**STATE OF OHIO DEPARTMENT OF TRANSPORTATION**

**SYMMETRICAL ABOUT | CHAMFER**

2" CLEAR

**WEB**

1'-0" (TYP.)

**WF36-42**

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

**WF42-49**

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

**WF48-49**

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

**WF54-49**

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

**WF60-49**

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

**WF54-49**

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

**WF60-49**

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

**SHEET 2 NOTES AND LEGEND**

1) ONE LONGITUDINAL BAR FROM THE BOTTOM MAY OF SEAG REINFORCING SHALL BE PLACED UNDER EACH 402 BAR. THIS BAR IS INCLUDE IN PAINMENT WITH THE DECK REINFORCING STEEL AND SHALL BE COATED.

2) THE WWR SHALL BE PROVIDED AS SHOWN. ADDITIONAL REINFORCING BARS MAY BE ADDED ON PLANS IF REQUIRED BY ANALYSIS. ADDITIONAL BARS SHALL BE PLACED SYMMETRICALLY ABOUT & AND MEET ALL AASHTO REQUIREMENTS.

3) SEE SHEET 4 OF 10 FOR WWR DETAILS.

ALL REINFORCING STEEL MAY BE REPLACED WITH EQUIVALENT WWR.

- IF USED, THESE STRAND LOCATIONS MUST BE SHAPED.

- SEE SHEET 3 OF 10 FOR REINFORCING STEEL DETAILS.

- ADDITIONAL REINFORCING BARS MAY BE PLACED SYMMETRICALLY ABOUT | AND MEET ALL AASHTO REQUIREMENTS.

- See Sheet 3 of 10 for WWR Details.

- See Sheet 2 of 10 for Reinforcing Steel Details.

- See Sheet 2 of 10 for Reinforcing Steel Details.

WWR = WELDED WIRE REINFORCEMENT

**SHIPPING STRANDS**

(TYP.)

(62 PERMISSIBLE BOTTOM FLANGE STRAND LOCATIONS)

18 SPA. @ 2" = 3'-0"

(WF36-42)

(WF42-49)

(WF48-49)

(WF54-49)

(WF60-49)

18 SPA. @ 2" = 3'-0"

2 SPA. @ 2" = 2'-0"

2 SPA. @ 2" = 2'-0"

2 SPA. @ 2" = 2'-0"

2 SPA. @ 2" = 2'-0"

12" C/C MAX.

12" C/C MAX.

12" C/C MAX.

12" C/C MAX.

12" C/C MAX.

D20 WWR @ (a)

D20 WWR @ (a)

D20 WWR @ (a)

D20 WWR @ (a)

D20 WWR @ (a)

ADDITIONAL BARS SHALL BE PLACED SYMMETRICALLY ABOUT | AND MEET ALL AASHTO REQUIREMENTS.

ADDITIONAL BARS SHALL BE PLACED SYMMETRICALLY ABOUT | AND MEET ALL AASHTO REQUIREMENTS.

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ADDITIONAL BARS SHALL BE PLACED SYMMETRICALLY ABOUT | AND MEET ALL AASHTO REQUIREMENTS.

-all reinforcing steel may be replaced with equivalent WWR.

- if used, these strand locations must be shaped.

- see sheet 3 of 10 for reinforcing steel details.

- additional reinforcing bars may be placed symmetrically about | and meet all aashto requirements.

- see sheet 4 of 10 for wwr details.

- all reinforcing steel may be replaced with equivalent wwr.

- if used, these strand locations must be shaped.

- see sheet 3 of 10 for reinforcing steel details.

- additional reinforcing bars may be placed symmetrically about | and meet all aashto requirements.

- see sheet 2 of 10 for reinforcing steel details.

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- see sheet 2 of 10 for reinforcing steel details.

- see sheet 2 of 10 for reinforcing steel details.
LIMITS
SEALING

SECTION A-A
D31 @ 3" SPACING
CLEAR 2"

SECTION B-B
CLEAR 2"

SECTION C-C
CLEAR 2"

IN PLANS
WWR AS SHOWN
THESE STRANDS SHALL BE DRAPED.
IF UTILIZED IN WF GIRDERS,
THESE STRANDS SHALL BE DRAPED.

401 BARS NOT SHOWN FOR CLARITY

TOP FLANGE FINISHING
APPLIES TO MODIFIED AASHTO AND WF GIRDERS ONLY

ANCHORAGE ZONE REINFORCING STEEL
STRANDS NOT SHOWN FOR CLARITY

401 BAR SPACING SHALL BE DETERMINED BY ANALYSIS
(a) - 401 BAR SHALL BE EPOXY COATED.
(b) - ANCHORAGE ZONE REINFORCEMENT SHALL BE SHOWN IN
STRUCTURE PLANS AND SHALL BE DESIGNED TO MEET AASHTO 5.10.10.
(c) - DISCONTINUE 305 BARS AT A DISTANCE OF 1.5 TIMES THE DEPTH OF
THE BEAM BEYOND THE TERMINATION OF STRAND DEBONDING.
(d) - TROWEL EXTERIOR 9" OF TOP FLANGE SMOOTH. APPLY TWO COATS OF C&M 705.07,
TYPE 1 OR 1D MEMBRANE CURING COMPOUND WITH A ROLLER TO ACT AS A BOND BREAKER.
REFER TO "BOND BREAKER FOR TOP FLANGE" NOTE ON SHEET 10 OF 10.
(e) - SIZE OF WWR SHALL BE GIVEN IN PLANS AS A REQUIRED AREA AND MAXIMUM SPACING.
THE MAXIMUM DIFFERENCE IN CROSS-SECTIONAL AREA OF INTERSECTING WIRES SHALL BE ≤ 40%.
(f) - SHIPPING HOLES ARE NOT ALLOWED ON BEAMS 54" DEEP OR LESS.
(g) - IF SHIPPING HOLES ARE UTILIZED, TWO #3 BARS SHALL BE ADDED ON EACH FACE OF THE WEB.
The #3 bars shall be tied to the outside face of the WWR and extend for a minimum of 1'-0" beyond the shipping holes.
E.F. - EACH FACE

SHIPPING HOLES (f)
FOR 60", 66", & 72" BEAMS
401 BARS NOT SHOWN FOR CLARITY

5/8" Holes through WEB FOR SHIPPING
MINIMUM
MINIMUM
MINIMUM
MINIMUM

WEB DEBONDED LENGTH
1.5 x BEAM DEPTH

ANCHORAGE ZONE REINFORCING STEEL
SEALING OF FASCIA BEAMS

SEALING LIMITS

TOP FLANGE FINISHING
APPLIES TO MODIFIED AASHTO AND WF GIRDERS ONLY

INTENTIONALLY ROUGHEN 5"

REINFORCING STEEL

403, 404, OR D20
SEE SHEET 5/10
SOLE PLATE
302 @ VERTICAL
305 & 302
305

SIZE AND SPACING OF WWR
AS SHOWN IN PLANS (E.F. - 10)
D12.4 (MIN.) (E.F.)
D12.4 (MIN.) (TYP.)
D12.4 (MIN.) TYP.

REFERENCE SHEET 4 NOTES AND LEGEND

(d) - 401 BAR SHALL BE EPOXY COATED.
401 BAR SPACING SHALL BE DETERMINED BY ANALYSIS
TO ACHIEVE COMPOSITE DESIGN.

401 BAR (E.F.)

ANERTAGE ZONE REINFORCING STEEL
STRANDS NOT SHOWN FOR CLARITY
TYPICAL FRAMING PLAN

SOLE PLATE DIMENSIONS

SHEET 5 NOTES AND LEGEND

1) IN ORDER TO ALLOW FOR FIT-UP, THE PLATE WIDTH MAY BE INCREASED BY 1/2". DIMENSION "A" SHALL BE CORRECTED ACCORDINGLY.

2) END WELDED STUDS MAY BE RELOCATED IN ORDER TO AVOID INTERFERING WITH REINFORCING STEEL AND PRESTRESSING STRANDS. THE DESIGNER SHALL SHOW THE EXACT LOCATION OF THE STUDS ON THE PLANS.
**State of Ohio Department of Transportation**

**Design Agency**

**Structural Engineering Office**

**Bridge Details**

---

**Expansion Abutment Partial Plan**

* EXPANSION ABUTMENT PARTIAL PLAN

---

**Expansion Joint End Diaphragm**

* EXPANSION JOINT END DIAPHRAGM 9” OR USE WITH EXJ-6-06*

---

**Sheet 6 Notes and Legend**

- All vertical bars shall be placed parallel to beams.
- Diaphragm concrete to follow the outside edge of exterior girder.
- See standard drawing EXJ-6-06 for dimension definition.
- For beam spacings exceeding 9’-0”, use 4-#8 bars.
- Distance shall be measured from the larger of the top or bottom flange width.
- This dimension is measured from the vertical face of the end diaphragm to the nearest point on the end of the beam.
- Measured to steel load plate.
- Top flanges may be clipped a maximum of 6”.
- N = LARGER OF $\frac{4''}{\sin \theta + 5'' \cos \theta} + 6''$
- T = THICKNESS OF WEB

---

**Diaphragm Concrete**

- Diaphragm concrete to follow the outside edge of exterior girder.
- See standard drawing EXJ-6-06 for dimension definition.
- For beam spacings exceeding 9’-0”, use 4-#8 bars.
- Distance shall be measured from the larger of the top or bottom flange width.
- This dimension is measured from the vertical face of the end diaphragm to the nearest point on the end of the beam.
- Measured to steel load plate.
- Top flanges may be clipped a maximum of 6”.
- N = LARGER OF $\frac{4''}{\sin \theta + 5'' \cos \theta} + 6''$
- T = THICKNESS OF WEB

---

**Expansion Abutment Partial Plan**

* EXPANSION ABUTMENT PARTIAL PLAN

---

**Division of Bridge Engineering**

**Date**

---

**Standard Bridge Drawing**

**PSCD-1-13**

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**Continuous #6 Bars**

- Continuous #6 bars at 7'-0" max. F.F.

---

**Angle $\theta$**

- SKEW ANGLE

---

**Face of Backwall**

- FACE OF BACKWALL

---

**Face of Abutment**

- FACE OF ABUTMENT

---

**End of Beam**

- END OF BEAM

---

**Deck Top Reinforcing**

- DECK TOP REINFORCING

---

**Deck Bottom Reinforcing**

- DECK BOTTOM REINFORCING

---

**Additional Edge Beam**

- ADDITIONAL EDGE BEAM

---

**Additional #6 Bars**

- ADDITIONAL #6 BARS

---

**Dimension Definition**

- SEE STANDARD DRAWING EXJ-6-06 FOR DIMENSION DEFINITION.

---

**Top Flange**

- TOP FLANGE

---

**Bottom Flange**

- BOTTOM FLANGE

---

**Overhang**

- OVERHANG

---

**Deck**

- DECK

---

**Flange**

- FLANGE

---

**Reinforcement**

- REINFORCEMENT

---

**Steel Load Plate**

- STEEL LOAD PLATE

---

**Elastomeric Bearing**

- ELASTOMERIC BEARING
**Bending Diagrams**

### Table: Bars in Beams

<table>
<thead>
<tr>
<th>Mark Type</th>
<th>Bars</th>
<th>Diameter</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>S401</td>
<td>1</td>
<td>8</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>S402</td>
<td>3</td>
<td>10</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>S403</td>
<td>6</td>
<td>12</td>
<td>1'-0&quot;</td>
</tr>
</tbody>
</table>

Bar size is indicated in the bar mark. The first digit indicates the bar size and the remaining digits indicate sequence number. All steel shall be epoxy-coated.

---

**Notes and Legend**

- **S401 & S402 bars may be moved to accommodate 3 S401 & S402 bars for 60", 66", & 72" deep beams.**
- **(b) - 2 S401 & S402 bars for girders 54" or less.**
- **(a) - See project plans.**
- **(b) - Draped strands.**
- **(c) - Place construction joint 6" above bottom of web.**
- **(d) - Top flange may be clipped a maximum of 6".**
- **(e) - Minimum embedment.**
- **(f) - Thickness of webs.**
- **(g) - Near face.**
- **(h) - Far face.**
- **All vertical bars shall be placed parallel to beams.**

---

**Sections**

- Dimensions will vary with skew.
- Dimensions are out-to-out.
- Expanded polystyrene filler or removable forms.
- Approach slab limits.
- Continuous bars spaced.
- Bars spaced @ 1'-0" C/C max.
- #5 bars spaced @ 1'-0" C/C max.
- #6 bars.
- #8 bars.
- E beam.

---

**State of Ohio Department of Transportation**

**Design Agency**

**Structural Engineering Office of**

**Standard Bridge Details**

**PSCD-1-13**

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**Sheet 7**

---

**Notes and Legend**

- See project plans.
- Draped strands.
- Place construction joint 6" above bottom of web.
- Top flange may be clipped a maximum of 6".
- Minimum embedment.
- Thickness of webs.
- Near face.
- Far face.
- All vertical bars shall be placed parallel to beams.
THE DESIGNER SHALL INCLUDE A DECK POUR SEQUENCE IN THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE DESIGN SPECIFICATIONS. THIS STRUCTURE CONFORMS TO THE DESIGN SPECIFICATIONS.

DEAD LOAD - 60 LB/FT (FUTURE WEARING SURFACE)

DESIGN LOADING: DRAWING MUST BE REPEATED ON THE PROJECT PLANS EXCEPT AS THE CONTRACT DRAWING'S REINFORCING STEEL SCHEDULE AND COMPLETE THE PLANS.

THE COST OF FABRICATION, ERECTION AND CONSTRUCTION OF POSITIONS, CENTERLINE OF BEAM BEARINGS, ORIENTATION OF STEEL, INSERT LOCATIONS AND EMBEDDED STEEL PLATES.

THE DESIGNER SHALL SPECIFY A 28-DAY COMPRESSIVE STRENGTH IN THE RANGE OF 5500 PSI MINIMUM TO 7000 PSI MAXIMUM.

DECK REINFORCING: STRUCTURE'S GENERAL NOTES.

CAST-IN-PLACE DECK CONCRETE: THOROUGHLY CLEAN THE TOP SURFACE OF THE BEAMS PRIOR TO THE PLACE OF DECK CONCRETE. USE OF WALL PAPER, LINT, OR OTHER FOREIGN MATERIALS WITH WATER, AIR UNDER PRESSURE OR ANY OTHER METHOD THAT PRODUCES SATISFACTORY RESULTS. TEMPERATE OR ANY OTHER METHOD THAT PRODUCES SATISFACTORY RESULTS.


REPAIR COATING DAMAGE IDENTIFIED BY THE ENGINEER.

THE DEPARTMENT WILL CONSIDER COSTS ASSOCIATED WITH APPLICATION OF THE BOND TO BE INCIDENTAL TO THE DECK CONCRETE.

BASIS OF PAYMENT: IN ADDITION TO THE ITEMS LISTED IN §502.22, THE DEPARTMENT WILL CONSIDER ALL COSTS ASSOCIATED WITH FOLLOWING ITEMS TO BE INCIDENTAL TO THE COST OF THE BEAMS, THREADED RODS, BEARING SOLE PLATES, TEMPORARY BRACING AND FIXED ANCHOR DOWELS.

THE DEPARTMENT WILL PAY FOR PIER AND ABUTMENT DIAPHRAGMS SEPARATELY UNDER ITEM §502.4. ALL DETAILING FOR CONTINUOUS DECK POUR PROCEDURES, WHICH PROCEED FROM THE PIER CONSTRUCTION TO THE POINT WHERE THE DECK CONCRETE HAS REACHED ITS INITIAL SET.

THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES SEPARATELY UNDER ERECTION OF CONCRETE WALLS.


BOND BREAKER FOR ERECTION AND HANDLING PROCEDURES ACORDING TO THE PCI HANDBOOK.

THE PIER CONCRETE SHALL BE 40°F OR HIGHER AT THE TIME OF APPLICATION. THE SECOND COAT MAY IMMEDIATELY FOLLOW APPLICATION OF THE FIRST COAT.

REPAIR COATING DAMAGE IDENTIFIED BY THE ENGINEER.

THE DEPARTMENT WILL CONSIDER COSTS ASSOCIATED WITH APPLICATION OF THE BOND TO BE INCIDENTAL TO THE DECK CONCRETE.

BASIS OF PAYMENT: IN ADDITION TO THE ITEMS LISTED IN §502.22, THE DEPARTMENT WILL CONSIDER ALL COSTS ASSOCIATED WITH FOLLOWING ITEMS TO BE INCIDENTAL TO THE COST OF THE BEAMS, THREADED RODS, BEARING SOLE PLATES, TEMPORARY BRACING AND FIXED ANCHOR DOWELS.

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