5J01PCB	Parapet Connection, Type B	Each	44				
271	5J52BET	Beam Guide Rail Buried End Terminal	Each	1				
272	5J00FGT	Flared Guide Rail Terminal	Each	32				
273	5J51TTS	Tangent Guide Rail Terminal	Each	4				
274	5J01RPW	Beam Guide Rail Post Weldment	Each	81				
275	5J01RBG	Removal of Beam Guide Rail	L.F.	47,280				
276	5J53RRS	Rub Rail	L.F.	915				
277	5K00001	Chain Link Fence, Type II, 84" High	L.F.	21,843				
278	5K00002	Vehicular Gate, Type II, 84" High, 12' Wide	Each	6				
279	5K00004	Vehicular Gate, Type II, 84" High, 24' Wide	Each	1				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
280	5K00017	Reset Fence	L.F.	436				
281	5K00022	Fence Screening Slats	L.F.	805				
282	5L01MON	Concrete Monuments	Each	6				
283	5O01CAR	Delineator, Type CA-R	Each	2				
284	5O01CAW	Delineator, Type CA-W	Each	95				
285	5O01CAY	Delineator, Type CA-Y	Each	123				
286	5O01PAW	Delineator, Type PA-W	Each	350				
287	5O01PAY	Delineator, Type PA-Y	Each	108				
288	5P01CMT	Preformed Contrast Marking Tape	L.F.	1,600				
289	5P01DMG	Diamond Grinding	L.F.	1,600				
290	5P10TMP	Temporary Pavement Striping	L.F.	251,096				
291	5P31LLM	Traffic Markings, Lines, Long Life, Thermoplastic	L.F.	356,540				
292	5V01PIT	Test Pits	Each	40				
293	5X00002	Quadguard Impact Attenuator, 9 Bays, 24" Wide	Each	5				
294	5X00009	Quadguard Impact Attenuator, 9 Bays, 69" Wide	Each	2				
295	5X00014	Quadguard Impact Attenuator, 2 Bays, 36" Wide	Each	1				
296	5X00017	Quadguard Impact Attenuator, 2 Bays, 24" Wide	Each	1				

Proposal - 19 Firm Name of Bidder _____

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
297	5X01FTA	Furnishing Temporary Impact Attenuator, Quadguard, 6 Bays, 24" Wide	Each	3				
298	5X02FTA	Furnishing Temporary Impact Attenuator, Quadguard, 9 Bays, 24" Wide	Each	14				
299	5X00PRA	Placing and Removing Temporary Impact Attenuator, Quadguard	Each	23				
300	5X00RPR	Repair Temporary Impact Attenuator, Quadguard	Each	8				
301	5Y01MMC	Mile Marker, Type MC	Each	6				
302	5Y01MMP	Mile Marker, Type MP	Each	13				
303	5Y01MRC	Mile Marker, Type RC	Each	29				
304	5Y01MRP	Mile Marker, Type RP	Each	191				
305	5ZD01RPM	Raised Pavement Markers	Each	480				
306	5ZM05FAS	Force Account for Snow Removal (This is a NO-BID, Cost-Plus item for this contract. The Cost-Plus price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
307	5ZG08PJ	24" Steel Pipe Jacking	L.F.	120				
308	5ZG13PJ	36" Steel Pipe Jacking	L.F.	132				
309	5ZL0022	Manufactured Treatment Devices, Type 1	Each	30				
310	5ZO0018	Off-Site Disposal of ID-27 Waste	Ton	66,000				
311	5ZO0019	Environmental Health and Safety Plan	L.S.	1	-----	--		
312	5ZO0066	Transite Duct Removal	L.F.	859				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
313	6A00006	#4/0 A.W.G. Multiple Lighting Cable	L.F.	56,483				
314	6A00008	Concrete Foundations for Transformer	Each	13				
315	6A00019	Junction Box, Type 24"x24"x8", NEMA 4X, Stainless Steel, For Outdoor Use	Each	2				
316	6A00029	4" Rigid Non-Metallic Conduit, PVC - Schedule 80	L.F.	1,549				
317	6A00043	1.5" Rigid Metallic Conduit, Underground	L.F.	80				
318	6A00073	#3/0 A.W.G. Service Cable (600V)	L.F.	624				
319	6A01RMS	1" Rigid Metallic Conduit On Structure	L.F.	73				
320	6A02GWR	#2 A.W.G. Ground Wire	L.F.	167				
321	6A02MLC	#2 A.W.G. Multiple Lighting Cable	L.F.	91,833				
322	6A02RNM	2" Rigid Nonmetallic Conduit, PVC-Schedule 80	L.F.	20				
323	6A03GPC	#300 A.W.G. Power Cable	L.F.	61,662				
324	6A03RMS	3" Rigid Metallic Conduit, on Structures	L.F.	16,903				
325	6A03RMU	3" Rigid Metallic Conduit, Underground	L.F.	1,356				
326	6A03RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 40)	L.F.	30,374				
327	6A04MLC	#4 A.W.G. Multiple Lighting Cable	L.F.	396				
328	6A05RMS	1-1/2" Rigid Metallic Conduit on Structures	L.F.	145				
329	6A06GWR	#6 A.W.G. Ground Wire	L.F.	5,285				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
330	6A06MLC	#6 A.W.G. Multiple Lighting Cable	L.F.	2,185				
331	6A08GWR	#8 A.W.G. Ground Wire	L.F.	54,100				
332	6A09MLC	#3/0 A.W.G. Multiple Lighting Cable	L.F.	13,722				
333	6A10FMC	Concrete Foundation For Meter Cabinet	Each	8				
334	6A10MLC	#1/0 A.W.G. Multiple Lighting Cable	L.F.	16,390				
335	6A10RLM	Lighting Manhole	Each	1				
336	6A13RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 80)	L.F.	8,578				
337	6A20MLC	2 / 0 A.W.G. Multiple Lighting Cable	L.F.	1,068				
338	6A21JF1	Junction Box Foundation, Type 1	Each	61				
339	6A24JBC	Junction Box, Type C	Each	185				
340	6A25JBD	Junction Box, Type D	Each	37				
341	6A25JPS	Junction Box, Type PS	Each	36				
342	6A65RAS	Remove and Salvage Existing Facilities	L.S.	1	-----	--		
343	6B00002	Luminaire, Type A, 150W HPS	Each	13				
344	6B00004	Underbridge Lighting Fixture	Each	4				
345	6B00011	Lighting Standard Base, Type 1	Each	1				
346	6B00013	Lighting Standard, Type L-MG-26-SB	Each	1				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
347	6B00017	Type C Luminaire, 250W HPS	Each	22				
348	6B00018	Lighting Standard, Type 2	Each	1				
349	6B00028	Meter Cabinet, Type F, Voltage 277/480V	Each	4				
350	6B00030	Meter Cabinet, Type G, Voltage 120/240V	Each	4				
351	6B00066	Temporary Lighting Systems	L.S.	1	-----	--		
352	6B06RWL	Relocate Junction Box Foundation Type JBF	Each	25				
353	6B07RWL	Relocate Lighting Standard	Each	25				
354	6B15TP2	Type P2 Luminaire, 150W	Each	76				
355	6B25TP2	Type P2 Luminaire, 250W	Each	6				
356	6B25TP3	Type P3 Luminaire, 250W	Each	30				
357	6B15LMGS	Lighting Standard, Type L-MG-40-SB	Each	32				
358	6B26LMG	Lighting Standard, Type L-MG-26	Each	2				
359	6B45LMG	Lighting Standard, Type L-MG-40	Each	69				
360	6E06ESR	Removal of Emergency Speed Warning and Speed Limit Sign System, Bridge Mounted	Each	10				
361	N6I0001	Toll Plaza Electrical Work	L.S.	1	-----	--		
362	6H090SMI	System Manufacturer Installation and Testing (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$90,000. Enter a Unit Price of \$90,000 as your bid for this item.)	L.S.	1	-----	--	90,000	00

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
363	6J00017	Variable Message Sign Installation	Each	8				
364	6J00018	Variable Speed Limit Sign Installation	Each	8				
365	6J00020	System Control Cabinet Installation	Each	13				
366	6J00023	Transformer, Type 37.5kVA	Each	13				
367	6J00024	CCTV Camera, ITSS Mounted	Each	6				
368	6J00029	4-Way Power/Comm Duct Bank, Soil Encased	L.F.	8,490				
369	6J00030	4-Way Power/Comm Duct Bank, Concrete Encased	L.F.	21,080				
370	6J00049	4-Way Duct Bank, 4" HDPE Conduits Directional Drilled	L.F.	1,820				
371	6J00067	Lighting Standard, Type L-ITS-40	Each	2				
372	6J00068	ITS Power Equipment, Pedestal Mounted	Each	7				
373	6J00071	ITS Equipment Platform, Type 2	Each	4				
374	6J00073	ITS Equipment Platform, Type 4	Each	4				
375	6J00076	Radio Antenna Mount	Each	13				
376	6J00100	Hybrid Changeable Message Sign Installation	Each	9				
377	6J00112	End Node Radio Installation	Each	13				
378	6J00150	End Node Radio Relocation	Each	6				
379	6K01MPT	Install VMS MPT Location No. 1 (72.35N)	L.S.	1	-----	--		

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
380	6K02MPT	Install VMS MPT Location No. 2 (74.33N)	L.S.	1	-----	--		
381	6K03MPT	Install VMS MPT Location No. 3 (75.16N)	L.S.	1	-----	--		
382	6K00009	Remove and Salvage MPT VMS	L.S.	1	-----	--		
383	6J00165	Furnish Lane Use Signals	Each	8				
384	7C01TOP	Topsoil	S.Y.	160,326				
385	7D01SED	Seeding, Type A	S.Y.	85,726				
386	7D08SED	Seeding, Type L	S.Y.	74,600				
387	7D20MOW	Mowing	Acre	22				
388	7D30WAT	Watering	M.G.	1,799				
389	7F01SSM	Soil Stabilization Matting	S.Y.	74,600				
390	8A06MPT	Repair Temporary Impact Attenuators	Barrel	20				
391	8A07MPT	Repair Truck Mounted Impact Attenuators	Each	7				
392	8A30MPT	Furnishing Portable Variable Message Sign	Each	6				
393	N8A0001	Furnishing Precast Concrete Construction Barrier	L.F.	92,671				
394	N8A0002	Placing and Removing Precast Concrete Construction Barrier	L.F.	110,660				
395	N8A0003	Resetting Precast Concrete Construction Barrier	L.F.	50,474				
396	8B18MPT	Furnishing Temporary Impact Attenuator	Each	8				

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
397	8B20MPT	Placing and Removing Temporary Impact Attenuator	Each	21				
398	8B00004	Placing and Removing Portable Variable Message Sign	Each	16				
399	8B15MPT	Traffic Protection Patrol	M.H.	20,880				
400	8B17MPT	Furnishing Truck with Mounted Attenuator	Each	8				
401	8B31MPT	Maintenance and Protection of Traffic	L.S.	1	-----	--		
TOTAL PRICE								

PREQUALIFICATION RECAPITULATION

The undersigned hereby affirms that our firm is prequalified by the New Jersey Turnpike Authority in the classification of _____ and rating of _____ and there has been no material change in our prequalification subsequent to the latest contractor's Qualifying Statement _____ (dated) as required by the Procedure for Prequalification and Award on New Jersey Turnpike Authority Construction Contracts.

DISCLOSURE STATEMENT

The undersigned firm name of Bidder, in compliance with Public Law 1977, Chapter 33, does hereby state and declare the following list of stockholders or partners in this corporation or partnership, as the case may be, with 10 percent or greater interest therein.

<u>Name</u>	<u>Address</u>	<u>Number of Shares of Stock, Corporation or % of Interest in Partnership</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____

NON-COLLUSION AFFIDAVIT

The undersigned being duly sworn according to law on my oath depose and say that I am the bidder making this Proposal for the above named project, and that I execute this Proposal with full authority so to do; that said bidder has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named project; and that all statements contained in this Proposal and in this affidavit are true and correct, and made with full knowledge that the New Jersey Turnpike Authority relies upon the truth of the statements contained herein and in any statements requested by the Authority showing evidence of qualifications in awarding the contract for said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by our firm.

	Name of Contractor

	Affiant's Name
Subscribed and sworn to before me	_____
	Affiant's Signature
This _____ day of _____, 20_____.	_____
_____	Affiant's Title

Notary Public of the State of _____

My commission expires _____, 20_____.

ADDENDA

Acknowledgment is hereby made of the following Addenda:

Accompanying this Proposal is a Proposal Guaranty providing for an amount of money which the undersigned agrees to pay as liquidated damages, and not as a penalty, if the Contract is awarded to the undersigned and the undersigned shall fail to execute and deliver the Contract and the Contract Bond and furnish satisfactory evidence of all required insurance coverage, all within the stipulated time; otherwise, the Proposal Guaranty will be void or returned to the Bidder. It is agreed that the New Jersey Turnpike Authority may collect such damages in the full amount of money provided for in the Proposal Guaranty.

an Individual)
The undersigned is a Partnership) under the laws of the
a Corporation)

State of _____ having principal

Office at _____

(Corporate Seal)

(Signature) _____

Witness or Attest

(Address) _____

(Date) _____, 20____

NEW JERSEY TURNPIKE AUTHORITY

PROPOSAL BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as PRINCIPAL: and
_____ as Surety and duly
qualified to transact business in the State of New Jersey, are hereby held and firmly bound unto the New
Jersey Turnpike Authority in the sum of

_____ Dollars and
_____ Cents (\$_____) for the payment
of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors,
administrators, successors and assigns.

Signed, this _____ day of _____ A.D.

two thousand and _____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the Principal has
submitted to the New Jersey Turnpike Authority a certain Proposal, attached hereto and hereby made a
part hereof, to enter into a Contract in writing for Contract No. _____ of the New Jersey
Turnpike Authority;

NOW, THEREFORE,

- (a) If said Proposal shall be rejected by the New Jersey Turnpike Authority, or in the alternative,
- (b) If said Proposal shall be accepted by the New Jersey Turnpike Authority, and the Principal shall duly execute the Contract Agreement and furnish the required Contract Bond, within the stipulated time,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Authority may accept such proposal; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

[Corporate Seal]

WITNESS OR ATTEST

Principal

[Corporate Seal]

WITNESS OR ATTEST:

Surety

NEW JERSEY TURNPIKE AUTHORITY

LETTER OF SURETY

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as PRINCIPAL: and

_____ as Surety and duly qualified to transact business in the State of New Jersey, are hereby held and firmly bound unto the New Jersey Turnpike Authority in the sum by which the amount of the Contract, covering the attached proposal, properly and lawfully executed by and between the New Jersey Turnpike Authority and some third party, may exceed the amount bid by the Principal for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this _____ day of _____ A.D.

two thousand and _____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the Principal has submitted to the New Jersey Turnpike Authority a certain Proposal, attached hereto and hereby made a part hereof, to enter into a Contract in writing for Contract No. _____ of the New Jersey Turnpike Authority;

NOW, THEREFORE,

- (a) If said Proposal shall be rejected by the New Jersey Turnpike Authority, or in the alternative,
- (b) If said Proposal shall be accepted by the New Jersey Turnpike Authority, and the Principal shall duly execute the Contract Agreement and furnish the required Contract Bond, within the stipulated time,

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligation of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Authority may accept such Proposal; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

[Corporate Seal]

WITNESS OR ATTEST:

Principal

[Corporate Seal]

WITNESS OR ATTEST:

Surety

NEW JERSEY TURNPIKE AUTHORITY

CONTRACT AGREEMENT

**NEW JERSEY TURNPIKE
Contract No. T869.120.803
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6**

THIS AGREEMENT made this _____ day of _____
in the year of our Lord, two thousand and _____
between the New Jersey Turnpike Authority, party of the first part, sometimes
hereinafter called Authority, and _____
part____ of the second part, sometimes hereinafter called Contractor.

WITNESSETH, that the Said Contractor, in consideration of the payments hereinafter specified, hereby covenants and agrees to furnish and deliver all the materials, to do and perform all the work and labor required to be furnished and delivered, done and performed for, and to do and perform all things necessary or proper for, or incidental to the completion of Contract No T869.120.803 in strict and entire conformity with the Specifications, attached hereto, and the Plans which consist of 2083 drawings numbered 1-2083 bearing the general title:

**NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
CONTRACT NO. T869.120.803
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6**

and other Contract Documents which are hereby made a part of this Agreement as fully and with the same effect as if the same had been set forth at length in the body of this Agreement.

All work under the Contract shall be performed and completed on or before May 16, 2014.

If the Contractor fails to complete fully, entirely and in conformity with the provisions of the Contract, the Project and each and every part and appurtenance thereof, within the time stated above, or any portion for which a completion date is stipulated within such further time as may have been granted in accordance with the provisions of the Contract, then the Contractor shall and hereby agrees to pay the Authority for each and every calendar day that he is in default on time to complete the entire Project, \$23,400 which said amount per calendar day is agreed upon by the parties hereto to be liquidated damages and not a penalty.

The Contractor agrees to make payment of all proper charges for labor and materials required in the aforementioned work, and to defend, if so directed by the Authority, and to indemnify and save harmless the Authority, its officers, employees and agents against and from all damages and liabilities, threatened, pending or completed actions, proceedings or suits of every kind and all costs incurred in the defense, settlement or satisfaction thereof (including attorney's fees and court costs), including damages and liabilities, actions, proceedings, suits, costs, claims and judgments of officers, employees or agents of the Contractor and of its subcontractors, and from all damages, liabilities, actions, proceedings, suits, costs, claims, or judgments to which the Authority or any of its officers, employees, or agents may be subjected by reason of injury to the person or property of others resulting from the performance of the Project; or the acts or omissions, whether negligent or not, of the Contractor, its officers, employees or agents, and of its subcontractors; or of the Authority, its officers, employees and agents, or of third persons; or through any improper or defective machinery, implements or appliances used in the Project; and the Contractor shall further defend, if so directed by the Authority, indemnify and save harmless the Authority, its officers, employees and agents from all damages, liabilities, actions, proceedings, suits, costs or claims of any kind, which may be brought or instituted by any subcontractor, material man or laborer who has performed work or furnished materials in or about the Project or by, or on account of, any claims or amount recovered for any infringement of patent, trademark or copyright. So much money due to the Contractor under and by virtue of the Contract as shall be considered necessary by the Authority may be retained by the Authority and held until such suits, proceedings, actions, claims or amounts shall have been settled, and suitable evidence to that effect furnished to the Authority. The obligations of this paragraph shall survive the expiration, termination or rescission of this Contract.

In consideration of the premises, the Authority hereby agrees to pay, as sole compensation for the performance of the Project, payments for the actual quantity of authorized work performed, as provided in the Specifications, at the prices for the Scheduled Items of Work in the Proposal.

This Contract is to be binding upon the Authority, its successor or successors, and upon the contractor and _____ heirs, executors, administrators, successor or successors, and is voidable and may be terminated by the Authority, in accordance with the Provisions of the Specifications, or if the provisions of the statutes relative thereto are not complied with.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement the day and year first above written.

Attest:

NEW JERSEY TURNPIKE AUTHORITY

Secretary of the New Jersey
Turnpike Authority

Executive Director

(Corporate Seal)

Witness or Attest

Name of Contractor

(Corporate Seal)

_____ L.S.

_____ L.S.

NEW JERSEY TURNPIKE AUTHORITY

CONTRACT NO. _____

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
(An individual, a partnership, a corporation)

duly organized under the Laws of the State of _____

and having a usual place of business at _____

as Principal, and _____

a corporation duly organized under the Laws of the State of _____ and duly
authorized to do business in the State of New Jersey and having a usual place of business at

_____, as Surety, are holden and stand firmly

bound and obligated unto the New Jersey Turnpike Authority, as Obligee, in the sum of

_____ lawful money of the United States of America, to and for the

true payment whereof we bind ourselves and each of us, our heirs, executors, administrators,
successors, and assigns, jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas, the above named
Principal did on the _____ day of _____, 20____, enter into a contract with the
Obligee, New Jersey Turnpike Authority generally described as follows: _____

_____ which said contract is made part of this Bond the
same as though set forth herein.

Now, if the said Principal shall well and faithfully do and perform the things agreed by the Principal to be done and performed according to the terms of said contract, and shall pay all lawful claims of laborers and other beneficiaries as defined by N.J.S. 2A:44-143 for labor performed or materials, provisions, provender of other supplies, or teams, fuels, oils, implements or machinery furnished, used or consumed in the carrying forward, performing or completing of said contract, we agreeing and assenting that this undertaking shall be for the benefit of laborers and any beneficiary as defined in N.J.S. 2A:44-143 having a just claim, as well as, for the Obligee herein, then this obligation shall be void; otherwise, the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in anywise affect the obligation of said Surety on its bond, and the Surety hereby waives notice of same.

IN WITNESS WHEREOF, we have hereunto set our hands and seals

this _____ day of _____ in the year 20_____.

WITNESS OR ATTEST:

[CORPORATE SEAL]

PRINCIPAL

WITNESS OR ATTEST:

[CORPORATE SEAL]

SURETY

NEW JERSEY TURNPIKE AUTHORITY

POWER OF EXECUTION

The undersigned, a _____
corporation, partnership, individual

under the laws of the State of _____, having
principal office or registered agent in New Jersey at _____
street

_____, hereby nominates, constitutes and appoints
town

_____ with full power to act _____,
alone or in

_____, on behalf of _____
conjunction with another person name of company

to make, execute, seal and deliver on its behalf as contractor and as its act and deed, any and all contracts,
change orders, monthly and final payment certificates and other like instruments.

Such contracts, change orders, monthly and final payment certificates and other like instruments
shall be binding upon said company as fully and to all intents and purposes as if such instruments had been
duly executed and acknowledged and delivered by the authorized officers of the company when duly
executed, as indicated above, by either one of the aforementioned.

WITNESS OR ATTEST:

NAME OF COMPANY

BY: _____
Signature

SIGNATURE OF AUTHORIZED PERSONS
TO ACT ON BEHALF OF ABOVE COMPANY

Address

Date

Corporate Seal:

NEW JERSEY TURNPIKE AUTHORITY

Contract No. T869.120.803
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6

STANDARD SPECIFICATIONS

The Standard Specifications of the New Jersey Turnpike Authority (Authority), Sixth Edition, dated 2004, copies of which are issued separately, as amended and augmented by the Supplementary Specifications, shall govern the construction of this Project and the execution of the Contract.

The attention of the Bidders is specifically directed to the provisions of such Standard Specifications, which are hereby made a part hereof, as if fully set forth at length herein.

SUPPLEMENTARY SPECIFICATIONS

The following clauses represent modifications to the corresponding subsections of the Standard Specifications and Sections and Subsections added to the Standard Specifications, all relating exclusively to the above Contract. Any applicable provision in the Standard Specifications not amended by and not in conflict with the Supplementary Specifications shall be understood to be in full effect.

DIVISION 100 - GENERAL PROVISIONS

SECTION 101 - GENERAL INFORMATION

101.02 DEFINITIONS

B. Terms

The following is added:

Electronic Bidding	The submission of the Scheduled Items of Work, as part of a Contractor's Proposal, through the portal on the Authority's website
Owner	Is defined as the New Jersey Turnpike Authority. Whenever in Subsection 106.20 the approval, consent, concurrence or permission of the Owner or Authority is required or authorized (an "Approval"), the approval of the Chief Engineer or his designee shall be deemed the approval of the Owner.
Third Party Contractor	Shall mean all persons, firms, partnerships or corporations entering into the contract with the Owner to assist Owner in Owner's responsibilities
Insured	Includes Owner, Contractor, any Third Party Contractor retained by Owner as applicable, Subcontractors, and Sub-Subcontractor named in a policy or a Certificate of Insurance signed by a duly authorized representative of the Insurer
Insurance Broker	Shall mean an individual or organization representing the Owner in soliciting, negotiating or buying coverage and rendering services related to these functions.
Insurer	Shall mean the insurance carrier providing any or all of the insurance to be provided by Owner.
Site	Shall mean the location described in the Contract Documents.
Employees	Shall include all laborers, craftspersons, superintendents and executive officers engaged in wage paid employment at the Site in connection with the Work.
Payroll	Shall mean all wages of subject employees earned for hours worked for the above Contract subject to the standard exclusions provided by the applicable New Jersey law.
OCIP or Wrap-up	Shall mean Owner provided and paid insurance program with the insurance coverages and limits described in Subsection 106.20.
Safety Representative	The term refers to the person hired by the Contractor to be responsible for the management of all the Contractor's safety matters. The Safety Representative shall possess appropriate credentials as determined by the Authority and shall have

successfully completed the 10-hour course given by OSHA in Construction Safety and Health. The Chief Engineer or his designee may accept other safety certifications or safety training in lieu of the above.

Excluded Parties

“Excluded Parties” are contractors, subcontractors, and other individuals who are hazardous materials removal and/or transport companies, vendors, suppliers, fabricators, material dealers, drivers, or others whose function is solely to supply materials, personnel, parts or equipment to and from the Site. This includes but is not limited to vendors, suppliers, fabricators, material dealers, drivers, truckers and crane owner/operators whose on-site employees are engaged solely in the delivery, loading, hauling, and/or unloading of material to or from the Site. Contractors and Subcontractors not working at the Project Site (such as deliverymen, truckers, haulers, etc.) and others who occasionally work/visit the Site are also excluded. Determination of who is an Excluded Parties shall be made by the Authority in consultation with the Contractor and the Insurance Broker.

Notwithstanding any apparent limits to the definition of "Excluded Parties" described above, Owner reserves the right, in its sole discretion to remove or exclude (after first being included) any Contractor or Subcontractor from the OCIP, notwithstanding such party's apparent eligibility for same.

"Excluded Parties" shall not be included under the OCIP. All Excluded Parties, subcontractors and individuals as defined herein may be required to provide evidence of their own insurance to the Owner before access to the Site is allowed. The specific requirements are detailed in Subsection 106.20D.

OCIP Administrator

Is defined as a representative of the Insurance Broker who is located at the Site or at Authority's Headquarters in Woodbridge, or in their specified office, and handles insurance enrollment, claims and other matters relating to the Owner Controlled Insurance Program.

OCIP Manual

Is the document which details all of the parameters of the OCIP. The OCIP Manual is a Contract Document and is hereby incorporated by reference in the contract. The failure of the Owner to include the manual in the Bid Documents shall not relieve Contractor of any of the obligations contained therein. The OCIP Manual is available on the Authority's Web Site (www.state.nj.us/professional-services.html) under the Engineering Guides and Information Section. Follow the link entitled "Owner Controlled Insurance Program (OCIP) Manual – Turnpike Widening Contracts" for Turnpike 6 to 9 Widening Contracts and "Owner Controlled Insurance Program (OCIP) Manual – All Other Contracts" for all other Contracts"

New Jersey
Turnpike Authority
Health and Safety
Plan (NJTA-HASP)
Requirements

Guidelines and minimum requirements for the development and implementation of the Contractor's Health and Safety Plan for the Authority's OCIP Program. The NJTA-HASP Requirements is available on the Authority's Web Site (www.state.nj.us/turnpike/professional-services.html) under the Engineering Guides and Information Section. Follow the link titled "NJTA Minimum Guidelines for Contractor's OCIP Health and Safety Plan (HASP)"

Health and Safety
Plan

A written plan or plans that outline the safety management systems that will be used by the contractor to control losses at their job sites.

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS

102.03 PROPOSALS

The following is added after the first paragraph:

When the Proposal contains "no bid" items of work, the Contractor shall only provide the unit price and amount designated by the Authority.

The following is added after the 3rd sentence of the third paragraph:

Where the unit price and amount for a "no bid" items differs from the unit price and amount designated by the Authority, the Authority shall insert the unit price and amount designated by the Authority.

102.04 FAMILIARITY WITH WORK

All Contract Plan sheets, including any applicable Reference and Standard drawings as listed on the Contract Plan Title Sheet, may be examined at the office of the Authority:

Administration Building
581 Main Street
Woodbridge, NJ 08863

Prints of various drawings contained with these contracts will be available at cost. Viewing of these documents will be by appointment only.

For print order and appointment requests, please contact:

Mr. Tony Valte
Assistant Project Supervisor
E-mail: valte@turnpike.state.nj.us (preferred)
Phone: (732) 750-5300, ext. 8244

The NJTA Standard Drawings are not included in the Contract Plan documents provided to registered Plan Holders. The NJTA Standard Drawings are available at: www.state.nj.us/turnpike/standard-drawings.html.

The following Reference Material will be available electronically (*.pdf format) to prequalified Plan Holders:

A Geotechnical Report for Contract T869.120.803, including foundation recommendations, will be available for the following structures in this Contract:

- Bridge Structures 70.74 NO, 70.74 SO, 71.37, 71.87, and 72.29
- Retaining Walls 803-1 thru 803-22
- Noise Barriers 803-1 thru 803-4
- Overhead Sign Structures 1 thru 9, 22 and 23
- Cantilever Sign Structures 10 thru 17
- Butterfly Sign Structures 18 thru 21

Groundwater Monitoring Report dated May 2007.

The 'Environmental Permit Binder for the: New Jersey Turnpike Interchange 6 to 9 Widening Program Design Section 8' dated June 2009 prepared by The Louis Berger Group, Inc. and AECOM on behalf of the New Jersey Turnpike Authority is available for review at the Turnpike. This report is available for review to registered Plan Holders at the Authority's Administration Building located at 581 Main Street in Woodbridge, New Jersey.

Contractors that are Prequalified and Eligible to submit a Bid (in accordance with prequalification requirements in the Advertisement) may acquire a Username and Password to access the NJTA FTP site by contacting **Wilmor Capuno** via e-mail at wcapuno@turnpike.state.nj.us.

The e-mail subject line should read, "Contract No. T869.120.803 FTP Site Information." Available information will be removed on the bid date. Prints of the various reference material will be available at cost.

All Reference Drawings are only for general assistance in the identification of relevant Contracts and Drawing Numbers. The Contractor is advised that the list may not be inclusive of all Contracts and Drawings which may be required for the successful prosecution of work. It is the Contractor's sole responsibility to research, obtain, and review available documentation, whether listed above or not. The Authority does not guarantee the accuracy of available as-built documentation.

The Contractor is advised that copies of relevant as-built drawings, as well as any and all field notes prepared by the contractor are required to accompany all shop drawing submittals. Refer to Subsection 104.08, Shop and Working Drawings, for shop drawing submittals.

102.05**EXAMINATION OF CONTRACT DOCUMENTS**

Delete the first paragraph and replace it with the following:

Prospective bidders must examine the Contract Documents carefully before bidding and must request, electronically, for any interpretation or correction of any apparent ambiguity, inconsistency or error therein. Any requests for interpretation or correction shall be submitted electronically through the Authority's website "Public Bidders Portal"

by logging in and following the instructions at <https://capexweb.turnpike.state.nj.us/strategicsourcing/login>. If necessary, an interpretation or correction shall be issued by the Chief Engineer as an Addendum and mailed, or otherwise delivered to prospective Bidders who have obtained Contract Documents from the Authority. Upon such mailing or other delivery, such Addendum shall become a part of the Contract Documents. Requests for interpretations and/or corrections shall be considered only if received at least five (5) business days prior to the established submission deadline for Proposals.

102.09 SUBMITTING PROPOSALS

Following the first paragraph replace the third bullet item document on the list with the following:

Filed copy of Public Records Filing for New Business Entity, evidencing filing with the New Jersey Department of Treasury, Division of Revenue (if prequalification not required).

The following is added at the end of this section:

Bidders may either submit their Proposals as described above **or** may use Electronic Bidding for this Contract. Bidders utilizing Electronic Bidding shall submit their Proposal as described in this subsection with the exception of their Scheduled Items of Work. The Scheduled Items of Work shall be submitted electronically through the portal on the Authority's website.

Bidders submitting their Scheduled Items of Work electronically **should not** include their Scheduled Items of Work in the Proposal.

Scheduled Items of Work submitted electronically without an accompanying Proposal will not be opened.

102.11 CAUSES FOR REJECTION

Replace reason (i) with the following;

- (i) if more than one bid is submitted by the Bidder for the same contract or if the Scheduled Items of Work submitted electronically differs from the Scheduled Items of Work included in the Proposal.

102.16 BUSINESS REGISTRATION ACT

Replace the 2nd and 3rd paragraphs with the following:

Proof of valid business registration with the State of New Jersey Department of Treasury, Division of Revenue shall be submitted by the successful Bidder in the form of a valid BRC in compliance with N.J.S.A. 52:33-44. No contract shall be awarded without proof of business registration with the Division of Revenue. Any questions with regard to obtaining a BRC can be directed to the Division of Revenue at (609) 292-1730. Alternatively, further information is available on the internet at:

<http://www.state.nj.us/treasury/revenue/gettingregistered.shtml>

No subcontract shall be entered into by the Contractor unless the Subcontractor first provides proof of valid business registration. The Contractor shall provide written notice to any Subcontractor(s) to provide it with a valid BRC.

The Authority requests that all Bidders include a copy of the Bidder's and any Subcontractor's BRC with the Proposal.

The Contractor shall submit to the Authority a copy of the Contractor's list of Subcontractors and their addresses and any updates that take place during the performance of the Contract. The Contractor shall submit a complete and accurate list of Subcontractors to the Authority before final payment is made for goods provided or services rendered or for construction of a construction project under the Contract.

102.17 PUBLIC LAW 2005, CHAPTER 51 AND (EXECUTIVE ORDER 134) AND EXECUTIVE ORDER 117

In order to safeguard the integrity of State government procurement by imposing restrictions to insulate the award of State contracts from political contributions that pose the risk of improper influence, purchase of access, or the appearance thereof, Executive Order 134 was signed on September 22, 2004 ("EO 134"). The Order is applicable to all State agencies, the principal departments of the executive branch, any division, board, bureau, office, commission within or created by a principal executive branch department, and any independent State authority, board, commission, instrumentality or agency. Executive Order 134 was superseded by Public Law 2005, c.51, signed into law on March 22, 2005. In September 2008, Executive Order 117 was signed and become effective November 15, 2008. It applies to the same government contracting entities subject to Executive Order 134, but extends the political contribution restrictions by expanding the definition of "business entity" to include, for example, more corporate shareholders and sole proprietors. Executive Orders 134 and 117, and Public Law 2005, c.51 contain restrictions and reporting requirements that will necessitate a thorough review of the provisions. Pursuant to the requirements of Public Law 2005, Chapter 51, ("EO 134") the terms and conditions set forth in this subsection and in Appendix B are material terms of any contract resulting from this bid solicitation.

The required certification forms shall be submitted by the intended awardee only who will be notified in writing and sent the required forms by the Authority.

The required certification forms must be submitted to the Authority within 48 hours of Notice by the Authority.

Please note that more than one Certification and Disclosure may be required from your firm

See Appendix B for Compliance Requirements.

SECTION 103 - AWARD AND EXECUTION OF CONTRACT

103.04 SUBLETTING AND ASSIGNING CONTRACT

The following is added after the second paragraph:

The specialty items under this Contract are:

Above ground highway lighting items
Electrical wire items
ITS items, except for foundations, standards and junction boxes

SECTION 104 - CONTROL OF WORK

104.01 INTENT OF CONTRACT

The following is added before the first paragraph:

Contract No. **T869.120.803** which involves Grading, Drainage, Paving, Structures & Lighting for the Interchange 6 to 9 Widening Program NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps to complete the construction of inner and outer roadways in both directions from Milepost 70.6 to 82.6 in the Townships of Cranbury, Monroe, South Brunswick and East Brunswick and Borough of Milltown, Middlesex County, New Jersey.

104.04 CHANGE OF PLANS AND SPECIFICATIONS

Delete the tenth paragraph and replace it with the following:

Change Orders may also include appropriate changes in the terms of the Contract, such as extensions of time and adjustment of quantities. Change Orders may also include specifications and drawings that may be necessary to cover the additional work.

104.06 CONTRACTOR'S ORGANIZATION

The following is added after the first paragraph:

All contractor personnel shall wear photo identification at all times on Authority work sites. The photo identification shall have the individual's name, company name and company telephone number.

The following is added after the fourth paragraph::

Ensure the Contractor's Designee for Deck Rideability QC has a minimum of five years highway and/or bridge construction experience with a minimum of three years of relevant experience performing Ride Quality Tests using the equipment specified herein, or approved equal. Do not begin deck or approach slab Ride Quality Tests as defined in Subsection 401.12 (F) (1) until the qualifications of the Contractor's Designee have been approved by the Engineer. The Ride Quality Tests shall be performed under the on-site supervision of the Contractor's Designee, or an individual that meets the experience qualifications stated herein. If an individual other than the Contractor's Designee will supervise the Ride Quality Tests, the qualifications of that person shall be submitted to the Engineer for approval.

The following is added to the end of this section:

Environmental Manager

The contractor shall assign a supervisory-level employee experienced in all aspects of soil erosion and sediment control, water quality control, and work site waste control. The contractor shall submit the name and applicable experience of this employee to the Engineer for approval at least 15 days before beginning any construction operations, except construction layout, on the Project. The contractor shall submit written notification and obtain approval from the Engineer before changing the environmental manager.

The environmental manager shall have the responsibility, resources and sufficient authority for implementing, documenting and correcting damaged areas relative to the approved SESC and water quality methods of operations. The environmental manager shall coordinate, oversee, and supervise SESC and water quality operations on the Project. This includes both on-site and off-site activities, including those involving subcontractors. The environmental manager shall oversee and supervise all site waste control operations for the Project.

The environmental manager shall attend SESC and water quality meetings. The environmental manager, with the Engineer, shall inspect SESC and site waste control measures at least weekly. Perform additional inspections immediately after precipitation and other weather events that may damage SESC measures or cause uncontrolled erosion to occur. During extended periods of precipitation, perform inspections every 24 hours until the precipitation has ended.

The Environmental Manager shall also be responsible for the implementation, compliance and reporting of the NJDPES Stormwater Permit Program included in Appendix I.

104.07 COOPERATION BY CONTRACTOR

The following is added:

The Contractor is advised that other contracts with the Authority for work on or adjacent to the Turnpike roadways may be in progress simultaneously with the work to be done under this Contract, either within, or adjacent to, the limits of this Contract.

These contracts include, but are not necessarily limited to the following:

- Contract T869.120.701 - Interchange 6 to 9 Widening Program, Section 7, Milepost 69.3 to 70.6
- Contract No. T869.120.802 - Interchange 6 to 9 Widening Program, Interchange 8A Ramp TSI and Local Roadways, Milepost 70.4 to 74.4
- Contract No. T869.120.801 - Interchange 6 to 9 Widening Program, SNO Roadway and Service Area 8N Ramps, Milepost 74.3 to 82.3
- Contract No. T100.080 - Southern Bridge Deck Repairs Milepost 0 to 83 and PHMTE
- Contract No. T200.086 - Resurfacing, Milepost 0 to 74
- Contract No. T100.089 - Miscellaneous Structural Repairs
- Contract No. T200.114 - Median Inlet Repairs Milepost 0 to 83

- Utility Order No. 1242-T - Interchange 6 to 9 Widening Program, Colonial Pipeline Relocation

The Contractor is advised that the work will be performed over railroads, roadways and utilities and that during construction and rigging operations, he will be required to comply with the provisions of Subsections 106.16 and 106.18 and shall provide approved means for safely preventing any objects and debris resulting from his operations from falling to the ground or onto the roadway below. The Contractor shall be responsible for protection of railroad and utility properties. The Contractor shall submit to the Engineer for review, details of the means he proposes to catch and collect materials.

The Contractor is also advised that construction on Contract 802 will restrict the ability to perform work in the vicinity of Prospect Plains Road (MP 72.11) until July 2012 and Cranbury Half-Acre Road (MP 71.26) until April 2012. This limitation will apply for both sides of the mainline and shall extend approximately 200' on each side of these roadways.

104.08 SHOP AND WORKING DRAWINGS

The following is added after the first paragraph:

Shop and working drawings shall be submitted for the following items of work including but not limited to:

- Inlet, Type D2, D3, D4, Double D3, and Double D1
- ITS items
- Permanent and Temporary Quadguard Units
- Z-turn Attenuator and Guide Rail Terminals
- Stormwater Treatment Devices
- Flow Control Structures
- Demolition of Existing Bridges
- Catch System
- All Bridge and Retaining Wall Items and CMS Support Structures
- Settlement Platforms
- Temporary Sheeting

The following is added after the first paragraph:

Shop and Working drawings and design calculations for catches and temporary flooring platforms shall be signed and sealed by a Professional Engineer licensed in the State of New Jersey, and submitted for review and approval to the Engineer.

104.09 CONSTRUCTION LAYOUT

The following is added:

When an existing structure is to be modified in any way, the Contractor shall verify that the dimensions of the existing structure are as shown on the plans, and any discrepancy shall immediately be brought to the attention of the Engineer. Field verification of the dimensions of the existing structure shall be completed prior to the fabrication of the new structural steel.

104.13 SANITARY, HEALTH AND SAFETY PROVISIONS

Add the following to the beginning of the subsection:

The Contractor shall have a Full Time Safety Representative (SR) per the NJTA Minimum Guidelines for Contractor’s OCIP Health and Safety Plan (HASp), Page 10, Item 3.03(A)(3).

Add the following after the 2nd paragraph

(A) TOILET FACILITIES.

The Contractor shall ensure privacy to all employees and Authority personnel assigned to the Project by providing on site separate toilet facilities for male and female employees. These facilities shall be portable toilets and clearly marked MEN and WOMEN. They are in addition to the facilities provided in the field office.

The total number of facilities shall be determined from the chart listed below. A facility is defined as one unit. A facility site is defined as a location that provides at least one facility for each sex. The maximum distance between the location of facility sites and workers shall be no more than one-half mile.

All toilet facilities shall be in compliance with OSHA Regulation 1926.51(c) with the exception that the Authority will require that separate toilet facilities be provided for males and females. The sewage disposal method shall not endanger the health of employees and shall be in compliance with all State and Federal regulations.

Toilet facilities shall be cleaned and sanitized a minimum of once per week except from May 15 through September 15 in which these facilities shall be cleaned and sanitized a minimum of twice per week.

Number of Male Employees	Minimum No. of Facilities for Male Use	Number of Female Employees	Minimum No. of Facilities for Female Use
1 - 15	1	1 - 15	1
16 - 35	2	16 - 35	2
36 - 55	3	36 - 55	3
56 - 80	4	56 - 80	4
81 - 110	5	81 - 110	5
111 - 150	6	111 - 150	6
Over 150	6+(1)	Over 150	6+(1)

(1) - One additional facility for each additional 40 employees of each sex.

The following is added:

(B) TEMPORARY FLOORS AND CATCH PLATFORMS.

Workers who are working on temporary floors or catch platforms on bridges and viaducts shall be instructed concerning the safe use of these systems. The contractor shall

review the following items with their employees and subcontractors as part of a Pre-Construction Safety meeting prior to the installation of the system:

- 1) Design
 - (a) The elements of the system, including planks and plywood (or other material) top cover, and the purpose of each element.
 - (b) Identification of areas allowed for catching demolished concrete.
 - (c) A description of acceptable planking material.
- 2) Fall Protection
 - (a) Fall protection procedures that apply to installing or removing temporary floors and catch platforms.
 - (b) The necessity and methods of fall protection when planks are temporarily removed for any purpose.
 - (c) The necessity of fall protection when repairing damaged temporary floors or catch platforms.
- 3) Inspection and Maintenance
 - (a) Signs of damage to planks or covering and the need to replace damaged materials promptly.
 - (b) Instruction to immediately report signs of damage to the shield to any supervisor.
 - (c) Instruction that sheeting must be promptly replaced if shifted or moved.
 - (d) Instruction that planks that have been removed or shifted must be replaced in their proper positions.

104.14 CONSTRUCTION SAFETY

Contractors shall be required to insure that all employees, subcontractors and their suppliers, while on the job site and in conduct of Authority contracts, comply with all provisions of the NJTA-HASP Requirements and any other project specific Health and Safety Plan(s). The Contractor shall familiarize himself with the contents appropriate to his operations. The provisions of the Health and Safety Plans will be strictly enforced. Non-compliance with safety specifications will be treated in the same manner as non-compliance with any Contract item. Willful or repeated non-compliance could result in the shutdown of the job or the suspension of a portion thereof.

The Contractor's personnel in any work area shall wear a vest at all times as specified in Subsection 920.03.

The Federal Occupational Safety and Health Standards, 29 C.F.R. 1910 and 1926 (and all future revisions or additions) are required by law to be followed on all work.

The NJTA -HASP Requirements and any other project specific Health and Safety Plan(s) are supplementary documents to this law, and do not negate, abrogate, alter or otherwise change any provisions of OSHA, or any other applicable laws.

Where other provisions in the Specifications conflict with provisions in the - NJTA-HASP Requirements and any other project specific Health and Safety Plan(s), the more stringent requirements, as determined by the Engineer, shall govern.

The following Subsection is added:

104.15**PROTECTION OF WETLANDS AND TRANSITION AREAS DURING CONSTRUCTION**

- (A). Prior to the commencement of all work, the Contractor shall locate and clearly stake out the boundaries of all wetland areas and transition areas delineated on the Contract Plans, which are outside the limits of construction, with temporary orange plastic fence. "KEEP OUT" signs shall be placed at intervals of not less than 100 feet around perimeter of all staked out areas. Should the marking be damaged during construction, the Contractor shall repair it within one working day.
- (B). Entry into or physical disturbance of a designated wetland area and transition area is prohibited, unless it is in accordance with the Contract Plans and Specifications or prior approval has been obtained from the Engineer. Such approval shall not be unreasonably refused.
- (C). Temporary roads shall not be placed in designated wetlands or transition areas outside the limits of construction shown on Contract Plans. Where the entry of vehicles into designated wetland or transition area is required and permitted, the Contractor shall take measures to protect the wetland and transition area from gouging, cutting or other damage by the use of appropriate protective measures such as travel mats.
- (D). Precast piles are permitted to be installed in wetland and transition areas provided that the area of soil cutting be limited to the location of the pile; that disturbance to surrounding areas and access routes be minimized; and that all equipment and materials used in the placing of piles be removed as soon as work is completed. The work area shall be restored to its original condition.
- (E). No fill shall be placed in wetland and transition areas either temporarily or permanently beyond the limits of construction shown in the Contract Plans.
- (F). Storage of materials or equipment or parking of vehicles on wetlands and transition areas is prohibited beyond the limits of construction shown in the Contract Plans.
- (G). No construction wastes, excess fill, petroleum products or cut vegetative materials shall be placed on any wetland or transition area beyond the limits of construction shown in the Contract Plans.
- (H). No buildings or sanitary facilities, whether temporary or permanent, shall be placed on any wetland or transition area.

- (I). Where construction is being carried out in adjoining areas or in portions of wetland or transition areas, silt fences shall be placed along the edge of the wetland or transition area so as to prevent silt running onto the wetland or transition area beyond the limits of construction shown in the Contract Plans.
- (J). No borrow material shall be taken from a designated wetland or transition area beyond the limits of construction shown in the Contract Plans.

104.20 ENVIRONMENTAL HEALTH AND SAFETY

(A) DESCRIPTION

To minimize the potential risk of exposure of on-site personnel to hazardous substances or other hazards during the New Jersey Turnpike Interchange 6 to 9 Widening Program Contract No T869.120.803 work, the Contractor shall take the appropriate health and safety measures during all site work, specifically including the excavation, handling, stockpiling, sampling, loading, transportation, storage, reuse and disposal/recycling of regulated materials.

The Contractor shall assume full responsibility and liability for compliance with all applicable codes and regulations pertaining to the health and safety of personnel during the execution of the work.

(B) ADDITIONAL REQUIREMENTS

1. SUBMITTALS AND NOTICES

a. General

To properly protect its on-site workers, the Contractor shall conduct a workplace hazard assessment to determine whether physical, chemical and/or biological hazards are present and to determine whether a site-specific Health and Safety Plan (HASP) is required to comply with all applicable Federal, State and/or local regulations. The Contractor shall employ a Certified Industrial Hygienist (CIH) or Certified Safety Professional (CSP) to develop and oversee the workplace hazard assessment and implementation of the HASP.

Before the start of work, the successful bidder shall submit the following items listed below to the Engineer, unless otherwise stated, for review. No work shall begin until these submittals are returned by the Engineer with indication that the submittal is returned for unrestricted use or final-but-restricted use.

- i. Telephone numbers and location of emergency services.
- ii. Copy of notification sent to other entities at the work site.

- iii. A list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site. The list shall identify individuals, duties and responsibilities, their addresses and telephone numbers.
- iv. Current Physicians Written Opinion as required by OSHA standard 29 CFR 1910.1101 and 1910.134, for all workers.
- v. A description of the means, methods, techniques and procedures to be used for:
 - (a) Site characterization; description of site activities; task-specific and operation-specific hazard assessment.
 - (b) Workers' safety and health training program (including an appendix containing employee training certifications).
 - (c) Workers' medical surveillance program (including an appendix containing employee medical surveillance records).
 - (d) Frequency and types of air monitoring, personnel monitoring and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used.
 - (e) Names and qualifications of health and safety supervisory personnel.
 - (f) Personal protective equipment to be used by employees.
 - (g) Site control measures.
 - (h) Hazard communication and Right-to-Know program.
 - (i) Decontamination procedures.
 - (j) Emergency response plan (including route to hospital map and emergency contact numbers).
 - (k) Confined space entry procedures.
 - (l) Spill containment program.
 - (m) Excavation safety.
 - (n) Hot work (including welding and cutting).
- vi. If the means, methods, techniques and procedures established by the Contractor must be changed, the Contractor shall notify, in writing, the Engineer, the Authority, and appropriate regulatory agencies of the alternate to be used.
- vii. Any additional applicable Federal, State, and local worker certifications/licenses for performing asbestos related work.
- viii. The Contractor shall provide the draft HASP to the Engineer for review and comment. After the Contractor has satisfactorily addressed all comments, the final version of the HASP shall be submitted to the Engineer for review and approval.
- ix. Agricultural Lands: Various project work areas require excavation of former agricultural lands. Pesticide residues may be present in the soils within the construction area resulting from the application of pesticides.

Compounds from pesticides that may be present include but are not limited to arsenic, lead, DDT and Aldrin. The Contractor may acquire field data or information at the Contractor's expense, but will be provided to the Authority, upon request.

b. Pollution Control:

- (i) It shall be the Contractor's ultimate responsibility to ensure the health and safety of all the Contractor's employees and subcontracting personnel. The Contractor shall develop a pollution control system for the complete capture, containment, collection, and disposal of the waste generated by the work. The system and the Contractor's reclamation operation shall be in compliance with all USEPA, NJDEP, OSHA, and other regulatory agencies with jurisdiction, rules, regulations, standards and guidelines in effect at the time that the work is in progress. The Contractor shall be liable for any fines or cost incurred as a result of his failure to be in compliance with all Federal, State and local laws.
- (ii) If at any time during the execution of the work, the pollution control system fails to function at the required level of efficiency, the Contractor shall immediately suspend such operations and shall not resume work until the necessary corrective modifications have been made to the satisfaction of the Engineer. If the failure is due to adverse weather conditions such as high winds, the Contractor shall immediately suspend the affected operations until the weather conditions become favorable. No additional payment will be made for any corrective actions required. The Contractor or his representative shall conduct initial project monitoring and air quality testing as required to monitor the effectiveness of his pollution control systems. He shall make those results available to the Engineer. Additional testing to monitor the effectiveness of the pollution control systems employed on the project shall be as directed by the Engineer if results of initial monitoring are judged by the Engineer to be inadequate. If it is determined that pollution of the environment adjacent to the site has occurred, the Contractor shall cease all operations immediately and shall deploy the emergency management plan, as required. The Contractor shall be responsible for all costs for mitigating and corrective actions.
- (iii) The Contractor shall comply with 40 CFR, Part 50, Appendix G "National Ambient Air Quality Standard for Lead".
- (iv) The Contractor shall obtain all permits that are required for the handling and disposal of the debris and material collected during the course of the work. All material shall be reclaimed/disposed of at an approved site(s) by the Contractor or his authorized representative. The Contractor shall present the proper documentation and/or permits as part of the hazardous waste storage and transport plan, demonstrating that

he has made the necessary preliminary arrangements to reclaim/dispose of the materials at an approved site(s). The Contractor shall not begin cleaning or blasting operations until he has submitted final documentation substantiating that he has secured an approved reclamation/disposal site(s) for the disposal of materials from the job and all required permits for handling and storing the waste.

- (v) The contained waste materials shall be removed, stored in sealed steel drums and disposed of at regular intervals (once each working day minimum) during the execution of the work, as required in accordance with the pollution control plan, field conditions, and at the direction of the Engineer. The Contractor shall comply with the applicable sections of the Code of Federal Regulations.
- (vi) The Contractor shall continuously monitor the quantity of waste captured, contained, collected, stored and disposed of. The Contractor's records shall be kept current and be available at all times on site. The Contractor shall incorporate, as part of the pollution control plan, an emergency management plan outlining specific procedures to be followed in the event of primary containment system failure. Details including equipment, materials and methods to be employed in the event of environmental contamination shall be provided. The necessary components along with the emergency management plan shall be available on site while surface preparation operations are in progress. Also included shall be an outline of those persons to be notified in the event of such failure. The emergency management plan shall comply with all rules and regulations of the applicable agencies, as stated herein. The emergency management plan should be especially detailed where work is primarily over a body of water or adjacent to populated areas.
- (vii) The review and acceptance of the pollution control plan will not relieve the Contractor of the responsibility for attaining the required degree of capture, containment, collection and disposal, or the required degree of protection of the operating equipment and appurtenances, or to comply with all the laws, rules, regulations, standards or guidelines in effect during the execution of the work.
- (viii) After receipt of written approval of the pollution control plan and approval of a reclamation/disposal site(s), the Contractor may commence cleaning operations. The pollution control system, as detailed in the pollution control plan, shall be securely installed and properly maintained while the work is in progress. The Contractor shall not deviate from the approved pollution control plan without written approval by the Engineer.

2. CODES, REGULATIONS AND STANDARDS

a. General Applicability of Codes, Regulations and Standards

The Contractor shall be responsible for acquiring any construction permits or approvals required by the administrative authority or authorities having jurisdiction or any other regulatory agency having jurisdiction, including those pursuant to N.J.A.C. 5:23-2. Additionally, the Contractor shall be responsible for obtaining any Certificates of Approval or any other approvals at the completion of the project.

Except to the extent more explicit or more stringent requirements are written directly into the contract documents, all applicable codes, regulations, and standards have the same force and effect as if they were made a part of the contract documents by reference.

3. HEALTH AND SAFETY PROGRAM

The Contractor shall prepare and implement the Contractor's own HASP. The Contractor's HASP, at a minimum, shall meet all requirements as required by law, and be submitted to the Engineer for information and not for approval.

The Contractor agrees to complete and submit to the Engineer the Medical Fitness and Statement of Training form for all employees performing fieldwork hereunder. It will be the duty of the Contractor to submit a revised Statement of Medical Fitness and Training form within 5 days prior to utilizing any such employee for fieldwork hereunder to the Engineer. Contractor further agrees to require any of their employees who are to be engaged in field work hereunder to submit similar statements of medical fitness and training for the information and record keeping of the Engineer, on such forms as may be prescribed by the Authority's Health and Safety Officer.

The Contractor agrees to comply with all applicable requirements set forth at 29 CFR Parts 1910 and 1926, including but not limited to such requirements set forth at 29 CFR 1910.120(b); 29 CFR 1910.120(e); 29 CFR 1910.132; 1910.122 and 1910.134. Furthermore, the Contractor shall not permit any of their employees to participate in or supervise field activities until they have been trained to the level required by their job function and responsibility as required by 29 CFR 1910(3)(3)(i)(ii).

The Contractor is most familiar with his operation and maintains responsibility for the activities of his officers, agents, employees, and/or Sub-Contractors.

The Contractor agrees to permit the Engineer or his representative to monitor and inspect Contractor's activities. Adherence to all safety and health requirements is the full responsibility of the Contractor.

None of the above shall be construed to remove health and safety responsibility from the Contractor and impose upon the Engineer and Authority any general supervision duty over or responsibility for the activities of the Contractor's officers, agents, employees, and/or Sub-Contractors. The Contractor

acknowledges that there may be potential health hazards associated with the work to be performed hereunder, and agrees at a minimum to abide by their respective company's health and safety program. Further, the Contractor and Sub-Contractors, if any, acknowledge that it is solely their respective responsibility to institute a medical surveillance program as required by 29 CFR 1910, including, but not limited to 29 CFR 1910.120(f), and that the instituting of any such program shall be solely at the Contractor's expense.

4. TRAINING OF PERSONNEL

- a. The following are minimum requirements:

The Contractor's on-site representative in charge (Project Manager, Project Engineer or Project Superintendent) and the Safety Officer must have completed:

- i. 40 hour hazardous material safety and health course as stipulated in 29 CFR 1910.120 e(3), and
 - ii. An eight hour refresher course per year after 1) above has been met, as per 29 CFR 1910.120 e(8), and
 - iii. A 30 hour construction safety course as administered by OSHA or an accredited OSHA training facilitator.
- b. On site management and supervisory personnel shall receive at least 8 hours of specialized management and supervisory training on site-specific health and safety topics, CFR 1910.120 e (4), prior to working at the site.
- c. Records to demonstrate such training shall be retained by the Contractor on site and shall be submitted to the Construction Manager for review and acceptance of the competent personnel.

5. WORKER PROTECTION

- a. General

- i. Worker protection shall be provided as specified in applicable sections of 29 CFR 1910, Occupational Safety and Health Standards for general industry, and 29 CFR 1926, Safety and Health Regulations for construction.

- b. Personal Protective Equipment

- i. Modified Level D PPE is anticipated for this work, which includes hard-hat, steel-toe work boots, safety eyewear, and work clothes prescribed by weather. Protective clothing shall meet requirements specified in applicable OSHA standards in 29 CFR 1910, Subpart L. When dealing with asbestos, PCBs, lead-based paint, or other contaminants, the

Contractor shall modify worker level of protection as required.

(C) EXECUTION

1. DEVELOPMENT OF THE HEALTH AND SAFETY PLAN

The Contractor shall develop its site-specific Health and Safety Plan in compliance with the references cited in Subsection 104.20.

2. ADHERENCE TO THE CONTRACTOR DEVELOPED HEALTH AND SAFETY PLAN

The Contractor shall follow their approved site-specific Health and Safety Plan.

(D) MEASUREMENT

1. PREPARATION OF HEALTH AND SAFETY DOCUMENTATION

Preparation and revisions, as necessary, of the workplace hazard assessment and the Site-Specific Health and Safety Plan as described in Subsection 104.20, shall include all incidental costs.

The preparation of the health and safety documentation, including the workplace hazard assessment and the Site-Specific Health and Safety Plan, shall be measured on a lump sum basis. All other costs related to Health and Safety shall be included in the various Contract work item(s) and associated activities. In addition, all work associated with complying to the approved site-specific Contractor Health and Safety Plan shall be included with the Environmental Health and Safety Plan item.

(E) PAYMENT

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Environmental Health and Safety Plan	Lump Sum

Payment for 10 percent of the Lump Sum pay item ENVIRONMENTAL HEALTH AND SAFETY will be made upon approval of the Safety Officer's resume and the site-specific Contractor Health and Safety Plan. The remaining sum will be paid in equal monthly payments for the anticipated duration of construction upon satisfactory implementation of the Health and Safety Plan as approved and recommended by the Engineer. The anticipated duration of construction shall be determined from the Contractor's initial approved construction schedule. Should the Contractor receive an extension of time for any reason, no additional payment will be made.

104.21 DIESEL EQUIPMENT OPERATION

- (A) Each contractor performing work pursuant to this contract shall ensure the use of ultra low sulfur fuel in the non-road and off road diesel equipment operated on the job site.
- (B) Each contractor shall adopt a formal written policy to limit unnecessary idling of diesel equipment on the job site, and ensure that every equipment operator and site superintendent has received a copy of the policy and has been instructed on its implementation.

SECTION 105 - CONTROL OF MATERIALS

105.01 MATERIALS

Add the following after the second paragraph:

The Authority will not approve the use of any materials as fill material for the project exhibiting the following characteristics unless specifically provided for in the contract documents: any waste or combination of waste, including toxic, carcinogenic, corrosive, irritating, sensitizing, radioactive, biological infectious, explosive, or flammable waste or otherwise determined to be unsuitable by the Authority which poses a present or potential future threat to human health, living organisms, or the environment. Such unapproved materials also include all hazardous or toxic substances defined as such by the New Jersey Department of Environmental Protection (NJDEP) and/or the United States Environmental Protection Agency (USEPA).

The Authority will not approve the use of any materials that are contaminated as defined by N.J.A.C. 7:26E-1.8 and NJDEP's most recent version of the Solid and Hazardous Waste Management Program Guidance Document on Contaminated Soil.

Replace the third paragraph with the following:

Within ten (10) days after the date of execution by the Authority of the Contract, the Contractor shall inform the Engineer in writing from whom and where the Contractor proposes to obtain the materials required for the Project, and thereafter advise the Engineer of proposed changes provided, however, the location of proposed borrow pits and / or quarries shall be submitted within ten (10) days of receipt of Notice of Award, as specified in Subsection 103.02. The location of proposed borrow pits and / or quarries shall be approved by the Engineer prior to use for the Project. Said borrow pits and / or quarries shall be limited to borrow pits and / or quarries already in use. The source of supply of each of the materials to be incorporated into the Project shall be approved by the Engineer before delivery is started. The approval of the Engineer may be withdrawn at any time when it appears to the Engineer that the materials have deteriorated subsequent to the giving of such approval. Subsequent to the submission of the initial list of sources of supply the Contractor shall notify the Engineer of all new sources of supply at least thirty (30) calendar days in advance of the proposed shipment of materials from such new sources.

105.02 LOCAL MATERIAL SOURCES

Add the following after the first paragraph:

(A) Sources Provided by the Authority

Replace the second paragraph with the following:

If the Contractor desires to use material from sources other than those designated, the Contractor shall first receive pre-approval from the Authority; and then acquire the necessary rights to take materials from the sources and shall pay all costs related thereto, including any which may result from an increase in length of haul. All costs of exploring and developing such other sources shall be borne by the Contractor. The use of material from other than designated sources will not be permitted until such preliminary samples as may be required by the Engineer have been obtained, tested and approved, and the Contractor receives approval of the source of such materials.

105.07 STORAGE OF MATERIALS AND STAGING AREAS

The following is added after the fourth sentence of the first paragraph:

Temporary Storage/Staging area for this Contract are within the proposed widening area and detention basin areas until the time when they are functional. The Contractor will be required to maintain areas in a clean and neat condition.

Prior to occupying and upon vacating any staging area, the Contractor shall submit to the Engineer a minimum of 10 progress photographs documenting the initial and final conditions of the staging area. These photographs shall be in addition to the monthly requirements. Progress photographs shall be taken and submitted in accordance with Subsection 107.10.

The following is added after the first paragraph:

The following requirements are mandated as part of the NJDEP Highway Agency Stormwater General Permit (Highway Agency Permit) for discharge to surface water and groundwater. Documents and forms listed herein and additional instructions are included in Appendix I - NJDPES Stormwater Permit Program.

1. The Contractor shall operate storage/staging areas within the Authority's right of way in accordance with the REQUIRED PRACTICES FOR FUELING OPERATIONS, VEHICLE MAINTENANCE, AND GOOD HOUSEKEEPING STATEWIDE BASIC REQUIREMENTS.
2. The Contractor shall complete the form entitled "NEW JERSEY TURNPIKE AUTHORITY STAGING AREA INVENTORY/INSPECTION FORM" within 30 days of occupying any staging area and update every six (6) months. It should be submitted to the Authority's Engineering Department, Environmental Section as outlined in Appendix I. A copy of the form shall also be submitted to the Engineer for each submission.

3. The Contractor shall provide two weeks written notice to the Authority's Engineering Department, Environmental Section prior to vacating the staging area. A copy of the notice should also be submitted to the Engineer.

105.14 MATERIAL HANDLING PLAN

1. The Contractor shall prepare and implement a Materials Handling Plan (MHP) for dealing with materials and potentially regulated materials encountered during work activities. The MHP shall set forth requirements for the excavation, stockpiling, sampling and analysis, measurement, transportation and disposal/recycling of regulated materials in accordance with all applicable Federal, State and/or local regulations. In addition, the MHP shall be done so as to protect site workers, visitors and the general public from uncontrolled exposure to regulated materials (if encountered), and to prevent uncontrolled releases of regulated materials to the environment. The Contractor shall submit the MHP to the Engineer for review and acceptance.
 - a. At a minimum, the MHP should include the following to the extent that they are applicable:
 - Details of current certifications, permits, insurance types and levels of coverage;
 - Details of stockpiling procedures;
 - Qualifications of the transportation and receiving facilities;
 - Types of equipment to be used in transporting regulated waste;
 - Proposed route(s) to disposal/recycling facilities and weighing facilities;
 - Air monitoring procedures;
 - Qualifications of the environmental testing laboratories;
 - Waste characterization forms, sampling logs and analyses reports;
 - Documentation of the disposal facility's acceptance of the regulated material prior to transporting any material off-site;
 - Transport manifests
 - Waste disposal/recycling documentation forms from the receiving facility.
 - b. The Contractor shall provide the Materials Handling Plan to the Engineer for review and approval.
 - c. The Contractor shall ensure that all operations associated with the handling, loading, transportation and disposal of materials are in compliance with applicable Federal and State Department of Transportation regulations, as well as all local applicable requirements. Applicable regulations include, but are not limited to NJAC 7:26 - New Jersey Solid and Hazardous Waste Regulations that govern waste handler responsibilities, vehicle placard requirements, container requirements,

manifest requirements, and responsibilities and requirements for collectors and haulers of hazardous and non-hazardous solid waste; posted weight limitations on roads and bridges; and other local restrictions on storage and transportation of waste/debris.

- d. Prior to any disposal activities taking place, the Contractor shall identify proposed waste transporter(s) including a commitment letter(s) from properly licensed and insured hauler/transporter(s) for the Engineer's review and approval. This information shall include, but not be limited to, the name and USEPA identification number of the hauler/transporter, address, name of responsible contact for the hauler, telephone number for the contact, list of types and sizes of all transport vehicles and equipment to be used, a description of proposed transportation methods and procedures for hauling waste materials, including type of vehicles that will be used for each type of waste, any and all necessary permit authorizations for each type of waste transported, and previous experience in performing the type of work specified herein.
- e. Prior to any disposal activities, the Contractor shall also specify the proposed transportation/storage/disposal (TSD) facility, including a commitment letter from the TSD facility indicating that it has the capacity to accept the volume of waste material and stating that it will be open for business during the Contract duration to accept the volume of waste materials. The Contractor shall also submit a list of permitted alternative TSD facilities to be utilized in the event the approved facility ceases to accept waste materials generated under this Contract.
- f. The Contractor shall submit, for the Engineer's approval, the following information on the Resource Conservation and Recovery Act (RCRA) approved off-site disposal facilities where the Contractor is proposing to dispose of the waste removed from the site. All information shall be furnished at the Contractor's expense. This information shall include, but not be limited to, the facility name, location and USEPA identification number, the name of responsible contact for the facility, telephone number for the contact, and a signed letter of agreement to accept waste as specified in this contract. Also included as part of the submittal shall be a listing of all permits, licenses, letters of approval and other authorizations to operate that have been applied for by the proposed facility but not yet granted or issued. Provide dates of application(s) submitted. Planned submittals shall also be noted. The Contractor shall specify and describe the disposal /containment unit that the proposed facility will use to manage the waste and provide dates of construction and beginning of use, if applicable. The Contractor shall identify the capacity available in the units and the capacity reserved for the subject waste.

The following subsection is added:

105.15 TIMBER GRADING AND CERTIFICATION

All timber used in the design and construction of catches, and/or temporary flooring platforms shall be graded timber and certified by Sawn Lumber Grading agencies certified by American Lumber Standard Committee Board of Review.

The National Design Specifications (NDS) for Wood Construction and the Supplement shall be used for timber design of temporary floors or catch platforms.

Timber plank systems shall meet the following requirements:

- 1.) All timber planking systems will require an overlay. The overlay may be plywood or other approved material.

SECTION 106 - LEGAL RELATIONS AND RESPONSIBILITY

106.02 LAWS AND ORDINANCES

Add the following subparagraph

(C) Catch and Temporary Flooring.

Catch and Temporary flooring used as working platforms must comply with OSHA 29CFR, Part 1926-Safety and Health Regulations for Construction, Subpart L - Scaffolds.

106.10 PERMITS, LICENSES AND TAXES

The following is added:

The Contractor's attention is called to the following two permits, recently established by the NJDEP that may also be required on this Contract:

(A). Well Drilling Permit

The Contractor shall apply for and obtain a Well Drilling Permit from the NJ Department of Environmental Protection's (NJDEP) Division of Water Resources, Bureau of Water Allocation, when the drilling, boring, coring or excavation of any hole that is \geq 25 feet in-depth or that enters the groundwater table at an elevation above 25 feet in depth is anticipated. No well drilling shall be permitted until such permit is obtained. Each permit covers all wells within a $\frac{1}{4}$ sq. mi. area.

(B). Dewatering Permit

The Contractor shall apply for and obtain a Dewatering Permit from the NJDEP's Division of Water Resources, Bureau of Water Allocation, when the pumping or lowering of any groundwater at an average rate of 100,000 gallons per day, over a 30-day period, within a 2 sq. mi. area is anticipated. No pumping of groundwater shall be permitted until such permit is obtained.

The following is added:

(A) NJDEP – Request for Authorization (RFA) NJPDES General Permit for Stormwater Discharge Associated with Construction Activities. The Contractor should be aware of the permit requirements associated with this permit approval including:

1. the need to post the RFA and the approved Soil Erosion and Sediment Control Plans at the project site;
2. the need to install and maintain all soil erosion and sediment control measures;
3. the need to maintain a Stormwater Log to track maintenance of all soil erosion and sediment control measures as well as Best Management Practices (see www.epa.gov/npdes/pubs/sw_swppp_inspection_form.doc);
4. completion of an Annual Certification Sheet;
5. the proper handling and disposal of on-site solid waste debris;
6. the need for the proper handling and disposal of on-site hazardous waste materials;
7. the need to have Spill Kits on-site;
8. the need for a Concrete Washout area;
9. the need to stabilize soil stockpiles; and,
10. the need to prepare, and have available for review, a Stormwater Pollution Prevention Plan (see Developing Your Stormwater Pollution Prevention Plan. A Guide for Construction Sites. EPA 833-R-06-004 May 2007).

The following is added to the end of this Subsection:

The Authority has applied for and/or procured the following permits:

Permit	Permit No.	Status
NJDEP Freshwater Wetland Individual Permit (original)	0000-08-0029.1 FWW080001	Approved 04/27/09
NJDEP Freshwater Wetland Individual Permit Major Modification #2	0000-08-0029.1 FWW100001	Approved 04/30/10
NJDEP Freshwater Wetland Individual Permit Major Modification #4	0000-08-0029.7 FWW110001	Approved 08/22/11
NJDEP Flood Hazard Area Individual Permit (original)	0000-08-0029.1 FHA080002	Approved 04/27/09
NJDEP Flood Hazard Area Individual Permit #2	0000-08-0029.1 FHA090002	Approved 04/30/10
NJDEP Flood Hazard Area Individual Permit #4	0000-08-0029.7 FHA110001	Approved 08/22/11
NJDEP Flood Hazard Verification #2	0000-08-0029.1 FHA090001	Approved 04/30/10
NJDEP Water Quality Certificate	0000-08-0029.1 FWW080001	Approved 04/27/09
Delaware and Raritan Canal Commission Certificate of Approval	07-3548	Approved 04/23/09

Permit	Permit No.	Status
Freehold Soil Conservation District Soil Erosion and Sediment Control Plan Certification	TBD	Application submitted. Preliminary comments have been resolved. Revised documentation completed and submitted to FSCD for review on 09/02/11. Comments received 10/11/11. FHAP documents resubmitted to FSCD on 10/11/11. Additional comments received 12/14/11. Revised documentation will be submitted upon completion.
NJPDES General Permit for Stormwater Discharge Associated with Construction Activities	TBD	To be submitted upon approval from FSCD.

106.11 MEASUREMENT

The Authority will not make separate payment for the Stormwater Log, the Annual Certification Sheet, and the Stormwater Pollution Prevention Plan. These items are incidental to the Soil Erosion and Sediment Control Plan measures.

The following subsection is added:

106.18 UTILITIES

(B) AUTHORITY OWNED FIBER OPTIC FACILITIES

The following is added:

The Authority's active fiber optic line recently installed by G4S (formerly Adesta) runs generally along the outside of the NS roadway. The contractor shall be aware that the active fiber optic line is in close proximity with many of the proposed features of this Contract, near the edge of the pavement or berm area of the NSO roadway north of Milepost 76.1. It is the Contractor's responsibility to protect the fiber optic line from his construction equipment and construction operations at all times.

The plans and reference drawings show the approximate location of the recently installed fiber optic line based on available as-built information. Based on this information, conflicts with the proposed construction are anticipated. Prior to any construction work in the areas near the fiber optic lines, the Contractor, with the approval of the Engineer, shall notify the State's One Call System and dig a test pit, in accordance with Section 522, to determine the exact horizontal and vertical position of the fiber optic line. The Contractor shall determine the resulting clearance or extent of impact that the proposed construction will have on the fiber optic lines and provide all data and calculations to the

Engineer. As directed by the Engineer, the Contractor shall coordinate with G4S (formerly Adesta) to accommodate the relocation of the fiber optic lines.

Where sheeting is required for construction activities adjacent to the fiber optic line, the separation between sheeting and the fiber optic line shall be 3 feet minimum. Vibratory effects to the fiber optic line caused by sheeting installation shall be considered inconsequential when the minimum separation is provided. All instances where the minimum separation cannot be satisfied will be evaluated by G4S on a case by case basis at the utility mark out during construction. G4S's technicians, in coordination with the Contractor, shall determine if exposing and protecting the fiber optic line is required.

Excavation activities anticipated within 2 feet horizontally and 3 feet vertically of the fiber optic line, based on the utility mark out during construction, shall require hand excavation to expose the exact location and depth of the fiber optic line. Use of mechanized excavation equipment will be allowed within these limits only after the exact location of the fiber optic line is known. During such excavation activities, the Contractor shall be responsible for supporting and protecting the fiber optic line. G4S's technicians will coordinate with the Contractor to determine the appropriate measures to guard the integrity of the fiber optic line while allowing the excavation work to proceed in an efficient manner.

Where the fiber optic line is installed in areas that will experience consolidation as a result of construction (i.e. high fill areas or retaining walls built over the fiber optic line), G4S will require settlement calculations from the Contractor to determine areas of concern.

The Contractor shall be aware that abandoned conduit for the Authority's decommissioned fiber optic line is currently in conflict with many of the proposed features of this Contract, located south of Interchange 8A. The decommissioned fiber optic line has already been pulled from the abandoned conduit by G4S. The contractor shall be responsible for removing the abandoned conduit where called for on the contract plans. Prior to removal of any abandoned conduit, the contractor shall schedule a field meeting with the Engineer and G4S to review the utility mark-out, and field verify both the active and abandoned systems, to assure the abandoned conduit is accurately identified and its removal is performed in a manner that does not adversely impact the active fiber optic system.

Removal of abandoned underground conduit and associated appurtenances (manholes, junction boxes, etc.) shall be included under Roadway Excavation (Section 202). Removal of abandoned conduit and associated appurtenances from existing bridge structures that are to be demolished or modified shall be incidental to the structural demolition work.

(C) SPECIFIC REQUIREMENTS OF COLONIAL PIPELINE COMPANY:

1. The Contractor is advised that Colonial Pipeline Company recently decommissioned and removed their old existing pipe.
2. The Contractor shall not encroach into the existing Colonial Pipeline easement with any equipment, materials, vehicles or personnel without the approval of the Engineer

and advance notification to the Colonial Pipeline Co. (see Appendix Z - Colonial Pipeline Company Encroachment Agreement).

3. Notify the State utilities protection center, in accordance with local, State and Federal laws. Colonial will not inspect or approve any work, until a locate ticket has been issued. Notify the following **Colonial Representative** by phone at least two (2) working days prior to any construction, subsequent maintenance, or repair, so that Colonial may provide a representative on the site:

Bruce Werzanski
(Cell) 609-578-0853

If he cannot be located, then notify Timothy Gross at phone (404) 274-6497 or Todd Rutledge at cell (609) 658-8509.

4. No excavation or construction is permitted over Colonial's pipeline(s) or within Colonial's pipeline easement without a Colonial Representative being present. The location of the pipeline(s) shall be identified prior to the beginning of any mechanical excavation work. If the location of the pipeline(s) is not known, only hand excavation will be allowed. Based on circumstances at the encroachment site, Colonial's Representative has the authority to determine the extent of hand excavation required. However, absent special permission from Colonial's Representative, no mechanized ditching or excavation shall be allowed within five (5) feet of the extremities of the pipelines. **IN ANY EVENT, ALL EXCAVATION WITHIN TWO (2) FEET OF THE PIPELINE(S) MUST BE ACCOMPLISHED BY HAND.** Where hand excavation is required, the Contractor must provide adequate manpower to perform that work. Subgrading, grading, and placement of fill over Colonial's pipeline(s) will require the approval of Colonial's field representative as to the method and extent.
5. Full access must be maintained to Colonial's pipeline(s) at all times. Stockpiling of fill, including spoil, or topsoil over the Colonial's pipeline(s), is not permitted, unless approved by the Colonial Representative.
6. Underground utilities (i.e. storm drains, water lines, telephone, electric, etc.) may cross the easement, providing they maintain a minimum vertical clearance of two (2) feet over or under Colonial's pipeline(s), and cross at as near a perpendicular angle as practical. Septic drain fields and or sewage drains used for percolation are not permissible inside the pipeline easement. All utility crossings of Colonial's pipeline(s) and respective easements must be constructed of galvanized steel, ductile iron, reinforced concrete, or encased (concrete or metal) Schedule 80 PVC for the entire width of the pipeline easement being crossed. If the utility includes cathodic protection, the design must include the installation of a test lead on the newly-installed utility, as well as Colonial's pipeline(s).
7. Blasting within the immediate vicinity of Colonial's pipeline easement shall be conditionally allowed. The contractor, planning blasting within 200 feet of a Colonial pipeline or when scaled distance values at the pipeline are less than 50, must give advance notification of proposed blasting and submit a completed blasting plan (Form 3005), to be approved by Colonial, prior to the commencement of any blasting operations. A Colonial Representative is required to be on site to observe all drilling, loading, and blasting operations. The contractor shall provide in-progress seismic

readings and blasting reports as required in Colonial Standard ES-13-108. All blasting operations must meet the requirements of this standard as well as Occupational Health and Safety regulations contained in CFR Title 29, Part 1926, Subpart U - Blasting and Use of Explosives.

8. Any erosion control measures required for the Contractor's development, including temporary diversion dikes, sediment traps, silt fences, gravel outlets, and emergency spillways that may influence or contribute to the degradation of Colonial's pipeline easement will require the approval of Colonial's Representative as to equipment and method. Under no circumstances shall water be impounded on the pipeline easement(s).
9. Upon request of the Contractor, Authority or their agents, Colonial will determine the approximate location of its pipeline(s) and pipeline easement(s) limits; however, in doing so, Colonial makes no warranty as to the accuracy of the locations and measurements given. Colonial also cannot provide assurance that its permanent line markers are positioned directly over its pipeline(s).
10. Original vegetation on Colonial's pipeline easement shall not be disturbed except in areas of approved construction and approved equipment crossings. Highly visible plastic fence or other approved temporary barricade will be required at the Contractor's expense along Colonial's pipeline easement boundaries if Colonial's Representative deems it necessary; to ensure that Contractor traffic does not travel over Colonial pipeline(s).
11. Permanent structures are not permitted on Colonial's pipeline easement. Manholes, junction boxes, valve boxes, fire hydrants, service meters, storm drain inlets, and utility poles are considered permanent structures. No fences or temporary structures shall be allowed in Colonial's pipeline easement without the express approval of Colonial's Representative. Temporary structures include such items as signs, trailers, temporary power poles, etc.
12. Heavy equipment shall not be permitted to operate over Colonial's pipeline(s) unless earth padding has been provided to protect Colonial's pipeline(s) from vibrating. Temporary equipment crossings over Colonial's pipeline(s) are permitted with six (6) vertical feet of cover over the pipeline(s) at selected locations as approved by Colonial's Representative. Depth of pipe as determined by test holes will determine the amount of temporary fill required. Colored sheets of plastic shall be placed under the temporary fill at original grade so that original grade will not be disturbed when temporary fill is removed. No equipment or vehicles may be parked on Colonial's pipeline easement. No material may be stored on Colonial's pipeline easement.
13. The Contractor acknowledges that Colonial's pipeline(s) have impressed electrical current for the protection of the steel. Only Colonial personnel will correct any loss of this protection caused by the Contractor. The cost to correct this damage will be paid by the Contractor.
14. Only low growing ornamental type shrubbery with a maximum expected height of four (4) feet shall be allowed within Colonial's pipeline easement. In addition, no pipeline marker shall be obscured from public view.

15. Relocation or removal of Colonial's pipeline markers shall not be permitted without the approval of a Colonial Representative. Pipeline markers made unusable or damaged shall be repaired or replaced at the Contractor's expense.
16. Parallel occupancy of pipeline easement(s) with road right of way, or utilities is not permitted. Crossing shall be as near as a perpendicular angle to the pipeline easement as practical.
17. All proposed roadways and parking areas shall maintain a minimum of five (5) feet from top of pipe to top of finished road surface and three (3) feet minimum vertical cover in open drainage or road ditches. Colonial's Engineering may increase these minimum requirements as determined by a stress analysis of the pipe, and other variable conditions and factors. Colonial may consider concrete protection slabs, per Colonial's specifications as an option, at the Contractor's own expense to be installed to protect Colonial's pipeline(s).
18. Any and all Colonial pipeline(s) within the Contract area, may be excavated and visually inspected, with the possible reapplication of pipeline coatings applied, by a Colonial contractor, at the full expense of the Contractor. Colonial requires that the pipeline coating system be evaluated for suitability of service in relation to the proposed encroachment. Should Colonial deem that the coating system is insufficient due to increased soil stresses or other factors, Colonial will, at the Contractor's expense, upgrade the pipeline coating to accommodate the proposed encroachment. Colonial will backfill the inspected area to its standard, and will not be held responsible for compaction.
19. Cover above the Colonial's pipeline(s) shall be a minimum of four (4) feet, and in general a maximum of six (6) feet, unless approved by Colonial's Representative.
20. The burning of trash, debris, etc. shall not be permitted within Colonial's pipeline easement.
21. Should any damage occur to the Contractor's permitted encroachment, as a result of Colonial exercising any of its rights at any time, Colonial will not be responsible for said damage; and any expense or monetary cost involved in the repair of said damages will be borne by the Authority. Provided however, that Colonial will be responsible for, and to the extent of, the negligent acts of its employees, contractors and agents. Further, absent emergency, Colonial will attempt to avoid causing damage to the Contractor by offering open communication with the Contractor throughout the duration of Colonial's exercising of such rights.
22. The Contractor agrees to defend and hold Colonial Pipeline Company harmless from all loss, cost, or other expense, including personal property and bodily injuries, whether occurring to it or to Colonial, or the respective employees, agents and servants of either, or to third parties, which are proximately caused by or arise from the installation, maintenance, or repair of the herein permitted works, with the exception, and to the extent, of claims due to the negligence of Colonial Pipeline Company, employees, contractors or agents.
23. Access is granted only to the extent of and with no actual or implied diminishment of Colonial's rights and interests and without either express or implied warranty.

24. Fences shall be constructed with gates sufficiently large enough to allow Colonial's personnel and equipment the right of ingress and egress. Fence posts shall be installed at least five (5) feet to the side of any of Colonial's pipeline(s), with the approval of the Engineer.
25. If the approximate location of Colonial's pipeline(s) is required, steel prod bars, shovels, and electrical sending devices may be used by Colonial's field personnel only. It should be noted that these methods are only approximate and can be misleading. The exact location of Colonial's pipeline(s) can best be found with test pitting.
26. If test pitting is required to determine the exact location, and elevation, of Colonial's pipeline(s), the Contractor agrees to notify a Colonial Representative at least two (2) working days in advance, so that they may provide a Colonial Representative to be at the site. This representative must be present during the test pitting for the protection of Colonial's pipeline(s), and for the common verification of its location. All costs for this test pitting, and for the Colonial Representative, will be borne by the Contractor. Any engineering based on Colonial or other design criteria stemming from the amount or location of this test pit data is the responsibility of the Contractor.
27. Colonial reserves the right to open, cut, excavate and dig across the proposed road, railway, sidewalks, avenues, utility lines, or any other encroachment herein granted, and in any such event, Colonial shall not be liable for the restoration of same, or the payment of any damages to the Contractor.
28. Excavation or grading which might result in erosion or which could render Colonial's pipeline easement inaccessible shall not be permitted unless the Contractor agrees to restore the area and provide protection to Colonial's pipeline(s). Any erosion control measures within Colonial's pipeline easement including diversion dikes, sediment traps, silt fences, gravel outlets, and emergency spillways will require approval of the Colonial Representative, as to equipment and method.
29. If construction on the encroachment is not initiated within one calendar year of the award of the Contract, then Colonial Pipeline Company shall have the right to reconsider the conditions and privileges herein granted, and have full right to alter same, dependant upon current protocol.
30. The Contractor agrees that all work on Colonial's pipeline easement shall be performed in a Workmanlike manner and in compliance with all applicable government and industry standards and codes.
31. Upon failure of the Contractor or his agents to comply with any of Colonial Pipeline Company's requirements, Colonial Pipeline Company reserves the right to revoke access in its entirety, prevent same from continuing any activity in violation of the requirements of Colonial Pipeline Company or its rights under its easements and prior agreements and make any necessary repairs or adjustments to its pipeline(s) or pipeline easement(s) with its own or contract forces at the expense of the Contractor.
32. Colonial Pipeline Company will have the option of installing video surveillance camera(s) to provide continuous monitoring of its facilities.

33. The approval of the Engineer and Colonial Pipeline Companies inspector will stipulate locations where the Contractor may cross or encroach on the Colonial Pipeline easement, and the Contractor will be subject to the following:
- A. Typical light construction vehicles and equipment working or traveling within 15 feet or across the pipeline will require a minimum 6-foot of cover over the pipeline by construction of temporary fill materials, or;
 - B. Placement of nominal 1-foot thick timber mat a minimum of 10 feet on each side of the pipeline and extending along the pipeline a minimum of 20 feet to form a temporary crossing, or;
 - C. For unusual or heavy construction vehicles or equipment crossing or working within a horizontal distance of 25 feet from the pipeline, or unusual circumstances such as saturated soils, frequent crossing or extended durations, the Contractor shall submit drawings, plans, specifications, equipment details and construction schedules to the Engineer, in accordance with Subsection 104.08, for review and approval by the Colonial Pipeline Company. All costs incurred by the Authority for the Colonial Pipeline Company review of these submissions shall be paid for by the Contractor at their own expense.
 - D. Any type of grading activities, excavation or placement of embankment within Colonial Pipeline Companies easement, will require an on-site Colonial Pipeline Company inspector.
 - E. The installation of sheet piling or piles within a horizontal distance of 25 feet from the pipeline requires an on-site Colonial Pipeline Company inspector, seismic monitoring by the Contractor of the ground surface above the pipe at the closest point, and a ground vibration limit of 2 inches per second peak particle velocity (ppv).
 - F. For the installation of sheet piling and piles within a horizontal distance of between 5 feet and 25 feet from the pipeline, the Contractor shall submit drawings, site specific plans and installation methods to the Engineer in accordance with Subsection 104.08, for review and approval by the Colonial Pipeline Company. The installation will require an on-site Colonial Pipeline Company inspector, seismic monitoring by the Contractor of the ground surface above the pipe at the closest point, and a ground vibration limit of 2 inches per second peak particle velocity (ppv). Exposure of the pipeline by the Contractor will be required when the installation is near the 5-foot limit, as determined by the Colonial Pipeline Company inspector.
 - G. A "potential drop zone" for heavy lifting, as determined by the Engineer, or overhead loads within a horizontal distance of 25 feet from the pipeline requires an on-site Colonial Pipeline Company inspector.

- H. A "potential drop zone" for heavy lifting, as determined by the Engineer, or overhead loads within a horizontal distance of 15 feet from the pipeline requires an on-site Colonial Pipeline Company inspector, a minimum 6-foot of cover over the pipeline by construction of temporary fill material, or the placement of a nominal 1-foot thick timber mat a minimum of 10 feet on each side of the pipeline and extending along the pipeline a minimum of 25 feet beyond any "potential drop zone".
- I. For the condition where the "potential drop zone" for heavy lifting, as determined by the Engineer, is directly over the pipeline, or heavy lifts within a horizontal distance of 15 feet from the pipeline or the potential drop is greater than 25 feet for extended durations, the Contractor shall submit drawings, lifting plans, risk assessment and site specific pipeline protection plans to the Engineer in accordance with Subsection 104.08, for review and approval by the Colonial Pipeline Company. All costs incurred by the Authority for the Colonial Pipeline Company review of these submissions shall be paid by the Contractor at their own expense.
- J. If during the construction the Colonial Pipeline Company inspector or the Engineer feel that a safety or integrity risk to Colonial's facilities exists, all construction activities shall be ceased until the approved resolution of the safety concern has been satisfied.

(D) SPECIFIC REQUIREMENTS OF SUNOCO PIPELINE LP (SPLP):

1. The Contractor is advised that SPLP personnel, contractors and inspectors will be on the site and within SPLP's easement until (Date), when it is anticipated the existing pipe will have been decommissioned and removed. The Contractor is cautioned that before that date, SPLP's activities take precedent, and any work by the Contractor within SPLP's easement will be at the discretion and approval of the SPLP. All SPLP construction access routes shall be maintained during the performance of their pipeline relocation work, including access routes outside of SPLP's exiting easement.
2. The Contractor shall not encroach into the exiting SPLP easement with any equipment, materials, vehicles or personnel without the approval of the Engineer and advance notification to the SPLP.
3. Any work within SPLP's easement or in the vicinity of SPLP's pipelines requires the written approval of SPLP's Engineering and Right-of-Way Departments.

A SPLP inspector must be present at the time that any work is done within SPLP's easement. The Contractor shall contact the SPLP Office in Trenton, NJ at 609-586-1522 two (2) weeks in advance to arrange for an inspector before entering SPLP'S easement by contacting the Garden State Underground Plant Location System at 1-800-272-1000 and SPLP's Trenton Office at 609-586-1522.

A. Required Contacts:

Any related questions can be directed to the Sunoco Logistics Engineering Department Attention:

Walter H. Skorupsky, Manager - Relocations, Design & One Call
Corporate Building
525 Fitztown Road
Sinking Spring, PA 19608
E-mail: whskorupsky@suncologistics.com

SPLP's 24 Hour Emergency Phone Number is 1-800-786-7440.

Note: CONTACTING SPLP DIRECTLY DOES NOT EXONERATE THE CONTRACTOR OF THE LEGAL OBLIGATION TO NOTIFY THE STATE ONE CALL CENTER.

4. **No Work is permitted in the vicinity of SPLP's Facilities or within SPLP's Easement without a SPLP representative being present.**
5. Full access to SPLP's Facilities must be maintained at all times. Subgrading, grading and placement of, or stockpiling of fill, including spoil, or topsoil over SPLP's Facilities and Easement are not permitted, unless approved by a SPLP representative.
6. No equipment is to be stored within SPLP's Easements. If heavy equipment will need to cross SPLP's Facilities and Easements, detailed information will need to be provided to SPLP by the Authority and/or its agents or contractors in order to perform pipe stress calculations. The following information will need to be received to perform a more thorough analysis of wheeled vehicles: loaded vehicle weight, number of axles on the front and rear, weight distribution between the front and rear axles. For equipment on tracks, the following information is needed: loaded vehicle weight, length of track in contact with the ground and track width.
7. Original vegetation within SPLP's Easement shall not be disturbed except in areas of approved Work. Highly visible plastic fence or other approved temporary barricade will be required at Contractor's cost and expense along either side of SPLP's Easements if SPLP's representative deems it necessary to ensure that contractor traffic does not travel over SPLP Facilities and Easements.
8. Fences shall be constructed with gates sufficiently large enough to allow SPLP's personnel and equipment the right of ingress and egress. Fence posts shall be installed at least five (5) feet to the side of SPLP's pipeline, with the approval of a SPLP representative.
9. SPLP reserves the right to open, cut, excavate and dig across any proposed improvements, and in any such event, SPLP shall not be liable for the restoration of same or the payment of any damages to the Contractor.

10. The Contractor agrees to defend and hold SPLP, its affiliated companies, directors, officers, partners, employees, agents and contractors harmless from any and all liabilities, losses, costs, damages, expenses, fees (including reasonable attorneys' fees), fines, penalties, claims, demands, causes of action, proceedings (including administrative proceedings), judgments, decrees and orders resulting from the Contractor or caused by or as a result of the Contractor's Work. The presence of SPLP's representative or any instructions given by such representative will not relieve the Contractor of any liability.
11. All Work within SPLP's Easement shall be performed in a workmanlike manner and in compliance with all applicable laws, rules, regulations, permitting and ordinances.
12. Upon failure of the Contractor, or their agents to comply with any of SPLP's terms and conditions, SPLP reserves the right to revoke access in its entirety, prevent same from continuing any activity in violation of the SPLP terms and conditions, and make any necessary repairs or adjustments to SPLP's Facilities or Easement with its own or contract forces at the sole cost and expense of the Contractor
13. Construction Restrictions:
 - a. If vehicles or heavy equipment is to cross the existing pipeline for any reason, it shall be necessary for the crossing party to provide and maintain a ramp of sufficient material to protect said pipeline. SPLP will make the decision as to how much fill and what other type of protective structure, if any, will be required for the ramp. Upon completion of construction and discontinuation of heavy equipment passage over the pipeline, the ramp shall be removed.
 - b. No materials or equipment shall be stored within the existing pipeline right-of-way without SPLP's prior written consent.
 - c. Construction items such as temporary drainage swales, silt fencing, gates, signs, etc., shall meet SPLP's clearance approval.
 - d. Trenching activities shall be performed as to avoid adversely affecting the integrity of the pipeline and the stability of the pipeline trench.
 - e. In order to maintain immediate and unimpeded access to the pipeline, no trees, shrubs, permanent structures (i.e. buildings, sheds, inlets, drainage structures, hydrants, poles, etc.) or bodies of water shall be placed within the pipeline right-of-way.
14. Pipeline Depth Verification and Location Information:
 - a. SPLP's inspector will verify the depth of the pipeline at every proposed utility crossing, both sides of a proposed road crossing, locations of proposed grade cuts and fills and any other critical locations.

- b. Upon field staking by a SPLP inspector, the contractor shall arrange for a survey to accurately locate the pipeline location.

15. Cover and Grading:

- a. The earth cover over the pipelines shall be maintained and never changed in any manner without the express written consent of SPLP.
- b. In areas where the pipeline currently has less than three feet (3') of cover, no grade cuts will be allowed. Cover over the pipeline shall be increased to a minimum of three feet (3') if there are proposed "improvements" over the pipeline, or within the pipeline right-of-way.
- c. In areas where buildings are proposed within fifty feet (50') of the pipeline facility, vertical cover over the pipeline shall be increased to a minimum of four feet (4'), with a maximum of seven feet (7').
- d. The creation of steep slopes within the pipeline right-of-way that will hinder SPLP's access and maintenance are not permitted.
- e. The creation of "improvements" which would make the pipeline right-of-way more susceptible to erosion are not permitted.

16. Utility Crossings & Underground Structures:

- a. Crossings of utilities or underground structures shall be designed to pass UNDER the pipeline unless otherwise approved by Sunoco Pipeline L.P.'s Engineering Department.
- b. Proposed utilities shall cross as perpendicular to the pipeline as possible.
- c. All underground utilities or structures crossing the pipeline shall maintain a minimum of two feet of vertical clearance between the O.D. of the pipeline and the proposed utility/structure. Power cable and Fiber optic line installations have additional crossing requirements
- d. Structures such as guide rails, concrete paving, sidewalks, curbing, etc., shall be designed in a manner that would facilitate their removal in the event of pipeline maintenance or an emergency repair.
- e. Drainage swales shall maintain a minimum of 3' of vertical clearance between the O.D. of the pipeline and the bottom of the swale. Additional protection may be required in order to minimize erosion susceptibility over the existing pipeline and across its associated right-of-way.
- f. Proposed gabions and rip-rap structures must adhere to the two feet of vertical clearance requirement. Geotextile protection may also be required.

17. Cathodic Protection:

- a. Cathodic protection is employed to control corrosion on the pipeline and other facilities. Cathodic protection may have a detrimental (interference) affect on adjacent and crossing metallic structures.
- b. Possible detrimental cathodic protection affects should be evaluated by the owner of the crossing facilities with appropriate mitigative actions taken if these effects are found to be an issue for the owner of the facilities. Mitigation of detrimental affects from cathodic protection is possible by using non-metallic structure materials, loose barrier coatings, bonded coatings and/or bonded coatings with cathodic protection. However, it is best to consult with those knowledgeable in the field of cathodic protection and cathodic protection interference mitigation to determine what is best for the facility owner's structure and configuration.
- c. If cathodic protection is planned for the crossing or adjacent facility, SPLP's One Call Engineering Department must be notified to allow our corrosion control personnel to install appropriate test facilities and evaluate possible detrimental cathodic protection affects on the SPLP's facilities

18. Power Cable Installations:

a. Secondary Crossing (less than 440 Volts):

Such a crossing shall be installed UNDER the pipeline, (unless otherwise approved by SPLP's Engineering Department), provided the two-foot (2') minimum vertical clearance is maintained between the bottom of the pipeline and the top of the conduit. The cable must be placed in conduit for the width of the right-of-way, and include a drive post, with an electric company marker placed on each side of the pipeline right-of-way.

b. Primary Crossings (greater than 400 volts):

Such a crossing shall be installed UNDER the pipeline, (unless otherwise approved by SPLP's Engineering Department), with a minimum two-foot six-inch (2'-6") vertical clearance between the pipeline outside diameter and the top of the conduit. The cable shall be placed in conduit for the width of the pipeline right-of-way. The conduit shall be protected by pouring of 2,000 psi concrete, dyed red, into the ditch for a minimum distance of five feet (5') on both sides of the pipeline. The concrete shall span the width of the ditch. A minimum two-foot (2') vertical clearance shall be maintained between the outside diameter of the pipeline and the top of the concrete.

- c. For all electrical crossings, a drive post with an electric company marker shall be placed on each side of the pipeline right-of-way.

19. Fiber Optic Cable Installations:

- a. The cable shall be installed UNDER the pipeline with a minimum two-foot six-inch (2'-6") vertical clearance between the pipeline outside diameter and the top of the fiber optic cable.
- b. Fiber optic cables shall be encased in six inches (6") of concrete, dyed orange, for a minimum distance of five feet (5') on both sides of the pipeline. The concrete shall span the width of the ditch.
- c. Fiber optic company markers shall installed at the crossing location on both sides of the pipeline right-of-way.

(E) SPECIFIC REQUIREMENTS FOR PUBLIC SERVICE ELECTRIC AND GAS COMPANY OWNED ELECTRICAL TRANSMISSION FACILITIES

The Public Service Electric and gas (PSE&G) construction contact person is Mr. Joseph P. Fitzgerald - Manager of Construction and Maintenance (908 - 412 -7001).

All work being done by the Contractor, its employees, agents and/or subcontractors or assigns, shall be performed in accordance with all provisions of the New Jersey Statute commonly known as the "High Voltage Proximity Act," codified at N.J.S.A. 34:6-47.1 to 47.9 inclusive, as amended and supplemented, concerning safety precautions to be taken in the proximity of certain electric conductors installed above ground, and in accordance with all rules and regulations promulgated by the Commissioner of Labor and Industry of New Jersey. Such work shall also be in accordance with the provisions of the Federal Occupational Safety and Health Act of 1970 and of Subpart N, Paragraph 1926.550 of the rules and regulations issued there under and codified at 29 CFR 1926.550 and in accordance and in compliance with the latest edition of the National Electric Safety Code (NESC), the National Electrical Code (NEC) and applicable building codes.

The Contractor shall at all times maintain the greatest clearance between construction equipment and the energized conductors of PSE&G required by the applicable provisions of the above-cited statutes. The Contractor shall maintain a fifty (50) foot clearance from the foundation of any electric transmission structure to all construction activities.

The Contractor agrees that no buildings, structures, obstructions or vegetation shall be erected within the PSE&G Easement. Any excavated soil that will be reused shall not exceed a height of five (5) feet when stockpiled on the PSE& G Easement.

The Contractor shall notify the Engineer and PSE&G immediately by telephoning 1-973-430-7000 and in writing within twenty-four (24) hours after the occurrence thereof, of all accidents arising out of work or activities on the Easement Area and/or use and occupancy of the Easement Area. Such notice shall not relieve the Contractor of its obligations and shall not be construed to be other than a mere notification.

106.20 INSURANCE

Replace this Subsection in its entirety with the following:

The Contractor is advised that this Contract is entered into solely on the basis that insurance will be provided through an Owner Controlled Insurance Program (known as 'OCIP' or 'Wrap-up Program') with only some insurance such as, but not limited to, Automobile Liability, to be provided by the Contractor. The Bidder's attention is directed to this entire Subsection 106.20 which has been modified to implement the 'OCIP' or 'Wrap-up Program' for this solicitation.

The Contractor, for informational purposes only, within days after award of the Contract, may be required to provide their insurance costs that would have been submitted with the bid if the OCIP had not provided for the following coverages:

- Workers' Compensation - Statutory and Employer's Liability limits of not less than One Million Dollars (\$1,000,000.00).
- General Liability - Two Million Dollars (\$2,000,000.00) per occurrence/Two Million Dollars (\$2,000,000.00) annual general aggregate and Two Million Dollars (\$2,000,000.00) annual products and completed operations aggregate.
- Excess/Umbrella Liability - Three Million Dollars (\$3,000,000.00) per occurrence, subject to a Three Million Dollars (\$3,000,000.00) annual aggregate, in excess of underlying limits and terms.

(A) INSURANCE TO BE PROVIDED BY OWNER

The Owner, prior to the commencement of the Work, will provide and maintain at its own expense the following insurance coverages for the benefit of the Contractor and Subcontractor and Third Party Contractor(s) as applicable performing Work at the work site. Except as otherwise provided below, such insurance coverages will continue in force until acceptance of the Work by the Owner. Insurance provided by the Owner applies only to operations of and for each Insured at the Site. It does not apply to the operations of any Insured in his regularly established main or branch office, factory, warehouse, fabrication shop or similar place or any other work site.

- (1) Workers' Compensation Insurance in compliance with the laws of the State of New Jersey, including Employer's Liability Insurance (with limits of not less than One Million Dollars (\$1,000,000.00) covering the Owner, Contractor and Contractor's designated subcontractors for operations performed in connection with the Work at the Project site.) A separate policy will be issued for each insured. Policies will be renewed and continued until Acceptance of the Work.
- (2) Commercial General Liability Insurance (excluding Automobile), in the Owner's name in the standard ISO form or its equivalent approved by the Authority, with all Contractors, Subcontractors, and Third Party Contractor(s), as applicable, named as insureds and all other indemnified parties under the contract as additional insureds.

Bodily Injury and Property Damage:

Total combined per occurrence Limit of Liability for all insureds is Two Million Dollars (\$2,000,000.00) subject to a Four Million Dollars (\$4,000,000.00) general aggregate and a Four Million Dollars (\$4,000,000.00) products and completed operations aggregate. Coverage terms will be provided upon request.

Coverage Details:

Standard Commercial General Liability Form

- Employee Exclusion Removed
- Blanket Contractual Liability
- Broad Form Property Damage - Including Completed Operations
- Independent Contractors Coverage
- Products/Completed Operations - extending 6 years after project completion (The limits for products/completed operations shall apply as a one time separate aggregate limit for the entire extension period.)
- Blanket Underground, Explosion and Collapse - (X,C,U) Liability
- Non-Owned Watercraft
- Employees as Additional Insureds
- Broadened Notice of Occurrence
- Broadened Knowledge of Occurrence
- Incidental Medical Malpractice
- Severability of Interest

- (3) Excess Liability Insurance shall have a minimum limit of One Hundred Million Dollars (\$100,000,000.00) each accident or occurrence, subject to a minimum limit of One Hundred Million Dollars (\$100,000,000.00) aggregate, in excess of the underlying limits and terms as set forth in coverage items above.
- (4) All Risk Builders Risk/Installation Floater Insurance Policy. The Authority **will not** provide Builders Risk insurance
- (5) Contractors Pollution Legal Liability Insurance in the amount of Twenty-five Million Dollars (\$25,000,000.00) per occurrence and in the aggregate, with respect to any operation of the Contractor or any of its Subcontractors, including the transportation endorsement. This policy or policies will be purchased by the Owner on behalf of all Contractors and will name the Owner as an Additional Insured.

Contractor will provide Automobile Insurance as required by each Railroad Company, and other insurance not set forth above in this paragraph, as required by each Railroad.

(B) NOTES AND ADDITIONAL CONDITIONS

- (1) All Contractors and Subcontractors will be furnished a copy of certificate of insurance as evidence of coverage.
- (2) All premiums for the insurance set forth in Section A above, will be paid by the Owner, and any and all adjustments, including return premiums

and dividends for Worker's Compensation Insurance, General Liability Insurance and Builders All Risk Insurance shall be paid to and belong to the Owner. Contractor and all Subcontractors will execute any instruments of assignment necessary to permit Owner receipt of these adjustments.

- (3) Loss, if any, covered by the Builders All Risk Insurance policy is to be adjusted by and payable to the Owner.
- (4) With respect to Worker's Compensation, Employers' Liability and General Liability, all Contractors and Subcontractors should inform their insurance broker or agent not to include rating data from work at the Site in their reporting procedures for the calculation of premiums or otherwise.
- (5) Waiver of Subrogation - To the extent Contractor or its Subcontractor(s) are insureds under a policy of insurance provided under the OCIP, they each hereby waive their right and the right, if any, of their insurers, to obtain subrogation against others insured by the OCIP. In addition, the OCIP underwriters hereby waive their right of subrogation against the named insureds.
- (6) The Contractor and Subcontractors shall cooperate with and assist, in every possible manner, the representatives of the Owner, the insurance brokerage representatives and insurers with respect to:
 - (a) Accident Prevention and Claims Procedures.
 - (b) The adjustment of all claims arising out of operations within the scope of the Contract, including litigation of such claims.
 - (c) The Reporting of Claims. All incidents must be reported within 24-hours of injury or damage using methods as provided for by the OCIP Administrator.
- (7) The Owner will provide each participant in the OCIP with an OCIP-Manual (which includes summaries of the insurance coverages, loss control procedures, claim procedures, reporting requirements and enrollment forms) and a Safety Advisory (which overviews health and safety good practices and regulatory requirements). Enrollees shall familiarize themselves, incorporate them into their contracts with other Enrollees and comply with the requirements contained in the OCIP Manual. The OCIP Manual is available on the Authority's Web Site.
- (8) Contractor agrees to allow workers to be tested post-injury for Alcohol and illegal drugs at the Owner's cost.
- (9) The Contractor shall participate in safety site visit(s) by the OCIP Administrator and the insurance carriers providing the OCIP coverages. The Contractor shall keep minutes of all such site visits, noting any items

identified as safety issues as well as the recommendations and actions of the Contractor to address such issues.

- (10) The Contractor agrees to report payroll to the OCIP Administrator on a Monthly or Weekly basis (TBD) per their Internet-Based reporting system.
- (11) The Contractor agrees to comply with all requirements and complete and submit all forms required in the OCIP Manual in a timely manner.
- (12) The Contractors and Subcontractors shall cooperate with and assist all insurance companies issuing any of the policies of insurance mentioned above in the preparation of all necessary pertinent payroll audits for the purposes of developing and determining all premiums hereunder and shall keep their records relating to the contract in such a manner that said records can readily be separated from other Work the Contractors and Subcontractors are doing.
- (13) The Contractor and Subcontractors shall cooperate with any audit and inspection requests.
- (14) Owner shall have no obligation to provide insurance other than that referred to in this Contract and in the OCIP Manual. Contractor will review the coverage, limits of liability and insurance policies to satisfy itself that the coverage meets the needs of the Contractor and its Subcontractors. Nothing contained herein shall be deemed to place any responsibility on Owner for ensuring that the insurance required herein is sufficient for the conduct of Contractor's or Subcontractor's business. Owner assumes no responsibility for providing coverage in excess of the policy limits. Owner reserves the right to furnish other insurance coverage of various types and limits provided that such coverage will not be less than that specified in this Contract. The furnishing of insurance by Owner through the OCIP shall in no way relieve or limit or be construed to relieve or limit Contractor or any Subcontractor of any responsibility or obligation whatsoever otherwise imposed by this Contract, including any indemnity obligation which Contractor or any Subcontractor has to Owner pursuant to other sections of this Contract. Contractor acknowledges that Owner is not an agent, partner or guarantor of the OCIP insurance carriers and is not responsible for any claims or disputes between Contractor and the insurance carriers. Any type, quality or quantity of insurance coverage or increase in limits not provided by the OCIP which the Contractor requires for its own protection or on account of statute will be the responsibility of Contractor at its own expense.
- (15) While it is the intent of the Owner to keep the OCIP in force until the Completion Date and Acceptance of the work, the Owner reserves the right to exclude a Contractor or Subcontractor or terminate or modify the OCIP or any portion thereof at any time. To implement this right to terminate or modify the OCIP, the Owner shall provide at least 45 days advance written notice to all Contractors or Subcontractors covered under the OCIP.

In the event Owner elects to exclude a Contractor or Subcontractor or otherwise terminate or modify the OCIP, the affected Contractors and Subcontractors shall immediately be required to obtain replacement insurance coverage and the reasonable cost of such replacement insurance will be reimbursed by the Owner in accordance with the terms herein. Written evidence of such replacement insurance coverages shall be provided to the OCIP Administrator, as directed by the Chief Engineer or his designee. All insurance secured by Contractor or its Subcontractors pursuant to this section shall be in policies subject to Owner's reasonable approval as to form, content, limits of liability, cost and issuing company.

- (16) The Contractor shall incorporate into all subcontract agreements and ensure that its Subcontractors incorporate in Sub-subcontract agreements all of the relevant provisions regarding Subcontractor requirements and obligations. Contractor shall be responsible for providing each Subcontractor with a copy of the OCIP Manual and the NJTA-HASP Requirements and requiring contractually that each Subcontractor comply with the provisions contained therein and this entire section of the contract.
- (17) No Property Insurance Coverage is provided for personal or business property, equipment, and office equipment, owned or used by the Contractor or Subcontractor other than as described herein. In the event the Contractor or Subcontractor maintains such insurance, such insurance shall include an insurer's waiver of subrogation in favor of the Owner.
- (18) The Contractor or Subcontractor may purchase such additional coverage(s) as it deems necessary for its own account, at its own expense and through its own efforts for exposures not covered by the OCIP.
- (19) The Contractor shall promptly notify the Insurance Administrator at the completion of each Subcontractor's Work at the Site.
- (20) The insurance coverages referred to in this Section 106.20 are set forth in full in the respective insurance policy forms, and the descriptions of such policies contained in this Subsection 106.20 or in the OCIP Manual are not intended to be complete or to alter or amend any provision of the actual insurance policies and in matters, if any, in which the description may be conflicting with such instruments, the provisions of the actual insurance policies shall govern.

CONTRACTORS MUST EXCLUDE THE INSURANCE COSTS FOR CONTRACTOR AND ITS SUBCONTRACTORS IN THEIR BID FOR THOSE COVERAGES THAT ARE PROVIDED BY THE OCIP.

The Owner reserves the right to request a certification of insurance coverages of the Contractor and any of its Subcontractors to ensure that the cost of OCIP coverages have been excluded from the bid.

(C) INSURANCE TO BE PROVIDED BY CONTRACTOR AND
SUBCONTRACTORS

As directed by the Chief Engineer, the Contractor and each of its Subcontractors shall procure, at its sole cost and expense, and shall maintain in force at all times during this Contract until Final Acceptance, policies of insurance as herein below set forth, written by companies approved and otherwise reasonably acceptable by the Owner or its designee and shall deliver to the Authority evidence of such policies. These policies must:

- Be written in accordance with the requirements of the subparagraphs below, as applicable;
- Be endorsed in form acceptable to the Authority to include a provision that the policy will not be canceled, materially changed, or not renewed without at least thirty (30) days prior written notice to the Authority, attention OCIP Insurance Administrator, by Certified mail, return receipt requested;
- State or be endorsed to provide that the coverage afforded under the policies shall apply on a primary and not on an excess or contributing basis with any policies which may be available to the Owner.
- State or be endorsed to provide Waiver of Subrogation for General Liability, Automobile Liability and Workers Compensation coverage;
- Name as Additional Insured, The Authority, its commissioners, officers, employees and agents.
- Policies written on a "claims-made" basis are not acceptable.
- At least thirty (30) days prior to the expiration of the policies, evidence of renewal or replacement policies or insurance, with terms and limits no less favorable as the expiring policies, shall be delivered to the Authority.
- Deductibles or self-insured retentions above \$25,000 will require approval from the Authority.

(1) Special Insurance to be provided by Applicable Contractors and Subcontractors as defined below:

- (a) As respects any watercraft (Boats, Barges, etc.) used during the performance of this contract, Marine Protection and Indemnity Insurance covering all marine hazards arising from this contract; including injuries to crew members, if not provided through other insurance; Bodily Injury to third parties and Property Damage to wharves, piers and other structures and loss or damage to other vessels not caused by collision. The policy shall be subject to a limit of liability of not less than \$5,000,000 per occurrence and \$10,000,000 in the aggregate. If the policy is subject to an aggregate limit, replacement insurance will be required if it is likely such aggregate will be exceeded.

- (b) If the project includes transportation of Hazardous Waste/Material from the project site, the Contractor or Subcontractor who transports the hazardous waste/materials from the work site which requires a Hazardous Waste Manifest, and such transport is related to the Work, coverage for bodily injury or property damage including liability for environmental restoration resulting from negligence in the operation, maintenance or use of any motor vehicle involved in the transportation of hazardous waste pursuant to all applicable Federal, State and local laws, rules and regulations, MCS-90 Endorsement must be attached to the policy and supplied on a primary basis with a \$5,000,000 limit of liability.

Said Environmental Liability Insurance shall be in effect from the time the Owner permits the asbestos abatement, lead abatement or other environmentally regulated substances and materials work to begin through the completion of the work.

- (c) Upon award or upon selection of the Subcontractor, the Contractor shall additionally furnish evidence to the Engineer that the disposal facility chosen has the minimum Environmental Liability Insurance required by applicable Federal, State and local regulations for the duration of the Work.

Any additional insurance policies necessary to obtain required permits or otherwise comply with applicable law, ordinances or regulations regarding the performance of the Work will be provided upon request of the Chief Engineer.

- (d) Aircraft Liability Insurance

If the Contractor or subcontractor is engaged in any operations utilizing aircraft, it shall maintain aircraft liability insurance in an amount not less than \$10,000,000, written on an occurrence basis.

This policy shall name the Authority, its commissioners, officers, employees and agents as additional insured.

- (2) Specific Insurance Policies to be provided by All Contractors and Subcontractors:

- (a) Commercial Automobile Liability Insurance policy in Contractor's name with the Owner and all other Indemnified Parties under the Contract named as additional insureds with limits of liability in the amount of \$2,000,000 each occurrence on a combined single limit basis for injuries to persons (including death) and damage to property arising out of the ownership, maintenance or use of any owned, hired or non-owned motor vehicle. If the policy is subject to an aggregate limit, replacement

insurance will be required if it is likely such aggregate will be exceeded.

- (b) To the extent required by law Statutory Workers Compensation Insurance and Employers Liability Insurance including Maritime Coverage, if appropriate, for operations AWAY FROM THE SITE. Employers Liability Limits shall be at least \$1,000,000 each accident.
- (c) Commercial General Liability for operations AWAY FROM THE SITE for each Contractor and all Subcontractors. The limits shall be \$2,000,000 each occurrence including Products/Completed Operations with a \$2,000,000 Aggregate. If the policy is subject to an aggregate limit, replacement insurance will be required if it is likely such aggregate will be exceeded. Each liability policy shall contain an Additional Insured Endorsement naming the Owner and any other entity designated by Owner as Additional Insured, equivalent to the latest ISO Form CG 2010 and will state that the coverage provided to the Additional Insureds is primary and non-contributing with any other insurance available to the Additional Insured.
- (d) Umbrella Liability Insurance for operations AWAY FROM SITE for each Contractor and all Subcontractors. The limits shall be \$3,000,000 Each Occurrence and Annual Aggregate in excess of those underlying policy limits referenced in 2 a ,b and c above.
- (e) Contractor waives, and will require any and all Subcontractor(s) to waive, all rights of recovery under subrogation, because of deductible clauses, inadequacy of limits of any insurance policy or otherwise (including, but not limited to, property damage to equipment, materials and any loss due to business interruption) against the Owner and all other Indemnified Parties under the Contract are included in the Contract and any Contractor or Subcontractor performing work or rendering services in connection with the project, and agrees to effect a waiver of subrogation in favor of the above entities on all policies of insurance, including, but not limited to, property insurance policies covering personal property of any kind, any loss due to business interruption, equipment, materials, owned, hired or in the care, custody or control of the Contractor or such Subcontractor(s). Contractor shall require that all insurance policies related to the Work secured by Contractor or its Subcontractors include clauses providing that each insurance carrier shall also waive all of its rights of recovery by subrogation, or otherwise, against Contractor together with the same parties referenced immediately above in this Section. Contractor shall require similar written express waivers and insurance clauses from each of its Subcontractors. This provision shall apply to each Contractor and Subcontractor performing work or rendering services on behalf of Owner in connection

with the planning and development of the Project irrespective of whether or not it is enrolled in the OCIP. A waiver of subrogation shall be effective as to any individual or entity even if such individual or entity (a) would otherwise have a duty of indemnification, contractual or otherwise, (b) did not pay the insurance premium directly or indirectly, and (c) whether or not such individual or entity has an insurable interest in the property damaged.

- (f) In addition to the requirements contained elsewhere in this agreement, all Excluded Contractors and excluded subcontractors shall, at a minimum, separately procure and maintain the insurance required in this section. Additionally all Contractors shall require, and monitor for compliance, their respective excluded subcontractors, to maintain the following insurance:
- (1) Workers Compensation Insurance with statutory limits as required in the State(s) where any operations are being performed, including Maritime coverage, if appropriate, and Employers' Liability limits of not less than \$1,000,000 each accident.
 - (2) General Liability Insurance covering claims for personal injury, bodily injury and property damage arising out of the Work and in a form providing coverage not less than that of a standard Commercial General Liability Insurance policy ("Occurrence Form"). Such insurance shall provide coverage for all operations and include independent contractors, products completed operations for two (2) years after final Acceptance of the Work and final payment has been made contractual liability, explosion, collapse, and underground hazards. The policy shall include an additional insured endorsement in accordance with Paragraph c above. The policy shall include an additional insured endorsement in accordance with Paragraph c above. The limits of such insurance shall not be less than \$2,000,000 per occurrence, \$2,000,000 general aggregate limit and \$2,000,000 aggregate for products and completed operations. If the policy is subject to an aggregate limit, replacement insurance will be required if it is likely such aggregate will be exceeded. Each liability policy shall contain an Additional Insured Endorsement naming the Owner and any other entity designated by Owner as Additional Insured, equivalent to the latest ISO Form CG 2010 and will state that the coverage provided to the Additional Insureds is primary and non-contributing with any other insurance available to the Additional Insured.

- (3) Commercial Automobile Liability Insurance covering all owned, non-owned and hired automobiles, trucks and trailers. Such insurance shall provide coverage not less than the Standard ISO Commercial Automobile Liability policy with limits not less than, \$2,000,000 Combined Single Limit and naming the Owner and all other Indemnified Parties under the Contract as additional insureds.
- (4) Umbrella Liability Insurance with limits of \$3 million per occurrence and annual aggregate in excess of those policies listed in (1), (2) and (3) above. If the policy is subject to an aggregate limit, replacement insurance will be required if it is likely such aggregate will be exceeded.

(D) NOTIFICATION OF CONTRACT AWARD AND REQUEST FOR INSURANCE

When the Owner advises a successful bidder of the award of a Contract, the Owner will also notify the Insurance Broker. Notification to the Insurance Broker is required of all Contractors and Subcontractors.

- (1) Any work sublet by a Contractor must be reported to and approved by the Owner.
- (2) The Contractor and his Subcontractors are required to complete the Contractor Insurance Information and enrollment forms as set forth in the Authority's OCIP Manual and return it to the designated OCIP Administrator. Upon receipt of this completed information, the designated OCIP Administrator will arrange for and send to the eligible Contractors or eligible Subcontractors:
 - (a) A Certificate of Insurance evidencing Workers' Compensation and Employers' Liability coverage. The original policy providing coverage will be sent as soon as practicable.
 - (b) A Certificate of Insurance evidencing Commercial General Liability coverage.
 - (c) A Certificate of Insurance evidencing Umbrella Liability Insurance, if requested.
 - (d) A Certificate of evidencing All Risk Builders Insurance (if applicable).

(E) INSURANCE TO BE PROVIDED BY CONTRACTORS AND SUBCONTRACTORS IN THE EVENT OF TERMINATION OF THE OCIP

In the event that the OCIP is terminated for any reason, the Contractor shall procure and maintain, until acceptance by the Authority of the Project, insurance for liability for damages imposed by law and assumed under this contract, of the

kinds and in the amount hereinafter provided. All insurance companies must be authorized to do business in the State of New Jersey, and must carry an A.M. Best Rating of A-VII or better. Before commencing any services hereunder, the Contractor shall furnish to the Authority a certificate or certificates of insurance (together with declaration pages if requested by the Authority) in form satisfactory to the Authority showing that it has complied with this article. The certificate or certificates and declaration pages shall provide that the policies shall not be canceled or restrict any coverage until 30 days prior written notice has been given the Authority. All certificates and notices of cancellation of change shall be mailed to: Chief Engineer, New Jersey Turnpike Authority, P.O. Box 5042, Woodbridge, NJ 07095-5050. Upon request, the Contractor shall furnish the Authority with a certified copy of each policy itself, including the provision establishing premiums.

In the event that the Contractor fails to provide or refuses to renew any insurance policy required to be maintained herein, or if such policy is canceled or modified so that the insurance does not meet the requirements contained herein, the Authority may refuse to make payment of monies due under this Contract. The Authority in its sole discretion may use such monies to purchase insurance on behalf of the Contractor.

The types and minimum limits of insurance shall be:

(1) COMMERCIAL GENERAL LIABILITY INSURANCE.

The minimum limits of liability for this insurance shall be as follows:

Bodily Injury and Property Damage (Each occurrence combined single limit)	\$2,000,000
Personal Injury Each Occurrence	\$2,000,000
General Aggregate	\$2,000,000
Products Aggregate	\$2,000,000
Fire Damage Legal Liability	\$ 100,000
Medical Payments	\$ 5,000

This policy shall name the Authority, its commissioners, officers, employees and agents as additional insureds.

The coverage to be provided under this policy shall be at least as broad as the standard basic unamended and unendorsed ISO Commercial General Liability policy.

This insurance policy shall include, Personal Injury, Broad Form Property Damage, Contractual Liability including the deletion of the coverage restriction related to work conducted within fifty (50) feet of a railroad, products, completed operation, X.C.U., and independent contractors coverages. With respect to products, completed operations coverage shall remain in force for a period of two (2) years following the completion and/or termination of the contract.

(2) BUSINESS AUTOMOBILE LIABILITY INSURANCE.

The Comprehensive Automobile Liability policy shall cover owned, non-owned and hired vehicles with minimum limits as follows:

Combined Single Limit of Liability for Bodily Injury or
Property Damage any one accident; \$2,000,000

This policy shall name the Authority, its commissioners, officers, employees and agents as additional insureds.

The Contractor and any subcontractors, who will be transporting any hazardous materials, hazardous substances, hazardous wastes and contaminated soils as part of the work under this contract, shall provide the Authority with evidence of levels of financial responsibility as required by the Motor Carrier Act of 1980 and 49 C.F.R., Part 387.

The Contractor and/or subcontractor, as the case may be, shall provide the Authority with one of the following: (1) an Endorsement for Motor Carrier Policies of Insurance for Liability under Sections 29 and 30 of the Motor Carrier Act of 1980 (Form MCS-90) issued by an insurer, (2) a Motor Carrier Surety Bond for Public Liability under Section 30 of the Motor Carrier Act of 1980 (Form MCS-82) issued by a surety, or (3) a written decision, order or authorization of the Interstate Commerce Commission authorizing the Contractor or subcontractor to self-insure pursuant to 49 C.F.R., Part 1043.5.

(3) WORKERS COMPENSATION AND EMPLOYERS' LIABILITY INSURANCE.

Workers Compensation Insurance shall be provided in accordance with the requirements of the laws of the State of New Jersey and shall include an all-states endorsement to extend coverage to any state which may be interpreted to have legal jurisdiction. Employers' Liability Insurance shall be provided with a limit of liability of \$1,000,000 for each accident as required by New Jersey law.

(4) CONTRACTORS POLLUTION LIABILITY (CPL) INSURANCE.

With regard to services rendered by Contractors and/or their Subcontractors for this project, a Contractor's Pollution Liability Policy (CPL) shall be provided.

The CPL shall include, but not be limited to, coverage for on-site cleanup, bodily injury and/or property damage to third parties, contractual liability, and automobile liability for the transportation of materials to and from the project site, completed operations and a severability of interest clause.

The policy shall be issued on a project specific and occurrence basis dedicated exclusively to the project for the services rendered hereunder. The policy shall be renewed annually for the duration of the project and for a period of two (2) years following termination of the contract or the completion of the project. The minimum limits of liability dedicated to this project shall be as follows:

Each Occurrence \$5,000,000
Annual Aggregate \$10,000,000

The policy shall name the Authority, its commissioners, officers, employees and agents as additional insureds.

(5) UMBRELLA LIABILITY INSURANCE

Umbrella liability insurance is required with limits in excess of those underlying policies stated under parts (a) (b) and (c) with minimum limits as follows:

Minimum limit each occurrence and annual aggregate \$3,000,000

This policy shall name the Authority, its commissioners, officers, employees and agents as additional insured.

(6) OWNER'S PROTECTIVE LIABILITY INSURANCE.

The contractor shall obtain and maintain a separate Owner's Protective Liability policy with minimum limits as specified below. This policy shall name the New Jersey Turnpike Authority, its commissioners, officers, employees and agents as named insured. The policy shall remain in force until completion of the project.

Minimum limits of liability for bodily injury and property damage combined C/S/L each occurrence and aggregate - \$5,000,000.

(7) MARINE LIABILITY INSURANCE.

If the Contractor or subcontractor is engaged in any marine operation, it shall maintain marine liability insurance in a minimum limit of \$10,000,000, written on an occurrence basis.

This policy shall name the Authority, its commissioners, officers, employees and agents as additional insured.

(8) AIRCRAFT LIABILITY INSURANCE.

If the Contractor or subcontractor is engaged in any operations utilizing aircraft, it shall maintain aircraft liability insurance in an amount not less than \$10,000,000, written on an occurrence basis.

This policy shall name the Authority, its commissioners, officers, employees and agents as additional insured.

(9) RAILROAD PROTECTIVE LIABILITY INSURANCE.

If the Contractor or Subcontractor is engaged in any operation requiring a permit from a Railroad Company located within the worksite, the Contractor will provide Insurance in such amounts and such limits as required by the individual Railroad Company.

(10) INSURANCE, CERTIFICATE AND ENDORSEMENT REQUIREMENTS.

Each of the above required policies shall contain the endorsements as stated below:

- Thirty (30) days notice of cancellation or any restriction in coverage by registered mail to the New Jersey Turnpike Authority.
- All policies, except Workers Compensation and Employer's Liability Insurance, shall contain a waiver of subrogation clause in favor of the New Jersey Turnpike Authority.
- With respect to policies (1),(2),(4) and (6), the other insurance clause under each policy shall be amended to read as follows:
"This policy will act as primary insurance and not contribute with policies issued to the New Jersey Turnpike Authority."

Insurance coverage in the minimum amounts provided for herein shall not relieve the Contractor or subcontractor of any liability which might exceed that amount, nor shall it preclude the Authority from taking such other actions as are available to it under any other provisions of this contract, or otherwise in law.

In the event that the Contractor or subcontractor fails or refuses to renew any insurance policy required to be maintained herein, or if such policy is canceled or modified so that the insurance does not meet the requirements contained herein, the Authority may refuse to make payment of monies due under this contract. The Authority, in its sole discretion, may use such monies to purchase insurance on behalf of the Contractor or subcontractor, or it may default the Contractor and direct the surety to complete the project. The Authority may waive or modify and requirement set forth in the insurance program set forth herein. During any period when the required insurance is not in effect, the Chief Engineer may suspend performance of the Contract. If the contract is so suspended, no additional compensation or extension of time shall be due on account of such suspension.

The Contractor shall also require all subcontractors to comply with the insurance requirements stated above, including providing evidence of such insurance coverages in the same manner as stated above. If any

subcontractor cannot comply with this requirement, then such subcontractor shall be added under the Contractor's policies as an additional insured.

Notwithstanding that minimum amount of insurance coverage carried or required to be carried by the Contractor are specified herein, the liability of the Contractor shall not be limited to the amounts so specified and shall extend to any and all liability in excess of the insurance coverages so provided nor shall these minimum limits preclude the Authority from taking any action available to it under the provisions of the contract or otherwise in Law.

(11) ADDITIONAL PROVISIONS

- (a) Contractor and all Subcontractors shall not violate or knowingly permit to be violated any conditions of the policies of insurance provided by Owner under the terms of this Paragraph 106.20. All requirements and obligations imposed on the Contractor by this Paragraph 106.20, the OCIP Manual or the insurance policies referred to herein shall likewise, by Contractor or otherwise, be imposed on, assumed and performed by each of the Subcontractors.
- (b) The Contractor agrees and will require each Subcontractor to agree to keep and maintain an accurate and classified record of its payroll data and information in accordance with the requirements of the insurance company or companies and as required in the OCIP Manual. The Contractor and its Subcontractors agree to permit its books and records to be examined and audited periodically by the Insurer, Owner or their respective representatives. Prior to start of work, the Contractor shall furnish and cause its Subcontractors to furnish to Owner or its designee, in a form satisfactory to Owner as set forth in the OCIP Manual, an estimate of direct labor cost (listed by Standard Workers' Compensation Insurance classification) to be incurred in connection with the work at the Site, and the total price due each Subcontractor under its contract. Contractor shall provide Owner as requested or required, with certified payrolls for all on-site labor performed by Contractor and its Subcontractors. Failure by the Contractor to provide certified payrolls may, at Owner's option, be cause to withhold payment until compliance.
- (c) Contractor shall deliver to the designated OCIP Administrator prior to the commencement of the work, satisfactory evidence of insurance coverage for Contractor on a standard ACORD form or other form as required by Owner. Sample ACORD certificate is included in the OCIP Manual. Upon request, copies of the actual insurance policies or renewals or replacements thereof shall be submitted to Owner. All policies of insurance the Contractor or Subcontractor are required to secure and maintain

in accordance with this Contract will be placed with A.M. Best-rated VII or better insurance companies' satisfactory to Owner and shall provide sixty (60) days written notice of cancellation, non-renewal or reduction of coverage. Contractor will be responsible to pay all insurance premiums including any charges for required waivers of subrogation or the endorsement of Additional Insureds. All Insurance furnished by Contractor or its Subcontractors will be in full force and effect during contractor's performance under the Contract or as otherwise required by the Contract. The coverage and limits of insurance required in this Contract will not be construed as a limitation of liability to Owner or in any way modify the Contractor's or its Subcontractor's obligations to indemnify Owner. Contractor's failure to deliver satisfactory evidence of coverage shall not be construed as a waiver of Contractor's obligation to provide the required insurance coverage. Contractor shall be responsible for obtaining satisfactory evidence of insurance coverage from each of its Subcontractor's prior to commencement of Subcontractor's work.

Nothing contained in this Paragraph 106.20 shall relieve the Contractor and/or its Subcontractors of their respective obligations to exercise due care in the performance of their duties in connection with the Work and complete the Work in strict compliance with the Contract.

(12) ENVIRONMENTAL OBLIGATIONS AND INDEMNIFICATION

In fulfilling its obligations under the Contract, the Contractor and all Subcontractors shall comply with any and all applicable Federal, State and local laws, rules and regulations governing the handling, transportation, disposal and abatement of asbestos, asbestos containing materials, asbestos contaminated materials, lead paint materials, petroleum, petroleum constituents, and all other environmentally regulated substances and hazardous materials. The Contractor shall indemnify and hold harmless, without limitation, the indemnified parties from any and all fines, penalties and assessments levied against or imposed upon the Indemnified Parties as a result of the Contractor's failure to comply with any and all applicable federal, state and local laws, rules and regulations governing the handling, transportation, disposal and abatement of asbestos, asbestos containing materials, asbestos contaminated materials, lead paint materials, petroleum, petroleum constituents, and all other environmentally regulated substances and hazardous materials.

The liability of the Contractor under this section shall in no way be limited by the amount of insurance coverage provided and shall continue beyond the expiration of the Contract for claims, losses, expenses, fines, penalties and assessments which arise out of the Contractor's or its Subcontractor's performance during the term of the Contract.

106.24 SMALL BUSINESS ENTERPRISE PROGRAM

Delete the first paragraph and replace it with the following:

In accordance with Executive Order No. 84 signed by Governor Jim Florio on March 5, 1993 and Executive Order No. 71 signed by Governor James E. McGreevey on October 2, 2003, it is the policy of the New Jersey Turnpike Authority (the "Authority" or "NJTA") that Small Business Enterprises ("SBE"), as determined and defined by the State of New Jersey, Department of Treasury, Division of Minority and Women Business Development ("Division") and the Department of the Treasury ("Treasury") in N.J.A.C. 17:13-1.1 et seq and N.J.A.C. 17:14-1.1 et seq., respectively, have the opportunity to compete for and participate in the performance of contracts for the purchase of goods and services and for construction services required by the Authority. The Authority further requires that its contractors shall agree to take all necessary and responsible steps, in accordance with the aforementioned regulations, to ensure that SBEs have these opportunities.

In the second and third paragraphs, change "Commerce Commission: to "Division".

Add the following Subsection:

106.25 WARRANTIES MADE BY CONTRACTOR

The Contractor represents and warrants:

- A. That he is financially solvent, that he is experienced in and competent to perform the type of services contemplated by this Contract, that the facts stated or shown in any papers submitted or referred to in connection with his Proposal are true, and, if the Contractor be a corporation, that it is authorized to perform this Contract;
- B. That he has carefully examined and analyzed the provisions and requirements of this Contract and inspected the construction site, that from his own investigations he has satisfied himself as to the nature of all things needed for the performance of this Contract, the general and local conditions and all other matters which in any way affect this Contract or its performance, and that the time available to him for such examinations, analysis, inspection and investigation was adequate;
- C. That the Contract is feasible of performance in accordance with all its provisions and requirements and that he can and will perform in strict accordance with such provisions and requirements;
- D. That no Commissioner, officer, agent or employee of the Authority is personally interested directly or indirectly in this Contract for the compensation to be paid hereunder, and;
- E. That, except only for those representations, statements or promises expressly contained in this Contract, no representation, statement or promise, oral or in writing, of any kind whatsoever by the Authority, its Commissioners, officers, agents, employees or consultants has induced the Contractor to enter into this

Contract or has been relied upon by the Contractor, including any with reference to: (1) the meaning, correctness, suitability, or completeness of any provisions or requirements of this Contract; (2) the nature, existence or location of materials, structures, obstructions, utilities or conditions, surface or subsurface, which may be encountered at the construction site; (3) the nature, quantity, quality or size of the materials, equipment, labor and other facilities needed for the performance of this Contract; (4) the general or local conditions which may in any way affect this Contract or its performance; (5) the price of the Contract; or (6) any other matters, whether similar to or different from those referred to in (1) through (5) immediately above, affecting or having any connection with this Contract, the bidding thereon, any discussions thereof, the performance thereof or those employed therein or connected or concerned therewith.

Nothing in the Contract Documents or any other part of the Contract is intended as or shall constitute a representation by the Authority as to the feasibility of performance of this Contract or any part thereof. Moreover, the Authority does not warrant or represent either by issuance of the Contract Documents or by any provisions of this Contract as time for performance or completion or otherwise that the Contract may be performed or completed by the times required herein or by any other times.

The Contractor further represents and warrants that he was given ample opportunity and time and by means of this subsection was requested by the Authority to review thoroughly all documents forming this Contract prior to opening of Proposals on this Contract in order that he might request inclusion in this Contract of any statement, representation, promise or provision which he desired or on which he wished to place reliance; that he did so review said documents, that either every such statement, representation, promise or provision has been included in this Contract or else, if omitted, that he expressly relinquishes the benefit of any such omitted statement, representation, promise or provision and is willing to perform this Contract without claiming reliance thereon or making any other claim on account of such omission.

The Contractor further recognizes that the provisions of this Subsection, (though not only this Subsection) are essential to the Authority's consent to enter into this Contract and that without such provisions, the Authority would not have entered into this Contract.

SECTION 107 – PROSECUTION AND PROGRESS

107.04 PROGRESS SCHEDULE

Replace the last sentence of the second paragraph with the following:

The progress schedule shall clearly outline the intended maintenance of traffic, pollution control measures, Right-of-Way and utility interfaces, and such other information as required by the Contract Documents, or as deemed appropriate for the Project.

(E) TYPES OF PROGRESS SCHEDULES.

(1) When the Progress Schedule is a Pay Item.

Replace "Primavera Project Planner" with "Primavera P-6.2".

The following paragraphs are added after the second paragraph:

General:

The Authority will use Primavera's P-6.2 as its standard scheduling software to prepare a Master Construction Schedule (MCS) for its Interchange 6 to 9 Widening Program. This MCS will be a composite of all progress schedules prepared by each contractor for the Widening Program. To enable the electronic processing of all data, all schedules shall be generated using Primavera's P-6.2 software in a format consistent for all contracts. This format comprises a uniform Work Breakdown Structure (WBS), a set of Activity Codes that identifies common types of work for all of the program contracts and a set of Project Calendars reflecting the specific holiday restrictions and time formats as set forth elsewhere in the contract documents. The contractor shall utilize the standard template to develop a baseline CPM Progress Schedule and all subsequent updates. This template will be available electronically (.pdf format and a P-6.2 file) to prequalified Plan Holders. Please contact Mr. Tony Valte, Assistant Project Supervisor at valte@turnpike.state.nj.us (preferred) or 732-750-5300, ext. 8244 to request this information.

Contractor's Use of MCS

The contractor will be provided with a template and the contractor shall copy this template into his Primavera's P-6.2 software program and use this copy to develop his schedule using the specific requirements as outlined further below. The contract code will be an integral part of the WBS. It is a unique identifier for each contract and is the last three digits of the contract i.e. 101 will be used for Contract No. T869.120.101, 201 for Contract No. T869.120.201, etc. This code will be the unique Contract Code. Once assigned to an activity the activity code shall not be changed or reassigned for the contract duration. Each update of the monthly schedule shall be identified through the use of an activity code, as specified in the Activity Code listing that assigns a sequential number to each update along with activity modifications. In order to maintain relationships between various contracts or to address external impacts with entities such as utilities and ROW availability, as identified by the Engineer, the contractor shall introduce and maintain these links for all subsequent CPM Progress Schedule updates.

Use of Calendars

Primavera P-6.2 allows for the use of Global and Project calendars. For this contract, only Project calendars shall be used. If the contractor elects to use Global Calendars to prepare his schedule, these calendars shall be converted to a Project Calendar before submitting the schedule. There are two calendars that the contractor shall adhere to when preparing his progress schedule. These calendars are included in the Primavera's P-6.2 *.xer file and are identified as follows:

- a. 5 day Calendar with Authority holidays shall be used for activities where the RESP activity code is Authority.

- b. 7 day Calendar. This calendar shall be used for activities that progress 24 hours, 7 days a week that may include "Maintenance of Traffic", "Curing of Concrete", and "Settlement" etc.

The contractor shall prepare additional Project Calendars to schedule his own work that shall include holiday restrictions as set forth elsewhere in the contract documents. The Project calendars shall account for seasonal impacts to such activities as hot mix asphalt paving and seeding & planting as well as reductions in productivity due to inclement weather.

Schedule Preferences

Primavera P6.2 uses a series of User Preferences that dictate how dates are calculated and how activities are progressed. In order to be consistent across all contracts, the contractor shall use and maintain the preferences included in the schedule template, as follows:

- a. Units Format: Unit of Time - Days
- b. Durations Format: Unit of Time - Days
- c. Hours per Time Period:
 - Hours/Day = 8
 - Hours/Week = 40
 - Hours/Month = 173
 - Hours/Year = 2080
- d. All calendars shall use the same detailed work hours/day to maintain a one-day minimum unit of time. Generic calendars are provided for the contractor's reference in the schedule template.
- e. All calendars must have the following work hours regardless of the calendar description, 7AM to 4PM, as required to maintain the one-day minimum unit of time. Special work hours (i.e. 10-hour days, 24-hour days) shall be described in the calendar description and the schedule narrative.
- f. If night work calendar is used it shall have the following work hours regardless of the calendar description, 10PM to 6AM.
- g. If double shift calendar is used it shall have the following work hours regardless of the calendars description, 7AM to 4PM and 10PM to 6AM.

The use of the "User Preferences" as outlined above prevents the calculation of fractional durations and unexpected start and completion dates of activities and milestones. Fractional durations shall be resolved by the contractors. They will not be accepted for schedule updates.

Relationships between activities are also affected by the "User Preferences" and shall conform to the following:

- a. The default setting in the Schedule Options shall be that the calendar for scheduling relationship lag is the predecessor activity calendar. This setting shall not be changed unless approved by the Engineer.
- b. The schedule shall be run in Retained Logic. This setting shall not be changed.

- c. Start-to-start lags shall be calculated based on the Early Start. This setting shall not be changed.
- d. Critical activities shall be defined as activities on the Longest Path.
- e. Total Float shall be computed as the Finish Float (Late Finish - Early Finish). This setting shall not be changed.

Use of WBS and Activity Codes:

The contractor's Progress Schedule shall adhere to the WBS provided. All activities shall be grouped according to the layout provided so that consistency of presentation is carried forward to the Master Construction Schedule. Changes to this layout shall only be approved by the Engineer. The contractor may add additional WBS layers to further group his activities at a lower level, however, under no condition shall such additional layers affect the WBS layout provided.

The Activity Codes included herein shall dictate the values to be used for each activity. Each activity has a number of Activity Codes assigned to it. The contractor may use additional Activity Codes for his own purposes but these shall not replace the standard Activity Codes provided in the template.

Schedule Constraints:

1. Time Calculations

- a. The minimum unit of time for the schedule shall be one day.
- b. Out-of-sequence progress shall be corrected prior to the submission of each progress schedule update. The contractor shall include in the progress schedule update narrative why out-of-sequence progress occurred, have it corrected and which activities and logic ties were impacted.
- c. The schedule updates shall be progressed by inputting the remaining duration. The Duration % Complete shall not be input for progress, but shall be calculated based on the Remaining Duration and the Original Duration.
- d. The Duration % Complete shall be used to calculate the percentage of work for an activity that has been completed

2. Milestones and Constraints

- a. Start Milestones shall be input with the correct hour at the start of the workday based on the activity calendar.
- b. Finish Milestones shall be input with the correct hour at the end of the workday based on the activity calendar.
- c. No constraints shall be used in the schedule except for the following:
 - Finish-on-or-before - Late Finish constraint. Shall only be used for contractual finish milestones.
 - Start-on-or-after - Early Start constraint. Shall only be used for contractual start milestones.
 - As-late-as-possible - Zero Free Float constraint may only be used with the Engineer's written approval.

Schedule Coding:

The Contractors Schedules shall comply with the following Code and Title Structure:

- X0Y-PR, Preliminary Schedule, Contract X0Y (*X0Y = Contract Code*)
- X0Y-BL, Baseline Schedule, Contract X0Y
- X0Y-01 Contract X0Y, Update 0# - *month 28, year*
- X0Y-02 Contract X0Y, Update 0# - *month 28, year*
- X0Y-03 Contract X0Y, Update 0# - *month 28, year, etc.*

The data date for each update shall be the 28th day of the month

The date format to be used is Day, Month, Year. (dd-mm-yyyy) as identified under the "User Preferences".

Dollar amounts for cost loading shall be rounded to the nearest dollar.

General Scheduling Requirements:

The contractor shall follow the following requirements:

- Use clearly defined activity descriptions. Excavation shall be identified from Sta. to Sta. Concrete Footing shall be identified by the appropriate specification subsection(s) and contract plan drawing, Retaining Wall by number, etc.
- Activities with durations shorter than one week or five working days shall be avoided. Some activities such as Testing, may have a short duration and shall therefore be identified, particularly when there are multiple dependent relationships. Likewise, activities with durations longer than 25 working days shall be broken up into multiple activities and be identified by staging, stationing, etc. Long duration activities will be allowed when in it involves activities such as procurement, settling etc.
- If a dependency exists, it shall be shown.
- All activities shall have a predecessor and a successor activity except for the project's Start Milestone and Finish Milestone. There shall be no open-ended activities or activities with suspended dates.
- Finish to Start relationships shall not have a lag. Instead, there shall be an activity describing the delay.
- Each construction activity shall be cost loaded. The cost loading shall be the total contract pay item value possible to be earned by completion of the activity.

(b) Mathematical Tabulations.

Replace "3.5 inch diskette" with "CD-ROM"

(e) Updating.

Replace "3.5 inch diskette" with "CD-ROM"

(i) Measurement.

Replace the first paragraph with the following:

Payment for the accepted Progress Schedule will be made on a Lump Sum basis.

(j) Payment.

Replace Pay Item "PROGRESS SCHEDULE" with "PROGRESS SCHEDULE (NO BID ITEM)"

Add the following after the second paragraph:

Progress Schedule payment will be made as follows:

1. A total of twenty-five (25) percent of the total Lump Sum amount will be paid to the contractor upon achieving all of the following:
 - a. Attendance at a Preconstruction Schedule Meeting
 - b. Written formal approval of the Baseline Progress Schedule by the Engineer.
2. A total of seventy (70) percent of the total Lump Sum amount will be paid, for approved Monthly Progress Schedule submissions, Progress Schedule Updates, participation in Schedule review meetings, acceptance of any necessary Time Impact Analysis, and acceptance of any necessary Recovery Schedules.

Progress payments for this portion of the pay item will be calculated by multiplying the Daily Payment Amount by the calendar days in the schedule update period, less any deductions for the period of time in which deficiencies as identified by the Engineer are preventing the Engineer's approval of the progress schedule update. The Daily Payment Amount will be calculated by taking 70 percent of the total item Lump Sum amount divided by the number of calendar days of the contract duration, which shall be defined as the number of Calendar Days from the Notice of Award to the Completion Date specified in the Contract Agreement, without regard for subsequent extensions of time to the Contract Completion date.

3. A total of five (5) percent of the total Lump Sum amount will be paid upon the Engineer's final acceptance of the As-Built Progress Schedule.

Upon submission of the Progress Schedule updates by the Contractor, the Engineer shall review it and inform the contractor in writing within three working days if it is acceptable for further review or if it is immediately rejected due to deficiencies described below in "Immediate Rejection of Progress Schedule Submissions". If it is rejected no payment will be made under Progress Schedule for each calendar day during which there are deficiencies in compliance with the specification requirements as described below. The amount of such calendar day non-payment will be the Daily Payment Amount as calculated above multiplied by the number of calendar days the schedule deficiencies are carried beyond the specified schedule update period and until such time these deficiencies are corrected. Payment lost during such period(s) is not recoverable.

Immediate Rejection of Progress Schedule Submissions.

The following deficiencies in a contractor's Progress Schedule submission shall be grounds for the immediate rejection by the Engineer, without further review, analysis and/or comments.

- a. Failure of the Contractor to "schedule" the project, as of the data date.
- b. Failure to attach a copy of the complete Scheduling/Leveling Report (SCHEDLOG.TXT file generated by Primavera software application).
- c. Any activities without predecessors or activities without successors, appearing in the Scheduling/Leveling Report, with the exception of the first and last activity in the schedule.
- d. Any activity constraints appearing in the Scheduling/Leveling Report that have not been approved in writing by the Engineer or that are not specifically allowed by this specification.
- e. Any Activities with Actual Dates > Data Date appearing in the Scheduling/Leveling Report.
- f. Any Milestone Activities with invalid relationships appearing in the Scheduling/Leveling Report.
- g. Failure to have a clearly defined Critical Path from the Data date to the last activity in the schedule, using the Longest Path method. This would reflect logic errors in the project schedule.
- h. Failure to include a detailed comprehensive schedule Narrative with required appendices.

In the event the contract completion date is extended, no additional payment will be made for Progress Schedule for Non-compensable Delays. If the contract completion date is extended due to a Compensable Delay than payment for maintaining and submitting additional Progress Schedules shall be equal to the Daily Payment Amount as calculated above multiplied by the number of calendar days the contract is extended.

107.11 STANDARD AND REFERENCE DRAWINGS

The NJTA Standard Drawings (Sheet No. 1346 through Sheet No. 1500) and Reference Drawings (Sheet No. 1501 through Sheet No. 2116) as listed on the Contract Title Sheet, are not included in the Contract Plan documents provided to registered Plan Holders. The NJTA Standard Drawings are available at: www.state.nj.us/turnpike/buss.htm. The Reference Drawings can be ordered by contacting Mr. Tony Valte, Assistant Project Supervisor at valte@turnpike.state.nj.us (preferred) or 732-750-5300, ext. 8244. These drawings will be included in the contract documents provided to the Contractor at the Preconstruction Conference.

107.12 LANE OCCUPANCY CHARGES

The Contractor is advised that severe impacts are experienced by the traveling public occasioned by having a lane or lanes closed beyond the specified hours. In the event that the Contractor fails to open a lane or lanes or make the lane or lanes fully available for use by Authority Maintenance crews, according to the specified allowable lane closure hours listed herein, the Authority will have the right to collect a Lane Occupancy Charge for the use and occupancy of each such lane or lanes beyond the specified hours until such time that the lane or lanes are reopened to traffic or made fully available for use by Authority Maintenance crews. Therefore, the contractor will be assessed a Lane Occupancy Charge for a delay in the reopening of the lane closing(s), premised upon road user costs and costs incurred by the Authority for engineering, inspection, and administration (including overhead). The Lane Occupancy Charge will be collected by deducting the appropriate Charge, calculated in accordance with the NJTA Road User Cost Manual and Calculation Model, from the partial payments.

Lane Occupancy Charges will be assessed after the time indicated below and will be imposed for any portion of each fifteen - minute increment, until such time as the lane is

fully available for use by Authority patrons or Authority Maintenance crews as applicable. The maximum daily Charge per work location is \$20,000.00.

The Lane Occupancy Charges for (this contract/specified location) are \$2,500 per 15 minute increment, which will be assessed after the times listed in Section 802.

107.13 RIGHT OF WAY INFORMATION

The Contractor shall obtain from the Engineer all information regarding Right of Way Parcels and Easements acquired for the Contract, as well as the nature and type of title acquired.

The following is a list of all parcels that are anticipated to be acquired after award of this contract and their approximate anticipated dates of availability:

Properties and Vacation/Availability Dates

Parcel No.	Municipality	Block	Lot	Approximate Baseline Station	Offset / Direction	Anticipated Availability Date
R1221	Cranbury	3	1.02	N8115+00	73' / Rt.	01/15/2012
R1221	Monroe	56	9.01	N8127+00	73' / Rt.	01/15/2012
1225	Monroe	55	2.09	S8125+00	73' / Lt.	01/17/2012
1231	Monroe	55	9.06	S8144+00	73' / Lt.	01/15/2012
1233	S. Brunswick	21	4.01	S4058+00	225' / Lt.	03/01/2012

The following is a list of parcels within the Project limits that are or will be available as temporary construction easements:

Temporary Construction Easements

Parcel No.	Municipality	Block	Lot	Approximate Baseline Station	Offset / Direction	Easement Duration
R1221	Cranbury	3	1.02	N8115+00	73' / Rt.	12 months
R1221	Monroe	56	9.01	N8127+00	73' / Rt.	12 months
1222	Monroe	64	10.4	SOT 51+50	35' / Rt.	Right of Entry 1/1/12 to 12/31/14
1225	Monroe	55	2.09	S8125+00	73' / Lt.	12 months
1226	Monroe	55	4	S8126+50	73' / Lt.	6 months
1227	Monroe	55	2.01	S8130+50	73' / Lt.	6 months
1228	Monroe	55	5.01	S8133+50	73' / Lt.	6 months
1229	Monroe	55	12.01	S8136+50	73' / Lt.	6 months
1230	Monroe	55	9.02	S8140+00	73' / Lt.	6 months
1231	Monroe	55	9.06	S8144+00	73' / Lt.	12 months
1232	Monroe	55	9.05	S8148+25	70' / Lt.	6 months

For each parcel listed above, failure to complete the work within the stated time frame will result in the assessment of liquidated damages amounting to \$1,000 for each and every month, or fraction thereof, that the work within the parcel remains incomplete.

SECTION 108 – MEASUREMENT AND PAYMENT

108.03 PARTIAL PAYMENTS

The first and fourth paragraphs are deleted and replaced with the following:

At monthly intervals, or semi-monthly when the work accomplished in a two-week period amounts to a minimum of \$250,000, the Engineer will prepare a "Certificate for Payment to Contractor," which shall be executed by the Contractor, showing the approximate quantities of work completed and all permanent materials and equipment furnished but not incorporated in the work, up to the date of such certificate, and the value of such materials and equipment as security for the fulfillment of this contract by the Contractor until the completion of the contract. The Authority will pay monthly or semi-monthly to the Contractor while carrying on the Work, the balance not retained after deducting there from all previous payments. In connection with the value of the approximate quantities of work completed, an amount equivalent to two (2) percent of the amount due will be deducted and retained from the partial payments pending substantial completion. In the first estimate following substantial completion, the Authority will reduce the amount retained to one (1) percent of the total value of the contract. No additional retainage will be withheld provided that the work is proceeding satisfactorily and timely on the basis of approved construction schedules. Ten (10) percent of the value of permanent materials and equipment furnished but not incorporated in the work will be deducted and retained at all times. This will be in addition to any amount retained in connection with the total value of the approximate quantities of work completed. The total value of the contract will be considered to mean the original total Awarded value of the Contract, adjusted by the total value of all approved Change Orders.

If it becomes evident on the basis of the approved progress schedule or otherwise that the completion date for the Contract will not be met, the Authority reserves the right to retain four (4) percent of the total value of the approximate quantities of work completed throughout the entire Contract period and to make additional retention in the amount of the liquidated damages as specified in the contract.

As a result of the American Recovery and Reinvestment Act as well as the State of New Jersey Stimulus Initiatives, Contractors and Subcontractors are required to submit monthly employment and wage data to the State via an automated web based application using electronic Form CC-257R through the New Jersey Portal at <http://www.state.nj.us>

All employment and wage data must be accurate and consistent with the certified payroll records. The contractor is responsible for ensuring that their subcontractors comply with these reporting requirements. Within five (5) business days of submitting the required data each month, the Contractor shall provide a written statement to the Authority

certifying that he and his subcontractors have submitted the required information to the State.

The following subsection is added:

108.08 FUEL PRICE ADJUSTMENT

The Authority will make monthly price adjustments for fuel usage for Items listed in Table 108-1. The Authority will calculate fuel price adjustments based on the monthly pay quantities of listed Items using the fuel usage factors listed in Table 108-1.

Price adjustments may result in an increased payment to the Contractor for increases in the price index and may result in a reduction in payment for decreases in the price index.

If the as-built quantity of an Item listed in Table 108-1 differs from the sum of the quantities in the monthly Estimates, and the as-built quantity cannot be readily distributed among the months that the Item listed in Table 108-1 was constructed, then the Authority will determine fuel price adjustment by distributing the difference in the same proportion as the Item's monthly Estimate quantity is to the total of the item's monthly estimates.

Table 108-1 Fuel Price Adjustment	
Items	Fuel Usage Factor
Roadway Excavation and Embankment_____	.5 Gallons per Cubic Yard
Excavation, Acid Producing Soils	.5 Gallons per Cubic Yard
Embankment, Grade A	1.0 Gallons per Cubic Yard
Embankment, Common	1.0 Gallons per Cubic Yard
Foundation Excavation	.5 Gallons per Cubic Yard
Aggregate Base Course,6.5" Thick	0.30 Gallons per Square Yard
Superpave Hot Mix Asphalt 12.5H 76_ Surface Course	2.50 Gallons per Ton
Superpave Hot Mix Asphalt 19H 76 Intermediate Course	2.50 Gallons per Ton
Superpave Hot Mix Asphalt 25H 64 Base Course	2.50 Gallons per Ton
Bridge Approach Slab	0.25 Gallons per Square Yard
Pavement Removal, 2" Depth	0.25 Gallons per Square Yard
Concrete In Culvert	1.0 Gallons per Cubic Yard
Concrete In Footings	1.0 Gallons per Cubic Yard
Concrete in Abutments Above Footings	1.0 Gallons per Cubic Yard
Concrete in Piers Above Footings	1.0 Gallons per Cubic Yard
Concrete in Retaining Walls Above Footings	1.0 Gallons per Cubic Yard
Concrete In Bridge Parapet	1.0 Gallons per Cubic Yard
Concrete In Median Curb	1.0 Gallons per Cubic Yard
Retaining Wall (Mechanically Stabilized Earth <u>OR</u> Prefabricated Modular Walls)	.10 Gallons per Square Foot
Ground Mounted Noise Barrier Panel	.10 Gallons per Square Foot

The Authority will calculate fuel price adjustment on a monthly basis using the following formula:

$$F = (MF - BF) \times G$$

Where:

F = Fuel Price Adjustment

MF = Monthly Fuel Price Index
 BF = Basic Fuel Price Index
 G = Gallons of Fuel for Price Adjustment

The Authority will use the monthly fuel price index every month from the New Jersey Department of Transportation’s website, www.state.nj.us/transportation/business/trnsport/PriceIndex.shtm.

The basic fuel price index is the most recent month’s fuel price index before *the date of* receipt of bids. The Authority will use the fuel price index for the month before the regular monthly estimate cut off date as the Monthly Fuel Price Index. If the Monthly Fuel Price Index increases by 50 percent or more over the Basic Fuel Price Index, do not perform any work involving Items listed in Table 108-1 without written approval from the Engineer.

Fuel price adjustment will be on a lump sum basis, and an estimated amount to cover the fuel price adjustment will be included in the Proposal. Payments for increases will be made from this amount.

Payment will be made under:

Fuel Price Adjustment (No Bid Item).....Lump Sum

Pay Items not listed within Table 108-1 will not be subject to the “Fuel Price Adjustment”.

DIVISION 200 – EARTHWORK

SECTION 201 – CLEARING AND GRUBBING

201.01 DESCRIPTION

Delete the last paragraph of this Subsection.

The following is added:

Existing monitoring wells located within the limits of grading at the Service Area will be removed by the owner.

The existing billboards at NOSA Sta. 8+74 and 23+50 to be removed by others prior to the start of construction.

This work shall also include removal of trees previously cut down by the Authority.

201.04 MEASUREMENT

Delete the last paragraph of this Subsection.

SECTION 202 – ROADWAY EXCAVATION

202.01 DESCRIPTION

The following is added:

Removal of existing barrier shall include saw cutting, breaking up and satisfactory removal and disposal.

This work shall also consist of the removal of abandoned underground fiber optic, communication cables, conduits, headwalls, drainage pipes and drainage structures within the excavation limits or where shown on plans.

202.03 METHODS OF CONSTRUCTION

In the first paragraph, delete the fourth sentence and replace it with the following:

Stripped topsoil, in excess of the quantity required for the Project, shall be disposed of outside the Turnpike Right of Way by the Contractor.

Delete the fifteenth paragraph and replace it with the following:

Earth and rock materials for embankment construction, in excess of that required for embankment construction under the Contract, shall be disposed of outside the Turnpike Right of Way by the Contractor.

Add the following:

If the Contractor discovers potential environmental contamination during construction activities (Area of Concern (AOC) defined in accordance with N.J.A.C. 7:26E-1.8), which was not previously identified (unexpected discovery) in the contract documents, the Contractor shall notify the Engineer immediately.

The Contractor shall not perform any sampling of the materials associated with the AOC without prior approval of the Engineer. If the Engineer determines that it is necessary for the Contractor to undertake material sampling, the Contractor shall provide a sampling plan to the Engineer for review and shall not initiate sampling until said plan is approved. All sampling must be performed in accordance with N.J.A.C. 7:26E.

If construction activities caused the AOC (i.e. discharge), the Contractor will take corrective measures immediately to contain the AOC and notify the Engineer immediately. The Contractor shall advise the Engineer prior to reporting any unexpected discovery or discharges to the NJDEP Hotline (1-877-WARNDEP (927-6337)).

Delete Subparagraph Header (B) and replace with the following:

(B) Disposal of Muck, Unsuitable and Excess Materials

Add the following:

In addition to the requirements in Subsection 105.14, environmental testing for off-site disposal of onsite materials may be required by the applicable regulatory agencies or by the disposal facility. In such circumstances, prior to the start of any sampling activity, the Contractor must obtain the disposal facility's specific disposal analytical/procedural requirements in writing. At a minimum, such information shall include:

- Site-specific in-situ and/or stockpile sampling requirements
- Analytical parameters (i.e. VOCs, SVOCs, Metals, PCBs, etc.) to be tested and specific laboratory "list" requirements
- Number of grab/composite samples required for collection within a specific grid area designated by the disposal facility
- Size of area to be sampled (i.e. 500 cubic yards, 1,000 cubic yards, etc.)
- Sample depths and sampling methodology
- Sampling equipment requirements
- Possible alternate sampling criteria and analysis based upon on-site material (frequent analysis of a specific analytical parameter or selection of an unusual analytical parameter)

The above described documentation shall be provided to the Authority upon the Contractor's receipt of the documentation from the disposal facility. The Contractor shall

then prepare a site specific sampling plan (Plan) to satisfy the sampling requirements outlined by the disposal facility. Said Plan shall be provided to the Authority for review prior to the Plan being provided to the disposal facility or any other outside entity for their review. A two week period shall be anticipated by the Contractor for the Authority's review. After the Authority has accepted the Plan the Contractor shall schedule the implementation of the Plan, giving the Authority a minimum of a 5 working day notice prior to the initiation of any sampling. The Contractor shall not undertake any material sampling until the Authority has completed its review of the subject documentation and the Authority has authorized the contractor to proceed, in writing.

Material sampling shall be conducted in strict accordance with the most recent versions of the Technical Requirements for Site Remediation (N.J.A.C 7:26E), NJDEP Field Sampling Procedures Manual, NJDEP Guidance Document on Contaminated Soil, and NJDEP Guidance Document for Waste Classification, and other local, State and federal requirements.

Should the disposal facility reject transported on-site material, and said material is returned to the project site, the material shall be separately stockpiled in an area that does not "cross contaminate" other materials, compromise construction activities or violate existing permits and approvals. The Contractor, in consultation with the Authority, shall assess said stockpiled material for disposal options.

202.04 MEASUREMENT

The following is added:

Removal of existing barrier will be measured by the length, measured along the face of curb at the gutter line.

In the areas where settlement platforms are installed, measurement of in place material will be based on the final cross sections after final grading is complete.

202.05 PAYMENT

The following is added:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Removal of Existing Barrier.....	Linear Foot

The Contractor shall provide at least 15 days notice for the proposed reuse of excavated materials as Aggregate Base Course or Grade A Embankment. The Engineer will deduct the volume from the Item Roadway Excavation and Embankment and payment will be made under the item constructed.

No separate payment will be made for cleaning and dewatering the basins.

Measurement and payment for temporary sheeting to the limits shown on the plans in muck excavation areas shall be in accordance with Section 415.

SECTION 203 – EMBANKMENT

203.01 DESCRIPTION

The following is added:

This work shall also include cleaning the basin and the placement of the basin sand layer in the infiltration basins as indicated on the Plans. The basins will consist of an excavated storage area, with a permeable soil medium (sand) to promote stormwater filtration and recharge into the subgrade soils.

203.02 MATERIALS

The following is added:

Materials shall conform to the following Subsections:

Sand (Soil Aggregate I-6) 902.08

203.03 METHODS OF CONSTRUCTION

The following is added:

BASIN SAND LAYER.

The basin bottoms shall be cleaned of sediment and disposed of properly prior to the placement of sand. Standing water in the basins shall be detained to allow sediments to settle for at least 48 hours. After this time, the water shall be pumped to an approved sediment control basin or bag. Subgrade material shall be scarified or tilled prior to placement of the sand. Subgrade shall not be compacted.

To avoid sedimentation that may result in clogging and reduction of infiltration capability and to maintain the maximum soil infiltration capacity, the construction of the infiltration basins shall be managed in accordance with the following:

1. The installation of the sand layer shall not occur until the drainage areas to the basins have been completely stabilized.
2. To avoid over-compaction of the infiltration basin subgrade soils, no heavy equipment such as backhoes, dump trucks or bulldozers shall be permitted to operate within the footprint of the infiltration basin. The equipment for excavating the basins shall be track-mounted and shall be low (less than 5 psi) ground pressure equipment. No compaction equipment shall be placed within the footprint of the basins and swales, except for ordinary hand compaction equipment as approved by the Engineer. All excavation required to construct an infiltration basin shall be performed by equipment placed outside the basin. The soils within the excavated area shall be renovated and tilled after construction is completed and prior to the installation of the sand layer. Earthwork associated with infiltration basin construction, including excavation, grading, cutting or filling, shall not be performed when soil moisture content is above the lower

plastic limit. The lower plastic limit is defined as the moisture content at which a sample of soil crumbles, when rolled into threads of 1/8 inch diameter.

- 3. Excavation of the infiltration basins shall be staged so that minimum disturbance is imparted to the subgrade at the bottom of the basin. Excavation to the grades shown on the plans should be performed using low ground pressure earth-moving equipment. Material should be transported to a stockpile located outside of the area of the infiltration basins. Upon completion of excavation, vehicular and equipment access to the infiltration basins shall be restricted. No compacting equipment of any nature shall be placed on the prepared subgrade. Transport vehicles shall not be permitted to travel within the basin areas.

203.04 MEASUREMENT

The following is added:

The Basin Sand Layer within the infiltration basins will be measured by the cubic yard constructed in accordance with the Plans, or as directed by the Engineer.

203.05 PAYMENT

The following is added:

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Basin Sand Layer.....	Cubic Yard

No separate payment will be made for stockpiling excess of suitable material, disposal of unsuitable material or shaping and dressing slopes and other surfaces.

No separate payment will be made for cleaning and dewatering the basins.

SECTION 205 - FOUNDATION EXCAVATION

205.01 DESCRIPTION

The following is added after the first paragraph:

This work shall also include controlling the water in Cranbury Brook and Cedar Brook during the construction of those respective bridges and/or culverts.

205.03 METHODS OF CONSTRUCTION

In the fifteenth paragraph, delete the second sentence and replace it with the following:

If suitable materials obtained from Foundation Excavation is in excess of that required for the embankment construction under the Contract, or if the work on the Project does not include construction of embankments, such suitable material shall be disposed of outside the Turnpike Right of Way by the Contractor.

205.04 MEASUREMENT

The following is added:

Control of water during the construction of the bridges and/or culverts at Cranbury Brook and Cedar Brook will not be measured for payment.

205.05 PAYMENT

The following is added:

No separate payment will be made for control of water during construction of the bridges and/or culverts at Cranbury Brook and Cedar Brook. All costs associated with the control of water shall be included in the bid price for Foundation Excavation.

SECTION 206 – TRENCH EXCAVATION

206.03 METHODS OF CONSTRUCTION

(A) EXCAVATION.

The following is added to the second paragraph:

Fiber optic and other utilities located in the vicinity of the excavation shall be supported and adequately protected.

In the fourth paragraph, delete the second sentence and replace it with the following:

All excess suitable material shall be disposed of outside the Turnpike Right of Way by the Contractor.

206.05 PAYMENT

The following is added:

Separate payment will not be made for the disposal of excess excavated material or for temporary pumping or dewatering, but the cost thereof shall be included in the cost of those items constructed.

Separate payment will not be made for bracing, shoring, sheathing, sheet piling, or other methods necessary for construction, but the cost thereof shall be included in the cost of those items constructed.

SECTION 208 – TEMPORARY SOIL EROSION AND DUST CONTROL

The following is added:

208.02 MATERIALS

Course Aggregate.....	902.05
Geotextiles.....	923.37

208.03 METHODS OF CONSTRUCTION

(D) Dust Control

The following is added:

1. At a minimum, wet suppression shall be used to provide temporary control of dust. Several applications per day may be necessary to control dust depending upon meteorological conditions and Work activity.
2. Apply wet suppression on a routine basis as necessary to control dust. Wet suppression consists of the application of water or a wetting agent in solution with water. Ensure wetting agent is not used on plantable soils. Wet suppression equipment shall consist of sprinkler pipelines, tanks, tank trucks, or other devices capable of providing regulated flow, uniform spray, and positive shut-off.
3. Provide wind-screens and wind barriers in locations where they would be effective in minimizing wind erosion and spread of dust. Keep wind-screens and barriers in good repair for the life of the Contract.
4. As necessary, limit on-site equipment to operating speeds of 5 MPH to eliminate dust and particulate matter pollutants from tires and brakes. Control dust through the spraying of a suppressing agent on any stockpiles. Water or appropriate liquids shall be utilized for dust control during demolition, land clearing, grading, and on materials stockpiled, as necessary.
5. All sediment barriers and other soil erosion control measures shall be installed prior to commencing any clearing, grading or construction onsite, and shall be maintained in proper working condition throughout the entire duration of the project.
6. Dust suppression shall be performed to meet a maximum of 0.5mg/m³ of dust.

Use the following measures to control dust on public roadways:

1. For trucks hauling soil or rock (muck), the truck bed shall be completely covered with a tarp or similar protective cover before the truck leaves the site. The truck bed shall remain covered until the truck reaches the disposal site.
2. Before any vehicle leaves the Work Site, the vehicle body and/or wheels shall be cleaned of mud and dirt to control tracking. Gravel cover shall be applied to soil (unpaved) surfaces where they will be regularly traveled at egress and ingress routes from/to Work sites.

3. Vehicle mud and dirt carryout, material spills, and soil washout onto public roadways and walkways and other paved areas shall be cleaned up immediately.
4. The Contractor is responsible for daily clean up of public roadways and walkways affected by Work of this Contract. A wet spray power vacuum sweeper or similar equipment shall be used on paved roadways. Dry power sweeping is prohibited.

Use the following methods to control dust and wind erosion of active and inactive stockpiles:

1. Wet suppression without wetting agent during active stockpile load-in, load-out, and maintenance activities.
2. Soil stabilizers shall be applied to the surface of inactive stockpiles.
3. Plastic tarps on stockpiles, secured with sandbags or an equivalent method to prevent the cover from being dislodged by the wind. Repair or replace covers whenever damaged or dislodged.

Use the following measures to minimize dust from earthwork activities:

1. During batch drop operations (i.e., earthwork with front-end loader, clamshell bucket, or backhoe), the free drop height of excavated or aggregate material shall be reduced as practical to minimize the generation of dust.
2. To prevent spills during transport, freeboard space shall be maintained between the material load and the top of the truck cargo bed rail.

(I) Silt Fence.

The following is added:

Install heavy duty silt fence with geotextile securely buried in the existing soil. Join sections of the geotextile so that they work effectively as a continuous fence. Install fence posts at a slight angle toward the anticipated runoff source. Install orange or black color heavy duty silt fence in locations as shown in the Plans. Do not substitute the colors orange for black or black for orange.

The following subparagraphs are added:

(N) Floating Turbidity Barriers.

Floating turbidity barriers, consisting of ten (10) mil thick polyethylene plastic sheets suspended from floats, shall be installed in streams or other watercourses to intercept silt outletting from drainage pipes or caused by construction operations within the waterways.

Barriers shall be located 50 feet from the point of discharge of drainage pipes or from construction operations affecting the waterways. The barriers shall extend across the entire waterway or radially from the shore line.

(O) Sediment Control Bags

At least 10 days before installation, submit to the Engineer for approval a plan detailing the size, location, details of aggregate base, anticipated discharge flow, and manufacturer's catalog cuts. Install and maintain sediment control bags according to the manufacturer's recommendations. Size sediment control bags to accommodate anticipated sediment and flow rates. Place the sediment control bag on the slope to allow water to flow downhill through the bag. Place the discharge hose into the neck of the sediment control bag and fasten to ensure that water does not leak at the connection. To increase the efficiency of filtration, place the bag on the aggregate bed to maximize water flow through the surface area of the bag. Size aggregate to prevent puncture of sediment control bags. Ensure that the discharge from the sediment control bag does not cause erosion to, or scour of, the area to which the water is being discharged. When the sediment control bag is 90 percent full, and can no longer efficiently filter sediment, or does not allow water to pass at a reasonable rate, remove and replace. Remove sediment control bags according to manufacturers recommendations restore the disturbed area to original condition

(P) Inlet Filters.

Provide Type 1 Inlet Filters as follows:

Type 1. For new inlet structures, mold welded steel wire fabric around the inlet frames and grates, or inlet structures, and extend a minimum of 6 inches down each side of the new structures. Secure geotextile to the welded wire fabric. Place Coarse Aggregate, Size No. 2 against the inlet structures to hold the inlet filter in place.

For existing inlet structures, place geotextile under the grates, over the curb pieces, and extend a minimum of 6 inches beyond. Place Coarse Aggregate, Size No. 2 behind each curb piece and on the geotextile to secure the fabric in place.

For existing or new inlets with curb pieces, wrap the geotextile around a piece of lumber. Place the lumber against the vertical opening to allow for flood overflow.

Remove inlet filters within 12 hours of a paving operation.

(Q) Construction Driveway.

To minimize tracking of dirt and other materials onto existing roadways, provide a construction driveway at each location where vehicles exit the work site as approved by the Engineer. Construct driveways using temporary stone, Grade 'B' placed on geotextile. Ensure that the driveway is at least 15 feet wide. The Contractor may make driveways wider if approved by the Engineer. Maintain the driveway by top dressing or by excavating and top dressing, as directed by the Engineer, with additional temporary stone, Grade 'B'. When the driveway is no longer required, remove the driveway, backfill to the adjacent ground elevation, and restore the disturbed area to the original condition.

(R) Millings, Sweepings and Sawcutting Debris.

During sawcutting, milling, sweeping and similar operations that can cause dust, slurry and stormwater runoff problems, use water to reduce dust and ensure that debris and slurry does not enter inlets or environmentally sensitive areas. The Contractor shall dispose of all debris and slurry in a manner satisfactory to the Engineer.

208.04 MEASUREMENT

The following is added:

Floating Turbidity Barriers will be measured by the linear foot.
 Heavy duty silt fence of the color specified will be measured by the linear foot.
 Inlet Filters, Type 1 will be measured by the square foot.
 Sediment control bags will be measured by the number of each.
 Construction Driveway will be measured by the weight of the stone furnished and placed.

208.05 PAYMENT

The following is added:

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Floating Turbidity Barriers	Linear Foot
Heavy Duty Silt Fence, Black.....	Linear Foot
Inlet Filter, Type 1	Square Foot
Sediment Control Bags	Each
Construction Driveway	Ton

SECTION 210 - DEMOLITION OF EXISTING STRUCTURES

210.01 DESCRIPTION

The following is added:

This work shall include the removal of the headwalls, wingwalls and apron slabs for the Cedar Brook Culvert (Structure No. 71.87) to the limits shown on the Plans or as directed by the Resident Engineer.

This work shall also include the removal of the following items to the limits shown on the Plans or as directed by the Resident Engineer:

- Barrier parapets from Structure No. 73.10 SO between Stations 8134+23.50 and 8135+47.10 along the NSO Baseline.
- Barrier parapets at the east retaining wall on Structure No. 73.10 NO between Stations 8134+40.90 and 8136+67.90 along the SNO Baseline.

- Barrier parapets and portions of existing retaining wall along Ramp SOT between Stations 50+02.00 and 52+46.00 along the SOT Baseline.
- Barrier parapets from in front of existing Noise Barrier 4 NSO along the NSO roadway between Stations 4352+04.00 and 4359+62.00 along the NSO Baseline.

210.02 METHODS OF CONSTRUCTION

The following is added to this subsection:

Removal and salvage of bridge mounted emergency speed warning and speed limit sign systems shall be as specified in Division 600.

The last paragraph of this subsection is deleted.

210.03 DISPOSAL OF DEBRIS

The following is added:

The disposal of materials and debris accumulated by demolition is regulated under the Solid Waste Management Act (NJSA 13:1 E-1) and is governed by NJAC 7:26 *et seq.* The Contractor shall dispose of the material and debris according to the solid waste management plan developed by the solid waste management district of origin.

All material and debris removed as part of the work of this project shall not be reused and shall become the property of the Contractor. The Contractor must dispose of any unwanted material and debris in a legal fashion and outside of the Turnpike Right of Way.

210.05 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Demolition of Existing Structure No. 1 (Str. No. 71.87)	Lump Sum
Demolition of Existing Structures	Lump Sum

Demolition of Existing Structure No. 71.87 pertains only to the demolition at the Cedar Brook Culvert.

Demolition of Existing Structures pertains to all of the barrier parapet and retaining wall items listed under 210.01 Description above.

Removal and salvaging of overhead span and bridge mounted sign structures shall be paid for separately under Section 406 or Section 605.

Removal of bridge mounted emergency speed warning and speed limit signs shall be paid for separately under Division 600.

SECTION 212 – TURF REINFORCEMENT MATTING

212.01 DESCRIPTION

This Section describes the requirements for providing and placing turf reinforcement mats on prepared topsoiled surfaces.

212.02 MATERIALS

Provide materials as specified:

Turf Reinforcement Matting..... 919.35

212.03 METHODS OF CONSTRUCTION

Before placing erosion control mats, ensure that topsoil is smooth, friable, and free of depressions, clods, mounds, stones, or other debris that may prevent the matting from making complete contact with the topsoil.

After grading topsoil, lay the mat parallel to the direction of flow on unseeded topsoil. Lay the mats in accordance with manufacturer's recommendations and anchor them with staples to ensure the matting is in full contact with the topsoil. Ensure that there are no voids between the topsoil and the matting. Place staples 12 inches apart across the matting and blankets at 50-foot intervals and at critical locations such as at inlets, check slots if required, overlapping joints, and ends. Drive staples at an uphill angle of approximately 30 degrees from the perpendicular surface of the slope. Infill the 3-dimensional matrix with topsoil to the thickness of the mat, then fertilize, seed, and mulch the area.

212.04 MEASUREMENT

Turf Reinforcement Matting will be measured by the surface area covered with matting.

212.05 PAYMENT

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Turf Reinforcement Matting.....	Square Yard

SECTION 213 – ACID PRODUCING SOILS

213.01 DESCRIPTION

Acid-producing soils (APS) are known to occur along the length of the Widening Program project corridor.

APS excavation consists of excavation and management of high acid producing soil, with a pH below 4.0 or soil containing iron sulfides.

APS are “typically found in gray, dark brown, or black materials (sometimes with a greenish tinge) which have a clay-plus-silt content exceeding thirty (30) percent on a dry weight basis. These are typically silty-clay materials with an AASHTO A6 or A7 designation. Crystals of pyrite or marcasite (i.e., iron sulfide minerals) are positive evidence of acid producing soil deposits, but sometimes the crystals are too small for recognition by ordinary means in the field” When exposed to oxygen from the air or from surface waters, APS oxidize to produce sulfuric acid.

Silts and clays from the geologic formations which commonly contain APS are considered to be acid producing unless a soil lab concludes that none of the samples shows evidence of acid producing soils (NJDEP’s *Draft Flood Hazard Area Technical Manual* [FHA-TM] dated December 2008). If the Contractor encounters subsurface soils with the characteristics noted above and these soils are to be excavated or otherwise exposed, the Contractor, at the direction of the Engineer, shall either test the soils for APS in accordance with the NJDEP’s FHA-TM and/or treat the soils for APS in accordance with Section 213.02 (D).

213.02 METHODS OF CONSTRUCTION

(C). Pre-Excavation Plans

1. Develop a Materials Handling Plan (MHP) for APS material encountered, moved, and disposed of or recycled during construction. The MHP shall be developed by either an agronomist, soil scientist, or someone with a minimum of 5 years of experience dealing with APS. Ensure the MHP includes the following:
 - a. Techniques to be used in managing APS material to protect adjoining properties and workers and visitors to the Project Limits against exposure to APS material and to prevent release of APS material to the environment.
 - b. Standard operating procedures for excavation, stockpiling, re-use, transporting, measurement, and disposal of APS material.
 - c. Plans for re-using APS soils on-site.
 - d. Current receiving facility certification and permits.
 - e. Qualifications of the licensed hauler.
 - f. Proposed routes to receiving facilities and weighing facilities.
 - g. Waste characterization forms.
 - h. Requirements of the receiving facility to accept the regulated material.
2. Implement the MHP, as approved by the Engineer, at the beginning of excavation. Perform planning, administrative, and control functions required to implement the MHP.

(D). Testing for Acid-Producing Soil Deposits

1. As directed by the Engineer, the Contractor shall test for APS deposits if soils meeting the description of APS as noted in Section 213.01 are encountered during excavation activities and these soils will not be immediately buried under one (1) foot of clean fill (i.e., non-APS) or two (2) feet of clean fill if this material is to be buried within a berm, a slope, or in a ditch.

2. The APS testing protocol to be followed shall be that detailed in Section 7.4 of the NJDEP's FHA-TM (i.e., Chemical Tests for Acid-Producing Soil Deposits) or as approved by the Engineer.
3. The APS testing shall be performed by an NJDEP-certified laboratory or as approved by the Engineer.
4. Field testing, as approved by the Engineer, may be a suitable substitute for the APS laboratory testing.

(E). Excavating

1. Excavate APS material as specified in 202.03. Limit the excavation area and exposure time when high acid producing soils are encountered. The area of APS exposed shall be no larger than what is absolutely necessary for the conduct of the project.
2. All construction schedules will be formulated to provide minimum practicable exposure of APS.
3. APS deposits (including soil contaminated with such deposits) shall not be exposed for more than eight (8) hours except where absolutely necessary for the conduct of construction activities. Exposed APS deposits shall be covered with pulverized limestone at the rate of 6 tons per acre (275 pounds per 1,000 square feet). This shall be accomplished within 8 hours of exposure. The APS deposit shall then be covered with a minimum of one (1) foot of compacted common embankment (free of APS deposits) with a pH of 5 or more within one (1) week after exposure, or before the pH of a well-mixed sample from the uppermost two (2) inches of the exposed deposit drops to 3.0, whichever occurs first (Note that if available soils have a pH between 4.0 and 5.0, it is acceptable to blend the soil with other soils to achieve the desired pH or to add limestone to increase the pH to the desired level).
4. For all APS deposits excavated from the site, these materials must be handled in accordance with either Section 213.03 (F) *Temporarily Storing*, Section 213.03 (G) *Acid Producing Soil Remediation*, or Section 213.03 (I) *Mitigation Procedures Along Stream Channels for Acid-Producing Soils*.
5. The Contractor shall utilize erosion and sediment control measures and best management practices where APS deposits are exposed or stockpiled, to prevent or reduce the movement of APS deposits into streams or onto uncontaminated soil.

(F). Temporarily Storing

1. If the Contractor's operations require temporary stockpiling or storage, then APS should be temporarily stored in separate stockpiles within the Project Limits. Stockpiles of APS shall be located on level land to minimize its movement. If APS deposits must be stockpiled on top of soil heretofore free of such deposits, the area used for stockpiling shall be minimized and protected as identified in paragraph 4.

2. After clearance of vegetation, topsoil (or upper soil layer) free from APS deposits, shall be stripped and stockpiled separately from the deeper, APS deposits to be exposed. No APS deposits shall be included in the stockpile. Any topsoil stripped from the site shall be stored separately from temporarily stockpiled APS.
3. Height of APS stockpiles shall not exceed fifteen (15) feet. Side slopes of temporary stockpiles shall not exceed 3H: 1V.
4. Construct APS temporary stockpiles on polyethylene sheeting with minimum thickness of 6 mils. Cover stockpiles with polyethylene sheeting (minimum thickness 6 mil). Secure and maintain cover in place. Overlap joints in the polyethylene sheeting a minimum of 12 inches, and place securing materials along the joints. Maintain the cover, and replace damaged polyethylene sheeting as needed. Ensure that no stockpile is left uncovered and exposed to the air or precipitation for more than 8 hours to minimize oxidation
5. Contain stockpiles using silt fence, haybales, or other non-vegetative erosion control features to limit movement of soil and possible acidic runoff. Silt fence should be installed at the toe of the slope of the APS stockpiles to contain movement of the stockpiled material.
6. Equipment used for excavating or backfilling APS deposits shall be cleaned at the end of each day's operation in such a way that it shall not cause the spreading of APS deposits onto uncontaminated soil or into adjacent wetlands, wetland transition areas or waterbodies. Install non-vegetative erosion control features (such as stone tracking pads, limestone check dams, silt fence, wood chips, etc.) around the equipment cleaning area to prevent tracking APS offsite and to limit the movement of the APS and possible acidic runoff from, around, or off project site. Temporarily store the APS from equipment cleaning in the APS stockpile.

(G). Acid Producing Soil Remediation

1. The Contractor shall first relocate and utilize all APS as fill for embankments prior to importing common fill material as provided under Section 203.02 (i.e., A6 or A7 soils cannot be placed within tops of embankments under pavement areas).
2. The spreading or mixing of APS deposits shall be minimized to the maximum extent practicable (including soil contaminated with such deposits) onto or into soil free of such deposits (on or off the construction site).
3. When reusing excavated APS as backfill or embankment in areas to be vegetated, place APS at the bottom. The top layer of soil, free of APS deposits, stripped and stockpiled, shall then be replaced. If necessary, additional quantities of soil shall be imported so as to ensure at least one (1) foot deep cover of soil with a pH of 5 or more, free of APS deposits (Note that if available soils have a pH between 4.0 and 5.0, it is acceptable to blend the soil with other soils to achieve the desired pH or to add limestone to increase the pH to the desired level). Remediate the soil by covering the APS with a layer of pulverized limestone applied at a rate of

6 tons per acre (or 275 pounds per 1000 square feet) of surface area, and as follows:

- a. Where establishing turf, cover the limestone layer with a minimum of 12 inches of compacted soil with a pH of 5 or more.
- b. Where planting trees or shrubs, cover the limestone layer with a minimum of 24 inches of compacted soil with a pH of 5 or more.
- c. Do not place APS within 24 inches of a slope or bank surface (such as berms, stream banks, ditches, etc.) or structure to prevent potential lateral leaching.

Immediately following remediation, place topsoil, fertilizer, seed, and mulch over APS for permanent erosion control.

4. The Contractor shall install the APS at a maximum of 8-inch lifts which meet the compaction requirements specified in Section 203.03. Upon completion of the APS backfilling operation, limestone shall be applied on the top surface of the APS. The limestone layer should then be covered with a minimum of 12 inches of compacted soil with a pH of 5 or more.
5. Temporary vegetative cover shall not be used for stabilization of APS deposits unless the *Standards for Soil Erosion and Sediment Control in New Jersey* liming, minimum cap, and topsoil application requirements and the surface soil pH requirements are first met. Otherwise, temporary stabilization of APS deposits will be accomplished with "mulch only" in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey*. No more than eight (8) hours will elapse before the application of mulch. Mulching for temporary stabilization is not a substitute for the limestone and topsoil application requirements. Mulch shall not be directly applied to the exposed surface of APS deposits, but rather to the topsoil applied to cover such deposits.
6. Permanent vegetation shall be established as soon as possible. Revegetation, if necessary, shall be performed under the direction of a soils specialist or agronomist, who by training or experience, is familiar with the problems of revegetating APS deposits. Seeding shall always be accompanied by mulching.
7. The Contractor shall not discharge APS deposits into streams, indiscriminately spread APS over uncontaminated soil, and/or sell or distribute the APS deposits as topsoil or topsoil amendments suitable for plant growth.

(H). Document Control

1. Soil/Sediment Usage Tracking Log - Complete a tracking log for each working day involving excavation, stockpile, transport, and disposal of regulated material. Monitor and record the following information on the tracking log:
 - a. Date.
 - b. Location maps showing excavation and placement, including depth, of material.
 - c. Type, volume, and characteristics of regulated material removed.

- d. Names and signatures of personnel responsible for preparing and executing the tracking log.

Submit copies of daily tracking logs to the Engineer on a weekly basis.

2. Materials and Handling Reports - Submit weekly reports to the Engineer documenting the excavation, stockpiling, sampling, off-site management, and on-site placement of APS. Indicate the location and dates of excavation, stockpiling, sampling, off-site management, and on-site placement of APS. Explain changes to or variations from the MHP. Additionally, include dates of planned excavation, sampling, and off-site management of regulated material for the coming months.

Provide a final report documenting the management of APS, including the location and dates of excavation, stockpiling, sampling, off-site management, and on-site placement of APS. Include plans depicting placement of APS. Submit 4 copies of the final report to the Engineer within 30 days of completing excavations of APS, off-site management of APS, and embankment/ backfill operations reusing APS.

3. Submit to the Engineer 2 copies of the sampling logs, chain of custody, and analytical reports after each soil analysis is performed within 10 days of analysis.

(l). Mitigation Procedures Along Stream Channels for Acid-Producing Soils

1. When construction activities expose APS deposits (to air or surface waters) along or within 50 feet of any stream channel or stream bank, the period of exposure shall be held to a minimum (i.e., 8 hours) and measures shall be taken to cover such deposits to prevent the accelerated oxidation of such deposits.
2. For all construction activities in the vicinity of stream corridors that have the potential to expose APS deposits, the Contractor shall implement the following procedures:
 - a. The Contractor shall spread a minimum of one (1) foot of soil free of APS deposits over the exposed deposit surface. The pH of such soil shall be 5.0 or greater (Note that if available soils have a pH between 4.0 and 5.0, it is acceptable to blend the soil with other soils to achieve the desired pH or to add limestone to increase the pH to the desired level). The texture of the soil shall fall within the following textural classes:
 - i. silty clay, sandy clay, clay loam
 - ii. silty clay loam, sandy clay loam
 - iii. loam, silt loam, silt
 - b. No more than ten (10) percent of the soil (by mass) shall consist of coarse fragments (particles above 2mm diameter or long-axis length) and no fragments shall exceed three (3) inches in diameter or long-axis length.
 - c. The Contractor shall compact the soil that has been spread pursuant to Section 203.03.
 - d. For any vegetative planting specification the Contractor uses to stabilize the stream banks, the soil shall not be compacted to a bulk density

- exceeding 105 pounds per cubic foot, and the liming, minimum cap, and pH requirements pursuant to the General Standards for Areas with Acid-Producing Soils shall be met.
- e. The Contractor shall prepare a stable channel in a manner consistent with the *Standards for Soil Erosion and Sediment Control in New Jersey*.
 - f. The Contractor shall immediately repair any erosion or washout that occurs in the cover soil.
 - g. The Contractor will restore any channel to the physical condition existing prior to construction, unless changes to that condition are part of the approved plans.
 - h. The Contractor shall promptly apply the soil layer to the newly exposed APS deposits within or along the channel. The Contractor shall excavate the channel (where necessary) in stages along the successive reach lengths of the channel and shall schedule the work so that no newly exposed APS deposits remain exposed longer than one (1) week or the time required for the pH of a well-mixed sample from the uppermost two (2) inches of the deposit to drop to 3.0, whichever is less.
 - i. If on-site conditions are not practical to temporarily cover the APS deposits with a soil-limestone mixture in the manner described above (i.e., steep slopes or presence of flowing water which cannot be diverted during construction), the Contractor may utilize plastic liners by placing the liner over the newly exposed APS deposits with suitable protection. Any fill material placed over the plastic liner shall be free of APS deposits.
 - j. If the Contractor seals APS deposits with artificial liners (e.g., plastic or specially prepared bentonite), the Contractor shall demonstrate that the liner:
 - i. shall be suitably acid-resistant and durable;
 - ii. shall be protected from erosion and washout;
 - iii. shall be protected from puncture or tearing due to vehicular or foot traffic, plant growth, riprap, sharp objects, vandalism, or other causes;
 - iv. shall be impermeable or very slowly permeable to water movements; and,
 - v. shall not release to ground or surface waters appreciable quantities of toxic substances leached from the liner or resulting from the chemical or physical deterioration of the liner.
 - vi. no separate payment will be made if the Contractor utilizes artificial liners for APS deposits.

(J). Disposal.

1. Dispose of excess APS at approved landfills according to applicable Federal, State, and local laws, rules, and regulations. For excavation designated as APS, provide the following before removing the excess excavation from the Project Limits.
 - a. At least 10 days before disposing, submit the disposal procedure and location to the Engineer for approval. Do not dispose of excavation on property proposed to be or used for parks, playgrounds, and other recreational purposes; educational facilities; environmentally sensitive areas such as wetlands; historic sites; or within sight of a State highway during all seasons.

- b. Obtain the property owner's notarized authorization of the acceptance of the excess material and where it is being placed.

Once material leaves the Project Limits, the Contractor is responsible for ensuring that the handling procedures, placement method, and disposal location are according to applicable Federal, State, and local laws, rules, and requirements, including permits that may be issued for the Project. If the disposal of excess material results in a violation notice from any governmental authority, immediately correct the violation. Indemnify and defend the New Jersey Turnpike Authority (AUTHORITY) for any violation incurred, penalty assessed, or any claims, suits, losses, demands or damages of whatever kind or nature arising out of, or claimed to arise out of, the improper disposal of excess materials.

If the Contractor does not correct the violation to the satisfaction of the governmental authority that issued the violation notice, the Contractor is responsible for assessed penalties including costs incurred by the AUTHORITY to remedy the violations.

213.03 MEASUREMENT

The Authority will not make payment for "Excavation, Acid-Producing Soil" until the Contractor submits the required Material Handling Plan and daily Soil/Sediment Tracking Logs.

Payment for "Testing for Acid-Producing Soil Deposits" will be made at the unit price per laboratory sample. The price shall include all materials, labor, tools, and equipment necessary therefore, and incidental thereto, to obtain the soil sample and have the soil sample analyzed.

Payment for "Field Testing for Acid-Producing Soil Deposits" will be paid under the item for "Excavation, Acid-Producing Soil".

Payment for Off-Site "Disposal of Acid Producing Soil" Material will be made at the unit price per ton bid. The price shall include all costs for testing and disposing of the APS; all other materials, labor, tools and equipment necessary therefore and incidental thereto. The Authority will make payment for "Disposal of Acid Producing Soil" using certified weigh tickets.

Payment for haybales, silt fence, crushed stone tracking pads and other erosion control measures will be paid under the Soil Erosion and Sediment Control measures contained in the Contract.

No separate payment will be made for preparation of requisite submittals or revisions thereto (including the Material Handling Plan), acquisition of necessary permits, polyethylene sheeting, wood chips, limestone check dams, remediation, and activities required for weighing, transporting or disposing of the APS, or restoration of stockpile areas to their original condition. All costs shall be included in the unit price amounts bid in the proposal, including incidental costs for agronomist oversight of replanting of unsuccessful or failed previously revegetated areas.

213.04 PAYMENT

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Excavation, Acid-Producing Soil	Cubic Yard

Testing for Acid-Producing Soil Deposits	Each
Disposal of Acid-Producing Soil.....	Ton

SECTION 214 - NON-HAZARDOUS MATERIAL HANDLING

214.01 DESCRIPTION

This section shall address the management of regulated materials at the site. Regulated materials include both waste materials generated during roadway, channel, stormwater management basins and swales, foundation and trench excavation, as well as materials normally present on-site. Regulated materials include, but are not limited to, the following:

- Soils and Concrete for Disposal
- Contaminated Soils
- Dry Industrial Waste
- Cleaners and Solvents
- Recycled Materials
- Reused Materials
- Fuels
- Raw Materials (including paints, cement, etc.)
- Explosives (also refer to Subsection 106.13)
- Agricultural soils with pesticides exceeding applicable NJDEP criteria

No contaminated sites containing ID-27 materials are known to be present within the limits of this contract.

214.02 ADDITIONAL REQUIREMENTS

(A) GENERAL

1. Section Includes
 - a. Furnish all labor, materials, equipment, tools and appurtenances required to complete the work of staging, testing, and disposing of excavated soil and construction debris required as the result of the construction operations under this Contract, as shown and specified.
2. Applicable Regulations
 - a. In order to prevent environmental pollution arising from the construction activities related to the performance of this Contract, the Contractor and his Sub-Contractors shall comply with all applicable Federal, State (NJDEP) and local laws, and regulations concerning material handling, waste classification and disposal as well as the specific requirements stated in this Section and elsewhere in these Specifications.

- b. The Contractor is advised that the stockpiling/staging of excavated materials and construction debris at unauthorized locations or facilities is strictly prohibited, even if the permission of the property or facility owner is obtained. Any violation of this restriction by the Contractor or any person employed by the Contractor will be brought to the immediate attention of the responsible regulatory agencies, with a request that appropriate action be taken against the offending parties.

3. Definitions

- a. ID-27 Waste - Non-hazardous solid waste as defined by NJAC 7:26-2.13.
- b. Off-Site Disposal - Disposal of materials outside of the Turnpike's Interchange 6 to 9 Widening Program.

4. Agricultural Lands

Various project work areas require excavation of former agricultural lands where pesticides and herbicides were historically applied. If any of this material requires off-site disposal, the Contractor shall perform all required testing. If the soil for off-site disposal has parameters that exceed applicable NJDEP criteria to categorize it as a non-hazardous waste, then the Contractor shall handle these soils in accordance with Subsection 214. The Engineer must approve the off-site removal of this material.

(B) SUBMITTALS

1. Testing of Materials to be Disposed

- a. The Contractor shall be responsible for obtaining laboratory analyses on representative samples of the construction debris and excavated materials for disposal purposes. The samples shall be obtained and analyzed in accordance with standard protocol by a NJDEP-certified laboratory. All analytical data shall be supported by QA/QC documentation on the sample collection procedures and analytical results in accordance with NJDEP standard protocol.
- b. Analytical soil sampling testing parameters. The soil proposed to be disposed of offsite for unrestricted use shall be sampled and tested in accordance with the receiving facility's permit and/or requirements. At a minimum, 1 sample per 1,000 CY, or part thereof, of material to be disposed of offsite for unrestricted use shall be tested. The minimum testing shall be Priority Pollutants list plus 40 (PP+40) in accordance with the most current version of the NJDEP Technical Requirements for Site Remediation (N.J.A.C. 7:26E) and the most current version of the Field Sampling Procedures Manual. The sample shall consist of a 5-point composite of different areas of the stockpile or in-situ material to be disposed. It should be noted that the PP Volatile Organics cannot be tested on a composite sample and, as such, 1 grab sample will need to be

collected for each 1,000 CY area based on field screening or visual/olfactory observations. It should also be noted that if chemical concentrations are detected above the new NJDEP Residential Direct Contact Soil Remediation Standards (N.J.A.C. 7:26D), additional testing will be required to characterize the material as ID-27 per Section 214. Upon receipt of the testing results, a results report should be provided to the Engineer for review and approval prior to transporting any material off-site.

-
2. Disposal
 - a. Materials Handling Plan
 - (i) The Contractor shall prepare and implement a Materials Handling Plan (MHP) as specified in Section 105.14.

(C) MATERIALS

1. Hay Bales
 - a. Salt hay shall be of salt meadow grasses, free from decayed matter and organic matter soluble in water, or equal material as approved.
 - b. Hay shall be furnished in bales of standard sizes, free from weeds or other foreign matter.
2. Polyethylene Sheeting
 - a. Conform to ASTM D 2103, Standard Specifications for Polyethylene Film and Sheeting.

214.03

EXECUTION

(K). STOCKPILING / STAGING

1. ID-27 Materials and Construction Debris:
 - a. If the Contractor's operations require temporary stockpiling or storage, all excavated material and construction debris identified as potentially ID-27 shall be stockpiled/staged in locations approved by the Engineer.
 - b. Stockpiles shall be surrounded by hay bales.
 - c. Materials shall be stockpiled/staged on asphalt, concrete, or other approved firm surface, on layers of plastic sheeting. The sheeting shall consist of 2 layers of polyethylene sheet, each layer 10 mils thickness. The sheeting shall be continuous over the entire stockpile area. Hay bales shall be placed to form a continuous barrier around the stockpile. Each hay bale shall be anchored with 2 No. 4 steel reinforcing bars, 2" x

- 2" wood stakes, or steel pickets driven a minimum of 2 feet into the ground.
- d. Separate stockpiles, staging areas shall be provided for ID-27 materials.
 - e. Stockpiles shall be completely covered with a single layer of polyethylene sheeting 10 mils in thickness. The cover shall be inspected daily, and damaged areas shall be repaired or replaced as directed by the Engineer. The cover shall be sufficiently anchored to prevent displacement by wind.
2. Uncontaminated Materials and Construction Debris:
- a. If the Contractor's operations require temporary stockpiling or storage, all excavated material and construction debris identified as uncontaminated shall be stockpiled/staged in locations approved by the Engineer. All stockpiles shall be protected and stabilized as specified. Rubble staging areas containing concrete, wood, metal, piping, etc., shall be kept separate from other stockpiles. These areas shall be used as staging and processing areas prior to removal and disposal.
 - b. Disposal
 - 1. No material shall be removed from the site until all required submittals for testing and disposal have been submitted and approved by the Engineer.
 - 2. The Contractor shall assure that the waste hauler's appropriate choice of vehicles and operating practices shall prevent spillage or leakage of material from occurring in route.
 - 3. The Contractor shall provide, install, and maintain any temporary loading facilities on-site as required until completion of material handling activities. The location and design of any facilities shall be included in the material handling plan and be approved by the Engineer.
 - 4. The Contractor shall document the handling, sampling, manifesting, transportation, and disposal of ID-27 waste. The Contractor shall organize and maintain the material shipment records/manifests required by the Federal Resource Conservation and Recovery Act (RCRA), the State of New Jersey, and the State where the treatment/disposal facility is located. The Authority or its representative will sign the manifest as the generator. The Contractor shall obtain manifest forms, obtain material code numbers, and complete the shipment manifest records as required by the appropriate agencies for verifying the material type (code number) and quantity of each load in units of volume and weight. Copies of each manifest shall be submitted to the Engineer within 4 business days following shipment, and within 3 business days after notification of receipt at the disposal facility. Any manifest discrepancies shall be reported immediately to the Engineer and be resolved by the

Contractor to the satisfaction of the Engineer. The Engineer will notify the appropriate environmental agencies such as NJDEP, of the manifest problem and the ultimate resolution of the problem.

5. The Contractor shall not deliver waste to any facility other than the disposal facility(-s) listed on the shipping manifest. The Contractor shall coordinate manifesting, placarding of shipments, and vehicle decontamination. All quantities shall also be measured and recorded upon arrival at the disposal facility. If any deviation between the two weight records occurs, the matter is to be reported immediately to the Engineer.
6. The Contractor shall only use the transporter(s) identified in its material handling plan. Any use of substitute or additional transporters must have previous written approval from the Engineer at no additional cost to the Authority. The Contractor shall not combine ID-27 materials from other projects with material from the Project site.
7. All trucks containing bulk solid materials that leave the site shall be weighed on a portable certified truck scale provided by the Contractor or at a nearby certified facility approved by the Engineer. Bulk solid materials include bulk ID-27 wastes that are being hauled for off-site disposal. The Contractor shall ensure that trucks are protected against ID-27 substances by properly covering and lining them prior to any use other than hauling materials that contain ID-27 substances. Liquid-containing trucks shall be sealed by the Contractor in a manner such that tampering with the contents cannot occur. The Contractor shall inspect all vehicles leaving the Project site to minimize adherence of ID-27 substances to the wheels or undercarriage.
8. The Contractor shall be responsible for inspecting the access routes for road conditions, overhead clearance, and weight restrictions. The Contractor shall periodically inspect routes that the vehicles take from the job site to the disposal facility to ensure that no leakage or tracking of mud has occurred. The Contractor shall be held responsible for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site. This cleanup shall be accomplished at the Contractor's expense.
9. The Contractor shall coordinate the schedule for truck arrival and material deliveries at the disposal site to meet the approved Project schedule. The schedule shall be compatible with the availability of equipment and personnel for material handling operations at the disposal site.
10. The Contractor shall use only the disposal facility(-s) identified in its material handling plan. Substitutions or additions shall not

be permitted without prior approval from the Engineer, and if approved, their usage shall be at no extra cost to the Authority.

- 11. The Engineer reserves the right to contact and visit the disposal facilities to verify the agreement to accept the stated material and to verify any other information provided. This does not in any way relieve the Contractor of its responsibilities under this Contract.
- 12. In the event that the identified and approved facility(-s) ceases to accept the stated materials or the facility(-s) ceases operations, or if the facility(-s) is otherwise rejected by the Engineer, it is the Contractor's responsibility to locate an alternate approved and permitted facility for accepting materials. The Contractor is responsible for making the necessary arrangements to utilize the facility(-s), and the alternate facility(-s) must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility(-s). This shall be done at no extra cost or delay to the Authority.

214.04 MEASUREMENT

Off-site disposal of waste will be measured on a per ton basis.

Testing of non-hazardous material will not be measured, but the cost thereof shall be considered incidental to all other items.

214.05 PAYMENT

PAY ITEM

PAY UNIT

Off-Site Disposal of ID-27 Waste..... Ton

Payment for Off-Site Disposal of ID-27 Material will be made at the unit price per ton bid for the item OFF-SITE DISPOSAL OF ID-27 WASTE which price shall include all costs for disposing of the ID-27 waste; all other materials, labor, tools and equipment necessary therefore and incidental thereto.

No separate payment will be made for preparation of requisite submittals or revisions thereto, acquisition of necessary permits, polyethylene sheeting, activities required for weighing, transporting or disposing of regulated waste, or restoration of stockpile areas to their original condition. All costs shall be included in the unit price amounts bid in the proposal.

Payment for haybales, silt fence, crushed stone tracking pads and other erosion control measures will be paid under the Soil Erosion and Sediment Control measures contained in the Contract.

Any soil testing required by disposal facilities shall be included in the cost for "Off-Site Disposal of ID-27 Waste".

SECTION 215 - PROTECTION OF WETLANDS AND TRANSITION AREAS

215.01 DESCRIPTION

- (A) Prior to the commencement of all work, the Contractor shall locate and clearly stake out the boundaries of all wetland areas and transition areas delineated on the Contract Plans, which are outside the limits of construction, with Temporary Orange Plastic Fence. "KEEP OUT" signs shall be placed at intervals of not more than 100 feet around perimeter of all staked out areas. Should the marking be damaged during construction, the Contractor shall repair it within one working day.
- (B) Entry into or physical disturbance of a designated wetland area and transition area is prohibited, unless it is in accordance with the Contract Plans and Specifications or prior approval has been obtained from the Engineer. Such approval shall not be unreasonably refused.
- (C) Temporary roads shall not be placed in designated wetlands or transition areas outside the limits of construction shown on Contract Plans. Where the entry of vehicles into designated wetland or transition area is required and permitted, the Contractor shall take measures to protect the wetland and transition area from gouging, cutting or other damage by the use of appropriate protective measures such as travel mats.
- (D) Precast piles extending to the deck level are permitted to be installed in wetland and transition areas provided that the area of soil cutting be limited to the location of the pile; that disturbance to surrounding areas and access routes be minimized; and that all equipment and materials used in the placing of piles be removed as soon as work is completed. The work area shall be restored to its original condition.
- (E) No fill shall be placed in wetland and transition areas either temporarily or permanently beyond the limits of construction shown in the Contract Plans.
- (F) Storage of materials or equipment or parking of vehicles on wetlands and transition areas is prohibited beyond the limits of construction shown in the Contract Plans.
- (G) No construction wastes, excess fill, petroleum products or cut vegetative materials shall be placed on any wetland or transition area beyond the limits of construction shown in the Contract Plans.
- (H) No buildings or sanitary facilities, whether temporary or permanent, shall be placed on any wetland or transition area, beyond the limits of construction shown on the contract plans.
- (I) Where construction is being carried out in adjoining areas or in portions of wetland or transition areas, Heavy Duty Black Silt Fence and Temporary Orange Plastic Fence shall be placed along the edge of the wetland or transition area so as to prevent silt running onto the wetland or transition area beyond the limits of construction shown in the Contract Plans.

- (J) No borrow material shall be taken from a designated wetland or transition area beyond the limits of construction shown in the Contract Plans.
- (K) The Contractor shall not encroach upon or store any equipment, vehicles, materials in wetlands, wetland transition areas or State open waters beyond the Temporary Orange Plastic Fence. The environmental permits do not allow for encroachment beyond the fenced locations. In addition, stockpiles, vehicles and/or equipment shall not be located within 50 feet of the slope, drainage facility, wetland, or floodplain, as feasible. All stockpile bases shall be protected by hay bale barrier or silt fence.
- (L) All terms and conditions of the environmental permits shall be adhered to. A copy of the permits shall be kept at the work site and shall be exhibited upon request of any person.
- (M) All construction activities will be done in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey*, and any conditions of the approved Soil Erosion and Sediment Control Plan from the governing Soil Conservation District.
- (N) All construction activities will also be done in accordance with the conditions stipulated in the Freshwater Wetland Individual Permit and Flood Hazard Area Individual Permit issued by the New Jersey Department of Environmental Protection (NJDEP).
- (O) Any flow within a waterbody shall be maintained at all times. Floating heavy duty turbidity barrier shall be placed around the work area/dewatering activity discharge so that it does not restrict a stream channel by more than 50% of its width/cross sectional area. Placement shall be parallel to the stream banks and anchored to the shoreline to maintain free flow of the stream center. To avoid obstruction of stream flows or fish passage, turbidity barriers must not be placed across the entire stream channel. The Contractor shall use the typical detail for turbidity barrier shown in the certified Soil Erosion and Sediment Control Plans for the project. If necessary, a cofferdam should corral the work area. Floating heavy duty turbidity barrier shall be erected around the work area (outside of where the cofferdam will be installed) prior to constructing a cofferdam. Dewatering of any cofferdams must include properly sized temporary sediment basins or other filtering methods to reduce turbidity. The stream area to receive return water discharged from the cofferdams must be encompassed by turbidity barrier. The floating heavy duty turbidity barrier shall be left in place until work in that area is completed, the cofferdam is removed, and, if applicable, the adjacent ground area has established a firm stand of vegetation.
- (P) During the course of construction, the Contractor shall not cause or permit any unreasonable interference with the free flow of a stream by placing or dumping any materials, equipment, debris or structures within or adjacent to the stream corridor upon completion or abandonment of the work. The Contractor shall remove and dispose of in a lawful manner all excess material, equipment and debris from the stream corridor and adjacent lands.
- (Q) Earthen berms shall not be used as cofferdams.

- (R) The Contractor shall not drop waste concrete, debris or other construction materials into waterbodies, unimpacted wetlands, transition areas, State open waters, floodplains or other environmentally sensitive areas. Temporary shielding shall be used during demolition of bridges over these environmentally sensitive areas to catch debris. Temporary sheeting shall be installed in accordance with Section 416. If debris does accidentally fall into any of these environmentally sensitive areas, it shall promptly be removed.
- (S) Pumpage of sediment-laden water directly into waterbodies, wetlands or inlets is prohibited. Necessary precautions must be taken during all dewatering operations to minimize sediment transfer. Dewatering shall be performed in accordance with specifications in Section 205.03. Construction of dewatering facilities involving ground disturbance near a waterbody shall be done outside of any regulatory permit timing restriction period. Water from dewatering activities should be returned to a portion of the waterbody that is protected by turbidity barrier.
- (T) Silt fence/hay bales shall be placed around sediment control bags where applicable. Floating turbidity barriers shall also be installed to corral the discharge area if the discharge from the sediment control bag flows into a receiving waterbody.
- (U) Any activity that causes turbidity beyond control measures shall be stopped immediately.
- (V) All drainage systems inlets (new and existing) shall be protected from siltation.
- (W) Storm drainage outlets shall be stabilized, as required, before the discharge points become operational.
- (X) Construction methods shall be employed to minimize airborne dust and prevent soils and other materials from being deposited on existing roadways. Water or other Engineer-approved materials shall be applied to unpaved areas to control dust caused by hauling or other construction operations in compliance with Section 104.12. All soil or other materials washed, dropped, spilled or tracked outside of the limit of disturbance or onto public right-of-way shall be removed immediately and disposed of.
- (Y) During sawcutting, milling and similar operations that could cause dust and stormwater runoff problems and create a slurry of water and concrete, the Contractor shall not create a dust hazard and shall ensure that debris and slurry do not enter inlets or environmentally sensitive areas, such as wetlands and waterbodies. The Contractor shall provide for continuous removal of grinding residue from the pavement surface before it is blown about by traffic motion, wind or precipitation. Concrete slurry shall be contained and disposed of in designated concrete washout facilities.
- (Z) Any excavated material that will not be used as backfill must be disposed of in a lawful manner outside of any regulated wetland, wetland transition area, State open water, or floodplain and in such a way as to not interfere with the positive drainage of the receiving area.

- (AA) All vegetation outside the limits of disturbance shall be preserved.
- (BB) Upon completion of the project, all temporarily disturbed areas, including wetlands, wetland transition areas, State open waters, floodplains, riparian zones and uplands must be restored to their pre-construction grades using native soils and planted with indigenous non-invasive vegetation.
- (CC) Any pesticides, fertilizers, fuel, lubricants, petroleum products, anti-freeze, paints and paint thinners, cleaning solvents and acids, detergents, chemical additives and concrete curing compounds shall be stored in containers in a dry covered area. Manufacturers' recommended application rates, uses and methods shall be strictly followed to the extent necessary to prevent or minimize the presence of waste from such materials in the stormwater discharge/runoff from the project limits. Products shall be stored at a minimum of 50 feet from a waterbody, wetland, or other environmentally sensitive area, if feasible.
- (DD) Any construction, grading, removal of vegetation, or other activity at the site that affects a regulated area, other than specifically approved by the environmental permits or as detailed by the approved drawings, shall require additional approvals from the NJDEP. The commencement of such regulated activities without the appropriate approvals shall be in violation of State law.
- (EE) Care shall be taken to protect adjacent trees and shrubs from undue injury during the processing of the work.
- (FF) The Contractor shall ensure the various regulated activities do not create pathways to drain the wetlands.
- (GG) Any temporary disturbances to stream banks must be restored with native vegetation and stabilized with the use of bioengineering materials, such as biologs, fiber matting, etc., except where rip-rap is required.
- (HH) The uppermost 18 inches of any excavation must be replaced with the original soil in wetlands, wetland transition areas, State open waters and floodplains.
- (II) Any riprap proposed within the banks of any watercourse shall be carefully embedded into the substrate and contoured to mimic the original physical characteristics of the channel (such as its shape, thalweg and meander) in order to provide low-flow aquatic passage throughout the entire disturbed area. Any void spaces within the riprap shall be filled with native substrate from the channel.

215.02**UTILITY LINE INSTALLATION WITHIN WETLANDS.**

- (A) Permanent maintained clearing over an underground utility line shall be no wider than 20 feet unless a wider area is specified in the contract drawings.
- (B) Temporary disturbance, such as temporary clearing or temporary storage of soil or equipment, shall be the minimum size necessary for compliance with applicable laws.

- (C) Permanent underground utility installation and temporary disturbance shall not cause a change in preconstruction elevations in freshwater wetlands, transition areas, State open waters or floodplains.
- (D) All excess soil or bedding material must be disposed immediately upon completion of construction. No excess material shall be placed in freshwater wetlands, wetland transition areas, State open waters or floodplains.
- (E) The uppermost 18 inches of any excavation must be replaced with the original soil in wetlands, wetland transition areas, State open waters and floodplains.
- (F) All temporarily disturbed areas must be replanted with indigenous vegetation.
- (G) Temporarily disturbed areas should be restored such that they do not interfere with the natural hydraulic characteristics of the wetlands.
- (H) Any pipes laid through wetlands, wetland transition areas, State open waters, or floodplains shall be properly sealed so as to prevent leaking or infiltration.
- (I) Any pipes laid through wetlands, wetland transition areas, State open waters, or floodplains shall be designed so as not to form or provide a conduit for groundwater to be discharged or drained from the wetland.
- (J) Any excavation of an open trench across a channel must be backfilled to the preconstruction ground elevation using native substrate upon completion of the crossing.
- (K) The Contractor shall take no more than thirty (30) consecutive days to construct each individual utility crossing of any watercourse. At that time, all temporary fill and machinery shall be removed from the flood hazard area and riparian zone and all disturbed areas shall be properly stabilized. Where present, acid producing soil deposits shall not be exposed for more than eight (8) hours. The Contractor shall obtain approval from the New Jersey Department of Environmental Protection Division of Land Use Regulation for any crossings that take longer than thirty (30) days to complete. The Contractor shall provide a detailed schedule for completion of the work.
- (L) Utility line crossings of all watercourses must be installed in dry or dewatered conditions. Installation of utility lines shall not be installed via wet open cuts and must be installed in accordance with the permit plans and these specifications.

SECTION 216 – PROTECTION OF THREATENED & ENDANGERED SPECIES

216.01 PROTECTION OF THREATENED AND ENDANGERED SPECIES HABITAT

Certain areas within the Widening Program's project corridor contain known habitat for threatened and endangered species. Threatened and endangered species are plants and animals whose populations have declined so drastically that the US Fish and Wildlife

Service and/or NJDEP Endangered and Non-game Species Program have determined that Federal or State action is necessary to protect them as well as those species that are in danger of extinction throughout all or a significant portion of their range or are likely to become endangered in the near future. As a result of this designation, these species are afforded extra protection from impacts associated with proposed development. The following considerations are required if a known threatened and endangered species is within the project area:

(A) Swamp Pink

1. Install two (2) rows of silt fencing around work areas prior to any construction in the vicinity of any stream crossings (Ireland Brook at MP 77.8; North Branch of Beaverdam Brook at MP 79.4; South Branch of Beaverdam Brook at MP 79.1; and Sawmill Brook at MP 81.7), and the adjacent wetlands of each stream channel.
2. Locate all temporary work areas and access routes outside of wetlands.
3. Jute matting or other erosion control measures shall be used on disturbed areas to control erosion or siltation into wetlands supporting swamp pink. Construct stormwater management infrastructure (i.e., silt fencing, jute matting, etc.) prior to all other components of the project.
4. Silt fencing shall be inspected and maintained daily.
5. All disturbed areas shall be promptly revegetated with indigenous plant species immediately following completion of construction activities in that area.
6. Special care shall be taken to avoid the introduction of invasive species. Only native species and weed-free mulches and soils will be used for landscape purposes in the vicinity of wetlands identified to support swamp pink.

(B) Indiana Bat

1. No trees may be cleared from MP 74.0 to MP 82.6, between April 1 to September 30 of each year to protect the endangered Indiana bat.

(C) Warm-water Fish

1. No in-water work is permitted in any stream channel from May 1 to June 30 of each year to protect warm-water fish.
2. All soil erosion and sediment control measures described in Section 208 of the Standard and Supplementary Specifications must be strictly implemented, managed and maintained adjacent to and along stream channels. No activities that may cause turbidity or sedimentation within the stream channels are permitted from April 1 to June 30 of each year, to protect warm-water fish.

216.02 PAYMENT

There is no separate payment for the work indicated in this section associated with the Protection of Threatened and Endangered Species Habitat.

Payment for haybales, silt fence, crushed stone tracking pads and other erosion control measures will be paid under the Soil Erosion and Sediment Control measures contained in the Contract.

The following Section is added:

SECTION 217 – GEOTECHNICAL INSTRUMENTATION AND MONITORING

217.01 DESCRIPTION

The geotechnical instrumentation shall consist of the installation and monitoring the settlement platforms.

This work shall include:

- (A) Furnishing labor, transportation, equipment, materials, and incidentals necessary for installing, and maintaining the settlement platforms.
- (B) Coordinating the project construction schedule to allow installation of embankment/retaining wall settlement monitoring platforms.
- (C) Protecting and maintaining the settlement platforms throughout the Contract, or until directed otherwise by the Engineer. No settlement platform installation shall take place before review by the Engineer of settlement platform submittals.
- (D) Determining baseline settlement platform readings prior to any activity at the site. No embankment/retaining wall structural fill placement shall take place until the Engineer has approved the completed settlement platform installation and the Contractor has taken initial readings for each settlement platform.

217.02 RESPONSIBILITIES

The Contractor's responsibilities shall include, but not be limited to, the following:

- (A) Furnishing and installing the settlement platforms.
- (B) Taking initial and subsequent weekly settlement survey readings of installed settlement platforms.
- (C) Protecting and maintaining the settlement platforms from damage both by Contractor and by others. Repair or replace damaged or inoperative instrumentation at no cost to the Authority.
- (D) Coordinating with the Engineer to verify consistency of collected data.

217.03 INSTRUMENTS

Settlement platforms are surface displacement reference platforms placed on the prepared ground surface or at the bottom of embankment fills. A settlement platform consists of a square steel platform to which risers are attached. The risers are extended as

the embankment and surcharge is placed. Settlement platforms are monitored by optical survey methods to determine vertical displacements occurring during and after fill placement.

217.04 INSTRUMENT MONITORING

Settlement monitoring is the reading of installed settlement platforms at defined time intervals and calculating elevations, changes from initial elevations, and plotting all instrument readings. The purpose of instrument monitoring is to accomplish some or all of the following:

- (A) To monitor the actual performance of the subsoil during and after the embankment/retaining wall construction to verify design assumptions
- (B) To provide reliable information for the Engineer to assess the ground movements,
- (C) To permit the Engineer to evaluate the actual time period that is required to achieve the desired degree of consolidation of the underlying compressible soil.
- (D) To document ground movement during the wall construction and settlement waiting period.

217.05 QUALITY ASSURANCE

(A) REFERENCE STANDARDS.

American Society for Testing Materials (ASTM)	
ASTM A36	Carbon Structural Steel.
ASTM A53	Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
ASTM D1784	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds

(B) CONTROL OF MATERIALS.

- (1) The Engineer reserves the right to approve each of the materials to be used in fulfilling the requirements of instrumentation work. Approval of the materials to be used for instrumentation shall not relieve Contractor of the responsibility to provide instrumentation in accordance with these Special Provisions.
- (2) The Engineer reserves the right to inspect, test and approve the workmanship of the instrumentation equipment and materials.

(C) FIELD MONITORING.

- (1) The Engineer reserves the right to approve, disapprove, modify or change the method of installation and maintenance of monitoring devices. Approval of the method of installation and maintenance of monitoring devices shall not relieve the Contractor of the responsibility to install and maintain the instruments in conformance with the Specifications.

- (2) Notify the Engineer of monitoring devices that become damaged or inoperable within 12 hours of the time the Contractor becomes aware of such conditions.
- (3) The person in responsible charge of the surveyors shall be a qualified land surveyor or professional engineer registered in the State of New Jersey with a minimum of two years of experience in deformation measurements of the types and accuracies specified here in. The field survey party chief shall have a minimum of one year of experience in deformation survey measurements of the types and accuracies specified herein.

217.06**SUBMITTALS**

- (A) Deliver and install no instrumentation on the site before review and approval by the Engineer of the materials, products and installation procedures. At least 30 calendar days before proceeding with the work, submit to the Engineer for review the following:
 - (1) Schedule and Procedures: Proposed schedule and procedures for instrumentation installation and performance of initial reading monitoring for the instruments. Detailed step-by-step procedure for installation, together with a sample installation record sheet. The procedures shall be bound and indexed.
 - (2) Detailed step-by-step procedures for conducting all optical survey measurements to obtain initial readings to the specified accuracy's including types of surveying equipment all specified herein.
 - (3) Product Data: Manufacturer's catalog cuts, shop drawings, material specifications, installation and maintenance instructions, and other data pertinent to the work of this Section.
 - (4) Certifications: Manufacturer's certifications in accordance with Subsection 105.04 that products, materials, and equipment furnished meet the specified requirements.
 - (5) Qualifications: Documentation that supervisory personnel and technicians performing the settlement monitoring work to meet the specified requirements.
- (B) Working Drawings:

Settlement Platform Layout and Details: Within two days of installing each platform, Contractor shall submit an installation record sheet including appropriate items from the following list.

 - (1) Project name.
 - (2) Contract name and number.
 - (3) Instrument type and number.
 - (4) Planned location in horizontal position and elevation.
 - (5) Personnel responsible for installation.
 - (6) Date and time of start and completion.
 - (7) Spaces on record sheet for necessary measurements or readings required at hold-points during installation to ensure that all previous steps have

been followed correctly including instrument readings made during installation.

- (8) As-built location in horizontal position, top elevation, and bottom elevation.
- (9) Weather conditions at the time of installation.
- (10) Notes of importance on the installation including problems encountered, delays, unusual features of installation, and details of any events that may have a bearing on instrument behaviors

217.07**JOB CONDITIONS**

- (A) Protection: Protect from damage due to construction operations, weather, traffic, and vandalism, survey reference and control points, instruments and appurtenant fixtures, instrument leads, connections, and other components of the instrumentation systems. Replace any instrumentation item that may be damaged or, in the opinion of the Engineer, are not functioning properly or consistently at no additional cost to the Authority.
- (B) Scheduling: Except where otherwise specified, maintain access to instruments. Temporary stoppage or interruption of certain portions of the work may be required to enable the Engineer to monitor and take readings. The Contractor will perform such monitoring and measurement in a manner not to delay the work unnecessarily. Contractor's schedule shall include time for such monitoring and measuring.
- (C) Provide 5 feet by 5 feet minimum level area around the instrument for the Authority's personnel to operate from while monitoring instruments. Provide easy access to each platform throughout the construction period and until the end of preload.
- (D) When in the Engineer's judgment, the instrumentation data indicate potentially damaging ground displacements, Contractor shall modify the construction rate and sequence as directed by the Engineer, at no additional cost to the Authority, and take other action as approved by the Engineer to reduce further ground displacements to a rate acceptable to the Engineer.

217.08**MATERIALS**

- (A) Provide products, materials, and equipment in conformance with the Plans and Specifications so as to fulfill the requirements of this Section.
- (B) Whenever any product is specified by brand name and model number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the product desired. The term "or approved equal" shall be understood to indicate that the "approved equal" product is the same or better than the product named in the Specifications in function, performance, reliability, quality, and general configuration. This procedure is not to be construed as eliminating from competition other suitable products of equal quality by other manufacturers. In such cases Contractor may submit complete comparative data to the Engineer for consideration of another product. Do not order, deliver to the site, or use substitute products unless the

Engineer accepts same in writing. The Engineer will be the sole judge of the suitability and equivalency of the substituted product.

- (C) The other casing and telltale pipe shall be steel pipe conforming to the requirements of ASTM A53, welded, standard weight (Schedule 40), Grade B standards.
- (D) Base platform shall be steel conforming to the requirements of ASTM A 36.
- (E) Sand base and sand fill shall conform to the requirement of Embankment, Grade A.
- (F) The protective floating casing shall be Schedule 80 Polyvinyl Chloride (PVC) meeting ASTM D1784, Type 1, Grade 1 standards.

217.09**CONSTRUCTION REQUIREMENTS**

- (A) Geotechnical instrumentation shall be installed prior to embankment fill placement, retaining wall construction, and any other such modification to the existing ground level, but shall be installed after grubbing and installation of any sand blanket and wick drains where required. Instruments shall be located not to interfere with subsequent construction such as structures or MSE straps.
- (B) Strip the original ground surface of all vegetation to provide a level base for the settlement platform. The settlement plate subgrade shall be prepared by excavating a level bearing surface below existing grade. After filling in any depressions and grading the plate subgrade, the entire bearing area shall be compacted using a vibratory smooth-plate tamper. Tamp the subgrade to provide a firm, unyielding and level bearing surface for the base platform. The compacted surface shall not be more than 1/8" per foot from level in all directions. If necessary place the settlement platform on sand base.
- (C) Construct and install settlement platforms as shown on the Plans. The vertical pipes shall have a maximum length of 4 ft for each section.
- (D) After placing the base plate and installing the first section of telltale rod and protective casing, the plate excavation shall be backfilled and a mound of soil shall be placed around the outside casing so that the casing is supported 20 inches above the base plate.
- (E) Establish the elevation of settlement platforms to 0.1 inches.
- (F) The Contractor will survey the position and elevation of the settlement platform upon the completion of the installation of the settlement platforms.
- (G) The Contractor will survey the position and elevation of the settlement platform telltale rods once per week throughout the duration of preloading. Engineer has the right to decide and change the duration of the Settlement Platform monitoring as necessary.
- (H) The settlement platform risers shall be surveyed by the Contractor immediately before and after additional extensions are added or removed.

- (I) As the height of fill above the settlement platform changes, increase or decrease the casing and settlement measuring pipes in a maximum of 4 ft increments to maintain the top of the pipe and casing above the embankment/retaining wall. As each additional length of pipe is added or removed, immediately transfer the pipe cap on the casing to the top section on the settlement platform to prevent fill material from entering the casing.
- (J) Clearly mark the casing pipe by flagging with brightly colored flags to clearly show its location and to warn equipment operators and others of its location. Maintain the flags during the Contract, and replace those that are missing. The Contractor shall maintain barricades and flagging throughout the period of the Contract, or until the Engineer determines the instrumentation may be abandoned and removed.
- (K) Maintain the settlement platforms in working order during the Contract. Repair or replace settlement platforms damaged by Contractor's construction operation, at Contractor's expense, within three calendar days after being damaged.
- (L) The settlement platform risers shall at no time rise above 5 ft. over the surrounding ground surface elevation. Add or remove sections as necessary during filling or removal of fill to maintain the tops of the pipes at least 1 ft above the surface of the fill
- (M) The fill surrounding the settlement plate riser shall be placed in a controlled manner so as to prevent damaging or moving the riser pipe. The outer protective casing shall not be more than 1/8" per foot from vertical in all directions at all times while placing the surrounding fill. The vertical plumbness of the outer casing shall be checked periodically while placing the fill to assure this result.
- (N) Upon completion of final readings, and once the Engineer has determined a settlement platform may be abandoned, the platform shall be cut off at an elevation determined by the Engineer and disposed of, and the remaining settlement platform shall be left in place.
- (O) Damaged instrumentation that has not already been abandoned and is still needed shall be repaired or replaced with identical instrumentation, to the satisfaction of the Engineer and at no expense to the Authority. All earthwork operations within a specified distance shall cease until the damaged instrumentation is repaired or replaced. The Engineer shall make the sole determination as to the specified distance to which earthwork will cease. The repair or replacement shall occur within one week of notification of damage by the Engineer, unless otherwise specified.

217.10**MEASUREMENT**

Settlement Platforms will be measured by the number of platforms installed, maintained and read throughout the length of the Contract, or until readings are discontinued by the Engineer. Periodic extension and/or shortening of the instruments, installation and removal of instruments, or disposition of instruments will not be measured separately for payment.

217.11 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Settlement Platforms	Each

No separate payment will be made for periodic extension and/or shortening of the instruments, installation and removal of instruments, or disposition of instruments, but the costs thereof will be included in the unit price bid for the pay item "Settlement Platforms".

Seventy five percent of the unit price of settlement platforms shall be paid upon installation of the device to the full height of the fill, with the remainder paid upon the completion of monitoring.

DIVISION 300 – PAVEMENT

SECTION 302 – HOT MIX ASPHALT [HMA] PAVEMENTS

302.02 MATERIALS

Replace the third paragraph with the following:

SUPERPAVE HOT MIX ASPHALT 12.5H76 SURFACE COURSE

Replace the sixth paragraph with the following:

“H” - the third field in the Pay Item description designates the high design compaction level as for the job mix formula based on traffic forecasts as listed in Table 924-2 (other levels may be L=low, and M=medium).

302.03 CONTRACTOR'S QUALITY CONTROL

The following is added:

Prior to the commencement of any paving operations, the Engineer shall conduct a job meeting with the Contractor and Subcontractor, if one is used for paving, in order to review intended methods of grade control proposed by the Contractor, to highlight job requirements and criteria; to insure adequate plant production and number of trucks for material delivery in order to permit continuous placement; and to review specific requirements of any special asphalt or additive.

302.04 ASPHALT PLANT AND EQUIPMENT.

(D) MATERIAL TRANSFER VEHICLE.

Replace the first two paragraphs with the following:

A Material Transfer Vehicle (MTV) shall be used for the placement of all HMA on continuous wedge or leveling, intermediate and surface courses to be placed on the traveled way, unless otherwise approved by the Engineer. The MTV shall independently deliver a uniform mixture from the hauling equipment to the paver and shall not be used as a haul unit between the plant and paver. A paver hopper insert shall be installed in the hopper of conventional paving equipment when an MTV is used.

At a minimum, the MTV shall have a high capacity truck unloading system which will receive mixtures from the hauling equipment. It shall have a storage bin with an auger system to continuously blend the mixture prior to discharging to a conveyor system.

302.05 METHODS OF CONSTRUCTION

(H) PLACING LIMITATIONS.

Replace the second paragraph with the following:

Leveling and/or surface courses must be completed in its entirety for the full-length of the paving section attempted that work day. No vertical drop-offs will be allowed at the time the lane or roadway is open to traffic.

The following is added after the second paragraph:

All paving equipment including rollers, pavers, water trucks and tack coat trucks to be utilized for resurfacing during non-daylight hours shall be equipped with a minimum of two (2) lights directed in each direction of travel of the equipment and powered with portable generators. Lights shall not interfere with an active lane or roadway and must be adequate to allow for complete inspection of the paved roadway by the Engineer both before and after compaction.

(K) Compaction

(1) Compacted Thickness

Replace the third row of the table after the first paragraph with the following:

Leveling Course	3 inches minimum
-----------------	------------------

(L) Sampling and Testing

(3) Conformance to Job Mix Formula

Replace the second paragraph with the following:

The average of test results for the five samples or less for a lot shall conform to the job mix formula within the applicable tolerances of Sections 924.

(4) Conformance to Volumetric Requirements

Replace the first sentence with the following:

Provisions of Sections 924 and the following shall apply for control only.

(N) CLEANING OF SHOULDERS.

The Contractor shall utilize equipment that can remove debris deposits from the edges of shoulders or closed lanes without restricting the use of active adjacent lanes. The debris removal equipment shall only travel in the direction of traffic and shall be equipped with dust control.

The Contractor shall clean the right shoulders no more than two days prior to shifting traffic on to the shoulder for construction. During the following stages

the Contractor shall perform cleaning of traffic lanes (during lane closing) as directed by the Engineer.

All closings for the cleaning of shoulders or lanes shall be performed by the Contractor's forces.

The Contractor shall submit his plan for cleaning of shoulders or lanes to the Engineer for review and approval 30 days after Contract is awarded. The plan shall detail the Contractor's methods for removal of debris deposits, including the work force and number and type of equipment to be used.

Disposal of dirt, debris, and all other products collected during the cleaning of shoulders shall be the responsibility of the Contractor and shall be legally disposed of off the Turnpike property.

302.07 AIR VOIDS ACCEPTANCE PLAN.

(B) Acceptance Plan

Replace the second sentence of the second paragraph with the following:

Air voids content will then be determined from five drilled cores (6" in diameter), taken at random locations from each lot, and tested according to Subsection 924.03 (G) for Superpave HMA.

302.09 MEASUREMENT

Replace the first paragraph with the following:

Superpave Hot Mix Asphalt Base, Intermediate, and Surface Courses will be measured by the total weight of mixture, placed as prescribed, as determined from certified scale weights.

Replace the fifteenth paragraph with the following:

Cleaning Outside Shoulders will be measured by the length of each shoulder cleaned, measured separately, regardless of width as directed by the Engineer. Preparation of shoulder cleaning plan, and removal and disposal of debris, will not be measured for payment.

Replace the sixteenth paragraph with the following:

302.10 PAYMENT

No separate payment will be made for the preparation of shoulder cleaning plan, and removal and disposal of debris, but the costs thereof will be included in the unit price bid for the pay item "Cleaning Outside Shoulders". Payment for all closings required for the cleaning of shoulders shall be in accordance with Section 802

SECTION 303 – SHOULDER AND BERM SURFACING

The following is added:

303.01 DESCRIPTION

This work shall also include the construction of berm areas with crushed stone where called for on the plans.

303.02 MATERIALS

Crushed stone shall be aggregate size No. 24.

Pre-emergent herbicide shall be a glyphosate based herbicide. Application of the herbicide shall be in accordance with N.J.A.C 7:301 et seq.

Filter fabric shall be non-woven and conform to Subsection 923.21 for use with Stone, Grades B, C and D.

303.03 METHODS OF CONSTRUCTION

All areas to receive a crushed stone berm area shall be free from all vegetation. A pre-emergent herbicide shall be applied to the area prior to placing any other materials. Filter fabric shall be placed in accordance with the manufacture's recommendations. Crushed stone shall be spread in a uniform layer to the thickness specified.

303.04 MEASUREMENT

Crushed stone berm surfacing will be measured by the horizontal projection of the total area placed, without deductions of areas occupied by guardrail posts, manholes, lighting standard bases and similar structural elements.

303.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Berm Surfacing, Crushed Stone, 6 Inches Thick	Square Yard

No separate payment will be made for excavation, pre-emergent herbicide or filter fabric. All associated cost will be included in the price bid for the item Berm Surfacing, Crushed Stone, 6 Inches Thick.

DIVISION 400 – STRUCTURES

The following is added after the division table of contents and before Section 401 –Concrete Structures:

Where reference is made to the AASHTO Standard Specifications for Highway Bridges for design and construction throughout Division 400, the reference shall be replaced with AASHTO LRFD Bridge Design Specifications and AASHTO LRFD Bridge Construction Specifications respectively.

SECTION 401 – CONCRETE STRUCTURES

401.12 MACHINE FINISHING OF BRIDGE DECK

(A) Machine Finishing of Structural Slab

Delete paragraphs twelve through fifteen.

(F) Deck Surface Requirements.

Delete this subsection in its entirety and replace with the following:

Bridge deck slabs and approach slabs must meet a 1/8 inch in 10 feet straightedge check made longitudinally and transversely. After the final strike-off of the concrete and as close behind the final strike-off as possible, the Engineer will check the surface with a 10 foot straightedge.

The deck slab shall be struck and finished with a self-propelled finishing machine, as specified in Subsection 401.12 (A), and shall be so constructed that, when tested as specified herein, the tolerances specified herein are not exceeded.

Regardless of the overall surface conformity of the bridge deck and approach slab concrete, if surface deviations have a detrimental effect on deck drainage or reinforcement steel cover, appropriate remedial measures to restore any or all of the deck slab surface to the required grades and surface tolerance will be ordered at no additional cost to the Authority. When such remedial procedures are ordered, a plan shall be submitted, setting forth the intended limits of the surface restoration and a complete description of the methods, equipment and materials proposed for use.

Following satisfactory completion of the surface restoration measures to the bridge deck slab and/or the approach slab, the affected area shall be retested.

Additional compensation, Extension of Contract Time or other concessions will not be granted for any surface restorations ordered by the Engineer for compliance with the specification.

(1) Ride Quality Test.

After the bridge decks and approach slabs are completed, a qualified Deck Rideability QC Contractor shall perform a Ride Quality Test using the Rainhart Profilograph and a profile index value determined according to GDT 78 which is provided in this specification.

High speed profilographs and simulated profilographs will not be permitted as an approved equal.

A list of potential subcontractors available to perform the ride quality test using the Rainhart Profilograph is as follows:

McCartney Construction
331 Albert Reins Rd.
Gadsden, AL 35901
(256) 547-7725 or (563) 528-1100

Arkansas State Highway Department
ATTN: Jim Briley
Materials & Test Laboratory
PO Box 2261
Little Rock, AR 72203

MU, Inc.
ATTN: Larry G. Mosher
PO Box 216
Lebanon, TN 37087

Alabama State Highway Department
ATTN: F. L. Holman, Resident Engineer
Room 731 - Highway Building
11 S. Union St.
Montgomery, AL 36130

Georgia Department of Transportation
ATTN: Wouter Gulden
15 Kennedy Dr.
Forest Park, GA 30050
(404) 363-7500

North Carolina Dept. of Transportation
ATTN: Mr. W. R. Richardson
Materials & Testing Unit
1801 Blue Ridge Rd.
Raleigh, NC 27607

Louisiana Dept. of Transp. & Development
ATTN: Mr. W. H. Temple
Transportation Research Center
LSU - Gourrier Ave.
Baton Rouge, LA 70808

Oregon State Highway Division
ATTN: Robert W. Kuenzli, Equip. Supt.
Equip. Services Unit
2800 State St.
Salem, OR 97310

South Carolina Dept. of Highways and Public Transportation
ATTN: R. L. Stewart
1406 Shop Rd.
Columbia, SC 29201

Long Construction Co.
c/o Tom Bailey
1011 Gale Lane
Nashville, TN 37204

Civil Tec, Inc.
ATTN: Brian Colbert
PO Box 3594
Valdosta, GA
(229) 247-5004

Southern Roadbuilders, Inc.
ATTN: Archie F. Carter, Asst. Vice Pres.
PO Box 1129
Augusta, GA 30913

Ballenger Corporation
ATTN: Tony Lovin
PO Box 127
Greenville, SC 29602
(864) 322-2214

Kentucky Transportation Cabinet
ATTN: D. C. Newberry
Trans. Engr. 11
Division of Construction
4th Floor, State Office Building
Frankfort, KY 40622

Rea Construction Company
6001 Old Dowd Rd.
PO Box 32487
Charlotte, NC 28232
(704) 201-8300

Austin Research Engineers
2604 Dellana Lane
Austin, TX 78746

The Columbus Company
335 Andrews Rd.
PO Box 1828
Columbus, GA 31902

Central Atlantic Contractors
ATTN: Jerry Issacs
PO Box A
Aberdeen, MD 21001

Tennessee Department of Transportation
c/o Bob Rorie
Division of Materials & Tests
2200 Charlotte Ave.
Nashville, TN 37203

Colorado Department of Highways
Division of Transportation Planning
Room 212 - Dennis Donnelly
4201 E. Arkansas Ave.
Denver, CO 80222

Archer-Western
3715 Northside Parkway N4
Bldg. 1100, Suite 550
Atlanta, GA 30291
(770) 306-6490

Highway Profile Services
ATTN: John D. Belknap
PO Box 63
Forsyth, GA
(478) 994-1452

The QC Contractor will conduct the test as follows:

- a) Obtain Profile Index Values for bridge deck slabs and approach slabs.
- b) Obtain profiles in each wheel path (2 feet off lane line) of each lane and in shoulder areas to within 12 inches of the barrier parapet.
- c) Average the profile index values for the bridge deck slab including the approach slabs for each of the left and right wheel path for each lane. The average value must not exceed 15 inch/mile (as computed by the test equipment) for each lane.
- d) Localized Slab Requirements - After the test is complete, correct individual bumps or depressions that exceed 2/10 inch from the blanking band on the profilograph trace. (These are localized areas that the trace has defined during the full length test on the deck and approach slab.)

The deck surface must then meet a 1/8 inch in 10 feet straightedge check made longitudinally and transversely.

The Engineer shall witness all profilograph measurements and review/approve all index calculations.

Correct the major and localized areas of the bridge deck and approach slabs identified above that do not pass the Ride Quality Test, as described in Subsection 401.12 (F) (2) "Corrective Work", presented below.

(2) Corrective Work.

After the test described in Subsection 401.12 (F) (1) "Ride Quality Test" has been performed, complete the corrective work, if required, at no cost to the Authority and before doing the final saw cut grooving.

Complete corrective work as follows:

Plane the deck according to Subsection 401.12 (F) (3) "Grind Bridge Deck."

- a) Limit concrete removal by planing so that the final bar cover is not less than the Plan cover minus 1/2 inch (13 mm).
- b) If the final bar cover limits cannot be met, perform the corrective work as directed by the Engineer.
- c) Ensure that the final riding surface complies with this Specification and the requirements for a saw cut grooving finish per Subsection 401.17(F) (3).
- d) If necessary, use a hand grinder to correct bumps with a profile base line of 5 feet (1.5 m) or less.
- e) Have planed surface retested as described in Subsection 401.12 (F) (1) "Ride Quality Test," to ensure that the ride quality meets the requirements of this Specification.

(3) Grind Bridge Deck.

This work includes grinding concrete bridge decks and approach slabs to provide proper drainage and riding characteristics to the pavement surface. Perform the work according to these Specifications and the Plans. Sawcut grooved finish shall be performed after all of the bridge deck slab and approach slabs have been checked for conformance to the specification, and all corrective work has been completed.

- (a) Referenced Documents
Georgia Department of Transportation Test No. 78 (See Appendix H).
- (b) Personnel
Deck Rideability QC Contractor's personnel shall meet the requirements set forth under Subsection 104.06.
- (c) Equipment
 - (1) Grinding Equipment
Use power driven, self-propelled grinding equipment with these characteristics:
 - Diamond blades designed to smooth and texture Portland Cement concrete pavement
 - Effective wheel base of at least 12 feet
 - Pivoting tandem bogey wheels at the front of the machine
 - Rear wheels arranged to travel in the track of the freshly cut pavement
 - Grinding head with the center no further than 3 feet forward from the center of the back wheels

Ensure that the equipment:

- Cuts or planes at least 3 feet wide
- Operates without encroaching on traffic movement outside the work area
- Grinds the surface without causing spalls at cracks, joints, or other locations

Periodically check the equipment to ensure that it is in proper working order, especially the wheel "roundness" on the grinding equipment. Immediately correct "out-of-round" wheels.

- (2) Rainhart Profilograph
Use the Rainhart Profilograph to test the ride quality of the surface of concrete bridge decks and approach slabs.
Rainhart Co.
P.O. Box 4533
Austin, TX 78765-4533
Fax: (512)452-9883
Telephone: (800)628-0021
Local Phone: (512)452-8848
Email: sales@rainhart.com
Website: <http://www.rainhart.com/index.html>

- (d) Construction
Grind the deck slab and approach slab surface areas that do not conform to smoothness requirements defined under Subsection 401.12 (F)(1) "Ride Quality Test", or as required to promote drainage.
Grind the surface areas as follows:
- (1) Maintain a constant cross slope between grinding extremities in each lane to ensure that grinding provides positive lateral drainage.
 - (2) Grind the entire area designated by the Engineer until the deck slab surfaces of the adjacent sides of transverse joints are in the same plane.
 - (3) Texture the deck surface, but do not grind extra depth to eliminate minor depressions.
 - (4) Remove grinding residue before it is blown by traffic action or wind. Do not allow residue to flow into gutters, drainage facilities, or across lanes used by public traffic.
 - (5) Regrinding
To regrind areas to meet the smoothness or final surface finish:
 - Regrind the entire lane width in the area to be corrected. Regrinding of just a portion of the lane width, such as the wheel paths only, will not be permitted.

H) Acceptance Testing.

Delete this subsection in its entirety and replace with the following:

Acceptance Testing is covered under Subsection 401.12 (F) (1) Ride Quality Test.

401.16 TEST SPECIMENS

Delete the first paragraph in its entirety and replace with the following:

This Subsection specifies the requirements for the preparation, testing and evaluation of Portland Cement Concrete specimens. Final quality acceptance testing shall be in accordance with Section 905. In order that the Engineer can maintain a record of the strength gain of all concrete placed, the Engineer will make standard test specimens: 6" x 12" concrete test cylinders for compressive strength, 4" x 8" cylinders for AASHTO T277 and 6" x 6" x 3" molds for AASHTO T259/T260 permeability testing, and beams for flexural strength testing. The Contractor shall provide the concrete and molds for the test specimens, shall be responsible for the handling and protection of the specimens on the job site and shall arrange for delivery of the specimens to the designated Testing Laboratory between 24 and 48 hours after casting.

(B) STANDARDS AND FREQUENCY OF TESTING PRIOR TO FINAL ACCEPTANCE TESTING.

Delete the third paragraph in its entirety and replace with the following:

- (2) Coulomb Test (AASHTO T277) and Ponding Test (AASHTO T259/T260).
-

The Coulomb Test (AASHTO T277) and Ponding Test (AASHTO T259/T260) are used to evaluate the permeability of concrete. For each truckload (Sublot) of LMC and silica fume concrete the Engineer will cast two (2) 4" x 8" cylinder specimens for AASHTO T277 testing. For LMC, two (2) 6" x 6" x 3" specimens will be cast for AASHTO T259/T260 testing. Two-inch thick samples will be cut from the center of each cylinder for AASHTO T277 testing, with a maximum of two slices per cylinder utilized. Samples shall be wet cured in water storage containers per ASTM C31 for 2 days, and air cured at the site for 3 days, prior to pickup for testing. For LMC, the two (2) 4" x 8" cylinders will be tested for 28 day and 56 day permeability in accordance with AASHTO T277 and the two (2) 6" x 6" x 3" molds will be tested for permeability in accordance with AASHTO T259/T260. For silica fume concrete, the two (2) 4" x 8" cylinders will be tested for 28 day and 56 day permeability in accordance with AASHTO T277.

Delete the last paragraph in its entirety and replace with the following:

Refer to Subsection 401.18(I) Acceptance Testing, for requirements for LMC and silica fume concrete overlays prior to final acceptance. Refer to Subsections 905.21, 905.22 and 905.23, including modifications made in the supplementary specifications, for requirements of Quality Acceptance limit, testing, sampling and pay adjustment.

401.17 SURFACE FINISH

Delete the second paragraph in its entirety and replace with the following:

The final surfaces of High Performance Concrete (HPC) shall be finished in accordance with Subsection 401.17 (F) (3) unless specified otherwise in the contract documents.

401.18 CURING

(D) General.

Delete the first paragraph in its entirety and replace with the following:

All new bridge deck and overlay concrete shall be wet cured. No curing compound will be permitted.

(I) ACCEPTANCE TESTING.

(2) Permeability (coulombs).

(a) Twenty-Eight (28) Day Test Results

Delete the second and third bullets in their entirety and replace with the following:

- 4000 to 2001 (coulombs) - Acceptance with possible reduction in payment in accordance with Subsection 905.23 based on 56 day test results in accordance with the AASHTO T277 test, and based on the AASHTO T259/T260 test results. Final acceptance and pay adjustments of the HPC for permeability will be determined based on the results of the AASHTO T259/T260 tests.
- 2000 (coulombs) and below - Acceptance in accordance with Subsection 905.23 based on 56 day test results in accordance with the AASHTO T277 test, and based on the AASHTO T259/T260 test results on the mold samples cured for 42 days. Final acceptance of the HPC for permeability will be determined based on the results of the AASHTO T259/T260 tests.

401.19 PROTECTIVE COATINGS FOR CONCRETE SURFACES

(A) GENERAL.

Add the following after the first paragraph:

Application of the concrete penetrating sealer will not be required on precast concrete parapet sections for MSE or PM retaining walls if the concrete mix design proposed has been certified as meeting the requirements for Chloride Permeability at 56 days as per the NJTA Standard Supplemental Specification for High Performance Concrete (HPC). Documentation from an accredited AASHTO testing agency must be provided to validate the certified properties. Concrete core sampling associated with testing the concrete penetrating sealer application will not be required for parapets where the sealer is not applied.

At the end of the third paragraph add the following:

Sandblasting will be required to remove acrylic based curing compounds (non-dissipative types).

Delete the seventh paragraph and replace it with the following:

High Performance Concrete (HPC) surfaces shall not be sealed.

(B) SEALER APPLICATION.

Delete the first and second paragraphs and replace them with the following:

Application of the penetrating sealer materials shall be made by the methods and at the rate of coverage as recommended by the manufacturer and not exceeding 225 sq. ft./gal.

Prior to sealer application, the Contractor shall submit product application specifications for approval by the Engineer.

In the fourth paragraph, delete the first sentence and replace it with the following:

The concrete surfaces shall be cleaned of dirt, oil, grease, laitance, curing compound or curing compound residue, form release agents and other contaminants which may retard or prevent penetration of the surface treatment material into concrete.

At the end of the fourth paragraph add the following:

Surfaces which have been cured using an acrylic based, non-dissipative type curing compound shall first be cleaned by sandblasting.

In the fifth paragraph, delete the first sentence and replace it with the following:

The concrete penetrating sealer shall be applied with low pressure (15 psi) airless spray equipment at a rate not exceeding 225 sq. ft./gal. and shall be applied.

(C) ACCEPTANCE.

In the fourth paragraph, delete the first sentence and replace it with the following:

The treated concrete cores will be tested for water absorption in accordance with Subsection 923.06 paragraph (F) or (G) as appropriate and as specified below.

Delete the fifth, sixth and seventh paragraphs, and replace them with the following:

When the minimum requirements for water absorption are not met, the lot shall be retreated at no cost to the Authority, or the lot may be accepted on written request provided that payment for the lot is reduced in accordance with the treatment payment schedule.

Delete the "Concrete Penetrating Sealer Treatment Payment Schedule Treatment Characteristics" Table and replace it with the following:

Concrete Penetrating Sealer Treatment Payment Schedule Treatment Characteristics	
Lot Acceptance Water Absorption Percent	Pay Factor
1.00 or Less (Minimum requirement)	1.00
1.01 to 1.05	0.95
1.06 to 1.10	0.90

Concrete Penetrating Sealer Treatment Payment Schedule Treatment Characteristics	
Lot Acceptance Water Absorption Percent	Pay Factor
1.11 to 1.15	0.85
1.16 to 1.20	0.80
1.21 to 1.25	0.75
1.26 to 1.30	0.60
1.31 to 1.35	0.55
1.36 to 1.40	0.50
1.41 to 1.45	0.45
1.45 to 1.50	0.30
Over 1.50	0.00

In the eleventh paragraph, delete the second sentence and replace it with the following:

When the minimum requirements for water absorption are not met after said retreatment, the payment for the lot will be determined by the penetrating concrete sealer treatment payment schedule.

401.23 MEASUREMENT

Add the following to the end of the subsection:

Sawcut Grooved Deck Surface shall be measured by the square yard of deck that is sawcut with grooves in accordance with Subsection 401.17(F)(3).

Strip Seal Expansion Joints, 4" Movement shall be measured by the linear foot along the centerline of the joint.

401.24 PAYMENT

The following pay items are added:

PAY ITEM	PAY UNIT
Sawcut Grooved Deck Surface.....	Square Yard
Strip Seal Expansion Joints, 4" Movement.....	Linear Foot

The following paragraphs are added to the end of the subsection:

No separate Payment shall be made for the QC testing of the concrete surface. Costs associated with the testing shall be included in the bid price for the respective bridge deck slab and approach slab items.

Any adjustment to the concrete mix design specified in the contract documents to allow for the elimination of the requirements for the Concrete Penetrating Sealer and Concrete Core Sampling shall be made at no additional cost to the Authority.

SECTION 403 – STEEL STRUCTURES

403.01 DESCRIPTION

The following is added:

Steel Structures shall also include design, installation and removal of catches and protective shielding.

Delete the last paragraph in its entirety and replace with the following:

Materials and Construction operations not specifically covered in the Plans and Specifications shall be in accordance with AASHTO Standard Specifications for Highway Bridges or AASHTO LRFD Bridge Design Specifications as applicable, based on the design code noted on the Plans.

Pot Bearings and Disc Bearings shall not be used.

403.02 MATERIALS.

Delete the Materials reference for "Pot Bearings and Disc Bearings."

Delete the last paragraph of this Subsection in its entirety.

403.03 INSPECTION AND TESTING.

In the third paragraph, delete the first bulleted item and replace it with the following:

- Simple Steel Bridge Structures. Includes highway sign structures, parts for bridges (such as cross frames for straight bridges with skews of less than 30 degrees), and un-spliced rolled beam bridges.

In the third paragraph, delete the third bulleted item and replace it with the following:

- Fracture Critical Members Endorsement. Familiarity with procedures required to produce critical members in accordance with a fracture control plan as defined by AASHTO or AREMA.

Delete Paragraph (A) and replace it with the following:

Shop Inspection.

The Engineer shall be notified by the Contractor in writing 15 calendar days in advance of the date of beginning of work at the shop so that arrangements for inspection may be made. Any work done prior to inspection may be rejected.

The Contractor shall furnish facilities for the inspection of material and workmanship in the shop. The inspectors shall be allowed free access to the necessary parts of the works.

Inspectors shall have the authority to reject any material or work which does not meet the requirements of the Specifications. In case of dispute, the Contractor may appeal to the Engineer, whose decision shall be final. The acceptance of any material or finished

member by the Engineer shall not be a bar to its subsequent rejection, if found defective. Rejected material and workmanship shall be replaced promptly or corrected by the Contractor at his expense.

The Contractor shall furnish certified mill test reports showing ladle analysis of the chemical composition of the steel used in fabricating the various members. Certified mill reports shall be submitted, in accordance with Subsection 105.03, showing chemical and physical properties of the materials to be used. Samples and test pieces shall conform to Subsection 105.03 and 105.12.

Delete Paragraph (C) and replace it with the following:

(C) Fracture Control Plan.

Steel bridge members or member components designated as Fracture Critical Members (FCM's) on the plans shall be subject to the provisions of the AASHTO LRFD Bridge Design Specifications and ANSI/AASHTO/AWS D1.5 Bridge Welding Code, Chapter 12.

The following Paragraph (D) is added:

(D) Shop Preassembly and Survey.

(1) General Shop Preassembly Requirements.

All structures which utilize field splices shall be preassembled at the steel fabricator's shop, unless noted otherwise in this specification or in the contract documents. All methods of preassembly shall be clearly shown on the Shop Drawings. All other methods of fabrication and fitment not defined in this section shall be as per the AASHTO LRFD Bridge Construction Specifications, 2004 Edition with current interims.

For the Purposes of Section 403.03(D), the following definitions shall apply:

"Section" - a portion of a girder between field splices and/or end bearing locations.

"Line" - the plan alignment of a girder as defined in the contract plans from girder end bearing to girder end bearing.

"Complete Assembly" - a method of preassembly by which the fabricator completely assembles a girder to line and camber. All girders which are less than 150 feet in length, or are comprised of less than three sections shall be completely assembled in the fabricator's shop.

"Progressive Assembly" - a method of preassembly by which the fabricator assembles a minimum of three sections or 150 feet of a girder (whichever is greater) to line and camber beginning at one end of the girder line. The fabricator shall remove previously assembled sections from the beginning end of the girder line and add additional sections to the advancing end while maintaining a minimum 3 sections or 150 feet in the progressive assembly at all times. Progressive assemblies shall consist of at least one section of the previous assembly (repositioned if necessary and adequately pinned to assure accurate alignment) at all times.

"Full Component Assembly" - a method of preassembly by which the fabricator fully assembles specific portions of a bridge superstructure to lines and cambers. When girders are continuous because of their attachment to transverse structural steel supporting beams, (framed-through connection), regardless of cross section, full component assembly of these elements is mandatory. All structural steel work through the first girder to girder field splice on both sides of framed-through transverse structural steel supporting beams shall be preassembled. The framed-through transverse box girders within these portions of the structures shall be included in the preassembly. False work that accurately represents the structural steel bearing locations and elevations as shown on the contract plans shall be constructed and used for all full component assemblies. One hundred percent of the bolt holes within the full component assembly shall be reamed to size and checked for bolt fitment. Other portions of a superstructure may be required for full component assembly as specifically called for in the contract plans.

"Complete Structural Assembly" - a method of preassembly by which the fabricator assembles a complete bridge superstructure in its entirety to lines and cambers in order to verify proper fit and alignment. False work that accurately represents the structural steel bearing locations and elevations as shown on the contract plans shall be constructed and used for all complete structural assemblies. No other points of support shall be permitted. The structural steel shall be fully assembled in the sequence(s) and stages as depicted on the contract plans. Fifty percent of the bolt holes (every other bolt hole) within the complete structural assembly shall be reamed to size and checked for bolt fitment. Completely assembled structural steel shall be surveyed by a Licensed Surveyor. In accordance with Section 104.08, the Contractor shall submit Shop Drawings indicating the coordinate locations and elevations of all bearing locations, field splice locations, and tenth (10th) point locations of each span of each girder at the centerline of the girder. Discrepancies from the contract plans shall be clearly noted in all Shop Drawings. This method of assembly will not be required unless specifically called for in the contract plans.

"CNC Fabrication" - a method of fabrication that utilizes Computer Numerical Controlled (CNC) automated machinery to cut or drill components of bridge structure elements to finished size and shape. CNC Fabrication is typically employed for (but not necessarily limited to) fabrication of cut-cambered girder webs, swept flange plates for curved girders, and hole arrays for bolted connections. Where CNC Fabrication is permitted in Section 403.03(D)2, preassembly requirements described in 403.03(D)2.a and 403.03(D)2.b shall be revised as follows:

1. The fabricator must demonstrate ability to accurately utilize CNC Fabrication methods to construct superstructure elements meeting the dimensions and tolerances published within the Contract Documents. This ability shall be demonstrated by preassembling. For straight girders, a single full length girder line of any continuous multi span unit shall be preassembled to line and camber as outlined in Section 403.03(D)2.a. For curved girders, two full length girder lines, with diaphragms, of any continuous

multi span unit shall be preassembled to line and camber as outlined in Section 403.03(D)2.b. Progressive Assembly, as defined in 403.03(D)1, may be used for both straight or curved girders. Selection of girder lines shall be subject to the approval of the Engineer. The fabricator shall clearly indicate on the submitted Shop Drawings which girder line(s) from the overall bridge superstructure are to be preassembled. The sequence of component preassembly in the shop shall match, as much as practicable, that defined on the Contractor's Erection Plan working drawings, including intermediate false work points of support, if applicable. Successful preassembly of the girder lines shall obviate the need for further Progressive Assembly requirements as they pertain only to the subject bridge. Bridge structures containing multiple independent superstructure units shall not require multiple preassemblies unless otherwise directed.

2. Requirements for Full Component Assembly as described in 403.03(D)2.c will remain in effect. Each bridge structure contained within the Plans utilizing a framed through transverse box girder shall be subject to these requirements. Where girders are supported on a transverse box girder and are not framed through it, only the provisions of 403.03(D)2.a or b, depending on curvature, shall apply. Anticipated steel only dead load deflections of the supporting transverse box girder shall be accounted for when performing the progressive assembly for line and camber.
3. The fabricator shall submit a Quality Control Plan, which shall clearly outline the means and methods exercised to maintain accurate fabrication production. This Quality Control Plan shall, at a minimum, describe procedures and chain of responsibility to be used throughout the fabrication process to transfer relevant information contained in the Contract Documents to the CNC production equipment, including method(s) of verification that final fabrications have been accurately produced. Only one Quality Control Plan shall be submitted for the contract, regardless of the number of bridge structures contained within the Contract.
4. Failure to preassemble the selected girder line(s) without misfits or the need to ream out-of-alignment bolt holes will be held as basis for disallowing use of reduced preassembly requirements via CNC Fabrication methods by the fabricator for all structures in the Contract. Additional preassembly attempts may be considered by the Authority at the discretion of the Engineer, if the following conditions are met:
 - A letter shall be submitted to the Engineer describing the failed mechanism or procedure causing the failed preassembly attempt.
 - A revised Quality Control Plan shall be submitted which shall include a clear method of identifying the cause and preventing a recurrence of the previous failed preassembly.

- Additional preassembly attempts shall be performed on newly fabricated girders using the revised Quality Control Plan.

(2) Structure Type Specific Preassembly Requirements.

The completeness of preassembly required for each structure type shall be performed as defined below. The sequence of assembly shall mimic the Contractor's proposed sequence of erection as closely as is practicable:

(a) Straight Girder Structures Skewed Less Than 30 Degrees

As a minimum, the preassembly procedure for straight girder structures with field splices and all bearing lines skewed less than 30 degrees shall consist of either complete assembly or progressive assembly as defined above. Webs of girders may be oriented in the horizontal plane or the vertical plane. Girders shall be fully supported during assembly. CNC Fabrication and associated preassembly requirements as described in 403.03(D)1 may be utilized for structures meeting the requirements of this Subsection unless otherwise indicated on the Contract Plans. Straight girder structures without field splices and with all bearing lines skewed less than 30 degrees are exempt from the provisions of Section 403.03(D) unless explicitly noted otherwise in the contract documents.

(b) Structures Curved in Plan and/or Skewed 30 Degrees or More

As a minimum, structures which are curved in plan as defined in Section 4.6.1.2 of the AASHTO LRFD Bridge Design Specifications and/or with any bearing line skewed 30 degrees or more shall meet the provisions of 403.03(D)2.a., and shall be assembled with webs oriented vertically. For multi-girder structures, each complete or progressive assembly shall consist of a minimum of two adjacent girder lines including diaphragms or cross frames as per the contract plans. Girder lines assembled by progressive assembly shall consist of at least two sections of an adjacent girder line which has been previously assembled, plus two more sections added to the advancing ends of the girder lines. CNC Fabrication and associated preassembly requirements as described in 403.03(D)1 may be utilized for structures meeting the requirements of this Subsection unless otherwise indicated on the Contract Plans.

(c) Portions of Structures with Complex Framing Elements

Portions of structures explicitly noted as "Complex" on the Plans shall be preassembled via full component assembly. When girders are continuous because of their attachment to transverse structural steel supporting beams (framed-through connection), regardless of cross section, full component assembly of these elements is mandatory. Other portions of the structure may be assembled via complete or progressive assembly, as appropriate.

(d) Special Structures to be Completely Preassembled

As a minimum, special structures which have been explicitly designated on the contract plans to be preassembled via complete structural assembly shall meet the provisions of 403.03(D)2.b. The complete and entire steel structure with all secondary framing members shall be preassembled at the fabricator's shop as a complete structural assembly.

403.05 WORKMANSHIP AND FINISH

(D) New ASTM A709 Grade 50W Steel - Painted.

The second sentence is replaced with the following:

All structural steel surface areas for a distance of one and a half times the depth of the stringers from the deck joint, with the exception of steel designated to be galvanized, shall be cleaned and painted in accordance with the applicable governing provisions of Section 411 and any applicable Supplementary Specifications.

403.08 SHIPPING, HANDLING AND ERECTION

(B) Erection

Delete the last paragraph in its entirety and replace with the following:

When erecting structures over existing buildings, structures, utilities, active roadways, walkways, railroads, navigable waterways, recreational and storage areas, catches or protective shielding shall be installed as necessary or as directed by the Engineer before any further operations may proceed over these areas. Design, installation and removal of catches or protective shielding shall meet the requirements of Subsection 417.04 (A) (1) Catches and Section 417.09(B), Methods of Construction. All work shall be done in accordance with the applicable portions of Subsections 104.08, 104.13, 105.14 and 417.04, the contract plans, and as specified herein.

403.09 SETTING ANCHOR BOLTS AND EXPANSION BEARINGS.

In Paragraph (B), delete the 7th to last paragraphs in their entirety.

403.18 MEASUREMENT

The following is added:

Catches or protective shielding will not be measured for payment.

Delete the 2nd paragraph in its entirety.

Replace the 3rd paragraph with the following:

Under contracts containing an item for structural steel, all metal parts, including structural steel, steel expansion dams, stud shear connectors, bridge drainage metal work, and all other metalwork necessary for the complete fabrication, erection and completion of the structure will be paid for as structural steel unless otherwise noted, stipulated or listed as separate pay items in the Proposal.

403.19 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Structural Steel Structure No. 1 (Str. No. 70.74, Approx. 97,430 Lbs.).....	Lump Sum
Structural Steel Structure No. 2 (Str. No. 71.37, Approx. 547,900 Lbs.).....	Lump Sum
Structural Steel Structure No. 3 (Str. No. 72.29, Approx. 516,400 Lbs.).....	Lump Sum

The following is added:

No separate payment will be made for catches or protective shielding, but costs thereof shall be included in the price bid for the pay item "Structural Steel".

The following is added to the end of the subsection:

Should the Authority permit the Contractor to order and store raw materials for the purposes of fabricating structural steel for bridges, partial payment for the materials will be made as follows:

Payment of up to a maximum of 25% of the total lump sum bid amount of the Structural Steel Pay Item will be made to the Contractor upon confirmed delivery of raw materials to the approved storage facilities, not to exceed the raw materials quantities shown on bills of materials in approved shop drawings.

No payment will be made without substantiating documentation in the form of the following:

- Bill(s) of lading for the receipt of the material delivery to the approved storage facility.
- All required material certifications.
- Proof of insurance for the materials stored at the approved storage facility.

Payment will only be made as a direct reimbursement for costs of materials ordered. No payment will be made for related or unrelated expenses or any other premiums over and above the direct cost of bill(s) of lading from materials vendor(s). No further payments for any work performed as part of the overall contract will be made until proof of payment to the raw materials vendor has been submitted and approved by the Engineer.

No payment will be made for any materials until delivery to the approved storage facility has been confirmed by the Engineer.

When the approved storage facility is on property not belonging to the Authority, the material shall be stored in a fenced area with access limited to the Authority and the Contractor. The stored material shall be covered, or otherwise protected from the elements to the satisfaction of the Engineer. Additionally, the Contractor shall post a sign at the location clearly identifying that the materials are without encumbrances and are to be solely used for this Contract.

Payment for materials does not constitute Authority approval or acceptance of the materials or work. If materials paid for are damaged, stolen or prove to be unacceptable, the Authority retains the right to recover the costs from the Contractor.

Payment for the balance of the total value for each of the Structural Steel Pay Items will be made upon complete fabrication and erection, shop and field welding, non-destructive quality control testing of welds, galvanizing, and shop and field painting less any retainage as specified in Subsection 108.03.

No separate payment will be made for storage of the material at the approved storage facility.

No separate payment will be made for the insurance required for the storage of the material at the approved storage facility.

SECTION 406 – SIGN SUPPORT STRUCTURES

406.01 DESCRIPTION

The following is added:

This work shall consist of collecting overhead sign structure components furnished by others from the Authority's designated storage yards listed below, transporting these components to the final installation site, and assembling/erecting the complete overhead sign structure on new concrete pedestal(s). These overhead sign structures include Cantilever Sign Supports, Butterfly Sign Supports, and Overhead Span Fixed Message Sign Supports.

Overhead Span Sign Support Structure No. 1 (73.39NO) will be stored at the Dix Drive-In located off Route 206 between NJTA Interchange 7 and the Route 130 intersection in Bordentown, NJ. All other sign structures will be stored at the Authority's storage yard at Milepost 126.0 of the Garden State Parkway.

Work under this section also includes removing and disposing of existing sign structures and demolition of abandoned sign structure foundations, as directed in the Specifications or as shown on the Plans.

Work related to the installation of Overhead Span Variable Message Sign and Variable Speed Limit Sign Support Structures is covered under Section 432. Work related to the installation of Overhead Span Hybrid Changeable Message Sign Support Structures is covered under Section 433.

406.04 FABRICATION

The following is added:

Fabricating and furnishing of sign support structure components will be by others. The sign support structures and associated hardware required to assemble the sign supports structures, including anchor bolts, will be delivered to the Authority's storage yard location noted in Subsection 406.01

(D) Sign Support Truss, Hangers, Walkway and Railway

The following is added:

Where only installation and not furnishing of sign structures is specified on the Plans, the Contractor shall be responsible for the furnishing, fabricating and installing of all other components, such as sign hangers, u-bolts, and all other miscellaneous hardware required to erect a complete and functional sign structure with signs at each installation location.

Installation of sign support structures shall not include walkway grating, walkway grating support hangers, railings, or lighting appurtenances unless otherwise indicated on the Plans.

406.05 ERECTION OF SIGN SUPPORT SYSTEMS

The following is added after the first paragraph:

At least fourteen calendar days in advance of removing an existing sign structure or installing a new one, the Contractor shall submit details of the operation to the Engineer for approval.

The following existing overhead sign structures shall be removed as a part of this Contract:

Bridge Mounted ESW/SL Sign Structure No. 1 (MP 73.4 NSI)
 Bridge Mounted ESW/SL Sign Structure No. 2 (MP 73.4 NSO)
 Bridge Mounted ESW/SL Sign Structure No. 3 (MP 73.9 SNI)
 Bridge Mounted ESW/SL Sign Structure No. 4 (MP 73.9 SNO)
 Bridge Mounted ESW/SL Sign Structure No. 5 (MP 76.1 NSI)
 Bridge Mounted ESW/SL Sign Structure No. 6 (MP 76.1 NSO)
 Bridge Mounted ESW/SL Sign Structure No. 7 (MP 79.8 NSI)
 Bridge Mounted ESW/SL Sign Structure No. 8 (MP 79.8 NSO)
 Bridge Mounted ESW/SL Sign Structure No. 9 (MP 82.2 NSI)
 Bridge Mounted ESW/SL Sign Structure No. 10 (MP 82.2 NSO)
 Cantilever CMS Sign Structure No. 1 (MP 73.89)
 Span CMS Sign Structure No. 1 (MP 70.8 SNI)
 Span CMS Sign Structure No. 2 (MP 71.9 NSI)
 Span CMS Sign Structure No. 3 (MP 72.8 SNI/SNO)
 Span CMS Sign Structure No. 4 (MP 73.89)
 Span CMS Sign Structure No. 5 (MP 78.88)
 Span Sign Structure No. 1 (MP 72.6 NSI)
 Span Sign Structure No. 2 (MP 72.9 NSI/NSO)
 Butterfly Sign Structure No. 1 (MP 73.5 NSI/NSO)
 Butterfly Sign Structure No. 2 (MP 76.0 NSI/NSO)
 Bridge Mounted Sign Structure No. 1 (MP 73.4 SNO)
 Bridge Mounted Sign Structure No. 2 (MP 73.9 NSI)

When directed by the Engineer, the following overhead sign structures used to mount the VMS MPT signs shall be removed:

Span Sign Structure No. 3 (75.16N)
 Span Sign Structure No. 4 (75.27S)
 Span Sign Structure No. 5 (74.33N)

Existing sign structures shall be removed only when authorized by the Engineer. Any existing sign panels that conflict with a new traffic pattern shall immediately be removed from the sign structure and the sign illumination shall also be disconnected.

The Contractor shall dispose of existing sign structure components off Authority property.

For areas that will not be paved, existing sign structure footings shall be removed to a depth two (2) feet below finished grade and backfilled. For areas of proposed paving, existing sign structure footings shall be removed to a depth of two (2) feet below subgrade. Removal of the sign structures and footings shall be performed with extreme care so as to avoid damage to the facilities of the NJ Turnpike and to prevent any needless interference or delays to Turnpike patron traffic.

Removal and salvaging of Emergency Speed Warning and Speed Limit Sign Systems on bridge mounted sign structures shall be as specified in Section 605.

The following overhead sign structures shall be erected as part of this Contract:

Overhead Cantilever Sign Structure No. 1 (72.46 SO)
 Overhead Cantilever Sign Structure No. 2 (72.50 SI)
 Overhead Cantilever Sign Structure No. 3 (72.57 NI)
 Overhead Cantilever Sign Structure No. 4 (72.64 SO)
 Overhead Cantilever Sign Structure No. 5 (72.66 NO)
 Overhead Cantilever Sign Structure No. 6 (72.69 SI)
 Overhead Cantilever Sign Structure No. 7 (73.44 SO)
 Overhead Cantilever Sign Structure No. 8 (73.44 SI)
 Overhead Butterfly Sign Structure No. 1 (71.45N)
 Overhead Butterfly Sign Structure No. 2 (72.35N)
 Overhead Butterfly Sign Structure No. 3 (75.54S)
 Overhead Span Sign Structure No. 1 (73.39 NO)
 Overhead Span Sign Structure No. 2 (75.16N)
 Overhead Span Sign Structure No. 3 (75.27N)
 Overhead Span Sign Structure No. 4 (74.33N)
 Overhead Span Sign Structure No. 5 (76.11SI)
 Overhead Span Sign Structure No. 6 (76.11SO)

The sign support structures will be available for pickup by the Contractor from the Authority's designated storage areas on or after the dates noted in the table below. The Contractor will be responsible for integrating the availability dates of the sign structures into his construction schedule so as not to incur delays or obstructions to the overall progress of the Contract. Sign structure components shall be removed from the storage yard no later than thirty (30) calendar days after the above noted date on which they are made available for pickup.

Sign Str. No.	Sign Structure Description	Date Available	Pick Up Location
10	Overhead Cantilever Sign Structure No. 1 (72.46SO)	Currently Available	Keasbey
11	Overhead Cantilever Sign Structure No. 2 (72.50SI)	Currently Available	Keasbey

Sign Str. No.	Sign Structure Description	Date Available	Pick Up Location
12	Overhead Cantilever Sign Structure No. 3 (72.57NI)	Currently Available	Keasbey
13	Overhead Cantilever Sign Structure No. 4 (72.64SO)	Currently Available	Keasbey
14	Overhead Cantilever Sign Structure No. 5 (72.66NO)	Currently Available	Keasbey
15	Overhead Cantilever Sign Structure No. 6 (72.69SI)	Currently Available	Keasbey
16	Overhead Cantilever Sign Structure No. 7 (73.44SO)	Currently Available	Keasbey
17	Overhead Cantilever Sign Structure No. 8 (73.44SI)	Currently Available	Keasbey
18	Overhead Butterfly Sign Structure No. 1 (71.45N)	1/2/2012	Dix Drive-in
19R	Overhead Butterfly Sign Structure No. 2 (72.35N)	1/2/2012	Dix Drive-in
20	Overhead Butterfly Sign Structure No. 3 (75.54S)	1/2/2012	Dix Drive-in
22	Overhead Span Sign Structure No. 1 (73.39NO)	Currently Available	Keasbey
27	Overhead Span Sign Structure No. 2 (75.16N)	6/15/12	Dix Drive-in
28	Overhead Span Sign Structure No. 3 (75.27S)	6/15/12	Dix Drive-in
29	Overhead Span Sign Structure No. 4 (74.33N)	6/15/12	Dix Drive-in
30	Overhead Span Sign Structure No. 5 (76.11SI)	6/15/12	Dix Drive-in
31	Overhead Span Sign Structure No. 6 (76.11SO)	6/15/12	Dix Drive-in

Keasbey yard is located under the Garden State Parkway Driscoll Bridge and is accessible from Smith St. Due to space considerations, it is possible that some structures not yet delivered and listed for Keasbey will be located under the Driscoll Bridge on the south side of the Raritan River accessible from Chevalier Ave, Sayreville or at Dix Drive-In.

Dix Drive-In yard is located off Route 206 between Turnpike Interchange 7 and Route 130, Bordentown

Contact for all structure deliveries will be the 803 Resident Engineer.

Access to storage yards shall be coordinated with the Engineer.

The Contractor shall be responsible for inspecting the sign structure components for damage and completeness prior to removing them from the storage yard. A manifest of included materials will be provided with each sign structure assembly and will be available for review at the storage yard at the time of pickup. The Contractor shall inspect the sign structure components in the presence of the Engineer or the Engineer's designated representative. Should any damage or missing parts be discovered by the Contractor, it shall be immediately brought to the attention of the Engineer. The Contractor may not rig or lift any sign structure components prior to accepting the sign structure components as complete and in good order. Once the Contractor has accepted

the sign structure components, he accepts full responsibility for them until the time of Substantial Completion. The Contractor shall take precautionary measures not to damage the components in handling and transporting to the installation site. Components that are damaged by the Contractor shall be replaced at no cost to the Authority.

406.07 MEASUREMENT

The following is added:

Removal of overhead sign structures will be measured on a lump sum basis for each span, butterfly or bridge mounted sign structure, and shall also include the removal of the existing footings and all electrical appurtenances to the limits specified in Section 406.05.

Installation of new overhead sign structures will be measured on a lump sum basis for each span, cantilever or butterfly type sign structure, and shall include the pickup, delivery and complete installation as described in Section 406.05.

406.08 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Remove Existing Span Sign Structure No. ____	Lump Sum
Remove Existing Bridge Mounted Sign Structure No. ____	Lump Sum
Remove Existing Butterfly Sign Structure No. ____	Lump Sum
Remove Existing Span CMS Sign Structure No. ____	Lump Sum
Remove Existing Cantilever CMS Sign Structure No. ____	Lump Sum
Remove Existing Bridge Mounted ESW/SL Sign Structure No. ____	Lump Sum
Install Overhead Span Sign Structure No. ____	Lump Sum
Install Overhead Cantilever Sign Structure No. ____	Lump Sum
Install Overhead Butterfly Sign Structure No. ____	Lump Sum

Payment for drilled shafts for sign support structures will be made in accordance with Section 434.

SECTION 408 - ELASTOMERIC BEARING PADS

408.03 METHODS OF CONSTRUCTION

(A) Fabrication

The first paragraph is revised as follows:

Fabrication of elastomeric bearing pads shall be in accordance with the latest edition of the AASHTO LRFD Construction Specifications, including the latest interims.

The second paragraph is revised as follows:

Plain Elastomeric Bearing Pads shall be vulcanized to the sole plate during the fabrication process unless otherwise noted on the plans.

The following is added after the fourth paragraph:

The Contractor shall have a minimum of 10% of all welds tested by the magnetic particle method with testing to be performed by an independent laboratory procured by the Contractor. The Contractor shall submit test reports to the Engineer.

The following is added to the end of the fifth paragraph:

The remaining coats shall be applied in the field after installation to the bearings and preparation of the steel surfaces to be painted. No paint shall be applied to the elastomeric portions of the bearing..

(D) Testing

The first paragraph is deleted and replaced with the following:

Regardless of the results of Contractor furnished test reports, one additional full size laminated elastomeric bearing shall be furnished (including sole plate, base plate, guide bars, etc.) of each size manufactured as selected by the Engineer, but not more than six bearings, to the Authority's designated testing firm for testing. Elastomeric materials and laminated elastomeric bearings provided will be tested in accordance with Section 18.2.5 of the latest AASHTO LRFD Bridge Construction Specifications. Elastomer from the sampled bearings shall be tested for compression stiffness in accordance with Section 8.9.2 of the AASHTO M-251 Standard Specification. For the purposes of testing procedure selection, bearings shall be assumed to have been designed using Method B unless otherwise specified in the Specifications or on the Plans. If any bearings fail test procedures, the Authority may require additional bearings for testing.

The third paragraph is deleted in its entirety.

The fourth paragraph is deleted and replaced with the following:

Sampling, testing, and acceptance consideration will be made on a lot basis. A lot shall be defined as a group of no more than twenty (20) bearings with the same size elastomeric pad and design load rating manufactured in a reasonably continuous manner from the same batch of elastomer, and cured under the same conditions. This definition supersedes Section 8.2 of the AASHTO M-251 Specification.

The following Subsection is added:

(E) Delivery, Storage and Handling of Bearings

Delivery, storage and handling of the plain elastomeric bearings shall meet the following:

- (1) Each bearing shall be protected from weather elements.
- (2) Each bearing shall be protected from damage during construction.
- (3) Contamination of the various components of the bearings with construction materials shall be prevented.
- (4) Bearings delivered to the bridge site shall be stored under cover on a platform above the ground surface. Bearings shall be protected at all times from damage. When placed, bearings shall be dry, clean and free from dirt, oil, grease or other foreign substances.
- (5) Bearing devices shall not be disassembled during installation unless otherwise permitted by the Engineer or Manufacturer.

408.04 INSTALLATION

Replace the third paragraph with the following:

All new plain elastomeric bearings installed will be sealed around the base after installation of the bearing. The sealant shall comply with Subsection 923.28.

Replace the fourth paragraph with the following:

Installation shall also conform to the latest edition of the AASHTO LRFD Construction Specifications, including the latest interims.

408.05 MEASUREMENT

The following is added:

Plain Elastomeric Bearing Pads of the various sizes and types will be measured by the number of each size and type installed and accepted.

All labor and equipment necessary to obtain field measurements will not be measured for payment.

Painting of steel plates and testing of welds will not be measured for payment.

408.06 PAYMENT

The following is added:

No separate payment will be made for obtaining field measurements but the cost thereof shall be included in the unit price bid for the appropriate Plain Elastomeric Bearing pay items.

No separate payment will be made for furnishing and installing shims, welding or testing of welds, or cleaning and painting, but the costs thereof shall be included in the unit price bid for the appropriate Plain Elastomeric Bearing pay items.

No separate payment will be made for, sole plates, anchor bolts, nuts, washers and elastomeric pads. The costs associated with furnishing, fabricating and installing these items shall be included in the price bid for the item Plain Elastomeric Bearing.

No separate payment will be made for painting the plain elastomeric bearings. The costs shall be included in the appropriate Plain Elastomeric Bearing pay items.

SECTION 411 - PAINTING AND REPAINTING STEEL STRUCTURES

411.01 DESCRIPTION.

Delete the first paragraph and replace it with the following:

This work shall consist of cleaning and preparing the steelwork surfaces of new structures, including unpainted new weathering steel structures, and furnishing of all paints and other materials (and equipment) for the specified paint system, and the application thereof on the prepared surfaces to the limits designated.

The last sentence in the second paragraph is changed to read as follows:

Unless otherwise required by the Contract Plans or Supplemental Specifications, weathering steel conforming to ASTM A709 Grade 50W shall only be painted in areas specifically required by Subsection 403.05(D).

411.03 THICKNESS OF PAINT.

Replace the fifth and sixth paragraphs, including the table between them, with the following:

The paints for the various coats of the Systems listed, conforming to Section 913, shall be applied to yield the following dry film thickness ranges.

System A	
Spot Prime	4.0 - 6.0 mils
Intermediate Coat	4.0 - 6.0 mils
Finish Coat	3.0 - 5.0 mils
Total DFT Range For System A*	11.0 - 17.0 mils
System B	
Primer	3.0 - 5.0 mils
Intermediate Coat	4.0 - 8.0 mils
Finish Coat	3.0 - 5.0 mils
Total DFT Range For System B*	10.0 - 18.0 mils

System C	
Primer	3.0 - 4.0 mils
Intermediate Coat	4.0 - 6.0 mils
Finish Coat	3.0 - 5.0 mils
Total DFT Range For System C*	10.0 - 15.0 mils

* Individual coats shall not be less than specified minimum nor greater than specified maximum values to satisfy the Total DFT Ranges for each System.

411.04 GENERAL PRECAUTIONS.

(A) POLLUTION CONTROL.

Replace the second through seventh paragraphs, including the table following the fourth paragraph, with the following:

The Contractor is advised that the existing coating systems on previously painted structures, excluding weathering steel structures, designated in the contract may contain red lead and/or basic lead-silico chromate paints as components. All material removed, including, but not limited to, the blasting residue, spent blasting medium, rust, paint particles, and dust associated with the surface preparation operations and any other material contaminated in the cleaning process shall be designated and handled as hazardous waste. The handling, storage, and disposal of such waste products shall be in compliance with all requirements of the USEPA, NJDEP, OSHA, and other regulatory agencies with jurisdiction promulgating rules, regulations, standards, and guidelines in effect during execution of the work.

(B) LEVEL OF CONTAINMENT.

Re-designate the heading for Part 411.04(B)(4)(f) to the following Paragraph heading:

(C) TEMPORARY STORAGE AND DISPOSAL OF SURFACE PREPARATION WASTE.

411.05 CLEANING AND PAINTING STEEL STRUCTURES.

(A) GENERAL.

Replace the second paragraph with the following:

For the surfaces of all welds made both in the shop and in the field, and the metal immediately adjacent, the cleaning shall include thorough abrasive blasting or other approved methods which will insure complete removal of slag.

(C) SHOP CLEANING.

Replace the fourth paragraph with the following:

The inside of box members shall be abrasive blasted before assembly. After completion of fabrication and bolting or welding of the member, the inside surface

shall be hand scraped as necessary to remove all rust, dirt, and other foreign substance which may have accumulated since the surfaces were abrasive blasted; the outside surfaces shall be abrasive blasted; all surfaces shall be swept and dusted so as to be free of loose particles and dust immediately before painting; and then the member shall be painted.

411.06 CLEANING AND PAINTING OF NEW WEATHERING STEEL.

(F) NUMBER OF COATS AND FILM THICKNESS.

Replace the second through last paragraphs with the following:

The Dry Film Thickness of paint shall be within the ranges provided in Subsection 411.03.

The dry film thickness of the prime coat at the contact surfaces or bolted friction splices on main members, and the top of top flanges where stud shear connections are to be welded shall be within the range of 1 to 2.5 mils. All other contact surfaces and surfaces to be in contact with concrete shall be within the normal primer dry film thickness range provided in Subsection 411.03.

The dry film thickness for each coat will be determined by the use of a magnetic dry film thickness gage. The gage shall be calibrated and used in accordance with SSPCPA 2. A Tooke film thickness gage shall be used in accordance with ASTM D 4138 to verify the coating thickness when requested by the Engineer. If the Tooke gage shows that the primer coat is not within the specified thickness range, the total coating system will be rejected even if the total dry film thickness exceeds the minimum mil thickness for the three-coat system provided in Subsection 411.03.

SECTION 413 - UNDERBRIDGE SLOPE PROTECTION

413.01 DESCRIPTION

The following is added:

This work shall consist of furnishing and constructing articulated concrete block mattress system, including all incidental items required.

413.02 MATERIALS

The following is added:

Gravel	902.03
Riprap Stones.....	902.06
Geotextiles.....	923.21
Articulated Concrete Block Mattress.....	923.41

Common Embankment shall conform to Subsection 203.02.

Coarse aggregate for riprap stone slope or channel protection shall conform to Subsection 902.05.

According to the provisions of Subsection 902.06, the required d50 riprap stone size shall be stated in the appropriate riprap stone Pay Item listed below.

413.03 PREPARATION OF SLOPES

Change the title of this Subsection as follows:

413.04 PREPARATION OF SLOPES OR CHANNELS

This section shall be replaced with the following:

Areas on which filter fabric and Articulated Concrete Block Mattress (ACBM) are to be placed shall be graded to a smooth plane surface to ensure that intimate contact is achieved between the slope face and the geotextile, and between the geotextile and the bottom surface of the ACBM. All slope deformities, roots, grade stakes and stones which project normal to the local slope face must be removed. No holes, "pockmarks", slope board teeth marks, footprints, or other voids greater than 1 inch in depth normal to the local slope face shall be permitted. Where such areas are evident, they shall be brought to grade by placing compacted homogeneous material.

The eroded areas of the slopes shall be filled with Common Embankment, regraded and thoroughly compacted by the use of mechanical or vibrating tampers or rollers, so that the original grade of the slope is attained.

Immediately before the construction of the slope or channel protection, the slopes or ground surface shall be trimmed conforming to the lines and grades and shall be thoroughly compacted by mechanical or vibrating tampers or rollers.

(A) Articulated Concrete Block Mattress.

Drawings shall be submitted that show details of the Articulated Concrete Block Mattress (ACBM) and Geotextile Installation. The details shall show the block layout patterns in relation to the feature alignment, anticipated locations of cast-in-place concrete joints, mattress junction details, soil anchors, and proposed installation methods for void filling materials. Descriptive technical data shall be submitted on the blocks, cables, cable fittings, soil anchors, and geotextile. Catalog cuts, technical data sheets, or test data shall be submitted showing that the products meet the specifications. The submittal shall also include a copy of any standard manufacturer's warranties for the products. Contractor shall submit calculations for the anchor pullout capacity. Tabulated manufacturer's data is acceptable, if the embedment soil conditions are applicable to the project site. At the same time as the ACBM and Geotextile Data submittal, the Contractor shall submit a report of testing for the ACBM in substantial conformance with FHWA RD-89-199. The report shall clearly state if the critical shear stress associated with the stability threshold of the ACBM system was derived from laboratory testing that included a sub-block drainage layer as a component of the tested system.

Geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. The geotextile shall be free of tension, folds, and wrinkles. The number of seams and overlaps shall be minimized by selective orientation of geotextile panels, within the limitations of maintaining a consistent pattern. Seams shall be overlapped a minimum of 18 inches. Seams on slopes and butt end seams shall be shingled so that runoff and channel flow passes over the fabric. Geotextile panels shall be secured before block placement by adequate sandbags, spare blocks, or pins/staples. Geotextile shall be placed immediately prior to block installation, if necessary to limit damage to the geotextile from equipment or repeated pedestrian traffic and limit disturbance of the subgrade from precipitation or runoff.

Placement of pre-assembled mattresses shall be done with mattresses attached to a spreader bar to aid in lifting, aligning and placing the mattresses. The mattresses shall be placed directly into position, with a maximum space or gap between mattresses of 3 inches in excess of the nominal joint spacing of blocks within the mattress. Mattresses out of alignment shall be lifted and reset. Mattresses shall not be pushed or pulled laterally after they are in contact with the geotextile. No overlapping of mats will be accepted and no blocks shall project vertically more than 1 inch beyond the adjacent blocks. As adjacent mats are placed, they shall be secured to each other by fastening the protruding horizontal and vertical cable connections and end cable loops together along each side of the mats.

Anchors shall be carefully positioned for attachment to the articulating concrete block. Rigid shafts shall align with the ACBM cables. Flexible anchors (cables, etc.) shall be linear between the ACBM fastener and the restraining device before tensioning. Penetrations in the geotextile to allow for penetration of the anchor shall be sealed in accordance with the shop drawing details.

Eyebolt anchors shall be drilled into the existing south abutment breastwall and grouted into place as indicated on the plans and in accordance with Subsection 401.9 (A). Concrete backfill adjacent to walls shall be constructed by placing concrete on the prepared subgrade surfaces in accordance with the requirements of Subsection 514.03.

The outer edge of the ACBM adjacent to the retaining walls shall be embedded at 1:1 slope and backfilled with Class "C" concrete reinforced with steel rebar.

The outer edge of the ACBM along the existing ground and within the river shall be embedded at 2:1 slope and backfilled with riprap.

Concrete blocks shall be removed for the installation of guide rail and fence posts as needed. Voids created by removal of concrete blocks shall be backfilled with gravel. Removal of blocks shall be completed after the installation of the mattress. Voids of the articulating concrete block mats shall be filled with aggregate void filler conforming to the requirements of Section 902. All cable ties and anchoring shall be completed prior to filling voids.

413.07 MEASUREMENT

The following is added:

Articulated concrete block mattress will be measured by the surface area. The area measured for payment will be the smaller of either the coverage area shown on the plans, or the area of articulated concrete block mattress actually installed.

413.08 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Articulated Concrete Block Mattress.....	Square Yard

Payment for Excavation will be made in accordance with Section 202.

Payment for Articulated Concrete Block Mattress shall include geotextile, gravel backfill, Class "C" concrete backfill with steel rebar, reinforcement cables, miscellaneous concrete tie-ins, and reinforcement for anchor at walls.

SECTION 416 - PERMANENT SHEETING**416.04 PROTECTIVE COATING OF STEEL SHEETING**

Replace the third sentence of the eighth paragraph with the following:

Provide a total system maximum dry film thickness of 16 mils for steel sheet piles.

SECTION 417 - BRIDGE DECK REHABILITATION**417.04 CONCRETE DECK REHABILITATION****(A) REMOVAL OF DECK SLABS.****(1) Catches.**

Delete the fifth paragraph in its entirety and replace with the following:

Catches and shielding shall be in place prior to the installation of bridge deck or parapet formwork and prior to the placement of new concrete deck and parapet.

All catches and shielding required to protect buildings, structures, utilities, active roadways, walkways, railroads, navigable waterways, recreational and storage areas located beneath the work site shall remain in place until the newly placed concrete has cured in accordance with the specifications or until directed by the Engineer. Fascia catches and shielding for these areas shall also remain in place until any, light

standards and other parapet mounted appurtenances have been properly installed. Catches in all other areas shall remain in place until the installation of the Stay In Place (SIP) forms has been completed. However, these areas shall be restricted from public access until the bridge deck has been placed.

Delete the first sentence of the eighth paragraph and replace with the following:

Details of all catch and protective shielding systems shall be designed by the Contractor. All timber catch or temporary flooring systems shall be in accordance with Subsection 105.14.

The following is added after the ninth paragraph:

Catch and Temporary flooring used as working platforms shall comply with OSHA 29CFR, Part 1926-Safety and Health Regulations for Construction, Subpart L – Scaffolds in accordance with Subsection 106.02(C) of these Specifications and shall be subject to the following provisions:

For the purposes of design, Section 1926.451(a)(1) of Subpart L is further defined as follows:

Each scaffold and scaffold component shall be designed to resist the following load case:

$1.0DL + 4.0MIL < Failure$

Where:

DL = Self Weight of Scaffold System

MIL = Maximum Intended Load applied or transmitted to the Scaffold, including personnel, collected debris, construction materials, equipment, or any other load which will be placed on the Scaffold.

Failure = Yielding Strength or Stress of the Scaffold System. For timber applications, "Failure" shall be defined as the allowable timber stresses, as determined by the National Design Specifications for Wood Construction (NDS), current edition.

This load case shall be considered in addition to and independent of load cases as required by the AASHTO Guide Design Specifications for Bridge Temporary Works. Final Scaffold design shall be based upon the controlling load case.

417.09

INSTALLATION OF FASCIA CATCH/DECK SUPPORT SYSTEMS.

(A) DESCRIPTION.

The first paragraph is replaced with the following:

This work shall consist of furnishing, fabricating, and installation of all fascia catches and deck support metal work required for deck construction on bridges . All work shall be done in accordance with the applicable portions of Subsections 104.08, 104.13, 105.14 and 417.04, the contract plans, and as specified herein.

(B) METHODS OF CONSTRUCTION.

The eighth paragraph is replaced with the following:

Permissible girder loads and stresses shall be in conformance with the latest AASHTO LRFD Bridge Design Specifications.

All cantilevered deck form support systems shall be designed in accordance with the current edition AASHTO Guide Design Specifications for Bridge Temporary Works, with the modifications as follows:

Design wind loads as defined in Section 2.2.5 and Appendix C of the above noted guide specification shall also be applied vertically for consideration of uplift due to high wind conditions on cantilevered deck form support systems. An uplift restraint system shall be furnished and installed where calculated wind uplift forces exceed the dead load of the cantilevered deck form support system. All uplift restraint systems shall be positively attached to the bridge superstructure via cables, clamps or other devices as approved by the Engineer. For the purposes of wind uplift design only, a factor of safety of 1.0 shall be utilized and live load shall not be considered.

The effective loading combination as shown below is added to Table 2.3 of the AASHTO Guide Design Specifications for Bridge Temporary Works. Group V loading shall be considered for cantilevered deck form support system designs:

Table 2.3 Load Combinations

Group	Load Combination	Percentage of Basic Allowable Stress or Load
Group V	DL + DP + Wu	100%

Where:

DL = design dead load

DP = dead load of supported permanent structure (where applicable)

Wu = uplift force due to vertical wind load

417.10 MEASUREMENT

The following is added:

Catches or protective shielding will not be measured for payment.

417.11 PAYMENT

The following is added:

No separate payment will be made for catches or protective shielding, but costs thereof shall be included in the price bid for the pay item "Structural Steel".

SECTION 418 – BRIDGE STRUCTURAL REPAIR

418.02 MATERIALS

Under the materials list, change Subsection reference for Non-Metallic, Non-Shrink Mortar or Grout to 905.13. Add the following to the Materials List:

Non-shrink High Strength Mortar.....	905.12
Substructure Membrane Waterproofing	923.06(H)

418.06 SUBSTRUCTURE WATERPROOFING

Include the existing provisions of this Subsection in a new Paragraph (A) entitled "Substructure Waterproofing" and modified as follows:

(A) Substructure Waterproofing

The following is added after the first paragraph:

Adjacent roadways, waterways, sidewalks, and ROW of others shall be protected during the cleaning operations through the use of a containment system. The Contractor shall contain, collect and dispose of all materials off NJTA ROW at completion of the cleaning operations. The Contractor is alerted to the fact that abutment bridge seats and pier caps may be covered with debris. Contractor shall clean entire bearing areas, pier top and abutment seats prior to preparing concrete surfaces for waterproofing.

Delete existing Paragraphs (A) and (B), and add the following Subparagraphs (1) and (2):

(1) Pier

The waterproofing material shall be applied to the pier cap seat, exposed concrete bearing pads and extend down the vertical surface one foot below the seat elevation, or to the limits shown on the Plans.

(2) Abutment

The waterproofing material shall be applied for the full height of the front face of the abutment backwall and headblock, the abutment seat and drainage trough, exposed concrete bearing pad surfaces and the vertical front face for the abutment extended one foot below the seat elevation or to the limits shown on the Plans.

Add the following Paragraph (B):

(B) Substructure Membrane Waterproofing

The concrete surfaces to receive the waterproofing membrane system shall be thoroughly cleaned by sandblasting to remove all existing coatings, laitance, grease, rust, waxes, algae, slime and pollutant coatings. Masonry plates to be

waterproofed shall be cleaned in accordance with SSPC-SP3. If waterblasting is used, the equipment must be capable of a minimum of 4,000 psi.

The Contractor is alerted to the fact that abutment bridge seats and pier caps may be covered with debris. Contractor shall clean entire bearing areas, pier top and abutment seats prior to preparing concrete surfaces for waterproofing.

The Contractor shall provide a containment system to prevent blasting medium and debris from falling from pier caps. The system shall be approved, by the Engineer, prior to beginning work. Adjacent roadways, sidewalks, and ROW of others shall be protected during the cleaning operations through the use of temporary shielding or other containment measures. The Contractor shall contain, collect and dispose of all materials off NJTA ROW at completion of the cleaning operations.

After thorough cleaning of the substructure unit, any depression deeper than ½ inch on the horizontal surfaces shall be filled with non-shrink high strength mortar.

Prior to application of the waterproofing membrane, the perimeter of the steel masonry plate at the interfaces with the concrete substructure shall be sealed. .

Material, air and surface temperature shall range between 32 degrees F and 85 degrees F during application and cure, unless a special formulation is being used and the manufacturer has been consulted and issues a written approval. The maximum application/substrate/material temperature shall be 104 degrees F. Material shall not be placed when rain is forecast within 24 hours. Relative humidity at the time of application in the specific location of the application shall be less than 85 percent and the surface temperature shall be at least 5 degrees above the dew point.

Sufficient material to place the entire membrane system shall be in storage at the site prior to any field preparation, so that there shall be no delay in procuring the material for each day's applications.

The material shall be stored so as not to be damaged from the elements and to insure the preservation of their quality and fitness for the work. The storage space shall be kept clean and dry, shall contain a recording high-low thermometer, and the temperature of the storage space shall not fall below or rise above that recommended by the manufacturer. Every precaution shall be taken to avoid contact with flame.

Stored materials, even though accepted before storage, shall be inspected by the manufacturer prior to their use in the work and shall meet the requirement of the Contract at the time of use. Any material which is rejected because of failure to meet the required tests or that has been damaged so as to cause rejections shall be immediately replaced at no additional cost to the Authority.

The entity ("applicator") performing the work of this section shall submit proof of having the skill and experience necessary for the installation of the specified membrane system placed on jobs of equal complexity to this Contract. Such proof shall include but not be limited to the name and resume of the individual

superintendent who will be responsible for the field work. The resume shall list experience with such installation, including the project name, the name of the owner for whom the work was performed and the scope of the work performed, and shall be submitted to and approved by the Engineer prior to commencing these operations. A Technical Representative from the material manufacturer must be on site for such time until the applicator has demonstrated competence in material application as determined by the Engineer.

All handling, mixing and addition of components for the primer and waterproof coating shall be performed in a safe manner to achieve the desired results in accordance with the manufacturer's recommendations as approved or directed by the Engineer. The system shall not be applied when weather or surface conditions are such that the material cannot be properly handled, sprayed, and cured within the specified requirements.

418.08 MEASUREMENT

The following is added:

Substructure Membrane Waterproofing will be measured by the total area of concrete surface actually covered.

418.09 PAYMENT

The following is added:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Substructure Membrane Waterproofing.....	Square Foot

SECTION 426 - ANTI-GRAFFITI PROTECTIVE COATING

Delete this Section in its entirety.

SECTION 427 - NOISE BARRIER INSTALLATION

Throughout this Section, amend the words "sound barrier" to read "noise barrier".

427.01 DESCRIPTION

In the first paragraph, amend the first and second sentence to read:

The work consists of constructing ground mounted noise barriers. Ground, mounted noise barriers shall be made of precast concrete.

427.02 MATERIALS

(B) Precast Concrete Noise Barriers

Delete the first paragraph in its entirety, and replace it with the following:

Unless required otherwise by Contract documents, concrete for precast noise barrier posts and panels shall be Class P (5,000 psi minimum compressive strength at 28 days), with the posts tinted to match the panels, conforming to Subsection 905.05, and in accordance with the shapes, sizes and connections as detailed on the Plans.

Delete the sixth paragraph in its entirety, and replace it with the following:

Prince Manufacturing Company, Quincy, IL, Ph (217) 222-8854, Pigment Color 04-5305; Rockwood Pigments / Davis Colors, Beltsville, MD, Ph (800) 638-4444, Pigment Color Cocoa No. 6130; or an approved equal.

Add the following to the end of the eighth paragraph:

The penetrating stain shall be shop-applied.

The following is added:

Bearing pads for panels shall be 70 durometer neoprene.

Concrete for drilled shaft foundations shall be Class A (4,500 psi minimum compressive strength at 28 days).

427.05 PRECAST CONCRETE NOISE BARRIERS

(A) General.

Insert the following after the first sentence:

The fabricator chosen by the Contractor to provide noise barrier components shall be certified by Prestressed Concrete Institute (PCI) or National Precast Concrete Association (NPCA) for manufacturing of precast concrete products. Certification and documentation of experience shall be submitted to the Engineer for approval prior to the commencement of any fabrication work including shop drawing preparation.

427.06 FOUNDATIONS

(A) Post holes.

In the first paragraph, delete the third sentence and replace it with the following:

Prior to post hole excavation, the Contractor shall verify the location of any existing utilities by making use of the State's One Call System as specified in Subsection 106.18.

427.08 MEASUREMENT

The following is added:

Noise Barrier Foundation will be measured by the linear foot for the depth of the drilled shaft as shown on the Plans or directed by the Engineer.

427.09 PAYMENT

The following pay items are deleted:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Ground Mounted Sound Barrier Panel.....	Square Foot
Ground Mounted Sound Barrier Panel, Type ____	Square Foot
Bridge Mounted Sound Barrier Panel	Square Foot
Bridge Mounted Sound Barrier Panel, Type ____	Square Foot

The following pay items are added:

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Ground Mounted Noise Barrier Panel, Type ____	Square Foot
Noise Barrier Foundation.....	Linear Foot

Delete the fifth paragraph in its entirety, and replace it with the following:

No separate payment will be made for excavation, dewatering, sediment filtration devices, reinforcement, coarse aggregate called for on the Plans, and concrete in drilled shafts. All associated costs thereof shall be included in the item for Noise Barrier Foundation.

No separate payment will be made for dowels for cast in place concrete barrier curb. All associated costs shall be included in the item Ground Mounted Post.

The following is added at the end of this Subsection:

The cost for the disposal of unsuitable material, as directed by the Engineer, shall be included in the pay item Additional Crushed Stone.

SECTION 428 - MECHANICALLY STABILIZED EARTH (MSE) WALLS

428.01 DESCRIPTION

This work shall include the design and construction of mechanically stabilized earth (MSE) wall structures composed of precast concrete facing panels, cast-in-place and/or precast parapets, moment slabs, copings, concrete leveling pads, soil reinforcement elements, joint materials, fasteners, Select Backfill, and all other appurtenant items of construction within the Common Structure Volume as shown on the Plans, included as

part of the selected MSE Wall System, or as specified herein. This work shall also include MSE wall structure constructed in two-stages at the locations specified on the Plans. The primary stage shall consist of steel reinforced embankment fill with a flexible facing of welded wire and fabric. The secondary stage shall consist of precast concrete facing panels and all other appurtenances as shown on the Plans. The sequence of construction shall be as shown on the Plans.

Design and construction of MSE walls shall be in accordance with AASHTO LRFD Design and Construction Specifications with modifications herein and in accordance with the NJTA Design Manual wherein:

- Load Factor Design (LFD): Internal Strength and Stability for Barrier Parapet and Moment Slab System
- Allowable Stress Design (ASD): External Stability for Moment Slab and Leveling Pad.

The Contractor shall make its own arrangements to purchase the materials and services from the manufacturer. All labor, materials, equipment, and tools shall be supplied by the Contractor as required to prepare the site, construct the leveling pad, construct the wall, place and compact the select granular backfill, and construct the coping and traffic barrier.

Where an MSE wall is constructed supporting a roadway that will be subjected to chemical deicing, installation of a High Density Polyethylene (HDPE) geo-membrane liner system, as shown on the Plans and specified in 432.02(C), shall be included. All labor, materials, transportation, handling, storage, supervision, tools and other equipment that may be necessary to install and test the HDPE liner system shall be included.

428.02 MATERIALS

Materials shall conform to the current editions of AASHTO LRFD Bridge Design Specifications with Interims and AASHTO LRFD Bridge Construction Specifications with Interims with modifications herein and the provisions of the wall system selected for construction in this contract.

Bearing pads shall conform to the requirements of the wall manufacturer.

Filter fabric shall conform with Subsection 923.21.

Where select backfill may be inundated with chemically aggressive tidal, flood or ground water, the use of soil reinforcements of stainless steel Grade 316L may be considered. In such a case, minimum corrosion rates shall be 0.5 mil/year for the first 10 years and 0.2 mil/year for subsequent years. The wall system supplier shall make recommendations regarding the corrosion rates that shall provide the required 75 or 100 year service life. The determination of corrosion rates shall be based on data presented in the most recent edition of "Underground Corrosion", by Melvin Romanoff.

(A) MSE Wall Systems

Except as may be modified within this Section, all applicable provisions of Divisions 400 and 900 shall apply in furnishing MSE Wall Systems. The following MSE Wall Systems are acceptable for use in this Contract:

Sinewall Panel System as manufactured by

Sinewall, LLC
7162 Liberty Center Drive, Suite 105
West Chester, Ohio 45069
www.sinewall.com
Office: 513-759-2345
Fax: 513-297-7930

Reinforced Earth as manufactured by

Reinforced Earth Company
8614 Westwood Center Drive, Suite 1100
Vienna, VA 22182-2233
Telephone Number: 703-749-9246

Retained Earth as manufactured by

Reinforced Earth Company
8614 Westwood Center Drive, Suite 1100
Vienna, VA 22182-2233
Telephone Number: 703-749-9246

SSL MSE Plus Retaining Wall System as manufactured by

SSL
4740 Scotts Valley Drive, Suite E
Scotts Valley, CA 95066
Office: 831-430-4300
Fax: 831-430-9340

Isogrid Retaining Wall System as manufactured by

The Neel Company
8328-D Traford Lane
Springfield, VA 22152
Telephone Number: 703-913-7858

Tricon Retained Soil Wall System
 Tricon Precast, Ltd.
 Main Office
 15505 Henry Rd.
 Houston, TX 77060
 Info@Triconprecast.com
 281-931-9832 Office
 281-931-0061 Fax
 877-387-4266 Toll Free

Earth Tec Retaining Wall System as manufactured by

EarthTec, Inc.
 413 Browning Court
 Purcellville, VA 20132
 703-771-7305 (tel)
 703-771-7306 (fax)

Use of extensible soil reinforcement for MSE walls shall not be permitted.

Selection of only one (1) wall system will be permitted for use on this Contract. The Contractor shall make its own arrangements to purchase the materials and services from one of the manufacturers of a permissible MSE Wall Systems listed herein.

An on-site technical representative from the selected MSE Wall Systems manufacturer shall be present to assist and instruct during the installation of the first two-panel courses, as a minimum.

Except as may be modified within this Section, all applicable provisions of Sections 400 and 900 shall apply in furnishing MSE Wall Systems.

(B) Select Backfill Material

Unless otherwise noted on the Plans, Select Backfill conforming to the requirements herein shall be used within the Common Structure Volume as shown on the Plans and specified in Subsection 432.06 and may be procured from off-site sources or from on-site borrow excavation.

Select Backfill used in the MSE Common Structure Volume shall be reasonably free from deleterious materials, shale or poor durability particles and shall conform to the following gradation limits as determined by AASHTO T 27:

Sieve Size	Percent Passing
4 inches	100
¾ inch	30-100
No. 4	5-85
No. 40	0-60
No. 200	0-10

Material that is composed primarily of gravel (material having less than 40 percent passing a $\frac{3}{4}$ in sieve) should be considered to be a coarse backfill. When such material is used, a Class 1 high survivability geotextile filter, in accordance with AASHTO M 288 designed for filtration performance following the guidelines in FHWA NHI-07-092 (Holtz et al., 2008), should encapsulate the coarse graded backfill to within 3 ft (1 m) below the wall coping. Adjoining sections of separation fabric should be overlapped by a minimum of 12 in. (0.30 m). Additionally, the upper 3 ft (1 m) of fill should contain no stones greater than 3 in. (75 mm) in their greatest dimension, and should be composed of material not considered to be gravel backfill, as defined herein.

Recycled concrete shall not be permitted to be used as select backfill material.

Select Backfill shall meet the following electrochemical limits:

Property	Standard	Test Procedure
Resistivity, Ω - cm	Greater than 3,000 at 100% saturation	AASHTO T 288
PH	Acceptable Range of 5 - 10	AASHTO T 289
Organic Content	1.00% Maximum	AASHTO T 267
Chloride	Less than 100 ppm	AASHTO T 291 or ASTM D 4327
Sulfates	Less than 200 ppm	AASHTO T 290 or ASTM D 4327
Magnesium Sulfate Loss	Less than 30% after 4 Cycles	AASHTO T 104
Sodium Sulfate Loss	Less than 15% after 5 Cycles	AASHTO T 104

Prior to any construction (Preconstruction), the Contractor shall take the specified number of test samples from all proposed Select Backfill material sources and submit the results to the Engineer for review and approval. For the design of the wall including soil reinforcing elements, the wall system supplier shall use:

- the friction angle determined from test results
- an appropriate unit weight
- the electrochemical limits for select backfill specified herein

No materials shall be delivered to the site until approved by the Engineer.

Test sampling shall be performed throughout the course of the MSE wall construction (During Construction) as materials are delivered to the site and at the prescribed rates. Except as noted below, sample tests that fail to meet the specified requirements may be repeated at the Contractor's option. Repeated sample tests shall be averaged with the failing sample test to determine the final tested soil properties. A maximum of two (2) repeated sample tests will be permitted.

The frequency of sampling and testing shall be performed as described below for all limits noted above. A minimum of two samples per structure shall be taken.

Additional samples shall be taken whenever the appearance or behavior of the Select Backfill changes and as directed by the Engineer.

Select Backfill Test Sampling Frequency:

Range of Resistivity (Ω -cm)	General Description	Pre-construction	During Construction	Comments
		No. Samples	Sample Interval (yd ³)	
>10,000	Crushed rock and Gravel <10% passing No. 10 sieve	1/3 ¹	4000 / 2000 ¹	<p>A. pH outside the specified limits is not allowed for any sample.</p> <p>B. Backfill sources shall be rejected if resistivity measured for any one sample is less than 700 Ω-cm, chloride content > 500 ppm or sulfate content > 1000 ppm.</p> <p>C. For materials with resistivity <5000 Ω-cm, Chloride and Sulfate testing requirements shall apply.</p>
5,000 to 10,000	Sandy Gravel and Sands	3/6 ¹	4000 / 2000 ¹	
<5,000	Silty sands and Clayey sands screenings	5/10 ¹	2000 / 1000 ¹	
¹ # resistivity tests / # tests for pH, Cl ⁻ , and SO ₄				

If the resistivity is greater or equal to 5,000 ohm-cm the chloride and sulfates requirements may be waived.

The angle of internal friction for the Select Backfill, as determined by the direct shear test in accordance with AASHTO T 236 or the tri-axial compression test in accordance with AASHTO T 234-85, shall not be less than 30 degrees.

Where greater than 75% of the particles of the Select Backfill are retained on the 3/4" sieve, the direct shear and tri-axial compression test requirements may be waived in lieu of an assumed 34 degree soil angle of internal friction.

The Plasticity Index (PI) of the Select Backfill, as determined by AASHTO T 90 shall not exceed 6.

AASHTO T-267 shall report the organic content as a percent by weight of the total soil fraction and not only what is passing the number 10 sieve. Organic content of select backfill shall be limited to 1 percent by weight of the total soil fraction.

ASTM G187 may be substituted for AASHTO T 288 in instances where insufficient material passing the number 10 sieve is present. This test shall be completed on materials passing the number 4 sieve with an appropriately sized resistivity box utilized.

The Contractor shall furnish to the Engineer a Certificate of Compliance certifying that the Select Backfill complies with this Subsection prior to the installation of the wall.

A copy of all test results performed by the Contractor's Testing Agency which are necessary to ensure compliance with these Specifications shall also be furnished prior to delivery and placement of the select backfill.

(C) High Density Polyethylene (HDPE)

HDPE geo-membrane liner systems shall have a nominal thickness of 30 mils. The geo-membrane shall be manufactured of new, first quality resin and shall be compounded and manufactured specifically for the intended purpose. The resin manufacturer shall certify each batch for the following properties:

Property	Test Method	Requirements
Specific Gravity	ASTM D 792	> 0.940
Melt Index	ASTM D 1238	< 0.4g/10 min.
Carbon Black Content	ASTM D 1603	2% - 3%

The HDPE supplier shall submit this certification for the Engineer's verification of the material.

The surface of the HDPE geo-membrane liner system shall not have striations, roughness, pinholes or bubbles and shall be free of holes, blisters and any foreign matter, such as soil or oil accumulation.

428.03

METHODS OF CONSTRUCTION

Methods of construction shall conform to the current editions of AASHTO LRFD Bridge Design Specifications with Interims and AASHTO LRFD Bridge Construction Specifications with Interims with modifications herein and the provisions of the permitted wall system selected for construction in this contract.

(A) Precast Panel Unit Production/Tolerances

All units shall be manufactured within the following tolerances:

- (1) All dimensions within 3/16 inch.
- (2) Deviation from vertical or horizontal, 1/8 inch per 5 feet.

Units shall be rejected because of failure to meet any of the requirements specified above. In addition, any or all of the following defects as assessed by the Engineer shall be sufficient cause for rejection:

- (1) Defects that indicate imperfect molding.
- (2) Defects indicating honeycombed or open texture concrete.
- (3) Defects in the physical characteristics of the concrete units, such as:
 - (a) Stained front face due to excess form oil or other reasons.
 - (b) Signs of aggregate segregation.
 - (c) Broken or cracked corners.
 - (d) Tie strips bent or damaged.
 - (e) Lifting inserts not usable.
 - (f) Exposed reinforcing steel.
 - (g) Cracks at the PVC pipe or pin.
 - (h) Insufficient concrete compressive strength.

- (i) Panel thickness in excess of 3/16 inch from that shown on the plans.
- (j) Deviation from flatness of exposed surface in excess of 1/8 inch per 5 feet

An additional inspection shall be made prior to erection to determine any damage which may have occurred during storage, handling, and transport.

The Engineer will determine whether spalled, honeycombed, chipped, or otherwise defective concrete shall be repaired or be cause for rejection. Repair of concrete, if allowed, shall be done in a manner satisfactory to the Engineer at no additional cost to the Authority.

Repairs to concrete surfaces which will be exposed to view after completion or construction shall be approved to the satisfaction of the Engineer.

(B) Wall Construction/Tolerances

Finished MSE walls shall be erected within the following tolerances:

1. The overall vertical alignment tolerance, or plumbness, from top to bottom of the structure, shall not exceed 1/2 inch per 10 foot of wall height.
2. Deviation from horizontal alignment shall not exceed 3/4 inch.
3. Vertical and horizontal alignment tolerance, or plumbness, shall not exceed 3/4 in. when measured with a 10 ft. straight edge on a selected wall section.
4. The maximum allowable offset between any two panels shall not exceed 3/4 inch.

Soil reinforcement shall be uniformly tensioned to remove any slack in the material or in the connections to the facing panels. Where an individual soil reinforcement element has multiple connections to a facing panel, a minimum of two connections per layer per panel shall be in full contact upon tensioning the element with maximum gaps of 1/16 inch at remaining connections.

The compacted density of the Select Backfill shall be determined by taking one test series for each half height of wall panel of elevation, to a maximum of 3 feet, placed in accordance with AASHTO T310 Method B. Select Backfill shall be compacted to a minimum of 95% maximum density or greater if specified by the MSE wall system manufacturer. Optimum Select Backfill moisture content to achieve minimum required compacted soil density shall be as determined by AASHTO T99.

The specified compaction of the Select Backfill shall be accomplished by use of large, smooth drum, vibratory rollers with the exception of the 5 foot zone directly behind the facing panels. No sheepfoot rollers shall be used.

Within the 5 foot zone, small, single or double drum, hand operated, walk-behind vibratory rollers, or walk-behind vibrating plate compactors shall be used, and at least three passes shall be made.

When there is evidence of wall displacement or disturbance, compaction shall be accomplished by use of a smooth drum static roller.

The compaction equipment shall be capable of providing uniform density throughout the depth of the layer of the Select Backfill being compacted with no disturbance to the vertical or horizontal alignments of the previously placed panels.

At MSE walls locations where significant settlement is expected but no ground improvement is specified, placement of the pavement box shall not begin until a waiting period of ninety (90) days or a duration directed by the Engineer to allow the settlement process has been observed. The Engineer will evaluate actual settlement based on field instrumentation data to determine the settlement (consolidation) period. The Engineer will be the sole judge to determine that the settlement has been completed. Construct pavement box upon written authorization from the Engineer.

At two-stage MSE walls, placement of second stage shall not begin until a waiting period of ninety (90) days or a duration directed by the Engineer to allow the settlement process of the first stage has been observed. The Engineer will evaluate actual settlement based on field instrumentation data to determine the settlement (consolidation) period. The Engineer will be the sole judge to determine that the settlement has been completed. Construct the second stage upon written authorization from the Engineer.

For one or two stage MSE walls, ensure that the wall coping system will accommodate the full range of settlement, including zero settlement, differential settlement between stages and anticipated long term settlement, without requiring cutting of the precast panels or units.

(C) High Density Polyethylene (HDPE) Construction

Before liner installation, it shall be assured that the area that is to be lined shall be smooth and free of sharp objects or debris of any kind. Atmospheric exposure of geo-membrane to the elements following lay down shall be a maximum of fourteen (14) days. The Contractor shall install HDPE geo-membrane liner free of holes and tears.

The HDPE shall be placed below the pavement, above the first row of reinforcements and over the parapet moment slab (where present) and over specified areas as shown on the plans. The HDPE shall be sloped to drain away from the facing panels.

HDPE shall not be installed during periods of precipitation or in conditions of excessive moisture such as fog or dew in accordance with the HDPE manufacturers recommendations and as approved by the Engineer.

All seams of the HDPE geo-membrane liner system shall be, as per the manufacturer's specifications, sealed or overlapped to prevent leakage. Seams shall be oriented parallel to the line of maximum slope. Seams shall have a minimum finished overlap of 4 inches unless a greater overlap is specified by the HDPE manufacturer.

Field testing of seams, according to the manufacturer's specifications, shall be conducted to verify satisfactory seaming conditions.

When backfilling, care shall be taken to prevent damage to the HDPE system. Any tears, punctures or holes incurred during the installation process shall be assessed by the Engineer and the membrane shall either be repaired in accordance with recommendations of the membrane manufacturer or replaced at the Engineer's discretion at no additional cost to the Authority.

Perforations through the liner shall be limited. Where penetrations are necessary, the Contractor shall provide details demonstrating the method(s) of sealing the penetration for approval by the Engineer.

(D) Construction Stormwater Management

At the end of each construction period, the Contractor shall slope the last placed level of backfill away from the wall facing to direct runoff or rainwater away from the wall face. Surface runoff shall not be allowed to enter the wall construction site from adjacent areas.

428.04

WORKING DRAWINGS

Working drawings shall be prepared and submitted in accordance with the requirements specified under Subsection 104.08. The Common Structure Volume shown on the Plans is anticipated to envelop the majority of potential wall system reinforced earth volume requirements. However, should the limits of structure volume for the proposed wall system extend beyond the limits of the Common Structure Volume, the wall system shall be submitted as a Substitution in accordance with Subsection 428.05. The Substitution must be approved prior to submitting working drawings. At a minimum, working drawings shall include the following:

- (A) Design calculations, signed and sealed by a Professional Engineer licensed in the State of New Jersey, in conformance with current edition of AASHTO LRFD Bridge Design and Construction Specifications with Interims and modifications herein and the provisions of the approved wall system selected for construction in this contract. MSE walls shall be designed for a minimum 75 year design life. MSE walls which support embankments under bridge abutments shall be designed for a 100 year design life. All MSE wall components shall be designed for the 100-year flood elevation and the project environment. Walls shall be designed for rapid drawdown conditions to account for the differences in hydrostatic pressure for a 100-year design flood; and/or rapid draining embankment material can be used as select backfill.
- (B) General notes, design parameters, soil characteristics of Select Backfill, and factors of safety and/or load and resistance factors.
- (C) An elevation view of the wall showing:
 - (1) Elevations along the top of the wall, at beginning and end of wall, at 25 foot intervals, at changes in grade, at changes in Common Structure Volume limits; and at precast panel unit joints where indicative of wall geometry.
 - (2) Elevations and step locations for leveling pads and/or footings.
 - (3) The location of the final ground line.
 - (4) Number and type of precast panel units.
 - (5) A numbered panel layout for fabrication and erection purposes.
 - (6) Designation of breaks in vertical alignments and elevations.
 - (7) Locations and elevations/inverts of any utilities or drainage which passes through the retaining wall or the Common Structure Volume.
- (D) A plan view of the wall showing:
 - (1) The offset from the construction baseline to the face of precast wall units at all changes in horizontal alignment.
 - (2) ROW limits and their relationship to the wall with offsets and stations to wall corners and ends.
 - (3) Locations of piles, drilled shafts, noise walls, sign structures, or other appurtenant items which are supported by the wall or its parapet/coping.

- (4) Locations and alignments of any utilities or drainage which passes through the retaining wall or the Common Structure Volume.
- (5) The offset from the construction baseline to limits of Common Structure Volumes at all changes in horizontal alignment and offsets of CSV limits.
- (E) Typical sections of walls showing:
 - (1) Limits of cut and fill work.
 - (2) Limits of Select Backfill, retained backfill behind the Common Structure Volume, and drainage materials.
 - (3) Limits of Common Structure Volume and associated appurtenant items such as drainage features and soil reinforcing elements.
 - (4) Location of final ground lines.
- (F) Precast panel unit details for all panel types, including non standard panels, with all dimensions necessary to construct the panels with locations in the member of all appurtenant items such as reinforcement steel, soil reinforcing element attachment points, and lifting devices. In the case of two-stage construction, flexible facing details, connectors between first and second stage construction, precast panel units, fill type between flexible facing and precast panel units, and other pertinent details.
- (G) Details for footings, leveling pads and footing or leveling pad step details, where required.
- (H) Details for precast barriers, copings, connections to all appurtenant items such as railings, fences, lighting standards, and noise barriers.
- (I) Details for wall construction and soil reinforcing element placement to accommodate any obstructions such as piles, drilled shafts, utilities, acute corners, slip joints, highway lighting systems, drainage structures and any other obstructions.
- (J) Details for any cast in place elements with all dimensions necessary to construct the elements with locations in the member of all appurtenant items such as reinforcement steel.
- (K) Detail for any architectural treatments such as facing finish, texture, and color.
- (L) The manufacturer's installation manual including sequence of construction. Two bound copies of the approved manual shall be furnished to the Engineer.

428.05**SUBSTITUTIONS**

Wherever requirements for wall components, proprietary components, or methods of construction are specified, it is intended to establish a standard of quality and shall not be interpreted to preclude substitutions by Contractors subject to conditions given hereinafter.

Substitution will be considered when such proposed substitution equals or exceeds that specified with respect to quality, workmanship, service, maintenance, economy, reliability of operation, code compliance, and aesthetics.

When the Contractor requests substitution, it shall first thoroughly investigate its proposed substitution and certify to the Engineer, in writing, that said proposed substitution is equal to that specified. It shall include with said certification all required data, samples, reports and tests to substantiate its findings. The Engineer will decide if such substitution is equal to that specified; and if found to be so, may then approve the substitution. The Engineer's decision will be final and binding to all parties.

Where proposed substitution requires modifications to the Common Structure Volume shown on the Plans or the selected wall system extends beyond the limits of the Common Structure Volume shown on the Plans, the Contractor shall quantify all impacts and

adjustments to affected item quantities such as but not limited to excavation, backfill, and sheeting and the Project schedule as a part of its substitution request. Additional costs which arise from quantity or schedule impacts of the substitution shall be borne solely by the Contractor. Approval of the disposition of the pay limits and quantities to accommodate the substitution shall be part and parcel to the approval of the substitution.

Approved substitutions shall be at no additional cost to the Authority. Rejection of a requested substitution shall not be considered as a basis for a claim against the Authority.

428.06**MEASUREMENT**

Mechanically Stabilized Earth Walls will be measured by the total number of square feet of retaining wall face area. The area measured will be the product of the average vertical height between final rear face and front face ground lines and the total lengths of the wall as given on the Plans. Within the Common Structure Volume or except as may otherwise be provided for, no quantity other than the square foot wall area as defined above will be measured for payment.

Common Structure Volume

The Common Structure Volume (CSV) is the volume that contains all components of all retaining wall systems considered for construction at a given site. The limits of the CSV are defined as:

- End Limit Planes: Vertical planes, normal or radial to the wall alignment, at begin and end stations of the wall system.
- Forward Limit Plane: Vertical plane(s) two feet or other designated distance shown on the Plans forward of the fascia. The fascia is defined as the forward limit of wall coping or barrier parapet face, wall panel or unit face or other physical feature as shown on the plans
- Rear Limit Plane: Vertical plane(s) at the rear limits of the Select Backfill. For the purposes of defining the CSV, this limit will be located parallel to the Forward Limit Plane and at minimum distance of 70% of the average vertical dimension between the Bottom Limit Plane and the Top Limit Plane, plus one (1) foot and will include any porous fill, all wall appurtenances such as drainage systems, pertinent retained fill and any work to be included in the wall pay item.
- Bottom Limit Plane: Horizontal Plane(s) at the lower elevations of the wall to include the leveling pad(s)/footing(s), the undersides of the select backfill or modular units and excavations required for the construction of the select backfill or modular units, extending between the Forward and Rear Limit Planes of the CSV.
- Top Limit Plane: Plane(s) defining the configuration (slope, roadway, pavement box, etc) at the top of the wall extending between the forward and rear limits of the CSV. Where finished grade of an MSE wall is defined by a pavement system, the CSV Top Limit Plane shall be defined as the underside of the pavement system subgrade material as noted in the Plans.

Unless otherwise noted in the Plans or Specifications, all components of the wall system and all components, elements or appurtenances, such as copings, parapets, barriers, moment slabs, wall underdrains, geo-membrane liner systems, etc., founded on or

located within the CSV or attached to any component of the wall system within the CSV shall be included in the CSV.

428.07 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
MSE Abutment Wall No.1	Square Foot
MSE Abutment Wall No. 2	Square Foot
MSE Abutment Wall No. 3	Square Foot
MSE Abutment Wall No. 4	Square Foot
Retaining Wall, Location No. 6 (803-6)	Square Foot
Retaining Wall, Location No. 7 (803-7)	Square Foot
Retaining Wall, Location No. 8 (803-8)	Square Foot
Retaining Wall, Location No. 9 (803-9)	Square Foot
Retaining Wall, Location No. 10 (803-10)	Square Foot
Retaining Wall, Location No. 17 (803-17)	Square Foot
Retaining Wall, Location No. 18 (803-18)	Square Foot
Retaining Wall, Location No. 22 (803-22)	Square Foot

No additional payment will be made for Substitutions under Subsection 428.05.

No additional payment will be made for costs resulting from submission, approval or rejection of Substitutions under Subsection 428.05.

Payment for electrical items will be made in accordance with Division 600 unless otherwise noted on the Plans.

The following Section is added:

SECTION 429 - PREFABRICATED MODULAR WALLS (PMW)

429.01 DESCRIPTION

This work shall include the design and construction of prefabricated modular wall (PMW) structures composed of precast concrete modular units, cast-in-place and precast parapets, moment slabs, copings, concrete leveling pads/footings, joint materials, backfill and porous fill materials, and all other appurtenant items of construction within the Common Structure Volume as shown on the Plans, included as part of the approved Prefabricated Modular Wall System, or as specified herein.

Design and construction of precast modular walls shall be in accordance with AASHTO LRFD Design and Construction Specifications with modifications herein and in accordance with the NJTA Design Manual wherein:

- Load Factor Design (LFD): Internal Strength and Stability for Barrier Parapet and Moment Slab System
- Allowable Stress Design (ASD): External Stability for Moment Slab

All other labor, materials, equipment, and tools as required to prepare the site, construct the leveling pad, construct the wall, place and compact the pervious backfill and porous fill, and construct the coping and traffic barrier shall be supplied by the Contractor.

429.02 MATERIALS

Materials shall conform to the current editions of AASHTO LRFD Bridge Design Specifications with Interims and AASHTO LRFD Bridge Construction Specifications with Interims with modifications herein and the provisions of the wall system selected for construction in this contract.

(A) Prefabricated Modular Wall Systems

The following Prefabricated Modular Wall Systems are acceptable for use on this Project:

Doublewal
Doublewal Corporation
7 West Main Street
Plainville, CT 06062
Phone: (860)-793-0295
Fax: (860)-793-2119

T-Wall
The Neel Company
8328-D Traford Lane
Springfield, VA 22152
Phone: (703) 913-7858
Fax: (703) 913-7859

Dura-Hold* and Dura-Hold II*
Dura-Sales Corporation
2481 Bull Creek Road
Tarentum, PA 15084
Phone: (724) 224-7700
Fax: (724) 226-8888

* Height limitation of fifteen (15) feet as measured from the underside of the bottom-most wall unit for any level run of constructed wall.

Selection of only one (1) wall system will be permitted for use on this Contract. The Contractor shall make its own arrangements to purchase the materials and services from one of the manufacturers of a permissible Prefabricated Modular Wall Systems listed herein.

An on-site technical representative from the selected PM Wall Systems manufacturer shall be present to assist and instruct during the installation of the first two-module courses, as a minimum.

Except as may be modified within this Section, all applicable provisions of Sections 400 and 900 shall apply in furnishing MSE Wall Systems.

1. Concrete Modular Units

Prefabricated modular units shall be Class P, cured by any one of the methods specified in the PCI Manual for Quality Control for Plants and Production of Precast Prestressed Concrete Products (MNL-116).

If steam curing is used however, the applications of steam within the enclosure shall be delayed for a period of five to six hours when the air temperature is 50 °F or lower, and shall be delayed for a period of three hours when the air temperature is 50 °F or higher. If retarders are used, the waiting period shall be from four to six hours regardless of the air temperature. The curing period shall be maintained at 143 °F +/- 9 °F for a period of 12 hours.

Two concrete test cylinders, similarly cured, shall be tested after the curing procedure specified. Should either test cylinder indicate the precast units have not achieved a compressive strength of 4,000 psi or greater, the precast units shall be cured further until the required strength is achieved.

2. Appurtenances

Filler for joints for footings shall conform to Subsection 907.01.

Filler for front face horizontal joints between units shall be closed-cell polyethylene foam backer rod conforming to AASHTO M 153, Type 1.

Filter fabric placed inside the units over all vertical joints in the front face shall be 12 inches wide and conform to Subsection 923.21.

Coarse aggregate layer shall be material obtained from an approved commercial source and processed into stone size ASTM C33, size No. 67.

Weep holes, where shown on the Plans, shall be constructed in the manner and at the locations required. Ports or vents for equalizing hydrostatic pressure shall be placed below low water, if shown. Forms for weep holes through concrete shall be 4 inch clay pipe, polyvinyl chloride, transite, or unreinforced concrete drain pipe.

Underdrains, where shown on the Plans, shall conform to Section 501.

(B) Backfill Material

Backfill materials, pervious backfill, porous fill and retained backfill, for use in the Common Structure Volume may be procured from off-site sources or may be sourced from on-site borrow excavation. Where specific pervious backfill materials or material gradation designations are noted on the Plans, no substitutions will be permitted for those materials.

Pervious backfill material used within the PMW units shall be reasonably free from deleterious materials, shale or poor durability particles and shall conform to the properties specified by the wall manufacturer. Unless otherwise specified these materials shall meet the following gradation limits as determined by AASHTO T 27:

Soil Aggregate

Sieve Size	Percent Passing
3 inches	100
No.200	0-15

The Contractor shall determine the optimum moisture content and maximum dry density of the backfill in accordance with AASHTO T 99 unless otherwise specified by the designer.

Porous fill shall be used behind all units and shall conform to Section 901.01

The frequency of sampling and testing of backfill material shall be performed at least once for every 1000 cubic yards of material placed for all tests denoted above. A minimum of two samples per structure shall be taken. Additional samples shall be taken whenever the appearance or behavior of the material changes and as directed.

The Contractor shall furnish to the Engineer a Certificate of Compliance certifying that the backfill material complies with this Section.

A copy of all test results performed by the Contractor which are necessary to ensure compliance with these Specifications shall also be furnished.

429.03 METHODS OF CONSTRUCTION

Methods of construction shall conform to the current editions of AASHTO LRFD Bridge Design Specifications with Interims and AASHTO LRFD Bridge Construction Specifications with Interims with modifications herein and the provisions of the permitted wall system selected for construction in this contract.

(A) Fabrication.

The units shall be cast in steel forms and in a manner that will ensure the production of uniform units. The transporting, placement, and compaction of concrete shall be by methods that will prevent the segregation of the concrete materials and the displacement of the reinforcement steel from its proper position in the form. The units may be removed from the forms at any time when removal can be accomplished without damage to the panel. Unless otherwise indicated on the Plans or elsewhere in the specifications, the finish for the front face shall be an ordinary surface finish conforming to Subsection 401.17. The rear face shall have a uniform surface finish free of open pockets of aggregate.

The name of the manufacturer, name of project, date of manufacture, mark numbers, and type of unit in accordance with the approved erection drawings shall be clearly marked in the inside face of each unit.

(B) Inspection and Rejection.

The quality of materials, the process of manufacture, and the finished units shall be subject to inspection by the Engineer prior to shipment. Individual units will be rejected because of any of the following:

- (1) Variations in the exposed face that substantially deviate in texture.
- (2) Dimensions not conforming to the following tolerances:
 - (a) Face of panel, length or height: plus or minus 3/16 inch.
 - (b) Deviation from square when measured on diagonal: 5/16 inch for units up to 10 feet wide, 13/16 inch for larger units.
- (3) Honeycombed or open texture not properly repaired.
- (4) Defects which would affect the structural integrity of the unit.
- (5) Defects in the physical characteristics of the concrete units, such as:
 - (a) Stained front face due to excess form oil or other reasons.
 - (b) Signs of aggregate segregation.
 - (c) Broken or cracked corners.
 - (d) Lifting inserts not usable.
 - (e) Exposed reinforcing steel.
 - (f) Cracks at the PVC pipe or pin.
 - (g) Insufficient concrete compressive strength.
 - (h) Deviation from flatness of exposed surface in excess of 1/8 inch per 5 feet

An additional inspection shall be made prior to erection to determine any damage which may have occurred during storage.

The Engineer will determine whether spalled, honeycombed, chipped, or otherwise defective concrete shall be repaired or be cause for rejection. Repair of concrete, if allowed, shall be done in a manner satisfactory to the Engineer at no additional cost to the Authority.

Repair to concrete surfaces which will be exposed to view after completion or construction shall be approved.

(C) Shipment.

The precast units shall not be shipped until the minimum 28-day compressive strength has been attained and a minimum of 72 hours after fabrication and shall meet the acceptance criteria in Subsection 402.10.

Handling devices, as required, shall be galvanized and shall be provided for the purpose of handling and placing. Care shall be taken during storage, transporting, hoisting, and handling of all units to prevent cracking or damage.

Units damaged by improper storing, transporting, or handling shall be replaced or repaired.

(D) Installation.

The foundation bed for the structure shall be approved by the Engineer before erection is started. Prior to wall construction, the foundation bed shall be compacted with a vibratory compactor. Any foundation soils found to be unsuitable shall be removed and replaced with coarse aggregate.

At each unit foundation level, either a precast or cast-in-place footing and/or a leveling pad shall be provided. The footings shall be Class B concrete, be given a wood float finish, and shall reach a compressive strength of 2,000 psi before placement of wall modules. The completed footing surface shall be constructed in accordance with grades and cross slopes shown on Plans. When tested with a straightedge, the surface shall not vary more than 1/8 inch in 10 feet.

The units shall be installed in accordance with the manufacturer's recommendations. Special care shall be taken in setting the bottom course of units to true line and grade. While erecting each subsequent course, line, and grade shall be examined, and deviations shall be corrected to prevent cumulative inaccuracies in alignment. Joint filler and rubber pads shall be installed. Joints at corners or angle points shall be closed.

Prefabricated modular wall units shall be filled one course at a time, with pervious structure backfill. Units 4 feet or less in height shall be filled in one layer and then thoroughly compacted with a vibratory tamping device. Units which are more than 4 feet in height shall be filled in two approximately equal layers and thoroughly compacted after each layer is placed.

Backfill shall be compacted to 95 percent of maximum density as determined by AASHTO T 99, Method C.

Porous fill shall be used behind all units and shall be free from organic or otherwise deleterious material. Unless otherwise noted on the working drawings, backfill material, in the structure volume behind the wall, shall conform to Subsection 433.02.

When erecting a wall, placement of backfill behind the wall shall closely follow erection of successive courses of units.

At no time shall the difference in elevation between the backfill and the top of the last erected course exceed 6 feet.

All units above the first course shall interlock with the lower courses. Vertical joint openings on the wall's front face shall not exceed 13/16 inch.

The front face vertical joints shall have 1 foot wide strips of filter fabric behind each joint starting 2 feet below finished grade.

The overall vertical alignment tolerance, or plumbness or line of batter, from top to bottom of the structure, shall not exceed 1/2 inch per 10 foot of wall height.

Deviation from horizontal alignment shall not exceed 3/4 inch.

Vertical and horizontal alignment tolerance, or plumbness/batter should not exceed 3/4 in. when measured with a 10 ft. straight edge on a selected wall section.

The maximum allowable offset between any two units should not exceed 3/4 inch.

(E) Construction Stormwater Management

The Contractor shall slope the last placed level of backfill away from the wall facing to rapidly direct runoff of rainwater away from the wall face. Surface runoff shall not be allowed to enter the wall construction site from adjacent areas.

429.04 WORKING DRAWINGS

Working drawings shall be prepared and submitted in accordance with the requirements specified under Subsection 104.08. At a minimum, working drawings shall include the following:

- (A) Design calculations, signed and sealed by a Professional Engineer licensed in the State of New Jersey, in conformance to current edition of AASHTO LRFD Bridge Design and Construction Specifications with Interims with modifications herein and the provisions of the approved wall system selected for construction in this contract. PM walls shall be designed for a 75 year design life. PM walls which support embankments under bridge abutments shall be designed for a 100 year design life.
- (B) General notes, design parameters, soil characteristics of backfill materials, and factors of safety and/or load and resistance factors.
- (C) An elevation view of the wall showing:
 - a. Elevations along the top of the wall, at beginning and end of wall, at 25 foot intervals, at changes in grade, at changes in Common Structure Volume Limits; and at prefabricated modular unit joints where indicative of wall geometry.
 - b. Elevations and step locations for leveling pads and/or footings.
 - c. The location of the final ground line.
 - d. Number and type of prefabricated modular units.
 - e. A numbered modular unit layout for fabrication and erection purposes.
 - f. Designation of breaks in vertical alignments and elevations.
 - g. Locations and elevations/inverts of any utilities or drainage which passes through the retaining wall or the Common Structure Volume.
- (D) A plan view of the wall showing:
 - a. The offset from the construction baseline to the face of prefabricated wall units at all changes in horizontal alignment.
 - b. ROW limits and their relationship to the wall with offsets and stations to wall corners and ends.
 - c. Locations of piles, drilled shafts, noise walls, sign structures, or other appurtenant items which are supported by the wall or its parapet/coping.
 - d. Locations and alignments of any utilities or drainage which passes through the retaining wall or the Common Structure Volume.
 - e. The offset from the construction baseline to limits of Common Structure Volumes at all changes in horizontal alignment and offsets of CSV limits.
- (E) Typical sections of walls showing:
 - a. Limits of cut and fill work.
 - b. Limits of pervious backfill, porous fill, retained backfill and drainage materials.
 - c. Limits of Common Structure Volume and associated appurtenant items such as drainage features.
 - d. Location of final ground lines.
- (F) Prefabricated modular unit details for all unit types, including special modules, with all dimensions necessary to construct the units with locations in the member of all appurtenant items such as reinforcement steel, and lifting devices.

- (G) Details for footings, leveling pads and footing or leveling pad step details, where required.
- (H) Details for precast barriers, copings, connections to all appurtenant items such as railings, fences, lighting standards, and noise barriers.
- (I) Details for wall construction to accommodate any obstructions such as piles, drilled shafts, utilities, highway lighting systems, and drainage structures.
- (J) Details for any cast in place elements with all dimensions necessary to construct the elements with locations in the member of all appurtenant items such as reinforcement steel.
- (K) Detail for any architectural treatments such as facing finish, texture, and color.
- (L) The manufacturer's installation manual including sequence of construction. Two bound copies of the approved manual shall be furnished to the Engineer.

429.05**SUBSTITUTIONS**

One wall system shall be selected by the Contractor and only that wall system shall be constructed in this contract.

Wherever requirements for wall components, proprietary components, or methods of construction are specified, it is intended to establish a standard of quality and shall not be interpreted to preclude substitutions by Contractors subject to conditions given hereinafter.

Substitution will be considered when such proposed substitution equals or exceeds that specified with respect to quality, workmanship, service, maintenance, economy, reliability of operation, code compliance and aesthetics.

When the Contractor requests substitution, it shall first thoroughly investigate its proposed substitution and certify to the Engineer, in writing, that said proposed substitution is equal to that specified. It shall include with said certification all required data, samples, reports and tests to substantiate its findings. The Engineer will decide if such substitution is equal to that specified; and if found to be so, may then be approved. The Engineer's decision will be final and binding to all parties.

Where proposed substitution(s) require modification to the Common Structure Volume as shown on the Plans, the Contractor shall quantify all impacts and adjustments to affected item quantities such as but not limited to excavation, backfill, and sheeting and the Project schedule as a part of its substitution request. Additional costs which arise from quantity or schedule impacts of the substitution shall be borne solely by the Contractor. Approval of the disposition of the pay limits and quantities to accommodate the substitution shall be part and parcel to the approval of the substitution.

Approved substitutions shall be at no additional cost to the Authority. Rejection of a requested substitution shall not be considered as a basis for a claim against the Authority.

429.06**MEASUREMENT**

Prefabricated Modular Walls will be measured by the total number of square feet of retaining wall face area. The area measured will be the product of the average vertical

height between final rear face (upper) and front face (lower) ground lines and the total lengths of the wall as given on the Plans. Within the Common Structure Volume or except as may otherwise be provided for, no quantity other than the wall area will be measured for payment.

Common Structure Volume

The Common Structure Volume (CSV) is the volume that contains all components of all retaining wall systems considered for construction at a given site. The limits of the CSV are defined as:

- End Limit Planes: Vertical planes, normal or radial to the wall alignment, at begin and end stations of the wall system.
- Forward Limit Plane: Vertical plane(s) two feet or other designated distance shown on the Plans forward of the fascia. The fascia is defined as the forward limit of wall coping or barrier parapet face, wall panel or unit face or other physical feature as shown on the plans
- Rear Limit Plane: Vertical plane(s) at the rear limits of the Select Backfill. For the purposes of defining the CSV, this limit will be located parallel to the Forward Limit Plane and at minimum distance of 70% of the average vertical dimension between the Bottom Limit Plane and the Top Limit Plane, plus one (1) foot and will include any porous fill, all wall appurtenances such as drainage systems, pertinent retained fill and any work to be included in the wall pay item.
- Bottom Limit Plane: Horizontal Plane(s) at the lower elevations of the wall to include the leveling pad(s)/footing(s), the undersides of the select backfill or modular units and excavations required for the construction of the select backfill or modular units, extending between the Forward and Rear Limit Planes of the CSV.
- Top Limit Plane: Plane(s) defining the configuration (slope, roadway, pavement box, etc) at the top of the wall extending between the forward and rear limits of the CSV. Where finished grade of an MSE wall is defined by a pavement system, the CSV Top Limit Plane shall be defined as the underside of the pavement system subgrade material as noted in the Plans.

Unless otherwise noted in the Plans or Specifications, all components of the wall system and all components, elements or appurtenances, such as copings, parapets, barriers, moment slabs, wall underdrains, etc., founded or located within the CSV or attached to any component of the wall system within the CSV shall be included in the CSV.

429.07

PAYMENT

Payment will be made in accordance with Subsection 430.05.

No additional payment will be made for Substitutions under Subsection 429.05.

No additional payment will be made for costs resulting from submission, approval or rejection of Substitutions under Subsection 429.05.

Payment for electrical items will be made in accordance with Division 600 unless otherwise noted on the Plans.

The following section is added:

SECTION 430 – ALTERNATE RETAINING WALL DESIGNS

430.01 DESCRIPTION

The provisions of this Section apply to construction at various locations on the Plans where alternate retaining wall designs are permitted. The Plans offer the Contractor the option of constructing alternate types of proprietary retaining walls, either Mechanically Stabilized Embankment Retaining Walls or Prefabricated Modular Retaining Walls, at each site.

Substitute wall types may be submitted for approval in accordance with Subsections 428.05 and 429.05 of the (Standard) Supplementary Specifications.

At each site, the Plans define and indicate the Common Structure Volume which applies to all alternates, proprietary and non-proprietary.

Under this Section, work shall include construction of the wall complete, together with all other appurtenant items of construction within the Common Structure Volume (CSV) designated on the plans, including, but not necessarily limited to, removing existing structures, excavation and embankment, leveling pads, footings, special backfill materials, underdrain pipe and stone pockets, impervious membrane, temporary sheeting, copings, piles, pile driving equipment, and drainage items. Where reinforced concrete parapets are part of the wall, construction shall include epoxy-coated reinforcement, bridge chain-link fence, noise barrier, embedded rigid metallic conduit, and junction boxes for roadway lighting facilities.

For the disposition of excess excavation materials within the Common Structure Volume, the provisions of Subsection 202.03 shall apply.

Final design of alternate retaining walls shall be submitted as Working Drawings in accordance with Subsections 104.08, 428.04 and 429.04.

430.02 MATERIALS AND METHODS OF CONSTRUCTION

All materials, methods of construction, and other work pertaining to reinforced concrete cantilever walls shall conform to Sections 401.

All materials and methods of construction pertaining to construction of proprietary wall alternates shall conform to the applicable provisions of Section 428 for mechanically stabilized earth walls and of Section 429 for prefabricated modular walls.

430.03 WORKING DRAWINGS

According to the provisions of Subsection 104.08, final design of alternate retaining walls shall be submitted for approval as shop drawings. Additionally, final designs shall conform to the current AASHTO LRFD Bridge Design Specifications and to Subsections 428.04 and 429.04 of the Supplementary Specifications. The shop drawings shall include detailed computations and all details, dimensions, and quantities necessary to construct the

wall. The design and fully detailed plans shall be prepared to Authority standards current at the time of submission and shall be consistent with the Plans.

430.04 MEASUREMENT

Measurement shall be made in accordance with Subsections 428.06 or 429.06 of the (Standard) Supplementary Specifications.

430.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Retaining Wall, Location No. 2 (803-2)	Square Foot
Retaining Wall, Location No. 3 (803-3)	Square Foot
Retaining Wall, Location No. 4 (803-4)	Square Foot
Retaining Wall, Location No. 5 (803-5)	Square Foot
Retaining Wall, Location No. 11 (803-11)	Square Foot
Retaining Wall, Location No. 12 (803-12)	Square Foot
Retaining Wall, Location No. 13 (803-13)	Square Foot
Retaining Wall, Location No. 14 (803-14)	Square Foot
Retaining Wall, Location No. 15 (803-15)	Square Foot
Retaining Wall, Location No. 16 (803-16)	Square Foot
Retaining Wall, Location No. 19 (803-19)	Square Foot
Retaining Wall, Location No. 20 (803-20)	Square Foot
Retaining Wall, Location No. 21 (803-21)	Square Foot
Retaining Wall, Location No. 23 (803-23)	Square Foot

Separate payment for stripping of topsoil, excavation, muck excavation, temporary sheeting, chain link fence, cast-in-place concrete gutters, concrete leveling pad, concrete wall panels, panel connections, barrier parapets, lighting standard bosses, moment slabs, reinforcement steel, epoxy coated reinforcement steel, impervious membrane, concrete penetrating sealer treatment, and concrete core sampling will not be made.

The following Section is added:

SECTION 431 - HIGH PERFORMANCE CONCRETE (HPC)

431.01 DESCRIPTION

This work shall consist of the construction of portland cement concrete deck slabs, headblocks, bridge sidewalks, unsurfaced bridge approach slabs, integral abutment relief and sleeper slabs and cast-in-place parapets with the use of High Performance Concrete (HPC). HPC is defined as concrete that meets special performance and uniformity requirements that cannot always be obtained by using conventional ingredients, normal mixing procedures and typical curing practices. Construction shall be as specified in Sections 304 and 401 except as modified herein.

This work shall also consist of furnishing and installing methacrylate crack sealer for the sealing of cold joints and the interface between new concrete and metal such as scuppers or deck joints as shown on the Plans.

431.02 MATERIALS

Materials shall conform to the following Sections and Subsections:

Aggregates	902
Concrete, Mortar and Grout.....	905
Portland Cement Concrete	905.05
Concrete Admixtures Curing Materials and film Evaporators.....	906
Joint Materials	907
Reinforcement Steel	908.01
Permanent Metal Bridge Deck Forms.....	909.07
Concrete Penetrating Sealer Treatment.....	923.06(F)
Epoxy Bonding Compound.....	923.08
Epoxy Resin Mortar	923.09
Waterstops	923.17
Methacrylate Crack Sealer	923.06(I)

Materials, admixtures and methods of construction not specifically covered in the Plans and these Specifications shall conform to the latest edition of the AASHTO LRFD Bridge Design Specifications and the Standard Specifications of the New Jersey Turnpike Authority, Sixth Edition, dated 2004.

The ratio of coarse aggregate to fine aggregate shall be a minimum of 1.5 with a total coarse aggregate content not lower than 1800 lbs.

The total amount of cementitious material should be limited to 700 lbs./cu.yd.

In order to achieve the desired resistance to chloride penetration, an appropriate proportion of pozzolanic material of silica fume and fly ash shall be provided in the mix design.

Proportions of pozzolanic materials shall be such that silica fume will replace a maximum of 5% of the total cementitious material by weight and fly ash a maximum of 20% of the total cementitious material.

Silica Fume. Prior to submitting a mix design, a sample of the silica fume admixture shall be submitted to the Authority's testing laboratory and tested for conformity against the requirements of the latest AASHTO M 307 or ASTM C 1240 standard and shall be accompanied by a copy of the manufacturer's recommendations. Silica fume admixture shall be approved by the Engineer prior to its use on the Contract. Only one brand of silica fume admixture shall be used for the entire duration of the Contract. Silica fume admixture may be supplied either in dry or in slurry form. If the slurry form is used, it shall be homogeneous and agitated to prevent separation. The Contractor shall submit a procedure for the introduction of the silica fume into the mix for the Engineer's approval.

Fly Ash. Fly ash for HPC shall conform to ASTM C 618, Class F except that the loss on ignition shall not be more than 2.5 percent. Fly ash used to control alkali-silica reactivity shall be Class F and shall contain not more than 1.5 percent available alkali in accordance

with ASTM C 618, Table 1A. Before each source of fly ash is approved, certified results of tests conducted by a testing agency shall be submitted to and verified by the Engineer. Accompanying the certification shall be a statement from the supplier listing the source and type of coal, the methods used to burn, collect, and store the fly ash, and the quality control measures employed. Fly ash, Class C will not be permitted for use.

Conformance to the requirements for loss on ignition and fineness shall be determined by the supplier for each truck load of fly ash delivered to the mixing site. The test values determined shall be included on the delivery ticket. The Engineer may require that the fly ash not be used until the Authority has performed tests for loss on ignition and fineness.

431.03 MIX DESIGN AND FABRICATION OF THE HPC

Fabrication Requirements. For the construction of the HPC item of work, the HPC shall be fabricated in accordance with the requirements of Section 401, or as stated within this Section.

Mix Design Verification. In the development of the HPC mix design, the following performance requirements, in accordance with the indicated test method, shall be achieved. The verification mix shall be produced in the batching plant using those materials and equipment to be used for production. A minimum of 8 cubic yards shall be produced for each of the two (2) required mix designs for verification of the HPC. The Authority's testing laboratory shall cast samples from each of the two concrete batches. A report to document these results shall be provided to the Engineer. The Contractor shall obtain the results of these standard tests from an AASHTO accredited testing agency, that is approved for the portland cement concrete testing methods specified in the below table. The Contractor shall submit a list of their testing laboratory's accreditations.

The mix design verification testing shall be accomplished by the Contractor at no cost to the Authority.

The Authority's testing laboratory's lab results will govern the acceptance of the mix design.

Performance Characteristic	Standard Test Method	Performance Required	Mold Size
Scaling Resistance (x = visual rating of the surface after 50 cycles)	ASTM C 672	x = 3 maximum	12" x 12" x 3"
Freeze-Thaw Durability (x = relative dynamic modulus of elasticity after 300 cycles)	AASHTO T 161 ASTM C 666 Proc. A	X = 80% minimum	3" x 3" x 10"
Chloride Permeability 56 days (coulombs) 90 day ponding	AASHTO T 277, ASTM C 1202 AASHTO T259/T260	1,000 maximum 0.55 maximum	4" x 8" cylinder 3" thick min. 28 in. ² min. surface area (6" x 6" x 3")

Performance Characteristic	Standard Test Method	Performance Required	Mold Size
56 days Free Shrinkage	ASTM C 157	450 microstrains maximum	4" x 4" x 11¼" prism
28 day Compressive Strength (Verification Strength)	AASHTO T 22 ASTM C 39	5,000 PSI minimum	6" x 12" cylinder
Early Age Concrete (Verification Strength) 3 day Compressive Strength	AASHTO T 22 ASTM C 39	3,500 PSI minimum	6" x 12" cylinder
Flexural Strength	ASTM C 78	700 PSI minimum	See ASTM C 78

Notes:

1. For the Scaling Resistance performance testing, as prescribed in the Standard Test Method, specimens shall be moist cured for 14 days and then air cured for 14 days.
 - a. If the chloride permeability requirement has been achieved in 28 days, the chloride permeability shall be considered acceptable. If the required chloride permeability is not achieved in 28 days, the HPC sample shall be tested at 56 days. Final acceptance of the HPC sample for chloride permeability will be determined by the results of AASHTO T259/T260.
 - b. A minimum of two (2) mix designs shall be submitted for approval and verification in accordance with Subsection 905.05 at the preconstruction conference. To expedite the approval procedure, the Authority will perform verification testing and review concurrently with that conducted by the Contractor. The Contractor shall submit all required samples to the Authority for independent mix design verification testing. If the mix designs are not approved by the Authority, the mix designs shall be modified and resubmitted for approval.
 - c. In accordance with the above referenced AASHTO T277 test, at 28 and 56 day intervals (cure time prior to test), and AASHTO T259/T260 test, the Authority will perform chloride permeability testing to document the quality of the HPC mix design and to verify the results submitted in the above referenced report.
 - d. The Contractor may contact personnel at Rutgers University to obtain guidance in developing the HPC mix design for the project. Dr. Hani Nassif, telephone number 732-445-4414, may be contacted for such guidance.
2. For the Free Shrinkage Test (ASTM C157) the curing method and duration should be consistent with the NJTA specifications. The test is to be performed on specimens that are cured using a modified curing procedure as per NJTA Specifications by applying wet burlap for 14 days instead of the 28 days cure specified in the ASTM C157 procedure. The following readings as specified by ASTM C157, which is ½ hour after de-molding,

another reading at 14 days of curing, and in air storage after curing 4, 7, 14, 28 days and 8, 16, 32 and 64 weeks.

431.04 PRODUCTION OF THE HPC

1. As per the provisions of Subsection 401.11, Subpart C, a plan of operation for placement of the HPC items shall be submitted for review and approval by the Engineer at least 20 days prior to the proposed start of placing bridge deck concrete. In addition to the requirements of Subsection 401.11, Subpart C, the plan shall also include a description of the HPC batching and mixing facilities, a description of the HPC transport equipment, the method of HPC placement, an outline of the curing procedures to be used for the production units and test samples and the quality control tests and procedures that the fabricator will perform.

The plan shall also include the procedures for reducing the atmospheric evaporation rate below 0.75 kilograms per square meter per hour through a combination of monomolecular evaporation retarders and fog misting, wind shields or other methods.

The following is added to the requirements of Subsection 401.11, Subpart C:

Cast-in-place parapets on deck slabs and at retaining walls shall be constructed using the alternate panel method. Following placement of conduits, lighting standard anchorage, reinforcement and deck joints, alternate parapets shall be poured. The remainder of the panels shall be poured once the initial panels have cured a minimum of 24 hours. Slip forming for placing concrete parapets will not be permitted.

The measurements for air temperature, relative humidity and wind speed shall be taken at the location of the concrete placement. Concrete temperatures shall be taken from the sample used for slump and air content tests. These measurements and calculations shall be performed at least once per hour, beginning with the initial concrete placement and whenever, in the opinion of the Engineer, changes in the atmospheric condition merit such. The Contractor shall supply all the instruments necessary to take these measurements, subject to approval by the Engineer, including two (2) battery operated psychrometers, two (2) concrete thermometers and two (2) wind gauges. These instruments shall become the property of the Contractor after final Acceptance. All instruments shall be certified by an independent laboratory that has been approved by the Engineer. The instruments shall be certified to be in good working order and as having been calibrated within the two months immediately prior to use. No separate payment will be made for providing these instruments.

Placement shall not begin, or shall be discontinued, in the event of rain. The Contractor shall provide a sufficient number of approved covers and take adequate precautions to protect freshly-placed concrete from rain. The Engineer may order the replacement of any material damaged by rain.

2. The Contractor is advised that curing of the HPC shall be performed in accordance with the provisions of Subsection 401.18. Furthermore, wet burlap, for the curing

of the deck slab concrete, shall be placed within ten (10) minutes after the concrete is struck off, finished, and surface tolerance checked with the 10' straight edge.

If it is anticipated that the ten (10) minute limitation will not be met, the concrete placement operation shall be stopped. A cold joint shall be formed and the Contractor shall submit a revised plan of operation for review and approval by the Engineer before resumption of the HPC placement.

The curing by wet burlap and white polyethylene sheets shall be for a minimum period of fourteen (14) calendar days for the bridge decks, headblocks, sidewalks, bridge approach slabs and integral abutment relief and sleeper slabs. The curing by wet burlap and white polyethylene sheets shall be for a minimum period of seven (7) calendar days for cast-in-place bridge and retaining wall parapets. The contractor shall contain water runoff from the wet burlap curing of parapets over active facilities.

- a. The finishing machine equipment shall be set up so that the HPC is placed only 5 to 8 feet ahead of the machine.
- b. To demonstrate that the Contractor can place, finish and cure the HPC, a trial HPC placement of a minimum of 6 cubic yards of the HPC shall be placed at the project site at a location that is acceptable to the Engineer. A 9.25-inch thick and minimum 15-foot wide slab, cast into structurally-supported stay-in-place forms, shall be constructed to simulate the placement of the HPC bridge deck.

The location shall not be a structural element that is to remain in place. The trial HPC shall be placed, finished and cured in accordance with these Specifications at least 7 calendar days prior to the start of the HPC placement. No separate payment will be made for the HPC trial placement.

- c. Technical Representative(s) of the Contractor's ready-mix concrete supplier/manufacturer shall participate in the meetings between the Contractor and the Authority's Engineer as part of the planning process and prior to concrete placement operations. The Technical Representative(s) shall be on-site for trial slab placement and at least the initial two (2) bridge deck casting operations. The need for further involvement by the Technical Representative(s) shall be as determined by the Engineer.
- d. The Contractor shall have personnel on-site certified through the ACI Inspector Certification Program with the certification level of "Concrete Construction Special Inspector" whom are experienced with HPC and shall be responsible for all quality control measures related to curing and placing the HPC. The Contractor's designee for all HPC quality control measures shall be a single point of contact.
- e. Application of Concrete Penetrating Sealer is not required for HPC decks, parapets, sidewalks, bridge approach slabs, relief slabs or sleeper slabs.

431.05 HPC ACCEPTANCE REQUIREMENTS

1. The requirements specified in Subsection 401.16 for control and acceptance testing of Class B concrete shall be adhered to in the fabrication of the HPC elements.
2. Acceptance testing performance measures for production HPC shall consist of the following parameters:

Performance Characteristic	Standard Test Method	Performance Required
Percent Air Entrainment *		6.0 ± 1.5 (#57 Aggregate) 6.0 ± 1.5 (#67 Aggregate) 7.0 ± 1.5 (#8 Aggregate)
Slump *		3" ± 1"
Chloride Permeability ** 56 days (coulombs) 90 day ponding	AASHTO T 277, ASTM C 1202 AASHTO T 259/T 260	1,100 maximum 0.65 maximum. Total integral chloride to 1.6 in depth.
56 days Free Shrinkage***	ASTM C 157	450 microstrains maximum
28 day Compressive Strength	AASHTO T 22 ASTM C 39	4,500 PSI minimum
Early Age Concrete (Verification Strength) 3 day Compressive Strength	AASHTO T 22 ASTM C 39	3,150 PSI minimum

When concrete pumping is used for placement, the percent air entrainment and slump testing shall be performed at the discharge of the truck chute as well as at the discharge end of the concrete pump.

* As per the guidance stated in Subsection 401.02, and in accordance with Subsection 905.03 and Subsection 905.05, Subparts B and C, when a Superplasticizer (Type F admixture) is used, the Slump and Air Content values for the HPC shall be as follows:

Slump: 6" ± 2".

Air Content: Increase both the target value and tolerance percentages by 0.5.

** For chloride permeability testing, additional cylinders shall be provided in accordance with Subsection 905.22 for AASHTO T259/T260 testing to the Authority.

*** For the Free Shrinkage Test (ASTM C157) the curing method and duration should be consistent with the NJTA specifications. The test is to be performed on specimens that are cured using a modified curing procedure as per NJTA Specifications by applying wet burlap for 14 days instead of the 28 days cure specified in the ASTM C157 procedure. The following readings as specified by

ASTM C157, which is ½ hour after de-molding, another reading at 14 days of curing, and in air storage after curing 4, 7, 14, 28 days and 8, 16, 32 and 64 weeks.

3. For quality acceptance limits, testing, sampling and pay adjustments see Subsections 905.21, 905.22 and 905.23.
4. Retarder admixtures shall not be permitted when bridge decks are poured under staged construction with live load.
5. Superplasticizers (Type F water reducing, high range admixtures) and mid-range water reducing admixtures shall be permitted, but the use of such admixtures may not delay the set time beyond 4 hours.

431.06 MEASUREMENT

Measurement for the bridge deck, headblocks, sidewalks, bridge and parapets shall be made as described in Subsection 401.23.

431.07 PAYMENT

Payment will be made under:

PAY ITEM	PAY UNIT
Concrete in Deck, HPC.....	Cubic Yard
Concrete in Headblock, HPC.....	Cubic Yard
Concrete in Parapet, HPC.....	Cubic Yard

No separate payment will be made for the crack sealer, but all the cost thereof shall be included in the unit price bid for the bid item Concrete in Deck, HPC.

The following Section is added:

SECTION 432 – OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURES

432.01 DESCRIPTION

This work consists of erecting Overhead Span Variable Message Sign and Variable Speed Limit Sign (VMS/VSL) Support Structure components furnished by others and located at the Authority's designated storage yard located at the site of the former Authority administration complex at Interchange 9, East Brunswick, including transporting of these components to the final structure erection site and assembling/erecting the complete structure. Access to the storage yards shall be coordinated with the Engineer.

The Contractor will be furnished with all components and appurtenances necessary to assemble and erect the complete VMS/VSL support structures, including anchor bolts. The Contractor shall be responsible for furnishing all materials required for the sign support structure foundations. VMS/VSL support structures will be delivered to the designated storage area with substantial assembly already completed. Final assembly of

the overall support structure and installation of miscellaneous appurtenances shall be required as part of the erection work.

Work under this section shall also include the erection of VMS and VSLS electronic signs and associated equipment (hereafter referred to as "units") on the support structures to be erected with all associated hardware required to affix the units to the support structures. Furnishing and installation of communications and power wiring will be paid for under Section 605, Variable Message Sign Installation. The VMS and VSLS units will be delivered to the VMS/VSLS support structure erection site by the VMS and VSLS unit fabricator. Delivery of the units shall be coordinated with the Engineer.

Work under this section shall also the construction of new concrete pedestals and drilled shaft foundations as shown on the Plans.

432.02 MATERIALS

Materials shall conform to the following Sections and Subsections or as otherwise designated on the Plans:

Admixtures and Curing Material	906
Portland Cement Concrete.....	905.05
Reinforcement Steel	908.01
Fasteners.....	909.02
Structural Steel	909.01
Zinc Coating on Steel	909.11

Materials and construction methods not specifically covered in the Plans and Specifications shall be in accordance with latest edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

432.03 SHOP DRAWINGS

Shop, erection, and other drawings necessary for the erection of VMS/VSLS support structures and pedestal/foundation construction shall be furnished in accordance with Subsection 104.08.

432.04 ERECTION

The VMS/VSLS support structures will be available for pickup by the Contractor from the Authority's designated storage area on or after the dates listed in the table below. The VMS/VSLS units will be delivered to the Contractor by the Authority.

Sign Str. No.	Sign Structure Description	Date Available	Pick Up Location
1	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 1 (72.08NO)	12/27/2012	Dix Drive-in or New Brunswick
2	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 2 (72.08NI)	12/27/2012	Dix Drive-in or New Brunswick
3	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 3 (73.20SI)	12/27/2012	Dix Drive-in or New Brunswick

Sign Str. No.	Sign Structure Description	Date Available	Pick Up Location
4	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 4 (73.21SO)	12/27/2012	Dix Drive-in or New Brunswick
5	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 5 (76.82SI)	12/27/2012	Dix Drive-in or New Brunswick
6	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 6 (76.82SO)	12/27/2012	Dix Drive-in or New Brunswick
7	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 7 (82.33SI)	12/27/2012	Dix Drive-in or New Brunswick
8	Overhead Span VMS and Variable Speed Limit Sign Support Str. No. 8 (82.34SO)	12/27/2012	Dix Drive-in or New Brunswick

New Brunswick yard is located adjacent to the former NJTA Administration Building at Interchange 9.

Dix Drive-In yard is located off Route 206 between Turnpike Interchange 7 and Route 130, Bordentown.

Contact for all structure deliveries will be the 803 Resident Engineer.

The VMS and VSLS units will be furnished to the Contractor by the VMS and VSLS manufacturer. It shall be the Contractor's responsibility to coordinate the actual delivery time and location with the VMS and VSLS manufacturer and the Authority. Coordination of VMS and VSLS unit delivery will be as specified in Section 605, Variable Message Sign Installation.

The Contractor will be responsible for integrating the available dates of the VMS and VSLS support structures and the delivery dates for the VMS and VSLS units into the construction schedule so as not to incur delays or obstructions to the overall progress of the project. VMS and VSLS support structure components shall be removed from the storage yard no later than thirty (30) calendar days after the above noted date on which they are made available for pickup.

The Contractor shall be responsible for inspecting the VMS and VSLS support structure prior to removing it from the storage yard. The Contractor shall inspect all components in the presence of the Engineer or the Engineer's designated representative. Should any damage or missing parts be discovered by the Contractor, it shall be immediately brought to the attention of the Engineer. The Contractor may not rig or lift any structure components prior to accepting the components as complete and in good order. Once the Contractor has accepted the structure components, he accepts full responsibility for them until the time of Substantial Completion. The Contractor shall take precautionary measures not to damage the components in handling and transporting to the installation site. Components that are damaged by the Contractor shall be replaced by the Contractor at no cost to the Authority.

The Contractor shall submit his schedule for anticipated installation of the VMS and VSLS units at the start of the Contract. The Contractor shall inform the Engineer of any

schedule changes during the course of construction. At least ten (10) weeks prior to anticipated erection of the VMS and VSLS Support Structure, the Contractor shall notify the Engineer and request VMS and VSLS unit delivery. VMS and VSLS units shall not reside uninstalled on Turnpike property any longer than 30 days from the date of delivery by the manufacturer. The Contractor will be responsible for protecting the VMS and VSLS units and associated equipment during this period. Any damage to the VMS and VSLS units and associated equipment during this period will be repaired at the Contractor's expense and to the satisfaction of the Engineer.

VMS and VSLS units and associated equipment will be delivered by the manufacturer directly to the Contractor's designated location. The VMS and VSLS units and associated equipment will be tested at the sign manufacturer's facility before shipment. The Contractor, at his discretion, may choose to power up the units and test them upon delivery to verify operation prior to erection, but shall do so at no additional cost to the Authority.

The erection of VMS/VSLS Support Structures shall be in accordance with the applicable provisions of Section 403, the section on "Steel Structures" of the AASHTO LRFD Bridge Design Specifications, 4th Edition with 2008 Interims, the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, and as specified herein.

The Contractor shall refer to the Plans for project specific details for Maintenance and Protection of Traffic to erect the VMS/VSLS Support Structures. Attention is directed to Sections 801 and 802 of the Supplementary Specifications regarding the maintenance and protection of traffic during work adjacent to or over active roadways. The Contractor is advised that any work on the erection of the VMS/VSLS Support Structure or other work that might endanger traffic on active Turnpike roadways shall not be commenced until the proper lane closings have been made or traffic slowdowns have been instituted, in accordance with the requirements of Section 802 of the Specifications.

After the end frame of the structure has been placed over the anchor bolts onto the leveling nuts, the nuts shall be adjusted until the end frame is truly vertical. The upper nuts shall then be placed and tightened.

Under no circumstances shall the horizontal section of VMS/VSLS support structure be erected before the expiration of the pedestal concrete curing period as specified in Subsection 401.18(D).

In order to avoid performing any work outside of the limits of the protected interior of the structure truss while over roadways in use, the truss for VMS/VSLS support structure shall be fully fitted with both the VMS and VSLS units, walkways, and other accessories required and shall be fully installed thereon before erecting the complete assembly on to the previously erected end frames. The assembled truss shall be handled and erected with great care and in such a manner as not to damage the truss or any of the installations thereon. Special care shall be employed so as not to damage the threads of the conduit nipples on the end frames.

All access hand holes and wiring conduit openings shall be sealed tight after erection has been complete.

Details of the exact erection method and procedure the Contractor proposes to use, including the proposed method for installing and mounting the VMS/VSLs units on the structural frame, shall be submitted to the Engineer for approval and any changes as may be deemed advisable in the opinion of the Engineer shall be made.

The elevation of the top of the pedestal, together with the end post dimensions and the maximum panel height, have been selected to provide a minimum clearance of 18'-0" from the high point of the roadway cross section. This clearance must be maintained.

Before final acceptance, all metal surfaces shall be cleaned free of oil, grease, soil or other discoloration. Cleaning shall be with suitable solvents or by other approved means to the satisfaction of the Engineer. If cleaning is necessary after erection over roadways in use, suitable means shall be provided for the protection of traffic during the cleaning operations.

432.05 SUPPORT STRUCTURE FOUNDATIONS

Before any construction is started on the concrete foundation, the Contractor shall first carefully locate the existing underground facilities within or adjacent to the area of excavation, utilizing hand excavation where necessary. Excavation and backfilling for construction of the footings and pedestals of the various overhead and ground mounted sign support structures shall conform to the requirements of Section 205 and as specified herein.

Preparation and placing of concrete and reinforcement steel shall conform to the requirements of Section 401.

Construction of drilled shaft foundations shall conform to the requirements of Section 434.

Care shall be taken not to damage surrounding grassed areas during any of the Contractor's operations. All damaged surfaces of grassed berm and median areas shall be restored to their original conditions after completion of all work on the foundations, VMS/VSLs support structure, and guard rail construction or replacement, in a manner satisfactory to the Engineer.

Topsoiling, seeding, fertilizing, and mulching shall be performed in accordance with the requirements of the Sections of Division 700, and as directed by the Engineer.

Reconstruction of existing Berm and Shoulder Pavement shall be performed in accordance with the requirements of Subsections 303 and 310, as applicable.

Removal of existing Median Barrier, where required, shall be performed in accordance with Subsection 202. Reconstruction of Median Barrier, where required, will be performed in accordance with Subsection 508.

Removal and Resetting of Guard Rail shall be performed in accordance with Subsection 510.

Temporary or permanent sheeting, as designated on the Plans or directed, shall conform to the requirements of Sections 415 and 416, respectively.

(A) Excavation and Backfill.

Excavation for overhead sign structure foundations adjacent to active roadways shall be sheeted on at least three sides closest to the roadway in berm areas and on all sides when located in the median, or at other locations where two opposite edges of a footing are less than eleven feet away from the edge of its adjacent shoulders. Sheeting is not required for drilled shaft foundations.

Sheeting shall extend to at least four (4) feet above the adjacent roadway surface. The sheeting shall be provided with flashing amber lights mounted in view of oncoming traffic. Sides of sheeting facing traffic shall be painted white as soon as it is driven.

The bottom of all excavations shall be firm undisturbed earth to provide a suitable bearing area for the foundation. Excavation below the prescribed minimum depth shown on the plans shall be filled with concrete placed directly on the undercut surface, thus increasing the total thickness of the footing by the amount of undercut. Unless ordered by the Engineer to excavate below the prescribed minimum depths, the cost of furnishing and placing such additional concrete shall be borne solely by the Contractor.

All excavations shall be backfilled around the concrete foundation and pedestal and thoroughly compacted up to the surrounding ground lines. Excess excavated materials shall be properly disposed of in a manner satisfactory to the Engineer.

(B) Foundations for Overhead Span VMS/VSLs Support Structures.

The foundations for overhead span VMS/VSLs support structures shall be constructed to the shapes, dimensions, and elevations shown on the Plans.

Forms for exposed faces of the pedestals shall be of plywood, using the minimum practical number of sheets for each face. Form ties will not be permitted through the concrete placed above grade.

Anchor bolts shall be set accurately by means of a template and held rigidly in position during the placement of pedestal concrete. Great care shall be taken to ensure orientation of the anchor bolt template is correct prior to placing concrete. The Contractor shall make periodic checks of the bolt positions and elevations during concreting operations. It is essential that the distance between the centers of anchor bolt groups of the two foundations for each overhead sign support frame be exactly the span length shown on the plans at 68°F. Care shall be taken to protect the threaded portions of anchor bolts and the leveling nuts from damage by concrete or equipment.

Concrete shall be placed and vibrated in the pedestal to within approximately three inches of the final top surface elevation of the pedestal, as indicated on the plans. The top surface of the concrete shall be kept wet for at least 24 hours; after which the end supports and bases of the overhead structure shall be set onto the leveling nuts, the nuts adjusted, and the upper nuts placed and tightened. Exposed portions of the top surface shall be sloped down away from the end frame bases. After the curing period has expired, the forms shall be removed and surface defects pointed with a matching mortar to the satisfaction of the Engineer.

Epoxy Resin Waterproofing shall be applied to the tops of the support structure pedestals to the limits shown on the Plans and as indicated in Section 410.03 (D) of the Standard Specifications.

432.06 MEASUREMENT

Installation of VMS/VSL Support Structures will be measured on a lump sum basis for each individual location and shall include pickup, delivery and complete installation of all components as described in these Specifications.

432.07 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Install Overhead Span VMS/VSL Sign Support Structure No. 1 (72.08 NO).....	Lump Sum
Install Overhead Span VMS/VSL Sign Support Structure No. 2 (72.08 NI).....	Lump Sum
Install Overhead Span VMS/VSL Sign Support Structure No. 3 (73.20 SI).....	Lump Sum
Install Overhead Span VMS/VSL Sign Support Structure No. 4 (73.20 SO).....	Lump Sum
Install Overhead Span VMS/VSL Sign Support Structure No. 5 (76.82 SI).....	Lump Sum
Install Overhead Span VMS/VSL Sign Support Structure No. 6 (76.82 SO).....	Lump Sum
Install Overhead Span VMS/VSL Sign Support Structure No. 7 (82.33 SI).....	Lump Sum
Install Overhead Span VMS/VSL Sign Support Structure No. 8 (82.34 SO).....	Lump Sum

Payment for drilled shafts for sign structures will be made in accordance with Section 434.

Separate payment will not be made for foundation excavation for VMS/VSL support structure foundations.

Separate payment will not be made for epoxy resin waterproofing.

Payment for removal of median barrier will be made in accordance with Section 202.

Payment for construction of median barrier will be made in accordance with Section 508.

Payment for restoration of berm and / or shoulder pavement will be made in accordance with Sections 303 and 310, as applicable.

Payment for reinforcement steel will be made in accordance with Section 401.

Payment for electrical items will be made in accordance with Sections 601-603.

Payment for sheeting will be made in accordance with Sections 415 or 416, as applicable.

VMS and VSL will be furnished to the Contractor by the Authority. Separate payment will not be made for picking-up signs from their place of storage, delivery to the site or installation of the signs onto the sign structures, the costs of which shall be included in the costs bid the Pay Item Overhead Span VMS/VSL Support Structure_____.

The following Section is added:

SECTION 433 – OVERHEAD SPAN HYBRID CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURES

433.01 DESCRIPTION

This work consists of erecting Overhead Span Hybrid Changeable Message Sign (HCMS) Support Structure components furnished by others and located at the Authority's designated storage yard located at the New Jersey Turnpike Authority owned northern area under the Driscoll Bridge carrying the Garden State Parkway over the Raritan River at Garden State Parkway Milepost 126.0, including transporting of these components to the final structure erection site and assembling/erecting the complete structure. Access to the storage yards shall be coordinated with the Engineer.

The Contractor will be furnished with all components and appurtenances necessary to assemble and erect the complete HCMS support structure, including anchor bolts. The Contractor shall be responsible for furnishing all materials required for the support structure foundations. HCMS supports structures will be delivered to the designated storage area with substantial assembly already completed. Final assembly of the overall support structure and installation of miscellaneous appurtenances shall be required as part of the erection work.

Work under this section shall also include the erection of HCMS electronic signs and associated equipment (hereafter referred to as "units") on the support structures to be erected with all associated hardware required to affix the units to the support structures. Furnishing and installation of communications and power wiring will be paid for under Section 605, Intelligent Transportation Systems. The HCMS units will be delivered to the HCMS support structure erection site by the HCMS unit fabricator. Delivery of the units shall be coordinated with the Engineer.

Work under this section shall also include the construction of new concrete pedestals and drilled shaft foundations, as shown on the Plans. However, for Overhead Hybrid Changeable Message Sign Support Structure No. 2 (73.89C), concrete pedestals and drilled shaft foundations were constructed under Contract No. T869.120.802.

433.02 MATERIALS

Materials shall conform to the following Sections and Subsections or as otherwise designated on the Plans:

Admixtures and Curing Material.....	906
Portland Cement Concrete	905.05
Reinforcement Steel	908.01
Fasteners.....	909.02
Structural Steel.....	909.01
Zinc Coating on Steel	909.11

Materials and construction methods not specifically covered in the Plans and Specifications shall be in accordance with latest edition of AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

433.03 SHOP DRAWINGS

Shop, erection, and other drawings necessary for the erection of HCMS support structures and pedestal/foundation construction shall be furnished in accordance with Subsection 104.08.

433.04 ERECTION

The HCMS support structures will be available for pickup by the Contractor from the Authority's designated storage area on or after the dates listed in the table below. The HCMS units will be delivered to the Contractor by the Authority on or after 1/1/2013.

Sign Str. No.	Sign Structure Description	Date Available	Pick Up Location
9	Install Overhead Hybrid Changeable Message Sign Support Structure No. 1 (71.48)	8/1/2012	Dix Drive-in or Keasbey
23	Install Overhead Hybrid Changeable Message Sign Support Structure No. 2 (73.89C)	9/28/2012	Dix Drive-in or Keasbey
24	Install Overhead Hybrid Changeable Message Sign Support Structure No. 3 (73.89D)	9/28/2012	Dix Drive-in or Keasbey
25	Install Overhead Hybrid Changeable Message Sign Support Structure No. 4 (73.89E)	9/28/2012	Dix Drive-in or Keasbey
26	Install Overhead Hybrid Changeable Message Sign Support Structure No. 5 (78.88)	9/28/2012	Dix Drive-in or Keasbey

Keasbey yard is located under the Garden State Parkway Driscoll Bridge and is accessible from Smith St. Due to space considerations, it is possible that some structures not yet delivered and listed for Keasbey will be located under the Driscoll Bridge on the south side of the Raritan River accessible from Chevalier Ave, Sayreville or at Dix Drive-In.

Dix Drive-In yard is located off Route 206 between Turnpike Interchange 7 and Route 130, Bordentown.

Contact for all structure deliveries will be the 803 Resident Engineer.

The HCMS units will be furnished to the Contractor by the HCMS manufacturer. It shall be the Contractor's responsibility to coordinate the actual delivery time and location with the HCMS manufacturer and the Authority. Coordination of HCMS unit delivery will be as specified in Section 605, Intelligent Transportation Systems.

The Contractor will be responsible for integrating the available dates of the HCMS support structures and the delivery dates for the HCMS units into the construction schedule so as not to incur delays or obstructions to the overall progress of the project. HCMS support structure components shall be removed from the storage yard no later than thirty (30) calendar days after the above noted date on which they are made available for pickup.

The Contractor shall be responsible for inspecting the HCMS support structure prior to removing it from the storage yard. The Contractor shall inspect all components in the presence of the Engineer or the Engineer's designated representative. Should any damage or missing parts be discovered by the Contractor, it shall be immediately brought to the attention of the Engineer. The Contractor may not rig or lift any structure components prior to accepting the components as complete and in good order. Once the Contractor has accepted the structure components, he accepts full responsibility for them until the time of Substantial Completion. The Contractor shall take precautionary measures not to damage the components in handling and transporting to the installation site. Components that are damaged by the Contractor shall be replaced by the Contractor at no cost to the Authority.

The Contractor shall submit his schedule for anticipated installation of the HCMS units at the start of the Contract. The Contractor shall inform the Engineer of any schedule changes during the course of construction. At least 8 weeks prior to anticipated erection of the HCMS Support Structure, the Contractor shall notify the Engineer and request HCMS unit delivery. HCMS units shall not reside uninstalled on Turnpike property any longer than 30 days from the date of delivery by the manufacturer. The Contractor will be responsible for protecting the HCMS units and associated equipment during this period. Any damage to the HCMS units and associated equipment during this period will be repaired at the Contractor's expense and to the satisfaction of the Engineer.

HCMS units and associated equipment will be delivered by the manufacturer directly to the Contractor's designated location. The HCMS units and associated equipment will be tested at the sign manufacturer's facility before shipment. The Contractor, at his discretion, may choose to power up the units and test them upon delivery to verify operation prior to erection, but shall do so at no additional cost to the Authority.

The erection of HCMS Support Structures shall be in accordance with the applicable provisions of Section 403, the section on "Steel Structures" of the AASHTO LRFD Bridge Design Specifications, 4th Edition with 2008 Interims, the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, and as specified herein.

The Contractor shall refer to the Plans for project specific details for Maintenance and Protection of Traffic to erect the HCMS Support Structures. Attention is directed to Sections 801 and 802 of the Supplementary Specifications regarding the maintenance and protection of traffic during work adjacent to or over active roadways. The Contractor is advised that any work on the erection of the HCMS Support Structure or other work that might endanger traffic on active Turnpike roadways shall not be commenced until the proper lane closings have been made or traffic slowdowns have been instituted, in accordance with the requirements of Section 802 of the Specifications.

After the end frame of the structure has been placed over the anchor bolts onto the leveling nuts, the nuts shall be adjusted until the end frame is truly vertical. The upper nuts shall then be placed and tightened.

Under no circumstances shall the horizontal section of HCMS support structure be erected before the expiration of the pedestal concrete curing period as specified in Subsection 401.18(D).

In order to avoid performing any work outside of the limits of the protected interior of the structure truss while over roadways in use, the truss for HCMS support structure shall be fully fitted with the HCMS units, walkways, and other accessories required and shall be fully installed thereon before erecting the complete assembly on to the previously erected end frames. The assembled truss shall be handled and erected with great care and in such a manner as not to damage the truss or any of the installations thereon. Special care shall be employed so as not to damage the threads of the conduit nipples on the end frames.

All access hand holes and wiring conduit openings shall be sealed tight after erection has been complete.

Details of the exact erection method and procedure the Contractor proposes to use, including the proposed method for installing and mounting the HCMS units on the structural frame, shall be submitted to the Engineer for approval and any changes as may be deemed advisable in the opinion of the Engineer shall be made.

The elevation of the top of the pedestal, together with the end post dimensions and the maximum panel height, have been selected to provide a minimum clearance of 18'-0" from the high point of the roadway cross section. This clearance must be maintained.

Before final acceptance, all metal surfaces shall be cleaned free of oil, grease, soil or other discoloration. Cleaning shall be with suitable solvents or by other approved means to the satisfaction of the Engineer. If cleaning is necessary after erection over roadways in use, suitable means shall be provided for the protection of traffic during the cleaning operations.

433.05 SUPPORT STRUCTURE FOUNDATIONS

Before any construction is started on the concrete foundation, the Contractor shall first carefully locate the existing underground facilities within or adjacent to the area of excavation, utilizing hand excavation where necessary. Excavation and backfilling for construction of the footings and pedestals of the various overhead and ground mounted sign support structures shall conform to the requirements of Section 205 and as specified herein.

Preparation and placing of concrete and reinforcement steel shall conform to the requirements of Section 401.

Construction of drilled shaft foundations shall conform to the requirements of Section 434

Care shall be taken not to damage surrounding grassed areas during any of the Contractor's operations. All damaged surfaces of grassed berm and median areas shall be restored to their original conditions after completion of all work on the foundations, VMS/VLSL support structure, and guard rail construction or replacement, in a manner satisfactory to the Engineer.

Topsoiling, seeding, fertilizing, and mulching shall be performed in accordance with the requirements of the Sections of Division 700, and as directed by the Engineer.

Reconstruction of existing Berm and Shoulder Pavement shall be performed in accordance with the requirements of Subsections 303 and 310, as applicable.

Removal of existing Median Barrier, where required, shall be performed in accordance with Subsection 202. Reconstruction of Median Barrier, where required, will be performed in accordance with Subsection 508.

Removal and Resetting of Guard Rail shall be performed in accordance with Subsection 510.

Temporary or permanent sheeting, as designated on the Plans or directed, shall conform to the requirements of Sections 415 and 416, respectively.

(A) Excavation and Backfill.

Excavation for overhead sign structure foundations adjacent to active roadways shall be sheeted on at least three sides closest to the roadway in berm areas and on all sides when located in the median, or at other locations where two opposite edges of a footing are less than eleven feet away from the edge of its adjacent shoulders. Sheeting is not required for drilled shaft foundations.

Sheeting shall extend to at least four (4) feet above the adjacent roadway surface. The sheeting shall be provided with flashing amber lights mounted in view of oncoming traffic. Sides of sheeting facing traffic shall be painted white as soon as it is driven.

The bottom of all excavations shall be firm undisturbed earth to provide a suitable bearing area for the foundation. Excavation below the prescribed minimum depth shown on the plans shall be filled with concrete placed directly on the undercut surface, thus increasing the total thickness of the footing by the amount of undercut. Unless ordered by the Engineer to excavate below the prescribed minimum depths, the cost of furnishing and placing such additional concrete shall be borne solely by the Contractor.

All excavations shall be backfilled around the concrete foundation and pedestal and thoroughly compacted up to the surrounding ground lines. Excess excavated materials shall be properly disposed of in a manner satisfactory to the Engineer.

(B) Foundations for Overhead Span VMS/VSLs Support Structures.

The foundations for overhead span VMS/VSLs support structures shall be constructed to the shapes, dimensions, and elevations shown on the Plans.

Forms for exposed faces of the pedestals shall be of plywood, using the minimum practical number of sheets for each face. Form ties will not be permitted through the concrete placed above grade.

Anchor bolts shall be set accurately by means of a template and held rigidly in position during the placement of pedestal concrete. Great care shall be taken to ensure orientation of the anchor bolt template is correct prior to placing concrete. The Contractor shall make periodic checks of the bolt positions and elevations during concreting operations. It is essential that the distance between the centers of anchor bolt groups of the two foundations for each overhead sign support frame be exactly the span length shown on

the plans at 68°F. Care shall be taken to protect the threaded portions of anchor bolts and the leveling nuts from damage by concrete or equipment.

Concrete shall be placed and vibrated in the pedestal to within approximately three inches of the final top surface elevation of the pedestal, as indicated on the plans. The top surface of the concrete shall be kept wet for at least 24 hours; after which the end supports and bases of the overhead structure shall be set onto the leveling nuts, the nuts adjusted, and the upper nuts placed and tightened. Exposed portions of the top surface shall be sloped down away from the end frame bases. After the curing period has expired, the forms shall be removed and surface defects pointed with a matching mortar to the satisfaction of the Engineer.

Epoxy Resin Waterproofing shall be applied to the tops of the support structure pedestals to the limits shown on the Plans and as indicated in Section 410.03 (D) of the Standard Specifications.

433.06 MEASUREMENT

Installation of HCMS Support Structures will be measured on a lump sum basis for each individual location and shall include pickup, delivery and complete installation of all components as described in these Specifications.

433.07 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Install Overhead Hybrid Changeable Message Sign Support Structure No. 1 (71.48)	Lump Sum
Install Overhead Hybrid Changeable Message Sign Support Structure No. 2 (73.89C)	Lump Sum
Install Overhead Hybrid Changeable Message Sign Support Structure No. 3 (73.89D)	Lump Sum
Install Overhead Hybrid Changeable Message Sign Support Structure No. 4 (73.89E)	Lump Sum
Install Overhead Hybrid Changeable Message Sign Support Structure No. 5 (78.88)	Lump Sum

Payment for drilled shafts for sign structures will be made in accordance with Section 434.

Separate payment will not be made for foundation excavation for HCMS support structure foundations.

Separate payment will not be made for epoxy resin waterproofing.

Payment for removal of median barrier will be made in accordance with Section 202.

Payment for construction of median barrier will be made in accordance with Section 508.

Payment for restoration of berm and / or shoulder pavement will be made in accordance with Sections 303 and 310, as applicable.

Payment for reinforcement steel will be made in accordance with Section 401.

Payment for electrical items will be made in accordance with Sections 601-603.

Payment for sheeting will be made in accordance with Sections 415 or 416, as applicable.

VMS and VSLS will be furnished to the Contractor by the Authority. Separate payment will not be made for picking-up signs from their place of storage, delivery to the site or installation of the signs onto the sign structures, the costs of which shall be included in the costs bid the Pay Item Overhead Span VMS/VSLS Support Structure_____.

The following Section is added:

SECTION 434 – DRILLED SHAFTS FOR SIGN STRUCTURE FOUNDATIONS

434.01 DESCRIPTION

This work shall consist of the construction of drilled cast-in-place concrete shafts for sign structure foundations where indicated on plans. The work shall include furnishing all equipment, materials and labor necessary for constructing drilled shafts in accordance with these specifications and as directed by the Engineer. The work shall include excavation, installing and removing temporary casing, drilling slurry, soil and rock drilling to penetrate whatever the materials and obstructions encountered, installing reinforcement, concrete, finished shaft top preparation and disposal of excavated soils.

434.02 MATERIALS

Materials shall conform to the following Sections and Subsections:

Admixtures and Curing Materials.....	906
Portland Cement Concrete.....	905.05
Reinforcement Steel in Structures.....	908.01
Structural Steel (casings).....	909.01

Casings (if required) shall be smooth, non-corrugated, clean, be of watertight steel, and of ample strength to withstand both handling and driving stresses, pressures of concrete, pressure of fluids and of the surrounding earth materials. Casings shall have inside diameters not less than indicated shaft sizes.

434.03 SHOP DRAWINGS

Shop, erection, and other drawings necessary for the fabrication and erection of sign support structures shall be furnished in accordance with Subsection 104.08. As a minimum, the following items shall be submitted to the Engineer for approval:

1. A summary of the Contractor’s or his specialized drilled shaft subcontractor’s experience on projects of a similar nature and scope. The specialty subcontractor shall be selected by the Contractor and be approved by the Engineer. Approval will be based on qualifications and previous experience on similar projects.

2. List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, desanding equipment, slurry pumps, concrete pumps, temporary steel casing, slurry sampling and testing equipment.
3. Details of equipment and procedures for drilled shaft installation, including drawings showing consecutive steps of drilled shaft installation and drawings with measurements showing that the proposed equipment can perform the specified work. Included in the drawings shall be shown the areas that are planned to be used for staging, layout drawings showing the proposed sequence of drilled shaft installation, details of placement, splicing, and centering devices for steel reinforcing.
4. Mix design for the concrete and documentation from an independent laboratory showing that the mix design conforms to the submitted mix and meets the strength requirements set by the Engineer. The mix design and documentation should be submitted for approval at least 30 calendar days prior to use.
5. Details of slurry including proposed methods of mixing, placing and circulating.
6. Details of shaft excavation methods.
7. Details of proposed methods to clean shaft after initial excavation.
8. Procedures for control and removal of spoils.
9. Details of shaft reinforcement, including methods to ensure centering/required cover, cage integrity during placement, placement procedures, and cage support.
10. Details of concrete placement including proposed operational procedures for concrete pump or tremie including initial placement, raising during placement, and overfilling of the shaft concrete, and provisions to prepare the completed shaft top at its final shaft top elevation.

434.04 INSTALLATION OF DRILLED SHAFTS

The following requirements shall apply to all installations of Drilled Shafts for Sign Structures:

(A) EQUIPMENT.

Drilled shafts shall be installed with approved drilling equipment compatible with site constraints. The proposed drilled shaft installation equipment and methods shall be subject to the approval of the Engineer and approval shall be secured before mobilization. Approval by the Engineer shall not relieve the Contractor or drilled shaft subcontractor of his responsibility to provide equipment with sufficient power, downward thrust and torque, materials, and methods to adequately perform the work in a safe, timely, workmanlike manner. Approval shall not be reason to hold the Authority and/or the Engineer responsible for the Contractor's or drilled shaft subcontractor's failure to perform the work.

Drilled shaft installation equipment shall be capable of installing drilled shafts with the use of temporary casing. Wet rotary drilling using the slurry displacement method shall employ sufficient fluid pressure to provide complete removal of the cuttings from the hole. The Contractor shall provide a weighted bar with slender tip and attached to a thin cable with calibrated depth marker, metal tape, or other approved equipment suitable for confirming the completeness of the final cleaning operations.

The Contractor or his specialized subcontractor shall provide all equipment, including concrete pumps or tremie pipes required for the placement of concrete into the drilled shafts in accordance with the plans and specifications. The minimum inside diameter of concrete pump lines or the tremie pipe shall be greater than six times the maximum aggregate size.

(B) SHAFT DRILLING.

The Contractor shall perform the excavations required for the shafts through whatever materials are encountered, to the dimensions and elevations shown in the plans or otherwise required by these specifications. The Contractor's methods and equipment shall be suitable for the intended purpose and whatever the materials encountered. The Contractor shall provide equipment capable of constructing shafts to a depth equal to the deepest shaft shown in the plans plus 15 feet or plus three times the shaft diameter, whichever is greater, except when the plans instruct the Contractor to provide equipment capable of constructing shafts to a greater depth.

An approved fixed template, adequate to maintain shaft position and alignment during all excavation and concreting operations, shall be provided for all drilled shafts.

The Contractor shall install a suitable temporary casing for the full depth of the drilled shaft. All drilled shafts shall meet construction tolerance criteria and be installed in accordance with the dimensions as shown on the plans, or as directed by the Engineer.

The top center of each drilled shaft shall not vary from the plan location by more than 3 inches. At the top of the drilled shaft, reinforcing bars shall not vary in plan distance from the plan shaft by more than 1 inch. The drilled shaft shall not vary from the vertical by more than one percent of its length, as measured above ground and shall not be out of the required position at the top by more than 3 inches. The plumbness shall be checked by plumbing the Contractor's extended Kelly bar with a full size drill bucket when it is down to the bottom of the drilled shaft with an accurate carpenter's level placed against the exposed part of the Kelly bar, followed by measurements of offset from the Kelly bar to the permanent casing in four compass directions.

The Contractor or his specialized subcontractor shall protect existing utilities to remain within the drilled shaft installation work zone in accordance with the requirements of authorities having jurisdiction over same. The Contractor shall repair or replace any construction-induced damage to the satisfaction of the governing authority at the Contractor's expense.

The Contractor or his specialized subcontractor shall employ within his contract bid price, a licensed registered Land Surveyor, experienced in this type of work, who shall establish lines and grades. The Contractor shall be responsible for the correct location of drilled shafts and keeping a record of drilled shafts installed.

Drilled shafts shall be located and staked by the Contractor and prior to the start of installation work. The Contractor shall maintain all location stakes and shall establish all elevations required.

Unless the accuracy and precision of other methods are demonstrated to the satisfaction of the Engineer, the plan position of the center of each shaft shall be determined by optical survey measurements to a minimum of four points arranged around the shaft casing perimeter at the four compass directions. These measurements are to be geometrically averaged to calculate the best-fit mathematical center of the shaft at the measurement elevation. Then the calculated center of the shaft at the measurement level shall be reduced to calculate the mathematical center of the shaft at the proposed final shaft top elevation by adjustment using the shaft plumbness measurement information.

(C) PLACING CONCRETE.

The handling, measuring, proportioning, mixing, and placing of concrete shall conform to Section 401 and this section. Concrete shall be placed only in the presence of the Engineer.

Concrete shall be placed using concrete pump or a tremie pipe from the bottom of the excavation upward so as to avoid segregation. Concrete shall not be allowed to fall freely. Neither air, water, nor slurry shall be injected into the shaft concrete during placement. A disposable foam or rubber plug shall be used in the concrete pump line or tremie pipe to separate the fresh concrete from the slurry at the start of concrete placement. The plug shall be inserted so that the first flow of concrete pushes the plug out of the pipe and prevents slurry mixing and contamination as the concrete placement commences. The concrete pump line or tremie shall consist of a tube constructed in section having flanged couplings fitted with gaskets. The means of supporting the concrete pump line or tremie shall be such as to permit free movement of the discharge end over the entire top of the concrete and to permit its being lowered rapidly when necessary to choke off or retard the flow. The tremie, if used, shall be filled by a method that prevents washing of the concrete. The discharge end shall be completely submerged in concrete at all times after initiation of concrete placement flow and the concrete line shall contain sufficient concrete to prevent any water entry. Maintain the concrete level at the top of the drilled shaft until the concrete has set.

If concrete flow is halted and the concrete line's discharge end is for any reason raised out of the shaft concrete, flow shall be reinitiated only after fully recharging the concrete line with fresh concrete by 1) inserting a foam or rubber plug or pig into the concrete line at the concrete hopper end, 2) placing the discharge end approximately 6 inches above the top of the shaft concrete, 3) resuming concrete flow, recharging the pump or tremie line and depositing what will be classified as waste concrete on the top of the previously placed shaft concrete, 4) discharging waste concrete until the line is fully recharged with fresh concrete and the pig is pushed completely through the line, 5) without halting the flow of fresh concrete plunging the discharge end of the concrete line into the shaft concrete to within 6 inches or less of the shaft bottom or to a level as directed by the Engineer, 6) continuing concrete placement without further interruption, and 7) placing a final volume of additional concrete in the shaft no less than the volume of waste concrete placed to recharge the line in the process of resuming concrete flow. This procedure shall be applied without exception as necessary to avoid injecting any air, any water, any slurry, or any concrete that has flowed through a line filled with air, water, or slurry into the shaft concrete.

Final concrete placement elevation details shall be as specified herein for shaft top preparation. A hole shall not be progressed within five drilled shaft diameters of a previously installed drilled shaft until the concrete has been in place for a minimum of 2 days.

(D) SHAFT CONSTRUCTION TIMING.

Every effort shall be made by the Contractor in planning, coordinating, and carrying out the work to minimize the time between the start of excavation and completion of shaft concrete placement. Each step in the process of initially drilling, satisfactorily cleaning the shaft bottom, placing reinforcing steel, and completing concrete placement shall be coordinated to avoid delays during or between each work step. In general, the time between shaft excavation and completion of concrete placement is expected to be eight (8) continuous hours or less.

For cases where two (2) or more continuous hours elapse between completion of excavation and commencement of concrete placement, any reinforcing steel already placed in the shaft shall be removed, the shaft bottom shall be satisfactorily cleaned, reinforcing steel immediately placed in the shaft, and concrete placement immediately commenced.

(E) SHAFT REINFORCING STEEL.

Where shafts are extended at the direction of the Engineer to final authorized tip elevations lower than the estimated minimum tip elevations, no fewer than one-half of the vertical reinforcing

steel bars (every other bar around the circumference) shall be extended to the authorized tip elevation by lap splicing or mechanical splicing. Lap splices shall be tied firmly enough to support the full weight of the reinforcing cage above the lap zone. Horizontal reinforcing bands shall be added in the bottom extension zone at a vertical spacing no more than 6 inches center to center.

(F) SHAFT TOP PREPARATION.

If tremie concrete is used, the top-most concrete placed in the shaft shall be considered waste concrete and shall be either: (A) pushed upward and ejected completely out of the top of the casing and wasted as final concrete is placed or, alternatively, or (B) pumped upward to a level at least 2 feet clear distance above the plan shaft top level and allowed to cure in place for removal later. Waste concrete shall be considered to be the top 2 feet of initial concrete placed, plus the height of any additional volume of waste concrete deposited in the shaft where concrete placement was halted and restarted, plus any additional amount necessary to produce full strength concrete, non-segregated concrete at the plan shaft top level.

Where waste concrete alternative (A) is selected, waste concrete must be allowed to evenly overflow the full top circumference of the casing, and may not be channeled or bleed off by notches or holes cut in the casing top. Any fresh concrete in the casing at a level above the plan shaft top level after ejecting all waste concrete may be dipped or pumped out to the plan top elevation while still plastic by methods and equipment approved by the Engineer, or allowed to cure in place for removal later.

Final shaft top preparation may commence only once the drilled shaft concrete obtains an average unconfined compression strength of at least 2466 psi, or, in lieu of concrete strength testing, beginning seven (7) full days after completion of concrete placement. Final top preparation steps shall consist of (A) cutting off any extra casing above the top of casing elevation, (B) cutting off any cured over-pour concrete to the plan shaft top elevation by approved methods, (C) dressing the final shaft top surface, (D) verification by the Engineer that the exposed concrete consists of full strength concrete with a typical, non-segregated mortar and aggregate distribution, (E) approved non-destructive strength testing by the Contractor where required by the Engineer to verify that concrete has full design strength, (F) removal of additional concrete below the plan shaft top level as necessary to reach full-strength, non-segregated concrete, and (G) preparation of the shaft top key recess.

(G) SHAFT ACCEPTANCE

A comparison of the computed volume of the excavation (theoretical) with the volume of concrete placed (actual) shall be made. A plot of depth versus volume shall be computed. The contractor shall provide cooperation and whatever assistance necessary to accurately monitor the volume of concrete placed at all times during the pour.

Actual drilled shaft location data shall be submitted to the Engineer within one working day after a drilled shaft is installed. Drilled shaft subcontractor shall provide the Engineer's on-site representative with written tabulations of the following information:

1. Drilled shaft location (station and offset from project baseline).
2. Elevation of top of drilled shaft measured to the nearest 0.01 feet.
3. Deviation from design plan location measured to the nearest 0.01 feet.
4. Plumbness (deviation from vertical).

Within seven working days after the completion of installation of all the drilled shafts, and before removing the drilled shaft installation equipment from the site, the Contractor shall provide the

Engineer with a plan certified by a land surveyor registered in the State of New Jersey showing the as-installed location of all drilled shafts installed to the tolerances indicated in these specifications and as shown on the plans.

Unaccepted drilled shafts are drilled shafts that are rejected by the Engineer because of damage, failure to advance through obstructions, mislocation, misalignment, or failure to install the drilled shaft to the proper bearing stratum, or the results of the CSL testing indicate defects. Rejection of a shaft based on the shaft integrity testing shall require conclusive evidence that a defect exists in the shaft which will result in inadequate or unsafe performance under service loads. If the CSL records are complex or inconclusive, the Engineer may require additional testing to confirm the location of the defect. The Engineer may also require coring or excavation of the shaft to verify shaft conditions.

The Contractor shall submit a written plan of action to the Engineer for approval, showing how to correct the problem and prevent its reoccurrence. The drilled shaft shall be repaired, augmented or replaced to the satisfaction of the Engineer. To mitigate and/or to remedy unaccepted drilled shafts, the Contractor may be required to provide additional drilled shafts or supplement drilled shafts to meet specified requirements at no cost to the Authority.

When otherwise acceptably installed drilled shafts exceed the specified tolerances, the drilled shaft subcontractor shall provide an accurate as-built survey to the Design Engineer. The Design Engineer will then analyze the total loads on individual drilled shaft based on the survey data. If the load on any drilled shaft exceeds the specified load capacity by more than 10%, corrections shall be made in accordance with a design provided by the Design Engineer.

434.05 CROSSHOLE SONIC LOGGING OF DRILLED SHAFTS

The nondestructive testing method called Crosshole Sonic Logging (CSL) shall be used on all production and demonstration drilled shafts forty-eight hours after the placement of all concrete in a shaft and must be completed within 20 calendar days after the concrete placement. The Engineer may specify a longer minimum time if concrete mix designs or other factors result in slower setting concrete. The CSL tests shall be conducted by an experienced independent testing Consultant approved by the Engineer prior to testing.

(A) Preparation for Testing

A number of tubes shall be installed in each shaft to permit access for CSL. The number of tubes installed shall be the greater of 3 or the nearest integer value of the diameter of the drilled shaft measured in feet. The tubes shall be 1.5 inch to 2.0 inch inside diameter schedule 40 steel pipe. The pipes shall have a round, regular internal diameter free of defects or obstructions, including any at pipe joints, in order to permit the free, unobstructed passage of a 1.3 inch diameter source and receiver probes. The tubes shall be watertight and free from corrosion with clean internal and external faces to ensure passage of the probes and a good bond between the concrete and the tubes.

The pipes shall each be fitted with a watertight shoe on the bottom and a removable cap on the top. The pipes shall be securely attached to the interior of the reinforcement cage. The tubes shall be installed in each shaft in a regular, symmetric pattern such that each tube is equally spaced from the others around the perimeter of the cage. The Contractor shall submit to the testing organization his selection of tube size, along with his proposed method to install the tubes, prior to construction. The tubes shall be as near to parallel as possible.

The tubes shall extend from 6 inches above the shaft bottoms to at least 3 feet above the shaft tops. Any joints required to achieve full-length tubes shall be made watertight. Care shall be taken during reinforcement installation operations in the drilled shaft hole so as not to damage the tubes. After placement of the reinforcement cage, the tubes shall be filled with clean water as soon as possible. After the tubes are filled with water, the tube tops shall be capped or sealed to keep debris out of the tubes prior to concrete placement. The pipe caps or plugs shall not be removed until the concrete in the shaft has set. Care shall be exercised in the removal of caps or plugs from the pipes after installation so as not to apply excess torque, hammering, or other stresses which could break the bond between the tubes and the concrete.

(B) CSL Testing

CSL tests shall be conducted between pairs of tubes. The approved testing organization shall test two principle diagonals through the center and between each tube pair around the perimeter of all tested shafts. Additional logs shall be conducted at no additional cost in the event anomalies are detected. The CSL tests shall be carried out with the source and receiver probes in the same horizontal plane unless test results indicate potential defects in which case the questionable zone may be further evaluated with angled tests (source and receiver vertically offset in the tubes).

CSL measurements shall be made at depth intervals of 0.2 feet or less, and shall be done from the bottom of the tubes to the top of each shaft. The probes shall be pulled simultaneously, starting from the bottoms of the tubes, over a depth measuring device. Any slack shall be removed from the cables prior to pulling to provide for accurate depth measurements of the CSL records. Any defects indicated by longer pulse arrival times and significantly lower amplitude/energy signals shall be reported to the Engineer and further tests shall be conducted as required to evaluate the extent of such defects.

(C) CSL Test Results

The CSL results shall be presented to the Engineer in a report. The report shall include recommendations as to the acceptability, unacceptability, soundness, etc., of the drilled shaft. The report shall be checked, stamped approved, and signed by a Professional Engineer registered in New Jersey. The report shall be submitted directly to the Engineer. The test results shall include CSL logs with analyses of:

- a. Initial pulse arrival time versus depth
- b. Pulse energy/amplitude versus depth

A CSL log shall be presented for each tube pair tested with any defect zones indicated on the logs and discussed in the test report as appropriate.

(D) Evaluation of CSL Test Results

The Engineer will evaluate the CSL test results and determine whether or not the drilled shaft construction is acceptable. If the Engineer determines that the drilled shaft is acceptable, the CSL tubes shall be dewatered and grouted. The grout shall be of the same strength or higher than the strength of the concrete used in the original drilled shaft. The Contractor's grout mix shall not include calcium chloride based additives. If the Engineer determines that the drilled shaft is unacceptable, the shaft shall be cored to allow further evaluation of the shaft. Cores shall be taken without additional compensation.

(E) Further Evaluation

If the CSL records are inconclusive or show an anomaly, the Engineer may require coring or the performance of Crosshole Tomography to verify the shaft condition. The details of the Crosshole

Tomography, if directed by the Engineer, shall be submitted for review and approval. The Crosshole Tomography analysis shall include the development of three dimensional volumetric images for the entire shaft. This shall be presented in color and coded to indicate variations in sonic velocity. The images and complete discussion of the data shall be presented in the report by the testing firm.

434.06 MEASUREMENT

Drilled shafts will be measured by the linear feet. The limits for payment for drilled shafts will be as shown on the plans. Furnishing equipment, mobilization for drilled shaft installation, CSL testing or any further evaluation will not be measured, and all costs shall be included in drilled shaft.

434.07 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Drilled Shaft for Sign Structures	Linear Feet

No separate payment will be made for reinforcement steel, steel pipe for CSL testing, and concrete within the drilled shaft limits shown on plans. The costs thereof shall be included in the above drilled shaft pay item.

No separate payment will be made for obstructions, rock material, or whatever the material is encountered, the payment will be made for one item as soil.

No separate payment will be made for CSL testing and/or further evaluation associated with determining the integrity of the drilled shaft.

The contract items and unit price bids set forth in the bid schedules shall include all services, permits, labor, equipment, transportation, materials, testing, and supplies for the complete work, including, without limitation, mobilization and demobilization for completion of the work. No payment will be made for drilled shafts abandoned because of defects in the work or other fault of the Contractor or his drilled shaft subcontractor.

SECTION 435 - DRILLED SHAFTS FOR BRIDGE FOUNDATIONS

435.01 DESCRIPTION

This work shall consist of the construction of drilled cast-in-place concrete shafts for bridge foundations where indicated on plans. The work shall include furnishing all equipment, materials and labor necessary for constructing drilled shafts utilizing a temporary steel casing in accordance with these specifications and as directed by the Engineer. The work shall include excavation, installing and removing temporary casing, soil and rock drilling to penetrate whatever the materials and obstructions encountered, installing reinforcement, concrete, finished shaft top preparation and disposal of excavated soils.

435.02 MATERIALS

Materials shall conform to the following Sections and Subsections:

Admixtures and Curing Materials	906
Portland Cement Concrete.	905.05
Grout.....	905.10
Reinforcement Steel	908.01
Structural Steel (casings)	909.01

Temporary casings shall be smooth, non-corrugated, clean, watertight steel of ample strength to withstand both handling and driving stresses, pressures of concrete, pressures of fluids, and pressures of the surrounding earth materials. Temporary casings shall have inside diameters not less than indicated shaft sizes.

435.03 SHOP DRAWINGS

Shop, erection, and other drawings necessary for the fabrication and erection of sign support structures shall be furnished in accordance with Subsection 104.08. For the drilled shafts, the following items shall be submitted to the Engineer for approval:

1. A summary of the Contractor's or his specialized drilled shaft subcontractor's experience on projects of a similar nature and scope. The specialty subcontractor shall be selected by the Contractor and be approved by the Engineer. Approval will be based on qualifications and proof of at least 5 years of previous experience on similar projects.
2. List and size of proposed equipment including cranes, drills, augers, bailing buckets, final cleaning equipment, concrete pumps, temporary steel casing, and testing equipment.
3. Details of equipment and procedures for drilled shaft installation, including drawings showing consecutive steps of drilled shaft installation and drawings with measurements showing that the proposed equipment can perform the specified work. Included in the drawings shall be shown the areas that are planned to be used for staging, layout drawings showing the proposed sequence of drilled shaft installation, details of placement, splicing, and centering devices for steel reinforcing.
4. Mix design for the concrete and documentation from an independent laboratory showing that the mix design conforms to the submitted mix and meets the strength requirements set by the Engineer. The mix design and documentation should be submitted for approval at least 30 calendar days prior to use.
5. Details of shaft excavation methods.
6. Details of proposed methods to clean shaft after initial excavation.
7. Procedures for control and removal of spoils.
8. Details of shaft reinforcement, including methods to ensure centering/required cover, cage integrity during placement, placement procedures, and cage support.
9. Details of concrete placement including proposed operational procedures for concrete pump or tremie including initial placement, raising during placement, and overfilling of the shaft concrete, and provisions to prepare the completed shaft top at its final shaft top elevation.
10. Details of vibration monitoring and survey of existing structures and utilities within 100 feet of the casing installation, if required.

435.04 **INSTALLATION OF DRILLED SHAFTS**

The following requirements shall apply to all installations of Drilled Shafts for Bridge Foundations:

(A) Equipment.

Drilled shafts shall be installed with approved drilling equipment compatible with site constraints. The proposed drilled shaft installation equipment and methods shall be subject to the approval of the Engineer and approval shall be secured before mobilization. Approval by the Engineer shall not relieve the Contractor or drilled shaft subcontractor of his responsibility to provide equipment with sufficient power, downward thrust and torque, materials, and methods to adequately perform the work in a safe, timely, workmanlike manner. Approval shall not be reason to hold the Authority and/or the Engineer responsible for the Contractor's or drilled shaft subcontractor's failure to perform the work.

Drilled shaft installation equipment shall be capable of installing drilled shafts with the use of temporary casing. The Contractor shall provide a weighted bar with slender tip and attached to a thin cable with calibrated depth marker, metal tape, or other approved equipment suitable for confirming the completeness of the final cleaning operations.

The Contractor or his specialized subcontractor shall provide all equipment, including concrete pumps or tremie pipes required for the placement of concrete into the drilled shafts in accordance with the plans and specifications. The minimum inside diameter of concrete pump lines or the tremie pipe shall be greater than six times the maximum aggregate size.

(B) Shaft Drilling.

The Contractor shall perform the excavations required for the shafts through whatever materials are encountered, to the dimensions and elevations shown in the plans or otherwise required by these specifications. The Contractor's methods and equipment shall be suitable for the intended purpose and whatever the materials encountered. The Contractor shall provide equipment capable of constructing shafts to a depth equal to the deepest shaft shown in the plans plus 15 feet or plus three times the shaft diameter, whichever is greater, except when the plans instruct the Contractor to provide equipment capable of constructing shafts to a greater depth.

An approved fixed template, adequate to maintain shaft position and alignment during all excavation and concreting operations, shall be provided for all drilled shafts.

The Contractor shall install a suitable temporary casing for the full depth of the drilled shaft. All drilled shafts shall meet construction tolerance criteria and be installed in accordance with the dimensions as shown on the plans, or as directed by the Engineer.

The top center of each drilled shaft shall not vary from the plan location by more than 3 inches. At the top of the drilled shaft, reinforcing bars shall not vary in plan distance from the plan shaft by more than 1 inch. The drilled shaft shall not

vary from the vertical by more than one percent of its length, as measured above ground and shall not be out of the required position at the top by more than 3 inches. The plumbness shall be checked by plumbing the Contractor's extended Kelly bar with a full size drill bucket when it is down to the bottom of the drilled shaft with an accurate carpenter's level placed against the exposed part of the Kelly bar, followed by measurements of offset from the Kelly bar to the permanent casing in four compass directions.

The Contractor or his specialized subcontractor shall protect existing utilities and structures to remain within the drilled shaft installation work zone in accordance with the requirements of authorities having jurisdiction over same. The Contractor shall repair or replace any construction-induced damage to the satisfaction of the governing authority at the Contractor's expense.

The Contractor or his specialized subcontractor shall employ within his contract bid price, a licensed registered Land Surveyor, experienced in this type of work, who shall establish lines and grades. The Contractor shall be responsible for the correct location of drilled shafts and keeping a record of drilled shafts installed.

Drilled shafts shall be located and staked by the Contractor and prior to the start of installation work. The Contractor shall maintain all location stakes and shall establish all elevations required.

Unless the accuracy and precision of other methods are demonstrated to the satisfaction of the Engineer, the plan position of the center of each shaft shall be determined by optical survey measurements to a minimum of four points arranged around the shaft casing perimeter at the four compass directions. These measurements are to be geometrically averaged to calculate the best-fit mathematical center of the shaft at the measurement elevation. Then the calculated center of the shaft at the measurement level shall be reduced to calculate the mathematical center of the shaft at the proposed final shaft top elevation by adjustment using the shaft plumbness measurement information.

(C) Placing Concrete.

The handling, measuring, proportioning, mixing, and placing of concrete shall conform to Section 401 and this section. Concrete shall be placed only in the presence of the Engineer.

Concrete shall be placed using concrete pump or a tremie pipe from the bottom of the excavation upward so as to avoid segregation. Concrete shall not be allowed to fall freely. Neither air, water, nor slurry shall be injected into the shaft concrete during placement. A disposable foam or rubber plug shall be used in the concrete pump line or tremie pipe to separate the fresh concrete from the slurry at the start of concrete placement. The plug shall be inserted so that the first flow of concrete pushes the plug out of the pipe and prevents slurry mixing and contamination as the concrete placement commences. The concrete pump line or tremie shall consist of a tube constructed in section having flanged couplings fitted with gaskets. The means of supporting the concrete pump line or tremie shall be such as to permit free movement of the discharge end over the entire top of the concrete and to permit its being lowered rapidly when necessary to choke off or retard the flow. The tremie, if used, shall be filled by a method that prevents washing of the concrete. The discharge end shall be completely

submerged in concrete at all times after initiation of concrete placement flow and the concrete line shall contain sufficient concrete to prevent any water entry. Maintain the concrete level at the top of the drilled shaft until the concrete has set.

If concrete flow is halted and the concrete line's discharge end is for any reason raised out of the shaft concrete, flow shall be reinitiated only after fully recharging the concrete line with fresh concrete by 1) inserting a foam or rubber plug or pig into the concrete line at the concrete hopper end, 2) placing the discharge end approximately 6 inches above the top of the shaft concrete, 3) resuming concrete flow, recharging the pump or tremie line and depositing what will be classified as waste concrete on the top of the previously placed shaft concrete, 4) discharging waste concrete until the line is fully recharged with fresh concrete and the pig is pushed completely through the line, 5) without halting the flow of fresh concrete plunging the discharge end of the concrete line into the shaft concrete to within 6 inches or less of the shaft bottom or to a level as directed by the Engineer, 6) continuing concrete placement without further interruption, and 7) placing a final volume of additional concrete in the shaft no less than the volume of waste concrete placed to recharge the line in the process of resuming concrete flow. This procedure shall be applied without exception as necessary to avoid injecting any air, any water, any slurry, or any concrete that has flowed through a line filled with air, water, or slurry into the shaft concrete.

Final concrete placement elevation details shall be as specified herein for shaft top preparation. A hole shall not be progressed within five drilled shaft diameters of a previously installed drilled shaft until the concrete has been in place for a minimum of 2 days.

(D) Shaft Construction Timing.

Every effort shall be made by the Contractor in planning, coordinating, and carrying out the work to minimize the time between the start of excavation and completion of shaft concrete placement. Each step in the process of initially drilling, satisfactorily cleaning the shaft bottom, placing reinforcing steel, and completing concrete placement shall be coordinated to avoid delays during or between each work step. In general, the time between shaft excavation and completion of concrete placement is expected to be eight (8) continuous hours or less.

For cases where two (2) or more continuous hours elapse between completion of excavation and commencement of concrete placement, any reinforcing steel already placed in the shaft shall be removed, the shaft bottom shall be satisfactorily cleaned, reinforcing steel immediately placed in the shaft, and concrete placement immediately commenced.

(E) Shaft Reinforcing Steel.

Where shafts are extended at the direction of the Engineer to final authorized tip elevations lower than the estimated minimum tip elevations, no fewer than one-half of the vertical reinforcing steel bars (every other bar around the circumference) shall be extended to the authorized tip elevation by lap splicing or mechanical splicing. Lap splices shall be tied firmly enough to support the full weight of the reinforcing cage above the lap zone. Horizontal reinforcing

bands shall be added in the bottom extension zone at a vertical spacing no more than 6 inches center to center.

(F) Shaft Top Preparation.

If tremie concrete is used, the top-most concrete placed in the shaft shall be considered waste concrete and shall be either: (A) pushed upward and ejected completely out of the top of the casing and wasted as final concrete is placed or, alternatively, or (B) pumped upward to a level at least 2 feet clear distance above the plan shaft top level and allowed to cure in place for removal later. Waste concrete shall be considered to be the top 2 feet of initial concrete placed, plus the height of any additional volume of waste concrete deposited in the shaft where concrete placement was halted and restarted, plus any additional amount necessary to produce full strength concrete, non-segregated concrete at the plan shaft top level.

Where waste concrete alternative (A) is selected, waste concrete must be allowed to evenly overflow the full top circumference of the casing, and may not be channeled or bleed off by notches or holes cut in the casing top. Any fresh concrete in the casing at a level above the plan shaft top level after ejecting all waste concrete may be dipped or pumped out to the plan top elevation while still plastic by methods and equipment approved by the Engineer, or allowed to cure in place for removal later.

Final shaft top preparation may commence only once the drilled shaft concrete obtains an average unconfined compression strength of at least 2466 psi, or, in lieu of concrete strength testing, beginning seven (7) full days after completion of concrete placement. Final top preparation steps shall consist of (A) cutting off any extra casing above the top of casing elevation, (B) cutting off any cured over-pour concrete to the plan shaft top elevation by approved methods, (C) dressing the final shaft top surface, (D) verification by the Engineer that the exposed concrete consists of full strength concrete with a typical, non-segregated mortar and aggregate distribution, (E) approved non-destructive strength testing by the Contractor where required by the Engineer to verify that concrete has full design strength, (F) removal of additional concrete below the plan shaft top level as necessary to reach full-strength, non-segregated concrete, and (G) preparation of the shaft top key recess.

(G) Shaft Acceptance.

A comparison of the computed volume of the excavation (theoretical) with the volume of concrete placed (actual) shall be made. A plot of depth versus volume shall be computed. The contractor shall provide cooperation and whatever assistance necessary to accurately monitor the volume of concrete placed at all times during the pour.

Actual drilled shaft location data shall be submitted to the Engineer within one working day after a drilled shaft is installed. Drilled shaft subcontractor shall provide the Engineer's on-site representative with written tabulations of the following information:

1. Drilled shaft location (station and offset from project baseline).
2. Elevation of top of drilled shaft measured to the nearest 0.01 feet.
3. Deviation from design plan location measured to the nearest 0.01 feet.

4. Plumbness (deviation from vertical).

Within seven working days of the completion of installation of all drilled shafts, and before removing the drilled shaft installation equipment from the site, the Contractor shall provide the Engineer with a plan certified by a land surveyor registered in the State of New Jersey showing the as-installed location of all drilled shafts installed to the tolerances indicated in these specifications and as shown on the plans.

Unaccepted drilled shafts are drilled shafts that are rejected by the Engineer because of damage, failure to advance through obstructions, mislocation, misalignment, or failure to install the drilled shaft to the proper bearing stratum, or the results of the CSL testing indicate defects. Rejection of a shaft based on the shaft integrity testing shall require conclusive evidence that a defect exists in the shaft which will result in inadequate or unsafe performance under service loads. If the CSL records are complex or inconclusive, the Engineer may require additional testing to confirm the location of the defect. The Engineer may also require coring or excavation of the shaft to verify shaft conditions.

The Contractor shall submit a written plan of action to the Engineer for approval, showing how to correct the problem and prevent its reoccurrence. The drilled shaft shall be repaired, augmented or replaced to the satisfaction of the Engineer. To mitigate and/or to remedy unaccepted drilled shafts, the Contractor may be required to provide additional drilled shafts or supplement drilled shafts to meet specified requirements at no cost to the Authority.

When otherwise acceptably installed drilled shafts exceed the specified tolerances, the drilled shaft subcontractor shall provide an accurate as-built survey to the Design Engineer. The Design Engineer will then analyze the total loads on individual drilled shaft based on the survey data. If the load on any drilled shaft exceeds the specified load capacity by more than 10%, corrections shall be made in accordance with a design provided by the Design Engineer.

435.05

CROSSHOLE SONIC LOGGING OF DRILLED SHAFTS

The nondestructive testing method called Crosshole Sonic Logging (CSL) shall be used on all production and demonstration drilled shafts forty-eight hours after the placement of all concrete in a shaft and must be completed within 20 calendar days after the concrete placement. The Engineer may specify a longer minimum time if concrete mix designs or other factors result in slower setting concrete. The CSL tests shall be conducted by an experienced independent testing Consultant approved by the Engineer prior to testing.

(A) Preparation for Testing.

A number of tubes shall be installed in each shaft to permit access for CSL. The number of tubes installed shall be the greater of 3 or the nearest integer value of the diameter of the drilled shaft measured in feet. The tubes shall be 1.5 inch to 2.0 inch inside diameter schedule 40 steel pipe. The pipes shall have a round, regular internal diameter free of defects or obstructions, including any at pipe joints, in order to permit the free, unobstructed passage of a 1.3 inch diameter source and receiver probes. The tubes shall be watertight and free from

corrosion with clean internal and external faces to ensure passage of the probes and a good bond between the concrete and the tubes.

The pipes shall each be fitted with a watertight shoe on the bottom and a removable cap on the top. The pipes shall be securely attached to the interior of the reinforcement cage. The tubes shall be installed in each shaft in a regular, symmetric pattern such that each tube is equally spaced from the others around the perimeter of the cage. The Contractor shall submit to the testing organization his selection of tube size, along with his proposed method to install the tubes, prior to construction. The tubes shall be as near to parallel as possible.

The tubes shall extend from 6 inches above the shaft bottoms to at least 3 feet above the shaft tops. Any joints required to achieve full-length tubes shall be made watertight. Care shall be taken during reinforcement installation operations in the drilled shaft hole so as not to damage the tubes. After placement of the reinforcement cage, the tubes shall be filled with clean water as soon as possible. After the tubes are filled with water, the tube tops shall be capped or sealed to keep debris out of the tubes prior to concrete placement. The pipe caps or plugs shall not be removed until the concrete in the shaft has set. Care shall be exercised in the removal of caps or plugs from the pipes after installation so as not to apply excess torque, hammering, or other stresses which could break the bond between the tubes and the concrete.

(B) CSL Testing.

CSL tests shall be conducted between pairs of tubes. The approved testing organization shall test two principle diagonals through the center and between each tube pair around the perimeter of all tested shafts. Additional logs shall be conducted at no additional cost in the event anomalies are detected. The CSL tests shall be carried out with the source and receiver probes in the same horizontal plane unless test results indicate potential defects in which case the questionable zone may be further evaluated with angled tests (source and receiver vertically offset in the tubes).

CSL measurements shall be made at depth intervals of 0.2 feet or less, and shall be done from the bottom of the tubes to the top of each shaft. The probes shall be pulled simultaneously, starting from the bottoms of the tubes, over a depth measuring device. Any slack shall be removed from the cables prior to pulling to provide for accurate depth measurements of the CSL records. Any defects indicated by longer pulse arrival times and significantly lower amplitude/energy signals shall be reported to the Engineer and further tests shall be conducted as required to evaluate the extent of such defects.

(C) CSL Test Results.

The CSL results shall be presented to the Engineer in a report. The report shall include recommendations as to the acceptability, unacceptability, soundness, etc., of the drilled shaft. The report shall be checked, stamped approved, and signed by a Professional Engineer registered in New Jersey. The report shall be submitted directly to the Engineer. The test results shall include CSL logs with analyses of:

- a. Initial pulse arrival time versus depth
- b. Pulse energy/amplitude versus depth

A CSL log shall be presented for each tube pair tested with any defect zones indicated on the logs and discussed in the test report as appropriate.

(D) Evaluation of CSL Test Results.

The Engineer will evaluate the CSL test results and determine whether or not the drilled shaft construction is acceptable. If the Engineer determines that the drilled shaft is acceptable, the CSL tubes shall be dewatered and grouted. The grout shall be of the same strength or higher than the strength of the concrete used in the original drilled shaft. The Contractor's grout mix shall not include calcium chloride based additives. If the Engineer determines that the drilled shaft is unacceptable, the shaft shall be cored to allow further evaluation of the shaft. Cores shall be taken without additional compensation.

(E) Further Evaluation.

If the CSL records are inconclusive or show an anomaly, the Engineer may require coring or the performance of Crosshole Tomography to verify the shaft condition. The details of the Crosshole Tomography, if directed by the Engineer, shall be submitted for review and approval. The Crosshole Tomography analysis shall include the development of three dimensional volumetric images for the entire shaft. This shall be presented in color and coded to indicate variations in sonic velocity. The images and complete discussion of the data shall be presented in the report by the testing firm.

435.06 MEASUREMENT

Drilled shafts for bridge foundations will be measured by the linear feet. The limits for payment for drilled shafts will be as shown on the Plans. Furnishing equipment, mobilization for drilled shaft installation, CSL testing or any further evaluation will not be measured, and all costs shall be included in the drilled shafts.

435.07 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
30" Diameter Drilled Shaft.....	Linear Feet

No separate payment will be made for reinforcement steel in the drilled shafts, steel pipe for CSL testing, grout for filling the CSL pipes, dewatering of the CSL pipes, disposal of excess material, and concrete within the drilled shaft limits shown on Plans. The costs thereof shall be included in the above drilled shaft pay item.

No separate payment will be made for obstructions, rock material, or whatever material is encountered.

No separate payment will be made for CSL testing and/or further evaluation associated with determining the integrity of the drilled shaft.

Payment for the removal and disposal of acid-producing soils will be made in accordance with Section 213.

The contract items and unit price bids set forth in the bid schedules shall include all services, permits, labor, equipment, transportation, materials, testing, and supplies for the complete work, including, without limitation, mobilization and demobilization for completion of the work. No payment will be made for drilled shafts abandoned because of defects in the work or other fault of the Contractor or his drilled shaft subcontractor.

The following Section is added:

SECTION 436 - HIGH-LOAD MULTI-ROTATIONAL BEARINGS

436.01 DESCRIPTION

High-Load Multi-Rotational (HLMR) bearings shall be defined as bearings that consist of an element that allows rotation about any horizontal axis, and may in addition have sliding surfaces to accommodate translation. Translation may be constrained to a specified direction by guidance mechanisms. Bearings may be furnished by any of the Qualified Manufacturers. However, only one type of bearing from one Qualified Manufacturer (Manufacturer) shall be used on a structure.

This work shall consist of the design, furnishing, and fabrication of HLMR bearings. Installation of the bearings shall be the responsibility of the Contractor, in accordance with the Manufacturer's recommendations. Bearings shall be designed based on the loads and movements as described on the Plans. All designs for all elements shall conform to the latest editions (with interims) of the AASHTO-LRFD Bridge Design Specifications, the NJTA Design Manual and these Specifications.

This work shall also include the furnishing, and fabrication, and installation of masonry plates, sole plates, anchor bolts, hardware, and bearing pads as shown on the Plans, described herein, recommended by the Manufacturer, or otherwise required to furnish completely installed and functioning HLMR bearings.

Where applicable, this work shall also include the bearing seat preparation including existing anchor bolt removals, as indicated on the Plans or as otherwise required to install the new HLMR bearings.

This work shall also include on-site supervision and technical support furnished by the Manufacturer to assist the Contractor with the installation of the HLMR bearings.

Materials, testing, and fabrication/construction operations not specifically denoted on the Plans and in these Specifications shall be in accordance with the current AASHTO LRFD Bridge Construction Specifications.

436.02 MATERIALS

Steel used for the fabrication of bearing assemblies shall conform to ASTM A709, Gr. 36, Gr. 50, or Gr. 50W, or an approved equivalent, except for steel that is used for guidance or shear restriction mechanisms. The guidance and shear restriction mechanisms shall be in accordance with the Manufacturer's specifications as approved by the Engineer.

Materials not otherwise specified in this Section shall conform to the following Subsections:

Bolts and Bolting Materials.....	909.02
Bearing Pads	923.02(C)

436.03 QUALIFIED MANUFACTURERS

Where High-Load Multi-Rotational bearings are noted on the Plans for use, approved products from any Qualified Manufacturer may be provided. The following Manufacturers are qualified for use:

1. R.J. Watson, Inc.
78 John Glenn Drive
Amherst, NY 14228
Telephone: 716-691-3301
2. The D.S. Brown Company
300 East Cherry Street
North Baltimore, OH 54872
Telephone: 419-257-3561
3. AMSCOT Structural Products Corp.
241 East Blackwell Street
Dover, NJ 07801
Telephone: 973-989-8800
4. Earthquake Protection Systems
451 Azuar Drive; Building 759
Mare Island, Vallejo, CA 94592
Telephone: 707-644-5993

436.04 WORKING DRAWINGS

Working drawings, including design calculations, shall be furnished to the Engineer in accordance with Subsection 104.08. The following information shall be included:

1. The total quantity of each kind of bearing required (fixed, guided expansion, or non-guided expansion), grouped first according to load range and then by actual design capacity.
2. Plan view and section elevation including all dimensions required for fabrication.
3. Details of all components and sections showing all materials incorporated into the bearing.
4. All ASTM, AASHTO, and other applicable material designations.
5. The maximum design coefficient of friction for all sliding surfaces.
6. Details of any welding process used in the bearing manufacture that does not conform to the approved processes of the current ANSI/AASHTO/AWS D1.5 Bridge Welding Code or the ANSI/AWS D1.6 Structural Welding Code - Stainless Steel.

7. Vertical, horizontal, rotation, movement, and load capacities.
8. A schedule of all bearing offsets, where required, to ensure proper bearing alignment under full dead load.
9. Alignment plans.
10. Paint or coating requirements, as required.
11. Installation scheme.
12. Complete design calculations verifying conformance with the provisions of this Section.
13. Anchorage details.
14. Bearing pre-set details.
15. Location of the fabrication plant.
16. The Manufacturer's name and the name of its representative responsible for coordinating production, sampling and testing, and field supervision of bearing installation(s).
17. The Manufacturer's certification package, according to Subsection 105.04, that shall contain the following:
 - a. Material test reports for all steels used except AISI C1018 and C1020 for which a mill conformance certificate is acceptable.
 - b. Certificate of Compliance for all non-ferrous metals.
 - c. Material test reports for any elastomeric components.
 - d. Certificate of Compliance for PTFE and any adhesive used.
 - e. A Certificate of Compliance for the bearings, executed by an officer of the Manufacturer.
 - f. Certificate of Compliance for any dowels or bolts supplied.
 - g. Test reports for the performance tests.
18. Completed as-built bearing table.

The design calculations and working drawings shall be signed and sealed by a Professional Engineer licensed in the State of New Jersey. The working drawings must be approved by the Engineer before fabrication of the bearings begins. Such approval shall not relieve the Contractor of any responsibility under the contract for the successful completion of work.

436.05 FABRICATION OF HLMR BEARING ASSEMBLIES

(A) Fabrication

Section 18 - Bearings of the AASHTO LRFD Bridge Construction Specifications shall be followed for the fabrication of HLMR Bearing assemblies.

(B) Coating of Steel Surfaces

All surfaces, except those defined below shall be coated. The surfaces to be coated shall be shown on the working drawings. Coatings shall not impair the clarity of the bearing identification markings. All flame cut edges of the bearing plates shall be ground to reduce hardness and facilitate blast cleaning. All corners of the sole plate shall be rounded to a 1/16 inch radius. All exposed plain steel surfaces shall be blast cleaned to a near white finish. For all bearings, the pot cavity and all sliding surfaces shall not be coated.

- (1) Bearings for Steel Superstructures:

Bearings shall be painted in accordance with Specification Section 411. Quality assurance inspection of coatings will be in accordance with Specification Section 411.

(2) Bearings for Concrete Superstructures:

Bearings shall either be galvanized in accordance with ASTM A-123 or ASTM A-153, as appropriate, or zinc metalized in accordance with AWS C2.2 to a finished coating minimum thickness of 10 mil. Quality assurance inspection will be performed by using magnetic thickness gauges.

(C) Testing

Testing shall be performed in accordance with the LRFD Bridge Construction Specifications prior to installation of the bearings, and in the presence of the Engineer. The following provisions shall also apply:

(1) The Long Term Deterioration Testing:

- (a) Bearing Design Configurations- Testing shall be conducted on two full size bearings placed back-to-back. Bearing design configurations which comply with these provisions based on prior testing will be considered as prequalified for use without the need for further long term deterioration testing.
- (b) Bearing Materials - Testing shall be conducted on samples of materials used in the fabrication of each lot of 25 or less bearings.

(D) Packing and Shipping

- (1) Bearings shall be securely banded together, as units, by the Manufacturer. They shall be shipped to the project site and stored without relative movement of the bearing parts or disassembly at any time. The bearings shall be wrapped in moisture resistant and dust resistant material to protect them against shipping, weather, job site conditions, and all other normal hazards.
- (2) Each bearing shall be marked in a permanent fashion that will be visible after application of any paint coatings. The marking shall consist of the letters "N.J.T.A.", the location, orientation, order number, lot number, bearing identification number, bridge number, and month and year of manufacture. Unless otherwise specified in the Contract Documents, the marking shall be on a face which is visible after erection of the bridge.
- (3) The bearings shall be inspected within one week after arriving on the project. They shall not be disassembled unless the Manufacturer's representative is present. Following the inspection, they shall be re-wrapped and kept clean until installation.
- (4) The services of an on-site technical representative, to assist and provide guidance prior to the initial installation of the bearing assembly, shall be provided by the Manufacturer.
- (5) When installed, bearings shall be clean and free of all foreign substances.
- (6) The sole and top plates of the bearings shall not be removed for separate attachment to the structure except under the direct supervision of the Manufacturer.
- (7) With each shipment, a copy of the materials, fabrication and testing compliance certifications shall be enclosed. For all materials used, the Manufacturer shall supply certification data consisting of test reports on the bearing performance tests, for any forgings, castings, or hardened material,

mill certificates for all other steel used, a certificate of compliance for the bearing as a whole, and for all anchor bolts, dowels or other accessories, as required.

- (8) The Manufacturer shall supply a separate sheet showing the materials, critical dimensions, and clearances for each bearing.

436.06 MEASUREMENT

High-Load Multi-Rotational (HLMR) bearings shall be measured by the number of each installed bearing.

436.09 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
HLMR Bearing, 200 Kips to 300 Kips, Type E.....	Each
HLMR Bearing, 250 Kips to 500 Kips, Type E.....	Each
HLMR Bearing, 1,000 Kips to 1,700 Kips, Type F.....	Each

Payment for HLMR bearings shall include all work associated with design, fabrication, delivery, and construction support required to install the bearings and associated hardware. No separate payment will be made for bedding material, anchor bolts, sole plate, masonry plate, coatings, or field welds required to install the bearings.

No separate payment will be made for costs required to provide on-site construction support to the Contractor.

DIVISION 500 – INCIDENTAL CONSTRUCTION

SECTION 501 – UNDERDRAINS

501.05 PAYMENT

The following is added:

Separate payment will not be made for labor, materials or equipment necessary to install underdrain or outlet pipe into existing or proposed drainage structures.

Separate payment will not be made for the replacement of underdrains damaged by the careless action of the Contractor.

Replacement of existing underdrains in conflict with the proposed construction will be done as directed by the Engineer. Payment will be made for the length of underdrain installed.

SECTION 502 – STORM DRAINS

502.02 MATERIALS

The following is added:

High Density Polyethylene (HDPE) Pipe917.08

502.03 METHODS OF CONSTRUCTION

The following is added:

(J) HDPE PIPE.

Installation shall be in accordance with ASTM D2321, and as per the manufacturer's latest installation guidelines.

502.05 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
12" High Density Polyethylene Pipe	Linear Foot
12" High Density Polyethylene Elbows	Each
14" x 23" Reinforced Concrete End Sections	Each
14" x 23" Reinforced Concrete Elliptical Pipe, Class III.....	Linear Foot
14" x 23" Reinforced Concrete Elliptical Pipe, Class IV.....	Linear Foot

<i>PAY ITEM</i>	<i>PAY UNIT</i>
19" x 30" Horizontal Elliptical Reinforced Concrete Pipe	Linear Foot
19" x 30" Reinforced Concrete Elliptical Flared End Sections	Each
19" x 30" Reinforced Concrete Elliptical Pipe, Class V	Linear Foot
22" x 34" Reinforced Concrete Elliptical Pipe	Linear Foot
24" x 38" Reinforced Concrete Elliptical Pipe	Linear Foot
24" x 38" Reinforced Concrete Elliptical Pipe, Class V	Linear Foot
29" x 45" Reinforced Concrete Elliptical Pipe	Linear Foot
29" x 45" Reinforced Concrete Elliptical Flared End Sections	Each
34" x 53" Reinforced Concrete Elliptical Pipe	Linear Foot
43" x 68" Reinforced Concrete Elliptical Pipe	Linear Foot
43" x 68" Reinforced Concrete Elliptical Flared End Sections	Each

Separate payment will not be made for the disposal of excess excavated material, temporary pumping or dewatering, or for any temporary concrete pipe and inlets necessary to maintain flow during stage construction, but the cost thereof shall be included in the cost of those items constructed.

Separate payment will not be made for bracing, shoring, sheathing, sheet piling, or other methods necessary for construction, but the cost thereof shall be included in the cost of those items constructed.

SECTION 503 - MANHOLES AND INLETS

503.01 DESCRIPTION

The following is added:

This work shall also include construction of drainage chambers, outlet structures and flow control structures as described at the designated locations to the prescribed lines, grades and dimensions, in accordance with the Plans, Specifications and Construction Detail plan requirements.

This work shall also include installing and removal of heavy duty grates as indicated on the Maintenance and Protection of Traffic Plans.

503.03 METHODS OF CONSTRUCTION

The following is added:

Construction of drainage chambers, outlet structures, offset inlets, and flow control structures shall be in accordance with the requirements for inlets and manholes.

503.04 MEASUREMENT

The following is added:

Flow control structures, drainage chambers, offset inlets, and outlet structures will be measured by the number each.

Heavy Duty Frame with Bolted Grates for D-1 and D-2 Inlets will be measured by the number of each installed. Heavy Duty Filled in Grates will be measured by the number of grates installed.

503.05 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Inlet, Type Double D1	Each
Inlet, Type Double D1 Modified #1.....	Each
Inlet, Type Double D3	Each
Flow Control Structure.....	Each
Drainage Chamber.....	Each
Outlet Structure.....	Each
Offset Inlet.....	Each
Heavy Duty Frame with Bolted Grates for D-1 Inlets.....	Each
Heavy Duty Frame with Bolted Grates for D-2 Inlets.....	Each
Heavy Duty Filled In Gate	Each

Separate payment will not be made for the disposal of excess excavated material, temporary pumping or dewatering, or for any temporary concrete pipe and inlets necessary to maintain flow during stage construction, but the cost thereof shall be included in the cost of those items constructed.

Separate payment will not be made for bracing, shoring, sheathing, sheet piling, or other methods necessary for construction, but the cost thereof shall be included in the cost of those items constructed.

Separate payment will not be made for the removal of existing castings, temporary storing and final placement of the existing castings on existing drainage structures at the locations where heavy duty frames with bolted grates or filled in grates are noted on the plans.

SECTION 504 - MINOR CONCRETE STRUCTURES AND INCIDENTAL CONCRETE

504.01 DESCRIPTION

The following is added:

This work shall consist of furnishing and constructing articulated concrete block spillway lining system, including all incidental items required.

504.02 MATERIALS

The following is added:

Articulated Concrete Block Spillway Linings	923.41
---	--------

Common Embankment shall conform to Subsection 203.02.

504.03 METHODS OF CONSTRUCTION

The following is added:

Immediately before the construction of the slope or channel protection, the slopes or ground surface shall be trimmed conforming to the lines and grades and shall be thoroughly compacted by mechanical or vibrating tampers or rollers.

Areas on which filter fabric and Articulated Concrete Block Spillway Lining (ACBSL) are to be placed shall be graded to a smooth plane surface to ensure that intimate contact is achieved between the slope face and the geotextile, and between the geotextile and the bottom surface of the ACBSL. All slope deformities, roots, grade stakes and stones which project normal to the local slope face must be removed. No holes, "pockmarks", slope board teeth marks, footprints, or other voids greater than 1 inch in depth normal to the local slope face shall be permitted. Where such areas are evident, they shall be brought to grade by placing compacted homogeneous material.

The eroded areas of the slopes shall be filled with Common Embankment, regraded and thoroughly compacted by the use of mechanical or vibrating tampers or rollers, so that the original grade of the slope is attained.

(C) Articulated Concrete Block Spillway lining.

Drawings shall be submitted that show details of the Articulated Concrete Block Spillway Lining (ACBSL) and Geotextile Installation. The details shall show the block layout patterns in relation to the feature alignment, anticipated locations of cast-in-place concrete joints, spillway lining junction details, soil anchors, and proposed installation methods for void filling materials. Descriptive technical data shall be submitted on the blocks, cables, cable fittings, soil anchors, and geotextile. Catalog cuts, technical data sheets, or test data shall be submitted showing that the products meet the specifications. The submittal shall also include a copy of any standard manufacturer's warranties for the products. Contractor shall submit calculations for the anchor pullout capacity. Tabulated manufacturer's data is acceptable, if the embedment soil conditions are applicable to the project site. At the same time as the ACBSL and Geotextile Data submittal, the Contractor shall submit a report of testing for the ACBSL in substantial conformance with FHWA RD-89-199. The report shall clearly state if the critical shear stress associated with the stability threshold of the ACBSL system was derived from laboratory testing that included a sub-block drainage layer as a component of the tested system.

Geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. The geotextile shall be free of tension, folds, and wrinkles. The number of seams and overlaps shall be minimized by selective orientation of geotextile panels, within the limitations of maintaining a consistent pattern. Seams shall be overlapped a minimum of 18 inches. Seams on slopes and butt end seams shall be shingled so that runoff and channel flow passes over the fabric. Geotextile panels shall be secured before block placement by adequate sandbags, spare blocks, or pins/staples. Geotextile shall be placed immediately prior to block installation, if necessary to limit damage to the geotextile from equipment or

repeated pedestrian traffic and limit disturbance of the subgrade from precipitation or runoff.

Placement of pre-assembled linings shall be done with linings attached to a spreader bar to aid in lifting, aligning and placing the linings. The linings shall be placed directly into position, with a maximum space or gap between linings of 3 inches in excess of the nominal joint spacing of blocks within the lining. Linings out of alignment shall be lifted and reset. Linings shall not be pushed or pulled laterally after they are in contact with the geotextile. No overlapping of mats will be accepted and no blocks shall project vertically more than 1 inch beyond the adjacent blocks. As adjacent mats are placed, they shall be secured to each other by fastening the protruding horizontal and vertical cable connections and end cable loops together along each side of the mats.

Anchors shall be carefully positioned for attachment to the articulating concrete block. Rigid shafts shall align with the ACBSL cables. Flexible anchors (cables, etc.) shall be linear between the ACBSL fastener and the restraining device before tensioning. Penetrations in the geotextile to allow for penetration of the anchor shall be sealed in accordance with the shop drawing details.

Eyebolt anchors shall be drilled into the existing south abutment breastwall and grouted into place as indicated on the plans and in accordance with Subsection 401.9 (A). Concrete backfill adjacent to walls shall be constructed by placing concrete on the prepared subgrade surfaces in accordance with the requirements of Subsection 514.03.

The outer edge of the ACBSL adjacent to the retaining walls shall be embedded at 1:1 slope and backfilled with Class "C" concrete reinforced with steel rebar.

The outer edge of the ACBSL along the existing ground and within the river shall be embedded at 2:1 slope and backfilled with riprap.

Concrete blocks shall be removed for the installation of guide rail and fence posts as needed. Voids created by removal of concrete blocks shall be backfilled with gravel. Removal of blocks shall be completed after the installation of the lining. Voids of the articulating concrete block mats shall be filled with aggregate void filler conforming to the requirements of Section 902. All cable ties and anchoring shall be completed prior to filling voids.

504.04 MEASUREMENT

The following is added:

Articulated concrete block spillway lining will be measured by the surface area. The area measured for payment will be the smaller of either the coverage area shown on the plans, or the area of articulated concrete block mattress actually installed.

504.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Articulated Concrete Block Spillway Lining.....	Square Yard

Payment for Excavation will be made in accordance with Section 202.

Payment for Articulated Concrete Block Spillway Lining shall include geotextile, reinforcement cables, miscellaneous concrete and tie-ins. Separate payment will not be made for dewatering, cofferdams, bracing, shoring, sheeting, sheet piling or other methods necessary for construction. All costs for these items shall be included in the price bid for the Articulated Concrete Block Spillway Lining.

SECTION 508 – CONCRETE MEDIAN BARRIER

508.01 DESCRIPTION

The following is added:

This work shall also consist of the construction of Variable Message Sign (VMS) Equipment Medians.

This work shall also include the reconstruction of concrete barrier to accept standard guide rail connections.

508.02 MATERIALS

The following is added:

Common Embankment	203.02(A)
Fencing.....	914
Class A Concrete	905.05(A)
Concrete Penetrating Sealer.....	923.06(G)

508.03 METHODS OF CONSTRUCTION

The following is added:

Shop drawings shall be submitted in accordance with Subsection 104.08 of the Standard Specifications for all components of the VMS Equipment Median.

Where shown on the plans and as directed by the Engineer, the Contractor shall construct VMS Equipment Medians in accordance with the details shown. Median barrier shall be constructed as specified in Subsection 508.03(A). Conduits, junction boxes, cabinet foundations, power equipment, and wiring shall be provided as shown on the Plans. Install power equipment on the VMS Median as shown on the Plans.

(C) Extrusion of Slip-Form Construction - Roadway Section.

The following is added:

Variable height concrete median barrier will require site specific different forms than those normally associated with this work. Special extrusion (slip-form)

equipment and techniques will be required for molding the variable height median barrier. The narrower than normal median width in some areas of the proposed variable height barrier may also restrict the Contractor’s choice of equipment.

The following is added:

(F) Barrier Reconstruction to Accept Standard Guide Rail Connections

Remove existing guiderail and attachments to the limits required for Attachments Type A or B, as applicable. Remove existing concrete barrier and reinforcement steel to the limits shown on the Plans. Clean and epoxy coat reinforcement steel to remain. Reconstruct the barrier in accordance with the Plans and Standard Drawing GR-11. Apply concrete penetrating sealer. Attach appropriate barrier parapet connection to the reconstructed barrier..

The location, barrier reconstruction type and parapet construction type are shown on the Plans.

508.04 MEASUREMENT

The following is added:

VMS Equipment Medians will be measured by the number of each constructed to the limits shown on the plans.

Barrier reconstruction of the various types to accept standard guide rail connections will be measured by the number of each reconstructed.

Ramp SOT existing median removal and reconstruction as noted on the plans will be measured on a lump sum basis.

508.05 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
VMS Equipment Median.....	Each
Barrier Reconstruction, Type 1.....	Each
Barrier Reconstruction, Type 2.....	Each
Barrier Reconstruction, Type 3.....	Each
Existing Median Removal and Reconstruction (Ramp SOT).....	Lump Sum

No separate payment will be made for concrete penetrating sealer, the removal and replacement of the guide rail attachments and all required materials and hardware at each barrier reconstruction location.

Overhead sign structure footings, drilled shafts, anchor bolts and reinforcement steel will be paid for separately as per Division 400.

No separate payment will be made for conduits, junction boxes, foundations, concrete slab, embankment material under the slab, power equipment, and wiring installed within the limits of the VMS Equipment Median. All costs thereof shall be included in the VMS Equipment Median Pay Item. Payment for installation of SCC cabinet within the VMS Equipment Median shall be made as per Division 600.

Except as otherwise noted on the plans, all work related to the Ramp SOT existing median removal and reconstruction will be included under the Lump Sum pay item.

Conduits, wiring, manholes/junction boxes and cabinets located outside the limits of the VMS Equipment Median will be paid as per Division 600.

SECTION 509 - SIGN PANELS

509.03 METHODS OF CONSTRUCTION

(O) SIGN REMOVALS

The following is added to the end of this Paragraph:

The existing lighting on sign structures where sign panels will be removed shall be removed or relocated as necessary.

509.04 MEASUREMENT

The fifth paragraph is deleted.

509.05 PAYMENT

The following is added:

Removal of existing ground mounted signs, sign posts and foundations will be paid for as Roadway Excavation and Embankment.

No separate payment will be made for 4" tube post for sign panels mounted on concrete median barrier, but the cost thereof shall be included in the square foot bid price for standard sign panel. See NJTA Standard Dwg, SI-27 for concrete median barrier mounted sign details.

No separate payment be made for the attachment of signs to bridge piers but the cost thereof shall be included in the square foot bid price for sign panels.

No separate payment will be made for the removal or the relocation of existing lighting for sign panels relocated or removed on existing overhead sign structures. The cost of the lighting relocation and all necessary hardware shall be included in the cost of the sign panel relocation.

SECTION 510 - GUIDE RAIL

Delete this Section in its entirety and replace with the following:

510.01 DESCRIPTION.

Guide Rail shall consist of steel rail elements mounted on steel posts and recycled/synthetic blockouts, with terminal anchorages, end treatments and connections in accordance with the Plans. Work shall include removal, furnishing and installing, realigning, raising, salvaging existing single-face and double-face beam guide rail, and resetting guide rail with salvaged material.

When applicable, this work shall also include the installation of end terminals in accordance with manufacturer's recommendations. The Contractor and Subcontractor (if applicable) will be required to have their foremen and superintendents (at a minimum) attend a mandatory training session presented by the manufacturer, prior to the start of construction.

510.02 MATERIALS.

Materials shall conform to the following Subsections:

Rail Element	915.01
Posts	915.02
Blockouts	915.02
Rub Rail	915.05
Miscellaneous Hardware	915.03
Circular Reflectors	915.06
Expansion Anchors	909.02 (E)
Adhesive Anchors	909.02 (F)
Concrete	905.05
Reinforcement Steel	908.01

Portland cement concrete for anchorages and post foundations shall conform to Section 905, Class B.

All metal components along the Turnpike shall be galvanized in accordance with Subsection 909.11.

Use the latest non-gating, guide rail end treatments that are NCHRP 350 tested, test level 3 (TL-3), approved. Ensure that the components of the end treatment comply with the NCHRP 350 approved end treatment details.

510.03 METHODS OF CONSTRUCTION

Prior to installing posts, the location of underground electrical conduits and other utilities, which may conflict with the posts, shall be determined. The Contractor must call (800) 272-1000 for a utility markout in accordance with Subsection 106.18. Post spacing may be adjusted by 6 inches or double brackets may be used, as approved, to eliminate such conflicts. The Contractor's attention is directed to Subsection 106.18, pertaining to utilities. Test pits, as directed, shall be made as specified in Section 522.

The rail elements shall be constructed with the top edge in a straight line or smooth curve parallel to or concentric with the roadway. Where a vertical transition is required, the top edge of rail elements shall form the chords of a smooth vertical curve. Attach the beam guide rail element to the blockout at every post.

No punching, drilling, reaming, or cutting of the rail elements will be permitted in the field unless specifically approved by the Engineer. Neither torchcutting nor welding of rail elements will be permitted. All new material shall be furnished, except where resetting, realigning, raising, or salvaging is called for. Damaged galvanized surfaces shall be repaired in accordance with Subsection 403.16.

The installation shall be made in such a manner that no unprotected end is exposed to approaching traffic.

(A) Beam Guide Rail.

Within the same working day, replace all existing beam guide rail that is removed. Where possible, install new beam guide rail exposed to approaching traffic before the removal of the existing system.

If it is suspected that conduit is present, the Engineer may require tests. Locate and repair damage to the electrical conduit due to construction operations.

Drive beam guide rail posts to the required position. Ensure that posts are driven plumb, properly spaced, and to the line and grade shown.

Install the required bridge attachment type as shown on the Plans. Mount bridge beam guide posts as shown on the Plans.

Repair damage to the galvanized coating, if applicable, according to ASTM A 780.

(B) Safety Walk and Parapet Connections.

Safety Walk and Parapet connections of the types required shall consist of terminal connector, back-up plate(s), rail element(s), posts, and blockouts. Bolt holes through the parapets shall be core drilled through existing parapets or formed through new parapets using non-corroding sleeves for each bolt.

(C) Post Weldments.

Post Weldments shall consist of a base plate, welded to a modified guide rail post with bracket, and bolted to a concrete anchorage. The Post Weldment shall be set plumb, properly spaced, and to the prescribed line and grade.

The holes for anchor bolts shall be drilled with a masonry drill. Drill bit sizes for anchor bolt holes shall conform to ANSI Standards. Holes shall be properly spaced and located. Anchor bolts shall be as called for in Subsection 909.02(E) or (F).

Precautions shall be taken, so that concrete is not damaged during drilling for anchor bolts. Any damage to the existing concrete shall be repaired without additional compensation. Any alternate concrete anchorages shown on the plans may be substituted with the Engineers approval, provided sufficient depth is available.

Welding shall conform to the ANSI/AASHTO/AWS D1.5 Bridge Welding Code, with the exception that the welding of the tubular structures shall be done in accordance with the ANSI/AWS D1.1 Structural Welding Code.

(D) Rub Rail.

When rub rail is required, bolt rub rail consisting of a steel channel or a bent plate to the beam guide rail posts.

(E) Terminals and Anchorages.

At least 10 days before beginning the work, submit the manufacturer’s recommendations to the Engineer. Install terminals and anchorages according to the manufacturer’s recommendations.

Excavate for post holes and concrete anchorages as specified in Subsection 206.03. Backfill and compact using the directed method as specified in Subsection 206.03.

(F) Removal of Beam Guide Rail.

Removal of Beam Guide Rail shall consist of dismantling, removing and disposal of guide rail elements, posts, blockouts and hardware. Work shall include cutting existing anchor bolts flush with concrete surfaces and refilling and patching post holes with material similar to that of the adjoining area.

After removing beam guide rail, backfill the post holes and compact the area to the elevation of the adjacent surface. Materials and debris shall be disposed of in accordance with all applicable Federal, State and Local laws.

510.04 MEASUREMENT

Beam Guide Rail will be measured by the length in place along the top of rail between centers of end posts, excluding the pay limits for parapet connections, safety walk connections, anchorages and end terminals. Dual-faced rail items will be measured by the linear foot along the face of one rail excluding end terminals.

Rub Rail will be measured by the linear foot along the face of the rail.

Beam Guide Rail Anchorages, Parapet Connections, Beam Guide Rail Buried End Terminals, Flared Guide Rail Terminals, Tangent Guide Rail Terminals, Telescoping Guide Rail End Terminals, and Beam Guide Rail Post Weldments will be measured by the number of each installed.

Removal of Beam Guide Rail will be measured by length of existing beam guide rail removed, as shown on the plans, and as directed by the Engineer.

510.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Beam Guide Rail.....	Linear Foot
Beam Guide Rail, Dual-Faced	Linear Foot

Beam Guide Rail Anchorage	Each
Parapet Connection, Type A.....	Each
Parapet Connection, Type B	Each
Beam Guide Rail Buried End Terminal.....	Each
Flared Guide Rail Terminal	Each
Tangent Guide Rail Terminal	Each
Beam Guide Rail Post Weldment.....	Each
Removal of Beam Guide Rail.....	Linear Foot
Rub Rail	Linear Foot
Telescoping Guide Rail End Terminal	Each

No separate payment will be made for the earthwork necessary to install buried end terminals.

SECTION 511 - FENCING

511.02 MATERIALS

The following is added:

Fence slats shall be Hedge Green plastic slats as manufactured by Master Halco, 4000 W Metropolitan Dr., Suite 400, Orange CA, or approved equal.

511.03 METHODS OF CONSTRUCTION

The following is added:

Fence slats shall be installed from the top to the bottom of the chain link fabric of the fence.

Where indicated on the plans, existing fences shall be reset to conform to the revised ground elevations. Existing fence materials, including slats where present, shall be reused. Reset fence shall be installed using the same methods as for new fence.

511.04 MEASUREMENT

The following is added:

Fence screen slats will be measured by the linear foot of fence screened.

Reset fence will be measured by the length, in place, at the bottom of the fabric along the line of the fence.

511.05 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Reset Fence.....	Linear Foot
Fence Screening Slats.....	Linear Foot

No separate payment will be made for replacement of damaged or unusable existing materials within the limits of reset fence.

SECTION 514 – SIDEWALKS

514.01 DESCRIPTION

The following is added:

This work shall also include the construction of concrete islands.

514.02 MATERIALS

The following is added:

Material for Portland cement concrete islands shall conform to Subsection 401.02.

514.03 METHODS OF CONSTRUCTION

(B) Portland Cement Concrete Sidewalks.

The first sentence is change to read:

Sidewalks, slabs and islands shall be constructed in accordance with Section 401 and the Following:

The provisions that apply to sidewalk construction in this section shall also apply to concrete island construction..

514.04 MEASUREMENT

The following is added:

Concrete islands will be measured by the surface area of the horizontal projection.

514.05 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Concrete Island, 4" Thick.....	Square Yard

SECTION 515 – DELINEATORS

515.02 MATERIALS.

Delete the second and third paragraphs of paragraph 515.02(C), and replace them with the following:

The nominal marker width shall be 3.75 inches in order to accommodate a four-inch wide reflector and provide adequate daytime delineation.

The marker shall be of such length to provide the required height above the road surface with a minimum embedment of 24 inches.

SECTION 516 – PAVEMENT STRIPES

516.01 DESCRIPTION

The following is added after the second paragraph:

The work shall also consist of diamond grinding portland cement concrete bridge deck surfaces for contrast striping recessing and applying contrast stripes.

The fourth and fifth paragraphs are deleted and replace with the following:

Permanent traffic stripes on the Garden State Parkway and New Jersey Turnpike for all roadways, bridges, toll plazas and all entrance/exit ramps, shall be applied with long life, extruded thermoplastic traffic paint material. Permanent traffic stripes on State roadways shall be applied with long life, epoxy resin traffic paint material.

516.02 MATERIALS

The following is added:

PREFORMED CONTRAST MARKING TAPE 913.05

516.04 METHODS OF CONSTRUCTION

(A) New Pavement Striping

The following is added after the eighth paragraph:

Diamond grinding shall be performed to prepare the concrete deck surface for the contrast striping. The transverse deck grooving shall be completed before the diamond grinding. Equipment shall include a free-floating cutting or grinding head to provide a consistent recess depth over irregular pavement surfaces. The grinding or cutting head shall be equipped with diamond saw blades. Diamond saw blades shall be used on the cutting head to provide a smooth surface in the bottom of the recess. Immediately prior to the application of the contrast striping, the recess shall be cleaned with high-pressure air to remove debris and dust generated during the cutting operation. The groove must be clean and dry for proper application of the contrast striping. Refer to the manufacturer's technical specifications for recess cleaning and dry time prior to product application.

The recess dimensions are as follows:

1. Width. The recess shall exceed the width of the marking material by 1 inch.
2. Depth. 100 mils \pm 10 mils.
3. Position. The edge of the recess shall be constructed a minimum of 2 inches from the edge of concrete joints.

The total stripe width (black stripe), from outer edge to outer edge shall be 9 inches. The white stripe shall be 6 inches wide.

Existing striping shall be removed prior to application of contrast striping per the manufacturer's recommendations.

(C) Long-Life Thermoplastic Traffic Stripes

The first paragraph is deleted and replaced with the following:

Except where contrast striping is shown or directed by the Engineer, permanent traffic stripes on the Garden State Parkway and New Jersey Turnpike roadways, bridges, toll plazas and all entrance/exit ramps, shall be applied with long life, extruded thermoplastic traffic paint material. The Contractor shall apply hot extruded thermoplastic traffic stripes in accordance with Subsection 516.04.

The following Subparagraph is added:

(L) Preformed Contrast Marking Tape

Recesses shall be cut into the concrete bridge deck surface, and the surface cleaned and dried as described in subsection 516.04 (A).

Apply P-50 adhesive per the manufacturer's recommendations.

Contrast striping tape and its application shall conform to the manufacturer's technical bulletins and specifications.

(G) Removal of Painted Pavement Stripes

The following is added:

Removal of striping on existing pavement that will not be overlaid shall be removed by hydroblasting, using a method approved by the Engineer.

516.05 MEASUREMENT

The following is added:

The removal of painted pavement stripes will not be measured for payment.

Diamond Grinding, will be measured by the total length of recess used to prepare the underlying surface for the contrast striping, regardless of the recess required for specified striping. The distance between the trailing and lead ends of the skip stripes that are not grooved will not be measured for payment.

Preformed Contrast Marking Tape will be measured by the length of tape actually installed.

516.06 PAYMENT

The following is added:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Diamond Grinding.....	Linear Foot
Preformed Contrast MarkingTape.....	Linear Foot

SECTION 524 - IMPACT ATTENUATOR

The Section is deleted in its entirety and replaced with the following:

524.01 DESCRIPTION.

This work shall consist of the furnishing, and installing of telescoping, non-gating, re-directive (TNR) impact attenuators. For TNR impact attenuators installed in a construction zone on a temporary basis, work shall also include the maintenance of the attenuator during construction, repair or replacement during construction, relocation to a different area, removal upon completion and the restoration of pavement after removal.

This work shall consist of the furnishing and installation of impact attenuators for Z-Turns, as per the Authority’s Standard Drawing, and in accordance with the manufacturer’s specifications. Impact attenuators for Z-Turns shall consist of the attenuation system and a tail end section designed for attachment to dual-face beam guide rail.

This work shall also consist of the furnishing and installation of bullnose thrie beam attenuators at wide Z-Turns and other locations shown on the Plans, in accordance with the Authority’s Standard Drawing.

524.02 MATERIALS.

Materials shall conform to the following subsections:

Telescoping Non-Gating, Re-directive Impact Attenuator 920.20

Foundation concrete for the permanent systems shall be at least 4,000 psi. Reinforcement steel shall be epoxy coated. Concrete and reinforcement steel shall conform to Subsection 401.02.

Installation and additional material requirements shall be in accordance with the manufacturer’s recommendations.

524.03 METHODS OF CONSTRUCTION.

For TNR impact attenuators installed on a temporary basis, the Contractor shall have spare unit parts for repair or replacement on site. If the attenuator is damaged from vehicular impact, the Contractor shall repair/replace any damaged unit within 48 hours of notification from the Authority. Repairs or replacement of TNR impact attenuators due to damage caused by Contractor actions shall be immediately repaired at no additional cost to the Authority. The Contractor shall be certified in accordance with the manufacturer’s requirements to perform installation, maintenance, repair and replacement of TNR impact attenuators.

Repair of TNR impact attenuators includes all of the labor and materials necessary to meet the requirements for a working unit in accordance with the manufacturer. This includes but is not limited to replacement of nose units, cartridges, diaphragms, hardware, realignment or total replacement. The Contractor shall have spare parts on the project to repair a minimum of two units.

524.04 MEASUREMENT.

Quadguard Impact Attenuator, ___ Bays, ___” Wide are TNR Impact attenuators installed on a permanent basis and shall be measured by the number constructed. Each unit shall consist of a total energy absorbing system composed of the required number of bays and required width.

Furnishing Temporary Impact Attenuator, Quadguard ___Bays, ___”Wide will be measured by the number of each complete unit installed to the maximum number provided in the Proposal that which are installed simultaneously.

Placing and Removing Temporary Impact Attenuator, Quadguard will be measured by the total number complete units placed in each location as prescribed. Removal of temporary impact attenuators will not be measured for payment.

Repair Temporary Impact Attenuators, Quadguard will be measure by the number of bays to be replaced or repaired to the satisfaction of the Engineer.

524.05 PAYMENT.

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Quadguard Impact Attenuator, ___ Bays, ___” Wide.....	Each
Furnishing Temporary Impact Attenuator, Quadguard ___Bays, ___” Wide.....	Each
Placing and Removing Temporary Impact Attenuator, Quadguard.....	Each
Repair Temporary Impact Attenuator, Quadguard.....	Each

No separate payment will be made for the restoration of pavement involved with the removal of impact attenuators installed on a temporary basis, but the costs thereof will be included in the lump sum price bid for the pay item "Maintenance and Protection of Traffic" in accordance with Subsection 802.05.

No separate payment will be made for concrete, anchors, concrete foundations, or epoxy coated reinforcement, but the costs thereof will be included in the unit prices bid for the various temporary or permanent impact attenuator pay items in the Contract.

No payment will be made for repair or replacement of permanent or temporary impact attenuators damaged by the Contractor operations.

The following Sections are added:

SECTION 532 – FORCE ACCOUNT FOR SNOW REMOVAL

532.01 DESCRIPTION

This work shall include the removal of accumulated snow adjacent to temporary construction barrier and existing barrier parapet through all the work zones resulting from the snow plowing operations of the Authority's maintenance forces or its agents during all stages of construction. The snow removal shall include disposal of the snow by the Contractor at areas clear from active traffic lanes and approved by the Engineer.

532.02 METHODS OF CONSTRUCTION

The Contractor shall utilize snow removal equipment that can remove the plowed snow deposits from the edges of the roadways without restricting the use of adjacent lanes. The snow deposits shall be displaced into hauling equipment or into the work areas of the roadways. The snow removal equipment shall only travel in the direction of traffic. The Contractor may be directed to perform snow removal at any time while the Contract is in force. The Contractor shall initiate snow removal operations within four hours after notification by the Authority. The failure to commence work within a four-hour notification timeframe will result in back charges for all costs incurred by the Authority to remove snow from travel lanes within work limits. In addition, the Contractor will be charged a \$1,000.00 per hour penalty for each hour over the above four-hour notification timeframe up to \$4,000.00 for each event.

All lane closings for the snow removal work under force account item shall be performed by the Contractor's forces. The Contractor shall place temporary barrier mounted sign supports prior to the storm as directed by the Engineer.

The Contractor shall submit his plan for snow removal to the Engineer for review and approval 30 days after Contract is awarded. The plan shall detail the Contractor's method for removal of plowed snow deposits, including the work force and number and type of equipment to be used.

The removal of snow deposited in the Contractor's work areas by Authority plowing operations or the Contractor's snow removal operations shall not be eligible for payment.

532.04 MEASUREMENT

Force Account for Snow Removal will not be measured for payment but measurement will be made on a Cost Plus basis for the time and material used in accordance with Subsection 108.04.

532.05 PAYMENT

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Force Account for Snow Removal	Lump Sum

Payment for Force Account for Snow Removal excluding lane closings will be made on a Cost Plus basis in accordance with Subsection 108.04.

SECTION 533 – PIPE JACKING**533.01 DESCRIPTION**

This work shall consist of the installation of pipes under existing embankments and paved roadways of the New Jersey Turnpike using the jacking method.

533.02 MATERIALS

Pipe shall be new welded steel pipe with a minimum wall thickness of 0.50 inches. Sections of steel pipe shall be welded or joined by other means such as the PERMALOK jointing system or approved equal. Reinforced-concrete pipe or other alternate pipe materials shall be the required strength and construction to withstand the required jacking forces and shall be approved by the Engineer. Materials and equipment for sheeting, bracing, shoring, jacking frame and other items incidental to the jacking procedure shall be approved by the Engineer.

533.03 METHODS OF CONSTRUCTION

The hydraulic jacking method shall be used for all installations. Boring, jetting and cable machines are prohibited.

Details of the proposed methods and equipment to be used for jacking operations shall be submitted for approval prior to starting the work. This shall include detail drawings of the jacking pit, receiving pit and jacking equipment. The contractor shall bear full responsibility for methods used and for any damage occurring while performing the work. Jacking operations shall be conducted to ensure that there is no interference with the continuous operation of traffic.

Jacking must continue on a 24-hour schedule to prevent pipes from freezing up. The work shall be continuous until completion. Provisions shall be made to have sufficient materials, equipment and qualified technicians available to deal with any situation which might otherwise result in an interruption of operations.

Pits will not be allowed closer than 10 feet from the outer edge of the paved shoulder. The jacking pit shall be sheeted, braced, and shored when the jacking pit and/or

receiving pit is 10 to 30 feet from the outer edge of the paved shoulder. The jacking pit shall be designed to maintain the stability of the embankment and to provide for proper operation of the jacks. The force of the jacks shall be transmitted uniformly to the end face of the end pipe or casing. End sections of pipes or casings which are damaged during jacking shall be replaced without additional compensation.

Temporary sheeting used to construct jacking or receiving pits shall conform to Section 415.

The minimum allowable cover under roadways is 6 feet measured between the top of pipe or casing to top of pavement. Minimum cover under ditches is 3 feet measured from top of casing or pipe to invert of ditch. Pretreatment of soils or other soil stabilization techniques intended to reduce the minimum cover shall be approved by the Engineer.

Jacking pits located beyond 30 feet from the outer edge of paved shoulders may have unsheeted sides provided a 1 to 1 slope can be maintained in accordance with the latest OSHA standards. The front face of the pit must be sheeted. Excavated material shall be placed on the side of the pit facing traffic to provide additional protection. Surplus and waste materials are to be disposed off Turnpike property in accordance with Section 206.

Jacking or receiving pits in the Turnpike median area are prohibited.

All work areas must be enclosed with orange plastic fencing to maintain Turnpike security and safety of the work site.

Excavation and backfilling of the jacking and receiving pit shall conform to Section 206.

When jacking pit is located between 10 and 30 feet from the outer edge of paved shoulder, a standard Turnpike shoulder closing is required for the duration of the operation. In addition, a minimum of 30 feet of temporary concrete barrier is required in accordance with Turnpike standard drawings and in accordance with Section 802 of the Standard Specifications. If the jacking pit is constructed behind existing guide rail which meets Turnpike current standards, temporary concrete barrier curb is not required.

The leading section of the pipe shall be provided with a shield or cutting edge covering a minimum of the upper third of the pipe perimeter which projects beyond the end of the pipe and supports the embankment material above. Augers must be approved by the Engineer. Excavation beyond the end of the shield or cutting edge is strictly prohibited.

If a mucking auger or hand excavation is performed, the cutting edge must be kept a minimum of one (1) diameter of the casing behind the cutting edge of the casing.

A jacking machine used with an auger to remove excavated materials must be able to jack independently of the auger.

When jacking concrete pipe, before each section is placed against a previously jacked section, a 0.5 inch diameter manila rope or approved equal shall be inserted around the entire groove of the joint and set into place with asphalt cement. Alternate joint materials must be approved by the Engineer. This procedure will reduce joint spalling due to jacking and will provide an opening on the inside of the pipe for final mortaring.

If an immovable obstruction is encountered ahead of the leading pipe or casing, or jacking progress is halted due to the compactness of the soil, or the direction has deviated from the proposed alignment, the contractor shall submit his proposed method to make corrections and complete the required work.

If it is determined that the tunneling method is required, the contractor shall submit his proposed method of operation to the Engineer for approval. Excavation beyond the end of the jacked pipe/casing shall proceed by hand methods only and shall not advance beyond the end of the jacked pipe, shield, or previously placed tunnel liner plate more than the length (along the drain) of the liner plate to be placed.

An alternate method, other than jacking or tunneling, may be employed if submitted and approved by the Engineer. If such approval is granted and the alternate method does not provide the desired results, use of such alternate method shall be discontinued and installation shall be completed by the jacking or tunneling method.

In the event an obstruction or other condition prevents the completed installation, a concrete plug shall be installed at the end of the pipe or casing and the remaining void shall be filled in a manner approved by the Engineer. Removal or withdrawal of a jacked pipe, sleeve or casing will not be permitted.

It is the contractor's responsibility to continually monitor the line and grade of the pipe or casing to detect abnormal horizontal and/or vertical movements. Necessary controls shall be provided to ensure proper horizontal and vertical alignment. The alignment shall be verified at any time at the request of the Engineer.

Delays and/or inconvenience resulting from the presence of water or the pumping of water shall not be considered for additional compensation or extension of time but shall be considered incidental to the pipe or casing or sleeve being installed.

All welding must be performed by a certified welder.

The work area shall be restored to its original condition upon completion of the installation subject to inspection and acceptance by the Authority. Care should be taken to protect adjacent trees and shrubs from injury during the progression of work.

533.04 MEASUREMENT

Casings, Sleeves, and pipe of various size and material, installed by the jacking method, will be measured by the linear foot. Separate payment will not be made for the excavation, backfill, restoration of existing work area, construction and restoration of the jacking and receiving pits and other incidental items, but the cost thereof shall be included in the cost of pipe jacking.

533.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
24 Inch Steel Pipe Jacking	Linear Foot
36 Inch Steel Pipe Jacking	Linear Foot

Payment for jacking 24" and 36" steel pipe includes excavating, dewatering, permanent sheeting at test pit locations and sheeting at jacking or boring pits including sheeting left in place; furnishing and installing jacket or bored 24" and 36" steel; disposal of spoil materials; all else incidental to complete the work of slope and ditch.

SECTION 534 – MANUFACTURED TREATMENT DEVICES

534.01 DESCRIPTION

This work shall consist of construction of Manufactured Treatment Devices, as described at the designated locations to the prescribed lines, grades and dimensions, in accordance with the Plans, Specifications and the Construction Details plan requirements.

This work shall also include the excavation and backfill required for the items to be constructed, and any required restoration of grass areas disturbed by construction, which shall be topsoiled and seeded, in accordance with Sections 703 and 704.

The Manufactured Treatment Devices shall be one of the devices by a manufacturer pre-approved by the Authority or an approved equal.

PRE-APPROVED MANUFACTURER

The Manufactured Treatment Devices Approved by the Authority are the following:

- Vortechs® System as manufactured by CONTECH Stormwater Solutions Inc., 200 Enterprise Drive, Scarborough, Maine 04074, phone: 207-885- 9830, fax: 207-885-9825; and as protected under U.S. Patent #5,759,415;
- VortSentry® system as manufactured by CONTECH Stormwater Solutions Inc, 200 Enterprise Drive, Scarborough, Maine 04074, phone: 207-885-9830, fax: 207-885-9825; and
- Downstream Defender® system as manufactured by Hydro International PLC, 94 Hutchins Drive, Portland Maine 04102, phone: (207) 756-6200, Fax: (207) 756-6212.

534.02 MATERIAL

Materials shall conform to the materials in Section 503.02 and the following:

Precast sections shall have tongue and groove or ship-lap joints

All sections shall be cured by an approved method. Sections shall not be shipped until the concrete has attained a compressive strength of 4,000 psi (28 MPa) or until 5 days after fabrication and/or repair, whichever is the longer.

Pipe openings shall be sized to accept pipes of the specified size(s) and material(s), and shall be sealed by the Contractor with a hydraulic cement conforming to ASTM C 595M

Aluminum plate components shall be aluminum alloy 5052-H32 in accordance with ASTM B209.

Sealant to be utilized for the Vortechs System at the base of the swirl chamber shall be 60 durometer extruded nitrile butadiene rubber (Buna N) and shall be provided to the concrete precastor from Contech for installation.

The masonry fixing bolts for the Downstream Defender System shall be Type 304 stainless steel.

The internal components for the Downstream Defender System shall be supplied by Hydro International shall include the center shaft and cone, dip plate, benching skirt, floatables lid and component support frame. These materials shall be polypropylene. The component support frame members and all metal parts shall be Type 304 stainless steel. All components shall be designed to withstand all normal loadings associated with fabrication, shipping, site installation, and normal operation of equipment. The component support frame shall withstand a live load of 500 lbs.

A bitumen sealant and butyl mastic sealant for joints in conformance with ASTM C 990 shall be utilized for the following:

For Vortechs Systems in the sealing of the joint between the swirl chamber and the vault at the long wall tangent points. The butyl material shall be 3/4-inch thick by 3/4-inch wide.

For VortSentry systems in affixing the aluminum baffle wall and partitioning chamber to the concrete vault.

For the Downstream Defender System, shiplap joints shall be sealed with one inch butyl rubber sealant.

SHOP DRAWINGS

The Contractor shall utilize the Plans, Specifications and the Construction Details plans as the basis for preparation of shop drawings showing details for construction, confirm the unit will not interfere with other construction, provide access for maintenance, temporary sheeting, reinforcing, joints and any cast-in-place appurtenances. Shop drawings shall be annotated to indicate all materials to be used and all applicable standards for materials, required tests of materials and design assumptions for structural analysis. Shop drawings shall be prepared at a scale of not less than 3/16-inches per foot (1:64). Six (6) hard copies of said shop drawings shall be submitted to the Engineer for review and approval. Working drawings shall be submitted to the Engineer for approval at least two months prior to installation of the chambers.

REQUIREMENTS FOR APPROVED EQUAL

Any Manufactured Treatment Devices not previously approved by the authority shall meet the following standards:

- The approved equal device shall be approved by NJDEP and listed as a Certified Stormwater Technology on NJDEP's Website www.njstormwater.org.

- The Contractor shall contact the NJDEP requesting approval to utilize the alternate Manufactured Treatment Device as part of this contract. The approval should state the location by station and offset and the design discharge as specified on the construction details.
- The minimum pollutant removal rate shall be 50% as approved by the NJDEP. The Contractor shall provide a current certification letter from the NJCAT.
- The manufactured treatment device will be a swirl type hydrodynamic separator and include a circular chamber to induce a swirling flow pattern that will accumulate and store settled solids in a manner and a location that will prevent re-suspension of previously captured particulates.
- Maintenance of the Manufactured Treatment Devices shall be performed through the utilization of a vacuum truck and not require the disassembly of the device to access the debris, trash, sediment or other waste material. Access to the debris, trash, sediment or other waste material shall be accessed through one or more manhole riser structures and under normal conditions shall not require a person to enter the device to perform maintenance.
- The Manufactured Treatment Devices shall be designed to treat the runoff generated by the water quality storm, as indicated on the construction details.
- A detailed list of material specifications for the alternate Manufactured Treatment Device.

The Contractor shall provide the above information and approvals to the Engineer and the Program's Environmental Consultant for their review and approval.

534.03 METHODS OF CONSTRUCTION

Manufactured Treatment Devices shall be constructed in accordance with Section 503.03 and the following:

INSTALLATION OF THE VORTECHS SYSTEM

- A. Each Vortechs System shall be constructed according to the sizes shown on the Drawings. Install at elevations and locations shown on the Drawings or as otherwise directed by the Engineer.
- B. Place the precast base unit on a granular subbase of minimum thickness of six inches (152 mm) after compaction or of greater thickness and compaction if specified elsewhere. The granular subbase shall be checked for level prior to setting and the precast base section of the trap shall be checked for level at all four corners after it is set. If the slope from any corner to any other corner exceeds 0.5% the base section shall be removed and the granular subbase material re-leveled.
- C. Prior to setting subsequent sections place bitumen sealant in conformance with ASTM C 990 along the construction joint in the section that is already in place.
- D. After setting the base and wall or riser sections, prepare to install the swirl chamber. Place the 3/4-inch (19 mm) thick by 3/4-inch (19 mm) wide butyl mastic seal vertically on the outside of the swirl chamber starting one inch above the bottom of the swirl chamber and continuing to a height equal to the elevation of the bottom of the upper aperture of the swirl chamber. The butyl mastic seal should abut the downstream side of the predrilled mounting holes that attach the swirl chamber to the long walls of the concrete vault. Next, install the extruded Buna N seal on the bottom edge of the 180 degree downstream section of the swirl chamber by first applying a bead of Sikaflex-1a polyurethane elastomeric sealant into the extruded

slot then slide the seal onto the swirl chamber. The extruded seal should extend 3-inches (76 mm) upstream of the mounting holes, toward the inlet end of the vault. Set the swirl chamber into position and keep the seal approximately ½-inch (13 mm) above the floor of the concrete vault. Apply a continuous bead of Sikaflex-1a sealant under the cupped bottom of the seal. Set the circular swirl chamber on the floor of the vault and anchor it by bolting the swirl chamber to the side walls of the concrete vault at the three (3) tangent points and at the inlet tab using HILTI brand stainless steel drop-in wedge anchors or equivalent 3/8-inch (10 mm) diameter by 2-3/4 inch (70 mm) minimum length at heights of approximately three inches (3") (76 mm) off the floor and at fifteen inch (15") (381 mm) intervals to approximately the same height of the butyl mastic sealant (at locations of pre-drilled holes in aluminum components). Apply a continuous bead of Sikaflex-1a sealant to the intersection of the inside bottom edge of the extruded seal and the vault floor.

- E. If the oil baffle wall (Baffle A) and flow control wall (Baffle B) are not integrally cast-in to riser/wall sections then the Baffle wall panels shall be placed in the formed keyways or between bolted-in-place angle flanges as provided by the manufacturer. Apply non-shrink grout or Sikaflex-1a sealant to each end of Baffle A and Baffle B at the upstream intersection with the side walls of the concrete vault.
- F. Prior to setting the precast roof section, bitumen sealant equal to ASTM C 990 shall be placed along the top of the oil baffle wall (Baffle A), using more than one layer of mastic if necessary, to a thickness at least 1-inch (25 mm) greater than the nominal gap between the top of the baffle and the roof section. The nominal gap shall be determined either by field measurement or the shop drawings. Do not seal the top of Baffle B unless specified on the shop drawings to do so. After placement of the roof section has compressed the butyl mastic sealant in the gap over Baffle A, finish sealing the gap with an approved non-shrink grout on both sides of the gap using the butyl mastic as a backing material to which to apply the grout. If roof section is "clamshell" or "bathtub" halves, then finish sealing the ends of the Baffle walls by applying non-shrink grout or Sikaflex-1a sealant to each end of Baffle A at the upstream intersection with the side walls of the concrete vault and to each end of Baffle B at the downstream intersection with the side walls of the concrete vault.
- G. After setting the precast roof section of the stormwater treatment system, set precast concrete manhole riser sections, to the height required to bring the cast iron manhole covers to grade, so that the sections are vertical and in true alignment with a ¼-inch (6 mm) maximum tolerance allowed. Backfill in a careful manner, bringing the fill up in 6inch (152 mm) lifts on all sides. If leaks appear, clean the inside joints and caulk with lead wool to the satisfaction of the Engineer. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Stormwater Treatment Systems shall conform to ASTM specification C 891 "Standard Practice for Installation of Underground Precast Utility Structures".
- H. Holes made in the concrete sections for handling or other purposes shall be plugged with a nonshrink grout or by using grout in combination with concrete plugs.
- I. Where holes must be cut in the precast sections to accommodate pipes, do all cutting before setting the sections in place to prevent any subsequent jarring which may loosen the mortar joints. The Contractor shall make all pipe connections.

INSTALLATION OF THE VORTSENTRY SYSTEM

- A. Each VortSentry System shall be constructed according to the sizes shown on the Drawings and as specified herein. Install at elevations and locations shown on the Drawings or as otherwise directed by the Engineer.

- B. Place the precast base unit on a granular subbase of minimum thickness of six inches (152 mm) after compaction or of greater thickness and compaction if specified elsewhere. The granular subbase shall be checked for level prior to setting and the precast base section of the trap shall be checked for level at all four corners after it is set. If the slope from any corner to any other corner exceeds 0.5% the base section shall be removed and the granular subbase material re-leveled.
- C. Prior to setting subsequent sections place bitumen sealant in conformance with ASTM C 990-91 along the construction joint in the section that is already in place.
- D. After setting the precast roof section of the stormwater treatment system, set precast concrete manhole riser sections, to the height required to bring the cast iron manhole covers to grade, so that the sections are vertical and in true alignment with a ¼-inch (6 mm) maximum tolerance allowed. Backfill in a careful manner, bringing the fill up in 6-inch (152 mm) lifts on all sides and compacting the granular bedding to 95% Standard Procter Density per ASTM D698. If leaks appear, clean the inside joints and caulk with lead wool to the satisfaction of the Engineer. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of stormwater treatment systems shall conform to ASTM specification C 891 "Standard Practice for Installation of Underground Precast Utility Structures".
- E. Holes made in the concrete sections for handling or other purposes shall be plugged with a nonshrink grout or by using grout in combination with concrete plugs.
- F. Where holes must be cut in the precast sections to accommodate pipes, do all cutting before setting the sections in place to prevent any subsequent jarring which may loosen the mortar joints. The Contractor shall make all pipe connections.

INSTALLATION OF THE DOWNSTREAM DEFENDER SYSTEM

- A. The system shall be installed in strict accordance with the site plans, and the manufacturer's general arrangement drawings and Handling, Storage and Installation Instructions. The Contractor shall be responsible for installing the equipment and all necessary site connections.
- B. Hydro International shall be notified immediately of any equipment which is damaged during unloading, storage, or installation. The damaged equipment shall be repaired or replaced at the discretion of Hydro International and entirely at the Contractor's expense.
- C. The precast concrete structure shall be set on a granular or compacted sand subbase in accordance with local requirements for standard manhole installation.
- D. The precast concrete structure shall be set level to within 0.5%.
- E. Non-shrink grout shall be used to provide a water tight seal in the pickholes and around the concrete knock-outs for the inlet and outlet pipes.
- F. The Contractor shall test the concrete structure for water tightness before backfilling.

REQUIREMENTS FOR APPROVED EQUAL

Installation methods for the alternate Manufactured Treatment Device shall be provided for approval by the Contractor to the Engineer.

534.04 MEASUREMENT

Manufactured Treatment Devices will be measured by the number and type or location installed.

534.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Manufactured Treatment Devices, Type 1	Each

Separate payment will not be made for manhole risers, manhole castings, ladder rungs concrete slabs, coarse aggregate bedding layer, or any other appurtenant item of the system as detailed on the Contract Plans.

Separate payment will not be made for the excavation, dewatering, disposal of excess material and backfill required, but the cost thereof shall be included in the cost of those items to be constructed. Unless otherwise provided for, the placement of dense graded aggregate and asphalt materials required for restoration will not be paid for separately.

SECTION 535 – TRANSITE DUCT REMOVAL**535.01 DESCRIPTION**

This work shall consist of the removal and disposal of asbestos-cement transite ducts non-friable and potentially friable from the bridge and roadway as shown in the Contract Drawings and as directed by the Engineer, as specified herein. This work shall also include the hand excavation near the ducts and the proper disposal of asbestos waste, including handling equipment without the excessive release of airborne fibers or debris.

535.02 MATERIALS & QUALIFICATIONS**(A) MATERIALS**

All materials used in the performance of the work shall comply with all applicable regulatory standards. Respirators and filters shall comply with NIOSH and MSHA standards. Respiratory protection shall be in accordance with all applicable OSHA Regulations 29 CFR 19 10.34 and ANSI Z88.2- 1980. HEPA filtration systems shall comply with ANSI Z9.2- 79.

The Contractor shall supply all respiratory protection equipment and protective clothing, including disposal coveralls, hoods, and shoe covers. The Contractor shall also supply construction fencing, visual screening, and the decontamination enclosure for the asbestos work area and all equipment required for removal and proper disposal.

(B) QUALIFICATIONS

The persons conducting the removal shall be adequately trained in the hazards of asbestos and proper work procedures. The Contractor shall demonstrate prior experience

in working with asbestos. The Contractor has the responsibility of informing himself fully of the requirements of these agencies and shall satisfy these Specifications and all referenced regulations including, but not limited to, the following:

(A) EPA	40 CFR61 Part M	NESHAPS
(B) OSHA	29 CFR 19 10.34	Respiratory Protection Standard
(C) OSHA	29 CFR 1926.110	Asbestos Construction Standard
(D) NJDCA	NJAC 5:23-8	Asbestos Hazard Abatement Subcode
(E) NJDOL	NJAC 12:120	Asbestos Licenses and Permits
(F) NJDOH	NJAC 8:60	Asbestos Licenses and Permits
(G) NJDEP	NJAC 7:26	Solid Waste Transport and Disposal
(H) DOT	49 CFR	Transportation.

Prior to starting work, the Contractor shall furnish the Engineer with documentation from the abatement firm, stating that the abatement firm and its employees and all persons to work within the asbestos work area are properly certified and are familiar with the regulations of the U.S. Department of Labor, Occupational Safety and Health Administration, the U.S. Environmental Protection Agency, and the New Jersey Department of Community Affairs relating to the removal, disposal, and treatment of asbestos.

535.03

METHODS OF CONSTRUCTION

(A) PERMITS

The Contractor shall obtain all necessary licenses and permits and shall comply with all Federal, State, and local laws, Code Regulations and notification procedures in connection with the performance of the work. The Contractor shall assure that proper notification of work beginning on the asbestos project has been given to the EPA.

(B) WORK AREA

The portion of the roadway which the transite ducts are to be removed shall be considered to be the asbestos work area. Delineation of the asbestos work area shall consist of construction fencing and visual screening with only a single clearly marked entrance/exit. Asbestos work areas shall be internal to the necessary traffic control. Asbestos warning signs must be posted around the work area to warn others of the potential asbestos dust hazard.

Uncertified persons shall not be permitted within the work area from the start of the work area preparation until satisfactory clearance air monitoring results have been achieved. Protective clothing is not to be worn outside the work area. A personnel decontamination enclosure system at the entrance/exit shall be provided for workers to remove their protective clothing and decontaminate any contaminated tools or equipment.

(C) REMOVAL

The Contractor shall supply, for review, a detailed project site specific procedure for the management, removal, transport and disposal of asbestos containing materials. This procedure shall include, as a minimum, the requirements as specified herein. The

Contractor shall conduct all operations in accordance with the submitted abatement procedure. Any changes to the procedure shall be submitted, for review, by addendum in advance of any work requiring alternative procedures.

The Contractor can excavate over the transite ducts using mechanical means to within close proximity of the ducts. The Contractor shall hand excavate in the vicinity of the transite ducts to expose all sides of the ducts to be removed.

Asbestos containing material must be thoroughly wetted with a continuous spray of amended water prior to any removal work to reduce dust generation. After wetting, materials to be removed must be handled gently and immediately placed into a 6 mil polyethylene double bag or wrapped in two layers of 6 mil polyethylene sheeting and the bags or sheets must be sealed airtight with duct tape. If materials are likely to tear or puncture bags, rigid containers such as fiber drums must be used. The bags and drums containing the material shall be considered asbestos waste. Asbestos warning and generator labels shall be placed on the bags and containers.

(D) DISPOSAL

Disposable coveralls, hoods, and shoe covers shall be disposed of properly as asbestos waste upon completion of the job. The asbestos contaminated soil shall also be disposed of as asbestos waste. Asbestos containing material and asbestos waste shall be disposed of in accordance with 40 CFR 61 Part M and all requirements and laws, rules, and regulations of Federal, State, or local agencies.

(E) AIR QUALITY MONITORING

The Contractor shall arrange and pay for all air quality monitoring including air sampling, monitoring, and analysis required for regulatory compliance. The firm and persons engaged shall be properly licensed, certified, and must be properly insured.

If air sampling results indicate any airborne-asbestos fiber concentrations not within acceptable limits, work shall stop immediately and not resume until methods are altered to reduce the airborne asbestos fiber concentrations to acceptable levels.

535.04 MEASUREMENT

Removal of transite duct will be measured by the length of duct that is actually removed and disposed of by the Contractor.

535.04 PAYMENT

<u>PAY ITEM</u>	<u>PAY UNIT</u>
Transite Duct Removal	Linear Foot

The unit cost for this item shall include the furnishing of all labor, equipment, and permits necessary to properly remove of and dispose of transite ducts.

Separate payment will not be made for the excavation, backfill, air monitoring and transport of the ducts required, and the cost thereof shall be included in the cost of transite duct removal. Any potential contaminated soil removal shall be included with the cost of transite duct, pipe, or panel removal.

DIVISION 600 – ELECTRICAL

SECTION 601 – COMMON ELECTRICAL PROVISIONS

601.01	DESCRIPTION
--------	-------------

The following is added:

The electrical work under this project shall include installation of power and communications systems for the proposed Intelligent Transportation Systems (ITS) Stations and Devices, upgrades to the power distribution system, installing new cables and ground wire, furnishing and installing junction boxes, making all necessary cable connections, grounding and testing, removing existing equipment, providing new utility services and utility coordination; and providing all required incidental work, all in accordance with the Plans, these Specifications and as directed by the Engineer.

Electrical work to be performed under this Contract shall also pertain to all necessary survey, measurement, testing, installations and/or modifications related to installing junction boxes, permanent control cables, power conductors, ground wires, conduits, removal of existing equipment, control cables, power conductors and ground wires, making all necessary cable connections, grounding and testing; and providing all required incidental work, all in accordance with the Plans, these Specifications and as directed by the Engineer required for the Toll Plaza Electrical Work.

The nature and extent of electrical work within and adjacent to each work area, as indicated on the Plans are based on the best available information. However, no guarantees are made as to the accuracy or completeness of this information. The Contractor is hereby advised that it shall be his responsibility to verify such information and obtain the approval of the Engineer before proceeding with the work in each work area.

The existing power distribution systems within the limits of this Contract operate at various voltages (below 600 Volts) and configurations (single- and three-phase), as shown on the Plans. The proposed power distribution systems operate at these voltages. The roadway and sign lighting systems at all work sites within the limits of this Contract, are of 2400V Class for series lighting circuits and 460V or 480V Class for the multiple circuits and therefore, all required electrical work must be performed in an approved manner and in accordance with the standard procedure for the class of voltage. The systems shall be maintained so that all roadway sign lighting and ITS facilities will be in service at all times, unless otherwise approved by the Engineer.

The Contractor shall obtain approval from the Authority's Electrical Maintenance Department, through the Engineer, to disconnect the electric service for the various power distribution feeder circuits,, prior to commencing with any work either directly related to or within the close proximity of the existing electrical facilities. The Contractor is responsible for "Tagging-Out" or lockout, as required, all circuits he will be working with. At the end of the outage and prior to darkness, the Contractor is to remove his tag and restore the circuit. The Authority will not remove a Contractor's "Tag". The Contractor will be responsible to restore service.

Existing 24-hour power circuits shall be maintained operational at all times. The Contractor shall furnish and install all temporary cables and ground wire, where required, to maintain operation of these circuits, removal and reinstallation operations. All temporary wiring costs shall be included in the Lump Sum item "Remove and Salvage Existing Facilities".

601.02 MATERIALS

The following is added:

Concrete for Duct Bank Encasement.....	905 (Class C)
HDPE Conduits and Innerducts.....	918.35
Directional Drilled Pipe Sleeves	918.36
Rodent Blocking.....	918.45
Polymer Concrete Junction Box.....	918.47

601.03 GENERAL CONDITIONS

(A) Codes and Standards

Replace the first sentence of the first paragraph with the following:

Electrical materials, construction, and installation shall conform to the requirements of the latest version of the National Electric Code of the National Fire Protection Association and shall conform to all Federal and State laws and regulations governing such installations, and to the special requirements set forth.

(E) Shop Drawings

The following is added:

Items for which shop drawings and catalog cuts shall be submitted shall include but not be limited to the following:

- Conduits, Cables and Wires
- Cable Connector Kits
- Grounding and Termination Devices

(F) Connection with Utility Service

The following is added:

The Contractor shall comply with all utility company requirements for electric meter, disconnect, and current transformer and cabinet, where required. Should deviations from the details shown on the Plans be required, the Contractor shall make all necessary design modifications and obtain the approval of the Engineer prior to construction through the Shop Drawing process. The Contractor shall perform coordination with the Authority, obtain all utility and third-party inspections and approvals, and perform work as shown on the Plans to obtain connection by the utility. Any delay(s) in obtaining the approval(s) shall not be considered as the basis of extra(s)

(G) Removal of Existing Electrical Facilities

Delete the first sentence of the first paragraph and replace with the following:

Various electrical facilities and associated installations, which are no longer in service, or are not required to be relocated and reused shall be removed, abandoned in place, or demolished as delineated on the plans. With the exception of the Emergency Speed Warning and Speed Limit Signs, no electrical equipment is to be salvaged. Removal of Emergency Speed Warning and Speed Limit Signs shall be as specified in Section 605.

(J) Step-down Transformer

The transformer shall be the dry conforming to UL 506, ANSI C57.12.01, NEMA ST20 and NEMA TP1 type and size shown on the plans. The enclosure shall be NEMA 3R constructed for wall installation.

Temperature rating shall be 115 degrees C temperature rise above 40 degrees Celsius ambient. Insulation shall conform to UL 1446, Class H.

601.05**CONDUIT**

The following is added:

All conduits entering signs and cabinets shall be sealed with rodent blocking material after installation of all wires and cabling. The rodent blocking material shall consist of a wad of corrosion resistant metallic mesh, such as Stuff-It or Copper Blocker brand copper mesh or approved equal, and capped with a pest control foam sealant, such as IPF Foam from Todol Products or approved equal.

Where ITS duct bank power conduits between pull points are empty, a tracer wire shall be installed inside one spare conduit of the run. The Tracer wire shall be fourteen (14) gauge minimum solid THHN copper with thermoplastic insulation recommended for direct burial. At least four (4) feet of slack tracer wire, properly labeled shall be present at every junction box location where the conduit is accessible.

(A) Flexible Metallic Conduit

The following is added:

Length of flexible metallic conduit sections used shall be no longer than 6 feet. Two sections of flexible metallic conduit shall not be connected together.

If connected to PVC coated galvanized conduit, the color of flexible metallic conduit shall match that of the connecting coated conduit. Color shall be integral to the flexible metallic conduit, and shall not be applied in the field by use of paint or other methods.

(B) Rigid Metallic Conduit

The following is added:

The end of the existing conduit at the face of concrete removal shall be cut square and smooth. Enough concrete around the conduit in that portion of the safetywalk to remain shall be carefully hand chiseled to permit the installation of a coupling-adaptor to connect the existing conduit to new steel conduit. During

safetywalk and curb surface repairs, the Contractor shall exercise utmost care so as not to damage any existing galvanized steel conduit(s) embedded in concrete. Should any conduits be damaged during the construction or any deteriorated conduits found, as determined by the Engineer, the damaged or deteriorated portion of the conduit(s) shall be replaced as follows:

- (1) Existing lighting cables and ground wire shall be disconnected at both ends, removed and reinstalled for temporary service, as prescribed in Subsection 601.07.
- (2) Temporary cables and ground wire for 24 hours circuits shall be provided and connected as prescribed in Subsection 601.07, where required, to maintain the continuous operation of these circuits.
- (3) Damaged or deteriorated section of the steel conduit shall be removed from coupling points and replaced with new galvanized steel conduit section(s). This work shall be accomplished by providing temporary service, as prescribed in Subsection 601.07.

Conduit (s) damaged by the Contractor's operation during safetywalk and curb surface repair construction shall be repaired by replacement of the damaged section(s) of the conduits to the satisfaction of the Engineer. Upon completion of the conduit repair work, each conduit run shall be rodded throughout its entire length with a mandrel in conformance with Subsection 601.07, and new cables and ground wire shall be installed between the junction boxes connected by the repaired conduit run(s). All costs for the prescribed conduit repairs and new cable and ground wire installation shall be borne by the Contractor at no additional cost to the Authority.

In addition, the Contractor shall connect the new steel conduit (s) to existing expansion couplings at all expansion joints, where required. If the existing expansion coupling(s) are judged to be nonfunctional, in the opinion of the Engineer, then the Contractor shall replace such expansion couplings with new units, equal to O-Z Gedney Type AX with Type BJ bonding jumper.

Installation of the expansion couplings shall be made in accordance with the manufacturer's installation instructions and the Authority's standard electrical drawings. The Contractor shall insure that the conduit entering the fitting at the expansion-contraction end is completely free of any concrete or other obstruction within the open joint which may otherwise prevent the fittings from performing properly.

The following is added:

(E) Duct Bank, Soil and Concrete Encased

Duct banks shall be installed underground at the locations shown on the plans. Duct banks shall be buried with a minimum of 24" cover and shall be either encased in concrete or directly buried, as shown on the details. Duct banks in concrete shall have at least 3" of concrete cover on top, underneath and on each side of the duct bank-cross section.

A minimum of 6" horizontal and vertical separation shall be provided between adjacent ducts.

Duct spacers shall be provided as shown on the Plans to maintain an even spacing of the conduits during concrete encasement or backfilling operations. Duct spacers shall be prefabricated out of high impact Polystyrene. Spacers shall be interlocked horizontally to the conduit. Spacers shall be staggered at least 6 inches vertically at intervals of 7 feet along the length of the duct bank. Spacers shall be of proper sizes and configurations to fit the conduits.

Ducts with concrete encasement shall have concrete around the ducts as shown on the Plans. Ducts with no concrete envelope shall be backfilled in accordance to Subsection 206.03.

(F) Duct Bank, HDPE Conduits Directional Drilled

This work shall consist of the installation of pipe sleeves under existing embankments and paved roadways installed using the horizontal directional drilled (HDD) method.

The work also includes installation of HDPE conduits within the 16"-HDPE pipe sleeves, and installation of HDPE innerducts within the communication conduits, and/or shown on the Plans.

(1) Experience Requirements

Prior to the submission of bids, the Contractor or his subcontractor shall have completed the installation of at least 5,000 feet of directional-drilled piping on similar projects. Field supervisory personnel employed by the Contractor or his subcontractor shall have both the necessary experience and manufacturer training in the operation of the directional drilling equipment proposed to be used in the performance of the work.

Bidders shall submit documentation showing conformance with the experience requirements within two weeks after the opening of the Bids. Information shall include, but not be limited to, date and duration of work, location, project information (i.e., length, diameter, depth of installation, sleeve material, etc.) and project owner information, (i.e., name, address, telephone number, contact person).

Bidders shall also submit a list of field supervisory personnel and their experience with directional drilling operations. At least one qualified field supervisor listed must be at the site and be responsible for all work at all times when directional drilling operations are in progress.

(2) Pre-Construction Submittals

Before directional drilling work may commence, the Contractor shall submit for approval, the specific details of the sleeve pipe, conduit, innerducts, and separators proposed for installation. This will include, but not be limited to, size, capacity and setup requirements of equipment, location and site of drilling and receiving points or pits, if necessary, and method of monitoring and controlling line and grade. If the Contractor determines that modifications to the method and

equipment as stated in the original submittals are necessary, the Contractor will submit details of and reasons for such modifications.

Also, the Contractor shall submit information pertaining to the following drilling materials: Material Safety Data Sheets (MSDS) sheets, any necessary safety precautions or procedures, and proposed methods of removing spoils.

Drilling operations shall not interfere with, interrupt or endanger either surface or subsurface developments. The Contractor shall comply with all applicable jurisdictional codes and OSHA requirements.

When available, the Authority will provide soil-boring logs near the location of the proposed work. In the event the Contractor deems it necessary to obtain additional information to proceed with the work, they shall obtain additional subsurface information as needed. Costs associated with this effort shall be the exclusive responsibility of the Contractor. Furthermore, the Contractor shall not make any claims for additional compensation for additional work made necessary as a result of existing subsurface conditions.

The Contractor shall submit a "frac-out" contingency plan which provides specific procedures and steps to contain the inadvertent release of drilling mud (frac-out) used during installation of sleeve pipe utilizing HDD.

(3) Drilling Equipment

The drilling equipment shall be specifically designed to create a bore hole then ream the hole to the diameter necessary for the simultaneous insertion of the sleeve pipe. Sleeve pipes shall be installed at the locations and grades as designated on the Plans.

The drilling equipment shall be capable of placing the specified sleeve pipe at the planned line and grade without inverted slopes or deflection in accordance with these Specifications. The equipment must be capable of pulling the sleeve pipe from either the downstream or upstream pull box location. The number of pits shall be kept to a minimum. The equipment must be capable of boring the specified lengths, from pull box to pull box, in a single bore.

Since sleeve pipe selection is dependent upon equipment pullback force, the proposal and approval of the use of equipment with a pullback rating greater than the maximum pullback force specified may invalidate the proposed piping.

Throughout the insertion process, the Contractor shall constantly measure and record axial tension force readings on the pipe material, the insertion velocity, the mud flow circulation and exit rates and the length of pipe installed. Furthermore, the equipment shall have a guidance system that has the capability of measuring inclination and azimuth. The guidance system shall have an independent means of ensuring the accuracy of the installation. The Contractor shall demonstrate a viable

method to eliminate accumulated error due to the inclinometer (pitch or accelerometer). The guidance system shall be capable of generating a plot of the borehole survey showing depths of the installed piping along its entire length. The scale of the plot of the borehole survey shall be the same as that shown on the project profile sheets. Depths shown on the plot of the borehole survey shall be accurate to 1/10 of a foot. The guidance system shall have an inclination accuracy of 0.01 % of grade, a range of 1/10 of a foot, an azimuth repeatability of 0.1 % of grade and a range of 1/10 of a foot.

The Contractor shall measure the repeatability of the inclination/azimuth before drilling commences.

(4) Drilling Fluid

Drilling fluid shall be a mixture of water and Bentonite clay. Information regarding use of any other proposed drilling fluids shall be submitted to the Engineer for approval at least two (2) weeks before beginning drilling operations.

Disposal of excess drilling fluid and spoils shall be the responsibility of the Contractor. Excess drilling fluid and spoils shall be disposed at a location approved by the Engineer.

Drilling fluid returns caused by fracturing of formations at locations other than the entry and exit points shall be minimized. The Contractor shall immediately clean up any drilling fluid that is exposed through fractures.

The Contractor shall be responsible for making provisions for a clean water supply for the mixing of drilling fluid.

(5) Site Set-up

Equipment set-up shall be determined by the Contractor and submitted to the Engineer per the requirements as stated in this Section. The entry angle of the pilot hole and the boring process shall maintain a curvature that does not exceed the allowable bending radii of the product pipe per the piping manufacturer. The set-up shall account for pipe bending in the vertical and horizontal directions, as well as the set-up and spacing needed for the butt-fusion process.

(6) Safety

At the location of the work, the Contractor shall be solely responsible for the safety of all parties.

The drilling equipment shall have an alarm system capable of detecting electrical current.

(7) Directional Drilling Methods

Directional drilling shall conform to the following methods and submittal requirements pertaining to the installation of sleeves and/or

pipes under existing embankments and paved roadways of the New Jersey Turnpike Authority:

- a. The minimum allowable cover under roadways is 6 feet at the center of the roadway measured between the top of sleeves/pipes to top of pavement. Minimum cover under ditches is 3 feet measured from top of sleeve or pipe to invert of ditch. Pretreatment of soils or other soil stabilization techniques intended to reduce the minimum cover shall be approved by the Engineer.
- b. Sending and receiving pits located beyond 30 feet from the outer edge of paved shoulders may have unsheeted sides provided a 1 to 1 slope can be maintained in accordance with the latest OSHA standards. The front face of the pit must be sheeted. Excavated material shall be placed on the side of the pit facing traffic to provide additional protection. Surplus and waste materials are to be disposed off Authority property in accordance with Section 206.
- c. It is the Contractor's responsibility to continually monitor the line and grade of the sleeve or pipe to detect abnormal horizontal and/or vertical movements. Necessary controls shall be provided to ensure proper horizontal and vertical alignment. The alignment shall be verified at any time at the request of the Engineer.
- d. Pits will not be allowed closer than 10 feet from the outer edge of the paved shoulder. The pit shall be sheeted, braced, and shored when the pit and/or receiving pit is 10 to 30 feet from the outer edge of the paved shoulder. The pit shall be designed to maintain the stability of the embankment and to provide for proper operation of the drilling equipment. End sections of sleeves or pipes which are damaged during installation shall be replaced without additional compensation.
- e. Temporary sheeting shall conform to Section 415.
- f. Entry or exit points shall not be installed in roadway medians.
- g. Detailed drilling operations and equipment shall be submitted to the Authority or their authorized representative for approval. Work is not to start before receipt of required approval.
- h. All work areas must be enclosed with orange plastic fencing to maintain security and safety of the work site.
- i. Sleeve pipe spacers shall be Teflon as manufactured by Advance Products and Systems, or equal
- j. Strapping shall be stainless steel.
- k. Show cross section along proposed bore within Authority ROW.
- l. Detail means and methods to be used to ensure line and grade of pipe sleeve.

- m. Once pipe sleeve is advanced from the point of entry and is within 10' of roadway edge of pavement all work shall be continuous until casing is advanced to at least 10' beyond the roadway far edge of pavement.
- n. During boring operations, roadway shall be monitored for settlement and /or heave along the line of bore.
- o. Excavation and backfilling of the sending and receiving pits shall conform to Section 206.
- p. When pits are located between 10 and 30 feet from the outer edge of paved shoulder, a standard shoulder closing shall be required for the duration of the operation. In addition, a minimum of 30 feet of temporary concrete barrier is required in accordance with Turnpike standard drawings and in accordance with Section 800 of the Specifications. If the pit is constructed behind existing guard rail which meets current standards, temporary concrete barrier curb is not required.
- q. In the event an obstruction or other condition prevents the completed installation, a concrete plug shall be installed at the end of the pipe or sleeve and the remaining void shall be filled in a manner approved by the Engineer. Removal or withdrawal of a drilled pipe, sleeve or casing will not be permitted.
- r. Delays and/or inconvenience resulting from the presence of water or the pumping of water shall not be considered for additional compensation or extension of time but shall be considered incidental to the pipe or sleeve being installed.
- s. All welding must be performed by a certified welder.
- t. The work area shall be restored to its original condition upon completion of the installation subject to inspection and acceptance by the Authority. Care should be taken to protect adjacent trees and shrubs from injury during the progression of work.
- u. Extend the sleeve at least 10 feet beyond the limits of roadway pavement.
- v. Provide a method to seal the ends of the sleeve after installation of conduits within the sleeve. The method used shall provide a watertight seal. Provide shop drawings detailing the methods prior to commencement of any directional drilling operations.

Alternate Methods

An alternate method, other than directional drilling, may be employed if submitted and approved by the Engineer. If such approval is granted and the alternate method does not provide the desired results, use of such alternate method shall be discontinued and installation shall be completed by the directional drilled method at no additional cost to the Authority.

(8) Insertion of Pipe Sleeve

The Contractor shall follow the conduit sleeve alignment as shown on the drawings and in accordance with the Specifications.

In the event of difficulties encountered during boring operations that require the withdrawal of the directional-drilling equipment from the pilot hole, the Contractor shall be allowed to withdraw and abandon the boring and begin a second attempt. With the approval of the Engineer, the Contractor may excavate at the point of the difficulty to correct problems. Unless otherwise directed by the Engineer, any unsuccessful attempts at performing the specified directional drill, including any pipe installation, and any excavations performed by the Contractor to remove obstructions to the drilling process shall be made part of the contract amount and shall not serve as basis for claims for additional compensation. The sleeve provided may vary by drilling location, and shall be designed specifically for each installation based on grades, soil type, drilled length, access limitations, and other site-specific constraints.

The Engineer shall be notified immediately if any obstruction is encountered that stops the forward progress of drilling operations. The Engineer shall review both the situation and the Contractor's assessment thereof and then determine the feasibility of continuing drilling operations. When it is determined that it is impossible to continue drilling operations, the Contractor will be allowed to abandon the completed portion in place, unless otherwise directed by the Engineer. Abandonment of installed piping and sleeves shall be to the satisfaction of the Engineer. The Engineer shall determine the necessity of ordering an alternative construction method in place of horizontal directional drilling.

The sizing of the pilot hole reamed to facilitate the insertion of the specified pipe sleeve shall be minimized to maximize support for the pipe. Reaming diameter shall not exceed 120% of the outside diameter of the pipe sleeve being installed. The pipe sleeve being pulled into the pilot tunnel shall be protected and supported so that it moves freely and is not damaged by stones and debris on the ground during installation.

(9) Installation of Conduits

After the pipe sleeve has been installed and accepted by the Engineer, the Contractor shall install HDPE conduits within the pipe sleeve as shown on the Plans. The conduits shall be continuous from one end of the pipe sleeve to the other.

The contractor shall install three (3) 1¼" HDPE innerducts in each communication conduit, as called out on the plans, under directional drill. Innerducts shall only be supplied in communications conduits within directional-drilled duct bank, regardless if the conduits or innerducts are slated for use under this Contract.

The Contractor will allow sufficient lengths of HDPE conduit to extend past the sleeve termination point to allow for contraction. Pulled HDPE conduit shall be allowed forty-eight (48) hours of stabilization prior to making final terminations or connections.

601.06 FOUNDATIONS, BOXES, MANHOLES AND BASES

The following is added:

The junction boxes, located within the proposed area of the safetywalk repairs, shall be reconstructed, and in the area of approach sidewalk replacement, shall be raised to meet the proposed elevation of the new sidewalk, where shown on the plans and in conformance with the details shown on Standard Drawing E-5 and/or as directed by the Engineer. The existing frames and covers shall be salvaged and reused, with the following provisions.

The bolt holes in the frame, which is to be reused, shall be retapped. The existing screws for covers shall be replaced with new matching stainless steel flat head screws. The existing gaskets between the frame and cover shall be replaced with new 1/8" thick neoprene gaskets.

In addition, upon completion of junction box reconstruction and resetting, all debris therein shall be removed to assure that the drain holes or pipes are thoroughly clear and free of any obstruction.

Provide Myers hubs where exposed conduits are attached to exposed junction boxes or to electrical panels. Conduits penetrations shall not be installed on the top side of the panels or junction boxes.

Existing concrete junction boxes, junction box foundations and manholes requiring a greater than 6 inch adjustment to final grade shall be replaced.

Junction Box, Type PS shall be a polymer concrete split junction box with a divider panel to separate power/electrical and communication conduits.

Type PS junction box shall be installed as shown on ITS Standard Drawing or as directed by the engineer. The junction box shall be installed over a 6 inch minimum depth layer of gravel to facilitate drainage.

601.07 CABLES AND WIRES

The following is added:

In order to accommodate the temporary service requirements during conduit replacement operations, where required, the length of existing cables between junction boxes which are located outside safetywalk reconstruction limits, shall be removed from the existing conduit. The cables and ground wire then shall be cut and spliced into new temporary cables in sufficient length to permit placement within the temporary conduit support system detailed in the plans. The cables shall be suspended outside the parapet alongside of the bridge within schedule 40 PVC conduits. The Contractor shall secure, by methods approved by the Engineer, the PVC conduits containing the wires to the bridge, so as not to represent any hazard to the public or workmen or cause damage to the cables.

Upon completion of the conduit replacement operations, the Contractor shall reinstall existing cables and ground wire, and make all necessary permanent connections. Existing cables and ground wires shall be utilized only after they are tested for continuity and insulation resistance by the Contractor and approved by the Engineer.

When existing cables and ground wires fail the testing they shall be replaced with new of the same type and size.

New cables and ground wire shall be installed in all replaced conduits, between junction boxes, as a result of damage caused by the Contractor's operations.

601.10**GUARANTEE**

The following is added:

For each item furnished and/or installed that is provided with a manufacturer warranty that exceeds the 1-year guarantee period (See Subsection 109.03), the Contractor shall assign the warranty to the Authority. The Contractor shall provide a written warranty statement denoting the manufacturer information, model number, warranty terms, and starting and ending coverage dates.

Where work is required to repair electrical or ITS systems in accordance with the guarantee/maintenance bond, the following additional requirements shall apply:

1. The Contractor shall be available for 24-hour service and support throughout the 1-year guarantee term. The Contractor shall be on site ready to make the necessary repairs within 2 hours of a service call. The repairs shall be made and service shall be restored within 24 hours of when the service call was placed
2. The Contractor shall provide a bucket truck if required for on-site repairs and shall provide lane or shoulder closings as required.
3. The Contractor may request to utilize the Authority's spare parts to make the necessary field repairs, but is responsible for replacing defective parts and returning working spares to the Authority after repairs are completed.
4. Should the Contractor default in his obligations to provide emergency services within the time frame as described above, the Authority reserves the right to make the emergency repairs at the expense of the Contractor, any spare parts used in the repair shall be reimbursed by the Contractor or Surety.

601.11**MEASUREMENT**

The following is added:

Temporary service facilities, as prescribed, will not be measured for payment.

Duct Banks of the various types will be measured by the linear foot.

Installation of tracer wire will not be measured separately, but the cost thereof shall be incidental to the Duct Bank item.

Duct Bank, HDPE Conduits Directional Drilled will be measured longitudinally along the centerline of the sleeve on a linear foot basis at each location, and shall include all conduits and innerducts within the sleeve, extending beyond the sleeve to the nearest junction box as specified herein.

Retapping and replacement of the bolts for existing junction box frames and covers, as prescribed, will not be measured for payment.

Replace the first paragraph after the Pay Item table with the following:

No Separate payment will be made for excavation and backfill. All costs associated with this work shall be included in the various conduit pay items bid.

Installation of duct bank will be measured by linear foot along its centerline. Where installed in a duct bank, conduit will not be measured.

601.12 PAYMENT

The following is added:

PAY ITEM	PAY UNIT
4-Way Power/Comm Duct Bank, Soil Encased	Linear Foot
4-Way Power/Comm Duct Bank, Concrete Encased.....	Linear Foot
4-Way Duct Bank, 4" HDPE Conduits Directional Drilled	Linear Foot

Replace the first paragraph after the Pay Item table with the following:

No separate payment will be made for installing a tracer wire. All costs associated shall be included in the Duct Bank pay item.

No separate payment will be made for excavation and backfill. All costs associated with this work shall be included in the various conduit pay items bid.

The furnishing and installation of Rigid Non-Metallic conduit, spacers, concrete, excavation and backfill material shall include all labor, material and equipment necessary for the construction of duct banks as configured per plan, conduit support, termination at junction boxes, all as shown on plans and as directed by the Engineer.

No separate payment will be made for furnishing and installing structural steel and hardware.

No separate payment will be made for couplings, condulets, fittings, or other devices required to provide a connected, bonded conduit system in accordance with the stated requirements.

No separate payment will be made for Flexible Metallic conduit installations. Such lengths of conduit shall be measured and paid under the Pay Item of the conduits they are connected to.

Payment for Duct Bank, HDPE Conduits Directional Drilled includes excavating, dewatering, permanent sheeting at test pit locations and sheeting at jacking or boring pits

including sheeting left in place; furnishing and installing pipe sleeve; disposal of spoil materials; all else incidental to complete the work of slope and ditch.

No separate payment will be made for the furnishing, installation, removal, or modification or any equipment necessary to maintain power and communications to existing signs as required by these specifications.

Payment for Duct Bank, HDPE Conduits Directional Drilled shall include excavating, dewatering, test pits, sheeting required for pits whether temporary or left in place, pipe sleeve, conduits and innerducts within the sleeve, disposal of spoil materials, and all other incidental work necessary to return the site back to the existing condition. No separate payment will be made for the excavation, backfill, restoration of existing work area, and/or construction and restoration of the pits; the cost thereof shall be included in the cost of duct bank installation.

The following sections are added:

SECTION 602 - ROADWAY LIGHTING

602.01 DESCRIPTION

The following is added:

The work shall also include furnishing and installation of lighting standards used for mounting of ITS devices, meter cabinets, load centers, foundations, low-voltage equipment, power distribution systems, and all hardware and wiring necessary to properly install the new lighting standards.

The Contractor shall furnish and install new wiring and cables.

Installation of transformers, conduits, wiring, and maintenance platforms for ITS Stations shall be constructed as described in Section 605.

602.04 LIGHTING STANDARDS

(B) LIGHTING STANDARD INSTALLATIONS.

The following is added:

Lighting Standards provided for pole-mounted ITS devices shall be provided without bracket arms and bracket arm openings, and shall be provided with a pole cap. Dimensions and construction of lighting standards used for ITS devices shall conform to those used for standard Authority lighting standards.

The Contractor shall verify and determine by accurate field measurements all dimensions which will in any way affect fabrication and installation of the lighting standard. All dimensions shall be shown on the shop drawings and noted as to which were determined by field measurements. Field dimensions and data shall be submitted with the shop drawings. Discrepancies between field dimensions and Plan or reference drawing dimensions shall immediately be brought to the attention of the Engineer and

noted as such on the submission of field measurement data. The Contractor shall submit shop drawings and methods of construction in accordance with Subsection 104.08.

602.07 POWER DISTRIBUTION AND CONTROL EQUIPMENT

The following is added:

Install Load Center Cabinets and Meter Cabinets at locations as shown on the Plans. The work shall consist of furnishing and installing the cabinets, appurtenances, mounting hardware, and all internal and attached external components as shown on the Plans including but not limited to circuit breakers, meter pans, contactors, transformers, panelboards, photocells, thermostats, heaters, receptacles, and surge protectors. Furnish and install wiring between devices within the cabinet and terminate all wiring to field devices. Perform grounding work as required by the National Electric Code. For Meter Cabinets, coordinate with local utility to ensure that details used comply with local requirements. Perform all coordination and work, and obtain inspections necessary to provide a complete, connected power service, including any temporary work necessary to keep existing electrical systems operational.

602.08 MEASUREMENT

The following is added:

Underbridge lighting fixtures will be measured by the number installed.

602.09 PAYMENT

The following is added:

PAY ITEM	PAY UNIT
Load Center Cabinet, Type G, Voltage 240/480V	Each
Meter Cabinet, Type G, Voltage 120/240V	Each
Lighting Standard Base, Type 1	Each
Underbridge Lighting Fixture	Each
Transformer, Type 37.5 kVA	Each

No separate payment will be made for mounting hardware and required accessories for installation and testing. Payment shall be included within the appropriate item cost.

No separate payment will be made for utility coordination, but all costs thereof shall be included in the prices bid for the various Meter Cabinet Items.

No separate payment will be made for concrete sidewalks installed adjacent to Load Center Cabinets and Meter Cabinets. All costs for this work shall be included in the cost of Load Center Cabinet and Meter Cabinet installation.

SECTION 605 – INTELLIGENT TRANSPORTATION SYSTEMS

605.01 DESCRIPTION

The following sections detail the requirements that are common to the various types of ITS installations. No payment will be made for any work included in Subsection A below; all costs shall be included in the various pay items bid.

There will be one or more Sign Manufacturers for the Dynamic Message Signs installed under this contract. References made to the Sign Manufacturer(s) for the VMS/VLS signs shall be interpreted to mean Daktronics, Inc. of Brookings, South Dakota. Daktronics is under separate agreement with the Authority to provide VMS, VMS MPT, VLS, and System Control Cabinets for this project. The Contractor shall coordinate and contract with the selected Sign Manufacturer(s) as described herein.

(A) Scheduling, Coordination, and Common Work

1. Maintenance of Existing ITS installations

Unless otherwise noted, the Contractor shall maintain all existing ITS installations, including Emergency Speed Warning/Speed Limit signs, Highway Advisory Radio Signs, Cameras, and Weather Stations in operation continually for the duration of the contract. Existing equipment may be decommissioned and removed only after either if the proposed equipment has been placed into operation or if a alternate interim arrangement has been placed into operation as specified on the plans.

Shutdown of electrical circuits for the purposes of performing contract work shall be performed in accordance with Section 601.03(I).

The Contractor shall provide temporary power distribution equipment, including conduits and wires, as required to refeed existing devices from the new/upgraded services. Where the proposed service voltage differs from the existing, the Contractor shall provide transformers or other means to keep the existing system operational during construction of the proposed ITS power systems.

It shall be the Contractor's option to provide portable generators in lieu of providing temporary power distribution equipment. If generators are provided, they shall have a fuel capacity that is capable of providing power for the maximum connected load for a minimum of 24 hours. The Contractor shall be responsible for refueling all portable generators in order to maintain generators in continuous operation. Portable generators shall not be utilized at any location for more than 20 consecutive days.

The Maintenance of existing ITS installations in continuous operation is the sole responsibility of the Contractor and shall be performed at no additional cost to the Authority.

2. Construction Scheduling

The Contractor shall submit his schedule for anticipated installation of Dynamic Message Signs and ITS Devices for both permanent and MPT use at the start of the Contract. The Contractor shall keep the Engineer informed of any schedule changes during the course of construction.

The proposed delineation of work and sequence of procurement and installation for each Intelligent Transportation System Station (ITSS), (ITSS, in the context of these specifications, refers to any combination of DMS and Traffic Detection Station (TDS), Power Distribution Panels, System Control Cabinet (SCC), CCTV camera, or VMS MPT signs), shall be as follows:

- a. Except for lane use signals furnished by the Contractor, the Contractor places request for sign(s) and associated SCC(s) to the Engineer and the sign manufacturer.
- b. The Contractor schedules delivery and receives the shipment and is responsible for unloading the signs at his designated location(s).
- c. The Contractor completes all proposed underground power and communications infrastructure installations, including permanent power utility service, ITS Power Equipment and ITS Equipment Platforms.
- d. The Contractor installs the SCC on the foundations within the Equipment Platform.
- e. The Contractor transports (if required) and installs signs on the sign structures. The Contractor installs all components of other ITS systems (i.e. CCTV and Traffic Detection) that can be feasibly installed while the structure is not over live traffic. The Contractor installs power and communications cabling where feasible.
- f. The Contractor erects the sign structures.
- g. The Contractor furnishes and installs power and communications cabling from SCCs to the signs.
- h. The Sign Vendor, under agreement and in coordination with the Contractor, performs all interconnection, startup, configuration, and integration testing for the Dynamic Message Signs.
- i. The Authority inspects sign installation and witnesses a Preliminary Acceptance Test for the sign system control from the local SCC.
- j. The Authority will provide Network Switches for the Contractor to install in the SCC. The Authority and will configure the network switches and radio communications equipment. The

Authority will test and provide a functional communications link between the SCC and the Traffic Management Center.

- k. Where Radio Communication is called on the Plans, The Authority will furnish the End Node Radio Antenna and Radio. The Contractor will furnish and install Communication Cable between Radio Antenna and SCC, Radio, Cabling, and other devices on the sign structure and within the SCC. Where ITS fiber will be used as the medium of communication with the Traffic Management Center, The Authority's Fiber Optic Contractors will install and terminate the cables within the SCC and ITSF-48 fiber optic cable.
- l. The Sign Vendor, under agreement with the Contractor, performs all configurations necessary to control the dynamic message sign(s) from the Traffic Management Center.
- m. The Authority witnesses a Final Acceptance Test for all Dynamic Message Sign system functionality.
- n. After Final Acceptance of the Dynamic Message Signs, the Contractor completes installation of other ITS devices and systems, including Traffic Detection and CCTV equipment, and performs Final Acceptance Testing for these devices. The Authority witnesses a functional Final Acceptance Test of all ITS devices and systems installed at each location.

Prior to erection of each sign structure or installation of ITS equipment at each location, the Contractor shall coordinate the schedule of networking equipment and radio communications equipment (where required) with the Engineer and the Authority. The schedule shall be developed such that the maximum downtime of existing systems (specified 5 Calendar Days) is not exceeded before the proposed Dynamic Message Sign system is made operational. For all other locations where downtime would be greater than 5 Calendar days, a Temporary ESW/SL sign configuration shall be implemented by the Contractor at no additional cost unless otherwise shown on the plans.

It shall be the Contractor's responsibility to perform all scheduling with the Authority and the Sign Manufacturer to ensure that the specified allowable equipment downtimes are not exceeded. Delays due to scheduling or inadequate coordination will not be considered as grounds for additional compensation or waiver of liquidated damages. For locations with Fiber Optic Communications, Coordination and scheduling of ITS fiber terminations will be done by others.

3. Communication System

All ITS devices installed under this Contract will be controlled by the central ITS software systems installed at the Authority's Traffic Management Center (TMC) located in Woodbridge, New Jersey. Communications between the TMC and the System Control Cabinets

(SCC`s) at each field location will be either via Fiber Optic or Wireless Radio Communication System. Installation of Fiber Optic Cable and Radio Communications System will be built-out and installed under separate contract with the Authority.

The Authority will furnish a wireless Radio, End Node Radio Antenna and Coax Cable (between radio and antenna) for each ITSS node in the contract. The installation and alignment of the End Node Radio Antenna shall be performed by the Contractor. It shall be the Contractor's responsibility to coordinate with the Authority to obtain the radio communications materials to be installed under the "End Node Radio Installation" pay item. Installation of the antenna (including furnishing of mounting hardware as required), alignment of the antenna, and coordination with the Engineer for the Authority to test and commission the radio communications link will be performed by the Contractor. Each ITSS structure shall have its own radio cabled back to the SCC. The contractor shall provide and install the outdoor rated network cable and surge protector between the radio and SCC

The Contractor shall also provide and install Radio Antenna Mounts as delineated elsewhere in the Specifications.

4. Network Switches

Networking equipment within the Systems Control Cabinets, except Network Switches provided by the Authority, as defined in Section 900, shall be provided and installed by the Contractor. The Authority will be responsible for configuring and testing the network switches, and for providing a complete and functional communication system between each field location and the TMC. It shall be the Contractor's responsibility to configure and test all contractor furnished ITS devices for integration into this communication system once the Authority has provided notice that the communications system is functional and operational.

IP addresses for the various ITS devices will be provided by the Authority for configuration by the Contractor or manufacturer's representative. The Contractor shall request IP addresses from the Authority with a minimum of 10 business days notice.

The Contractor shall also provide and install a Network Switch Expansion Module, in accordance with the manufacturer's instructions, if and where indicated on the site plans.

5. Labeling

The Contractor shall label all power line cords, fiber optic patch cords, copper patch cords, power injectors and power supplies installed in the Systems Control Cabinet and pole mounted ITS Enclosure. Patch cords shall be labeled at both ends. Line cords shall be labeled near the receptacle plug. Labels shall consist of water resistant adhesive-back tape securely fastened to the cable or device and machine printed with large black text indicating the associated device and roadway (ex. CCTV-NS, TDS-SNO, etc.).

(B) Dynamic Message Sign Installation

The work shall consist of connecting and testing of Dynamic Message Signs (DMS) at the locations as designated on the plans. DMS, in the context of these specifications, refers to any combination of Variable Message Signs (VMS), Variable Speed Limit Signs (VSLS), VMS MPT signs with and without lane use signals, and Hybrid Changeable Message Signs (HCMS).

The work shall also include installing and connecting System Control Cabinets (SCCs), furnishing and installing of power and communications wiring serving the Dynamic Message Signs, and performing partial and final acceptance testing of the signs and their controllers after installation.

Included in this work is a fixed lump sum allowance for the Contractor to secure the services of the sign manufacturer of the various types for final testing and commissioning of the DMS.

(C) Closed Circuit Television (CCTV) Cameras

The work shall consist of furnishing and installing CCTV cameras complete with encoders, camera mounting brackets, power transformers, power and communications cabling, communications equipment and other items and appurtenances required to provide working systems either for Intelligent Transportation System Station (ITSS) mounted or pole mounted configurations.

Video Encoders shall be supplied with the CCTV camera both for ITSS-mounted and for Pole mounted configuration.

(D) Radio Antenna Mount

The work shall consist of furnishing and installing the Radio Antenna Mount, POE Injector, surge protector, all cabling, connectors and patch cords for connection between the radio and surge protector, surge protector and power injector, and the power injector and network switch in the SCC complete with all necessary hardware and fittings as shown on the Plans. The mount shall consist of an aluminum pipe mounted in a stainless steel sleeve. The sleeve shall be mounted to the sign structure as shown on the plans and as directed by the Engineer.

Contractor shall be responsible for furnishing and installing the radio antenna mounts as shown on ITS Standard Drawings. Final location of the mount and the mounting height shall be coordinated with the engineer.

(E) End Node Radio

The work shall consist of installing a Wireless Radio, End Node Radio Antenna and Cabling between the radio and SCC at the locations as shown on the plans.

The Authority shall furnish a wireless Radio, End Node Radio Antenna and Coax Cable (between radio and antenna) for each ITSS node in the contract. The installation and alignment of the End Node Radio Antenna shall be performed

by the contractor. The Authority shall test, configure and commission the radio communications link. Each ITSS structure shall have its own radio cabled back to the SCC. The contractor will provide and install the outdoor rated network cable and surge protector between the radio and SCC and CAT5 patch cords between the surge protector, power injector and network switch.

Radio antenna installation, alignment, and coordination with the Engineer for the Authority to test and commission the radio communications link shall be performed by the Contractor. The Contractor shall also provide and install Radio Antenna Mounts as delineated elsewhere in the Specifications.

(F) ITS Power Infrastructure

The work shall consist of installing the common electrical and power components at each ITS Station, including underground conduits, power equipment, wiring, foundations, and maintenance platforms.

(G) Removal of Electronic Sign Systems

The work shall consist of furnishing all labor and equipment necessary to disconnect, remove and dispose of existing electronic sign systems at locations as shown on the Plans.

Electronic sign systems shall include Changeable Message Sign, Variable Message Sign, Variable Speed Limit Sign, Emergency Speed Warning / Speed Limit, Glow Cube, Flip Disc signs or VMS MPT signs.

Removal work includes, but is not limited to, disconnecting incoming power and communication feeds, removing signs, cabinets, foundations, wiring, conduits, junction boxes, antennas, power equipment, communications equipment, luminaires, bridge walkways, maintenance platforms and railings, and other system components as shown on the Plans. The work also includes removal of existing structural items such as sign mounting hangers, bridge mounted sign supports, and ground-mounted sign posts and foundations.

Concrete foundations for ground-mounted electronic sign systems shall be removed to a depth two (2) feet below finished grade and backfilled. After the removal of ground mounted electronic sign system, the contractor shall restore the area to a condition similar to the surrounding vicinity as directed by the engineer.

The Contractor shall give 4 week notice to the Authority prior to decommissioning a sign system and shall obtain approval from the Authority's Electrical Maintenance Department to disconnect the service. After approval is given, the Contractor shall disconnect, carefully remove the signs, and temporarily place them on the ground at the construction site.

All components deemed salvageable by the Engineer, or as noted herein or on the Plans, shall be loaded, transported and off-loaded by the Contractor to the Authority's storage yard as directed by the Engineer. Any non-salvageable items shall be disposed of in a satisfactory manner off Turnpike property by the Contractor after notification is given that material salvaging by the Authority has

been completed. The Contractor shall give the Engineer a minimum of one (1) week notice to schedule for material salvaging. VMS MPT signs, wireless radio, end node radio antenna and system control cabinets shall be salvaged and delivered to the Authority's Telegraph Hill Maintenance Yard in Holmdel. The Contractor shall contact Alan Zehnbauer (Phone 732-442-8600 ext. 2056) of the New Jersey Turnpike Authority's Telecommunication Department two (2) weeks prior to disconnecting the signs.

For Emergency Speed Warning and Speed Limit Signs, salvage work shall include the sign neon tubes, speed limit numeric display module, and associated components. For Variable Message Signs and Changeable Message Signs, salvage work shall include sign enclosures complete with all internal components, controllers, and other cabinets as directed. Common sign enclosures to be removed includes but not limited to Emergency Speed Warning Sign Control Cabinet, Speed Limit Sign Control Cabinet, Police Control Station Cabinet, Service Panel Cabinet and Remote Device Interface Cabinet or as shown on the plans.

The item for Removal of Electronic Signs, Bridge Mounted, shall include removal of maintenance walkways, sign hangers, and structural support components in accordance with Section 210. For bridge structures to remain, this item shall also include spot repainting of steel surfaces in accordance with Section 411. In removing the sign, the Contractor shall take all necessary precautions to prevent damage to the existing structure to remain. Empty bolt holes remaining in the structural steel after removal of the Electronic Sign System structural supports shall be filled with fully-tightened bolts with washers on each side. These bolts shall conform to Subsection 909.02(B). Holes remaining in the concrete bridge parapet after removal of the Electronic Sign System structural supports shall be filled with a non-metallic, non-shrink grout conforming to Subsection 905.13.

The existing changeable message signs shall be salvaged and delivered to Service Area 11N (Milepost 101.7 SNO). The Contractor shall use caution when removing these signs and the signs are to be stored upright, next to the other Changeable Message Signs at this site. The Engineer shall coordinate the removal of the changeable message signs with Kevin O'Brian, NJ Turnpike Authority Electrical Forman (609-426-6336). Sign structures are to be disposed of.

(H) Spare Parts

The work shall consist of furnishing and delivering to the Authority spare parts for ITS systems as specified herein.

(I) VMS MPT Signs

This work shall consist of installing of variable message signs, lane use signals and sign panels furnished by the Contractor following the "Scheduling, Coordination and Common Work" requirements of this Subsection. The installation work shall consist of all materials and work required including at the equipment pad and shall follow the requirements of the "Dynamic Message Sign Installation", "Radio Antenna Mount", "End Node Radio", and "ITS Power Infrastructure" Subsections above.

(J) Remove and Salvage MPT VMS

When no longer required and as directed by the Engineer, all VMS MPT signs, system control cabinets and antenna shall be removed and salvaged. Other material on the equipment pad and sign structure shall be removed and salvaged or disposed of as directed. All work shall conform to the requirements of the "Removal of Electronic Sign System" subsection above.

605.02 MATERIALS

Materials shall conform to the following Sections and Subsections:

Fasteners	909.02
Steel Pipes for Sign Support Structures	909.10
Aluminum Pipe	911.01
Sign Panels and Hardware	912.01
Sign Background	912.02
Bonding and Grounding Devices	918.02
Cable and Wire.....	918.07
Conduit and Fittings.....	918.08
Electrical Tapes.....	918.10
Pole with Transformer Base.....	918.16
Lighting Standard	918.16
Metallic Junction Boxes	918.17
Mounting Devices.....	918.18
CCTV Camera.....	918.31
CCTV Camera Mount.....	918.32
Pole-Mounted ITS Enclosure.....	918.33
Video Encoder	918.34
Power Injector.....	918.41
Epoxy	918.42
Media Converter	918.43
CCTV Remote Power Unit.....	918.44
Fiber Termination Panel.....	918.45
Coaxial Cable.....	918.48
PoE Surge Protector	918.49

DMS will be provided by others as described herein. The following information is included as reference to the Contractor for the purposes of estimating the level of effort required to complete the work under this section.

VMS Characteristics

- Enclosure:** Shallow depth with front or rear accessibility for maintenance
- Panel Height (max):** 8ft - 6 in (Rear Access), 8ft - 6 in (Front Access)
- Panel Width(max):** 26ft - 6 in (Rear Access), 24ft - 0 in (Front Access)
- Panel Depth(max):** 1ft - 5 in (Rear Access), 1ft - 5 in (Front Access)
- Weight (max):** 2500 lbs (Rear Access), 2500 lbs (Front Access)

- Display Modules:** Exposed face modular LED boards (no mask) removable from the front or rear of the sign.

Pixels:	RGB pixels, 20mm pitch (distance between pixels). 30 Deg nominal viewing cone with a half power angle of 15 Deg.
Communications:	NTCIP (version 2 draft for color and graphics)
Power Source:	120/240VAC, Single Phase
Max. Power:	6400 Watts

VMS will be manufactured with lifting eye bolts for moving and installation purposes.

VSLs Characteristics

VSLs are oversized MUTCD Speed Limit panels with LED modules used for variable speed indication. Modules are of the same type and size as those used for the VMS.

Configuration:	Full matrix, full color LED, capable of displaying two-digit speed limits. Typical operation will be white numerals on black background.
Enclosure:	Sign enclosure is rear accessible for maintenance.
Height (max):	6ft - 0 in
Width (max):	5ft - 0 in
Depth (max):	1ft - 0 in
Weight (max):	250 lbs
Display Modules:	Exposed face modular LED boards (no mask) removable from the rear of the sign.
Pixels:	RGB pixels, 20mm pitch (distance between pixels). 30 Deg nominal viewing cone with a half power angle of 15 Deg.
Communications:	NTCIP (version 2 draft for color)
Power Source:	120/240VAC, Single Phase.
Max. Power:	300 Watts

HCMS Characteristics

HCMS signs are the combination or rotating drum panels and embedded Variable Message Sign modules. Following are the general Characteristics of the Sign Module.

Enclosure:	Sign enclosure is non-walkin with rear accessibility for maintenance.
Front Display Modules:	Rotating Drum Panels with Exposed face modular LED boards removable from the rear of the sign.
Pixels:	RGB pixels, 20mm pitch (distance between pixels). 30 Deg nominal viewing cone with a half power angle of 15 Deg.
Communications:	NTCIP (version 2 draft for color and graphics; not ratified)
Power Source:	120/240VAC, Single Phase
	Front Panel Height (max): 9ft - 8 in (Rear Access)
	Panel Width(max): 20ft
	Panel Depth(max): 1ft - 8 in
	Weight (max): 4000 lbs
	Max. Power: 10000 Watts

3 Line VMS MPT Characteristics

Daktronics – Vanguard VF-2320-96x272-20-RGB

Enclosure:	Shallow depth with front accessibility for maintenance
Panel Height (max):	8ft – 3in
Panel Width(max):	18ft – 8 in
Panel Depth(max):	1ft – 1 in
Weight (max):	1510 lbs
Power Source:	120/240VAC, Single Phase -3 wire plus ground -18 amps per leg.
Max. Power:	4320 Watts

2 Line VMS MPT Characteristics

Daktronics – Vanguard VF-2320-64x272-20-RGB

Enclosure:	Shallow depth with front accessibility for maintenance
Panel Height (max):	5ft – 3in
Panel Width(max):	18ft – 8 in
Panel Depth(max):	1ft – 1 in
Weight (max):	1600 lbs
Power Source:	120/240VAC, Single Phase -3 wire plus ground -12 amps per leg.
Max. Power:	2880 Watts

All new HCMS are to be mounted onto new overhead sign structures.

All materials used in the CCTV system shall be provided with standard manufacturer warranties. If these standard warranties extend beyond the duration of the one-year Maintenance Bond (see Section 109), provide documentation to the Authority indicating warranty duration and method of making a warranty claim for each item provided.

. The Contractor shall be responsible for any required licensing fee or related expense for the addition of the new wireless access points or wireless sensors into the existing Authority traffic detection system. The cost for this shall be included in various pay items for TDS installation and shall not be paid separately.

Materials for spare parts shall conform to all stated requirements for equipment installed under this Contract. All spare parts provided shall be of the identical make and model as those installed under this Contract.

605.03**METHODS OF CONSTRUCTION****(A) Dynamic Message Signs (DMS)**

The following shall apply to permanent and VMS MPT signs.

At least eight (8) weeks prior to anticipated erection of each VMS/VSLs and twelve (12) weeks for Hybrid Changeable Message (HCMS) sign structure, the Contractor shall notify the Engineer and sign manufacturer for the request of sign equipment delivery. Sign equipment shall not reside uninstalled on Authority property any longer than 30 days from the date of delivery by the

manufacturer. The Contractor will be responsible for protecting the signs and equipment during this period. Any damage to the equipment during this period will be at the Contractor's expense.

The DMS and SCC equipment will be delivered by the Sign Vendor directly to the Contractor's designated location. The signs and controllers will be tested at the sign manufacturer's facility before shipment. The Contractor, at his discretion, may choose to power up the sign and test upon delivery to verify operation prior to erection, but must do so at no additional cost to the Authority. The Contractor shall secure the services of the sign manufacturer to perform on-site startup, interconnections and testing after the signs have been erected and connected.

Fiber optic communication cables between the signs and the sign controller shall be furnished by the sign vendor and shall be installed by the Contractor, however power cables between the sign and SCC shall be furnished and installed by the Contractor. Cable terminations at the SCC and within the Dynamic Message Signs and controllers shall be performed by the Contractor and under the supervision of the Sign Manufacturer representative. Sign Manufacturer contact information will be provided to the Contractor in advance of this work for coordination and scheduling.

1. Variable Message Sign Installation

The work shall consist of performing all necessary work to prepare the Variable Message Sign (VMS) for integration and testing.

Furnish and install conduits and perform work as shown on the Plans to provide continuous communications and power raceway paths between the SCC and the VMS. Pull and terminate power and communications cables between the SCC and the Variable Message Sign as shown on the Plans.

Power cable type, size and quantity of conductors shall be furnished and installed as shown on the Standard Drawings.

Erection of the Variable Message Sign on the sign structure shall be performed under Division 400 prior to erection.

2. Variable Speed Limit Sign Installation

The work shall consist of performing all work necessary to prepare the Variable Speed Limit Sign (VSLS) for integration and testing.

Furnish and install conduits and perform work as shown on the Plans to provide continuous communications and power raceway paths between the SCC and the VSLS. Pull and terminate power and communications cables between the SCC and the VSLS as shown on the Plans.

Power cable type, size and quantity of conductors shall be furnished and installed as shown on the Standard Drawings.

Erection of the Variable Speed Limit Sign on the sign structure shall be performed under Section 432 prior to erection.

3. **Hybrid Changeable Message Sign Installation**

The work shall consist of performing all work necessary to prepare the Hybrid Changeable Message Sign (HCMS) for integration and testing.

Furnish and install conduits and cables and perform work as shown on the Plans to provide continuous communications and power raceway paths between the SCC and the HCMS. Pull and terminate power cables between the SCC and the HCMS as shown on the Plans.

Power cable type, size and quantity of conductors shall be furnished and installed as shown in the Standard Drawings.

Erection of the Hybrid Changeable Message Sign on the sign structure shall be performed under Division 400 prior to erection.

4. **System Control Cabinet Installation**

The work shall consist of performing all work necessary to install the Systems Control Cabinet (SCC).

Each ITSS installation will have its own Systems Control Cabinet (SCC) along with other ITS equipment at its base. The Authority has made arrangements with the Sign Manufacturer to furnish SCC's with the required electronics for each VMS/VLSL/HCMS location. The Contractor is required to install each SCC. SCCs will be provided to the contractor with all the required equipment at a particular location and as shown on the Standard drawing except the Network Switch (Item P) & Fiber Termination Panel (Item T, where fiber optic cable is required) that will be supplied by the Authority and installed by the Contractor..

However, there are incidental items not shown on ITS-22 that shall be furnished and installed by the Contractor. This includes but not limited to), video encoders, , power line cords, POE injectors and surge protectors in the SCC as shown on ITS Standard Drawings.

Install the SCC on the foundation or platform provided under Section 602. Perform bonding and grounding of the cabinet for both inner and outer VMS structures. Pull and terminate power cables between the SCC and the upstream power disconnect as shown on the Plans. The Contractor shall furnish and install all required ground wires and connectors to properly ground all shielded cables and surge protectors in accordance with the equipment manufacturer's instructions. All slack wires and cables entering the SCC shall be neatly bundled, secured and labeled in the base of the cabinet.

The Contractor shall furnish and install a 12 terminal (minimum) equipment ground bar in the SCC as shown on standard drawing ITS-22. The ground bar, Square-D model PK9GTA or equal, shall be bonded to the SCC ground rod by way of a #6 AWG insulated ground wire. All grounding resistance values shall be less than 10 ohms. All surge protectors, cable shields and other devices requiring grounding shall be

bonded to the ground bar with neatly arranged ground wires kept as short and straight as practical.

Power cable type, size and quantity of conductors shall be furnished and installed as shown on the Standard Drawings or as shown on plans, whichever is greater.

A bead of silicone caulk shall be applied around the base of the cabinet where it meets the concrete pad.

5. System Manufacturer Installation and Testing

The Contractor shall secure the services of the Sign Manufacturer of the various types to perform configuration, integration, and acceptance testing for each sign. The Sign Manufacturer will perform this work as a sub-contractor to the Contractor. The sign will have previously been tested, inspected and certified by the Sign Manufacturer to be free from manufacturing problems and defects prior to pickup by the Contractor. Final testing shall be designed to uncover wiring errors, installation damage of all types, and any remaining manufacturing defects. The Contractor shall provide test equipment and supplies needed for testing after installation.

If it is determined that repairs are required to the signs after installation, it shall be assumed that such damage or lack of operation was due to work performed by this Contract or by manufacturer's defect. Any repairs shall be made, or arranged for under the manufacturer's warranty, by the Contractor at no cost to the Authority.

The Contractor shall ensure that a representative of the system's manufacturer oversees the installation and testing. Connection to any active communication system shall be performed or directly supervised by Authority personnel.

The Contractor shall submit a comprehensive testing plan, at least 30 days in advance of the anticipated testing for the first sign location.

Testing shall be performed as follows:

(a) Preliminary Acceptance Testing

The Preliminary Acceptance Test shall include the following, and shall be completed prior to connection to the communications system:

- All diagnostic routines provided by the manufacturer.
- Proper operation of every pixel, including uniform brightness at all brightness levels and proper current consumption.
- Proper wiring of the display modules, checked by displaying a test message that identifies the modules' proper row and column positions.

- Appropriate brightness for day and night conditions. If the sign is on a portion of the road that runs approximately east-west, the brightness when the sun is directly in front of or behind the sign shall also be checked.
- Proper operation from the auxiliary controller
- Absence of leaks
- Proper entry of default messages
- Proper operation of the interfaces to all sign subsystems
- Proper operation of the temperature sensors, blowers, etc.
- Proper grounding.
- Correct wiring of sensors and alarms as sensed at the controller.
- Visual inspection for any structural or cosmetic damage.
- Visual inspection for any missing electrical components or component damage.

(b) Final Acceptance Testing

The final acceptance testing shall be performed after connection of the communication system. Among the aspects that shall be included in final testing are the following:

- All items included in the Preliminary Acceptance Testing
- Fully functional control of the sign by the central computer at the TMC.

The Final Acceptance Test results shall be documented, signed system manufacturer's representative and submitted to the Engineer.

(B) Closed Circuit Television (CCTV) Cameras

The locations of CCTV cameras shown on the Plans shall be considered schematic in nature. The exact location of each CCTV camera shall be as directed by the Engineer through coordination with the Authority. All installations shall be performed in accordance with the camera manufacturer's recommendations.

The Contractor shall have the camera manufacturer's representative perform system activation and system testing. The system shall be configured and tested by the camera manufacturer's representative to prove compatible operation from the existing CCTV computer hardware and software in the Authority's Traffic Management Center.

The Contractor shall submit a written Final Acceptance Test Plan for approval prior to scheduling a Final Acceptance Test. The Final Acceptance Test shall include the following, and shall be completed after all components have been installed, configured, and integration-tested:

- All diagnostic routines provided by the manufacturer
- Proper wiring, grounding, and attachment to pole or ITSS
- Proper operation of the camera, including focus and clarity of picture
- Adequate picture visibility under direct sunlight and nighttime conditions
- Demonstration of real-time live-motion video received at the TMC
- Demonstration of proper control of pan, tilt, and zoom capabilities
- A 30-day operational test of all functionality from the TMC

The Final Acceptance Test results shall be documented, signed system manufacturer's representative and submitted to the Engineer.

CCTV Camera, ITSS Mounted

For ITSS-mounted CCTV cameras, provide all equipment as shown on the Plans. Install the Camera Mount at the location shown on the Plans, ensuring that the camera can be maintained from the sign structure walkway where present or from a right-lane closure where a walkway is not present. Install the Remote Power Unit on the sign structure, and provide equipment within the enclosure as shown on the Plans. Furnish and install camera encoders in the Systems Control Cabinets as shown on the Plans. Terminate power and communications wiring at the camera and Remote Power Unit as per the camera manufacturer's directions. Install power wiring from the Remote Power Unit to the specified power panel located in the Systems Control Cabinet.

(C) Radio Antenna Mount

Install the Radio Antenna Mount as directed by the Engineer.

(D) End Node Radio

The installation and alignment of the End Node Radio Antenna shall be performed by the Contractor. Each DMS structure shall have its own Antenna system cabled back to the SCC. The Contractor shall furnish and install all cabling, connectors and patch cords for connection between the radio and surge protector, surge protector and power injector, and between the power injector and network switch in the SCC. The Contractor shall coil sufficient slack cable inside the structure chord to allow installation of the End Node Radio at any location between the sign structure End Frames.

Radio antenna installation, alignment, and coordination with the Engineer for the Authority to test and commission the radio communications link shall be performed by the Contractor. The Contractor shall also provide and install the Radio Antenna Mount as shown on Standard Drawing ITS-26.

Install the End Node Radio Antenna and Wireless Radio on the Radio Antenna Mounts as shown on Standard Drawings ITS-26. Install the radio at an elevation such that it is accessible from the overhead structure walkway using a 8' step

ladder. Connect the Antenna and Radio with the coaxial cable provided by the Authority, and fasten it to the Mount as directed by the Engineer.

Connect the Outdoor Network Cable to the Wireless Radio, and route the cable back to the SCC through the sign structure chords and conduits as shown on the Plans. Install a Power Injector in the SCC, furnish and install a PoE surge protector, and make the connections as required to provide connectivity between the radio and the Network Switch, including CAT5e patch cords.

As part of this work, perform coordination with the Engineer and the Authority to determine the location and methods of radio system equipment installation. Final location of the equipment and the mounting height of the antenna shall be coordinated with the Engineer. Upon request, the Contractor will be provided a list of tower antenna locations broken down by sign milepost for his use in aiming the antennas. The Contractor shall request mounting details, dimensions, locations, and aiming details at least 60 days in advance of his intended work at each location. The Authority will provide mounting locations within 30 days upon receipt of notice.

It shall be the Contractor's responsibility to achieve a functional communications link (as determined by the Engineer) between the radio antenna and the tower serving the system. Perform alignment of the antenna as directed by the Engineer/Authority. Installation and alignment of radio components shall be performed after the sign structure is erected. The Contractor shall provide a bucket truck, lane/shoulder closings and traffic protection as required to aim the antenna and achieve an acceptable communications link at no additional cost to the Authority.

After installation and aiming work is complete, the Authority will test, configure and commission the radio communications link. Payment will not be made until the Authority has accepted the installation and provided the Engineer notice that either:

- a. the antenna has been successfully aimed and a communications link has been established to the serving tower, or
- b. the antenna has been installed according to plan and aimed as directed, but that the location does not allow for a direct communications link with the serving tower.

(E) ITS Power Infrastructure

1. ITS Power Equipment, Pedestal-Mounted

Furnish and install the power distribution equipment mounted to the sign structure pedestal. Furnish and install conduits between the power distribution equipment and the conduit stubs provided under the ITS Equipment Platform item.

Terminate the incoming power cables (installed under Section 601) at the main disconnect. Furnish, install, and connect power wiring on the load side of the main disconnect, as shown on the Plans, as necessary to provide a complete and operational power distribution system. Provide

grounding as shown on the Plans and/or as required by the National Electric Code.

2. ITS Power Equipment Cabinet

Furnish and install the power equipment cabinet on the cabinet foundation provided under the ITS Equipment Platform item. Install power distribution devices and conduit as shown on the Plans.

Terminate the incoming power cables (installed under Section 601) at the main disconnect. Furnish, install, and connect power wiring on the load side of the main disconnect, as shown on the Plans, as necessary to provide a complete and operational power distribution system. Provide grounding as shown on the Plans and/or as required by the National Electric Code.

3. Transformers

Install transformers as specified and shown on the Plans. All transformers provided of each type shall be manufactured by the same manufacturer, and shall have the same dimensions. Orient the transformer to facilitate maintenance without having one's back to active traffic. Terminate the primary and secondary cables, and provide ground for separately derived systems as per the requirements of the National Electrical Code.

4. ITS Equipment Platform and VMS MPT Pad

Work under this item includes construction and installation of the common electrical infrastructure serving ITS System Control Cabinets and Power Cabinets.

Furnish and install, as shown on Plans:

- concrete or steel work platform or pad
- foundations for Systems Control Cabinets, ITS Power Equipment Cabinets (where required), and Transformers (where required)
- conduits within the limits of the platform or pad
- conduits between the platform or pad and adjacent Type C Junction Boxes
- conduits between the sign structure foundations and junction boxes/cabinet foundations as shown on the Plans and Standard Drawings
- bollards, handrails, and protective devices (where required)

Install conduit using the methods described in Section 601. Where conduits extend past the platform or pad, provide a minimum 24 inch stub beyond the platform or pad. Where conduits extend from underground to exposed mounting, provide 3" minimum extension above the platform or pad for future connection.

Cap all conduits not used in the final system under this Contract.

(F) Spare Parts

Provide a complete package of spare parts as indicated below. The provisions of this section shall not be construed to limit the delivery of spare parts referenced or required by other sections of this Specification or as shown on the Plans.

Provide spare parts of the following equipment. The quantities provided of each part shall be the number of units noted below:

- CCTV Camera, ITSS Mount - 2
- CCTV Camera, Pole Mount - 1
- Camera Remote Power Unit - 2
- Video Encoder - 2
- Video Encoder Power Supply - 2
- Media Converter - 2
- Media Converter Power Supply - 2
- Power-over-Ethernet Injector (each type if more than one) - 4
- Traffic Sensor Wireless Access Point - Not furnished under this project
- Traffic Sensor Wireless Repeater - Not furnished under this project
- In-Pavement Wireless Sensor - Not furnished under this project
- Surge Protector (each type if more than one) - 2
- Fiber Termination Panel - 2
- Pole-Mounted Enclosure (enclosure only, internal components to be provided separately) - 1

Deliver the spare parts as a complete package to the Authority at a location as specified by the Engineer. The Authority will issue a written receipt for the Spare Parts.

(G) VMS MPT Signs

VMS MPT signs including the 2 line VMS sign panels, 3 line VMS panels, furnished by the Authority, and lane use signals, furnished by the Contractor, shall be installed on overhead sign structures provided by the Authority and installed at the locations shown on the Maintenance and Protection of Traffic Plans by the Contractor. The work shall be performed as specified in the above Subsections titled "Dynamic Message Signs", "System Control Cabinet Installation", "System Manufacturing Installation and Testing", "Radio Antenna Mount", "End Node Radio", and "ITS Power Infrastructure.". The configuration of the signs and sign panels shall follow the details provided in the Maintenance and Protection of Traffic plans and shall be provided by the Contractor. The sign panel shall not be fabricated until all dimensions of the VMS and Lane Use Signals are confirmed by information provided by the manufacturer of each component. All mounting hardware, sign panels, equipment pads conduits, testing and other materials required to conform the installations shown on the plans shall be included. This work shall also include the installation of the power equipment cabinet and foundation and connections to the existing meter cabinet at Cranbury South River Road.

When directed by the Engineer, all VMS signs and mounting hardware are to be removed by the contractor and components to be salvaged and delivered as

specified in Subsection 605.01. All materials on the equipment pad and sign structures shall be removed. The power equipment cabinet and foundation and connections to the existing meter cabinet at Cranbury South River Road shall remain.

(H) End Node Radio Relocation

In certain circumstances, the Engineer may direct the relocation of the Radio Antenna Mount and End Node Radio Antenna equipment to another location on the sign structure.

When directed, perform the following work to relocate the Radio Antenna Mount and End Node Radio Antenna Equipment to another location on the sign structure:

- a) Disconnect the antenna and radio from the network cable.
- b) Remove the Radio Antenna Mount and reinstall in the new location (as directed by the Engineer).
- c) Pull the slack cable provided under the original End Node Radio Installation item through the sign structure chords to the new location.
- d) Provide new outdoor network cable between the SCC and the End Node Radio if the existing cable does not reach the new location. Remove the existing cable.
- e) Reinstall the End Node Radio equipment and connect to the network cable.
- f) Perform aiming operations as described under "End Node Radio Installation" above.

In certain circumstances, in addition to relocating the Radio Antenna Mount and End Node Radio Antenna equipment to another location on the sign structure, the Engineer may also direct the Contractor to extend the antenna mast length to 20 feet to achieve adequate signal strength. The radio would still be mounted near the base of mast while the antenna is mounted near the top of the mast.

When directed, perform the following work in conjunction with relocating the Radio Antenna Mount and End Node Radio Antenna Equipment to another location on the sign structure:

- a) Replace the originally specified mast with a new 20-foot pole, 2-1/2" diameter mast.
- b) Replace the provided coax antenna cable with a new 20-foot coax antenna cable with additional cable mounts as needed.

The work under this item shall include the maintenance and protection of traffic to perform all removal, installation, and aiming operations required to establish a functional communications link (as determined by the Engineer) between the radio antenna in its new location and the tower serving the system.

605.04**MEASUREMENT**

Variable Message Signs, Variable Speed Limit Signs, and Hybrid Changeable Message Signs will be measured by the number of each installed, tested, and accepted.

System Controller Cabinets will be measured by the number of each installed, tested, and accepted.

FX and TX expansion modules at the Network Switch will not be measured separately.

System Manufacturer Installation and Testing (No Bid) will be on a lump sum basis, and an estimated amount to cover the System Manufacturer Installation and Testing will be included in the Proposal. Payments for increases or decreases in this amount will be made, based on the actual costs to the Contractor, including 10% maximum markup to cover the Contractor's coordination expenses.

CCTV Cameras, ITSS Mounted will be measured by the number in place, fully installed and tested with all components, including camera mounting post, camera Remote Power Unit with all appurtenances as shown on the Plans, and power and communications cabling between the CCTV camera and Systems Control Cabinet.

Conduits embedded in concrete platform and in sign structure foundations will not be measured for payment.

The Radio Antenna Mount will be measured by the number in place, fully installed.

End Node Radio Antenna Installation will be measured by the quantity of radio systems fully installed, connected, and aimed

End Node Radio Relocation will be measured by the number of Radio Antenna Mounts and sets of End Node Radio equipment relocated, including installation, connection, and testing.

Communications cable and surge protector between the Wireless Radio and SCC will not be measured separately.

ITS Power Equipment, Pedestal-Mounted; and ITS Equipment Platforms of each type will be measured by each system completely installed, regardless of the arrangement and extent of associated system components. The ITS power equipment cabinet for the installation of the VMS MPT signs will be measured by the number of each installed.

Lighting standard for ITS devices will be measured by number of each installed.

Transformers of each type will be measured by the number installed.

Removal of Emergency Speed Warning and Speed Limit Sign System, Bridge Mounted will be measured by each sign, regardless of the arrangement and extent of associated system components to be removed and disposed. For the purposes of measurement, Emergency Speed Warning and Speed Limit Signs shall be treated as one connected system.

Removal of common electrical and communication components that serve multiple sign systems will not be measured; the costs for removal of these common components shall be distributed among the various sign system removal items.

Spare Parts will be on a lump sum basis, for all parts delivered as a complete package. Payment will not be made until preliminary acceptance of all signs and ITS devices has

been completed, and the Engineer has received a copy of the receipt issued by the Authority indicating that the Spare Parts have been delivered.

Install VMS MPT will paid on a lump sum basis for the installation, testing and acceptance of all components required to be installed at each respective overhead sign location noted on the Maintenance and Protection of Traffic Plans. The lump sum work shall include the sign panels, equipment pad, cabinets, end node radio installation, system control cabinet installation and all conduits and wiring located on and between the equipment pad and the signs..

Remove and Salvage VMS MPT will be paid for on a lump sum basis for the removal of all previously installed VMS MPT signs, equipment and hardware at the various locations as indicated on the Maintenance and Protection of Traffic Plans. All items above the surface of the equipment pad shall be removed and salvaged as specified and as directed by the Engineer.

605.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Variable Message Sign Installation.....	Each
Variable Speed Limit Sign Installation.....	Each
Hybrid Changeable Message Sign Installation.....	Each
System Control Cabinet Installation.....	Each
System Manufacturer Installation and Testing (No Bid).....	Lump Sum
CCTV Camera, ITSS Mounted	Each
Radio Antenna Mount.....	Each
End Node Radio Installation	Each
End Node Radio Relocation.....	Each
Removal of Emergency Speed Warning and Speed Limit Sign System, Bridge Mounted	Each
ITS Power Equipment , Pedestal Mounted.....	Each
ITS Equipment Platform, Type 2.....	Each
ITS Equipment Platform, Type 4.....	Each
Install VMS MPT, Location No. _____	Lump Sum
Remove and Salvage MPT VMS	Lump Sum

Payment for Variable Message Sign Installation, Variable Speed Limit Sign Installation, Hybrid Changeable Message Sign Installation, Install VMS MPT, and System Control Cabinet Installation shall be made after successful completion of the Partial Acceptance Testing for each connected system.

No separate payment will be made for furnishing and installing power and communications cables between the DMS sign on the structure and the controllers in the SCC cabinet, but all cost thereof shall be included in the various sign installation pay item.

No separate payment will be made for furnishing and installing conduits within the ITS equipment platform, but all cost thereof shall be included in the price bid for ITS Equipment Platform pay item.

Cost of furnishing and installing power cable between outer and inner SCC cabinet shall not be paid separately, but all cost thereof shall be included in the inner sign installation pay item.

Payment for CCTV Cameras shall be made after successful completion of the Final Acceptance Testing for each connected system.

Payment for lighting standards and foundations used for pole mounted devices shall be paid for separately in accordance with Section 602 or as specified elsewhere.

Payment for the removal of sign mounting hangers and bridge mounted sign supports, associated with the removal of Electronic Sign Systems shall be included under "Removal of Emergency Speed Warning and Speed Limit Sign System, Bridge Mounted".

Payment for removal of existing Span Sign Structures, Butterfly Sign Structures and Bridge Mounted Sign Structures with electronic signs shall be paid as specified in Section 406.

Furnishing and installation of all conduits, wiring, foundations, and other electrical work within the VMS Equipment Median shall be as specified in Section 508.

No separate payment will be made for the Contractor's work under the System Manufacturer Installation and Testing pay item. All payment made to the Contractor under this item shall be passed through by the Contractor to the Sign Manufacturer. Payment for Contractor's work under this item, including but not limited to coordination with the Sign Manufacturer, and provision of labor and materials to execute acceptance testing for the Dynamic Sign Systems shall be included in the various Dynamic Message Sign installation pay items. .

No separate payment will be made for the testing, integration, and configuration of CCTV including equipment manufacturer services, travel, and other work. All costs for this work shall be included among the various CCTV pay items.

No separate payment will be made for furnishing and installing the video encoder, fiber termination panel , power supply, cables and other appurtenances within the ITS Enclosure, but all costs thereof shall be included in the CCTV camera item

No separate payment will be made for the installation and coordination of End Node Radio Antenna and Wireless Radio, including furnishing and installing the communication cable, surge protector and coordination with system integrator and the Authority. All costs for this work shall be included in the End Node Radio Installation pay items.

The bid price for End Node Radio Relocation shall include all necessary work, Maintenance and Protection of Traffic, materials, cables, and other items required to remove a Radio Antenna Mount/End Node Radio Antenna assembly from one location on a sign structure, and reinstall it at any other location on the same sign structure

No separate payment will be made for the VMS/VSLs grounding system, or for any grounding system equipment not specifically shown on the plans but required to be

installed to achieve a 10-ohm minimum impedance between the sign and ground as described herein. All costs for this work shall be included in the various Dynamic Message Sign installation pay items.

The following Sections are added:

SECTION 606 – TOLL PLAZA ELECTRICAL WORK

606.01 DESCRIPTION

The work shall consist of furnishing and installing an electrical distribution system for the Toll Plaza administration building consisting of service entrance, electrical distribution equipment installed in aluminum enclosures on a concrete pad behind the plaza parking lot as shown on the plans and as described in this specifications.

The standby generator shall consist of furnishing and installing a packaged engine-generator systems with diesel engine, unit-mounted cooling system, double wall base mounted fuel tank, generator, engine generator set controller, engine generator set accessories, weatherproof enclosure and radiator mounted resistive load bank, as a functional power system for standby power for the entire building loads as described in these specifications and at the designated locations shown on the Plans.

606.02 MATERIALS

Materials shall conform to the following subsections:

Ground Wire.....	918.02
Power Cable.....	918.07(A)
Conduit and Fittings.....	918.08
Equipment Distribution Enclosures	918.24
Packaged Engine-Generator Systems.....	918.25

606.03 MOUNTING

(A) Equipment Distribution Enclosures

The distribution enclosure shall be mounted on channels bolted to the concrete pad as shown, or as directed by the Engineer. Details for these types of mounting are shown in the Plans and shall be used as a reference during installation. The Contractor shall mount the enclosure using an installation kit supplied by the cabinet manufacturer.

(B) Packaged Engine-Generator Systems

The generator enclosure shall be mounted on the concrete pad as shown in the Plans. Details for these types of mounting are shown in the Plans and shall be used as a reference when installing the generator. The Contractor shall mount the generator using an installation kit supplied by the manufacturer.

606.04 POWER

The service entrance enclosure shall be powered from the electric utility power source as shown in the Plans.

The packaged engine-generator systems shall be powered from the panelboard power source as shown in the Plans.

606.05 ASSEMBLY AND INSTALLATION

(A) Equipment Distribution Enclosures

The service entrance enclosures shipped in separate components shall be assembled in the field by the Contractor and with the materials listed under Section 918-24 and as required by the manufacturer in a configuration as shown in the Plans. The distribution enclosures shall be wired for power as directed in these specifications, shown in the Plans, and in accordance with their individual manufacturer recommendations.

(B) Packaged Engine-Generator Systems

The packaged engine-generator systems shipped shall be installed by the Contractor. All materials required to assemble the generator shall be the materials listed under Section 918-25 in a configuration as shown in the Plans. The generator shall be wired for power as directed in these specifications, shown in the Plans, and in accordance with their individual manufacturer recommendations.

606.06 MEASUREMENT

Service entrance enclosure shall not be measured for payment, but the cost thereof shall be included in the lump sum price for "Toll Plaza Electrical Work".

Packaged engine-generator systems shall not be measured for payment, but the cost thereof shall be included in the lump sum price for "Toll Plaza Electrical Work".

606.07 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Toll Plaza Electrical Work.....	Lump Sum

No separate payment will be made for the service entrance, distribution section enclosures and electrical equipment to be installed, automatic transfer switch section and integral surge suppressor or any hardware, fittings, or equipment necessary to assemble the service entrance.

No separate payment will be made for the diesel engine, unit-mounted cooling system, double wall base mounted fuel tank, generator, engine generator set controller, engine generator set accessories, weatherproof enclosure and radiator mounted resistive load bank or any hardware, fittings, or equipment necessary to assemble the generator.

SECTION 607- FURNISH LANE USE SIGNALS

607.01 DESCRIPTION

This work shall consist of furnishing Lane Use Signals (LUS) necessary to accommodate the construction staging shown on the Maintenance and Protection of Traffic plans. The furnished units shall be installed, in accordance with Section 605, on overhead sign structures provided by the Authority. Catalog cuts and shop drawings for mounting details shall be submitted within 10 days after the Pre Construction Conference.

607.02 MATERIALS

The lane use signals shall conform to the following:

(A) Mechanical

The LUS shall be fabricated to provide a display surface of approximately 24" x 24". It shall be operable over an ambient temperature range of at least: -20° F to +150° F. The LUS shall provide a minimum 20 degree viewing angle centered on the optical axis. It shall display a complete blank out when de-energized. Mounting requirements shall be as shown on the Plans. All characteristics, including visual characters, chromaticity, moisture and vibration resistance, electronic noise, transient protection, etc., shall conform to standards specified in ITE LED Vehicle Signal Modules and per NEMA TS-1. The display shall conform to the requirements stated in the 2009 edition of the Manual on Uniform Traffic Control Devices (MUTCD).

- (1) LUS Materials
All nuts and bolts shall be provided with lock-washers and sealed with Loctite or equivalent retaining adhesive. All LUS hardware shall be stainless steel to avoid corrosion.
- (2) LUS Enclosure
Each LUS enclosure shall be constructed from 5052 H32 sheet aluminum. The LUS shall be constructed from 0.125" thick sheet materials. Additional support plates as may be necessary to provide compatibility with the required mounting shown in the Plans shall be installed. Seams shall be continuously welded to ensure a watertight seal. Weep holes shall be incorporated in the bottom of the enclosure to prevent possible buildup of condensation. Enclosures shall use appropriate and suitable neoprene gaskets to provide a watertight seals at the door and between the door and the display lens. Glare shields shall be included and shall be attached with stainless steel hardware.
- (3) Lens
The lens shall serve as the front surface cover of the LUS and be fabricated from matt finish polycarbonate with a minimum thickness of 0.12".
- (4) Hardware
The door latches shall be turn-lock style that does not require any tools to open the enclosure. The hinges shall be stainless steel full length continuous piano hinges. Hinges shall be riveted to the door and bolted to the enclosure body.

- (5) **Finish**
The LUS finish shall be satin black powder coat applied on the external aluminum surfaces. The message board mask shall also be finished in a flat black powder coat.
- (6) **Mounting**
The Contractor shall provided details for mounting LUS onto the sign panel.

(B) Electrical

Each sign shall include an electronics package that consists of an AC to DC power supply, LED Light Engine, and common dimming circuitry. All the electronics shall be mounted to a panel located on the rear of the enclosure body. The input current shall be no greater than 1 amp at 120 volts AC.

- (1) **Light Engine**
The light engine consists of LED's mounted onto printed circuit boards (PCB) which are custom designed for the application. The PCBs shall be mounted with a message board mask and protected from the elements by the sign lens. The LUS shall not emit RF signals that could interfere with any commercial or emergency communication system and shall be provided with a system to adequately manage heat dissipation for the sign. The LEDs shall be connected in parallel with one another, with each LED having a dedicated current limiting resistor so that remaining LEDs will continue to operate should a failure occurred in one path. The LED drive current shall be limited to about 75% of the LEDs rated maximum to permit long LED operation and to minimize any heat buildup. Low Voltage DC electrical power shall be delivered to the light engine through a connector.

The LED manufacturer shall perform color sorting of the LED bins. Each color of LEDs shall be obtained from no more than three (3) consecutive color "bins" as defined by the LED manufacturer.

The LED manufacturer shall perform intensity sorting of the LED bins. Each color of LEDs shall be obtained from no more than three (3) consecutive luminous intensity "bins" as defined by the LED manufacturer.

The various LED color and intensity bins shall be distributed evenly throughout the sign and shall be consistent from pixel to pixel. Random distribution of the LED bins shall not be accepted.

The LEDs shall be rated by the LED manufacturer to have a minimum lifetime of 100,000 hours of continuous operation while maintaining a minimum of 70% of the original brightness.

- (2) **Symbol details for Lane Control Signs**
Illuminated Lane Control symbols shall consist of a downward pointing green arrow and a red X. Symbols shall be visible from a distance of at least 1,000 feet under all conditions of illumination that may be present. This includes both direct sunlight and total darkness. The symbols shall be constructed of multi-stroke LED configurations.

- (3) **Message Control**
The specific message to be displayed shall be selected by application of a 120 Volt AC signal on a specific 115 Volt AC control input that is referenced to neutral. Maximum permitted control lead current: 1.0 Amperes at 115 Volts AC.
- (4) **Dimming**
Dimming shall be available for the Lane Control Signs. The dimmer shall be a two level design (Bright/Dim) allowing the light engine to normally operate at full intensity. When the dimmer is active, the power to the light engine shall be reduced by approximately 50%, which reduces the intensity. The dimmer shall provide local control via an electric photocell mounted on or near the LUS. The dimming function shall provide simultaneous controlled dimming for at least ten (10) adjacent LUS that are mounted on the same sign structure, even though power to operate the adjacent signs may be sourced from different AC phase legs.
- (5) **CONTROL COMMUNICATION**
The LUS shall be centrally controlled from discrete output signals that shall be available in the required DMS to be furnished by and installed by the Contractor. Each discrete output module will provide 115 Volt AC outputs controlled by a solid state triac switch to individually select and control the red "X" or green "arrow" for up to three (3) LUS per each DMS. The outputs from the discrete output modules will be available on individual terminal block headers for each LUS and are contained on the discrete output module. Specific interconnection details are shown on the attached DAKTRONICS 9 Channel Controller drawing (1247-R04C-180176).

607.03 METHODS OF CONSTRUCTION

The Lane Use Signals shall be installed in conjunction with the VMS MPT signs described in Section 605.

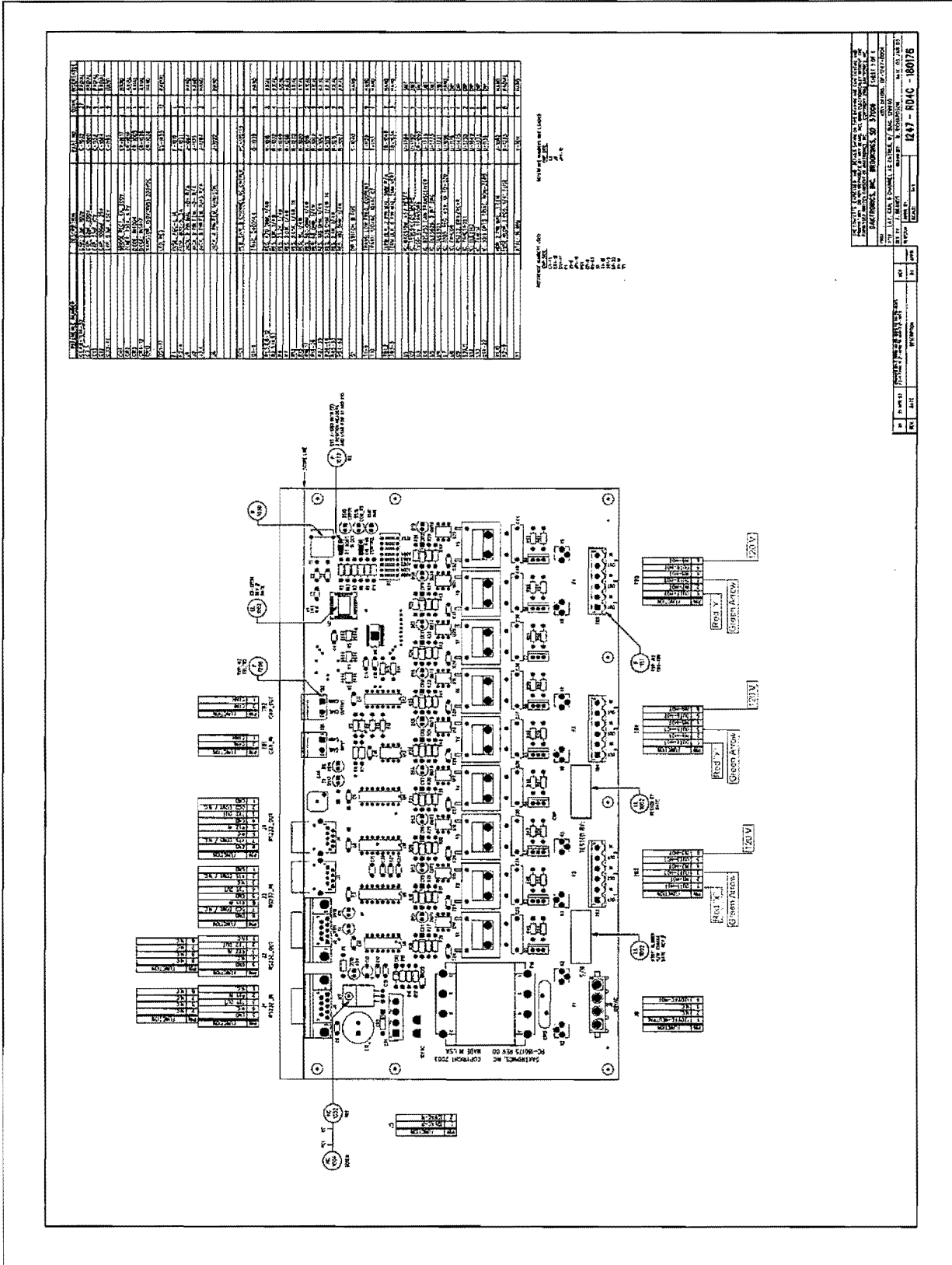
607.04 MEASUREMENT

Lane use signals will be measured by the number furnished.

607.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Furnish Lane Use Signals.....	Each



SECTION 608- TEMPORARY LIGHTING

608.01 DESCRIPTION

This work shall consist of furnishing, installing and removing a temporary lighting system consisting of wood poles, guys wire, conduits, junction boxes and wires, luminaries and, bracket arms. The temporary lighting system shall provide lighting during construction phases for different traffic patterns.

608.02 MATERIALS

(A) The following materials used in the temporary installation shall comply with:

Junction boxes frames and covers	909.04
Cable connectors	918.04
Cable racks	918.06
Cable and wire	918.07
Conduits and fittings	918.08
Electrical tapes	918.09
Lamps	918.12
Bracket Arms	918.16
Ballasts	918.20
Roadway Lighting Luminaries	918.21

(B) Wooden Poles - The wooden pole shall be the size and class H as shown on the plans and shall be in accordance with American National Standard Institute; ANSI 05.1 for specifications and dimensions, ANSI 05.2 for material properties, ANSI 05.3 for deriving fiber stress .

Plate- Stainless steel plate $\frac{1}{4}$, ASTM A240 Type 316.

(C) Photoelectric Control - The photoelectric control unit shall activate the Luminaire ON/OFF and shall be of outdoor type, 105-277V AC, 50/60 hertz.

The unit shall have a heavy duty enclosure and weatherproof gasket with an operating temperature range of -65° to +158°F. The SPST contacts shall be rated for 600W, normally closed and fail in the ON position.

The ON/OFF adjustment is set for 1 plus or minus 0.2FC (nominal) to turn ON and 3FC to turn OFF. The unit shall have a delay feature of at least one minute up to two minutes to prevent false switching.

The unit shall be installed on the twist lock receptacle on the Luminaire and shall be manufactured by Tork, Model No. 2101 or approved equal.

608.03 METHODS OF CONSTRUCTION

The temporary lighting system shall be installed in accordance with the plans and Sections 601 and 602. The Contractor is responsible for providing the wiring and the

distribution system as shown on plans. Wooden pole shall be installed in the ground secured with concrete per plans detail.

The Contractor is responsible for maintaining the lighting system and shall provide the Engineer with emergency contact information for the person responsible for the maintenance and repair of the system.

If the lighting system fails or becomes damaged, the Contractor must begin repairs within two hours of receiving notice of the damage or malfunction.

When the temporary system is no longer required, the Contractor shall remove and dispose of the system as directed by the Authority.

Provide Stainless Steel plates 12" x 14" and 4" x 18", 1/4" thick to cover the lower and high bracket marks which previously supported the poles.

608.04 MEASUREMENT

Temporary lighting systems will be measured on a lump sum basis.

608.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Temporary Lighting Systems	Lump Sum

When the temporary lighting system is installed, 70 percent of the lump sum bid will be paid. After the temporary system is no longer required and it is removed and disposed of the remaining lump sum will be paid.

Separate payment will not be made for excavation or backfill for the installation or removal of the temporary lighting.

DIVISION 800 – TRAFFIC CONTROL

SECTION 801 - GENERAL PROVISIONS

801.01 GENERAL OPERATION

The New Jersey Turnpike is in continuous operation 24 hours a day, 7 days a week. The work under the Contract has been planned to cause as little interference to Turnpike traffic as possible. The Contractor shall, therefore, plan his operations to permit the continuous flow of traffic along the roadways, ramps, toll plazas, and service areas.

It is the intent of the Contract to limit lane and shoulder closings to an absolute minimum and that work requiring closings be carried out in an expeditious manner.

No signs except traffic protection signs and traffic direction signs specified herein or as directed by the Engineer shall be erected by the Contractor or his subcontractors on or near the Turnpike right-of-way.

The safety measures outlined and prescribed shall be considered basic and in certain instances additional safety measures may be appropriate and required. Compliance with the safety measures and precautions prescribed in the Specifications and on the Plans shall not relieve the Contractor of responsibility for taking all additional and appropriate safety measures for all persons and property. Full responsibility for adequate safety measures for the protection of all persons and property on and adjacent to the work site shall rest with the Contractor.

801.02 STATE POLICE AUTHORITY

Traffic on the Turnpike is under the direct supervision and control of the New Jersey State Police who will enforce all statutory laws including the Authority's established "Regulations Relating to the Control of Traffic on the New Jersey Turnpike," as they pertain to the Contractor as well as to the traveling public. A copy of the Regulations will be provided upon request. The Contractor shall familiarize himself with and adhere strictly to the requirements of these Regulations.

The State Police have the authority to advise the Contractor of hazardous conditions or violations connected with the Contractor's operations and to order immediate remedial action. Upon such notification, the Contractor shall immediately discontinue work as required and correct the hazardous condition or violation. The Contractor shall then advise the Engineer of the State Police directive and the remedial action taken.

801.03 TRAFFIC PERMIT

The Contractor shall apply for a Traffic Permit at least ten (10) working days prior to the time the Contractor intends to start any operations at the Project site. The Contractor shall complete the applicable portion of the Traffic Permit application form in Appendix Y and return the application to the Engineer. The Traffic Permit will be issued only to the Prime Contractor, but will be deemed to apply to all suppliers and Subcontractors engaged in the prosecution of work. It is the responsibility of the Prime Contractor to

inform all such suppliers and Subcontractors of the provisions of the Traffic Permit and to take all necessary measures to assure that they abide by its provisions.

The Contractor's application shall include complete information, data and/or sketches covering the following:

- (A) The nature and location of the work.
- (B) The proposed obstructions or other hazards to traffic, including all operations within 30 feet of a traveled lane.
- (C) The length of time during which it is anticipated that hazards or obstructions to traffic will exist.
- (D) The means proposed by the Contractor for the protection of the public and his own personnel and equipment, including layouts and schedules showing the anticipated lane and shoulder closings, truck access points, guard rail openings, locations of all devices for lane and shoulder closings and for protection of traffic, and anticipated dates and rates of work.
- (E) The names and day and night telephone numbers of the Contractor's Superintendents.
- (F) Other information as requested by the Engineer.

These methods will be reviewed by the Engineer and when satisfactory, approved. Approval by the Engineer will be in the form of a Traffic Permit issued to the Contractor by the Traffic Engineer through the Engineer.

An Addendum to the Traffic Permit will be required each time any of the above items (A) thru (F) are revised.

The Contractor shall furnish a schedule each week outlining all closings and other traffic protection activity required during the following week. Said schedule shall be available to the Engineer on the time and date as directed. The Contractor shall provide the Engineer 48 hours notice of any proposed changes in this schedule.

If the approved methods of operation are not strictly adhered to by the Contractor, the Engineer has the right to direct that any work which in the Engineer's opinion is not approved under the Traffic Permit be immediately discontinued. Such work shall not be resumed until the Engineer is assured and determines that the work will be performed in conformity with the approved methods of operation. The Contractor shall have no claim against the Authority for losses or delays caused by such stoppage of work.

801.04 MOVEMENT OF CONTRACTOR'S VEHICLES, EQUIPMENT AND PERSONNEL

The Contractor's employees shall not walk across any active Turnpike roadway, nor walk along any active Turnpike roadway except within areas coned off or otherwise closed to the traveling public, or as specified herein for traffic control purposes.

The Contractor's personnel in any work area shall wear a vest at all times as specified in Subsection 920.03.

Personal vehicles will not be permitted to park anywhere within the Turnpike right-of-way except in areas designated by the Engineer.

The Contractor shall be responsible for transporting all his personnel to and from enclosed or closed off work areas in accordance with NJSA 39:4-69, Riding on Part Not Intended for Passengers Prohibited. Personal vehicles will not be permitted anywhere within Turnpike right-of-way or private properties except in areas designated by the Engineer.

The Contractor's vehicles operating on any Turnpike roadway or shoulder which is open to traffic shall travel with and not across or against the direction of traffic. Vehicles shall not park or stop on roadways or shoulders except within areas coned off or otherwise closed to traffic. Unless otherwise specified, the Contractor's vehicles shall not use Z-turns, grade separated U-turns, or make U-turns across the median or in any Toll Plaza area. Any vehicle making any illegal movement will be subject to a summons by the State Police.

Whenever the Contractor intends to transport oversize or slow moving equipment on active Turnpike roadways, he shall notify the Engineer at least 24 hours in advance of the intended move. The Engineer must approve the time and the route to be taken and will arrange for State Police escort through the Traffic Engineer. A minimum of at least two flashing vehicle lights as specified in Subsection 920.13 shall be mounted on all slow moving vehicles.

Where an operation of the Contractor would permit unauthorized entry or exit from Turnpike property, the Contractor shall take immediate measures to restore the security of the Turnpike right-of-way. Toll evasion is subject to a summons by the State Police.

The use of emergency access gates by the Contractor's vehicles is prohibited.

Subject to the approval of the Engineer and Traffic Engineer, the Contractor's supervisory and traffic protection vehicles, with approved flashing lights, may be permitted to make U-turns at approved locations. This approval may be rescinded if the Contractor's operations present a hazard to traffic. Vehicles which exit at the interchange where they enter shall pay the toll from the most distant interchange on the Turnpike.

Contractor's vehicles and equipment operating in a closed roadway shall always stay to the right in the direction of travel and observe a speed limit of 35 miles per hour. They shall operate with headlights, four-way flashers and rotating amber flashing lights (if so equipped) on.

Access to closed roadways shall be solely by ramp gates, either at the time the ramp is closed or if continuous access is required with flagman control. Unattended ramp gates must remain locked. The Contractor's Flagperson is responsible to secure the ramp gate in the closed position, upon completion of their work, to maintain a secure roadway for the remainder of the scheduled roadway closing.

801.05 VEHICLE ACCESS TO WORK AREAS

Contractor's vehicles entering or leaving a work area via the Turnpike roadways shall be operated in a safe manner. They shall leave and enter the Turnpike traffic stream only at designated points. Delivery of materials or personnel and movement of vehicles and equipment into and out of a work area via the Turnpike roadways shall be made only after lane or shoulder closings are in place.

During permissible times for lane closings or shoulder closings when a flagman is not on duty, automobiles operated solely for the transportation of supervisory personnel, flagmen, or approved inspectors will be allowed access to the work site provided such vehicles are operated in a safe manner.

The Contractor shall, through the Engineer, coordinate his access points with those of the adjacent contracts to assure proper spacing. Points for leaving and re-entering the Turnpike traffic flow shall be, in general, at the beginning and end respectively of a shoulder closing.

Uniformed flagmen shall be provided by the Contractor for protection within the work zones at appropriate locations and as directed by the Engineer. Each flagman shall be properly trained, instructed, and experienced in flagman duties, and shall be uniformed as specified in Subsection 920.12. Uniformed flagpersons must be English speaking. Any flagman not satisfactory in the opinion of the Engineer shall be immediately replaced by an approved flagman.

It shall be the responsibility of the uniformed flagman to assist and direct construction vehicles into and out of the work area. He shall observe approaching traffic and warn contractor personnel of vehicles entering the work site. He shall observe the flow of traffic and direct vehicles leaving the work site so that they may safely merge into active lanes of the Turnpike. Under no circumstances shall the flagman attempt to slow or otherwise direct Turnpike traffic.

Whenever vehicular access to a work area requires the removal of existing guard rail, the guard rail shall be reinstalled during all times when a shoulder closing with vehicle access points is not allowed. The opening shall be closed using an approved barrier immediately in front of the line of the guard rail and extending at least five feet beyond the opening in each direction. Timber barrier shall not be used in front of guardrail openings.

During non-working hours and/or on any day when an access point is not in use, the access signs associated with that location shall be left in place and covered; or removed and stored in a manner which will not soil the face. If covers are used they shall be securely fastened top and bottom to prevent the cover being blown aside by the wind.

801.06 MAINTENANCE OF EXISTING TRAFFIC CONTROL DEVICES

All existing directional, warning, and regulatory signs for the control of Turnpike traffic must be maintained erect and unobstructed until such time as their use may be discontinued by direction of the Engineer. Panels and legend which become damaged as a result of the Contractor's operations shall be restored or repaired at the Contractor's own expense. In order to permit construction at the present location of these signs, the panels may be mounted on such temporary supports and at such locations as approved by the Engineer.

Existing directional and regulatory signs which cannot be maintained in place or temporarily mounted on channels are to be supported by skid supports. Electrical service, power and other incidental work for such skid mounted signs shall be as specified, and shop drawings shall be submitted in accordance with Subsection 104.08.

Existing roadway delineators are to be maintained unless directed by the Engineer to discontinue their use.

801.07 TRAFFIC CONTROL COORDINATOR

The Contractor shall assign a supervisory level employee to be the Traffic Control Coordinator (TCC). The name and telephone number (s) of the TCC shall be submitted to the Engineer with the Traffic Permit Application. The Resident Engineer shall be notified as to the name and telephone number (s) of the TCC on a 24 hour basis. The TCC shall have a certificate indicating completion of the "Traffic Control Coordinator Program" <http://cait.rutgers.edu/cait/traffic-control-coordinator-program-1109a-1126> and have the ability to communicate fluently in English.

The Traffic Control Coordinator shall perform daily inspections, including weekends and holidays and inspections at night, as required, and take all corrective action to ensure compliance with the Traffic Control Plan and other approved standards. The Engineer shall be advised of the schedule of these inspections and be given the opportunity to join in the inspection. In addition, the duties of the Traffic Control Coordinator shall include, but shall not be limited to, the responsibility for ensuring the following:

- Set up and removal of all traffic control devices in accordance with the Contract Documents.
- Correction of deficiencies of traffic control devices within 2 hours of discovery or notification by the Engineer.
- Repositioning traffic control devices displaced by traffic or construction equipment.
- Covering or uncovering signs as appropriate.
- Repairing and/or replacing damaged traffic control devices.
- Replacing batteries, light bulbs, control panels and other electrical components.
- Keeping all traffic control devices clean.

- Adding fuel and oil to power units for traffic control devices.
- That all Contractor equipment and vehicles are properly stored and parked so as not to create a traffic hazard.
- Properly storing traffic control devices when not in use.
- That all excavations or drop offs greater than 2 inches deep are protected in accordance with the Manual.

Separate payment will not be made for Traffic Control Coordinator but all costs thereof shall be included in the various Pay Items scheduled in the Proposal.

SECTION 802 - LANE AND SHOULDER CLOSINGS

802.01 DESCRIPTION

The work of maintenance and protection of traffic consists, in general, of furnishing and/or placing signs and traffic protection devices for closing lanes and shoulders; furnishing personnel immediately and solely employed for the maintenance of the devices and protection of the traveling public; the transportation of devices to and from the site of the Project; placing or installing the devices; moving devices from one position to another as required; and the continual maintenance and subsequent removal of all devices. Traffic protection devices will be furnished by the Contractor and will be installed by the Contractor.

The Contractor is advised that the time required to install and remove a lane closing may be substantial, the lane closing hours are inclusive of the closing and reopening times.

Lane closings may be cancelled or may be reopened earlier than scheduled, as required by weather conditions or other incidents. The Contractor shall vacate the lane closing if instructed by the State Police or a representative of the Operations Department. The cancellation or curtailment of a lane closing shall not be considered as a basis for a claim of delay to the Authority.

Because of the severe impacts occasioned by having a lane closed beyond the prescribed hours, the Contractor will be assessed a penalty of five hundred dollars(\$500) for each fifteen minute delay in the reopening of a lane closing.

If the Contractor fails to submit the proper Lane Closing Request Form to the Engineer in advance as stipulated above, it may result in the denial of the requested lane closing and opening for that week. Notwithstanding, because of adjacent construction, a lane closing request may be denied even if it is properly requested. In any event, the denial of a lane, shoulder, or roadway closing shall not be considered as a basis for a claim of delay against the Authority.

802.02 MATERIALS

Materials shall conform to the following subsections:

Arrow Board	920.11
Batteries	920.05
Concrete Barrier	920.08
Flags	920.09
Flashing Lights	920.04
Folding Sign Stands	920.07
Signs and Overlay Panels	920.06
Temporary Pavement Striping	920.10
Traffic Cones	920.01
Safety Vests	920.03
Reflectors	923.18

802.03 METHODS OF CONSTRUCTION

When the work under the Contract requires that a lane and/or a shoulder of a Turnpike roadway be closed, such closings shall be made only at such times, to such limits, and in such a manner that the movement of traffic on the roadway will be maintained. Restrictions to movement of traffic by lane closings shall be minimized. All traffic moving on lanes not closed shall be able to flow smoothly, and shall be protected from all hazards attendant on the Contractor's operations and because of the lane closings.

All requests for lane, shoulder or roadway closings shall be scheduled by submitting the proper form to the Engineer no later than 12:30 p.m. on the Friday two weeks preceding the requested closing or opening. If the Contractor fails to submit the proper Lane Closing request Form to the Engineer in advance as stipulated above, it may result in the denial of the requested lane closing for the week. Notwithstanding, because of adjacent construction, a lane closing may be denied even if properly requested. In any event, the denial of lane, shoulder or roadway closing or delay of the closing or opening of up to two hours from the scheduled times shall not be considered as a basis for a claim of delay against the Authority. The Contractor is advised that the closings or openings as specified hereinafter will be effected within two hours of the time scheduled for such closings or openings. The Contractor shall establish his priorities for closings and openings and request such closings and openings at one hour intervals, minimum.

If for any reason, a prescheduled lane or roadway closing operation, which has been approved by the Authority will not be utilized by the Contractor, the Contractor shall notify the Engineer at least 48 hours in advance to cancel the scheduled closing. If the 48-hour period falls on a Saturday or Sunday, the notice for cancellation must be submitted on the preceding Friday. The Contractor will be permitted one (1) occasion where the proper advance notification to cancel any scheduled closing operation is not given. If the Contractor fails to properly cancel a prescheduled lane or roadway closing a second time, within the 6 months of the first occurrence, the Contractor will be assessed \$2,500 and an additional \$2,500 for each subsequent occurrence within six (6) months of the previous occurrence. If the Contractor is unable to utilize the lane or roadway closing at the scheduled time due to weather conditions, as determined by the Engineer, it shall not count as a failure to notify the Engineer.

All lane and shoulder closing operations shall be performed with a minimum of two (2) vehicles consisting of a "cone truck" and a "back-up" vehicle. The "back-up" vehicle shall include a truck mounted attenuator. Both vehicles shall be equipped with approved conspicuous overhead flashing amber warning lights similar to those used by

the Authority's Maintenance Department. The warning lights shall be mounted so that they are visible when the attenuator is in a raised position. The "cone truck" shall be equipped with an approved carrier to hold personnel placing cones, also similar to those used by the Authority's Maintenance Department vehicles. The warning lights shall run continuously whenever the vehicles are performing lane and shoulder closing or opening operations.

The "back-up" vehicles shall be positioned approximately 50 feet behind the "cone" truck and the shoulder/lane closing crew shall be augmented by a "traffic observer," who shall be equipped with an air horn. The "traffic observer" shall ride on the "cone" truck and watch oncoming traffic and his personal shall sound the air horn as a warning if an out-of-control or other errant vehicle(s) pose a threat to the crew.

The use of a "back-up" vehicle with a truck-mounted attenuator, the use of an approved "cone" truck and a "traffic observer" during the lane and shoulder closing or opening operations is mandatory and no exception shall be made.

Under no circumstances shall a "back-up" vehicle or "cone" truck remain in a closed lane or shoulder during non-working hours or a period of inactivity.

It shall be the responsibility of the Contractor, for the work covered by these specifications, to coordinate with the Engineer and other contractors affected by the Turnpike closings and to schedule his work accordingly with the approved progress schedules of the other contractors and the current status of each project.

The Contractor's personnel, vehicles, equipment, or materials shall not occupy any area within thirty feet from the edge of pavement where there is no guard rail or other physical barrier unless the shoulder has been closed. The storage of materials and equipment will be permitted within the Turnpike right-of-way only at specific locations to be designated by the Engineer. Materials or equipment shall not be stored in a closed lane or shoulder unless protected by a barrier. Proper flashing yellow lights shall be installed on all construction vehicles in accordance with applicable regulations and as approved by the Engineer.

Whenever any equipment occupying a shoulder and not behind a barrier will be within three feet of a traveled lane or will come within three feet when operated (such as a tractor, or a crane swinging), the lane adjacent to the shoulder shall also be closed.

Barrier shall be installed to protect traffic from the hazards of any excavation or drop off that is four inches or deeper within twelve feet of the edge of pavement, or six inches or deeper from twelve to thirty feet from the edge of pavement where there is no guard rail, or any other opening in the roadway or adjacent area which would be dangerous if a vehicle were to enter it. Whenever such excavation is sheeted, the sheeting shall extend at least four feet above the adjacent existing ground surface. Flashing lights shall be placed on the barrier and sheeting as directed by the Engineer.

The traffic protection devices for closing a lane or shoulder shall always be set up progressively in the direction of traffic from a truck equipped with not less than two approved six inch diameter flashing vehicle lights to warn traffic, and with the truck traveling in the lane or shoulder being closed. The protection devices shall always be removed in the reverse order by the truck backing up on the closed lane or shoulder. The Engineer will coordinate the procedures for closing or opening a lane.

Barriers shall be installed only after the lane or shoulder has been closed.

(A) Lane Closings.

During all periods when traffic lanes are not closed, the roadways shall be clear of all obstructions. The Contractor will be issued a copy of the "Construction Safety Video" and an attendance sheet at the Preconstruction meeting. The Prime Contractor, will not be permitted to engage in lane and shoulder closing operations on Authority roadways and ramps until the "Construction Safety Video" has been viewed and acknowledged by all employees and Subcontractors, suppliers and vendors as noted on the attendance sheet. Receipt of the completed Attendance sheet, through the Resident Engineer by the Operations Department will constitute acknowledgement. Any exceptions to the specified personnel viewing the "Construction Safety Video" will be only as approved by the Resident Engineer.

Once a lane closing is in place, work shall commence immediately and shall progress on a continuous basis to completion.

Where temporary striping will be required for traffic direction, the lane shall be closed and the Contractor shall place the temporary striping and remove the existing striping before reopening the lane or shoulder to traffic and closing the adjacent lane for construction.

Traffic lanes shall not be kept closed when no work is scheduled to be performed. Traffic protection will not be permitted to remain in effect overnight in work areas not requiring overnight lane closings.

The contractor shall have the choice of using 28" or 36" traffic cones. The contractor shall not combine 28" and 36" cones in a single closing. All cones per closing shall be the same height.

All traffic cones adjacent to the contractor's work area which have been moved or displaced for whatever reason shall be immediately restored to their proper position by the Contractor during such times as he is actively engaged at the site.

Because of heavy traffic during morning and evening commuter rush hours, on weekends, over holidays, and during the summer vacation period (between Memorial Day and Labor Day), the times or hours when a road, lane or lanes may be closed and work requiring such closings may be performed are limited. Lanes may be closed and work requiring lanes to be closed may be performed only during the times prescribed.

During permissible lane closing hours, not more than one lane in a roadway may be closed at any one time in any one work area unless double lane closings are specifically permitted.

Unless otherwise specified, the maximum length of any lane closing, i.e., length between first and last cones, shall be two miles and the minimum clear distance between two separate lane closings, i.e., from the last traffic cone of the first closing to the first cone of the second closing, in the same roadway, shall be three miles.

A 45 mile per hour speed limit shall be posted when a left or right lane of a mainline roadway is closed and traffic protection devices are in place.

A 35 mile per hour speed limit shall be posted when a center lane or two lanes are closed and traffic protection devices are in place.

If the Authority or NJ State Police declare that an emergency condition exists, the Contractor shall immediately respond with the required manpower and equipment to remove a closing in the shortest possible time, day or night, including weekends and holidays.

Permissible lane and shoulder closing hours for the Turnpike roadways are noted in tabular form in Appendix W

During the following periods, all lanes must be maintained:

Easter/Passover	12:00 Noon, Wednesday, April 4, 2012 to 12:01 AM, Tuesday, April 10, 2012
Mother's Day	6:00 AM, Sunday, May 13, 2012 to 10:00 PM, Sunday, May 13, 2012
Memorial Day	3:00 PM, Thursday, May 24, 2012 to 12:01 AM, Wednesday, May 29, 2012
Independence Day	12:01 AM, Friday, June 29, 2012 to 12:01 AM, Tuesday July 10, 2012
Labor Day	3:00 PM, Thursday, August 30, 2012 to 12:01 AM, Wednesday, September 5, 2012
Columbus Day	12:00 Noon, Thursday, October 4, 2012 to 12:01 AM, Wednesday, October 10, 2012
Thanksgiving	2:00 PM, Tuesday, November 20, 2012 to 12:01 AM, Tuesday, November 27, 2012
Christmas	12:01 AM, Friday, December 21, 2012 to 12:01 AM, Thursday, January 3, 2013
Martin Luther King Day	5:00 AM, Friday, January 18, 2013 to 6:00 AM, Tuesday, January 22, 2013
President's Day	5:00 AM, Friday, February 15, 2013 to 6:00 AM, Tuesday, February 19, 2013
Easter/Passover	12:00 Noon, Wednesday, March 27, 2013 to 12:01 AM, Tuesday, April 2, 2013
Mother's Day	6:00 AM, Sunday, May 12, 2013 to 10:00 PM, Sunday, May 12, 2013

Memorial Day	3:00 PM, Thursday, May 23, 2013 to 12:01 AM, Wednesday, May 28, 2013
Independence Day	12:01 AM, Tuesday, July 2, 2013 to 12:01 AM, Tuesday July 9, 2013
Labor Day	3:00 PM, Thursday, August 29, 2013 to 12:01 AM, Wednesday, September 4, 2013
Columbus Day	12:00 Noon, Thursday, October 10, 2013 to 12:01 AM, Wednesday, October 16, 2013
Thanksgiving	2:00 PM, Tuesday, November 26, 2013 to 12:01 AM, Tuesday, December 3, 2013
Christmas	12:01 AM, Friday, December 19, 2013 to 12:01 AM, Thursday, January 3, 2014
Martin Luther King Day	5:00 AM, Friday, January 17, 2014 to 6:00 AM, Tuesday, January 21, 2014
President's Day	5:00 AM, Friday, February 14, 2014 to 6:00 AM, Tuesday, February 18, 2014
Easter/Passover	12:00 Noon, Wednesday, April 16, 2014 to 12:01 AM, Tuesday, April 23, 2014
Mother's Day	6:00 AM, Sunday, May 11, 2014 to 10:00 PM, Sunday, May 11, 2014
Memorial Day	3:00 PM, Thursday, May 22, 2014 to 12:01 AM, Wednesday, May 28, 2014

(B) Emergency Lane Closings.

When in the opinion of the Chief Engineer it becomes necessary to close lanes to make prompt repairs to work in progress or to other facilities that are damaged, the Contractor shall provide all the materials and manpower necessary, and shall work continuously on a 24 hour per day basis to complete the emergency repairs and again make all lanes available to use by public traffic. Compensation for emergency repairs of damage beyond the Contractor's control will be paid on a cost-plus basis as specified in Section 108.04 or on such other basis as agreed upon by the Contractor and the Engineer. All costs incurred as a result of emergency repairs of damage caused solely by the Contractor's procedures shall be borne entirely by the Contractor.

(C) Shoulder Closings.

Once a shoulder closing is in place, work shall commence immediately and shall progress on a continuous basis to completion.

Simultaneous closing of both the right and left shoulder of a roadway will not be permitted. All shoulder closings shall be of the shortest overall length and

duration necessary to protect traffic and shall provide as much shoulder as possible for use by disabled vehicles.

(D) Slowdowns.

Certain elements of work, including but not limited to the movement of heavy equipment across a roadway or the erection of bridge or sign structures over the roadway, may be accomplished during the simultaneous slowing of traffic in all lanes. The Contractor shall give the Engineer 24 hours prior notice of the time he wishes traffic to be slowed.

Traffic shall be slowed down only by the direction of the State Police. The Engineer will arrange State Police assistance for these operations through the Traffic Engineer.

Slowdowns for the movement of equipment, requiring one minute or less, may be scheduled any time except during commuter rush hours, 6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m. Monday through Friday. Slowdowns requiring less than five minutes may be scheduled from 10:00 AM to 2:00 PM Monday through Friday. Slowdowns of more than five minutes and less than ten minutes must be scheduled during the allowable roadway or two-lane closing hours as specified herein. Slowdowns of more than ten minutes will generally not be permitted. The Contractor is advised that slowdowns of more than ten minutes may only be approved by the Engineer and may involve traffic protection methods above and beyond those methods specified throughout.

Slowdowns in excess of ten minutes will generally not be permitted. The method of accomplishing work which would require lengthy slowdowns will be determined by the Engineer after consultation with the Operations Department and may involve extremely limited working hours and traffic control provisions beyond those called for in the plans and specifications.

When more than one slowdown is scheduled for the same work area, the flow of traffic must return to normal before traffic is slowed again.

(E) Traffic Protection Devices.

The Contractor shall be responsible for the security and maintenance of all traffic protection devices, whether furnished by the Authority or by himself. Any devices damaged or lost during the life of the project shall be repaired or replaced at the Contractor's expense.

The Contractor shall maintain all traffic protection devices for the duration of the project, ensuring their operation, visibility and overall effectiveness whenever they are in place at a work site. Maintenance shall include repainting and washing devices as necessary, replacing dead batteries and defective bulbs, properly realigning devices, and any other work deemed necessary by the Engineer.

When traffic protection devices are to remain in place overnight, during weekends, holidays, periods of inclement weather, or any other time that work will not be in progress, the Contractor shall ensure the full effectiveness of the devices prior to the cessation of work.

Cones or other protective devices moved by the Contractor for his own convenience in conducting his work operations may be done only with the approval of the Engineer and at no expense to the Authority. Upon completion of operations necessitating such moves, the Contractor shall immediately replace the protective devices to their original positions.

Yellow flashing lights as specified in Subsection 920.04 shall be used on the tapered sections of precast concrete barrier at 40' spacing.

Concrete construction barrier delivered to the job site shall be in new condition and maintained throughout the duration of the Project. The Engineer shall be the sole judge of the acceptability of the precast concrete barrier. Precast concrete barrier deemed unsatisfactory by the Engineer shall be replaced at no cost to the Authority.

In order to protect pedestrians, the sides of all deck and sidewalk openings, not protected by concrete barrier curb, shall be fully enclosed by temporary fencing. Temporary fencing shall be of a type approved by the Engineer and shall be erected and remain in place at all times when no work is being performed and the deck and sidewalk is removed or the replacement of concrete is not hardened.

The Contractor shall furnish the following devices:

(1) Concrete Construction Barrier.

Concrete construction barrier shall be Type 4, Alternate A, Joint Class A unless otherwise indicated on the plans. Concrete barrier units must be fully installed in the proper position at each work area shown prior to performing work within that area. Concrete barrier shall not be installed unless pertinent submissions, such as materials, shop drawings, construction methods, procedures, etc. have been reviewed and approved by the Engineer. Placement of concrete construction barrier shall conform to the requirements shown on the Contract plans.

Where different joint classifications are required within a section of barrier, the controlling joint treatment shall extend a minimum of one complete barrier length before and after the work area. For example, where A and D are required, Joint Treatment D shall extend a minimum of one complete barrier length before and after the deck replacement area before changing to Joint Treatment A.

The concrete construction barrier may be installed after the removal of existing surfacing and removed prior to paving, unless otherwise shown on Plans, if site conditions and construction sequence require to do so.

The Contractor shall furnish all hardware, concrete barrier interlock devices, anchors and all else necessary for the complete installation and subsequent removal and/or relocation of the concrete barrier.

Concrete construction barrier and interlocking devices shall be in accordance with Standard Drawings TP-24 and TP-25. The Contractor may submit alternate barrier systems with interlocking devices that meet NCHRP Report 350 - Test Level 3 requirements to the Engineer for review and approval.

Concrete construction barriers shall be provided with reflectors mounted on the side of the barrier with epoxy glue or mounting screws 6 inches from the top at 20 foot intervals. The side mounted reflectors shall be yellow when the construction barrier is to the left of traffic and white when the construction barrier is to the right of traffic. Reflectors shall also be mounted on the top of concrete construction barriers at 100-foot intervals on tangent sections, curves of radii greater than 1,910 feet, and at 50-foot intervals on curves of 1,910 feet or less. Reflectors shall be replaced when lost or damaged at no cost to the Authority. Reflectors shall be included in the cost for furnishing concrete barrier.

On tapered portions of construction barrier, Flashing Lights shall be mounted instead of reflectors. One flashing light is to be mounted at the beginning of the flare and additional flashing lights are to be mounted at 40 foot intervals.

The Contractor shall be required to maintain the concrete barrier units in their correct alignment at all times. The Contractor shall furnish promptly (any time of the day or night upon notification from the Authority, State Police or the Engineer) all labor, materials and equipment as necessary to repair, reset and/or realign any portion of concrete barrier units damaged or displaced by traffic mishaps or otherwise. Contractor furnished devices shall remain the property of the Contractor and shall be removed upon completion of the work.

Prior to the arrival of anticipated snow, the Authority may direct the Contractor to replace traffic cones used for long term closure of lanes or shoulders with concrete construction barrier. Prior to this time, the Contractor shall have the necessary barrier available for use. The length and locations of these installations shall be determined by the Engineer.

All concrete construction barrier that does not meet the following criteria, as determined by the Engineer, shall be rejected for use:

- A. No more than three cracks in the middle 6 feet of the barrier.
- B. All cracks must be less than $\frac{1}{8}$ inch wide.
- C. No gouges in the lower half of the face exposed to traffic.
- D. No reinforcing steel shall be exposed.
- E. The key way must be intact.
- F. Lifting devices shall be intact.
- G. Face exposed to traffic must be clean of all road dirt.
- H. Reflectors shall be in place.
- I. Interlock must accept key full depth without projection of key cap above barrier.
- J. The full key way must be available.

Concrete construction barrier that becomes damaged shall be replaced within 24-hours, as directed by the Engineer.

The Contractor shall clean and maintain the drainage slots at the bottom of the concrete construction barrier at all times as directed by the Engineer.

Temporary Pavement Striping

Existing pavement striping shall be removed by hydroblasting.

For short duration, temporary pavement striping material shall be "SCOTCH LANE" brand Pavement Tape, Detour Grade 620, 6 inches wide, as manufactured by the 3M Company or an approved equal, as approved by the Authority's Traffic Engineer.

(2) Temporary Impact Attenuators.

Inertial Barrier Type Systems:

Materials shall be as recommended by the manufacturer except that the module shall be made of yellow polyethylene.

When different manufacturers supply inertial barrier systems for a project, modules from different manufacturers shall not be intermixed. Modules shall meet NCHRP 350, Test Level 3.

Sand shall be placed within the module to a depth recommended by the manufacturer and shall have a dry density of 90 to 100 pounds per cubic foot and 3 percent maximum allowable moisture content. Five to seven percent of sodium chloride (NaCl) by weight shall be added and evenly dispersed throughout the sand to prevent freezing. Calcium chloride (CaCl₂) shall not be substituted for sodium chloride.

A plastic lid shall be placed on the module in such a manner as to ensure that no weather elements come in contact with the dispensable material. Four rivets or other fasteners recommended by the manufacturer and approved by the Engineer shall be installed equidistant on the periphery of the lid to prevent high velocity escape upon impact.

Temporary impact attenuator devices which are lost, damaged, destroyed by the Contractor or determined by the Engineer to be unacceptable or stolen shall be replaced without additional compensation.

The Contractor shall notify the Engineer immediately upon discovery of any damaged temporary impact attenuator and shall immediately replace or repair all damaged portions. The Contractor shall have on the Project an adequate number of spare parts to repair any damaged attenuator unit. Any modules of a unit or sand which are damaged due to the Contractor's carelessness while placing, or due to the operation of the Contractor's equipment or personnel after such placement, shall be replaced at no additional cost to the Authority.

(3) Construction Variable Message Signs (VMS)

The construction VMS shall be furnished by the contractor and positioned, as directed by the Engineer, within the closed lane or behind guide rail prior to the start of any work in the closed lane. The Contractor is responsible for ensuring the sign runs continuously until the sign is no longer required. The Authority will provide the Engineer with the messages that shall appear on the signs.

Shop drawings for the variable message signs shall be submitted in accordance with Subsection 104.08.

The construction VMS shall be removed from the site or stored behind concrete barriers when not in use. Variable message signs shall be placed

at locations shown in the Plans for advanced notice of ramp or lane closures and also at locations involving local roadways as noted in Section 803.

A total of 16 construction VMS are to be provided for work on this Contract. If the Contractor elects to work at simultaneous locations requiring more than 16 construction VMS, he shall furnish additional variable message signs at no cost to the Authority. With the exception of the 6 VMS noted on the plans that will remain as property of the Authority, the VMS furnished for this Project shall remain the property of the Contractor upon completion of the Contract. Each active work area is to have a separate construction VMS.

The Contractor shall repair or replace any defect that causes the construction VMS to operate in a capacity not meeting the requirements outlined herein. The Contractor shall repair said defect within four hours of notification by the Engineer or provide a replacement variable message sign within the four hour window. A spare construction VMS board is to be provided at the contractor's staging area.

The construction VMS shall be a portable LED Full Matrix board mounted on a two-wheeled trailer. All construction VMS shall be fully National Transportation Communications for ITS Protocol (NTCIP) compliant, which will allow for remote communications compatibility with the Authority's existing TMC software for sign control.

The sign system shall consist of a message board assembly, controller, power supply, wireless communications modem with built-in GPS, and structural support system.

The message displayed on the sign shall be visible from 1/2 mile and legible at a distance of 900 ft. under all weather conditions.

The trailer mounted system shall be structurally adequate to withstand sustained freeway speeds of 65 mph with the sign panel in either the raised or lowered position.

The complete message sign unit shall be designed to operate in the ambient air temperature range of -30 degrees F to +160 degrees F. The unit shall not be affected by mobile radio transmissions.

1. Components:

Sign Panel Assembly: The sign panel shall be of aluminum or stainless steel construction between 70 and 80 inches in height and 89 to 126 inches in width. The message board and trailer shall meet the requirements set forth in N.J.A.C. 19:9-1.9 when the sign is in the travel position.

All exterior surfaces of the sign panel assembly shall be either anodized or painted flat black.

The sign panel shall consist of three (3) lines of individually changeable characters. Each line shall be made up of a maximum of nine (9) characters. Each character shall be 18 inches in height, and shall be arranged in a 7 high x 5 wide matrix.

All wiring shall be suitable for outdoor use. Each connector point of the wiring harness shall be properly marked.

The entire sign panel, for increased legibility in bright sunlight, shall be protected by a sun screen which has fixed horizontal black louvers tilted at 15 to 20 degrees to the horizontal.

2. Controller:

The controller shall be a fully self-contained, compact, solid state, modularized unit with pre-programmed messages and the additional capability of having either an integral or plug-in type keyboard system for message generation. The controller display shall show a miniaturized version of the message being displayed, or to be displayed, on the sign panel.

The controller shall also be equipped for an ambient light controlled continuous dimming (100 percent to 40 percent) and a three step (100 percent to 50 percent) dimming of the message displayed.

The unit shall be designed so that it can accept a pre-programmed default message. In the event of engine failure, the pre-programmed default message will be automatically displayed to the message display panel and remain there until such time that repairs to the engine can be achieved or a maximum of 8 night time viewing hours.

Provisions shall be made to lockout keyboard capability on the controllers with integral keyboards. This will result in a key being needed to electrically connect the keyboard, thereby providing security to keyboard access.

No message shall be displayed if not shown on the traffic control plans, or previously approved.

The controls for raising/lowering the sign panel; starting/stopping the generator; light intensity control of the lamps for the bulb matrix sign; and read outs for the fuel supply and running time shall be located in a lockable enclosure.

3. Wireless Communications:

Each sign shall be capable of stand-alone remote access from the NJTA Traffic Management Center and shall be furnished with an Airlink Pinpoint Communications Modem with built-in GPS receiver and compatible GPS antenna. The Contractor shall be responsible for cellular service activation and all service charges until the signs are no longer

needed. The cost for communications shall be included in the cost for supplying the Construction Variable Message Signs.

4. Power Supply:

The power unit for operating each entire sign system shall be solar with battery only.

A battery-powered variable message sign shall consist of banks of batteries recharged by a solar panel array. The number and size of the battery banks and solar panel array shall be sufficient to operate the sign panel for a period of 18 days without the array being exposed to sunlight. The solar panel array shall be capable of recharging the battery banks at a rate of four hours of sun for one 24-hour period of sign usage. The battery-powered unit shall incorporate an automatic intensity control feature in order to keep the LED lamp matrix intensity constant with a reduction in battery voltage.

The battery-powered unit shall be designed to also accept recharging from an internal or external diesel engine driven alternator power supply should there be a lack of proper sunlight.

A diesel generator shall be available on the site to charge the batteries in the event the batteries become sufficiently discharged, thereby making the variable message sign non-functional.

5. Structural Support System:

The structural support system shall provide the support mechanism between the sign panel assembly and the power supply cabinet. This will allow the system to be assembled into a unit that is easily mountable on a trailer. The structure shall provide adequate support to allow complete sign operation including raising and lowering of the sign panel at sustained wind speeds of 30 mph.

The primary support shall be welded structural steel of size and type capable of meeting the above specified sign operation, with all welds done by or under the direction of, a certified welder.

The structural system shall support the sign panel assembly at the proper height and orientation in reference to the rest of the system.

A manual raise/lower mechanism shall be provided to serve as a back-up in the case of failure of the motor drive system. The motor drive system shall be a gear or hydraulic unit powered by an electric motor (AC or DC) operated off the generator, in the case of an AC system, or by a 12 or 24 volt battery system.

(4) Truck with Mounted Attenuator (TMA).

This item shall also include placing, moving and removing the TMA unit as necessary when the Contractor is working within a closed shoulder or lane. The TMA shall be removed from the closed shoulder or lane when

no work is in progress or they shall be stored behind concrete construction barrier.

The Contractor shall provide a heavy truck with mounted attenuator (TMA) as a barrier vehicle in the closed lane or closed shoulder preceding each work location where personnel are engaged in construction activities and no concrete barrier is called for.

The Contractor shall have a TMA with driver available for the final inspection, the cost of which shall be included in the item "Furnishing Truck with Mounted Attenuator."

The appropriate number of TMA's are to be provided for work on this contract. The TMA's shall remain the Contractor's property upon Contract completion. If the Contractor elects to work at more than one location requiring a TMA, he shall furnish additional TMAs at no cost to the Authority.

The TMA layout (positioning) shall conform to the requirements set forth in the paragraph on layout in Section 9.3.2.2 of the AASHTO Roadside Design Guide, dated 2002.

The truck shall be in excellent operating condition and have a minimum gross weight of 10 tons. The truck shall be equipped with a rear-mounted attenuator, including a crushable energy absorption module, cartridge support cables, lightweight steel backup plate, corner jacks, hydraulic tilting system and the hardware necessary for attachment.

The truck mounted attenuator shall be the Alfa 100K truck mounted attenuator as manufactured by Energy Absorption System, Inc., One East Wacker Drive, Chicago, IL 60601 and distributed by Transpo Industries, Inc., 20 Jones Street, New Rochelle, NY 10801 or an approved NCHRP 350, Test Level 3 compliant equal.

The attenuator shall have a minimum of 72 square inches of high intensity reflective sheeting toward the extremities on each side of the equipment. A minimum of 144 square inches of the sheeting shall be visible from each direction. The color of the reflective sheeting shall be orange. The attenuator shall have a standard trailer lighting system, including brake lights, tail lights, turn signals and ICC bar lights.

The truck mounted attenuator shall be attached to the truck in accordance with the manufacturer's specifications and recommendations.

Any units or parts of the truck mounted attenuator which are damaged or become inoperable during construction shall be repaired or replaced. A complete replacement module and the required components for restoration shall be available at all times on the project without additional compensation.

The truck shall be equipped with 2 large conspicuous overhead flashing lights and the appropriate generator to power the lights. The lights shall be mounted so that they are visible when the attenuator is in a raised position and the flashing lights shall run continuously whenever the truck is performing lane and shoulder closing and opening operations.

In the event that the traffic control truck is hit during the process of the work and the crash cushions become damaged or inoperable, the Contractor shall have a replacement cartridge on the site at all times, and shall immediately repair the truck mounted crash cushions. The replacement cartridge shall be compatible with the original unit so that the repair can be accomplished in a minimal amount of time.

(5) Temporary Emergency Speed Warning/Speed Limit Signs (ESW/SL)

Authority leased trailer-mounted LED Variable Message Signs, Variable Speed Limit Signs, and portable traffic detection sensors are to be temporarily used during the interval in which existing permanent ESW/SL signs impacted by the construction are to be decommissioned to the time permanent proposed VMS/VSLs are to be erected and commissioned into operation. These signs are to be employed strictly for the Authority's Operations Department use to temporarily take the place of decommissioned ESW/SL signs as shown on the plans. These signs shall be furnished, placed, maintained and removed by others. For coordination, the Contractor shall anticipate that two (2) Temporary ESW portable signs and one (1) Temporary SL Portable sign will be placed for each ESW/SL sign to be replaced with a permanent VMS/VSLs.

Upon final approval of the permanent VMS/VSLs sign, the Contractor shall notify the engineer for the removal of Temporary ESW/SL sign.

(F) Traffic Protection Patrol.

The Contractor shall provide a traffic protection patrol of the type specified. The purpose of this patrol is to guarantee that traffic protection devices remain functional during these periods when no work is in progress. Traffic protection patrol may be full time, part time, or may not be required.

The Contractor will be required to provide a traffic protection patrol at all times when lane, ramp or partial ramp closings are in place.

Full time patrol.

The Contractor shall provide a traffic protection supervisor who shall patrol the entire work area and maintain in place devices as necessary, during all times and hours when no workmen are engaged at the site.

The Contractor shall provide the supervisor with a suitable vehicle for patrolling the work area. The vehicle shall be equipped with approved vehicle lights as specified in Subsection 920.13.

Patrols shall be made at least once per hour during the supervisor's tour of duty. In reversing direction at each end of his patrol, the supervisor

shall exit at an interchange beyond the limits of the Project and then re-enter. Following each patrol, the supervisor shall report by telephone to the Turnpike's Traffic Operations Center to advise of the condition of the traffic protection devices. A toll-free number for this purpose will be available to the Contractor.

The traffic protection supervisor shall be an employee of the Contractor and not one of the subcontractors or other agencies. The supervisor shall be thoroughly familiar with all of the provisions of these Specifications for Maintenance and Protection of Traffic.

The supervisor's duties in regard to maintenance of devices shall include washing sign faces and the lenses of flashing lights, replacing dead batteries and defective bulbs and lights, aligning lights properly, and any other maintenance of devices deemed essential by the Engineer to sustain the full effectiveness of all in-place devices.

In the event of an accident causing damage to the in-place traffic protection and control devices beyond the repair capability of the supervisor, he shall immediately call the superintendent or his assistant who shall make himself available at the site of the work within a reasonable length of time and with such additional workmen as may be required to make the necessary repairs.

Should an accident occur causing damage to devices in-place and the Contractor's traffic protection supervisor is unable or otherwise fails to perform the specified duties, the Engineer will call the Contractor's superintendent or assistant superintendent who shall make himself available at the site and effect repairs as specified in the preceding paragraph.

(G) Escorts.

Whenever the Contractor intends to transport oversize or slow moving equipment on active Turnpike roadways, he may do so only under State Police escort.

All requests for escorts should be scheduled by submitting the proper Escort Request Form to the Engineer on the Tuesday of the week preceding the requested escort. In no case, however, will a slowdown be granted on less than twenty-four hours notice.

The Engineer, after consultation with the Traffic Engineer, will determine the time and the route of the escort. Escorts will not be scheduled during commuter rush hours, 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM Monday through Friday. Escorts are generally permitted only to and from the nearest Interchange.

A minimum of two flashing amber lights as specified in Subsection 920.04 shall be mounted on all slow moving vehicles. Tracked vehicles are not permitted to drive on open roadways.

(H) Mile Markers.

The Contractor shall temporarily mount on the top of construction barrier or post mount at the outside edge of the shoulder as may be necessary any existing mile marker that will be removed because of construction. The relocated mile markers shall be mounted in accordance with Standard Drawing DE-2, and as approved by the Engineer. The Contractor will be responsible for maintaining and, if necessary, replacing all mile markers within the limits of work during the course of construction.

(I) Roadway Closing.

The hours when one roadway of a single direction dual roadway may be closed are limited. A roadway may be closed, and work requiring roadways to be closed, may be performed only during the times prescribed.

The placement or removal of traffic protection devices and the opening or closing of ramp gates (where applicable) will be performed only by employees of the New Jersey Turnpike Authority and under the direction of the State Police. The Engineer will arrange for such assistance.

Unless otherwise specified, the Contractor shall not position his vehicles and equipment to block all lanes and shoulders of the closed roadway. At least one lane of emergency access is to be maintained at all times.

The Contractor shall be permitted to undertake only as much work as can be completed within the time prescribed. Extension of roadway closing hours will not be granted under any circumstances. The Contractor is reminded that the time required to close an entire roadway may be substantial and that the roadway closing hours prescribed are inclusive of closing and reopening times.

Roadway closings may be cancelled or roadways may be reopened earlier than scheduled, as required by weather conditions or incidents in the open same-direction roadway. The Contractor shall vacate the closed roadway if so instructed by the State Police or the Director of Operations. The cancellation or curtailment of a roadway closing shall not be considered as a basis for a claim of delay against the Turnpike.

Roadway closings and two-lane closings, when approved by the Engineer, are permissible Monday through Thursday nights as follows:

September 15th to May 15th, Northbound	7:00 PM to 5:00 AM the next day
May 15th to September 15th, Northbound	8:00 PM to 5:00 AM the next day
September 15th to May 15th, Southbound	8:30 PM to 6:00 AM the next day
May 15th to September 15th, Southbound	9:00 PM to 6:00 AM the next day

802.04**MEASUREMENT**

Furnishing Concrete Construction Barrier will be measured by the linear foot along the front vertical face of the barrier as it is used on the project, and the quantity will be limited to the maximum linear footage that is installed simultaneously on the project.

The linear foot price for furnishing shall include provisions for joint interlocking devices, reflectors, shimming and leveling, blockouts, grouting joints, anchorages, lifting devices, the labor, materials and equipment for transportation and delivery to the project site, furnishing test results or service history for approval by the Engineer, and any incidentals required in supplying the required quantity of Concrete Construction Barrier to the project. Payment will be made on a linear foot basis up to the maximum as noted.

Maintenance and Protection of Traffic shall include furnishing traffic protection devices including sign stands, sign posts of various sizes and materials, sign panels, overlay panels, flashing lights, batteries and traffic cones with bases and will be measured on a lump sum basis.

Placing And Removing Concrete Barrier will be measured by the linear foot along the front vertical face of the barrier, as it is installed in its properly assembled final alignment and subsequently removed. The unit price shall include all necessary labor for loading and unloading of units, the trucks, all trailers, all heavy machinery and other equipment required to place and remove the barrier as prescribed. Payment will be made on a linear foot basis to cover both placement and removal operations. No separate payment will be made for removal.

Resetting Concrete Barrier will be measured by the linear foot along front vertical face of the barrier actually shifted when an existing barrier alignment is to be modified as shown on the Staging Plans, or as directed by the Engineer. Resetting of the barrier will only apply to barrier that had been previously installed on the project and must be relocated to a new location adjacent to the previous location for staged construction. Payment will be made on a linear foot basis. Should the movement of the barrier require the loading of units onto a truck and unloading of same, payment will be made under the item Placing and Removing Concrete Barrier.

Traffic Protection Patrol will be measured by the man-hours that the traffic protection supervisor is actively engaged at the site for the purpose of making patrols, maintaining the work area lane closing cone line and reporting as required, including any waiting periods between hourly patrols.

No measurement or separate payment will be made for uniformed flagmen or for a traffic observer to be actively engaged at the site to ride the cone truck to observe oncoming traffic.

No measurement for payment will be made for any work or expense, including traffic protection required for the closing of lanes or shoulders, in connection with the correction of defective work.

No measurement for payment will be made for the cost of traffic protection devices used for the convenience of the Contractor, which are not specified in the Contract nor ordered by the Engineer.

Maintenance and Protection of Traffic will be measured on a lump sum basis.

Placing and Removing Construction Variable Message Sign will be measured by the number of each and will be limited to the maximum number being used simultaneously. Sign placement, removal and maintenance will not be measured for payment.

Furnishing Temporary Impact Attenuators and Truck with Attenuator will be measured by the number of complete units, as they are used on the roadway and will be limited to the maximum number which are installed simultaneously.

Placing and Removing Temporary Impact Attenuator will be measured by the total number complete units placed in each location as prescribed. Temporary impact attenuator removal will not be measured for payment.

Repair Temporary Impact Attenuator will be measured by the total number of barrels requiring replacement in each barrier system, either damaged or destroyed by the traveling public and as directed by the Engineer.

Repair Truck Mounted Attenuators will be measured by the total number of units requiring replacement, either damaged or destroyed by the traveling public and as directed by the Engineer.

Traffic observers, uniformed flagmen, and "back-up" vehicles with a truck mounted attenuator required for lane and shoulder closing or opening operations shall not be measured for payment, but the cost thereof shall be included in the lump sum bid price for Maintenance and Protection of Traffic.

The relocation and if necessary the replacement of existing mile markers during construction will not be measured for payment, but the cost, thereof, shall be included in the lump sum price for "Maintenance and Protection of Traffic."

The removal of existing traffic stripes and removal of stripes to accommodate construction will not be measured for payment, but the cost, thereof, shall be included in the lump sum price for "Maintenance and Protection of Traffic."

The construction of the temporary pavement noted on the Maintenance and Protection of Traffic Plans will be constructed and measured for payment in accordance with Divisions 200 and 300.

802.05 PAYMENT

Payment will be made under:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Furnishing Precast Concrete Construction Barrier.....	Linear Feet
Placing and Removing Portable Variable Message Signs	Each
Placing and Removing Precast Concrete Construction Barrier	Linear Feet
Traffic Protection Patrol	Man Hours
Maintenance and Protection of Traffic.....	Lump Sum
Furnish Portable Variable Message Sign	Each
Furnishing Temporary Impact Attenuator.....	Each
Placing and Removing Temporary Impact Attenuator	Each
Resetting Precast Concrete Construction Barrier	Linear Foot
Repair Temporary Impact Attenuators.....	Barrel
Repair Truck Mounted Impact Attenuators.....	Each
Furnishing Truck with Mounted Attenuator	Each

Except for the items listed in the Proposal, no separate payment will be made for any costs incurred by the Contractor in complying with the requirements specified under the various articles of this section, unless otherwise specifically prescribed elsewhere in these Supplementary Specifications, but the costs thereof shall be included in the item maintenance and protection of traffic in the proposal, including all tools, equipment, transportation, labor, services and materials as may be necessary for traffic protection patrol; providing lane and shoulder closings; placing, removing and maintaining signs, flashing arrow board trailer and any other work or expense in connection with the maintenance and protection of traffic, during various stages of construction and as may be required by the Engineer.

Payment for Repair Temporary Impact Attenuator shall include all costs for replacement of each barrel complete to include any component, cylinder, core, disc, seal, lid or sand; the cleanup and disposal of debris or sand; the resetting realignment, repositioning and restoration of the site and the system complete to the satisfaction of the Engineer; all materials, labor and equipment and all else necessary therefore and incidental thereto.

Separate payment will not be made for lighting for nighttime operations, but all costs thereof shall be included in the prices bid for the various pay items in scheduled in the Proposal.

Separate payment will not be made for providing Maintenance and Protection of Traffic and coordinating the work associated with placement of temporary ESW/SL portable signs, but all cost thereof shall be included in the prices bid for various Maintenance and Protection of Traffic pay item.

Payment for furnishing and maintaining the Construction Variable Message Signs shall be included under the Maintenance and Protection of Traffic pay item.

Payment for the various items related to Temporary Impact Attenuators (Quadguard) shall be in accordance with Subsection 524.05.

Payment for temporary striping shall be in accordance with Subsection 516.06.

DIVISION 900 – MATERIALS

SECTION 902 – AGGREGATES

902.04 FINE AGGREGATE.

Add the following:

Fine aggregate for concrete decks shall contain a maximum of 0.06 percent chloride content.

902.08 SOIL AGGREGATE

Soil aggregate shall be natural or prepared mixtures consisting predominately of hard durable particles or fragments of stone, slag, gravel, or sand, and containing some silt-clay or stone dust or remediated ID-27 petroleum contaminated soil aggregate (RPCSA) produced by a New Jersey Department of Environmental Protection (NJDEP) approved "Class B" recycling center operating pursuant to NJAC 7:26A.

A list of recycling centers, which have been approved as a source of RPCSA for NJDOT projects is available from the Department's Bureau of Materials.

Soil aggregate obtained from subaqueous sources and placed by methods other than hydraulically shall first be placed in a stockpile and drained, and shall not be placed in its final location until the Engineer has determined that the moisture content is not excessive.

Soil aggregate shall conform to the following:

(A) Definitions of Constituent Materials.

Stone shall be crushed or naturally angular particles of rock, a natural solid mineral matter occurring in large masses or fragments, which shall pass a 2-inch sieve and be retained on a No. 8 sieve. The stone shall conform to Subsection 902.02.

Blast furnace slag shall be the air-cooled residue resulting from the production of pig iron and shall consist of tough, durable, angular fragments uniform in density, absorption, quality, and shall be free from flux stone, dirt, or other objectionable material. The slag shall conform to Subsections 902.01 and 902.02, and to the following quality requirements:

Weight per cubic foot (loose measure), pound.....	60 minimum
Percentage of wear (Los Angeles Test).....	50 maximum
Sulfur, percentage by weight	2 maximum

Gravel shall be rounded particles of rock that shall pass a 4-inch sieve and be retained on No. 8 sieve.

Sand shall be granular material resulting from weathering processes, grinding or crushing of rock and shall pass a No. 8 sieve and be retained on the No. 200 sieve.

Stone dust shall be fine soil or mineral particles, or both, which shall pass the No. 200 sieve. Silt-clay shall be fine soil particles that shall pass the No. 200 sieve.

(B) Composition of Soil Aggregate.

The composite mixture of any type of soil aggregate specified herein shall be free from elements or chemicals which, in the presence of water, would produce detrimental effects to pavements, structures, or utility lines, and be free from organic matter, wood, garbage, metal, debris, or lumps of clay.

Designations I-1, I-2, I-3, I-4, I-9, I-10, I-11, I-12, and I-13 shall consist of bank-run sand and gravel, commercial sand and gravel combined, blast furnace slag, or stone, except blast furnace slag will not be permitted when in contact with concrete. Designation I-5 shall be hard, durable gravel or stone mixed with sand, stone dust, or silt-clay so that it can be compacted into a hard, dense mass. The composite mixture shall contain, by weight, a total of not more than 25 percent of shale, slate, schist, or soft and decomposed aggregate as determined by lithologic analysis.

Designation I-5 may be produced from recycled concrete aggregate conforming to the composition and quality requirements specified for recycled concrete aggregate in Subsection 902.07, except that the crushed surface requirement shall not apply, and to the gradation requirements of Subsection 902.09, Table 902-1. When designation I-5 is produced from recycled concrete aggregate, the Contractor shall report to the solid waste management district of origin, according to NJAC 7:26A, the tonnage of concrete aggregate being recycled. A copy of the reported information shall be provided to the Resident Engineer.

Designations I-6, I-7, and I-8 shall consist of clean, free-draining sand, gravel or stone.

Designations I-1, I-2, I-3, I-4, I-5, I-9, and I-10 shall comply with the gradation requirements specified in Subsection 902.09, Table 902-1 after being tested for materials which break down as determined according to Section 990, A-7.

C. Gradation.

Soil aggregate shall be graded as shown in Subsection 902.09, Table 902-1 for the various designations. The gradation requirements shall apply to the material after it has been placed and compacted on the Project. Where compaction is not prescribed, the requirements for any given type shall apply to the material at the time it is placed.

D. Combining and Mixing.

If bank-run or other materials conforming to the requirements specified hereinabove are not available, materials that conform thereto may be produced by combining and mixing, and by washing if necessary. Materials may be

combined and mixed on the grade only with approval. The blending on the grade shall be performed by a traveling high-speed rotor mixer capable of cutting and thoroughly mixing to a minimum depth of 6 inches.

902.09 TABLE

Table 902-1 Standard Soil Aggregate Gradations New Jersey Interagency Engineering Committee													
Sieve	Gradation Designations, percentage by weight passing square mesh sieves												
Size	I-1	I-2	I-3	I-4	I-5	I-6	I-7	I-8	I-9	I-10	I-11	I-12	I-13
4"	100		100						100	100	100	100	100
2"	70-100	100		100	100				80-100	80-100	80-100		
1"				60-100		100	100						
¾"	50-95	65-100	60-100		70-100				60-100	60-100	60-100	70-100	
½"				40-100		80-100	80-100	100					
No. 4	30-60	40-75	30-100	25-100	30-80			95-100	40-100	40-100	40-100		30-100
No. 8				20-100		45-100	35-100						
No. 16				15-85		30-90	25-90	45-70	20-70	20-70			
No. 50	5-25	5-30	5-35	8-45	10-35	0-20	5-50	5-25	5-35	5-40	0-75	0-75	
No. 100						0-3	0-8		0-20	0-30			
No. 200	0-7	0-7	0-8	5-10	5-12		0-2	0-5	0-8	0-20	0-9	0-5	0-12

SECTION 903 - HOT MIX ASPHALT (HMA)
903.01 COMPOSITION OF MIXTURES

Replace the first four paragraphs in their entirety with the following:

The composition of the mixture for HMA surface courses shall be coarse aggregate, fine aggregate, and asphalt binder and may also include mineral filler and up to 10 percent RAP. RAP will not be permitted in surface course mixes used for Bridge Deck Resurfacing. The composition of the mixture for base or intermediate courses shall be

coarse aggregate, fine aggregate, and asphalt binder and may also include mineral filler and up to maximum of 30 percent by weight of RAP as follows:

Recycled Materials		
Percent	Reclaimed Asphalt Pavement (RAP) Source	Maximum Recycled Percent
0 to 10	Open System	10
11 to 30	Open System	30

The grade of asphalt binder shall be determined by the Contractor, and submitted for approval by the Authority, for those projects that include the use of 11 to 30 percent of RAP.

Reclaimed asphalt pavement, RAP, may be used in base and leveling course mixes. The RAP shall be the product resulting from the cold milling or crushing of an existing hot mix asphalt pavement and shall be so processed so that 100 percent will pass the maximum aggregate size for the mixture being produced. RAP shall not exceed 30 percent of mass (weight) of the total mixture.

903.02 GRADING REQUIREMENTS

Delete this subsection in its entirety.

903.03 JOB MIX FORMULA

Delete this subsection in its entirety.

903.04 SAMPLING AND TESTING

Delete this subsection in its entirety.

903.05 TABLES

Delete this subsection in its entirety.

SECTION 905 – CONCRETE, MORTAR AND GROUT

905.01 PORTLAND CEMENT.

Add the following:

Subsections 905.21, 905.22 and 905.23 are applicable to Latex Modified Concrete (LMC) and High Performance Concrete (HPC) with the following noted modifications.

905.21 QUALITY ACCEPTANCE LIMITS FOR PORTLAND CEMENT CONCRETE PAY ADJUSTMENTS

The following modifications are applicable to HPC and LMC:

(A) QUALITY ACCEPTANCE LIMITS.

Delete subsection (3) in its entirety and replace with the following:

(3) Permeability.

- (a) AASHTO T277 - The Upper Quality Limit (UQL) shall be 2,000 Coulomb resistivity for LMC overlays and 1,100 Coulomb for HPC.
- (b) AASHTO T259/T260 - The chloride permeability shall be correlated in accordance with the following table:

Chloride permeability	Charge passed (coulombs)	Type of Concrete	Total integral chloride to 1.6 in. depth after 90 day ponding test
High	> 4000	High water-cement ratio, conventional (≥ 0.6) PCC*	> 1.3
Moderate	2000-4000	Moderate water-cement ratio, conventional (0.4 to 0.5) PCC*	0.8 to 1.3
Low	1000-2000	Low water-cement ratio, conventional (< 0.4) PCC* including LMC	0.55 to 0.8
Very Low	100-1000	Latex-modified concrete Internally sealed concrete	0.35 to 0.55
Negligible	< 100	Polymer impregnated concrete Polymer concrete	< 0.35

* Portland cement concrete.

905.22 QUALITY ACCEPTANCE TESTING, SAMPLING, AND INSPECTION FOR PORTLAND CEMENT CONCRETE PAY ADJUSTMENT.

Add the following note to the Table I Notes:

- (6) The number of Sublots shown in the table, including the requirements in Notes (1) thru (4), may be modified by the Engineer.

(A) QUALITY ASSURANCE TESTING STANDARDS AND FREQUENCY OF TESTING.

(3) Coulomb Test.

The following modifications are applicable to HPC and LMC:

For each Sublot, the Engineer will cast four (4) 4" x 8" cylinder specimens for permeability testing in accordance with AASHTO T277 and two (2) 6" x 6" x 3" thick samples for permeability testing in accordance with AASHTO T259/T260. The 4" x 8" cylinders shall be tested at 28 day (two cylinders) for LMC only and at 56 day (two

cylinders) intervals for LMC and HPC in accordance with AASHTO T277. The 6" x 6" x 3" thick samples for 90 day ponding testing will be tested in accordance with AASHTO T259/T260. The average of the two (2) test specimen result values for each Sublot will be considered the Sublot Coulomb test value.

(B) REFERENCES.

- (1) American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges.

Add the following:

T 259 Resistance of Concrete to Chloride Ion Penetration.

905.23 ADJUSTMENTS TO CONTRACT COMPENSATION.

(B) PERFORMANCE CRITERIA PARAMETERS.

The following modification applies to HPC only:

<i>Performance Parameters</i>	<i>Minimum PWL</i>
Compressive Strength	90
Permeability	90
Air Content	70

The following modification applies to LMC only:

<i>Performance Parameters</i>	<i>Minimum PWL</i>
Compressive Strength	90
Permeability	90
Bond Strength	80
Water to Cement Ratio	80
Air Content	70

Change the title of Section 906 to the following:

SECTION 906 - CONCRETE ADMIXTURES, CURING MATERIALS, AND FILM EVAPORATORS

906.07 CURING MATERIALS.

Add the following at the end of the subsection:

(F) Evaporation Retarders.

Evaporation retarders shall be BRICKFORM Evaporation Retarder, as manufactured by Rafco Products - BRICKFORM, Rancho Cucamonga, CA (800) 483-9628 or (909) 484-3399 or CONFILM Evaporation Retarder, as manufactured by BASF Construction Chemicals, LLC, 23700 Chagrin Boulevard, Cleveland, Ohio (800) 628-9990 or an approved equal.

SECTION 908 – REINFORCEMENT STEEL

908.01 REINFORCEMENT STEEL FOR STRUCTURES

(A) Deformed Bars

The following is added:

Low-alloy, low-carbon steel conforming to the requirements of ASTM Designation A706, Grade 60, may be substituted in situations where welding of cross bars is employed to expedite the assembly of reinforcement cages. All welding shall conform to the most current edition of the AWS D1.4 Structural Welding Code for Reinforcing Steel. Tack welding shall only be performed under continuous and competent control by an approved and qualified fabrication shop. Field welding of the reinforcement cage assembly shall not be permitted. Additionally, welding of intersecting bars shall not be permitted in deck slabs.

Certification, sampling and testing of the tack welded cage assembly shall be submitted in accordance with Subsection 105.04.

SECTION 909 – STRUCTURAL STEEL AND OTHER FERROUS MATERIALS

909.02 FASTENERS

Delete Subsection 909.02(F) and replace it with the following:

(F) Adhesive and Cast-in-Place Anchors

Unless otherwise specified, Adhesive and Cast-in-Place Anchors shall be fully galvanized high strength steel anchor bolts meeting the requirements of ASTM F1554, Grade 105. Adhesive Anchors shall be set in drilled holes with an approved epoxy or polyester resin bonding agent. Where removable anchors are specified, the anchor bolt shall be Teflon coated prior to installation. Certified manufacturer's affidavit shall be furnished attesting to the pullout strength by proof loading to 90% of the yield of materials, of the various sizes and types of anchor bolts to be used.

SECTION 912 – SIGN MATERIALS

912.01 ALUMINUM SHEET SIGN PANELS AND INCIDENTAL HARDWARE.

(A) FLAT SHEET SIGN FACE PANELS, BACKUP PLATES, CLIPS, SHIM AND SPACERS.

The following is added:

Aluminum thickness shall be 0.080" for temporary flat panel signs measuring less than 8 square feet in area.

Aluminum thickness shall be 0.100" to 0.125" for temporary flat panel signs measuring 8 square feet or greater in area.

SECTION 913 - PAINTS AND COATINGS

913.03 COATING SYSTEM C.

Replace the Paint Systems table in its entirety with the following:

Manufacturer	Coat	Product
Carboline West Caldwell, NJ 201-415-4542 or 800-848-4645	Primer:	Carbozinc 11HS
	Intermediate Coat:	Carboguard 893 or 888
	Finish Coat:	Carbothane 133LH
International Paint, Inc. Union, NJ 973-220-5628 or 908-451-0253	Primer:	Interzinc 22 HS
	Intermediate Coat:	Intergard 475 HS
	Finish Coat:	Interthane 870 UHS
PPG Protective & Marine Coatings Pittsburgh, PA 800-661-4774	Primer:	Dimetcote 9H
	Intermediate Coat:	Amercoat 385
	Finish Coat:	Amercoat 450H
Sherwin-Williams Co. Zelienople, PA 724-453-1042	Primer:	Zinc Clad II Plus
	Intermediate Coat:	Macropoxy 646 FC Epoxy
	Finish Coat:	Acrolon 218 HS

(B) Paint Color.

Replace this Paragraph (B) in its entirety with the following:

The prime coat and intermediate coat shall be different colors. The finish coat shall match the color of the existing paint system, unless otherwise specified, and shall be subject to approval by the Engineer. The finish coats shall be as follows:

New Jersey Turnpike

Green: Federal Standard 595B, Color Chip No. 14159.

Brown: Federal Standard 595B, Color Chip No. 20062.

913.05 TRAFFIC PAINT AND MARKING

The following Subparagraph is added:

(H) Preformed Contrast Striping Tape

Preformed contrast tape to be placed on the bridge deck surface shall be Stamark High Performance All Weather Contrast Marking Tape Series 380AW-5 as manufactured by 3M, 3M Center, Building 235-3A-09, St. Paul, MN, 55144-1000, (800) 553-1380, www.3M.com/tss. 3M Stamark Surface Preparation Adhesive P-50 shall be used with the overlay tape installation.

913.07 COAL TAR EPOXY COATING

Replace the entire subsection with the following:

Coal tar epoxy coating shall be a two-component, coal tar epoxy-polyamide paint (black) conforming to SSPC-Paint 16.

913.09 MOISTURE-CURE URETHANE COATING SYSTEM

Delete this section in its entirety.

913.10 WATER-BORNE ACRYLIC COATING SYSTEM

Delete this section in its entirety.

SECTION 914 – FENCE

914.01 CHAIN LINK FENCE

(A) Fence Fabric.

Replace the second paragraph with the following:

PVC coated steel wire shall be black in color and the shade shall be subject to the approval of the Engineer.

(B) Line and End/Corner Fence Post Sections.

Delete this paragraph in its entirety, and replace it with the following:

Line and End/Corner Fence Post Sections shall be roll-formed galvanized (2.0 oz./ft² zinc coating per ASTM A123) steel shapes conforming to the requirements of ASTM F 1043. Line posts shall be Group II with a minimum yield strength of 45,000 psi, 1 7/8 inch standard "C"-shaped posts, 2.4 lbs./ft or Group III with a minimum yield strength of 45,000 psi, 2 1/4 inch standard "H" shaped posts, 3.26 lb/ft, End corner posts shall be Group IA with a minimum yield strength of 50,000 psi, 2 7/8 inch diameter standard "Round Steel Pipe" posts, 5.79 lbs./ft or Group IC with a minimum yield strength of 50,000 psi, 2 7/8 inch diameter standard "Round Steel Pipe" posts, 3.25 lbs./ft.

(C) Brace Rail Sections.

Delete this paragraph in its entirety, and replace it with the following:

Brace Rail Sections shall be galvanized (1.8 oz./ft² – zinc coating, per ASTM F1083) steel pipe conforming to the requirements of ASTM F1043, Group 1A. Brace rail posts shall be 1 5/8 inch outside diameter round pipe, 2.27 lbs/ft.

(I) Drive Anchors.

Delete this paragraph in its entirety, and replace it with the following:

Drive Anchors for H-beam line posts shall be fabricated from steel bars and pressed steel, of the type and size shown on the Plans, and shall be hot dip galvanized in accordance with the requirements of ASTM A123.

SECTION 915 – GUARD RAIL

Delete this Section in its entirety and replace it with the following:

SECTION 915 – BEAM GUIDE RAIL

915.01 RAIL ELEMENT

Rail elements shall be 12 gauge steel.

For galvanized beam guide rail, fabricate the rail element, including rounded end sections and buffer end sections, according to AASHTO M 180, Class A, Type I in Table 2. Ensure that the weight of the zinc coating conforms to AASHTO M 180, Type I in Table 1.

915.02 POSTS AND RECYCLED/SYNTHETIC BLOCKOUTS

For galvanized steel posts, use structural steel conforming to ASTM A 709, Grade 36, that is galvanized according to ASTM A 123.

Timber posts for end terminals shall conform to Subsection 910.05.

Use recycled/synthetic routed blockouts that are NCHRP 350 tested, test level 3 (TL-3), approved. Ensure that the name of the manufacturer and model number are stamped on each blockout and that the blockouts are of the same material and dimensions as the spacers that were NCHRP tested.

915.03 MISCELLANEOUS HARDWARE

For galvanized beam guide rail, ensure that connections or splices, nuts, bolts, washers, and plates conform to AASHTO M 180, except as follows:

1. If high-strength bolts are shown on the Plans for bridge guide rail, use high-strength bolts, nuts, and washers conforming to ASTM A 325, Type I, and galvanized according to ASTM A 153.
2. For base plate assemblies on bridge guide rail, use an adhesive anchor system with galvanized bolts as specified in 909.02(F) or galvanized anchor bolts, nuts, and washers as specified in 909.02(E).
3. Use plates for beam guide rail on bridges conforming to ASTM A 36 and galvanized according to ASTM A 123.

915.04 SAMPLING AND TESTING

Samples and rate of sampling taken by the Engineer will be in accordance with AASHTO M180.

915.05 RUB RAIL

For galvanized beam guide rail, rub rail shall be steel channels or bent plate of structural steel conforming to ASTM A 36 and galvanized according to ASTM A 123.

SECTION 916 - MASONRY UNITS

916.01 CONCRETE BLOCKS

Delete the second paragraph and replace it with the following:

Each block shall have a compressive strength of not less than 4,500 pounds per square inch (PSI) when tested in accordance with ASTM-C140.

SECTION 917 - PIPE

The following Subsection is added:

917.08 HIGH DENSITY POLYETHYLENE (HDPE) PIPE

Corrugated HDPE drainage pipe shall conform to AASHTO M 294, and is Type S (smooth interior with annular corrugations), with gasketed silt-tight joints.

Submit a certification of compliance, as specified in 105.04 for HDPE pipe.

SECTION 918 - ELECTRICAL MATERIAL

918.01 GENERAL

The following is added after the last paragraph:

All materials and equipment forming part of any assembly shall be new and subject to the approval of the Engineer. Materials, components and equipment approved by the Engineer which appear defective when received or which may have become damaged in any manner, shall not be used until retested and re-approved. Manufacturer's certifications or certified copies of reports of tests shall be furnished as directed by the Engineer.

The sources of supply of each of the equipment items to be incorporated into an assembly shall be subject to approval by the Engineer. Work performed and materials, components, and equipment furnished which do not conform to the requirements of these Specifications will be rejected and shall be removed and replaced, as the Engineer may direct, at the Contractor's expense.

918.07 CABLE AND WIRE

(A) Multiple Lighting and Power Cable

The following is added:

Replace the color coding requirement for different voltage characteristics with the following table:

Cable or Wire	265/460 V. Or 277/480 V.	120/208V.	120/240 V.
Phase A	Brown	Black	Red
Phase B	Yellow	Red	Black
Phase C	Orange	Blue	—
Neutral	Grey	white	White

The following is added:

(F) Outdoor Network Cable

Outdoor network cable shall consist of 24 AWG solid bare copper conductors, Category 5e or better rated twisted pairs, polyolefin insulation, inner LLPE jacket, overall shield (100% coverage), 24 AWG stranded TC drain wire, industrial grade sunlight- and oil-resistant LLPE jacket and be model 7937A DATATUFF by Belden or approved equal.

Specifications for the cable shall be as follows:

- Number of Conductor Pairs:** 4
- Total Number of Conductors:** 8 # 24 AWG
- Conductor Stranding:** Solid
- Conductor Material:** Bare Copper
- Insulation Material:** Polyolefin
- Waterblocking Material:** Polymer Gel
- Conductor Color Code:**
 - 1 - White/Blue Stripe & Blue
 - 2 - White/Orange Stripe & Orange
 - 3 - White/Green Stripe & Green
 - 4 - White/Brown Stripe & Brown
- Inner Jacket Material:** Linear Low Density Polyethylene
- Inner Jacket Diameter:** 0.230 inches
- Outer Shield Type:** Tape
- Outer Shield Material:** Aluminum Foil-Polyester Tape
- Outer Shield %Coverage:** 100 %
- Outer Shield Drain Wire AWG:** 24
- Outer Shield Drain Wire Stranding:** 7x32
- Outer Shield Drain Wire Conductor Material:** Tinned Copper
- Outer Jacket Material:** Linear Low Density Polyethylene
- Outer Jacket Ripcord:** No
- Overall Nominal Diameter:** 0.276 inches
- Operating Temperature Range:** -40°C To +75°C
- Installation Temperature Range:** -25°C To +75°C
- Bulk Cable Weight:** 33 lbs/1000 feet
- Max. Recommended Pulling Tension:** 40 lbs.
- Min. Bend Radius (Install):** 2.75 inches
- IEC Specification:** 11801 Category 5
- EU RoHS Compliant (Y/N):** Yes
- EU RoHS Compliance Date:** 01/01/2004
- TIA/EIA Specification:** 568-B.2 Category 5e
- Other Specification:** NEMA WC-63.1 Category 5e
- Suitability - Outdoor:** Yes

Suitability - Burial:	Yes
Sunlight Resistance:	Yes
Oil Resistance:	Yes
Non-halogenated:	Yes
Plenum:	No
Nom. Mutual Capacitance @ 1 KHz:	15 pF/ft
Maximum Capacitance Unbalance (pF/100 m):	330 pF/100 m
Nominal Velocity of Propagation:	70 %
Maximum Delay (ns/100 m):	538 @ 100MHz ns/100 m
Maximum Delay Skew (ns/100m):	45 ns/100 m
Maximum Conductor DC Resistance @ 20 Deg. C:	9.38 Ohms/100 m
Maximum DCR Unbalance @ 20 Deg. C:	3 %
Max. Operating Voltage - UL:	300 V RMS

G) Fiber Optic Cable – Single Mode

Fiber Optic Cable - Single Mode shall be tight buffered breakout type cable as manufactured by Optical Cable Corporation BX006KSLX9YP or approved equal (OAE). No splices are permitted, except as required for terminations, unless shown on the Plans.

The fiber optic communications cable shall be of six fiber configuration as shown on the plans, each fiber with a color coded Polyvinyl Chloride inner sub-cable jacket, containing Aramid strength fibers all surrounded by a yellow Fluoropolymer outer jacket with rip cord.. (If exposed to sunlight, the outer jacket shall be black.) The single mode fibers shall be structured with 9/125/900 micron diameter. Optical fibers shall be protected in individual color coded, breakout buffer tubes. The buffer tubes shall be cabled around a central dielectric strength element with a gel-less water blocking system to inhibit water migration. The cable shall be suitable for use in cable tray, direct burial, underground duct and aerial installations. The optical and physical characteristics of the cable shall be as listed in the table below:

Single Mode Fiber Type:	Low Water Peak
Core Diameter:	9 +/- 1 Microns (single mode)
Cladding:	125 +/- 2 Microns
Coating:	245 +/- 15 Microns
Buffer:	900 +/- 25 Microns
Color Coded Breakout Tube	2 mm or 2.5 mm
Attenuation @ 1310nm:	0.5 dB/Km Maximum
@ 1550nm:	0.5 dB/Km Maximum
Proof Test:	100KPSI
Cable Type:	Breakout; Tight Buffer; Indoor/Outdoor
Operating Temperature:	-40°C to +85°C
Storage Temperature:	-40°C to +85°C
Installation Temperature:	0°C to +60°C (actual temperature of cable)
Fiber Count:	6
Outer Jacket Color:	Yellow (Black if exposed to sunlight)
Weight:	56 lbs/kft
Maximum Load for Installation:	670 lbs
Max Load for Long Term Apps:	270 lbs

Min Bend Radius for Installation:	5.7"
Min Radius for Long Term Apps:	3.8"
Crush Resistance:	High
Flame Resistance:	UL 1666 (OFNR); IEEE383
Solar Radiation Resistance:	High
Sub-cable Tube Color Code:	1. Blue, 2. Orange, 3. Green, 4. Brown, 5. Slate, 6. White

(H) Fiber Optic Cable – Multi-mode

Fiber Optic Cable - Multi-mode shall be tight buffered breakout type cable as manufactured by Optical Cable Corporation BX006KWLS9OP or approved equal (OAE). No splices are permitted, except as required for terminations, unless shown on the Plans.

The fiber optic communications cable shall be of configuration as shown on the plans, each fiber with a color coded Polyvinyl Chloride inner sub-cable jacket, containing Aramid strength fibers all surrounded by an orange Fluoropolymer outer jacket with rip cord. (If exposed to sunlight, the outer jacket shall be black.) The multimode fibers shall be structured with 62.5/125/900 micron diameter. Optical fibers shall be protected in individual color coded, breakout buffer tubes. The buffer tubes shall be cabled around a central dielectric strength element with a gel-less water blocking system to inhibit water migration. The cable shall be suitable for use in cable tray, direct burial, underground duct and aerial installations. The optical and physical characteristics of the cable shall be as listed in the table below:

Multimode Fiber Type:	Graded Index
Core Diameter:	62.5 +/- 3 Microns (multi mode)
Cladding:	125 +/- 2 Microns
Coating:	245 +/- 15 Microns
Buffer:	900 +/- 25 Microns
Color Coded Breakout Tube	2 mm or 2.5 mm
Attenuation @ 850nm:	3.5 dB/km Maximum
@ 1310nm:	1.5 dB/km Maximum
Bandwidth @ 850nm:	200 MHz/Km Minimum
@ 1310nm:	500 MHz/Km Minimum
Numerical Aperture:	0.275 Nominal
Proof Test:	100KPSI
Cable Type:	Breakout; Tight Buffer; Indoor/Outdoor
Operating Temperature:	-40°C to +85°C
Storage Temperature:	-40°C to +85°C
Installation Temperature:	0°C to +60°C (actual temperature of cable)
Fiber Count:	6
Outer Jacket Color:	Orange (Black if exposed to sunlight)
Weight:	56 lbs/kft
Maximum Load for Installation:	670 lbs
Max Load for Long Term Apps:	270 lbs
Minimum Bending Radius:	5.7"
Min Radius for Long Term Apps:	3.8"
Crush Resistance:	750 lbs./inch Minimum
Impact Resistance:	25 Impacts Minimum @ 3.3Ft.-Lbs
Solar Radiation Resistance:	High

Flame Resistance:	UL 1666 (OFNR); IEEE383
Sub-cable Tube Color Code:	1. Blue, 2. Orange, 3. Green, 4. Brown, 5. Slate, 6. White

(I) Fiber Optic Cable – Termination Connector

Fiber Optic Cable – Termination Connector shall be a pigtail consisting of a three foot (one meter) length of tight buffered type cable with a factory installed and terminated connector. The pigtail shall be fusion spliced to each strand at each end of every Fiber Optic Cable described in 918.07(H) and 918.07(I) furnished and installed by the Contractor. The pigtail fiber optic strand type shall match the strand type of the installed cable and shall be applied to each cable strand with a fusion splice. The fusion splice shall have a measured attenuation of less than 0.2 dB or it shall be remade until the quality of the splice meets this requirement.

Each pigtail shall be furnished with a factory made connector of the type indicated on the Plans. The connector shall be manufactured to have an average insertion loss equal to or less than 0.2 dB.

(J) Twisted Pair Communication Cable

Twisted Pair Communication Cable shall consist of 4 pairs of #24AWG stranded copper conductors, each pair individually shielded, covered by a PVC jacket. The cable shall be Belden Model 8164 or approved equal.

Specifications for the cable shall be as follows:

Number of Conductor Pairs:	4
Total Number of Conductors:	8 # 24 AWG
Conductor Stranding:	7x32
Conductor Material:	Tinned Copper
Insulation Material:	Foam Polyethylene
Inner Shield Material:	Aluminum Foil-Polyester Tape
Inner Shield Coverage:	100%
Inner Shield Drain:	24 AWG, 7x32 Tinned Copper
Conductor Color Code (by pair):	1 - Black & Red 2 - Black & White 3 - Black & Green 4 - Black & Blue
Outer Shield Material:	Aluminum Foil-Polyester Tape
Outer Shield Coverage:	100 %
Outer Shield Drain:	Tinned Copper Braid
Outer Jacket Material:	Polyvinyl Chloride
Outer Jacket Ripcord:	No
Overall Nominal Diameter:	0.276 inches
Operating Temperature Range:	-40°C To +60°C
Installation Temperature Range:	-25°C To +60°C
Bulk Cable Weight:	75 lbs/1000 feet
Max. Recommended Pulling Tension:	100 lbs.
Min. Bend Radius (Install):	4 inches
EU RoHS Compliant (Y/N):	Yes
EU RoHS Compliance Date	01/01/2004

(mm/dd/yyyy):	
NEC/(UL) Specification:	CM
Suitability - Outdoor:	Yes
Suitability - Burial:	Yes
Sunlight Resistance:	Yes
Oil Resistance:	Yes
Non-halogenated:	Yes
Plenum:	No
Nom. Mutual Capacitance @ 1 KHz:	12.5 pF/ft
Nominal Velocity of Propagation:	70 %
Max. Operating Voltage - UL:	300 V RMS

Unless otherwise noted, all twisted pair communication cables not carrying Ethernet signals shall conform to this specification. Cables carrying Ethernet signals shall conform to Specifications in Section 918.07 (F).

918.08 CONDUIT AND FITTINGS

The following is added:

(F) Duct Bank Spacers

Spacers shall be prefabricated and made out of high impact Polystyrene. Spacers shall be manufactured by Underground Devices Inc., Model No. 4W30-2, or an approved equal.

918.24 EQUIPMENT DISTRIBUTION ENCLOSURES

The main distribution equipment enclosures shall house the service entry, distribution and lighting panel equipment as described below and as shown on the drawings.

(A) Service Entrance

The Service Entrance Equipment shall be designed for the system parameters indicated on the drawings and shall contain a metering enclosure, current transformer cabinet and the main protective device.

1. Utility Metering

The utility metering shall be built in accordance with requirements and codes of the local utility. The metering shall be hot sequenced.

2. Main Protective Device

The main disconnect shall be molded case circuit breaker of the quick-make, quick-break, trip-free, thermal magnetic type. Breaker ratings shall be as shown on the drawings.

(B) Main Disconnect and ATS Cabinet

This cabinet enclosure shall be rated for outdoor use, NEMA 3R construction with adjustable "C" channels, size as shown on plans. The enclosure shall be made of 0.125" thick aluminum alloy type 5052-H32 for a strong and rigid construction with double door and a natural mill finish. The enclosure shall have provisions for mounting a forced air fan for exhaust air through a slotted vent system in the roof overhang. Optional aluminum back panels shall be provided for mounting equipment.

The door shall provide for an overlapping design and shall be equipped with a three-point latching mechanism and padlock. Door lock shall be Corbin #2 key.

The enclosure shall be as manufactured by APX Enclosures, Inc.

1. Main Disconnect Switch

The enclosed molded case circuit breakers shall be of quick-make, quick-break, trip-free thermal magnetic type with frame, trip and voltage ratings, as indicated on the drawings. The switchboard shall have space or fully equipped provisions for future units as shown on the drawings.

2. Automatic Transfer Switch**Part 1 General****1.01 Scope**

Furnish and install automatic transfer switches (ATS) with number of poles, amperage, voltage, and withstand current ratings as shown on the plans. Each automatic transfer shall consist of an inherently double throw power transfer switch unit and a microprocessor controller, interconnected to provide complete automatic operation. All transfer switches and control panels shall be the product of the same manufacturer.

1.02 Acceptable Manufacturers

Automatic transfer switches shall be ASCO Series 300. Any alternate shall be submitted to the consulting engineer in writing at least 10 days prior to bid. Each alternate bid must list any deviations from this specification.

1.03 Codes and Standards

The automatic transfer switches and accessories shall conform to the requirements of:

- A. UL 1008 - Standard for Automatic Transfer Switches
- B. NFPA 70 - National Electrical Code
- C. NFPA 110 - Emergency and Standby Power Systems
- D. IEEE Standard 446 - IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
- E. NEMA Standard ICS10-1993 (formerly ICS2-447) - AC Automatic Transfer Switches
- F. NEC Articles 700, 701, 702

G. International Standards Organization ISO 9001: 2000

Part 2 Products

2.01 Mechanically Held Transfer Switch

A. The transfer switch unit shall be electrically operated and mechanically held. The electrical operator shall be a single-solenoid mechanism, momentarily energized. Main operators which include overcurrent disconnect devices will not be accepted. The switch shall be mechanically interlocked to ensure only one of two possible positions, normal or emergency.

B. The switch shall be positively locked and unaffected by momentary outages so that contact pressure is maintained at a constant value and temperature rise at the contacts is minimized for maximum reliability and operating life.

C. All main contacts shall be silver composition. Switches rated 600 amperes and above shall have segmented, blow-on construction for high withstand current capability and be protected by separate arcing contacts.

D. Inspection of all contacts shall be possible from the front of the switch without disassembly of operating linkages and without disconnection of power conductors. A manual operating handle shall be provided for maintenance purposes. The handle shall permit the operator to manually stop the contacts at any point throughout their entire travel to inspect and service the contacts when required.

E. Designs utilizing components of molded-case circuit breakers, contactors, or parts thereof which are not intended for continuous duty, repetitive switching or transfer between two active power sources are not acceptable.

F. Where neutral conductors must be switched, the ATS shall be provided with fully-rated neutral transfer contacts.

G. Where neutral conductors are to be solidly connected, a neutral terminal plate with fully-rated AL-CU pressure connectors shall be provided.

2.02 Microprocessor Controller with Membrane Interface Panel

A. The controller shall direct the operation of the transfer switch. The controller's sensing and logic shall be controlled by a built-in microprocessor for maximum reliability, minimum maintenance, and inherent serial communications capability. The controller shall be connected to the transfer switch by an interconnecting wiring harness. The harness shall include a keyed disconnect plug to enable the controller to be disconnected from the transfer switch for routine maintenance.

B. The controller shall be enclosed with a protective cover and be mounted separate from the transfer switch unit for safety and ease of maintenance. Sensing and control logic shall be provided on printed circuit boards. Interfacing relays shall be industrial grade plug-in type with dust covers.

C. The controller shall meet or exceed the requirements for Electromagnetic Compatibility (EMC) as follows:

1. ANSI C37.90A/IEEE 472 Voltage Surge Test
2. NEMA ICS - 109.21 Impulse Withstand Test
3. IEC801-2 Electrostatic discharge (ESD) immunity
4. ENV50140 and IEC 801 - 3 Radiated electromagnetic field immunity
5. IEC 801 - 4 Electrical fast transient (EFT) immunity
6. ENV50142 Surge transient immunity
7. ENV50141: Conducted radio-frequency field immunity
8. EN55011: Group 1, Class A conducted and radiated emissions
9. EN61000 -4 - 11 Voltage dips and interruptions immunity

2.03 Enclosure

- A. The ATS shall be furnished in a NEMA type 1 enclosure unless otherwise shown on the plans.
- B. Provide strip heater with thermostat for Type 3R enclosure requirements.
- C. Controller shall be flush-mounted display with LED indicators for switch position and source acceptability. It shall also include test and time delay bypass switches.

Part 3 Operation

3.01 Voltage and Frequency Sensing

- A. The voltage of each phase of the normal source shall be monitored, with pickup adjustable to 95% of nominal and dropout adjustable from 70% to 90% of pickup setting.
- B. Single-phase voltage and frequency sensing of the emergency source shall be provided.

3.02 Time Delays

- A. An adjustable time delay shall be provided to override momentary normal source outages and delay all transfer and engine starting signals.
- B. An adjustable time delay shall be provided on transfer to emergency, adjustable from 0 to 5 minutes for controlled timing of transfer of loads to emergency.
- C. A generator stabilization time delay shall be provided after transfer to emergency.

D. An adjustable time delay shall be provided on retransfer to normal, adjustable to 30 minutes. Time delay shall be automatically bypassed if emergency source fails and normal source is acceptable.

E. A 5-minute cooldown time delay shall be provided on shutdown of engine generator.

F. All adjustable time delays shall be field adjustable without the use of special tools.

3.03 Additional Features

A. A set of contacts rated 5 amps, 32 VDC shall be provided for a low-voltage engine start signal. The start signal shall prevent dry cranking of the engine by requiring the generator set to reach proper output, and run for the duration of the cool down setting, regardless of whether the normal source restores before the load is transferred.

B. A push-button type test switch shall be provided to simulate a normal source failure.

C. A push-button type switch to bypass the time delay on transfer to emergency, the engine exerciser period on the retransfer to normal time delay whichever delay is active at the time the push-button is activated.

D. Terminals shall be provided for a remote contact which opens to signal the ATS to transfer to emergency and for remote contacts which open to inhibit transfer to emergency and/or retransfer to normal.

E. Auxiliary contacts, rated 10 amps, 250 VAC shall be provided consisting of one contact, closed when the ATS is connected to the normal source and one contact, closed, when the ATS is connected to the emergency source.

F. Indicating lights shall be provided, one to indicate when the ATS is connected to the normal source (green) and one to indicate when the ATS is connected to the emergency source (red). Also provide indicating lights for both normal and emergency source availability.

G. Terminals shall be provided to indicate actual availability of the normal and emergency sources, as determined by the voltage sensing pickup and dropout settings for each source.

H. **Engine Exerciser** - An engine generator exercising timer shall be provided, including a selector switch to select exercise with or without load transfer.

I. **Inphase Monitor** - An Inphase monitor shall be inherently built into the controls. The monitor shall control transfer so that motor load inrush currents do not exceed normal starting currents, and shall not require external control of power sources. The inphase monitor shall be specifically designed for and be the product of the ATS manufacturer.

J. **Selective Load Disconnect** - A double throw contact shall be provided to operate after a time delay, adjustable to 20 seconds prior to transfer and reset 0 to 20 seconds after transfer. This contact can be used to selectively disconnect

specific load(s) when the transfer switch is transferred. Output contacts shall be rated 6 amps at 28 VDC or 120 VAC.

K. Communications Interface - Connectivity Module (5150) to allow several different serial devices that communicate at different baud rates and with different protocols to a common Ethernet media. The module shall be used to connect Series 300 and ASCO ATS Annunciators to the standard Ethernet TCP/IP network with standard 10 base-T (RJ-45) connector. The module shall be designed to communicate with up to 8 clients such as Web applications (web pages) or PowerQuest[®] communication products simultaneously over an Ethernet connection. (Accessory 72E).

L. Programmable Engine Exerciser - A seven or fourteen day programmable engine exerciser with digital readout display. Shall include one form C contact for availability of normal and emergency sources. Include "with or without" load control switch for exerciser period. The exerciser shall be backed up by a permanent battery. (Accessory 11BG).

M. Enclosure Heater - A 125 watt enclosure heater with transformer and thermostat (adjustable from 30° to 140 ° F) (Accessory 44 G).

N. Power Monitoring and Control

Part 4 Additional Requirements

4.01 Withstand and Closing Ratings

A. The ATS shall be rated to close on and withstand the available rms symmetrical short circuit current at the ATS terminals with the type of overcurrent protection shown on the plans. WCR ATS ratings as be as follows when used with specific circuit breakers:

ATS Size	Withstand & Closing Rating MCCB	W/CLF
260 - 400	42,000A	200,000

4.02 Tests and Certification

A. The complete ATS shall be factory tested to ensure proper operation of the individual components and correct overall sequence of operation and to ensure that the operating transfer time, voltage, frequency and time delay settings are in compliance with the specification requirements.

B. Upon request, the manufacturer shall provide a notarized letter certifying compliance with all of the requirements of this specification including compliance with the above codes and standards, and withstand and closing ratings. The certification shall identify, by serial number(s), the equipment involved. No exceptions to the specifications, other than those stipulated at the time of the submittal, shall be included in the certification.

C. The ATS manufacturer shall be certified to ISO 9001: 2000 International Quality Standard and the manufacturer shall have third party certification verifying quality assurance in design/development, production, installation and servicing in accordance with ISO 9001: 2000.

4.03 Service Representation

A. The ATS manufacturer shall maintain a national service organization of company-employed personnel located throughout the contiguous United States. The service center's personnel must be factory trained and must be on call 24 hours a day, 365 days a year.

B. The manufacturer shall maintain records of each switch, by serial number, for a minimum of 20 years.

C. For ease of maintenance, the transfer switch nameplate shall include drawing numbers and serviceable part numbers.

4.04 Surge Suppressor

TVSS shall be Listed and Component Recognized in accordance with UL 1449 2nd Edition, UL 1283, and cUL.

TVSS shall be UL 1449 2nd Edition tested and listed to 200kA Short Circuit Current Rating (SCCR) in compliance with NEC 285.6. TVSS devices obtaining SCCRs using upstream overcurrent protection are prohibited.

TVSS shall be tested with the Category C3 high exposure waveform (20kV-1.2/50ms, 10kA-8/20ms) per ANSI/IEEE C62.41- 1991.

TVSS shall be a self contained module design. Each suppression element shall be MOV based. Each phase of the surge current diversion module shall be protected using 200 kAIR, 30A surge rated fuses and thermal cutouts.

TVSS shall provide surge current diversion paths between each phase conductor and the neutral conductor, between each phase conductor and the ground and between the neutral conductor and ground.

Surge current diversion module shall be connected to the bus bars of the distribution equipment.

A UL approved disconnect switch shall be provided as a means of disconnect.

TVSS shall meet or exceed the following criteria:

Maximum surge current capability (single pulse rated) shall be 240kA per phase.
Endurance Testing. Capable of protecting against and surviving 5000 ANSI/IEEE C62.41 Category C transients without failure
UL 1449 2nd Edition Listed and Recognized Component Suppression Voltage Ratings shall not exceed the following:

VOLTAGE
L-N277V
L-G277V
N-G 0V
L-L 480V

The ANSI/IEEE C62.41- 1991 Category C3 let through voltages shall not exceed the following:

VOLTAGE
L-N277V
L-G277V
N-G 0V
L-L 480V

TVSS shall be designed to withstand a maximum continuous operating voltage (MCOV) of not less than 115% of nominal RMS voltage.

TVSS shall have a minimum EMI/RFI filtering of - 50dB at 100kHz.

TVSS shall be equipped with on board visual and audible diagnostic monitoring. Indicator lights shall provide full time visual diagnostic monitoring of the operational status of each phase of the surge current diversion module. An amber indicator light will indicate reduced suppression capability. A red indicator light will indicate total loss of suppression capability. A green indicator light will indicate fully operational suppression capability. Audible diagnostic monitoring shall be by way of audible alarm. This alarm shall activate upon a fault condition. An alarm on/off switch shall be provided to silence the alarm. An alarm push to test switch shall be provided. The TVSS diagnostic monitoring devices shall be mounted on the front of the panelboard enclosure. The diagnostic monitoring circuits shall continually monitor the operational status of the surge current diversion module. A diagnostic system press to test switch shall be provided. A set of Form C dry contacts shall be provided for remote annunciation. No other test equipment shall be required for TVSS monitoring or testing before or after installation.

TVSS shall have a response time no greater than 1/2 nanosecond for any of the individual protection modes.

The TVSS shall be as manufactured by Square D, Model TVS4EMA24A or approved equal.

TVSS shall have a warranty for a period of five years, incorporating unlimited replacements of suppressor parts if they are destroyed by transients during the warranty period. Warranty will be the responsibility of the electrical distribution equipment manufacturer.

(C) Distribution and Lighting Cabinet

The enclosure for the Distribution and the Lighting Cabinet is similar in size and construction to the enclosure for the Main Disconnect and ATS above.

Main Distribution Panel and the Lighting Panel, shall be dead front surface mounted with electrical characteristics as shown on the plans. Lock shall be a Corbin #2 key.

Provide terminal barrier strip for the transition of lighting circuits wiring from the panel to the conduits for ease of wire handling.

(D) Control Cabinet

The enclosure for the Control Cabinet is similar in construction and materials with the Distribution and Lighting Cabinet enclosures.

The Control Panel and the 10kva transformer shall be connected as shown on the One-Line Diagram.

918.25 PACKAGED ENGINE GENERATOR SYSTEMS

This Section includes packaged engine-generator systems for emergency power supply with the following features:

1. Diesel Engine
2. Unit-mounted cooling system
3. Double Wall Base Mounted Fuel Tank
4. Generator
5. Engine Generator Set Controller
6. Engine Generator Set Accessories
7. Weatherproof Enclosure
8. Radiator Mounted Resistive Load Bank

(A) SUBMITTALS

Shop Drawings: Indicate electrical characteristics and connection requirements. Show plan and elevation views with overall and interconnection point dimensions, fuel consumption rate curves at various loads, ventilation and combustion air requirements, electrical diagrams including schematic and interconnection diagrams.

Product Data: Provide data showing dimensions, weights, ratings, interconnection points, and internal wiring diagrams for engine, generator, control panel, battery, battery rack, battery charger, exhaust silencer, vibration isolators, and radiator.

Test Reports: Indicate results of performance testing.

(B) FACTORY TESTING

The generator set shall be tested and Performance Assurance Certification shall be completed at the factory on the unit. The test metering shall have an accuracy of 1% or better, and the metering used in testing shall be regularly calibrated and traceable to the National Bureau of Standards. The certified test of the engine-generator performance shall be provided. All tests shall be performed in accordance with the following test methods: IEEE 115 or MIL STD 705.

Factory tests shall include but not be limited to the following:

1. Full rated load at rated PF and maximum load, to verify engine power, overload and maximum capability.
2. kVA, kilowatts, amperes, voltage, frequency and voltage transients at ½ and rated load frequency at: no load, full load rated and maximum output.

3. Regulator range (adjust), phase sequence, phase voltage balance.
4. Stator and exciter field resistance.
5. Insulation test, generator field, exciter armature, exciter field, generator armature or stator.
6. Dielectric test, generator field, exciter armature, exciter field, generator armature or stator.
7. All safety shutdown and automatic controls.
8. Standard testing includes portions of MIL-STD-705C:

MIL-STD-705 Methods:

- | | |
|--------|---|
| 301.1c | Insulation Resistance Test |
| 302.1b | High Potential Test |
| 511.1d | Regulator Range Test |
| 401.1b | Winding Resistance Test |
| 511.2c | Frequency Adjustment Range Test |
| 410.1b | Open Circuit Saturation Curve Test |
| 513.2a | Indicating Instrument Test (Electrical) |
| 503.1c | Start and Stop Test |
| 515.1b | Low Oil Pressure Protective Device Test |
| 505.2b | Overspeed Protective Device Test |
| 507.1d | Phase Sequence Test (Rotation) |
| 508.1d | Phase Balance Test (Voltage) |
| 510.1d | Rheostat Range Test |
| 515.2b | Over Temperature Protective Device Test |
| 516.1a | Controls, Direction of Rotation |
| 640.1d | Maximum Power Test |
9. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and starting of product.
 10. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 11. Manufacturer's Field Reports: Indicate procedures and findings.

(C) OPERATION AND MAINTENANCE DATA

Operation Data: Include instructions for normal operation.

Maintenance Data: Include instructions for routine maintenance requirements, service manuals for engine, oil sampling and analysis for engine wear, and emergency maintenance procedures. Provide Three Operation and Maintenance Manuals.

(D) QUALITY ASSURANCE

1. Manufacturer: Company specializing in manufacturing the Products specified in this section with a minimum of three years documented experience, and with service facilities within 150 miles of project.
2. Supplier: Authorized distributor of specified manufacturer with a minimum of three years documented experience.
3. Comply with NFPA 70.
4. Comply with NFPA 110 requirements for Level 1 emergency power supply systems.
5. Comply with UL 2200

(E) DELIVERY, STORAGE AND HANDLING

1. Deliver, store, protect and handle products to site as directed by the Owner.
2. Accept unit on site on skids. Inspect for damage.
3. Protect equipment from dirt and moisture by securely wrapping in heavy plastic.

(F) WARRANTY

The standby electric generating system components, complete engine-generator and instrumentation panel shall be warranted by the manufacturer against defective materials and factory workmanship for a period of two years or 3000 hours. Such defective parts shall be repaired or replaced at the manufacturer's option, free of charge. The warranty period shall commence when the standby system is invoiced by the factory. Multiple warranties for individual components (engine, alternator, controls, etc.) will not be acceptable. Satisfactory warranty documents must be provided.

(G) MAINTENANCE SERVICE

Beginning at Substantial Completion (genset is online and performing standby duty), the Engine Generator Set supplier shall provide a One Year maintenance service program including annual engine lube oil and filter change and fuel filter change. Maintenance shall be performed by skilled employees of manufacture's designated service organization. Include routine preventive maintenance as recommended by manufacture and adjusting as required for proper operation. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

(H) EXTRA MATERIALS

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identification with labels describing contents.

1. Fuses: One for every 10 of each type and rating, but no fewer than one of each.

2. Indicator Lamps: Two for every six of each type used, but no fewer than two of each.
3. Filters: One set each of Lubricating, fuel, and combustion-air intake.

(I) MANUFACTURERS

1. Only approved bidders shall supply equipment provided under this contract. Equipment specifications for this project are based on Engine Generator Sets manufactured by Kohler Corporation.
2. Substitutions: Subject to compliance with requirements, equipment by other manufacturers are acceptable, if approved not less than two weeks prior to scheduled bid date. Proposals must include a line-by-line compliance statement based on this specification.

(J) PACKAGE ENGINE GENERATOR SYSTEM

GENERATOR RATING:

KW:	275
KVA:	344
Volts:	480Y/277
Phase:	Three
Power Factor:	0.8
Hertz:	60
RPM:	1800

Provide Kohler diesel generator Model: 275REOZJD (275KW standby, 250KW prime).

(K) ENGINE

1. Fuel: No. 2 Diesel
2. Rated Engine Speed: 1800 RPM
3. The 548 cubic-inch-displacement engine shall deliver a minimum of 422 bhp at a governed speed of 1800 rpm. The engine shall be equipped with the following:

Governor: Isochronous

24 Volt positive engagement solenoid shift-starting motor.

37-Ampere minimum automatic battery charging alternator with solid-state voltage regulation.

Positive displacement, full pressure lubrication oil pump, cartridge oil filters, dipstick, and oil drain.

Dry-type replaceable air cleaner elements for normal applications.

Engine-driven or electric fuel transfer pump capable of lifting fuel 6 feet, fuel filters, and electric solenoid fuel shut-off valve.

The turbocharged engine shall be fueled with No. 2 diesel.

The engine shall have a minimum of 6 cylinders, and be liquid-cooled by a unit-mounted radiator, blower fan, water pump, and thermostats. This system shall properly cool the engine with up to 0.5 inches H₂O static pressure on the fan in an ambient temperature up to 118°F/48°C.

4. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine generator set mounting frame and integral engine driven coolant pump.

Coolant: Solution of 50 percent ethylene-glycol based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacture.

Size of Radiator: Adequate to contain expansion of total system coolant from cold start to 110 percent load condition.

Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used.

Temperature control: Self-contained thermostatic control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacture.

Coolant Hose: Flexible assembly with inside surface of nonporous rubber and other covering of aging, ultraviolet, and abrasion resistant material.

- Rating: 50-psig (345-kPa) maximum working pressure with coolant at 180 degree F (82 degree C), and noncollapsible under vacuum.
- End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.

(L) FUEL SUPPLY SYSTEM

1. Comply with Flammable and Combustible Liquids Code--NFPA 30, the Standard for Installation and Use of Stationary Combustible Engine and Gas Turbines-NFPA 37, and Emergency and Standby Power Systems-NFPA 110.
2. Base-Mounted 640 gallon Double Wall Secondary Containment Fuel Oil Tank: Factory installed and piped, complying with a142 fuel oil tank. Features include the following:

Fuel Level: A direct reading, UL listed, magnetic fuel level gauge with a hermetically-sealed vacuum tested dial shall be provided to eliminate fogging.

Capacity: Fuel for 25 hours continuous operation at 100 percent of rated load.

Containment Provisions: Comply with requirements of authorities having jurisdiction.

Low Fuel Level Switch: Consists of a 50 watt float switch for remote or local annunciation of an adjustable (25% standard) low fuel level condition.

Fuel Leak Detection Switch: Consists of a 50 watt float switch for remote or local annunciation of fuel in the containment area of the double wall fuel tank.

Fuel Fill: There shall be a Vandal-resistant 2 NPT opening within the primary tank with a raised fill pipe for external access without opening the generator enclosure and lockable manual fill cap.

Oil drain shall be accessible without opening the enclosure (Order Kohler oil drain option).

Sub-base fuel tank shall have an electrical conduit stub-up area.

3. Exterior Finish: The exterior coating has been tested to withstand continuous salt spray testing at 100 percent exposure for 244 hours to a 5 percent salt solution at 92-97° F. The coating has been subjected to full exposure humidity testing to 100 percent humidity at 100 ° F for 24 hours. Tests are to be conducted in accordance with The American Standard Testing Methods Society.
4. Venting: Normal venting shall be sized in accordance with the American Petroleum Institute Standard No 2000, Venting Atmospheric and Low Pressure Storage Tanks not less than 1-1/4" (3 cm.) nominal inside diameter. A 1-1/4" atmospheric mushroom cap shall be furnished and the installing contractor shall pipe above the highest fill point as a minimum
5. Emergency Venting: The emergency vent opening shall be sized to accommodate the total capacity of both normal and emergency venting and shall be not less than that derived from NFPA 30, table 2-8, and based on the wetted surface area of the tank. The wetted area of the tank shall be calculated on the basis of 100 percent of the primary tank. A brass plated 4 inch emergency pressure relief vent cap shall be furnished for the primary tank. The vent is spring-pressure operated: opening pressure is 0.5/psig and full opening pressure is 2.5 psig. Limits are stamp marked on top of each vent. The emergency relief vent is sized to accommodate the total venting capacity of both normal and emergency vents.

(M) GENERATOR

1. The alternator shall be salient-pole, brushless, 12-lead reconnect able, self-ventilated of drip-proof construction with amortizes rotor windings and skewed stator for smooth voltage waveform. The insulation shall meet the NEMA standard (MG1-22.40 and 16.40) for Class H and be insulated with epoxy varnish to be fungus resistant per MIL 1-24092. Temperature rise of the rotor and stator shall be limited to NEMA Class F ratings. The excitation system shall be capable of maintaining voltage within +/- 0.25% at any constant load from 0% to 100% of rating. The unit shall be encapsulated for humidity and abrasion protection. The regulator shall include volts per hertz operation, over excitation shutdown, stability adjust and built in voltage adjustment. The waveform harmonic distortion shall not exceed 5% total RMS measured line to line at full rated load. The TIF factor shall not exceed 50.
2. The generator, having a single maintenance-free bearing, shall be directly connected to the flywheel housing with a semi-flexible coupling between the rotor and the flywheel.

3. The Generator shall be able to provide 400 SKVA at 15% instantaneous voltage dip.
4. The voltage regulator shall be a static-type using non-aging silicone controlled rectifiers, with electromagnetic interference suppression to commercial standards. If a permanent magnet excitation system is specified, provide the DVR2000 digital voltage regulator.
5. Provide Permanent Magnet Generator PMG.
6. Generator anti-condensation strip heater shall be furnished to maintain the alternator space at approximately 10 degree F above ambient. Heater shall be a minimum of 250 Watt at 120 VAC.

(N) CONTROL AND MONITORING PANEL

1. Functional Description: When the mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of the generator set. When the mode-selector switch is switched to the on position, the generator manually starts. The off position of the same switch initiates generator shut-down. When the generator is running, specified system or equipment failures or derangements automatically shut down the generator set and initiate alarms. Operation of a remote Emergency-Stop switch also shuts down the generator set.
2. Configuration: Operating and safety indications, protective devices, basic system controls and engine gages are grouped on a common control and monitoring panel mounted on the generator set. Mounting method isolates the control panel from generator set vibration.
3. Indicating and Protective Devices and Controls: Include those required by NFPA-110 for level 1 systems, and the following:

- AC Voltmeter
- AC Ammeter
- AC Frequency meter
- Battery Charging DC Ammeter
- Engine Coolant temperature gage
- Engine Lubricating oil pressure gage
- Running time meter
- Ammeter / Voltmeter, phase-selector switch (es)
- Alarm buzzer with silencing switch
- LED - Low Battery Voltage
- LED - Charger Malfunction
- LED - High Engine Temperature
- LED - Low Oil Pressure Pre-Alarm
- LED - Engine Over-Speed
- LED - Engine Over-Crank
- LED - EFS Supplying Load
- LED - Low Water Temperature
- LED - High Engine Temperature (Pre-Alarm)
- LED - Low Oil Pressure (Pre-Alarm)
- LED - Low Fuel Level

LED - Unit Not in Auto

4. Supporting Items: Include sensors, transducers, terminals, relays, and other devices, and wiring required to support specified items. Locate sensors and other supporting items on engine, generator, or elsewhere as indicated. Where not indicated, locate to suit manufacturer's standard.
5. PANEL 50 OPTIONS: Using the Kohler spec, the controller will be either a Decision Maker 3000 or 550.

Low Water Level
Fuel Leak Detection
Emergency Stop Button
Run Relay Contact
Common Failure Relay Contact

6. Remote Alarm Annunciator: A repetitive alarm annunciator panel will be supplied complying with the NFPA-110 requirements. The NFPA requires audible and visual signal drives, powered by an electrical storage battery, be provided to give warning of derangement or alarm conditions in the alternate electric power source. (Standby Electric Generator Set) In accordance with NFPA-110, the alarm annunciator audible system allows for a first alarm to be silenced and if a second alarm occurs, the alarm system will again sound the alarm. The annunciator panel will include the following features:

Low battery voltage
Charger malfunction
High cycle temperature
Low oil pressure
Engine overspeed
Engine overcrank
(EPS) Emergency generator supplying load
Low Coolant temperature
High engine temperature - pre-alarm
Low oil pressure - pre-alarm
Low fuel
Unit not in Auto
Fuel Leak Detection
Low Coolant level

(O) ENGINE GENERATOR SET ACCESSORIES

1. Line Circuit Breaker: 400 Ampere Frame, 400 Ampere sensor, 3 poles, 480 volt Thermal Magnetic, 80% rated, UL molded case type, generator mounted.
2. Coolant Jacket Heater: Thermostatically controlled and sized to maintain manufacturers recommended engine coolant temperature to meet the start-up requirements of NFPA-99 and NFPA-110, Level 1. Provide 3000 watt, 208 volt, single-phase high flow coolant jacket heater, factory mounted and wired.

3. Battery: Two 12-volt lead-antimony battery(ies) capable of delivering the manufacturer's recommended minimum cold-cranking Amps required at 0°F, per SAE Standard J-537, shall be supplied.
4. Battery Compartment: Factory fabricated of metal with acid resistant finish. Furnish Kohler optional battery heater.
5. Battery Cable: Size as recommended by engine manufacture. Include required interconnecting conductors and connection accessories.
6. Battery Charger: The charger shall employ a ferroresonant magnetic circuit to provide continuous taper charging and shall be completely automatic in operation. The AMP DC output shall be voltage regulated and current limited. The DC output shall be isolated from the AC input. AC line compensation shall be automatic. Current limiting shall be magnetic. The battery shall not be discharged through the charger.

The charger shall have two switch selectable ranges: Float (2.16 VPC lead acid or 1.45 VPC nickel cadmium) and Equalize (2.33 VPC lead acid or 1.55 VPC nickel cadmium). A neon light shall indicate operation in the equalize range. A DC ammeter and voltmeter shall be supplied. Both meter faces shall be flush with charger case front. Transformer shall be vacuum impregnated.

Sealed silicon diode, full-wave rectifiers shall be used. The charger shall be equipped with an AC circuit breaker. The housing shall be convection cooled, 304 stainless steel. The charger shall be warranted for two years and be UL listed.

Safety Functions: Include sensing of abnormally low battery voltage arranged to close contacts providing low battery voltage indication on the control and monitoring panel. Also include sensing of high battery voltage and loss of AC input or DC output of the battery charger. Either condition closes contacts that provide a battery charger malfunction indication at the system control and monitoring panel.

The battery charger shall be a standard charger as supplied by the genset manufacturer. The charger shall be mounted and wired (DC to the starter and AC to the Terminal Block) at the Gen-Set skid.

7. Muffler / Silencer: The engine exhaust silencer shall be coated to be temperature and rust resistance, rated for critical application. The silencer will reduce total engine exhaust noise by 25-35 dBA.
8. Provide Spring Isolators with seismic restraints between the engine generator set sub-base fuel tank and the concrete mounting surface. The engine generator set shall be permanently fastened to the pad in accordance with the manufacturer's instructions and seismic requirements of the site.

(P) SOUND ATTENUATED GENERATOR SET ENCLOSURE

1. Reinforced weatherproof enclosure, allowing access to control panel and service points, with lockable doors and panels. The enclosure shall have sound attenuation insulation consisting of 1-1/2 inch polyether polyurethane sound attenuating material. The enclosure shall have hinged doors with key locking provisions. The

enclosure shall be designed to provide adequate ventilation for the generator set to operate in the ambient temperature specified with out de-rating the generator output capability. The exhaust silencer shall be insulated and mounted in the enclosure. Factory paint the enclosure with high quality primer and a finish coat of industrial enamel paint to protect the enclosure from corrosion. Paint shall be manufacturer's standard color.

2. Sound Level shall not exceed 83 dBA measured at 23 ET (7 meters) at 100% load, as per test method SAE J1074.
3. The exhaust silencer shall be insulated and mounted within the enclosure.
4. The enclosure shall be provided with the interior electrical package including: Interior lighting with guards and switch, Receptacle (GFCI, Interior, 125 volt, 20 AMP, Duplex)

(Q) LOAD BANK

An engine radiator airflow cooled, resistive load bank is required for permanent, on site installation as a component of the standby engine generator system. The load bank shall be designed for local manual control. The load bank shall be bolt-together design and shall bear the listing mark of Underwriters Laboratories (UL Listing).

The load bank shall be installed within the air outflow of the engine unit mounted radiator and shall be cooled by the radiator air flow. The load bank shall be bolted to the radiator with duct and flex coupling designed for exterior duty.

The load bank shall be a product of a firm regularly engaged in the design and manufacture of generator load banks. The load bank manufacturer shall demonstrate at least five years experience with at least twenty-five successful installations of load banks similar or equal to the load bank specified herein.

The load bank shall be the manufacturer's standard product that has been investigated, tested and listed by Underwriters Laboratories as a system for the purpose intended. Simple assemblies of listed parts that are not system UL listed shall not be acceptable.

The load bank for this application shall be a Simplex LBD Series as manufactured by Simplex, Inc. 5300 Rising Moon Road, Springfield, Illinois, 62711-6228 (217-483-1600). Alternate: Avtron or equal.

1. Load bank ratings shall be as follows:

Capacity:	250 KW, 1.0 power factor
Voltage:	480 VAC, 3 phase, 4 wire
Frequency:	60 Hertz
Loadsteps:	50KW steps.
Duty Cycle:	Continuous
Intake Temperature:	155 degrees F max.
Exhaust Rise:	100 degrees F
Control Power:	Internal, from generator line voltage, 120-1-60 transformer power supply for controls.

2. The principle systems and components shall be as follows:

Main Disconnect:	Thermal Magnetic, 3 pole molded case circuit breaker
Load Elements:	Simplex Power Web
Load Control:	Branch circuit contactors, each load circuit
Element Circuit Protection:	Branch circuit fuses, each load circuit. UL Class-T, 200 KAIC, current limiting type
Power Wiring:	150C, silicone insulated
Power Connection:	Bus bar type terminal block
System Protection:	Fan failure, high exhaust temperature, high intake temperature, lockout and alarm
Enclosure:	NEMA 3R unit mounted galvanized steel with louvers

3. The load bank shall include a remote mounted UL Listed control panel for manual load leveling. Load Bank Control panel shall be preset for adjustable single-step loading of generator set during automatic exercising and removed from the generator during cooldown period. In the event of a utility power outage during the exercise cycle, the controls will remove the load applied by the radiator mounted load bank, and allow the generator set to pick up the transferred building load.

4. The load bank control panel shall be provided with the following features:

Power supply for load bank control circuits.
 Malfunction detection / auto disconnect system.
 Auxiliary Form-C, dry contacts for remote indication of "normal operation: and "system failure".
 A molded case circuit breaker, sized adequately for the resistive load bank control power transformer.

5. The unit control panel shall be provided with the following control and indicator devices:

Manual-off selector switch
 Cooling failure light
 Manual load step switches (one for each load step)
 Load step on lights (one for each load step)
 Press-to-test push-button for indicator lights

(R) SHOP TESTING

The engine-generator set, with all accessories shall be tested in the manufacturer plant before shipment. Load tests shall be at various loadings from full load to no load, and at such other conditions as to properly establish that all requirements have been met. Full load shop testing shall be performed at a power factor of 0.8 for a period of not less than two (2) hours.

Six (6) type-written certified copies of the results of all shop tests shall be submitted to the Engineer for review. Obtain Engineer's approval before shipment is made. At these tests, the Engineer reserves the right to have a representative present, who has full authority to check any or all readings, calibrate instruments and run independent tests.

Prototype testing shall include complete MIL-STD-705 tests and methods. At minimum, the following tests shall be performed on the prototype generator:

- Cold resistance of all windings
- Insulation resistance of all windings
- High potential on all windings
- Open circuit saturation
- Voltage balance on windings
- Current balance on windings
- Regulation with regulator
- Voltage adjustment range of regulator
- Phase sequence
- Voltage transient and recovery
- Air gap measurements
- Mechanical vibration

(S) INSTALLATION

Equipment shall be installed by the contractor in accordance with final submittals and contract documents. Installation shall comply with applicable state and local codes as required by the authority having jurisdiction. Install equipment in accordance with manufacturer's instructions.

Installation of equipment shall include furnishing and installing all interconnecting wiring between all major equipment provided for the on-site power system. The engine generator set shall be installed on a concrete pad. The engine generator set shall be permanently fastened to the pad in accordance with the manufacturer's instructions and seismic requirements of the site.

The on-site power system shall be initially started and operated by a representative of the manufacturer.

All equipment shall be inspected for damage. Scratches and other installation damage shall be repaired prior to final system testing. Equipment shall be thoroughly cleaned to remove all dirt and construction debris prior to initial operation and final testing of the system.

(T) START UP AND WARRANTY VALIDATION

The complete installation shall be tested for compliance with the specification following completion of all site work. All start-up procedures and testing of engine generator set and automatic transfer switch will be performed by an authorized service center of the manufacturer.

The Contractor shall provide a full tank of diesel fuel at installation.

The following start-up procedures shall be performed by the manufacturer's authorized service center, factory trained technician:

- Verification of fluid levels (coolant, lubricating oil, battery electrolyte, fuel)
- Inspection to identify any loose or broken equipment
- Verification of proper jacket water heater operation

Verification of proper battery charger operation
 Static verification of control panel alarms and shutdowns
 Exhaust system inspection to verify proper installation including rain cap
 Verification of manual starting from local control panel
 Verification that no fluid leaks exist
 Verification of proper control panel gauge operation
 Perform any necessary adjustments (output voltage, engine speed)
 Verification of proper interface with the Automatic Transfer Switch(s)
 Verification that the remote annunciator panel is operating properly

(U) ON-SITE ACCEPTANCE TEST

Installation acceptance tests to be conducted on-site shall include a "cold start" test, a two hour full load test, and a one step rated load pick up test in accordance with NFPA-110.

The load bank manufacturer is to provide one day start-up service of the load bank, on site, after the load bank has been installed and connected.

(V) DEMONSTRATION

Simulate power outage by interrupting normal source, and demonstrate that system operates to provide emergency and standby power.

The equipment supplier shall provide training for the facility operating personnel covering operation and maintenance of the equipment provided. Training shall be coordinated with the facility owner.

918.31 CCTV CAMERA

The camera shall meet the following requirements:

General

The camera shall be a dome type. All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system. All system and components shall have been thoroughly tested and proven in actual use.

The camera shall be an outdoor environmental Bosch 300 series day/night PTZ color CCTV dome camera system with 18X optical zoom, outdoor pendant enclosure with a clear bubble, and standard coax/UTP communications.

An ITSS-mounted camera shall be Bosch model VG4-322-ECSOP, with a pipe mounting option and shall be supplied with a Bosch model VG4-A-PSU1 Remote Power Unit.

Standards

NEMA Type 4X
 IP 66
 EIA RS-232, RS-422/485
 UL Listed

Power and Communications Cables

The unit shall be provided with all power and communications cables as shown, specified or recommended by the manufacturer.

All cables shall be UL listed for intended use and suitable for installation in outdoor environment. Power cable shall provide 24 VAC power to camera from the Remote Power Unit.

The communications cables shall establish communications between the camera and the encoder unit. Cable shall be equipped with connectors and length shall be as specified, shown or approved.

918.32 **CCTV CAMERA MOUNT**

The CCTV camera mount shall meet the following requirements:

ITSS Mounted

An ITSS mounted camera shall be mounted on an ITSS sign structure utilizing a Bosch model LTC 9230/00 parapet mount with a wall bracket. The wall bracket shall allow the parapet mount arm to swing a minimum of 180 degrees and shall include three (3) stainless steel set screws to lock the arm in any position.

Composite Cable

The camera lowering device shall be supplied with a direct continuous run of composite cable, wired and sealed from the suspension disconnect unit to the Pole Mounted ITS Enclosure. At a minimum, standard composite cabling shall consist of RG-6 coax cable, low capacitance data cable with individually shielded pairs with a common shield and drain, and 16 gauge low voltage power cables. The overall cable jacket shall be constructed of polyurethane with a minimum .063 thickness.

918.33 **POLE MOUNTED ITS ENCLOSURE**

The Pole Mounted ITS Enclosure shall be provided to the dimensions as shown on the Plans, and sized to fit all components that will be mounted within. Additionally, the enclosure shall meet the following requirements:

- Type 5052-H32 Aluminum enclosure with NEMA 3R or 4X rating
- Continuously welded and ground smooth seams
- Rolled lip around three sides of door and all sides of enclosure opening
- Stainless steel panel screws and door clamp assemblies
- Easy removable doors by pulling stainless steel continuous hinge pins
- High-impact thermoplastic data pocket
- Padlockable
- Tapped pads for mounting optional panels
- Oil-resistant gasket

The Enclosure shall be provided with 2" round drop-in mount aluminum louvers on a side for ventilation. If not an integral part of the enclosure, the louver kit shall be installed as

recommended by the manufacturer in such a way as to prevent water leakage into the enclosure.

Pole Mounted ITS Enclosure shall be as manufactured by Hoffman Enclosure Inc, part number A24H2010ALLP or approved equal. Enclosures of different size shall meet all specifications of this model except overall dimensions.

918.34 VIDEO ENCODER

Video Encoders shall be designed to operate in harsh environments and provide for the compression and distribution of CCTV video and control signals over an Ethernet network utilizing non-proprietary industry standards. The encoder shall have the capabilities to control all functions of the CCTV cameras specified. Video transmission shall be via compatible with IEEE 802.3u for 100Base-TX and 100Base-FX. A separate processor shall be utilized for encoding the video stream to the format specified below. The encoder shall be equipped with an environmentally hardened and 100Base-FX SFP multimode transceiver module for fiber optic communications.

The video encoder shall be Optelecom-NKF Siqura C-60 E-MC-SFP/SA with a TDK-Lambda model DSP10-12 power supply, or approved equal, and shall be equipped with a 2-wire 18 AWG moded plug line cord and a 2-wire PVC jacketed DC cable for connection to the power supply, and shall meet the following specifications:

Electrical Specifications

Operating Temp:	-30°C to +60°C	
Construction:	Hardened Device	
Input Voltage:	10 to 30 VDC	
Power Consumption:	< 20W	
Power Connector:	Terminal Block	
Video Connector:	(1) BNC 75Ω	
Data Connector:	RJ45	
Fiber Connectors:	Small Form-Factor Pluggable (SFP) - LC module	
Nominal Wavelength:	1310nm	
SFP Module:	Cisco GLC-FE-100FX-RGD, or equal	
Cable Type:	62.5/125 multi mode	
Dimensions:	7.0" x 7.5" x 3.0" (maximum)	
Video Compression:	H.264, MPEG-2, MPEG-4, and MJPEG	
Video Resolution:	4CIF	X10/X20: 704 x 576/480 (25/30 ips)
	(MPEG-4 only)	X40: 704 x 576/480 (12.5/15 ips; all inputs used)
(Horizontal x vertical PAL/NTSC)	2CIF	704 x 288/240 (25/30 ips)
	2/3 D1	464 x 576/480 (25/30 ips)
	1/2 D1	352 x 576/480 (25/30 ips)
	CIF	352 x 288/240 (25/30 ips)
	QCIF	176 x 144/120 (25/30 ips)
Video Frame Rate:	1 to 60 fps (NTSC)	

Video Bit Rate:	9.6 kbs to 6 Mbps
Encoding Latency:	< 130 ms (typical)
Software Compatibility:	Open streaming architecture, compatible with Genetec Omnicast software (Latest Version)
Camera PTZ Interface:	PTZ interface shall accept various standard camera control protocols, such as Pelco D and Bosch

918.35 HDPE CONDUITS AND INNERDUCTS

HDPE conduits and innerducts shall be of High Density Polyethylene (HDPE) construction, and shall be installed continuous without splices. All conduits and innerducts provided shall conform to Schedule 40 pipe dimensional specifications. Conduits and innerducts shall be smooth-walled, both inside and outside, and shall be suitable for direct burial in earth, concrete encasement, and installation through conduits or pipe casings. HDPE conduits and innerducts shall be ETL listed as compliant with National Electrical Code Articles 300 and 353. Each innerduct installed in a group shall have permanent factory-applied exterior markings or color-coding to allow easy differentiation between the multiple conduits.

Dimensional and Fabrication Specifications:

Conduit and inner duct dimension and construction shall meet the standards referenced below:

- Standards:** ASTM D2447 Standard Specification for Polyethylene (PE) Pipe, Schedules 40, Based on Outside Diameter
 NEMA TC-7 Smooth-Wall Coilable Polyethylene Electrical Polyethylene Conduit.
 UL 651A Standard for Safety - Type EB and A Rigid PVC Conduit and HDPE Conduit
 UL 651B Standard for Safety - Continuous Length HDPE Conduit

Resin Specifications:

The resin properties shall meet or exceed the values listed below for HDPE:

ASTM Test	Description	Values HDPE
D-1505	Density g/CM ³	0.941 - 0.955
D-1238	Melt Index, g/10 min Condition E	0.05 - 0.50
D- 638	Tensile strength at yield (psi)	3000 min.
D-1693	Environmental Stress Crack Resistance Condition B,F 20	96 min.
D-790	Flexural Modulus, MPa (PSI)	80,000 min.
D-746	Brittleness Temperature	-75°C

918.36 DIRECTIONAL DRILLED PIPE SLEEVES

Directional drilled pipe sleeves shall be of High Density Polyethylene (HDPE) construction, and shall be installed continuous without splices. All sleeves provided shall be of SDR type with constant outer diameter (O.D.) dimension and variable wall thickness. Sleeves shall be smooth-walled, both inside and outside, and shall be suitable for direct burial in earth and concrete encasement. Provide sleeves with sufficient wall thicknesses to ensure that the rated pulling tension or bending radius of the sleeve is not exceeded during installation.

Dimensional and Fabrication Specifications:

Pipe sleeves dimension and construction shall meet the standards referenced below:

Standards: ASTM D3035 Polyethylene (PE) Plastic Pipe (SDR) Based on Controlled Outside Diameter.

ASTM F2160 Solid wall High Density Polyethylene (HDPE) Conduit based on Controlled Outside Diameter (O.D.)

Pipe Sleeve Size:

Pipe sleeves shall be 16" diameter unless otherwise noted on the Plans or approved by the Engineer.

Resin Specifications:

The resin properties shall meet or exceed the values listed below for HDPE:

ASTM Test	Description	Values HDPE
D-1505	Density g/CM 3	0.941 - 0.955
D-1238	Melt Index, g/10 min Condition E	0.05 - 0.50
D- 638	Tensile strength at yield (psi)	3000 min.
D-1693	Environmental Stress Crack Resistance Condition B,F 20	96 min.
D-790	Flexural Modulus, MPa (PSI)	80,000 min.
D-746	Brittleness Temperature	-75°C

918.41 POWER INJECTOR

The power injector shall have the following features:

- Lightning and surge protection on data and power lines
- Industrial grade cast aluminum housing
- Shielded RJ-45 jacks EMI noise suppression
- RoHS Compliant (Individual Injector)

The power injector shall be in compliance with the following specifications:

Electrical Specifications

Operating Temperature (): -40° C to +70° C

Output Current: 1 A

Power Connector:	Standard 2.5mm Coaxial DC Power Jack (2.5mm x 5.5mm x 10mm Center Positive Plug Required)
Output Voltage	48VDC, <u>+2% max line & load</u>
Input Voltage:	90-264 VAC
Over Voltage Protection:	110-125%
Over Current Protection:	115-150%(auto-recovery)
Short Circuit Protection:	Continuous
Surge Protection:	EN61000-4-5, <u>+2KV Line-Earth</u> , +1KV Line-Line
Ethernet Connectors:	(2) RJ45 Jack
Data Lines:	Pair 1: Pins 1 and 2 Pair 2: Pins 3 and 6
CAT-5 Power Pinouts:	+ VDC: Pins 4 & 5 - VDC: Pins 7 & 8
 <u>Mechanical Specifications</u>	
Weight:	.28 lbs. (.13 kg)
Dimensions:	6.5 x 3.0 x 1.5 (inches))
Enclosure:	Cast Aluminum or Polycarbonate
RoHS Compliant:	Yes

The power injector shall be a industrial grade Power-over-Ethernet (PoE) device that provides DC power for one PoE-equipped device. It shall be compatible with access points and other equipment supporting the IEEE standard PoE pinout (Pins 4 & 5 Power + / Pins 7 & 8 Power -).

The power injector shall contain an internal DC power supply with over-voltage, over-current and short circuit protection along with a removable 3-wire AC power cord. This unit shall be capable of being used as either an "Injector" or as a "Tap". When used as an injector the device shall send DC power through the Ethernet cable to a remote PoE device. When used as a "Tap" the unit shall tap the injected DC power from the Ethernet cable for use by certain non-PoE devices.

The power injector shall have an integral lightning and surge protection which individually protects the 4 data lines as well as protection for the power lines. The limits are +/- 15 volts on pins, 1, 2, 3, 6 and +/- 58 volts on pins, 4, 5, 7 and 8.

The power injector shall have shielded RJ45 jacks. This along with the unit's metal housing shall help reduce the effects of EMI interference. A ground lug and terminal shall be provided directly on the injector housing providing superior grounding and shall be grounded.

The power injector shall be model 0525B4848 as manufactured by Digital Power Corp., or approved equal.

918.42

EPOXY

The epoxy shall be a two (2) part, self-leveling, 100% solid polyurea based epoxy. It shall be capable of being applied at temperatures ranging from 20° F to 180° F.

The epoxy shall have the following physical properties, depending on the volume ratio:

Specification	Standard	Volume Ratio	
		2: 1	1:1
Tensile Strength	ASTM D412	2950	1500
Elongation (%)	ASTM D412	350	800
100% Modulus	ASTM D412	1620	1400
Tear Strength (PLI)	ASTM D412	500	450
Hardness (Shore A)	ASTM D2240	95A	85A
Flexibility (1/8" Mandrel)	ASTM D1737	PASS	PASS
Flashpoint (°F)	ASTM	>200	>200

The epoxy shall be manufactured by Fabick or approved equal. The epoxy shall be applied using the appropriate tools and applicators as recommended by the manufacturer.

918.43**MEDIA CONVERTER**

The media converter shall have the following characteristics:

- 10/100Base -TX to 100Base-FX Conversion
- Comply with NEMA TS1 & TS2 Environmental requirements
- Multi Mode SC fiber optic terminations
- Hardened aluminum case
- Supports DIN-Rail, Panel or Rack Mounting

The media converter shall be in compliance with the following specifications:

Electrical Specifications

Operating Temperature:	-40° C to +75° C
Input Voltage:	10 to 48VDC
Maximum Current:	3 A @ 12V
Power Connector:	Terminal Block or Power Jack
Ethernet Connectors:	(1) RJ45 Jack
Fiber Connectors:	Multimode SC
Nominal Wavelength:	1310nm
Cable Type:	62.5/125 multi mode
Optical Budget:	15 dB
Packet Buffer Memory:	768K bits
Latency:	Less than 128.9µs

Mechanical Specifications

Weight:	1.76 lbs.
Dimensions:	1.97x4.33x5.35 (inches)
Enclosure:	Aluminum

The Media Converter shall be as manufactured by EtherWAN, Media Converter part number EL900-A-B-I-B with a power supply part number 41-136044-1 or approved equal.

918.44 CCTV REMOTE POWER UNIT

The CCTV Remote Power Unit shall consist of a complete assembly comprised of a weatherproof enclosure with a low voltage power supply, PTZ terminal blocks, coaxial camera video terminal block, fuses, and other components as supplied by the manufacturer. The Remote Power Unit shall be provided with all required mounting hardware in order to provide attachment as shown on the Plans.

The CCTV Remote Power Unit shall be Bosch model VG4-A-PSU1 Outdoor Power Supply Box, with required mounting hardware.

918.45 FIBER TERMINATION PANEL

- (A) The Fiber Termination Panel (FTP) shall be a compact wall mountable unit for interconnectivity and termination of optical fibers with the following general requirements.

General Requirements:

Dimensions:	6.30"H x 5.50"Wx1.57"D
Panels:	One (1) Multilink Adapter Panel
Fiber Capacity:	Minimum of Six (6) Single Splice Holders
Material:	16 Gauge Steel
Coating:	Electrostatic polyester powder coat paint.

The FTP shall be as manufactured by Multilink, Inc. part number FWM-1X-SP or approved equal.

Each fiber termination panel shell shall be provided with 6 simplex multi-mode SC connector ports. The connector ports shall be as manufactured by Multilink, Inc. part number MSC-06-MM-P-BLk or approved equal but must be fully compatible with the approved fiber optic termination panel.

- (B) The Fiber Termination Panel (FTP) installed within the System Control Cabinet shall be a compact 19: rack mountable unit for interconnectivity and termination of optical fibers with a swing out master panel for accessing terminations and splicing. The panel shall be provided with 19: rack mounting hardware and meet the following general requirements:

General Requirements for FTP at SCC:

Dimensions:	1.87"H x 17.0"Wx9.75"D
Fiber Capacity:	Two (2) fiber optic adapter panels (12 ports total)
Material:	16 Gauge Steel
Coating:	Black electrostatic applied power coat

The FTP shall be as manufactured by Multilink, Inc. part number FRM-1RU-2X-SO, or approved equal.

Each SCC fiber termination panel shell shall be provided with two (2) 6-port fiber adapter panel with simplex multi-mode SC connectors. The adapter panels shall be as manufactured by Multilink, Inc. model MSC-06-MM-P-BLK or approved equal but must be fully compatible with the approved fiber optic termination panel. Each connector shall be provided with a plastic dust cap for protection when not in use.

918.46 RODENT BLOCKING

The rodent blocking material shall consist of a wad of corrosion resistant metallic mesh, such as Stuff-It or Copper Blocker brand copper mesh or approved equal, and capped with a pest control foam sealant, such as IPF Foam from Todol Products or approved equal.

918.47 POLYMER CONCRETE JUNCTION BOX

Polymer concrete junction box Type PS shall be of configuration and dimensions as shown on the plans and shall be as manufactured by Quazite Part No. PG3660DC36 with Quazite Junction Box Cover Part No. PG3660HA00 or approved equal.

918.48 COAXIAL CABLE

Coaxial Cable RG-6 cable shall consist of 18AWG solid bare copper conductors with foam polyethylene insulation be model 9290 Coax - 75 Ohm as manufactured by Belden or approved equal.

Specifications for the cable shall be as follows:

Number of Coax Conductors:	1
Conductor Stranding:	Solid
Conductor Material:	Bare Copper
Insulation Material:	Foam Polyethylene
Outer Jacket Material:	PVC - Polyvinyl Chloride
Outer Shield %Coverage:	95 %
Overall Nominal Diameter:	0.288 inches
Operating Temperature Range:	-40°C To +80°C
Installation Temperature Range:	-25°C To +75°C
Bulk Cable Weight:	54 lbs/1000 feet
Max. Recommended Pulling Tension:	108 lbs.
Min. Bend Radius (Install):	2.80 inches
NEC/UL Specification:	CM
EU RoHS Compliant (Y/N):	Yes
EU RoHS Compliance Date	01/01/2004
RG Type:	6/U
Suitability - Outdoor:	Yes
Suitability - Indoor:	Yes
Impedance:	75 Ohm

Oil Resistance:	Yes
Nominal Conductor DC Resistance @ 20 Deg. C:	7.5 Ohms/1000 ft
Max. Operating Voltage - UL:	300 V RMS
Flame Test	UL1685 UL Loading

918.49 POE SURGE PROTECTOR

The Power-over Ethernet (PoE) surge protector shall be a high performance lightning protector for 10/100 Base-T networks. The surge protector shall provide protection for two Category 5e Ethernet data pairs and the PoE DC power feed.

The surge protector shall employ high speed solid state protection and shall be UL listed for Primary (497) and Isolated Loop (497B) applications. The surge protector shall meet or exceed the TIA/EIA Standards 568 and 758 for CAT 5e performance and shall comply with pinouts and the operating voltage of IEEE 802.3af.

The surge protector shall include modular RJ45 jacks for both the line side and equipment side connections. The unit shall be furnished with an external copper ground lug for bonding the protection device and cable shield to earth ground.

The PoE surge protector shall be ITW Linx model CAT5-POE-RJ45 or equal.

Electrical Specifications:

Data Clamping Voltage	16 Volts
PoE Clamping Voltage	68 Volts
Clamping Response Time	1-5 Nanoseconds
Capacitance	<20pF

Mechanical Specifications:

Copper Ground Lug	10 AWG Max.
Operating Temperature	-40 C (-40 F) to +80 C (+176 F)
Nominal Dimensions	4.5 x 4.5 x 1.5 (inches)

SECTION 919 - LANDSCAPING MATERIALS

919.10 SEED

Replace the third paragraph with the following:

The grass seed used shall be the new crops seed and the mixtures to be used shall be as follows:

Purity Grass Seed Mixture	Minimum Purity Percent	Minimum Germination Percent	Percent of Total Weight of Mixture
Type A			
Kentucky Blue Grass (American, Merit)	98	85	25
Creeping Red Fescue	97	85	25
Tall Turf-type Fescue (Houndog, Mustang, K-31)	95	90	25
Fine Textured Perennial Rye Grass, (Fiesta, Premier)	95	90	25
Type B			
Tall Turf-Type Fescue (Houndog, Mustang, K-31)	95	90	75
Perennial Rye Grass (Linn)	95	90	25
Type C			
Kentucky Blue Grass (Banff, American)	98	85	30
Kentucky Blue Grass (Merit, Touchdown)	98	85	30
Fine Textured Perennial Rye Grass, (Premier)	95	90	40
Type L Legume Seed			
Crown Vetch* plus Nitrofixing Bacteria	95	68	35
Bird Foot Trefoil plus Nitrofixing Bacteria	95	90	25
Perennial Rye Grass	98	92	40

*Including not more than 35% hard seed.

919.35 SOIL STABILIZATION MATTING

The following is added:

- (C) **Turf Reinforcement Mat (TRM).** Provide a machine-produced, 3-dimensional matrix of UV stabilized, pre- or post-consumer, non-degradable synthetic fibers, filaments, nettings, and/or wire mesh designed for permanent and critical hydraulic applications where design discharge velocities and shear stresses exceed the limits of mature, natural vegetation. Ensure that the TRM provides sufficient thickness, strength and void space to allow soil filling or retention and the development of vegetation within the matrix. Manufacturer shall provide certification that the TRM provides a minimum 10-year design life performance. Ensure that the TRM conforms to the property values specified in Table 919.35-1.

Table 919.35-1 Requirements for TRM

Property	Test Method	Minimum Requirement
Thickness	ASTM D 6525	0.25 in.
Performance @ shear stress of 10.0 lb/ft ²	ASTM D 6460	acceptable
Breaking Force	ASTM D 6818	175 lb/ft
UV Stability @ 500 hours	ASTM D 4355	80

SECTION 920 - TRAFFIC CONTROL DEVICES

920.01 TRAFFIC CONES

Replace this section with the following;

Traffic Cones shall be NCHRP 350 compliant and shall meet the requirements listed herein. Cones shall have either separate or molded bases. Cones need not be new but must be in good condition as approved. The Engineer may order the replacement of any cones that are dirty, cracked, unstable, exhibiting loose/frayed collars or not in conformance with the requirements herein. The cone material shall be impregnated with orange pigment, and the surface shall have a glossy, non-reflectorized finish. The color of the cone surface shall be in accordance with the Manual on Uniform Traffic Control Devices (fluorescent orange). The contractor shall submit certification from the vendor that the cones meet the evaluation criteria of NCHRP 350 and the physical properties listed below, in accordance with 105.04.

(A) Cones.

Each cone shall be provided with a 6-inch wide collar and 4-inch wide collar of silver (white) retroreflective sheeting meeting the requirements of ASTM D-4956, type III.

The retroreflective sheeting shall be applied to the cone so that the 6-inch collar is three to four inches from the top of the cone and the 4-inch collar is 2 inches below the 6-inch collar.

The cones shall be constructed in a manner so that the cones in any given delivery, shipment or mobilization will nest or stack with each other, with or without stabilizers, without difficulty.

Cone bases shall be black in color. Bases for 36" Cones shall be flat (no cleats).

Cones shall have the following physical properties:

		Design Criteria	
		28" Cone	36" Cone
(1)	Material	PVC/Plastic or Rubber	PVC
(2)	Overall Height	28"	36"
(3)	Cone Weight	7 lbs. (min.)	15.5 lbs. (min.)
(4)	Total in-place Weight	15 lbs. (min.)	15.5 lbs. (min.)

		Design Criteria	
		28" Cone	36" Cone
(5)	Cone Diameter, Top Interior (1" from top)	2-3/8" ± 1/8"	2-3/8" ± 1/8"
(6)	Cone Diameter, Bottom Interior	10-5/8" ± 1/2"	11-3/8" ± 1/2"
(7)	Base Size, Square	13-3/4" ± 1/2" With Cleats	17" ± 1/2" Without Cleats
(8)	Tensile Strength ASTM D638	1,000 psi (min.)	1,000 psi (min.)
(9)	Elongation	200% (min.)	200% (min.)
(10)	Hardness - Durometer ASTM D2240	80 ± 10	80 ± 10
(11)	Fold Resistance - A cone is placed in an upright position and folded at a point near the middle of its vertical height by holding the upper tip of the cone by hand for ten seconds to the base and touching the surface upon which the base is resting.	The cone shall return to its original vertical position within 15 seconds after release.	
(12)	Heat Resistance - Cones are placed upright for 1 hour at 180°F with a 3±0.11 Lb mass suspended approximately 14" from the top of each cone. and secured using a 2.6 inch diameter flat metal disc. Cones are returned to ambient air temperature, and are stacked in various configurations with one another.	The cones shall not stick to one another and shall be easy to remove from the stack(s).	
(13)	Cold Resistance - A cone is placed upright for 3 hours at 0°F. Immediately after, a steel ball weighing 2 pounds (0.9 kg) is dropped a distance of 5 feet (1.5m) through a virtually frictionless guide tube onto the surface of the cone. The surface of the cone that was struck by the steel ball shall be in a horizontal position, with the cone supported and held in position at both ends. The cone shall be subjected to five concurrent impacts concentrated near the middle.	The cone shall show no evidence of fracturing, cracking or splitting	

(b) Stabilizers

Separate stabilizers shall be provided for 28" cones to meet the Total in-place weight requirement listed herein for cones without molded bases. 36" cones do not require separate stabilizers. The separate stabilizers shall be black in color and shall be constructed so that they rest evenly on the base of the cone without overhanging. The stabilizer shall be a minimum of 5 pounds and shall have the same physical properties as cones in tensile strength, elongation and hardness. Only one stabilizer per cone shall be used.

920.03

SAFETY VESTS

Delete this Subsection in its entirety and replace it with the following:

Safety vests shall meet the ANSI 107-2004 (Class 3) approved American National Standard for High Visibility Safety Apparel.

920.08 CONCRETE BARRIER

Delete this Subsection in its entirety and replace it with the following:

Precast concrete construction barrier for traffic control and protection shall be white or grey and shall conform to ASTM C825. Additional reinforcement, interlocking, and other details shall be as shown on the Plans.

Concrete construction barrier and interlocking devices shall be in accordance with Standard Drawings TP-24 and TP-25. The Contractor may submit alternate barrier systems with interlocking devices that meet NCHRP Report 350 - Test Level 3 requirements to the Engineer for review and approval.

Concrete construction barriers shall be provided with reflectors mounted on the side of the barrier with epoxy glue or mounting screws 6 inches from the top at twenty (20) foot intervals for grey and forty (40) foot intervals for white. The side mounted reflectors shall be yellow when the construction barrier is to the left of traffic and white when the construction barrier is to the right of traffic. Reflectors shall also be mounted on the top of concrete construction barriers at 100-foot intervals on tangent sections, curves of radii greater than 1,910 feet, and at 50-foot intervals on curves of 1,910 feet or less. Reflectors shall be provided in accordance with Subsection 923.18.

On tapered portions of precast concrete construction barrier, flashing lights shall be mounted instead of reflectors. One flashing light is to be mounted at the beginning of the taper and additional flashing lights are to be mounted at forty (40) foot intervals. The flashing lights shall be in accordance with Subsection 920.04 and shall be operational twenty-four (24) hours a day.

920.11 ARROW BOARD

This Subsection is deleted in its entirety and replaced with the following:

Provide Type C flashing arrow boards in accordance with the MUTCD (latest edition) and meeting the following requirements:

1. Non-reflective, black boards equipped with battery-operated amber lights.
2. A minimum peak luminous intensity of 8800 candelas and equipped with photocells that will automatically reduce the luminous intensity to 1500 candelas when the ambient light level drops to 5 foot-candles.
3. A light on the rear face of the board to indicate that the lights are operating.
4. Solid state controls with polarity and surge protection.
5. Panel operation controls mounted in a lockable enclosure.
6. Flashing rate shall be 30 times per minute.
7. Arrow Board displays shall be in accordance with the Traffic Protection Manual.

8. The front and rear faces of the board shall be devoid of advertising to include owner, operator, phone numbers, internet addresses, etc.

Ensure flashing arrow boards are equipped with a diesel charged battery system. Do not use gasoline powered systems. Securely mount flashing arrow boards on a manufacturer-approved 2-wheeled towing trailer.

A permissible Flashing Arrow Board Trailer system to use shall be the Arrow Dynamic Sign (ADS) by ADDCO, Inc., distributed by National Capital Industries, 3420 Kenilworth Avenue, PO Box 287 Bladensburg, MD 20710 Ph (301)779-7644 or approved equal. The Engineer will approve the arrow board displays and available options used or purchased.

Trailer chassis lighting shall be in accordance with Federal and New Jersey State Motor Vehicle regulations (New Jersey Title 39, Section 39:3-61 (d)). Include license plate bracket and weatherproof registration document holder. A locking mechanism shall be included to hold the panel in the operating position or travel position.

920.15**TEMPORARY IMPACT ATTENUATOR**

The following is added:

Modules produced by different manufactures shall not be intermixed when different manufactures supply inertial impact attenuators for a contract.

Sand placed in the modules should be washed concrete sand conforming to ASTM C-33 or equal.

For non-gating re-directive telescoping temporary impact attenuators installed on a temporary basis, refer to Subsection 920.20.

The following Subsection is added:

920.17**MODULAR GLARE SCREEN SYSTEM**

Modular Glare Screen System shall be Modular Guidance System MGS120 as manufactured by Carsonite Composites, LLC, 19845 U.S. Highway 76, Newberry, South Carolina 29108, telephone 800-648-7916 or approved equal. The panels shall be 6 inches wide with a height of 24 inches. The panels shall be FHWA highway green in color.

Reflective tape three (3) inches wide and six (6) inches high shall be applied to the blades every ten (10) feet. The tape shall be high intensity grade reflective sheeting 3870 (white) when traffic is to the left and 3871 (yellow) when traffic is to the right, as manufactured by 3M Company or approved equal. Tape shall be applied vertically centered on the blade on the edge closest to passing traffic.

The Modular Glare Screen System shall include a debris shield mesh netting on the interior construction face only (not adjacent to traffic). This debris shield shall be secured 3 inches from the top, center and bottom every three (3) feet along the System as required to prevent sagging and fluttering. The debris shield shall be a high density polyethylene

material 24 inches high with a maximum mesh opening of 1/2". The debris shield shall be RESINET SM20 product number SM20-48100-BK (cut to 24 inches) as manufactured by Utility Safeguard, LLC, 7018 AC Skinner Parkway, Suite 230, Jacksonville, Florida 32256, telephone 877-899-7233 or approved equal.

The following Subsection is added:

920.18 TRUCK MOUNTED ATTENUATOR.

The truck mounted attenuator shall be NCHRP 350 Test Level 3 compliant, including optional tests 52 and 53.

The attenuator shall have high intensity orange reflective sheeting. The attenuator shall have a standard trailer lighting system, including brake lights, tail lights, turn signals and ICC bar lights.

The following Subsection is added:

920.19 PORTABLE VARIABLE MESSAGE SIGNS.

Provide a portable variable message sign capable of displaying messages that are visible under ideal day and night conditions from a minimum distance of 1/2 mile and that are legible from a minimum distance of 900 feet with a viewing angle of at least 25 degrees. Ensure that the portable variable message sign is able to operate in ambient temperatures of -30 to 160 °F and is capable of withstanding wind gusts up to 80 miles per hour when raised or lowered. Provide a portable variable message sign with the following:

- A. **Sign Panel.** Provide a sign panel capable of displaying three (3) lines of a message, with each line capable of displaying up to eight (8) characters. Ensure that the characters have a minimum height of 18 inches, a minimum width of 12 inches, and are spaced at least 3 inches apart. Compose characters of a 5 wide by 7 high pixel matrix, with each pixel composed of between 4 and 6 LED lights. Ensure that the LED lights have a dominant wavelength between 585 and 595 nanometers and are set against a black background. Ensure that the LED lights provide a minimum daylight luminance of 1000 candelas-per-square-meter. Ensure that the sign is equipped with a photocell to automatically reduce the LED lights' luminance to between 30 to 100 candelas-per-square-meter when the ambient light level drops to 5 foot-candles. Ensure that LED lights maintain constant luminance intensity with changes in battery voltage.

Ensure that the sign panel is covered with an ultraviolet-resistant, clear polycarbonate.

- B. **Controller.** Ensure that the controller is unaffected by radio transmissions. Ensure that the controller is capable of displaying 3 messages sequentially. Ensure that controller has an adjustable display rate with a minimum of 3 seconds per phase. Ensure that the controller is capable of storing 100 user programmed messages in nonvolatile memory that will retain the programmed messages when power is interrupted. Provide a controller display screen that allows the operator to review messages before displaying on the message sign. Ensure that the controller display

shows the operator all programming instructions. Ensure that the messages are able to be programmed at the sign with an integral or plug-in keyboard, and remotely with a cellular telephone.

Secure panel controls in a lockable weatherproof enclosure. Prevent unauthorized access to the controller by requiring a password to the keyboard. Prevent unauthorized remote access by requiring a password. If the correct password is not entered within 60 seconds of initial phone contact, the phone call will terminate.

- C. **Power Source.** Equip portable variable message signs with either a diesel charged or a solar charged battery system. Ensure that the variable message sign is also capable of operating on 120-volt AC electrical service. Provide the power with a battery backup system capable of providing continuous operation when the primary power source fails. Ensure that the power source meets the following requirements:
1. **Diesel.** Ensure that the fuel tank is capable of operating the sign for a period of seventy (72) hours without refueling. Equip with an exhaust muffler and a United States Department of Forestry approved spark arrester. Ensure that the engine is shock mounted to reduce vibration and locked in a ventilated enclosure.
 2. **Solar.** Provide solar panels capable of recharging the batteries at a rate of 4 hours of sun for twenty-four (24) hours of sign usage. Ensure that the battery capacity is capable of operating the sign for a period of 18 days without sunlight.
- D. **Structural Support System.** Mount the variable message sign on a portable 2-wheeled trailer, equivalent to the trailer as stated in 920.11, Arrow Board. Ensure that the sign panel is capable of being raised or lowered during sustained wind speeds of thirty (30) miles per hour. Ensure that the sign panel is capable of being locked into position and is capable of being positioned at the proper height and orientation required for visibility according to the MUTCD (latest edition).

The following Subsection is added:

920.20 NON-GATING, RE-DIRECTIVE IMPACT ATTENUATOR.

The system shall be as manufactured by Energy Absorption Systems Incorporated of Chicago Illinois (312) 467-6750. Substitutes will not be permitted unless approved by the Engineer. Attaching hardware and transition pieces shall be prescribed by the Manufacturer.

The Quadguard System impact attenuator is permitted for use under both permanent and temporary conditions. The Quadguard System, Type CZ is permitted for use under temporary work zone conditions.

SECTION 923 - MISCELLANEOUS

923.02 BEARING PADS.

(A) Elastomeric Bearing Pads for Bridge Beams.

Replace the section in its entirety with the following:

Elastomeric Bearing Pads for Bridge Beams shall conform to the latest edition of the AASHTO LRFD Construction Specifications, including the latest interims, as modified by Section 408 of the Supplementary Specifications. All elastomers shall be Temperature Grade 3, 60 Durometer elastomers unless indicated otherwise on the plan.

The required bearings can be supplied by the following manufacturers: Cosmec, Inc., Walpole, MA Ph (508) 668-6600; D.S. Brown Company, North Baltimore, Ohio Ph (419) 257-3561; Tobi Engineering, Glenview, Illinois Ph (847) 724-7880; Scougal Rubber, Seattle, Washington Ph (206) 763-2650; Seismic Energy Products, Athens, Texas Ph (903) 675-8571; AMSCOT Structural Products, Dover, NJ Ph (973) 989-8800.

923.06 DAMPPROOFING AND WATERPROOFING.

(G) Concrete Penetrating Sealer

Delete the first paragraph and replace it with the following:

Penetrating Sealer shall be a VOC compliant silane based concrete penetrating sealer containing a minimum 100 percent active ingredients such as "SL100 Water Repellant" as manufactured by ProSoCo., Inc., Kansas City, KS, and "Hydrozo 100" or "Hydrozo 100 Plus" as manufactured by BASF Construction Chemicals, LLC, Shakopee, MN (800) 433-9517 or an approved equal.

Delete Subparagraph (1) and replace it with the following:

- (1) Water absorption values for treated concrete surfaces shall not exceed 1 percent moisture after 48-hour immersion in water and 2 percent after 50 days immersion in water in accordance with ASTM C642 testing modified as follows:

Delete the first paragraph in Part (a), and replace it with the following:

- (a) The untreated surfaces of the oven-dried sample shall be coated with a waterproof substance (i.e. epoxy) prior to determining the oven-dried weight.

The following Paragraph (H) is added:

(H) Waterproofing Systems for Substructures

Substructure Waterproofing shall conform to the requirements of (E) Epoxy Resin Waterproofing.

Substructure Membrane Waterproofing shall consist of a primer and the membrane. The membrane system must originate from one manufacturer to insure compatibility. The membrane system shall be Eliminator by Stirling Lloyd Products, Inc., North Haven, or "Bridge Deck Membrane" by Bridge Preservation, LLC, Kansas City, KS 913-321-9006 as distributed by R.J. Watson, Inc., Amherst, NY 716-691-3301, or an approved equal. The membrane shall conform to the following:

<u>Property</u>	<u>Test Method</u>	<u>Criteria</u>
Solids Content		100%
Coverage Rate 80 mils (2mm)		20.5 sq. ft./gal
Cure Time		30 minutes at 68 degrees F
Water Vapor Transmission	ASTM E96	4.3 g/m ² /day
Water Absorption	ASTM D570	<0.5%
Tensile Strength	ASTM D638	400 psi (min)
Elongation (min)	ASTM D638	100%
Adhesion to Concrete	ACI 503A	100 psi (min)
Crack Bridging	ASTM C836	Pass at -15 degrees F 62.5 mils at 10 cycles
<u>Resistance To:</u>		
Ethylene Glycol	ASTM D543	Pass
Calcium Chloride	ASTM D543	Pass
Diesel Fuel	ASTM D543	Pass
Gasoline	ASTM D543	Pass

The following samples and information along with the current published technical product data and material safety data sheets for the system selected shall be submitted to the Engineer at least one month before application of the waterproof membrane system is anticipated by the Contractor:

- The design mix for the membrane system, including samples for testing and approval prior to ordering any materials for the waterproofing membrane.
- Primer Coat - 1 quart
- Liquid Components of the membrane - 1 quart each
- Hardener Powder
- Aggregate - 25 lbs.
- Written procedures for the surface preparation, application, quality control and placement of the waterproof membrane.
- Manufacturer's Literature including descriptive data and specific recommendations for surface preparation, mixing, and application of all materials, and a copy of the manufacturer's quality assurance program listing all in-house testing criteria.
- Manufacturer's "Materials Safety Data Sheets" for each respective product to be used.

The following Paragraph (I) is added:

(I) Methacrylate Crack Sealer

Methacrylate sealer shall be Sealate T-70 as manufactured by Transpo Industries, Inc., 20 Jones Street, New Rochelle, NY 10801, Tel. (914) 636-1000, OR Sika Pronto 19 as manufactured by SIKA Corporation, 201 Polito Avenue, Lyndhurst, NJ 07071, Tel. (800) 933-7452, or an approved equal.

923.18 REFLECTORS

Delete this Subsection in its entirety and replace it with the following:

Flexible reflectors units shall be made of a fiberglass reinforced, thermosetting, high-density polymer resin or an extruded polycarbonate resin, which are resistant to ultraviolet and infrared radiation, and which meet the following minimum physical requirements:

1. Reflector Dimensions.
Reflector units shall be 4 inch wide by 8 inch high, with a minimum thickness of 1/8 inch.
2. Reflector Color.
Reflector colors shall be as shown on the plans.
3. Retroreflective Sheeting.
Use 3M "Diamond Grade" reflective sheeting. Affix yellow, white or red reflective sheeting to the traffic-facing side of the reflector according to the manufacturer's recommendations.

Manufacturing sources for reflector products shall use recycled materials as recommended by the EPA, unless waived by the Engineer. Submit a certification of compliance, as specified in Subsection 105.04 for the reflectors.

923.27 POT AND DISC BEARINGS.

Delete this Subsection in its entirety.

923.30 SILT FENCE

Delete this subsection in its entirety, and replace it with the following:

Provide geotextile material with protective wrapping and, before placement, store the rolls in a manner that protects them from moisture and minimizes exposure to ultraviolet radiation. Provide silt fence that is inert to commonly encountered chemicals, and that is stabilized against ultraviolet light degradation. Label each roll to provide product identification.

The geotextile material for both silt fence and heavy duty silt fence shall meet the requirements of AASHTO M 288. The color of heavy duty silt fence shall be black or orange as shown in the Plans.

923.37 FLY ASH

Fly ash for portland cement concrete shall conform to ASTM C 618, Class C or Class F except that the loss on ignition shall not be more than three percent. When Class C fly ash is used, the magnesium oxide shall not exceed 2.5 percent. Fly ash used to control alkali-silica reactivity shall be Class F and shall contain not more than 1.5 percent available alkali according to ASTM C 618, Table 1A. Before each source of fly ash is approved, certified results of tests conducted by a testing agency shall be submitted to and verified by the Department. Accompanying the certification shall be a statement from the supplier listing the source and type of coal, the methods used to burn, collect, and store the fly ash, and the quality control measures employed.

Conformance to the requirements for loss on ignition and fineness shall be determined by the supplier for each truck load of fly ash delivered to the mixing site. The test values determined shall be included on the delivery ticket. The Engineer may require that the fly ash not be used until the Department has performed tests for loss on ignition and fineness.

Fly ash for other uses shall conform to ASTM C 593 except that the loss on ignition shall be not more than ten percent, and the combined content of silica and aluminum oxide shall be a minimum of 50 percent.

923.38 HYDRATED LIME

Hydrated lime shall conform to ASTM C 207, Type N.

The following is added:

923.42 GEOTEXTILE

Provide geotextile rolls with protective wrapping and, before placement, store rolls in a manner that protects against moisture and minimizes exposure to ultraviolet radiation. For applications that are above ground or exposed to ultraviolet radiation, provide geotextiles that are inert to commonly encountered chemicals and are stabilized against ultraviolet light degradation. Label each roll to provide product identification.

Use geotextiles conforming to the requirements in AASHTO M 288, Class 1 or 2. For Inlet Filters, use Class 2 for woven monofilament geotextiles or Class 1 for all other types of geotextiles. For Inlet Filter, Type 2, in addition to the AASHTO M 288 requirements, ensure that the geotextile's burst strength is at least 650 pounds per square inch when tested according to ASTM D 3786.

For geotextiles that are being permanently incorporated into the Contract, submit a certification of compliance as specified in 105.04.

A-7 RAPIDLY DETERMINING THE BREAKDOWN IN SIZES OF SOIL AGGREGATE

A. Scope.

This method of test is used to determine rapidly the approximate amount of soil aggregate that may be expected to break down to finer sizes under field compaction and exposure to weathering.

B. Apparatus.

1. The apparatus for determining moisture density relationship and aggregate breakdown will conform to AASHTO T 99, Method C.
2. The apparatus for performing the mechanical analysis will conform to AASHTO T 27.

C. Preparation of Sample.

1. A sample of approximately 150 pounds will be air dried and thoroughly mixed.
2. A mechanical analysis will be run on two samples of approximately 12 pounds each, obtained from the above sample by quartering. These two gradations will be averaged and the average reported as the original gradation of the material.
3. A sample will be prepared to have the same gradation as the original determined in Subpart C.2 above.
4. The maximum density at optimum moisture content will be determined from a representative portion of the prepared sample by using AASHTO T 99, Method C including the replacement option, for material retained on the 3/4-inch sieve.

D. Procedure.

1. Another sample will be compacted from the remaining material at the optimum moisture content determined in Subpart C.4 above.
2. A mechanical analysis will be performed on the prepared sample after compaction.

E. Report.

The report will include the following:

1. Average of two gradations determined in Subpart C.2 above.
2. Gradation of the prepared sample after compaction in Subpart D.2 above.
3. Specified gradation for the material.
4. Maximum density at optimum moisture of the prepared sample determined in Subpart C.4 above.

SECTION 924 – SUPERPAVE HOT MIX ASPHALT (HMA)

924.01 COMPOSITION

Replace the first paragraph with the following:

The composition of the mixture for HMA surface courses shall be coarse aggregate, fine aggregate, and asphalt binder and may also include mineral filler and up to 10 percent RAP. RAP will not be permitted in surface course mixes used for Bridge Deck Resurfacing. The composition of the mixture for base or intermediate courses shall be coarse aggregate, fine aggregate, and asphalt binder and may also include mineral filler and up to maximum of 30 percent by weight of RAP.

Replace the first sentence of the fifth paragraph with the following:

The several mineral constituents shall be combined in such proportions that the resulting mixture meets the grading requirements in Subsection 924.04.

924.02 JOB MIX FORMULA

The following is added to the end of the subsection:

The Contractor may submit to the Engineer for approval job-mix formulas of the type specified in the contract documents which have been previously approved for use by the NJDOT. Such job-mix formulas shall include the NJDOT Laboratory Serial Number. Submission of pre-approved job-mix formulas on NJDOT Producers Analysis of Materials and Job Mix Formulas form are acceptable.

The Contractor is advised that NJTA Standard Supplementary Specifications allow 10% RAP content in dense graded surface course mixes. RAP is not permitted in OGFC and bridge deck surface mixes. As such, a NJDOT approved job-mix formula with a RAP content of greater than 10% will not be permitted unless specifically approved by the Engineer.

924.04 TABLES

The heading for Table 924-6 is replaced as follows:

Table 924-6 Additional Fine Aggregate Requirements for Superpave		
Mix Compaction Level	Fine Aggregate Angularity % Air Voids (minimum)	Clay Content Sand Equivalent ⁽²⁾ % (minimum)

Delete the last row from Table 924-2.

Delete the last row from Table 924-3.

Delete Note No. 2 from Table 924-3.

Delete the last row from Table 924-4.

Delete Note No. 3 from Table 924-4.

Delete the last row from Table 924-5.

Delete the last row from Table 924.6.

APPENDIX A – AFFIRMATIVE ACTION MANDATORY LANGUAGE

EXHIBIT B

(REVISED 4/10)

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE

N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127)
N.J.A.C. 17:27

CONSTRUCTION CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, up-grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Division may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Division is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted

employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

EXHIBIT B MANDATORY EQUAL EMPLOYMENT OPPORTUNITY

**LANGUAGE N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127) , N.J.A.C. 17:27
CONSTRUCTION CONTRACTS**

(continued)

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

(1) To notify the public agency compliance officer, the Division, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

EXHIBIT B MANDATORY EQUAL EMPLOYMENT OPPORTUNITY

**LANGUAGE N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127) , N.J.A.C. 17:27
CONSTRUCTION CONTRACTS**

(continued)

(i) The contractor or subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Division. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Division, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Division.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Division and submitted promptly to the Division upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to

(B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

EXHIBIT B MANDATORY EQUAL EMPLOYMENT OPPORTUNITY

**LANGUAGE N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127) , N.J.A.C. 17:27
CONSTRUCTION CONTRACTS**

(continued)

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Division an initial project workforce report (Form AA 201) electronically provided to the public agency by the Division, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Public Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code (NJAC 17:27)**.

APPENDIX B - REQUIREMENTS OF PUBLIC LAW 2005, CHAPTER 51 (EXECUTIVE ORDER 134) AND EXECUTIVE ORDER 117

In order to safeguard the integrity of State government procurement by imposing restrictions to insulate the award of State contracts from political contributions that pose the risk of improper influence, purchase of access, or the appearance thereof, Executive Order 134 was signed on September 22, 2004 ("EO 134"). The Order is applicable to all State agencies, the principal departments of the executive branch, any division, board, bureau, office, commission within or created by a principal executive branch department, and any independent State authority, board, commission, instrumentality or agency. Executive Order 134 was superseded by Public Law 2005, c.51, signed into law on March 22, 2005. In September 2008, Executive Order 117 was signed and become effective November 15, 2008. It applies to the same government contracting entities subject to Executive Order 134, but extends the political contribution restrictions by expanding the definition of "business entity" to include, for example, more corporate shareholders and sole proprietors. Executive Orders 134 and 117, and Public Law 2005, c.51 contain restrictions and reporting requirements that will necessitate a thorough review of the provisions. Pursuant to the requirements of PL 2005, c.51, the terms and conditions set forth in this Appendix are material terms of any contract resulting from this bid solicitation:

DEFINITIONS

For the purpose of this section, the following shall be defined as follows:

a) Contribution – means a contribution reportable as a recipient under "The New Jersey Campaign Contributions and Expenditures Reporting Act." P.L. 1973, c. 83 (C.19:44A-1 et seq.), and implementing regulations set forth at N.J.A.C. 19:25-7 and N.J.A.C. 19:25-10.1 et seq. Through December 31, 2004, contributions in excess of \$400 during a reporting period were deemed "reportable" under these laws. As of January 1, 2005, that threshold was reduced to contributions in excess of \$300.

b) Business Entity – means any natural or legal person; business corporation (and any officer, person, or business entity that owns or controls 10% or more of the corporation's stock); professional services corporation (and any of its officers or shareholders); limited liability company (and its members); general partnership (and its partners); limited partnership (and its partners); in the case of a sole proprietorship: the proprietor; a business trust, association or any other legal commercial entity organized under the laws of New Jersey or any other state or foreign jurisdiction, including its principals, officers, or partners. The definition of a business entity also includes (i) all principals who own or control more than 10 percent of the profits or assets of a business entity ; (ii) any subsidiaries directly or indirectly controlled by the business entity; (iii) any political organization organized under section 527 of the Internal Revenue Code that is directly or indirectly controlled by the business entity, other than a candidate committee, election fund, or political party committee; and (iv) if a business entity is a natural person, that person's spouse or child, residing in the same household.

BREACH OF TERMS OF THE LEGISLATION

It shall be a breach of the terms of the contract for the Business Entity to (i)make or solicit a contribution in violation of the Legislation, (ii)knowingly conceal or misrepresent a contribution given or received; (iii)make or solicit contributions through intermediaries for the purpose of concealing or misrepresenting the source of the contribution; (iv)make or solicit any contribution on the condition or with the agreement that it will be contributed to a campaign committee or any candidate of holder of the public office of Governor, or to any State or county party committee; (v)engage or employ a lobbyist or consultant with the intent or understanding that such lobbyist or consultant would make or solicit any contribution, which if made or solicited by the business entity itself, would subject that entity to the restrictions of the Legislation; (vi)fund contributions made by third parties, including consultants, attorneys, family members, and employees; (vii)engage in any exchange of contributions to circumvent the intent of the Legislation; or (viii)directly or indirectly through or by any other person or means, do any act which would subject that entity to the restrictions of the Legislation.

CERTIFICATION AND DISCLOSURE REQUIREMENTS

a) The Authority shall not enter into a contract to procure from any Business Entity services or any material, supplies or equipment, or to acquire, sell or lease any land or building, where the value of the transaction exceeds \$17,500, if that Business Entity has solicited or made any contribution of money, or pledge of contribution, including in-kind contributions to a candidate committee and/or election fund of any candidate for or holder of the public office of Governor, or to any State, county or municipal political party committee, or legislative leadership committee during specified time periods.

b) Prior to the award of any contract or agreement, the intended Awardee shall submit the Certification and Disclosure form, certifying that no contributions prohibited by the Legislation have been made by the Business Entity and reporting all contributions the Business Entity made during the preceding four years to any political organization organized under 26 U.S.C.527 of the Internal Revenue Code that also meets the definition of a "continuing political committee" within the means of N.J.S.A. 19:44A-3(n) and N.J.A.C. 19:25-1.7. Failure to submit the required forms will preclude award of a contract under this bid solicitation, as well as future contract opportunities.

c) Further, the Contractor is required, on a continuing basis, to report any contributions it makes during the term of the contract, and any extension(s) thereof, at the time any such contribution is made.

STATE TREASURER REVIEW

The State Treasurer or his designee shall review the Disclosures submitted pursuant to this section, as well as any other pertinent information concerning the contributions or reports thereof by the intended awardee, prior to award, or during the term of the contract, by the contractor. If the State Treasurer determines that any contribution or action by the contractor constitutes a breach of contract that poses a conflict of interest in the awarding of the contract under this solicitation, the State Treasurer shall disqualify the Business Entity from award of such contract.

ADDITIONAL DISCLOSURE REQUIREMENT OF P.L. 2005, C. 271

Contractor is advised of its responsibility to file an annual disclosure statement on political contributions with the New Jersey Election Law Enforcement Commission (ELEC), pursuant to P.L. 2005, c. 271, section 3 if the contractor receives contracts in excess of \$50,000 from a public entity in a calendar year. It is the contractor's responsibility to determine if filing is necessary. Failure to so file can result in the imposition of financial penalties by ELEC. Additional information about this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

ADDITIONAL DISCLOSURE REQUIREMENT OF P.L. 2005, C. 51 (EXECUTIVE ORDER NO. 117)

Governor Jon S. Corzine recently signed Executive Order No. 117, which is designed to enhance New Jersey's efforts to protect the integrity of government contractual decisions and increase the public's confidence in government. The Executive Order builds on the provisions of P.L. 2005, c. 51 ("Chapter 51"), which limits contributions to certain political candidates and committees by for-profit business entities that are, or seek to become, State government vendors.

Executive Order No. 117 extends the provisions of Chapter 51 in two ways:

1. The definition of "business entity" is revised and expanded so that contributions by the following individuals also are considered contributions attributable to the business entity:
 - Officers of a corporation, any person or business entity who owns or controls 10% or more of the corporation's stock, and professional services corporations, including any officer or shareholder, with the term "officer" being defined in the same manner as in the regulations of the Election Law Enforcement Commission regarding vendor disclosure requirements (N.J.A.C. 19:25-26.1), with the exception of officers of non-profit entities;
 - Partners of general partnerships, limited partnerships, and limited liability partnerships and members of limited liability companies (LLCs), with the term "partner" being defined in the same manner as in the regulations of the Election Law Enforcement Commission regarding vendor disclosure requirements (N.J.A.C. 19:25-26.1);
 - In the case of a sole proprietorship: the proprietor; and
 - In the case of any other form or entity organized under the laws of this State or any other state or foreign jurisdiction: the entity and any principal, officer, and partner thereof;
 - Spouses, civil union partners, and resident children of officers, partners, LLC members, persons owning or controlling 10% or more of a corporation's stock, all shareholders of a professional services

corporation, and sole proprietors are included within the new definition, except for contributions by spouses, civil union partners, or resident children to a candidate for whom the contributor is eligible to vote or to a political party committee within whose jurisdiction the contributor resides.

2. Reportable contributions (those over \$300.00 in the aggregate) to legislative leadership committees, municipal political party committees, and candidate committees or election funds for Lieutenant Governor are disqualifying contributions in the same manner as reportable contributions to State and county political party committees and candidate committees or election funds for Governor have been disqualifying contributions under Chapter 51.

Executive Order No. 117 applies only to contributions made on or after November 15, 2008, and to contracts executed on or after November 15, 2008.

Updated forms and materials have been developed to combine the requirements of P.L. 2005 c. 51 and Executive Order 117. Beginning November 15, 2008, the intended Awardee only will be required to submit, the Two-Year Chapter 51/Executive Order 117 Vender Certification and Disclosure of Political Contribution form(s). The Chapter 51 and EO 117 forms are available on the Department of Treasury Division of Purchase and Property's website at: <http://www.state.nj.us/treasury/purchase/forms.htm#eo134> . P.L. 2005 c. 271 disclosure requirements are separate and different from the disclosure requirements under P.L. 2005 c. 51 and Executive Order 117 and shall be submitted by the intended Awardee at least ten (10) days prior to entering into the above-referenced contract directly to the New Jersey Election Law Enforcement Commission. The Chapter 271 form is also available on the Department of Treasury Division of Purchase and Property's website at: <http://www.state.nj.us/treasury/purchase/forms/CertandDisc2706.pdf>

NEW JERSEY TURNPIKE AUTHORITY
APPENDIX C - LANE CLOSING REQUEST FORM

CONTRACT NO: _____ CONTRACTOR: _____

	DATE	SUBMITTED BY	ACCEPTED BY (Engineer)							
NO.	DATE REQUESTED	MP to MP	ROADWAY	LANE	REQUESTED INSTALLATION TIME	PICK UP TIME AND DATE	PURPOSE OF CLOSING			
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Revise/Amend as Noted and Resubmit: _____ Approved: _____

**NEW JERSEY TURNPIKE AUTHORITY OPERATIONS DEPARTMENT
APPENDIX D - ESCORT, SLOWDOWNS REQUEST FORM**

CONTRACT NO: _____ CONTRACTOR: _____

DATE								SUBMITTED BY								ACCEPTED BY (ENGINEER)							
COMMENTS								COMMENTS															
																			TYPE OF EQUIPMENT				
MP TO MP								DURATION EXPECTED															
																		TIME					
DAY/DATE								DAY/DATE															
																		ESCORTS					

[] - REVISE/AMEND AS NOTED AND RESUBMIT

[] - APPROVED

NEW JERSEY TURNPIKE AUTHORITY
 OPERATIONS DEPARTMENTS
APPENDIX E - ROADWAY CLOSING FORM

CONTRACT NO: _____ CONTRACTOR: _____

	DATE			SUBMITTED BY				ACCEPTED BY (ENGINEER)			
FLAGMEN REQUIRED											
POINT OF ENTRY											
PURPOSE OF CLOSING											
LOCATION OF WORK											
TIME OF PICK UP											
TIME OF CLOSING											
ROADWAY											
DAY & DATE REQUESTED											

- REVISE/AMEND AS NOTED AND RESUBMIT

- APPROVED

NEW JERSEY TURNPIKE

APPENDIX F - STATE POLICE SUPPLEMENTAL PATROL CONSTRUCTION REQUEST FORM

CONTRACT NO.: _____

CONTRACTOR: _____

ENGINEER: _____

SUBMITTED BY: _____

DATE: _____

TELEPHONE NO.: (_____) _____

				DATE							
NO.	MILEPOST	ROADWAY	LANE	TIME*	MON	TUES	WED	THUR	FRI	SAT	SUN
				START							
				COMP							
				START							
				COMP							
				START							
				COMP							
				START							
				COMP							
				START							
				COMP							
				START							
				COMP							

* TIME TO BE ENTERED MILITARY TIME

APPENDIX H – GEORGIA DEPARTMENT OF TRANSPORTATION TEST NO. 78

A. Scope

Use this test method to determine the Profile Index from profilograms of deck slabs and approach slabs, made with the Rainhart-type profilograph.

Determining the Profile Index involves measuring "scallops" that appear outside a blanking band.

B. Apparatus

The apparatus consists of only the following:

Scale: Use a clear plastic scale, 1.50 inch wide and 11.0 inch long. Near the center of the scale is an opaque band, 0.1 inch wide, extending the entire length of 11.0 inches. On either side of this band are lines scribed 0.1 inch apart, parallel to the opaque band. These lines serve as a convenient scale to measure deviations, or scallops of the graph above or below the blanking band.

C. Sample Size and Preparation

No special sample preparation is needed.

D. Procedures

Place the plastic scale over the profile so it blanks out as much of the profile as possible. The scallops above and below the blanking band will be approximately balanced (See Figure -1).

The profile trace will move from a generally horizontal position when going around super-elevated curves, making it impossible to blank out the central portion of the trace without shifting the scale.

In this case, break the profile into short sections and reposition the blanking band on each section (see Figure -2).

Beginning at the right end of the scale, measure and total the height of all the scallops appearing both above and below the blanking band.

Measure each scallop to the nearest 0.05 inch.

Short portions of the profile line may be visible outside the blanking band, but unless they project 0.03 inch or more and extend longitudinally for 2 feet or more, do not include them in the count. (See Figure -1 for special conditions.)

After totaling the scallops in the first scale length, slide the scale to the left. Align the right end of the scale with a small mark made at the end of the first scale length.

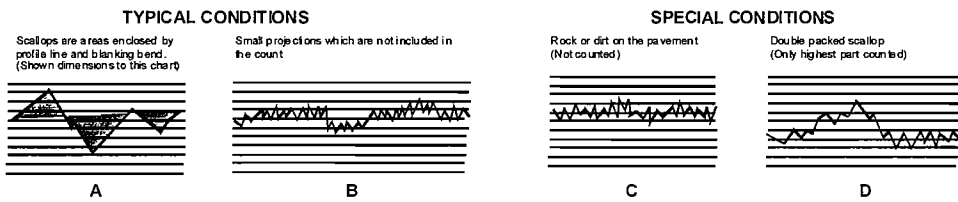
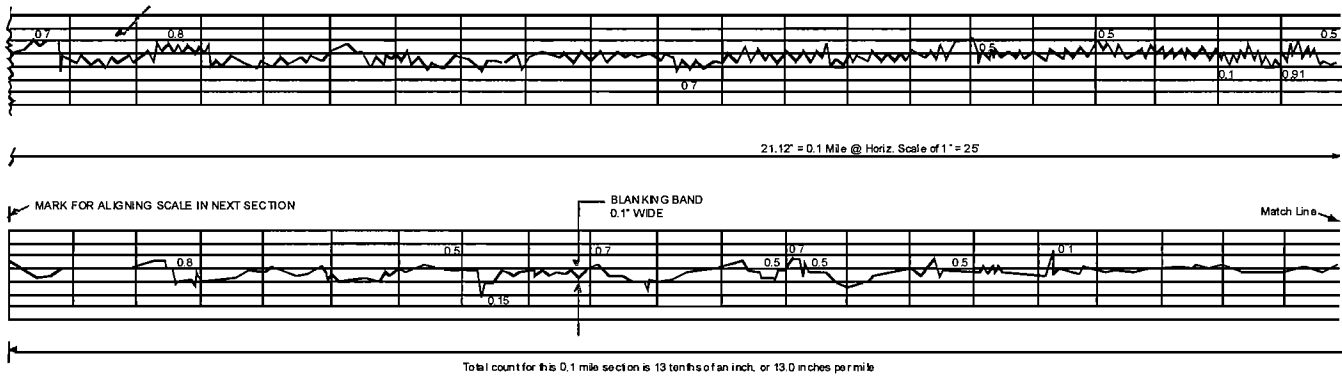
E. Calculations

The Profile Index is determined as "inches per mile in excess of the 0.1 inch blanking band." The formula for calculating Profile Index is:

$$\text{PROFILE INDEX} = \frac{1 \text{ MILE}}{\text{LENGTH OF SECTION IN MILES}} \times \text{TOTAL COUNT IN INCHES}$$

F. Report

Report the profile index in "inches per mile in excess of the 0.1 inch blanking band" on the Profilograph Report Form.



EXAMPLE SHOWING METHOD OF DERIVING PROFILE INDEX FROM PROFILOGRAMS

Figure -1

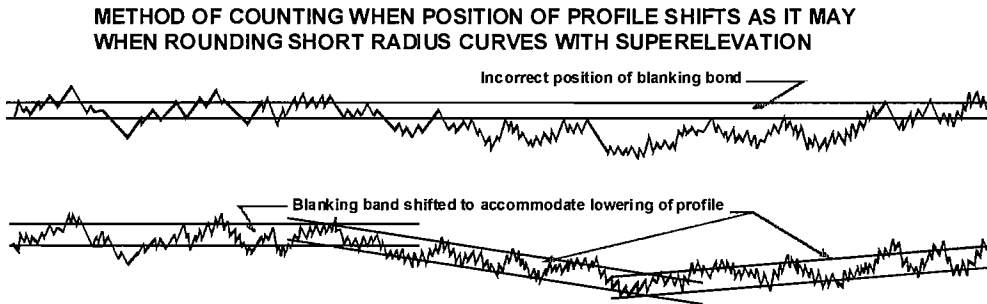


Figure -2

APPENDIX I – NJDPES STORMWATER PERMIT PROGRAM

NJPDES MASTER GENERAL PERMIT
Effective Date of Renewal March 1, 2009

NJPDES Permit No. NJ0141887
Expiration Date: February 28, 2014

Attachment D

REQUIRED PRACTICES FOR FUELING OPERATIONS, VEHICLE MAINTENANCE, AND GOOD HOUSEKEEPING SBRs

D. The following BMPs must be implemented at maintenance yards, including maintenance activities at Service Areas and ancillary operations (for example, impound yards, solid waste transfer stations, mobile fueling), where applicable, that are operated by the Highway Agency:

1. Inventory Requirements for Maintenance Yard Operations (including Service Areas, and Ancillary Operations)

a. Highway Agencies shall include for maintenance yard operations an inventory that includes the following:

i. A list to be made part of the SPPP of general categories of all materials or machinery located at the maintenance yard, which could be a source of pollutants in a stormwater discharge. The materials in question include, but are not limited to: raw materials; intermediate products; final products; waste materials; by-products; machinery and fuels; and lubricants, solvents, and detergents that are related to the maintenance yard operations or ancillary operations. Materials or machinery that are not exposed to stormwater or that are not located at the maintenance yard or related to its operations do not need to be included.

2. Fueling

a. No topping off vehicles, mobile fuel tanks, and storage tanks. Drip pans must be used under all hose and pipe connections and other leak-prone areas during bulk transfer of fuels.

b. During bulk transfer block storm sewer inlets, or contain tank with temporary berms or temporary absorbent booms during the transfer process. If temporary berms are being used instead of blocking the storm sewer inlets, all hose connection points associated with the transfer of fuel must be within the temporary berms during the loading/unloading of bulk fuels. A trained employee must always be present to supervise during bulk fuel transfer.

c. Clearly post, in a prominent area of the facility, instructions for safe operation of fueling equipment, and appropriate contact information for the person(s) responsible for spill response.

d. Any equipment, tanks, pumps, piping and fuel dispensing equipment found to be leaking or in disrepair must immediately be repaired or replaced.

3. Vehicle Maintenance

a. Perform all vehicle and equipment maintenance at an indoor location with a paved floor whenever possible. For projects that must be performed outdoors that last more than one day, portable tents or covers must be placed over the equipment being serviced when not being worked on, and drip pans must be used.

4. General Good Housekeeping

- a. Properly mark or label all containers. Labels must be kept clean and visible. All containers must be kept in good condition and tightly closed when not in use. When practical, containers must be stored indoors. If indoor storage is not practical, containers may be stored outside as long as they are covered and placed on spill platforms. An area that is graded and/or bermed that prevents run-through of stormwater may be used in place of spill platforms. Outdoor storage locations must be regularly maintained.
- b. Conduct cleanups of any spills or liquids or dry materials immediately after discovery. Clean all maintenance areas with dry cleaning methods only. Spills shall be cleaned up with a dry, absorbent material (i.e., kitty litter, sawdust, etc.) and the rest of the area is to be swept. Collected waste is to be disposed of properly. Clean-up materials, spill kits and drip pans must be kept near any liquid transfer areas, protected from rainfall.

5. Good Housekeeping Practices for Salt and De-icing Material Handling

- a. The SPPP for De-icing Material Storage shall include the following required practices to ensure that Maintenance Yard Operations prevent or minimize the exposure of salt and de-icing materials to stormwater runoff from storage, loading and unloading areas and activities:
 - i. Prevent and/or minimize the spillage of salt and de-icing materials during loading and unloading activities.
 - ii. At the completion of loading and unloading activities, spilled salt and de-icing materials shall be removed using dry cleaning methods and either reused or properly discarded.
 - iii. Sweeping by hand or mechanical means of storage and loading/unloading areas shall be done on a regular basis. More frequent sweeping is required following loading/unloading activities. Sweeping shall also be conducted immediately following, as practicable, loading/unloading activities.
 - iv. Tracking of materials from storage and loading/unloading areas shall be minimized.
 - v. Minimize the distance salt and de-icing materials are transported during loading/unloading activities.
- b. Interim Seasonal Tarping - All Highway Agencies must tarp all de-icing materials until a permanent structure is built. Interim storage measures must include, but are not limited to the following:
 - i. Tarping materials that are not actively being used.
 - ii. The storage of de-icing materials (salt and de-icing products) outside is limited to October 15th through April 30th. All salt and de-icing materials must be removed from the site prior to May 1st and may not be stored outside again until October 15th.
 - iii. The implementing of a regular inspection, sweeping and housekeeping program to ensure that the material is maintained and stored in a proper manner.

6. Inspections

a. Inspections of all Municipal Maintenance Yard Operations shall be conducted regularly.

b. Discharge of Stormwater from Secondary Containment

i. The discharge pipe/outfall from a secondary containment area must have a valve and the valve must remain closed at all times except as described below. A Highway Agency may discharge stormwater that accumulated in the secondary containment area if a visual inspection is performed to ensure that the contents of aboveground storage tank have not come in contact with the stormwater to be discharged. Visual inspections are only effective when dealing with materials that can be observed, like petroleum. If the contents of the tank are not visible in stormwater, the Highway Agency must rely on previous tank inspections to determine with some degree of certainty that the tank has not leaked. If the Highway Agency cannot make a determination with reasonable certainty that the stormwater in the secondary containment area is uncontaminated by the contents of the tank, then the stormwater should be hauled for proper disposal.

NEW JERSEY TURNPIKE AUTHORITY
STAGING AREA INVENTORY/ INSPECTION FORM
NEW JERSEY POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORMWATER PERMIT PROGRAM

Contractor Name/ Contract Number:	
Staging Area Location: (Milepost)	
Contractor's Contact Person:	
Date:	

The purpose of this inspection form is to obtain information needed to comply with the New Jersey Department of Environmental Protection (NJDEP) regulations on stormwater management. Your responses will assist the New Jersey Turnpike Authority to determine what measures are needed to comply with its stormwater discharge permit requirements and minimize stormwater pollutants that may enter the waters of the State.

If you have any questions about the stormwater permit requirements or need assistance in completing this inspection form, please contact the following:

- Timothy Doolan
New Jersey Turnpike Authority
Engineering Department, Environmental Section
P.O. Box 5042
Woodbridge, NJ 07095-5050
Phone: (732) 750-5300 x8246

The completed inspection forms should be faxed to Timothy Doolan at (732) 750-5493, and a copy mailed as well. Forms shall be completed and submitted within 30 days of occupying any staging area. The form shall be updated every six (6) months and the Contractor shall provide two weeks written notice to Mr. Doolan prior to vacating the staging area. The Contractor shall provide copies of all forms and notices to the Engineer.

I. VEHICLES AND EQUIPMENT

A general list of machinery that is exposed to stormwater and could potentially be a source of stormwater pollutants is needed. Review the list below and identify the types of machinery that are present on-site and are exposed to stormwater. Add any additional machinery not already shown on the list.

Attach additional sheets if necessary.

VEHICLE AND EQUIPMENT INVENTORY			
Vehicle/Equipment	On-Site (yes/no)	Storage Location (indoors/outdoors)	Exposed to Stormwater (yes/no)
Automobiles			
Pick-up Trucks			
Dump Trucks			
Backhoes			
Loaders			
Bulldozers			
Painting Equipment			
Paving Equipment			
Sweepers			
Snow Flows			
Tractors			
Mowers			
Generators			
Equipment Trailers			
Screeners			
Wood Chippers			
Compressors			

II. MATERIALS INVENTORY

A general list of materials that are exposed to stormwater and could potentially be a source of stormwater pollutants is needed. Review the list below and identify the types of materials that are stored on-site and are exposed to stormwater. Add any additional materials not already shown on the list.

Attach additional sheets if necessary.

MATERIALS EXPOSED TO STORMWATER			
Material	Stored On-Site (yes/no)	Container Type (drum, tank, bucket, etc.)	Exposed to Stormwater (yes/no)
Salt			
Sand/gravel/soil			
Street sweepings			
Asphalt mix			
Paint			
Pesticides/Herbicides			
Gasoline			
Diesel Fuel			
Heating oil			
Kerosene			
Hydraulic fluid			
Antifreeze			
Motor oil			
Waste oil			
Transmission fluid			
Batteries			
Degreasing fluid/parts cleaner			
Detergent			

III. FUELING OPERATIONS

The stormwater permit requires equipment and procedures to reduce the chance that a fuel spill will discharge into the surface water drainage system. Identify the fuel tanks at the staging area, and provide responses to the fuel system operations questions. If a question does not apply to your location, mark "N/A" in the response box.

Attach additional sheets if necessary.

FUEL TANK INFORMATION				
Tank No.	Tank Capacity (gallons)	Tank Contents (gasoline, diesel, etc.)	Tank Type (aboveground/underground)	If Aboveground, Tank is Diked (yes/no)

FUEL DISPENSER INFORMATION			
Tank No.	Number of Dispensers	Dispenser Location (on tank/on fuel island)	Distance to Nearest Storm Drain or Drainage Ditch

FUEL SYSTEM OPERATIONS	
Please explain any "NO" answers. Attach additional sheets if necessary.	
1. Is the contact information for the person(s) responsible for spill response clearly posted in the fueling area?	
2. Are the fuel system equipment operation procedures clearly posted in the fueling area?	
3. Are drip pans used under all hose and pipe connections during bulk fuel transfers to/from the storage tanks?	
4. Is a trained employee always present to supervise bulk fuel transfers to/from the storage tanks?	
5. Is spill containment equipment (storm sewer inlet blocks, spill containment berms, absorbent booms, etc.) available for use during bulk fuel transfers to/from the tanks?	
5a. If so, is the spill containment equipment used during bulk fuel transfers?	
6. Are the fuel system operators instructed that "topping off" of vehicles, mobile fuel tanks, and storage tanks is not permitted?	
7. Is leaking, worn, or damaged fuel system equipment repaired or replaced immediately?	

IV. VEHICLE AND EQUIPMENT MAINTENANCE

The Stormwater Permit encourages that all vehicle and equipment maintenance be performed indoors whenever possible. The following questions address existing maintenance procedures.

Please explain any "NO" answers. Attach additional sheets if necessary.

VEHICLE AND EQUIPMENT MAINTENANCE	
1. Is any vehicle and equipment maintenance performed outdoors?	
1a. If yes, when vehicle and/or equipment maintenance lasting more than one day is performed outdoors, is the vehicle or equipment covered with a tarp or tent when not being worked on?	
1c. If yes, when vehicle and/or equipment maintenance is performed outdoors, are drip pans used beneath the vehicle or equipment?	

V. GENERAL GOOD HOUSEKEEPING PROCEDURES

The stormwater permit requires general good housekeeping practices for storage of materials in containers and cleanup of spilled materials. The following questions address both topics.

Please explain any "NO" answers. Attach additional sheets if necessary.

CONTAINER STORAGE REQUIREMENTS	
1. Are all containers and aboveground storage tanks maintained in good condition (not leaking, not rusting, etc.)?	
2. Are the contents of all containers and aboveground storage tanks identified with clean and visible labels?	
3. Are all containers and aboveground storage tanks tightly closed when not in use?	
4. Are outdoor container storage areas covered to prevent precipitation from falling onto the containers?	
5. Are containers stored in outdoor areas located on raised pads, spill pallets, or in bermed/diked areas?	
6. Are any berms/dikes in good condition and capable of containing a spill?	
7. Are container storage areas maintained regularly?	

SPILL CLEANUP PROCEDURES	
1. Is absorbent material (Speedy-Dry, sawdust, kitty litter, etc.) available for cleaning up spills?	
2. Are all spills of liquid or dry materials cleaned up immediately after discovery?	
3. Are spills ever cleaned up by washing or rinsing? 3a. If yes, please explain.	
4. Are all spilled material and used absorbent swept up and disposed of properly?	
5. Are spill cleanup materials, spill kits, and drip pans kept in all liquid transfer areas (near storage tanks, container storage areas, etc.)?	
6. Are all spill materials and spill kits stored in dry areas protected from rainfall?	

VI. DE-ICING MATERIAL HANDLING PROCEDURES

The stormwater permit requires specific procedures for handling road de-icing salt.

SALT STORAGE/HANDLING PROCEDURES	
1. Is salt stored at the facility?	
2. Is all salt stored inside salt domes or other permanent, covered storage buildings?	
3. Is spilled salt swept up and re-used or discarded after completion of loading/unloading activities?	
4. Are salt handling areas swept on a regular basis?	

VII. FACILITY DRAINAGE

DRAINAGE FROM PARKING/STORAGE AREAS	
1. Do the outdoor areas of the facility have storm drain inlets?	
1a. If yes, do the storm drains discharge to the sanitary sewer system?	
1b. If yes, do the storm drains discharge through an oil/water separator?	
1c. If yes, are any storm drain inlets located in unpaved areas?	
1d. If yes, are the storm drain inlets labeled to alert employees that they discharge to surface water?	

VIII. VEHICLE AND EQUIPMENT WASHING PROCEDURES

The stormwater permit does not regulate vehicle and equipment washing activities. However, responses to the following questions will help to determine the types of water discharges at the storage/staging area.

VEHICLE AND EQUIPMENT WASHING	
1. Does the facility have a washbay or other vehicle/equipment washing facility?	
2. Do the washbay drains discharge to the sanitary sewer or to the storm sewer?	
3. Do the washbay drains discharge through an oil/water separator?	
4. Are vehicles/equipment rinsed in outdoor areas near storm drain inlets or stormwater drainage ditches/swales?	
5. Is all loose debris (sand, salt, grass clippings, etc.) brushed off of the vehicles/equipment and disposed of before rinsing?	
6. Does the vehicle/equipment rinsing include the use of soap, degreasers, or other cleaning compounds?	
7. Do the rinsing operations include cleaning engines?	

IX. STOCKPILED MATERIALS

The stormwater permit sets limits on the stockpiling of sand, soil, street sweepings, and similar materials. The following questions deal with open stockpiles at the maintenance facility/staging area.

STOCKPILED MATERIALS	
1. Are there stockpiles of sand, soil, gravel, or street sweepings at the staging area?	
2. Are the stockpiles within 50 feet of a storm drain inlet, drainage ditch, swale, stream, or other drainage facility?	
3. Are the stockpiles enclosed in bins?	
4. Do the bins allow the stockpiled material to spill out through gaps or openings in the bin walls?	

X. SWEEPING

The stormwater permit requires that facilities are swept at least once every three months.

SWEEPING	
1. Are paved areas of the facility swept regularly using a mechanical sweeper?	
2. What is the approximate frequency of sweeping?	

XI. REFUSE CONTAINERS AND DUMPSTERS

REFUSE CONTAINERS AND DUMPSTERS	
1. Are there any dumpsters or refuse containers located outdoors and exposed to stormwater (not including temporary demolition containers, litter receptacles, and containers for large bulky items)?	
1A. If yes: Are these containers covered at all times to prevent spilling, dumping or leaking of their contents?	

APPENDIX J – PSEG STANDARDS FOR INSTALLATION OF FIBERGLASS PAD FOR TRANSFORMERS UNDER 500KVA



10. Padmounted Transformer Installations – Secondary Metered

The following are general requirements for padmounted transformers, and any changes shall be determined in accordance with Chapter 1, Section 16 of this manual and the Tariff:

1. For padmounted transformer installations in overhead zones (non-residential BUD), the primary and secondary wiring to the transformer pad must be installed underground. PSE&G will provide and install the pad and the padmounted transformer, and will install and connect the primary conductors to the transformer. The customer shall do the site preparation work to accept the transformer pad, and furnish and install at its expense the necessary conduits and any manholes required, in accordance with PSE&G specifications. For direct buried cable installations where allowed, the customer shall furnish and install at its expense, and in accordance with PSE&G specifications, the trench, the sand required for protection of the cables, warning tape, backfilling, and any conduits as required by PSE&G from the transformer pad to the selected pole. All work on the secondary side of the transformer, including the connections to the transformer terminals, is the customer's responsibility. Secondary conductors shall not be installed until the transformer has been set on the pad. The customer shall not be permitted to run a separate grounding conductor between the customer's premises and the PSE&G transformer.
2. For padmounted transformer installations in underground zones, the primary and secondary wiring to the transformer pad must be installed underground by PSE&G in accordance with the Tariff. PSE&G will install the padmounted transformer and will install and connect the primary conductors to the transformer. The customer shall furnish and install at its expense and in accordance with PSE&G specifications, the primary conduits and any necessary manholes from the transformer pad to the selected PSE&G manhole, and all work on the secondary side of the transformer including the connections to the transformer terminals. Secondary conductors shall not be installed until the transformer has been set on the pad. The customer shall not be permitted to run a separate grounding conductor between the customer's premises and the PSE&G transformer.
3. In those cases where the connections to the transformer would normally be made by the customer at its own expense, PSE&G may elect, in special cases, to do such work with its own forces on a time and material basis at the customer's expense.
4. The customer must assure ready access to the transformer installation in a manner that will make certain the easy and expeditious delivery, removal and maintenance of the transformers and associated equipment. The pad shall be accessible for inspection, and for installing and replacing the transformer, including driving heavy equipment over to it without damage to the landscaping or the equipment. Access design must be approved by PSE&G.
5. The maintenance for all single-phase and three-phase padmounted transformer secondary service facilities is the customer's responsibility.



6. The customer must consult the local Electric Distribution Division to determine if soil conditions may require the entire service run to be placed in conduit.
7. All PVC conduit shall be NRTL listed and approved for electrical use, Schedule 40 or 80 as required. See Exhibit 7, and check with the local Electric Distribution Division to determine what Schedule type is applicable.

11. Transformer Vault Installation – Secondary Metered

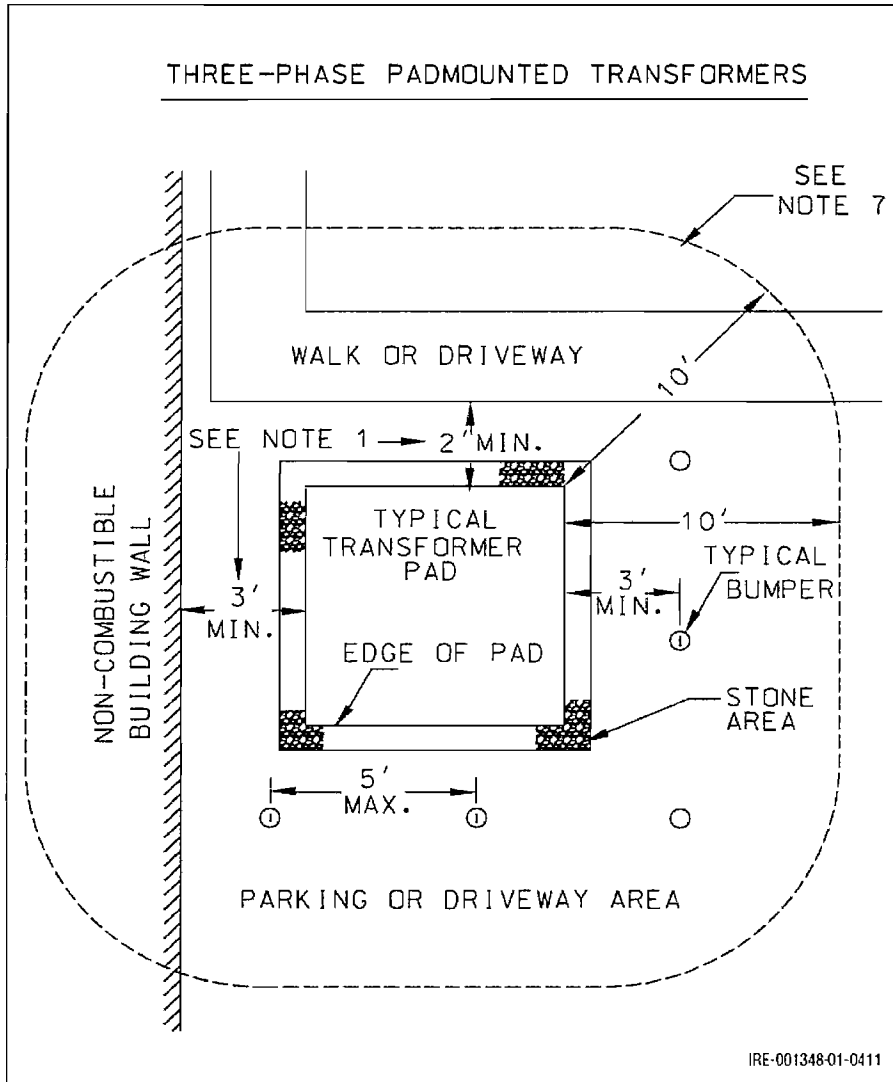
The following are general requirements for transformer vaults, and any changes shall be determined in accordance with Chapter 1, Section 16 of this manual and the Tariff:

1. In underground zones where the customer's load is greater than that which can be supplied from the secondary mains, PSE&G will construct transformer manholes in the street or sidewalk area, or may construct transformer manholes on private property exterior to the customer's building, and where 24 hour access is available. The equipping and wiring of such manholes will be done by and at the expense of PSE&G. If the construction of transformer manholes outside of the building is impractical, the customer must provide a transformer vault at his building in which PSE&G will set the transformers. If this vault is exterior to the building, PSE&G will wire the vault on both the primary and secondary sides. An exterior vault includes one that, even though it may be physically within the confines of the building, can only be entered from a point exterior to the building. If the vault is completely interior to the building, all vault wiring must be done by and at the expense of the customer. The customer will provide all secondary wire.
2. In overhead zones where the customer chooses to have a transformer vault installation, or where physical limitations require such an installation, PSE&G will set the transformers in place in a vault furnished by the customer provided it is at ground level and accessible. If the vault is exterior to the building, PSE&G will connect to the transformer on the primary side. The customer will provide all material and work on the secondary side of the transformers, including connections to the transformer terminals. An exterior vault includes one that, even though it may be physically within the confines of the building, can only be entered from a point exterior to the building. If the vault is interior to the building, or if the authority having jurisdiction requires a disconnect or interrupting devices ahead of the transformers in an exterior vault, all of the vault wiring must be done by and at the expense of the customer.
3. Where 277/480 volt network service is provided, a bus room in a permanently dry location within the customer's building is required. The bus room must be located no more than 50 feet from the transformers.
4. For a 277/480 volt network service, PSE&G will furnish the collector bus. The installation of the collector bus in the bus room shall be by and at the expense of the customer. The local Electric Distribution Division must be consulted to obtain the specific requirements for such an installation.
5. In those cases where the connections to the transformer would normally be made by the customer at its expense, PSE&G may elect, in view of the specialized



Exhibit 20

Three-Phase Padmounted Transformers



Appendix

A - 60

Information and Requirements for Electric Service

June 1, 2005

**Exhibit 20 Notes:**

1. All service entrance equipment and related construction involving PSE&G shall be installed according to the requirements of State and local authorities. PSE&G, and the current edition of the *National Electrical Code*.
2. In overhead zones where PSE&G and the customer have agreed that a secondary-metered, three-phase service shall be supplied from a padmounted transformer on the customer's property, PSE&G will install the pad, transformer and protective grounding for installations of 180 kVA demand and above. PSE&G will also install the primary cable, in accordance with the Tariff, and make all primary connections. The installation of the trench for direct buried cable or the primary underground conduits, depending on local conditions and as specified by the local Electric Distribution Division Office, from the transformer pad to the selected PSE&G pole, and all work on the secondary side of the transformer, including the connections to the transformer terminals, shall be done by and at the expense of the customer. If conduit is installed it shall extend no less than 2 inches, or no more than 4 inches, above final grade at the supply pole and it shall extend approximately 3 inches above the final level of the pad. PSE&G shall install the riser shield and back plate on the supply pole. Any primary circuit breaker or other device required by municipal code, but not by PSE&G, shall be installed by the customer at its expense.
3. Secondary service conductors of sufficient number and size to carry the full capacity of the customer's service entrance installation shall be installed in underground conduit by the customer. Secondary conductors shall not be installed until the transformer has been set.
4. The land on which the pad is to be constructed shall be firmly compacted and established approximately at final grade. It shall be free of obstructions, unpaved and so located as to provide and maintain suitable and ready access to the pad for the delivery and removal of transformers and associated equipment. There shall be 10 feet of level land in front of the transformer's doors for PSE&G operational purposes. The customer shall grant to PSE&G an easement covering the location of the pad, the pole line or conduit run, and the access to the pad. The pad shall be accessible for inspection, and for installing and replacing the transformer, including driving heavy equipment over to it without damage to the landscaping or the equipment. Access design must be approved by PSE&G.
5. If PSE&G determines that where the transformer pad is located might subject the transformer to damage by vehicles, the customer shall provide adequate bumper protection. The bumpers (bollards) and their location shall be approved by PSE&G and shall consist of 4 inch galvanized steel pipe filled with concrete, or equivalent, set in concrete. Bumpers shall have a minimum height of 4 feet above grade, a minimum depth of 3 feet below grade and set a minimum of 3 feet from the edge of the pad. In traffic areas where the bumpers might not be clearly seen at night, they shall be painted with a fluorescent paint, or marked with fluorescent tape suitable for outdoor use. The maximum distance between bumpers shall be 5 feet. Bumpers, when specified, must be placed before the transformer is energized.
6. Transformer pads shall be placed no less than three feet from non-combustible building walls, or two feet from adjacent walkways or driveways. If a pad is placed within 10 feet of a building it shall be oriented so that the doors of the transformer do not face the building.

Notes continued on next page.

Appendix

June 1, 2005

Information and Requirements for Electric Service

A - 61



Exhibit 20 Notes continued;

7. Exit doorways, fire escapes or combustible materials located within a horizontal radius of 10 feet and within a height of 15 feet from any portion of a transformer pad, shall be protected by a fireproof barrier. Windows within the same area shall be protected by a fireproof barrier or permanently closed by masonry or fire resistant wired glass or glass block.
 8. Transformer pads will be constructed in accordance with details and general specifications provided by PSE&G, and as described herein. Any deviations from standard PSE&G construction designs that are requested by the customer and approved by PSE&G, shall be made by the customer at the customer's expense with no cost allowance for any PSE&G supplied standard items that are changed or omitted.
 9. Fiberglass pads * shall generally be used for all three-phase padmounted transformers rated 500 kVA and below, except where for PSE&G engineering reasons a concrete pad Type II-A, as shown in Exhibit 21, is required. *
 10. Concrete pads shall be used for three-phase padmounted transformers rated 750 kVA and above. Type III-A**, as shown in Exhibit 21A, shall be used for a 750 to 2500 kVA transformer and Type V-A***, see Exhibit 21B, shall be used for two padmounted transformers with a total capacity of 3000 kVA.
 11. When precast concrete pads are used, check to insure that the transformer is level. If not, remove the transformer and pad and re-level the stones, and then reinstall the pad and transformer. Also, when precast pads are used, four "Swift Lift" anchor eyes are included for lifting the pad.
 12. For padmounted transformers located 150 feet or less from the curb line, the primary feed shall be underground from a PSE&G designated pole at the curb line to the pad. Underground primary feeds are recommended for longer runs if practicable, however, where the pad is located in excess of 150 feet from a pole at the curb line, an overhead feed will be acceptable on private property, provided the last horizontal 50 feet is run underground to the padmounted transformer.
 13. The area under and around the pad should be clear of all pipes such as sewer, water, natural gas or fuel oil, or any other facilities not connected with the electric service.
 14. Grading, seeding and landscaping in areas abutting a pad shall be the responsibility of the customer. Maintenance of access areas to the transformer pad is also the customer's responsibility. This requirement shall apply whether the installation is made prior to final grading or in an established lawn area.
- Concrete Pad Construction Details**
15. When concrete pads are used, precast when available, rather than poured in place pads, are preferred. The standard thickness of precast pads shall be 8 inches. The standard thickness of poured in place pads shall be 12 inches.

*Limited to total maximum weight of 10,000 lbs.

**Limited to total maximum weight of 22,000 lbs.

*** Limited to total maximum weight of 44,000 lbs

Notes continued on next page.



Exhibit 20 Notes continued from previous page.

16. The following specifications refer to poured in place as well as precast pads.

- Slump – 4 inches
28 Day Strength: 4000 lbs. / sq. in.
- The ground where the pad is to be placed shall be properly prepared, tamped and levelled before installing the pad.
- Portland cement shall be used and the cement shall be a standard brand, meeting all of the requirements of the American Society for Testing Materials ("ASTM") C150 *Specification for Portland Cement*, and the ASTM tests for Portland cement, latest revisions.
- Aggregates shall consist of inert materials that are clean, hard durable, free from any organic matter and uncoated with clay or dirt. Both large and small aggregates shall be well graded. All ASTM requirements for the specifications and tests for concrete aggregates, latest revisions, shall be observed.
- The concrete shall be mixed until there is a uniform distribution of the materials and a uniform final mass in color and homogeneousness. Mixer shall be of such a type so as to assure maintaining correct proportions of the ingredients. If concrete is ready mixed, the requirements for the measuring of materials and for the mixing and delivery of the concrete shall meet those of the ASTM C94/C94M-04 *Standard Specification for Ready-Mixed Concrete*.
- No concrete shall be poured in subfreezing weather unless authorized by PSE&G. When such authorization is obtained the concrete shall be fully protected against freezing until it is properly cured.



Exhibit 20A

Fiberglass Pad Three-Phase Padmounted Transformers (500 kVA and Below) – Type II

General

Fiberglass pads shall typically be used for all three-phase padmounted transformers rated 500 kVA and below, except where for PSE&G engineering reasons, a concrete pad is required. See the following drawings in this Exhibit.

Location

The pad shall generally be located and specified in accordance with **Exhibit 20**.

Installation

See the pad construction details in the following Exhibits for installation requirements.

Note



1. The primary conduit shall not extend more than 4 inches above the final level of the fiberglass pad. When primary cable is installed, a piece of 4 inch electrical grade PVC conduit shall be used to protect the primary cable from the crushed stone.
2. The secondary conduit must not extend more than 6 inches above the final level of the fiberglass pad. Secondary cable shall not be installed before the transformer is set.
3. A 2 inch x 12 inch pressure treated frame, staked to final grade, shall be installed in order to hold the stones in place, and when the surrounding earth is unstable or not brought up to the final grade. The frame shall be left in place and will provide a final grade reference.
4. The fiberglass pad shall be installed on a well tamped and levelled bed of clean 3/4 inch crushed stone approximately 14 inches in depth.
5. Customer shall install a 5/8 inch x 8 foot ground rod to obtain the required 25 ohms or less ground resistance. Add additional rods if necessary to achieve the 25 ohms resistance level.

Appendix

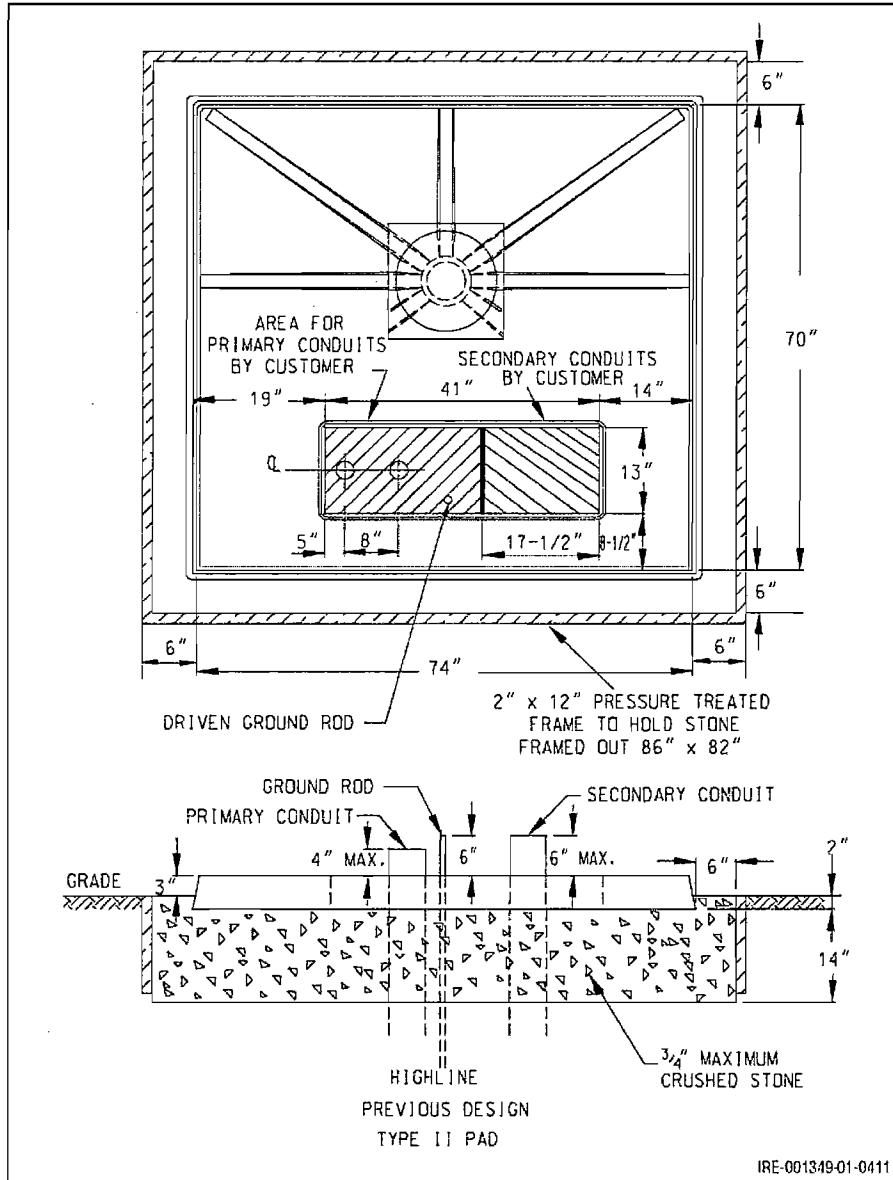
A - 64

Information and Requirements for Electric Service

June 1, 2005



Exhibit 20A: Fiberglass Pad Three-Phase Padmounted Transformers (500 kVA and below) – Type II (Highline Previous Design Type II Pad)



Appendix

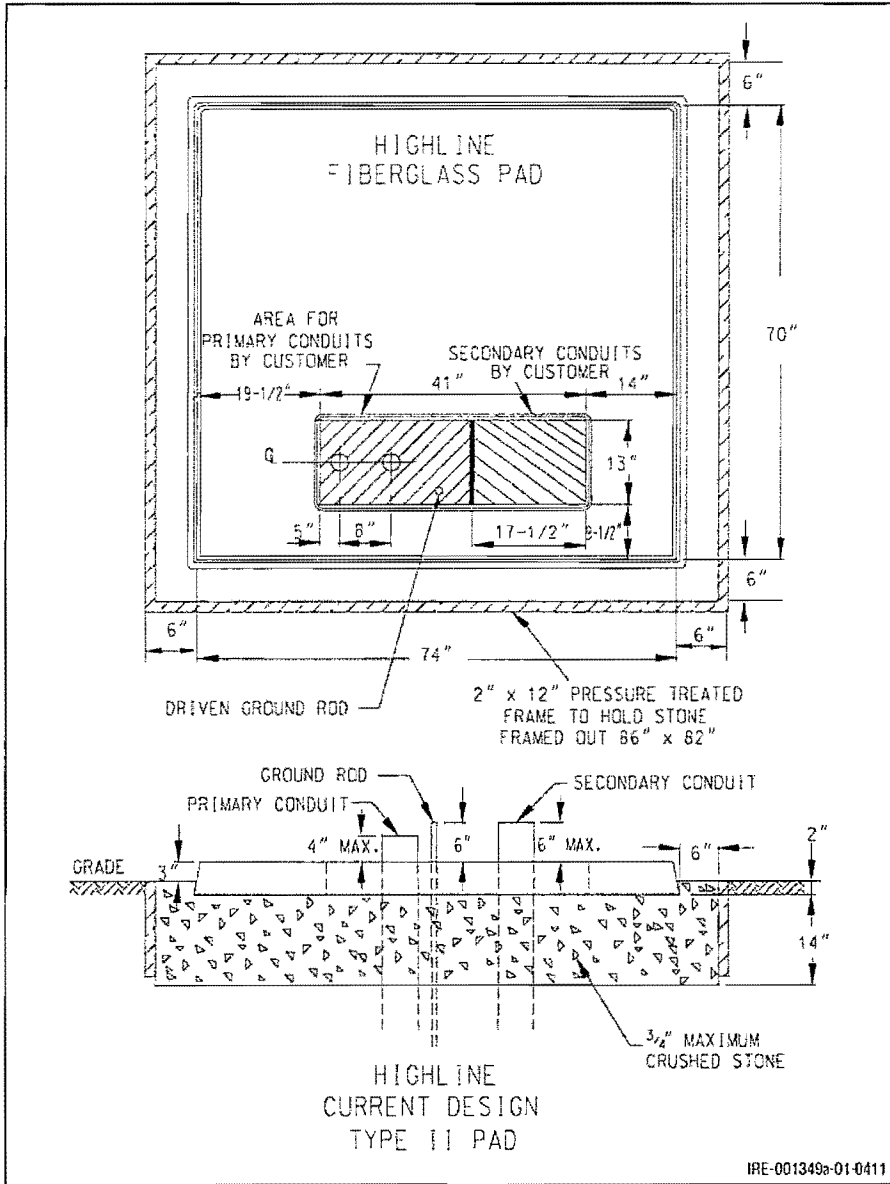
June 1, 2005

Information and Requirements for Electric Service

A - 65



Exhibit 20A: Fiberglass Pad Three-Phase Padmounted Transformers (500 kVA and below) – Type II (Highline Current Design Type II Pad)

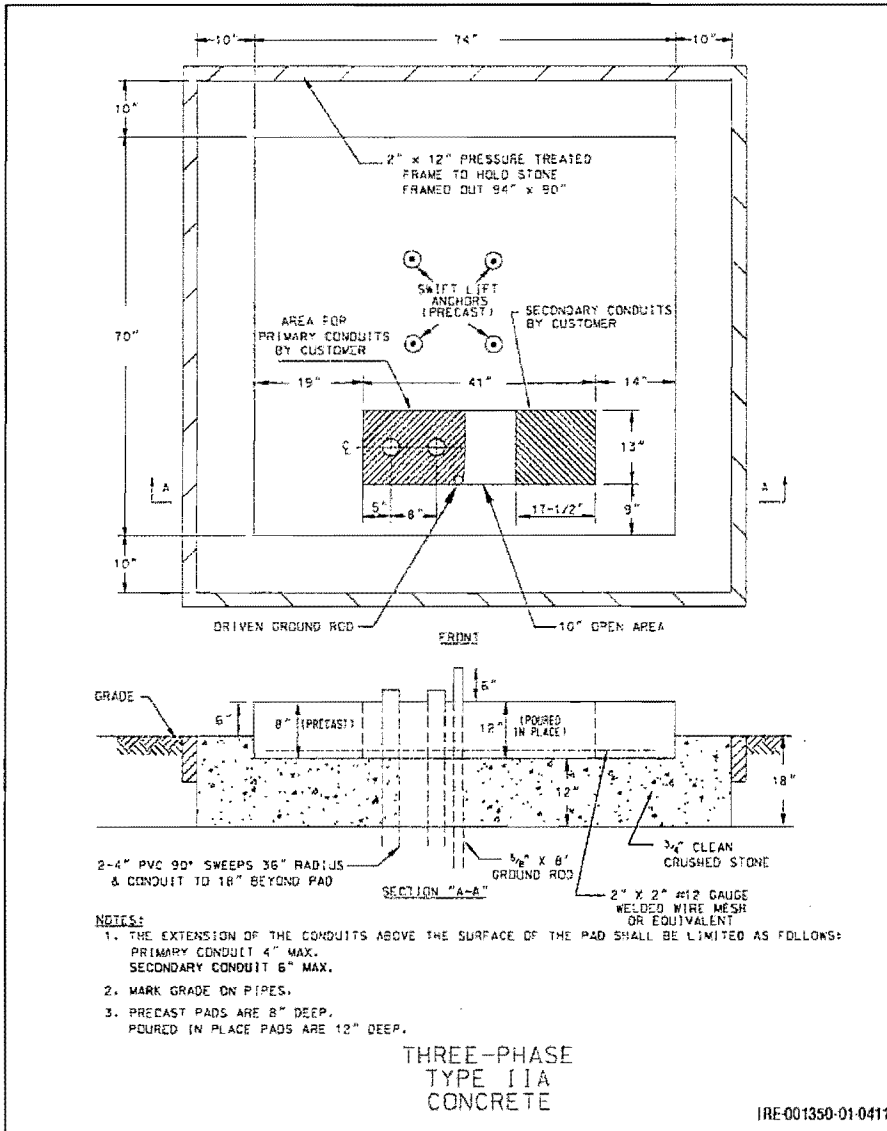


Appendix



Exhibit 21

Pad Construction Detail – Three-Phase Padmounted Transformer – Type II-A (Concrete)

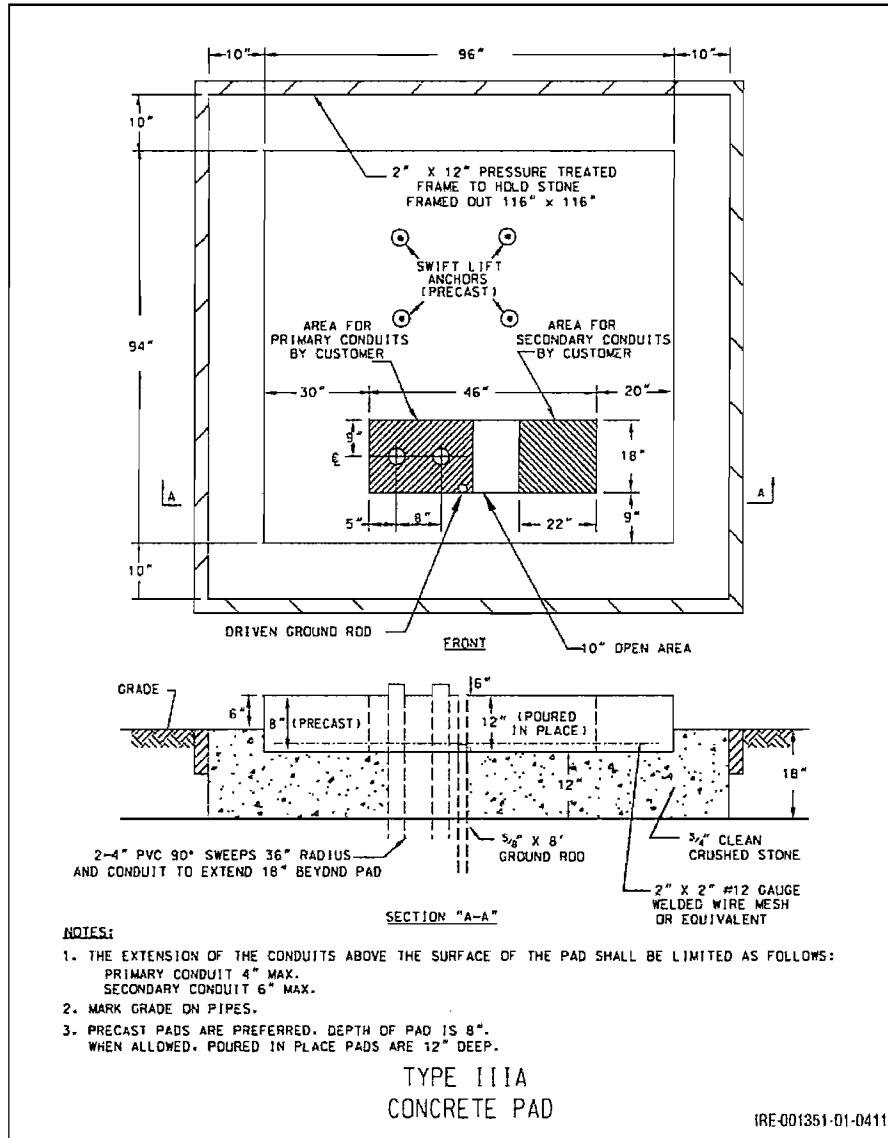


Appendix



Exhibit 21A

Pad Construction Detail – Three-Phase Padmounted Transformer – Type III-A (Concrete)



Appendix

June 1, 2005

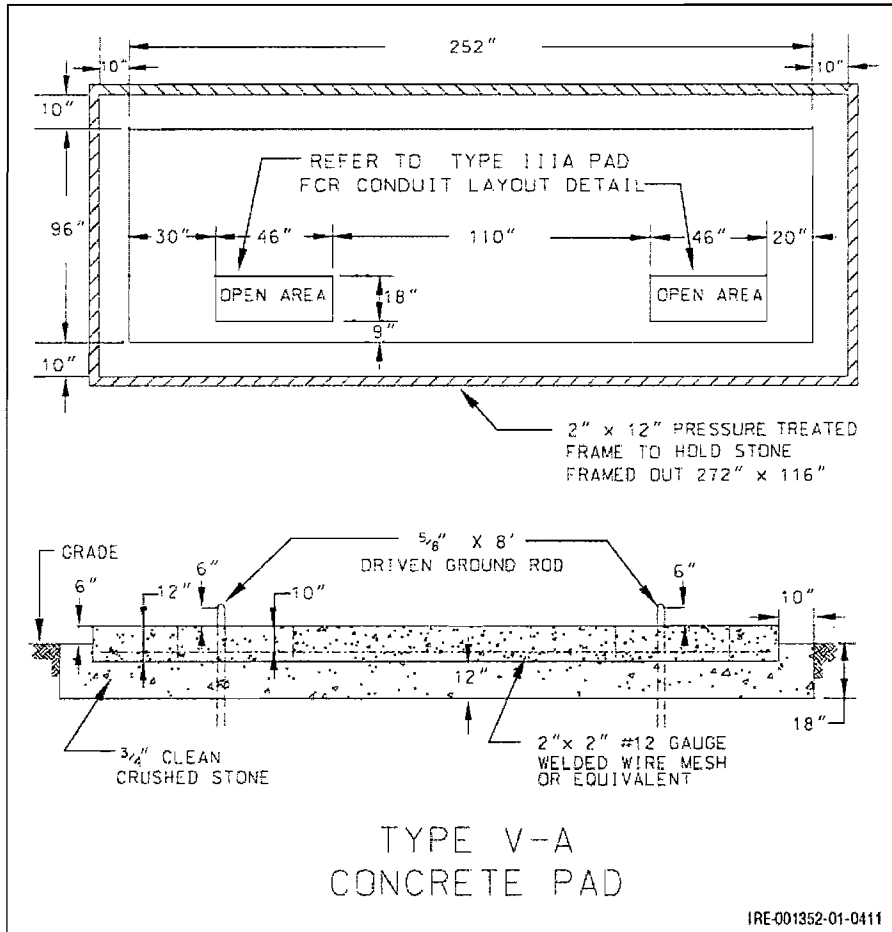
Information and Requirements for Electric Service

A - 69



Exhibit 21B

Pad Construction Detail – Three-Phase Padmounted Transformer – Type V-A (Concrete)



Appendix

A-70

Information and Requirements for Electric Service

June 1, 2005

**APPENDIX W – PERMISSIBLE LANE AND
SHOULDER CLOSURE HOURS**

NEW JERSEY TURNPIKE AUTHORITY

Year 2009

NEW JERSEY TURNPIKE AUTHORITY

LANE CLOSURE AND SHOULDER CLOSURE TABLES OCTOBER 2009

NEW JERSEY TURNPIKE AND GARDEN STATE PARKWAY

The Lane Closure and Shoulder Closure Tables indicate when lane and shoulder closures may be scheduled in non-emergency short-term work zones to maintain the flow of traffic. Short-term work zones typically involve the use of cones for traffic control and also include:

- Supplemental closures to long-term work zones or High-Intensity Construction Cycles (HICCs) for access or traffic control changes;
- Closures used to establish traffic control for long-term work zones.

The Lane Closure and Shoulder Closure Tables do not apply to all conditions. Examples of exceptions are:

- Short-term work zones extending within 1,000 feet of ramp termini;
- Near an off-ramp that may periodically queue;
- In the vicinity of a toll plaza;
- Any mileposts between two tables or not covered under any table.

The NJTA Operations Department will determine in what situations the Lane Closure and Shoulder Closure Tables apply, and will provide the appropriate lane and shoulder closure hours for other conditions. The most restrictive table shall be applied to the entire work zone unless the NJTA Operations Department approves a work zone configuration conforming to all applicable Lane Closure and Shoulder Closure Tables. Follow the Authority's Traffic Closure Request Procedure when requesting a lane closure or shoulder closure.

Only the NJTA Operations Department may approve the scheduling of a lane, shoulder, ramp or roadway closure. If a conflict arises between two or more applications for a lane or shoulder closure, the Departments of the Authority will determine the priority of each application. The Applicant or other work personnel should coordinate work to minimize conflicts as described in the Standard Specifications.

A list of pre-approved taper points will be provided by the NJTA Operations Department for most projects. The list may be included on the plans or within the project-specific Supplementary Specifications. On some projects, allowable taper points will be provided by the NJTA Operations Department or the State Police during construction. Any taper point that has not been issued by the NJTA Operations Department or the State Police must be submitted by the Engineer for approval by the Director of Operations before it is used unless an alternative approval method is specified by contract documents.

The Authority's Toll Lane Closing Request (Parkway only), Lane Closing Request and Roadway Closing Forms shall be submitted according to the Authority's Traffic Closure Request Procedure.

The NJTA Operations Department must approve any exceptions to the lane and shoulder closure restrictions shown in the Lane Closure and Shoulder Closure Tables, described in the Manual for Traffic Control for Work Zones and included in the plans or Supplementary Specifications. Restrictions requiring coordination with other agencies will be provided by the NJTA Operations Department on a case-by-case basis. As described in the Manual for Traffic Control in Work Zones, both the Authority and the Applicant or other work personnel are responsible for coordination.

When a proposed closure extends within 1,000 feet of an interchange or service area ramp, measured from the physical nose of the ramp in either direction to any part of the closure (cone or barrier segment, including tapers), the NJTA Operations Department will advise of any additional restrictions to be imposed on allowable lane and shoulder closure hours or any required traffic mitigation. The NJTA Operations Department may modify allowable closure hours from what is shown in the Lane Closure and Shoulder Closure Tables based on specific roadway conditions and work zone characteristics.

There are gaps in mileposts between certain tables due to transitional conditions different from traffic flows on the rest of the New Jersey Turnpike and Garden State Parkway facilities. The NJTA Operations Department will advise the Applicant of allowable lane and shoulder closure hours in these gap areas. The locations of these gaps are listed in Table 1.

Interchanges are numbered by milepost on the Garden State Parkway but are sequentially numbered on the New Jersey Turnpike. See Table 2 to relate mileposts and interchanges on the Turnpike. The Lane and Shoulder Closure Tables are shown only by milepost for consistency and because not every break between tables is at an interchange.

The number of lanes in the roadway section shown in the Lane and Shoulder Closure Tables may vary due to auxiliary lanes between ramps and interchanges or other speed-change lanes. The minimum number of lanes listed in the Lane Closure Tables must remain open regardless of the total number of lanes. Contract documents and other NJTA documents may list restrictions on lane and shoulder closures that govern over these Tables. The Director of Operations or designated representative may impose additional restrictions depending on the particular location of the work area.

Special conditions are noted at the bottom of some tables. Different roadway segments may have different seasonal definitions as described in each Lane Closure and Shoulder Closure Table. These seasonal definitions are summarized in Table 3.

Updates to the Lane and Shoulder Closure Tables will not affect contracts containing previous versions of the tables unless otherwise stated in contract documents.

Table 1. Gaps in Mileposts within Lane and Shoulder Closure Tables
 See page 2 of this Introduction.

Roadway(s)	Mileposts	Location	Table Page Numbers (SC and LC)
<u>Turnpike</u> Mainline	51.5 to 52.0	Pearl Harbor Extension junction	T-5 and T-6
<u>Turnpike</u> Mainline, Inner/Outer	72.4 to 74.0	Split of Inner/Outer Roadways, Interchange 8A	T-9, T-12, T-20
<u>Turnpike</u> Inner/Outer, Easterly/Westerly	105.7/105.9 to E/W 106.6/106.8	Southern Mixing Bowl, Interchange 15E	T-19, T-27, T-28, T-32, T-37
<u>Turnpike</u> Easterly	E112.0 to E112.5	Interchange 16E/18E	T-34, T-35
<u>Parkway</u> Mainline, Express/Local	103.9 to 104.2	Split of Express/Local Roadways, Asbury Park Toll Plaza (NB)	P-9, P-10, P-11
<u>Parkway</u> Mainline, Express/Local	124.7 (Local), 125.3/125.0 (Express) to 125.6/126.0	Split of Express/Local Roadways, Raritan Toll Plaza (SB)	P-10, P-12, P-13
<u>Parkway</u> Mainline	129.2 to 129.9	Interchange 129 ramps	P-14, P-15

Table 2. Relating Mileposts and Interchanges on the New Jersey Turnpike

Mileposts**	Interchanges	Section
0.0 - 13.0	1-2	MAINLINE
13.0 - 26.1	2-3	
26.1 - 34.8	3-4	
34.8 - 44.2	4-5	
44.2 - 51.5*	5-J (Junction with PHMTE)	
52.0* - 53.9	J-7	
53.9 - 60.5	7-7A	
60.5 - 67.6	7A-8	
67.6 - 72.4*	8-8A (Dual-Dual split)	
(PE) 2.6 (EB) / 2.3 (WB) - 6.1	J-6A	PHMTE
(PE) 0.0 - 2.6 (EB) / 2.3 (WB)	6A-Pennsylvania	
74.0* - 83.4 (NB) / 83.8 (SB)	8A-9	DUAL-DUAL (INNER AND OUTER)
83.4 (NB) / 83.8 (SB) - 88.0	9-10	
88.0 - 91.6	10-11	
91.6 - 96.1	11-12	
96.1 - 99.9	12-13	
99.9 - 101.4	13-13A	
101.4 - 104.4	13A-14	
104.4 - 105.7 (105.0 - 105.9 on Int. 14 ramps)	14-M (Southern Mixing Bowl)	
N0.0 - N3.3	14-14A	
N3.3 - N5.4	14A-14B	
N5.4 - N8.1	14B-end (NJ Route 139)	
W106.6 (NB) / W106.8 (SB)* - W108.9	M (Interchange 15E)-15W	WESTERLY
W108.9 - W112.6	15W-16W	
W112.6 - W116.7	16W-68 (US 46, Northern Mixing Bowl)	
E108.8 (NB) / E106.6 (SB)* - E108.8	M (Interchange 15E)-JE (Interchange 15W)	EASTERLY
E108.8 - E110.9	JE-15X	
E110.9 - E112.0*	15X-16E/18E	
E112.5* - E113.1 (NB) / E113.3 (SB)	16E/18E-17	
E113.1 (NB) / E113.3 (SB) - E116.6 (NB) / E116.8 (SB)	17-68 (US 46, Northern Mixing Bowl)	

* Gaps between mileposts 51.5-52.0 (PHMTE junction), 72.4-74.0 (Inner/Outer Roadway split), 105.7/105.9-106.6/106.8 (Southern Mixing Bowl) and E112.0-E112.5 (Interchange 16E/18E) are due to major roadway merges/diverges. See Table 1.

** Note that mileposts shown here correspond to the actual points where ramps merge and diverge from the Turnpike roadway and/or where lanes are added or dropped. These are different than the official Interchange mileposts.

Table 3. Seasonal Definitions in Lane and Shoulder Closure Tables

SECTION	"SUMMER"	"SPRING/FALL"	"OFF-SEASON"
New Jersey Turnpike south of Int. 11	May 15-September 14	N.A.	September 15-May 14
New Jersey Turnpike north of Int. 11	May 15-September 14	March 1-May 14 September 15-December 14	"WINTER": December 15-February 28/29
Garden State Parkway south of Int. 129	May 15-September 14	N.A.	September 15-May 14
Garden State Parkway north of Int. 129	May 1-October 14	N.A.	October 15-April 30

**NEW JERSEY TURNPIKE MAINLINE
LANE CLOSURES: MP 67.6 TO 72.4***

of lanes: Northbound Southbound (Number of lanes may vary within section)
3 3

Maintain minimum number of lanes throughout work zone as shown below regardless of total number of lanes, excluding previously approved long-term work efforts.

Hour	Number of Lanes that Must Remain Open, SUMMER (May 15 through September 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am	1	1	1	1	1	1	1	2	2	2
1 am-2 am	1	1	1	1	1	1	1	1	1	1
2 am-3 am	1	1	1	1	1	1	1	1	1	1
3 am-4 am	1	1	1	1	1	1	1	1	1	1
4 am-5 am	2	1	2	1	2	1	1	1	1	1
5 am-6 am	2	2	2	2	2	2	1	1	1	1
6 am-7 am	3	2	3	3	3	3	2	2	1	1
7 am-8 am	3	3	3	3	3	3	2	3	1	2
8 am-9 am	3	3	3	3	3	3	3	3	2	2
9 am-10 am	3	3	3	3	3	3	3	3	3	3
10 am-11 am	3	3	3	3	3	3	3	3	3	3
11 am-12 pm	3	3	3	3	3	3	3	3	3	3
12 pm-1 pm	3	3	3	3	3	3	3	3	3	3
1 pm-2 pm	3	3	3	3	3	3	3	3	3	3
2 pm-3 pm	3	3	3	3	3	3	3	3	3	3
3 pm-4 pm	3	3	3	3	3	3	3	3	3	3
4 pm-5 pm	3	3	3	3	3	3	3	3	3	3
5 pm-6 pm	3	3	3	3	3	3	3	3	3	3
6 pm-7 pm	3	3	3	3	3	3	3	3	3	3
7 pm-8 pm	2	3	3	3	3	3	3	3	3	3
8 pm-9 pm	2	2	2	3	3	3	3	2	3	3
9 pm-10 pm	2	2	2	2	3	3	3	2	3	3
10 pm-11 pm	2	2	2	2	3	2	3	2	3	2
11 pm-12 am	2	2	2	2	2	2	2	2	2	2

Hour	Number of Lanes that Must Remain Open, OFF-SEASON (September 15 through May 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am	1	1	1	1	1	1	1	1	2	1
1 am-2 am	1	1	1	1	1	1	1	1	1	1
2 am-3 am	1	1	1	1	1	1	1	1	1	1
3 am-4 am	1	1	1	1	1	1	1	1	1	1
4 am-5 am	2	1	2	1	2	1	1	1	1	1
5 am-6 am	2	1	2	2	2	2	1	1	1	1
6 am-7 am	3	2	3	2	3	2	1	2	1	1
7 am-8 am	3	3	3	3	3	3	2	2	1	2
8 am-9 am	3	3	3	3	3	3	2	3	2	2
9 am-10 am	3	3	3	3	3	3	3	3	2	2
10 am-11 am	3	3	3	3	3	3	3	3	3	3
11 am-12 pm	3	3	3	3	3	3	3	3	3	3
12 pm-1 pm	3	3	3	3	3	3	3	3	3	3
1 pm-2 pm	3	3	3	3	3	3	3	3	3	3
2 pm-3 pm	3	3	3	3	3	3	3	3	3	3
3 pm-4 pm	3	3	3	3	3	3	3	3	3	3
4 pm-5 pm	3	3	3	3	3	3	3	3	3	3
5 pm-6 pm	3	3	3	3	3	3	3	3	3	3
6 pm-7 pm	3	3	3	3	3	3	3	3	3	3
7 pm-8 pm	2	2	2	3	3	3	3	2	3	3
8 pm-9 pm	2	2	2	2	3	3	2	2	3	3
9 pm-10 pm	2	2	2	2	2	3	2	2	3	2
10 pm-11 pm	2	2	2	2	2	2	2	2	2	2
11 pm-12 am	1	1	1	2	2	2	2	2	2	1

* Roadway between MP 72.4 to 74.0 not covered by Lane Closure Tables due to S. Mixing Bowl and Int. 8A ramps. See Table 1 in the Introduction

**NEW JERSEY TURNPIKE INNER ROADWAY
LANE CLOSURES: MP 74.0 TO 83.4 NB/83.8 SB***

of lanes: Northbound Southbound (Number of lanes may vary within section)
3 3

Maintain minimum number of lanes throughout work zone as shown below regardless of total number of lanes, excluding previously approved long-term work efforts.

Hour	Number of Lanes that Must Remain Open, SUMMER (May 15 through September 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am	1	1	1	1	1	1	1	1	1	1
1 am-2 am	1	1	1	1	1	1	1	1	1	1
2 am-3 am	1	1	1	1	1	1	1	1	1	1
3 am-4 am	1	1	1	1	1	1	1	1	1	1
4 am-5 am	1	1	1	1	1	1	1	1	1	1
5 am-6 am	1	1	1	1	1	1	1	1	1	1
6 am-7 am	2	2	2	2	2	2	1	1	1	1
7 am-8 am	2	2	3	2	2	2	1	2	1	1
8 am-9 am	2	2	3	2	2	2	2	2	1	1
9 am-10 am	2	2	2	2	2	2	2	2	2	2
10 am-11 am	2	2	2	2	2	2	2	2	2	2
11 am-12 pm	2	2	2	2	2	2	2	2	2	2
12 pm-1 pm	2	2	2	2	2	2	2	2	2	2
1 pm-2 pm	2	2	2	2	2	2	2	2	2	2
2 pm-3 pm	2	2	2	2	2	2	2	2	2	2
3 pm-4 pm	2	2	2	2	2	3	2	2	2	2
4 pm-5 pm	2	2	2	3	2	3	2	2	2	2
5 pm-6 pm	2	2	2	3	2	3	2	2	2	2
6 pm-7 pm	2	2	2	2	2	2	2	2	2	2
7 pm-8 pm	1	2	2	2	2	2	2	2	2	2
8 pm-9 pm	1	1	1	2	2	2	2	2	2	2
9 pm-10 pm	1	1	1	1	2	2	2	1	2	2
10 pm-11 pm	1	1	1	1	1	1	2	1	2	1
11 pm-12 am	1	1	1	1	1	1	1	1	1	1

Hour	Number of Lanes that Must Remain Open, OFF-SEASON (September 15 through May 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am	1	1	1	1	1	1	1	1	1	1
1 am-2 am	1	1	1	1	1	1	1	1	1	1
2 am-3 am	1	1	1	1	1	1	1	1	1	1
3 am-4 am	1	1	1	1	1	1	1	1	1	1
4 am-5 am	1	1	1	1	1	1	1	1	1	1
5 am-6 am	1	1	1	1	1	1	1	1	1	1
6 am-7 am	2	2	2	2	2	2	1	1	1	1
7 am-8 am	3	2	3	2	2	2	1	1	1	1
8 am-9 am	3	2	3	2	2	2	2	2	1	1
9 am-10 am	2	2	2	2	2	2	2	2	1	1
10 am-11 am	2	2	2	2	2	2	2	2	2	2
11 am-12 pm	2	2	2	2	2	2	2	2	2	2
12 pm-1 pm	2	2	2	2	2	2	2	2	2	2
1 pm-2 pm	2	2	2	2	2	2	2	2	2	2
2 pm-3 pm	2	2	2	2	2	2	2	2	2	2
3 pm-4 pm	2	2	2	2	2	2	2	2	2	2
4 pm-5 pm	2	2	2	2	2	3	2	2	2	2
5 pm-6 pm	2	2	2	2	2	3	2	2	2	2
6 pm-7 pm	2	2	2	2	2	2	2	2	2	2
7 pm-8 pm	1	2	1	2	2	2	2	2	2	2
8 pm-9 pm	1	1	1	2	2	2	1	1	2	2
9 pm-10 pm	1	1	1	1	1	2	1	1	2	2
10 pm-11 pm	1	1	1	1	1	1	1	1	1	1
11 pm-12 am	1	1	1	1	1	1	1	1	1	1

* Roadway between MP 72.4 to 74.0 not covered by Lane Closure Tables due to S. Mixing Bowl and Int. 8A ramps. See Table 1 in the Introduction

Revised June 2009

**NEW JERSEY TURNPIKE OUTER ROADWAY
LANE CLOSURES: MP 74.0 TO 83.4 NB/83.8 SB***

* # of lanes: Northbound Southbound (Number of lanes may vary within section)
2 2

Maintain minimum number of lanes throughout work zone as shown below regardless of total number of lanes, excluding previously approved long-term work efforts.

Hour	Number of Lanes that Must Remain Open, SUMMER (May 15 through September 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am	1	1	1	1	1	1	1	1	1	1
1 am-2 am	1	1	1	1	1	1	1	1	1	1
2 am-3 am	1	1	1	1	1	1	1	1	1	1
3 am-4 am	1	1	1	1	1	1	1	1	1	1
4 am-5 am	1	1	1	1	1	1	1	1	1	1
5 am-6 am	2	1	2	1	2	1	1	1	1	1
6 am-7 am	2	2	2	2	2	2	1	1	1	1
7 am-8 am	2	2	2	2	2	2	1	2	1	1
8 am-9 am	2	2	2	2	2	2	2	2	1	1
9 am-10 am	2	2	2	2	2	2	2	2	2	2
10 am-11 am	2	2	2	2	2	2	2	2	2	2
11 am-12 pm	2	2	2	2	2	2	2	2	2	2
12 pm-1 pm	2	2	2	2	2	2	2	2	2	2
1 pm-2 pm	2	2	2	2	2	2	2	2	2	2
2 pm-3 pm	2	2	2	2	2	2	2	2	2	2
3 pm-4 pm	2	2	2	2	2	2	2	2	2	2
4 pm-5 pm	2	2	2	2	2	2	2	2	2	2
5 pm-6 pm	2	2	2	2	2	2	2	2	2	2
6 pm-7 pm	2	2	2	2	2	2	2	2	2	2
7 pm-8 pm	2	2	2	2	2	2	2	2	2	2
8 pm-9 pm	1	2	2	2	2	2	2	2	2	2
9 pm-10 pm	1	1	2	2	2	2	2	2	2	2
10 pm-11 pm	1	1	1	1	2	2	2	1	2	1
11 pm-12 am	1	1	1	1	1	1	1	1	1	1

Hour	Number of Lanes that Must Remain Open, OFF-SEASON (September 15 through May 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am	1	1	1	1	1	1	1	1	1	1
1 am-2 am	1	1	1	1	1	1	1	1	1	1
2 am-3 am	1	1	1	1	1	1	1	1	1	1
3 am-4 am	1	1	1	1	1	1	1	1	1	1
4 am-5 am	1	1	1	1	1	1	1	1	1	1
5 am-6 am	2	1	2	1	2	1	1	1	1	1
6 am-7 am	2	2	2	2	2	2	1	1	1	1
7 am-8 am	2	2	2	2	2	2	1	1	1	1
8 am-9 am	2	2	2	2	2	2	2	2	1	1
9 am-10 am	2	2	2	2	2	2	2	2	1	1
10 am-11 am	2	2	2	2	2	2	2	2	2	2
11 am-12 pm	2	2	2	2	2	2	2	2	2	2
12 pm-1 pm	2	2	2	2	2	2	2	2	2	2
1 pm-2 pm	2	2	2	2	2	2	2	2	2	2
2 pm-3 pm	2	2	2	2	2	2	2	2	2	2
3 pm-4 pm	2	2	2	2	2	2	2	2	2	2
4 pm-5 pm	2	2	2	2	2	2	2	2	2	2
5 pm-6 pm	2	2	2	2	2	2	2	2	2	2
6 pm-7 pm	2	2	2	2	2	2	2	2	2	2
7 pm-8 pm	2	2	2	2	2	2	2	2	2	2
8 pm-9 pm	1	2	1	2	2	2	2	1	2	2
9 pm-10 pm	1	1	1	2	2	2	1	1	2	2
10 pm-11 pm	1	1	1	1	1	1	1	1	1	1
11 pm-12 am	1	1	1	1	1	1	1	1	1	1

* Roadway between MP 72.4 to 74.0 not covered by Lane Closure Tables due to S. Mixing Bowl and Int. 8A ramps. See Table 1 in the Introduction

**NEW JERSEY TURNPIKE MAINLINE
SHOULDER CLOSURES: MP 67.6 TO 72.4***

* of lanes: Northbound Southbound (Number of lanes may vary within section)
3 3

Shoulder may not be closed during shaded hours below, excluding previously approved long-term work efforts. If no boxes are shaded, shoulder closures are permitted at all times (other than Holidays/Heavy Traffic Days or as dictated by the NJTA Operations Department).

Hour	SUMMER (May 15 through September 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am										
1 am-2 am										
2 am-3 am										
3 am-4 am										
4 am-5 am										
5 am-6 am										
6 am-7 am										
7 am-8 am	Shaded		Shaded		Shaded					
8 am-9 am	Shaded		Shaded		Shaded					
9 am-10 am										
10 am-11 am						Shaded		Shaded		
11 am-12 pm						Shaded		Shaded	Shaded	Shaded
12 pm-1 pm						Shaded		Shaded	Shaded	Shaded
1 pm-2 pm						Shaded		Shaded	Shaded	Shaded
2 pm-3 pm						Shaded		Shaded	Shaded	Shaded
3 pm-4 pm		Shaded	Shaded	Shaded	Shaded	Shaded		Shaded	Shaded	Shaded
4 pm-5 pm		Shaded	Shaded	Shaded	Shaded	Shaded		Shaded	Shaded	Shaded
5 pm-6 pm		Shaded	Shaded	Shaded	Shaded	Shaded		Shaded	Shaded	Shaded
6 pm-7 pm									Shaded	Shaded
7 pm-8 pm										
8 pm-9 pm										
9 pm-10 pm										
10 pm-11 pm										
11 pm-12 am										

Hour	OFF-SEASON (September 15 through May 14)									
	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am										
1 am-2 am										
2 am-3 am										
3 am-4 am										
4 am-5 am										
5 am-6 am										
6 am-7 am										
7 am-8 am	Shaded		Shaded		Shaded					
8 am-9 am	Shaded		Shaded		Shaded					
9 am-10 am										
10 am-11 am										
11 am-12 pm										
12 pm-1 pm										
1 pm-2 pm										
2 pm-3 pm							Shaded			
3 pm-4 pm							Shaded		Shaded	
4 pm-5 pm		Shaded					Shaded		Shaded	
5 pm-6 pm		Shaded					Shaded		Shaded	
6 pm-7 pm										
7 pm-8 pm										
8 pm-9 pm										
9 pm-10 pm										
10 pm-11 pm										
11 pm-12 am										

* Roadway between MP 72.4 to 74.0 not covered by Shoulder Closure Tables due to S. Mixing Bowl and Int. 8A ramps. See Table 1 in the Introduction

Revised June 2009

**NEW JERSEY TURNPIKE INNER ROADWAY
SHOULDER CLOSURES: MP 74.0 TO 83.4 NB/83.8 SB***

of lanes: Northbound 3 Southbound 3 (Number of lanes may vary within section)

Shoulder may not be closed during shaded hours below, excluding previously approved long-term work efforts. If no boxes are shaded, shoulder closures are permitted at all times (other than Holidays/Heavy Traffic Days or as dictated by the NJTA Operations Department).

SUMMER (May 15 through September 14)										
Hour	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am										
1 am-2 am										
2 am-3 am										
3 am-4 am										
4 am-5 am										
5 am-6 am										
6 am-7 am										
7 am-8 am										
8 am-9 am										
9 am-10 am										
10 am-11 am										
11 am-12 pm										
12 pm-1 pm										
1 pm-2 pm										
2 pm-3 pm										
3 pm-4 pm										
4 pm-5 pm										
5 pm-6 pm										
6 pm-7 pm										
7 pm-8 pm										
8 pm-9 pm										
9 pm-10 pm										
10 pm-11 pm										
11 pm-12 am										

OFF-SEASON (September 15 through May 14)										
Hour	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am										
1 am-2 am										
2 am-3 am										
3 am-4 am										
4 am-5 am										
5 am-6 am										
6 am-7 am										
7 am-8 am										
8 am-9 am										
9 am-10 am										
10 am-11 am										
11 am-12 pm										
12 pm-1 pm										
1 pm-2 pm										
2 pm-3 pm										
3 pm-4 pm										
4 pm-5 pm										
5 pm-6 pm										
6 pm-7 pm										
7 pm-8 pm										
8 pm-9 pm										
9 pm-10 pm										
10 pm-11 pm										
11 pm-12 am										

* Roadway between MP 72.4 to 74.0 not covered by Shoulder Closure Tables due to S. Mixing Bowl and Int. 8A ramps. See Table 1 in the Introduction

NEW JERSEY TURNPIKE OUTER ROADWAY SHOULDER CLOSURES: MP 74.0 TO 83.4 NB/83.6 SB*										
		# of lanes:		Northbound	Southbound	(Number of lanes may vary within section)				
				2	2					
Shoulder may not be closed during shaded hours below, excluding previously approved long-term work efforts. If no boxes are shaded, shoulder closures are permitted at all times (other than Holidays/Heavy Traffic Days or as dictated by the NJTA Operations Department).										
SUMMER (May 15 through September 14)										
Hour	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am										
1 am-2 am										
2 am-3 am										
3 am-4 am										
4 am-5 am										
5 am-6 am										
6 am-7 am										
7 am-8 am	Shaded		Shaded		Shaded					
8 am-9 am	Shaded		Shaded		Shaded					
9 am-10 am			Shaded							
10 am-11 am										
11 am-12 pm										
12 pm-1 pm										
1 pm-2 pm										
2 pm-3 pm							Shaded			
3 pm-4 pm				Shaded	Shaded	Shaded				
4 pm-5 pm				Shaded	Shaded	Shaded				
5 pm-6 pm				Shaded	Shaded	Shaded				
6 pm-7 pm										
7 pm-8 pm										
8 pm-9 pm										
9 pm-10 pm										
10 pm-11 pm										
11 pm-12 am										
OFF-SEASON (September 15 through May 14)										
Hour	Monday - Wednesday		Thursday		Friday		Saturday		Sunday	
	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
12 am-1 am										
1 am-2 am										
2 am-3 am										
3 am-4 am										
4 am-5 am										
5 am-6 am										
6 am-7 am										
7 am-8 am	Shaded		Shaded		Shaded					
8 am-9 am	Shaded		Shaded		Shaded					
9 am-10 am										
10 am-11 am										
11 am-12 pm										
12 pm-1 pm										
1 pm-2 pm										
2 pm-3 pm										
3 pm-4 pm							Shaded			
4 pm-5 pm							Shaded			
5 pm-6 pm										
6 pm-7 pm										
7 pm-8 pm										
8 pm-9 pm										
9 pm-10 pm										
10 pm-11 pm										
11 pm-12 am										

* Roadway between MP 72.4 to 74.0 not covered by Shoulder Closure Tables due to S. Mixing Bowl and Int. SA ramps. See Table 1 in the Introduction

APPENDIX X – NEW JERSEY TURNPIKE AUTHORITY REQUIREMENTS FOR SMALL BUSINESS ENTERPRISE SUBCONTRACTORS’ AND SET-ASIDE PROGRAM FOR CONSTRUCTION CONTRACTS

The following pages will provide Bidders with information about the New Jersey Turnpike Authority (the “Authority”) Small Business Enterprise (“SBE”) Program requirements for non-federally funded construction contracts and subcontracts. Clarification of the SBE specifications along with assistance in completing the required forms can be obtained by calling Teresa M. Hale at the Authority’s Office of Equal Employment Opportunity (hereinafter “Office of EEO”) at (732) 750-5300 (ext. 8732) Prospective Bidders will also have an opportunity to ask questions regarding the directives contained in the SBE specifications at the pre-bid conference(s).

CONTRACT CLAUSE

It is the policy of the Authority that SBEs, as determined and defined by the State of New Jersey, Department of Treasury, Division of Minority and Women Business Development (“Division”) in N.J.A.C. 17:14-1.1 et seq., have the opportunity to compete for and participate in the performance of contracts and subcontracts for construction services. The Authority further requires that its contractors shall agree to take all necessary and responsible steps, in accordance with the aforementioned regulations, to ensure that SBEs have these opportunities.

This language is included to ensure that all persons who enter into any form of contractual agreement with the Authority are aware of their responsibilities and the commitment of the Authority to see that its SBE Policy is carried out in all instances.

EXPLANATORY NOTE

The following information is provided by the New Jersey Turnpike Authority (the “Authority”) to prospective bidders in an effort to promote and encourage participation in its “Small Business Enterprise Program” (“Program”) for small businesses registered with the State of New Jersey, Department of Treasury, Division of Minority and Women Business Development (Division) as a Small Business Enterprises (“SBE”). The information provided below is not a complete reproduction of the regulations governing SBE registration and participation. Accordingly, to the extent that any of the information contained below conflicts with the applicable regulations, the regulations shall govern. Interested parties are encouraged to obtain a complete copy of the applicable regulations 17:13-1.1 et seq. and N.J.A.C. 17:14-1.1 et seq.) prior to registering with the Commerce Commission and submitting bids to the Authority.

I. Standards Of Eligibility For Small Business Enterprises

See N.J.A.C. 17:13-2.1 and 17:14-2.1

- A. In order to be eligible as a small business, a business must satisfy all of the following criteria:
 - 1. The business must be independently owned and operated, as evidenced by its management being responsible for both its daily and long term

operation, and its management owning at least 51 percent interest in the business.

2. The business must be incorporated or registered to do business in the State and have its principal place of business in New Jersey, defined as such when either 51 percent or more of its employees work in New Jersey, as evidenced by the payment of New Jersey unemployment taxes or 51 percent or more of its business activities take place in New Jersey, as evidenced by its payment of income or business taxes.
3. The business must be a sole proprietorship, partnership, corporation or limited liability company with 100 or fewer employees in full-time positions, not including:
 - a. Seasonal and part-time employees employed for less than 90 days, if seasonal and casual part-time employment are common to that industry; and
 - b. Consultants employed under the other contracts not related to the construction and construction-related services that are under the subject of the specific contract for which the business wants to be eligible as a small business.
4. For goods and services contracts, the business must have gross revenues that do not exceed \$12 million.
5. For construction contracts, the business must have gross revenues that do not exceed \$1 million or the applicable annual revenue standards set forth in 13 CFR 121.201, whichever is higher.
6. Gross revenues of a business which has been in business for 3 or more complete tax years means the revenues of the business over its last 3 completed tax years divided by three.
7. Gross revenues of a business which has been in business for less than 3 complete tax years means the revenue for the period the business has been in business divided by the number of weeks in business, multiplied by 52.
8. Gross revenues of a business which has been in business 3 or more complete tax years but has a short year as one of those years means the revenues for the short year and the two full years divided by the number of weeks in the short year and the two full years, multiplied by 52.
9. Eligibility is formalized by the Division's registration and approval process.
10. For goods and services contracts, small businesses will be registered in one of the following three categories:
 - a. SBE 1 – Small businesses whose gross revenues do not exceed \$500,000; or
 - b. SBE 2 – Small businesses whose gross revenues do not exceed \$5,000,000; or
 - c. SBE 3 -- Small businesses whose gross revenues do not exceed \$12,000,000 or the applicable federal revenue standards at 13 CFR 121.201, whichever higher. Depending on the code, this can reach \$33,000,000.

Small businesses registered in the category SBE 1 will be eligible to participate in the set-aside contracts and subcontracting programs available to businesses registered in the categories in SBE 1, 2 and 3. Small businesses registered in category SBE 2 will be eligible to

participate in the set-aside contracts and subcontracting programs available to businesses registered in the category SBE 2 and 3. Small businesses registered in the category SBE 3 will be eligible to participate in the set-aside contracts and subcontracting programs available to businesses registered in the category SBE 3 only.

11. For construction contracts, small businesses will be registered in one of the following two categories:
 - a. SBE 4 – Small businesses whose gross revenues do not exceed \$1 million; or
 - b. SBE 5 – Small businesses whose gross revenues do not exceed 50% of the applicable annual revenue standards set forth in federal regulation at 13 CFR 121.201 and as may be adjusted periodically (\$3M + to \$16.75M).
 - c. SBE 6 Small Businesses with gross revenues that do not exceed the applicable annual revenue standards set forth in federal regulation at 13 CFR 121.201 as may be adjusted periodically (16.75+M to \$33.5M).

Small businesses registered in the category SBE 4 will be eligible to participate in the set-aside contracts and subcontracting programs available to businesses registered in the categories in SBE 4 and 5. Small businesses registered in category SBE 5 will be eligible to participate in the set-aside contracts and subcontracting programs available to businesses registered in the category SBE 5 only.

II. Obligation To Provide Information And Penalties For Failure To Provide Complete And Accurate Information

See N.J.A.C. 17:13-2.2 and 17:14-2.2

- A. Applicants shall accurately and honestly supply all information required by the Division.
- B. When a business has been approved as an eligible small business on the basis of false information knowingly supplied by the business and the business has been awarded an Authority good and services or construction contract or subcontract, the Director, Division of Minority and Women Business Development, after notice and opportunity for a contested case hearing pursuant to N.J.S.A. 52:14B-10 and N.J.A.C. 1:1, may:
 1. Assess the business any difference between the contract amount and what the Authority's cost would have been if the contract had not been awarded pursuant to the Program;
 2. Assess the business a penalty in the amount of not more than 10 percent (10%) of the amount of the contract or subcontract involved; and
 3. Order the business ineligible to transact any business with a State contracting agency for a period of not less than three months and not more than 24 months.
- C. Any business approved by the Division as a small business shall immediately apprise the Division of any circumstances which might affect the eligibility of the business under these rules.
- D. The failure of a business to report any such changed circumstances, or the intentional reporting of false information, shall disqualify the business for

inclusion on any vendors list and may subject the business to adverse action by contracting agencies and/or the Attorney General.

III. Registration Procedures For Small Business Enterprise

See N.J.A.C. 17:13-3.1 and 17:14-3.1

- A. Registration procedures established by the Division are as follows:
1. Any business which seeks to register as a small business enterprise must apply to the Division and pay any applicable fees. A Vendor Registration Form must be completed and forwarded to the Division for review and approval. This form shall be available from the and the Division. SBEs may be registered in a category for goods and services and/or construction contracts.
 2. As part of its application to the Division, a business shall reasonably document its principal place of business, independent status, number of employees, and its gross revenues. Where available, this document should include appropriate forms or reports otherwise submitted to or issued by State and Federal agencies, such as employee reports filed with the New Jersey Department of Labor or certificates of incorporation issued by the New Jersey Department of Treasury.
 3. If an applicant fails to complete fully the Vendor Registration Form, registration may be delayed or denied.
 4. When an application for registration as a small business enterprise is approved by the Division, the Division will issue the newly registered business an approval notice and add it to the Division's small vendor list.
 5. If an applicant knowingly supplies incomplete or inaccurate information, the applicant shall be disqualified and may be subject to other penalties described in N.J.A.C. 12A:10-2.2 and 12A:10A-2.2.

IV. Time For Application To Register As A Small Business Enterprise

See N.J.A.C. 17:13-3.2 and 17:14-3.2

- A. A business may apply to the Division at any time to be registered as a small business enterprise and to be placed on the appropriate vendor list(s).
- B. If a business is to be eligible to bid on a specific set-aside contract or participate in the subcontracting target programs for purposes of these requirements, it must be registered as a small business by the Division on the date the bid or bid proposal is received and opened by the Authority.

V. Responsive Bid Criteria

- A. The Authority requires that SBE Forms A, B, C and D, as applicable, be submitted within seven (7) days after Notice of Award. However, the Authority may extend the deadline for this requirement at its sole discretion.
- B. **FAILURE TO TIMELY AND SATISFACTORILY COMPLETE THE SBE FORMS OR, IF THE GOAL IS NOT MET, TO SHOW GOOD FAITH EFFORTS TO MEET THE GOAL, SHALL RESULT IN A DETERMINATION BY THE AUTHORITY THAT THE BIDDER IS NON-RESPONSIVE AND SHALL CAUSE REJECTION OF THE BID.**
- C. If the low Bidder submits the SBE forms within the requested time frame, but fails to meet the SBE goal, the Office of EEO, in conjunction with the Department

of Engineering will evaluate the efforts made by the Bidder to determine whether a demonstration of Good Faith Efforts has been made.

- D. Criteria used to evaluate the efforts made to obtain SBE participation are outlined in Article VI, Good Faith Efforts of Bidders Requirements.

VI. Good Faith Efforts Of Bidders Requirements

See N.J.A.C. 17:13-4.3 and 17:14-4.3

- A. The following actions shall be taken by a bidder in establishing a good faith effort to solicit and award subcontracts to eligible small businesses:
1. The bidder shall attempt to locate qualified potential small business subcontractors:
 2. The bidder shall request a listing of small businesses from the Division and the Authority if none are known to the bidder:
 3. The bidder shall keep a record of its efforts, including the names of businesses contacted and the means and results of contact:
 4. The bidder shall attempt to contact all potential subcontractors on or about the same day and use similar methods to contact them:
 5. The bidder shall provide all potential subcontractors with detailed information regarding the specifications; and
 6. The bidder shall attempt, wherever possible, to negotiate prices with potential subcontractors which submitted higher than acceptable price quotes.
 7. Bidders shall maintain adequate records to document their efforts.

VII. Counting SBE Participation

- A. Once a firm is determined to be an eligible SBE by the Division, the total dollar value of the contract awarded to the SBE shall be counted toward the applicable goal as follows:
1. The Authority will count towards its SBE goal only awards to SBEs that perform a commercially useful function in the work of a contract. This means that a SBE must be responsible for a distinct element of the work by actually performing, managing, and supervising the work involved. A SBE may, of course, enter into subcontracts. The subcontract values may be counted toward the SBE goal. However, if a SBE subcontracts a significantly greater portion of the work than is usual according to industry practices, it is presumed the SBE is not performing a commercially useful function and, therefore, the value of the SBE subcontract and its subcontracts will not be counted. The SBE may present evidence to the Authority to rebut this presumption.
 2. No work shall be included in the SBE Participation Schedule if the Bidder has reasonable cause to believe the listed SBE firm will subcontract, at any tier, more than 49% to a non-SBE firm.
 3. For construction contracts awarded under this program, 100% of the total contract amount will count toward the SBE Goal.
 4. For contracts with SBE suppliers of goods and services, 100% of total contract amount will count toward the SBE goal.
 5. Awards to SBE suppliers that are not manufacturers or regular dealers will be counted toward the goal on the following basis:

- a. Fees or commission charged will be counted toward the goal for providing a bona fide service, such as professional, technical, consultant or managerial services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for performance of the contract.
 - b. If a SBE delivers equipment, materials and supplies required on a job site, the delivery fee charged may be counted toward the goal. Where such fees are a part of the SBE subcontract amount on a construction job, they have already been applied to the goal and cannot be further counted.
 - c. Fees or commissions charged for providing any bonds or insurance specifically required for the performance of the contract may be counted toward the goal, providing the aforementioned fees or commissions are determined by the Authority to be reasonable and not excessive as compared with fees customarily allowed for similar services.
6. Awards in subcontracts with businesses that are joint ventures will be counted on the basis of percentage ownership of the eligible SBE in the joint venture.

VIII. Bid Requirements

Pre-Bid Instructions:

1. The listing of a SBE firm by a Bidder on its SBE Participation Schedule (Form A) shall constitute a representation by the Bidder to the Authority that such SBE firm is qualified and not unavailable, and a commitment by the Bidder that, if it is awarded the contract, it will enter into a subcontract with such SBE firm for the portion of the work described in the SBE Participation Schedule and at the price set forth in its Bid. NO SUBSTITUTIONS OF SBE FIRMS DESIGNATED IN THE BIDDER'S SBE PARTICIPATION SCHEDULE MAY BE EFFECTED WITHOUT THE AUTHORITY'S PRIOR WRITTEN APPROVAL. A SBE Bidder which lists itself on the SBE Participation Schedule is committed to performing the work indicated with its own personnel.
2. Agreements between a Bidder and SBE in which SBE promises not to provide subcontracting quotations to other Bidders are prohibited.
3. Price alone shall not be an acceptable basis for rejecting a SBE subcontractor's bid, unless the contractor evidences to the Authority's satisfaction that no reasonable price could be obtained from the SBE.
4. A Directory of Small Business Enterprises is available in the Authority's Office of EEO upon request. Use of this listing does not relieve the Bidder of its responsibility to seek SBE participation from other sources.

Post Award Obligations:

1. After the execution of a contract with the Authority, signed copies of subcontracts between the prime contractor and SBE subcontractors must be submitted to the Authority's Office of EEO no later than 14 business days after the subcontract execution. The Prime Contract recipient shall inform the Authority of the anticipated job start date for all SBE subcontractors prior to the start of same.
2. The agreement between the prime contractor and subcontractor shall remain firm for the duration of the contract. Should changes that affect

- the SBEs performance and/or compensation be required, the Authority's Office of EEO, in conjunction with the Department of Engineering, must be notified for its review and approval of the changes prior to their implementation.
3. Whenever the Authority issues project change orders, the Engineering Department, after consultation with the Office of EEO, will determine if increased SBE participation will be required.
 4. If at any time the contractor believes or has reason to believe that a proposed SBE has become unavailable or, due to change in ownership or management responsibility, does not meet the standards set forth in Article 2, the contractor shall, within 10 days, notify the Authority of that fact in writing. Within 15 days thereafter, the contractor shall, if necessary to achieve the stated goal, make every reasonable effort to subcontract the same or other work to other SBE firms. The contractor's efforts to replace an unavailable SBE firm shall be coordinated with the Authority's Office of EEO.
 5. Should a SBE become ineligible during the course of this contract, effective as of the date of ineligibility, further contractual dollars expended with the SBE shall not be counted toward the SBE goal. Within 15 days after notification by the Authority to the contractor of the ineligible SBE, the contractor will make every reasonable effort to satisfy the SBE goal. The contractor's effort to continue to meet the SBE goal shall be coordinated with the Authority's Office of EEO.
 6. Within 15 days of a contract award, a SBE Liaison Officer must be designated by the Prime Contractor. The liaison officer will be responsible for cooperating with the Authority regarding SBE subcontractor matters and will work with the office of EEO as necessary.
 7. To ensure that all obligations under subcontracts awarded to SBEs are met, the Authority shall review the Prime Contractor's SBE involvement efforts during the performance of the contract. The Contractor shall monitor the performance of and collect and report data on SBE participation to the Compliance Officer of the Office of EEO. The Contractor shall report the SBE status on the attached Form E (Contractor's Monthly SBE Report) and submit it monthly to the Office of EEO. The Contractor must submit invoices or estimates to the Authority. SBEs must submit the appropriate forms on a monthly basis to the Office of EEO. The form will be reviewed to determine contract compliance with respect to the SBE goal. Failure to submit this report may result in suspension of payments as provided in Section D, "Audit and Penalties" below. If, at any time, the Authority has reason to believe that any person or firm has willfully and knowingly provided incorrect information or made false statements, it shall refer the matter to the Attorney General of the State of New Jersey.
 8. The Contractor agrees to pay each subcontractor and supplier under this contract for satisfactory performance of its contract no later than ten (10) days from the receipt of each payment the Contractor receives from the Authority.
 9. In accordance with N.J.S.A. 52:32-40 and 52:32-41, the Contractor shall certify, prior to the issuance of a progress payment by the Authority, that all subcontractors and suppliers have been paid any amounts due from previous progress payments and shall be paid any amounts from the current progress payment. Alternatively, the Contractor shall certify that

there exists a valid basis under the terms of the subcontractors or supplier's contract to withhold payment from the subcontractor or supplier and therefore payment is withheld.

10. If the Contractor withholds payment from the subcontractor or supplier, the Contractor shall provide to the subcontractor or supplier written notice thereof. The notice shall detail the reason for withholding payment and state the amount of payment withheld. If a Performance/Payment Bond has been provided under this contract, the Contractor shall send a copy of the notice to the Surety providing the bond for the Contractor. A copy of the notice shall also be submitted to the Authority with the certification that payments are being withheld.

Substitution of SBE's

Except as provided herein, the successful Bidder shall not have the work performed, or the materials or supplies furnished, by any other SBE firm other than those named in the "Schedule of SBE Participation". However, if the Authority finds that the Bidder upon submission of its bid, committed itself to the goal in good faith, the Bidder may, in unusual situations, be permitted to substitute a subcontractor(s). A request for substitution must be in writing, with complete justification for the request. Whether the Contractor (or Bidder) seeks to make a substitution prior to award or during performance, the Contractor must have approval of the Authority before substitution of the SBE subcontractor, regardless of the reason for the substitution. Failure to obtain approval from the Authority could result in the Prime Contractor being found to be in "noncompliance" with the requirements of the contract. The term "unusual situations" includes, but is not limited to, a SBE subcontractor's or SBE joint venture partner's:

1. Failure to qualify as a SBE, or maintain SBE registration status.
2. Death or physical disability, if the named subcontractor or SBE partner of the joint venture is an individual.
3. Dissolution, if a corporation or partnership.
4. Bankruptcy of the subcontractor, subject to applicable bankruptcy laws, and only in instances where the bankruptcy affects the subcontractor's ability to perform.
5. Inability to obtain, or loss of, a license necessary for the performance of the particular category of work.
6. Failure or inability to comply with a requirement of law applicable to the subcontract work.
7. Material failure to comply with the terms and conditions of the subcontract.
8. Material failure to successfully perform the subcontract tasks.

D. Audit and Penalties

The Prime Contractor is advised that failure to carry out the requirements of these specifications shall constitute a breach of contract and may result in termination of the contract by the Authority, or such remedy as the Authority deems appropriate. During the performance of the contract, and for a period of up to three (3) years following completion of the contract work, the Authority

may conduct reviews for compliance with the requirements of the SBE Program. Such reviews may include the evaluation of monthly reports, desk audits and site visitations. Where a Prime Contractor, or any subcontractor, is found to be in noncompliance with the requirements of the SBE Program during the performance of the contract, it will be required to take corrective action. If corrective action is not promptly taken by the offending contractor, the following sanctions may be instituted (singularly, in any combination and in addition to any other remedies provided by law):

1. The Authority may withhold further payments under the contract.
2. The contract may be terminated for breach.
3. Suspension or debarment proceedings may be commenced in accordance with New Jersey law and the Authority regulations.
4. The relevant performance bond(s), if any, may be enforced.

IX. The Authority Program: Bid/Proposal Submittals

A. The Authority SBE Form A: Schedule of SBE Participation:

- List all SBE firms scheduled to participate in the contract, including scope of work to be performed and the dollar value of their anticipated participation. Additionally, the name of the Contractor's SBE liaison officer should be included on this form.
- Upon execution of a contract with the Authority the prime contractor must enter into a formal agreement with the SBE(s) listed on Form A. There can be no substitution of the SBE(s) listed on Form A without the prior written approval of the Authority. If, for any reason Form A is not completed, then the bidder must complete and provide Form D (see below).

B. The Authority SBE Form B: Intent to Perform as a Subcontractor: (If Applicable:)

- For each SBE owned firm listed on Form A, Bidder shall include a complete and signed Form B. This form B is not required for set aside contract awards.

C. The Authority SBE Program Form C: Affidavit of SBE:

- Each SBE firm to be utilized must sign Form C attesting to its validity as a SBE.

D. The Authority SBE Program Form D: Documentation of Good Faith Effort SBE Firms Unavailability Certification (If Applicable):

- If a Bidder is unable to identify SBE(s) as required to meet the targeted goal set for this Contract, Bidder shall complete and attach this form which documents the Bidder's Good Faith Efforts to do so.

E. The Authority SBE Program Form E: Contractor's Monthly SBE Payment Report:

- This is the payment report that must be completed on a monthly basis by the successful Bidder.

F. The Authority SBE Program Form E2: Subcontractor's Monthly SBE Payment Report:

- This form verifies payment to the SBE subcontractors, Form E2 is to be given to each SBE subcontractor by the Prime Contractor. The SBE firm is required to submit this form to the Authority Office of EEO directly or through the Contractor on a monthly basis.

X. Definitions

See N.J.A.C. 17:13-1.2 and 17:14-1.2, as the case may be.

-
- A. **"Construction Contract"** means any contract to which the Authority is a party involving any construction, renovation, reconstruction, rehabilitation, alteration, conversion, extension, demolition, repair or other changes or improvements of any kind whatsoever of any structure, facility or highway. The term also includes contracts for consultant services, the supervision, inspection and other functions incidental to actual construction.
- B. **"Consultant"** means an architect, engineer, construction manager, or other provider of technical and professional services in support of a design or construction or highway project.
- C. **"Contractor or Prime Contractor"** means any party performing or offering to perform a construction contract or consultant contract, or any party providing materials or goods used to perform a construction contract issued by the Authority.
- D. **"Goal"** means the statutorily determined percentage of contracts awarded by the Authority to eligible small businesses in order to comply with the small business provisions of the Set-Aside Act.
- E. **"Registration"** means the process by which any business can have its eligibility for participation in the Division's small business programs determined.
- F. **"Secretary"** means the Chief Executive Officer and Secretary of the Division or his or her designee.
- G. **"Set-Aside Contract"** means a contract specifically designated by the Authority as exclusively available for award to an eligible small business.
- H. **"Small Business"**, for purposes of registering as a **goods and services contractor** means a business which has its principal place of business in the State, is independently owned and operated, has no more than 100 full-time employees, and has gross revenues that do not exceed \$12 million.
- I. **"Small Business"**, for purposes of registering as a **construction contractor**, means a business which has its principal place of business in the State, is independently owned and operated, has no more than 100 full-time employees, and has gross revenues that do not exceed either \$1 million or the applicable annual revenue standards set forth in 13 CFR 121.201, whichever is higher.
- J. **"State Contracting Agency"** means any board, commission, committee, authority or agency of the State which possesses the legal authority to award and make construction contracts except where expressly inconsistent with statutory authority.
- K. **"Subcontractor"** means a third party that is engaged by a contractor to perform all or part of the work or to provide supplies, materials or equipment included in a construction-related contract with the Authority.
- L. **"Target"** means the numerical objective which the Authority establishes, on a contract by contract basis, in order to meet its small business goal. **Subcontracting goals are not applicable if the prime contractor is a registered Small Business Enterprise (SBE) firm.**

NEW JERSEY TURNPIKE AUTHORITY
 SMALL BUSINESS ENTERPRISES
 FORM A*

PROPOSED SCHEDULE OF SMALL BUSINESS ENTERPRISE PARTICIPATION ("SBE PARTICIPATION SCHEDULE")

Contract Number: _____ Project Title: _____

SBE 1 GOAL% _____ SBE 2 GOAL% _____ SBE 3 GOAL% _____ SBE 4 GOAL% _____ SBE 5 GOAL% _____ SBE 6 GOAL% _____

NAME AND ADDRESS OF SBE 1, 2, 3, 4 and/or 5, 6 SUBCONTRACTOR	S	S	S	S	S	S		**	**	TYPE OF WORK TO BE PERFORMED	DOLLAR AMOUNT OF SUBCONTRACTOR WORK***	SUB- CONTRACT %
	B	B	B	B	B	B		M	W			
	E	E	E	E	E	E		B	B			
	1	2	3	4	5	6		E	E			

The undersigned will enter into a formal agreement with the SBE(s) listed in this schedule conditioned upon execution of a contract with the Authority for the above referenced project.

Authorized Signature: _____ Name of Company: _____

Print Name: _____ Title _____ Prime Contractor's Liaison Officer: _____

Company Phone # _____ Company Address: _____

This form MUST be completed and submitted within seven (7) days after Notice of Award.

SBE Prime Contractors need only to complete this form for their firm.

* In the event Form A cannot be completed, or if the percentage of the goal for the contract is not met, Form D must be completed.

** The provision of this information is voluntary and will not be considered in determining the successful bid or in calculating SBE participation.

*** Eliminate Price in Professional Service Contracts Only.

NEW JERSEY TURNPIKE AUTHORITY
SMALL BUSINESS ENTERPRISE
FORM B
INTENT TO PERFORM AS A SUBCONTRACTOR

TO: _____ CONTRACT NUMBER: _____
(Name of Prime Contractor)

PROJECT TITLE: _____

The undersigned intends to perform subcontract work in connection with the above-mentioned project as
(Check One):

Individual Corporation Partnership Joint Venture L.L.C. Other

The SBE Category status of the undersigned is confirmed on the attached Affidavit of Small Business Enterprise
(NJTA SBE Form C).

The undersigned is prepared to perform the following described work in connection with the above-referenced
project:

and at the following price: _____

NOTE: Eliminate Price on Professional Service Contracts Only.

The Prime Contractor has projected the following commencement date for such work, and the undersigned
projects completion of such work as follows:

_____ Project Commencement Date _____ Projected Completion Date

With respect to the proposed subcontract described above, ____% of the dollar value of such subcontract will be
subcontracted and/or awarded to Non-SBE Contractors and/or Non-SBE Suppliers.

The undersigned will enter into a formal agreement for the above work with the Prime Contractor conditioned
upon execution of a contract with the Authority. As a SBE Sub-Contractor, I will cooperate with the certification
and monitoring process set forth by the Authority for the referenced project.

Signature of SBE Date

Name of SBE Firm

Type Name

Address

Type Title

Telephone Number

NEW JERSEY TURNPIKE AUTHORITY
SMALL BUSINESS ENTERPRISE PROGRAM
FORM C
AFFIDAVIT OF SMALL BUSINESS ENTERPRISE

Contract Number: _____

Project Title: _____

I HEREBY DECLARE AND AFFIRM that I am the (title) _____

and duly authorized representative of the firm of _____

located in the STATE OF _____ and COUNTY OF _____

Bidder acknowledges and affirms that he/she is registered and approved in good standing with the State of New Jersey, Department of the Treasury, Division of Minority & Women Business Development ("Division") as a Small Business Enterprise ("SBE") and has been placed on the Division's small vendor list. This status must be achieved on or before the date the bids are received and opened.

PLEASE ATTACH A COPY OF YOUR SBE REGISTRATION CERTIFICATE.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THE FOREGOING DOCUMENT ARE TRUE AND CORRECT, AND THAT I AM AUTHORIZED, ON BEHALF OF THE ABOVE FIRM, TO MAKE THIS AFFIDAVIT.

Date

Affiant

Address

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20____, before me, _____, the person described in the foregoing Affidavit acknowledged that he/she executed the same in the capacity therein stated and for the purposes therein contained.

In Witness thereof, I hereunto set my official seal

Notary Public

(Seal)

My Commission Expires _____

NEW JERSEY TURNPIKE AUTHORITY
SMALL BUSINESS ENTERPRISE PROGRAM
FORM D
SBE UNAVAILABILITY CERTIFICATION

Contract Number:

Project Title:

I, Name:

Title:

of

located in the STATE OF

Prime Contractor:

Certify that on _____, I contacted the following SBE(s) to obtain a Bid for work items to be performed on the Project named above.

SBE: List By Firm Name, SBE Category No. & SBE Registration No. Of Each SBE Contacted Together With The Type Of Work Requested To Be Performed (attach additional pages as necessary)

Firm Name	SBE Category No.	SBE Registration No.	Type Of Work

To the best of knowledge and belief, each SBE identified in this Form was unavailable for work on this project, exclusive of unavailability due to lack of agreement on price, and each SBE was unable to prepare a bid for the following reason(s) (if known):

Reason Unavailable:

Signature of Prime Contractor:

Date: _____

This form MUST be completed and submitted within seven (7) days after Notice of Award.

On this _____ day of _____, 20____, before me _____

_____, the person described in the foregoing Affidavit acknowledged that he/she executed the same in the capacity therein stated and for the purposes therein contained.

In Witness thereof, I hereunto set my official seal

Notary Public

(Seal)

My Commission Expires _____

APPENDIX Y - TRAFFIC PERMIT APPLICATION

NEW JERSEY TURNPIKE TRAFFIC PERMIT APPLICATION				
<i>To be filed with the Office of the Traffic Engineer 10 days prior to start of work</i>				
ALL INFORMATION SHOULD BE SUPPLIED AND UPDATED AS NEW INFORMATION BECOMES AVAILABLE				
				SUBMITTAL DATE
CONTRACT NO.				ORIGINAL <input type="checkbox"/>
				REVISED <input type="checkbox"/>
CONTRACT TITLE				
CONTRACTOR NAME & ADDRESS			PHONE #	
			FAX #	
CONTRACTOR FIELD OFFICE LOCATION AND MAILING ADDRESS			PHONE #	
			FAX #	
EMERGENCY CONTACTS				
NAME/TITLE	HOME PHONE #	PAGER #	CELLULAR #	
NAME /TITLE	HOME PHONE #	PAGER #	CELLULAR #	
NAME/TITLE	HOME PHONE #	PAGER #	CELLULAR #	
Start Date		Completion Date		
PROJECT ENGINEER ADDRESS			PHONE#	PROJECT FUND #
				PROJECT CODE #
RESIDENT ENGINEER	HOME PHONE #	PAGER #	CELLULAR #	
INSPECTOR	HOME PHONE #	PAGER #	CELLULAR #	
INSPECTOR	HOME PHONE #	PAGER #	CELLULAR #	
TURNPIKE LIAISON	HOME PHONE #	PAGER #	CELLULAR #	
LOCATION				
NATURE OF WORK				
PROGRESS SCHEDULE (ATTACH APPROVED PROGRESS SCHEDULE, IF AVAILABLE)				

TO BE SUPPLIED BY THE ENGINEER

APPENDIX Z – COLONIAL PIPELINE COMPANY ENCROACHMENT AGREEMENT

Colonial Pipeline Company *Encroachment Agreement*

Colonial Pipeline Company

Encroachment No.: I303/58/ – 1303/76 - 10

Date: 11/17/10

Encroaching Party: New Jersey Turnpike Authority

Encroachment Agreement – CPC Loc. 1303, Tract No. 58, Map 5NJ022, Line No. 03, Station No. 2158+73 and County, Burlington through CPC Loc. 1303, Tract No. 76, Map 5NJ036, Line No. 03, Station No.3683+79 and County, Middlesex

The New Jersey Turnpike Authority and their contractors and consultants (collectively referred to as the "Encroaching Party") will be engaging in its Interchange 6 to 9 Widening Program (the "Program"), specifically including the addition of a three lane outer roadway north and a three lane outer roadway south between Interchanges 6 and 8A, the addition of the third lane to the outer roadways between Interchanges 8A and 9, and necessary improvements to and modifications of certain interchanges. Colonial Pipeline Company ("Colonial") presents no objection to your proposed construction work in support of the Program encroaching upon Colonial's thirty-inch (30") petroleum products pipeline(s), as approved by Colonial's field representative, subject to the following conditions:

- I. The Encroaching Party shall notify State utilities protection center, in accordance with local, State and Federal laws. Colonial will not inspect or approve any work, until a locate ticket has been issued. The Encroaching Party shall notify the following Colonial Representative (**Representative noted by location below**) by phone at least two (2) working days prior to any construction, subsequent maintenance, or repair, so that Colonial may provide a representative on the site. If he cannot be reached, then notify Timothy Gross, phone (404) 274-6497.

Rob Anderson (Sections 1 and 2)
(Cell) 609 238 9133
(Office) 856 478 0195

OR

Todd Rutledge (Sections 3 thru 8)
(Cell) 609 658 8509

2. No excavation or construction is permitted over Colonial's pipeline(s) or within Colonial's pipeline easement without a Colonial Representative being present. The location of the pipeline(s) shall be identified prior to the beginning of any mechanical excavation work. If the location of the pipeline(s) is not known, only hand excavation will be allowed. Based on

Rev. 02.13.08

circumstances at the encroachment site, Colonial's Representative has the authority to determine the extent of hand excavation required. However, absent special permission from Colonial's Representative, no mechanized ditching or excavation shall be allowed within five (5) feet of the extremities of the pipelines. **IN ANY EVENT, ALL EXCAVATION WITHIN TWO (2) FEET OF THE PIPELINE(S) MUST BE ACCOMPLISHED BY HAND.** Where hand excavation is required, the Encroaching Party must provide adequate manpower to perform that work. Subgrading, grading, and placement of fill over Colonial's pipeline(s) will require the approval of Colonial's field representative as to method and extent.

3. Full access must be maintained to Colonial's pipeline(s) at all times. Stockpiling of fill, including spoil, or topsoil over the Colonial's pipeline(s), is not permitted, unless approved by the Colonial Representative.
4. Underground utilities (i.e. storm drains, water lines, telephone, electric, etc.) may cross the easement, providing they maintain a minimum vertical clearance of two (2) feet over or under Colonial's pipeline(s), and cross at as near a perpendicular angle as practical. Septic drain fields and/or sewage drains used for percolation are not permissible inside the pipeline easement. All proposed utility crossings of Colonial's pipeline(s) and respective easements must be constructed of galvanized steel, ductile iron, reinforced concrete, or encased (concrete or steel) PVC / HDPE for the entire width of the pipeline easement being crossed. If the utility includes cathodic protection, the design must include the installation of a test lead on the newly-installed utility, as well as Colonial's pipeline(s).
5. Blasting within the immediate vicinity of Colonial's pipeline easement shall be conditionally allowed. The contractor, planning blasting within 200 feet (61 m) of a Colonial pipeline or when scaled distance values at the pipeline are less than 50, must give advance notification of proposed blasting and submit a completed blasting plan (Form 3005 – to be furnished by Colonial), to be approved by Colonial, prior to the commencement of any blasting operations. A Colonial Representative is required to be on site to observe all drilling, loading, and blasting operations. The contractor shall provide in-progress seismic readings and blasting reports as required in Colonial Standard ES-13-108 (to be furnished by Colonial). All blasting operations must meet the requirements of this standard as well as Occupational Health and Safety regulations contained in CFR Title 29, Part 1926, Subpart U – Blasting and Use of Explosives.
6. Any erosion control measures required for Encroaching Party's development including temporary diversion dikes, sediment traps, silt fences, gravel outlets, and emergency spillways that may influence or contribute to the degradation of Colonial's pipeline easement will require the approval of Colonial's Representative as to equipment and method. Under no circumstances shall water be impounded on the pipeline easement(s).
7. Upon request of the Encroaching Party, landowner or their agents, Colonial will determine the approximate location of its pipeline(s) and pipeline easement(s) limits in accordance with the New Jersey Damage Prevention Law. Colonial's Representative may determine that work in close proximity to the pipeline requires test pitting to determine the exact location of

the pipeline. Test pitting will be performed at Encroaching Party's expense. Colonial also cannot provide assurance that its permanent line markers are positioned directly over its pipeline(s).

8. Construction equipment and/or materials are not allowed to cross Colonial's pipeline easement except in areas that have been approved by Colonial prior to the start of construction. Temporary equipment crossings must be clearly marked with highly visible plastic fence or other approved temporary barricade at Encroaching Party's expense. Original vegetation on Colonial's pipeline easement shall not be disturbed except in areas of approved construction and approved equipment crossings. Highly visible plastic fence or other approved temporary barricade will be required at contractor's expense along Colonial's pipeline easement boundaries if Colonial's Representative deems it necessary; to ensure that contractor traffic does not travel over Colonial pipeline(s).
9. Permanent structures are not permitted on Colonial's pipeline easement. Manholes, junction boxes, valve boxes, fire hydrants, service meters, storm drain inlets, and utility poles are considered permanent structures. Except for those locations previously agreed upon by Colonial and the Encroaching Party, no fences or temporary structures shall be allowed in Colonial's pipeline easement without the express approval of Colonial's Representative. Temporary structures include such items as signs, trailers, temporary power poles, etc.
10. Heavy equipment shall not be permitted to operate over Colonial's pipeline(s) unless earth padding has been provided to protect Colonial's pipeline(s) from vibrating. Temporary equipment crossings over Colonial's pipeline(s) are permitted with six (6) vertical feet of cover over the pipeline(s) at selected locations as approved by Colonial's Representative. Depth of pipe as determined by test holes will determine amount of temporary fill required. Colored sheets of plastic shall be placed under the temporary fill at original grade so that original grade will not be disturbed when temporary fill is removed. No equipment or vehicles may be parked on Colonial's pipeline easement. No material may be stored on Colonial's pipeline easement.
11. The Encroaching Party acknowledges that Colonial's pipeline(s) have impressed electrical current for the protection of the steel. Only Colonial personnel will correct any loss of this protection caused by the Encroaching Party. The cost to correct this damage will be paid by the Encroaching Party.
12. No pipeline marker shall be obscured from public view.
13. Relocation or removal of Colonial's pipeline markers shall not be permitted without the approval of a Colonial Representative. Pipeline markers made unusable or damaged shall be repaired or replaced at the Encroaching Party's expense.
14. Parallel occupancy of pipeline easement(s) with road right of way, or utilities is not permitted. Crossing shall be as near as a perpendicular angle to the pipeline easement as practical.

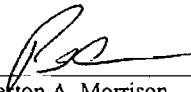
15. All proposed roadways and parking areas should maintain a minimum of five (5) feet from top of pipe to top of finished road surface and three (3) feet minimum vertical cover in open drainage or road ditches. Colonial's Engineering may increase these minimum requirements as determined by a stress analysis of the pipe, and other variable conditions and factors. Colonial may consider concrete protection slabs, per Colonial's specifications as an option, to be installed to protect Colonial's pipeline(s).
16. If Colonial's engineering review indicates that the existing pipeline coating is insufficient or the integrity is compromised due to increased soil stresses or other factors due to the Program's construction activities, the pipeline may be excavated and visually inspected, with the possible reapplication of pipeline coatings or repair of the pipe by a Colonial contractor, at the full expense of the Encroaching Party. Colonial will backfill the inspected area to its standard, and will not be held responsible for compaction.
17. Cover above the Colonial's pipeline(s) shall be a minimum of four (4) feet, and in general a maximum of six (6) feet, unless approved by Colonial's Representative.
18. The burning of trash, debris, etc. shall not be permitted within Colonial's pipeline easement.
19. Should any damage occur to the Encroaching Party's permitted encroachment, as a result of Colonial exercising any of its rights at any time, Colonial will not be responsible for said damage; and any expense or monetary cost involved in the repair of said damages will be borne by owners of said damaged encroachment. Provided however, that Colonial will be responsible for, and to the extent of, the negligent acts of its employees, contractors and agents. Further, absent emergency, Colonial will attempt to avoid causing damage to the Encroaching Party by offering open communication with the Encroaching Party throughout the duration of Colonial's exercising of such rights.
20. Encroaching Party agrees to defend and hold Colonial Pipeline Company harmless from all loss, cost, or other expense, including personal property and bodily injuries, whether occurring to it or to Colonial, or the respective employees, agents and servants of either, or to third parties, which are proximately caused by or arise from the installation, maintenance, or repair of the herein permitted works, with the exception, and to the extent, of claims due to the negligence of Colonial Pipeline Company, employees, contractors or agents.
21. This approval is granted only to the extent of and with no actual or implied diminishment of Colonial's rights and interests and without either express or implied warranty.
22. Fences shall be constructed with gates sufficiently large enough to allow Colonial's personnel and equipment the right of ingress and egress. Fence posts shall be installed at least five (5) feet to the side of any of Colonial's pipeline(s), with the approval of the field representative.
23. If the approximate location of Colonial's pipeline(s) is required, steel prod bars, shovels, and electrical sending devices may be used by Colonial's field personnel only. It should be noted

that these methods are only approximate and can be misleading. The exact location of Colonial's pipeline(s) can best be found with test pitting.

24. If test pitting is required to determine the exact location, and elevation, of Colonial's pipeline(s), the Encroaching Party agrees to notify the undersigned at least two (2) working days in advance, so that he may provide a Colonial Representative to be at the site. This representative must be present during the test pitting for the protection of Colonial's pipeline(s), and for the common verification of its location. All costs for this test pitting, and for the Colonial Representative, will be borne by the Encroaching Party. Any engineering based on Colonial or other design criteria stemming from the amount or location of this test pit data is the responsibility of the Encroaching Party.
25. Colonial reserves the right to open, cut, excavate and dig across the proposed road, railway, sidewalks, avenues, utility lines, or any other encroachment herein granted by this agreement to the Encroaching Party. Provided, except in times of emergency or as required by under 49 CFR 195.452, Colonial will refrain from taking such action until (1) such time as Colonial and the Encroaching Party have cooperated in evaluating available alternative solutions to preserve the encroachment (such evaluation process shall be for no more than three (3) weeks where feasible) and (2) provided the Encroaching Party with the opportunity to take any measures feasible to preserve the encroachment while still allowing Colonial to address its concern with respect to the pipeline in a timely manner.
26. Excavation or grading which might result in erosion or which could render Colonial's pipeline easement inaccessible shall not be permitted unless the Encroaching Party agrees to restore the area and provide protection to Colonial's pipeline(s). Any erosion control measures within Colonial's pipeline easement including diversion dikes, sediment traps, silt fences, gravel outlets, and emergency spillways will require approval of the Colonial Representative, as to equipment and method.
27. If construction on the aforementioned encroachment is not initiated prior to 2015, then Colonial Pipeline Company shall have the right to reconsider the conditions and privileges herein granted, and have full right to alter same, dependant upon current protocol.
28. The Encroaching Party agrees that all work on Colonial's pipeline easement shall be performed in a Workmanlike manner and in compliance with all applicable government and industry standards and codes.
29. Upon failure of the Encroaching Party, owner or his agents to comply with any of the Terms of this Agreement, Colonial Pipeline Company reserves the right to revoke this Agreement in its entirety, prevent same from continuing any activity in violation of the terms of this Agreement or its rights under its easements and prior agreements and make any necessary repairs or adjustments to its pipeline(s) or pipeline easement(s) with its own or contract forces at the expense of the party requesting the encroachment.
30. Colonial Pipeline Company will have the option of installing video surveillance camera(s) to provide continuous monitoring of its facilities.

Please signify acceptance of the above conditions by a proper official in the space provided below, and return to the address listed below. Colonial Pipeline Company will notify you to proceed with your project upon receipt of the signed original.

Sincerely,



Preston A. Morrison
Right of Way Attorney & Assistant Secretary
Colonial Pipeline Company

ACCEPTED AND AGREED TO THIS 23rd DAY OF November 2010.



VERONIQUE HAKIM
EXECUTIVE DIRECTOR

(signature)

(NJTA)

Veronique Hakim

BY:

(name, typed or printed)

Executive Director

TITLE:

(typed or printed)

Original: Right of Way Department



New Jersey Turnpike Authority

ADMINISTRATION BUILDING - 581 MAIN STREET
P.O. BOX 5042 - WOODBRIDGE, NEW JERSEY 07095
TELEPHONE (732) 750-5300

CHRIS CHRISTIE
GOVERNOR

KIM GUADAGNO
LIEUTENANT GOVERNOR

JAMES S. SIMPSON, *Chairman*
RONALD GRAVINO, *Vice Chairman*
MICHAEL R. Du PONT, *Treasurer*
HAROLD L. HODES, *Commissioner*
RAYMOND M. POCINO, *Commissioner*
ULISES E. DIAZ, *Commissioner*
DANIEL BECHT, *Commissioner*
VERONIQUE HAKIM, *Executive Director*

ADDENDUM NO. 1

To Contract Documents For

CONTRACT NO. T869.120.803

NEW JERSEY TURNPIKE
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6
Townships of Cranbury, Monroe, South Brunswick and
East Brunswick & Borough of Milltown
Middlesex County

January 31, 2012

To All Concerned:

The original Contract Plans and Specifications dated January 2012 for Contract No. T869.120.803 of the New Jersey Turnpike Authority are amended as noted in this Addendum No. 1, and this Addendum shall become part of the Contract Documents.

Bidders must acknowledge receipt of this Addendum and subsequent Addenda on the Proposal Forms when submitting Proposals. In case any bidder fails to acknowledge receipt of this addendum, his proposal will nevertheless be construed as though the Addendum had been received and acknowledged and submission of his proposal will constitute acknowledgement by the bidder of the receipt of same.

PERTAINING TO THE PROPOSAL

Page 5 Item No. 59, change the Approx. Qty. from 747,199 Pound to 750,499 Pound.

Page 7 Item No. 79, change the Approx. Qty. from 356 C.Y. to 405 C.Y.

Page 13 Item No. 181, change the Approx. Qty. from 2,309 L.F. to 2,561 L.F.

Page 17 Item No. 262, change the Approx. Qty. from 6,066 S.F. to 6,506 S.F.

Page 26 Add Item No. 402 "Install Overhead Span Sign Structure No. 7 (71.84)" with a Unit Code of 4F50IOS, a Unit of L.S. and an Approx. Qty. of 1.

Add Item No. 403 "Install Overhead Span Sign Structure No. 8 (72.14)" with a Unit Code of 4F51IOS, a Unit of L.S. and an Approx. Qty. of 1.

Two (2) copies of revised Proposal Pages 5R, 7R, 13R, 17R and 26R dated 1/31/12 are enclosed herewith to reflect the above changes. One copy of the revised pages shall be substituted for the superseded pages in the bound Contract Book, and the second copy of the revised pages shall be substituted in the separated Proposal Forms, which were originally issued to prospective bidders.

PERTAINING TO THE SPECIFICATIONS

107.12
Page 63

Delete this Subsection in its entirety and replace with the following:

The Contractor is advised that severe impacts are experienced by the traveling public occasioned by having a lane or lanes closed beyond the allowable lane closure hours listed in the Authority's Manual for Traffic Control in Work Zones. In the event that the Contractor fails to open a lane or lanes or make the lane or lanes fully available for use by Authority Maintenance crews, according to the allowable lane closure hours, the Authority will have the right to collect a Lane Occupancy Charge for the use and occupancy of each such lane or lanes beyond the allowable lane closure hours until such time that the lane or lanes are reopened to traffic or made fully available for use by Authority Maintenance crews. Therefore, the contractor will be assessed a Lane Occupancy Charge for a delay in the reopening of the lane closing(s), premised upon road user costs and costs incurred by the Authority for engineering, inspection, and administration (including overhead). The Lane Occupancy Charges shall be collected by deducting the appropriate Charges from the Contractor's partial payments.

The Lane Occupancy Charges for lane closings in this Contract are \$2,500 per 15-minute increment and they will be assessed after the expiration of the permissible lane closing periods specified in the Authority's Manual for Traffic Control in Work Zones, until such time as the lane is fully available for use by Authority patrons or Authority Maintenance crews, as applicable, for each location of work in this Contract.

THE CONTRACTOR IS ADVISED THAT ROADWAY CLOSURES MAY NOT BE AVAILABLE FOR WORK ON THIS PROJECT. However, the Contractor may be allowed to utilize any roadway closure installed/scheduled by others for work on other Contracts or for Authority Maintenance. The Contractor is advised that severe impacts are experienced by the traveling public occasioned by having a roadway closed beyond the hours specified by Contract documents or the Operations Department. In the event that the Contractor fails to remove their operations from a roadway or make the roadway fully available for use, the Authority will have the right to collect a Roadway Occupancy Charge for the use and occupancy of the roadway beyond the specified hours until such time that the roadway is reopened to traffic or made fully available for use. Therefore, the contractor will be assessed a Roadway Occupancy Charge for a delay in the reopening of the roadway closing, and costs incurred by the Authority for engineering, inspection, and administration (including overhead). The Roadway Occupancy Charge shall be collected by deducting the amount from the Contractor's partial payments.

Roadway Occupancy Charges for roadway closings will be assessed after the hours specified by the Engineer and will be in the amount of \$20,000 per day, until the roadway is fully available for use by Authority patrons or Authority Maintenance crews as applicable.

427.09
Page 146

Add the Pay Item Additional Crushed Stone with a Pay Unit of Cubic Yard.

510.05
Page 219

Delete the Pay Item and Pay Unit for Telescoping Guide Rail Terminal.

601.12
Page 251

Add the Pay Item #300 A.W.G. Power Cable with a Pay Unit of Linear Foot.

602.09
Page 253

Delete the Pay Item and Pay Unit for Load Center Cabinet, Type G, Voltage 240/480V.

Add the Pay Item Meter Cabinet, Type F, Voltage 277/480V with a Pay Unit of Each.

802.01
Page 289

Delete the fourth paragraph in its entirety.

PERTAINING TO THE PLANS

Sheet No. 5

Item No. 59, change the contract quantity and plan sheet total from 747,199 Pound to 750,499 Pound.

Item No. 79, change the contract quantity and plan sheet total from 356 C.Y. to 405 C.Y.

Item No. 103, change the Unit Code from "4F01RBE", to "4F01RBS".

Item No. 104, change the Unit Code from "4F02RBE", to "4F02RBS".

Sheet No. 6

Item No. 181, change the contract quantity and plan sheet total from 2,309 L.F. to 2,561 L.F.

Sheet No. 7

Item No. 262, change the contract quantity and plan sheet total from 6,066 S.F. to 6,506 S.F.

Item No. 346, change the Unit from L.F. to Each.

Sheet No. 8

Add Item No. 402 "Install Overhead Span Sign Structure No. 7 (71.84)" with a Unit Code of 4F51IOS, a Unit of L.S. and a Contract Quantity of 1.

Add Item No. 403 "Install Overhead Span Sign Structure No. 8 (72.14)" with a Unit Code of 4F51IOS, a Unit of L.S. and a Contract Quantity of 1.

Sheet No. 351

Add Overhead Sign Structure No. 32. See enclosed Sheet No. 351.

Sheet No. 352

Add Overhead Sign Structure No. 33. See enclosed Sheet No. 352.

- Sheet No. 492 Under "PLAN 7 DRAINAGE TABULATION", change the invert elevation of Structure No. IN 8A-29 from INV (W) 120.50 to INV (W) 104.61.
- Sheet No. 493 Under "PLAN 9 DRAINAGE TABULATION", change the invert elevations of Structure No. IN 8C-8 as follows:
- | <u>From</u> | <u>To</u> |
|----------------|----------------|
| INV (W) 134.33 | INV (W) 106.33 |
| INV (N) 134.32 | INV (N) 106.32 |
- Sheet No. 501 Under "PLAN 7 DRAINAGE TABULATION", change the Top of Grate elevation of Structure No. MH DBT-A from 146.20 to 138.30.
- Sheet No. 584 Add Overhead Signs, Contract Sign Nos. 29 and 30 on Ramp NOSA. See enclosed Sheet No. 584.
- Sheet No. 585 Add Overhead Signs, Contract Sign Nos. 29 and 31 on Ramp NOSA. See enclosed Sheet No. 585.
- Sheet No. 653 Add Overhead Signs, Contract Sign Nos. 29 - 31. See enclosed Sheet No. 653.
- Sheet No. 657 Add Overhead Signs, Contract Sign Nos. 29 - 31. See enclosed Sheet No. 657.
- Sheet No. 1207 Add two new overhead sign structures to Key Plan (Sign Structure No. 32 and Sign Structure No. 33). See enclosed Sheet No. 1207.
- Sheet No. 1208 Add new sheet S-134A to Index of Drawings. See enclosed Sheet No. 1208.
- Sheet No. 1212 Add quantities for new Sign Support Structure No 32 and new Sign Support Structure No 33. See enclosed Sheet No. 1212.
- Sheet No. 1341A Add new sheet (Overhead Span Sign Structure - General Plan and Elevation - 21) for new Sign Support Structure No 32 and new Sign Support Structure No 33. See enclosed Sheet No. 1341A.

NEW JERSEY TURNPIKE AUTHORITY

Richard J. Raczynski, P.E.
Chief Engineer

Enclosure:

Two copies of Proposal Pages 5R, 7R, 13R, 17R, and 26R
Contract Plan Sheets 351, 352, 584, 585, 653, 657, 1207, 1208, 1212, and 1341A (11"x17")

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
46	3B2600APA	Asphalt Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$2,600,000. Enter a Unit Price of \$2,600,000 as your bid item for this item.)	L.S.	1	-----	--	2,600,000	00
47	3B31CLS	Cleaning Outside Shoulders	L.F.	73,500				
48	3C01BRS	Berm Surfacing, 3 inches Thick	S.Y.	39,818				
49	3C02BRS	Berm Surfacing, Crushed Stone, 6" Thick	S.Y.	33,261				
50	3D05APS	Bridge Approach Slab	S.Y.	1,262				
51	3E07PMR	Pavement Removal, 2" Depth	S.Y.	144,157				
52	3F01MRS	Milled Rumble Strip	L.F.	167,000				
53	4A00005	Concrete In Culvert	C.Y.	412				
54	4A04STC	Concrete In Footings	C.Y.	713				
55	4A10AAF	Concrete in Abutments Above Footings	C.Y.	738				
56	4A10PAF	Concrete in Piers Above Footings	C.Y.	190				
57	4A10RWF	Concrete in Retaining Walls Above Footings	C.Y.	360				
58	4A10RFS	Reinforcement Steel	Pound	192,560				
59	4A11RFS	Reinforcement Steel, Epoxy Coated	Pound	750,499				
60	N4A0003	Strip Seal Expansion Joints, 4" Movement	L.F.	376				
61	4A01CCS	Concrete Core Sampling	Each	22				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
79	4F10OHF	Concrete Foundations for Overhead Sign Structures	C.Y.	405				
80	4F01RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 1 (73.4 NSI)	L.S.	1	-----	--		
81	4F02RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 2 (73.4 NSO)	L.S.	1	-----	--		
82	4F03RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 3 (73.9 SNI)	L.S.	1	-----	--		
83	4F04RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 4 (73.9 SNO)	L.S.	1	-----	--		
84	4F05RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 5 (76.1 NSI)	L.S.	1	-----	--		
85	4F06RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 6 (76.1 NSO)	L.S.	1	-----	--		
86	4F07RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 7 (79.8 NSI)	L.S.	1	-----	--		
87	4F08RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 8 (79.8 NSO)	L.S.	1	-----	--		
88	4F09RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 9 (82.2 NSI)	L.S.	1	-----	--		
89	4F10RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 10 (82.2 NSO)	L.S.	1	-----	--		
90	4F01RCC	Remove Existing Cantilever CMS Sign Structure No. 1 (73.89)	L.S.	1	-----	--		
91	4F01RSC	Remove Existing Span CMS Sign Structure No. 1 (70.8 SNI)	L.S.	1	-----	--		
92	4F02RSC	Remove Existing Span CMS Sign Structure No. 2 (71.9 NSI)	L.S.	1	-----	--		
93	4F03RSC	Remove Existing Span CMS Sign Structure No. 3 (72.8 SNI/SNO)	L.S.	1	-----	--		
94	4F04RSC	Remove Existing Span CMS Sign Structure No. 4 (73.89)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	190				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,561				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	822				
186	5A00016	10" Outlet Pipe	L.F.	112				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,569				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
246	5C00064	Offset Inlet	Each	1				
247	5C01HDF	Heavy Duty Frame with Bolted Grates for D-1 Inlets	Each	6				
248	5C02HDF	Heavy Duty Frame with Bolted Grates for D-2 Inlets	Each	4				
249	5C03HDF	Heavy Duty Filled In Grate	Each	30				
250	5D10INC	Incidental Concrete	C.Y.	24				
251	5E01ALC	Asphalt Concrete Lip Curb	L.F.	33,228				
252	5E02ALC	Asphalt Concrete Lip Curb Inlet	Each	4				
253	5F00002	Concrete Island, 4" Thick	S.Y.	947				
254	5F01VCA	Concrete Curb, Type A	L.F.	4,295				
255	5H00004	VMS Equipment Median	Each	4				
256	5H01CMB	Concrete Median Barrier, Roadway	L.F.	12,129				
257	5H03CMB	Concrete Median Barrier, Protection	L.F.	3,388				
258	5H01REC	Barrier Reconstruction, Type 1	Each	4				
259	5H02REC	Barrier Reconstruction, Type 2	Each	3				
260	5H03REC	Barrier Reconstruction, Type 3	Each	10				
261	5H00006	Existing Median Removal and Reconstruction (Ramp SOT)	L.S.	1	-----	--		
262	5I01SNP	Sign Panels	S.F.	6,506				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
397	8B20MPT	Placing and Removing Temporary Impact Attenuator	Each	21				
398	8B00004	Placing and Removing Portable Variable Message Sign	Each	16				
399	8B15MPT	Traffic Protection Patrol	M.H.	20,880				
400	8B17MPT	Furnishing Truck with Mounted Attenuator	Each	8				
401	8B31MPT	Maintenance and Protection of Traffic	L.S.	1	-----	--		
402	4F50IOS	Install Overhead Span Sign Structure No. 7 (71.84)	L.S.	1	-----	--		
403	4F51IOS	Install Overhead Span Sign Structure No. 8 (72.14)	L.S.	1	-----	--		
TOTAL PRICE								

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
46	3B2600APA	Asphalt Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$2,600,000. Enter a Unit Price of \$2,600,000 as your bid item for this item.)	L.S.	1	-----	--	2,600,000	00
47	3B31CLS	Cleaning Outside Shoulders	L.F.	73,500				
48	3C01BRS	Berm Surfacing, 3 inches Thick	S.Y.	39,818				
49	3C02BRS	Berm Surfacing, Crushed Stone, 6" Thick	S.Y.	33,261				
50	3D05APS	Bridge Approach Slab	S.Y.	1,262				
51	3E07PMR	Pavement Removal, 2" Depth	S.Y.	144,157				
52	3F01MRS	Milled Rumble Strip	L.F.	167,000				
53	4A00005	Concrete In Culvert	C.Y.	412				
54	4A04STC	Concrete In Footings	C.Y.	713				
55	4A10AAF	Concrete in Abutments Above Footings	C.Y.	738				
56	4A10PAF	Concrete in Piers Above Footings	C.Y.	190				
57	4A10RWF	Concrete in Retaining Walls Above Footings	C.Y.	360				
58	4A10RFS	Reinforcement Steel	Pound	192,560				
59	4A11RFS	Reinforcement Steel, Epoxy Coated	Pound	750,499				
60	N4A0003	Strip Seal Expansion Joints, 4" Movement	L.F.	376				
61	4A01CCS	Concrete Core Sampling	Each	22				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
79	4F10OHF	Concrete Foundations for Overhead Sign Structures	C.Y.	405				
80	4F01RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 1 (73.4 NSI)	L.S.	1	-----	--		
81	4F02RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 2 (73.4 NSO)	L.S.	1	-----	--		
82	4F03RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 3 (73.9 SNI)	L.S.	1	-----	--		
83	4F04RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 4 (73.9 SNO)	L.S.	1	-----	--		
84	4F05RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 5 (76.1 NSI)	L.S.	1	-----	--		
85	4F06RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 6 (76.1 NSO)	L.S.	1	-----	--		
86	4F07RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 7 (79.8 NSI)	L.S.	1	-----	--		
87	4F08RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 8 (79.8 NSO)	L.S.	1	-----	--		
88	4F09RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 9 (82.2 NSI)	L.S.	1	-----	--		
89	4F10RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 10 (82.2 NSO)	L.S.	1	-----	--		
90	4F01RCC	Remove Existing Cantilever CMS Sign Structure No. 1 (73.89)	L.S.	1	-----	--		
91	4F01RSC	Remove Existing Span CMS Sign Structure No. 1 (70.8 SNI)	L.S.	1	-----	--		
92	4F02RSC	Remove Existing Span CMS Sign Structure No. 2 (71.9 NSI)	L.S.	1	-----	--		
93	4F03RSC	Remove Existing Span CMS Sign Structure No. 3 (72.8 SNI/SNO)	L.S.	1	-----	--		
94	4F04RSC	Remove Existing Span CMS Sign Structure No. 4 (73.89)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	190				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,561				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	822				
186	5A00016	10" Outlet Pipe	L.F.	112				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,569				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

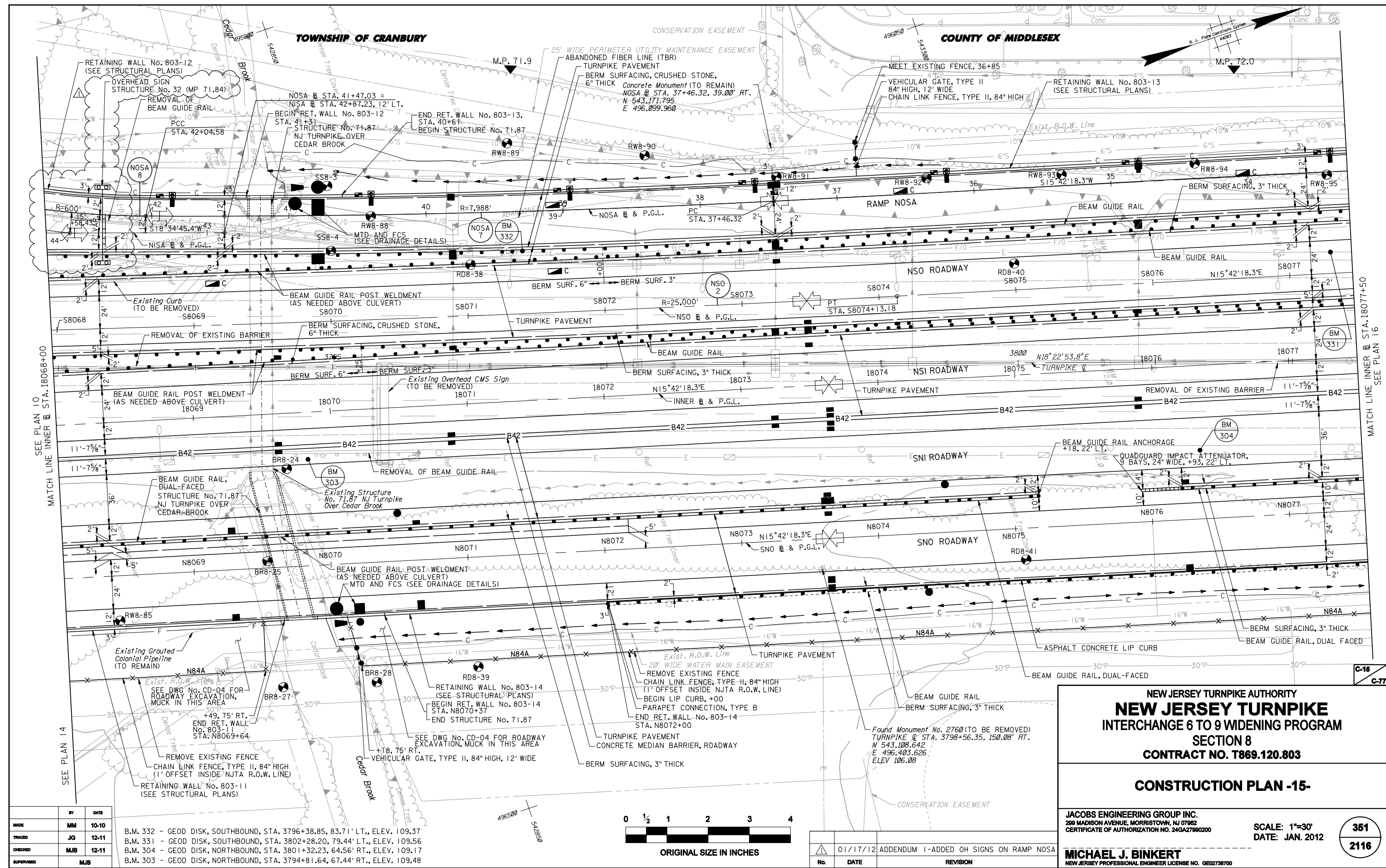
ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
246	5C00064	Offset Inlet	Each	1				
247	5C01HDF	Heavy Duty Frame with Bolted Grates for D-1 Inlets	Each	6				
248	5C02HDF	Heavy Duty Frame with Bolted Grates for D-2 Inlets	Each	4				
249	5C03HDF	Heavy Duty Filled In Grate	Each	30				
250	5D10INC	Incidental Concrete	C.Y.	24				
251	5E01ALC	Asphalt Concrete Lip Curb	L.F.	33,228				
252	5E02ALC	Asphalt Concrete Lip Curb Inlet	Each	4				
253	5F00002	Concrete Island, 4" Thick	S.Y.	947				
254	5F01VCA	Concrete Curb, Type A	L.F.	4,295				
255	5H00004	VMS Equipment Median	Each	4				
256	5H01CMB	Concrete Median Barrier, Roadway	L.F.	12,129				
257	5H03CMB	Concrete Median Barrier, Protection	L.F.	3,388				
258	5H01REC	Barrier Reconstruction, Type 1	Each	4				
259	5H02REC	Barrier Reconstruction, Type 2	Each	3				
260	5H03REC	Barrier Reconstruction, Type 3	Each	10				
261	5H00006	Existing Median Removal and Reconstruction (Ramp SOT)	L.S.	1	-----	--		
262	5I01SNP	Sign Panels	S.F.	6,506				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
397	8B20MPT	Placing and Removing Temporary Impact Attenuator	Each	21				
398	8B00004	Placing and Removing Portable Variable Message Sign	Each	16				
399	8B15MPT	Traffic Protection Patrol	M.H.	20,880				
400	8B17MPT	Furnishing Truck with Mounted Attenuator	Each	8				
401	8B31MPT	Maintenance and Protection of Traffic	L.S.	1	-----	--		
402	4F50IOS	Install Overhead Span Sign Structure No. 7 (71.84)	L.S.	1	-----	--		
403	4F51IOS	Install Overhead Span Sign Structure No. 8 (72.14)	L.S.	1	-----	--		
TOTAL PRICE								

TOWNSHIP OF CRANBURY

COUNTY OF MIDDLESEX

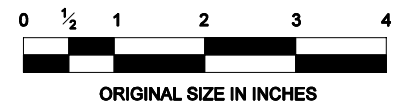


SEE PLAN 10
MATCH LINE INNER @ STA. 18068+00

MATCH LINE INNER @ STA. 18077+50
SEE PLAN 16

BY	DATE
MM	10-10
JG	12-11
MJB	12-11
MJB	

- B.M. 332 - GEOD DISK, SOUTHBOUND, STA. 3796+38.85, 83.71' LT., ELEV. 109.37
- B.M. 331 - GEOD DISK, SOUTHBOUND, STA. 3802+28.20, 79.44' LT., ELEV. 109.56
- B.M. 304 - GEOD DISK, NORTHBOUND, STA. 3801+32.23, 64.56' RT., ELEV. 109.17
- B.M. 303 - GEOD DISK, NORTHBOUND, STA. 3794+81.64, 67.44' RT., ELEV. 109.48



No.	DATE	REVISION
1	01/17/12	ADDENDUM I-ADDED OH SIGNS ON RAMP NOSA

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

CONSTRUCTION PLAN -15-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

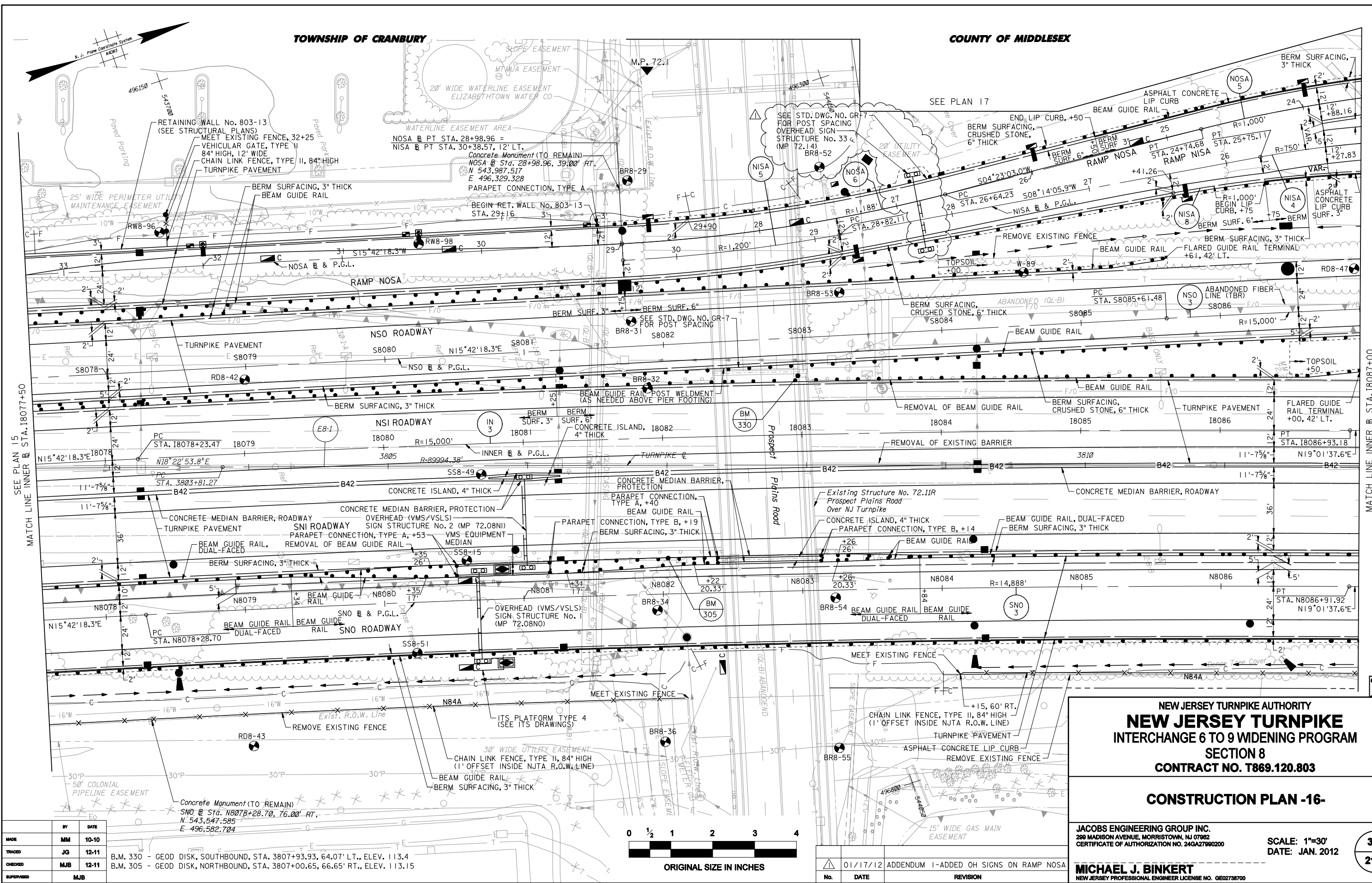
SCALE: 1"=30'
 DATE: JAN. 2012

MICHAEL J. BINKERT
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

351
2116

APPENDUM NO. 1: SHEET 1 OF 10

FILE NAME: T869-120-803-0351.dgn

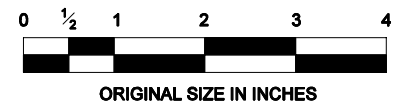


SEE PLAN 15
MATCH LINE INNER @ STA. 18077+50

MATCH LINE INNER @ STA. 18087+00
SEE PLAN 18

BY	DATE
MM	10-10
JG	12-11
MJB	12-11

B.M. 330 - GEOD DISK, SOUTHBOUND, STA. 3807+93.93, 64.07' LT., ELEV. 113.4
 B.M. 305 - GEOD DISK, NORTHBOUND, STA. 3807+00.65, 66.65' RT., ELEV. 113.15



NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

CONSTRUCTION PLAN -16-

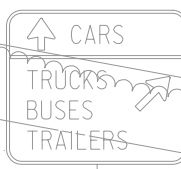
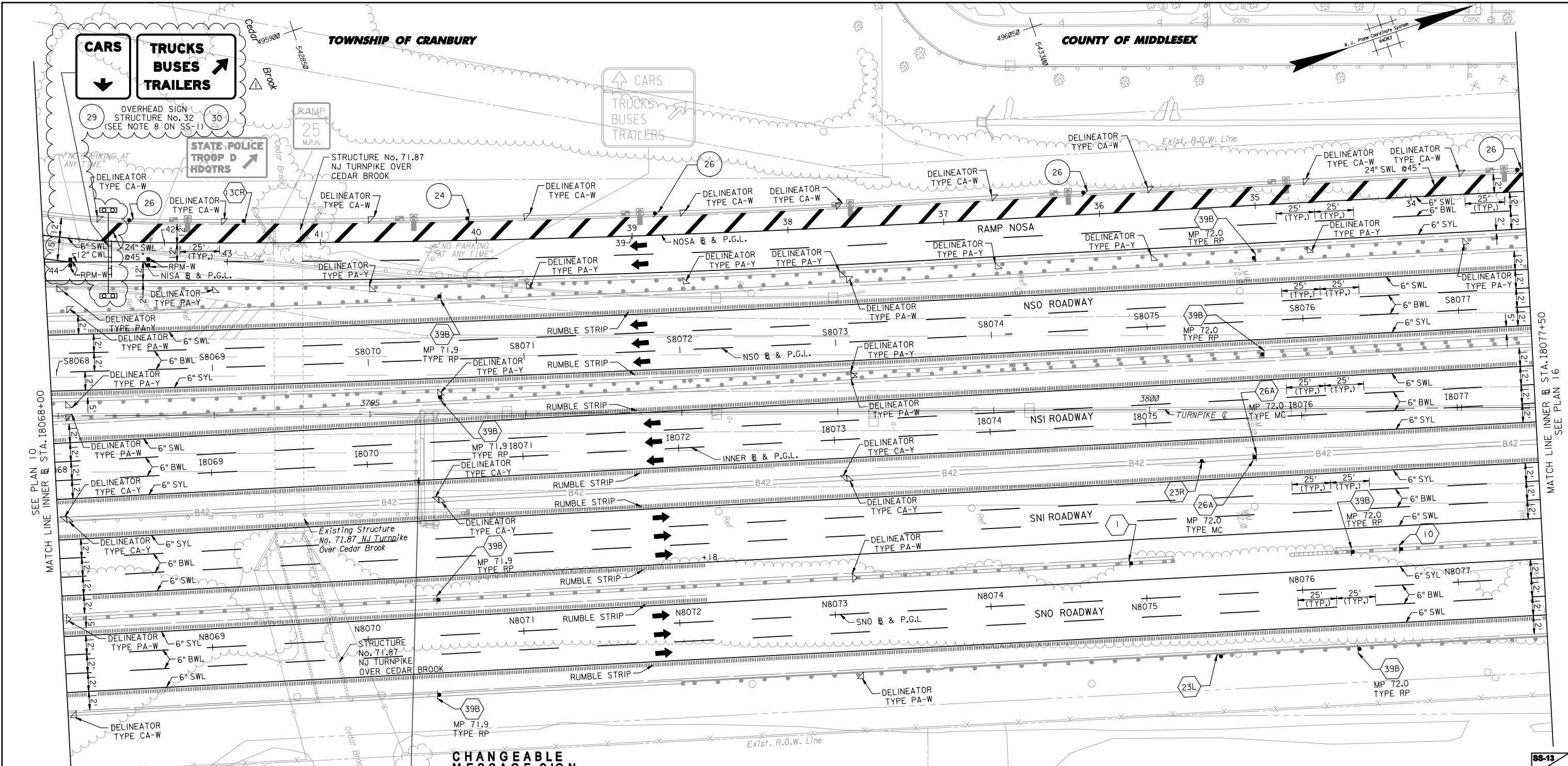
JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA2799200

SCALE: 1"=30'
 DATE: JAN. 2012

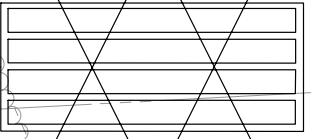
MICHAEL J. BINKERT
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

No.	DATE	REVISION
1	01/17/12	ADDENDUM I-ADDED OH SIGNS ON RAMP NOSA

352
2116



CHANGEABLE MESSAGE SIGN



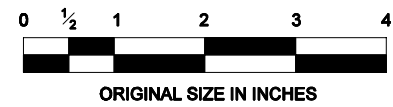
EXISTING SIGN AND STRUCTURE TO BE REMOVED (SEE NOTE 5 OF SS-1)

IH ENGINEERS, PC
103 COLLEGE ROAD EAST, PRINCETON, NJ 08540
DAVID X. CHIU
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03885900

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

SIGNING AND STRIPING PLAN -15-
JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200
SCALE: 1"=30'
DATE: JAN. 2012
MICHAEL J. BINKERT
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

	BY	DATE
MADE	DU	10-10
TRACED	MV	12-11
CHECKED	DC	12-11
SUPERVISOR	DC	



No.	DATE	REVISION
1	01/17/12	ADDENDUM I-ADDED OH SIGNS ON RAMP NOSA

NO WORK ON PLAN 14.

FILE NAME: T869-120-803-0584.dgn

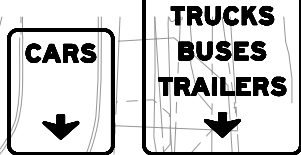
MATCH LINE INNER @ STA. 18077+50
SEE PLAN 16

SS-13
SS-98

APPENDUM NO. 1: SHEET 3 OF 10
584
2116

TOWNSHIP OF CRANBURY

COUNTY OF MIDDLESEX



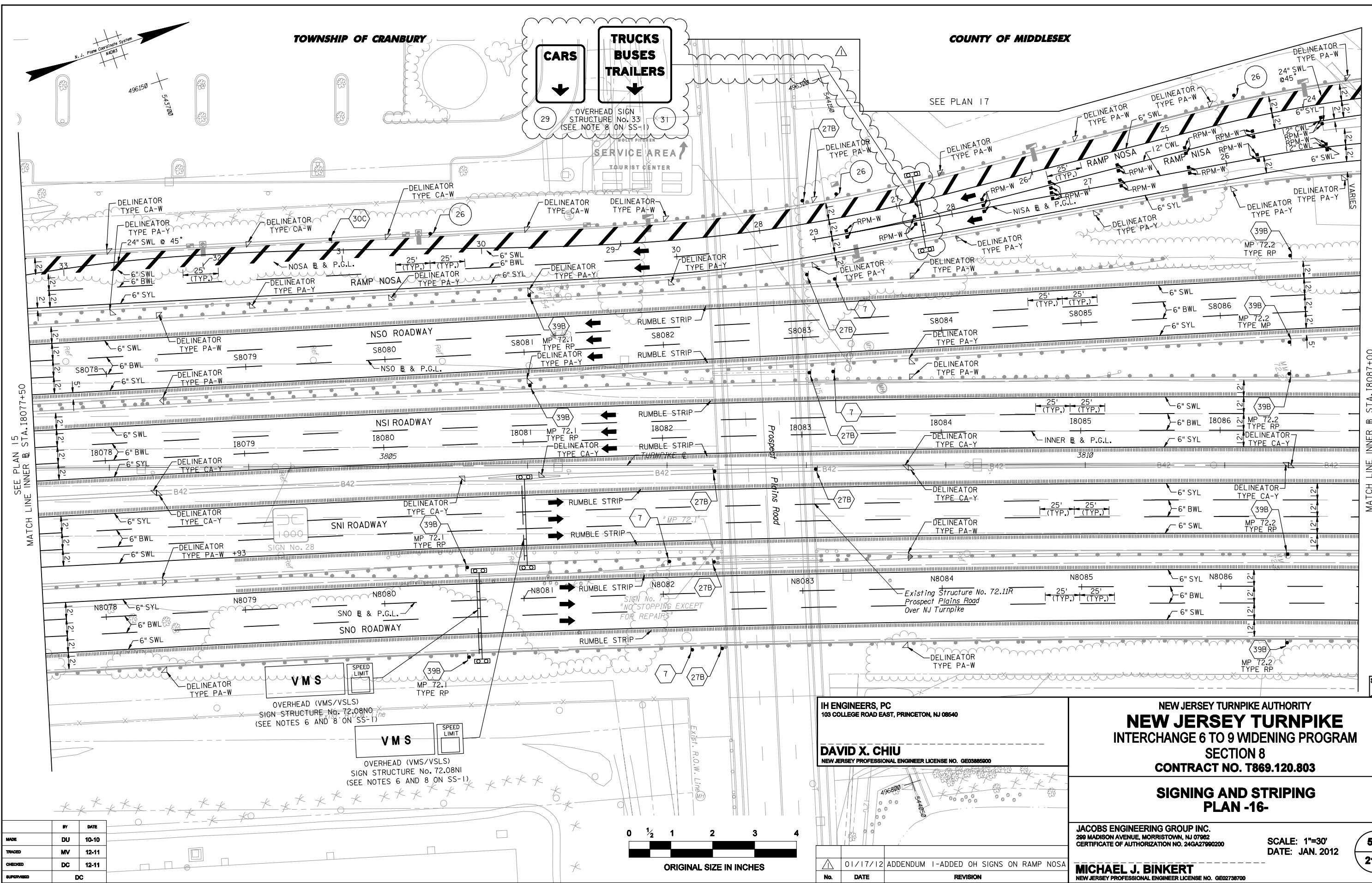
OVERHEAD SIGN STRUCTURE No. 33
(SEE NOTE 8 ON SS-1)

SERVICE AREA
TOURIST CENTER

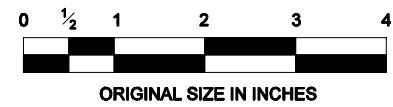
SEE PLAN 17

SEE PLAN 15
MATCH LINE INNER @ STA. 18077+50

MATCH LINE INNER @ STA. 18087+00
SEE PLAN 18



BY	DATE
MADE	DU 10-10
TRACED	MV 12-11
CHECKED	DC 12-11
SUPERVISOR	DC



IH ENGINEERS, PC
103 COLLEGE ROAD EAST, PRINCETON, NJ 08540

DAVID X. CHIU
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03885200

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

SIGNING AND STRIPING
PLAN -16-

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA2799200

SCALE: 1"=30'
DATE: JAN. 2012

MICHAEL J. BINKERT
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

585
2116

No.	DATE	REVISION
1	01/17/12	ADDENDUM I-ADDED OH SIGNS ON RAMP NOSA

FILE NAME: T869-120-803-0585.dgn

APPENDUM NO. 1: SHEET 4 OF 10

CONT. SIGN NO.	CONT. SIGN LOC.	NO. REQ.	LEGEND	SIGN PANEL						REMARKS
				SIZE		COPY		BACKGROUND		
				WIDTH	HEIGHT	COLOR	FINISH	COLOR	FINISH	
1	73.39NO 73.33NI 74.20SO 74.29SI	4		20'-6"	14'-0"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-85 FOR SIGN PANEL LAYOUT
2	74.20SO 74.29SI	2		18'-0"	8'-0"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-85 FOR SIGN PANEL LAYOUT
3	73.39NO 73.33NI	2		18'-0"	8'-0"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-85 FOR SIGN PANEL LAYOUT
4	72.35N 75.54S	2		21'-0"	10'-0"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-85 FOR SIGN PANEL LAYOUT
5	72.57NI 72.66NO 75.07S	3		16'-0"	14'-0"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-85 FOR SIGN PANEL LAYOUT
6	71.45N	1		16'-6"	14'-0"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-85 FOR SIGN PANEL LAYOUT
7	74.05S	1								EXISTING OH SIGN TO BE RELOCATED OVER RIGHT LANE (INCLUDING EXISTING SIGN LIGHTING)
8			(SIGN WAS ELIMINATED)							
9	72.69SI 72.64SO	2		19'-0"	14'-0"	WHITE	REFLECTIVE SHEETING	BLUE	REFLECTIVE SHEETING	SEE SS-86 FOR SIGN PANEL LAYOUT

CONT. SIGN NO.	CONT. SIGN LOC.	NO. REQ.	LEGEND	SIGN PANEL						REMARKS
				SIZE		COPY		BACKGROUND		
				WIDTH	HEIGHT	COLOR	FINISH	COLOR	FINISH	
10	73.44SI 73.44SO	2		19'-0"	14'-0"	WHITE	REFLECTIVE SHEETING	BLUE	REFLECTIVE SHEETING	SEE SS-86 FOR SIGN PANEL LAYOUT
11			(SIGN WAS ELIMINATED)							
12	72.46SO 72.50SI	2		16'-0"	7'-0"	WHITE	REFLECTIVE SHEETING	BLUE	REFLECTIVE SHEETING	SEE SS-86 FOR SIGN PANEL LAYOUT
28	76.11SO 76.11SI	2		13'-6"	8'-0"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-86 FOR SIGN PANEL LAYOUT
29	71.84 72.14	2		8'-0"	9'-6"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-86 FOR SIGN PANEL LAYOUT
30	71.84	1		14'-6"	9'-6"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-86 FOR SIGN PANEL LAYOUT
31	72.14	1		12'-0"	12'-6"	WHITE	REFLECTIVE SHEETING	GREEN	REFLECTIVE SHEETING	SEE SS-86 FOR SIGN PANEL LAYOUT



GENERAL NOTES:

1. THE E-ZPass PURPLE BACKGROUND SHALL BE "PANTONE 259C."
2. ALL SIGNS SHALL BE CONNECTED TOGETHER USING BACKING STRIPS BEFORE MOUNTING TO FRAME.
3. THE CONTRACTOR SHALL BE GOVERNED BY THE STANDARDS AND REQUIREMENTS OF THE FOLLOWING PUBLICATIONS, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS OF THIS CONTRACT OR THROUGH WRITTEN APPROVAL BY THE ENGINEER.
FHWA - "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", 2003 EDITION, AND SUBSEQUENT REVISIONS. AASHTO - "SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS", 2004 AND SUBSEQUENT REVISIONS.
4. BACKGROUNDS, BORDERS, TEXTS, AND ALL OTHER ELEMENTS OF THE SIGN PANELS SHALL BE RETRO-REFLECTIVE, HIGH INTENSITY SHEETING, EXCEPT WHERE NOTED.
5. ALL APPROACH SIGNS ARE APPROXIMATELY LOCATED ON THE SIGNING PLANS. ANY CHANGES IN THE LOCATION OF SIGNS AS SHOWN ON THE SIGNING PLANS GREATER THAN 50' IN EITHER DIRECTION SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.
6. ALL APPROACH SIGN LOCATIONS WILL BE MARKED IN THE FIELD PRIOR TO INSTALLATION. NJTA WILL COMMENT ON LOCATIONS WITHIN TWO WEEKS OF RECEIPT OF WRITTEN MARKOUT NOTIFICATION.
7. FOR VARIABLE MESSAGE SIGN (VMS) & VARIABLE SPEED LIMIT SIGNS TO BE INSTALLED AS PART OF THIS CONTRACT. SEE ITS PLAN SHEETS.
8. SHIELD AND ARROW DETAILS SHALL COMPLY WITH THE STANDARD HIGHWAY SIGNS BY FHWA, EXCEPT AS NOTED.
9. SEE SIGN PANEL LAYOUT SHEETS FOR SIGN PANELS. THE CONTRACT SIGN PANELS SHALL BE PAID UNDER THE PAY ITEM "SIGN PANELS".

SS-82
SS-86

IH ENGINEERS, PC
103 COLLEGE ROAD EAST, PRINCETON, NJ 08540

DAVID X. CHIU
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03886900

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

SIGNING AND STRIPING
SIGN TEXT DATA SHEET -1-

JACOBS ENGINEERING GROUP INC.
289 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: N.T.S.
DATE: JAN. 2012

653
2116

MICHAEL J. BINKERT
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

FILE NAME: T869-120-803-0653.dgn

LIST OF ABBREVIATIONS

COLOR:

W - White (Silver on reflective sheeting)
Y - Yellow
G - Green
R - Red
B - Black
Bl - Blue

FINISH:

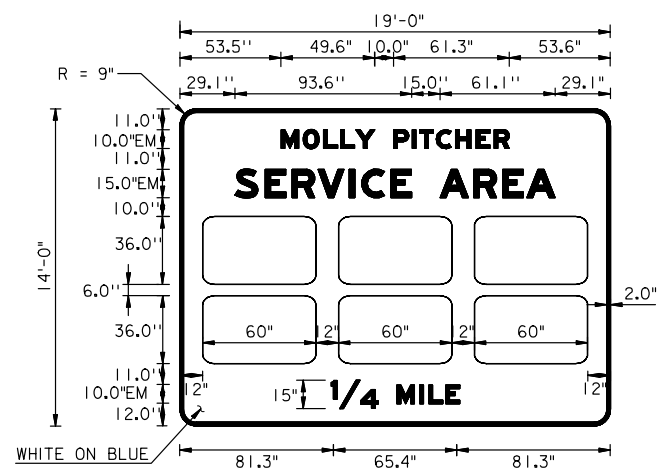
P.P. - Process Paste
R.S. - Reflective Sheeting
Demount - Demountable Copy
RRS-111 - Retroreflective Sheeting, Type III

	BY	DATE
MADE	DU	10-10
TRACED	JD	12-11
CHECKED	DC	12-11
SUPERVISED	DC	

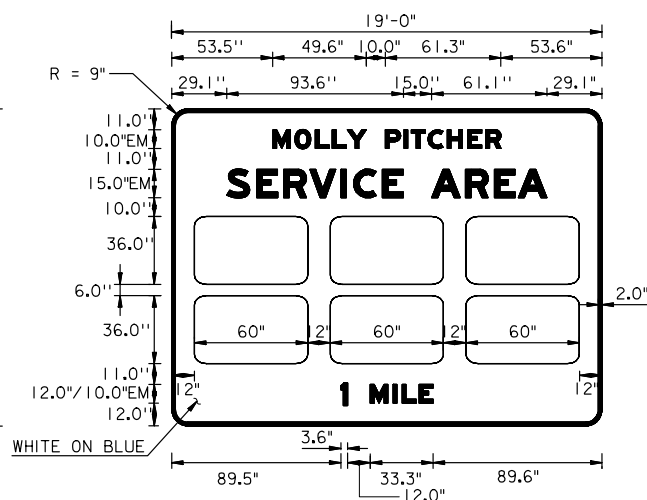
No.	DATE	REVISION
1	01/17/12	ADDENDUM I-ADDED OH SIGNS ON RAMP NOSA

OVERHEAD SIGNS

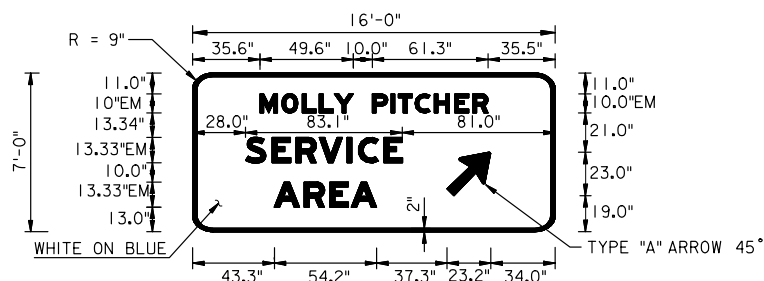
NOT TO SCALE



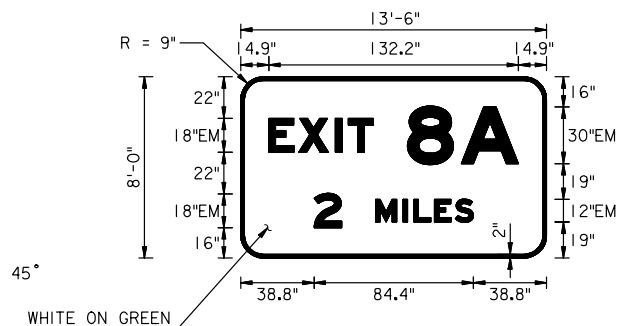
CONTRACT SIGN NO. 9



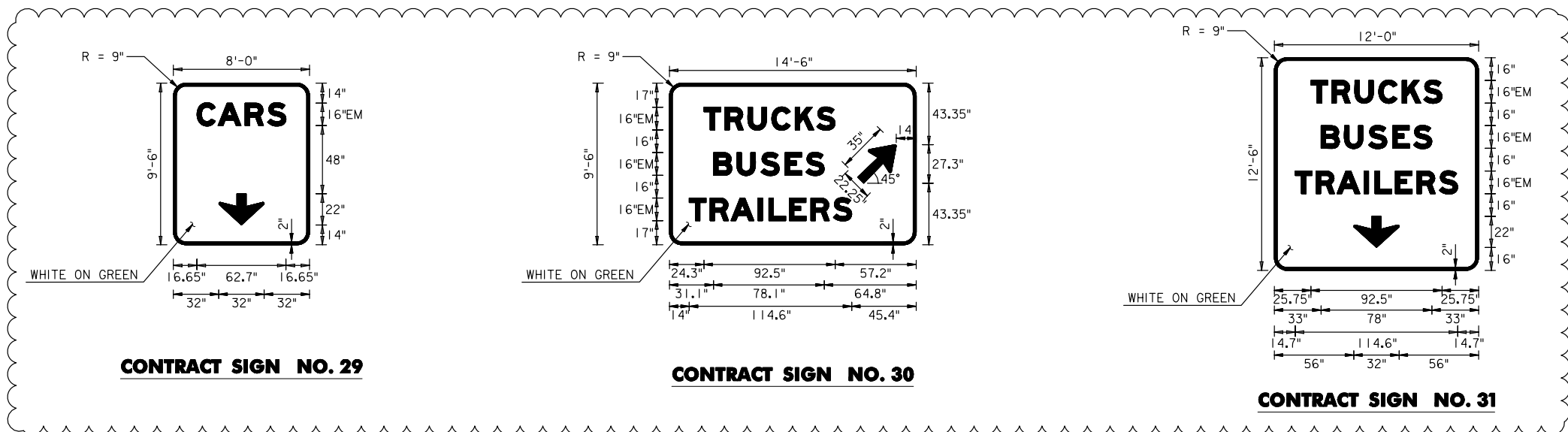
CONTRACT SIGN NO. 10



CONTRACT SIGN NO. 12
(NJTA STD. SIGN NO. 18)

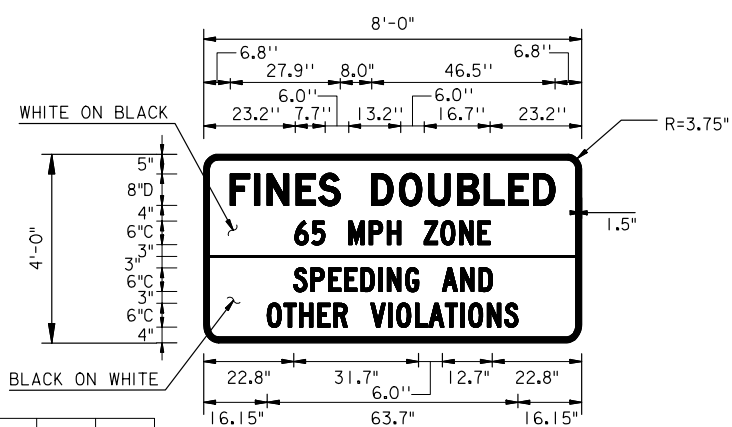


CONTRACT SIGN NO. 28

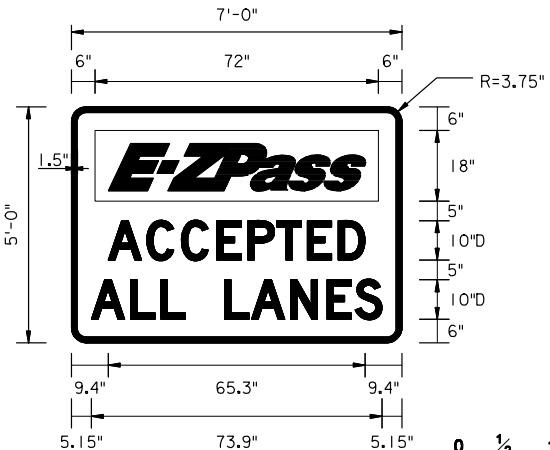


GROUND-MOUNTED SIGNS

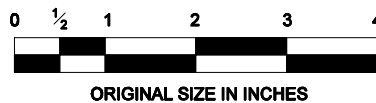
NOT TO SCALE



CONTRACT SIGN NO. 25



CONTRACT SIGN NO. 27



ORIGINAL SIZE IN INCHES

IH ENGINEERS, PC
103 COLLEGE ROAD EAST, PRINCETON, NJ 08540

DAVID X. CHIU
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03886900

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

SIGNING AND STRIPING
SIGN PANEL LAYOUT -2-

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

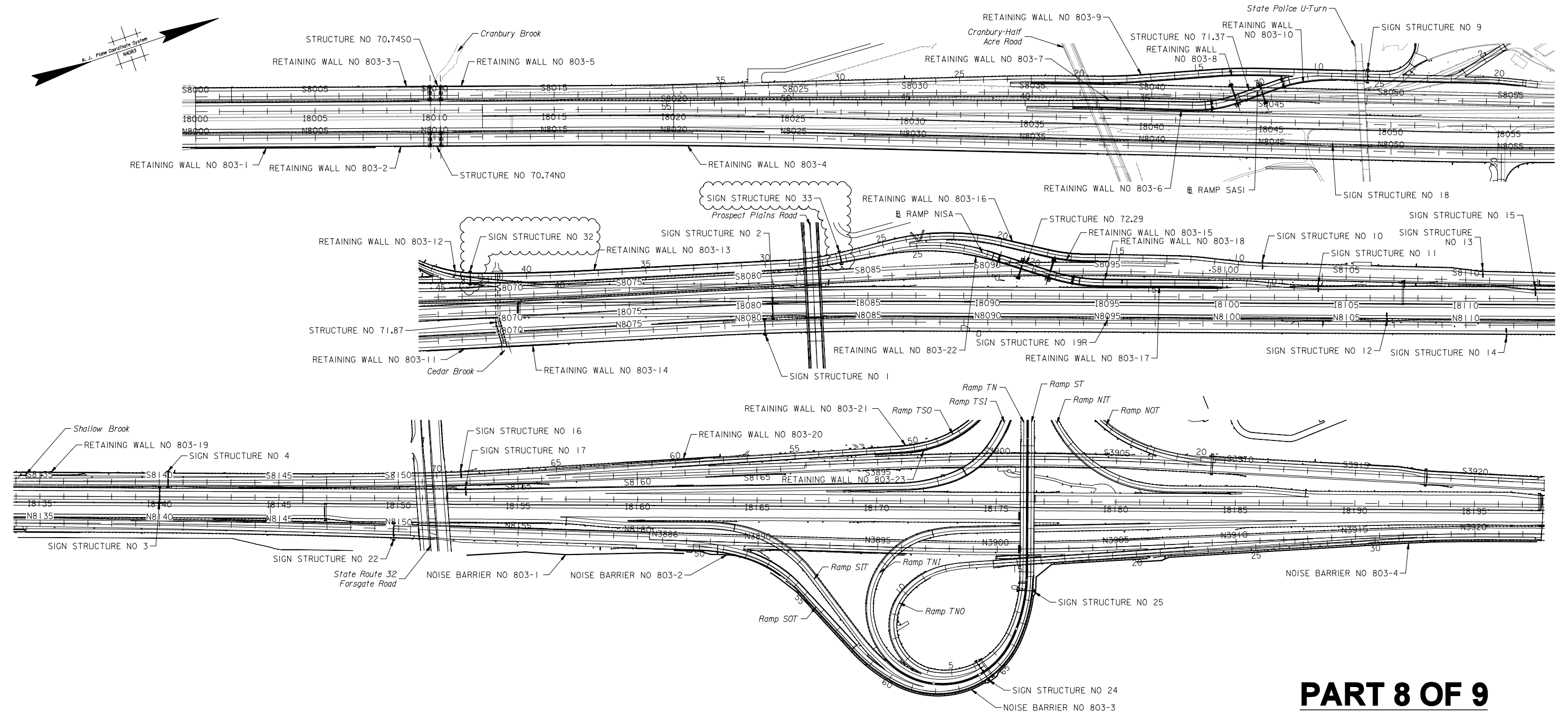
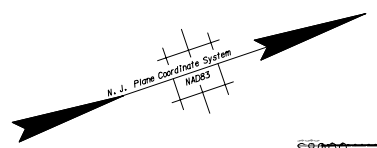
MICHAEL J. BINKERT
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

SCALE: N.T.S.
DATE: JAN. 2012

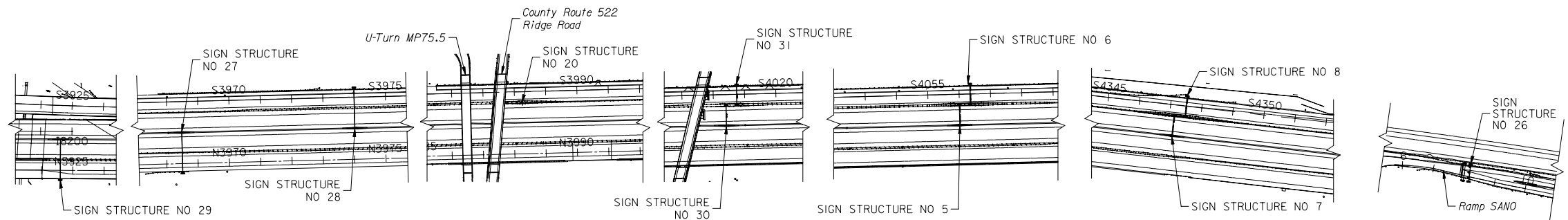
657
2116

No.	DATE	REVISION
1	01/17/12	ADDENDUM 1-ADDED OH SIGNS ON RAMP NOSA

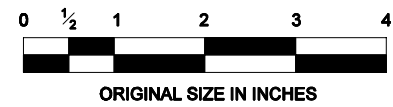
	BY	DATE
MADE	DU	10-10
TRACED	JD	12-11
CHECKED	DC	12-11
SUPERVISED	DC	



PART 8 OF 9



	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	01/17/12	ADDENDUM I-ADDED SIGN STRUCTURES 32 & 33

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

KEY PLAN TO STRUCTURES

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA2790200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1" = 200'
DATE: JAN. 2012

1207

2116

FILE NAME: T869-120-803-1207.dgn

ADDENDUM NO. 1, SHEET NO. 7 OF 10

INDEX OF DRAWINGS	
SHEET NO.	DESCRIPTION
S-1	KEY PLAN TO STRUCTURES
S-2	INDEX OF STRUCTURAL DRAWINGS
S-3	ESTIMATE OF QUANTITIES- STRUCTURES - 1
S-4	ESTIMATE OF QUANTITIES- STRUCTURES - 2
S-5	ESTIMATE OF QUANTITIES- STRUCTURES - 3
S-5A	ESTIMATE OF QUANTITIES- STRUCTURES - 4
S-6	GENERAL NOTES
	STRUCTURE NOS 70.74N0 AND 70.74S0 NJTPK OVER CRANBURY BROOK
S-7	GENERAL PLAN AND ELEVATION
S-8	SOUTH ABUTMENT PLAN AND ELEVATION
S-9	NORTH ABUTMENT PLAN AND ELEVATION
S-10	ABUTMENT DETAILS - 1
S-11	ABUTMENT DETAILS - 2
S-12	ABUTMENT DETAILS - 3
S-13	ABUTMENT DETAILS - 4
S-14	FRAMING PLAN
S-15	STEEL DETAILS - 1
S-16	STEEL DETAILS - 2
S-17	BEARING DETAILS
S-18	TRANSVERSE SECTION
S-19	DECK SLAB DETAILS
	STRUCTURE NO 71.37 RAMP SASI OVER NSO ROADWAY
S-20	GENERAL PLAN AND ELEVATION
S-21	SOUTH ABUTMENT PLAN AND ELEVATION
S-22	NORTH ABUTMENT PLAN AND ELEVATION
S-23	ABUTMENT DETAILS - 1
S-24	ABUTMENT DETAILS - 2
S-25	ABUTMENT DETAILS - 3
S-26	ABUTMENT DETAILS - 4
S-27	PIER DETAILS
S-28	FRAMING PLAN
S-29	STEEL DETAILS - 1
S-30	STEEL DETAILS - 2
S-31	CAMBER TABLE
S-32	BOX GIRDER 1 - PLAN AND ELEVATION
S-33	BOX GIRDER 2 - PLAN AND ELEVATION
S-34	BOX GIRDER DETAILS - 1
S-35	BOX GIRDER DETAILS - 2
S-36	BEARING DETAILS - 1
S-37	BEARING DETAILS - 2
S-38	TRANSVERSE SECTION
S-39	DECK SLAB DETAILS
	STRUCTURE NO 71.87 CEDAR BROOK CULVERT
S-40	GENERAL PLAN AND ELEVATION
S-41	DEMOLITION DETAILS
S-42	PLAN AND ELEVATION - 1
S-43	PLAN AND ELEVATION - 2
S-44	NORTHWEST WALL ELEVATION
S-45	NORTHEAST WALL ELEVATION

INDEX OF DRAWINGS	
SHEET NO.	DESCRIPTION
	STRUCTURE NO 72.29 RAMP NISA OVER NSO ROADWAY
S-46	GENERAL PLAN AND ELEVATION
S-47	SOUTH ABUTMENT PLAN AND ELEVATION
S-48	NORTH ABUTMENT PLAN AND ELEVATION
S-49	ABUTMENT DETAILS - 1
S-50	ABUTMENT DETAILS - 2
S-51	ABUTMENT DETAILS - 3
S-52	ABUTMENT DETAILS - 4
S-53	PIER DETAILS
S-54	FRAMING PLAN
S-55	STEEL DETAILS - 1
S-56	STEEL DETAILS - 2
S-57	CAMBER TABLE
S-58	BOX GIRDER 1 - PLAN AND ELEVATION
S-59	BOX GIRDER 2 - PLAN AND ELEVATION
S-60	BOX GIRDER DETAILS - 1
S-61	BOX GIRDER DETAILS - 2
S-62	BEARING DETAILS - 1
S-63	BEARING DETAILS - 2
S-64	TRANSVERSE SECTION
S-65	DECK SLAB DETAILS
S-66	MISCELLANEOUS DETAILS - 1
S-67	MISCELLANEOUS DETAILS - 2
	RETAINING WALLS
S-68	RETAINING WALL NO 803-1 PLAN AND ELEVATION
S-69	RETAINING WALLS NO 803-2 AND 803-3 PLAN AND ELEVATION
S-70	RETAINING WALL NO 803-4 PLAN AND ELEVATION - 1
S-71	RETAINING WALL NO 803-4 PLAN AND ELEVATION - 2
S-72	RETAINING WALL NO 803-4 PLAN AND ELEVATION - 3
S-73	RETAINING WALL NO 803-4 PLAN AND ELEVATION - 4
S-74	RETAINING WALL NO 803-5 PLAN AND ELEVATION
S-75	RETAINING WALL NO 803-6 PLAN AND ELEVATION
S-76	RETAINING WALL NO 803-7 PLAN AND ELEVATION
S-77	RETAINING WALLS NO 803-8 AND 803-9 PLAN
S-78	RETAINING WALL NO 803-8 ELEVATION
S-79	RETAINING WALL NO 803-9 ELEVATION
S-80	RETAINING WALL NO 803-10 PLAN AND ELEVATION
S-81	RETAINING WALLS NO 803-11 AND 803-14 PLAN AND ELEVATION
S-82	RETAINING WALL NO 803-12 PLAN AND ELEVATION
S-83	RETAINING WALL NO 803-13 PLAN
S-84	RETAINING WALL NO 803-13 ELEVATION
S-85	RETAINING WALL NO 803-15 PLAN AND ELEVATION
S-86	RETAINING WALL NO 803-16 PLAN AND ELEVATION
S-87	RETAINING WALL NO 803-17 PLAN AND ELEVATION
S-88	RETAINING WALL NO 803-18 PLAN AND ELEVATION
S-89	RETAINING WALL NO 803-19 PLAN AND ELEVATION
S-90	RETAINING WALLS NO 803-20 AND 803-21 PLAN AND ELEVATION
S-91	RETAINING WALL NO 803-22 PLAN AND ELEVATION
S-92	RETAINING WALL NO 803-23 PLAN AND ELEVATION
S-93	RETAINING WALL DETAILS - 1
S-94	RETAINING WALL DETAILS - 2
S-95	RETAINING WALL DETAILS - 3

INDEX OF DRAWINGS	
SHEET NO.	DESCRIPTION
	NOISE BARRIERS
S-96	NOISE BARRIERS NO 803-1 AND 803-2 PLAN
S-97	NOISE BARRIER NO 803-1 ELEVATION - 1
S-98	NOISE BARRIER NO 803-1 ELEVATION - 2
S-99	NOISE BARRIER NO 803-2 ELEVATION
S-100	NOISE BARRIER NO 803-3 PLAN - 1
S-101	NOISE BARRIER NO 803-3 PLAN - 2
S-102	NOISE BARRIER NO 803-3 ELEVATION - 1
S-103	NOISE BARRIER NO 803-3 ELEVATION - 2
S-104	NOISE BARRIER NO 803-3 ELEVATION - 3
S-105	NOISE BARRIER NO 803-3 ELEVATION - 4
S-106	NOISE BARRIER NO 803-4 PLAN
S-107	NOISE BARRIER NO 803-4 ELEVATION - 1
S-108	NOISE BARRIER NO 803-4 ELEVATION - 2
S-109	NOISE BARRIER NO 803-4 ELEVATION - 3
S-110	NOISE BARRIER DETAILS - 1
S-111	NOISE BARRIER DETAILS - 2
S-112	NOISE BARRIER DETAILS - 3
S-113	NOISE BARRIER DETAILS - 4
S-114	NOISE BARRIER DETAILS - 5
	SIGN STRUCTURES
S-115	OVERHEAD SPAN (VMS/VSL) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 1
S-116	OVERHEAD SPAN (VMS/VSL) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 2
S-117	OVERHEAD SPAN (VMS/VSL) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 3
S-118	OVERHEAD SPAN (VMS/VSL) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 4
S-119	OVERHEAD SPAN (HCMS) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 5
S-120	OVERHEAD CANTILEVER SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 6
S-121	OVERHEAD CANTILEVER SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 7
S-122	OVERHEAD CANTILEVER SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 8
S-123	OVERHEAD CANTILEVER SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 9
S-124	OVERHEAD BUTTERFLY SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 10
S-125	OVERHEAD BUTTERFLY SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 11
S-126	OVERHEAD SPAN SIGN STRUCTURE - GENERAL PLAN AND ELEVATION - 12
S-127	OVERHEAD SPAN (HCMS) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 13
S-128	OVERHEAD SPAN (HCMS) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 14
S-129	OVERHEAD SPAN (HCMS) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 15
S-130	OVERHEAD SPAN (HCMS) SIGN STRUCTURES - GENERAL PLAN AND ELEVATION - 16
S-131	OVERHEAD SPAN SIGN STRUCTURE - GENERAL PLAN AND ELEVATION - 17
S-132	OVERHEAD SPAN SIGN STRUCTURE - GENERAL PLAN AND ELEVATION - 18
S-133	OVERHEAD SPAN SIGN STRUCTURE - GENERAL PLAN AND ELEVATION - 19
S-134	OVERHEAD SPAN SIGN STRUCTURE - GENERAL PLAN AND ELEVATION - 20
S-134A	OVERHEAD SPAN SIGN STRUCTURE - GENERAL PLAN AND ELEVATION - 21
	MODIFICATIONS OF EXISTING STRUCTURES
S-135	MODIFICATIONS TO EXISTING STRUCTURES PLAN - 1
S-136	MODIFICATIONS TO EXISTING STRUCTURES PLAN - 2
S-137	MODIFICATIONS TO EXISTING STRUCTURES DETAILS
S-138	BARRIER RECONSTRUCTION TO ACCEPT STANDARD GUIDE RAIL CONNECTIONS

	BY	DATE
MADE	JP	10-10
TRACED	WK	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
△	01/17/12	ADDENDUM 1- ADDED SIGN STRUCTURES 32 & 33

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

INDEX OF STRUCTURAL DRAWINGS

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: NONE
 DATE: JAN. 2012

1208
 2116

FILE NAME: T869-120-803-1208.dgn

S-2
S-138

ADDENDUM NO. 1, SHEET NO. 8 OF 10

UNIT CODE	ITEM DESCRIPTION	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTAL	AS BUILT QUANTITY
OVERHEAD HYBRID CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURE NO. 26					
4ZND1XX	INSTALL OVERHEAD HYBRID CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURE NO. 5 (78.88)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,100		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	16		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 27					
4F2610S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 2 (75.16 N)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,300		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	19		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 28					
4F2710S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 3 (75.27 S)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,400		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	19		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 29					
4F2810S	INSTALL OVERHEAD SPAN FIXED STRUCTURE NO. 4 (74.33 N)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,500		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	20		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	114		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 30					
4F2910S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 5 (76.11 SI)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,300		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	18		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	111		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 31					
4F3010S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 6 (76.11 SO)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,300		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	18		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
MODIFICATIONS OF EXISTING STRUCTURES					
2J01DES	DEMOLITION OF EXISTING STRUCTURES	L.S.	L.S.		
3D05APS	BRIDGE APPROACH SLAB	S.Y.	292		
4ZM04HPC	CONCRETE IN PARAPET, HPC	C.Y.	288		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	31,600		
5H01REC	BARRIER RECONSTRUCTION, TYPE 1	EACH	4		
5H02REC	BARRIER RECONSTRUCTION, TYPE 2	EACH	3		
5H03REC	BARRIER RECONSTRUCTION, TYPE 3	EACH	10		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 32					
4F5010S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 7 (71.84)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,800		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	27		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	140		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 33					
4F5110S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 8 (72.14)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,500		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	22		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		

	BY	DATE
MADE	LD	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
△	01/17/12	ADDENDUM 1-ADDED SIGN STRUCTURES 32 & 33

3-5A
3-138

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

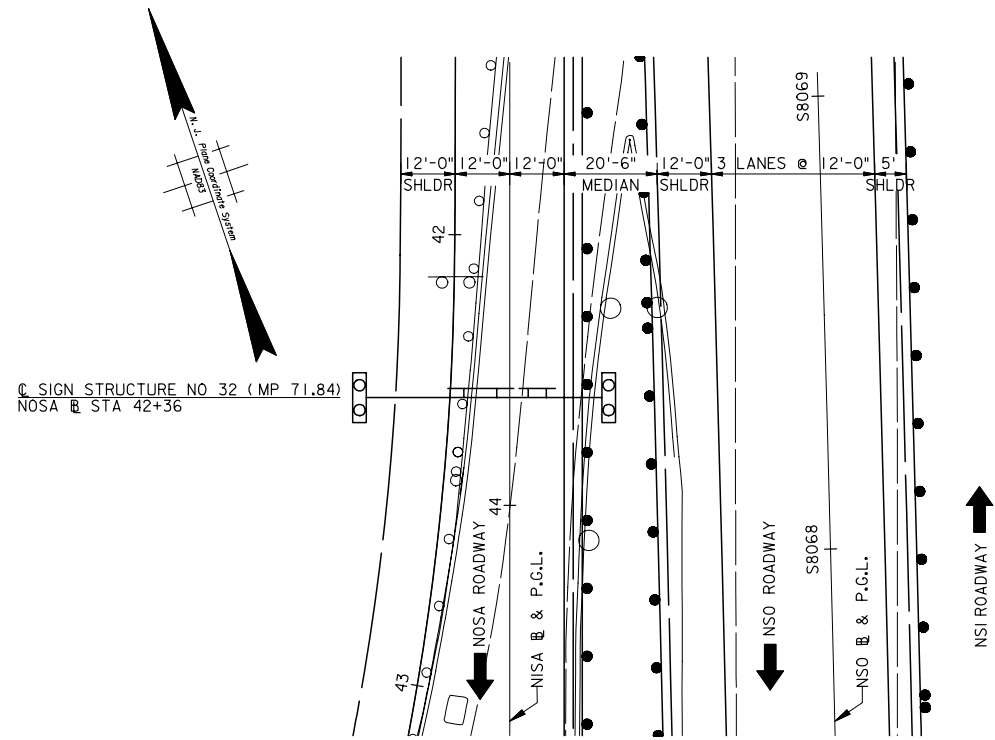
ESTIMATE OF QUANTITIES - STRUCTURES - 4

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

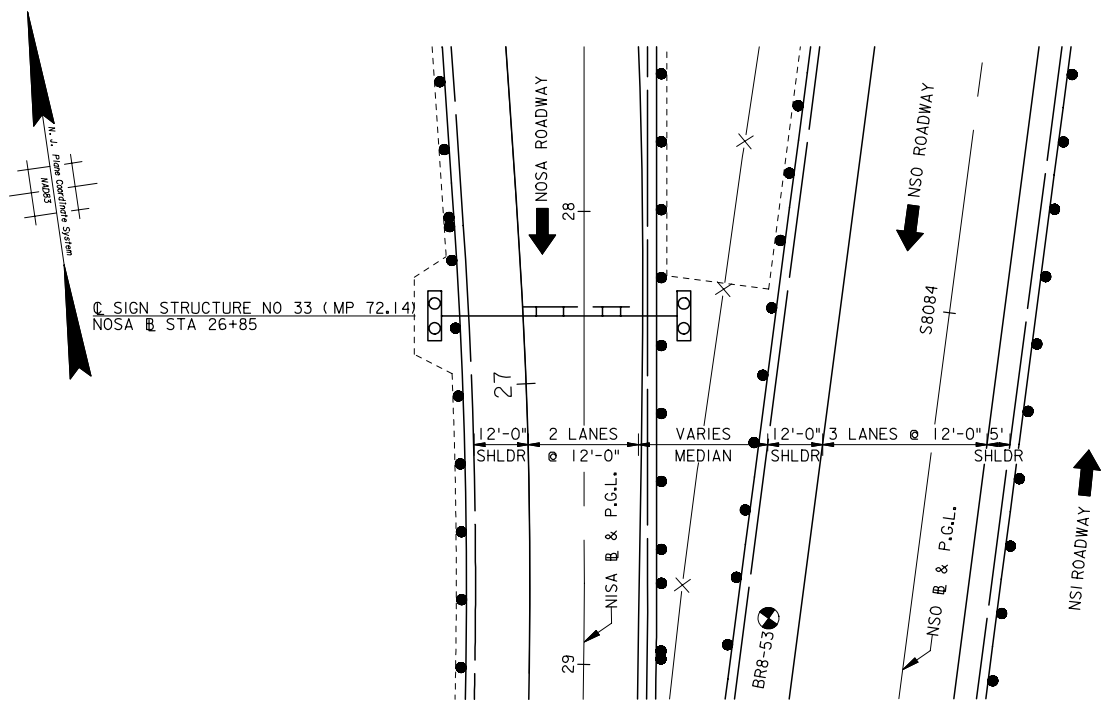
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: NONE
DATE: JAN. 2012

1212
2116

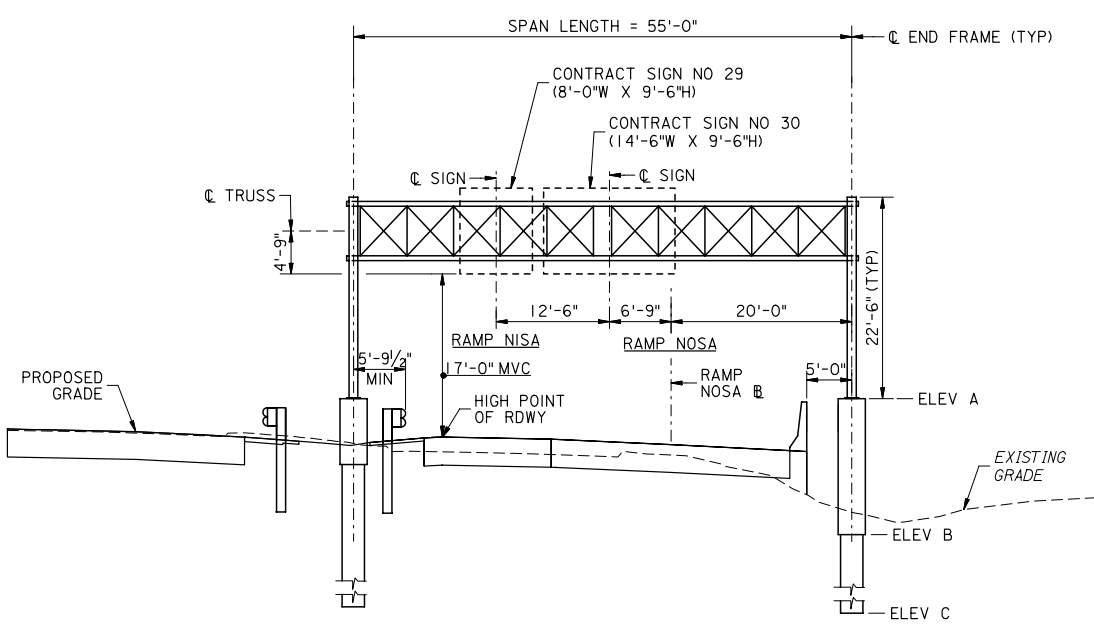


PLAN
SCALE: 1" = 20'-0"



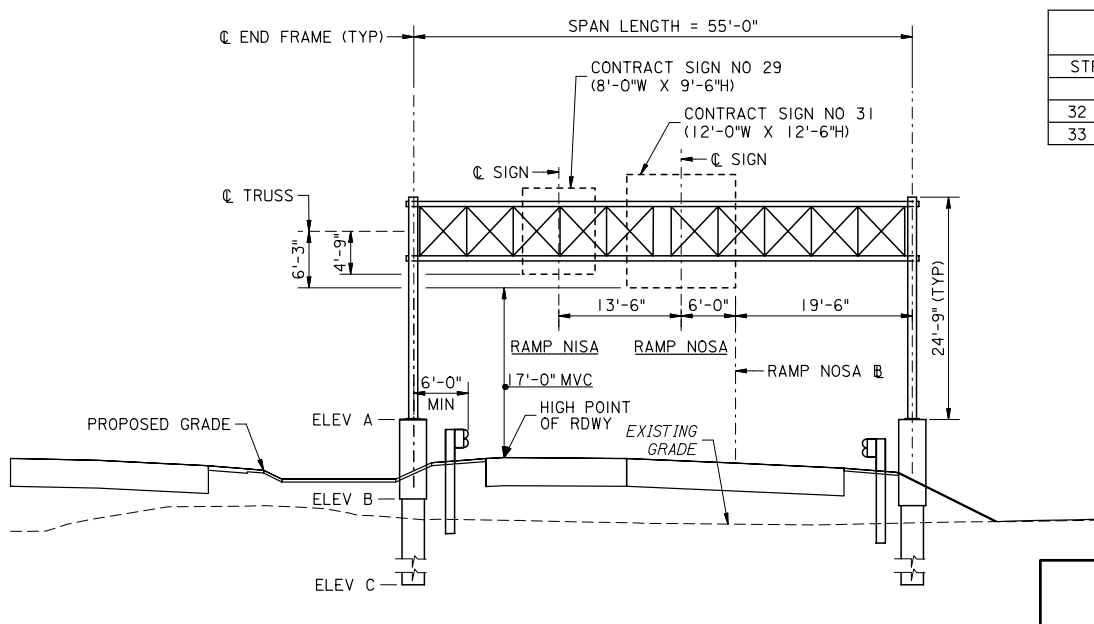
PLAN
SCALE: 1" = 20'-0"

- NOTES:
- FOR NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS.
 - MVC = MINIMUM VERTICAL CLEARANCE.
 - ELEVATIONS A, B AND C TYPICAL AT ALL PEDESTALS (SEE TABLE ON THIS SHEET).
 - SIGN STRUCTURE TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
 - TRUSS CENTERLINE IS EQUI-DISTANT FROM TOP AND BOTTOM CHORD CENTERLINES.



SIGN STRUCTURE NO 32 (MP 71.84)
(NOSA STA 42+36)

ELEVATION
(LOOKING IN THE DIRECTION OF TRAFFIC)
SCALE: 1" = 10'-0"

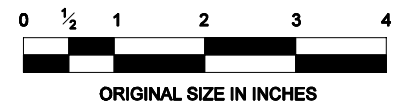


SIGN STRUCTURE NO 33 (MP 72.14)
(NOSA STA 26+85)

ELEVATION
(LOOKING IN THE DIRECTION OF TRAFFIC)
SCALE: 1" = 10'-0"

PEDESTAL FOUNDATION ELEVATION TABLE					
STRUCTURE NO	ELEVATION A	ELEVATION B		ELEVATION C	
		LEFT	RIGHT	LEFT	RIGHT
32 (MP 71.84)	114.75	107.50	99.75	74.50	62.75
33 (MP 72.14)	118.50	109.75	109.00	81.75	81.00

	BY	DATE
MADE	JP	01-12
TRACED	JK	01-12
CHECKED	JP	01-12
SUPERVISED	TNS	



No.	DATE	REVISION
1	01/17/12	ADDENDUM 1-ADDED SIGN STRUCTURES 32 & 33

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

OVERHEAD SPAN SIGN STRUCTURE
GENERAL PLAN AND ELEVATION - 21

JACOBS ENGINEERING GROUP INC.
289 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27992200

SCALE: AS SHOWN
DATE: JAN. 2012

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

1341A
2116

FILE NAME: T869-120-803-01341A.dgn

ADDENDUM NO. 1, SHEET NO. 10 OF 10



New Jersey Turnpike Authority

ADMINISTRATION BUILDING - 581 MAIN STREET
P.O. BOX 5042 - WOODBRIDGE, NEW JERSEY 07095
TELEPHONE (732) 750-5300

CHRIS CHRISTIE
GOVERNOR

KIM GUADAGNO
LIEUTENANT GOVERNOR

JAMES S. SIMPSON, *Chairman*
RONALD GRAVINO, *Vice Chairman*
MICHAEL R. Du PONT, *Treasurer*
HAROLD L. HODES, *Commissioner*
RAYMOND M. POCINO, *Commissioner*
ULISES E. DIAZ, *Commissioner*
DANIEL BECHT, *Commissioner*
VERONIQUE HAKIM, *Executive Director*

ADDENDUM NO. 2

To Contract Documents For

CONTRACT NO. T869.120.803

NEW JERSEY TURNPIKE
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6
Townships of Cranbury, Monroe, South Brunswick and
East Brunswick & Borough of Milltown
Middlesex County

February 6, 2012

To All Concerned:

The original Contract Plans and Specifications dated January 2012 for Contract No. T869.120.803 of the New Jersey Turnpike Authority are amended as noted in this Addendum No. 2, and this Addendum shall become part of the Contract Documents.

Bidders must acknowledge receipt of this Addendum and all previous and subsequent Addenda on the Proposal Forms when submitting Proposals. In case any bidder fails to acknowledge receipt of this addendum, his proposal will nevertheless be construed as though the Addendum had been received and acknowledged and submission of his proposal will constitute acknowledgement by the bidder of the receipt of same.

PERTAINING TO THE ADVERTISEMENT FOR PROPOSALS

Page 2 In the seventh paragraph, change the time and date for the receipt of Proposals from "11:00 AM Prevailing Time on the morning of February 14, 2012" to "11:00 AM Prevailing Time on the morning of February 21, 2012".

PERTAINING TO THE PROPOSAL

Page 4 Item No. 36, change the Approx. Qty. from 41,000 C.Y. to 4,000 C.Y.

- Item No. 37, change the Approx. Qty. from 66,000 Ton to 6,000 Ton.
- Item No. 38, change the Approx. Qty. from 41 Each to 4 Each.
- Item No. 43, change the Approx. Qty. from 97,879 Ton to 101,379 Ton.
- Item No. 44, change the Approx. Qty. from 81,519 Ton to 86,319 Ton.
- Page 5R Item No. 51, change the Approx. Qty. from 144,157 S.Y. to 164,157 S.Y.
- Page 13R Item No. 185, change the Approx. Qty. from 822 L.F. to 807 L.F.
- Item No. 186, change the Approx. Qty. from 112 L.F. to 130 L.F.
- Item No. 188, change the Approx. Qty. from 2,569 L.F. to 2,557 L.F.
- Page 14 Item No. 206, change the Approx. Qty. from 18,566 L.F. to 18,568 L.F.
- Page 16 Item No. 244 is deleted.
- Page 20 Item No. 310, change the Approx. Qty. from 66,000 Ton to 6,000 Ton.
- Page 22 Item No. 339, change the Approx. Qty. from 185 Each to 190 Each.
- Page 24 Item No. 369, change the Approx. Qty. from 21,080 L.F. to 21,890 L.F.
- Page 25 Item No. 388, change the Approx. Qty. from 1,799 M.G. to 12,000 M.G.
- Page 26R Add Item No. 404 "Force Account for Emergency and Routine Roadway and Bridge Repairs (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)" with a Unit Code of 4Q500FAE, a Unit of L.S. and an Approx. Qty. of 1.
- Add Item No. 405 "Demolition of Existing Structures No. 2 (Str. No. 71.26)", with a Unit Code of 2J12DES, a Unit of L.S., and an Approx. Qty. of 1.
- Add Item No. 406 "Demolition of Existing Structures No. 3 (Str. No. 72.11)", with a Unit Code of 2J13DES, a Unit of L.S., and an Approx. Qty. of 1.
- Add Item No. 407 "Pavement Removal, 5" Depth" with a Unit Code of 3E14PMR, a Unit of S.Y. and an Approx. Qty. of 20,000.

Two (2) copies of revised Proposal Pages 4R, 5R1, 13R1, 14R, 16R, 20R, 22R, 24R, 25R, and 26R1 dated 2/6/12 are enclosed herewith to reflect the above changes. One copy of the revised pages shall be substituted for the superseded pages in the bound Contract Book, and the second copy of the revised pages shall be substituted in the separated Proposal Forms, which were originally issued to prospective bidders.

PERTAINING TO THE SPECIFICATIONS

208.04
 Page 77

The following is added:

Watering will be measured in units of 1,000 gallons (MG). Water may be measured by means of meters, by actual measurement in tanks, tank trucks or other containers, or by computation based on weight.

208.05
 Page 77

The second pay item in the Standard Specifications is deleted and replaced with the following:

<i>PAY ITEM</i>	<i>PAY UNIT</i>
Watering.....	MG

Section 536
 Page 238

The following Section is added:

SECTION 536 - FORCE ACCOUNT FOR EMERGENCY & ROUTINE ROADWAY AND BRIDGE REPAIR

536.01	DESCRIPTION				
	Due to the lane shift configurations and access requirements for this contract, work that would typically be accomplished as part of the Authority's annual bridge and roadway repairs contracts cannot be constructed within the Widening contract limits. In addition, areas of existing pavement may require emergency repair where resurfacing is not the most efficient option as determined by the Engineer. In these cases, repair shall be affected by means and methods determined jointly by the Engineer and Contractor. As such, it is anticipated that the Contractor will be directed by the Engineer to perform unscheduled emergency and routine roadway and bridge repairs over the duration of this contract				
536.02	METHODS OF CONSTRUCTION				
	Construction of emergency repairs shall be performed in accordance with the applicable requirements of related work on the project or as directed by the Engineer.				
536.03	MEASUREMENT				
	Force Account for Emergency & Routine Roadway and Bridge Repairs will not be measured for payment but measurement will be made on a Cost Plus basis for the time and material used in accordance with Subsection 108.04.				
536.04	PAYMENT				
	Payment will be made under:				
	<table border="1"> <thead> <tr> <th style="text-align: left;"><i>PAY ITEM</i></th> <th style="text-align: right;"><i>PAY UNIT</i></th> </tr> </thead> <tbody> <tr> <td>Force Account for Emergency & Routine Roadway and Bridge Repairs</td> <td style="text-align: right;">Lump Sum</td> </tr> </tbody> </table>	<i>PAY ITEM</i>	<i>PAY UNIT</i>	Force Account for Emergency & Routine Roadway and Bridge Repairs	Lump Sum
<i>PAY ITEM</i>	<i>PAY UNIT</i>				
Force Account for Emergency & Routine Roadway and Bridge Repairs	Lump Sum				

Payment for Force Account for Emergency & Routine Roadway and Bridge Repairs will be made on a Cost Plus basis in accordance with Subsection 108.04.

923.41
 Page 364

The following Subsection is added:

923.41 ARTICULATED CONCRETE BLOCK MATTRESS AND SPILLWAY LINING

Articulating concrete block (ACBM) shall meet the following criteria:

Criteria	Required Value	Test Method
Thickness, minimum	5 inches	N/A
Net Weight/Area, minimum	45 psf	See Note 1
Critical Shear Stress, minimum	3.5 psf	FHWA RD-89-199
Critical Velocity, minimum	15 ft/sec	FHWA RD-89-199
Curvature Radius, maximum	3 feet	See Note 2.
Surface Void Area Ratio	20% - 40%	See Note 3.
Block/Geotextile Interface Friction Angle	35 degrees	See Note 4.
Vehicular Live Load	12 kip Wheel Load	See Note 5.

Notes:

1. The weight of the mattress per unit area shall be determined with the nominal joint spacing in a non-submerged condition.
2. The curvature radius shall be indicative of the ability of the assembled mattress to conform to one-dimensional subgrade curves without binding, such as for anchor trenches and swales.
3. The surface void area ratio shall be determined at the visible (with filled voids) surface of the blocks, with the joints spaced in a neutral position (50%), and shall be expressed as a percentage of the gross mat area. The void area shall include area between the blocks and open cells within the block.
4. The concrete surface shall be sufficiently rough to prevent sliding of the blocks on the geotextile. The interface friction must be matched with the selected block and geotextile combination, and shall be included with the ACBM and Geotextile Data submittal.
5. The ACBM will also be used as a riding surface for maintenance vehicles and shall be capable of supporting a 12 Kip wheel load

The ACBM product shall have been tested in a flume chamber in substantial conformance with FHWA RD-89-199, except that a drainage layer is not required. If the product was tested with a drainage layer, the installed product shall incorporate a similar drainage layer with adequate filtration design for the site soils. The flume test shall be based on conservative assumptions for field placement of the blocks (such as block orientation, and joint spacing within construction tolerances). The critical shear stress (and critical velocity) shall be indicated in the test report.

Extrapolation of critical shear stress for untested blocks within a similar family of ACBM shall be subject to limitations. Extrapolation shall only be used for blocks having a similar footprint area and interlock mechanism, but with variable thickness or net weight/area. Extrapolation shall only be accepted if the following conditions are met:

1. The extrapolation is in strict accordance with hydraulic similitude methods commonly accepted by the industry, and includes quantitative treatment for a block overturning failure mode.
2. The tested block is the smaller product size in both thickness and net weight/area, and extrapolation does not extend the critical velocity more than 10 feet per second from the tested product size.

Concrete block shall be interconnected by flexible cables running through the blocks. Each block shall be penetrated by a cable that allows articulation of the blocks, but restrains removal of individual blocks. Void filler shall be placed to inhibit lateral movement, cover the geotextile, and increase hydraulic stability. Articulating concrete block, cables, and fittings shall be fabricated into mattresses at the manufacturer's plant.

ACBM shall be wet cast using concrete as specified herein, or dry-cast by a vibratory block forming machine, and shall be manufactured to the following requirements:

1. The minimum compressive strength shall be 4000 psi for an average of 3 units, and 3500 psi for an individual unit. Compressive strength shall be determined by ASTM C42/C42M.
2. Water absorption shall be determined by ASTM C 140. The minimum saturated surface-dry density shall be 10 pcf for average of 3 units, and 12 pcf for an individual unit.
3. Wet cast concrete shall be air entrained to contain between 4 and 7 percent total air.
4. For freeze-thaw durability tested in accordance with ASTM C 1262, specimens shall comply with either of the following: (1) the weight loss of each of 5 specimens after 100 cycles shall not exceed 1 percent; or (2) the weight loss of each of 5 specimens after 150 cycles shall not exceed 1.5 percent.

All blocks shall be sound and free of defects that would interfere with proper placement or that would impair the strength or longevity of the installation. Blocks with the following defects shall be discarded:

1. Blocks with broken appendages.
2. Blocks with chips resulting in a weight loss exceeding 10%.
3. Blocks with cracks wider than 0.06 inches and longer than 33% of the nominal height.

Minor cracks incidental to the usual method of manufacture, or chipping that results from customary methods of handling in shipping, delivery and placement will not be deemed grounds for rejection. Blocks shall be stored in a suitable location away from mud, paint, wet cement, and other contamination or disturbance.

Geotextile used as a filter below the ACBM shall be a woven or non-woven fabric, and shall meet the minimum requirement specified below. The property values (except for AOS) represent minimum average roll values (MARV) in the weakest principal direction.

Property	Test Requirement	Test Method
Grab Tensile Strength	160 lbs non-woven 250 lbs woven	ASTM D4632
Tear Strength	55 lbs non-woven 90 lbs woven	ASTM D4533
Puncture Strength	55 lbs non-woven 90 lbs woven	ASTM D4833
Permittivity	0.5 / sec	ASTM D4491
Apparent Opening Size	70-100	ASTM D4571
Ultraviolet Stability	50%	ASTM D4355

Cable used for preassembled mattresses shall be sufficiently sized and fastened for the size/weight of the assembled mattresses such that the assembled mattresses can be placed in compliance with OSHA standards. Cables shall be constructed of preformed Type 302 stainless steel aircraft cable. Fittings used with the cable shall be stainless steel. The manufacturer shall be responsible for determining the minimum cable strength compatible with the mattress size for safe handling. Cable strength shall be based on a minimum factor of safety of 5, and include appropriate reduction factors for mechanically crimped cable, and other fasteners. The revetment cable shall have the following properties:

Nominal Cable Diameter	Strength (Lbs)	Lbs./100 ft	
		Min.	Max.
1/8"	1,700	2.8	2.9
3/16"	3,700	6.2	6.5
1/4"	6,100	10.6	11.0

Anchors shall be capable of being attached directly to the articulating concrete block mat in a manner that will achieve little or no slack in the cable system or gaps in the articulating concrete block mattress. Anchors shall be attached to the mat in such a manner that tampering or vandalism will not affect them. Anchors shall have the capability of being load-tested to the specified pull-out capacity.

PERTAINING TO THE PLANS

Make the following changes to the contract plan sheets:

Plan Sheet	Drawing No.	From Sta.	To Sta.
379	C-43	S3978+13	S3981+00
380	C-44	S3981+00	S3985+53
391	C-55	S4080+45	S4089+00
(no plan)		S4089+00	S4106+08 (Ireland Brook Bridge)
(no plan)		S4107+15 (Ireland Brook Bridge)	S4124+97
392	C-56	S4124+97	S4134+03
(no plan)		S4134+03	S4161+15
393	C-57	S4161+15	S4170+19
(no plan)		S4170+19	S4178+38 (South Branch Beaverdam Brook Bridge)
394	C-58	S4179+63 (South Branch Beaverdam Brook Bridge)	S4188+75
(no plan)		S4188+75	S4192+22 (North Branch Beaverdam Brook Bridge)
395	C-59	S4200+97	S4207+24
396	C-60	S4207+24	S4216+20
397	C-61	S4216+20	S4219+75
402	C-66	S4263+25	S4268+50
403	C-67	S4276+34	S4279+62
404	C-68	S4279+62	S4282+09
407	C-71	S4308+22 (Tices Lane)	S4312+18

At the above locations, the existing NSO roadway shoulder/proposed third travel lane shall be milled 2" and paved with Superpave Hot Mix Asphalt 12.5H76 Surface Course 2" Min. and Var. Thick, similar to other areas of the existing NSO roadway shoulder/proposed third driving lane throughout the project. Payment will be made under the respective items for Pavement Removal 2" Depth and Superpave Hot Mix Asphalt 12.5H76 Surface Course.

At the above locations, the existing NSO roadway shoulder/proposed shoulder shall be reconstructed using one or more of the following methods, as determined in the field by the Engineer:

Method 1 - Mill 2" and pave with Superpave Hot Mix Asphalt 12.5H76 Surface Course 2" Min. and Var. Thick

Method 2 - Mill 5" and pave with Superpave Hot Mix Asphalt 12.5H76 Surface Course 2" Min. and Var. Thick and Superpave Hot Mix Asphalt 19H76 Intermediate Course 3" Thick

Method 3 - Excavate and construct Turnpike Pavement with or without Grade A

Quantities have been included in the Proposal for Method 2. In the event that either Method 1 or Method 3 are required, appropriate existing contract items will be applied and adjustments will be made to reflect the use of those items. Where Method 3 is required, MPT shall be similar to what is shown for NSO roadway shoulder construction at other locations within the contract, and payment will be made for temporary PCCB and temporary impact attenuators under their respective items. No additional payment will be made for signs or other MPT devices incidental to this work. Not more than 1 State Police/Maintenance U-turn may be closed at any time.

- Sheet No. 5
- Item No. 36, change the contract quantity and if and where directed quantity from 41,000 C.Y. to 4,000 C.Y.
 - Item No. 37, change the contract quantity and if and where directed quantity from 66,000 Ton to 6,000 Ton.
 - Item No. 38, change the contract quantity and if and where directed quantity from 41 Each to 4 Each.
 - Item No. 43, change the contract quantity from 97,879 Ton to 101,379 Ton and change the plan sheet total from 88,981 Ton to 92,481 Ton.
 - Item No. 44, change the contract quantity from 81,519 Ton to 86,319 Ton and change the plan sheet total from 74,108 Ton to 78,908 Ton.
 - Item No. 51, change the contract quantity and plan sheet total from 144,157 S.Y. to 164,157 S.Y.
- Sheet No. 6
- Item No. 185, change the contract quantity from 822 L.F. to 807 L.F. and change the plan sheet total from 621 L.F. to 606 L.F.
 - Item No. 186, change the contract quantity from 112 L.F. to 130 L.F. and change the plan sheet total from 92 L.F. to 110 L.F.
 - Item No. 188, change the contract quantity from 2,569 L.F. to 2,557 L.F. and change the plan sheet total from 2,369 L.F. to 2,357 L.F.
 - Item No. 206, change the contract quantity and plan sheet total from 18,566 L.F. to 18,568 L.F.
 - Item No. 244 is deleted.
- Sheet No. 7
- Item No. 310, change the contract quantity and if and where directed quantity from 66,000 Ton to 6,000 Ton.
 - Item No. 339, change the contract quantity and plan sheet total from 185 Each to 190 Each.
 - Item No. 369, change the contract quantity and plan sheet total from 21,080 L.F. to 21,890 L.F.
 - Item No. 388, change the contract quantity and if and where directed quantity from 1,799 M.G. to 12,000 M.G.
- Sheet No. 8
- Add Item No. 404 "Force Account for Emergency and Routine Roadway and Bridge Repairs (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)" with a Unit Code of 4Q500FAE, a Unit of L.S. and a Contract Quantity of 1.
 - Add Item No. 405 "Demolition of Existing Structures No. 2 (Str. No. 71.26)", with a Unit Code of 2J12DES, a Unit of L.S., and a Contract Quantity of 1.
 - Add Item No. 406 "Demolition of Existing Structures No. 3 (Str. No. 72.11)", with a Unit Code of 2J13DES, a Unit of L.S., and a Contract Quantity of 1.

Add Item No. 407 "Pavement Removal, 5" Depth", with a Unit Code of 3E14PMR, a Unit of S.Y. and a Contract Quantity of 20,000.

- Sheet No. 343 Added note for Demolition of Pier Foundation. See enclosed Sheet No. 343.
- Sheet No. 352 Added note for Demolition of Pier Foundation. See enclosed Sheet No. 352.
- Sheet No. 415 Relocated inlet, adjusted pipe lengths, modified text. See enclosed Sheet No. 415.
- Sheet No. 435 Relocated inlets, adjusted pipe lengths, modified text. See enclosed Sheet No. 435.
- Sheet No. 437 Relocated inlet, adjusted pipe lengths, modified text. See enclosed Sheet No. 437.
- Sheet No. 490-492, 494-497, 499, 501-505 Revised station offsets, top of grate elevations and invert elevations. See enclosed Sheet No. 490, 491, 492, 494, 495, 496, 497, 499, 501, 502, 503, 504, and 505.
- Sheet No. 744 and 745 Revised/added 4-Way Power/Communications Duct Banks and Type C Junction Boxes in the right shoulder of the NSO roadway. See enclosed Sheets No. 744 and 745.
- Sheet No. 745A Add new sheet for ITS POWER/COMM. See enclosed Sheet No. 745A.
- Sheet No. 745B Add new sheet for ITS POWER/COMM. See enclosed Sheet No. 745B.
- Sheet No. 1245 Revise the title of the "Intermediate Diaphragm D3" detail to read "Intermediate Diaphragm D3 (Shown) and D4 (As Noted)". See enclosed Sheet No. 1245.

NEW JERSEY TURNPIKE AUTHORITY

Richard J. Raczynski, P.E.
Chief Engineer

Enclosure:

Two copies of Proposal Pages 4R, 5R1, 13R1, 14R, 16R, 20R, 22R, 24R, 25R, and 26R1
Contract Plan Sheets 343, 352, 415, 435, 437, 490, 491, 492, 494, 495, 496, 497, 499, 501, 502, 503, 504, 505, 744, 745, 745A, 745B, and 1245 (11"x17")

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
30	2H45TEC	Construction Driveway	Ton	1,000				
31	N2H0003	Haybale Check Dam With Temporary Stone Outlet	L.F.	360				
32	N2H0004	Temporary Stone Check Dam	C.Y.	280				
33	2J01DES	Demolition of Existing Structures	L.S.	1	-----	--		
34	2J11DES	Demolition of Existing Structures No. 1 (Str. No. 71.87)	L.S.	1	-----	--		
35	2K01TPF	Temporary Orange Plastic Fence	L.F.	16,222				
36	2M00006	Excavation, Acid Producing Soils	C.Y.	4,000				
37	2M00008	Disposal of Acid Producing Soil	Ton	6,000				
38	2M00009	Testing for Acid Producing Soil Deposits	Each	4				
39	3A05ABC	Aggregate Base Course, 5" Thick	S.Y.	635				
40	3A06ABC	Aggregate Base Course, 6" Thick	S.Y.	707				
41	3A07ABC	Aggregate Base Course, 6.5" Thick	S.Y.	476,499				
42	3B21SUP	Superpave Hot Mix Asphalt 25H 64 Base Course	Ton	234,885				
43	3B24SUP	Superpave Hot Mix Asphalt 19H 76 Intermediate Course	Ton	101,379				
44	3B25SUP	Superpave Hot Mix Asphalt 12.5H 76 Surface Course	Ton	86,319				
45	3B26TAC	Tack Coat	Gallon	28,861				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
46	3B2600APA	Asphalt Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$2,600,000. Enter a Unit Price of \$2,600,000 as your bid item for this item.)	L.S.	1	-----	--	2,600,000	00
47	3B31CLS	Cleaning Outside Shoulders	L.F.	73,500				
48	3C01BRS	Berm Surfacing, 3 inches Thick	S.Y.	39,818				
49	3C02BRS	Berm Surfacing, Crushed Stone, 6" Thick	S.Y.	33,261				
50	3D05APS	Bridge Approach Slab	S.Y.	1,262				
51	3E07PMR	Pavement Removal, 2" Depth	S.Y.	164,157				
52	3F01MRS	Milled Rumble Strip	L.F.	167,000				
53	4A00005	Concrete In Culvert	C.Y.	412				
54	4A04STC	Concrete In Footings	C.Y.	713				
55	4A10AAF	Concrete in Abutments Above Footings	C.Y.	738				
56	4A10PAF	Concrete in Piers Above Footings	C.Y.	190				
57	4A10RWF	Concrete in Retaining Walls Above Footings	C.Y.	360				
58	4A10RFS	Reinforcement Steel	Pound	192,560				
59	4A11RFS	Reinforcement Steel, Epoxy Coated	Pound	750,499				
60	N4A0003	Strip Seal Expansion Joints, 4" Movement	L.F.	376				
61	4A01CCS	Concrete Core Sampling	Each	22				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	190				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,561				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	807				
186	5A00016	10" Outlet Pipe	L.F.	130				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,557				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
195	5B00056	19" X 30" Reinforced Concrete Elliptical Flared End Sections	Each	1				
196	5B00044	19" X 30" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
197	5B00060	22" X 34" Reinforced Concrete Elliptical Pipe	L.F.	106				
198	5B00019	24" X 38" Reinforced Concrete Elliptical Pipe	L.F.	3,801				
199	5B00055	24" X 38" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
200	5B00042	29" X 45" Reinforced Concrete Elliptical Pipe	L.F.	549				
201	5B00057	29" X 45" Reinforced Concrete Elliptical Flared End Sections	Each	1				
202	5B00020	34" X 53" Reinforced Concrete Elliptical Pipe	L.F.	3,756				
203	5B00021	43" X 68" Reinforced Concrete Elliptical Pipe	L.F.	367				
204	5B00061	43" X 68" Reinforced Concrete Elliptical Flared End Sections	Each	1				
205	5B01CSD	Cleaning Existing Storm Drains	L.F.	5,000				
206	5B15RC3	15" Reinforced Concrete Pipe	L.F.	18,568				
207	5B15RC5	15" Reinforced Concrete Pipe, Class V	L.F.	100				
208	5B15RCE	15" Reinforced Concrete Flared End Sections	Each	18				
209	5B18RC3	18" Reinforced Concrete Pipe	L.F.	8,263				
210	5B18RC5	18" Reinforced Concrete Pipe, Class V	L.F.	100				
211	5B18RCE	18" Reinforced Concrete Flared End Sections	Each	6				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
229	5C02ND3	Inlet, Type Double D3	Each	1				
230	5C00038	Inlets, Type E-1	Each	55				
231	5C01NE2	Inlets, Type E-2	Each	34				
232	5C10INT	Inlet Converted to Manhole	Each	4				
233	5C20NP1	Manhole, Type P-1	Each	95				
234	5C20NP2	Manhole, Type P-2	Each	20				
235	5C00047	Manhole, Type P-3	Each	29				
236	5C10ND1	Reconstructed Inlet, Type D1, Using New Grate and Frame	Each	10				
237	5C10ND2	Reconstructed Inlet, Type D2, Using New Grate and Frame	Each	10				
238	5C10ND3	Reconstructed Inlet, Type D3, Using New Grate and Frame	Each	5				
239	5C05ND1	New Inlet Frame and Grate, Type D-1	Each	101				
240	5C05ND2	New Inlet Frame and Grate, Type D-2	Each	76				
241	5C05ND3	New Inlet Frame and Grate, Type D-3	Each	7				
242	5C40RSF	Reset Frame	Each	10				
243	5C00023	Flow Control Structure	Each	30				
245	5C01NOS	Outlet Structure	Each	9				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
297	5X01FTA	Furnishing Temporary Impact Attenuator, Quadguard, 6 Bays, 24" Wide	Each	3				
298	5X02FTA	Furnishing Temporary Impact Attenuator, Quadguard, 9 Bays, 24" Wide	Each	14				
299	5X00PRA	Placing and Removing Temporary Impact Attenuator, Quadguard	Each	23				
300	5X00RPR	Repair Temporary Impact Attenuator, Quadguard	Each	8				
301	5Y01MMC	Mile Marker, Type MC	Each	6				
302	5Y01MMP	Mile Marker, Type MP	Each	13				
303	5Y01MRC	Mile Marker, Type RC	Each	29				
304	5Y01MRP	Mile Marker, Type RP	Each	191				
305	5ZD01RPM	Raised Pavement Markers	Each	480				
306	5ZM05FAS	Force Account for Snow Removal (This is a NO-BID, Cost-Plus item for this contract. The Cost-Plus price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
307	5ZG08PJ	24" Steel Pipe Jacking	L.F.	120				
308	5ZG13PJ	36" Steel Pipe Jacking	L.F.	132				
309	5ZL0022	Manufactured Treatment Devices, Type 1	Each	30				
310	5ZO0018	Off-Site Disposal of ID-27 Waste	Ton	6,000				
311	5ZO0019	Environmental Health and Safety Plan	L.S.	1	-----	--		
312	5ZO0066	Transite Duct Removal	L.F.	859				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
330	6A06MLC	#6 A.W.G. Multiple Lighting Cable	L.F.	2,185				
331	6A08GWR	#8 A.W.G. Ground Wire	L.F.	54,100				
332	6A09MLC	#3/0 A.W.G. Multiple Lighting Cable	L.F.	13,722				
333	6A10FMC	Concrete Foundation For Meter Cabinet	Each	8				
334	6A10MLC	#1/0 A.W.G. Multiple Lighting Cable	L.F.	16,390				
335	6A10RLM	Lighting Manhole	Each	1				
336	6A13RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 80)	L.F.	8,578				
337	6A20MLC	2 / 0 A.W.G. Multiple Lighting Cable	L.F.	1,068				
338	6A21JF1	Junction Box Foundation, Type 1	Each	61				
339	6A24JBC	Junction Box, Type C	Each	190				
340	6A25JBD	Junction Box, Type D	Each	37				
341	6A25JPS	Junction Box, Type PS	Each	36				
342	6A65RAS	Remove and Salvage Existing Facilities	L.S.	1	-----	--		
343	6B00002	Luminaire, Type A, 150W HPS	Each	13				
344	6B00004	Underbridge Lighting Fixture	Each	4				
345	6B00011	Lighting Standard Base, Type 1	Each	1				
346	6B00013	Lighting Standard, Type L-MG-26-SB	Each	1				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
363	6J00017	Variable Message Sign Installation	Each	8				
364	6J00018	Variable Speed Limit Sign Installation	Each	8				
365	6J00020	System Control Cabinet Installation	Each	13				
366	6J00023	Transformer, Type 37.5kVA	Each	13				
367	6J00024	CCTV Camera, ITSS Mounted	Each	6				
368	6J00029	4-Way Power/Comm Duct Bank, Soil Encased	L.F.	8,490				
369	6J00030	4-Way Power/Comm Duct Bank, Concrete Encased	L.F.	21,890				
370	6J00049	4-Way Duct Bank, 4" HDPE Conduits Directional Drilled	L.F.	1,820				
371	6J00067	Lighting Standard, Type L-ITS-40	Each	2				
372	6J00068	ITS Power Equipment, Pedestal Mounted	Each	7				
373	6J00071	ITS Equipment Platform, Type 2	Each	4				
374	6J00073	ITS Equipment Platform, Type 4	Each	4				
375	6J00076	Radio Antenna Mount	Each	13				
376	6J00100	Hybrid Changeable Message Sign Installation	Each	9				
377	6J00112	End Node Radio Installation	Each	13				
378	6J00150	End Node Radio Relocation	Each	6				
379	6K01MPT	Install VMS MPT Location No. 1 (72.35N)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
380	6K02MPT	Install VMS MPT Location No. 2 (74.33N)	L.S.	1	-----	--		
381	6K03MPT	Install VMS MPT Location No. 3 (75.16N)	L.S.	1	-----	--		
382	6K00009	Remove and Salvage MPT VMS	L.S.	1	-----	--		
383	6J00165	Furnish Lane Use Signals	Each	8				
384	7C01TOP	Topsoil	S.Y.	160,326				
385	7D01SED	Seeding, Type A	S.Y.	85,726				
386	7D08SED	Seeding, Type L	S.Y.	74,600				
387	7D20MOW	Mowing	Acre	22				
388	7D30WAT	Watering	M.G.	12,000				
389	7F01SSM	Soil Stabilization Matting	S.Y.	74,600				
390	8A06MPT	Repair Temporary Impact Attenuators	Barrel	20				
391	8A07MPT	Repair Truck Mounted Impact Attenuators	Each	7				
392	8A30MPT	Furnishing Portable Variable Message Sign	Each	6				
393	N8A0001	Furnishing Precast Concrete Construction Barrier	L.F.	92,671				
394	N8A0002	Placing and Removing Precast Concrete Construction Barrier	L.F.	110,660				
395	N8A0003	Resetting Precast Concrete Construction Barrier	L.F.	50,474				
396	8B18MPT	Furnishing Temporary Impact Attenuator	Each	8				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
397	8B20MPT	Placing and Removing Temporary Impact Attenuator	Each	21				
398	8B00004	Placing and Removing Portable Variable Message Sign	Each	16				
399	8B15MPT	Traffic Protection Patrol	M.H.	20,880				
400	8B17MPT	Furnishing Truck with Mounted Attenuator	Each	8				
401	8B31MPT	Maintenance and Protection of Traffic	L.S.	1	-----	--		
402	4F50IOS	Install Overhead Span Sign Structure No. 7 (71.84)	L.S.	1	-----	--		
403	4F51IOS	Install Overhead Span Sign Structure No. 8 (72.14)	L.S.	1	-----	--		
404	4Q500FAE	Force Account for Emergency and Routine Roadway and Bridge Repairs (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
405	2J12DES	Demolition of Existing Structures No. 2 (Str. No. 71.26)	L.S.	1	-----	--		
406	2J13DES	Demolition of Existing Structures No. 3 (Str. No. 72.11)	L.S.	1	-----	--		
407	3E14PMR	Pavement Removal, 5" Depth	S.Y.	20,000				
TOTAL PRICE								

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
30	2H45TEC	Construction Driveway	Ton	1,000				
31	N2H0003	Haybale Check Dam With Temporary Stone Outlet	L.F.	360				
32	N2H0004	Temporary Stone Check Dam	C.Y.	280				
33	2J01DES	Demolition of Existing Structures	L.S.	1	-----	--		
34	2J11DES	Demolition of Existing Structures No. 1 (Str. No. 71.87)	L.S.	1	-----	--		
35	2K01TPF	Temporary Orange Plastic Fence	L.F.	16,222				
36	2M00006	Excavation, Acid Producing Soils	C.Y.	4,000				
37	2M00008	Disposal of Acid Producing Soil	Ton	6,000				
38	2M00009	Testing for Acid Producing Soil Deposits	Each	4				
39	3A05ABC	Aggregate Base Course, 5" Thick	S.Y.	635				
40	3A06ABC	Aggregate Base Course, 6" Thick	S.Y.	707				
41	3A07ABC	Aggregate Base Course, 6.5" Thick	S.Y.	476,499				
42	3B21SUP	Superpave Hot Mix Asphalt 25H 64 Base Course	Ton	234,885				
43	3B24SUP	Superpave Hot Mix Asphalt 19H 76 Intermediate Course	Ton	101,379				
44	3B25SUP	Superpave Hot Mix Asphalt 12.5H 76 Surface Course	Ton	86,319				
45	3B26TAC	Tack Coat	Gallon	28,861				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
46	3B2600APA	Asphalt Price Adjustment (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$2,600,000. Enter a Unit Price of \$2,600,000 as your bid item for this item.)	L.S.	1	-----	--	2,600,000	00
47	3B31CLS	Cleaning Outside Shoulders	L.F.	73,500				
48	3C01BRS	Berm Surfacing, 3 inches Thick	S.Y.	39,818				
49	3C02BRS	Berm Surfacing, Crushed Stone, 6" Thick	S.Y.	33,261				
50	3D05APS	Bridge Approach Slab	S.Y.	1,262				
51	3E07PMR	Pavement Removal, 2" Depth	S.Y.	164,157				
52	3F01MRS	Milled Rumble Strip	L.F.	167,000				
53	4A00005	Concrete In Culvert	C.Y.	412				
54	4A04STC	Concrete In Footings	C.Y.	713				
55	4A10AAF	Concrete in Abutments Above Footings	C.Y.	738				
56	4A10PAF	Concrete in Piers Above Footings	C.Y.	190				
57	4A10RWF	Concrete in Retaining Walls Above Footings	C.Y.	360				
58	4A10RFS	Reinforcement Steel	Pound	192,560				
59	4A11RFS	Reinforcement Steel, Epoxy Coated	Pound	750,499				
60	N4A0003	Strip Seal Expansion Joints, 4" Movement	L.F.	376				
61	4A01CCS	Concrete Core Sampling	Each	22				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	190				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,561				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	807				
186	5A00016	10" Outlet Pipe	L.F.	130				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,557				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
195	5B00056	19" X 30" Reinforced Concrete Elliptical Flared End Sections	Each	1				
196	5B00044	19" X 30" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
197	5B00060	22" X 34" Reinforced Concrete Elliptical Pipe	L.F.	106				
198	5B00019	24" X 38" Reinforced Concrete Elliptical Pipe	L.F.	3,801				
199	5B00055	24" X 38" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
200	5B00042	29" X 45" Reinforced Concrete Elliptical Pipe	L.F.	549				
201	5B00057	29" X 45" Reinforced Concrete Elliptical Flared End Sections	Each	1				
202	5B00020	34" X 53" Reinforced Concrete Elliptical Pipe	L.F.	3,756				
203	5B00021	43" X 68" Reinforced Concrete Elliptical Pipe	L.F.	367				
204	5B00061	43" X 68" Reinforced Concrete Elliptical Flared End Sections	Each	1				
205	5B01CSD	Cleaning Existing Storm Drains	L.F.	5,000				
206	5B15RC3	15" Reinforced Concrete Pipe	L.F.	18,568				
207	5B15RC5	15" Reinforced Concrete Pipe, Class V	L.F.	100				
208	5B15RCE	15" Reinforced Concrete Flared End Sections	Each	18				
209	5B18RC3	18" Reinforced Concrete Pipe	L.F.	8,263				
210	5B18RC5	18" Reinforced Concrete Pipe, Class V	L.F.	100				
211	5B18RCE	18" Reinforced Concrete Flared End Sections	Each	6				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
229	5C02ND3	Inlet, Type Double D3	Each	1				
230	5C00038	Inlets, Type E-1	Each	55				
231	5C01NE2	Inlets, Type E-2	Each	34				
232	5C10INT	Inlet Converted to Manhole	Each	4				
233	5C20NP1	Manhole, Type P-1	Each	95				
234	5C20NP2	Manhole, Type P-2	Each	20				
235	5C00047	Manhole, Type P-3	Each	29				
236	5C10ND1	Reconstructed Inlet, Type D1, Using New Grate and Frame	Each	10				
237	5C10ND2	Reconstructed Inlet, Type D2, Using New Grate and Frame	Each	10				
238	5C10ND3	Reconstructed Inlet, Type D3, Using New Grate and Frame	Each	5				
239	5C05ND1	New Inlet Frame and Grate, Type D-1	Each	101				
240	5C05ND2	New Inlet Frame and Grate, Type D-2	Each	76				
241	5C05ND3	New Inlet Frame and Grate, Type D-3	Each	7				
242	5C40RSF	Reset Frame	Each	10				
243	5C00023	Flow Control Structure	Each	30				
245	5C01NOS	Outlet Structure	Each	9				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
297	5X01FTA	Furnishing Temporary Impact Attenuator, Quadguard, 6 Bays, 24" Wide	Each	3				
298	5X02FTA	Furnishing Temporary Impact Attenuator, Quadguard, 9 Bays, 24" Wide	Each	14				
299	5X00PRA	Placing and Removing Temporary Impact Attenuator, Quadguard	Each	23				
300	5X00RPR	Repair Temporary Impact Attenuator, Quadguard	Each	8				
301	5Y01MMC	Mile Marker, Type MC	Each	6				
302	5Y01MMP	Mile Marker, Type MP	Each	13				
303	5Y01MRC	Mile Marker, Type RC	Each	29				
304	5Y01MRP	Mile Marker, Type RP	Each	191				
305	5ZD01RPM	Raised Pavement Markers	Each	480				
306	5ZM05FAS	Force Account for Snow Removal (This is a NO-BID, Cost-Plus item for this contract. The Cost-Plus price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
307	5ZG08PJ	24" Steel Pipe Jacking	L.F.	120				
308	5ZG13PJ	36" Steel Pipe Jacking	L.F.	132				
309	5ZL0022	Manufactured Treatment Devices, Type 1	Each	30				
310	5ZO0018	Off-Site Disposal of ID-27 Waste	Ton	6,000				
311	5ZO0019	Environmental Health and Safety Plan	L.S.	1	-----	--		
312	5ZO0066	Transite Duct Removal	L.F.	859				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
330	6A06MLC	#6 A.W.G. Multiple Lighting Cable	L.F.	2,185				
331	6A08GWR	#8 A.W.G. Ground Wire	L.F.	54,100				
332	6A09MLC	#3/0 A.W.G. Multiple Lighting Cable	L.F.	13,722				
333	6A10FMC	Concrete Foundation For Meter Cabinet	Each	8				
334	6A10MLC	#1/0 A.W.G. Multiple Lighting Cable	L.F.	16,390				
335	6A10RLM	Lighting Manhole	Each	1				
336	6A13RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 80)	L.F.	8,578				
337	6A20MLC	2 / 0 A.W.G. Multiple Lighting Cable	L.F.	1,068				
338	6A21JF1	Junction Box Foundation, Type 1	Each	61				
339	6A24JBC	Junction Box, Type C	Each	190				
340	6A25JBD	Junction Box, Type D	Each	37				
341	6A25JPS	Junction Box, Type PS	Each	36				
342	6A65RAS	Remove and Salvage Existing Facilities	L.S.	1	-----	--		
343	6B00002	Luminaire, Type A, 150W HPS	Each	13				
344	6B00004	Underbridge Lighting Fixture	Each	4				
345	6B00011	Lighting Standard Base, Type 1	Each	1				
346	6B00013	Lighting Standard, Type L-MG-26-SB	Each	1				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
363	6J00017	Variable Message Sign Installation	Each	8				
364	6J00018	Variable Speed Limit Sign Installation	Each	8				
365	6J00020	System Control Cabinet Installation	Each	13				
366	6J00023	Transformer, Type 37.5kVA	Each	13				
367	6J00024	CCTV Camera, ITSS Mounted	Each	6				
368	6J00029	4-Way Power/Comm Duct Bank, Soil Encased	L.F.	8,490				
369	6J00030	4-Way Power/Comm Duct Bank, Concrete Encased	L.F.	21,890				
370	6J00049	4-Way Duct Bank, 4" HDPE Conduits Directional Drilled	L.F.	1,820				
371	6J00067	Lighting Standard, Type L-ITS-40	Each	2				
372	6J00068	ITS Power Equipment, Pedestal Mounted	Each	7				
373	6J00071	ITS Equipment Platform, Type 2	Each	4				
374	6J00073	ITS Equipment Platform, Type 4	Each	4				
375	6J00076	Radio Antenna Mount	Each	13				
376	6J00100	Hybrid Changeable Message Sign Installation	Each	9				
377	6J00112	End Node Radio Installation	Each	13				
378	6J00150	End Node Radio Relocation	Each	6				
379	6K01MPT	Install VMS MPT Location No. 1 (72.35N)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
380	6K02MPT	Install VMS MPT Location No. 2 (74.33N)	L.S.	1	-----	--		
381	6K03MPT	Install VMS MPT Location No. 3 (75.16N)	L.S.	1	-----	--		
382	6K00009	Remove and Salvage MPT VMS	L.S.	1	-----	--		
383	6J00165	Furnish Lane Use Signals	Each	8				
384	7C01TOP	Topsoil	S.Y.	160,326				
385	7D01SED	Seeding, Type A	S.Y.	85,726				
386	7D08SED	Seeding, Type L	S.Y.	74,600				
387	7D20MOW	Mowing	Acre	22				
388	7D30WAT	Watering	M.G.	12,000				
389	7F01SSM	Soil Stabilization Matting	S.Y.	74,600				
390	8A06MPT	Repair Temporary Impact Attenuators	Barrel	20				
391	8A07MPT	Repair Truck Mounted Impact Attenuators	Each	7				
392	8A30MPT	Furnishing Portable Variable Message Sign	Each	6				
393	N8A0001	Furnishing Precast Concrete Construction Barrier	L.F.	92,671				
394	N8A0002	Placing and Removing Precast Concrete Construction Barrier	L.F.	110,660				
395	N8A0003	Resetting Precast Concrete Construction Barrier	L.F.	50,474				
396	8B18MPT	Furnishing Temporary Impact Attenuator	Each	8				

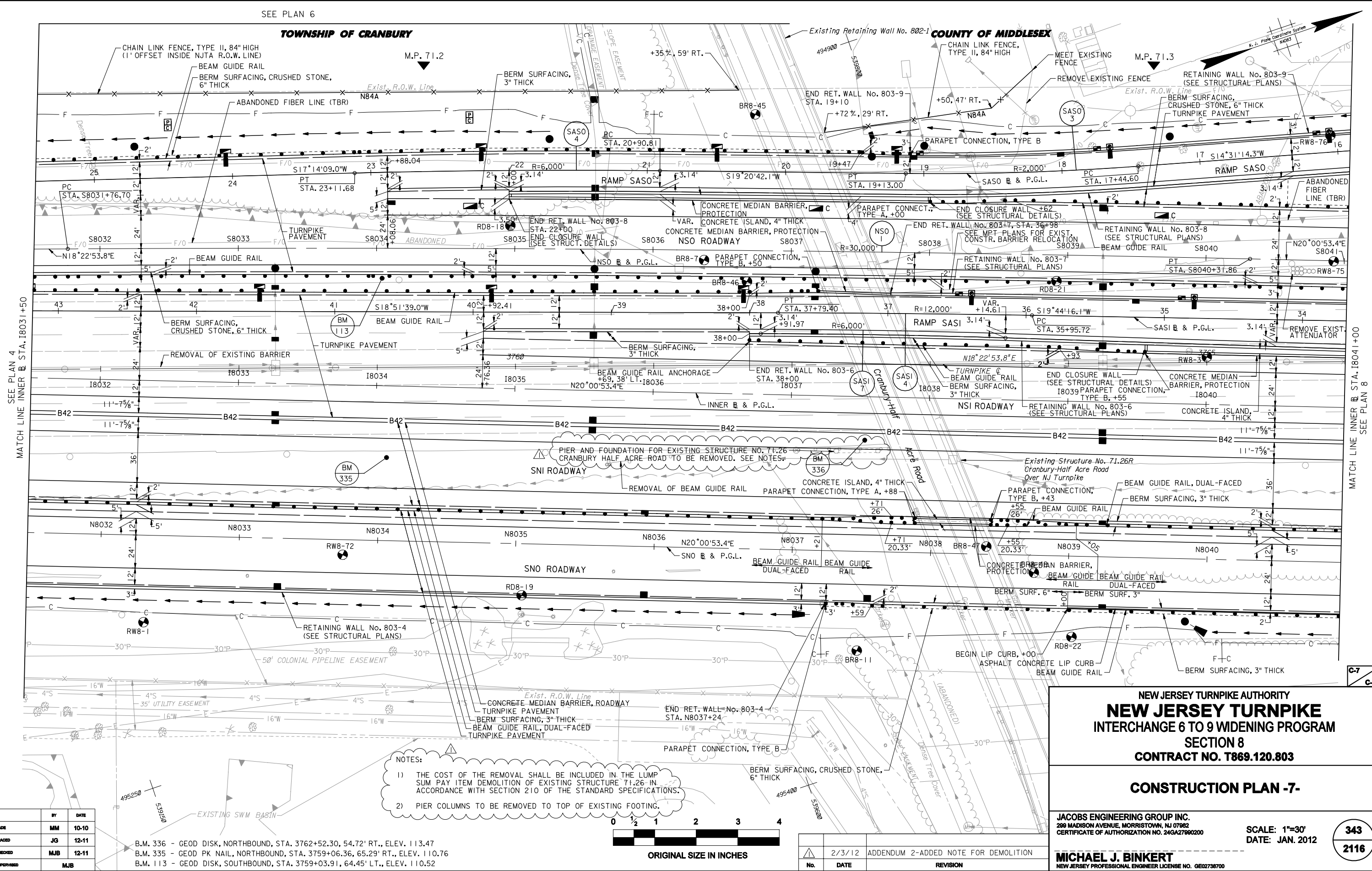
T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
397	8B20MPT	Placing and Removing Temporary Impact Attenuator	Each	21				
398	8B00004	Placing and Removing Portable Variable Message Sign	Each	16				
399	8B15MPT	Traffic Protection Patrol	M.H.	20,880				
400	8B17MPT	Furnishing Truck with Mounted Attenuator	Each	8				
401	8B31MPT	Maintenance and Protection of Traffic	L.S.	1	-----	--		
402	4F50IOS	Install Overhead Span Sign Structure No. 7 (71.84)	L.S.	1	-----	--		
403	4F51IOS	Install Overhead Span Sign Structure No. 8 (72.14)	L.S.	1	-----	--		
404	4Q500FAE	Force Account for Emergency and Routine Roadway and Bridge Repairs (This is a NO-BID, Lump Sum item for this contract. The Lump Sum price is \$500,000. Enter a Unit Price of \$500,000 as your bid for this item.)	L.S.	1	-----	--	500,000	00
405	2J12DES	Demolition of Existing Structures No. 2 (Str. No. 71.26)	L.S.	1	-----	--		
406	2J13DES	Demolition of Existing Structures No. 3 (Str. No. 72.11)	L.S.	1	-----	--		
407	3E14PMR	Pavement Removal, 5" Depth	S.Y.	20,000				
TOTAL PRICE								

SEE PLAN 6

TOWNSHIP OF CRANBURY

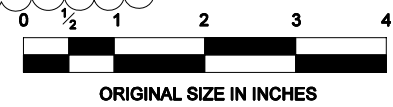
COUNTY OF MIDDLESEX



SEE PLAN 4
MATCH LINE INNER @ STA. 18031+50

MATCH LINE INNER @ STA. 18041+00
SEE PLAN 8

- NOTES:
- 1) THE COST OF THE REMOVAL SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM DEMOLITION OF EXISTING STRUCTURE 71.26 IN ACCORDANCE WITH SECTION 210 OF THE STANDARD SPECIFICATIONS.
 - 2) PIER COLUMNS TO BE REMOVED TO TOP OF EXISTING FOOTING.



BY	DATE
MM	10-10
JG	12-11
MJB	12-11
MJB	

B.M. 336 - GEOD DISK, NORTHBOUND, STA. 3762+52.30, 54.72' RT., ELEV. 113.47
 B.M. 335 - GEOD PK NAIL, NORTHBOUND, STA. 3759+06.36, 65.29' RT., ELEV. 110.76
 B.M. 113 - GEOD DISK, SOUTHBOUND, STA. 3759+03.91, 64.45' LT., ELEV. 110.52

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE INTERCHANGE 6 TO 9 WIDENING PROGRAM SECTION 8
 CONTRACT NO. T869.120.803

CONSTRUCTION PLAN -7-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: 1"=30'
 DATE: JAN. 2012

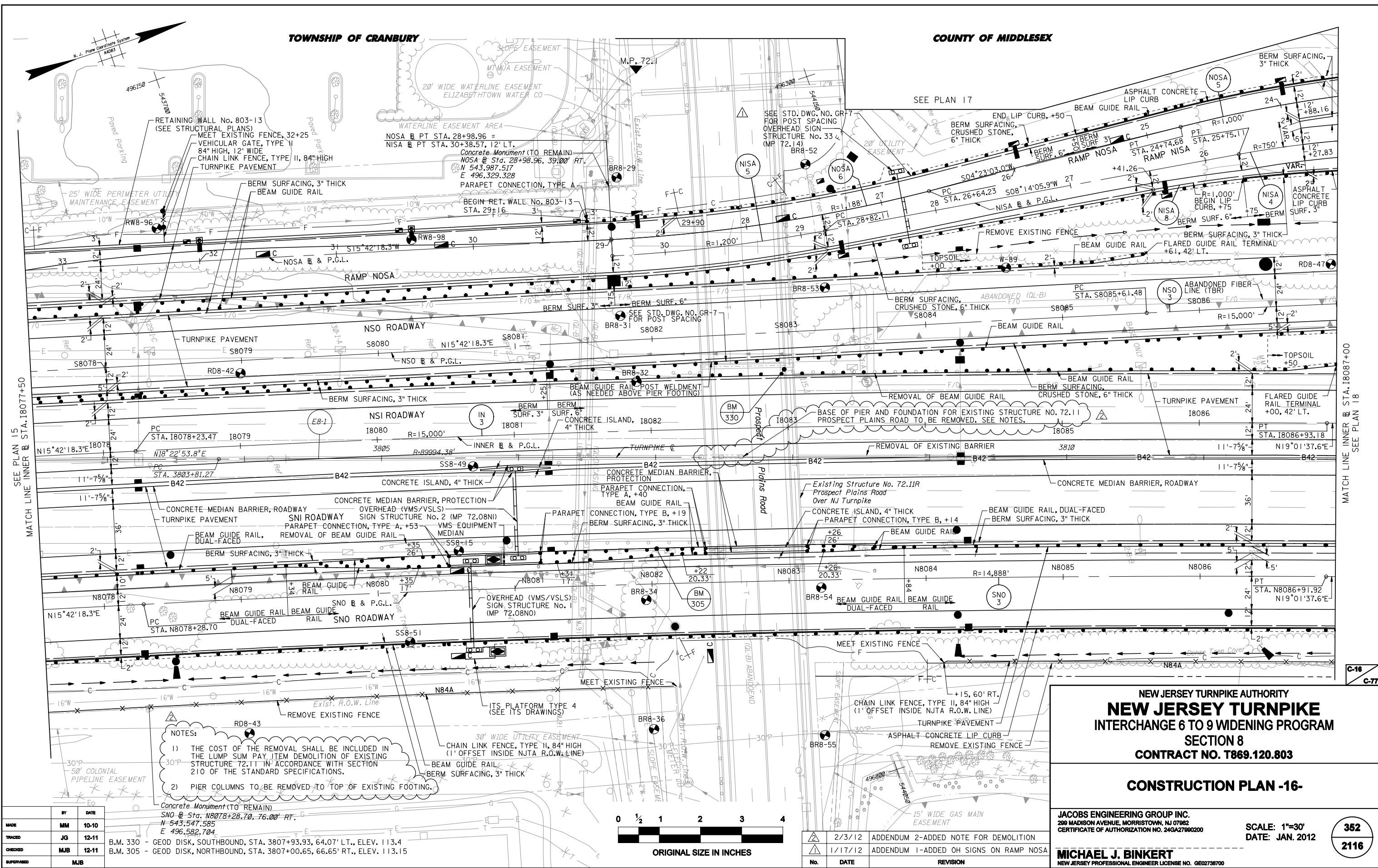
MICHAEL J. BINKERT
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

343
2116

FILE NAME: T869-120-803-0943.dgn

No.	DATE	REVISION
2/3/12		ADDENDUM 2-ADDED NOTE FOR DEMOLITION

ADDENDUM NO. 2 SHEET 1 OF 23



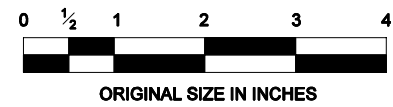
SEE PLAN 15
MATCH LINE INNER @ STA. 18077+50

MATCH LINE INNER @ STA. 18087+00
SEE PLAN 18

- NOTES:
- 1) THE COST OF THE REMOVAL SHALL BE INCLUDED IN THE LUMP SUM PAY ITEM DEMOLITION OF EXISTING STRUCTURE 72.111 IN ACCORDANCE WITH SECTION 210 OF THE STANDARD SPECIFICATIONS.
 - 2) PIER COLUMNS TO BE REMOVED TO TOP OF EXISTING FOOTING.

Concrete Monument (TO REMAIN)
 SNO @ Sta. N8078+28.70, 76.00' RT.
 N 543.547.585
 E 496.582.704

B.M. 330 - GEOD DISK, SOUTHBOUND, STA. 3807+93.93, 64.07' LT., ELEV. 113.4
 B.M. 305 - GEOD DISK, NORTHBOUND, STA. 3807+00.65, 66.65' RT., ELEV. 113.15



BY	DATE
MM	10-10
TRACED	JG
	12-11
CHECKED	MJB
	12-11
SUPERVISOR	MJB

No.	DATE	REVISION
2/3/12		ADDENDUM 2-ADDED NOTE FOR DEMOLITION
1/17/12		ADDENDUM 1-ADDED OH SIGNS ON RAMP NOSA

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

CONSTRUCTION PLAN -16-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA2799200

SCALE: 1"=30'
 DATE: JAN. 2012

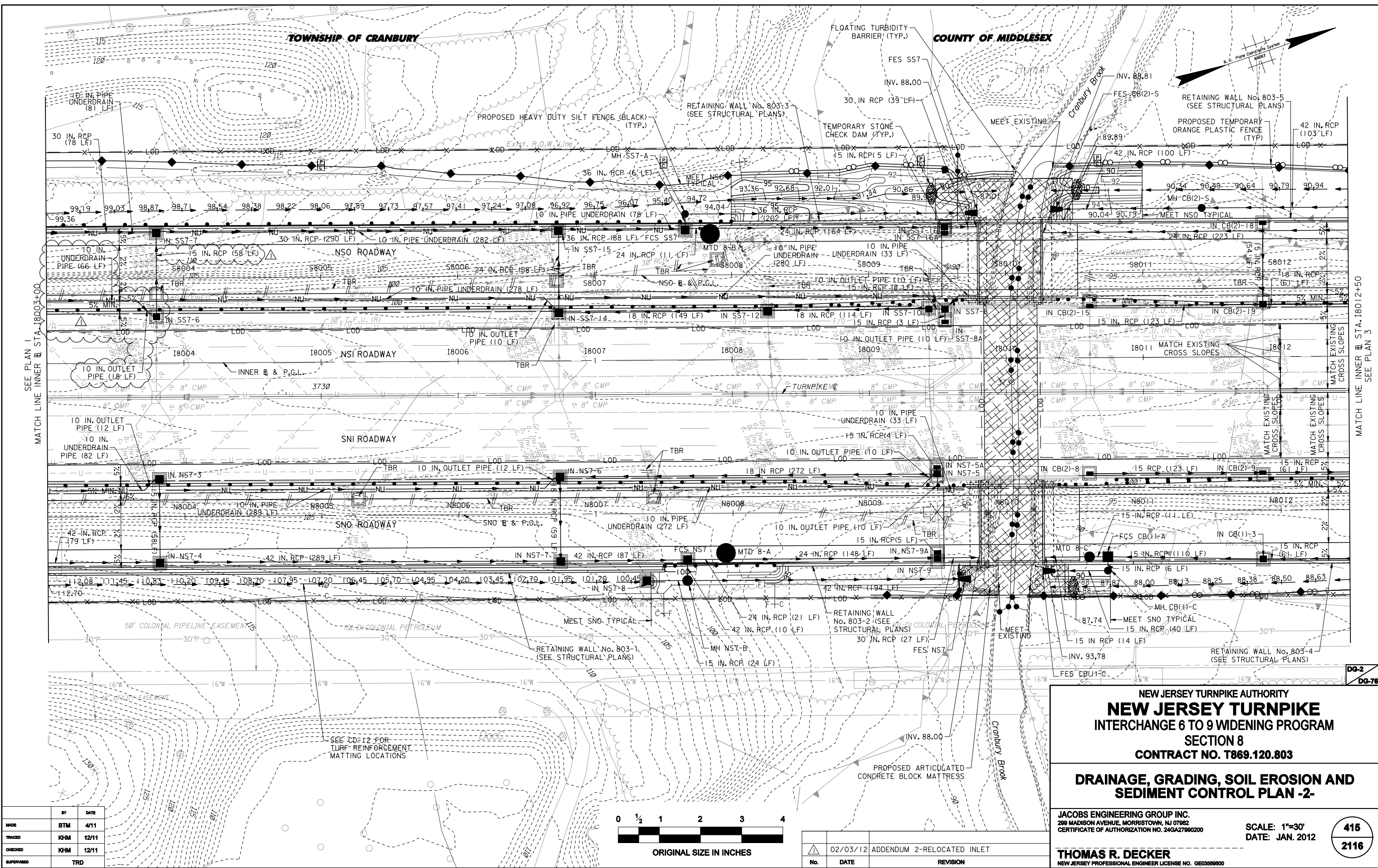
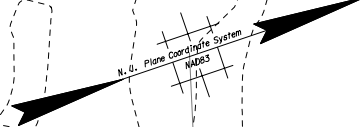
MICHAEL J. BINKERT
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

352
 2116

FILE NAME: T869-120-803-0352.dgn

TOWNSHIP OF CRANBURY

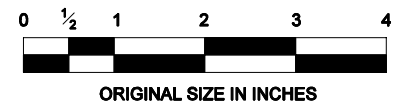
COUNTY OF MIDDLESEX



SEE PLAN 1
MATCH LINE INNER @ STA. 18003+00

MATCH LINE INNER @ STA. 18012+50
SEE PLAN 3

BY	BTM	4/11
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISOR	TRD	



No.	DATE	REVISION
1	02/03/12	ADDENDUM 2-RELOCATED INLET

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN -2-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

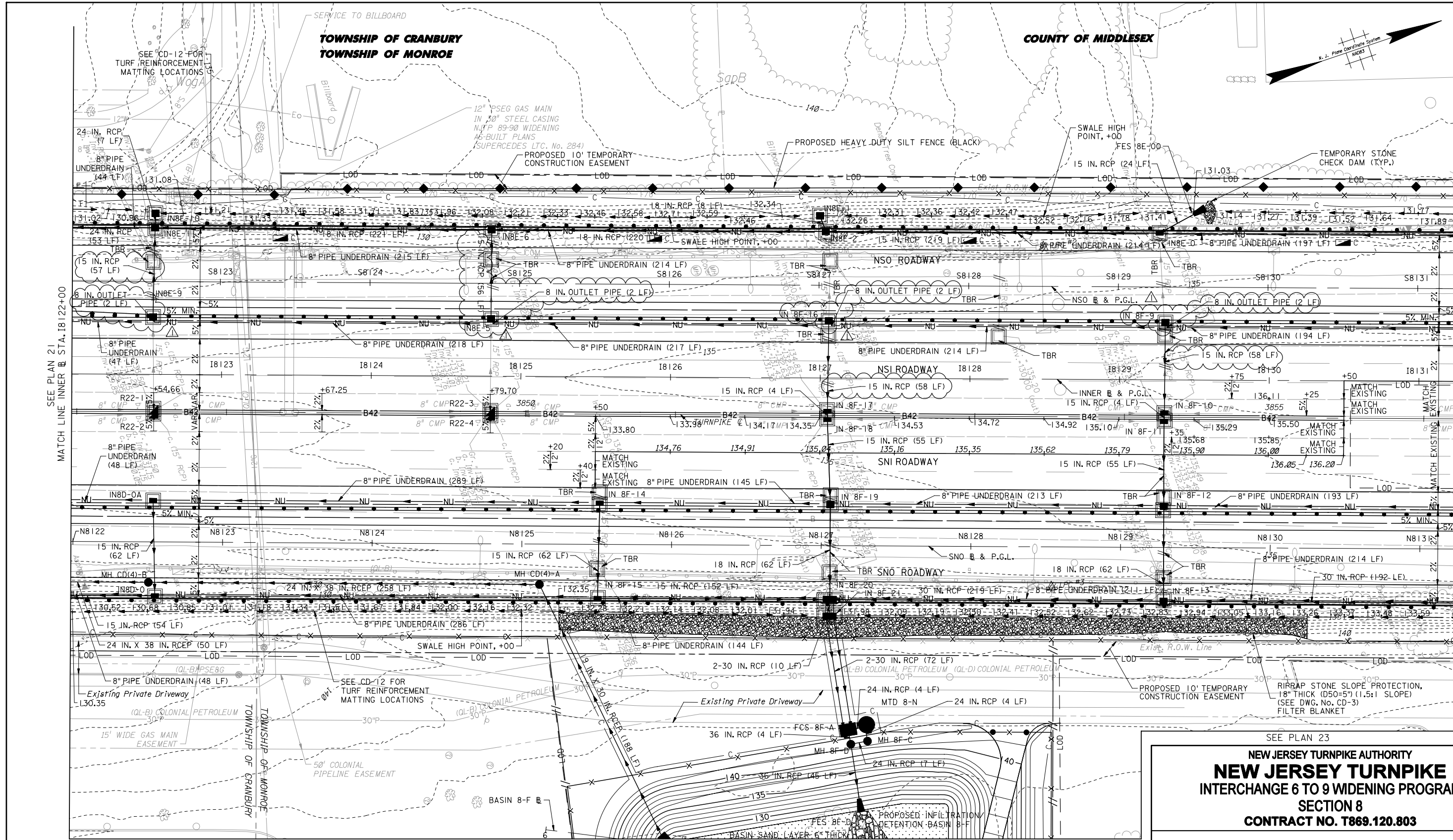
SCALE: 1"=30'
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03566000

415
2116

FILE NAME: T869-120-803-0415.dgn

APPENDUM NO. 2, SHEET 3 OF 23



SEE PLAN 21
MATCH LINE INNER @ STA. 18122+00

MATCH LINE INNER @ STA. 18131+25
SEE PLAN 24

SEE PLAN 23

SEE PLAN 23

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

DRAINAGE, GRADING, SOIL EROSION AND
SEDIMENT CONTROL PLAN -22-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

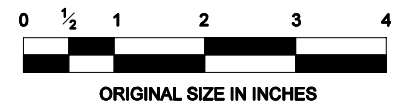
SCALE: 1"=30'
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03568000

435
2116

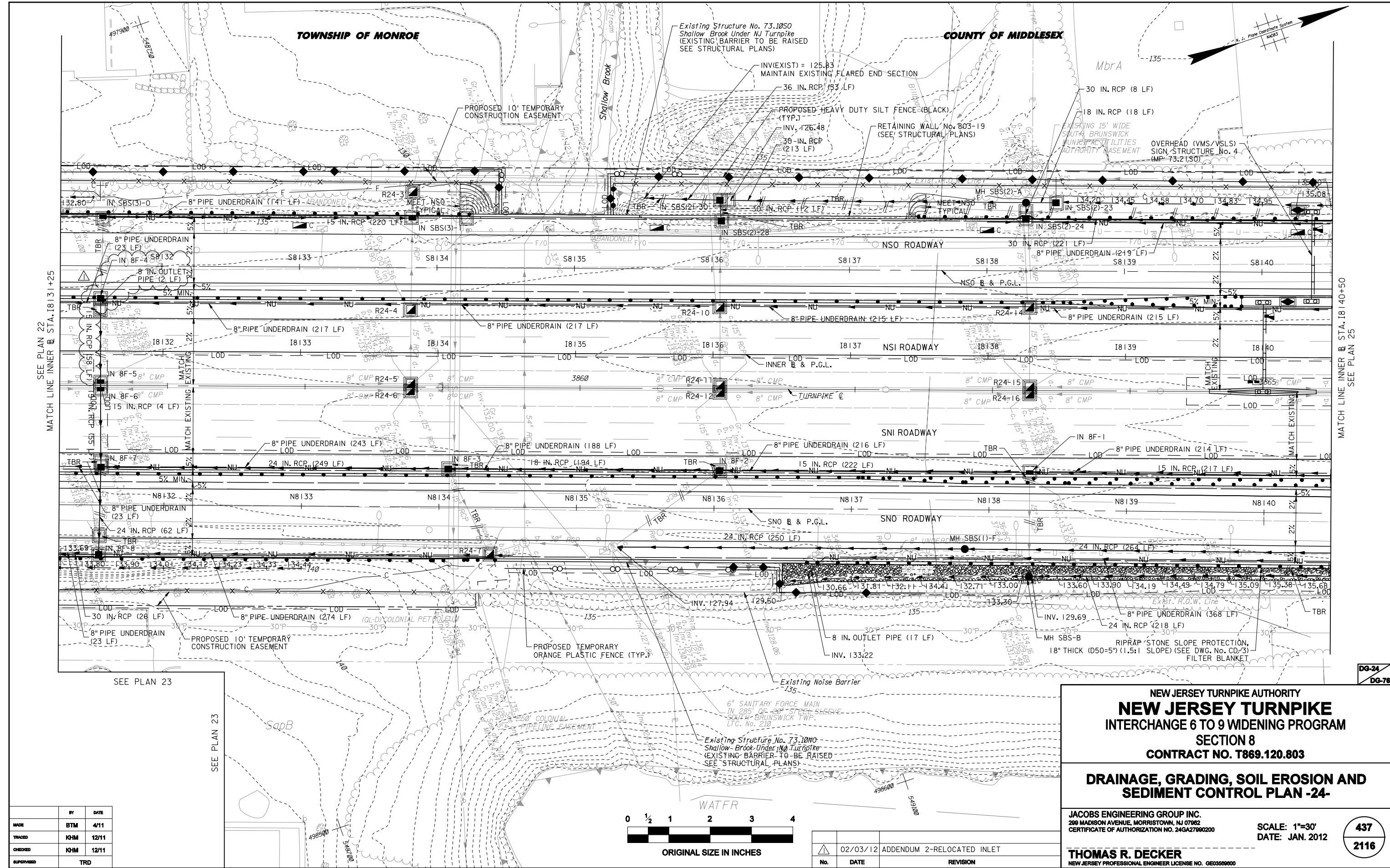
FILE NAME: T869-120-803-0435.dgn

	BY	DATE
MADE	BTM	4/11
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISOR	TRD	



No.	DATE	REVISION
1	02/03/12	ADDENDUM 2-RELOCATED INLET

APPENDUM NO. 2, SHEET 4 OF 23



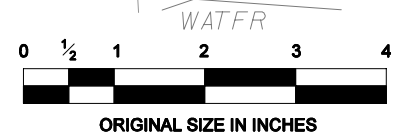
SEE PLAN 22
MATCH LINE INNER @ STA. 18131+25

MATCH LINE INNER @ STA. 18140+50
SEE PLAN 25

SEE PLAN 23

SEE PLAN 23

	BY	DATE
MADE	BTM	4/11
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISOR	TRD	



No.	DATE	REVISION
1	02/03/12	ADDENDUM 2-RELOCATED INLET

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

**DRAINAGE, GRADING, SOIL EROSION AND
 SEDIMENT CONTROL PLAN -24-**

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27980200

SCALE: 1"=30'
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE0386800

437
 2116

FILE NAME: T869-120-803-0437.dgn

APPENDUM NO. 2, SHEET 5 OF 23

PLAN 1 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN NS7-1	N8000+75, 27.00' L	103.53	D2, G2	INV (E) 98.65	18 IN	
IN NS7-2	N8000+75, 37.14' R	103.39	E2, G1	INV (S) 98.36 INV (W) 98.36 INV (N) 98.35	36 IN 18 IN 42 IN	NONSTANDARD STRUCTURE
IN SS7-1	S8000+03, 37.38' L	103.84	E1, G1	INV (N) 98.77 INV (W) 98.78 (EXIST) INV (S) 98.78 (EXIST)	24 IN 18 IN 24 IN	NONSTANDARD STRUCTURE
IN SS7-3	S8000+77, 27.84' R	103.61	D2, G2	INV (E) 100.42 (EXIST) INV (W) 100.42	15 IN 15 IN	
IN SS7-4	S8000+78, 37.38' L	103.42	E1, G1	INV (N) 97.60 INV (S) 98.20 INV (E) 98.38	30 IN 24 IN 15 IN	NONSTANDARD STRUCTURE
R1-1	N/A	104.50	D2, G2			
R1-2	N/A	104.60	E1, G1			

PLAN 2 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN NS7-3	N8003+82, 27.02' L	102.10	D2, G2	INV (E) 97.90	15 IN	
IN NS7-4	N8003+82, 37.14' R	101.86	E2, G1	INV (S) 96.60 INV (W) 97.30 INV (N) 93.15	42 IN 15 IN 42 IN	NONSTANDARD STRUCTURE
IN NS7-6	N8006+74, 27.16' L	100.80	D2, G2	INV (E) 92.10 INV (N) 92.20	18 IN 18 IN	
IN NS7-7	N8006+74, 37.14' R	100.43	E2, G1	INV (S) 91.20 INV (W) 91.30 INV (N) 90.50	42 IN 18 IN 42 IN	NONSTANDARD STRUCTURE
IN NS7-8	N8007+ 37, 48.93' R	100.00	E2, G1	INV (N) 91.75	15 IN	NONSTANDARD STRUCTURE
FCS NS7	N8007+67, 34.00' R	100.30	FLOW CONTROL STRUCTURE	INV (S) 90.00 INV (N) 89.50 INV (E) 89.50	42 IN 24 IN 42 IN	NONSTANDARD STRUCTURE
MH NS7-B	N8007+67, 49.06' R	100.29	P-2	INV (W) 89.45 INV (N) 88.20 INV (S) 91.50	42 IN 42 IN 15 IN	
IN NS7-5	N8009+49, 27.69' L	99.90	D2, G2	INV (S) 94.00 INV (W) 95.93	18 IN 15 IN	
IN NS7-9	N8009+49, 37.14' R	99.95	D2, G2	INV (N) 88.30 INV (S) 88.50 INV (W) 95.88	30 IN 24 IN 15 IN	
IN NS7-5A	N8009+49, 32.46' L	100.14	D1, G1	INV (E) 95.94	15 IN	SNOW CONTROL INLET
IN NS7-9A	N8009+49, 29.53' R	100.27	D1, G1	INV (E) 96.42	15 IN	SNOW CONTROL INLET
FES NS-7	N8009+70, 49.12' R	N/A	FLARED END SECTION	INV (S) 87.00	42 IN	
IN SS7-6	S8003+80, 28.21' R	101.96	D2, G2	INV (W) 96.63 INV (E) 96.83 (EXIST)	15 IN 15 IN	
IN SS7-7	S8003+80, 37.38' L	101.93	E1, G1	INV (N) 94.50 INV (S) 95.18 INV (E) 96.23	30 IN 30 IN 15 IN	NONSTANDARD STRUCTURE
IN SS7-14	S8006+74, 27.02' R	101.01	D2, G2	INV (E) 95.70 (EXIST) INV (W) 92.47 INV (N) 92.48	15 IN 24 IN 18 IN	
IN SS7-15	S8006+74, 37.38' L	100.71	E2, G1	INV (N) 91.40 INV (S) 91.90 INV (E) 92.10	36 IN 30 IN 24 IN	NONSTANDARD STRUCTURE
FCS SS7	S8007+66, 32.85' L	100.64	FLOW CONTROL STRUCTURE	INV (N) 89.30 INV (S) 90.80 INV (W) 90.00	24 IN 36 IN 36 IN	NONSTANDARD STRUCTURE
MH SS7-A	S8007+66, 44.54' L	98.68	P-1	INV (E) 89.97 INV (N) 89.10	36 IN 36 IN	
MTD 8-B	S8007+84, 29.88' L	100.76	MANUFACTURED TREATMENT DEVICE	INV (N) 89.20 INV (S) 89.20	24 IN 24 IN	NONSTANDARD STRUCTURE
IN SS7-12	S8008+26, 26.68' R	100.18	D2, G2	INV (N) 93.24 INV (S) 93.23 INV (E) 93.40 (EXIST)	18 IN 18 IN 15 IN	
IN SS7-10	S8009+44, 25.95' R	100.11	D2, G2	INV (N) 94.60 INV (S) 94.59 INV (E) 94.70 (EXIST)	15 IN 18 IN 15 IN	

BY	DATE
MADE	BMV 05/08
TRACED	KHM 12/11
CHECKED	KHM 12/11
SUPERVISED	TRD

IN SS7-8	S8009+56, 25.90' R	100.17	D2, G2	INV (E) 94.66 INV (S) 94.65	15 IN 15 IN	
IN SS7-16A	S8009+56, 29.52' L	100.63	D1, G1	INV (W) 96.23	15 IN	SNOW CONTROL INLET
IN SS7-8A	S8009+56, 35.32' R	100.57	D1, G1	INV (W) 94.67	15 IN	SNOW CONTROL INLET
IN SS7-16	S8009+56, 37.14' L	100.29	E1, G1	INV (N) 88.21 INV (S) 88.31 INV (E) 96.22	30 IN 24 IN 15 IN	NONSTANDARD STRUCTURE
FES SS7	S8009+71, 44.10' L	N/A	FLARED END SECTION	INV (S) 87.00	36 IN	
MTD 8-A	N8007+95, 29.00' R	100.47	MANUFACTURED TREATMENT DEVICE	INV (S) 89.30 INV (N) 89.30	24 IN 24 IN	NONSTANDARD STRUCTURE
IN CB(1)-3	N8011+87, 35.70' R	100.30	E1, G1	INV (N) 94.53 INV (S) 94.52	15 IN 15 IN	NONSTANDARD STRUCTURE
FCS CB(1)-A	N8010+73, 33.43' R	100.19	FLOW CONTROL STRUCTURE	INV (N) 93.97 INV (S) 93.96 INV (E) 87.29	15 IN 15 IN 15 IN	NONSTANDARD STRUCTURE
MTD 8-C	N8010+60, 33.37' R	100.17	MANUFACTURED TREATMENT DEVICE	INV (N) 93.93 INV (S) 93.93	15 IN 15 IN	NONSTANDARD STRUCTURE
MH CB(1)-C	N8010+73, 43.50' R	90.71	P-3	INV (W) 87.27 INV (S) 87.26	15 IN 15 IN	
FES CB(1)-C	N8010+32, 43.50' R	N/A	FLARED END SECTION	INV (N) 87.06	15 IN	
FES CB(2)-S	S8010+42, 46.49' L	N/A	FLARED END SECTION	INV (N) 88.05	42 IN	
MH CB(2)-S	S8011+43, 46.79' L	94.44	P-3	INV (N) 88.56 INV (S) 88.55	42 IN 42 IN	
IN CB(2)-19	S8011+87, 23.83' R	100.56	D2, G2	INV (E) 93.99 (EXIST) INV (N) 93.03 INV (S) 93.04 INV (W) 96.68	15 IN 18 IN 15 IN 15 IN	NONSTANDARD STRUCTURE
IN CB(2)-15	S8010+61, 24.32' R	100.22	D2, G2	INV (E) 93.75 (EXIST) INV (N) 93.65	15 IN 15 IN	
IN CB(2)-18	S8011+88, 35.66' L	100.52	D1, G1	INV (E) 96.96	15 IN	
IN CB(2)-8	N8010+61, 27.30' L	100.04	D2, G2	INV (N) 95.44	15 IN	
IN CB(2)-9	N8011+87, 27.37' L	100.57	D2, G2	INV (S) 94.83 INV (N) 94.82	15 IN 15 IN	

NOTES:

- REFER TO CONTRACT DETAILS FOR SPECIFICS ON ALL NON-STANDARD DRAINAGE STRUCTURES (NOTED IN TABLE).
- STATION DESIGNATIONS FOR INLETS AND MANHOLES ARE TO CENTER OF STRUCTURES AND OFFSET DIMENSIONS ARE TO FACE OF CURB, PARAPET, OR RETAINING WALL, OTHERWISE TO CENTER OF STRUCTURE. STATION DESIGNATIONS AND OFFSETS FOR END SECTIONS AND HEADWALLS ARE TO INTERFACE WITH PIPE. THE END SECTIONS AND RIPRAP STONE APRONS ARE NOT DRAWN TO SCALE.
- STRUCTURE NUMBER ENTRIES BEGINNING WITH "R" INDICATE A NEW INLET FRAME AND GRATE. WHERE STRUCTURE TYPE D1, G1 OR E1, G1 IS INDICATED, THEN NEW INLET FRAME AND GRATE, TYPE D1 SHALL BE USED. WHERE STRUCTURE TYPE D2, G2 OR E2, G2 IS INDICATED, THEN NEW INLET FRAME AND GRATE, TYPE D2 SHALL BE USED. WHERE STRUCTURE TYPE D2, G3 IS INDICATED, THEN NEW INLET FRAME AND GRATE, TYPE D3 SHALL BE USED.

02/03/12	ADDENDUM 2-MODIFIED TABLES	
No.	DATE	REVISION

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -1-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: N.T.S.
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03660600

490
2116

DT-1
DT-16

ADDENDUM NO. 2, SHEET 6 OF 23

PLAN 3 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN CB(2)-1	I8021+18, 23.65' R	105.26	D4, G1	INV (E) 100.08 INV (W) 100.18	15 IN 15 IN	
IN CB(2)-0	I8021+18, 26.38' R	105.26	D4, G1	INV (W) 100.20	15 IN	
IN CB(2)-12	I8015+05, 26.51' R	102.20	D4, G1	INV (W) 92.66 INV (E) 92.76	24 IN 24 IN	
IN CB(2)-11	I8015+05, 23.55' R	102.20	D4, G1	INV (W) 92.78 INV (E) 92.88	24 IN 24 IN	
IN CB(2)-10	N8015+06, 27.48' L	101.94	D2, G2	INV (N) 97.94 INV (W) 93.15 INV (S) 93.24	15 IN 24 IN 15 IN	
IN CB(2)-7	N8018+06, 27.25' L	103.45	D2, G2	INV (N) 99.43 INV (S) 99.42	15 IN 15 IN	
IN CB(2)-6	N8021+17, 27.32' L	105.01	D2, G2	INV (S) 100.97	15 IN	
MTD 8-D	S8014+28, 29.40' L	101.75	MANUFACTURED TREATMENT DEVICE	INV (S) 90.81 INV (N) 90.81	24 IN 24 IN	NONSTANDARD STRUCTURE
FCS CB(2)-A	S8014+43, 30.46' L	101.77	FLOW CONTROL STRUCTURE	INV (N) 90.96 INV (S) 89.80 INV (W) 90.79	36 IN 24 IN 36 IN	NONSTANDARD STRUCTURE
MH CB(2)-R	S8014+43, 44.76' L	99.01	P-3	INV (N) 90.35 INV (S) 90.34 INV (E) 90.73	36 IN 42 IN 36 IN	
IN CB(2)-20	S8015+04, 23.72' R	101.93	E1, G1	INV (E) 92.37 INV (W) 91.46 INV (N) 95.23 INV (S) 91.47	24 IN 30 IN 24 IN 18 IN	NONSTANDARD STRUCTURE LOCATE PIPE TO EAST SIDE OF STRUCTURE
IN CB(2)-23	S8015+04, 35.53' L	101.68	E2, G1	INV (N) 97.64 INV (S) 91.17 INV (E) 91.18	15 IN 36 IN 30 IN	NONSTANDARD STRUCTURE
MH CB(2)-Q	S8016+94, 48.42' L	99.80	P-1	INV (N) 91.84 INV (S) 91.83	36 IN 36 IN	
IN CB(2)-5	S8018+08, 25.00' R	103.28	E1, G1	INV (E) 96.81 (EXIST) INV (N) 97.47 INV (S) 96.73	15 IN 18 IN 24 IN	NONSTANDARD STRUCTURE LOCATE PIPE TO EAST SIDE OF STRUCTURE
IN CB(2)-22	S8018+08, 35.76' L	103.22	D1, G1	INV (N) 99.15 INV (S) 99.14	15 IN 15 IN	
IN CB(2)-2	S8021+17, 25.10' R	104.77	E1, G1	INV (E) 99.03 (EXIST) INV (S) 98.99	15 IN 18 IN	LOCATE PIPE TO EAST SIDE OF STRUCTURE NONSTANDARD STRUCTURE
IN CB(2)-21	SASO 35+76, 13.38' R	104.68	D1, G1	INV (S) 100.69	15 IN	
MH CB(2)-P	SASO 37+03, 27.07' R	100.37	P-1	INV (N) 93.62 INV (S) 93.61	36 IN 36 IN	
IN CB(1)-2	N8015+00, 37.14' R	101.77	E1, G1	INV (N) 96.08 INV (S) 96.07	15 IN 15 IN	NONSTANDARD STRUCTURE
IN CB(1)-1	N8018+05, 35.61' R	103.30	E1, G1	INV (N) 97.60 INV (S) 97.59	15 IN 15 IN	NONSTANDARD STRUCTURE
IN CB(1)-0	N8021+18, 35.67' R	104.86	E1, G1	INV (S) 99.14	15 IN	NONSTANDARD STRUCTURE
R3-1	N/A	103.71	D-1			
R3-2	N/A	103.71	D-1			

PLAN 4 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MH CB(2)-M	SASO 27+96, 23.69' R	105.26	P-1	INV (N) 100.62 INV (S) 100.52	36 IN 36 IN	
FES CB(2)-02	SASO 30+04, 51.80' R	N/A	FLARED END SECTION	INV (S) 99.50	24 IN	
IN CB(2)-N	SASO 30+93, 24.67' R	104.42	E2, G1	INV (N) 99.05 INV (S) 96.92 INV (W) 99.05	36 IN 36 IN 24 IN	NONSTANDARD STRUCTURE
OS 8-A	SASO 33+85, 81.68' R	N/A	OUTLET STRUCTURE	INV (E) 100.85	24 IN	NONSTANDARD STRUCTURE
MH CB(2)-O	SASO 33+87, 25.19' R	105.00	P-1	INV (N) 95.40 INV (S) 95.39 INV (W) 98.75	36 IN 36 IN 24 IN	
IN 8A(1)-10	I8024+28, 22.08' R	106.82	D4, G1	INV (W) 101.17 INV (E) 101.27	15 IN 15 IN	
IN 8A(1)-9	I8024+28, 27.93' R	106.82	D4, G1	INV (W) 101.29	15 IN	

IN 8A(1)-7	I8027+27, 22.12' R	108.31	D4, G1	INV (W) 103.21 INV (E) 103.52	15 IN 15 IN	
IN 8A(1)-6	I8027+27, 27.86' R	108.31	D4, G1	INV (W) 103.64	15 IN	
IN 8A(1)-4A	I8030+27, 27.48' L	109.89	D1, G1	INV (W) 103.76 (EXIST) INV (E) 103.77 (EXIST)	15 IN 15 IN	
IN 8A(1)-4	I8030+28, 21.80' R	109.81	D4, G1	INV (W) 104.68 INV (E) 104.70	15 IN 15 IN	
IN 8A(1)-3	I8030+28, 28.17' R	109.81	D4, G1	INV (W) 104.72	15 IN	
MH 8A(1)-AD	S8024+27, 14.50' R	107.12	P-1	INV (W) 100.68 INV (N) 100.69 INV (E) 100.69	30 IN 30 IN 15 IN	
IN 8A(1)-11	S8024+27, 23.77' R	106.28	D2, G2	INV (W) 100.72 INV (E) 100.82	15 IN 15 IN	
MH 8A(1)-AC	S8027+28, 14.50' R	108.63	P-1	INV (N) 101.55 INV (S) 101.54 INV (E) 101.56	24 IN 30 IN 18 IN	
IN 8A(1)-8	S8027+28, 25.62' R	107.64	D2, G2	INV (W) 101.59 INV (E) 101.63 (EXIST)	18 IN 15 IN	
MH 8A(1)-AB	S8030+27, 14.50' R	110.13	P-1	INV (N) 103.04 INV (S) 103.03 INV (E) 103.07 INV (W) 105.55	18 IN 24 IN 15 IN 15 IN	
IN 8A(1)-5A	SASO 26+69, 15.86' L	109.77	D1, G1	INV (E) 105.76	15 IN	
IN 8A(1)-5	S8030+27, 26.31' R	109.08	D2, G2	INV (W) 103.11 INV (E) 103.12 (EXIST)	15 IN 15 IN	
FES 8A(1)-00	SASO 32+48, 34.86' R	N/A	FLARED END SECTION	INV (S) 100.80	24 IN	
FES 8A(1)-D	SASO 32+68, 75.38' R	N/A	FLARED END SECTION	INV (E) 100.21	30 IN	
FCS 8A(1)-A	SASO 32+69, 35.00' R	105.71	FLOW CONTROL STRUCTURE	INV (W) 100.42 INV (S) 100.43 INV (E) 100.46 INV (N) 100.74	30 IN 30 IN 30 IN 24 IN	NONSTANDARD STRUCTURE
MH 8A(1)-D	SASO 32+69, 44.37' R	105.50	P-1	INV (W) 100.38 INV (E) 100.39 INV (S) 100.39	30 IN 30 IN 30 IN	
MH 8A(1)-C	SASO 32+76, 44.91' R	105.50	P-1	INV (E) 100.42 INV (N) 100.41	30 IN 30 IN	
MTD 8-E	SASO 32+81, 35.46' R	105.66	MANUFACTURED TREATMENT DEVICE	INV (N) 100.43 INV (W) 100.43	30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8A(2)-19	S8023+86, 23.35' R	106.15	DOUBLE D1 MODIFIED	INV (E) 100.69 INV (W) 100.68	2 - 30 IN 2 - 30 IN	TWIN PIPES TWIN PIPES NONSTANDARD STRUCTURE
FES 8A(2)-D	SASO 33+08, 73.46' R	N/A	FLARED END SECTION	INV (E) 100.21	36 IN	
FCS 8A(2)-A	SASO 33+09, 35.59' R	105.50	FLOW CONTROL STRUCTURE	INV (E) 100.38 INV (W) 100.33 INV (S) 100.36	2-30 IN 36 IN 30 IN	TWIN PIPES NONSTANDARD STRUCTURE
MH 8A(2)-D	SASO 33+09, 47.17' R	105.50	P-1	INV (S) 100.30 INV (E) 100.30 INV (W) 100.29	30 IN 36 IN 36 IN	
MH 8A(2)-C	SASO 33+18, 47.28' R	105.50	P-1	INV (E) 100.33 INV (N) 100.32	30 IN 30 IN	
MTD 8-E(1)	SASO 33+22, 36.42' R	105.50	MANUFACTURED TREATMENT DEVICE	INV (W) 100.35 INV (N) 100.35	30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8A(2)-17	N8023+85, 37.14' R	106.20	DOUBLE D1 MODIFIED	INV (N) 101.85 INV (W) 101.37	24 X 38 IN 2 - 30 IN	TWIN PIPES NONSTANDARD STRUCTURE

	BY	DATE
MADE	BMW	05/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
1	02/03/12	ADDENDUM 2-MODIFIED TABLES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET 2-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03568600

SCALE: N.T.S.
 DATE: JAN. 2012

DT-2
 DT-16

491
 2116

PLAN 4 DRAINAGE TABULATION CONTINUED FROM DT-2						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 8A(2)-18	N8023+86, 29.24' L	106.36	DOUBLE D1 MODIFIED	INV (E) 101.16 INV (W) 101.15	2 - 30 IN 2 - 30 IN	TWIN PIPES TWIN PIPES NONSTANDARD STRUCTURE
IN 8A(2)-15	N8027+24, 27.64' L	108.05	D2, G2	INV (E) 103.75	15 IN	
IN 8A(2)-16	N8027+25, 37.14' R	107.90	E2, G1	INV (N) 103.45 INV (S) 103.43 INV (W) 103.46	24 X 38 IN 24 X 38 IN 15 IN	NONSTANDARD STRUCTURE
IN 8A(2)-13	N8030+26, 24.52' L	109.56	D2, G2	INV (E) 105.19	15 IN	
IN 8A(2)-14	N8030+28, 37.14' R	109.41	E2, G1	INV (N) 104.89 INV (S) 104.88 INV (W) 104.89	24 X 38 IN 24 X 38 IN 15 IN	NONSTANDARD STRUCTURE

PLAN 6 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MH 8A-H	BASIN 8-A 13+02, 186.72' R	106.24	P-2	INV (S) 100.37 INV (E) 100.43 INV (W) 100.36	30 IN 42 IN 42 IN	
FES 8A-H	BASIN 8-A 12+85, 163.35' R	N/A	FLARED END SECTION	INV (E) 100.21	42 IN	
MH 8A-G	BASIN 8-A 12+96, 191.30' R	106.30	P-1	INV (E) 100.40 INV (N) 100.39	30 IN 30 IN	
MTD 8-F	BASIN 8-A 12+97, 203.39' R	106.43	MANUFACTURED TREATMENT DEVICE	INV (N) 100.42 INV (W) 100.42	30 IN 30 IN	NONSTANDARD STRUCTURE
FCS 8A-E	BASIN 8-A 13+06, 193.33' R	106.29	FLOW CONTROL STRUCTURE	INV (W) 100.44 INV (E) 100.45 INV (S) 100.44	42 IN 42 IN 30 IN	NONSTANDARD STRUCTURE
MH 8A-D	BASIN 8-A 13+21, 213.79' R	106.23	P-2	INV (N) 100.56 INV (W) 100.55	42 IN 42 IN	
MH 8A-C	SASO 21+85, 306.15' R	111.94	P-2	INV (N) 108.16 (EXIST) INV (E) 101.01 INV (S) 101.00	18 IN 42 IN 42 IN	

PLAN 7 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 8A-30	I8035+57, 23.64' R	120.46	D4, G1	INV (E) 104.60 INV (W) 104.68	18 IN 18 IN	
IN 8A-29	I8035+57, 26.36' R	120.46	D4, G1	INV (W) 104.61	18 IN	
IN 8A-20	I8039+26, 23.64' R	114.30	D4, G1	INV (E) 106.42 INV (W) 106.40	18 IN 18 IN	
IN 8A-21	I8039+24, 40.82' L	114.04	D1, G1	INV (E) 106.10 INV (W) 106.09	18 IN 18 IN	
IN 8A-19	I8039+26, 26.36' R	114.30	D4, G1	INV (W) 106.43	18 IN	
IN 8A-33	S8034+11, 33.02' L	111.44	D1, G1	INV (N) 105.44	15 IN	
MH 8A-AC	S8035+58, 14.22' R	112.79	P-1	INV (N) 105.47 INV (E) 104.15 INV (W) 104.14	15 IN 24 IN 24 IN	
IN 8A-34	S8035+58, 38.00' L	111.90	E2, G1	INV (N) 105.47 INV (S) 104.73 INV (E) 103.91 INV (W) 103.78	36 IN 15 IN 24 IN 36 IN	NONSTANDARD STRUCTURE
MH 8A-AB	S8037+18, 14.50' R	113.58	P-1	INV (E) 106.99 INV (S) 106.98	15 IN 15 IN	
IN 8A-23	S8039+25, 36.00' L	113.90	E2, G1	INV (N) 105.58 INV (S) 105.57 INV (E) 105.60	30 IN 36 IN 18 IN	NONSTANDARD STRUCTURE
IN 8A-22	S8039+26, 22.38' R	114.06	D2, G2	INV (E) 105.89 INV (W) 105.87	18 IN 18 IN	
IN 8A-25	SASI 35+21, 13.14' R	122.21	E1, G1	INV (N) 117.78 INV (S) 117.77	15 IN 15 IN	NONSTANDARD STRUCTURE
IN 8A-28	S8037+18, 24.96' R	112.80	D1, G1	INV (E) 107.04 INV (W) 107.03	15 IN 15 IN	
IN 8A-27	SASI 37+53, 12.27' R	113.27	D1, G1	INV (N) 108.64 INV (W) 107.07 INV (E) 107.08	15 IN 15 IN 15 IN	
IN 8A-26	SASI 37+53, 14.00' L	113.95	D1, G1	INV (W) 107.20	15 IN	
IN 8A-32	S8035+58, 27.22' R	111.84	D2, G2	INV (E) 104.20 INV (W) 104.19	24 IN 24 IN	
IN 8A-31	I8035+56, 39.84' L	123.48	D1, G1	INV (E) 104.39 INV (W) 104.36	18 IN 24 IN	

BY	DATE
MADE	BMW 05/08
TRACED	KHM 12/11
CHECKED	KHM 12/11
SUPERVISED	TRD

IN 8A-38	SASO 18+00, 13.14' R	126.61	E1, G1	INV (N) 105.39 INV (S) 105.38	15 IN 15 IN	NONSTANDARD STRUCTURE
IN 8A-39	SASO 19+07, 13.14' R	121.38	E1, G1	INV (N) 104.86 INV (S) 104.85	15 IN 15 IN	NONSTANDARD STRUCTURE
MH 8A-A	SASO 19+38, 11.96' R	119.97	P-1	INV (N) 104.71 INV (S) 104.70 INV (W) 105.82	15 IN 15 IN 15 IN	
IN 8A-00	SASO 19+38, 27.18' R	116.02	D1, G1	INV (E) 105.87	15 IN	
IN 8A-40	SASO 21+38, 12.00' R	113.03	E1, G1	INV (N) 103.72 INV (W) 103.65 INV (E) 103.70	15 IN 36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8A-35	SASO 21+38, 15.14' L	113.71	E1, G1	INV (E) 103.82 INV (W) 103.81	36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8A-41	SASO 21+38, 51.18' R	109.06	E2, G1	INV (W) 102.29 INV (E) 103.51	42 IN 36 IN	NONSTANDARD STRUCTURE
IN 8A(1)-0	I8033+27, 27.89' R	111.32	D4, G1	INV (W) 107.36	15 IN	
MH 8A(1)-AA	S8033+27, 14.50' R	111.62	P-1	INV (S) 104.52 INV (E) 104.53	15 IN 15 IN	
IN 8A(1)-1	I8033+27, 21.82' R	111.32	D4, G1	INV (W) 107.33 INV (E) 107.34	15 IN 15 IN	
IN 8A(1)-2	S8033+27, 28.28' R	110.48	D1, G1	INV (W) 105.59 INV (E) 106.29 (EXIST)	15 IN 15 IN	
IN 8A(1)-1A	SASI 41+43, 20.04' L	111.25	D1, G1	INV (W) 106.71 (EXIST) INV (E) 106.72 (EXIST)	15 IN 15 IN	
MH CB(2)-I	SASO 17+20, 19.82' R	120.08	P-1	INV (N) 109.92 INV (S) 109.92	36 IN 36 IN	
MH CB(2)-J	SASO 19+00, 20.15' R	120.90	P-2	INV (N) 108.69 INV (S) 108.59 INV (W) 108.69 (EXIST)	36 IN 36 IN 48 IN	
MH CB(2)-K	SASO 21+71, 22.63' R	110.07	P-1	INV (N) 106.70 INV (S) 103.83	36 IN 36 IN	
MH CB(2)-L	SASO 24+70, 23.21' R	107.09	P-1	INV (N) 102.35 INV (S) 102.23	36 IN 36 IN	
IN 8A(2)-11	N8033+26, 24.55' L	114.25	D1, G1	INV (E) 106.62	15 IN	
IN 8A(2)-12	N8033+28, 37.14' R	110.91	D2, G2	INV (N) 106.33 INV (S) 106.32 INV (W) 106.33	24 IN 24 X 38 IN 15 IN	
IN 8A(2)-9	N8035+93, 24.76' L	112.40	D1, G1	INV (E) 107.88	15 IN	
IN 8A(2)-10	N8035+93, 37.14' R	112.24	D2, G2	INV (N) 107.59 INV (S) 107.58 INV (W) 107.59	24 IN 24 IN 15 IN	
IN 8A(2)-8	N8037+55, 33.94' R	113.10	D2, G2	INV (N) 108.36 INV (S) 108.35 INV (E) 108.43 (EXIST)	24 IN 24 IN 18 IN	
IN 8A(2)-6	N8039+24, 24.59' L	114.05	D1, G1	INV (E) 109.50	15 IN	
IN 8A(2)-7	N8039+25, 37.38' R	113.84	D2, G2	INV (N) 109.20 INV (S) 109.19 INV (W) 109.20	24 IN 24 IN 15 IN	
FES CB(3)-2	N8037+05, 46.48' R	N/A	FLARED END SECTION	INV (N) 103.00	15 IN	
MH CB(3)-D	N8039+85, 45.36' R	113.21	P-1	INV (N) 104.92 INV (S) 104.92 INV (E) 108.81	15 IN 15 IN 15 IN	
FES CB(3)-1	N8039+97, 51.81' R	N/A	FLARED END SECTION	INV (S) 109.00	15 IN	

DT-3
DT-16

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -3-

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: N.T.S.
DATE: JAN. 2012

THOMAS R. DECKER
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03566000

492
2116

ADDENDUM NO. 2, SHEET 8 OF 23

△	02/03/12	ADDENDUM 2-MODIFIED TABLES
△	01/31/12	ADDENDUM 1-CHANGED INVERT ELEVATION
No.	DATE	REVISION

FILE NAME: T869-120-803-0492.dgn

PLAN 10 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FES CD(6)-B	NOSA 43+61, 20.21' R	N/A	FLARED END SECTION	INV (W) 104.00	30 IN	
MH CD(6)-B	NOSA 44+14, 17.82' L	109.10	P-2	INV (E) 104.31 INV (N) 104.30	24 X 38 IN 30 IN	
IN CD(6)-3	NOSA 44+14, 12.00' L	108.45	E2, G1	INV (S) 104.33 INV (W) 104.32	24 X 38 IN 30 IN	NONSTANDARD STRUCTURE
IN CD(6)-1	NOSA 44+55, 12.00' R	108.37	E2, G1	INV (S) 104.55 INV (E) 104.54	24 X 38 IN 24 X 38 IN	NONSTANDARD STRUCTURE
IN CD(6)-0	NOSA 44+56, 15.70' L	109.53	E2, G1	INV (W) 104.67 INV (N) 104.66	30 IN 24 x 38 IN	NONSTANDARD STRUCTURE
MH CD(6)-A	NOSA 44+69, 20.97' L	109.45	INLET CONVERTED TO MANHOLE	INV (S) 104.82 (EXIST) INV (E) 104.82 (EXIST) INV (N) 104.72	24 IN 15 IN 30 IN	
IN CD(6)-2	NISA 45+05, 20.06' L	109.71	D1, G1	INV (N) 106.66 INV (S) 106.56	15 IN 15 IN	
FES 8C-J	BASIN 8-C 4+03, 23.41' R	N/A	FLARED END SECTION	INV (W) 103.50	42 IN	
MH 8C-D	I8061+77, 06.24' L	115.24	P-1	INV (W) 105.79 INV (E) 105.77	18 IN 18 IN	
IN 8C-11	I8061+77, 23.59' R	114.54	D4, G1	INV (W) 105.65 INV (E) 105.64	18 IN 18 IN	
IN 8C-12	I8061+77, 26.32' R	114.54	D4, G1	INV (W) 105.63 INV (E) 105.62	18 IN 18 IN	
IN 8C-10	I8061+77, 51.38' L	111.68	D2, G2	INV (E) 105.99	18 IN	
IN 8C-17	I8064+75, 23.59' R	113.06	D4, G1	INV (W) 104.62 INV (E) 104.61	15 IN 15 IN	
IN 8C-18	I8064+75, 26.32' R	113.06	D4, G1	INV (W) 104.59 INV (E) 104.58	15 IN 15 IN	
MH 8C-E	I8064+76, 02.35' R	113.82	P-1	INV (W) 104.71 INV (E) 104.70	15 IN 15 IN	
IN 8C-16	I8064+77, 47.89' L	111.88	D1, G1	INV (N) 104.96 INV (E) 104.95	15 IN 15 IN	
IN 8C-21	I8066+32, 23.59' R	112.26	D4, G1	INV (E) 104.78	15 IN	
IN 8C-22	I8066+32, 26.36' R	112.26	D4, G1	INV (W) 104.77 INV (E) 104.75	15 IN 15 IN	
IN 8C-15	I8066+32, 44.35' L	111.26	D1, G1	INV (S) 105.72	15 IN	
IN 8C-13	N8061+79, 27.71' L	114.29	D2, G2	INV (W) 105.36 INV (E) 105.35	18 IN 18 IN	
IN 8C-14	N8061+79, 37.38' R	114.07	E1, G1	INV (W) 105.05 INV (S) 105.05 INV (N) 105.04	18 IN 30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8C-20	N8064+77, 37.38' R	112.58	E2, G1	INV (W) 104.00 INV (S) 104.01 INV (N) 104.00	18 IN 30 IN 36 IN	NONSTANDARD STRUCTURE
IN 8C-19	N8064+79, 28.00' L	112.79	D2, G2	INV (W) 104.31 INV (E) 104.30	15 IN 18 IN	
FES 8C-00	N8064+92, 47.74' R	N/A	FLARED END SECTION	INV (N) 110.00	15 IN	
MH 8C-F	N8065+45, 34.73' R	112.42	P-2	INV (N) 103.76 INV (S) 103.76 INV (E) 103.75	24 IN 36 IN 36 IN	
FCS 8C-G	N8065+57, 54.20' R	111.00	FLOW CONTROL STRUCTURE	INV (N) 103.68 INV (S) 108.36 INV (W) 103.70 INV (E) 103.63	30 IN 15 IN 36 IN 42 IN	NONSTANDARD STRUCTURE
MH 8C-J	N8065+61, 61.43' R	110.50	P-2	INV (W) 103.62 INV (N) 103.62 INV (E) 103.61	42 IN 30 IN 42 IN	
MTD 8-H	N8065+66, 45.97' R	111.18	MANUFACTURED TREATMENT DEVICE	INV (S) 103.66 INV (E) 103.66	30 IN 30 IN	NONSTANDARD STRUCTURE
MH 8C-I	N8065+69, 51.94' R	111.00	P-1	INV (W) 103.65 INV (S) 103.64	30 IN 30 IN	
IN 8C-24	N8066+36, 36.52' R	111.86	D2, G2	INV (W) 104.17 INV (S) 104.16	15 IN 24 IN	
IN 8C-23	N8066+37, 27.42' L	112.01	D1, G1	INV (W) 104.48 INV (E) 104.47	15 IN 15 IN	
OS 8-C	BASIN 8-C 3+73, 01.80' R	N/A	OUTLET STRUCTURE	INV (N) 104.10	24 IN	NONSTANDARD STRUCTURE
MH CD(3)-A	N8067+57, 30.18' R	111.58	P-1	INV (E) 103.06 INV (N) 102.96	24 IN 24 IN	
R10-1	N/A	109.39	D-3, G-3			
R10-2	N/A	109.91	D-3, G-3			

PLAN 11 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MH CB(2)-E	SASO 07+61, 25.22' R	119.63	P-1	INV (W) 114.46 INV (S) 114.45	36 IN 36 IN	
IN 8A-5	SASI 25+32, 14.11' L	122.70	D1, G1	INV (W) 113.31 INV (E) 113.30	15 IN 15 IN	
IN 8A-4	SASO 07+75, 13.38' R	122.21	D1, G1	INV (E) 113.49	15 IN	
MH 8M(1)-A	SASI 20+11, 06.20' R	120.22	P-1	INV (S) 116.32 INV (W) 116.22	18 IN 18 IN	
IN 8M(1)-0	SASI 21+38, 10.00' R	119.26	D3, G3	INV (N) 115.88 INV (S) 115.78 INV (E) 115.88	18 IN 18 IN 15 IN	
IN 8M(1)-0A	SASI 21+48, 15.38' LT	118.96	D1, G1	INV (W) 116.02	15 IN	
IN 8M(1)-1	SASI 22+33, 12.00' R	119.52	D3, G3	INV (N) 115.53 INV (S) 115.43 INV (E) 115.43	18 IN 18 IN 15 IN	
IN 8M(1)-1A	SASI 22+33, 15.38' LT	119.52	D1, G1	INV (W) 115.54	15 IN	
IN 8M(1)-2	SASI 23+97, 12.00' R	120.29	D3, G3	INV (N) 114.99 INV (W) 114.89 INV (E) 114.99 INV (NW) 115.60	18 IN 18 IN 15 IN 15 IN	
IN 8M(1)-2A	SASI 23+92, 15.38' LT	120.08	D1, G1	INV (W) 115.21	15 IN	
IN 8M(1)-2B	SASI 23+60, 26.72' RT	120.00	D1, G1	INV (S) 115.98	15 IN	
IN 8M(1)-3	SASO 5+77, 12.00' R	118.79	D3, G3	INV (E) 115.12	15 IN	LOCATE PIPE TO AVOID GUIDERAIL
MH 8M(1)-B	SASO 6+48, 3.11' R	119.85	P-1	INV (S) 114.71 INV (W) 114.80 INV (E) 114.83	18 IN 15 IN 18 IN	
IN 8M(1)-4	SASO 6+88, 12.00' R	120.23	D3, G3	INV (N) 114.55 INV (W) 114.45 (EXIST)	18 IN 18 IN	
IN 8M(2)-00	SERVICE AREA BL 02+00, 12.00' R	120.34	D3, G3	INV (E) 116.66	15 IN	
IN 8M(2)-0	SERVICE AREA BL 02+87, 12.00' R	118.74	DOUBLE D3, G3	INV (W) 116.25 INV (S) 116.15	15 IN 14 X 23 IN	NONSTANDARD STRUCTURE
IN 8M(2)-1	SERVICE AREA BL 03+06, 69.89' R	120.07	D2, G2	INV (N) 116.99 INV (S) 116.98	14 X 23 IN 24 IN	
R11-1	N/A	119.34	D-3, G-3			
R11-2	N/A	120.75	D-3, G-3			
R11-3	N/A	121.04	D-3, G-3			

PLAN 12 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R12-1	N/A	112.20	D-3, G-3			
R12-2	N/A	111.37	D-3, G-3			

PLAN 13 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
OS CB(3)-1	BASIN 8-B 2+93, 83.93' L	N/A	OUTLET STRUCTURE	INV (S) 110.00	15 IN	NONSTANDARD STRUCTURE
MH 8-B	BASIN 8-B 4+69, 126.36' R	117.00	P-1	INV (E) 114.20 (EXIST) INV (W) 110.10	18 IN 18 IN	
FES 8-B	BASIN 8-B 4+69, 97.58' R	N/A	FLARED END SECTION	INV (E) 109.00	18 IN	
FES 8B-G	BASIN 8-B 6+85, 88.94' L	N/A	FLARED END SECTION	INV (W) 109.00	24 IN	

BY	DATE
MADE	BMW 05/08
TRACED	KHM 12/11
CHECKED	KHM 12/11
SUPERVISED	TRD

△	02/03/12	ADDENDUM 2-MODIFIED TABLES
No.	DATE	REVISION

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -5-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

SCALE: N.T.S.
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03566000

494
2116

ADDENDUM NO. 2, SHEET 9 OF 23

FILE NAME: T869-120-803-0494.dgn

DT-5
DT-16

PLAN 15 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN CD(2)-0	N8069+29, 28.29' L	110.56	D1, G1	INV (E) 104.82	15 IN	
IN CD(2)-1	N8069+29, 37.14' R	110.39	E1, G1	INV (N) 101.69 INV (S) 101.79 INV (W) 104.52	24 IN 24 IN 15 IN	NONSTANDARD STRUCTURE
IN CD(5)-19A	NOSA 37+46, 5.95' R	108.44	D1, G1	INV (E) 101.27 INV (W) 101.28	15 IN 15 IN	SNOW CONTROL INLET
IN CD(5)-11	NOSA 34+79, 13.14' R	108.59	D1, G1	INV (E) 103.49	15 IN	
IN CD(5)-10	NOSA 34+82, 30.75' L	109.08	E2, G1	INV (N) 101.71 INV (S) 101.70 INV (E) 102.77 INV (W) 103.30	34 X 53 IN 34 X 53 IN 15 IN 15 IN	NONSTANDARD STRUCTURE
IN CD(5)-19	NOSA 37+46, 13.14' R	108.08	DOUBLE D1	INV (E) 104.06	15 IN	NONSTANDARD STRUCTURE
IN CD(5)-23	NSI 8070+87, 23.64' R	110.22	D4, G1	INV (E) 102.37 INV (W) 102.36 INV (S) 102.37	15 IN 15 IN 15 IN	
IN CD(5)-27	NOSA 39+81, 30.25' L	108.96	E2, G1	INV (N) 99.67 INV (S) 99.63 INV (E) 99.84 INV (W) 104.27	43 X 68 IN 43 X 68 IN 15 IN 15 IN	NONSTANDARD STRUCTURE
IN CD(5)-24	S8069+60, 24.70' R	109.95	D1, G1	INV (N) 102.68	15 IN	
IN CD(5)-28	NOSA 39+82, 11.74' R	108.48	D1, G1	INV (E) 104.46	15 IN	
FCS CD(5)-C	NOSA 40+79, 06.20' R	109.19	FLOW CONTROL STRUCTURE	INV (W) 98.11 INV (S) 99.10 INV (E) 99.12	43 X 68 IN 30 IN 43 X 68 IN	NONSTANDARD STRUCTURE
MH CD(5)-E	NOSA 40+79, 20.75' R	104.18	P-3	INV (S) 98.09 INV (E) 98.10	43 X 68 IN 43 X 68 IN	
MTD 8-I	NOSA 40+96, 07.63' R	109.18	MANUFACTURED TREATMENT DEVICE	INV (N) 99.06 INV (S) 99.06	30 IN 30 IN	NONSTANDARD STRUCTURE
FES CD(5)-E	NOSA 40+90, 20.61' R	N/A	FLARED END SECTION	INV (N) 98.06	43 X 68 IN	
IN CD(5)-26	NOSA 40+79, 31.50' L	109.37	DOUBLE D1 MODIFIED	INV (N) 99.28 INV (W) 99.27	43 X 68 IN 43 X 68 IN	NONSTANDARD STRUCTURE
IN CD(5)-21	I8069+61, 26.36' R	110.66	D4, G1	INV (W) 103.01	15 IN	
IN CD(5)-20	I8070+87, 26.36' R	110.22	D4, G1	INV (W) 102.40	15 IN	
IN CD(5)-15	I8073+24, 23.64' R	109.83	D4, G1	INV (E) 105.21 INV (N) 105.50 INV (W) 105.69	15 IN 15 IN 15 IN	
IN CD(5)-12	I8073+24, 26.36' R	109.83	D4, G1	INV (W) 105.83	15 IN	
IN CD(5)-14A	I8073+64, 18.05' R	110.10	D1, G1	INV (E) 105.81	15 IN	SNOW CONTROL INLET
IN CD(5)-14	I8073+64, 23.64' R	109.83	D4, G1	INV (E) 105.78 INV (S) 105.68 INV (W) 105.80	15 IN 15 IN 15 IN	
IN CD(5)-13	I8073+64, 26.36' R	109.83	D4, G1	INV (W) 105.80 INV (E) 105.81	15 IN 15 IN	
IN CD(5)-13A	I8073+64, 32.16' R	110.11	D1, G1	INV (W) 105.82	15 IN	SNOW CONTROL INLET
IN CD(5)-8	I8075+89, 23.64' R	110.07	D4, G1	INV (E) 105.36 INV (W) 105.35	15 IN 15 IN	
IN CD(5)-7	I8075+89, 26.36' R	110.08	D4, G1	INV (W) 105.38	15 IN	
IN CD(5)-18A	S8073+27, 29.95' L	109.51	D1, G1	INV (W) 101.82 INV (E) 101.88	18 IN 18 IN	SNOW CONTROL INLET
IN CD(5)-18	S8073+27, 41.85' L	108.58	E2, G1	INV (N) 100.63 INV (S) 100.62 INV (W) 103.86 INV (E) 101.53	34 X 53 IN 43 X 68 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
IN CD(5)-22	I8069+61, 23.64' R	110.66	D4, G1	INV (E) 102.99 INV (N) 102.98	15 IN 15 IN	
IN CD(5)-25	S8070+88, 22.81' R	109.60	D2, G2	INV (S) 102.06 INV (W) 101.43 INV (E) 102.06	15 IN 15 IN 15 IN	
IN CD(5)-17	S8073+23, 21.42' R	109.32	D2, G2	INV (N) 105.06 INV (W) 102.71 INV (E) 103.71	18 IN 18 IN 15 IN	
IN CD(5)-16A	S8073+47, 15.58' R	108.84	D1, G1	INV (E) 105.37	15 IN	SNOW CONTROL INLET
IN CD(5)-16	S8073+47, 21.15' R	109.32	D2, G2	INV (S) 105.16 INV (E) 105.31 INV (W) 105.31	18 IN 15 IN 15 IN	

IN CD(5)-16B	S8073+47, 32.13' R	109.87	D1, G1	INV (W) 105.36	15 IN	SNOW CONTROL INLET
IN CD(5)-9	S8075+88, 20.30' R	109.60	D1, G1	INV (E) 104.04 (EXIST) INV (W) 104.03 (EXIST)	15 IN 15 IN	
FES CD(1)-D	N8070+04, 43.04' R	N/A	FLARED END SECTION	INV (N) 100.06	29 X 45 IN	
MTD 8-J	N8070+02, 30.98' R	110.40	MANUFACTURED TREATMENT DEVICE	INV (N) 100.07 INV (S) 100.07	24 IN 24 IN	NONSTANDARD STRUCTURE
FCS CD(1)-B	N8070+19, 33.05' R	110.24	FLOW CONTROL STRUCTURE	INV (N) 100.23 INV (S) 100.12 INV (E) 100.14	30 IN 24 IN 30 IN	NONSTANDARD STRUCTURE
MH CD(1)-D	N8070+19, 42.83' R	104.90	P-3	INV (W) 100.12 INV (S) 100.11 INV (N) 110.12	30 IN 29 X 45 IN 24 IN	
IN CD(1)-17	N8070+64, 27.48' L	110.05	D2, G2	INV (E) 106.03	15 IN	
IN CD(1)-18	N8070+64, 37.38' R	109.88	OFFSET INLET	INV (W) 105.73 INV (N) 100.44 INV (S) 100.43	15 IN 30 IN 30 IN	NONSTANDARD STRUCTURE
IN CD(1)-15B	N8073+64, 18.13' L	110.01	D1, G1	INV (W) 105.25 INV (E) 105.24	18 IN 18 IN	SNOW CONTROL INLET
IN CD(1)-15	N8073+64, 27.64' L	109.57	DOUBLE D1	INV (E) 105.29 INV (W) 105.30	18 IN 18 IN	NONSTANDARD STRUCTURE
IN CD(1)-16A	N8073+64, 30.05' R	109.78	E1, G1	INV (W) 105.02 INV (E) 101.90 INV (S) 101.89	18 IN 30 IN 30 IN	SNOW CONTROL INLET/ NONSTANDARD
IN CD(1)-15A	N8073+64, 31.95' L	109.86	D1, G1	INV (E) 105.31	18 IN	SNOW CONTROL INLET
IN CD(1)-16	N8073+64, 37.38' R	109.37	E1, G1	INV (W) 101.91 INV (N) 101.92	30 IN 30 IN	NONSTANDARD STRUCTURE
MH CD(1)-AB	N8074+35, 42.84' R	108.61	P-1	INV (N) 101.73 INV (S) 101.72	24 IN 24 IN	
IN CD(1)-13	N8076+25, 27.55' L	109.90	D1, G1	INV (E) 103.60	15 IN	
IN CD(1)-14	N8076+25, 37.38' R	109.72	E1, G1	INV (W) 103.02 INV (N) 103.20 INV (S) 103.19	15 IN 30 IN 30 IN	NONSTANDARD STRUCTURE
MH CD(4)-R	N8070+50, 35.00' L	110.54	P-3	INV (N) 100.28 INV (S) 100.27	34 X 53 IN 34 X 53 IN	
MH CD(4)-Q	N8074+50, 35.00' L	110.05	P-3	INV (N) 101.68 INV (S) 101.67	34 X 53 IN 34 X 53 IN	

BY	DATE
MADE	BMW 05/08
TRACED	KHM 12/11
CHECKED	KHM 12/11
SUPERVISED	TRD

△	02/03/12	ADDENDUM 2-MODIFIED TABLES
No.	DATE	REVISION

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -6-

JACOBS ENGINEERING GROUP INC.
289 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: N.T.S.
DATE: JAN. 2012

THOMAS R. DECKER
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03568600

495
2116

FILE NAME: T869-120-803-0495.dgn

DT-6
DT-16

ADDENDUM NO. 2, SHEET 10 OF 23

PLAN 16 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN CD(5)-0	NOSA 27+12, 37.43' R	110.50	E2, G1	INV (N) 105.01 INV (S) 105.00	34 X 53 IN 34 X 53 IN	NONSTANDARD STRUCTURE
MH CD(5)-A	NOSA 27+35, 17.52' R	111.89	P-3	INV (N) 104.90 INV (S) 104.89	34 X 53 IN 34 X 53 IN	
MH CD(5)-B	NOSA 28+98, 09.21' R	111.54	P-3	INV (N) 104.24 INV (E) 104.23	34 X 53 IN 34 X 53 IN	
IN CD(5)-1	NOSA 28+99, 32.00' L	112.00	DOUBLE D1 MODIFIED	INV (W) 104.09 INV (S) 104.08	34 X 53 IN 34 X 53 IN	NONSTANDARD STRUCTURE
IN CD(5)-6	NOSA 32+45, 11.73' R	109.68	D1, G1	INV (E) 105.66	15 IN	
IN CD(5)-5	NOSA 32+47, 30.54' L	110.17	E2, G1	INV (N) 102.67 INV (S) 102.66 INV (W) 105.47 INV (E) 103.55	34 X 53 IN 34 X 53 IN 15 IN 15 IN	NONSTANDARD STRUCTURE
IN CD(5)-3	I8078+24, 23.65' R	111.90	D4, G1	INV (W) 106.31 INV (E) 106.32	15 IN 15 IN	
IN CD(5)-2	I8078+24, 26.38' R	110.91	D4, G1	INV (W) 106.34	15 IN	
IN CD(5)-4	S8078+23, 21.60' R	110.46	D1, G1	INV (W) 104.93 (EXIST) INV (E) 104.94 (EXIST)	15 IN 15 IN	
IN 8D-46	I8081+24, 23.02' R	112.49	D4, G1	INV (W) 107.91	18 IN	
IN 8D-49	I8084+26, 23.67' R	114.05	D4, G1	INV (E) 110.00 INV (W) 109.99	15 IN 15 IN	
IN 8D-48	I8084+26, 26.38' R	114.03	D4, G1	INV (W) 110.02	15 IN	
IN 8D-50	S8084+24, 26.50' R	113.09	E2, G1	INV (E) 108.42 INV (W) 106.01 INV (N) 106.02	15 IN 36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8D-47	S8081+24, 22.81' R	111.89	D1, G1	INV (E) 107.61 INV (W) 107.60	18 IN 18 IN	
MH 8D-G	S8081+25, 14.50' R	112.66	P-2	INV (E) 107.56 INV (N) 107.55	18 IN 24 X 38 IN	
MH 8D-H	S8084+24, 14.50' R	114.23	P-3	INV (E) 105.98 INV (W) 105.75 INV (S) 106.04	36 IN 34 X 53 IN 24 X 38 IN	
IN 8D-51	S8084+27, 54.00' L	111.73	E2, G1	INV (E) 105.75 INV (W) 105.74	34 X 53 IN 34 X 53 IN	NONSTANDARD STRUCTURE
MH 8D-F	S8086+50, 31.21' L	114.93	P-3	INV (N) 106.60 INV (W) 106.59	42 IN 34 X 53 IN	
IN 8D-45	S8086+50, 62.01' L	110.63	DOUBLE D1 MODIFIED	INV (W) 106.45 INV (E) 106.46	2 - 36 IN 34 X 53 IN	TWIN PIPES NONSTANDARD STRUCTURE
IN CD(1)-8	I8081+24, 27.10' R	112.49	D4, G1	INV (E) 108.41	15 IN	
IN CD(1)-11	N8078+28, 27.64' L	110.64	D1, G1	INV (E) 106.63	15 IN	
IN CD(1)-12	N8078+28, 37.38' R	110.47	E1, G1	INV (W) 106.33 INV (N) 104.20 INV (S) 104.18	15 IN 30 IN 30 IN	NONSTANDARD STRUCTURE
MH CD(1)-AA	N8078+50, 42.83' R	109.78	P-1	INV (E) 103.35 INV (S) 103.34	24 IN 24 IN	
FES CD(1)-00	N8078+50, 51.29' R	N/A	FLARED END SECTION	INV (W) 103.39	24 IN	
IN CD(1)-9	N8081+27, 27.63' L	112.20	D2, G2	INV (W) 108.13 INV (E) 108.12	15 IN 24 IN	
IN CD(1)-10	N8081+27, 37.38' R	112.02	E1, G1	INV (W) 107.82 INV (N) 105.67 INV (S) 105.66	24 IN 30 IN 30 IN	NONSTANDARD STRUCTURE
MH CD(1)-A	N8082+16, 31.47' R	112.82	P-1	INV (N) 108.27 INV (S) 106.09 INV (E) 106.10 (EXIST)	24 IN 30 IN 18 IN	
IN CD(1)-6	N8084+31, 27.34' L	113.80	D2, G2	INV (E) 110.36	14 X 23 IN	
IN CD(1)-7	N8084+31, 37.38' R	113.61	D2, G2	INV (W) 110.06 INV (N) 109.32 INV (S) 109.32	14 X 23 IN 18 IN 24 IN	
MH CD(4)-P	N8078+50, 35.00' L	111.20	P-3	INV (N) 103.08 INV (S) 103.07	34 X 53 IN 34 X 53 IN	
MH CD(4)-O	N8080+95, 35.00' L	112.48	P-3	INV (N) 103.93 INV (S) 103.92	34 X 53 IN 34 X 53 IN	
FES CD(4)-03	N8084+23, 53.27' R	N/A	FLARED END SECTION	INV (W) 106.11	15 IN	
MH CD(4)-M	N8084+23, 27.00' R	114.12	P-3	INV (N) 105.29 INV (W) 105.28 INV (E) 105.83	34 X 53 IN 34 X 53 IN 15 IN	
MH CD(4)-N	N8084+23, 35.00' L	114.21	P-3	INV (E) 105.08 INV (S) 105.07	34 X 53 IN 34 X 53 IN	

PLAN 17 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FES CD(4)-02	N8086+49, 56.32' R	N/A	FLARED END SECTION	INV (W) 107.81	15 IN	
MH CD(4)-L	N8086+21, 26.83' R	115.17	P-3	INV (N) 105.98 INV (S) 105.97 INV (E) 107.61	34 X 53 IN 34 X 53 IN 15 IN	
FCS 8D(1)-A	BASIN 8-D 4+55, 112.25' R	112.00	FLOW CONTROL STRUCTURE	INV (N) 106.13 INV (S) 106.20 INV (E) 106.19	18 IN 18 IN 15 IN	NONSTANDARD STRUCTURE
MH 8D(1)-D	BASIN 8-D 4+64, 112.93' R	112.00	P-1	INV (N) 106.10 INV (S) 106.11 INV (E) 106.11	18 IN 18 IN 15 IN	
MH 8D(1)-C	BASIN 8-D 4+64, 122.29' R	112.00	P-1	INV (S) 106.15 INV (W) 106.13	15 IN 15 IN	
FES 8D(1)-D	BASIN 8-D 4+88, 113.56' R	N/A	FLARED END SECTION	INV (S) 106.00	18 IN	
MTD 8-K	BASIN 8-D 4+54, 121.61' R	112.00	MANUFACTURED TREATMENT DEVICE	INV (W) 106.17 INV (N) 106.17	15 IN 15 IN	NONSTANDARD STRUCTURE
OS 8-D	BASIN 8-D 5+05, 157.51' R	N/A	OUTLET STRUCTURE	INV (S) 105.50	34 X 53 IN	NONSTANDARD STRUCTURE
FES 8D-M	BASIN 8-D 6+97, 138.55' R	N/A	FLARED END SECTION	INV (E) 105.86	48 IN	
MTD 8-L	NOSA 24+27, 67.91' R	112.00	MANUFACTURED TREATMENT DEVICE	INV (S) 105.97 INV (W) 105.97	30 IN 30 IN	NONSTANDARD STRUCTURE
MH 8D-L	NOSA 24+28, 76.97' R	112.00	P-1	INV (E) 105.96 INV (S) 105.95	30 IN 30 IN	
FCS 8D-J	NOSA 24+37, 67.40' R	112.00	FLOW CONTROL STRUCTURE	INV (W) 105.96 INV (N) 105.99 INV (E) 106.02	48 IN 30 IN 2 - 36 IN	NONSTANDARD STRUCTURE TWIN PIPES
MH 8D-M	NOSA 24+37, 76.19' R	112.00	P-3	INV (W) 105.92 INV (E) 105.93 INV (N) 105.93	48 IN 48 IN 30 IN	
FES 8D-O	NOSA 25+89, 95.23' R	N/A	FLARED END SECTION	INV (E) 105.15	42 IN	
MTD 8-L(1)	NOSA 25+76, 60.95' R	112.00	MANUFACTURED TREATMENT DEVICE	INV (S) 105.34 INV (W) 105.34	30 IN 30 IN	NONSTANDARD STRUCTURE
MH 8D-N	NOSA 25+79, 70.94' R	112.00	P-1	INV (E) 105.32 INV (S) 105.31	30 IN 30 IN	
FCS 8D-I	NOSA 25+85, 62.33' R	112.00	FLOW CONTROL STRUCTURE	INV (W) 105.30 INV (N) 105.36 INV (E) 105.37	42 IN 30 IN 34 X 53 IN	NONSTANDARD STRUCTURE
MH 8D-O	NOSA 25+89, 70.73' R	112.00	P-2	INV (W) 105.27 INV (E) 105.28 INV (N) 105.28	42 IN 42 IN 30 IN	

	BY	DATE
MADE	BMW	05/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
△	02/03/12	ADDENDUM 2-MODIFIED TABLES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -7-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: N.T.S.
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03686800

496
2116

FILE NAME: T869-120-803-0496.dgn

DT-7
DT-16

ADDENDUM NO. 2, SHEET 11 OF 23

PLAN 18 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 8D-41A	NISA 18+54, 13.71' L	116.58	D1, G1	INV (E) 113.42 (EXIST) INV (S) 113.41	15 IN 15 IN	
IN 8D-19	S8087+14, 40.07' R	114.05	DOUBLE D1 MODIFIED	INV (E) 107.44 INV (S) 107.43	36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8D-18	I8087+15, 23.64' R	115.54	DOUBLE D1 MODIFIED	INV (W) 107.79 INV (E) 107.80	36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8D-17	I8087+15, 26.36' R	115.54	DOUBLE D1 MODIFIED	INV (W) 107.82 INV (E) 107.83	36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8D-44	I8090+25, 60.59' L	115.21	D2, G2	INV (N) 111.93 INV (W) 110.16 INV (E) 110.17 (EXIST)	15 IN 24 IN 15 IN	
MH 8D-E	S8090+26, 30.46' L	116.93	P-2	INV (N) 108.47 INV (S) 108.46 INV (E) 109.83	42 IN 42 IN 24 IN	
FES 8D-03	S8091+76, 45.42' L	N/A	FLARED END SECTION	INV (E) 114.43	18 IN	
MH 8D-D	S8092+23, 30.63' L	117.95	P-2	INV (N) 109.44 INV (S) 109.43 INV (W) 114.18	42 IN 42 IN 18 IN	
IN 8D-16	N8087+14, 29.25' L	115.29	DOUBLE D1 MODIFIED	INV (N) 108.10 INV (W) 108.09	36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8D-15	N8090+23, 27.70' L	116.90	E2, G1	INV (N) 109.62 INV (S) 109.61	36 IN 36 IN	NONSTANDARD STRUCTURE
IN 8D-14	N8093+23, 27.75' L	118.46	E2, G1	INV (N) 111.11 INV (S) 111.10	30 IN 36 IN	NONSTANDARD STRUCTURE
IN CD(1)-5	N8087+25, 37.38' R	115.14	D2, G2	INV (N) 110.78 INV (S) 110.77	18 IN 18 IN	
IN CD(1)-4	N8090+23, 37.38' R	116.70	D2, G2	INV (N) 112.26 INV (S) 112.25	15 IN 18 IN	
IN CD(1)-3	N8093+23, 37.38' R	118.26	D1, G1	INV (N) 114.48 INV (S) 113.73	15 IN 15 IN	
MH CD(4)-K	N8090+21, 26.99' R	117.25	P-3	INV (N) 107.37 INV (S) 107.36	34 X 53 IN 34 X 53 IN	NONSTANDARD STRUCTURE
R18-1	N/A	117.16	D-1			
R18-2	N/A	117.16	D-1			
R18-3	N/A	118.73	D-1			
R18-4	N/A	118.73	D-1			

PLAN 19 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
OS 8-E	BASIN 8-E 5+42, 8.87' R	N/A	OUTLET STRUCTURE	INV (S) 114.96	30 IN	NONSTANDARD STRUCTURE
IN 8D-31	NISA 12+56, 11.73' R	122.07	D1, G1	INV (E) 114.89 INV (W) 114.38	18 IN 24 IN	
IN 8D-30	NISA 12+57, 13.60' L	122.82	E1, G1	INV (S) 116.68 INV (E) 115.25 INV (W) 115.00	15 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
IN 8D-27	NISA 12+57, 22.90' L	121.82	D1, G1	INV (W) 115.29 INV (E) 116.73 (EXIST)	15 IN 15 IN	
IN 8D-28	NISA 15+48, 11.67' R	132.35	D1, G1	INV (E) 128.49	15 IN	
IN 8D-29	NISA 15+48, 13.61' L	133.09	E1, G1	INV (W) 128.37 INV (N) 128.36	15 IN 15 IN	NONSTANDARD STRUCTURE
IN 8D-37	S8096+27, 24.39' R	119.90	D1, G1	INV (W) 113.75 INV (E) 113.85	15 IN 15 IN	
IN 8D-23	NOSA 10+28, 11.92' R	121.21	E2, G1	INV (N) 113.86 INV (S) 113.84	36 IN 36 IN	NONSTANDARD STRUCTURE
MH 8D-B	NOSA 11+19, 21.37' L	121.70	P-3	INV (N) 113.04 INV (S) 112.94 INV (E) 114.11 INV (NE) 116.94	36 IN 36 IN 24 IN 15 IN	
IN 8D-33	NOSA 12+32, 24.17' L	120.88	E2, G1	INV (N) 112.41 INV (S) 112.40	36 IN 36 IN	NONSTANDARD STRUCTURE
MH 8D-C	NOSA 14+94, 26.27' L	119.68	P-2	INV (N) 113.32 INV (S) 111.07 INV (W) 111.08	15 IN 42 IN 42 IN	
IN 8D-39	NOSA 14+85, 19.14' L	119.26	E2, G1	INV (W) 111.60 INV (E) 111.10 INV (N) 111.11	15 IN 42 IN 36 IN	NONSTANDARD STRUCTURE
FES 8D-02	NOSA 14+87, 27.79' R	N/A	FLARED END SECTION	INV (S) 112.58	15 IN	

IN 8D-38	NOSA 14+96, 15.02' R	118.66	D1, G1	INV (W) 112.49 INV (E) 111.75	15 IN 15 IN	
MH 8D-A	NOSA 8+77, 07.54' R	122.61	P-2	INV (W) 114.60 INV (E) 116.96 INV (S) 114.58	30 IN 18 IN 36 IN	
IN 8D-36	I8096+25, 34.38' L	120.04	D1, G1	INV (W) 114.06 INV (E) 116.05 (EXIST)	15 IN 15 IN	
IN 8D-24	S8100+15, 22.25' R	121.92	D1, G1	INV (S) 117.42 INV (E) 117.52	15 IN 15 IN	
IN 8D-24A	NISA 11+70, 19.97' R	121.54	D1, G1	INV (W) 117.70	15 IN	
IN 8D-22	S8102+27, 24.86' R	121.42	D1, G1	INV (W) 117.39 INV (E) 117.40 (EXIST)	18 IN 15 IN	
IN 8D-13	N8096+23, 27.57' L	120.03	E1, G1	INV (N) 112.60 INV (S) 112.59	30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8D-12	N8099+23, 27.55' L	121.60	E1, G1	INV (N) 114.09 INV (S) 114.08	30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8D-11	N8102+24, 27.39' L	123.17	E1, G1	INV (N) 115.59 INV (S) 115.58	30 IN 30 IN	NONSTANDARD STRUCTURE
IN CD(1)-1	N8099+23, 37.38' R	121.39	D1, G1	INV (N) 117.46 INV (S) 117.45	15 IN 15 IN	
IN CD(1)-0	N8102+24, 37.38' R	122.97	D1, G1	INV (S) 118.95	15 IN	
IN CD(1)-2	N8096+23, 37.38' R	119.83	D1, G1	INV (N) 115.97 INV (S) 115.96	15 IN 15 IN	
MH CD(4)-J	N8094+24, 27.00' R	119.35	P-3	INV (N) 108.78 INV (S) 108.77 INV (E) 108.78	29 X 45 IN 34 X 53 IN 22 X 34 IN	
MH CD(4)-I	N8096+97, 27.00' R	120.78	P-3	INV (N) 109.73 INV (S) 109.72	29 X 45 IN 29 X 45 IN	
IN CD(4)-1	N8094+50, 52.53' R	113.80	E2, G1	INV (E) 111.09 INV (W) 108.95	2-18 IN 22 X 34 IN	TWIN PIPES NONSTANDARD STRUCTURE
MH CD(4)-H	N8099+72, 27.00' R	122.21	P-3	INV (N) 110.69 INV (S) 110.68 INV (E) 115.13	29 X 45 IN 29 X 45 IN 19 X 30 IN	
FES CD(4)-01	N8099+97, 52.03' R	N/A	FLARED END SECTION	INV (S) 115.50	19 X 30 IN	
IN CD(4)-0	N8095+15, 97.02' R	115.20	E2, G1	INV (W) 112.45	2-18 IN	TWIN PIPES NONSTANDARD STRUCTURE
R19-1	N/A	120.29	D-1			
R19-2	N/A	120.28	D-1			
R19-3	N/A	121.86	D-1			
R19-4	N/A	121.86	D-1			
R19-5	N/A	123.43	D-1			
R19-6	N/A	123.42	D-1			

	BY	DATE
MADE	BTM	5/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
△	02/03/12	ADDENDUM 2-MODIFIED TABLES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -8-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

SCALE: N.T.S.
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03660600

497
2116

PLAN 22 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FCS 8F-A	BASIN 8-F 7+92, 91.33' L	142.03	FLOW CONTROL STRUCTURE	INV (N) 127.61 INV (E) 127.56 INV (W) 127.61	24 IN 36 IN 2 - 30 IN	NONSTANDARD STRUCTURE TWIN PIPES ON ALL INV
MH 8F-D	BASIN 8-F 7+95, 82.01' L	142.47	P-1	INV (W) 127.54 INV (E) 127.53 INV (N) 127.54	36 IN 36 IN 24 IN	
MTD 8-N	BASIN 8-F 8+04, 96.28' L	141.93	MANUFACTURED TREATMENT DEVICE	INV (S) 127.59 INV (E) 127.59	24 IN 24 IN	NONSTANDARD STRUCTURE
MH 8F-C	BASIN 8-F 8+06, 85.44' L	142.32	P-1	INV (W) 127.57 INV (S) 127.56	24 IN 24 IN	
FES 8F-D	BASIN 8-F 8+07, 37.53' L	N/A	FLARED END SECTION	INV (W) 127.40	36 IN	
IN 8F-17	I8127+05, 23.59' R	134.39	D4, G1	INV (W) 129.62 INV (E) 129.61	15 IN 15 IN	
IN 8F-18	I8127+05, 26.36' R	134.37	D4, G1	INV (W) 129.59 INV (E) 129.58	15 IN 15 IN	
IN 8F-16	I8127+06, 38.24' L	134.03	D1, G1	INV (E) 129.93	15 IN	
IN 8F-10	I8129+30, 23.84' R	135.23	D4, G1	INV (W) 130.93 INV (E) 130.92	15 IN 15 IN	
IN 8F-11	I8129+30, 26.36' R	135.21	D4, G1	INV (W) 130.90 INV (E) 130.89	15 IN 15 IN	
IN 8F-9	I8129+30, 38.26' L	134.87	D1, G1	INV (E) 131.24	15 IN	
IN 8F-15	N8125+51, 37.38' R	133.71	D1, G1	INV (W) 129.35 INV (N) 129.34	15 IN 15 IN	
IN 8F-14	N8125+52, 27.53' L	133.68	D1, G1	INV (E) 129.66	15 IN	
IN 8F-19	N8127+06, 27.49' L	134.01	D2, G2	INV (W) 129.31 INV (E) 129.30	15 IN 18 IN	
IN 8F-20	N8127+06, 37.38' R	134.17	DOUBLE D1 MODIFIED	INV (W) 129.00 INV (E) 127.86 INV (N) 127.87 INV (S) 128.59	18 IN 2 - 30 IN 30 IN 15 IN	TWIN PIPES ON INV(E) NONSTANDARD STRUCTURE
IN 8F-21	N8127+06, 45.96' R	131.90	DOUBLE D1	INV (W) 127.84 INV (E) 127.83	2 - 30 IN 2 - 30 IN	TWIN PIPES ON BOTH INV NONSTANDARD STRUCTURE
IN 8F-12	N8129+29, 27.57' L	134.78	D2, G2	INV (W) 130.62 INV (E) 130.61	15 IN 18 IN	
IN 8F-13	N8129+29, 37.38' R	134.84	E1, G1	INV (W) 130.30 INV (N) 128.54 INV (S) 128.52	18 IN 30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8E-9	S8122+55, 23.73' R	132.66	D1, G1	INV (W) 128.90 INV (E) 128.91 (EXIST)	15 IN 15 IN	
IN 8E-11	S8122+56, 37.37' L	132.66	D2, G2	INV (N) 125.76 INV (S) 125.75 INV (W) 125.76 INV (E) 128.63	18 IN 24 IN 24 IN 15 IN	
IN 8E-10	S8122+56, 45.60' L	130.99	D2, G2	INV (E) 125.80	24 IN	
IN 8E-5	S8124+81, 23.73' R	133.23	D1, G1	INV (W) 129.52 INV (E) 129.53 (EXIST)	15 IN 15 IN	
IN 8E-6	S8124+81, 37.37' L	133.49	D2, G2	INV (N) 126.88 INV (S) 126.87 INV (E) 129.25	18 IN 18 IN 15 IN	
IN 8E-1	S8127+00, 46.37' L	132.21	D2, G2	INV (E) 128.03	18 IN	
IN 8E-2	S8127+04, 37.37' L	134.30	D2, G2	INV (N) 127.98 INV (S) 127.97 INV (W) 127.99	15 IN 18 IN 18 IN	
IN 8E-0	S8129+27, 37.37' L	135.12	D1, G1	INV (N) 130.88 INV (S) 129.08	15 IN 15 IN	
FES 8E-00	S8129+54, 50.98' L	N/A	FLARED END SECTION	INV (S) 131.00	15 IN	
IN 8D-0A	N8122+54, 27.79' L	132.66	D1, G1	INV (E) 128.66	15 IN	
IN 8D-0	N8122+55, 37.38' R	132.82	D1, G1	INV (W) 128.35 INV (S) 125.97	15 IN 15 IN	
MH CD(4)-B	N8122+51, 27.00' R	133.37	P-3	INV (N) 122.24 INV (S) 122.23	24 X 38 IN 24 X 38 IN	
MH CD(4)-A	N8125+12, 27.00' R	134.15	P-3	INV (E) 126.47 INV (S) 123.46	19 X 30 IN 24 X 38 IN	
R22-1	N/A	132.92	D-1			
R22-2	N/A	132.93	D-1			
R22-3	N/A	133.59	D-1			
R22-4	N/A	133.59	D-1			

PLAN 23 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
OS 8-F	BASIN 8-F 6+81, 02.27' L	N/A	OUTLET STRUCTURE	INV (W) 129.00	19 X 30 IN	NONSTANDARD STRUCTURE
PLAN 24 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 8F-5	I8131+55, 23.67' R	136.26	D4, G1	INV (W) 131.61 INV (E) 131.60	15 IN 15 IN	
IN 8F-6	I8131+55, 26.38' R	136.24	D4, G1	INV (W) 131.58 INV (E) 131.57	15 IN 15 IN	
IN 8F-4	S8131+56, 23.73' R	135.67	D1, G1	INV (E) 131.92	15 IN	
IN 8F-8	N8131+53, 37.38' R	135.51	D2, G2	INV (W) 129.21 INV (S) 129.19	24 IN 30 IN	
IN 8F-7	N8131+54, 27.50' L	135.47	D2, G2	INV (W) 131.30 INV (E) 129.41 INV (N) 129.42	15 IN 24 IN 24 IN	
IN 8F-3	N8134+07, 27.57' L	136.29	D2, G2	INV (N) 130.30 INV (S) 130.29	18 IN 24 IN	
IN 8F-2	N8136+04, 27.42' L	136.87	D2, G2	INV (N) 130.96 INV (S) 130.95	15 IN 18 IN	
IN 8F-1	N8138+29, 27.45' L	137.78	D1, G1	INV (N) 131.74 INV (S) 131.73	15 IN 15 IN	
MH SBS-B	N8138+30, 48.17' R	133.35	INLET CONVERTED TO MANHOLE	INV (N) 129.58 INV (S) 129.48 (EXIST)	24 IN 30 IN	
MH SBS(1)-F	N8137+83, 28.55' R	137.89	P-1	INV (N) 129.29 INV (S) 129.19	24 IN 24 IN	
IN SBS(2)-30	S8136+06, 50.31' L	129.87	E2, G1	INV (E) 126.29 INV (S) 125.89 INV (N) 126.29 (EXIST)	30 IN 36 IN 30 IN	
IN SBS(2)-28	S8136+07, 34.18' L	137.33	E1, G1	INV (E) 128.36 (EXIST) INV (W) 127.91	15 IN 30 IN	NONSTANDARD STRUCTURE
MH SBS(2)-A	S8138+28, 49.66' L	136.19	P-1	INV (E) 128.83 INV (S) 127.55 INV (N) 129.83	30 IN 30 IN 18 IN	
IN SBS(2)-24	S8138+28, 32.66' L	137.64	E1, G1	INV (N) 130.61 INV (W) 128.87 INV (E) 132.29 (EXIST)	30 IN 30 IN 15 IN	NONSTANDARD STRUCTURE
IN SBS(2)-23	S8138+50, 49.50' L	134.03	D2, G2	INV (S) 129.91	18 IN	
IN SBS(3)-0	S8131+57, 37.37' L	135.82	D1, G1	INV (N) 129.57	15 IN	
IN SBS(3)-1	S8133+82, 37.37' L	136.50	D1, G1	INV (W) 128.47 (EXIST) INV (S) 128.48 INV (E) 128.47 (EXIST)	15 IN 15 IN 15 IN	
R24-3	N/A	131.69	D1, G1			
R24-4	N/A	136.60	D1-, G-1			
R24-5	N/A	136.95	D-1			
R24-6	N/A	136.96	D-1			
R24-7	N/A	136.38	D1-, G-1			
R24-10	N/A	137.08	D2, G2			
R24-11	N/A	137.73	D1, G1			
R24-12	N/A	137.68	D-1			
R24-14	N/A	137.95	D2, G-2			
R24-15	N/A	138.31	D-1			
R24-16	N/A	138.40	D-1			

BY	DATE
MADE	BTM 5/08
TRACED	KHM 12/11
CHECKED	KHM 12/11
SUPERVISED	TRD

ADDENDUM	02/03/12	ADDENDUM 2-MODIFIED TABLES
No.	DATE	REVISION

DT-10
DT-16

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -10-

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: N.T.S.
DATE: JAN. 2012

THOMAS R. DECKER
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03568000

499
2116

FILE NAME: T869-120-803-0499.dgn

ADDENDUM NO. 2, SHEET 13 OF 23

PLAN 30 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN DB(5)-0	SOT 54+51, 10.39' R	143.36	D1, G1	INV (E) 139.30	15 IN	
IN DB(5)-1	SOT 55+65, 10.33' R	147.74	DOUBLE D1 MODIFIED	INV (W) 138.74 INV (N) 133.47 (EXIST)	15 IN 48 X 78 IN	NONSTANDARD STRUCTURE
PLAN 31 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 8H(1)-1	REV TNO 10+48, 12.10' R	140.05	D2, G2	INV (SE) 135.89	15 IN	
MTD 8-R	REV TNO 8+50, 08.33' R	147.67	MANUFACTURED TREATMENT DEVICE	INV (W) 134.43 INV (N) 134.43	15 IN 15 IN	NONSTANDARD STRUCTURE
MH 8H(1)-C	REV TNO 8+50, 16.33' R	147.04	P-1	INV (S) 134.41 INV (W) 134.39	15 IN 15 IN	
FES 8H(1)-D	REV TNO 8+34, 64.12' R	N/A	FLARED END SECTION	INV (S) 133.50	18 IN	
FCS 8H(1)-B	REV TNO 8+58, 08.23' R	147.43	FLOW CONTROL STRUCTURE	INV (W) 134.46 INV (E) 134.45 INV (N) 134.45	18 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
MH 8H(1)-D	REV TNO 8+59, 16.14' R	146.73	P-1	INV (S) 134.43 INV (E) 134.37 INV (N) 134.36	18 IN 15 IN 18 IN	
IN 8H(1)-0	REV TNO 9+14, 50.86' L	139.00	D2, G2	INV (NE) 135.89	15 IN	
MH 8H(1)-A	REV TNO 9+15, 21.72' R	144.07	P-1	INV (S) 134.72 INV (E) 134.71	18 IN 18 IN	
IN 8H(1)-2	TNO 9+17, 12.26' R	145.04	DOUBLE D1 MODIFIED	INV (S) 134.76 INV (W) 135.31 INV (N) 134.75	15 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
IN 8H(2)-0	REV TNO 5+71, 10.25' R	152.58	D2, G2	INV (E)(MATCH EXIST) INV (W) 137.23	15 IN 15 IN	
FES 8H(2)-0	REV TNO 5+76, 59.33' R	N/A	FLARED END SECTION	INV (E) 133.50	15 IN	
FES 8H(3)-1	REV TNO 3+97, 67.98' R	N/A	FLARED END SECTION	INV (E) 133.50	15 IN	
IN 8H(3)-0	TNO 3+98, 11.99' R	154.61	D2, G2	INV (E) 151.22 (EXIST) INV (W) 137.94	15 IN 15 IN	
IN 8H(4)-1	REV TNO 1+68, 12.30' R	158.39	D2, G2	INV (N)(MATCH EXIST) INV (E) 152.50	15 IN 15 IN	
IN 8H(4)-2	REV TNO 2+74, 12.28' R	156.58	D2, G2	INV (W) 152.01 INV (E) 152.00	15 IN 15 IN	
FCS 8H(4)-A	REV TNO 2+88, 08.79' R	156.74	FLOW CONTROL STRUCTURE	INV (E) 151.96 INV (S) 151.95 INV (W) 151.95	15 IN 15 IN 15 IN	NONSTANDARD STRUCTURE
MH 8H(4)-C	REV TNO 2+88, 16.85' R	156.25	P-1	INV (W) 151.88 INV (N) 151.91 INV (S) 138.61	15 IN 15 IN 15 IN	
MTD 8-S	REV TNO 2+96, 08.51' R	156.65	MANUFACTURED TREATMENT DEVICE	INV (E) 151.93 INV (S) 151.93	15 IN 15 IN	NONSTANDARD STRUCTURE
MH 8H(4)-B	REV TNO 2+96, 16.61' R	156.32	P-1	INV (E) 151.90 INV (N) 151.91	15 IN 15 IN	NONSTANDARD STRUCTURE
FES 8H(4)-C	REV TNO 3+17, 69.14' R	N/A	FLARED END SECTION	INV 133.50	15 IN	
OS 8-H	REV TNO 8+21, 90.99' R	N/A	OUTLET STRUCTURE	INV (W) 133.00	24 IN	NONSTANDARD STRUCTURE
FES 8-H	REV TNO 9+40, 99.99' R	N/A	FLARED END SECTION	INV (E) 132.74	24 IN	
IN DB(3)-0	SOT 63+53, 10.73' R	160.24	D1, G1	INV (E) 147.30	15 IN	
MH DB(3)-A	SOT 63+53, 35.17' R	150.00	P-1	INV (W) 145.60 INV (E) 140.20	15 IN 15 IN	
FES DB(3)-A	SOT 63+53, 60.28' R	N/A	FLARED END SECTION	INV (W) 138.50	15 IN	
PLAN 32 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN SBN(3)-0	TSO 58+21, 11.81' R	141.00	E1, G1	INV (S) 136.21 INV (E) 136.31	15 IN 15 IN	NONSTANDARD STRUCTURE
IN SBN(3)-1	TSO 58+21, 16.70' L	141.55	D1, G1	INV (N) 136.54 INV (W) 136.44	15 IN 15 IN	
IN SBN(3)-2	TSO 55+91, 19.22' L	140.55	D1, G1	INV (S) 137.68	15 IN	
IN DB(1)-2	TSO 53+81, 18.21' L	139.39	D1, G1	INV (N) 135.40	15 IN	

PLAN 33 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN DB(1)-1	TSO 52+00, 19.18' L	138.41	D2, G2	INV (S) 133.60 INV (W) 133.59	15 IN 15 IN	
IN DB(1)-0	TSO 51+80, 11.20' R	137.99	D2, G2	INV (E) 133.43 INV (W) 132.75	15 IN 15 IN	
FES DB(1)-0	TSO 51+63, 37.99' R	N/A	FLARED END SECTION	INV (E) 132.08	15 IN	
R33-1	N/A	140.02	D1, G1			
R33-2	N/A	141.30	D1, G1			
R33-3	N/A	136.96	D2, G2			
R33-4	N/A	136.39	D2, G2			
PLAN 34 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FES DBT-B	S3909+70, 53.21' L	138.00	FLARED END SECTION	INV (E) 134.47	18 IN	
MTD 8-T	S3909+70, 36.04' L	139.07	MANUFACTURED TREATMENT DEVICE	INV (N) 135.78 INV (W) 135.78	15 IN 15 IN	NONSTANDARD STRUCTURE
MH DBT-B	S3909+71, 46.30' L	138.30	P-1	INV (N) 135.70 INV (W) 134.53 INV (E) 135.70	18 IN 18 IN 15 IN	
FCS DBT	S3909+86, 36.21' L	139.34	FLOW CONTROL STRUCTURE	INV (N) 136.00 INV (S) 135.90 INV (W) 135.90	18 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
MH DBT-A	S3909+86, 46.22' L	138.30	P-1	INV (E) 135.86 INV (S) 135.77	18 IN 18 IN	
PLAN 36 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN DB(2)-1	TNO 27+19, 12.07' R	147.15	D1, G1	INV (N) 143.13 INV (S) 143.12	15 IN 15 IN	
IN DB(2)-0	TNO 29+75, 11.81' R	150.82	D1, G1	INV (S) 146.80	15 IN	
FES PS(2)-0	TNO 31+78, 42.83' R	N/A	FLARED END SECTION	INV (W) 139.19	15 IN	
IN PS(2)-0	TNO 31+79, 12.12' R	153.77	D1, G1	INV (E) 140.94	15 IN	
IN DBT-0	S3917+35, 34.75' L	152.92	D1, G1	INV (S) 150.00	15 IN	
IN DBT-1	S3915+56, 39.52' L	150.09	D2, G2	INV (N) 147.10 INV (S) 147.10	15 IN 18 IN	
IN DBT-2	S3913+53, 39.52' L	146.16	D2, G2	INV (N) 143.50 INV (S) 143.40	18 IN 18 IN	
IN 36LC	S3919+21, 29.80' LT	155.50	LIP CURB INLET	INV (W) 152.28 (EXIST)	12 IN	
PLAN 37 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN PS(3)-0	N3919+39, 24.00' R	156.03	D1, G1	INV (E) 146.00	15 IN	
MH PS(3)-A	N3919+39, 39.69' R	151.49	P-1	INV (W) 145.63 INV (E) 136.72	15 IN 15 IN	
FES PS(3)-A	N3919+39, 65.67' R	N/A	FLARED END SECTION	INV (W) 136.00	15 IN	
IN PS(4)-1	N3921+19, 24.00' R	157.57	D1, G1	INV (W) 153.12 (EXIST) INV (E) 145.00	15 IN 15 IN	
MH PS(4)-A	N3921+19, 42.75' R	151.10	P-1	INV (W) 144.54 INV (E) 133.87	15 IN 15 IN	
FES PS(4)-A	N3921+19, 73.66' R	N/A	FLARED END SECTION	INV (W) 133.00	15 IN	
IN 37LC	S3920+98, 29.90' L	156.73	LIP CURB INLET	INV (W) 153.50 (EXIST)	12 IN	

	BY	DATE
MADE	BTM	5/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
1	02/03/12	ADDENDUM 2-MODIFIED TABLES
2	01/31/12	ADDENDUM 1-CHANGED TO ELEVATION

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -12-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE0366600

SCALE: N.T.S.
 DATE: JAN. 2012

501
 2116

PLAN 38 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R38-1	N/A	154.58	D1, G1			
R38-2	N/A	151.38	D1, G1			
R38-3	N/A	148.17	D1, G1			
R38-4	N/A	144.06	D2, G2			
PLAN 39 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R39-1	N/A	137.36	D2, G2			
PLAN 40 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R40-1	N/A	121.91	D2, G2			
PLAN 42 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 42LC	NS3970+06, 27.1' L	108.53	LIP CURB INLET	INV (W) 107.50	12 IN	
PLAN 43 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 43LC	NS3972+20.9, 26.4' L	107.08	LIP CURB INLET	INV (W) 102.40	12 IN	
PLAN 44 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R44-1	N/A	95.02	D-4, G-2			
PLAN 45 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R45-1	N/A	93.73	D-2, G-2			
R45-2	N/A	92.83	D-6, G-2			
R45-3	N/A	92.84	D-1, G-1			
R45-4	N/A	92.54	D-1, G-1			
R45-5	N/A	93.16	D-1, G-1			
R45-6	N/A	92.37	D-6, G-2			
PLAN 46 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
OS 8-O	BASIN 8-O 30+87, 31.23' R	N/A	OUTLET STRUCTURE	INV (S) 87.00	36 IN	NONSTANDARD STRUCTURE
MH PS(1)-A	S4004+98, 40.47' L	90.23	P-2	INV (N) 84.50 INV (S) 82.99	36 IN 36 IN	
FES 80-2	S4005+94, 45.40' L	N/A	FLARED END SECTION	INV (E) 88.00	24 IN	
IN PS48-20	S4005+94, 25.38' L	96.13	D2, G2	INV (N) 88.18 INV (W) 88.13	24 IN 24 IN	
MH PS48-D	S4007+02, 31.10' L	96.25	P-1	INV (N) 88.89 INV (E) 88.84	24 IN 24 IN	
MH PS48-E	S4007+02, 22.20' L	96.94	P-1	INV (W) 88.79 INV (S) 88.74	24 IN 24 IN	
R46-1	N/A	93.73	D-1, G-1			
R46-2	N/A	95.46	D-2, G-2			

PLAN 47 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN PS48-19	S4008+18, 25.38' L	97.42	D2, G2	INV (N) 89.60 INV (E) 89.78 (EXIST) INV (W) 89.55	24 IN 15 IN 24 IN	
IN PS48-16A	S4010+23, 25.38' L	98.56	D2, G2	INV (N) 91.50 INV (S) 91.40	24 IN 24 IN	
IN PS48-16	S4011+18, 25.38' L	99.05	D2, G2	INV (E) 95.27 (EXIST) INV (S) 94.80	18 IN 24 IN	
FES 80-1	S4013+36, 52.60' L	N/A	FLARED END SECTION	INV (E) 95.00	30 IN	
MH PS48-A	S4013+40, 34.30' L	99.32	P-1	INV (E) 95.13 INV (N) 95.13 INV (W) 95.08	30 IN 24 IN 30 IN	
MH PS48-B	S4013+41, 23.60' L	100.35	P-1	INV (N) 95.20 INV (W) 95.15	30 IN 30 IN	
FCS PS48	S4013+56, 23.87' L	100.42	FLOW CONTROL STRUCTURE	INV (N) 95.29 INV (S) 95.24 INV (W) 95.24	30 IN 30 IN 24 IN	NONSTANDARD STRUCTURE
MTD 8-U	S4013+56, 34.00' L	99.39	MANUFACTURED TREATMENT DEVICE	INV (E) 95.20 INV (S) 95.20	24 IN 24 IN	NONSTANDARD STRUCTURE
IN PS48-13	S4014+18, 22.80' L	100.73	E1, G1	INV (N) 95.49 INV (E) 95.51 (EXIST) INV (S) 95.47	24 IN 18 IN 30 IN	NONSTANDARD STRUCTURE
MH PS48-C	S4008+18, 31.30' L	96.90	P-1	INV (E) 89.50 INV (S) 89.45	24 IN 24 IN	
PLAN 48 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN PS48-10	S4017+22, 26.50' L	102.10	D2, G2	INV (N) 96.71 (EXIST) INV (E) 97.77 (EXIST) INV (S) 96.64	24 IN 18 IN 24 IN	
IN PS36-7	S4025+12, 29.32' L	106.28	D2, G2	INV (N) 99.19 INV (S) 98.74 (EXIST) INV (E) 99.24 (EXIST)	18 IN 24 IN 15 IN	
R48-1	N/A	102.72	D2, G2			
R48-2	N/A	103.06	D2, G2			
R48-3	N/A	103.40	D2, G2			
R48-4	N/A	104.70	D1, G1			
R48-5	N/A	105.79	D2, G2			
PLAN 49 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MH PS36-B	S4027+23, 25.32' L	107.78	P-1	INV (N) 101.22 INV (S) 101.19 INV (W) 101.22	18 IN 18 IN 15 IN	
MH PS36-A	S4027+23, 33.17' L	106.56	P-1	INV (N) 101.27 INV (E) 101.24	15 IN 15 IN	
FCS PS36	S4027+34, 25.28' L	107.81	FLOW CONTROL STRUCTURE	INV (N) 101.36 INV (S) 101.33 INV (W) 101.33	18 IN 18 IN 15 IN	NONSTANDARD STRUCTURE
MTD 8-V	S4027+34, 34.00' L	106.56	MANUFACTURED TREATMENT DEVICE	INV (E) 101.31 INV (S) 101.31	15 IN 15 IN	NONSTANDARD STRUCTURE
IN PS36-4	S4027+80, 28.05' L	107.84	D2, G2	INV (N) 101.84 (EXIST) INV (S) 101.74 INV (E) 101.89 (EXIST)	18 IN 18 IN 15 IN	
R49-1	N/A	108.48	D1, G1			
R49-2	N/A	108.60	D1, G1			

	BY	DATE
MADE	BTM	5/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
△	02/03/12	ADDENDUM 2-MODIFIED TABLES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -13-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200
THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03566600

SCALE: N.T.S.
 DATE: JAN. 2012

502
2116

PLAN 50 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R50-1	N/A	107.70	D1, G1			
R50-2	N/A	106.51	D2, G2			
R50-3	N/A	104.99	D2, G2			
R50-4	N/A	103.59	D2, G2			
PLAN 51 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R51-1	N/A	102.04	D2, G2			
R51-2	N/A	100.40	D1, G1			
PLAN 52 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FES PS(54)-B	S4053+09, 51.50' L	N/A	FLARED END SECTION	INV (E) 94.69	18 IN	
MH PS(54)-B	S4053+19, 33.94' L	99.53	P-1	INV (N) 94.75 INV (W) 94.74	18 IN 18 IN	
OS 8-K	S4053+67, 60.00' L	N/A	OUTLET STRUCTURE	INV (E) 95.00	18 IN	NONSTANDARD STRUCTURE
MH PS(54)-A	S4053+67, 33.54' L	100.00	P-1	INV (W) 94.93 INV (S) 94.92	18 IN 18 IN	
MH PS54-C	S4053+78, 22.93' L	101.12	P-1	INV (N) 94.59 INV (W) 94.50	24 IN 24 IN	
MH PS54-D	S4053+78, 36.74' L	99.00	P-1	INV (W) 94.36 INV (N) 94.60 INV (E) 94.45	24 IN 24 IN 24 IN	
FES 8K-2	S4053+78, 65.08' L	N/A	FLARED END SECTION	INV (E) 94.20	24 IN	
FCS PS54-W	S4053+96, 22.97' L	101.21	FLOW CONTROL STRUCTURE	INV (N) 94.75 INV (S) 94.66 INV (W) 94.66	24 IN 24 IN 24 IN	NONSTANDARD STRUCTURE
MTD 8-W	S4053+96, 36.74' L	99.75	MANUFACTURED TREATMENT DEVICE	INV (E) 94.63 INV (S) 94.63	24 IN 24 IN	NONSTANDARD STRUCTURE
IN PS54-31	S4054+17, 25.38' L	101.13	D2, G2	INV (N) 94.93 INV (S) 94.84 INV (E) 95.07 (EXIST)	24 IN 24 IN 18 IN	
IN PS54-28	S4057+17, 26.14' L	102.81	D2, G2	INV (N) 97.63 INV (S) 97.54 INV (E) 97.67 (EXIST)	24 IN 24 IN 18 IN	
IN PS54-25	S4060+18, 25.38' L	104.73	D2, G2	INV (S) 99.52 INV (E) 99.61 (EXIST)	24 IN 24 IN	

PLAN 53 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MTD 8-X	S4062+85, 23.93' L	106.40	MANUFACTURED TREATMENT DEVICE	INV (W) 100.53 INV (N) 100.53	30 IN 30 IN	NONSTANDARD STRUCTURE
MH PS54-B	S4062+85, 35.95' L	105.25	P-1	INV (W) 95.25 INV (E) 100.44 INV (N) 100.44	30 IN 30 IN 30 IN	
FES 8K-1	S4062+85, 78.00' L	N/A	FLARED END SECTION	INV (E) 94.50	30 IN	
FCS PS54-X	S4062+97, 24.00' L	106.46	FLOW CONTROL STRUCTURE	INV (N) 100.71 INV (S) 100.62 INV (W) 100.62	30 IN 30 IN 30 IN	NONSTANDARD STRUCTURE
MH PS54-A	S4062+97, 35.96' L	105.25	P-1	INV (E) 100.58 INV (S) 100.49	30 IN 30 IN	
IN PS54-22	S4063+18, 24.01' L	106.58	E1, G1	INV (N) 100.89 INV (S) 100.80 INV (E) 101.74 (EXIST)	30 IN 30 IN 18 IN	NONSTANDARD STRUCTURE
IN PS54-19	S4064+32, 23.21' L	107.37	E1, G1	INV (N) 101.55 INV (S) 101.46	30 IN 30 IN	NONSTANDARD STRUCTURE
IN PS54-18	S4066+07, 26.11' L	108.19	E1, G1	INV (N) 102.52 INV (S) 102.43 INV (E) 103.17 (EXIST)	30 IN 30 IN 15 IN	NONSTANDARD STRUCTURE
IN PS54-15	S4067+93, 25.38' L	109.32	E1, G1	INV (N) 103.53 INV (E) 104.16 (EXIST) INV (S) 103.45	30 IN 15 IN 30 IN	NONSTANDARD STRUCTURE
IN PS54-12	S4068+90, 23.04' L	109.90	E1, G1	INV (N) 104.10 (EXIST) INV (S) 104.00	30 IN 30 IN	NONSTANDARD STRUCTURE
FES 8K-0	S4063+55, 79.8' L	N/A	FLARED END SECTION	INV (N) 95.00	15 IN	
IN 8K-0	S4064+35, 49.37' L	101.00	D1, G1	INV (S) 94.92	15 IN	
R53-1	N/A	110.61	D2, G2			
PLAN 54 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN PS54-2B	S4075+17, 16.50' L	114.13	D2, G1	INV (W) 108.29 INV (E) 108.84 (EXIST) INV (N) 108.34	18 IN 18 IN 18 IN	
IN PS54-5	S4075+17, 25.00' L	113.64	D2, G2	INV (N) 108.27 (EXIST) INV (W) 108.82 (EXIST) INV (E) 108.27 INV (S) 108.12 (EXIST)	24 IN 15 IN 18 IN 24 IN	
IN PS54-2A	S4078+17, 18.10' L	115.71	D2, G1	INV (W) 110.43 INV (E) 110.66 (EXIST) INV (S) 110.38	15 IN 18 IN 18 IN	
IN PS54-2	S4078+17, 25.38' L	115.32	D2, G2	INV (E) 110.45	15 IN	
R54-1	N/A	110.82	D2, G2			
R54-2	N/A	111.62	D2, G2			
PLAN 64 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R64-1	N/A	117.16	D1, G1			
PLAN 66 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R66-1	N/A	102.06	D2, G2			

	BY	DATE
MADE	BTM	5/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
△	02/03/12	ADDENDUM 2-MODIFIED TABLES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -14-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: N.T.S.
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03568600

503
2116

DT-14
DT-16

FILE NAME: T869-120-803-0503.dgn

ADDENDUM NO. 2, SHEET 18 OF 23

PLAN 68 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MTD 8-Y	S4207+00, 38.35' L	103.50	MANUFACTURED TREATMENT DEVICE	INV (E) 96.82 INV (S) 96.82	24 IN 24 IN	NONSTANDARD STRUCTURE
FCS NBB	S4207+01, 27.33' L	102.10	FLOW CONTROL STRUCTURE	INV (N) 96.93 (EXIST) INV (S) 96.84 INV (W) 96.84	36 IN 36 IN 24 IN	NONSTANDARD STRUCTURE
MH NBB-A	S4206+89, 38.15' L	103.50	P-1	INV (N) 96.80 INV (E) 96.71	24 IN 24 IN	
MH NBB-B	S4206+89, 27.11' L	102.00	P-1	INV (N) 96.69 INV (S) 96.60 (EXIST) INV (W) 96.69	36 IN 36 IN 24 IN	
R68-1	N/A	101.57	D2, G2			

PLAN 70 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R70-1	N/A	108.40	D2, G2			
R70-2	N/A	103.55	D2, G2			

PLAN 71 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FCS BOG	S4227+04, 27.65' L	98.30	FLOW CONTROL STRUCTURE	INV (N) 87.38 INV (E) 87.47 INV (W) 87.38	24 IN 24 IN 15 IN	NONSTANDARD STRUCTURE
MTD 8-Z	S4227+04, 38.79' L	97.81	MANUFACTURED TREATMENT DEVICE	INV (N) 87.35 INV (E) 87.35	15 IN 15 IN	NONSTANDARD STRUCTURE
IN BOG-7B	S4226+34, 25.38' L	100.14	D2, G2	INV (N) 89.20 INV (S) 89.30	24 IN 24 IN	
MH BOG-A	S4227+15, 38.77' L	97.61	P-1	INV (S) 87.32 INV (E) 87.22	15 IN 15 IN	
MH BOG-B	S4227+15, 27.73' L	98.09	P-1	INV (N) 87.09 INV (S) 87.19 INV (W) 87.19	24 IN 24 IN 15 IN	
IN BOG-8	S4228+26, 16.00' L	96.26	D2, G2	INV (S) 88.20 INV (E) 88.40 (EXIST)	18 IN 15 IN	
MH BOG-C	S4227+04, 18.21' L	98.00	P-1	INV (S) 88.00 INV (N) 87.60 INV (W) 87.50	24 IN 18 IN 24 IN	
MH BOG-D	S4227+52, 23.17' L	97.60	P-1	INV (S) 86.92 INV (N) 86.83	24 IN 24 IN	
MH BOG-E	S4228+81, 17.98' L	94.87	P-1	INV (S) 85.91 INV (N) 85.82	24 IN 24 IN	
IN BOG-8A	S4228+26, 24.80' L	95.82	D2, G2	INV (S) 86.47 INV (N) 86.38	24 IN 24 IN	
R71-2	N/A	87.77	D1, G1			
R71-3	N/A	87.93	D2, G2			

PLAN 72 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R72-1	N/A	79.93	D1, G1			
R72-2	N/A	80.17	D2, G2			
R72-3	N/A	72.16	D1, G1			
R72-4	N/A	72.51	D2, G2			
R72-5	N/A	68.92	D2, G2			
R72-6	N/A	67.18	D2, G2			

PLAN 73 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R73-1	N/A	58.85	D1, G1			
R73-2	N/A	56.11	D2, G2			
R73-3	N/A	55.54	D2, G2			
R73-4	N/A	54.91	D1, G1			
R73-5	N/A	55.03	D1, G1			
R73-6	N/A	55.32	D2, G2			
R73-7	N/A	54.78	D1, G1			
R73-8	N/A	55.36	D2, G2			
R73-9	N/A	55.38	D1, G1			
R73-10	N/A	56.02	D1, G1			
R73-11	N/A	56.36	D2, G2			

PLAN 74 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R74-1	N/A	57.22	D1, G1			
R74-2	N/A	57.61	D2, G2			
R74-3	N/A	58.63	D1, G1			
R74-4	N/A	59.00	D2, G2			
R74-5	N/A	59.67	D1, G1			
R74-6	N/A	60.25	D1, G1			

PLAN 75 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R75-1	N/A	60.18	D1, G1			
R75-2	N/A	55.00	D2, G2			

PLAN 76 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R76-1	N/A	53.77	D2, G2			
R76-2	N/A	52.30	D2, G2			
R76-3	N/A	51.96	D1, G1			
R76-4	N/A	52.25	D2, G2			

PLAN 77 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MTD 8-AB	S4286+22, 19.67' L	66.44	MANUFACTURED TREATMENT DEVICE	INV (N) 58.27 INV (S) 58.27	18 IN 18 IN	NONSTANDARD STRUCTURE
FCS SWM	S4286+45, 20.06' L	66.80	FLOW CONTROL STRUCTURE	INV (N) 58.74 (EXIST) INV (S) 58.65 INV (W) 58.65	24 IN 18 IN 24 IN	NONSTANDARD STRUCTURE
MH SWM-A	S4286+44, 35.07' L	69.48	P-1	INV (E) 58.53 INV (S) 58.44	24 IN 24 IN	
MH SWM-B	S4286+01, 34.82' L	68.58	P-1	INV (N) 58.10 INV (E) 58.09	24 IN 24 IN	
MH SWM-C	S4286+01, 18.94' L	66.12	P-1	INV (N) 57.89 INV (S) 57.80 (EXIST) INV (W) 57.89	18 IN 24 IN 24 IN	
R77-1	N/A	61.31	D1, G1			
R77-2	N/A	61.94	D2, G2			
R77-3	N/A	65.65	D1, G1			
R77-4	N/A	67.67	D2, G2			

PLAN 78 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R78-1	N/A	71.69	D2, G2			
R78-2	N/A	73.00	D2, G2			
R78-3	N/A	74.64	D1, G1			
R78-4	N/A	74.08	D1, G1			

PLAN 79 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R79-1	N/A	72.09	D1, G1			
R79-2	N/A	67.74	D2, G2			
R79-3	N/A	62.73	D1, G1			
R79-4	N/A	59.66	D2, G2			
R79-5	N/A	60.00	D1, G1			
R79-6	N/A	67.49	D2, G2			
R79-7	N/A	63.60	D1, G1			
R79-8	N/A	62.96	D2, G2			
R79-9	N/A	63.47	D1, G1			

	BY	DATE
MADE	BTM	5/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISOR	TRD	

No.	DATE	REVISION
1	02/03/12	ADDENDUM 2-MODIFIED TABLES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -15-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

SCALE: N.T.S.
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03666600

504
2116

PLAN 80 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R80-1	N/A	50.61	D1, G1			
R80-2	N/A	50.83	D1, G1			
R80-3	N/A	49.63	D2, G2			
R80-4	N/A	50.10	D2, G2			
R80-5	N/A	49.96	D2, G2			
PLAN 81 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R81-1	N/A	51.50	D1, G1			
R81-2	N/A	51.85	D2, G2			
R81-3	N/A	53.75	D1, G1			
R81-4	N/A	54.36	D2, G2			
R81-5	N/A	56.34	D2, G2			
R81-6	N/A	60.94	D1, G1			
R81-7	N/A	61.27	D1, G1			
R81-8	N/A	54.56	D1, G1			
PLAN 82 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MH SAW-B	S4326+80, 18.22' L	64.50	P-1	INV (N) 56.12 INV (S) 56.03 (EXIST) INV (W) 56.12	30 IN 30 IN 24 IN	
FCS SAW	S4326+99, 18.26' L	64.90	FLOW CONTROL STRUCTURE	INV (N) 56.43 (EXIST) INV (S) 56.34 INV (W) 56.34	30 IN 30 IN 24 IN	NONSTANDARD STRUCTURE
MTD 8-AC	S4326+99, 32.65' L	64.50	MANUFACTURED TREATMENT DEVICE	INV (E) 56.31 INV (S) 56.31	24 IN 24 IN	NONSTANDARD STRUCTURE
MH SAW-A	S4326+80, 32.61' L	64.10	P-1	INV (N) 56.26 INV (E) 56.17	24 IN 24 IN	
R82-1	N/A	65.58	D1, G1			
R82-2	N/A	67.52	D1, G1			
R82-3	N/A	70.44	D1, G1			
R82-4	N/A	70.78	D2, G2			
R82-5	N/A	66.18	D2, G2			
PLAN 83 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R83-1	N/A	75.88	D1, G1			
R83-2	N/A	76.20	D2, G2			
R83-3	N/A	79.69	D2, G2			
R83-4	N/A	80.05	D2, G2			
R83-5	N/A	80.44	D2, G2			
R83-6	N/A	80.91	D2, G2			
PLAN 84 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FCS NWM	S4350+31, 28.10' L	74.43	FLOW CONTROL STRUCTURE	INV (N) 66.35 INV (S) 66.45 (EXIST) INV (W) 66.36	18 IN 18 IN 15 IN	NONSTANDARD STRUCTURE
MTD 8-AD	S4350+35, 40.76' L	78.00	MANUFACTURED TREATMENT DEVICE	INV (E) 66.31 INV (N) 66.31	15 IN 15 IN	NONSTANDARD STRUCTURE
MH NWM-A	S4350+50, 41.14' L	77.50	P-1	INV (S) 66.24 INV (E) 66.15	15 IN 15 IN	
MH NWM-B	S4350+51, 28.05' L	74.16	P-1	INV (N) 66.01 (EXIST) INV (S) 66.10 INV (W) 66.10	18 IN 18 IN 15 IN	
R84-1	N/A	80.22	D1, G1			
R84-2	N/A	72.34	D1, G1			
R84-3	N/A	72.73	D2, G2			
R84-4	N/A	77.12	D2, G2			
R84-5	N/A	73.52	D2, G2			

PLAN 85 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
R85-1	N/A	67.55	D1, G1			
R85-2	N/A	67.92	D2, G2			
R85-3	N/A	65.07	D1, G1			
R85-4	N/A	65.42	D2, G2			

BY	DATE
MADE	BTM 5/08
TRACED	KHM 12/11
CHECKED	KHM 12/11
SUPERVISED	TRD

02/03/12	ADDENDUM 2-MODIFIED TABLES	
No.	DATE	REVISION

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -16-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: N.T.S.
 DATE: JAN. 2012

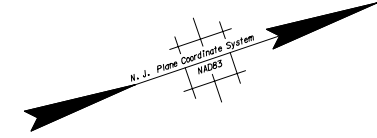
THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE0366900

DT-16
DT-16

505
2116

COUNTY OF MIDDLESEX

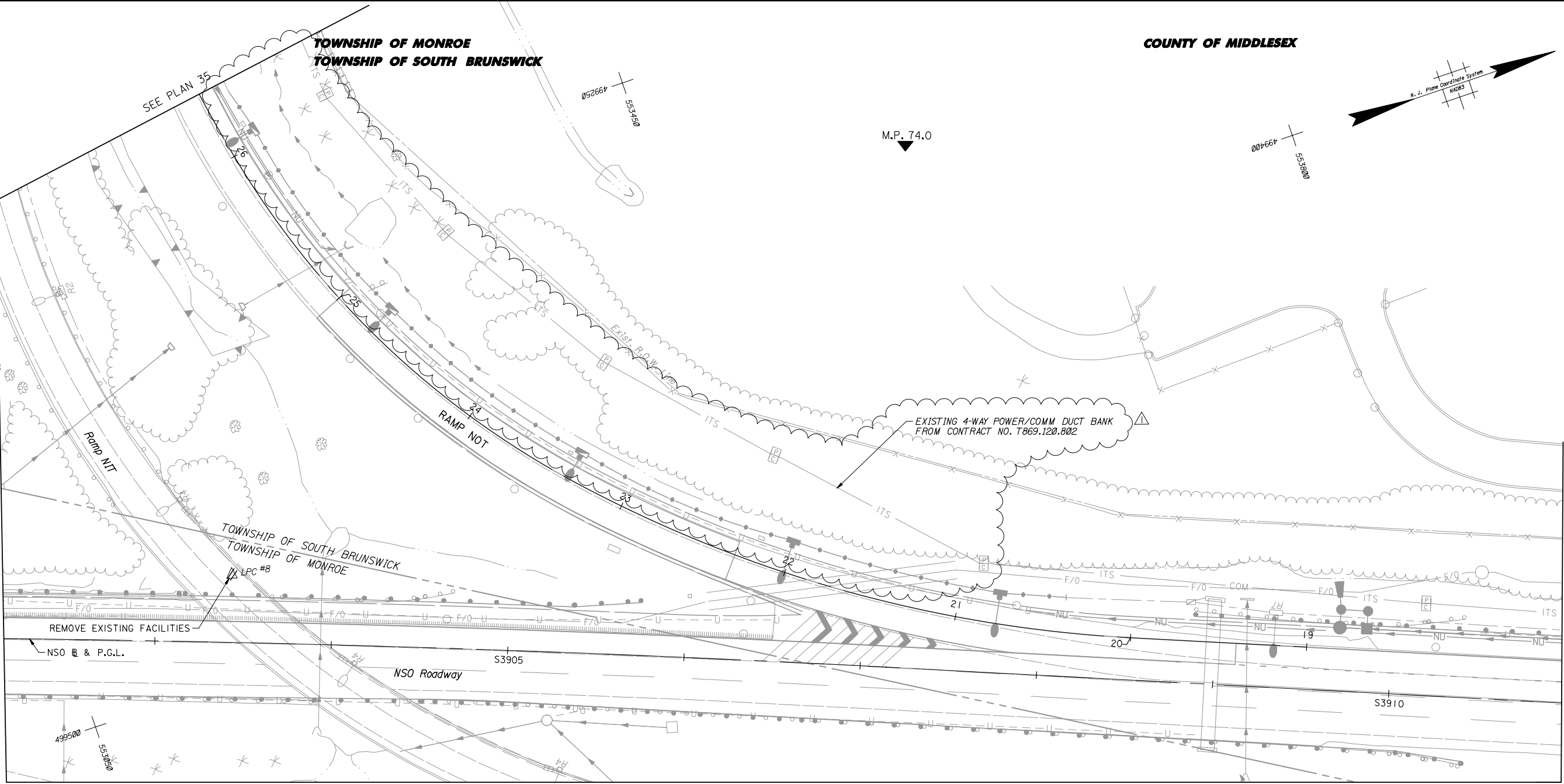
TOWNSHIP OF MONROE
TOWNSHIP OF SOUTH BRUNSWICK



M.P. 74.0

SEE PLAN 35

SEE PLAN 33

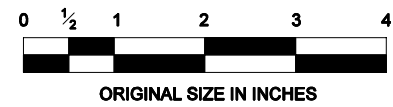


MATCH LINE INNER B. STA. 18186+00
SEE PLAN 36

SEE PLAN 29

NOTE:
1. ITEMS CALLED OUT BY "REMOVE EXISTING FACILITIES" SHALL BE PAID UNDER ITEM "REMOVE AND SALVAGE EXISTING FACILITIES" AND ITEMS SHALL NOT BE SALVAGED BUT DISPOSED.

	BY	DATE
MADE	KPH	10-10
TRACED	JA	12-11
CHECKED	MMF	12-11
SUPERVISOR	MJB	



△	2/3/12	ADDENDUM 2-REVISED/ADDED ITS POWER/COMM
No.	DATE	REVISION

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

ITS PLAN -34-

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: 1"=30'
DATE: JAN. 2012

MATTHEW M. FICARRA JR.
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GED4478100

744
2116

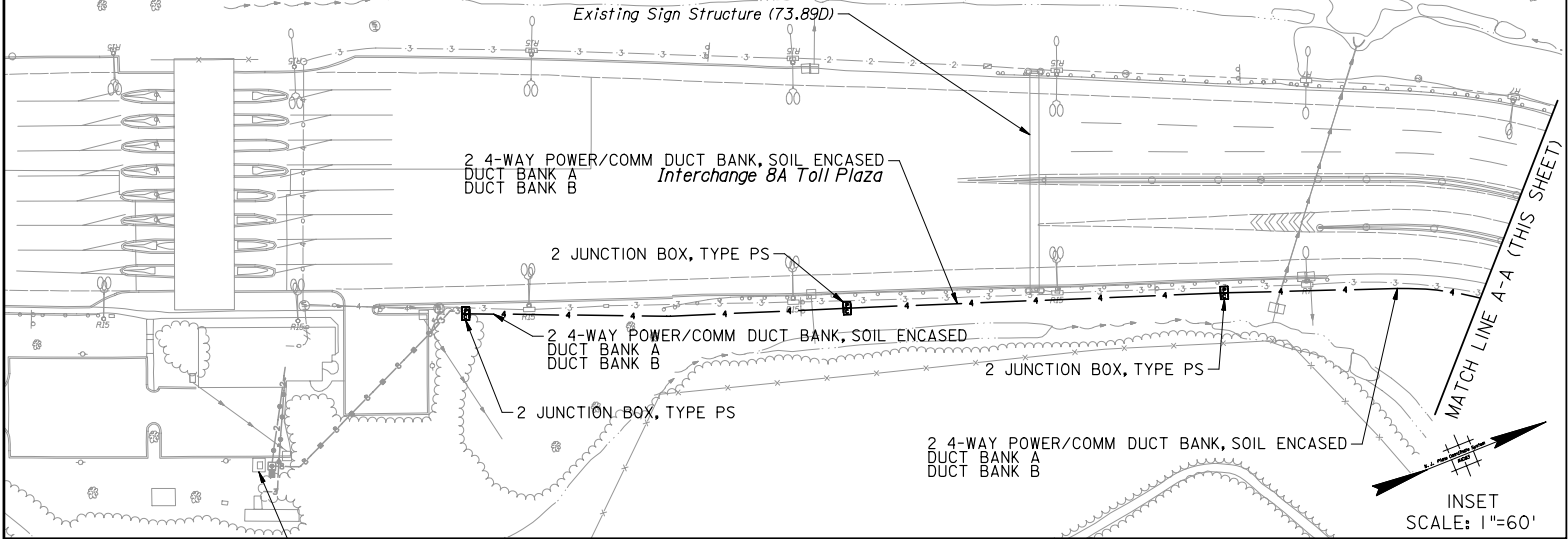
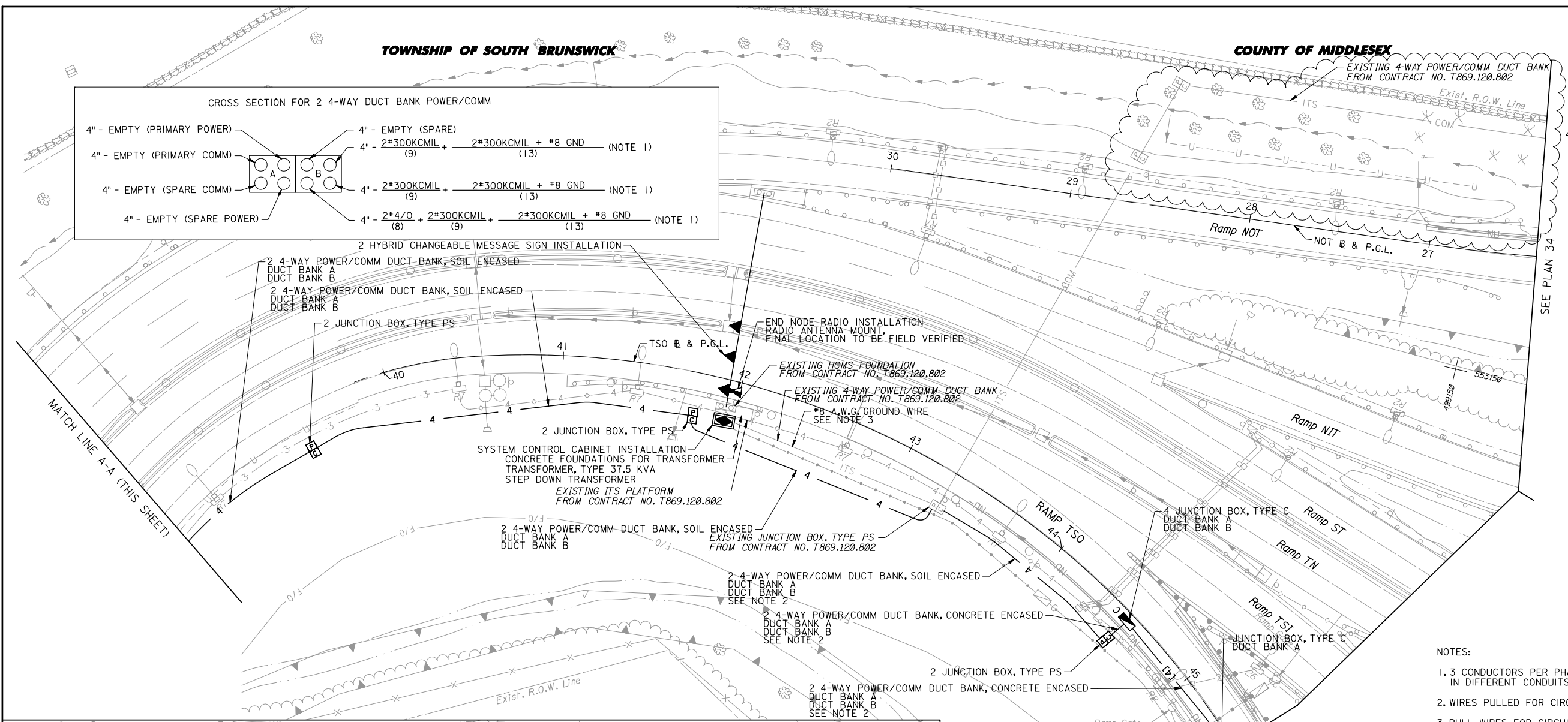
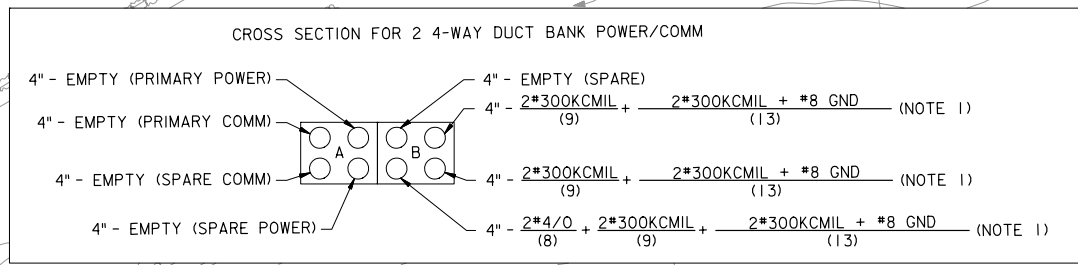
FILE NAME: T869-120-803-0744.dgn

ITS-36
ITS-68

ADDENDUM NO. 2, SHEET 19 OF 23

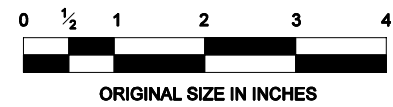
TOWNSHIP OF SOUTH BRUNSWICK

COUNTY OF MIDDLESEX



- NOTES:
- 3 CONDUCTORS PER PHASE FOR CIRCUITS #9 & #13 INSTALLED IN DIFFERENT CONDUITS.
 - WIRES PULLED FOR CIRCUIT 8 WILL NO LONGER BE NEEDED.
 - PULL WIRES FOR CIRCUIT 8 TO SCC INSTALLATION.

	BY	DATE
MADE	KPH	10-10
TRACED	JA	12-11
CHECKED	MMF	12-11
SUPERVISOR	MJB	



No.	DATE	REVISION
△ 2/3/12		ADDENDUM 2-REVISED/ADDED ITS POWER/COMM

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

ITS PLAN -35-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

SCALE: 1"=30'
 DATE: JAN. 2012

MATTHEW M. FICARRA JR.
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GED4478100

745
 2116

FILE NAME: T869-120-803-0745.dgn

ADDENDUM NO. 2 SHEET 20 OF 23

TOWNSHIP OF MONROE
TOWNSHIP OF SOUTH BRUNSWICK
M.P. 74.1

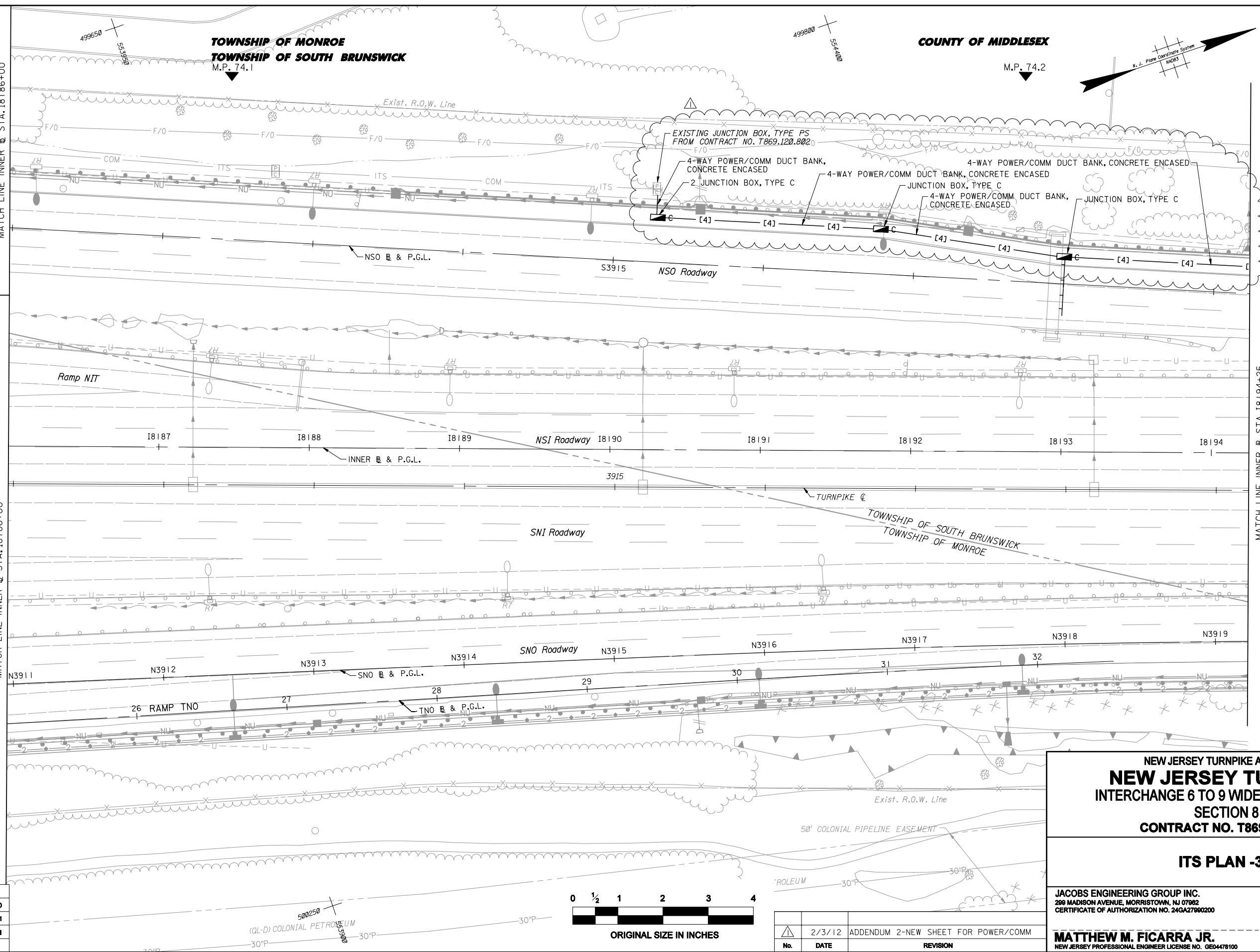
COUNTY OF MIDDLESEX
M.P. 74.2



SEE PLAN 34
MATCH LINE INNER @ STA. 18186+00

SEE PLAN 29
MATCH LINE INNER @ STA. 18186+00

MATCH LINE INNER @ STA. 18194+25
SEE PLAN 37



BY	KPH	10-10
TRACED	JA	04-11
CHECKED	MMF	04-11
SUPERVISOR	MJB	



No.	DATE	REVISION
1	2/3/12	ADDENDUM 2-NEW SHEET FOR POWER/COMM

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

ITS PLAN -36-

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

MATTHEW M. FICARRA JR.
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GD04478100

SCALE: 1"=30'
DATE: JAN. 2012

745A
2116

FILE NAME: T869-120-803-0745A.dgn

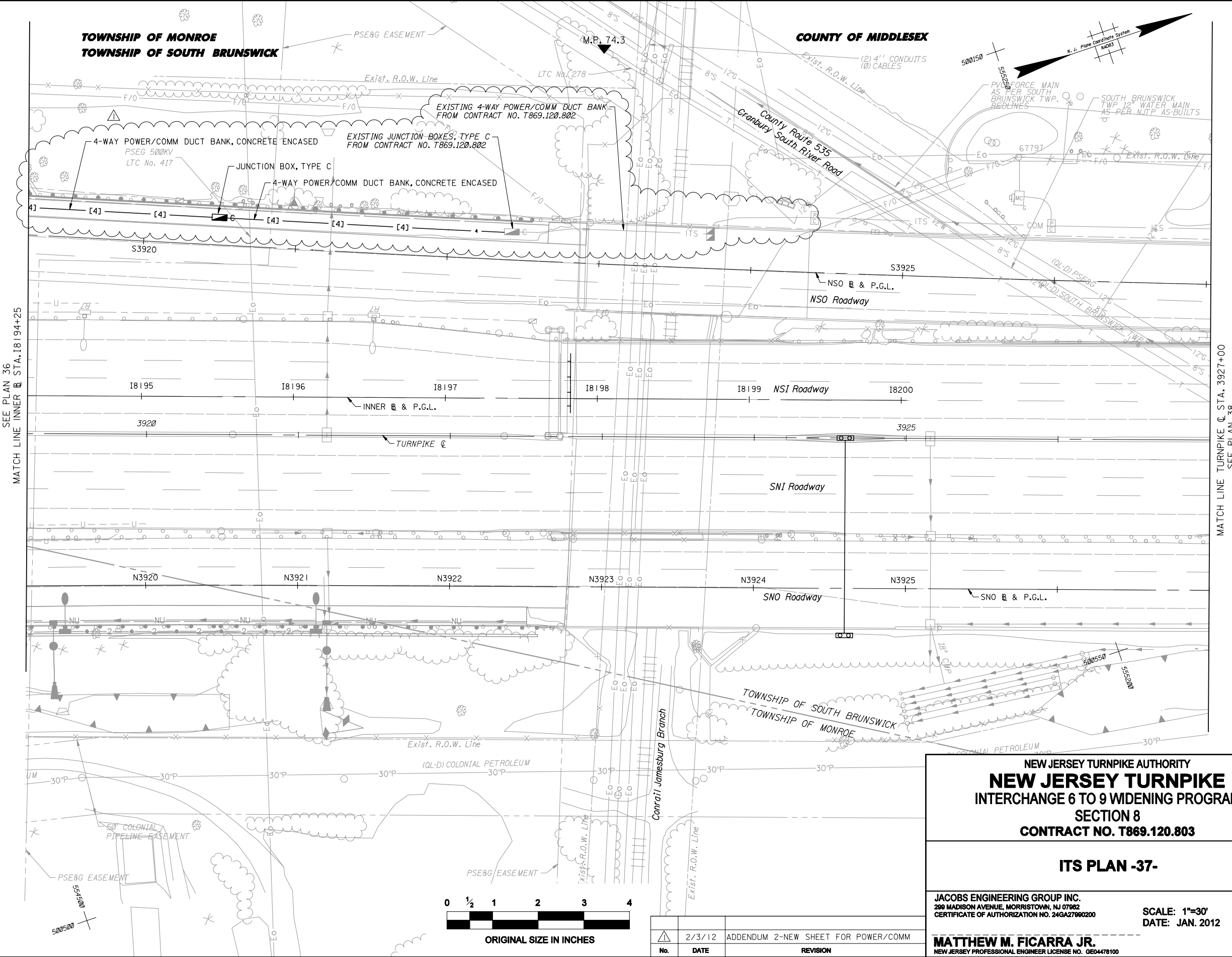
ITS-37A
ITS-68

ADDENDUM NO. 2 SHEET 21 OF 23

TOWNSHIP OF MONROE
TOWNSHIP OF SOUTH BRUNSWICK

COUNTY OF MIDDLESEX

M.P. 74.3



SEE PLAN 36
MATCH LINE INNER @ STA. 18194+25

MATCH LINE TURNPIKE @ STA. 3927+00
SEE PLAN 38

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

ITS PLAN -37-

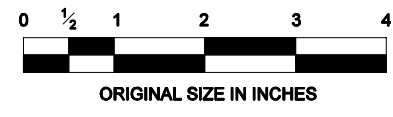
JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

MATTHEW M. FICARRA JR.
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GD4478100

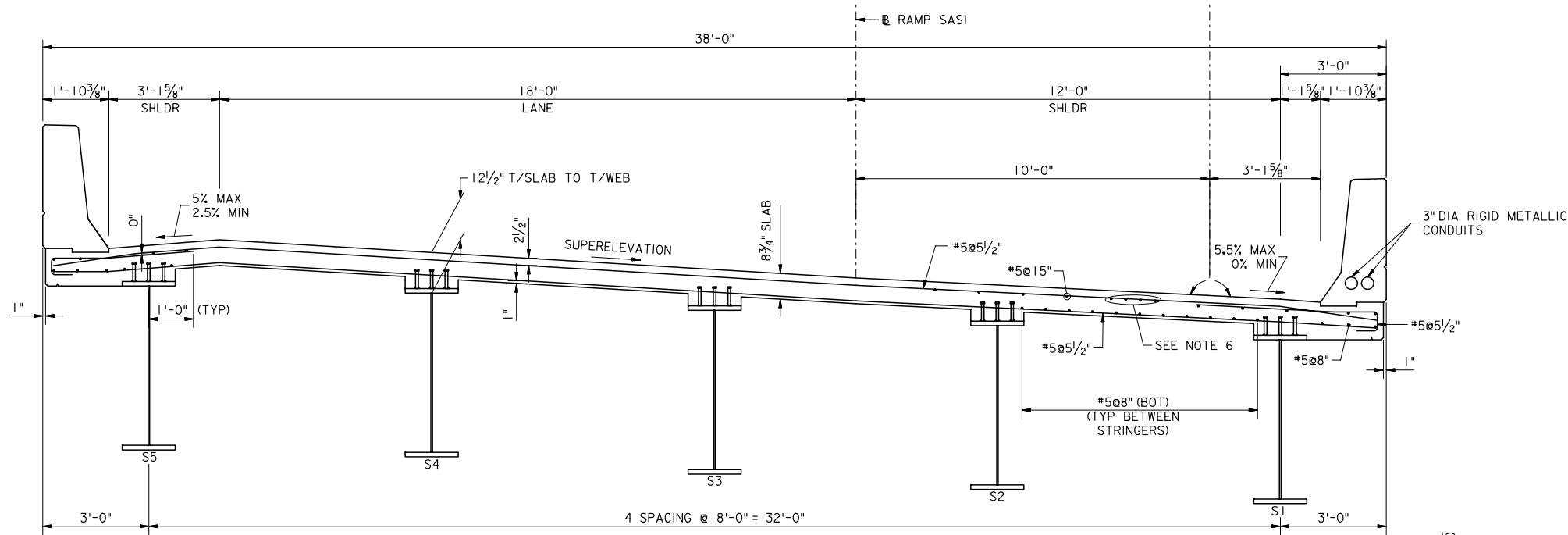
SCALE: 1"=30'
DATE: JAN. 2012

745B
2116

	BY	DATE
MADE	KPH	10-10
TRACED	JA	04-11
CHECKED	MMF	04-11
SUPERVISED	MJB	

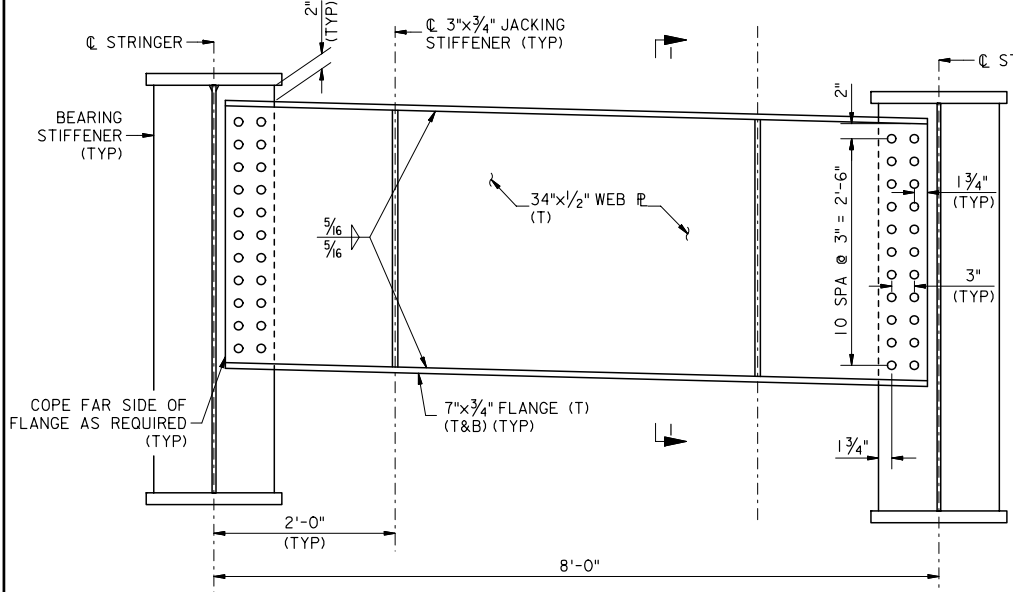


No.	DATE	REVISION
1	2/3/12	ADDENDUM 2-NEW SHEET FOR POWER/COMM

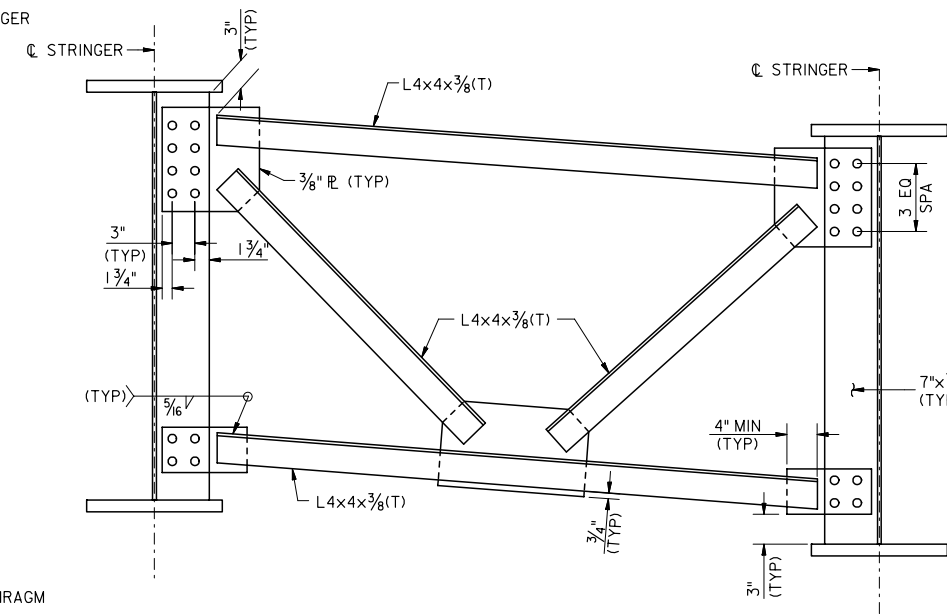


- NOTES:**
1. SUPERELEVATION VARIES, FOR DECK GRADES, SEE ROADWAY PLANS.
 2. FOR STRUCTURAL STEEL NOTES, SEE SHEET S-29.
 3. FOR DETAILS OF BARRIER PARAPET, SEE NJTA STD DWG BR-7.
 4. DECK SLAB AND BARRIER PARAPETS TO BE CONSTRUCTED USING HIGH PERFORMANCE CONCRETE (HPC).
 5. ALL REINFORCEMENT STEEL IN DECK SLAB, LIGHT STANDARD BLISTERS, AND BARRIER PARAPETS TO BE EPOXY COATED.
 6. FOR ADDITIONAL LONGITUDINAL REINFORCEMENT AT PIER, SEE SHEET S-39.
 7. SPLICE LENGTH FOR LONGITUDINAL BARS SHALL BE 2'-7".
 8. FOR DETAILS OF SHEAR CONNECTORS, SEE SHEET S-30.
 9. FOR SIP FORM DETAILS, SEE SHEET S-39.
 10. FOR DETAILS OF LIGHT STANDARD AT BARRIER, SEE NJTA STD DWG BR-15.
 11. FOR DECK GRADES, SEE ROADWAY PLANS.

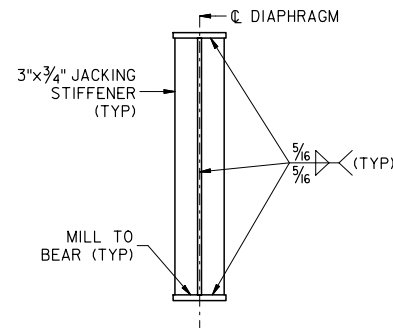
BRIDGE SECTION-LOOKING SOUTH
SCALE : 1/2" = 1'-0"



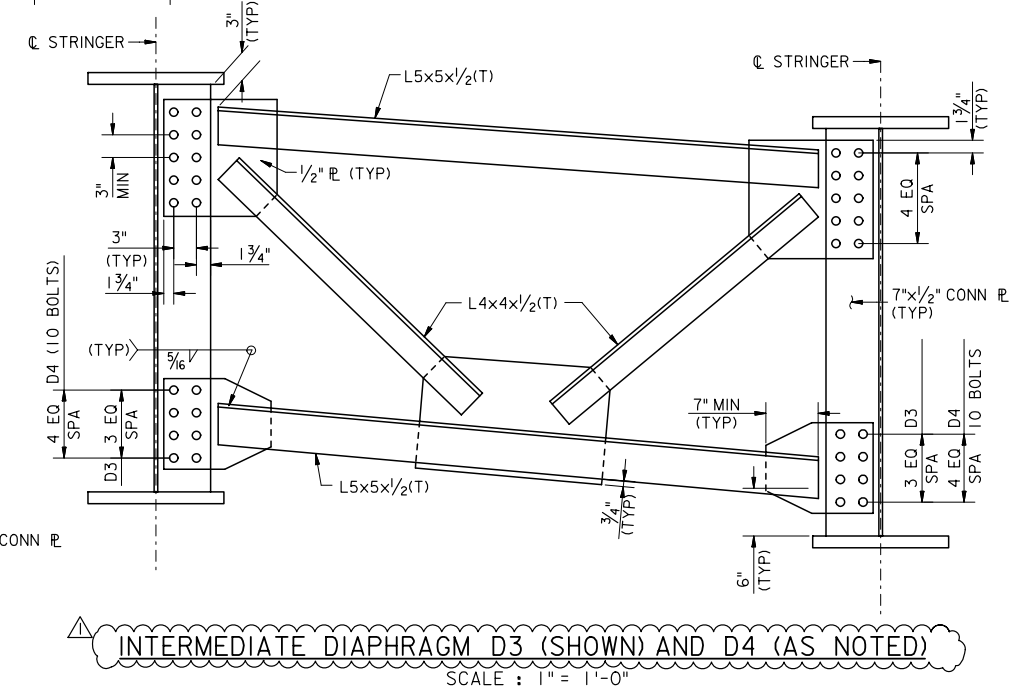
END DIAPHRAGM D1
SCALE : 1" = 1'-0"



INTERMEDIATE DIAPHRAGM D2
SCALE : 1" = 1'-0"

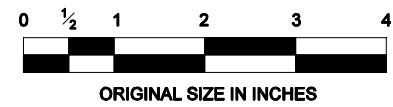


SECTION 1-1
SCALE : 1" = 1'-0"



INTERMEDIATE DIAPHRAGM D3 (SHOWN) AND D4 (AS NOTED)
SCALE : 1" = 1'-0"

	BY	DATE
MADE	JP	10-10
TRACED	WK	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	2/3/12	ADDENDUM 2- DETAIL TITLE CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803
STRUCTURE NO. 71.37
RAMP SASI OVER NSO
TRANSVERSE SECTION

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
 DATE: JAN. 2012

1245
2116

FILE NAME: T869-120-803-1245.dgn

APPENDUM NO. 2, SHEET NO. 23 OF 23



New Jersey Turnpike Authority

ADMINISTRATION BUILDING - 581 MAIN STREET
P.O. BOX 5042 - WOODBRIDGE, NEW JERSEY 07095
TELEPHONE (732) 750-5300

CHRIS CHRISTIE
GOVERNOR

KIM GUADAGNO
LIEUTENANT GOVERNOR

JAMES S. SIMPSON, *Chairman*
RONALD GRAVINO, *Vice Chairman*
MICHAEL R. Du PONT, *Treasurer*
HAROLD L. HODES, *Commissioner*
RAYMOND M. POCINO, *Commissioner*
ULISES E. DIAZ, *Commissioner*
DANIEL BECHT, *Commissioner*
VERONIQUE HAKIM, *Executive Director*

ADDENDUM NO. 3

To Contract Documents For

CONTRACT NO. T869.120.803

NEW JERSEY TURNPIKE
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6
Townships of Cranbury, Monroe, South Brunswick and
East Brunswick & Borough of Milltown
Middlesex County

February 9, 2012

To All Concerned:

The original Contract Plans and Specifications dated January 2012 for Contract No. T869.120.803 of the New Jersey Turnpike Authority are amended as noted in this Addendum No. 3, and this Addendum shall become part of the Contract Documents.

Bidders must acknowledge receipt of this Addendum and all previous and subsequent Addenda on the Proposal Forms when submitting Proposals. In case any bidder fails to acknowledge receipt of this addendum, his proposal will nevertheless be construed as though the Addendum had been received and acknowledged and submission of his proposal will constitute acknowledgement by the bidder of the receipt of same.

PERTAINING TO THE PROPOSAL

Page 12 Item No. 165, change the Approx. Qty. from 16,200 S.F. to 14,650 S.F.

Item No. 166, change the Approx. Qty. from 3,215 S.F. to 3,340 S.F.

Item No. 169, change the Approx. Qty. from 5,980 S.F. to 5,945 S.F.

- Item No. 172, change the Approx. Qty. from 9,360 S.F. to 9,415 S.F.
- Item No. 176, change the Approx. Qty. from 490 S.F. to 335 S.F.
- Item No. 177, change the Approx. Qty. from 125 S.F. to 15 S.F.
- Page 13R1 Item No. 179, change the Approx. Qty. from 190 S.F. to 390 S.F.
- Page 14R Item No. 206, change the Approx. Qty. from 18,568 L.F. to 18,556 L.F.
- Item No. 209, change the Approx. Qty. from 8,263 L.F. to 8,275 L.F.
- Page 16R Item No. 236 is deleted.
- Item No. 237 is deleted.
- Item No. 238 is deleted.
- Page 21 Item No. 324, change the Approx. Qty. from 16,903 L.F. to 17,023 L.F.
- Item No. 326, change the Approx. Qty. from 30,374 L.F. to 31,924 L.F.
- Item No. 329, change the Approx. Qty. from 5,285 L.F. to 5,920 L.F.
- Page 22R Item No. 332, change the Approx. Qty. from 13,722 L.F. to 14,922 L.F.
- Item No. 339, change the Approx. Qty. from 190 Each to 195 Each.
- Page 24R Item No. 368, change the Approx. Qty. from 8,490 L.F. to 8,530 L.F.
- Item No. 369, change the Approx. Qty. from 21,890 L.F. to 21,960 L.F.
- Item No. 370, change the Approx. Qty. from 1,820 L.F. to 1,860 L.F.

Two (2) copies of revised Proposal Pages 12R, 13R2, 14R1, 16R1, 21R, 22R1, and 24R1 dated 02/09/12 are enclosed herewith to reflect the above changes. One copy of the revised pages shall be substituted for the superseded pages in the bound Contract Book, and the second copy of the revised pages shall be substituted in the separated Proposal Forms, which were originally issued to prospective bidders.

PERTAINING TO THE SPECIFICATIONS

413.08
Page 139

The following is added:

Separate payment will not be made for dewatering, cofferdams, bracing, shoring, sheeting, sheet piling, or other methods necessary for construction. All costs for these items shall be included in the price bid for the Articulated Concrete Block Mattress.

427.09
Page 146

The following is added:

No separate payment will be made for excavation required for the installation of the noise panels below existing grade. All associated costs thereof shall be included in the item for Ground Mounted Noise Barrier Panel, Type ____.

433.02
Page 182

The following is added:

Access ladder shall be Model F*WL5 as manufactured by FS Industries, Winona, MN (800) 421-0341 or approved equal. The "*" in the model number denotes that the number of rungs required is a variable number. The pedestals to which this ladder is connected will have varying heights, and the contractor shall order this ladder with a length appropriate for the height of the pedestal. The "L5" denotes the type of walk-thru handrails. Provide lockable LG-6 security ladder guard with corrosion resistant sesame padlock model no. KCR0436, or approved equal. The ladder guard shall feature a 4" min. offset from the face of the supporting angles with the lock-open hasp.

PERTAINING TO THE PLANS

Sheet No. 6

Item No. 165, change the contract quantity and plan sheet total from 16,200 S.F. to 14,650 S.F.

Item No. 166, change the contract quantity and plan sheet total from 3,215 S.F. to 3,340 S.F.

Item No. 169, change the contract quantity and plan sheet total from 5,980 S.F. to 5,945 S.F.

Item No. 172, change the contract quantity and plan sheet total from 9,360 S.F. to 9,415 S.F.

Item No. 176, change the contract quantity and plan sheet total from 490 S.F. to 335 S.F.

Item No. 177, change the contract quantity and plan sheet total from 125 S.F. to 15 S.F.

Item No. 179, change the contract quantity and plan sheet total from 190 S.F. to 390 S.F.

Item No. 206, change the contract quantity and plan sheet total from 18,568 L.F. to 18,556 L.F.

Item No. 209, change the contract quantity and plan sheet total from 8,263 L.F. to 8,275 L.F.

Item No. 236 is deleted.

Item No. 237 is deleted.

Item No. 238 is deleted.

Sheet No. 7

Item No. 324, change the contract quantity and plan sheet total from 16,903 L.F. to 17,023 L.F.

Item No. 326, change the contract quantity and plan sheet total from 30,374 L.F. to 31,924 L.F.

Item No. 329, change the contract quantity and plan sheet total from 5,285 L.F. to 5,920 L.F.

Item No. 332, change the contract quantity and plan sheet total from 13,722 L.F. to 14,922 L.F.

Item No. 339, change the contract quantity and plan sheet total from 190 Each to 195 Each.

Item No. 368, change the contract quantity and plan sheet total from 8,490 L.F. to 8,530 L.F.

Item No. 369, change the contract quantity and plan sheet total from 21,890 L.F. to 21,960 L.F.

Item No. 370, change the contract quantity and plan sheet total from 1,820 L.F. to 1,860 L.F.

- Sheet No. 439 Revised pipe sizes. See enclosed Sheet No. 439.
- Sheet No. 491 Revised tables. See enclosed Sheet No. 491.
- Sheet No. 500 Revised pipe sizes. See enclosed Sheet No. 500.
- Sheet No. 501 Revised pipe sizes. See enclosed Sheet No. 501.
- Sheet No. 699 Change the cable for circuit #12 from 3#1 to 3#1/0 in the One Line Diagram.
- Sheet No. 767R Replace Sheet - ITS PLAN -38-. Revised/added 4-Way Power/Communications Duct Banks, Rigid Metallic Conduit and power routing for proposed signs. See enclosed Sheet No. 767R.
- Sheet No. 768R Replace Sheet - ITS PLAN -39-. Revised/added 4-Way Power/Communications Duct Banks, Rigid Metallic Conduit and power routing for proposed signs. See enclosed Sheet No. 768R.
- Sheet No. 772R Replace Sheet - ITS LOCATION PLAN -4-. Revised/added 4-Way Power/Communications Duct Banks, Rigid Metallic Conduit and power routing for proposed signs. See enclosed Sheet No. 772R.
- Sheet No. 787 Revised tables and details. See enclosed Sheet No. 787.
- Sheet No. 1156, 1157, 1171-1179 Delete APS quantities.
- Sheet No. 1210 Revised contract quantities. See enclosed Sheet No. 1210.
- Sheet No. 1232 Revised quantities in Work Item Table. See enclosed Sheet No. 1232.
- Sheet No. 1257 Revised quantities in Work Item Table. See enclosed Sheet No. 1257.
- Sheet No. 1276 Revised quantities in Work Item Table and revised Note 5. See enclosed Sheet No. 1276.
- Sheet No. 1277 Revised quantities in Work Item Table and revised Note 5. See enclosed Sheet No. 1277.
- Sheet No. 1281 Revised quantities in Work Item Table, revised Note 5, and revised elevations. See enclosed Sheet No. 1281.

- Sheet No. 1282 Revised quantities in Work Item Table and revised elevations. See enclosed Sheet No. 1282.
- Sheet No. 1283 Revised quantities in Work Item Table. See enclosed Sheet No. 1283.
- Sheet No. 1284 Revised quantities in Work Item Table. See enclosed Sheet No. 1284.
- Sheet No. 1285 Revised elevations. See enclosed Sheet No. 1285.
- Sheet No. 1287, 1288, 1289 and 1290 Revised quantities in Work Item Table. See enclosed Sheet No. 1287, 1288, 1289, and 1290.
- Sheet No. 1291 Revised elevations. See enclosed Sheet No. 1291.
- Sheet No. 1292 Revised quantities in Work Item Table and revised elevations. See enclosed Sheet No. 1292.
- Sheet No. 1293, 1294 and 1295 Revised quantities in Work Item Table. See enclosed Sheet No. 1293, 1294, and 1295.
- Sheet No. 1296 Revised quantities in Work Item Table and revised Note 4. See enclosed Sheet No. 1296.
- Sheet No. 1297 Revised quantities in Work Item Table. See enclosed Sheet No. 1297.
- Sheet No. 1298 and 1299 Revised quantities in Work Item Table and revised elevations. See enclosed Sheet No. 1298 and 1299.
- Sheet No. 1300 Revised note in Wall Alternatives Table. See enclosed Sheet No. 1300.
- Sheet No. 1334 Revised Note 8. See enclosed Sheet No. 1334.
- Sheet No. 1335 Added Notes 6 and 7. See enclosed Sheet No. 1335.

NEW JERSEY TURNPIKE AUTHORITY

Richard J. Raczynski, P.E.
Chief Engineer

Enclosure:

Two copies of Proposal Pages 12R, 13R2, 14R1, 16R1, 21R, 22R1, and 24R1
Contract Plan Sheets 439, 491, 500, 501, 767R, 768R, 772R, 787, 1210, 1232, 1257, 1276, 1277, 1281-1285, 1287-1300, 1334, 1335 (11"x17")

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
161	4ZG05RET	Retaining Wall, Location No. 5 (803-5)	S.F.	1,925				
162	4ZG06RET	Retaining Wall, Location No. 6 (803-6)	S.F.	5,780				
163	4ZG17RET	Retaining Wall, Location No. 7 (803-7)	S.F.	4,935				
164	4ZG08RET	Retaining Wall, Location No. 8 (803-8)	S.F.	16,650				
165	4ZG09RET	Retaining Wall, Location No. 9 (803-9)	S.F.	14,650				
166	4ZG10RET	Retaining Wall, Location No. 10 (803-10)	S.F.	3,340				
167	4ZG11RET	Retaining Wall, Location No. 11 (803-11)	S.F.	2,190				
168	4ZG12RET	Retaining Wall, Location No. 12 (803-12)	S.F.	1,155				
169	4ZG13RET	Retaining Wall, Location No. 13 (803-13)	S.F.	5,945				
170	4ZG14RET	Retaining Wall, Location No. 14 (803-14)	S.F.	580				
171	4ZG15RET	Retaining Wall, Location No. 15 (803-15)	S.F.	1,280				
172	4ZG16RET	Retaining Wall, Location No. 16 (803-16)	S.F.	9,415				
173	4ZG17ARE T	Retaining Wall, Location No. 17 (803-17)	S.F.	7,140				
174	4ZG18RET	Retaining Wall, Location No. 18 (803-18)	S.F.	6,375				
175	4ZG19RET	Retaining Wall, Location No. 19 (803-19)	S.F.	445				
176	4ZG20RET	Retaining Wall, Location No. 20 (803-20)	S.F.	335				
177	4ZG21RET	Retaining Wall, Location No. 21 (803-21)	S.F.	15				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	390				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,561				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	807				
186	5A00016	10" Outlet Pipe	L.F.	130				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,557				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
195	5B00056	19" X 30" Reinforced Concrete Elliptical Flared End Sections	Each	1				
196	5B00044	19" X 30" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
197	5B00060	22" X 34" Reinforced Concrete Elliptical Pipe	L.F.	106				
198	5B00019	24" X 38" Reinforced Concrete Elliptical Pipe	L.F.	3,801				
199	5B00055	24" X 38" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
200	5B00042	29" X 45" Reinforced Concrete Elliptical Pipe	L.F.	549				
201	5B00057	29" X 45" Reinforced Concrete Elliptical Flared End Sections	Each	1				
202	5B00020	34" X 53" Reinforced Concrete Elliptical Pipe	L.F.	3,756				
203	5B00021	43" X 68" Reinforced Concrete Elliptical Pipe	L.F.	367				
204	5B00061	43" X 68" Reinforced Concrete Elliptical Flared End Sections	Each	1				
205	5B01CSD	Cleaning Existing Storm Drains	L.F.	5,000				
206	5B15RC3	15" Reinforced Concrete Pipe	L.F.	18,556				
207	5B15RC5	15" Reinforced Concrete Pipe, Class V	L.F.	100				
208	5B15RCE	15" Reinforced Concrete Flared End Sections	Each	18				
209	5B18RC3	18" Reinforced Concrete Pipe	L.F.	8,275				
210	5B18RC5	18" Reinforced Concrete Pipe, Class V	L.F.	100				
211	5B18RCE	18" Reinforced Concrete Flared End Sections	Each	6				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
229	5C02ND3	Inlet, Type Double D3	Each	1				
230	5C00038	Inlets, Type E-1	Each	55				
231	5C01NE2	Inlets, Type E-2	Each	34				
232	5C10INT	Inlet Converted to Manhole	Each	4				
233	5C20NP1	Manhole, Type P-1	Each	95				
234	5C20NP2	Manhole, Type P-2	Each	20				
235	5C00047	Manhole, Type P-3	Each	29				
239	5C05ND1	New Inlet Frame and Grate, Type D-1	Each	101				
240	5C05ND2	New Inlet Frame and Grate, Type D-2	Each	76				
241	5C05ND3	New Inlet Frame and Grate, Type D-3	Each	7				
242	5C40RSF	Reset Frame	Each	10				
243	5C00023	Flow Control Structure	Each	30				
245	5C01NOS	Outlet Structure	Each	9				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
313	6A00006	#4/0 A.W.G. Multiple Lighting Cable	L.F.	56,483				
314	6A00008	Concrete Foundations for Transformer	Each	13				
315	6A00019	Junction Box, Type 24"x24"x8", NEMA 4X, Stainless Steel, For Outdoor Use	Each	2				
316	6A00029	4" Rigid Non-Metallic Conduit, PVC - Schedule 80	L.F.	1,549				
317	6A00043	1.5" Rigid Metallic Conduit, Underground	L.F.	80				
318	6A00073	#3/0 A.W.G. Service Cable (600V)	L.F.	624				
319	6A01RMS	1" Rigid Metallic Conduit On Structure	L.F.	73				
320	6A02GWR	#2 A.W.G. Ground Wire	L.F.	167				
321	6A02MLC	#2 A.W.G. Multiple Lighting Cable	L.F.	91,833				
322	6A02RNM	2" Rigid Nonmetallic Conduit, PVC-Schedule 80	L.F.	20				
323	6A03GPC	#300 A.W.G. Power Cable	L.F.	61,662				
324	6A03RMS	3" Rigid Metallic Conduit, on Structures	L.F.	17,023				
325	6A03RMU	3" Rigid Metallic Conduit, Underground	L.F.	1,356				
326	6A03RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 40)	L.F.	31,924				
327	6A04MLC	#4 A.W.G. Multiple Lighting Cable	L.F.	396				
328	6A05RMS	1-1/2" Rigid Metallic Conduit on Structures	L.F.	145				
329	6A06GWR	#6 A.W.G. Ground Wire	L.F.	5,920				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
330	6A06MLC	#6 A.W.G. Multiple Lighting Cable	L.F.	2,185				
331	6A08GWR	#8 A.W.G. Ground Wire	L.F.	54,100				
332	6A09MLC	#3/0 A.W.G. Multiple Lighting Cable	L.F.	14,922				
333	6A10FMC	Concrete Foundation For Meter Cabinet	Each	8				
334	6A10MLC	#1/0 A.W.G. Multiple Lighting Cable	L.F.	16,390				
335	6A10RLM	Lighting Manhole	Each	1				
336	6A13RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 80)	L.F.	8,578				
337	6A20MLC	2 / 0 A.W.G. Multiple Lighting Cable	L.F.	1,068				
338	6A21JF1	Junction Box Foundation, Type 1	Each	61				
339	6A24JBC	Junction Box, Type C	Each	195				
340	6A25JBD	Junction Box, Type D	Each	37				
341	6A25JPS	Junction Box, Type PS	Each	36				
342	6A65RAS	Remove and Salvage Existing Facilities	L.S.	1	-----	--		
343	6B00002	Luminaire, Type A, 150W HPS	Each	13				
344	6B00004	Underbridge Lighting Fixture	Each	4				
345	6B00011	Lighting Standard Base, Type 1	Each	1				
346	6B00013	Lighting Standard, Type L-MG-26-SB	Each	1				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
363	6J00017	Variable Message Sign Installation	Each	8				
364	6J00018	Variable Speed Limit Sign Installation	Each	8				
365	6J00020	System Control Cabinet Installation	Each	13				
366	6J00023	Transformer, Type 37.5kVA	Each	13				
367	6J00024	CCTV Camera, ITSS Mounted	Each	6				
368	6J00029	4-Way Power/Comm Duct Bank, Soil Encased	L.F.	8,530				
369	6J00030	4-Way Power/Comm Duct Bank, Concrete Encased	L.F.	21,960				
370	6J00049	4-Way Duct Bank, 4" HDPE Conduits Directional Drilled	L.F.	1,860				
371	6J00067	Lighting Standard, Type L-ITS-40	Each	2				
372	6J00068	ITS Power Equipment, Pedestal Mounted	Each	7				
373	6J00071	ITS Equipment Platform, Type 2	Each	4				
374	6J00073	ITS Equipment Platform, Type 4	Each	4				
375	6J00076	Radio Antenna Mount	Each	13				
376	6J00100	Hybrid Changeable Message Sign Installation	Each	9				
377	6J00112	End Node Radio Installation	Each	13				
378	6J00150	End Node Radio Relocation	Each	6				
379	6K01MPT	Install VMS MPT Location No. 1 (72.35N)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
161	4ZG05RET	Retaining Wall, Location No. 5 (803-5)	S.F.	1,925				
162	4ZG06RET	Retaining Wall, Location No. 6 (803-6)	S.F.	5,780				
163	4ZG17RET	Retaining Wall, Location No. 7 (803-7)	S.F.	4,935				
164	4ZG08RET	Retaining Wall, Location No. 8 (803-8)	S.F.	16,650				
165	4ZG09RET	Retaining Wall, Location No. 9 (803-9)	S.F.	14,650				
166	4ZG10RET	Retaining Wall, Location No. 10 (803-10)	S.F.	3,340				
167	4ZG11RET	Retaining Wall, Location No. 11 (803-11)	S.F.	2,190				
168	4ZG12RET	Retaining Wall, Location No. 12 (803-12)	S.F.	1,155				
169	4ZG13RET	Retaining Wall, Location No. 13 (803-13)	S.F.	5,945				
170	4ZG14RET	Retaining Wall, Location No. 14 (803-14)	S.F.	580				
171	4ZG15RET	Retaining Wall, Location No. 15 (803-15)	S.F.	1,280				
172	4ZG16RET	Retaining Wall, Location No. 16 (803-16)	S.F.	9,415				
173	4ZG17ARE T	Retaining Wall, Location No. 17 (803-17)	S.F.	7,140				
174	4ZG18RET	Retaining Wall, Location No. 18 (803-18)	S.F.	6,375				
175	4ZG19RET	Retaining Wall, Location No. 19 (803-19)	S.F.	445				
176	4ZG20RET	Retaining Wall, Location No. 20 (803-20)	S.F.	335				
177	4ZG21RET	Retaining Wall, Location No. 21 (803-21)	S.F.	15				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	390				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,561				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	807				
186	5A00016	10" Outlet Pipe	L.F.	130				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,557				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
195	5B00056	19" X 30" Reinforced Concrete Elliptical Flared End Sections	Each	1				
196	5B00044	19" X 30" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
197	5B00060	22" X 34" Reinforced Concrete Elliptical Pipe	L.F.	106				
198	5B00019	24" X 38" Reinforced Concrete Elliptical Pipe	L.F.	3,801				
199	5B00055	24" X 38" Reinforced Concrete Elliptical Pipe, Class V	L.F.	100				
200	5B00042	29" X 45" Reinforced Concrete Elliptical Pipe	L.F.	549				
201	5B00057	29" X 45" Reinforced Concrete Elliptical Flared End Sections	Each	1				
202	5B00020	34" X 53" Reinforced Concrete Elliptical Pipe	L.F.	3,756				
203	5B00021	43" X 68" Reinforced Concrete Elliptical Pipe	L.F.	367				
204	5B00061	43" X 68" Reinforced Concrete Elliptical Flared End Sections	Each	1				
205	5B01CSD	Cleaning Existing Storm Drains	L.F.	5,000				
206	5B15RC3	15" Reinforced Concrete Pipe	L.F.	18,556				
207	5B15RC5	15" Reinforced Concrete Pipe, Class V	L.F.	100				
208	5B15RCE	15" Reinforced Concrete Flared End Sections	Each	18				
209	5B18RC3	18" Reinforced Concrete Pipe	L.F.	8,275				
210	5B18RC5	18" Reinforced Concrete Pipe, Class V	L.F.	100				
211	5B18RCE	18" Reinforced Concrete Flared End Sections	Each	6				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
229	5C02ND3	Inlet, Type Double D3	Each	1				
230	5C00038	Inlets, Type E-1	Each	55				
231	5C01NE2	Inlets, Type E-2	Each	34				
232	5C10INT	Inlet Converted to Manhole	Each	4				
233	5C20NP1	Manhole, Type P-1	Each	95				
234	5C20NP2	Manhole, Type P-2	Each	20				
235	5C00047	Manhole, Type P-3	Each	29				
239	5C05ND1	New Inlet Frame and Grate, Type D-1	Each	101				
240	5C05ND2	New Inlet Frame and Grate, Type D-2	Each	76				
241	5C05ND3	New Inlet Frame and Grate, Type D-3	Each	7				
242	5C40RSF	Reset Frame	Each	10				
243	5C00023	Flow Control Structure	Each	30				
245	5C01NOS	Outlet Structure	Each	9				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
313	6A00006	#4/0 A.W.G. Multiple Lighting Cable	L.F.	56,483				
314	6A00008	Concrete Foundations for Transformer	Each	13				
315	6A00019	Junction Box, Type 24"x24"x8", NEMA 4X, Stainless Steel, For Outdoor Use	Each	2				
316	6A00029	4" Rigid Non-Metallic Conduit, PVC - Schedule 80	L.F.	1,549				
317	6A00043	1.5" Rigid Metallic Conduit, Underground	L.F.	80				
318	6A00073	#3/0 A.W.G. Service Cable (600V)	L.F.	624				
319	6A01RMS	1" Rigid Metallic Conduit On Structure	L.F.	73				
320	6A02GWR	#2 A.W.G. Ground Wire	L.F.	167				
321	6A02MLC	#2 A.W.G. Multiple Lighting Cable	L.F.	91,833				
322	6A02RNM	2" Rigid Nonmetallic Conduit, PVC-Schedule 80	L.F.	20				
323	6A03GPC	#300 A.W.G. Power Cable	L.F.	61,662				
324	6A03RMS	3" Rigid Metallic Conduit, on Structures	L.F.	17,023				
325	6A03RMU	3" Rigid Metallic Conduit, Underground	L.F.	1,356				
326	6A03RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 40)	L.F.	31,924				
327	6A04MLC	#4 A.W.G. Multiple Lighting Cable	L.F.	396				
328	6A05RMS	1-1/2" Rigid Metallic Conduit on Structures	L.F.	145				
329	6A06GWR	#6 A.W.G. Ground Wire	L.F.	5,920				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
330	6A06MLC	#6 A.W.G. Multiple Lighting Cable	L.F.	2,185				
331	6A08GWR	#8 A.W.G. Ground Wire	L.F.	54,100				
332	6A09MLC	#3/0 A.W.G. Multiple Lighting Cable	L.F.	14,922				
333	6A10FMC	Concrete Foundation For Meter Cabinet	Each	8				
334	6A10MLC	#1/0 A.W.G. Multiple Lighting Cable	L.F.	16,390				
335	6A10RLM	Lighting Manhole	Each	1				
336	6A13RNC	3" Rigid Nonmetallic Conduit, PVC (Schedule 80)	L.F.	8,578				
337	6A20MLC	2 / 0 A.W.G. Multiple Lighting Cable	L.F.	1,068				
338	6A21JF1	Junction Box Foundation, Type 1	Each	61				
339	6A24JBC	Junction Box, Type C	Each	195				
340	6A25JBD	Junction Box, Type D	Each	37				
341	6A25JPS	Junction Box, Type PS	Each	36				
342	6A65RAS	Remove and Salvage Existing Facilities	L.S.	1	-----	--		
343	6B00002	Luminaire, Type A, 150W HPS	Each	13				
344	6B00004	Underbridge Lighting Fixture	Each	4				
345	6B00011	Lighting Standard Base, Type 1	Each	1				
346	6B00013	Lighting Standard, Type L-MG-26-SB	Each	1				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
363	6J00017	Variable Message Sign Installation	Each	8				
364	6J00018	Variable Speed Limit Sign Installation	Each	8				
365	6J00020	System Control Cabinet Installation	Each	13				
366	6J00023	Transformer, Type 37.5kVA	Each	13				
367	6J00024	CCTV Camera, ITSS Mounted	Each	6				
368	6J00029	4-Way Power/Comm Duct Bank, Soil Encased	L.F.	8,530				
369	6J00030	4-Way Power/Comm Duct Bank, Concrete Encased	L.F.	21,960				
370	6J00049	4-Way Duct Bank, 4" HDPE Conduits Directional Drilled	L.F.	1,860				
371	6J00067	Lighting Standard, Type L-ITS-40	Each	2				
372	6J00068	ITS Power Equipment, Pedestal Mounted	Each	7				
373	6J00071	ITS Equipment Platform, Type 2	Each	4				
374	6J00073	ITS Equipment Platform, Type 4	Each	4				
375	6J00076	Radio Antenna Mount	Each	13				
376	6J00100	Hybrid Changeable Message Sign Installation	Each	9				
377	6J00112	End Node Radio Installation	Each	13				
378	6J00150	End Node Radio Relocation	Each	6				
379	6K01MPT	Install VMS MPT Location No. 1 (72.35N)	L.S.	1	-----	--		

TOWNSHIP OF MONROE

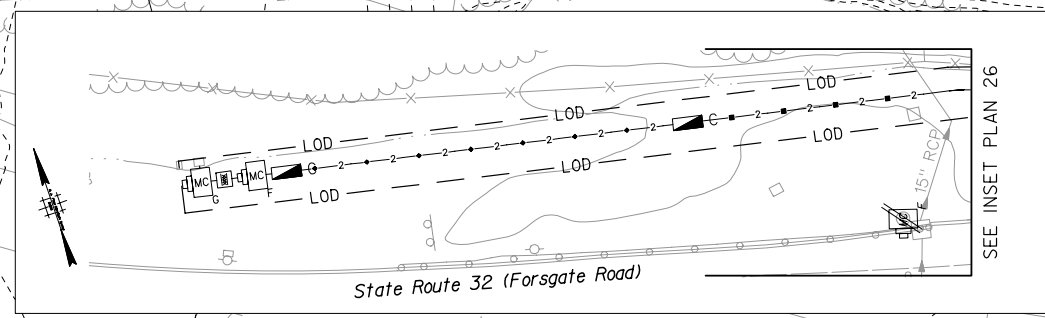
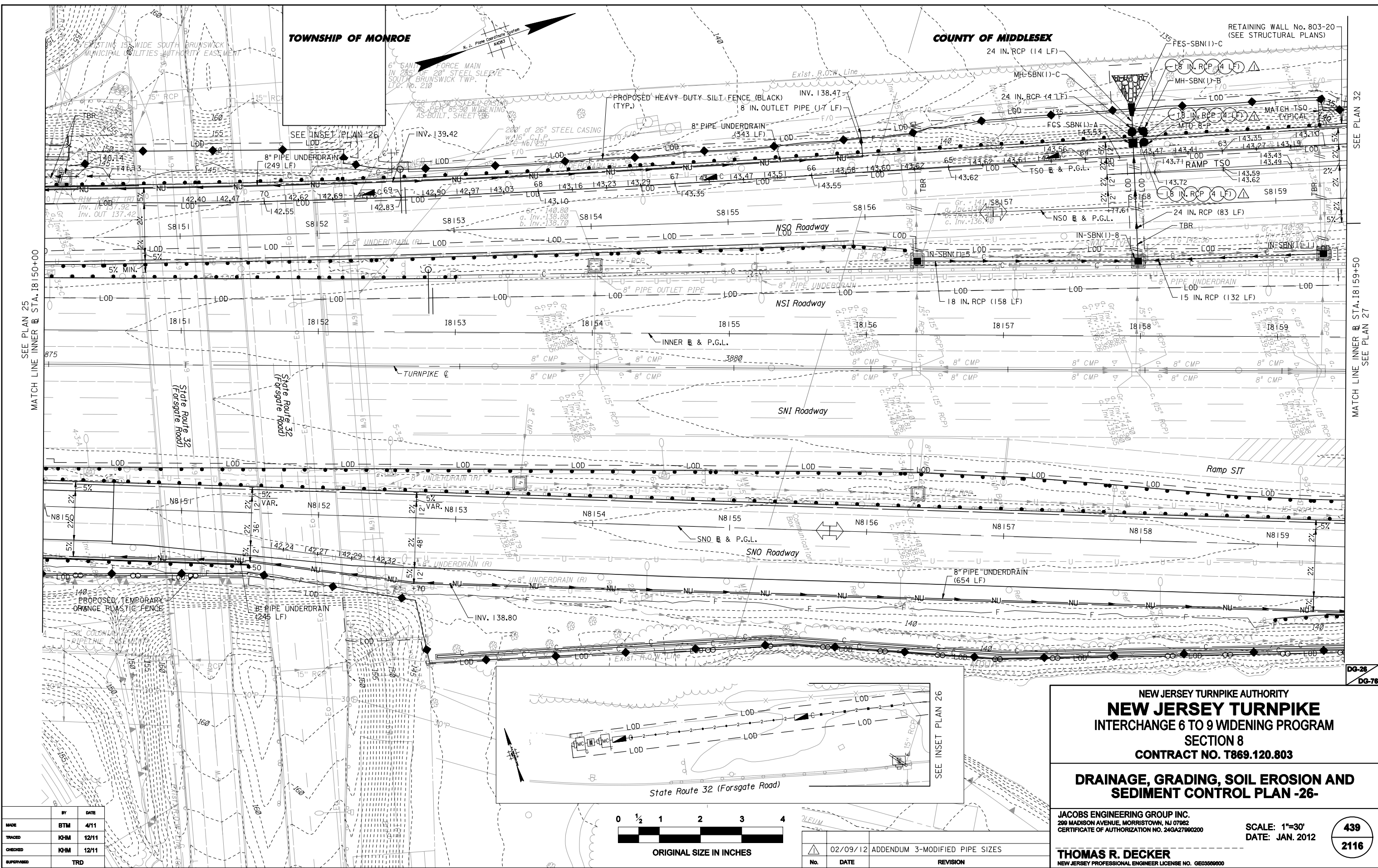
COUNTY OF MIDDLESEX

RETAINING WALL No. 803-20
(SEE STRUCTURAL PLANS)

SEE PLAN 25
MATCH LINE INNER @ STA. 18150+00

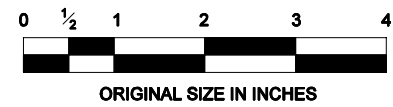
SEE PLAN 32

MATCH LINE INNER @ STA. 18159+50
SEE PLAN 27



SEE INSET PLAN 26

BY	BTM	4/11
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISOR	TRD	



No.	DATE	REVISION
1	02/09/12	ADDENDUM 3-MODIFIED PIPE SIZES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

**DRAINAGE, GRADING, SOIL EROSION AND
 SEDIMENT CONTROL PLAN -26-**

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: 1"=30'
 DATE: JAN. 2012

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03586000

439
 2116

FILE NAME: T869-120-803-0439.dgn

APPENDUM NO. 3, SHEET 1 OF 34

PLAN 3 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN CB(2)-1	I8021+18, 23.65' R	105.26	D4, G1	INV (E) 100.08 INV (W) 100.18	15 IN 15 IN	
IN CB(2)-0	I8021+18, 26.38' R	105.26	D4, G1	INV (W) 100.20	15 IN	
IN CB(2)-12	I8015+05, 26.51' R	102.20	D4, G1	INV (W) 92.66 INV (E) 92.76	24 IN 24 IN	
IN CB(2)-11	I8015+05, 23.55' R	102.20	D4, G1	INV (W) 92.78 INV (E) 92.88	24 IN 24 IN	
IN CB(2)-10	N8015+06, 27.48' L	101.94	D2, G2	INV (N) 97.94 INV (W) 93.15 INV (S) 93.24	15 IN 24 IN 15 IN	
IN CB(2)-7	N8018+06, 27.25' L	103.45	D2, G2	INV (N) 99.43 INV (S) 99.42	15 IN 15 IN	
IN CB(2)-6	N8021+17, 27.32' L	105.01	D2, G2	INV (S) 100.97	15 IN	
MTD 8-D	S8014+28, 29.40' L	101.75	MANUFACTURED TREATMENT DEVICE	INV (S) 90.81 INV (N) 90.81	24 IN 24 IN	NONSTANDARD STRUCTURE
FCS CB(2)-A	S8014+43, 30.46' L	101.77	FLOW CONTROL STRUCTURE	INV (N) 90.89 INV (S) 90.86 INV (W) 90.79	36 IN 24 IN 36 IN	NONSTANDARD STRUCTURE
MH CB(2)-R	S8014+43, 44.76' L	99.01	P-3	INV (N) 90.35 INV (S) 90.34 INV (E) 90.73	36 IN 42 IN 36 IN	
IN CB(2)-20	S8015+04, 23.72' R	101.93	E1, G1	INV (E) 92.37 INV (W) 91.46 INV (N) 95.23 INV (S) 91.47	24 IN 30 IN 24 IN 18 IN	NONSTANDARD STRUCTURE LOCATE PIPE TO EAST SIDE OF STRUCTURE
IN CB(2)-23	S8015+04, 35.53' L	101.68	E2, G1	INV (N) 97.64 INV (S) 91.17 INV (E) 91.18	15 IN 36 IN 30 IN	NONSTANDARD STRUCTURE
MH CB(2)-Q	S8016+94, 48.42' L	99.80	P-1	INV (N) 91.84 INV (S) 91.83	36 IN 36 IN	
IN CB(2)-5	S8018+08, 25.00' R	103.28	E1, G1	INV (E) 96.81 (EXIST) INV (N) 97.47 INV (S) 96.73	15 IN 18 IN 24 IN	NONSTANDARD STRUCTURE LOCATE PIPE TO EAST SIDE OF STRUCTURE
IN CB(2)-22	S8018+08, 35.76' L	103.22	D1, G1	INV (N) 99.15 INV (S) 99.14	15 IN 15 IN	
IN CB(2)-2	S8021+17, 25.10' R	104.77	E1, G1	INV (E) 99.03 (EXIST) INV (S) 98.99	15 IN 18 IN	LOCATE PIPE TO EAST SIDE OF STRUCTURE NONSTANDARD STRUCTURE
IN CB(2)-21	SASO 35+76, 13.38' R	104.68	D1, G1	INV (S) 100.69	15 IN	
MH CB(2)-P	SASO 37+03, 27.07' R	100.37	P-1	INV (N) 93.62 INV (S) 93.61	36 IN 36 IN	
IN CB(1)-2	N8015+00, 37.14' R	101.77	E1, G1	INV (N) 96.08 INV (S) 96.07	15 IN 15 IN	NONSTANDARD STRUCTURE
IN CB(1)-1	N8018+05, 35.61' R	103.30	E1, G1	INV (N) 97.60 INV (S) 97.59	15 IN 15 IN	NONSTANDARD STRUCTURE
IN CB(1)-0	N8021+18, 35.67' R	104.86	E1, G1	INV (S) 99.14	15 IN	NONSTANDARD STRUCTURE
R3-1	N/A	103.71	D-1			
R3-2	N/A	103.71	D-1			

PLAN 4 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
MH CB(2)-M	SASO 27+96, 23.69' R	105.26	P-1	INV (N) 100.62 INV (S) 100.52	36 IN 36 IN	
FES CB(2)-02	SASO 30+04, 51.80' R	N/A	FLARED END SECTION	INV (S) 99.50	24 IN	
IN CB(2)-N	SASO 30+93, 24.67' R	104.42	E2, G1	INV (N) 99.05 INV (S) 96.92 INV (W) 99.05	36 IN 36 IN 24 IN	NONSTANDARD STRUCTURE
OS 8-A	SASO 33+85, 81.68' R	N/A	OUTLET STRUCTURE	INV (E) 100.85	24 IN	NONSTANDARD STRUCTURE
MH CB(2)-O	SASO 33+87, 25.19' R	105.00	P-1	INV (N) 95.40 INV (S) 95.39 INV (W) 98.75	36 IN 36 IN 24 IN	
IN 8A(1)-10	I8024+28, 22.08' R	106.82	D4, G1	INV (W) 101.17 INV (E) 101.27	15 IN 15 IN	
IN 8A(1)-9	I8024+28, 27.93' R	106.82	D4, G1	INV (W) 101.29	15 IN	

IN 8A(1)-7	I8027+27, 22.12' R	108.31	D4, G1	INV (W) 103.21 INV (E) 103.52	15 IN 15 IN	
IN 8A(1)-6	I8027+27, 27.86' R	108.31	D4, G1	INV (W) 103.64	15 IN	
IN 8A(1)-4A	I8030+27, 27.48' L	109.89	D1, G1	INV (W) 103.76 (EXIST) INV (E) 103.77 (EXIST)	15 IN 15 IN	
IN 8A(1)-4	I8030+28, 21.80' R	109.81	D4, G1	INV (W) 104.68 INV (E) 104.70	15 IN 15 IN	
IN 8A(1)-3	I8030+28, 28.17' R	109.81	D4, G1	INV (W) 104.72	15 IN	
MH 8A(1)-AD	S8024+27, 14.50' R	107.12	P-1	INV (W) 100.68 INV (N) 100.69 INV (E) 100.69	30 IN 30 IN 15 IN	
IN 8A(1)-11	S8024+27, 23.77' R	106.28	D2, G2	INV (W) 100.72 INV (E) 100.82	15 IN 15 IN	
MH 8A(1)-AC	S8027+28, 14.50' R	108.63	P-1	INV (N) 101.55 INV (S) 101.54 INV (E) 101.56	24 IN 30 IN 18 IN	
IN 8A(1)-8	S8027+28, 25.62' R	107.64	D2, G2	INV (W) 101.59 INV (E) 101.63 (EXIST)	18 IN 15 IN	
MH 8A(1)-AB	S8030+27, 14.50' R	110.13	P-1	INV (N) 103.04 INV (S) 103.03 INV (E) 103.07 INV (W) 105.55	18 IN 24 IN 15 IN 15 IN	
IN 8A(1)-5A	SASO 26+69, 15.86' L	109.77	D1, G1	INV (E) 105.76	15 IN	
IN 8A(1)-5	S8030+27, 26.31' R	109.08	D2, G2	INV (W) 103.11 INV (E) 103.12 (EXIST)	15 IN 15 IN	
FES 8A(1)-00	SASO 32+48, 34.86' R	N/A	FLARED END SECTION	INV (S) 100.80	24 IN	
FES 8A(1)-D	SASO 32+68, 75.38' R	N/A	FLARED END SECTION	INV (E) 100.21	30 IN	
FCS 8A(1)-A	SASO 32+69, 35.00' R	105.71	FLOW CONTROL STRUCTURE	INV (W) 100.42 INV (S) 100.43 INV (E) 100.46 INV (N) 100.74	30 IN 30 IN 30 IN 24 IN	NONSTANDARD STRUCTURE
MH 8A(1)-D	SASO 32+69, 44.37' R	105.50	P-1	INV (W) 100.38 INV (E) 100.39 INV (S) 100.39	30 IN 30 IN 30 IN	
MH 8A(1)-C	SASO 32+76, 44.91' R	105.50	P-1	INV (E) 100.42 INV (N) 100.41	30 IN 30 IN	
MTD 8-E	SASO 32+81, 35.46' R	105.66	MANUFACTURED TREATMENT DEVICE	INV (N) 100.43 INV (W) 100.43	30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8A(2)-19	S8023+86, 23.35' R	106.15	DOUBLE D1 MODIFIED	INV (E) 100.69 INV (W) 100.68	2 - 30 IN 2 - 30 IN	TWIN PIPES TWIN PIPES NONSTANDARD STRUCTURE
FES 8A(2)-D	SASO 33+08, 73.46' R	N/A	FLARED END SECTION	INV (E) 100.21	36 IN	
FCS 8A(2)-A	SASO 33+09, 35.59' R	105.50	FLOW CONTROL STRUCTURE	INV (E) 100.38 INV (W) 100.33 INV (S) 100.36	2-30 IN 36 IN 30 IN	TWIN PIPES NONSTANDARD STRUCTURE
MH 8A(2)-D	SASO 33+09, 47.17' R	105.50	P-1	INV (S) 100.30 INV (E) 100.30 INV (W) 100.29	30 IN 36 IN 36 IN	
MH 8A(2)-C	SASO 33+18, 47.28' R	105.50	P-1	INV (E) 100.33 INV (N) 100.32	30 IN 30 IN	
MTD 8-E(1)	SASO 33+22, 36.42' R	105.50	MANUFACTURED TREATMENT DEVICE	INV (W) 100.35 INV (N) 100.35	30 IN 30 IN	NONSTANDARD STRUCTURE
IN 8A(2)-17	N8023+85, 37.14' R	106.20	DOUBLE D1 MODIFIED	INV (N) 101.85 INV (W) 101.37	24 X 38 IN 2 - 30 IN	TWIN PIPES NONSTANDARD STRUCTURE

	BY	DATE
MADE	BMW	05/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
△	02/09/12	ADDENDUM 3-MODIFIED TABLES
△	02/03/12	ADDENDUM 2-MODIFIED TABLES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET 2-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03568600

SCALE: N.T.S.
 DATE: JAN. 2012

491
 2116

PLAN 25 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 8F-0	N8140+53, 27.35' L	138.45	D1, G1	INV (S) 132.50	15 IN	
IN SBS(2)-19	S8140+57, 32.66' L	138.33	E1, G1	INV (N) 131.74 INV (E) 133.26 (EXIST) INV (S) 131.73	24 IN 15 IN 30 IN	NONSTANDARD STRUCTURE
IN SBS(2)-15	S8142+73, 32.66' L	138.97	E1, G1	INV (N) 132.81 INV (E) 133.26 (EXIST) INV (S) 132.80	24 IN 15 IN 24 IN	NONSTANDARD STRUCTURE
IN SBS(2)-11	S8145+02, 32.68' L	139.66	E1, G1	INV (N) 133.95 INV (E) 134.25 (EXIST) INV (S) 133.94	24 IN 15 IN 24 IN	NONSTANDARD STRUCTURE
IN SBS(2)-7	S8147+29, 33.30' L	140.35	E1, G1	INV (N) 135.07 INV (E) 135.07 (EXIST) INV (S) 135.06	15 IN 15 IN 24 IN	NONSTANDARD STRUCTURE
IN SBS(2)-3	S8149+53, 32.73' L	141.05	D1, G1	INV (E) 136.53 (EXIST) INV (S) 136.52	15 IN 15 IN	
IN SBS-0	N8142+00, 43.67' R	137.76	D2, G2	INV (N) 131.88 INV (S) 131.78	24 IN 24 IN	
MH SBS-A	N8145+02, 42.75' R	139.17	P-1	INV (NE) 133.97 (EXIST) INV (S) 133.52	24 IN 24 IN	
MH SBS(1)-E	N8141+83, 28.56' R	139.09	P-1	INV (N) 131.37 INV (S) 131.27 INV (E) 131.37	24 IN 24 IN 18 IN	
MH SBS(1)-D	N8141+83, 34.77' R	138.78	P-1	INV (N) 131.48 INV (W) 131.38	18 IN 18 IN	
FCS SBS(1)-B	N8141+91, 28.56' R	139.11	FLOW CONTROL STRUCTURE	INV (N) 131.61 INV (S) 131.39 INV (E) 131.51	24 IN 24 IN 18 IN	NONSTANDARD STRUCTURE
MTD 8-O	N8141+91, 35.67' R	138.81	MANUFACTURED TREATMENT DEVICE	INV (W) 131.50 INV (S) 131.50	18 IN 18 IN	NONSTANDARD STRUCTURE
MH SBS(1)-A	N8142+98, 28.58' R	139.43	P-1	INV (W) 132.51 (EXIST) INV (E) 132.21 INV (S) 132.11	15 IN 18 IN 24 IN	
IN SBS(1)-7	N8142+98, 37.38' R	139.98	D2, G2	INV (W) 132.23 INV (N) 132.33	18 IN 18 IN	
IN SBS(1)-5	N8145+02, 37.38' R	139.60	D2, G2	INV (W) 134.04 (EXIST) INV (N) 133.43 INV (S) 133.33	15 IN 15 IN 18 IN	
IN SBS(1)-3	N8147+28, 37.38' R	140.27	D1, G1	INV (W) 135.33 (EXIST) INV (N) 134.64 INV (S) 134.54	15 IN 15 IN 15 IN	
IN SBS(1)-1	N8149+56, 37.38' R	140.96	D1, G1	INV (W) 136.02 (EXIST) INV (S) 136.01	15 IN 15 IN	
R25-1	N/A	138.70	D1, G1			
R25-2	N/A	138.97	D-1			
R25-3	N/A	139.08	D-1			
R25-4	N/A	139.45	D2, G2			
R25-5	N/A	139.67	D-1			
R25-6	N/A	139.76	D-1			
R25-7	N/A	138.91	D1-, G-1			
R25-8	N/A	140.24	D2, G2			
R25-9	N/A	140.41	D-1			
R25-11	N/A	139.43	D1, G1			
R25-12	N/A	140.61	D2, G2			
R25-15	N/A	140.08	D2, G2			
R25-16	N/A	141.31	D2, G-2			
R25-19	N/A	140.59	D-1			

PLAN 26 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN SBN(1)-5	S8156+37, 33.63' R	141.11	D2, G2	INV (E) 138.45 (EXIST) INV (N) 136.40	15 IN 18 IN	
IN SBN(1)-8	S8157+98, 39.97' R	142.36	D2, G2	INV (N) 135.50 INV (S) 135.50 INV (W) 135.42 INV (E) 137.12 (EXIST)	15 IN 18 IN 24 IN 15 IN	
IN SBN(1)-11	S8159+33, 39.90' R	140.90	D2, G2	INV (E) 136.97 (EXIST) INV (S) 136.90	15 IN 15 IN	
MTD 8-P	TSO 63+57, 09.99' R	143.00	MANUFACTURED TREATMENT DEVICE	INV (S) 134.42 INV (W) 134.42	18 IN 18 IN	NONSTANDARD STRUCTURE
FCS SBN(1)-A	TSO 63+65, 10.01' R	143.00	FLOW CONTROL STRUCTURE	INV (N) 134.44 INV (E) 134.45 INV (W) 134.41	18 IN 24 IN 24 IN	NONSTANDARD STRUCTURE
MH SBN(1)-B	TSO 63+57, 17.99' R	142.41	P-1	INV (S) 134.39 INV (E) 134.40	18 IN 18 IN	
MH SBN(1)-C	TSO 63+65, 18.04' R	142.41	P-1	INV (N) 134.37 INV (E) 134.37 INV (W) 134.36	18 IN 24 IN 24 IN	
FES SBN(1)-C	TSO 63+65, 29.82' R	N/A	FLARED END SECTION	INV (E) 134.30	24 IN	

PLAN 27 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN SBN(2)-0	N3886+06, 36.00' R	140.74	D1, G1	INV (N) 135.96	15 IN	
IN DB(4)-0	SOT 52+31, 12.08' R	138.57	E1, G1	INV (E) 134.40	18 IN	NONSTANDARD STRUCTURE
IN DB(4)-1	SOT 52+49, 11.82' R	138.60	E1, G1	INV (W) 134.33 INV (N) 134.32	18 IN 18 IN	NONSTANDARD STRUCTURE

PLAN 28 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FES 8I-EX(2)	8-I-EX 33+69, 111.13' L	N/A	FLARED END SECTION	INV (N) 132.52 (EXIST)	15 IN	
IN DB(2)-5A	TNO 16+11, 19.94' L	139.10	D1, G1	INV (E) 135.08	15 IN	
IN DB(2)-5	TNO 16+11, 11.83' R	139.26	D2, G2	INV (N) 133.89 INV (E) 133.89 INV (W) 134.94 INV (S) 133.88	24 IN 15 IN 15 IN 24 IN	
IN DB(2)-6	TNO 16+13, 19.62' R	138.69	D1, G1	INV (W) 133.92	15 IN	
IN DB(2)-7	TNO 14+09, 11.58' R	138.74	D2, G2	INV (N) 133.09 INV (E) 133.08	24 IN 24 IN	
FES DB(2)-7	TNO 14+05, 40.89' R	N/A	FLARED END SECTION	INV (W) 132.99	24 IN	

PLAN 29 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN DB(2)-4A	TNO 19+37, 16.03' L	141.52	D1, G1	INV (E) 136.89	15 IN	
IN DB(2)-4	TNO 19+37, 11.81' R	140.78	D2, G2	INV (N) 135.96 INV (W) 136.76 INV (S) 135.95	18 IN 15 IN 24 IN	
IN DB(2)-3	TNO 21+98, 11.99' R	142.17	D2, G2	INV (N) 137.89 INV (S) 137.88	18 IN 18 IN	
IN DB(2)-2	TNO 24+68, 11.72' R	143.88	D2, G2	INV (N) 139.60 INV (S) 139.59	15 IN 18 IN	

	BY	DATE
MADE	BTM	5/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
△	02/09/12	ADDENDUM 3-MODIFIED PIPE SIZES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -11-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03686000

SCALE: N.T.S.
 DATE: JAN. 2012

500
 2116

PLAN 30 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN DB(5)-0	SOT 54+51, 10.39' R	143.36	D1, G1	INV (E) 139.30	15 IN	
IN DB(5)-1	SOT 55+65, 10.33' R	147.74	DOUBLE D1 MODIFIED	INV (W) 138.74 INV (N) 133.47 (EXIST)	15 IN 48 X 78 IN	NONSTANDARD STRUCTURE
PLAN 31 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN 8H(1)-1	REV TNO 10+48, 12.10' R	140.05	D2, G2	INV (SE) 135.89	15 IN	
MTD 8-R	REV TNO 8+50, 08.33' R	147.67	MANUFACTURED TREATMENT DEVICE	INV (W) 134.43 INV (N) 134.43	15 IN 15 IN	NONSTANDARD STRUCTURE
MH 8H(1)-C	REV TNO 8+50, 16.33' R	147.04	P-1	INV (S) 134.41 INV (W) 134.39	15 IN 15 IN	
FES 8H(1)-D	REV TNO 8+34, 64.12' R	N/A	FLARED END SECTION	INV (S) 133.50	18 IN	
FCS 8H(1)-B	REV TNO 8+58, 08.23' R	147.43	FLOW CONTROL STRUCTURE	INV (W) 134.46 INV (E) 134.45 INV (N) 134.45	18 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
MH 8H(1)-D	REV TNO 8+59, 16.14' R	146.73	P-1	INV (S) 134.43 INV (E) 134.37 INV (N) 134.36	18 IN 15 IN 18 IN	
IN 8H(1)-0	REV TNO 9+14, 50.86' L	139.00	D2, G2	INV (NE) 135.89	15 IN	
MH 8H(1)-A	REV TNO 9+15, 21.72' R	144.07	P-1	INV (S) 134.72 INV (E) 134.71	18 IN 18 IN	
IN 8H(1)-2	TNO 9+17, 12.26' R	145.04	DOUBLE D1 MODIFIED	INV (S) 134.76 INV (W) 135.31 INV (N) 134.75	15 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
IN 8H(2)-0	REV TNO 5+71, 10.25' R	152.58	D2, G2	INV (E)(MATCH EXIST) INV (W) 137.23	15 IN 15 IN	
FES 8H(2)-0	REV TNO 5+76, 59.33' R	N/A	FLARED END SECTION	INV (E) 133.50	15 IN	
FES 8H(3)-1	REV TNO 3+97, 67.98' R	N/A	FLARED END SECTION	INV (E) 133.50	15 IN	
IN 8H(3)-0	TNO 3+98, 11.99' R	154.61	D2, G2	INV (E) 151.22 (EXIST) INV (W) 137.94	15 IN 15 IN	
IN 8H(4)-1	REV TNO 1+68, 12.30' R	158.39	D2, G2	INV (N)(MATCH EXIST) INV (E) 152.50	15 IN 15 IN	
IN 8H(4)-2	REV TNO 2+74, 12.28' R	156.58	D2, G2	INV (W) 152.01 INV (E) 152.00	15 IN 15 IN	
FCS 8H(4)-A	REV TNO 2+88, 08.79' R	156.74	FLOW CONTROL STRUCTURE	INV (W) 151.96 INV (S) 151.95 INV (E) 151.95	15 IN 15 IN 15 IN	NONSTANDARD STRUCTURE
MH 8H(4)-C	REV TNO 2+88, 16.85' R	156.25	P-1	INV (W) 151.88 INV (N) 151.91 INV (S) 138.61	15 IN 15 IN 15 IN	
MTD 8-S	REV TNO 2+96, 08.51' R	156.65	MANUFACTURED TREATMENT DEVICE	INV (E) 151.93 INV (S) 151.93	15 IN 15 IN	NONSTANDARD STRUCTURE
MH 8H(4)-B	REV TNO 2+96, 16.61' R	156.32	P-1	INV (E) 151.90 INV (N) 151.91	15 IN 15 IN	NONSTANDARD STRUCTURE
FES 8H(4)-C	REV TNO 3+17, 69.14' R	N/A	FLARED END SECTION	INV 133.50	15 IN	
OS 8-H	REV TNO 8+21, 90.99' R	N/A	OUTLET STRUCTURE	INV (W) 133.00	24 IN	NONSTANDARD STRUCTURE
FES 8-H	REV TNO 9+40, 99.99' R	N/A	FLARED END SECTION	INV (E) 132.74	24 IN	
IN DB(3)-0	SOT 63+53, 10.73' R	160.24	D1, G1	INV (E) 147.30	15 IN	
MH DB(3)-A	SOT 63+53, 35.17' R	150.00	P-1	INV (W) 145.60 INV (E) 140.20	15 IN 15 IN	
FES DB(3)-A	SOT 63+53, 60.28' R	N/A	FLARED END SECTION	INV (W) 138.50	15 IN	
PLAN 32 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN SBN(3)-0	TSO 58+21, 11.81' R	141.00	E1, G1	INV (S) 136.21 INV (E) 136.31	15 IN 15 IN	NONSTANDARD STRUCTURE
IN SBN(3)-1	TSO 58+21, 16.70' L	141.55	D1, G1	INV (N) 136.54 INV (W) 136.44	15 IN 15 IN	
IN SBN(3)-2	TSO 55+91, 19.22' L	140.55	D1, G1	INV (S) 137.68	15 IN	
IN DB(1)-2	TSO 53+81, 18.21' L	139.39	D1, G1	INV (N) 135.40	15 IN	

PLAN 33 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN DB(1)-1	TSO 52+00, 19.18' L	138.41	D2, G2	INV (S) 133.60 INV (W) 133.59	15 IN 15 IN	
IN DB(1)-0	TSO 51+80, 11.20' R	137.99	D2, G2	INV (E) 133.43 INV (W) 132.75	15 IN 15 IN	
FES DB(1)-0	TSO 51+63, 37.99' R	N/A	FLARED END SECTION	INV (E) 132.08	15 IN	
R33-1	N/A	140.02	D1, G1			
R33-2	N/A	141.30	D1, G1			
R33-3	N/A	136.96	D2, G2			
R33-4	N/A	136.39	D2, G2			
PLAN 34 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
FES DBT-B	S3909+70, 53.21' L	N/A	FLARED END SECTION	INV (E) 134.40	18 IN	
MTD 8-T	S3909+70, 36.04' L	139.07	MANUFACTURED TREATMENT DEVICE	INV (N) 134.66 INV (W) 134.66	15 IN 15 IN	NONSTANDARD STRUCTURE
MH DBT-B	S3909+71, 46.30' L	138.30	P-1	INV (N) 134.58 INV (W) 134.46 INV (E) 134.58	18 IN 18 IN 15 IN	
FCS DBT	S3909+86, 36.21' L	139.34	FLOW CONTROL STRUCTURE	INV (N) 136.00 INV (S) 134.78 INV (W) 134.78	18 IN 15 IN 18 IN	NONSTANDARD STRUCTURE
MH DBT-A	S3909+86, 46.22' L	138.30	P-1	INV (E) 134.74 INV (S) 134.65	18 IN 18 IN	
PLAN 36 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN DB(2)-1	TNO 27+19, 12.07' R	147.15	D1, G1	INV (N) 143.13 INV (S) 143.12	15 IN 15 IN	
IN DB(2)-0	TNO 29+75, 11.81' R	150.82	D1, G1	INV (S) 146.80	15 IN	
FES PS(2)-0	TNO 31+78, 42.83' R	N/A	FLARED END SECTION	INV (W) 139.19	15 IN	
IN PS(2)-0	TNO 31+79, 12.12' R	153.77	D1, G1	INV (E) 140.94	15 IN	
IN DBT-0	S3917+35, 34.75' L	152.92	D1, G1	INV (S) 150.00	15 IN	
IN DBT-1	S3915+56, 39.52' L	150.09	D2, G2	INV (N) 147.10 INV (S) 147.00	15 IN 18 IN	
IN DBT-2	S3913+53, 39.52' L	146.16	D2, G2	INV (N) 143.50 INV (S) 143.40	18 IN 18 IN	
IN 36LC	S3919+21, 29.80' LT	155.50	LIP CURB INLET	INV (W) 152.28 (EXIST)	12 IN	
PLAN 37 DRAINAGE TABULATION						
STRUCTURE NO.	STA., OFFSET	TOP OF GRATE	TYPE OF STRUCTURE	INVERTS	PIPES	REMARKS
IN PS(3)-0	N3919+39, 24.00' R	156.03	D1, G1	INV (E) 146.00	15 IN	
MH PS(3)-A	N3919+39, 39.69' R	151.49	P-1	INV (W) 145.63 INV (E) 136.72	15 IN 15 IN	
FES PS(3)-A	N3919+39, 65.67' R	N/A	FLARED END SECTION	INV (W) 136.00	15 IN	
IN PS(4)-1	N3921+19, 24.00' R	157.57	D1, G1	INV (W) 153.12 (EXIST) INV (E) 145.00	15 IN 15 IN	
MH PS(4)-A	N3921+19, 42.75' R	151.10	P-1	INV (W) 144.54 INV (E) 133.87	15 IN 15 IN	
FES PS(4)-A	N3921+19, 73.66' R	N/A	FLARED END SECTION	INV (W) 133.00	15 IN	
IN 37LC	S3920+98, 29.90' L	156.73	LIP CURB INLET	INV (W) 153.50 (EXIST)	12 IN	

	BY	DATE
MADE	BTM	5/08
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
△	02/09/12	ADDENDUM 3-MODIFIED TABLES
△	02/03/12	ADDENDUM 2-MODIFIED TABLES
△	01/31/12	ADDENDUM 1-CHANGED TO ELEVATION

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

DRAINAGE TABULATION SHEET -12-

JACOBS ENGINEERING GROUP INC.
 289 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

THOMAS R. DECKER
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03566000

SCALE: N.T.S.
 DATE: JAN. 2012

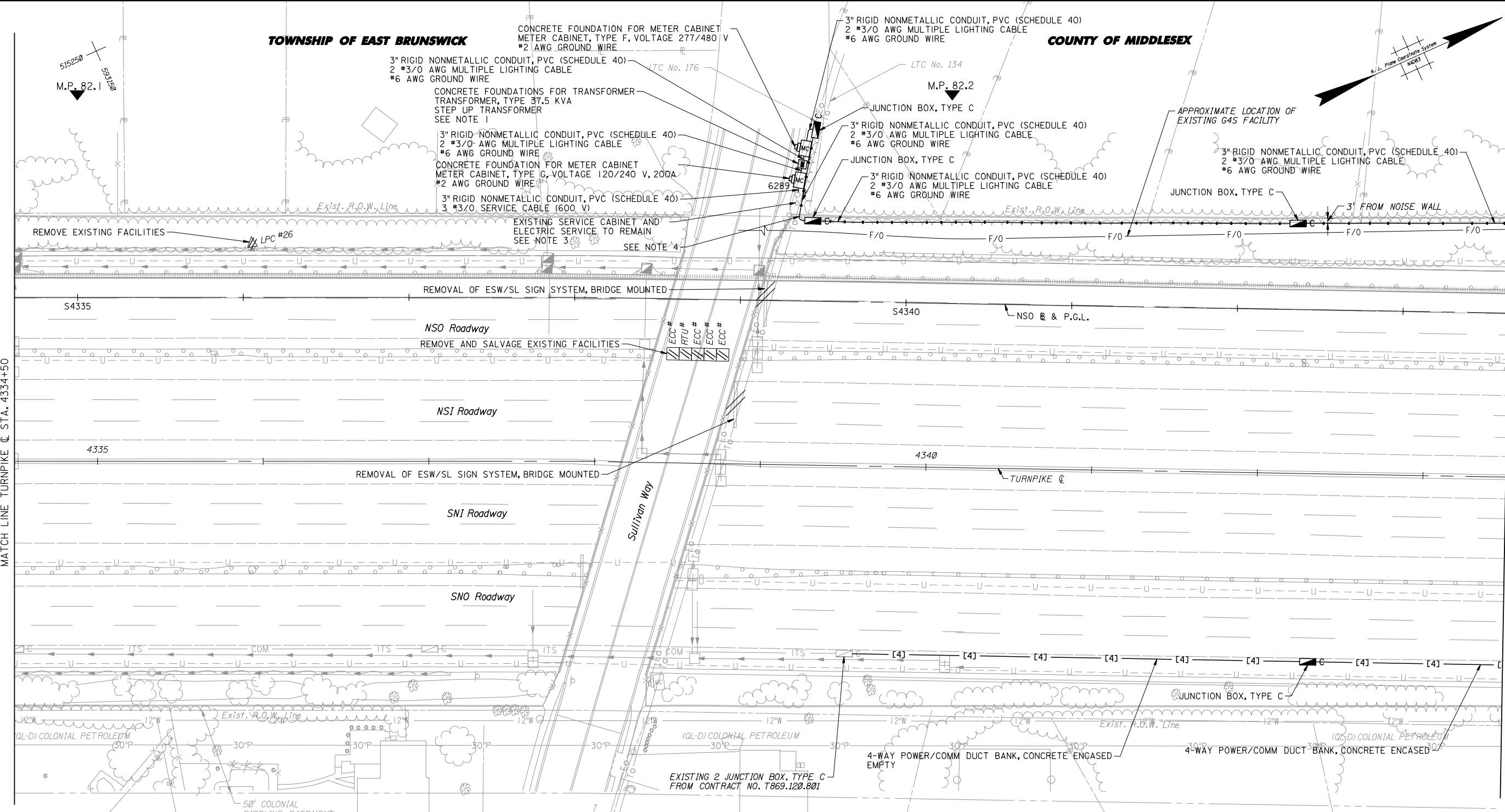
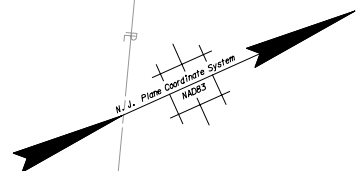
501
 2116

TOWNSHIP OF EAST BRUNSWICK

COUNTY OF MIDDLESEX

M.P. 82.1

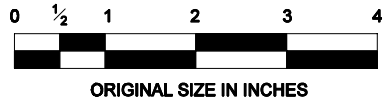
M.P. 82.2



NOTES:

- 1. IN BETWEEN THE PROPOSED 120/240V AND 240/480V METER CABINETS, STANDARD ITEM (B) ITS TRANSFORMER AND CONCRETE FOUNDATION FOR TRANSFORMER SHALL BE INSTALLED TO RAISE THE VOLTAGE TO 480 VOLTS.
- 2. ITEMS CALLED OUT BY "REMOVE EXISTING FACILITIES" SHALL BE PAID UNDER ITEM "REMOVE AND SALVAGE EXISTING FACILITIES" AND ITEMS SHALL NOT BE SALVAGED BUT DISPOSED.
- 3. CONTRACTOR SHALL MAINTAIN SERVICE TO EXISTING BUTTERFLY SIGN AT STATION S4324+50±

- 4. INSTALL 3" RIGID NONMETALLIC UNDER THE SOUND WALL AND AVOID CAISSON FOUNDATIONS.
- 5. THE CONTRACTOR SHALL CLEAR THE AREA AS REQUIRED WITHIN THE LIMITS OF WORK. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PAY ITEM "CLEARING AND GRUBBING".



	BY	DATE
MADE	KPH	10-10
TRACED	JA	12-11
CHECKED	MMF	12-11
SUPERVISED	MJB	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- REPLACE SHEET

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

ITS PLAN -83-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

MATTHEW M. FICARRA JR.
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. 0604478100

SCALE: 1"=30'
 DATE: JAN. 2012

767R
 2116

FILE NAME: T869-120-803-0787R.dgn

SEE PLAN 82
MATCH LINE TURNPIKE @ STA. 4334+50

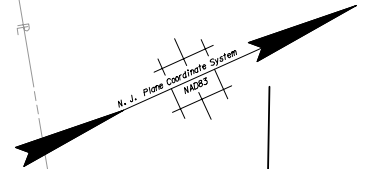
MATCH LINE TURNPIKE @ STA. 4343+50
SEE PLAN 84

ITS-68
ITS-68

ADDENDUM NO. 3, SHEET 5 OF 34

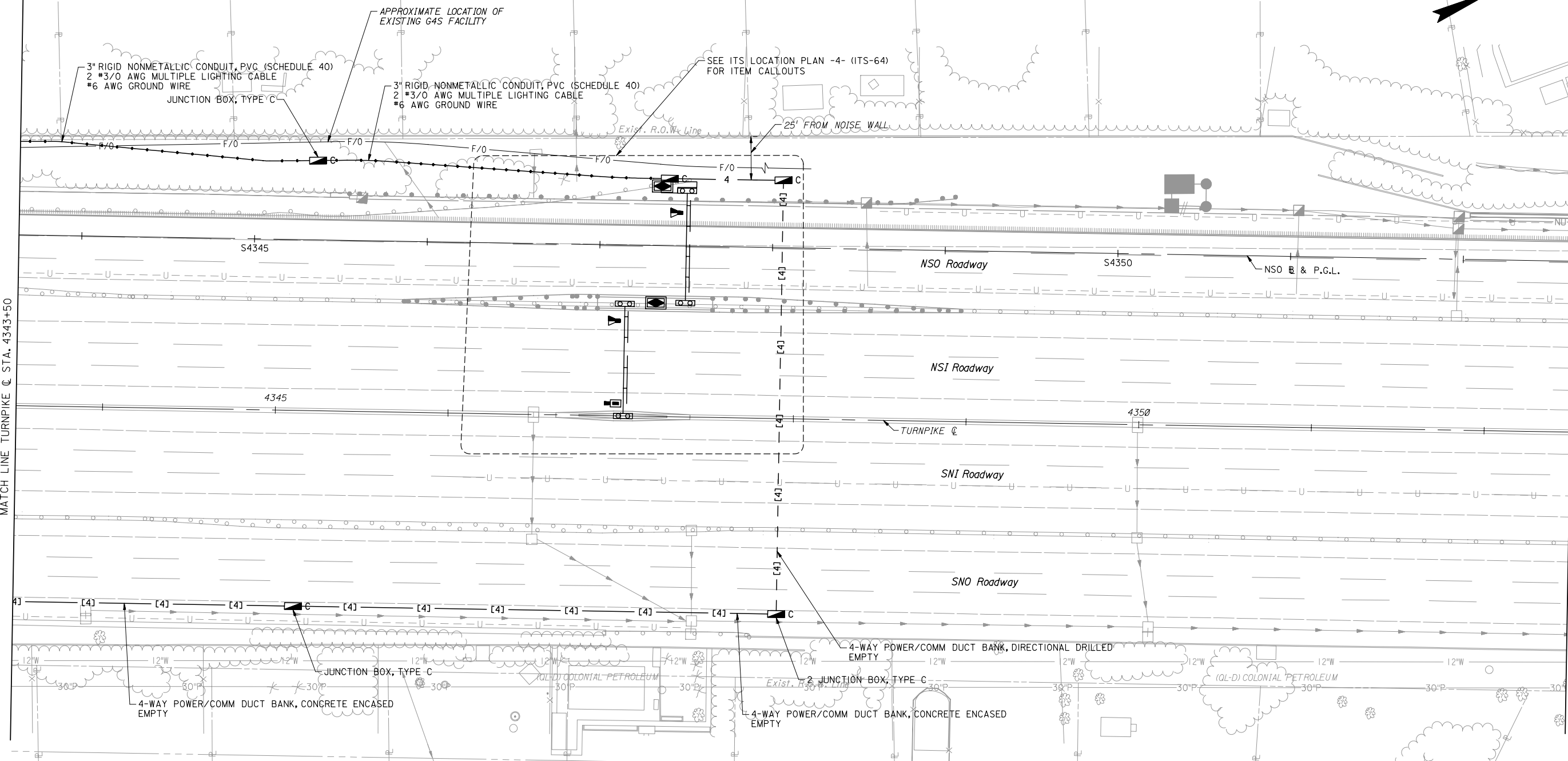
TOWNSHIP OF EAST BRUNSWICK
M.P. 82.3

COUNTY OF MIDDLESEX
M.P. 82.4

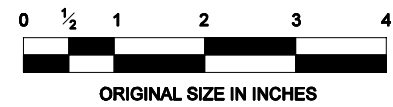


SEE PLAN 83
MATCH LINE TURNPIKE @ STA. 4343+50

MATCH LINE TURNPIKE @ STA. 4352+50
SEE PLAN 85



NOTES:
1. THE CONTRACTOR SHALL CLEAR THE AREA AS REQUIRED WITHIN THE LIMITS OF WORK. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PAY ITEM "CLEARING AND GRUBBING".



NO ITS WORK ON PLANS 85 THRU 86

	BY	DATE
MADE	KPH	10-10
TRACED	JA	12-11
CHECKED	MMF	12-11
SUPERVISOR	MJB	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- REPLACE SHEET

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

ITS PLAN -84-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

MATTHEW M. FICARRA JR.
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GED4478100

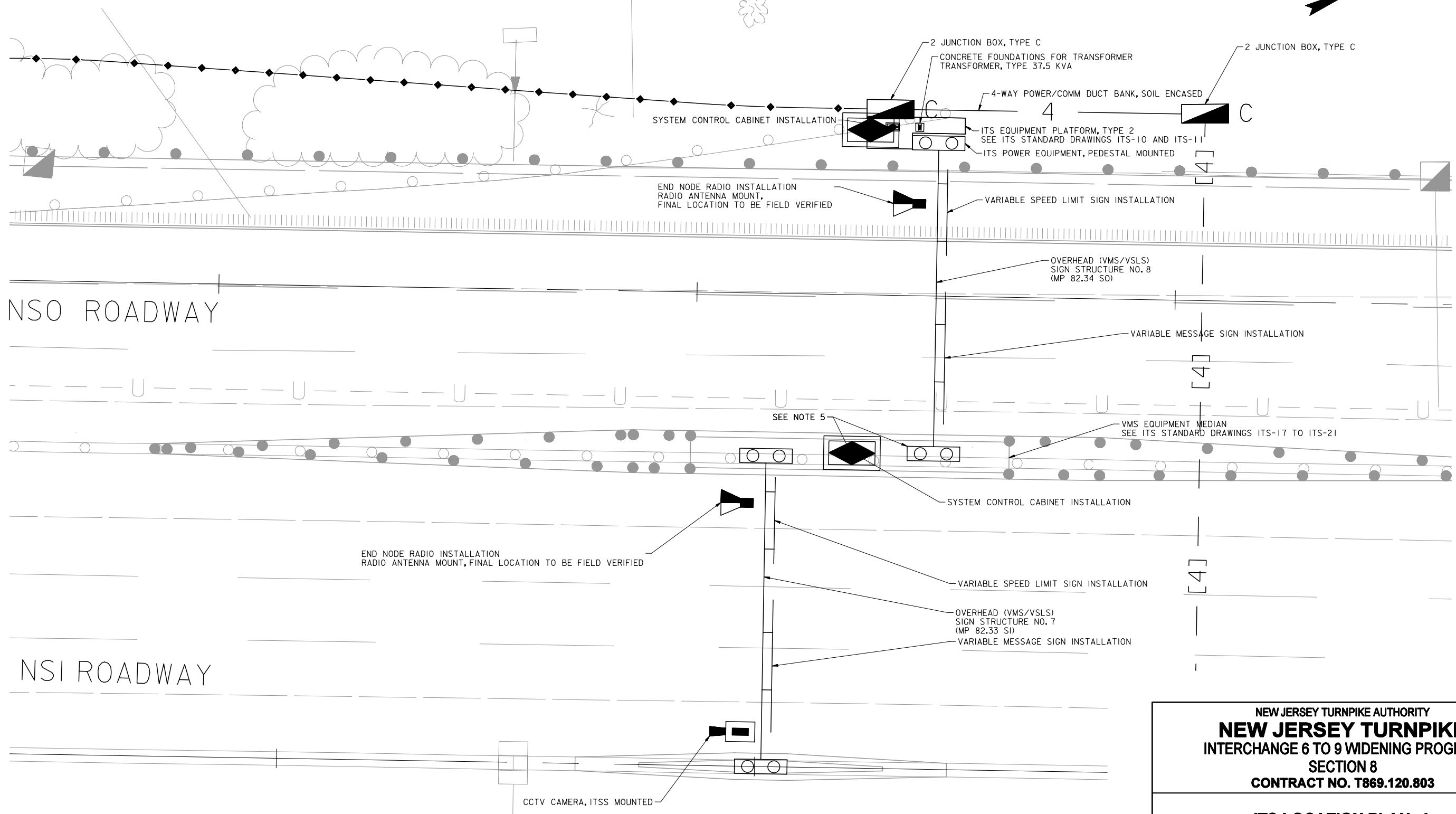
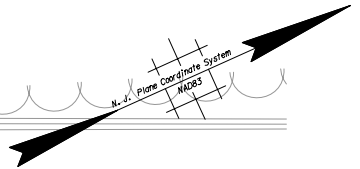
SCALE: 1"=30'
 DATE: JAN. 2012

768R
 2116

FILE NAME: T869-120-803-0768R.dgn

ADDENDUM NO. 3, SHEET 6 OF 34

Exist. R.O.W. Line



NOTE:

- 1) SEE ITS STANDARD DRAWINGS FOR EQUIPMENT ARRANGEMENT AND CONDUIT LAYOUT AND SHALL CONNECT TO JB AS SHOWN IN DRAWINGS.
- 2) SYSTEM CONTROL CABINETS HAVE BEEN REDUCED IN SIZE TO SHOW THE APPROXIMATE LOCATION ON THE ITS PLATFORM OR VMS EQUIPMENT MEDIUM.
- 3) POWER CABLE FOR SYSTEM CONTROL CABINET TO BE ROUTED THROUGH VMS/VLS STRUCTURE OVER SNO ROADWAY
- 4) STANDARD ITEM @ ITS TRANSFORMER IS REQUIRED AT THIS LOCATION. CONDUITS SHALL BE ROUTED ACCORDINGLY.
- 5) ALL STRUCTURES AND CABINETS SHALL BE PROPERLY GROUNDED IN COMPLIANCE TO NEC

	BY	DATE
MADE	KPH	10-10
TRACED	JA	12-11
CHECKED	MMF	12-11
SUPERVISOR	MJB	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- REPLACE SHEET

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

ITS LOCATION PLAN -4-

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: NONE
DATE: JAN. 2012

MATTHEW M. FICARRA JR.
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GED4478100

ITS-64
ITS-65

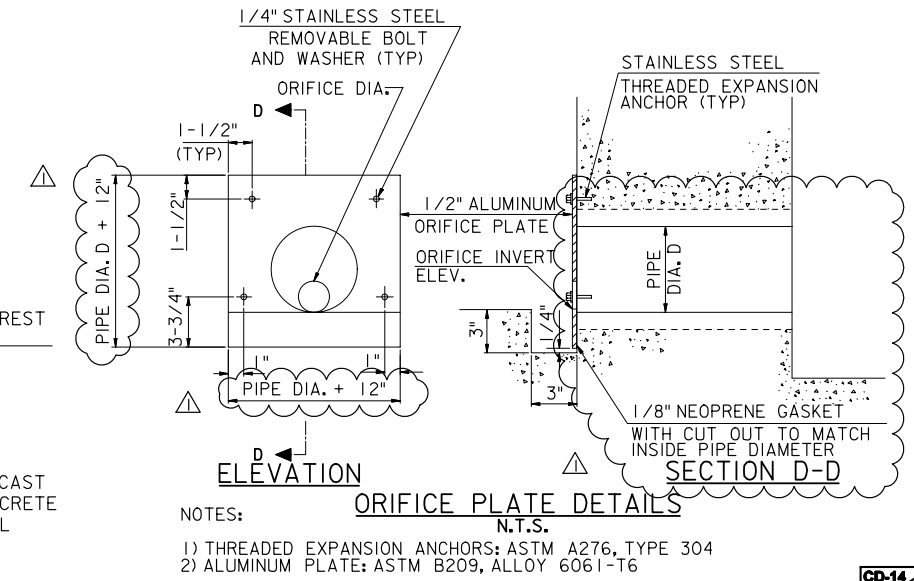
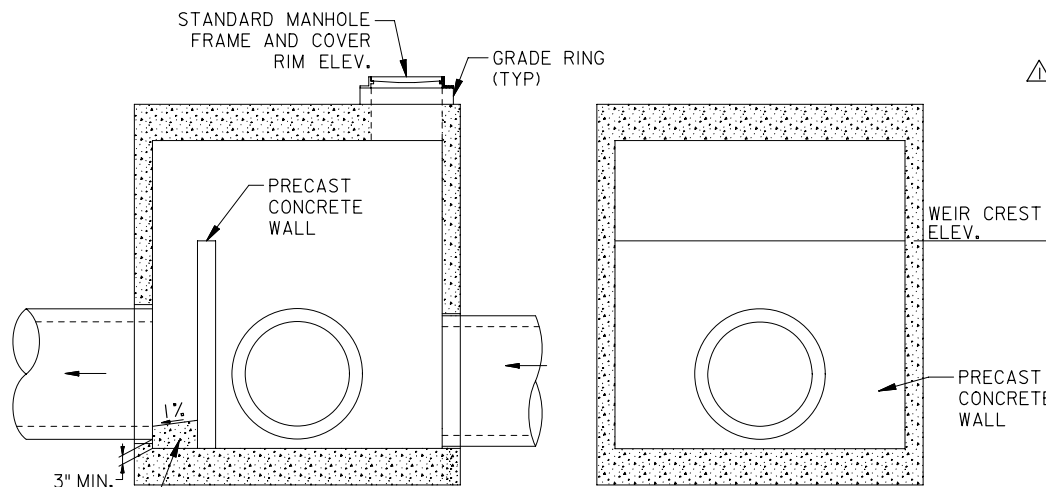
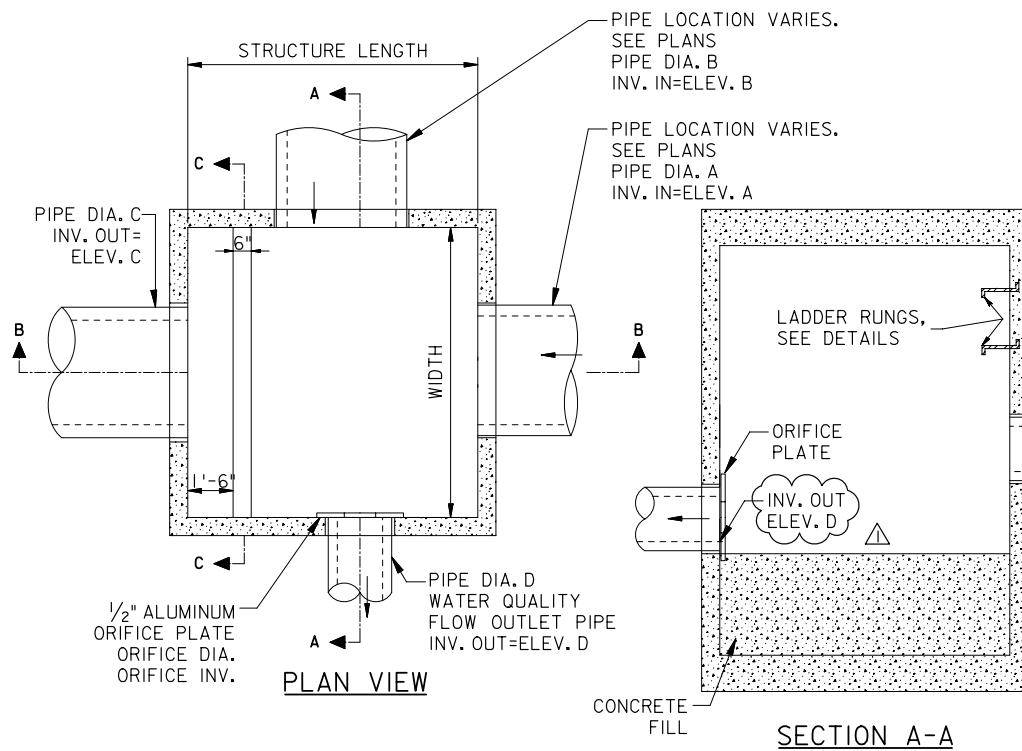
772R
2116

FLOW CONTROL STRUCTURE NO.	FCS NS7	FCS SS7	FCS CB(1)-A	FCS CB(2)-A	FCS 8A(2)-A	FCS 8A(1)-A	FCS 8A-E
STATION	N8007+67, 34.00' R	S8007+66, 32.85' L	N8010+73, 33.43' R	S8014+43, 30.46' L	SASO 33+09, 35.59' R	SASO 32+69, 35.00' R	BASIN 8-A 13+06, 193.33' R
STRUCTURE LENGTH (FT)	7.5	8.25	5.63	7.08	7.08	7.08	7.08
STRUCTURE WIDTH (FT)	5.00	4.99	4.00	6.00	10.00	8.00	10.00
ELEV. A (FT)	N/A	N/A	N/A	N/A	158.38	100.46	158.45
PIPE DIA. A (IN)	N/A	N/A	N/A	N/A	2-30	30	42
ELEV. B (FT)	90.00	90.80	93.97	90.89	N/A	100.74	N/A
PIPE DIA. B (IN)	42	36	15	36	N/A	24	N/A
ELEV. C (FT)	89.58	90.00	87.29	90.79	100.33	100.42	100.44
PIPE DIA. C (IN)	42	36	15	36	36	30	42
ELEV. D (FT)	89.50	89.30	93.96	90.86	100.36	100.43	100.44
PIPE DIA. D (IN)	24	24	15	24	30	30	30
WEIR CREST ELEV. (FT)	94.70	94.60	95.93	93.24	104.08	104.15	104.79
WEIR LENGTH (FT)	5	6	4	6	10	8	10
MANHOLE RIM ELEV. (FT)	100.30	100.64	100.19	101.77	105.50	105.71	106.28
ORIFICE INV. ELEV. (FT)	89.50	89.30	93.96	90.86	100.36	100.43	100.44
ORIFICE DIA. (IN)	21	20	15	24	30	30	30

FLOW CONTROL STRUCTURE NO.	FCS 8E-A	FCS 8F-A	FCS SBS(1)-B	FCS SBN(1)-A	FCS 8H(1)-B	FCS 8H(4)-A	FCS DBT
STATION	S8105+25, 53.65' L	BASIN 8-F 7+92, 91.33' L	N8141+91, 28.56' R	TSO 63+65, 10.01' R	REV TNO 8+58, 8.23' R	REV TNO 2+88, 08.79' R	S3909+86, 36.21' L
STRUCTURE LENGTH (FT)	7.08	7.08	6.00	6.00	6.00	6.00	5.5
STRUCTURE WIDTH (FT)	10.00	10.00	4.00	4.00	4.00	4.00	4.00
ELEV. A (FT)	117.13	127.61	131.61	134.45	N/A	N/A	N/A
PIPE DIA. A (IN)	48	2-30	24	24	N/A	N/A	N/A
ELEV. B (FT)	N/A	N/A	N/A	N/A	134.46	151.96	136.00
PIPE DIA. B (IN)	N/A	N/A	N/A	N/A	18	15	18
ELEV. C (FT)	117.08	127.56	131.39	134.41	134.45	151.95	134.78
PIPE DIA. C (IN)	48	36	24	24	18	15	18
ELEV. D (FT)	117.11	127.61	131.51	134.44	134.45	151.95	134.78
PIPE DIA. D (IN)	30	24	18	18	15	15	15
WEIR CREST ELEV. (FT)	121.42	131.17	134.20	137.50	136.59	153.61	136.61
WEIR LENGTH (FT)	10	10	4	4	4	4	4
MANHOLE RIM ELEV. (FT)	123.79	142.03	139.11	143.00	147.43	156.74	139.34
ORIFICE INV. ELEV. (FT)	117.11	127.61	131.51	134.44	134.45	151.95	134.78
ORIFICE DIA. (IN)	30	24	18	15.00	15.00	15.00	12

FLOW CONTROL STRUCTURE NO.	FCS 8B-B	FCS 8C-G	FCS CD(5)-C	FCS CD(1)-B	FCS 8D(1)-A	FCS 8D-J	FCS 8D-I
STATION	N8053+97, 45.64' R	N8065+57, 54.20' R	NOSA 40+79, 6.20' R	N8070+19, 33.05' R	BASIN 8-D 4+55, 112.25' R	NOSA 24+37, 67.40' R	NOSA 25+85, 62.33' R
STRUCTURE LENGTH (FT)	6.00	7.67	7.08	7.08	5.63	7.08	7.08
STRUCTURE WIDTH (FT)	4.00	8.00	8.00	8.00	4.00	12.00	10.00
ELEV. A (FT)	109.21	103.70	99.12	N/A	106.20	106.02	105.37
PIPE DIA. A (IN)	24	36	43 X 68	N/A	18	2-36	34X53
ELEV. B (FT)	N/A	108.36	N/A	100.23	N/A	N/A	N/A
PIPE DIA. B (IN)	N/A	15	N/A	30	N/A	N/A	N/A
ELEV. C (FT)	109.15	103.63	98.11	100.14	106.13	105.96	105.30
PIPE DIA. C (IN)	24	42	43 X 68	30	18	48	42
ELEV. D (FT)	109.21	103.68	99.10	100.12	106.19	105.99	105.36
PIPE DIA. D (IN)	18	30	30	24	15	30	30
WEIR CREST ELEV. (FT)	111.85	107.74	103.47	103.71	107.92	110.38	109.51
WEIR LENGTH (FT)	4	8	10	10	10	10	10
MANHOLE RIM ELEV. (FT)	117.50	111.00	109.19	110.24	112.00	112.00	112.00
ORIFICE INV. ELEV. (FT)	109.21	103.68	99.10	100.12	106.19	105.99	105.36
ORIFICE DIA. (IN)	18	30.0	30	24	15	30	30

FLOW CONTROL STRUCTURE NO.	FCS PS48	FCS PS36	FCS PS54-W	FCS PS54-X	FCS NBB	FCS BOG	FCS SWM	FCS SAW	FCS NWM
STATION	S4013+56, 23.87' L	S4027+34, 25.28' L	S4053+96, 22.97' L	S4062+97, 24.00' L	S4207+01, 27.33' L	S4227+04, 27.65' L	S4286+45, 20.06' L	S4326+99, 18.26' L	S4350+31, 28.10' L
STRUCTURE LENGTH (FT)	6	5.5	6	6.5	7	6	4.00	6.5	5.5
STRUCTURE WIDTH (FT)	10.00	4.00	4.00	10.00	6.00	4.00	4.00	6.00	4.00
ELEV. A (FT)	95.29	101.36	94.75	N/A	96.93	N/A	N/A	56.43	66.45
PIPE DIA. A (IN)	30	18	24	N/A	36	N/A	N/A	30	18
ELEV. B (FT)	N/A	N/A	N/A	100.71	N/A	87.47	58.74	N/A	N/A
PIPE DIA. B (IN)	N/A	N/A	N/A	30	N/A	24	24	N/A	N/A
ELEV. C (FT)	95.24	101.33	94.66	100.62	96.84	87.38	56.68	56.34	66.35
PIPE DIA. C (IN)	30	18	24	30	36	24	24	30	18
ELEV. D (FT)	95.24	101.33	94.66	100.62	96.84	87.38	58.65	56.34	66.36
PIPE DIA. D (IN)	24	15	24	30	24	15	18	24	15
WEIR CREST ELEV. (FT)	98.57	105.85	98.15	104.36	100.01	92.47	62.60	61.42	71.47
WEIR LENGTH (FT)	12	4	4	10	6	4	4	6	4
MANHOLE RIM ELEV. (FT)	100.42	107.81	101.21	106.46	102.10	98.30	66.80	64.90	74.43
ORIFICE INV. ELEV. (FT)	95.24	101.33	94.66	100.62	96.84	87.38	58.65	56.34	66.36
ORIFICE DIA. (IN)	24	9	16	30	24	15	15	20	10



SECTION B-B SECTION C-C
FLOW CONTROL STRUCTURE DETAIL PLAN AND SECTION VIEWS
(FOR MANUFACTURED TREATMENT DEVICE ONLY)

- NOTES:
- 1) FLOW CONTROL STRUCTURE SHALL BE DESIGNED FOR HS-25 LOADING.
 - 2) CONCRETE SHALL HAVE SPECIFIED DESIGN COMPRESSIVE STRENGTH (F'C AT 28 DAYS)=5,000 PSI.
 - 3) REINFORCEMENT STEEL: ASTM A615, GRADE 60.
 - 4) SUBMIT DESIGN CALCULATIONS AND SITE PLAN TO SCALE FOR REVIEW SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY.

	BY	DATE
MADE	BM	5/09
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISOR	TRD	

No.	DATE	REVISION
△	02/09/12	ADDENDUM 3-MODIFIED TABLES AND DETAILS

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

CONSTRUCTION DETAIL -14-

JACOBS ENGINEERING GROUP INC.
289 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA2789200

THOMAS R. DECKER
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE0366600

SCALE: NONE
DATE: JAN. 2012

787
2116

UNIT CODE	ITEM DESCRIPTION	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTAL	AS BUILT QUANTITY
	RETAINING WALL NO. 803-7				
4ZG17RET	RETAINING WALL, LOCATION NO. 7 (803-7)	S.F.	4,935		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	975		
6A25JBD	JUNCTION BOX, TYPE D	EACH	△(433)		
	RETAINING WALL NO. 803-8				
4ZG08RET	RETAINING WALL, LOCATION NO. 8 (803-8)	S.F.	16,650		
	RETAINING WALL NO. 803-9				
4ZG09RET	RETAINING WALL, LOCATION NO. 9 (803-9)	S.F.	△(16,200) 14,650		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	2,045	2,065	
6A25JBD	JUNCTION BOX, TYPE D	EACH	8		
	RETAINING WALL NO. 803-10				
4ZG10RET	RETAINING WALL, LOCATION NO. 10 (803-10)	S.F.	△(3,215) 3,340		
	RETAINING WALL NO. 803-11				
4ZG11RET	RETAINING WALL, LOCATION NO. 11 (803-11)	S.F.	2,190		
	RETAINING WALL NO. 803-12				
4ZG12RET	RETAINING WALL, LOCATION NO. 12 (803-12)	S.F.	1,155		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	△(530) 550		
6A25JBD	JUNCTION BOX, TYPE D	EACH	3		
	RETAINING WALL NO. 803-13				
4ZG13RET	RETAINING WALL, LOCATION NO. 13 (803-13)	S.F.	△(5,980) 5,945		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	2,290	2,310	
6A25JBD	JUNCTION BOX, TYPE D	EACH	8	9	
	RETAINING WALL NO. 803-14				
4ZG14RET	RETAINING WALL, LOCATION NO. 14 (803-14)	S.F.	580		
	RETAINING WALL NO. 803-15				
4ZG15RET	RETAINING WALL, LOCATION NO. 15 (803-15)	S.F.	1,280		
	RETAINING WALL NO. 803-16				
4ZG16RET	RETAINING WALL, LOCATION NO. 16 (803-16)	S.F.	△(9,360) 9,415		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	7,535	1,575	
6A25JBD	JUNCTION BOX, TYPE D	EACH	5		
	RETAINING WALL NO. 803-17				
4ZG17ARET	RETAINING WALL, LOCATION NO. 17 (803-17)	S.F.	7,140		
	RETAINING WALL NO. 803-18				
4ZG18RET	RETAINING WALL, LOCATION NO. 18 (803-18)	S.F.	6,375		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	△(1,145) 1,165		
6A25JBD	JUNCTION BOX, TYPE D	EACH	5		
	RETAINING WALL NO. 803-19				
4ZG19RET	RETAINING WALL, LOCATION NO. 19 (803-19)	S.F.	445		
	RETAINING WALL NO. 803-20				
4ZG20RET	RETAINING WALL, LOCATION NO. 20 (803-20)	S.F.	△(490) 335		
	RETAINING WALL NO. 803-21				
4ZG21RET	RETAINING WALL, LOCATION NO. 21 (803-21)	S.F.	△(125) 15		

UNIT CODE	ITEM DESCRIPTION	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTAL	AS BUILT QUANTITY
	RETAINING WALL NO. 803-22				
4ZG22RET	RETAINING WALL, LOCATION NO. 22 (803-22)	S.F.	2,305		
	RETAINING WALL NO. 803-23				
4ZG23RET	RETAINING WALL, LOCATION NO. 23 (803-23)	S.F.	△(190) 390		
	NOISE BARRIER NO 803-1				
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	25		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	16,380		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	16,380		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	1,400		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	1,098		
	NOISE BARRIER NO 803-2				
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	6,300		
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	15		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	7,660		
4ZA06NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE B	S.F.	490		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	8,150		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	650		
4ZA01GMP	GROUND MOUNTED POST, TYPE B	L.F.	48		
4ZM04HPC	CONCRETE IN PARAPET, HPC	C.Y.	80		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	558		
	NOISE BARRIER NO 803-3				
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	60		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	38,810		
4ZA07NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE C	S.F.	4,460		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	43,270		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	1,180		
4ZA01GMP	GROUND MOUNTED POST, TYPE B	L.F.	2,170		
4ZA02GMP	GROUND MOUNTED POST, TYPE C	L.F.	180		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	2,538		
	NOISE BARRIER NO 803-4				
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	45		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	28,270		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	28,270		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	2,420		
4ZA02GMP	GROUND MOUNTED POST, TYPE C	L.F.	44		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	2,034		
	OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 1				
4ZN0037	INSTALL OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 1 (72.08N0)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,400		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	21		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	118		
	OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 2				
4ZN0038	INSTALL OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 2 (72.08N1)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,200		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	18		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	114		

	BY	DATE
MADE	LD	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
△	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

ESTIMATE OF QUANTITIES - STRUCTURES - 2

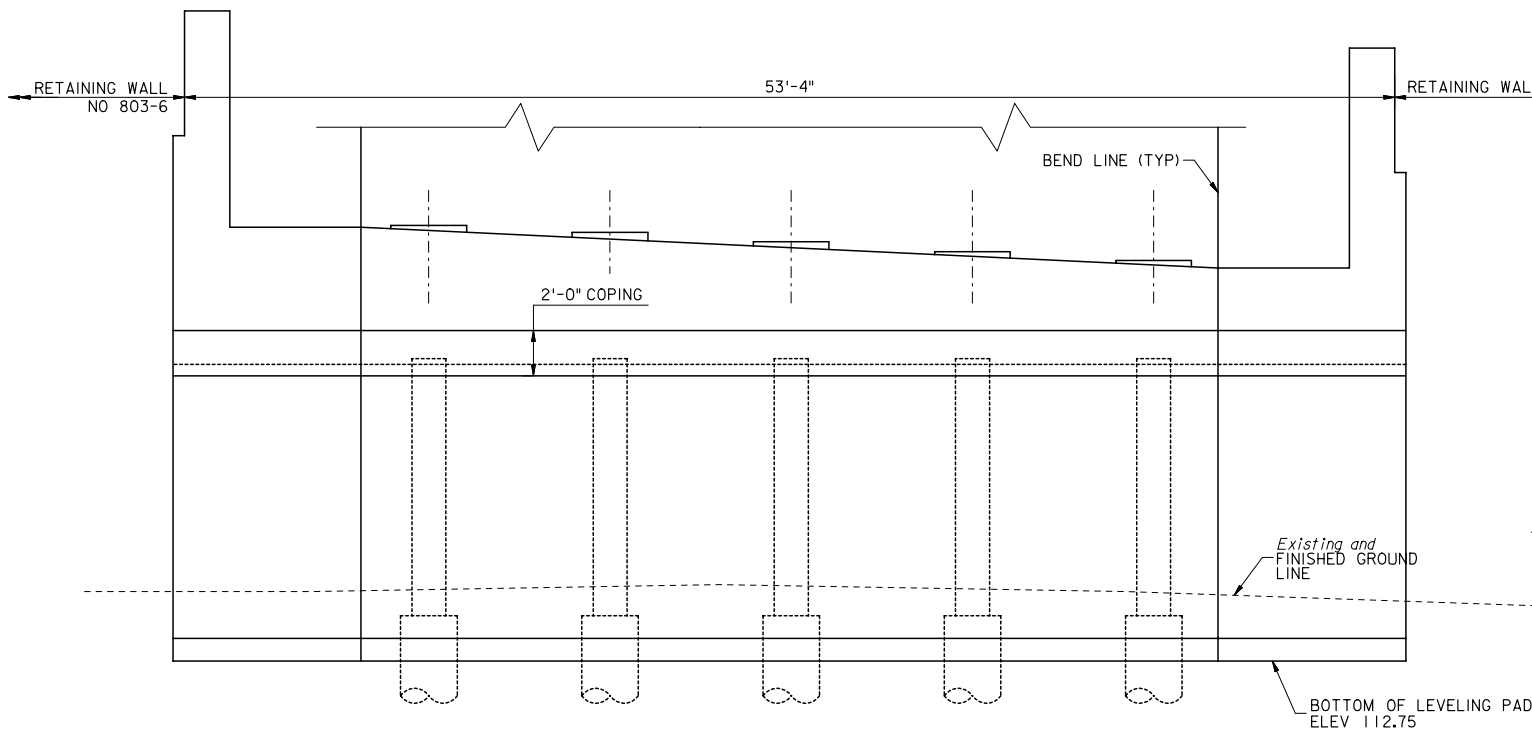
JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: NONE
 DATE: JAN. 2012

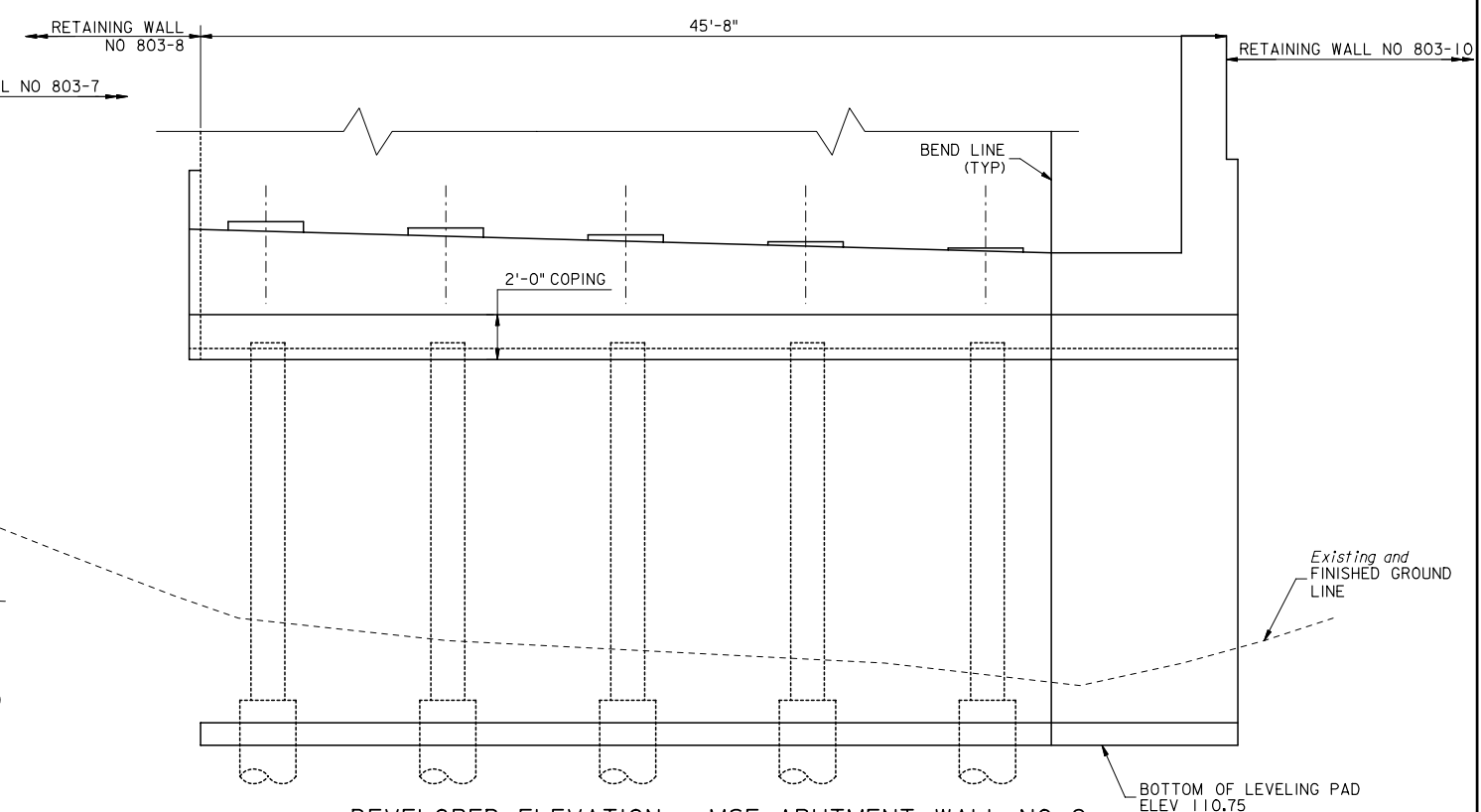
TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

8-4
 8-138

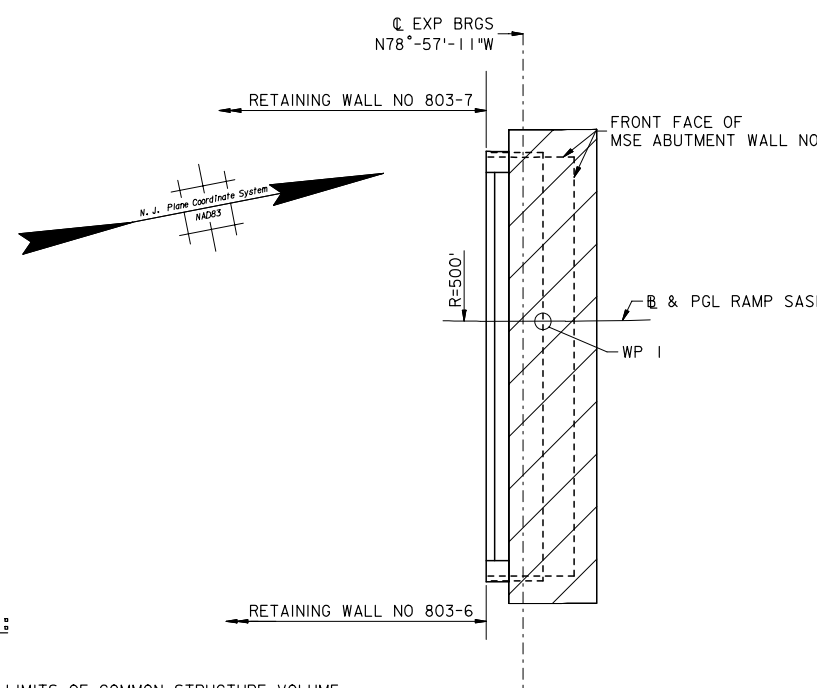
ADDENDUM NO. 3, SHEET NO. 9 OF 34



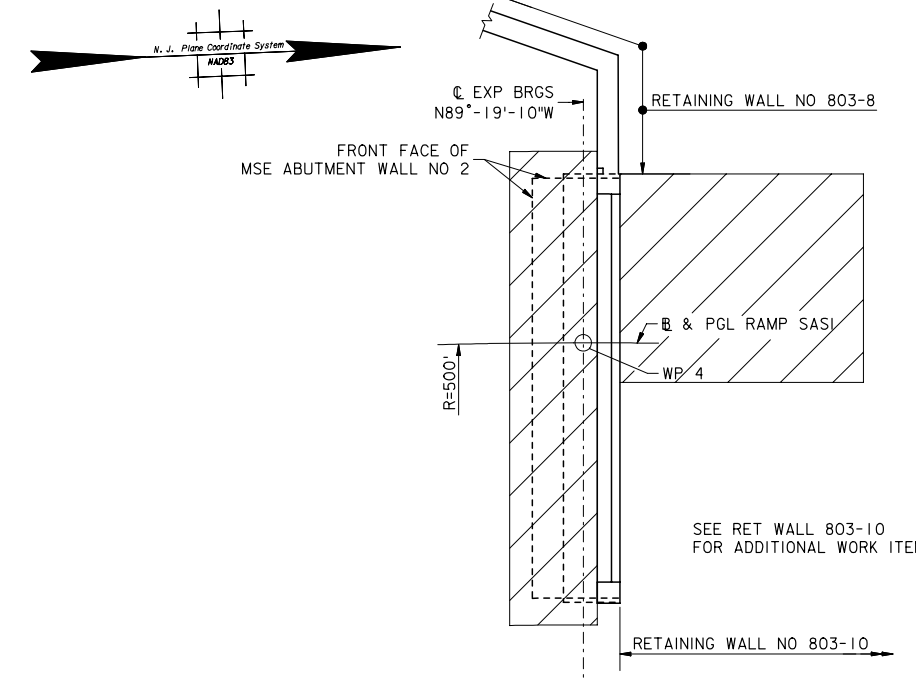
DEVELOPED ELEVATION - MSE ABUTMENT WALL NO 1
(AT SOUTH ABUTMENT)
SCALE: 1/4" = 1'-0"



DEVELOPED ELEVATION - MSE ABUTMENT WALL NO 2
(AT NORTH ABUTMENT)
SCALE: 1/4" = 1'-0"



PLAN - MSE ABUTMENT WALL NO 1
(AT SOUTH ABUTMENT)
SCALE: 1/8" = 1'-0"



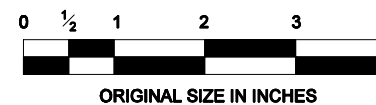
PLAN - MSE ABUTMENT WALL NO 2
(AT NORTH ABUTMENT)
SCALE: 1/8" = 1'-0"

WORK ITEMS - MSE ABUTMENT WALLS (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	APPROXIMATE QUANTITY	
		WALL NO 1	WALL NO 2
FOUNDATION EXCAVATION	CY	30	45
CONCRETE LEVELING PAD	LF	55	50
PRECAST WALL ELEMENT	SF	△ 550-690	△ 590-780
PRECAST CONCRETE COPING	LF	45	45
CONCRETE IN 4" THICK SLAB	CY	5	5
REINFORCEMENT STEEL, EPOXY COATED	LBS	50	50
SELECT BACKFILL	CY	△ -	356
POROUS FILL	CY	-	34
8" CORRUGATED STEEL UNDERDRAIN PIPE	LF	-	40

NOTE:
FOR MSE ABUTMENT WALL NOTES, SEE SHEETS S-26 AND S-93.

LEGEND:
 LIMITS OF COMMON STRUCTURE VOLUME

	BY	DATE
MADE	JP	10-10
TRACED	WK	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



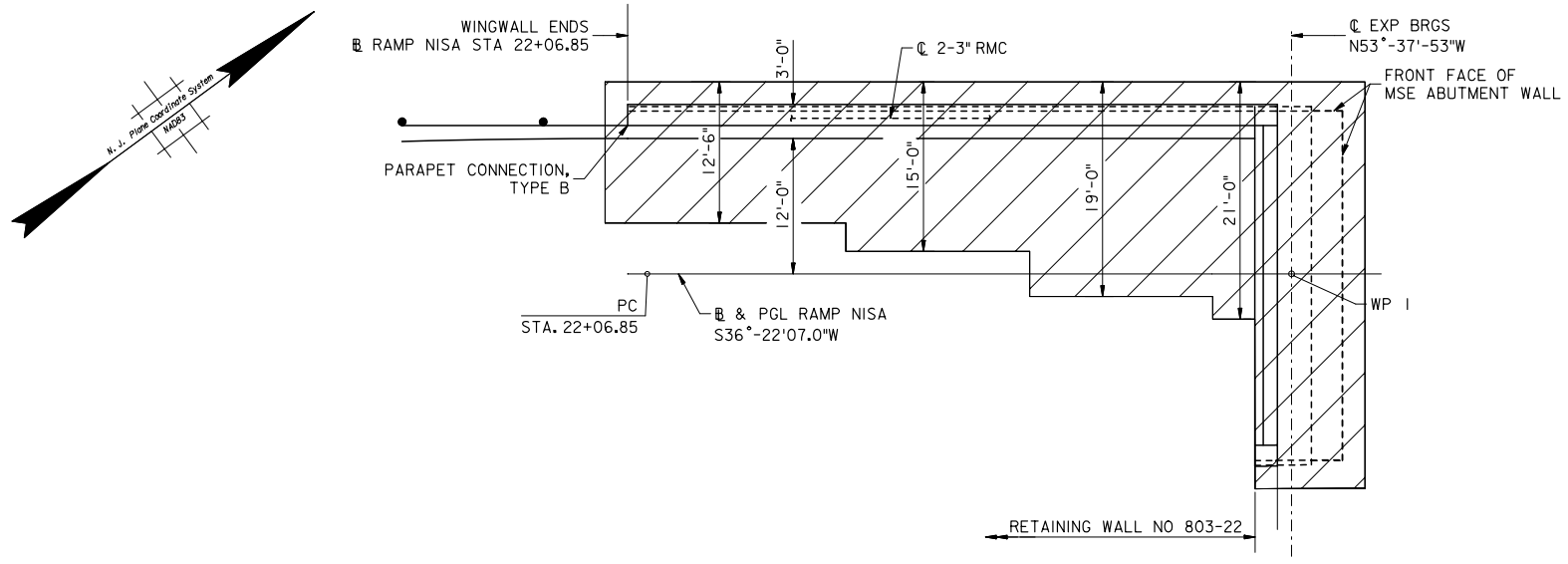
No.	DATE	REVISION
△	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803
STRUCTURE NO. 71.37
RAMP SASI OVER NSO
ABUTMENT DETAILS - 3

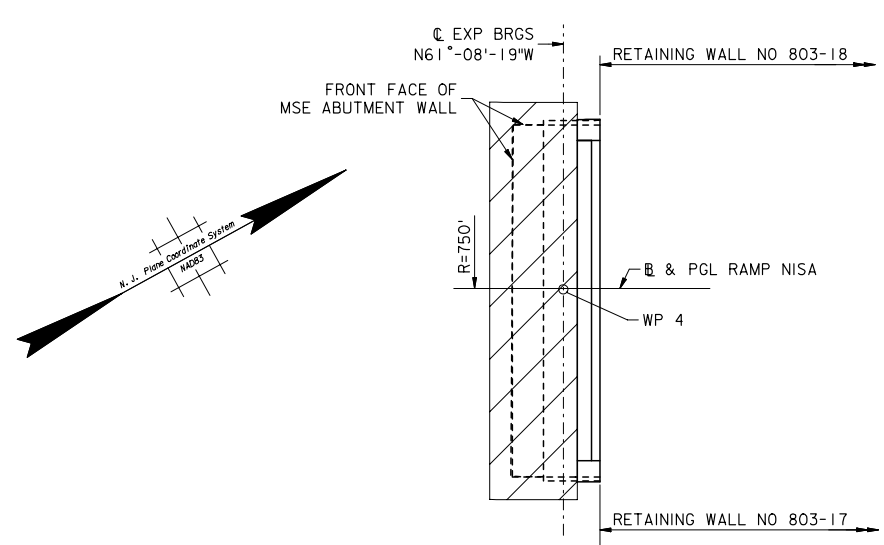
JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200
 SCALE: AS SHOWN
 DATE: JAN. 2012
TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

S-25
S-138

1232
2116



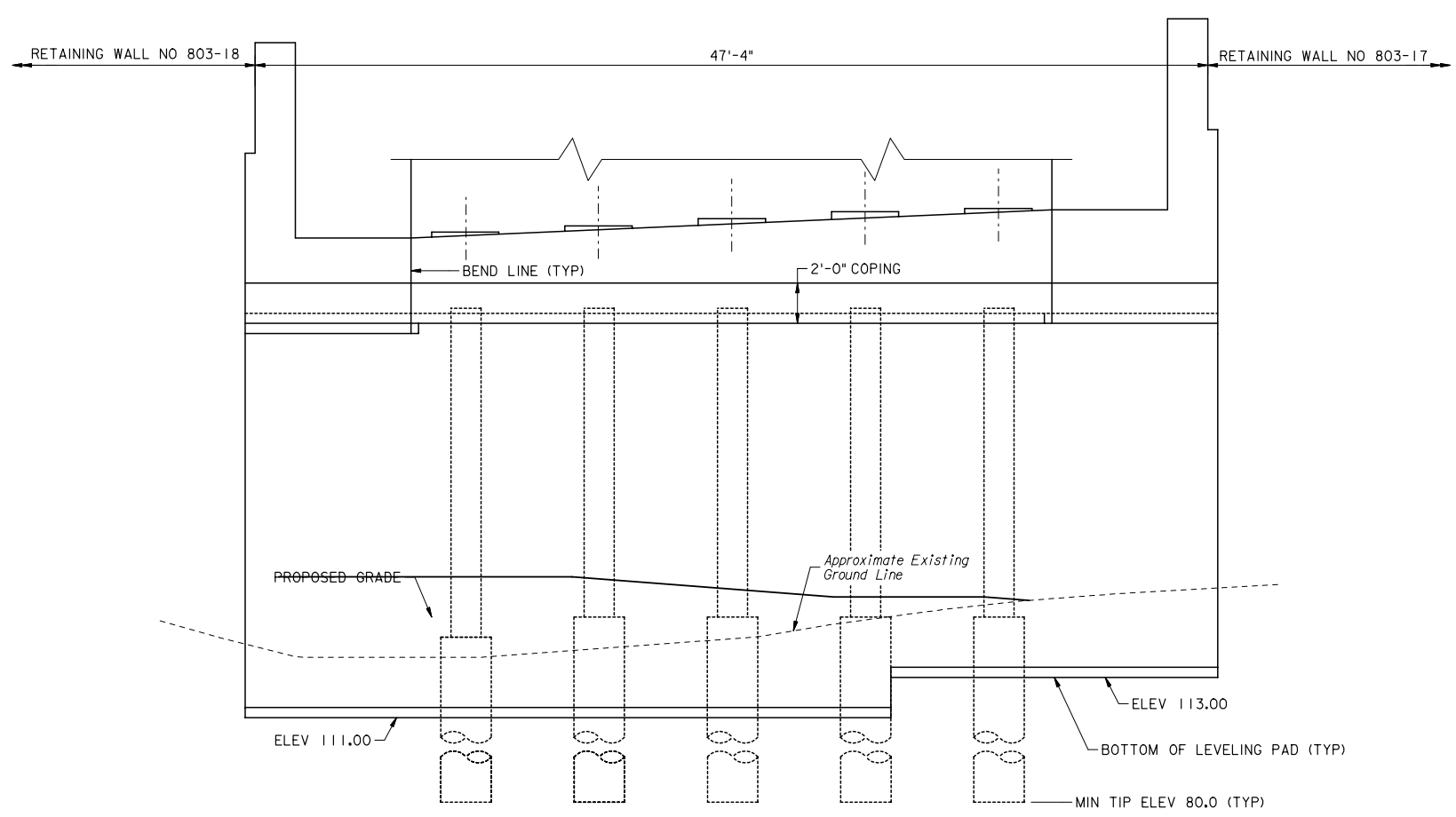
PLAN - MSE ABUTMENT WALL NO 3
(AT SOUTH ABUTMENT)
SCALE: 1/8" = 1'-0"



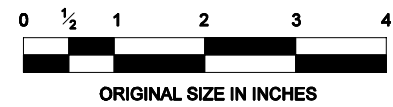
PLAN - MSE ABUTMENT WALL NO 4
(AT NORTH ABUTMENT)
SCALE: 1/8" = 1'-0"

LEGEND:
 LIMITS OF COMMON STRUCTURE VOLUME

NOTES:
 1. FOR PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 2. FOR MSE ABUTMENT WALL NOTES, SEE SHEET S-52 AND S-93.
 3. FOR ELEVATIONS OF TOP OF DRILLED SHAFTS, SEE SHEETS S-48.



DEVELOPED ELEVATION - MSE ABUTMENT WALL NO 4
(AT NORTH ABUTMENT)
SCALE: 1/4" = 1'-0"



WORK ITEMS - MSE ABUTMENT WALLS (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	APPROXIMATE QUANTITY	
		WALL NO 3	WALL NO 4
FOUNDATION EXCAVATION	CY	85	30
SELECT BACKFILL	CY	720	-
POROUS FILL	CY	65	-
8" CORRUGATED STEEL UNDERDRAIN PIPE	LF	60	-
CONCRETE LEVELING PAD	LF	105	50
PRECAST WALL ELEMENT	SF	△ 1,265-1,520	△ 730-890
CONCRETE IN PARAPET, HPC	CY	△ 15-10	-
CONCRETE IN COPING, HPC	CY	10	-
PRECAST CONCRETE COPING	LF	△ 45-40	△ 45-40
CIP MOMENT SLAB	LF	60	-
CONCRETE IN 4" THICK SLAB	CY	5	5
REINFORCEMENT STEEL, EPOXY COATED	LBS	50	50
IMPERVIOUS MEMBRANE	SF	△ 900-740	-

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
△	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
CONTRACT NO. T869.120.803
STRUCTURE NO. 72.29
RAMP NISA OVER NSO
ABUTMENT DETAILS - 2

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

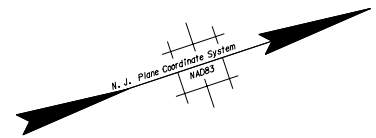
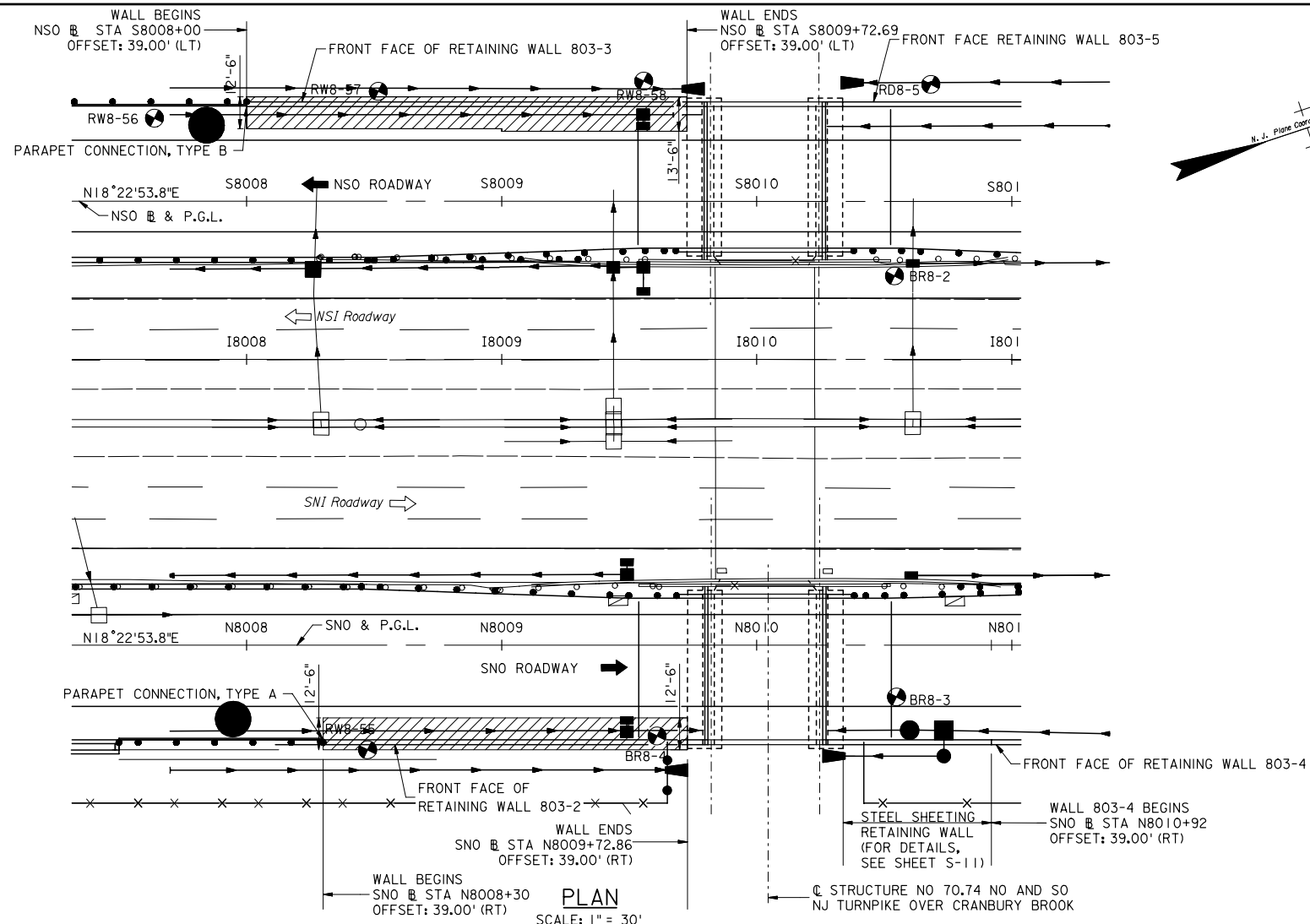
TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
 DATE: JAN. 2012

1257
2116

FILE NAME: T869-120-803-1257.dgn

ADDENDUM NO. 3, SHEET NO. 11 OF 34



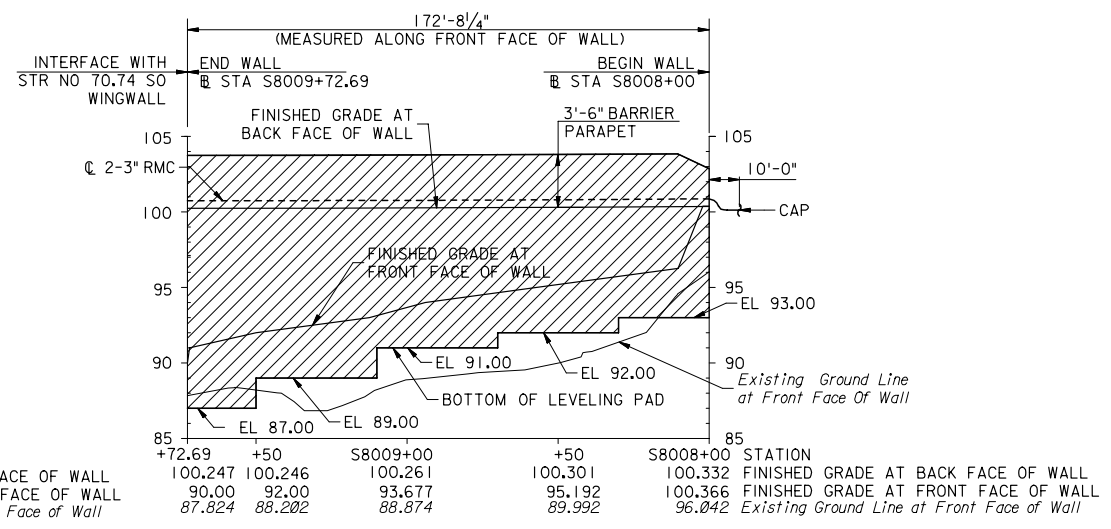
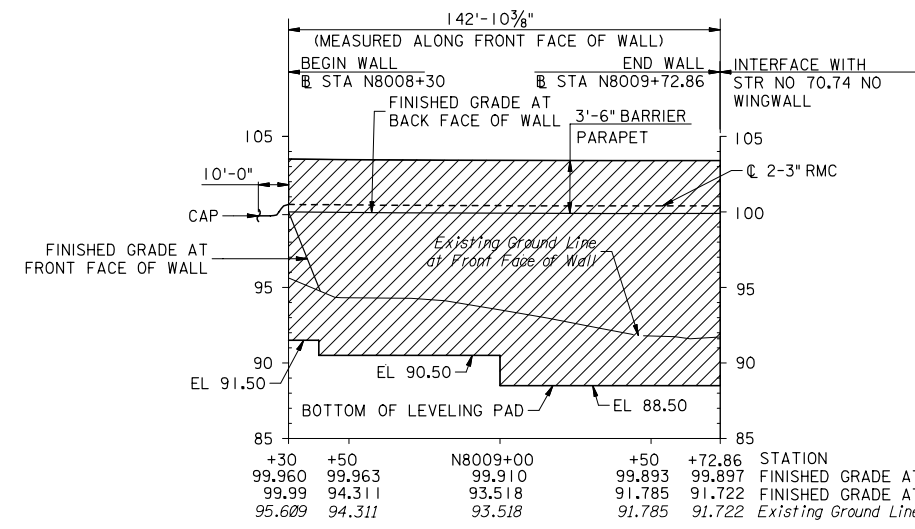
- NOTES:**
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
 - TWO STAGE CONSTRUCTION REQUIRED FOR THE MSE WALL. OPTION SEE DETAIL ON SHEET NO S-95.

WORK ITEMS - WALL NO. 803-2
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY	
		MSE WALL 803-2	RM WALL 803-2
FOUNDATION EXCAVATION	CY	240	240
SELECT BACKFILL	CY	325	190
POROUS FILL	CY	80	150
8" HIGH DENSITY POLYETHYLENE PIPE	LF	145	145
CONCRETE LEVELING PAD	LF	145	145
PRECAST WALL ELEMENT	SF	910	910
CONCRETE IN PARAPET, HPC	CY	25	25
CONCRETE IN COPING, HPC	CY	20	20
CIP MOMENT SLAB	LF	145	145
REINFORCEMENT STEEL, EPOXY COATED	LBS	4,500	4,500
IMPERVIOUS MEMBRANE	SF	1,380	-
CRUSHED STONE	CY	25	-

WALL NO. 803-3
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY	
		MSE WALL 803-3	RM WALL 803-3
FOUNDATION EXCAVATION	CY	75	75
SELECT BACKFILL	CY	460	270
POROUS FILL	CY	110	210
8" HIGH DENSITY POLYETHYLENE PIPE	LF	175	175
CONCRETE LEVELING PAD	LF	175	175
PRECAST WALL ELEMENT	SF	1,005	1,005
CONCRETE IN PARAPET, HPC	CY	30	30
CONCRETE IN COPING, HPC	CY	20	20
CIP MOMENT SLAB	LF	175	175
REINFORCEMENT STEEL, EPOXY COATED	LBS	5,500	5,500
IMPERVIOUS MEMBRANE	SF	1,740	-
CRUSHED STONE	CY	30	-

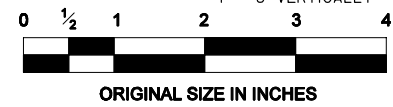


DEVELOPED EAST ELEVATION - RETAINING WALL 803-2

DEVELOPED WEST ELEVATION - RETAINING WALL 803-3

(LOOKING WEST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY

(LOOKING EAST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY



	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY AND NOTE CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALLS NO. 803-2 AND 803-3
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA2799200

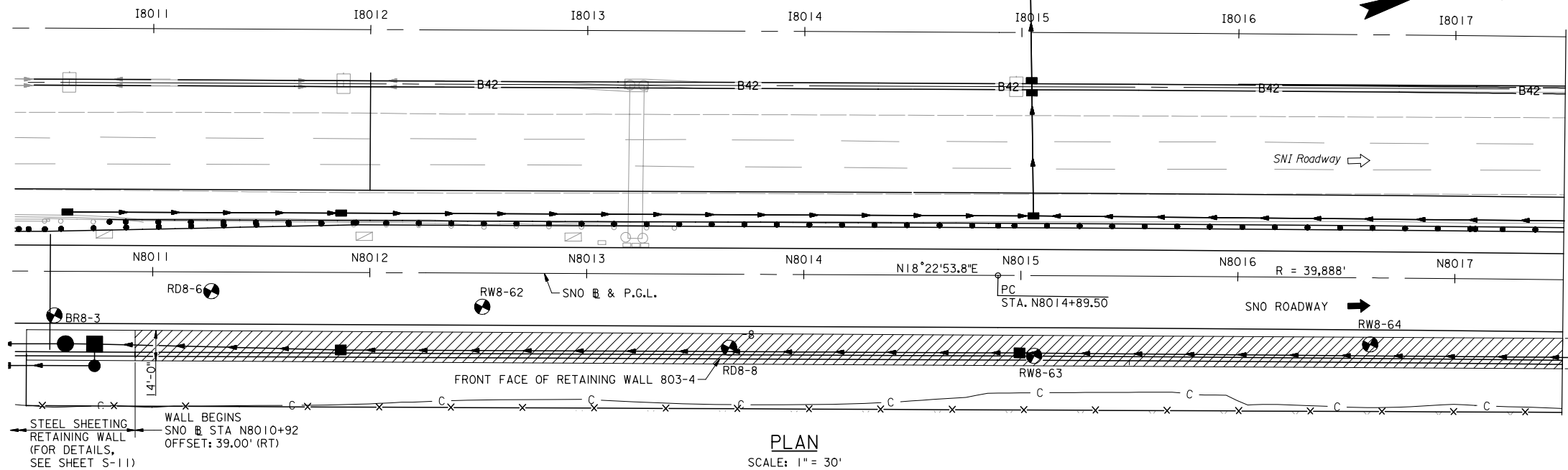
SCALE: 1"=30'
DATE: JAN. 2012

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

1276
2116

FILE NAME: T869-120-803-1276.dgn

ADDENDUM NO. 3, SHEET NO. 12 OF 34

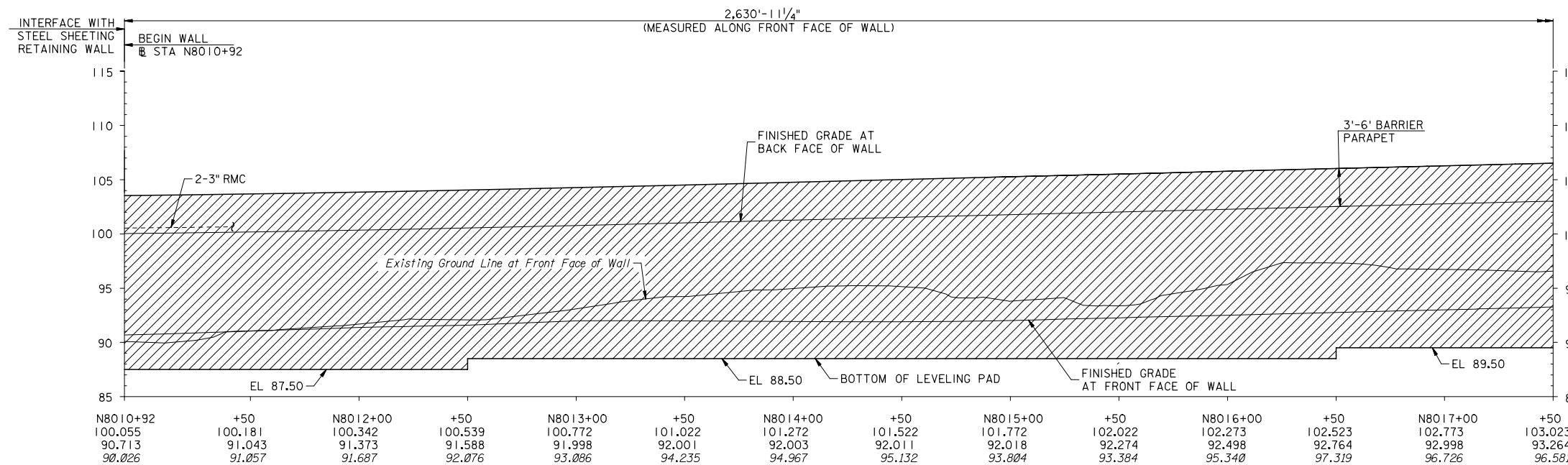


NOTES:

- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
- OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
- FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
- FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
- TWO STAGE CONSTRUCTION REQUIRED FOR THE MSE WALL. SEE DETAIL ON SHEET NO S-95.

WORK ITEMS - WALL NO. 803-4
(FOR INFORMATIONAL PURPOSES ONLY)

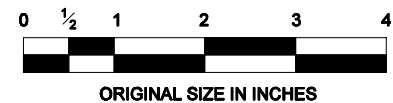
DESCRIPTION	UNIT	QUANTITY
FOUNDATION EXCAVATION	CY	7,105
SELECT BACKFILL	CY	8,610
POROUS FILL	CY	1,900
8" HIGH DENSITY POLYETHYLENE PIPE	LF	2,635
CONCRETE LEVELING PAD	LF	2,635
PRECAST WALL ELEMENT	SF	23,960
CONCRETE IN PARAPET, HPC	CY	445
CONCRETE IN COPING, HPC	CY	285
CIP MOMENT SLAB	LF	2,635
REINFORCEMENT STEEL, EPOXY COATED	LBS	78,900
IMPERVIOUS MEMBRANE	SF	28,660
CRUSHED STONE	CY	520



WORK ITEMS - WALL NO. 803-4
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY
FOUNDATION EXCAVATION	CY	7,105
SELECT BACKFILL	CY	5,160
POROUS FILL	CY	3,630
8" HIGH DENSITY POLYETHYLENE PIPE	LF	2,635
CONCRETE LEVELING PAD	LF	2,635
PRECAST WALL ELEMENT	SF	23,960
CONCRETE IN PARAPET, HPC	CY	445
CONCRETE IN COPING, HPC	CY	285
CIP MOMENT SLAB	LF	2,635
REINFORCEMENT STEEL, EPOXY COATED	LBS	78,900

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY AND NOTE CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-4
PLAN AND ELEVATION - 1

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27992200

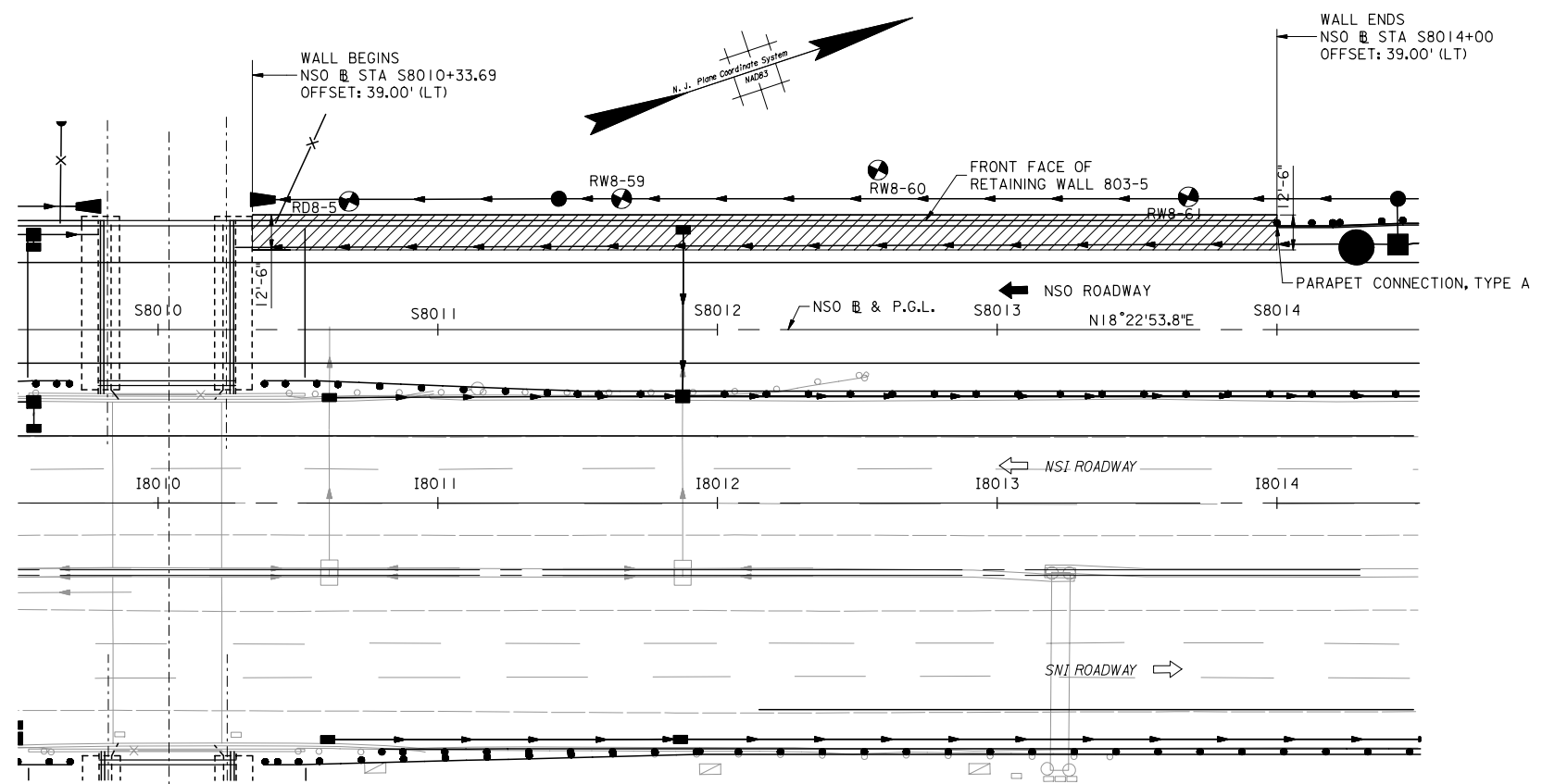
TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1"=30'
 DATE: JAN. 2012

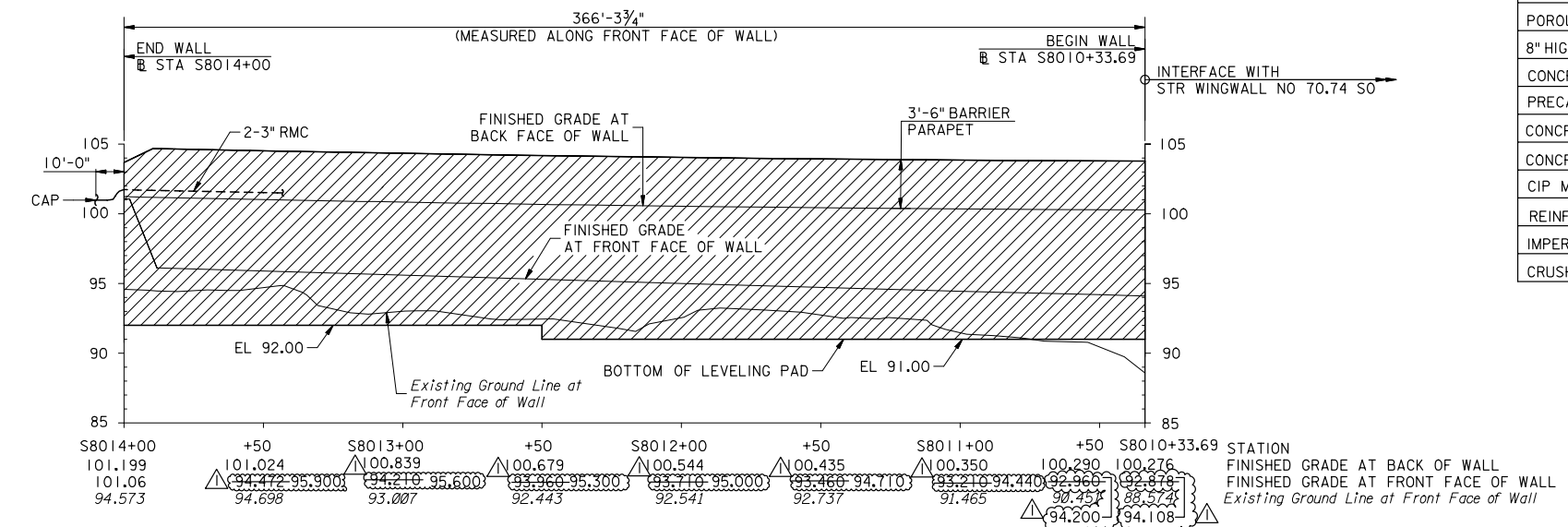
1277
2116

FILE NAME: T869-120-803-1277.dgn

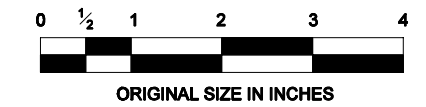
ADDENDUM NO. 3, SHEET NO. 13 OF 34



PLAN
SCALE: 1" = 30'



DEVELOPED WEST ELEVATION
(LOOKING EAST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY



WORK ITEMS - WALL NO. 803-5
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY	QUANTITY
		MSE WALL	PM WALL
FOUNDATION EXCAVATION	CY	155	+155
SELECT BACKFILL	CY	670	-400
POROUS FILL	CY	170	3+0
8" HIGH DENSITY POLYETHYLENE PIPE	LF	370	370
CONCRETE LEVELING PAD	LF	370	370
PRECAST WALL ELEMENT	SF	+1,925	2,695
CONCRETE IN PARAPET, HPC	CY	65	-65
CONCRETE IN COPING, HPC	CY	40	-40
CIP MOMENT SLAB	LF	370	370
REINFORCEMENT STEEL, EPOXY COATED	LBS	11,400	+1,400
IMPERVIOUS MEMBRANE	SF	3,530	-
CRUSHED STONE	CY	50	-

- NOTES:
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
 - TWO STAGE CONSTRUCTION REQUIRED FOR THE MSE WALL. SEE DETAIL ON SHEET NO S-95.

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY, NOTE AND ELEV CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-5
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

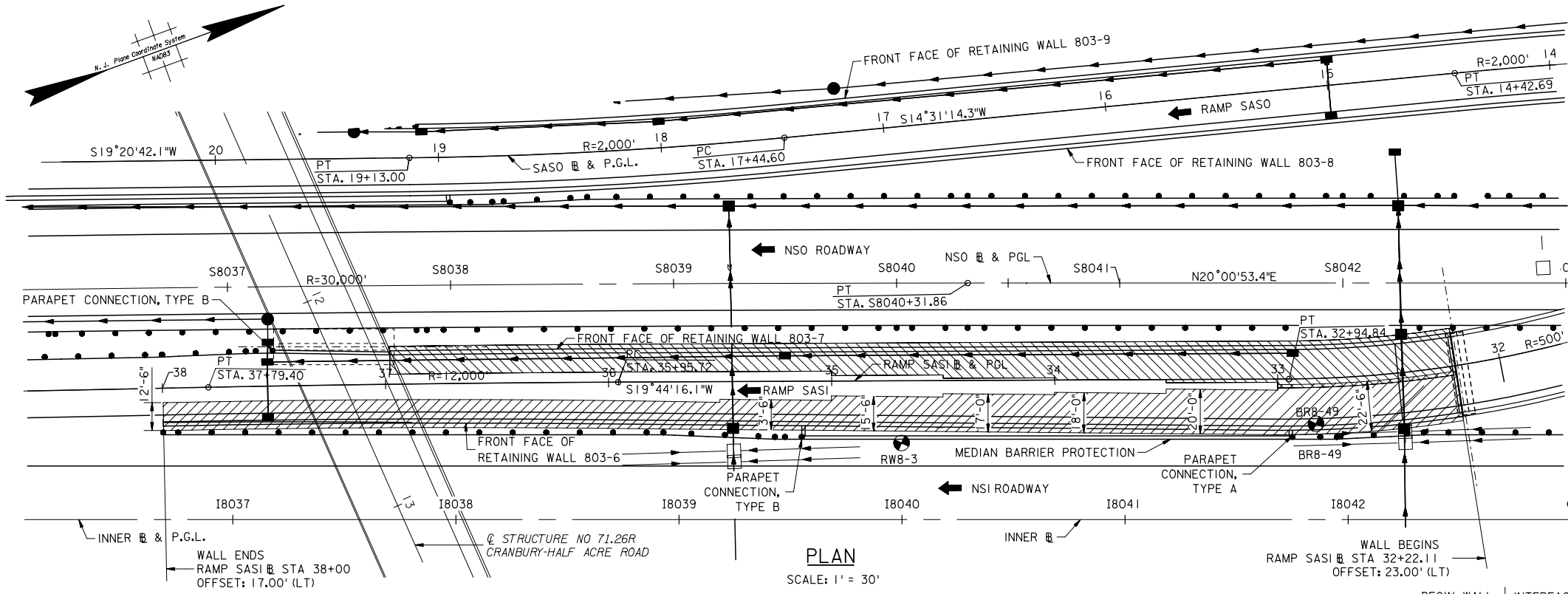
SCALE: 1"=30'
 DATE: JAN. 2012

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

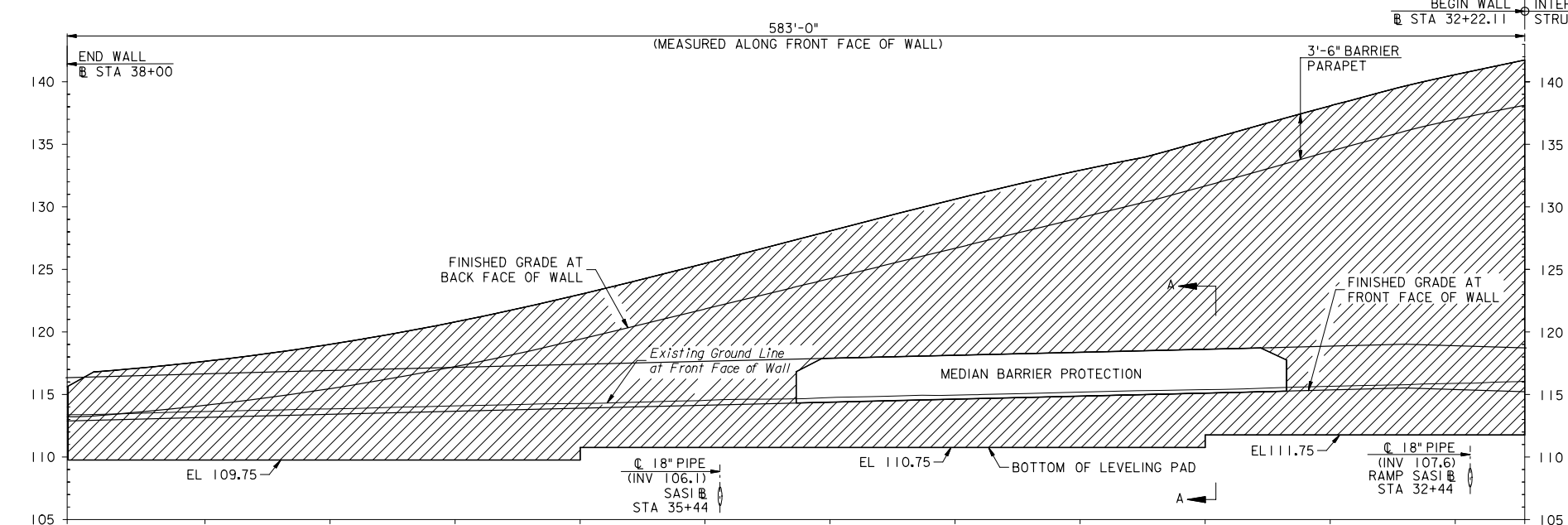
1281
 2116

FILE NAME: T869-120-803-1281.dgn

3-74
 3-138
 ADDENDUM NO. 3, SHEET NO. 14 OF 34



- NOTES:
1. FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 2. OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 3. FOR DETAILS OF BARRIER PARAPET, SEE NJTA STD DWG BR-7.
 4. FOR SECTION A-A, SEE SHEET S-95.



STATION	38+00	+50	37+00	+50	36+00	+50	35+00	+50	34+00	+50	33+00	+50	32+22.11	
FINISHED GRADE AT BACK FACE OF WALL	113.144	113.210	114.125	115.462	117.223	119.406	121.834	124.264	126.693	129.123	131.669	134.458	136.990	138.133
FINISHED GRADE AT FRONT FACE OF WALL	112.846	112.872	113.142	113.406	113.656	113.902	114.142	114.382	114.622	114.862	115.102	115.350	115.394	115.210
Existing Ground Line at Front Face of Wall	113.368	113.369	113.632	113.829	114.081	114.273	114.515	114.745	114.940	115.187	115.384	115.652	115.883	116.060

WORK ITEMS - WALL NO. 803-6 (FOR INFORMATIONAL PURPOSES ONLY)		
DESCRIPTION	UNIT	QUANTITY MSE WALL
FOUNDATION EXCAVATION	CY	1,135
SELECT BACKFILL	CY	3,260
8" HIGH DENSITY POLYETHYLENE PIPE	LF	585
CONCRETE LEVELING PAD	LF	585
PRECAST WALL ELEMENT	SF	5,775 6,680
CONCRETE IN PARAPET, HPC	CY	100
CONCRETE IN COPING, HPC	CY	65
CIP MOMENT SLAB	LF	585
REINFORCEMENT STEEL, EPOXY COATED	LBS	17,800
IMPERVIOUS MEMBRANE	SF	7,770 7,475

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

**RETAINING WALL NO. 803-6
 PLAN AND ELEVATION**

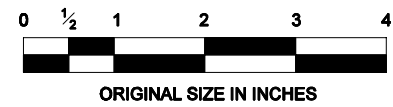
JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

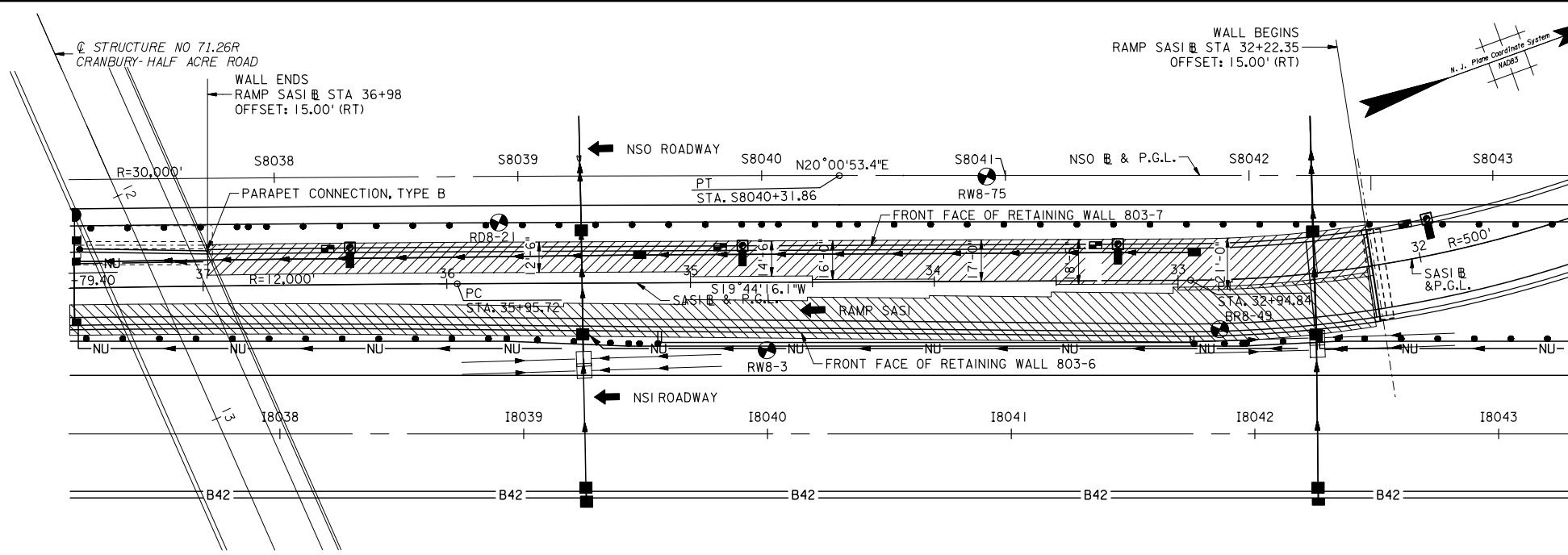
SCALE: 1"=30'
 DATE: JAN. 2012

1282
 2116

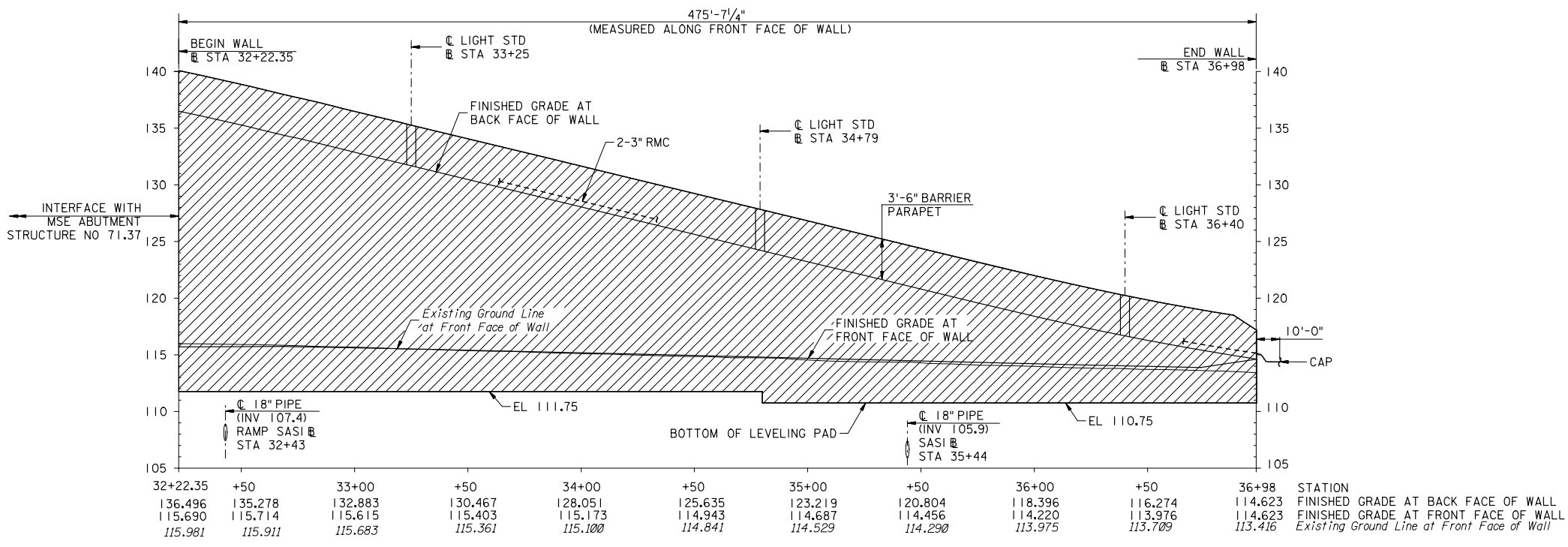
	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY AND ELEVATION CHANGE



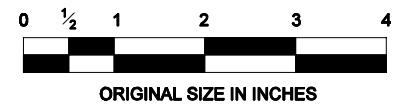
- NOTES:**
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-14.
 - FOR DETAILS OF LIGHT STANDARD ON BARRIER PARAPET, SEE NJTA STD DWG BR-15.
 - FOR APPROACH SLAB DETAILS, SEE STRUCTURE NO 71.37 AND NJTA STD DWG BR-6.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.



WORK ITEMS - WALL NO. 803-7
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY
FOUNDATION EXCAVATION	CY	785
SELECT BACKFILL	CY	2,505
8" HIGH DENSITY POLYETHYLENE PIPE	LF	480
CONCRETE LEVELING PAD	LF	480
PRECAST WALL ELEMENT	SF	4,935 5,680
CONCRETE IN PARAPET, HPC	CY	80
CONCRETE IN COPING, HPC	CY	55
CIP MOMENT SLAB	LF	480
REINFORCEMENT STEEL, EPOXY COATED	LBS	14,400
IMPERVIOUS MEMBRANE	SF	5,725 6,045

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-7
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

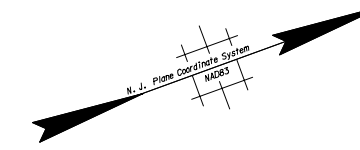
TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

SCALE: 1"=30'
 DATE: JAN. 2012

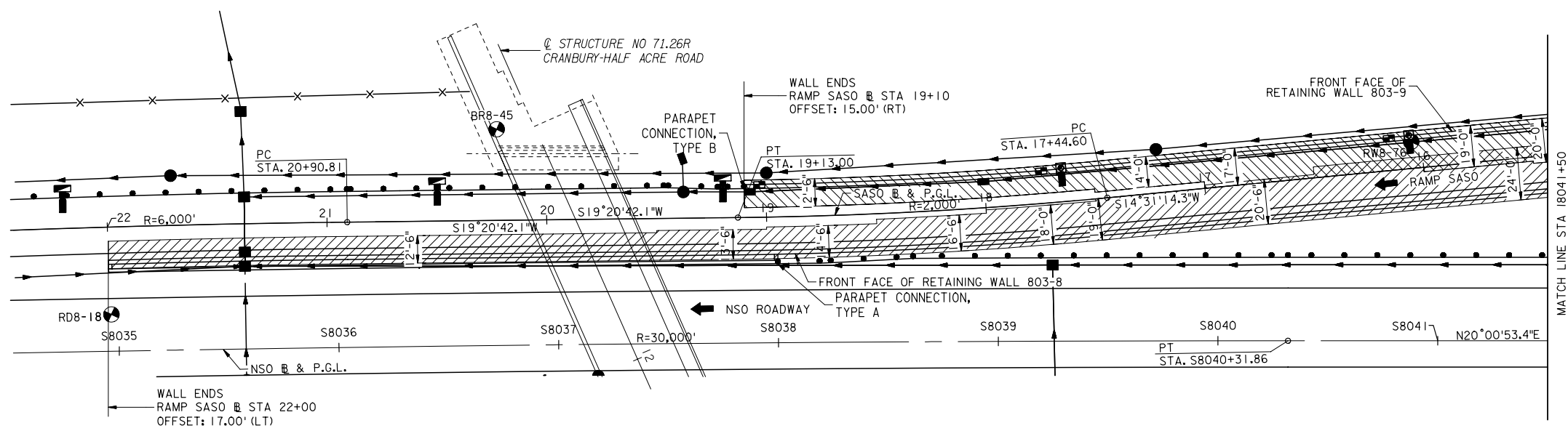
1283
2116

FILE NAME: T869-120-803-1283.dgn

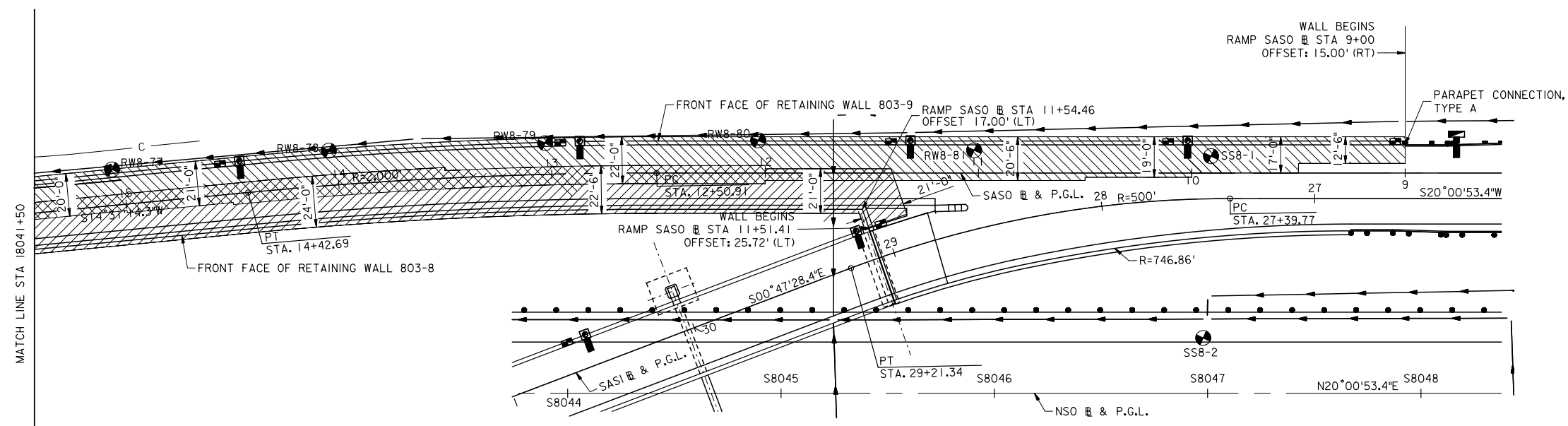
ADDENDUM NO. 3, SHEET NO. 16 OF 34



- NOTES:**
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-14.
 - FOR DETAILS OF LIGHT STANDARD ON BARRIER PARAPET, SEE NJTA STD DWG BR-15.
 - FOR APPROACH SLAB DETAILS, SEE STRUCTURE NO 71.37 AND NJTA STD DWG BR-6.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.



PLAN
SCALE: 1" = 30'

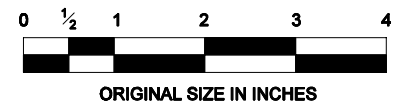


PLAN
SCALE: 1" = 30'

WORK ITEMS - WALL NO. 803-8 AND WALL NO. 803-9 (FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY	
		MSE WALL 803-8	MSE WALL 803-9
FOUNDATION EXCAVATION	CY	4,595	890
SELECT BACKFILL	CY	10,410	6,915
8" HIGH DENSITY POLYETHYLENE PIPE	LF	1,055 + 1,060	1,015
CONCRETE LEVELING PAD	LF	1,055 + 1,060	1,015
PRECAST WALL ELEMENT	SF	18,595 + 16,670	16,290 + 16,050
CONCRETE IN PARAPET, HPC	CY	180	170
CONCRETE IN COPING, HPC	CY	115	110
CIP MOMENT SLAB	LF	1,055 + 1,060	1,015
REINFORCEMENT STEEL, EPOXY COATED	LBS	32,000 + 32,100	30,700
IMPERVIOUS MEMBRANE	SF	14,130 + 15,850	14,360 + 14,185

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALLS NO. 803-8 AND 803-9
PLAN

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

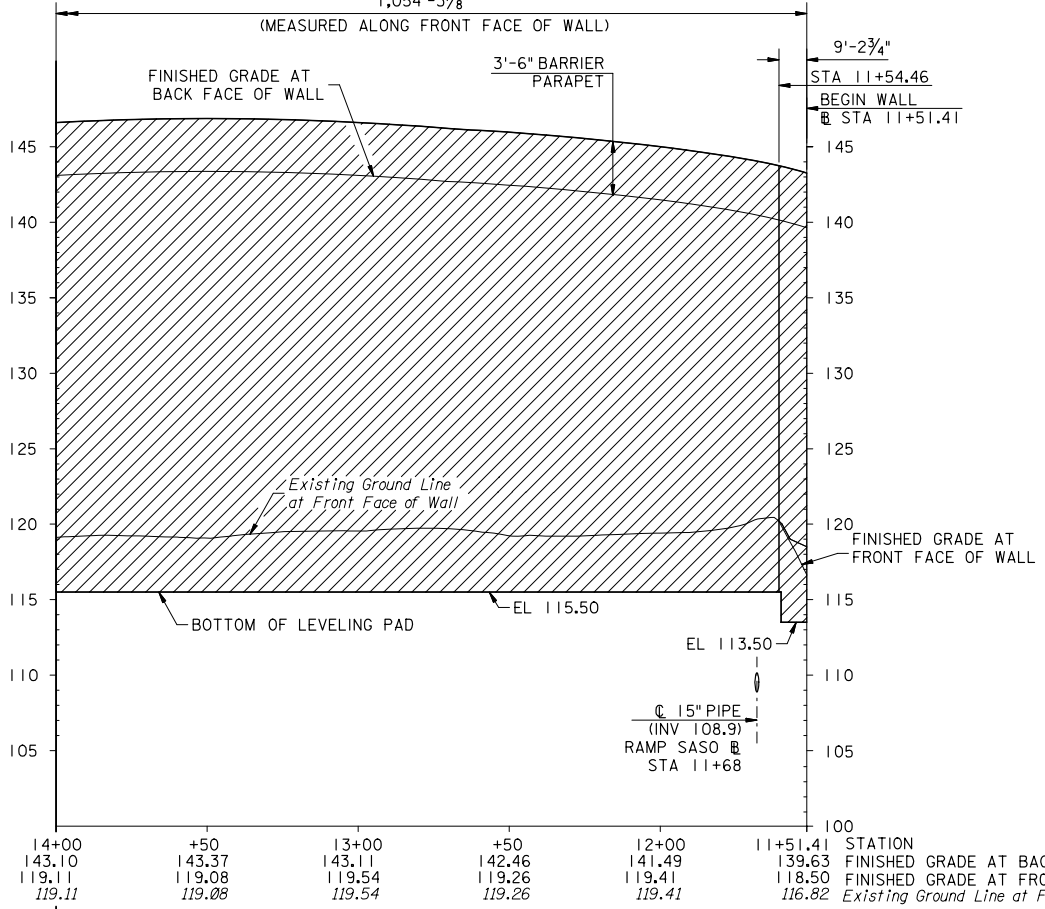
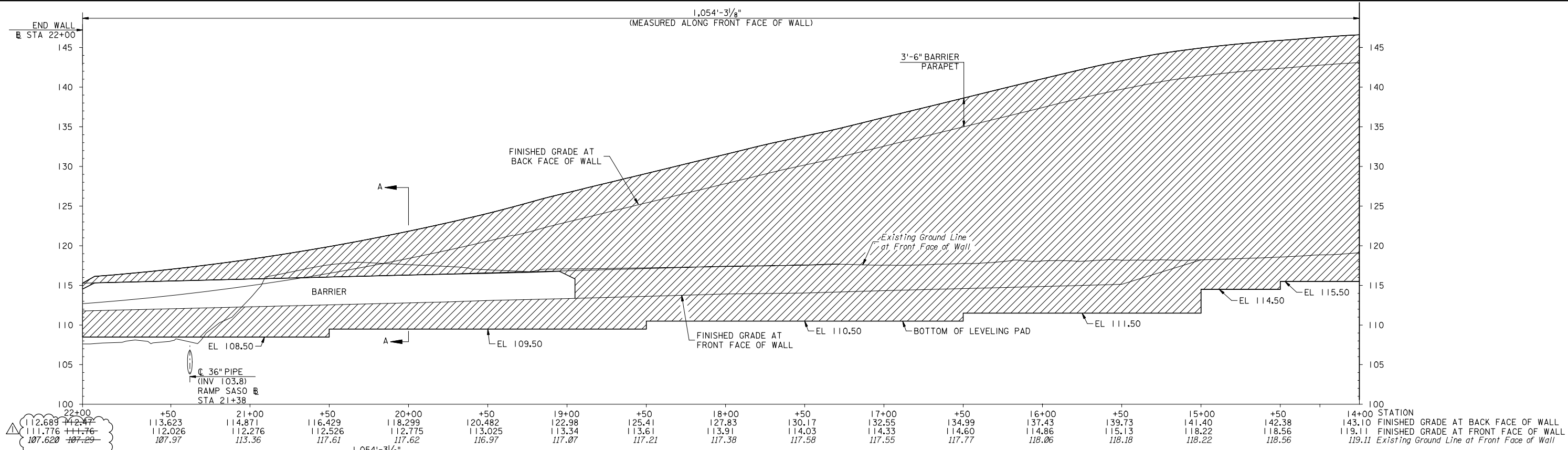
SCALE: 1"=30'
DATE: JAN. 2012

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

1284
2116

FILE NAME: T869-120-803-1284.dgn

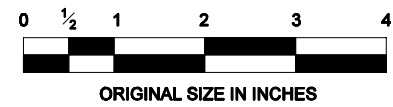
ADDENDUM NO. 3, SHEET NO. 17 OF 34



DEVELOPED EAST ELEVATION
(LOOKING WEST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY

NOTE:
1. FOR SECTION A-A, SEE SHEET S-95.

BY	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- ELEVATION CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-8
ELEVATION

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27992200

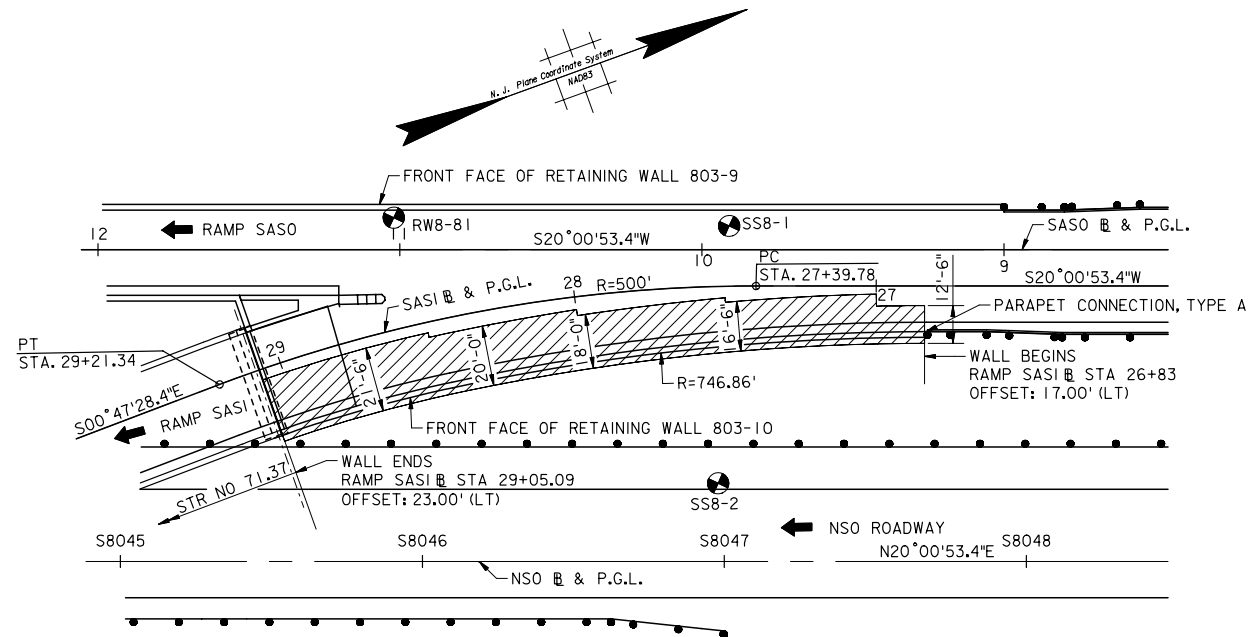
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1"=30'
DATE: JAN. 2012

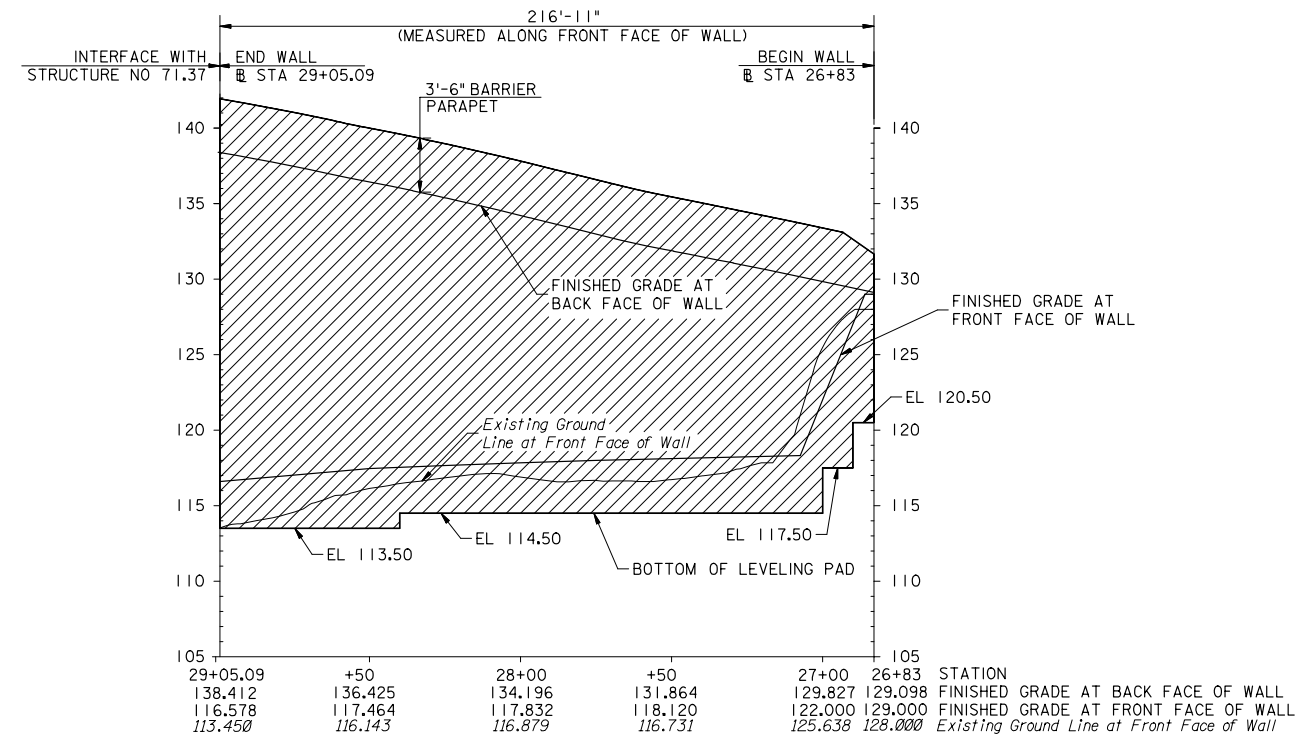
2116

FILE NAME: T869-120-803-1285.dgn

ADDENDUM NO. 3, SHEET NO. 16 OF 34



- NOTES:
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR APPROACH SLAB DETAILS, SEE STRUCTURE NO 71.37 DRAWINGS (S-20 THRU 39) AND NJTA STD DWG BR-6.



WORK ITEMS - WALL NO. 803-10
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY
FOUNDATION EXCAVATION	CY	435
SELECT BACKFILL	CY	1,940
POROUS FILL	CY	275
8" HIGH DENSITY POLYETHYLENE PIPE	LF	220
CONCRETE LEVELING PAD	LF	220
PRECAST WALL ELEMENT	SF	3,215 3,745
CONCRETE IN PARAPET, HPC	CY	40
CONCRETE IN COPING, HPC	CY	25
CIP MOMENT SLAB	LF	220
REINFORCEMENT STEEL, EPOXY COATED	LBS	6,800
IMPERVIOUS MEMBRANE	SF	3,490

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-10
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27992200

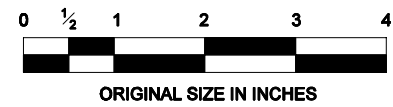
SCALE: 1"=30'
DATE: JAN. 2012

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

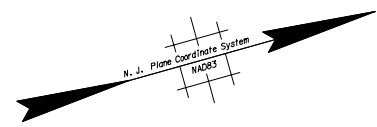
2/9/12 ADDENDUM 3- QUANTITY CHANGE

1287
2116

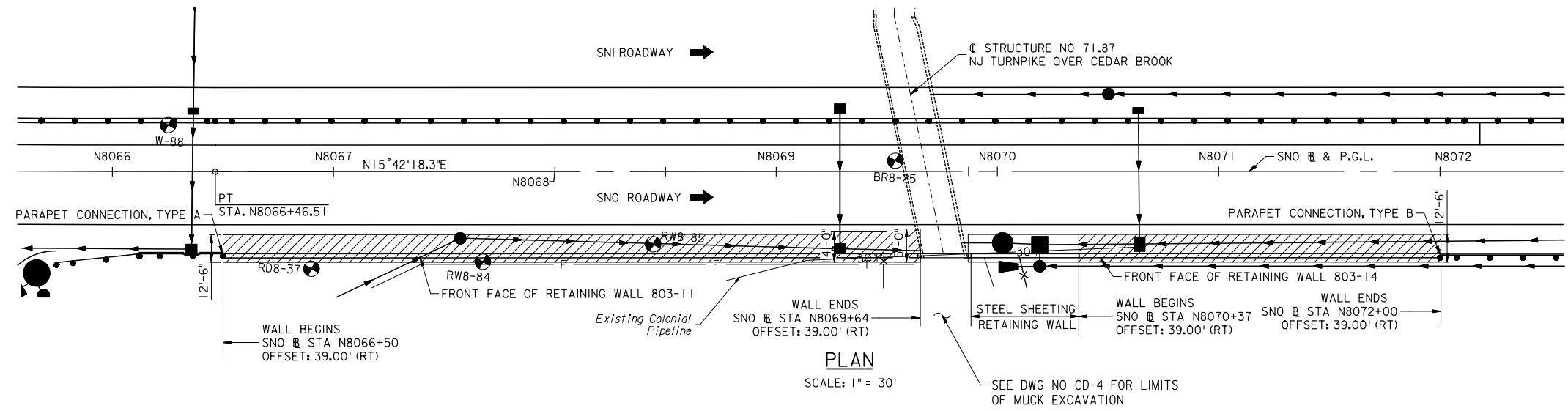
	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE



- NOTES:**
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF STRUCTURE NO 71.87 AND OF STEEL SHEETING RETAINING WALL, SEE SHEETS S-40 THRU S-44

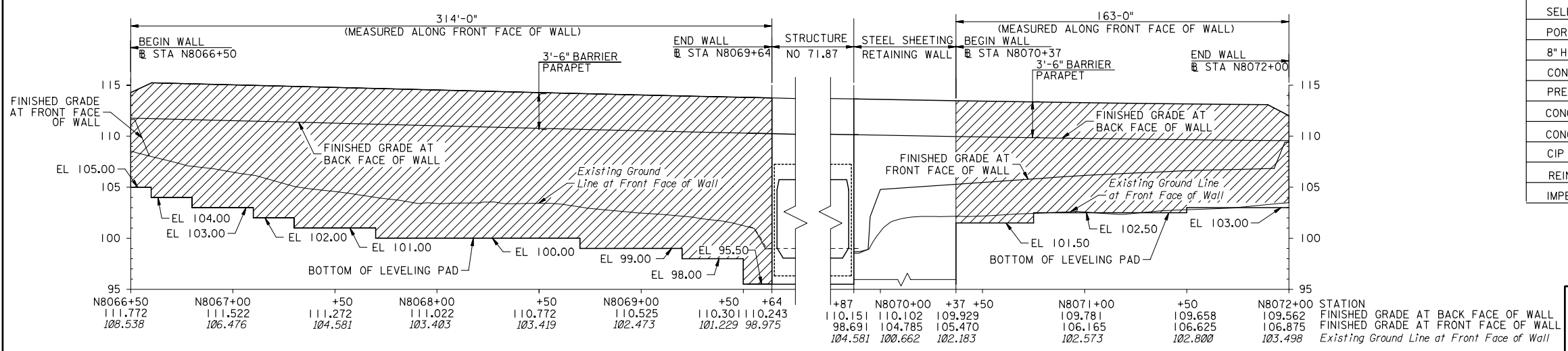


WORK ITEMS - WALL NO. 803-11
(FOR INFORMATIONAL PURPOSES ONLY)

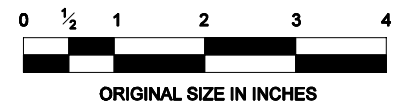
DESCRIPTION	UNIT	QUANTITY	
		MSE WALL 803-11	PM WALL 803-11
FOUNDATION EXCAVATION	CY	545	545
SELECT BACKFILL	CY	775	460
POROUS FILL	CY	190	350
8" HIGH DENSITY POLYETHYLENE PIPE	LF	315	315
CONCRETE LEVELING PAD	LF	315	△ 315 630
PRECAST WALL ELEMENT	SF	△ 2,190 2,645	2,190 2,645
CONCRETE IN PARAPET, HPC	CY	55	55
CONCRETE IN COPING, HPC	CY	35	35
CIP MOMENT SLAB	LF	315	315
REINFORCEMENT STEEL, EPOXY COATED	LBS	△ 6,700 9,600	6,700 9,600
IMPERVIOUS MEMBRANE	SF	△ 2,735 3,100	-

WALL NO. 803-14
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY	
		MSE WALL 803-14	PM WALL 803-14
FOUNDATION EXCAVATION	CY	10	10
SELECT BACKFILL	CY	△ 220 215	130 120
POROUS FILL	CY	55	100
8" HIGH DENSITY POLYETHYLENE PIPE	LF	△ 170 165	170 165
CONCRETE LEVELING PAD	LF	△ 170 165	170 330
PRECAST WALL ELEMENT	SF	△ 580 875	580 875
CONCRETE IN PARAPET, HPC	CY	30	30
CONCRETE IN COPING, HPC	CY	20	20
CIP MOMENT SLAB	LF	△ 170 165	170 165
REINFORCEMENT STEEL, EPOXY COATED	LBS	5,400	5,400
IMPERVIOUS MEMBRANE	SF	1,620	-



DEVELOPED ELEVATION - RETAINING WALLS 803-11 AND 803-14
(LOOKING WEST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY



	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
△	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALLS NO. 803-11 AND 803-14
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

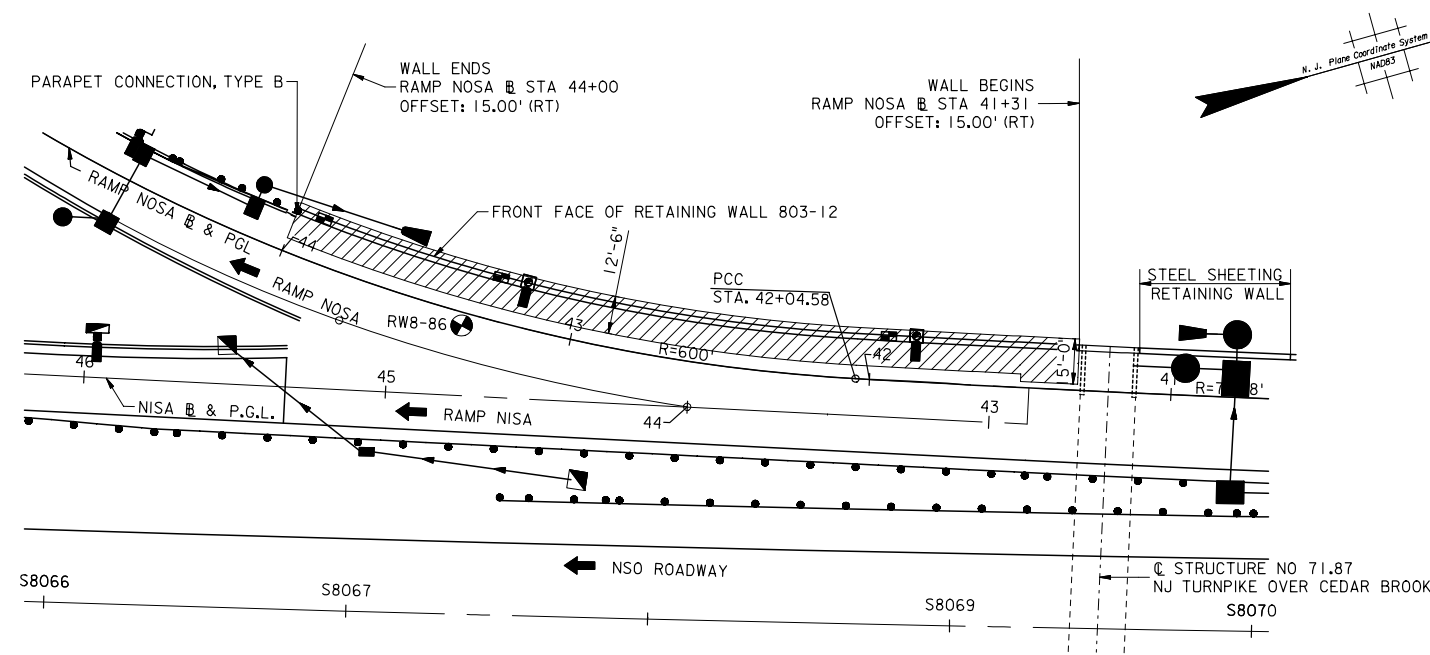
SCALE: 1" = 30'
DATE: JAN. 2012

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

1288
2116

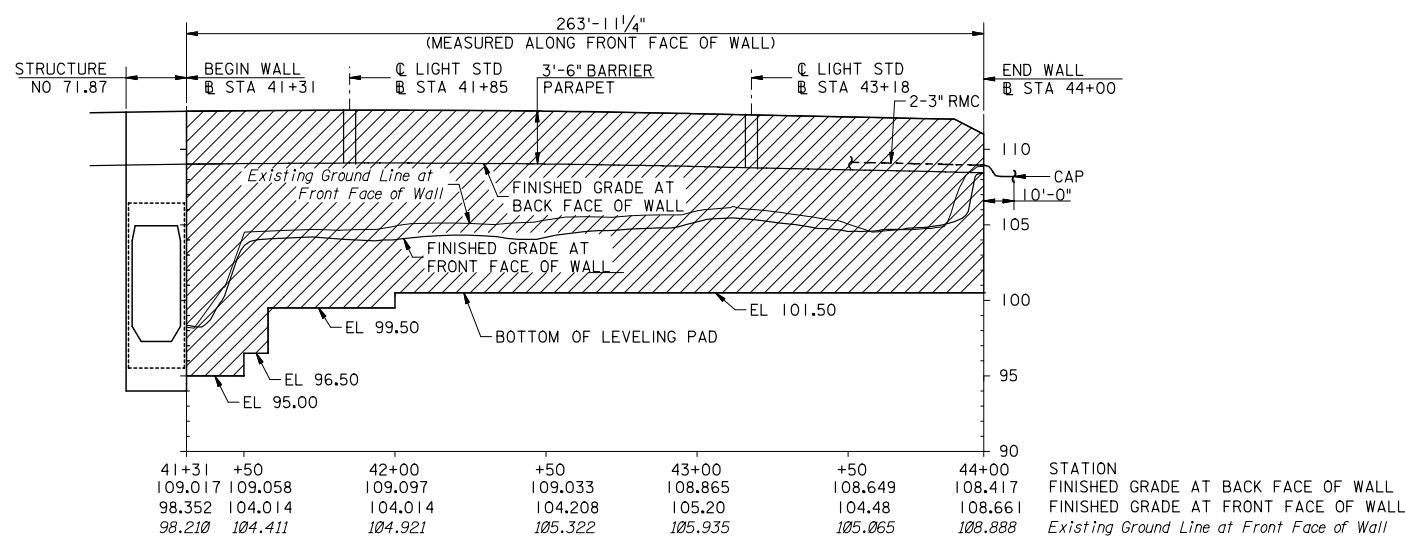
ADDENDUM NO. 3, SHEET NO. 20 OF 34

FILE NAME: T869-803-1288.dgn

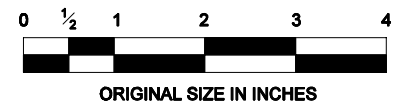


PLAN
SCALE: 1" = 30'

- NOTES:
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-14.
 - FOR DETAILS OF LIGHT STANDARD AT BARRIER, SEE NJTA STD DWG BR-15.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
 - FOR DETAILS OF STRUCTURE NO 71.89, SEE SHEETS S-40 THRU S-44.



DEVELOPED WEST ELEVATION
(LOOKING EAST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY



WORK ITEMS - WALL NO. 803-12 (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	QUANTITY	QUANTITY
		MSE WALL	PM WALL
FOUNDATION EXCAVATION	CY	605	605
SELECT BACKFILL	CY	345	200
POROUS FILL	CY	85	160
8" HIGH DENSITY POLYETHYLENE PIPE	LF	265	265
CONCRETE LEVELING PAD	LF	265	265-530
PRECAST WALL ELEMENT	SF	2,165-1,760	2,165-1,760
CONCRETE IN PARAPET, HPC	CY	45	45
CONCRETE IN COPING, HPC	CY	30	30
CIP MOMENT SLAB	LF	265	265
REINFORCEMENT STEEL, EPOXY COATED	LBS	8,200	8,200
IMPERVIOUS MEMBRANE	SF	2,400-2,595	-

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-12
PLAN AND ELEVATION

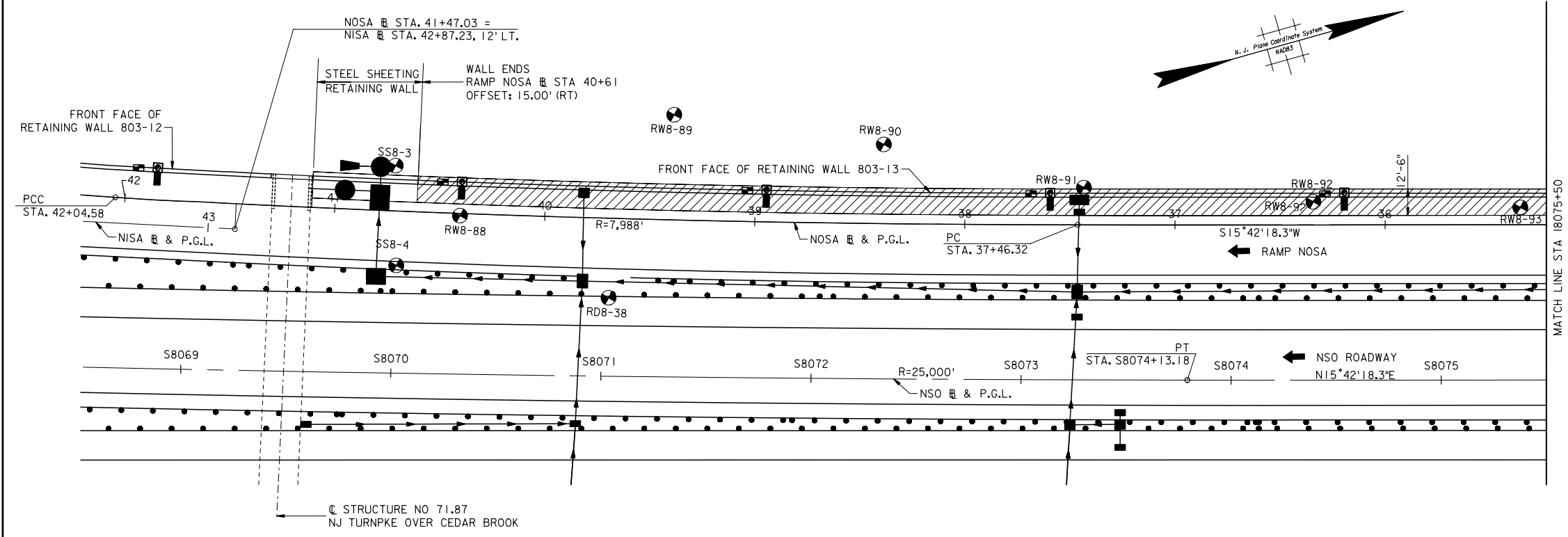
JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200
SCALE: 1"=30'
DATE: JAN. 2012
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

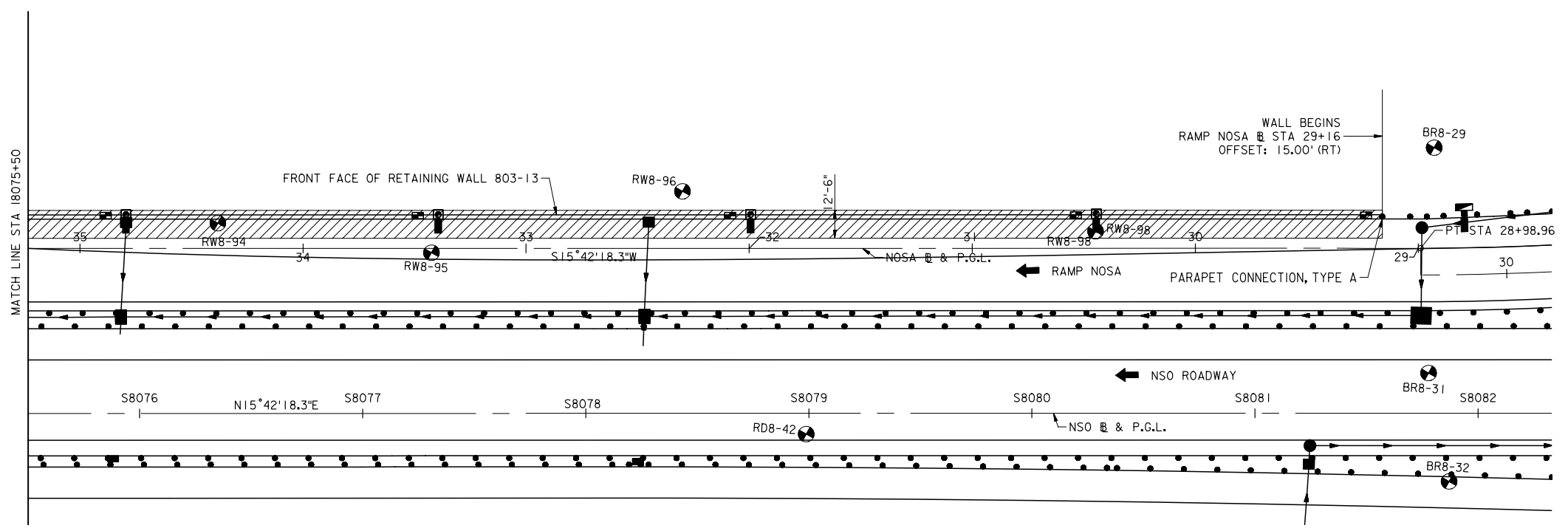
No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

3-82
3-138

ADDENDUM NO. 3, SHEET NO. 21 OF 34



- NOTES:**
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-14.
 - FOR DETAILS OF LIGHT STANDARD AT BARRIER, SEE NJTA STD DWG BR-15.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
 - FOR DETAILS OF STRUCTURE NO 71.87 AND OF STEEL SHEETING RETAINING WALL, SEE SHEETS S-40 THRU S-44.



WORK ITEMS - WALL NO. 803-13
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY	
		MSE WALL	PM WALL
FOUNDATION EXCAVATION	CY	1,735	1,735
SELECT BACKFILL	CY	2,020	1,210
POROUS FILL	CY	495	900
8" HIGH DENSITY POLYETHYLENE PIPE	LF	1,145	-
CONCRETE LEVELING PAD	LF	1,145	1,145
PRECAST WALL ELEMENT	SF	5,980	8,245
CONCRETE IN PARAPET, HPC	CY	195	195
CONCRETE IN COPING, HPC	CY	125	125
CIP MOMENT SLAB	LF	1,145	1,145
REINFORCEMENT STEEL, EPOXY COATED	LBS	34,600	34,600
IMPERVIOUS MEMBRANE	SF	11,035	-
2' X 2' STONE POCKET, 4" PVC, GEOTEXTILE FILTER FABRIC	EA	-	115

PLAN
SCALE: 1" = 30'



	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-13
PLAN

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27690200

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1"=30'
DATE: JAN. 2012

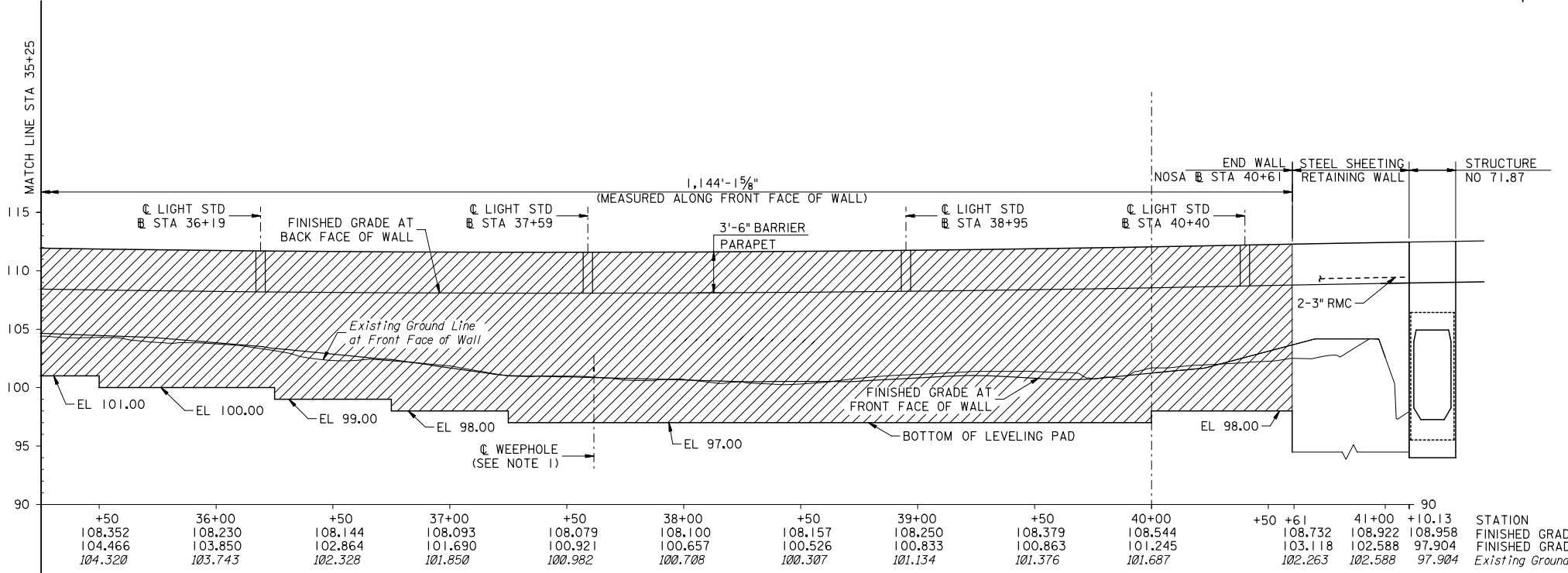
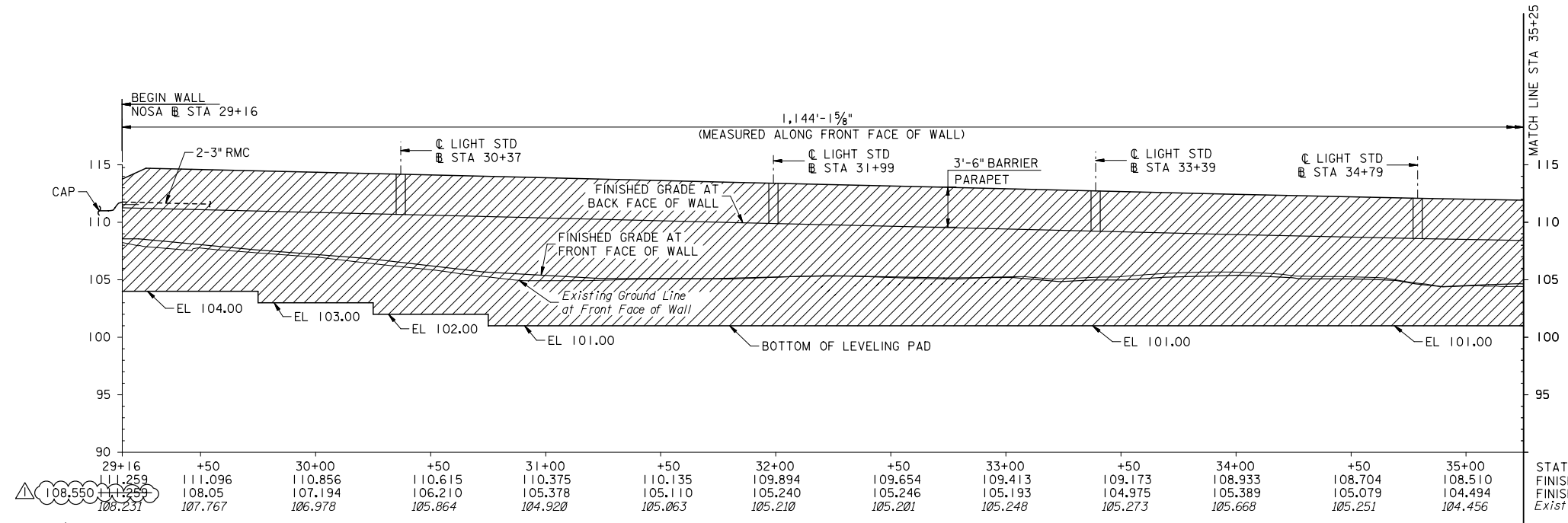
1290
2116

FILE NAME: T869-120-803-1290.dgn

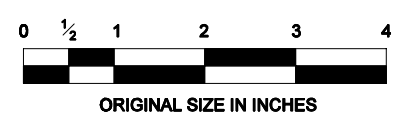
ADDENDUM NO. 3, SHEET NO. 22 OF 34

NOTES:

1. PLACE WEEPHOLES AT 10' MAX SPACING AND APPROX 6" ABOVE FINISHED GRADE (PM WALL ONLY).
2. FOR DETAILS OF STRUCTURE NO 71.87 AND OF STEEL SHEETING RETAINING WALL, SEE SHEETS S-40 THRU S-44.



DEVELOPED WEST ELEVATION
(LOOKING EAST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY



	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- ELEVATION CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-13
ELEVATION

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

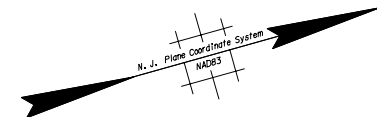
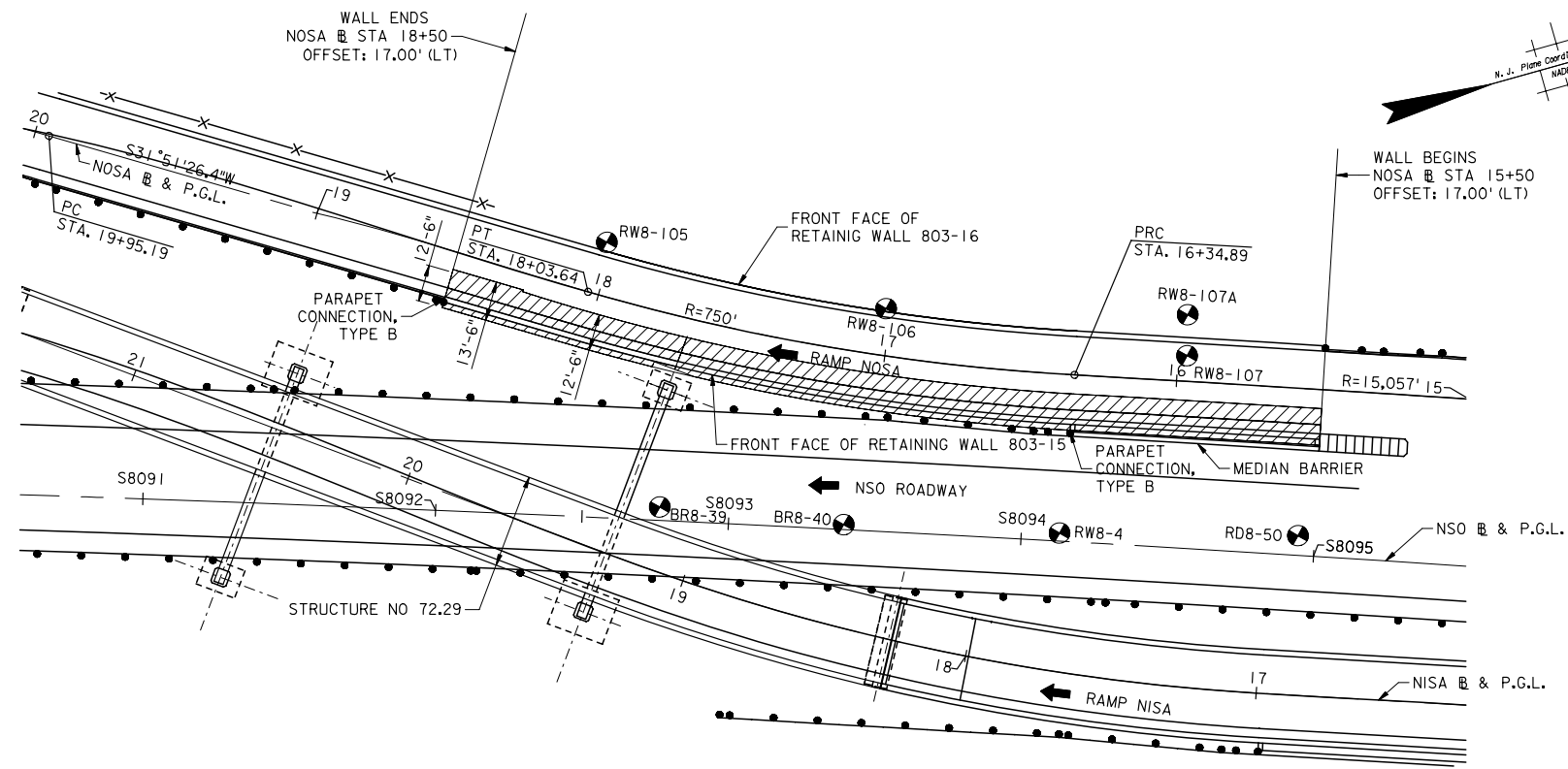
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1"=30'
DATE: JAN. 2012

1291
2116

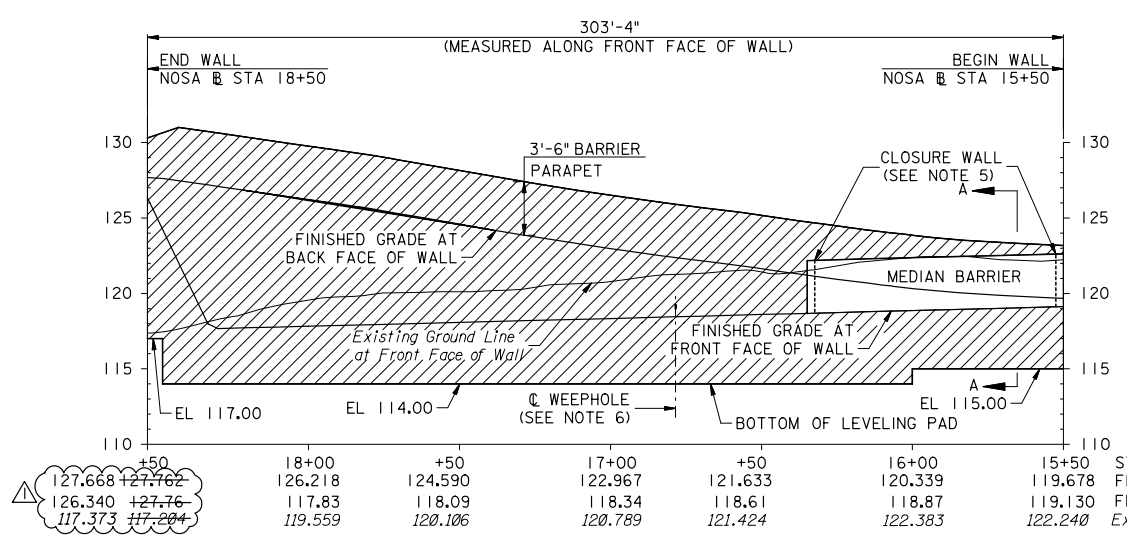
FILE NAME: T869-120-803-1291.dgn

ADDENDUM NO. 3, SHEET NO. 23 OF 34



- NOTES:**
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR SECTION A-A, SEE SHEET S-95.
 - FOR DETAILS OF CLOSURE WALLS AT END OF MEDIAN BARRIER, SEE SHEET S-95.
 - PLACE WEEPHOLES AT 10' MAX SPACING AND APPROX 6" ABOVE FINISHED GRADE (PM WALL ONLY).
 - FOR INFORMATION PERTAINING TO STRUCTURE NO 72.29, SEE SHEETS S-46 THRU S-65.

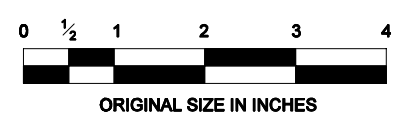
PLAN
SCALE: 1" = 30'



DEVELOPED EAST ELEVATION
(LOOKING WEST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6" VERTICALLY

WORK ITEMS - WALL NO. 803-15
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY	
		MSE WALL	PM WALL
FOUNDATION EXCAVATION	CY	565	565
SELECT BACKFILL	CY	535	320
POROUS FILL	CY	120	230
8" HIGH DENSITY POLYETHYLENE PIPE	LF	305	-
CONCRETE LEVELING PAD	LF	305	305
PRECAST WALL ELEMENT	SF	1,265	2,105
CONCRETE IN PARAPET, HPC	CY	55	55
CONCRETE IN COPING, HPC	CY	35	35
CIP MOMENT SLAB	LF	305	305
REINFORCEMENT STEEL, EPOXY COATED	LBS	23,100	9,300
IMPERVIOUS MEMBRANE	SF	2,650	2,955
2' X 2' STONE POCKET, 4" PVC, GEOTEXTILE FILTER FABRIC	EA	-	31



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY AND ELEVATION CHANGE

	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-15
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1"=30'
 DATE: JAN. 2012

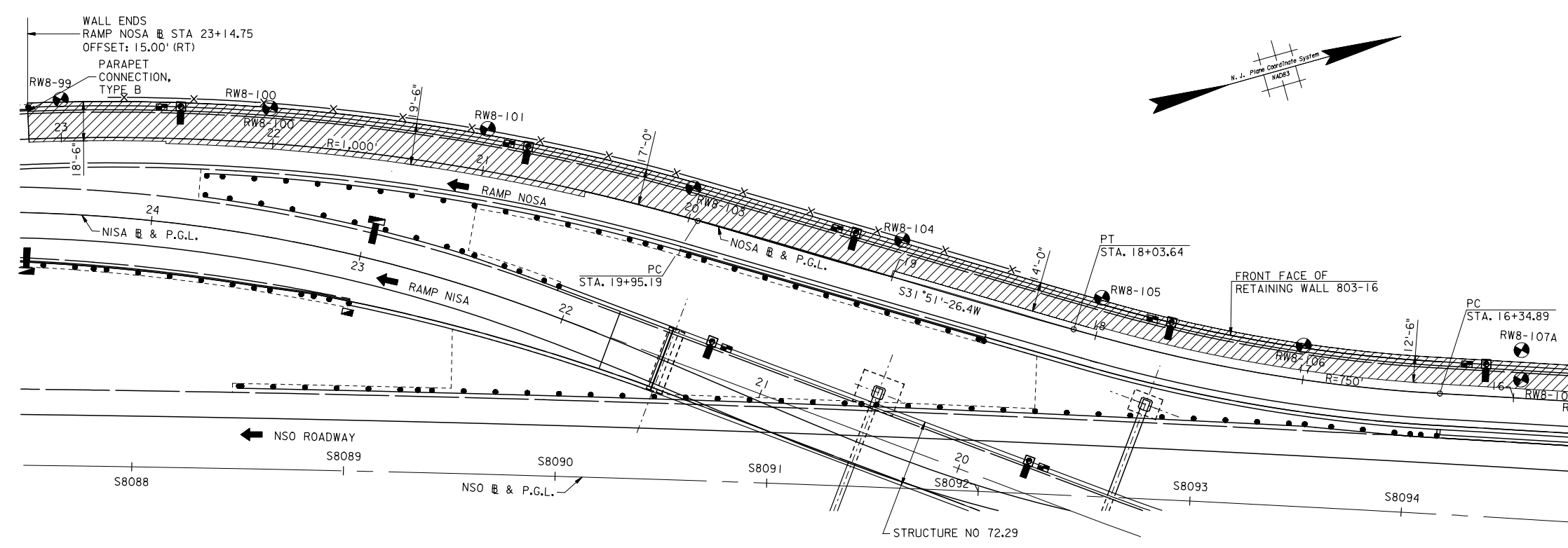
1292
2116

FILE NAME: T869-120-803-1292.dgn

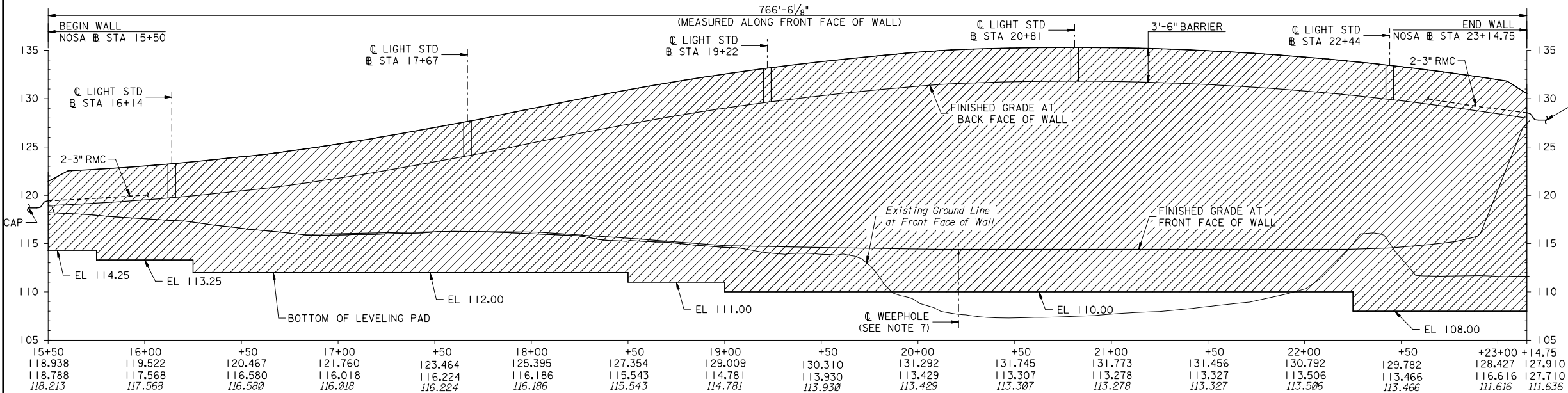
S-95
S-138

ADDENDUM NO. 3, SHEET NO. 24 OF 34

WORK ITEMS - WALL NO. 803-16 (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	QUANTITY MSE WALL	QUANTITY PM WALL
FOUNDATION EXCAVATION	CY	1,070	1,070
SELECT BACKFILL	CY	4,245	2,540
POROUS FILL	CY	675	1,530
8" HIGH DENSITY POLYETHYLENE PIPE	LF	770	-
CONCRETE LEVELING PAD	LF	770	770, 1,540
PRECAST WALL ELEMENT	SF	9,345, 11,125	9,345, 11,125
CONCRETE IN PARAPET, HPC	CY	130	130
CONCRETE IN COPING, HPC	CY	85	85
CIP MOMENT SLAB	LF	770	770
REINFORCEMENT STEEL, EPOXY COATED	LBS	23,400	23,400
IMPERVIOUS MEMBRANE	SF	6,899, 12,900	-
2' X 2' STONE POCKET, 4" PVC GEOTEXTILE FILTER FABRIC	EA	-	77



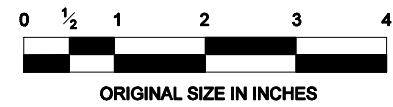
PLAN
SCALE: 1" = 30'



DEVELOPED WEST ELEVATION
(LOOKING EAST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY

- NOTES:
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-14.
 - FOR DETAILS OF LIGHT STANDARD AT BARRIER, SEE NJTA STD DWG BR-15.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
 - PLACE WEEPHOLES AT 10' MAX SPACING AND APPROX 6" ABOVE FINISHE GRADE (PM WALL ONLY).

	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

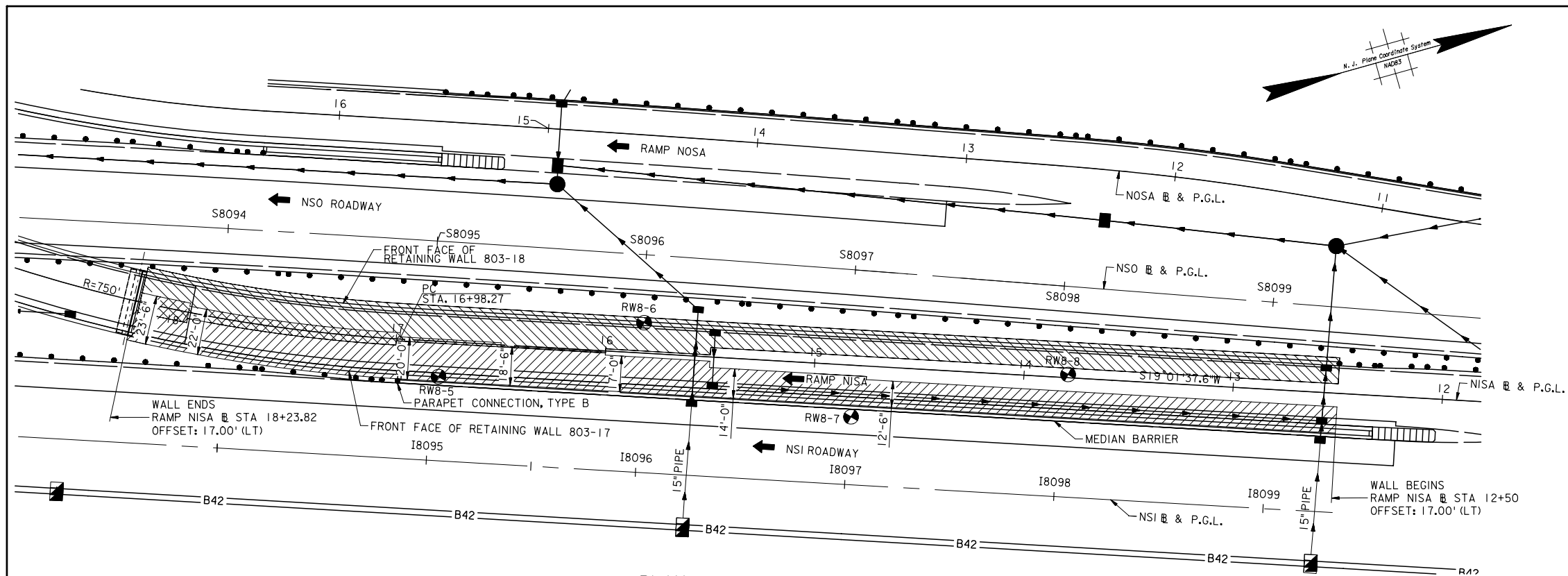
RETAINING WALL NO. 803-16
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: 1"=30'
 DATE: JAN. 2012

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE022832200

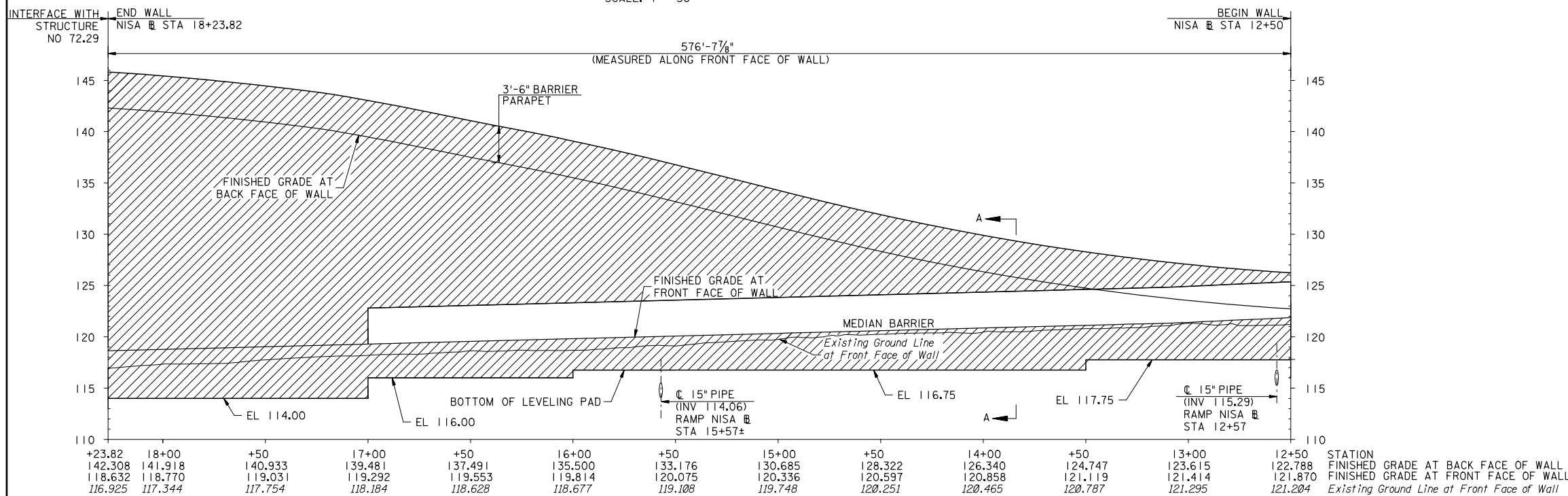
1293
2116



PLAN
SCALE: 1" = 30'

NOTES:

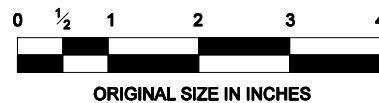
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
- OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
- FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
- FOR SECTION A-A, SEE SHEET S-95.
- FOR INFORMATION PERTAINING TO STRUCTURE NO 72.29, SEE SHEETS S-46 THRU S-65.



DEVELOPED EAST ELEVATION
(LOOKING WEST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY

WORK ITEMS - WALL NO. 803-17 (FOR INFORMATIONAL PURPOSES ONLY)		
DESCRIPTION	UNIT	QUANTITY MSE WALL
FOUNDATION EXCAVATION	CY	4,370 1,360
SELECT BACKFILL	CY	4,605 4,563
8" HIGH DENSITY POLYETHYLENE PIPE	LF	580
CONCRETE LEVELING PAD	LF	580
PRECAST WALL ELEMENT	SF	7,080 8,360
CONCRETE IN PARAPET, HPC	CY	100
CONCRETE IN COPING, HPC	CY	65
CIP MOMENT SLAB	LF	580
REINFORCEMENT STEEL, EPOXY COATED	LBS	26,600
IMPERVIOUS MEMBRANE	SF	6,890 7,865

	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

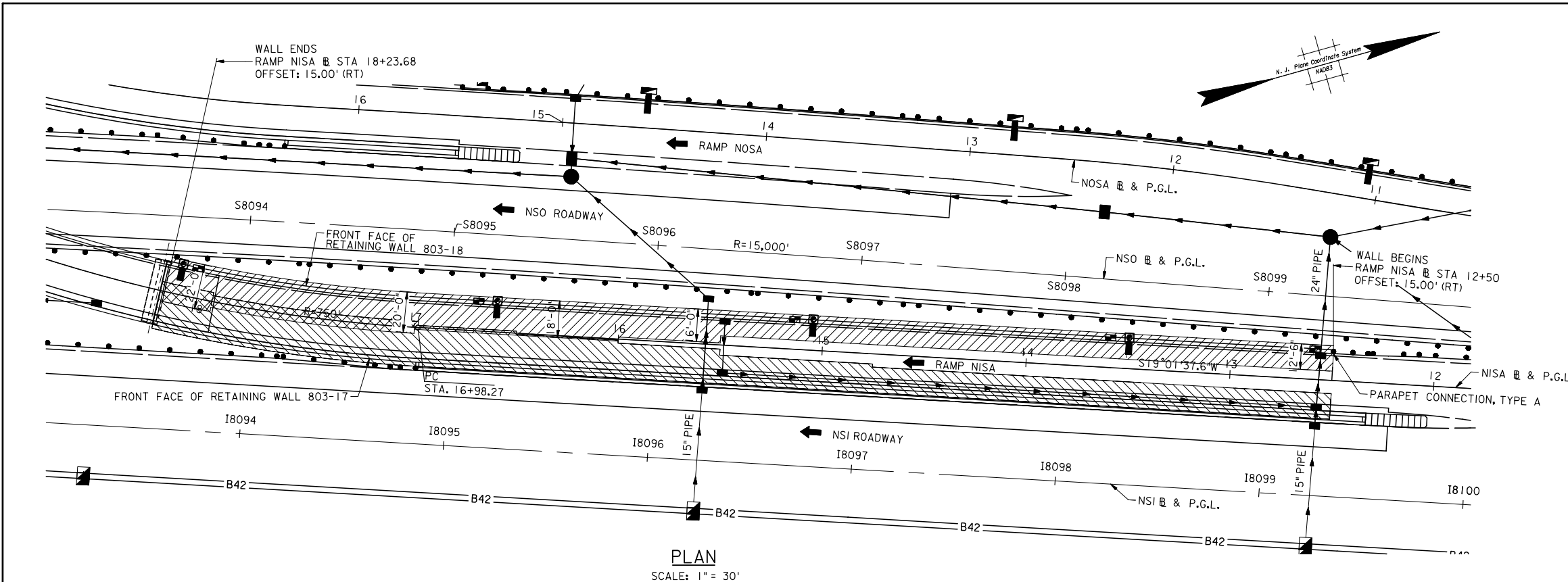
RETAINING WALL NO. 803-17
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

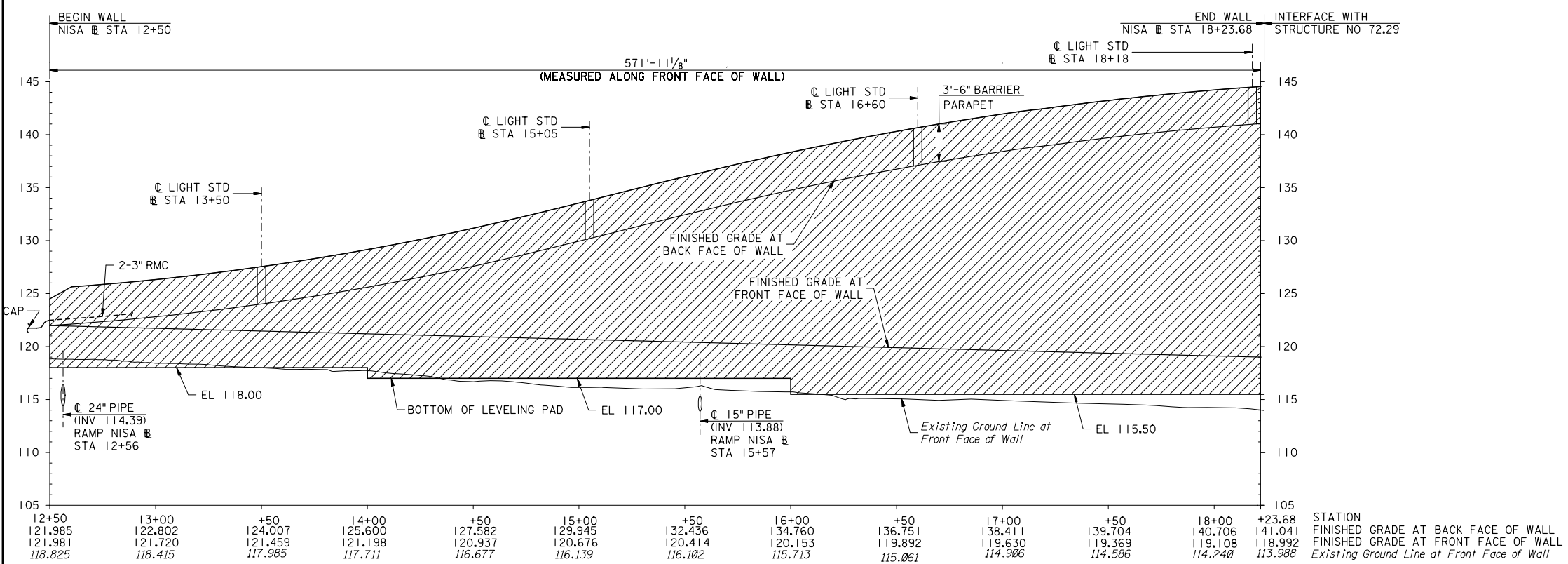
SCALE: 1"=30'
DATE: JAN. 2012

1294
2116

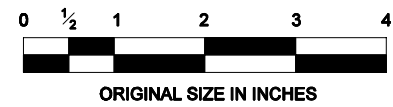


PLAN
SCALE: 1" = 30'

- NOTES:
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-14.
 - FOR DETAILS OF LIGHT STANDARD AT BARRIER, SEE NJTA STD DWG BR-15.
 - FOR APPROACH SLAB DETAILS, SEE STRUCTURE NO 72.29 AND NJTA STD DWG BR-6.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
 - FOR INFORMATION PERTAINING TO STRUCTURE NO 72.29, SEE SHEETS S-46 THRU S-65.



DEVELOPED WEST ELEVATION
(LOOKING WEST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY



WORK ITEMS - WALL NO. 803-18
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY
FOUNDATION EXCAVATION	CY	85
SELECT BACKFILL	CY	3,380
8" HIGH DENSITY POLYETHYLENE PIPE	LF	575
CONCRETE LEVELING PAD	LF	575
PRECAST WALL ELEMENT	SF	6,410 (7,445)
CONCRETE IN PARAPET, HPC	CY	100
CONCRETE IN COPING, HPC	CY	65
CIP MOMENT SLAB	LF	575
REINFORCEMENT STEEL, EPOXY COATED	LBS	17,500
IMPERVIOUS MEMBRANE	SF	6,170 (7,195)

	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-18
PLAN AND ELEVATION

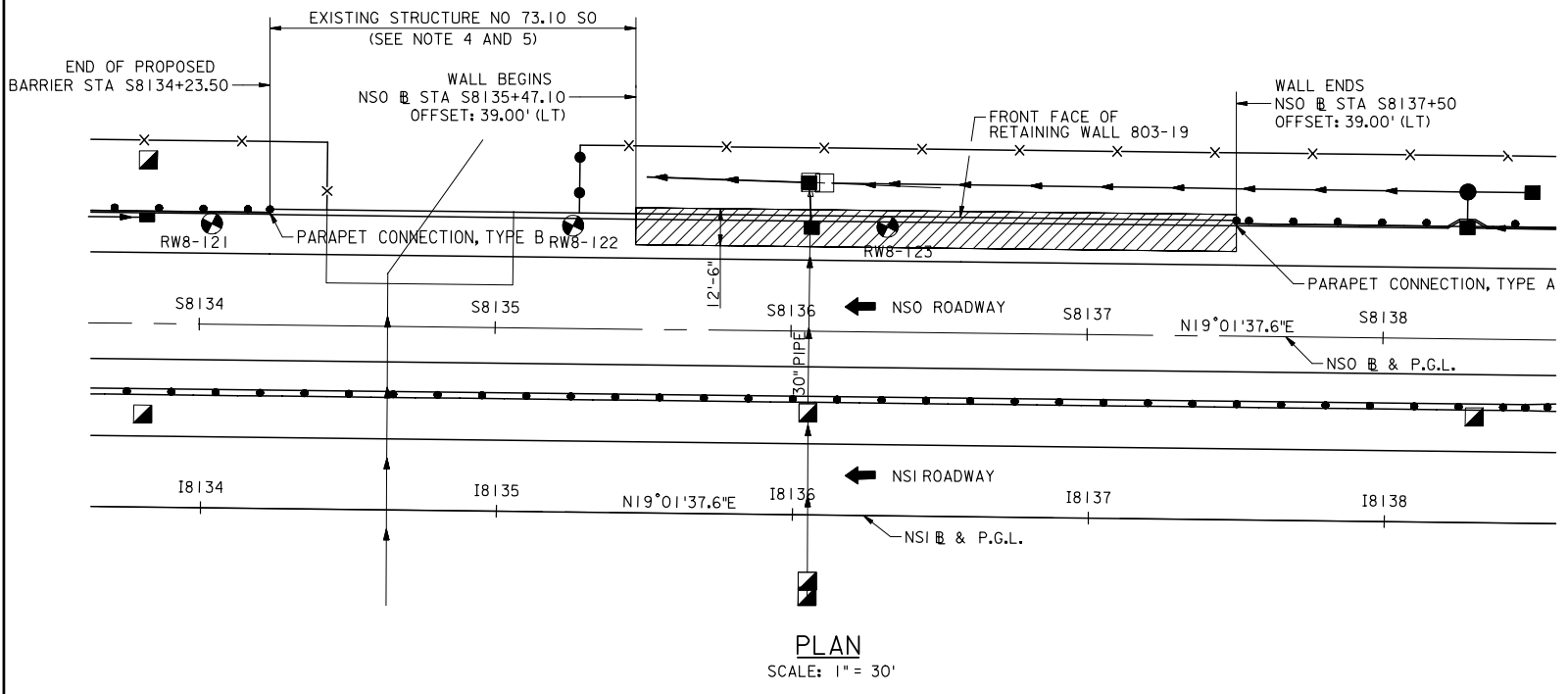
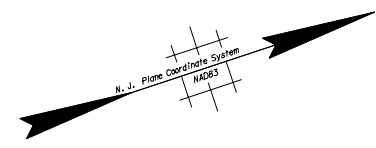
JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1"=30'
DATE: JAN. 2012

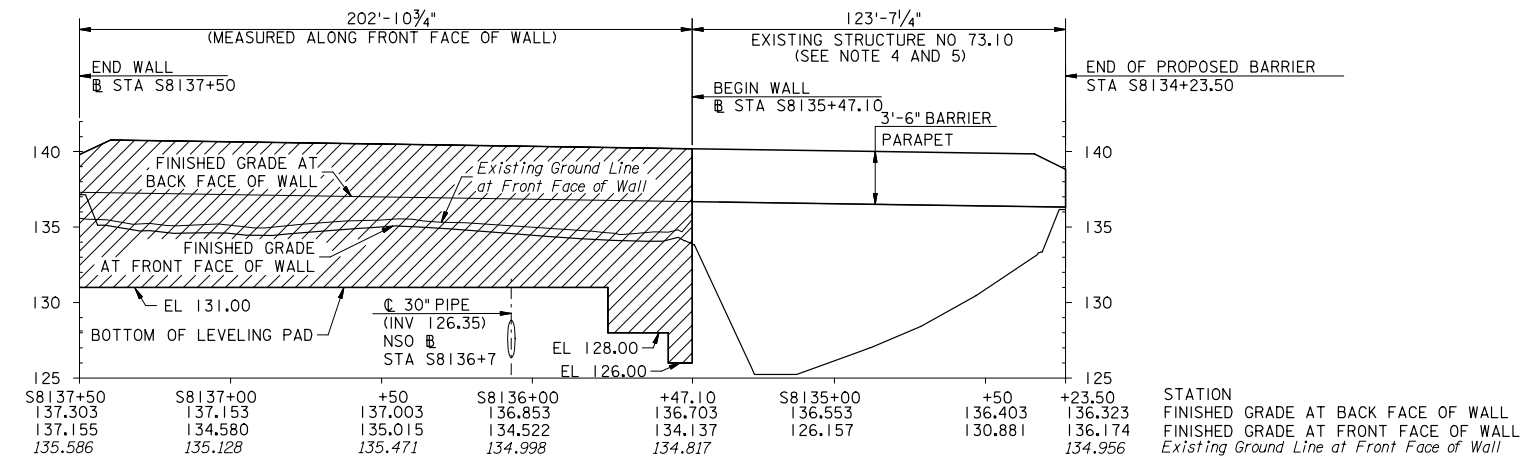
S-88
S-138

ADDENDUM NO. 3, SHEET NO. 27 OF 34
1295
2116



- NOTES:**
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 - EXISTING BARRIER PARAPET TO BE REMOVED AND RECONSTRUCTED. SEE SHEETS S-128 AND S-130.
 - EXISTING STRUCTURE NO 73.10 NOT SHOWN IN PLAN OR ELEVATION. FOR DETAILS, SEE REFERENCE DRAWINGS.

WORK ITEMS - WALL NO. 803-19 (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	QUANTITY	QUANTITY
		MSE WALL	PM WALL
FOUNDATION EXCAVATION	CY	415	415
SELECT BACKFILL	CY	250	150
POROUS FILL	CY	60	110
8" HIGH DENSITY POLYETHYLENE PIPE	LF	205	205
CONCRETE LEVELING PAD	LF	205	205
PRECAST WALL ELEMENT	SF	435	435
CONCRETE IN PARAPET, HPC	CY	35	35
CONCRETE IN COPING, HPC	CY	25	25
CIP MOMENT SLAB	LF	205	205
REINFORCEMENT STEEL, EPOXY COATED	LBS	6,100	6,100
IMPERVIOUS MEMBRANE	SF	2,775	1,960



NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-19
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27992200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

SCALE: 1"=30'
 DATE: JAN. 2012

1296
 2116

	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

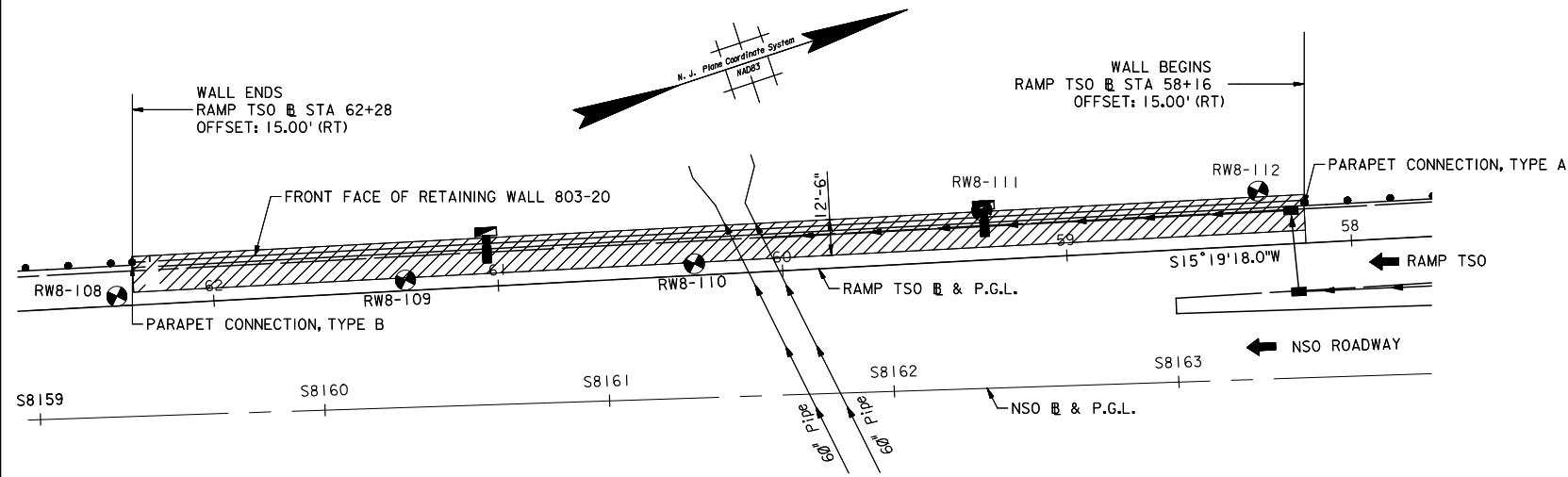


No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY AND NOTE CHANGE

FILE NAME: T869-120-803-1296.dgn

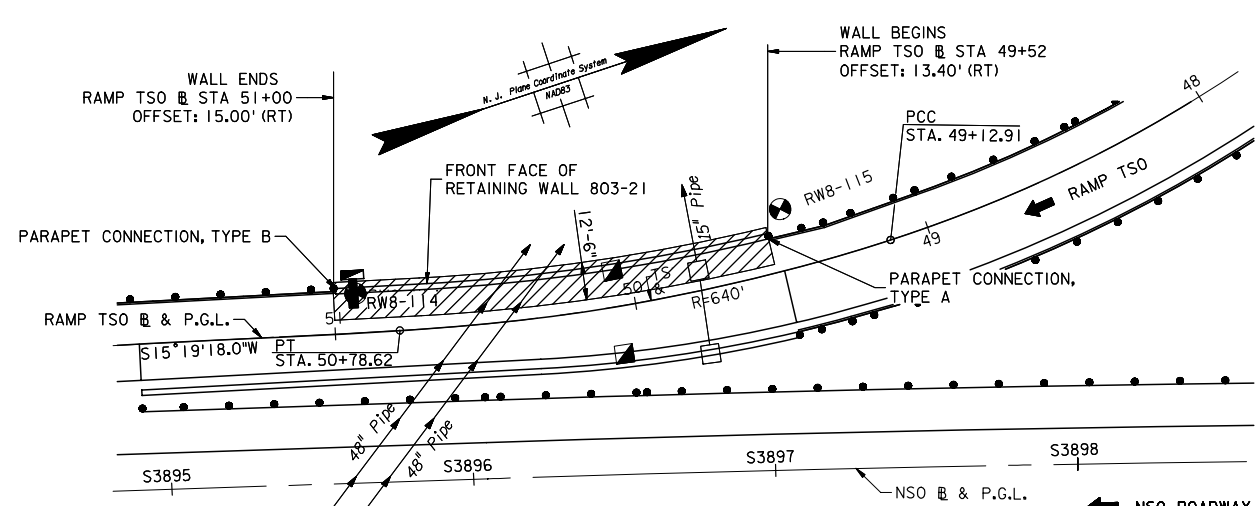
S-99
S-138

ADDENDUM NO. 3, SHEET NO. 28 OF 34



PLAN-RETAINING WALL NO 803-20

SCALE: 1" = 30'

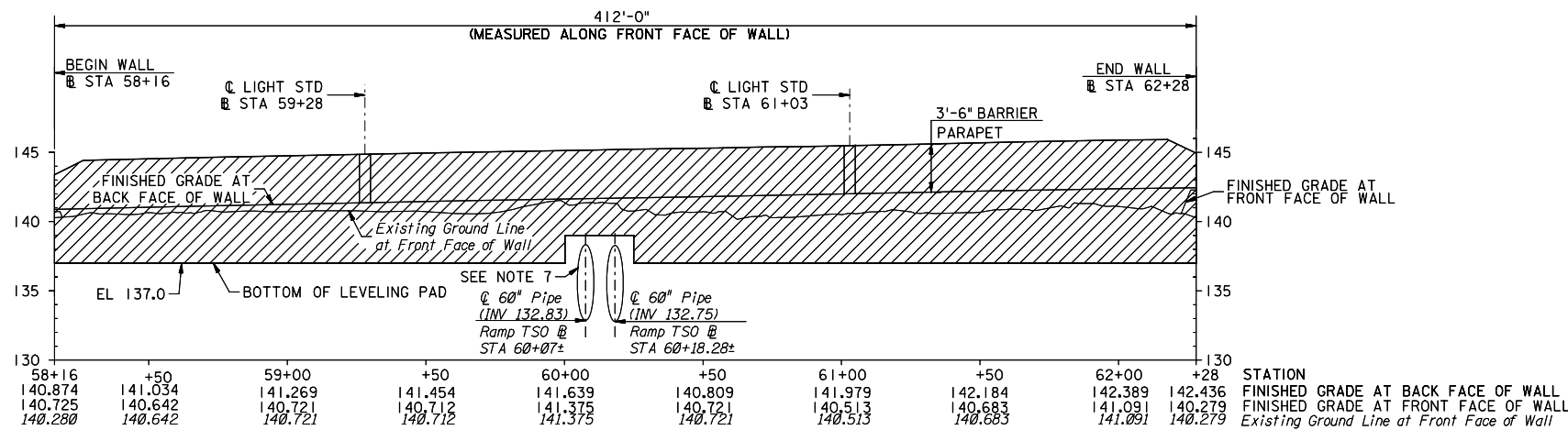


PLAN-RETAINING WALL NO 803-21

SCALE: 1" = 30'

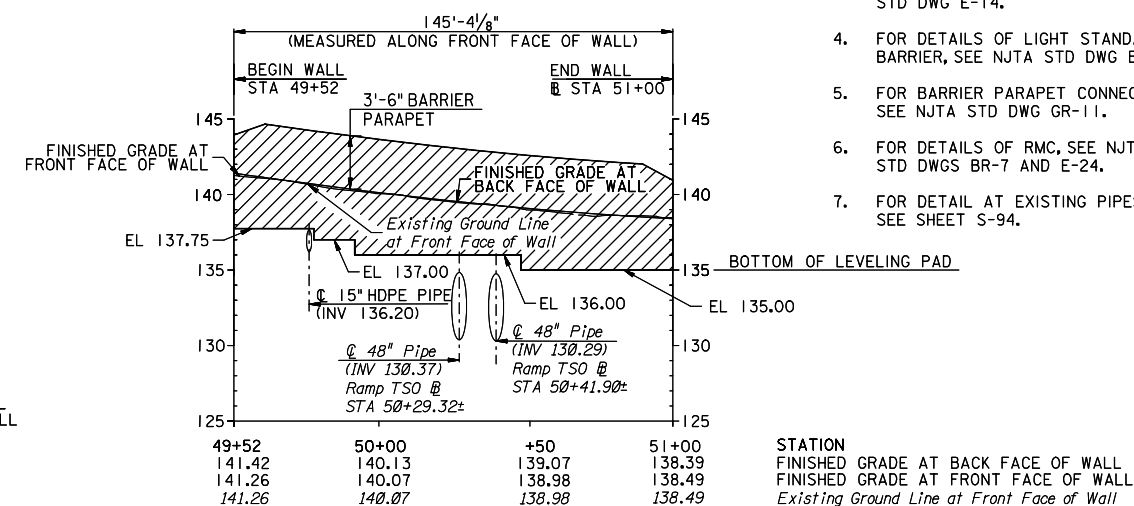
NOTES:

- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
- OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
- FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-14.
- FOR DETAILS OF LIGHT STANDARD AT BARRIER, SEE NJTA STD DWG BR-15.
- FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
- FOR DETAILS OF RMC, SEE NJTA STD DWGS BR-7 AND E-24.
- FOR DETAIL AT EXISTING PIPES, SEE SHEET S-94.



DEVELOPED ELEVATION - RETAINING WALL NO 803-20

(LOOKING EAST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY

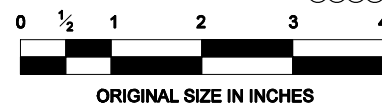


DEVELOPED ELEVATION - RETAINING WALL NO 803-21

(LOOKING EAST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY

WORK ITEMS - WALL NO. 803-20 (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	QUANTITY	
		MSE WALL 803-20	PM WALL 803-20
FOUNDATION EXCAVATION	CY	410	410
SELECT BACKFILL	CY	215	120
POROUS FILL	CY	45	90
8" HIGH DENSITY POLYETHYLENE PIPE	LF	-	-
CONCRETE LEVELING PAD	LF	415	415-830
PRECAST WALL ELEMENT	SF	490-1,065	490-1,065
CONCRETE IN PARAPET, HPC	CY	70	70
CONCRETE IN COPING, HPC	CY	45	45
CIP MOMENT SLAB	LF	415	415
REINFORCEMENT STEEL, EPOXY COATED	LBS	12,700	12,700
IMPERVIOUS MEMBRANE	SF	3,505-3,970	-

WORK ITEMS - WALL NO. 803-21 (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	QUANTITY	
		MSE WALL 803-21	PM WALL 803-21
FOUNDATION EXCAVATION	CY	170	170
SELECT BACKFILL	CY	40-70	70-40
POROUS FILL	CY	30-15	45-30
8" HIGH DENSITY POLYETHYLENE PIPE	LF	-	-
CONCRETE LEVELING PAD	LF	150	150-300
PRECAST WALL ELEMENT	SF	125-280	125-280
CONCRETE IN PARAPET, HPC	CY	25	25
CONCRETE IN COPING, HPC	CY	20	20
CIP MOMENT SLAB	LF	150	150
REINFORCEMENT STEEL, EPOXY COATED	LBS	4,600	4,600
IMPERVIOUS MEMBRANE	SF	1,260-1,405	-



ORIGINAL SIZE IN INCHES

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY CHANGE

BY	DATE
MADE JP	10-10
TRACED YS	12-11
CHECKED JP	12-11
SUPERVISOR TNS	

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALLS NO. 803-20 AND 803-21
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

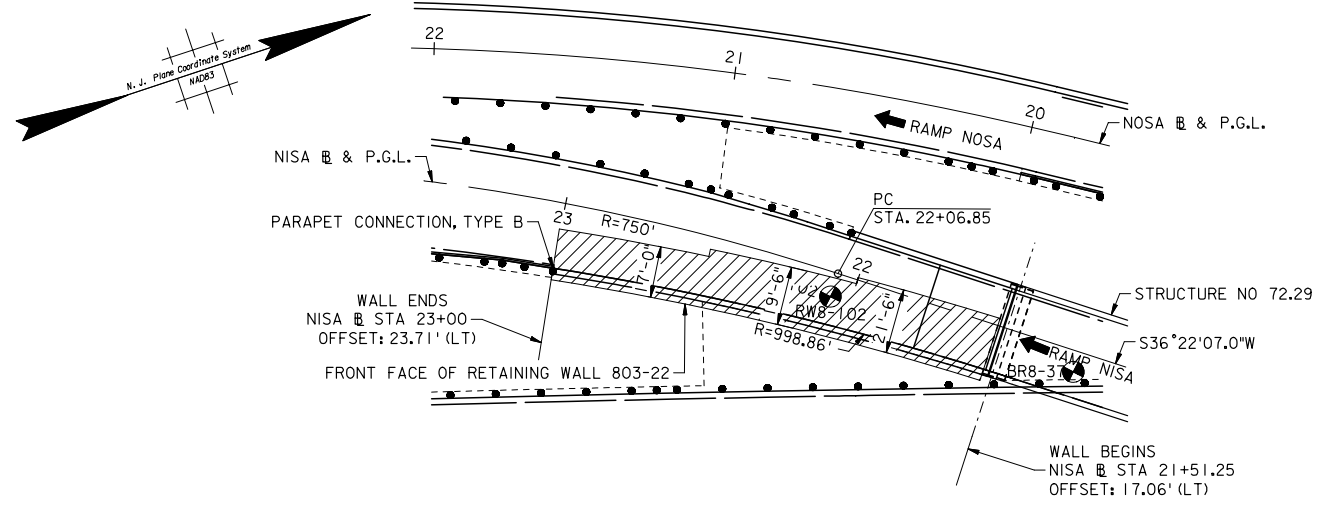
SCALE: 1"=30'
DATE: JAN. 2012

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

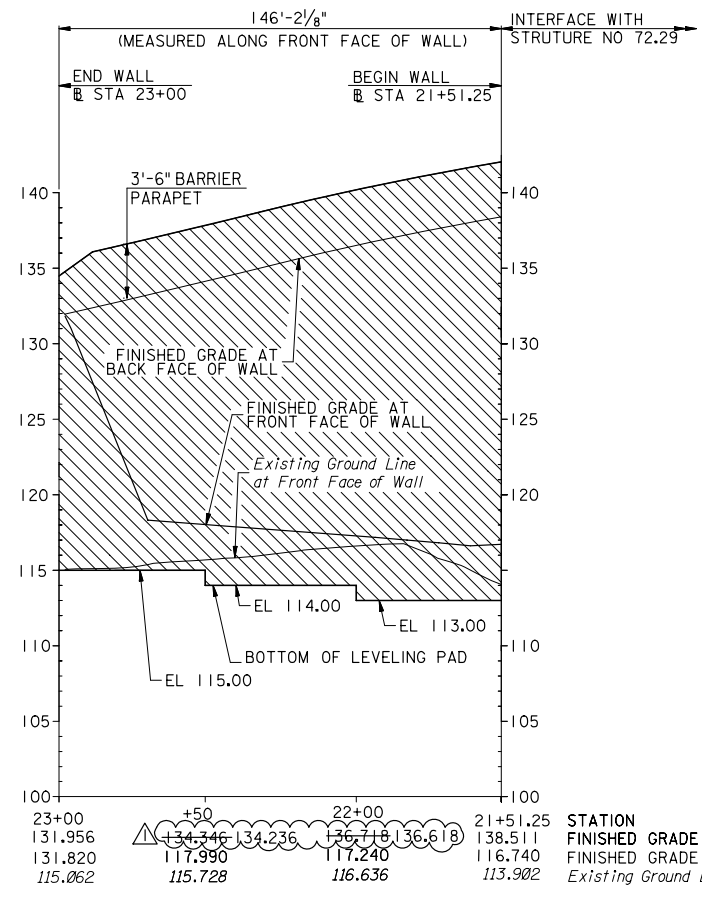
1297
2116

FILE NAME: T869-120-803-1297.dgn

ADDENDUM NO. 3, SHEET NO. 28 OF 34



- NOTES:
- FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
 - OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
 - FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.



WORK ITEMS - WALL NO. 803-22
(FOR INFORMATIONAL PURPOSES ONLY)

DESCRIPTION	UNIT	QUANTITY
FOUNDATION EXCAVATION	CY	75
SELECT BACKFILL	CY	1,350
POROUS FILL	CY	195
8" HIGH DENSITY POLYETHYLENE PIPE	LF	150
CONCRETE LEVELING PAD	LF	150
PRECAST WALL ELEMENT	SF	2,305
CONCRETE IN PARAPET, HPC	CY	25
CONCRETE IN COPING, HPC	CY	20
CIP MOMENT SLAB	LF	150
REINFORCEMENT STEEL, EPOXY COATED	LBS	4,500
IMPERVIOUS MEMBRANE	SF	2,355

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-22
PLAN AND ELEVATION

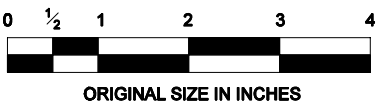
JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: 1"=30'
DATE: JAN. 2012

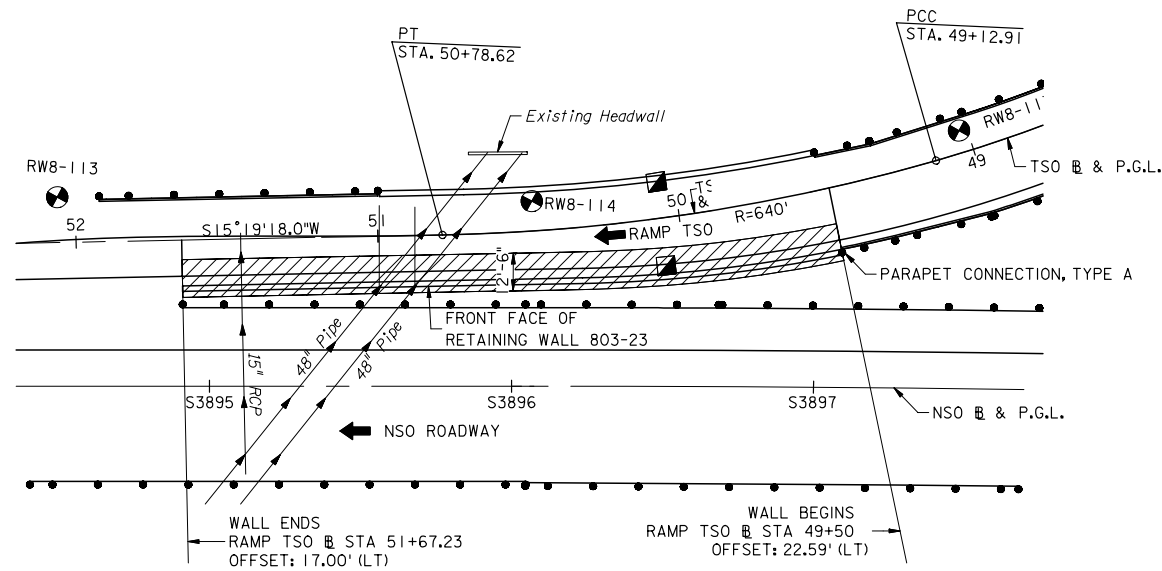
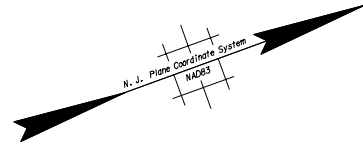
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

1298
2116

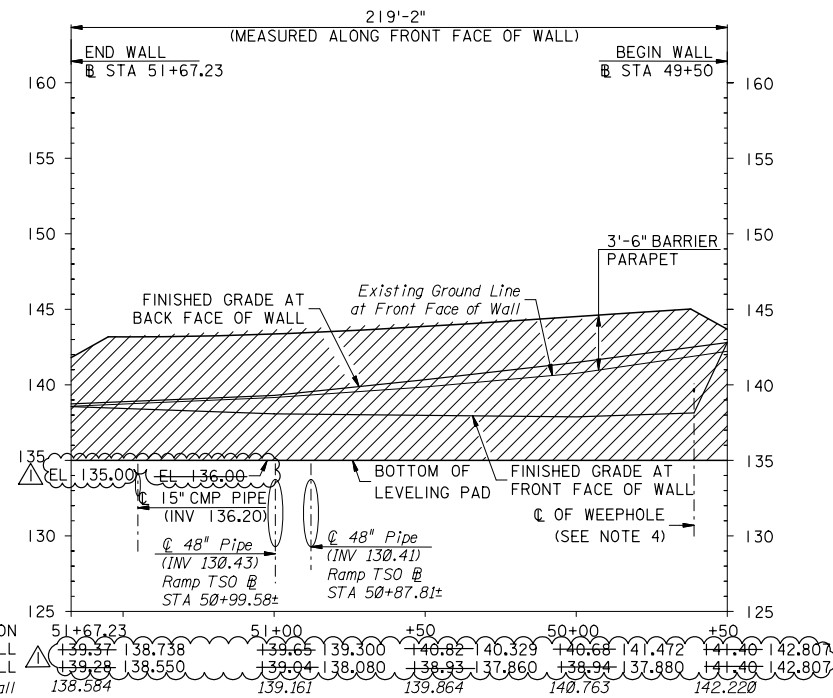
	BY	DATE
MADE	JP	10-10
TRACED	YS	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	



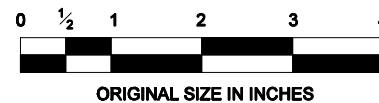
No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY AND ELEVATION CHANGE



PLAN
SCALE: 1" = 30'



DEVELOPED EAST ELEVATION
(LOOKING WEST)
SCALE: 1" = 30' HORIZONTALLY
1" = 6' VERTICALLY



NOTES:

1. FOR GENERAL NOTES PERTAINING TO RETAINING WALLS, SEE SHEET S-93.
2. OFFSETS MEASURED TO FRONT FACE OF RETAINING WALL.
3. FOR DETAILS OF BARRIER PARAPET, SEE NJTA STD DWG BR-7.
4. PLACE WEEPHOLES AT 10' MAX SPACING AND APPROX 6" ABOVE FINISHED GRADE (PM WALL ONLY).

WORK ITEMS - WALL NO. 803-23 (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	QUANTITY	QUANTITY
		MSE WALL	PM WALL
FOUNDATION EXCAVATION	CY	240	240
SELECT BACKFILL	CY	95	50
POROUS FILL	CY	20	40
8" HIGH DENSITY POLYETHYLENE PIPE	LF	220	220
CONCRETE LEVELING PAD	LF	220	220-440
PRECAST WALL ELEMENT	SF	190-730	190-730
CONCRETE IN PARAPET, HPC	CY	40	40
CONCRETE IN COPING, HPC	CY	25	25
CIP MOMENT SLAB	LF	220	220
REINFORCEMENT STEEL, EPOXY COATED	LBS	6,800	6,800
IMPERVIOUS MEMBRANE	SF	2,095	-
2' X 2' STONE POCKET, 4" PVC, GEOTEXTILE FILTER FABRIC	EA	-	22

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

RETAINING WALL NO. 803-23
PLAN AND ELEVATION

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: 1"=30'
 DATE: JAN. 2012

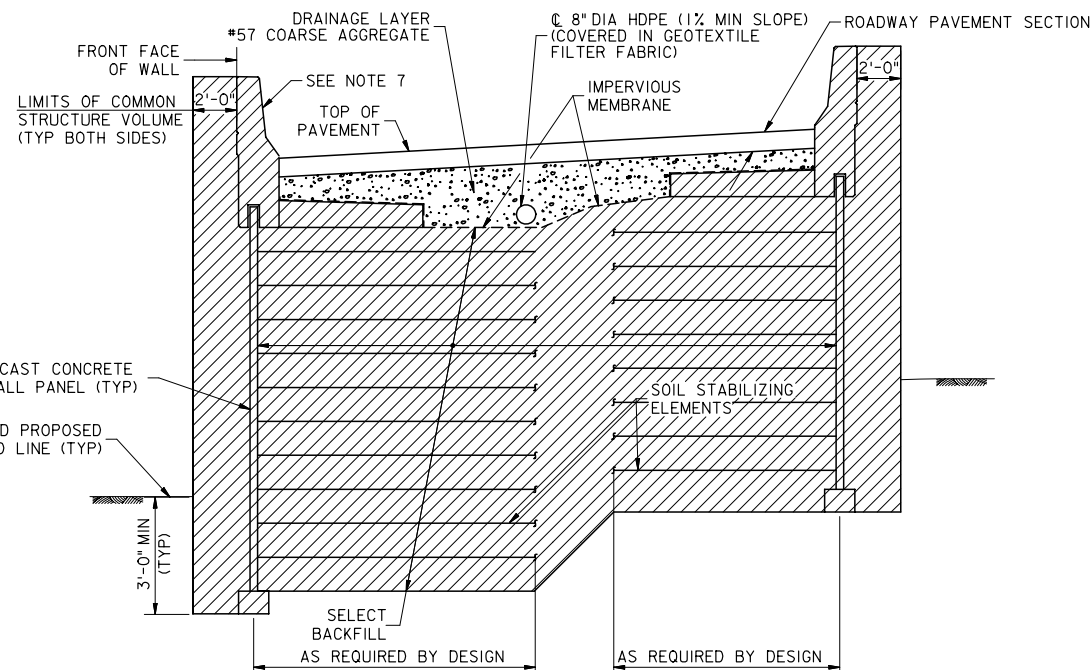
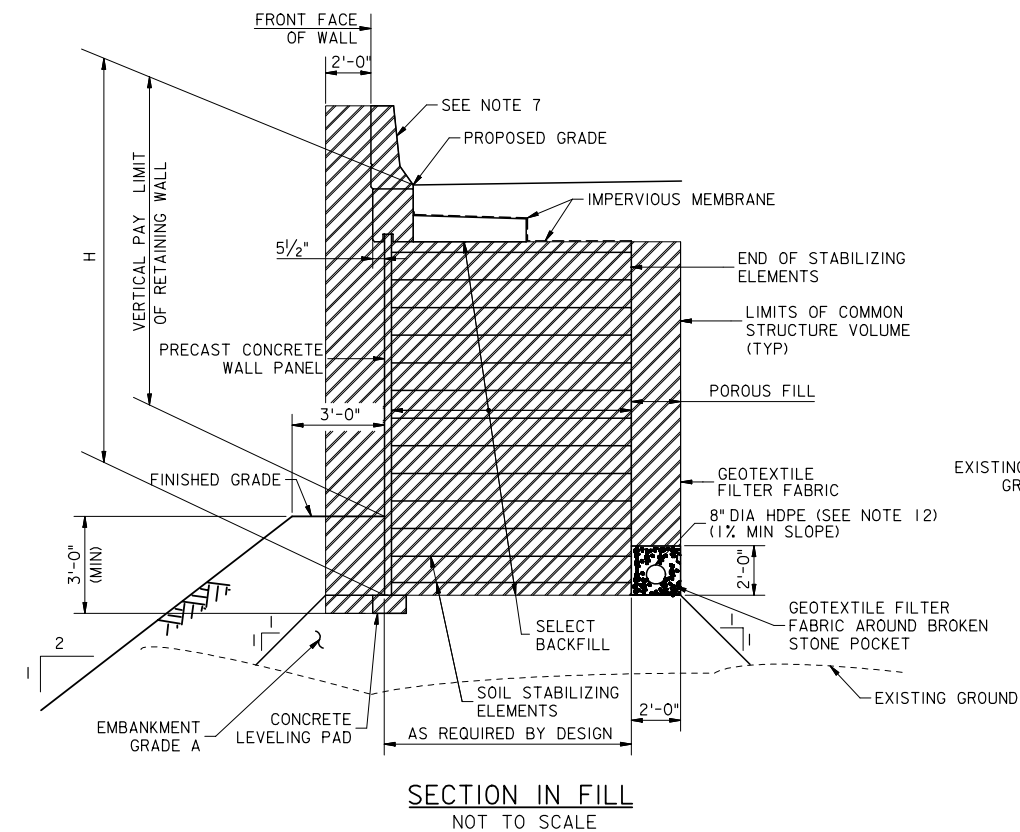
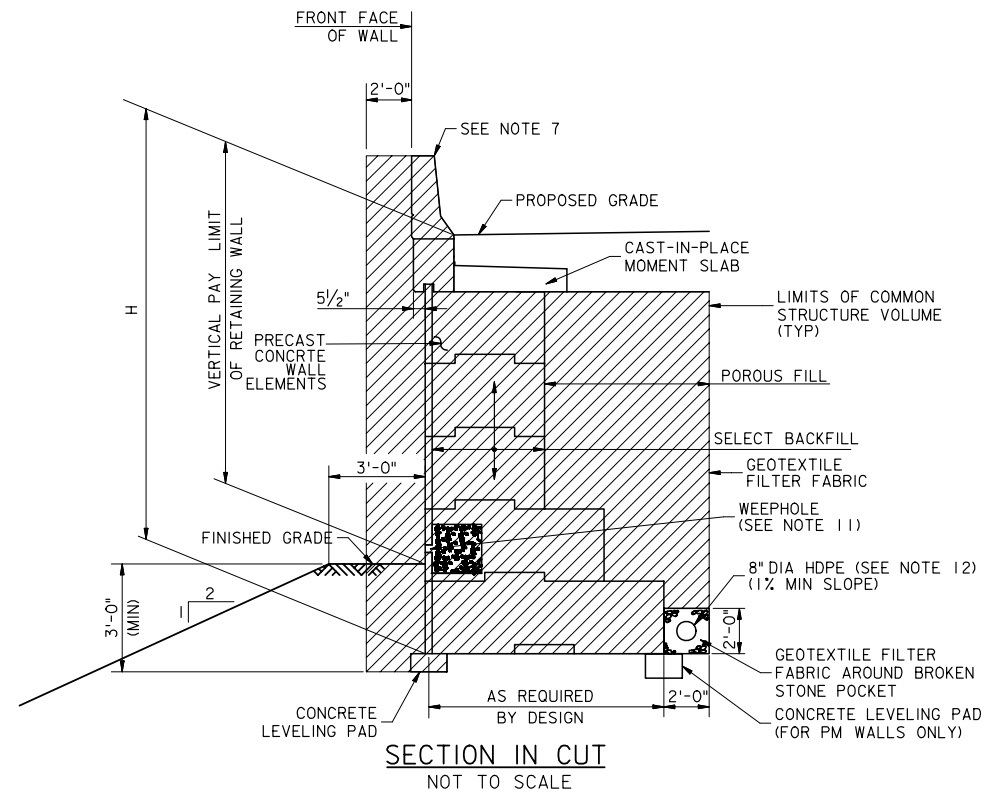
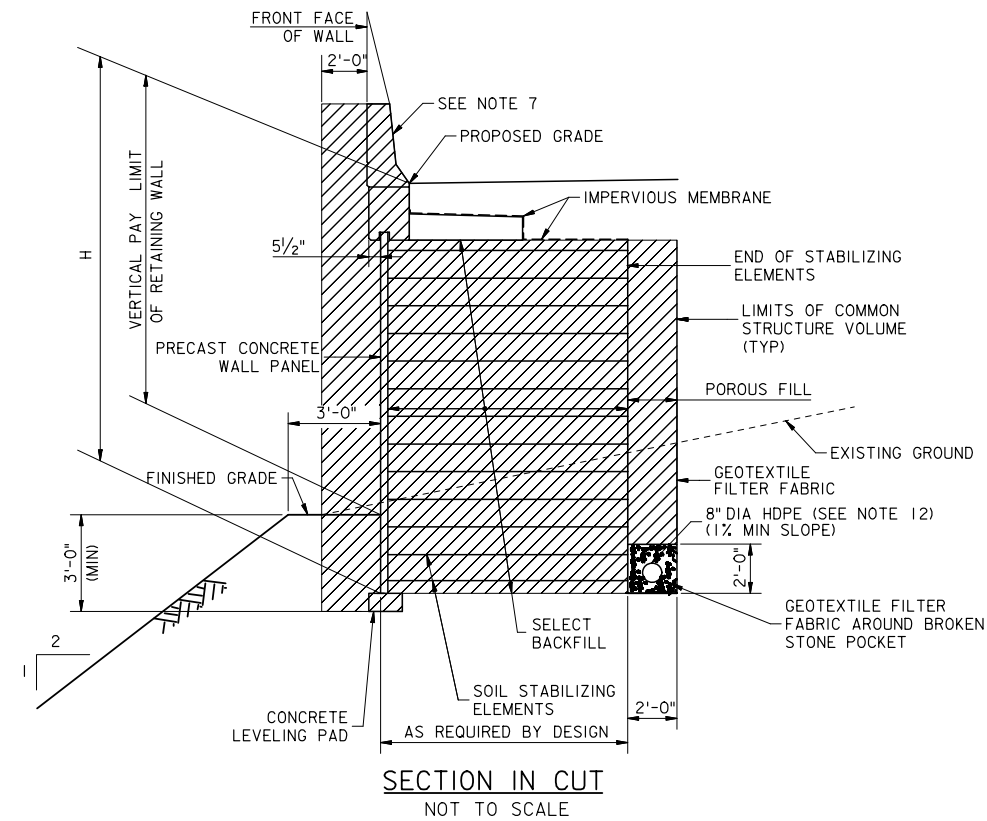
1299
 2116

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- QUANTITY AND ELEVATION CHANGE

RETAINING WALL AND ABUTMENT WALL GENERAL NOTES (MSE WALLS AND PM WALLS):

- DESIGN METHOD:**
LOAD AND RESISTANCE FACTOR (LRFD): MSE WALL AND/OR PREFABRICATED MODULAR WALL.
LOAD FACTOR DESIGN (LFD): INTERNAL STRENGTH AND STABILITY FOR BARRIER PARAPET MOMENT SLAB SYSTEM.
ALLOWABLE STRESS DESIGN (ASD): EXTERNAL STABILITY FOR MOMENT SLAB AND BOTTOM OF WALL.
- IMPACT LOAD:**
LOAD FACTOR DESIGN (LFD) AND ALLOWABLE STRESS DESIGN (ASD):
 VEHICULAR IMPACT LOAD APPLIED TO THE BARRIER PARAPET AND MOMENT SLAB SYSTEM SHALL BE AS PER AASHTO STANDARD SPECIFICATIONS SECTION 2.7.1.3.
- WALL PANEL SHAPE AND FINISH:**
 WALLS SHALL HAVE A PLAIN FINISH AND WALL PANELS SHALL BE RECTANGULAR IN SHAPE. HORIZONTAL JOINTS IN PANELS SHALL BE STAGGERED AND VERTICAL JOINTS SHALL BE ALIGNED TO ALLOW FOR DIFFERENTIAL SETTLEMENT.
- ANTICIPATED POST-CONSTRUCTION SETTLEMENT:** 1/4"
- STATIONS AND OFFSETS ARE MEASURED ALONG FRONT FACE OF WALL.
- LEVELING PAD ELEVATIONS ARE BASED ON 3'-0" MINIMUM COVER REQUIREMENT AND MAY BE ADJUSTED AS REQUIRED.
- FOR BARRIER PARAPET DETAILS, SEE NJTA STD DWG BR-7 AND SHEET S-94. MAXIMUM JOINT SPACING IN BARRIER PARAPET = 15'-0". COORDINATE LOCATION OF JOINTS WITH LOCATION OF LIGHT STANDARDS AND JUNCTION BOXES.
- FOR LIGHT STANDARD DETAILS, SEE NJTA STD DWG BR-15.
- FOR JUNCTION BOX DETAILS, SEE NJTA STD DWG E-13.
- FOR BARRIER PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
- IF PM WALLS ARE USED, PROVIDE 4" PVC WEEPHOLE WITH 2'x2' STONE POCKET AND GEOTEXTILE FILTER FABRIC (WALLS 803-13, 803-15, 803-16 AND 803-23). FOR ALL OTHER PM WALLS AND ALL MSE WALLS, USE 8" DIA HDPE.
- 8" DIA HDPE NOT REQUIRED AT RETAINING WALLS 803-20 AND 803-21.
- FOR ADDITIONAL GENERAL NOTES, SEE SHEET S-6.



ACCEPTABLE WALL ALTERNATIVES	
WALL TYPE	LOCATION
MSE	ALL
PM	803-2 THRU 803-5 803-11 THRU 803-16 803-19 THRU 803-21 803-23

KEY:
MSE - MECHANICALLY STABILIZED EARTH
PM - PREFABRICATED MODULAR

	BY	DATE
MADE	JP	10-10
TRACED	WK	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

TYPICAL SECTIONS MECHANICALLY STABILIZED EARTH

TYPICAL SECTION MECHANICALLY STABILIZED EARTH AT ELEVATED RAMPS
RETAINING WALLS 803-6, 803-7, 803-17, 803-18 AND 803-22



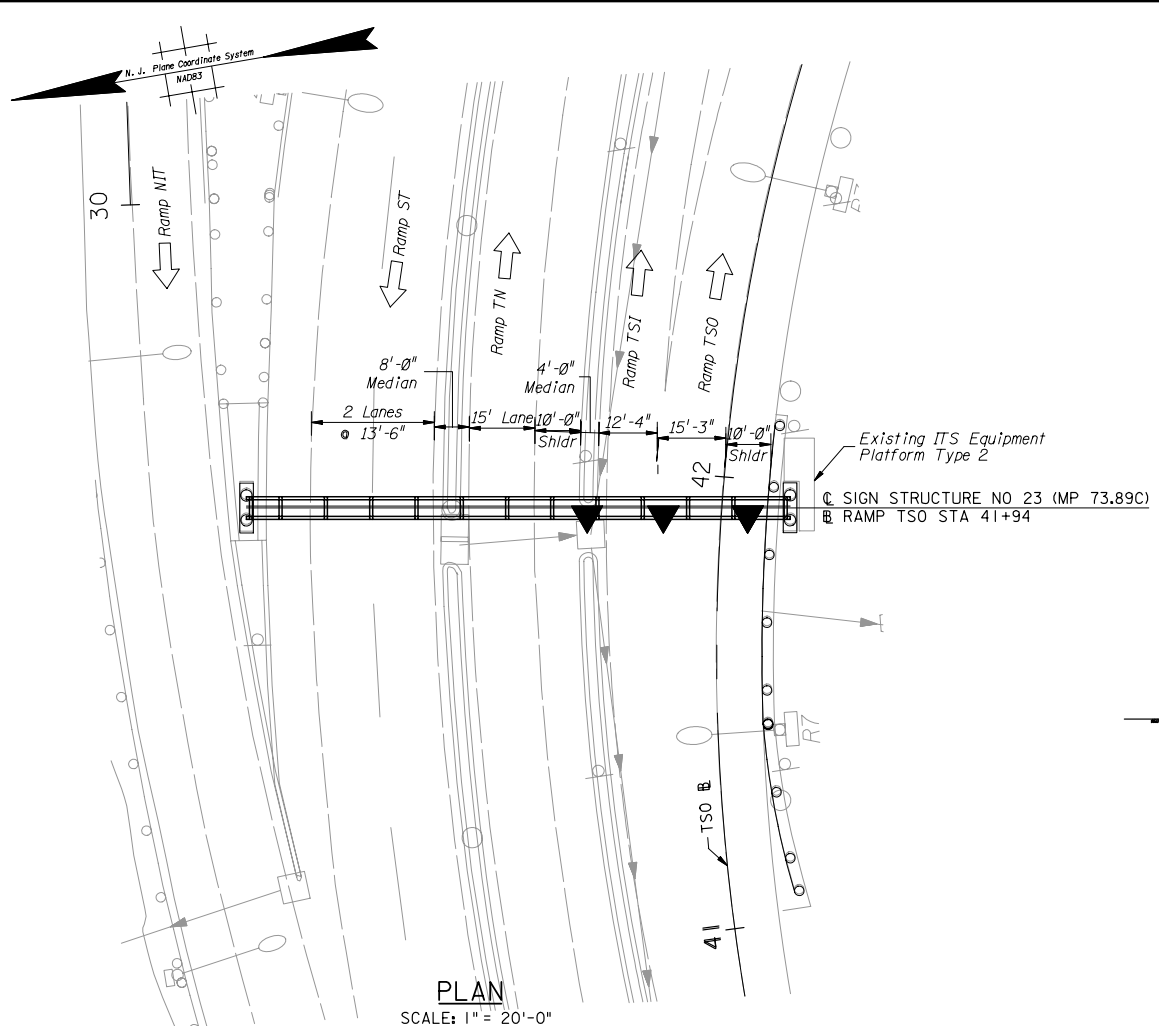
No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- NOTE CHANGE

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27690200

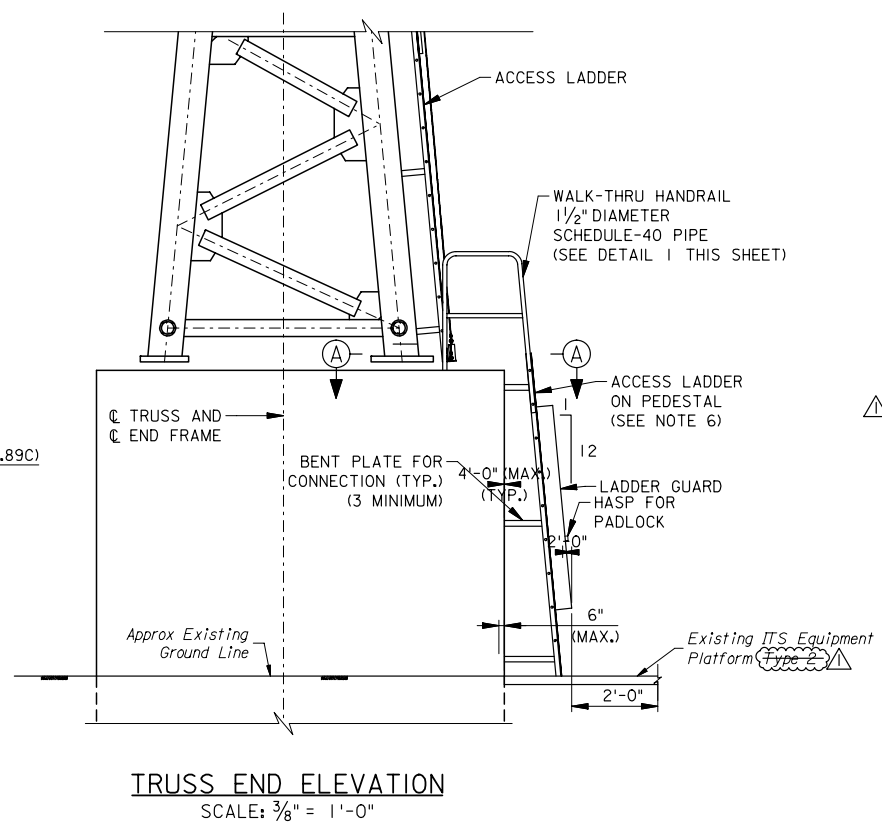
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: NONE
DATE: JAN. 2012

1300
2116



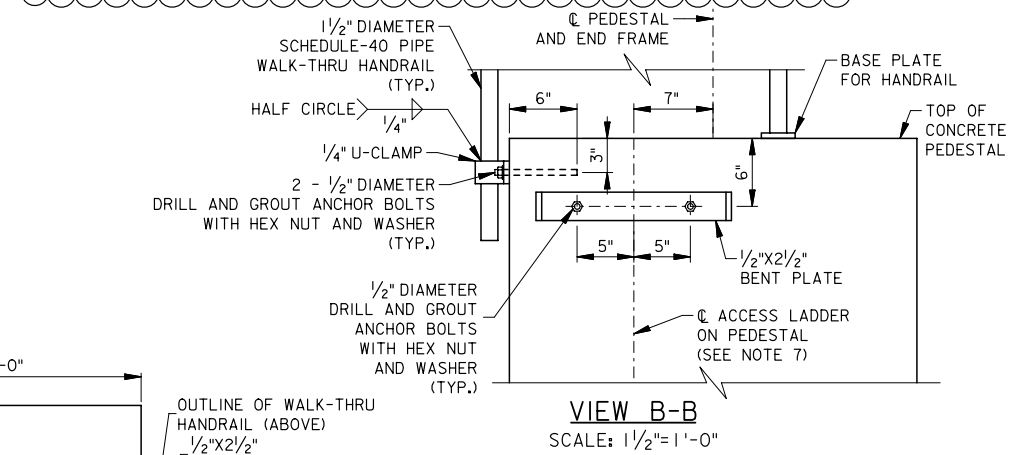
PLAN
SCALE: 1" = 20'-0"



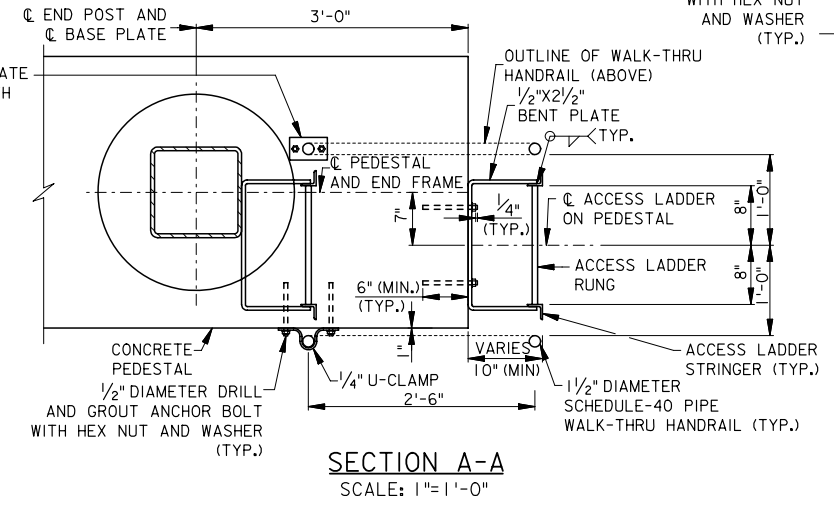
TRUSS END ELEVATION
SCALE: 3/8" = 1'-0"

NOTES:

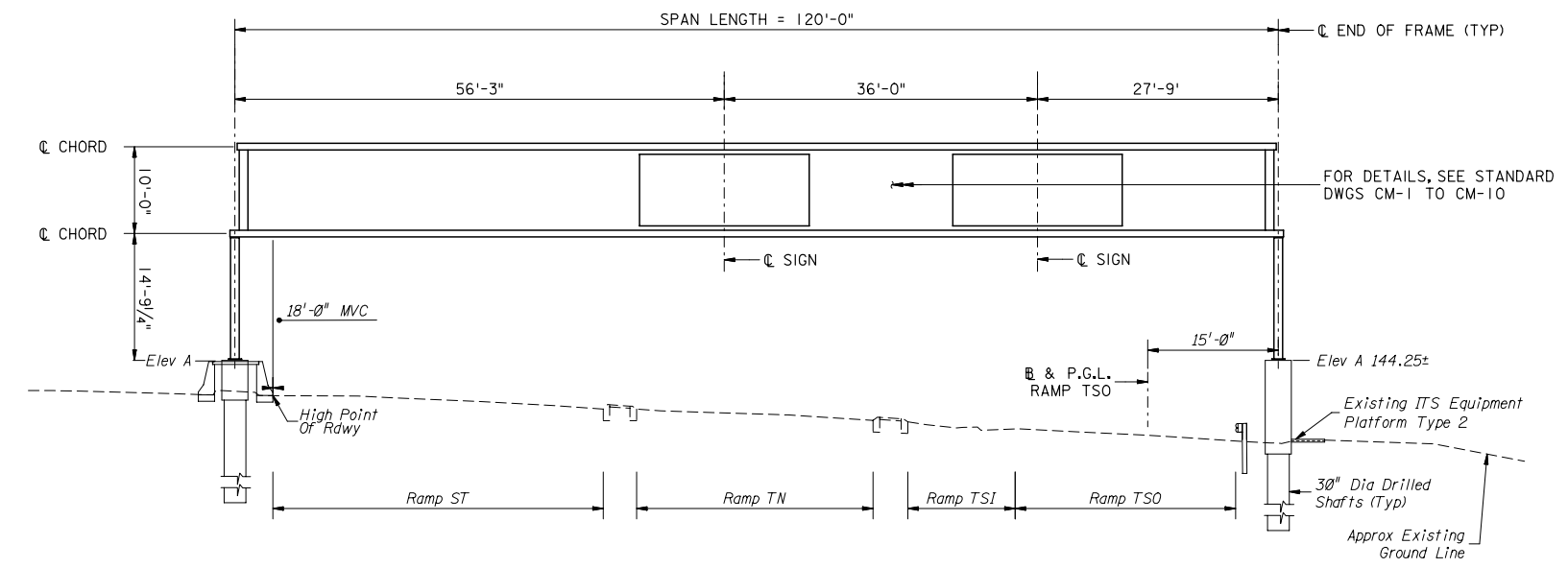
- FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS CM-1 TO CM-10 AND CONTRACT T869.120.903 REFERENCE DRAWINGS.
- SIGN STRUCTURE IS FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (TO BE PICKED UP AT THE YARD SPECIFIED IN THE SUPPLEMENTARY SPECIFICATIONS).
- MVC = MINIMUM VERTICAL CLEARANCE.
- FOUNDATIONS AND PEDESTALS BUILT BY OTHERS (CONTRACT NO. T869.120.802). CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING ANCHOR BOLTS PRIOR TO THE INSTALLATION OF THE SIGN STRUCTURE.
- ELEV A = BOTTOM OF END FRAME BASE PLATE (SEE NJTA STD DWG VM-8). CONTRACTOR SHALL VERIFY ELEV A PRIOR TO THE INSTALLATION OF THE SIGN STRUCTURE.
- THE TOP LADDER RUNG FOR THE LADDER ON END FRAME SHALL BE AT THE SAME ELEVATION AS THE WALKWAY GRATING ON THE PLATFORM. SIMILARLY, THE TOP LADDER RUNG FOR THE LADDER ON PEDESTAL SHALL BE AT THE SAME ELEVATION AS THE TOP OF PEDESTAL.
- THE ACCESS LADDER ON THE PEDESTAL SHALL BE CENTERED WITH THE ACCESS LADDER ON THE END FRAME.
- ACCESS LADDER ON PEDESTAL TO BE INSTALLED WHENEVER PEDESTAL HEIGHT IS GREATER THAN 5 FEET ABOVE FINISHED GRADE.
- NO SEPARATE PAYMENT WILL BE MADE FOR ACCESS LADDER. COST TO BE INCLUDED IN ITEM "INSTALL OVERHEAD HYBRID CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURE NO. 2 (73.89C)".



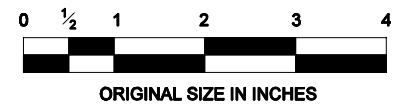
VIEW B-B
SCALE: 1 1/2" = 1'-0"



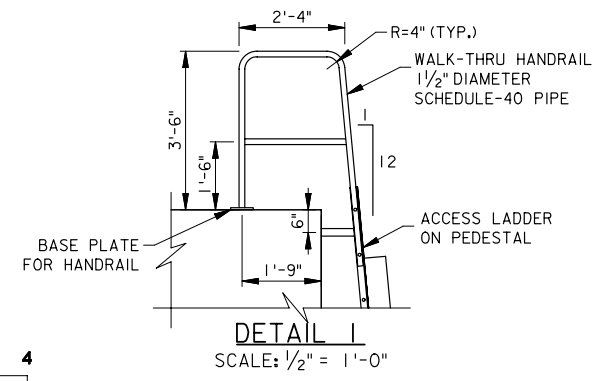
SECTION A-A
SCALE: 1" = 1'-0"



SIGN STRUCTURE NO 23 (MP 73.89C)
(RAMP TSO 41+94)
ELEVATION
(LOOKING IN THE DIRECTION OF RAMP TSO/TSI TRAFFIC)
SCALE: 1" = 10'-0"



ORIGINAL SIZE IN INCHES



DETAIL 1
SCALE: 1/2" = 1'-0"

BY	JP	05-09
MADE	JP	05-09
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISOR	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- NOTE CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

OVERHEAD SPAN (HCMS) SIGN STRUCTURE GENERAL PLAN AND ELEVATION - 13

JACOBS ENGINEERING GROUP INC.
288 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27960200

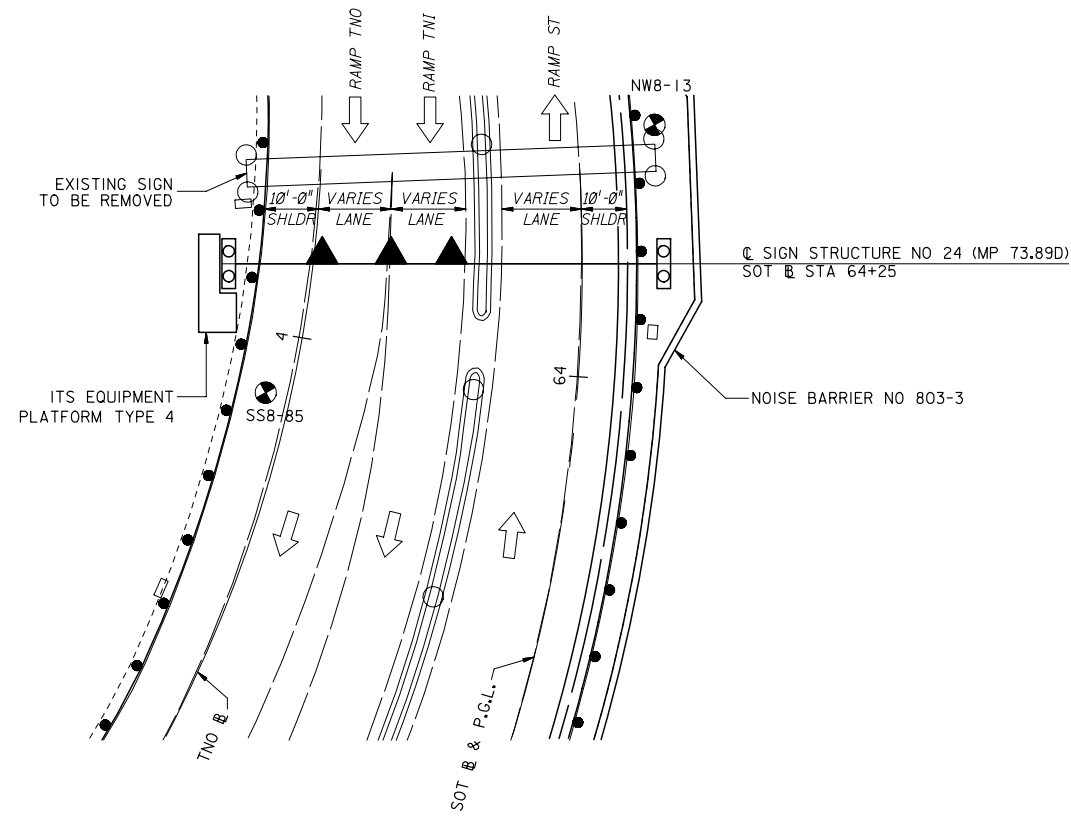
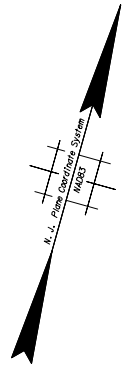
SCALE: AS SHOWN
DATE: JAN. 2012

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

1334
2116

ADDENDUM NO. 3, SHEET NO. 33 OF 34

FILE NAME: T869-120-803-1334.dgn



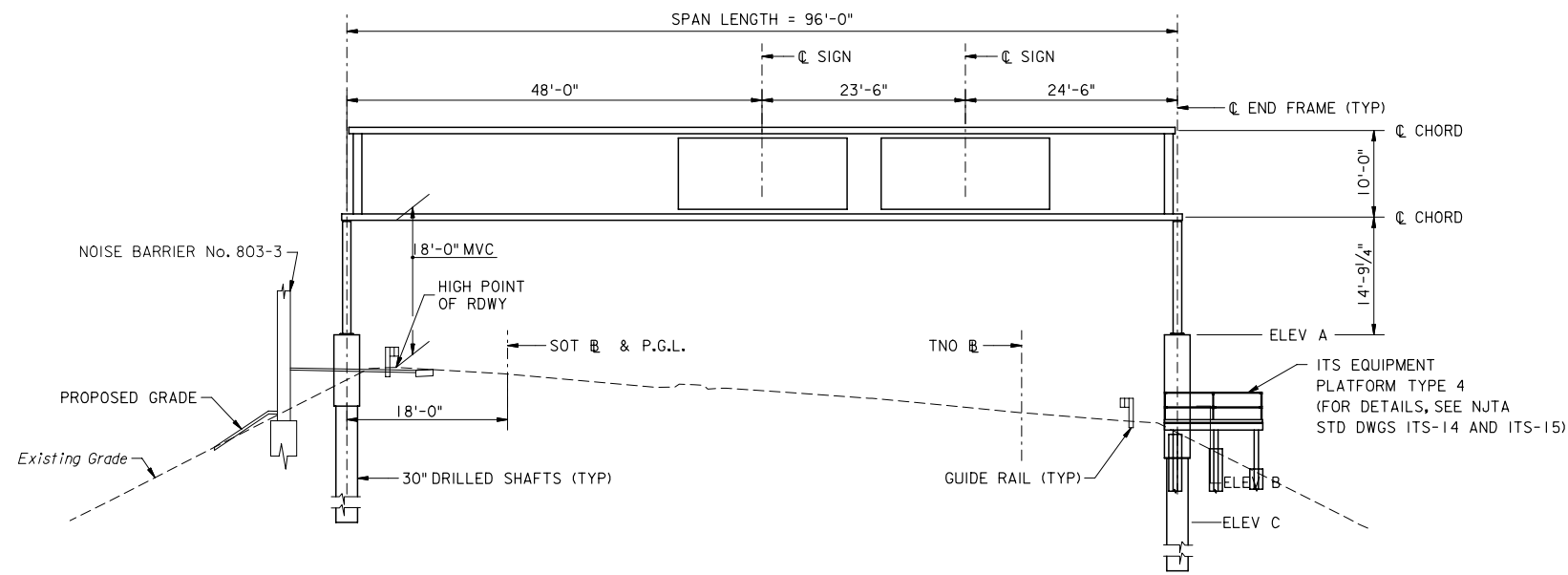
PLAN
SCALE: 1" = 20'-0"

NOTES:

1. FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS CM-1 TO CM-10 AND CONTRACT T869.120.903 REFERENCE DRAWINGS.
2. ELEVATIONS A, B AND C TYPICAL AT BOTH PEDESTALS (SEE NJTA STD DWG VM-8).
3. SIGN STRUCTURE TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
4. MVC = MINIMUM VERTICAL CLEARANCE.
5. ELEV A = BOTTOM OF END FRAME BASE PLATE (SEE NJTA STD DWG VM-8).
6. FOR ACCESS LADDER DETAILS ANF NOTES, SEE SHEET S-127.
7. NO SEPARATE PAYMENT WILL BE MADE FOR ACCESS LADDER. COST TO BE INCLUDED IN ITEM "INSTALL OVERHEAD CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURE NO. 3 (73.89D)".

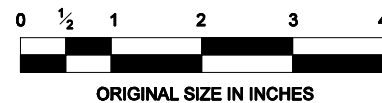
PEDESTAL FOUNDATION ELEVATION TABLE

STRUCTURE NO	ELEVATION A	ELEVATION B		ELEVATION C	
		LEFT	RIGHT	LEFT	RIGHT
24 (MP 73.89D)	164.75	150.50	156.50	122.50	128.50



SIGN STRUCTURE NO 24 (MP 73.89D)
(SOT STA 64+25)

ELEVATION
(LOOKING IN THE DIRECTION OF RAMP TNO/TNI TRAFFIC)
SCALE: 1" = 10'-0"



	BY	DATE
MADE	JP	06-11
TRACED	JK	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
1	2/9/12	ADDENDUM 3- NOTE CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

OVERHEAD SPAN (HCMS) SIGN STRUCTURE
GENERAL PLAN AND ELEVATION - 14

JACOBS ENGINEERING GROUP INC.
 288 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
DATE: JAN. 2012

1335

2116

FILE NAME: T869-120-803-1335.dgn

3-128
3-138

ADDENDUM NO. 3, SHEET NO. 34 OF 34



New Jersey Turnpike Authority

ADMINISTRATION BUILDING - 581 MAIN STREET
P.O. BOX 5042 - WOODBRIDGE, NEW JERSEY 07095
TELEPHONE (732) 750-5300

CHRIS CHRISTIE
GOVERNOR

KIM GUADAGNO
LIEUTENANT GOVERNOR

JAMES S. SIMPSON, *Chairman*
RONALD GRAVINO, *Vice Chairman*
MICHAEL R. Du PONT, *Treasurer*
HAROLD L. HODES, *Commissioner*
RAYMOND M. POCINO, *Commissioner*
ULISES E. DIAZ, *Commissioner*
DANIEL BECHT, *Commissioner*
VERONIQUE HAKIM, *Executive Director*

ADDENDUM NO. 4

To Contract Documents For

CONTRACT NO. T869.120.803

NEW JERSEY TURNPIKE
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6
Townships of Cranbury, Monroe, South Brunswick and
East Brunswick & Borough of Milltown
Middlesex County

February 15, 2012

To All Concerned:

The original Contract Plans and Specifications dated January 2012 for Contract No. T869.120.803 of the New Jersey Turnpike Authority are amended as noted in this Addendum No. 4, and this Addendum shall become part of the Contract Documents.

Bidders must acknowledge receipt of this Addendum and all previous and subsequent Addenda on the Proposal Forms when submitting Proposals. In case any bidder fails to acknowledge receipt of this addendum, his proposal will nevertheless be construed as though the Addendum had been received and acknowledged and submission of his proposal will constitute acknowledgement by the bidder of the receipt of same.

PERTAINING TO THE ADVERTISEMENT FOR PROPOSALS

Page 2

In the seventh paragraph, change the time and date for the receipt of Proposals from "11:00 AM Prevailing Time on the morning of February 21, 2012" to "2:00 PM Prevailing Time on the afternoon of February 23, 2012".

NEW JERSEY TURNPIKE AUTHORITY

Richard J. Raczynski, P.E.
Chief Engineer



New Jersey Turnpike Authority

ADMINISTRATION BUILDING - 581 MAIN STREET
P.O. BOX 5042 - WOODBRIDGE, NEW JERSEY 07095
TELEPHONE (732) 750-5300

CHRIS CHRISTIE
GOVERNOR

KIM GUADAGNO
LIEUTENANT GOVERNOR

JAMES S. SIMPSON, *Chairman*
RONALD GRAVINO, *Vice Chairman*
MICHAEL R. Du PONT, *Treasurer*
HAROLD L. HODES, *Commissioner*
RAYMOND M. POCINO, *Commissioner*
ULISES E. DIAZ, *Commissioner*
DANIEL BECHT, *Commissioner*
VERONIQUE HAKIM, *Executive Director*

ADDENDUM NO. 5

To Contract Documents For

CONTRACT NO. T869.120.803

NEW JERSEY TURNPIKE
Interchange 6 to 9 Widening Program
NSO/NSI/SNI/SNO Roadways and Service Area 7S Ramps
Grading, Drainage, Paving, Structures & Lighting
Milepost 70.6 to 82.6
Townships of Cranbury, Monroe, South Brunswick and
East Brunswick & Borough of Milltown
Middlesex County

February 16, 2012

To All Concerned:

The original Contract Plans and Specifications dated January 2012 for Contract No. T869.120.803 of the New Jersey Turnpike Authority are amended as noted in this Addendum No. 5, and this Addendum shall become part of the Contract Documents.

Bidders must acknowledge receipt of this Addendum and all previous and subsequent Addenda on the Proposal Forms when submitting Proposals. In case any bidder fails to acknowledge receipt of this addendum, his proposal will nevertheless be construed as though the Addendum had been received and acknowledged and submission of his proposal will constitute acknowledgement by the bidder of the receipt of same.

PERTAINING TO THE PROPOSAL

Page 3 Item No. 26, change the Approx. Qty. from 13,000 S.F. to 9,432 S.F.

Page 7R Item No. 79, change the Approx. Qty. from 405 C.Y. to 410 C.Y.

Page 11 Item No. 145, change the Approx. Qty. from 91,120 S.F. to 88,800 S.F.

 Item No. 147, change the Approx. Qty. from 4,460 S.F. to 6,720 S.F.

Page 13R2 Item No. 181, change the Approx. Qty. from 2,561 L.F. to 2,560 L.F.

Page 17R Item No. 250, change the Approx. Qty. from 24 C.Y. to 7 C.Y.

Two (2) copies of revised Proposal Pages 3R, 7R1, 11R, 13R3, and 17R1 dated 02/16/12 are enclosed herewith to reflect the above changes. One copy of the revised pages shall be substituted for the superseded pages in the bound Contract Book, and the second copy of the revised pages shall be substituted in the separated Proposal Forms, which were originally issued to prospective bidders.

PERTAINING TO THE SPECIFICATIONS

433.02

Page 182

In the paragraph added by Addendum No. 3, the telephone number in the first sentence is changed to (800) 421-0314.

502.05

Page 210

The following is added:

"The last two paragraphs of Subsection 502.05 of the Standard Specifications are deleted and replaced with the following:

Pipe plugs will be paid for as Incidental Concrete in accordance with Section 504."

802.03(A)

Page 294

The following is added:

"In Appendix W, the following note shall be added to the table titled "New Jersey Turnpike Outer Roadway, Lane Closures: MP 74.0 to 83.4 NB/ 83.8 SB*":

Where three lanes currently exist in the Northbound Outer Roadway, the values in this table shall be increased by one to reflect the third lane.

For any stage within which the temporary diverge north of Interchange 8A is operational, the allowable lane closing hours for the New Jersey Turnpike Mainline Northbound between MP 72.4 and the temporary diverge are as follows:

Single Lane Closings:

MONDAY - WEDNESDAY:	9:00 PM - 6:00 AM
THURSDAY:	10:00 PM - 6:00 AM
FRIDAY:	11:00 PM - 9:00 AM
SATURDAY:	11:59 PM - 8:00 AM
SUNDAY:	12:00 AM - 6:00 AM

Double Lane Closings:

MONDAY - WEDNESDAY:	11:59 PM - 5:00 AM
THURSDAY:	11:59 PM - 5:00 AM
FRIDAY:	1:00 AM SATURDAY - 7:00 AM SATURDAY
SATURDAY:	1:00 AM SUNDAY - 7:00 AM SUNDAY
SUNDAY:	1:00 AM MONDAY - 5:00 AM MONDAY

For any stage within which the temporary merge north of Interchange 8A is operational, the tables covering MP 67.6 to MP 83.8 SB that most closely reflect the lane configuration shall be utilized for the New Jersey Turnpike Mainline, the New Jersey Turnpike Inner Roadway and the New Jersey Turnpike Outer Roadway, respectively."

802.03(E)(1)
Page 298

The following is added to the first paragraph on page 298:

"For long durations, temporary pavement striping material shall be long life traffic paint material in accordance with Section 516."

PERTAINING TO THE PLANS

- Sheet No. 5 Item No. 26, change the contract quantity from 13,000 S.F. to 9,432 S.F. and change the plan sheet total from 12,192 S.F. to 8,624 S.F.
- Item No. 79, change the contract quantity and plan sheet total from 405 C.Y. to 410 C.Y.
- Sheet No. 6 Item No. 145, change the contract quantity and plan sheet total from 91,120 S.F. to 88,800 S.F.
- Item No. 147, change the contract quantity and plan sheet total from 4,460 S.F. to 6,720 S.F.
- Item No. 181, change the contract quantity and plan sheet total from 2,561 L.F. to 2,560 L.F.
- Item No. 250, change the contract quantity from 24 C.Y. to 7 C.Y., change the plan sheet total from 18 C.Y. to 7 C.Y., and change the if and where directed total from 6 C.Y. to 0 C.Y.
- Sheet No. 362 Replace note on NSO Roadway "Existing Bridge Mounted Sign (TO BE REMOVED, SEE ITS PLANS)" with "Existing ESW/SL Sign (TO BE REMOVED, SEE ITS PLANS)" and replace note on SNO Roadway "Existing ESW/SL Sign (TO BE REMOVED, SEE ITS PLANS)" with "Existing Bridge Mounted Sign (TO BE REMOVED, SEE ITS PLANS)". See enclosed Sheet No. 362.
- Sheet No. 788 Revised Elevation view for the Offset Inlet. See enclosed Sheet No. 788.
- Sheet No. 796 In the Earthwork Summary, under the heading "ACID PRODUCING SOILS AND ID-27 WASTE", change the following quantities:
- EXCAVATION, ACID PRODUCING SOILS (IF AND WHERE DIRECTED) - from 41,000 C.Y. to 4,000 C.Y.
- DISPOSAL OF ACID PRODUCING SOILS (IF AND WHERE DIRECTED) - from 66,000 Tons to 6,000 Tons
- OFF-SITE DISPOSAL OF ID-27 WASTE (IF AND WHERE DIRECTED) - from 66,000 Tons to 6,000 Tons
- Sheet No. 1210 Change quantity of item Ground Mounted Noise Barrier Panel, Type A from 38,810 SF to 36,490 SF for Noise Barrier No. 803-3.
- Change quantity of item Ground Mounted Noise Barrier Panel, Type C from 4,460 SF to 6,720 SF for Noise Barrier No. 803-3. See enclosed Sheet No. 1210.

- Sheet No. 1212 Change quantity of item Concrete Foundations for Overhead Sign Structures from 16 CY to 18 CY for Overhead Hybrid Changeable Message Sign Support Structure No. 26.
- Change quantity of item Concrete Foundations for Overhead Sign Structures from 19 CY to 20 CY for Overhead Span Fixed Message Sign Structure No. 28.
- Change quantity of item Concrete Foundations for Overhead Sign Structures from 20 CY to 22 CY for Overhead Span Fixed Message Sign Structure No. 29.
- Change quantity of item Drilled Shaft for Sign Structures from 114 LF to 112 LF for Overhead Span Fixed Message Sign Structure No. 29.
- Change quantity of item Drilled Shaft for Sign Structures from 111 LF to 112 LF for Overhead Span Fixed Message Sign Structure No. 30. See enclosed Sheet No. 1212.
- Sheet No. 1232 Revised quantities in Work Item Table. See enclosed Sheet No. 1232.
- Sheet No. 1257 Revised quantities in Work Item Table. See enclosed Sheet No. 1257.
- Sheet No. 1311 In the Elevation View, add the symbol "C" in each noise barrier panel along the second row and below Elevation 162.50. See enclosed Sheet No. 1311.
- Sheet No. 1312 In the Elevation View, add the symbol "C" in the three noise barrier panels at the left-hand side of the view below Elevation 162.5. See enclosed Sheet No. 1312.
- Sheet No. 1323 In the Pedestal Foundation Elevation Table, switch the designations for "Left" and "Right" below Elevation B and Elevation C. See enclosed Sheet No. 1323.
- Sheet No. 1324 In the Pedestal Foundation Elevation Table, switch the designations for "Left" and "Right" below Elevation B and Elevation C. See enclosed Sheet No. 1324.
- Sheet No. 1325 In the Pedestal Foundation Elevation Table, switch the designations for "Left" and "Right" below Elevation B and Elevation C. See enclosed Sheet No. 1325.
- Sheet No. 1335 In the Pedestal Foundation Elevation Table, switch the designations for "Left" and "Right" below Elevation B and Elevation C. See enclosed Sheet No. 1335.
- Sheet No. 1336 In the Pedestal Foundation Elevation Table, switch the designations for "Left" and "Right" below Elevation B and Elevation C. See enclosed Sheet No. 1336.
- Sheet No. 1337 In the Pedestal Foundation Elevation Table, change Elevation A from 119.00 to 119.75. See enclosed Sheet No. 1337.

NEW JERSEY TURNPIKE AUTHORITY

Richard J. Raczynski, P.E.
Chief Engineer

Enclosure:

Two copies of Proposal Pages 3R, 7R1, 11R, 13R3, and 17R1

Contract Plan Sheets 362, 788, 1210, 1212, 1232, 1257, 1311, 1312, 1323, 1324, 1325, 1335, 1336, and 1337 (11"x17")

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
13	N2C0005	Settlement Platforms	Each	16				
14	2E01FEX	Foundation Excavation	C.Y.	2,366				
15	2F04TEX	Trench Excavation, Electrical	L.F.	17,441				
16	2G12A07	Riprap Stone Aprons, 6" Thick (D50=3")	Ton	267				
17	2G12A06	Riprap Stone Aprons, 12" Thick (D50=6")	Ton	810				
18	2G00005	Riprap Stone Aprons, 18" Thick (D50=9")	Ton	806				
19	2G12A08	Riprap Stone Aprons, 24" Thick (D50=12")	Ton	326				
20	2G00028	Riprap Stone Aprons, 36" Thick (D50=18")	Ton	100				
21	2G00002	Riprap Stone Slope Protection, 12" Thick, (D50=6")	Ton	311				
22	2G00032	Riprap Stone Slope Protection, 18" Thick, (D50=5")	Ton	1,873				
23	2G10SEC	Filter Blanket	Ton	1,172				
24	2H00007	Heavy Duty Silt Fence, Black	L.F.	58,373				
25	2H00011	Turf Reinforcement Matting	S.Y.	25,000				
26	2H00015	Inlet Filter, Type 1	S.F.	9,432				
27	2H00018	Sediment Control Bags	Each	10				
28	2H25TEC	Hay Bales	C.Y.	100				
29	2H35TEC	Floating Turbidity Barriers	L.F.	1,820				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
79	4F10OHF	Concrete Foundations for Overhead Sign Structures	C.Y.	410				
80	4F01RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 1 (73.4 NSI)	L.S.	1	-----	--		
81	4F02RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 2 (73.4 NSO)	L.S.	1	-----	--		
82	4F03RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 3 (73.9 SNI)	L.S.	1	-----	--		
83	4F04RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 4 (73.9 SNO)	L.S.	1	-----	--		
84	4F05RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 5 (76.1 NSI)	L.S.	1	-----	--		
85	4F06RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 6 (76.1 NSO)	L.S.	1	-----	--		
86	4F07RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 7 (79.8 NSI)	L.S.	1	-----	--		
87	4F08RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 8 (79.8 NSO)	L.S.	1	-----	--		
88	4F09RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 9 (82.2 NSI)	L.S.	1	-----	--		
89	4F10RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 10 (82.2 NSO)	L.S.	1	-----	--		
90	4F01RCC	Remove Existing Cantilever CMS Sign Structure No. 1 (73.89)	L.S.	1	-----	--		
91	4F01RSC	Remove Existing Span CMS Sign Structure No. 1 (70.8 SNI)	L.S.	1	-----	--		
92	4F02RSC	Remove Existing Span CMS Sign Structure No. 2 (71.9 NSI)	L.S.	1	-----	--		
93	4F03RSC	Remove Existing Span CMS Sign Structure No. 3 (72.8 SNI/SNO)	L.S.	1	-----	--		
94	4F04RSC	Remove Existing Span CMS Sign Structure No. 4 (73.89)	L.S.	1	-----	--		

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
144	4R25BSR	Substructure Membrane Waterproofing	S.F.	3,361				
145	4ZA01NBP	Ground Mounted Noise Barrier Panel, Type A	S.F.	88,800				
146	4ZA06NBP	Ground Mounted Noise Barrier Panel, Type B	S.F.	490				
147	4ZA07NBP	Ground Mounted Noise Barrier Panel, Type C	S.F.	6,720				
148	4ZA00GMP	Ground Mounted Post, Type A	L.F.	5,650				
149	4ZA01GMP	Ground Mounted Post, Type B	L.F.	2,218				
150	4ZA02GMP	Ground Mounted Post, Type C	L.F.	224				
151	4ZA00NBF	Noise Barrier Foundation	L.F.	6,228				
152	4ZA10NBS	Concrete Penetrating Stain	S.F.	96,070				
153	4ZA42CRA	Additional Crushed Stone	C.Y.	145				
154	4ZF0001	MSE Abutment Wall No. 1	S.F.	540				
155	4ZF0024	MSE Abutment Wall No. 2	S.F.	630				
156	4ZF0030	MSE Abutment Wall No. 3	S.F.	1,055				
157	4ZF0025	MSE Abutment Wall No. 4	S.F.	730				
158	4ZG02RET	Retaining Wall, Location No. 2 (803-2)	S.F.	910				
159	4ZG03RET	Retaining Wall, Location No. 3 (803-3)	S.F.	1,005				
160	4ZG04RET	Retaining Wall, Location No. 4 (803-4)	S.F.	23,960				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	390				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,560				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	807				
186	5A00016	10" Outlet Pipe	L.F.	130				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,557				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
246	5C00064	Offset Inlet	Each	1				
247	5C01HDF	Heavy Duty Frame with Bolted Grates for D-1 Inlets	Each	6				
248	5C02HDF	Heavy Duty Frame with Bolted Grates for D-2 Inlets	Each	4				
249	5C03HDF	Heavy Duty Filled In Grate	Each	30				
250	5D10INC	Incidental Concrete	C.Y.	7				
251	5E01ALC	Asphalt Concrete Lip Curb	L.F.	33,228				
252	5E02ALC	Asphalt Concrete Lip Curb Inlet	Each	4				
253	5F00002	Concrete Island, 4" Thick	S.Y.	947				
254	5F01VCA	Concrete Curb, Type A	L.F.	4,295				
255	5H00004	VMS Equipment Median	Each	4				
256	5H01CMB	Concrete Median Barrier, Roadway	L.F.	12,129				
257	5H03CMB	Concrete Median Barrier, Protection	L.F.	3,388				
258	5H01REC	Barrier Reconstruction, Type 1	Each	4				
259	5H02REC	Barrier Reconstruction, Type 2	Each	3				
260	5H03REC	Barrier Reconstruction, Type 3	Each	10				
261	5H00006	Existing Median Removal and Reconstruction (Ramp SOT)	L.S.	1	-----	--		
262	5I01SNP	Sign Panels	S.F.	6,506				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
13	N2C0005	Settlement Platforms	Each	16				
14	2E01FEX	Foundation Excavation	C.Y.	2,366				
15	2F04TEX	Trench Excavation, Electrical	L.F.	17,441				
16	2G12A07	Riprap Stone Aprons, 6" Thick (D50=3")	Ton	267				
17	2G12A06	Riprap Stone Aprons, 12" Thick (D50=6")	Ton	810				
18	2G00005	Riprap Stone Aprons, 18" Thick (D50=9")	Ton	806				
19	2G12A08	Riprap Stone Aprons, 24" Thick (D50=12")	Ton	326				
20	2G00028	Riprap Stone Aprons, 36" Thick (D50=18")	Ton	100				
21	2G00002	Riprap Stone Slope Protection, 12" Thick, (D50=6")	Ton	311				
22	2G00032	Riprap Stone Slope Protection, 18" Thick, (D50=5")	Ton	1,873				
23	2G10SEC	Filter Blanket	Ton	1,172				
24	2H00007	Heavy Duty Silt Fence, Black	L.F.	58,373				
25	2H00011	Turf Reinforcement Matting	S.Y.	25,000				
26	2H00015	Inlet Filter, Type 1	S.F.	9,432				
27	2H00018	Sediment Control Bags	Each	10				
28	2H25TEC	Hay Bales	C.Y.	100				
29	2H35TEC	Floating Turbidity Barriers	L.F.	1,820				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
79	4F10OHF	Concrete Foundations for Overhead Sign Structures	C.Y.	410				
80	4F01RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 1 (73.4 NSI)	L.S.	1	-----	--		
81	4F02RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 2 (73.4 NSO)	L.S.	1	-----	--		
82	4F03RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 3 (73.9 SNI)	L.S.	1	-----	--		
83	4F04RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 4 (73.9 SNO)	L.S.	1	-----	--		
84	4F05RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 5 (76.1 NSI)	L.S.	1	-----	--		
85	4F06RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 6 (76.1 NSO)	L.S.	1	-----	--		
86	4F07RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 7 (79.8 NSI)	L.S.	1	-----	--		
87	4F08RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 8 (79.8 NSO)	L.S.	1	-----	--		
88	4F09RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 9 (82.2 NSI)	L.S.	1	-----	--		
89	4F10RBE	Remove Existing Bridge Mounted ESW/SL Sign Structure No. 10 (82.2 NSO)	L.S.	1	-----	--		
90	4F01RCC	Remove Existing Cantilever CMS Sign Structure No. 1 (73.89)	L.S.	1	-----	--		
91	4F01RSC	Remove Existing Span CMS Sign Structure No. 1 (70.8 SNI)	L.S.	1	-----	--		
92	4F02RSC	Remove Existing Span CMS Sign Structure No. 2 (71.9 NSI)	L.S.	1	-----	--		
93	4F03RSC	Remove Existing Span CMS Sign Structure No. 3 (72.8 SNI/SNO)	L.S.	1	-----	--		
94	4F04RSC	Remove Existing Span CMS Sign Structure No. 4 (73.89)	L.S.	1	-----	--		

T869.120.803

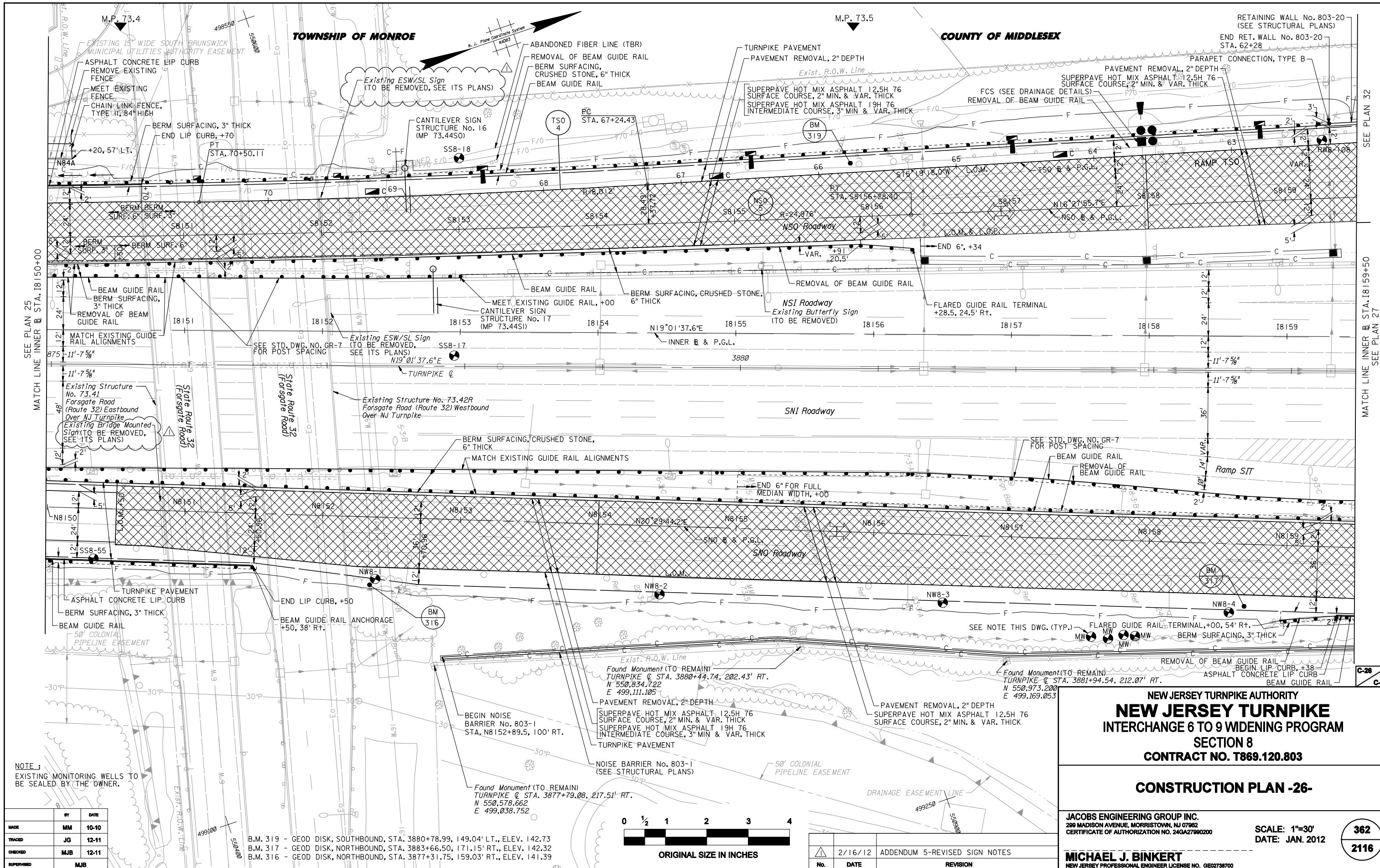
ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
144	4R25BSR	Substructure Membrane Waterproofing	S.F.	3,361				
145	4ZA01NBP	Ground Mounted Noise Barrier Panel, Type A	S.F.	88,800				
146	4ZA06NBP	Ground Mounted Noise Barrier Panel, Type B	S.F.	490				
147	4ZA07NBP	Ground Mounted Noise Barrier Panel, Type C	S.F.	6,720				
148	4ZA00GMP	Ground Mounted Post, Type A	L.F.	5,650				
149	4ZA01GMP	Ground Mounted Post, Type B	L.F.	2,218				
150	4ZA02GMP	Ground Mounted Post, Type C	L.F.	224				
151	4ZA00NBF	Noise Barrier Foundation	L.F.	6,228				
152	4ZA10NBS	Concrete Penetrating Stain	S.F.	96,070				
153	4ZA42CRA	Additional Crushed Stone	C.Y.	145				
154	4ZF0001	MSE Abutment Wall No. 1	S.F.	540				
155	4ZF0024	MSE Abutment Wall No. 2	S.F.	630				
156	4ZF0030	MSE Abutment Wall No. 3	S.F.	1,055				
157	4ZF0025	MSE Abutment Wall No. 4	S.F.	730				
158	4ZG02RET	Retaining Wall, Location No. 2 (803-2)	S.F.	910				
159	4ZG03RET	Retaining Wall, Location No. 3 (803-3)	S.F.	1,005				
160	4ZG04RET	Retaining Wall, Location No. 4 (803-4)	S.F.	23,960				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
178	4ZG22RET	Retaining Wall, Location No. 22 (803-22)	S.F.	2,305				
179	4ZG23RET	Retaining Wall, Location No. 23 (803-23)	S.F.	390				
180	4ZL0001	30" Diameter Drilled Shaft	L.F.	695				
181	4ZL0013	Drilled Shaft for Sign Structures	L.F.	2,560				
182	4ZM03HPC	Concrete in Headblock, HPC	C.Y.	44				
183	4ZM04HPC	Concrete in Parapet, HPC	C.Y.	682				
184	4ZM06HPC	Concrete in Deck, HPC	C.Y.	837				
185	5A00004	8" Outlet Pipe	L.F.	807				
186	5A00016	10" Outlet Pipe	L.F.	130				
187	5A08PUD	8" Pipe Underdrain	L.F.	54,799				
188	5A00007	10" Pipe Underdrain	L.F.	2,557				
189	5A00008	12" High Density Polyethylene Pipe	L.F.	40				
190	5A00009	12" High Density Polyethylene Elbows	Each	6				
191	5B00002	14" x 23" Reinforced Concrete End Sections	Each	1				
192	5B00017	14" x 23" Elliptical Reinforced Concrete Pipe, Class III	L.F.	196				
193	N5B0006	14" x 23" Reinforced Concrete Elliptical Pipe, Class IV	L.F.	100				
194	5B00014	19" X 30" Horizontal Elliptical Reinforced Concrete Pipe	L.F.	229				

T869.120.803

ITEM NO.	UNIT CODE	ITEMS	UNIT	APPROX QTY.	UNIT PRICE		AMOUNT	
					Dollars	Cents	Dollars	Cents
246	5C00064	Offset Inlet	Each	1				
247	5C01HDF	Heavy Duty Frame with Bolted Grates for D-1 Inlets	Each	6				
248	5C02HDF	Heavy Duty Frame with Bolted Grates for D-2 Inlets	Each	4				
249	5C03HDF	Heavy Duty Filled In Grate	Each	30				
250	5D10INC	Incidental Concrete	C.Y.	7				
251	5E01ALC	Asphalt Concrete Lip Curb	L.F.	33,228				
252	5E02ALC	Asphalt Concrete Lip Curb Inlet	Each	4				
253	5F00002	Concrete Island, 4" Thick	S.Y.	947				
254	5F01VCA	Concrete Curb, Type A	L.F.	4,295				
255	5H00004	VMS Equipment Median	Each	4				
256	5H01CMB	Concrete Median Barrier, Roadway	L.F.	12,129				
257	5H03CMB	Concrete Median Barrier, Protection	L.F.	3,388				
258	5H01REC	Barrier Reconstruction, Type 1	Each	4				
259	5H02REC	Barrier Reconstruction, Type 2	Each	3				
260	5H03REC	Barrier Reconstruction, Type 3	Each	10				
261	5H00006	Existing Median Removal and Reconstruction (Ramp SOT)	L.S.	1	-----	--		
262	5I01SNP	Sign Panels	S.F.	6,506				



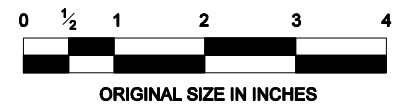
SEE PLAN 25
MATCH LINE INNER @ STA. 18150+00

SEE PLAN 32
MATCH LINE INNER @ STA. 18159+50
SEE PLAN 27

NOTE :
EXISTING MONITORING WELLS TO BE SEALED BY THE OWNER.

	BY	DATE
MADE	MM	10-10
TRACED	JG	12-11
CHECKED	MJB	12-11
SUPERVISED	MJB	

B.M. 319 - GEOD DISK, SOUTHBOUND, STA. 3880+78.99, 149.04' LT., ELEV. 142.73
 B.M. 317 - GEOD DISK, NORTHBOUND, STA. 3883+66.50, 171.15' RT., ELEV. 142.32
 B.M. 316 - GEOD DISK, NORTHBOUND, STA. 3877+31.75, 159.03' RT., ELEV. 141.39



No.	DATE	REVISION
1	2/16/12	ADDENDUM 5-REVISED SIGN NOTES

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

CONSTRUCTION PLAN -26-

JACOBS ENGINEERING GROUP INC.
 280 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 246A27890200

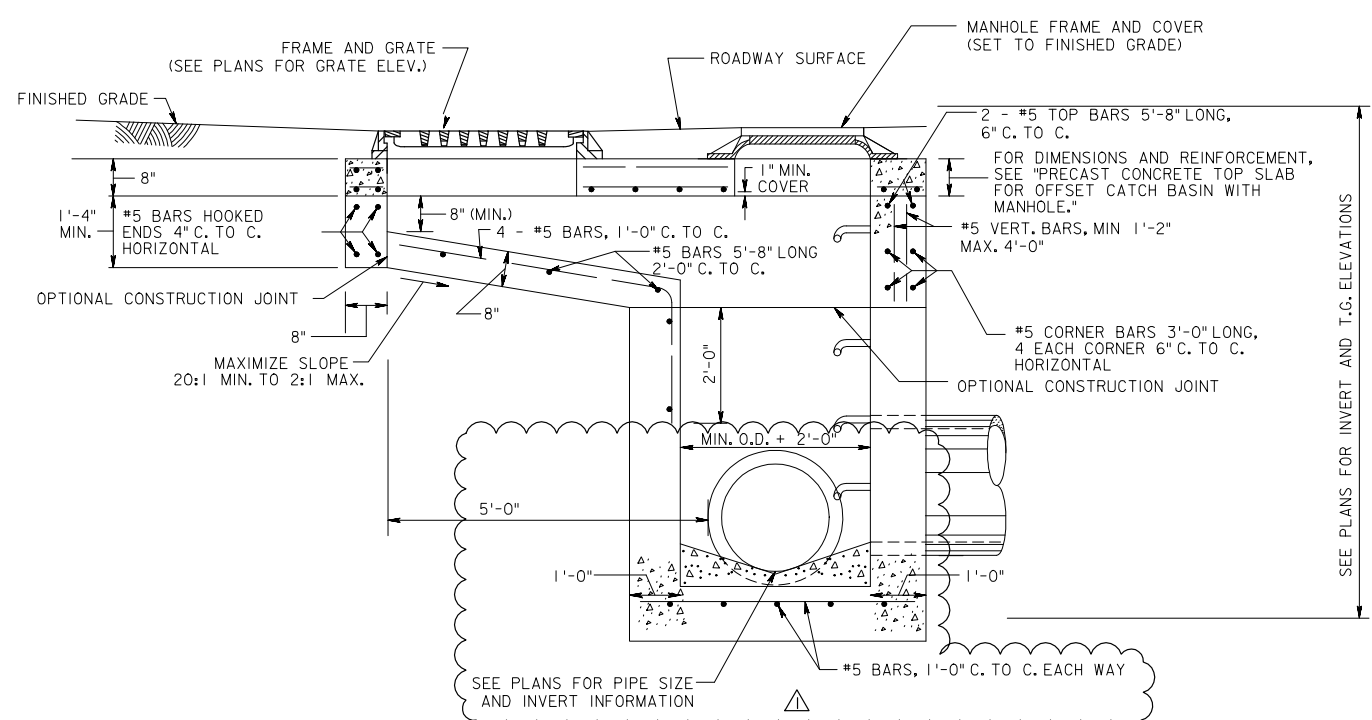
SCALE: 1"=30'
 DATE: JAN. 2012

MICHAEL J. BINKERT
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02738700

C-26
C-77

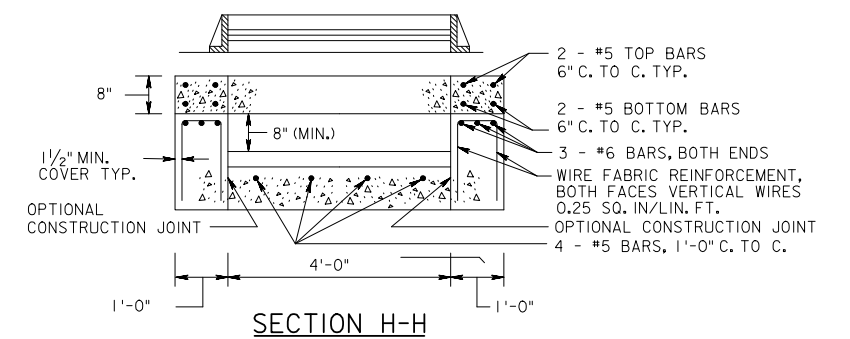
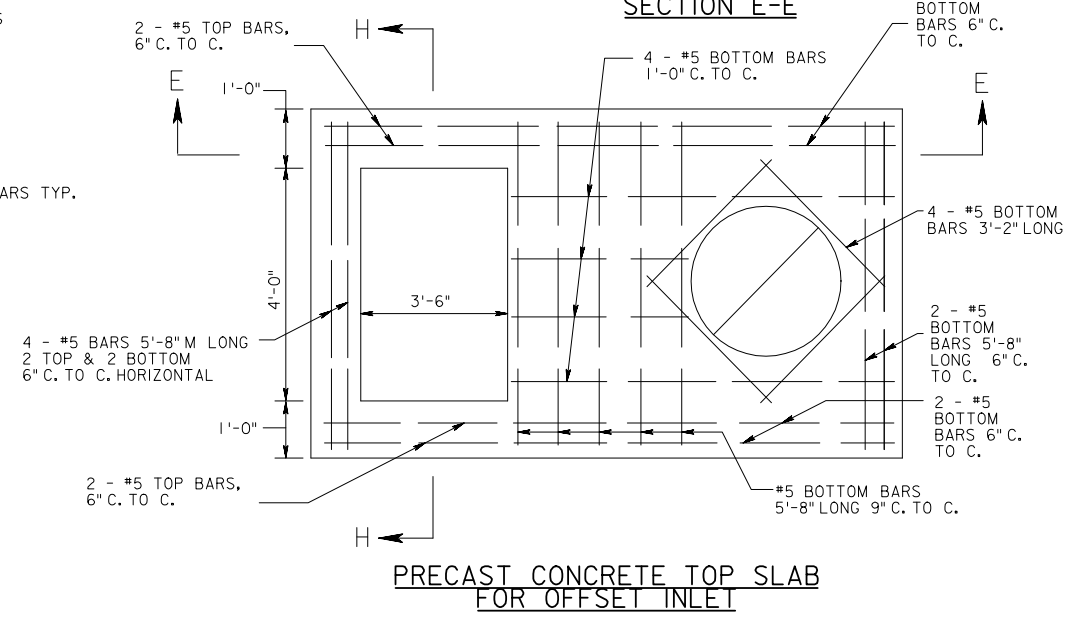
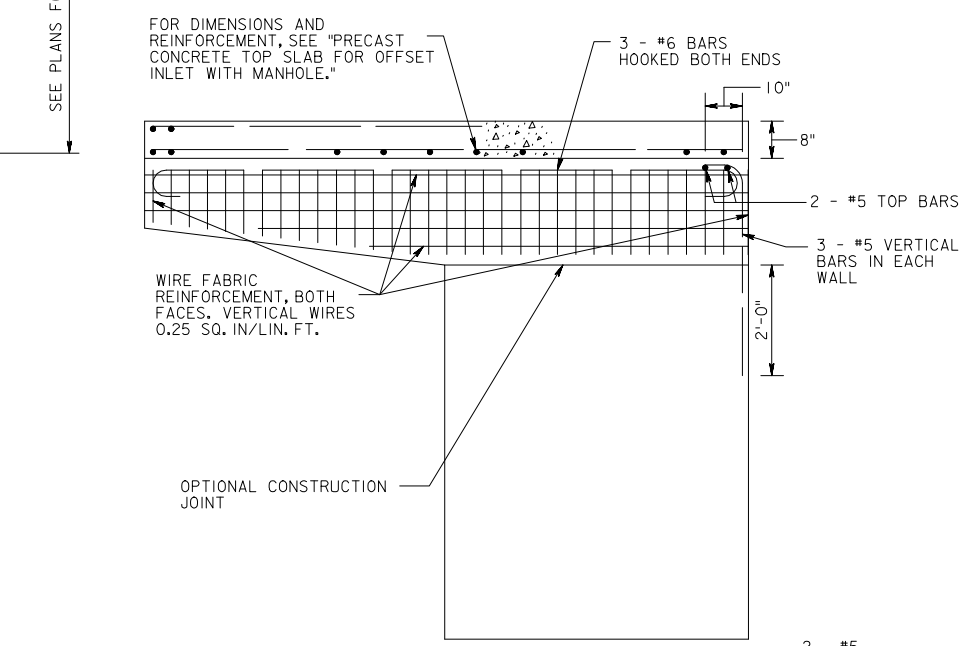
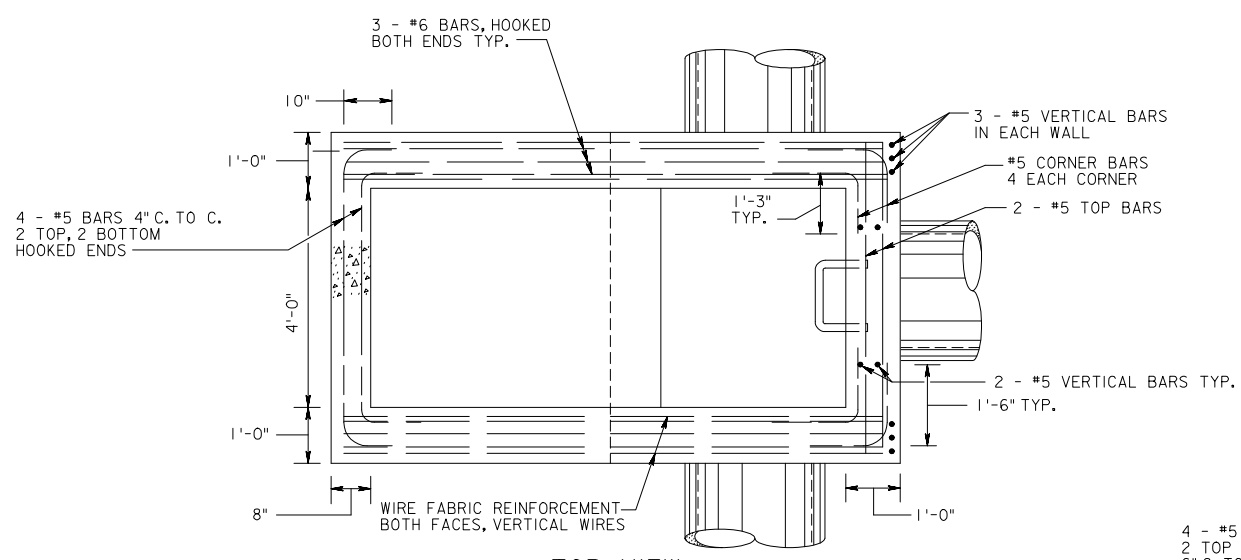
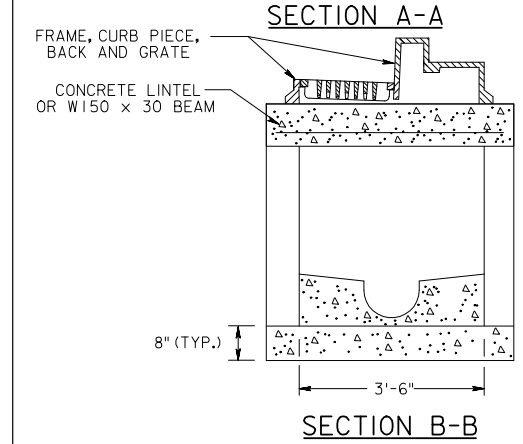
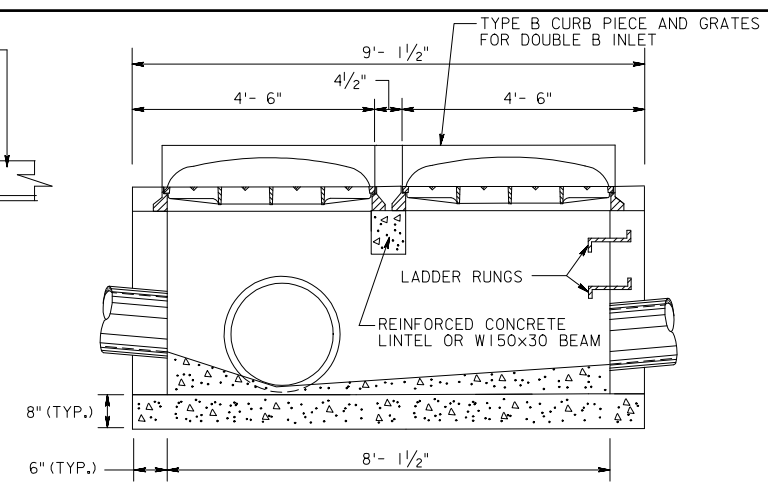
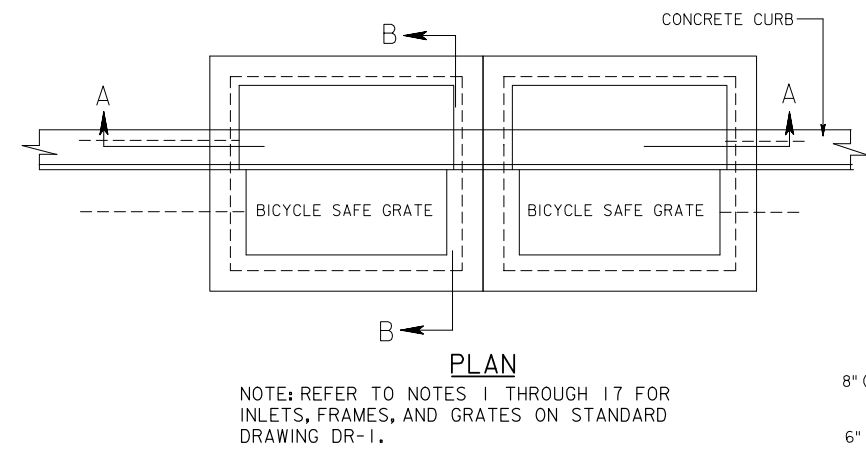
APPENDUM NO. 5, SHEET 1 OF 14

FILE NAME: T869-120-803-0362.dgn



ELEVATION
OFFSET INLET
(NOT TO SCALE)

SEE PLANS FOR INVERT AND T.G. ELEVATIONS



	BY	DATE
MADE	BM	5/09
TRACED	KHM	12/11
CHECKED	KHM	12/11
SUPERVISED	TRD	

No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- REV. OFFSET INLET ELEV. VIEW

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE INTERCHANGE 6 TO 9 WIDENING PROGRAM SECTION 8
CONTRACT NO. T869.120.803

CONSTRUCTION DETAIL -15-

JACOBS ENGINEERING GROUP INC.
280 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: NONE
DATE: JAN. 2012

THOMAS R. DECKER
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE03889600

788
2116

UNIT CODE	ITEM DESCRIPTION	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTAL	AS BUILT QUANTITY
	RETAINING WALL NO. 803-7				
4ZG17RET	RETAINING WALL, LOCATION NO. 7 (803-7)	S.F.	4,935		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	975		
6A25JBD	JUNCTION BOX, TYPE D	EACH	Δ 4 3		
	RETAINING WALL NO. 803-8				
4ZG08RET	RETAINING WALL, LOCATION NO. 8 (803-8)	S.F.	16,650		
	RETAINING WALL NO. 803-9				
4ZG09RET	RETAINING WALL, LOCATION NO. 9 (803-9)	S.F.	Δ +16,200 14,650		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	2,045 2,065		
6A25JBD	JUNCTION BOX, TYPE D	EACH	8		
	RETAINING WALL NO. 803-10				
4ZG10RET	RETAINING WALL, LOCATION NO. 10 (803-10)	S.F.	Δ -3,215 3,340		
	RETAINING WALL NO. 803-11				
4ZG11RET	RETAINING WALL, LOCATION NO. 11 (803-11)	S.F.	2,190		
	RETAINING WALL NO. 803-12				
4ZG12RET	RETAINING WALL, LOCATION NO. 12 (803-12)	S.F.	1,155		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	Δ -530 550		
6A25JBD	JUNCTION BOX, TYPE D	EACH	3		
	RETAINING WALL NO. 803-13				
4ZG13RET	RETAINING WALL, LOCATION NO. 13 (803-13)	S.F.	Δ -5,980 5,945		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	2,290 2,310		
6A25JBD	JUNCTION BOX, TYPE D	EACH	8 9		
	RETAINING WALL NO. 803-14				
4ZG14RET	RETAINING WALL, LOCATION NO. 14 (803-14)	S.F.	580		
	RETAINING WALL NO. 803-15				
4ZG15RET	RETAINING WALL, LOCATION NO. 15 (803-15)	S.F.	1,280		
	RETAINING WALL NO. 803-16				
4ZG16RET	RETAINING WALL, LOCATION NO. 16 (803-16)	S.F.	Δ 9,360 9,415		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	1,535 1,575		
6A25JBD	JUNCTION BOX, TYPE D	EACH	5		
	RETAINING WALL NO. 803-17				
4ZG17ARET	RETAINING WALL, LOCATION NO. 17 (803-17)	S.F.	7,140		
	RETAINING WALL NO. 803-18				
4ZG18RET	RETAINING WALL, LOCATION NO. 18 (803-18)	S.F.	6,375		
6A03RMS	3" RIGID METALLIC CONDUIT ON STRUCTURES	L.F.	Δ +1,451 1,165		
6A25JBD	JUNCTION BOX, TYPE D	EACH	5		
	RETAINING WALL NO. 803-19				
4ZG19RET	RETAINING WALL, LOCATION NO. 19 (803-19)	S.F.	445		
	RETAINING WALL NO. 803-20				
4ZG20RET	RETAINING WALL, LOCATION NO. 20 (803-20)	S.F.	Δ -490 335		
	RETAINING WALL NO. 803-21				
4ZG21RET	RETAINING WALL, LOCATION NO. 21 (803-21)	S.F.	Δ +25 15		

UNIT CODE	ITEM DESCRIPTION	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTAL	AS BUILT QUANTITY
	RETAINING WALL NO. 803-22				
4ZG22RET	RETAINING WALL, LOCATION NO. 22 (803-22)	S.F.	2,305		
	RETAINING WALL NO. 803-23				
4ZG23RET	RETAINING WALL, LOCATION NO. 23 (803-23)	S.F.	Δ -190 390		
	NOISE BARRIER NO 803-1				
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	25		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	16,380		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	16,380		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	1,400		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	1,098		
	NOISE BARRIER NO 803-2				
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	6,300		
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	15		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	7,660		
4ZA06NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE B	S.F.	490		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	8,150		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	650		
4ZA01GMP	GROUND MOUNTED POST, TYPE B	L.F.	48		
4ZM04HPC	CONCRETE IN PARAPET, HPC	C.Y.	80		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	558		
	NOISE BARRIER NO 803-3				
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	60		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	Δ -30,810 36,490		
4ZA07NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE C	S.F.	Δ -4,160 6,120		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	43,270		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	1,180		
4ZA01GMP	GROUND MOUNTED POST, TYPE B	L.F.	2,170		
4ZA02GMP	GROUND MOUNTED POST, TYPE C	L.F.	180		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	2,538		
	NOISE BARRIER NO 803-4				
4ZA42CRA	ADDITIONAL CRUSHED STONE	C.Y.	45		
4ZA00NBP	GROUND MOUNTED NOISE BARRIER PANEL, TYPE A	S.F.	28,270		
4ZA10NBS	CONCRETE PENETRATING STAIN	S.F.	28,270		
4ZA00GMP	GROUND MOUNTED POST, TYPE A	L.F.	2,420		
4ZA02GMP	GROUND MOUNTED POST, TYPE C	L.F.	44		
4ZA00NBF	NOISE BARRIER FOUNDATION	L.F.	2,034		
	OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 1				
4ZN0037	INSTALL OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 1 (72.08N0)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,400		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	21		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	118		
	OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 2				
4ZN0038	INSTALL OVERHEAD SPAN VARIABLE MESSAGE SIGN AND VARIABLE SPEED LIMIT SIGN SUPPORT STRUCTURE NO. 2 (72.08N1)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,200		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	18		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	114		

	BY	DATE
MADE	LD	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
Δ	2/16/12	ADDENDUM 5- QUANTITY CHANGE
Δ	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

ESTIMATE OF QUANTITIES - STRUCTURES - 2

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: NONE
 DATE: JAN. 2012

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

S-4
 S-138

ADDENDUM NO. 6- SHEET 3 OF 14
 1210
 2116

UNIT CODE	ITEM DESCRIPTION	UNIT	CONTRACT QUANTITY	PLAN SHEET TOTAL	AS BUILT QUANTITY
OVERHEAD HYBRID CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURE NO. 26					
4ZN01XX	INSTALL OVERHEAD HYBRID CHANGEABLE MESSAGE SIGN SUPPORT STRUCTURE NO. 5 (78.88)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,100		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	16 18		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 27					
4F2610S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 2 (75.16 N)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,300		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	19		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 28					
4F2710S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 3 (75.27 S)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,400		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	19 20		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 29					
4F2810S	INSTALL OVERHEAD SPAN FIXED STRUCTURE NO. 4 (74.33 N)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,500		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	20 22		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	114 112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 30					
4F2910S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 5 (76.11 SI)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,300		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	18		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	111 112		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 31					
4F3010S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 6 (76.11 SO)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,300		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	18		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		
MODIFICATIONS OF EXISTING STRUCTURES					
2J01DES	DEMOLITION OF EXISTING STRUCTURES	L.S.	L.S.		
3D05APS	BRIDGE APPROACH SLAB	S.Y.	292		
4ZM04HPC	CONCRETE IN PARAPET, HPC	C.Y.	288		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	31,600		
5H01REC	BARRIER RECONSTRUCTION, TYPE 1	EACH	4		
5H02REC	BARRIER RECONSTRUCTION, TYPE 2	EACH	3		
5H03REC	BARRIER RECONSTRUCTION, TYPE 3	EACH	10		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 32					
4F5010S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 7 (71.84)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,800		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	27		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	140		
OVERHEAD SPAN FIXED MESSAGE SIGN STRUCTURE NO. 33					
4F5110S	INSTALL OVERHEAD SPAN SIGN STRUCTURE NO. 8 (72.14)	L.S.	L.S.		
4A11RFS	REINFORCEMENT STEEL, EPOXY COATED	POUND	1,500		
4F100HF	CONCRETE FOUNDATIONS FOR OVERHEAD SIGN STRUCTURES	C.Y.	22		
4ZL0013	DRILLED SHAFT FOR SIGN STRUCTURES	L.F.	112		



	BY	DATE
MADE	LD	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
△	2/16/12	ADDENDUM 5- QUANTITY CHANGE
△	01/17/12	ADDENDUM 1-ADDED SIGN STRUCTURES 32 & 33

S-5A
S-13B

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

ESTIMATE OF QUANTITIES - STRUCTURES - 4

JACOBS ENGINEERING GROUP INC.
290 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

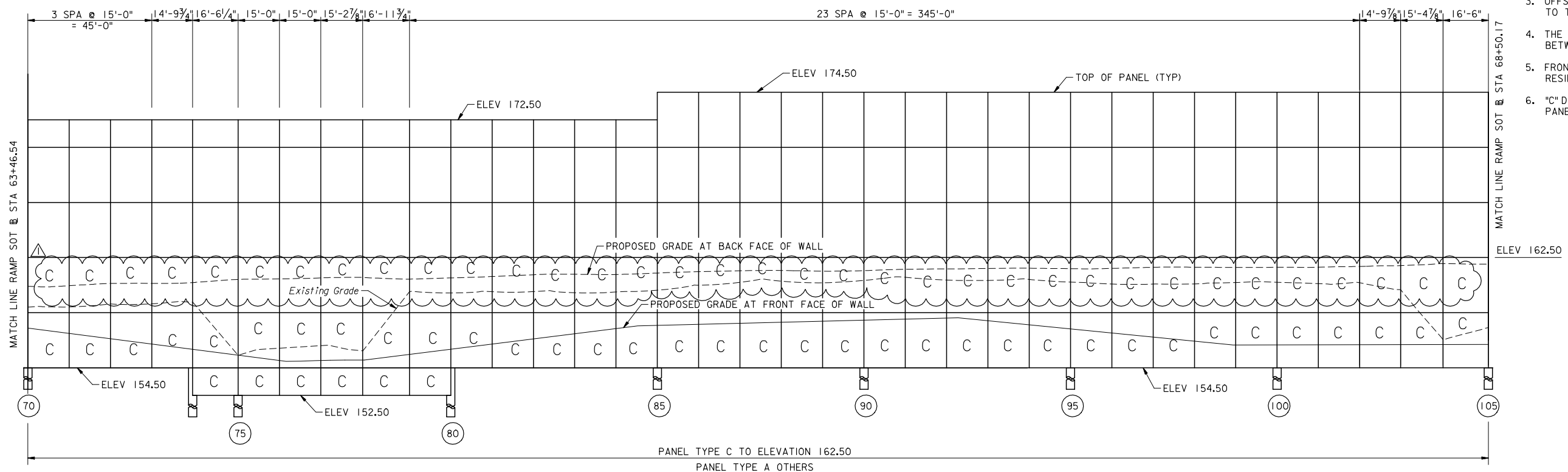
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: NONE
DATE: JAN. 2012

1212
2116

NOTES:

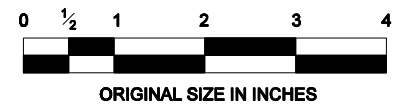
- FOR GENERAL NOTES, SEE SHEET S-96.
- FOR DETAILS OF POST AND PANEL TYPES, SEE SHEETS S-110 THRU S-112.
- OFFSETS ARE GIVEN FROM THE BASELINE TO THE CENTERLINE OF THE POST.
- THE WORK LINE IS DEFINED AS A CHORD BETWEEN THE POST CENTERLINES.
- FRONT FACE OF WALL IS DEFINED AS THE RESIDENTIAL SIDE.
- "C" DENOTES PANEL TYPE C. ALL OTHER PANELS ARE TYPE A.



PANEL TYPE C TO ELEVATION 162.50
 PANEL TYPE A OTHERS
ELEVATION
 SCALE: 1" = 20'-0"

POST NUMBER	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	
DISTANCE ALONG WORK LINE	1050.46	1065.46	1080.46	1095.28	1111.80	1126.80	1141.80	1157.03	1174.01	1189.01	1204.01	1219.01	1234.01	1249.01	1264.01	1279.01	1294.01	1309.01	1324.01	1339.01	1354.01	1369.01	1384.01	1399.01	1414.01	1429.01	1444.01	1459.01	1474.01	1489.01	1504.01	1519.01	1533.83	1549.24	1565.74	
OFFSET - SOT	18.25	18.25	18.25	18.25	25.68	25.09	25.08	25.66	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	18.25	25.28	24.17		
OFFSET - TNO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOP OF POST ELEVATION	172.50	172.50	172.50	172.50	172.50	172.50	172.50	172.50	172.50	172.50	172.50	172.50	172.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50	174.50		
TOP OF DRILLED SHAFT ELEVATION	154.50	154.50	154.50	152.50	152.50	152.50	152.50	152.50	152.50	152.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50		
MIN BOTTOM OF DRILLED SHAFT ELEVATION	136.50	136.50	136.50	134.50	134.50	134.50	134.50	134.50	134.50	134.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50		
MIN CAISSON LENGTH	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00		
POST TYPE	A	A	A	C	B	B	B	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	



No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- PANEL DESIGNATION CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

NOISE BARRIER NO. 803-3
ELEVATION - 3

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

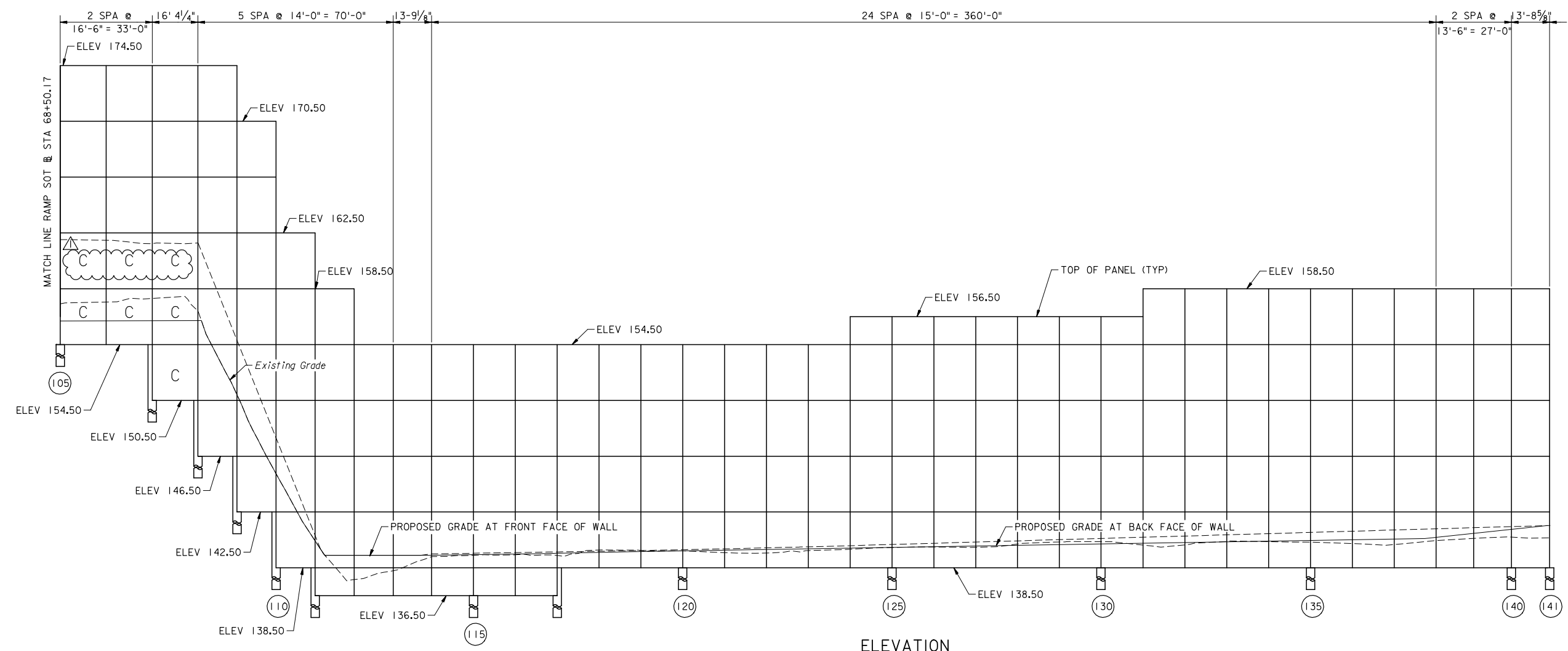
SCALE: 1"=20'
 DATE: JAN. 2012

1311
 2116

FILE NAME: T869-120-803-1311.dgn

ADDENDUM NO. 5: SHEET 5 OF 14

END NOISE BARRIER NO 803-3
 C POST NO 141
 TNO B STA 20+44.19
 OFFSET 20.25 RIGHT



ELEVATION
 SCALE: 1" = 20'-0"

POST NUMBER	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141
DISTANCE ALONG WORK LINE	1582.24	1598.74	1615.10	1629.10	1643.10	1657.10	1671.10	1685.10	1698.86	1713.89	1728.86	1743.86	1758.86	1773.86	1788.86	1803.86	1818.86	1833.86	1848.86	1863.86	1878.86	1893.86	1908.86	1923.86	1938.86	1953.86	1968.86	1983.86	1998.86	2013.86	2028.86	2043.86	2058.86	2072.36	2085.86	2099.58
OFFSET - SOT	23.43	23.09	23.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OFFSET - TNO	-	-	-	68.74	52.53	44.43	36.32	28.22	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25	20.25
TOP OF POST ELEVATION	174.50	174.50	174.50	174.50	170.50	162.50	158.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	154.50	156.50	156.50	156.50	156.50	156.50	156.50	156.50	158.50	158.50	158.50	158.50	158.50	158.50	158.50	158.50	158.50	158.50	158.50	158.50
TOP OF CAISSON ELEVATION	154.50	150.50	146.50	142.50	138.50	136.50	136.50	136.50	136.50	136.50	136.50	136.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50	138.50
MIN BOTTOM OF CAISSON ELEVATION	136.50	132.50	128.50	124.50	120.50	118.50	118.50	118.50	118.50	118.50	118.50	118.50	118.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50	120.50
MIN LENGTH OF CAISSON	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
POST TYPE	B	B	C	B	B	B	B	A	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	

NOTES:

- FOR GENERAL NOTES, SEE SHEET S-96.
- FOR DETAILS OF POST AND PANEL TYPES, SEE SHEETS S-110 THRU S-112.
- OFFSETS ARE GIVEN FROM THE BASELINE TO THE CENTERLINE OF THE POST.
- THE WORK LINE IS DEFINED AS A CHORD BETWEEN THE POST CENTERLINES.
- FRONT FACE OF WALL IS DEFINED AS THE RESIDENTIAL SIDE.
- "C" DENOTES PANEL TYPE C. ALL OTHER PANELS ARE TYPE A.



	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- PANEL DESIGNATION CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

NOISE BARRIER NO. 803-3
ELEVATION - 4

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

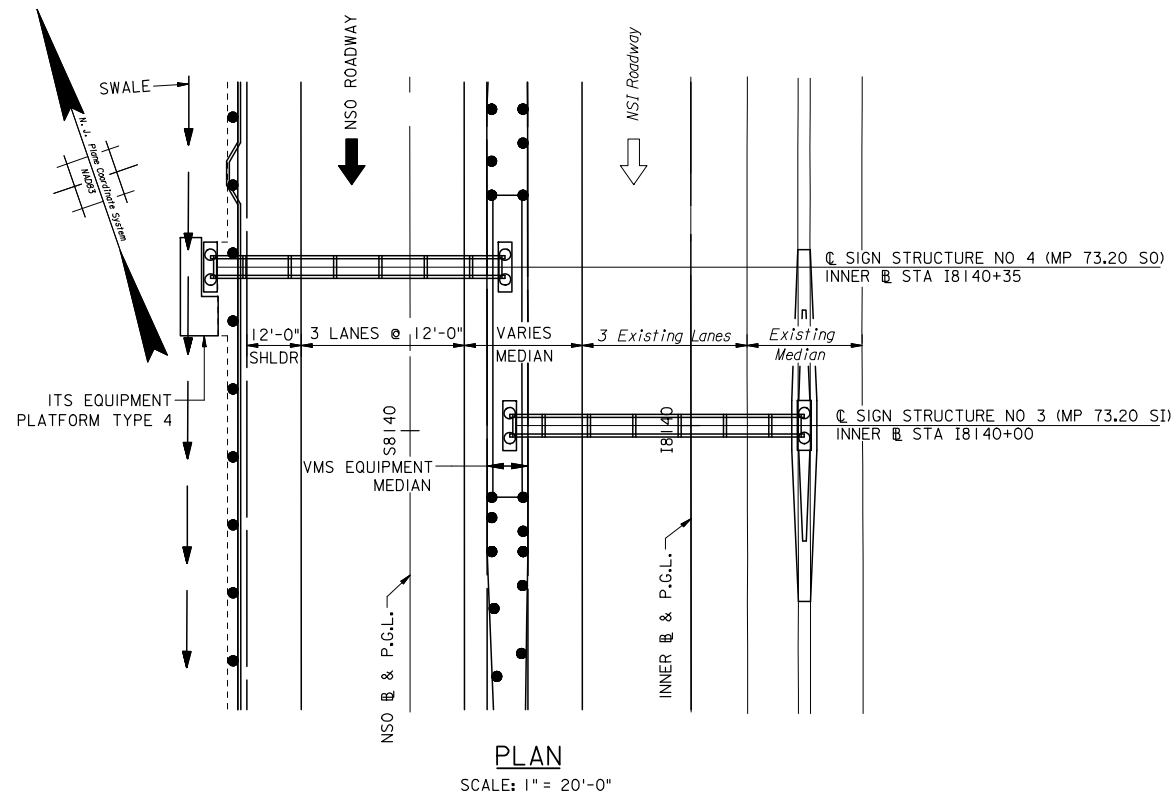
SCALE: 1"=20'
 DATE: JAN. 2012

FILE NAME: T869-120-803-1312.dgn

S-106
 S-138

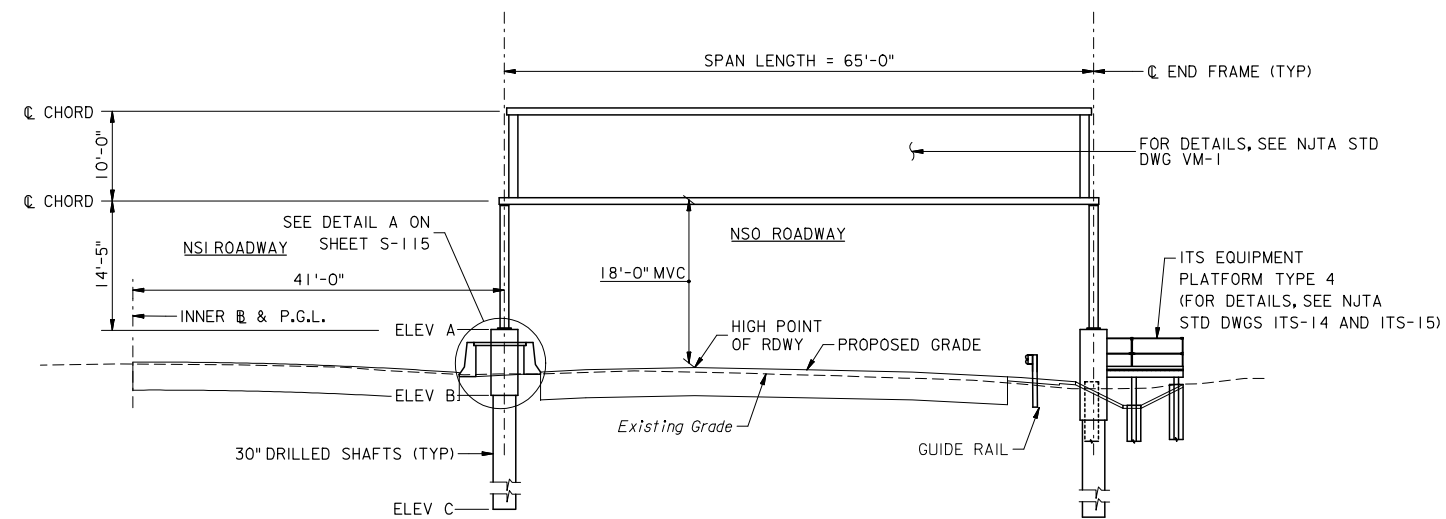
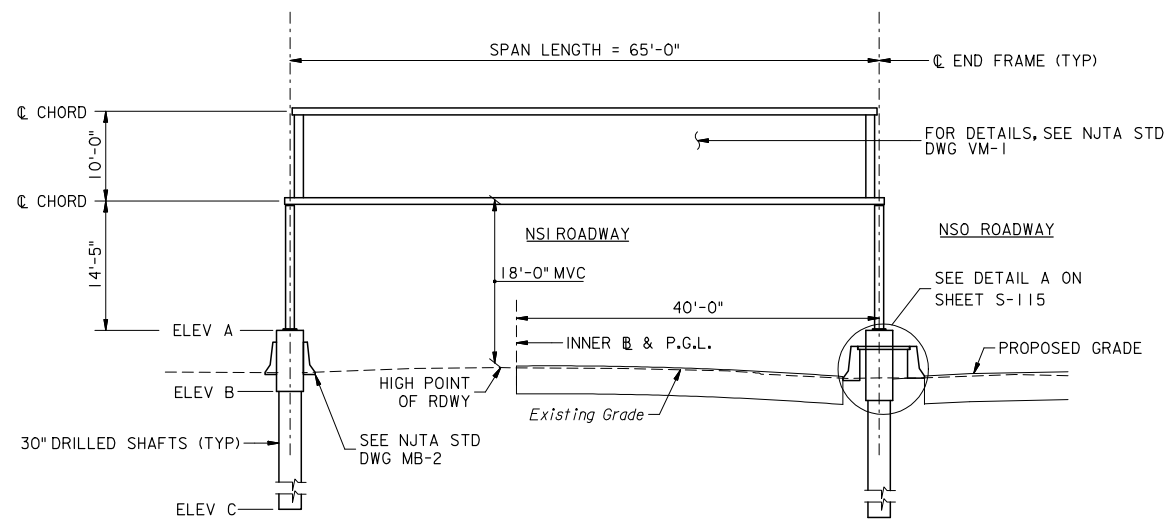
1312
 2116

ADDENDUM NO. 5: SHEET 6 OF 14

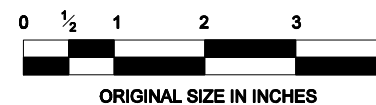


- NOTES:
- FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS VM-1 TO VM-8 AND VM-10.
 - ELEVATIONS A, B AND C TYPICAL AT ALL PEDESTALS (SEE TABLE ON THIS SHEET AND STANDARD DWG NO VM-8).
 - SIGN STRUCTURES TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
 - SEE NJTA STD DWGS ITS-01 THROUGH ITS-26 FOR ADDITIONAL INFORMATION.
 - MVC = MINIMUM VERTICAL CLEARANCE.
 - ELEV A = BOTTOM OF END FRAME BASEPLATE (SEE NJTA STD DWG VM-8).

STRUCTURE NO	ELEVATION A	ELEVATION B		ELEVATION C	
		RIGHT LEFT	RIGHT LEFT	LEFT RIGHT	RIGHT LEFT
3 (MP 73.20 SI)	143.75	136.00	137.00	108.00	109.00
4 (MP 73.21 SO)	143.50	133.50	136.25	105.50	108.00



	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	



No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- TABLE HEADING CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

OVERHEAD SPAN (VMS/VSL) SIGN STRUCTURES
GENERAL PLAN AND ELEVATION - 2

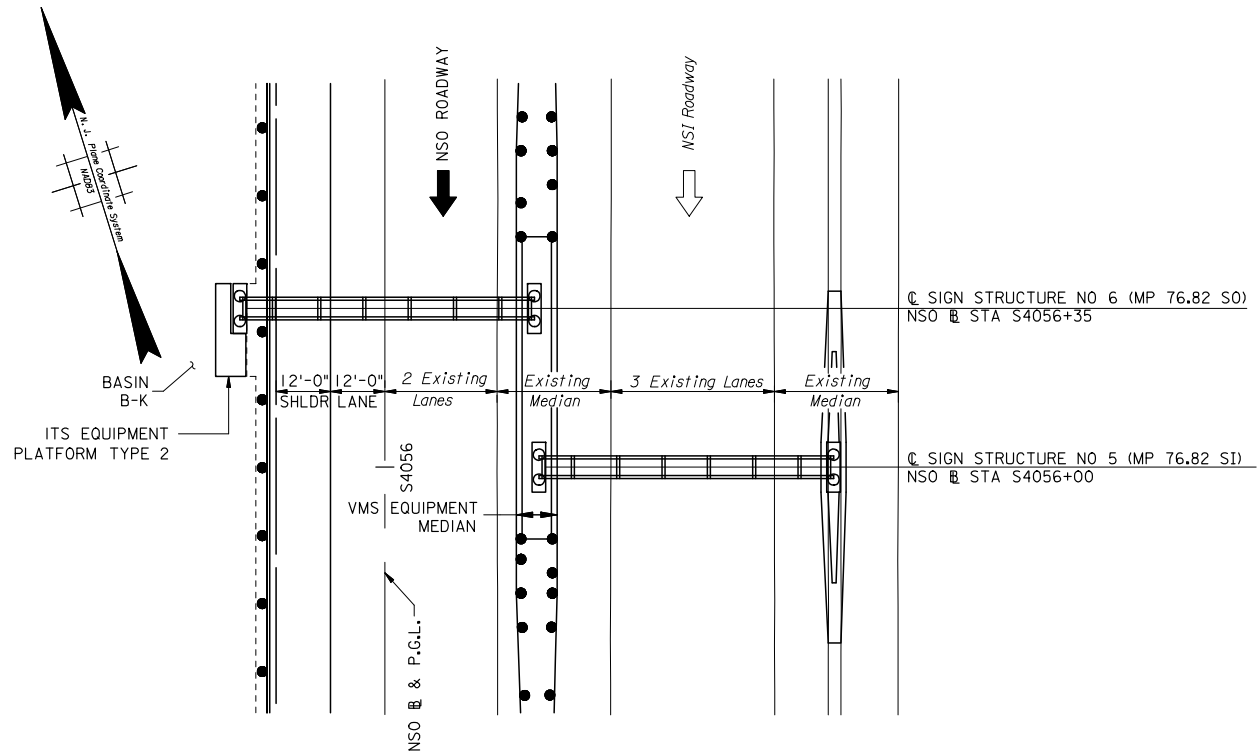
JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27890200

SCALE: AS SHOWN
 DATE: JAN. 2012

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

S-116
 S-138

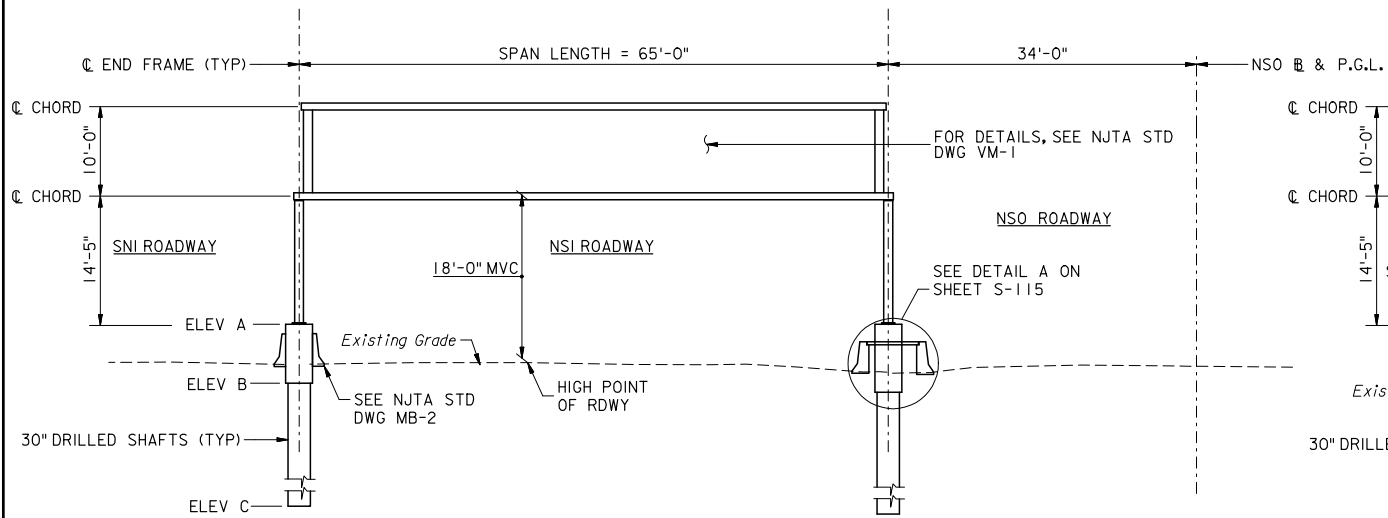
1323
 2116



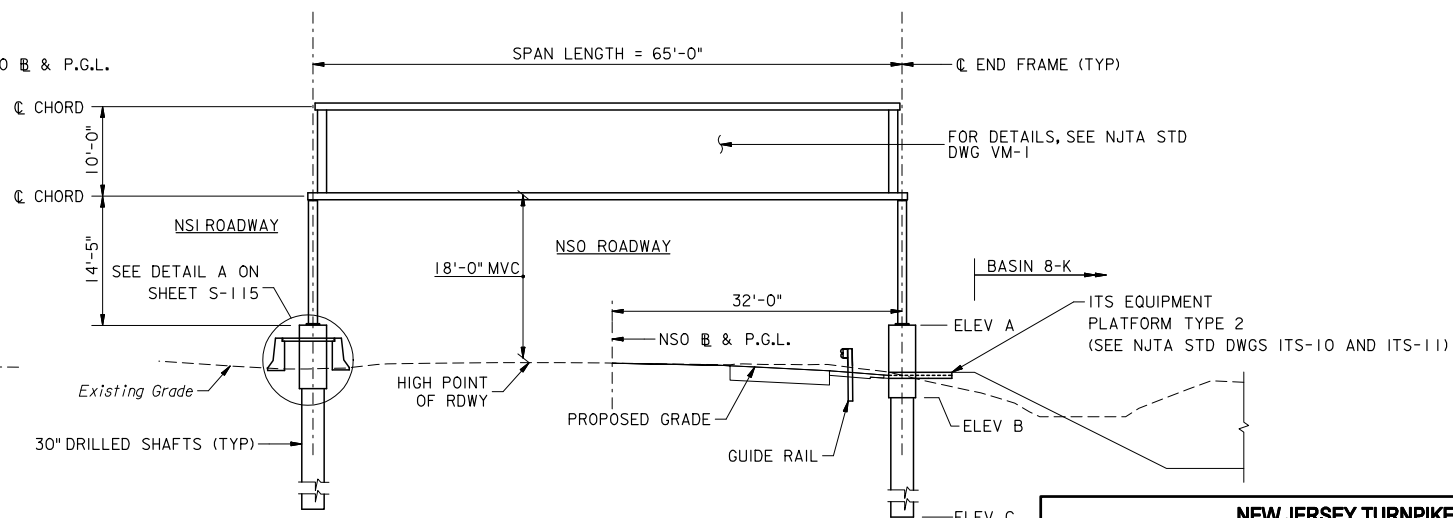
PLAN
SCALE: 1" = 20'-0"

- NOTES:
- FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS VM-1 TO VM-8 AND VM-10.
 - ELEVATIONS A, B AND C TYPICAL AT ALL PEDESTALS (SEE TABLE ON THIS SHEET AND STANDARD DWG NO VM-8).
 - SIGN STRUCTURES TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
 - SEE NJTA STD DWGS ITS-01 THROUGH ITS-26 FOR ADDITIONAL INFORMATION.
 - MVC = MINIMUM VERTICAL CLEARANCE.
 - ELEV A = BOTTOM OF END FRAME BASEPLATE (SEE NJTA STD DWG VM-8).

STRUCTURE NO	ELEVATION A	ELEVATION B		ELEVATION C	
		RIGHT LEFT	RIGHT LEFT	LEFT RIGHT	RIGHT LEFT
5 (MP 76.82 SI)	107.75	100.25	101.25	71.5	72.5
6 (MP 76.82 SO)	107.50	99.50	100.50	71.5	72.5

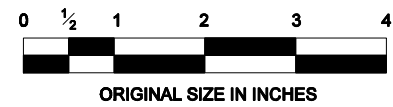


SIGN STRUCTURE NO 5 (MP 76.82 SI)
(NSO STA S4056+00)
ELEVATION
(LOOKING IN THE DIRECTION OF TRAFFIC)
SCALE: 1" = 10'-0"



SIGN STRUCTURE NO 6 (MP 76.82 SO)
(NSO STA S4056+35)
ELEVATION
(LOOKING IN THE DIRECTION OF TRAFFIC)
SCALE: 1" = 10'-0"

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	



No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- TABLE HEADING CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803

**OVERHEAD SPAN (VMS/VSL) SIGN STRUCTURES
GENERAL PLAN AND ELEVATION - 3**

JACOBS ENGINEERING GROUP INC.
299 MADISON AVENUE, MORRISTOWN, NJ 07962
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: AS SHOWN
DATE: JAN. 2012

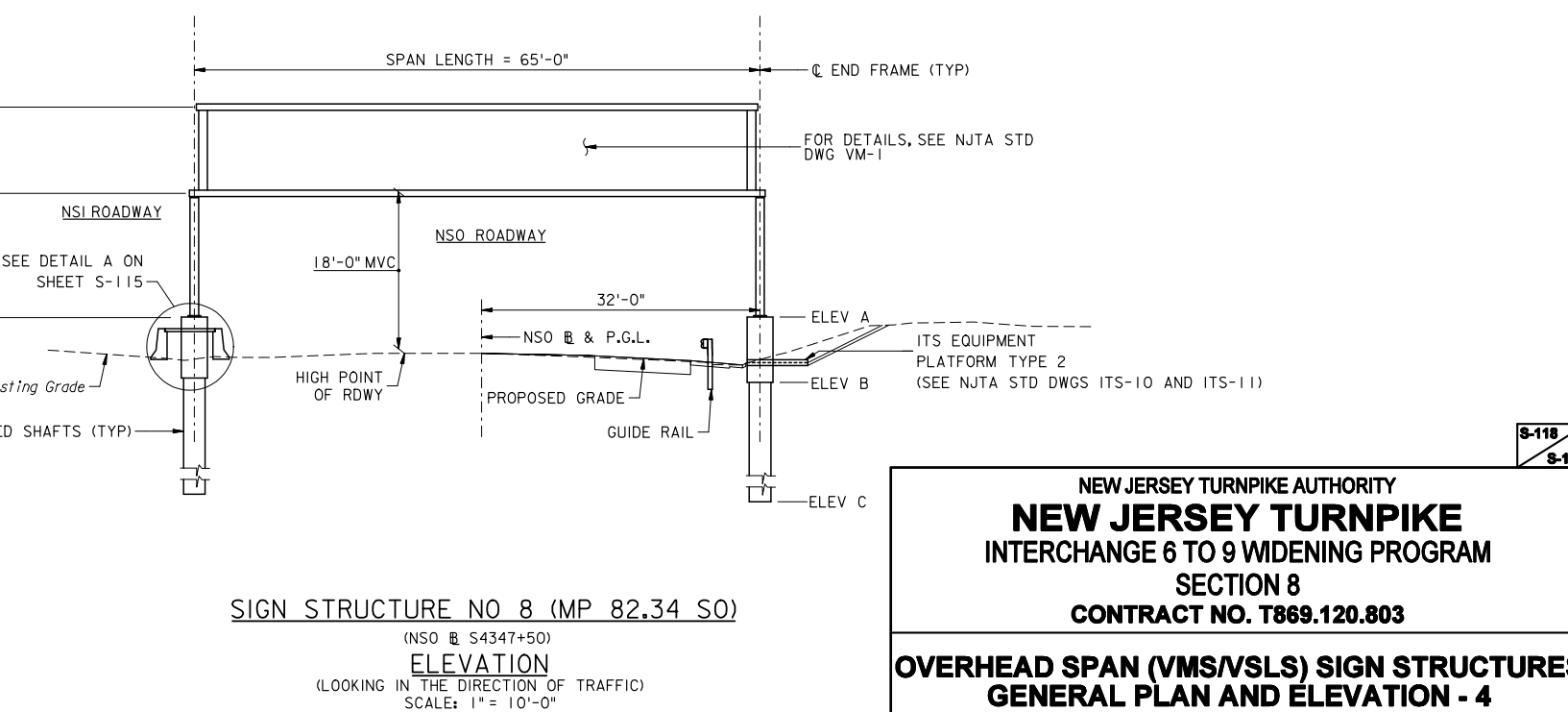
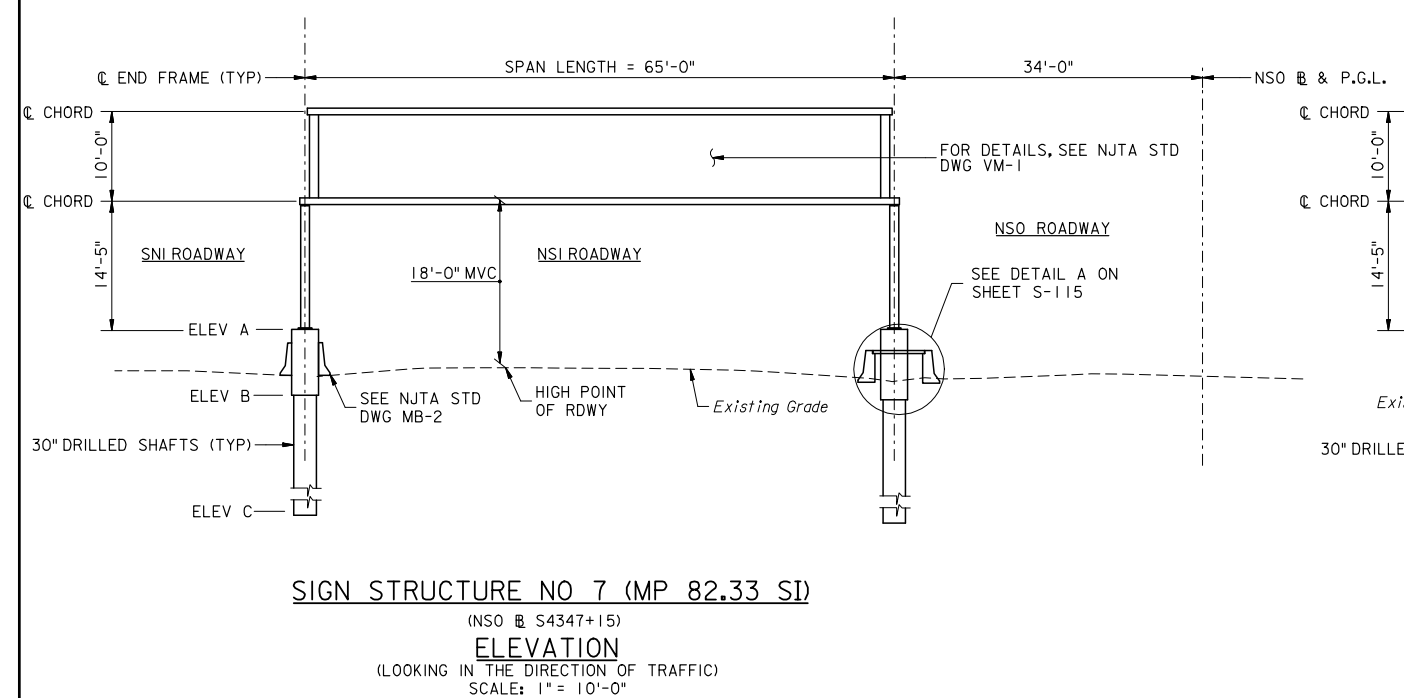
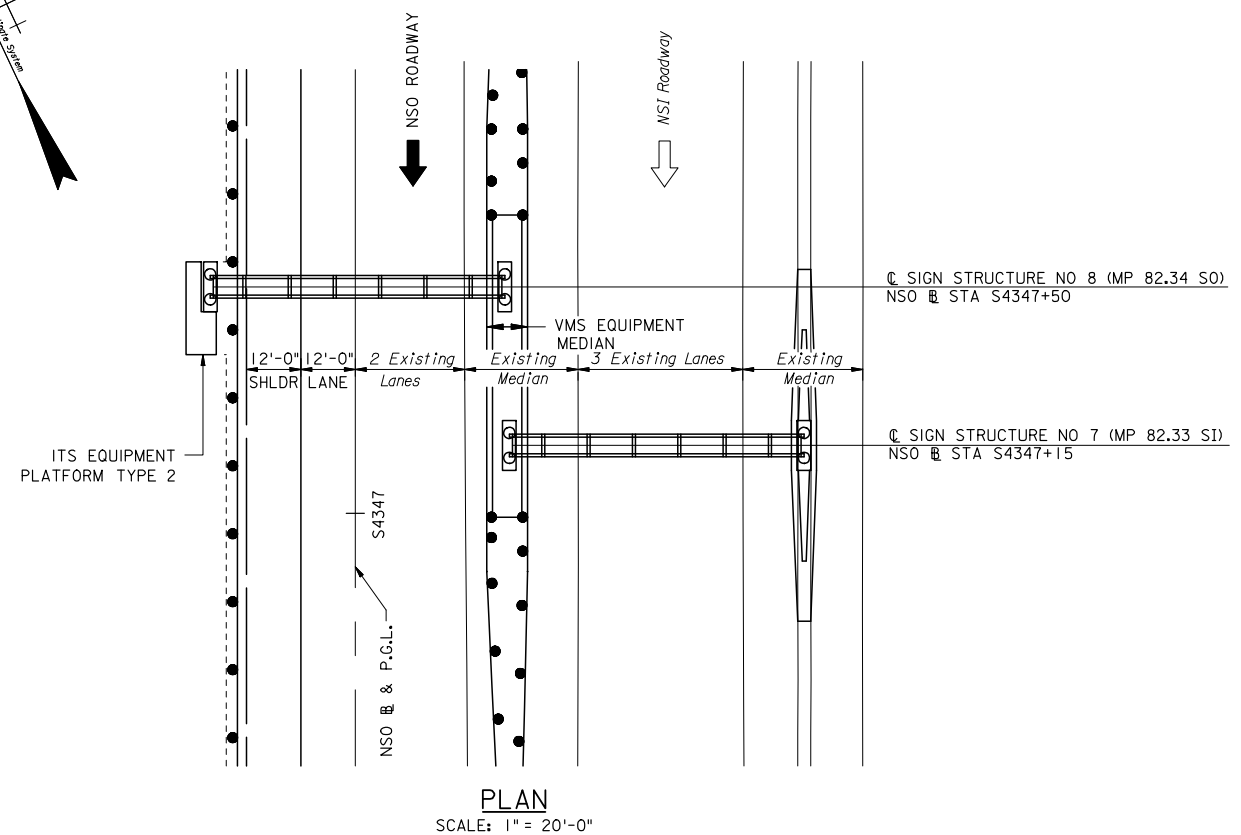
1324
2116

TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02832200

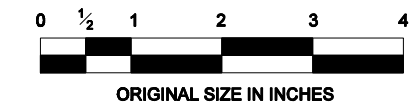
NOTES:

- FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS VM-1 TO VM-8 AND VM-10.
- ELEVATIONS A, B AND C TYPICAL AT ALL PEDESTALS (SEE TABLE ON THIS SHEET AND STANDARD DWG NO VM-8).
- SIGN STRUCTURES TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
- SEE NJTA STD DWGS ITS-01 THROUGH ITS-26 FOR ADDITIONAL INFORMATION.
- MVC = MINIMUM VERTICAL CLEARANCE.
- ELEV A = BOTTOM OF END FRAME BASEPLATE (SEE NJTA STD DWG VM-8).

STRUCTURE NO	PEDESTAL FOUNDATION ELEVATION TABLE				
	ELEVATION A	ELEVATION B		ELEVATION C	
7 (MP 82.33 SI)	85.0	RIGHT LEFT	RIGHT LEFT	LEFT RIGHT	RIGHT LEFT
8 (MP 82.34 SO)	83.75	76.25	76.75	48.00	48.5



	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	



No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- TABLE HEADING CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

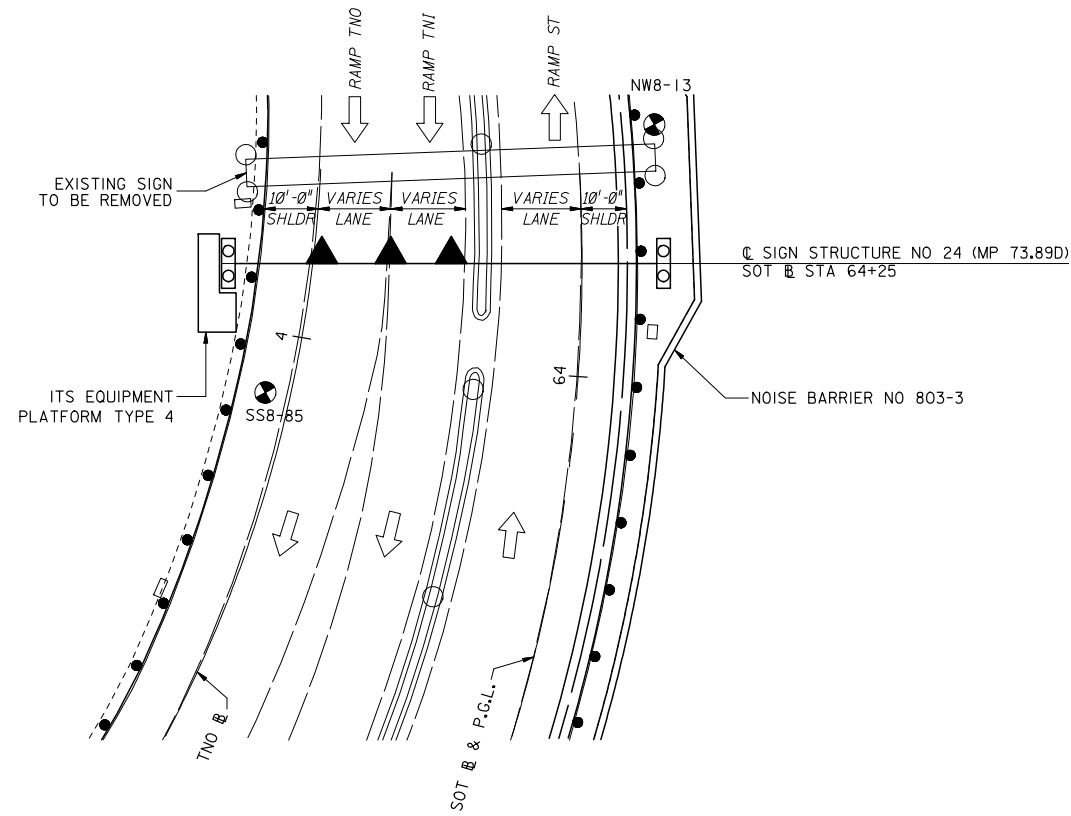
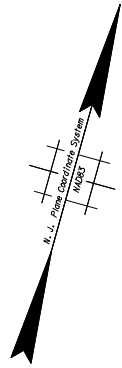
**OVERHEAD SPAN (VMS/VSL) SIGN STRUCTURES
 GENERAL PLAN AND ELEVATION - 4**

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
 DATE: JAN. 2012

1325
2116

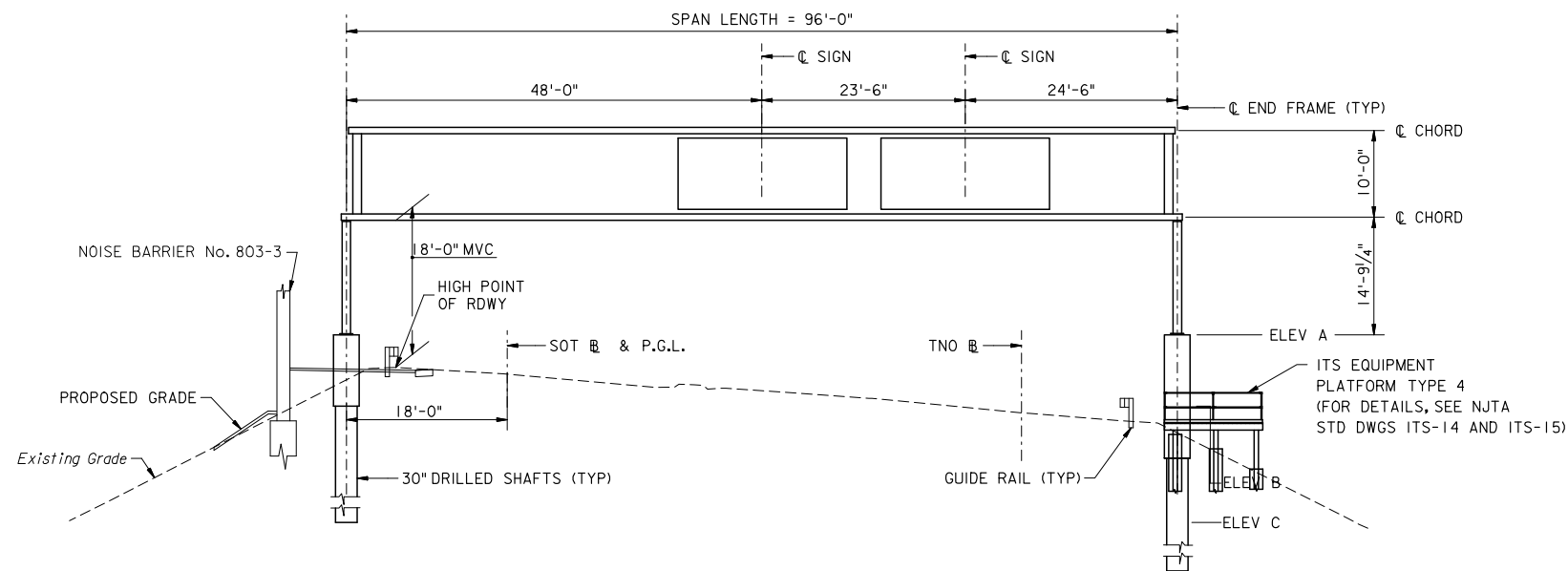


PLAN
SCALE: 1" = 20'-0"

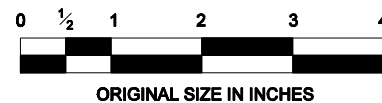
NOTES:

1. FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS CM-1 TO CM-10 AND CONTRACT T869.120.903 REFERENCE DRAWINGS.
2. ELEVATIONS A, B AND C TYPICAL AT BOTH PEDESTALS (SEE NJTA STD DWG VM-8).
3. SIGN STRUCTURE TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
4. MVC = MINIMUM VERTICAL CLEARANCE.
5. ELEV A = BOTTOM OF END FRAME BASE PLATE (SEE NJTA STD DWG VM-8).

PEDESTAL FOUNDATION ELEVATION TABLE					
STRUCTURE NO	ELEVATION A	ELEVATION B		ELEVATION C	
24 (MP 73.89D)	164.75	150.50	156.50	122.50	128.50



SIGN STRUCTURE NO 24 (MP 73.89D)
(SOT STA 64+25)
ELEVATION
(LOOKING IN THE DIRECTION OF RAMP TNO/TNI TRAFFIC)
SCALE: 1" = 10'-0"



	BY	DATE
MADE	JP	08-11
TRACED	JK	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- TABLE HEADING CHANGE

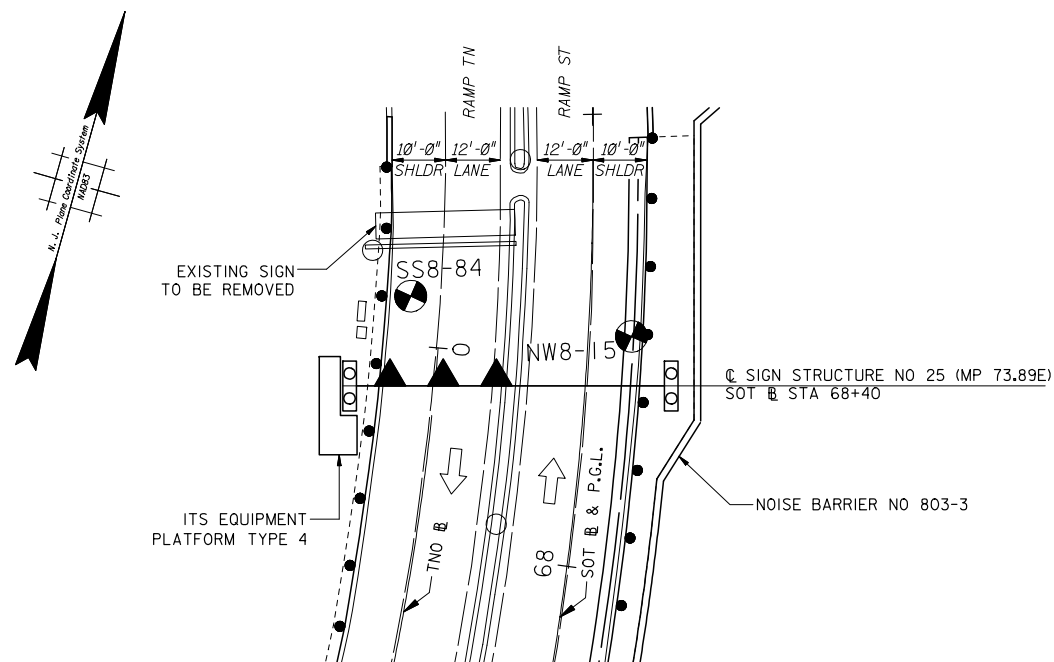
NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

OVERHEAD SPAN (HCMS) SIGN STRUCTURE
GENERAL PLAN AND ELEVATION - 14

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
 DATE: JAN. 2012

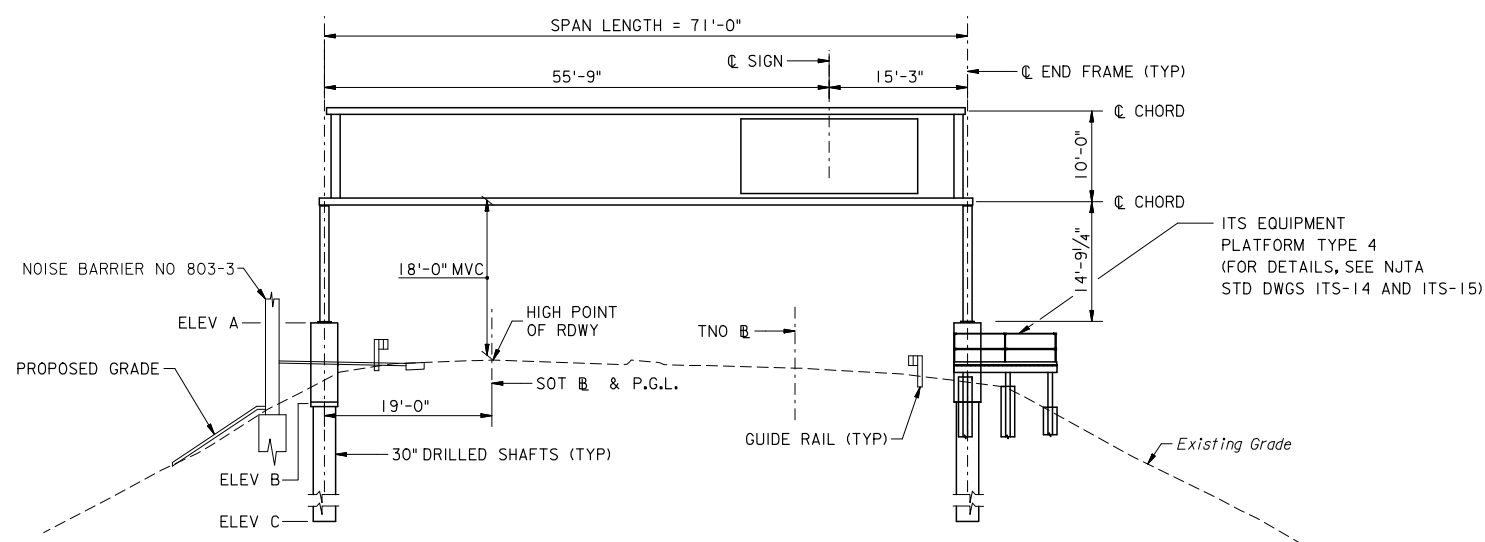


PLAN
SCALE: 1" = 20'-0"

NOTES:

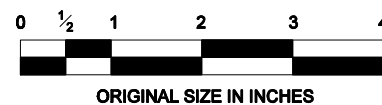
- FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS CM-1 TO CM-10 AND CONTRACT T869.120.903 REFERENCE DRAWINGS.
- ELEVATIONS A, B AND C TYPICAL AT BOTH PEDESTALS (SEE NJTA STD DWG VM-8).
- SIGN STRUCTURE TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
- MVC = MINIMUM VERTICAL CLEARANCE.
- ELEV A = BOTTOM OF END FRAME BASE PLATE (SEE NJTA STD DWG VM-8).

PEDESTAL FOUNDATION ELEVATION TABLE					
STRUCTURE NO	ELEVATION A	ELEVATION B		ELEVATION C	
25 (MP 73.89E)	166.25	157.50	157.00	129.50	129.00



SIGN STRUCTURE NO 25 (MP 73.89E)
(SOT STA 68+40)

ELEVATION
(LOOKING IN THE DIRECTION OF RAMP TNO TRAFFIC)
SCALE: 1" = 10'-0"



	BY	DATE
MADE	JP	06-11
TRACED	JK	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- TABLE HEADING CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
 INTERCHANGE 6 TO 9 WIDENING PROGRAM
 SECTION 8
 CONTRACT NO. T869.120.803

OVERHEAD SPAN (HCMS) SIGN STRUCTURE
GENERAL PLAN AND ELEVATION - 15

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07982
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

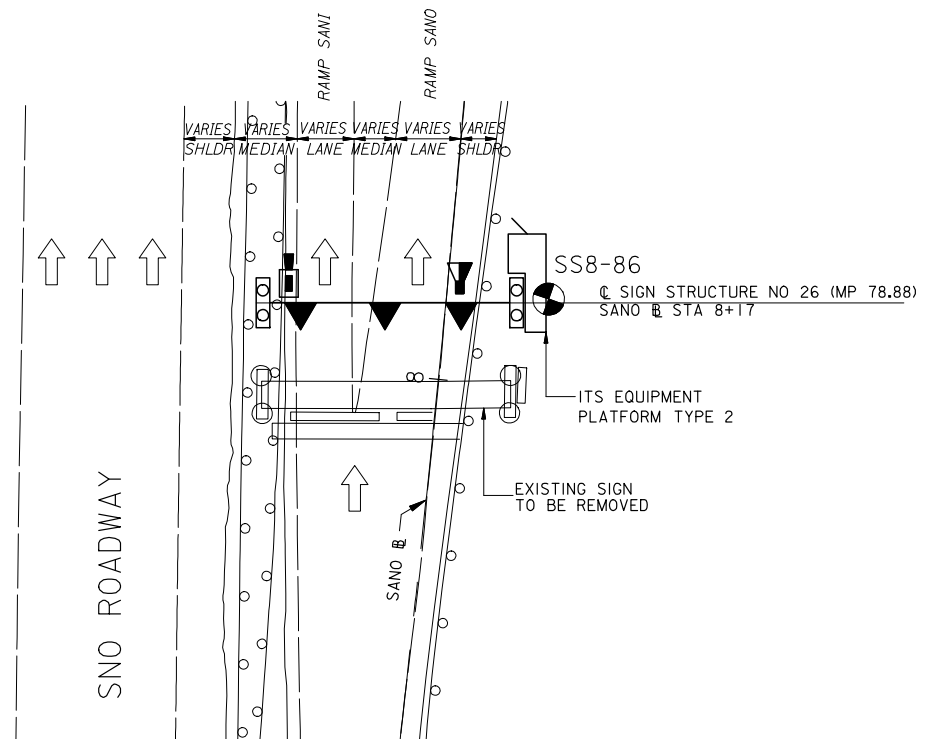
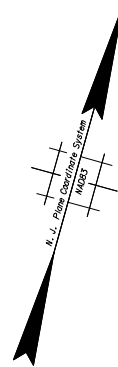
TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
 DATE: JAN. 2012

FILE NAME: T869-120-803-1336.dgn

S-129
S-138

ADDENDUM NO. 5- SHEET 11 OF 14

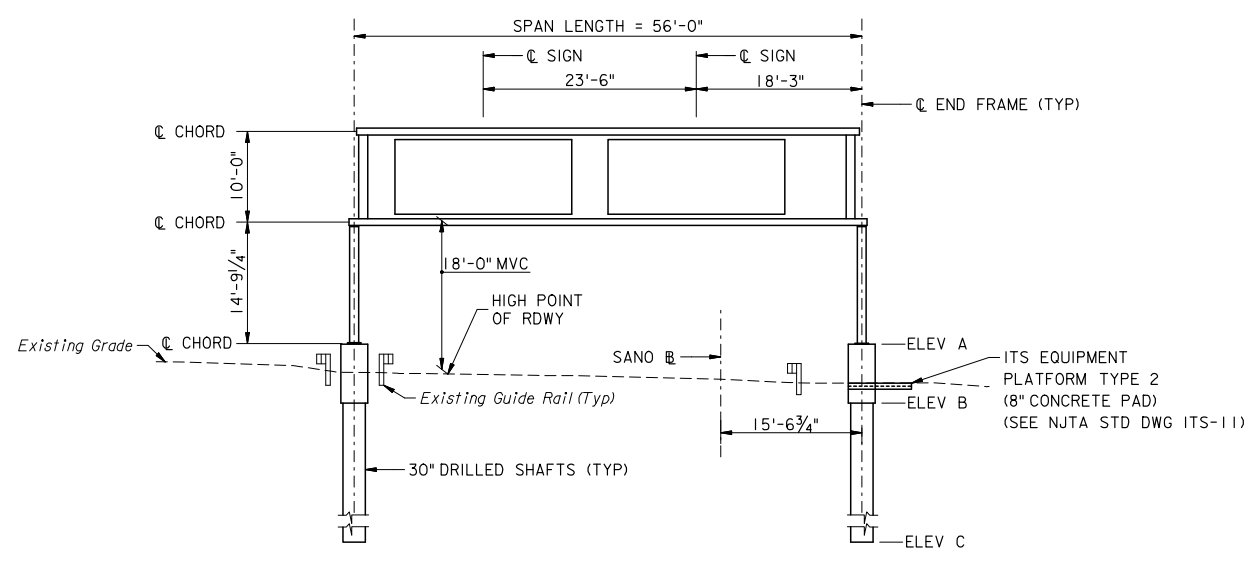


PLAN
SCALE: 1" = 20'-0"

NOTES:

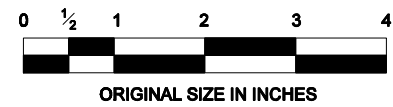
- FOR GENERAL NOTES AND ADDITIONAL INFORMATION, SEE NJTA STD DWGS CM-1 TO CM-10 AND CONTRACT T869.120.903 REFERENCE DRAWINGS.
- ELEVATIONS A, B AND C TYPICAL AT BOTH PEDESTALS (SEE NJTA STD DWG VM-8).
- SIGN STRUCTURE TO BE FABRICATED BY OTHERS AND WILL BE SUPPLIED BY THE AUTHORITY (SEE SUPPLEMENTARY SPECIFICATIONS).
- MVC = MINIMUM VERTICAL CLEARANCE.
- ELEV A = BOTTOM OF END FRAME BASE PLATE (SEE NJTA STD DWG VM-8).

PEDESTAL FOUNDATION ELEVATION TABLE					
STRUCTURE NO	ELEVATION A	ELEVATION B		ELEVATION C	
		LEFT	RIGHT	LEFT	RIGHT
26 (MP 78.88)	119.60 119.75	112.50	112.50	84.50	84.50



SIGN STRUCTURE NO 26 (MP 78.88)
(SANO STA 8+17)

ELEVATION
(LOOKING IN THE DIRECTION OF TRAFFIC)
SCALE: 1" = 10'-0"



	BY	DATE
MADE	JP	08-11
TRACED	JK	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
1	2/16/12	ADDENDUM 5- ELEVATION CHANGE

NEW JERSEY TURNPIKE AUTHORITY

NEW JERSEY TURNPIKE

INTERCHANGE 6 TO 9 WIDENING PROGRAM

SECTION 8

CONTRACT NO. T869.120.803

OVERHEAD SPAN (HCMS) SIGN STRUCTURE

GENERAL PLAN AND ELEVATION - 16

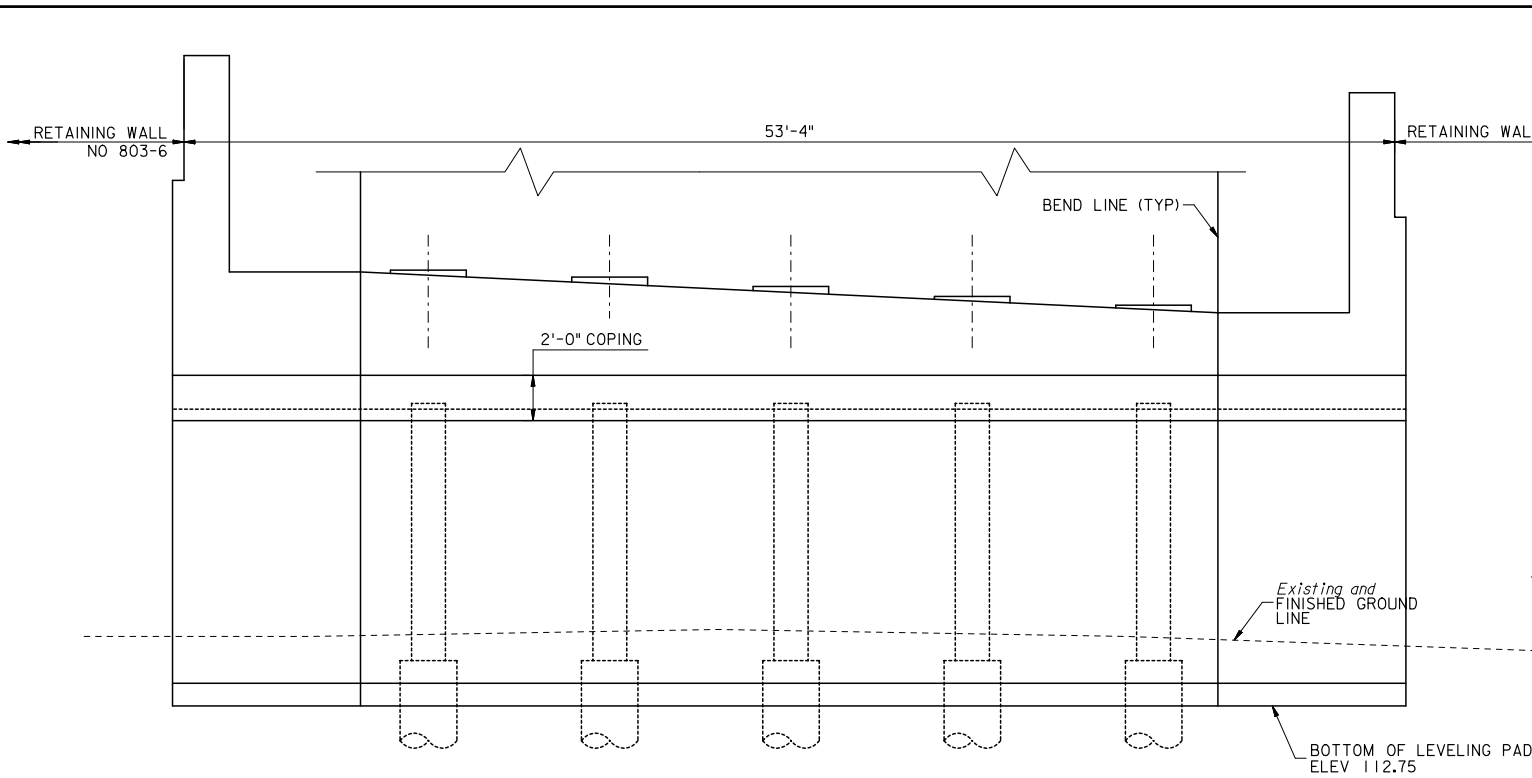
JACOBS ENGINEERING GROUP INC.
290 MADISON AVENUE, MORRISTOWN, NJ 07982
CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

SCALE: AS SHOWN
DATE: JAN. 2012

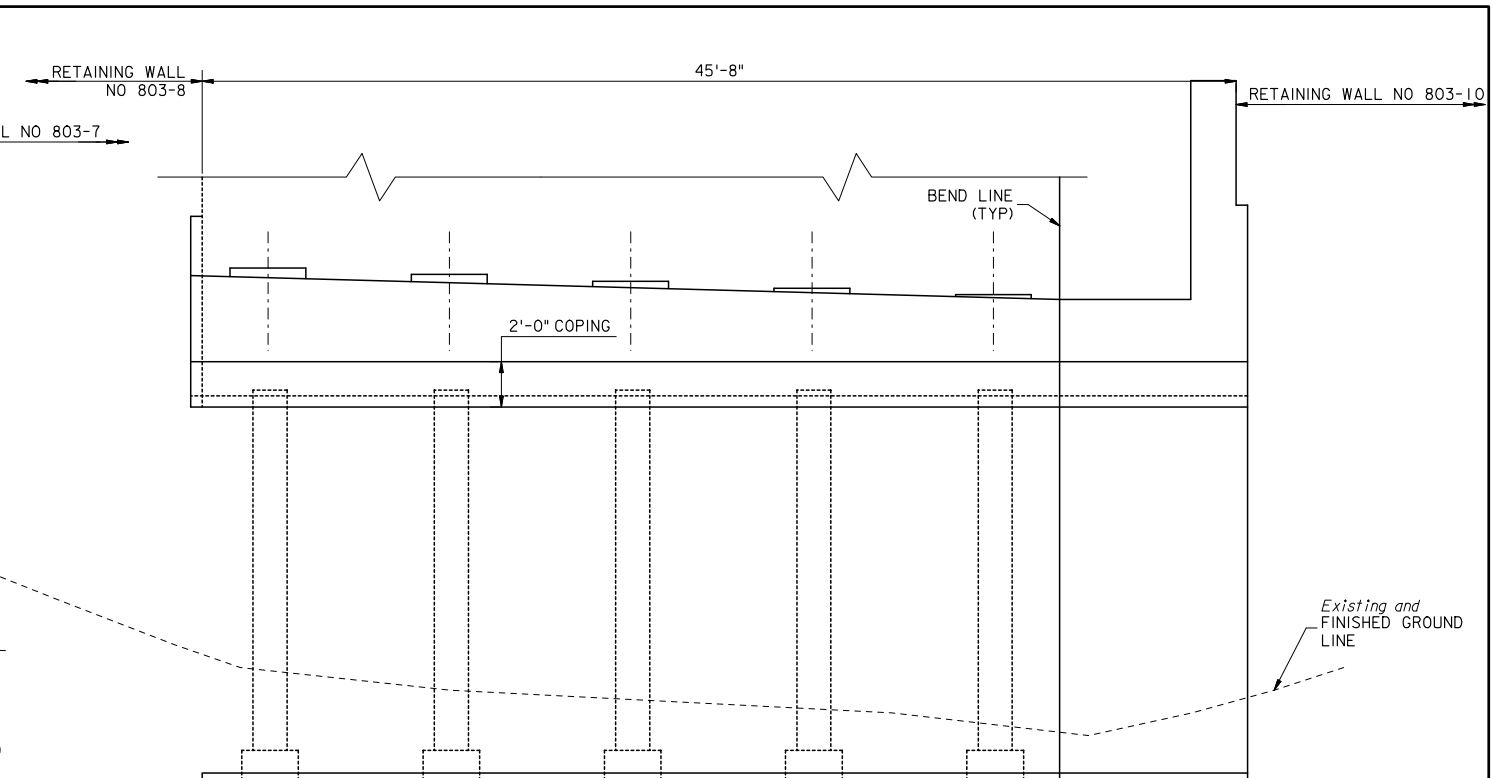
TODD N. SCHICKEL
NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

1337

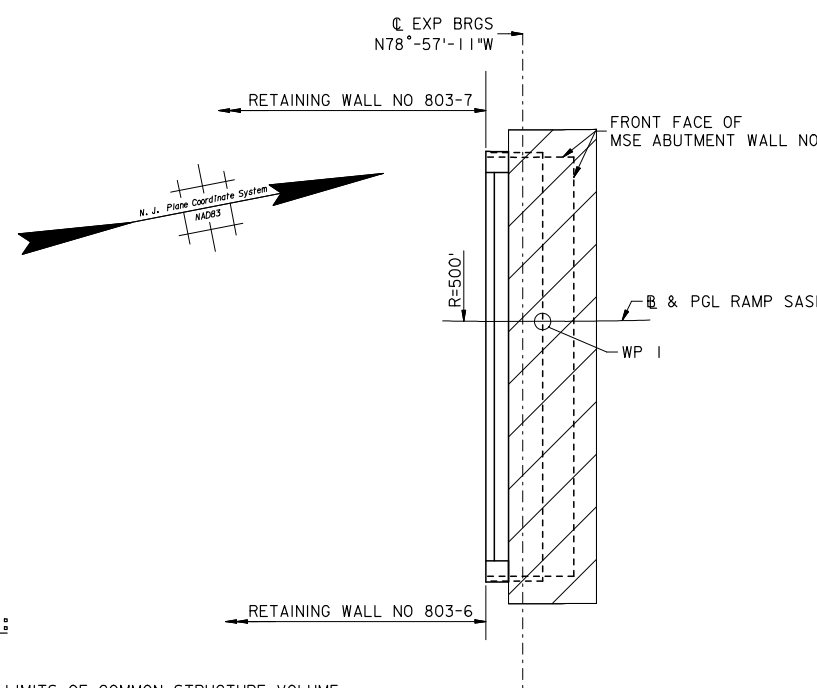
2116



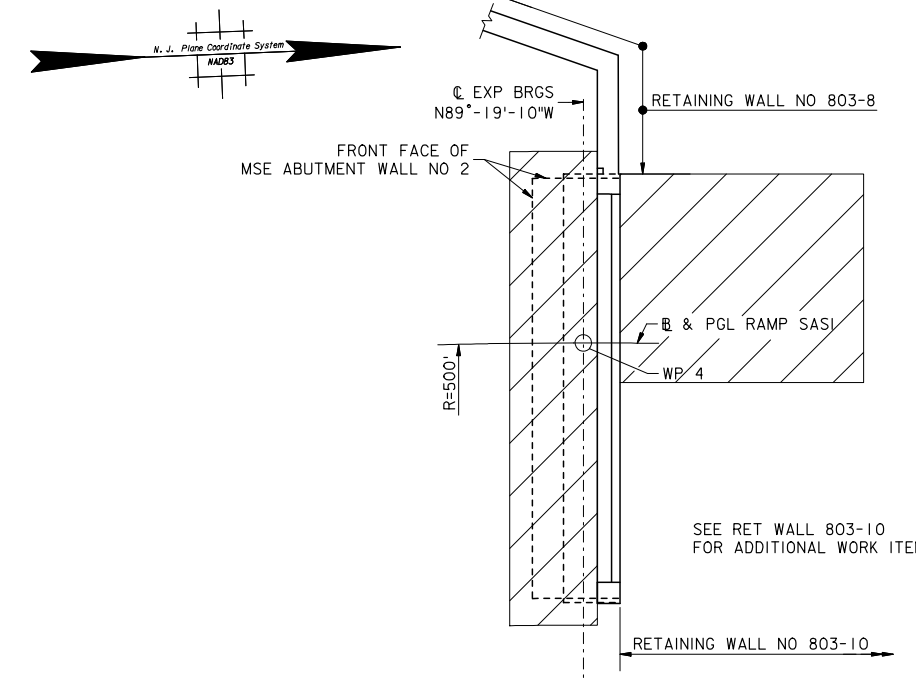
DEVELOPED ELEVATION - MSE ABUTMENT WALL NO 1
(AT SOUTH ABUTMENT)
SCALE: 1/4" = 1'-0"



DEVELOPED ELEVATION - MSE ABUTMENT WALL NO 2
(AT NORTH ABUTMENT)
SCALE: 1/4" = 1'-0"



PLAN - MSE ABUTMENT WALL NO 1
(AT SOUTH ABUTMENT)
SCALE: 1/8" = 1'-0"

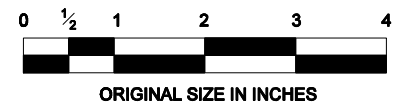


PLAN - MSE ABUTMENT WALL NO 2
(AT NORTH ABUTMENT)
SCALE: 1/8" = 1'-0"

WORK ITEMS - MSE ABUTMENT WALLS (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	APPROXIMATE QUANTITY	
		WALL NO 1	WALL NO 2
FOUNDATION EXCAVATION	CY	30	45
CONCRETE LEVELING PAD	LF	55	50
PRECAST WALL ELEMENT	SF	△ -550- 690	△ -590- 780
PRECAST CONCRETE COPING	LF	45	45
CONCRETE IN 4" THICK SLAB	CY	5	5
REINFORCEMENT STEEL, EPOXY COATED	LBS	50	50
SELECT BACKFILL	CY	△ 130	356
POROUS FILL	CY	-	34
8" CORRUGATED STEEL UNDERDRAIN PIPE	LF	-	40

NOTE:
FOR MSE ABUTMENT WALL NOTES, SEE SHEETS S-26 AND S-93.

LEGEND:
 LIMITS OF COMMON STRUCTURE VOLUME



No.	DATE	REVISION
△	2/16/12	ADDENDUM 5- QUANTITY CHANGE
△	2/9/12	ADDENDUM 3- QUANTITY CHANGE

	BY	DATE
MADE	JP	10-10
TRACED	WK	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803
STRUCTURE NO. 71.37
RAMP SASI OVER NSO
ABUTMENT DETAILS - 3

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

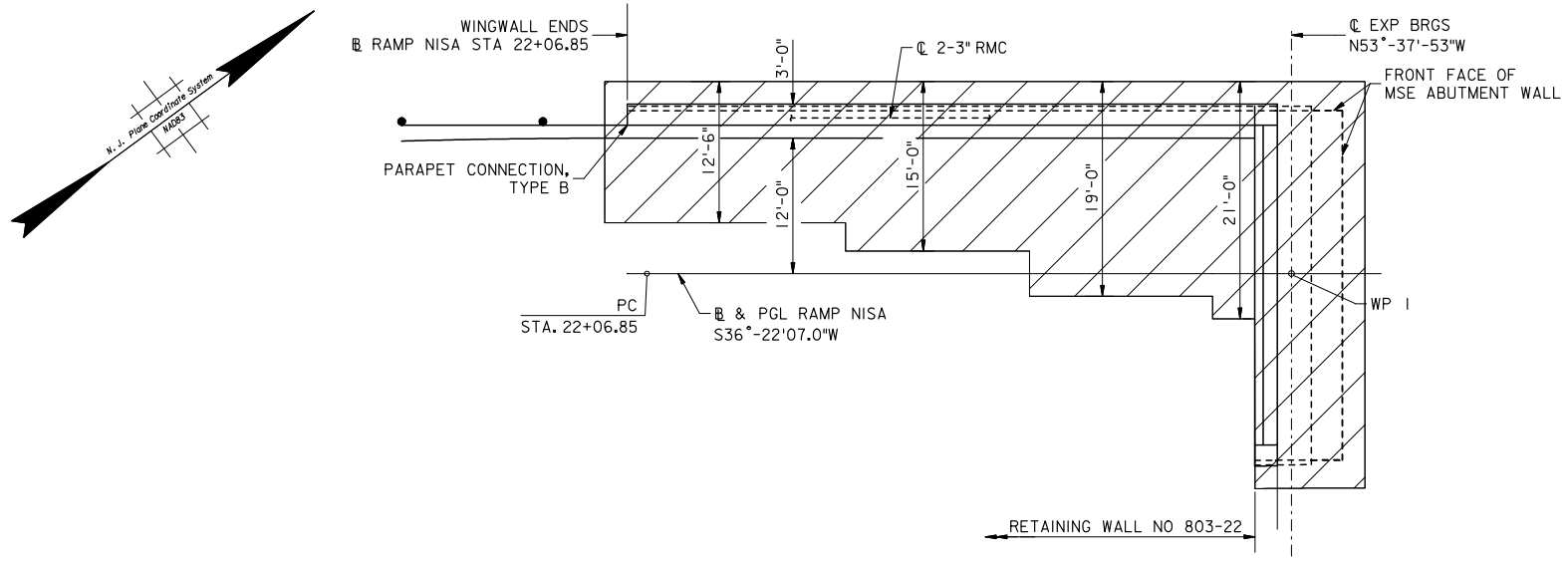
TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
 DATE: JAN. 2012

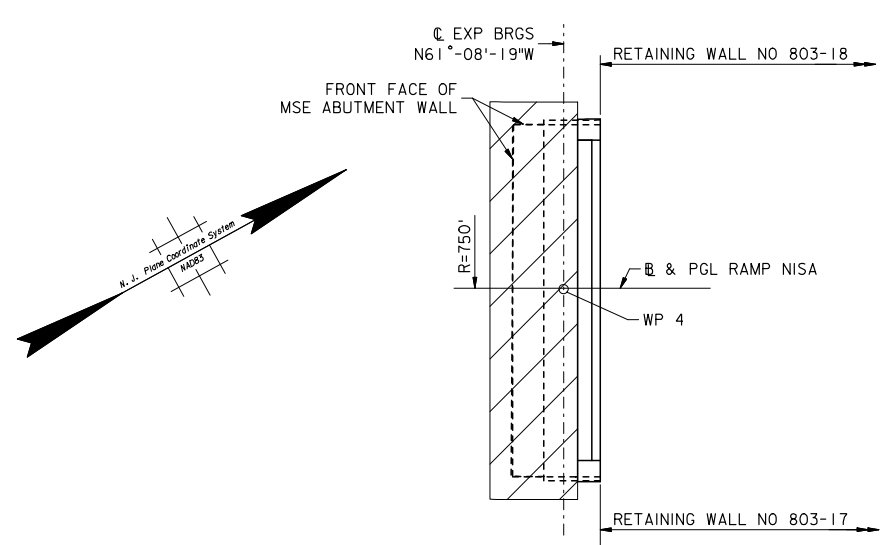
1232
2116

FILE NAME: T869-120-803-1232.dgn

ADDENDUM NO. 6 SHEET NO. 13 OF 14



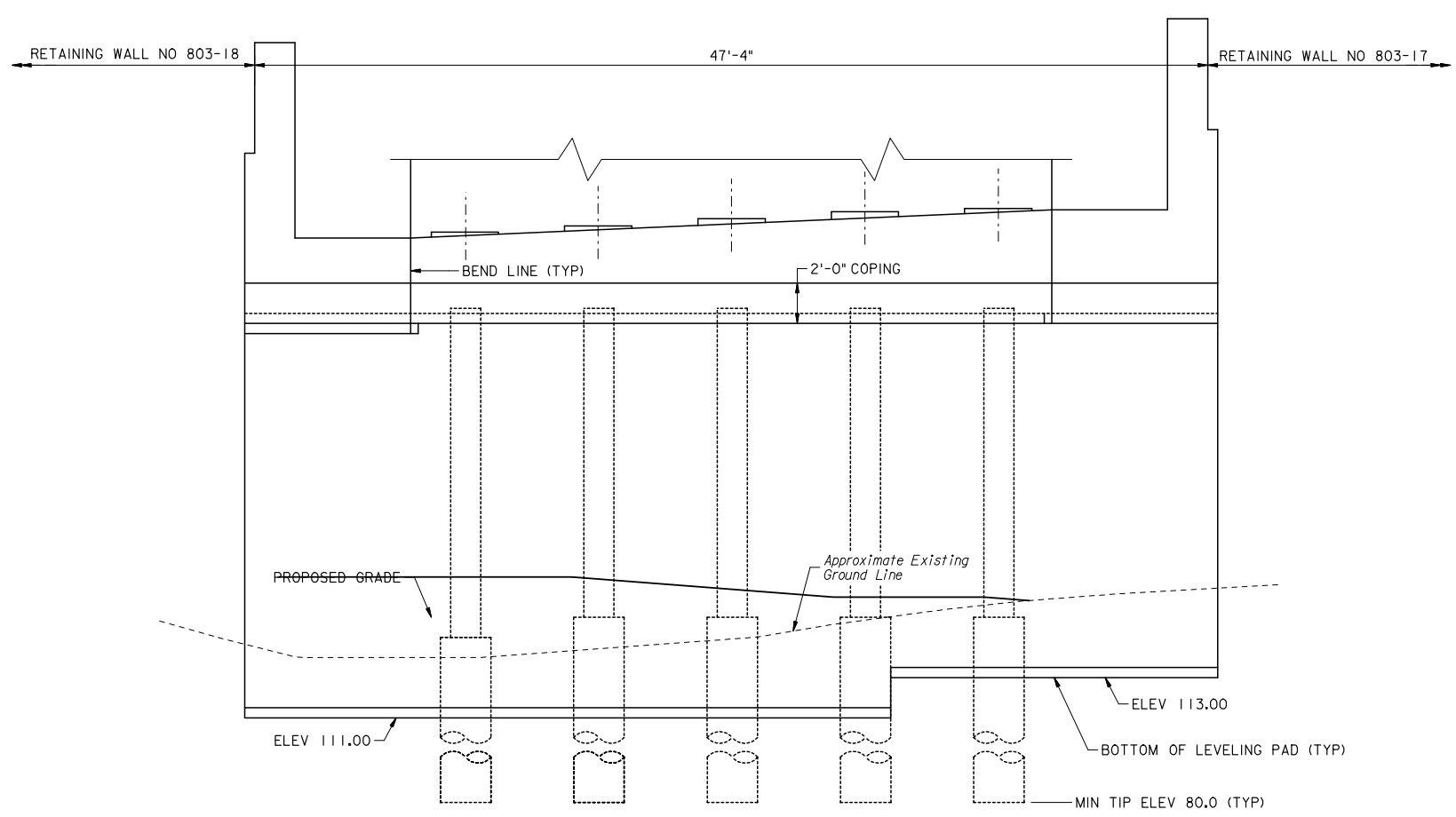
PLAN - MSE ABUTMENT WALL NO 3
(AT SOUTH ABUTMENT)
SCALE: 1/8" = 1'-0"



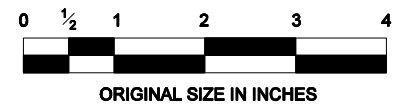
PLAN - MSE ABUTMENT WALL NO 4
(AT NORTH ABUTMENT)
SCALE: 1/8" = 1'-0"

LEGEND:
 LIMITS OF COMMON STRUCTURE VOLUME

- NOTES:**
1. FOR PARAPET CONNECTION DETAILS, SEE NJTA STD DWG GR-11.
 2. FOR MSE ABUTMENT WALL NOTES, SEE SHEET S-52 AND S-93.
 3. FOR ELEVATIONS OF TOP OF DRILLED SHAFTS, SEE SHEETS S-48.



DEVELOPED ELEVATION - MSE ABUTMENT WALL NO 4
(AT NORTH ABUTMENT)
SCALE: 1/4" = 1'-0"



WORK ITEMS - MSE ABUTMENT WALLS (FOR INFORMATIONAL PURPOSES ONLY)			
DESCRIPTION	UNIT	APPROXIMATE QUANTITY	
		WALL NO 3	WALL NO 4
FOUNDATION EXCAVATION	CY	85	30-35
SELECT BACKFILL	CY	720	160
POROUS FILL	CY	65	-
8" CORRUGATED STEEL UNDERDRAIN PIPE	LF	60	-
CONCRETE LEVELING PAD	LF	105	50
PRECAST WALL ELEMENT	SF	+265-1,520	-730-890
CONCRETE IN PARAPET, HPC	CY	+5-10	-
CONCRETE IN COPING, HPC	CY	10	-
PRECAST CONCRETE COPING	LF	-45-40	-45-40
CIP MOMENT SLAB	LF	60	-
CONCRETE IN 4" THICK SLAB	CY	5	5
REINFORCEMENT STEEL, EPOXY COATED	LBS	50	50
IMPERVIOUS MEMBRANE	SF	-900-740	-

	BY	DATE
MADE	JP	10-10
TRACED	AR	12-11
CHECKED	JP	12-11
SUPERVISED	TNS	

No.	DATE	REVISION
△	2/16/12	ADDENDUM 5- QUANTITY CHANGE
△	2/9/12	ADDENDUM 3- QUANTITY CHANGE

NEW JERSEY TURNPIKE AUTHORITY
NEW JERSEY TURNPIKE
INTERCHANGE 6 TO 9 WIDENING PROGRAM
SECTION 8
CONTRACT NO. T869.120.803
STRUCTURE NO. 72.29
RAMP NISA OVER NSO
ABUTMENT DETAILS - 2

JACOBS ENGINEERING GROUP INC.
 290 MADISON AVENUE, MORRISTOWN, NJ 07962
 CERTIFICATE OF AUTHORIZATION NO. 24GA27990200

TODD N. SCHICKEL
 NEW JERSEY PROFESSIONAL ENGINEER LICENSE NO. GE02632200

SCALE: AS SHOWN
 DATE: JAN. 2012

1257
2116

FILE NAME: T869-120-803-1257.dgn

S-60
S-138

ADDENDUM NO. 5 SHEET NO. 14 OF 14