ANCHORAGE W/ 4" SCH 40 X 4" LONG TRUMPET ELEVATION VIEW

NOTES:
1. ITEMS MARKED WITH A "T" ARE TEMPORARY AND ARE NOT A PERMANENT PART OF THE SYSTEM.
2. PIPE MUST BE PRESSURE RATED FOR 145 PSI.
3. ALL OTHER COMPONENTS EXCEPT DUCT MUST BE PRESSURE RATED FOR 150 PSI.
4. CONCRETE COVER MUST MEET FOOT STRUCTURES DESIGN GUIDELINES SECTION 1.4.2
5. INSPECTION PORT NOT SHOWN FOR CLARITY.

INSTALLATION PROCEDURES (INSTALLATION PROCEDURE IS GENERIC. FOLLOW THE PROJECT SPECIFIC REQUIREMENTS AND THE FOOT SPECIFICATIONS)
1. INSTALL BEARING PLATE WITH ORIENTATION THAT GROUT PORT IS IN RIGHT POSITION.
2. LINE UP THE PIPE WITH STEEL TRUMPET BEHIND THE BEARING PLATE, USE STEEL BAND TO SECURE THE CONNECTION IF EPDM SLEEVE IS USED.
3. IF VACUUM ASSESSMENT FILLER INJECTION WILL BE USED, THEN VACUUM TEST PER 462-8.2.1.2
4. CONCRETE PLACEMENT OCCURS AFTER VACUUM TEST IS SUCCESSFUL.
5. INSTALL WMS BAR NYLON REINFORCED CAP.
6. ONLY STRESS WMS BAR IF CONCRETE HAS REACHED REQUIRED STRENGTH SPECIFIED ON DRAWINGS.
7. ELONGATION SHOULD BE WITHIN 4%.
8. AFTER FORM WORK IS REMOVED, INSTALL ANCHORAGE CAP WITH O-RING.
9. SYSTEM IS NOW READY TO AIR TEST.
10. PER THE FOOT SPECIFICATION SECTION 462-8.2.2, AIR PRESSURE TEST IS REQUIRED AFTER STRESSING AND PRIOR TO GROUT INJECTION.
11. GROUT TENSION PER GROUT SPEC:

ERDM CONNECTION NOTES:
1. ROUGHEN 2" MIN. END OF HDPE PIPE WITH COARSE SANDPAPER
2. INSTALL 6" EPDM SLEEVE
3. INSTALL 3" SS BAND CLAMP
4. CENTER EPDM SLEEVE OVER THE JOINT
5. APPLY 1/3" SSD SEATING FORCE PER BAND CLAMP
6. EPDM SLEEVE HAS NO IDENTIFYING TEXT OR MARKINGS. ERDM IS BLACK IN COLOR
NOTES:
1. ITEMS MARKED WITH A "T" ARE TEMPORARY AND ARE NOT A PERMANENT PART OF THE SYSTEM.
2. ALL COMPONENTS MUST BE PRESSURE RATED FOR 150 PSI.
3. MINIMUM CONCRETE COVER SHALL BE 2" AND MUST MEET FDOT STRUCTURES DESIGN GUIDELINES SECTION 1.4.2.
4. COMPONENTS MAY BE ASSEMBLED AS A VENT OR A DRAIN AS REQUIRED.

ITEM  QTY  DESCRIPTION  MATERIAL  INVENTORY #
1   1  SILICONE GREASE  -  -
2   1  23MM GROUT HOSE CAP  HDPE  02DT01814
3   1  3/4 NPT PVC 1/4 TURN BALL VALVE  SCH 40 PVC  02DT01916
4   1  23MM BP GROUT EXTENSION  POLYPROPYLENE  02DT03138
5   1  5R PLATE BUSHING 3/4" NPT 23MM  POLYPROPYLENE  02DT03136
6   1  23MM GROUT HOSE  HDPE  02DT01910
7   1  BUNDEL  -  -
8   1  3/4" SMOOTH HOSE  HDPE  02DT01901
9   2  3/4" ONE EAR BAND CLAMP  316 STAINLESS STEEL  02DT01905
10  1  3/4" HOSE BARB TO 3/4" NPT FITTING  POLYPROPYLENE  02DT01908
11  1  3/4" NPT RIBBED CAP  POLYPROPYLENE  02DT01912
12  1  3/4" NPT PP NIPPLE  POLYPROPYLENE  -
13  1  3/4" NPT PP COUPLER  POLYPROPYLENE  02DT01931
### Notes:
1. Pipe must be pressure rated for 125 PSI.
2. All other components except duct must be pressure rated for 150 PSI.
3. Concrete cover must meet FDOT Structures Design Guidelines Section 1.4.2

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<tr>
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<th>QTY</th>
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<th>MATERIAL</th>
<th>INVENTORY #</th>
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<tbody>
<tr>
<td>1</td>
<td>4&quot; DR-17 PIPE</td>
<td>HDPE</td>
<td>R71-14-30300</td>
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<tr>
<td>2</td>
<td>WMS 46MM (1 3/4&quot;) GRADE 150 TYPE II, KSI ATB</td>
<td>ASTM A722-97, M275</td>
<td>R72-14</td>
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<tr>
<td>3</td>
<td>WMS 46MM 1 3/4&quot; GR150 STOP TYPE PT BAR COUPLER</td>
<td>ASTM A29</td>
<td>R72-14</td>
<td></td>
</tr>
</tbody>
</table>

Diagram: PT BAR COUPLER ASSEMBLY

---

Structural Technologies, LLC
Corporate Office
10150 Old Columbia Rd
Columbia, MD 21046
Phone: (410) 850-7000
structuraltechnologies.com
INSTALLATION PROCEDURE (SEE MANUFACTURER INSTRUCTION MANUAL FOR DETAILED INSTALLATION INSTRUCTIONS):

1. CUT SQUARE ENDS ON PIPE TO BE FUSED
2. CLEAN BOTH PIPE ENDS
3. SCRAPE BOTH PIPES MINIMUM 0.07" WITH PROVIDED SCRAPING TOOL
4. CLEAN BOTH PIPE ENDS USING 90% OR GREATER ISOPROPYL ALCOHOL
5. USE REROUNDING TOOLS PROVIDED TO CORRECT OVAL PIPE IF NECESSARY
6. USE ALIGNMENT CLAMPS PROVIDED TO ENSURE PIPE IS ALIGNED WITH COUPLER
7. SUPPORT PIPE AND COUPLER AND RESTRAIN PIPE TO PREVENT MOVEMENT
8. CHECK FOR GAPS AND ELIMINATE AS NECESSARY
9. ATTACH LEADS OF THE PROVIDED FUSION PROCESSOR TO THE COUPLER
10. SCAN THE BARCODE ON THE COUPLER
11. START FUSION PROCESS
12. WHEN FUSION PROCESS IS COMPLETE, UNPLUG THE LEADS
13. DO NOT MOVE OR PRESSURIZE THE JOINT COMPONENTS BEFORE COOLING TIME HAS COMPLETED

NOTE:
FOLLOW COUPLER MANUFACTURER'S INSTALLATION INSTRUCTIONS

ELEVATION VIEW
NOTES:
1. HDPE 4" IPS/DR-17 MEETS FDOT 960 SPEC.
2. SEE VSL BUTT-WELDING PROCEDURE IN APPENDIX

ELEVATION VIEW

FUSION BUTT WELD
USE INSPECTED & APPROVED FUSION PIPE WELDER

ITEM | QTY | DESCRIPTION | MATERIAL
--- | --- | --- | ---
1 | 2 | 4" HDPE PIPE DR-17 | ASTM D3
NOTES
1. THIS ASSEMBLY CAN BE APPLIED IN ANY REQUIRED ORIENTATION TO CREATE EITHER A VENT OR A DRAIN.
2. PIPE MUST BE PRESSURE RATED FOR 125 PSI.
3. ALL OTHER COMPONENTS MUST BE PRESSURE RATED FOR 150 PSI.
4. CONCRETE COVER MUST MEET FDOT STRUCTURES DESIGN GUIDELINES SECTION 1.4.2

EXTERNAL GROUT PORT INSTALLATION
1. CLEAN PIPE PRIOR TO GROUT PORT INSTALLATION.
2. DRILL Ø7/8" HOLE INTO PIPE.
3. CONNECT THE SOCKET WELDING DEVICE TO THE DRILLED HOLE AND GROUT PORT FROM FEMALE ADAPTOR.
4. SIMULTANEOUSLY, INSERT MALE ADAPTOR OF SOCKET WELDING DEVICE FROM DRILLED HOLE AND GROUT PORT FROM FEMALE ADAPTOR.
5. APPLY LIGHT PRESSURE FOR 20-25 SECONDS BY PUSHING THE GROUT PORT WITH THE PALM OF HAND.
6. SIMULTANEOUSLY, REMOVE SOCKET WELDING DEVICE FROM DRILLED HOLE AND GROUT PORT FROM FEMALE ADAPTOR.
7. INSERT GROUT PORT INTO HOLE UNTIL THE SHOULDER IS REACHED.
8. THIS OPERATION SHOULD BE CARRIED OUT AS QUICKLY AND CAREFULLY AS POSSIBLE, WITHIN 5 SECONDS. FIRMLY HOLD THE PIECES TOGETHER FOR A MINIMUM OF 10 SECONDS.

ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY #
--- | --- | --- | --- | ---
1 | - | 4" DR-17 PIPE | HDPE | -
2 | 1 | EXTERNAL GROUT PORT 23MM | POLYETHYLENE | 02DT0250
**SECTION A-A**

**TOP VIEW**

**SECTION A-A**

**BOTTOM VIEW**

**ITEM** | **QTY** | **DESCRIPTION** | **MATERIAL** | **INVENTORY #**
--- | --- | --- | --- | ---
1 | 1 | BEARING PLATE GROUT PLUG 23MM | HDPE | 02DT0341

NBR O-RING (PARKER #N1470 2-212) INSTALL DURING MANUFACTURING

0.14" LETTERING 0.06" PROUD
ITEM | QTY | DESCRIPTION             | MATERIAL       | INVENTORY #
-----|-----|-------------------------|----------------|--------------
  1  |     | EXTERNAL GROUT PORT 23MM| POLYETHYLENE   | 02DT0250     

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

END VIEW

SIDE VIEW

1.725"
**ITEM**  | **QTY** | **DESCRIPTION** | **MATERIAL** | **INVENTORY #**
--- | --- | --- | --- | ---
1 | - | 23MM GROUT HOSE | HDPE | 02DT0310
ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY #
---|---|---|---|---
1 | 1 | 3/4" SMOOTH HOSE | BLACK | 02DT01901

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960
INSTALLATION INSTRUCTIONS:
1. Slide band over hose and align over barbs on fitting
2. Crimp ear on band with pliers using either diagonal cutters or end nippers

INSTALLED [AFTER CRIMPING]
OPEN [AS SUPPLIED]
3/4” HOSE BARB TO 23MM FITTING

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

BLACK POLYPROPYLENE

INVENTORY # 02DT019

SIDE VIEW

NOTE MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

NBR O-RING (PARKER #N1470 2-212) INSTALL DURING MANUFACTURING

ITEM   QTY   DESCRIPTION   MATERIAL   INVENTORY 
1   -3/4” HOSE BARB TO 23MM FITTING   BLACK POLYPROPYLENE   02DT019

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960
# SYSTEM DRAWING

**PROJECT INFORMATION:**

- **FILE NAME**: C694 3-4in Barb to 3-4in NPT 02DT01908.dwg
- **PLOT DATE/TIME**: 11:49 AM 17Jun2019

**FIRST ISSUE**: 0

**NOTE**: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

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<tr>
<td>1</td>
<td></td>
<td>3/4&quot; HOSE BARB TO 3/4&quot; NPT FITTING</td>
<td>BLACK POLYPROPYLENE</td>
<td>02DT1938</td>
</tr>
</tbody>
</table>

**SIDE VIEW**

- 3/4" NPT THREAD
- 1 1/8" HEX
- 1 25/32" x 23/32"
NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

<table>
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<tr>
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<td>3/4&quot; NPT RIBBED CAP</td>
<td>POLYPROPYLENE</td>
<td>02DT01912</td>
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</table>

[Diagram of 3/4" NPT RIBBED CAP]

TOP VIEW

SIDE VIEW
ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY #
--- | --- | --- | --- | ---
1 | | BEARING PLATE GROUT EXTENSION | WHITE POLYPROPYLENE | 2D01018
NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

DESCRIPTION

BY

DATE

THESE SHOP DRAWINGS ILLUSTRATE THE DETAILS OF THE STRUCTURAL TECHNOLOGIES, LLC POST-TENSIONING SYSTEM. THEY WERE PREPARED IN CONFORMANCE WITH THE STRUCTURAL DESIGN PROVIDED TO STRUCTURAL TECHNOLOGIES, LLC AND THE INFORMATION CONTAINED HEREIN IS PROPRIETARY TO STRUCTURAL TECHNOLOGIES, LLC. THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN IS CONFIDENTIAL, AND MAY NOT BE REPRODUCED OR DISCLOSED WITHOUT THE PRIOR WRITTEN CONSENT OF STRUCTURAL TECHNOLOGIES, LLC. FURTHER, THE USE OF THIS DOCUMENT OR ANY INFORMATION PRESENTED HEREIN IS RESTRICTED TO THE SPECIFIC PROJECT AND PURPOSE FOR WHICH IT WAS PREPARED. ANY OTHER USE IS STRICTLY PROHIBITED. STRUCTURAL TECHNOLOGIES, LLC DISCLAIMS ANY LIABILITY FOR ANY UNAUTHORIZED, UNINTENDED OR OTHER IMPERMISSIBLE USE OF THIS DOCUMENT OR ANY INFORMATION IT CONTAINS.

ITEM QTY DESCRIPTION MATERIAL INVENTORY #
1 23MM F3/4 FITTING BLACK POLYPROPYLENE 02DT0316

NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960

SECTION VIEW
18JUN2019

ZX

CDL

FIRST ISSUE

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NOTE: MATERIAL MEETS OR EXCEEDS FDOT SPECIFICATION 960
ITEM | QTY | DESCRIPTION               | MATERIAL      |
--- | --- | -------------------------- | ------------- |
1  | 1   | 3/4" NPT PP NIPPLE         | SCH 80 POLYPROPYLENE |

NOTE: THIS IS A TEMPORARY ITEM.
<table>
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<th>MATERIAL</th>
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<tr>
<td>1</td>
<td>1</td>
<td>4&quot; HDPE PIPE DR-17</td>
<td>ASTM D335</td>
</tr>
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</table>

NOTE: MINIMUM BEND RADIUS = 20'-0"
ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY #
--- | --- | --- | --- | ---
1 | | ELASTOMER SLEEVE BAND CLAMP | 3/16 STAINLESS STEEL | 02MP50048

NOTE: PER SPECIFICATION SECTION 960.2.1.5-12, THE BAND CLAMPS ARE TO BE SET WITH A 120# FORCE PRIOR TO CLAMPING THEM IN PLACE.
END VIEW

SIDE VIEW

NOTE: SLEEVE IS TO BE REINFORCED WITH A MINIMUM OF FOUR PLY POLYESTER REINFORCEMENT.
THESE SHOP DRAWINGS ILLUSTRATE THE DETAILS OF THE STRUCTURAL TECHNOLOGIES / VSL POST-TENSIONING SYSTEM. THEY WERE PREPARED IN CONFORMANCE WITH THE STRUCTURAL DESIGN PROVIDED TO STRUCTURAL TECHNOLOGIES / VSL BY PROJECT OWNER OR ITS REPRESENTATIVE. STRUCTURAL TECHNOLOGIES / VSL TOOK NO PART IN THE PREPARATION OR REVIEW OF SAID STRUCTURAL DESIGN AND STRUCTURAL TECHNOLOGIES / VSL DISCLAIMS ANY LIABILITY FOR IT. THE STAMP OR SEAL OF A STRUCTURAL TECHNOLOGIES / VSL EMPLOYEE ON THESE SHOP DRAWINGS PERTAINS ONLY TO THE TRANSFER OF THE FORCES REQUIRED BY THE ENGINEER OF RECORD ON THE STRUCTURAL DRAWINGS, AND NOT TO THE ADEQUACY OF THE STRUCTURAL DESIGN. NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ADEQUACY OF THE STRUCTURAL DESIGN IS MADE BY VIRTUE OF ANY SUCH STAMP OR SEAL.

ITEM | QTY | DESCRIPTION       | MATERIAL   
--- | --- | ------------------ | ---------- 
1  | -   | 3/4" NPT PVC NIPPLE | SCH 80 PVC  

NOTE: THIS IS A TEMPORARY ITEM
THESE SHOP DRAWINGS ILLUSTRATE THE DETAILS OF THE STRUCTURAL TECHNOLOGIES / VSL POST-TENSIONING SYSTEM. THEY WERE PREPARED IN CONFORMANCE WITH THE STRUCTURAL DESIGN PROVIDED TO STRUCTURAL TECHNOLOGIES / VSL BY PROJECT OWNER OR ITS REPRESENTATIVE. STRUCTURAL TECHNOLOGIES / VSL TOOK NO PART IN THE PREPARATION OR REVIEW OF SAID STRUCTURAL DESIGN AND STRUCTURAL TECHNOLOGIES / VSL DISCLAIMS ANY LIABILITY FOR IT. THE STAMP OR SEAL OF A STRUCTURAL TECHNOLOGIES / VSL EMPLOYEE ON THESE SHOP DRAWINGS PERTAINS ONLY TO THE TRANSFER OF THE FORCES REQUIRED BY THE ENGINEER OF RECORD ON THE STRUCTURAL DRAWINGS, AND NOT TO THE ADEQUACY OF THE STRUCTURAL DESIGN. NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ADEQUACY OF THE STRUCTURAL DESIGN IS MADE BY VIRTUE OF ANY SUCH STAMP OR SEAL.

ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY# |
--- | --- | --- | --- | --- |
1 | - | 3/4" NPT PE PLUG | POLYETHYLENE | 02DT07913

3/4" NPT PE PLUG

END VIEW

SIDE VIEW

1.3125" 1.25"
ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY
--- | --- | --- | --- | ---
1 | 1 | 1/4" NPT TO 3/4" NPT BUSHING | SCH 80 PVC | 02DT01935
1/4" NPT FEMALE HEX CAP

ITEM | QTY | DESCRIPTION | MATERIAL | INVENTORY
--- | --- | --- | --- | ---
1 | | 1/4" NPT FEMALE HEX CAP | POLYPROPYLENE | 02DT01907

SIDE VIEW

FRONT VIEW
### Materials
- **Galvanizing:** Per ASTM A123
- **Welding:** Pass D1.1 E70XX electrodes

### Dimensions
- **A**
  - 2.500" Varies by Job
  - 1.67" Varies by Job (Min.):
    - 45° 39°
  - Ø0.54" 1/4" NPT threads

- **B**
  - 2.0" 0.540" 0.364"

### Tables
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<tr>
<td>1</td>
<td>1</td>
<td>Steel Bearing Plate W/ 3/8&quot; GROUT GROOVE</td>
<td>ASTM A-36-01, AASHTO M183, ASTM A-53, ASTM A-512</td>
<td>Job Specific</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>4&quot; SCH. 40 TRUMPET (MIN. 4&quot; LONG)</td>
<td>Galvanized Steel</td>
<td>Job Specific</td>
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<tr>
<td>3</td>
<td>1</td>
<td>1/4&quot; SCH. 40 X 2&quot; Long Front Inspection Port</td>
<td>Galvanized Steel</td>
<td>Job Specific</td>
</tr>
</tbody>
</table>
NOTE: FOR ROUND PLATES AND PLATES WITH DUCT COLLARS, SINGLE OR ANGLED GROUT TUBE HOLES REQUEST PRINT FROM ENGINEERING DEPT.

TOLERANCES UNLESS OTHERWISE SPECIFIED

XX, +/- .03, XXX +/- .015
ANGLES +/- 0°-30°

NOMINAL BAR SIZE (GR150) | A DIA. | B = 0.010 RAD. | C DIM. | D DIM. | E DIA. | F DIM.
---|---|---|---|---|---|---
46mm (1 3/4" nom.) | 3.64 | 2.19 | 1.22 | .98 | 2.38 | .63

Customer: MASTER CHART OF DISHED PLATES FOR GR150 BARS

Project: MASTER CHART OF DISHED PLATES FOR GR150 BARS
WMS. 46mm (1 3/4" nom.) SPHERICAL HEX NUT:
ASTM A-536, 100-70-03, DUCTILE IRON
TAP 1 ¾” -3 ½ COIL
GR150

ø3.00

8.50