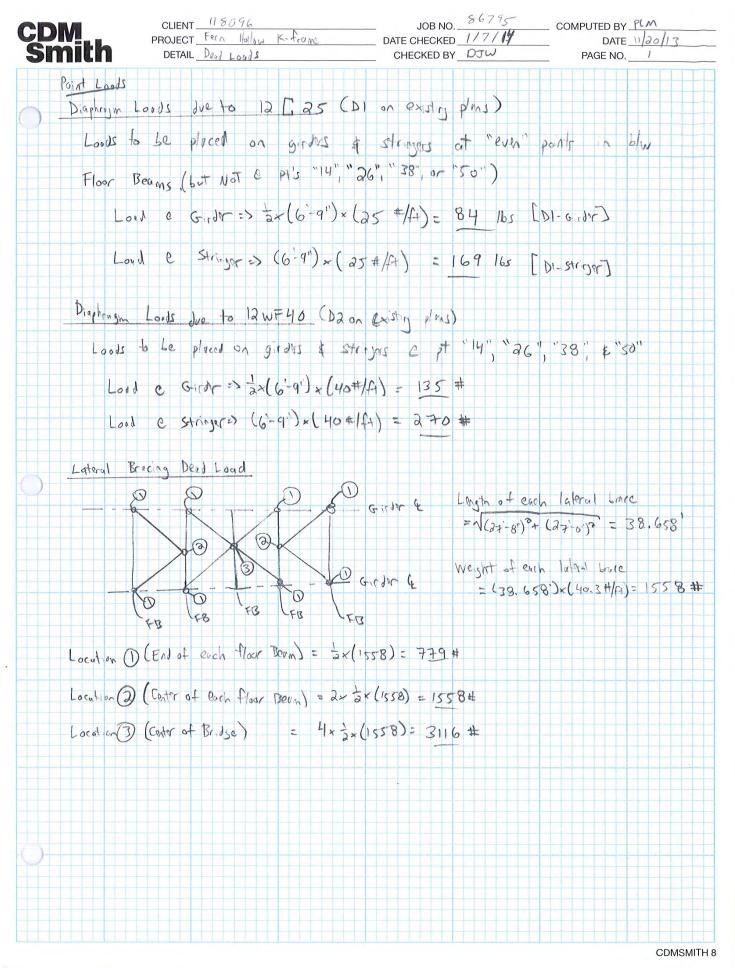


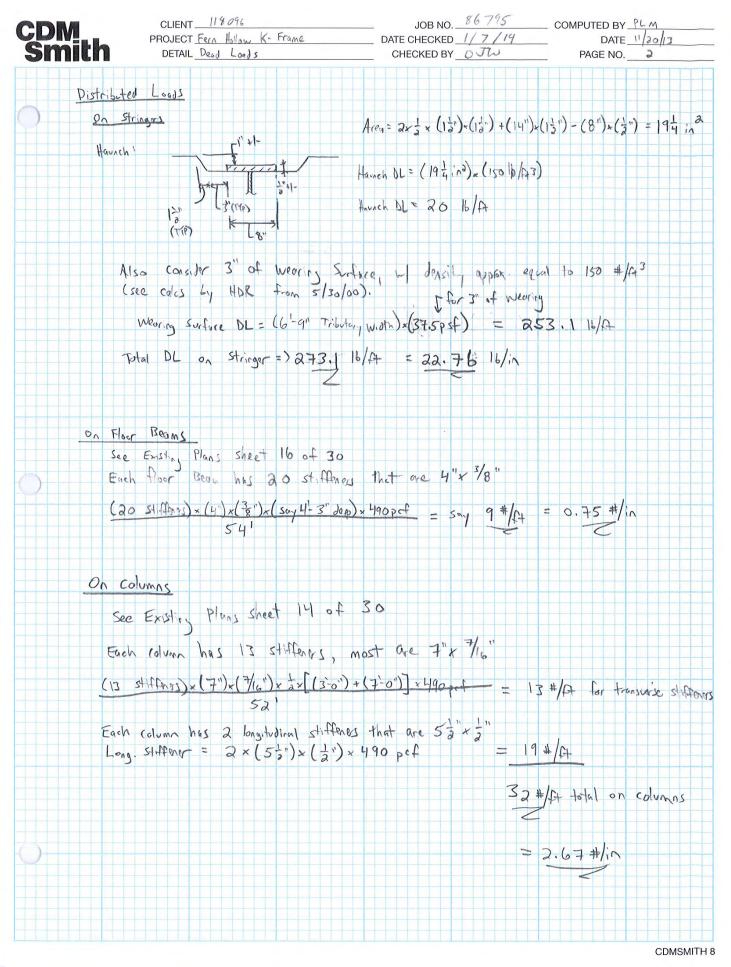
2014 Load Rating Calculations

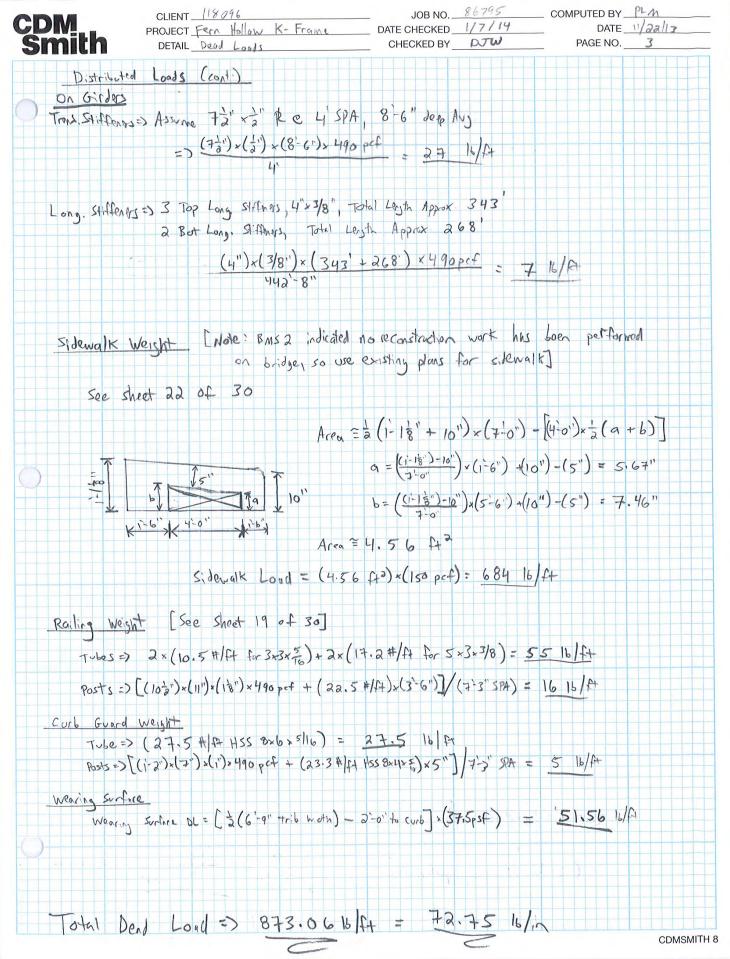
Pittsburgh, PA

HWY22MH003

(49 pages)







NTSB Attachment - Page 4

NTSB_CityPgh_FernHollow_026-003

Asphalt Pavement Construction FAQs by the Asphalt Institute

The FHWA Asphalt Mixture Expert Task Group developed recommendations that are being considered by the Association of State Highway and Transportation Officials (AASHTO) to provide guidance in asphalt binder grade selection when using RAP. These recommendations are summarized below.

 When 15% or less RAP is used: "The binder grade for the mixture is selected for the environment and traffic conditions the same as for a virgin mix. No grade adjustment is made to compensate for the stiffness of the asphalt in the RAP".

 When 16 to 25% RAP is used: "The selected binder grade for the new asphalt is one grade lower for both the high and low temperature stiffness than the binder grade required for a virgin asphalt. For example, if the specified binder grade for the virgin mix is a PG 64-22, the required grade for the recycled mix would be a PG 58-28".

When more than 25% RAP is used: "The binder grade for the new asphalt binder is selected using an
appropriate blending chart for high and low temperature. The low temperature grade is one grade lower than
the binder grade required for a virgin asphalt".

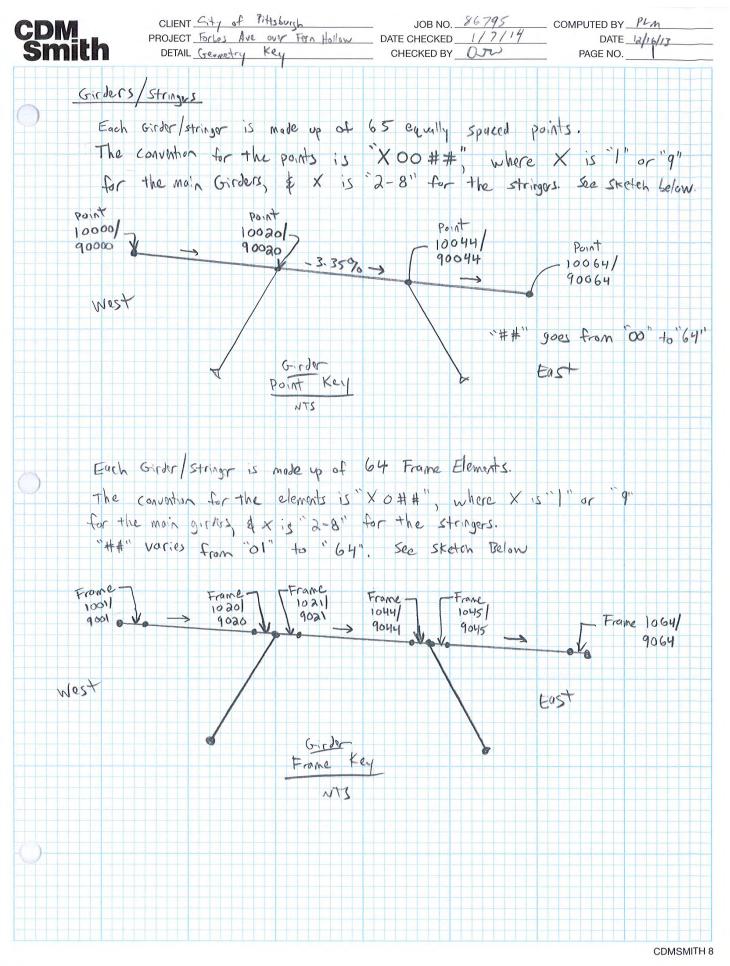
Normally, the above guidelines would be applied to both new and existing pavements. If a warranty was applied to a project, a more conservative approach - such as the use of blending charts - might be taken.

It is suggested that you contact the local state highway agency and/or asphalt binder supplier for the prevailing local practices.

Top Contents

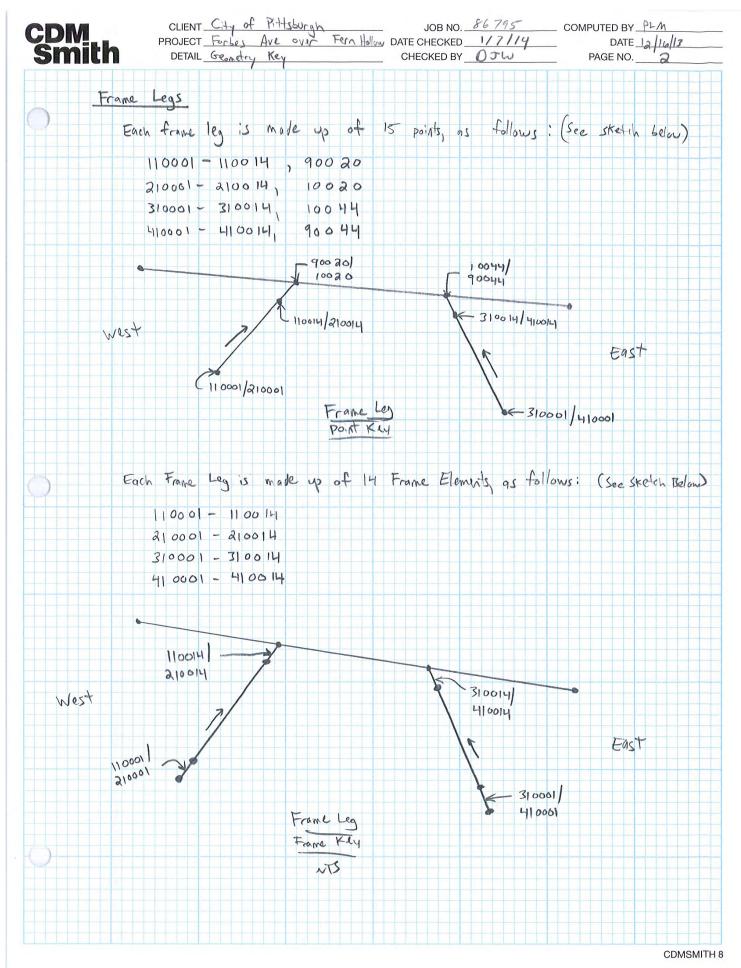
PL	ACEMENT
Q.	Should construction crews be allowed to pave in the rain?
Α.	This common question can mean different things to different people because of the wide range of precipitation encompassed by the word "rain." On one end, occasional light sprinkles should not be cause to shut down operations. However, a steady downpour, either light or heavy, should result in cessation of paving activities. To avoid waste, some states have verbiage in their specifications stating that trucks in route to the project when rain begins can be laid at the contractor's risk.
i	Also keep in mind that the surface on which you are paving may influence your decision. Paving on a firm, stable, well-draining crushed aggregate base might be given more leeway than a thin asphalt overlay. Raining or not, new pavement must be placed on a firm, unyielding base.
	Critical ideas to keep in mind when dealing with rain:
	 rain will cool the asphalt mix and could make obtaining proper compaction more difficult the asphalt lifts must be able to properly bond together and moisture can be a hindrance to that bond puddles overlaid with HMA turn to steam, which may cause stripping (separation of the asphalt binder from the aggregate) - never pave over puddles whether it is raining or not
	If you temporarily suspend paving operations due to rain, don't forget to:
	keep all trucks tarped
	 construct a vertical-faced construction joint
	 properly dispose of all material left in the hopper be specify both to track mud and dist acts the project
	 be careful not to track mud and dirt onto the project
	Asphalt pavements are designed to last for many years, so don't let a sense of urgency to get the job done guickly allow you to make decisions which could strip years away from the pavement life.
Q.	Does AI have any recommendations of an asphaltic concrete sealer?
А.	Information on fuel-resistant asphalt sealers can be found at <u>www.aaptp.us</u> with Report 05-02.
Q.	How do I determine how much asphalt is required for a project?
Α.	Here's the process:
	1. Calculate the number of cubic feet to be paved. (Remember to convert the thickness to feet - by dividing by 12 inches per 1 foot).
	10' x 25' x (4/12)' = 83.3 cubic feet of HMA
	2. Asphalt Mixture typically weighs from 142 to 148 pounds per cubic foot (PCF) in-place. Use 148 PCF.
	3. Calculate the tonnage needed. (remember to convert from pounds to tons; 2000 pounds per ton).
	83.3 cubic feet x 148 PCF = 12328 pounds of mix = 12328 / 2000 tons = 6.1 tons

http://www.asphaltinstitute.org/public/engineering/construction/construction-faqs.dot 12/23/2013



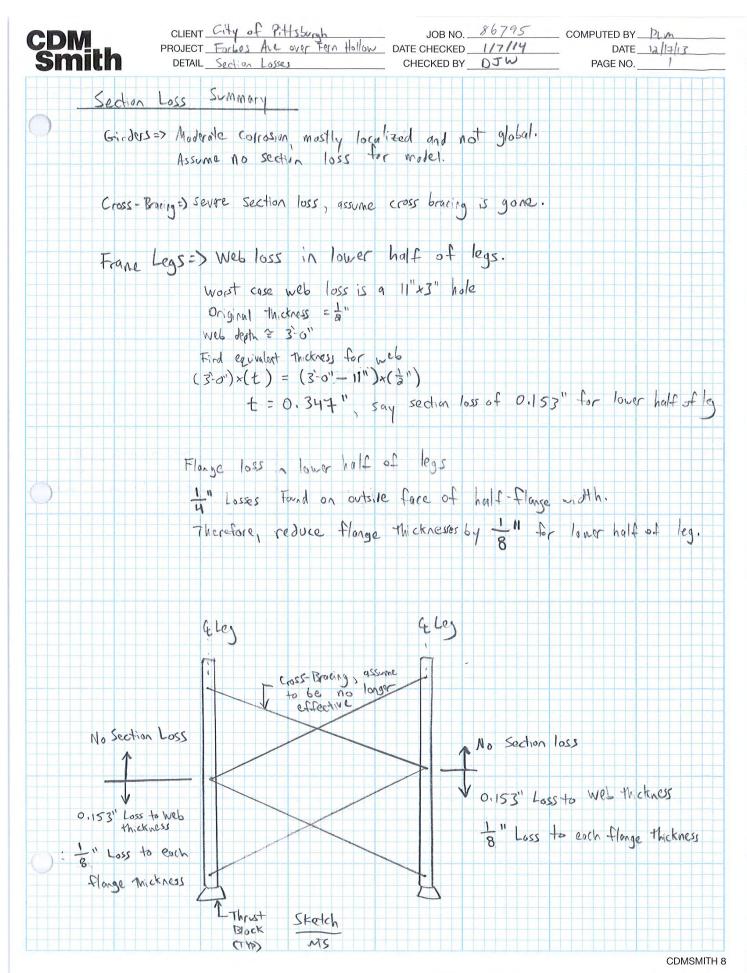
NTSB Attachment - Page 6

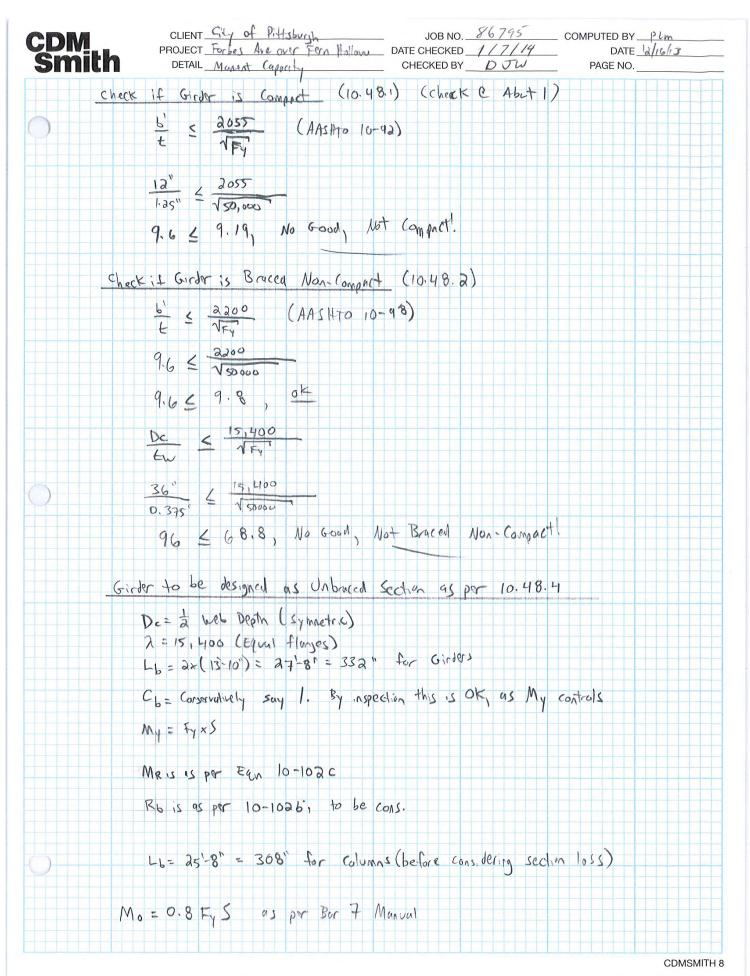
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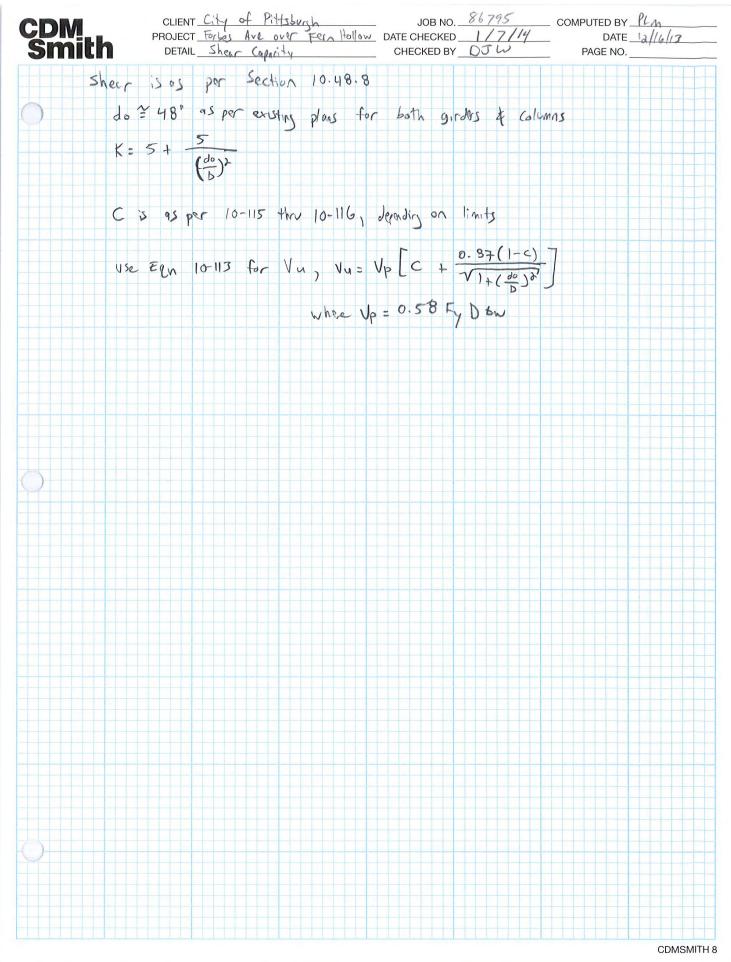


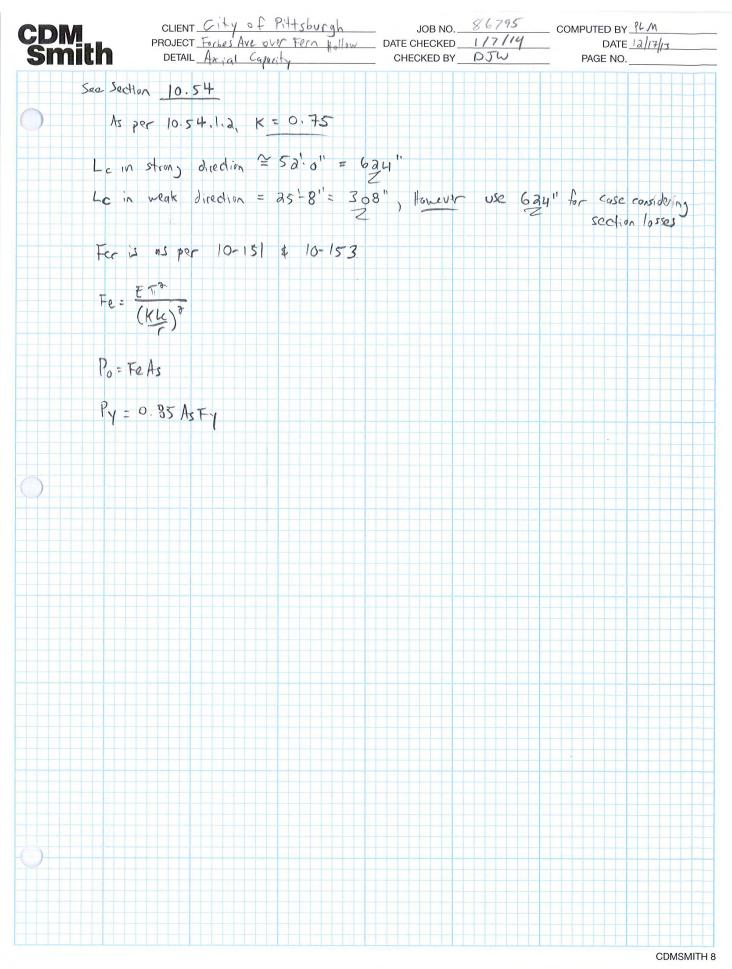
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Chapter 3 Method of Solution

3.7.3 Overload Moment Strength of Steel Members

The Overload Moment Strength, Mo, is calculated by the following equation.

$$M_{\rm o} = 0.8 F_{\rm v} S$$
 (non-composite)

ог

 $M_{\rm O} = 0.95 F_{\rm y} S$ (composite)

The program calculates the Overload Moment Strength based on the section moduli for tension flange, compression flange, concrete deck and tension reinforcement and uses the appropriate strength to determine the critical rating factor. Refer to AASHTO Manual C.2.5.

3.7.4 Flexural Strength of Concrete Members

The Flexural Strength, $M_{\mbox{\tiny U}}$ is calculated by the following equations.

$$\Phi = 0.90$$

 $\beta_1 = 0.85$ for f_c' ≤ 4000 psi = 0.85 - 0.05 $\frac{f_c' - 4000}{f_c'}$ for f_c' > 4000 psi

$$= 0.85 - 0.05 \frac{I_c - 4000}{1000} \qquad \text{for } f_c' > 4000$$

but not less than 0.65

~

$$aa = \frac{(A_s - A_s')f_y}{0.85f_c'(Es)}$$

ifaa ≤t A_{sf} = 0

> t
$$A_{sf} = \frac{0.85 f_c' (Es - b)(t)}{f_y}$$

and

$$aa = \frac{(A_s - A_{s'} - A_{sf})f_{y}}{0.85f_c'(Es)}$$

if
$$\frac{A_{s} - A_{s}'}{bd} < 0.85 \beta_{1} \left(\frac{f_{c}'d'}{f_{y}d}\right) \left(\frac{87000}{87000 - f_{y}}\right)$$

 $A_{s}'=0$, recalculate the value of aa based on $A_{s}'=0$

$$M_U = \Phi\left[\left(A_s - \dot{A_s} - A_{sf}\right)f_y\left(d - \frac{aa}{2}\right) + A_{sf}f_y\left(d - \frac{t}{2}\right) + \dot{A_s}f_y\left(d - d'\right)\right]$$

3-46

$$SLC = smaller of SLC_1 and SLC_2$$

3.8.1.2 Load Factor Method

The load factor ratings are computed based on the moment strength, shear strength, overload moment strength and moment-shear interaction and by applying appropriate load factors to the dead load and live load effects. The following factors are computed.

Operating Rating

$$OR_{1} = \frac{M_{U} - 1.3S_{LL+1} \left(\frac{M_{DL1}}{S_{DL1}} + \frac{M_{DL2}}{S_{DL2}}\right)}{1.3M_{LL+1}}$$
(non-compact)

.

.

$$OR_{1} = \frac{M_{U} - 1.3(M_{DL1} + M_{DL2})}{1.3M_{LL+1}}$$

$$OR_2 = \frac{V_U - 1.3(V_{DL1} + V_{DL2})}{1.3V_{LL+1}}$$

$$OR_{3} = \frac{M_{O} - S_{LL+l} \left(\frac{M_{DL1}}{S_{DL1}} + \frac{M_{DL2}}{S_{DL2}} \right)}{M_{LL+l}}$$

(overload)

(compact)

(shear)

$$OR_{4} = \frac{1.375 M_{U} V_{U} - 1.3 \left[S_{LL+l} \left(\frac{M_{DL1}}{S_{DL1}} + \frac{M_{DL2}}{S_{DL2}} \right) V_{U} + 0.625 (V_{DL1} + V_{DL2}) (M_{U}) \right]}{1.3 [M_{LL+l} V_{U} + 0.625 V_{LL+l} M_{U}]}$$
(interaction)

Note: The equation for OR₄ is derived from Eqn. (10-118) given in AASHTO Specifications Article 10.48.8.2 or AASHTO Manual C.2.3, by substituting

$$V = 1.3 \left[V_{DL1} + V_{DL2} + OR_4 (V_{LL+l}) \right]$$
$$M = 1.3 \left[S_{LL+l} \left(\frac{M_{DL1}}{S_{DL1}} + \frac{M_{DL2}}{S_{DL2}} \right) + OR_4 (M_{LL+l}) \right]$$

and factoring the OR4 term out.

3-50

$$OR = smaller of OR_1, OR_2, OR_3 and OR_4$$

Inventory Rating

$$IR = \frac{3}{5}(OR)$$

Please note that internally the program first calculates IR and then obtains OR by multiplying IR by 1.67. The above OR₄ equation was derived from AASHTO Equation (10-117).

Safe Load Capacity as IR Level

When SLC LEVEL is expressed as a percentage of the Inventory Strength.

$$SL = 1 + \frac{SLC \ LEVEL}{100}$$
$$SLC = \frac{IR}{(1 - SL)}$$

Safe Load Capacity as OR Level

When SLC LEVEL is expressed as a percentage of the Operating Strength.

$$SL = \frac{SLC \ LEVEL}{100}$$
$$SLC_{1} = \frac{(SL) \ M_{U} - 1.3 \ S_{LL+l} \left(\frac{M_{DL1}}{S_{DL1}} + \frac{M_{DL2}}{S_{DL2}}\right)}{1.3 \ M_{LL+l}}$$

$$SLC_2 = \frac{(SL)V_U - 1.3(V_{DL1} - V_{DL2})}{1.3V_{LL+l}}$$

$$SLC_{3} = \frac{(SL) M_{O} - S_{LL+l} \left(\frac{M_{DL1}}{S_{DL1}} + \frac{M_{DL2}}{S_{DL2}} \right)}{M_{LL+l}}$$

$$SLC_{4} = \frac{1.375 (SL) M_{U} V_{U} - 1.3 \left[S_{LL+l} \left(\frac{M_{DL1}}{S_{DL1}} + \frac{M_{DL2}}{S_{DL2}} \right) V_{U} + 0.625 (V_{DL1} + V_{DL2}) (M_{U}) \right]}{1.3 (M_{LL+l} V_{U} + 0.625 V_{LL+l} M_{U})}$$

$$SLC = smaller of SLC_1, SLC_2, SLC_3 and SLC_4$$

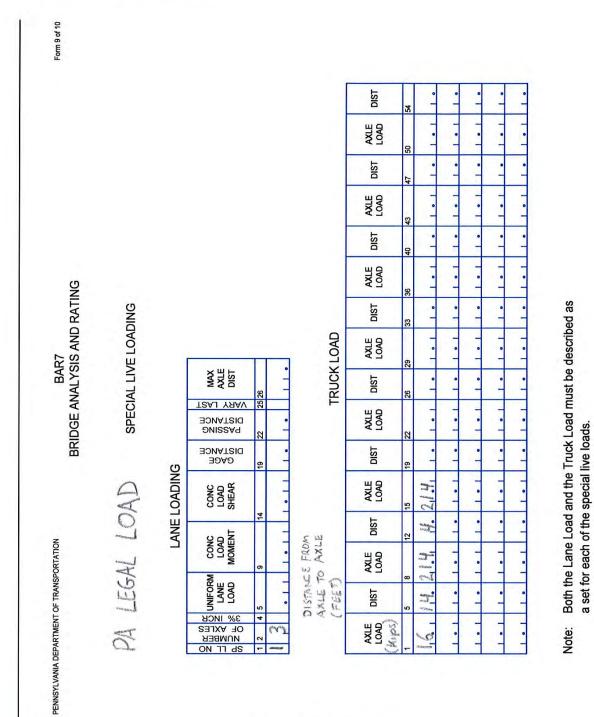


Figure 5.1.9 Input Form 9

5-14

Chapter 5 Input Data Requirements

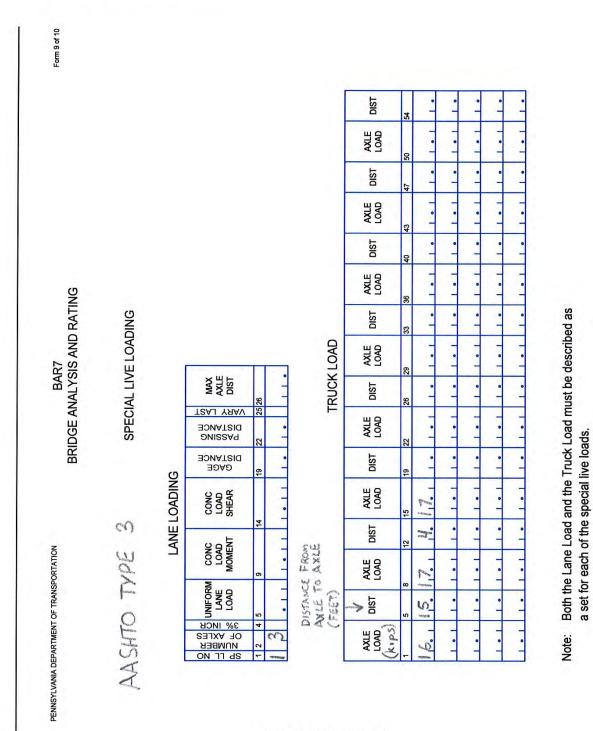


Figure 5.1.9 Input Form 9

5-14

Chapter 5 Input Data Requirements

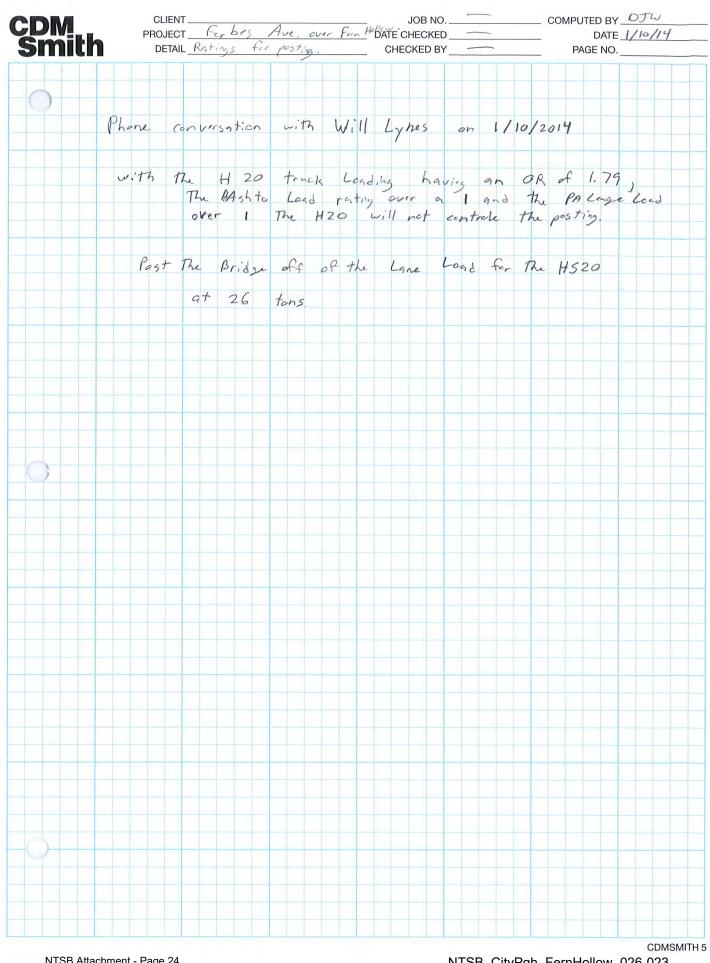
* Dimensions for 21 WF 55 below are essentially the same as W21x55 in ALSC 13th Edition Table 2.2.1 Dimensions and Primary Properties -- Steel Sections 1953-1970

W33x220 W33x200 W30x210 W30x190 W30x172 W27x177 W27x160 W27x145 W24x160 W24x120 W24x120 W24x120 W24x120 W24x120 W24x100 W24x100	Wt. per ft b 240 220 200 190 172 177 160 145 130 120 110 110 100 61	A in.2 70.60 64.80 58.90 61.90 56.00 50.70 52.20 47.10 42.70 47.10 42.70 47.10 38.30 35.40 32.50	d in. 33,50 33,25 33,00 30,38 30,12 29,88 27,31 27,08 26,88 24,72 24,49 24,25 24,31	d in. 33 1/2 33 1/4 33 30 3/8 30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2 24 1/2	tw in. 0.830 0.775 0.715 0.715 0.710 0.655 0.725 0.658 0.600 0.656	tw in. 13/16 3/4 11/16 3/4 11/16 5/8 3/4 11/16 5/8	tw/2 in. 7/16 3/8 3/8 3/8 5/16 3/8 5/16	bf in. 15.865 15.810 15.750 15.105 15.040 14.985	bf in. 15 7/8 15 3/4 15 3/4 15 1/8 15 15 15	tf in. 1.400 1.275 1.150 1.315 1.185 1.065	tf in. 1 3/8 1 1/4 1 1/8 1 5/16 1 3/16 1 1/16	T 28 5/8 28 5/8 28 5/8 28 5/8 25 3/4 25 3/4 25 3/4	k in. 2 7/16 2 5/16 2 3/16 2 5/16 2 3/16 2 1/16	k1 in. 1 3/8 1 3/8 1 3/8 1 3/8 1 5/16 1 5/16 1 1/4
nation W33x240 W33x220 W33x200 W30x210 W30x172 W27x177 W27x177 W27x145 W27x160 W27x145 W24x160 W24x100 W24x100 W24x100 W24x101	Ib 240 220 200 190 172 177 160 145 145 130 120 110 100	in.2 70.60 64.80 58.90 61.90 56.00 50.70 52.20 47.10 42.70 47.10 42.70 38.30 35.40 32.50	in. 33.50 33.25 33.00 30.38 30.12 29.88 27.31 27.08 26.88 24.72 24.49 24.25	in. 33 1/2 33 1/4 33 30 3/8 30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	in. 0.830 0.775 0.715 0.715 0.775 0.710 0.655 0.725 0.658 0.660	in. 13/16 3/4 11/16 3/4 11/16 5/8 3/4 11/16	in. 7/16 3/8 3/8 3/8 3/8 5/16 3/8	in. 15.865 15.810 15.750 15.105 15.040	in. 15 7/8 15 3/4 15 3/4 15 1/8 15	in. 1.400 1.275 1.150 1.315 1.185	in. 1 3/8 1 1/4 1 1/8 1 5/16 1 3/16	in. 28 5/8 28 5/8 28 5/8 25 3/4 25 3/4	in. 2 7/16 2 5/16 2 3/16 2 5/16 2 3/16	in. 1 3/8 1 3/8 1 3/8 1 3/8 1 5/16 1 5/16
W33x220 W33x200 W30x210 W30x190 W30x172 W27x177 W27x160 W27x145 W24x160 W24x145 W24x120 W24x120 W24x120 W24x120 W24x100 W24x100 W24x100	220 200 210 190 172 177 160 145 145 130 120 110 100	64.80 58.90 61.90 56.00 50.70 52.20 47.10 42.70 47.10 42.70 47.10 38.30 35.40 35.50	33.25 33.00 30.38 30.12 29.88 27.31 27.08 26.88 24.72 24.49 24.25	33 1/4 33 30 3/8 30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	0.775 0.715 0.715 0.710 0.655 0.725 0.658 0.600	3/4 11/16 3/4 11/16 5/8 3/4 11/16	3/8 3/8 3/8 3/8 5/16 3/8	15.810 15.750 15.105 15.040	15 3/4 15 3/4 15 1/8 15	1.275 1.150 1.315 1.185	1 3/8 1 1/4 1 1/8 1 5/16 1 3/16	28 5/8 28 5/8 28 5/8 25 3/4 25 3/4	2 7/16 2 5/16 2 3/16 2 5/16 2 5/16 2 3/16	1 3/8 1 3/8 1 3/8 1 3/8 1 5/16 1 5/16
W33x220 W33x200 W30x210 W30x190 W30x172 W27x177 W27x160 W27x145 W24x160 W24x145 W24x120 W24x120 W24x120 W24x120 W24x100 W24x100 W24x100	220 200 210 190 172 177 160 145 145 130 120 110 100	64.80 58.90 61.90 56.00 50.70 52.20 47.10 42.70 47.10 42.70 47.10 38.30 35.40 35.50	33.25 33.00 30.38 30.12 29.88 27.31 27.08 26.88 24.72 24.49 24.25	33 1/4 33 30 3/8 30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	0.775 0.715 0.715 0.710 0.655 0.725 0.658 0.600	3/4 11/16 3/4 11/16 5/8 3/4 11/16	3/8 3/8 3/8 3/8 5/16 3/8	15.810 15.750 15.105 15.040	15 3/4 15 3/4 15 1/8 15	1.275 1.150 1.315 1.185	1 1/4 1 1/8 1 5/16 1 3/16	28 5/8 28 5/8 25 3/4 25 3/4	2 5/16 2 3/16 2 5/16 2 3/16	1 3/8 1 3/8 1 5/16 1 5/16
W33x200 W30x210 W30x190 W30x172 W27x177 W27x160 W27x145 W24x100 W24x120 W24x120 W24x120 W24x100 W24x100 W24x101	200 210 190 172 177 160 145 160 145 130 120 110 110	58.90 61.90 56.00 50.70 52.20 47.10 42.70 47.10 42.70 38.30 35.40 35.40 32.50	33.00 30.38 30.12 29.88 27.31 27.08 26.88 24.72 24.49 24.25	33 30 3/8 30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	0.715 0.775 0.710 0.655 0.725 0.658 0.600	11/16 3/4 11/16 5/8 3/4 11/16	3/8 3/8 3/8 5/16 3/8	15.750 15.105 15.040	15 3/4 15 1/8 15	1.150 1.315 1.185	1 1/8 1 5/16 1 3/16	28 5/8 25 3/4 25 3/4	2 3/16 2 5/16 2 3/16	1 3/8 1 5/16 1 5/16
W30x210 W30x190 W30x172 W27x177 W27x160 W27x145 W24x160 W24x145 W24x130 W24x120 W24x120 W24x110 W24x100 W24x100	210 190 172 177 160 145 160 145 130 120 110	61.90 56.00 50.70 52.20 47.10 42.70 47.10 42.70 38.30 35.40 32.50	30.38 30.12 29.88 27.31 27.08 26.88 24.72 24.49 24.25	30 3/8 30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	0.775 0.710 0.655 0.725 0.658 0.600	3/4 11/16 5/8 3/4 11/16	3/8 3/8 5/16 3/8	15.105 15.040	15 1/8 15	1.315 1.185	1 5/16 1 3/16	25 3/4 25 3/4	2 5/16 2 3/16	1 5/16 1 5/16
W30x190 W30x172 W27x177 W27x160 W27x145 W24x145 W24x145 W24x130 W24x120 W24x110 W24x100 W24x61	190 172 177 160 145 160 145 130 120 110 100	56.00 50.70 52.20 47.10 42.70 47.10 42.70 38.30 35.40 32.50	30.12 29.88 27.31 27.08 26.88 24.72 24.49 24.25	30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	0.710 0.655 0.725 0.658 0.600	11/16 5/8 3/4 11/16	3/8 5/16 3/8	15.040	15	1.185	1 3/16	25 3/4	2 3/16	1 5/16
W30x210 W30x190 W30x172 W27x177 W27x160 W27x145 W24x145 W24x145 W24x140 W24x120 W24x120 W24x120 W24x110 W24x100 W24x101 W24x101	190 172 177 160 145 160 145 130 120 110 100	56.00 50.70 52.20 47.10 42.70 47.10 42.70 38.30 35.40 32.50	30.12 29.88 27.31 27.08 26.88 24.72 24.49 24.25	30 1/8 29 7/8 27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	0.710 0.655 0.725 0.658 0.600	11/16 5/8 3/4 11/16	3/8 5/16 3/8	15.040	15	1.185	1 3/16	25 3/4	2 3/16	1 5/16
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W27x177 W27x160 W27x145 W24x160 W24x145 W24x130 W24x120 W24x120 W24x100 W24x100 W24x61	177 160 145 160 145 130 120 110 100	52.20 47.10 42.70 47.10 42.70 38.30 35.40 32.50	27.31 27.08 26.88 24.72 24.49 24.25	27 1/4 27 1/8 26 7/8 24 3/4 24 1/2	0.725 0.658 0.600	3/4 11/16	3/8	14.985	15	1.065	1 1/16	25 3/4	2 1/16	1 1/4
W27x160 W27x145 W24x160 W24x145 W24x130 W24x120 W24x120 W24x100 W24x100 W24x61	160 145 160 145 130 120 110 100	47.10 42.70 47.10 42.70 38.30 35.40 32.50	27.08 26.88 24.72 24.49 24.25	27 1/8 26 7/8 24 3/4 24 1/2	0.658 0.600	11/16		10.201						
W27x160 W27x145 W24x160 W24x145 W24x130 W24x120 W24x100 W24x100 W24x61	160 145 160 145 130 120 110 100	47.10 42.70 47.10 42.70 38.30 35.40 32.50	27.08 26.88 24.72 24.49 24.25	27 1/8 26 7/8 24 3/4 24 1/2	0.658 0.600	11/16				100 C			S. 196	
W27x145 W24x160 W24x145 W24x130 W24x120 W24x120 W24x100 W24x100 W24x61	145 160 145 130 120 110 100	42.70 47.10 42.70 38.30 35.40 32.50	26.88 24.72 24.49 24.25	26 7/8 24 3/4 24 1/2	0.600		EHC	14.090	14 1/8	1.190	1 3/16	23	2 1/8	1 1/4
W24x160 W24x145 W24x130 W24x120 W24x110 W24x100 W24x61	160 145 130 120 110 100	47.10 42.70 38.30 35.40 32.50	24.72 24.49 24.25	24 3/4 24 1/2		5/8		14.023	14	1.075	1 1/16	23	2 1/16	1 1/4
W24x145 W24x130 W24x120 W24x110 W24x100 W24x100 W24x61	145 130 120 110 100	42.70 38.30 35.40 32.50	24.49 24.25	24 1/2	0.656	010	5/16	13.965	14	0.975	1	23	1 15/16	1 3/16
W24x145 W24x130 W24x120 W24x110 W24x100 W24x100 W24x61	145 130 120 110 100	42.70 38.30 35.40 32.50	24.49 24.25	24 1/2	0.656				1.00	1.0	1.0	1. State 1.	And the second	
W24x130 W24x120 W24x110 W24x100 W24x61	130 120 110 100	38.30 35.40 32.50	24.25			5/8	5/16	14.091	14 1/8	1.135	1 1/8	20 7/8	1 15/16	1 1/16
W24x120 W24x110 W24x100 W24x61	120 110 100	35.40 32.50			0.608	5/8	5/16	14.043	14	1.020	1	207/8	1 13/16	1 1/16
W24x110 W24x100 W24x61	110 100	32.50	24.31	24 1/4	0.565	9/16	5/16	14.000	14	0.900	7/8	20 7/8	1 11/16	1
W24x100 W24x61	100			24 1/4	0.556	9/16	1/4	12.088	12 1/8	0.930	15/16	207/8	1 11/16	1
W24x61		29 50	24.16	24 1/8	0.510	1/2	1/4	12.042	12	0.855	7/8	20 7/8	1 5/8	1
14 C.	61		24.00	24	0.468	7/16	1/4	12.000	12	0.775	3/4	207/8	1 9/16	15/16
21WF55		18.00	23.72	23 3/4	0.419	7/16	3/16	7.023	7	0.591	9/16	21	1 3/8	15/16
2100-55		10.10	00.00	00.011	0.075	010		0.010				10.00		
1.00.0	55	16.18	20.80	20 3/4	0.375	3/8	3/16	8.215	8 1/4	0.522	1/2	18 5/8	1 3/16	3/4
W18x114	114	33.50	18.48	18 1/2	0.595	5/8	5/16	11.833	11 7/8	0.991	1	15 1/8	1 11/16	15/16
W18x105	105	30.90	18.32	18 3/8	0.554	9/16	1/4	11.792	11 3/4	0.911	15/16	15 1/8	1 5/8	15/16
W18x96	96	28.20	18.16	18 1/8	0.512	1/2	1/4	11.750	11 3/4	0.831	13/16	15 1/8	1 1/2	7/8
W18x85	85	25.00	18.32	18 3/8	0.526	1/2	1/4	8.838	87/8	0.911	15/16	15 1/8	1 5/8	7/8
W18x77	77	22.70	18.16	18 1/8	0.475	1/2	1/4	8,787	8 3/4	0.831	13/16	15 1/8	1 1/2	7/8
W18x70	70	20.60	18.00	18	0.438	7/16	1/4	8.750	8 3/4	0.751	3/4	15 1/8	1 7/16	7/8
W18x64	64	18.90	17.87	17 7/8	0.403	3/8	3/16	8.715	8 3/4	0.686	11/16	15 1/8	1 3/8	13/16
W18x45	45	13.20	17.86	17 7/8	0.335	5/16	3/16	7.477	7 1/2	0.499	1/2	15 7/8	1 1	5/8
TUATO	40	10.20	11.00	1, 110	0.000	5/10	5/10	1.40	1 112	0.435	112	15 110		5/6
W16x96	96	28.20	16.32	16 3/8	0.535	9/16	1/4	11.533	11 1/2	0.875	7/8	13 1/8	1 5/8	7/8
W16x88	88	25.90	16.16	16 1/8	0.504	1/2	1/4	11.502	11 1/2	0.795	13/16	13 1/8	1 1/2	7/8
W16x78	78	23.00	16.32	16 3/8	0.529	1/2	1/4	8.586	8 5/8	0.875	7/8	13 1/8	1 5/8	7/8
W16x71	71	20.90	16.16	16 1/8	0.486	1/2	1/4	8.543	8 1/2	0.795	13/16	13 1/8	1 1/2	7/8
W16x64	64	18.80	16.00	16	0.443	7/16	1/4	8.500	8 1/2	0.715	11/16	13 1/8	1 7/16	7/8
W16x58	58	17.10	15.86	15 7/8	0.407	7/16	3/16	8.464	8 1/2	0.645	5/8	13 1/8	1 3/8	13/16
		00.00	17.10	49.444				10.005						
W14x314	314	92.30	17.19	17 1/4	1.415	1 7/16	11/16	16.235	16 1/4	2.283	2 5/16	11 1/4	3	1 5/16
W14x287	287	84.40	16.81	16 3/4	1.310	1 5/16	5/8	16.130	16 1/8	2.093	2 1/16	11 1/4	2 3/4	1 5/16
N14x264	264	77.60	16.50	16 1/2	1.205	1 3/16	5/8	16.025	16	1.938	1 15/16	11 1/4	2 5/8	1 1/4
W14x246	246	72.30	16.25	16 1/4	1.125	1 1/8	9/16	15.945	16	1.813	1 13/16	11 1/4	2 1/2	1 3/16
N14x237	237	69.70	16.12	16 1/8	1.090	1 1/16	9/16	15.910	15 7/8	1.748	1 3/4	11 1/4	2 7/16	1 3/16
N14x228	228	67.10	16.00	16	1.045	1 1/16	1/2	15.865	157/8	1.688	1 11/16	11 1/4	2 3/8	1 1/8
W14x219	219	64.40	15.87	15 7/8	1.005	1	1/2	15.825	157/8	1.623	1 5/8	11 1/4	2 5/16	1 1/8
N14x202	202	59.40	15.63	15 3/4	0.930	15/16	7/16	15.750	15 3/4	1.503	1 1/2	11 1/4	2 3/16	1 1/8
N14x184	184	54.10	15.38	15 3/8	0.840	13/16	7/16	15.660	15 5/8	1.378	1 3/8	11 1/4	2 1/16	1 1/16
N14x167	167	49.10	15.12	15 1/8	0.780	3/4	3/8	15.600	15 5/8	1.248	1 1/4	11 1/4	1 15/16	1
N14x158	158	46.50	15.00	15	0.730	3/4	3/8	15.550	15 1/2	1.188	1 3/16	11 1/4	17/8	1
N14x150	150	44.10	14.88	14 7/8	0.695	11/16	3/8	15.515	15 1/2	1,128	1 1/8	11 1/4	1 13/16	1
N14x142	142	41.80	14.75	14 3/4	0.680	11/16	5/16	15.500	15 1/2	1.063	1 1/16	11 1/4	1 3/4	1
W14x320	320	94.10	16.81	16 3/4	1.890	17/8	15/16	16.710	16 3/4	2.093	2 1/16	11 1/4	2 3/4	1 9/16
N14x136	136	40.00	14.75	14 3/4	0.660	11/16	5/16	14.740	14 3/4	1.063	1 1/16	11 1/4	1 3/4	15/16
N14x127	127	37.30	14.62	14 5/8	0.610	5/8	5/16	14.690	14 3/4	0.998	1	11 1/4	1 11/16	15/16
N14x119	119	35.00	14.50	14 1/2	0.570	9/16	5/16	14.650	14 5/8	0.938	15/16	11 1/4	1 5/8	15/16
W14x111	111	32.70	14.37	14 3/8	0.540	9/16	1/4	14.620	14 5/8	0.873	7/8	11 1/4	1 9/16	7/8
W14x103	103	30.30	14.25	14 1/4	0.495	1/2	1/4	14.575	14 5/8	0.813	13/16	11 1/4	1 1/2	7/8
N14x95	95	27.90	14.12	14 1/8	0.465	7/16	1/4	14.545	14 1/2	0.748	3/4	11 1/4	1 7/16	7/8
N14x87	87	25.60	14.00	14	0.420	7/16	3/16	14.500	14 1/2	0.688	11/16	11 1/4	1 3/8	13/16
V14x84	84	24.70	14.18	14 1/8	0.451	7/16	1/4	12.023	12	0.778	3/4	11 1/4	1 7/16	7/8
N14x78	78	22.90	14.06	14	0.428	7/16	3/16	12.000	12	0.718	11/16	11 1/4	1 3/8	7/8
	Contraction of the		1000					12.23				a land		
W12x161	161	47.40	13.88	13 7/8	0.905	7/8	7/16	12.515	12 1/2	1.486	1 1/2	9 1/2	2 3/16	1 1/16
W12x133	133	39.10	13.38	13 3/8	0.755	3/4	3/8	12.365	12 3/8	1.236	1 1/4	9 1/2	1 15/16	1
W12x99	99	29.10	12.75	12 3/4	0.582	9/16	5/16	12.192	12 1/4	0.921	15/16	9 1/2	1 5/8	15/16
W12x92	92	27.10	12.62	12 5/8	0.545	9/16	1/4	12.155	12 1/8	0.856	7/8	9 1/2	1 9/16	7/8
W12x85	85	25.00	12.50	12 1/2	0.495	1/2	1/4	12.105	12 1/8	0.796	13/16	9 1/2	1 1/2	7/8
V12x36	36	10.60	12.24	12 1/4	0.305	5/16	1/8	6.565	6 5/8	0.540	9/16	10 1/8	1 1/16	5/8
V12x31	31	9.13	12.09	12 1/8	0.265	1/4	1/8	6.525	6 1/2	0.465	7/16	10 1/8	1	5/8
V12x27	27	7.95	11.96	12	0.237	1/4	1/8	6.497	6 1/2	0.400	3/8	10 1/8	15/16	9/16
V12x16.5	16.5	4.87	12.00	12	0.230	1/4	1/8	4.000	4	0.269	1/4	10 3/8	13/16	9/16
V10x89	89	26.20	10.88	10 7/8	0.615	5/8	5/16	10.275	10 1/4	0.998	1	7 3/4	1 9/16	13/16

28

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	nith [']	DETAIL Ratings	Ave over Fern Hollow DA	TE CHECKED 1/107 CHECKED BY 05W	Image: Market	NTE 1/10/14
	Rating Summar					
)	Girder			T . (+110)		SLC Cters
	Truck	or	Controlling Case		Operating (tans)	set ciert
	HaoTruck	4.50	1	54	90	72
	Hao Lane	2.56	ORG, Moment-Axial,	30	51	40
	Hs 20	2.56	Mid Spon 2	55	92	73
	ML-80	2.41		52	88	70
	TK-527	2.32	\downarrow	55	92	73
	Columns					
	Truck	OR	Controlling Case	INV. (tons)	Operating (tows)	SLC (tons)
	HZOTIVEK	1,79	Ť	21	35	28
	H20 Lane	0.92	ORa, Shear,	10	18	14
	HS 20	0.92	13 Height,	19	33	26
/	ML-80	0.95	18' from Bot	20	34	27
	TK-527	88.0	\downarrow	21	35	28
)						



NTSB Attachment - Page 24

NTSB_CityPgh_FernHollow_026-023

Image: constrained by the sector of		5			Project: F	Project: Earbes Ave over Fern Hollow Distail: Girder Section Promorties	ern Hollow		(eW)	Web Depth at Cl Brides =	132	
Image: constrained by the co					Byc	FLM 1	9/14			Abut 1 Location =		
Interview Interview <t< th=""><th></th><th></th><th></th><th></th><th>- Se</th><th>DIU</th><th>41/6/1</th><th></th><th></th><th>Leg J Location = CL Bridge Location = Leg 2 Location = Abut 2 Location =</th><th></th><th></th></t<>					- Se	DIU	41/6/1			Leg J Location = CL Bridge Location = Leg 2 Location = Abut 2 Location =		
Turnersis Turnersis Data Data <thdata< th=""> Data Data</thdata<>					-	Actual Web	Actual Top Flange	Actual Top Flange	Actual Bot Flange	Actual Bot Flange	Actual 1	
P. 0. 0.00000 N.00 0.0000 N.0000 N.00000 N.0000 N.0000 <td>mut #</td> <td>Frame Sec</td> <td>Location</td> <td>Frame #</td> <td>-</td> <td>Thickness (in)</td> <td>Width (in)</td> <td>Thickness (in)</td> <td>Width (in)</td> <td>Thickness (in)</td> <td>Depth (in)</td> <td>Fy (psi)</td>	mut #	Frame Sec	Location	Frame #	-	Thickness (in)	Width (in)	Thickness (in)	Width (in)	Thickness (in)	Depth (in)	Fy (psi)
Q N	10001	18	83	End 1001	75.00	0.375	24	1.25	24	1.25	77.50	200005
010 310 4000 370 0137 310 4103 310 1135	10002	83	166	End 1002	78.00	0.375	24	1.25	24	1.25	80.50	50000
0 300 1000 0.000<	1	649	216	Mid 1003	18.67	0.375	24	1.25	24	1.25	82.31	20000
(p) (p) <td>0003</td> <td>53</td> <td>692</td> <td>End 1003</td> <td>81.00</td> <td>0,375</td> <td>24</td> <td>1.875</td> <td>24</td> <td>1.875</td> <td>84.75</td> <td>50000</td>	0003	53	692	End 1003	81.00	0,375	24	1.875	24	1.875	84.75	50000
y control cont	0004	86	332	End 1004	84.00	0.375	24	1.875	24	1.875	87.75	50000
(m) (m) <td>5000</td> <td>18</td> <td>415</td> <td>End 1005</td> <td>87.00</td> <td>0.375</td> <td>24</td> <td>1.875</td> <td>24</td> <td>1.875</td> <td>90.75</td> <td>50000</td>	5000	18	415	End 1005	87.00	0.375	24	1.875	24	1.875	90.75	50000
0 0	9000	88	498	End 1006	90.06	0.375	24	1.875	24	1.875	93.75	50000
(1) (2) <td>1000</td> <td>68</td> <td>185</td> <td>End 1007</td> <td>93.00</td> <td>0.375</td> <td>24</td> <td>1.875</td> <td>24</td> <td>1.875</td> <td>96.75</td> <td>50000</td>	1000	68	185	End 1007	93.00	0.375	24	1.875	24	1.875	96.75	50000
01 10. 10. 10. 10. 10. 10. 10. 10.0 10.0 11.	8000	g10	664	End 1008	96.00	0.375	24	1.875	24	1.875	54.66	20000
10.1 10.1 0.10.1	6000	118	1010	End 1009	00.66	0.375	24	18/5	74	1 070	102.75	SUUM
(1) (1) <td>0100</td> <td>2132</td> <td>020</td> <td>Mid 1010</td> <td>102 611</td> <td>375.0</td> <td>24</td> <td>1 875</td> <td>24</td> <td>1875</td> <td>106.26</td> <td>20000</td>	0100	2132	020	Mid 1010	102 611	375.0	24	1 875	24	1875	106.26	20000
101 910 60001 10100 0130 0130 103 1		613.9	844	Mid 1011	15 201	0.375	24	1 25	24	1.75	105.01	20000
(1) (3) (4) (3) <td>0011</td> <td>p14</td> <td>913</td> <td>End 1011</td> <td>105,00</td> <td>0.375</td> <td>24</td> <td>1.25</td> <td>24</td> <td>1.25</td> <td>107.50</td> <td>50000</td>	0011	p14	913	End 1011	105,00	0.375	24	1.25	24	1.25	107.50	50000
(1) (1) <td>0012</td> <td>£15</td> <td>966</td> <td>End 1012</td> <td>108.00</td> <td>0.375</td> <td>24</td> <td>1.25</td> <td>24</td> <td>1.25</td> <td>110.50</td> <td>50000</td>	0012	£15	966	End 1012	108.00	0.375	24	1.25	24	1.25	110.50	50000
(1) (1) <td>6013</td> <td>816</td> <td>1079</td> <td>End 1013</td> <td>111,00</td> <td>0.375</td> <td>24</td> <td>1.25</td> <td>24</td> <td>1.25</td> <td>113.50</td> <td>50000</td>	6013	816	1079	End 1013	111,00	0.375	24	1.25	24	1.25	113.50	50000
(1) (1) <td></td> <td>g16a</td> <td>1144</td> <td>Mid 1014</td> <td>113.35</td> <td>0.375</td> <td>24</td> <td>1.25</td> <td>24</td> <td>1.25</td> <td>115.85</td> <td>50000</td>		g16a	1144	Mid 1014	113.35	0.375	24	1.25	24	1.25	115.85	50000
(b) 1100 640103 1100 04305 24 1125 64 125 (b) 1110 640105 1100 04305 24 125 24 125 24 125 (c) 1110 640105 11000 04305 24 125 24 125 24 125 24 125 24 125 24 125 24 125 24 125 24 125 24 125 24 125 25 <th25< th=""> <th25< th=""> <th25< th=""></th25<></th25<></th25<>		£17a	1144	Mid 1014	113.35	0.4375	24	1.25	24	1.25	115.85	50000
QC 1136 Indiff 1100 0.013 2 113 M 113	0014	£18	1162	End 1014	114.00	0.4375	24	1.25	24	1.25	116.50	50000
QPU 1318 Meditor 1200 0.431 24 122 64 123 QPU 1318 Meditor 1203 0.4313 24 212 24 213 QPU 1318 Meditor 1203 0.4313 214 212 213 213 QPU 1319 Meditor 1203 0.4313 214 213 213 213 QPU 1319 1319 0.4313 213	0015	819	1245	End 1015	117.00	0.4375	24	1.25	24	1.25	119.50	50000
glu 119. MARIN 1020 0.437 21	0016	820	1328	End 1016	120.00	0.4375	14	1.0	14	1.1	05.771	20000
g21 M131 mam M2 M24 M25 M2 M25 M25<		820a	1336	2101 Pil	120.29	0.4375	44	1.25	24	210	124.79	NOUNS
U_{11}^{11} Noise Nordense Disce Disce Nordense Disce Disce <thdisce< th=""> Disce Disce<td>1111</td><td>6178</td><td>1411</td><td>LTOT DIM</td><td>123.00</td><td>7870</td><td>24</td><td>326</td><td>24</td><td>2.75</td><td>127.50</td><td>20000</td></thdisce<>	1111	6178	1411	LTOT DIM	123.00	7870	24	326	24	2.75	127.50	20000
0213 0400 01008 15560 02135 33 3135 <t< td=""><td>1100</td><td>e22a</td><td>1480</td><td>Mid 1018</td><td>125.49</td><td>0.4375</td><td>24</td><td>2.25</td><td>24</td><td>2.25</td><td>129.99</td><td>50000</td></t<>	1100	e22a	1480	Mid 1018	125.49	0.4375	24	2.25	24	2.25	129.99	50000
plat 106 64008 1306 0413 130 130 130 130 plat 1101 64003 11200 04135 54 3135 54 3135 plat 1106 64003 11200 04135 54 3135 54 3135 plat 1106 64003 11230 053 3135 54 3135 54 3135 plat 1106 64033 11320 053 32 32 33 33 plat 1039 04033 11390 05 32 32 33 33 plat 1039 053 1139 05 32 32 33 33 plat 1030 053 1133 05 1135 05 34 35 plat 1030 053 1136 05 1135 05 1135 05 1135 1135 1135 1135 1135 1135 <td></td> <td>0.13.1</td> <td>1480</td> <td>Mid 1018</td> <td>125.49</td> <td>0.8125</td> <td>24</td> <td>3.125</td> <td>24</td> <td>3.125</td> <td>131.74</td> <td>50000</td>		0.13.1	1480	Mid 1018	125.49	0.8125	24	3.125	24	3.125	131.74	50000
05 137 04003 13200 03135 33 3335 3135 3	0018	074	1494	End 1018	126.00	0.8125	24	3.125	24	3.125	132.25	50000
0 ¹⁶ 1860 64000 11200 61135 313 3135 313 3135 <	6100	075	1577	End 1019	129,000	0.8125	24	3.125	24	3.125	135.25	50000
g2 113 113 113 113 113 113 g2 113 113 0313 113 0313 113	0020	826	1660	End 1020	132,00	0.8125	24	3.125	24	3.125	138.25	50000
gas 1836 64102 1120 08135 24 3135 24 3135 313 gas Med 003 11827 053 23 23 23 23 23 23 gas Med 03 11827 053 23 23 23 23 23 23 gas 730 Med 03 11820 053 053 053 23 23 23 23 23 gas 730 Med 03 9300 053 053 23 23 23 23 23 gas 730 Med 03 9300 053 23 23 23 23 23 23 gas 730 Med 03 9300 053 23 23 23 23 23 gas 730 Med 03 930 053 23 23 23 23 23 gas 730 Med 03 930 053	0021	827	1743	End 1021	127.00	0.8125	24	3.125	24	3.125	133.25	50000
Qr Diss Mad 003 118.71 08.13 21.75 08.13 21.75 <th2< td=""><td>0022</td><td>828</td><td>1826</td><td>End 1022</td><td>122.00</td><td>0.8125</td><td>24</td><td>3,125</td><td>24</td><td>3.125</td><td>128.25</td><td>50000</td></th2<>	0022	828	1826	End 1022	122.00	0.8125	24	3,125	24	3.125	128.25	50000
ppm ppm <td></td> <td>828.3</td> <td>1888</td> <td>Mid 1023</td> <td>118.27</td> <td>0.8125</td> <td>24</td> <td>3.125</td> <td>24</td> <td>3.125</td> <td>124.52</td> <td>50000</td>		828.3	1888	Mid 1023	118.27	0.8125	24	3.125	24	3.125	124.52	50000
gen 1999 640103 11.00 0.5 A 1.5 A 1.5 A ge1 700 640103 11.00 0.5 A 1.5 2 1.4 1.5 ge1 7104 640105 10.90 0.5 A 1.25 2 1.5 1.5 ge1 7104 640105 10.90 0.5 A 1.25 2 1.5 1.5 ge1 700 640103 9.00 0.5 A 1.25 2 1.25 1.25 ge1 700 640103 9.00 0.55 A 1.25 2 1.25 1.25 ge1 700 64103 7.00 0.55 A 1.25 2 1.25 ge1 700 64103 7.00 0.35 A 1.25 2 1.25 ge1 700 64103 7.00 0.35 A 1.25 A 1.25 ge1 </td <td></td> <td>629a</td> <td>1888</td> <td>Mid 1023</td> <td>118.27</td> <td>0.5</td> <td>24</td> <td>2.5</td> <td>24</td> <td>2.5</td> <td>123.27</td> <td>00005</td>		629a	1888	Mid 1023	118.27	0.5	24	2.5	24	2.5	123.27	00005
g1 793 10410 11,00 0.0 1 1 2 <th2< th=""> <th2< th=""> <th2< th=""> <th< td=""><td>0023</td><td>g.30</td><td>6061</td><td>End 1023</td><td>007/11</td><td>0.5</td><td>24</td><td>22</td><td>14</td><td>2.7</td><td>1122.00</td><td>MMMC</td></th<></th2<></th2<></th2<>	0023	g.30	6061	End 1023	007/11	0.5	24	22	14	2.7	1122.00	MMMC
glib 710 малок 105. 0.5 20	5000	153	1994	100 F F F F	107.00	0.0	12	36	24	36	112.00	COOOD
(53) (10) <th< td=""><td>1900</td><td>0275</td><td>2104</td><td>Mid 1076</td><td>56 201</td><td>50</td><td>24</td><td>2.5</td><td>24</td><td>2.5</td><td>110.25</td><td>50000</td></th<>	1900	0275	2104	Mid 1076	56 201	50	24	2.5	24	2.5	110.25	50000
g3 713 6 H0106 9102 0.5 23 135 23 135 </td <td></td> <td>g33a</td> <td>2104</td> <td>Mid 1026</td> <td>105.25</td> <td>0.5</td> <td>24</td> <td>1.25</td> <td>24</td> <td>1.25</td> <td>107.75</td> <td>50000</td>		g33a	2104	Mid 1026	105.25	0.5	24	1.25	24	1.25	107.75	50000
(§5) 2.01 (§10) 9.02 0.5 24 1.35 24 1.35 (§5) 2.00 Med 008 9.9.4 0.5 24 1.35 24 2.35 (§1) 2.100 Med 008 9.04 0.55 24 2.135 24 2.135 (§1) 2.105 Med 009 9.007 0.57 24 2.135 24 2.135 (§1) 2.010 (§10) 9.007 0.57 24 2.135 24 2.135 (§1) 7.00 0.775 24 2.135 24 2.135 (§1) 7.01 0.735 24 2.135 24 2.135 (§1) 7.01 0.735 24 2.135 24 2.135 (§1) 7.01 0.735 24 2.135 24 2.135 (§1) 7.06 0.735 24 2.135 2.135 2.135 (§1) 7.05 7.01 2.135 <td>0026</td> <td>R.34</td> <td>2158</td> <td>End 1026</td> <td>102.00</td> <td>0.5</td> <td>24</td> <td>1.25</td> <td>24</td> <td>1.25</td> <td>104.50</td> <td>50000</td>	0026	R.34	2158	End 1026	102.00	0.5	24	1.25	24	1.25	104.50	50000
(55) 230 Med 008 9,24 0.5 24 1.25 73 73 (51) 730 Med 008 9,04 0.55 24 2135 24 2135 (51) 730 Med 008 9,07 0.57 24 2135 24 2135 (51) 7306 Med 009 9,07 0.757 24 2135 24 2135 (51) 7300 0.750 0.75 24 2135 24 2135 (61) 7900 0.750 0.75 24 2135 24 2135 (61) 7900 0.750 24 2135 24 2135 2135 (61) 7900 0.750 24 2135 24 2135 2135 (61) 7900 0.750 24 2135 2135 2135 2135 2135 (61) 7900 0.750 24 2135 2135 2135 2135 2135<	0027	g35	2241	End 1027	00'26	0.5	24	1.25	24	1.25	05.66	50000
gib 330 Mad 008 9.04 0.55 241 2125 74 2125 gib 3156 Mad 009 9001 0.55 241 2125 74 2125 gib 2496 Mad 009 9007 0.55 241 2125 74 2125 gib 2490 64109 9007 0.55 241 2125 241 2125 gib 2491 7203 04101 7200 0375 241 2125 241 2125 gib 7303 64103 7200 0375 241 2125 241 2125 gib 7303 64103 7200 0375 241 2125 241 2125 gib 7303 741 7135 741 7135 741 7135 gib 7303 741 7135 741 7135 741 7135 gib 7303 741 7135 741 7135<		g35a	2320	Mid 1028	92.24	0.5	24	1.25	24	52.	94.74	50000
girty 7.33 Med 1003 9.00 0.55 2.44 2.125 2.125 2.44 2.125 2.44 2.125 2.44 2.125 2.44 2.125 2.44 2.125 2.44 2.125 2.125 2.125 2.135 2.		g36a	2320	Mid 1028	92.24	0.5	24	2.125	24	2.125	96.49	50000
g273 7356 Mad 109 907 0.55 21 21 21 21 g38 7807 6 md 109 807 0.57 21 21 21 21 21 g48 7807 6 md 109 8070 0.715 21	0028	837	2324	End 1028	92.00	0.5	24	2.125	24	2.125	96.25	50000
(28) 23)5 (md109) 87,00 0.37% 244 21,35 21,35 21,35 21,35 21,35 21,35 21,35 21,35 21,35 21,35 21,35 21,35 21,35 <		837a	2356	Mid 1029	90.07	0.5	24	2.125	24	2.125	94.32	00005
g8 200 (mailog) 87.00 0.37% 24 21.35 24 21.35 g80 75.91 (mailog) 87.00 0.37% 24 21.35 24 21.35 g80 75.91 (mailog) 77.00 0.37% 24 21.35 24 21.35 g80 77.93 (mailog) 77.00 0.37% 24 21.35 24 21.35 g80 77.93 (mailog) 77.00 0.37% 24 21.35 24 21.35 g81 7806 (mailog) 97.00 0.37% 24 21.35 24 21.35 g81 7806 0.37% 24 21.5 24 21.35 24 21.35 g81 7801 0.3106 0.37% 24 21.5 24 21.35 g81 7801 97.01 0.35% 24 21.35 24 21.35 g81 7801 27.35 27.35 27.35		g38.a	2356	Mid 1029	90.07	0.375	24	2.125	24	2.125	94.32	20000
ge0 7390 refe100 7100 0.375 24 2115 24 2115 24 ge1 7866 refe100 7100 0.375 24 2115 24 2115 ge1 7866 refe103 7100 0.375 24 2115 24 2115 ge3 7803 refe103 7100 0.375 24 2115 24 2115 ge3 7803 refe103 7100 0.375 24 2115 24 2115 ge3 7803 refe103 7100 0.375 24 2115 24 2115 ge3 7803 refe103 7100 0.375 24 2115 24 2115 ge3 7803 refe103 7100 0.375 24 2115 24 2115 ge3 7803 7803 2913 2115 2115 2115 2115 2115 ge3 7803 781	6200	g38	2407	End 1029	87.00	0.375	24	2,125	24	2.125	91.25	200005
gen 7/1 neuton 1.20 0.11 2.12 <th< td=""><td>0030</td><td>839</td><td>2490</td><td>End 1030</td><td>82.00</td><td>0,375</td><td>24</td><td>2.125</td><td>24</td><td>2.125</td><td>27-02</td><td>00005</td></th<>	0030	839	2490	End 1030	82.00	0,375	24	2.125	24	2.125	27-02	00005
gen 2790 Control 0.201 0.315 241 2.125 241 2.115 241	1900	640	15/3	End 1031	00.11	0.5/5	14	301.2	2	3434	76.75	10000
gen 2123 Controls 2120 0.01 2120 0.01 2120 0.01 2120 0.01 2120 21210	0032	841	0007	End 1052	00.71	C/C/O	5	3115	50	2126	81.25	COOD S
gen marge m		040	CC0C	COULDON	00110	0.275	24	2175	24	2125	86.25	50000
(200) Mod 106 907 0.1% 31 213 2	10030	800	2005	End 1035	87.00	0.375	24	2125	24	2.125	91.25	20000
gin yes Marxie gan 0.5 Marxie gan 2.13 Marxie 2.13 gin yes Marxie gan yarx 0.5 yar 2.13 2.13 2.13 gin yes Marxie yarx 1.5 yar 2.13 yar 2.13 gin walue yarx 1.5 yar 2.13 yar 2.13 gin walue yarx 1.5 yar 1.5 yar 1.15 yar 1.15 gin matrix walue yarx 0.5 yar 1.5 yar 1.15 gin 1146 1146 0.5 2 2 2 2 2 2 2 2 gin 1146 114 114 114 114 114 115 2 2 2 2 2 2 2 2 2 2 2 2 2 2 <th2< td=""><td></td><td>420.5</td><td>2056</td><td>Mid 1036</td><td>90.07</td><td>0 375</td><td>24</td><td>2.125</td><td>24</td><td>2.125</td><td>94.32</td><td>50000</td></th2<>		420.5	2056	Mid 1036	90.07	0 375	24	2.125	24	2.125	94.32	50000
g ¹¹ Nage Off Off Off 9.20 0.5 Na 2.135 Na 1.135 2.135 Na 1.135 Na 1.135 Na 1.135 Na 1.135 Na 1.135 Na Na <th< td=""><td></td><td>6275</td><td>3956</td><td>Mid 1036</td><td>40.07</td><td>50</td><td>24</td><td>2.125</td><td>24</td><td>2.125</td><td>94.32</td><td>50000</td></th<>		6275	3956	Mid 1036	40.07	50	24	2.125	24	2.125	94.32	50000
(b) (b) (b) (b) (b) (b) (b) (c) (c) <td>0036</td> <td>0.37</td> <td>2988</td> <td>End 1036</td> <td>92.00</td> <td>0.5</td> <td>24</td> <td>2.125</td> <td>24</td> <td>2.125</td> <td>96.25</td> <td>20000</td>	0036	0.37	2988	End 1036	92.00	0.5	24	2.125	24	2.125	96.25	20000
(§5) 799 (M d10) 9.2M 0.55 70 1.15 20 1.15 (§1) 113 (M d10) 9.2M 0.55 70 1.15 20 1.15 (§1) 133 (M d10) 9.030 0.55 70 1.15 70 1.15 (§1) 130 M d109 10.75 0.55 70 1.55 70 1.55 (§1) 130 M d109 10.75 0.5 20 20 20 20 20 (§1) 130 (M d10) 1130 0.5 20 2		R364	2992	Mid 1037	92.24	1.5	24	2.125	24	2.125	96.49	50000
git 301 (nd10) y00 0.5 241 1,15 241 1,410 1,15 1,		635a	2662	Mid 1037	92.24	2.5	24	1.25	24	1.25	94.74	50000
(§3.) 3134 (#10.08) 0.00 0.55 24 1.35 24 1.35 (§3.) 3300 Md 008 09.57 0.5 34 1.35 215 1.35 (§3.) 3300 Md 008 09.57 0.5 34 2.5 24 2.55 (§1.) 3300 640 09 19.75 0.5 24 2.5 24 2.55 (§1.) 3300 640 09 19.70 0.5 24 2.5 24 2.5 (§1.) 3300 610 11.700 0.5 24 2.5 24 2.5 (§1.) 3401 11.700 0.5 24 2.5 24 2.5 (§2.) 341 312 0.112 0.5 24 2.5 24 2.5 (§2.) 343 313 313 313 313 313 315 (§3.) 343 313 313 313 313 313	0037	835	3071	End 1037	00'16	0.5	24	1.25	24	1.25	05'66	\$0000
g23-b 300 Mad 109 100.74 0.55 24 1.75 24 1.55 g21 3101 164109 100.74 0.5 24 7.5 24 7.5 g21 3107 164109 100.76 0.5 24 7.5 24 7.5 g20 3401 17.100 0.5 24 7.5 24 7.5 g21 3401 17.100 0.415 74 7.5 24 7.5 g21 3402 118.27 0.415 74 7.5 74 7.5 g21 345 344 11.55 0.415 74 11.5 75 74 11.5 g21	0038	834	3154	End 1038	102.00	0.5	24	1.25	24	1.25	104.50	50000
g23 3306 m4109 10,0-3 0.5 24 25 24 25 24 25 g21 3107 fm4109 10,0-3 0.5 24 7.5 24 7.5 g21 3107 fm4109 11,200 0.5 24 7.5 24 7.5 g29 303 64/040 11,200 0.5 24 7.5 24 7.5 g79 344 M41092 11320 0.55 24 3.55 24 2.5 g79 344 M41092 11320 0.8125 24 3.15 24 2.5 g79 346 64/042 11320 0.8125 24 3.15 24 3.15 g78 346 64/042 12320 0.8125 24 3.15 24 3.15 g78 366 64/042 12320 0.8125 24 3.15 24 3.15 g8 369 1016		g33a	3208	Mid 1039	105.25	0.5	24	1.25	24	1.25	107.75	20000
gli NUT rest(9) NUX cst(10) CO A M		g32a	3208	Mid 1039	105.25	0.5	24	57	14	22	110.23	DODOS -
git 3100 6 motion 11100 0.5 24 1.5 24 25 24 25 24 25 24 25 26 25 26 <th25< th=""> <th26< th=""> <th26< th=""></th26<></th26<></th25<>	0039	832	3237	End 1039	107.00	0.5	24	2.5	24	2.5	112.00	20000
gen and reariest 11,10 0.5 24 12 24 25 gen and meriost 11,21 0.5 24 12 24 25 gen and meriost 11,27 0.5 24 12 25 24 25 gen and meriost 11,27 0.415 25 24 11,35 24 13,35 gen meriost meriot <thmeriot< th=""></thmeriot<>	0040	831	3320	End 1040	112.00	0.5	24	2.5	24	2.5	00'/11	20000
R2 Mar	0041	£30	3403	End 1041	11/.00	0.5	24	67	74	67	122.00	nnnc
grave mark and motion	I	829a	3424	Mid 1042	118.27	0.5	24	2.5	24	2.5	123.27	20000
g2 560 rent lot 12,00 0.03.15 74 3.125 24 3.125 g2 560 rent lot 17.000 0.03.15 74 3.125 24 3.125 g6 563.5 rent lot 13.200 0.03.15 74 3.125 24 3.125 g6 365.5 rent lot 13.200 0.03.15 24 3.125 24 3.125 g6 365.5 140.00 0.03.15 24 3.125 24 3.125 g7 31.35 74 3.125 24 3.125 24 3.125 g8 31.35 140.00 0.03.15 24 3.125 24 3.125	0000	8284	3424	Mid 1042	118.2/	0.8125	24	3.125	24	3.125	124.52	00005
g2 3% readed 12,10 0.41,5 2x 11,2 2x 11,2 g7 8% readed 12,10 0.41,5 2x 11,2 2x 11,2 g7 805 1395 0.41,5 2x 11,2 2x 11,2 g8 3135 1136 0.41,5 2x 11,3 2x 11,5 g1 8135 1290 0.41,5 2x 11,5 2x 11,5 g1 814 8145 12,60 0.41,5 2x 11,5 2x 11,5	0042	828	3486	End 1042	122.00	0.8125	24	3.125	24	3.125	128.25	00005
g26 3655 1 end 1044 1.2120 0 0.03.15 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 2.4 3.125 3.4	60043	827	3569	End 1043	127.00	0.8125	24	3.125	24	3,125	133.25	20000
g25 3735 tind 1065 11/9.00 0.81/5 24 3.1/2 24 3.1/2 g24 3818 End 1046 126.00 0.81/5 24 3.1/2 24 3.1/2	0044	826	3652	End 1044	132.00	0.8125	24	3.125	24	5,125	138.25	00005
g24 3818 End 1046 126.00 0.8125 24 3.125 24 3.125	0045	825	3735	End 1045	129.00	0.81.25	24	3.125	74	3.125	135.25	20000
	0046	824	3818	End 1046	126.00	0.8125	24	3.125	24	3.125	132.25	20000

ES.	ł			Project: Detail:	Client: City of Pittsburgh Project: Forbes Ave over Fern Hollow Detail: Girder Section Properties	ern Hollow operties		We	Web Depth at Abut = Web Depth at Leg = Web Depth at CL Bridge =	12 132 72	5 5 5
				By:	PLM Nally	19/14			Abut 1 Location =	0	. Is
				Chk:	7	25W 1/9/14		Ì.	Leg.1 Location = CL Bridge Location =	1660	5 5
									Leg 2 Location + Abut 2 Location +	3652	5 5
# Inioq	Frame Sec	Location	Frame #	Actual Web Depth (in)	Actual Web Thickness (in)	Actual Top Flange Width (in)	Actual Top Flange Thickness (in)	Actual Bot Flange Width (in)	Actual Bot Flange Thickness (in)	Actual Total Depth (in)	Fy (psi)
	822a	3832	Mid 1047	125.49	0.4375	24	2.25	24	2.25	129.99	20000
10047	822	3901	End 1047	123.00	0.4375	24	2.25	24	2.25	127.50	20000
	821a	3976	Mid 1048	120.29	0.4375	24	2.25	24	2.25	124.79	00005
	8.20a	3976	Mid 1048	120.29	0.4375	24	1.25	24	1.25	122.79	50000
10048	820	3984	End 1048	120.00	0.4375	24	1.25	24	1.25	122.50	50000
10049	819	4067	End 1049	117.00	0.4375	24	1.25	24	1.25	119.50	50000
10050	g18	4150	End 1050	114.00	0.4375	24	1.25	24	1.25	116.50	50000
	g17a	4168	Mid 1051	113.35	0.4375	24	1.25	24	1.25	115.85	20000
	616a	4168	Mid 1051	113.35	0.375	24	1.25	24	1.25	115.85	50000
10051	816	4233	End 1051	111.00	0.375	24	1.25	24	1.25	113.50	50000
10052	815	4316	End 1052	108.00	0.375	24	1.25	24	: 25	110.50	20000
10053	814	4399	End 1053	105.00	0.375	24	1.25	24	1.25	107.50	200005
	g13a	4468	Mid 1054	102.51	0,375	24	1.25	24	1.25	105.01	00005
	£12a	4468	Mid 1054	102.51	0.375	24	1.875	24	1,875	106.26	00005
10054	812	4482	End 1054	102.00	0.375	24	1.875	24	1.875	105.75	50000
10055	811	4565	End 1055	00'66	0.375	24	1.875	24	1,875	102.75	50000
10056	g10	4648	End 1056	96.00	0.375	24	1.875	24	1.875	99.75	20000
10057	63	4731	End 1057	93.00	0.375	24	1.875	24	1.875	96.75	20000
10058	88	4814	End 1058	00'06	0.375	24	1.875	24	1.875	93.75	20000
10059	87	4897	End 1059	87.00	0.375	24	1.875	24	1.875	90.75	00005
10060	86	4980	End 1060	84.00	0.375	24	1.875	24	1.875	87.75	50000
10061	85	5063	End 1061	81.00	0.375	24	1.875	24	1.875	84.75	00005
	85a	9605	Mid 1062	19.81	0.375	24	1.875	24	1.875	83.56	50000
	64a	5096	Mid 1062	18.61	0.375	24	1.25	24	1.25	82.31	50000
10062	63	5146	End 1062	78.00	0.375	24	1.25	24	1.25	80.50	20000
10063	82	5229	End 1063	75.00	0.375	24	1.25	24	1.25	77.50	20000
10064	10	5313	End 1064	10 00	0.375	24	1.25	24	1.25	74.50	00005

	M _u (k-ft)	10056.5	10480.9	10901.8	11153.4	16145.2	16386.3	1.0990.1	17589.6	18184.3	18773.7	19357.4	19935.0	20505.8	20601.3	14141.4	14444.4	14800.6	15147.1	15411.3	10185.9	16620.3	16983.4	17016.8	24221.2	29826.1	30375.7	47170.2	47373.1	48573.8	49770.7	47773.7	45767.1	44263.4	1.67676	32238.1	0.15005	29046.8	15836.8	15361.8	14616.2	13891.5	21005 7	21435.0	20453.2	19766.4	18638.5	17500.1	17500.1	18638.5	19766.4	21435.0	21905.7	28087.0	25914.6	14616.2	15836.8	29046.8	29527.3	30891.6	32238.1	32575.7	44763.4	1.10164	49770.7	48573.8	47373.1
	Re	0.976	1/6'0	0.966	0.963	5/6'0	0.974	0/6/0	0.966	0.962	156'0	0.953	0.948	0.943	0.942	0.913	106'0	0.899	0.890	0.883	006'0	0.898	0.881	0.880	0.933	676.0	0.924	0.989	0.988	0.985	0.982	0.987	0.992	566'0	1660	0000	996.0	0.968	0.936	0.944	0.955	0.964	0.979	0.981	0.966	0.970	0.976	0.986	0.981	976.0	0.970	0.981	679.0	1.000	1.000	0.955	0.946	896.0	0.966	096'0	0.953	0.951	5660	0.987	0.982	0.985	0.988
	Rei	0.976	0.971	0.966	0,963	5/6/0	0.974	0.970	0.966	0.962	0.957	0.953	0.948	0.943	0.942	0.913	106'0	0.899	0.890	0.883	0.909	0.898	0.881	0.880	0.933	979.0	0.924	0.989	0.988	0.985	0.982	0.987	0.992	266.0	196.0	0.955	0.966	0.968	0.936	0.944	0.955	0.964	6/6/0	0.981	0.966	0/6/0	976.0	0.986	0.981	0.976	0.970	0.981	676.0	1.103	1.388	0.955	9260	0.968	0.966	0960	0.953	0.951	566.0	0.987	0.982	0.985	0000
	M, (k-ft)	10308.2	10796.0	11288.4	11587.3	16558.6	16830.9	17519.0	18211.8	18909.4	19611.6	20318,6	21030.2	21746,6	21867.9	15486.9	15931.7	16471.1	17015.2	1/444.6	1/990.4	10000 1	19287.8	19344.9	31314.8	111115	32867.0	47712.2	47940.2	1.89264	50666.2	48391.7	46145.6	44486.1	54242.b	538/27	3 10175	30004.3	16916.4	16278.6	15312.5	14409.2	222272.6	21844.0	21171.5	20380.8	19104.6	1/841.5	17841.5	19104.6	20380.8	21844.0	22372.4	28087.0	25914.6	15312.5	16916.0	30004.3	30566.5	32187.2	33825.4	34242.6	44486,1	0.24104	50666.2	49298.1	C 0000.0
	M.1 (k-ft)	23591.0	24510.1	25430.1	25984.9	40184.4	40725.5	42088.1	43453.1	44820.4	46189.6	47560.7	48933.4	S0307.7	50539.7	32974.8	33744.7	34671.2	35598.0	36324.1	30555.5	37467.2	38390.0	3.979.5	71284.8	72775.4	74147.8	106062.7	106443.9	108705.9	110970.9	107197.6	103433.0	100627.1	18655.1	1/800.4	6 VU817	70748.9	33844.5	32840.3	31297.8	29831.0	675575	51438.0	51417.2	49840.3	47281.1	44731.9	44731.9	47281.1	49840.3	51438.0	52429.0	53482.1	34151.1	31297.8	5.0P825	10748.9	71804.9	74832.3	77866.4	78635.1	1.72422.0	9.79197.6	110970.9	108705.9	D CANOUT
	M, (k-ft)	10308.2	10796.0	11288.4	11587.3	16558.6	16830.9	17519.0	18211.8	18909.4	19611.6	20318.6	21030.2	21746.6	21867.9	15486.9	15931.7	16471.1	17015.2	1/444.6	1/9915.0	6.61181	19287.8	6 00261	31314.8	32121.2	32867.0	47712.2	47940.2	49298.1	50666.2	48391.7	46145.6	44486.1	34242.6	P.C7855	3/10/-2	30004.3	16916.4	16278.6	15312.5	14409.2	0.85922	21844.0	21171.5	20380.8	19104.6	1/841.5	17841.5	19104.6	8.0380.8	21844.0	22372.4	28087.0	25914.6	15312.5	16916.4	30004.3	30566.5	32187.2	33825.4	34242.6	44486.1	1.1958b	50666.2	49298.1	CONDEN
-	Mp (k-ft)	1181.3	1728.5	2282.8	12620.1	17803.4	18102.0	8857,8	9620.7	20390.6	21167.6	21951.6	22742.6	23540.6	3675.9	17074.0	7587.9	18212.5	18844.1	7.543.7	2.08102	7 0101	21718.8	01786.6	4165.5	5076.0	5919.6	3522.4	3788.3	5373.2	56973.4	54314.9	51698.7	49772.0	5/4/6.0	3/004./	0 8235	2708.1	9082.8	8325.0	7181.8	6117.8	24484.2	23817.5	2761.1	1.895.7	0503.1	1776.6	1.0519	0503.1	1895.7	3817.5	24409.9	33347.1	33843.7	17181.8	0.6258 0.000	12708.1	33338.0	35158.3	7,004,7	7476.0	1 500 7	64314.9	56973.4	55373.2	1 0011
-	-	6.6 1	6.8 1		+	0	-	15.2		-	-			97.3 2	94.3 2	89.5	45.4	16.9	12.2	1.50	176	0.16	20.3	6 6 5/	619	6.96	93.6	8.68	52.2	38.5	33.0 5	13.4 5	16.4 5	6.88	1.46	20.3	19.0	33.4 3	33.1 1	1 12.9	0.0	1 4.7.	2 070	15.2 2	37.2 2	34.6 2	83.7 2	73.2	13.2	33.7 2	34.6	15.2 2	2 676	6 9.65	31.7 3	0.00	677	33.4 3	53.2 3	8.61	50.3 3	34.1 3	6 6 9	3.4 5			+
-	M ₀ (k-ft)	824	863	903	9269.9	1324	13464.	1401	14569.	1510	15689.	162	16824.2	1739	1745	1238	1274	131)	1361	139	1430	1443	154	154	250	2566	2625	3810	383	3943	405	3871	3691	3556	2/3:	2/04	SVVC	2400	1353	1302	1225	1157	1790	1747	169:	1630	1528	142	1421	1528	1630	174	1785	2246	207	122	130.	2400	2445	2574	2706	2735	3556	3871	40533.0	39438.5	C CACOC
	1 ₁ (in ⁴)	1440	1440	1440	1440	2160	2160	2160	2160	2160	2160	2160	2160	2160	2160	1440	1440	1440	1440	1440	1440	1440	1440	1440	2692	2652	2652	3600	3600	3600	3600	3600	3600	3600	7000	1000	1980	2880	1440	1440	1440	1440	2445	2448	2448	2448	2448	2448	2448	2448	2448	2448	2448	2448	1440	1440	1440	2880	2880	2880	2880	2880	3600	3600	3600	3600	1000
	C ₆	1	1	1	-	1	-	-	-	-	1	1	1	1	1	1	1	1	-	-							1	1	-	1	1	1	1	1	1.	1.			1	1	1	1		• •	1	1	1		1	1		1	1	1	1	1	-		1	1	1		-		1	1	
	L _b (in)	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332	332	337	332	337	137	188	332	332	332	332	332	332	332	332	332	332	322	337	332	332	332	332	332	337	332	332	332	332	332	332	332	332	332	332	332	332	332	337	332	332	332	332	332	337	332	332	100
in the second se	Z (m ³)	2583.50	2814.84	2947,88	3028,83	4272.81	4344.47	4525,88	4708.97	4893.75	5080.22	5268.38	5458.22	5649.75	5682.22	4097.76	4221.09	4371.00	4522.59	4642.49	4843.24	48/8/94 COAA 73	052125	11.8005	8199.71	8418.23	8620.69	12845.39	12909.19	15289.58	13673.63	13035.58	12407.69	11945.29	8994.23	8381.13	8436.00	7849.96	4579.86	4398.00	4123,63	3868.28	58/6.21	5716.19	5462.66	5254.97	4920.75	4591.22	4591.22	4920.75	5254.97	5716.19	5858.38	8003.31	8122.48	4123.63	45398.00	7849.96	8001.13	8438.00	8881.13	8994.23	13407 CD	1:035.58	13673.63	13289.58	01 0000
	1 (in ⁴)	32.52	32.57	32.62	32.65	106.87	106.89	106.95	107.00	107.05	107.10	107.16	107.21	107.26	107.27	33.05	33.10	33.15	33.20	33.24	14.42	34.45	34.60	34.61	185.61	185.68	185.75	510.72	510.81	511.35	511.88	510.99	510.09	509.43	254.93	254.88	254.01	254.39	35.64	35.50	35,29	35.09	15/.3/	157.28	155.11	155,06	154.97	154.88	154,88	154.97	155.06	11.001	157.36	257.30	511.67	35.29	35.50	95.4.30	254.46	254.67	254,88	254.93	509.45	66015	511.88	511.35	
	S ₂₂ (in)	240.03	240.03	240.03	240.03	360.03	360.03	360.03	360.03	360.03	360.03	360.04	360,04	360.04	360.04	240.04	240.04	240.04	240.04	240.04	240.07	140.07	10.042	240.07	432.07	432.07	432.07	600.47	600.47	600.48	600.49	600.47	600.45	600.44	480.10	480.10	480.10	480.09	240.09	240.09	240.08	240.08	408.08	408,08	408.03	408.03	408.03	408.03	408.03	408.03	408.03	408.08	408.08	410.16	250.01	240.08	240.09	480.09	480.09	480.10	480.10	480.10	600.44 CD0.45	600.47	600.49	600.48	1000
	1 ₂₂ (m [†])	880.32	880.33	880.34	880.35	1320.35	1320.36	320.37	1320.32	1320.40	4320.41	320.42	1320,42	1320,45	1320.45	380.45	880.46	880.47	880.49	880.50	6/1088	090.00	880.84	880.84	184.84	184.86	184,88	205.61	205.63	205.77	205.90	205.68	205.45	205.29	761.23	161.22	11.10	761.10	881.10	881.06	10.188	96'088	896.96	896.94	896,40	896.38	896.36	896.34	896.34	896.36	86.38	896.94	896,96	921.94	(1.000	881.01	001188	761.10	761.11	761.17	761.22	761.23	205.79	89'502	205.90	205.77	000 63
	5 ₃₃ (in ³)	173.97	20,198	109.22	280.96	974.06	39.41	204.56	370.84	-	-	4876.46 4	5047.26	61,919	248.30	716.86 2	323.62 2	953.07 2	083.65 2	186.70	917.64	107 00	00.00	21 11	15.56	80.608	888.07	450.93	505.66	831.55 7	159.90	614.02	074,93	676.67	218.25	18.10	24.95	101.03	5 56.93	06.86 2	575.01 2	158.21 2	85.27	42.56	381.16 4	91.39	85.10 4	281.96	81.96	85,10 4	891.39	042.56	5369.38	40.88 4	05.613	575.01	06.86 z	50 103	335.95	24.93	9 01.81	18.23 5	074.02	614.02	159.90	831.55 7	
	In (in) S	55.25 24	402.34 21	109046.00 2	446.54 2.	030.68 35	169.88 40	474.97 4.			_		259302.94 50	964.47 5.	831.59 5.	146.27 3.	519.53 38	407.25 39	747.22 40	513.23 4	P 250098.24 4	253260.88 4.	10 25 25	200.83	1 929.90	193.86 7	16:00/	11 02.44	811.66 11	11 08.89	552.78 12	784.01 11	10180.07 11	664703.39 10	510.53 8.	495203.88 8	1 10.800	1 51.75	735.08 40	133.25 39	831.79 30	817.16 34	S 11.11 5	245.31 5	633.24 50	169.88 48	732.53 45	954.56 4.	954.56 4	132.53 49	169.88 48	245.31 5.	401.36 5	217.05 6.	520.92 6.	831.79 36	133.25 35	1 51 75	813.46 7	908.67 7.	203.88 81	510.53 8.	101 10 10	11 10000	840552.78 12	11 90.300108.89	
-	-	921	100	109(114	166	1/1	184	198	212	2276	243.	259	275	2785	195	205	218-	231	242	1530	253	28.2	2850	46.80	401	512	754	760	800	840	173	710:	664	506	495	165	3965	218	204	1828	1638	2598	247	239(223:	197	173	173	197	2231	147	258	325.	2946	1828	210	5965	4108	4515	495	506	2101	173	840	8001	20.00
	Flange Area (m ²)	30	30	30	30	45	45	45	45	45	45	45	45	45	45	30	30	30	30	30	30	99	30	OC OF	23	23	54	75	76	75	75	75	75	75	9	3 3	8 9	60	30	30	30	30	5	15	15	51	51	15	15	51	15	5 5	15	51	30	30	30	ne ug	99	60	99	9	15	52	75	75	1
	Total Area (in ²)	87.000	88.125	89.250	89.928	119.928	120.375	121.500	122.625	123.750	124.875	126.000	127.125	128.250	128.440	98.440	99.375	100.500	101.625	102.506	109/901	5/8/601	991111	113 627	160.627	161.813	162.904	251.964	252 375	254.813	257.250	253.188	249.125	246.090	179.133	178.500	1/6.000	172 627	112.627	111.000	108.500	106.120	148.120	147.036	135.777	134.625	132.750	130.875	130.875	132.750	134.625	147.036	148.000	240.361	290.602	108.500	000111	170 621	173.500	176.000	178.500	179.133	246.090	253 188	257.250	254.813	and and
	¥	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	15400	
	Dc (in)	36.00	37.50	39,00	39.90	39.90	40.50	42.00	43.50	45.00	46.50	48.00	49.50	51.00	51.25	51.25	52.50	54.00	55.50	56.67	56.67	57.00	00.85	60.14	60.14	19 19	62.75	62.75	63.00	64.50	66.00	63.50	61.00	59.13	59.13	58.50	56.00	57.63	52.63	51.00	48.50	46.12	46.12	45.04	45.04	43.50	41.00	38.50	38.50	41.00	43.50	45.04	46.00	46.12	46.12	48.50	51.00	57.63	53.50	56.00	58.50	59.13	59.13	63.50	66.00	64.50	2000
	Frame #																								L	L		Ŀ																																					End 1044		L
	Location Fr					T	1	T	T										T			T		T	1	T	T	T	T	Γ							T	T			Π		T	T	T	Π		T		П	T	T	T				T	T	T		Π				3652 En		T
-					-	+	+	+	+				-	-	_		_	-	+	+	+	+	+	-	+	+	+	-	+	-				-	+	_	-	+	-			_	+	+	-		_	-	-		-	+	-			+	+	+	╞			+					+
_	frame Sec	1	82		84a	+	+	+	+	-	-	-	-	-	-	-	-	-	+	g16.	+	+	+	ł	10.0	+	ł	0330	ł	⊢		-		+	+	+	+	+	£33a	+		+	+	+	£38a			+	+	H	+	638v	ł	+	H		+	8330	┝		H	8291	+	+	826	+	+
	Point #	10000	10001	10002			10003	10004	10005	10006	10007	10008	10009	10010			10011	10012	10013			10014	10015	10010		10017	TINOT		10018	10019	10020	10021	10072			10023	10024	10075		10026	10027		00001	10028		10029	10030	10031	10033	10034	10035		10036			10037	10038		10039	10040	10041		CROOL	10043	10044	10045	10040

Client: Gity of P Project: Forbes J Detail: <u>Gitders 5</u> By: <u>PLA</u>

CDW Smith

NTSB Attachment - Page 27

					Ī			ĺ		Ī		M	Moment Capacity										
Point #	Frame Sec	Location	frame #	Dc (in)	Y	Total Area (in ²)	Flange Area (in ²)	(¹ 13) (11 ¹)	5 ₁₃ (in ³)	1 ₂₂ (in ⁴)	5 ₂₂ (in ³)	1 (in ⁴)	Z (in ³)	L _b (in)	ರೆ	I ₄₆ (in ⁴)	Mo (k-ft)	Mp (k-ft)	M _y (k-ft)	M ₁₁ (k-ft)	M, (k. ft)	Rui	R _b M _u (k-ft)
	\$224	3832	Mid 1047	62.75	15400	162.904	54	512700.91	7888.07	5184.88	432.07	185.75	8620.69	332	1	2592	26293.6	35919.6	32867.0	74147.8	32867.0	0.924	0.924 30375.7
10047	822	3901	End 1047	61.50	15400	161.813	54	491453.86	7709.08	5184,86	432.07	185.68	8418.23	332	1	2652	25696.9	35076.0	32121.2	12775.4	32121.2	6260	1
	621a	3976	Mid 1048	60.14	15400	160.627	54	468929.89	7515.56	5184,84	432.07	185.61	8199.71	332	1	2692	25051.9	34165.5	31314.8	71284.8	31314.8	0.933	ŀ
	620a	3976	Mid 1048	60.14	15400	112.627	30	285040.83	4642.77	2880.84	240.07	34.61	5228.77	332	1	1440	15475.9	21786.6	19344.9	38479.5	19344.9	0.880	H
10048	820	3984	End 1048	60.00	15400	112.500	30	283531.25	4629,08	2880.84	240.07	34,60	\$212,50	332	1	1440	15430.3	21718.8	19287.8	38390.0	192878	0.881	-
10049	g19	4067	End 1049	58.50	15400	111.188	30	268145.89	4487.80	2880.82	240.07	34.52	5044.73	332	1	1440	14959.3	21019.7	18699.2	37462.2	18699.2	0.889	0.889
10050	g18	4150	End 1050	57.00	15400	109.875	30	253260.88	4347.83	2880.80	240.07	34.43	4878.94	332	1	1440	14492.8	20328.9	18115.9	36534.6	18115.9	868.0	0.898
	£17a	4168	Mid 1051	56.67	15400	065.001	30	250098.24	4317.64	2880.79	240.07	34.41	4843.24	332	1	1440	14392.1	20180.2	17990.2	36333.5	17990.2	006.0	006.0
	g16a	4168	Mid 1051	56.67	15400	102.506	30	242513.23	4186.70	2880.50	240.04	33.24	4642.49	332	1	1440	13955.7	19343.7	17444.6	36324.1	17444.6	0.883	0.883 15411.3
10051	g16	4233	End 1051	55.50	15400	101.625	30	231747.22	4083.65	2880.49	240.04	33.20	4522.59	332	1	1440	13612.2	18844.1	17015.2	35598.0	17015.2	0.890	0.890 15147.1
10052	815	4316	End 1052	54,00	15400	100.500	30	218407.25	3953.07	2880.47	240.04	33.15	4371.00	332	I	1440	13176.9	18212.5	16471.1	34671.2	16471.1	668.0	0.899
10053	814	4399	End 1053	52.50	15400	51E.99	30	205519.53	3823.62	2880.46	240.04	33.10	4221.09	332	1	1440	12745.4	17587,9	15931.7	33744.7	15931.7	106.0	106.0
	g13a	4468	Mid 1054	51.25	15400	98.440	30	195146.27	3716,86	2880.45	240.04	33.05	4097.76	332	1	1440	12389.5	17074.0	15486.9	32974.8	15486.9	0.913	0.913 14141 A
	812a	4468	Mid 1054	51.25	15400	128.440	45	278831.59	5248.30	4320,45	360.04	107.27	5682.22	332	1	2160	17494.3	23675,9	21867.9	2'68505	21867.9	0.942	0.942 20601.3
10054	812	4482	End 1054	51.00	15400	128.250	45	275964.47	5219.19	4320.45	360.04	107.26	5649.75	332	1	2160	17397,3	23540.6	21746.6	50307.7	21746.6	6.943	0.943 20505.8
10055	811	4565	End 1055	49.50	15400	127.125	45	259302.94	5047.26	4320.44	360.04	107.21	5458.22	332	1	2160	16824.2	22742,6	21030.2	48933.4	21030.2	0.948	0.948 19935.0
10056	g10	4648	End 1056	48.00	15400	126.000	45	243213.47	4876.46	4320.42	360.04	107.16	5268.38	332	1	2160	16254.9	21951.6	20318.6	47560.7	20318.6	0.953	0.953 19357.4
10057	63	4731	End 1057	46.50	15400	124.875	45	227691.00	4706.79	4320.41	360.03	107.10	5080.22	332	1	2160	15689.3	21167.6	19611.6	46189.6	19611.6	126.0	7.8773.7
10058	88	4814	End 1058	45.00	15400	123.750	45	212730.47	4538.25	4320.40	360.03	107.05	4893.75	332	1	2160	15127.5	20390.6	18909.4	44820.4	18909.4	0.962	0.962 18184.3
10059	87	4897	End 1059	43.50	15400	122.625	45	198326.81	4370.84	4320.38	360.03	107.00	4708.97	332	1	2160	14569.5	19620.7	18211.8	43453.1	18211.8	0.966	0.966 17589.6
10060	86	4980	End 1060	42.00	15400	121.500	45	184474.97	4204.56	4320.37	360.03	106.95	4525.88	332	1	2160	14015.2	18857.8	0.91271	42088.1	17519.0	0.970	0.970 16990.1
10061	85	5063	End 1061	40.50	15400	120.375	45	171169.88	4039.41	4320.36	360.03	106.89	4344.47	332	1	2160	13464.7	18102.0	16830.9	40725.5	16830.9	0.974	H
	65a	5096	Mid 1062	39.90	15400	119.928	45	166030.68	3974,06	4320.35	360.03	106.87	4272.81	332	4	2160	13246.9	17803.4	16558.6	40184.4	16558.6	0.975	0.975 16145.2
	84.0	5096	Mid 1062	39.90	15400	89.928	30	114446.54	2780.96	2880.35	240.03	32.65	3028.83	332	1	1440	9269.9	12620.1	11587.3	25984.9	11587.3	0.963	0.963 11153.4
10062	63	5146	End 1062	39.00	15400	89.250	30	109046.00	2709.22	2880.34	240,03	32.62	2947.88	332	1	1440	9030.7	12282.8	11288.4	25430.1	11288.4	0.966	0.966
10063	62	5229	End 1063	37.50	15400	88.125	30	100402.34	2591.03	2880.33	240.03	32.57	2314.84	332	1	1440	8636.8	11728.5	10796.0	24510.1	10796.0	1/6.0	0.971 10480.9
10064	01	5312	Fnd 1064	36.00	15400	87,000	UN	92155.25	2473.97	2880.32	240.03	22.52	2683 50	337	1	1000	8246.6	11181 2	10308.7	23591 0	10308.2	0.976	0.926 10056.5

Smith

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Client: City of roject: Forbes Detail: Girder By: PL

Chkc

		P. (k)	3395.09	3435.03	3474.87	4713.82				4891.83	4932.12	1.1	5012.51	3796.54	3828.90	3867.73	3906.46	3936.72	18//14	-	4275.67	16.675	6253.96	6295,88	6334.39	9694.54	9708.70	9792.57	9876.25	9736.68	9596,59	65.1646	6972.17	6949,80	C7 1000	6741.36	4279.96	4225,35	4141.02	4060.28	5779.53	5775.25	5740.97	5295.60	5227.69	5159.62	5091.38	997665	5295,60	5337.24	5740.97	5775.25	96,408	27.1116	4225.35	4279.96	6741.36	6772.45	6861.25 6649 80	6972.17	651646	9596.59	9736.68	9876.25	07.901.0	9694,54	
		P, (k)	3697.50	3745.31	3793.13	1		5163.75	96,1126	5307.19	5355.00	5402.81		5458.69		4271.25	4319.06	4356.51	_		4781.75	4786.63	6826.63	6877.03	6923.40	10708.46	10725.94	10829.53	10933.13	10760.47	10587.81	10458.84	7613.13	7400.00	100'00#1	7336.63		4717.50	4611.25	4510.12	6295.12	6290.00	6249.04	5721.56	5641.88	5562.19	5482.50	5641.88	5721.56	5770.53	6249.04	6290.00	10215.36	4611.25	4717.50	4786.63	7336.63	7373.75	7585 75	7613.13	10458.84	10587,81	10760.47	10933.13	10225.53	10708.46	
		P _o (k)	нинициии	HRRHHRRH		aunanna a	*******	*****	*********		ununnun un	*****	*********	*********	********	нининин	*****	*****		TOURSESSON OF THE PARTY OF THE		RABBRAN	******	nddunddu	RUNNING	unnunnun	unnunun	unununun	******	HINNHHAN	нининия	HHHHHHHH	****	anununun anu	ACCOLUTION OF THE OWNER	*********	********	NUMBERINE	nunnnun.	*****	*****	******	*********		annanna	nunnunn	******		*****		nunnunn	****	annununun annun	TOBRACON OF		*******	******	IN TRADUCTOR	**********	unununun	******	нининини	нининии	****	Nationant and a second	unununun u	
		En ² /((KL ₀ /t) ²) (psi)	annan an a	**********		***********	**********	***********	46122 OC 46122 OC 48122 OC 48120 OC 481		unnunnunnun	*********	45981.08 ############		*********	**********	********	******				**********	***********	*********						***********	************	*********	annannannan an				*******	44783.84 BHHBBBBBBBBB			*****	***********		53 RHHRHHHHHH	************	***********	*********		*********	NNUNUUNUUN	45934.81 инининини	45908.18 ###################################	*************				**********					***********	*********	********		50000.00 45265.78 45265.78 яниванияния нивания пивания ниванияния	
		F _{cr} (psi)			45804.87	46241.79	46221.77	46192.53	80.00104	46086.80	46051.56	46016.32	45981.08	459713	45329.15	45276.29	45223.44	45182.04	2 2			44706.99	45805.67	45774.71		×	45258.07			4524, 83	45319.02	45375.93	45790.41	45805.26	100	45943.20	44707.46	44783.84	44901.22		45904.85	45908.18	45930.81	46277.53	29.36	81.19	46435.02	46320.36	46277.53	46245.68	45934.81	45908.18	43388.36	2 6				69	16:59855		45375.93	45319.02	45242.83	45166.65	45212.36	45265.78	l
		F _{cr} weak (psi)	45910.60		45804.87	46241.79	46227.77	46192.53	50 00190	46086.80	46051.56	46016.32	15981.08	45373.09	45329.15	45276.29	45223.44	15182.04	CC 3C844		112.93	44706.99	45805.67	+ -	24	15265.78	45258.07			15242.83	45319.02	63		45805.26			14707.46	44783.84	14901.22		45904.85	45908.18 45908.18	18,481	46277.53	16329.36		20	4632936	16277.53	46245.68	18.45634.81	18	43388.36	4 0				-	45863.97		45375.93	5319.02	5242.83	5166.65	5212.36	5265.78	
		F _{cr} strong (psi)	00:00009	00'000	50000.00		50000.00	-	20000.00	-				20000.00		50000.00	-	50000.00	-	+	+	50000.00	20000.00	+	t	t	50000.00	50000.00	-				-	50000.00	+	+				-		50000.00			-	+	+	0000005	00,000	50000.00	000.000	-	50000.00	+	+	+	-	+	50000.00	++	50000.00	50000.00	20000.00	000.000	000000	000'000	
	pacity	sqrt(2n ² E/ Fo	7.00 56		107.00 50	+	107.00 56	+	+	107.00 56			+	107.00 50		107.00 50	107.00 50	+	+	+	+	00	8	7.00 50	00	00	00	00	8			00'	8	8 8	3 8	+	-			8	+	107.00 50	+	-	8	00	7.00 50	2 00 2	+	+	107.00 50	8	001/002		8	8		8	107.00 50	-	8	7.00 50	-			107.00 50	
	Axial Ca	KLdr sqrt weak	3.28 10		43.83 10	+	41.56 10	+	+	42.33 10	H	+	+	42.93 10		Н	46.77 10	+	+	ł	+	49.23 107	43.83 107	43.99 10	114 107	+	46,60 107	+	47.05 107.	\vdash		~	+	43.83 107	+	+	+	48.87 10	H	+	+	43.29 10	+	01 01 10	-	40.71 102	40.42 10	41 00 10	29 10	H		43.29 107	01 50.05	01 05.77	48.87 107			43.21 107	43.52 10	+	46.02 107.	46.30 10	-	+	+	46.56 10	ŧ.
		KLd/r Kl	0.00 4	-	+	+	0.00 4	+	+	0.00		+	+	0.00		0.00 46	+	0.00 46	+	t		0.00	0.00 4	-	t	ł	0.00	0.00 46					-	0000	+					+	+	0.00	+		-	$\left \right $	+	0.00		H	0.00 43	-	00.0	+	+	+		+	0.00	+	0.00 46				+	0.00 46	ł.
		r weak K	75 0		+	+		5.96 0	+	+	Н	-	+	5.41 0		5.35 0	.32 0	30	0 51.5	+	+	5.06 0	-	-	-	-	5.34 0	32 0	5.29 0			+	-	5.68	+	+	-	5.09 0		-	+	5.75 0	+		-		16 0	607 0	+	6.01 0	11 0	+	0 .53	0 17.5	-	-		76 0	5.72 0	+	5.41 0	38 0	33 0	5.29 0	+	5.35 0	
		r strong r v	32,55 5		34,95	-		+	+	42.70		-	+	46.59			47.75 5	3.64	-	-		31	54.03 5	-	-	54.71		56.04 5	-			5 161	-	52.67 5	+			42.88 5		+	+	41.78 5	+	+	-		34.31 6	30,45	╞	H	41.01 5	41.78 5	8/.0	41.05				48,66 5	50.67 5	-	51.97 5	3 95.3	.28 5	.16 5	10.0	54.71 5	
		L _c weak rs (in)	332 3		+	+	Η	+	+	332 4		-	+	337 4	332 4	332 4	332 4	332 4	+	t	-	332 50.		+	+	-	332 5	F	+			332 5		332 5	t	+		332 4.		1	+	332 4	+		-		+	332 332 30	+	332 42.		+	532 3337	+	t	-	332 4	+	332 5	t	332 5:	332 53.	332 5:	332 5	32 54	332 54	
		L _c strong L _c (in)	0	0	0 0	0	0	0 0		0	0	0	0	0 0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0	0	0 0		0	0	0	0	0	0	0 0	0 0	0	0	0	0		0	0	0	0			0	0	0	0	000	0	0	0	0	0	0 0	0	
		x Ites	0.75	175	22	15	75	0.75	0.75	15	.75	.75	75	25	75	-75	.75	75	20	32	25	75	75	75	75	75	75	75	75	.75	75	.75	75	75	0.10	0.75	0.75	.75	0.75	0.75	0.75	0.75	22	35	75	75	75	15	75	75	75	75	15	15	15	.75	.75	.75	75	22	75	75	75	75	24	0.75	
		E (psi)	00000067		29000000	29000000		-	00000067	00000	00000	2900000 0	29000000	0 00000067	29000000	2900000 0	29000000 0	29000000			00000	00000	0 00000067	0 00000	0 0000067	0 00000	0 0000	0 0000000	29000000	29000000	0 00000	0 00000	0 00000	00000					2900000 0			0 00000062	00000	00000	0 00000062	0 00000	0 0000062	0 00000067	00000	29000000 0	0 00000067	0 00000067	0 0000067		0 0000062	0 0000067	0 0000	0 00000	0 00000062	0 00000	0 00000	0 00000	0 00000	0 0000			
	-	V _u (kips) E(652.57 290		730.66 200		-	-	-	067 17.138	1.91 290	2.13 290	2.39 290	7.49 290	982.65 290	2.93 290		066.94 290	067 17.80	002 12 10	6.75 290	017 290	1360.17 290	2.20 290	421.68 290	10	2968.88 290	9.56 290				06.62 290	1.46 290	4.33 290					-			1218.45 290	2002 16.20 2002 06.6	801.47 290		.81	2.57 2900	067 1911 067 500	1.47 2900	2.29 2900	12:91 2900	8.45 2900	2.48 290	VOC 14.1	1.97 2900	15.70 2900	5.70 2900	9.22 2900	2002 69.90 2002 52 A	1.46 2900	6.62 2900	4.63 2900	2.44 2900	0.25 2900	X062 06.6	2956.95 2900000	
		V _p (kips) V _v	783.00 65	-91	848.25 71			913.50 77	8.75 83	11.38 86	14.00 89	76.63 92	39.25 95	26 27.61	1141.88 98	1174.50 101	07.13 104	32.67 106	301 21.88	00.00 121	22.50 13	96.17 136	26.17 136	0.56 139	1	1	2968.88 296	39.56 303	10			36.62 278	4.84 157	96.50 155	-	-					-	1334.00 121	070 54 02		-	7.38 701	3.00 65	1 75 75	6.13 80	9,54 83	1306.05 119	1334.00 121	2.48 401	1406 50 126	1479.00 135	1526.17 135	6.17 135	1.50 141	1624.00 148 1606 50 155	4.84 157	6.62 278	4.63 287	2.44 299	0.25 311	30 201 303 30 20 303	2956.95 295	
		°,	0.397 78		+	0.374 86	H	+	0.353 97	0.348 10	343 10	0.339 10	335 11	0.335 11		0.329 11	0.326 12	0.324 12	0.440 14	1971 1401	434 15	0.433 15	0.433 15	0.431 15	0,429 15	000 29	+	1.000 30	ł			1.000 27	0.569 17	570 16	01 0/07	t		\vdash	H	0.621 12	+	+	0.527 130	+	+	0.381 837	8/ /66.0	0.361 85	0.358 94	H		+	1.000 4012	+	t		H	0.587 15	0.578 16.	+	000 278	1,000 28.	1.000 295	1.000 311	000 264	1,000 295	
		rt(EV)	-	-		0	0				0	0	-		0	0	-	-					0	0	0	-		-		-	-		0				0	0	0	-					0	0	0		-	0	0	0			0	0	0	0			1	1	1	-	-	1	
		7500*sqrt(k)/sqrt(Fy)	135.208	139,133	145.103	145.516	147.116	151.167	267,261	163.526	167.705	116.171	176,140	176.856	180.393	184.666	188.959	192.334	110 201	107 500	201.944	202.363	202.363	206.303	209.938	209.938	210.677	215.064	219.463	212,138	204.848	199.429	199.429	197,599	tecoret	180.752	180.752	176.140	169.104	162.473	162.473	162.139	159.475	155.255	148.462	141.775	135.208	2///141	155.255	159.475	159.475	162.139	162,473	162.473	176.140	180.752	180.752	183.239	190.394	199.429	199.429	204.848	212.138	219.463	215.0672	209.938	
	Shear Capacit	5000*sqrt(k)/sqrt(Fv)	08.167	111.306	16.412	16,412	17.693	120.934	27 500	30,821	34,164	37.528	40.912	41,485	44.314	47.733	51.167	53.867	235,867	010.00	161.555	61.891	168,19	165.043	15679	1567.9	168.542	72.051	75.570	69.710	63.879	59.543	59,543	158.079	610.30	44.602	44,602	40.912	35,283	129.978	129.978	112-51	127.580	124.204	18.770	113.420	08.167	13.420	24.204	127.580	27.580	111.62	8/6/6/	8/6/5	40.912	44.602	44.602	46.591	52.315 ce 070	59.543	59.543	63.879	69,710	75,570	140.27	167.951	
7		\$-0009																																												1				-	-	-	-				F	-			-	-	-			1	
41/6/		*	16.250	17.207	18.203	18.822	19.238	20.313	22 578	23.770	25.000	-	+	27.803		+	31.738	+	+	+	36.250	36.401	36.401	+	+	+	39.453	+		40.002		35.353	35.353	34.707	36.440	+	t		25.419	23.464	23.464	23.368	22.606	-	-	17,867	-	+	+	-		23.368	23.464	25,464	27.578	29.041		29.846			35.353		-	42.813	29 453	39.177	
3		d/p	0.667	0.640	0.615	0.601	0.593	0.571	0.533	0.516	0.500	0.485	0.471	0.468	0.457	0.444	0.432	0.423	11.425	1740	0.400	0.399	0.399	0.390	0.382	0 382	0.381	0.372	0.364	0.378	0.393	0.406	0.406	0.410	0.440	0.456	0.456	0.471	0.495	0.520	0.520	0.522	0.533	255.0	0.585	0.623	0.667	0.623	0.552	0.533	0.533	0.522	0.520	0.520	1/20	0.456	0.456	0.449	0.429	0.406	0.406	0.393	0.378	0.364	0.381	0.382	
ak Dut		d _o (m)	48	48				48	48	8	48	48		48 94			48		1		48						48			48				48				48	П				48	L			48			48				48	48				48		48					48	
OUT OUT		D/t.		200		212.8193		224					272	273.3494	280		_	_		PL12,002	274.2857	274.9466	274,9466	281.1429	286.8434	154.4541	155.0769	158.7692	162.4615	156.3077	150,1538	145.557		234			210.506	204	194	184,4819	184.4819	-+-	180.1446	-	2	205,3333	192	205.3333	732	240.1928	180.1446	184	61,49398	36,89639	204	~		_	224	736.5301	145.557	150.1538	156.3077	162.4615	155.0269	154,4541	į.
		Frame #	Begin 1001	End 1001	End 1002	Mid 1003	End 1003	End 1004	End 1006	End 1007	End 1008	End 1009	End 1010	TTOT PW	End 1011	End 1012	End 1013	Mid 1014	Mid 1014	Part 1016	End 1016	Mid 1017	Mid 1017	End 1017	Mid 1018	Mid 1018	End 1018	End 1019	End 1020	End 1021	End 1022	Mid 1023		End 1023			Mid 1026	End 1026	End 1027	Mid 1028	Mid 1028 184.4819	End 1028	0102 PWW	End 1029	End 1030	End 1031	End 1032	End 1033	End 1035	Mid 1036	Mid 1036		7501 DiM	Mid 1037	End 1038	Mid 1039	Mid 1039	End 1039	End 1040		Mid 1042			End 1044	End 1045	Mid 1047 154,4541	
		Location	0	83	316	216	249	332	805	185	664	747	830	844	513	966	1079	1144	1144	2011	1328	1336	1336	1411	1480	1480	1494	1577	1660	1743	1826	1888	1888	1909	1994	2104	2104	2158	2241	2320	2320	2324	2356	2407	2490	2573	2656	2139	2905	2956	2956	2988	2662	1667	3154	3208	3208	3237	3320	3424	3424	3486	3569	3652	3/35	3832	
		Frame Sec	81	82	83	85a	65	86	84	68	810	g11	812	612a	814	815	g16	g16a	81/3	818	000	e.00a	£21a	100	6229	073.0	074	500	076	827	828	£28.a	879a	g30	112	637a	g33a	g34	835	g35a	g36a	837	837a	8384 #38	e39	g40	g41	840	038	g38.4	g37.a	837	g36a	835a	034	633.0	832a	832	831	e.PCa	¢28a	628	827	826	678	823a	
		Point # Fra	10000	10001	10002		10003	+	+	10007		-	10010		-	H	10013	+	+	+	10016	+		10017			╞	10019	┝	10021		-	-	10023	+	+	+	10026	Η		+	10028	+	10029		10031	+	t	ł			10036	1	1001		+	H	10039	+	╀	-	10042	-	+	10045	Н	
					1			1	1	1				1			1	1	1	1	L	1	L		1	L	L	L					_	1	1	1	1				1		1	1			1	1	1					ľ	1			1	1	1		Ľ		1	1	Ц	j.

Cleare: Cry of Partshargh Proved: Enterna New over Frank David: Garden Sections Programs. By: PLAN 1/9/14 Chan 0.5 L 1/9/14

Smith

			:An																							
			Chk	8	3	ONE OJU 1/5/11	114																			
							Shear Capacity												Avial Canace	caretto.						
Dount M. France Care	ana cao lacation	Trame #	DA	d tint	4 10		1- 11		4	V (bind)	V (bine)	F (nsi)		Le strong. Le	Leweak 15	r strong r)	weak K	KL/r KL	KLJ'r sqrt	1	80	Faweak	-	En ² /((KL ₀ /r) ²)	-	-
11 H LIT		+	Anto	-#-			(Adjubs/bibs.nnoo	(A-)ubs/(x)ubs_noc/			Isdiv) "A	Line Line		-		-	-	+	+	141	lisdi		Po (psi)	(hsd)	Po (k)	P _v (k) P _u (k)
1	g22a 3832	t	Mid 1047 286.8434	1	0.382	+	167.951	209.938	0.429	1592.20	1421,68 2900000	29000000	0.75	0	332 5	56.10	5,64 0	0.00 44	44.14 10	107.00 500	50000.00 45	746.24 45	45746.24 45746.24 пинининини пинини	********		6923.40 6334.39
10047 9	Ц	+	End 1047 281.1429		0.390	+	165.043	206.303	0.431	1560.56	1392.20 2900000	29000000	0.75		332 5	-			43.99 10	107.00 500	50000.00 45	774.71 45	45774.71 45774.71 пинаниния пиници	nunnun n	nunnun e	6877.03 6295.88
8			Mid 1048 274,9466	48	0.399	36.401	161.891	202.363	0.433	1526.17	1360.17 29000000	00000062	0.75	0	-	54.03	5.68 0	0.00 43	43.83 10	107.00 500	00.00 45	805.67 45	50000.00 45805.67 45805.67 аннивиния инации 6826.63	********	NAUNUUU 6	326.63 6253.96
8	820a 3976	-	Mid 1048 274.9466	48	0.399	36.401	161,891	202.363	0.433	1526.17 1360.17 29000000	1360.17	29000000	0.75	0	332 5	50.31	5.06 0	0.00 49	49.23 10	107.00 500	50000.00 44	706.99 44	44706.99 44706.99 пинининии ининии 4786.63	HANNENNE I	Naunun A	186.63 4279.91
10048 8	820 3984		End 1048 274.2857	48	0.400	36.250	161.555	201.944	0.434	1522.50	1356.75 2900000	29000000	0.75	0	332 5	50.20	5.06 0	0.00	49.21 10	107.00 500	50000.00 44	712.93 44	44712.93 44712.93 винивниви инвинив 4781.25	HANNERS H	NANNUN A	781.25 4275.67
-	819 4067	End 1049	267.4286	48	0.410	34.707	158.079	197,599	0.437	1484.44	1321.31 2900000	2900000	0.75	0	332 4	11.65	0 60'5	0.00 48	48.92 10	107.00 500	50000.00 44	774.58 44	44774.58 44774.58 пинининини 4725,47	nununun u	NAUNUNU A	125.47 4231.62
	g18 4150		260.5714	48	0.421	33.203	154,616	193.271	0.440	1446.38	1285.89	29000000	0.75	0		48.01	5.12 0	0.00 48	48.63 10	107.00 500	50000.00 441	836.22 44	44836.22 44830.22 anuuunuuunuuu 4669.69	*********	aunnun a	69.69 4187.42
3	g17a 4168		259.0843	48	0.423	32.882	153,867	192.334	0,441	1438.12	1278.21 2900000	29000000	0.75	0	332 4	47.77	5.13 0	0.00 48	48.57 10	107.00 500	50000.00 441	44 65,648	44849.59 4484° 59 4484° 52			4657.59 4177.82
80	g16a 4168		302.2651	48	0.423	32.882	153.867	192.334	0.324	1232.67	1066.94	29000000	0.75	0		48.64	5.30 0		46.97 10	107.00 500	50000.00 45	182.04 45	45182.04 45182.04 пинининии инвинии	*******		4356.51 3936.72
10051 8	g16 4233	-	296	48	0.432	31.738	151.167	188.959	0.326	1207.13	1043.22	29000000	0.75	0		47.75	5.32 0	-	46.77 10	107.00 500	50000.00 45	223.44 45	45223.44 45223.44 ###################################	n annuanna		4319.06 3906.46
	815 4316		-	48	0,444	30.313	147.733	184.666	0.329	1174.50	1012.93	29000000	0.75	0	-	46.62	5.35 0	0.00 46	46.51 10	107.00 500	50000.00 45	276.29 45	45276.29 45276.29 анинициния цианиния			4271.25 3867.73
-	814 4399		-	48	0.457	28.926	144.314	180.393	0.332	1141.88	982.65	2900000	0.75	0		45.48	5.38 0		46.25 10	107.00 500	50000.00 45	329.15 45	45329.15 45329.15 ининининии ининии	N NANANANA N		4223.44 3828.90
8	g13a 4468	Mid 1054	273.3494	48	0.468	27.803	141,485	176.856	0.335	1114.75	957.49	29000000	0.75	0	-	44.52	5.41 0		46.03 10	107.00 500	50000.00 45	373.09 45	45373.09 45375.09 пинининии инанинии	N REPRESENT		4183.69 3796,54
8	g12a 4468	Mid 1054	273.3494	48	0.468	27,803	141,485	176.856	0.335	1114.75	957.49	29000000	0.75	0		46.59	-		42.93 10	107.00 500	50000.00 455	975.13 45	45975.13 45975.13 auraunnun unnaunnu	N CRANNANN		5458.69 5019.28
10054 8	812 4482	End 1054	272	48	0.471	27.578	140.912	176.140	0.335	1109.25	952.39	29000000	0.75	0		46.39		-	42.90 10	107.00 500	50000.00 45	45981.08 45	45981.08 пинининии ийниний	*******		5450.63 5012.51
10055 8	g11 4565	End 1055	264	48	0.485	26.270	137.528	171.911	0.339	1076.63	922.13	29000000	0.75	0		45,16	5,83 0		42.71 10	107.00 500	50000.00 466	46016.32 46	46016.32 внижникания виниции			5402.81 4972.35
-	g10 4648	End 1056		48	0.500	25.000	134.164	167.705	0.343	1044.00	16.168	29000000	0.75	0	_	43.93	5.86 0	-	42.52 10	107.00 500	50000.00 460	46051.56 46	46051.56 инниниинии	*******	Nunnunn 5	5355.00 4932.12
_		End 1057	248	48	0.516	23.770	130.821	163.526	0.348	1011.38	861.71	29000000	0.75	0	-	42.70	-	-	42.33 10	107.00 500	50000.00 466	46086.80 46	46086.80 nunnununun		aununun 5	5307.19 4891.83
10058	g8 4814	End 1058	240	48	0.533	22.578	127.500	159.375	0.353	978.75	831.56	29000000	0.75	0		41.46	5.91 0	0.00 42	42.14 10	107.00 500	50000.00 46	46122.05 46	46122.05 BHHB	n nanasanasana	ининини 5	5259.38 4851.46
_	g7 4897	End 1059	232	48	0.552	21.426	124.204	155.255	0.358	946.13	801.47	29000000	0.75	0	332 4	40.22	5.94 0	0.00 41	41.95 10	107.00 500	50000.00 46:	46157.29 46	46157.29 HHHH	************	aununun 5	5211.56 4811.03
_	86 4980	End 1060		48	0.571	20.313	120.934	151.167	0.364	913.50	771.45	29000000	0.75	0		38.97	5.96 0	0.00 41	41.76 10	107.00 500	50000.00 46	46192.53 46	46192.53 unuunuunuun		nunnunn 5	5163.75 4770.53
		End 1061	216	48	0,593	19.238	117.693	147.116	0.371	880.88	741.52	2900000	0.75	0	332 3	37.71	0 66'5	0,00 41.	41.56 10	107.00 500	50000.00 46	46227.77 46	46227.77 инипиииии	n annunun n	инининии 5	5115.94 4729.97
		Mid 1062	212.8193	48	0.601	18.822	116.412	145.516	0.374	867.90	729.66	29000000	0.75	0		37.21 6	6.00 0	0.00 41.	41.49 10	107.00 500	50000.00 46.	46241.79 46	46241.79 нанапавания нимания	H NUNNAUN	_	5096.93 4713.82
	g4.a 5096	Mid 1062	212.8193	48	0.601	18.822	116.412	145.516	0.374	867.90	729.66	29000000	0.75	0	332 3	35.67	5.66 0	0.00 44.	44.00 101	107.00 500	50000.00 45	773.03 45	45773.03 45775.03 пианинини		инининии 3	3821.93 3498.82
10062	83 5146	End 1062	208	48	0.615	18.203	114.483	143.103	0.379	848.25	711.72	29000000	0.75	0	-	34.95	5.68 0	0.00 43.	43.83 10	107.00 500	50000.00 458	804.87 45	45804.87 45804.87 инниниции иннини	n nannunnn	1.1	3793.13 3474.87
	82 5279	End 1063	200	48	0.640	11.207	111.306	139.133	0,387	815.63	682,05	29000000	0.75	0	332 3	33,75	5.72 0	0.00 43.	43.55 10	107.00 500	50000.00 458	857.73 45	45857.73 45857.73 инининини ининин	n nunnunn n		3745.31 3435.03
10064	c15 10	End 106.8		48	0.667	12 200	100 107	125, 208	0.207	NO 2 00	62 63	COOLOGO CO	A TC			33.00	e 76 0	CV 000	01 0C EV	107.00 500	FORM AN AFG	10 00 11	Contract of the second	the second	ι.	1007 50 0000 00

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			Client:	Client: City of Pittsburgh Project: Earlies Aue over Fern Hollow	h Farn Hollow		6	đ		60 degraes
Ę	-		Detail:	Detail: Column Section Properties	Properties		Me	Web Depth at Girder =		ucgicco.
			Bv	BV: PLAN 1/1	Ialiy		>	Web Depth at Base =	36	<u>c</u>
			Ч. Ч.	ptr	hillt					
Location Point #	Location Frame Section	Section #	Actual Web Depth (in)	Actual Web thickness (in)	Actual Top Flange width (in)	Actual Top Flange thickness (in)	Actual Bot Flange width (in)	Actual Bot Flange thickness (in)	Actual Total Depth (in)	Fy (psi)
90020	End COL14	Colr	84.000	0.8125	24	2.5	24	2.5	89,000	50000
110014	End COL13	Colq	77.600	0.8125	24	2.5	24	2.5	82.600	50000
110013	End COL12	Colp	73.600	0.8125	24	2.5	24	2.5	78.600	50000
110012+	Begin COL12	Colo	69.600	0.8125	24	2.5	24	2.5	74.600	50000
110012-	End COLII	Coln	69.600	0.6875	24	2.5	24	2.5	74.600	50000
110011	End COLIO	Colm	66.467	0.6875	24	2.5	24	2.5	71.467	50000
110010	End COL9	Coll	63.333	0.6875	24	2.5	24	2.5	68.333	50000
110009	End COL8	Colk	60.200	0.6875	24	2.5	24	2.5	65.200	50000
110008+	Begin COL8	Colj	57.067	0.6875	24	2.5	24	2.5	62.067	50000
110008-	End COL7	Coli	57.067	0.5345	24	2.125	24	2.125	61.317	50000
110007	End COL6	Colh	53.733	0.5345	24	2.125	24	2.125	57.983	50000
110006+	Begin COL6	Colg	50.400	0.5345	24	2.125	24	2.125	54.650	50000
110006-	End COLS	Colf	50.400	0.347	24	2.125	24	2.125	S4.650	50000
110005	End COL4	Cole	46.933	0.347	24	2.125	24	2.125	51.183	50000
110004	End COL3	Cold	43.467	0.347	24	2.125	24	2.125	47.717	50000
110003	End COL2	Colc	40.000	0.347	24	2.125	24	2.125	44.250	50000
110002	End COL1	Colb	36.533	0.347	24	2.125	24	2.125	40.783	50000
110001	Begin COL1	Cola	36.000	0.347	24	2.125	24	2.125	40.250	S0000

Interferent Construction Annent Capacity Ferencical Construction A (in') h_1(in') h_2(in') h_1(in') c_1(in') c_1(in') c_2(in') d_1(in') d_1(in') d_1(in') d_1(in') d_1(in') d_1(in')				By: Chk:	Chk: 001 1/1	HILL I																		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$													Moment Capacity					ľ						
Fer COL14 Corr 42.00 158/250 646 246.66 937.44 57.55 460.31 256.02 666.22.5 67.4 1 2880 Fer COL13 Cord 38.30 154.00 183.050 60 23.445.15 56.61.7 66.23.5 67.4 1 2860 Fer COL13 Cord 38.30 154.00 173.050 60 173.345.3 56.63.7 56.4 1 2860 Fer COL13 Cord 34.30 154.00 175.50 60 173.345.3 56.64 1 280.5 Fer COL10 Cord 34.30 154.00 175.350 60 173.345.3 56.64 1 280.5 Fer COL10 Cord 34.30 154.00 155.35 56.64 60 173.345.3 56.64 1 280.5 Fer COL10 Cord 34.30 156.54 60 173.355.3 56.55 469.33 57.4 1 2890 Fer COL10 Cord 28.53	Location Poin #	t Location Frame Section		Dc (in)	X	Total Area (in ²)	Flange Area (in ²)	(, in), ₆₆ 1	S ₃₃ (in ³)		S ₂₂ (in ³)	(juj) r	Z (in ₃)	(m) J	ഗ്		M _o (k-ft)	M _b (k-ft)	M, (k-ft)	M _{r1} (k-ft)	M, (k-ft)	^B	ď	Mu
Field COL13 Colq 38.80 154.00 183.050 66 21.38.13 57.63.14 57.63.17 53.63 50.93.17 52.34 53.81 50.93.17 52.34 1 23800 ne Meric CUL12 Colo 34.80 154.00 175.590 60 17384.250 757.31 480.27 553.14 596.527 52.14 596.527 52.4 1 23800 ne Meric CUL12 Colo 34.80 156.750 60 17384.250 757.11 480.27 552.14 5395.97 52.4 1 23800 ne Meric CUL11 Colin 33.31 154.00 155.540 60 17384.56 565.14 80.11 565.57 639.3 52.4 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 2380 1 <td>90020</td> <td>End COL14</td> <td>Colr</td> <td>42.00</td> <td>15400</td> <td>188.250</td> <td>60</td> <td>264661.00</td> <td>-</td> <td>5763.75</td> <td>480.31</td> <td>265.02</td> <td>6623.25</td> <td>624</td> <td>1</td> <td>2880</td> <td>19824.8</td> <td>27596.9</td> <td>24781.0</td> <td>18247.8 1</td> <td>18247.8</td> <td>1.032</td> <td>1.000</td> <td>18247.8</td>	90020	End COL14	Colr	42.00	15400	188.250	60	264661.00	-	5763.75	480.31	265.02	6623.25	624	1	2880	19824.8	27596.9	24781.0	18247.8 1	18247.8	1.032	1.000	18247.8
Find Coluit Colo 36.80 14400 173.800 60 20053.23 519.24 553.16 256.633 62.4 1 2380 3 Find Coll1 Coln 34.80 14400 175.800 60 1758A320 579.13 68.63.7 556.33 556.44 596.33 52.44 1 2380 Find Coll1 Coln 34.80 145.00 167.850 60 1758A30.8 576.13 480.15 257.24 518.49 52.4 1 2380 Find Coll1 Coln 33.23 154.00 155.80 50 1758A3.55 576.18 480.13 55.63 52.4 1 2380 1 2800 580 580 56.16 52.4 1 2800 580 586.18 586.14 586.14 58.6 1 286.13 586.14 586.14 1 286.14 1 288.1 288.1 1 288.1 1 288.1 1 288.1 288.1 1 288.1	110014	End COL13	Colq	38.80	15400	183.050	60	224182.13	5428.14	5763.47	480.29	263.87	6029.17	624	1	-	18093.8	-		17277.3 1	17277.3	1.033	-	17277.3
• Bein COL12 Colo 3480 154000 1755309 779,75 755,11 450.24 252.44 253.957 54.4 1 2800 In find COL10 Colin 33.23 15400 17533093 779,51 460.15 57.54 55.957 54.4 1 2800 In find COL10 Colin 33.23 15400 155.566 60 17533039 775.15 460.35 55.66 1 2800 In find COL0 Colin 33.23 15400 153.56 60 11755.60 400.15 56.66 466.33 57.4 1 2800 In find COL0 Colin 33.23 15400 154.57 60.01 1356.64 40.33 56.4 1 2803 In find COL0 Colin 28.53 130.55 453.37 56.56 463.38 56.4 1 2800 In find COL3 Coli 28.53 480.51 56.56 463.38 56.4 1 2803 1	110013	End COL12	Colp	36.80	15400	179.800	60	200793.32		5763.29	480.27	263.16	5666.32	624	1	2880	17030.8	23609.7	21288.5	16680.8 1	16680.8	1.032	-	16680.8
Find Coll Coin 3438 15400 157545 6005 57548 48015 57544 1 2880 Find Coll Coin 3438 15400 157556 60 1573305 45753 45753 57547 51543 62 1 2880 Find Coll Coin 3157 15400 155341 60 1573305 45753 45537 57537 45933 574 1 2880 Find Coll Coin 310 14600 163.441 60 1446559 47313 5661 45333 574 1 2880 Begin Coll Coin 3553 15400 1325346 60 1355559 45313 5661 1 2866 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860 1 2860	110012+	Begin COL12	Colo	34.80	15400	176.550	60	178842.90	-	5763.11	480.26	262.44	5309.97	624	1		15982.4	22124.9	19978.0	16093.0 1	16093.0	1.032		16093.0
Find Collo Colm 33.23 15400 155.96 60 1357731 761.72 64.913 72.20 49974 12 7880 Find Collo Call 31.0 153.941 60 1346759 232373 751.73 60.14 256.36 4633.83 53.4 1 2880 Find Cols Call 30.10 14400 134406 1344659 473.37 751.61 400.14 256.37 443488 53.4 1 2880 Find Cols Call 3833 15400 13400 1344559 375.17 561.61 363.48 54.4 1 2880 Find Cols Call 2853 15400 1320.72 51.4 369.61 56.43 343.36 54.4 1 2880 Find Cols Call 285.7 154.61 175.12 286.61 403.05 54.4 1 243 Find Cols Call 255.70 13409 17 713.59 486.14 460.15 <td>110012-</td> <td>End COL11</td> <td>Coln</td> <td>34.80</td> <td>15400</td> <td>167.850</td> <td>60</td> <td>175330.89</td> <td>4700.56</td> <td>5761.88</td> <td>480.16</td> <td>257.54</td> <td>5158.59</td> <td>624</td> <td>1</td> <td>-</td> <td>15668.5</td> <td>21494.1</td> <td>19585.7</td> <td>16042.9 1</td> <td>16042.9</td> <td>1.020</td> <td>1.000</td> <td>16042.9</td>	110012-	End COL11	Coln	34.80	15400	167.850	60	175330.89	4700.56	5761.88	480.16	257.54	5158.59	624	1	-	15668.5	21494.1	19585.7	16042.9 1	16042.9	1.020	1.000	16042.9
Ted COLO Col 11.67 15.400 15.341 60 1446559 673377 57.617 480.14 25.636 465338 62.4 1 2380 Fef COL0 Coli 23.33 154000 154000 154400 1346559 403.15 460.13 256.35 453.33 54.4 1 2380 Pegin COL1 Coli 23.33 154000 159.234 60 11756.50 3775.1 576.15 480.13 256.13 4133.76 54.4 1 2880 Fef COL1 Coli 23.53 154000 129.234 60 11756.50 3775.1 576.13 460.13 26.43 1 2880 54 1 2880 Fef COL1 Coli 25.30 154000 129.33 384.13 486.65 156.13 334.56 54.4 1 2448 Fef COL3 Coli 23.37 1486.13 486.11 486.13 486.13 266.13 334.56 54.4 1 2448<	110011	End COL10	Colm	33.23	15400	165.696	60	159579.15	4465.81	5761.80	480.15	257.20	4897.34	624	1	2880	14886.0	20405.6	18607.6	15590.2	15590.2	1.020	1.000	15590.2
Ferd COL8 Colk 30.10 154000 151.386 400.306 50.16 30.26.13 63.48.88 63.4 1 23.890 Perd COL8 Coli 23.33 154000 132.302 51.9 100.3175.10 55.15.8 413.375 56.15.8 403.13 56.31 413.375 56.15.8 413.375 56.15.8 413.375 56.15 413.375 56.15 413.375 56.15 413.375 56.15 413.375 56.15 413.375 56.15 413.35 56.4 1 243.0 refroci0.5 Coli 25.87 15400 132.473 356.66 408.05 156.41 343.56 54 1 244.8 refroci0.6 Coli 25.20 15400 112.466 315.43 408.01 156.41 343.56 54 1 2448 refroci0.4 Cole 23.47 154.60 156.41 343.56 54 1 2448 refroci0.4 Cole 23.47 156.40 156.41	110010	End COL9	Coll	31.67	15400	163.541	60	144635.99	-	5761.72	480.14	256.86	4639,38	624	1	_	14110.9	19330.8	17638.6	15143.9 1	15143.9	1.021	1.000	15143.9
• Bein Cluit Coli 2353 154000 192.234 60 11715.630 375.71 56.155 460.13 25.6.13 4133.76 62.4 1 2480 fend Coly Coli 28.57 15400 19760.648 3155.41 60.01 155.44 313.75 62.4 1 2483 r fend Coly Coli 3.87 15400 130.70 51 859.11 2486 156.17 324.36 62.4 1 2483 r fend Coli Coli 3.87 15400 130.70 51 856.11 2486 166.10 156.41 324.45 62.4 1 2448 r fend Coli Coli 2.35.70 15400 130.70 11 2486 148.15 256.10 154.01 154.12 249.13 2448 1 2443 1 2443 1 2443 1 2443 1 2443 1 2443 1 2443 1 2443 1 2443	110009	End COL8	Colk	30.10	15400	161.388	60	130500.36	4003.08	5761.63	480.14	256.52	4384.88	624	1		13343.6	18270.3	16679.5	14704.9 1	14704.9	1.020	1.000	14704.9
Terr Color Coi 28.33 154.00 132.502 51 976.0.48 4895.73 4895.75 4895.75 4895.75 56.44 1 2.448 1 6 Hd COL0 Coi 28.33 154.00 132.50 154.00 132.54 57.4 1 2.448 1 Regin COL6 Colp 25.70 154.00 128.39 51 7609.12 27.84.7 248.65 268.0 156.10 33.45.6 57.4 1 2.448 1 Regin COL6 Colp 25.70 128.09 51 7609.12 27.154 486.65 480.05 154.12 2.443 1 2.443 1 Regin COL6 Colp 25.70 12.00 128.43 51 1 2.443 1 2.443 1 2.443 1 2.443 1 2.443 1 2.443 1 2.443 1 2.443 1 2.443 1 2.443 1 2.444 1 2.444 1	110008+	Begin COL8	Colj	28.53	15400	159.234	60	117156.80		5761.55	480.13	256.18	4133.76	624	1		12583.9	17224.0	15729.9	14273.8 1	14273.8	1.020	1.000	14273.8
End Colis Celh 2.687 1.94.00 1.93.70 51 855.11.53 298.403 4.896.65 1.66.27 3.23.456 6.24 1 2.448 Perforcibic Celh 2.5.00 1.5400 1.28.393 51 7.809.21.2 7.847.1 886.65.1 4.66.05 1.55.10 3.018.70 6.24 1 2.448 Ferd Colis Celh 3.5.0 1.4000 1.12.839 51 7.409.11 7.844.1 1 2.443 1 2.443 Ferd Colis Celh 3.20 1.4000 1.13.268 51 5493.30 751.50 4865.11 4.6601 1.4433 2.899.40 1 2.448 Ferd Colis Celh 3.2.0 1.4000 1.12.633 511 5495.14 4.6601 1.4443 2.499.14 1 2.448 Ferd Colis Celh 3.2.01 1.12.633 511 5436.14 4.6001 1.5443 2.499.14 1 2.448 Ferd Colis Celh <	110008-	End COL7	Coli	28.53	15400	132.502	51	97660.48		4896.73	408.06	156.44	3453.96	624	1	1	10618.1	14391.5	13272.6	11314.3 1	11314.3	1.013	1.000	11314.3
• BeginoClic Cole 35.20 154.00 112.939 51 7069.12 778.17 866.66 154.21 2018.20 624 1 2448 Refnorced cole 35.20 154.00 112.895 51 7069.12 778.17 866.66 154.51 2018.20 624 1 2448 Refnorced cole 23.47 154.00 112.86 51 460.96 154.31 2693.04 624 1 2448 Fend Cola cole 23.47 154.00 112.86 51 4439.45 255.53 4686.1 460.01 154.31 2693.04 624 1 2448 Find Cola cole 23.47 154.00 112.86 51 4558.4 466.01 154.13 2633.04 624 1 2448 Find Cola cole 23.75 4986.51 466.01 154.04 2287.18 624 1 2448 Find Col1 cole 120.01 114.677	110007	End COL6	Colh	26.87	15400	130.720	51	86511.53	-	4896.68	408.06	156.27	3234.56	624	1	2448	9946,8	13477.4	12433.5	10910.7	10910.7	1.013	1.000	10910.7
End COL Colr 25.30 15400 119.485 51 7409.174 7711.50 486.11 154.13 2899.13 624 1 2448 Find COL Cole 23.47 15400 113.643 51 499.15 408.01 154.13 269.913 624 1 2448 Find COL Cole 21.47 154.00 112.03 51 515.53 499.51 408.01 154.14 2499.10 62.4 1 2448 Find COL Cole 21.73 154.00 112.033 51 4719.52 215.53 498.51 408.01 154.14 2499.10 62.4 1 2448 Find COL Cole 21.73 154.00 115.680 51 4719.520 2139.54 498.61 408.01 154.09 2287.18 62.4 1 2448 Find COL Cole 18.00 14.469 51 4719.520 2139.56 498.61 408.01 154.09 2287.18 62.4 <t< td=""><td>110006+</td><td>Begin COL6</td><td>Colg</td><td>25.20</td><td>15400</td><td>128.939</td><td>51</td><td>76092.12</td><td>-</td><td>4896.64</td><td>408.05</td><td>156.10</td><td>3018.20</td><td>624</td><td>1</td><td>2448</td><td>9282.4</td><td>12575.8</td><td>11602.9</td><td>10515.4 1</td><td>10515.4</td><td>1.013</td><td>1.000</td><td>10515.4</td></t<>	110006+	Begin COL6	Colg	25.20	15400	128.939	51	76092.12	-	4896.64	408.05	156.10	3018.20	624	1	2448	9282.4	12575.8	11602.9	10515.4 1	10515.4	1.013	1.000	10515.4
End Cold Cole 23.47 15400 113.286 51 54393.30 515.30 4956.15 406.01 154.15 2693.04 62.4 1 2448 Find Cold Cold 21.73 154.00 117.033 51 54395.40 523.27.59 486.61.5 406.01 154.14 2489.10 62.4 1 2.448 Find Cold Cold 21.73 154.00 117.033 51 5230.59 486.61.5 406.01 154.14 248.91.0 62.4 1 2.448 Find Cold Cold 120.01 153.05 4395.14 0.60.01 154.04 2.281.3 62.4 1 2.448 Find Cold Cold 130.01 154.04 2.087.34 1 2.448 1 2.448 Find Cold Cold 18.00 14.40.7 2.087.94 1 2.448 1 2.448 Find Cold Cold 18.00 14.46.7 2.087.14 0.001 14.440 2.087.14 1<	110006-	End COL5	Colf	25.20	15400	119.489	S1	74091.74		4896.18	408.01	154.23	2899.13	624	1	2448	9038.3	12079.7	11297.9	10490.6 1	10490.6	1.000	1.000	10486.5
End COI3 Cold 21.73 154.00 117.083 51 55418.26 232.79 4896.15 408.01 154.14 2499.10 624 1 2448 End COL2 Colc 2000 15400 115.880 51 47139.20 2130.59 4896.14 406.01 154.09 624 1 2448 End COL2 Colc 2000 154.00 114.677 51 9355.58 1939.56 4966.11 406.01 154.09 2087.14 1 2448 Find COL1 Cola 182.77 154.09 51 4713.30 51.30.59 4986.11 406.01 14.4.09 52.4 1 2448 Find COL1 Cola 182.77 154.09 508.74 406.01 154.04 50.4 1 24.48 Find COL1 Cola 182.77 51.30.59.56 499.51.6 406.01 154.04 50.4 1 24.48 Find COL1 Cola 18.07 14.66.01 14.66.01 14.66	110005	End COL4	Cole	23.47	15400	118.286	51	64398.30	-	4896.16	408.01	154.18	2693.04	624	1	2448	8388.0	11221.0	10485.0	10090.01	10090.0	1.001	1.000	10090.0
End COL2 Colc 20.00 15400 11580 51 47135.20 2130.59 4856.14 408.01 154.09 2287.13 624 1 2448 Find CoL1 Cob 18.27 14400 11 3935.65 4936.13 468.01 154.09 2287.13 624 1 2448 Remin Col1 Cob 18.27 15400 11.44.09 53 1 2448 Remin Col1 Cob 18.00 14.6407 51 39557.53 1939.56 49561.3 4601 154.049 52.41 1 2448 Remin Col1 Cob 18.00 14.6407 51 38557.51 9661.3 4661.3 154.04 1 2448	110004	End COL3	Cold	21.73	15400	117.083	51	55418.26	2322.79	4896.15	408.01	154.14	2489.10	624	1	2448	7742.6	10371.2	9678.3	9700.7	9678.3	1.002	1.000	9678.3
EnderColl Cob 18.27 15.400 11.46.75 51 39556.58 1995/46 4986.11 408.00 154.04 1 2.448 Reain(COLI Cob 18.07 11.44.05 51 395556.8 1995/46 4986.11 408.00 154.04 1 2.448 Reain(COLI Cob 18.07 11.44.05 51 33557.17 130157 13017 126.04 1 2.448 Reain(COLI Cob 18.00 11.44.05 51 34551.7 13017 124.04 1 2.448	110003	End COL2	Colc	20.00	15400	115.880	51	47139.20	2130.59	4896.14	408.01	154.09	2287.18	624	1	2448	7102.0	9529.9	8877.4	9324.0	8877.4	1.003	1.000	8877.4
Besilic Crit Cola 18.00 15400 114.492 51 3845317 1910.67 4896.13 408.01 154.03 205.80 6.34 1 2448	110002	End COL1	Colb	18.27	15400	114.677	Sl	39556,58	1939.86	4896.13	408.01	154.04	2087.34	624	1	2448	6466.2	8697.2	8082.7	8961.5	8082.7	1.004	1.000	8082.7
	110001	Begin COL1	Cola	18.00	15400	114.492	51	38452.17	1910.67	4896.13	408.01	154.03	2056.80	624	1	2448	6368.9	8570.0	7961.1	2.7068	7961.1	1.004	1.000	7961.1

CDM Smith

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Client: City of Pitts Project: Forbes Ave Detail: Column Sec

MOS			Client: Project: P	Client: City of Pittsburgh roject: Forbes Ave over F	Client: City of Pittsburgh Project: Forbes Ave over Fern Hollow	tollow					
Smit	c		Detail: 0 By: Chki	PL/M D.57	Detail: Column Section Properties By: PL/N 1/9/14 Chk: DJ/W 1/9/14	t ties					
	1						Shear Capacity	A1			
Location Point #	Location Frame Section	Section #	D/t.,	d _o (in)	Q/°p	k	6000*sqrt(k)/sqrt(Fv)	7500*sqrt(k)/sqrt(Fy)	U	V _p (kips)	V. (kips)
90020	End COL14	Colr	103.3846	48	0.571	20.313	120.934	151.167	1.000	1979.25	1979.25
110014	End COL13	Colq	95.50769	48	0.619	18.068	114.057	142.571	1.000	1828.45	1828.45
110013	End COL12	Colp	90.58462	48	0.652	16.756	109.836	137.295	1.000	1734.20	1734.20
110012+	Begin COL12	Colo	85.66154	48	0.690	15.513	105.683	132.104	1.000	1639.95	1639.95
110012-	End COL11	Coln	101.2364	48	0.690	15.513	105.683	132.104	1.000	1387.65	1387.65
110011	End COLID	Colm	96.67927	48	0.722	14.587	102.484	128.105	1.000	1325.19	1325.19
110010	End COL9	Coll	92.12073	48	0.758	13.705	99.334	124.168	1.000	1262.70	1262.70
110009	End COL8	Colk	87.56364	48	0.797	12.865	96.242	120.303	1.000	1200.24	1200.24
110008+	Begin COL8	Colj	83.00655	48	0.841	12.067	93.212	116.515	1.000	1137.77	1137.77
110008-	End COL7	Coli	106.7671	316	5.537	5.163	60.971	76.213	0.408	884.57	360.58
110007	End COL6	Colh	100.5295	316	5.881	5.145	60.861	76.077	0.458	832.89	381.59
110006+	Begin COL6	Colg	94.29373	316	6.270	5.127	60.758	75.948	0.519	781.23	405.45
110006-	End COLS	Colf	145.245	316	6.270	5.127	60.758	75.948	0.219	507.18	110.94
110005	End COL4	Cole	135.2536	316	6.733	5.110	60.658	75.823	0.251	472.29	118.74
110004	End COL3	Cold	125.2651	316	7.270	5.095	60.565	75.706	0.292	437.41	127.81
110003	End COL2	Colc	115.2738	316	7.900	5.080	60.479	75.598	0.344	402.52	138.50
110002	End COL1	Colb	105.2824	316	8.650	5.067	60.400	75.500	0.411	367.63	151.24
110001	Begin COL1	Cola	103.7464	316	8.778	5.065	60.388	75.485	0.424	362.27	153.43

			Chk	City Dar	1/4/1													
											Axial Capacity	X						
Point					L, strong	L, weak	8	1-11			and the second	μ ⁰	E,		Em ² /((KL_/r) ²)			
	Frame Section	Section #	E (psi)		(ui)	(ui)	-	r weak (in)		KL _o /r weak	KL_/r weak sqrt(2π E/F_)	-	_	F _{cr} (psi)		P ₀ (k)	P _y (k)	P. (k)
90020	End COL14	Colr	29000000	0.75	624	624	37.50	5.53	12.48	84.58	107.00	49659.81	_	34379.19 34379.19	1837219.31	345856.5	8000.63	5501.10
110014	End COL13	Colq	2900000	0.75	624	624	35.00	5.61	13.37	83.40	107.00	49609.48		34809.93 34809.93	1600432.26	292959.1	7779.63	5416.16
110013	End COL12	Colp	29000000	0.75	624	624	33.42	5.66	14.00	82.66	107.00	49571.73	35079.16	49571.73 35079.16 35079.16	1459370.64	262394.8	7641.50	5361.15
110012+	Begin COL12	Colo	29000000	0.75	624	624	31.83	5.71	14.70	81.91	107.00	49527.86		35348.41 35348.41	1323762.36	233710.2	7503.38	5304.65
110012-	End COL11	Coln	2900000	0.75	624	624	32.32	5.86	14,48	79.88	107.00	49542.14	36067.45	49542.14 36067.45 36067.45	1365032.92	229120.8	7133.63	5145.83
110011	End COLIO	Colm	29000000	0.75	624	624	31.03	5.90	15.08	79.36	107.00	49503.40	36246.03	36246.03	49503.40 36246.03 36246.03 1258548.65	208536.6	7042.08	5104.95
110010	End COL9	Coll	2900000	0.75	624	624	29.74	5.94	15.74	78.85	107.00	49459.21	36424.68	36424.68	1155725.26	189009.0	6950.51	5063.40
110009	End COL8	Colk	2900000	0.75	624	624	28.44	5.97	16.46	78.33	107.00	49408.53	36603.28	49408.53 36603.28 36603.28	1056690.64	170536.7	6858.97	5021.22
110008+	Begin COL8	Colj	2900000	0.75	624	624	27.12	6.02	17.25	77.80	107.00	49349.96	36781.88	36781.88	961477.05	153099.4	6767.43	4978.37
110008-	End COL7	Coli	2900000	0.75	624	624	27.15	6.08	17.24	76.98	107.00	49351.10		37058.29 37058.29	963166.63	127621.8	5631.35	4173.76
110007	End COL6	Colh	29000000	0.75	624	624	25.73	6.12	18.19	76.47	107.00	49277.33	37232.23	49277.33 37232.23 37232.23	864842.53	113052.5	5555.61	4136.96
110006+	Begin COL6	Colg	29000000	0.75	624	624	24.29	6.16	19.26	75.94	107.00	49189.57		37406.13 37406.13	771191.22	99436.5	5479.90	4099.64
110006-	End COL5	Colf	29000000	0.75	624	624	24.90	6.40	18.79	73.11	107.00	49228.69	38328.03	38328.03	810305.22	96822.4	5078.27	3892.80
110005	End COL4	Cole	29000000	0.75	624	624	23.33	6.43	20.06	72.74	107.00	49121.52	38445.52	38445.52	711455.99	84155.1	5027.14	3865.42
110004	End COL3	Cold	29000000	0.75	624	624	21.76	6.47	21.51	72.37	107.00	48989.55	38562.97	38562.97	618535.89	72420.1	4976.03	3837.81
110003	End COL2	Colc	2900000	0.75	624	624	20.17	6.50	23.20	72.00	107.00	48824.29	38680.46	38680.46	531593.59	61601.1	4924.90	3809.95
110002	End COL1	Colb	29000000	0,75	624	624	18.57	6.53	25.20	71.62	107.00	48613.46	38797.95	38797.95	450763.38	51692.2	4873.77	3781.85
110001	Bagin COL1	Colo	ununun un	0.75	000	111					00 101	A DESTRUCTION OF A			annone an		and the second s	

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Project: For Detail: Coli



Client: City of Pittsburgh Project: Forbes Ave over Fern Hollow Detail: Girder Rating at Abut 1

BY: PLM 1/9/14 Chk: DJW 1/9/14

 Location:
 Girder 1, Abut 1

 Rating Factors:
 Only shear needs checked at this location.
 Calculate Impact based upon Span 1 being loaded Impact:

 0.1899
 0.1899
 0.1899

	OutputCase	StepType	4	22	K3	T	M2	M3
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft
Begin 1001	DEAD		7.346	-216.952	3.366	-1.341	-2.3718	45.8874
Begin 1001	H20	Min	-0.843	-43.766	-0.273	-0.3837	-0.3102	-0.2938
Begin 1001	HS20	Min	-0.907	-75.794	-0.474	-0.6776	-0.3788	-0.5217
Begin 1001	HSLaneNegM	Min	-1.226	-78.895	-0.862	-1.0418	-0.5594	-0.8466
Begin 1001	HSLanePosM	Min	-0.949	-58.767	-0.735	-0.8674	-0.4518	-0.7135
Begin 1001	HSLaneShear	Min	-1.145	-66.571	-0.788	-0.9099	-0.5148	-0.7447
Begin 1001	ML80	Min	-1.08	-82.119	-0.496	-0.7183	-0.4317	-0.5493
Begin 1001	TK527	Min	-1.011	-86.394	-0.525	-0.7729	-0.4157	-0.5928

	2 Tons			7 109.47	6 113.78	4 60.72	8 81.52	0 71.97	2 106.88	10011
	OR ₂		n/a	5.47	3.16	3.04	4.08	3.60	2:92	LL C
OR ₂	V _{LL+1}	Kip	n/a	52.08	90.19	93.88	69.93	79.21	97.71	00 00 0
	V _{DL}	Kip	216.95	216.95	216.95	216.95	216.95	216.95	216.95	10.040
	V.	Kip	652.57	652.57	652.57	652.57	652.57	652.57	652.57	LT

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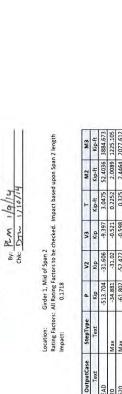
Client: City of Pittsburgh Project: <u>Forbes Ave over Fern Hollow</u> Detail: <u>Girder Rating, max pos moment span 1</u>

110/14 1/4/14 BY: PLM 1/ Chk: OJU 1

Location: Girder 1, Maximum Positive Moment in Span 1 Rating Factors: Only moment needs checked at this location. Calculate Impact based upon Span 1 being loaded Impact: 0.1899

	OutputCase	StepType	4	22	K3	F	M2	M3
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft
End 1008	DEAD		13.324	-10.513	-10.455	2.1692	58.9176	6458.377
End 1008	H20	Max	2.888	14.157	0.834	0.4367	1.6351	1524.674
End 1008	HS20	Max	4.96	22.359	1.327	0.7554	2.14	2604.777
End 1008	HSLaneNegM	Max	7.844	26.029	1.829	1.3126	2.7395	2622.985
End 1008	HSLanePosM	Max	6.505	19.177	1.443	1.1178	2.1821	1914.948
End 1008	HSLaneShear	Max	6.989	21.96	1.576	1.2006	2.5462	2144.889
End 1008	ML80	Max	5.248	26.183	1.289	0.8093	1.9275	2849.768
End 1008	TK527	Max	5.588	25.285	1.346	0.8512	1.9471	2966.068

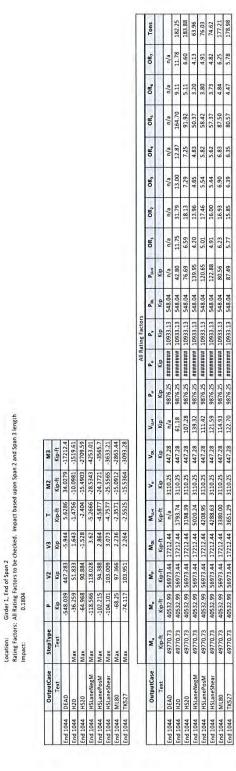
			OR1, OR3			
Mu	Mo	Mpl	MLLH	OR1	OR ₃	Tons
Kip-ft	Kip-ft	Kip-ft	Kip-ft			
19357.45	16254.87	6458.38	n/a	n/a		
19357.45	16254.87	6458.38	1814.17	4.65	5.40	92.96
19357.45	16254.87	6458.38	3099.35	2.72	3.16	97.94
19357.45	16254.87	6458.38	3121.02	2.70	3.14	54.03
19357.45	16254.87	6458.38	2278.55	3.70	4.30	74.01
19357.45	16254.87	6458.38	2552.15	3.30	3.84	66.08
19357.45	16254.87	6458.38	3390.86	2.49	2.89	91.11
357.45	19357.45 16254.87	6458.38	3529.24	2.39	2.78	95.57



Client: City of Pittsburgh Project: Forbes Ave over Fern Detail: Girder Rating, mid of

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d 1032	End 1032 HSLaneNegM	Max	-112.354	-54.102	-0.586	0.3556	2.8262	247.14S														
d 1032	End 1032 HSLanePosM	Max	-96.532	-39.712	-0.448	0.2595	2.0788	1419.574														
d 1032	End 1032 HSLaneShear	Max	-98,103	-45.708	-0.566	0.3109	2.3794	1604.793														
End 1032 ML80	W180	Max	-65.285	-57.804	-0.472	0.2299	2.0319	2286.509														
End 1032 TK527	TK527	Max	-70.459	-60.078	-0.47	0.2282	2.0265	2365.511														
											All Ra	All Rating Factors	s									
	OutputCase	Mu	Mo	Mp	Mot	Mun	V.	Vpt	Vuei	Ρ,	Po	P,	Pot	Pu+	OR1	OR2	OR3	OR4	OR5	OR6	OR ₇	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip								
End 1032 DEAD	DEAD	16353.24	13273.23	17776.56	3884.67	n/a	652.57	31.61	n/a	5091.38	******	5482.50	513.70	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
End 1032 H20	H20	16353.24	13273.23	17776.56	3884.67	1435.60	652.57	31.61	36.35	5091.38	*******	5482.50	513.70	40.87	6.06	12.94	6.54	6.44	83.25	4.50	5.18	89.92
End 1032	HS20	16353.24	13273.23	17776.56	3884.67	2434.59	652.57	31.61	61.49	S091.38	******	5482.50	513.70	72.42	3.57	7.65	3.86	3.80	46.99	2.64	3.04	95.09
d 1032	End 1032 HSLaneNegM	16353.24	13273.23	17776.56	3884.67	2333.97	652.57	31.61	63.40	5091.38	******	5482.50	513.70	131.66	3.73	7.42	4.02	3.88	25.85	2.56	2.94	51.11
d 1032	End 1032 HSLanePosM	16353.24	13273.23	17776.56	3884.67	1663.49	652.57	31.61	46.54	5091.38	******	5482.50	513.70	113.12	5.23	10.11	5.64	5.40	30.08	3.48	4.00	69.52
d 1032	End 1032 HSLaneShear	16353.24	13273.23	17776.56	3884.67	1880.53	652.57	31.61	53.56	5091.38	******	5482.50	513.70	114.96	4.62	8.78	4.99	4.75	29.60	3.13	3.61	62.63
End 1032 ML80	ML80	16353.24	13273.23	17776.56	3884.67	2679.38	652.57	31.61	67.74	5091.38	******	5482.50	513.70	76.50	3.25	6.94	3.50	3.45	44.48	2.41	2.78	88.24
End 1032 TK527	TK527	16353.24	13273.23	17776.56	3884.67	2771.96	652.57	31.61	70.40	5091.38	*******	5482.50	513.70	82.57	3.14	6.68	3.39	3.33	41.21	2.32	2.67	92.78





Client: City of Pittsburgh Project: Forbes Ave over Fern Hollow Detail: Girder Rating, End of span 2

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PLM 1/9/14

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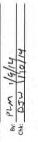
Client: City of Pritsburgh Project: Forbes are ver fern Hollow Deal: Courn Branes, Les 1 at top Och: Durn 1/10/14 Location: Leg 1 at C9 (Top of leg) Rating Factors: All Rating Factors to be checked. Impact based upon average of Span 1 and Span 2 lengths Impact: 0.1804

	OutputCase	StepType	Р	27	K3	T	M2	M3				
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft				
End 110014 DEAD	DEAD		-1142.36	-30.013	-0.237	0	13.0127	2117.096				
End 110014 H20	HZO		-65.299	-20.779	-0.127	0	6.973	1142.859				
End 110014 HS20	HS20	Max	-117.267	-36.987	-0.209	0	11.483	2034.298				
End 110014	End 110014 HSLaneNegM	Max	-252.063	-47.495	-0.322	0	17.7281	2612.2				
End 110014	End 110014 HSLanePosM	Max	-222.646	-38.319	-0.273	0	15.0424	2107.534				
End 110014	End 110014 HSLaneShear	Max	-227.27	-40.445	-0.292	0	16.0815	2224.477				
End 110014 ML80	ML80	Max	-123.172	-39.157	-0.227	0	12.5081	2153.628				
End 110014 TKS27	TKS27	Max	-134.119	-42.184	-0.233	0	12.8256	12.8256 2320.094				
											All Rating Fact	tatin
	OutputCase	"W	Mo	Mp	Mot	Musi	V.	Vot	Vittei	Ρ.	Po	
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip

											All Re	All Rating Factors	8									
	OutputCase	Mu	Mo	Mp	Mot	Mua	~~^	Vot	VILM	°,	°4	P,	Por	Pute	OR1	OR ₂	OR ₃	OR.	OR5	OR	OR,	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip			100					
id 110014	DEAD	18247.83	19824.79	27596.88	2117.10	n/a	1979.25	30.01	e/u	5501.10	******	8000.63	1142.36	n/a	n/a	n/a	n/a	n/a	n/a	e/u	e/u	
nd 110014 H20	HZO	18247.83	19824.79	27596.88	2117.10	1349.03	1979.25	30.01	24.53	5501.10	******	8000.63	1142.36	77.08	8.84	60.85	13.13	11.41	40.08	5.07	9.39	101.33
nd 110014 HS20	HS20	18247.83	19824.79	27596.88	2117.10	2401.28	1979.25	30.01	43.66	5501.10	*******	8000.63	1142.36	138.42	4.96	34.18	7.37	6.41	22.32	2.84	5.27	102.32
d 110014	nd 110014 HSLaneNegM	18247.83	19824.79	27596.88	2117.10	3083.43	1979.25	30.01	56.06	5501.10	******	8000.63	1142.36	297.53	3.87	26.62	5.74	4.99	10.38	2.00	3.69	39.95
d 110014	nd 110014 HSLanePosM	18247.83	19824.79	27596.88	2117.10	2487.73	1979.25	30.01	45.23	5501.10	******	8000.63	1142.36	262.81	4.79	33.00	7.12	6.19	11.75	2.42	4.47	48.40
d 110014	d 110014 HSLaneShear	18247.83	19824.79	27596.88	2117.10	2625.77	1979.25	30.01	47.74	5501.10	nnnnnnn	8000.63	1142.36	268.27	4.54	31.26	6.74	5.86	11.52	2.31	4.27	46.25
d 110014 ML80	ML80	18247.83	19824.79	27596.88	2117.10	2542.14	1979.25	30.01	46.22	5501.10	nunnnunn	8000.63	1142.36	145.39	4.69	32.29	6.97	6.06	21.25	2.69	4.98	98.50
d 110014	TKS27	18247.83	19824.79	27596.88	2117.10	2738.63	1979.25	30.01	49.79	5501.10	*******	8000.63	1142.36	158.31	4.35	29.97	6.47	5.62	19.51	2.49	4.62	99.64

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Location: Leg 1, 47' up from bottom along leg Rating Factors: All Naining Factors to be checked. Impact based upon average of Span 1 and Span 2 lengths Impact: 0.1804

StepType

OutputCase

FUG TIONTS	End 11UU12 HSLanePosM Max	Max	-222.040	-38.319	-0.2/3	0	12.8516 1800.984	1800.984														
End 110012	ind 110012 HSLaneShear	Max	-227.27	-40.445	-0.292	0	13.7396	1900.917														
End 110012 ML80	ML80	Max	-123.172	-39.157	-0.227	0	10.6895 1840.373	1840.373														
End 110012 TK527	TK527	Max	-134.119	-42.184	-0.233	0	10.9603	1982.626														
				1							ALL DAY	All Bution Crotose										
	OutputCase	Mu	Mo	Mp	Mot	ML+	۷.	Vot	Vu.	ď	Po	P _v	Por	Puter	OR1	OR2	OR ₃	OR.	OR5	OR	OR,	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip								
End 110012 DEAD	DEAD	16680.79	17030.82 23609.67	23609.67	1865.92	n/a	1734.20	32.77	n/a 5	5361.15 #	********	7641.50	1146.79	n/a	e/u	n/a	n/a	n/a	n/a	n/a	e/u	
End 110012 H20	H20	16680.79	17030.82	23609.67	1865.92	1152.80	1734.20	32.77	24.53 5	5361.15 #	*******	7641.50	1146.79	77.08	9.51	53.05	13.15	11.98	38.63	5.31	9.17	106.24
End 110012 H520	HS20	16680.79	17030.82	23609.67	1865.92	2052.00	1734.20	32.77	43.66 5	5361.15 #	nunnun	7641.50	1146.79	138.42	5.34	29.80	7.39	6.73	21.51	2.98	5.14	107.26
End 110012	End 110012 HSLaneNegM	16680.79	17030.82 23609.67	23609.67	1865.92	2634.93	1734.20	32.77	56.06 5	5361.15 #	"""""	7641.50	1146.79	297.53	4.16	23.21	5.76	5.24	10.01	2.08	3.59	41.55
End 110012	End 110012 HSLanePosM	16680.79	17030.82	23609.67	1865.92	2125.88	1734.20	32.77	45.23 5	5361.15 #	******	7641.50	1146.79	262.81	5,16	28.77	7.13	6.50	11.33	2.51	4.34	50.26
End 110012	End 110012 HSLaneShear	16680.79	17030.82 23609.67	23609.67	1865.92	2243.84	1734.20	32.77	47.74 5	5361.15	*******	7641.50	1146.79	268.27	4.89	27.26	6.76	6.16	11.10	2.40	4.15	48.06
End 110012 ML80	ML80	16680.79	17030.82	23609.67	1865.92	2172.37	1734.20	32.77	46.22 5	5361.15 #	nunnun	7641.50	1146.79	145.39	5.05	28.15	6.98	6.36	20.48	2.82	4.86	103.26
End 110012 TK527	TK527	16680.79	17030.82 23609.67	23609.67	1865.92	2340.29	1734.20	32.77	49.79 5	5361.15	********	7641.50	1146.79	158.31	4.69	26.13	6.48	5.90	18.81	2.61	4.51	104.45



By PLM Chki DJW

Location: Leg. 1. 30' up from bottom along leg Rabing Factors: All Rabing Factors to be checked. Impact based upon average of Span 1 and Span 2 lengths Impact: 0.1804

	OutputCase	StepType	٩	72	8	T	M2	M3		
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft		
End 110008	DEAD		-1155.4	-38.138	-0.237	0	7.157	1271.196		
End 110008	H20		-65.299	-20.779	-0.127	0	3.8362	628.5722		
End 110008	HS20	Max	-117.267	-36.987	-0.209	0	6.3177	1118.864		
End 110008	HSLaneNegM	Max	-252.063	-47.495	-0.322	0	9.754	1436.71		
End 110008	HSLanePosM	Max	-222.646	-38.319	-0.273	0	8.2772	1159.144		
End 110008	HSLaneShear	Max	-227.27	-40.445	-0.292	0	8.8488	1223.463		
End 110008	ML80	Max	-123.172	-39.157	-0.227	0	6.8802	1184.496		
End 110008	TK527	Max	-134.119	-42.184	-0.233	0	7.0543	1276.052		
	OutputCase	Mu	Mo	MP	Mpt	Muter	N"	Vot	Vu++	
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	

											All Ra	All Rating Factors										U
	OutputCase	Mu	Mo	Mp	Mpt	Muter	V.	Vot	Vu.++	P."	Po	P,	Por	Pu++	OR1	OR2	OR ₃	OR4	OR ₅	OR	OR,	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip								
nd 110008	DEAD	11314.28	10618.10	14391.50	1271.20	n/a	360.58	38.14	n/a	4173.76	*******	5631.35	1155.40	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
110008	H20	11314.28	10618.10	14391.50	1271.20	741.96	360.58	38.14	24.53	4173.76	*******	5631.35	1155.40	77.08	10.02	9.75	12.60	8.13	26.66	4.52	7.29	90.44
nd 110008	HS20	11314.28	10618.10	14391.50	1271.20	1320.70	360.58	38.14	43.66	4173.76	######################################	5631.35	1155.40	138.42	5.63	5.48	7.08	4.57	14.85	2.54	4.09	91.28
10008	nd 110008 HSLaneNegM	11314.28	10618.10	14391.50	1271.20	1695.89	360.58	38.14	56.06	4173.76	*******	5631.35	1155.40	297.53	4.38	4.27	5.51	3.56	6.91	1.72	2.79	34.37
10008	nd 110008 HSLanePosM	11314.28	10618.10	14391.50	1271.20	1368.25	360.58	38.14	45.23	4173.76	******	5631.35	1155.40	262.81	5.43	5.29	6.83	4.41	7.82	2.07	3.36	41.33
10008	nd 110008 HSLaneShear	11314.28	10618.10	14391.50	1271.20	1444.17	360.58	38.14	47.74	4173.76	*******	5631.35	1155.40	268.27	5.15	5.01	6.47	4.18	7.66	1.98	3.21	39.61
nd 110008	ML80	11314.28	10618.10	14391.50	1271.20	1398.17	360.58	38.14	46.22	4173.76	*******	5631.35	1155.40	145.39	5.32	5.18	6.69	4.32	14.14	2.40	3.87	87.91
nd 110008	TKS27	11314.28	10618.10	14391.50	1271.20	1506.25	360.58	38.14	49.79	4173.76	######################################	5631.35	1155.40	158.31	4.93	4.80	6.21	4.01	12.98	2.22	3.58	88.87

	CIETLL. CITY OF FILLSOUTER
Proje	Project: Forbes Ave over Fern Hollow
Deta	Detail: Column Rating, Leg 1, 18' up from bot
	By: PLM 1/9/14
ð	Chk DJW 1110/14
Location: Leg 1, 18' up from bottom along leg	g leg
ors: All Rating Factors to be checke 0.1804	Rating Factors: All Rating Factors to be checked. Impact based upon average of Span 1 and Span 2 lengths Impact: 0.1804

	OutputCase	StepType	Р	72	V3	F	M2	M3
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft
End 110005	DEAD		-1160.69	-41.435	-0.237	0	4.2587	782.906
End 110005	H20		-65.299	-20.779	-0.127	0	2.283	374.0265
End 110005	HS20	Max	-117.267	-36.987	-0.209	0	3.7603	665.7703
End 110005	HSLaneNegM	Max	-252.063	-47.495	-0.322	0	5.8169	854.9018
End 110005	HSLanePosM	Max	-222.646	-38.319	-0.273	0	4.9364	689.7386
End 110005	HSLaneShear	Max	-227.27	-40.445	-0.292	0	5.2786	728.0107
End 110005	ML80	Max	-123.172	-39.157	-0.227	0	4.0942	704.8238
End 110005	TK527	Max	-134.119	-42.184	-0.233	0	4.1972	759.3035
End 110005	AASHTO-Type3	Max	-81.503	-25.791	-0.147	0	2.6445	464.2396
End 110005	PA-Legal	Max	-95.895	-30.409	-0.175	0	3.1559	547.3544

· Controls for all trucks

											AIIRa	All Rating Factors	S			1						
	OutputCase	"W"	M。	Mp	Mot	MLLH	٧	V _{Dt}	V _{LL+1}	P.,	۰°	P,	Por	PLL+	OR1	(OR2)	OR ₃	OR	OR5	OR6	OR,	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip)	1					
End 110005	DEAD	10486.46	9038.33	12079.72	782.91	n/a	110.94	41.44	n/a	3892.80	96822.40	5078.27	1160.69	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
End 110005	H20	10486.46	9038.33	12079.72	782.91	441.50	110.94	41.44	24.53	3892.80	96822.40	5078.27	1160.69	77.08	16.50	1.79	18.70	4.16	23.79	6.40	9.20	35.80
End 110005	HS20	10486.46	9038.33	12079.72	782.91	785.87	110.94	41.44	43.66	3892.80	96822.40	5078.27	1160.69	138.42	9.27	1.01	10.50	2.34	13.25	3.59	5.15	36.20
End 110005	HSLaneNegM	10486.46	9038.33	12079.72	782.91	1009.12	110.94	41.44	56.06	3892.80	96822.40	5078.27	1160.69	297.53	7.22	(e/u)	8.18	1.82	6.16	2.30	3.35	36.38
End 110005	HSLanePosM	10486.46	9038.33	12079.72	782.91	814.17	110.94	41.44	45.23	3892.80	96822.40	5078.27	1160.69	262.81	8.95	10.97	10.14	2.25	6.98	2.73	3.99	19.41
End 110005	HSLaneShear	10486.46	9038.33	12079.72	782.91	859.34	110.94	41.44	47.74	3892.80	96822.40	5078.27	1160.69	268.27	8.48	0.92	9.61	2.14	6.84	2.63	3.84	18.39
End 110005	ML80	10486.46	9038.33	12079.72	782.91	831.97	110.94	41.44	46.22	3892.80	96822.40	5078.27	1160.69	145.39	8.75	0.95	9.92	2.21	12.61	3.40	4.88	34.80
End 110005	TKS27	10486.46	9038.33	12079.72	782.91	896.28	110.94	41.44	49.79	3892.80	96822.40	5078.27	1160.69	158.31	8.13	0.88	9.21	2.05	11.58	3.14	4.52	35.27
End 110005	AASHTO-Type3	10486.46	9038.33	12079.72	782.91	547.99	110.94	41.44	30.44	3892.80	96822.40	5078.27	1160.69	96.21	13.29 /	1.44 😽	15.07	3.35	19.06	5.15	7.40	57.68
End 110005	PA-Legal	10486.46	9038.33	12079.72	782.91	646.10	110.94	41.44	35.39	3892.80	96822.40	5078.27	1160.69	113.19	11.27/	1.22 *	12.78	2.84	16.20	4.37	6.28	48.92

*- Above 1, therefore lane logid does not control for 480.

S By inspection of influence surface, HS Lone Ney M Load Case is not appropriate to analyze shear at this location.

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Client: <u>City of Pittsburgh</u> Project: <u>Forbes Ave over Fern Hollow</u> Detail: <u>Column Rating, Leg.1, 14' up from bot</u>

PLM Chk: DJ

Location: Leg 1, 14' up from bottom along leg Rating Factors: All Rating Factors to be checked. Impact based upon average of Span 1 and Span 2 lengths Impact: 0.1804

Text Kip Kip Kip-ft Kip-ft Kip-ft -1152-3 -24735 -0.237 0 3235 60.11857 -165.293 -207459 -0.127 0 17334 233-993 Max -117.267 -36.997 -0.209 0 2.3553 505.4923 Max -255.666 -4139 -0.217 0 31704 523.600 Max -257.616 -38.19 -0.217 0 31704 523.600 Max -257.616 -38.19 -0.229 0 4.0394 552.489 Max -134.11 -0.217 -0.217 0 3.1065 555.144 Max -134.11 -0.217 -0.217 0 2.0078 552.7435 Max -134.11 -0.217 -0.217 0 2.0078 552.7425 Max -134.11 -0.213 0 2.3962 415.689 Max -134.11 -0.217 0 2.0078 552.74		OutputCase	StepType	4	72	V3	н	M2	M3		
116.3 42.435 0.237 0 3.3355 60.1187 Max -117.267 -0.179 0.127 3 333.983 Max -117.267 -0.027 0 1.734 233.983 Max -252.063 -37.495 -0.322 0 2.37.04 533.69021 Max -227.266 -34.345 0.277 0 2.37.602 809.0921 Max -227.21 -39.157 -0.277 0 4.4394 649.0921 Max -227.21 -39.157 -0.277 0 4.0.969 557.460 Max -123.172 -39.157 -0.277 0 3.1066 555.449 Max -13.119 -47.184 -0.237 0 3.1086 555.443 Max -13.119 -47.184 -0.137 0 3.108 557.432 Max -95.191 -0.137 0 2.3003 355.472 3.44 Max -95.391 -0.147 0 2		Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft		
Mix -56.29 -20.779 -0.127 0 17.34 233.933 Mix -11.756 -36.367 -0.200 0 2.855 50.4923 Mix -252.065 -4195 -0.217 0 2 35.35 50.4923 Mix -222.646 -38.319 -0.217 0 3.7704 52.36902 Mix -222.646 -38.319 -0.217 0 3.7704 52.36902 Mix -13.411 -42.184 -0.227 0 3.7704 55.3460 Mix -13.4119 -0.217 -0.217 0 3.1066 55.144 Mix -13.4119 -42.184 -0.217 0 3.1066 55.443 Mix -13.411 -0.147 0 2.0078 55.443 Mix -43.184 -0.147 0 2.0078 55.4748 Mix -43.184 -0.147 0 2.0078 55.4748 Mix -13.410 -0.147 0	110004 ht	DEAD		-1162.3	-42.435	-0.237	0	3.2335	601.1857		
Max 117.267 -36.987 0.209 0 2.8553 505.4923 Max -25.2063 -31.495 0.3272 0 2.4394 69.0921 Max -25.2063 -47.495 0.3272 0 3.7494 53.6503 Max -25.21645 -36.319 0.217 0 3.7494 53.6504 Max -25.217 -30.157 -0.292 0 4.0294 55.27.483 Max -1.23.172 -39.157 -0.217 0 3.1066 55.543 Max -1.34.119 -2.2779 -0.137 0 3.1066 55.622 Max -31.631 -0.217 -0.137 0 3.1066 55.432 Max -35.895 -30.409 -0.175 0 2.3962 41.5589 Max -95.895 -30.409 -0.175 0 2.3962 41.5589	110004 ht	HZO		-65.299	-20.779	-0.127	0	1.7334			
Max -252.063 -47.465 -0.322 0 4.4394 645.0921 Max -227.27 -40.419 0.277 0 3.1204 55.24690 Max -227.27 -40.415 0.272 0 4.0294 55.7480 Max -123.172 -39.157 -0.227 0 3.1086 55.7480 Max -123.172 -39.157 -0.233 0 3.1086 55.7480 Max -13.119 -47.184 -0.233 0 3.1086 55.2.4381 Max -95.1391 -0.147 0 2.0078 55.2.4322 Max -95.692 -0.147 0 2.0078 55.2.4323 Max -95.693 -0.147 0 2.0078 55.2.4323 Max -95.693 -0.147 0 2.3662 415.5839 Max -95.693 -0.049 0.147 0 2.3962 415.5839	nd 110004	HS20	Max	-117.267	-36.987	-0.209	0	2.8553	505.4923		
Max 222.646 -38.319 0.273 0 3.7704 523.6904 Max -227.7 -0.043 0.227 0 4.024 55.7469 Max -123.172 -99.157 -0.227 0 3.1066 55.146 Max -13.4119 -42.184 -0.233 0 3.1066 55.544 Max -13.4119 -42.184 -0.233 0 3.1066 55.543 Max -13.4119 -42.184 -0.233 0 3.1066 55.602 Max -13.419 -42.184 -0.147 0 2.0078 55.4782 Max -95.895 -30.409 -0.175 0 2.3922 415.5839 Max Max Max Va Va Va Va	nd 110004	HSLaneNegM	Max	-252.063	-47.495	-0.322	0	4,4394	649.0921		
Max -227.27 -40.445 0.292 0 4.0294 552.7489 Max -1.23.172 -39.157 -0.217 0 3.1086 553.144 Max -13.41.19 -42.130 -0.217 0 3.1086 555.144 Max -13.41.19 -42.147 0 2.0078 553.472 Max -95.895 -30.409 -0.177 0 2.0962 415.689 Max -95.895 -30.409 -0.175 0 2.3962 415.5899 Max Ma Max Va Va Va Va	nd 110004	HSLanePosM	Max	-222.646	-38.319	-0.273	0	3.7704	523.6904		
Max -123.172 -39.157 -0.227 0 3.1086 535.144 Max -13.119 -42.139 -0.233 0 3.1066 555.082 Max -13.119 -42.539 -0.213 0 2.0078 532.4782 Max -95.895 -30.409 -0.175 0 2.3962 415.5839 Max Max Ma Max V. V. V.	nd 110004	HSLaneShear	Max	-227.27	-40.445	-0.292	0	4.0294	552.7489		
Mix 13-119 -42.184 -0.233 0 31.869 576.602 Max -81.503 -25.791 -0.147 0 2.0078 35.2.4782 Max -95.895 -30.409 -0.175 0 2.3952 415.839 Max M. M. M. V. V. V.	nd 110004	ML80	Max	-123.172	-39.157	-0.227	0	3.1086			
Max -81.503 -25.791 -0.147 0 2.0078 352.4782 Max -95.895 -30.409 -0.175 0 2.3952 415.5839 Max Max Max -85.895 -30.409 -0.175 0 2.3952 415.5839	nd 110004	TK527	Max	-134.119	-42.184	-0.233	0	3.1869			
Max -95.895 -30.409 -0.175 0 2.3962 415.8839 ftcase M. Mo. Mo. Mo. V. V. V.	nd 110004	AASHTO-Type3	Max	-81.503	-25.791	-0.147	0	2.0078			
M. M. M. M. M. M. W. V. V.	nd 110004	PA-Legal	Max	-95.895	-30.409	-0.175	0	2.3962			
M., M. M. Mri Mit V. V. VII											
		OutputCase	M	Me	Mp	Mpt	Milei	٧.	Vot	VILM	۵

										All Ra	All Rating Factors	~									
OutputCase	Mu	Mo	Mp	Mpl	MLIH	۸	Vot	VLL+	ď	Po	P,	Por	PLLH	OR1	OR ₂	OR3	OR.	ORs	OR	OR ₇	Tons
Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip								
End 110004 DEAD	10089.96	8387.98	11221.01	601.19	n/a	118.74	42.44	n/a	3865.42	84155.11	5027.14	1162.30	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
End 110004 H20	10089.96	8387.98	11221.01	601.19	335.21	118.74	42.44	24.53	3865.42	84155.11	5027.14	1162.30	77.08	21.36	1.99	23.23	4.77	23.50	7.69	10.72	39.88
End 110004 HS20	10089.96	8387.98	11221.01	601.19	596.68	118.74	42.44	43.66	3865.42	84155.11	5027.14	1162.30	138.42	12.00	1.12	13.05	2.68	13.08	4.31	6.00	40.32
End 110004 HSLaneNegM	10089.96	8387.98	11221.01	601.19	766.19	118.74	42.44	56.06	3865.42	84155.11	5027.14	1162.30	297.53	9.35	(u/a)	10.16	2.09	60.9	2.67	3.80	41.76
End 110004 HSLanePosM	10089.96	8387.98	11221.01	601.19	618.16	118.74	42.44	45.23	3865.42	84155.11	5027.14	1162.30	262.81	11.58	80:I	12.60	2.59	6.89	3.16	4.51	21.62
End 110004 HSLaneShear	10089.96	8387.98	11221.01	601.19	652.46	118.74	42.44	47.74	3865.42	84155.11	5027.14	1162.30	268.27	10.97	/ 1.02	11.93	2.45	6.75	3.05	4.34	20.49
End 110004 ML80	10089.96	8387.98	11221.01	601.19	631.68	118.74	42.44	46.22	3865.42	84155.11	5027.14	1162.30	145.39	11.34	1.06	12.33	2.53	12.46	4.08	5.68	38.77
End 110004 TK527	10089.96	8387.98	11221.01	601.19	680.51	118.74	42.44	49.79	3865.42	84155.11	5027.14	1162.30	158.31	10.52	0.98	11.44	2.35	11.44	3.77	5.26	39.28
End 110004 AASHTO-Type3	3 10089.96	8387.98	11221.01	601.19	416.06	118.74	42.44	30.44	3865.42	84155.11	5027.14	1162.30	96.21	17.21 /	1.61	18.72	3.85	18.83	6.18	8.62	64.25
End 110004 PA-Legal	10089.96	8387.98	11221.01	601.19	490.55	118.74	42.44	35.89	3865.42	84155.11	5027.14	1162.30	113.19	14.60 /	1.36	15.87	3.26	16.00	5.25	7.31	54.50

L> By inspection of influence surface,

HS Lane Ney M Lood Case & not

appropriate to analyze shear at this location.

CDM Smith

Client: City of Pittsburgh Project: <u>Forbes Ave over Fern Hollow</u> Detail: <u>Column Rating, Leg 1 at thrust block</u>

BY: PLAN 1/9/14 Chk: DJW 1/10/14

Location: Leg 1 at Thrust Block Rating Factors: Only Axial and Shear Ratings need to be checked Impact: 0.1804

	OutputCase	StepType	a	72	K3	F	M2	M3
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft
Begin 110001	DEAD		-1167.265	-45.528	-0.237	0	0	0
Begin 110001	H20		-65.299	-20.779	-0.127	0	0	0
3egin 110001	HS20	Max	-117.267	-36.987	-0.209	0	0	0
Begin 110001	HSLaneNegM	Max	-252.063	-47.495	-0.322	0	0	0
3egin 110001	HSLanePosM	Max	-222.646	-38.319	-0.273	0	0	0
3egin 110001	HSLaneShear	Max	-227.27	-40.445	-0.292	0	0	0
Begin 110001	ML80	Max	-123.172	-39.157	-0.227	0	0	0
Begin 110001	TK527	Max	-134.119	-42.184	-0.233	0	0	0

									OR2, OR5	Rs							
	OutputCase	Mu	Mo	Mp	Mot	Mut+I	٧	Vpt	V _{IL+1}	°,	Po	Pv	Pot	PLL+I	OR ₂	OR5	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip			
Begin 110001	DEAD	7961.11	6368.89	8570.01	0.00	n/a	153.43	45.53	n/a	3777.50	50248.93	4865.91	1167.27	n/a	n/a	n/a	
Begin 110001	H20	7961.11	6368.89	8570.01	0.00	0.00	153.43	45.53	24.53	3777.50	50248.93	4865.91	1167.27	77.08	2.96	22.55	59.11
Begin 110001	HS20	7961.11	6368.89	8570.01	0.00	00.0	153.43	45.53	43.66	3777.50	50248.93	4865.91	1167.27	138.42	1.66	12.56	59.77
Begin 110001	HSLaneNegM	7961.11	6368.89	8570.01	0.00	00.0	153.43	45.53	56.06	3777.50	50248.93	4865.91	1167.27	297.53	1.29	5.84	25.86
Begin 110001	HSLanePosM	7961.11	6368.89	8570.01	0.00	00.0	153.43	45.53	45.23	3777.50	50248.93	4865.91	1167.27	262.81	1.60	6.62	32.05
Begin 110001	HSLaneShear	7961.11	6368.89	8570.01	0.00	0.00	153.43	45.53	47.74	3777.50	50248.93	4865.91	1167.27	268.27	1.52	6.48	30.37
Begin 110001	ML80	7961.11	6368.89	8570.01	0.00	0.00	153.43	45.53	46.22	3777.50	50248.93	4865.91	1167.27	145.39	1.57	11.96	57.47
Begin 110001	TK527	7961.11	6368.89	8570.01	0.00	00.00	153.43	45.53	49.79	3777.50	50248.93	4865.91	1167.27	158.31	1.46	10.98	58.23

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Client: <u>City of Pittsburgh</u> Project: <u>Forbes Ave over Fern Hollow</u> Detail: <u>Column Rating, Leg 4 at top</u>

Fry	1/9/14
210	110/14

Location: Leg 4 at C9 (Top of leg) Rating Factors: All Rating Factors to be checked. Impact based upon average of Span 2 and Span 3 lengths Impact: 0.1804

	OutputCase	StepType	•	V2	V3	F	M2	M3										
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft										
End 410014 DEAD	DEAD		-1207.3	11.733	0.236	0	-12.9555	-230.059										
End 410014 H20	H20		-67.163	-19.989	-0.062	0	3.4089	1099.403										
End 410014 HS20	HS20	Max	-120.621	-35.569	-0.111	0	6.1129	6.1129 1956.281										
End 410014	End 410014 HSLaneNegM	Max	-261.824	-44.678	-0.266	0	14.662	2457.275										
End 410014	End 410014 HSLanePosM	Max	-231.561	-35.904	-0.238	0	13.1279	13.1279 1974.742										
End 410014	End 410014 HSLaneShear	Max	-236.272	-38.004	-0.251	0	13.7963	13.7963 2090.198										
End 410014 ML80	ML80	Max	-126.704	-37.658	-0.117	0	6.4205	2071.209										
End 410014 TK527	TK527	Max	-137.963	-40.559	-0.127	0	6.9962	6.9962 2230.771										
											All R	All Rating Factors	S					
	OutputCase	Mu	Mo	Mp	Mot	Mute	۷.	Vot	V _{LL+I}	μ,	ď	Ą	Pol	PLLH	OR1	OR ₂	OR ₃	OR4
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip				
End 410014 DEAD	DEAD	18247.83	19824.79	19824.79 27596.88	230.06	n/a	1979.25	11.73	n/a	5501.10	##########	8000.63	1207.30	n/a	n/a	n/a	n/a	n/a
End 410014 H20	H20	18247.83	19824.79	19824.79 27596.88	230.06	1297.73	1979.25	11.73	23.59	5501.10	#########	8000.63	1207.30	79.28	10.64	64.03	15.10	13.25
End 410014 HS20	HS20	18247.83	19824.79	19824.79 27596.88	230.06	2309.19	1979.25	11.73	41.99	5501.10		####### 8000.63	1207.30	142.38	5.98	35.98	8.49	7.45
End 410014	End 410014 HSLaneNegM	18247.83	19824.79	19824.79 27596.88	230.06	2900.56	1979.25	11.73	52.74	5501.10	#######################################	8000.63	1207.30	309.06	4.76	28.65	6.76	5.93
End 410014	End 410014 HSLanePosM	18247.83	19824.79	19824.79 27596.88	230.06	2330.98	1979.25	11.73	42.38	5501.10	******	8000.63	1207.30	273.33	5.92	35.65	8.41	7.38
End 410014	End 410014 HSLaneShear	18247.83	19824.79	19824.79 27596.88	230.06	2467.26	1979.25	11.73	44.86	5501.10	*******	8000.63	1207.30	278.89	5.60	33.68	7.94	6.97
End 410014 ML80	ML80	18247.83	19824.79	19824.79 27596.88	230.06	2444.85	1979.25	11.73	44.45	5501.10	##########	8000.63	1207.30	149.56	5.65	33.99	8.01	7.04
End ATOOTA TKS27	TVCJT	20 TACOT	02 VC001	10074 70 77505 00	20.050	01 0000	1070.75	44 77	47 00	CE01 10	******	C2 0000	UC LUCE	167 05	- 24	24 5.0		

125.61 126.86 49.94 60.55 57.79 122.12 123.55

n/a 10.71 6.01 6.01 7.14 7.14 7.14 7.91 5.14 5.69 5.69

n/a 6.28 3.52 3.03 3.03 3.33 3.33 3.39

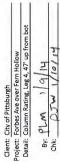
Tons

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NTSB Attachment - Page 45

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6			
	2		



Location: Leg 4, 47' up from bottom along leg Rating Factors: All Rating Factors to be checked. Impact based upon average of Span 2 and Span 3 lengths Impact:

M3 Kip-ft

-11.071 M2 Kip-ft

Kip-ft

S a

OutputCase StepType Text Text

-1211.91 A ix

-0.062 -0.111 0.236 Kip 3

	ICAL	1CVI	AN	AN	divi	APP-16	and an	an dist														
End 410012 DEAD	DEAD		-1211.91	9.277	0.236	0	-11.071	-146.059														
End 410012 H20	H20		-67.163	-19.989	-0.062	0	2.9131	939.4901														
End 410012 HS20	HS20	Max	-120.621	-35.569	-0.111	0	5.2238	1671.731														
End 410012 HSLaneNegM		Max	-261.824	-44.678	-0.266	0	12.5319	2099,853														
End 410012 HSLanePosM	HSLanePosM	Max	-231.561	-35.904	-0.238	0	11.2209	1687.506														
End 410012 HSLaneShear	HSLaneShear	Max	-236.272	-38.004	-0.251	0		11.7921 1786.169														
End 410012 ML80	ML80	Max	-126.704	-37.658	-0.117	0	5.4866	1769.942														
End 410012 TK527		Max	-137.963	-40.559	-0.127	0	5.9786	1906.295														
			8		5						All R	All Rating Factors	s									
	OutputCase	Mu	M。	Mp	Mot	MLL+	۸	Vpt	V _{LL+}	Р.	°d	۰۹	Por	+nd	OR1	OR2	OR ₃	OR.4	ORs	OR6	OR ₇	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip		No.						
End 410012 DEAD	DEAD	16680.79	17030.82 23609.67	23609.67	146.06	n/a	1734.20	9.28	e/u	5361.15	*****	7641.50	1211.91	e/u	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
End 410012 H20	H20	16680.79	17030.82	17030.82 23609.67	146.06	1108.97	1734.20	9.28	23.59	5361.15	******	7641.50	1211.91	79.28	11.44	56.14	15.23	13.94	36.73	6.58	10.54	131.52
End 410012 HS20	HS20	16680.79	16680.79 17030.82 23609.67	23609.67	146.06	1973.31	1734.20	9.28	41.99	5361.15	******	7641.50	1211.91	142.38	6.43	31.55	8.56	7.84	20.45	3.69	5.91	132.82
End 410012 HSLaneNegM	HSLaneNegM	16680.79	16680.79 17030.82 23609.67	23609.67	146.06	2478.66	1734.20	9.28	52.74	5361.15	*******	7641.50	1211.91	309.06	5.12	25.12	6.81	6.24	9.42	2.59	4.16	51.82
End 410012 HSLanePosM	HSLanePosM	16680.79		17030.82 23609.67	146.06	1991.93	1734.20	9.28	42.38	5361.15	*****	7641.50	1211.91	273.33	6.37	31.26	8.48	7.76	10.65	3.14	5.03	62.73
End 410012 HSLaneShear	HSLaneShear	16680.79	16680.79 17030.82 23609.67	23609.67	146.06	2108.39	1734.20	9.28	44.86	5361.15	******	7641.50	1211.91	278.89	6.02	29.53	8.01	7.33	10.44	3.00	4.80	59.91
End 410012 ML80	ML80	16680.79	17030.82	17030.82 23609.67	146.06	2089.23	1734.20	9.28	44.45	5361.15	##########	7641.50	1211.91	149.56	6.07	29.80	8.08	7.40	19.47	3.49	5.59	127.86
End 410012 TK527	TK527	16680.79	16680.79 17030.82 23609.67	23609.67	146.06	2250.18	1734.20	9.28	47.88	5361.15	******	7641.50	1211.91	162.85	5.64	77.67	7.50	6.87	17.88	2 23	5 18	129.34

CDM

Client: City of Pittsburgh Project: Forbes Ave over Fern Hollow Detail: Column Rating, Leg 4, 30' up Chi 100 1/9/14 1/9/14

Location: Leg 4, 30' up from bottom along leg Rating Factors: All Rating Factors to be checked. Impact based upon average of Span 2 and Span 3 lengths Impact: 0.1804

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M2 Kip-

V3 5

5

OutputCase StepType Text

ext

Kip-f

End 410008 DEAD End 410008 H20 End 410008 H20																					
End 410008 H20 End 410008 H520		1-	-1220.86	4.499	0.236	0	-7.1255	-31.453													
End 410008 HS20			-67.163	-19.989	-0.062	0	1.8756	604.6718													
	Max	-1-	-120.621	-35.569	-0.111	0	3.3664	1075.954													
End 410008 HSLaneNegM	egM Max	-2	-261.824	-44.678	-0.266	0	8.0734	1351.501													
End 410008 HSLanePosM	osM Max	-2	-231.561	-35.904	-0.238	0	7.229	1086.108													
End 410008 HSLaneShear	near Max	-2	-236.272	-38.004	-0.251	0	7.5966	1149.609													
End 410008 ML80	Max	4	-126.704	-37.658	-0.117	0	3.5335	1139.165													
End 410008 TK527	Max	1	-137,963	-40.559	-0.127	0	3.8516	3.8516 1226.924													
	L										All R	All Rating Factors	s								
OutputCase	tCase Mu		Mo	MP	Mot	Miltei	V.	Vot	VLL++	P.	P。	۴	Pot	P _{LL+1}	OR1	OR2	OR ₃	OR.ª	ORs	OR	OR ₇
Text	xt Kip-ft		Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip							
End 410008 DEAD	11314.28		10618.10 14	14391.50	31.45	n/a	360.58	4.50	n/a	4173.76	127621.80	5631.35	1220.86	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
End 410008 H20	11314.28		10618.10 14	14391.50	31.45	713.75	360.58	4.50	23.59	4173.76	4173.76 127621.80	5631.35	1220.86	79.28	12.15	11.56	14.83	10.07	25.10	5.77	8.64
End 410008 HS20	11314	11314.28 106	10618.10 14	14391.50	31.45	1270.05	360.58	4.50	41.99	4173.76	4173.76 127621.80	5631.35	1220.86	142.38	6.83	6.50	8.34	5.66	13.97	3.24	4.85
End 410008 HSLaneNegM	egM 11314.28		10618.10 14	14391.50	31.45	1595.31	360.58	4.50	52.74	4173.76	127621.80	5631.35	1220.86	309.06	5.44	5.17	6.64	4.51	6.44	2.20	3.32
End 410008 HSLanePosM	osM 11314.28		10618.10 14	14391.50	31.45	1282.04	360.58	4.50	42.38	4173.76	127621.80	5631.35	1220.86	273.33	6.76	6.44	8.26	5.61	7.28	2.65	4.00
End 410008 HSLaneShear	near 11314.28	-	10618.10 14	14391.50	31.45	1356.99	360.58	4.50	44.86	4173.76	4173.76 127621.80	5631.35	1220.86	278.89	6:39	6.08	7.80	5.30	7.13	2.54	3.83
End 410008 ML80	1131	11314.28 106	10618.10 14	14391.50	31.45	1344.67	360.58	4.50	44.45	4173.76	4173.76 127621.80	5631.35	1220.86	149.56	6.45	6.14	7.87	5.35	13.30	3.06	4.59
End 410008 TK527	11314.28		10618.10 14	14391.50	31.45	1448.26	360.58	4.50	47.88	4173.76	4173.76 127621.80	5631.35	1220.86	162.85	5.99	5.70	7.31	4.96	12.22	2.84	4.25

115.48 116.57 44.08 53.01

Tons

113.51

50.75

Client: Cit	Project: For	Detail: Co	
CDM			

lient. City of Pittsburgh oject: Forbes Ave over Fern Hollow Petali: Column Rating, Leg 4, 14 'up from bot By: Pt. M. 1/9/14 Chic. D.J-U. 1//9/14 Location: Leg 4, 14' up from bottom along leg Rating Factors: All Rating Factors to be checked. Impact based upon average of Span 2 and Span 3 lengths Impact: 0.1804

	OutputCase	StepType	Р	72	CA3	T	M2	M3		
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft		
End 410004 DEAD	DEAD		-1228.03	0.673	0.236	0	-3.2192	9.7138		
End 410004 H20	H20		-67.163	-19.989	-0.062	0	0.8474	273.1851		
End 410004 HS20	HS20	Max	-120.621	-35.569	-0.111	0	1.5209	486.1061		
End 410004	End 410004 HSLaneNegM	Max	-261.824	-44.678	-0.266	0	3.6678	610.5956		
End 410004	End 410004 HSLanePosM	Max	-231.561	-35.904	-0.238	0	3.2864	490.6933		
End 410004	End 410004 HSLaneShear	Max	-236.272	-38.004	-0.251	0	3.4524	519.3823		
End 410004 ML80	ML80	Max	-126.704	-37.658	-0.117	0	1.5964	514.664		
End 410004	TK527	Max	-137.963	-40.559	-0.127	0	1.7401	554.3127		
	OutputCase	Mu	M。	Mp	Mol	MLLH	٧	Vol	VILM	"

1											All R	All Rating Factors	s									
	OutputCase	Mu	M。	Mp	Mot	Mu+	٧,	Vot	VILH	"d	ď	Å	Por	Put+	OR1	OR ₂	OR ₃	OR4	OR5	OR6	OR ₇	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip								
End 410004	DEAD	10089.96	8387.98	11221.01	9.71	n/a	118.74	0.67	n/a	3865.42	84155.11	5027.14	1228.03	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
End 410004	H20	10089.96	8387.98	11221.01	9.71	322.47	118.74	0.67	23.59	3865.42	84155.11	5027.14	1228.03	79.28	24.04	3.84	25.98	6.74	22.02	8.59	11.78	76.85
End 410004	HS20	10089.96	8387.98	11221.01	9.71	573.80	118.74	0.67	41.99	3865.42	84155.11	5027.14	1228.03	142.38	13.51	2.16	14.60	3.79	12.26	4.81	6.60	77.74
End 410004	HSLaneNegM	10089.96	8387.98	11221.01	9.71	720.75	118.74	0.67	52.74	3865.42	84155.11	5027.14	1228.03	309.06	10.76	1.72	11.62	3.02	5.65	2.98	4.17	34.38
End 410004	HSLanePosM	10089.96	8387.98	11221.01	9.71	579.21	118.74	0.67	42.38	3865,42	84155.11	5027.14	1228.03	273.33	13.38	2.14	14.46	3.75	6:39	3.52	4.94	42.79
End 410004	HSLaneShear	10089.96	8387.98	11221.01	9.71	613.08	118.74	0.67	44.86	3865.42	84155.11	5027.14	1228.03	278.89	12.64	2.02	13.67	3.55	6.26	3.39	4.76	40.42
End 410004	ML80	10089.96	8387.98	11221.01	9.71	607.51	118.74	0.67	44.45	3865.42	84155.11	5027.14	1228.03	149.56	12.76	2.04	13.79	3.58	11.67	4.56	6.25	74.73
End 410004	TK527	10089.96	8387.98	11221.01	9.71	654.31	118.74	0.67	47.88	3865.42	84155.11	5027.14	1228.03	162.85	11.85	1.89	12.80	3.32	10.72	4.21	5.78	75.75

Smith

Client: City of Pittsburgh Project: <u>Forbes Ave over Fern Hollow</u> Detail: <u>Column Rating, Leg 4 at thrust block</u>

BV: R.M. 1/9/14 Chk: D.J.L. 1/10/14

Location: Leg 4 at Thrust Block Rating Factors: Only Axial and Shear Ratings need to be checked Impact: 0.1804

	OutputCase	StepType	٩	V2	ß	T	M2	M3
	Text	Text	Kip	Kip	Kip	Kip-ft	Kip-ft	Kip-ft
Begin 410001	DEAD		-1233.195	-2.081	0.236	0	0	0
Begin 410001	HZO		-67.163	-19.989	-0.062	0	0	0
Begin 410001	HS20	Max	-120.621	-35.569	-0.111	0	0	0
Begin 410001	HSLaneNegM	Max	-261.824	-44.678	-0.266	0	0	0
Begin 410001	HSLanePosM	Max	-231.561	-35.904	-0.238	0	0	0
Begin 410001	HSLaneShear	Max	-236.272	-38.004	-0.251	0	0	0
Begin 410001	ML80	Max	-126.704	-37.658	-0.117	0	0	0
Begin 410001	TK527	Max	-137.963	-40.559	-0.127	0	0	0

									OR2, OR5	Rs							
	OutputCase	Mu	Mo	Mp	Mpt	ML+I	۸	Vol	V _{IL+I}	P.	٩	P	Pol	PLL+I	OR2	OR5	Tons
	Text	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip-ft	Kip	Kip	Kip	Kip	Kip	Kip	Kip	Kip			
Begin 410001	DEAD	7961.11	6368.89	8570.01	0.00	n/a	153.43	2.08	n/a	3777.50	50248.93	4865.91	1233.20	n/a	n/a	n/a	
Begin 410001	H20	7961.11	6368.89	8570.01	0.00	0.00	153.43	2.08	23.59	3777.50	50248.93	4865.91	1233.20	79.28	4.91	21.10	98.27
Begin 410001	HS20	7961.11	6368.89	8570.01	0.00	0.00	153.43	2.08	41.99	3777.50	50248.93	4865.91	1233.20	142.38	2.76	11.75	99.41
Begin 410001	HSLaneNegM	7961.11	6368.89	8570.01	0.00	0.00	153.43	2.08	52.74	3777.50	50248.93	4865.91	1233.20	309.06	2.20	5.41	43.97
Begin 410001	HSLanePosM	7961.11	6368.89	8570.01	0.00	0.00	153.43	2.08	42.38	3777.50	50248.93	4865.91	1233.20	273.33	2.74	6.12	54.71
Begin 410001	HSLaneShear	7961.11	6368.89	8570.01	0.00	0.00	153.43	2.08	44.86	3777.50	50248.93	4865.91	1233.20	278.89	2.58	6.00	51.69
Begin 410001	ML80	7961.11	6368.89	8570.01	0.00	0.00	153.43	2.08	44.45	3777.50	50248.93	4865.91	1233.20	149.56	2.61	11.18	95.56
Beein 410001	TK527	7961.11	6368.89	8570.01	0.00	0.00	153.43	2.08	47.88	3777.50	50248.93	4865.91	1233.20	162.85	2.42	10.27	96.87