

U.I.P. AND REHABILITATE EXISTING (X'-X'-X') SPANS

SEC/SUR * TWP * RGE *

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 8/13/2020

ROUTE * STATE MO

DISTRICT BR SHEET NO. 1

COUNTY *

JOB NO. *

CONTRACT ID.

PROJECT NO.

BRIDGE NO. RH01

Estimated Quantities			
Item			Total
Total Surface Hydro Demolition	216-10.01	sq. yard	X
Removal of Concrete Wearing Surface	216-15.02	sq. foot	X
Removal of Existing Deck Repair	216-15.03	sq. foot	X
* Supplementary Wearing Surface Material	505-00.04	cu. yard	X
Latex Modified Concrete Wearing Surface	505-20.00	sq. yard	X
Substructure Repair (Formed)	704-01.01	sq. foot	X
Substructure Repair (Unformed)	704-01.02	sq. foot	X
Superstructure Repair (Unformed)	704-01.03	sq. foot	X
Half-Sole Repair	704-01.04	sq. foot	X
Full Depth Repair	704-01.06	sq. foot	X
Slab Edge Repair (Bridges)	704-01.07	linear foot	X
Cleaning and Epoxy Coating	704-01.13	sq. foot	X

Replace as required

B3.8 * Supplementary wearing surface material will be paid for at the fixed unit price in accordance with Sec 109. Note B3.9 if required.

General Notes:

- A1.1 Design Specifications: 2002 AASTHO LFD (17th Ed.) Standard Specifications Bridge Deck Rating =
- A1.2 Design Loading: HS20=44 Modified () and Military 24,000 lb Tandem Axle ()
- A1.3 Design Unit Stresses: Class B-2 Concrete (Half-Sole and Full Depth Repair) f'c = 4,000 psi
- Miscellaneous:
 - I1.0.1 Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).
 - I1.0.2 All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.
 - I1.1 Outline of old work is indicated by light dashed lines. Heavy lines indicate new work.
 - I1.2 Contractor shall verify all dimensions if field before ordering new material.
 - I1.10 In order to maintain grade and a minimum thickness of wearing surface as shown on plans it may be necessary to use additional quantities of wearing surface at various locations throughout the structure. The cost of furnishing and installing the wearing surface will be considered completely covered in the contract unit price, including all additional labor, materials or equipment for variations in thickness of wearing surface.
- Traffic Handling:
 - A3.8 Structure to be closed during construction. Traffic to be maintained on during construction. See roadway plans for traffic control and Sheet No. for staged construction details.

I1.0.3 (If required)

REPAIRS TO BRIDGE: ROUTE * OVER *

ROUTE * FROM * TO * ABOUT * MILES * OF * BEG. STA. -----± (Match Existing)

STD.
STD.
STD.
STD.

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

RHBO1

STANDARD DRAWING GUIDANCE (do not show on plans)

This is an index of Standard Drawing details. Draw typical section as required and scale to fit within attached border. Use appropriate deck repair details and modify as required (match orientation of actual reinforcement).

For bridges with epoxy coated steel, see Sec 710 for repairing bars and add notes as necessary. See SPM.

Wearing surface thickness can vary according to grade elevation requirements and minimum barrier curb height requirements. Maximum thickness should be limited to 3" (Ref. Organizational Results Research Report OR06.004, May 2006). Limit excludes reinforced concrete slab wearing surfaces.

Will need to adjust wearing surface thickness when detailing a thin wearing surface (1" or less), but it is a preferred detailing practice to show a discernable thickness on the plans. No thickness is shown for crack filler application.

(A) Show difference as $\text{plus/minus } X'' \pm$, see Bridge Memo or SPM.

e.g. $\text{Match existing grade plus } 2\frac{1}{4}'' \pm$

(B) Identify new wearing surface (see Bridge Memo or SPM) and specify minimum thickness in deck details.

(C) Identify existing wearing surface and thickness, see Bridge Memo or existing plans.

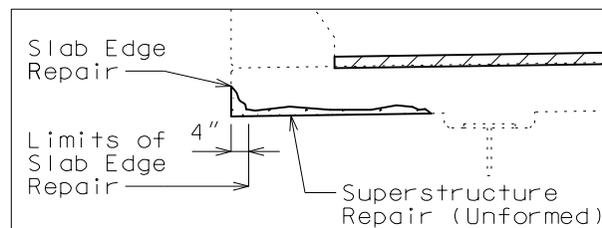
(D) See Bridge Memo or SPM, typically 1/2". Use 1" if more than 30% of existing deck need repair. Verify there will be a minimum of 1/2" of concrete above the top bars after scarification.

(E) See Bridge Memo or SPM, typically 1/2".

(F) See existing plans.

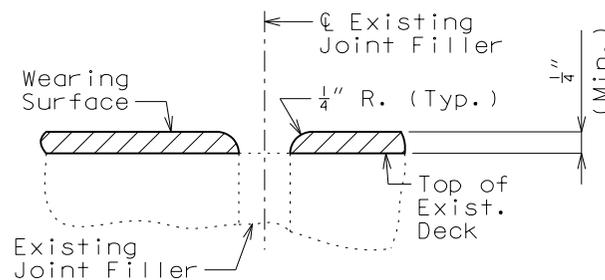
(G) Use appropriate reference (℄ Structure, ℄ Roadway, ℄ Median, etc.)

(H) Cleaning and epoxy coating is preferred because of the relative short life of slab edge repair and unformed repair especially when over traffic. However in urban regions repairing the overhang may be preferred. Consult with SPM or SLE.

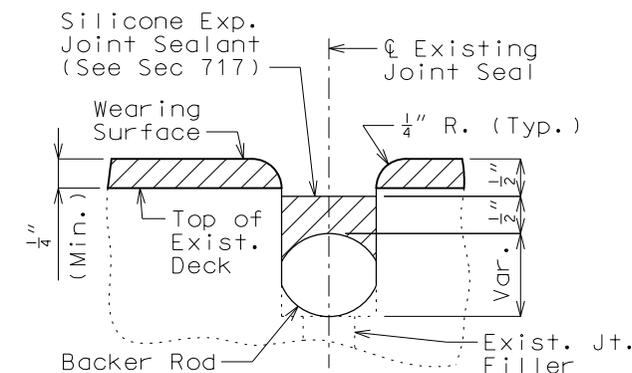


(I) Scarification prior to adding first wearing surface or removing a portion of the deck when removing an existing wearing surface is not required for seal coat, asphalt, UBAWS, epoxy polymer or MMA polymer slurry wearing surfaces.

FILLED JOINT DETAILS FOR ALL APPLICATIONS FOR EPOXY POLYMER OR MMA POLYMER SLURRY WEARING SURFACE

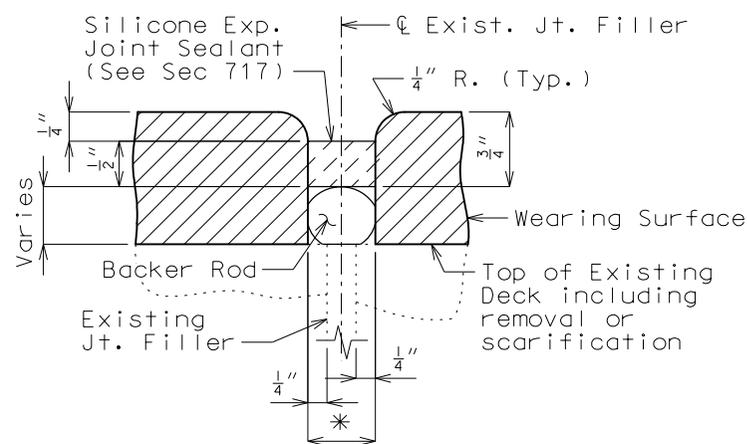


SECTION THRU JOINT
(EPOXY POLYMER OR MMA POLYMER SLURRY)



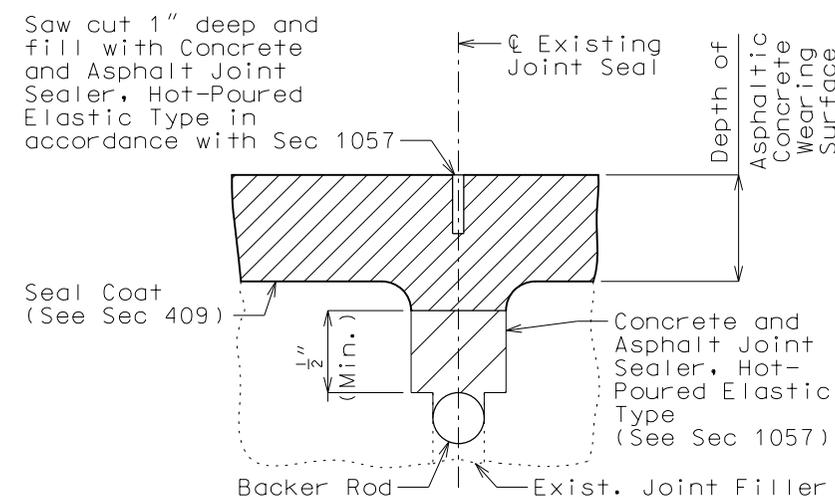
SECTION THRU JOINT
(EPOXY POLYMER OR MMA POLYMER SLURRY)

FOR ALL OTHER WEARING SURFACES

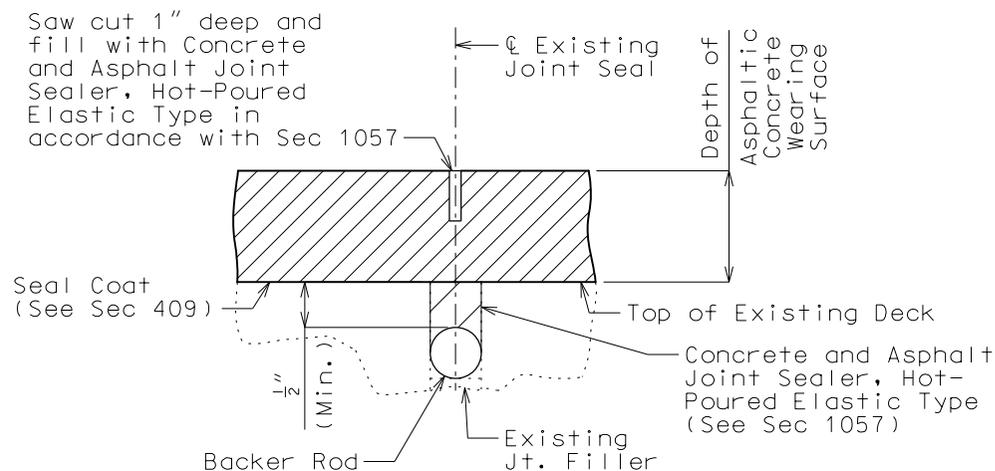


* Width of joint seal to be not less than the depth and not more than twice the depth of the joint seal.

SECTION THRU JOINT
(POLYESTER POLYMER, LATEX, LOW SLUMP OR SILICA FUME CONCRETE)



SECTION THRU JOINT
(ASPHALTIC CONCRETE WEARING SURFACE)



SECTION THRU JOINT
(ASPHALTIC CONCRETE WEARING SURFACE)

Hydro Demolition Case 1:

Monolithic Deck Repair After Hydro Demolition

STANDARD DRAWING GUIDANCE (do not show on plans):

ⓑ May be used with the following concrete wearing surfaces:

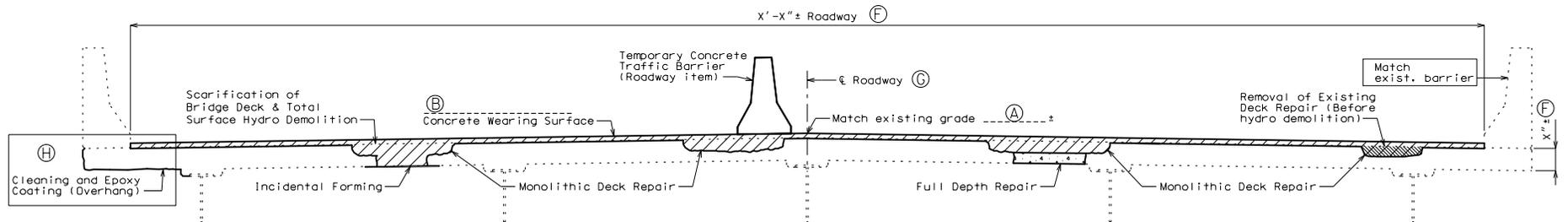
- 1 3/4" to 3" Latex Modified
- 2 1/4" to 3" Silica Fume
- 1 3/4" to 3" Latex Modified Very Early Strength
- 1 3/4" to 3" CSA Cement Very Early Strength
- 3" to 4" Steel Fiber Reinforced

If optional concrete wearing surface is specified and either low slump or polyester polymer is an option:

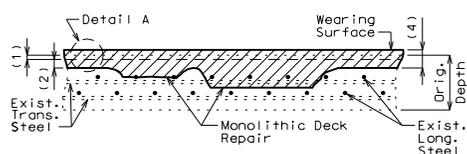
Use appropriate details below on first sheet and add a sheet title using the allowed options for the below details.

e.g. "LATEX MODIFIED CONCRETE DETAILS"

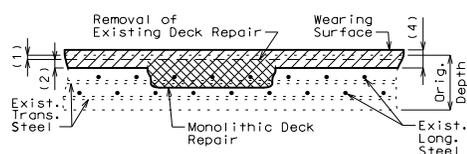
(Adding First Wearing Surface)



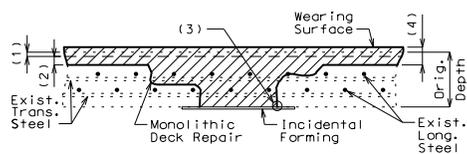
TYPICAL SECTION THRU EXISTING DECK



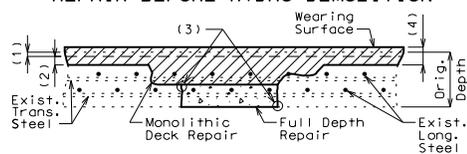
MONOLITHIC DECK REPAIR



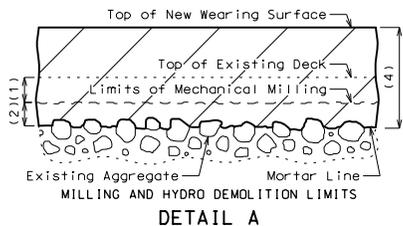
REMOVAL OF EXISTING DECK REPAIR BEFORE HYDRO DEMOLITION



MONOLITHIC DECK REPAIR REQUIRING INCIDENTAL FORMING



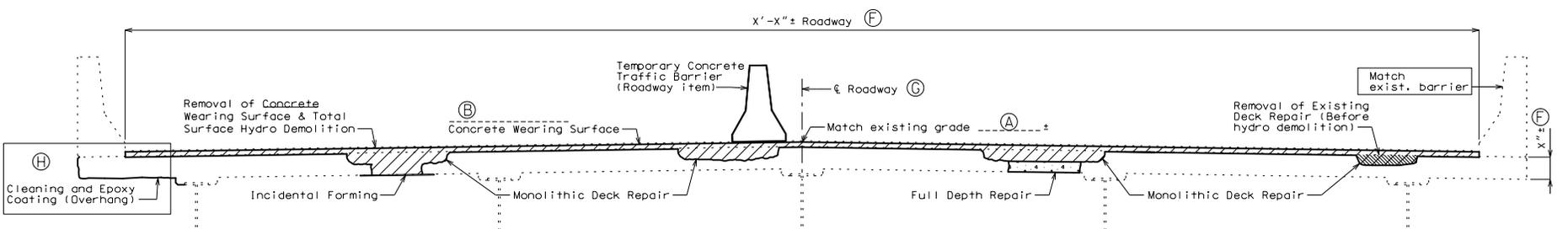
MONOLITHIC DECK REPAIR REQUIRING FULL DEPTH REPAIR



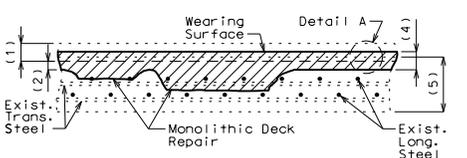
DETAIL A

- (1) ⓐ" scarification of existing deck
- (2) ⓔ" minimum total surface hydro demolition of sound concrete, measured to mortar line
- (3) 1" vertical side shall be established outside the deteriorated area.
- (4) ⓑ" minimum ----- concrete wearing surface

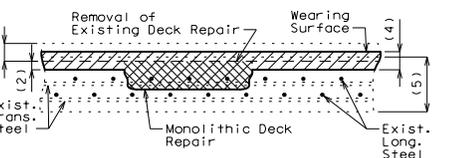
(Replacing Existing Wearing Surface)



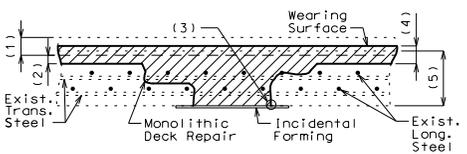
TYPICAL SECTION THRU EXISTING DECK



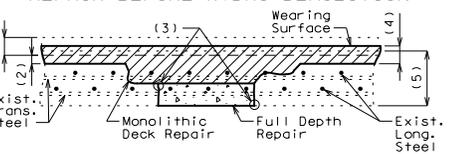
MONOLITHIC DECK REPAIR



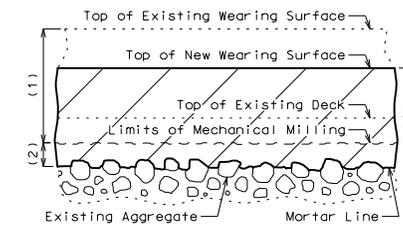
REMOVAL OF EXISTING DECK REPAIR BEFORE HYDRO DEMOLITION



MONOLITHIC DECK REPAIR REQUIRING INCIDENTAL FORMING



MONOLITHIC DECK REPAIR REQUIRING FULL DEPTH REPAIR



DETAIL A

- (1) Removal of existing ⓐ" wearing surface plus ⓐ" of existing deck
- (2) ⓔ" minimum total surface hydro demolition of sound concrete, measured to mortar line
- (3) 1" vertical side shall be established outside the deteriorated area.
- (4) ⓑ" minimum ----- concrete wearing surface
- (5) Original depth of deck minus previous scarification

Hydro Demolition Case 2: Conventional Deck Repair After Hydro Demolition

STANDARD DRAWING GUIDANCE (do not show on plans):

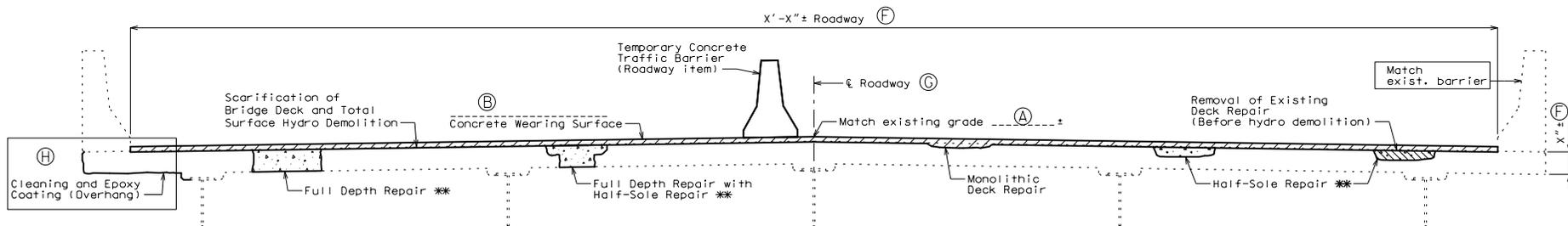
- ⓑ May be used with the following concrete wearing surfaces:
 - 2 1/4" to 3" Low Slump
 - 3/4" to 3" Polyester Polymer

If optional concrete wearing surface is specified and either low slump or polyester polymer is an option:

Use appropriate details below on second sheet and add a sheet title using the allowed options for the below details.

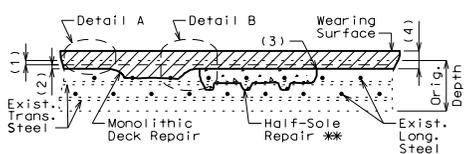
e.g. "LOW SLUMP CONCRETE DETAILS"

(Adding First Wearing Surface)

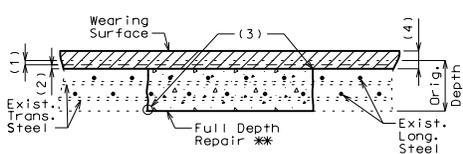


TYPICAL SECTION THRU EXISTING DECK

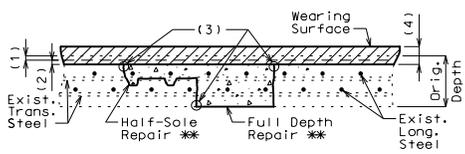
** After hydro demolition



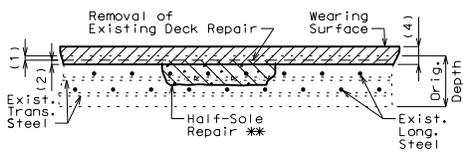
MONOLITHIC AND HALF-SOLE REPAIR



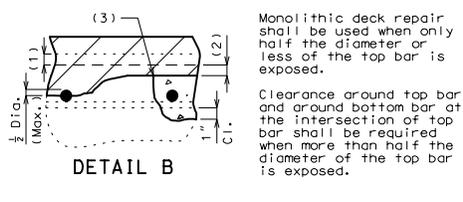
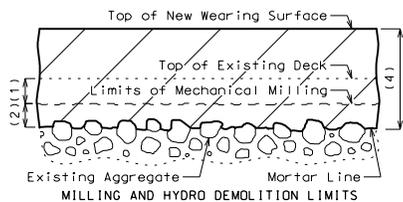
FULL DEPTH REPAIR



FULL DEPTH REPAIR WITH HALF-SOLE REPAIR

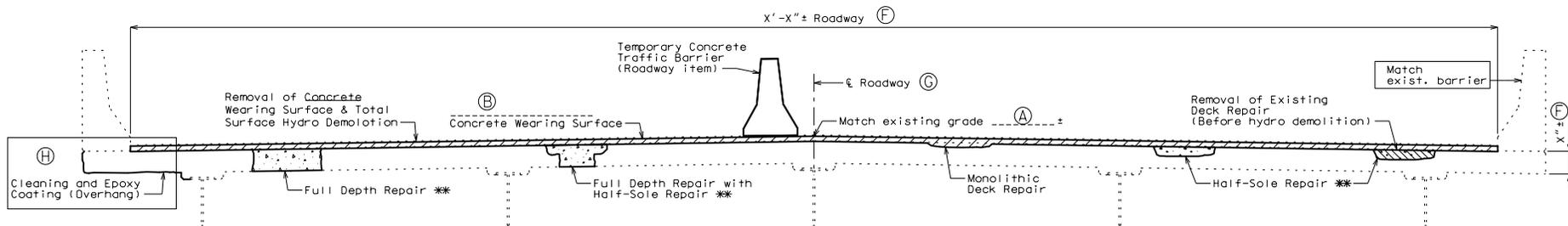


REMOVAL OF EXISTING DECK REPAIR BEFORE HYDRO DEMOLITION



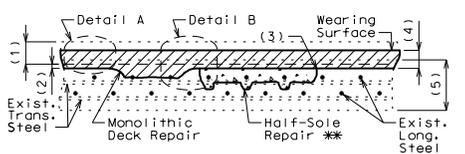
- (1) ⓓ" scarification of existing deck.
- (2) ⓐ" minimum total surface hydro demolition of sound concrete, measured to mortar line.
- (3) 1" vertical side shall be established outside the deteriorated area.
- (4) ⓑ" minimum ----- concrete wearing surface.

(Replacing Existing Wearing Surface)

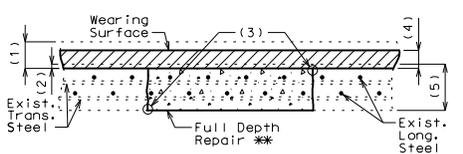


TYPICAL SECTION THRU EXISTING DECK

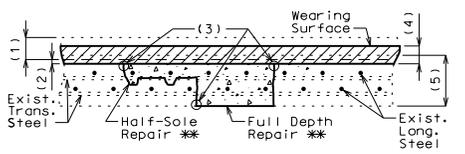
** After hydro demolition



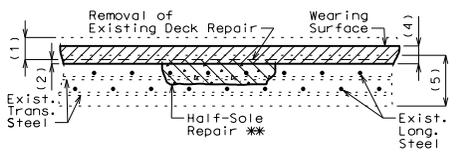
MONOLITHIC AND HALF-SOLE REPAIR



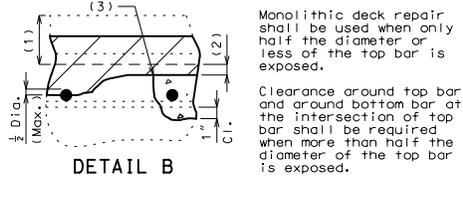
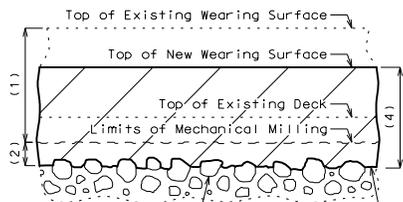
FULL DEPTH REPAIR



FULL DEPTH REPAIR WITH HALF-SOLE REPAIR



REMOVAL OF EXISTING DECK REPAIR BEFORE HYDRO DEMOLITION



- (1) Removal of existing ⓐ"± wearing surface plus ⓐ" of existing deck
- (2) ⓐ" minimum total surface hydro demolition of sound concrete, measured to mortar line
- (3) 1" vertical side shall be established outside the deteriorated area.
- (4) ⓑ" minimum ----- concrete wearing surface
- (5) Original depth of deck minus previous scarification

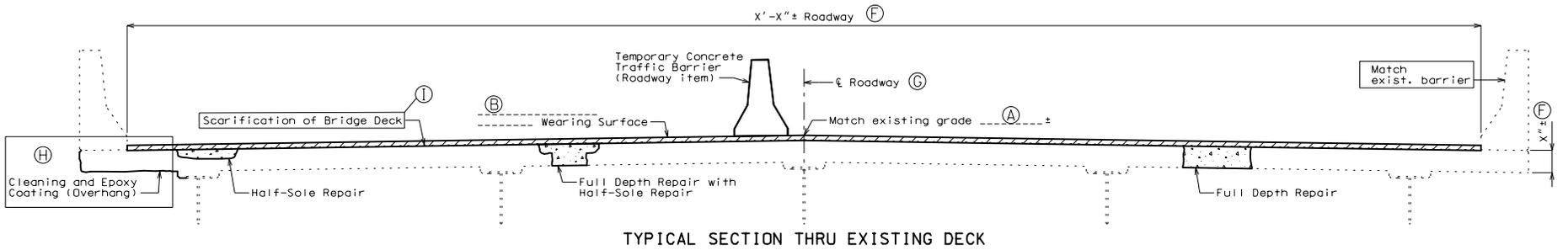
Conventional Deck Repair Only

STANDARD DRAWING GUIDANCE (do not show on plans):
May be used with all wearing surfaces.

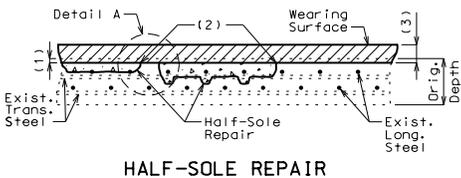
- ⓑ 2 1/4" to 3" Low Slump Concrete
- 1 3/4" to 3" Latex Modified Concrete
- 2 1/4" to 3" Silica Fume Concrete
- 1 3/4" to 3" Latex Modified Very Early Strength Concrete
- 1 3/4" to 3" CSA Cement Very Early Strength Concrete
- 3" to 4" Steel Fiber Reinforced Concrete
- 1/4" Epoxy Polymer
- 3/4" to 3" Polyester Polymer Concrete
- 3/8" MMA Polymer Slurry
- 4" to 5" Reinforced Concrete Slab
- 3/8" Chip Seal Grade A1
- 1" to 3" Alternate Asphaltic Concrete
- 1/2" to 3/4" Alternate Ultrathin Bonded Asphalt

Scarification not required with the following wearing surfaces:
Seal Coat
Asphalt
UBAWS
Epoxy Polymer
MMA Polymer Slurry
Or when applying concrete crack filler.

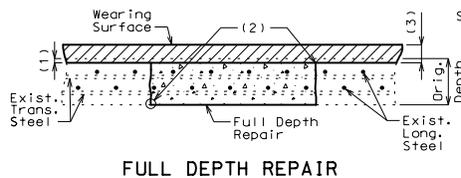
(Adding First Wearing Surface or Applying Concrete Crack Filler)



TYPICAL SECTION THRU EXISTING DECK



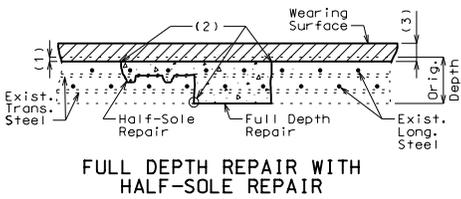
HALF-SOLE REPAIR



FULL DEPTH REPAIR

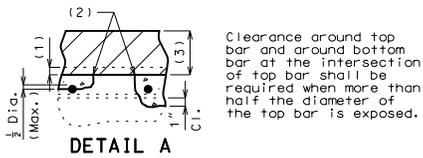
SDG: For seal coat, asphalt, UBAWS, epoxy polymer or MMA polymer slurry:
- Delete Dimension/Note (1) and renumber others
- Delete top existing line
- Adjust top of the original depth dimension to bottom of new wearing surface
- Adjust wearing surface thickness for thin wearing surfaces

For application of concrete crack filler:
- Delete Dimension/Note (1) and (3) and renumber others
- Delete top existing line & the wearing surface
- Adjust top of the original depth dimension to the remaining top line.
- Replace "Wearing Surface" with "Concrete Crack Filler" and adjust leader note to point to the remaining top line



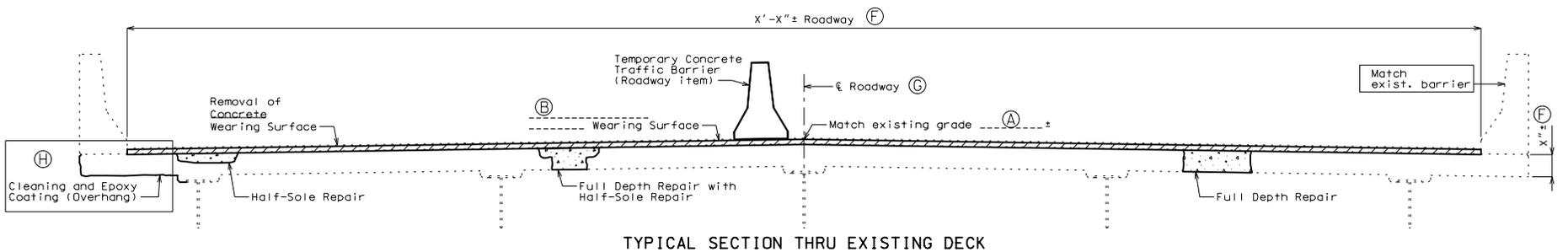
FULL DEPTH REPAIR WITH HALF-SOLE REPAIR

- (1) ⓐ" scarification of existing deck
- (2) 1" vertical side shall be established outside the deteriorated area.
- (3) ⓑ" minimum wearing surface

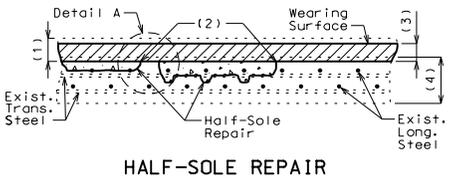


DETAIL A

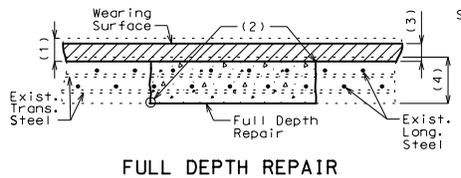
(Replacing Existing Wearing Surface)



TYPICAL SECTION THRU EXISTING DECK

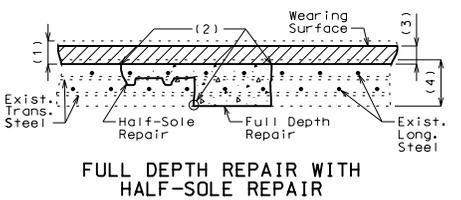


HALF-SOLE REPAIR



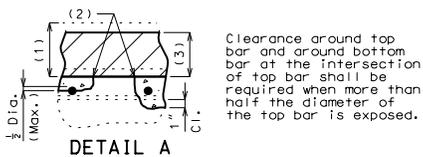
FULL DEPTH REPAIR

SDG: For seal coat, asphalt, UBAWS, epoxy polymer or MMA polymer slurry:
- Delete existing line inside wearing surface
- Adjust top of the original depth dimension to bottom of new wearing surface
- Adjust depth for thin wearing surfaces



FULL DEPTH REPAIR WITH HALF-SOLE REPAIR

- (1) Removal of existing ⓐ"± wearing surface plus ⓐ" of existing deck
- (2) 1" vertical side shall be established outside the deteriorated area.
- (3) ⓑ" minimum wearing surface
- (4) Original depth of deck minus previous scarification



DETAIL A