NOTES TO PCI CERTIFIED PRODUCERS, OWNERS AND ENGINEERS FOR THE SPACED U-GIRDERS

GENERAL NOTES

1. WIDTH 3 TENDONS TO CROSS EACH SPACED U-GIRDER.
2. TENDON TENSIONS FOR Y-TENDONS = 4/5 * 4 TENDONS DETERMINED PER FOOT UPL FOR BONDED TENDON CRITERIA.
3. USE PCI AND STATE SPECIFIC CRITERIA TO PROPERLY DETAIL POST-TENSIONED ELEMENTS.
4. PRESSURE TEST ALL DUCTS PRIOR TO CASTING.
5. GRADE 60 REINFORCING STEEL IS REQUIRED.

DESIGN DATA

1. ASHHTO, 4TH EDITION LBDT.
2. DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN.
3. LOAD ASUMPTIONS: DESIGN CURVED GIRDERS FOR ORDER LENGTHS ALONG OUTSIDE CURVE. CONCRETE UNIT WEIGHT = 155 PCC.
4. STRESS LIMITATION: 8” STRUCTURAL, 3/8” SACRIFICIAL CAST-IN-PLACE DECK.
5. WIRE ALLOWANCE 3” ASPHALT OR CONCRETE MAXIMUM.
6. 417 LBS PER LIN. FT. FOR BARRIER RAIL.
7. 10 LBS PER SQ. FT. SUPERIMPOSED DEAD LOAD APPLIED TO COMPRESSED SECTION FOR CONSTRUCTION INCIDENTS.
8. LOADS: H=62.
9. PRECAST Prestressed Concrete Assumptions: Fy = 184,000 psi 5280 (28 DAY FIELD COMPRESSIONAL STRENGTH)
   1.0 – 1.5% STRAIN STRESS STRAND TO 75% ULTIMATE STRESS. ANCHOR TENDONS AT JACKING ENDS.
10. ELASTIC SHORTENING AND PROVISIONS FOR ADDITIONAL LONG TERM LOSS IN STRESS PER PCI GUIDELINES

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U-2 TYPICAL TRAFFIC CROSS SECTIONS
U-3 U-GIRDER CROSS SECTION WITH PRECAST PANELS
U-4 MAXIMUM DESIGN SPANS – THREE SPAN CONSTANT DEPTH GIDDERS
U-5 MAXIMUM DESIGN SPANS – THREE SPAN VARIABLE DEPTH GIDDERS
U-6 MAXIMUM DESIGN SPANS – THREE SPAN VARIABLE DEPTH GIDDERS
U-7 DECK STRUCTURAL & REINFORCEMENT
U-8 GIRDERS END SLICE DETAILS
U-9 TYPICAL TRAFFIC CROSS SECTION
U-10 TYPICAL TRAFFIC CROSS SECTION
U-11 TYPICAL TRAFFIC CROSS SECTION
U-12 TYPICAL INTERIOR PIER WITH BEARINGS
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Drawing/Sheet Number U-1
NOTES
1. INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPICED U-GIRDERS.
2. ALL CONCRETE DIMENSIONS AND REINFORCEMENT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.

CROSS SECTION WITH CONVENTIONAL DECK
(STRAIGHT GIRDERS ONLY)

CROSS SECTION WITH CONVENTIONAL DECK
PLACED OVER GIRDLE LID SLABS
CROSS SECTION WITH CONVENTIONAL DECK PLACED OVER PRECAST PANELS

NOTES
1. INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPICED U-GIRDERS.
2. ALL CONCRETE DIMENSIONS AND REINFORCEMENT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
3. FOR PRECAST PANEL DETAILS, SEE SHEET A-1A.
4. REINFORCING IN PANEL HOLES TO BE DESIGNED TO DEVELOP HORIZONTAL SHEAR TRANSFER BETWEEN THE GIRDER AND DECK.
5. CLOSURE CONCRETE BETWEEN U-GIRDERS AND PRECAST PANELS SHALL BE CAST AND CURED PRIOR TO PLACING DECK CONCRETE.

Panel Connection and Overhang Detail

Typical Bridge Cross Section with Precast Panel
PCI Zone 6 (SE Region) U-Girders
Maximum Design Spans
Three Span Constant Depth Girders
PCI Zone 6 (SE Region) U-Girders

Notes:
1. Girder lengths measure along q. Outside girders used for design.
2. Piers assumed perpendicular to q. Girders along curve.
3. Information shown on this drawing is intended to illustrate a working concept for spliced U-girders.
4. All concrete dimensions and reinforcement shown are for illustration purposes only.

U72

<table>
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<tr>
<th>BOTTOM SLAB</th>
<th>PRECAST PANELS</th>
<th>CIP Lid</th>
<th>CONCRETE</th>
<th>TENDONS (PER WEB)</th>
<th>LMAX</th>
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Assumptions:
- 3" PLASTIC DUCTS = 12 STRAND TENDONS = 9" WEB.
- 4" PLASTIC DUCTS = 18 STRAND TENDONS = 10" WEB.
- 4.5" FROM EXTREMELY FIBER TO Q. OF TOP & BOTTOM DUCTS.
- SPICE LOCATIONS LOCATED AT Q POINTS OF SPANS.
NOTES:
1. GIRDERS LENGTHS MEASURE ALONG Q. OUTSIDE GIRDERS USED FOR DESIGN.
2. ALL SPAN RANGES DESIGNED ASSUMING DECK SLAB IS CAST USING SHORED CONSTRUCTION.
3. INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPACED U-GIRDERS.
4. ALL CONCRETE DIMENSIONS AND REINFORCEMENT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
NOTES
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GIRDER GEOMETRY

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<th>ORDER</th>
<th>D</th>
<th>DUCT SIZE</th>
<th>T</th>
<th>W</th>
<th>M</th>
<th>M</th>
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<td>5'9&quot;</td>
<td>9&quot;</td>
<td>10'-1&quot;</td>
<td>6'-9&quot;</td>
<td>1'-8&quot;</td>
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<td>1'-5&quot;</td>
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<tr>
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<td>1'-9&quot;</td>
<td>6'-0&quot;</td>
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</table>

ASUMPTIONS:
- SPACER UNIT WEIGHT = 150 Pcf
- CROSS SECTION USED (DUCT VOID VOLUME NOT DEDUCTED)

* TOTAL WEIGHT OF 5# LONG HAUCHED PIER GIRDER
Spliced U-Girders
Typical Three Span Constant Depth Girders
PCI Zone 6 (SE Region) U-Girders

NOTES
1. INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPICED U-GIRDERS.
2. ALL CONCRETE DIMENSIONS AND REINFORCEMENT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.

ELEVATION
Typical End Girder

ELEVATION
Typical Pier Girder

ELEVATION
Typical Mid-Span Girder

CONTINUITY TENONS

2 x 4-0.5" TENONS IN BOTTOM SLAB

SHEAR KEYS

CONTINUITY TENONS

2 x 4-0.5" TENONS IN BOTTOM SLAB
NOTES

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NOTES

GRIND GALVANIZING FROM FRAME, WHERE HASP OR HINGE ATTACHES, PRIOR TO WELDING. AFTER WELDING PAINT THE SURROUNDING AREAS WITH ZINC RICH PAINT MEETING MILITARY SPECIFICATION 302-F-87033A.

ATTACH DOOR WITH (4) 1/2" ZINC PLATED BOLTS, COUNTERSUNK HEADS. USE DOUBLE NUTS, BURNING THREADS AFTER TIGHTENING. ATTACH HASP STAPLE IN A SIMILAR MANNER.

LEAVE DOOR IN THE OPEN POSITION WHILE POURING THE BOTTOM SLAB. PAINT DOOR WITH ZINC RICH PAINT AFTER WELDING.

INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPILED U-GIRDERS.

ALL CONCRETE DIMENSIONS AND REINFORCEMENT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
1. Construct foundations, abutments, and piers.
2. Stress and grout pier caps.
3. Precast girders, stress and grout bottom flange ft.
4. Erect shoring towers.

1. Erect girder segments (pier girders are not set on interior piers).
2. Brace curved segments.
3. Cast all closures.
4. Cast diaphragms over interior piers.
5. Cast diaphragms at expansion piers.
6. Form & cast lid slabs over girders or place and grout redcast concrete panels.
7. Stress and grout transverse ft at integral bends.

1. Stress continuity tendons.
2. Grout all tendons.

1. Remove all shoring towers.
2. Cast deck slab.
3. Cast approach slabs and bridge rail.
4. Install expansion joints.

Notes:
1. Information shown on this drawing is intended to illustrate a working concept for spliced U-girders.
2. All concrete dimensions and reinforcement shown are for illustration purposes only.
1. CONSTRUCT FOUNDATIONS, ABUTMENTS, AND PIERS.
2. PRECAST GIRDERS, STRESS AND GROUT BOTTOM FLANGE PT.
3. ERECT SHORING TOWERS.

1. ERECT GIRDER SEGMENTS.
2. BRACE CURVED SEGMENTS.
3. CAST ALL CLOSURES.
4. FORM & CAST LD SLABS OVER GIRDERS OR PLACE AND GROUT PRECAST CONCRETE PANELS.

1. STRESS CONTINUITY TENONS.
2. GROUT ALL TENONS.

1. RE-SHOE GIRDERS AT SPLOCE LOCATIONS.
2. CAST DECK SLAB.
3. CAST APPROACH SLABS AND BRIDGE RAIL.
4. INSTALL EXPANSION JOINTS.
5. REMOVE SHORING TOWERS.

NOTES
1. INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPLOCED U-GIRDERS.
2. ALL CONCRETE DIMENSIONS AND REINFORCEMENT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
1. Construct foundations, abutments, and piers.
2. Stress and grout pier caps.
3. Precast girders, stress and grout bottom flange pt.
4. Erect shoring towers.

1. Direct girder segments (pier girders are not set on interior piers.)
2. Brace curved segments.
3. Cast closure between girders 4 & 5.
4. Stress bottom flange tendon to connect girder 4 & 5.
5. Cast all other closures.
6. Cast dampers over interior piers.
7. Cast dampers at expansion piers.
8. Form & pour lid slabs over girders.

1. Stress continuity tendons.
2. Grout all tendons.

1. Remove all shoring towers.
2. Cast deck slab.
3. Cast approach slabs and bridge rail.
4. Install expansion joints.

NOTES
1. Information shown on this drawing is intended to illustrate a working concept for spliced U-girders.
2. All concrete dimensions and reinforcement shown are for illustration purposes only.
NOTES:

1. THIS DRAWING IS INTENDED TO REPRESENT SUGGESTED METHODS FOR BRACING THE PRECAST GIRDERS DURING ERECTION TO PREVENT ROLLING, PROVIDE STABILITY AND LIMIT TORSIONAL STRESSES AND DEFLECTIONS.

2. GIRDERS SHALL BE SUPPORTED AND TORSIONALLY BRACED ON FALSEWORK AT EACH END AT EACH SPACE DURING ERECTION.

3. ALL GIRDERS SHALL BE BRACED AT EACH END PRIOR TO RELEASING ANY SIGNIFICANT LOAD FROM ERECTION EQUIPMENT TO PREVENT ROLLING.

4. BRACES AND ALL ASSOCIATED CONNECTIONS SHALL BE DESIGNED BY FALSEWORK ENGINEER.

5. SUPPORTING FALSEWORK SHALL BE DESIGNED TO PROVIDE ADEQUATE STIFFNESS UNDER BRACE LOADS TO PREVENT SIGNIFICANT DEFLECTIONS WHEN REMOVING BRACING.

6. INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPICED U-GIRDERS.

7. ALL CONCRETE DIMENSIONS, AND SPACING & SIZES OF REINFORCEMENT, SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.
**GENERAL NOTES**

1. INFORMATION SHOWN ON THIS DRAWING IS INTENDED TO ILLUSTRATE A WORKING CONCEPT FOR SPEICED U-GIRDERS.

2. ALL CONCRETE DIMENSIONS AND REINFORCEMENT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY.

3. SOIL FOR ANY CRANE PAD SHALL BE COMPACTED BY THE CONTRACTOR AND SHALL BE ACCEPTED BY THE CRANE OPERATOR PRIOR TO COMMENCING WITH ERECTION.

4. RIGGING SHALL BE PROVIDED BY THE ERECTOR WITH A MINIMUM SAFE WORKING LOAD OF THE CHARTED MAXIMUM LIFT WEIGHT. FURTHER DETAILS REGARDING RIGGING SHALL BE PROVIDED BY THE ERECTION SUBCONTRACTOR.

5. THE CONTRACTOR SHALL VERIFY THAT CRANE MOVEMENT DOES NOT INTERFERENCE WITH EXISTING FACILITIES, UTILITIES, OR TERRAIN PRIOR TO PROCEEDING WITH THE ORDER ERECTION.

6. ORDER ERECTION SHALL NOT PROCEED DURING INCLEMENT WEATHER OR WIND SPEEDS IN EXCESS OF 25 MPH.

7. ORDERS SHALL CONFORM TO PCI TOLERANCES PER FDOT SPECIFICATION. BEAMS ACCEPTED BY THE OWNER ARE ASSUMED TO MEET THE PCI SPECIFICATIONS.

8. ACTUAL ORDER ERECTION SCHEDULE AND DETAILED SCHEDULE REGARDING WORKING HOUR RESTRICTIONS SHALL BE PROVIDED BY CONTRACTOR.

9. GIRDERS LAUNCHERS AND TROLLIES WILL NOT BE USED.

10. REFER TO FALSEWORK DRAWINGS FOR FALSEWORK AND CONNECTION DETAILS AT SPACES.

11. ALL ORDERS SHALL BE LIFTED BY END LIFT LOOPS PER SHOP DRAWINGS.

12. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY ISSUES RELATING TO TRAFFIC IN AREAS ADJACENT TO ERECTION OPERATIONS.

### REPRESENTATIVE GIRDER LIFT CHART

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<tr>
<th>ORDER NUMBER</th>
<th>MAX. ORDER LENGTH (FT.)</th>
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<th>MAX LIFT WEIGHT DOG TON CRANE (Tons)</th>
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**LIFT WEIGHT INCLUDES 5000 LB BLOCK & RIGGING WEIGHT PLUS 5% IMPACT**

### ERECTION SEQUENCE

ORDERS WILL BE ERECTED IN THE FOLLOWING ORDER:

1. 1L  13. 7R
2. 1L  14. 7L
3. 2R  15. 8R
4. 2L  16. 8L
5. 3R
6. 3L
7. 4R
8. 4L
9. 5R
10. 5L
11. 6R
12. 6L

### RIGGING DETAILS

* RIGGING OFFSET # IS TOWARD OUTSIDE OF GIRDER CURVE

### GIRDER ERECTION PLAN