**POST-TENSIONING ANCHORAGE AND GROUTING DETAILS**

**INSTALLATION & SHIPPING**
- **1.** INSTALLATION & SHIPPING
  - Remove and Clean as Per Grout Outlet Detail at Horizontal Surfaces
  - Inspect Anchor for Voids through Grout Inlet/Outlet (See Grout Outlet Detail at Horizontal Surfaces for Procedures)
  - Install Threaded Plug after Inspection of Voids

**GROUTING**
- **2.** GROUTING
  - Thread Grout Outlet with Grout Valve through Oversize Pipe and into Grout Cap
  - Thread Grout Pipe with Grout Valve and Grout Cap into Existing Pipe
  - Thread Anchor Inlet/Outlet to be offset by 5° to allow vertical anchor inspection.

**INSPECTION**
- **3.** INSPECTION
  - Inspect Anchor for Voids through Grout Inlet/Outlet (See Grout Outlet Detail at Horizontal Surfaces for Procedures)
  - Install Threaded Plug after Inspection of Voids

**PROTECTION**
- **4.** PROTECTION
  - Install Permanent Grout Cap after Stressing Tendons
  - Top Inspected Anchor with Grout Outlet and Inspection & Protection

**NOTES:**
- 1. Holes used for the Inspection and Grout Inlets/Outlets may be Formed using Tapered Pipes or Mandrels.
- 4. Square Pocket Former – Vacuum Grouting Required

**PROCEDURE:**
- 1. Remove Rigid Grout Pipe
- 2. Inspect Tendon for Voids as Necessary
- 3. Vacuum Grout as Required and Allow Grout to Cure. Remove Pipe used for Vacuum Grouting
- 4. Clean Threads and Retread as Required
- 5. Install Threaded Plug into Outlet to Form a Tight Fit
- 6. Over-Ream Hole (Ø Over-Ream) Clean and Roughen Sides
- 7. Fill Pocket with Epoxy Grout

**POCKET PREPARATION**
- **2.** POCKET PREPARATION
  - Threaded Plug, Mortar or Epoxy Plugs not Allowed.

**GROUT OUTLET DETAIL AT HORIZONTAL SURFACES**
- **1.** GROUT OUTLET DETAIL AT HORIZONTAL SURFACES
  - Threaded Plug, Mortar or Epoxy Plugs not Allowed.

**FACE INSPECTED ANCHOR WITH GROUT INLET**
- **1.** FACE INSPECTED ANCHOR WITH GROUT INLET
  - Place Anchor Grout Outlet/Inspection Port at Top of Anchor. Provide Threaded Plug in Anchor after Grouting.

**FACE INSPECTED ANCHOR WITH GROUT OUTLET**
- **2.** FACE INSPECTED ANCHOR WITH GROUT OUTLET
  - Place Anchor Grout Inlet/Inspection Port at Top of Anchor. Provide Threaded Plug in Anchor after Grouting.

**RIGID GST OUTLET CONNECTION TO TENDON**
- **3.** RIGID GST OUTLET CONNECTION TO TENDON
  - Top Surface of Concrete Element
  - Final Deck Surface

**POCKET BLOCKOUT**
- **4.** POCKET BLOCKOUT
  - " Ø Over-Ream) Clean and Roughen Sides.
  - Fill Pocket with Epoxy Grout.

**INSTALLATION, GROUTING, INSPECTION & PROTECTION**
- INSTALLATION, GROUTING, INSPECTION & PROTECTION
**GROUT INLET AND OUTLET DETAILS FOR PT BARS**

**INLET END**

- Grout Inlet
- PT Bar
- Pressure Gauge
- Grout Inlet with Shutoff Valve

**OUTLET END**

- Grout Flow
- PT Bar
- Grout Inlet with Shutoff Valve

**NOTE:**
Anchor or Nut to allow for flow of Grout into Cap.

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**GROUT OUTLET CONNECTION TO TENDON**

1. **INLET END**
   - Modified Grout Coupler
   - Tendon at Bottom of Duct

2. **OUTLET END**
   - Rigid or Flexible Grout Pipe
   - Cast Vertical Surface

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**POCKET PREPARATION**

1. **FILLING POCKET**
   - Process:
     - 1. Remove Rigid Grout Pipe or Drill Grout in Flexible Pipe.
     - 2. Inspect Tendon for Voids as Necessary.
     - 3. Vacuum Grout as Required and Allow Grout to Cure for 24 hr. (Min.)
     - 4. Remove Pipe used for Vacuum Grouting.
   - Plug Recess with Threaded Cap on Inside Surfaces of Box Sections and Inside (non-fascia) Surfaces of I-Girders. For all other Surfaces, Plug Recess with both Threaded Cap and Epoxy Grout.

2. **POCKET PREPARATION**
   - Process:
     - 1. Remove Rigid Grout Pipe.
     - 2. Inspect Tendon for Voids as Necessary.
     - 3. Vacuum Grout as Required and Allow Grout to Cure for 24 hr. (Min.)
     - 4. Remove Rigid Pipe Grout Outlet.
   - Grout to Cure for 24 hr. (Min.)

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**GROUT OUTLET DETAIL AT VERTICAL SURFACES**

- **GROUT OUTLET DETAIL AT VERTICAL SURFACES**
- **GROUT OUTLET DETAIL AT VERTICAL SURFACES**

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**TENDONS AT 3' TO 6' FROM HIGH POINTS (GROUT OUTLET)**

- **HIGH POINT INSPECTION LOCATIONS AT GROUT OUTLET**
  - Deck Slab
  - Build-up
  - Diaphragm
  - Modified Inlet / Outlet Coupler (See Grout Outlet Detail at Vertical Surfaces)

- **TENDONS AT 3' TO 6' FROM HIGH POINTS (GROUT OUTLET)**
  - Deck Slab
  - Build-up
  - Remove Rigid Pipe Grout Outlet, Clean, and Epoxy Grout as Per Grout Outlet Detail at Horizontal Surfaces (Typ) unless otherwise noted
  - Modified Inlet / Outlet Coupler (See Grout Outlet Detail at Vertical Surfaces)

- **TENDONS AT LOW POINTS (GROUT INLET / DRAIN)**
  - Deck Slab
  - Build-up
  - Remove Rigid Pipe Grout Outlet, Clean, and Epoxy Grout as Per Grout Outlet Detail at Horizontal Surfaces
  - Coupler - Provide Threaded Plug After Removal of Rigid Pipe
  - Flexible Pipe Grout Outlet

- **GROUT INLET AND OUTLET DETAILS FOR I-GIRDERS/BULB-T'S**

Details for C-I-P Boxes with Internal Tendons Similar. Web Reinforcing not Shown for Clarity.

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**POST-TENSIONING ANCHORAGE AND GROUTING DETAILS**

**INDEX NO.:**

**SHEET NO.:**

**DESCRIPTION:**

**FDOT 2014 DESIGN STANDARDS**

**REV. 01/01/11**

**21803**

2 of 3
**ELEVATION OF GROUT INLET**

**SECTION**

**GROUTING FOR SPAN BY SPAN CONSTRUCTION**

**DETAIL OF Drip Ledge At Abutments And Expansion Joints For Segmental And Cast-In-Place Box Construction**

**TEMPORARY ACCESS HOLES**

Notes: Temporary Access Holes

1. Temporary access holes to facilitate access for erection, jacking and grouting operations inside the box during construction are allowed. The access holes shall be limited to a maximum size of 42" wide x 30" long and shall be limited to one per span.

2. Slab block-outs for temporary / permanent longitudinal post-tensioning bars are not allowed. Temporary / permanent PT bars in the top slab shall be placed in oversized ducts in the slab to accommodate both the bar and coupler.

3. In lieu of 1 ~ 42" x 30" temporary access hole, a maximum of 2 top slab block-outs (12" x 17" (Max.)) between the webs is allowed for construction per span. Block-outs shall be a minimum of 12" from the nearest duct or anchor and shall be located as to prevent direct drip onto bottom slab anchors.

Notes: Repair of Temporary Access Holes, Block-outs, and Lifting Holes

1. Form all large block-outs with tapered sides.

2. Immediately before casting the concrete, mechanically clean the mating concrete surfaces to remove any laitance and to expose small aggregate.

3. Repair all holes and block-outs with Magnesium Ammonium Phosphate Concrete within 24 hours of cleaning concrete.

4. After completion of the deck grooving, coat the repaired and surrounding concrete surfaces with High Molecular Weight Methacrylate.

5. Alternately, epoxy grout may be used to repair holes. High Molecular Weight Methacrylate is not required with epoxy grout.