



210 25th Avenue North, Suite 1102
Nashville, Tennessee 37203
Telephone: (615) 320-3161
Fax: (615) 320-6560

LETTER OF TRANSMITTAL

To: Plan Holders
From: Katy Turney for Bob Huguenard
Date: November 1, 2017
Re: City of Franklin, Tennessee
Franklin WRF Modifications & Expansion Project - COF Contract No. 2017-0264
Addendum No. 4

WE ARE SENDING YOU:

☒ Attached ☐ Under Separate Cover
☐ Shop Drawings ☐ Prints
☐ Copy of Letter ☐ Change Order
☐ Plans ☐ Preliminary Drawings ☒ Other:

COPIES	DATE	DESCRIPTION
1	11/01/17	Addendum No. 4

THESE ARE TRANSMITTED as checked below:

☐ For Approval ☐ Approved as Submitted ☐ Resubmit ___ copies for approval
☒ For Your Use ☐ Approved by Payment ☐ Submit ___ copies for distribution
☐ As Requested ☐ Returned for Corrections ☐ Return ___ corrected prints
☐ For Review and Comment
☒ For Bids Due

COMMENTS:

Enclosed please find Addendum No. 4 for the above referenced project.

Kindly acknowledge your receipt of this Addendum by e-mailing or faxing the attached Confirmation of Receipt form to the attention of Ms. Katy Turney (turneyk@cdmsmith.com, fax 615-320-6560).

Distribution: Project File (14915-96594-WRF)

**CITY OF FRANKLIN, TENNESSEE
FRANKLIN WRF MODIFICATIONS & EXPANSION PROJECT
COF CONTRACT NO. 2017-0264 / CDM SMITH PROJECT NO. 14915-96594-WRF**

CONFIRMATION OF RECEIPT OF ADDENDUM NO. 4

This is to confirm that I have received Addendum No. 4, issued on November 1, 2017, for the City of Franklin, Tennessee – Franklin WRF Modifications & Expansion Project.

Recipient's Name: _____
(Print)

Recipient's Signature: _____

Company: _____

Date: _____

Please e-mail or fax this completed Confirmation of Receipt form to Ms. Katy Turney at CDM Smith (turneyk@cdmsmith.com, fax 615-320-6560).

CITY OF FRANKLIN, TENNESSEE
FRANKLIN WRF MODIFICATIONS & EXPANSION PROJECT
COF CONTRACT NO. 2017-0264 / CDM SMITH PROJECT NO. 14915-96594-WRF

BID OPENING DATE: Tuesday, December 5, 2017, at 2:00 p.m. Central Time

ADDENDUM NO. 4
November 1, 2017

The following additions, deletions, modifications, and clarifications shall be incorporated into the above referenced bid. These items shall have the full force and effect as the Contract Documents and cost involved shall be included in the bid price.

I. WITHIN THE BIDDING DOCUMENTS & CONTRACT DOCUMENTS

None

II. WITHIN THE TECHNICAL SPECIFICATIONS, DIVISIONS 1 THROUGH 16

None

III. ON THE DRAWINGS

1. DRAWING C-22 – SITE LAYOUT AND YARD PIPING PLAN – PANEL 5
 - a. At Coordinate G-4, at FOG Storage Tank No. 1, add **above grade FRP odor control duct to match that shown on the reissued Drawing M-66**. See Item III.5 of this Addendum.
2. DRAWING C-27 – SITE LAYOUT AND YARD PIPING PLAN – PANEL 9
 - a. At Coordinate C-1, delete the single 12” odor control duct connecting the FOG Storage Tanks to the 12” FA-FRP, and replace it with **above grade odor control ducts to match those shown on the reissued Drawing M-66**. See Item III.5 of this Addendum.
3. DRAWING M-44 – EFFLUENT FLOW METERING VAULT – PLAN AND SECTIONS
 - a. In Section 1, at Coordinate B-4, cross out the detail bubble that reads “FE 710,” and replace it with a detail bubble that references **Detail B / Sheet MD-2**.
4. DRAWING M-56 – SOLIDS PROCESSING BUILDING – FIRST FLOOR PLAN – PLAN 2
 - a. At Coordinate D-3, inside the double doors, insert **a detail bubble referencing Detail A/- with a leader pointing to the 12” x 90-degree bend on the Pre-Dewatering Centrate Drain**.
 - b. At Coordinate F-4, insert Detail A, attached as Sketch SK-M56-1.
5. DRAWING M-66 – FOG RECEIVING STATION – TOP PLAN
 - a. This Drawing has been reissued. See attached.

6. DRAWING M-76 – DIGESTER BUILDING – EXTERIOR PROCESS PIPE – DETAILS II
 - a. At the left side of the West Elevation, delete the 12” 90-degree bend in the 12” FA-FRP duct and insert, from left to right, with locations matching those shown on the reissued Drawing M-66, **all of the following in the 12” FA-FRP duct at invert elevation 658.33.** See Item III.5 of this Addendum.
 1. **An 8” 45-degree bend.**
 2. **A 12”x8” eccentric reducer.**
 3. **Two 12”x8” tangential wyes.**
7. DRAWING MD-2 – MISCELLANEOUS DETAILS
 - a. Add the Fixed Flanged Special Pipe Support, attached as Sketch SK-MD02-1, to Detail B.
8. DRAWING I-10 – PROCESS FLOW DIAGRAM (SHEET 7 OF 8)
 - a. This Drawing has been reissued. See attached.
9. DRAWING I-49 – PROCESS AND INSTRUMENTATION DIAGRAM – POST-DEWATERING SCREW PRESSES
 - a. Strike through Note 1 in its entirety, and insert the words **NOT IN CONTRACT** after the note.
 - b. At Coordinate G-4, in the callout TO SOLAR DRYER (NOTE 1), strike through (NOTE 1), and add the words **NOT IN CONTRACT** after the crossed-out text.

IV. REQUESTS FOR INFORMATION AND RESPONSES

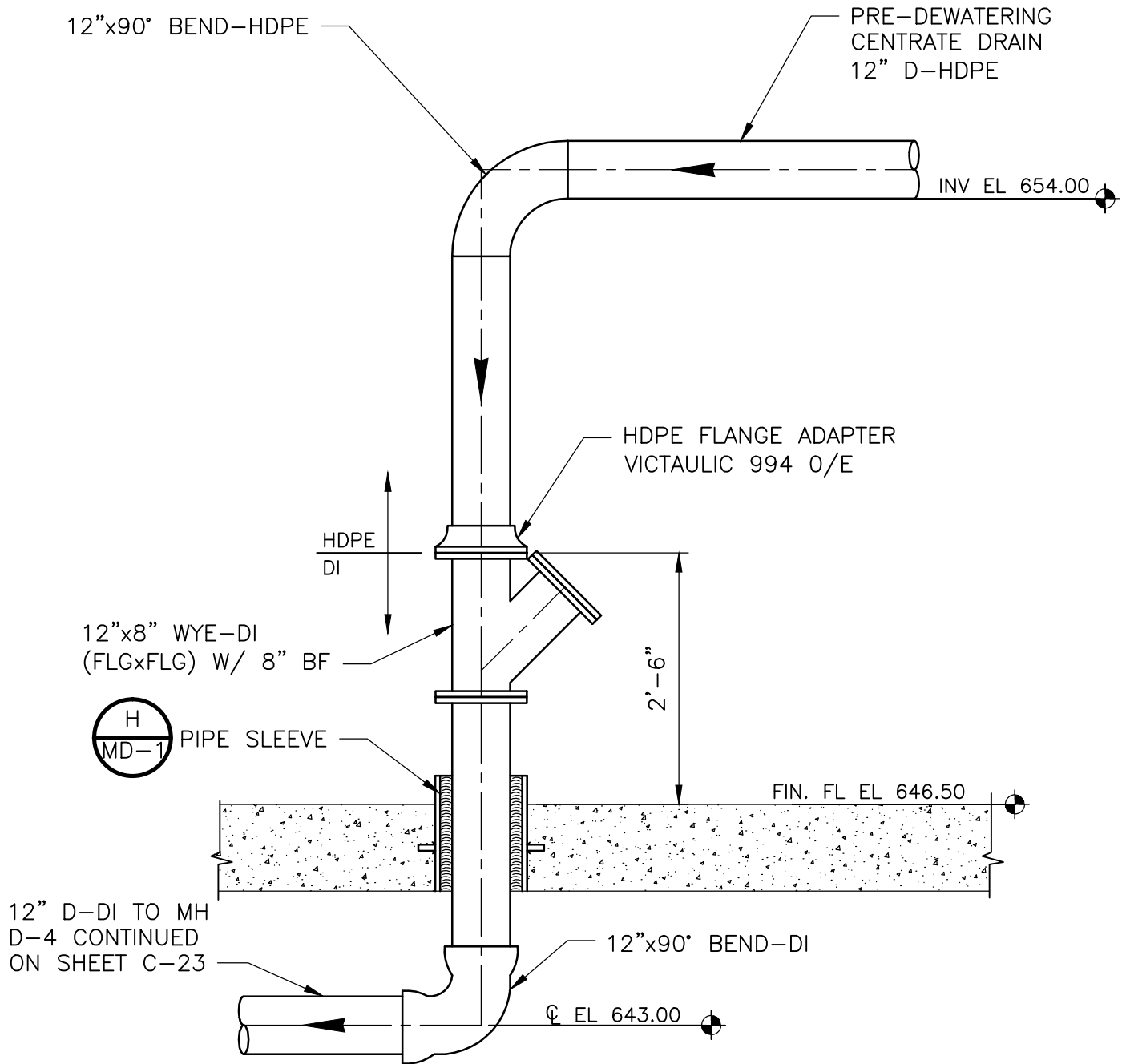
None

V. FOR INFORMATION ONLY (Not to be included within the Contract Documents)

1. Plan Holder List (attached)
2. Excerpts from EIMCO ABW filter O&M manual (attached)
3. **Bidders’ attention is directed to the change of suite number for the City of Franklin Engineering Department. Bids will be received at Suite 133, not at Suite 142. Refer to the changes in Addendum No. 3 and in upcoming Addenda.**
4. Revised Second Site Visit Sign-Up Instructions (attached). These instructions have been revised in response to bidder requests. Participation in at least one site visit is mandatory for all contractors planning to submit a Bid Proposal on this project.
5. No questions will be accepted after 12 p.m. Central Time on Tuesday, November 28, 2017. All questions must be received in writing by the Engineer and Owner as specified in Section 00100, Article 4 (Robert Huguenard, P.E., BCEE, CDM Smith, at huguenardrp@cdmsmith.com, with copy to Patricia McNeese, P.E., City of Franklin, at patricia.mcneese@franklintn.gov) in order to receive official responses.

6. We have received several requests for manufacturers and products to be listed in the Specifications. Please be advised that we will not review any requests for substitute manufacturers or products during the bidding process, nor will we review any requests to be listed in the Specifications during the bidding process. Bidders may propose substitute manufacturers that meet the Specifications as part of their Bid in the Bid Form. These requests for substitute manufacturers and products will be reviewed as needed as part of the bid review process. Any additional information required will be requested at that point.
7. Process Control System Suppliers (PCSS) who meet all requirements of Section 13300 are eligible to bid.

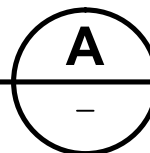
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LOOKING WEST
PRE-DEWATERING CENTRATE DRAIN EXITING BUILDING

DETAIL

NTS



**CDM
Smith**

DATE OCT. 2017

SHEET NO.

M-56

LOCATION

F-4

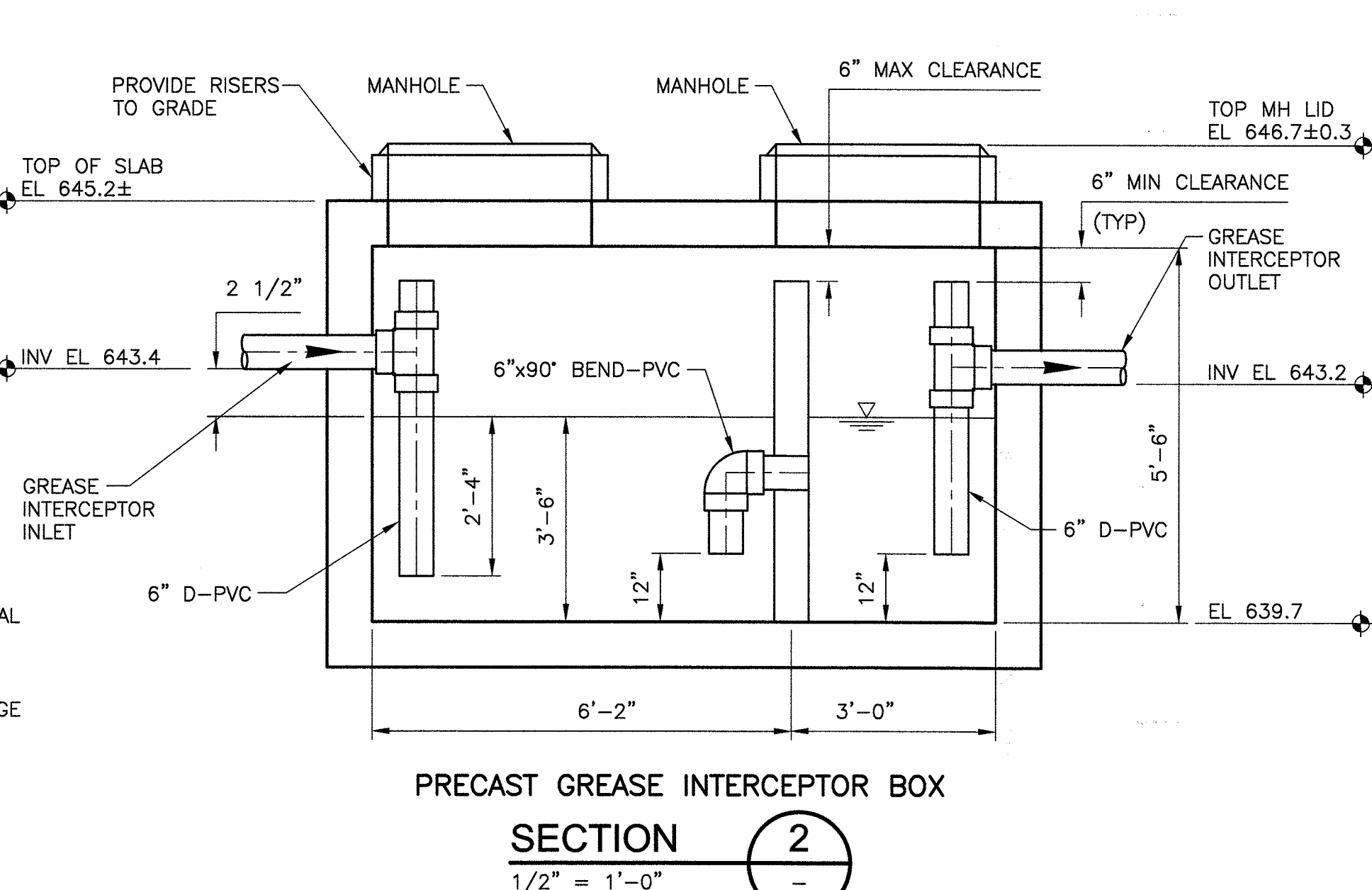
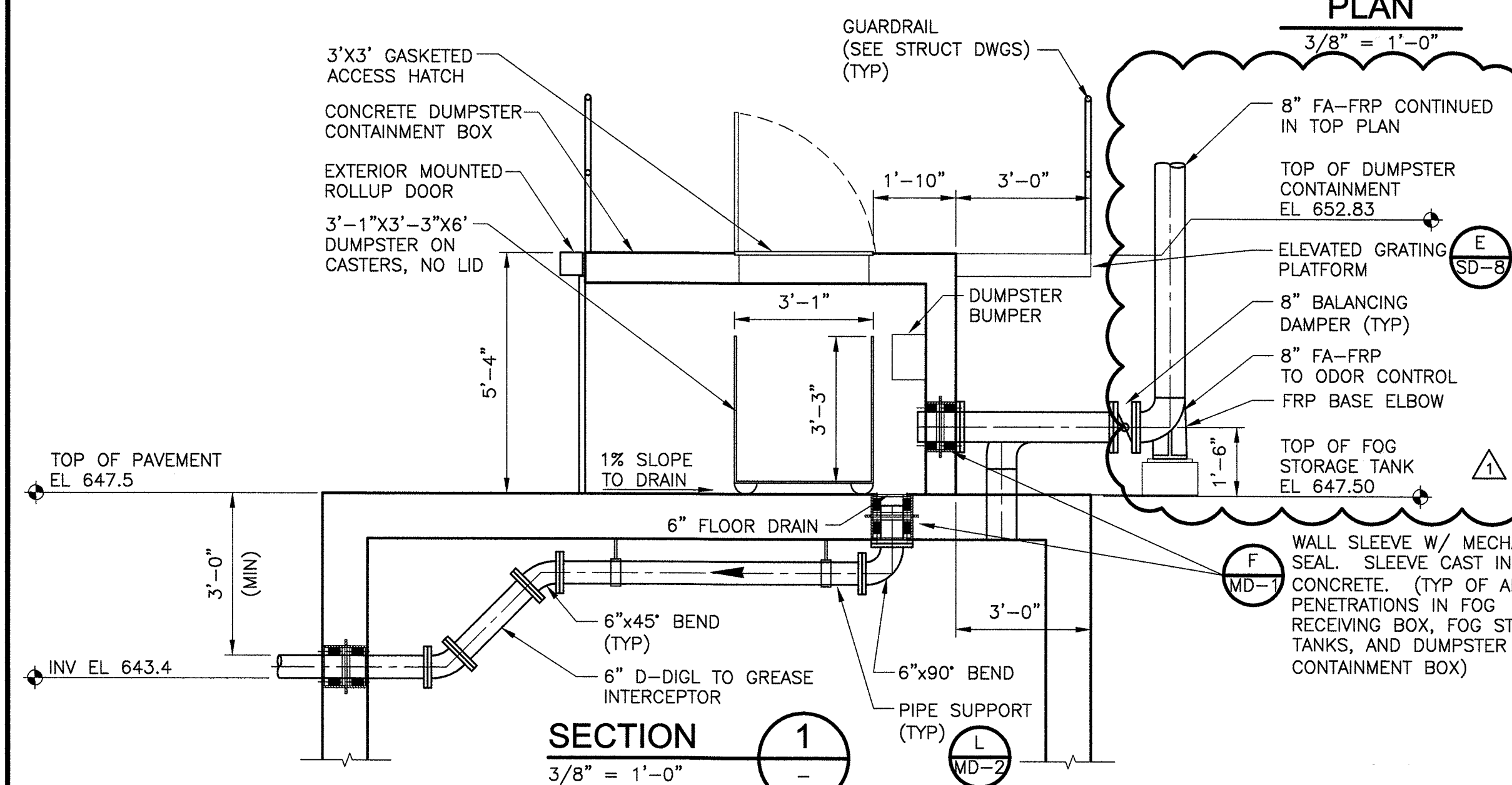
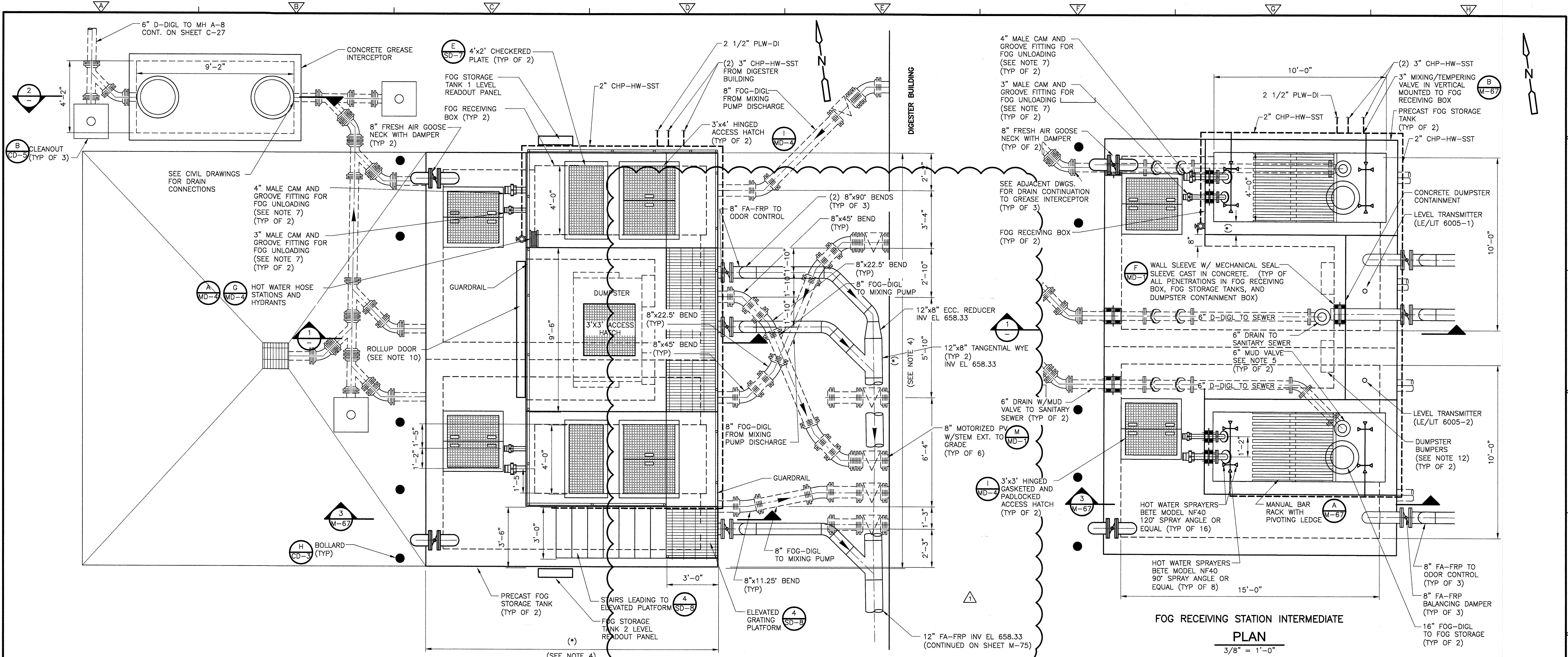
ADDENDUM
NO.

4

FIGURE
NO.

SK-M56-1

XREFS: [CDMS 2436, RMCOSTS, 2013-042020CoE_WRF%20C-Site_R4, 2013-04 CoE_WRF C-Site_R5] Images: []
Last saved by: EDWARDSAF Time: 10/30/2017 1:52:47 PM
pk:\pwworkspace\cdm\p1114915\66594\04 Design Services NM_BA\05 Process Mechanical\10 CADD\M066FRSP.dwg
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- NOTES:**
- SEE C-37 FOR SPOT ELEVATIONS AROUND AND AT UNLOADING STATIONS.
 - SEE M-74, M-77, M-80, AND M-81 FOR FOG PUMP LAYOUT IN THE DIGESTER BUILDING.
 - INSULATE AND HEAT TRACE ALL EXPOSED PIPING 6-INCHES AND SMALLER. ALL EXPOSED FOG PIPING LARGER THAN 6-INCHES TO BE INSULATED. REFER TO SPECIFICATION SECTIONS 15250 AND 15257.
 - DIMENSIONS DENOTED WITH AN ASTERISK (*) TO BE DETERMINED BY PRECAST CONCRETE TANK SUPPLIER.
 - PROVIDE MUD VALVE WITH 2" OPERATING NUT, WITH TOP OF NUT 6" BELOW HORIZONTAL SURFACE OF BAR RACK.
 - NOZZLES IN FOG HOLDING TANKS SHALL BE DESIGNED BY MIXING SYSTEM SUPPLIER.
 - CAM AND GROOVE FITTINGS AND APPURTENANCES SHALL BE OF NON-SPARKING MATERIALS. REFER TO SPECIFICATION SECTION 15120.
 - FOG TANK MANUFACTURER RESPONSIBLE FOR PROTECTING THE FOG RECEIVING BOXES, FOG STORAGE TANKS, AND DUMPSTER CONTAINMENT BOX FROM CORROSION. REFER TO SECTION 03180 OF SPECIFICATIONS.
 - DIMENSIONS DENOTED WITH TWO ASTERISKS (**) TO BE DETERMINED BY MIXING SYSTEM SUPPLIER.
 - ROLL UP DOOR SHALL BE MOUNTED ON THE EXTERIOR OF CONCRETE DUMPSTER CONTAINMENT.
 - ODOR CONTROL DUCTWORK CONTINUED ON CIVIL SHEETS AROUND DIGESTER BUILDING.
 - PROVIDE TWO DUMPSTER BUMPERS AND ATTACH TO FACE OF CONCRETE WALL WITH EXPANSION BOLTS. INTEGRAL MOLDED-RUBBER BUMPERS ARE TO BE FABRICATED FROM 4-INCHES THICK, HEAVY MOLDED-RUBBER COMPOUND REINFORCED WITH NYLON, RAYON, OR POLYESTER CORD; TYPE A SHORE DUROMETER HARDNESS OF 80 (± 5), WHEN TESTED ACCORDING TO ASTM D 2240.
 - SEE SECTION 02605 IN SPECIFICATIONS FOR GREASE INTERCEPTOR REQUIREMENTS.
 - REFER TO ELECTRICAL DRAWINGS FOR HAZARDOUS CLASSIFICATIONS.

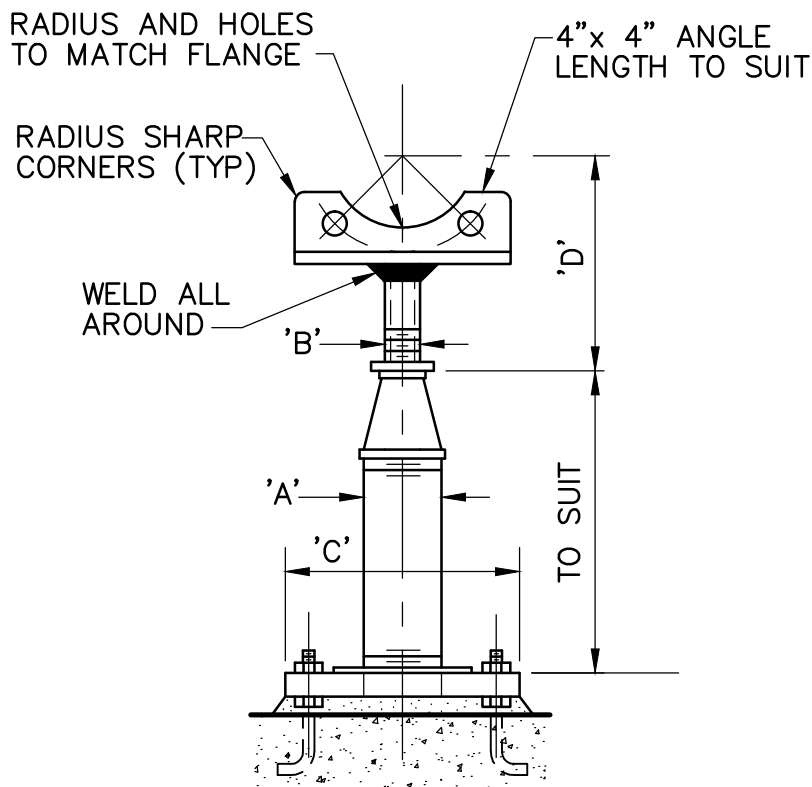
DESIGNED BY: A. GRUSS				
DRAWN BY: M. BANDA				
SHEET CHK'D BY: B. LEE				
CROSS CHK'D BY: R. HUGUENARD				
APPROVED BY: C. CARDEN				
DATE: AUGUST 2017				
REMARKS				
REV. NO.	DATE	DRWN	CHKD	ADDENDUM NO. 4
11/17	AFE	CDC		

210 25th Avenue North, Suite 1102
Nashville, TN 37203
Tel: (615) 320-3161

CITY OF FRANKLIN, TENNESSEE
FRANKLIN WRF
MODIFICATIONS AND EXPANSION PROJECT
COF CONTRACT NO. 2015-0163

FOG RECEIVING STATION
TOP PLAN

PROJECT NO 14915-96594-WRF
FILE NAME: M066FRSP.DWG
SHEET NO.
M-66
ISSUED FOR BID



(FIXED FLANGED SPECIAL)
FOR LIMITED SPACE REQUIREMENTS

**CDM
Smith**

DATE OCT. 2017

SHEET NO.

MD-2

LOCATION

C-2

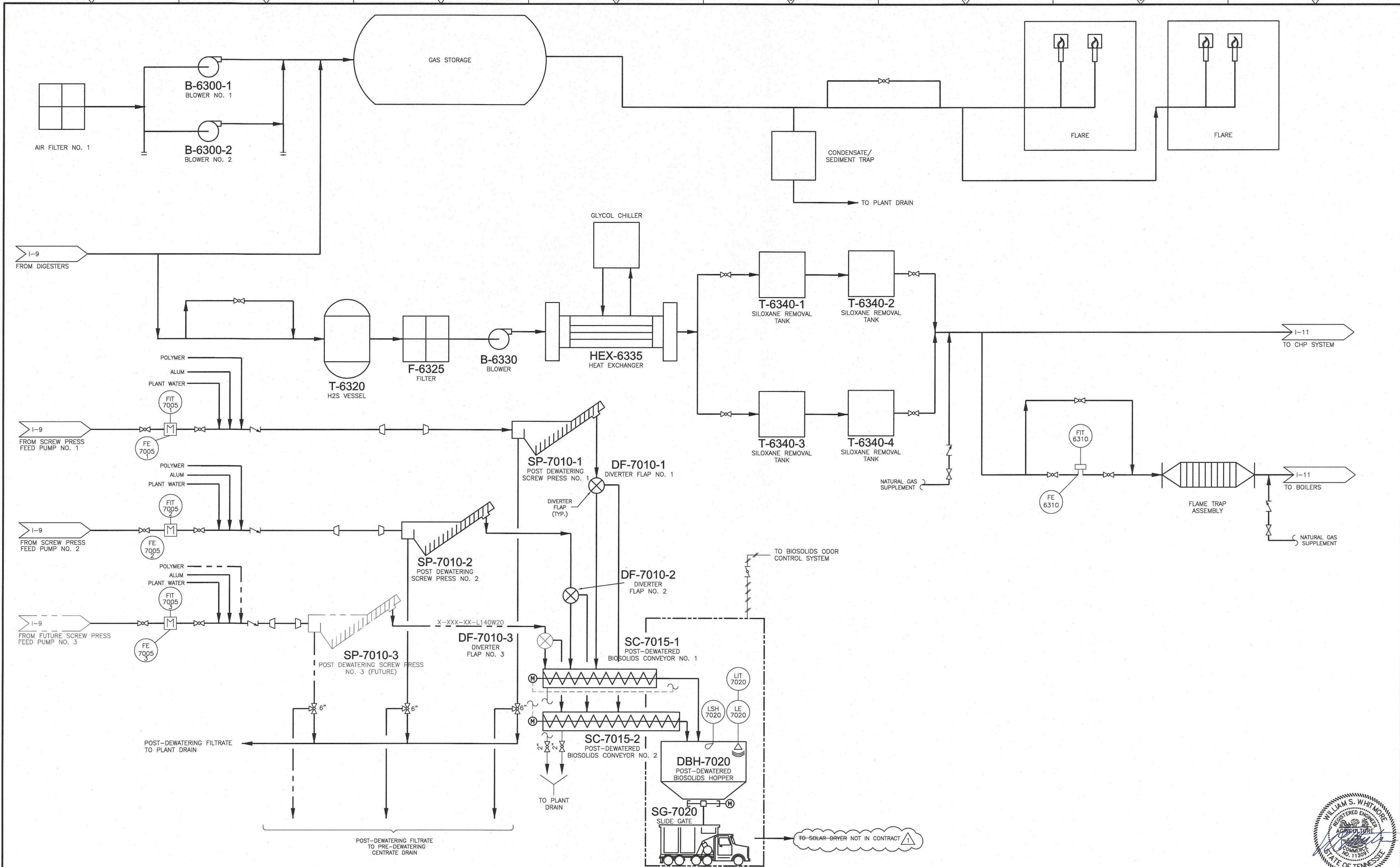
ADDENDUM
NO.

4

FIGURE
NO.

SK-MD02-1

XREFs: [CDMS_2436] Images: []
Last saved by: CHARITYRW Time: 10/26/2017 2:18:26 PM
C:\Users\charityrw\Desktop\PROJECT TEMP\010PID.dwg
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REV. NO.	DATE	DRWN	CHKD	REMARKS
1	10/17	RWC	WSW	ADDENDUM NO. 4 -- REISSUED SHEET

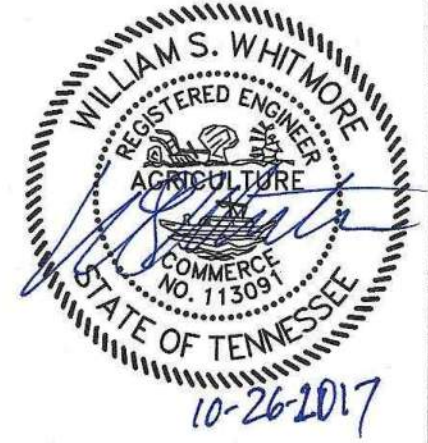
DESIGNED BY: W. WHITMORE
DRAWN BY: A. LEYTE-VIDAL
SHEET CHK'D BY: D. UBERT
CROSS CHK'D BY: M. HATCHER
APPROVED BY: W. WHITMORE
DATE: AUGUST 2017

CDM Smith
Parkview Towers
210 25th Avenue North, Suite 1102
Nashville, TN 37203
Tel: (615) 320-3161

CITY OF FRANKLIN, TENNESSEE
FRANKLIN WRF
MODIFICATIONS AND EXPANSION PROJECT
COF CONTRACT NO. 2015-0163

PROCESS FLOW DIAGRAM
(SHEET 7 OF 8)

PROJECT NO 14915-96594-WRF
FILE NAME: I010PID.DWG
SHEET NO.
I-10
ISSUED FOR BID



PLAN HOLDER LIST

City of Franklin, Tennessee - Franklin WRF Modifications & Expansion Project

COF Contract No. 2017-0264 / CDM Smith Project No. 14915-96594-WRF

Bid Opening Date: December 5, 2017, at 2:00 p.m. Central Time

Updated 10/31/17 4:21 PM

For an updated plan holder list, please contact CDM Smith at (615) 320-3161

Bid Set No.	Contact Name	Company	Address	E-Mail	Phone	Fax
1	Kendra Buhlig	Builders Exchange of Tennessee	2322 Winford Avenue, Nashville, Tennessee 37211 and 300 Clark Street, Knoxville, Tennessee 37921	kendra@bxtn.org	615-690-7200	615-690-7201
2	Marilyn Robinson	Nashville Minority Business Center	1919 Charlotte Avenue, Suite 310, Nashville, Tennessee 37203		615-340-5004	
3	Patricia McNeese	City of Franklin Engineering Department	109 Third Avenue South, Franklin, Tennessee 37065	patricia.mcneese@franklintn.gov	615-550-6674	
4	Juan Davis	Franklin WRF	135 Claude Yates Drive, Franklin, Tennessee 37064	juand@franklintn.gov	615-791-3240	615-791-3208
5	Zack Daniel	CDM Smith	210 25 th Avenue North, Suite 1102, Nashville, Tennessee 37203	danielza@cdmsmith.com	615-320-3161	
6	Steve Judy & Clinton Jones	Judy Construction/ Smith Contractors, Inc. Joint Venture	Judy Construction : 103 South Church Street, Cynthiana, Kentucky 41031; PO Box 457, Cynthiana, Kentucky 41031	sjudy@judyconstructionco.com ; cjones@judyconstructionco.com	859-234-6900 (Judy Construction)	859-234-3480 (Judy Construction)
7	Teresa Lee-Ross	Kiewit Infrastructure South Co.	8615 Freeport Parkway, Suite #100, Irving, Texas 75063	Teresa.Leeross@kiewit.com	817-805-7391	
8	Andi Neighbors	Brasfield & Gorrie	3021 7th Avenue South, Birmingham, AL 35233	ANeighbors@BrasfieldGorrie.com	205-714-1635	
9	Erik Reynolds	Garney Construction	200 Crutchfield Avenue, Nashville, TN 37210	ereynolds@garney.com	615-953-2306	
10	Codee Guffey	Judy Construction/ Smith Contractors, Inc. Joint Venture	Smith Contractors : 1241 Bypass N., Lawrenceburg, KY 40342; PO Box 480, Lawrenceburg, KY 40342	cq@sci82.com	502-839-4196 (Smith Contractors)	502-839-8348 (Smith Contractors)

PLAN HOLDER LIST

City of Franklin, Tennessee - Franklin WRF Modifications & Expansion Project

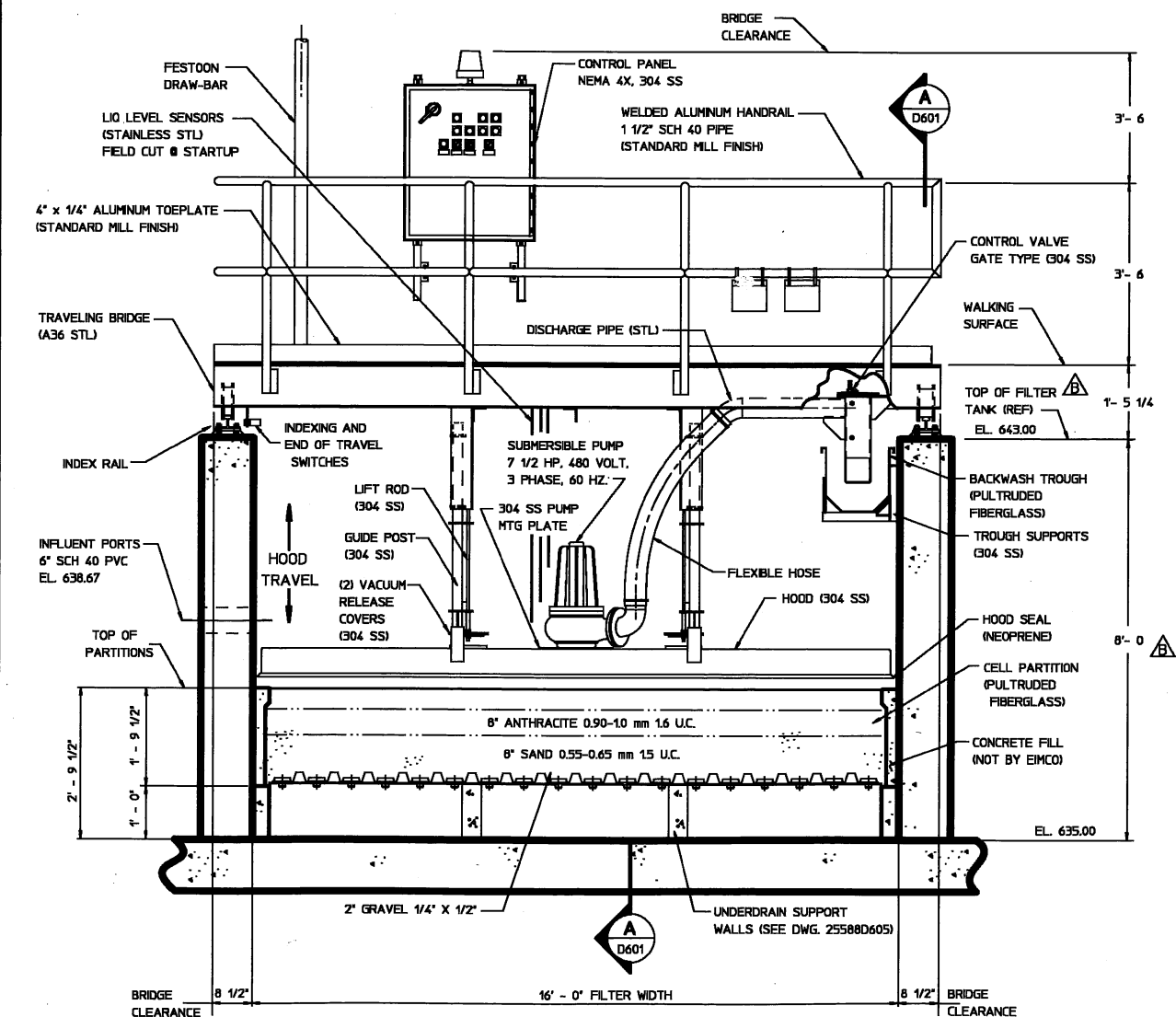
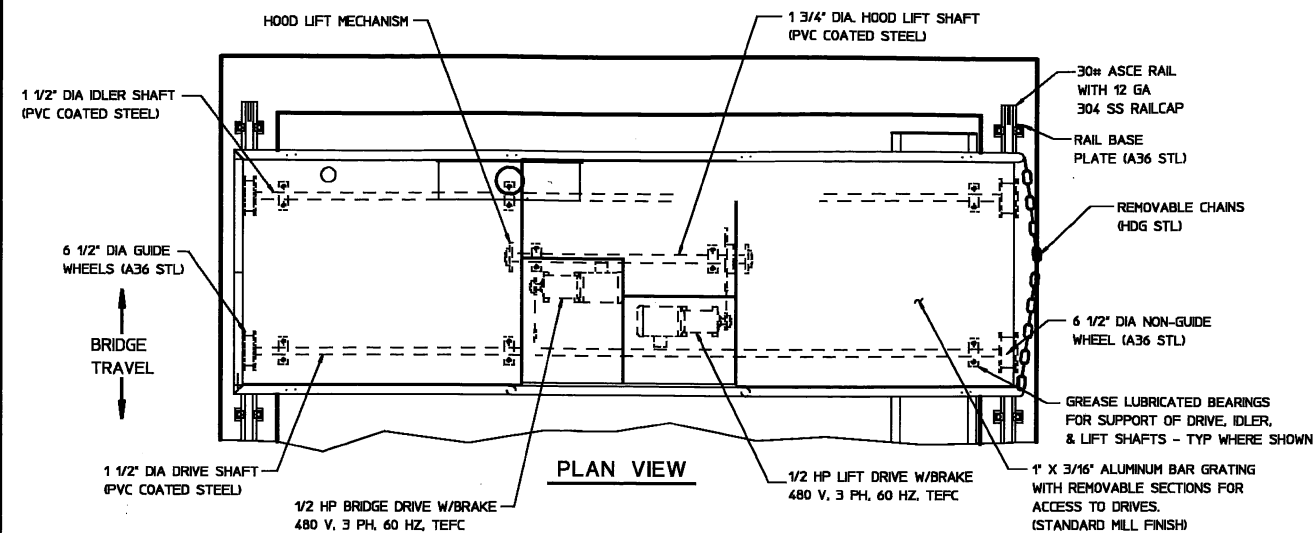
COF Contract No. 2017-0264 / CDM Smith Project No. 14915-96594-WRF

Bid Opening Date: December 5, 2017, at 2:00 p.m. Central Time

Updated 10/31/17 4:21 PM

For an updated plan holder list, please contact CDM Smith at (615) 320-3161

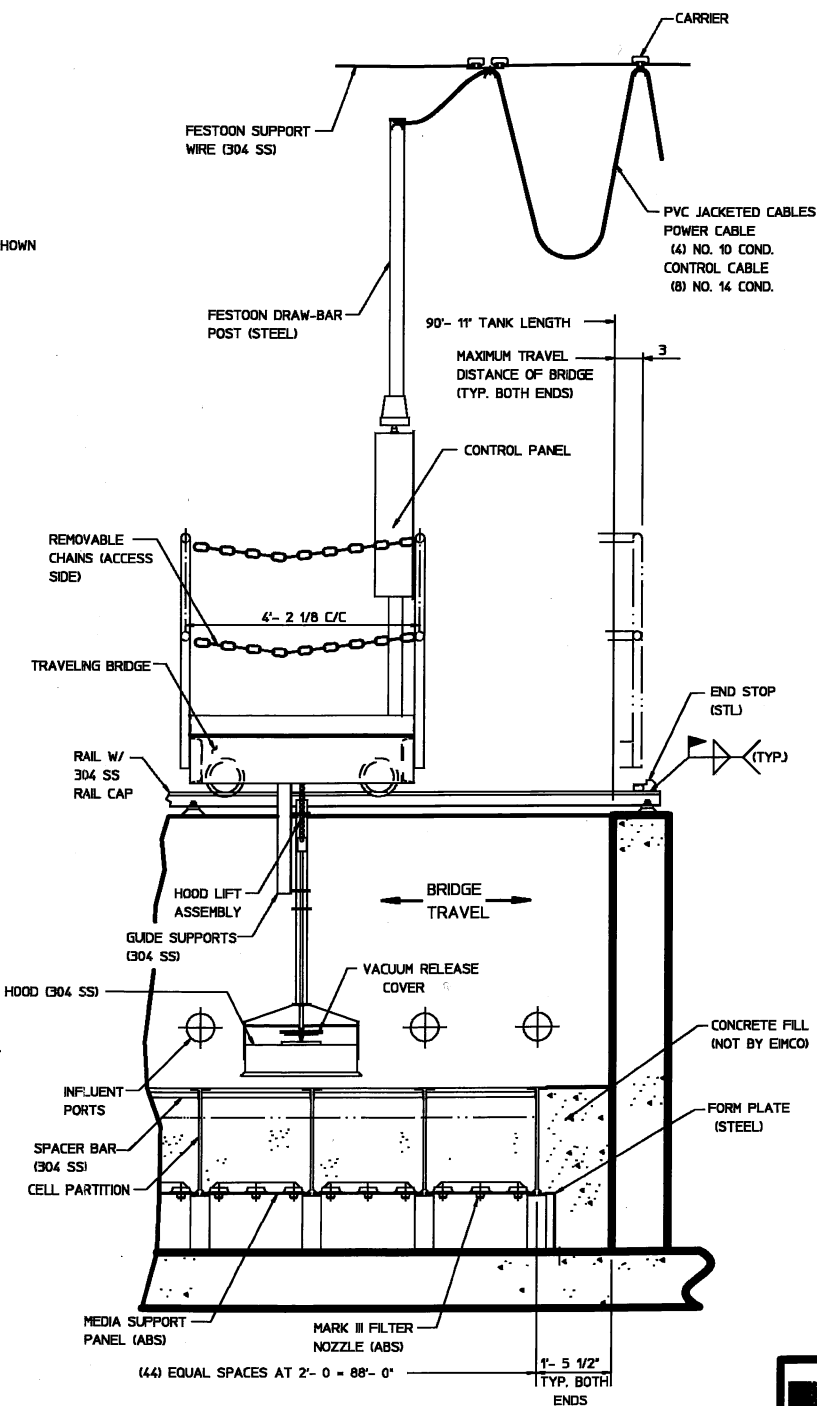
Bid Set No.	Contact Name	Company	Address	E-Mail	Phone	Fax
11	Kathy Marshall	Dodge Data & Analytics	Plan Coordinator: 4300 Beltway Place, Ste 180, Arlington, TX 76018	kathy.marshall@construction.com	912-351-4504	



ILLUSTRATIVE SECTION

IMPORTANT

1. ORIENTATIONS SHOWN ON THIS DRAWING ARE ILLUSTRATIVE. SEE FILTER PLAN LAYOUT FOR ACTUAL ORIENTATIONS.
2. MAKE CERTAIN THAT ALL HANDRAIL OR OTHER OBSTRUCTIONS AROUND THE BASIN WILL CLEAR THE TRAVELING BRIDGE DIMENSIONS SHOWN.



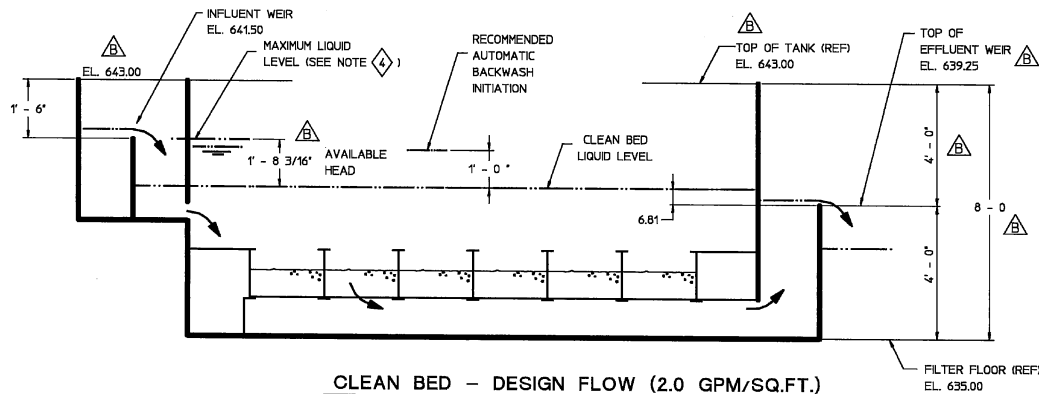
SECTION A-A

NOTES:

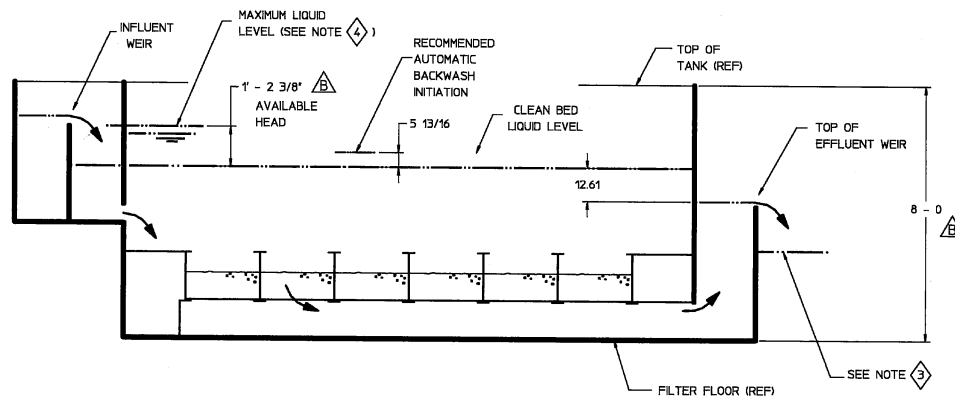
1. ASTERISK (*) DENOTES VARIANCE FROM CONTRACT DOCUMENTS AND SHOULD BE PARTICULARLY NOTED.
2. THE FOLLOWING DEFINES THE RESPONSIBILITY OF THE EMCO PROCESS EQUIPMENT COMPANY (EMCO), WITH REGARD TO THE INFORMATION AND DIMENSIONS SHOWN ON THIS DRAWING. (A) DIMENSIONS, LOADS, AND OTHER INFORMATION ARE PROVIDED TO ACCOMMODATE THE EQUIPMENT TO THE STRUCTURE AS SHOWN. (B) THE CUSTOMER IS TO PROVIDE REINFORCING STEEL AND DESIGN FOR CONCRETE STRUCTURES AND IS TO DETERMINE SIZES TO SUIT LOCAL CONDITIONS. (C) THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR INSTALLATION PURPOSES UNLESS IT BEARS THE APPROVAL OF THE OWNER, THE ENGINEER OR THEIR AUTHORIZED REPRESENTATIVE. (D) CHARGES FOR MODIFICATIONS, ADDITIONS OR CORRECTIONS TO THE EQUIPMENT WILL NOT BE ACCEPTED BY EMCO UNLESS PRIOR APPROVAL IS OBTAINED IN WRITING FROM AN AUTHORIZED EMCO REPRESENTATIVE.
3. SURFACE PREPARATION TO CONSIST OF: SSPC-SP6 FOR BRIDGE, RAILS, WHEELS, RAIL BASE PLATES, BACKWASH DISCHARGE PIPE, FESTOON DRAW-BAR POST, AND DRAW-BAR.
4. SHOP PAINTING TO CONSIST OF: ONE (1) SHOP PRIMER COAT OF TNEEC 66-1211 H-BUILD EPOXOLINE AT 4.0 - 6.0 MILS DFT (ON ABOVE ITEMS).
5. EMCO TO SUPPLY THREE (3) MECHANISMS AS SHOWN AND NOTED.
6. FOR ADDITIONAL DETAILS REFER TO DRAWINGS:
25588D602 - FILTER PLAN LAYOUT
25588D603 - TANK DETAILS
25588D604 - FILTER HYDRAULIC PROFILE
25588D605 - UNDERDRAIN SUPPORT WALLS ARRANGEMENT
25588D621 - CONTROL PANEL
25588D622 - WIRING DIAGRAM
25588D623 - POWER WIRING DIAGRAM
7. ALL WELDING TO BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF A.W.S. WELDING PROCEDURES WITH QUALIFICATIONS PER A.W.S. D 11.
8. EPOXY RAIL ANCHOR BOLTS: 304 SS (BY EMCO)
CINCH ANCHORS: 303 SS (BY EMCO)
ASSEMBLY BOLTS: 304 SS (BY EMCO)
9. FILTER MEDIA IS SUPPLIED BY EMCO:
GRAVEL - 1 CUFT. BAGS
SAND - BULK VIA PNEUMATIC TRUCK INCLUDING 5% EXTRA
ANTHRACITE - 2200 LBS "SUPER BAGS" INCLUDING 5% EXTRA
(INSTALLATION OF MEDIA IS NOT BY EMCO)
10. BRIDGE DESIGNED FOR 100 PSF LIVE LOAD WITH DEFLECTION NOT TO EXCEED 1/720TH OF THE SPAN.

THIS DRAWING IS CERTIFIED FOR			
CUSTOMER	3D ENTERPRISES CONTRACTING CORP.	PROJECT NO.	154
CUSTOMER ORDER NUMBER	C1870	EMCO ORDER NUMBER	25588-06
PROJECT	FRANKLIN, TENN. WWTP	PROJECT LOCATION	FRANKLIN, TENNESSEE
CONSULTING ENGINEER	WATER MANAGEMENT SERVICES	BY	DAI L. PHUONG
DATE	1-5-98	EMCO PROCESS EQUIPMENT COMPANY	

EMCO		This drawing and all information thereon is the property of Emco Process Equipment and is confidential and must not be made public or copied. This drawing is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to our interests.		Copyright 1998 by EMCO PROCESS EQUIPMENT. ALL RIGHTS RESERVED. 07006-014-0000 Rev 5 0/98	
DO NOT SCALE PRINTS	FILE SPEC.	25588D601	REF. FROM	25453D601	
REVISED RAIL ANCHOR BOLTS	98-2716	DLP	TRP	7-20-98	DATE 12-3-97
REVISED TOP OF WALL ELEVATION (WAS 644.00)	98-2135	DLP	TRP	6-5-98	DRAWN TRP
INITIAL RELEASE					CHECKED JRS
REVISION	EN	BY	APPR	DATE	APPR. DLP
GENERAL ARRANGEMENT TRAVELING BRIDGE FILTER					A.D.N. SHEET 1 OF 1
16' - 0" WIDE X 90' - 11" LONG					DWG. No. 25588D601



CLEAN BED - DESIGN FLOW (2.0 GPM/SQ.FT.)



CLEAN BED - PEAK FLOW (4.0 GPM/SQ.FT.)

WATER LEVEL PROBE ELEVATIONS:
HI-HI LEVEL PROBE - EL. 641.50
HI LEVEL PROBE - EL. 640.82
LOW LEVEL PROBE - EL. 638.96

FILTER SIZE: 16' - 0\"/>

	FLOW PER FILTER	
	DESIGN	PEAK
FLOW (MGD)	3.95	7.90
(GPM)	2743	5484
GPM PER SQ.FT.	2.00	4.00
CLEAN BED HEADLOSS (INCHES)		
8" ANTHRACITE (0.90-1.0 mm)	0.89	1.77
8" SAND (0.55-0.65 mm)	2.22	4.44
NOZZLE	0.27	0.95
EFFLUENT WEIR HEAD	3.43	5.45
TOTAL CLEAN BED LOSS:	6.81	12.61

FILTRATION HEADLOSS THREE (3) FILTERS ON STREAM

NOTES:

- EFFECTIVE FILTRATION AREA IS 1371 SQ. FT. PER FILTER.
- BACKWASH FLOW RATE: 615 GPM (INTERMITTENT) - BASED ON 20 GPM/SQ.FT. BACKWASH RATE
- PROVIDE AT LEAST THREE INCHES FREEBOARD FOR THE EFFLUENT WEIR AT PEAK FLOW.
- LIQUID LEVEL IN EXCESS OF THE MAXIMUM LEVEL SHOWN WILL RESULT IN A FLOODED INFLUENT WEIR. THIS WILL ELIMINATE THE FLOW SPLITTING FEATURE OF THE INFLUENT WEIR WHEN MULTIPLE FILTERS ARE USED.
- WORK WITH THE FOLLOWING DRAWINGS:
25588D601 - MECHANISM GENERAL ARRANGEMENT
25588D602 - FILTER PLAN LAYOUT
25588D603 - TANK DETAILS
25588D605 - UNDERDRAIN SUPPORT WALLS ARRANGEMENT

THIS DRAWING IS CERTIFIED FOR	
CUSTOMER	3D ENTERPRISES CONTRACTING CORP.
CUSTOMER ORDER NUMBER	C1870 / PROJECT NO. 154
EMCO ORDER NUMBER	25588-06
PROJECT	FRANKLIN, TENN. WWTP
PROJECT LOCATION	FRANKLIN, TENNESSEE
CONSULTING ENGINEER	WATER MANAGEMENT SERVICES
BY	DAL L. PHUONG DATE 1-5-98
EMCO PROCESS EQUIPMENT COMPANY	

EMCO		This drawing and all information thereon is the property of Emco Process Equipment and is confidential and must not be made public or copied. This drawing is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to our interests.		© COPYRIGHT 1998 BY EMCO PROCESS EQUIPMENT ALL RIGHTS RESERVED 07/08-014-00008 Rev B (2/98)	
DO NOT SCALE PRINTS	FILE SPEC.	25588C604	REF. FROM	25453C604	
DATE	12-5-97	A.D.N.			
DRAWN	TRP	FILTER HYDRAULIC PROFILE			
CHECKD	JRS	16' - 0\"/>			
APPR	DLP	DWG. No.	25588C604	REV	B

REVISED TOP OF WALL ELEV (WAS 644.00) & EFFL. WEIR ELEV (WAS 639.00)	98-2135	DLP	TRP	6-5-98
INITIAL RELEASE				
REVISION	EN	BY	APPR	DATE



Order Qty: 1

Made By: TRP
Checked By: DLP
Approved By: DAI
Release Date: 06/08/98
Print Date: 10/20/98

[illegible]

Rev. A 8-98 MCN98-0699	FILTER MEDIA INSTALLATION	10-VV2 25588-06 E 31
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CAUTION: Workers must be cautious working around the nozzles and media support panels so that shoes and tools will not damage them, which will cause leakage of the media into the underdrain.

Replace any nozzles or support panels that are damaged, referring to the maintenance section of the manual.

1. The gravel underbed must be installed before installation of any media. Install the gravel to the depth specified on the General Arrangement drawings or the contract documents. Cover the nozzles with gravel just ahead of the workers as the installation progresses to prevent direct contact of personnel with the nozzles and support panels.

CAUTION: The gravel must be installed by hand before the filter media is installed. Do not install the gravel by the bulk method.

2. Media can be installed by hand from bags or in bulk, and either from the side of the tank or from the moving bridge. With either method, the media must be installed carefully to prevent damage to the media support panels.

Note: Refer to the General Arrangement drawings for the type and depth of each media. Install and wash each media layer separately, as covered below.

- a. If the bulk method is used for the media installation, the tank should first be filled to approximately half the cell depth with water.
- b. Do not stack any bags higher than (3) in one place or pallets of bags on the underdrain or the cell dividers.
- c. When installing bagged media from the bridge, the tank should be filled to approximately half the cell depth with water before the media is poured into the individual cells.

Note: Do not allow a full bag to drop as it could break the cell partition, media support panel or the underdrain nozzles. Do not stack more than 500 lbs. of media on the bridge.

3. Install the first layer of media (sand) in the tank to about 1" higher than the depth of media, as specified on the drawings. This is to compensate for an amount that will be washed (removed) from the top surface after the media is backwashed.

Level and smooth the media so it is distributed equally across the tank.

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Note: Generally excess media is supplied to allow for replacement of fines that are washed (removed) from the filter during start-up.

4. Fill the tank to operating level with water for backwashing the media. (Make sure the pump has sufficient submergence before the backwash sequence is initiated.)

Note: Anytime the tank is filled or refilled with water, the air trapped within the media and underdrain must be removed to prevent air binding of the backwash pump.

5. Remove the air and the fines from the media as follows:

- a. Make sure the backwash flow control valve is at least 1/2 way open.

Note: If the control valve has been set for a proper flow rate, it is not necessary to readjust it to 1/2 way for air removal.

- b. Set the backwash timer in the control panel for 20 seconds.
- c. Set both the Bridge Drive switch and the Backwash Pump switch to AUTO.
- d. Push the Backwash START push button.

Operating automatically through the control panel, the filter will backwash each cell for 20 seconds, removing air with the water and fines from the media.

NOTE: The trapped air in the media may cause the pump to cavitate, causing a loud rumbling noise. This is not a pump failure. Once the air is evacuated from the individual cell, the noise will stop.

- e. If the discharge is dirty, repeat the backwash cycle until a clean discharge is obtained from each cell, indicating the media "fines" have been removed.
 - f. After the bridge has returned to the "home" position after the backwash cycle, reset the backwash timer to the original time interval. Refer to the Operating instructions.
6. Lower the liquid level in the filter tank after the backwashing sequence has been completed and the desired results have been obtained. Skim off and discard the top 1" of media. The media layer is now ready for filtering. If additional layers of media are specified, install and wash each layer, as covered above.

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7. Install and wash the second layer of media (anthracite) as covered above.
8. Refer to the Operating Instructions in this manual for normal operating procedures.

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REPLACEMENT OF FILTER MEDIA AND NOZZLES

In some cases, a repeat of the cleaning procedure will adequately clean the media and nozzles. But when backwashing fails to clean them, due to fats, scale or other sticking material, they must be replaced.

1. Remove the media, taking care to prevent damage to the nozzles. Sweep out all remaining media and sluice the filter compartment.

Workers should be cautioned to place protective coverings over the installed nozzles so that tools and shoes will not damage slotted outer areas of the nozzles.

2. Inspect the FlexKleen Nozzles for scale and damage. Replace any damaged nozzles, since holes or slot enlargement will allow the media to pass through the nozzles.

Replace or clean nozzles that have heavy scale buildup. Individually soak them in a 10% solution of Muriatic Acid (inhibited) about 1 hour, and then wash down.

WARNING: Acid is extremely dangerous. Read the instructions on the acid bottle.

3. If repainting of the bridge (if used) or other components is require, it can be done at this time.

Note: Be sure to cover the nozzles with airtight covers when spray painting.

4. Nozzle replacement:

- a. Wipe down the underdrain support panels ahead of the nozzle installation.

CAUTION: To prevent damage to the media support panels, not more than one person at a time should stand on a panel. Do not jump on the panels.

- b. Screw the nozzles into the media support panels, rotating them clockwise. Tighten all nozzles by hand. Do not use a tool.

CAUTION: The nozzle threads must not bind as the nozzles are screwed into the nuts in the support panel. Foreign material, such as dirt or glue, in the nut threads can cause the threads to bind and allow the nuts to be twisted loose from the support panel. If the nozzle threads start to bind, DO NOT continue tightening the nozzle. Unscrew and remove the nozzle immediately, then use a 1"-11½ NPSM (straight pipe thread) tap (not by Eimco) to chase out the support panel nut threads before reinstalling the nozzle.

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Note: It is critically important that all nozzles be tighten securely. Failure to do so may result in the loss of nozzles during operation with subsequent loss of media in the filter bed.

- c. Recheck and retighten all nozzles before the media is installed. Allow the nozzles to sit several hours or overnight, before they are retightened.

CAUTION: Normal care must be used with these nozzles prior to, during and after the installation. Damage such as holes, slot enlargement or cracks will allow the filter media to pass through the nozzles and into the underdrain.

Workers must be cautioned to place protective coverings over the installed nozzles so that shoes and tools will not damage them. After installation, all nozzles must be inspected for possible damage before the media is installed.

- 5. Install the media, referring to the media installation instructions in the Installation section of this manual.

NOZZLE STORAGE

Do not store the FlexKleen nozzles where they will be in direct sunlight. This will damage them over a period of time. If the nozzles have been installed but not the media, the filter tank should be covered to protect the installed nozzles against damage from the sun.

**CITY OF FRANKLIN, TENNESSEE
FRANKLIN WRF MODIFICATIONS & EXPANSION PROJECT
COF CONTRACT NO. 2017-0264 / CDM SMITH PROJECT NO. 14915-96594-WRF**

BID OPENING DATE: Tuesday, December 5, 2017, at 2:00 p.m. Central Time

**INSTRUCTIONS FOR SIGNING UP FOR SECOND SITE VISIT
(REVISED)**

**NOVEMBER 7, 2017
7:00 a.m. to 5:00 p.m. Central Time**

Please contact Ms. Katy Turney at CDM Smith (615-320-3161) to schedule a time slot.

The available time slots are as follows. Up to two groups can sign up for a given time slot. All times are Central Time.

- 7:00 a.m. to 9:00 a.m.
- 9:00 a.m. to 11:00 a.m.
- 1:00 p.m. to 3:00 p.m.
- 3:00 p.m. to 5:00 p.m.

SITE VISIT RULES

1. Only plan holders can sign up for site visits. Plan holders may reserve slots for members of their team, such as subcontractors, who are not plan holders.
2. Time slots are offered on a first-come, first-served basis.
3. Maximum group size is 10 people. A plan holder may sign up for multiple time slots if more than 10 people from his or her team will be attending.
4. All visitors must sign in on the orange Site Visit Sign-In Sheet at the Operations Building. The tour will not begin until all members of the group have arrived and signed in.
5. A City guide will be assigned to each group. All members of the group must remain with their City guide at all times.
6. Site visits will take place rain or shine.
7. The City reserves the right to reschedule site visits if treatment plant conditions warrant.
8. Staff will not answer questions. All questions must be submitted to the Owner and Engineer in writing. Refer to the procedures for submitting questions in Section 00100, Article 4.