

## LEVEL 2 LOAD RATING (VIRTIS)

MILEPOST: 278.93

BIN: 5510090

REGION: 3

COUNTY: 3 - ONONDAGA

FEATURE CARRIED: EXIT 35 RAMP

FEATURE CROSSED: 90IX

### LEVEL 2 LOAD RATING REVIEW

VIRTIS RUN DATE: 8/24/2016

CHANGES TO INPUT DATA: No changes to the VIRTIS model.

LOADING	INVENTORY RATING (TONS)	OPERATING RATING (TONS)
HS-20	36.4 (HS-20)	60.8 (HS-33)
H-20	24.9 (H-24)	41.7 (H-41)

\* ANALYSIS METHOD: LOAD FACTOR

\*\* Truck loading controls the H20 & HS20 rating.

### CONTROLLING MEMBER FOR RATING

LOCATION: SPAN 1

COMPONENT: INTERIOR GIRDERS G3 - G4

FAILURE TYPE: STEEL SERVICEABILITY AT MIDSPAN

EFFECTIVE SPAN LENGTH: 37'

H EQUIVALENT OF LEGAL LOAD H23

PRIMARY MEMBER RATING: 5

SAFE LOAD CAPACITY: H35

SLC COMPUTATION USED (IN BOLD)				
0.60 HOR	0.70 HOR	0.80 HOR	<b>0.85 HOR</b>	HOR

ACTION TAKEN: NONE REQUIRED X

RECOMMEND LEVEL 1

UNRATABLE

COMPLETED BY

REVIEWED BY

KENNETH SWEENEY

AMODH NIRALA

PE # 086434

LOAD RATING ENGINEER



## Bridge

Bridge Id: 5510090

Description: Original analysis by Hardesty & Hanover, LLP - 4/2004. Reviewed by Clark Patterson Associates - 4/2004. Reviewed by DiDonato Associates - 6/2006, 11/2008, 11/2010. Reviewed by CHA - 1/2013, 6/2014. Reviewed by WSA Group PE-PC - 8/2016 Original construction - Contract OT 53-8. Concrete overlay = 4.0 inches Asphalt overlay = 4.0 inches. Bridge oriented north. 2008 Notes: - Corrected railing type and load. - Corrected asphalt/concrete combo wearing surface density. - Created double w-section median rail. - Self load for diaphragms corrected. 2010 Notes: - Additional 0.5" asphalt wearing surface added per 2010 inspection. - Section loss (per 2010 inspection) added to fascia girder bottom flanges, all spans, near midspan. 10% avg. loss entered. 2013 Notes: - Steel repairs completed under contract TAS 11-44B. - Concrete strength revised based on year built. - Railing loads revised. Median rail width revised. - Span 4 length corrected. - Typical section adjusted to account for sidewalk overhang. - Sidewalk thickness revised, weighted average used. - Separate lane positions on either side of the median merged to place wearing surface load under median rail. - Wearing surface unit weight revised. - Stage 2 loads changed to uniformly dist. in Spans 2 & 3. - Diaphragm connection plates added as partial height stiffeners. - Member load created for additional deck concrete along sidewalk keyway. - G2 shear dist. at supports revised. - Fascia girder haunches revised. 2014 Notes: - Rating engine changed to AASHTO LFD. - Span 2 & 3 additional self load revised. - Composite deck thickness revised for interior girders in Spans 2 & 3 due to spalling.\*\*\* - G1 overhang spalling ignored, offset by sidewalk keyway. - Web section loss added to fascia girders at piers along with points of interest.\*\*\* \*\* See member alt. description for more info. 2016 Notes: - No changes to the model.

Facility Carried: Exit 35 Ramp

Feature Intersected: 90 IX

Structure Number: 5510090

Location: DeWitt

Length: 199.75

ft

Route Number:

System Of Units: US Customary

Year Built: 1954

Name: MP 278.93 - Exit 35 Ramp over 90 IX

District:

County:



# **LOAD RATING SUMMARY**



# Member Rating Results

System of Units

☒ US Customary ☐ SI / Metric

Lane/Impact Loading Type

☒ As Requested ☐ Detailed

Display Format

☐ Multiple rating levels per row

Bridge Id	Structure	Member	Vehicle	Inventory Rating Factor	Operating Rating Factor	Legal Operating Rating Factor	Permit Inventory Rating Factor	Permit Operating Rating Factor	Permit Rating Factor	Inventory Capacity (Ton)	Operating Capacity (Ton)	Legal Operating Capacity (Ton)	Legal Capacity (Ton)	Permit Inventory Capacity	Permit Operating Capacity	Permit Capacity (Ton)	Inventory Location (ft)	Operating Location (ft)
5510090	Span 1	G1	H 20-44	1.751	2.924					35.02	58.49						18.63	18.63
5510090	Span 1	G2	H 20-44	1.258	2.101					25.16	42.01						18.63	18.63
5510090	Span 1	G3	H 20-44	1.249	2.086					24.98	41.71						18.63	18.63
5510090	Span 2	G1	H 20-44	1.844	3.079					36.88	61.59						28.88	28.88
5510090	Span 2	G2	H 20-44	2.106	3.517					42.12	70.35						28.88	28.88
5510090	Span 2	G3	H 20-44	2.131	3.559					42.63	71.19						28.88	28.88
5510090	Span 3	G1	H 20-44	1.691	2.823					33.81	56.46						32.38	32.38
5510090	Span 3	G2	H 20-44	1.537	2.566					30.73	51.32						32.38	32.38
5510090	Span 3	G3	H 20-44	2.225	3.715					44.49	74.30						32.38	32.38
5510090	Span 3	G6	H 20-44	1.691	2.823					33.81	56.46						32.38	32.38
5510090	Span 4	G1	H 20-44	1.772	2.960					35.45	59.20						18.50	18.50
5510090	Span 4	G2	H 20-44	1.276	2.130					25.52	42.61						18.50	18.50
5510090	Span 4	G3	H 20-44	1.267	2.116					25.34	42.31						18.50	18.50
5510090	Span 1	G1	HS 20-44	1.412	2.358					50.84	84.90						22.35	22.35
5510090	Span 1	G2	HS 20-44	1.020	1.703					36.70	61.29						18.63	18.63
5510090	Span 1	G3	HS 20-44	1.012	1.690					36.44	60.86						18.63	18.63
5510090	Span 2	G1	HS 20-44	1.279	2.135					46.03	76.88						28.88	28.88
5510090	Span 2	G2	HS 20-44	1.461	2.439					52.58	87.81						28.88	28.88
5510090	Span 2	G3	HS 20-44	1.478	2.468					53.21	88.86						28.88	28.88
5510090	Span 3	G1	HS 20-44	1.197	1.998					43.08	71.94						32.38	32.38
5510090	Span 3	G2	HS 20-44	1.088	1.816					39.16	65.39						32.38	32.38
5510090	Span 3	G3	HS 20-44	1.575	2.630					56.69	94.66						32.38	32.38
5510090	Span 3	G6	HS 20-44	1.197	1.998					43.08	71.94						32.38	32.38
5510090	Span 4	G1	HS 20-44	1.433	2.393					51.59	86.16						14.80	14.80
5510090	Span 4	G2	HS 20-44	1.038	1.733					37.36	62.39						18.50	18.50
5510090	Span 4	G3	HS 20-44	1.031	1.721					37.10	61.95						18.50	18.50

☒ Show up-to-date results only

Print

Close



**Bridge Name:** MP 278.93 - Exit 35 Ramp over 90 IX

**NBI Structure ID:** 5510090

**Bridge ID:** 5510090

**Analyzed By:** BrR

**Analyze Date:** Wednesday, August 24, 2016 11:23:01

**Analysis Engine:** AASHTO LFR Engine Version 6.7.0.3001

**Analysis Preference Setting:** None

**Report By:** BrR

**Report Date:** Wednesday, August 24, 2016 11:23:18

**Structure Definition Name:** Span 1

**Member Name:** G3

**Member Alternative Name:** G-3

### Individual Vehicle Load Factor Rating Summary

Live Load	Vehicle Rating				Capacity		Location			
	Type	Factor	Controls	(Ton)	Span	(ft)	Percent	Impact	Lane	
H 20-44	Inventory	Lane	1.806	Service - Steel	36.11	1	18.63	50.0	As Requested	As Requested
H 20-44	Operating	Lane	3.015	Service - Steel	60.31	1	18.63	50.0	As Requested	As Requested
H 20-44	Inventory	Lane	1.806	Service - Steel	36.11	1	18.63	50.0	With Impact	Single Lane
H 20-44	Operating	Lane	3.015	Service - Steel	60.31	1	18.63	50.0	With Impact	Single Lane
H 20-44	Inventory	Lane	1.419	Service - Steel	28.37	1	18.63	50.0	With Impact	Multi-Lane
H 20-44	Operating	Lane	2.369	Service - Steel	47.38	1	18.63	50.0	With Impact	Multi-Lane
H 20-44	Inventory	Lane	2.347	Service - Steel	46.94	1	18.63	50.0	Without Impact	Single Lane
H 20-44	Operating	Lane	3.920	Service - Steel	78.40	1	18.63	50.0	Without Impact	Single Lane
H 20-44	Inventory	Lane	1.844	Service - Steel	36.89	1	18.63	50.0	Without Impact	Multi-Lane
H 20-44	Operating	Lane	3.080	Service - Steel	61.60	1	18.63	50.0	Without Impact	Multi-Lane
H 20-44	Inventory	Axle Load	1.590	Service - Steel	31.79	1	18.63	50.0	As Requested	As Requested
H 20-44	Operating	Axle Load	2.655	Service - Steel	53.09	1	18.63	50.0	As Requested	As Requested
	Inventory		1.590		31.79	1	18.63	50.0		



H 20-44		Axle Load		Service - Steel					With Impact	Single Lane
H 20-44	Operating	Axle Load	2.655	Service - Steel	53.09	1	18.63	50.0	With Impact	Single Lane
H 20-44	Inventory	Axle Load	1.249	Service - Steel	24.98	1	18.63	50.0	With Impact	Multi-Lane
H 20-44	Operating	Axle Load	2.086	Service - Steel	41.71	1	18.63	50.0	With Impact	Multi-Lane
H 20-44	Inventory	Axle Load	2.066	Service - Steel	41.33	1	18.63	50.0	Without Impact	Single Lane
H 20-44	Operating	Axle Load	3.451	Service - Steel	69.02	1	18.63	50.0	Without Impact	Single Lane
H 20-44	Inventory	Axle Load	1.624	Service - Steel	32.47	1	18.63	50.0	Without Impact	Multi-Lane
H 20-44	Operating	Axle Load	2.711	Service - Steel	54.23	1	18.63	50.0	Without Impact	Multi-Lane

Note:

"N/A" indicates not applicable

\*\*\* indicates not available

### Individual Vehicle Load Factor Rating Summary

		Vehicle Rating			Capacity		Location			
Live Load		Type	Factor	Controls	(Ton)	Span	(ft)	Percent	Impact	Lane
HS 20-44	Inventory	Lane	1.806	Service - Steel	65.00	1	18.63	50.0	As Requested	As Requested
HS 20-44	Operating	Lane	3.015	Service - Steel	108.55	1	18.63	50.0	As Requested	As Requested
HS 20-44	Inventory	Lane	1.806	Service - Steel	65.00	1	18.63	50.0	With Impact	Single Lane
HS 20-44	Operating	Lane	3.015	Service - Steel	108.55	1	18.63	50.0	With Impact	Single Lane
HS 20-44	Inventory	Lane	1.419	Service - Steel	51.07	1	18.63	50.0	With Impact	Multi-Lane
HS 20-44	Operating	Lane	2.369	Service - Steel	85.29	1	18.63	50.0	With Impact	Multi-Lane
HS 20-44	Inventory	Lane	2.347	Service - Steel	84.50	1	18.63	50.0	Without Impact	Single Lane



HS 20- 44	Operating	Lane	3.920	Service - Steel	141.12	1	18.63	50.0	Without Impact	Single Lane
HS 20- 44	Inventory	Lane	1.844	Service - Steel	66.39	1	18.63	50.0	Without Impact	Multi- Lane
HS 20- 44	Operating	Lane	3.080	Service - Steel	110.88	1	18.63	50.0	Without Impact	Multi- Lane
HS 20- 44	Inventory	Axle Load	1.288	Service - Steel	46.38	1	18.63	50.0	As Requested	As Requested
HS 20- 44	Operating	Axle Load	2.151	Service - Steel	77.45	1	18.63	50.0	As Requested	As Requested
HS 20- 44	Inventory	Axle Load	1.288	Service - Steel	46.38	1	18.63	50.0	With Impact	Single Lane
HS 20- 44	Operating	Axle Load	2.151	Service - Steel	77.45	1	18.63	50.0	With Impact	Single Lane
HS 20- 44	Inventory	Axle Load	1.012	Service - Steel	36.44	1	18.63	50.0	With Impact	Multi- Lane
HS 20- 44	Operating	Axle Load	1.690	Service - Steel	60.86	1	18.63	50.0	With Impact	Multi- Lane
HS 20- 44	Inventory	Axle Load	1.675	Service - Steel	60.29	1	18.63	50.0	Without Impact	Single Lane
HS 20- 44	Operating	Axle Load	2.797	Service - Steel	100.69	1	18.63	50.0	Without Impact	Single Lane
HS 20- 44	Inventory	Axle Load	1.316	Service - Steel	47.37	1	18.63	50.0	Without Impact	Multi- Lane
HS 20- 44	Operating	Axle Load	2.198	Service - Steel	79.11	1	18.63	50.0	Without Impact	Multi- Lane

Note:

"N/A" indicates not applicable

\*\*\* indicates not available



# **SCHEMATIC DRAWINGS**

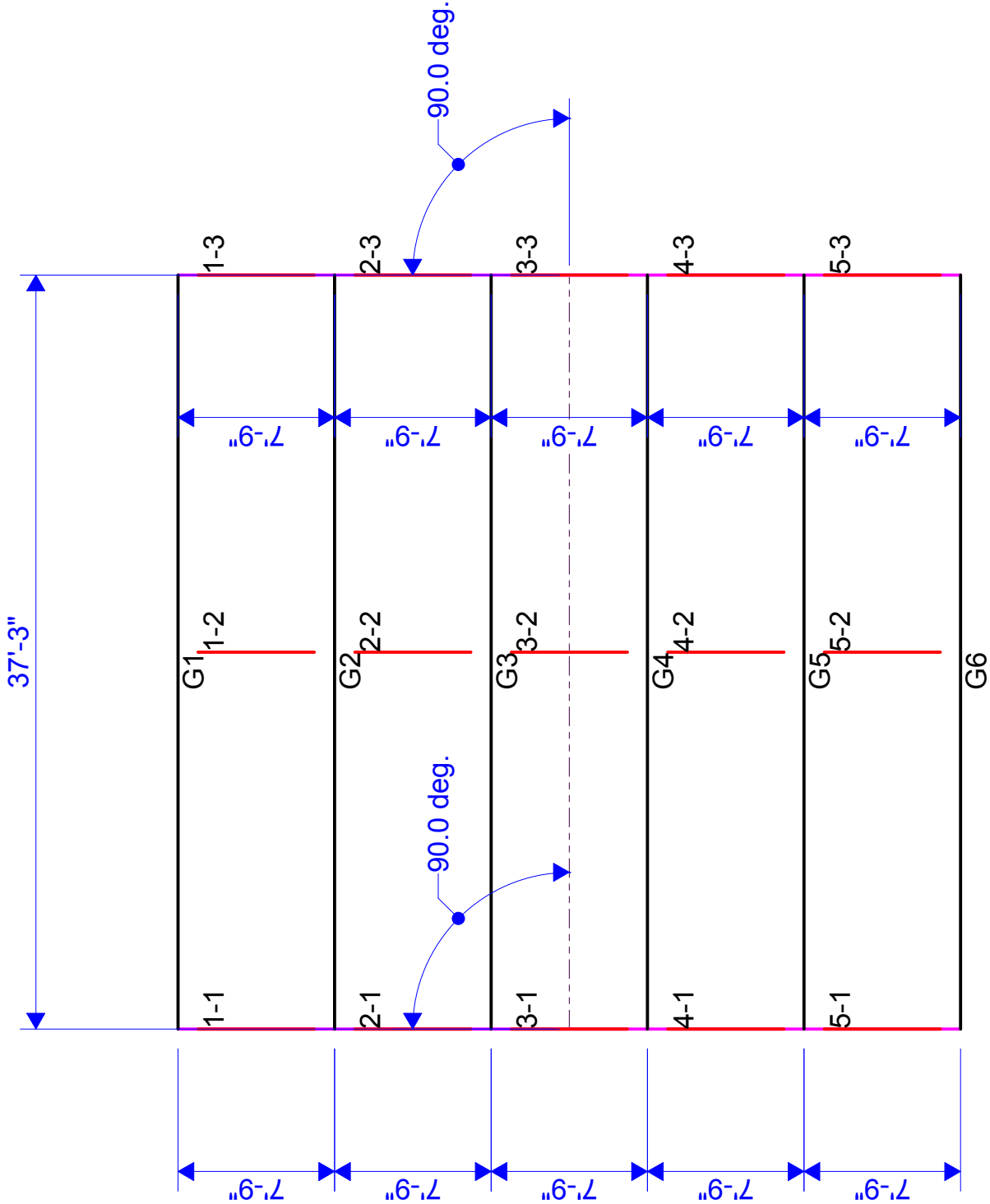


5510090

MP 278.93 - Exit 35 Ramp over 90 IX - Span 1

Exit 35 Ramp / 90 IX

08/23/16



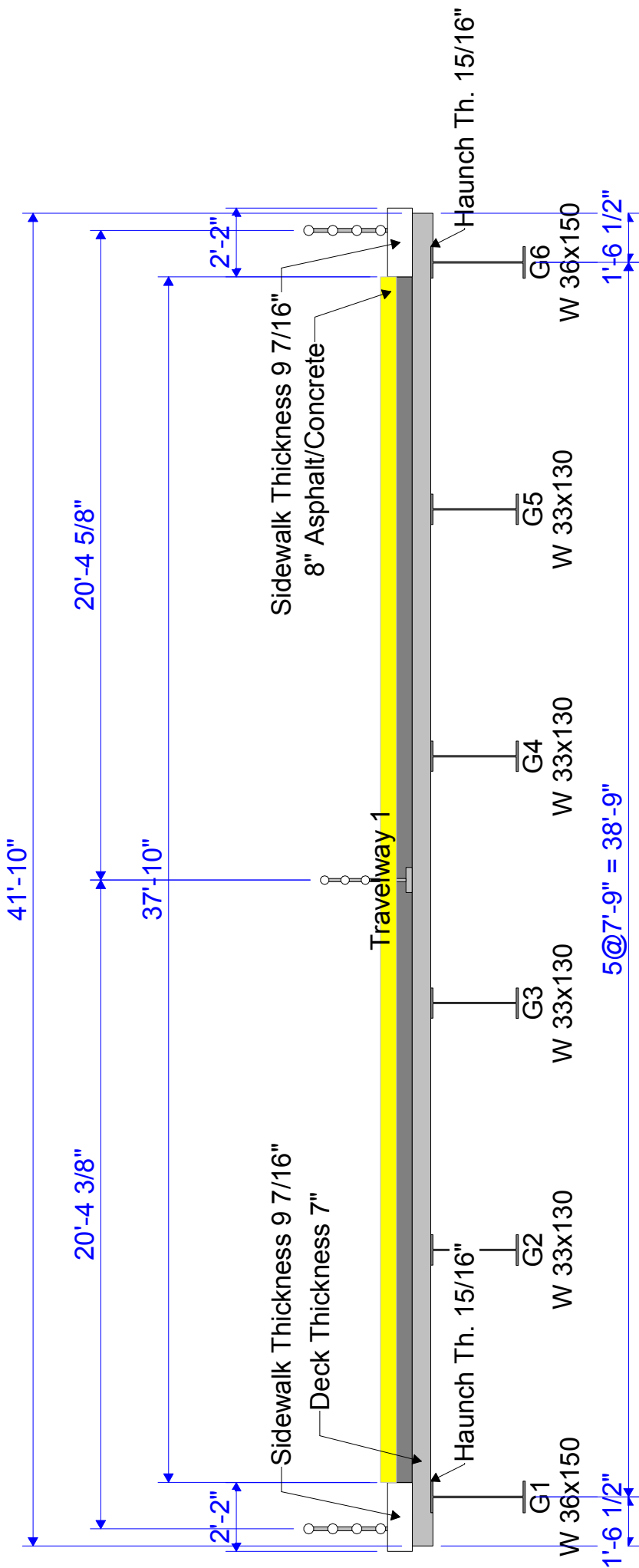


5510090

MP 278.93 - Exit 35 Ramp over 90 IX - Span 1

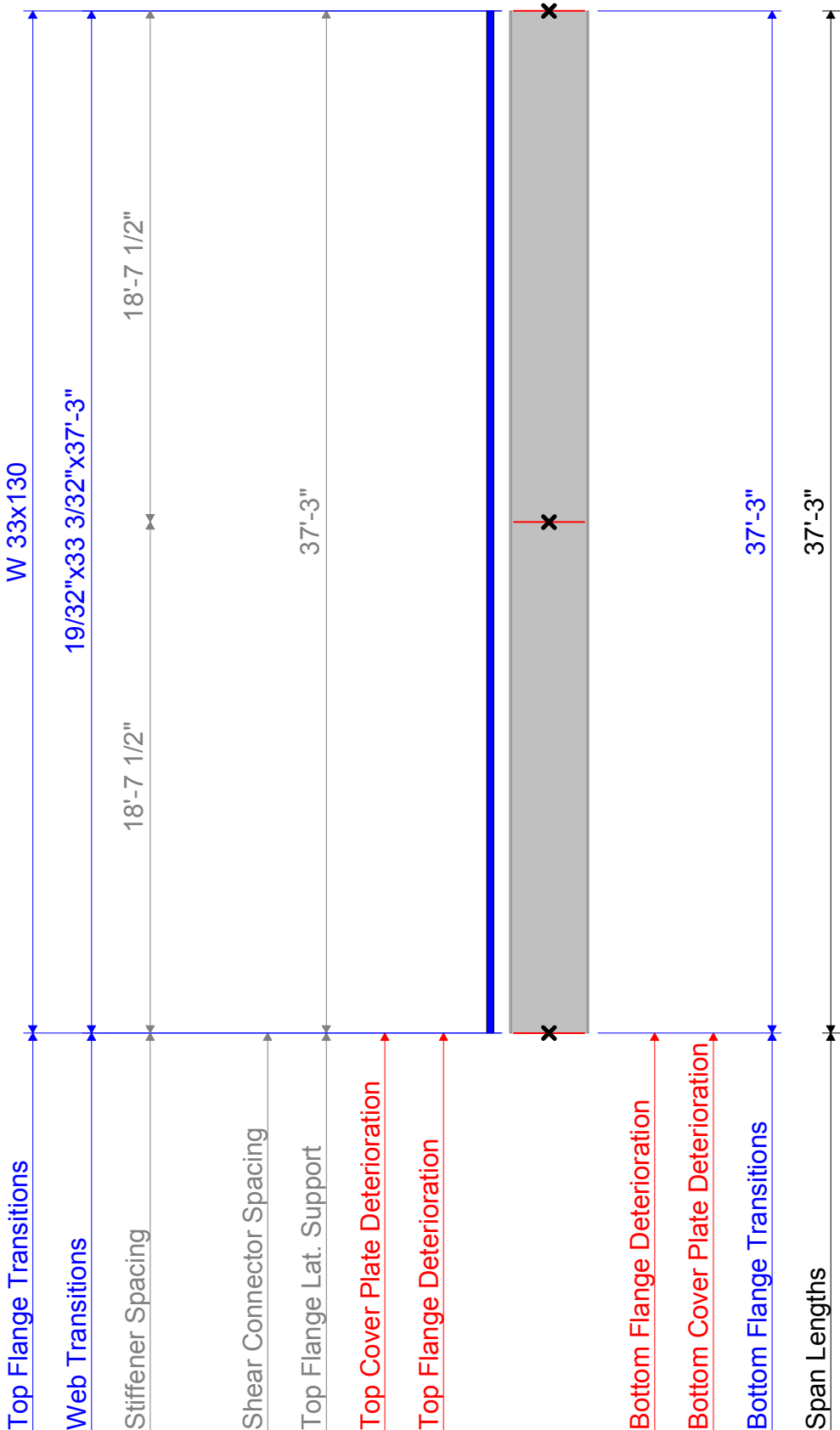
Exit 35 Ramp / 90 IX

08/23/16





5510090  
MP 278.93 - Exit 35 Ramp over 90 IX - Span 1 - G3  
Exit 35 Ramp / 90 IX  
08/23/16



- Notes:
- \* All flange length dimensions are horiz. (length along flange may differ).
  - \* Transverse stiffener pairs shown in red.
  - \* Single transverse stiffener shown in blue.
  - \* Bearing stiffeners shown in green.
  - \* Dimensioning starts and ends at CL bearings.
  - \* X denotes cross frame locations.

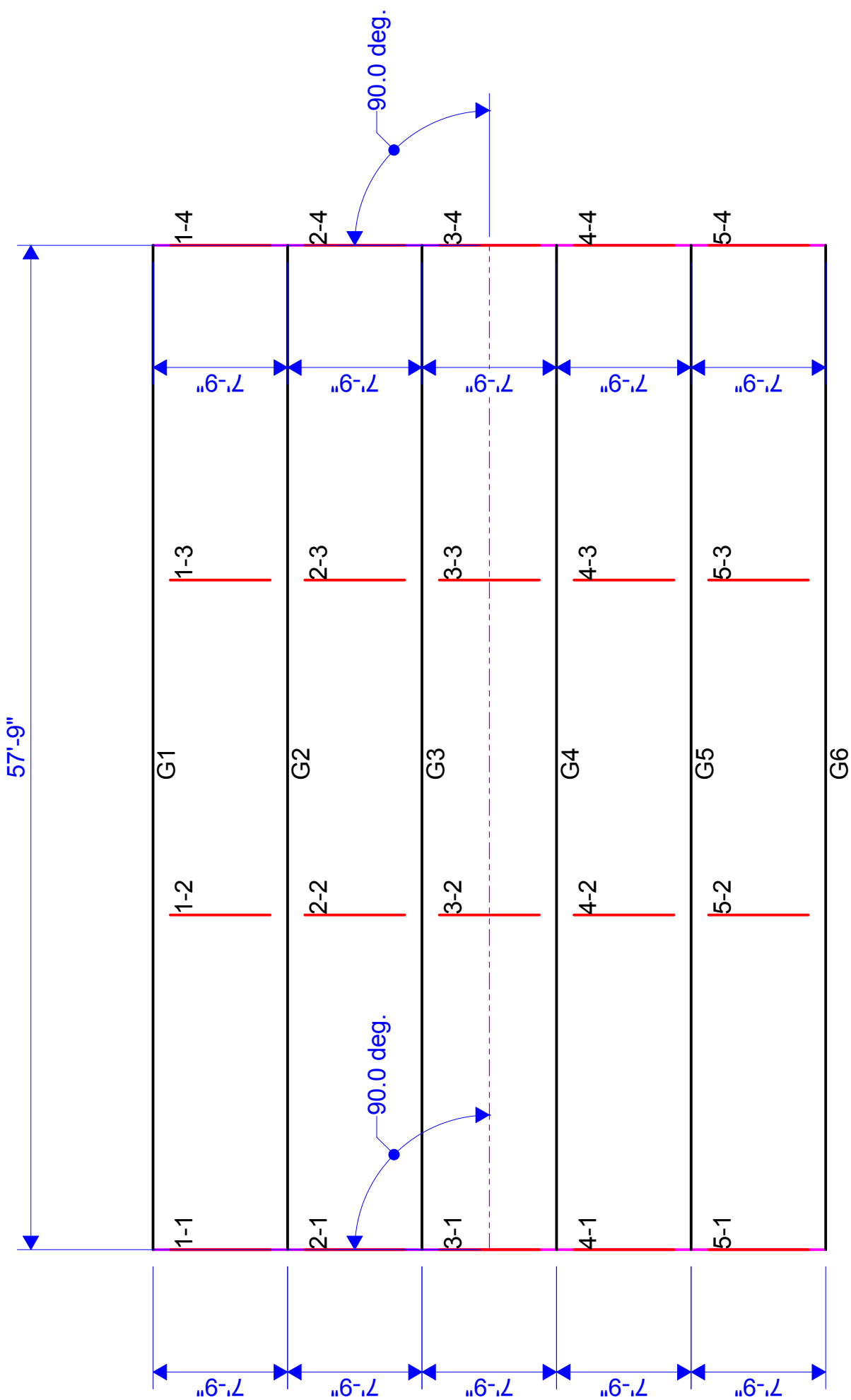


5510090

MP 278.93 - Exit 35 Ramp over 90 IX - Span 2

Exit 35 Ramp / 90 IX

08/23/16



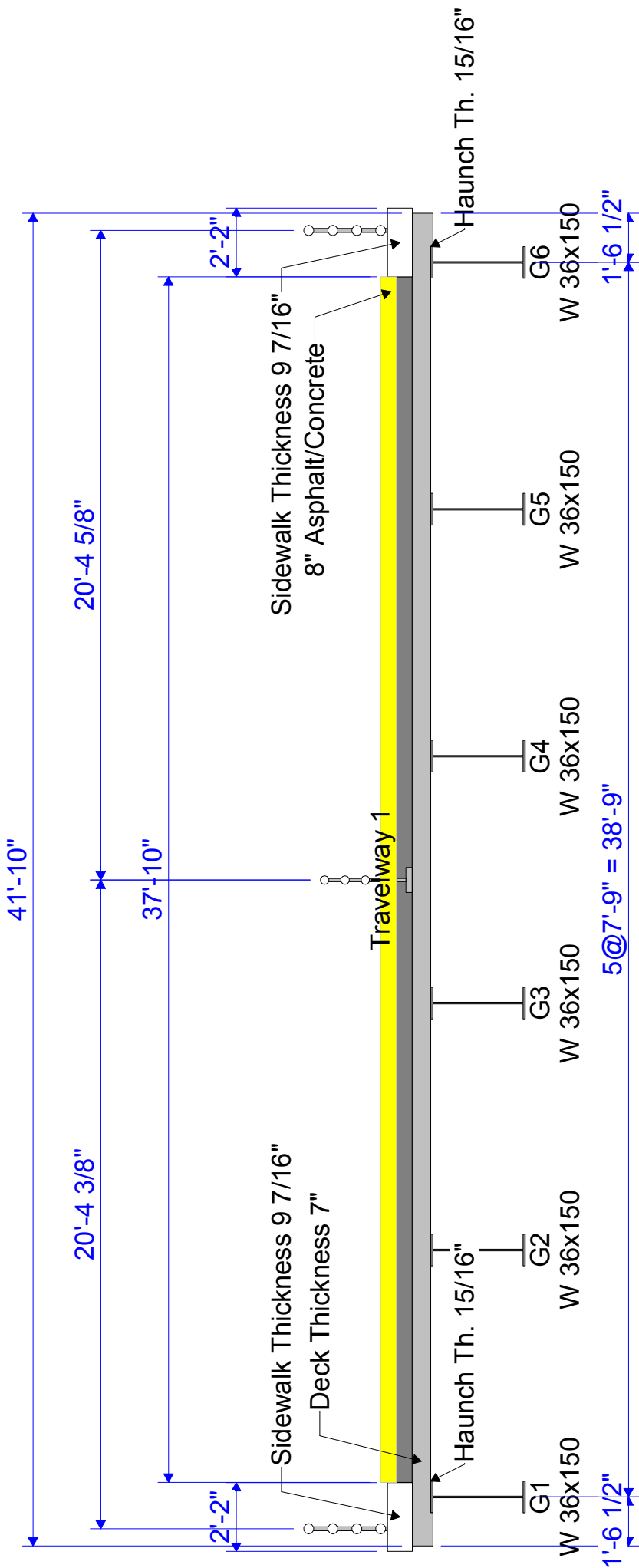


5510090

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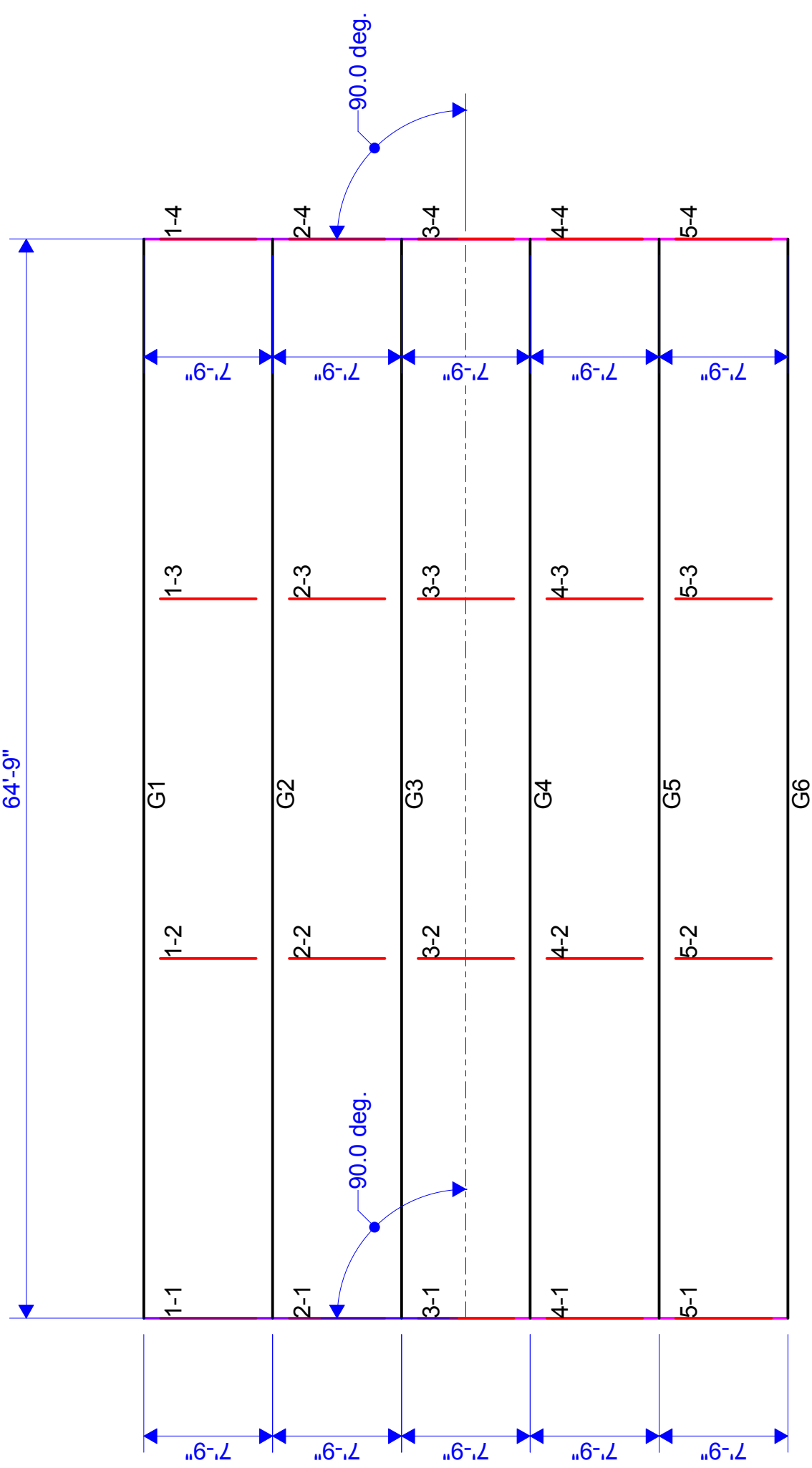
Exit 35 Ramp / 90 IX

08/23/16



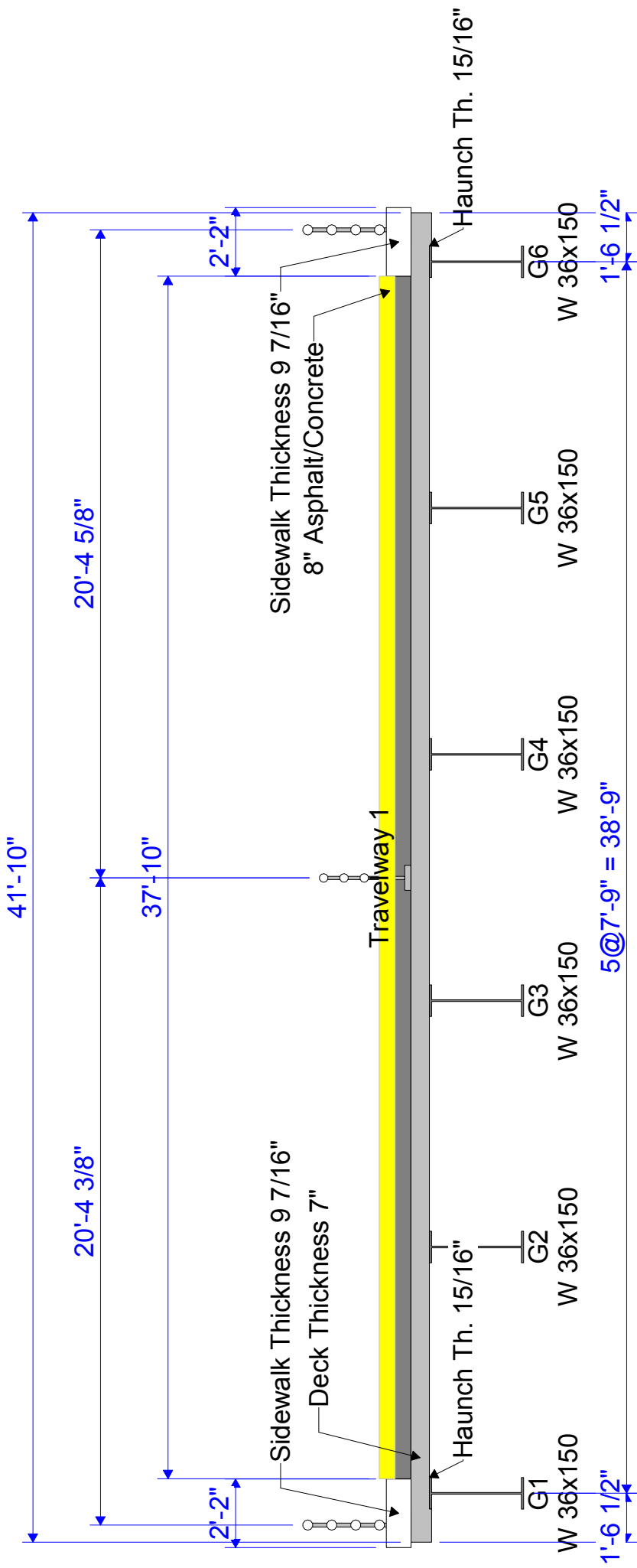


5510090  
MP 278.93 - Exit 35 Ramp over 90 IX - Span 3  
Exit 35 Ramp / 90 IX  
08/23/16





5510090  
MP 278.93 - Exit 35 Ramp over 90 IX - Span 3  
Exit 35 Ramp / 90 IX  
08/23/16



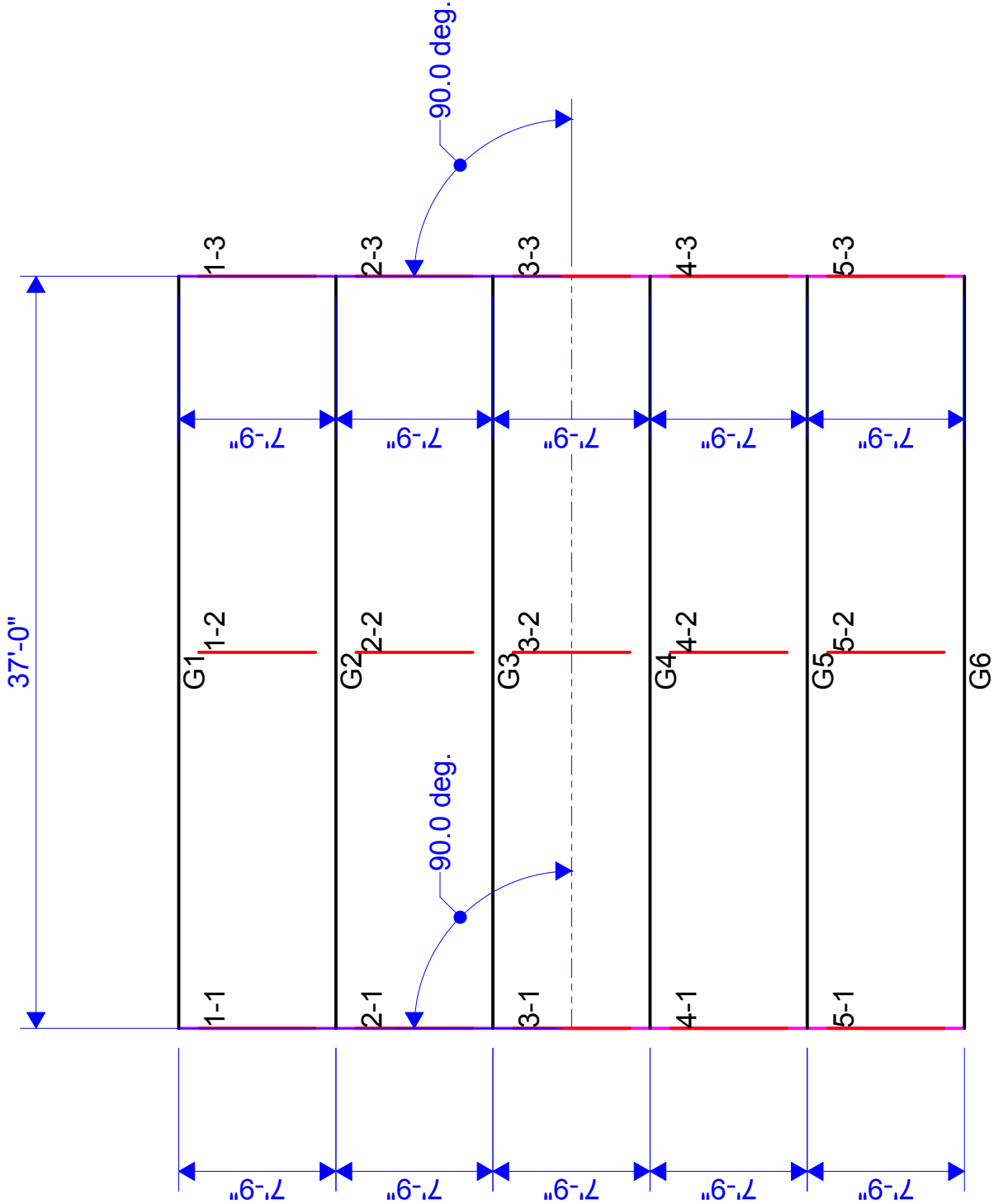


5510090

MP 278.93 - Exit 35 Ramp over 90 IX - Span 4

Exit 35 Ramp / 90 IX

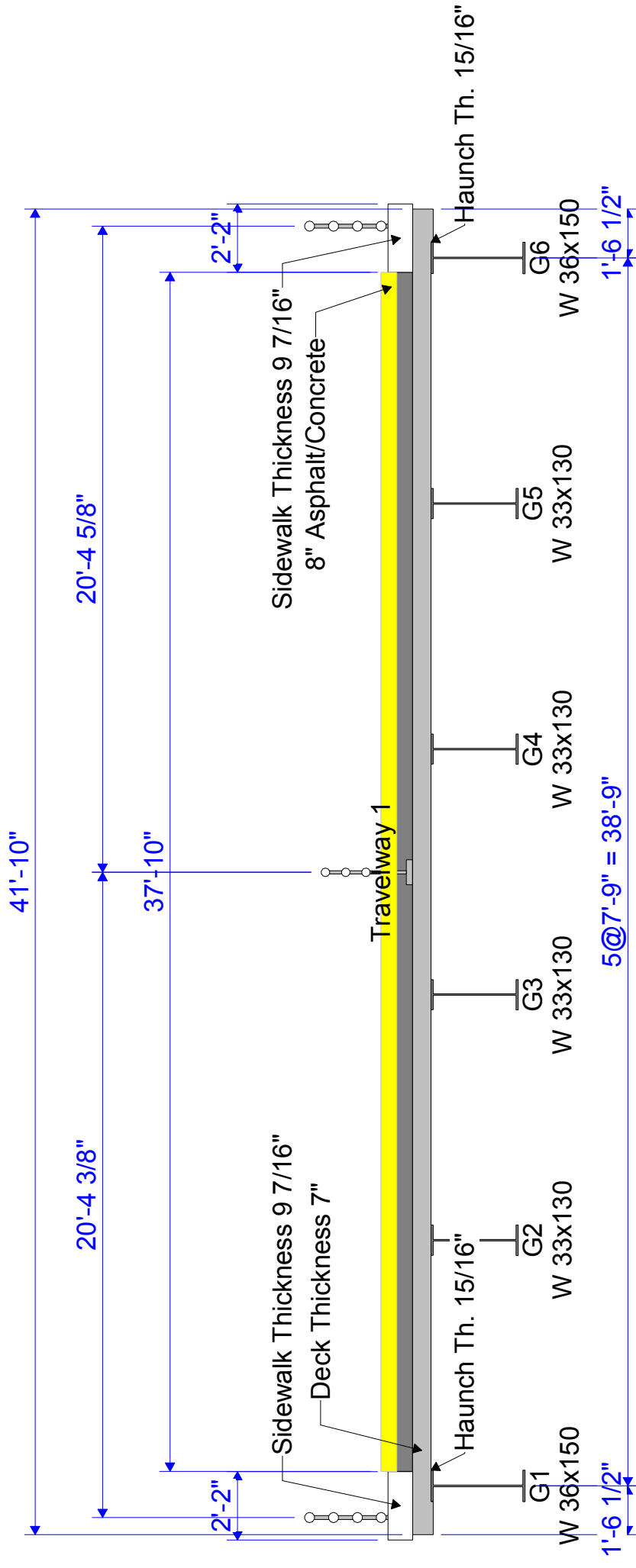
08/23/16





MP 278.93 - Exit 35 Ramp over 90 IX - Span 4

08/23/16





**VIRTIS INPUT**



Username: BrR

Date: Wednesday, August 24, 2016 11:24:39

**Bridge ID 5510090 MP 278.93 - Exit 35 Ramp over 90 IX**

NBI Structure ID (8): 5510090

Description: Original analysis by Hardesty & Hanover, LLP - 4/2004.

Reviewed by Clark Patterson Associates - 4/2004.

Reviewed by DiDonato Associates - 6/2006, 11/2008, 11/2010.

Reviewed by CHA - 1/2013, 6/2014.

Reviewed by WSA Group PE-PC - 8/2016

Original construction - Contract OT 53-8.

Concrete overlay = 4.0 inches

Asphalt overlay = 4.0 inches.

Bridge oriented north.

2008 Notes:

- Corrected railing type and load.
- Corrected asphalt/concrete combo wearing surface density.
- Created double w-section median rail.
- Self load for diaphragms corrected.

2010 Notes:

- Additional 0.5" asphalt wearing surface added per 2010 inspection.
- Section loss (per 2010 inspection) added to fascia girder bottom flanges, all spans, near midspan. 10% avg. loss entered.

2013 Notes:

- Steel repairs completed under contract TAS 11-44B.
- Concrete strength revised based on year built.
- Railing loads revised. Median rail width revised.
- Span 4 length corrected.
- Typical section adjusted to account for sidewalk overhang.
- Sidewalk thickness revised, weighted average used.
- Separate lane positions on either side of the median merged to place wearing surface load under median rail.
- Wearing surface unit weight revised.
- Stage 2 loads changed to uniformly dist. in Spans 2 & 3.
- Diaphragm connection plates added as partial height stiffeners.
- Member load created for additional deck concrete along sidewalk keyway.
- G2 shear dist. at supports revised.
- Fascia girder haunches revised.

2014 Notes:

- Rating engine changed to AASHTO LFD.
- Span 2 & 3 additional self load revised.
- Composite deck thickness revised for interior girders in Spans 2 & 3 due to spalling.\*\*\*
- G1 overhang spalling ignored, offset by sidewalk keyway.
- Web section loss added to fascia girders at piers along with points of interest.\*\*\*

\*\*\* See member alt. description for more info.

2016 Notes:

- No changes to the model.

### Description

Location: DeWitt  
Total Length: 199.75 *(ft)*  
Facility Carried: Exit 35 Ramp  
Route Number:  
Feature Intersected: 90 IX  
Mi Post: 278.93 *(mi)*  
Units: US Customary  
Year Built: 1954  
Recent ADTT: 0

District:

County:

Owner:

National Highway System:

Functional Class:

### Global Reference Point

X Coordinate: 0.000 *(ft)*  
Y Coordinate: 0.000 *(ft)*  
Elevation: *(ft)*  
Longitude: *(Degrees)*  
Latitude: *(Degrees)*

### Materials

#### **Structural Steel**

Name: **ASTM A7**  
Description: **Fy = 33 ksi**  
Specified minimum yield strength (Fy): 33.000 *(ksi)*  
Specified minimum tensile strength (Fu): 60.000 *(ksi)*  
Coefficient of thermal expansion: *(1/F)*  
Density: 0.4900 *(kcf)*  
Modulus of elasticity (E): 29000.00 *(ksi)*

#### **Concrete**

Name: **Unknown strength concrete prior to 1959**  
Description: **f'c = 2500 psi**  
Specified compressive strength at 28 days (f'c): 2.500 *(ksi)*  
Initial specified compressive strength (f'ci): *(ksi)*  
Coefficient of thermal expansion: 0.0000060000 *(1/F)*  
Density (for dead loads): 0.150 *(kcf)*  
Density (for modulus of elasticity): 0.145 *(kcf)*  
Modulus of elasticity (Ec): 2880.95 *(ksi)*  
Poisson's ratio: 0.200  
Modulus of rupture: 0.379 *(ksi)*

Shear factor:	1.000
Composition of concrete:	Normal
Initial modulus of elasticity (Eci):	0.00 (ksi)

### Reinforcing Steel

Name:	<b>Grade 40</b>
Description:	40 ksi reinforcing steel
Specified yield strength (Fy):	40.000 (ksi)
Modulus of elasticity (Es):	29000.00 (ksi)
Ultimate strength (Fu):	70.000 (ksi)
Type:	Plain

No prestressing strand materials.

No timber materials.

### Beam Shapes

#### Steel Shapes

No steel angles.

No steel channels.

#### Steel I Shapes

Name:	<b>W 36x150</b>
Description:	W 36x150 from AISC 5th Edition Tables (1946-1962)
Depth (d):	35.8400 (in)
Flange width (bf):	11.9720 (in)
Flange thickness (tf):	0.9400 (in)
Web thickness (tw):	0.6250 (in)
k:	1.8125 (in)
k1:	(in)
Cross sectional area:	44.160 (in <sup>2</sup> )
Nominal load:	150.000 (lb/ft)
Ixx:	9012.100 (in <sup>4</sup> )
Iyy:	250.400 (in <sup>4</sup> )
Zx:	581.000 (in <sup>3</sup> )
Zy:	70.900 (in <sup>3</sup> )
Nominal Depth:	36.0000 (in)
Type:	W Shape
Name:	<b>W 33x130</b>
Description:	W 33x130 from AISC 5th Edition Tables (1946-1962)
Depth (d):	33.1000 (in)
Flange width (bf):	11.5100 (in)

Flange thickness (tf):	0.8550 (in)
Web thickness (tw):	0.5800 (in)
k:	1.6875 (in)
k1:	(in)
Cross sectional area:	38.260 (in <sup>2</sup> )
Nominal load:	130.000 (lb/ft)
Ixx:	6699.000 (in <sup>4</sup> )
Iyy:	201.400 (in <sup>4</sup> )
Zx:	467.000 (in <sup>3</sup> )
Zy:	59.500 (in <sup>3</sup> )
Nominal Depth:	130.0000 (in)
Type:	W Shape

No steel structural tee shapes.

### **Prestressed Shapes**

No prestressed shapes.

### **Timber Shapes**

No timber shapes.

### **Appurtenances**

No concrete railings.

#### **Railings**

Name: **4-Rail w/Thrie Beam**

Description:

Effective Wind Height: 39.0000 (in)

Railing Load: 0.065 (kip/ft)

Distance From Edge to Centroid: 5.0000 (in)

Width: 11.5000 (in)

Name: **Double W-Section Rail**

Description:

Effective Wind Height: 33.0000 (in)

Railing Load: 0.025 (kip/ft)

Distance From Edge to Centroid: 4.7500 (in)

Width: 9.5000 (in)

### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### **Factors**

No LFD Factors specified.

No LRFD Factors specified.

### **Bridge Alternatives Location 1**

#### *Reference Line*

Reference Line Length: (ft)  
Starting Station: (ft)  
Bearing: N 90° 0' 0.00" E

#### *Global Positioning*

Distance: 0.000 (ft)  
Offset: 0.000 (ft)  
Elevation: (ft)

#### **Structures**

Name: Span 1  
Description:

#### **Structure Alternatives**

Name: Inspection 2004  
Description:  
Superstructure Definition: Span 1

#### **Structures**

Name: Span 2  
Description:

#### **Structure Alternatives**

Name: Inspection 2004  
Description:  
Superstructure Definition: Span 2

#### **Structures**

Name: Span 3  
Description:

#### **Structure Alternatives**

Name: Inspection 2004  
Description:  
Superstructure Definition: Span 3

## Structures

Name: Span 4

Description:

### Structure Alternatives

Name: Span 4 (2006)

Description:

Superstructure Definition: Span 4

## Superstructure Definition Span 1

### Definition

Units: US Customary

Number of spans: 1

Number of girders: 6

Length

Span (ft)

1 37.2500

Frame Structure Simplified Definition:

Support Frame Connection

1

2

Girder Spacing Display Type: Perpendicular

Average Humidity: (%)

### Analysis

*Default Library Factors*

*Factor Override*

*Analysis Module*

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFR

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### **Structure Framing Plan Details**

Layout

Support Skew  
(Degrees)  
1 0.0000  
2 0.0000  
Girder Spacing Orientation: Perpendicular

Girder Bay	Girder Spacing Start (ft)	Girder Spacing End (ft)
1	7.7500	7.7500
2	7.7500	7.7500
3	7.7500	7.7500
4	7.7500	7.7500
5	7.7500	7.7500

### **Diaphragms**

*Girder Bay 1*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.63	18.63	0.00	1	
18.63	18.63	18.63	1	

*Girder Bay 2*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.63	18.63	18.63	1	
18.63	18.63	0.00	1	

*Girder Bay 3*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
---------------------------------	----------------------------------	------------------------------	---------------------	------------------------------

0.00	0.00	0.00	1
18.63	18.63	0.00	1
18.63	18.63	18.63	1

#### *Girder Bay 4*

<b>Distance</b>	<b>Distance</b>	<b>Diaphragm</b>	<b>Number of</b>	<b>Diaphragm</b>
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
18.63	18.63	0.00	1	
18.63	18.63	18.63	1	

#### *Girder Bay 5*

<b>Distance</b>	<b>Distance</b>	<b>Diaphragm</b>	<b>Number of</b>	<b>Diaphragm</b>
Left Girder	Right Girder	Spacing	Spaces	Weight
(ft)	(ft)	(ft)		(kip)
0.00	0.00	0.00	1	
18.63	18.63	0.00	1	
18.63	18.63	18.63	1	

### **Structure Typical Section**

#### Deck

Left start width:	20.92 (ft)
Left end width:	20.92 (ft)
Right start width:	20.92 (ft)
Right end width:	20.92 (ft)
Left start overhang:	1.54 (ft)
Left end overhang:	1.54 (ft)

#### Deck (Cont'd)

Deck concrete:	Unknown strength concrete prior to 1959
Total deck thickness:	7.0000 (in)
Deck crack control parameter:	(kip/in)
Sustained modular ratio factor:	3.000

#### Railing

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4-Rail w/...	DC2		Left Ed...	0.06	0.06	Right
Double W-...	DC2		Left Ed...	20.51	20.51	Right
4-Rail w/...	DC2		Right E...	0.06	0.06	Left

#### Sidewalk

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
26.0000	9.4200	Unknown...	DC2		Left Ed...	-0.17 ...
26.0000	9.4200	Unknown...	DC2		Right E...	-0.17 ...

#### Lane Position

Offset Left Start:	-18.92 (ft)
Offset Left End:	-18.92 (ft)
Offset Right Start:	18.92 (ft)
Offset Right End:	18.92 (ft)

#### Wearing Surface

Wearing surface material:	Asphalt/Concrete
---------------------------	------------------

Description: Overlay  
Wearing surface thickness: 8.0000 (in)  
Wearing surface density: 150.000 (pcf)  
Load case: DW

### **Load Case Description**

Load Case Name	Description	Stage	Type	Time
			(Days)	
DC1	DC acting on non-comp...	Non-composite (Sta...		D,DC
DC2	DC acting on long-ter...	Composite (long te...		D,DC
DW	DW acting on long-ter...	Composite (long te...		D,DW
Sidewalk Keyway	Weight of additional ...	Non-composite (Sta...		D,DC

### **Superstructure Loads**

#### Uniform Temperature

Load Case:

Temperature rise: (F)

Temperature fall: (F)

#### Gradient Temperature

Load Case:

Temperature value T1: (F)

Temperature value T2: (F)

Temperature value T3: (F)

#### **Wind**

Load Case:

Design Pressure: (psf)

Wind Load Path: Truss action

#### DL Distribution

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Tributary Area

### **Stiffener Definitions**

#### **Transverse Stiffeners**

Name: 1 sided dia. conn.  
Stiffener number: Single  
Plate Width: 10.0000 (in)  
Plate Thickness: 0.3750 (in)  
Material: ASTM A7  
Top Gap: 1.0000 (in)  
Bottom Gap: 1.0000 (in)  
Top Weld:  
Web Weld:  
Bottom Weld:

Name: 2 sided dia. conn.  
Stiffener number: Pair  
Plate Width: 10.0000 (in)  
Plate Thickness: 0.3750 (in)

Material: ASTM A7  
Top Gap: 1.0000 (in)  
Bottom Gap: 1.0000 (in)  
Top Weld:  
Web Weld:  
Bottom Weld:  
No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

## **Member G1**

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use d-meter reading of 0.544" for 7.5" height, 0.609" for remaining height. Weighted average loss is 4.8%, say 10%.

Web Section Loss at End: Use 50% loss for lower 5" per 2014 inspection report, say 15% loss elsewhere. Weighted average loss is 19.9%, say 20%.

Current: G-1 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use d-meter reading of 0.544" for 7.5" height, 0.609" for remaining height. Weighted average loss is 4.8%, say 10%.

Web Section Loss at End: Use 50% loss for lower 5" per 2014 inspection report, say 15% loss elsewhere. Weighted average loss is 19.9%, say 20%.

Number of Spans: 1

Span Number	Span Length (ft)
1	37.250000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

## **Member Loads**

### **Distributed Loads**

Distance (ft)	Length (ft)	Start (kip/ft)	End (kip/ft)	Load Case Name
------------------	----------------	-------------------	-----------------	----------------

0.00      37.25      0.084      0.084      Sidewalk K...

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-1

Description: Additional self load is for the diaphragms.

Web Section Loss at Begin: Use d-meter reading of 0.544" for 7.5" height, 0.609" for remaining height. Weighted average loss is 4.8%, say 10%.

Web Section Loss at End: Use 50% loss for lower 5" per 2014 inspection report, say 15% loss elsewhere. Weighted average loss is 19.9%, say 20%.

Description

Material Type: Steel  
Girder Type: Rolled  
Member units: US Customary  
Girder property input method: Schedule based  
Left end X: 8.0000 (in)  
Right end X: 5.0000 (in)  
Additional Self Load: 0.020 (kip/ft)  
Additional Self Load %: (%)

Analysis Module

Analysis Method: ASD  
Analysis Module: BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD

Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

### Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

### Default Materials

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

### Impact

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes		Shear at		
Loaded	Shear	Supports	Moment	Deflection
1 Lane	1.305	0.683	1.305	0.333
Multi-Lane	1.305	0.683	1.305	0.667

### Girder Profile

#### Shape

Shape: W 36x150  
 Distance: 0.00 (ft)  
 Length: 37.25 (ft)  
 Material: ASTM A7

### Deck Profile

#### Deck Concrete

Material	Distance	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
(LRFD)	n					
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown stren...	0.00	37.25		7.0000	60.1879	65.0004
	10.1...					

### Haunch Profile

Haunch Type: Flange edges  
 Embedded flange: TRUE  
 Distance Length Z1 Z2 Z3 Z4 Y1 Y2  
 (ft) (ft) (in) (in) (in) (in) (in) (in)  
 0.00 37.25 12.5100 12.5100 0.0000 0.0000

### Bracing Ranges

#### Lateral Support

Distance Length  
 (ft) (ft)  
 0.00 37.25

### Stiffener Ranges

#### Transverse Stiffener Ranges (Location)

Name	Distance	Number	Spacing
	(ft)		(in)
1 sided dia. conn.	0.00	1	0.0000
1 sided dia. conn.	18.63	1	0.0000
1 sided dia. conn.	37.25	1	0.0000

### Bearing Stiffener Locations

#### Points of Interest

Distance from left most support: 37.15 (ft)  
 Side: Right  
Transverse Stiffeners

Override Schedule: FALSE  
 Stiffener spacing: (in)  
 Stiffener width: (in)  
 Stiffener thickness: (in)  
 Material: ASTM A7  
 Stiffener number: Single  
 Stiffener type: Plate

#### Other Stiffeners

##### *Bearing Stiffener*

Override Schedule: FALSE  
 Stiffener width: (in)  
 Stiffener thickness: (in)  
 Material: ASTM A7  
 Clip: (in)  
 Number of pairs:  
 Pair spacing: (in)  
 Attachment Type: Welds

##### *Longitudinal Stiffener*

Override Schedule: FALSE  
 Stiffener width: (in)  
 Stiffener thickness: (in)  
 Material: ASTM A7  
 Distance from flange to stiffener: (in)  
 Distance measured from: Top Flange

#### Fatigue

Number of cycles: 0

#### Bracing

Deck provides lateral support:  
 Override diaphragm schedule: FALSE  
 Distance to left diaphragm: (ft)  
 Distance to right diaphragm: (ft)  
 Diaphragm at this location: TRUE

#### ASD

Compression flange unsupported length: (ft)  
 Tension Field Action Ignore combined shear and bending

#### *Riveted Section*

Net moment of inertia: (in<sup>4</sup>)  
 Distance to centroid: (in)  
 Net area of web: (in<sup>2</sup>)  
 Top plate allowable shear: (ksi)  
 Bottom plate allowable shear: (ksi)  
 Percent area top flange: (%)  
 Percent area bottom flange: (%)

#### **Top Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)

**Bottom Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
	10.0	0.00	37.25

**Web Deterioration**

Thickness	Start	Length
Loss	Distance	
(%)	(ft)	(ft)
20.0	36.75	0.50

**Member G2**

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms.

Current: G-2 - Additional self load is for the diaphragms.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	37.250000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

**Member Loads****Member Loads - Settlement**

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	
1				
2				

**Support Constraints****General**

Support	Support	X Translation	Y Translation	Z Rotation
Number	Type			
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

**Elastic**

Support	X Translation	Y Translation	Z Rotation	Override Computed
Number	(kip/ft)	(kip/ft)	(kip-in/rad)	Z Rotation
1				
2				

## Member Alternative G-2

Description: Additional self load is for the diaphragms.

### Description

Material Type: Steel  
Girder Type: Rolled  
Member units: US Customary  
Girder property input method: Schedule based  
Left end X: 8.0000 (in)  
Right end X: 5.0000 (in)  
Additional Self Load: 0.040 (kip/ft)  
Additional Self Load %: (%)

### Analysis Module

Analysis Method: ASD  
Analysis Module: BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

### Factors

#### Factor Override

LRFD:

LFD:

#### ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		

PS Moment Cap.  
Reinforcement  
Bearing Stiffener  
Stirrup  
Timber

NA

### Default Materials

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

### Impact

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### Live Load Distribution

Standard

#### D i s t r i b u t i o n   F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.618	1.409	0.667

### Girder Profile

Shape

Shape: W 33x130

Distance: 0.00 (ft)

Length: 37.25 (ft)

Material: ASTM A7

### Deck Profile

Deck Concrete

Material (LRFD)	Distance n	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown stren...	0.00	37.25		7.0000	84.0000	93.0000
	10.1...					

### Haunch Profile

Haunch Type: Flange edges

Embedded flange: FALSE

Distance   Length   Z1   Z2   Y1

(ft)	(ft)	(in)	(in)	(in)
0.00	37.25			0.0000

### **Bracing Ranges**

#### Lateral Support

Distance	Length
----------	--------

(ft)	(ft)
0.00	37.25

### **Stiffener Ranges**

#### Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	18.63	1	0.0000
2 sided dia. conn.	37.25	1	0.0000

### **Bearing Stiffener Locations**

## **Member G3**

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms.

Current: G-3 - Additional self load is for the diaphragms.

Number of Spans: 1

Span	Span Length
------	-------------

Number	(ft)
1	37.250000

Support	Frame Connection
---------	------------------

1  
2

Pedestrian load: 0.000 (lb/ft)

### **Member Loads**

#### Member Loads - Settlement

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	
1				
2				

### **Support Constraints**

#### General

Support	Support			
Number	Type	X Translation	Y Translation	Z Rotation

1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

#### Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

### Member Alternative G-3

Description: Additional self load is for the diaphragms.

#### Description

Material Type: Steel  
 Girder Type: Rolled  
 Member units: US Customary  
 Girder property input method: Schedule based  
 Left end X: 8.0000 (in)  
 Right end X: 5.0000 (in)  
 Additional Self Load: 0.040 (kip/ft)  
 Additional Self Load %: (%)

#### Analysis Module

Analysis Method: ASD  
 Analysis Module: BRASS ASD  
 Analysis Module Component:  
 Properties:

Analysis Method: LFD  
 Analysis Module: AASHTO LFD  
 Analysis Module Component:  
 Properties:

Analysis Method: LRFD  
 Analysis Module: BRASS LRFD  
 Analysis Module Component:  
 Properties:

Analysis Method: LRFR  
 Analysis Module: BRASS LRFR  
 Analysis Module Component:  
 Properties:

Analysis Method: Distribution Factors  
 Analysis Module:  
 Analysis Module Component:  
 Properties:

Default rating method: LFD

#### Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

### **Default Materials**

Structural steel:	ASTM A7
Deck concrete:	Unknown strength concrete prior to 1959
Deck reinforcement:	Grade 40
Welds:	
Bolts:	

### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### **Live Load Distribution**

Standard

D i s t r i b u t i o n   F a c t o r (Wheels)				
Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.417	1.409	0.667

### **Girder Profile**

Shape

Shape: W 33x130

Distance: 0.00 (ft)

Length: 37.25 (ft)

Material: ASTM A7

### **Deck Profile**

Deck Concrete

Material	Distance	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
(LRFD)	n					

Unknown stren...	(ft) 0.00	(ft) 37.25	(in)	(in) 7.0000	(in) 84.0000	(in) 93.0000
	10.1...					

### **Haunch Profile**

Haunch Type:	Flange edges
Embedded flange:	FALSE
Distance	Length
(ft)	(ft)
0.00	37.25
Z1	Z2
(in)	(in)
	Y1
	(in)
	0.0000

### **Bracing Ranges**

<u>Lateral Support</u>	
Distance	Length
(ft)	(ft)
0.00	37.25

### **Stiffener Ranges**

<u>Transverse Stiffener Ranges (Location)</u>			
Name	Distance	Number	Spacing
	(ft)		(in)
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	18.63	1	0.0000
2 sided dia. conn.	37.25	1	0.0000

### **Bearing Stiffener Locations**

#### **Member G4**

Link with: G3

Description:

Existing:

Current:

Number of Spans: 1

Span	Span Length
Number	(ft)
1	37.250000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

#### **Member G5**

Link with: G2

Description:

Existing:  
Current:  
Number of Spans: 1

Span Number	Span Length (ft)
1	37.250000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

### Member G6

Link with: G1  
Description:

Existing:  
Current:  
Number of Spans: 1

Span Number	Span Length (ft)
1	37.250000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

### Superstructure Definition Span 2

#### Definition

Units: US Customary  
Number of spans: 1  
Number of girders: 6

Span	Length (ft)
1	57.7500

Frame Structure Simplified Definition:

Support	Frame Connection
1	
2	

Girder Spacing Display Type: Perpendicular

Average Humidity: (%)

#### Analysis

Default Library Factors

Factor Override

### *Analysis Module*

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFR

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: Distribution Factors

Analysis Module:

Analysis Module Component:

Properties:

Default rating method: LFD

### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### **Structure Framing Plan Details**

#### Layout

Support Skew  
(Degrees)

1	0.0000
2	0.0000

Girder Spacing Orientation: Perpendicular

Girder	Girder Spacing	
Bay	Start	End
	(ft)	(ft)
1	7.7500	7.7500
2	7.7500	7.7500
3	7.7500	7.7500
4	7.7500	7.7500

5                      7.7500                      7.7500

Diaphragms

*Girder Bay 1*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.25	19.25	0.00	1	
19.25	19.25	19.25	2	

*Girder Bay 2*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.25	19.25	19.25	2	
19.25	19.25	0.00	1	

*Girder Bay 3*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.25	19.25	19.25	2	
19.25	19.25	0.00	1	

*Girder Bay 4*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.25	19.25	19.25	2	
19.25	19.25	0.00	1	

*Girder Bay 5*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
19.25	19.25	0.00	1	
19.25	19.25	19.25	2	

**Structure Typical Section**

Deck

Left start width:	20.92 (ft)
Left end width:	20.92 (ft)
Right start width:	20.92 (ft)
Right end width:	20.92 (ft)
Left start overhang:	1.54 (ft)
Left end overhang:	1.54 (ft)

Deck (Cont'd)

Deck concrete:                      Unknown strength concrete prior to 1959

Total deck thickness: 7.0000 (in)  
 Deck crack control parameter: (kip/in)  
 Sustained modular ratio factor: 3.000

#### Railing

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4-Rail w/...	DC2		Left Ed...	0.06	0.06	Right
Double W-...	DC2		Left Ed...	20.51	20.51	Right
4-Rail w/...	DC2		Right E...	0.06	0.06	Left

#### Sidewalk

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
26.0000	9.4200	Unknown...	DC2		Left Ed...	-0.17 ...
26.0000	9.4200	Unknown...	DC2		Right E...	-0.17 ...

#### Lane Position

Offset Left Start: -18.92 (ft)  
 Offset Left End: -18.92 (ft)  
 Offset Right Start: 18.92 (ft)  
 Offset Right End: 18.92 (ft)

#### Wearing Surface

Wearing surface material: Asphalt/Concrete  
 Description: Overlay  
 Wearing surface thickness: 8.0000 (in)  
 Wearing surface density: 150.000 (pcf)  
 Load case: DW

#### Load Case Description

Load Case Name	Description	Stage	Type	Time (Days)
DC1	DC acting on non-comp...	Non-composite (Sta...		D,DC
DC2	DC acting on long-ter...	Composite (long te...		D,DC
DW	DW acting on long-ter...	Composite (long te...		D,DW
Sidewalk Keyway	Weight of additional ...	Non-composite (Sta...		D,DC

#### Superstructure Loads

##### Uniform Temperature

##### Load Case:

Temperature rise: (F)  
 Temperature fall: (F)

##### Gradient Temperature

##### Load Case:

Temperature value T1: (F)  
 Temperature value T2: (F)  
 Temperature value T3: (F)

#### **Wind**

##### Load Case:

Design Pressure: (psf)  
 Wind Load Path: Truss action

#### DL Distribution

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Uniformly to All Girders

### **Stiffener Definitions**

#### **Transverse Stiffeners**

Name: 1 sided dia. conn.  
Stiffener number: Single  
Plate Width: 10.0000 (in)  
Plate Thickness: 0.3750 (in)  
Material: ASTM A7  
Top Gap: 1.0000 (in)  
Bottom Gap: 1.0000 (in)  
Top Weld:  
Web Weld:  
Bottom Weld:

Name: 2 sided dia. conn.  
Stiffener number: Pair  
Plate Width: 10.0000 (in)  
Plate Thickness: 0.3750 (in)  
Material: ASTM A7  
Top Gap: 1.0000 (in)  
Bottom Gap: 1.0000 (in)  
Top Weld:  
Web Weld:  
Bottom Weld:  
No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

### **Member G1**

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 50% loss for lower 5" per 2014 inspection report, say 15% loss elsewhere. Weighted average loss is 19.9%, say 20%.

Current: G-1 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 50% loss for lower 5" per 2014 inspection report, say 15% loss elsewhere. Weighted average loss is 19.9%, say 20%.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	57.750000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

### **Member Loads**

#### Distributed Loads

Distance	Length	Start	End	Load Case Name
(ft)	(ft)	(kip/ft)	(kip/ft)	
0.00	57.75	0.084	0.084	Sidewalk K...

#### Member Loads - Settlement

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	
1				
2				

### **Support Constraints**

#### General

Support	Support	X Translation	Y Translation	Z Rotation
Number	Type			
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

#### Elastic

Support	X Translation	Y Translation	Z Rotation	Override Computed
Number	(kip/ft)	(kip/ft)	(kip-in/rad)	Z Rotation
1				
2				

### **Member Alternative G-1**

Description: Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 50% loss for lower 5" per 2014 inspection report, say 15% loss elsewhere. Weighted average loss is 19.9%, say 20%.

#### Description

Material Type:	Steel
Girder Type:	Rolled
Member units:	US Customary
Girder property input method:	Schedule based
Left end X:	5.0000 (in)
Right end X:	5.0000 (in)
Additional Self Load:	0.015 (kip/ft)
Additional Self Load %:	(%)

### *Analysis Module*

Analysis Method: ASD  
Analysis Module: BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

### Factors

#### *Factor Override*

LRFD:

LFD:

#### *ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

### **Default Materials**

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:

Bolts:

### Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.305	0.683	1.305	0.333
Multi-Lane	1.305	0.683	1.305	0.667

### Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 57.75 (ft)

Material: ASTM A7

### Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		14.000...	14.000...	0.3750	0.42	56.92 ASTM A7

### Deck Profile

Deck Concrete

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown stren...	0.00	57.75		7.0000	60.1879	65.0004
	10.1...					

### Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	57.75	Composite			

### Haunch Profile

Haunch Type: Flange edges

Embedded flange: TRUE

Distance Length Z1 Z2 Z3 Z4 Y1 Y2

(ft)	(ft)	(in)	(in)	(in)	(in)	(in)	(in)
0.00	57.75			12.5100	12.5100	0.0000	0.0000

### **Bracing Ranges**

#### Lateral Support

Distance	Length
----------	--------

(ft)	(ft)
0.00	57.75

### **Stiffener Ranges**

#### Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
1 sided dia. conn.	0.00	1	0.0000
1 sided dia. conn.	19.25	1	0.0000
1 sided dia. conn.	38.50	1	0.0000
1 sided dia. conn.	57.75	1	0.0000

### **Bearing Stiffener Locations**

#### **Points of Interest**

Distance from left most support: 0.10 (ft)

Side: Right

#### Transverse Stiffeners

Override Schedule: FALSE

Stiffener spacing: (in)

Stiffener width: (in)

Stiffener thickness: (in)

Material: ASTM A7

Stiffener number: Single

Stiffener type: Plate

#### Other Stiffeners

##### *Bearing Stiffener*

Override Schedule: FALSE

Stiffener width: (in)

Stiffener thickness: (in)

Material: ASTM A7

Clip: (in)

Number of pairs:

Pair spacing: (in)

Attachment Type: Welds

##### *Longitudinal Stiffener*

Override Schedule: FALSE

Stiffener width: (in)

Stiffener thickness: (in)

Material: ASTM A7

Distance from flange to stiffener: (in)

Distance measured from: Top Flange

#### **Fatigue**

Number of cycles:	0
<u>Bracing</u>	
Deck provides lateral support:	
Override diaphragm schedule:	FALSE
Distance to left diaphragm:	(ft)
Distance to right diaphragm:	(ft)
Diaphragm at this location:	TRUE
<u>ASD</u>	
Compression flange unsupported length:	(ft)
Tension Field Action	Ignore combined shear and bending
<i>Riveted Section</i>	
Net moment of inertia:	(in <sup>4</sup> )
Distance to centroid:	(in)
Net area of web:	(in <sup>2</sup> )
Top plate allowable shear:	(ksi)
Bottom plate allowable shear:	(ksi)
Percent area top flange:	(%)
Percent area bottom flange:	(%)
Distance from left most support:	57.65 (ft)
Side:	Right
<u>Transverse Stiffeners</u>	
Override Schedule:	FALSE
Stiffener spacing:	(in)
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Stiffener number:	Single
Stiffener type:	Plate
<u>Other Stiffeners</u>	
<i>Bearing Stiffener</i>	
Override Schedule:	FALSE
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Clip:	(in)
Number of pairs:	
Pair spacing:	(in)
Attachment Type:	Welds
<i>Longitudinal Stiffener</i>	
Override Schedule:	FALSE
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Distance from flange to stiffener:	(in)
Distance measured from:	Top Flange
<u>Fatigue</u>	
Number of cycles:	0
<u>Bracing</u>	
Deck provides lateral support:	

Override diaphragm schedule: FALSE  
 Distance to left diaphragm: (ft)  
 Distance to right diaphragm: (ft)  
 Diaphragm at this location: TRUE  
ASD  
 Compression flange unsupported length: (ft)  
 Tension Field Action Ignore combined shear and bending  
*Riveted Section*  
 Net moment of inertia: (in<sup>4</sup>)  
 Distance to centroid: (in)  
 Net area of web: (in<sup>2</sup>)  
 Top plate allowable shear: (ksi)  
 Bottom plate allowable shear: (ksi)  
 Percent area top flange: (%)  
 Percent area bottom flange: (%)

#### **Top Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)

#### **Bottom Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
	10.0	0.00	57.75

#### **Web Deterioration**

Thickness	Start	Length
Loss	Distance	
(%)	(ft)	(ft)
20.0	0.00	0.50
10.0	57.25	0.50

### **Member G2**

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2.5' wide x 1.5" deep in Bay 1. Weighted average composite deck thickness is 6.5".

Current: G-2 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2.5' wide x 1.5" deep in Bay 1. Weighted average composite deck thickness is 6.5".

Number of Spans: 1

Span	Span Length
------	-------------

Number        *(ft)*  
1                57.750000

Support        Frame Connection  
1  
2

Pedestrian load:        0.000 *(lb/ft)*

### **Member Loads**

#### Member Loads - Settlement

Support Number	Horizontal <i>(in)</i>	Vertical <i>(in)</i>	Rotational <i>(Radians)</i>	Load Case Name
1				
2				

### **Support Constraints**

#### General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

#### Elastic

Support Number	X Translation <i>(kip/ft)</i>	Y Translation <i>(kip/ft)</i>	Z Rotation <i>(kip-in/rad)</i>	Override Computed Z Rotation
1				
2				

### **Member Alternative    G-2**

**Description:** Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2.5' wide x 1.5" deep in Bay 1. Weighted average composite deck thickness is 6.5".

#### Description

Material Type:                Steel  
Girder Type:                 Rolled  
Member units:                US Customary  
Girder property input method:    Schedule based  
Left end X:                    5.0000 *(in)*  
Right end X:                   5.0000 *(in)*  
Additional Self Load:        0.030 *(kip/ft)*  
Additional Self Load %:       *(%)*

#### *Analysis Module*

Analysis Method:             ASD  
Analysis Module:             BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

#### Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

#### **Default Materials**

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

#### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)  
 All other limit states: 33.0 (%)

### Live Load Distribution

Standard

#### D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.618	1.409	0.667

### Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 57.75 (ft)

Material: ASTM A7

### Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		16.000...	16.000...	0.5000	7.38	43.00 ASTM A7

### Deck Profile

Deck Concrete

Material (LRFD)	Distance n	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown stren...	0.00	57.75		6.5000	78.0000	93.0000
	10.1...					

### Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	57.75	Composite			

### Haunch Profile

Haunch Type: Flange edges

Embedded flange: FALSE

Distance (ft)	Length (ft)	Z1 (in)	Z2 (in)	Y1 (in)
0.00	57.75			0.0000

### Bracing Ranges

Lateral Support

Distance Length

(ft)                      (ft)  
0.00                      57.75

### **Stiffener Ranges**

#### Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	19.25	1	0.0000
2 sided dia. conn.	38.50	1	0.0000
2 sided dia. conn.	57.75	1	0.0000

### **Bearing Stiffener Locations**

## **Member G3**

Link with: None

Description:

Existing:            G-3 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2' wide x 1" deep in Bay 4. Weighted average composite deck thickness is 6.75".

Current:            G-3 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2' wide x 1" deep in Bay 4. Weighted average composite deck thickness is 6.75".

Number of Spans:                      1

Span Number	Span Length (ft)
1	57.750000

Support	Frame Connection
1	
2	

Pedestrian load:            0.000 (lb/ft)

### **Member Loads**

#### Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

### **Support Constraints**

General

Support            Support

Number	Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

#### Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

### Member Alternative G-3

**Description:** Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2' wide x 1" deep in Bay 4. Weighted average composite deck thickness is 6.75".

#### Description

Material Type: Steel  
 Girder Type: Rolled  
 Member units: US Customary  
 Girder property input method: Schedule based  
 Left end X: 5.0000 (in)  
 Right end X: 5.0000 (in)  
 Additional Self Load: 0.030 (kip/ft)  
 Additional Self Load %: (%)

#### Analysis Module

Analysis Method: ASD  
 Analysis Module: BRASS ASD  
 Analysis Module Component:  
 Properties:

Analysis Method: LFD  
 Analysis Module: AASHTO LFD  
 Analysis Module Component:  
 Properties:

Analysis Method: LRFD  
 Analysis Module: BRASS LRFD  
 Analysis Module Component:  
 Properties:

Analysis Method: LRFR  
 Analysis Module: BRASS LRFR  
 Analysis Module Component:  
 Properties:

Analysis Method: Distribution Factors  
 Analysis Module:  
 Analysis Module Component:  
 Properties:

Default rating method: LFD

Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

**Default Materials**

Structural steel:	ASTM A7
Deck concrete:	Unknown strength concrete prior to 1959
Deck reinforcement:	Grade 40
Welds:	
Bolts:	

**Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

**Live Load Distribution**

Standard

D i s t r i b u t i o n   F a c t o r (Wheels)				
Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.417	1.409	0.667

**Girder Profile**

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 57.75 (ft)

Material: ASTM A7

Flange Cover Plates

Plate	Begin Width (in)	End Width (in)	Thickness (in)	Distance (ft)	Length (ft)	Material
1 (Bot...		16.000...	16.000...	0.5000	7.38	43.00 ASTM A7

### **Deck Profile**

#### **Deck Concrete**

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown stren...	0.00 10.1...	57.75		6.7500	81.0000	93.0000

### **Shear Connectors**

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	57.75	Composite			

### **Haunch Profile**

Haunch Type:		Flange edges		
Embedded flange:		FALSE		
Distance	Length	Z1	Z2	Y1
<i>(ft)</i>	<i>(ft)</i>	<i>(in)</i>	<i>(in)</i>	<i>(in)</i>
0.00	57.75			0.0000

### **Bracing Ranges**

#### **Lateral Support**

Distance (ft)	Length (ft)
0.00	57.75

### **Stiffener Ranges**

#### **Transverse Stiffener Ranges (Location)**

Name	Distance (ft)	Number	Spacing (in)
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	19.25	1	0.0000
2 sided dia. conn.	38.50	1	0.0000
2 sided dia. conn.	57.75	1	0.0000

### **Bearing Stiffener Locations**

### **Member G4**

Link with: G3

Description:

Existing:

Current:  
Number of Spans: 1

Span Number	Span Length (ft)
1	57.750000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

### Member G5

Link with: G2  
Description:

Existing:  
Current:  
Number of Spans: 1

Span Number	Span Length (ft)
1	57.750000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

### Member G6

Link with: G1  
Description:

Existing:  
Current:  
Number of Spans: 1

Span Number	Span Length (ft)
1	57.750000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

## Superstructure Definition Span 3

### Definition

Units: US Customary

Number of spans: 1

Number of girders: 6

Length

Span (ft)

1 64.7500

Frame Structure Simplified Definition:

Support Frame Connection

1

2

Girder Spacing Display Type: Perpendicular

Average Humidity: (%)

### Analysis

*Default Library Factors*

*Factor Override*

*Analysis Module*

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFR

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: Distribution Factors

Analysis Module:

Analysis Module Component:

Properties:

Default rating method: LFD

### Impact

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)  
 All other limit states: 33.0 (%)

### **Structure Framing Plan Details**

#### **Layout**

Support Skew  
 (Degrees)  
 1 0.0000  
 2 0.0000  
 Girder Spacing Orientation: Perpendicular

Girder Bay	Girder Spacing Start (ft)	Girder Spacing End (ft)
1	7.7500	7.7500
2	7.7500	7.7500
3	7.7500	7.7500
4	7.7500	7.7500
5	7.7500	7.7500

#### **Diaphragms**

##### *Girder Bay 1*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
21.58	21.58	0.00	1	
21.58	21.58	21.58	2	

##### *Girder Bay 2*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
21.58	21.58	21.58	2	
21.58	21.58	0.00	1	

##### *Girder Bay 3*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
21.58	21.58	21.58	2	
21.58	21.58	0.00	1	

##### *Girder Bay 4*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
21.58	21.58	21.58	2	
21.58	21.58	0.00	1	

##### *Girder Bay 5*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
21.58	21.58	0.00	1	
21.58	21.58	21.58	2	

### **Structure Typical Section**

#### **Deck**

Left start width:	20.92 (ft)
Left end width:	20.92 (ft)
Right start width:	20.92 (ft)
Right end width:	20.92 (ft)
Left start overhang:	1.54 (ft)
Left end overhang:	1.54 (ft)

#### **Deck (Cont'd)**

Deck concrete:	Unknown strength concrete prior to 1959
Total deck thickness:	7.0000 (in)
Deck crack control parameter:	(kip/in)
Sustained modular ratio factor:	3.000

#### **Railing**

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4-Rail w/...	DC2		Left Ed...	0.06	0.06	Right
Double W-...	DC2		Left Ed...	20.51	20.51	Right
4-Rail w/...	DC2		Right E...	0.06	0.06	Left

#### **Sidewalk**

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
26.0000	9.4200	Unknown...	DC2		Left Ed...	-0.17 ...
26.0000	9.4200	Unknown...	DC2		Right E...	-0.17 ...

#### **Lane Position**

Offset Left Start:	-18.92 (ft)
Offset Left End:	-18.92 (ft)
Offset Right Start:	18.92 (ft)
Offset Right End:	18.92 (ft)

#### **Wearing Surface**

Wearing surface material:	Asphalt/Concrete
Description:	Overlay
Wearing surface thickness:	8.0000 (in)
Wearing surface density:	150.000 (pcf)
Load case:	DW

### **Load Case Description**

Load Case Name	Description	Stage	Type (Days)	Time
DC1	DC acting on non-comp...	Non-composite (Sta...		D,DC
DC2	DC acting on long-ter...	Composite (long te...		D,DC
DW	DW acting on long-ter...	Composite (long te...		D,DW

Sidewalk Keyway

Weight of additional ...

Non-composite (Sta...

D,DC

### **Superstructure Loads**

#### **Uniform Temperature**

Load Case:

Temperature rise: (F)

Temperature fall: (F)

#### **Gradient Temperature**

Load Case:

Temperature value T1: (F)

Temperature value T2: (F)

Temperature value T3: (F)

### **Wind**

Load Case:

Design Pressure: (psf)

Wind Load Path: Truss action

#### **DL Distribution**

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Uniformly to All Girders

### **Stiffener Definitions**

#### **Transverse Stiffeners**

Name: 1 sided dia. conn.

Stiffener number: Single

Plate Width: 10.0000 (in)

Plate Thickness: 0.3750 (in)

Material: ASTM A7

Top Gap: 1.0000 (in)

Bottom Gap: 1.0000 (in)

Top Weld:

Web Weld:

Bottom Weld:

Name: 2 sided dia. conn.

Stiffener number: Pair

Plate Width: 10.0000 (in)

Plate Thickness: 0.3750 (in)

Material: ASTM A7

Top Gap: 1.0000 (in)

Bottom Gap: 1.0000 (in)

Top Weld:

Web Weld:

Bottom Weld:

No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

## **Member G1**

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 25% loss per 2014 inspection report for lower 4", say 15% loss elsewhere. Weighted average loss is 16.1%, say 20%.

Current: G-1 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 25% loss per 2014 inspection report for lower 4", say 15% loss elsewhere. Weighted average loss is 16.1%, say 20%.

Number of Spans: 1

Span Number	Span Length (ft)
1	64.750000

Support Number	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

## **Member Loads**

### Distributed Loads

Distance (ft)	Length (ft)	Start (kip/ft)	End (kip/ft)	Load Case Name
0.00	64.75	0.084	0.084	Sidewalk K...

### Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

## **Support Constraints**

### General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

### Elastic

Support	X Translation	Y Translation	Z Rotation	Override Computed
---------	---------------	---------------	------------	-------------------

Number	(kip/ft)	(kip/ft)	(kip-in/rad)	Z Rotation
1				
2				

### Member Alternative G-1

**Description:** Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 25% loss per 2014 inspection report for lower 4", say 15% loss elsewhere. Weighted average loss is 16.1%, say 20%.

#### Description

Material Type: Steel  
 Girder Type: Rolled  
 Member units: US Customary  
 Girder property input method: Schedule based  
 Left end X: 5.0000 (in)  
 Right end X: 5.0000 (in)  
 Additional Self Load: 0.015 (kip/ft)  
 Additional Self Load %: (%)

#### *Analysis Module*

Analysis Method: ASD  
 Analysis Module: BRASS ASD  
 Analysis Module Component:  
 Properties:

Analysis Method: LFD  
 Analysis Module: AASHTO LFD  
 Analysis Module Component:  
 Properties:

Analysis Method: LRFD  
 Analysis Module: BRASS LRFD  
 Analysis Module Component:  
 Properties:

Analysis Method: LRFR  
 Analysis Module: BRASS LRFR  
 Analysis Module Component:  
 Properties:

Analysis Method: Distribution Factors  
 Analysis Module:  
 Analysis Module Component:  
 Properties:

Default rating method: LFD

#### Factors

#### *Factor Override*

LRFD:

LFD:

### *ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

### **Default Materials**

Structural steel:	ASTM A7
Deck concrete:	Unknown strength concrete prior to 1959
Deck reinforcement:	Grade 40
Welds:	
Bolts:	

### **Impact**

#### *Standard Impact Factor*

Type:	Standard - AASHTO
-------	-------------------

#### *LRFD Dynamic Load Allowance*

Fatigue and fracture limit states:	15.0 (%)
All other limit states:	33.0 (%)

### **Live Load Distribution**

#### **Standard**

D i s t r i b u t i o n   F a c t o r (Wheels)				
Lanes	Shear at			
Loaded	Shear	Supports	Moment	Deflection
1 Lane	1.305	0.683	1.305	0.333
Multi-Lane	1.305	0.683	1.305	0.667

### **Girder Profile**

#### **Shape**

Shape:	W 36x150
Distance:	0.00 (ft)
Length:	64.75 (ft)
Material:	ASTM A7

#### **Flange Cover Plates**

Plate	Begin	End	Thickness	Distance	Length	Material
	Width	Width				
	(in)	(in)	(in)	(ft)	(ft)	
1 (Bot...		14.000...	14.000...	0.6250	0.42	63.92      ASTM A7

### **Deck Profile**

### Deck Concrete

Material (LRFD)	Distance n (ft)	Length (ft)	Total Thickness (in)	Structural Thickness (in)	Effective Width (Std) (in)	Effective Width (in)
Unknown stren...	0.00 10.1...	64.75		7.0000	60.1879	65.0004

### Shear Connectors

Start Distance (ft)	Length (ft)	Connector Name	Number per Row	Number of Spaces	Transverse Spacing (in)
0.00	64.75	Composite			

### Haunch Profile

Haunch Type:		Flange edges					
Embedded flange:		TRUE					
Distance (ft)	Length (ft)	Z1 (in)	Z2 (in)	Z3 (in)	Z4 (in)	Y1 (in)	Y2 (in)
0.00	64.75			12.5100	12.5100	0.0000	0.0000

### Bracing Ranges

#### Lateral Support

Distance (ft)	Length (ft)
0.00	64.75

### Stiffener Ranges

#### Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
1 sided dia. conn.	0.00	1	0.0000
1 sided dia. conn.	21.58	1	0.0000
1 sided dia. conn.	43.17	1	0.0000
1 sided dia. conn.	64.75	1	0.0000

### Bearing Stiffener Locations

#### Points of Interest

Distance from left most support: 0.10 (ft)  
Side: Right

#### Transverse Stiffeners

Override Schedule: FALSE  
Stiffener spacing: (in)  
Stiffener width: (in)  
Stiffener thickness: (in)  
Material: ASTM A7  
Stiffener number: Single  
Stiffener type: Plate

### Other Stiffeners

#### *Bearing Stiffener*

Override Schedule: FALSE  
Stiffener width: (in)  
Stiffener thickness: (in)  
Material: ASTM A7  
Clip: (in)  
Number of pairs:  
Pair spacing: (in)  
Attachment Type: Welds

#### *Longitudinal Stiffener*

Override Schedule: FALSE  
Stiffener width: (in)  
Stiffener thickness: (in)  
Material: ASTM A7  
Distance from flange to stiffener: (in)  
Distance measured from: Top Flange

### Fatigue

Number of cycles: 0

### Bracing

Deck provides lateral support:  
Override diaphragm schedule: FALSE  
Distance to left diaphragm: (ft)  
Distance to right diaphragm: (ft)  
Diaphragm at this location: TRUE

### ASD

Compression flange unsupported length: (ft)  
Tension Field Action Ignore combined shear and bending

### *Riveted Section*

Net moment of inertia: (in<sup>4</sup>)  
Distance to centroid: (in)  
Net area of web: (in<sup>2</sup>)  
Top plate allowable shear: (ksi)  
Bottom plate allowable shear: (ksi)  
Percent area top flange: (%)  
Percent area bottom flange: (%)

Distance from left most support: 64.65 (ft)  
Side: Right

### Transverse Stiffeners

Override Schedule: FALSE  
Stiffener spacing: (in)  
Stiffener width: (in)  
Stiffener thickness: (in)  
Material: ASTM A7  
Stiffener number: Single  
Stiffener type: Plate

### Other Stiffeners

#### *Bearing Stiffener*

Override Schedule: FALSE

Stiffener width: (in)  
 Stiffener thickness: (in)  
 Material: ASTM A7  
 Clip: (in)  
 Number of pairs:  
 Pair spacing: (in)  
 Attachment Type: Welds  
*Longitudinal Stiffener*  
 Override Schedule: FALSE  
 Stiffener width: (in)  
 Stiffener thickness: (in)  
 Material: ASTM A7  
 Distance from flange to stiffener: (in)  
 Distance measured from: Top Flange  
Fatigue  
 Number of cycles: 0  
Bracing  
 Deck provides lateral support:  
 Override diaphragm schedule: FALSE  
 Distance to left diaphragm: (ft)  
 Distance to right diaphragm: (ft)  
 Diaphragm at this location: TRUE  
ASD  
 Compression flange unsupported length: (ft)  
 Tension Field Action Ignore combined shear and bending  
*Riveted Section*  
 Net moment of inertia: (in<sup>4</sup>)  
 Distance to centroid: (in)  
 Net area of web: (in<sup>2</sup>)  
 Top plate allowable shear: (ksi)  
 Bottom plate allowable shear: (ksi)  
 Percent area top flange: (%)  
 Percent area bottom flange: (%)

#### **Top Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)

#### **Bottom Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
	10.0	0.00	64.75

#### **Web Deterioration**

Thickness	Start	Length
Loss	Distance	
(%)	(ft)	(ft)

20.0	0.00	0.50
10.0	64.25	0.50

## **Member G2**

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 5.5' wide x 2.5" deep (2" to 3" deep noted in report) in Bay 2.  
Weighted average composite deck thickness is 5.25".

Current: G-2 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 5.5' wide x 2.5" deep (2" to 3" deep noted in report) in Bay 2.  
Weighted average composite deck thickness is 5.25".

Number of Spans: 1

Span Number	Span Length (ft)
1	64.750000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

## **Member Loads**

### Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

## **Support Constraints**

### General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

### Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

## **Member Alternative G-2**

Description: Additional self load is for the diaphragms.

Deck Profile: Say spalling is 5.5' wide x 2.5" deep (2" to 3" deep noted in report) in Bay 2.  
Weighted average composite deck thickness is 5.25".

Description

Material Type: Steel  
Girder Type: Rolled  
Member units: US Customary  
Girder property input method: Schedule based  
Left end X: 5.0000 (in)  
Right end X: 5.0000 (in)  
Additional Self Load: 0.030 (kip/ft)  
Additional Self Load %: (%)

*Analysis Module*

Analysis Method: ASD  
Analysis Module: BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		

PS Moment Cap.  
Reinforcement  
Bearing Stiffener  
Stirrup  
Timber

NA

### **Default Materials**

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### **Live Load Distribution**

Standard

#### **D i s t r i b u t i o n   F a c t o r (Wheels)**

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.618	1.409	0.667

### **Girder Profile**

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 64.75 (ft)

Material: ASTM A7

### **Flange Cover Plates**

Plate	Begin	End	Thickness	Distance	Length	Material
	Width	Width				
	(in)	(in)	(in)	(ft)	(ft)	
1 (Bot...		16.000...	16.000...	1.0000	8.38	48.00      ASTM A7

### **Deck Profile**

Deck Concrete

Material	Distance	Length	Total	Structural	Effective	Effective
(LRFD)	n		Thickness	Thickness	Width (Std)	Width
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown stren...	0.00	64.75		5.2500	63.0000	93.0000

10.1...

#### Shear Connectors

Start	Connector	Number	Number of	Transverse
Distance	Name	per Row	Spaces	Spacing
(ft)				(in)
0.00	Composite			

#### Haunch Profile

Haunch Type:		Flange edges		
Embedded flange:		FALSE		
Distance	Length	Z1	Z2	Y1
(ft)	(ft)	(in)	(in)	(in)
0.00	64.75			0.0000

#### Bracing Ranges

Lateral Support	
Distance	Length
(ft)	(ft)
0.00	64.75

#### Stiffener Ranges

##### Transverse Stiffener Ranges (Location)

Name	Distance	Number	Spacing
	(ft)		(in)
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	21.58	1	0.0000
2 sided dia. conn.	43.17	1	0.0000
2 sided dia. conn.	64.75	1	0.0000

#### Bearing Stiffener Locations

### Member G3

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2' wide x 1" deep in Bay 4. Weighted average composite deck thickness is 6.75".

Current: G-3 - Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2' wide x 1" deep in Bay 4. Weighted average composite deck thickness is 6.75".

Number of Spans: 1

Span	Span Length
Number	(ft)
1	64.750000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

### **Member Loads**

#### Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

### **Support Constraints**

#### General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

#### Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

### **Member Alternative G-3**

Description: Additional self load is for the diaphragms.

Deck Profile: Say spalling is 2' wide x 1" deep in Bay 4. Weighted average composite deck thickness is 6.75".

#### Description

Material Type:	Steel
Girder Type:	Rolled
Member units:	US Customary
Girder property input method:	Schedule based
Left end X:	5.0000 (in)
Right end X:	5.0000 (in)
Additional Self Load:	0.030 (kip/ft)
Additional Self Load %:	(%)

#### Analysis Module

Analysis Method:	ASD
Analysis Module:	BRASS ASD
Analysis Module Component:	
Properties:	

Analysis Method:	LFD
Analysis Module:	AASHTO LFD

Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

#### Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

#### Default Materials

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

#### Impact

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### Live Load Distribution

#### Standard

#### D i s t r i b u t i o n   F a c t o r (Wheels)

Lanes Loaded	Shear	Shear at Supports	Moment	Deflection
1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.417	1.409	0.667

### Girder Profile

#### Shape

Shape: W 36x150  
Distance: 0.00 *(ft)*  
Length: 64.75 *(ft)*  
Material: ASTM A7

#### Flange Cover Plates

Plate	Begin Width <i>(in)</i>	End Width <i>(in)</i>	Thickness <i>(in)</i>	Distance <i>(ft)</i>	Length <i>(ft)</i>	Material
1 (Bot...		16.000...	16.000...	1.0000	8.38	48.00      ASTM A7

### Deck Profile

#### Deck Concrete

Material (LRFD)	Distance n <i>(ft)</i>	Length <i>(ft)</i>	Total Thickness <i>(in)</i>	Structural Thickness <i>(in)</i>	Effective Width (Std) <i>(in)</i>	Effective Width <i>(in)</i>
Unknown stren...	0.00 10.1...	64.75		6.7500	81.0000	93.0000

#### Shear Connectors

Start Distance <i>(ft)</i>	Length <i>(ft)</i>	Connector Name	Number per Row	Number of Spaces	Transverse Spacing <i>(in)</i>
0.00	64.75	Composite			

### Haunch Profile

Haunch Type: Flange edges  
Embedded flange: FALSE  
Distance Length Z1 Z2 Y1  
*(ft)* *(ft)* *(in)* *(in)* *(in)*  
0.00 64.75 0.0000

### Bracing Ranges

#### Lateral Support

Distance <i>(ft)</i>	Length <i>(ft)</i>
0.00	64.75

### **Stiffener Ranges**

#### **Transverse Stiffener Ranges (Location)**

Name	Distance (ft)	Number	Spacing (in)
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	21.58	1	0.0000
2 sided dia. conn.	43.17	1	0.0000
2 sided dia. conn.	64.75	1	0.0000

### **Bearing Stiffener Locations**

#### **Member G4**

Link with: G3

Description:

Existing:

Current:

Number of Spans: 1

Span Span Length

Number	(ft)
1	64.750000

Support Frame Connection

1

2

Pedestrian load: (lb/ft)

#### **Member G5**

Link with: G2

Description:

Existing:

Current:

Number of Spans: 1

Span Span Length

Number	(ft)
1	64.750000

Support Frame Connection

1

2

Pedestrian load: (lb/ft)

## Member G6

Link with: None

Description:

Existing: G-6 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 40% loss for upper 16" per 2014 inspection report, say 10% loss elsewhere. Weighted average loss is 23.4%, say 25%.

Current: G-6 - Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 40% loss for upper 16" per 2014 inspection report, say 10% loss elsewhere. Weighted average loss is 23.4%, say 25%.

Number of Spans: 1

Span Number	Span Length (ft)
1	64.750000

Support Number	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

### Member Loads

#### Distributed Loads

Distance (ft)	Length (ft)	Start (kip/ft)	End (kip/ft)	Load Case Name
0.00	64.75	0.084	0.084	Sidewalk K...

#### Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

### Support Constraints

#### General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

#### Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

## Member Alternative G-6

Description: Additional self load is for the diaphragms.

Web Section Loss at Begin: Use 40% loss for upper 16" per 2014 inspection report, say 10% loss elsewhere. Weighted average loss is 23.4%, say 25%.

### Description

Material Type: Steel  
Girder Type: Rolled  
Member units: US Customary  
Girder property input method: Schedule based  
Left end X: 5.0000 (in)  
Right end X: 5.0000 (in)  
Additional Self Load: 0.015 (kip/ft)  
Additional Self Load %: (%)

### *Analysis Module*

Analysis Method: ASD  
Analysis Module: BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

### Factors

#### *Factor Override*

LRFD:

LFD:

#### *ASD Factors*

Structural steel      Inventory      Operating

Concrete  
 PS Concrete Comp.  
 PS Concrete Tens.  
 PS Moment Cap.  
 Reinforcement  
 Bearing Stiffener  
 Stirrup  
 Timber NA

### **Default Materials**

Structural steel: ASTM A7  
 Deck concrete: Unknown strength concrete prior to 1959  
 Deck reinforcement: Grade 40  
 Welds:  
 Bolts:

### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### **Live Load Distribution**

Standard

#### **D i s t r i b u t i o n F a c t o r (Wheels)**

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.305	0.683	1.305	0.333
Multi-Lane	1.305	0.683	1.305	0.667

### **Girder Profile**

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 64.75 (ft)

Material: ASTM A7

Flange Cover Plates

	<u>Begin</u>	<u>End</u>					
Plate	Width	Width	Thickness	Distance	Length	Material	
	(in)	(in)	(in)	(ft)	(ft)		
1 (Bot...	14.000...	14.000...	0.6250	0.42	63.92	ASTM A7	

### **Deck Profile**

Deck Concrete

Material	Distance	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
----------	----------	--------	-----------------	----------------------	-----------------------	-----------------

(LRFD)	n					
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown stren...	0.00	64.75		7.0000	60.1879	65.0004
	10.1...					

#### Shear Connectors

Start	Connector	Number	Number of	Transverse
Distance	Name	per Row	Spaces	Spacing
(ft)				(in)
0.00	Composite			

#### Haunch Profile

Haunch Type:	Flange edges						
Embedded flange:	TRUE						
Distance	Length	Z1	Z2	Z3	Z4	Y1	Y2
(ft)	(ft)	(in)	(in)	(in)	(in)	(in)	(in)
0.00	64.75			12.5100	12.5100	0.0000	0.0000

#### Bracing Ranges

##### Lateral Support

Distance	Length
(ft)	(ft)
0.00	64.75

#### Stiffener Ranges

##### Transverse Stiffener Ranges (Location)

Name	Distance	Number	Spacing
	(ft)		(in)
1 sided dia. conn.	0.00	1	0.0000
1 sided dia. conn.	21.58	1	0.0000
1 sided dia. conn.	43.17	1	0.0000
1 sided dia. conn.	64.75	1	0.0000

#### Bearing Stiffener Locations

##### Points of Interest

Distance from left most support:	0.10 (ft)
Side:	Right

##### Transverse Stiffeners

Override Schedule:	FALSE
Stiffener spacing:	(in)
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Stiffener number:	Single
Stiffener type:	Plate

##### Other Stiffeners

Bearing Stiffener	
Override Schedule:	FALSE

Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Clip:	(in)
Number of pairs:	
Pair spacing:	(in)
Attachment Type:	Welds
<i>Longitudinal Stiffener</i>	
Override Schedule:	FALSE
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Distance from flange to stiffener:	(in)
Distance measured from:	Top Flange
<u>Fatigue</u>	
Number of cycles:	0
<u>Bracing</u>	
Deck provides lateral support:	
Override diaphragm schedule:	FALSE
Distance to left diaphragm:	(ft)
Distance to right diaphragm:	(ft)
Diaphragm at this location:	TRUE
<u>ASD</u>	
Compression flange unsupported length:	(ft)
Tension Field Action	Ignore combined shear and bending
<i>Riveted Section</i>	
Net moment of inertia:	(in <sup>4</sup> )
Distance to centroid:	(in)
Net area of web:	(in <sup>2</sup> )
Top plate allowable shear:	(ksi)
Bottom plate allowable shear:	(ksi)
Percent area top flange:	(%)
Percent area bottom flange:	(%)
Distance from left most support:	64.65 (ft)
Side:	Right
<u>Transverse Stiffeners</u>	
Override Schedule:	FALSE
Stiffener spacing:	(in)
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7
Stiffener number:	Single
Stiffener type:	Plate
<u>Other Stiffeners</u>	
<i>Bearing Stiffener</i>	
Override Schedule:	FALSE
Stiffener width:	(in)
Stiffener thickness:	(in)
Material:	ASTM A7

Clip: (in)  
 Number of pairs:  
 Pair spacing: (in)  
 Attachment Type: Welds  
*Longitudinal Stiffener*  
 Override Schedule: FALSE  
 Stiffener width: (in)  
 Stiffener thickness: (in)  
 Material: ASTM A7  
 Distance from flange to stiffener: (in)  
 Distance measured from: Top Flange  
Fatigue  
 Number of cycles: 0  
Bracing  
 Deck provides lateral support:  
 Override diaphragm schedule: FALSE  
 Distance to left diaphragm: (ft)  
 Distance to right diaphragm: (ft)  
 Diaphragm at this location: TRUE  
ASD  
 Compression flange unsupported length: (ft)  
 Tension Field Action Ignore combined shear and bending  
*Riveted Section*  
 Net moment of inertia: (in<sup>4</sup>)  
 Distance to centroid: (in)  
 Net area of web: (in<sup>2</sup>)  
 Top plate allowable shear: (ksi)  
 Bottom plate allowable shear: (ksi)  
 Percent area top flange: (%)  
 Percent area bottom flange: (%)

#### **Top Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)

#### **Bottom Flange Deterioration**

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
	10.0	0.00	64.75

#### **Web Deterioration**

Thickness	Start	Length
Loss	Distance	
(%)	(ft)	(ft)
25.0	0.00	0.50
10.0	64.25	0.50

## Superstructure Definition Span 4

### Definition

Units: US Customary

Number of spans: 1

Number of girders: 6

Length

Span (ft)

1 37.0000

Frame Structure Simplified Definition:

Support Frame Connection

1

2

Girder Spacing Display Type: Perpendicular

Average Humidity: (%)

### Analysis

*Default Library Factors*

*Factor Override*

*Analysis Module*

Analysis Method: ASD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFD

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: LRFR

Analysis Module:

Analysis Module Component:

Properties:

Analysis Method: Distribution Factors

Analysis Module:

Analysis Module Component:

Properties:

Default rating method: LFD

### Impact

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)  
 All other limit states: 33.0 (%)

### **Structure Framing Plan Details**

#### **Layout**

Support Skew  
 (Degrees)  
 1 0.0000  
 2 0.0000  
 Girder Spacing Orientation: Perpendicular

Girder Bay	Girder Spacing Start (ft)	Girder Spacing End (ft)
1	7.7500	7.7500
2	7.7500	7.7500
3	7.7500	7.7500
4	7.7500	7.7500
5	7.7500	7.7500

#### **Diaphragms**

##### *Girder Bay 1*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.50	18.50	18.50	1	
18.50	18.50	0.00	1	

##### *Girder Bay 2*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.50	18.50	18.50	1	
18.50	18.50	0.00	1	

##### *Girder Bay 3*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.50	18.50	18.50	1	
18.50	18.50	0.00	1	

##### *Girder Bay 4*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.50	18.50	18.50	1	
18.50	18.50	0.00	1	

##### *Girder Bay 5*

Distance Left Girder (ft)	Distance Right Girder (ft)	Diaphragm Spacing (ft)	Number of Spaces	Diaphragm Weight (kip)
0.00	0.00	0.00	1	
18.50	18.50	0.00	1	
18.50	18.50	18.50	1	

### **Structure Typical Section**

#### **Deck**

Left start width:	20.92 (ft)
Left end width:	20.92 (ft)
Right start width:	20.92 (ft)
Right end width:	20.92 (ft)
Left start overhang:	1.54 (ft)
Left end overhang:	1.54 (ft)

#### **Deck (Cont'd)**

Deck concrete:	Unknown strength concrete prior to 1959
Total deck thickness:	7.0000 (in)
Deck crack control parameter:	(kip/in)
Sustained modular ratio factor:	3.000

#### **Railing**

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
4-Rail w/...	DC2		Left Ed...	0.06	0.06	Right
Double W-...	DC2		Left Ed...	20.51	20.51	Right
4-Rail w/...	DC2		Right E...	0.06	0.06	Left

#### **Sidewalk**

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start
26.0000	9.4200	Unknown...	DC2		Left Ed...	-0.17 ...
26.0000	9.4200	Unknown...	DC2		Right E...	-0.17 ...

#### **Lane Position**

Offset Left Start:	-18.92 (ft)
Offset Left End:	-18.92 (ft)
Offset Right Start:	18.92 (ft)
Offset Right End:	18.92 (ft)

#### **Wearing Surface**

Wearing surface material:	Asphalt/Concrete
Description:	Overlay
Wearing surface thickness:	8.0000 (in)
Wearing surface density:	150.000 (pcf)
Load case:	DW

### **Load Case Description**

Load Case Name	Description	Stage	Type	Time (Days)
Deck	DC acting on non-comp...	Non-composite (Sta...		D,DC
Railing	DC acting on long-ter...	Composite (long te...		D,DC
Wearing	DW acting on long-ter...	Composite (long te...		D,DW

DC1	DC acting on non-comp...	Non-composite (Sta...	D,DC
DC2	DC acting on long-ter...	Composite (long te...	D,DC
DW	DW acting on long-ter...	Composite (long te...	D,DW
Sidewalk Keyway	Weight of additional ...	Non-composite (Sta...	D,DC

### **Superstructure Loads**

#### Uniform Temperature

Load Case:

Temperature rise: (F )

Temperature fall: (F )

#### Gradient Temperature

Load Case:

Temperature value T1: (F )

Temperature value T2: (F )

Temperature value T3: (F )

### **Wind**

Load Case:

Design Pressure: (psf)

Wind Load Path: Truss action

#### DL Distribution

Stage 1 Dead Load Distribution: Tributary Area

Stage 2 Dead Load Distribution: Tributary Area

### **Stiffener Definitions**

#### **Transverse Stiffeners**

Name: 1 sided dia. conn.

Stiffener number: Single

Plate Width: 10.0000 (in)

Plate Thickness: 0.3750 (in)

Material: ASTM A7

Top Gap: 1.0000 (in)

Bottom Gap: 1.0000 (in)

Top Weld:

Web Weld:

Bottom Weld:

Name: 2 sided dia. conn.

Stiffener number: Pair

Plate Width: 10.0000 (in)

Plate Thickness: 0.3750 (in)

Material: ASTM A7

Top Gap: 1.0000 (in)

Bottom Gap: 1.0000 (in)

Top Weld:

Web Weld:

Bottom Weld:

No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

## **Member G1**

Link with: None

Description:

Existing: G-1 - Additional self load is for the diaphragms.

Current: G-1 - Additional self load is for the diaphragms.

Number of Spans: 1

Span Span Length

Number	(ft)
1	37.000000

Support Frame Connection

1
2

Pedestrian load: 0.000 (lb/ft)

### **Member Loads**

#### **Distributed Loads**

Distance	Length	Start	End	Load Case Name
(ft)	(ft)	(kip/ft)	(kip/ft)	
0.00	37.00	0.084	0.084	Sidewalk K...

#### **Member Loads - Settlement**

Support	Horizontal	Vertical	Rotational	Load Case Name
Number	(in)	(in)	(Radians)	
1				
2				

### **Support Constraints**

#### **General**

Support	Support			
Number	Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

#### **Elastic**

Support	X Translation	Y Translation	Z Rotation	Override Computed
Number	(kip/ft)	(kip/ft)	(kip-in/rad)	Z Rotation
1				
2				

## Member Alternative G-1

Description: Additional self load is for the diaphragms.

### Description

Material Type: Steel  
Girder Type: Rolled  
Member units: US Customary  
Girder property input method: Schedule based  
Left end X: 5.0000 (in)  
Right end X: 8.0000 (in)  
Additional Self Load: 0.020 (kip/ft)  
Additional Self Load %: (%)

### *Analysis Module*

Analysis Method: ASD  
Analysis Module: BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

### Factors

#### *Factor Override*

LRFD:

LFD:

#### *ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		

PS Moment Cap.  
Reinforcement  
Bearing Stiffener  
Stirrup  
Timber

NA

### Default Materials

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

### Impact

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

### Live Load Distribution

Standard

#### D i s t r i b u t i o n   F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.305	0.683	1.305	0.333
Multi-Lane	1.305	0.683	1.305	0.667

### Girder Profile

Shape

Shape: W 36x150

Distance: 0.00 (ft)

Length: 37.00 (ft)

Material: ASTM A7

### Deck Profile

Deck Concrete

Material (LRFD)	Distance n	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown stren...	0.00	37.00		7.0000	60.1879	65.0004
	10.1...					

### Haunch Profile

Haunch Type: Flange edges

Embedded flange: TRUE

Distance	Length	Z1	Z2	Z3	Z4	Y1	Y2
----------	--------	----	----	----	----	----	----

(ft)	(ft)	(in)	(in)	(in)	(in)	(in)	(in)
0.00	37.00			12.5100	12.5100	0.0000	0.0000

### **Bracing Ranges**

#### Lateral Support

Distance	Length
----------	--------

(ft)	(ft)
0.00	37.00

### **Stiffener Ranges**

#### Transverse Stiffener Ranges (Location)

Name	Distance (ft)	Number	Spacing (in)
1 sided dia. conn.	0.00	1	0.0000
1 sided dia. conn.	18.50	1	0.0000
1 sided dia. conn.	37.00	1	0.0000

### **Bearing Stiffener Locations**

#### **Points of Interest**

Distance from left most support: 0.10 (ft)  
Side: Right

#### Transverse Stiffeners

Override Schedule: FALSE  
Stiffener spacing: (in)  
Stiffener width: (in)  
Stiffener thickness: (in)  
Material: ASTM A7  
Stiffener number: Single  
Stiffener type: Plate

#### Other Stiffeners

##### *Bearing Stiffener*

Override Schedule: FALSE  
Stiffener width: (in)  
Stiffener thickness: (in)  
Material: ASTM A7  
Clip: (in)  
Number of pairs:  
Pair spacing: (in)  
Attachment Type: Welds

##### *Longitudinal Stiffener*

Override Schedule: FALSE  
Stiffener width: (in)  
Stiffener thickness: (in)  
Material: ASTM A7  
Distance from flange to stiffener: (in)  
Distance measured from: Top Flange

#### Fatigue

Number of cycles: 0

### Bracing

Deck provides lateral support:  
Override diaphragm schedule: FALSE  
Distance to left diaphragm: (ft)  
Distance to right diaphragm: (ft)  
Diaphragm at this location: TRUE

### ASD

Compression flange unsupported length: (ft)  
Tension Field Action Ignore combined shear and bending

### Riveted Section

Net moment of inertia: (in<sup>4</sup>)  
Distance to centroid: (in)  
Net area of web: (in<sup>2</sup>)  
Top plate allowable shear: (ksi)  
Bottom plate allowable shear: (ksi)  
Percent area top flange: (%)  
Percent area bottom flange: (%)

### Top Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)

### Bottom Flange Deterioration

Width	Thickness	Start	Length
Loss	Loss	Distance	
(%)	(%)	(ft)	(ft)
	10.0	0.00	37.00

### Web Deterioration

Thickness	Start	Length
Loss	Distance	
(%)	(ft)	(ft)
10.0	0.00	0.50

## Member G2

Link with: None

Description:

Existing: G-2 - Additional self load is for the diaphragms.

Current: G-2 - Additional self load is for the diaphragms.

Number of Spans: 1

Span	Span Length
Number	(ft)
1	37.000000

Support	Frame Connection
1	

Pedestrian load: 0.000 (lb/ft)

### **Member Loads**

#### **Member Loads - Settlement**

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

### **Support Constraints**

#### **General**

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

#### **Elastic**

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

### **Member Alternative G-2**

Description: Additional self load is for the diaphragms.

#### **Description**

Material Type: Steel  
 Girder Type: Rolled  
 Member units: US Customary  
 Girder property input method: Schedule based  
 Left end X: 5.0000 (in)  
 Right end X: 8.0000 (in)  
 Additional Self Load: 0.040 (kip/ft)  
 Additional Self Load %: (%)

#### **Analysis Module**

Analysis Method: ASD  
 Analysis Module: BRASS ASD  
 Analysis Module Component:  
 Properties:

Analysis Method: LFD  
 Analysis Module: AASHTO LFD  
 Analysis Module Component:  
 Properties:

Analysis Method: LRFD  
 Analysis Module: BRASS LRFD  
 Analysis Module Component:

## Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

## Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

## **Default Materials**

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

## **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)

All other limit states: 33.0 (%)

## **Live Load Distribution**

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				

1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.618	1.409	0.667

### **Girder Profile**

#### Shape

Shape: W 33x130  
 Distance: 0.00 *(ft)*  
 Length: 37.00 *(ft)*  
 Material: ASTM A7

### **Deck Profile**

#### Deck Concrete

Material (LRFD)	Distance n <i>(ft)</i>	Length <i>(ft)</i>	Total Thickness <i>(in)</i>	Structural Thickness <i>(in)</i>	Effective Width (Std) <i>(in)</i>	Effective Width <i>(in)</i>
Unknown stren...	0.00 10.1...	37.00		7.0000	84.0000	93.0000

### **Haunch Profile**

Haunch Type: Flange edges  
 Embedded flange: FALSE  
 Distance Length Z1 Z2 Y1  
*(ft) (ft) (in) (in) (in)*  
 0.00 37.00 0.0000

### **Bracing Ranges**

#### Lateral Support

Distance Length  
*(ft) (ft)*  
 0.00 37.00

### **Stiffener Ranges**

#### Transverse Stiffener Ranges (Location)

Name	Distance <i>(ft)</i>	Number	Spacing <i>(in)</i>
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	18.50	1	0.0000
2 sided dia. conn.	37.00	1	0.0000

### **Bearing Stiffener Locations**

## **Member G3**

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms.

Current: G-3 - Additional self load is for the diaphragms.

Number of Spans: 1

Span Number	Span Length (ft)
1	37.000000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 (lb/ft)

### **Member Loads**

#### Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

### **Support Constraints**

#### General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Roller	Free	Fixed	Free
2	Pinned	Fixed	Fixed	Free

#### Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

### **Member Alternative G-3**

Description: Additional self load is for the diaphragms.

#### Description

Material Type: Steel  
Girder Type: Rolled  
Member units: US Customary  
Girder property input method: Schedule based  
Left end X: 5.0000 (in)  
Right end X: 8.0000 (in)  
Additional Self Load: 0.040 (kip/ft)  
Additional Self Load %: (%)

#### Analysis Module

Analysis Method: ASD  
Analysis Module: BRASS ASD  
Analysis Module Component:  
Properties:

Analysis Method: LFD  
Analysis Module: AASHTO LFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFD  
Analysis Module: BRASS LRFD  
Analysis Module Component:  
Properties:

Analysis Method: LRFR  
Analysis Module: BRASS LRFR  
Analysis Module Component:  
Properties:

Analysis Method: Distribution Factors  
Analysis Module:  
Analysis Module Component:  
Properties:

Default rating method: LFD

#### Factors

*Factor Override*

LRFD:

LFD:

*ASD Factors*

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

#### **Default Materials**

Structural steel: ASTM A7  
Deck concrete: Unknown strength concrete prior to 1959  
Deck reinforcement: Grade 40  
Welds:  
Bolts:

#### **Impact**

*Standard Impact Factor*

Type: Standard - AASHTO

*LRFD Dynamic Load Allowance*

Fatigue and fracture limit states: 15.0 (%)  
 All other limit states: 33.0 (%)

### Live Load Distribution

Standard

#### D i s t r i b u t i o n F a c t o r (Wheels)

Lanes	Shear	Shear at Supports	Moment	Deflection
Loaded				
1 Lane	1.107	1.226	1.107	0.333
Multi-Lane	1.409	1.417	1.409	0.667

### Girder Profile

Shape

Shape: W 33x130

Distance: 0.00 (ft)

Length: 37.00 (ft)

Material: ASTM A7

### Deck Profile

Deck Concrete

Material	Distance	Length	Total Thickness	Structural Thickness	Effective Width (Std)	Effective Width
(LRFD)	n					
	(ft)	(ft)	(in)	(in)	(in)	(in)
Unknown stren...	0.00	37.00		7.0000	84.0000	93.0000
	10.1...					

### Haunch Profile

Haunch Type: Flange edges

Embedded flange: FALSE

Distance Length Z1 Z2 Y1

(ft) (ft) (in) (in) (in)

0.00 37.00 0.0000

### Bracing Ranges

Lateral Support

Distance Length

(ft) (ft)

0.00 37.00

### Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance	Number	Spacing
	(ft)		(in)
2 sided dia. conn.	0.00	1	0.0000
2 sided dia. conn.	18.50	1	0.0000
2 sided dia. conn.	37.00	1	0.0000

## **Bearing Stiffener Locations**

### **Member G4**

Link with: G3

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	37.000000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

### **Member G5**

Link with: G2

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	37.000000

Support	Frame Connection
1	
2	

Pedestrian load: (lb/ft)

### **Member G6**

Link with: G1

Description:

Existing:

Current:

Number of Spans: 1

Span Number	Span Length (ft)
1	37.000000

Support                      Frame Connection

1

2

Pedestrian load:                      *(lb/ft)*