**Parapet Repair Detail**

- **Concrete Surface Repair**
- **Curb Repair**

**Designer Notes**
- Details may be shown on plans if necessary for clarity.
- Include applicable concrete masonry bid item to fill repairs.

---

**Deck Repair Details**

- **Deck Repair Design**

---

**Design Engineer**

- Bill Oliva

---

**Concrete Repair Details**

- Details applicable to all overlay methods and deck repairs without overlays.
- Sawsing pavement deck preparation areas not required for concrete overlays.
- Use concrete masonry deck repair procedure for deck repairs under pavements.

---

**Anchor Detail (Example)**

- Adhesive anchors are used.

---

**Full-Depth Deck Repair Detail**

- Details applicable to all overlay methods and deck repairs without overlays.
- Sawsing pavement deck preparation areas not required for concrete overlays.
- Use concrete masonry deck repair procedure for deck repairs under pavements.

---

**Designer Notes**

- Restrictions on removal zones shall be placed on the plans to prevent damage to reinforcing steel.
GALVANIC ANODE
EXISTING REINFORCING WIRE, TYP.
ANODE TIE
TYPICAL INSTALLATION AT BAR STEEL INTERSECTION
TYPICAL INSTALLATION FOR BAR STEEL

EXISTING DECK
SAWCUT
REPAIR AREA

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

PART. PLAN TYPICAL REPAIR DETAIL
SPO002003 CONCRETE SURFACE REPAIR OF EXISTING GALVANIC ANODES EACH

DESIGNER NOTES
CATHODIC PROTECTION SHALL BE USED ONLY AT THE REQUEST OF THE REGIONAL BRIDGE MAINTENANCE ENGINEER.
INCLUSION APPLICABLE CONCRETE MASONRY BED PIES TO TILL REPAIRS.

NOTES
SEE SPECIAL PROVISION "EMBEDDED GALVANIC ANODES" FOR DESIGNER MATERIAL, CONSTRUCTION, MEASUREMENT, AND PAYMENT INFORMATION
ANGLE NEAREST TO EDGE OF REPAIR TO BE WITHIN 4" OF EDGE.
AFTER PLACEMENT, GALVANIC ANODE SHOULD MAINTAIN A MINIMUM TOP COVER OF ½" AND A MINIMUM BOTTOM COVER OF ¾".
EXIST. REINF. FRONT FACE MOCK-UP

RUPTURED VOID REPAIR

SECTION THRU PARAPET ON WING

SECTION AT END OF SLAB

DESIGNER NOTES

OVERLAY DETAILS
SECTION THRU JOINT
STEEL GIRDER WITHOUT END DIAPHRAGM

All existing bars are likely to be corroded and/or damaged during concrete removal, preserving and incorporating as much steel as practical.

SECTION THRU PROPOSED JOINT
STEEL GIRDER WITH END DIAPHRAGM

Concrete Overlay

Asphaltic Overlay

Total Estimated Quantities

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Repair</td>
<td>75</td>
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<tr>
<td>Expansion Device</td>
<td>115</td>
</tr>
<tr>
<td>Bar Steel Reinforcement</td>
<td>10</td>
</tr>
</tbody>
</table>

Joint Repair - Removal

Steel Girder

Details and Diaph. Size.

Approved: Bill Oliva

Date: 1-17

Bureau of Structures

Standard 4G.04

Strip Seals & Diaph. Details for Overlays
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

BUREAU OF STRUCTURES

LONGIT. CONST.

JOINT REPAIRS

Approved: Bill Oliva 7-16

STANDARD 4G05
NOTES

220 CONSTRUCTION LIMITS POUR CONCRETE ABOVE THE JOINTS AFTER SUPERSTRUCTURE CONCRETE IS IN PLACE. STRIKE OFF AND LEAVE ROUGH. IF NECESSARY. BRIDGE SEAT. INCORPORATE EXIST. BAR STEEL TO MATCH RESPECTIVE EXISTING SEAT ELEVATIONS.

221 IT'S IMPERATIVE TO INSTALL WING WITHOUT PILE WHERE ALL AREAS MAKE NEW CONCRETE CONTACTS EXISTING CONCRETE.

222 REMOVAL OF EXISTING CONCRETE NOT TO EXCEED 2'-0" BELOW GRADE. REMOVE A MIN. OF 2'-0" BEHIND PILE.

223 REMOVE CONC. IN THIS AREA DOWN TO EXISTING WINGS. REMOVE A MIN. OF 2'-0" ELEV. @ F.F. ABUT. BACKWALL AND GUTTERLINE.

224 EXISTING WINGS: REMOVE A MIN. OF 2'-0" BELOW GRADE.

225 SAVING SPACE AT ALL AREAS WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE.

226 MAKE EXTENSION AT EXISTING PLAN UNTIL DESIGNER DETERMINES OTHERWISE.

EXISTING PLAN.

WIDENED PORTION OF PAVING SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

WIDENED PORTION OF PAVING SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

EXISTING PLAN.

WIDENED PORTION OF PAVING SEAL ALL HORIZONTAL & VERTICAL JOINTS AT BACKFACE.

DEVELOPMENT NOTES

SEE CHAPTER 12 FOR NEW BAR STEEL PLACEMENT, DETAIL, DIMENSIONS, & NOTES.

STRENGTHEN NEW BARS IN ACCORDANCE WITH DESIGNER DETERMINES OTHERWISE.

227 SLAVE CONC. IN THIS AREA DOWN TO EXISTING WINGS. REMOVE A MIN. OF 2'-0" ELEV. @ F.F. ABUT. BACKWALL AND GUTTERLINE.

228 PLACING NEW CONCRETE ABUTMENT WIDENING.
INTERMEDIATE DIAPHRAGM SPANS.

TO BE LEVEL NEW GIRDER.

SPAN 1
SPAN 2
SPAN 3
SPAN 4

LAP TO EXIST. TRANS. BARS.

REMOVE EXIST. SAWK. & DECK TO THIS LINE.

MIN. LAP, TOP.

MIN. LAP, BOTTOM.

EXISTING GIRDER CROSS SECT. THRU RDWY.

PLAN

EXISTING STEEL GIRDER DIAPHRAGM CONNECTION TO W. ABUT. BRG. (GIVE SIZE)

EXISTING GIRDER

CROSS SECT. THRU ROWY.

PLAN

SLAB WIDENING

BUREAU OF STRUCTURES

APPROVED

Bill Oliva

DATE: 1-16

STANDARD 40.07
EXPANSION BEARING REPLACEMENT - STEEL GIRDERS

STEEL BEARINGS

SEE STANDARD 27.08 FOR BEARING DETAILS

EXPANSION BEARING REPLACEMENT - STEEL GIRDERS

ELASTOMERIC BEARINGS

SEE STANDARD 27.07 FOR BEARING DETAILS

EXPANSION BEARING REPLACEMENT - PRESTRESSED GIRDERS

ELASTOMERIC BEARINGS

SEE STANDARD 40.08 FOR BEARING DETAILS

EXPANSION BEARING REPLACEMENT DETAILS

NOTES

All materials used for bearings shall be paid at the unit price bid for bearing pairs elastomeric laminated.

The steel top plate thickness may be reduced by 0.5" in increments of 0.5" or 1" in increments of 1.5". The temperature of the contact surface shall be controlled by the contractor to restrict the maximum temperature reached by the surface in contact with elastomeric bearing to 200°F (93°C). Temperatures shall be measured with temperature indicating wax pencils or other suitable means approved by the Engineer.

No. 6 steel headed anchor bolts shall be used as indicated in the Engineer's plans.

Approved:

Date: 1-19

Bill Oliva

STANDARD 40.08
TYPICAL HINGE DETAIL FOR WATERTIGHT EXPANSION DEVICE

HANGER PLATE DETAIL

TYPICAL WIND TRANSFER PLATES DETAIL

HANGER PLATE DETAIL

NOTES

SHELF PLATE
PIN PLATES
(HANGER PLATES NOT SHOWN)

SECTION THRU HINGE

HANGER PLATE DETAIL

TYPICAL WIND TRANSFER PLATES DETAIL

CONTACT AREA OF WIND TRANSFER PLATES TO BE FINISHED AND COAT

STIFFENER PLATE
STIFFENER PLATE
STIFFENER PLATE

NON-METALLIC WASHERS ¼" THICK
1. Phenoform, Canvas Reinforced, MIL-S-13055
2. Polyethylene, High Density, ASTM D4976, Grade 3
3. Acetal, Federal Specification L-P-392
4. Teflon, MIL-W-22068

Appendix 40.09

Bill Oliva
Approved

DATE: 7-15

Bill Oliva
CONCRETE BEARING BLOCK DETAILS

PRECAST CONCRETE BLOCK DETAIL

- Depth = Height, Max. 1'-0" (May be used in lieu of Plate 'F' shown on STD. 40.08)
- Anchor in at least 4 locations; anchors include adhesive anchors, anchor bolts, or combinations.
- Embed 1'-0" in concrete.
- Grout 1'-6" in concrete.
- Adhesive anchors 1'-0" in concrete.
- Stop bar 1" from top and fill to top with epoxy grout.
- Burn existing anchor bolts off flush with beam seat.

BURN EXISTING ANCHOR BOLTS OFF FLUSH WITH BEAM SEAT.
REINFORCEMENT SHOULD BE IN BOTH DIRECTIONS UTILIZING #4 @ 1'-0" MAXIMUM SPACING.

SIDE ELEVATION

PLAN

ELEVATION
NOTES

Steel splice (coupler) assembly shall be an approved type and shall be developed in tension at least size of the yield strength of the spliced reinforcement bars. Dowel bar splicers shall be of minimum 60 ksi yield strength and have tensile strength under equal or greater than size of the lapped reinforcement bars. Dowel bar splicers shall meet the information requirements for standard ASTM deformed reinforcement bars.

For dowel bar splicers, all reinforcement bars shall be lapped and tied to the spliced bars.

Splice coupler assembly in the slab shall be coated in accordance with the requirements for reinforcement bars.

Other systems of similar design may be submitted to the engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed splice coupler assembly satisfies the following requirements:

1. Minimum capacity = 1.25 x f_y x area of spliced reinforcement bar

in tension at least size of the yield strength of the spliced reinforcement bars.

Concrete under bar splices (alternative) shall be epoxy coated in accordance with coupler manufacturers recommendations. Pay based on bars as detailed.

Dowel bar splicer lap lengths

<table>
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<tr>
<th>Bar Length</th>
<th>Spliced Bar</th>
<th>Dowel-in Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot; or less</td>
<td>2'-3&quot;</td>
<td>2'-3&quot;</td>
</tr>
<tr>
<td>More than 12&quot;</td>
<td>1'-8&quot;</td>
<td>1'-8&quot;</td>
</tr>
</tbody>
</table>

Bar length computed to 0.75. Lumen joint shall be verified by tests to bar coupler manufacturer recommendations. Pay based on bars as detailed.

Installation and setting methods

1. Set splicer by means of a template bolt
2. Set splicer by nailing to wood
3. Set splicer by cementing to steel form

BAR SPICER (COUPLER) DETAILS AT STAGE CONSTRUCTION

BUREAU OF STRUCTURES

Approved: Scot Becker

Date: 7-08

STANDARD 40.11
SUPPORT WITH STEEL OR ELASTOMERIC BRGS.

SIDE VIEW OF GIRDER

LOCATION OF DRAPED STRANDS

PLAN VIEW

DEVELOPMENT OF DETAILS

NOTE: 1/2" ELASTOMERIC BRG. PAD

SUPPORT WITH 1/2" ELASTOMERIC BRG. PAD

SECTION THRU GIRDER

STRENGTHS SHOWN FOR #4 STIRRUPS & #3 BARS

54" PRESTRESSED GIRDER DETAILS

BUREAU OF STRUCTURES

STANDARD 40.13

APPROVED: Bill Oliva

DATE: 7-17
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF 0.5" DIA. AND 0.6" DIA. STRANDS

54" GIRDER

PRE-TENSION

54" PRETENSIONED ORDER DESIGN DATA

BUREAU OF STRUCTURES

AUTHORIZED BY: Bill Oliva
DATE: 1-18
For bearing notes, clearance diagram and when to relieve rocker plates, see standard 27.22.

Anchor bolts, nuts and washers shall be galvanized as required by the construction. All anchor bolts shall be furnished with split washers at each plate. Plate "S" shall be shop painted. Use neoprene washer on plate "S".

Always ensure the "L" dimension of plate "S" exceeds the minimum bearing distance from the end of the girder.

All materials, including steel, shall conform to ASTM A709 Grade 50W.

Expansion bearings are used at abutments when the "X" dimension of plate "S" exceeds the minimum bearing distance from the end of the girder.

Adjustment of tapered bearings is required, and fabrication notes are used for the thickness as alternate to standard.

For use of replacement steel bearings, including steel bearings, use the bearing notes, see standard 27.22. Use standard 27.02 when standard 27.06 is not used.

Expansion bearing details type 'A'-Steel Girders

Expansion bearing assembly

10" bearing

12" bearing

16" bearing

15" bearing

20" bearing

Anchor bolt notes:

For span lengths up to 30'-0", use a Type 2 masonry plate with one 5/8" d x 6" long anchor bolts.

For span lengths from 30'-0" to 30'-10", use a Type 2 masonry plate with two 5/8" d x 6" long anchor bolts.

For span lengths greater than 30'-10", use a Type 3 masonry plate with 2 5/8" d x 6" long anchor bolts.

A spread plate for anchor bolts in masonry plate "S" shall have a minimum 5/8" larger than anchor bolts.

Expansion bearing assembly

- Lubricate top surface only
- Lubricated bronze
- Rocker plate "C"
**45° GIRDERS**

**PRE-TENSION**

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

\[ S = 0.15 \times 270,000 = 202,500 \text{ P.S.I} \]

**STANDARD PATTERNS FOR UNDRAPED STRANDS**

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**45° PRESTRESSED GIRDER DESIGN DATA**

ARRANGEMENT AT 6 SPAN - FOR GIRDERS WITH DRAPED 0.5" DIA. AND 0.6" DIA. STRANDS

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<th>0.5&quot; DIA. STRANDS ONLY</th>
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<tbody>
<tr>
<td>12 STRANDS</td>
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<td>14 STRANDS</td>
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**ARRANGEMENT AT 4 SPAN - FOR GIRDERS WITH DRAPED 0.5" DIA. AND 0.6" DIA. STRANDS**

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**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF 0.6" DIA. STRANDS**

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<tbody>
<tr>
<td>22 STRANDS</td>
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<tr>
<td>24 STRANDS</td>
</tr>
</tbody>
</table>

**PI PER 0.5" DIA. STRAND = 0.1531 \times 202,500 = 31.00 KIPS**

**PI PER 0.6" DIA. STRAND = 0.217 \times 202,500 = 43.94 KIPS**

**ACKNOWLEDGEMENT**

Approved: Bill Oliva

Date: 1-18

**STANDARD 40.18**
AREA

LOCATION OF DRAPEED STRANDS

PLAN VIEW

SIDE VIEW OF GIRDER

SUPPORT WITH STEEL
OR ELASTOMERIC BARS

SIDE VIEW OF GIRDER

SUPPORT WITH
½" ELASTOMERIC BEARING PAD

DESIGNER NOTES

#4 stirrups

#3 bars

NOTE NO BEVEL ON:

- top of girder
- outside 2" of the top flange
- top of girder to be rough floated and broomed transversely, except the outside 2" of girder, which shall receive a smooth finish. an approved concrete sealer shall be applied to all smooth surfaces including the top of girder. for girder ends embedded in concrete, end of strands shall be coated with non-bituminous joint sealer. end of strands shall be flush with end of girder. for girder ends that are finally exposed, coat the girder ends, exposed strand ends and all non-bonding surfaces within 2 feet of the girder ends with a non-pigmented epoxy conforming to aashto m-235 type iii, grade 2, class b or c. the epoxy shall be applied at least 3 days after moist curing has ceased and prior to the application of the concrete sealer.

NOTES

#4 stirrups shall be > 40% of d18 min. vertical and horizontal wires shall be located in top flange and not in the web.

#3 bars

#4 stirrups

#4 stirrups

#4 stirrups

#4 stirrups

#4 stirrups

#4 stirrups

PRECAST GIRDER MANUFACTURERS AND CONCURRANCE BY THE STRUCTURES DEVELOPMENT SECTION.

BID ITEM SHALL BE "PRESTRESSED GIRDER TYPE I 70-INCH.

HANDLING AND ERECTING THE GIRDERS.

THE BUREAU OF STRUCTURES DEVELOPMENT SECTION.

CONCRETE STAINING.

NOTICE CONCRETE STAINING.

APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING

CONCRETE SEALER.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO NON-BITUMINOUS JOINT SEALER.

CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSLY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH.

APPLICATION OF CONCRETE SEALER.

APPLY CONCRETE SEALER OR EPOXY TO NON-BITUMINOUS JOINT SEALER.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO ALL SMOOTH SURFACES INCLUDING THE TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSLY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH.

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DO NOT APPLY CONCRETE SEALER OR EPOXY TO NON-BITUMINOUS JOINT SEALER.

CONCRETE SEALER.

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DO NOT APPLY CONCRETE SEALER OR EPOXY TO NON-BITUMINOUS JOINT SEALER.

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CONCRETE SEALER.
**TABLE OF DIMENSIONS**

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<th>Reaction Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>G Values</th>
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<th>R</th>
<th>W</th>
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<td>2200 x 6</td>
<td>2400 x 6</td>
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</tr>
</tbody>
</table>

**ROCKER SETTING DATA**

ROCKER BEARING TYPE

B' - STEEL GIRDERS

**NOTES**

- TABLE 1: Dimensions and tolerances for rocker bearings.
- TABLE 2: Setting data for rocker bearings.
- FIGURES: Diagrams illustrating the installation and usage of rocker bearings.

**Approved:**

Bill Oliva  
DATE: 1-6

**STANDARD 40.21**
<table>
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<tr>
<th>Reaction (Kips)</th>
<th>Type 'B' - Steel Girders Fixed Shoe</th>
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<tr>
<td>1400-1500</td>
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</table>

**NOTES:**
- Use AASHTO LRFD Service Life Loads for bearing selection.
- Dynamic load allowance considered only dead load and HL-93 live loads, including 33%
- Use B250 finish after welding.
- All anchor bolts, nuts, and washers must comply with ASTM A709 Grade 50W steel specification.
- All materials for bearings, including shims, must be of equivalent yield strength and elongation.
- All structural steel bearing plates must be flat rolled and all plate cuts must be machine or machine flame cuts, on all surfaces smooth and free from warping.
- All anchor bolts, nuts, and washers must conform to ASTM A709 Grade 50W steel specification.
- All static loads must be taken into account.
- All materials must meet the requirements of the standard specification.
- Use B250 finish after welding.
- All anchor bolts, nuts, and washers must be of equivalent yield strength and elongation.
- Use B250 finish after welding.
- All materials for bearings, including shims, must be of equivalent yield strength and elongation.
WING ELEVATION

PLAN

CHANNEL NOTCH DETAIL

NOTES

WING STRAPPING DETAIL FOR THE PURPOSE OF WEIGHING AWARD SHALL BE SUBMITTED TO THE PRINCIPAL ENGINEER AND ENGINEERING DEPARTMENT FOR REVIEW PRIOR TO INSTALLATION.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36, ALL STRUCTURAL STEEL UPHOLSTERY SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A653 CLASS C.

WING WALLS AND WALLS, IN PLACE CONCRETE WALLS, SHALL BE STRAPPED AS SHOWN. ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED, THREADED RODS, MASONRY ANCHORS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A653 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP PRIOR TO INSTALLATION.

IF RECESS COVER PLATE IS USED, THEN THE COVER PLATE 1'-0" IN FRONT OF WALL TO BE REPLACED. COVERS PLATE FACE WILL BE CUT TO ALLOW 7" CLEARANCE OF CHANNEL.

ADHESIVE ANCHORS SHOWN SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

WING STRAPPING

BUREAU OF STRUCTURES

STANDARD 40.23

STANDARD SPECIFICATIONS

ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE NON-BITUMINOUS JOINT SEALER.

NOTE:

WING STRAPPING DETAIL FOR THE PURPOSE OF WEIGHING AWARD SHALL BE SUBMITTED TO THE PRINCIPAL ENGINEER AND ENGINEERING DEPARTMENT FOR REVIEW PRIOR TO INSTALLATION.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36, ALL STRUCTURAL STEEL UPHOLSTERY SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A653 CLASS C.

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ADHESIVE ANCHORS SHOWN SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

APPLETON WING WALL

COVER PLATE REMOVED FOR ANGLED WINGS

1/8" THICK COVER PLATE

PLACE COVER PLATE AS SHOWN AT POSSIBLE WALL MOUNTING BY LEAD.

COVER PLATE REMOVED FOR ANGLED WINGS

1/8" THICK COVER PLATE

PLACE COVER PLATE AS SHOWN AT POSSIBLE WALL MOUNTING BY LEAD.

COVER PLATE REMOVED FOR ANGLED WINGS

1/8" THICK COVER PLATE

PLACE COVER PLATE AS SHOWN AT POSSIBLE WALL MOUNTING BY LEAD.
RAILING AND BEAM GUARD (WHEN REQ'D.)

PLACEMENT OF ANCHOR ASSEMBLY FOR
ADJUST LOCATIONS OF BARS TO ALLOW
FOR WING LOCATIONS.

"GENERAL PLAN" SHT.
FOR THREE BEAM.  SEE
OF ANCHOR ASSEMBLY
1'-3"
WINGWALL
1'-3"
WINGWALL
1'-3"
WINGWALL
WING END OF
SECTION A-A
SECTION B-B
SECTION C-C
SECTION THRU DECK
V A R I E S
1'-3"
WINGWALL
1'-3"
WINGWALL
1'-3"
WINGWALL

LEVEL
DECK
EDGE OF

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

ALIGN RAILING.

POST
‡" X 1"
" SLOTTED HOLE (TYP.)
BASE PLATE

F.F. PARAPET
@ 6"
R504 @ 6"
R503, R505 @ 6"
R503, R504 @ 6"
R501, R502 @ 6"
R507
R512
R506
R513

B.F. PARAPET
@ 6"
R501
@ 6"
R501

EXP. JOINT & ‡" OPENING FOR A1 ABUTMENT
rDWY. OPENING OR 2" MIN. FOR STRIP SEAL

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".
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED.
HEX NUT AND WASHER FOR PIPE SLEEVE,
‡" DIA. HOLES IN RAILS
FORM ‡" DIA. HOLES IN CONCRETE WITH
" Dia. VENT HOLE.

RAIL PLAN

PARAPET PLAN

SECTION A-A
SECTION B-B
SECTION C-C

RAILING WEIGHT = 30 LB/FT
SEE STANDARD 40.25 FOR RAILING DETAILS
DETAILS LIMITED TO SKEWS < 40°.

DESIGNER NOTES
DETAILS LIMITED TO SHERNS < 40°.
SEE STANDARD 40.25 FOR RAILING DETAILS

RAILING TUBULAR TYPE 'PF'

APPROVED: Bill Oliva
**CROSS SECTION THRU ROADWAY**

**LOOKING NORTH**

**PLAN**

- TOP OF DECK SHOWN

**DESIGNER NOTES**

- **PLAN VIEW** APPEARANCE TO ALL OVERLAY METHODS AND DECK REPAIRS WITHOUT OVERLAYS.
- **FOR CROSS SECTIONS NOT IN SUPERELEVATION TRANSITIONS THE PRESCRIBED MINIMUM SLOPE IS 2%.**
- **TO PROVIDE AN AVERAGE OVERLAY THICKNESS ON THE PLANS THE AVERAGE OVERLAY THICKNESS IS THE MINIMUM OVERLAY THICKNESS PLUS 1/4" 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 INCLUDE DECK REPAIR ITEMS IN THE DECK PREPARATION AREAS.**
- **MATERIALS OF THE WORKING DECK UNDER THE NEW OVERLAY DECKS MUST BE LIMITING OR REMOVED TO REVEAL THE EXISTING DECK.**
- **CONCRETE MASONRY OVERLAY DECKS** WHEN REMOVING EXISTING OVERLAY.
- **NOTICE OF CONSTRUCTION CONDITION SURVEY ON PLANS INCLUDE SURVEY TYPE AND DATE COMPLETED.**
- **DO NOT INCLUDE DECK REPAIR AREAS ON OVERLAY QUANTITIES.**
- **IF THE MEMBERS ARE REMOVED TO THE JOINT REPAIR AREAS DO NOT INCLUDE.**
- **STAE ACCESSORS FOR CONCRETE MASONRY OVERLAY DECKS.**
- **TOTAL ESTIMATED QUANTITIES**

**CONCRETE OVERLAY**

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<th>BID ITEM</th>
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<td>PREPARATION DECKS TYPE 2</td>
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<td>FULL-DEPTH DECK REPAIR</td>
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<td><strong>POSSIBLE ADDITIONAL BID ITEMS</strong></td>
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<td>REMOVING CONCRETE MASONRY DECK OVERLAY STRUCTURES</td>
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**CONCRETE OVERLAY**

**BUREAU OF STRUCTURES**

**APPROVED: Bill Oliva**

**DATE: 1-18**

**STANDARD 40.31**
DESIGN DATA

LIVE LOAD

MAXIMUM STANDARD PERMIT VEHICLE LOAD = ___ KIPS

MAXIMUM STANDARD PERMIT VEHICLE LOAD = ___ KIPS

MATERIAL PROPERTIES

CONCRETE MASONRY - DECK PATCHING @ 0.00 FABRICATION

NOTES

DRAWINGS SHALL NOT BE SCALDED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DECK SURFACE PREPARATION IS INCLUDED IN THE BIG ITEM "POLYMER OVERLAY".

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

TOTAL ESTIMATED QUANTITIES

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DESIGNER NOTES

REHABILITATION OVERLAY

POLYMER OVERLAY

PREVENTATIVE

OVERLAY

BILL OLIVA

DATE: 1-19

STANDARD 40.32
FULL-DEPTH DECK REPAIR

HMA OVERLAY Polymer-MODIFIED

TOTAL ESTIMATED QUANTITIES

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NOTES

- Concrete overlays are the current preferred method to overlay a bridge.
- Full-depth deck repairs shall be filled with "concrete masonry deck repair".
- 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 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 full-depth deck repairs shall be filled with "concrete masonry deck repair".
- Any excavation required to complete the overlay or joint repair shall be considered incidental to the bid item "HMA OVERLAY Polymer-MODIFIED".
- The plan quantity for the bid item "HMA OVERLAY 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 determined as shown on the plans. If expected average overlay thickness is exceeded by more than 2", contact the structures design section.

DESIGNER NOTES

- Concrete overlays are the current preferred method to overlay a bridge.
- Full-depth deck repairs shall be filled with "concrete masonry deck repair".
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**POLYESTER POLYMER CONCRETE OVERLAY**

**DESIGN DATA**

- **LIVE LOAD:**
  - Maximum Standard Permit Vehicle Load = ___ KIPS
  - Operating Rating; HS- ___
  - Inventory Rating; HS-___

- **NOTES:**
  - Drawings shall not be scaled.
  - Dimensions shown are based on the original structure plans.

**DESIGNER NOTES**

- Use of polyester polymer concrete overlays are limited; see 40.5 in the bridge manual for additional guidance.
- Special provisions, notes, and designer notes are still under development.

**TOTAL ESTIMATED QUANTITIES**

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<tr>
<td><em>POSSIBLE ADDITIONAL OE ITEMS</em></td>
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</table>

This is a partial list of possible OE items; the design may need to be revised or removed to fit each individual case.