

Attachment B – Methodology and Work Description

Restore Spalled Areas

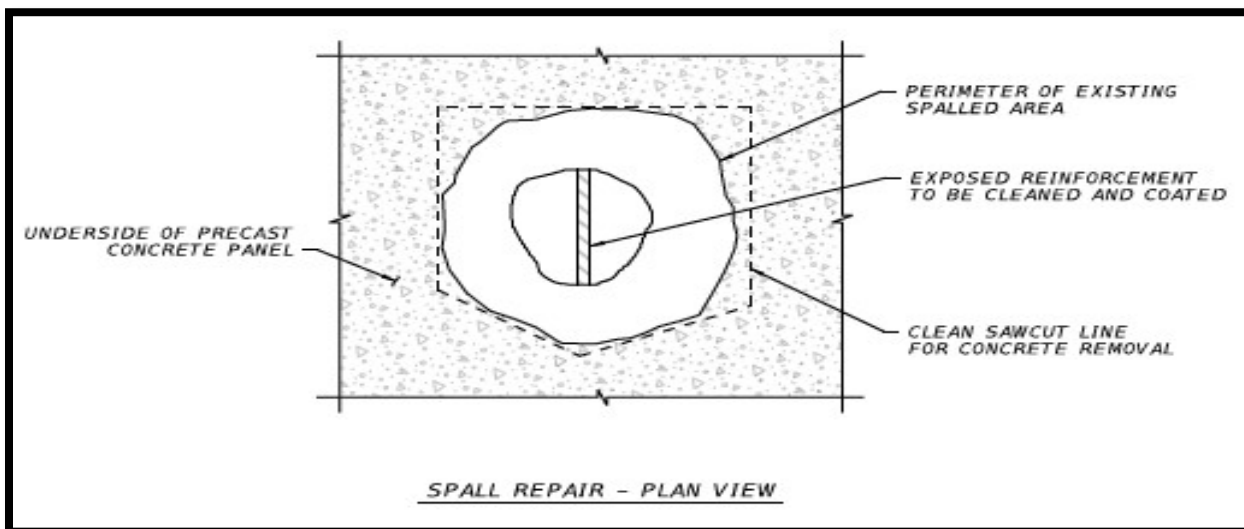
Location: Bridge Deck Underside (including rebar replacement when necessary)

Slab Spall Repair Details

1. Remove any loose concrete or delaminating patches from slab undersides.
2. Clean all corrosion from any exposed reinforcement using power tools.
3. Apply corrosion-inhibiting agent listed on the FDOT's Approved Product List (APL) to any exposed reinforcement prior to recasting. Corrosion-inhibiting agent shall be compatible with the selected repair material. Product information shall be sent to Project Manager/Engineer for approval prior to work starting.
4. Use a Type F-1 Epoxy Mortar listed on the FDOT's APL and follow manufacturer's instructions on mixing with fine aggregate. Product information shall be sent to Project Manager/Engineer for approval prior to work starting.
5. Use a trowel or other slender tool to apply Gel Patch, MasterEmaco N 425, or approved equal to hard to reach areas above the bent caps and finish flush with the surrounding surfaces.
6. Contractor shall ensure that a collection system is in place to prevent any construction debris from entering the water during the demolition and re-casting phases of work.

Notes

1. After all loose and damaged concrete has been removed, contractor shall inspect the existing exposed reinforcement and identify each bar where section loss is due to corrosion that exceeds 50% of the diameter. Perform cleaning and surface preparation in accordance with the specifications and install supplemental bars at each of these locations in accordance with below example.



Sample of deck slab spalling

Concrete Class IV, Bridge Substructure – Spalling Pile Repair

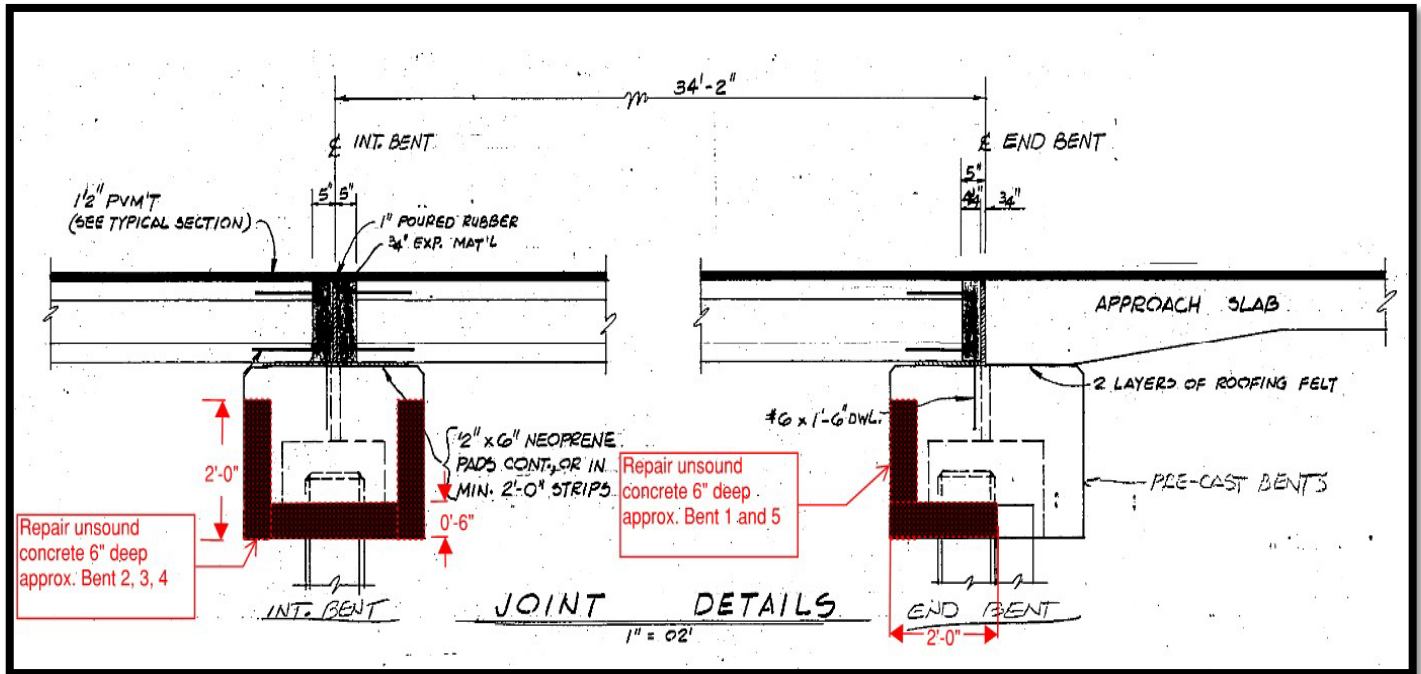
Location: Bridge Piling Bent Caps (including rebar replacement when necessary)

Bent Cap Spall Repair Details

1. Remove all loose and spalled concrete in the area of the repair taking care not to damage existing reinforcement.
2. Clean existing reinforcement and remove all surface rust by power tool cleaning.
3. Evaluate existing exposed reinforcement and notify engineer if steel section loss due to corrosion in any one bar exceeds 50% of the original bar diameter.
 - a. For bars with diameter loss due to corrosion greater than 50%, fully expose the bar and chase until clean metal is found and install replacement bar of same diameter using an anchoring epoxy listed on the FDOT's APL. Dowel the replacement bar into the concrete section a minimum of 12".
4. Recast bent cap where spall has been removed to the original bent cap dimensions, utilize the FDOT's APL to use an approved epoxy bonding agent prior to casting and recast with specified concrete mix design to ensure full concrete consolidation.
5. For cracks with no loose or spalled concrete, follow crack injection repair procedures below.

Notes

1. Contractor shall inspect all piles. It is assumed that the whole entirety of the piles needs to be repaired approximately 6 inches deep on all sides and bottom. Both Bents on the end need to be repaired approximately 2 feet in height from the bottom and approximately 2 feet inward from the outside edge on the bottom. The 3 interior Bents need to be repaired on all sides and bottom from approximately 2 feet in height from the bottom and the entire width of the bottom. Picture representation show below.



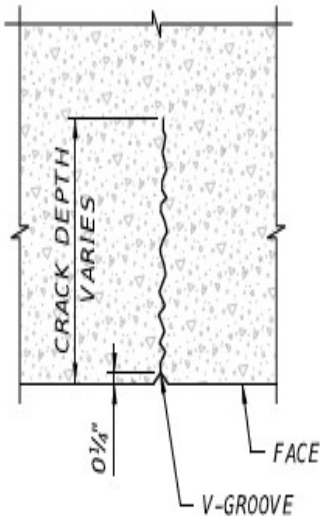
Sample of Pile Caps

Cracks – Inject & Seal – Structure Rehab

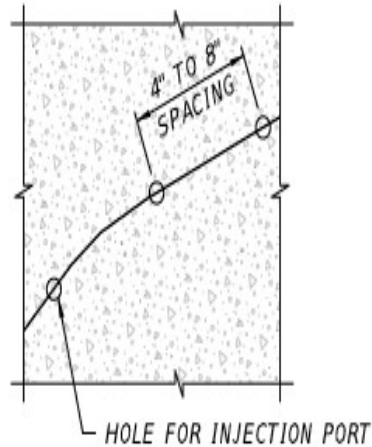
Location: Bridge Deck Underside and Piling Bent Caps

Crack Injection Details

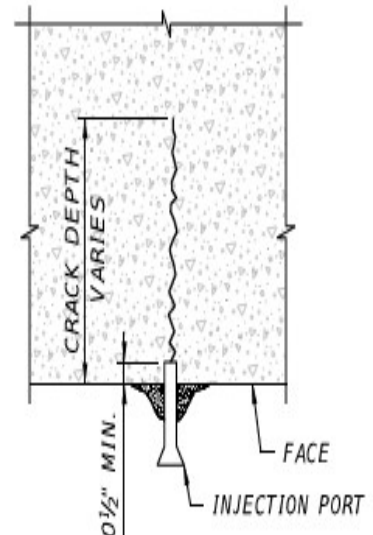
1. Make “V” grooves in the concrete surface along the full length of the crack to the maximum depth as shown in detail 1 below.
2. Clean concrete surface in accordance with manufactures recommendations prior to placing epoxy compound. Product information shall be sent to Project Manager/Engineer for approval prior to work starting.
3. Drill holes for injection ports to a depth of ½ inch minimum every 4 to 8 inches as shown in detail 2 and 3 below.
4. Seal surface of crack with type F Epoxy compound per FDOT standard specifications, section 926. Apply to provide a minimum thickness of 1/16” and extend a minimum of 1” to either side of crack. Allow a minimum of 6 hours of curing before initiating injection process.
5. Install injection ports and inject the epoxy compound per FDOT standard specifications, section 926. Allow minimum of 6 hours of curing time.
6. Cut the ports after curing.
7. Fill voids with epoxy paste to smooth all surfaces to prevent sharp edges.



DETAIL 1 - SECTION THROUGH CRACK



DETAIL 2 - PLAN VIEW



DETAIL 3 - SECTION THROUGH REPAIR

CRACK REPAIR DETAILS