PGSuper Design Example:
Non-Standard Strand Pattern

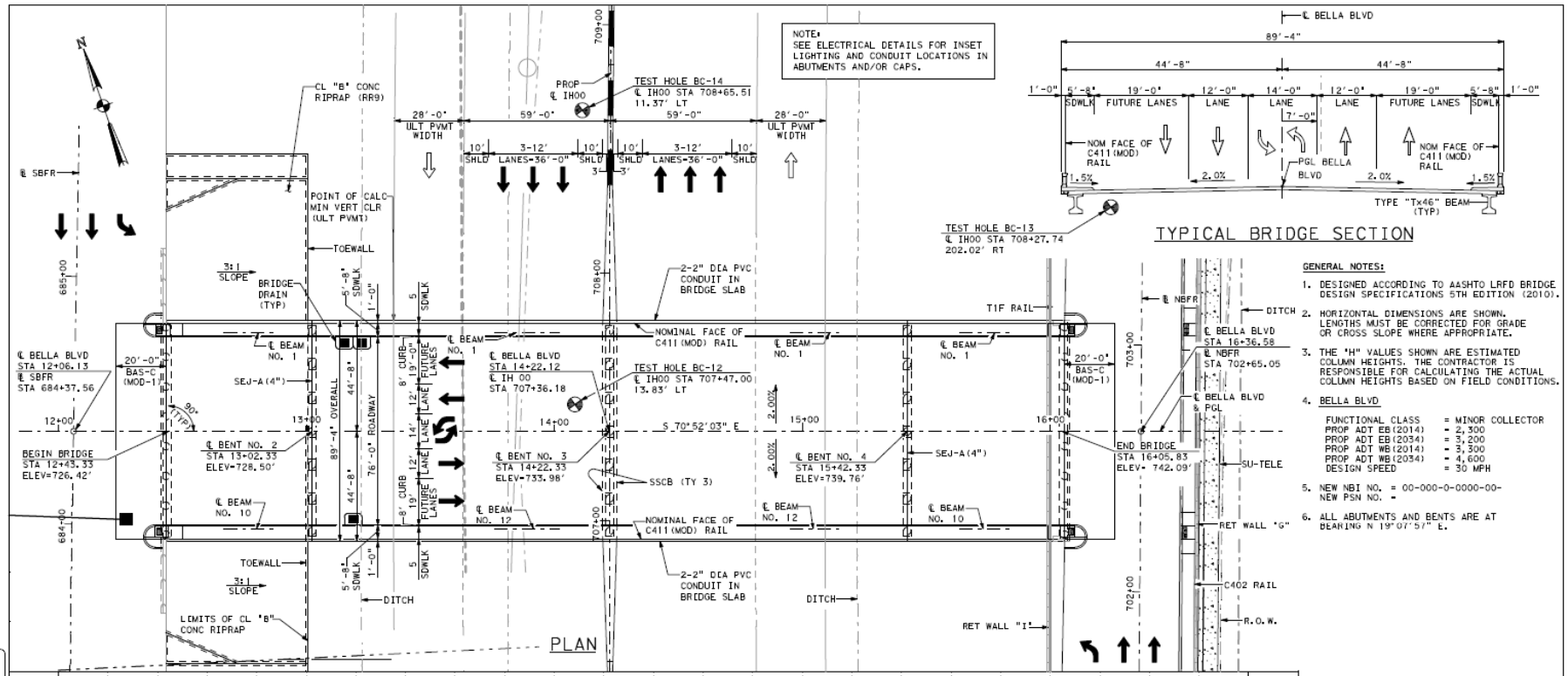
Victoria McCammon

June 28, 2011

Washington State Department of Transportation

PGSuper

Texas Department of Transportation



0 40 80
SCALE: 1" = 40'

HL93 LOADING

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Texas Department of Transportation

BELLA BLVD UNDERPASS BRIDGE LAYOUT

FED. RD. DIV. NO.	PROJECT NUMBER	SHEET NO.
0		000

STATE	DISTRICT	COUNTY	
TEXAS	00	ANY	
CONT	SECT	JOB	HIGHWAY NO
0000	00	000	IH00

DN: VEM
CK: VEM
DW: VEM
CK: CK

DATE: 03/02/11 NODE:
FILE PATH: 7275lyo1.DGN

ACTIVE FILE LEVELS DISPLAYED

Texas Department of Transportation

Providing safe, effective and efficient movement of people and goods.

Bridge Information

TxDOT provides assistance at the local and regional levels in all aspects of planning, design, construction and maintenance of bridges. The Department also develops policies for a safe and comprehensive state bridge system.

Note: The link to the Shop Drawings page has changed. Please update your bookmarks.

Construction and Maintenance

- Bridge Specifications
- Shop Drawings
- Bridge Expansion Joints
- Proprietary Concrete Repair Materials
- Curing Mats for Concrete Structures
- Construction Tips
- Welding Certifications

Geotechnical Services

Design

- Bridge Standards
- Superstructure Design Information
- Substructure Design Information
- Other Design Information
- Steel Bridge Design Preferred Practices
- LRFD Bridge Design FAQs

Project Development

- Railroad Information

Superstructure Design Information - Windows Internet Explorer
File Edit View Favorites Tools Help Convert Select
Links 1 Time Sheet 2 P6 3 Brg Stds 4 Brg Div 5 Xroads 6 TxDOT 7 Manuals 8 Spec Guide 9 Rdwy Stds CAP Customize Links
http://www.txdot.gov/business/contractors_consultants/bridge/super_design.htm
Live Search
Superstructure Design Information
Page Tools

Texas Department of Transportation

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Superstructure Design Information

This page provides guidance and recommendations on Load and Resistance Factor Design (LRFD) of specific bridge superstructure components.

- General Recommendations
- Deck Surface Texture Requirements
- Corrosion Protection Measures
- Concrete Deck Slabs on Stringers
- Concrete Deck Slabs on U Beams (U40 and U54)
- Prestressed Concrete I Beams and I Girders
- Prestressed Concrete U Beams (Types U40 and U54)
- Prestressed Slab Beams and Decked Slab Beams
- Prestressed Concrete Double-Tee Beams
- Prestressed Concrete Box Beams (B20, B28, B34, and B40)
- Design Resources
- Design Examples and Spreadsheets

Done Internet 100%

Contract Bidding Resources
Bidding Information
Project Information
Contract Administration
Right of Way Maps
Landowner's Rights
Forms
Other Upcoming Projects
Contractors/Consultants
Motor Carriers
Motor Vehicle Dealers
Lienholders
Public-Private Partnerships
Government
Conferences & Meetings
Training & Development
Page Options
E-Mail Page
Printer-Friendly
Enlarge Font
Reduce Font

Recommendations" section above.

Structural Analysis

- You need not increase section properties of the beam to account for the transformed area of strands or mild steel.
- For the calculation of live load distribution factors, modular ratio, n, may conservatively be taken as 1.0.

Design Criteria - For grade separation structures, use the same beam depth for the full length of structure for economies of scale and aesthetic reasons. Stream crossing structures may have different types and sizes of beams for purposes of economy. Optimize beam spacing in each span. Maintaining a constant beam spacing for the full length of structure is not necessary. Selection of the proper type beam for a span is a matter of economics; calculate relative costs using current average bid prices for beams and slab.

- Recommended Span Lengths for I Beams
- Recommended Span Lengths for I Girders

Software

Use PGSuper for beam design. Refer to PGSuper Design Guide for further guidance. Alternatively, use this spreadsheet to calculate live load distribution factors and PSTRS14 for beam design.

Detailing

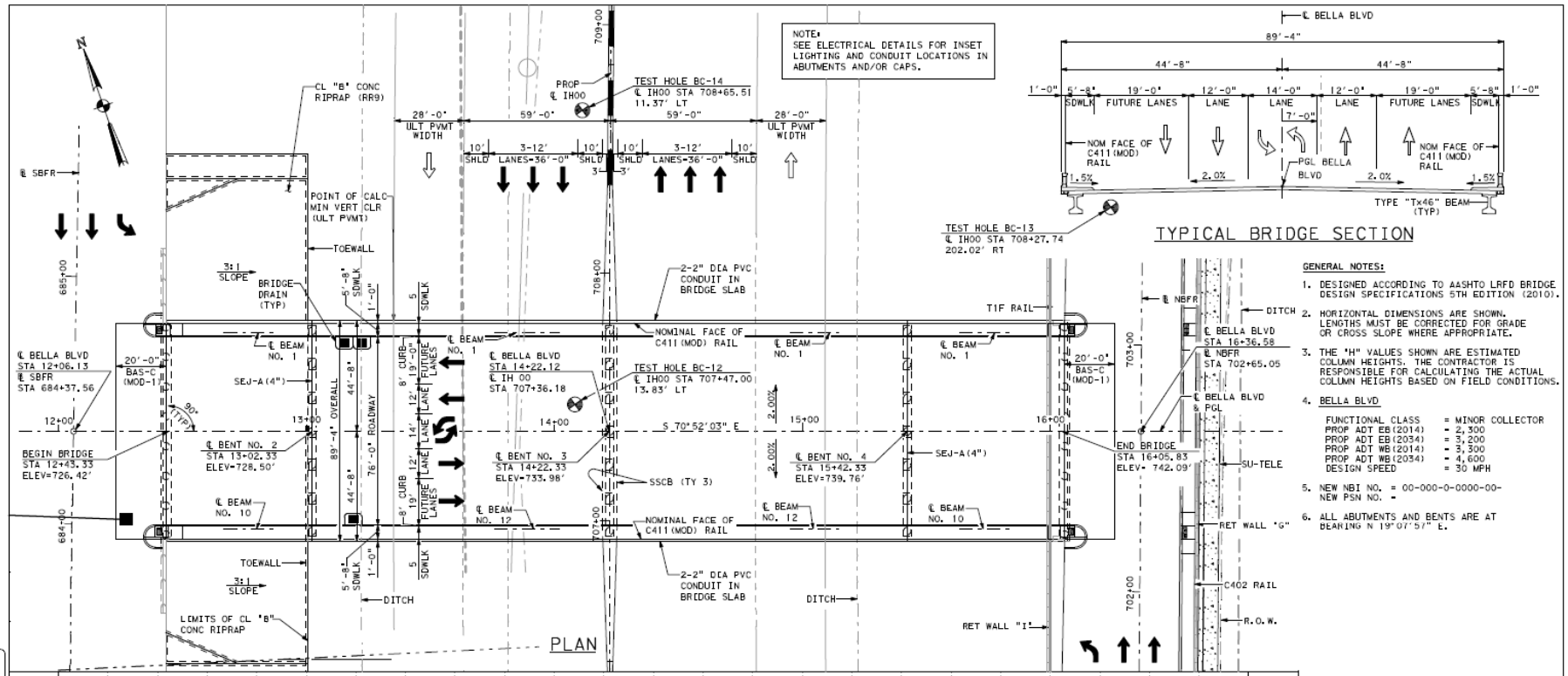
On the plans for each design, show optional design parameters for maximum top flange stress, bottom flange stress, and ultimate moment due to all design loads. The fabricator will retain the option to use other strand arrangements, including straight strand patterns, stress relieved strand, or 0.6-in. diameter strand, if design parameters are satisfied by the prestress and concrete strength selected.

- Prestressed Concrete U Beams (Types U40 and U54)
- Prestressed Slab Beams and Decked Slab Beams
- Prestressed Concrete Double-Tee Beams

I Girders, Recommended Span Lengths for LRFD

Beam Type	Beam Depth	[1]Approx Structure Depth	Use
TX28	28 in.	38 in.	Economical span limit is 70 ft. Spans should not exceed 80 ft.
TX34	34 in.	44 in.	Economical span limit is 80 ft. Spans should not exceed 95 ft.
TX40	40 in.	50 in.	Economical span limit is 95 ft. Spans should not exceed 105 ft.
TX46	46 in.	56 in.	Economical span limit is 105 ft. Spans should not exceed 120 ft.
TX54	54 in.	64 in.	Economical span limit is 125 ft. Spans should not exceed 140 ft.
TX62	62 in.	72 in.	Economical limt is 135ft. Spans should not exceed 150 ft.
TX70	70 in.	80 in.	Economical limt is 145 ft. Spans should not exceed 150 ft due to handling constraints.

[1]Approx Structure depth is Beam Depth plus 8" minimum slab plus 2" estimated haunch.



0 40 80
SCALE: 1" = 40'

HL93 LOADING

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Texas Department of Transportation

BELLA BLVD UNDERPASS BRIDGE LAYOUT

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FILE PATH: 7275lyo1.DGN

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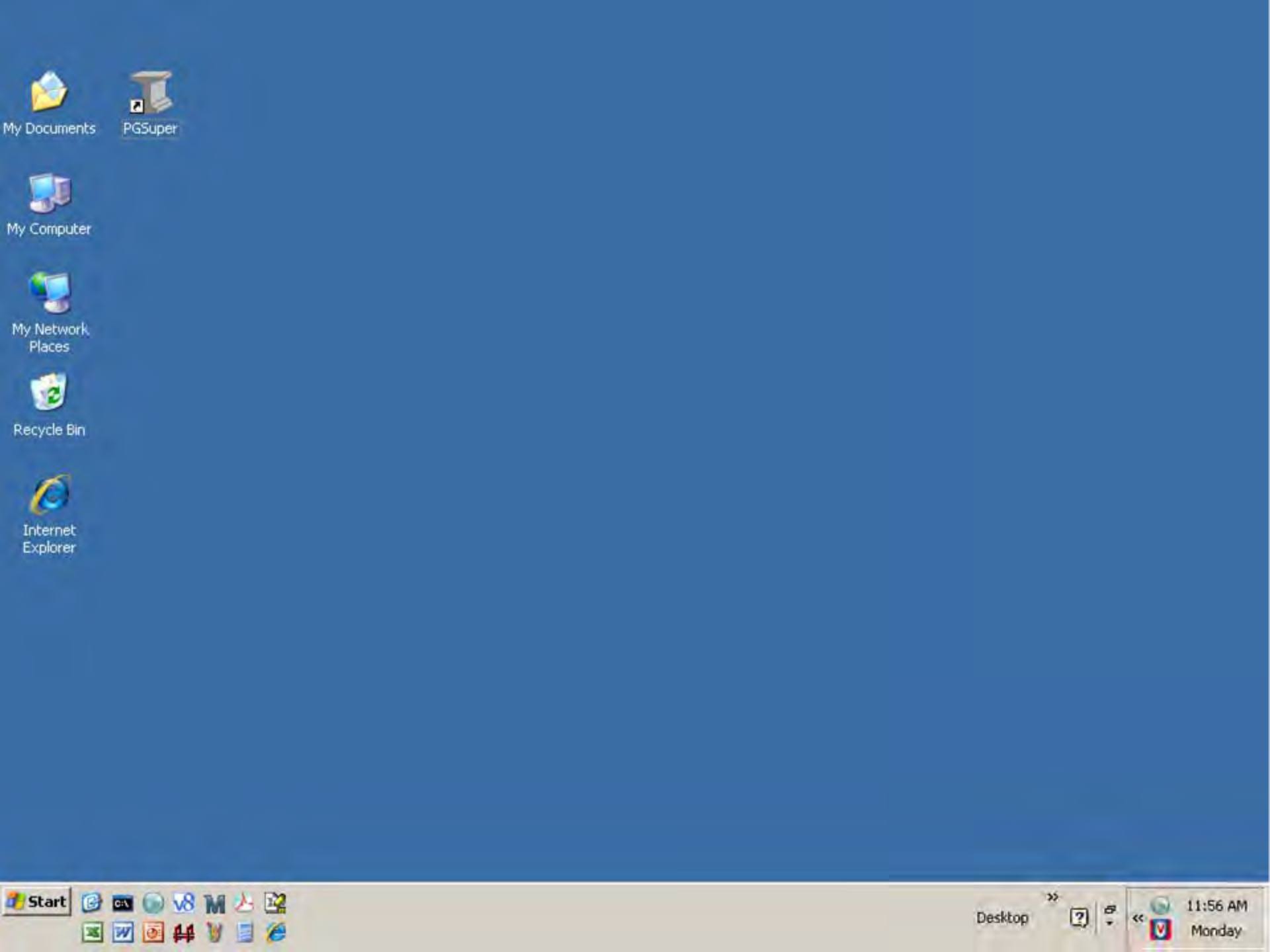
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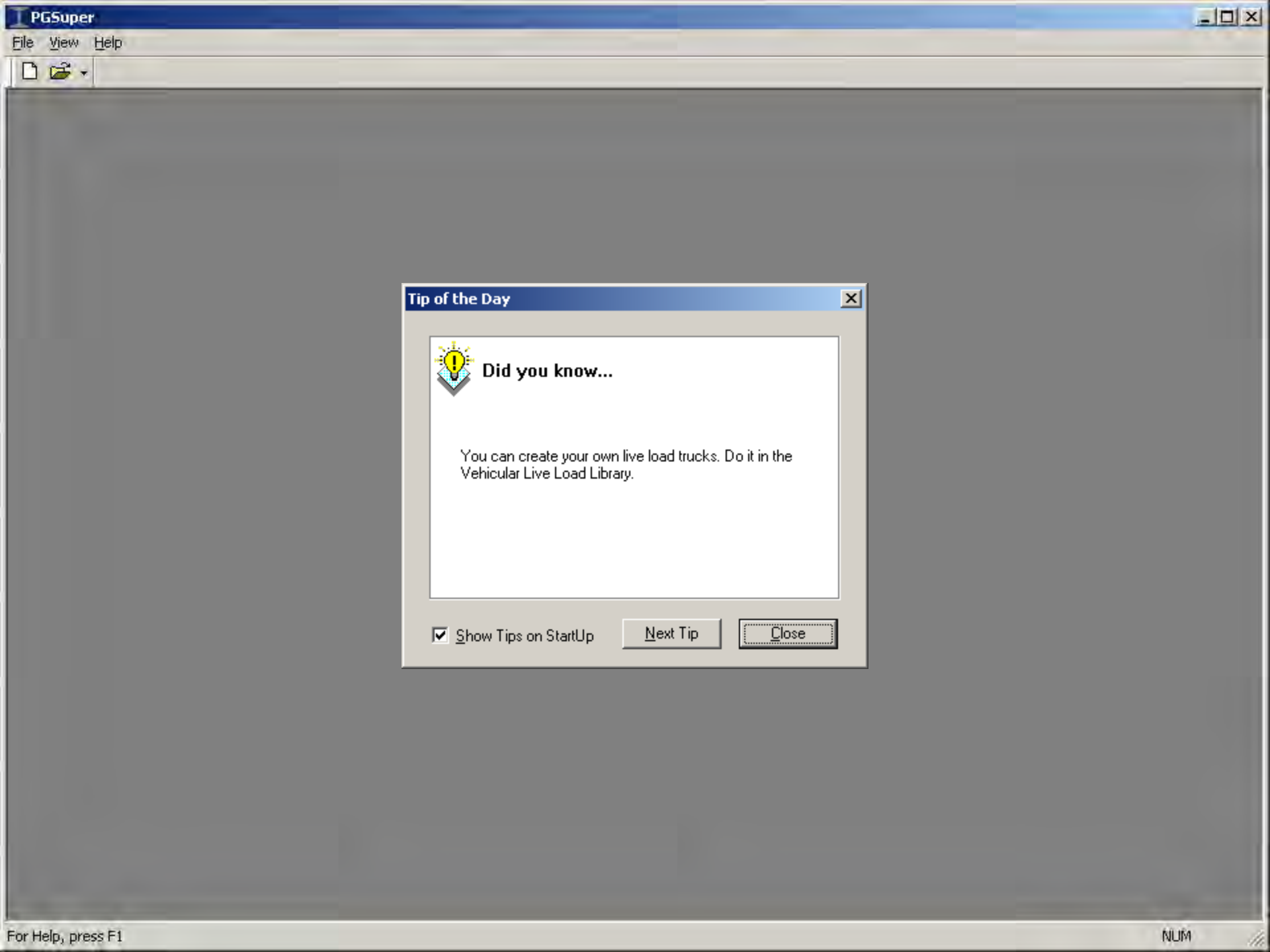
My Computer
My Network Places
Recycle Bin
Internet Explorer
Start
Desktop
11:56 AM
Monday


PGSuper
File View Help
Tip of the Day
Did you know...
You can create your own live load trucks. Do it in the Vehicular Live Load Library.
Show Tips on StartUp
Next Tip
Close
For Help, press F1
NUM

PGSuper

File View Help

- New Ctrl+N
- Open... Ctrl+O
- Manage ▸
- Configure PGSuper...
- Print Setup...
- 1 7275NTA_Opt1.pgs
- 2 U:\Bridges\...\7275ST.pgs
- 3 u:\Bridges\...\7353TA.pgs
- 4 u:\Bridges\...\7275NTA.pgs
- Exit

Create a new project

NUM

PGSuper

File View Help

New Project

Project types:

- PGSuper Project Templates
  - 1_I Girders
  - 2_I Beams
  - 3_Double Ts
  - 4_Box Beams
  - 5_Slab Beams
  - 6_Decked Slab Beams
  - 7_U Beams
- Master Library
- TxDOT Optional Girder Analysis
  - Templates

Templates:

Tx28 Tx46 Tx70

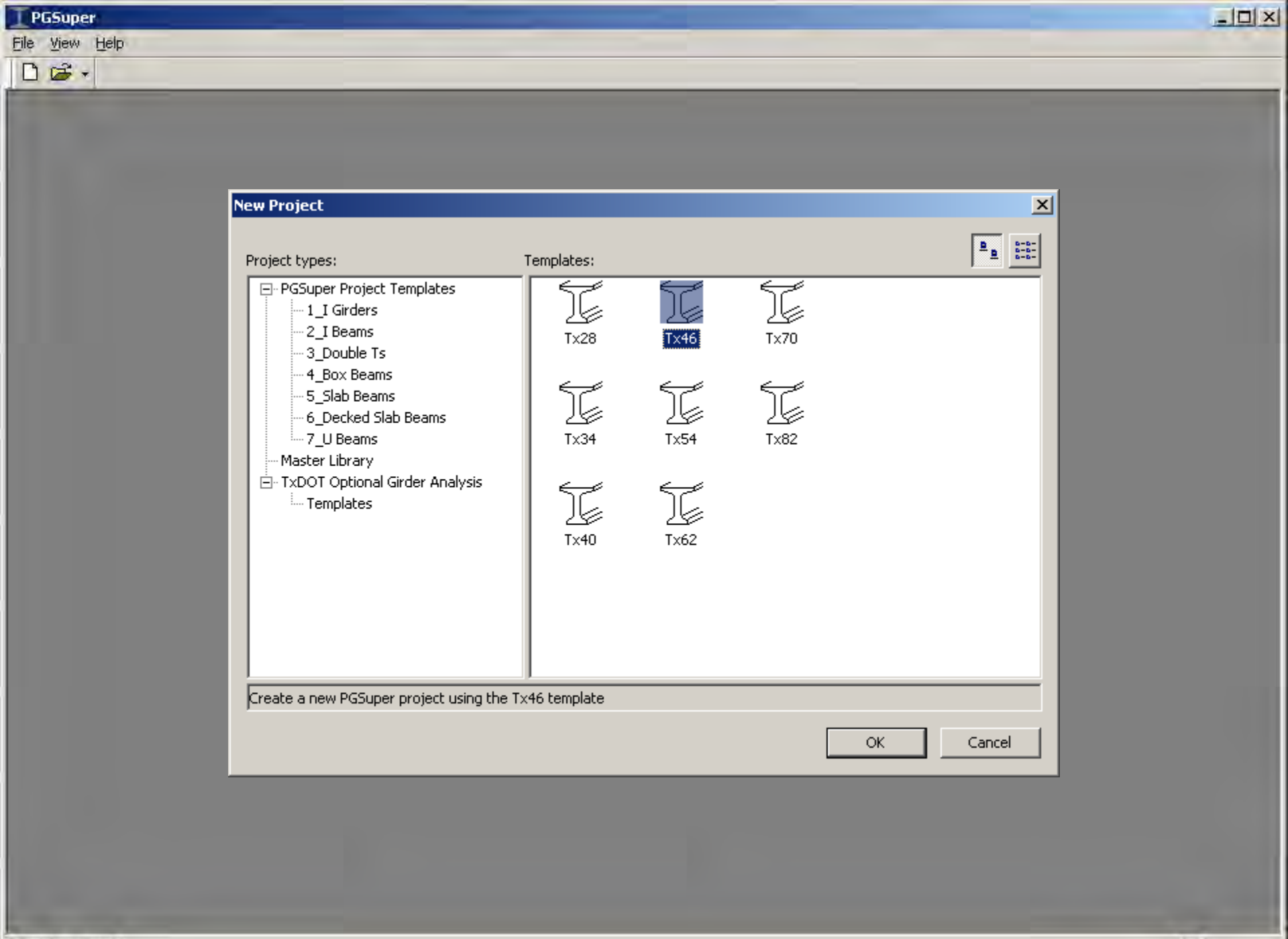
Tx34 Tx54 Tx82

Tx40 Tx62

Select a project template

OK Cancel

For Help, press F1 NUM


PGSuper
File View Help
New Project
Project types:
Templates:
PGSuper Project Templates
1_I Girders
2_I Beams
3_Double Ts
4_Box Beams
5_Slab Beams
6_Decked Slab Beams
7_U Beams
Master Library
TxDOT Optional Girder Analysis
Templates
Tx28
Tx46
Tx70
Tx34
Tx54
Tx82
Tx40
Tx62
Create a new PGSuper project using the Tx46 template
OK
Cancel
For Help, press F1
NUM

PGSuper

File View Help

Project Properties

Bridge

Bridge ID

Job Number

Engineer: Victoria McCammon

Company: Texas Department of Transportation

Comments

OK

Cancel

Help

☑ Show Project Properties when creating new projects

For Help, press F1

NUM

PGSuper

File View Help

Project Properties

Bridge	Bella Blvd Underpass
Bridge ID	0000
Job Number	0000-00-000
Engineer	Victoria McCammon
Company	Texas Department of Transportation

OK

Cancel

Help

Comments

County: Any
District: 00
Hwy: IH00

☑ Show Project Properties when creating new projects

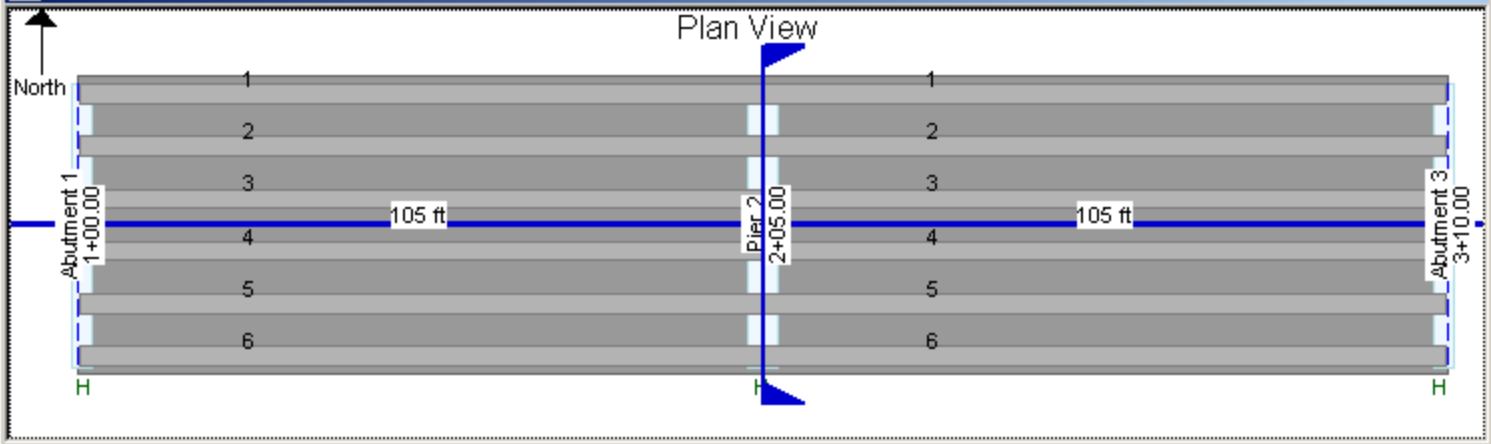
For Help, press F1

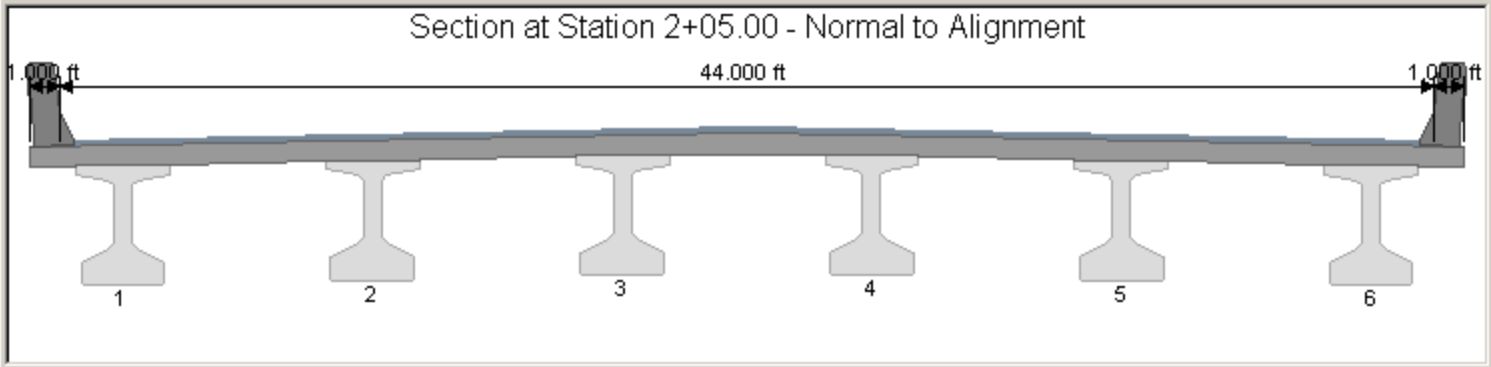
NUM

PGSuper - Untitled

File Edit Project Loads Library Options View Window Help

Bridge Model View





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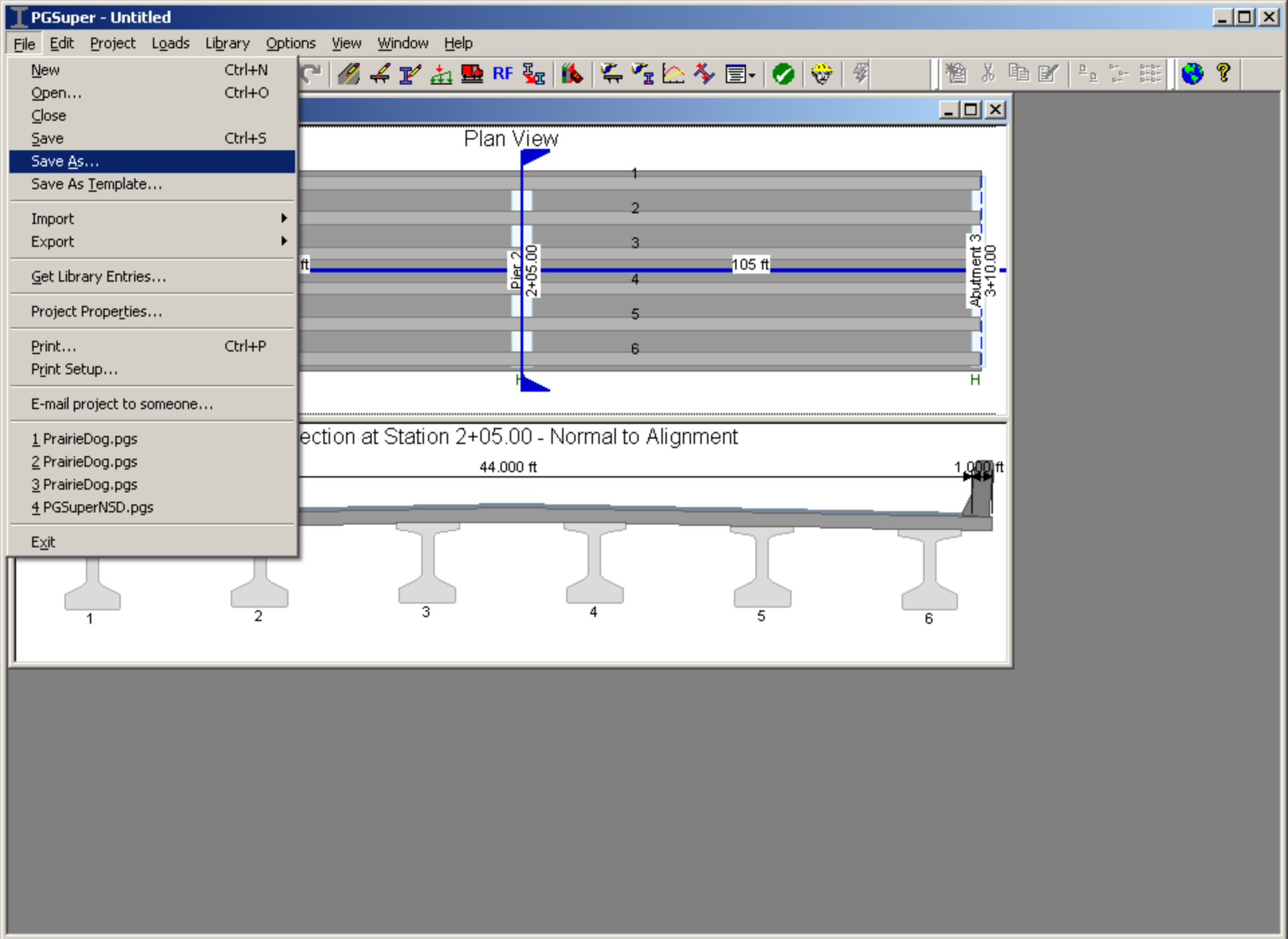

PGSuper - Untitled
File Edit Project Loads Library Options View Window Help
New Ctrl+N
Open... Ctrl+O
Close
Save Ctrl+S
Save As...
Save As Template...
Import
Export
Get Library Entries...
Project Properties...
Print... Ctrl+P
Print Setup...
E-mail project to someone...
1 PrairieDog.pgs
2 PrairieDog.pgs
3 PrairieDog.pgs
4 PGSuperNSD.pgs
Exit
Plan View
Pier 2
2+05.00
105 ft
Abutment 3
3+10.00
ection at Station 2+05.00 - Normal to Alignment
44.000 ft
1.000 ft
Save the current project with a new name
Simple Span
0
Modified
AutoCalc : On
NUM

PGSuper - Untitled

File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

North

Abutment 1

1+00.00

H

1.000 ft

Save As

Save in: PGSuper

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

File name: BellaBlvd.pgs

Save as type: PGSuper Project and Template Files (*.pgs; *.pg

Save

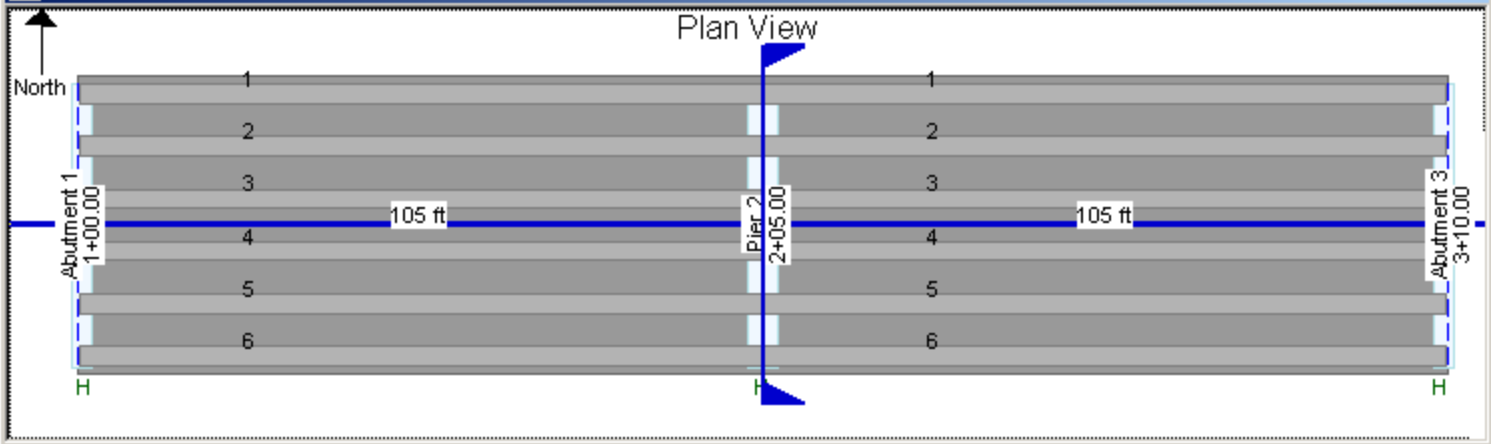
Cancel

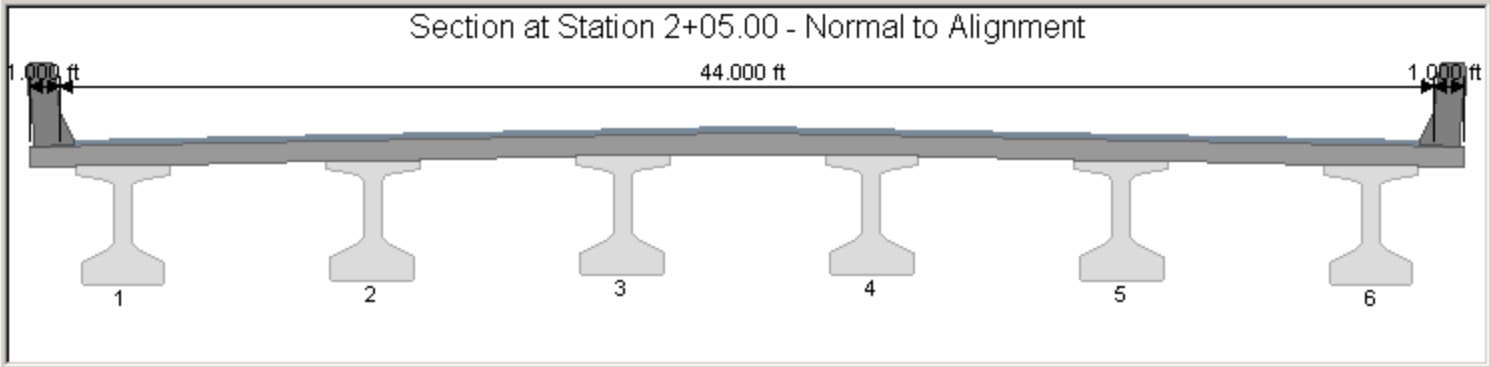
Simple Span 0 Modified AutoCalc : On NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





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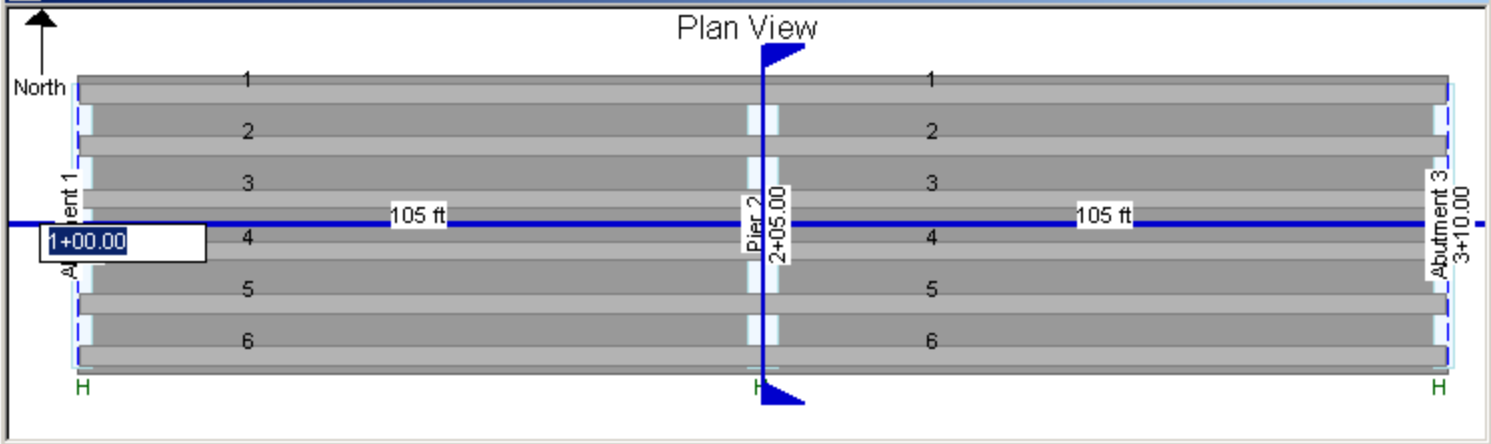
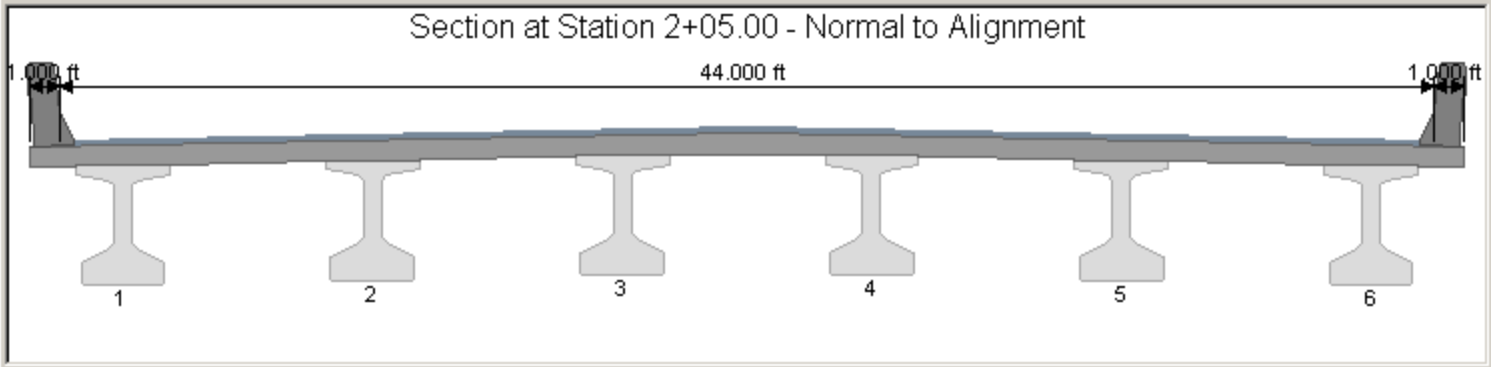
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 AutoCalc : On NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

North

1 2 3 4 5 6

105 ft

12+43.33

Pier 2
2+05.00

105 ft

Abutment 3
3+10.00

H H H

Section at Station 2+05.00 - Normal to Alignment

1.000 ft

44.000 ft

1.000 ft

1 2 3 4 5 6

For Help, press F1

Simple Span 0 AutoCalc : On NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

North

Abutment 1 1+00.00

105 ft

Pier 2 2+05.00

105 ft

Abutment 3 3+10.00

1 2 3 4 5 6

H

Move Pier

Move Abutment 1 from 1+00.00 to 12+43.33

Move bridge, retain all span lengths

OK

Cancel

Sect

1.000 ft

.000 ft

1 2 3 4 5 6

For Help, press F1

Simple Span 0 AutoCalc : On NUM

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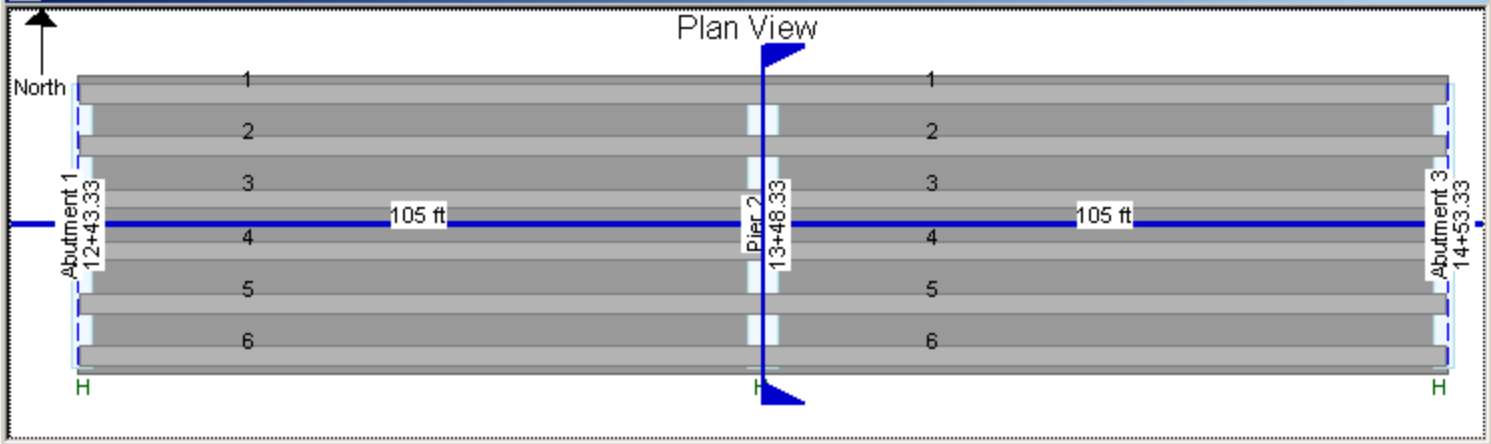
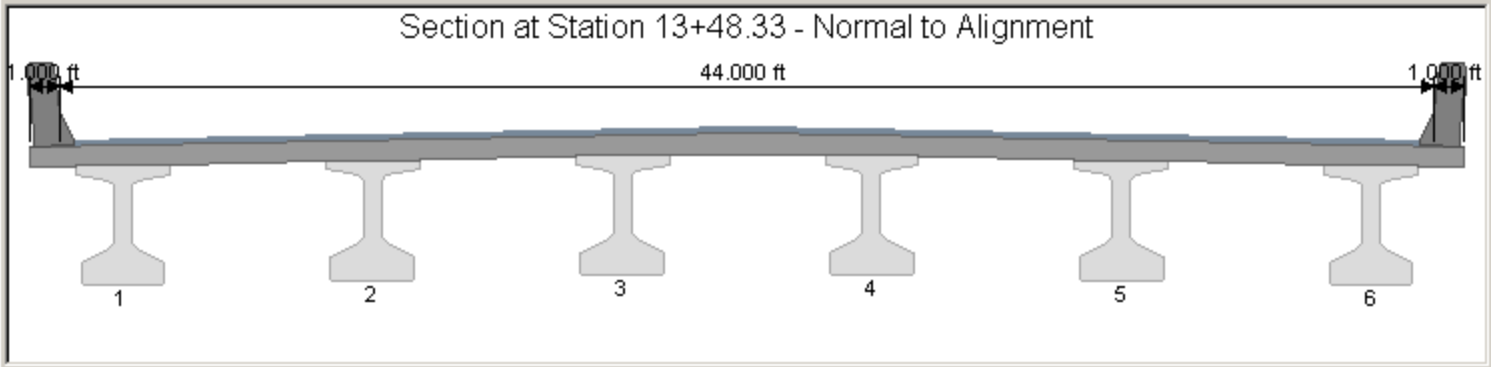
File Edit Project Loads Library Options View Window Help

Bridge Model View





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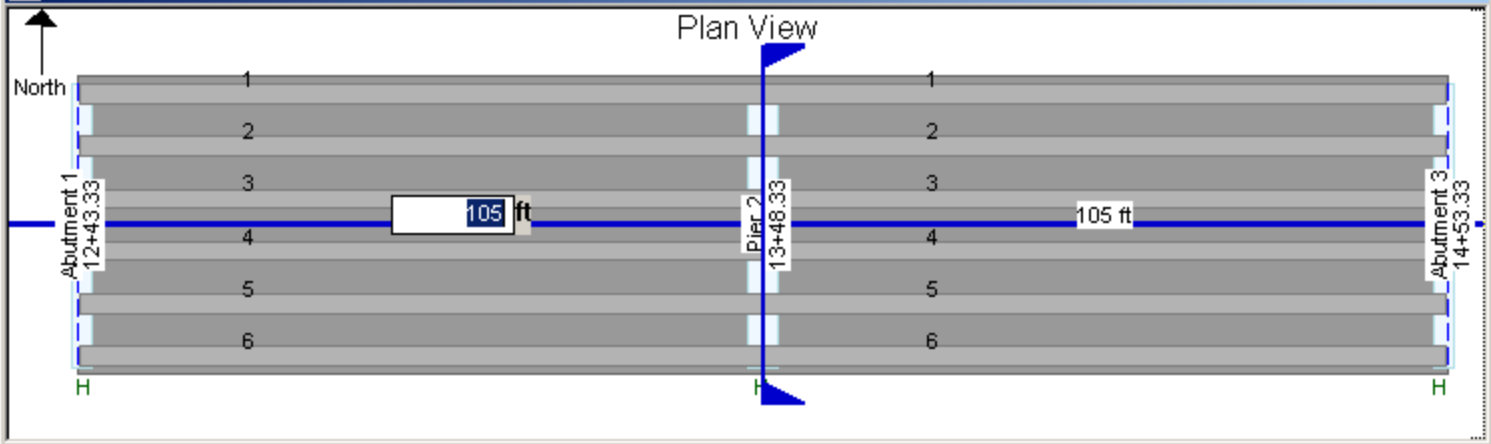
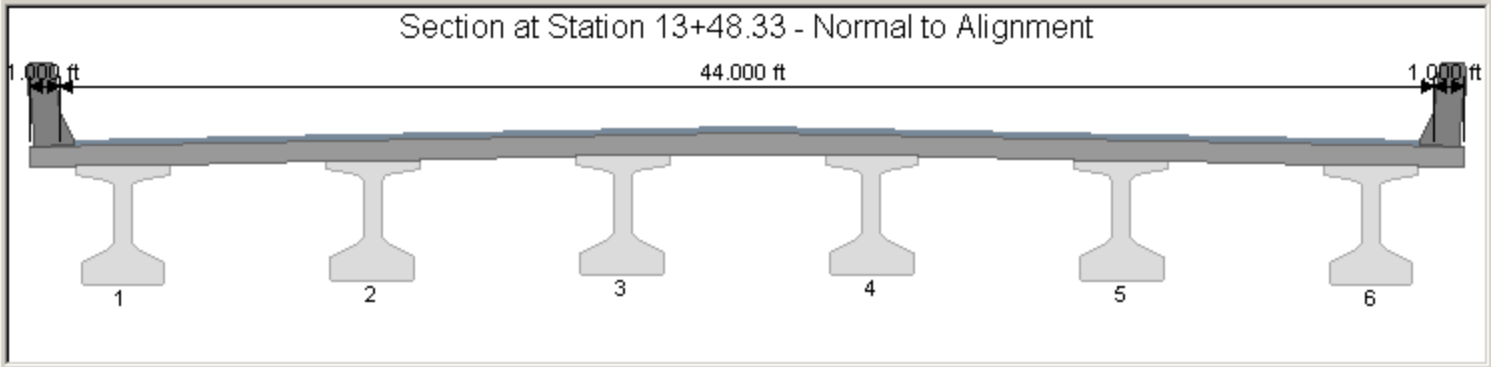
Bridge Model View





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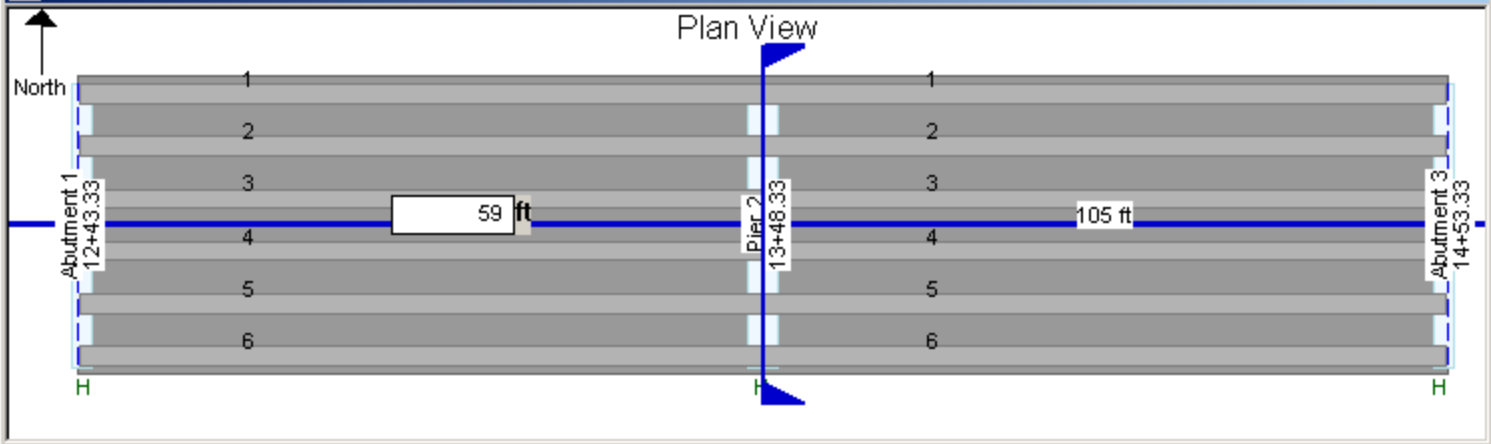
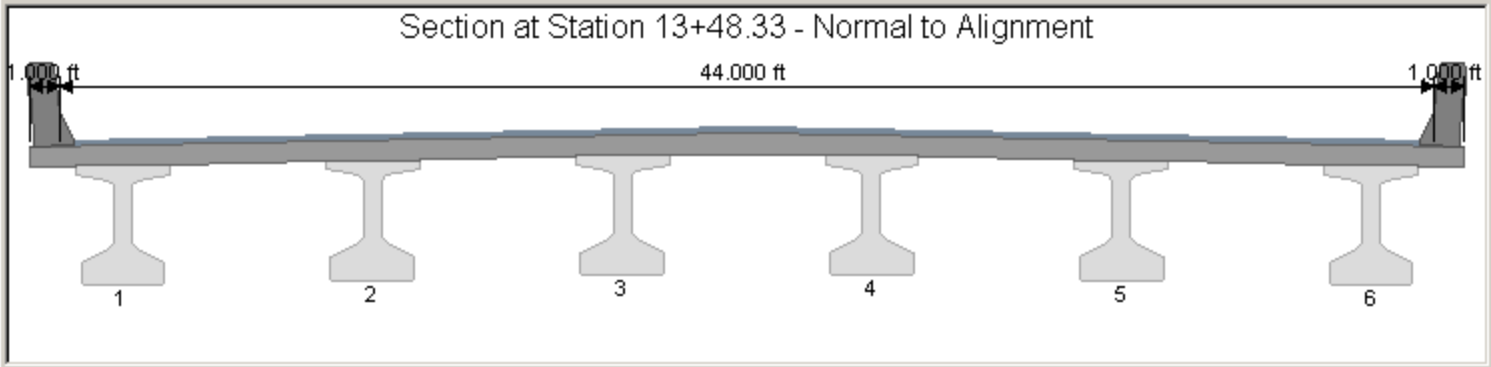
File Edit Project Loads Library Options View Window Help

Bridge Model View





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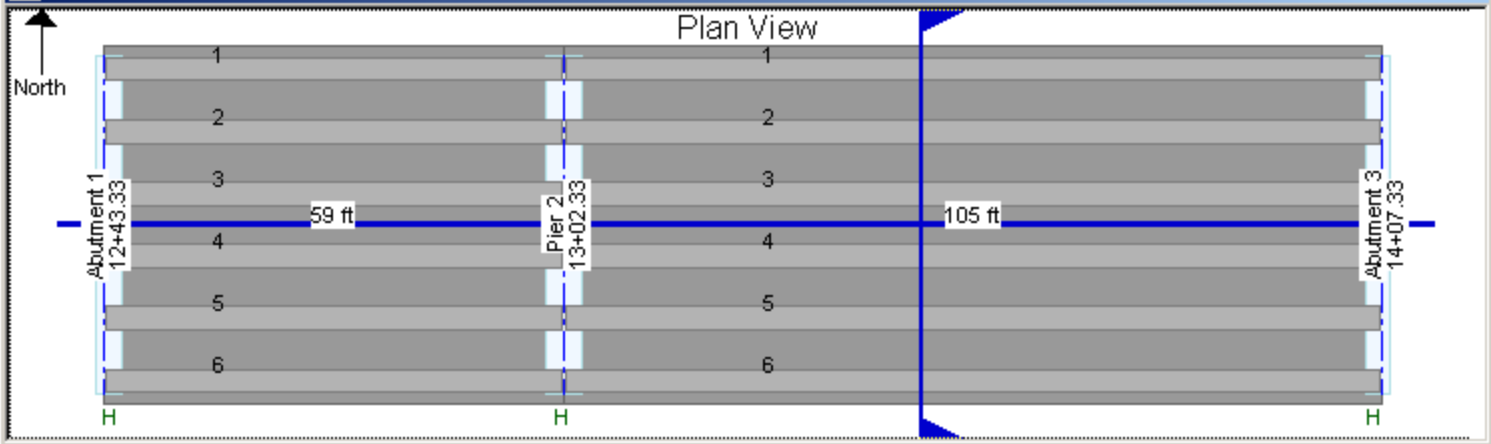

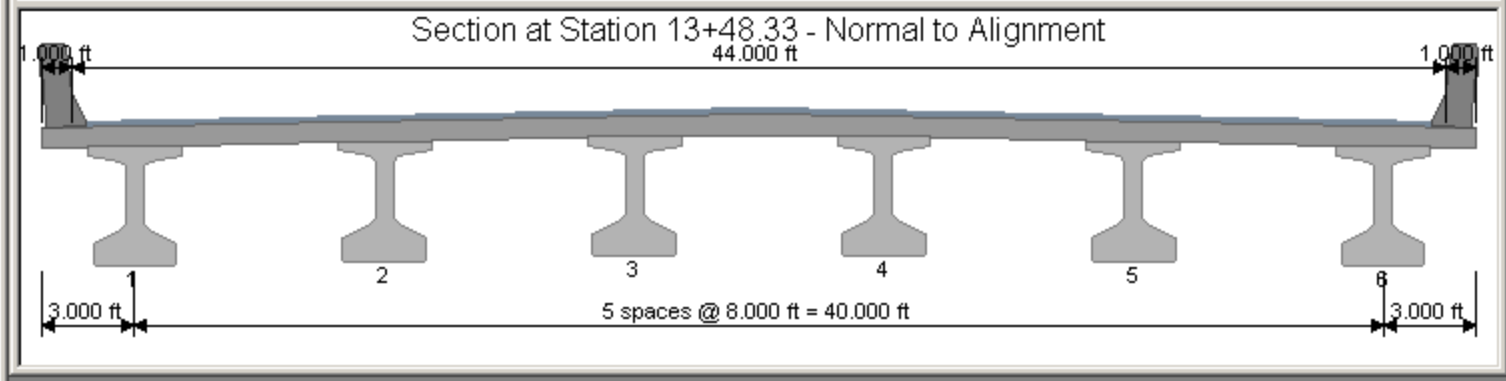

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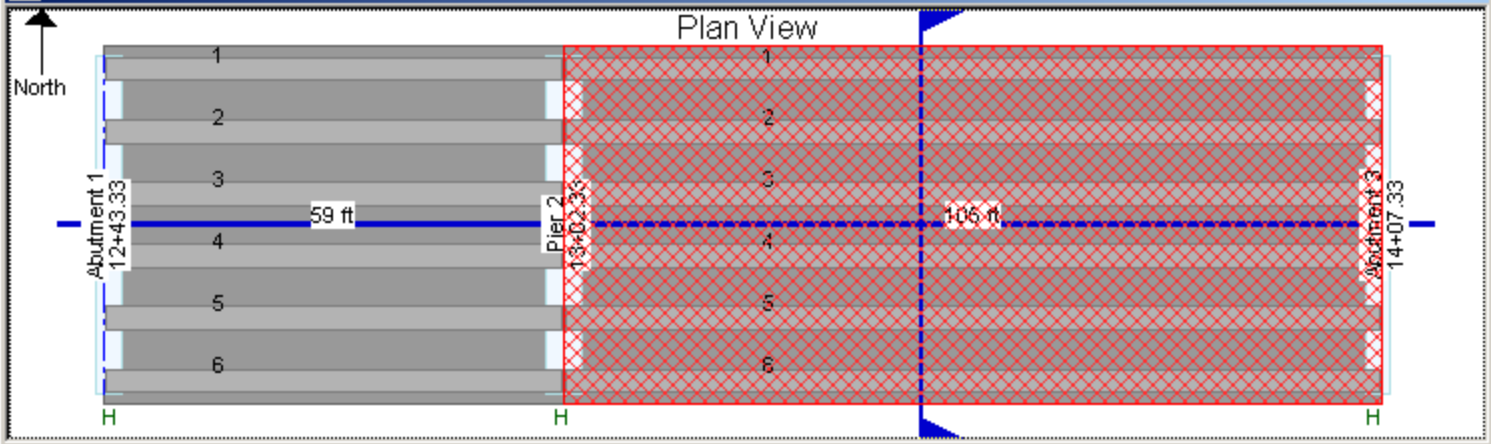
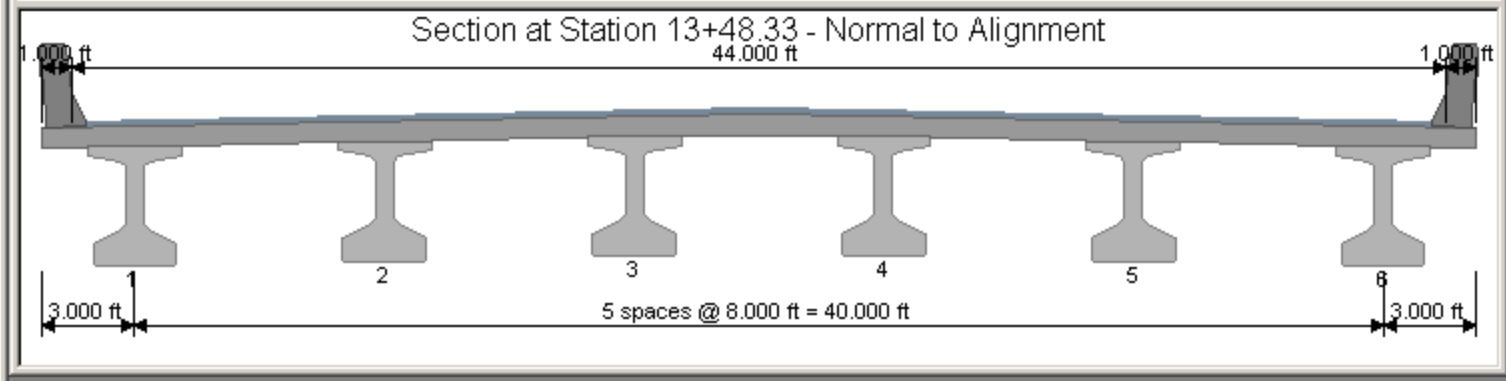
Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : On NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

North

Abutment 1
12+43.33

59 ft

Pier 2
13+02.33

Abutment 3
14+07.33

1 2 3 4 5 6

H H H

Edit
Insert
Delete

Section at Station 13+48.33 - Normal to Alignment

1.000 ft 44.000 ft 1.000 ft

1 2 3 4 5 6

3.000 ft 5 spaces @ 8.000 ft = 40.000 ft 3.000 ft

Simple Span 0 Modified AutoCalc : On NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

North

Abutment 1
12+43.33

59 ft

Pier 2
13+02.33

106 ft

Abutment 3
14+07.33

Section at Stat

1.000 ft

3.000 ft

5 spaces @ 8.000 ft = 40.000 ft

Insert Span

Select location to insert span

Before Span 2

OK

Cancel

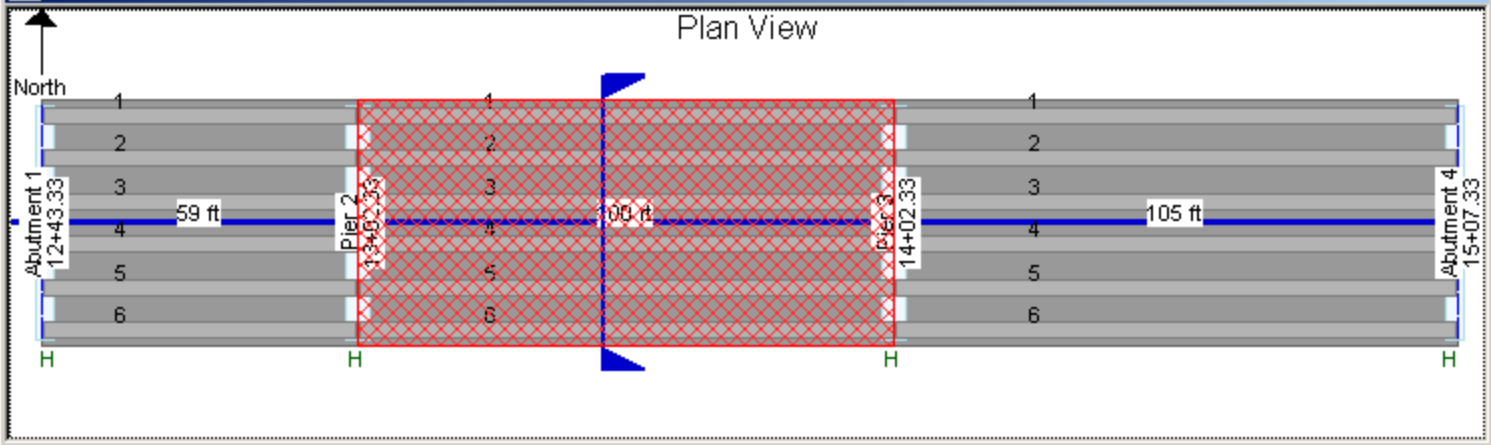
For Help, press F1

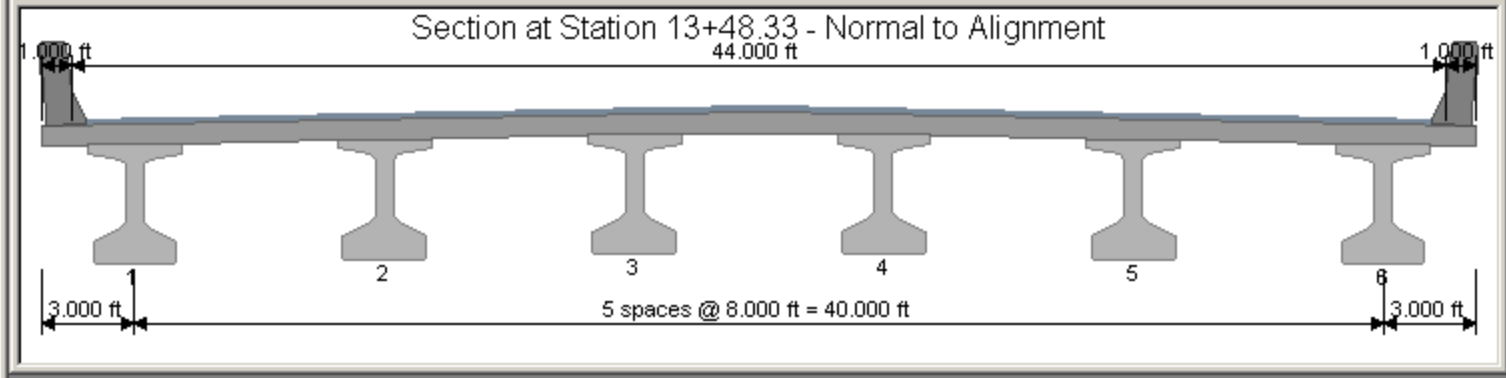
Simple Span 0 Modified AutoCalc : On NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





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PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+06.33

100 ft

14+02.33

105 ft

Abutment 4 15+07.33

Edit

Insert

Delete

Section at Station 13+48.33 - Normal to Alignment

1.000 ft

44.000 ft

1.000 ft

3.000 ft

5 spaces @ 8.000 ft = 40.000 ft

3.000 ft

Simple Span 0 Modified AutoCalc : On NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

100 ft

Pier 3 14+02.33

105 ft

Abutment 4 15+07.33

Section at Stat

1.000 ft

3.000 ft

5 spaces @ 8.000 ft = 40.000 ft

Insert Span

Select location to insert span

Before Span 2

OK

Cancel

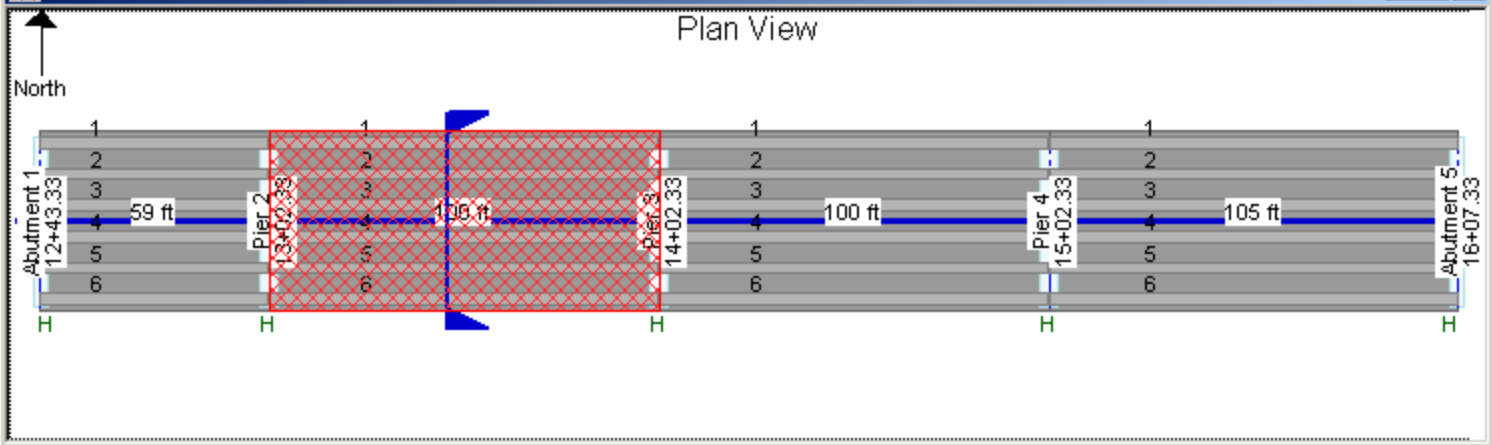
For Help, press F1

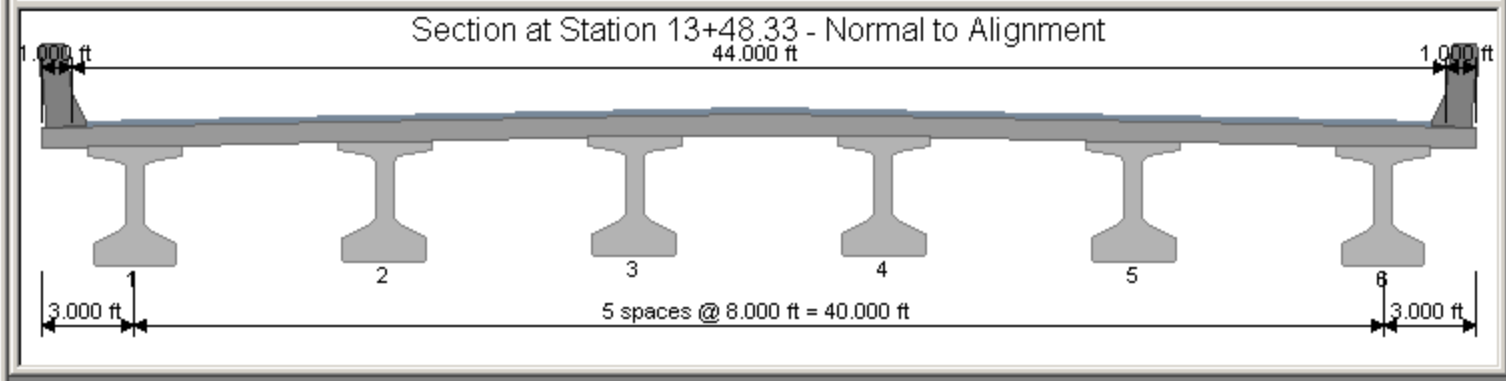
Simple Span 0 Modified AutoCalc : On NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





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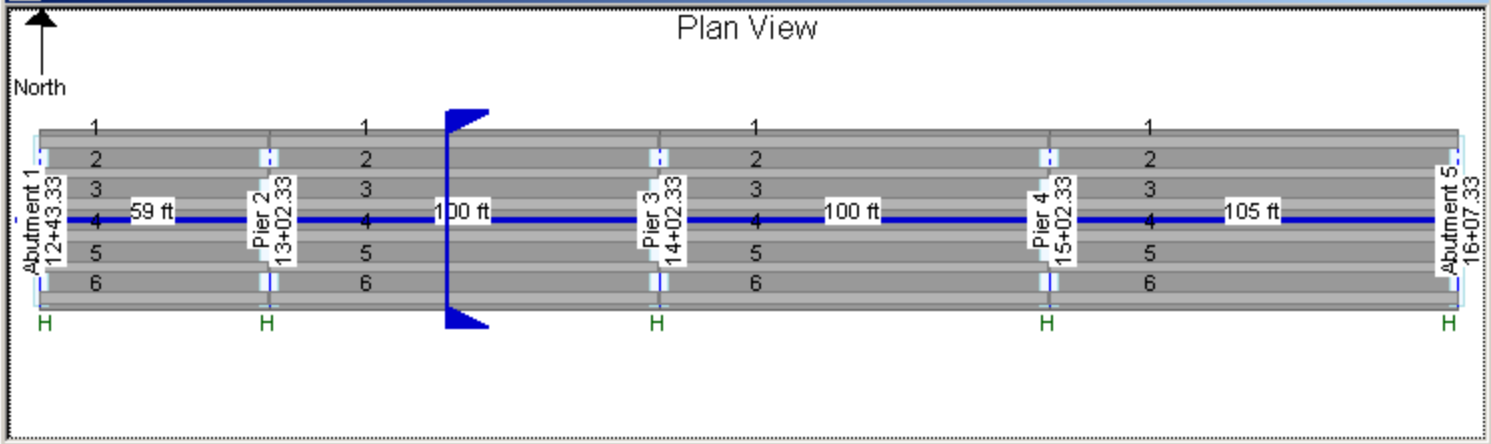
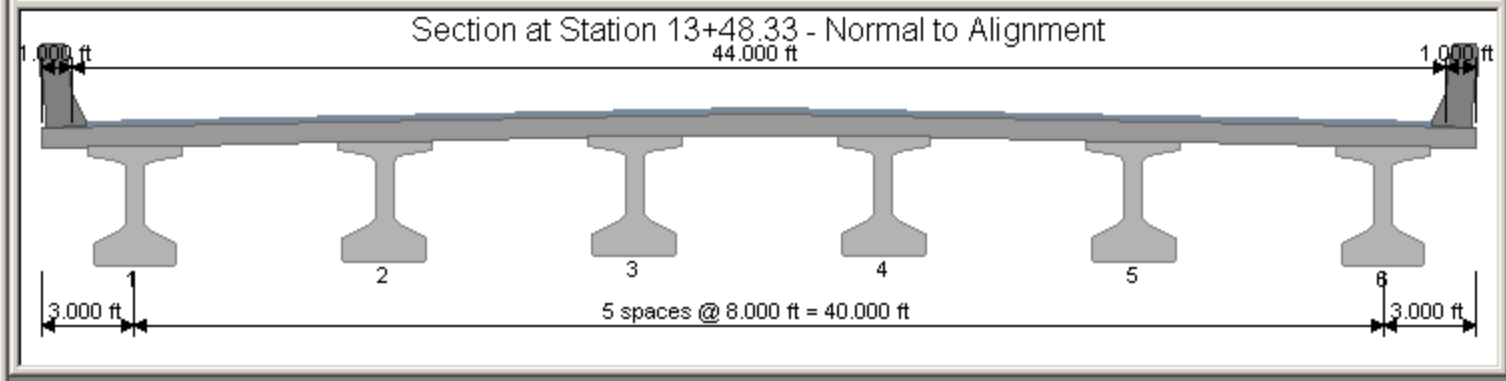
PGSuper - U:\PGSuper\BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





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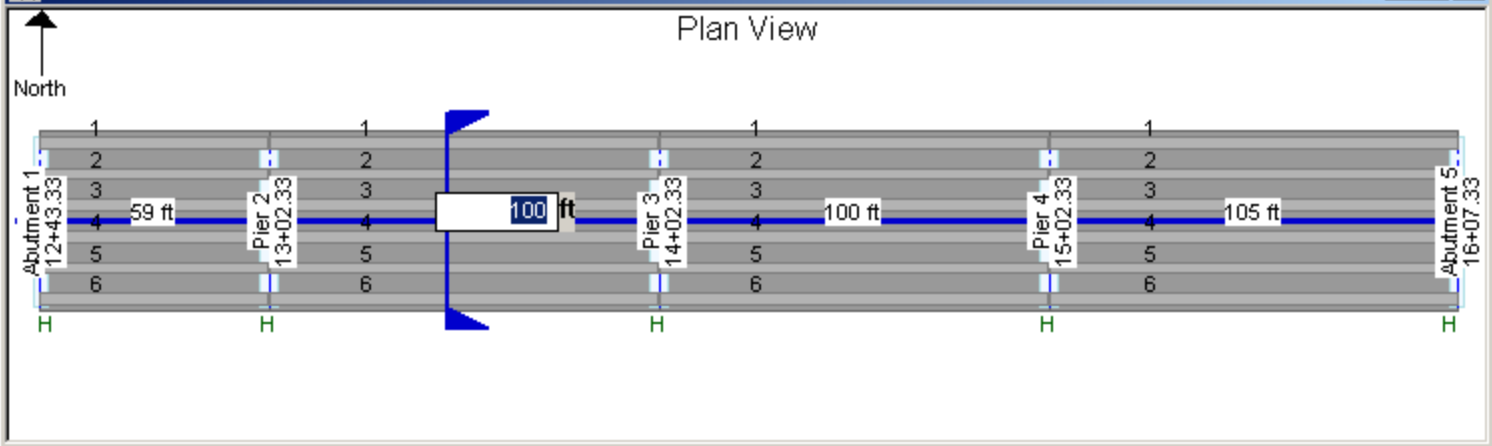
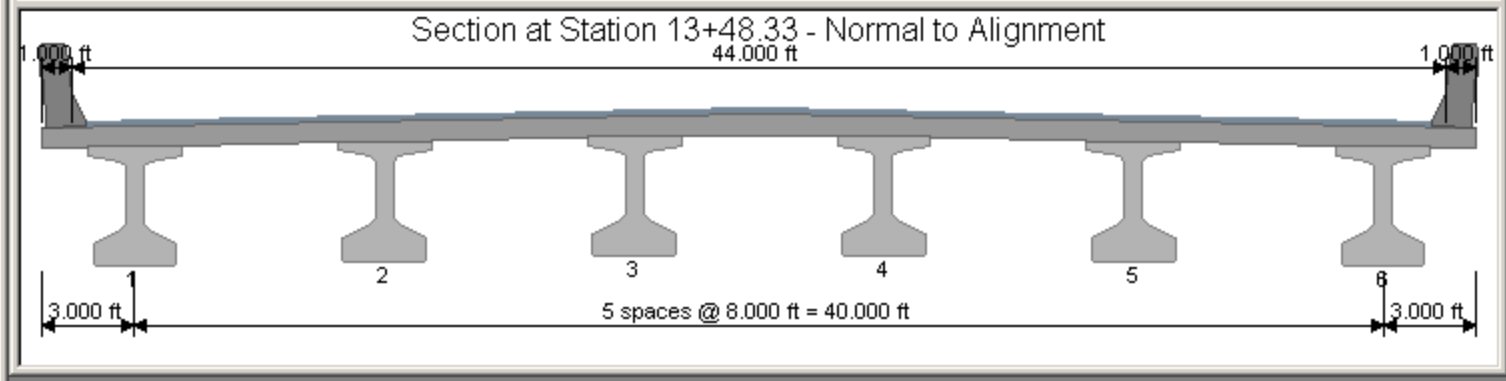
File Edit Project Loads Library Options View Window Help

Bridge Model View





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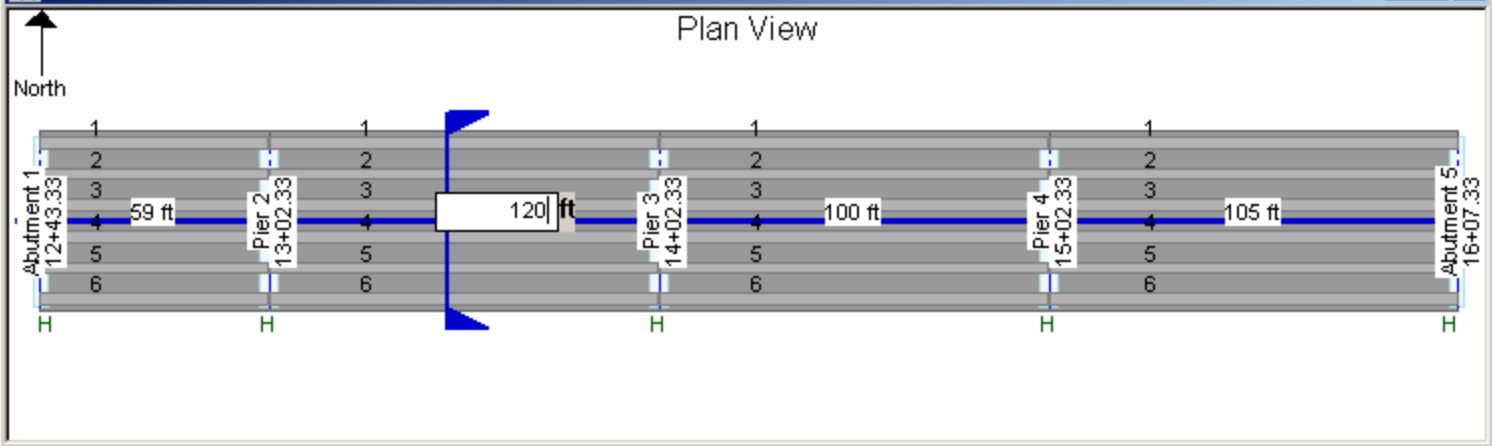
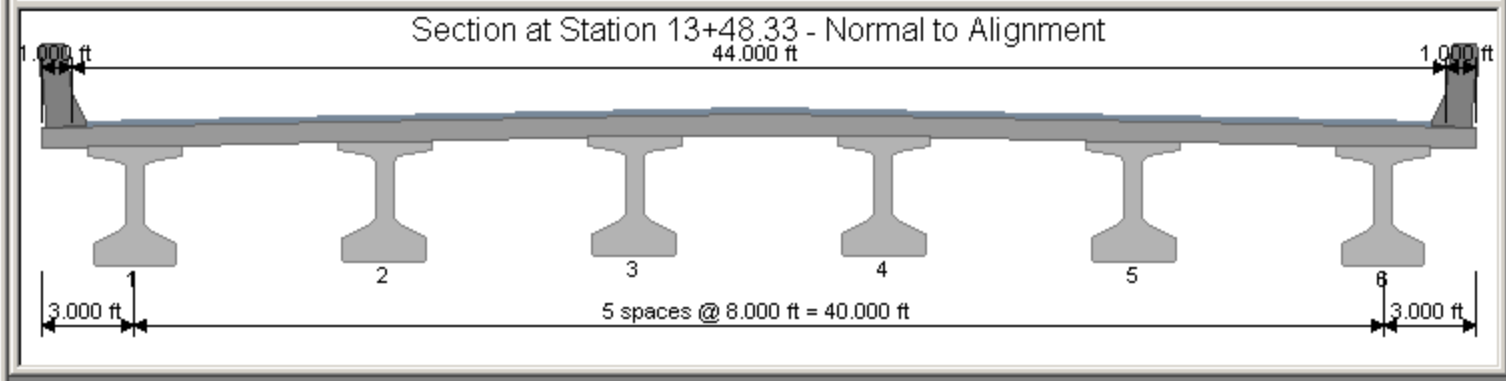
File Edit Project Loads Library Options View Window Help

Bridge Model View





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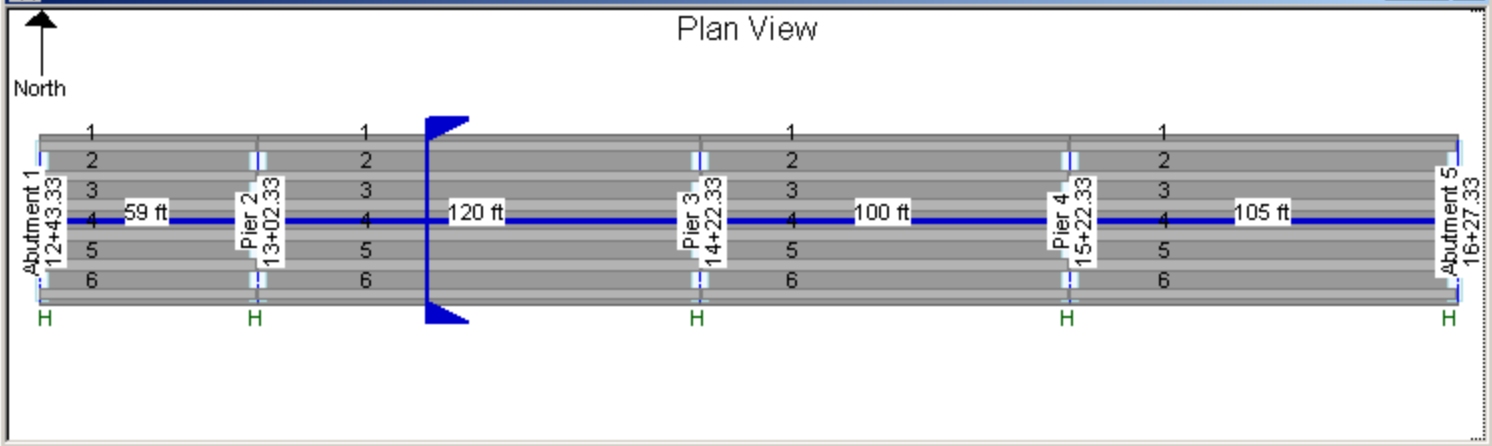
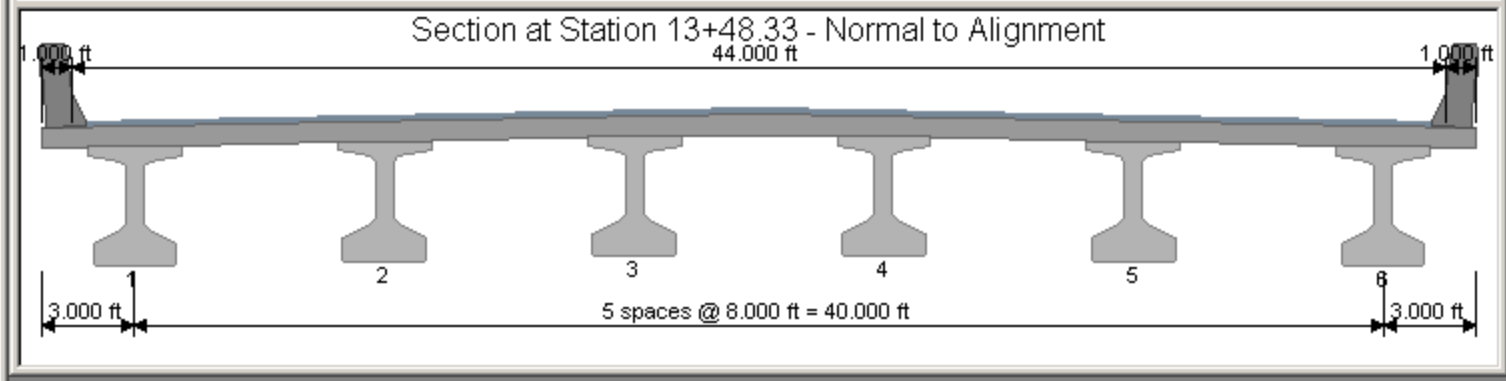
File Edit Project Loads Library Options View Window Help

Bridge Model View





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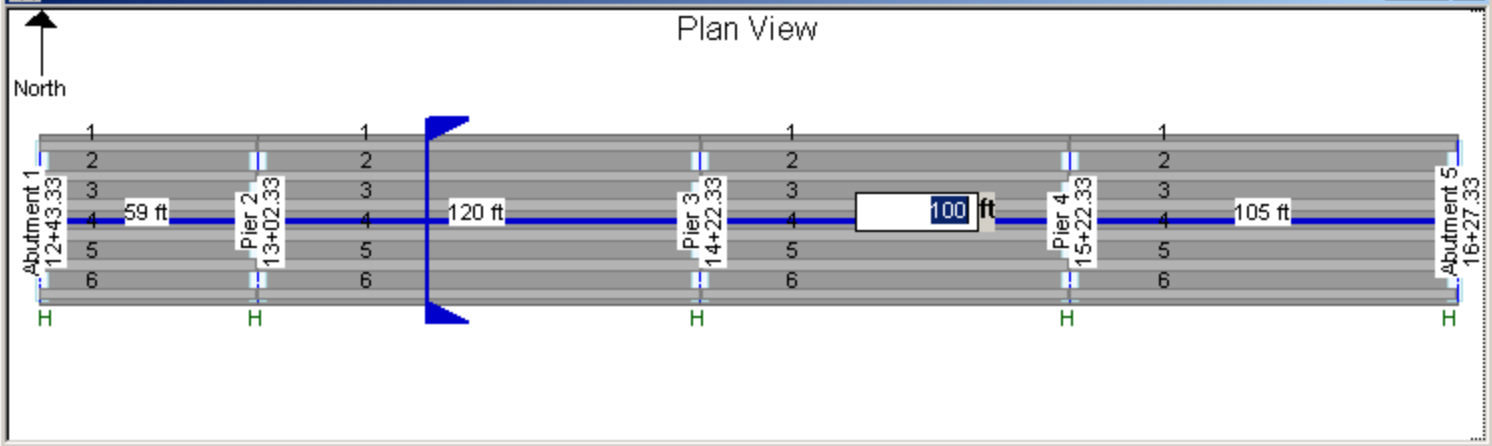
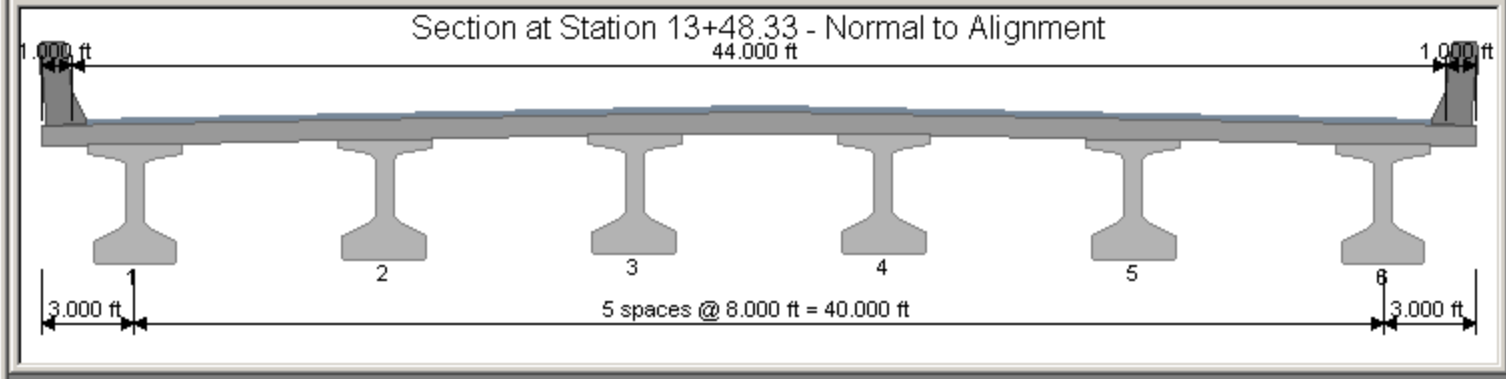
File Edit Project Loads Library Options View Window Help

Bridge Model View





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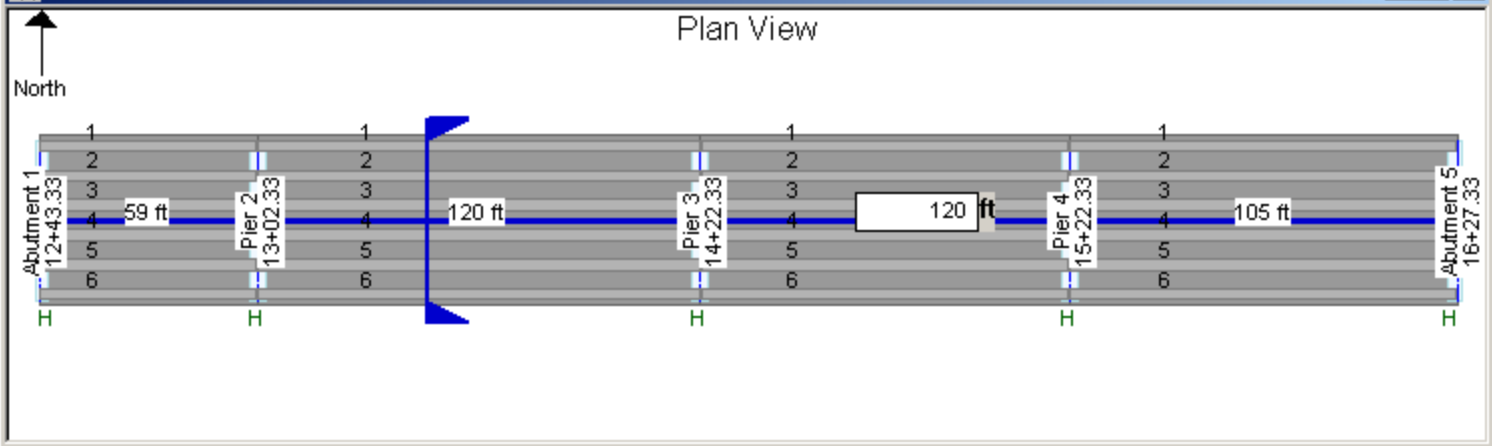
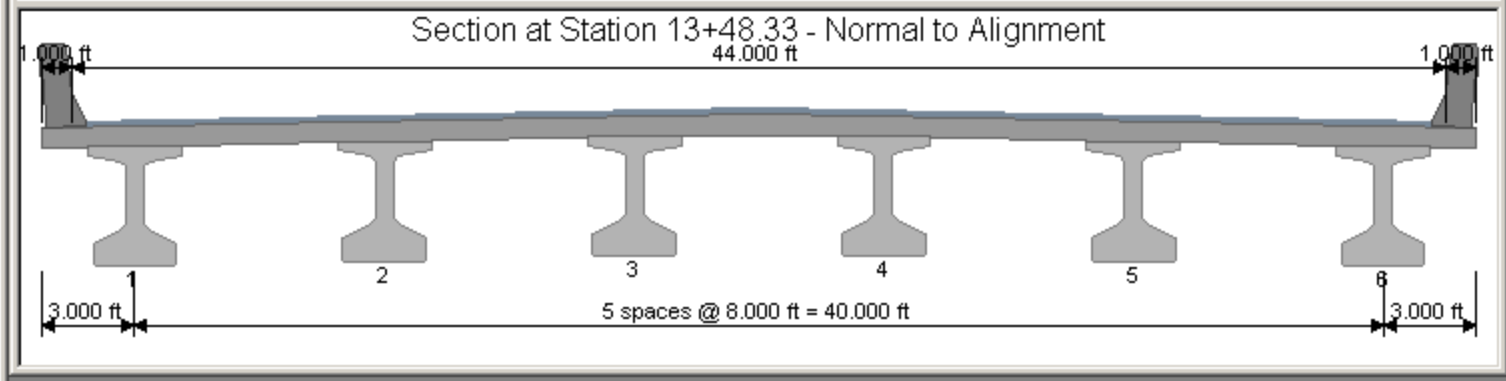
File Edit Project Loads Library Options View Window Help

Bridge Model View





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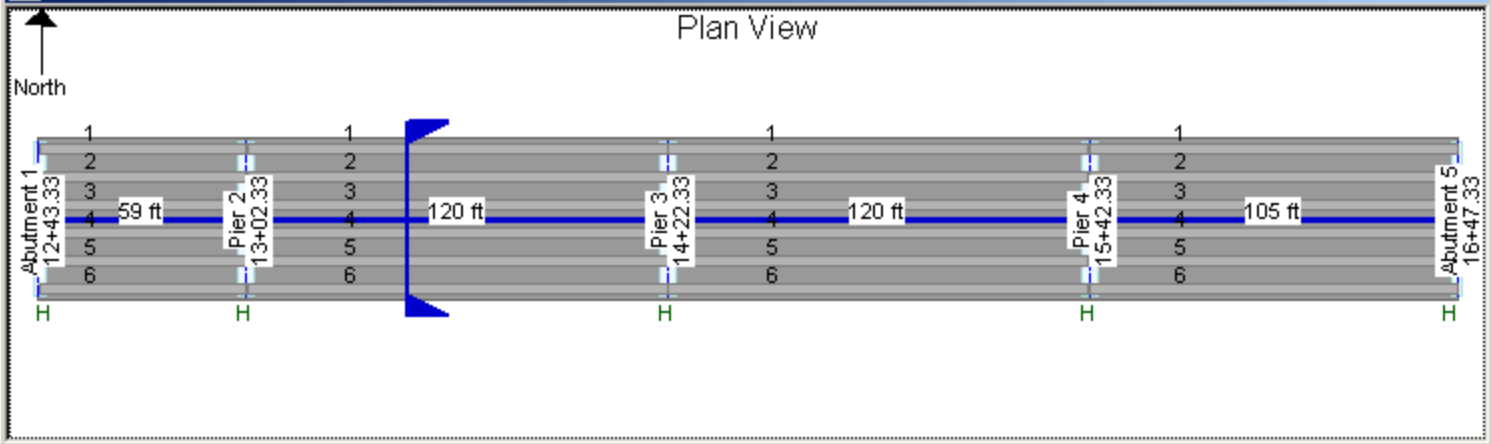
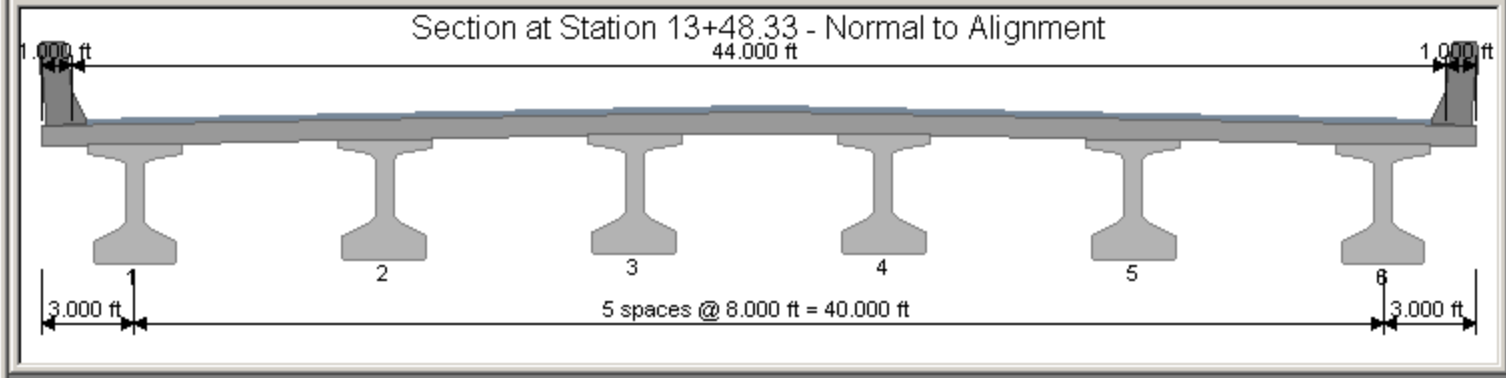
Bridge Model View





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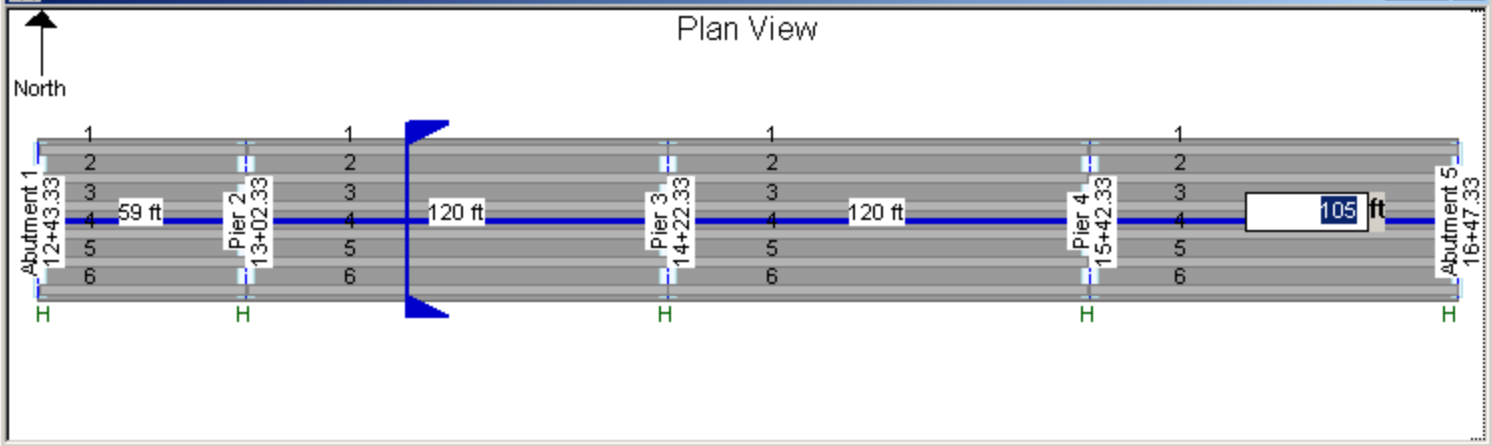
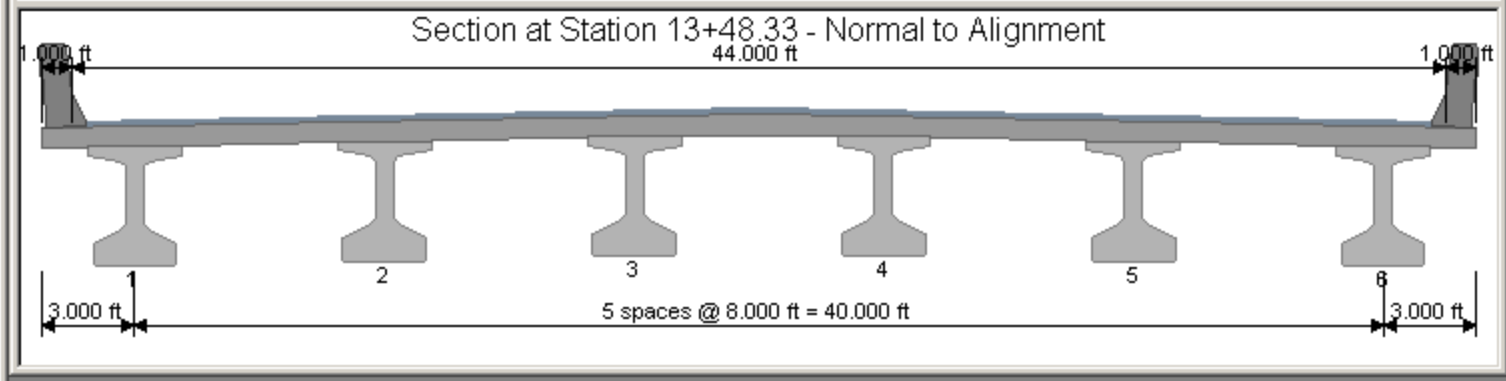
File Edit Project Loads Library Options View Window Help

Bridge Model View





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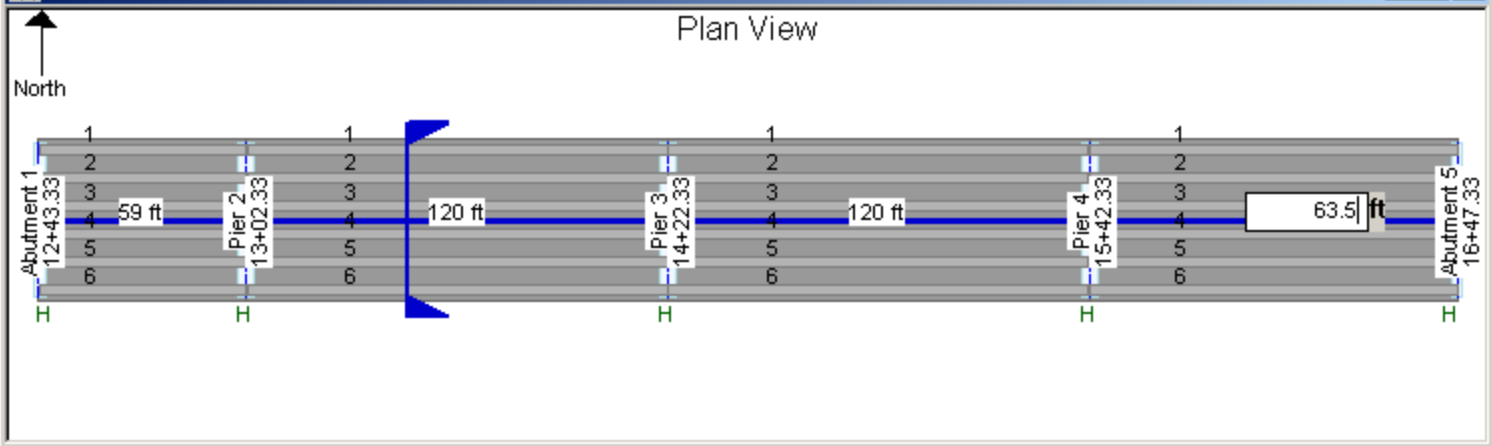
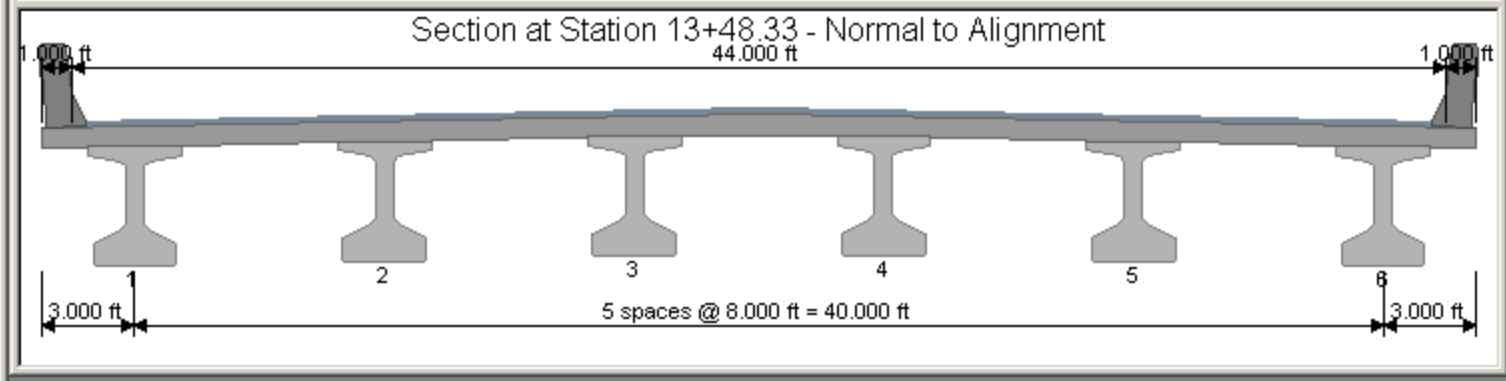
File Edit Project Loads Library Options View Window Help

Bridge Model View





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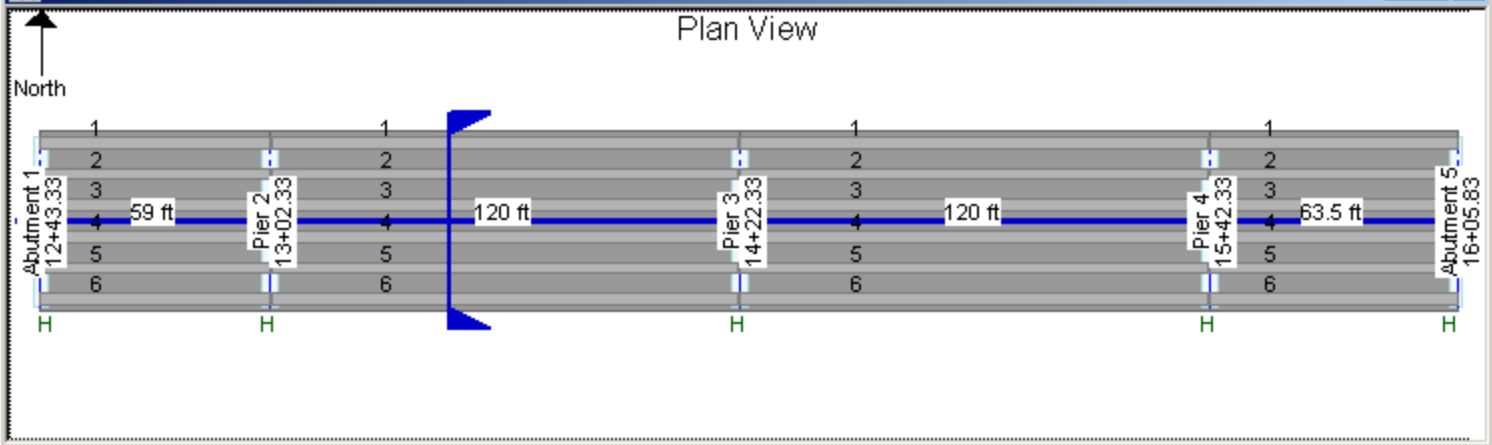
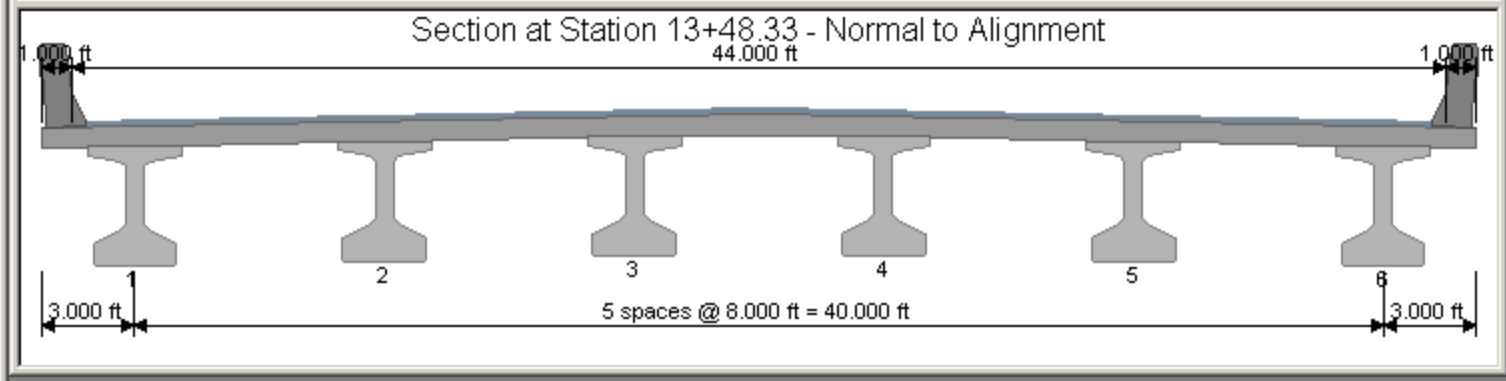
File Edit Project Loads Library Options View Window Help

Bridge Model View





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File Edit Project Loads Library Options View Window Help

Undo Edit Length of Span 4 Ctrl+Z
Redo Ctrl+Y

Alignment...
Bridge...
Pier...
Span...
Girder...

Insert Span Ins
Delete Del

Copy Girder Properties...

Plan View

Abutment 1
120 ft
Pier 3
14+22.33
120 ft
Pier 4
15+42.33
63.5 ft
Abutment 5
16+05.83

Section at Station 13+48.33 - Normal to Alignment

1.000 ft
44.000 ft
1.000 ft
3.000 ft
5 spaces @ 8.000 ft = 40.000 ft
3.000 ft

Edit the Bridge | Simple Span | 0 | Modified | AutoCalc : On | NUM

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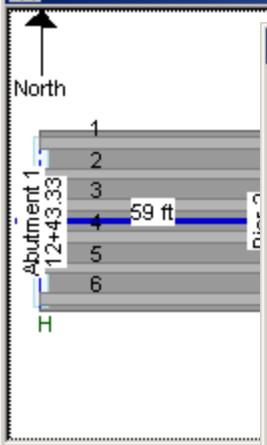
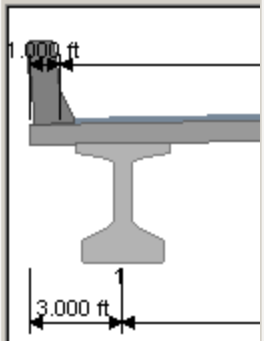
File Edit Project Loads Library Options View Window Help

Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

☑ Use same type for all girders

Number of Girders: 6

☑ Use same number of girders in all spans

Spacing Type: Spread girders with same spacing in all spans

Girder Spacing: 8.000 ft (3.000 ft or more)

Locate: Center of Girders 0.000 ft from Bridge Line

Measured normal to alignment at CL pier

Girder Connectivity:

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) cross section. With TxDOT Method per Section 3.5 of the TxDOT LRFD Bridge Design Manual, Revised April, 2007

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : On | NUM

Bridge Design Manual - LRFD

Texas
Department
of Transportation

Revised October 2010

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- Maximum clear span (or distance between flange quarter points of steel beams) is 8.667 ft. If permitting use of prestressed concrete panels, ensure clear span is acceptable based on limits shown on standard drawing PCP.

Use Class S concrete ($f_c' = 4.0$ ksi). If the deck will be subjected regularly to deicing agents

Maximum Spacing = 8.667 ft + 3 ft = 11.667 ft

steel.

Waterproof deck slabs with one of the two classes of treatment specified in Item 428, "Concrete

- Typical overhang is 3.0 ft. measured from the center line of the beam to the edge of the slab.

TxDOT standard deck slabs are 8 in. and 8.5 in. with top clear cover of 2 in. and 2.5 in. respec-

(89.333 ft – 2*3.0 ft) ÷ 11.667 ft = 7.1 = 8 Spaces

Minimum Number of Beams = 8 + 1 = 9

Spacing = (89.333 ft – 2*3.0 ft) ÷ 8 = 10.417 ft

permitting use of prestressed concrete panels, ensure clear span is acceptable based on limits shown on standard drawing PCP.

- Typical overhang is 3.0 ft. measured from the center line of the beam to the edge of the slab.

- Maximum overhang measured from edge of slab to face of beam top flange (or steel beam flange quarter point) is the lesser of 3.917 ft. or 1.3 times the depth of beam, which prevents excessive torsion on fascia beams during slab placement. At span ends, reduce the limit from 3.917 ft. to 3.083 ft. to account for reduced wheel load distribution.
- Minimum overhang is 0.5 ft. measured from edge of slab to face of beam top flange to allow sufficient room for the slab drip bead.

For TxGirders limit overhang widths as follows:

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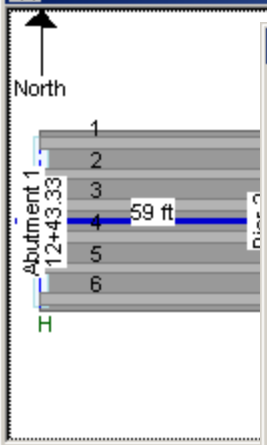
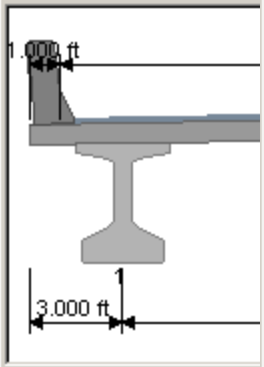
Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

☑ Use same type for all girders

Number of Girders: 9

☑ Use same number of girders in all spans

Spacing Type: Spread girders with same spacing in all spans

Girder Spacing: 10.417 ft (3.000 ft or more)

Locate: Center of Girders 0.000 ft from Bridge Line

Measured normal to alignment at CL pier

Girder Connectivity:

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) cross section. With TxDOT Method per Section 3.5 of the TxDOT LRFD Bridge Design Manual, Revised April, 2007

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : On | NUM

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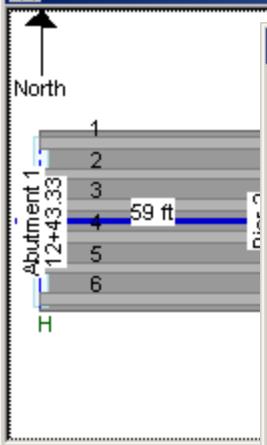
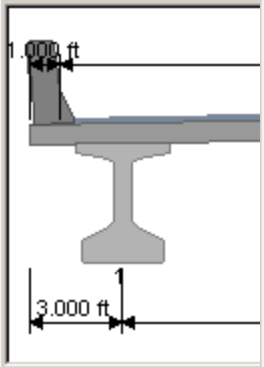
File Edit Project Loads Library Options View Window Help

Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

	Station	Orientation	Connection, Boundary Condition, and Girder Spacing Details
Abut 1	12+43.33	NORMAL	Edit Abutment 1 Details...
Span 1	59.000 ft		Edit Span 1 Details...
Pier 2	13+02.33	NORMAL	Edit Pier 2 Details...
Span 2	120.000 ft		Edit Span 2 Details...
Pier 3	14+22.33	NORMAL	Edit Pier 3 Details...
Span 3	120.000 ft		Edit Span 3 Details...
Pier 4	15+42.33	NORMAL	Edit Pier 4 Details...
Span 4	63.500 ft		Edit Span 4 Details...
Abut 5	16+05.83	NORMAL	Edit Abutment 5 Details...

Add Span | Remove Span | Layout by Span Lengths...

Enter station in the following format, xx+yy.zz Example 1+23.45

Enter orientation as Normal, a bearing (N/S dd mm ss.s E/W), or a skew angle (dd mm ss.s L/R).
Example: N 34 23 32.1 W

Offset from Alignment to Bridge Line 0.0000 ft (Measured normal to alignment)

Enter offset from the alignment, measured normal to the alignment. Use a signed value (+/-xxx.xx) or a left/right indicator (xxx.xxx L|R)
Positive values indicate the centerline of pier is offset to the right of the alignment.
Example: -2.25 or 2.25 L

OK | Cancel | Help

For Help, press F1 Simple Span 0 Modified AutoCalc : On NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

North

Abutment 1
12+43.33

59 ft

1.000 ft

3.000 ft

Abutment 1 Details

General | Connections | Girder Spacing

Abutment 1

Move Abutment 1 from 12+43.33 to 12+43.33

Station 12+43.33

Move bridge retaining all span lengths

Enter station in the following format, xx+yy.zz Example 1+23.45

Orientation NORMAL

Enter orientation as Normal, a bearing (N/S dd mm ss.s E/W), or a skew angle (dd mm ss.s L/R).
Example: N 34 23 32.1 W

OK Cancel Help

For Help, press F1

Simple Span 0 Modified AutoCalc : On NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

North

Abutment 1
12+43.33
59 ft
1
2
3
4
5
6
H

1.000 ft
3.000 ft

Bridge

General

Abut
Pier 2
Pier 3
Pier 4
Abut

Enter
Enter
Examp
Offset
Enter
indical
Positiv
Examp

Help

Abutment 1 Details

General | Connections | Girder Spacing

Connection Geometry

Connection on Ahead side of Abutment

I Girders Abutment

Boundary Condition at Abutment

Hinged

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : On NUM

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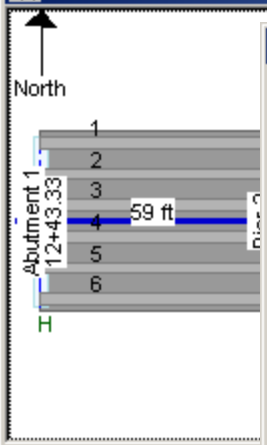
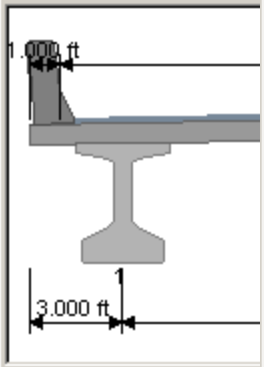
File Edit Project Loads Library Options View Window Help

Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

	Station	Orientation	Connection, Boundary Condition, and Girder Spacing Details
Abut 1	12+43.33	NORMAL	Edit Abutment 1 Details...
Span 1	59.000 ft		Edit Span 1 Details...
Pier 2	13+02.33	NORMAL	Edit Pier 2 Details...
Span 2	120.000 ft		Edit Span 2 Details...
Pier 3	14+22.33	NORMAL	Edit Pier 3 Details...
Span 3	120.000 ft		Edit Span 3 Details...
Pier 4	15+42.33	NORMAL	Edit Pier 4 Details...
Span 4	63.500 ft		Edit Span 4 Details...
Abut 5	16+05.83	NORMAL	Edit Abutment 5 Details...

Add Span | Remove Span | Layout by Span Lengths...

Enter station in the following format, xx+yy.zz Example 1+23.45

Enter orientation as Normal, a bearing (N/S dd mm ss.s E/W), or a skew angle (dd mm ss.s L/R).
Example: N 34 23 32.1 W

Offset from Alignment to Bridge Line 0.0000 ft (Measured normal to alignment)

Enter offset from the alignment, measured normal to the alignment. Use a signed value (+/-xxx.xx) or a left/right indicator (xxx.xxx L|R)
Positive values indicate the centerline of pier is offset to the right of the alignment.
Example: -2.25 or 2.25 L

OK | Cancel | Help

For Help, press F1 Simple Span 0 Modified AutoCalc : On NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

North

1
2
3
4
5
6
59 ft
Abutment 1
12+43.33
H

1.000 ft
3.000 ft

Bridge

General

Abut
Pier 2
Pier 3
Pier 4
Abut

Enter
Enter
Examp

Offset

Enter
indical
Positiv
Examp

Help

Pier 2 Details

General | Connections | Girder Spacing

Pier 2

Move Pier 2 from 13+02.33 to 13+02.33

Station 13+02.33

Move bridge retaining all span lengths

Enter station in the following format, xx+yy.zz Example 1+23.45

Orientation NORMAL

Enter orientation as Normal, a bearing (N/S dd mm ss.s E/W), or a skew angle (dd mm ss.s L/R).
Example: N 34 23 32.1 W

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : On NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

North

Abutment 1
12+43.33
59 ft
H

1.000 ft
3.000 ft

Pier 2 Details

General | Connections | Girder Spacing

Connection Geometry

Connection on Back side of Pier: I Girders Interior Bents

Connection on Ahead side of Pier: I Girders Interior Bents

Boundary Condition at Pier

Hinged

OK | Cancel | Help

For Help, press F1

Simple Span | 0 | Modified | AutoCalc : On | NUM

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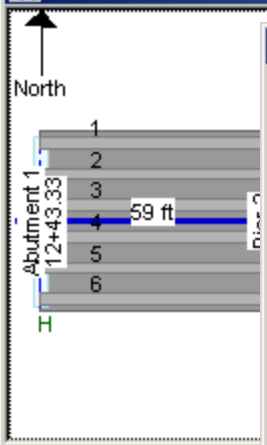
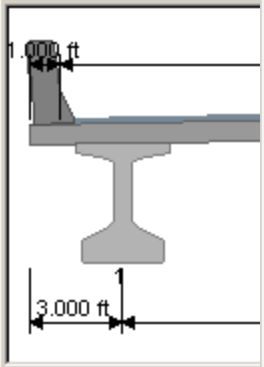
File Edit Project Loads Library Options View Window Help

Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

	Station	Orientation	Connection, Boundary Condition, and Girder Spacing Details
Abut 1	12+43.33	NORMAL	Edit Abutment 1 Details...
Span 1	59.000 ft		Edit Span 1 Details...
Pier 2	13+02.33	NORMAL	Edit Pier 2 Details...
Span 2	120.000 ft		Edit Span 2 Details...
Pier 3	14+22.33	NORMAL	Edit Pier 3 Details...
Span 3	120.000 ft		Edit Span 3 Details...
Pier 4	15+42.33	NORMAL	Edit Pier 4 Details...
Span 4	63.500 ft		Edit Span 4 Details...
Abut 5	16+05.83	NORMAL	Edit Abutment 5 Details...

Add Span | Remove Span | Layout by Span Lengths...

Enter station in the following format, xx+yy.zz Example 1+23.45

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Positive values indicate the centerline of pier is offset to the right of the alignment.
Example: -2.25 or 2.25 L

OK | Cancel | Help

For Help, press F1 Simple Span 0 Modified AutoCalc : On NUM

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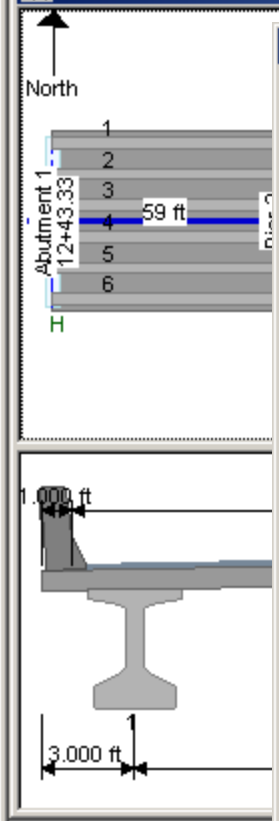
File Edit Project Loads Library Options View Window Help

Bridge Model View



Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Left Railing System

Exterior Barrier: T551

☐ Sidewalk

Width ft

Back Depth in

Face Depth in

☐ Place barriers on top of sidewalk

☐ Sidewalk is structurally continuous (LRFD 2.5.2.6.2)

☐ Interior Barrier

Right Railing System

Exterior Barrier: T551

☐ Sidewalk

Width ft

Back Depth in

Face Depth in

☐ Place barriers on top of sidewalk

☐ Sidewalk is structurally continuous (LRFD 2.5.2.6.2)

☐ Interior Barrier

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : On | NUM

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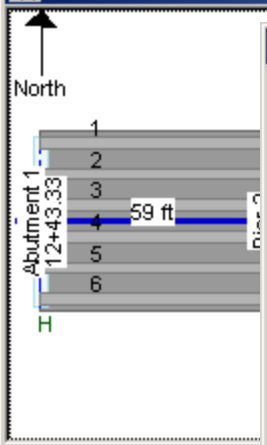
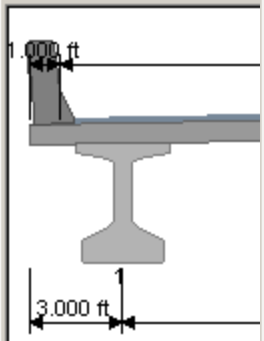
File Edit Project Loads Library Options View Window Help

Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Left Railing System

Exterior Barrier: T551

☑ Sidewalk

Width: 6.667 ft

Back Depth: 8.800 in

Face Depth: 6.000 in

☑ Place barriers on top of sidewalk

☐ Sidewalk is structurally continuous (LRFD 2.5.2.6.2)

☐ Interior Barrier

Concrete Properties

Normal Weight Concrete

f'c: 4.000 KSI ☑ Ec: 5000 KSI

Unit Weight: 0.150 kip/ft^3

More Properties...

Right Railing System

Exterior Barrier: T551

☑ Sidewalk

Width: 6.667 ft

Back Depth: 8.800 in

Face Depth: 6.000 in

☑ Place barriers on top of sidewalk

☐ Sidewalk is structurally continuous (LRFD 2.5.2.6.2)

☐ Interior Barrier

Concrete Properties

Normal Weight Concrete

f'c: 4.000 KSI ☑ Ec: 5000 KSI

Unit Weight: 0.150 kip/ft^3

More Properties...

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : On | NUM

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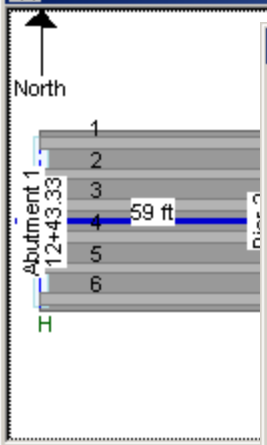
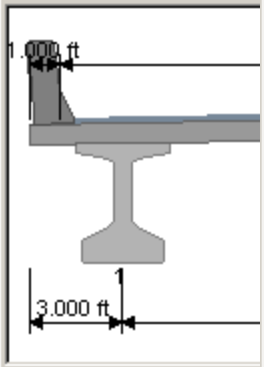
File Edit Project Loads Library Options View Window Help

Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Composite Cast-In-Place Deck

Cross Section

Gross Depth: 8.000 in

Overhang Edge Depth: 8.000 in

Don't taper overhang

Fillet: 0.000 in

☑ Use same Slab Offset for entire bridge

Slab Offset ("A" Dimension): 8.000 in

Stay in Place Deck Panel Dimensions

Panel Depth: 3.500 in

Panel Support Width: 4.000 in

Plan (Edge of Deck)

Station	Measured From	Left Offset (ft)	Right Offset (ft)
1+00.00	Bridge Line	23	23

Add | Remove

Material

f'c: 4.000 KSI — Normal Weight Concrete

☑ Ec: 5000 KSI — More Properties...

Wearing Surface

Future Overlay

Sacrificial Depth: 0.000 in

○ Overlay Weight: 23.333 PSF

◉ Overlay Depth: 2.000 in

Overlay Weight: 0.140 kip/ft^3

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : On — NUM

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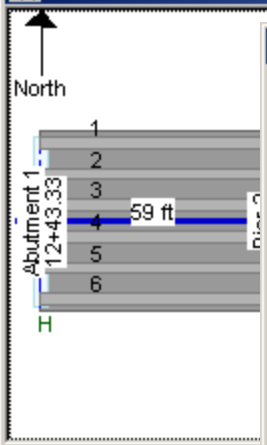
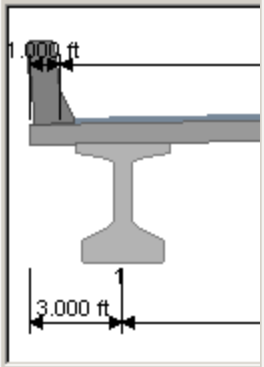
File Edit Project Loads Library Options View Window Help

Bridge Model View





Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Composite Cast-In-Place Deck

Cross Section

Gross Depth 8.000 in

Overhang Edge Depth 8.000 in

Don't taper overhang

Fillet 0.000 in

☑ Use same Slab Offset for entire bridge

Slab Offset ("A" Dimension) 8.000 in

Stay in Place Deck Panel Dimensions

Panel Depth 3.500 in

Panel Support Width 4.000 in

Plan (Edge of Deck)

Station	Measured From	Left Offset (ft)	Right Offset (ft)
12+43.33	Bridge Line	44.6667	44.6667

Add | Remove

Material

f'c 4.000 KSI — Normal Weight Concrete

☑ Ec 5000 KSI — More Properties...

Wearing Surface

Future Overlay

Sacrificial Depth 0.000 in

○ Overlay Weight 23.333 PSF

◉ Overlay Depth 2.000 in

Overlay Weight 0.140 kip/ft^3

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : On — NUM

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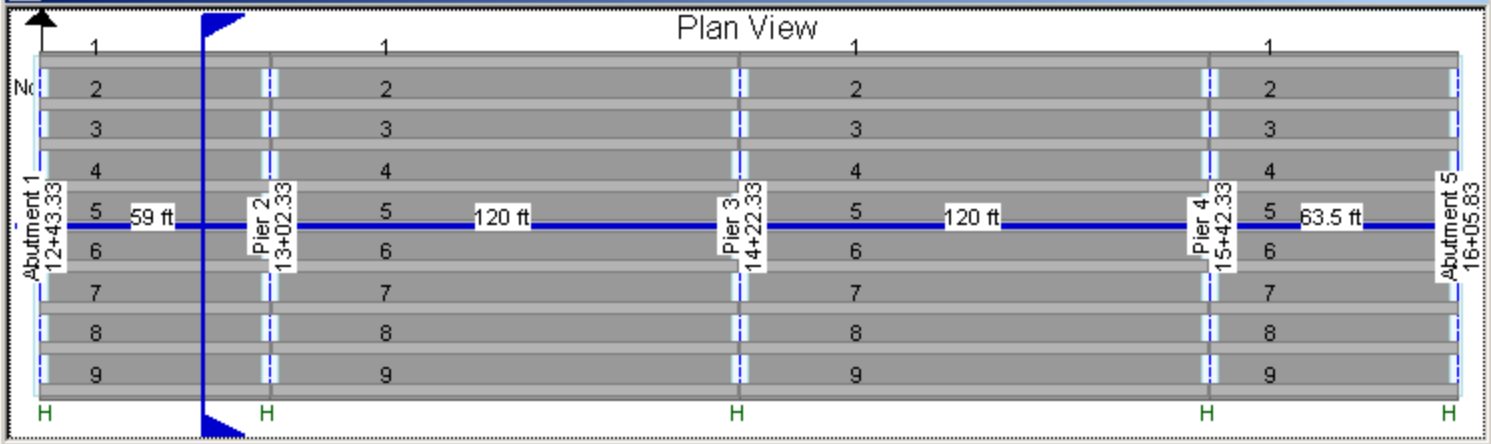
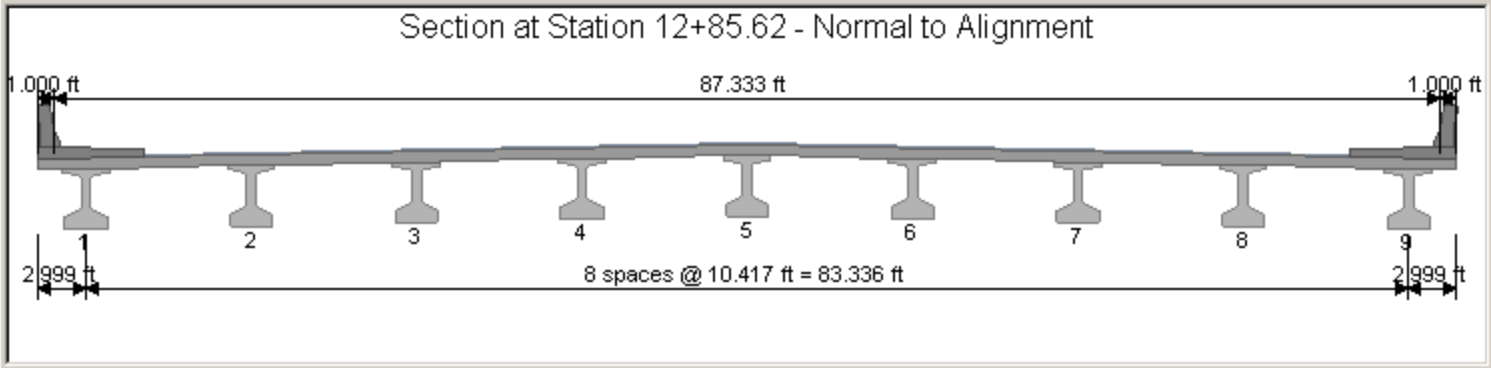
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

- Design Girder... Ctrl+D
- Update Now F5
- Units...
- Structural Analysis Method...
- Project Criteria...
- Load Rating Options...
- Environment...
- Properties...

Bridge

Plan View

Abutment 1 12+43.33 | Pier 3 14+22.33 | Pier 4 15+42.33 | Abutment 5 16+05.83

120 ft | 63.5 ft

Section at Station 12+85.62 - Normal to Alignment

1.000 ft | 87.333 ft | 1.000 ft

2.999 ft | 8 spaces @ 10.417 ft = 83.336 ft | 2.999 ft

Run Preliminary Girder Designer | Simple Span | 0 | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120

Abutment 5 16+05.83

Section

1.000 ft

2.999 ft

Girder Designer

The Girder Designer uses current bridge layout and project criteria information to determine an optimal design for the selected girder

Select Girder

Span 1 | Girder 1

Design Options

☑ Design For Flexure

☐ Design For Shear

Note: A successful design attempt does not guarantee compliance with all criteria. You should always run a Spec Check Report to review your final design.

Run Design | Cancel | Help

For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Section

Girder Designer

The Girder Designer uses current bridge layout and project criteria information to determine an optimal design for the selected girder

Select Girder

Span 1

Girder 1

Girder 1
Girder 2
Girder 3
Girder 4
Girder 5
Girder 6
Girder 7
Girder 8
Girder 9
Girder 10

Design Options

Design For Flexure

Design For Shear

Note: A successful design attempt, does not, guarantee compliance with all criteria. You should always run a Spec Check Report to review your final design.

Run Design Cancel Help

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Section

Girder Designer

The Girder Designer uses current bridge layout and project criteria information to determine an optimal design for the selected girder

Select Girder

Span 1 | Girder 2

Design Options

☑ Design For Flexure

☐ Design For Shear

Note: A successful design attempt does not guarantee compliance with all criteria. You should always run a Spec Check Report to review your final design.

Run Design | Cancel | Help

For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Section at Stati

1.000 ft | 2.999 ft | 8 spaces @ 10.417 ft = 83.336 ft | 2.999 ft | 1.000 ft

Progress

Computing Strength I critical section for shear for Span 1 Girder 2

Cancel

For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

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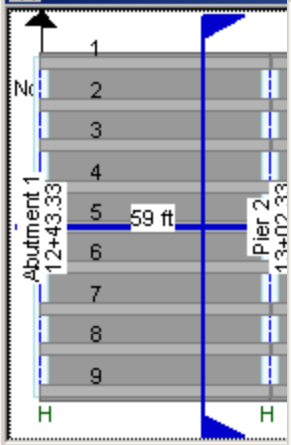
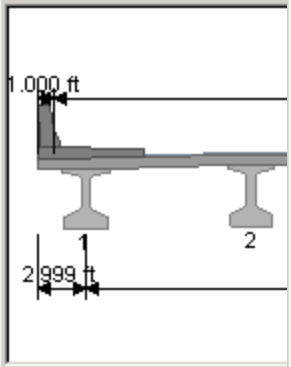
File Edit Project Loads Library Options View Window Help

Bridge Model View





Preliminary Designer Attempt Complete

Design Outcome

The design for Span 1 Girder 2 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	16	0
Number of Harped Strands	4	0
Straight Strand Jacking Force	495.72 kip	0.00 kip
Harped Strand Jacking Force	123.93 kip	0.00 kip
Distance from bottom of girder to top of harped strand group at ends of girder	8.500 in	0.000 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	0.000 in
f'_{ci}	4.000 KSI	4.000 KSI
f'_{c}	5.000 KSI	5.000 KSI

Design Notes:

Concrete release strength was controlled by Minimum
Concrete final strength was controlled by Minimum

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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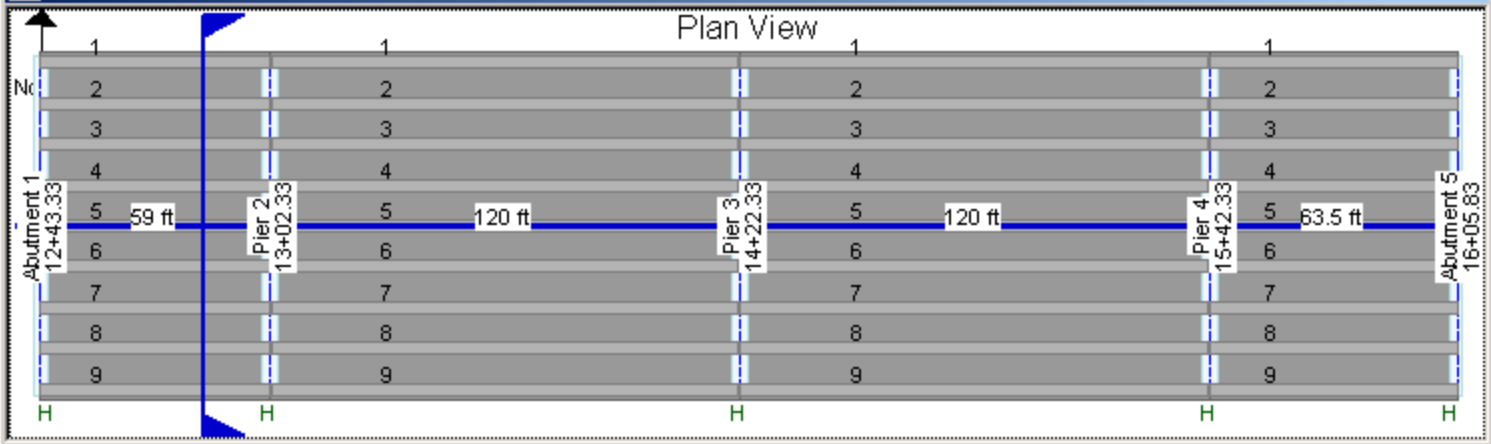
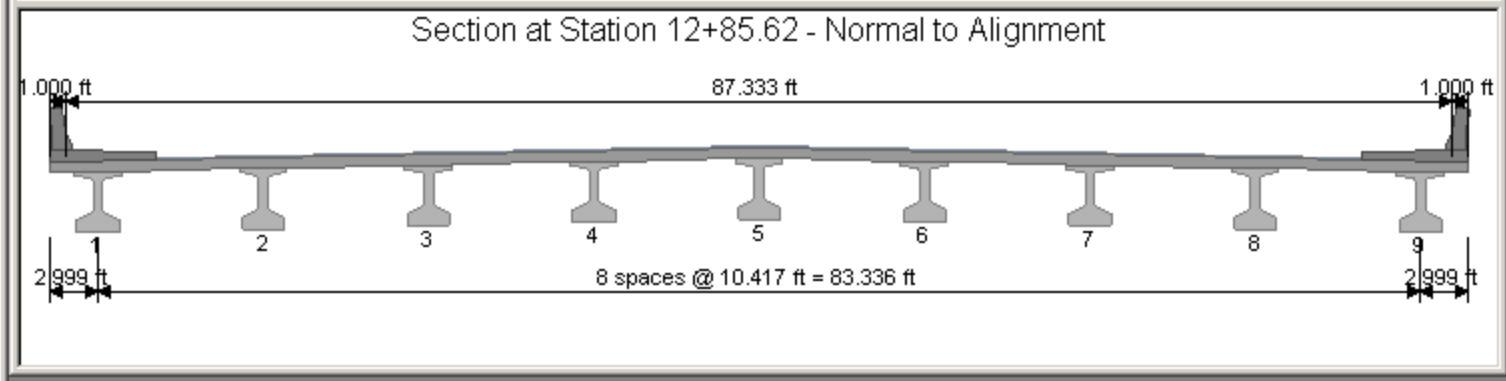
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Undo Copy Girder Properties Ctrl+Z
Redo Ctrl+Y

Alignment...
Bridge...
Pier...
Span...
Girder...

Insert Span Ins
Delete Del

Copy Girder Properties...

Plan View

Abutment 1
20 ft
Pier 3
14+22.33
120 ft
Pier 4
15+42.33
63.5 ft
Abutment 5
16+05.83

Section at Station 12+85.62 - Normal to Alignment

1.000 ft
87.333 ft
1.000 ft
2.999 ft
8 spaces @ 10.417 ft = 83.336 ft
2.999 ft

Copy Properties From One Girder to Another

Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Section

Copy Girder Properties

Select Source Girder and Target Girder(s)

Copy Properties From: Span 1 Girder 1

To: All Spans All Girders

Select Properties to be Copied:

- [ ] Copy Girder Type
- [x] Copy Concrete Material Properties
- [x] Copy Prestressing
- [x] Copy Longitudinal Reinforcement
- [x] Copy Transverse Reinforcement
- [x] Copy Handling Locations
- [ ] Copy Slab Offset ("A" Dimension)

Help Copy Now Close

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Section

Copy Girder Properties

Select Source Girder and Target Girder(s)

Copy Properties From: Span 1 Girder 1

To: All Spans All Girders

Girder 1
Girder 10
Girder 2
Girder 3
Girder 4
Girder 5
Girder 6
Girder 7
Girder 8
Girder 9

Select Properties to be

- [ ] Copy Girder Type
- [x] Copy Concrete M
- [x] Copy Prestressin
- [x] Copy Longitudina
- [x] Copy Transverse Reinforcement
- [x] Copy Handling Locations
- [ ] Copy Slab Offset ("A" Dimension)

Help Copy Now Close

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Section

Copy Girder Properties

Select Source Girder and Target Girder(s)

Copy Properties From: Span 1 | Girder 2

To: All Spans | All Girders

Select Properties to be Copied:

- [ ] Copy Girder Type
- [x] Copy Concrete Material Properties
- [x] Copy Prestressing
- [x] Copy Longitudinal Reinforcement
- [x] Copy Transverse Reinforcement
- [x] Copy Handling Locations
- [ ] Copy Slab Offset ("A" Dimension)

Help | Copy Now | Close

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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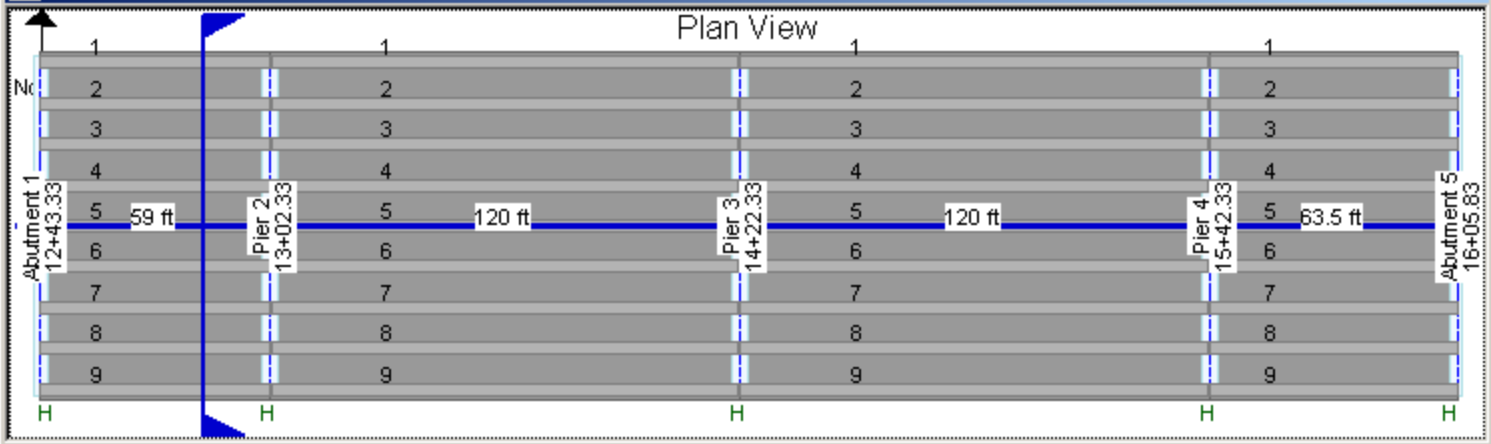
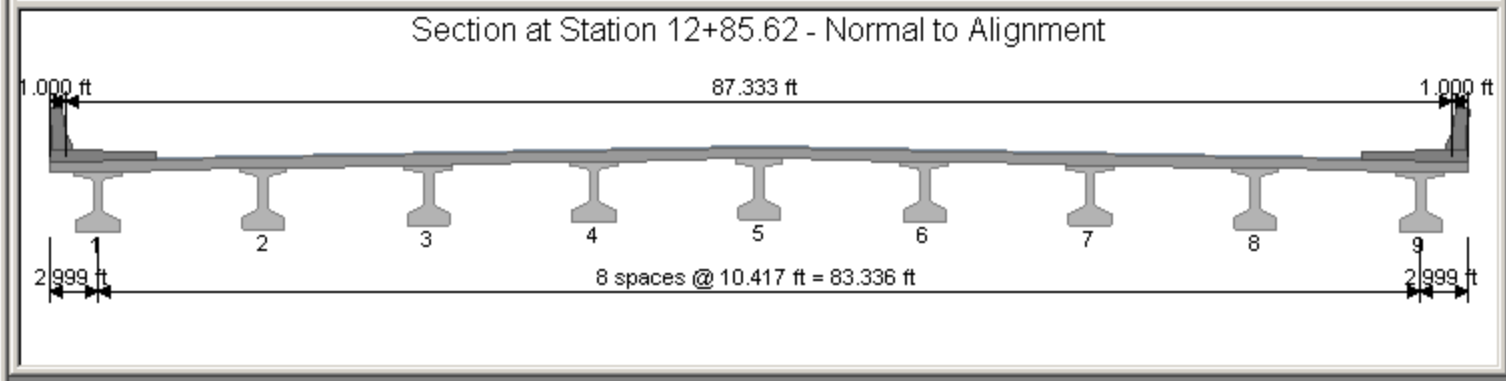
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Section at Station 15+63.03 - Normal to Alignment

1.000 ft

87.333 ft

1.000 ft

2.999 ft

8 spaces @ 10.417 ft = 83.336 ft

2.999 ft

For Help, press F1

Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Section

Girder Designer

The Girder Designer uses current bridge layout and project criteria information to determine an optimal design for the selected girder

Select Girder

Span 4 | Girder 2

Design Options

☑ Design For Flexure

☐ Design For Shear

Note: A successful design attempt does not guarantee compliance with all criteria. You should always run a Spec Check Report to review your final design.

Run Design | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Section at Stati

1.000 ft | 1.000 ft

2.999 ft | 8 spaces @ 10.417 ft = 83.336 ft | 2.999 ft

Progress

Computing Strength I critical section for shear for Span 4 Girder 2

Cancel

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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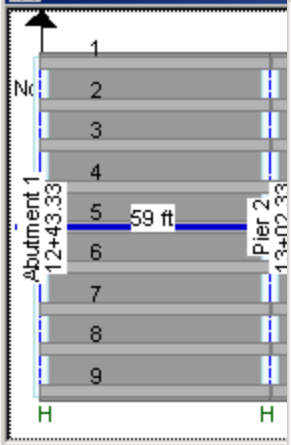
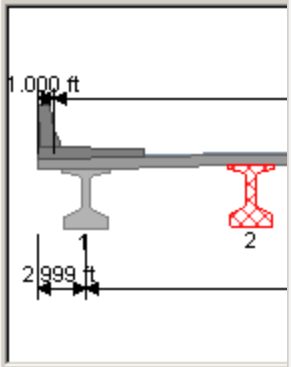
File Edit Project Loads Library Options View Window Help

Bridge Model View





Preliminary Designer Attempt Complete

Design Outcome

The design for Span 4 Girder 2 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	18	16
Number of Harped Strands	4	4
Straight Strand Jacking Force	557.69 kip	495.72 kip
Harped Strand Jacking Force	123.93 kip	123.93 kip
Distance from bottom of girder to top of harped strand group at ends of girder	12.500 in	8.500 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	2.500 in
f'_{ci}	4.000 KSI	4.000 KSI
f'_c	5.000 KSI	5.000 KSI

Design Notes:

Concrete release strength was controlled by Minimum
Concrete final strength was controlled by Minimum

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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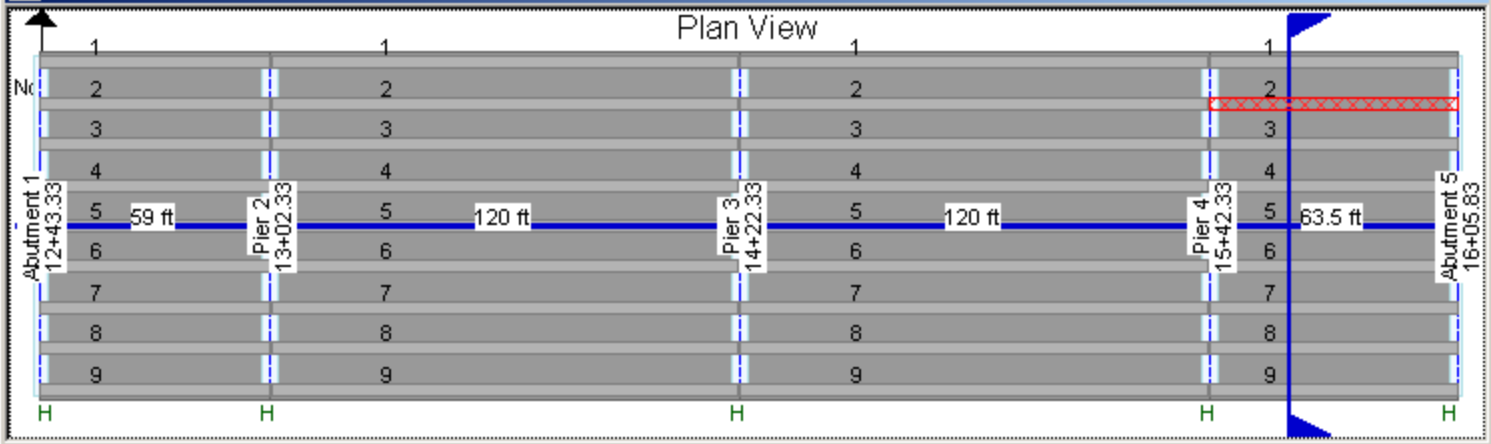
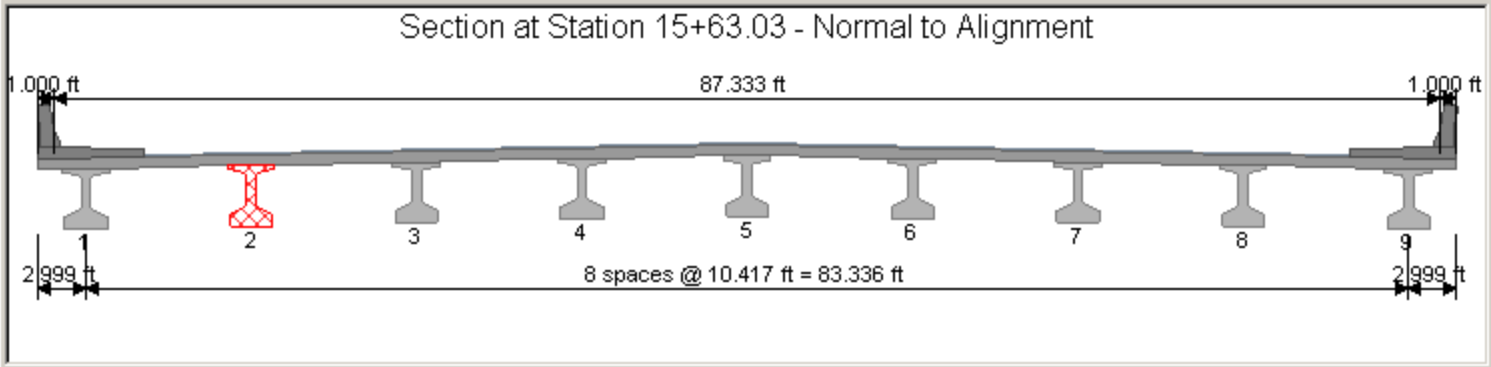
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Section

Copy Girder Properties

Select Source Girder and Target Girder(s)

Copy Properties From: Span 4 | Girder 10

To: All Spans | All Girders

Select Properties to be Copied:

- [ ] Copy Girder Type
- [x] Copy Concrete Material Properties
- [x] Copy Prestressing
- [x] Copy Longitudinal Reinforcement
- [x] Copy Transverse Reinforcement
- [x] Copy Handling Locations
- [ ] Copy Slab Offset ("A" Dimension)

Help | Copy Now | Close

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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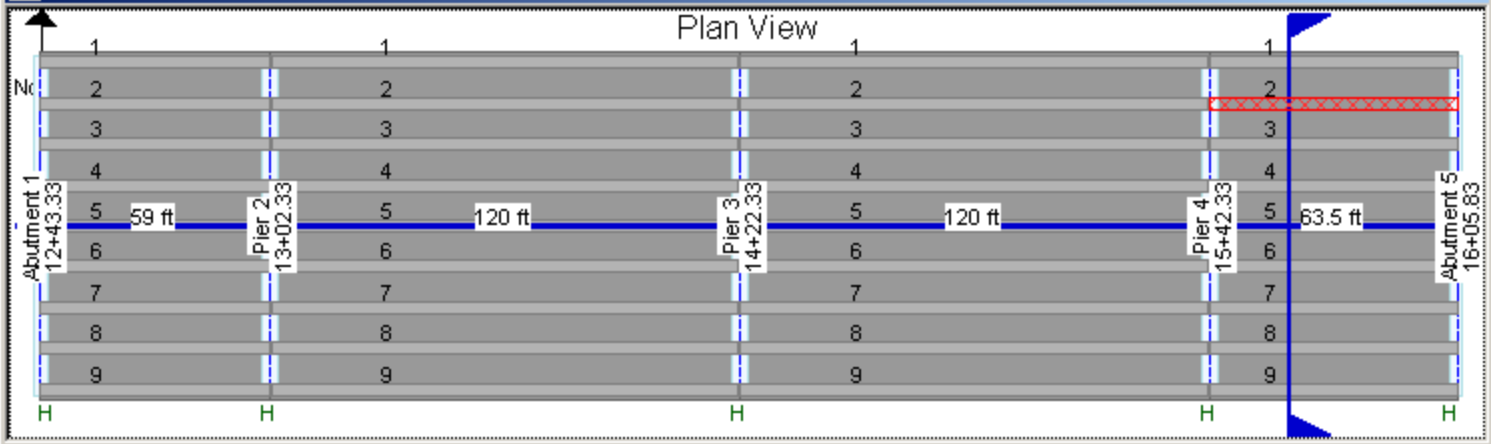
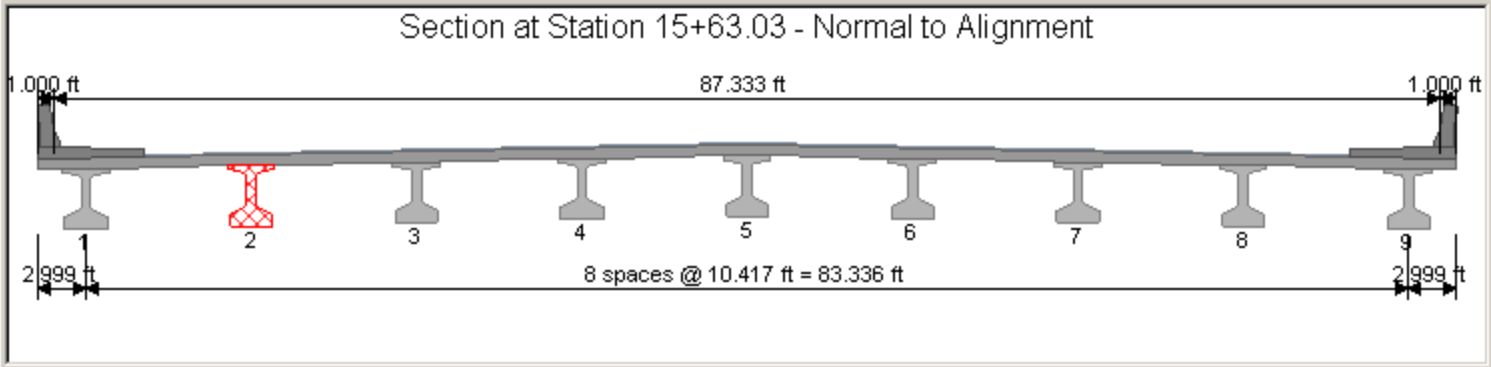
File Edit Project Loads Library Options View Window Help

Bridge Model View





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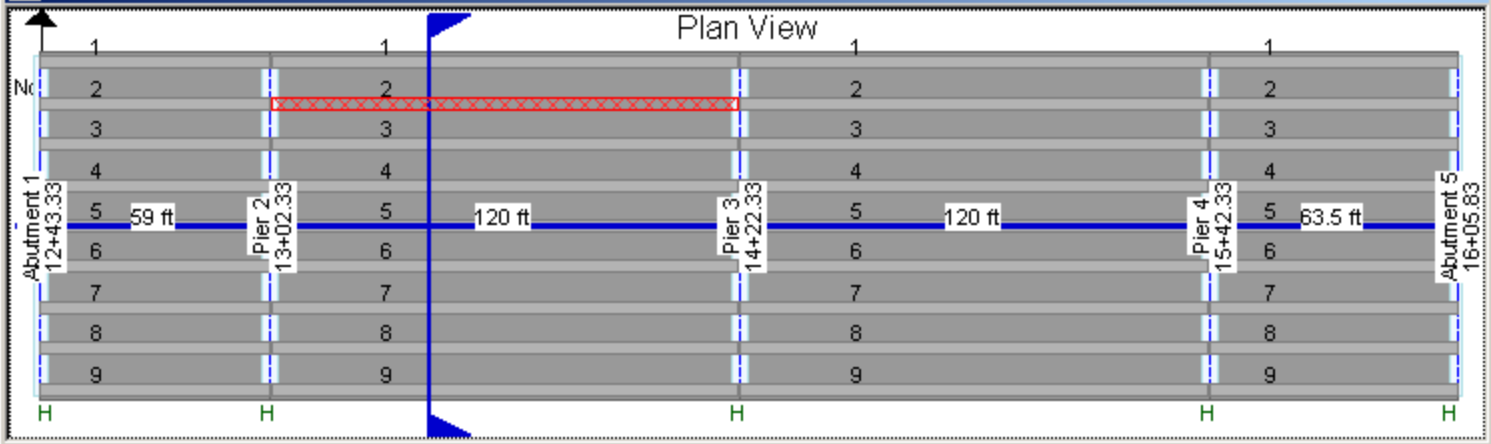
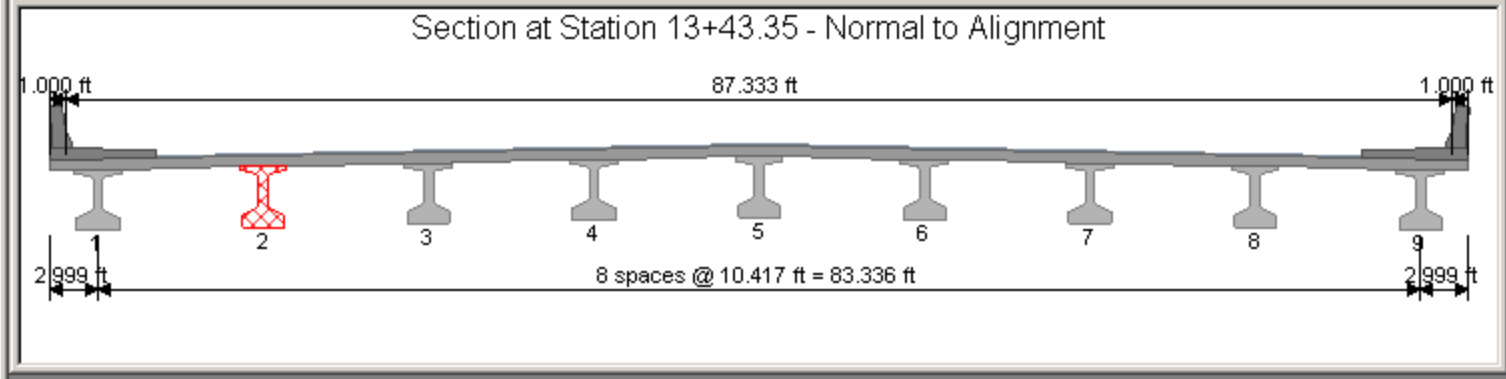
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120

Abutment 5 16+05.83

Section

1.000 ft

2.999 ft

Girder Designer

The Girder Designer uses current bridge layout and project criteria information to determine an optimal design for the selected girder

Select Girder

Span 2 | Girder 2

Design Options

☑ Design For Flexure

☐ Design For Shear

Note: A successful design attempt does not guarantee compliance with all criteria. You should always run a Spec Check Report to review your final design.

Run Design | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Section at Stati

1.000 ft | 1.000 ft

2.999 ft | 8 spaces @ 10.417 ft = 83.336 ft | 2.999 ft

Progress

Building Bridge Site Analysis model for Girderline 2

Cancel

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Preliminary Designer Attempt Complete

Design Outcome

The design attempt for Span 2 Girder 2 failed.

Too many strands are required to satisfy the stress criteria.

Results from last trial:

Parameter	Proposed Design	Current Value
Number of Straight Strands	54	18
Number of Harped Strands	42	4
Straight Strand Jacking Force	1673.06 kip	557.69 kip
Harped Strand Jacking Force	1301.27 kip	123.93 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	12.500 in
Distance from bottom of girder to	2.500 in	2.500 in

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Section at Station 13+43.35 - Normal to Alignment

1.000 ft

87.333 ft

1.000 ft

2.999 ft

8 spaces @ 10.417 ft = 83.336 ft

2.999 ft

For Help, press F1

Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Section at Station

1.000 ft | 2.999 ft | 8 spac | 1.000 ft | 2.999 ft

Select Girder

Select Girder To Be Edited

Span 2 | Girder 2

Note: You can copy properties from one girder to another by using the "Copy Girder Properties" dialog from the Project menu or main toolbar.

OK | Cancel

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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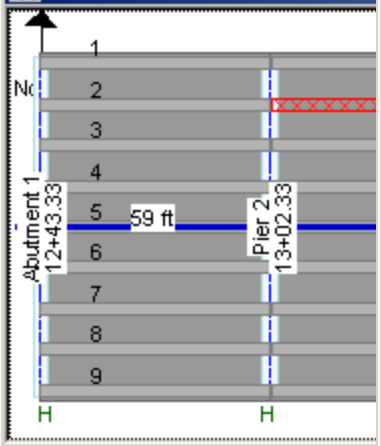
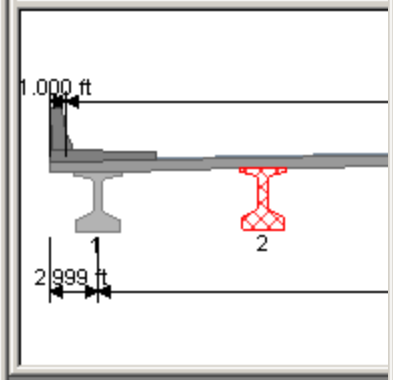
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	4.000	KSI	☐ Eci	3644	KSI
Final Strength, f'c	5.000	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in — End of Girder 8.000 in

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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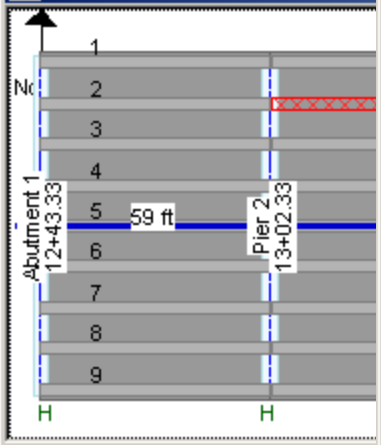
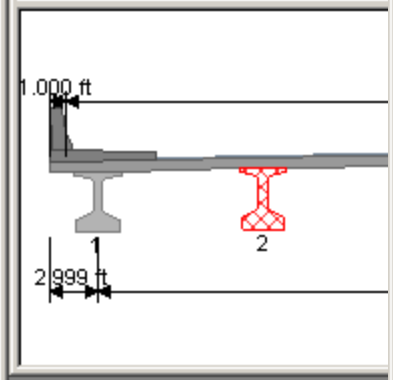
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Total Number of Permanent Strands

Number of Straight: 18, Harped: 4

Total Number of Permanent: 22

☑ Calculate Jacking Force: 681.62 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom: 12.500 in

(Valid Range 4.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 1/2"

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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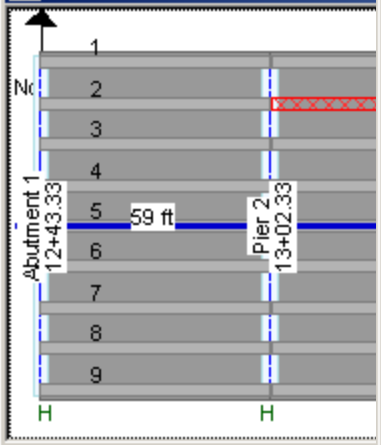
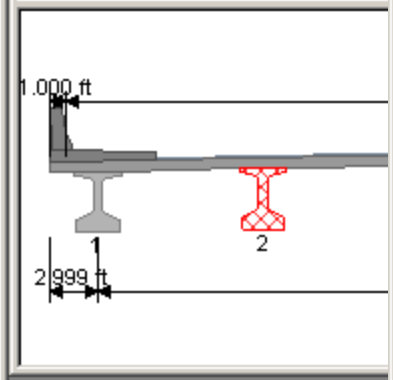
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Total Number of Permanent Strands

Number of Straight: 18, Harped: 4

Total Number of Permanent: 22

☑ Calculate Jacking Force: 966.74 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom: 12.500 in

(Valid Range 4.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 | Modified | AutoCalc : Off | NUM

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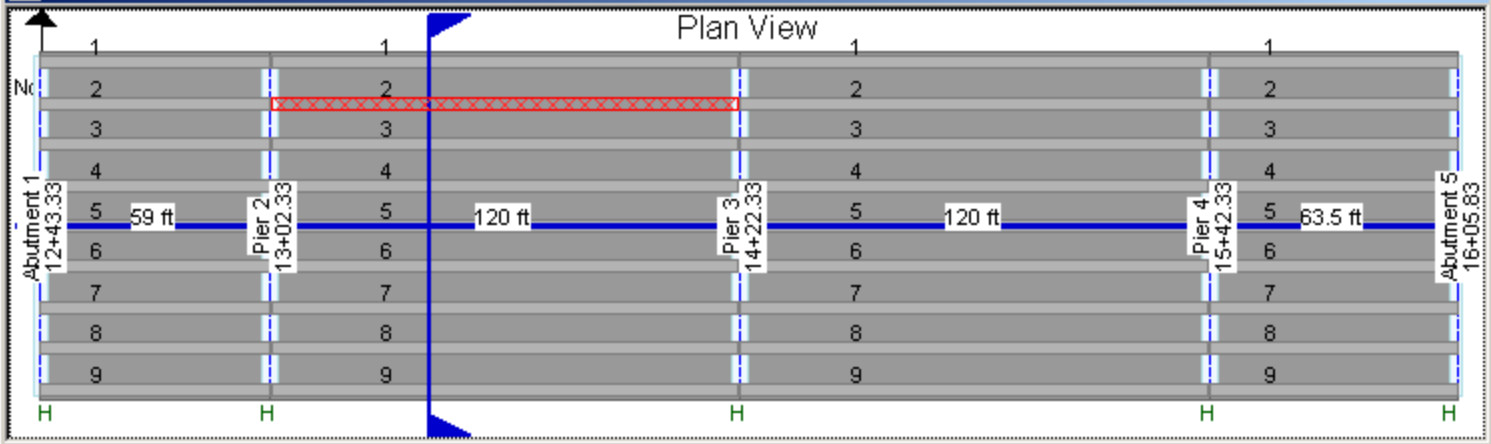
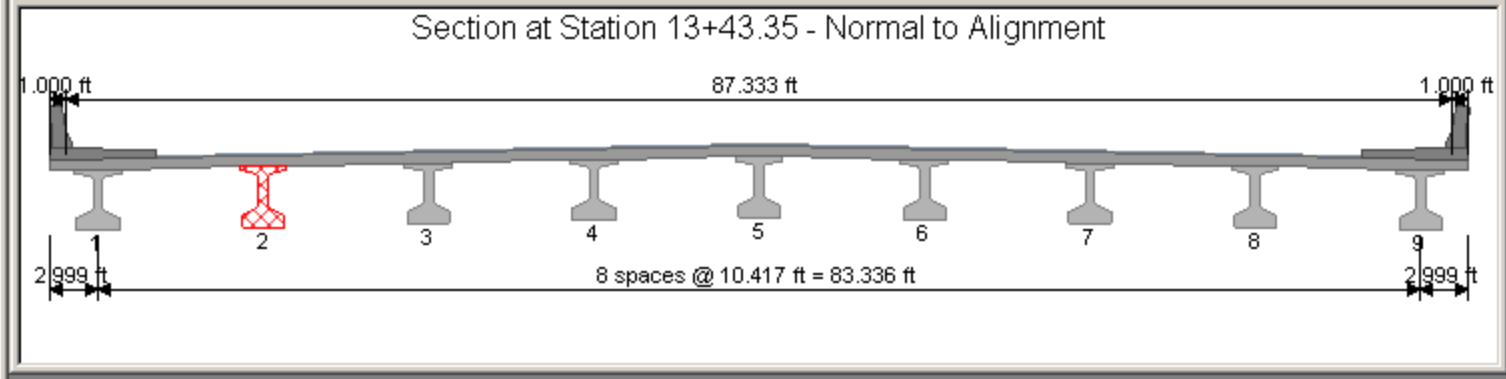
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120

Abutment 5 16+05.83

Section

1.000 ft

2.999 ft

Girder Designer

The Girder Designer uses current bridge layout and project criteria information to determine an optimal design for the selected girder

Select Girder

Span 2 | Girder 2

Design Options

☑ Design For Flexure

☐ Design For Shear

Note: A successful design attempt does not guarantee compliance with all criteria. You should always run a Spec Check Report to review your final design.

Run Design | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Section at Stati

1.000 ft | 1.000 ft

2.999 ft | 8 spaces @ 10.417 ft = 83.336 ft | 2.999 ft

Progress

Computing Strength I critical section for shear for Span 2 Girder 2

Cancel

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Preliminary Designer Attempt Complete

Design Outcome

The design attempt for Span 2 Girder 2 failed.

Too many strands are required to satisfy the stress criteria.

Results from last trial:

Parameter	Proposed Design	Current Value
Number of Straight Strands	54	18
Number of Harped Strands	32	4
Straight Strand Jacking Force	2372.90 kip	790.97 kip
Harped Strand Jacking Force	1406.16 kip	175.77 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	12.500 in
Distance from bottom of girder to	2.500 in	2.500 in

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Section at Station 13+43.35 - Normal to Alignment

1.000 ft

87.333 ft

1.000 ft

2.999 ft

8 spaces @ 10.417 ft = 83.336 ft

2.999 ft

For Help, press F1

Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

☑ Use same type for all girders

Number of Girders: 9

☑ Use same number of girders in all spans

Spacing Type: Spread girders with same spacing in all spans

Girder Spacing: 10.417 ft (3.000 ft or more)

Locate: Center of Girders 0.000 ft from Bridge Line

Measured normal to alignment at CL pier

Girder Connectivity:

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) cross section. With TxDOT Method per Section 3.5 of the TxDOT LRFD Bridge Design Manual, Revised April, 2007

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) xDOT Method per Section FD Bridge Design Manual,

Number of Girders

Spacing Type: Sprea

Girder Spacing: 10

Locate: Center of Girders

Measured normal to alignme

Girder Connectivity

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Hint

By unchecking this box, each span can have a different number of girders. To define the number of girders in a span, edit the Span Details for each span.

Span Details can be edited by selecting the Framing tab and then pressing the edit button for a span.

Don't show this hint again

Close

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

☑ Use same type for all girders

Number of Girders:

☐ Use same number of girders in all spans

Spacing Type: Spread girders with same spacing in all spans

Girder Spacing: 10.417 ft (3.000 ft or more)

Locate: Center of Girders 0.000 ft from Bridge Line

Measured normal to alignment at CL pier

Girder Connectivity:

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) cross section. With TxDOT Method per Section 3.5 of the TxDOT LRFD Bridge Design Manual, Revised April, 2007

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

☑ Use same type for all girders

Number of Girders:

☐ Use same number of girders in all spans

Spacing Type: Spread girders with same spacing in all spans

Girder Spacing: Spread girders with same spacing in all spans / Spread girders with unique spacing for each span

Locate: Center of Girders | 0.000 ft | from: Bridge Line

Measured normal to alignment at CL pier

Girder Connectivity:

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) cross section. With TxDOT Method per Section 3.5 of the TxDOT LRFD Bridge Design Manual, Revised April, 2007

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) xDOT Method per Section FD Bridge Design Manual,

Number of Girders

Spacing Type: Sprea

Girder Spacing

Locate: Center of Girders

Girder Connectivity

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Hint

By selecting this option, a different spacing can be used between each girder. To do this, edit the Span Details for each span.

Span Details can be edited by selecting the Framing tab and then pressing the edit button for a span.

Don't show this hint again

Close

OK | Cancel | Help

For Help, press F1

Simple Span | 0 | Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Superstructure Description

Girder Family: I-Beam

Girder Type: Tx46

☑ Use same type for all girders

Number of Girders:

☐ Use same number of girders in all spans

Spacing Type: Spread girders with unique spacing for each span

Girder Spacing: ft

Locate: Center of Girders ft from Bridge Line

Girder Connectivity:

Girder Orientation: Plumb

Deck Type: Composite Cast-In-Place Deck

Precast I-Beam, Composite Cast-In-Place Deck, Girders at spread spacing.

Distribution factors computed using Type (k) cross section. With TxDOT Method per Section 3.5 of the TxDOT LRFD Bridge Design Manual, Revised April, 2007

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

	Station	Orientation	Connection, Boundary Condition, and Girder Spacing Details
Abut 1	12+43.33	NORMAL	Edit Abutment 1 Details...
Span 1	59.000 ft		Edit Span 1 Details...
Pier 2	13+02.33	NORMAL	Edit Pier 2 Details...
Span 2	120.000 ft		Edit Span 2 Details...
Pier 3	14+22.33	NORMAL	Edit Pier 3 Details...
Span 3	120.000 ft		Edit Span 3 Details...
Pier 4	15+42.33	NORMAL	Edit Pier 4 Details...
Span 4	63.500 ft		Edit Span 4 Details...
Abut 5	16+05.83	NORMAL	Edit Abutment 5 Details...

Add Span | Remove Span | Layout by Span Lengths...

Enter station in the following format, xx+yy.zz Example 1+23.45

Enter orientation as Normal, a bearing (N/S dd mm ss.s E/W), or a skew angle (dd mm ss.s L/R).
Example: N 34 23 32.1 W

Offset from Alignment to Bridge Line 0.0000 ft (Measured normal to alignment)

Enter offset from the alignment, measured normal to the alignment. Use a signed value (+/-xxx.xx) or a left/right indicator (xxx.xxx L|R)
Positive values indicate the centerline of pier is offset to the right of the alignment.
Example: -2.25 or 2.25 L

OK | Cancel | Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Span 2 Details

General | Connections | Girders

Span 2

Span Length 120.000 ft

The length of Span 2 is changed by moving all piers after Pier 2. Only the length of Span 2 is changed.

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders 9

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-9
Name	Tx46

Girder spacing is defined span by span

☐ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-9 (ft)
Ahead	10.417
Allowable	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-9 (ft)
Back	10.417
Allowable	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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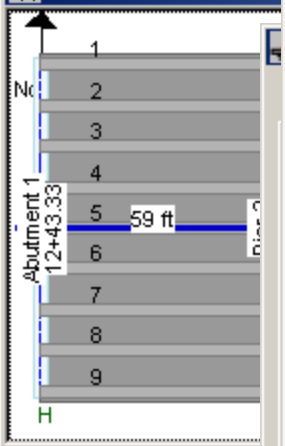
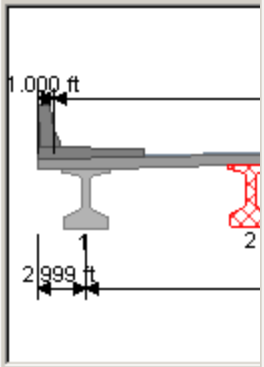
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 10

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-10
Name	Tx46

Girder spacing is defined span by span

☐ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-10 (ft)
Ahead	10.417
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-16 (ft)
Back	5.589	6.287	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 10

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-10
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-10 (ft)
Ahead	10.417
Allowable	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-10 (ft)
Back	10.417
Allowable	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders 10

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-10
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-10 (ft)
Ahead	9.259
Allowable	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-10 (ft)
Back	9.259
Allowable	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

	Station	Orientation	Connection, Boundary Condition, and Girder Spacing Details
Abut 1	12+43.33	NORMAL	Edit Abutment 1 Details...
Span 1	59.000 ft		Edit Span 1 Details...
Pier 2	13+02.33	NORMAL	Edit Pier 2 Details...
Span 2	120.000 ft		Edit Span 2 Details...
Pier 3	14+22.33	NORMAL	Edit Pier 3 Details...
Span 3	120.000 ft		Edit Span 3 Details...
Pier 4	15+42.33	NORMAL	Edit Pier 4 Details...
Span 4	63.500 ft		Edit Span 4 Details...
Abut 5	16+05.83	NORMAL	Edit Abutment 5 Details...

Add Span | Remove Span | Layout by Span Lengths...

Enter station in the following format, xx+yy.zz Example 1+23.45

Enter orientation as Normal, a bearing (N/S dd mm ss.s E/W), or a skew angle (dd mm ss.s L/R).
Example: N 34 23 32.1 W

Offset from Alignment to Bridge Line 0.0000 ft (Measured normal to alignment)

Enter offset from the alignment, measured normal to the alignment. Use a signed value (+/-xxx.xx) or a left/right indicator (xxx.xxx L|R)
Positive values indicate the centerline of pier is offset to the right of the alignment.
Example: -2.25 or 2.25 L

OK | Cancel | Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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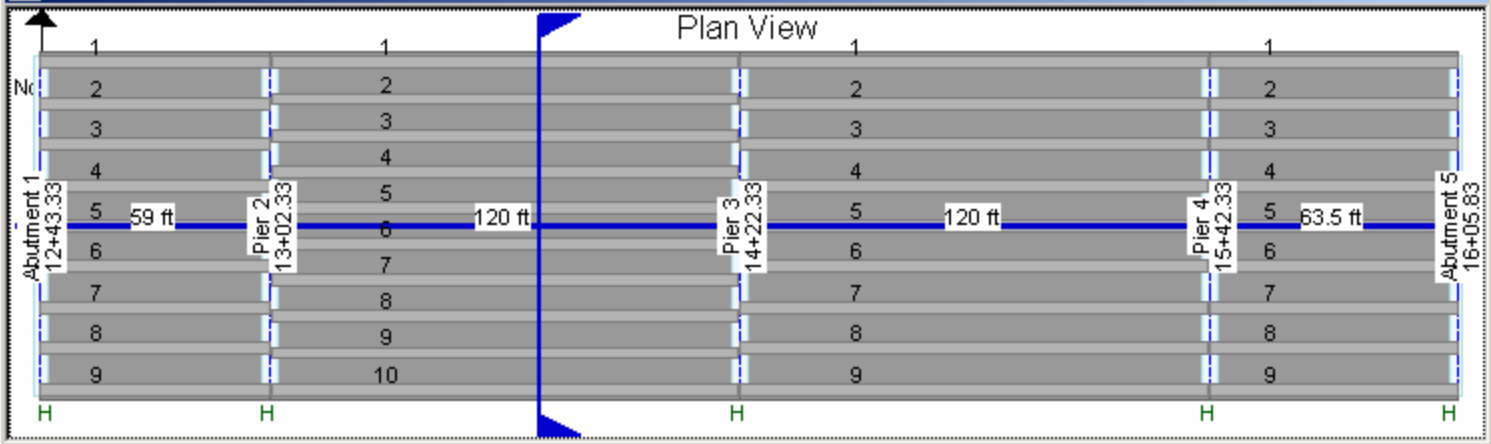
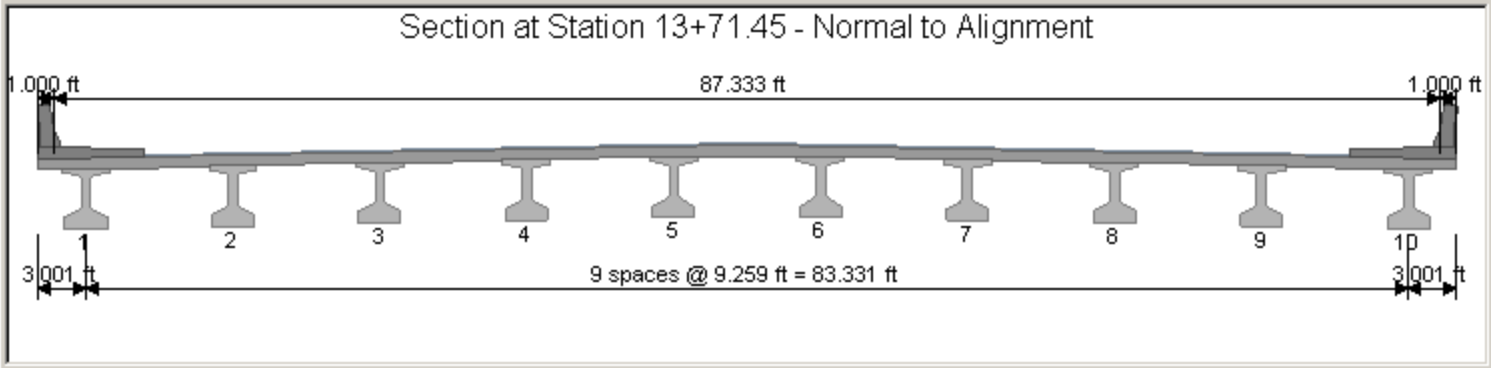
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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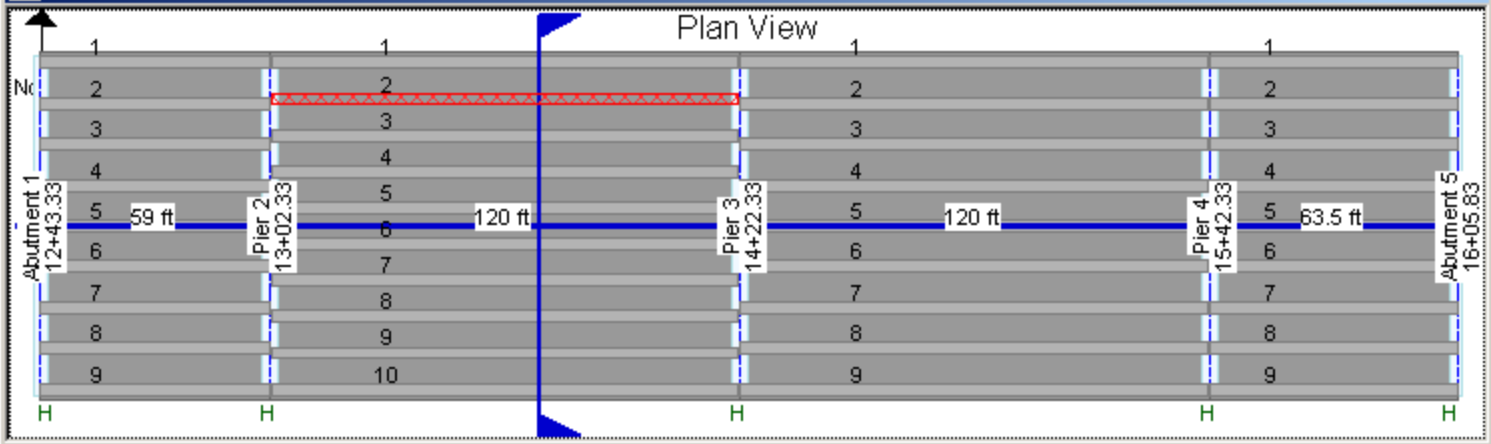
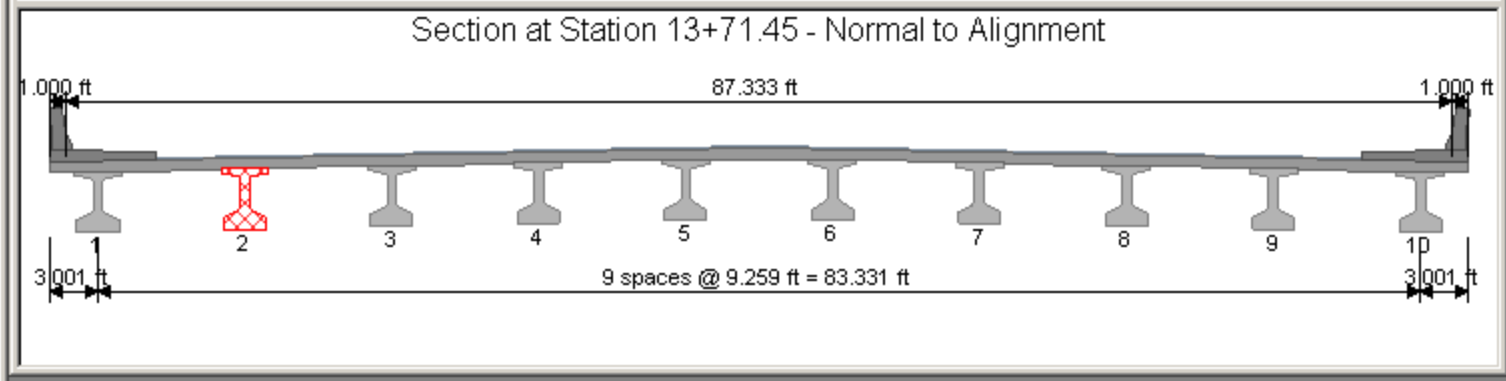
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Preliminary Designer Attempt Complete

Design Outcome

The design attempt for Span 2 Girder 2 failed.

Too many strands are required to satisfy the stress criteria.

Results from last trial:

Parameter	Proposed Design	Current Value
Number of Straight Strands	54	18
Number of Harped Strands	32	4
Straight Strand Jacking Force	2372.90 kip	790.97 kip
Harped Strand Jacking Force	1406.16 kip	175.77 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	12.500 in
Distance from bottom of girder to	2.500 in	2.500 in

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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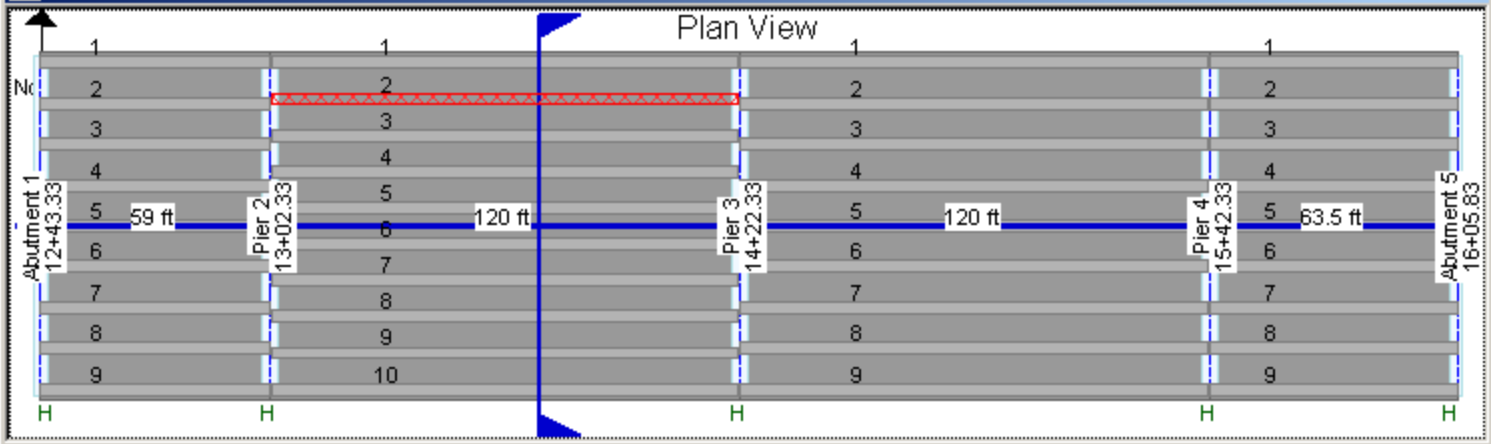
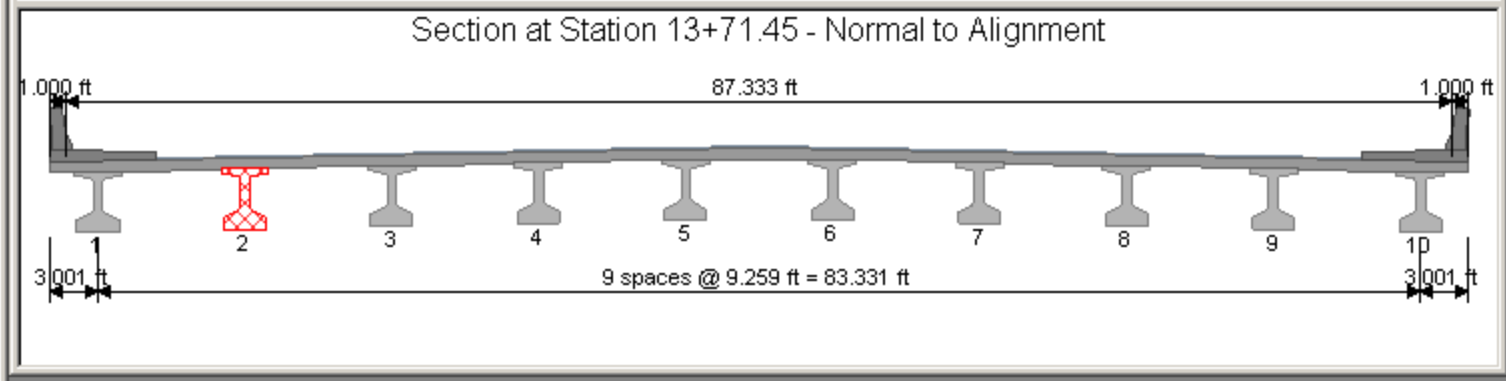
File Edit Project Loads Library Options View Window Help

Bridge Model View





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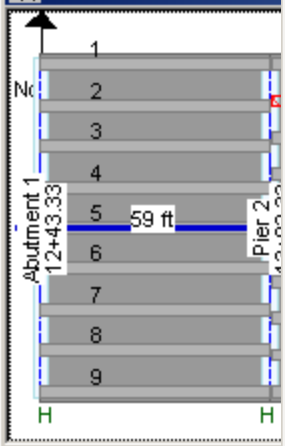

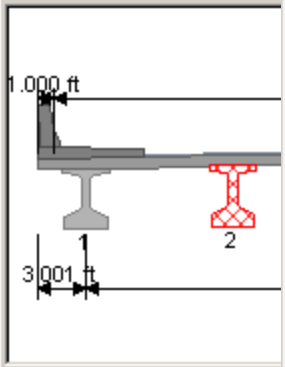

Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 11

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-11
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-11 (ft)
Ahead	8.333
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-11 (ft)
Back	8.333
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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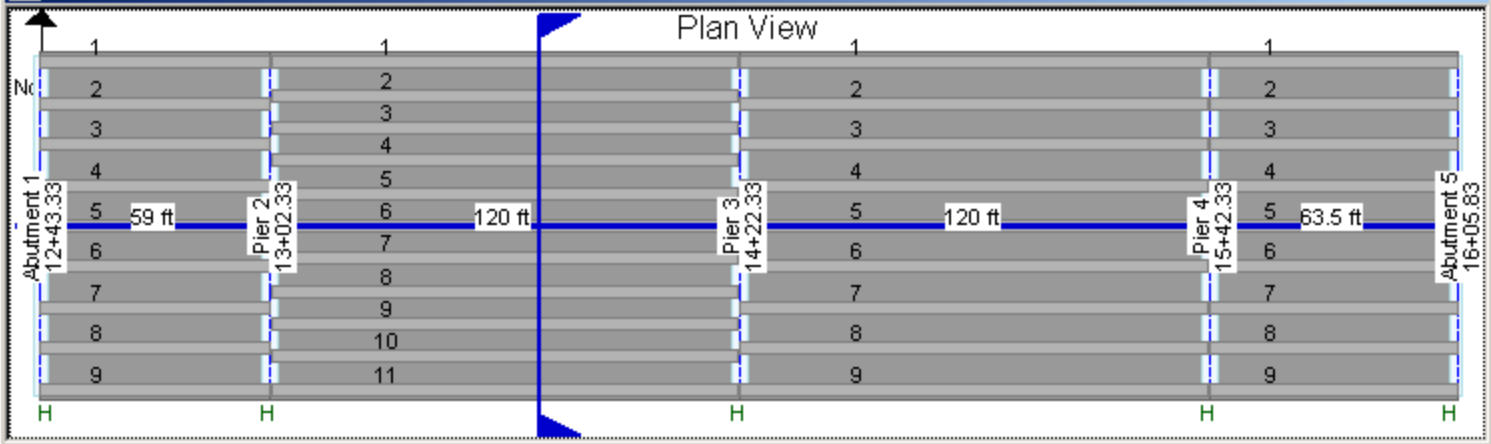
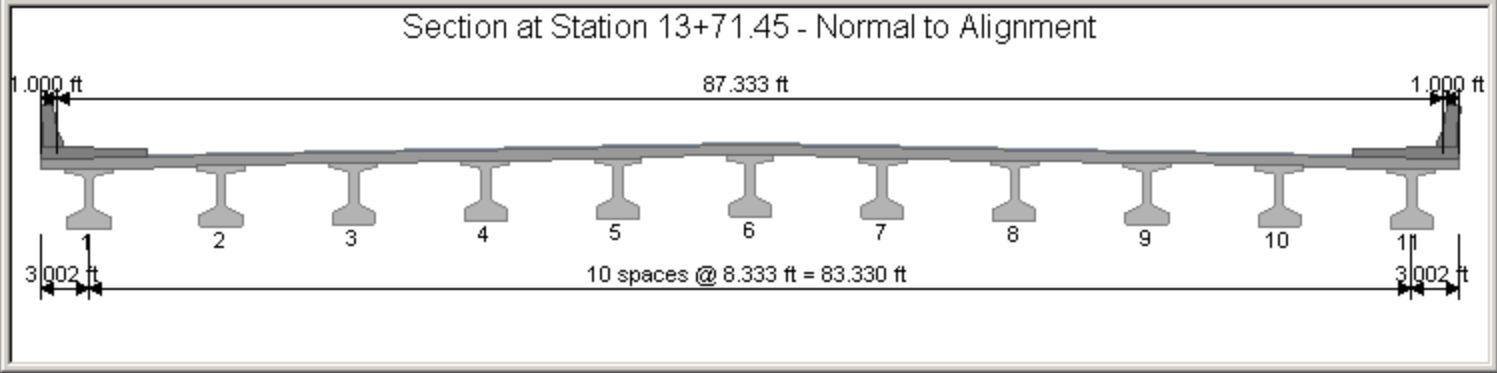
Bridge Model View





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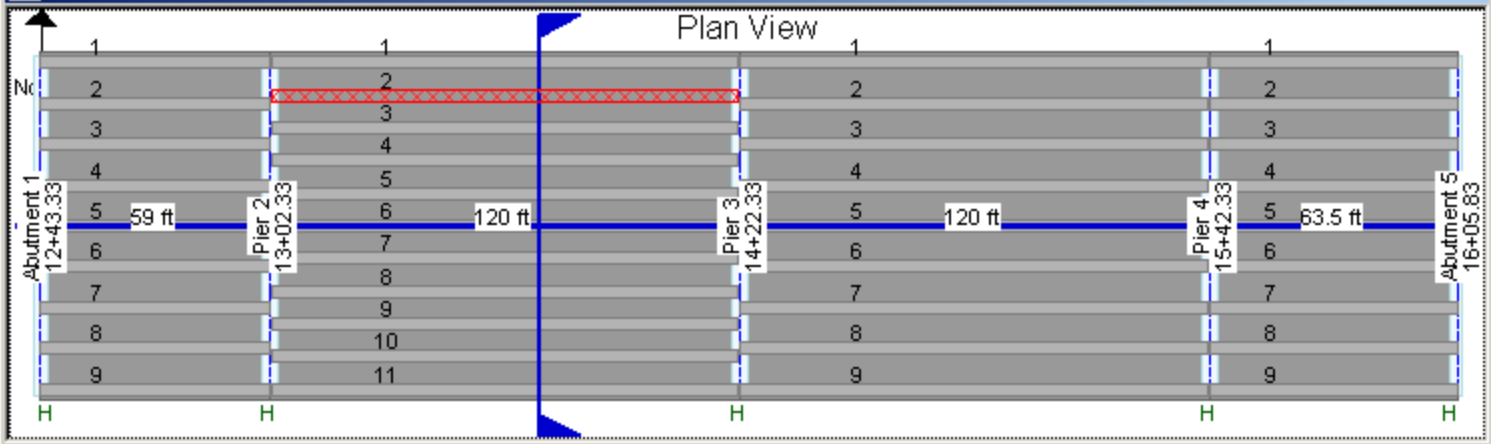
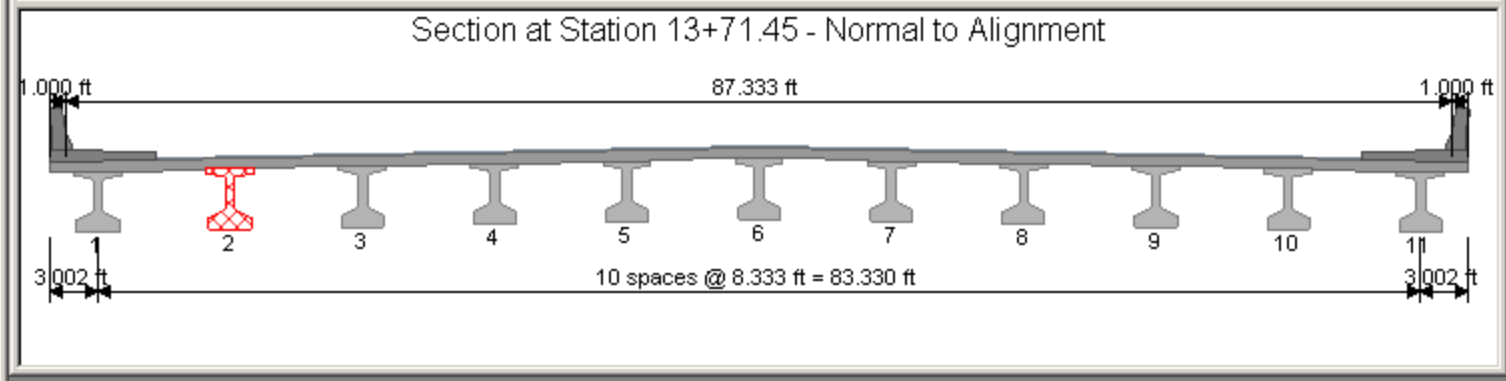
Bridge Model View





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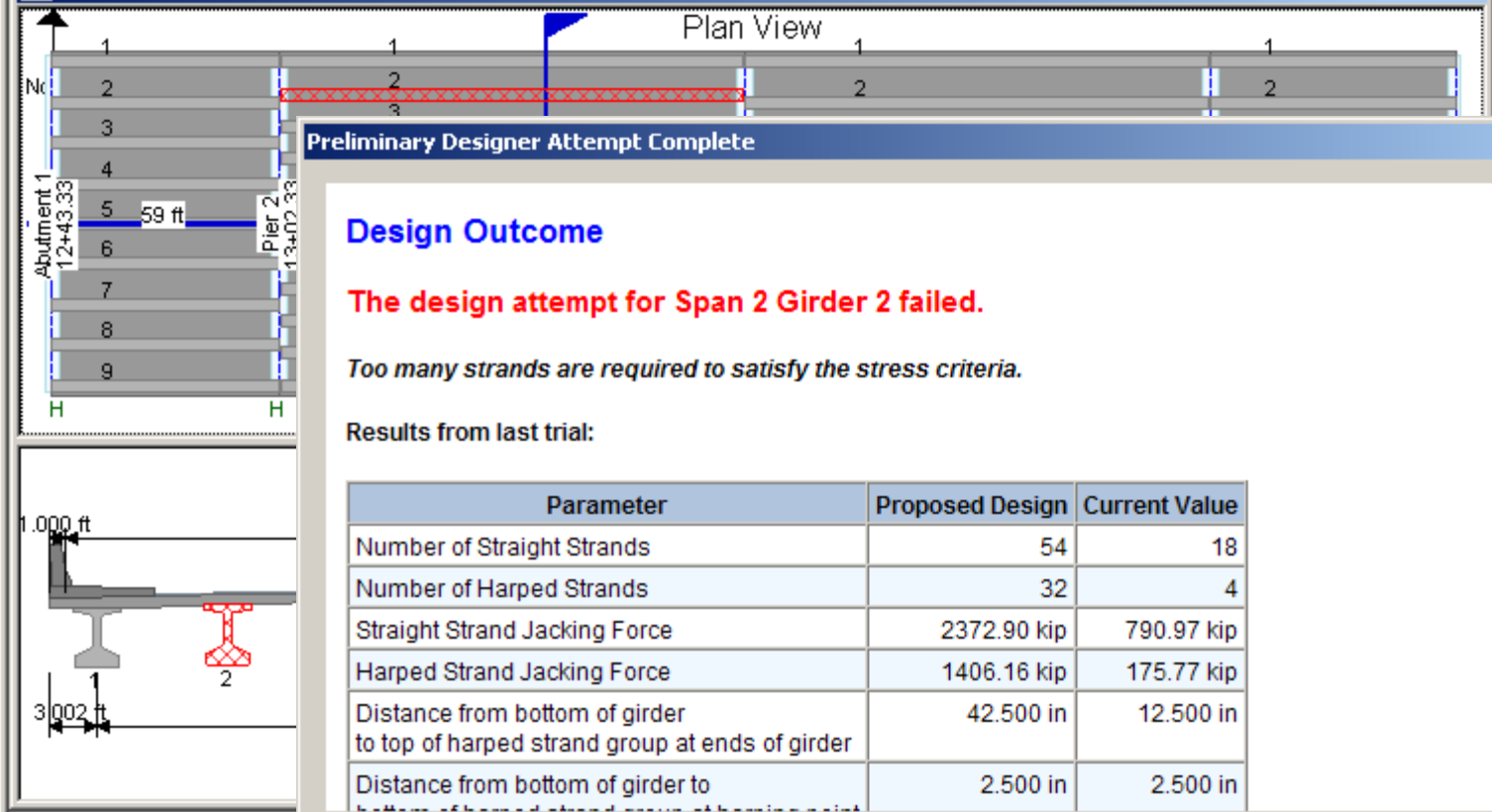
Bridge Model View



Preliminary Designer Attempt Complete

Design Outcome

The design attempt for Span 2 Girder 2 failed.

Too many strands are required to satisfy the stress criteria.

Results from last trial:

Parameter	Proposed Design	Current Value
Number of Straight Strands	54	18
Number of Harped Strands	32	4
Straight Strand Jacking Force	2372.90 kip	790.97 kip
Harped Strand Jacking Force	1406.16 kip	175.77 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	12.500 in
Distance from bottom of girder to	2.500 in	2.500 in

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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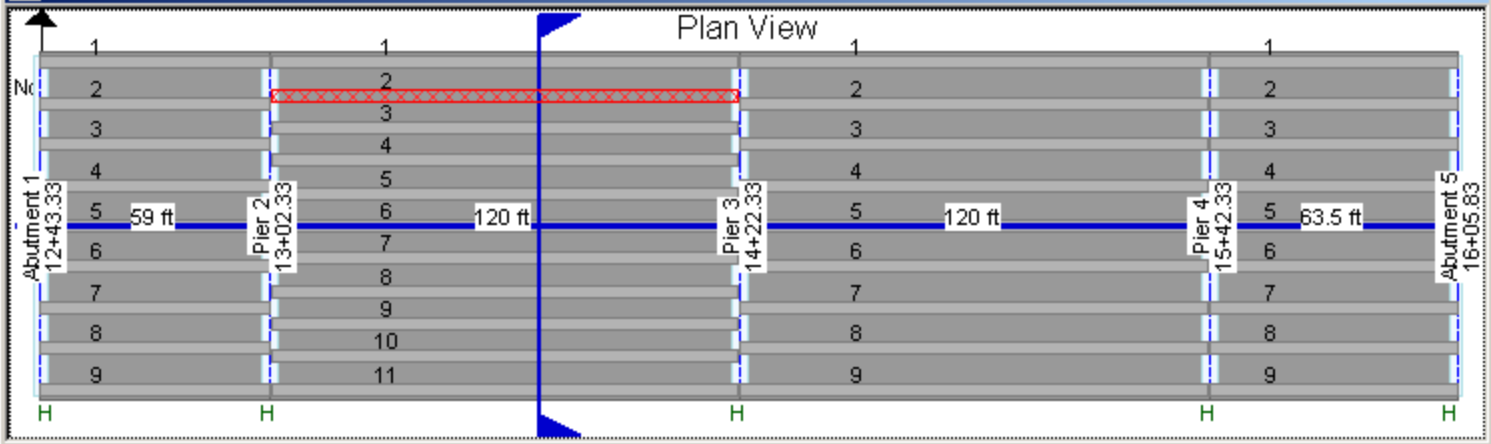
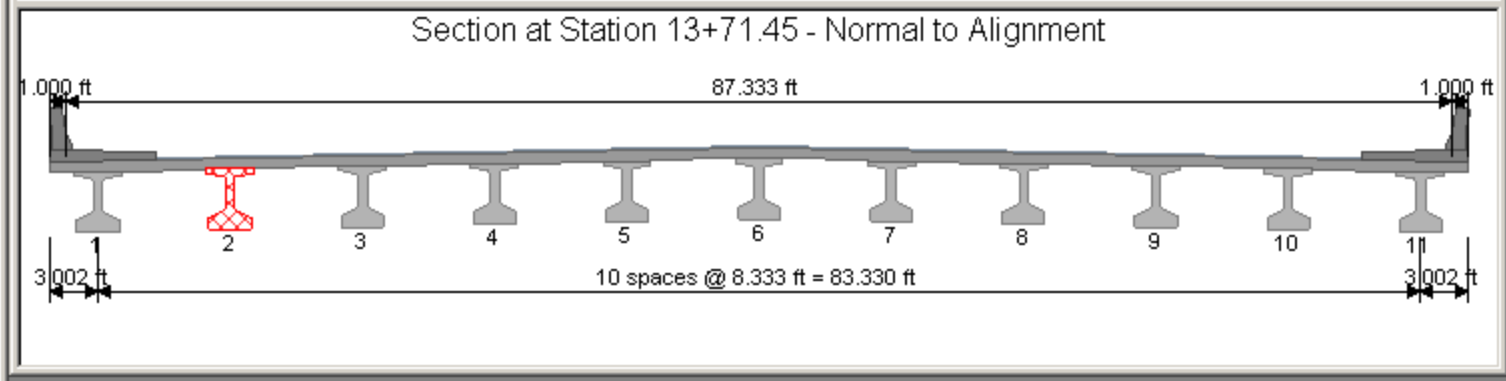
Bridge Model View





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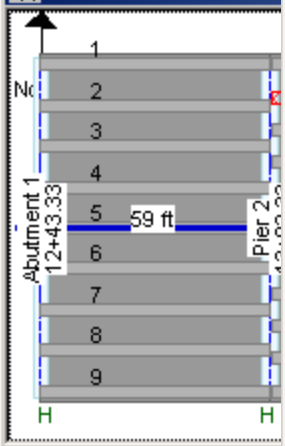
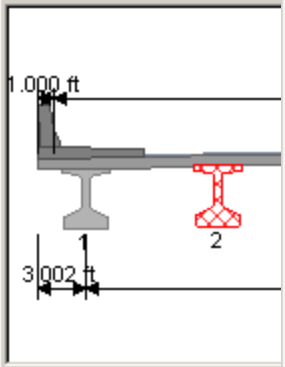
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 12

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-12
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-12 (ft)
Ahead	7.576
Allowable	3.000 or more

To regroup girder spacing, select column headings, right click over the grid, and select Expand or Join from the menu

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-12 (ft)
Back	7.576
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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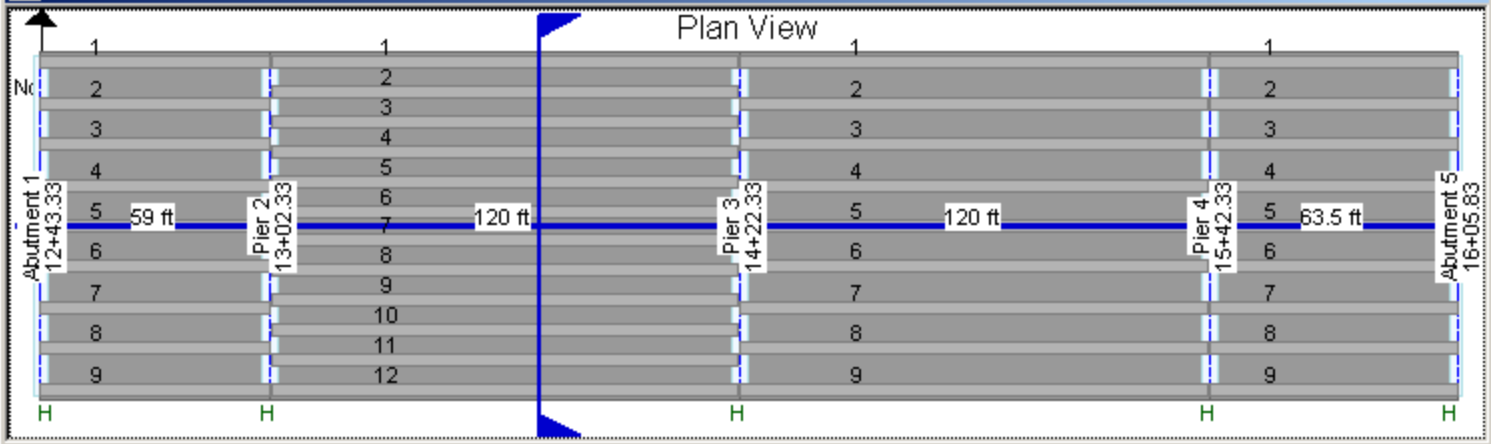
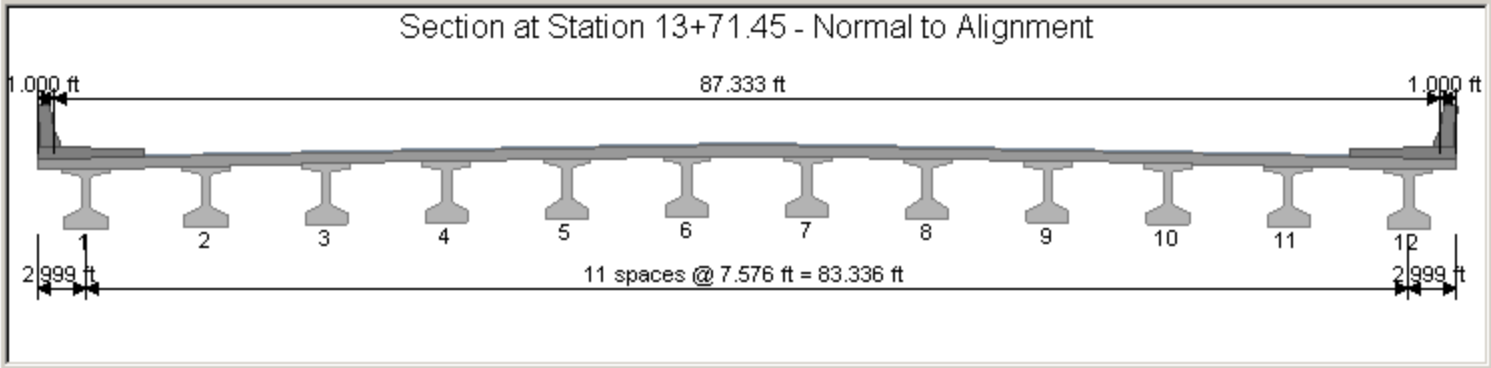
File Edit Project Loads Library Options View Window Help

Bridge Model View





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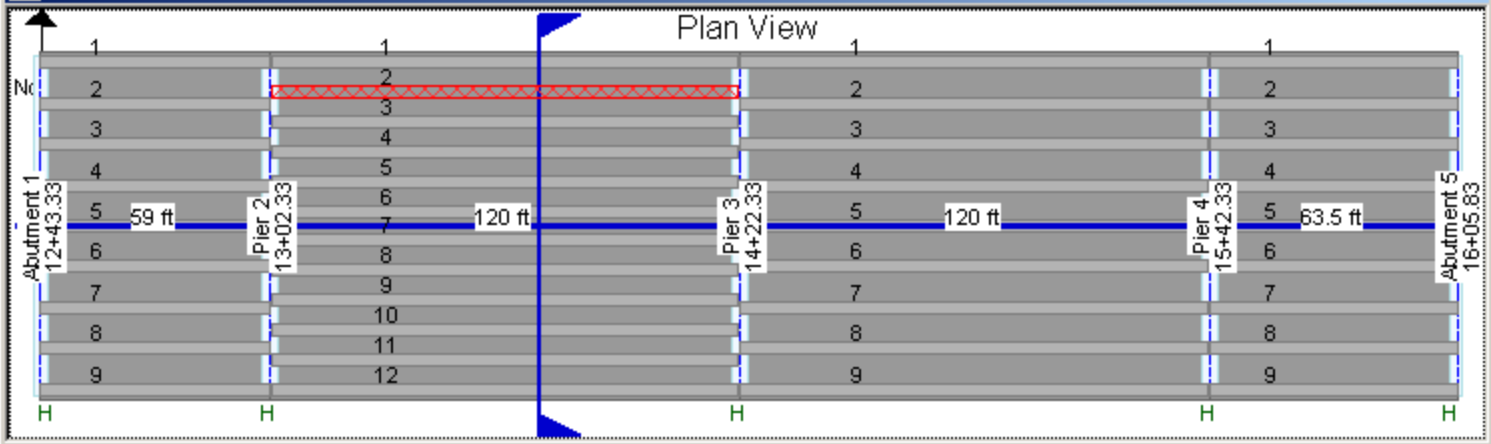

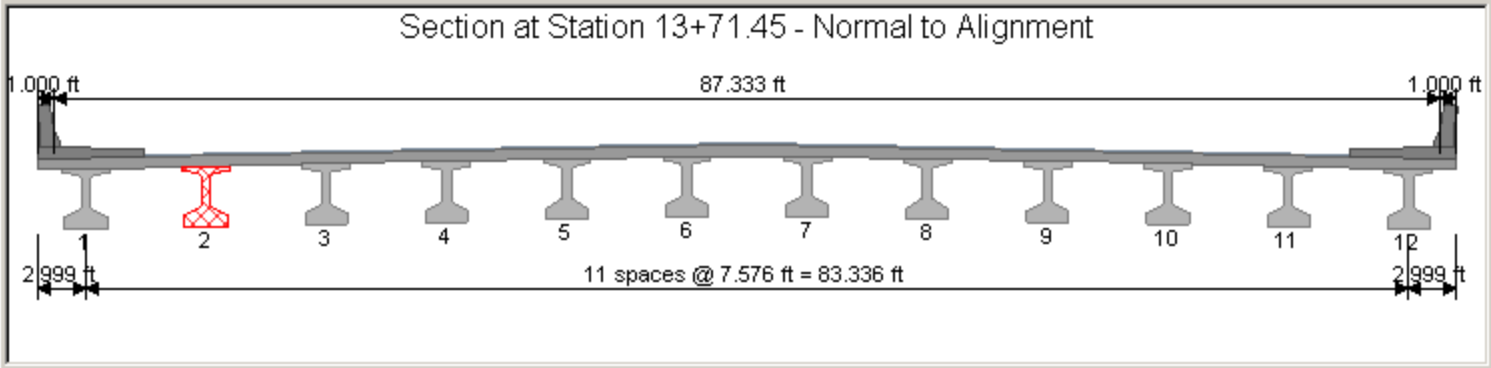

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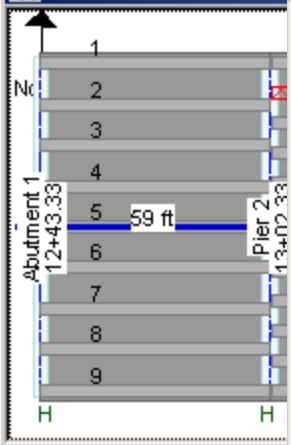

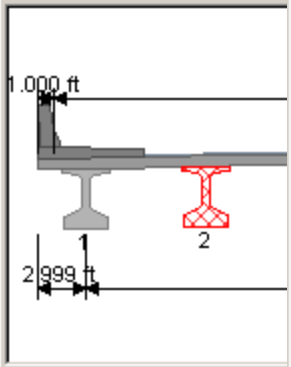

Preliminary Designer Attempt Complete

Design Outcome

The design for Span 2 Girder 2 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	54	18
Number of Harped Strands	20	4
Straight Strand Jacking Force	2372.90 kip	790.97 kip
Harped Strand Jacking Force	878.85 kip	175.77 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	12.500 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	2.500 in
f'_{ci}	8.800 KSI	4.000 KSI
f'_c	8.800 KSI	5.000 KSI

Design Notes:

Warning: The designed girder release strength exceeds the normal value of 6.000 KSI
Warning: The designed girder final concrete strength exceeds the normal value of 8.500 KSI
Concrete release strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder
Concrete final strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

Texas Department of Transportation

Providing safe, effective and efficient movement of people and goods.

Bridge Information

TxDOT provides assistance at the local and regional levels in all aspects of planning, design, construction and maintenance of bridges. The Department also develops policies for a safe and comprehensive state bridge system.

Note: The link to the Shop Drawings page has changed. Please update your bookmarks.

Construction and Maintenance

- Bridge Specifications
- Shop Drawings
- Bridge Expansion Joints
- Proprietary Concrete Repair Materials
- Curing Mats for Concrete Structures
- Construction Tips
- Welding Certifications

Geotechnical Services

Design

- Bridge Standards
- Superstructure Design Information
- Substructure Design Information
- Other Design Information
- Steel Bridge Design Preferred Practices
- LRFD Bridge Design FAQs

Project Development

- Railroad Information

Superstructure Design Information - Windows Internet Explorer
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http://www.txdot.gov/business/contractors_consultants/bridge/super_design.htm
Live Search
Superstructure Design Information
Page Tools

Texas Department of Transportation

Providing safe, effective and efficient movement of people and goods.

Superstructure Design Information

This page provides guidance and recommendations on Load and Resistance Factor Design (LRFD) of specific bridge superstructure components.

- General Recommendations
- Deck Surface Texture Requirements
- Corrosion Protection Measures
- Concrete Deck Slabs on Stringers
- Concrete Deck Slabs on U Beams (U40 and U54)
- Prestressed Concrete I Beams and I Girders
- Prestressed Concrete U Beams (Types U40 and U54)
- Prestressed Slab Beams and Decked Slab Beams
- Prestressed Concrete Double-Tee Beams
- Prestressed Concrete Box Beams (B20, B28, B34, and B40)
- Design Resources
- Design Examples and Spreadsheets

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Limit States

TxDOT recommends the following limit states for design of bridge system components <Article 3.4.1>:

Component	Limit State
Prestressed concrete beams	Strength I and IV and Service I and III. Fatigue and extreme limit states need not be checked. Live load deflection need not be checked.

Load Factors

TxDOT recommends the following permanent loads <Article 3.5>: The engineer may reduce the maximum load factor for wearing surfaces and utilities <DW in Table 3.4.1-2> to 1.25.

Prestressed Concrete Design

Recent incidents of further Alkali Silica Reactions (ASR) have caused us to revisit mix designs and the attainable concrete strengths used in the fabrication of prestressed concrete products. The current special provision to Item 420 has greatly increased amounts of fly-ash used in beam production. It is anticipated that this will also result in slower strength gains which could have a negative impact on fabricator production and ultimately on girder costs. Therefore, now more than ever, it is important to observe our recommended practice in the design of prestressed concrete beams.

Therefore, we are encouraging designers to limit release concrete strengths, f'ci, to a maximum of 6.0 ksi. Design concrete strength, f'c, should be limited to a maximum of 8.50 ksi.

Note: The need to occasionally exceed these limits is left to the designer to determine. All reasonable efforts, including waiving the recommendation to design for future overlay, providing additional beams in a given cross-section, reducing span lengths, or providing non-standard strand patterns, should be considered in keeping concrete strengths below these recommended limits.

The following links are provided for additional reading on ASR:

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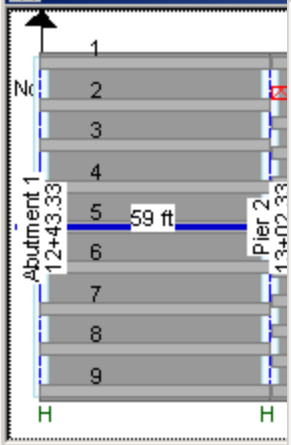
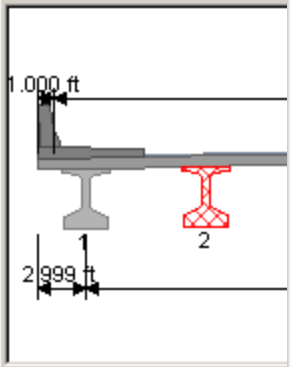
Bridge Model View





Preliminary Designer Attempt Complete

Design Outcome

The design for Span 2 Girder 2 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	54	18
Number of Harped Strands	20	4
Straight Strand Jacking Force	2372.90 kip	790.97 kip
Harped Strand Jacking Force	878.85 kip	175.77 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	12.500 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	2.500 in
f'_{ci}	8.800 KSI	4.000 KSI
f'_c	8.800 KSI	5.000 KSI

Design Notes:

Warning: The designed girder release strength exceeds the normal value of 6.000 KSI
Warning: The designed girder final concrete strength exceeds the normal value of 8.500 KSI
Concrete release strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder
Concrete final strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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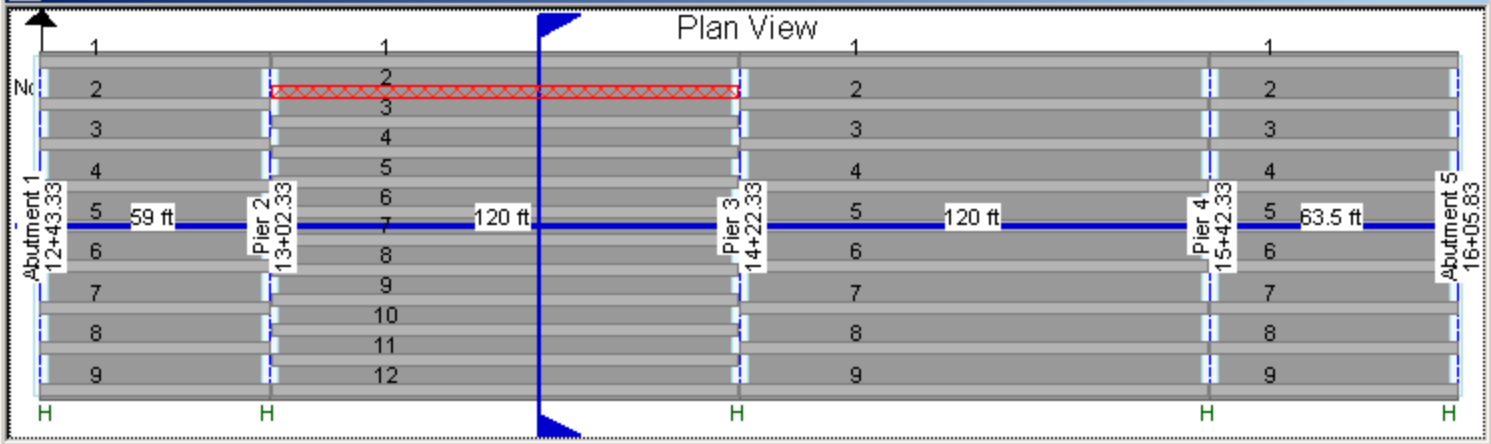
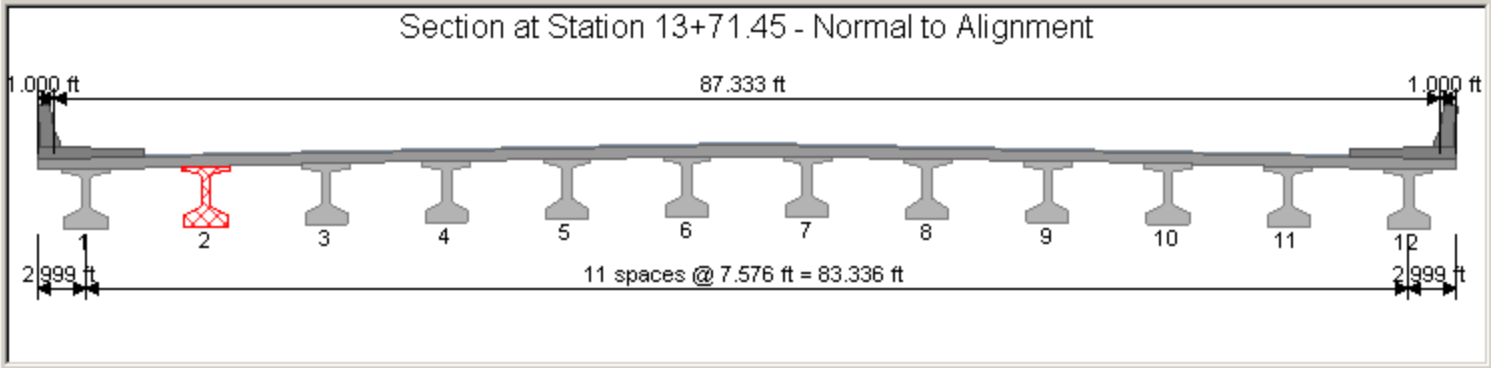
Bridge Model View





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Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Composite Cast-In-Place Deck

Cross Section

Gross Depth: 8.000 in

Overhang Edge Depth: 8.000 in

Don't taper overhang

Fillet: 0.000 in

☑ Use same Slab Offset for entire bridge

Slab Offset ("A" Dimension): 8.000 in

Stay in Place Deck Panel Dimensions

Panel Depth: 3.500 in

Panel Support Width: 4.000 in

Plan (Edge of Deck)

Station	Measured From	Left Offset (ft)	Right Offset (ft)
12+43.33	Bridge Line	44.6667	44.6667

Add | Remove

Material

f'c: 4.000 KSI — Normal Weight Concrete

☑ Ec: 5000 KSI — More Properties...

Wearing Surface

Future Overlay

Sacrificial Depth: 0.000 in

○ Overlay Weight: 23.333 PSF

◉ Overlay Depth: 2.000 in

Overlay Weight: 0.140 kip/ft^3

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Composite Cast-In-Place Deck

Cross Section

Gross Depth 8.000 in

Overhang Edge Depth 8.000 in

Don't taper overhang

Fillet 0.000 in

☑ Use same Slab Offset for entire bridge

Slab Offset ("A" Dimension) 8.000 in

Stay in Place Deck Panel Dimensions

Panel Depth 3.500 in

Panel Support Width 4.000 in

Plan (Edge of Deck)

Station	Measured From	Left Offset (ft)	Right Offset (ft)
12+43.33	Bridge Line	44.6667	44.6667

Add | Remove

Material

f'c 4.000 KSI Normal Weight Concrete

☑ Ec 5000 KSI More Properties...

Wearing Surface

Future Overlay

Sacrificial Depth 0.000 in

○ Overlay Weight 0.000 PSF

◉ Overlay Depth 0 in

Overlay Weight 0.140 kip/ft^3

OK | Cancel | Help

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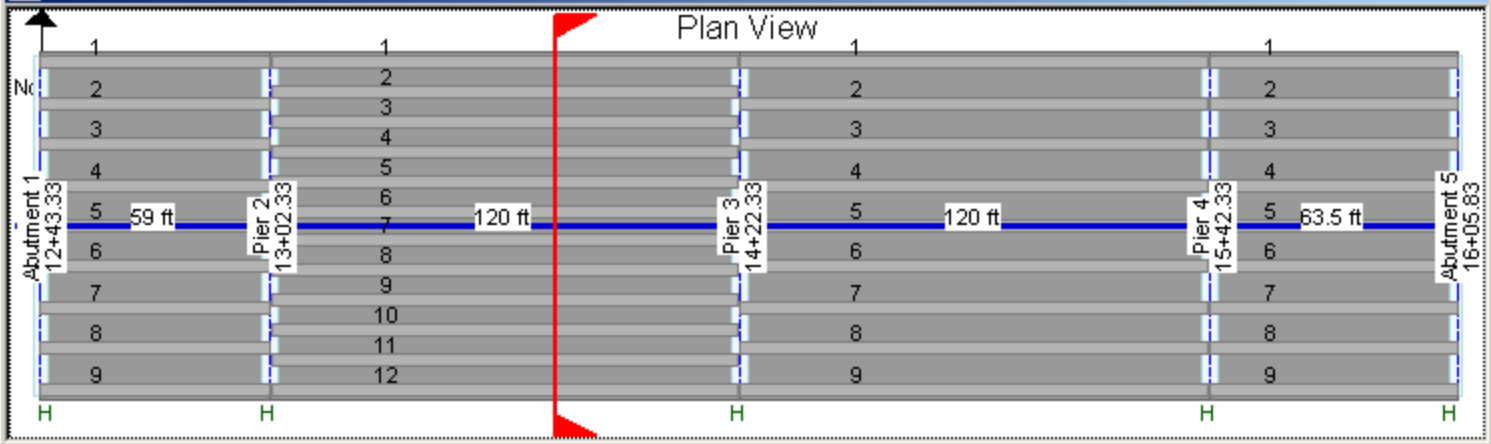

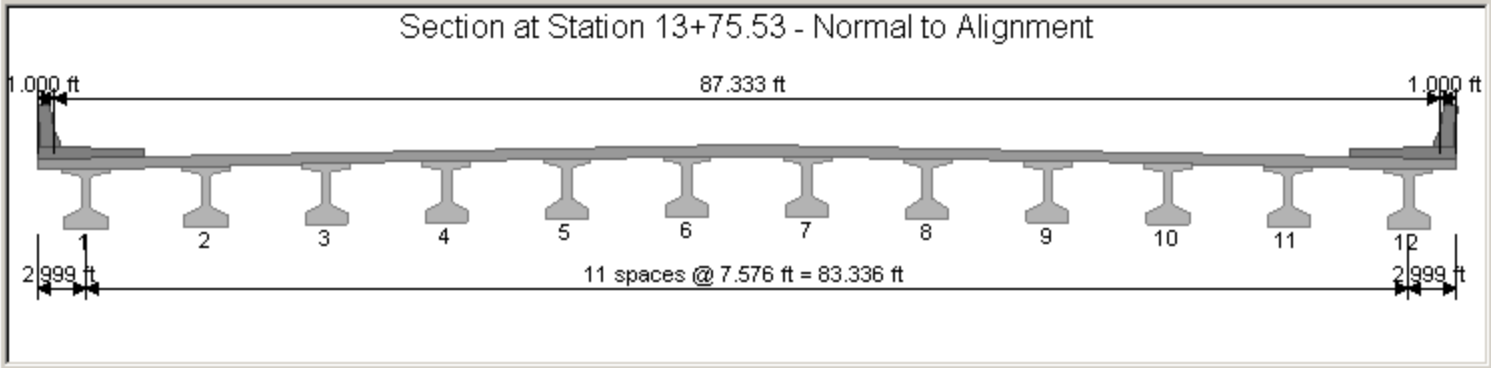

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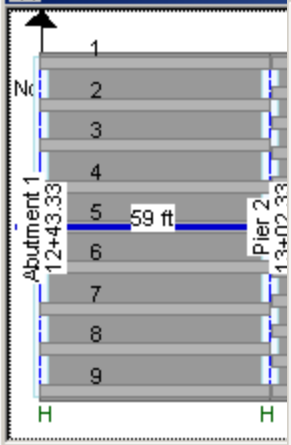

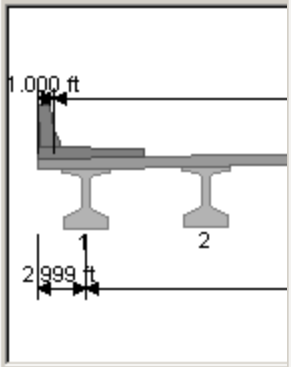

Preliminary Designer Attempt Complete

Design Outcome

The design for Span 2 Girder 2 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	52	54
Number of Harped Strands	10	20
Straight Strand Jacking Force	2285.01 kip	2372.90 kip
Harped Strand Jacking Force	439.43 kip	878.85 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	42.500 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	2.500 in
f'_{ci}	8.200 KSI	8.800 KSI
f'_{c}	8.200 KSI	8.800 KSI

Design Notes:

Warning: The designed girder release strength exceeds the normal value of 6.000 KSI
Concrete release strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder
Concrete final strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 3 Modified AutoCalc : Off NUM

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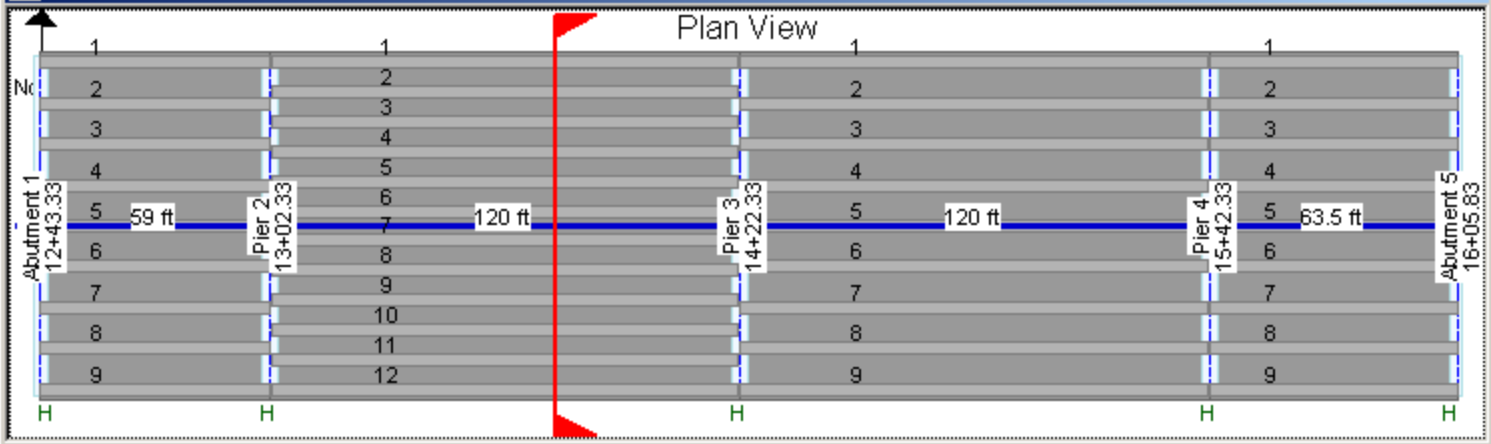

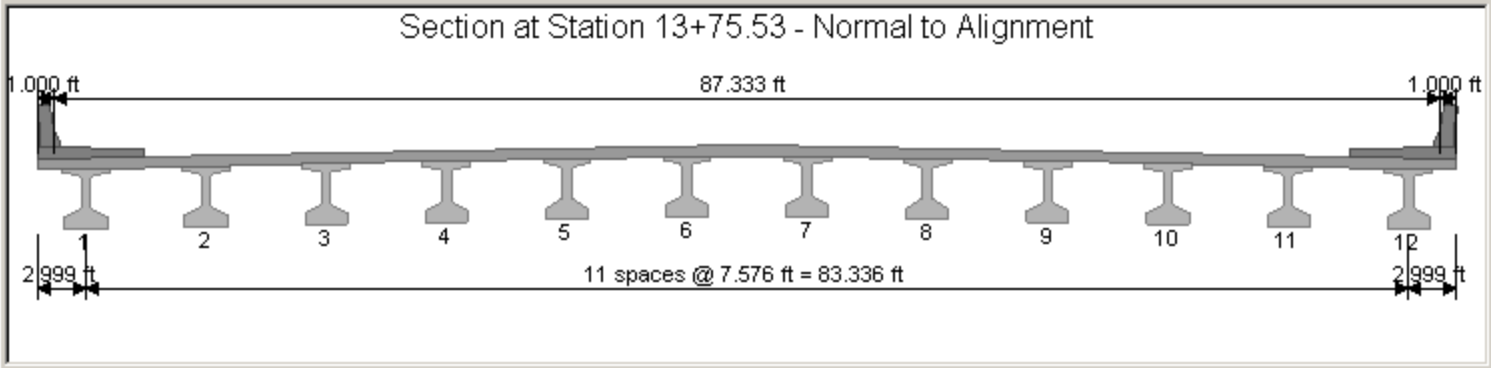

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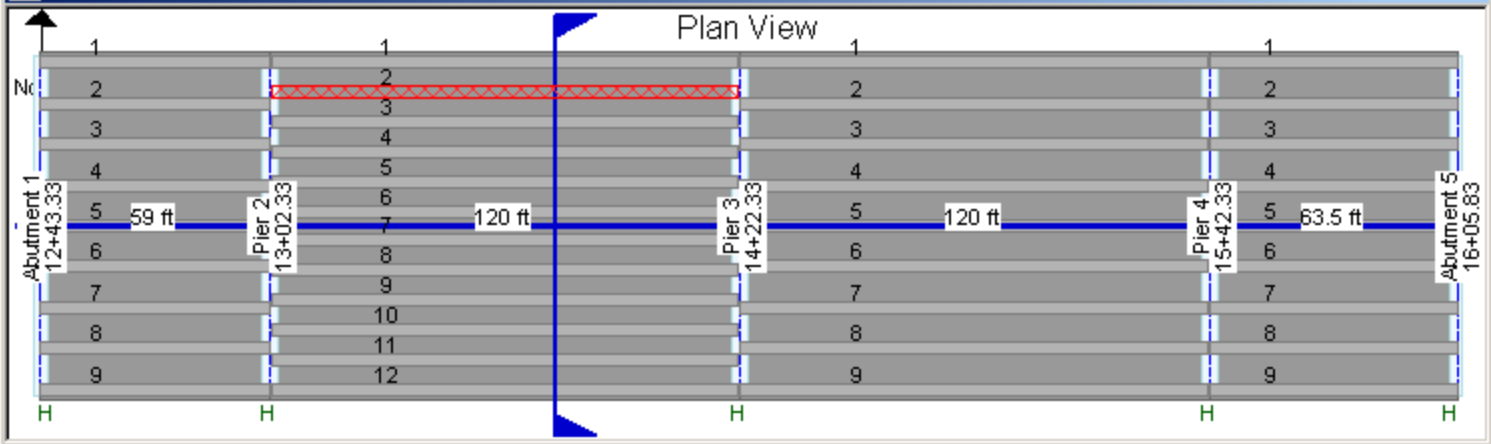
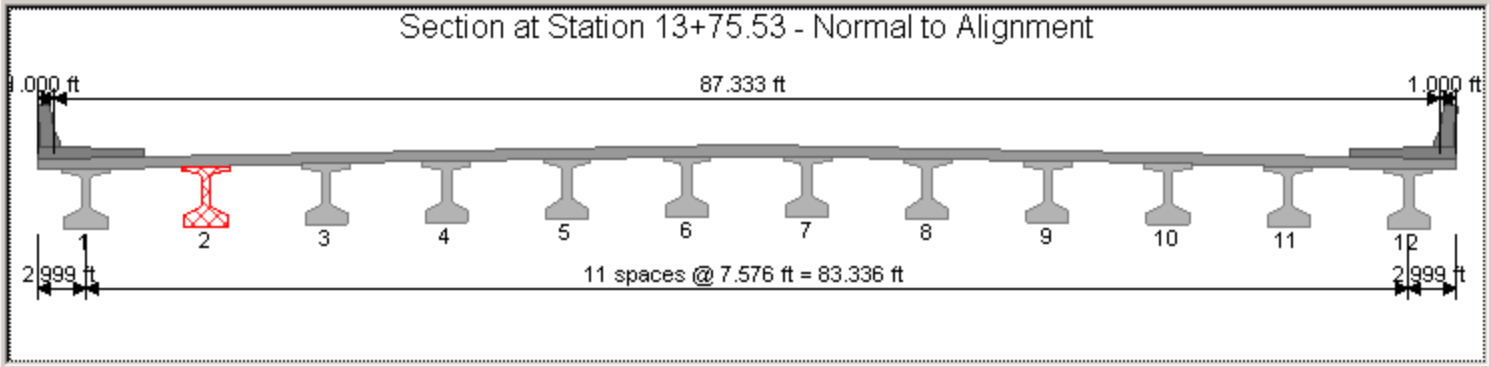
Bridge Model View





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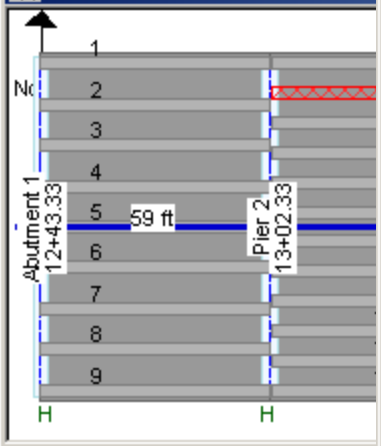
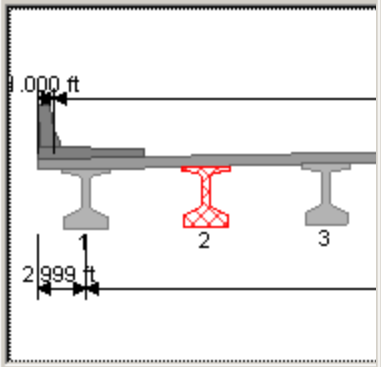
Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	8.200	KSI	☐ Eci	5218	KSI
Final Strength, f'c	8.200	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in — End of Girder 8.000 in

OK | Cancel | Help

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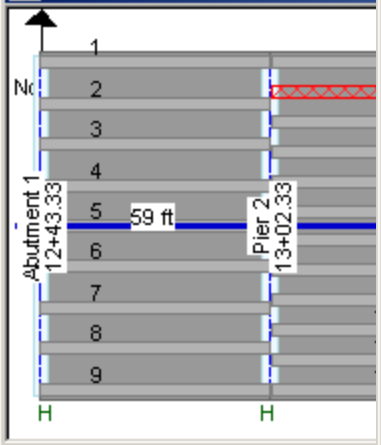
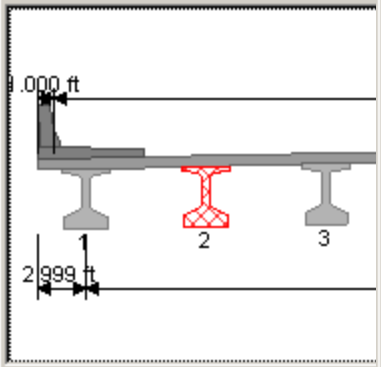
Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	6	KSI	☐ Eci	4463	KSI
Final Strength, f'c	8.5	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in End of Girder 8.000 in

OK | Cancel | Help

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Bridge Model View

Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Total Number of Permanent Strands

Number of Straight: 52, Harped: 10

Total Number of Permanent: 62

☑ Calculate Jacking Force: 2724.44 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom: 42.500 in

(Valid Range 10.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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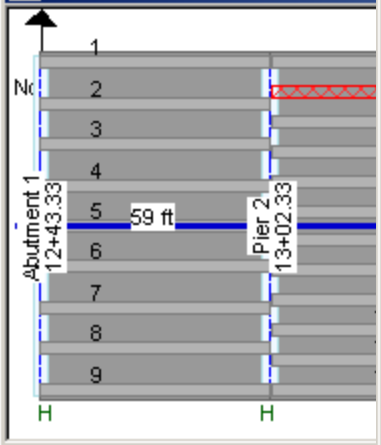
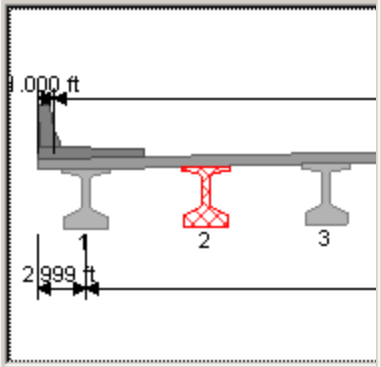
Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 52 — ☑ Calculate Jacking Force: 2285.01 kip

Number of Harped Strands: 10 — ☑ Calculate Jacking Force: 439.43 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 10.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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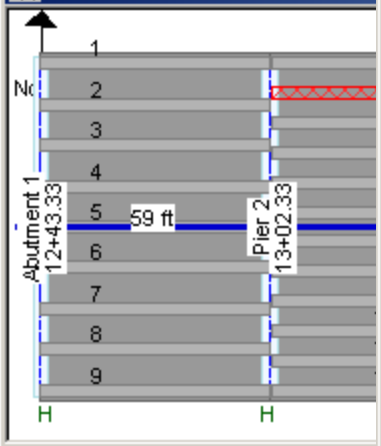
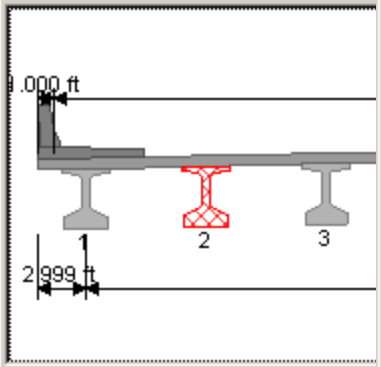
Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 50 — ☑ Calculate Jacking Force: 2197.13 kip

Number of Harped Strands: 10 — ☑ Calculate Jacking Force: 439.43 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 10.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

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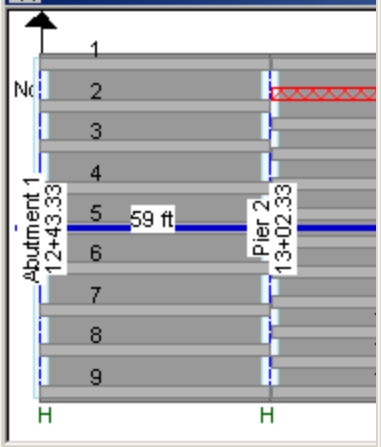
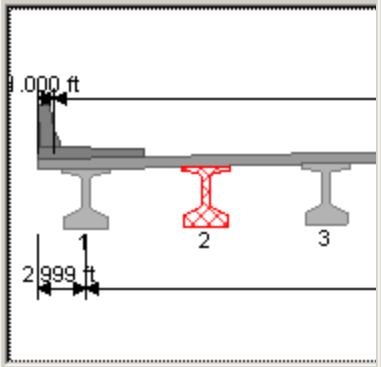
Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 50 — ☑ Calculate Jacking Force: 2197.13 kip

Number of Harped Strands: 12 — ☑ Calculate Jacking Force: 527.31 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 12.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Section at Station 13+75.53 - Normal to Alignment

1.000 ft

87.333 ft

1.000 ft

2.999 ft

11 spaces @ 7.576 ft = 83.336 ft

2.999 ft

For Help, press F1

Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

Pier 2 13+02.33

Pier 3 14+22.33

59 ft

120 ft

120 ft

Section at Station 13+75.53 - Normal to Alignment

1.000 ft

87.333 ft

1.000 ft

2.999 ft

11 spaces @ 7.576 ft = 83.336 ft

2.999 ft

- Bearing Design Parameters Report
- Bridge Analysis Report
- Bridge Geometry Report
- Details Report
- Fabrication Options Report
- Girder Comparison Report
- Hauling Report
- Lifting Report
- Load Rating Report
- Spec Check Report
- TxDOT Girder Schedule Report
- TxDOT Summary Report

Simple Span 2 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

3.5 ft

Abutment 5 16+05.83

Section at St

1.000 ft

2.999 ft

Report Options

TxDOT Summary Report

Select a Girder

Span 2

Girder 2

Select Chapters to be Included in this Report

- [x] Specification Check Summary
- [x] Girder Summary
- [x] Loading Details
- [x] Live Load Details
- [x] User Defined Loads
- [x] Prestress Force and Strand Stresses
- [x] Camber and Deflections
- [x] Stress Checks
- [x] Moment Capacity
- [x] Shear

OK Cancel Help

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Section at Stati

1.000 ft

2.999 ft

11 spaces @ 7.576 ft = 83.336 ft

Progress

Retrieving stresses for Bridge Site 3 Service I Limit State

For Help, press F1

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Bridge Model View

TxDOT Summary Report - Span 2, Girder 2

Edit

TxDOT Summary Report

For

Span 2 Girder 2

June 10, 2011 8:39:43 am

PGSuper™

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Version 2.4.0 - Built on Jul 29 2010

Washington State Department of Transportation

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Bridge Model View

TxDOT Summary Report - Span 2, Girder 2

Edit

	1.5H from end of girder or face of support
HP	Harp Point
Pick Point	Support point where girder is lifted from form
Bunk Point	Point where girder is supported during transportation

Specification Check Summary

The Specification Check Was Not Successful

Compressive stress check failed for Service I for the Casting Yard Stage (At Release).

Tensile stress check failed for Service III for the Final with Live Load Stage (Bridge Site 3).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	2
Girder Type	Tx46

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Bridge Model View

TxDOT Summary Report - Span 2, Girder 2

Edit

s Checks

Specification = TxDOT 2010

Stress Check for Service I for Casting Yard Stage (At Release) [5.9.4.1.2]

For temporary stresses before losses in pretensioned components
Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI

Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI if bonded reinforcement sufficient to resist the tensile force in the concrete is provided.
Allowable compressive stress = $-0.65f'_{ci}$ = -3.900 KSI

f'_{ci} required to satisfy this stress check = 7.793 KSI

Location from End of Girder (ft)	Prestress		Service I		Demand		Tension Status w/o rebar (C/D)	Tension Status w/ rebar (C/D)	Compression Status (C/D)
	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)			
($0.0L_g$) 0.000	0.000	0.000	0.000	0.000	0.000	0.000	Pass (∞)	Pass (∞)	Pass (∞)
(PSXFR) 0.008	-0.575	-5.066	-0.001	0.000	-0.576	-5.065	Pass (-)	Pass (-)	Fail (0.77)
0.750	-0.550	-5.085	-0.055	0.043	-0.606	-5.042	Pass	Pass	Fail

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Bridge Model View

TxDOT Summary Report - Span 2, Girder 2

Edit (1.46)

Stress Check for Tensile Stresses for Service III for Final with Live Load (Bridge Site 3) [5.9.4.2.2]

For stresses at service limit state after losses which involve traffic loading in members with bonded prestressing tendons other than piles

Allowable tensile stress in the precompressed tensile zone = $0.1900\sqrt{f'_c}$ = 0.554 KSI

f'_c required to satisfy this stress check = 9.755 KSI

Location from Left Support (ft)	Prestress f_b (KSI)	Service III f_b (KSI)	Demand f_b (KSI)	Tension Status (C/D)
($0.0L_s$) 0.000	-3.498	0.000	-3.498	Pass (-)
3.083	-3.577	0.538	-3.040	Pass (-)
(H) 4.375	-3.610	0.754	-2.856	Pass (-)
11.200	-3.786	1.813	-1.973	Pass (-)
($0.1L_s$) 11.800	-3.801	1.899	-1.902	Pass (-)

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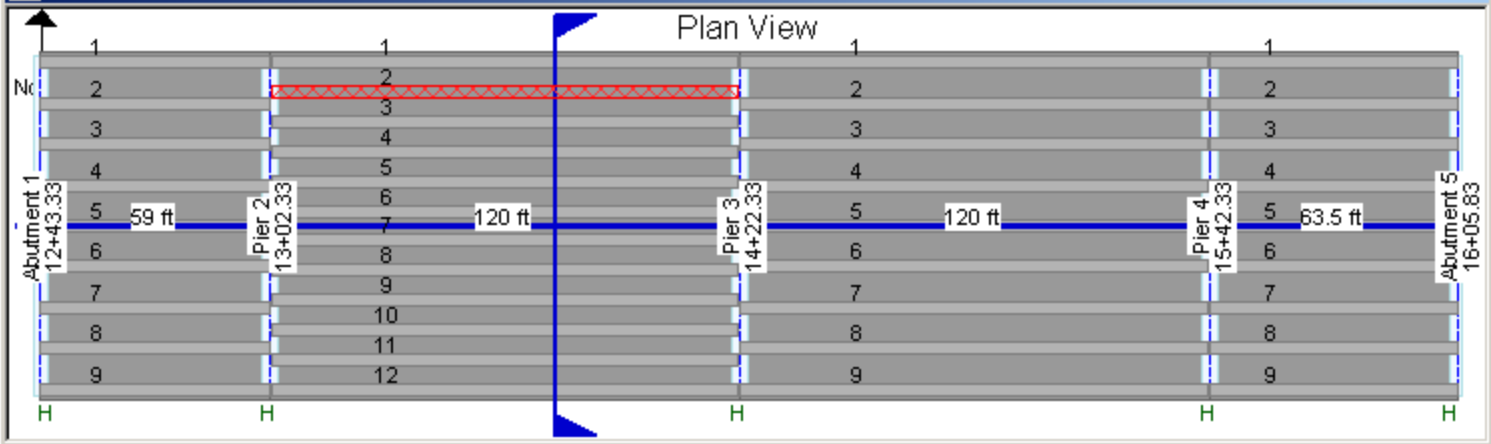
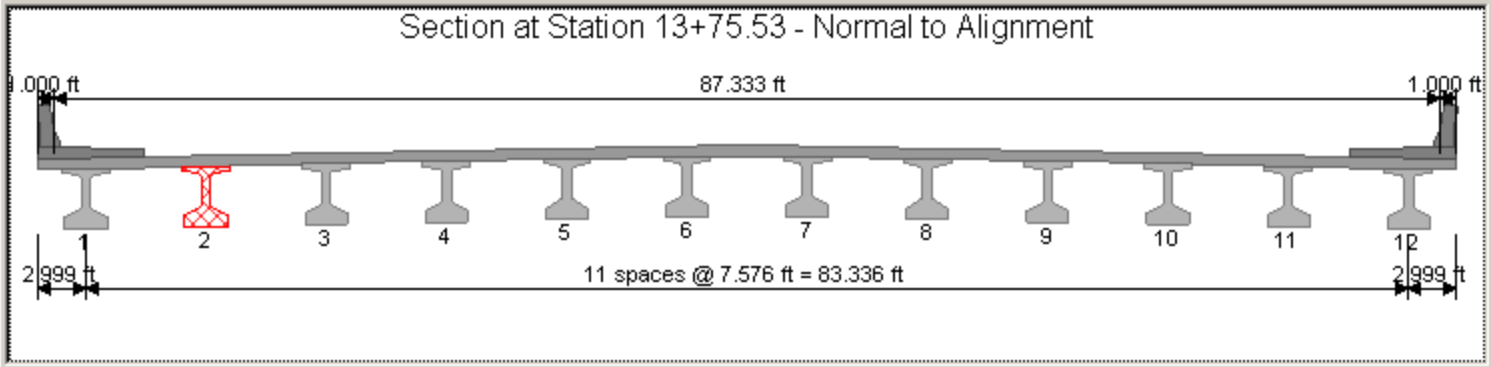
Bridge Model View





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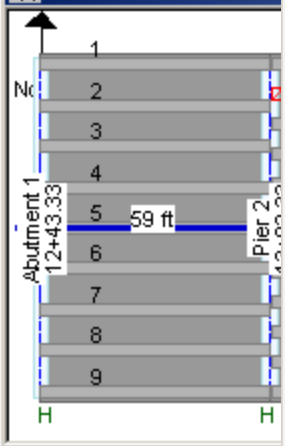

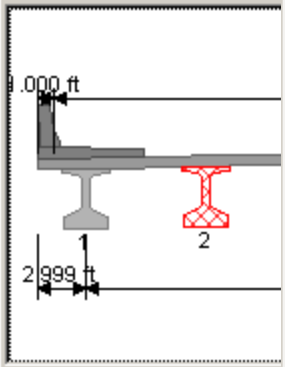

Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 13

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-13
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-13 (ft)
Ahead	6.944
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-13 (ft)
Back	6.944
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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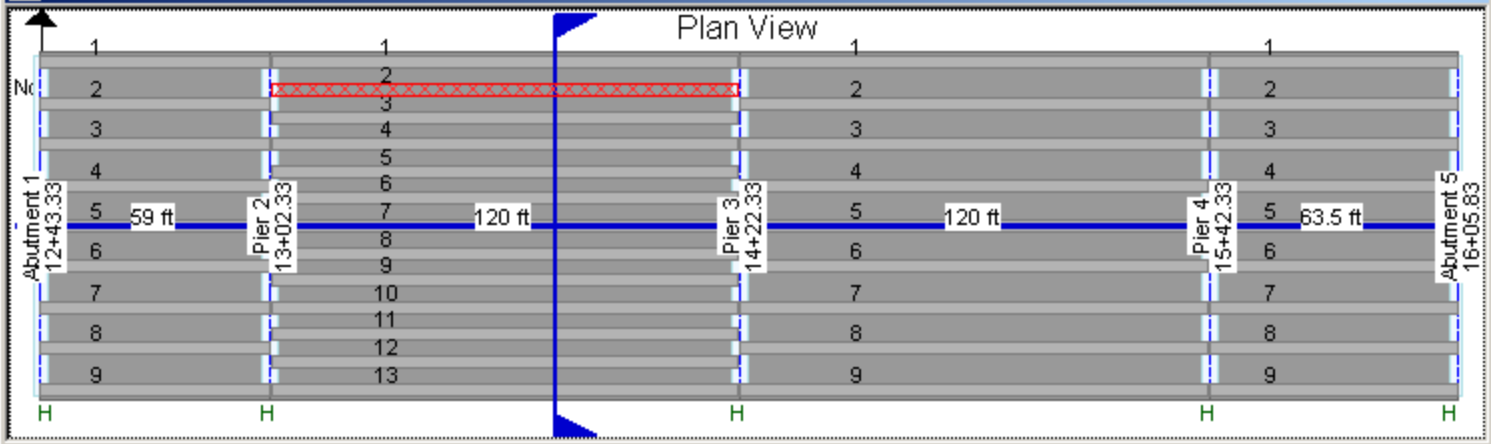
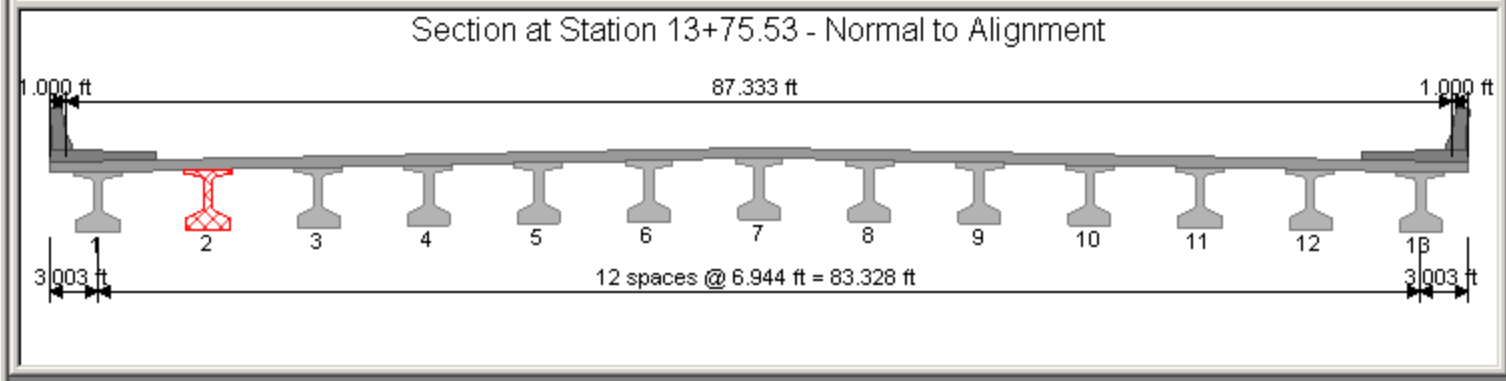
Bridge Model View





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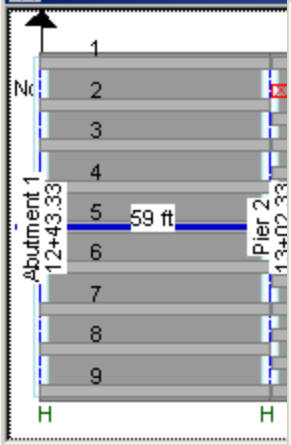

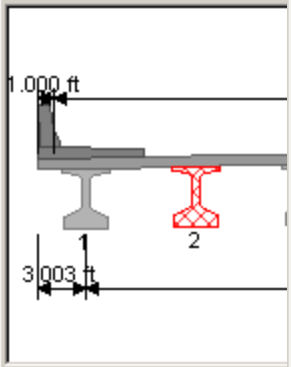

Preliminary Designer Attempt Complete

Design Outcome

The design for Span 2 Girder 2 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	48	50
Number of Harped Strands	10	12
Straight Strand Jacking Force	2109.24 kip	2197.13 kip
Harped Strand Jacking Force	439.43 kip	527.31 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	42.500 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	2.500 in
f'_{ci}	7.700 KSI	6.000 KSI
f'_{c}	7.800 KSI	8.500 KSI

Design Notes:

Warning: The designed girder release strength exceeds the normal value of 6.000 KSI
Concrete release strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder
Concrete final strength was controlled by Bridge Site 2, Service I, Compression, at Bottom of Girder

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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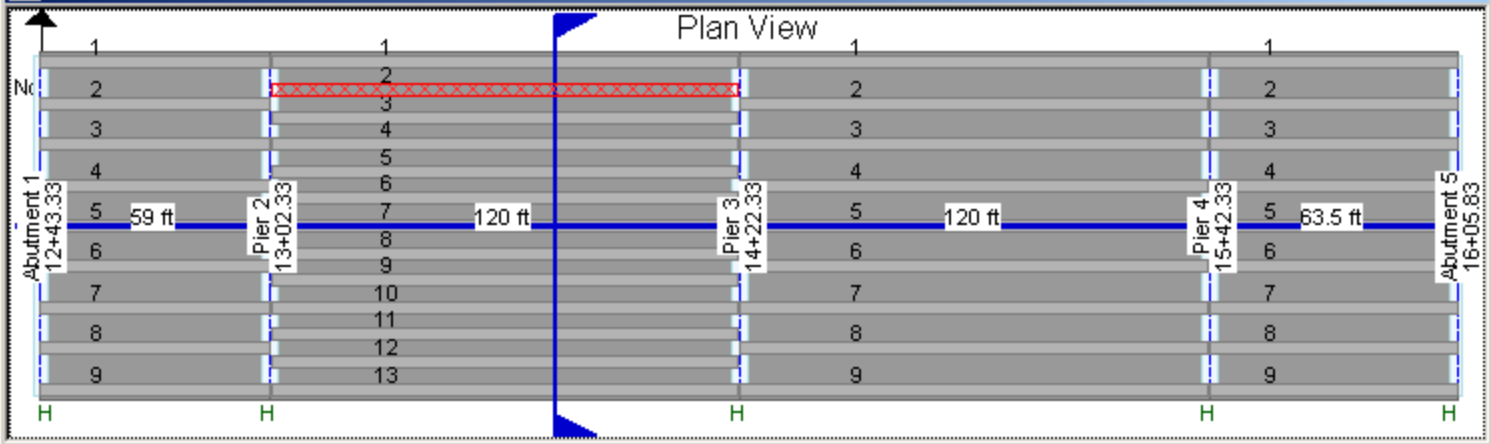
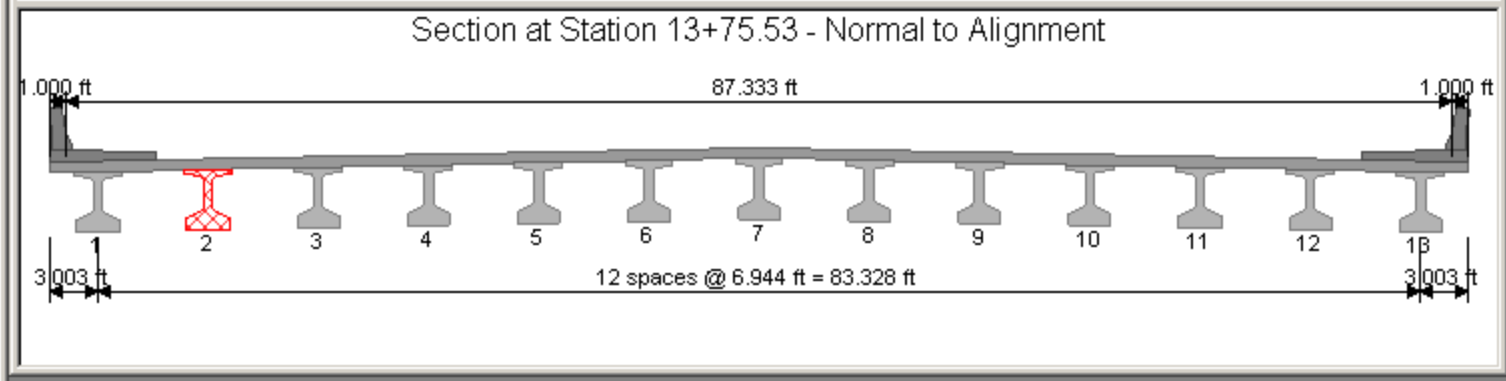
Bridge Model View





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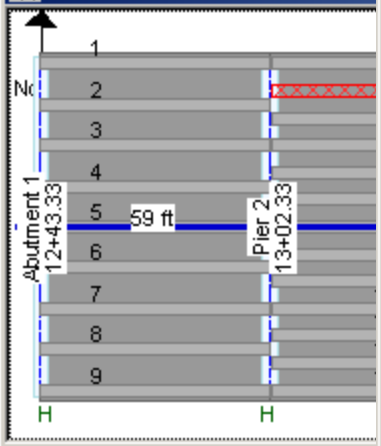

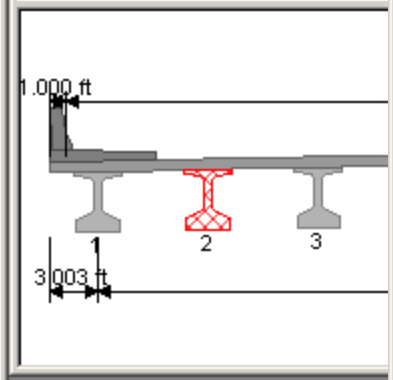

Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	7.700	KSI	☐ Eci	5056	KSI
Final Strength, f'c	7.800	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in — End of Girder 8.000 in

OK | Cancel | Help

For Help, press F1 — Simple Span 2 Modified AutoCalc : Off NUM

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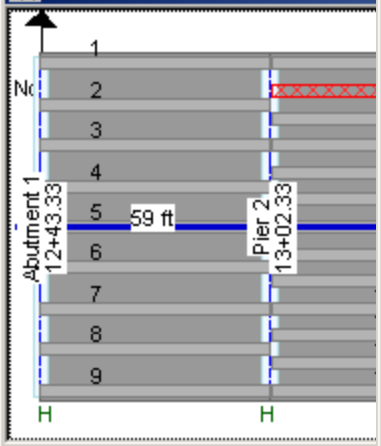
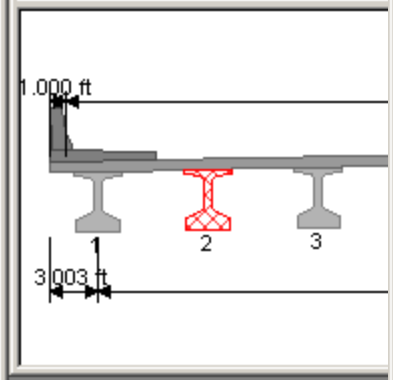
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	6	KSI	☐ Eci	4463	KSI
Final Strength, f'c	8.5	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in End of Girder 8.000 in

OK | Cancel | Help

For Help, press F1 Simple Span 2 Modified AutoCalc : Off NUM

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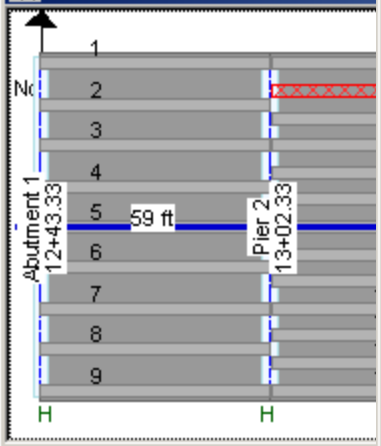
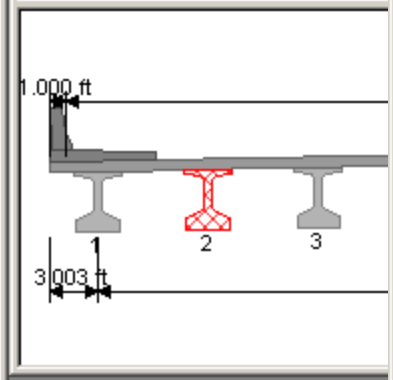
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Total Number of Permanent Strands

Number of Straight: 48, Harped: 10

Total Number of Permanent: 58

☑ Calculate Jacking Force: 2548.67 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom: 42.500 in

(Valid Range 10.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 | Simple Span | 2 | Modified | AutoCalc : Off | NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 48 — Calculate Jacking Force: 2109.24 kip

Number of Harped Strands: 10 — Calculate Jacking Force: 439.43 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 10.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span 2 Modified AutoCalc : Off NUM

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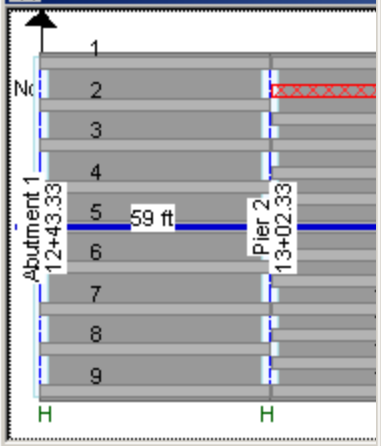
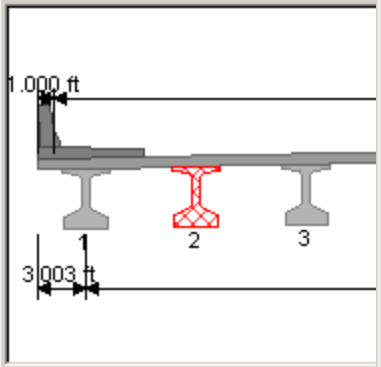
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 46 — ☑ Calculate Jacking Force: 2021.36 kip

Number of Harped Strands: 12 — ☑ Calculate Jacking Force: 527.31 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 12.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span 2 Modified AutoCalc : Off NUM

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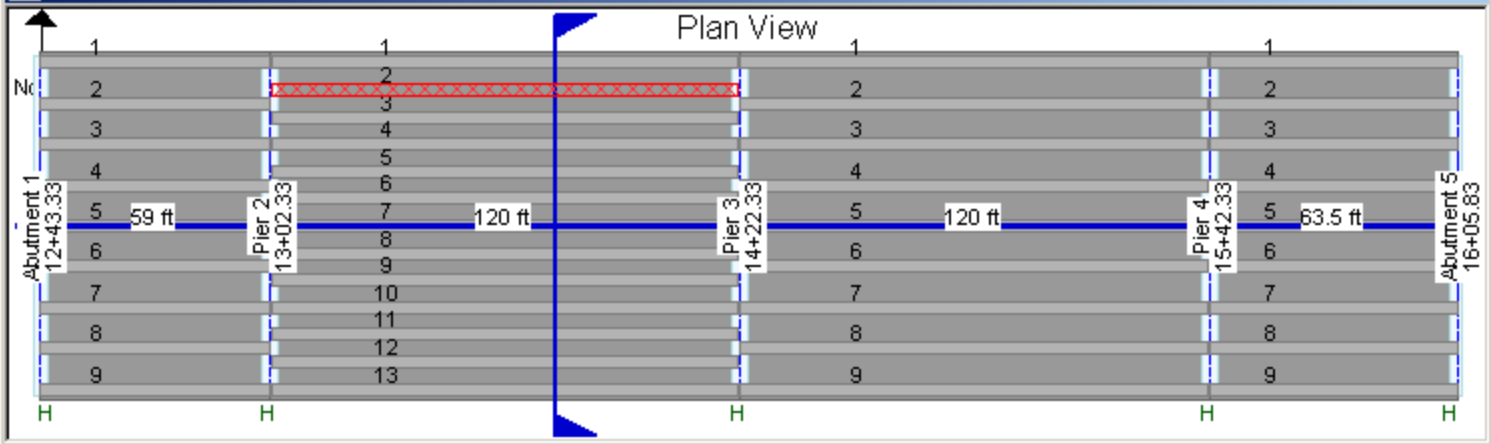
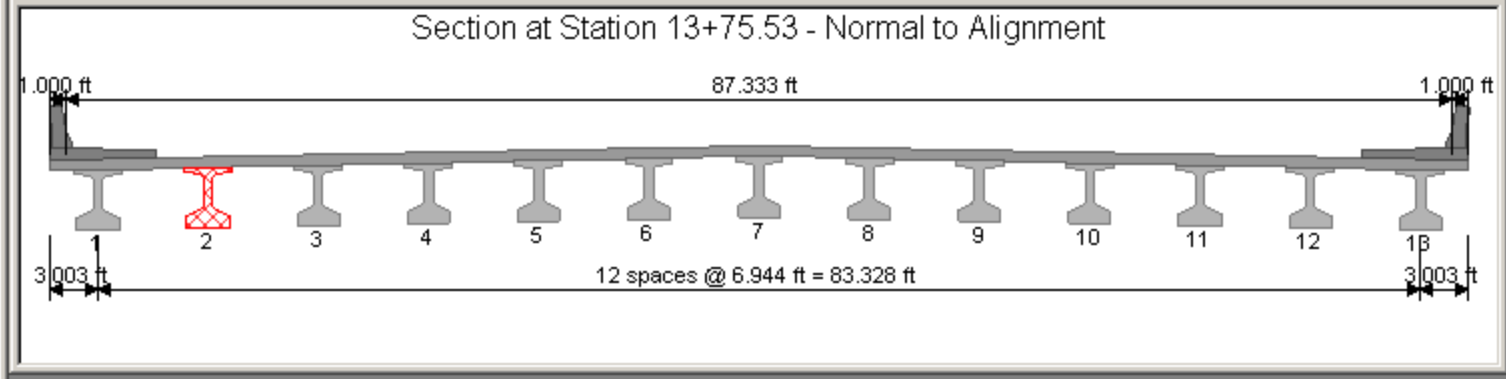
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 2

Edit	1.5H from end of girder or face of support
HP	Harp Point
Pick Point	Support point where girder is lifted from form
Bunk Point	Point where girder is supported during transportation

Specification Check Summary

The Specification Check Was Not Successful

Compressive stress check failed for Service I for the Casting Yard Stage (At Release).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	2
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N. + N)	58

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 2

Edit

s Checks

Specification = TxDOT 2010

Stress Check for Service I for Casting Yard Stage (At Release) [5.9.4.1.2]

For temporary stresses before losses in pretensioned components
Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI

Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI if bonded reinforcement sufficient to resist the tensile force in the concrete is provided.
Allowable compressive stress = $-0.65f'_{ci}$ = -3.900 KSI

f'_{ci} required to satisfy this stress check = 7.319 KSI

Location from End of Girder (ft)	Prestress		Service I		Demand		Tension Status w/o rebar (C/D)	Tension Status w/ rebar (C/D)	Compression Status (C/D)
	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)			
($0.0L_g$) 0.000	0.000	0.000	0.000	0.000	0.000	0.000	Pass (∞)	Pass (∞)	Pass (∞)
(PSXFR) 0.008	-0.571	-4.758	-0.001	0.000	-0.572	-4.757	Pass (-)	Pass (-)	Fail (0.82)
0.750	-0.546	-4.778	-0.055	0.043	-0.602	-4.735	Pass	Pass	Fail

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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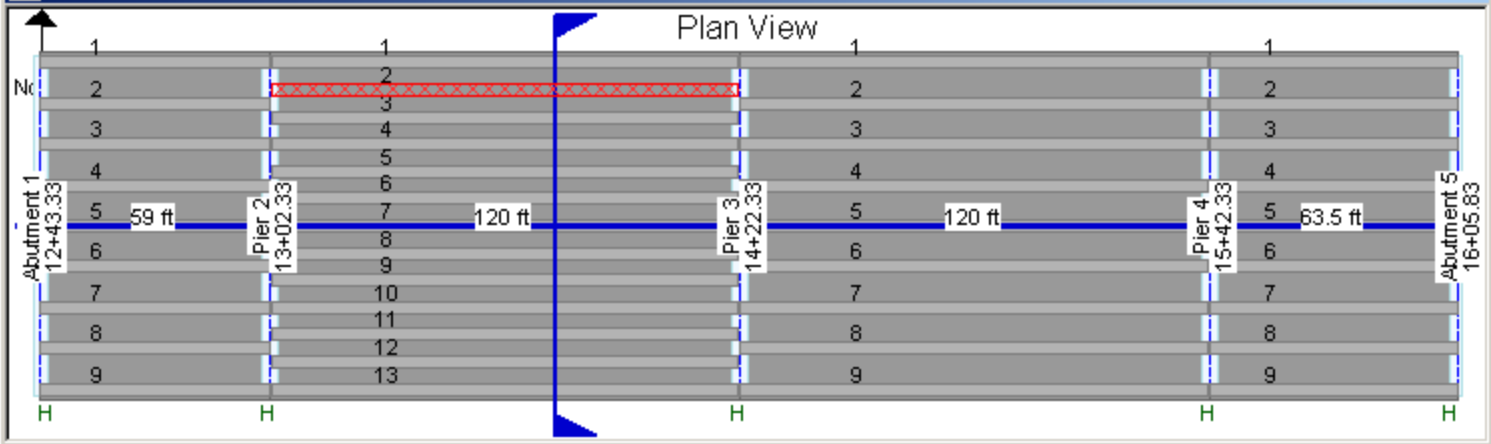
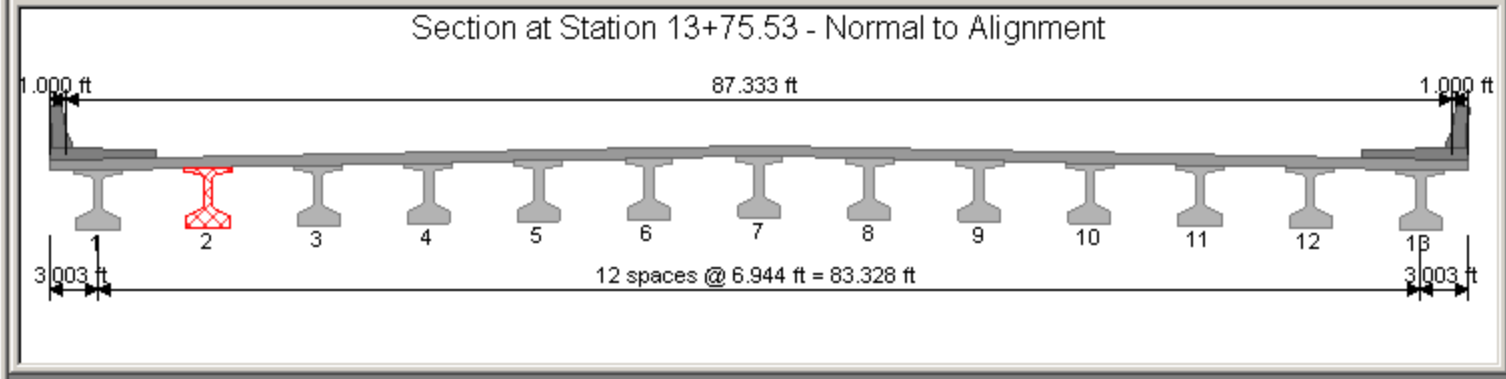
File Edit Project Loads Library Options View Window Help

Bridge Model View





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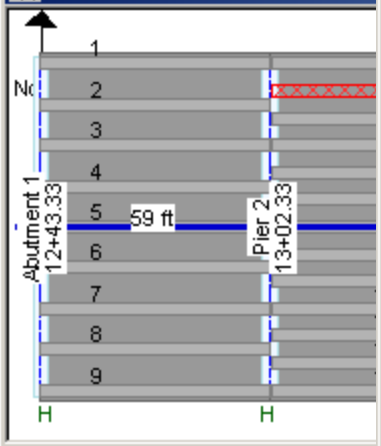
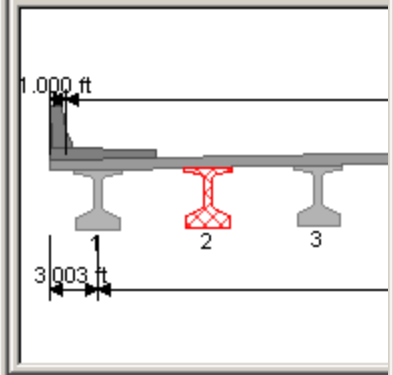
Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 44 — ☑ Calculate Jacking Force: 1933.47 kip

Number of Harped Strands: 14 — ☑ Calculate Jacking Force: 615.20 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 14.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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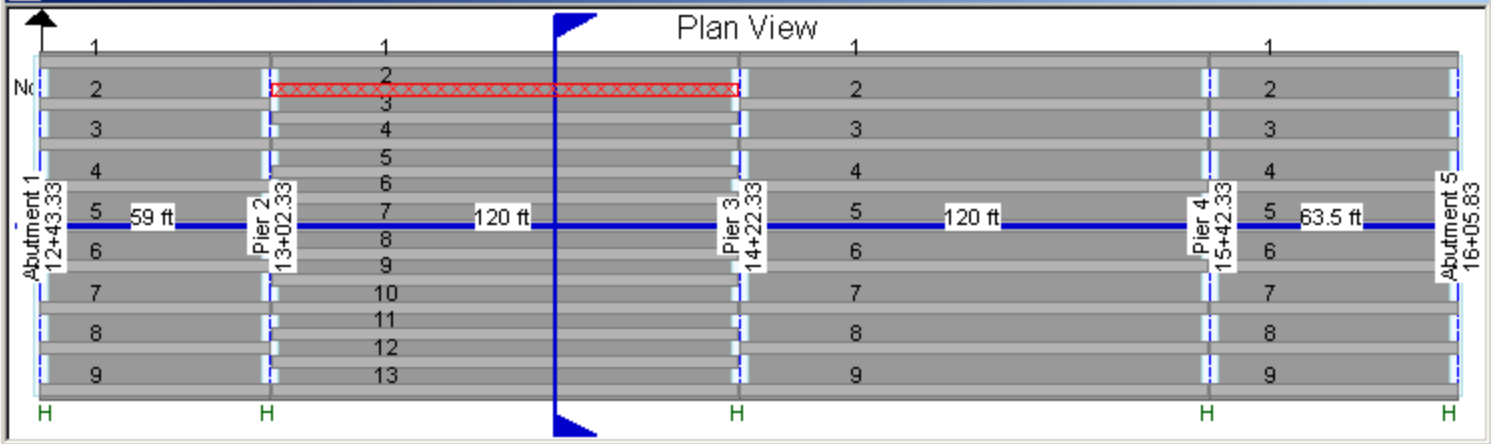
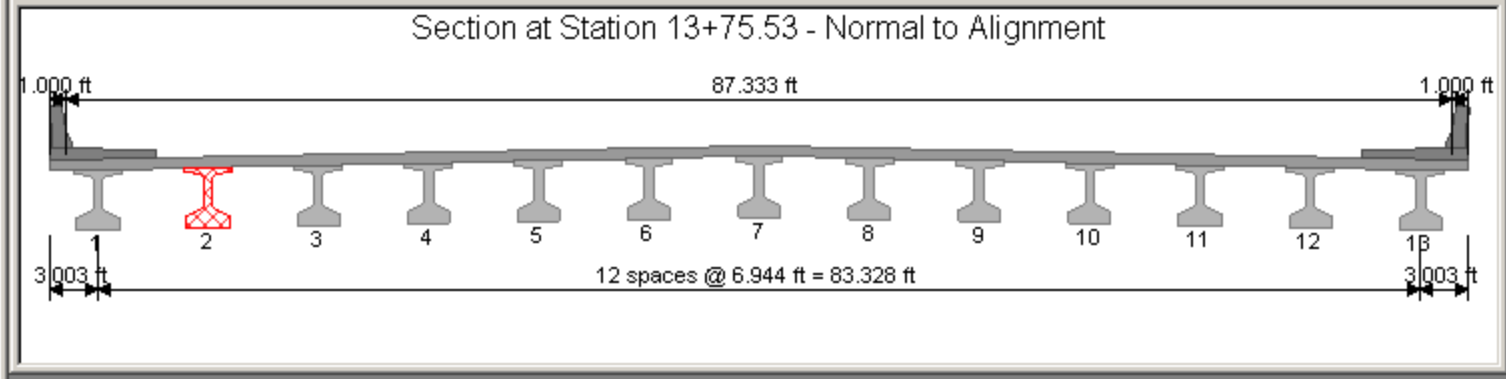
File Edit Project Loads Library Options View Window Help

Bridge Model View





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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 2

Edit

ification Check Summary

The Specification Check Was Not Successful

Compressive stress check failed for Service I for the Casting Yard Stage (At Release).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	2
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	58
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	14.087 in
Eccentricity @ End	7.328 in
Prestressing Strands	**Depressed**

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 2

Edit

s Checks

Specification = TxDOT 2010

Stress Check for Service I for Casting Yard Stage (At Release) [5.9.4.1.2]

For temporary stresses before losses in pretensioned components
Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI

Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI if bonded reinforcement sufficient to resist the tensile force in the concrete is provided.
Allowable compressive stress = $-0.65f'_{ci}$ = -3.900 KSI

f'_{ci} required to satisfy this stress check = 7.085 KSI

Location from End of Girder (ft)	Prestress		Service I		Demand		Tension Status w/o rebar (C/D)	Tension Status w/ rebar (C/D)	Compression Status (C/D)
	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)			
($0.0L_g$) 0.000	0.000	0.000	0.000	0.000	0.000	0.000	Pass (∞)	Pass (∞)	Pass (∞)
(PSXFR) 0.008	-0.796	-4.606	-0.001	0.000	-0.796	-4.605	Pass (-)	Pass (-)	Fail (0.85)
0.750	-0.768	-4.627	-0.055	0.043	-0.824	-4.584	Pass	Pass	Fail

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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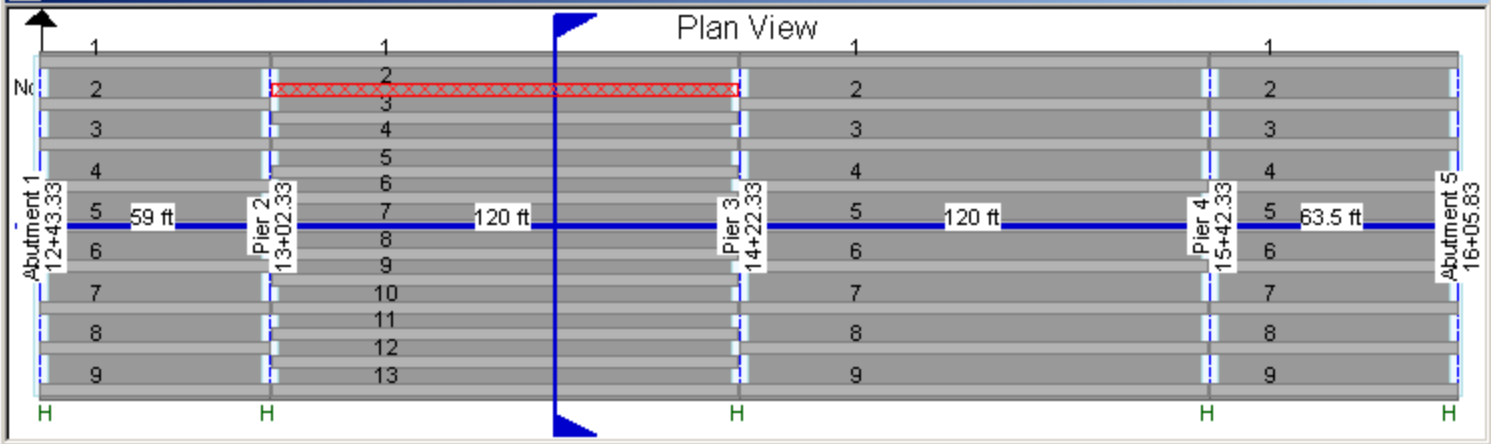
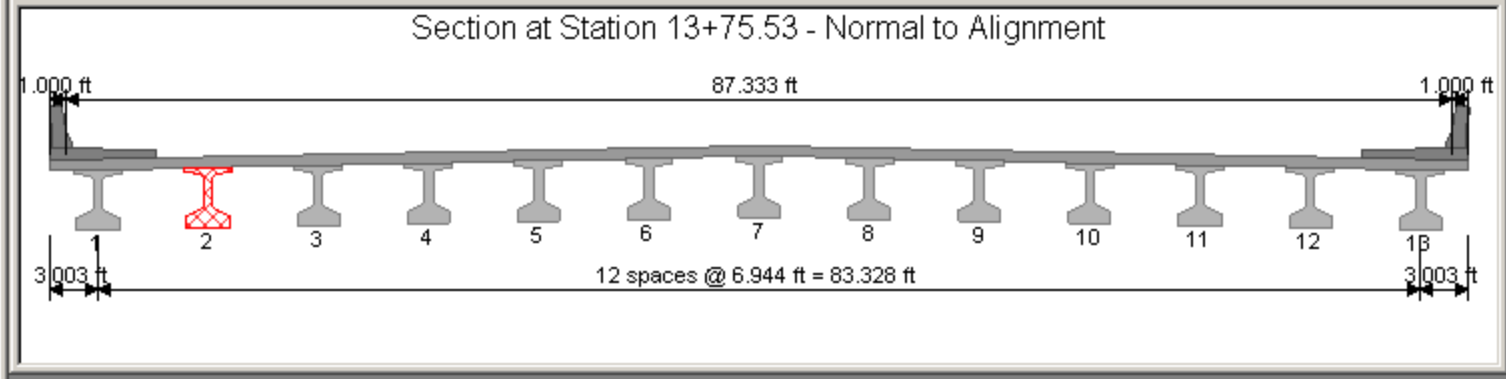
Bridge Model View





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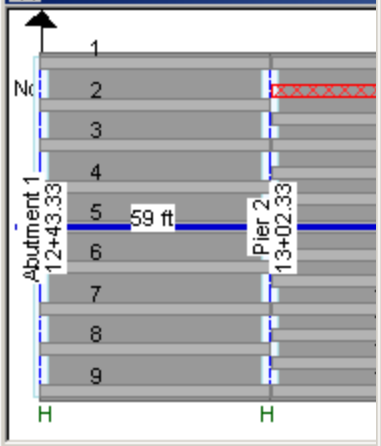
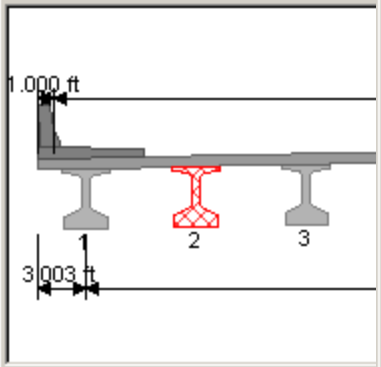
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 42 — ☑ Calculate Jacking Force: 1845.59 kip

Number of Harped Strands: 16 — ☑ Calculate Jacking Force: 703.08 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 16.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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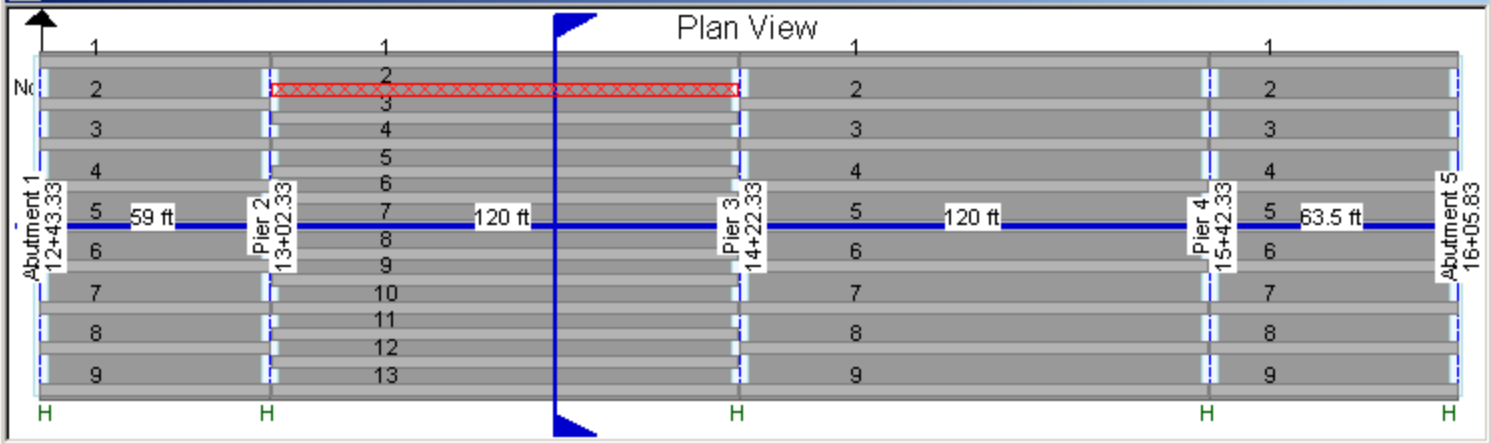
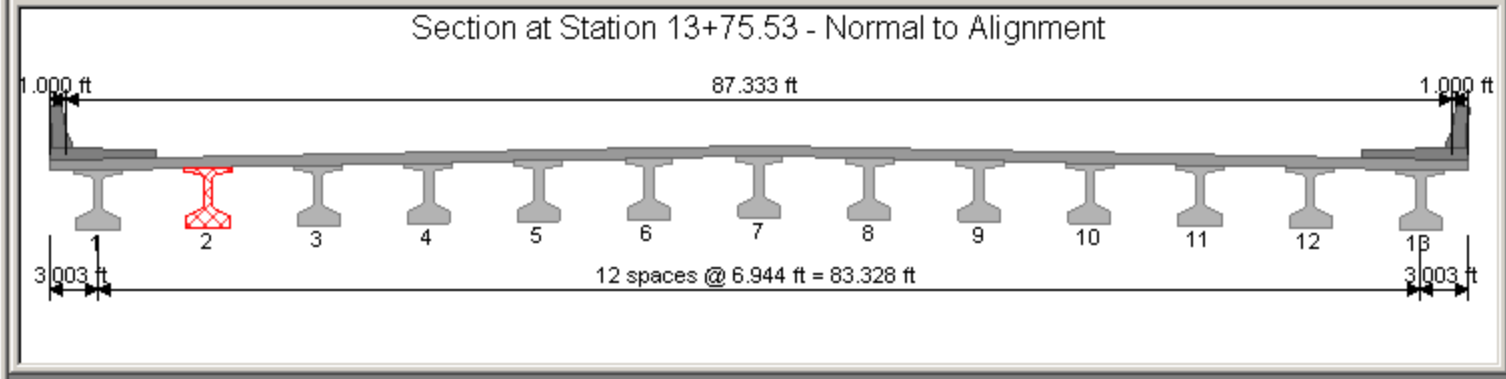
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 2

Edit

ification Check Summary

The Specification Check Was Not Successful

Compressive stress check failed for Service I for the Casting Yard Stage (At Release).

Tensile stress check failed for Service III for the Final with Live Load Stage (Bridge Site 3).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	2
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	58
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	13.811 in
Eccentricity @ End	6.628 in

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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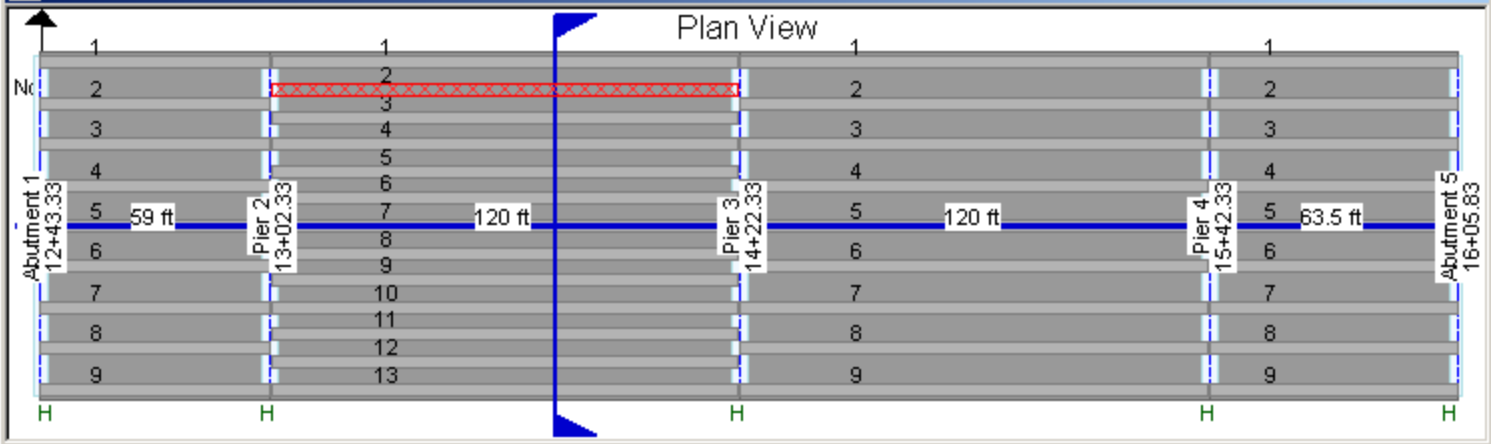
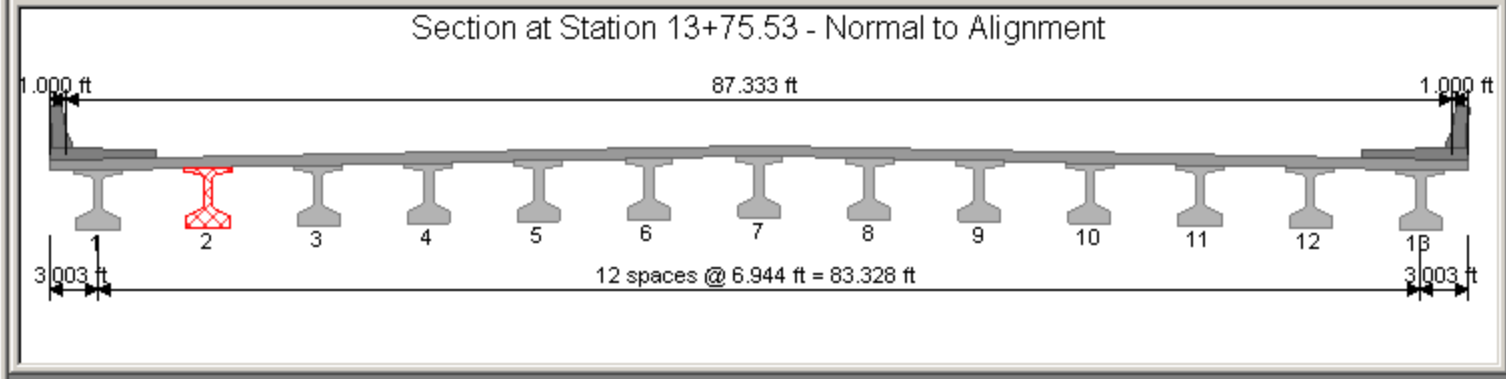
File Edit Project Loads Library Options View Window Help

Bridge Model View





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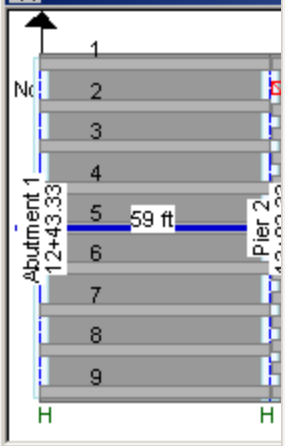
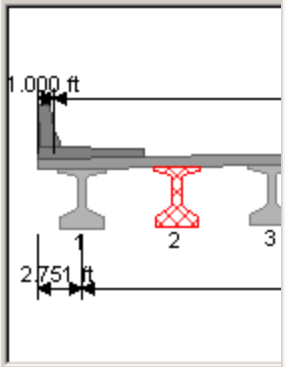
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 16

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-16
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-16 (ft)
Ahead	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-16 (ft)
Back	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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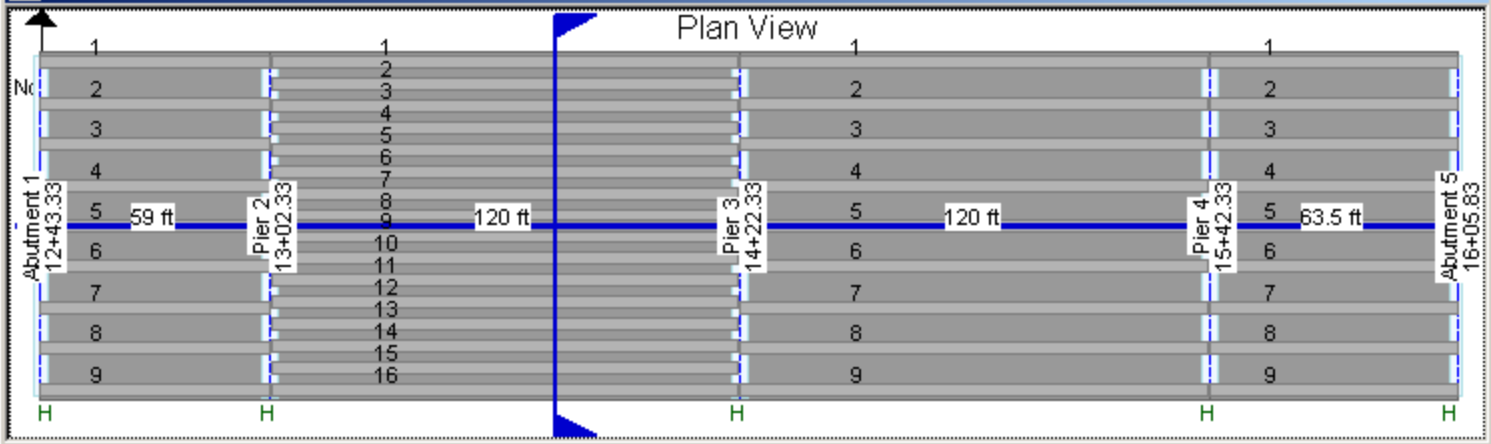
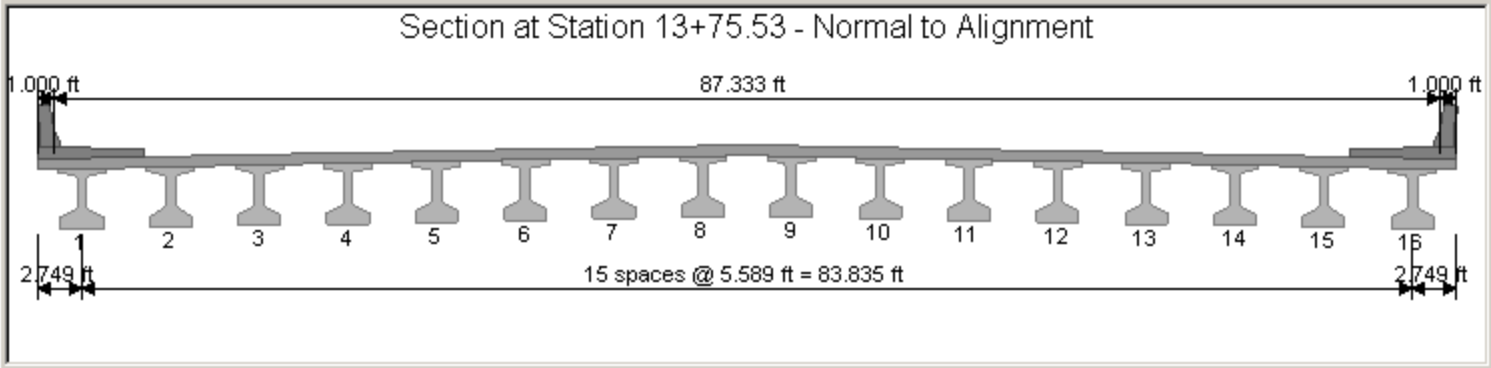
Bridge Model View





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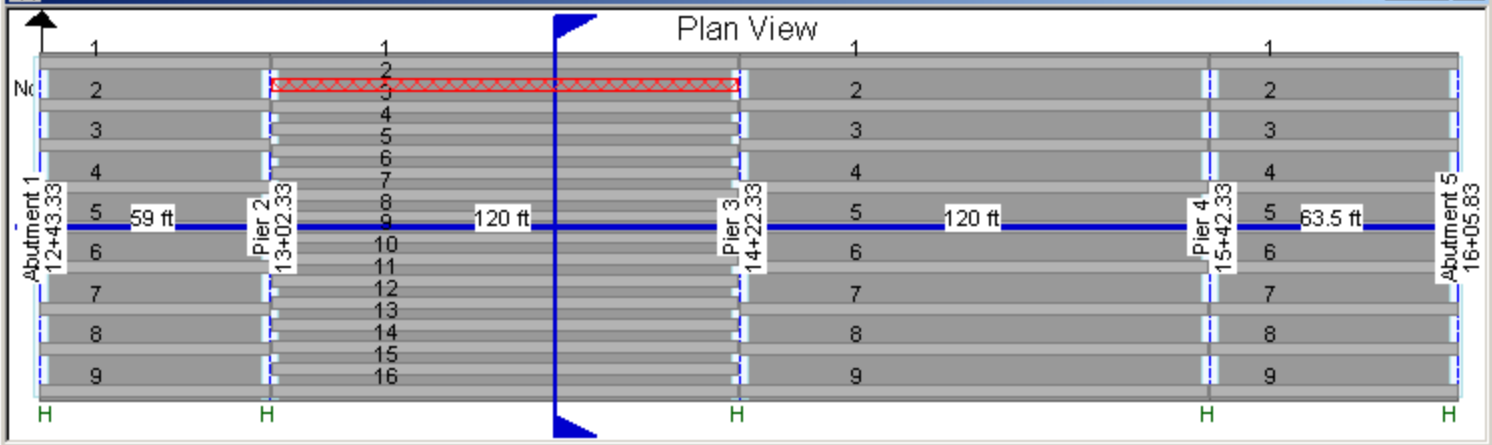

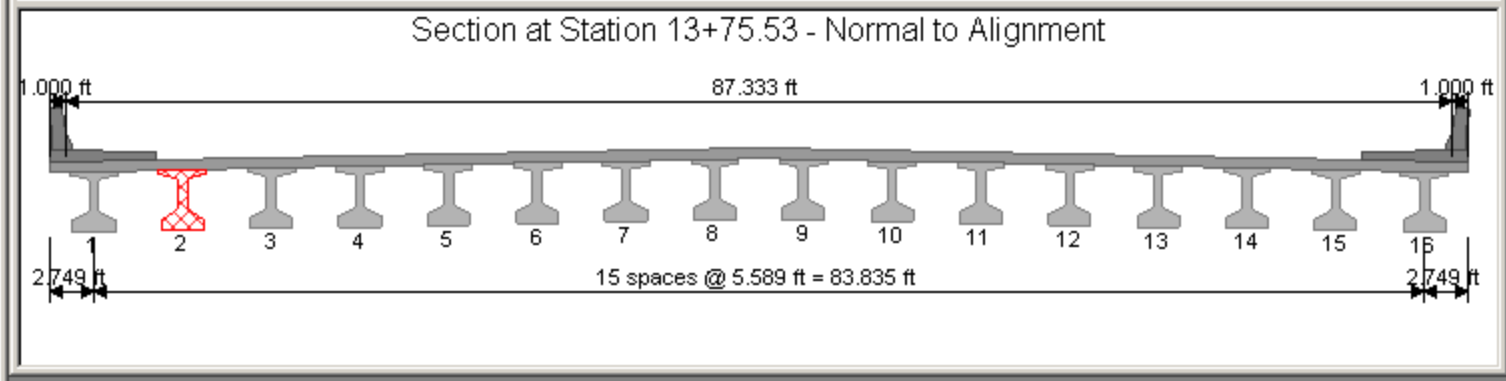

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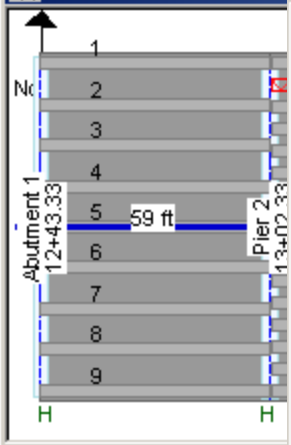

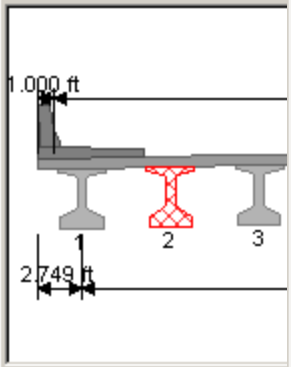

Preliminary Designer Attempt Complete

Design Outcome

The design for Span 2 Girder 2 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	40	38
Number of Harped Strands	8	12
Straight Strand Jacking Force	1757.70 kip	1669.82 kip
Harped Strand Jacking Force	351.54 kip	527.31 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	42.500 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	2.500 in
f'_{ci}	6.600 KSI	6.000 KSI
f'_{c}	7.000 KSI	8.500 KSI

Design Notes:

Warning: The designed girder release strength exceeds the normal value of 6.000 KSI
Concrete release strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder
Concrete final strength was controlled by Bridge Site 2, Service I, Compression, at Bottom of Girder

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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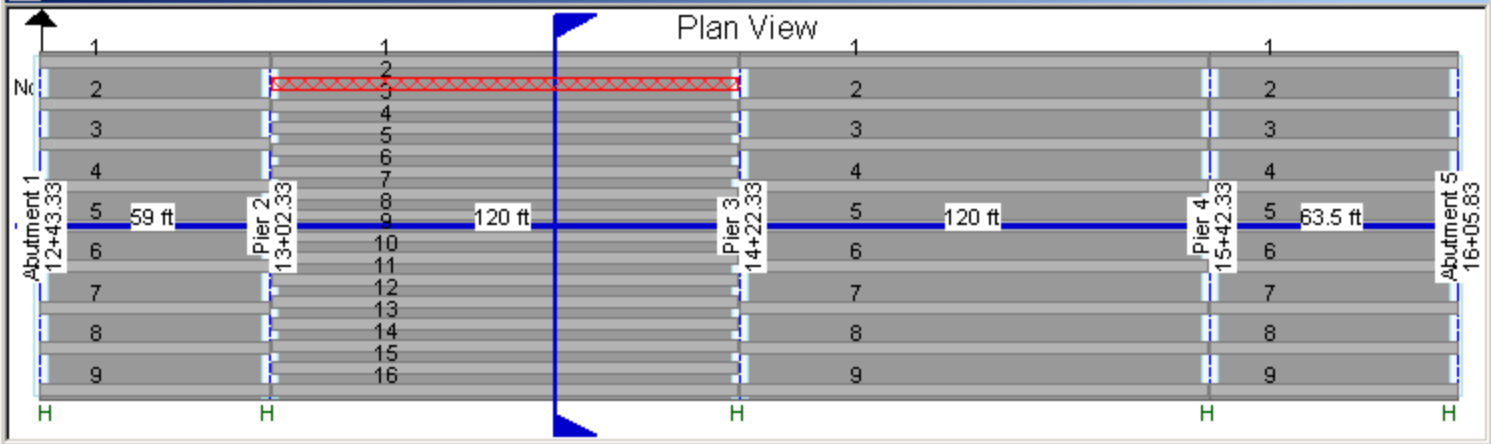
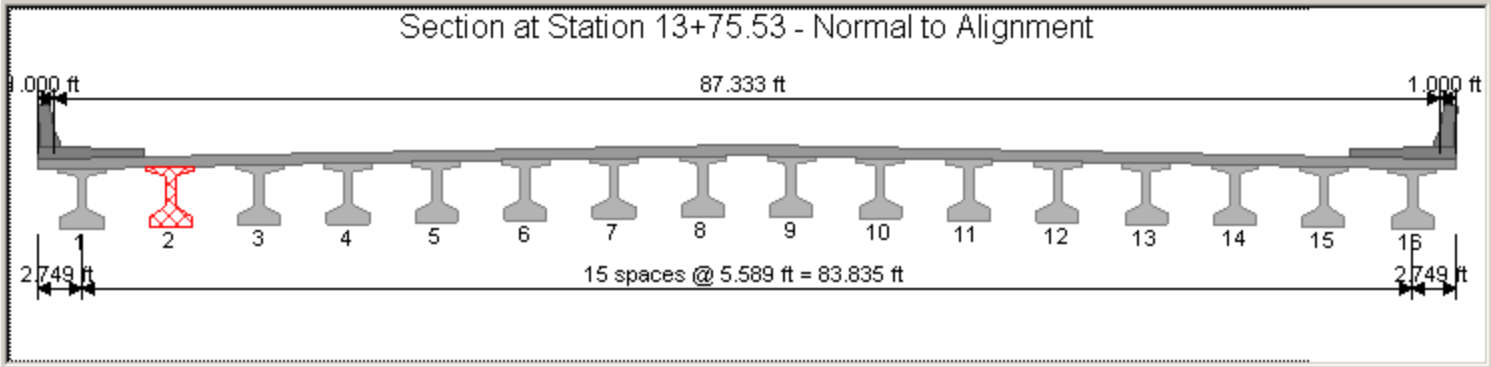
Bridge Model View





For Help, press F1 Simple Span 1 Modified AutoCalc : Off NUM

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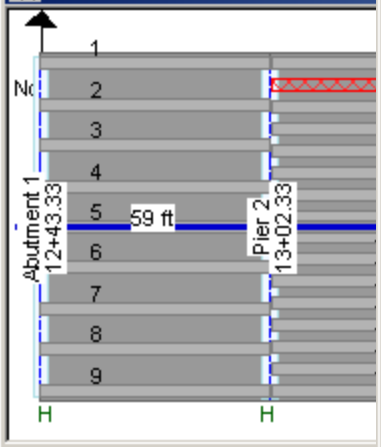
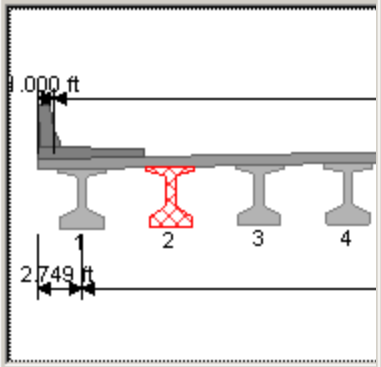
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	6.600	KSI	☐ Eci	4681	KSI
Final Strength, f'c	7.000	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in — End of Girder 8.000 in

OK | Cancel | Help

For Help, press F1 — Simple Span — 1 — Modified — AutoCalc : Off — NUM

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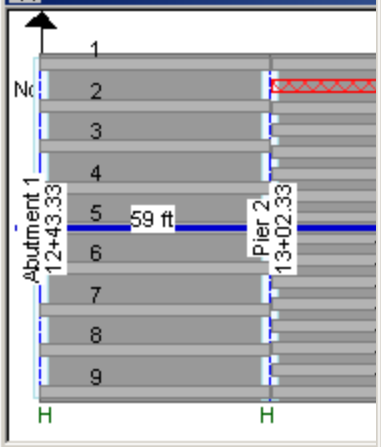
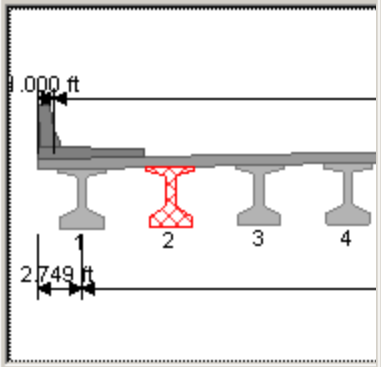
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	6	KSI	☐ Eci	4463	KSI
Final Strength, f'c	8.5	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in End of Girder 8.000 in

OK | Cancel | Help

For Help, press F1 Simple Span 1 Modified AutoCalc : Off NUM

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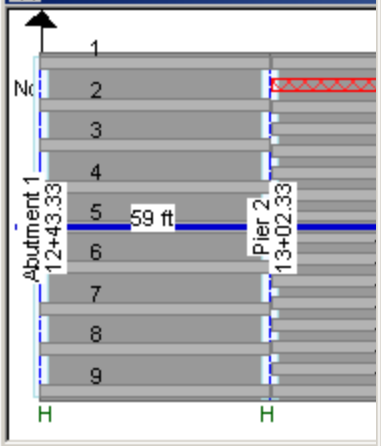
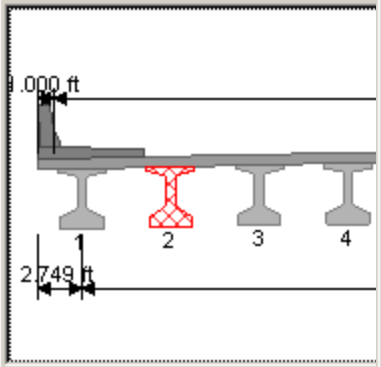
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Total Number of Permanent Strands

Number of Straight: 40, Harped: 8

Total Number of Permanent: 48

☑ Calculate Jacking Force: 2109.24 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom: 42.500 in

(Valid Range 8.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 | Simple Span | 1 | Modified | AutoCalc : Off | NUM

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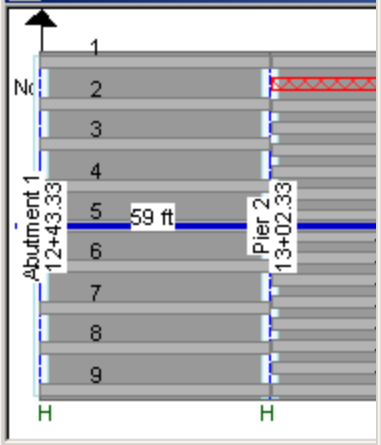
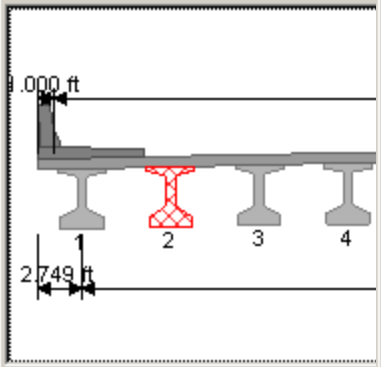
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 40 — ☑ Calculate Jacking Force: 1757.70 kip

Number of Harped Strands: 8 — ☑ Calculate Jacking Force: 351.54 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 8.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span — 1 — Modified — AutoCalc : Off — NUM

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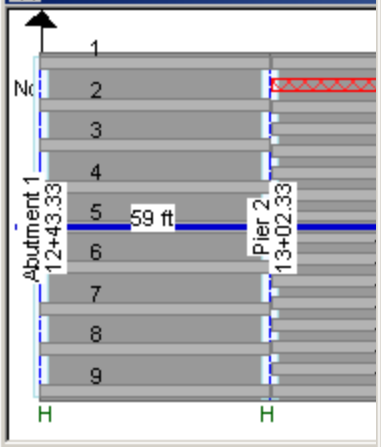
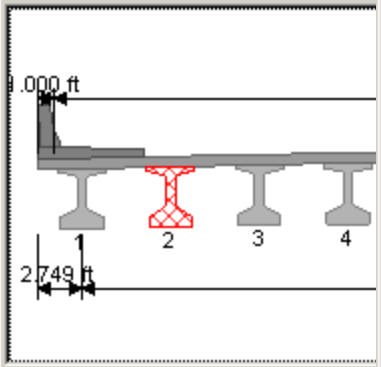
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 38 — ☑ Calculate Jacking Force: 1669.82 kip

Number of Harped Strands: 10 — ☑ Calculate Jacking Force: 439.43 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 10.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span — 1 — Modified — AutoCalc : Off — NUM

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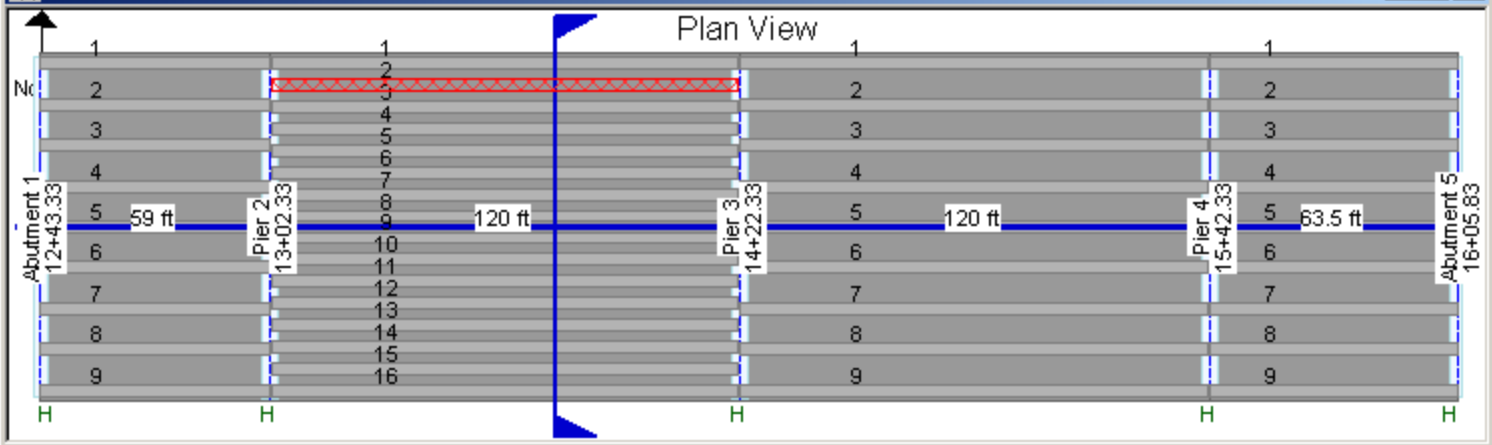
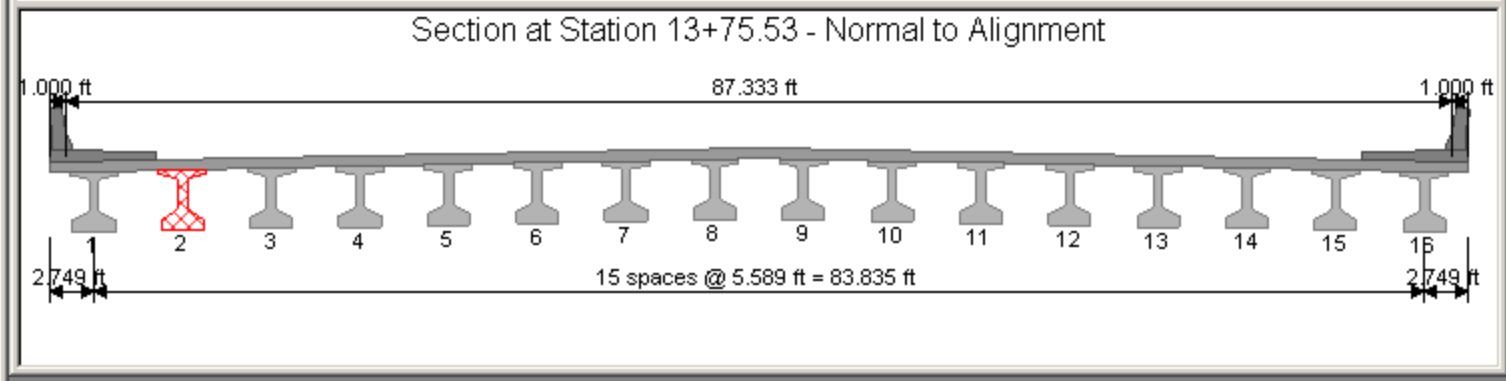
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 2

Edit

ification Check Summary

The Specification Check Was Not Successful

Compressive stress check failed for Service I for the Casting Yard Stage (At Release).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	2
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	48
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	15.020 in
Eccentricity @ End	8.354 in
Prestressing Strands	**Depressed**

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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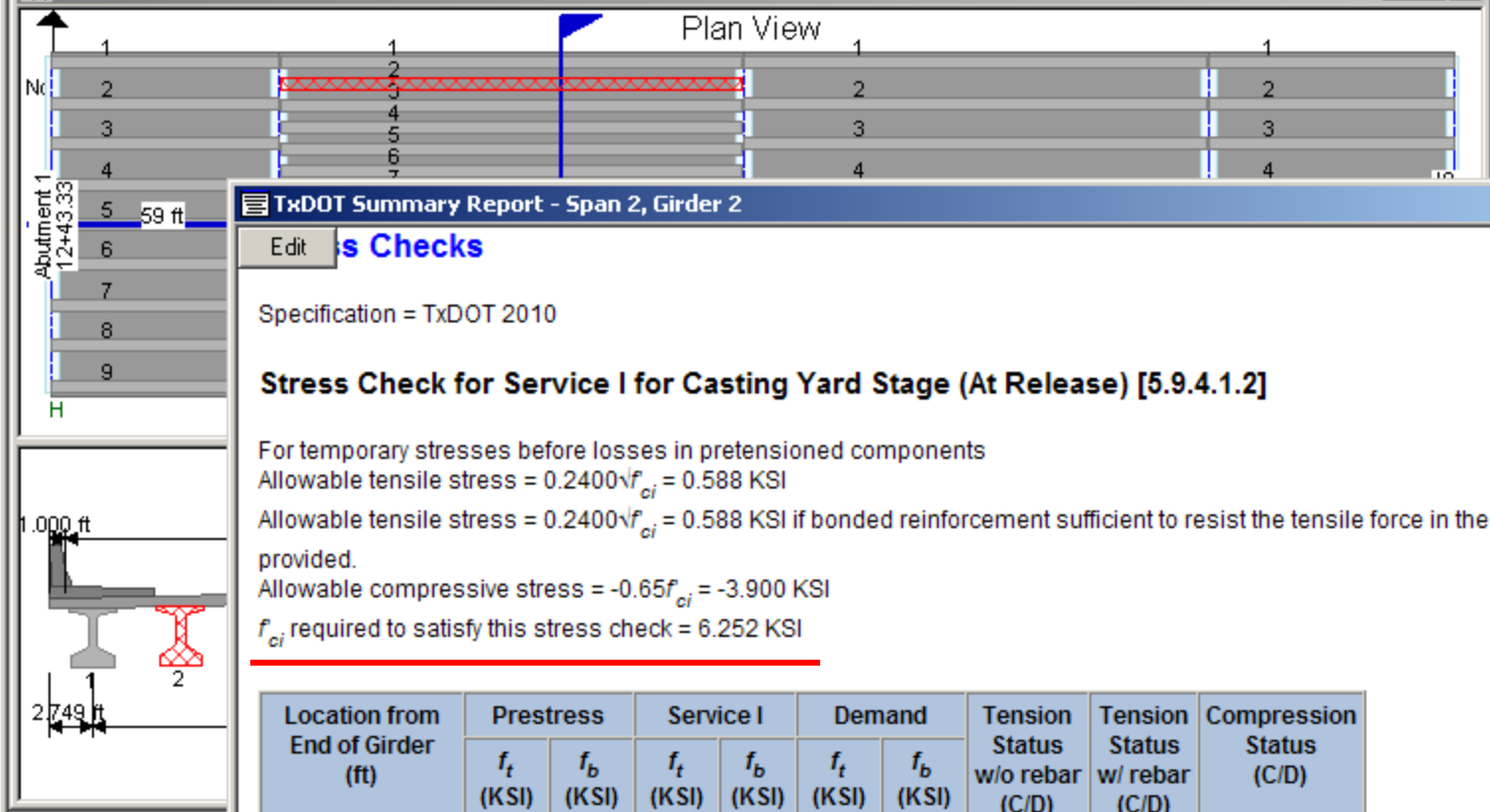
File Edit Project Loads Library Options View Window Help

Bridge Model View



TxDOT Summary Report - Span 2, Girder 2

Edit

s Checks

Specification = TxDOT 2010

Stress Check for Service I for Casting Yard Stage (At Release) [5.9.4.1.2]

For temporary stresses before losses in pretensioned components
Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI

Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI if bonded reinforcement sufficient to resist the tensile force in the concrete is provided.

Allowable compressive stress = $-0.65f'_{ci}$ = -3.900 KSI

f'_{ci} required to satisfy this stress check = 6.252 KSI

Location from End of Girder (ft)	Prestress		Service I		Demand		Tension Status w/o rebar (C/D)	Tension Status w/ rebar (C/D)	Compression Status (C/D)
	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)			
($0.0L_g$) 0.000	0.000	0.000	0.000	0.000	0.000	0.000	Pass (∞)	Pass (∞)	Pass (∞)
(PSXFR) 0.008	-0.416	-4.064	-0.001	0.000	-0.417	-4.064	Pass (-)	Pass (-)	Fail (0.96)
0.750	-0.394	-4.082	-0.055	0.043	-0.449	-4.039	Pass	Pass	Fail

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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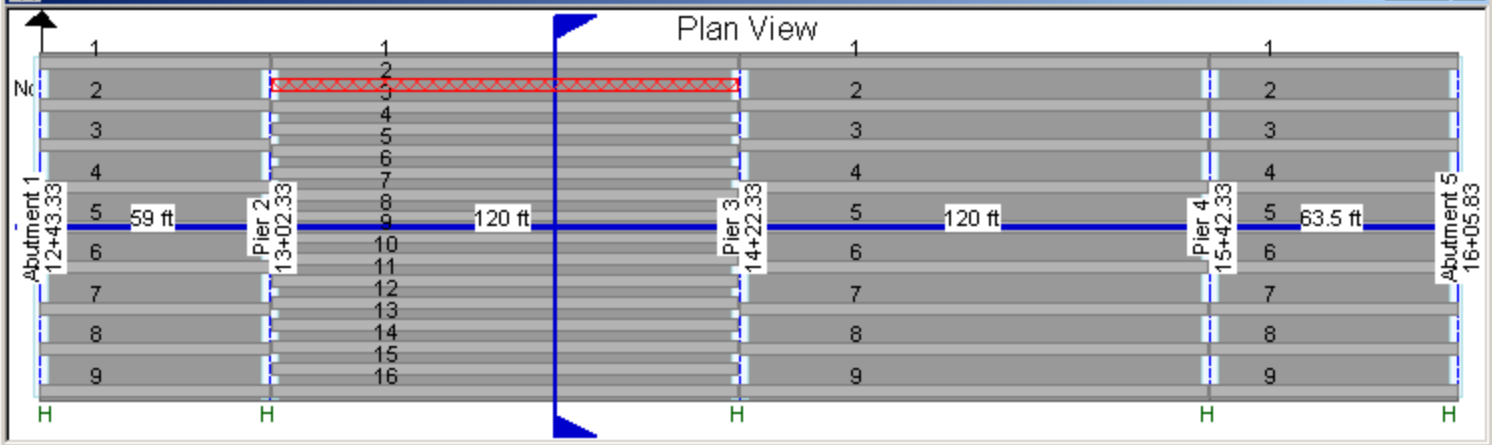
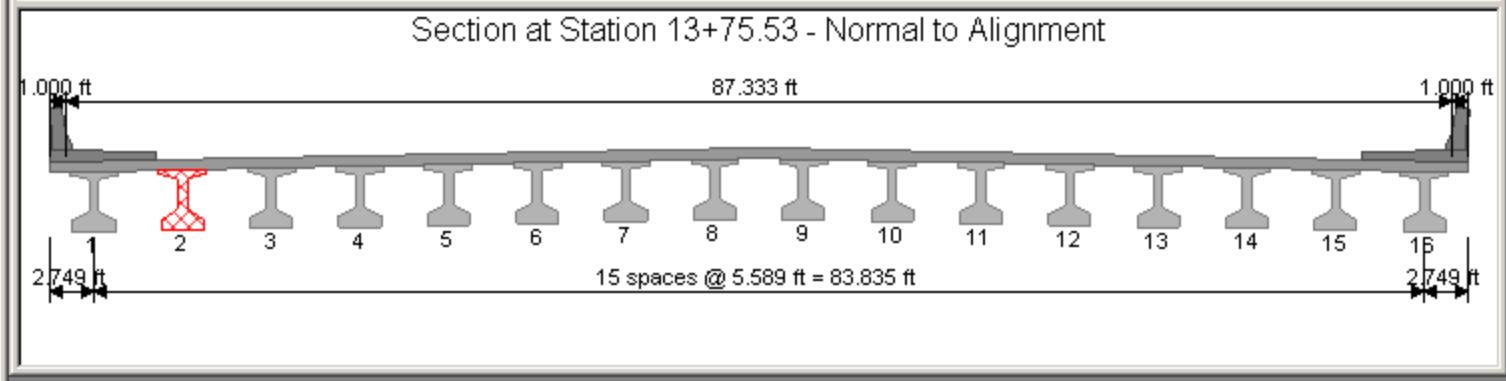
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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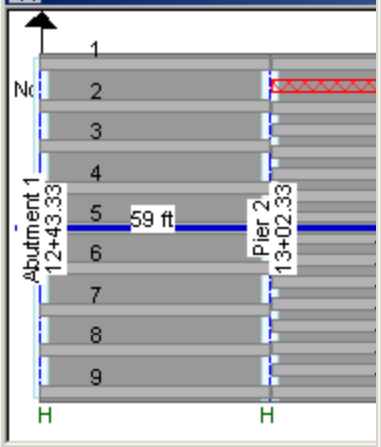
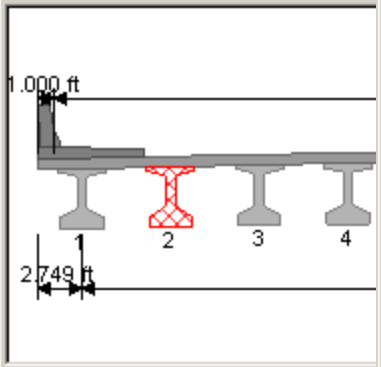
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 36 — ☑ Calculate Jacking Force: 1581.93 kip

Number of Harped Strands: 12 — ☑ Calculate Jacking Force: 527.31 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 12.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 0.6"

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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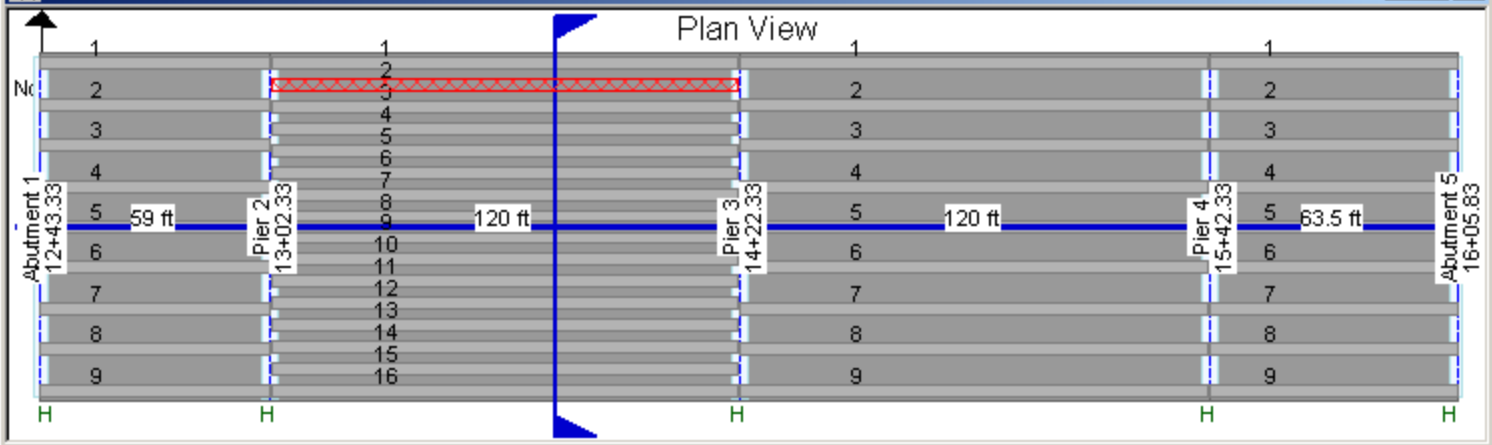
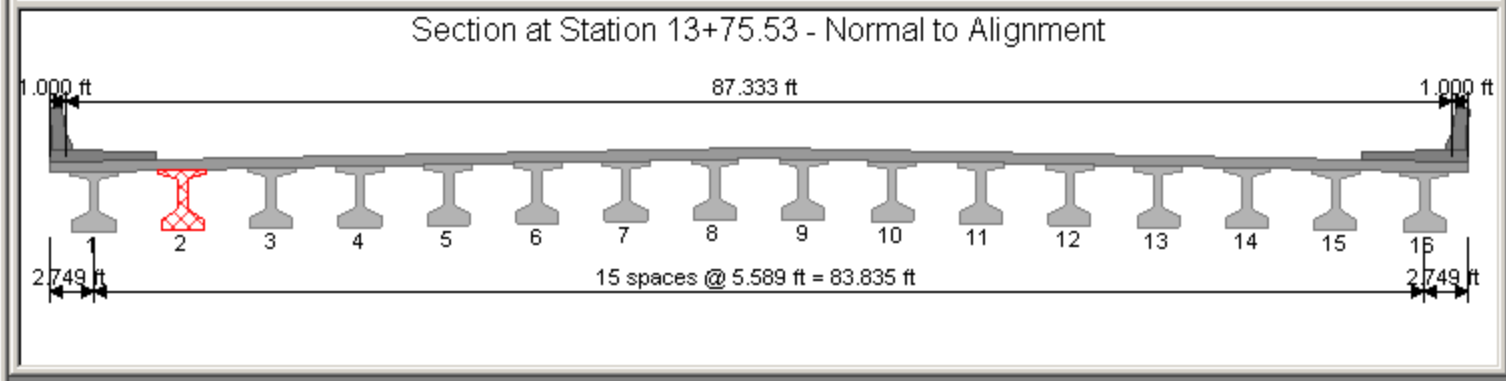
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

59 ft

Abutment 1

12+43.33

1.000 ft

2.749 ft

TxDOT Summary Report - Span 2, Girder 2

Edit

ification Check Summary

The Specification Check was Successful

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	2
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	48
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	14.854 in
Eccentricity @ End	7.354 in
Prestressing Strands	**Depressed**
NO. (# of Harped Strands)	12
Y_c of Topmost Depressed Strand(s) @ End	42.500 in

Girder Summary

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

59 ft

Abutment 1

12+43.33

1.000 ft

2.749 ft

TxDOT Summary Report - Span 2, Girder 2

Edit

s Checks

Specification = TxDOT 2010

Stress Check for Service I for Casting Yard Stage (At Release) [5.9.4.1.2]

For temporary stresses before losses in pretensioned components

Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI

Allowable tensile stress = $0.2400\sqrt{f'_{ci}}$ = 0.588 KSI if bonded reinforcement sufficient to resist the tensile force in the concrete is provided.

Allowable compressive stress = $-0.65f'_{ci}$ = -3.900 KSI

f'_{ci} required to satisfy this stress check = 5.987 KSI

Location from End of Girder (ft)	Prestress		Service I		Demand		Tension Status w/o rebar (C/D)	Tension Status w/ rebar (C/D)	Compression Status (C/D)
	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)	f_t (KSI)	f_b (KSI)			
($0.0L_g$) 0.000	0.000	0.000	0.000	0.000	0.000	0.000	Pass (∞)	Pass (∞)	Pass (∞)
(PSXFR) 0.008	-0.665	-3.892	-0.001	0.000	-0.666	-3.891	Pass (-)	Pass (-)	Pass (1.00)
0.750	-0.640	-3.912	-0.055	0.043	-0.695	-3.869	Pass	Pass	Pass

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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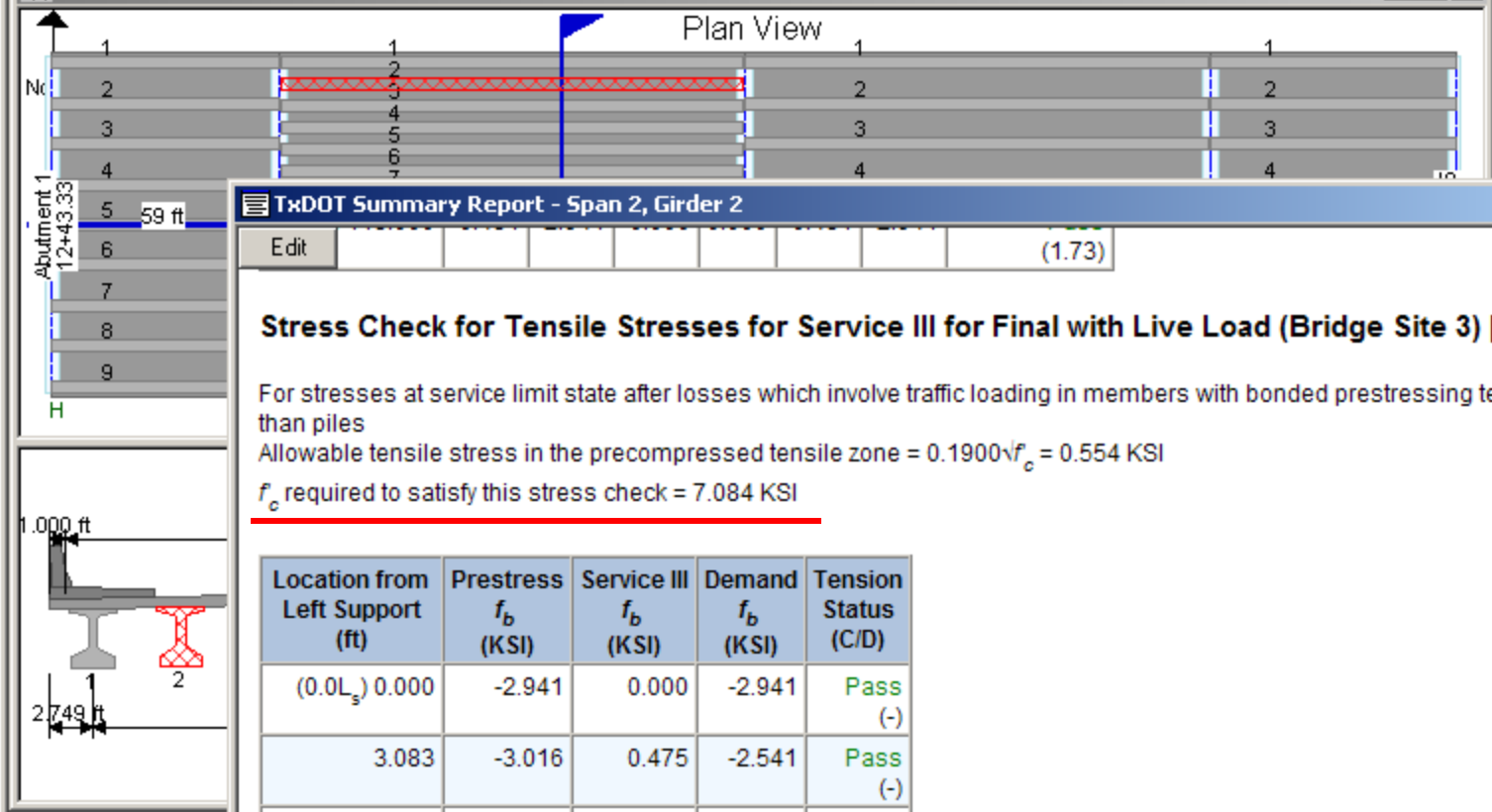
File Edit Project Loads Library Options View Window Help

Bridge Model View



TxDOT Summary Report - Span 2, Girder 2

Edit

(1.73)

Stress Check for Tensile Stresses for Service III for Final with Live Load (Bridge Site 3) [5.9.4.2.2]

For stresses at service limit state after losses which involve traffic loading in members with bonded prestressing tendons other than piles

Allowable tensile stress in the precompressed tensile zone = $0.1900\sqrt{f'_c}$ = 0.554 KSI

f'_c required to satisfy this stress check = 7.084 KSI

Location from Left Support (ft)	Prestress f_b (KSI)	Service III f_b (KSI)	Demand f_b (KSI)	Tension Status (C/D)
($0.0L_s$) 0.000	-2.941	0.000	-2.941	Pass (-)
3.083	-3.016	0.475	-2.541	Pass (-)
(H) 4.375	-3.047	0.666	-2.381	Pass (-)
11.200	-3.216	1.602	-1.614	Pass (-)
($0.1L_s$) 11.800	-3.231	1.678	-1.553	Pass (-)

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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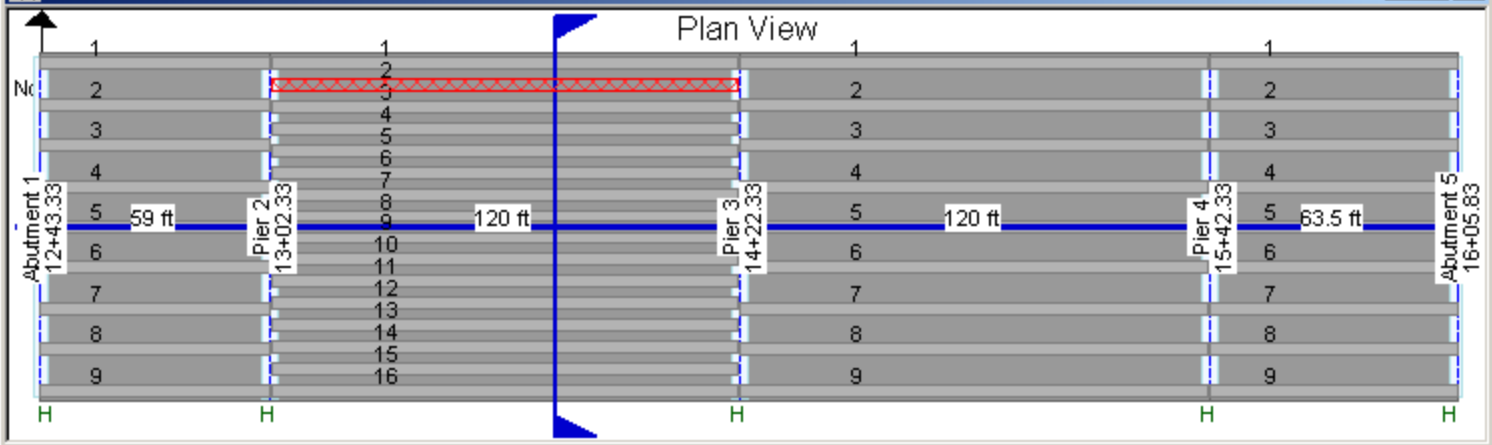
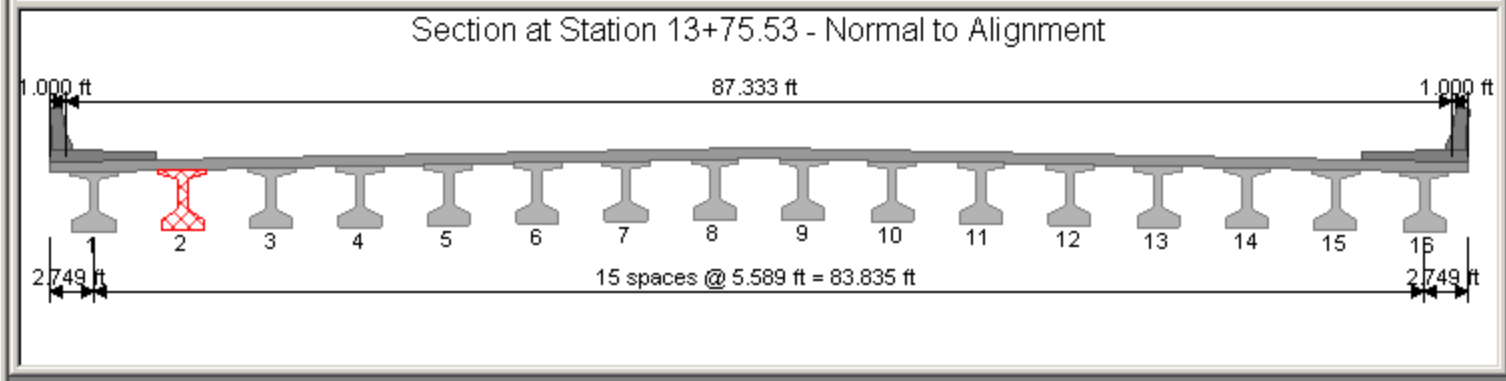
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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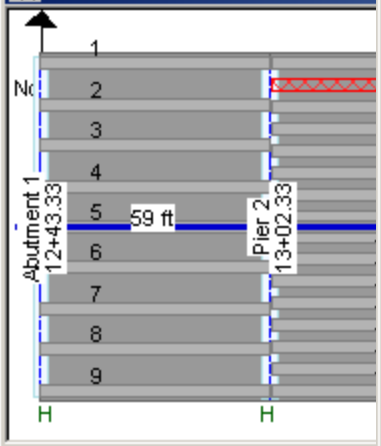
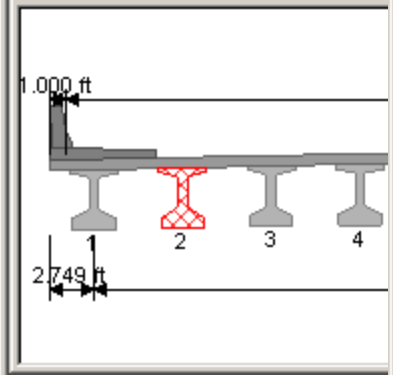
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 2

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	6.000	KSI	☐ Eci	4463	KSI
Final Strength, f'c	7.1	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in — End of Girder 8.000 in

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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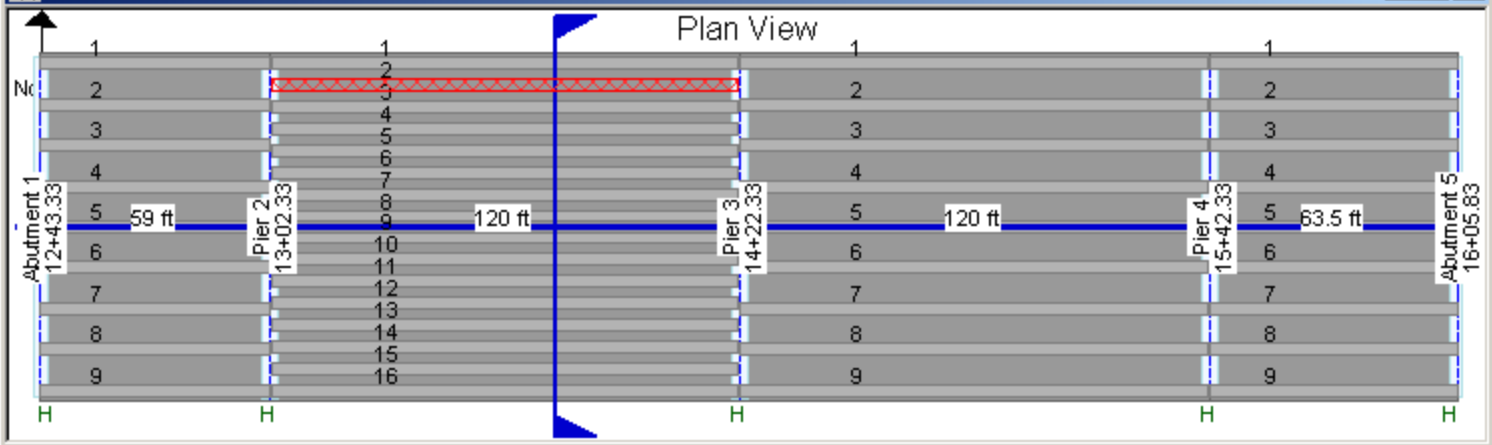
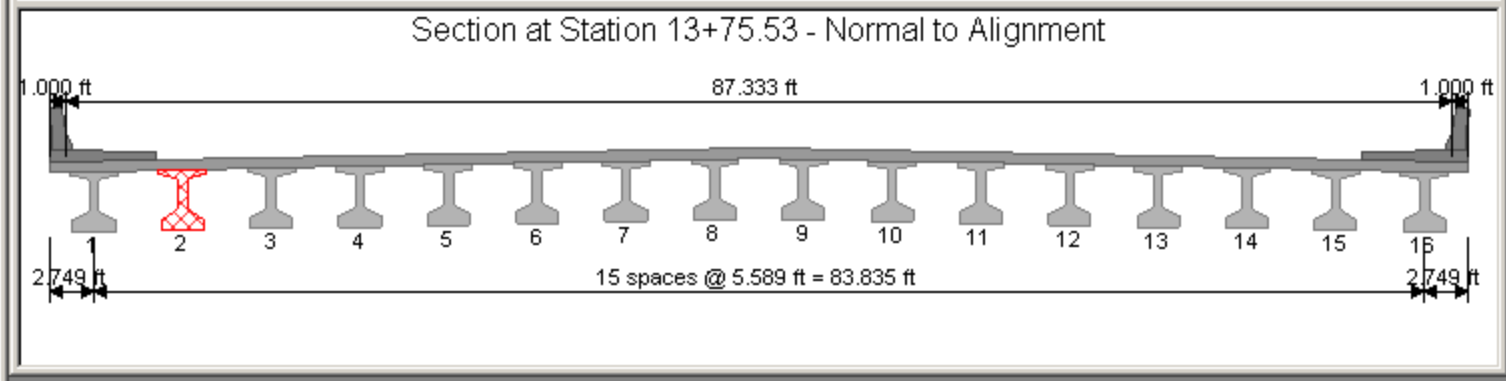
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 2

Edit

ification Check Summary

The Specification Check was Successful

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

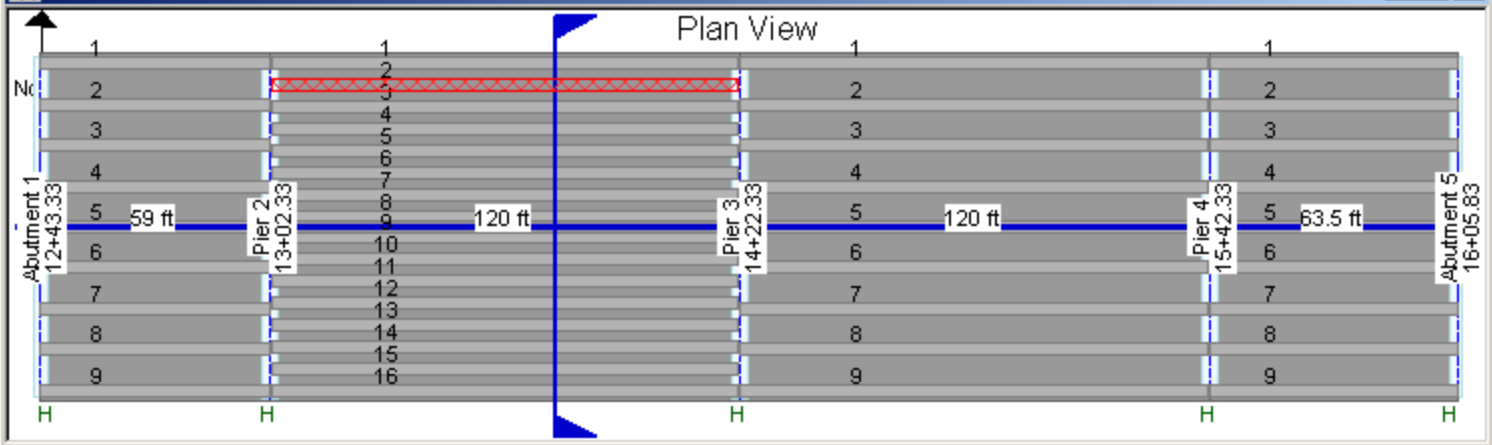
Span	2
Girder	2
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	48
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	14.854 in
Eccentricity @ End	7.354 in
Prestressing Strands	**Depressed**
NO. (# of Harped Strands)	12
Y_c of Topmost Depressed Strand(s) @ End	42.500 in

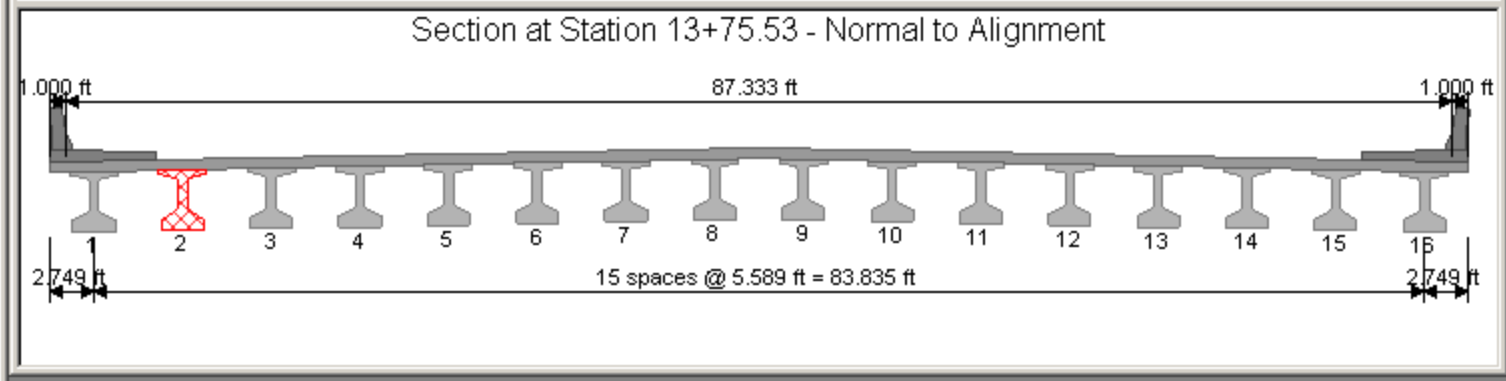
For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

PGSuper - BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Abutment 5 16+05.83

Section

1.000 ft

2.749 ft

Copy Girder Properties

Select Source Girder and Target Girder(s)

Copy Properties From:		To:	
Span 2	Girder 2	Span 2	All Girders

Select Properties to be Copied:

- [ ] Copy Girder Type
- [x] Copy Concrete Material Properties
- [x] Copy Prestressing
- [x] Copy Longitudinal Reinforcement
- [x] Copy Transverse Reinforcement
- [x] Copy Handling Locations
- [ ] Copy Slab Offset ("A" Dimension)

Help | Copy Now | Close

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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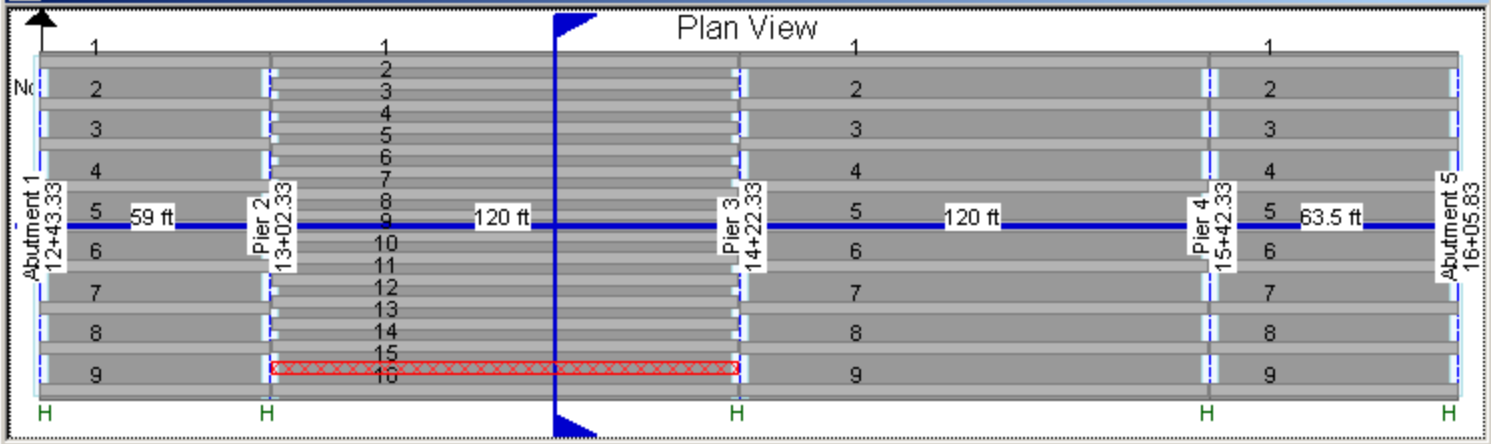
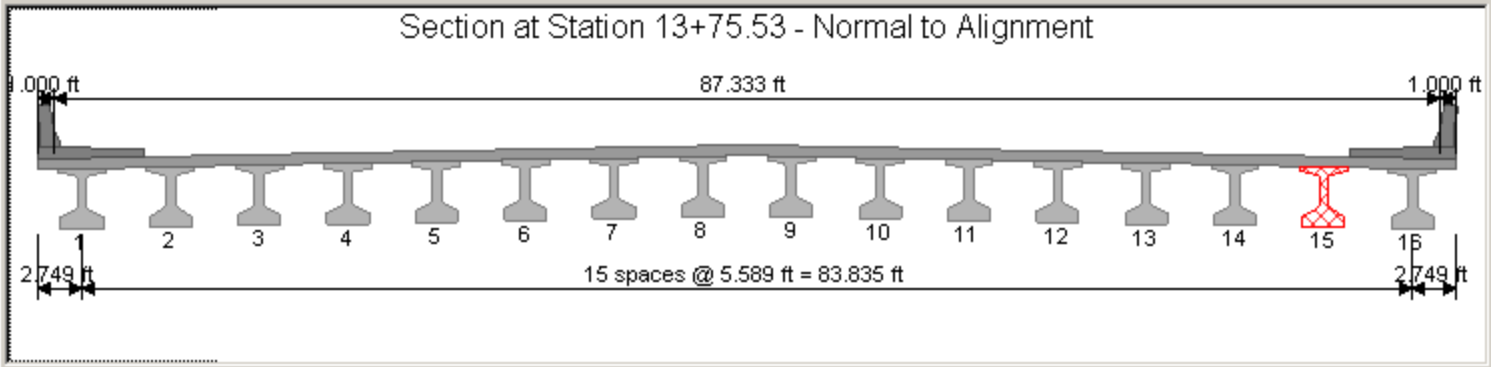
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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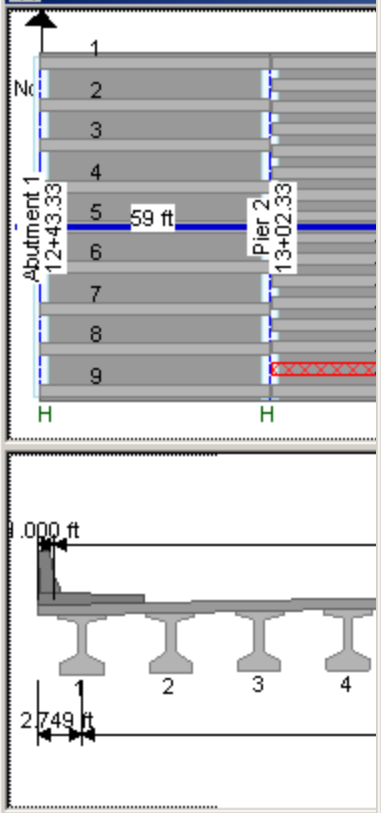
File Edit Project Loads Library Options View Window Help

Bridge Model View



Girder Details for Span 2, Girder 15

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 36 — ☑ Calculate Jacking Force: 1115.37 kip

Number of Harped Strands: 12 — ☑ Calculate Jacking Force: 371.79 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 12.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 1/2"

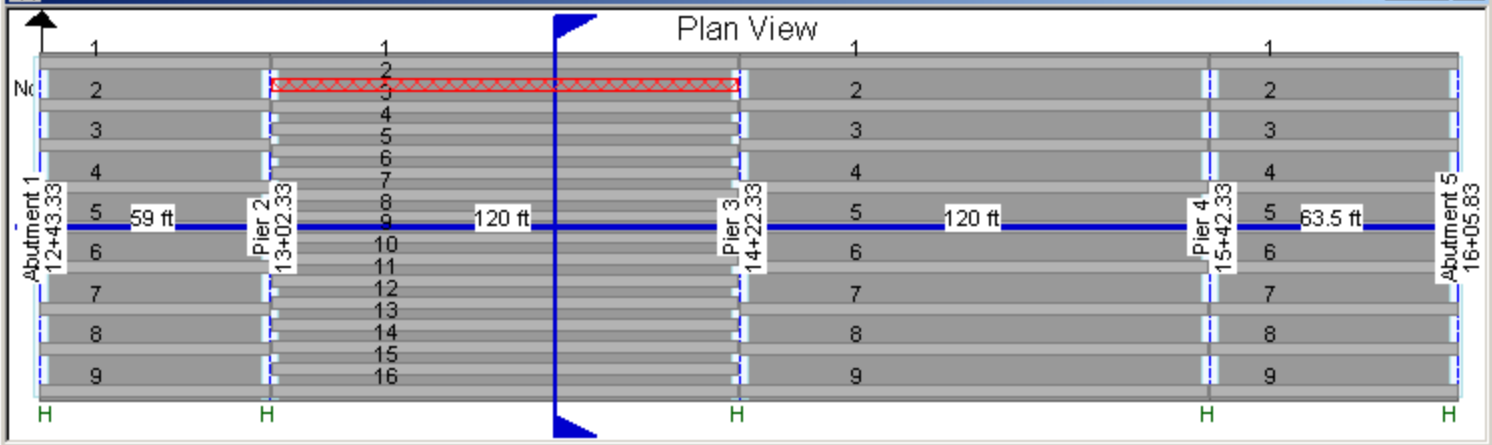
OK | Cancel | Help

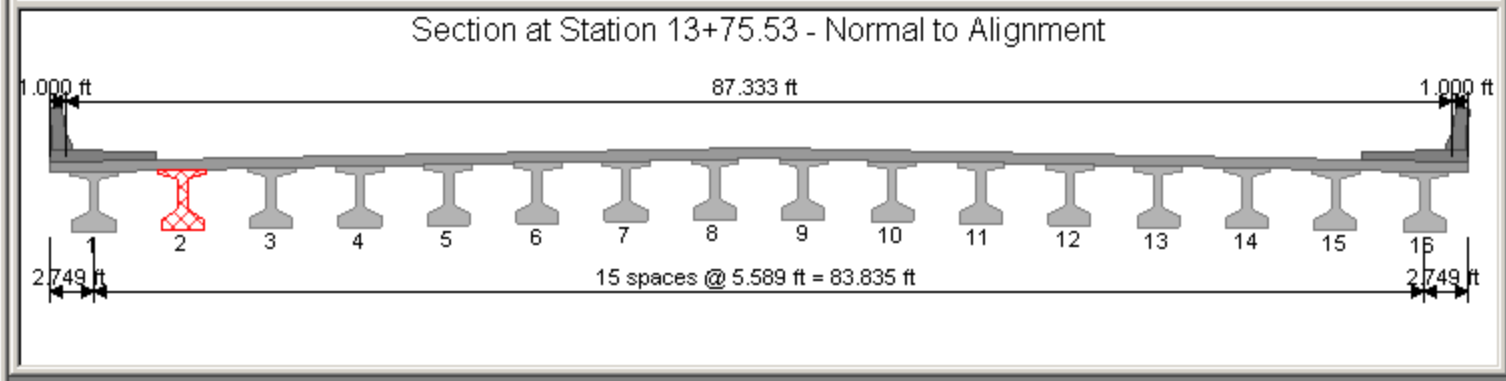
For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

PGSuper - BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





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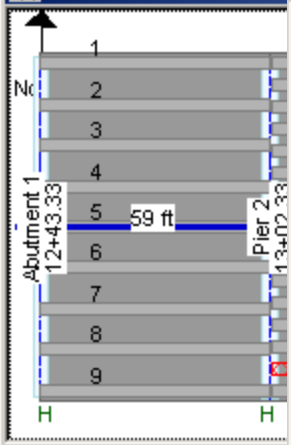
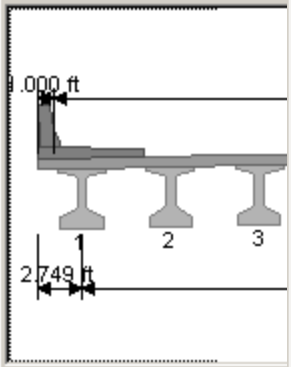
File Edit Project Loads Library Options View Window Help

Bridge Model View





Preliminary Designer Attempt Complete

Design Outcome

The design for Span 2 Girder 15 was successful.

Parameter	Proposed Design	Current Value
Number of Straight Strands	54	36
Number of Harped Strands	20	12
Straight Strand Jacking Force	1673.06 kip	1115.37 kip
Harped Strand Jacking Force	619.65 kip	371.79 kip
Distance from bottom of girder to top of harped strand group at ends of girder	42.500 in	42.500 in
Distance from bottom of girder to bottom of harped strand group at harping point	2.500 in	2.500 in
f'_{ci}	6.400 KSI	6.000 KSI
f'_{c}	7.700 KSI	7.100 KSI

Design Notes:

Warning: The designed girder release strength exceeds the normal value of 6.000 KSI
Concrete release strength was controlled by Casting Yard, Service I, Compression, at Bottom of Girder
Concrete final strength was controlled by Bridge Site 2, Service I, Compression, at Top of Girder

Update the Current Girder Parameters with the Proposed Design?

Accept the Design | Reject the Design | Help | Print

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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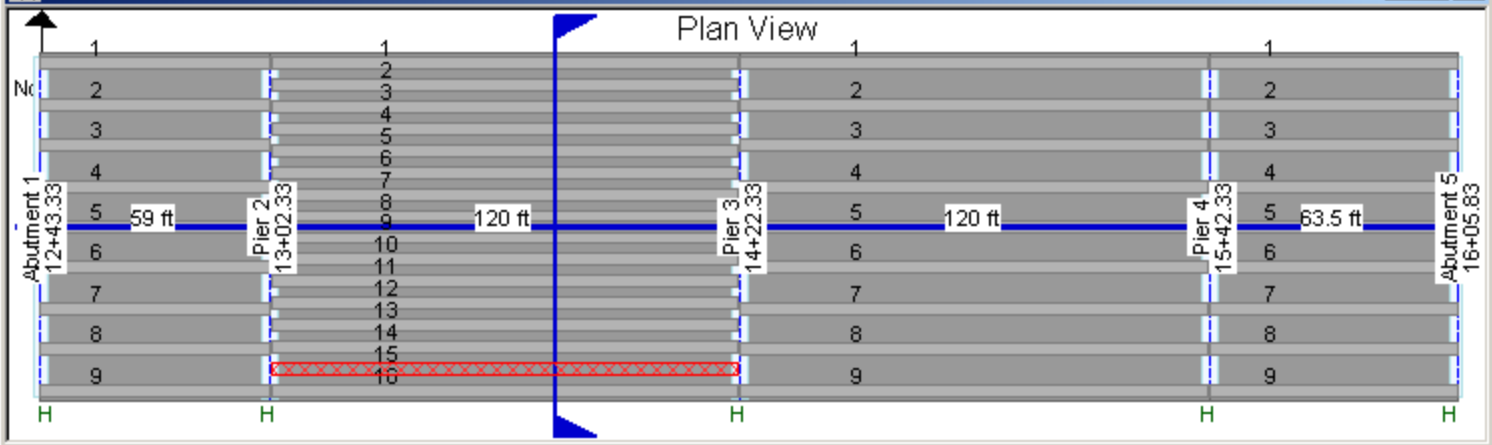
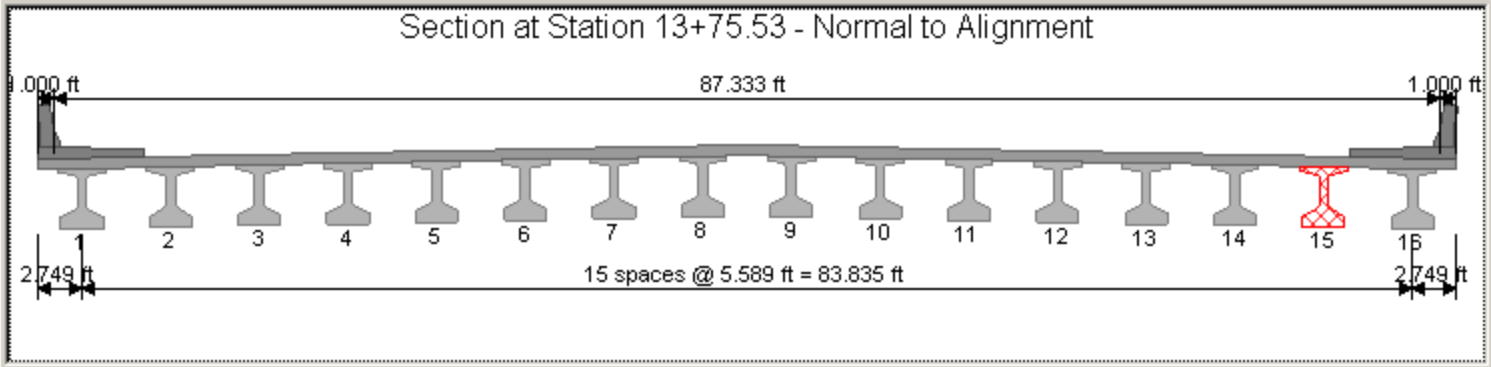
File Edit Project Loads Library Options View Window Help

Bridge Model View





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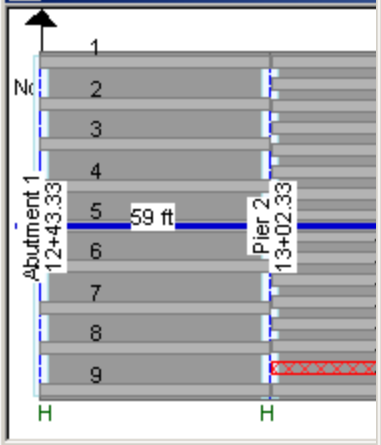
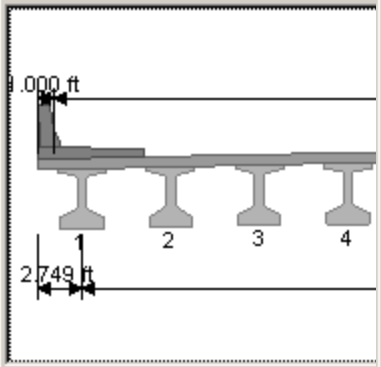
PGSuper - BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 15

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	6.400	KSI	☐ Eci	4610	KSI
Final Strength, f'c	7.700	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in — End of Girder 8.000 in

OK | Cancel | Help

For Help, press F1 — Simple Span — 1 — Modified — AutoCalc : Off — NUM

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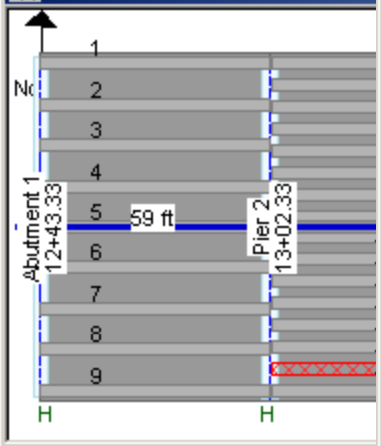
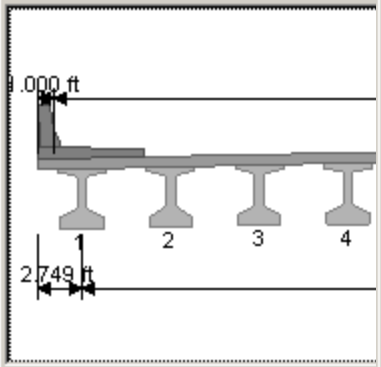
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 15

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Girder Name: Tx46 — This girder is used for the entire bridge

Girder Concrete Properties

Normal Weight Concrete

Release Strength, f'ci	6	KSI	☐ Eci	4463	KSI
Final Strength, f'c	8.5	KSI	☑ Ec	5000	KSI

More Properties...

Slab Offset ("A" Dimension)

A single Slab Offset is used for the entire bridge

Start of Girder 8.000 in End of Girder 8.000 in

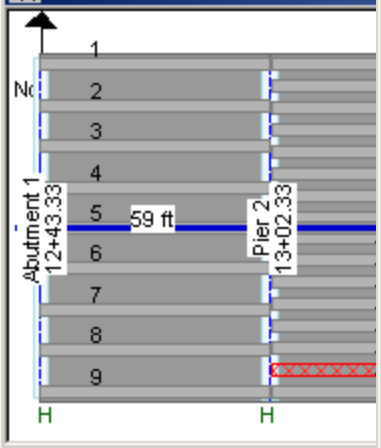
OK | Cancel | Help

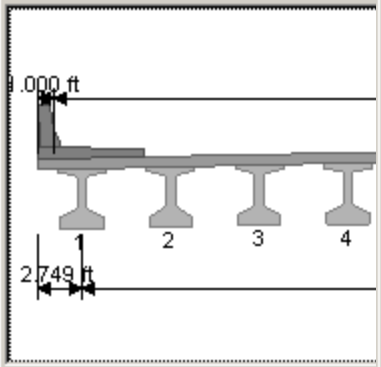
For Help, press F1 Simple Span 1 Modified AutoCalc : Off NUM

PGSuper - BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 15

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Total Number of Permanent Strands

Number of Straight: 54, Harped: 20

Total Number of Permanent: 74

☑ Calculate Jacking Force: 2292.71 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom: 42.500 in

(Valid Range 20.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 1/2"

OK | Cancel | Help

For Help, press F1 | Simple Span | 1 | Modified | AutoCalc : Off | NUM

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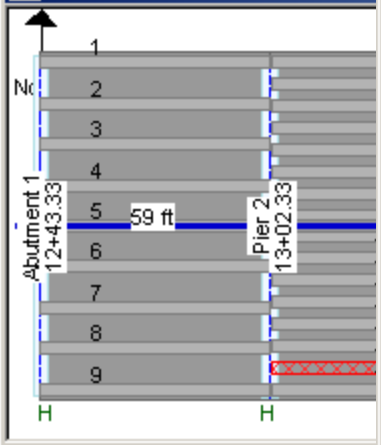
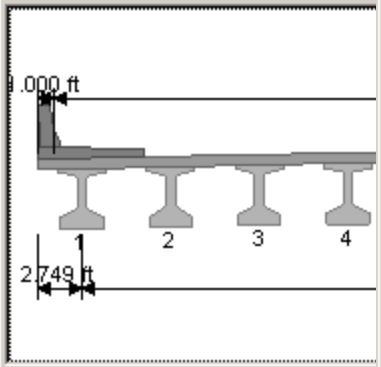
File Edit Project Loads Library Options View Window Help

Bridge Model View





Girder Details for Span 2, Girder 15

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 54 — ☑ Calculate Jacking Force: 1673.06 kip

Number of Harped Strands: 20 — ☑ Calculate Jacking Force: 619.65 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 20.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 1/2"

OK | Cancel | Help

For Help, press F1 — Simple Span — 1 — Modified — AutoCalc : Off — NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Girder Details for Span 2, Girder 15

General | Strands | Long. Reinforcement | Trans. Reinforcement | Condition and Rating

Strand Details

Specify Number of Strands Using: Number of Harped and Number of Straight

Number of Straight Strands: 52 — ☑ Calculate Jacking Force: 1611.09 kip

Number of Harped Strands: 22 — ☑ Calculate Jacking Force: 681.62 kip

Vertical Location of Harped Strands

Girder Ends: Distance between Top-Most Harped Strand and Girder Bottom — 42.500 in

(Valid Range 22.500 to 42.500)

Harping Points: in

Prestressing Strand Type

Permanent

Grade 270 Low Relaxation 1/2"

OK | Cancel | Help

For Help, press F1 — Simple Span — 1 — Modified — AutoCalc : Off — NUM

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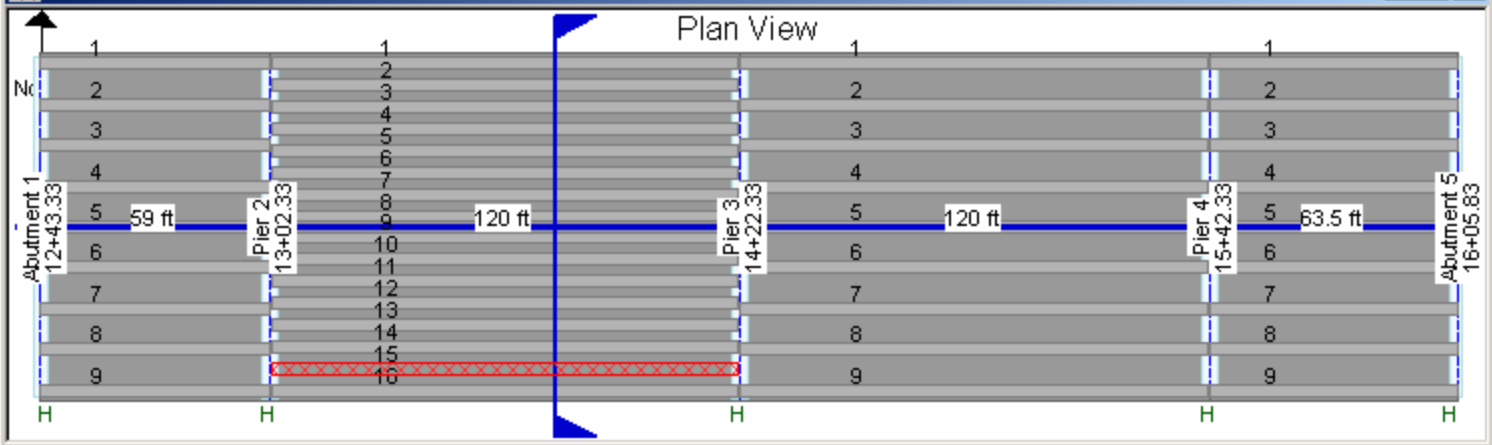
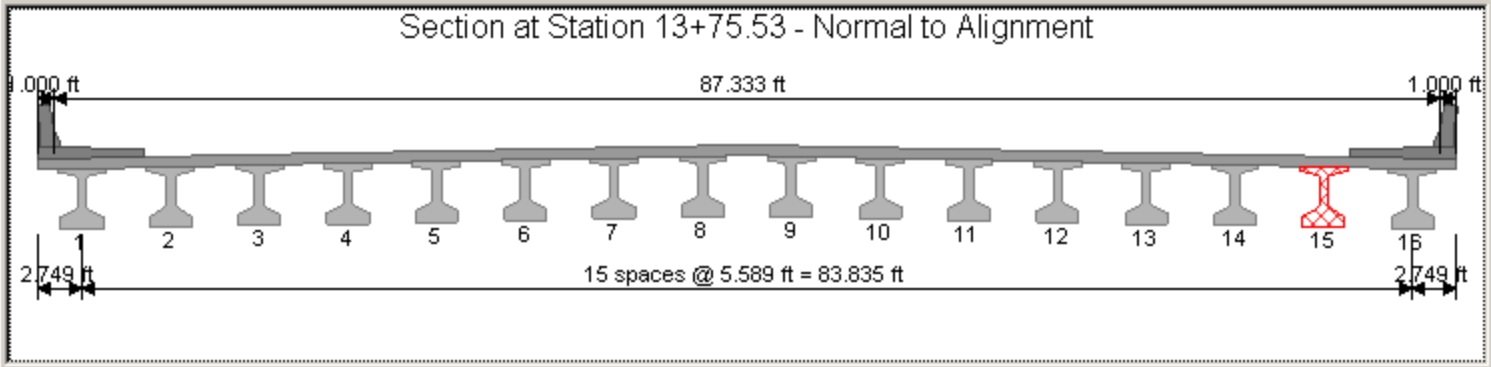
File Edit Project Loads Library Options View Window Help

Bridge Model View





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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

TxDOT Summary Report - Span 2, Girder 15

Edit

ification Check Summary

The Specification Check Was Not Successful

Compressive stress check failed for Service I for the Casting Yard Stage (At Release).

Tensile stress check failed for Service III for the Final with Live Load Stage (Bridge Site 3).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	15
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	74
Size	0.500 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	12.198 in
Eccentricity @ End	6.252 in

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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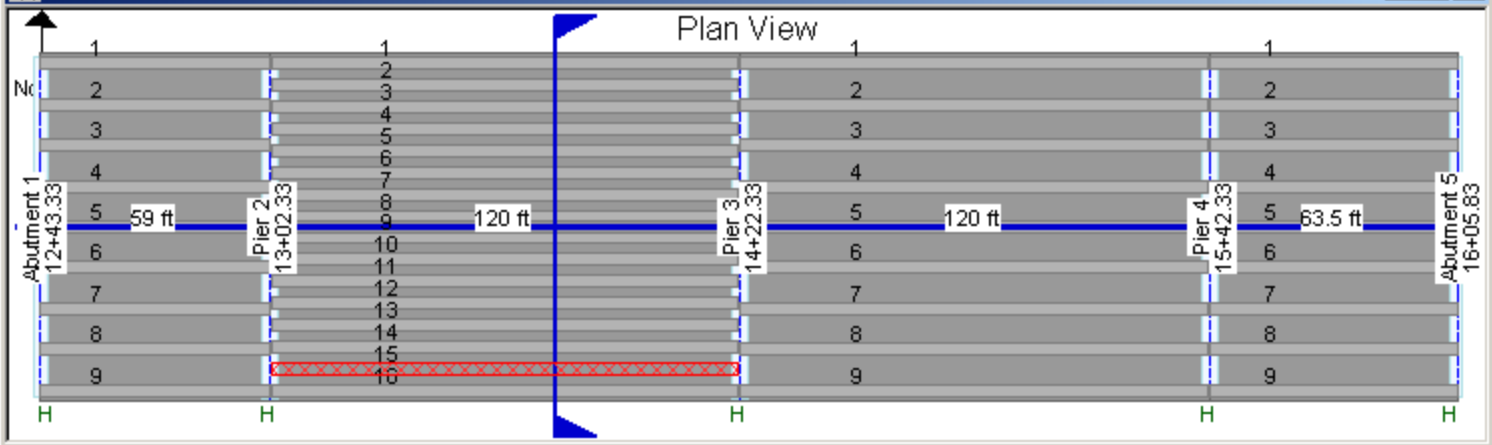
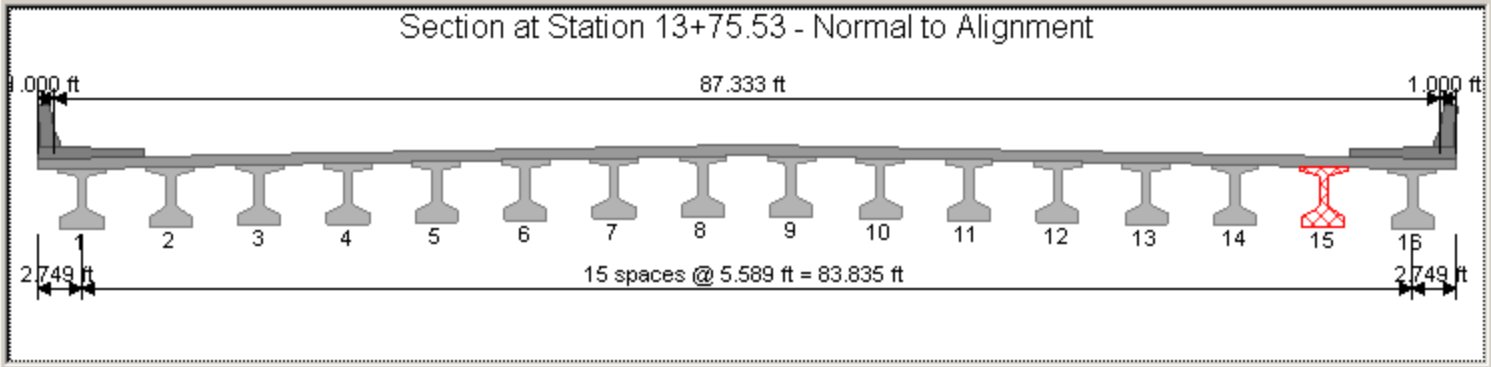
File Edit Project Loads Library Options View Window Help

Bridge Model View





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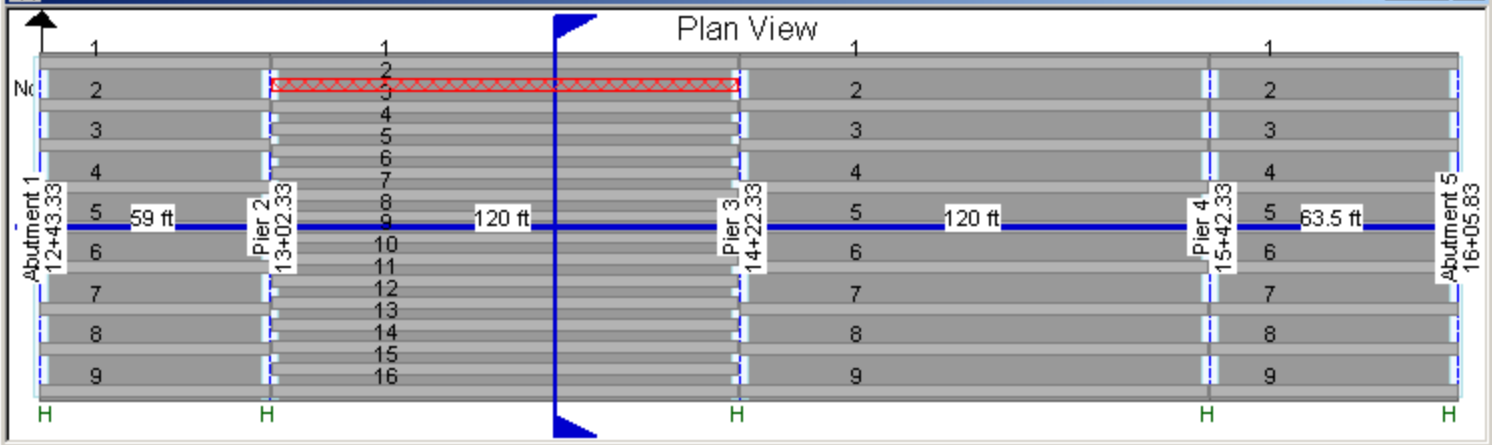
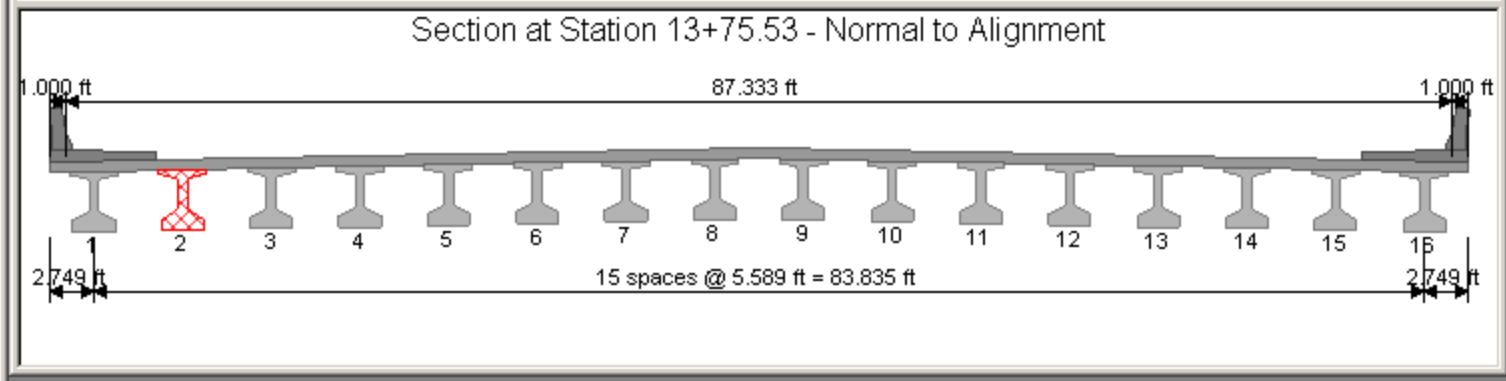
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Plan View

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Abutment 5 16+05.83

Section

1.000 ft

2.749 ft

Copy Girder Properties

Select Source Girder and Target Girder(s)

Copy Properties From:		To:	
Span 2	Girder 2	Span 2	All Girders

Select Properties to be Copied:

- [ ] Copy Girder Type
- [x] Copy Concrete Material Properties
- [x] Copy Prestressing
- [x] Copy Longitudinal Reinforcement
- [x] Copy Transverse Reinforcement
- [x] Copy Handling Locations
- [ ] Copy Slab Offset ("A" Dimension)

Help | Copy Now | Close

For Help, press F1 | Simple Span | 0 Modified | AutoCalc : Off | NUM

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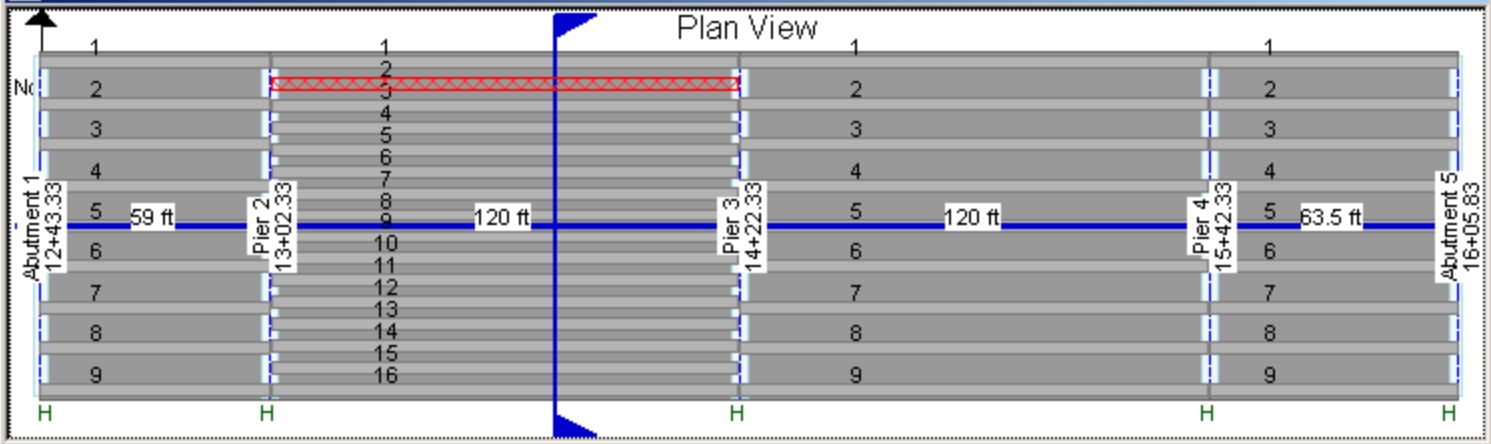
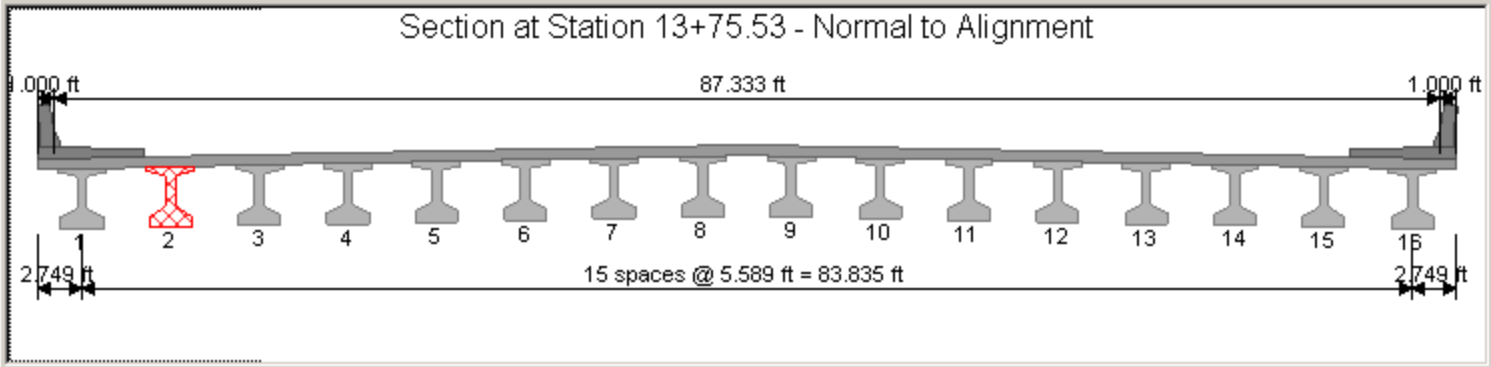
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Composite Cast-In-Place Deck

Cross Section

Gross Depth 8.000 in

Overhang Edge Depth 8.000 in

Don't taper overhang

Fillet 0.000 in

☑ Use same Slab Offset for entire bridge

Slab Offset ("A" Dimension) 8.000 in

Stay in Place Deck Panel Dimensions

Panel Depth 3.500 in

Panel Support Width 4.000 in

Plan (Edge of Deck)

Station	Measured From	Left Offset (ft)	Right Offset (ft)
12+43.33	Bridge Line	44.6667	44.6667

Add | Remove

Material

f'c 4.000 KSI — Normal Weight Concrete

☑ Ec 5000 KSI — More Properties...

Wearing Surface

Future Overlay

Sacrificial Depth 0.000 in

○ Overlay Weight 0.000 PSF

◉ Overlay Depth 2 in

Overlay Weight 0.140 kip/ft^3

OK | Cancel | Help

For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

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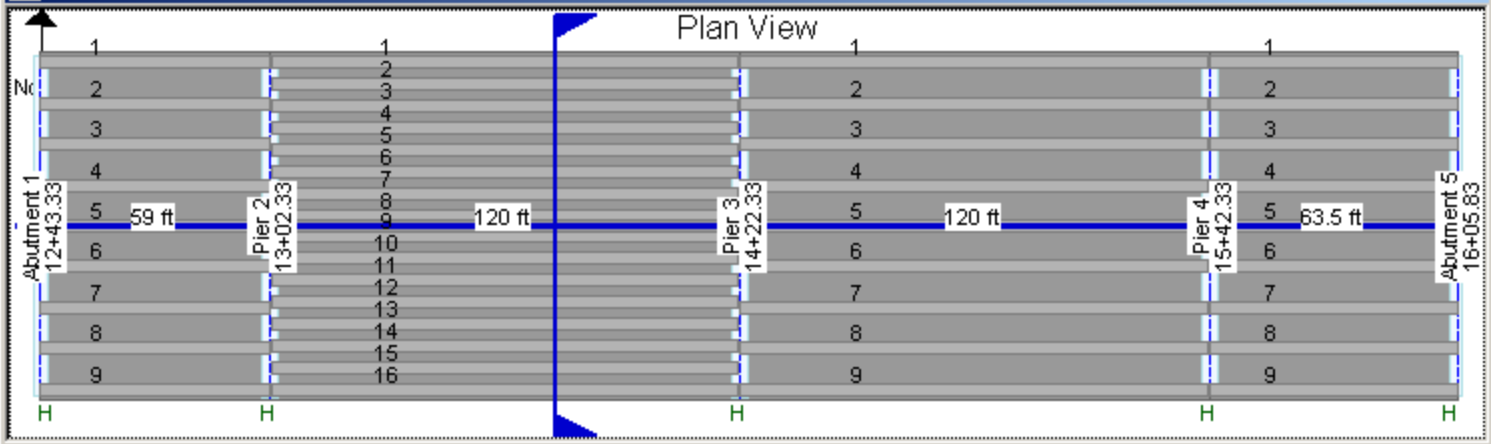
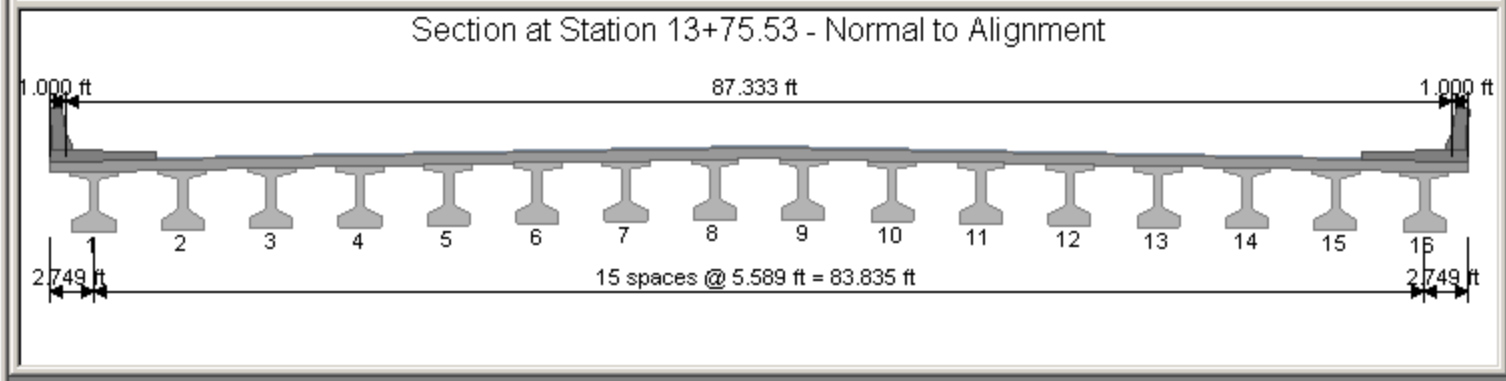
File Edit Project Loads Library Options View Window Help

Bridge Model View





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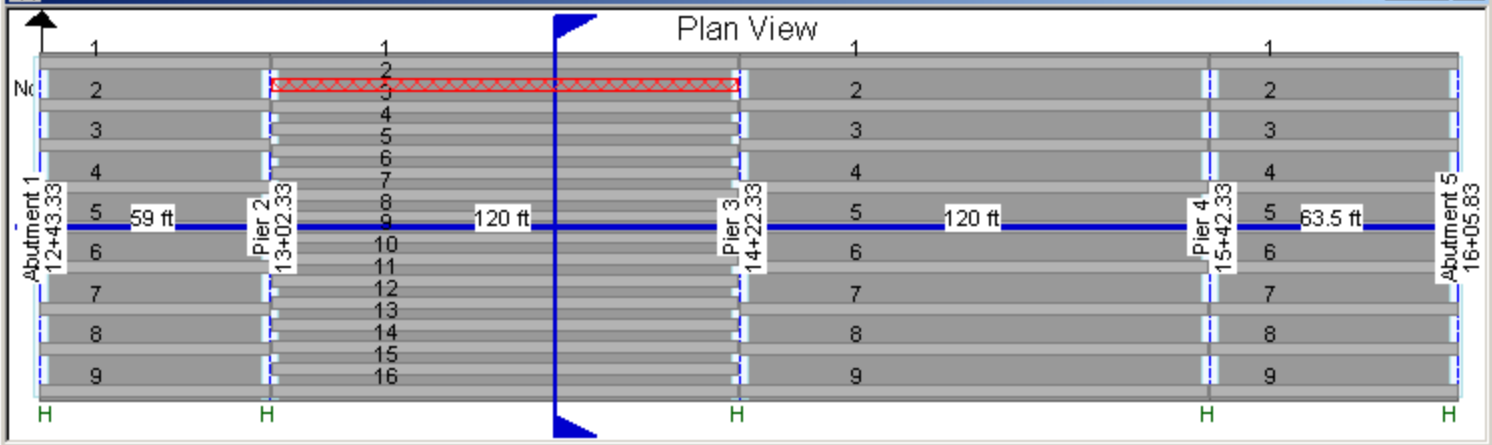
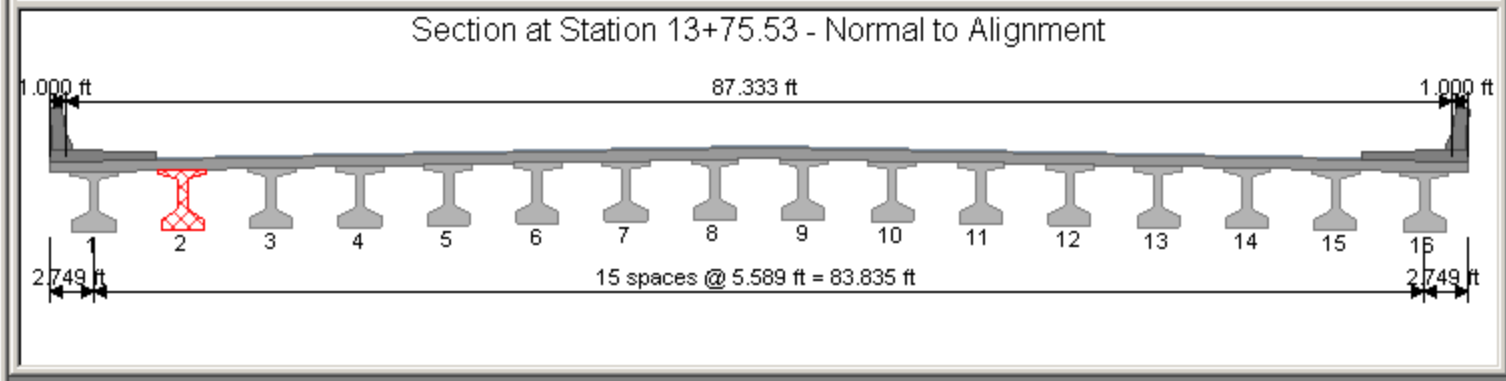
File Edit Project Loads Library Options View Window Help

Bridge Model View





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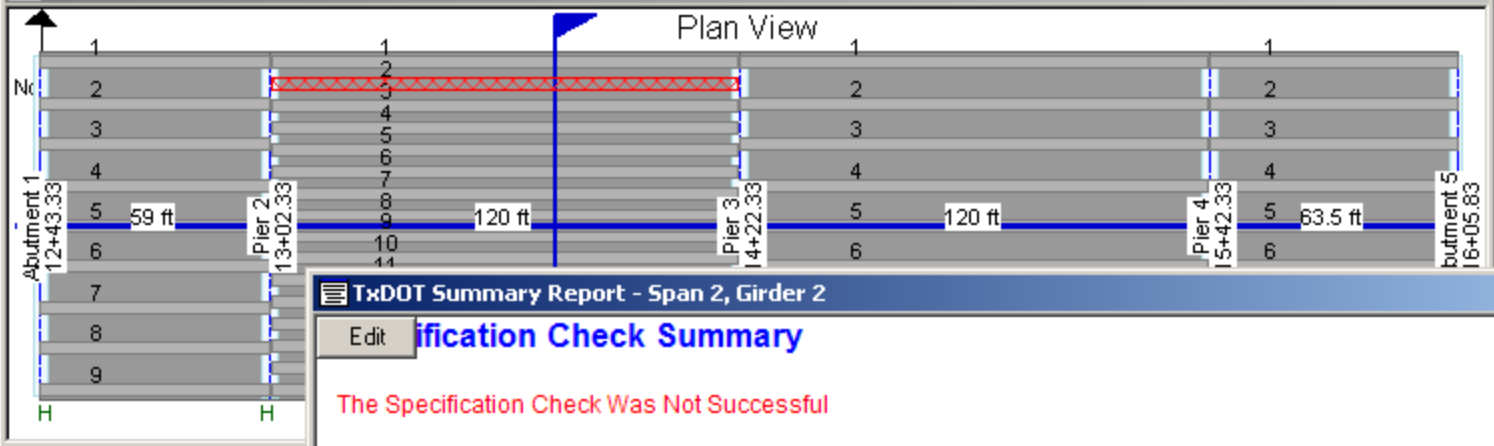
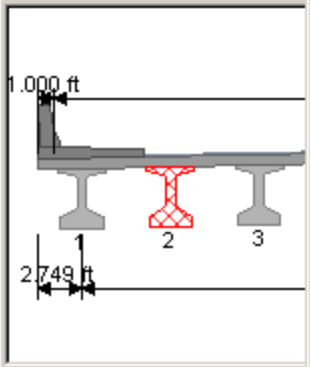
File Edit Project Loads Library Options View Window Help

Bridge Model View





TxDOT Summary Report - Span 2, Girder 2

Edit

ification Check Summary

The Specification Check Was Not Successful

Tensile stress check failed for Service III for the Final with Live Load Stage (Bridge Site 3).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	2
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	48
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	14.854 in
Eccentricity @ End	7.354 in
Prestressing Strands	**Depressed**

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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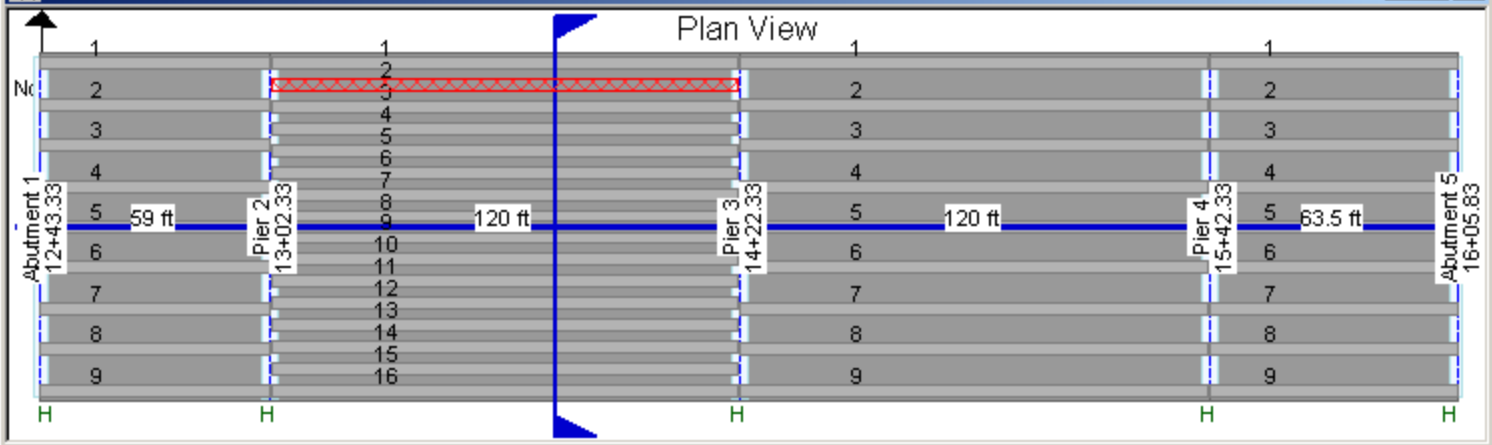
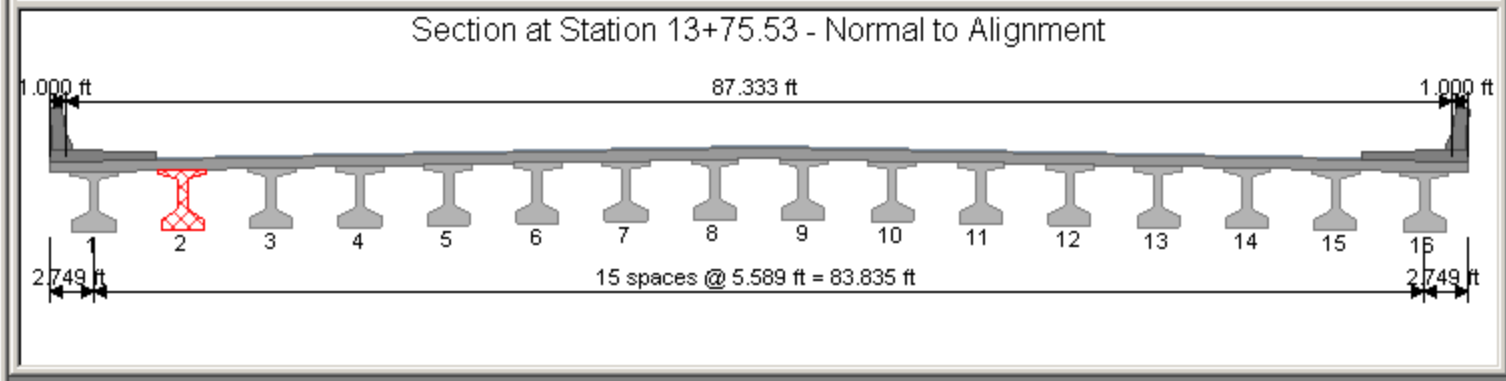
File Edit Project Loads Library Options View Window Help

Bridge Model View





For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Bridge Description

General | Framing | Railing System | Deck Geometry and Materials | Deck Reinforcement | Condition and Rating | Environmental

Composite Cast-In-Place Deck

Cross Section

Gross Depth 8.000 in

Overhang Edge Depth 8.000 in

Don't taper overhang

Fillet 0.000 in

☑ Use same Slab Offset for entire bridge

Slab Offset ("A" Dimension) 8.000 in

Stay in Place Deck Panel Dimensions

Panel Depth 3.500 in

Panel Support Width 4.000 in

Plan (Edge of Deck)

Station	Measured From	Left Offset (ft)	Right Offset (ft)
12+43.33	Bridge Line	44.6667	44.6667

Add | Remove

Material

f'c 4.000 KSI — Normal Weight Concrete

☑ Ec 5000 KSI — More Properties...

Wearing Surface

Future Overlay — Sacrificial Depth 0.000 in

○ Overlay Weight 23.333 PSF — ◉ Overlay Depth 0 in — Overlay Weight 0.140 kip/ft^3

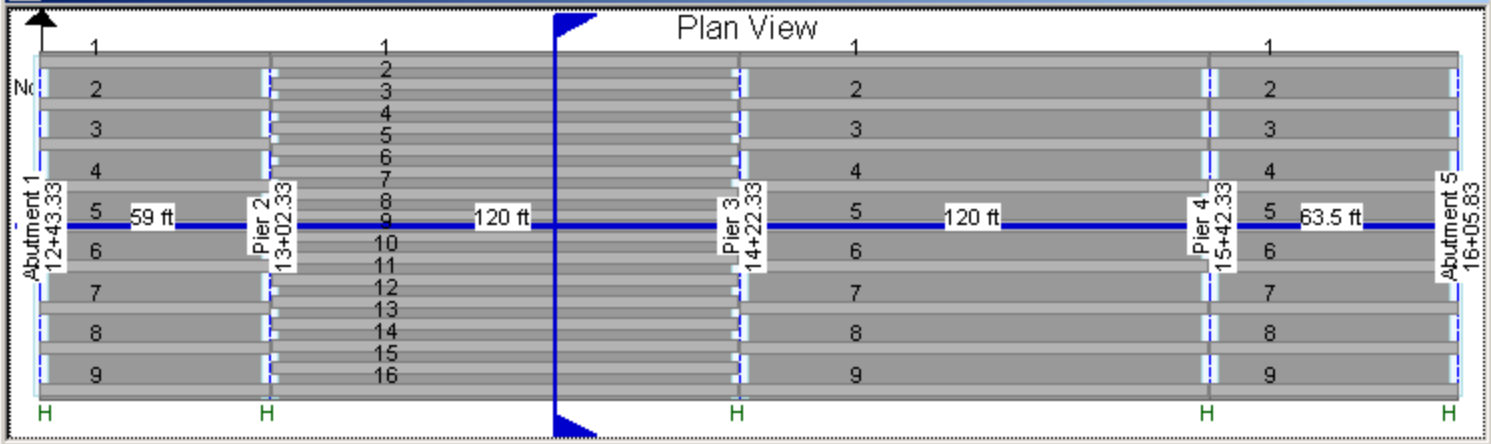
OK | Cancel | Help

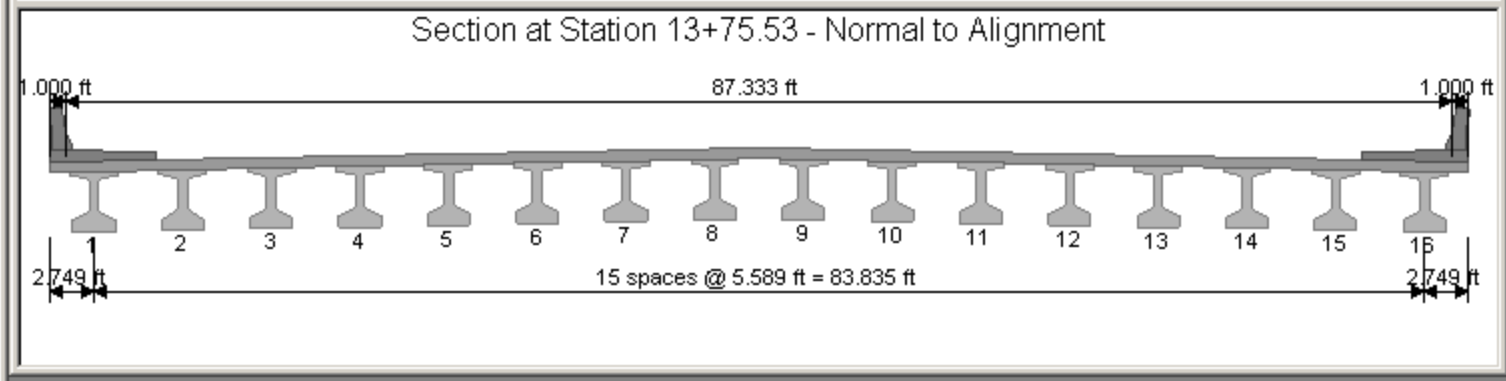
For Help, press F1 — Simple Span — 0 Modified — AutoCalc : Off — NUM

PGSuper - BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View



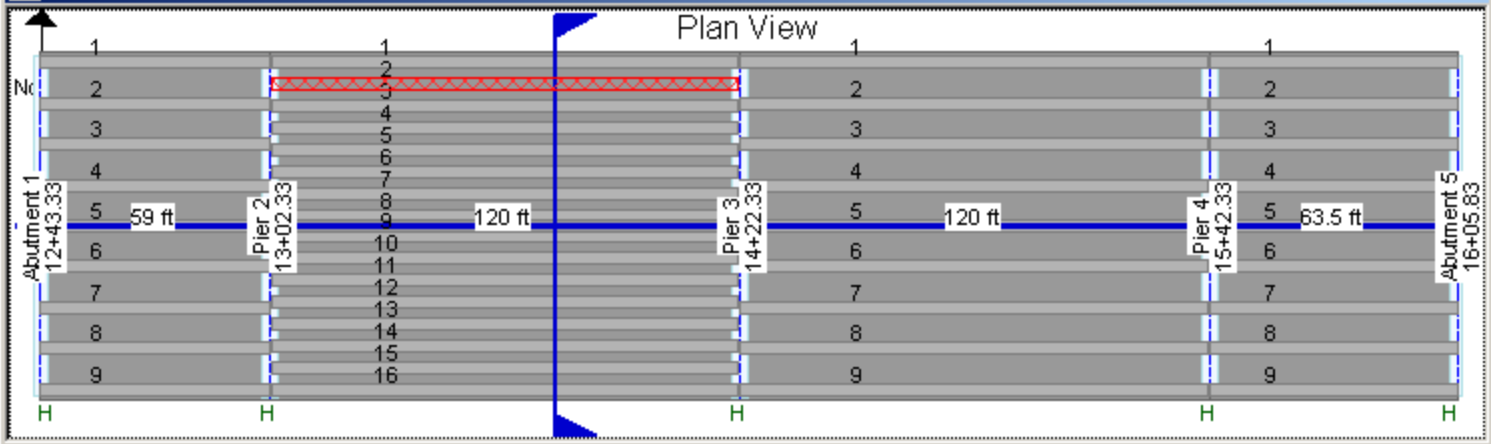


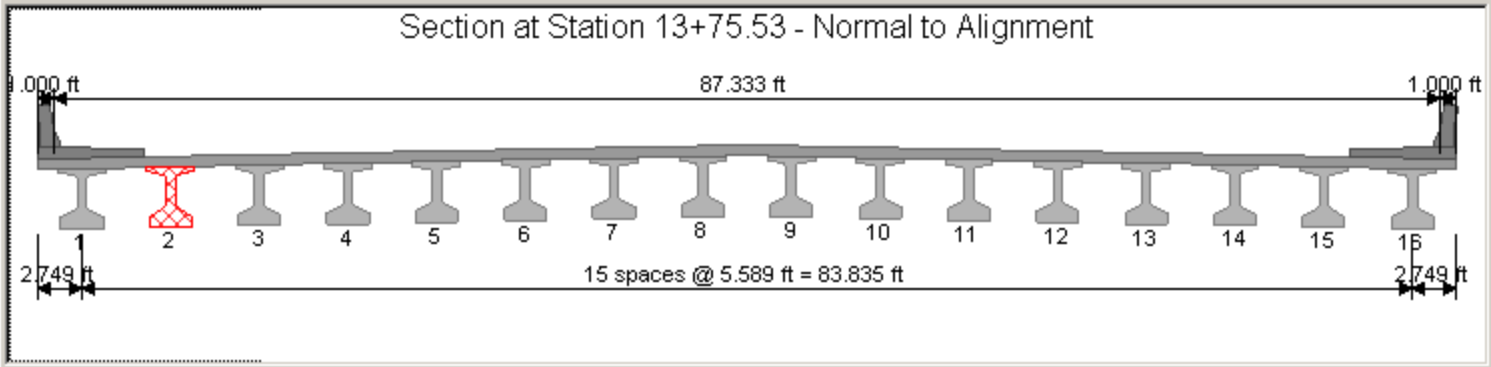
For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

PGSuper - BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View



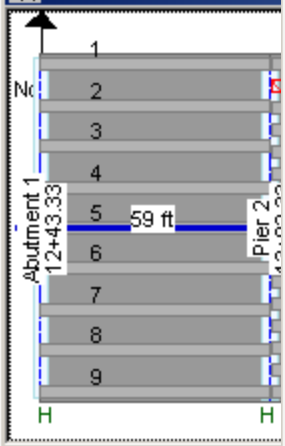


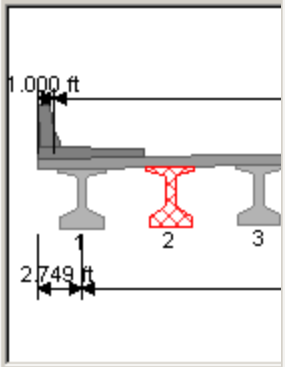
For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

PGSuper - BellaBlvd.pgs

File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 16

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-16
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-16 (ft)
Ahead	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-16 (ft)
Back	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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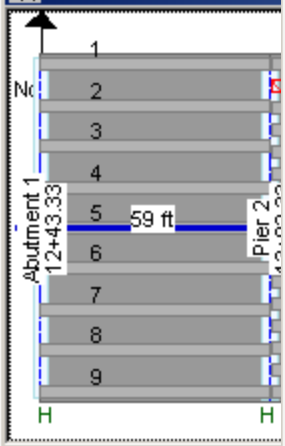
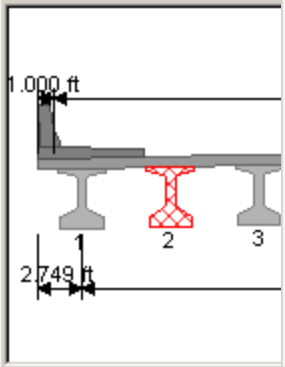
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 15

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-15 (ft)
Ahead	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-15 (ft)
Back	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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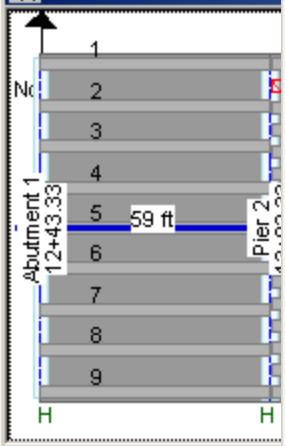
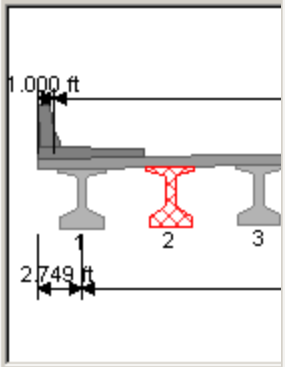
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 15

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-15 (ft)
Ahead	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-15 (ft)
Back	5.589
Allowable	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

Bridge Model View

Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 15

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-15 (ft)
Ahead	
Allowable	3.000

Expand
Join

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-15 (ft)
Back	5.589
Allowable	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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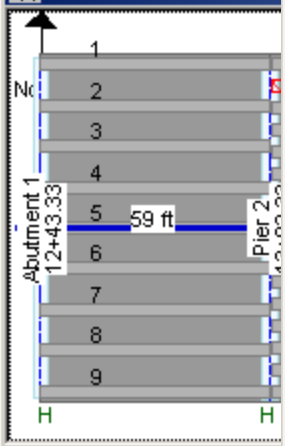
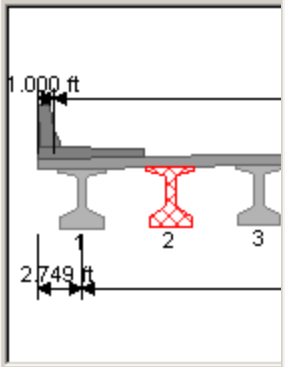
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders 15

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-2 (ft)	2-3 (ft)	3-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (f
Ahead	5.589	5.589	5.589	5.589	5.589	5.589	
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 o

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-2 (ft)	2-3 (ft)	3-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (f
Back	5.589	5.589	5.589	5.589	5.589	5.589	
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 o

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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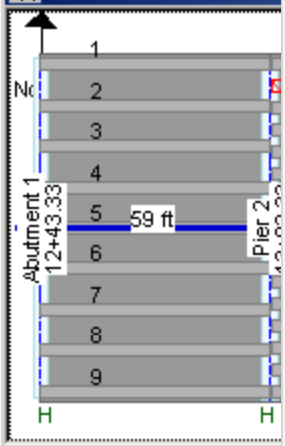
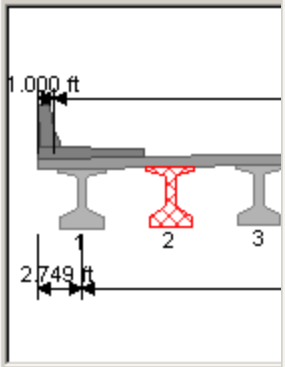
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 15

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-2 (ft)	2-3 (ft)	3-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (f
Ahead	5.589	5.589	5.589	5.589	5.589	5.589	
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 o

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-2 (ft)	2-3 (ft)	3-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (f
Back	5.589	5.589	5.589	5.589	5.589	5.589	
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 o

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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Bridge Model View

Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders 15

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-2 (ft)	2-3 (ft)	3-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)
Ahead	5.589	5.589		5.589	5.589	5.589	
Allowable	3.000 or more	3.000 or more	3.000	or more	3.000 or more	3.000 or more	3.000 or

Expand
Join

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-2 (ft)	2-3 (ft)	3-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)
Back	5.589	5.589	5.589	5.589	5.589	5.589	
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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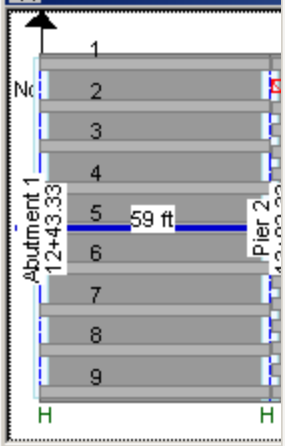
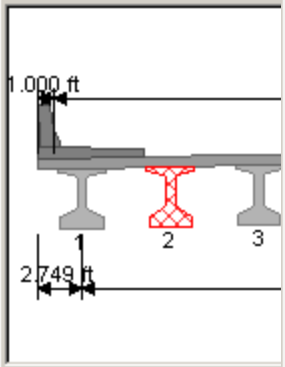
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders: 15

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)	8-9 (ft)	9-10 (ft)
Ahead	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)	8-9 (ft)	9-10 (ft)
Back	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK | Cancel | Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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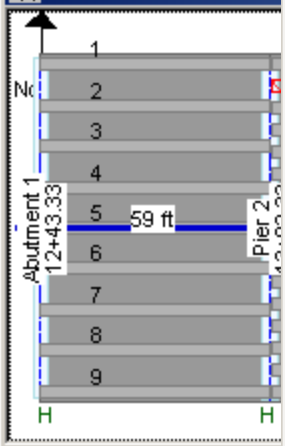
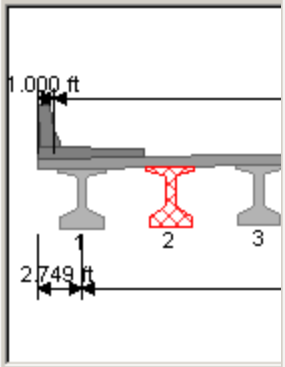
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders: 15

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)	8-9 (ft)	9-10 (ft)
Ahead	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)	8-9 (ft)	9-10 (ft)
Back	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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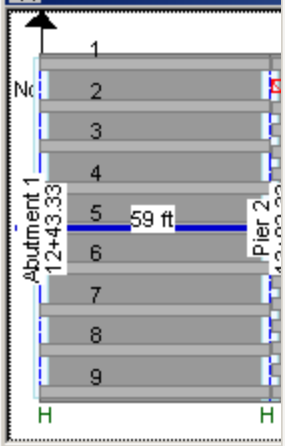
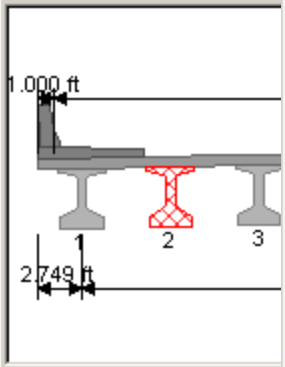
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders 15

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)	8-	0 (ft)
Ahead	5.589	5.589	5.589	5.589	5.589		5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000	or more

Expand
Join

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-5 (ft)	5-6 (ft)	6-7 (ft)	7-8 (ft)	8-9 (ft)	9-10 (ft)
Back	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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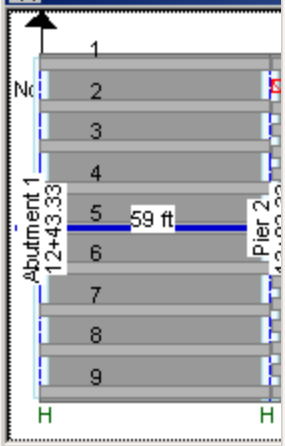
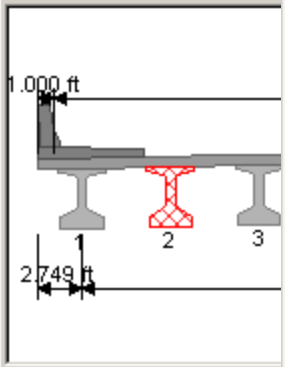
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders: 15

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-10 (ft)	10-11 (ft)	11-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Ahead	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-10 (ft)	10-11 (ft)	11-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Back	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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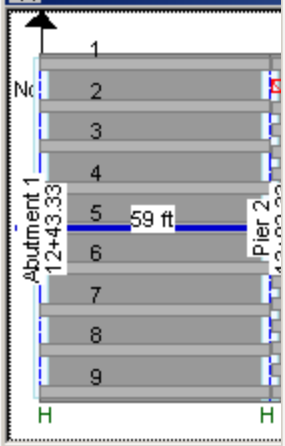
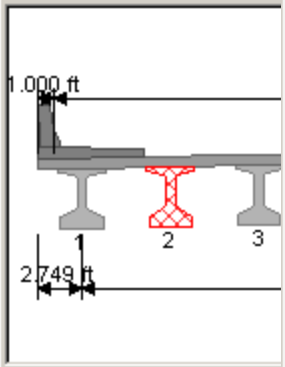
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 15

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-10 (ft)	10-11 (ft)	11-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Ahead	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-10 (ft)	10-11 (ft)	11-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Back	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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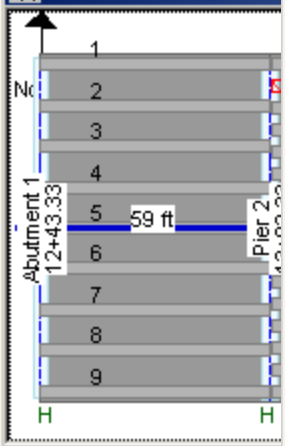
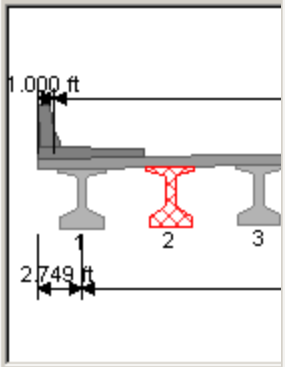
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders 15

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-10 (ft)	10-11 (ft)	11-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Ahead	5.589	5.589		5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Expand
Join

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-10 (ft)	10-11 (ft)	11-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Back	5.589	5.589	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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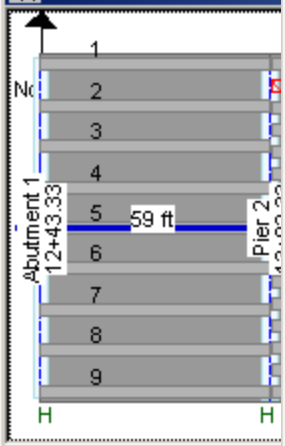
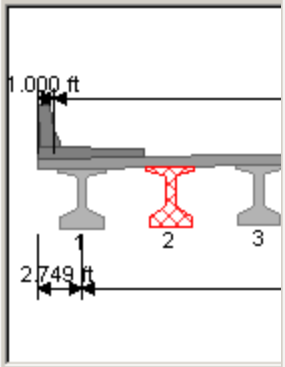
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 15

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Ahead	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Back	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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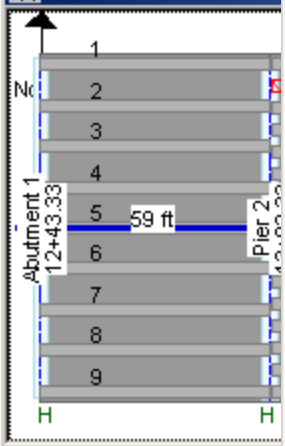
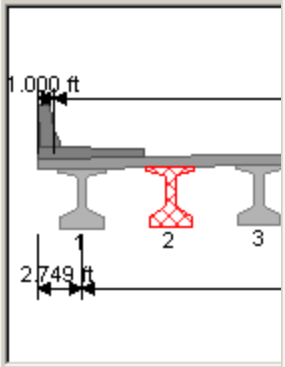
Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders: 15

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Ahead	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Back	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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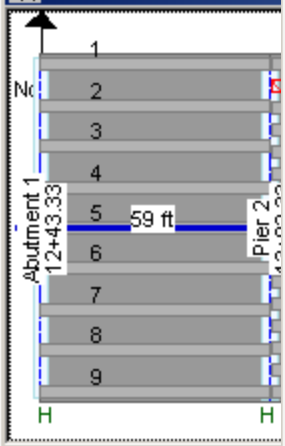
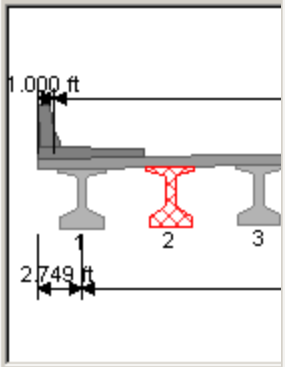
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 15

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-12 (ft)	12-13 (ft)	1	Expand	-15 (ft)
Ahead	5.589	5.589	5.589		Join	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more		3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-13 (ft)	13-14 (ft)	14-15 (ft)
Back	5.589	5.589	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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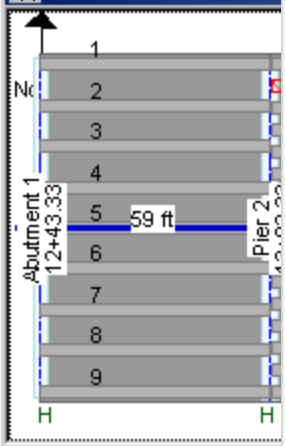
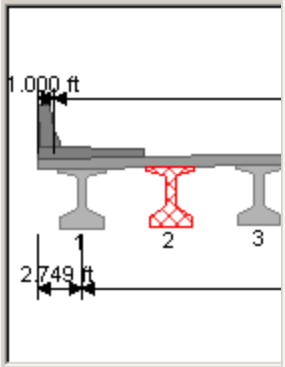
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 15

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-12 (ft)	12-15 (ft)
Ahead	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-15 (ft)
Back	5.589	5.589	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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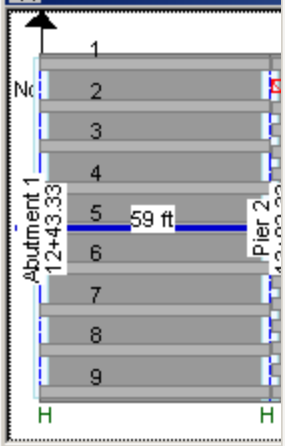
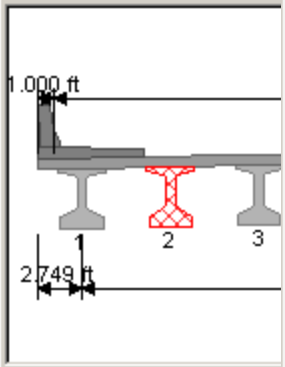
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders 15

The same slab offset is used for the entire bridge

Start of Span 8.000 in End of Span 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-12 (ft)	12-15 (ft)
Ahead	5.589	6.287	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

End of Span Girder Spacing Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-15 (ft)
Back	5.589	6.834	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate Center of Girders 0.000 ft from Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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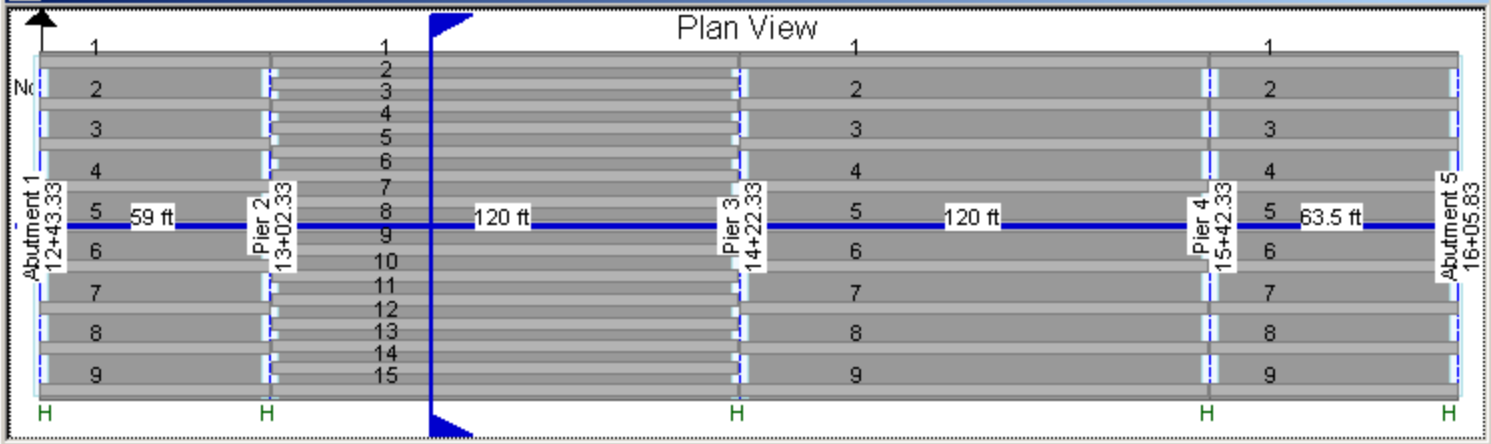
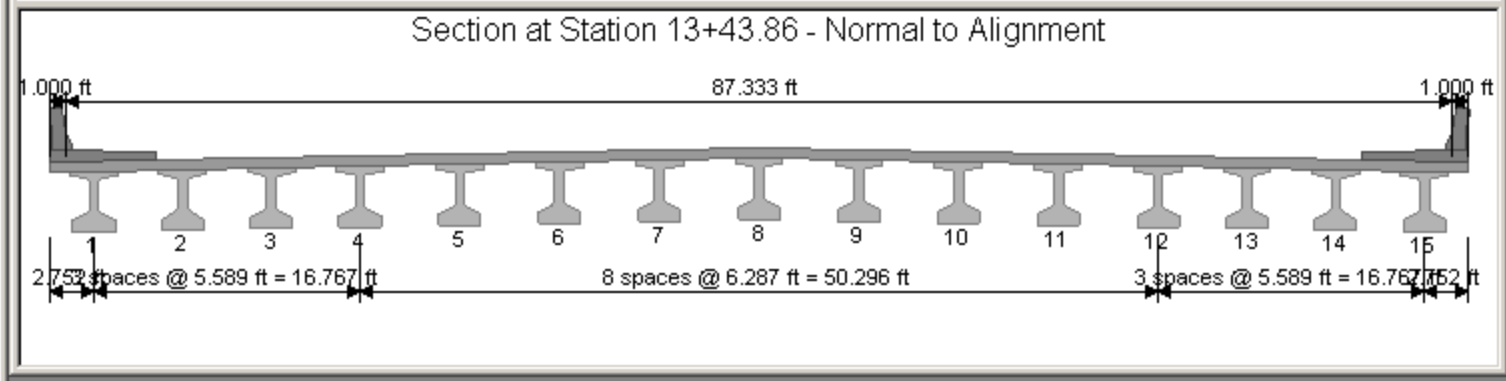
File Edit Project Loads Library Options View Window Help

Bridge Model View





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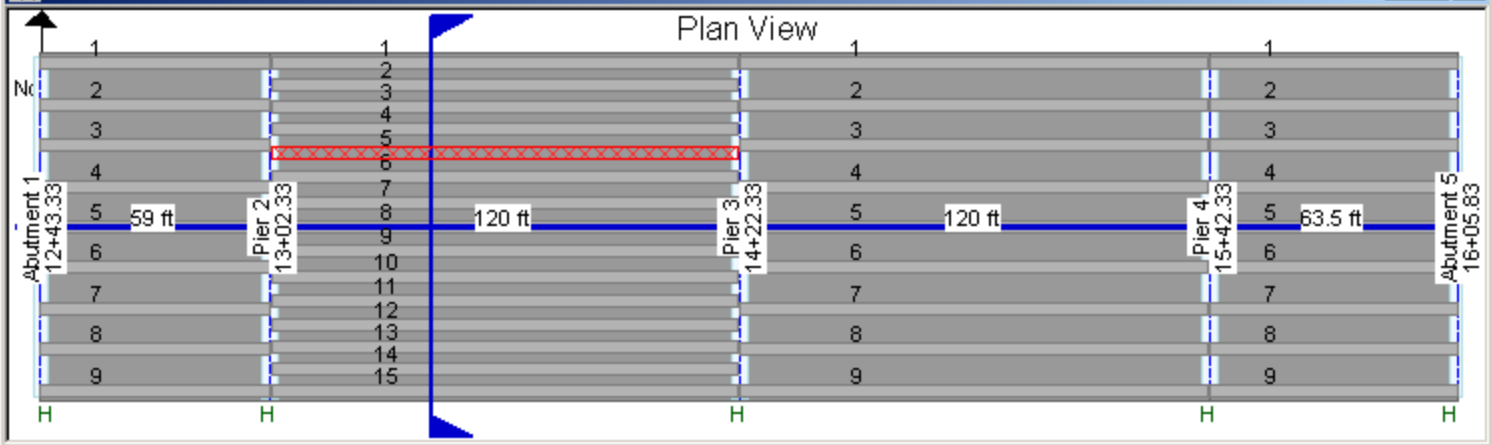
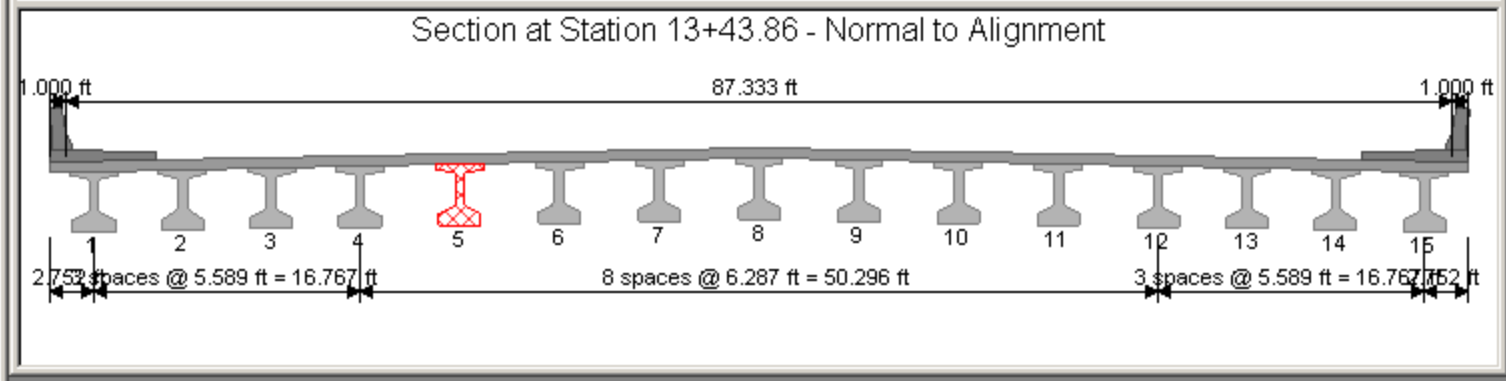
File Edit Project Loads Library Options View Window Help

Bridge Model View





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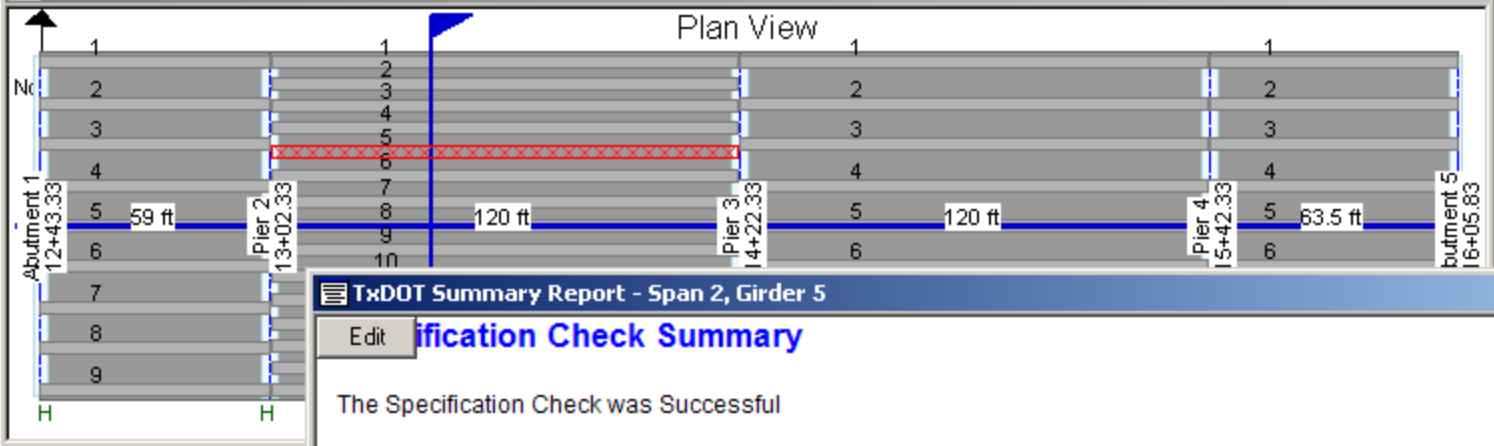
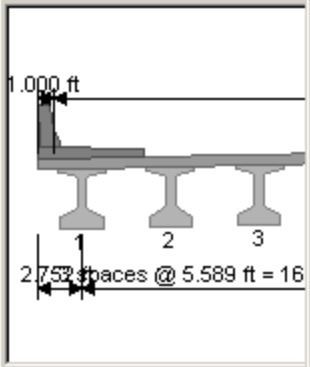
File Edit Project Loads Library Options View Window Help

Bridge Model View





TxDOT Summary Report - Span 2, Girder 5

Edit

ification Check Summary

The Specification Check was Successful

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	5
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	48
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	14.854 in
Eccentricity @ End	7.354 in
Prestressing Strands	**Depressed**
NO. (# of Harped Strands)	12
Y_c of Topmost Depressed Strand(s) @ End	42.500 in

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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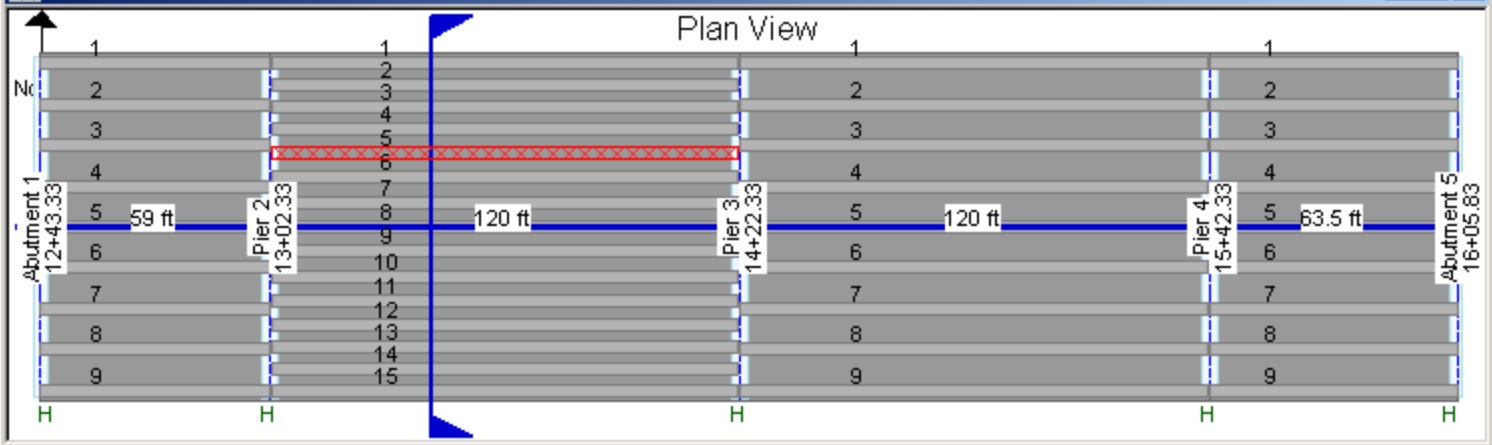
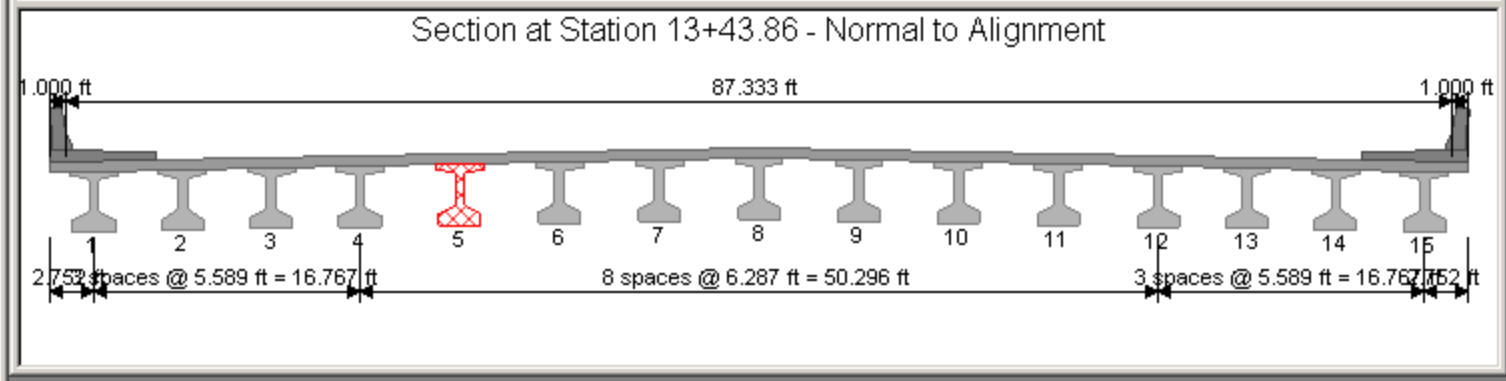
File Edit Project Loads Library Options View Window Help

Bridge Model View





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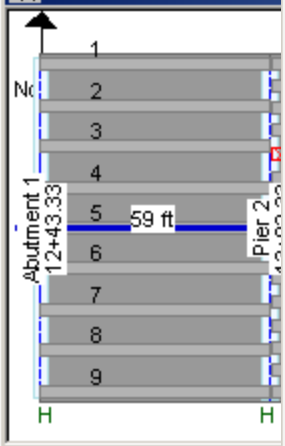
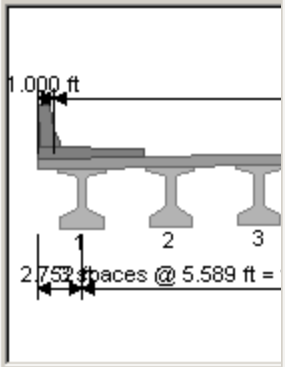
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

Number of Girders: 14

The same slab offset is used for the entire bridge

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-14
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-11 (ft)	11-14 (ft)
Ahead	5.589	7.186	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-11 (ft)	11-14 (ft)
Back	5.589	6.287	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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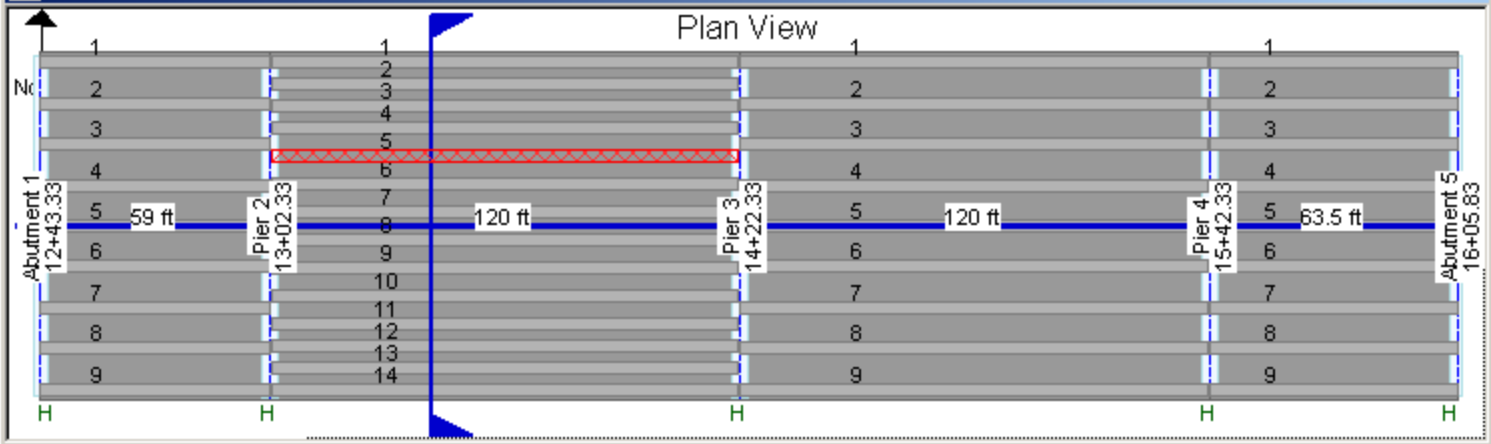
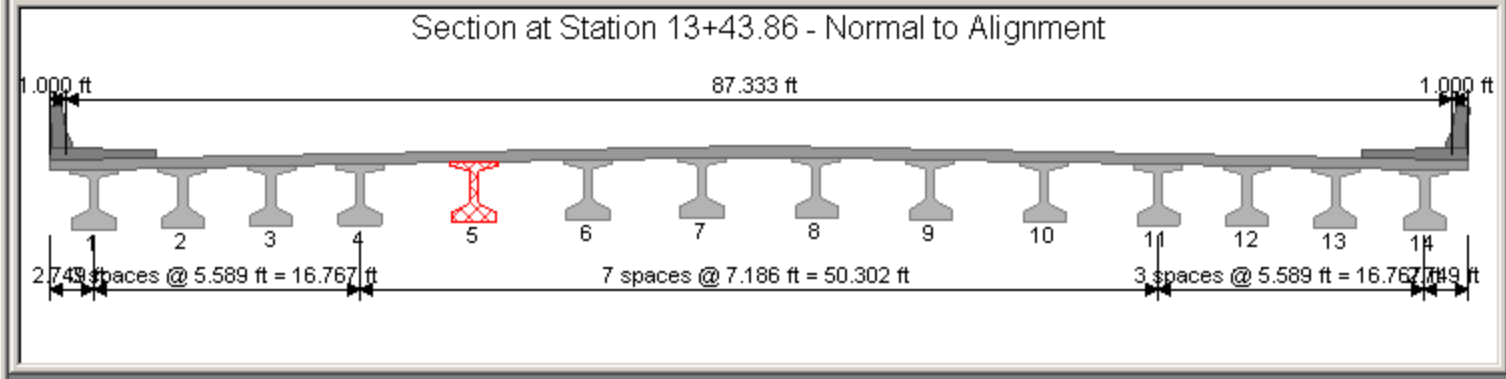
File Edit Project Loads Library Options View Window Help

Bridge Model View





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Bridge Model View

Plan View

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

1.000 ft

2.743 spaces @ 5.589 ft = 16

TxDOT Summary Report - Span 2, Girder 5

Edit

ification Check Summary

The Specification Check Was Not Successful

Compressive stress check failed for Service I for the Superimposed Dead Load Stage (Bridge Site 2).

Girder Summary

Note: A Non-Standard Strand Fill Was Used For This Design

TxDOT Girder Schedule

Span	2
Girder	5
Girder Type	Tx46
Prestressing Strands	**Total**
NO. (N_h + N_s)	48
Size	0.600 in Dia.
Strength	Grade 270 Low Relaxation
Eccentricity @ CL	14.854 in
Eccentricity @ End	7.354 in
Prestressing Strands	**Depressed**

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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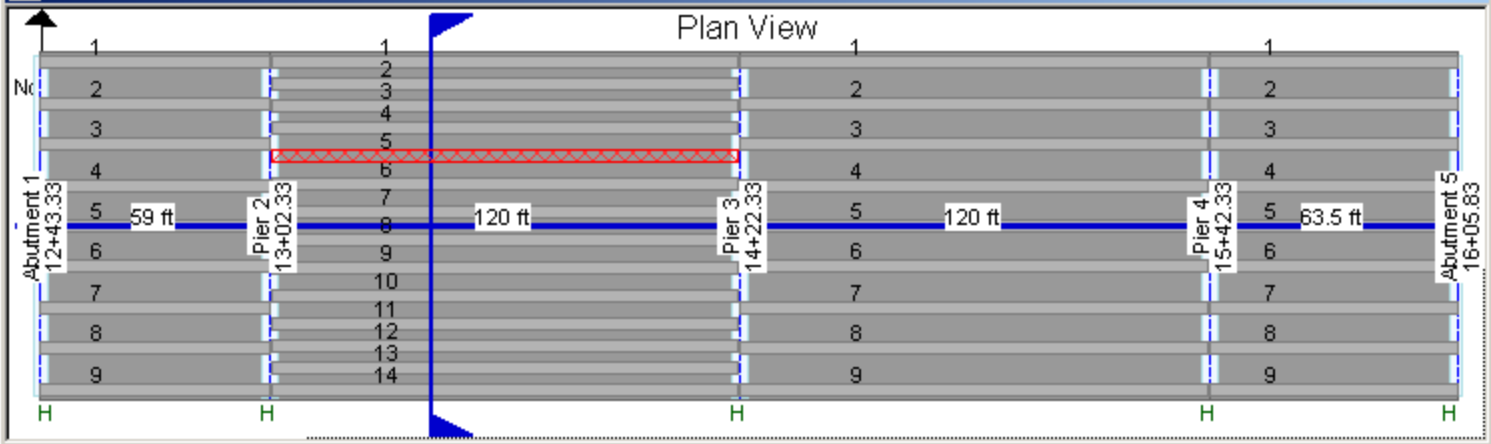
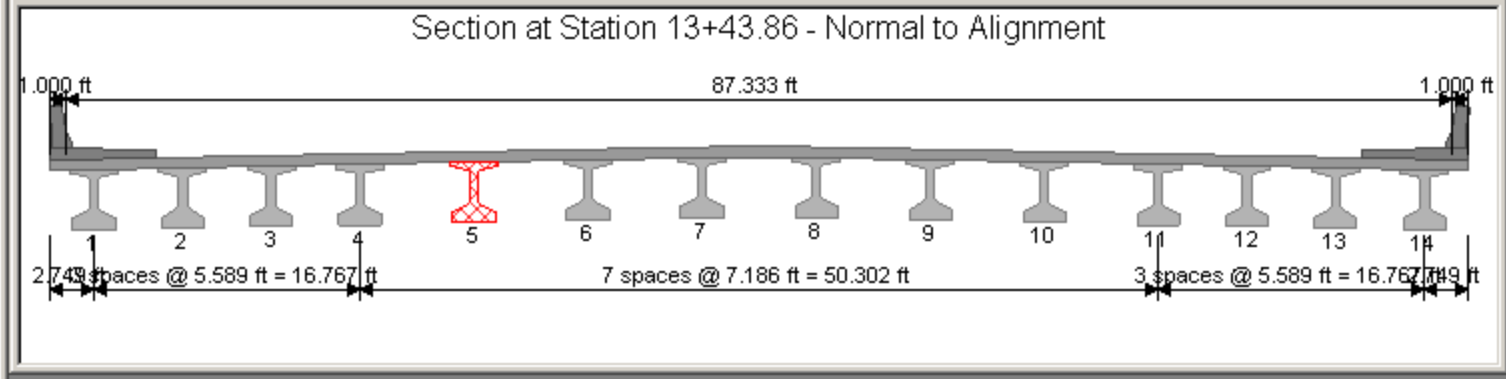
File Edit Project Loads Library Options View Window Help

Bridge Model View





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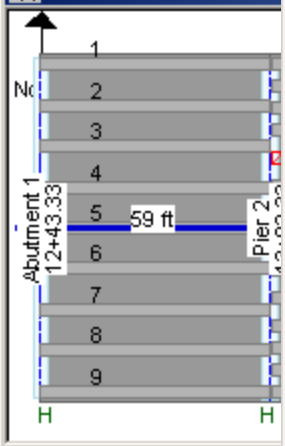
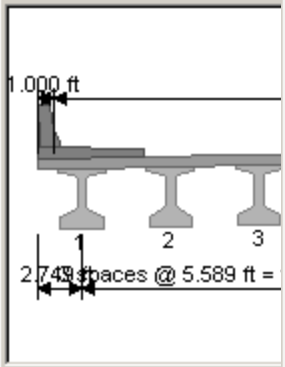
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 2 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders: 15

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 2	1-4 (ft)	4-12 (ft)	12-15 (ft)
Ahead	5.589	6.287	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-15 (ft)
Back	5.589	6.834	5.589
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

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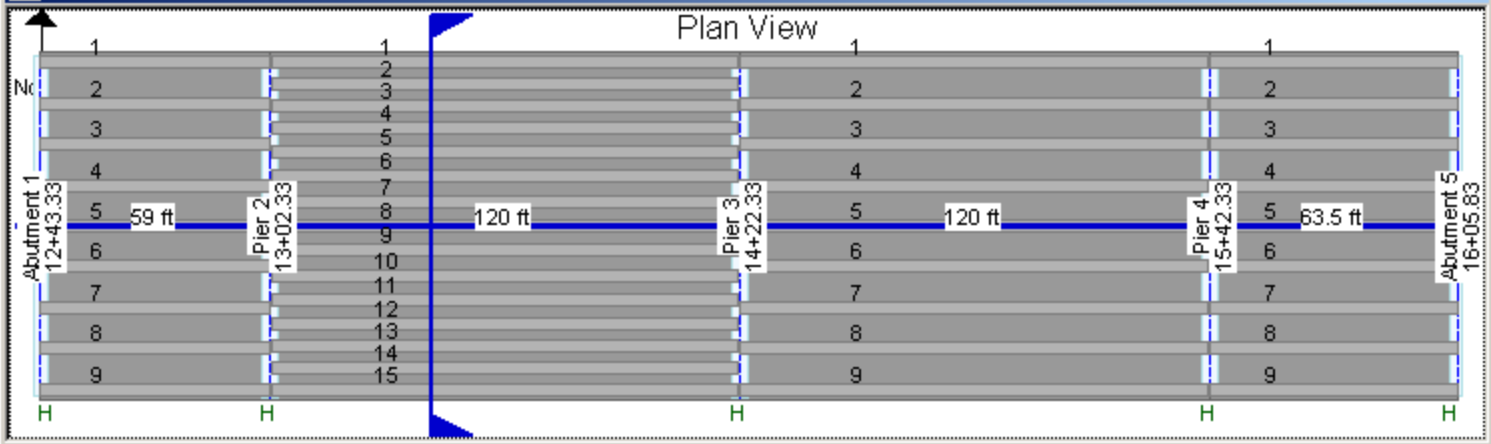
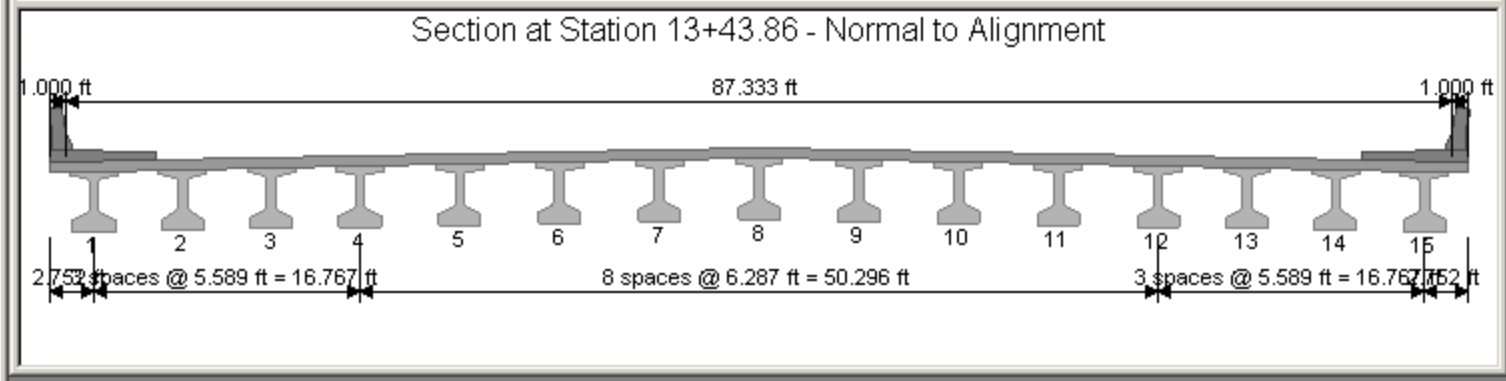
File Edit Project Loads Library Options View Window Help

Bridge Model View





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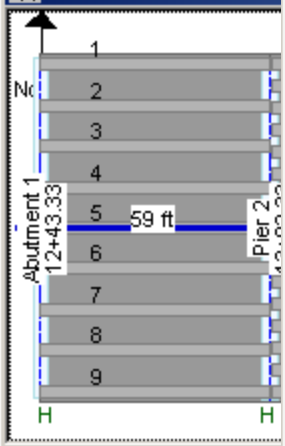
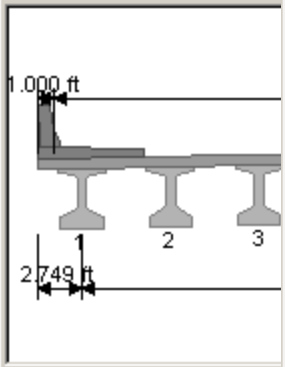
File Edit Project Loads Library Options View Window Help

Bridge Model View





Span 3 Details

General | Connections | Girders

The number of girders is defined span by span

The same slab offset is used for the entire bridge

Number of Girders: 15

Start of Span: 8.000 in End of Span: 8.000 in

This type of girder is used for the entire bridge

Girder	1-15
Name	Tx46

Girder spacing is defined span by span

☑ Use same girder spacing at both ends of span

Start of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 3	1-4 (ft)	4-12 (ft)	12-15 (ft)
Ahead	5.589	6.287	5.587
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

End of Span Girder Spacing: Measured normal to alignment at CL pier

Pier 4	1-4 (ft)	4-12 (ft)	12-15 (ft)
Back	5.589	6.287	5.587
Allowable	3.000 or more	3.000 or more	3.000 or more

Locate: Center of Girders 0.000 ft from: Bridge Line

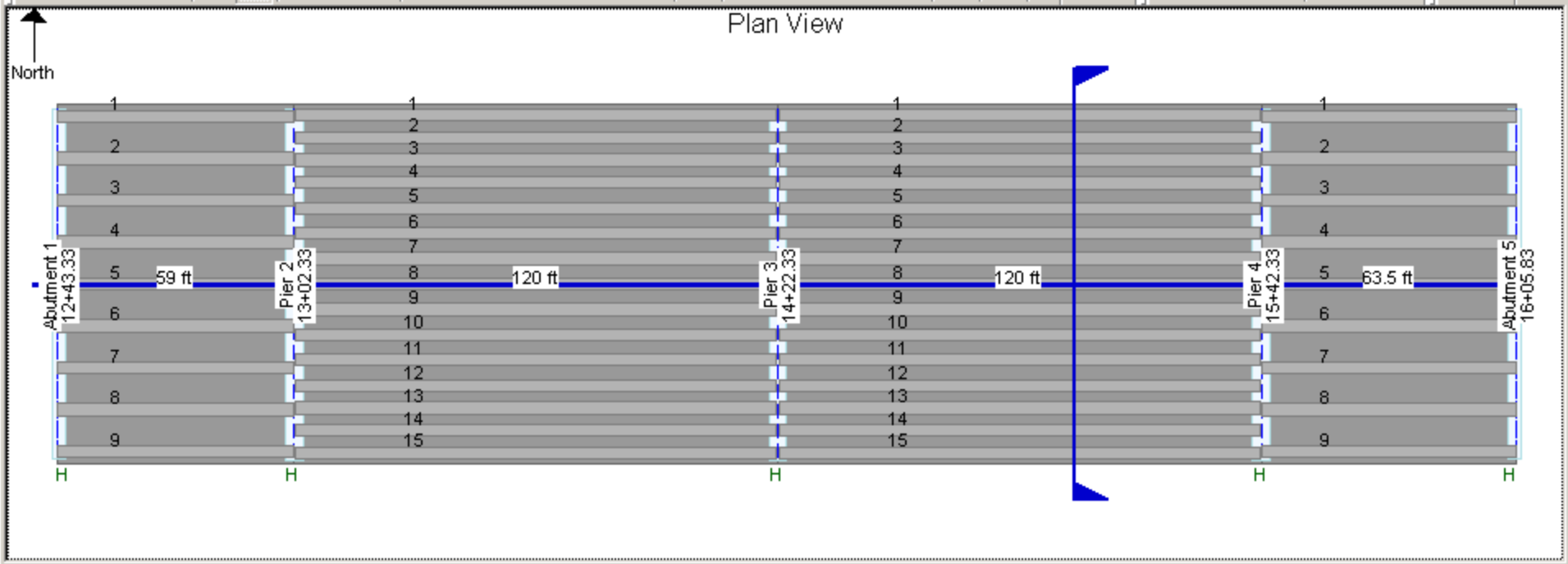
OK Cancel Help

For Help, press F1 Simple Span 0 Modified AutoCalc : Off NUM

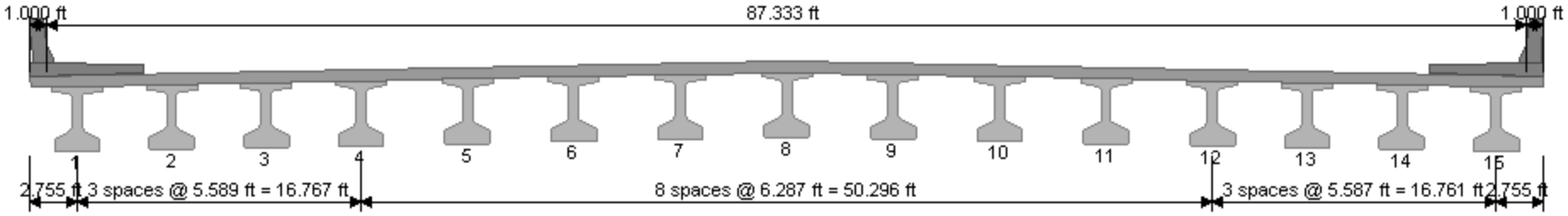
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment

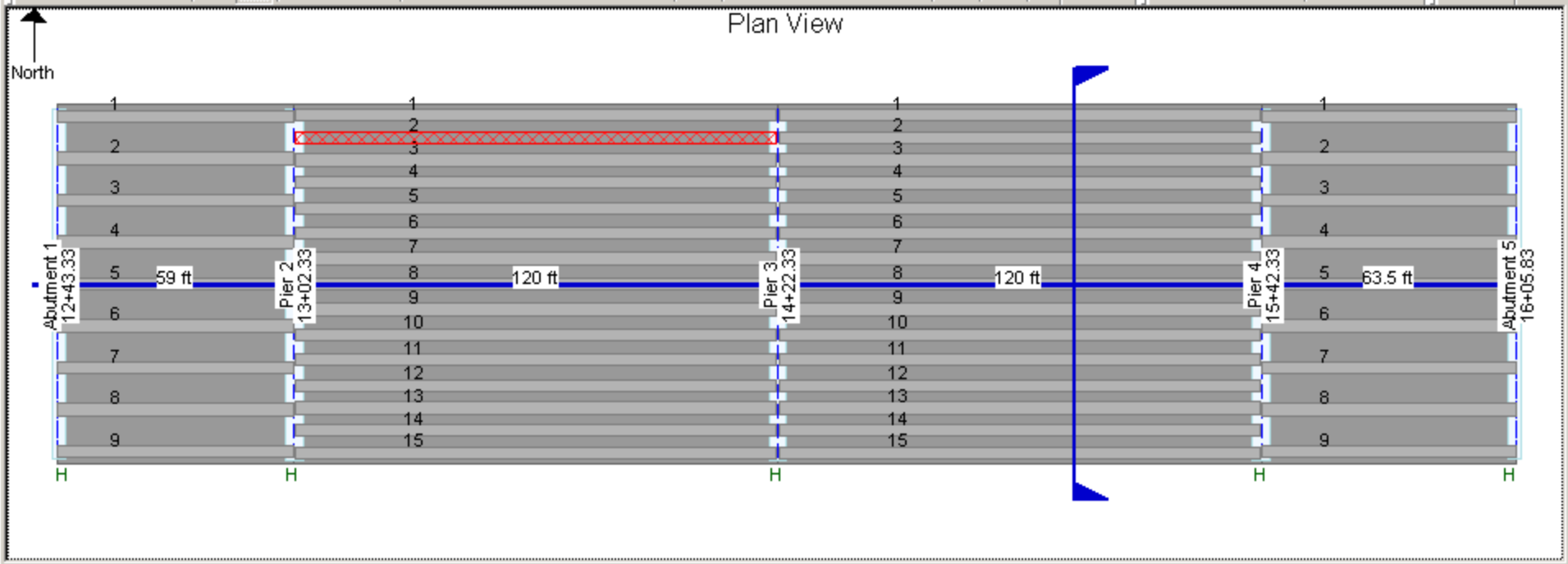


For Help, press F1 Simple Span 0 AutoCalc : Off NUM

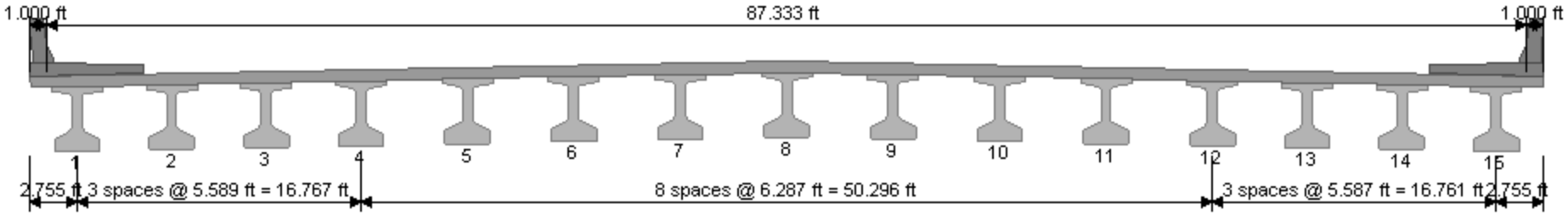
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment



For Help, press F1 Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Copy Girder Properties

Select Source Girder and Target Girder(s)

Copy Properties From:		To:	
Span 2	Girder 2	Span 3	All Girders

Select Properties to be Copied:

- [ ] Copy Girder Type
- [x] Copy Concrete Material Properties
- [x] Copy Prestressing
- [x] Copy Longitudinal Reinforcement
- [x] Copy Transverse Reinforcement
- [x] Copy Handling Locations
- [ ] Copy Slab Offset ("A" Dimension)

Help | Copy Now | Close

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

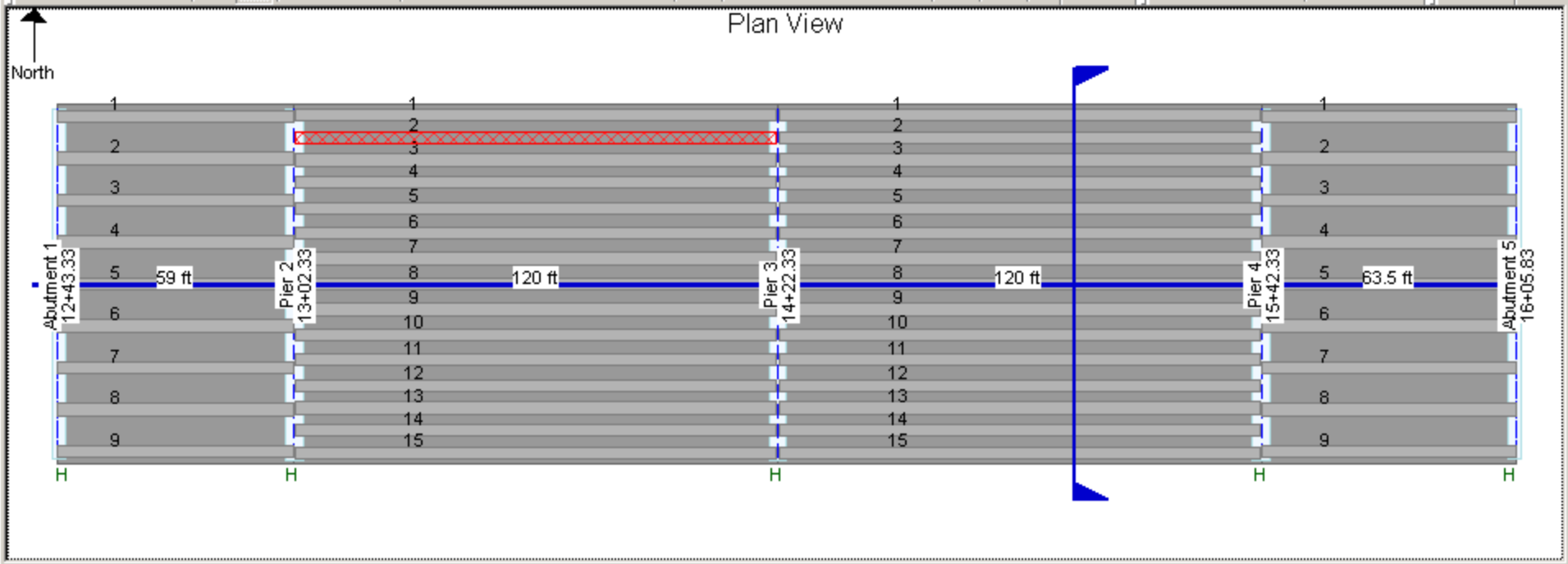
3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

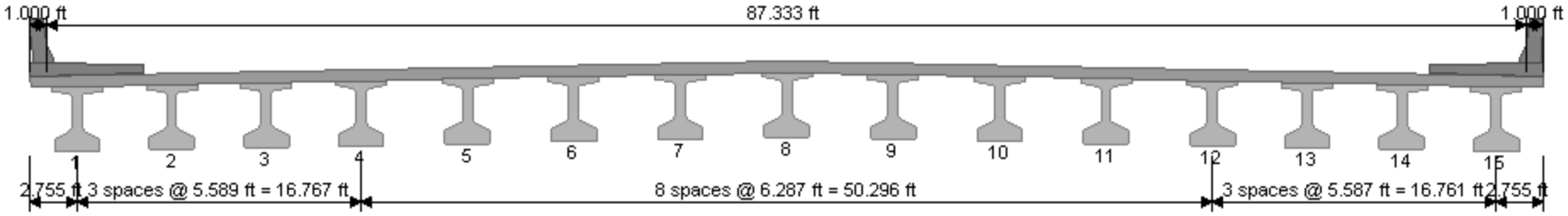
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment

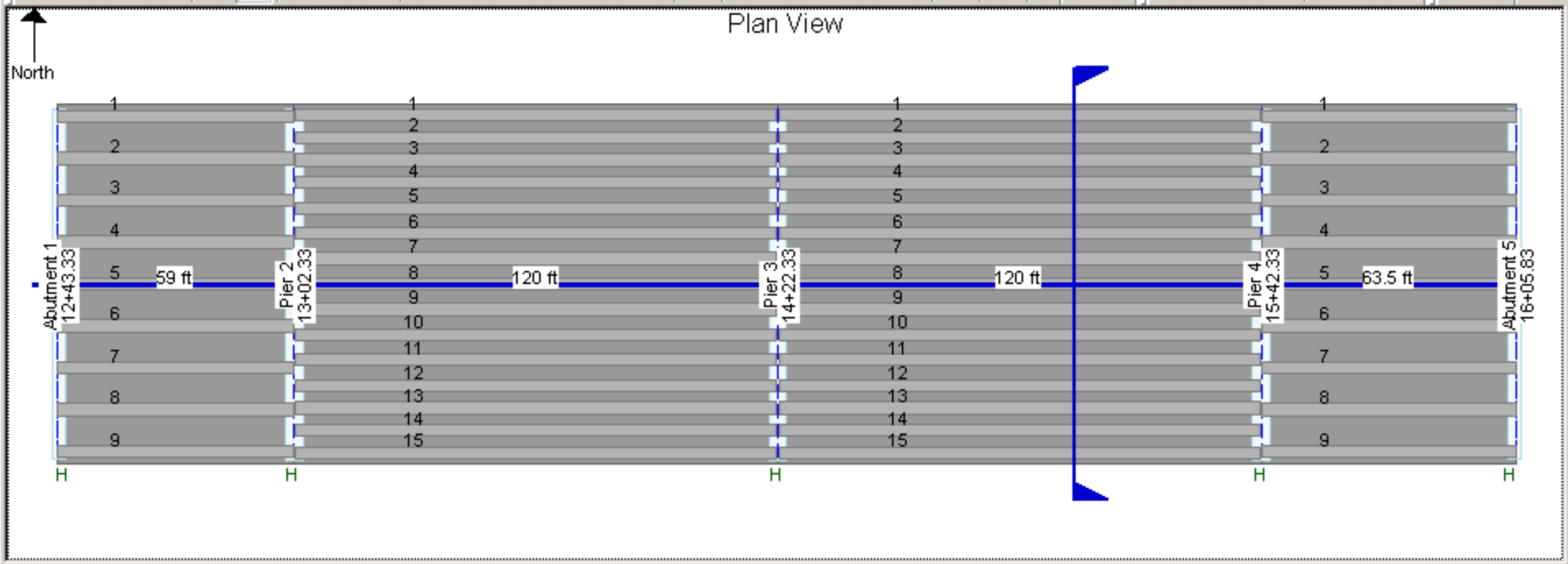


For Help, press F1 Simple Span 0 AutoCalc : Off NUM

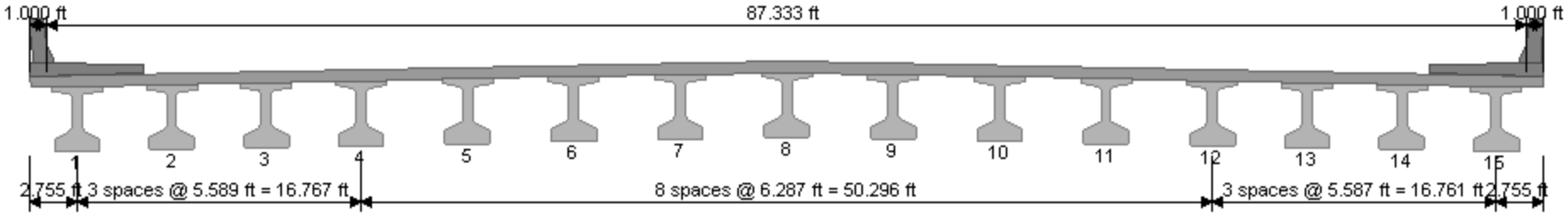
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment



For Help, press F1 Simple Span 0 AutoCalc : Off NUM

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File Edit Project Loads Library Options View Window Help

- New Ctrl+N
- Open... Ctrl+O
- Close
- Save Ctrl+S
- Save As...
- Save As Template...
- Import
- Export
  - TxDOT CAD Data...
- Get Library Entries...
- Project Properties...
- Print... Ctrl+P
- Print Setup...
- E-mail project to someone...
- 1 U:\PGSuper\BellaBlvd.pgs
- 2 PrairieDog.pgs
- 3 PrairieDog.pgs
- 4 PrairieDog.pgs
- Exit

Plan View

120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Section at Station 14+96.23 - Normal to Alignment

1.000 ft | 87.333 ft | 1.000 ft

2.755 ft | 3 spaces @ 5.589 ft = 16.767 ft | 8 spaces @ 6.287 ft = 50.296 ft | 3 spaces @ 5.587 ft = 16.761 ft | 2.755 ft

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Export TxDOT CAD Data

Select a Girder

Span 1 | Girder 1

☐ Generate extended data for TxDOT testing

OK | Cancel

1.000 ft | 87.333 ft | 1.000 ft

2.755 ft | 3 spaces @ 5.589 ft = 16.767 ft | 8 spaces @ 6.287 ft = 50.296 ft | 3 spaces @ 5.587 ft = 16.761 ft | 2.755 ft

For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Export TxDOT CAD Data

Select a Girder

Span 1

Girder 1

Girder 1
Girder 2
Girder 3
Girder 4
Girder 5
Girder 6
Girder 7
Girder 8

Generate extended dat

OK

1.000 ft

87.333 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Export TxDOT CAD Data

Select a Girder

Span 1 | Girder 2

☐ Generate extended data for TxDOT testing

OK | Cancel

1.000 ft | 87.333 ft | 1.000 ft

2.755 ft | 3 spaces @ 5.589 ft = 16.767 ft | 8 spaces @ 6.287 ft = 50.296 ft | 3 spaces @ 5.587 ft = 16.761 ft | 2.755 ft

For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Save As

Save in: PGSuper

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

File name: CADexport.txt

Save as type: CAD Export Files (*.txt)

Save

Cancel

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1

Simple Span 0

AutoCalc : Off

NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Save As

Save in: PGSuper

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

File name: BellaCAD_1.txt

Save as type: CAD Export Files (*.txt)

Save

Cancel

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Progress

Computing Bridge Site 3 Service III Tension stresses for Span 1 Girder 2 at 23.4 ft from start of girder

1.000 ft | 87.333 ft | 1.000 ft

2.755 ft | 3 spaces @ 5.589 ft = 16.767 ft | 8 spaces @ 6.287 ft = 50.296 ft | 3 spaces @ 5.587 ft = 16.761 ft | 2.755 ft

For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

H H H H

txdotagent

File: u:\PGSuper\BellaCAD_1.txt creation complete.

OK

Section at Station 14+96.23 - Normal to Alignment

1.000 ft 87.333 ft 1.000 ft

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

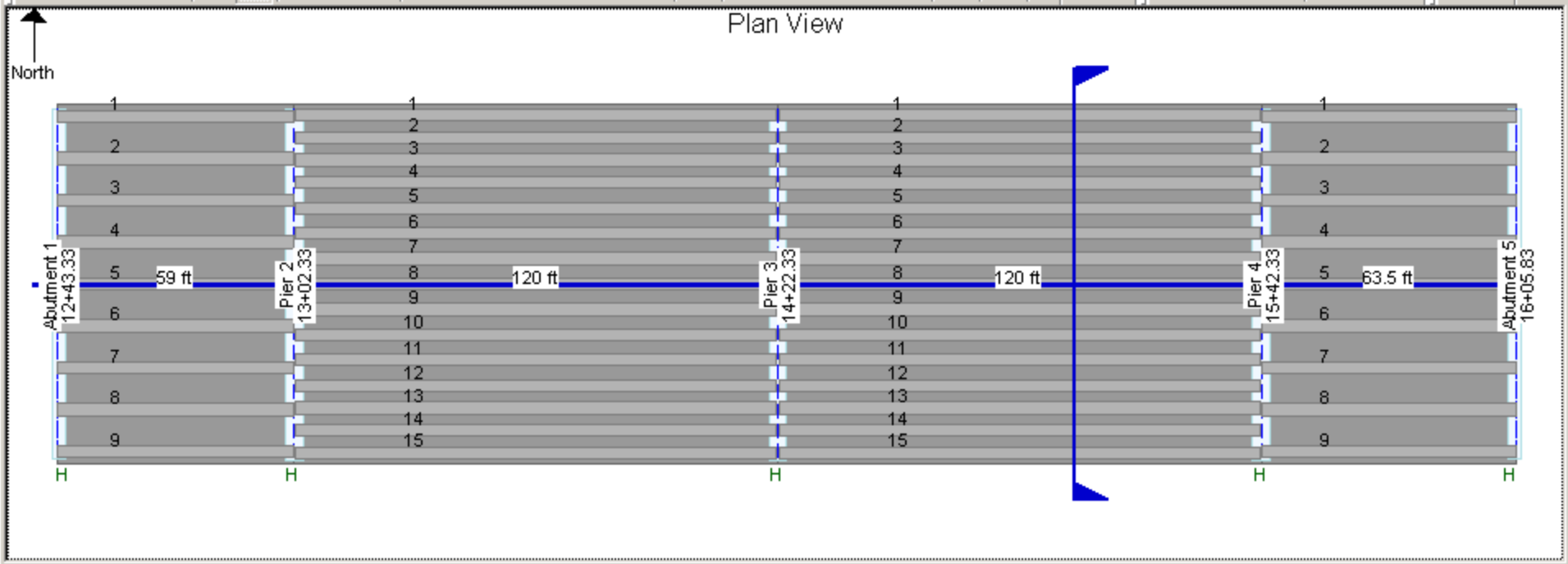
2.755 ft 3 spaces @ 5.589 ft = 16.767 ft 8 spaces @ 6.287 ft = 50.296 ft 3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

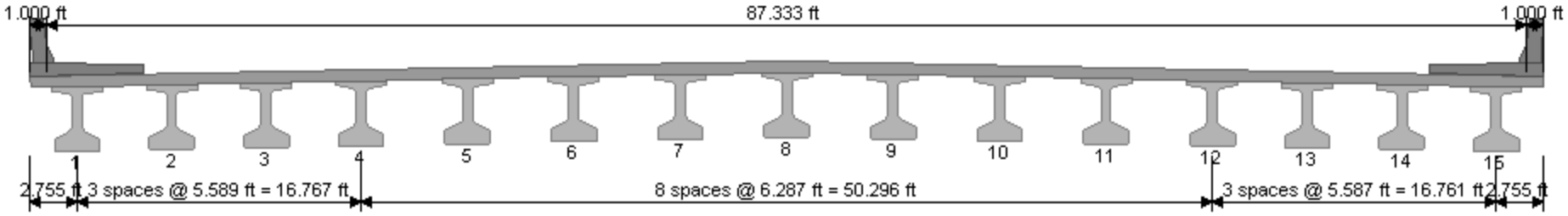
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment

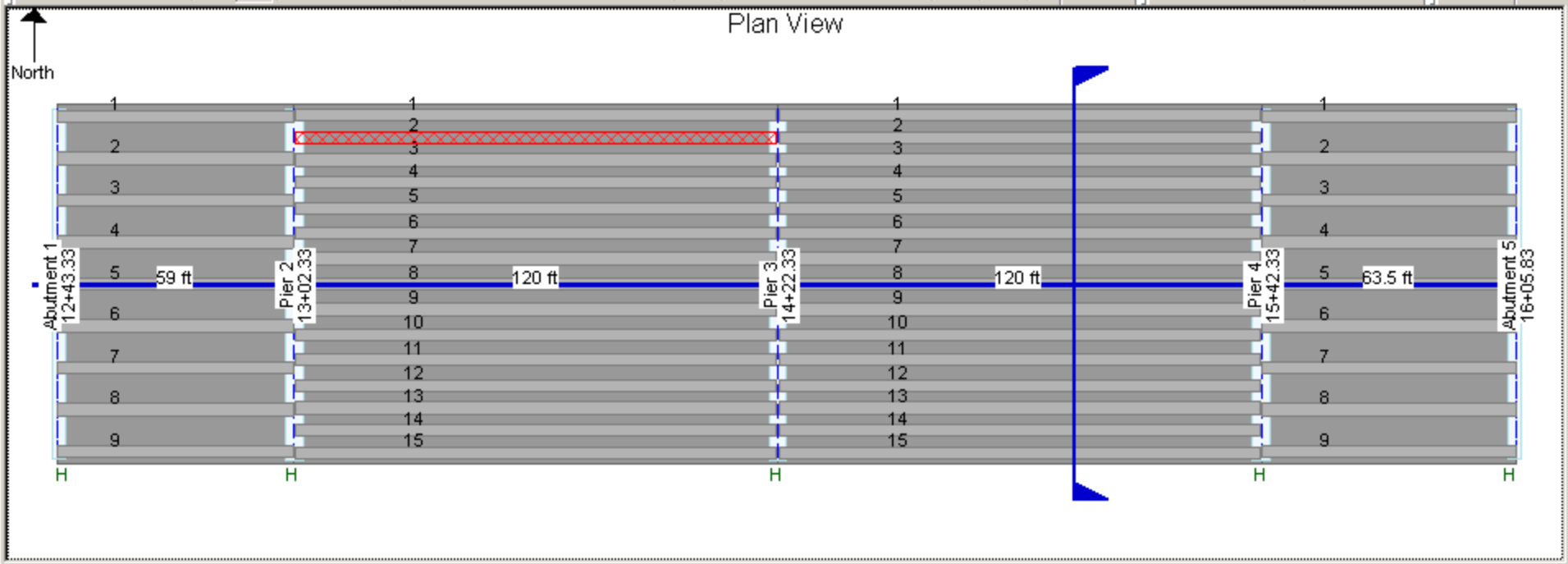


For Help, press F1 Simple Span 0 AutoCalc : Off NUM

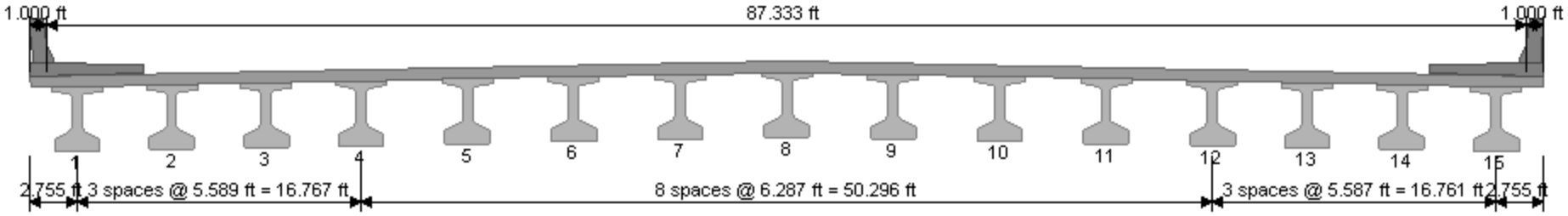
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment



For Help, press F1 Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

- New Ctrl+N
- Open... Ctrl+O
- Close
- Save Ctrl+S
- Save As...
- Save As Template...
- Import
- Export
  - TxDOT CAD Data...
- Get Library Entries...
- Project Properties...
- Print... Ctrl+P
- Print Setup...
- E-mail project to someone...
- 1 BellaBlvd.pgs
- 2 PrairieDog.pgs
- 3 PrairieDog.pgs
- 4 PrairieDog.pgs
- Exit

Plan View

120 ft
Pier 3
14+22.33
120 ft
Pier 4
15+42.33
63.5 ft
Abutment 5
16+05.83

Section at Station 14+96.23 - Normal to Alignment

1.000 ft
87.333 ft
1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft
8 spaces @ 6.287 ft = 50.296 ft
3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33 | 59 ft | Pier 2 13+02.33 | 120 ft | Pier 3 14+22.33 | 120 ft | Pier 4 15+42.33 | 63.5 ft | Abutment 5 16+05.83

Export TxDOT CAD Data

Select a Girder

Span 2 | Girder 2

☐ Generate extended data for TxDOT testing

OK | Cancel

1.000 ft | 87.333 ft | 1.000 ft

2.755 ft | 3 spaces @ 5.589 ft = 16.767 ft | 8 spaces @ 6.287 ft = 50.296 ft | 3 spaces @ 5.587 ft = 16.761 ft | 2.755 ft

For Help, press F1 | Simple Span | 0 | AutoCalc : Off | NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Save As

Save in: PGSuper

BellaCAD_1.txt

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

File name: CADexport.txt

Save as type: CAD Export Files (*.txt)

Save

Cancel

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Save As

Save in: PGSuper

BellaCAD_1.txt

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

File name: BellaCAD_2_2.txt

Save as type: CAD Export Files (*.txt)

Save

Cancel

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

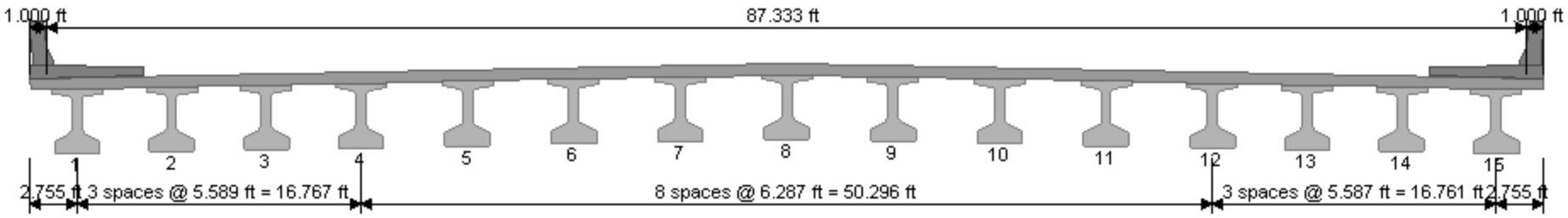
Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Progress

Computing positive moment capacity for Span 2 Girder 2 at 7.042 ft from start of girder



For Help, press F1 Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

120 ft

Pier 3 14+22.33

120 ft

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

H H H H

txdotagent

File: u:\PGSuper\BellaCAD_2_2.txt creation complete.

OK

Section at Station 14+96.23 - Normal to Alignment

1.000 ft 87.333 ft 1.000 ft

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

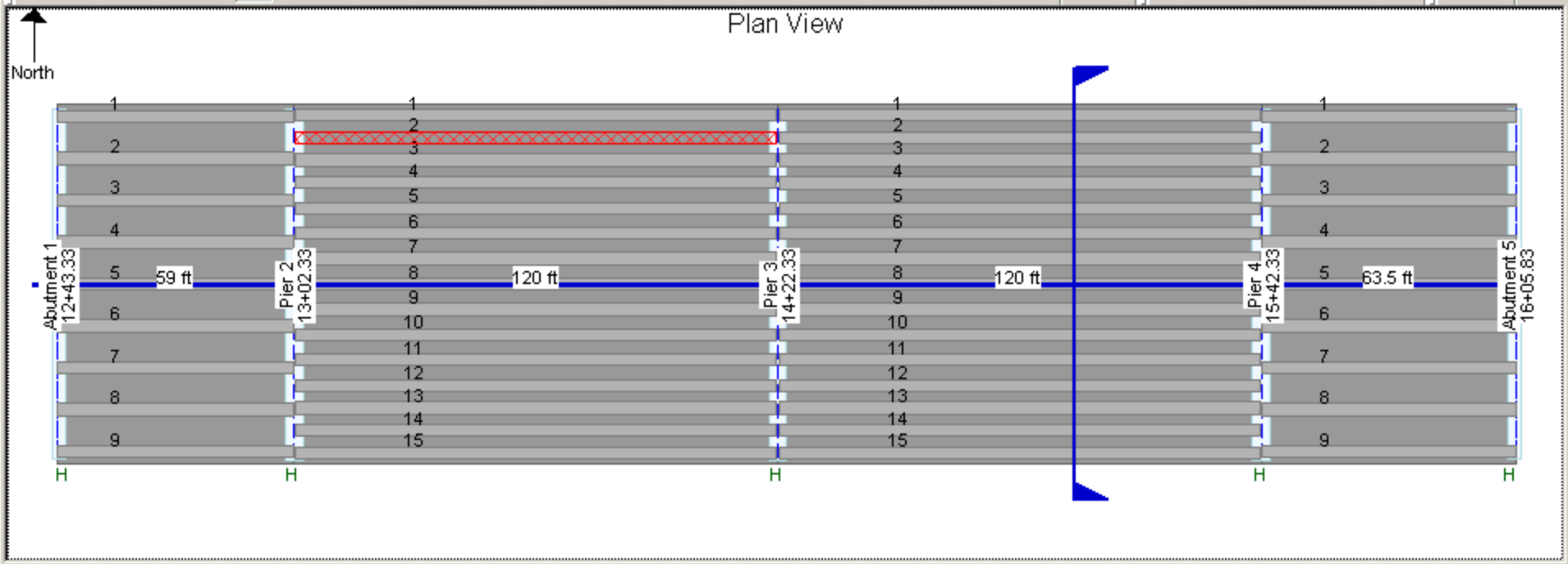
2.755 ft 3 spaces @ 5.589 ft = 16.767 ft 8 spaces @ 6.287 ft = 50.296 ft 3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

For Help, press F1 Simple Span 0 AutoCalc : Off NUM

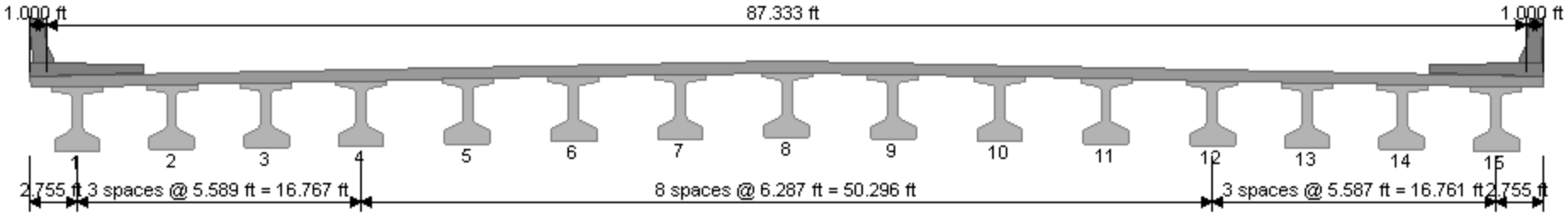
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment

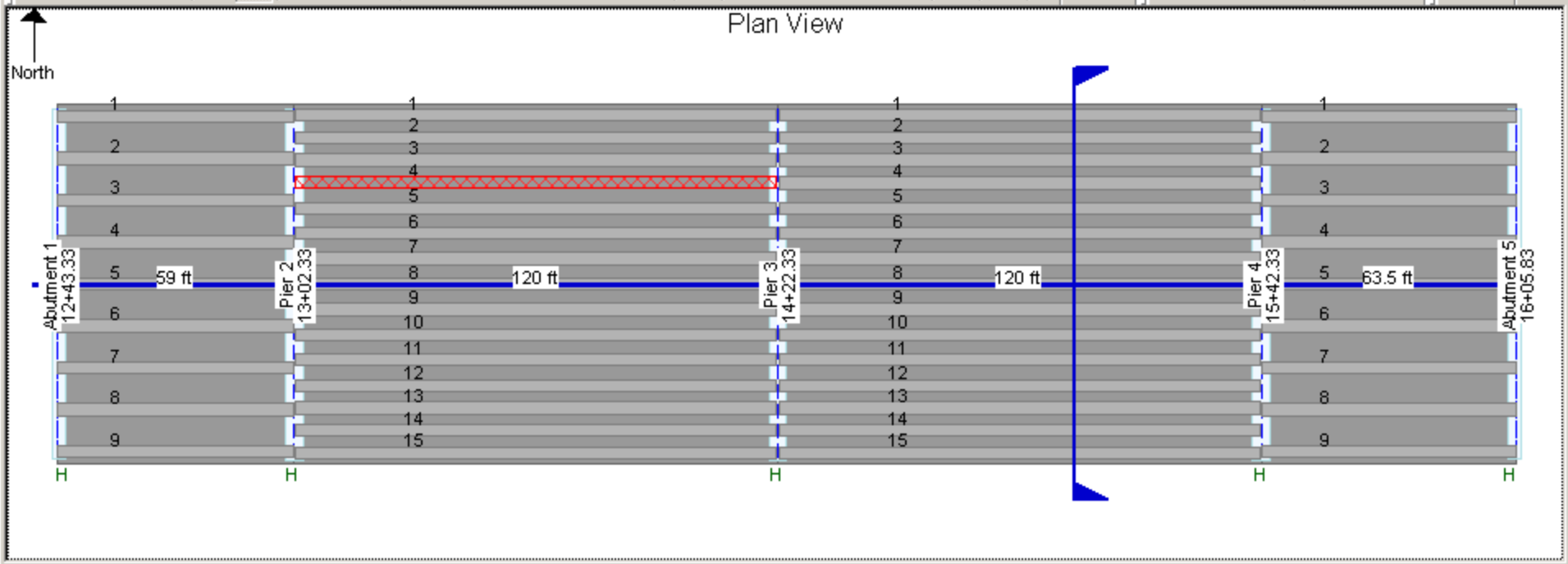


For Help, press F1 Simple Span 0 AutoCalc : Off NUM

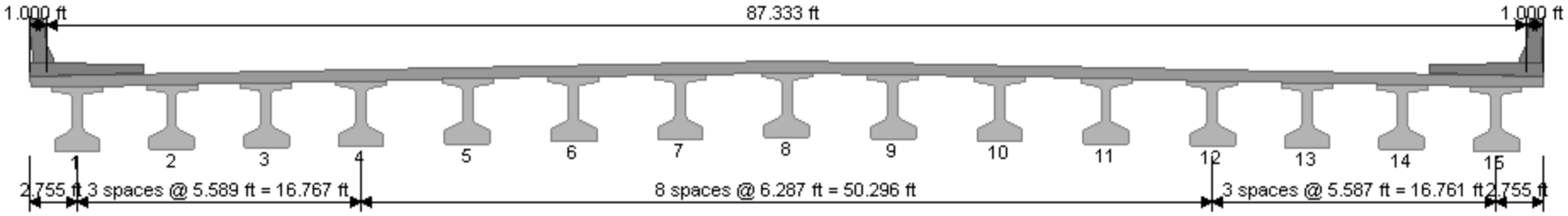
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment



For Help, press F1 Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

- New Ctrl+N
- Open... Ctrl+O
- Close
- Save Ctrl+S
- Save As...
- Save As Template...
- Import
- Export
  - TxDOT CAD Data...
- Get Library Entries...
- Project Properties...
- Print... Ctrl+P
- Print Setup...
- E-mail project to someone...
- 1 BellaBlvd.pgs
- 2 PrairieDog.pgs
- 3 PrairieDog.pgs
- 4 PrairieDog.pgs
- Exit

Plan View

120 ft
Pier 3
14+22.33
120 ft
Pier 4
15+42.33
63.5 ft
Abutment 5
16+05.83

Section at Station 14+96.23 - Normal to Alignment

1.000 ft
87.333 ft
1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft
8 spaces @ 6.287 ft = 50.296 ft
3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

Save As

Save in: PGSuper

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

BellaCAD_1.txt

BellaCAD_2_2.txt

File name: BellaCAD_2_4.txt

Save as type: CAD Export Files (*.txt)

Save

Cancel

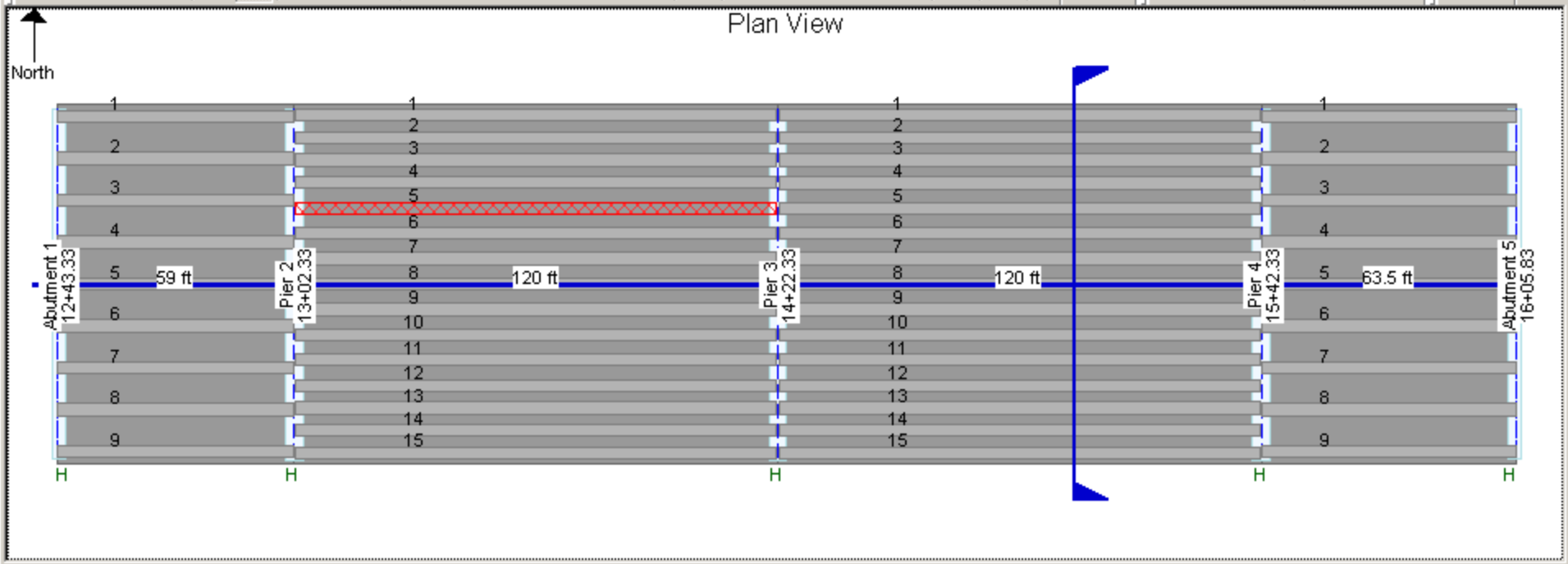
For Help, press F1

Simple Span 0 AutoCalc : Off NUM

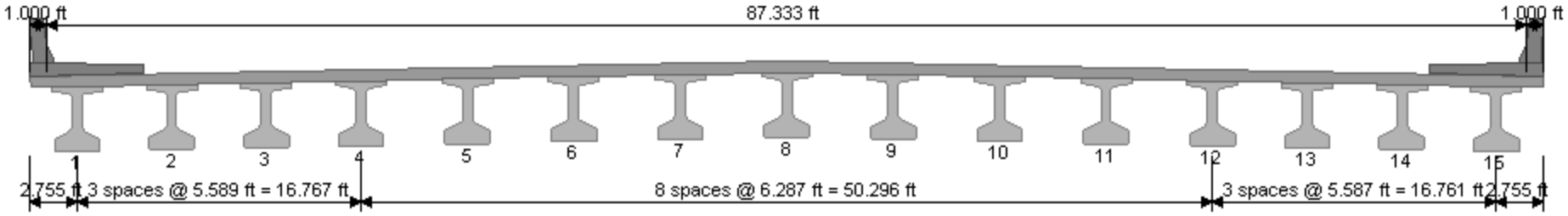
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment



For Help, press F1 Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

- New Ctrl+N
- Open... Ctrl+O
- Close
- Save Ctrl+S
- Save As...
- Save As Template...
- Import
- Export
  - TxDOT CAD Data...
- Get Library Entries...
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- Print Setup...
- E-mail project to someone...
- 1 BellaBlvd.pgs
- 2 PrairieDog.pgs
- 3 PrairieDog.pgs
- 4 PrairieDog.pgs
- Exit

Plan View

120 ft
Pier 3
14+22.33
120 ft
Pier 4
15+42.33
63.5 ft
Abutment 5
16+05.83

Section at Station 14+96.23 - Normal to Alignment

1.000 ft
87.333 ft
1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft
8 spaces @ 6.287 ft = 50.296 ft
3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Save As

Save in: PGSuper

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

BellaCAD_1.txt

BellaCAD_2_2.txt

BellaCAD_2_4.txt

File name: BellaCAD_2_5.txt

Save as type: CAD Export Files (*.txt)

Save

Cancel

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

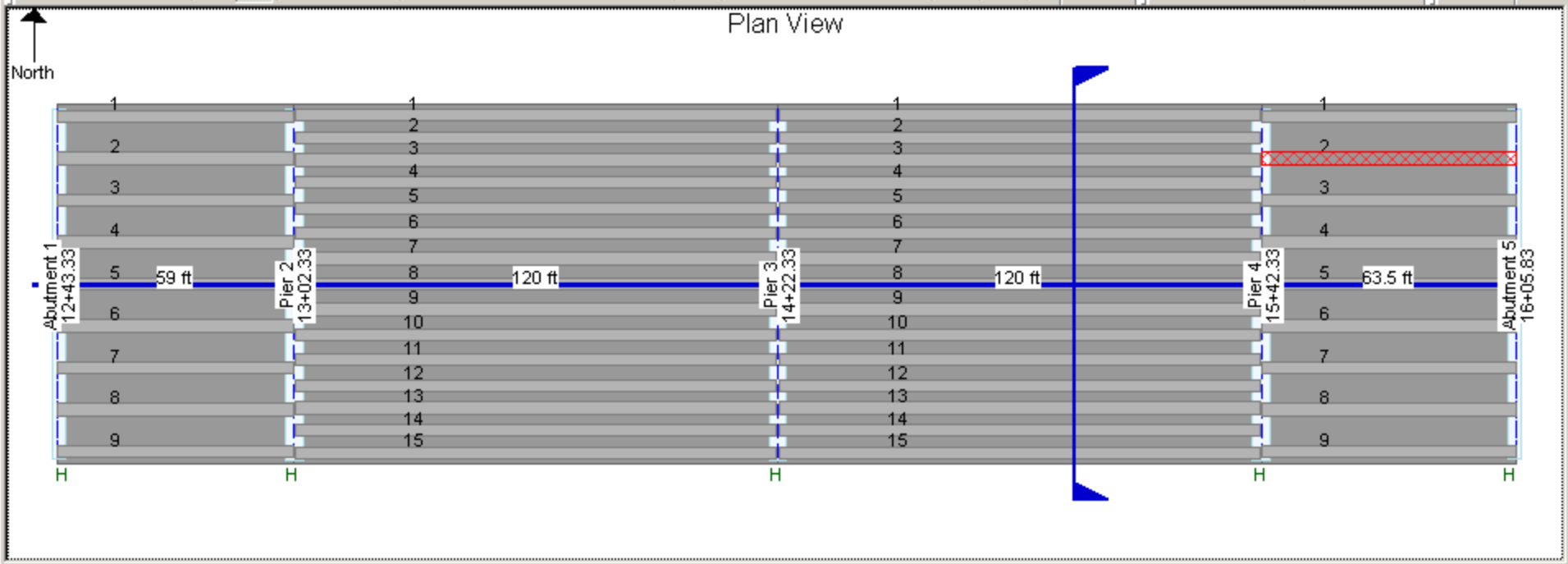
For Help, press F1

Simple Span 0 AutoCalc : Off NUM

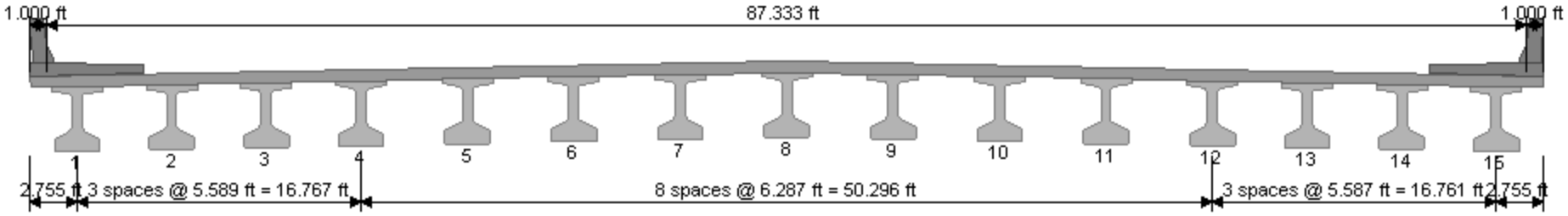
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View



Section at Station 14+96.23 - Normal to Alignment



For Help, press F1 Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

- New Ctrl+N
- Open... Ctrl+O
- Close
- Save Ctrl+S
- Save As...
- Save As Template...
- Import
- Export
  - TxDOT CAD Data...
- Get Library Entries...
- Project Properties...
- Print... Ctrl+P
- Print Setup...
- E-mail project to someone...
- 1 BellaBlvd.pgs
- 2 PrairieDog.pgs
- 3 PrairieDog.pgs
- 4 PrairieDog.pgs
- Exit

Plan View

120 ft
Pier 3
14+22.33
120 ft
Pier 4
15+42.33
63.5 ft
Abutment 5
16+05.83

Section at Station 14+96.23 - Normal to Alignment

1.000 ft
87.333 ft
1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft
8 spaces @ 6.287 ft = 50.296 ft
3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

Simple Span 0 AutoCalc : Off NUM

PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

Plan View

North

Abutment 1 12+43.33

59 ft

Pier 2 13+02.33

Pier 4 15+42.33

63.5 ft

Abutment 5 16+05.83

Save As

Save in: PGSuper

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

BellaCAD_1.txt

BellaCAD_2_2.txt

BellaCAD_2_4.txt

BellaCAD_2_5.txt

File name: BellaCAD_4.txt

Save as type: CAD Export Files (*.txt)

Save

Cancel

1.000 ft

1.000 ft

2.755 ft 3 spaces @ 5.589 ft = 16.767 ft

8 spaces @ 6.287 ft = 50.296 ft

3 spaces @ 5.587 ft = 16.761 ft 2.755 ft

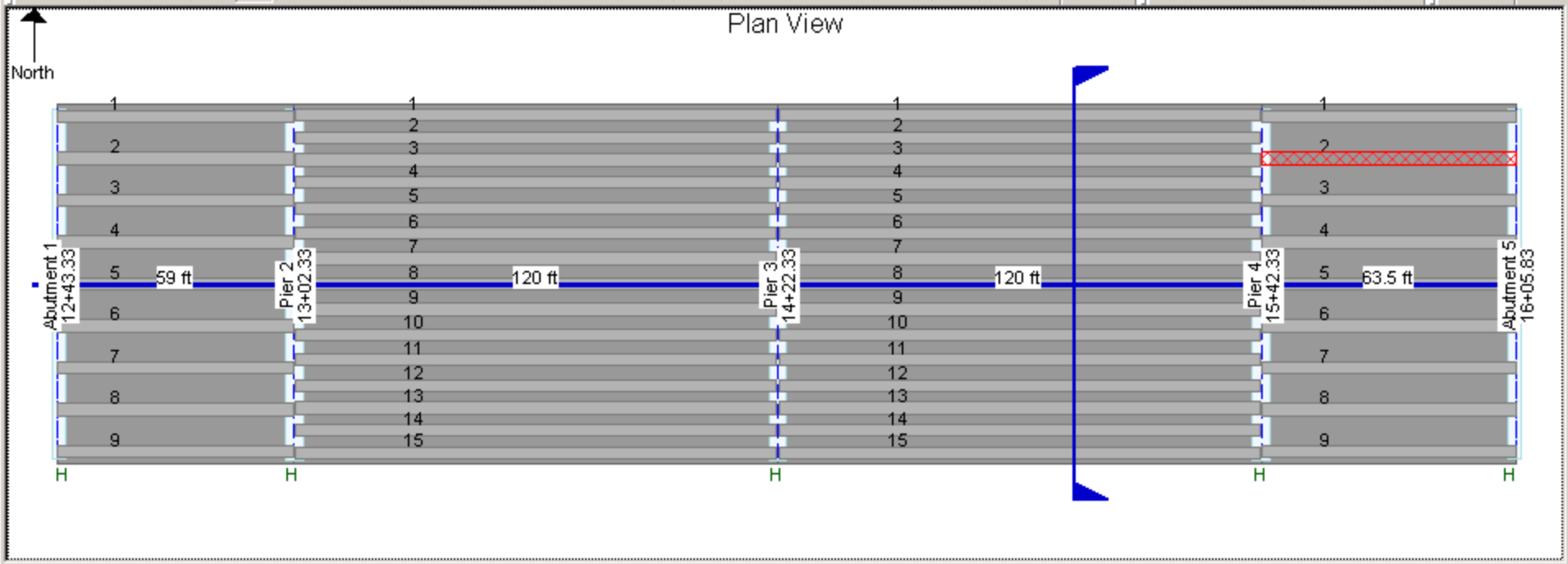
For Help, press F1

Simple Span 0 AutoCalc : Off NUM

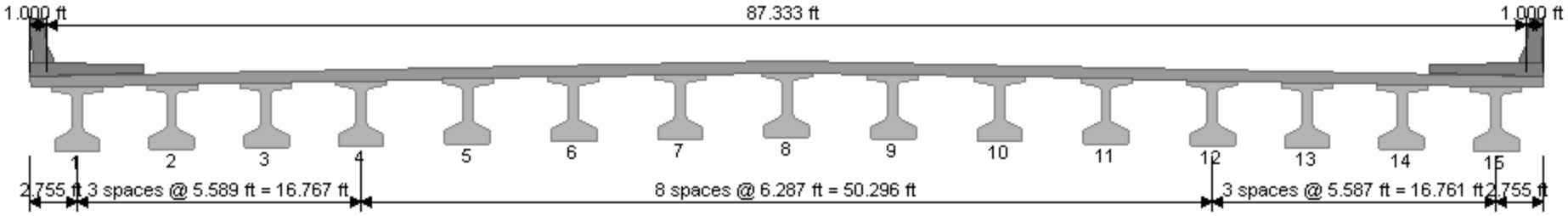
PGSuper - U:\PGSuper\BellaBlvd.pgs - [Bridge Model View]

File Edit Project Loads Library Options View Window Help

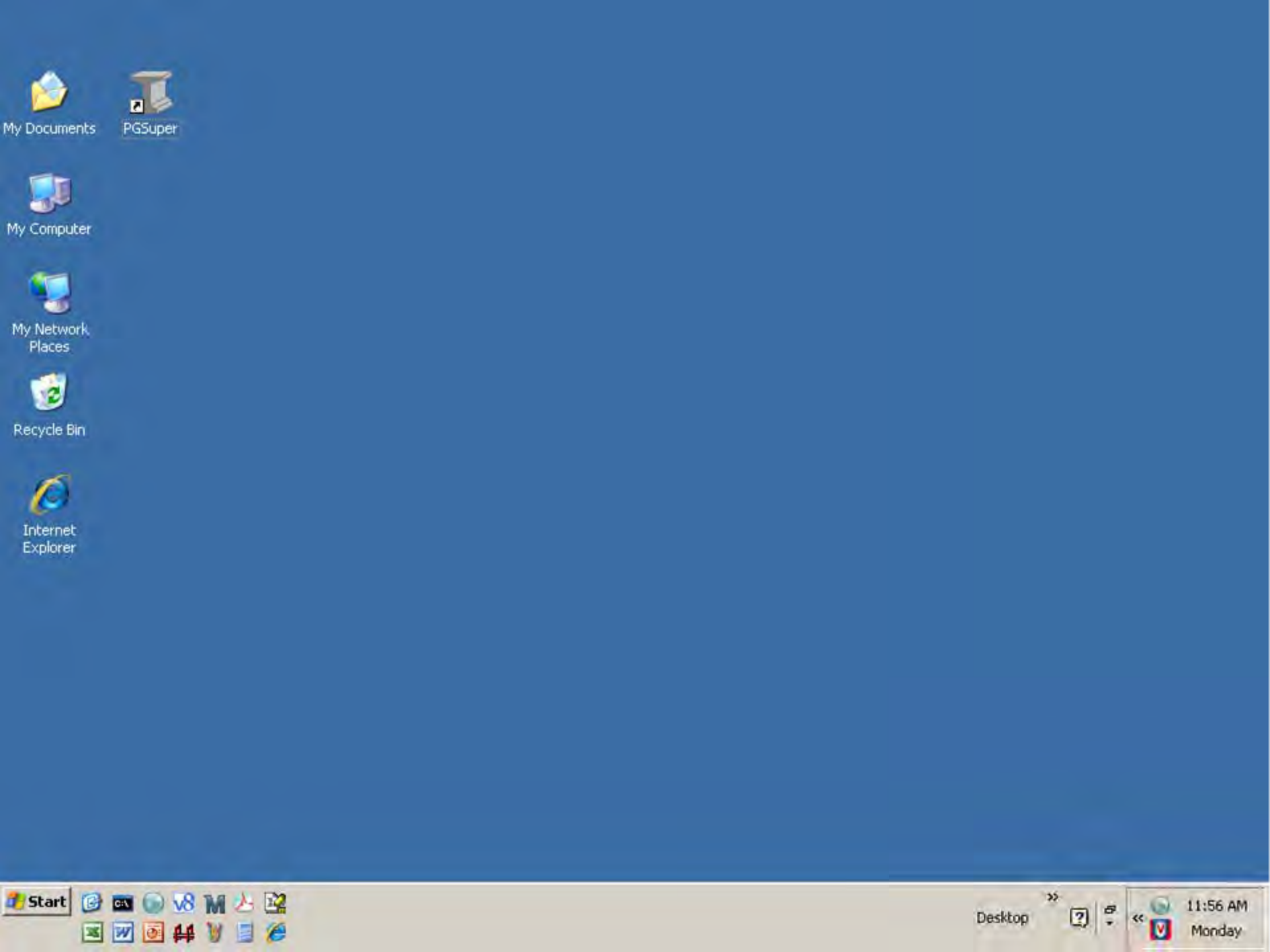
Plan View

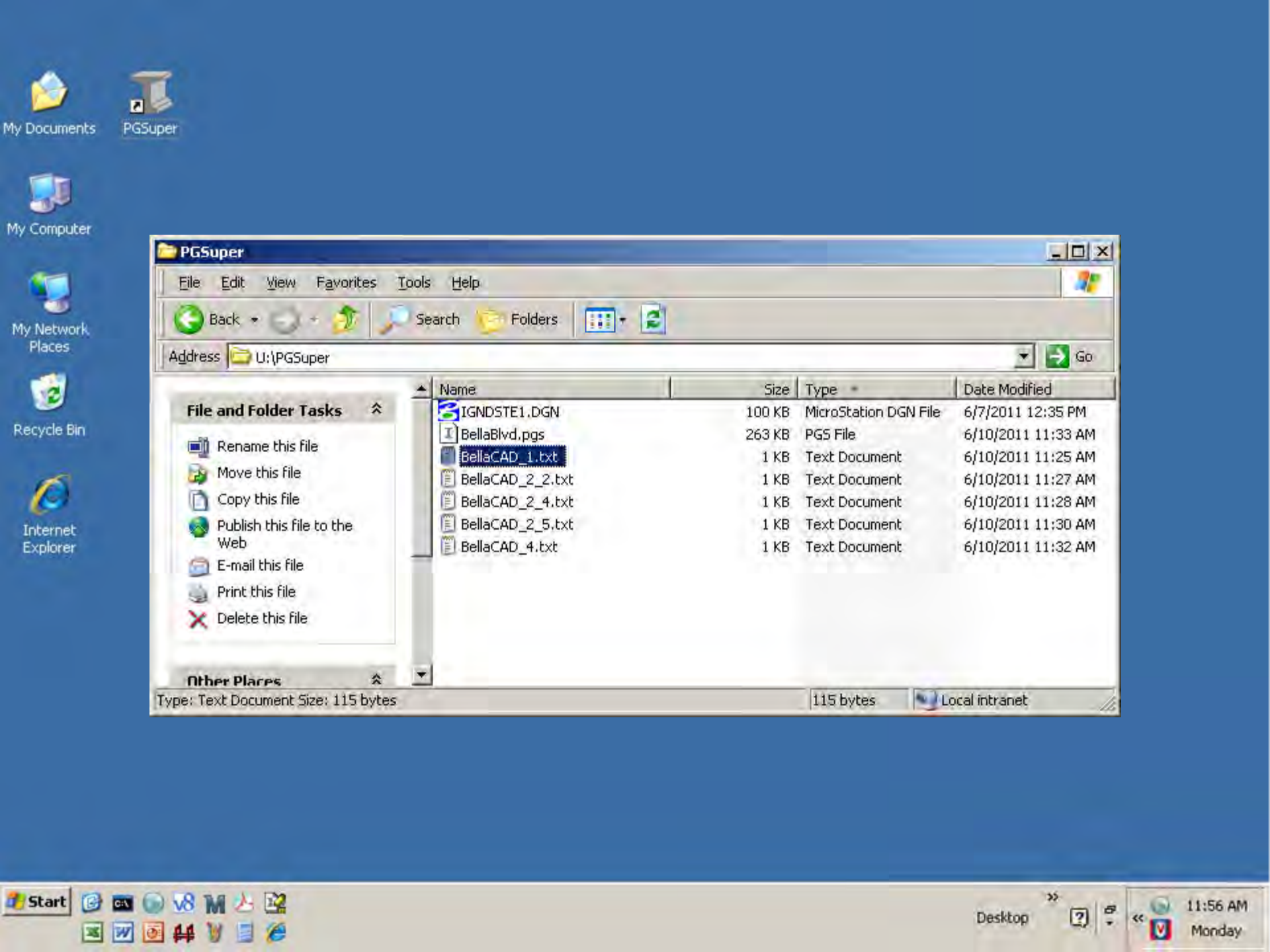


Section at Station 14+96.23 - Normal to Alignment



For Help, press F1 Simple Span 0 AutoCalc : Off NUM


My Documents
PGSuper
My Computer
My Network Places
Recycle Bin
Internet Explorer
Start
Desktop
11:56 AM
Monday


My Documents
PGSuper
My Computer
My Network Places
Recycle Bin
Internet Explorer
PGSuper
File Edit View Favorites Tools Help
Back Search Folders
Address U:\PGSuper
Go
File and Folder Tasks
Rename this file
Move this file
Copy this file
Publish this file to the Web
E-mail this file
Print this file
Delete this file
Other Places
Name Size Type Date Modified
IGNDSTE1.DGN 100 KB MicroStation DGN File 6/7/2011 12:35 PM
BellaBlvd.pgs 263 KB PGS File 6/10/2011 11:33 AM
BellaCAD_1.txt 1 KB Text Document 6/10/2011 11:25 AM
BellaCAD_2_2.txt 1 KB Text Document 6/10/2011 11:27 AM
BellaCAD_2_4.txt 1 KB Text Document 6/10/2011 11:28 AM
BellaCAD_2_5.txt 1 KB Text Document 6/10/2011 11:30 AM
BellaCAD_4.txt 1 KB Text Document 6/10/2011 11:32 AM
Type: Text Document Size: 115 bytes
115 bytes
Local intranet
Start
Desktop
11:56 AM
Monday

My Documents

PGSuper

My Computer

BellaCAD_1.txt - Notepad

File Edit Format View Help

```
    1      2  Tx46        22    1/2  270 16.88 15.42    4 12.5  4.000  5.000    1.410   -1.730   3190  0.900  0.980
```

Start

Desktop

11:56 AM

Monday

My Documents

PGSuper

My Computer

BellaCAD_1.txt - Notepad

File Edit Format View Help

```
    1     2  Tx46       22   1/2  270 16.88 15.42   4 12.5  4.000  5.000    1.410   -1.730   3190  0.900  0.980
    2     2  Tx46   *   48   5/8  270 14.85  7.35  12 42.5  6.000  7.100    4.558   -4.623   7156  0.478  0.640 2.5
    2     4  Tx46   *   48   5/8  270 14.85  7.35  12 42.5  6.000  7.100    4.353   -4.079   6125  0.498  0.666 2.5
    2     5  Tx46   *   48   5/8  270 14.85  7.35  12 42.5  6.000  7.100    4.441   -4.190   6325  0.518  0.692 2.5
    4     2  Tx46       22   1/2  270 16.88 15.42   4 12.5  4.000  5.000    1.628   -1.969   3582  0.881  0.980
```

Start

Desktop

11:56 AM

Monday

My Documents

PGSuper

My Computer

BellaCAD_1.txt - Notepad

File Edit Format View Help

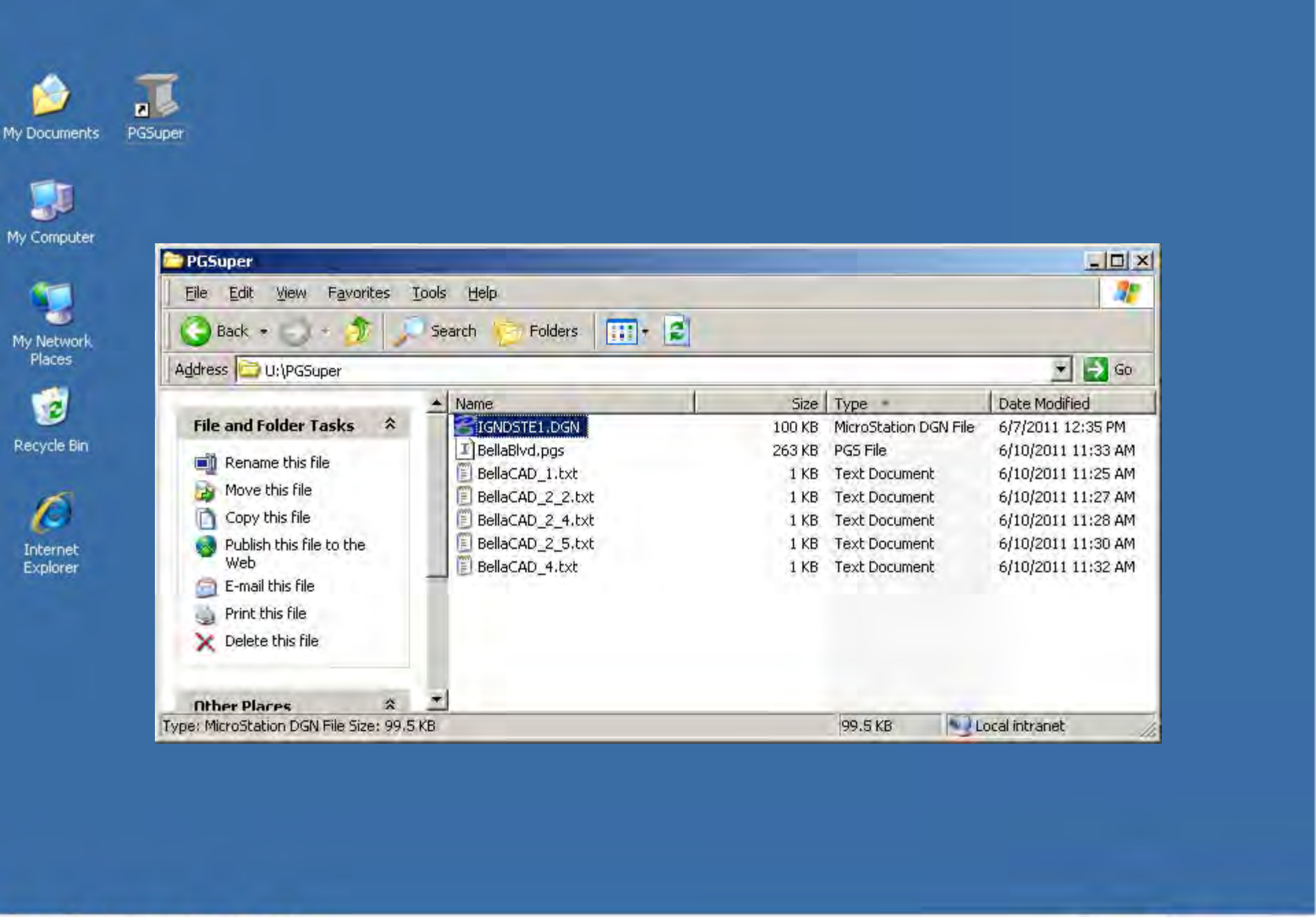
```
  1&4   ALL  Tx46       22   1/2  270 16.88 15.42   4 12.5  4.000  5.000    1.628   -1.969   3582  0.900  0.980
  2&3   ALL  Tx46   *   48   5/8  270 14.85  7.35  12 42.5  6.000  7.100    4.558   -4.623   7156  0.518  0.692 2.5
```

Start

Desktop

11:56 AM

Monday


My Documents
PGSuper
My Computer
My Network Places
Recycle Bin
Internet Explorer
PGSuper
File Edit View Favorites Tools Help
Back Search Folders
Address U:\PGSuper
Go
File and Folder Tasks
Rename this file
Move this file
Copy this file
Publish this file to the Web
E-mail this file
Print this file
Delete this file
Other Places
Name Size Type Date Modified
IGNDSTE1.DGN 100 KB MicroStation DGN File 6/7/2011 12:35 PM
BellaBlvd.pgs 263 KB PGS File 6/10/2011 11:33 AM
BellaCAD_1.txt 1 KB Text Document 6/10/2011 11:25 AM
BellaCAD_2_2.txt 1 KB Text Document 6/10/2011 11:27 AM
BellaCAD_2_4.txt 1 KB Text Document 6/10/2011 11:28 AM
BellaCAD_2_5.txt 1 KB Text Document 6/10/2011 11:30 AM
BellaCAD_4.txt 1 KB Text Document 6/10/2011 11:32 AM
Type: MicroStation DGN File Size: 99.5 KB
99.5 KB
Local intranet
Start
Desktop
11:56 AM
Monday

My Documents
PGSuper
My Computer
My Network Places
Recycle Bin
Internet Explorer
PGSuper
File Edit View
Back
Address U:\PGS
File and Folder
Rename this f
Move this file
Copy this file
Publish this fil Web
E-mail this file
Print this file
Delete this file
Other Places
Go
Date Modified
6/7/2011 12:35 PM
6/10/2011 11:33 AM
6/10/2011 11:25 AM
6/10/2011 11:27 AM
6/10/2011 11:28 AM
6/10/2011 11:30 AM
6/10/2011 11:32 AM
Type: MicroStation DGN File Size: 99.5 KB
99.5 KB
Local intranet
Copyright © 1990-2005
Bentley Systems, Inc.
MicroStation v8
2004 Edition
N/A
TxDOT isd
BENTLEY
Protected by US and international copyright laws as described in "Help About"
Start
Desktop
11:56 AM
Monday

D:\Program Files\WSDOT\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Unknown

(none Level 1

View 1

Element Selection

HL93 LOADING

Texas Department of Transportation
Bridge Division

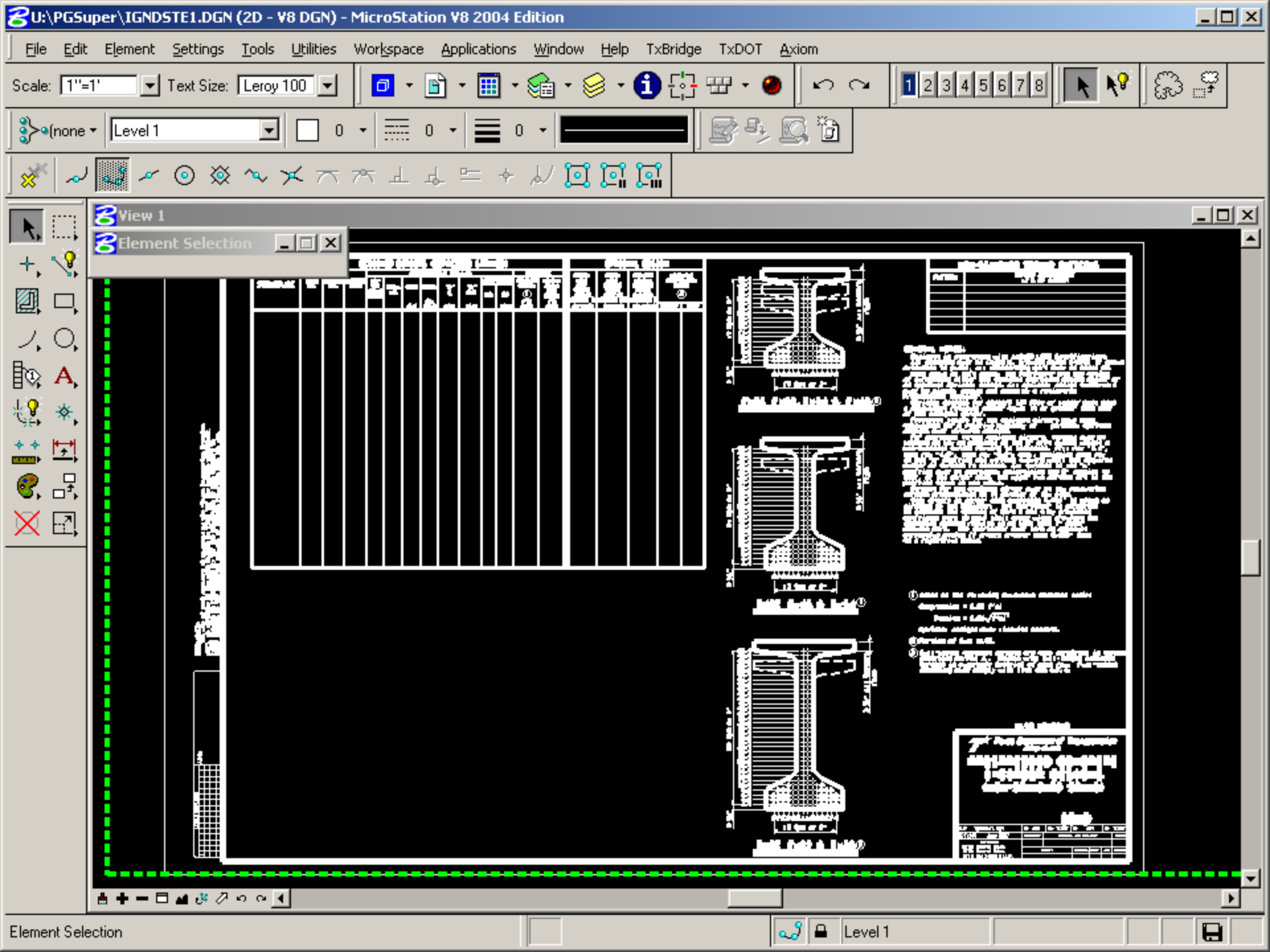
PRESTRESSED CONCRETE I-GIRDER DESIGNS (NON-STANDARD SPANS)

IGND

FILE: igndste1.dgn	DN: JMH	CK: TxDOT	DW: JTR	CK: TxDOT
© TxDOT June 2007	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS 02/09: General Notes. 10/09: General Notes. 12/10: Rel Strgth & LLDF.				
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

Element Selection

Level 1


U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition
File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom
Scale: 1"=1'
Text Size: Leroy 100
(none
Level 1
View 1
Element Selection
Element Selection
Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Element Selection

Match Text Attributes DIMLIB loaded. Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Match Text Attributes

Match Text Attributes > Identify text element

DIMLIB loaded.

Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Match Text Attributes

Match Text Attributes > Accept/Reject (select next input)

Type=Text Node, Level=Level

Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Match Text Attributes

Match Text Attributes > Identify text element

TH=0.1260, TW=0.1260, FT=

Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

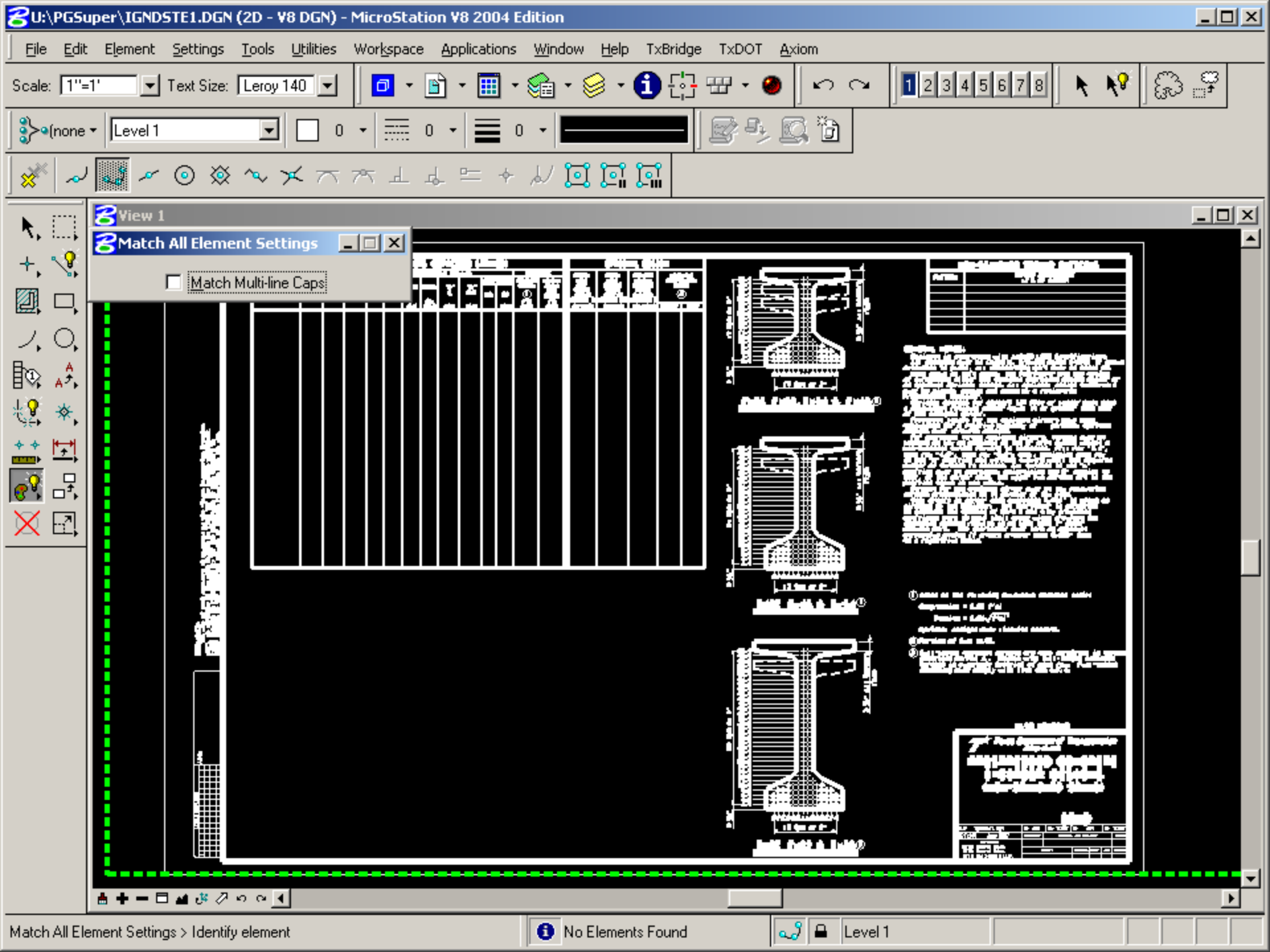
Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Match Text Attributes

Match All Element Settings | No Elements Found | Level 1


U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition
File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom
Scale: 1"=1'
Text Size: Leroy 140
(none
Level 1
View 1
Match All Element Settings
Match Multi-line Caps
Match All Element Settings > Identify element
No Elements Found
Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Match All Element Settings

Match Multi-line Caps

Match All Element Settings > Accept/Reject (select next input)

Type=Text Node, Level=Level

Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Match All Element Settings

Match Multi-line Caps

Match All Element Settings > Identify element

Type=Text Node, Level=Level

Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

- New... Ctrl+N
- Open... Ctrl+O
- Close Ctrl+W
- Save Ctrl+S
- Save As...
- Compress
- Save Settings Ctrl+F
- Reference
- Raster Manager
- Models
- Import
  - IGES...
  - Parasolids...
  - ACIS SAT...
  - CGM...
  - Step AP203/AP214...
  - STL...
  - Image...
  - Text...
- Export
- Print Preview
- Print Ctrl+P
- Batch Print
- Associate...
- Properties Alt+Enter
- Protection
- Send...

1 U:\PGSuper\IGNDSTE1.DGN
2 T:\DESDSGN4\VMcCammon\StandardBridge\TestFiles\5XB20\0Grade_0Skew_BGS.dgn
3 u:\LRFD Implementation\PGSNSD_ly02.dgn
4 U:\7275ly01.dgn
5 U:\LRFD Implementation\PGSNSD_ly01.dgn
6 T:\ENGDATA\Project\Bridge\7275\7275ly01.dgn
7 D:\Program Files\WSDOT\PGSuper\IGNDSTE1.DGN
8 U:\Bridges\District 09 ~ Waco\S Troy Rd UP\BGS\7275brg.dgn
9 U:\LRFD Implementation\Rect Cap Example\Rev 6-2010\CapEx_ly01.dgn
10 D:\ENGDATA\Example.dgn

Exit

Match All Element Settings > Identify element | Type=Text Node, Level=Level | Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

Include Text File - u:\PGSuper\

Look in: PGSuper

My Recent Documents
Desktop
My Documents
My Computer
My Network Places

BellaCAD_1.txt
BellaCAD_2_2.txt
BellaCAD_2_4
BellaCAD_2_5
BellaCAD_4.txt

Type: Text Document
Size: 277 bytes

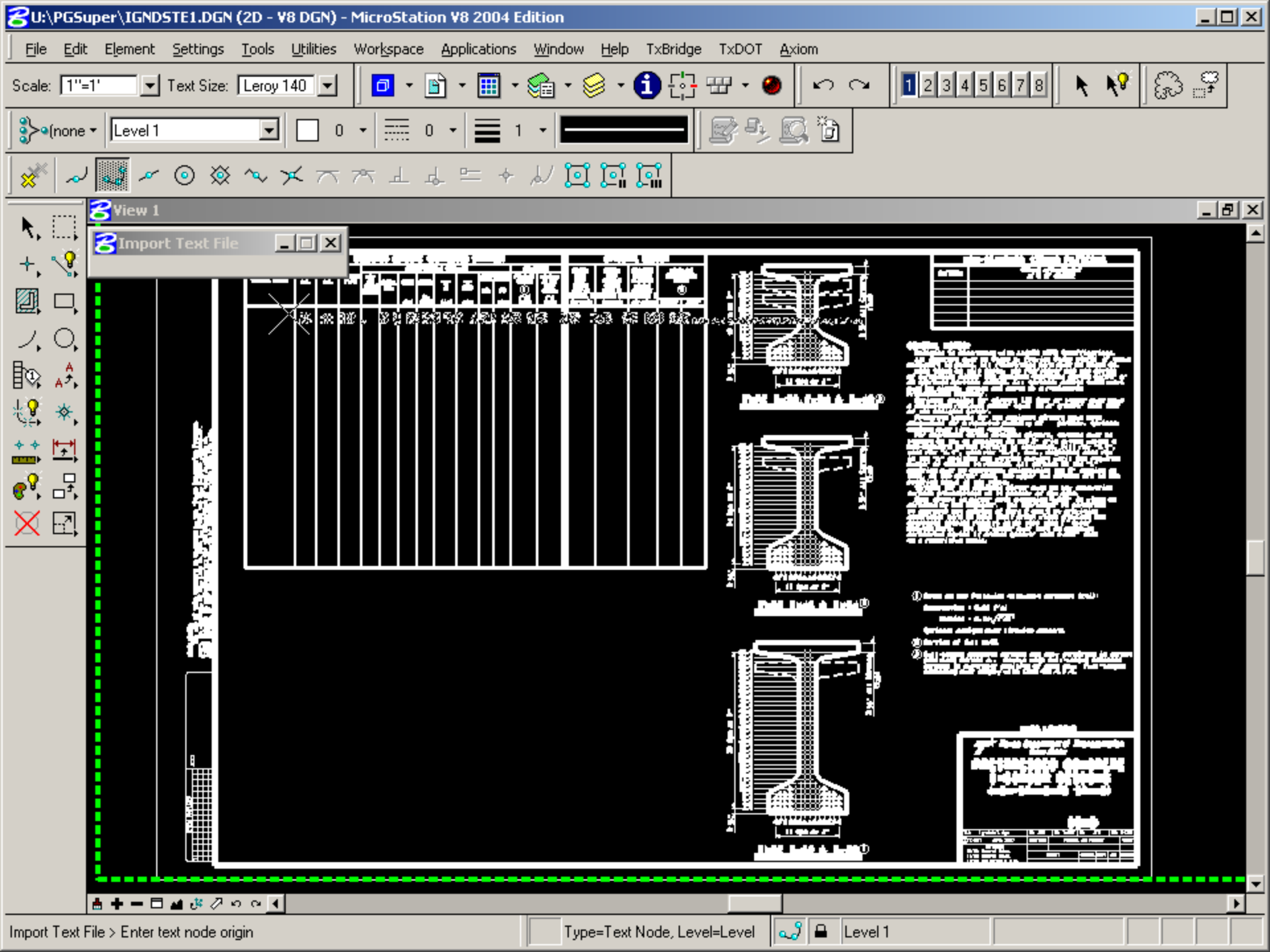
File name: BellaCAD_1.txt
Files of type: Text Files (*.txt)
Open as read-only

Open
Cancel

Match All Element Settings > Identify element

Type=Text Node, Level=Level

Level 1


U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition
File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom
Scale: 1"=1'
Text Size: Leroy 140
(none
Level 1
View 1
Import Text File
Import Text File > Enter text node origin
Type=Text Node, Level=Level
Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Element Selection

Element Selection Type=Text Node, Level=Level Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Fit View

Files: All

Display complete

Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1 0 0 1

View 1

Element Selection

STRUCTURE	DESIGNED GIRDERS (DEPRESSED STRANDS)													OPTIONAL DESIGN				
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS								CONCRETE		DESIGN LOAD COMP STRESS (TOP @ SERVICE I) fct (ksi)	DESIGN LOAD TENSILE STRESS (BOTT @ SERVICE III) fcb (ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (ft-Kips)	LIVE LOAD DISTRIBUTION FACTOR (2)	
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" @ ℄ (in)	"e" END (in)	DEPRESSED NO.	DEPRESSED TO (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)				Moment	Shear
BELLA BLVD UNDERPASS	1&4	ALL	TX46	*	22	½	270	16.88	15.42	4	12.5	4.000	5.000	1.620	-1.969	3582	0.900	0.960
	2&3	ALL	TX46		46	0.6	270	14.85	7.35	12	42.5	6.000	7.100	4.558	-4.623	7156	0.518	0.692

Element Selection Level 1

U:\PGSuper\IGNDSTE1.DGN (2D - V8 DGN) - MicroStation V8 2004 Edition

File Edit Element Settings Tools Utilities Workspace Applications Window Help TxBridge TxDOT Axiom

Scale: 1"=1' Text Size: Leroy 140

(none Level 1

View 1

Element Selection

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER
*	2.5(14),4.5(14),6.5(14),8.5(2),10.5(2),
	12.5(2)

NERAL NOTES:

esigned in accordance with AASHTO LRFD Specifications.

ll concrete must be Class H. Provide Class H(HPC) if shown

Element Selection

Level 1

Alternate Designs

Standard Design

1/2” Strand

With Overlay

22 Girders

Washington State Department of Transportation

PGSuper

Texas Department of Transportation

Alternate Designs

Non-Standard Design

1/2” Strand

With Overlay

19 Girders

Washington State Department of Transportation

PGSuper

Texas Department of Transportation

Alternate Designs

Standard Design

0.6” Strand

No Overlay

19 Girders

Washington State Department of Transportation

PGSuper

Texas Department of Transportation

Alternate Designs

Non-Standard Design

0.6” Strand

No Overlay

16 Girders

Saves: 1434 LF of Tx46

Washington State Department of Transportation

PGSuper

Texas Department of Transportation

Questions

- Email me at:
  - Victoria.McCammon@txdot.gov
- Email Taya Retterer at:
  - taya.retterer@txdot.gov

Washington State Department of Transportation

PGSuper

Texas Department of Transportation