



Avon, Indiana - Sebree, Kentucky
150,000 GALLON WATER STORAGE TANK
FOR
VA MEDICAL CENTER
WALLA WALLA, WA

AS-BUILT

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TANK CRITERIA

WELDED STEEL TANK	BASE CONE DIA = 24'-0"
TYPE: SPHERE	STEM DIA = 9'-0"
CAPACITY = 150,000 GALLON	ACCESS TUBE DIA = 4'-0"
HIGH WATER LEVEL = 184'-0"	INLET DIA = 1'-0"
TANK DIA = 34'-0"	OVERFLOW DIA = 10"
HEAD RANGE = 33'-6"	DOOR SIZE = 3'-0" X 6'-8"

TANK NOTES

1. GROUT UNDER BASE PLATE MINIMUM 1"
2. WELDING TO BE IN ACCORDANCE WITH AWWA D100-11.
3. SEE SHEET T-07 FOR LOCATING PAINTER'S LUGS.
4. SEAL WELD CONTAINER
5. SPECIAL INSPECTIONS TO BE COMPLETED BY OWNER PER CHAPTER 17 OF THE IBC 2012.
6. STRUCTURAL ENGINEER IS RESPONSIBLE FOR THE STRUCTURAL ADEQUACY OF THE TANK AND FOUNDATION ONLY.

GENERAL CONTRACTOR
ADVANCE TECHNOLOGY CONSTRUCTION

OWNER'S ENGINEER
ARCHITECTS WEST INC.

MATERIALS NOT REFERENCED
IN THE DRAWINGS SHALL BE
PLATE STEEL - A36
STRUCTURAL SHAPES - A36
PIPE - A53 GRADE B & 304L STAINLESS

DESIGN CRITERIA

SPECIFICATIONS:	AWWA D100-11
	ACI 318-08
	ASCE 7-10
	IBC 2012
▲ TANK WEIGHT:	146.5 KIPS
WIND:	90 MPH - AWWA
SNOW:	30 PSF - AWWA
SEISMIC:	SITE CLASS C
	S _s = 0.377
	S ₁ = 0.133
	S _{DS} = 0.302
	S _{D1} = 0.148

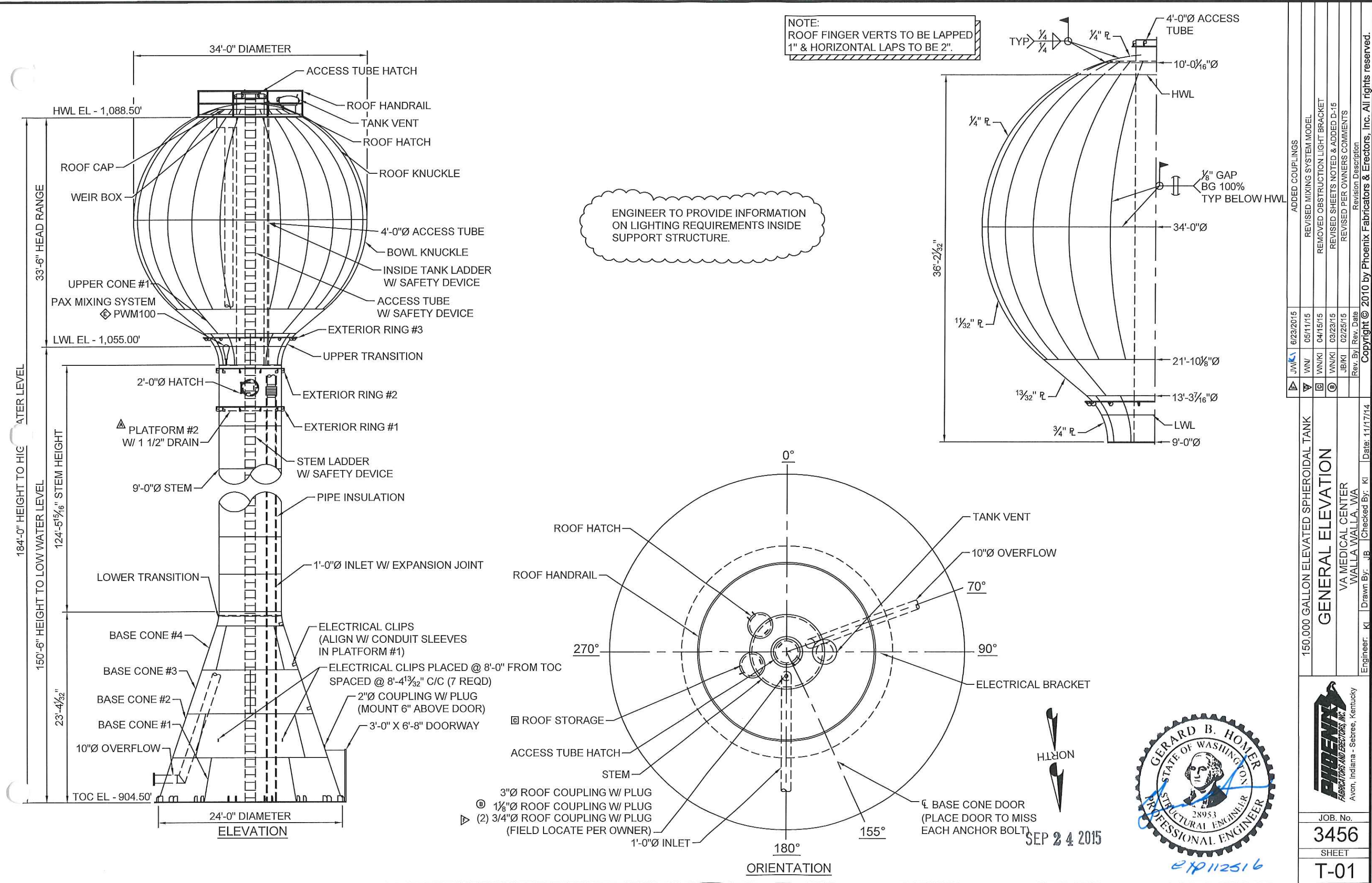


SEP 24 2015

REVISED SHEETS NOTED	07/30/15	JB/KI
REVISED SHEETS NOTED	06/23/2015	JW/KI
UPDATED REVISION LOG	05/11/15	WN/KI
UPDATED REVISION LOG & REVISED GENERAL CONTRACTOR	04/15/15	WN/KI
REVISED SHEETS NOTED & ADDED D-15	03/23/15	WN/KI
UPDATED REVISION LOG & ADDED TANK WEIGHT	02/25/15	JB/KI
Revision Description	Rev. By	Rev. Date
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150,000 GALLON ELEVATED SPHEROIDAL TANK	TITLE SHEET	VA MEDICAL CENTER WALLA WALLA, WA	Date: 11/17/14
Engineer: KI	Drawn By: JB	Checked By: KI	

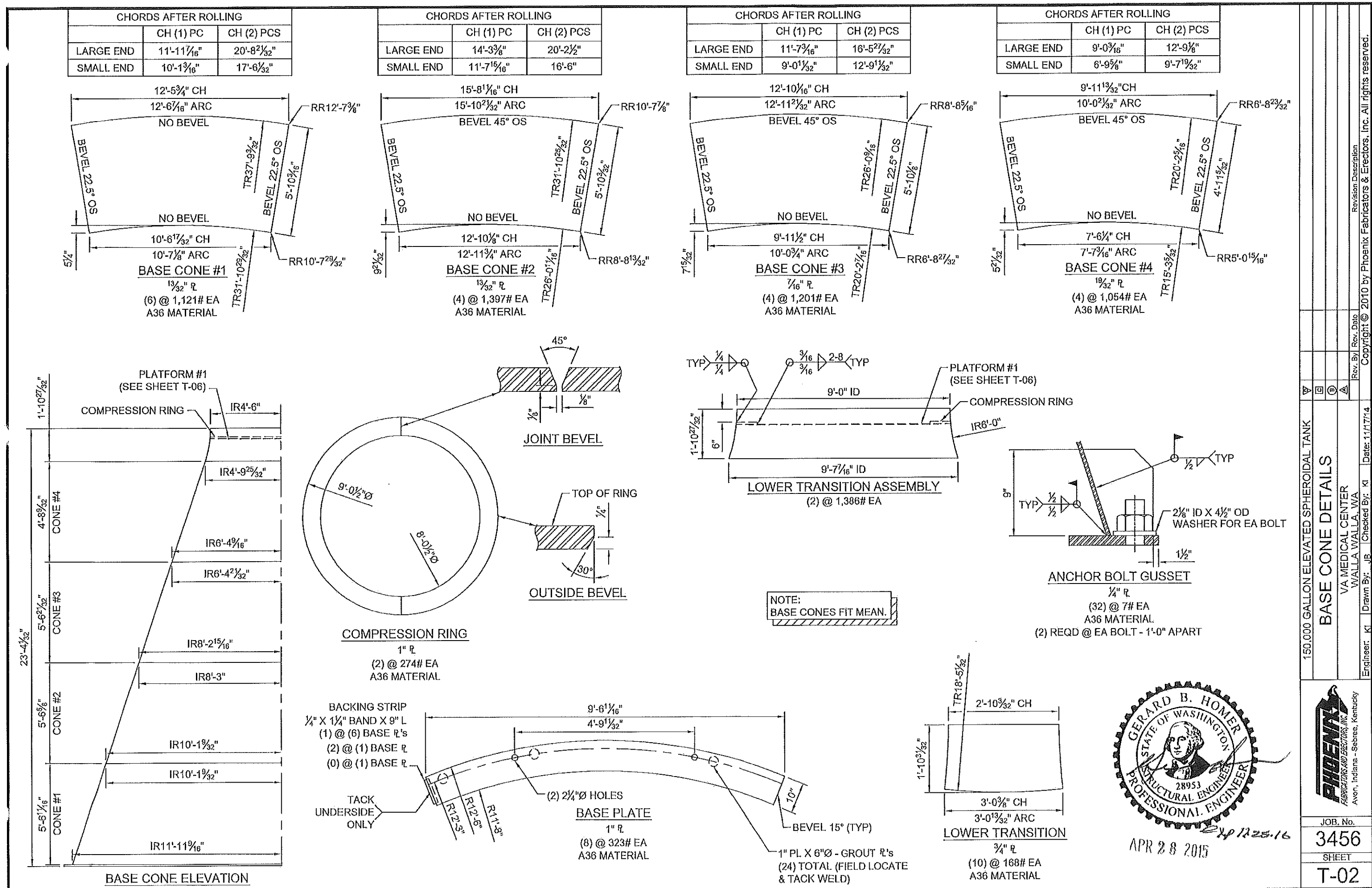
JOB. No.	3456
SHEET	T-00

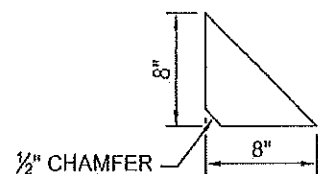


150,000 GALLON ELEVATED SPHEROIDAL TANK		6/23/2015		JW/KI	ADDED COUPLINGS
GENERAL ELEVATION		05/11/15		WN/KI	REVISED MIXING SYSTEM MODEL
VA MEDICAL CENTER WALLA WALLA, WA		04/15/15		WN/KI	REMOVED OBSTRUCTION LIGHT BRACKET
Engineer: KI		03/23/15		WN/KI	REVISED SHEETS NOTED & ADDED D-15
Drawn By: JB		02/25/15		JB/KI	REVISED PER OWNERS COMMENTS
Checked By: KI		Rev. By		Rev. Date	Revision Description
Date: 11/17/14		Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.			

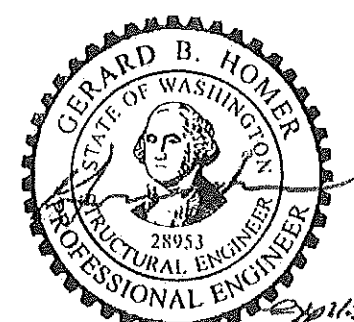
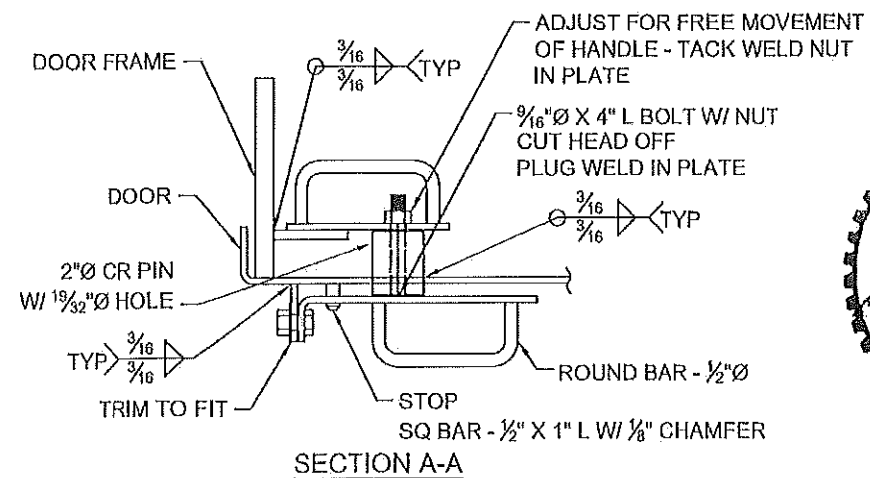
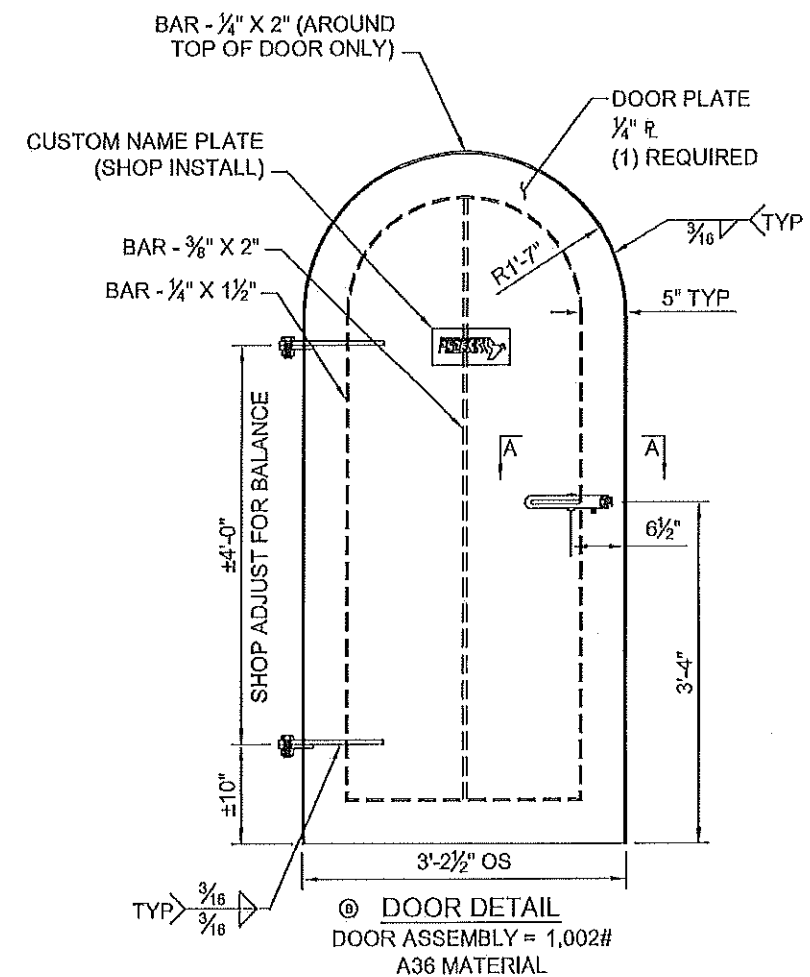
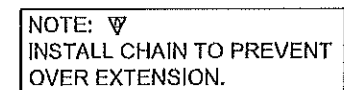
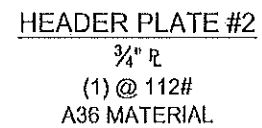
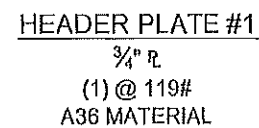
JOB. No.	3456
SHEET	T-01

 PHOENIX FABRICATORS AND ERECTORS, INC. Avon, Indiana - Seebree, Kentucky

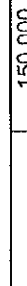


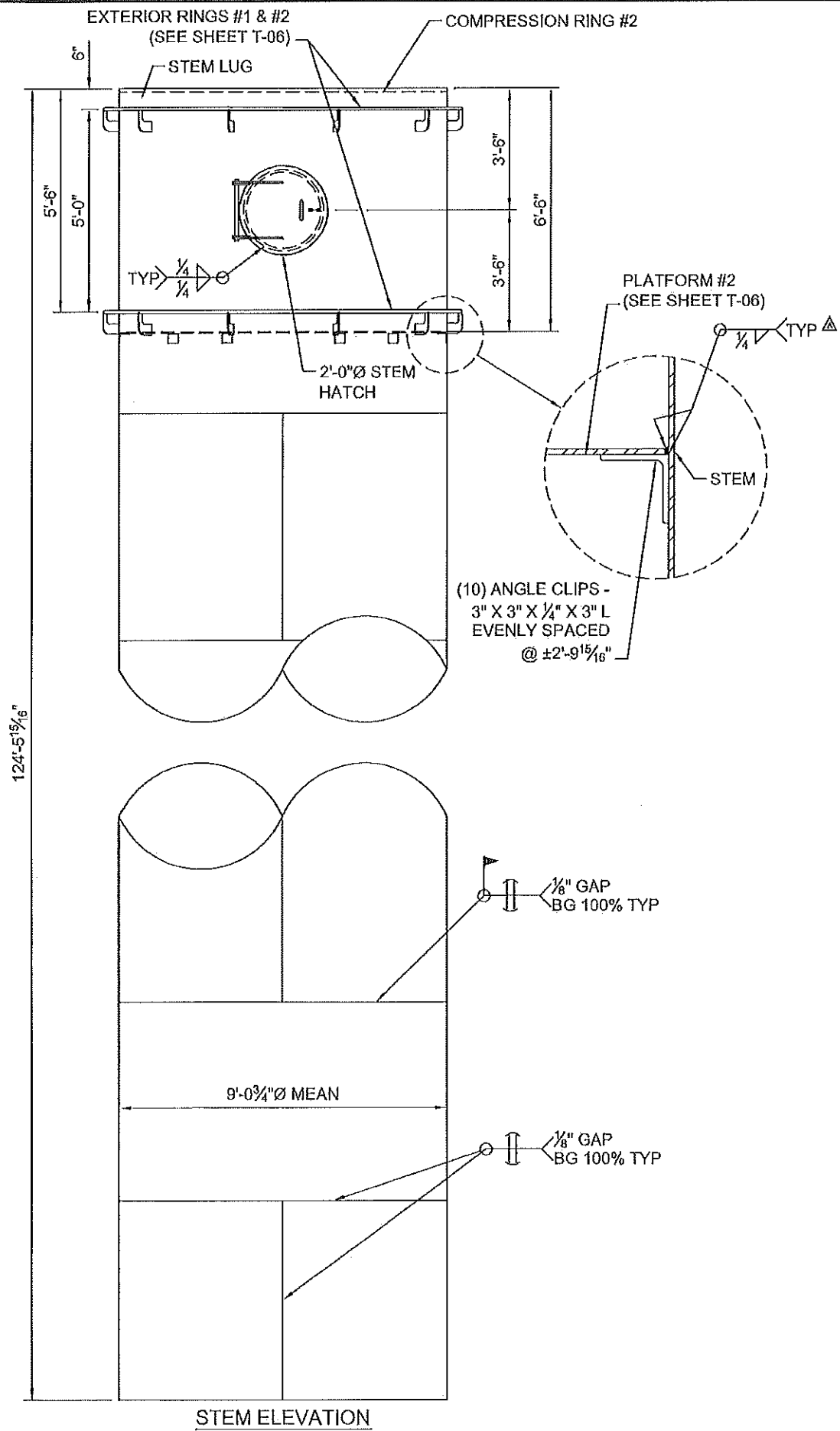


1/2" R
(8) @ 5# EA
A36 MATERIAL

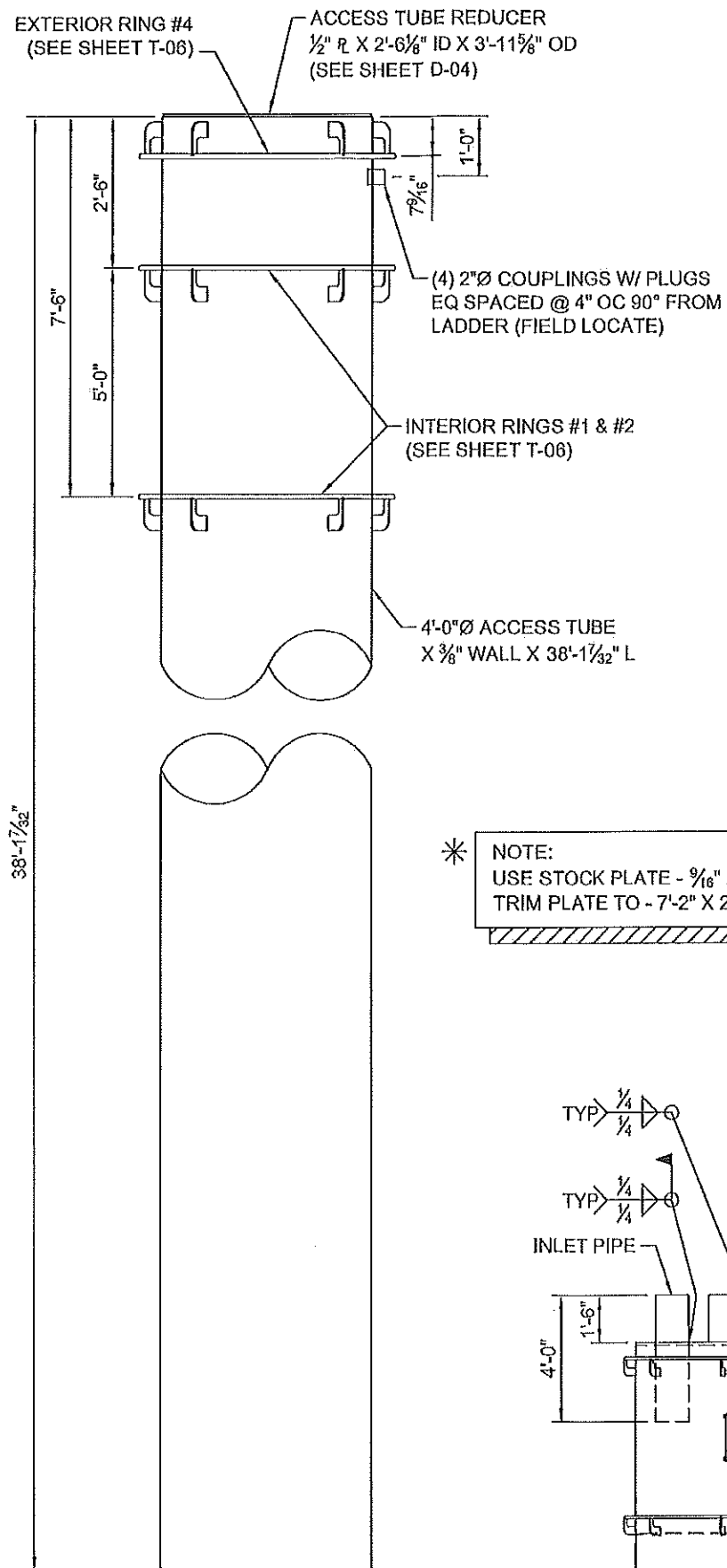


APR 28 2015

 PIBENNIX FABRICATORS AND Erectors, Inc. Avon, Indiana - Seebree, Kentucky	JOB. No.	3456
	SHEET	T-03
	150,000 GALLON ELEVATED SPHEROIDAL TANK DOORWAY DETAILS VA MEDICAL CENTER WALLA WALLA, WA	
	W/J/K/I 04/15/15 02/25/15 Rev. B/J Rev. Date Revision Description Comments: 0 2010 by Dismantle Erectors & Erectors Inc. All rights reserved.	ADDED CHAIN NOTE REVISED PER OWNERS COMMENTS Revision Description
	150,000 GALLON ELEVATED SPHEROIDAL TANK DOORWAY DETAILS VA MEDICAL CENTER WALLA WALLA, WA	ADDED CHAIN NOTE REVISED PER OWNERS COMMENTS Revision Description

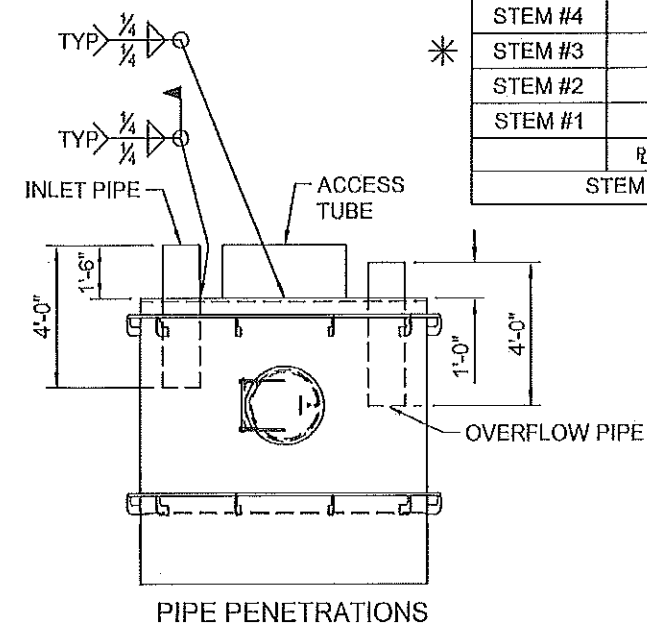


STEM ELEVATION

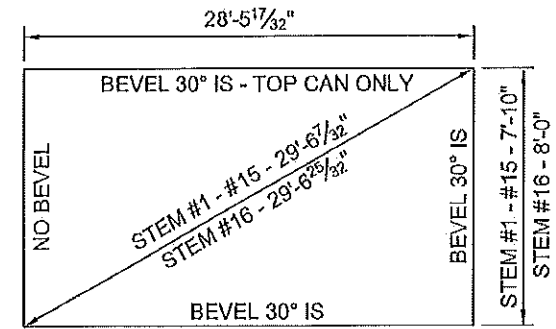


ACCESS TUBE ELEVATION
ASSEMBLY = 7,425#

* NOTE:
USE STOCK PLATE - 9/16" X 7'-3" X 28'-8" L.
TRIM PLATE TO - 7'-2" X 28'-5 17/32"



SHOP NOTE:
TRIM NEXT TO LAST STEM
CAN AS REQUIRED TO
MAKEUP STEM HEIGHT.



STEM #	R THK	OD	WEIGHT
STEM #16	1 1/32"	9'-13 32"	3,193#
STEM #15	1 1/32"	9'-13 32"	3,160#
STEM #14	3/8"	9'-1 1/8"	3,447#
STEM #13	3/8"	9'-1 1/8"	3,447#
STEM #12	13/32"	9'-15 32"	3,735#
STEM #11	13/32"	9'-15 32"	3,735#
STEM #10	7/16"	9'-1 1/16"	4,022#
STEM #9	7/16"	9'-1 1/16"	4,022#
STEM #8	1/2"	9'-1 1/4"	4,596#
STEM #7	1/2"	9'-1 1/4"	4,596#
STEM #6	1/2"	9'-1 1/4"	4,596#
STEM #5	1 1/32"	9'-19 32"	4,884#
STEM #4	1 1/32"	9'-19 32"	4,884#
STEM #3	9/16"	9'-15 1/16"	4,735#
STEM #2	19/32"	9'-11 1/32"	5,458#
STEM #1	19/32"	9'-11 1/32"	5,458#
STEM SHEETS (A36 MATERIAL TYP)			



APR 28 2015

150,000 GALLON ELEVATED SPHEROIDAL TANK

SUPPORT DETAILS

VA MEDICAL CENTER
WALLA WALLA, WA

Engineer: KJ Drawn By: JS Checked By: KI Date: 11/17/14

REVISED WELD SYMBOL AT PLATFORM #2

Revision Description

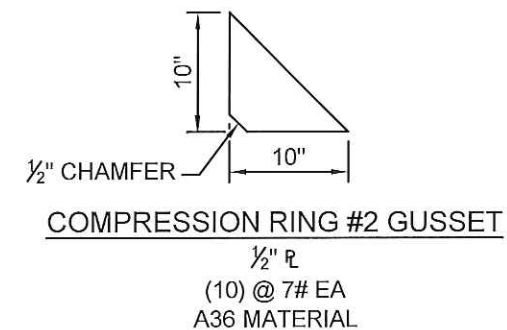
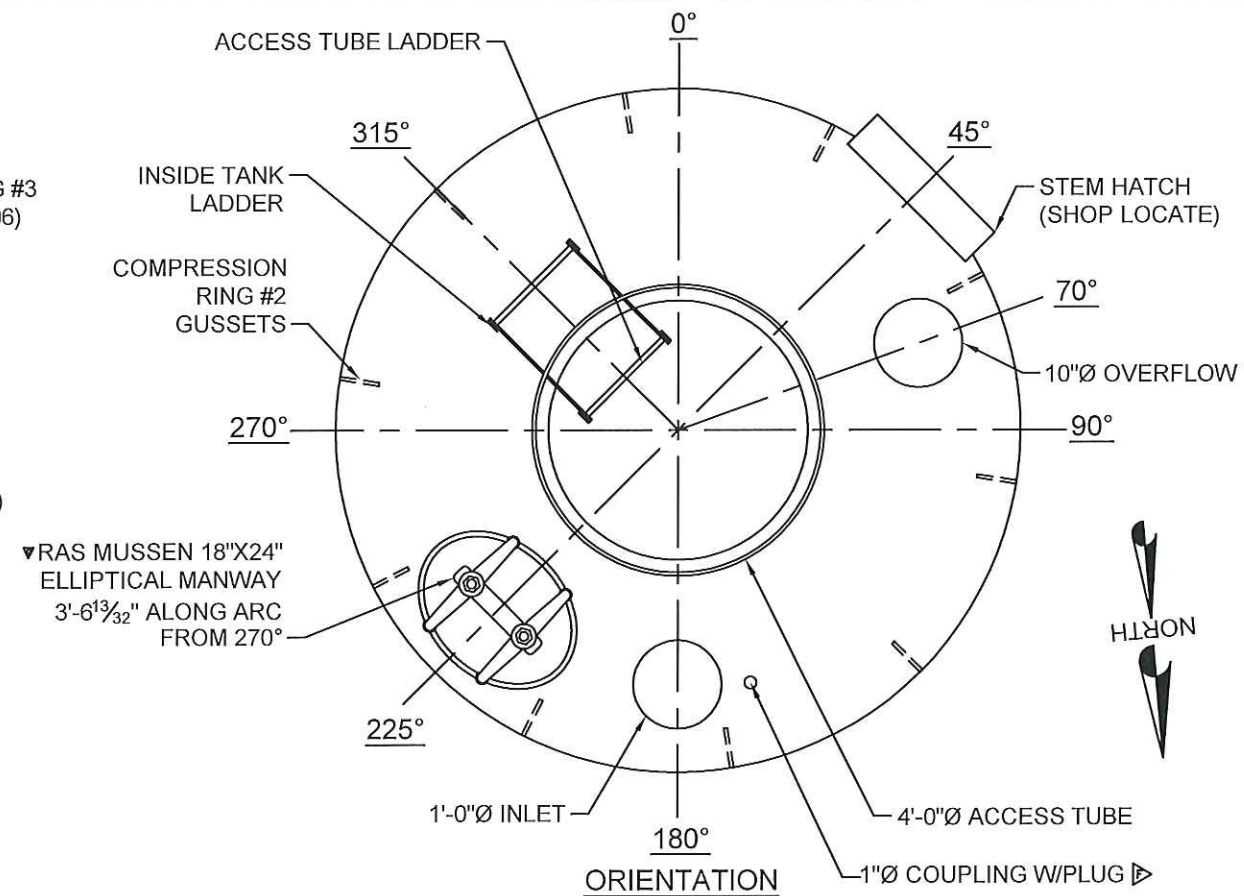
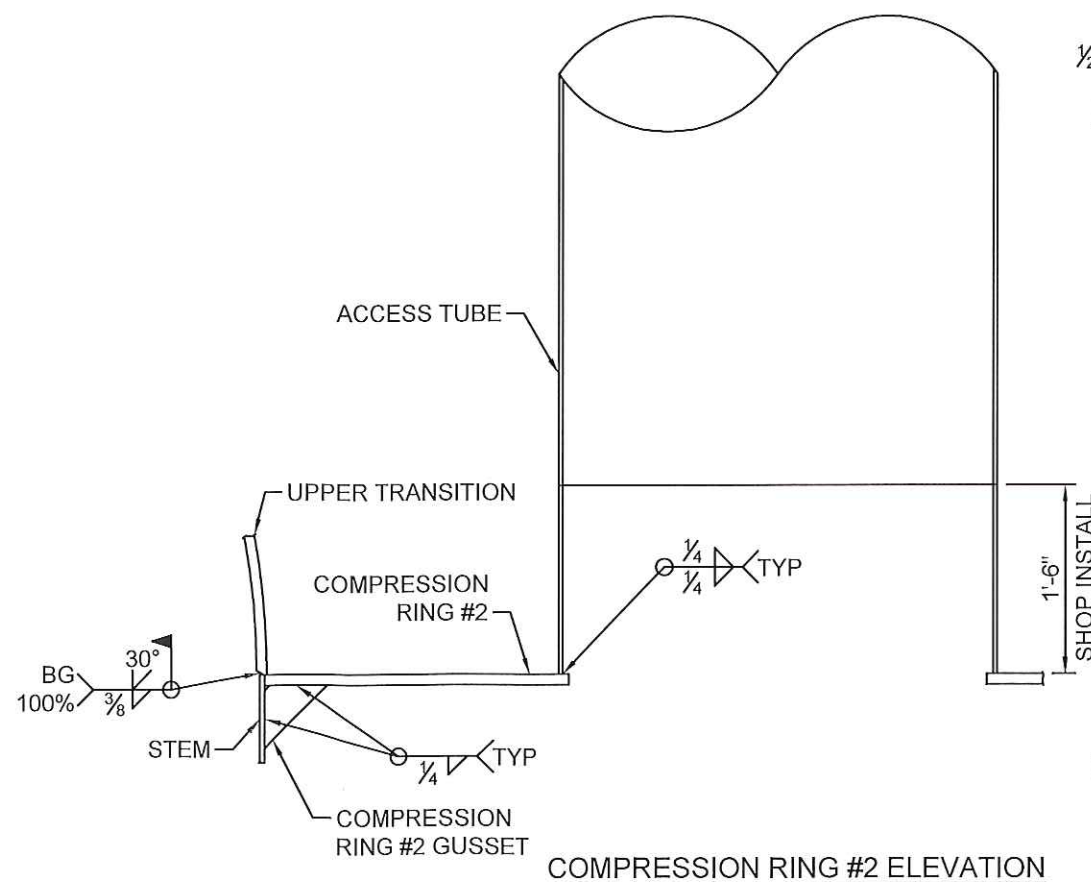
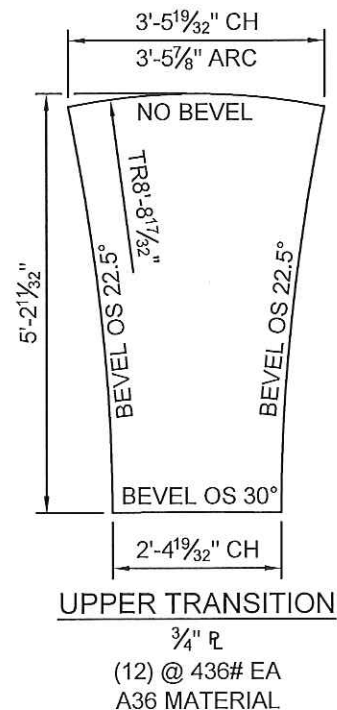
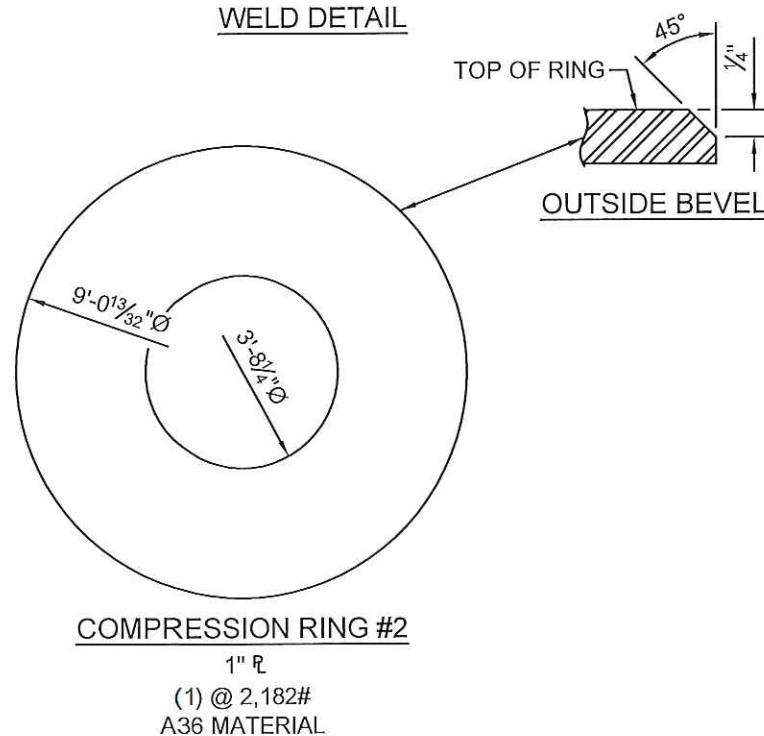
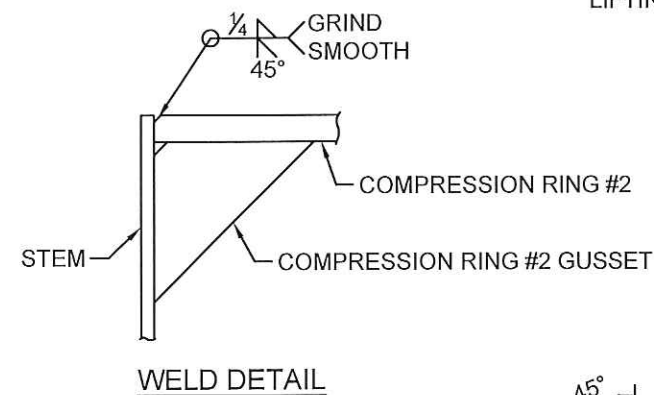
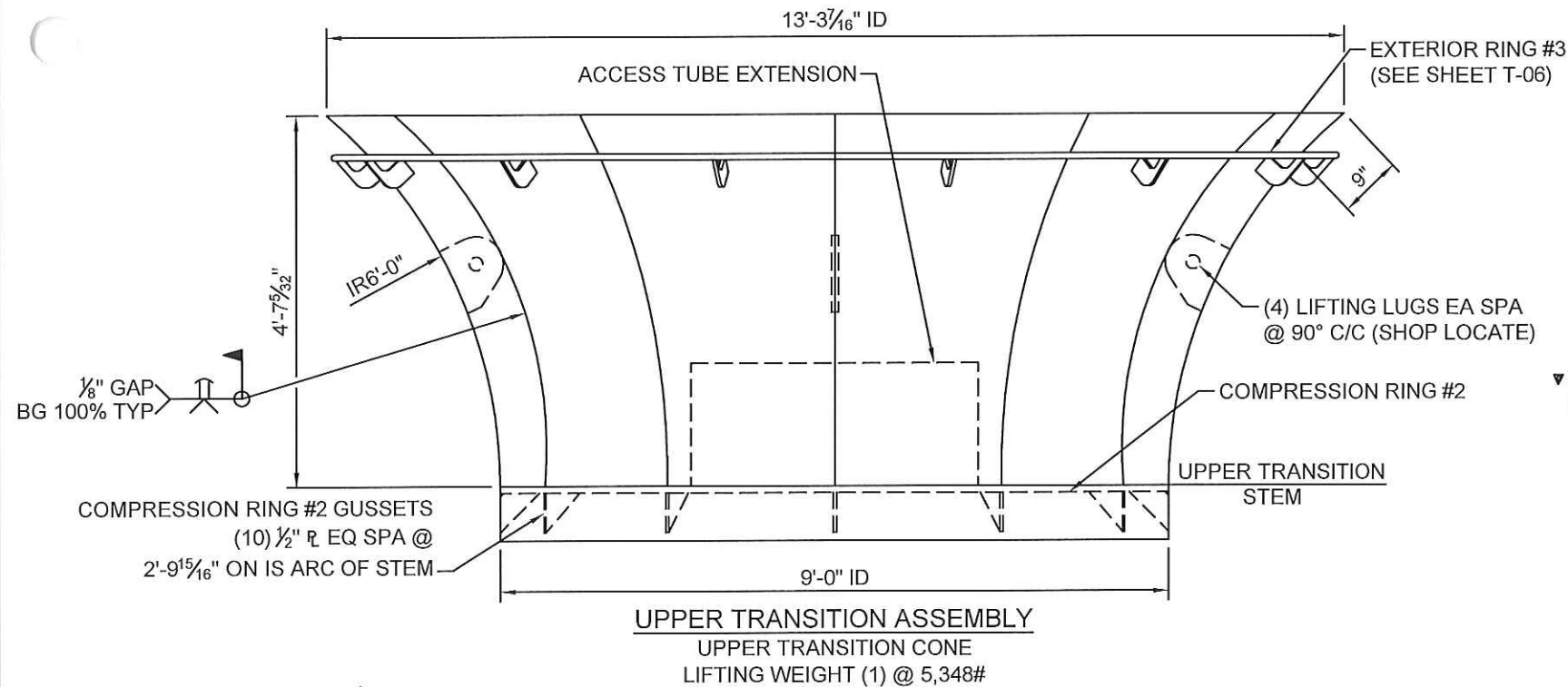
Rev. By: Rev. Date

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PHOENIX
FABRICATORS AND ERECTORS, INC.
Avon, Indiana - Sebring, Kentucky

JOB. No.
3456

SHEET
T-04



150,000 GALLON ELEVATED SPHEROIDAL TANK	6/23/2015	6/23/2015	ADDED COUPLING
UPPER TRANSITION DETAILS	JW/K	04/15/15	REVISED ELLIPTICAL MANWAY
VA MEDICAL CENTER WALLA WALLA, WA	Rev. By	Rev. Date	Revision Description
Engineer: KI	Drawn By: JB	Checked By: KI	Date: 11/17/14
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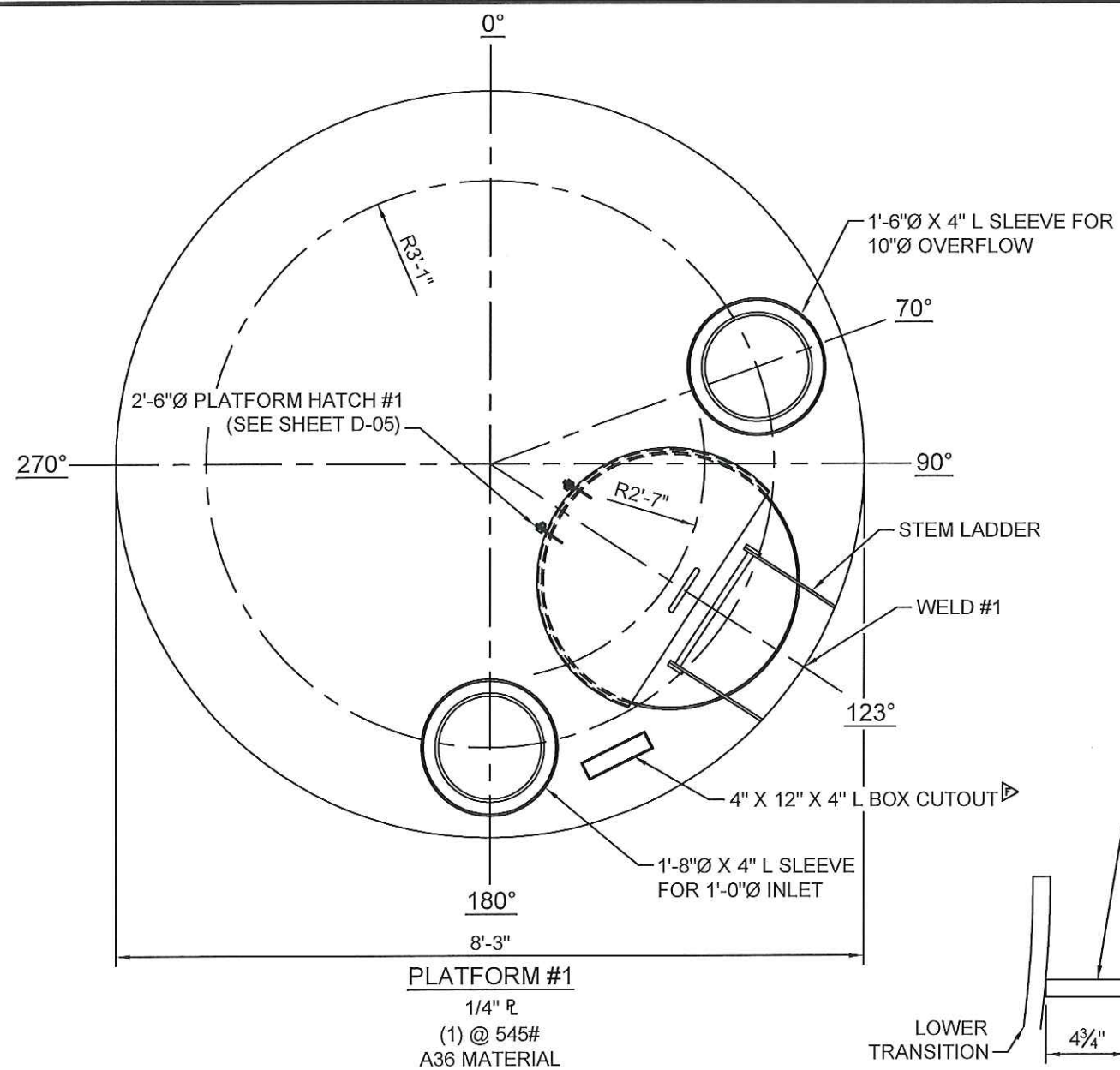


JOB. No.

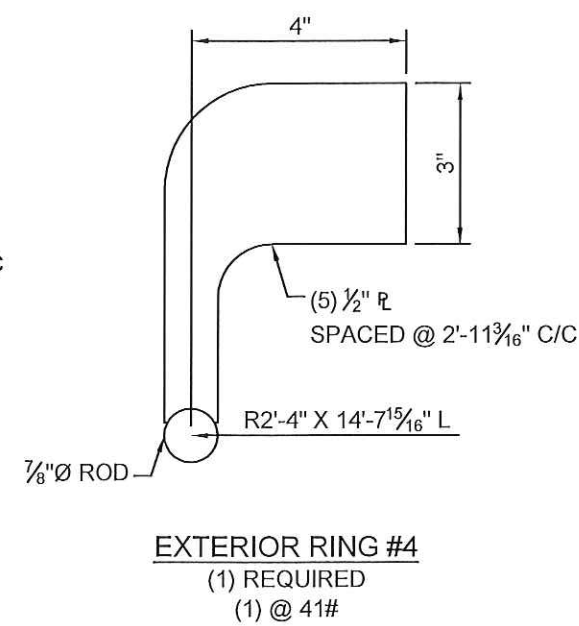
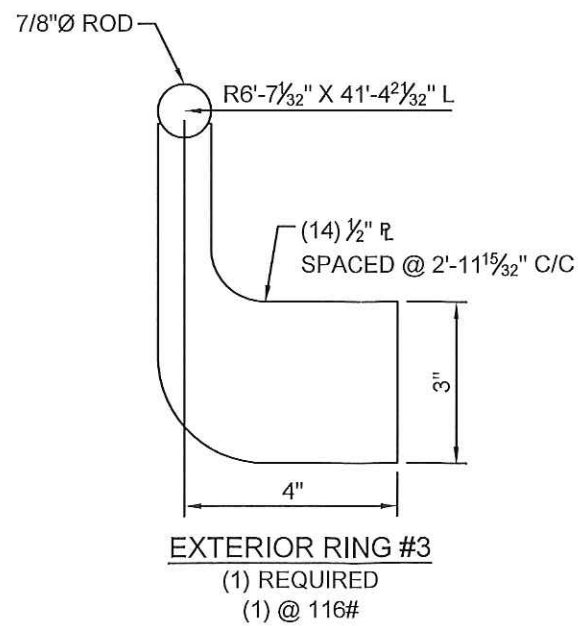
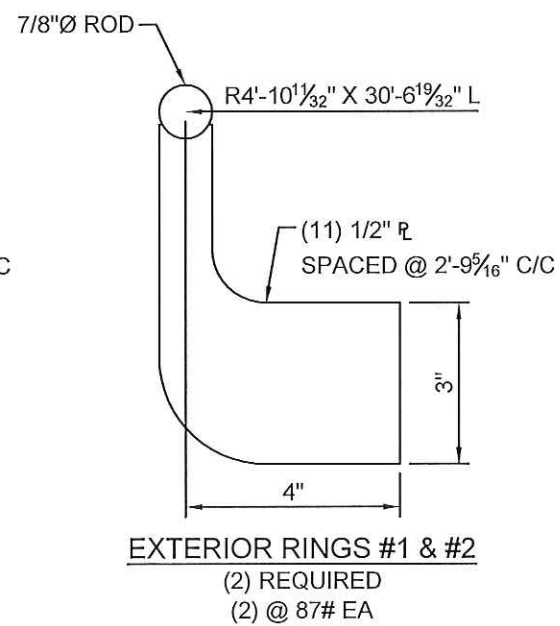
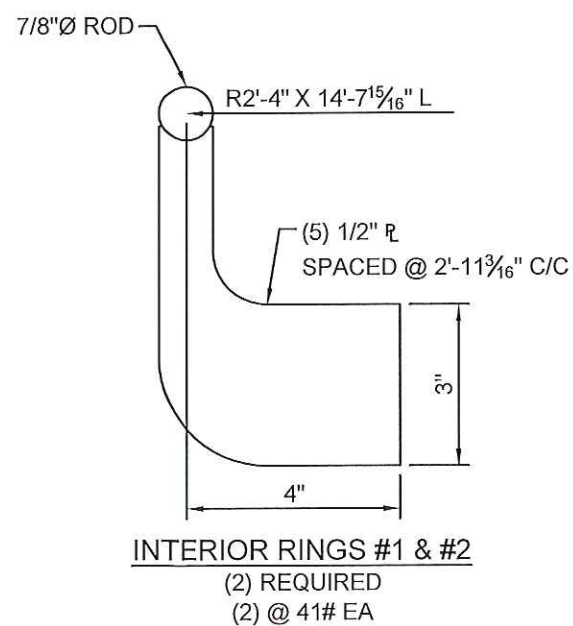
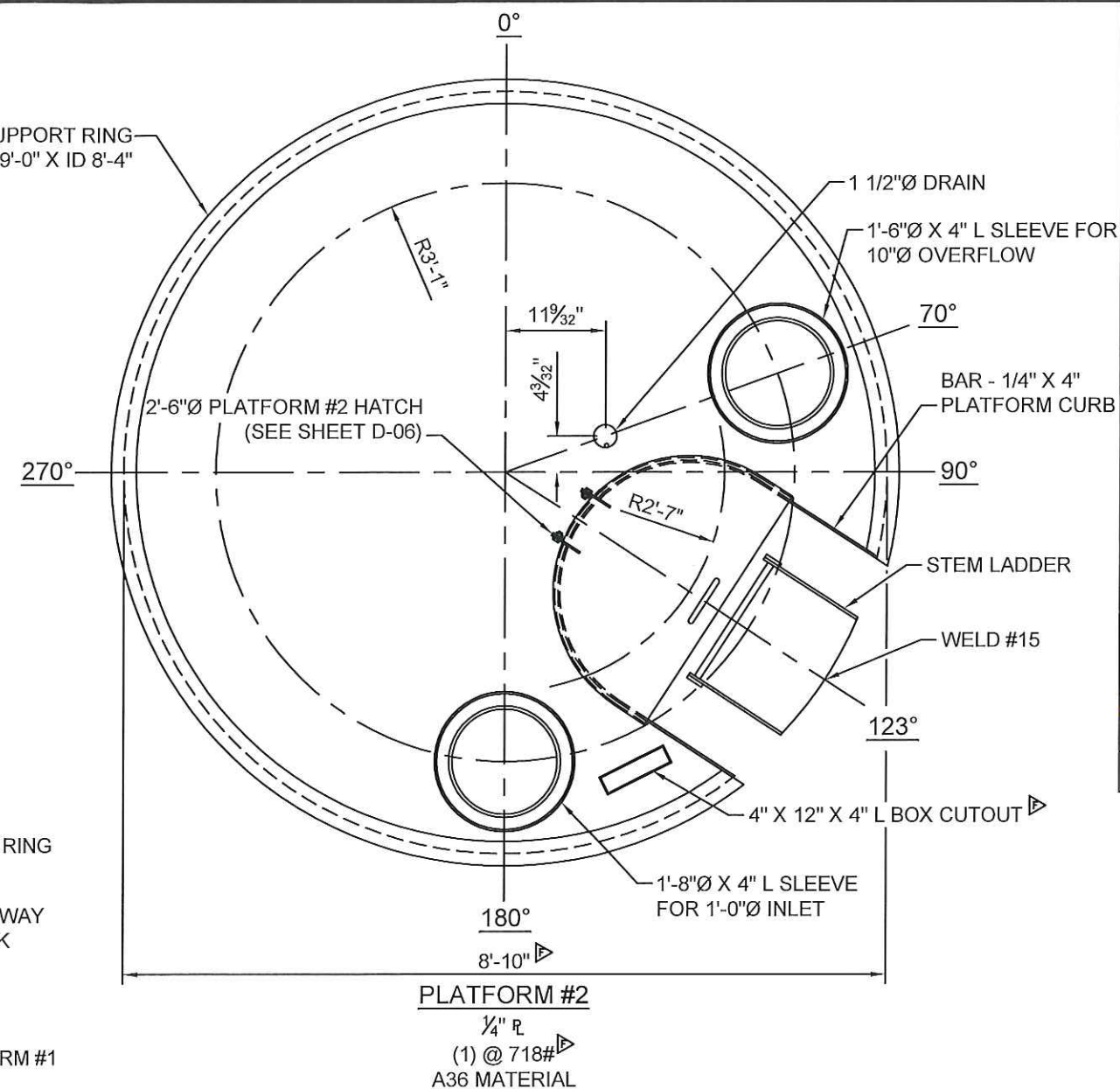
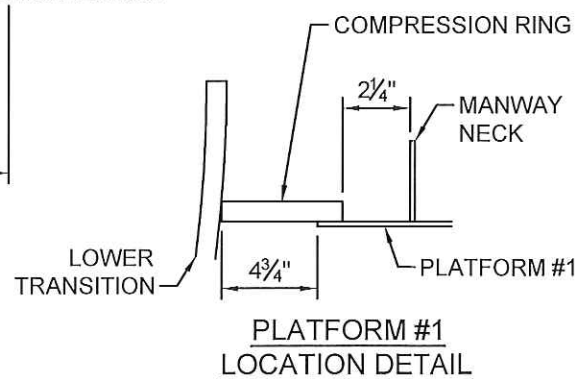
3456

SHEET

T-05



1/4" R SUPPORT RING
OD 9'-0" X ID 8'-4"

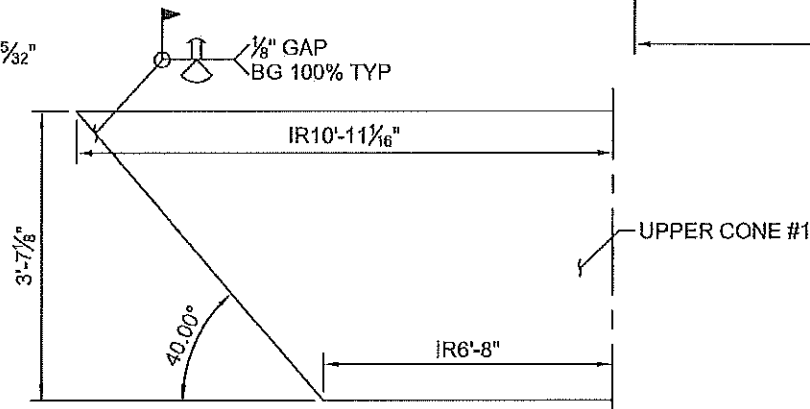
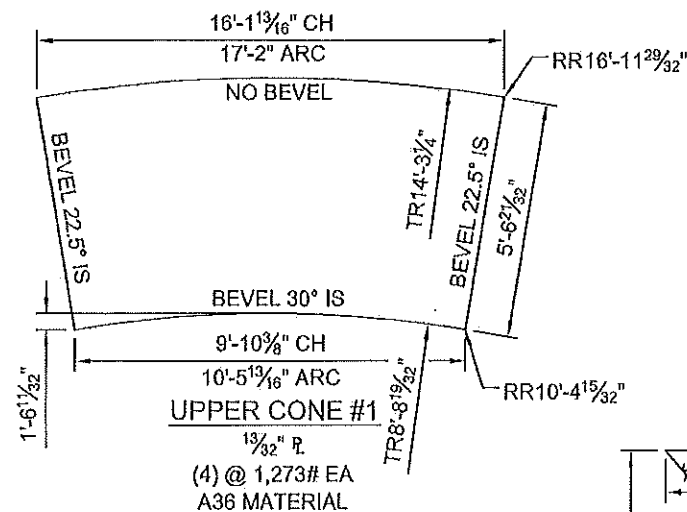


NOTE:
ONE CLIP MUST BE LOCATED
@ A ROD SPLICE.



150,000 GALLON ELEVATED SPHEROIDAL TANK		6/23/2015	JW/K	ADDED BOX CUTOUT, SUPPORT RING, REVISED DIMENSION
PLATFORM & RING DETAILS				
VA MEDICAL CENTER WALLA WALLA, WA		2/25/15	TM/KI	MOVED PLATFORM DRAIN TO PLATFORM #2 AND REVISED SIZE OF PLATFORM #2
Engineer: KL	Drawn By: JB	Checked By: KL	Date: 11/17/14	Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.
JOB. No.		3456		
SHEET		T-06		

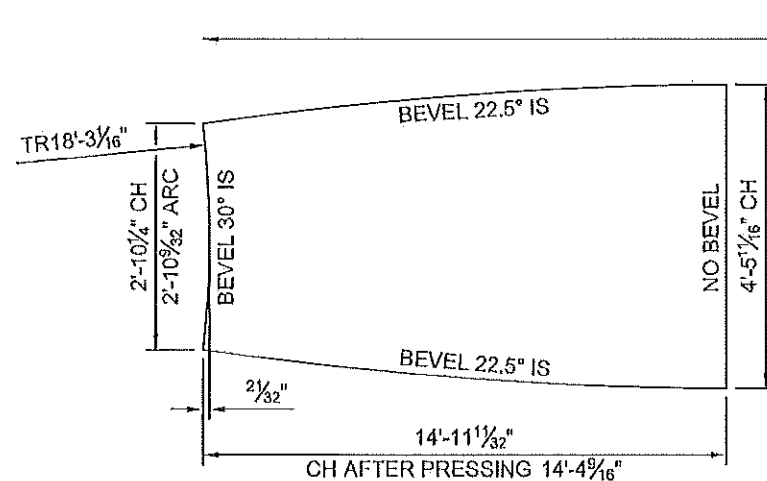
CHORDS AFTER ROLLING		
	CH (1) PC	CH (2) PCS
LARGE END	15'-5 ⁵ / ₁₆ "	21'-10 ¹ / ₈ "
SMALL END	9'-5 ⁵ / ₃₂ "	13'-4 ³ / ₃₂ "



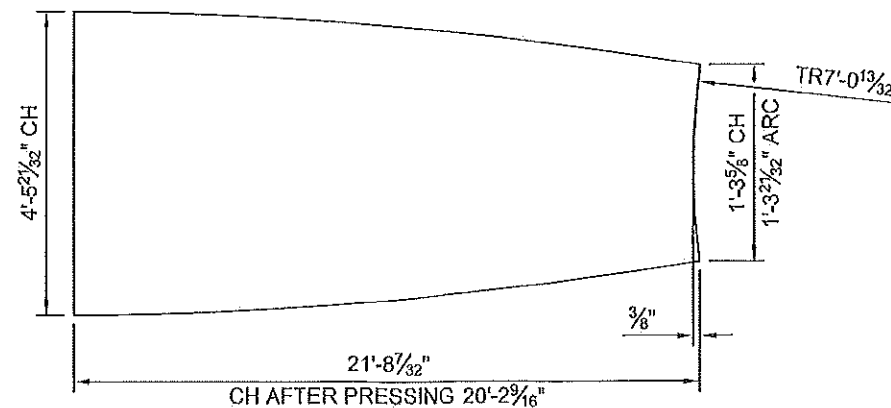
UPPER CONE ELEVATION

CHORDS AFTER PRESSING			
	CH (1) PC	CH (2) PCS	CH (2) PCS
LARGE END	4'-5 ¹ / ₄ "	8'-9 ⁵ / ₈ "	13'-0 ¹ / ₃₂ "
SMALL END	2'-10 ³ / ₁₆ "	5'-7 ⁷ / ₈ "	8'-4 ³ / ₈ "

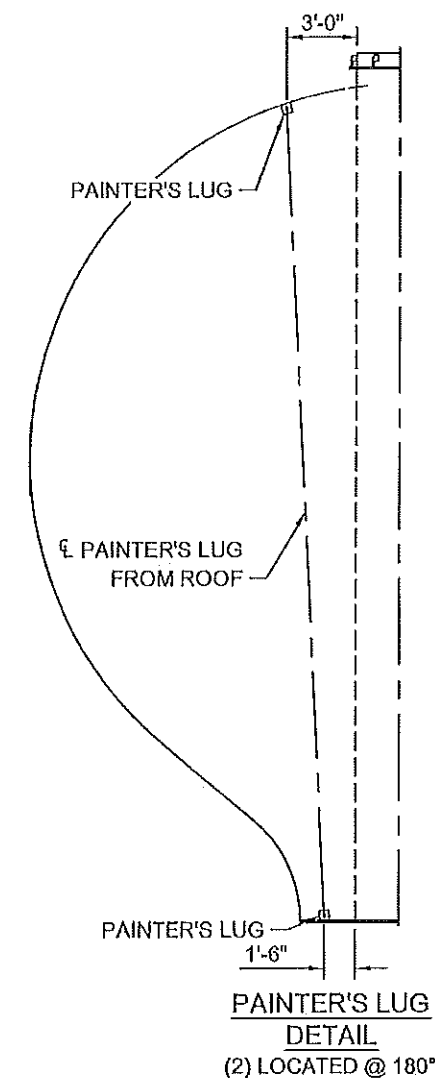
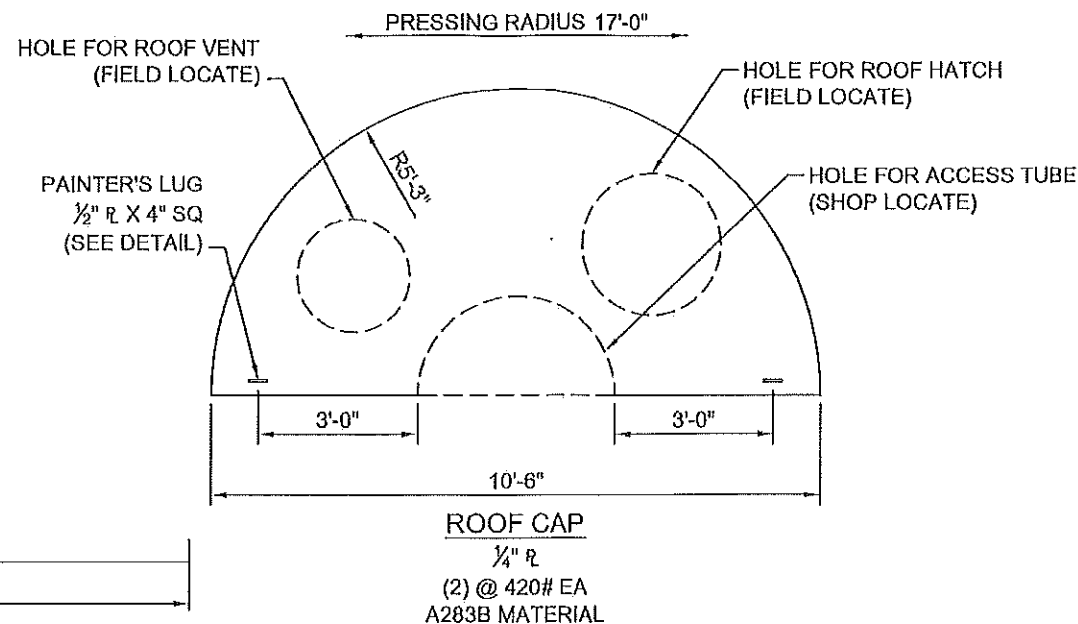
CHORDS AFTER PRESSING			
	CH (1) PC	CH (2) PCS	CH (2) PCS
LARGE END	4'-5 ¹ / ₄ "	8'-9 ⁵ / ₈ "	13'-0 ¹ / ₃₂ "
SMALL END	1'-3 ⁵ / ₈ "	2'-7 ¹ / ₁₆ "	3'-9 ¹⁵ / ₁₆ "



BOWL KNUCKLE
1¹/₃₂" R
(24) @ 819# EA
A283B MATERIAL
STAND UP HEIGHT - 13'-0¹⁷/₃₂"

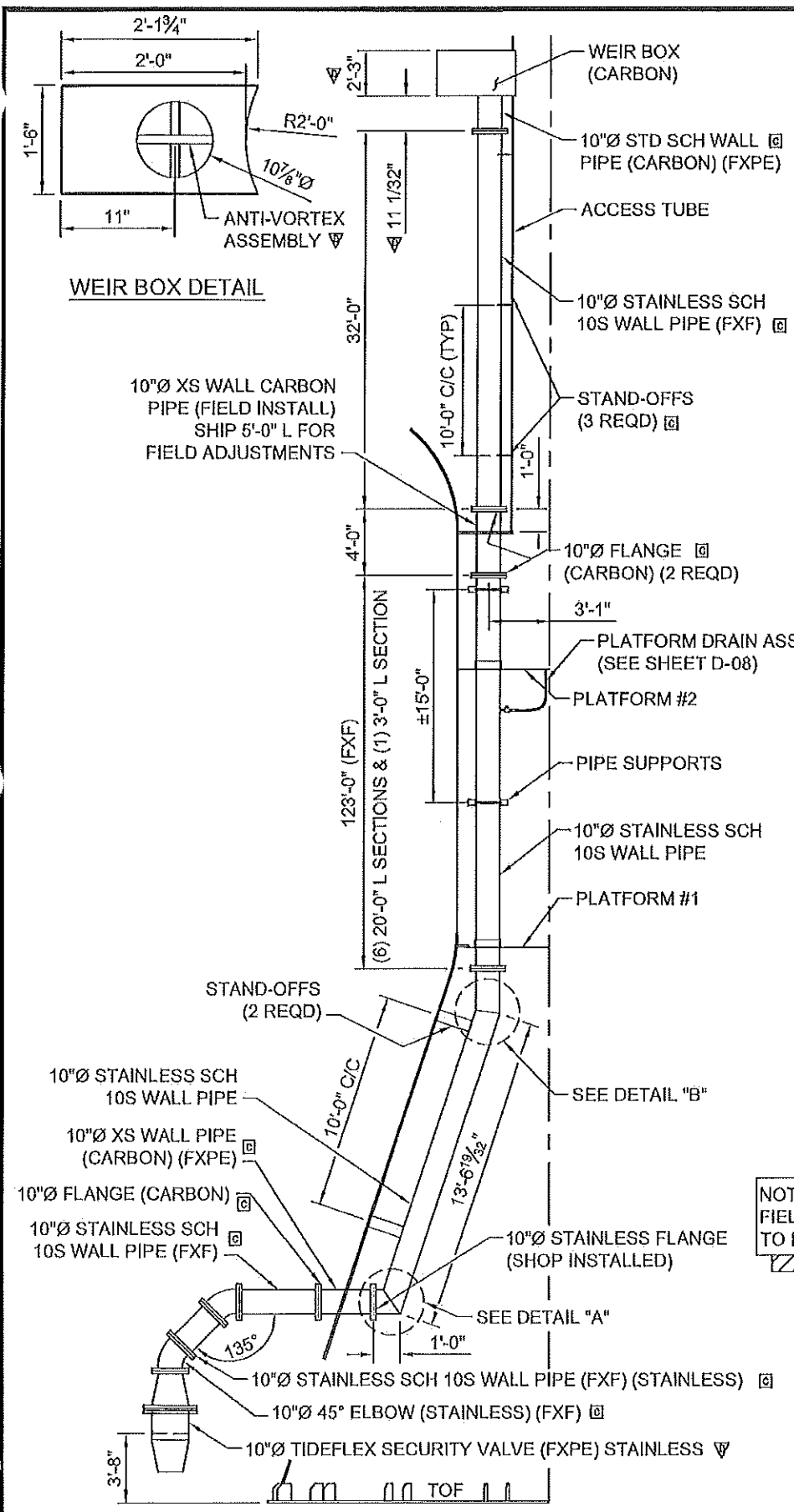


ROOF KNUCKLE
1/4" R
(24) @ 742# EA
A283B MATERIAL
STAND UP HEIGHT - 16'-3¹/₄"

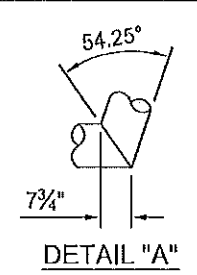


APR 28 2015 exp 11.25.16

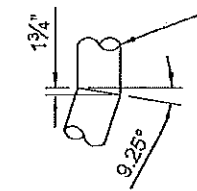
150,000 GALLON ELEVATED SPHEROIDAL TANK			
UPPER CONE & GORE DETAILS			
VA MEDICAL CENTER WALLA WALLA, WA			
Engineer: K1	Drawn By: JB	Checked By: KI	Date: 11/17/14
Revision Description			
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JOB. No.			
3456			
SHEET			
T-07			



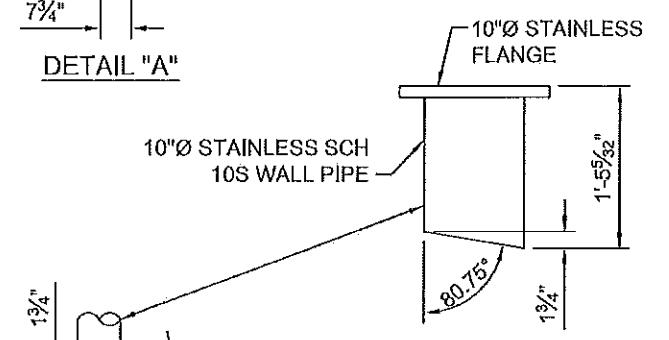
OVERFLOW ELEVATION



DETAIL "A"

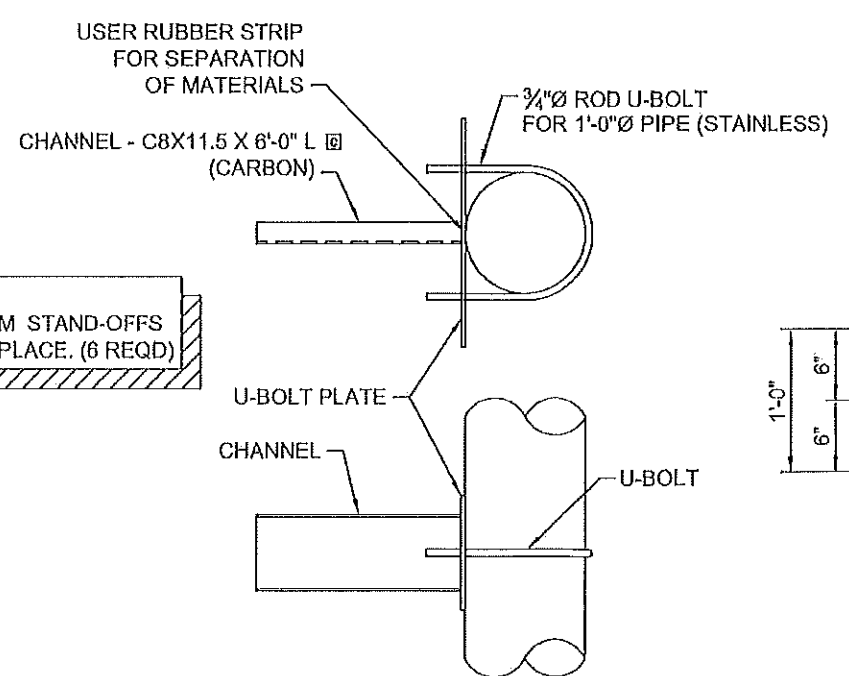


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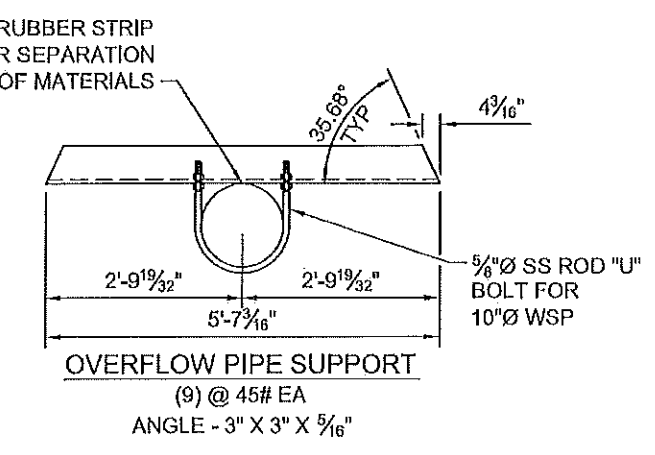
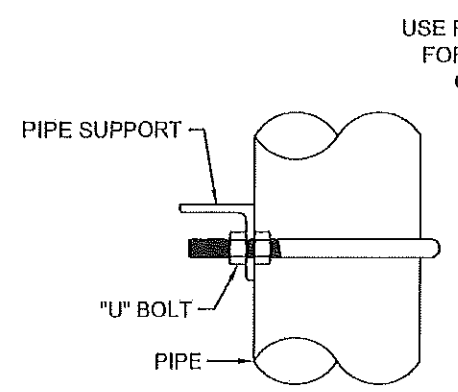


LOWER OVERFLOW DETAIL

NOTE: □ FIELD TRIM STAND-OFFS TO FIT IN PLACE. (6 REQD)

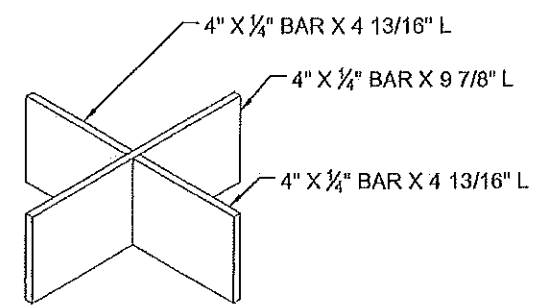


STAND-OFF DETAIL



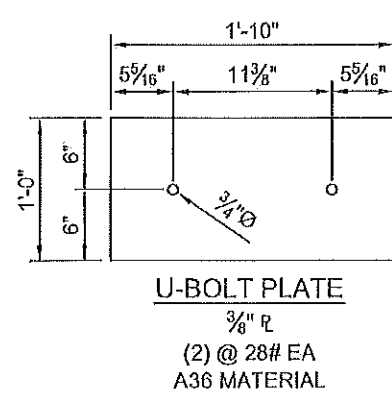
NOTE: INSTALL ANGLE PIPE SUPPORTS LEG DOWN.

ANTI-VORTEX ASSEMBLY (1) REQD [INSTALL INSIDE TOP OF OVERFLOW PIPE]

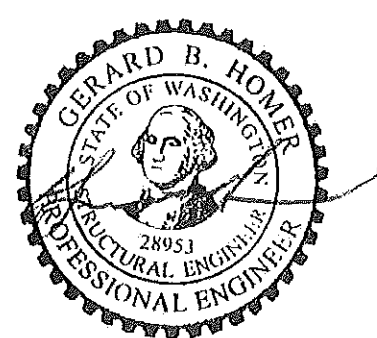


SHIPPING NOTES: □ ▽
 (144) 3/8" X 4" L BOLTS W/ NUTS (STAINLESS)
 (3) FLANGES (CARBON)
 (5) ISOLATION KITS W/ BOLTS
 (12) GASKETS FOR 10" PIPE

NOTE: ▽ INTERIOR OF CARBON PIPE TO BE PAINTED.



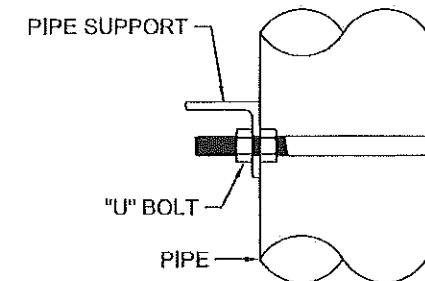
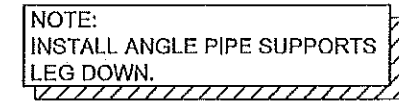
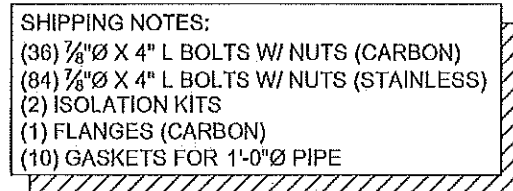
U-BOLT PLATE 3/8" R (2) @ 28# EA A36 MATERIAL



APR 28 2015

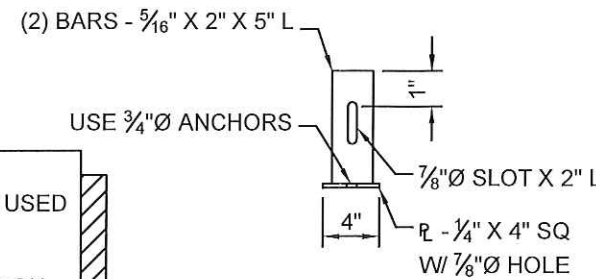
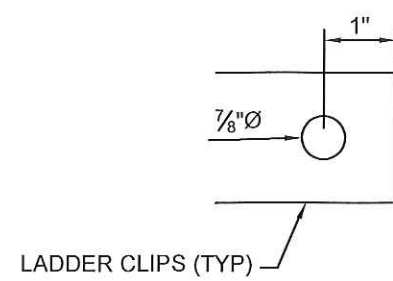
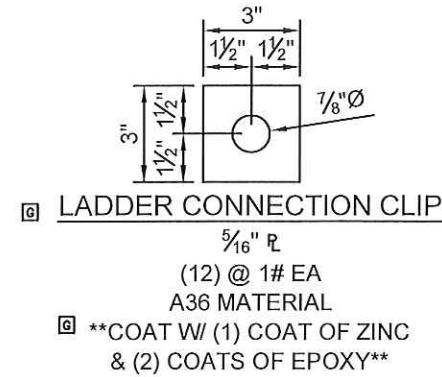
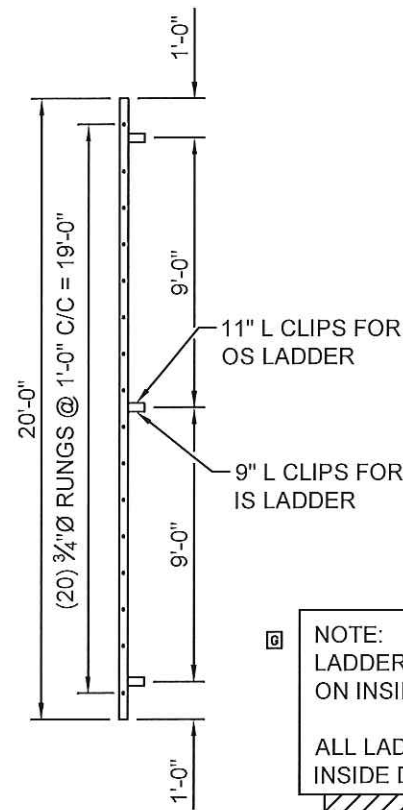
EXP 11-25-17

 PHOENIX ERECTORS & ERECTORS, INC. Avon, Indiana • Sevier, Kentucky		JOB. No.		3456	
		SHEET		T-08.1	
150,000 GALLON ELEVATED SPHEROIDAL TANK		PIPE DETAILS		REVISED ITEMS NOTED	
				REVISED DETAILS NOTED	



APR 28 2015 EX 11.25.12

 PHOENIX FABRICATORS AND ERECTORS, INC. Avon, Indiana - Seebree, Kentucky		JOB. No. 3456	
SHEET T-08.2		150,000 GALLON ELEVATED SPHEROIDAL TANK PIPE DETAILS VA MEDICAL CENTER WALLA WALLA, WA	
Engineer: K1	Drawn By: JB	Checked By: K1	Date: 11/17/14
Rev. By:		Rev. Date:	Revision Description:
WN/K1		04/15/15	REVISED COUPLING QUANTITY
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NOTE:
LADDER CONNECTION CLIPS TO BE USED
ON INSIDE WET LADDERS ONLY.

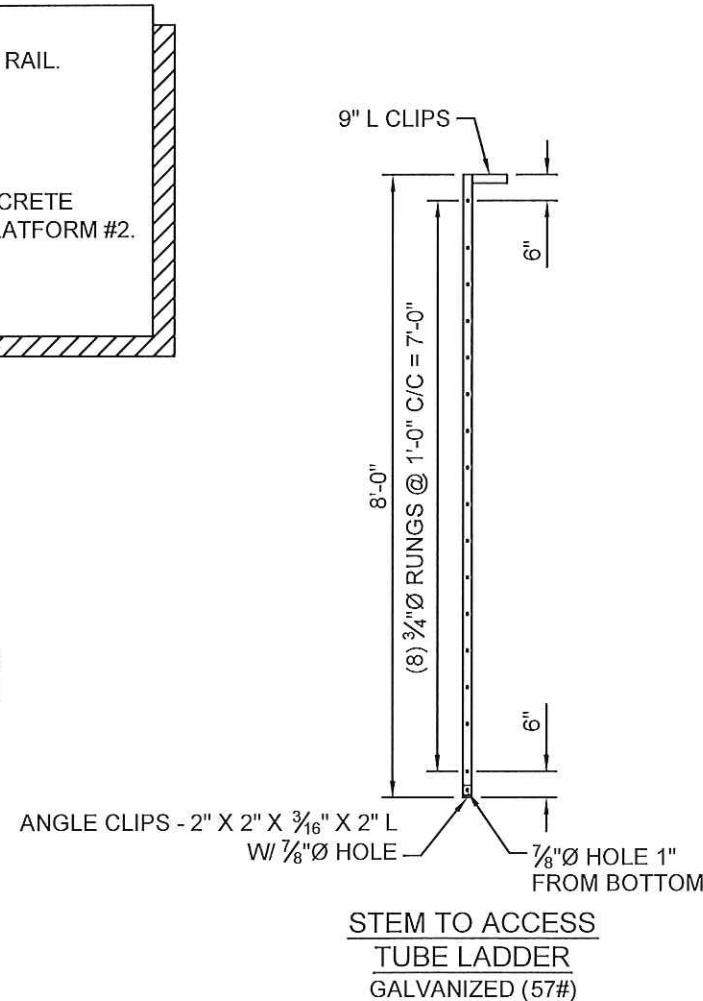
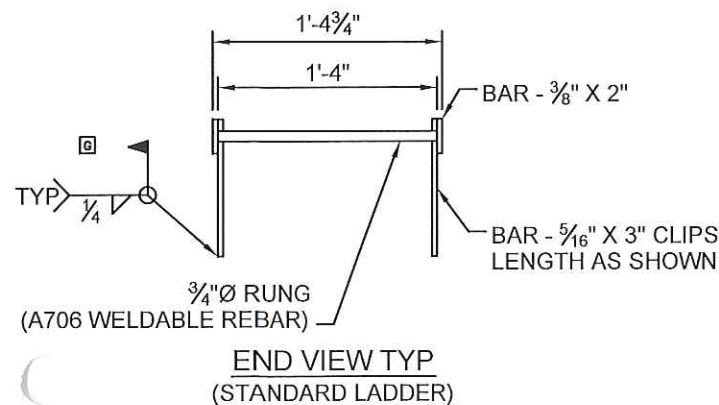
ALL LADDER STAND-OFFS LOCATED ON
INSIDE DRY AREAS TO BE WELDED.

ACCESS TUBE LADDER

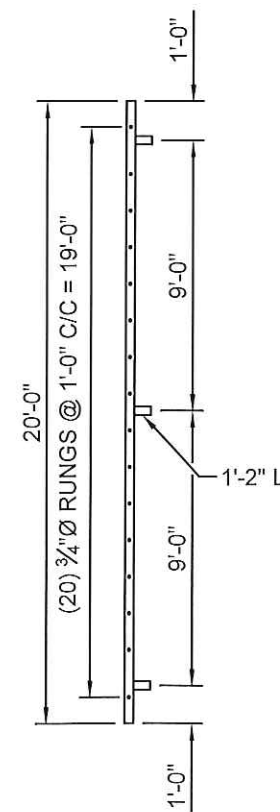
INSIDE - (1) 20'-0" L SECTION(S) (142#) (1) 19'-0" L SECTION (135#) - ALL GALVANIZED
OUTSIDE - (1) 20'-0" L SECTION(S) (142#) (1) 18'-0" L SECTION (128#) - ALL STAINLESS

STEM LADDER NOTES: ▽
LADDERS TO BE EQUIPPED W/ SAFETY RAIL.
LADDER UP SAFETY POST TO BE
INSTALLED @ (2) LOCATIONS.
EXTEND STEM LADDER ±4'-0" ABOVE
PLATFORM #2.
START SAFETY RAIL ±2'-0" ABOVE CONCRETE
FLOOR, EXTEND ABOVE 4'-0" ABOVE PLATFORM #2.

INCLUDES (3) SAFETY HARNESSSES
(3) PORTABLE CLAMPS

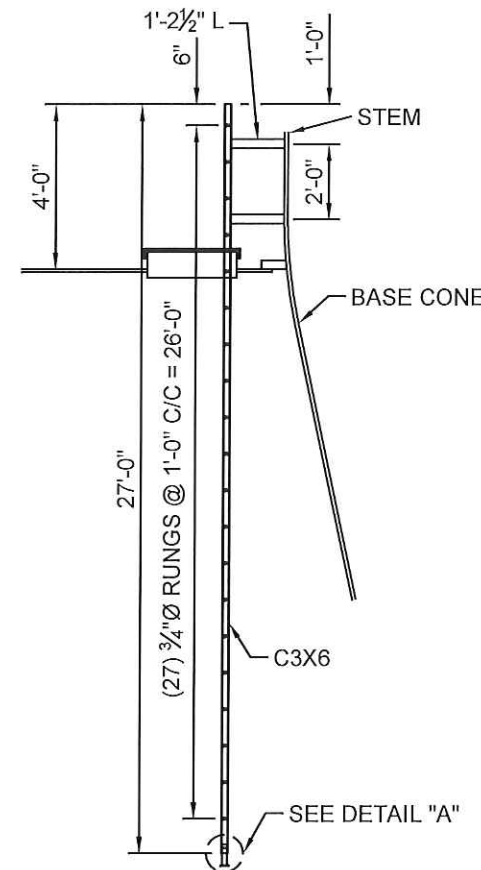


STEM TO ACCESS TUBE LADDER GALVANIZED (57#)



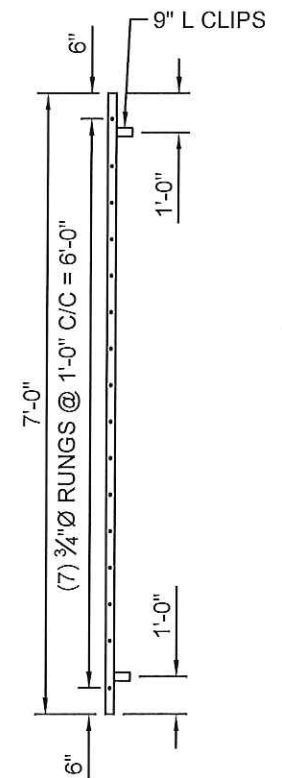
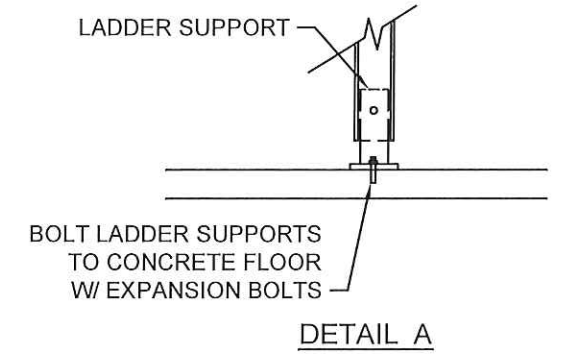
STEM LADDER

(5) 20'-0" L SECTION(S) (142# EA) - GALVANIZED
(1) 19'-0" L SECTION (135#) - GALVANIZED



BASE CONE LADDER GALVANIZED (378#)

NOTE:
1. ALL LADDER CLIPS TO BE WELDED
INSIDE LADDER RAIL.
2. GAP LADDER SECTIONS 3/8".



MANWAY ACCESS LADDER GALVANIZED (50#)

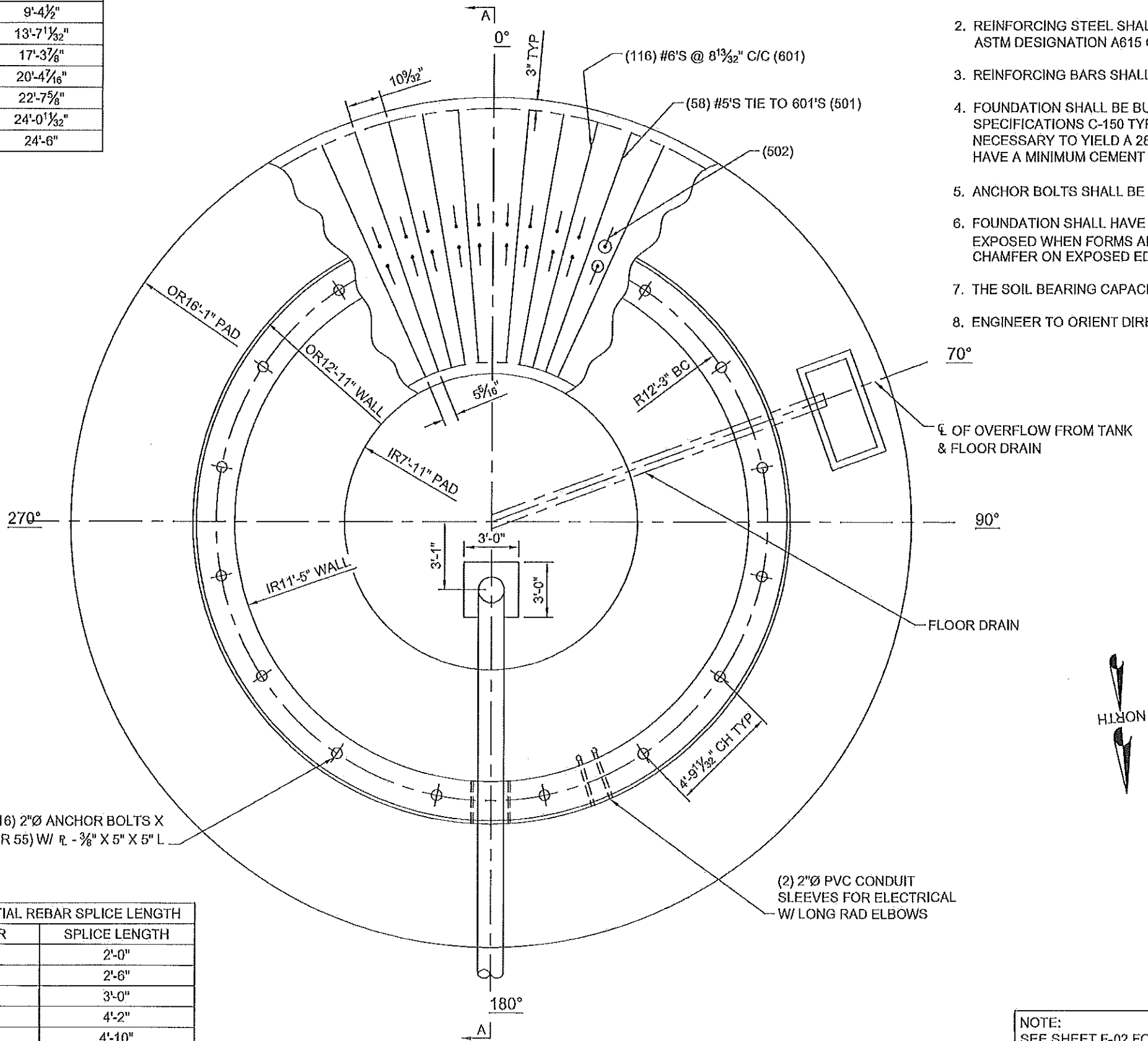


SEP 24 2015

 PHOENIX FABRICATORS AND ERECTORS, INC. Avon, Indiana - Seebree, Kentucky	JOB. No.		3456				
	SHEET		T-09				
	150,000 GALLON ELEVATED SPHEROIDAL TANK		ⓐ JB/ 07/30/15	REVISED LADDER CONNECTIONS			
	LADDER DETAILS		ⓑ WN/ 04/15/15	REVISED STEM LADDER NOTE			
	VA MEDICAL CENTER WALLA WALLA, WA		Ⓒ				
Engineer: KI		Drawn By: JB	Checked By: KI	Date: 1/17/14	Rev. By:	Rev. Date	Revision Description
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ANCHOR BOLT CHORDS	
NUMBER OF SPACES	CHORD LENGTH
1	4'-9 1/32"
2	9'-4 1/2"
3	13'-7 1/32"
4	17'-3 7/8"
5	20'-4 7/16"
6	22'-7 5/8"
7	24'-0 1/32"
8	24'-6"

CIRCUMFERENTIAL REBAR SPLICE LENGTH	
BAR NUMBER	SPLICE LENGTH
4	2'-0"
5	2'-6"
6	3'-0"
7	4'-2"
8	4'-10"
9	5'-4"
10	6'-0"



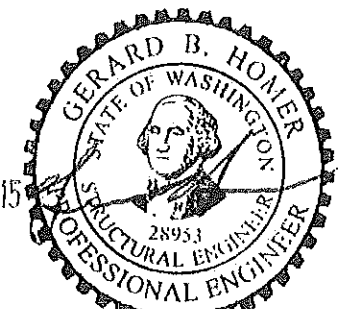
GENERAL NOTES:

1. FOUNDATION DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 4,000 PSF @ 5'-0" BELOW EXISTING GRADE. ALL FOUNDATION WORK DONE IN ACCORDANCE WITH SOILS REPORT.
2. REINFORCING STEEL SHALL BE INTERMEDIATE GRADE STEEL CONFORMING TO ASTM DESIGNATION A615 GRADE 60.
3. REINFORCING BARS SHALL CLEAR ALL OPENINGS.
4. FOUNDATION SHALL BE BUILT OF CEMENT CONFORMING TO ASTM, SPECIFICATIONS C-150 TYPE 1. CEMENT SHALL BE MIXED IN PROPORTIONS NECESSARY TO YIELD A 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI. CONCRETE SHALL HAVE A MINIMUM CEMENT CONTENT OF 6 SACKS PER CUBIC YARD.
5. ANCHOR BOLTS SHALL BE SET VERTICAL AND MAINTAIN A RADIUS OF 3/16" AND CHORDS AT $\pm 1/8"$.
6. FOUNDATION SHALL HAVE A RUBBED FINISH TO A POINT 6" BELOW GRADE. ANY VOIDS EXPOSED WHEN FORMS ARE REMOVED SHALL BE FILLED WITH A GROUT MIXTURE. 3/4" CHAMFER ON EXPOSED EDGES.
7. THE SOIL BEARING CAPACITY WAS ESTABLISHED BY AN INDEPENDENT SOIL LABORATORY.
8. ENGINEER TO ORIENT DIRECTION OF PIPING AND LOCATE THE CENTER OF THE TANK.

DESIGN CRITERIA

SPECIFICATIONS:	AWWA D100-11 ACI 318-08 ASCE 7-10 IBC 2012
TANK WEIGHT:	146.5 KIPS
WIND:	90 MPH - AWWA
SNOW:	30 PSF - AWWA
SEISMIC:	SITE CLASS C $S_s = 0.377$ $S_1 = 0.133$ $S_{DS} = 0.302$ $S_{D1} = 0.148$

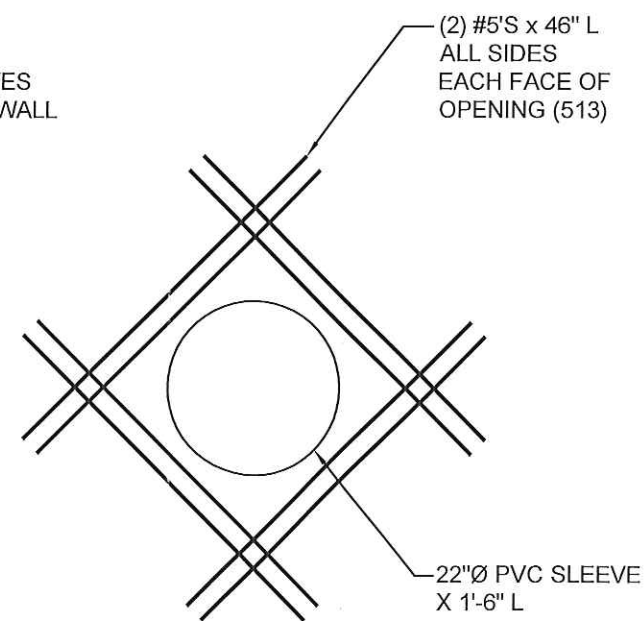
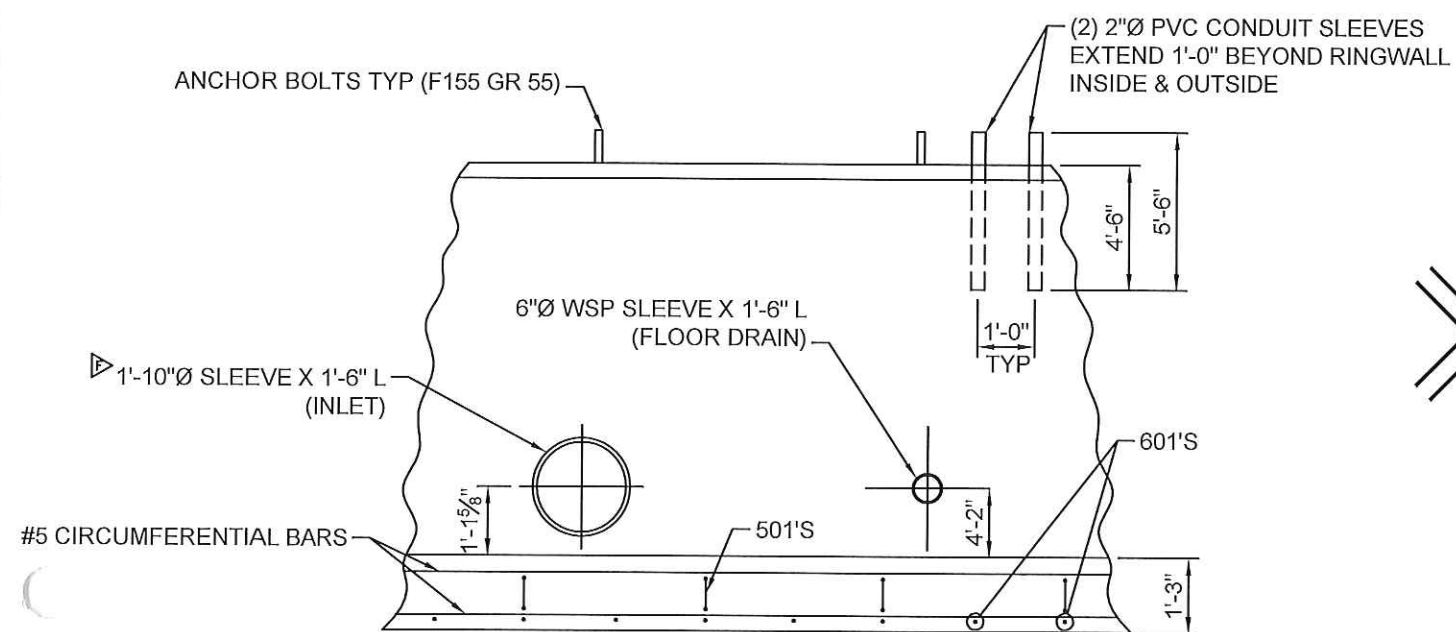
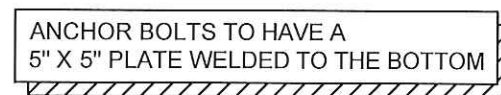
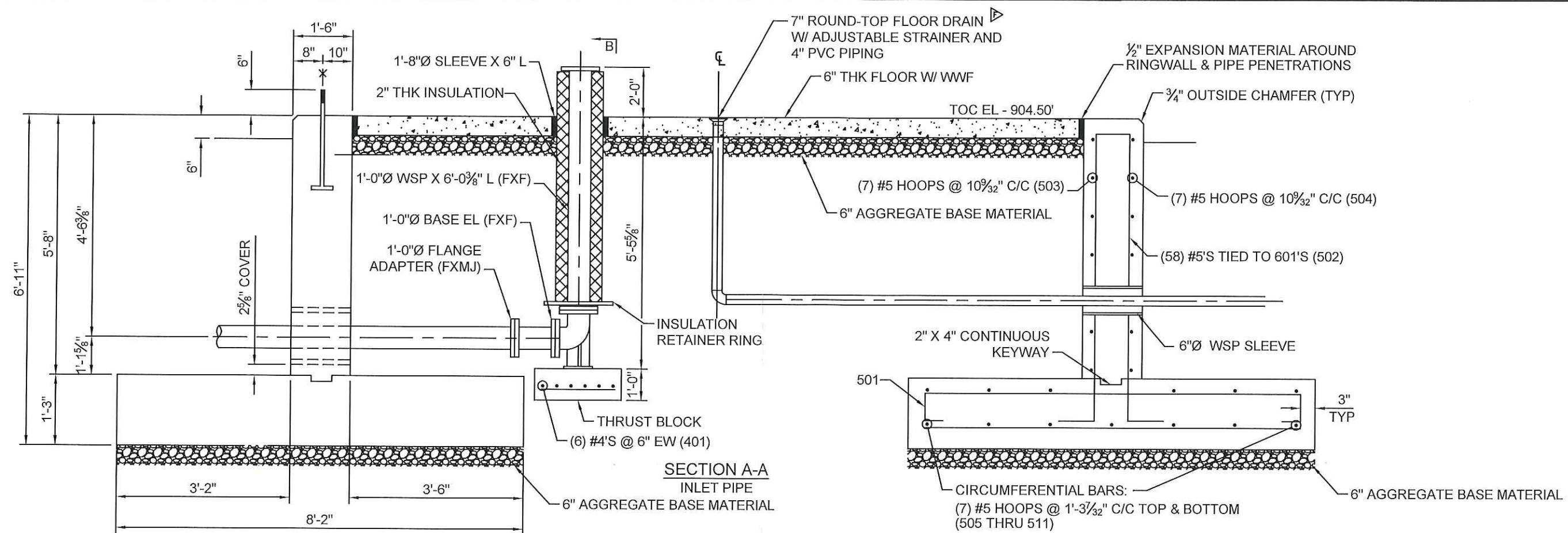
NOTE:
SEE SHEET F-02 FOR SECTION A-A DETAILS.

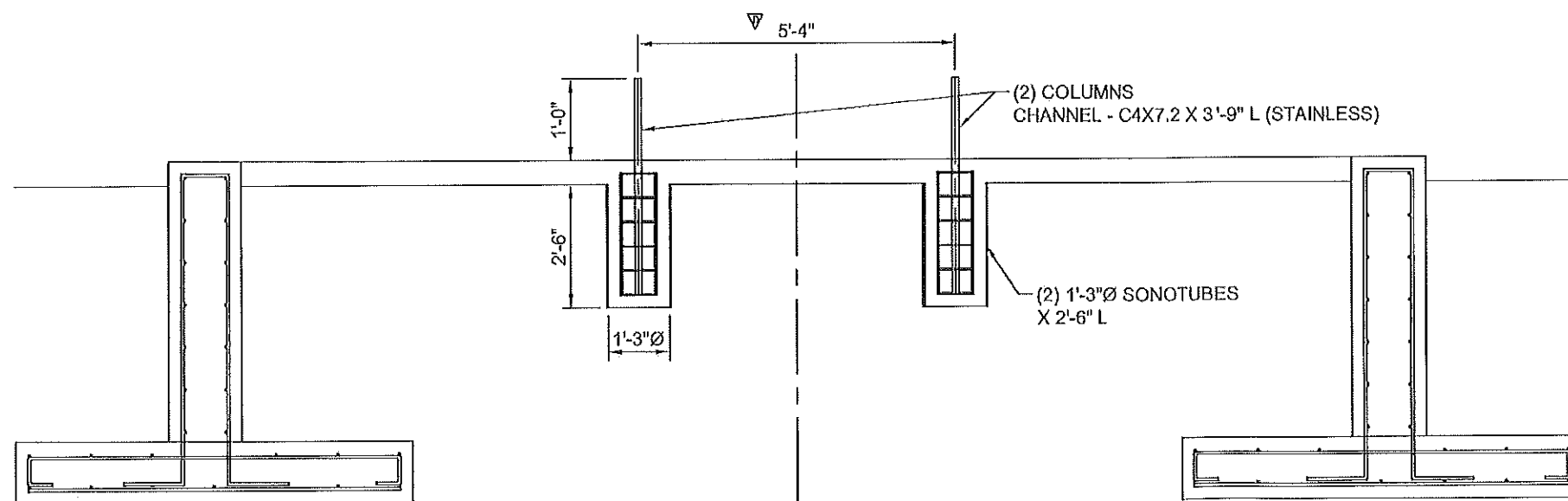
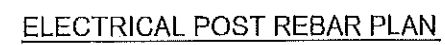


150,000 GALLON ELEVATED SPHEROIDAL TANK		Rev. By	Rev. Date	Added Tank Weight
FOUNDATION PLAN AND NOTES		JB/KI	02/25/15	
VA MEDICAL CENTER WALLA WALLA, WA		Rev. By	Rev. Date	Revision Description
Engineer: KI		Drawn By: JB	Checked By: KI	Date: 11/17/14
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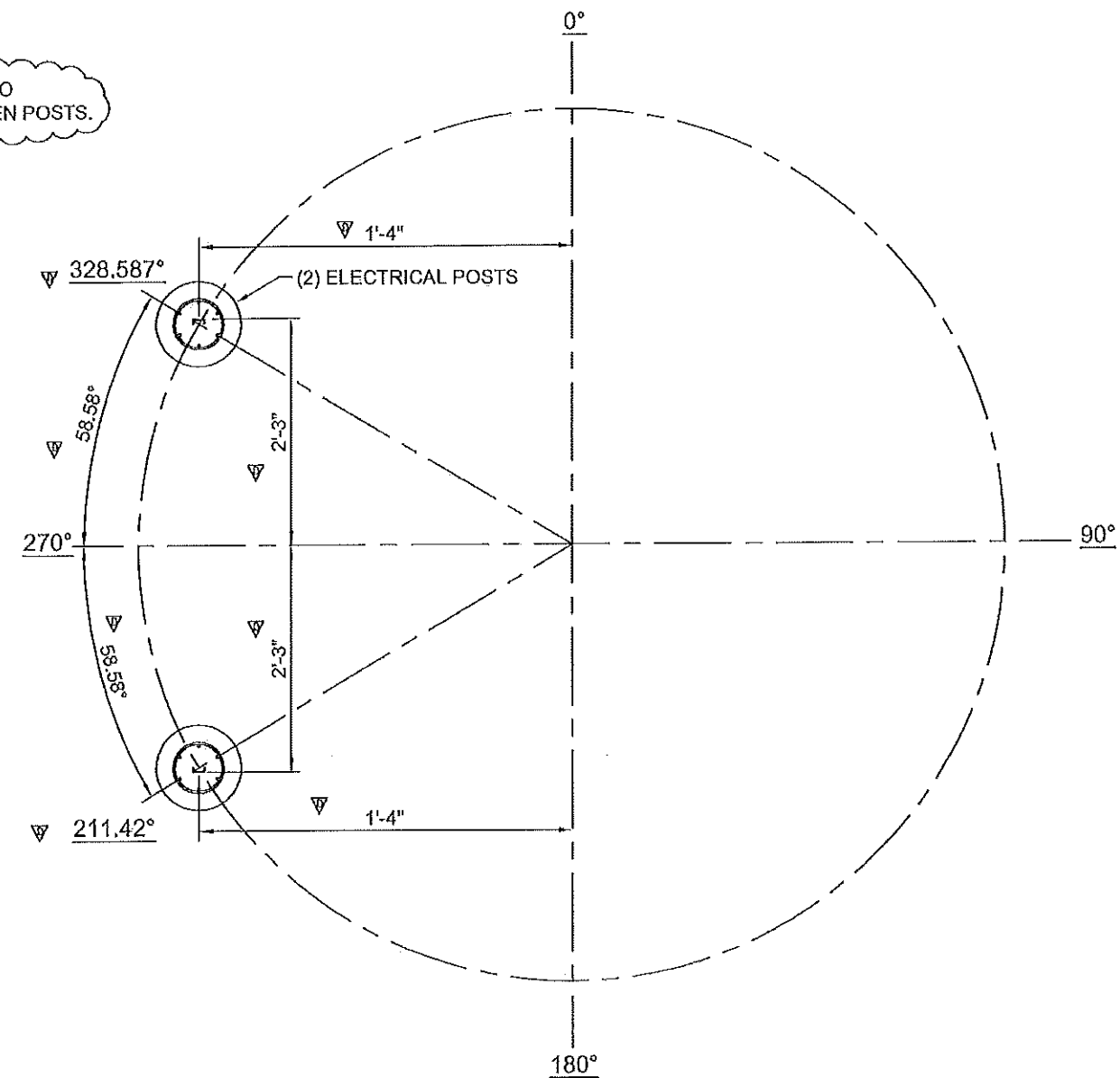


JOB. No.
3456
SHEET
F-01





ELECTRICAL POST ELEVATION



APR 28 2015

2/11-25-16

		JOB. No. 3456		SHEET F-03	
150,000 GALLON ELEVATED SPHEROIDAL TANK		REVISED POST LOCATIONS & ADDED AGGREGATE BASE			
ELECTRICAL POST DETAILS		150,000 GALLON ELEVATED SPHEROIDAL TANK			
VA MEDICAL CENTER WALLA WALLA, WA		150,000 GALLON ELEVATED SPHEROIDAL TANK			
Engineer: KJ		Drawn By: JB		Date: 11/17/14	
Checked By: KJ		Rev. By:		Revision Description	
150,000 GALLON ELEVATED SPHEROIDAL TANK		150,000 GALLON ELEVATED SPHEROIDAL TANK		Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.	

Phoenix Fabricators & Erectors, Inc.
1/22/2015

Summary of Results

Soil Bearing Summary

DL_{check} = "OK"

DL_{Scheck} = "OK"

DL_{Wcheck} = "OK"

DLE_{check} = "OK"

Overturning Check Summary

FS_{check} = "OK"

Anchor Bolt Summary

P_{bolt_max} = 37.14 kip Choose Anchor Bolts to Satisfy Tension & Shear Values

V_{bolt_max} = 2.65 kip

One-Way Footing Shear Check Summary

V_{one_way} = "OK"

Two-Way Footing Shear Check Summary

V_{two_way} = "OK"

Footing Flexural Design Summary

d_{bar} = 0.750 in Flexural Bar Diameter

A_{s_req} = 0.62 in² Flexural Steel Required per Foot

A_{s_total} = 50.72 in² Total Flexural Steel Required for Footing

A_{s_provided} = 51.25 in² Total Flexural Steel Provided in Footing

Job No. 3456

Phoenix Fabricators & Erectors, Inc.
1/22/2015

Bottom Footing Steel - Quantity & Placement

n_{bar_bot_flex} = 116.00

Number of Flexural Bottom Bars Required

s_{bot_flex} = 8.40 in

Spacing of Flexural Bottom Bars @ Outside Face of Wall

n_{bar_bot_circ} = 7.00

Number of Circumferential Bottom Bars Required

s_{bot_circ} = 15.33 in

Spacing of Circumferential Bottom Bars

Top Footing Steel - Quantity & Placement

n_{bar_top_flex} = 58.00

Number of Flexural Top Bars Required

s_{top_flex} = 16.79 in

Spacing of Flexural Top Bars @ Outside Face of Wall

Wall Steel - Quantity & Placement

n_{bar_horiz_wall} = 7.00

Number of Horizontal Wall Bars Required - Each Face

s_{horiz_wall} = 10.33 in

Spacing of Horizontal Wall Bars

n_{bar_vert_wall} = 58.00

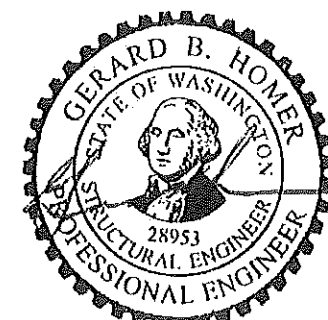
Number of Vertical Wall Bars Required

s_{vert_wall} = 16.79 in

Spacing of Vertical Wall Bars

Job No. 3456

APR 28 2015



exp 11-28-16

150,000 GALLON ELEVATED SPHEROIDAL TANK

FOUNDATION SUMMARY

VA MEDICAL CENTER
WALLA WALLA, WA

Phoenix Fabricators & Erectors, Inc.
Avon, Indiana - Seabree, Kentucky

JOB. No.
3456
SHEET
F-04

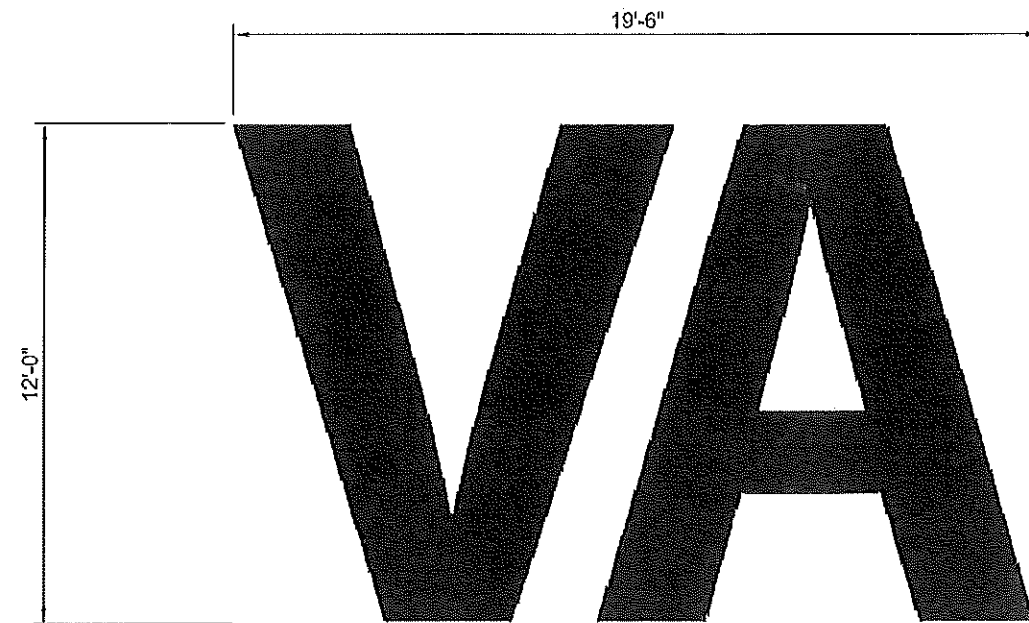
Engineer: KI Drawn By: JR Checked By: KI Date: 11/17/14
Revision Description
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150,000 GALLON SPHERICAL ELEVATED WATER TANK			
OWNER: VA MEDICAL CENTER JOB NAME: WALLA WALLA, WA GC: VA NW HEALTH NETWORK PAMELA POPE 208-832-6017		HWL = 184'-0" (46.054513,-118.350086) PAINT MFG: TNE MEC A	
SHOP CLEANING PROCEDURE			
1. EXTERIOR TO SSPC-SP6. PRIMED WITH 94-H ₂ O @ 2.5 MILS DFT. 2. INTERIOR DRY: CLEANED TO SSPC-SP6. PRIMED WITH N140 @ 6.0 MILS DFT. 3. INTERIOR WET AREA: CLEANED TO SSPC-SP10. PRIMED WITH 94-H ₂ O @ 2.5 MILS DFT.			
FIELD PROCEDURE			
1. INTERIOR BLAST: SSPC-SP 10 ON ALL ABRADED AREAS & WELD SEAMS. 2. EXTERIOR BLAST: a. BLAST ALL WELD SEAMS AND RUSTED OR ABRADED AREAS TO SSPC-SP6. 3. b. BRUSH-BLAST REMAINING SHOP-PRIMED SURFACES TO SSPC-SP7. 4. FOR ALL STRIPE-WELD SEAMS, USE INTERIOR AND EXTERIOR SYSTEM - @ 2.0-3.0 MILS DFT. 5. APPLY LETTERING PER SPECIFICATION. 6. DISINFECT INTERIOR PER AWWA C652, AWWA METHOD 2 (SPRAY) OR METHOD 3. 7. BLAST MEDIA: USE ONLY LOW SILICA MEDIA (STAR BLAST, BLACK BEAUTY, CRUSH GLASS) TO PRODUCE SPECIFIED BLAST PROFILE.			
INTERIOR WET COATING SYSTEM		INTERIOR WET DFT MILS	
~CLEAN WELD SEAMS AND ABRADED AREAS TO SSPC-SP10~		DFT (MILS)	
PRIME: SERIES 91-H2O HYDRO-ZINC 2000		2.5 - 3.5	
STRIPE: SERIES N140 (2.0-3.0 MILS DFT)			
INTER: SERIES N140-1255 BEIGE POTA-POX PLUS		6.0 - 9.0	
FINISH: SERIES N140-15BL TANK WHITE POTA-POX PLUS		6.0 - 9.0	
TOTAL:		14.5 - 21.5	
SURFACE AREA:		3600 SQ FT	
INTERIOR DRY COATING SYSTEM		INTERIOR DRY DFT MILS	
~CLEAN WELD SEAMS AND ABRADED AREAS TO SSPC-SP10~		DFT (MILS)	
PRIME: SERIES N140-1255 BEIGE POTA-POX PLUS		6.0 - 9.0	
STRIPE: SERIES N140 (2.0-3.0 MILS DFT)			
FINISH: SERIES N140-15BL TANK WHITE POTA-POX PLUS		6.0 - 9.0	
TOTAL:		12.0 - 18.0	
SURFACE AREA:		5000 SQ FT	
EXTERIOR COATING SYSTEM		FINISH COLOR	
~CLEAN WELD SEAMS AND ABRADED AREAS TO SSPC-6~		DFT (MILS)	
PRIME: SERIES 91-H2O HYDRO-ZINC 2000		2.5 - 3.5	
2ND: SERIES 27WB-TINT TYPOXY		2.0 - 3.0	
3RD: SERIES 27WB-TINT TYPOXY		2.0 - 3.0	
FINISH: SERIES 740-25BL FOUNTAIN BLEU UVX		3.0 - 4.0	
SIGN: SERIES 740-14BL CADET BLUE UVX		9.5 - 13.5	
TOTAL:		9.5 - 13.5	
SURFACE AREA:		7700 SQ FT	
COATING SYSTEM / PAINTING INSTRUCTIONS			
PHOENIX FABRICATORS & ERECTORS, INC. AVON, INDIANA 317-271-7002		11/18/2014 KI 3456 GR P-1	



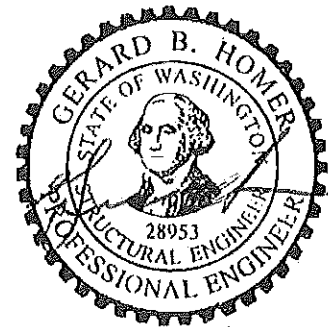
APR 28 2015

150,000 GALLON ELEVATED SPHERICAL TANK		WU/NK	04/15/15	REVISED PAINT SHEET DETAILS	
PAINTING INSTRUCTIONS		W	B	Q	A
VA MEDICAL CENTER WALLA WALLA, WA		Rev. By		Rev. Date	
Engineer: KI	Drawn By: JIS	Checked By: KI	Date: 11/17/14	Revision Description Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.	
PHOENIX FABRICATORS & ERECTORS, INC. Avon, Indiana - Sebree, Kentucky		JOB. No. 3456			
		SHEET			
		D-01			



SIGN TO BE AS SHOWN ABOVE.
PAINTED ON (2) SIDES OF THE TANK.

SIGN COLOR: 25BL FOUNTAIN BLEU ▽
LOCATION: BY ENGINEER



APR 28 2015
EXP 12-31-16

150,000 GALLON ELEVATED SPHEROIDAL TANK		▽	WN/K	04/15/15	REVISED LOGO DETAILS	
SIGN DETAILS		▽	▽			
		▽	▽			
		▽	▽			
VA MEDICAL CENTER WALLA WALLA, WA					Revision Description	
Engineer: K1	Drawn By: JB	Checked By: KI	Date: 11/17/14	Rev. By	Rev. Date	Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.

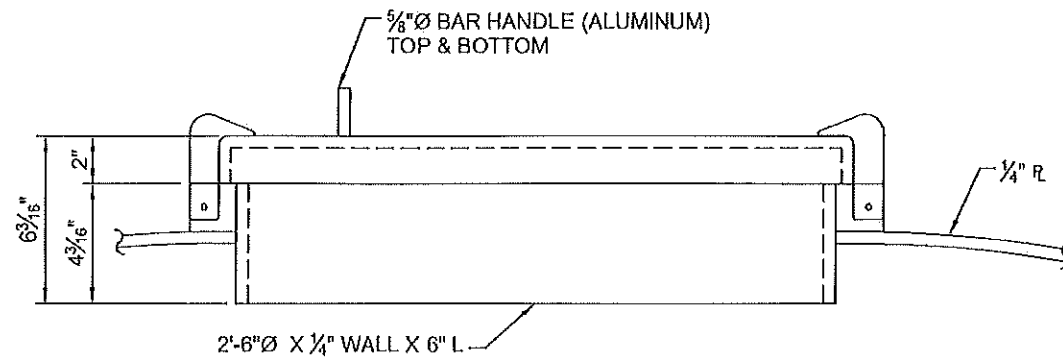


JOB. No.

3456

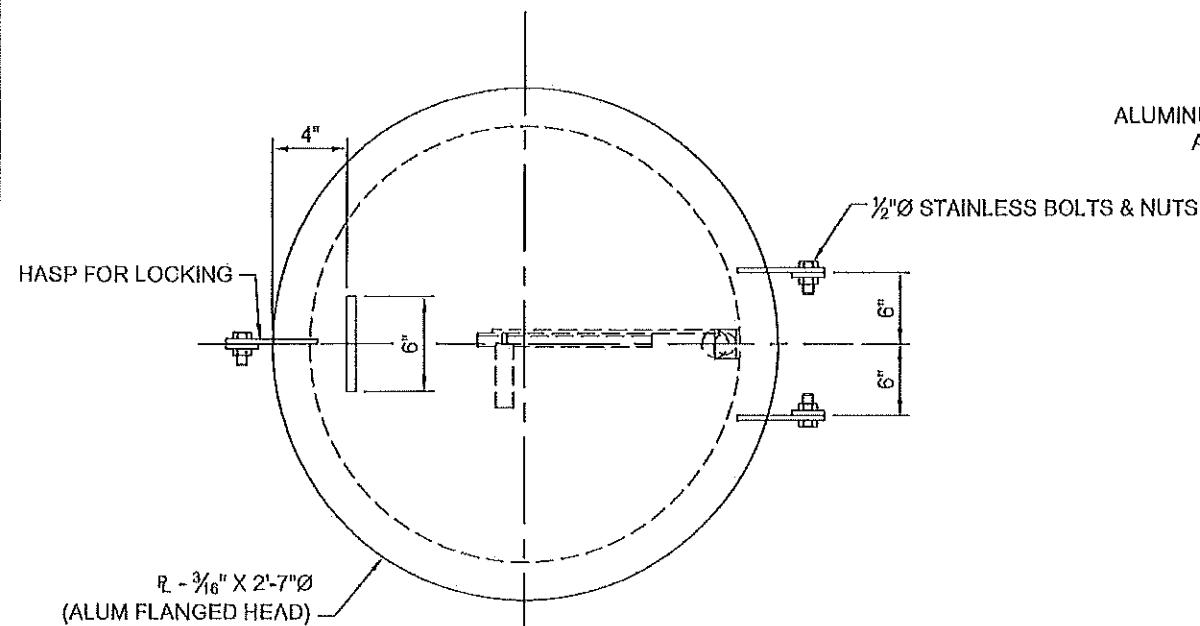
SHEET

D-02

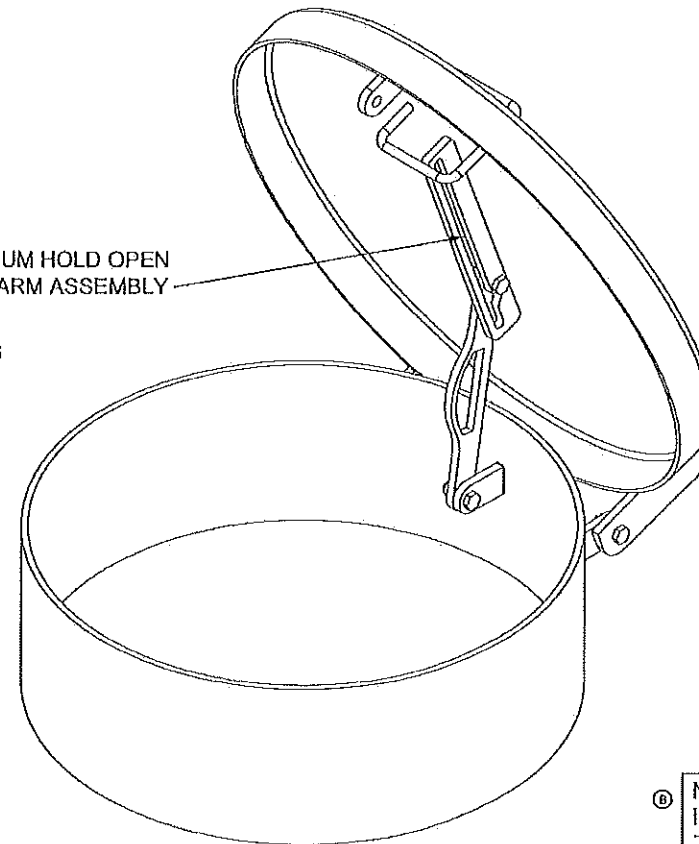


ELEVATION

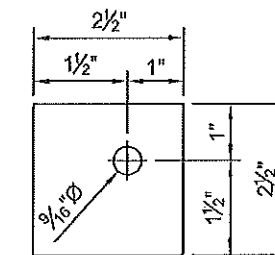
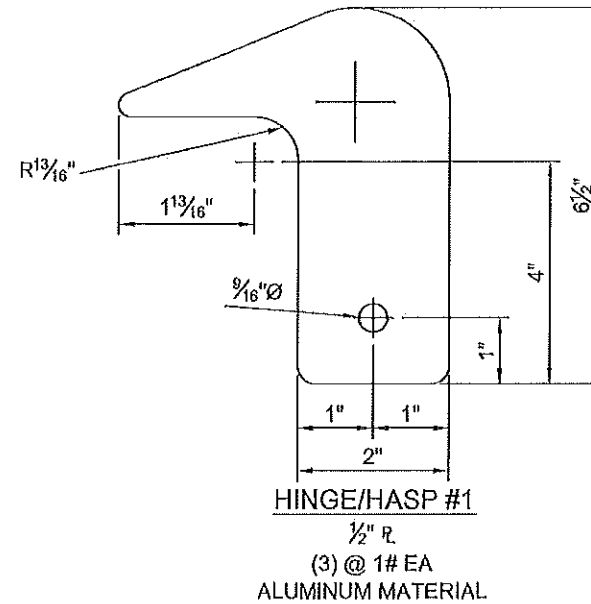
NOTE:
 (1) MANWAY TO BE LOCATED IN THE TOP OF THE ACCESS TUBE, FIELD INSTALL W/ HASP & HANDLE INSIDE W/ ACCESS TUBE REDUCING RING.
 (1) MANWAY TO BE LOCATED ON ROOF TOP, FIELD INSTALL W/ HASP & HANDLE OUTSIDE.



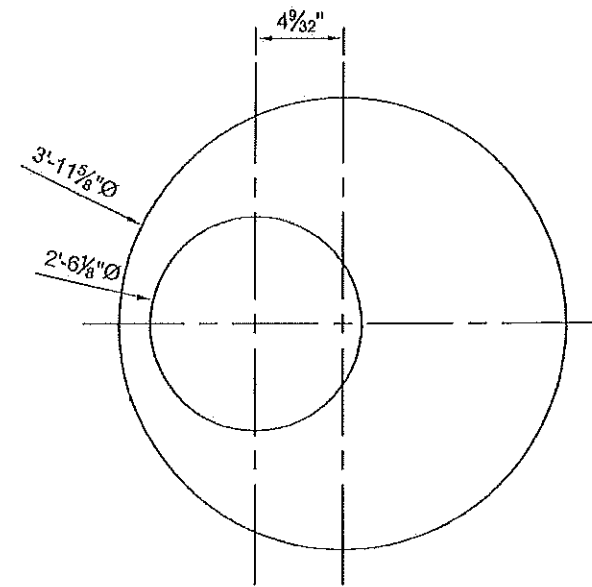
PLAN VIEW
 (2) REQUIRED



HOLD OPEN ARM VIEW



HINGE/HASP #2
 1/2" R
 (3) @ 1# EA
 (1) CARBON
 (2) ALUMINUM



ACCESS TUBE REDUCER
 1/2" R
 (1) @ 152#
 A36 MATERIAL

NOTE:
 INSTALL "U" GASKET AROUND TOP OF NECK.

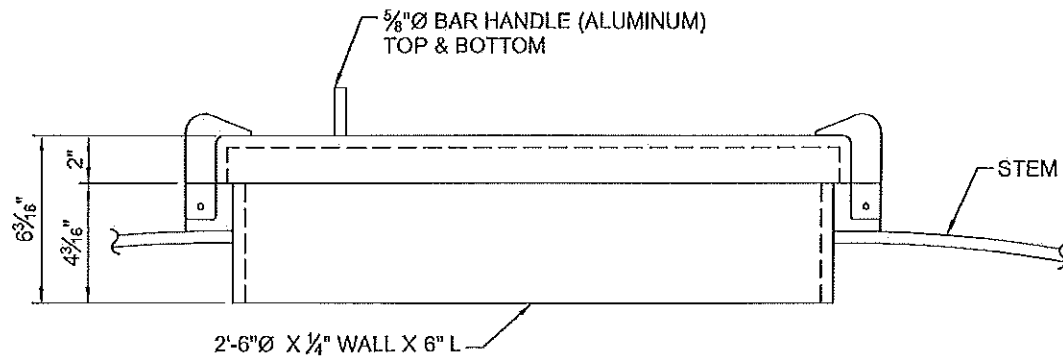


APR 28 2015

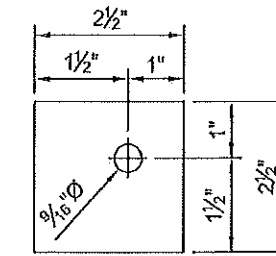
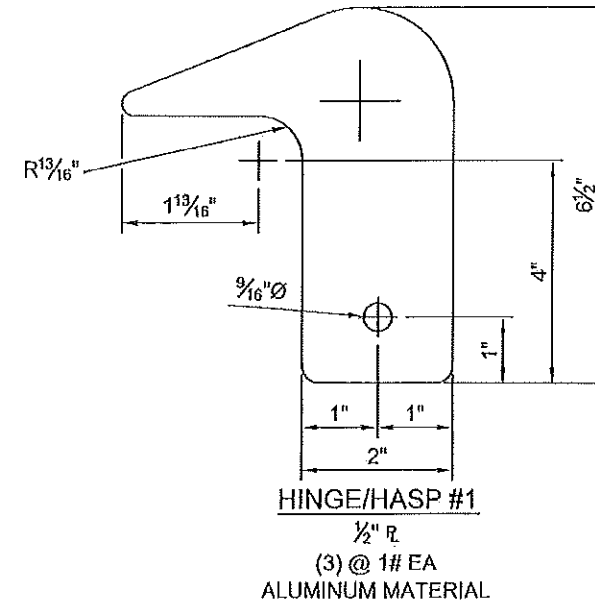
EXP 11-25-16

150,000 GALLON ELEVATED SPHEROIDAL TANK		JB/KI	02/25/15	Rev. By	Rev. Date
ROOF HATCH DETAILS		JB	11/17/14	Checked By	Date
VA MEDICAL CENTER		KL		Engineer	
WALLA WALLA, WA					
Revised Per Owners Comments		Revision Description			
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JOB. No.		3456			
SHEET		D-04			



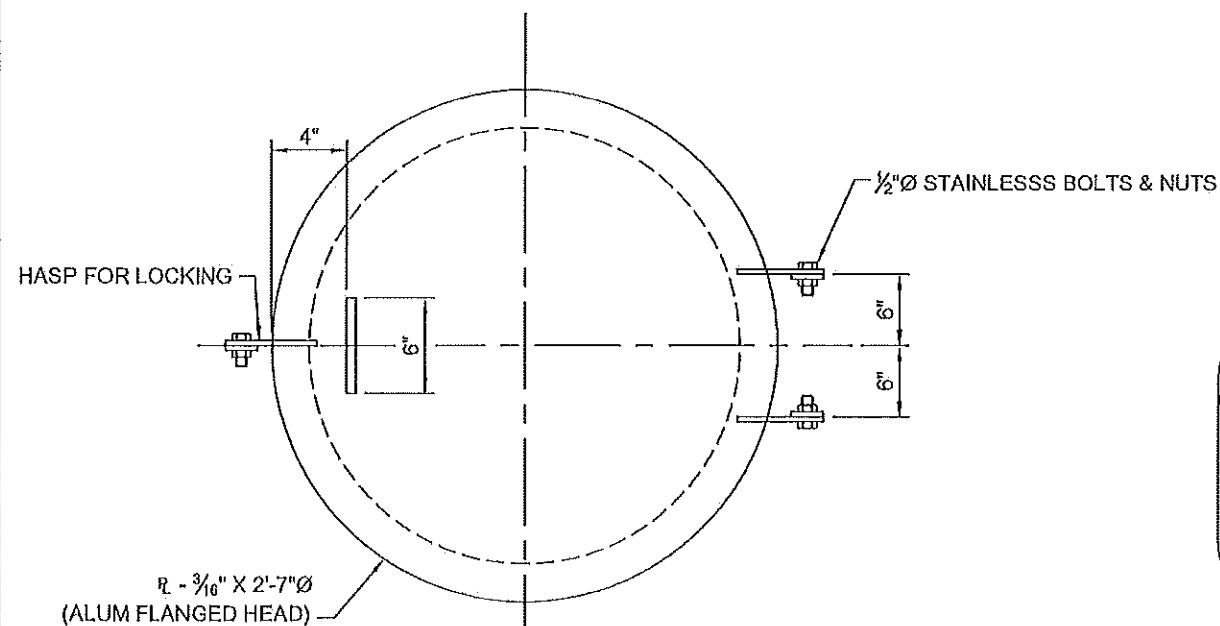


ELEVATION

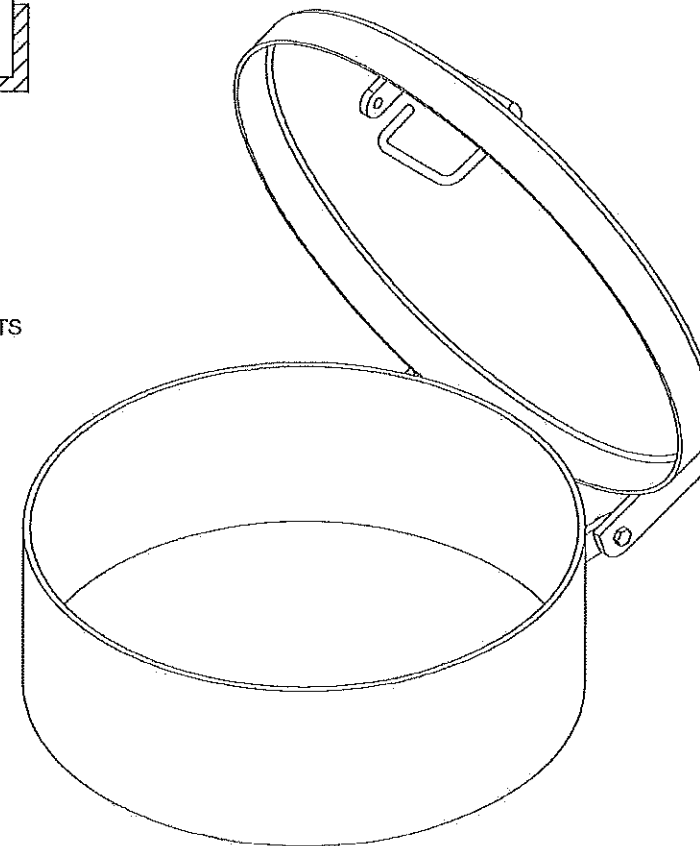


HINGE/HASP #2
1/2" R
(3) @ 1# EA
(1) CARBON
(2) ALUMINUM

NOTE: ▽
INSTALL "U" GASKET AROUND
TOP OF NECK.

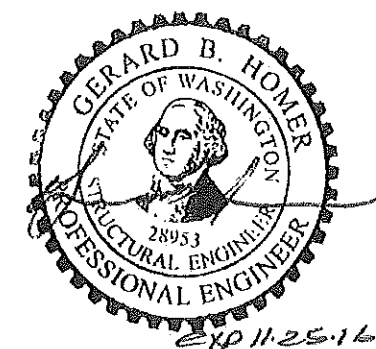


PLAN VIEW
(1) REQUIRED



OPEN VIEW

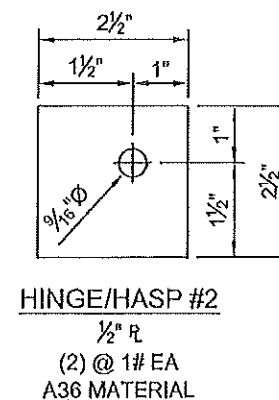
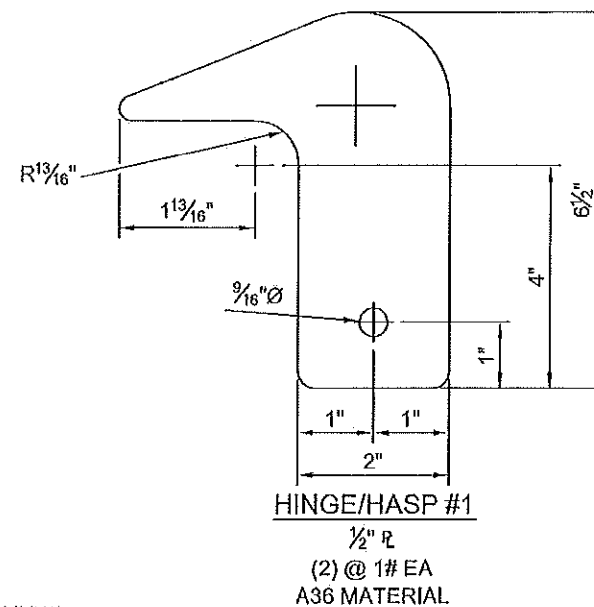
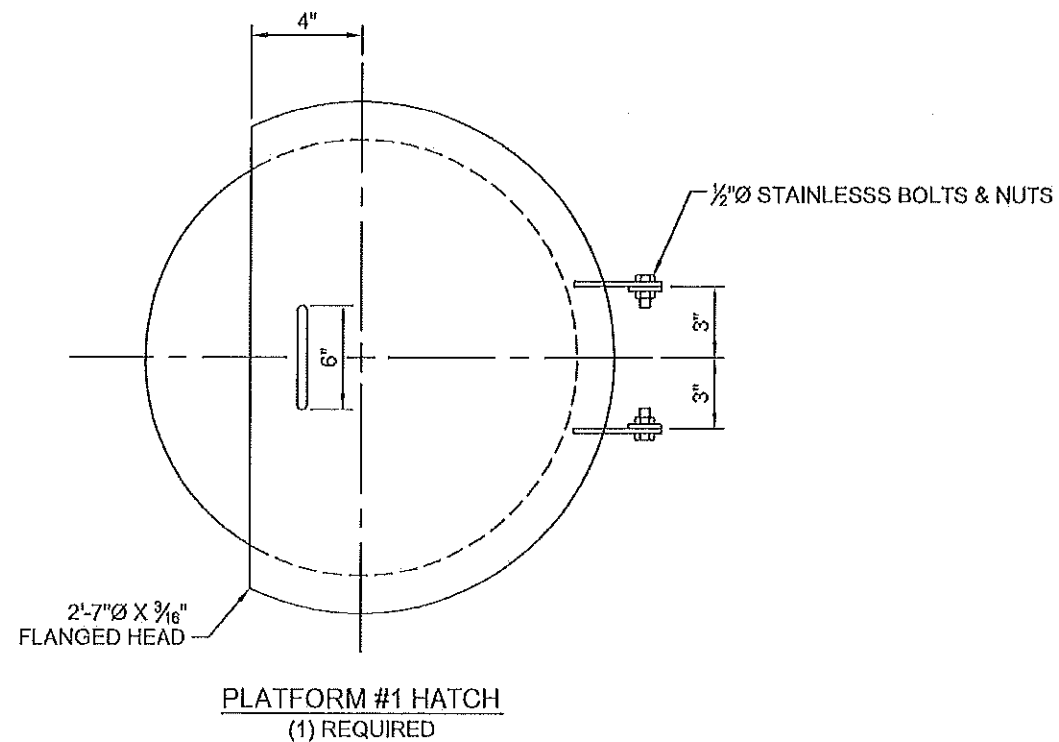
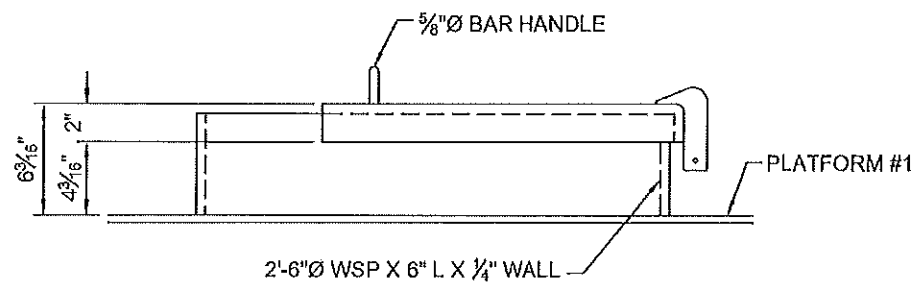
APR 28 2015



150,000 GALLON ELEVATED SPHEROIDAL TANK		WJ/K	04/15/15	ADDED GASKET NOTE	
STEM HATCH DETAILS		3			
VA MEDICAL CENTER WALLA WALLA, WA		3			
Engineer: KI	Drawn By: JB	Checked By: KI	Date: 11/17/14	Rev. By:	Rev. Date
				Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.	

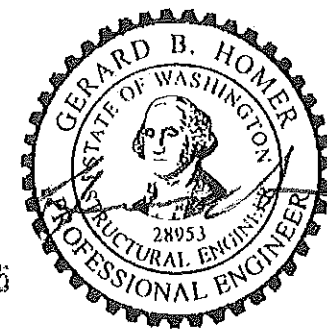


JOB. No.
3456
SHEET
D-05



NOTE:
SHOP INSTALL W/ HASP INSIDE & HANDLE
INSIDE & OUTSIDE.

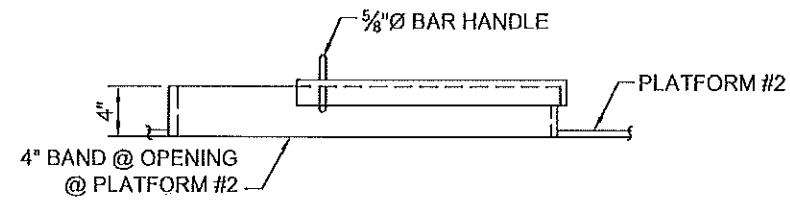
APR 28 2015



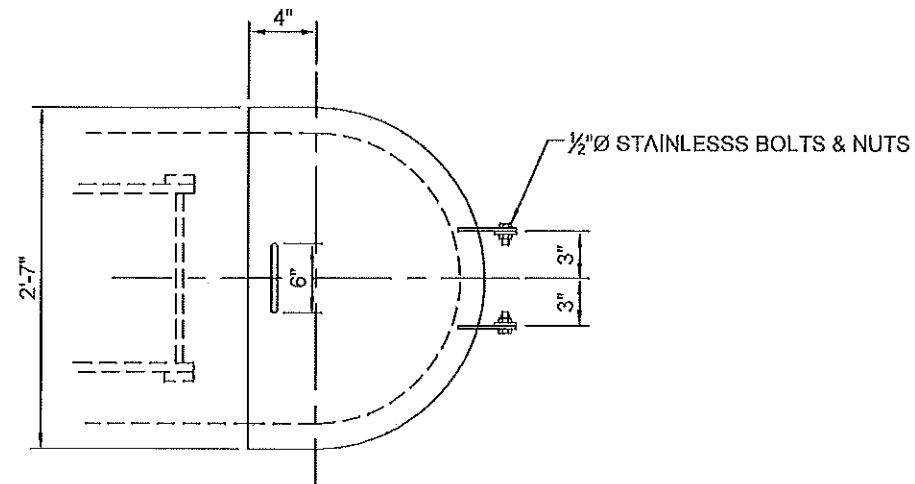
EN 11-25-16

 Phoenix Fabricators and Erectors, Inc. Avon, Indiana - Seabee, Kentucky				150,000 GALLON ELEVATED SPHEROIDAL TANK				W			
				PLATFORM #1 HATCH DETAILS				C			
				VA MEDICAL CENTER WALLA WALLA, WA				B			
								A			
								Rev. By		Rev. Date	Revision Description
Engineer: KI				Drawn By: JB	Checked By: KI	Date: 11/17/14	Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.				



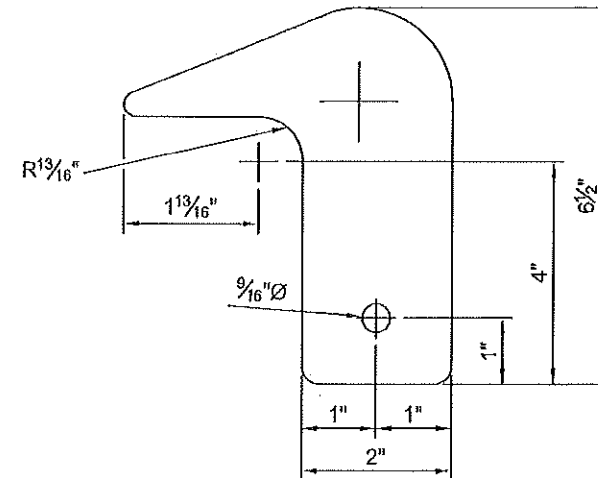


NOTE:
SHOP INSTALL HATCH TO CLEAR SAFETY
SYSTEM WHICH WILL BE INSTALLED LATER.

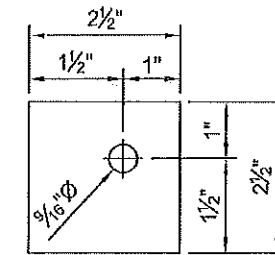


PLATFORM #2 HATCH
(1) REQUIRED

NOTE:
SHOP INSTALL W/ HASP INSIDE & HANDLE
INSIDE & OUTSIDE.

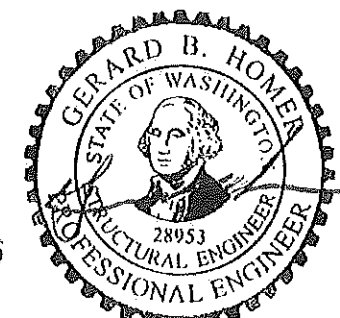


HINGE/HASP #1
1/2" R
(2) @ 1# EA
A36 MATERIAL



HINGE/HASP #2
1/2" R
(2) @ 1# EA
A36 MATERIAL

APR 28 2015

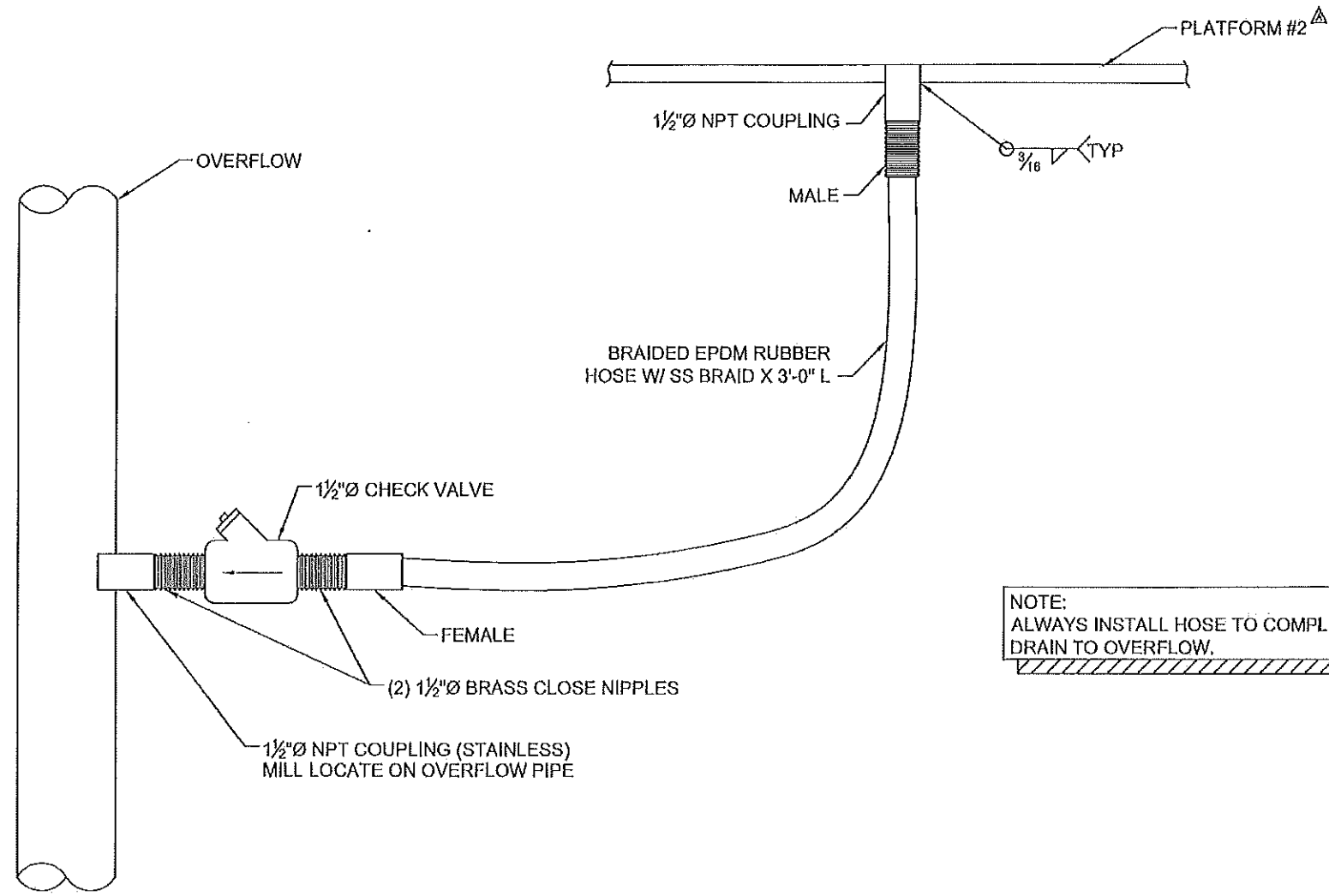


EXP 11.25.12

150,000 GALLON ELEVATED SPHEROIDAL TANK	Rev. By	Rev. Date	Revision Description
PLATFORM #2 HATCH DETAILS	KL	11/17/14	Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.
VA MEDICAL CENTER WALLA WALLA, WA	Drawn By: JS	Checked By: KL	
Engineer: KL			

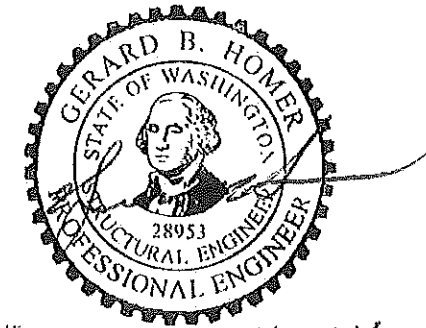


JOB. No.
3456
SHEET
D-07



NOTE:
ALWAYS INSTALL HOSE TO COMPLETELY
DRAIN TO OVERFLOW.

BILL OF MATERIALS	
QUANTITY	DESCRIPTION
1	1/2"Ø CHECK VALVE (THRD X THRD)
1	1/2"Ø (STD) COUPLING (CARBON)
1	1/2"Ø (STD) COUPLING (STAINLESS)
2	1/2"Ø (STD) BRASS NIPPLES
1	1/2"Ø BRAIDED RUBBER HOSE



APR 28 2015
exp 11.25.16

150,000 GALLON ELEVATED SPHEROIDAL TANK
PLATFORM DRAIN DETAILS
VA MEDICAL CENTER
WALLA WALLA, WA
Engineer: KI Drawn By: JB Checked By: KI Date: 11/17/14

PHOENIX
FABRICATORS AND ERECTORS, INC.
Avon, Indiana - Seebree, Kentucky

JOB, No.
3456
SHEET
D-08

Revision Description
MOVE PLATFORM DRAIN TO PLATFORM #2
Rev. By Rev. Date
TMMK 2/25/15
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4"Ø WSP X 8" L (FXPE)
SHOP LOCATE @ LOWEST POINT
W/ FLANGE AS CLOSE AS POSSIBLE
TO BOWL - VERIFY THAT VALVE WILL
OPEN COMPLETELY

BURN FLUSH AFTER
WELDING IN PLACE

2"Ø THREADED NIPPLE

FEMALE END

DRAIN

2"Ø BRAIDED EPDM RUBBER
HOSE X 3'-0" L

MALE END

2"Ø NPT COUPLING
(FIELD LOCATE)

OVERFLOW PIPE

BILL OF MATERIALS	
QUANTITY	DESCRIPTION
1	3"Ø OCECO VALVE (V-153 FLANGED)
2	2"Ø (STD) COUPLING
1	2"Ø BRAIDED RUBBER HOSE X 3'-0" L
1	2"Ø THREADED NIPPLE

APP'D 8 2015



exp 11.25.16



JOB. No.

3456

SHEET

D-09

150,000 GALLON ELEVATED SPHEROIDAL TANK

TANK DRAIN DETAILS

VA MEDICAL CENTER
WALLA WALLA, WA

Engineer: KI

Drawn By: JB

Checked By: KI

Date: 11/17/14

Rev. By Rev. Date

Revision Description

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THE EUCLID CHEMICAL COMPANY
19218 REDWOOD ROAD • Cleveland, OH 44110
(216) 631-9222 • (800) 321-7628 • FAX (216) 631-9595
www.euclidchemical.com

NS GROUT

◆ ◆ ◆ ◆ ◆
NON-SHRINK, NON-STAIN, NON-METALLIC

NSGROUT is designed for critical use where high strength, non-staining characteristics and positive expansion are required. It contains only natural aggregate and an expansive cementitious binder. It is extremely flowable, and when cured, appears similar in appearance to concrete.

PRIMARY APPLICATIONS

- Pumps
- Fans
- Motors
- Compressors
- Generators
- Machine bases of all types
- Anchor bolts
- Column baseplates

FEATURES/BENEFITS

- Non-staining natural aggregate for better appearance
- Non-shrink performance provides excellent bearing
- Flowable and self-leveling
- High strength
- Appearance of plain concrete
- Does not contain any added chloride ions

SPECIFICATION/COMPLIANCES

- Meets the requirements of CRD C-821, Corps of Engineers Specification for Non-Shrink Grout.
- Shows positive expansion when tested in accordance with ASTM Specification C-1090, Standard Test Method for Measuring Changes in Height of Cylindrical Specimens from Hydraulic Cement Grout.
- Meets the performance requirements of ASTM C-1107, Grades A & B as well as Grade C, "Standard Specification for Packaged Dry, Hydraulic-Cement Grout (non-shrink)." Meets ASTM C-827 "Test method for early volume of cementitious mixtures."

TECHNICAL INFORMATION

Typical Engineering Data
The following results were developed under laboratory conditions.

Flowable Consistency
1.0 gal/50 lb (3.8 liter/22.7 kg)
Flow Rate: ASTM C-939 & CRD C-621
120% Flow (flow table)
Compressive Strength
2" (50 mm) cubes (ASTM C-109 Modified*)

Age	Strength
3 days	5,000 psi (34 MPa)
7 days	7,000 psi (48 MPa)
14 days	8,000 psi (55 MPa)
28 days	9,000 psi (62 MPa)

*See ASTM C-1107 Section 11.6 & 11.6.1 - 11.6.3

Expansion

Tested in Accordance with CRD C-621

3 days	.01%
7 days	.06%
14 days	.06%
28 days	.06%

Fluid Consistency
1.2 gal/50 lb (4.6 liter/22.7 kg)

Flow Rate: ASTM C-939 & CRD C-621
20 to 30 seconds (Flow Cone)

Compressive Strength
2" (50 mm) cubes (ASTM C-109)

Age	Strength
3 days	4,000 psi (28 MPa)
7 days	6,000 psi (41 MPa)
14 days	6,600 psi (45 MPa)
28 days	7,000 psi (48 MPa)

Expansion

Tested in Accordance with CRD C-621

3 days	.01%
7 days	.06%
14 days	.06%
28 days	.06%

Setting Time ASTM C-191

Initial Set	3 hrs	5 mins.
Final Set	4 hrs	47 mins

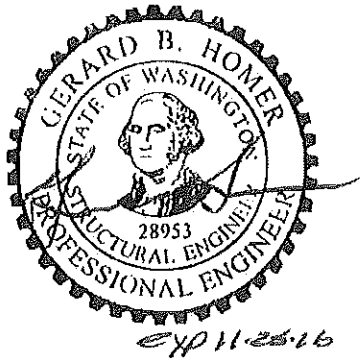
GROUT QUANTITY IS BASED ON AN ASSUMED GROUT THICKNESS OF ONE INCH. IF FOUNDATION IS NOT LEVEL OR ADDITIONAL SHIMMING IS REQUIRED, CONTACT THE OFFICE SO THAT ADDITIONAL GROUT MAY BE SHIPPED TO JOB SITE.

1. DAMPEN TOP OF FOUNDATION WITH WATER BEFORE MIXING GROUT.
2. ADD ONE GALLON OF CLEAN WATER PER 50# CONTAINER OF GROUT. DO NOT ADD ADDITIONAL WATER. CAUTION MIX ONLY THE AMOUNT OF GROUT THAT CAN BE USED IN ABOUT ONE-HALF HOUR AS THE GROUT SETS RAPIDLY.
3. THE GROUT MIXTURE SHOULD BE FORCED UNDER THE BASE PLATE WITH A ROD OR FLAT BAR TO ASSURE COMPLETE FILLING UNDER THE BASE PLATE.

GROUT FOR 150,000 GALLON SPHERE

QUANTITY OF 50# BAGS = 20

APR 28 2015



JOB No.

3456

SHEET

D-10

150,000 GALLON ELEVATED SPHEROIDAL TANK

GROUT PROCEDURE

VA MEDICAL CENTER
WALLA WALLA, WA

Engineer: KI

Drawn By: JB

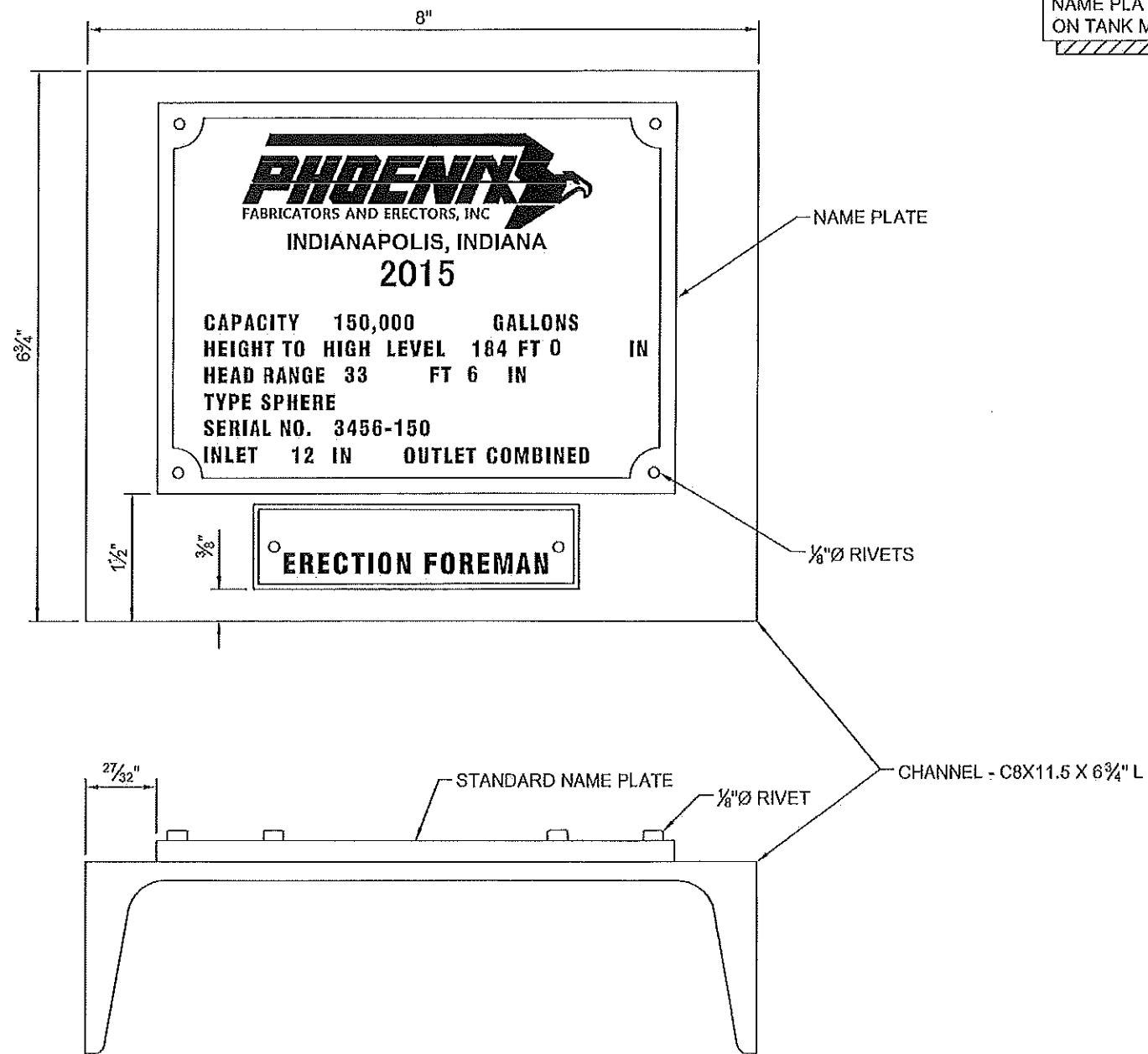
Checked By: KI

Date: 11/17/14

Rev. By: Rev. Date

Revision Description

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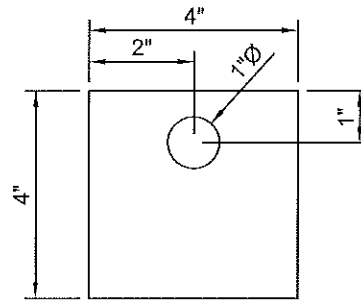
NAME PLATE DETAILS

APR 28 2015



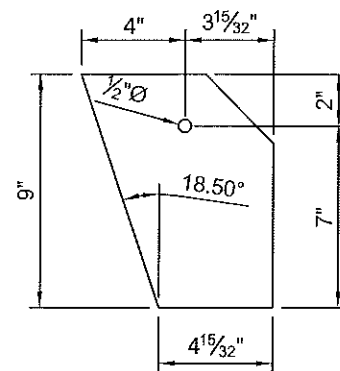
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150,000 GALLON ELEVATED SPHEROIDAL TANK	NAME PLATE DETAILS	Rev. By	Rev. Date	Revision Description
	VA MEDICAL CENTER WALLA WALLA, WA			
Engineer: KI	Drawn By: JFS	Checked By: KI	Date: 11/17/14	Copyright © 2010 by Phoenix Fabricators & Erectors, Inc. All rights reserved.
Avon, Indiana - Seabee, Kentucky				
JOB. No.				
3456				
SHEET				
D-11				

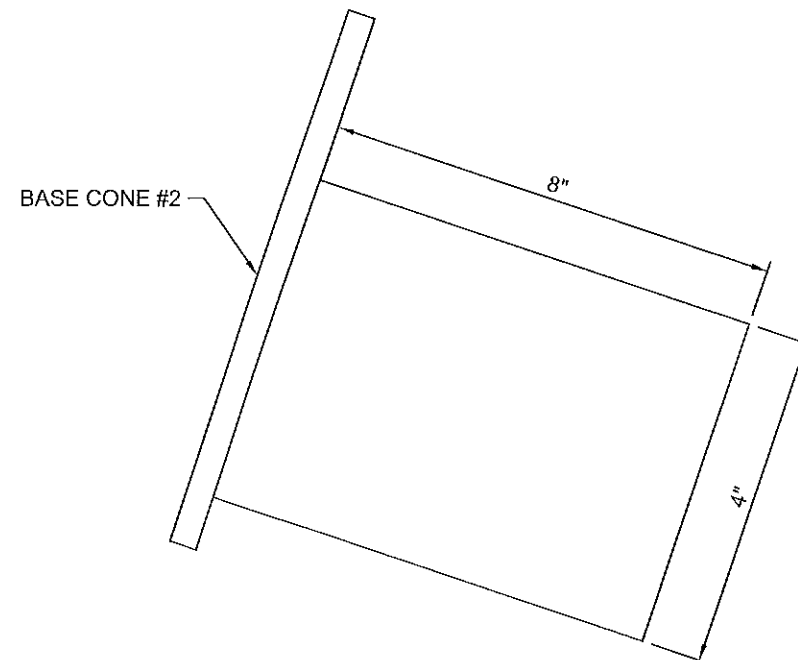


⬠ MIXING SYSTEM ANCHOR TAB
 $\frac{3}{8}$ " $\bar{r}$
 (1) @ 3# EA
 A36 MATERIAL
 (LOCATE INSIDE TANK NEAR ROOF HATCH)

FIELD NOTE:
 ERECTION FOREMAN TO COORDINATE EXACT LOCATION &
 ORIENTATION W/ OWNER.

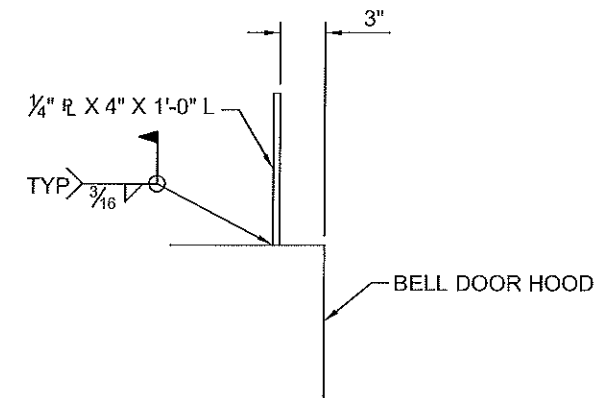


ⓑ GROUNDING LUG
 $\frac{5}{16}$ " $\bar{r}$
 (2) @ 9# EA
 A36 MATERIAL
 SPACE @ 180°
 AROUND BASE CONE

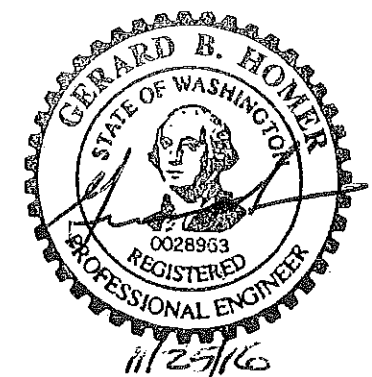


Ⓒ ELECTRICAL CLIP
 (10) REQUIRED

(FIELD INSTALL (7) CLIPS @ 8'-0" FROM TOC SPACED @ 8'-4 $\frac{13}{32}$ " C/C & (1) @ EACH
 HORIZONTAL ROUND SEAM IN BASE CONE STARTING AT TOP OF BASE CONE #2,
 ALIGNED WITH CONDUIT SLEEVES IN PLATFORM #2)



EXTERIOR LIGHT BRACKET
 (1) REQUIRED



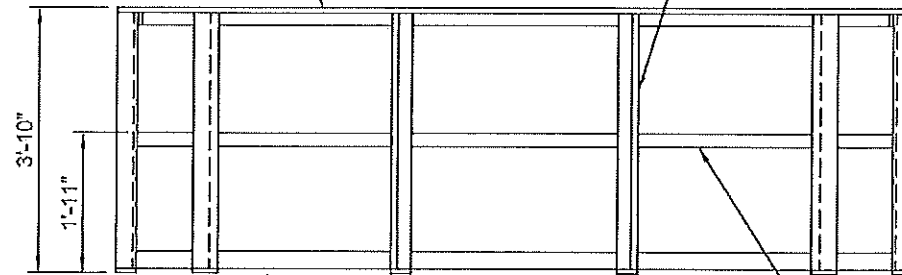
150,000 GALLON ELEVATED SPHEROIDAL TANK	05/11/15	05/11/15	ADDED MIXING SYSTEM ANCHOR TAB
	04/15/15	04/15/15	REMOVED OBSTRUCTION LIGHT BRACKET
	02/25/15	02/25/15	REVISED PER OWNERS COMMENTS
	Rev. By	Rev. Date	Revision Description
Engineer: KI	Drawn By: JB	Checked By: KI	Date: 11/17/14
ELECTRICAL CLIP DETAILS			
VA MEDICAL CENTER WALLA WALLA, WA			
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JOB. No.
3456
 SHEET
D-12

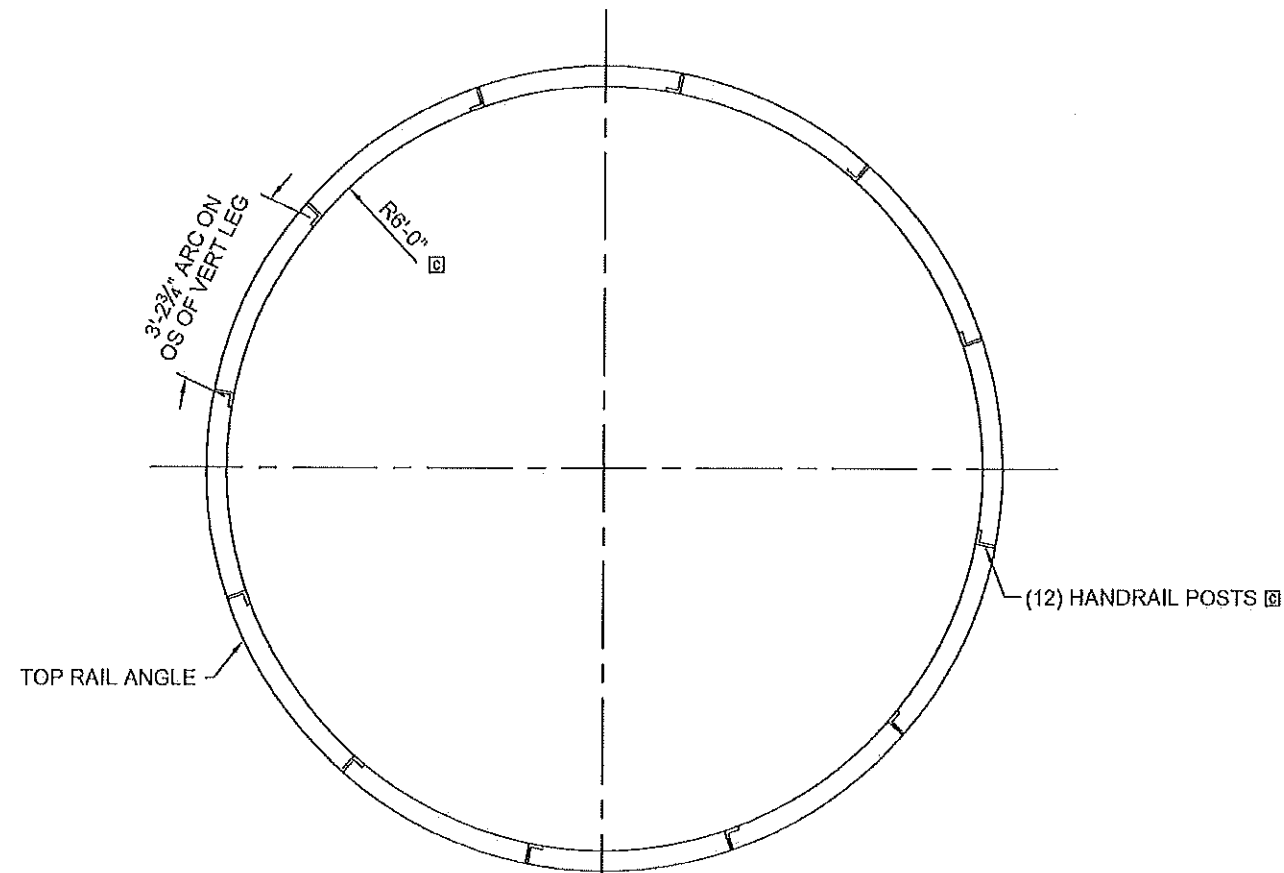
Ⓜ TOP RAIL ANGLE - 2" X 2" X $\frac{3}{16}$ " X 38'-3 $\frac{1}{16}$ " L
ROLLED TO IR6'-0"
SHIP IN HALVES

(12) ANGLE - 1 $\frac{3}{4}$ " X 1 $\frac{3}{4}$ " X $\frac{3}{16}$ " X 3'-10" L POSTS Ⓜ



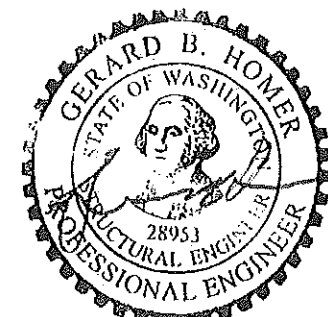
Ⓜ BAR - $\frac{1}{4}$ " X 4" X 37'-9 $\frac{3}{16}$ " L
ROLLED TO IR6'-0"
(SHIP IN HALVES)
LOCATE $\frac{1}{2}$ " ABOVE ROOF
FOR DRAINAGE)

ELEVATION



PLAN VIEW

APR 28 2015

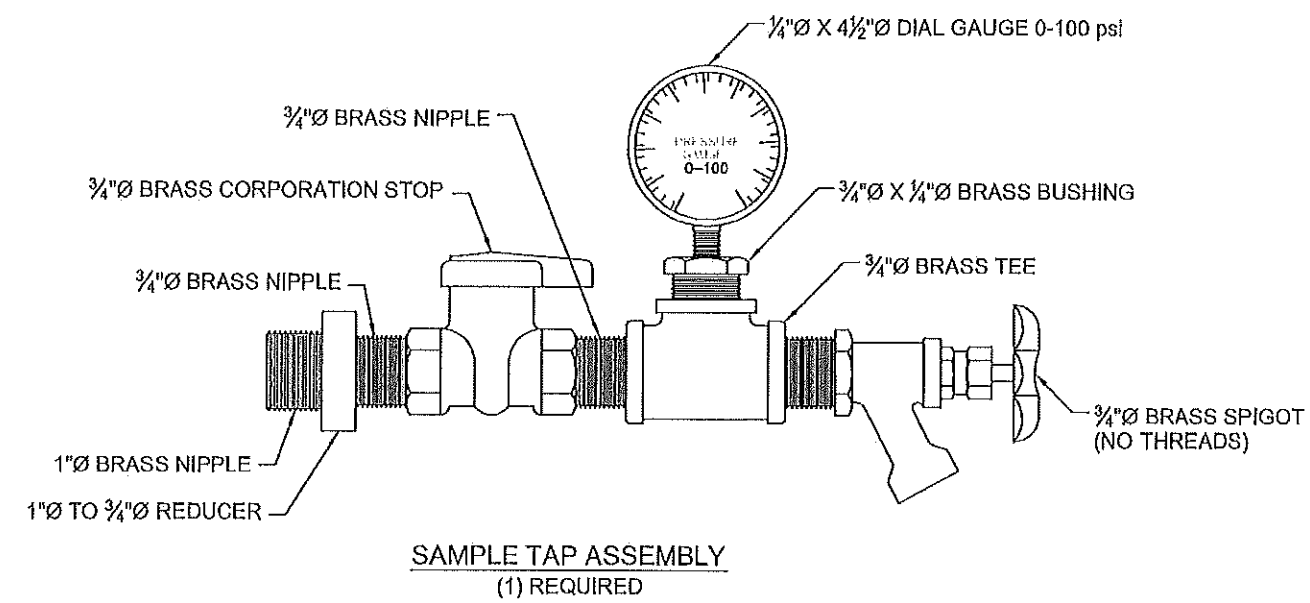


EXP 11-23-16

150,000 GALLON ELEVATED SPHEROIDAL TANK		WNIKI	03/23/15	REVISED HANDRAIL RADIUS
ROOF HANDRAIL DETAILS		Ⓜ	Ⓜ	
VA MEDICAL CENTER WALLA WALLA, WA		Ⓜ	Ⓜ	
Engineer: KI	Drawn By: JB	Checked By: KI	Date: 11/17/14	Revision Description
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JOB. No.
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SHEET
D-13



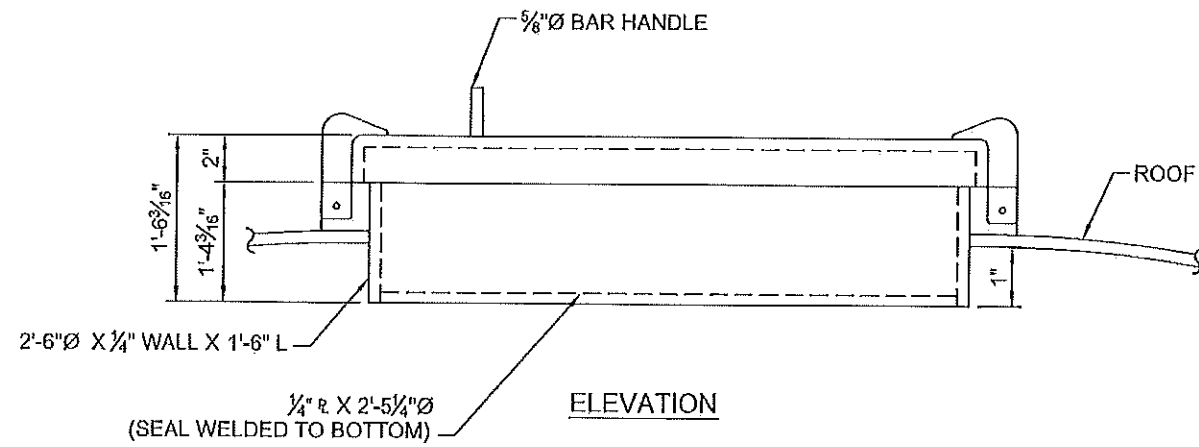
APR 28 2015

JOB. No.
3456
SHEET
D-14

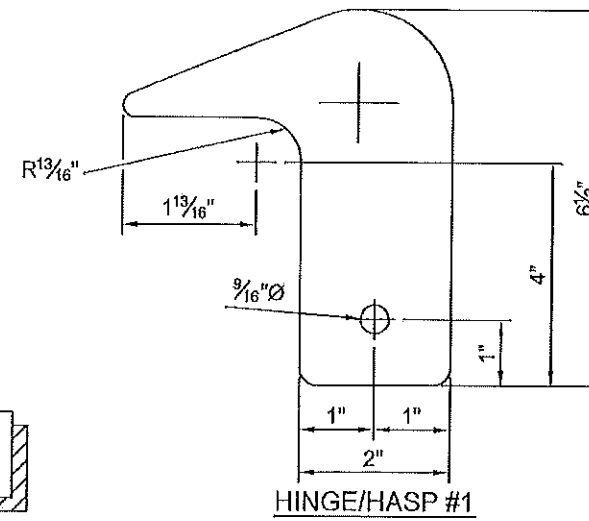
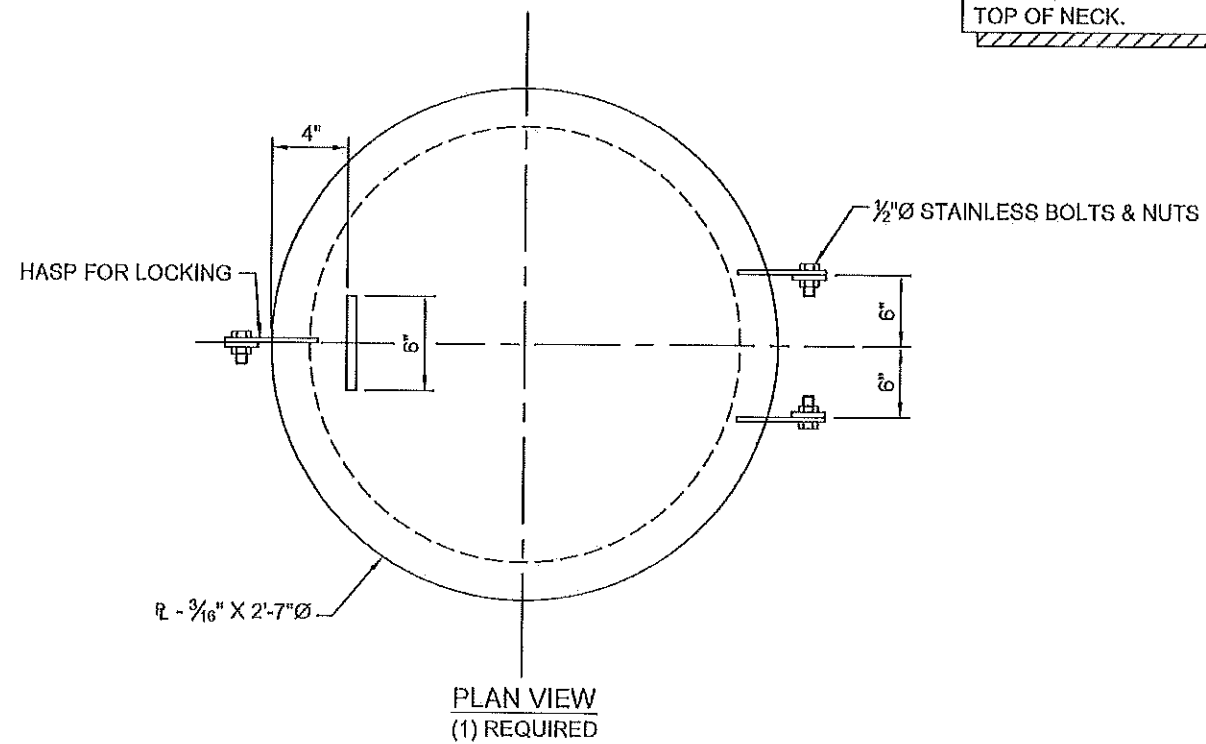
150,000 GALLON ELEVATED SPHEROIDAL TANK

VA MEDICAL CENTER WALLA WALLA, WA	Checked By: K
--------------------------------------	---------------

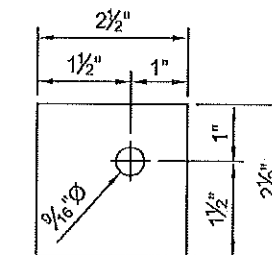
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NOTE:
INSTALL "U" GASKET AROUND
TOP OF NECK.



1/2" R
(3) @ 1# EA
A36 MATERIAL



1/2" R
(3) @ 1# EA
A36 MATERIAL

APR 28 2015



150,000 GALLON ELEVATED SPHEROIDAL TANK		WN/KI	03/23/15	ADD DRAWING TO SET
ROOF STORAGE DETAILS		E		
VA MEDICAL CENTER WALLA WALLA, WA		A		
Engineer: KI	Drawn By: JB	Checked By: KI	Date: 11/17/14	Revision Description
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