CONCRETE REPAIR DETAILS

DECK REPAIR DETAIL - PLAN

FOR DESIGNER INFORMATION ONLY
DO NOT PLACE ON PLAN

DECK REPAIR DETAIL - SECTION

FOR DESIGNER INFORMATION ONLY
DO NOT PLACE ON PLAN

FULL-DEPTH DECK REPAIR DETAIL

FOR DESIGNER INFORMATION ONLY
DO NOT PLACE ON PLAN

DESIGNER NOTES

DETAILS APPLICABLE TO ALL OVERLAY METHODS AND DECK REPAIRS WITHOUT OVERLAYS.

*SAWING PAVEMENT DECK PREPARATION AREAS* NOT REQUIRED FOR CONCRETE OVERLAYS.

⚠️ CONCRETE MASONRY DECK REPAIR METHODS FOR DECK REPAIRS UNDER POLYMERS, ASPHALTIC, OR POLYMER MOD. ASPHALTIC OVERLAYS USE "CONCRETE MASONRY DECK REPAIR" FOR DECK REPAIRS WITHOUT OVERLAYS.

RESTRICTIONS ON REMOVAL AREAS SHALL BE PLACED ON THE PLANS TO PREVENT DAMAGE TO REINFORCING STEEL.
TYPICAL INSTALLATION AT BAR STEEL INTERSECTION

EXISTING REINFORCING STEEL

GALVANIC ANODE

ANODE TIE, TYP.

EXISTING DECK

REPAIR AREA

PART PLAN TYPICAL REPAIR DETAIL

SPC001500 CONCRETE SURFACE REPAIR OF EXISTING GALVANIC ANODES EACH

PLACE GALVANIC ANODES AT INTERIOR OF REPAIR AREA ACROSS CONTACT WITH THE EXISTING CONCRETE AT THE BOTTOM OF THE REPAIR.

NOTES

EXISTING REINFORCING STEEL TO BE COMPLETELY CLEANED OF CORRODED MATERIAL PRIOR TO INSTALLATION OF GALVANIC ANODES.

DESIGNER NOTES

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

INCLUDE APPLICABLE CONCRETE MASONRY SPECIFICATION TO FILL REPAIRS.

CATHODIC PROTECTION

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

ANGLES NEAREST TO EDGE OF REPAIR TO BE MIN. 6" OF EDGE.

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

STANDARD 40.03

CATHODIC PROTECTION
RUPTURED VOID REPAIR

SECTION THRU PARAPET ON WING

SECTION AT END OF SLAB

DESIGNER NOTES

- "CONCRETE MASONRY DECK REPAIR DETAILS" FOR DECK REPAIR WITHOUT OVERLAYS.
- "CONCRETE MASONRY DECK REPAIR DETAILS" FOR DECK REPAIR UNDER POLYMER.

OVERLAY DETAILS
STANDARD 40.04

STANDARD

LEGEND

EXPANDING DEVICES:

ADHESIVE ANCHORS:

BAR STEEL REINFORCEMENT:

CONCRETE MASONRY DECK REPAIR:

TOTAL ESTIMATED QUANTITIES

STRIPE SEALS & DIAPHRAGMS

DETAILS FOR OVERLAYS
UTILIZE EXIST. REINF.

MIN.

LAP

UTILIZE EXIST. REINF.

B. F. ABUT.

OVERLAY.

TOP OF OVERLAY

4"

EXIST. CONC. TO REMAIN IN PLACE.

TOP OF EXIST. SLAB

B. F. ABUT. (OF SPAN 2)

MATCH EXIST. SPACING (SPANS 1 & 3)

HAUNCH @ PIERS.

SLAB. (REQUIRED ONLY FOR FULL DEPTH DECK REPAIR)

CROSS SECTION THRU ROADWAY LOOKING EAST

HALF PLAN SHOWING TOP BAR STEEL REINF.

HALF LONGIT. SECTION

HALF PLAN SHOWING BOTTOM BAR STEEL REINF

REMOVAL LIMIT OR CONST. JOINT

SLDPE  %

DECK REPAIR IS REQUIRED.

BE REMOVED IF FULL DEPTH

CONCRETE IN THIS AREA TO

BID ITEMS

"CONCRETE MASONRY OVERLAY DECKS".

"CONCRETE MASONRY BRIDGES".

"CONCRETE MASONRY BRIDGES"

BE INCLUDED IN BID ITEM

CONCRETE IN THIS AREA TO

REPAIRS

TOTAL ESTIMATED QUANTITIES

IN CY

IN LB

IN SY

STANDARD 40.05

Bill Oliva

1-16

APPROVED

BUREAU OF STRUCTURES
NOTES

1. Construction joint pour concrete above the joint after superstructure concrete is in place. Strike off and leave rough.

2. If necessary, salvage existing waterproofing seal and joints at interface.

3. Salvage cast, bend, & extend full length into new work.


5. Existing wings, remove a min. of 2'-0" below finished grade.


7. Remove conc. in area down to rough. Shovel seat, incorporate every day steel into new work.

DESIGNER NOTES

See Chapter 12 for new bar steel placement, details, dimensions, & notes.

ABUTMENT WIDENING

PILE PLAN

SECTION P-P

SEE STANDARD 40.06 FOR ADDITIONAL DETAILS

STANDARD 40.06

BUREAU OF STRUCTURES

APPROVED

Bill Oliva

DATE: 7-19
INTERMEDIATE DIAPHRAGM SPANS
TO BE LEVEL
NEW GIRDER SPANS 1 TO 4
LAP TO EXIST. TRANS. BARS.
REMOVE EXIST. SDWK. & DECK TO THIS LINE.
MIN. LAP, TOP & BOTTOM
MC 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.
EXTERN GIRDER ALONG 'EXIST.
COPE CORNER OF ANGLE 4 4
SLAB WIDENING
SLAB L 5" x 5" x …" MIN.
TIGHT FIT TOP & BOTTOM
SLOPE % 'F.S.
STANDARD 17.02 JOINT DETAIL. REFER TO LONGITUDINAL CONSTRUCTION
USE ½" DIA. H.S. BOLTS. SHOWN ON STD'S. 24.03, 24.04, & 24.06.
DIAPHRAGM AND CONNECTION AS
APPROVED:
DATE:
BILL OLIVA
SLAB WIDENING
BUREAU OF STRUCTURES
APPROVED:
DATE:
STANDARD 40.07
BILL OLIVA
1-16
EXPANSION BEARING REPLACEMENT - PRESTRESSED GIRDER

ELASTOMERIC BEARINGS

EXPANSION BEARING REPLACEMENT - STEEL GIRDER

STEEL BEARINGS

EXPANSION BEARING REPLACEMENT - STEEL GIRDER

ELASTOMERIC BEARINGS

EXPANSION BEARING REPLACEMENT - PRESTRESSED GIRDER

ELASTOMERIC BEARINGS

NOTES

1. ALL MATERIAL USED FOR BEARINGS SHALL BE PAID AT THE UNIT PRICE BID FOR THE BEARING REPLACEMENT DETAILS.

2. STEEL PLATES ATTACHED TO STEEL TOP PLATE TO ELASTOMERIC PLATE.

3. STEEL PLATES TO BE ATTACHED TO STEEL TOP PLATE.

4. STEEL PLATE SERVICE TEMPERATURE LIMITS SHALL BE 200°F (93°C).

5. STEEL PLATE THICKNESS MAY BE REDUCED (MIN.) TO MATCH THE OVERALL TOP STEEL PLATE THICKNESS.

6. STEEL PLATE MATERIALS SHALL BE PAID AT THE UNIT PRICE BID FOR THE BEARING REPLACEMENT DETAILS.

TECHNICAL NOTES

1. THE STEEL PLATE MATERIALS SHALL BE PAID AT THE UNIT PRICE BID FOR THE BEARING REPLACEMENT DETAILS.

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6. STEEL PLATE MATERIALS SHALL BE PAID AT THE UNIT PRICE BID FOR THE BEARING REPLACEMENT DETAILS.
TYPICAL HINGE DETAIL FOR FINGER TYPE EXPANSION DEVICE

NOTES

- Hinges of hanger plates shall be coated new system or an approved equal.
- New system or an approved equal shall be used in place of existing pin plates. The inner diameter of the opening shall provide a clearance of 0.05 inch and 0.005 inch of the pin. Note that the inner diameter shall be determined at the shop by at least 0.005 inch.
CONCRETE BEARING BLOCK DETAILS

MAY BE USED IN LIEU OF PLATE 'E' AS SHOWN ON STD. 40.081

PRECAST CONCRETE BLOCK DETAIL

DEPTH = HEIGHT, MAX. 1'-0"
ANCHOR IN AT LEAST 6 LOCATIONS (ANCHORS INCLUDE ADHESIVE ANCHORS, ANCHOR BOLTS OR COMBINATION).
Cement Grout 1/4" - REINFORCEMENT (ELIMINATE GROUT CONCENTRATION AND REDUCE STRESS)
PRECAST BLOCK OR ANY CONCRETE BLOCK MUST EXTEND BEYOND BEARING A DISTANCE EQUAL TO 1/2 THE HEIGHT OF THE CONCRETE BLOCK AND BE MOUNTED TO THE BACKWALL AND FIXED SEAT.
REINFORCEMENT SHOULD BE IN BOTH DIRECTIONS UTILIZING "#4 @ 1'-0" MAXIMUM SPACING.
BEAR EXISTING ANCHOR BOLTS OFF OF PLANE "A" AS SHOWN ON STD. 40.081.

ADHESIVE ANCHORS - IN PLACE:
- BOLT TO REMAIN IN EXISTING ANCHOR BACKWALL F.F.
- ABUT PLAN SIDE ELEVATION
- CONCRETE BEARING BLOCK DETAILS

EMBED 1'-6" IN CONCRETE.
ADHESIVE ANCHORS - IN PLACE:
- BOLT TO REMAIN IN EXISTING ANCHOR BACKWALL F.F.
- ABUT PLAN SIDE ELEVATION
- CONCRETE BEARING BLOCK DETAILS

EMBED 12" IN CONCRETE.
ADHESIVE ANCHORS - IN PLACE:
- BOLT TO REMAIN IN EXISTING ANCHOR BACKWALL F.F.
- ABUT PLAN SIDE ELEVATION
- CONCRETE BEARING BLOCK DETAILS

ALTERNATE DETAIL TO BE USED FOR CASES WHERE HEIGHT EXCEEDS 1'-0" OR MIN. EDGE DISTANCE (PRECAST OPTION SHOWN)

MAX. #4 @ 1'-0"
#4 U-SHAPED BARS
FILL TO TOP WITH EPOXY STOP BAR 1" FROM TOP AND GROUT 2" BENEATH PRECAST ELEMENT - ELIMINATE STRESS CONCENTRATION AND REDUCE CRACKING.
SPACING.
REINFORCEMENT SHOULD BE IN BOTH DIRECTIONS UTILIZING "#4 @ 1'-0" MAXIMUM SPACING.
BEAR EXISTING ANCHOR BOLTS OFF OF PLANE "A" AS SHOWN ON STD. 40.081.

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- ABUT PLAN SIDE ELEVATION
- CONCRETE BEARING BLOCK DETAILS

EMBED 12" IN CONCRETE.
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 hero. Do not give specific information regarding the coupler as this is covered by the bar coupler spec.

On the plans show details similar to "section thru deck and "bar coupler alternatives".

At the plan roll of bars, indicate when bars require bar couplers by use of a symbol. The plan roll symbol is to be modified by the bar coupler manufacturer recommendations. The plan roll symbol shall be modified by the bar coupler manufacturer recommendations.

On the plans show details similar to "section thru deck and "bar coupler alternatives".

Specific information regarding the coupler as this is covered by the bid item.

On the plans provide location, staging, size and quantity req'd. Do not give specific information regarding the coupler as this is covered by the bar coupler spec.

BAR COUPLER ALTERNATIVES

On the plans show details similar to "section thru deck and "bar coupler alternatives".

At the plan roll of bars, indicate when bars require bar couplers by use of a symbol. The plan roll symbol is to be modified by the bar coupler manufacturer recommendations. The plan roll symbol shall be modified by the bar coupler manufacturer recommendations.

On the plans show details similar to "section thru deck and "bar coupler alternatives".

Specific information regarding the coupler as this is covered by the bid item.

On the plans provide location, staging, size and quantity req'd. Do not give specific information regarding the coupler as this is covered by the bar coupler spec.
**Support with Steel or Elastomeric Brgs.**

**Side View of Girder**

- **Steel Brgs.**
- **Elastomeric Bearing**

**Location of Draped Strands**

- **4" Bar, Epoxy Coated, Plate & Stirrup**
- **1/2" Elastomeric Brg., Pad**

**Design Notes**

- Specified Concrete Strengths are required by design for a minimum of 5,000 psi, a maximum of 6,000 psi, and a minimum 6,000 psi. The use of prestressed strands is recommended for higher concrete strengths.
- All girders shall be cast full length as shown.
- **Bend to be 16 Bar Dia. 2-#4 Bars Minimum.**
- **2 Bars, Size & Bend as Required by Design.**
- **Detail A**
- **54" Prestressed Girder Details**
- **Bend to be 16 Bar Dia. 2-#4 Bars Minimum.**
- **2 Bars, Size & Bend as Required by Design.**
- **Detail A**
- **54" Prestressed Girder Details**
ELEVATION OF PARAPET

PART PLAN ON PARAPET

SLOPED FACE PARAPET 'B'

NOTES

ALL SLOPED FACE PARAPET 'B' REINFORCEMENT ARE NO. 6 BARS UNLESS OTHERWISE SHOWN.

- PLATE REQUIRED WHEN DEFLECTION JOINTS ARE REQUIRED. CONSTRUCTION JOINTS ARE REQUIRED TO BE SAWN.

CONSTRUCTION JOINTS ARE REQUIRED TO BE SAWN. DEFLECTION JOINTS ARE REQUIRED ON SLAB SPAN STRUCTURES ONLY.

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**45° GIRD**

- \( A = 560 \text{ sq. in.} \)
- \( r_t = 223.91 \text{ in.}^2 \)
- \( \phi = 270,000 \text{ psi} \)
- \( \Delta = 527 \text{ lb/ft.} \)
- \( f' = 270,000 \text{ psi} \)
- \( f = 0.75 \times 270,000 = 202,500 \text{ psi} \)
- \( \gamma \) = 202.50 psi

**PRE-TENSION**

- \( f_{\text{Init.}} = \frac{4}{\phi} \)
- \( \phi = \frac{4}{f_{\text{Init.}}} \)
- \( \Delta_{\text{Init.}} = A \phi \)
- \( S_{\text{Init.}} = \frac{A}{2} \phi \)
- \( r = 223.91 \text{ in.} \)
- \( r_t = 0.22390 \text{ in.} \)
- \( s = -6.386 \text{ in.} \)
- \( \Delta_{\text{Init.}} = 583 \text{ lb/ft.} \)

**STANDARD PATTERNS FOR DRAPED STRANDS**

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<th>NO. STRANDS</th>
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**STANDARD PATTERNS FOR UNDRAPED STRANDS**

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**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY**

- **0.5” DIA. STRANDS ONLY**

**COMPRESSION IS POSITIVE**

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

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<td>-17.05</td>
<td>2.032</td>
<td>2.032</td>
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</table>
A 40.19
4 @ 1'-0" = 4 '-0"

DETAIL A
#4 LEG
ANCHOR PLATE & steel brgs.
#3 BARS
SEE DETAIL A
EPOXY COATED IN PAIRS
#6 STIRRUPS
2 " C L .
1'-4" 2"

GIRDER ON PALLET TO BE DETERMINED BY FABRICATOR
#3 BARS @ 4" = 1'-0"

"B" = "(A" + 3 "C") + 3" MAX.
"B" = "(A" + 3 "C") MIN.
"A" TO BE GIVEN TO THE NEAREST 1"

3'-0"
12% SLOPE MAX.

2" 5 @ 4'
4 @ 3"

#4 STIRRUPS & #3 BARS
12" #7 LEG
LOCATION OF DRAPED STRANDS
5 @ 4' = 1'-9'

1'-0"
3'-0"

#6 LEG

4 BARS, FULL LENGTH AS REQUIRED BY DESIGN 4-#4 MIN.
#4 BARS @ 1'-0"

ELASTOMERIC BEARING PAD

7'-6"

"C" OF GIRDER

1'-2" 1'-0"

DRAPED STRANDS CENTER OF GRAVITY OF "B"

HOLD DOWN POINT

NOTE:

- This page contains detailed drawings and notes regarding the design and construction of a prestressed girder. It includes information on the use of steel and elastomeric bearings, stirrups, and concrete strength.
- The girder details are shown in various views, including sketches and tables.
- Designer notes are included to ensure adherence to certain specifications and standards.
- The page is approved by Bill Oliva and marked with the Bureau of Structures logo.

For a comprehensive understanding, it is recommended to review the entire document for all the necessary details and specifications.
### Standard Patterns - 0.5" Dia, Draped Strands

<table>
<thead>
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<th>NO. STRANDS</th>
<th>( n_e )</th>
<th>( k )</th>
<th>( A_e )</th>
<th>( f_e )</th>
<th>( f' )</th>
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**Arrangement at 6 Span for Orders with Draped 0.5" Dia, Strands**

### Standard Patterns - 0.6" Dia, Draped Strands

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<th>NO. STRANDS</th>
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<th>( k )</th>
<th>( A_e )</th>
<th>( f_e )</th>
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</tbody>
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**Arrangement at 6 Span for Orders with Draped 0.6" Dia, Strands**

---

**Pre-Tension**

\[ f' = \frac{270,000}{525} \]

\[ f' = 0.51 \times 270,000 = 136,500 \text{ P.S.I.} \]

**Approved:** Bill Oliva

---

**70" Prestressed Girder Design Data**

**70" Girder**

\[ A = 774 \text{ SQ. IN.} \]

\[ I = 510,613 \text{ IN.}^4 \]

\[ f' = 270,000 \text{ P.S.I.} \]

\[ f = 0.75 \times 270,000 = 202,500 \text{ P.S.I.} \]

**Compression is Negative**

\[ \gamma_a = 35.38 \text{ IN.} \]

\[ r = 659.70 \text{ IN.} \]

\[ \gamma_y = \frac{0.75 \times 270,000}{525} = 27.00 \text{ KIPS} \]

\[ \gamma_y = \frac{0.217 \times 202,500}{525} = 43.94 \text{ KIPS} \]

\[ S_e = 14,430 \text{ IN.}^2 \]

\[ S_y = -14,750 \text{ IN.}^2 \]

**Arrangement at 6 Span for Orders with Draped 0.6" Dia, Strands**

**Arrangement at 6 Span for Orders with Draped 0.5" Dia, Strands**

---

**Bureau of Structures**

STANDARD 40.20
<no output>
NOTES
- Fabricator may increase base plate thickness as an alternate to shim.
- All structural steel bearing plates shall be plate rolled, steel plates from all surfaces smooth and free from warp and all edges shown straight and vertical.
- All plate cuts shall be machined or machine plane cuts, on bridge bearings, final machining can be performed before welding is completed.
- All materials for bearings including base plate, nuts, and washers shall conform to ASTM specification type A709 grade 50w steel.
- Anchor bolts, nuts, and washers shall conform to ASTM specification type A125 in type B steel. Anchor bolts shall be threaded 3/4". Provide one standard grade washer and one hex nut for each project anchor bolt. 3/4"-plate thickness must be less than 4-1/2". Provide one common grade washer and anchor bolts shall be galvanized.
- After welding shoe assembly, from bottom of base plate to a flat surface.
- All surfaces marked "M" shall be machined smooth by an automatic process. The contact area of bearing surface of the order flange shall be machine finished.
- Anchor bolt distances along "M" may be increased from "M" shown when a common grid detail is desired for seating devices.
- For unpainted structures the upper 6" of the anchor bolts, nuts, and washers shall be galvanized as required by ASTM specification type C or B.
- ALL materials in type B fixed shoe bearings, including shims, shall be paid for at the unit price bid for "bearing assemblies".
- Use material of equivalent yield strength and elongation.

TABLE OF DIMENSIONS

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<tr>
<th>Reaction</th>
<th>A</th>
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<th>C</th>
<th>G Values</th>
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<td>0&quot;-12</td>
<td>1/4&quot;</td>
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<td>1600-1999</td>
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<td>0&quot;-12</td>
<td>1/4&quot;</td>
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</table>

* For reactions > 1000 Kips use 4" stud bolts.

Approved: Bill Oliva
Date: 1-18

STANDARD 40.22
WING STRAPPING

NOTES

For wing strapping detail, the purpose of providing anchor fasteners is as a non-permanent alternative to the preferred method of detail prior to installation.

Wing strapping detail shall be approved by the WisDOT Regional Bridge Maintenance Engineer to approve use.

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 channel shall be done in fabrication and prior to galvanizing.

For use with angled wings only.

Channel notches shall conform to section 502.2.1 of the standard specifications.

Adhesive anchors shall conform to section 502.2.10 of the standard specifications.
RAILING AND BEAM GUARD (WHEN REQ'D). PLACEMENT OF ANCHOR ASSEMBLY FOR ADJUST LOCATIONS OF BARS TO ALLOW FOR WING LOCATIONS.

MIN. SHIM AS REQ'D. TO ALIGN RAILING. ANCHOR BOLTS FOR RAIL POSTS.

INSIDE ELEVATION

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. MIN. CONSTR. JT. SPACING OF 80'-0". DEFINE CONSTR. JT. WITH A V-GROOVE. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-5".

DESIGNER NOTES

DETAILS LIMITED TO SKEWS < 40°. SEE STANDARD 40.24 FOR RAILING DETAILS.

RAIL PLAN

BASE PLATE

PARAPET PLAN

SECTION A-A

SECTION B-B

SECTION C-C

RAILING TUBULAR TYPE 'PF'

BUREAU OF STRUCTURES

APPROVED

Bill Oliva

DATE: 1-17

STANDARD 40.24
**NOTES**

NO. 1 AND NO. 5, SHALL CONFORM TO ASTM A500 GRADE B. STRUCTURAL TUBING. NO. 2, NO. 7 AND NO. 8 SHALL CONFORM TO ASTM A709 GRADE 36. STRUCTURAL TUBING. NO. 2, NO. 7 AND NO. 8 SHALL CONFORM TO ASTM A709 GRADE 36. STRUCTURAL TUBING.

ANCHORAGE SLEEVES SHOWN ARE LONGER THAN REQUIRED FOR ALIGNMENT.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF PARAPET. SET POSTS NORMAL TO GRADE.

BILL OF BARS

<table>
<thead>
<tr>
<th>BAR SERIES</th>
<th>MARK</th>
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<tr>
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<td>1' 0&quot;</td>
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<tr>
<td>S402</td>
<td>2</td>
<td>3</td>
<td>1' 0&quot;</td>
</tr>
<tr>
<td>S403</td>
<td>3</td>
<td>3</td>
<td>1' 0&quot;</td>
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</table>

A LENGTH SHOWN FOR BARS IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BID PURPOSES. FOR ACTUAL LENGTHS, SEE BARS AND THEIR SERIES SEPARATELY.

BILL ITEM SHALL BE "RAILING TUBULAR TYPE PF B-_-", WHICH SHALL INCLUDE ALL STEEL RAIL, SHOP AND FIELD SHIMS.

ANCHORAGE DETAILS ARE PROVIDED FOR BOLTING THE RB-3 SERIES TO THE GIRDERS. DETAILS ARE PROVIDED FOR ALL BOLTING. ALL BOLTING SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF POSTS.

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**Parapet Details**

- **Plan**: Designate the plan view for the parapet details, including the layout and dimensions.
- **Section A**: Provides a detailed section through the parapet, illustrating reinforcing bars and anchorage details.
- **Section B**: Another section, focusing on the transition of the parapet, highlighting specific reinforcing details.
- **Section C**: Additional section showcasing specific parapet features and reinforcement arrangements.

**Bill of Bars**

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**Bar Series Table**

- **Mark**
- **No.**
- **Length**
- **Location**

**Stepped Face Parapet 'HF'**

- **Outside Elevation**: Shows the parapet's profile from the outside, including reinforcing bars and parapet sections.
- **Inside Elevation**: Displays the parapet's profile from the inside, focusing on anchorage and reinforcement details.

**Approved**

Bill Oliva  Date: 1/18
**PREPARATION DECKS TYPE 1**

**PREPARATION DECKS TYPE 2**

**CLEANING DECKS**

**FULL-DEPTH DECK REPAIR**

**CONCRETE MASONRY OVERLAY DECKS**

---

**DESIGN DATA**

*Live Load:*
- Revenue vehicles: ----
- Nonstandard truck vehicle (NSV): ****

*Material Properties:*
- Concrete Masonry Overlay Decks: Fc = 4,000 P.S.I.

*Notes:*
- Drawings shall not be scaled.
- Dimensions shown are based on the original structure plans.
- Protective surface treatment shall be applied to the entire top surface of the new concrete overlay.
- Seal deck construction joints according to Section 502.3.13.1 of the Standard Specifications.
- Cost incidental to the bid item "Concrete Masonry Overlay Decks"
- A minimum of 1 inch of concrete shall be removed from the entire bridge deck under the bid item "Cleaning Decks.
- The average overlay thickness is based on the minimum overlay thickness plus 1/8-inch to account for variations in the deck surface.
- Preparation decks type 1 preparation decks type 2 and full-depth deck repair areas are based on the plans and are determined by the engineer. Prepolarization and full-depth deck repairs shall be filled with "Concrete Masonry Overlay Decks".
- Any excavator required to complete the overlay or joint repairs at the abutments to be considered incidental to the bid item "Concrete Masonry Overlay Decks."

**Profile Grade Line:**
- The profile grade line shall be determined in the field based on a minimum overlay thickness of 2 inches above the deck surface. The average overlay thickness is based on the minimum overlay thickness plus 1/8-inch 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.
- The profile grade line shall be determined in the field based on a minimum overlay thickness of 1 1/2 inches above the deck surface. The average overlay thickness is based on the minimum overlay thickness plus 1/8-inch to account for variations in the deck surface.
- The profile grade line shall be determined in the field based on a minimum overlay thickness of 1 inch above the deck surface. The average overlay thickness is based on the minimum overlay thickness plus 1/8-inch to account for variations in the deck surface.

**CONCRETE OVERLAY**

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

---

**TOTAL ESTIMATED QUANTITIES**

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**Survey Type:**
- Survey completed date: __/__/____

*Note:*
- The following list of possible bid items are shown but need to be added to the deck repair or removed to fit each individual case.
**NOTES**

**Polymer overlays shall not be placed on concrete approaches.**

When bid item "polymer Overlay" is used rating should include the 5 psf overlay.

When deemed absolutely necessary (by region and BOS design staff) "rapid set polymer overlays" may be used in lieu of "concrete masonry deck repair" to shorten time required for placing overlay.

**TOTAL ESTIMATED QUANTITIES**

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<th>TOTAL</th>
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**PREVENTATIVE OVERLAY**

**NOTES**

**Polymer overlays shall not be placed on concrete approaches.**

Drawings shall not be scaled.

Deck surface preparation is included in the bid item "Polymer Overlay".

**TOTAL ESTIMATED QUANTITIES**

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**REHABILITATION OVERLAY**

**NOTES**

**Polymer overlays shall not be placed on concrete approaches.**

Drawings shall not be scaled.

Deck surface preparation is included in the bid item "Polymer Overlay".

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**DESIGN DATA**

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

---

**DESIGNER NOTES**

- Polymer overlays are intended for use on decks with a minimum age of 30 days and a maximum age of 1 year. An additional coating of 5/8" is required for filling the overlap of a future wearing surface.
- Polymer overlays shall not be placed on concrete approaches.

---

**POLYMER OVERLAY**

**BUREAU OF STRUCTURES**

Approved: Bill Oliva

STANDARD 40.32
FULL-DEPTH DECK REPAIR

40.33
TOTAL
TOTAL
HMA OVERLAY Polymer-MODIFIED
SY

DESIGNER NOTES

CONCRETE OVERLAYS ARE THE CURRENT PREFERRED METHOD TO OVERLAY A DECK.

REPAIRED AREAS REQUIRE A MINIMUM CURE TIME OF 7 DAYS BEFORE PLACING OVERLAY.

CONCRETE DECK PATCHES MAY BE USED TO SEAT THE REQUIRED FOR PLAYING OVERLAY.

OVERLAYS NOT REQUIRING SHEET MEMBRANE WATERPROOFING ARE PREFERRED.

DO NOT PROVIDE A PROFILE GRADE LINE ON THE PLANS.

INCREASED COST OF OVERLAY WILL BE AFFECTED TO EACH INDIVIDUAL CASE.

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

OVERLAYS NOT REQUIRING SHEET MEMBRANE WATERPROOFING ARE PREFERRED.

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NOTE: DRAWINGS SHALL NOT BE SCALING.

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DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

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OVERLAYS NOT REQUIRING SHEET MEMBRANE WATERPROOFING ARE PREFERRED.
**DESIGNER NOTES**

- **Existing**: X.X% 
- **Proposed**: X.X%

**NOTES**

- **Items** shall not be scaled.
- **Conditions** shown are based on the original structure plans.

**Notes**

- **Removal of concrete shall be removed from the entire bridge deck under the bid item “cleaning deck”**.
- Areas of preparation decks type 1 shall be defined by a saw cut.
- Preparation decks type 1, preparation decks type 2, and full-depth repair areas are based on the plans and as determined by the engineer.
- All long-term deck repairs shall be completed with three percent polyester overlay.
- Full-depth repairs shall be defined with a plan area larger than 4 sf unless approved otherwise by the engineer.
- Deck repairs shall be filled prior to overlay placement. Deck repairs using a Portland cement based concrete requires a minimum cure time of 28 days prior to overlay placement.
- Shot blasting, composite overlay costs and deck surface preparations are included in the bid.

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**POSSIBLE ADDITIONAL BID ITEMS**

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**NOTE**

This is a partial list of possible bid items. The items may need to be added or removed to fit each individual case.