



**Bridge Factors Factual Report Attachment 39 – FIU Pedestrian Bridge General Plan and
Elevation and Foundation Layout**

Miami, FL

HWY18MH009

(5 pages)

REVIEW APPROVAL FORM

PROJECT: UNIVERSITY-CITY PROSPERITY PROJECT (UCPP)

PROJECT NUMBER: BT-904

TYPE OF REVIEW: RELEASE FOR CONSTRUCTION

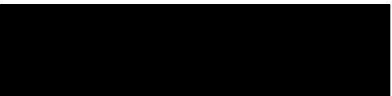
DATE: 7-31-17

DOCUMENTS REVIEWED				
ITEM	DRAWING DATE	DRAWING NUMBER	DESCRIPTION	COMMENTS
1	6/27/2017	B-2	GENERAL NOTES (1 OF 2)	
2	6/26/2017	B-4	GENERAL PLAN AND ELEVATION	
3	6/26/2017	B-8	FOUNDATION LAYOUT	

Designation as "Release for Construction" creates no duty or makes no representation, guarantee or warranty, express or implied, in fact or in law, whether merchantability, fitness for any particular purpose or otherwise, concerning any of the work that is furnished by the Design-Build Firm. The Design-Build Firm remains solely responsible for design, details and accuracy, for confirming and correlating all quantities, job conditions and dimensions, for selecting fabrication processes, for techniques and assembly and performing the work in a safe manner.

This submittal represents a portion of the entire scope of work and is subject to changes due to additional reviews and comments during permitting. The Design-Build Firm remains solely responsible for any such changes and any other changes due to future modification of drawings and specifications that are not part of this submittal.

This approval does not relieve the Design-Build Firm of responsibilities and obligations under the Request for Proposals/Design Criteria Package. It is the Design-Build Firm's obligation to confirm that all construction drawings and specifications comply with the requirements of the governing building code and all other applicable federal, state and local codes, standards, regulations and laws as required by all applicable contract documents related to the Project. Review of the documents referenced herein was made with the assumption that all such construction drawings and specifications comply with the foregoing codes, standards, regulations and laws.

Reviewed By: 
Construction Engineering Inspection
(CEI) Consultant

Date: 7/31/17

Reviewed By: 
FIU Facilities Mgmt
Project Manager

Date: 8/9/17

Reviewed By: 
City of Sweetwater

Date: 8/17/17

Received By MCM: 

Date: 17 Aug 17

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:

1. FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2015.
2. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, SECOND EDITION, 2004 WITH INTERIMS THROUGH 2006.

DESIGN SPECIFICATIONS:

1. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LRFD BRIDGE DESIGN SPECIFICATIONS SEVENTH EDITION WITH 2015 INTERIMS.
2. FDOT STRUCTURES DESIGN MANUAL, JANUARY 2015.
3. AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, SECOND EDITION (2009).
4. CEB-FIP MODEL CODE, FIRST EDITION, 1990, TIME DEPENDENT BEHAVIOR OF CONCRETE, CREEP AND SHRINKAGE.
5. AASHTO/AMERICAN WELDING SOCIETY (AWS) D1.5 BRIDGE WELDING CODE (2005).
6. 28 CODE OF FEDERAL REGULATIONS PART 36, 2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN.
7. AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, 1999.
8. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-14.
9. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, TMS 402-13 CODE.

DESIGN METHODS:

LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD).

DESIGN LOADINGS:

1. DEAD LOAD

UNIT WEIGHT OF REINFORCED/PRESTRESSED CONCRETE 150 PCF
 UNIT WEIGHT OF STRUCTURAL STEEL 490 PCF
 PEDESTRIAN FENCE ALLOWANCE (EACH SIDE) 200 PLF
 OVERLAY ALLOWANCE 6.25 PSF
 UTILITIES ALLOWANCE 350 PLF

2. LIVE LOAD

PEDESTRIAN LOADING 90 PSF

3. FUTURE WEARING SURFACE

ALLOWANCE FOR FUTURE WEARING SURFACE IS NOT PROVIDED.

4. STAY-IN-PLACE FORMS

THE USE OF STAY-IN-PLACE FORMS IS NOT PERMITTED.

5. WIND LOADS

WIND LOAD FOR STRUCTURAL MEMBERS WAS COMPUTED IN ACCORDANCE WITH FDOT STRUCTURES DESIGN GUIDELINES. THE GUST FACTOR FOR THE PYLON IS EQUAL TO 0.86.

6. THERMAL LOADS

NORMAL MEAN TEMPERATURE: 70° F
 THERMAL COEFFICIENT: 6.0x10⁻⁶/°F (CONCRETE)
 TEMPERATURE RANGE FOR DESIGN OF STRUCTURES:
 RISE: 35° F (CONCRETE)
 FALL: 35° F (CONCRETE)

7. EARTHQUAKE EFFECTS

BRIDGE IS DESIGNED TO MEET THE MINIMUM BEARING SUPPORT. EARTHQUAKE EFFECT WAS COMPUTED IN ACCORDANCE WITH SECTION 2.3 OF THE STRUCTURE DESIGN GUIDELINES.

8. VEHICULAR COLLISION

THE PYLON BASE SUPPORTING THE BRIDGE IS DESIGNED TO RESIST A 600K IMPACT LOAD PER FDOT 2015 STRUCTURE DESIGN GUIDELINES.

9. VIBRATION

THE STRUCTURE SATISFIES THE HORIZONTAL AND VERTICAL VIBRATION CRITERIA SPECIFIED IN CHAPTER 6 OF THE AASHTO LRFD PEDESTRIAN BRIDGE SPECIFICATIONS.

SCREEDING DECK SLABS:

THE DECK SHALL BE SCREEDED TO CREATE THE TRANSVERSE SLOPE SHOWN IN THE PLANS. APPLY A CLASS 4 DECK FINISH TO ALL WALKING SURFACES IN ACCORDANCE WITH SECTION 400-15.2.5.2 OF THE SPECIFICATIONS. GRIND UP TO 1/4" TO ENSURE A UNIFORM TEXTURE OF THE FINAL COMPLETED STRUCTURE.

DECK FINISH:

PROFILING OF BRIDGE DECK SURFACE SHALL NOT BE REQUIRED. GRIND ALL SURFACE IRREGULARITIES IN ACCORDANCE WITH SECTION 400-15.2.5.4 OF THE SPECIFICATIONS.

SCOUR:

SCOUR WILL BE CONSIDERED IN THE DESIGN OF THE SUBSTRUCTURE WITH SCOUR ELEVATION BASED ON THE 100 AND 500 YEAR FLOOD EVENT.

UTILITIES:

UTILITIES ON THE BRIDGE ARE LIMITED TO ELECTRICAL SYSTEMS TO SUPPORT THE LIGHTING.

CONCRETE:

1. ALL CONCRETE SHALL BE IN ACCORDANCE WITH SECTION 346 OF THE STANDARD SPECIFICATIONS, OR AS MODIFIED BY THE ENGINEER.

CLASS	MINIMUM 28 DAY COMPRESSIVE STRENGTH	LOCATION
VI	8500 PSI	SUPERSTRUCTURE, PYLON
V (SPECIAL)	6000 PSI	PRECAST PILE
IV	5500 PSI	FOOTINGS, PIERS, PIER PROTECTION BARRIER, ELEVATOR TOWERS

2. PROVIDE 3/4" X 3/4" CHAMFER ON ALL EXPOSED EDGES, UNLESS NOTED OTHERWISE.

3. CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT LOCATIONS INDICATED ON THE PLANS. ADDITIONAL CONSTRUCTION JOINTS OR ALTERATIONS TO THOSE SHOWN SHALL REQUIRE WRITTEN APPROVAL OF THE ENGINEER.

4. FINISH COATING: A CLASS 3 SURFACE FINISH SHALL BE APPLIED TO THE SUPERSTRUCTURE (EXCEPT THE TOP OF DECK) AND A CLASS 3 SURFACE FINISH SHALL BE APPLIED TO THE PIERS AND PYLON FACES.

PRESTRESSING STRANDS:

STRANDS - ASTM A416, GRADE 270, LOW RELAXATION
 STRAND DIAMETER 0.6 INCH
 MODULUS OF ELASTICITY 28,500 KSI
 MAXIMUM JACKING STRESS 218.7 KSI
 MAXIMUM ANCHORING STRESS
 AWAY FROM ANCHORAGES 199.8 KSI
 AFTER ANCHOR SET AT ANCHOR 189.0 KSI
 ANCHOR SET 0.375 INCH
 FRICTION COEFFICIENT 0.23 (PLASTIC DUCT)
 WOBBLE COEFFICIENT 0.00020 PER FT. (INTERNAL)

PRESTRESSING BARS:

BARS - ASTM A722, GRADE 150
 APPARENT MODULUS: 29,000 KSI
 MAXIMUM JACKING STRESS: 120 KSI (80% GUTS)
 MAXIMUM ANCHORING STRESS: 105 KSI (70% GUTS)
 AFTER ANCHOR SET 105 KSI (70% GUTS)
 ANCHOR SET 0

POST-TENSIONING DUCTS:

THE TYPE AND MATERIAL OF DUCT SHALL COMPLY WITH SECTION 462 OF THE FDOT SPECIFICATIONS.

STRUCTURAL STEEL:

1. MATERIAL PROPERTIES FOR STRUCTURAL STEEL SHALL BE DETERMINED IN ACCORDANCE WITH THE SPECIFICATIONS SECTION 962.
2. ALL STEEL ELEMENTS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SPECIFICATIONS SECTION 460.
3. FOR ALL MISCELLANEOUS STEEL ITEMS PERMANENTLY CAST IN THE DECK, USE GALVANIZED STEEL, STAINLESS STEEL, OR APPROVED COATING SYSTEM.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.

ENVIRONMENT:

SUPERSTRUCTURE: MODERATELY AGGRESSIVE
 SUBSTRUCTURE: MODERATELY AGGRESSIVE (CONCRETE)
 EXTREMELY AGGRESSIVE (STEEL)

LOCATION: URBAN

CONCRETE COVER:

CONCRETE COVER SHOWN IN THE PLANS DOES NOT INCLUDE REINFORCEMENT PLACEMENT AND FABRICATION TOLERANCES UNLESS SHOWN AS "MINIMUM COVER". SEE FDOT STANDARD SPECIFICATIONS FOR ALLOWABLE REINFORCEMENT PLACEMENT TOLERANCES. UNLESS OTHERWISE NOTED, MINIMUM COVER SHALL BE AS FOLLOWS:

LOCATION	COVER	FOOTINGS	
		LOCATION	COVER
CANOPY (TOP)	2 1/4"	CAST AGAINST EARTH (BRIDGE)	4"
CANOPY (OTHER)	2"	CAST AGAINST EARTH (BUILDING)	3"
DECK (TOP)	2 1/4"	CAST AGAINST FORMED SURFACES	3"
DECK (OTHER)	2"		
DIAGONALS	2"		
BEARING	2"		
PEDESTALS	2"		
LANDING PIERS	3"		
PYLON BASE	3"		
UPPER PYLON	2"		

DIMENSIONS AND ELEVATIONS:

1. ALL DIMENSIONS ARE IN FEET AND INCHES EXCEPT AS NOTED.
2. ALL DIMENSIONS ARE MEASURED HORIZONTALLY AND VERTICALLY UNLESS NOTED OTHERWISE.
3. ALL ELEVATIONS ARE IN FEET AND ARE BASED ON 1929 NATIONAL GEODETIC VERTICAL DATUM (NGVD29).

FUTURE BEARING REPLACEMENT:


1. JACK LOCATIONS AND ESTIMATED LOADS ARE FOR USE IN THE EVENT THAT IT BECOMES NECESSARY TO REPLACE THE BEARING PADS.
2. THE JACKING OPERATION SHALL BE PERFORMED SUCH THAT THE DECK AT A PIER IS LIFTED SIMULTANEOUSLY. JACKING SHALL CONTINUE UNTIL THE BEARING PADS CAN BE FREED BUT IN NO CASE SHALL THE CLEAR SPACE BETWEEN THE DECK AND THE BEARING EXCEED 1/2".
3. JACKS SHALL BE EQUIPPED WITH LOCKING RINGS THAT WILL PREVENT MOVEMENT IN THE EVENT HYDRAULIC PRESSURE IS LOST. JACKS SHALL BE LOCKED OFF PRIOR TO REMOVAL OF THE BEARING PADS. SHIM PLATES SHALL BE PROPERLY SIZED TO LIMIT THE ULTIMATE BEARING STRESS ON CONCRETE ACCORDING TO ARTICLE 5.7.5 OF THE AASHTO LRFD SPECIFICATIONS. DURING PAD REPLACEMENT, BRIDGE SHALL BE KEPT OPEN WITH REDUCED LIVE LOAD.

ENVIRONMENTAL:

1. THIS PROJECT CROSSES THE SFWMD TAMAMI (C-4) CANAL. TURBIDITY LEVELS BEYOND THE CONTROL MECHANISMS ARE NOT ALLOWED TO EXCEED 29 (NTU'S) ABOUT NATURAL BACKGROUND LEVELS. THE DISCHARGE OF ANY FOREIGN MATERIAL INTO THE WATER SHALL NOT BE PERMITTED.
2. THE CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS OF THE ENVIRONMENTAL AND RIGHT OF WAY PERMITS WHICH ARE PART OF THIS PROJECT.
3. ANY MATERIAL STOCKPILED FOR PERIODS GREATER THAN 24 HOURS SHALL BE PROTECTED BY APPROPRIATE EROSION CONTROL DEVICES.
4. THE CONTRACTOR SHALL REVIEW ENVIRONMENTAL REQUIREMENTS OF ANY PROPOSED STAGING AREAS WITH THE FIU ENGINEER (JOSE E. MORALES, BOLTON PEREZ & ASSOCIATES, 786-539-9629) AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO USE.
5. NO STAGING OR OTHER ACTIVITIES FOR THIS PROJECT WILL BE ALLOWED WITHIN OR ADJACENT TO THE BROTHERS TO THE RESCUE MEMORIAL PLAZA, JAMES M. BEASLEY LINEAR PARK EAST OF SW 109TH AVE, THE TAMAMI CANAL EAST OF SW 109TH AVENUE, OR THE HISTORIC SWEETWATER BRIDGE.
6. NO STAGING OR OTHER ACTIVITIES FOR THIS PROJECT WILL BE ALLOWED WITHIN OR ADJACENT TO JAMES M. BEASLEY LINEAR PARK WEST OF SW 109TH AVE OR THE TAMAMI CANAL WEST OF SW 109TH AVENUE, EXCEPT AS SPECIFICALLY SHOWN IN THE PLANS AND APPROVED BY THE REGULATORY AGENCIES.

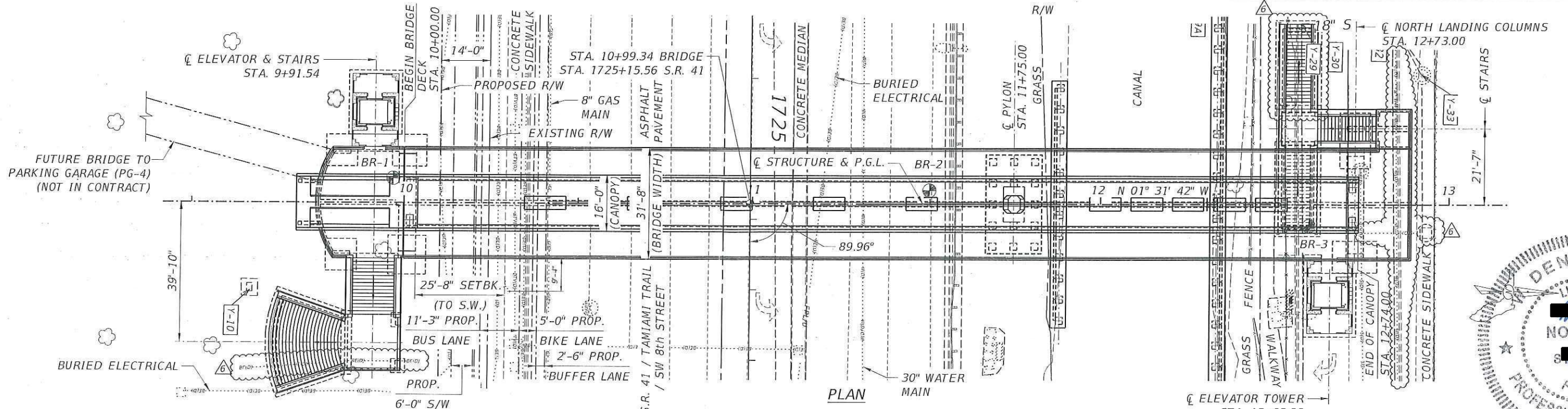
FOR CONSTRUCTION

REVISIONS				ENGINEER OF RECORD:		DRAWN BY:			SHEET TITLE:		
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DCB	DCB	DCB	GENERAL NOTES (1 OF 2)		
6/26/17	ENH	REVISED NOTES				DCB	DCB	DCB			
						MF	MF	MF			
						MF	MF	MF			
						WDP	WDP	WDP			

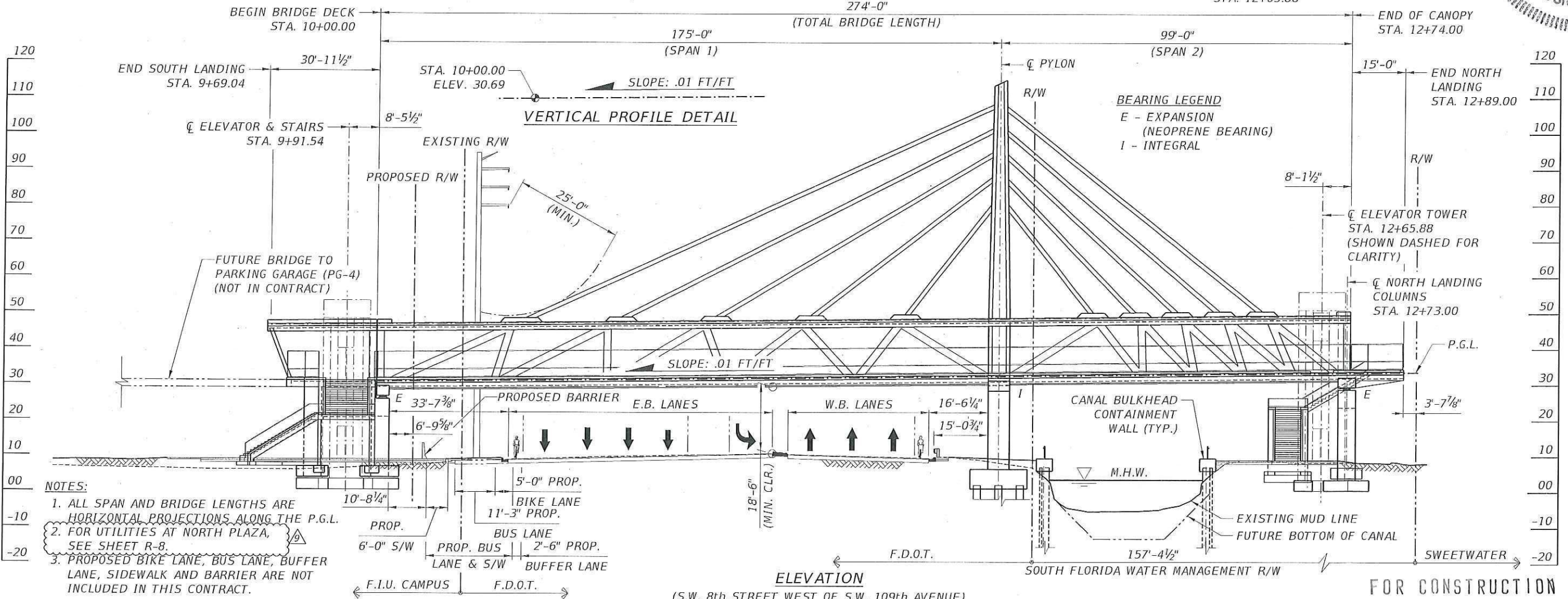
ENGINEER OF RECORD:

 424 North Calhoun Street
 Tallahassee, Florida 32301
 FLORIDA CERTIFICATE OF AUTHORIZATION NO. 5618
 W. DENNEY PATE, P.E. - P.E. NO. 34332

FLORIDA INTERNATIONAL UNIVERSITY
 ROAD NO. COUNTY PROJECT ID
 MIAMI - DADE 434688-1-58-01

PROJECT NAME: UNIVERSITY CITY PROSPERITY PROJECT
 SHEET NO. B-2



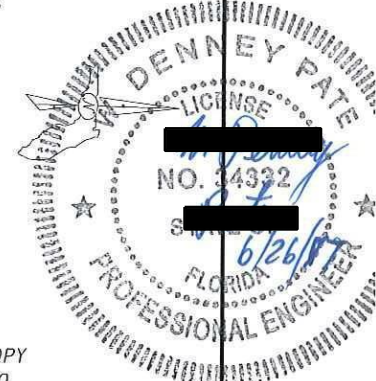
PLAN



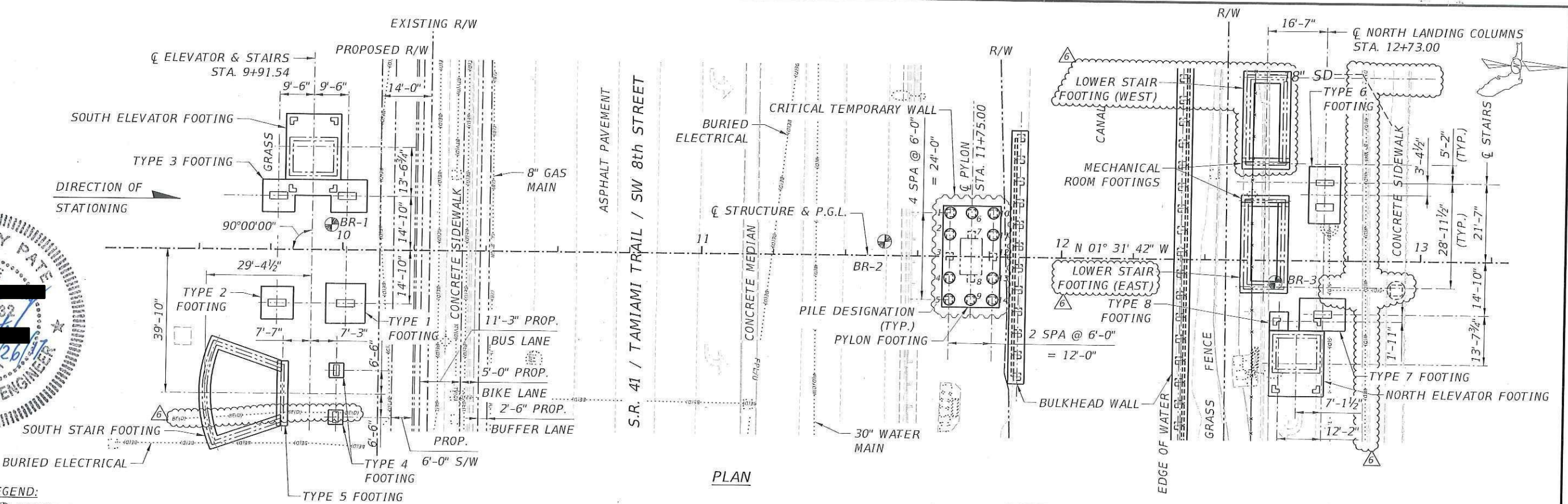
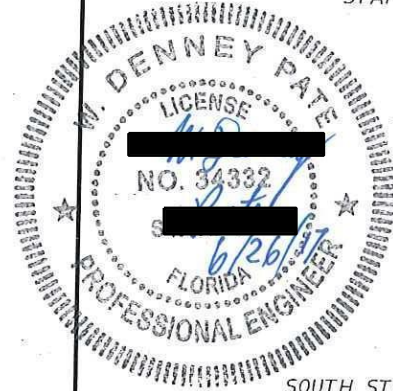
VERTICAL PROFILE DETAIL

ELEVATION

- NOTES:
1. ALL SPAN AND BRIDGE LENGTHS ARE HORIZONTAL PROJECTIONS ALONG THE P.G.L.
 2. FOR UTILITIES AT NORTH PLAZA, SEE SHEET R-8.
 3. PROPOSED BIKE LANE, BUS LANE, BUFFER LANE, SIDEWALK AND BARRIER ARE NOT INCLUDED IN THIS CONTRACT.



REVISIONS				ENGINEER OF RECORD:		DRAWN BY:			SHEET TITLE:	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DCB	DCB	GENERAL PLAN AND ELEVATION		
5/15/17	ENH	ADDED WESTWARD STAIRCASE AND UPDATED UTILITY FILE				MF	MF			
6/26/17	ENH	REVISED NOTE				EDL	EDL			
						FIU FLORIDA INTERNATIONAL UNIVERSITY 424 North Calhoun Street Tallahassee, Florida 32301 FLORIDA CERTIFICATE OF AUTHORIZATION NO. 5618 W. DENNEY PATE, P.E. - P.E. NO. 34332			ROAD NO. MIAMI-DADE COUNTY PROJECT ID 434688-1-58-01 PROJECT NAME: UNIVERSITYCITY PROSPERITY PROJECT	
SHEET NO. B-4										



- LEGEND:**
- ⊕ DENOTES APPROXIMATE SOIL BORING LOCATIONS
 - DENOTES 24" PILE LOCATION
 - ⊙ DENOTES 24" TENSION PILE LOCATION

FOUNDATION VARIABLES				
FOOTING	STATION	OFFSET	FOOTING COORDINATES	
			NORTHING	EASTING
SOUTH LANDING ELEVATOR TOWER FOOTING	9+91.54	28'-4 3/4" LEFT	519283.125	862559.669
SOUTH LANDING/ELEVATOR TOWER COMBINED FOOTING (TYPE 3)	9+91.54	14'-10" LEFT	519283.485	862573.227
SOUTH LANDING SOUTH FOOTING (TYPE 2)	9+82.04	14'-10" RIGHT	519274.775	862603.137
SOUTH LANDING NORTH FOOTING (TYPE 1)	10+01.04	14'-10" RIGHT	519293.769	862602.630
SOUTH LANDING EAST STAIR FOOTING (TYPE 4)	9+98.79	46'-4" RIGHT	519292.355	862634.180
SOUTH LANDING WEST STAIR FOOTING (TYPE 4)	9+98.79	33'-4" RIGHT	519292.008	862621.185
SOUTH LANDING STAIR FOOTING (NORTH) (TYPE 5)	9+83.96	39'-10" RIGHT	519277.355	862628.078
SOUTH LANDING STAIR FOOTING (SOUTH - TOE)	9+62.17	39'-10" RIGHT	519255.571	862628.659
PYLON FOOTING	11+75.00	-	519467.317	862583.161
NORTH LANDING ELEVATOR TOWER FOOTING	12+65.88	28'-5 3/4" RIGHT	519558.922	862609.206
NORTH LANDING/ELEVATOR TOWER COMBINED FOOTING (TYPE 7)	12+73.00	14'-10" RIGHT	519565.681	862595.375
NORTH LANDING WEST FOOTING (TYPE 6)	12+73.00	18'-2 1/2" LEFT	519564.800	862562.344
NORTH LANDING MECHANICAL ROOM FOOTING (WEST)	12+56.42	26'-9" LEFT	519547.994	862554.249
NORTH LANDING MECHANICAL ROOM FOOTING (EAST)	12+56.42	16'-5" LEFT	519548.269	862564.580
NORTH LANDING LOWER STAIR FOOTING (EAST)	12+56.42	7'-4 1/2" RIGHT	519548.904	862588.363
NORTH LANDING LOWER STAIR FOOTING (WEST)	12+56.42	50'-6 1/2" LEFT	519547.362	862530.459
NORTH LANDING/ELEVATOR TOWER SOUTH FOOTING (TYPE 8)	12+60.83	16'-9" RIGHT	519553.570	862597.616

PILE COORDINATES			
FOOTING	PILE	NORTHING	EASTING
PYLON FOOTING	1	519461.001	862571.325
	2	519461.161	862577.323
	3	519461.321	862583.321
	4	519461.481	862589.319
	5	519461.641	862595.317
	6	519466.999	862571.165
	7	519467.159	862577.163
	8	519467.479	862589.159
	9	519467.635	862595.157
	10	519472.996	862571.005
	11	519473.157	862577.003
	12	519473.317	862583.001
	13	519473.477	862588.999
	14	519473.637	862594.997

- NOTES:**
- FOR SPREAD FOOTING DETAILS, SEE THE SOUTH AND NORTH LANDING FOOTING DETAIL DRAWINGS.
 - FOR PILE INSTALLATION NOTES AND CUTOFF ELEVATIONS, SEE PILE DATA TABLE DRAWINGS.
 - ALL PILES ARE 24" SQUARE PRESTRESSED CONCRETE PILES AND SHALL BE DRIVEN PLUMB. SEE INDEX 20600 AND 20624 FOR PILE DETAILS AND NOTES.
 - DOWEL BARS OR EXPOSED STRANDS SHALL BE USED IN PILE NO.'S 1, 2, 4, 5, 6, 9, 10, 11, 13 & 14. THE CONTRACTOR HAS THE OPTION OF USING DOWELED REBAR OR STRANDS.
 - FOR DETAILS OF THE CRITICAL TEMPORARY WALL, SEE DRAWINGS TW-1 AND TW-2.
 - FOR BORING INFORMATION, SEE REPORT OF CORE BORINGS DRAWINGS.
 - FOR UTILITIES AT NORTH PLAZA, SEE SHEET R-8.

REVISIONS				ENGINEER OF RECORD:		DRAWN BY:		PROJECT TITLE:	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DCB	DESCRIPTION	FOUNDATION LAYOUT	
5/15/17	ENH	△ ADDED WESTWARD STAIRCASE, UPDATED UTILITY FILE, AND REMOVED BULKHEAD WALL DEADMAN				DCB	CHECKED BY:		
6/26/17	ENH	△ REVISED NOTE				MF	DESIGNED BY:		
						EDL	CHECKED BY:		
						MF			

FIGG 424 North Calhoun Street Tallahassee, Florida 32301 FLORIDA CERTIFICATE OF AUTHORIZATION NO. 5618 W. DENNEY PATE, P.E. - P.E. NO. 34332			ROAD NO. COUNTY PROJECT ID	SHEET NO. UNIVERSITYCITY PROSPERITY PROJECT B-8
	MIAMI - DADE	434688-1-58-01		