FRP SPECIALISTS

Watertight Fiberglass Manholes

Experience...

LFM has been building quality fiberglass reinforced manholes, manhole liners, wetwells and wetwell liners since 1982. We utilize the latest in chop and filament winding equipment, therefore providing our customers with the highest quality fiberglass products on the market today.

Quality Built Right In...

LFM incorporates a comprehensive in-plant testing and quality control program. This insures complete and consistent workmanship in all of our fiberglass products. Each manhole that we build is inspected and tested before it is released for shipping. Our testing procedures include wall thickness reports, raw material analysis, and continuous chemical analysis reports. Individual testing reports are recorded and maintained at our office and are available upon request.

Economical...

Our fiberglass manholes are light-weight, greatly reducing delivery and installation costs. Due to the anti-corrosive nature of LFM's fiberglass manholes, repair and replacement costs due to corrosion are reduced as well.

Professional Delivery...

LFM maintains its own fleet of delivery trucks, helping to lower delivery costs considerably.

Protects the Environment...

We build fiberglass manholes that are corrosion resistant to sewer and waste water gases. This reduces the possibility of untreated waste water leaking into the environment. With our quality fiberglass manholes, the risk of environmental contamination is minimized.

Strong & Lasting Construction…

Fiberglass manholes by LFM are designed and manufactured to meet or exceed all ASTM D3753 standard specifications. In addition to complying with all ASTM standards, our fiberglass manholes carry an H-20 load rating. Our products are engineered to provide you with long and trouble-free service.

Quality Assurance...

LFM stands behind our products. Our fiberglass manholes carry a limited one year warranty. For further information, refer to the warranty section of our brochure.

Available Diameters...

LFM builds fiberglass manholes to your specified dimensions with the following diameters available from 36 inches through 14 feet. Depths are available by the half foot from 2' through 40'. We manufacture several different wall thicknesses for different load, depth and diameter specifications. Contact your LFM sales representative to find which dimensions best suit your needs.

Connections...

Fiberglass manholes by LFM can be built with pipe connectors and adaptors already in place. We offer a wide range of pipe stubouts on our manholes from 4" diameter all the way to 48" diameter for larger applications. We also offer Kor-N-Seal™ boots, as well as connectors from other manufacturers, from 4" through 24" diameters. LFM's watertight manholes include a solid FRP anti-flotation bottom and a fully enclosed fiberglass bench and invert area.

Installation Instructions...

1. Prepare excavation in a normal manner. Be sure excavation has been properly shored for safety. The fiberglass manhole should be placed on six inches of crushed stone or stabilized sand compacted to 95% Standard Proctor Density. In areas where a water table exists, set the fiberglass manhole on six inches of wet concrete and pour the required amount of concrete on top of the anti-flotation flange to prevent floating.

2. Normal installations require six inches of brick or grade rings be installed on top of the fiberglass manhole. In traffic areas you should use a minimum of twelve and not more than eighteen inches of brick or grade rings. Grade rings or brick transfer the load to the outside walls of the manhole. Install standard ring and cover.

3. Backfill with screened native material, free from large stones or debris, a minimum of one foot from the fiberglass manhole wall using a maximum of one-foot lifts. Backfill should be compacted so as to prevent any voids along the wall of the manhole. Always refer to project engineer requirements.

Summary of Test Results	
Tests Performed	**Average Results**
Stiffness	5% Deflection @ 2.45 lbs. / in^2 10% Deflection @ 2.28 lbs. / in^2
Material Composition	54.25 wt. % Resin
Compressive Strength	Transverse: 22,7000 psi Longitudinal: 10,500 psi
Flexural Strength	Transverse: 56,000 psi Longitudinal: 11,700 psi
Modulus	Transverse: 2,084,000 psi Longitudinal: 1,114,000 psi
Load Rating	24,000 lbs. – 0.157” Deflection 40,000 lbs. – No Damage
Barcol Hardness	Cylinder: 43.1 Reducer: 41.0
Wall Thickness	Cylinder: 0.308
Soundness	No Leaks Detected at 5 psi Air Pressure

5528 E. Highway 290
Giddings, Texas 78942
Phone 800.237.5791
Fax 979.542.0911

300 W. Riddleville Road
Karnes City, Texas 78118
Phone 800.237.5791
Fax 979.542.0911

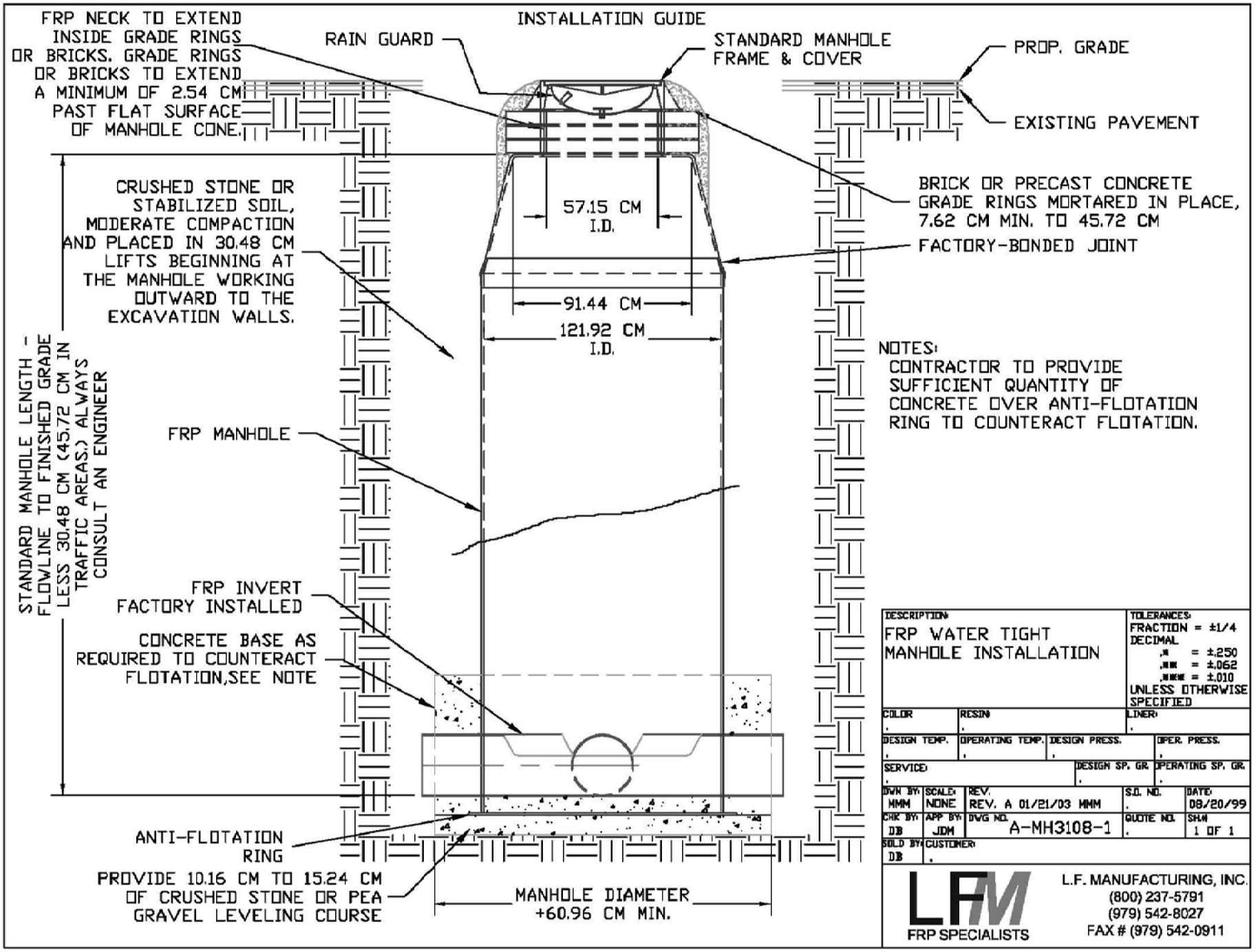
2450 Industrial Boulevard
Waycross, Georgia 31503
Phone 912.285.7576
Fax 912.285.7553

▼

Technical Support & Sales:

800.237.5791
www.lfm-frp.com

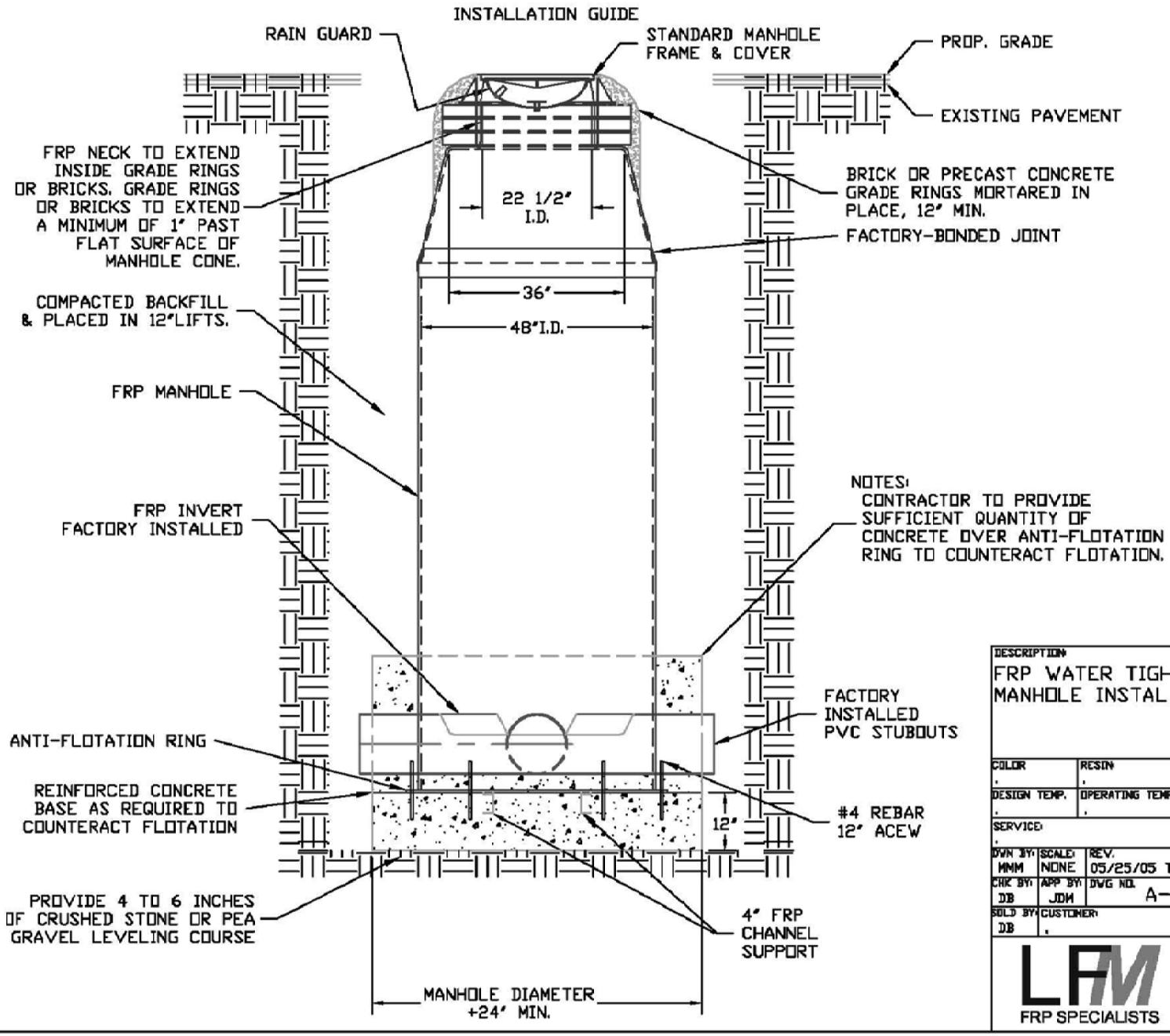
INSTALLATION GUIDE



NOTES:
CONTRACTOR TO PROVIDE SUFFICIENT QUANTITY OF CONCRETE OVER ANTI-FLOTATION RING TO COUNTERACT FLOTATION.

DESCRIPTION: FRP WATER TIGHT MANHOLE INSTALLATION				TOLERANCES: FRACTION = ±1/4 DECIMAL .X = ±.250 .XX = ±.062 .XXX = ±.010 UNLESS OTHERWISE SPECIFIED
COLOR: .	RESIN: .			LINER: .
DESIGN TEMP.: .	OPERATING TEMP.: .	DESIGN PRESS.: .		OPER. PRESS.: .
SERVICE: .		DESIGN SP. GR.: .		OPERATING SP. GR.: .
DWN BY: MMM	SCALE: NONE	REV.: REV. A 01/21/03 MMM	S.O. NO.: .	DATE: 08/20/99
CHK BY: DB	APP BY: JDM	DWG NO.: A-MH3108-1	QUOTE NO.: .	SHT#: 1 OF 1
SOLD BY: DB	CUSTOMER: .			

LFM FRP SPECIALISTS
L.F. MANUFACTURING, INC.
(800) 237-5791
(979) 542-8027
FAX # (979) 542-0911



DESCRIPTION: FRP WATER TIGHT MANHOLE INSTALLATION				TOLERANCES: FRACTION = ±1/4 DECIMAL .X = ±.250 .XX = ±.062 .XXX = ±.010 UNLESS OTHERWISE SPECIFIED
COLOR: .	RESIN: .			LINER: .
DESIGN TEMP.: .	OPERATING TEMP.: .	DESIGN PRESS.: .		OPER. PRESS.: .
SERVICE: .		DESIGN SP. GR.: .		OPERATING SP. GR.: .
DWN BY: MMM	SCALE: NONE	REV.: 05/25/05 TJJ REV. B	S.O. NO.: .	DATE: 08/20/99
CHK BY: DB	APP BY: JDM	DWG NO.: A-MH3108	QUOTE NO.: .	SH.#: 1 OF 1
SOLD BY: DB	CUSTOMER: .			

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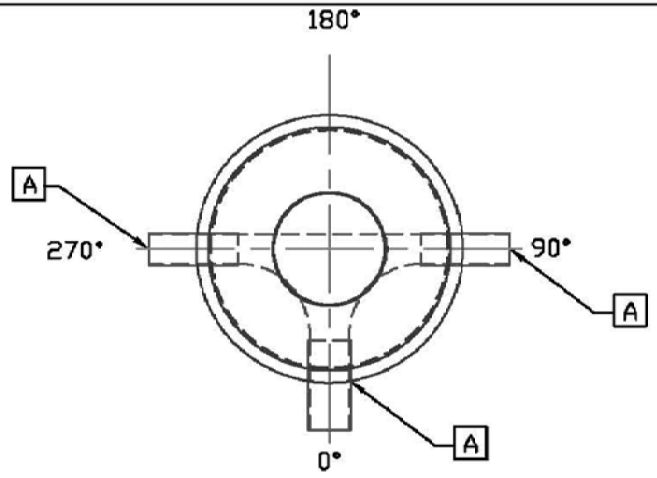
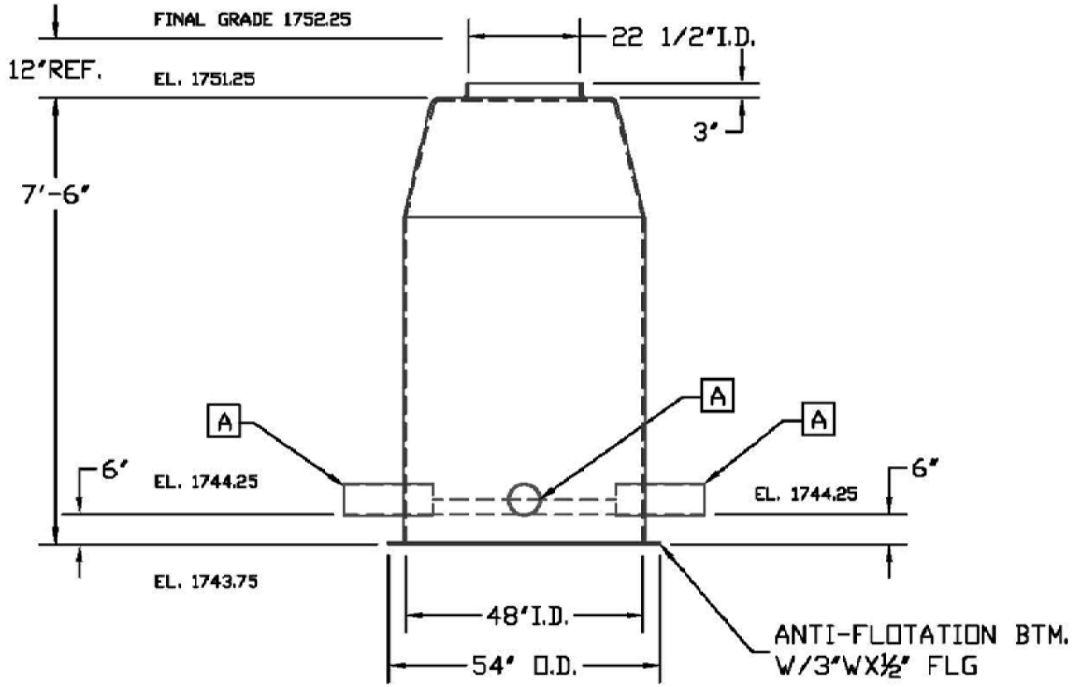


NOTES:

1. MANHOLE DESIGNED, FABRICATED, INSPECTED, TESTED AND MARKED IN ACCORDANCE WITH A.S.T.M. D-3753 SPECIFICATIONS.
2. MANHOLE TO CONTAIN BENCH & INVERT.
3. MANHOLE TO BE INSTALLED BY INSERTING INTO WET CONCRETE. REFER TO LF,MFG.,INC. SPECIFICATION #LFMH002 FOR INSTALLATION RECOMMENDATIONS.
4. SIGNED APPROVED DRAWING REQUIRED BEFORE START OF MANUFACTURING. DATE: _____

( ) APPROVED _____
( ) APPROVED AS NOTED _____
( ) REVISE & RESUBMIT _____



A	3	6"DIA. X 18"LG.SDR.35 PVC STUB.	12"
ITEM	QTY.	DESC.	PROJ.

DESCRIPTION:
48"DIA., FRP MANHOLE
STA. 4+75

LFM8696

TOLERANCES:
FRACTION = ±1/4
DECIMAL
.x = ±.250
.xx = ±.062
.xxx = ±.010
UNLESS OTHERWISE SPECIFIED

COLOR: GRAY	RESIN: ORTHOPHTHALIC		LINER: GRAY ISOPHTHALIC
DESIGN TEMP.: AMBIENT	OPERATING TEMP.: AMBIENT	DESIGN PRESS.: ATMOS.	OPER. PRESS.: ATMOS.
SERVICE: WASTEWATER		DESIGN SP. GR.: 1.2	OPERATING SP. GR.: 1.2 MAX

DWN BY: TJJ	SCALE: NONE	REV.: 02/13/06 TJJ REV. A		S.O. NO.: ,	DATE: 02/09/06
CHK BY: NS	APP BY:	DWG NO.: A-MH6005		QUOTE NO.: ,	SHT: 1 OF 1
SOLD BY: NS	PLASTIC WHOLESALE				

FRP SPECIALISTS

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(979) 542-8027
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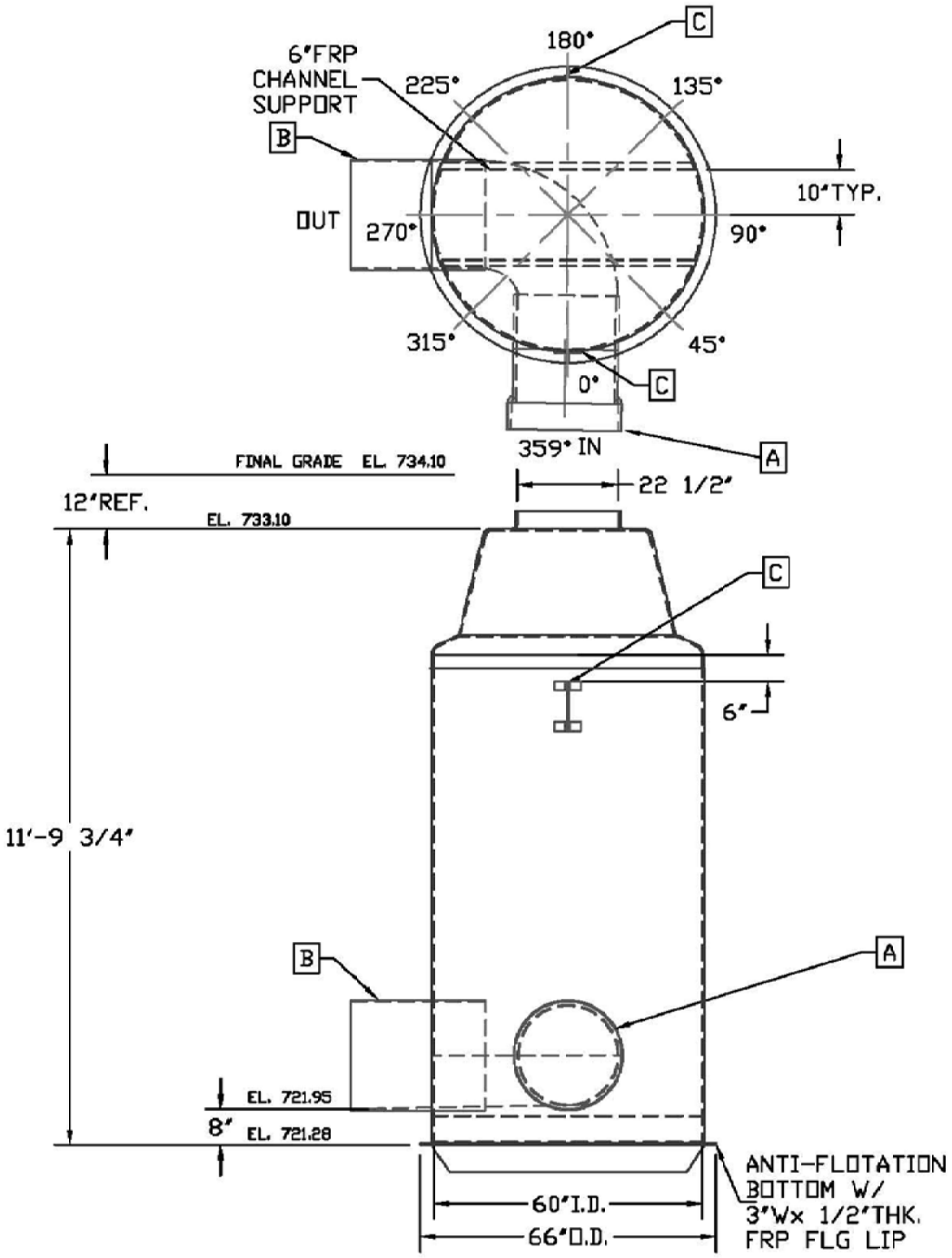


NOTES:

1. MANHOLE DESIGNED, FABRICATED, INSPECTED, TESTED AND MARKED IN ACCORDANCE WITH A.S.T.M. D-3753 SPEC'S CURRENT EDITION.
2. MANHOLE TO BE INSTALLED BY INSERTING INTO WET CONCRETE. REFER TO LF.MFG.,INC. SPECIFICATION #LFMH002 FOR INSTALLATION RECOMENDATIONS.
3. MANHOLE TO HAVE BENCH & INVERT.
4. SIGNED APPROVED DRAWING REQUIRED BEFORE START OF MANUFACTURING. DATE: _____

( ) APPROVED _____
( ) APPROVED AS NOTED _____
( ) REVISE & RESUBMIT _____

ITEM	QTY.	DESC.	PROJ.
C	2	GALV. STL. LIFTING LUGS	
B	1	24"DIA.x 30"LG. SDR35 F679 SPGT	18'
A	1	24"DIA.x 30"LG. SDR35 F679 BELL	18'

DESCRIPTION:
60"DIA., FRP MANHOLE
MH #16A STA. 152+48.04

TOLERANCES:
FRACTION = ±1/4
DECIMAL
.x = ±.250
.xx = ±.062
.xxx = ±.010
UNLESS OTHERWISE SPECIFIED

COLOR	RESIN:	LINER:
GRAY	ORTHOPHTHALIC	GRAY ISOPHTHALIC

DESIGN TEMP.	OPERATING TEMP.	DESIGN PRESS.	OPER. PRESS.
AMBIENT	AMBIENT	ATMOS.	ATMOS.

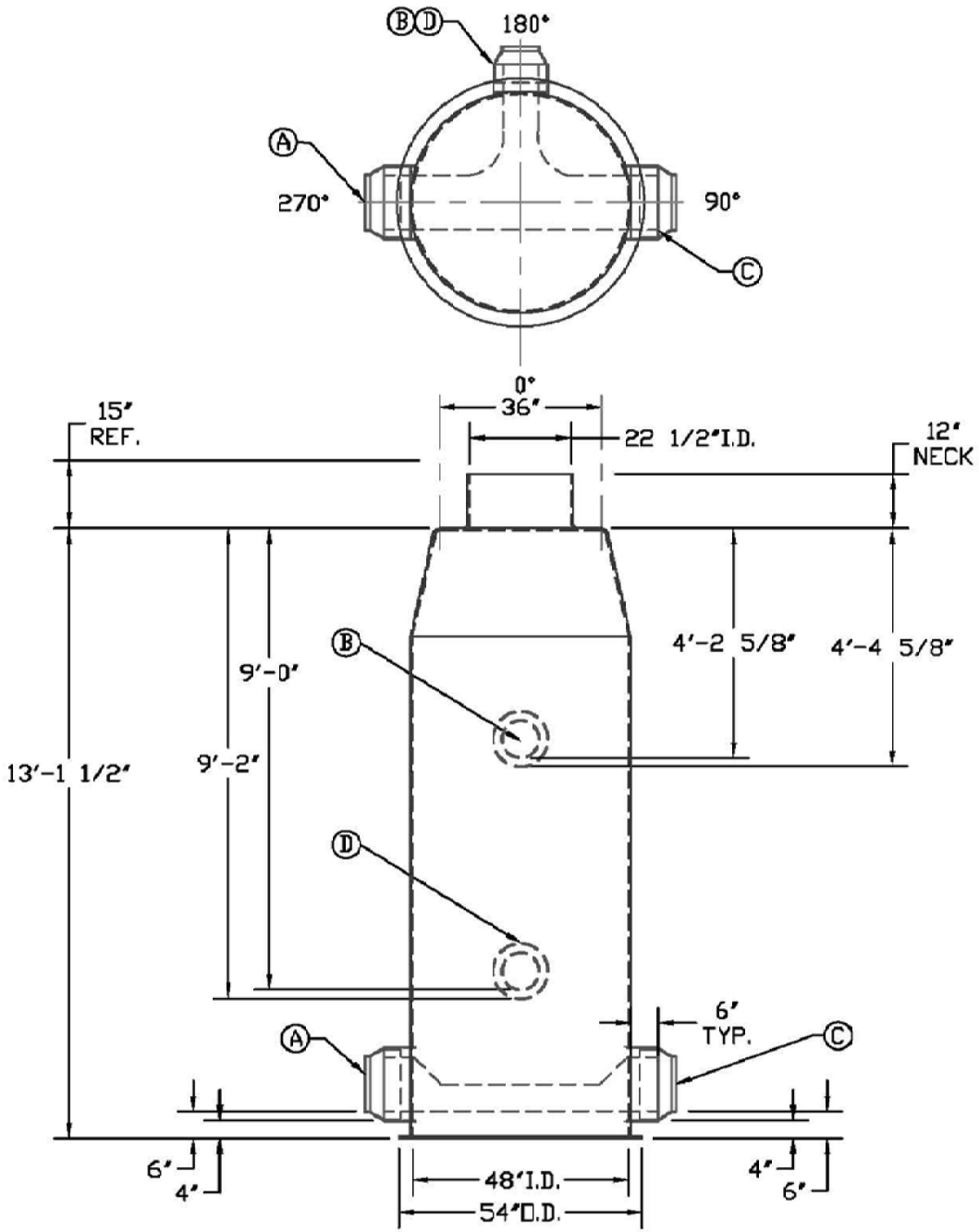
SERVICE:	DESIGN SP. GR.	OPERATING SP. GR.
WASTEWATER	1.2	1.0

DWN BY:	SCALE:	REV.	S.O. NO.	DATE:
TJJ	NONE	09/03/03 TJJ REV. C	24379	07/02/03

CHK BY:	APP BY:	DWG NO.	QUOTE NO.	SH.#
DB	JDM	A-MH4424	.	1 OF 1

SOLD BY: DB
CUSTOMER: NATIONAL WATERWORKS

LFM
FRP SPECIALISTS
L.F. MANUFACTURING, INC.
(800) 237-5791
(979) 542-8027
FAX # (979) 542-0911



NOTES:

1. MANHOLE DESIGNED, FABRICATED, INSPECTED, TESTED AND MARKED IN ACCORDANCE WITH A.S.T.M. D-3753 SPEC'S CURRENT EDITION.
2. MANHOLE TO HAVE BENCH & INVERT.
3. SIGNED APPROVED DRAWING REQUIRED BEFORE START OF MANUFACTURING. DATE: _____

( ) APPROVED _____

( ) APPROVED AS NOTED _____

( ) REVISE & RESUBMIT _____

ITEM	QTY.	DESC.	PROJ.
S106-12W	B 1	12"DIA.FRP STBT W/KOR-N-SEAL	6'
		BOOT F/8"DIA.SDR.35 PVC PIPE	
S106-16AW	C 1	16"DIA.FRP STBT W/KOR-N-SEAL	6'
		BOOT F/12"DIA.SDR.35 PVC PIPE	
S106-12W	B 1	12"DIA.FRP STBT W/KOR-N-SEAL	6'
		BOOT F/8"DIA.SDR.35 PVC PIPE	
S106-16AW	A 1	16"DIA.FRP STBT W/KOR-N-SEAL	6'
		BOOT F/12"DIA.SDR.35 PVC PIPE	

DESCRIPTION:
48"DIA., FRP MANHOLE
ST. PETE ACC#1

TOLERANCES:
FRACTION = ±1/4
DECIMAL
.X = ±.250
.XX = ±.062
.XXX = ±.010
UNLESS OTHERWISE SPECIFIED

COLOR	RESIN	LINER
GRAY	ORTHOPHTHALIC	GRAY ISOPHTHALIC

DESIGN TEMP.	OPERATING TEMP.	DESIGN PRESS.	OPER. PRESS.
AMBIENT	AMBIENT	ATMOS.	ATMOS.

SERVICE:	DESIGN SP. GR.	OPERATING SP. GR.
WASTEWATER	1.2	1.0

DWN BY:	SCALE:	REV.	S.O. NO.	DATE:
TJJ	NONE	.	.	02/17/04

CHK BY:	APP BY:	DWG NO.	QUOTE NO.	SH.#
DB	JDM	A-MH4747	MIKE T.	1 OF 1

SOLD BY:	CUSTOMER:
DB	CITY OF ST. PETERSBURG

LFM
FRP SPECIALISTS
L.F. MANUFACTURING, INC.
(800) 237-5791
(979) 542-8027
FAX # (979) 542-0911