TYPICAL INSTALLATION AT BAR STEEL INTERSECTION

TYPICAL INSTALLATION FOR BAR STEEL

EXISTING DECK

REPAIR AREA

Sawcut

EXISTING REINFORCING STEEL, TYP.

EXISTING REINFORCING STEEL

GALVANIC ANODE - ATTACH PER TYPICAL DETAIL

GALVANIC ANODE

PART. PLAN TYPICAL REPAIR DETAIL

GALVANIC ANODE ATTACHED TO EXISTING REINFORCING STEEL

EXISTING DECK

REPAIR AREA

Sawcut

EXISTING REINFORCING STEEL, TYP.

GALVANIC ANODE - ATTACH PER TYPICAL DETAIL

GALVANIC ANODE

DESIGNER NOTES

CATHODIC PROTECTION SHALL BE USED ONLY AT THE REQUEST OF THE REGIONAL BRIDGE MAINTENANCE ENGINEER.

INCLUDE APPLICABLE CONCRETE MASONRY BID ITEM TO FILL REPAIRS.

NOTES

SEE SPECIAL PROVISION "EMBEDDED GALVANIC ANODES" FOR MATERIALS, CONSTRUCTION, MEASUREMENT, AND PAYMENT INFORMATION.

ANGLES NEAREST TO EDGE OF REPAIR TO BE AT LEAST 6" OF EDGE.

AFTER PLACEMENT, GALVANIC ANODES SHOULD MAINTAIN A MINIMUM TOP COVER OF 1/2" AND A MINIMUM BOTTOM COVER OF 1/2".

CATHODIC PROTECTION
RUPTURED VOID REPAIR

SECTION THRU PARAPET ON WING

SECTION THRU RAILING

DESIGNER NOTES

OVERLAY DETAILS

BUREAU OF STRUCTURES

APPROVED: Bill Oliva
DATE: 1-18

STANDARD 4G.03
CROSS SECTION THRU ROADWAY LOOKING EAST

HALF PLAN SHOWING TOP BAR STEEL REINF.

HALF LONGIT. SECTION

HALF PLAN SHOWING BOTTOM BAR STEEL REINF.

TOTAL ESTIMATED QUANTITIES

- Joint Repair
- Bar Steel Reinforcement for Coated Structures
- Concrete Masonry Bridges
- Concrete Masonry Overlay Decks

Approved:

Date:

Bill Oliva

1-16

STANDARD 40.05

BILL ITEMS

CONCRETE MASONRY OVERLAY DECKS

CONCRETE MASONRY BRIDGES

CONCRETE IN THIS AREA TO BE REMOVED & FULL DEPTH REPAIR IS REQUIRED.

DECK REPAIR IS REQUIRED.

REMOVE TO SOUND PIER. DEFINED BY A 1" DEEP SAW CUT.

LIMITS OF REMOVAL TO BE DEFINED BY CONSTR. JOINT.

EXIST. LONGIT. BY ROTATION OF 180°. SYM. ABOUT THIS POINT SPAN 2.

LEAVE CONSTR. JOINT ROUGH. FOR FULL DEPTH DECK REPAIR.

REMOVAL LIMIT OR CONSTR. JOINT SLOPE %

CONCRETE MASONRY OVERLAY OTHERWISE INCLUDE IN BID ITEM CONCRETE MASONRY BRIDGES.
ABUTMENT WIDENING

SECTION P-P

NOTES

1. CONSTRUCTION CONTINUE CONCRETE ABOVE THE AREA AFFECTED BY SUPERSTRUCTURE CONCRETE IS IN PLACE, Strike off and Leave Rough.

2. IF IMPEDIMENT TO USE OF WATERPROOFING SEAL ALL HORIZONTAL JOINTS AT INTERFACE.

3. SALVAGE EXIST. BARS, & EXTEND FULL LENGTH INTO NEW WORK.

4. ROLL OFF SURFACE OF CONCRETE 1/4" DEEP WHERE AT ALL AREAS WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE.

5. EXISTING WINGS. REMOVE A MIN. OF 2'-0" BELOW FRAMED EDGE.

6. ELEV. A 1'-0" ADHESIVE ANCHORS. (TYP.)

7. REMOVE CONC. IN THE AREA DOWN TO EXIST. SLOPE SEAL, INCORPORATE EVERY 5'-0" "1'-0" OF NEW WORK.

8. REMOVE A MIN. OF 2'-0" ELEV. @ F.F. ABUT. BACKWALL AND GUTTERLINE.

9. SBG BEYOND CONSTRUCTION JOINT: POUR CONCRETE ABOVE EXISTING WINGS. REMOVE A MIN. 2'-0" OF FINISHED GRADE.

10. SBG BEYOND CONSTRUCTION JOINTS: SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

11. 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING ALONG LENGTH INTO NEW WORK.

12. SALVAGE EXIST. REINF. & EXTEND FULL LENGTH INTO NEW WORK.

13. SBG BEYOND CONSTRUCTION JOINT: SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

14. SBG BEYOND CONSTRUCTION JOINT: SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

15. EXISTING WINGS. REMOVE A MIN. OF 2'-0" BELOW FRAMED EDGE.

16. ELEV. A 1'-0" ADHESIVE ANCHORS. (TYP.)

17. REMOVE CONC. IN THE AREA DOWN TO EXIST. SLOPE SEAL, INCORPORATE EVERY 5'-0" "1'-0" OF NEW WORK.

18. REMOVE A MIN. OF 2'-0" ELEV. @ F.F. ABUT. BACKWALL AND GUTTERLINE.

19. SBG BEYOND CONSTRUCTION JOINT: POUR CONCRETE ABOVE EXISTING WINGS. REMOVE A MIN. 2'-0" OF FINISHED GRADE.

20. SBG BEYOND CONSTRUCTION JOINTS: SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

21. SBG BEYOND CONSTRUCTION JOINT: SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

22. EXISTING WINGS. REMOVE A MIN. OF 2'-0" BELOW FRAMED EDGE.

23. ELEV. A 1'-0" ADHESIVE ANCHORS. (TYP.)

24. REMOVE CONC. IN THE AREA DOWN TO EXIST. SLOPE SEAL, INCORPORATE EVERY 5'-0" "1'-0" OF NEW WORK.

25. REMOVE A MIN. OF 2'-0" ELEV. @ F.F. ABUT. BACKWALL AND GUTTERLINE.

26. CONSTRUCTION CONTINUE CONCRETE ABOVE THE AREA AFFECTED BY SUPERSTRUCTURE CONCRETE IS IN PLACE, Strike off and Leave Rough.
INTERMEDIATE DIAPH. SPA.

TO BE LEVEL NEW GIR'S.

SPAN 1
SPAN 2
SPAN 3
SPAN 4

LAP TO EXIST. TRANS. BARS.

REMOVE EXIST. SDWK. & DECK TO THIS LINE.

MIN. LAP, TOP.
MIN. LAP, BOTT.

SKEW

4 BOLT MIN.

EXISTING GIRDER CROSS SECT. THRU RDWY.

PLAN

EXISTING STEEL GIRDER DIAPHRAGM CONNECTION TO W. ABUT.

` PIER 1
` PIER 2
` PIER 3
` BRG. E. ABUT.

EXTERIOR GIRDER ALONG ` EXIST.

COPE CORNER OF ANGLE SLAP %

1"

SLAB WIDENING

BILL OLIVA
EXPANSION BEARING REPLACEMENT - STEEL GIRDERS

STEEL BEARINGS

EXPANSION BEARING REPLACEMENT - PRESTRESSED GIRDERS

ELASTOMERIC BEARINGS

EXPANSION BEARING REPLACEMENT - STEEL GIRDERS

Elastomeric Bearings

EXPANSION BEARING REPLACEMENT - STEEL GIRDERS

Plate 'E' Details

(See Table for Concrete Block Alternatives)

EXPANSION BEARING REPLACEMENT - STEEL GIRDERS

ELASTOMERIC BEARINGS

EXPANSION BEARING REPLACEMENT DETAILS

BUREAU OF STRUCTURES

EXPANSION BEARING REPLACEMENT DETAILS

Notes & Designer Notes

(See Standard 27.07 for Additional Information)

Approved: Bill Oliva

Date: 1-19
TYPICAL HINGE DETAIL FOR FINGER TYPE EXPANSION DEVICE

TYPICAL WIND TRANSFER PLATES DETAIL

NOTES

HANGER PLATES AND WIND TRANSFER PLATES SHALL BE FINISHED ANSI 125.
HANGER PLATE DETAIL
TYPICAL HINGE DETAIL FOR WATERTIGHT EXPANSION DEVICE

HANGER PLATE DETAIL

TYPICAL HINGE DETAIL FOR FINGER TYPE EXPANSION DEVICE

(continued)
CONCRETE BEARING BLOCK DETAILS

MAY BE USED IN LIEU OF PLATE 'B' AS SHOWN ON STD. 40.08

PRECAST CONCRETE BLOCK DETAIL

DEPTH = HEIGHT, MAX. 1'-0"
ANCHORS INCLUDE ADHESIVE ANCHORS.
ANCHOR BOLTS OR COMBINATION.
GROUT 1/2" THICK PRECAST ELEMENT - ELIMINATE STRESS CONCENTRATION
PRECAST BLOCK OR ANY CONCRETE BLOCK MUST EXTEND BEYOND BEARING A
DISTANCE EQUAL TO OR GREATER THAN THE HEAT OF THE CONCRETE BLOCK.
REINFORCEMENT SHOULD BE IN BOTH DIRECTIONS UTILIZING *#4 @ 1'-0"* MAXIMUM
SPACING.
REINFORCEMENT SHOULD BE IN BOTH DIRECTIONS UTILIZING "#4 @ 1'-0"* MAXIMUM
SPACING.
BURN BURNING ANCHOR BOLTS OFF PLAIN BURN BEAM SEAT.
NOTES

FOR DOWEL BAR COUPLERS, ALL DOWEL BARS SHALL BE LAPPED AND TIED TO THE REINFORCEMENT BARS.

DESIGNER NOTES

ON THE PLANS PROVIDE LOCATION, SPACING, SIZE AND QUANTITY ONLY. DO NOT GIVE SPECIFIC INFORMATION REGARDING THE COUPLER AS THIS IS COVERED BY THE BID ITEM FOR COUPLERS (COUPLER) PLACED IN STAGE 1.

ON THE PLANS SHOW DETAILS SIMILAR TO "SECTION THRU DECK" AND "BAR COUPLER ALTERNATIVES".

AT THE PLAN BILL OF BARS, INDICATE WHICH BARS REQUIRE BAR COUPLERS BY USE OF A SYMBOL. USING THE SAME SYMBOL, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTED TO THE % OF THE CONSTRUCTION JOINT AND SHALL BE MODIFIED BY THE BAR COUPLER MANUFACTURER'S RECOMMENDATIONS. WHERE BARS ARE TO BE MODIFIED, ADD A NOTE STATING THAT A BAR COUPLER IS REQUIRED BUT LOCATIONS ARE COMPUTE...
BEAMS, NESTED
12 GAUGE THRIE
TWO, 12'-6" LONG
BEAM GUARD
ANCHOR ASSEMBLY FOR
ABUTMENT WING END OF DECK OR
THRIE BEAM TERMINAL END SYM. ABOUT "C"
NAME PLATE ƒ"
CHAMFER, TYP.
2'-0"
9"
1'-8"
8"
2" 3 ž 3 ž 3 ž
ELEVATION OF PARAPET
PART PLAN ON PARAPET

NOTES
ALL SLOPED FACE PARAPET "B" REINFORCEMENT ARE NO. 4 BARS UNLESS STATED TO THE CONTRARY.

PLATE REQUIRED WHEN DEFLECTION JOINTS ARE REQUIRED. CONSTRUCTION JOINTS ARE REQUIRED AT DEFORMATION JOINTS ARE REQUIRED ON SLAB SPAN STRUCTURES ONLY.
EXPANSION JOINT OPENING CAN BE EXTENDED AS LONG AS THE GROOVE SIZE IS NOT LESS THAN THE GROOVE SIZE OF THE JOINT GROOVE DETAILS.

PLATE REQUIRED FOR REINFORCEMENT AT TRANSITION JOINTS ON ABUT, BACKWALL OR GROOVE DETAILS.

PLATE REQUIRED WHEN DEFLECTION JOINTS ARE REQUIRED. IF CONSTRUCTION JOINTS ARE OTHERWISE SHOWN.

ALL SLOPED FACE PARAPET "B" REINFORCEMENT ARE NO. 4 BARS UNLESS STATED TO THE CONTRARY.

CONCRETE AREA = 2.25 SQ. FT.
WEIGHT = 338 LB/FT

SLOPED FACE PARAPET "B"

PART PLAN ON PARAPET

SECTION A
SECTION B
SECTION B1
SECTION C
SECTION D

BUREAU OF STRUCTURES
STANDARD 40.15

APPROVED
Bill Oliva
1-19

CONDUITS ONLY THIS SECTION WITH 3Ž" O.D. JUNCTION BOX 6" X 8" AND 8" X 8" CONDUIT BOX 6" X 8" CONDUIT BOX 6" X 8" CONDUIT BOX 6" X 8" CONDUIT BOX 6" X 8"

NON-BITUMINOUS JOINT SEALER FILL WITH NON-STAINING GRAY ZINC PLATE "V" PLASTIC OR 'V' GROOVE TYP.

NO. 5 BARS 9" NO. 5 BARS 9"
BAR @ 9" BAR @ 9"
BAR @ 9" BAR @ 9"
**Expansion Bearing Details**

**Type 'A' - Steel Girder**

- **10' Bearing**
- **12' Bearing**
- **14' Bearing**
- **16' Bearing**
- **18' Bearing**
- **20' Bearing**

**Anchor Bolt Notes:**
- For span lengths up to 20'-0", use a Type 'A' Masonry Plate to hold 2'-0" or 3'-0" Anchor Screws.
- For span lengths from 20'-0" up to 25'-0", use a Type 'A' Masonry Plate to hold 2'-0" or 3'-0" Anchor Screws.
- For span lengths greater than 30'-0", use a Type 'A' Masonry Plate to hold 2'-0" or 3'-0" Anchor Screws.

**Recommended Holes for Anchor Screws in Masonry Plate:**
- Small holes are recommended for anchor screws in masonry plates, which are typically 3/8" larger than anchor screws.

**Expansion Bearing Assembly**

- Top Plate 'A'
- Plate 'B'
- Rocker Plate 'C'
- Masonry Plate 'D'

**Precautions:**
- Lubricate top surfaces only.
- Sealed weld should be used.
- Seal up top surface only.

**Notes:**
- For bearing notes, clearance opening and width to be filled with plates, see standard 27.02.
- Anchor bolts, nuts, and washers shall be galvanized as required by local building code.
- Masonry plates, with 2-0" diameter anchor bolts, shall be used for bearing plates.
- Plate 'D' shall be shop painted and cleaned prior to installation on plate 'A'.

**Bureau of Structures**

**Approved:**

**Date:**

**Standard:** A04.05
**45° GIRDERS**

- \( A = 560 \text{ sq. in.} \)
- \( f = 223.91 \) in.
- \( S = 5,070 \) in.

**PRE-TENSION**

- \( \pm = 583 \) kips/ft.
- \( y = 20.27 \) in.
- \( r = -20.27 \) in.
- \( s = 0.070 \text{ in.}^2 \)
- \( 3.486 \text{ kips/in.}^2 \)

**STANDARD PATTERNS FOR UNDRAPEED STRANDS**

<table>
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<th>12</th>
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<td>2.75</td>
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**STANDARD PATTERNS FOR DRAPEED STRANDS**

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**ARRANGEMENT AT \( 2 \text{ span} \) - FOR GIRDERS WITH DRAPEED 0.5" AND 0.6" DIA. STRANDS**

| 12 STRANDS | 14 STRANDS | 16 STRANDS | 18 STRANDS | 20 STRANDS | 22 STRANDS | 24 STRANDS |
| 22 STRANDS | 24 STRANDS | 26 STRANDS | 28 STRANDS | 30 STRANDS | 32 STRANDS | 34 STRANDS |

**TO AVOID DRAPING OF 0.6" DIA. STRANDS**

- \( \text{COMPRESSION IS POSITIVE} \)
- \( \text{STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY} \)
- \( \text{Bill Oliva} \)

**BUREAU OF STRUCTURES**

**45° PRESTRESSED GIRDER DESIGN DATA**
**A)** 4 @ 1'-0" = 4'-0"

**DETAIL A**

40.19

#4 LEG

ANCHOR PLATE OF BEARING elastomeric & steel brgs.

#3 BARS SEE DETAIL A EACH END

EPOXY COATED END OF GIRDER IN PAIRS

#6 STIRRUPS 2'-2"

8" 2" FILE R GIRDER END OF GIRDER ON PALLET TO BE DETERMINED BY FABRICATOR

4 @ 3"

VARIES: 1'-0" TO 3'-6"

"B" = ("A" + 3 "C") + 3" MAX.

"B" = ("A" + 3 "C") MIN.

"A" TO BE GIVEN TO THE NEAREST 1"

BOTTOM OF GIRDER

1'-4"

2'-6"

IN PAIRS #6 STIRRUPS

2'-2"

2" CL.

1'-4"

8"

2" CL.

FILLER GIRDER END OF GIRDER

ON Pallet

TO BE DETERMINED BY FABRICATOR

PLAN VIEW

SIDE VIEW OF GIRDER

SECTION THRU GIRDER

SECTION THRU GIRDER SHOWING HORIZONTAL STIRRUP SPA. AND END OF GIRDER EXCEPT AT "DETAIL A")

SECTION A-A

SIDE VIEW OF ORDER

DESIGNER NOTES

NO MORE THAN 1 STRAND ON THE PLANS.

ORDER LENGTH IN EXCESS OF 100 FEET MAY BE CONTROLLED BY PRESTRESSED GIRDER MANUFACTURERS AND CONFORMING TO THE STRUCTURES DEVELOPMENT SECTIONS.

#4 BARS, FULL LENGTH AS REQUIRED BY DESIGN (4" MIN.)

#4 STIRRUPS @ STIRRUP SPACING REQUIRED

#4 BAR AT TOP & BOTTOM OF ORDER

#4 BARS @ 1'-0"

SIDE VIEW OF GIRDER

LOCATION OF DRAPED STRANDS

PLAN VIEW

#4 BARS @ 1'-4" MAX. SPACING

SIDE VIEW OF GIRDER

LOCATION OF DRAPED STRANDS

PLAN VIEW

SIDE VIEW OF ORDER

DESIGNER NOTES

NO MORE THAN 1 STRAND ON THE PLANS.

ORDER LENGTH IN EXCESS OF 100 FEET MAY BE CONTROLLED BY PRESTRESSED GIRDER MANUFACTURERS AND CONFORMING TO THE STRUCTURES DEVELOPMENT SECTIONS.

#4 BARS, FULL LENGTH AS REQUIRED BY DESIGN (4" MIN.)

#4 STIRRUPS @ STIRRUP SPACING REQUIRED

#4 BAR AT TOP & BOTTOM OF ORDER

#4 BARS @ 1'-0"

SIDE VIEW OF GIRDER

LOCATION OF DRAPED STRANDS

PLAN VIEW

SIDE VIEW OF ORDER

DESIGNER NOTES

NO MORE THAN 1 STRAND ON THE PLANS.

ORDER LENGTH IN EXCESS OF 100 FEET MAY BE CONTROLLED BY PRESTRESSED GIRDER MANUFACTURERS AND CONFORMING TO THE STRUCTURES DEVELOPMENT SECTIONS.

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#4 STIRRUPS @ STIRRUP SPACING REQUIRED

#4 BAR AT TOP & BOTTOM OF ORDER

#4 BARS @ 1'-0"

SIDE VIEW OF GIRDER

LOCATION OF DRAPED STRANDS

PLAN VIEW

SIDE VIEW OF ORDER

DESIGNER NOTES

NO MORE THAN 1 STRAND ON THE PLANS.

ORDER LENGTH IN EXCESS OF 100 FEET MAY BE CONTROLLED BY PRESTRESSED GIRDER MANUFACTURERS AND CONFORMING TO THE STRUCTURES DEVELOPMENT SECTIONS.

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#4 STIRRUPS @ STIRRUP SPACING REQUIRED

#4 BAR AT TOP & BOTTOM OF ORDER

#4 BARS @ 1'-0"

SIDE VIEW OF GIRDER

LOCATION OF DRAPED STRANDS

PLAN VIEW

SIDE VIEW OF ORDER

DESIGNER NOTES

NO MORE THAN 1 STRAND ON THE PLANS.

ORDER LENGTH IN EXCESS OF 100 FEET MAY BE CONTROLLED BY PRESTRESSED GIRDER MANUFACTURERS AND CONFORMING TO THE STRUCTURES DEVELOPMENT SECTIONS.

#4 BARS, FULL LENGTH AS REQUIRED BY DESIGN (4" MIN.)

#4 STIRRUPS @ STIRRUP SPACING REQUIRED

#4 BAR AT TOP & BOTTOM OF ORDER

#4 BARS @ 1'-0"

SIDE VIEW OF GIRDER

LOCATION OF DRAPED STRANDS

PLAN VIEW
PRE-TENSION

STANDARD PATTERNS - 0.5" DIA. DRAPED STRANDS

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<th>NO. STRANDS</th>
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70° ORDER

x = 714.50 ft
r* = 659.70 ft
y* = 25.36 ft
y* = -34.62 ft
S* = 530.61 ft
S* = -14,750 ft

70° PRESSTRESSED GIRDER DESIGN DATA

STANDARD PATTERNS - 0.6" DIA. DRAPED STRANDS

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PRE-TENSION
NOTES

Fabricator may increase base plate thickness as an alternate to shim.

All structural steel bearing plates shall be flat rolled. Steel plates with all surfaces smooth and free from warp and all edges shown square and vertical.

All plate cuts shall be machined or machine flame cut. On welded assemblies, final machining can be performed before welding is completed.

All materials for bearings, including shims, but excluding anchor bolts, nuts, and washers, shall conform to ASTM specification type A242 grade 50 steel.

All anchor bolts, nuts, and washers shall conform to ASTM specification type A 307 steel.

Anchor bolts shall be evidenced to be furnished by an alternate process the contact area of bearing surface of the plate shall be machined finished.

Anchor bolt diameters in "N" may be increased from 1.5" to 2" when a common grid detail is desired for several bearings.

For unpainted structures the upper 6" of the anchor bolts, nuts, and washers shall be galvanized as required by ASTM specification type A709 grade 50W steel.

Anchor bolts, nuts, and washers shall conform to ASTM specification type A709 grade 36 steel. Anchor bolts shall be threaded 3".

Provide one standard wrought washer and one Phillips head flat washer for each anchor bolt. Project anchor bolts "S" plate thickness + 2" above top of concrete masonry. Refill anchor bolts " pear head nuts and washers shall be galvanized as required by ASTM specification type A709 grade 50W steel.
FOR CULVERT WINGS:

1. At overhang weld underside of channel as necessary and maintain 9" clear of wing.
2. Place channel as high as possible while maintaining 9" clear.
3. Use 2'-0" long slotted holes.

FOR BRIDGE WINGS:

1. Adhesive anchors - (see detail "a").
2. Use 6" x .5" long slotted holes.

NOTES:

- WING STRAPPING DETAIL: For the purpose of weighting award the contractor is to use another method to the preferred method that may be used.
- Bid item shall be "strapping 8-xx-xxx" which includes all wing replacement.
- Field pieces for bridge maintenance engineer to approve use of detail prior to installation.
- All provided steel, material shall conform to ASTM A36.
- All structural steel shown shall be galvanized. Threaded rods, masonry anchors, nuts and washers shall be galvanized in accordance with ASTM A153 Class C.
- Cutting and drilling of channels shall be done in fabrication shop prior to galvanizing.
- Field pieces for bridge maintenance engineer to approve use of detail prior to installation.
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RAILING AND BEAM GUARD (WHEN REQ'ED)
PLACEMENT OF ANCHOR ASSEMBLY FOR ADJUST LOCATIONS OF BARS TO ALLOW FOR WING LOCATIONS.

FOR WING WALLS 1'-3"

WING WALL 1'-3"

WING WALL 1'-3"

VARIES

EDGE OF DECK

LEVEL

DECK

F.F. PARAPET

INSIDE ELEVATION

CONSTRUCTION JOINTS MAY BE USED.
FORM BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-5".

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED.

RAIL PLAN

PARAPET PLAN

BASE PLATE

DESIGNER NOTES

DETAILS LIMITED TO SHIMS < 40°.
SEE STANDARD 40.25 FOR RAILING DETAILS.

RAILING WEIGHT = 30 LB/FT

SEE STANDARD 40.24 FOR RAILING DETAILS

DETAILS LIMITED TO SKEWS < 40°.

APPROVED: Bill Oliva

RAILING TUBULAR TYPE 'PF'

BUREAU OF STRUCTURES

STANDARD 40.24
NOTES

1. All work shall be "RAILING TUBULAR TYPE PF", wherein shall include all steel items, painting, and installation.

2. Post base plates shall be flat with all surfaces smooth and flat. Any post shall be aligned to provide correct alignment of post and plate. Any offsets shall be included in the post base plate layout.

3. Anchorage shall be accurately placed to provide correct alignment of steel and plate. See bar series table for actual lengths.

4. Post shall be accurately placed to provide correct alignment of post and plate. See bar series table for actual lengths.

5. Steel shall be provided with a field plate frame for alignment.

6. Field joints shall be made as shown, using No. 9 bolts with non-threading gray non-ferrous joint seals.

7. All joints in concrete poured are to be vertical.

8. Use of standard A307 bolts. A325 bolts shall be used for all other connections.

9. Sections shown are for shop fabrication. See shop drawings for details.


11. See standard 30.07 for beam guard assembly details.

RAILING TUBULAR TYPE PF DETAILS

BILL OF BARS

NOTES THE POSTS OF POST AND SECTIONS OF THE BAR SHALL REPLACE THE BAR DETAIL.

BAR SERIES TABLE

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A LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BEAM DESIGN. SEE BAR SERIES TABLE.
Design Data

Live Load: 7-19

Inventory Rating: HS-__

Operating Rating: HS-__

Material Properties:
Concrete Masonry Overlay Decks: f'c = 4,000 P.S.I.

Notes:
- Drawings shall not be scaled.
- Design shall not be applied to the entire top surface of the new concrete overlay.
- Seal deck construction joints according to Section 502.3.12 of the Standard Specifications, cost incidental to new Concrete Masonry Overlay Decks.
- A minimum of 1 inch of concrete shall be removed from the entire bridge deck under the 0-10 "Cleaning Decks.
- The average overlay thickness is based on the normal overlay thickness plus 1/8" to account for variations in the deck surface.
- Preparation decks type 1 (preparation type 2) and full-depth deck repair areas are based on the plans and are determined by the engineer.
- Reinforcing steel and full-depth deck repairs shall be filled with new Concrete Masonry Overlay Decks.
- Any excavator required to complete the overlay or joint repairs at the abutments to be considered incidental to the new Concrete Masonry Overlay Decks.
- Profile grade line shall be determined in the field based on a minimum overlay thickness of 2 inches above the deck surface. Surface preparation expected average overlay thickness is 1 inch. If expected average overlay thickness is exceeded by more than 1/8", consult the structures design section.
- Drain pipes removed or closed is incidental to the new Concrete Masonry Overlay Decks.

Designer Notes:
- Plan view appearance to all overlay methods and deck repairs without overlays.
- Cross sections not in superelevation transitions having the required minimum slope is 2%.
- Provide an average overlay thickness on the plans. The average overlay thickness is the minimum overlay thickness plus 1/8" to account for variations in the deck surface. Changes in cross-slope increase the average overlay thickness. Quantities are based on the average overlay thickness.
- Do not provide a profile grade line on the plans.
- Do not provide a profile grade line on the plans.
- Provide the bid for new paving/floor preparation areas for new preparation.
- Proposal of 1" of existing deck under the new paving/concrete overlay is not intended for previously overlaid decks. Existing concrete overrun shall be removed and considered when determining aggregate removals. Plan the new paving/concrete overlay to replace the 0-10 "Cleaning Decks for newly concrete overlay when removing existing overlay.
- If proposed above-deck condition assessment survey on plans, include survey type and data collected.
- Joint repair areas should not be included in deck repair areas or overlay quantities. See standard again.
- Include the 0-10 "Adjusting Floor Drains" when drains are to be moved.
- Instructions on removal items shall be placed on the plans to prevent damage to reinforcing steel.

Total Estimated Quantities

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Concrete Overlay

Bureau of Structures

Approved: Bill Oliva

Date: 1-18

Standard: 40.31
DESIGN DATA

LIVE LOAD

OPERATING RATING: HS-___
INVENTORY RATING: HS-___
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS
OPERATING RATING FACTOR: RF=1.__
INVENTORY RATING FACTOR: RF=1.__
DESIGN LOADING: HL-93

MATERIAL PROPERTIES

CONCRETE MASONRY - DECK PATCHING: f'c = 4,000 P.S.I.

NOTES

DRAWINGS SHALL NOT BE SCALDED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DECK SURFACE-preparation IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

AREAS OF PREPARATION DECKS TYPE 1 SHOULD BE DEFINED BY A SAW CUT.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS

ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND
FILL-DEPTH DECK REPAIRS SHALL BE TREATED WITH "CONCRETE MASONRY DECK REPAIR".

TOTAL ESTIMATED QUANTITIES

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DESIGNER NOTES

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PREVENTIVE OVERLAY

INTERNATIONAL W-93
OPERATING RATING: HS-___
INVENTORY RATING: HS-___
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

NOTES

DRAWINGS SHALL NOT BE SCALDED.

DECK SURFACE-preparation IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

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POLYMER OVERLAY

INTERNATIONAL W-93
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INVENTORY RATING: HS-___
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS

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<table>
<thead>
<tr>
<th>BID ITEMS</th>
<th>NUMBER</th>
<th>UNIT</th>
<th>TOTAL</th>
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<tbody>
<tr>
<td>POLY.ORG</td>
<td></td>
<td>SY</td>
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</table>
DESIGNER NOTES

Concrete overlays are the current preferred method to overlay a bridge. Required areas require a minimum cure time of 7 days before placing overlay. Alternatives to concrete deck patches may be used to shorten the required for placing overlay. Provide an average overlay thickness on the plans. The average overlay thickness value is based on the theoretical average overlay thickness plus 1/2 to account for variations in the deck surface. Quantiies are based on the average overlay thickness. Do not provide a profile grade line on the plans. Overlays not requiring sheet membrane waterproofing are preferred. Coordinate with region bridge maintenance and roadway engineers for the asphaltic design and quantities. Restrictions on removal items shall be placed on the plans to prevent damage to reinforcing steel.

CROSS SECTION THRU ROADWAY

TOTAL ESTIMATED QUANTITIES

Material Property:
CONCRETE MASONRY - DECK PATCHING f'c = 4,000 P.S.I.

WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) =___ KIPS
OPERATING RATING: HS-__
INVENTORY RATING: HS-__
LIVE LOAD:

Material Property:
POLYMER MODIFIED ASPHALTIC

Notes:
DRAWINGS SHALL NOT BEcaled.

Dimensions shown are based on the original structure plans. Areas of preparation decks type I shall be defined by a saw cut. Preparation deck type 1, preparation deck type 2, and full-depth deck repair areas are based on the plans and as determined by the engineer. Preparation and full-depth deck repairs shall be filled with concrete masonry deck repair. Any excavation required to complete the overlay or joint repair at the abutments to be considered incidental to the cost of the overlay polyethylene. The plan quantity for the 2" min. overall polymer-modified is based on the average overlay thickness. Profile grade line shall be determined in the field based on a minimum overlay thickness of 2" placed above the deck surface. Expected average overlay thickness is 2" (or as shown on the plans). If expected average overlay thickness is exceeded by more than 1", contact the Structures Design Section.
TOTAL ESTIMATED QUANTITIES

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<tr>
<th>BID ITEMS</th>
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<tbody>
<tr>
<td>509.0300 PREPARATION DECKS TYPE 1</td>
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<tr>
<td>509.0302 PREPARATION DECKS TYPE 2</td>
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<tr>
<td>505.0000 SAWING DECK PREPARATION AREAS</td>
<td>LF</td>
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<tr>
<td>509.0500 FULL-DEPTH DECK REPAIR</td>
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<td>509.0600 RAPID SET DECK REPAIR</td>
<td>CY</td>
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<tr>
<td>509.0800 POLYESTER POLYMER CONCRETE OVERLAY</td>
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<td>POSSIBLE ADDITIONAL BID ITEMS</td>
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<tr>
<td>509.0900 CLEANING DECKS</td>
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</table>

*This is a partial list of possible BID items, the items may need to be added or removed to fit each individual case.*

**NOTES**

- **Design Data**
  - Location:
  - Operating Limitations:
  - Preliminary Standard Permit Vehicle (WSPV): Kips

- **Design Notes**
  - Dimensions shown are based on the original structure plans.
  - Areas of Preparation Decks Type 1 shall be defined by a saw cut.
  - Preparation decks type 2 and full-depth deck repair areas are based on the plans and as determined by the engineer.
  - Preparation areas shall be filled with full depth repair areas shall be filled with full depth repair areas may be substituted as no extra cost.

- **Total Estimated Quantities**

- **Polyester Polymer Concrete Overlay**

- **Bureau of Structures**

- **Approved by:**
  - Bill Oliva

- **Date:**
  - 1-19

- **Standard:**
  - 40.34

- **Design Data**

  - Live Load:
  - Design Data:
  - Polymer Overlay:
    - Minimum polyester

- **Possible Additional BID Items**

  - 509.0301
  - 509.0302
  - 509.0500
  - 509.0600
  - 509.0800

- **Notes**

  - Tank layers shall not be scaled.
  - Dimensions shown are based on the original structure plans.
  - Areas of Preparation Decks Type 1 shall be defined by a saw cut.
  - Preparation areas shall be filled with full depth repair areas may be substituted as no extra cost.

- **Total Estimated Quantities**

  - Table
  - SY
  - CY
  - LF