

**4F15 INSTALLATION PROCEDURE:**

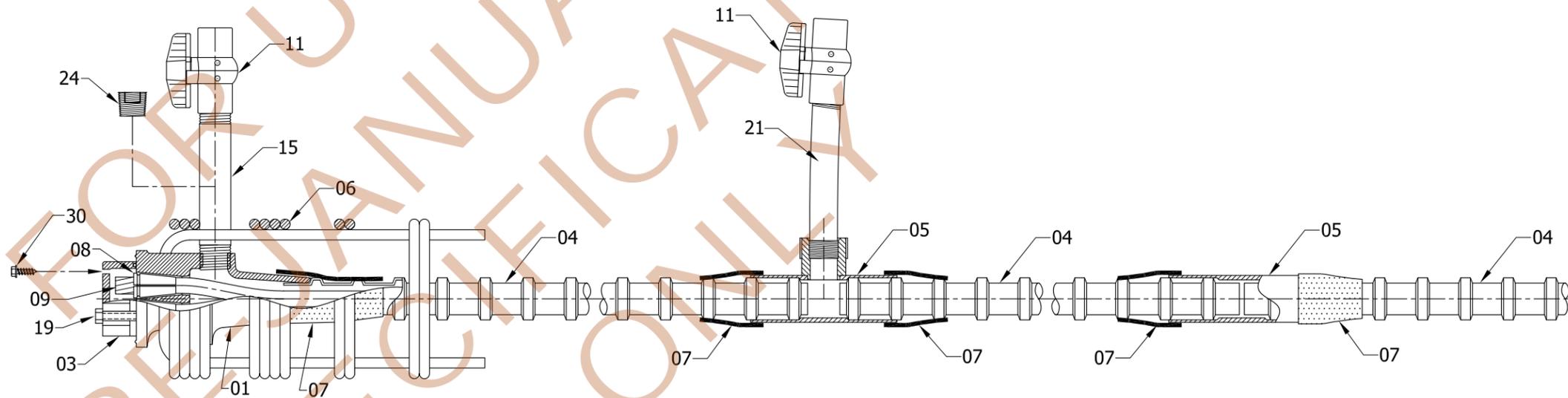
- 1) LAYOUT EACH TENDON ANCHORAGE AND DUCT LOCATION ACCORDING TO THE SPACING SHOWN ON THE TENDON LAYOUT PLANS.
- 2) INDIVIDUAL DUCT LENGTHS SHALL BE COUPLED TOGETHER TO OBTAIN THE CORRECT LENGTH FROM ANCHORAGE TO ANCHORAGE. INSTALL VENTED COUPLERS AS SHOWN ON THESE DRAWINGS AND THE APPLICABLE CONTRACT PLANS.
- 3) INSTALL ONE 4F15 ANCHORAGE TRUMPLATE, BOLT SECURELY AND PERPENDICULAR TO THE BLOCK-OUT FORM ON ONE END, INSTALL DUCT AND SEAL.
- 4) PLACE THE CORRECT QUANTITY OF STRAND IN EACH DUCT LEAVING MINIMUM STRESSING TAILS AT EACH END. THIS CAN BE ACCOMPLISHED BY PUSHING THE STRAND THROUGH THE INSTALLED TRUMPLATE AND THROUGH THE DUCT. ALLOW MINIMUM TAIL FROM THE FREE END OF THE DUCT TO INCLUDE TRUMPLATE LENGTH PLUS STRESSING OR DEAD-END TAIL.
- 5) INSTALL THE SECOND 4F15 ANCHORAGE TRUMPLATE OVER THE STRANDS, BOLT SECURELY AND PERPENDICULAR TO THE BLOCK-OUT FORM.
- 6) USE HEAT SHRINK TO SEAL DUCT TO DUCT AND DUCT TO TRUMPLATE CONNECTIONS FOLLOWING THE MANUFACTURER'S RECOMMENDED PROCEDURE. CARE MUST BE OBSERVED TO AVOID BURNS ON THE DUCT.
- 7) PLACE ALL REINFORCEMENTS AS SHOWN ON THESE DRAWINGS AND THE APPLICABLE CONTRACT PLANS.
- 8) PROCEED WITH CONCRETING, TAKING CARE TO NOT DAMAGE OR DISPLACE THE DUCT. COVER EXPOSED STRAND TAILS AS NECESSARY UNTIL STRESSING.
- 9) STRESSING MAY PROCEED ONCE THE CONCRETE HAS ATTAINED THE REQUIRED COMPRESSIVE STRENGTH AS INDICATED IN THE PLANS AND AS CONFIRMED BY TESTS.
- 10) INSERT THE WEDGES INTO THE 4F15 ANCHORAGE TRUMPLATES.
- 11) ALL TENDONS SHALL BE STRESSED BY JACKING FROM ONE OR TWO ENDS IN THE APPROVED SEQUENCE. ONCE APPROVED, CUT TAILS TO 1.5" MAXIMUM LENGTH.
- 12) INSTALL GROUT CAPS, INLET AND OUTLET ACCESSORIES.
- 13) PERFORM DUCT PRESSURE FIELD TEST AS REQUIRED BY APPLICABLE SPECIFICATIONS.
- 14) GROUTING SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE PTI GUIDE SPECIFICATIONS FOR GROUTING OF POST TENSIONING STRUCTURES OR APPLICABLE SPECIFICATION.

• THE ABOVE IS A GENERIC INSTALLATION PROCEDURE - JOB SPECIFIC PROCEDURES SHALL ACCOMPANY EACH PROJECT.

4F15 ASSEMBLY				
ITEM	DESCRIPTION	MATERIAL	PART # / LABEL	DWG REF.
	4F15 INTERNAL TENDON W/COUPLER OVERALL ASSEMBLY			FINC-4F15-001
	4F15 ANCHORAGE ASSEMBLY			FINC-4F15-002
01	4F15 ANCHORAGE (TRUMPLATE)	ASTM A536 GR. 80-55-06/GALVANIZED ASTMA123	FREYSSINET 4F15	FINC-4F15-003
03	4F15 GROUT CAP	NYLON ASTM D5989	FREYSSINET 4F15	FINC-4F15-005
04	4F15 25mm X 76mm GTI FLAT DUCT	POLYPROPYLENE ASTM D4101	220600	FINC-4F15-006
05	4F15 25mm X 76mm GTI SLIP-ON COUPLER W/ OR W/O VENT	POLYPROPYLENE ASTM D4101	220605	FINC-4F15-007
06	4F15 BURSTING REINFORCEMENT	STEEL GR. 60 ASTM A615	N/A	FINC-4F15-008
07	4F15 HEAT SHRINK SLEEVE	POLYOLEFIN BACKING W/ ADHESIVE	PLA 55	FINC-4F15-009
08	WEDGE	12L14 ASTM A240	N/A	FINC-001
09	0.6" DIA. STRAND	STEEL ASTM A416	N/A	FINC-002
11	3/4" BALL VALVE	PVC SCH. 80 PRESSURE RATING ≥ 150 psi	N/A	FINC-004
15	3/4" NIPPLE	PVC SCH. 80 PRESSURE RATING ≥ 150 psi	N/A	FINC-008
19	5/16" BOLT	316 STAINLESS STEEL ASTM F593	N/A	FINC-4F15-005
21	3/4" CRESLINE PIPE	HIGH-DENSITY POLYETHYLENE	CRESLINE HD160	FINC-014
24	3/4" PLUG	NYLON ASTM D5989	FREYSSI 3/4"	FINC-017
30	12 X 3/4" CAP VENT SCREW	HEX HEAD STAINLESS STEEL	N/A	FINC-4F15-005

**NOTES:**

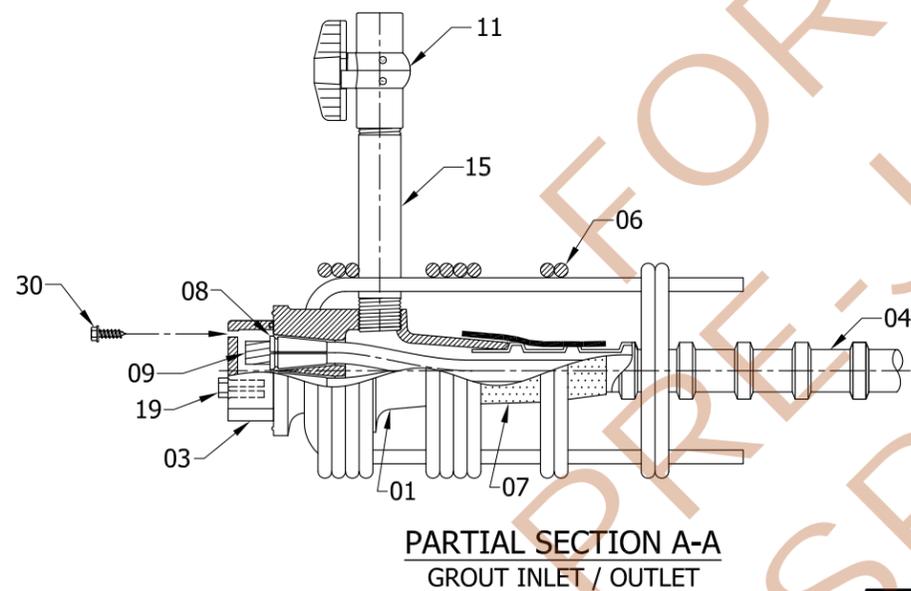
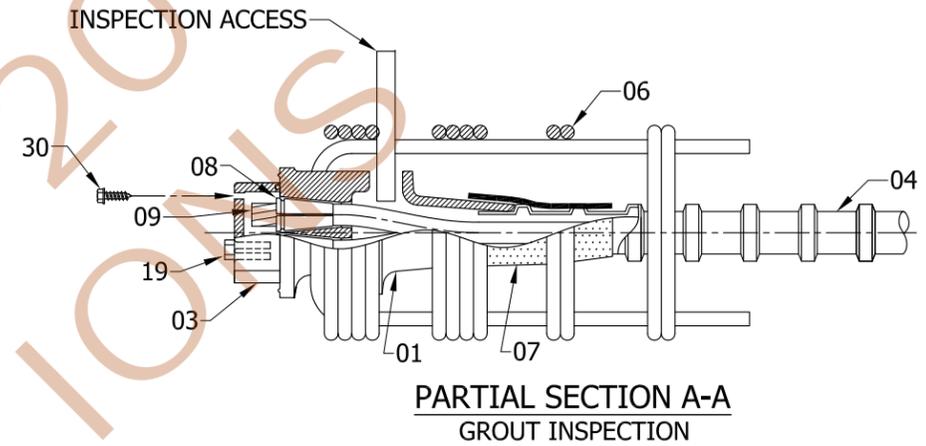
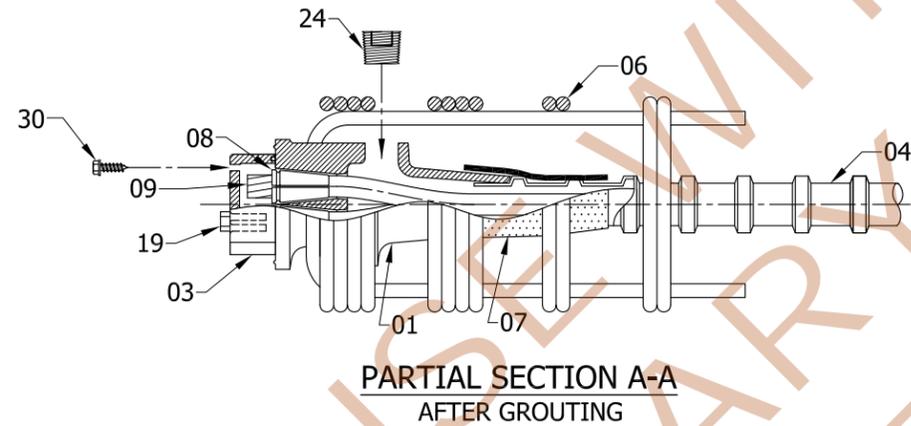
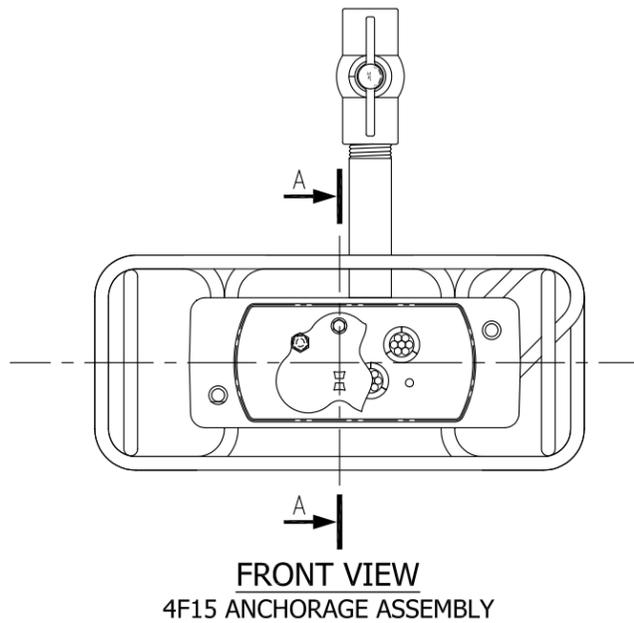
- ALL PVC SCH. 80 MATERIALS TO BE TEMPORARY FITTING
- CAP BOLT (ITEM 19) HAS NO MARKING FROM MANUFACTURER
- CAP VENT SCREW (ITEM 30) HAS NO MARKING FROM MANUFACTURER



**4F15 ASSEMBLY**

REV.	DATE	DRAWN	CHECKED	APPROVED	REVISIONS
2	7/19/13	JF	TG/BG	AM	SECOND REVISION
1	10/1/12	JF	TG/BG	AM	FIRST REVISION
0	2/11/11	SA	BG	AM	ORIGINAL

DRAWING TITLE: 4F15 INTERNAL TENDON W/COUPLER OVERALL ASSEMBLY			
MATERIAL:	PROJECT: FDOT	DRAWING SIZE: 11x17	SCALE: 1:5
DIMENSIONS: INCH[mm] mm FOR REFERENCE ONLY	DRAWING NUMBER: FINC-4F15-001	PART NUMBER:	
FREYSSINET, INC		44880 FALCON PLACE, SUITE 100 STERLING, VA 20166	
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4F15 ASSEMBLY				
ITEM	DESCRIPTION	MATERIAL	PART # / LABEL	DWG REF.
	4F15 INTERNAL TENDON W/COUPLER OVERALL ASSEMBLY			FINC-4F15-001
	4F15 ANCHORAGE ASSEMBLY			FINC-4F15-002
01	4F15 ANCHORAGE (TRUMPLATE)	ASTM A536 GR. 80-55-06/GALVANIZED ASTM A123	FREYSSINET 4F15	FINC-4F15-003
03	4F15 GROUT CAP	NYLON ASTM D5989	FREYSSINET 4F15	FINC-4F15-005
04	4F15 25mm X 76mm GTI FLAT DUCT	POLYPROPYLENE ASTM D4101	220600	FINC-4F15-006
06	4F15 BURSTING REINFORCEMENT	STEEL GR. 60 ASTM A615	N/A	FINC-4F15-008
07	4F15 HEAT SHRINK SLEEVE	POLYOLEFIN BACKING W/ ADHESIVE	PLA 55	FINC-4F15-009
08	WEDGE	12L14 ASTM A240	N/A	FINC-001
09	0.6" DIA. STRAND	STEEL ASTM A416	N/A	FINC-002
11	3/4" BALL VALVE	PVC SCH. 80 PRESSURE RATING ≥ 150 psi	N/A	FINC-004
15	3/4" NIPPLE	PVC SCH. 80 PRESSURE RATING ≥ 150 psi	N/A	FINC-008
19	5/16" BOLT	316 STAINLESS STEEL ASTM F593	N/A	FINC-4F15-005
24	3/4" PLUG	NYLON ASTM D5989	FREYSSI 3/4"	FINC-017
30	12 X 3/4" CAP VENT SCREW	HEX HEAD STAINLESS STEEL	N/A	FINC-4F15-005

**NOTES:**

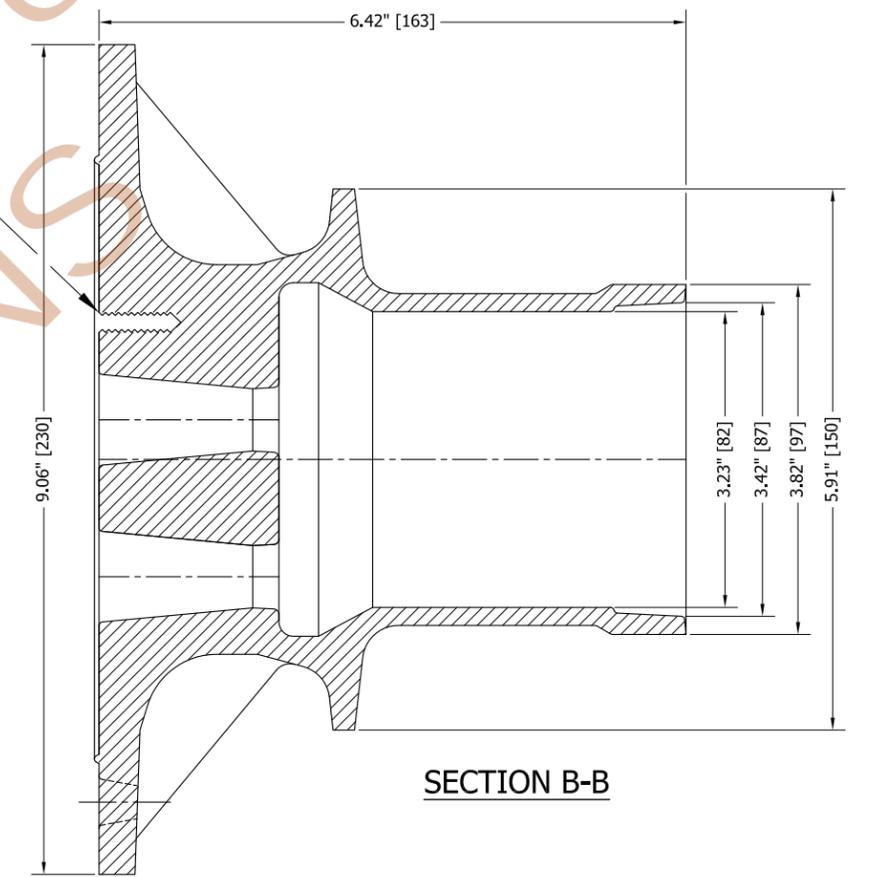
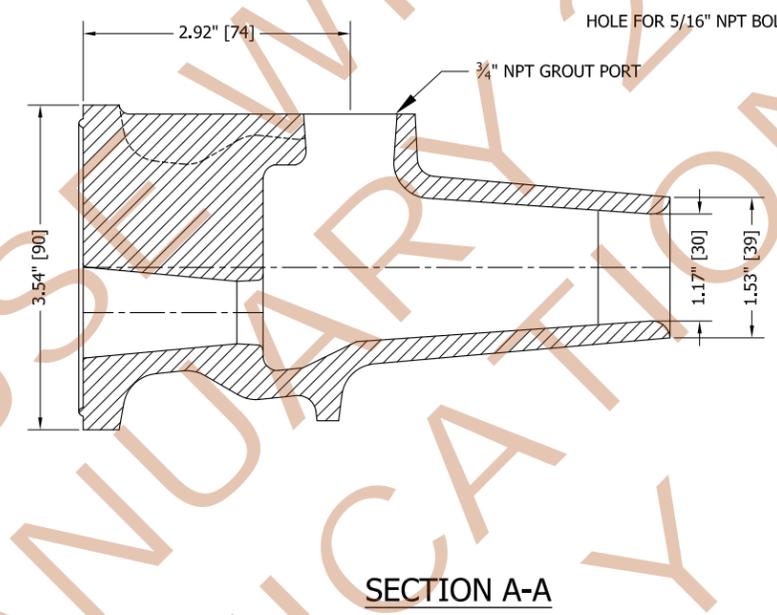
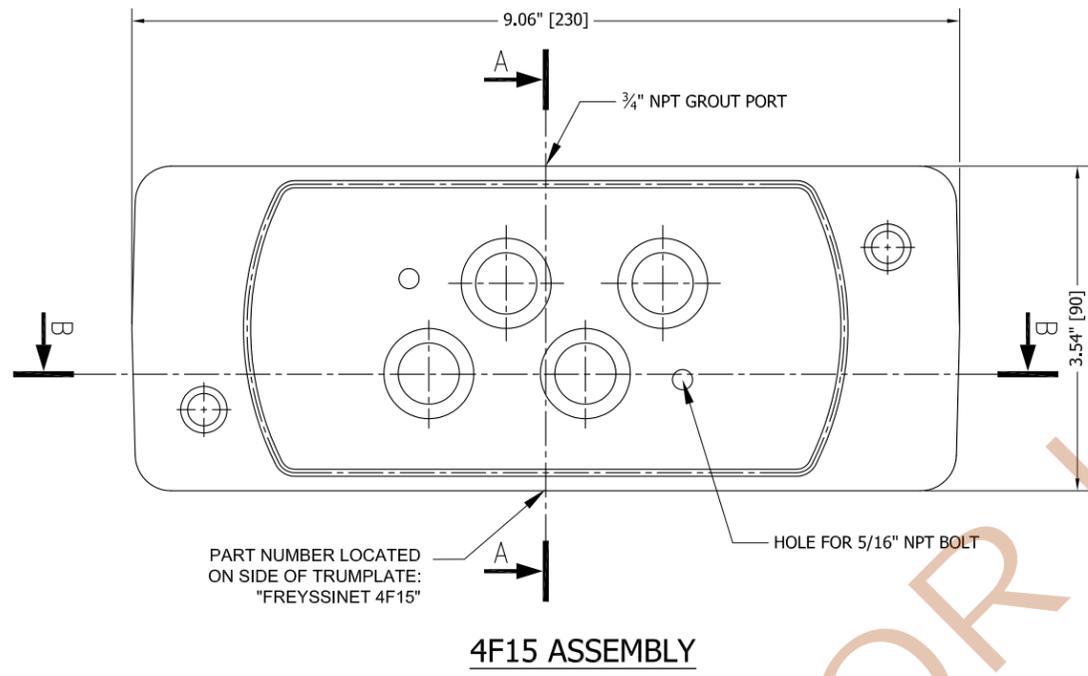
- ALL PVC SCH. 80 MATERIALS TO BE TEMPORARY FITTING
- CAP BOLT (ITEM 19) HAS NO MARKING FROM MANUFACTURER
- CAP VENT SCREW (ITEM 30) HAS NO MARKING FROM MANUFACTURER

REV.	DATE	DRAWN	CHECKED	APPROVED	REVISIONS
2	7/19/13	JF	TG/BG	AM	SECOND REVISION
1	10/1/12	JF	TG/BG	AM	FIRST REVISION
0	2/11/11	SA	BG	AM	ORIGINAL



DRAWING TITLE: 4F15 ANCHORAGE ASSEMBLY			
MATERIAL:	PROJECT: FDOT	DRAWING SIZE: 11x17	SCALE: 1:5
DIMENSIONS: INCH[mm] mm FOR REFERENCE ONLY	DRAWING NUMBER: FINC-4F15-002	PART NUMBER:	
FREYSSINET, INC 44880 FALCON PLACE, SUITE 100 STERLING, VA 20166		COPYRIGHT & MODIFICATION RESERVED Telephone: (703) 378-2500 Fax: (703) 378-2700	
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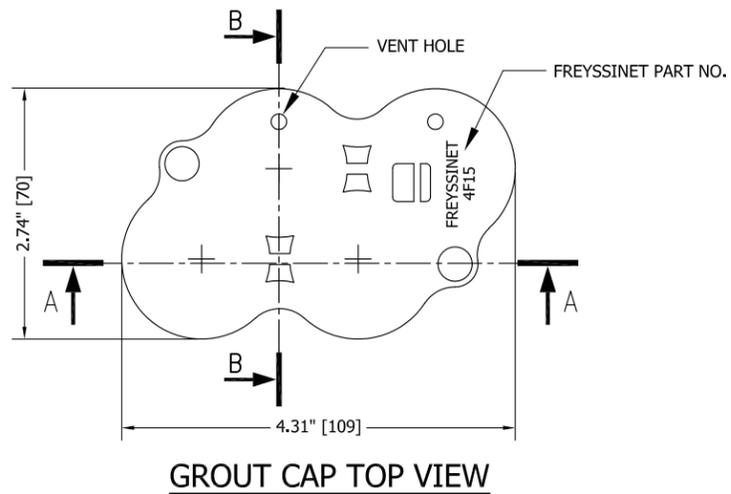


- NOTES:
- MATERIAL: ASTM A536 GR. 80-55-06 / GALVANIZED PER ASTM A123

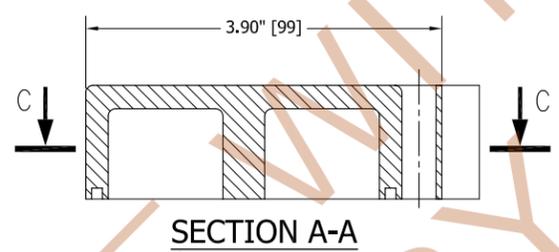
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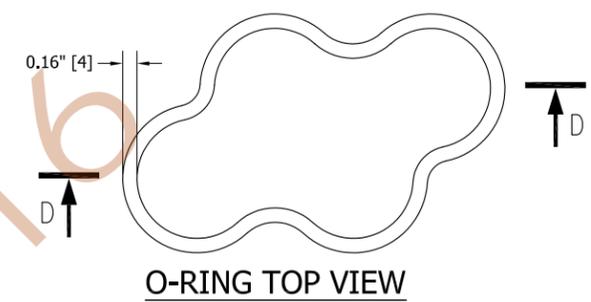
DRAWING TITLE: 4F15 ANCHORAGE (TRUMPLATE)			
MATERIAL: ASTM A536 GR. 805506/GALV. ASTM A123	PROJECT: FDOT	DRAWING SIZE: 11x17	SCALE: 1:2
DIMENSIONS: INCH[mm] mm FOR REFERENCE ONLY		DRAWING NUMBER: FINC-4F15-003	PART NUMBER: FREYSSINET 4F15
FREYSSINET, INC 44880 FALCON PLACE, SUITE 100 STERLING, VA 20166		COPYRIGHT & MODIFICATION RESERVED Telephone: (703) 378-2500 Fax: (703) 378-2700	
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GROUT CAP TOP VIEW



SECTION A-A

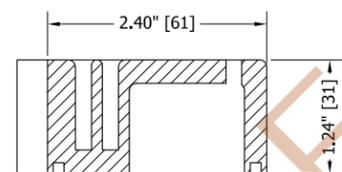


O-RING TOP VIEW

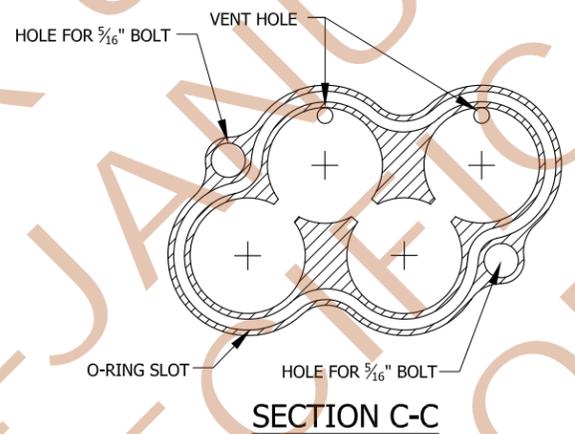
- NOTES:
- O-RING MATERIAL: 65-75 DUROMETER BLACK NITRILE WITH A SHORE A DUROMETER = 72 AS PER ASTM D2240
  - COMPLIES W/ FDOT 960-2.2.1.7



SECTION D-D



SECTION B-B



SECTION C-C



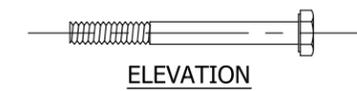
ELEVATION



FRONT VIEW

CAP VENT SCREW

- NOTES:
- SIZE 12 x 3/4" HEX HEAD STAINLESS STEEL
  - CAP VENT SCREW HAS NO MARKING FROM THE MANUFACTURER



ELEVATION



FRONT VIEW

5/16" BOLT

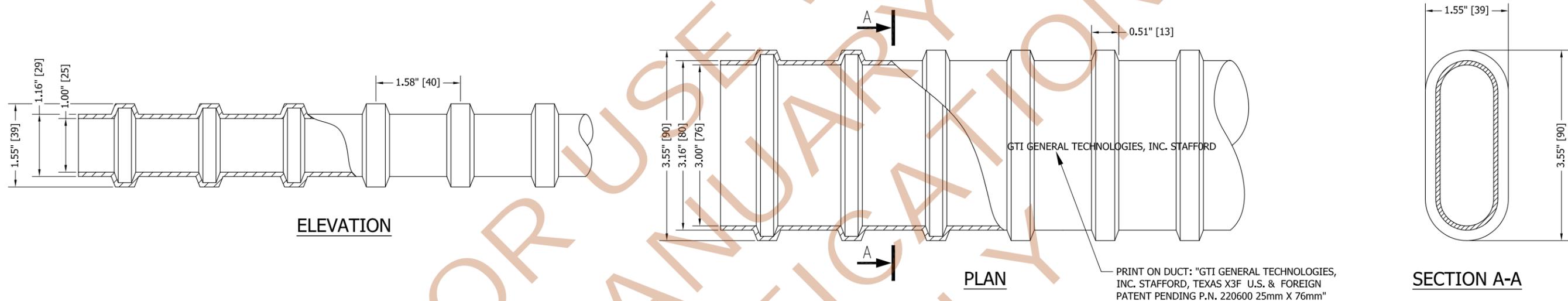
- NOTES:
- MATERIAL: (316) STAINLESS STEEL ASTM F593
  - CAP BOLT HAS NO MARKING FROM THE MANUFACTURER

- NOTE:
- MATERIAL: NYLON ASTM D5989
  - USE O-RING IN GROOVE FOR SEALING AGAINST TRUMPLATE (DWG. FINC-4F15-002)
  - USE 5/16" S.S. BOLT ASTM F593
  - PRESSURE RATING = 150 psi
  - GROUT CAP MEETS OR EXCEEDS FDOT REQUIREMENTS OF SECTIONS 960-2.2.2.1 AND 960-2.4.1

REV.	DATE	DRAWN	CHECKED	APPROVED	REVISIONS
2	7/19/13	JF	TG/BG	AM	SECOND REVISION
1	10/1/12	JF	TG/BG	AM	FIRST REVISION
0	2/11/11	SA	BG	AM	ORIGINAL



DRAWING TITLE: 4F15 GROUT CAP			
MATERIAL: NYLON ASTM D5989	PROJECT: FDOT	DRAWING SIZE: 11x17	SCALE: 1:2
DIMENSIONS: INCH[mm] mm FOR REFERENCE ONLY		DRAWING NUMBER: FINC-4F15-005	PART NUMBER: FREYSSINET 4F15
FREYSSINET, INC 44880 FALCON PLACE, SUITE 100 STERLING, VA 20166 Telephone: (703) 378-2500 Fax: (703) 378-2700			
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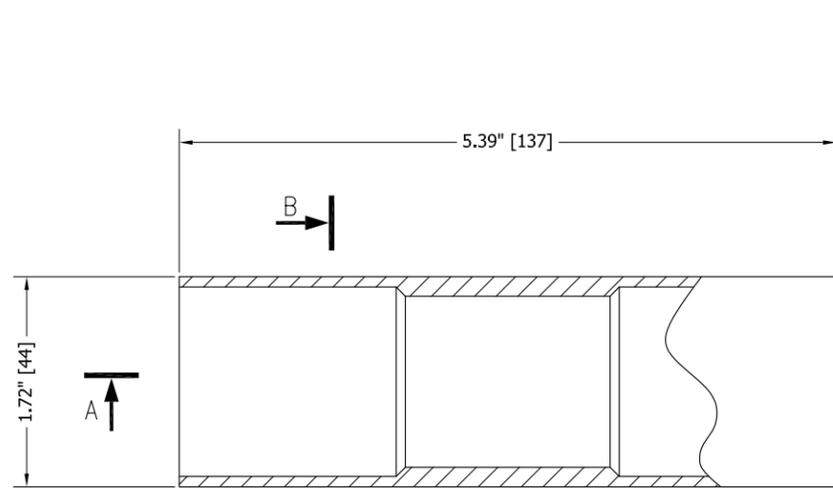


- NOTE:
- MATERIAL: POLYPROPYLENE (ASTM D4101)
  - STANDARD FIT FOR 4F15
  - DUCT IS DELIVERED IN STRAIGHT SECTIONS AND IS NOT INTENDED TO BE COILED.
  - DUCT MEETS OR EXCEEDS FDOT REQUIREMENTS OF SECTION 960-2.2.1.1 AND 960-2.4.4

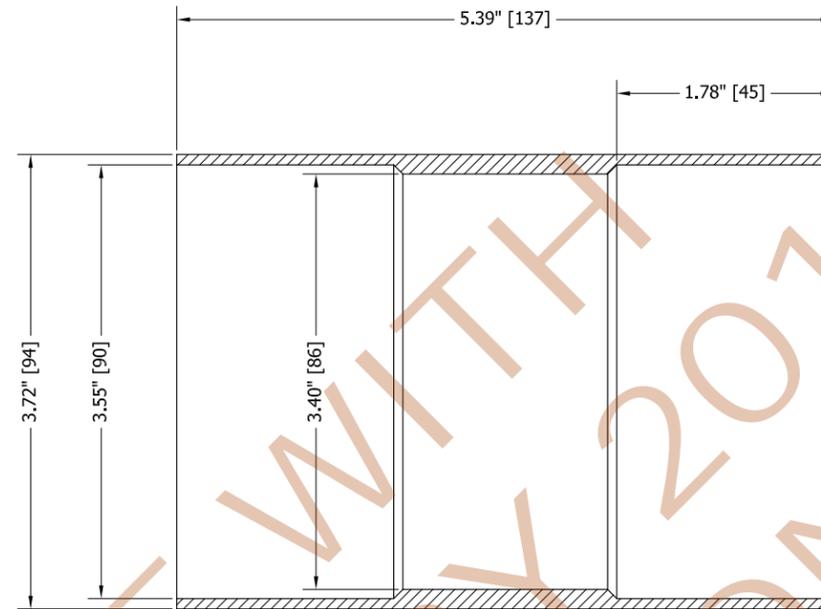
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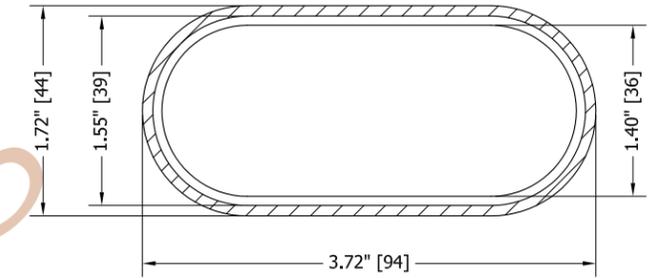
				DRAWING TITLE: 4F15 25mm X 76mm GTI DUCT			
				MATERIAL: POLYPROPYLENE (ASTM D4101)	PROJECT: FDOT	DRAWING SIZE: 11x17	SCALE: 1:2
DIMENSIONS: INCH[mm] mm FOR REFERENCE ONLY		DRAWING NUMBER: FINC-4F15-006		PART NUMBER: 220600			
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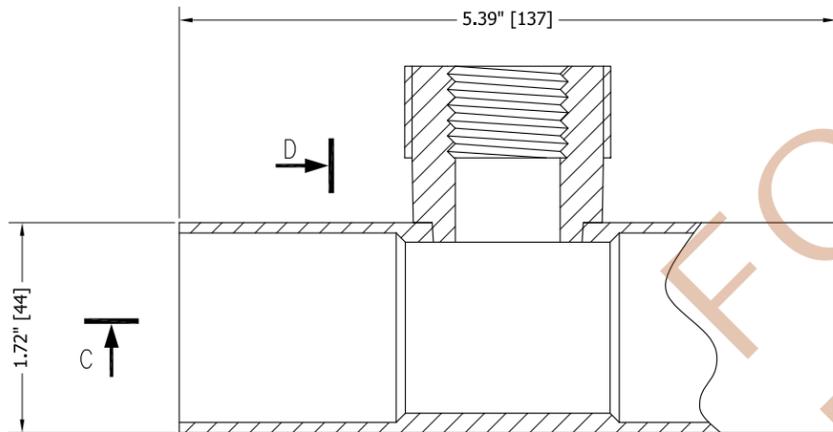
SECTION / ELEVATION COUPLER W/O VENT



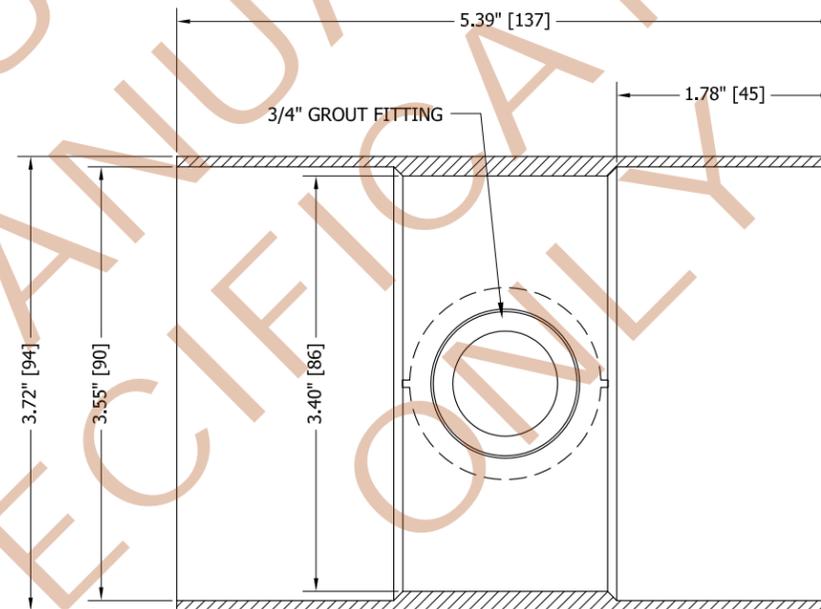
SECTION A-A



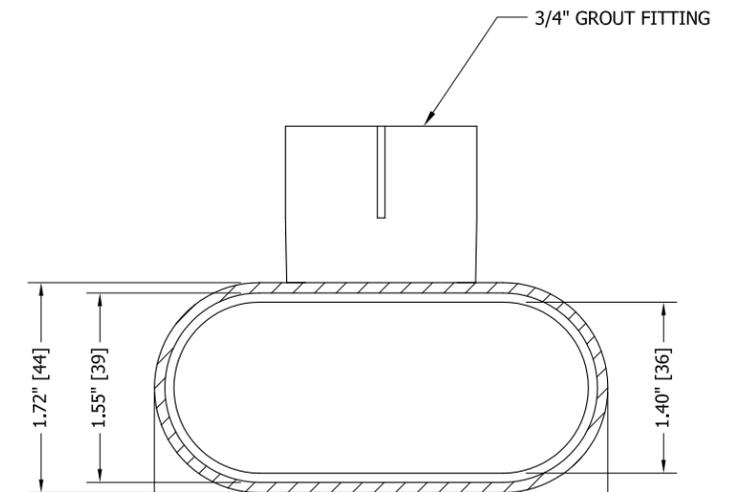
SECTION B-B



SECTION / ELEVATION COUPLER W/VENT



SECTION C-C



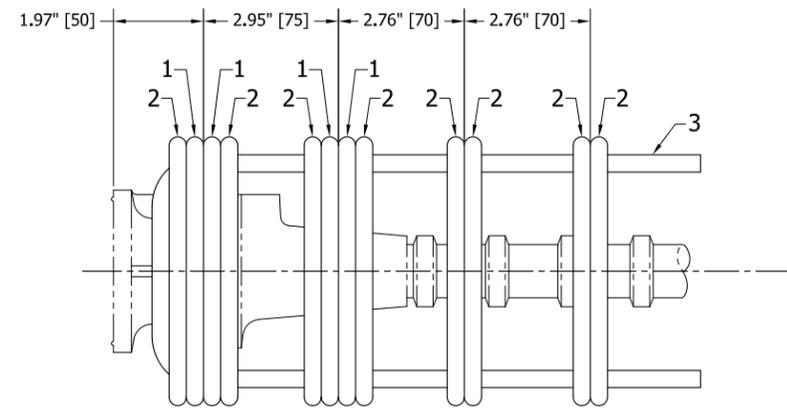
SECTION D-D

- NOTE:
- MATERIAL: POLYPROPYLENE (ASTM D4101)
  - STANDARD FIT FOR 25mm X 76mm DUCT
  - COUPLER MEETS OR EXCEEDS FDOT REQUIREMENTS OF SECTION 960-2.2.1.5 AND 960-2.4.4

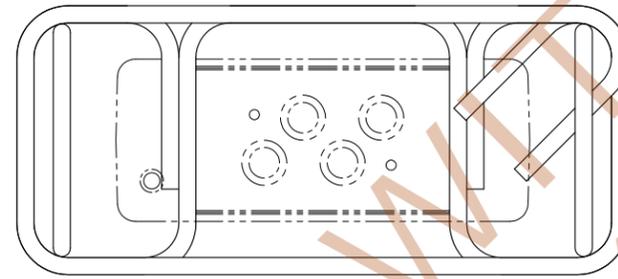
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1	10/1/12	JF	TG/BG	AM	FIRST REVISION
0	2/11/11	SA	BG	AM	ORIGINAL



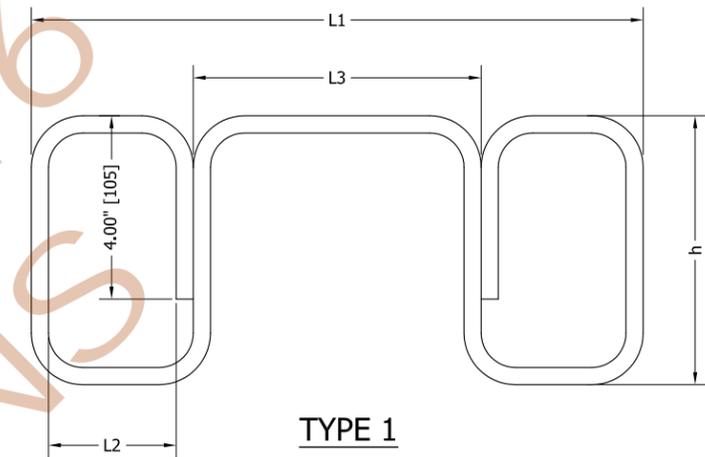
DRAWING TITLE: 4F15 25mm X 76mm GTI SLIP-ON COUPLER W/ OR W/O VENT			
MATERIAL: POLYPROPYLENE (ASTM D4101)	PROJECT: FDOT	DRAWING SIZE: 11x17	SCALE: 1:1.5
DIMENSIONS: INCH[mm] mm FOR REFERENCE ONLY		DRAWING NUMBER: FINC-4F15-007	PART NUMBER: 220605
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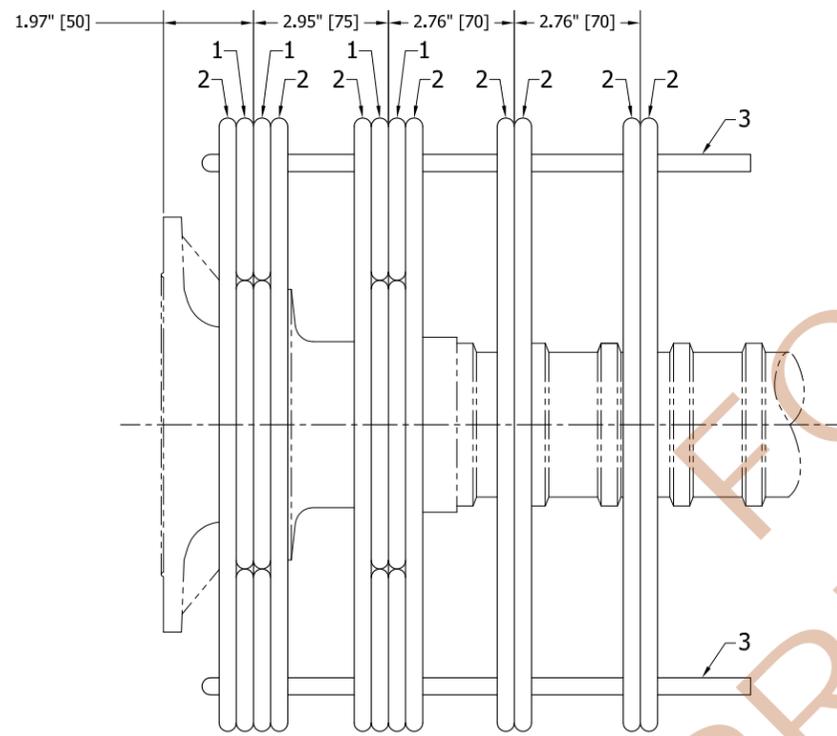
**ELEVATION**



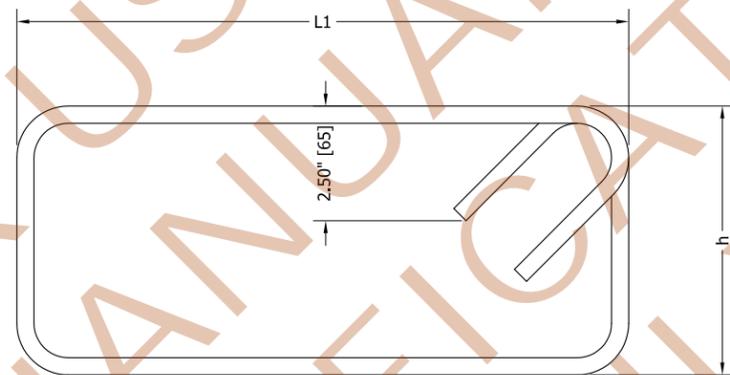
**FRONT VIEW**



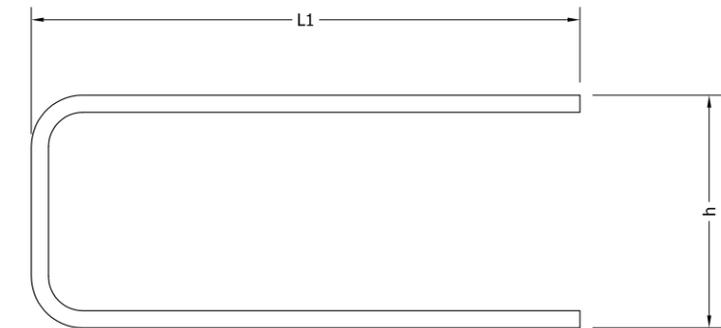
**TYPE 1**



**TOP VIEW**



**TYPE 2**



**TYPE 3**

BAR SCHEDULE					
TYPE	BAR SIZE NO.	L1 in. (mm)	L2 in. (mm)	L3 in. (mm)	h in. (mm)
1	3	13.25" (340)	2.75" (70)	6.25" (160)	6.00" (150)
2	3	13.25" (340)			6.00" (150)
3	3	12.00" (305)			5.00" (130)

**NOTE:**

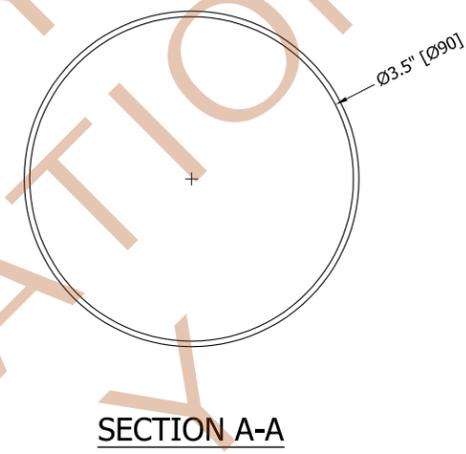
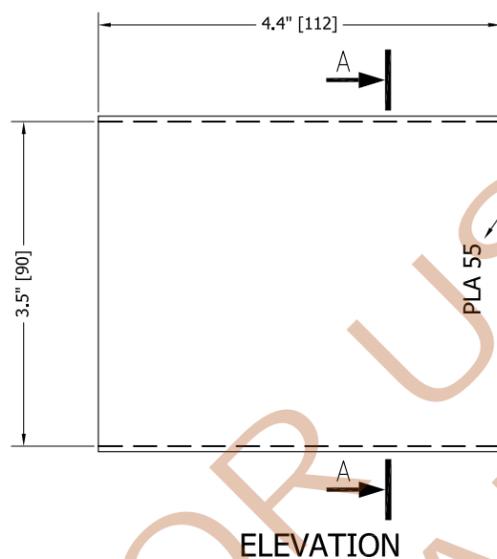
- MATERIAL: STEEL GR. 60ksi; ASTM A615

REV.	DATE	DRAWN	CHECKED	APPROVED	REVISIONS
2	7/19/13	JF	TG/BG	AM	SECOND REVISION
1	10/1/12	JF	TG/BG	AM	FIRST REVISION
0	2/11/11	SA	BG	AM	ORIGINAL



<b>DRAWING TITLE:</b> 4F15 BURSTING REINFORCEMENT			
<b>MATERIAL:</b> STEEL GR. 60; ASTM A615	<b>PROJECT:</b> FDOT	<b>DRAWING SIZE:</b> 11x17	<b>SCALE:</b> 1:4
<b>DIMENSIONS:</b> INCH[mm] mm FOR REFERENCE ONLY		<b>DRAWING NUMBER:</b> FINC-4F15-008	<b>PART NUMBER:</b>
<b>FREYSSINET, INC</b> 44880 FALCON PLACE, SUITE 100 STERLING, VA 20166		COPYRIGHT & MODIFICATION RESERVED Telephone: (703) 378-2500 Fax: (703) 378-2700	
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FOR USE WITH JANUARY 2016 SPECIFICATIONS ONLY



- NOTE:**
- MATERIAL: POLYOLEFIN W/ ADHESIVE
  - TUBULAR SLEEVE DIAMETER: 3.5" [90mm] AS SUPPLIED  
2.3" [55mm] FULLY RECOVERED
  - HEAT SHRINK SLEEVE MEETS OR EXCEEDS FDOT REQUIREMENTS OF SECTION 960-2.2.1.8

REV.	DATE	DRAWN	CHECKED	APPROVED	REVISIONS
2	7/19/13	JF	TG/BG	AM	SECOND REVISION
1	10/1/12	JF	TG/BG	AM	FIRST REVISION
0	2/11/11	SA	BG	AM	ORIGINAL



<b>DRAWING TITLE:</b> 4F15 HEAT SHRINK SLEEVE			
<b>MATERIAL:</b> POLYOLEFIN BACKING W/ ADHESIVE	<b>PROJECT:</b> FDOT	<b>DRAWING SIZE:</b> 11x17	<b>SCALE:</b> 1:2
<b>DIMENSIONS:</b> INCH[mm] mm FOR REFERENCE ONLY	<b>DRAWING NUMBER:</b> FINC-4F15-009	<b>PART NUMBER:</b> PLA 55	
<b>FREYSSINET, INC</b> 44880 FALCON PLACE, SUITE 100 STERLING, VA 20166		COPYRIGHT & MODIFICATION RESERVED Telephone: (703) 378-2500 Fax : (703) 378-2700	
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