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June 21, 2024

Electronically Filed in TPUC Docket
Room on June 21, 2024 at 2:13 p.m.

VIA ELECTRONIC FILING

Hon. Herbert H. Hilliard, Chairman
c/o Ectory Lawless, Docket Room Manager
Tennessee Public Utility Commission
502 Deaderick Street, 4th Floor
Nashville, TN 37243
TPUC.DocketRoom@tn.gov

RE: *Application of Limestone Water Utility Operating Company, LLC for Authority to Sell or Transfer Title to the Assets, Property, and Real Estate of a Public Utility, Cartwright Creek, L.L.C., and for a Certificate of Public Convenience and Necessity, TPUC Docket No. 21-00053*

Dear Chairman Hilliard:

Attached for filing please find the *Report Demonstrating Compliance with the Maps and Engineering Design Filing Requirement of Order Approving Settlement Agreement and Transfer of Systems, and Granting Certificate of Convenience and Necessity* in the above-captioned matter.

As required, the original plus four (4) hard copies will be mailed to your office. Should you have any questions concerning this filing, or require additional information, please do not hesitate to contact me.

Sincerely,

BUTLER SNOW LLP



Katherine Barnes

clw

Attachments

cc: Russ Mitten, Limestone Water Utility Operating Company, LLC
Shilina B. Brown, Consumer Advocate Division
Victoria B. Glover, Consumer Advocate Division

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BUTLER SNOW LLP

88304752.v1

**BEFORE THE TENNESSEE PUBLIC UTILITY COMMISSION
NASHVILLE, TENNESSEE**

IN RE:)
)
APPLICATION OF LIMESTONE)
WATER UTILITY OPERATING)
COMPANY, LLC, FOR AUTHORITY)
TO SELL OR TRANSFER TITLE TO)
THE ASSETS, PROPERTY, AND)
REAL ESTATE OF A PUBLIC)
UTILITY, CARTWRIGHT CREEK,)
LLC, AND FOR A CERTIFICATE OF)
PUBLIC CONVENIENCE AND)
NECESSITY

DOCKET NO. 21-00053

**REPORT DEMONSTRATING COMPLIANCE WITH THE MAPS AND
ENGINEERING DESIGN FILING REQUIREMENT OF ORDER APPROVING
SETTLEMENT AGREEMENT AND TRANSFER OF SYSTEMS, AND GRANTING
CERTIFICATE OF CONVENIENCE AND NECESSITY**

On January 24, 2022, the Tennessee Public Utility Commission (“Commission”) issued its *Order Approving Settlement Agreement and Transfer of Systems, and Granting Certificate of Convenience and Necessity* (“Order”) in the above-referenced matter. In the Order, the Commission approved the *Stipulation and Settlement Agreement* entered into by Limestone Water Utility Operating Company, LLC (“Limestone”), Cartwright Creek, LLC (“Cartwright Creek”), and the Consumer Advocate Unit in the Financial Division of the Office of the Attorney General (“Consumer Advocate”).¹ The Order requires Limestone to file certain documents with the Commission, specifically outlined in paragraphs 5, 9, 13, and 16 through 22 of the *Stipulation and Settlement Agreement*.² On February 17, 2023, Limestone filed its first *Report Demonstrating*

¹ *Order Approving Settlement Agreement and Transfer of Systems, and Granting Certificate of Convenience and Necessity*, p.11, TPUC Docket No. 21-00053 (Jan. 24, 2022).

² *Id.*

Compliance with Filing Requirements of the Order, which included all documents required to be filed with the Commission except the copies of maps and engineering designs for the wastewater systems, as required by Paragraph 22 of the *Stipulation and Settlement Agreement*.³ Therefore, Limestone hereby files **copies of maps and engineering designs for the wastewater systems** that serve the Arrington Retreat, Hideaway, and Hardeman Springs subdivisions. ***See Exhibits 1, 2, and 3*** attached to this Report.

Respectfully submitted,

BUTLER SNOW LLP



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COUNSEL FOR LIMESTONE WATER UTILITY
OPERATING COMPANY, LLC

³ *Report Demonstrating Compliance with Filing Requirements of the Order*, TPUC Docket No. 21-00060 (April 10, 2023).

EXHIBIT 1

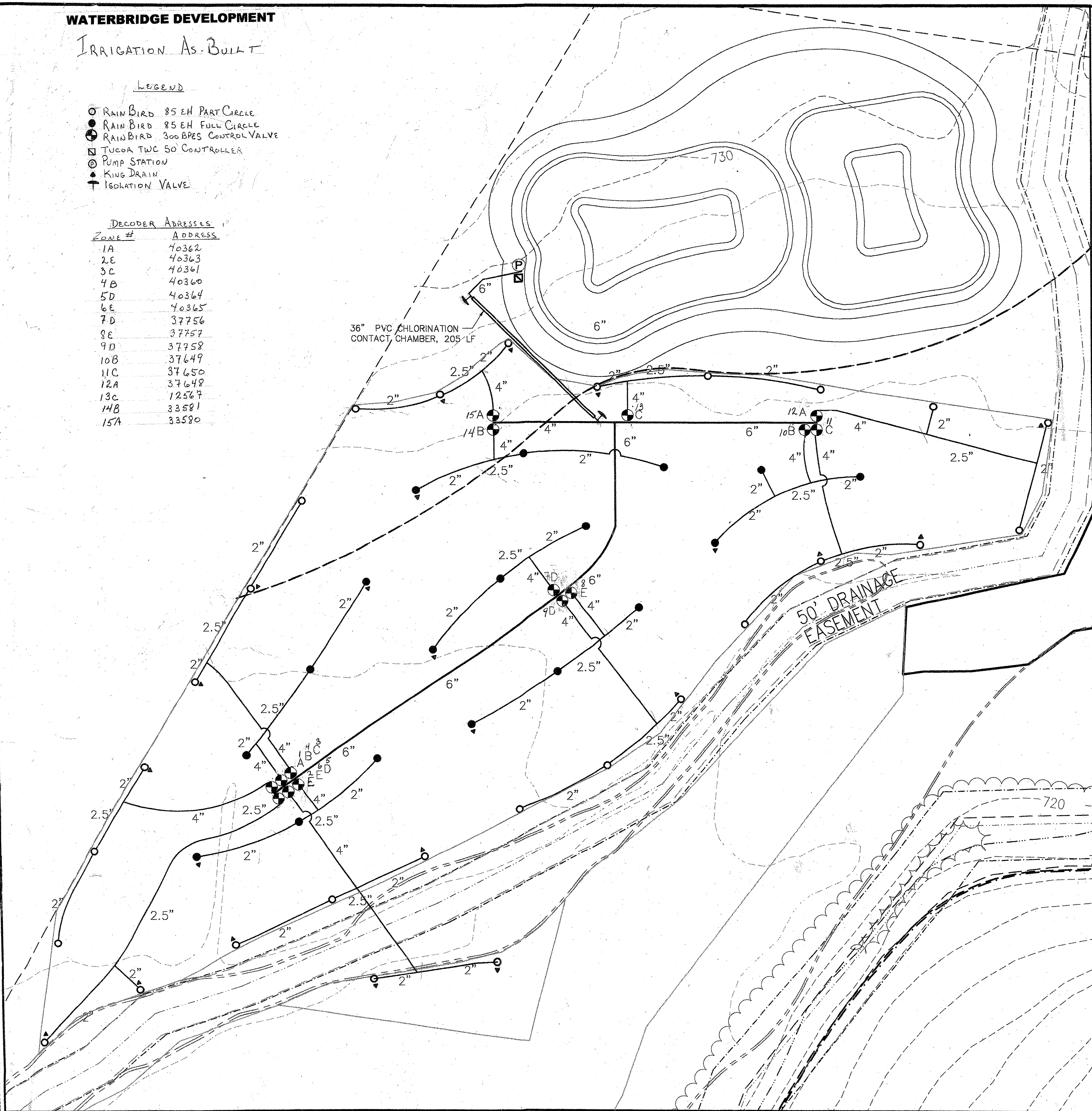
WATERBRIDGE DEVELOPMENT

IRRIGATION AS-BUILT

LEGEND

- RAIN BIRD 85 EH PART CIRCLE
- RAIN BIRD 85 EH FULL CIRCLE
- ⊗ RAIN BIRD 300 BPES CONTROL VALVE
- TUCOR TWC 50' CONTROLLER
- ⊙ PUMP STATION
- ⬆ KING DRAIN
- ⬆ ISOLATION VALVE

ZONE #	ADDRESS
1A	40362
2E	40363
3C	40361
4B	40360
5D	40364
6E	40365
7D	37756
8E	37757
9D	37758
10B	37649
11C	37650
12A	37648
13C	12567
14B	33581
15A	33580



SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM

WASTEWATER RECLAMATION FACILITY

WATERBRIDGE DEVELOPMENT

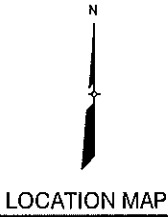
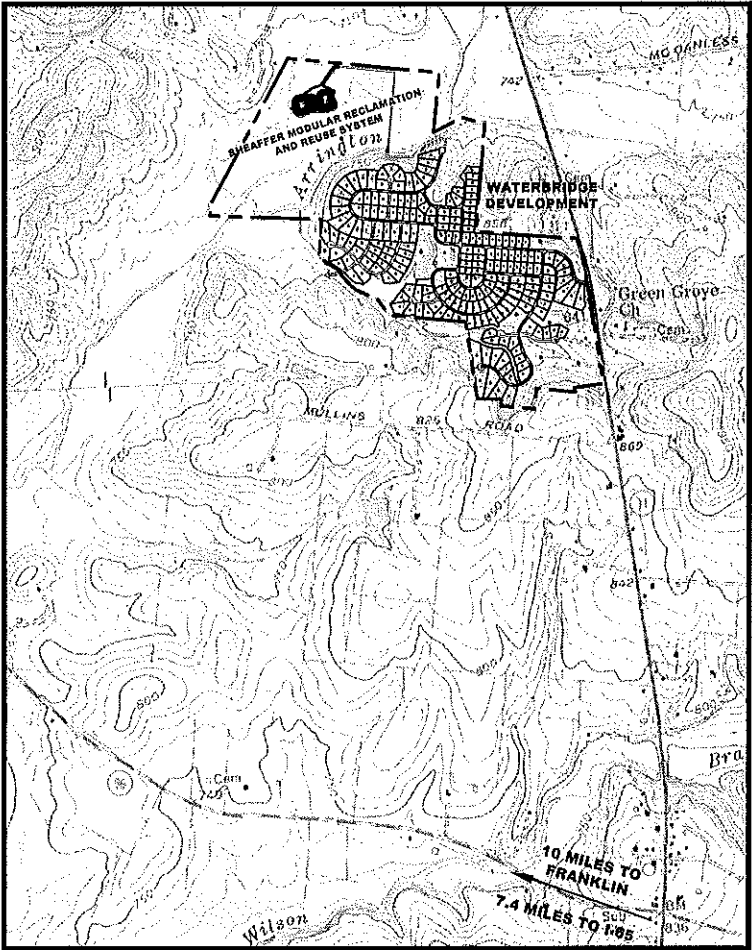
WILLIAMSON COUNTY, TENNESSEE

NOVEMBER, 2009

AS-BUILT DRAWING

DRAWING LIST:

- | | |
|--|--|
| 1. COVER SHEET | 11. PIPING AND AERATION PLAN |
| 2. SYMBOLS, LEGEND AND NOTES | 12. AERATION SYSTEM |
| 3. STANDARD DETAILS | 13. MANHOLE PLANS AND SECTIONS |
| 4. EXISTING TOPOGRAPHIC SITE MAP | 14. LINER DETAILS |
| 5. PROCESS FLOW DIAGRAM | 15. EQUIPMENT BUILDING -
PLAN, WALL SECTION, ELEVATIONS |
| 6. PROCESS AND INSTRUMENTATION DIAGRAM | 16. IRRIGATION PUMP |
| 7. HYDRAULIC PROFILE | 17. IRRIGATION PLAN AND DETAILS |
| 8. SITE PLAN | 18. ELECTRICAL AND INSTRUMENTATION |
| 9. GRADING PLAN | 19. EQUIPMENT, LINE, AND VALVE LIST |
| 10. EMBANKMENT CROSS SECTIONS | |



14Nov09 - 7:46pm S:\Project Files\Waterbridge\Engineering\CAD\Drawings\AS-Built Drawings\en-built_wb01.dwg

PREPARED FOR
 WATERBRIDGE DEVELOPMENT
 4521 TROUSDALE DRIVE
 NASHVILLE, TENNESSEE 37204-4513

PREPARED BY

 SHEAFFER INTERNATIONAL L.L.C.
 800 ROOSEVELT ROAD BLDG. C, SUITE 20
 GLEN ELLYN, ILLINOIS 60137
 630-446-4080
 630-446-4085 FAX

	PROCESS FLOW LINE
	PNEUMATIC (AIR) LINE
	HYDRAULIC LINE
	ANALOG SIGNAL
	ELECTRIC HEAT TRACING
	INSTRUMENT CAPILLARY
	DIGITAL SIGNAL

	OPEN	CLOSE
GATE		
BALL		
BALL CHECK/ FOOT VALVE		
KNIFE		
BUTTERFLY		
CHECK		
VACUUM/PRESSURE RELIEF		
4-WAY		
AERATOR		
FILTER		
SILENCER		

EDUCTOR		FLEXIBLE CONNECTION	
EJECTOR		REMOVABLE SPOOL	
PIPE REDUCER		CROSS	
HOSE CONNECTION		LATERAL OR Y	
SCREW CAP		TRUE Y	
WELD CAP		BLANK FLANGE	
LOOP SEAL		UNION, SCREWED	
ATMOSPHERIC		FLANGE	

HORIZONTAL CENTRIFUGAL PUMP

VERTICAL TURBINE PUMP

BLOWER/COMPRESSOR

POSITIVE DISPLACEMENT PUMP
(CHEMICAL FEED)

SUBMERSIBLE PUMP

STRAINER OR

AIR RELEASE VALVE

AIR/VACUUM VALVE

PLC FUNCTION	
PLC CONTROL OPERATOR ACCESSIBLE	
LOCALLY MOUNTED INSTRUMENT	
BOARD MOUNTED DISPLAY OPERATOR ACCESSIBLE	
INTERLOCK	
MAGNETIC FLOWMETER WITH INTEGRAL TRANSMITTER	
SONIC FLOWMETER "DOPPLER" OR "TRANSIT TIME" MAY BE ADDED	

SENSED PARAMETER		TYPE OF INDICATOR OR CONTROLLER	
F = FLOW	R = RECORDER	FIC = FLOW INDICATING CONTROLLER	
T = TEMPERATURE	I = INDICATOR	LSH = HIGH LEVEL SWITCH	
P = PRESSURE	C = CONTROLLER	LSL = LOW LEVEL SWITCH	
I = CURRENT	S = SWITCH	HS = HAND SWITCH	
L = LEVEL	H = HIGH	HOA = HAND-OFF-AUTO	
V = VOLTAGE	L = LOW	PT = PRESSURE TRANSMITTER	
Z = POSITION	T = TRANSMITTER	FE = FLOW ELEMENT	
	G = PRESSURE GAUGE	FI = FLOW INDICATOR	
		FC = FLOW CONTROLLER	
		FR = FLOW RECORDER	
		SS = START/STOP	

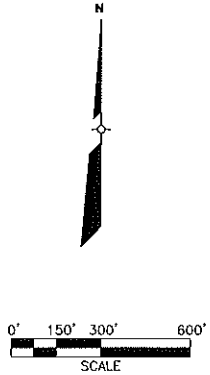
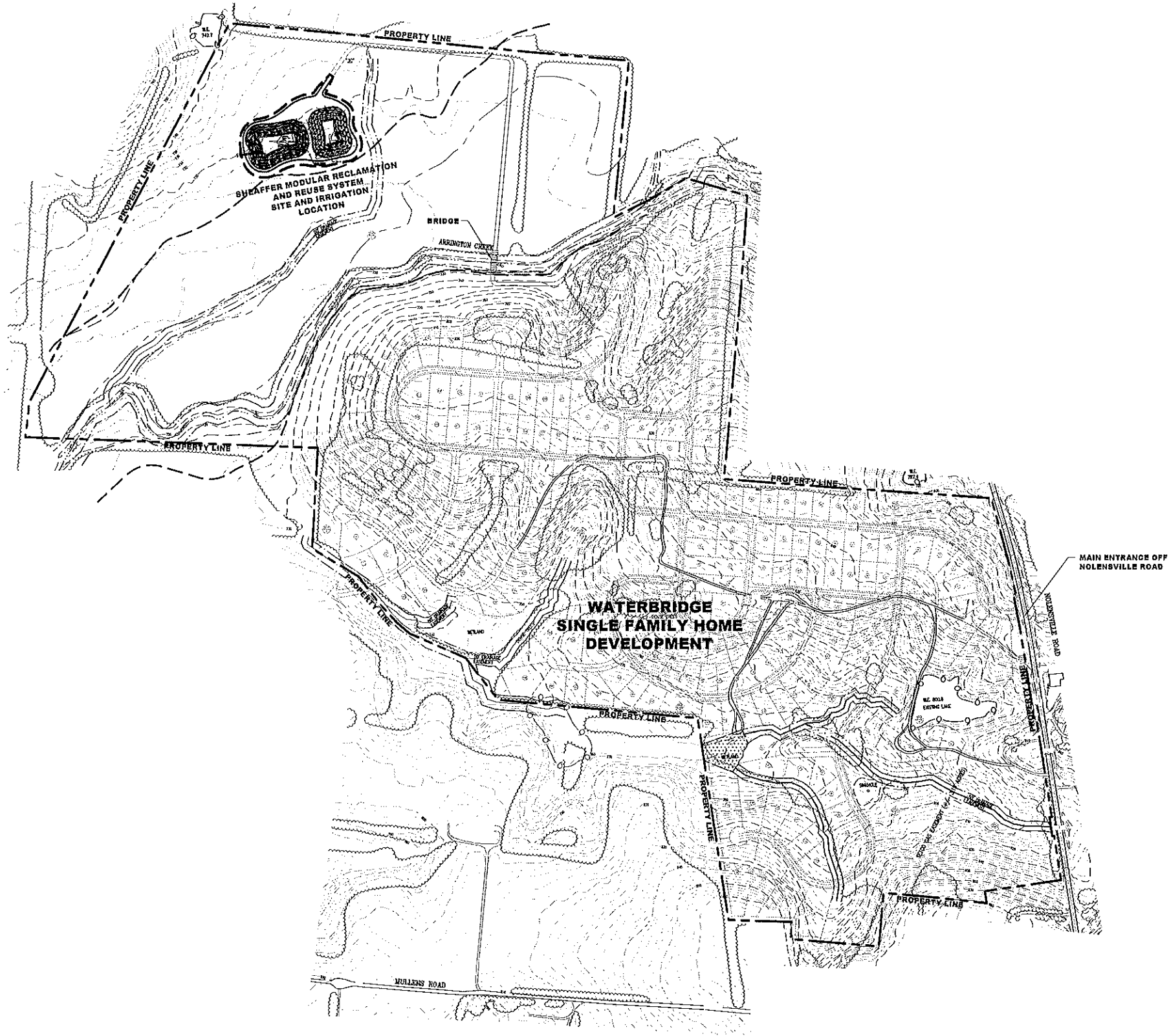
WW = WASTE WATER
IR = IRRIGATION WATER
CA = COMPRESSED AIR
CH = CHEMICAL(HYPOCHLORITE)
IX = SOFTENED WATER

	TRANSFORMER		MOTOR STARTER
	DUPLEX RECEPTICLE		ALARM RELAY
	HEATING ELEMENT		ALARM LIGHT
	THERMOSTAT		RUN LIGHT
	FLOAT SWITCHES		INDICATING LIGHTS (SEE CONTROL LOGIC)
	24 HOUR TIME CLOCK WITH 15 MIN. SEGMENTS AND SKIP-A-DAY FEATURE		CEILING LIGHT (WHITE)
HOA	HAND-OFF-AUTOMATIC SWITCH		THERMOSTAT TEMPERATURE SWITCH
ETM	ELAPSED TIME METER		MOTOR RELAY
TSH	HIGH TEMPERATURE SWITCH		SOLENOID
TR1	TIME RELAY		FLOAT SWITCH
LLCO	LOW LEVEL CUT-OUT		PRESSURE SWITCH
HPS	HIGH PRESSURE SWITCH		DISCONNECT SWITCH
PB	PUSH BUTTON		DECONTACTOR
TD	TIME DELAY		
NCTO	NORMALLY CLOSED, TIMED OPEN		
HILA	HIGH LEVEL ALARM		
PL	PILOT LIGHT		
CPT	CONTROL POWER TRANSFORMER		
OLR	OVERLOAD RELAY		
R	RELAY		

Polyvinyl Chloride Pipe
High Density Polyethylene Pipe
Galvanized Steel Pipe
Carbon Steel Pipe
Ductile Iron Pipe
Polyethylene Tubing

Line Designation	Service	Application	Pipe Schedules			ASTM Standard, Pipe	ASTM Standard, Joints & Fittings
			Line Sizes	Standard Pipe Length	Pipe Schedule		
PVC1	Wastewater	Gravity Flow (Less Than 25 Feet Head Pressure, 0-15 ft. depth of cover)	4" - 15"	13 ft. +/-	SDR 26 Heavy Wall, PS = 115 psi	D3034	D3212, F477
PVC2	Wastewater	Pumped Line, (Pressurized Flow), 0- 160 psig, 0- 25 ft. depth of cover	2" - 12"	20 ft. +/-	SDR 26, Class 160	D2241	D3139, F477
PVC3	Wastewater	Pumped Line, (Pressurized Flow), 0- 165 psig, Chlorination chambers	14" - 42"	20 ft. +/-	SDR 25, 165 psig	AWWA C905	D3139, F477
PVC4	Irrigation	Pumped line, (Pressurized Flow), 60- 120 psig, Pop-Up or Impact Spray Nozzles	4" - 12"	20 ft. +/-	SDR 21, Class 200	ASTM D2241	D3139, F477
PVC5	Irrigation	Pressurized Flow, 25- 60 psig, Center Pivot Irrigation Rig	6" - 12"	20 ft. +/-	SDR 26, Class 125	ASTM D2241	D3139, F477
HDPE	Blower Air	Submerged (under water) in Cells	1" - 3"	40 ft. +/-	SDR 11, Class 160	D2837	D3035, F714
GAL	Blower Air	Aeration Headers	1" - 6"	20 ft. +/-	40	A53-97	A105 or A181 Class 70, A234 Grade WPB
CS	Blower Air	Aeration Headers	1" - 6"	20 ft. +/-	40	A53-97	A105 or A181 Class 70, A234 Grade WPB
DI	Wastewater, Potable Water	Gravity and Pressurized Flow	3" - 12"	20 ft. +/-	Class 350	A746 ANSI/AWWA C 150	ANSI/AWWA C110/A21.10
PE	Chemicals	Sodium Hypochlorite, Polymers	¼" - 1/2"	Varies	150 psig rating		

DATE	MAY 12, 2004
PROJECT NO	WATERBRIDGE
FILENAME	wb02.dwg
SHEET NO	02 OF 19
DRAWING NO	
WATERBRIDGE DEVELOPMENT SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE PREPARED FOR WATERBRIDGE DEVELOPMENT 4521 TROUSDALE DRIVE NASHVILLE, TENNESSEE 37202-4513 PREPARED BY SHEAFFER INTERNATIONAL, L.L.C. 800 ROOSEVELT ROAD, BLDG. C SUITE 20 GLEN ELYN, ILLINOIS 60137	
	
SHEAFFER INT'L. L.L.C. GLEN ELYN, ILLINOIS DEN LUL 07/01/04 DES LUL 07/01/04 CHK JRG 07/30/04 APP BEM 07/30/04 COPY/CHKD SHEAFFER INTERNATIONAL, L.L.C. AT BIRM. REVISION NO PROVISIONS 1 ISSUED FOR CONTRACTOR BIDDING 2 REVISED PER TDEC PERMIT REVIEW COMMENTS 3 ISSUED FOR TDEC OPERATING PERMIT 4 AS-BUILT DRAWINGS LUL BEM 11/16/09 DKL BEM 12/27/04 LUL BEM 07/30/04 LUL BEM 04/02/04 DKL BEM 04/02/04	



DATE JULY 06, 2004		PROJECT NO WATERBRIDGE		FILENAME wb04.dwg		SHEET NO 04 OF 19		DRAWING NO 4	
WATERBRIDGE DEVELOPMENT SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE		PREPARED FOR WATERBRIDGE DEVELOPMENT 452 TROUSDALE DRIVE NASHVILLE, TENNESSEE 37204-4513		SHEAFFER INTERNATIONAL, L.L.C. 800 ROOSEVELT ROAD BLDG. C, SUITE 20 GLEN ELLYN, ILLINOIS 60137		EXISTING TOPOGRAPHIC SITE MAP		SHEAFFER INTERNATIONAL, L.L.C. at Rights Reserved	
DRN		JUL 07/01/04		SHEAFFER INTL. L.L.C. GLEN ELLYN, ILLINOIS		NO		NO	
DES		JUL 07/01/04		4 AS-BUILT DRAWINGS		L/L		BEM	
CHK		JRG 07/30/04		3 REVISED PER TDEC PERMIT REVIEW COMMENTS		DKL		BEM	
APP		BEM 07/30/04		2 ISSUED FOR TDEC OPERATING PERMIT		L/L		BEM	
				Copyright © SHEAFFER INTERNATIONAL, L.L.C. All Rights Reserved		L/L		BEM	
				REVISIONS		DRN		CHK	

FORCEMAIN FROM
WATERBRIDGE
DEVELOPMENT
PUMP STATION



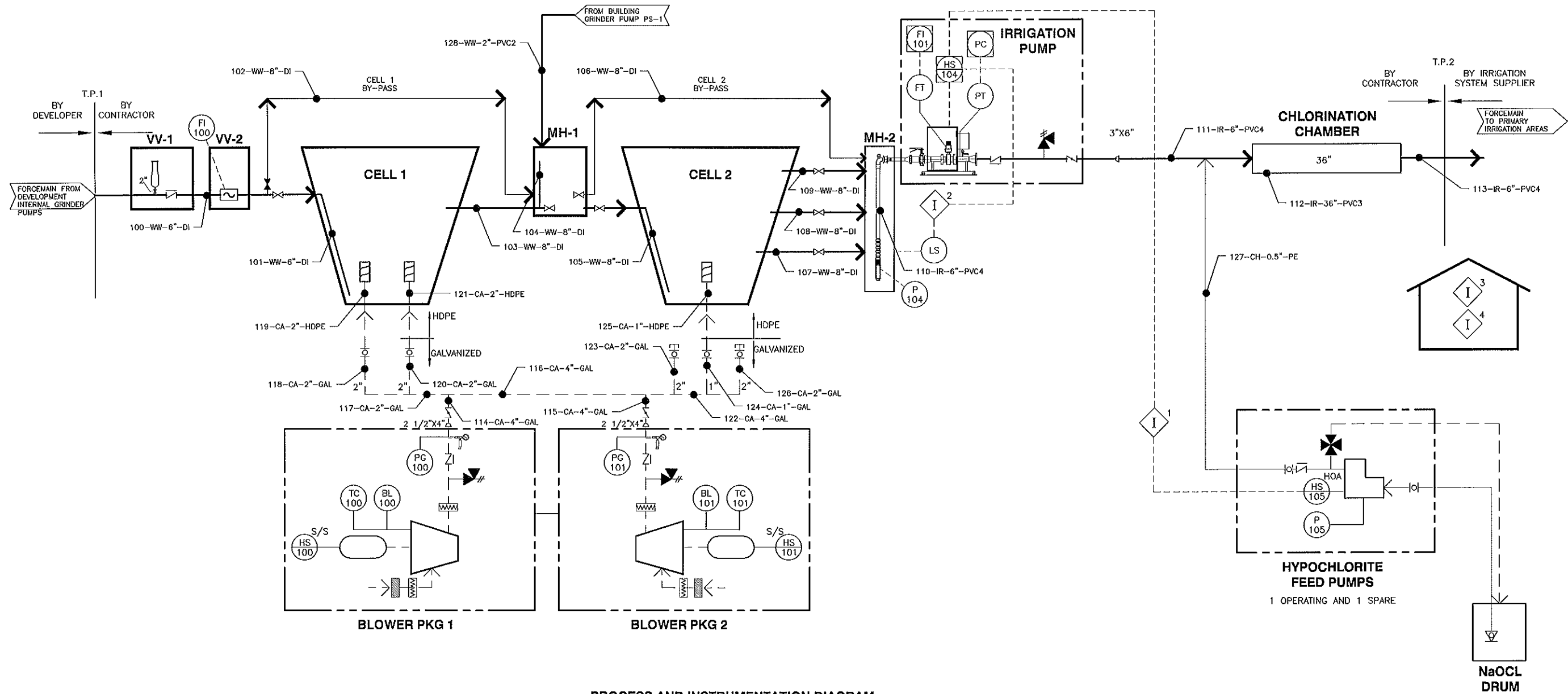
DESIGN FLOW		=	74,900 GALLONS PER DAY
CELL 1	FREEBOARD	=	673,000 GALLONS - 9.00 DAYS
CELL 1	FLOATING STORAGE	=	1,573,000 GALLONS - 21.00 DAYS
CELL 1	AEROBIC TREATMENT	=	1,872,500 GALLONS - 25.00 DAYS
CELL 1	ANEROBIC ZONE	=	194,300 GALLONS - 2.80 DAYS
CELL 1	TOTAL VOLUME	=	4,312,800 GALLONS - 55.60 DAYS
CELL 2	FREEBOARD	=	909,800 GALLONS - 12.00 DAYS
CELL 2	FLOATING STORAGE	=	3,670,100 GALLONS - 49.00 DAYS
CELL 2	AEROBIC TREATMENT	=	823,900 GALLONS - 11.00 DAYS
CELL 2	ANEROBIC ZONE	=	338,150 GALLONS - 4.50 DAYS
CELL 2	TOTAL VOLUME	=	5,741,950 GALLONS - 77.20 DAYS

DESIGN AVERAGE FLOW = 92,673 GPD
DESIGN IRRIGATION SEASON = 295 DAYS
DESIGN DAILY IRRIGATION FLOW RATE = 362 GPM
DESIGN DAILY IRRIGATION TIME = 7 HOURS/DAY, 6 DAYS/WK (AVERAGE RATE) = 42hrs.

 MAIN FLOW
 AIR LINES
 DESINFECTATION LINE
 SPRAY IRRIGATION NOZZLES

DATE	MAY 12, 2004
PROJECT NO	WATERBRIDGE
FILENAME	wbf05.dwg
SHEET NO	5 OF 19
DRAWING NO	

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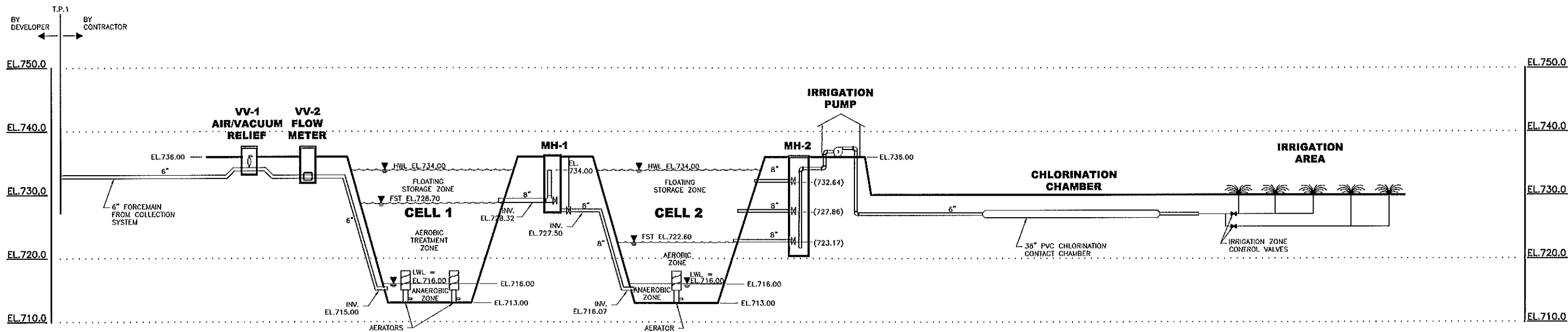
PROCESS AND INSTRUMENTATION DIAGRAM

TAG NO.	CONTROL DESCRIPTION
HS-100	BLOWER #1 (BL-100) IS CONTROLLED WITH A LOCAL START/STOP STATION, LOCATED IN THE CONTROL BUILDING
HS-101	BLOWER #2 (BL-101) IS CONTROLLED WITH A LOCAL START/STOP STATION, LOCATED IN THE CONTROL BUILDING
HS-104	IRRIGATION PUMP IS CONTROLLED VIA THE IRRIGATION CONTROL PLC (SEE VENDOR SUPPLIED CONTROL DESCRIPTION FOR THE IRRIGATION SYSTEM). OPERATOR INTERFACE SHALL BE LOCATED IN CONTROL BLDG. THE IRRIGATION PUMP SHALL STOP ON LOW LEVEL INDICATION FROM LEVEL SWITCH (SEE I-2).
HS-105	HYPOCHLORITE PUMP IS CONTROLLED WITH A LOCAL/REMOTE SWITCH ON THE PUMP. IN REMOTE MODE, HYPOCHLORITE PUMP IS CONTROLLED BY THE IRRIGATION CONTROL PANEL.

TAG NO.	INTERLOCK/ALARM DESCRIPTION
I-1	WHEN THE IRRIGATION PUMP STARTS, THE HYPOCHLORITE FEED PUMP SHALL START (HYPOCHLORITE PUMP MUST BE IN AUTO).
I-2	LOW LEVEL IN WET WELL SHALL STOP THE IRRIGATION PUMP AND GENERATE AN ALARM IN CONTROL BUILDING. INTERLOCK I-2 IS SUPPLIED AS PART OF A VENDOR PACKAGE
I-3	EQUIPMENT ROOM EXHAUST FAN START/STOP BASED ON LOCAL THERMOSTAT SET POINT OR LOCAL 3-SPEED WALL SWITCH
I-4	HYPOCHLORITE ROOM INLET AND EXHAUST FANS START/STOP BASED ON LOCAL THERMOSTAT SET POINTS OR LOCAL 3-SPEED WALL SWITCH

PREPARED FOR WATERBRIDGE DEVELOPMENT 4521 TROUSDALE DRIVE NASHVILLE, TENNESSEE 37204-4513		PREPARED BY SHEAFFER INTERNATIONAL, L.L.C. 800 ROOSEVELT ROAD BLDG. C, SUITE 20 GLEN ELLYN, ILLINOIS 60137	
PROCESS AND INSTRUMENT- TATION DIAGRAM		DATE MAY 12, 2004	
PROJECT NO WATERBRIDGE		PROJECT NO WATERBRIDGE	
FILENAME wbf06.dwg		FILENAME wbf06.dwg	
SHEET NO 6 OF 19		SHEET NO 6 OF 19	
DRAWING NO 6		DRAWING NO 6	
		Copyright © SHEAFFER INTERNATIONAL, L.L.C. All Rights Reserved.	
			
		DES L/L 07/01/04 CHK JRG 07/30/04 APP BEM 07/30/04 Copyright © SHEAFFER INTERNATIONAL, L.L.C. All Rights Reserved.	
		4 AS-BUILT DRAWINGS 3 REVISED PER TDEC PERMIT REVIEW COMMENTS 2 ISSUED FOR TDEC OPERATING PERMIT 1 ISSUED FOR CONTRACTOR BIDDING NO REVISIONS	
		L/L BEM 11/16/09 L/L BEM 12/27/04 L/L BEM 07/30/04 L/L BEM 04/02/04 DRN CHK DATE	

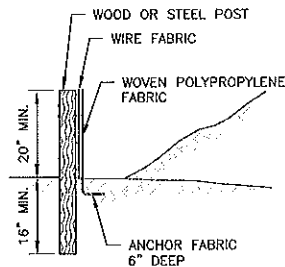
S:\Project Files\Waterbridge\Engineering\CAD\Drawings\AS-Built Drawings\as-built wb07.dwg 11/16/09 1:30pm



HYDRAULIC PROFILE

WATERBRIDGE DEVELOPMENT SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE		PREPARED FOR WATERBRIDGE DEVELOPMENT 4521 TROUSDALE DRIVE NASHVILLE, TENNESSEE 37204-4513				SHEAFFER INT'L, L.L.C. GLEN ELLYN, ILLINOIS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										</
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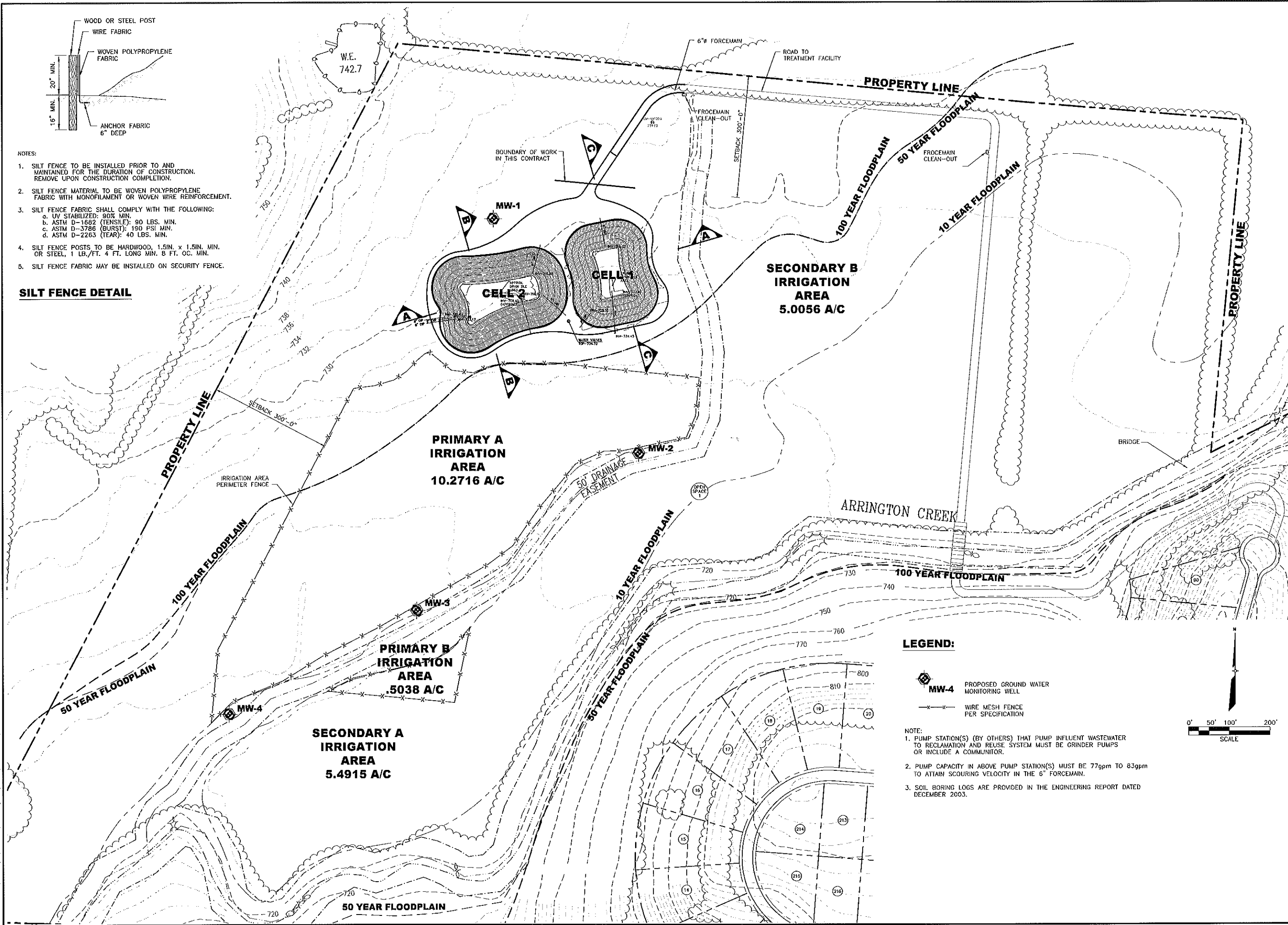
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NOTES:

1. SILT FENCE TO BE INSTALLED PRIOR TO AND MAINTAINED FOR THE DURATION OF CONSTRUCTION. REMOVE UPON CONSTRUCTION COMPLETION.
2. SILT FENCE MATERIAL TO BE WOVEN POLYPROPYLENE FABRIC WITH MONOFILAMENT OR WOVEN WIRE REINFORCEMENT.
3. SILT FENCE FABRIC SHALL COMPLY WITH THE FOLLOWING:
 - a. UV STABILIZED: 90% MIN.
 - b. ASTM D-1682 (TENSILE): 90 LBS. MIN.
 - c. ASTM D-3786 (BURST): 190 PSI MIN.
 - d. ASTM D-2263 (TEAR): 40 LBS. MIN.
4. SILT FENCE POSTS TO BE HARDWOOD, 1.5IN. x 1.5IN. MIN. OR STEEL, 1 LB./FT. 4 FT. LONG MIN. 8 FT. OC. MIN.
5. SILT FENCE FABRIC MAY BE INSTALLED ON SECURITY FENCE.

SILT FENCE DETAIL



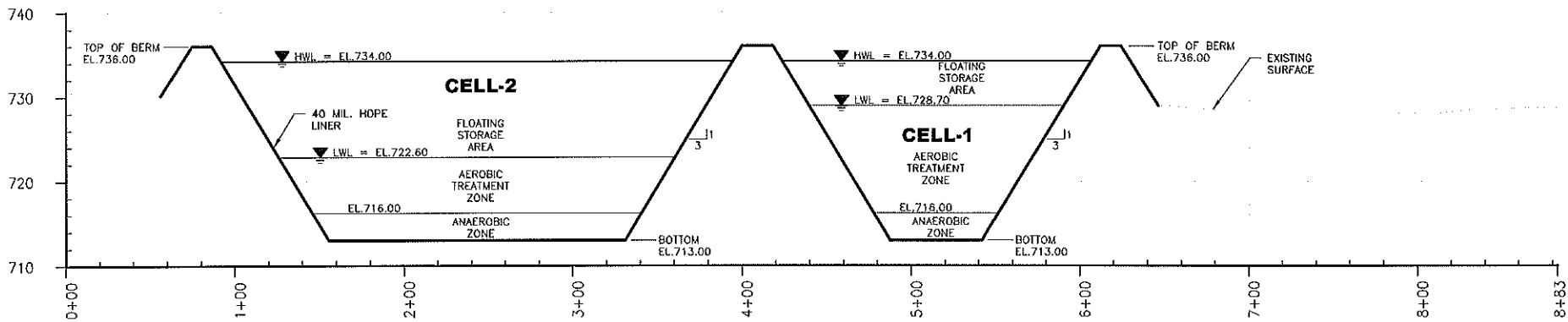
LEGEND:

- MW-4** PROPOSED GROUND WATER MONITORING WELL
- x—x—x— WIRE MESH FENCE PER SPECIFICATION

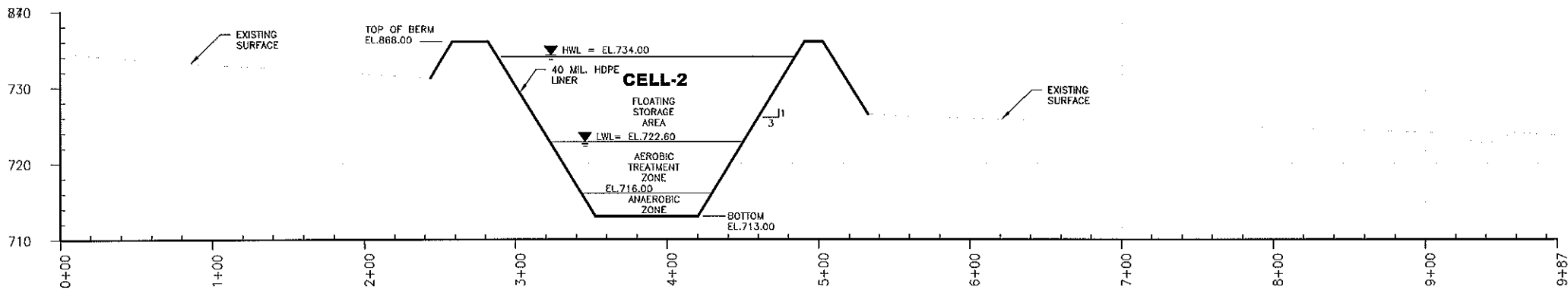
NOTE:

1. PUMP STATION(S) (BY OTHERS) THAT PUMP INFLUENT WASTEWATER TO RECLAMATION AND REUSE SYSTEM MUST BE GRINDER PUMPS OR INCLUDE A COMMUNICATOR.
2. PUMP CAPACITY IN ABOVE PUMP STATION(S) MUST BE 77gpm TO 83gpm TO ATTAIN SCOURING VELOCITY IN THE 6" FORCEMAIN.
3. SOIL BORING LOGS ARE PROVIDED IN THE ENGINEERING REPORT DATED DECEMBER 2003.

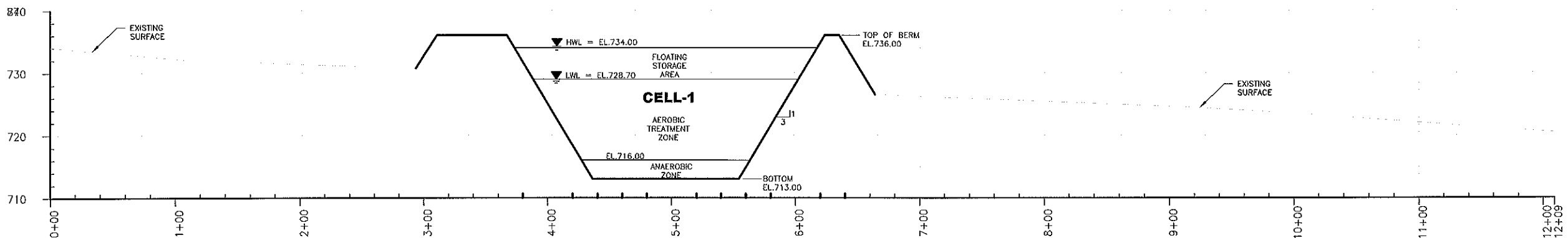
SHEAFFER INT'L, L.L.C. GLEN ELLYN, ILLINOIS		DES	LUL	07/01/04	4	AS-BUILT DRAWINGS	LUL	BEM	11/16/09
PREPARED FOR WATERBRIDGE DEVELOPMENT 4521 TROUSDALE DRIVE NASHVILLE, TENNESSEE 37204-4513		CHK	JRC	07/30/04	3	REVISED PER TDEC PERMIT REVIEW COMMENTS	DKL	BEM	12/27/04
PREPARED BY SHEAFFER INTERNATIONAL, L.L.C. 800 ROOSEVELT ROAD BLDG. 60, SUITE 20 GLEN ELLYN, ILLINOIS 60137		APP	BEM	07/30/04	2	ISSUED FOR TDEC OPERATING PERMIT	LUL	BEM	07/30/04
WATERBRIDGE DEVELOPMENT SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE		COPYRIGHT © SHEAFFER INTERNATIONAL, L.L.C. All Rights Reserved			1	ISSUED FOR CONTRACTOR BIDDING	LUL	BEM	04/02/04
SITE PLAN		REVISIONS					DRN	CHK	DATE
DATE JULY 06, 2004		NO							
PROJECT NO WATERBRIDGE									
FILENAME wb108.dwg									
SHEET NO 8 OF 19									
DRAWING NO 8									



SECTION A-A
 HORIZ. 0' 25' 50' 100'
 VERT. 0' 10' 20'
 SCALE



SECTION B-B
 HORIZ. 0' 25' 50' 100'
 VERT. 0' 10' 20'
 SCALE



SECTION C-C
 HORIZ. 0' 25' 50' 100'
 VERT. 0' 10' 20'
 SCALE

NOTES:

1. SHOP DRAWINGS SHALL BE SUBMITTED FOR OWNER AND ENGINEER REVIEW AND APPROVAL.
2. ROAD AT TOP OF EMBANKMENT SHALL BE GRADED PROVIDING POSITIVE DRAINAGE AWAY FROM CELLS.

DESIGNED BY	DRN LIL	07/01/04	DESIGNED BY	DRN LIL	07/01/04
CHECKED BY	CHK JRC	07/26/04	CHECKED BY	CHK JRC	07/26/04
APPROVED BY	APP BEM	07/26/04	APPROVED BY	APP BEM	07/26/04
COPYRIGHT	SHEAFFER INTERNATIONAL, L.L.C. All Rights Reserved.				
REVISIONS	NO		REVISIONS	NO	
DATE	11/16/09		DATE	11/16/09	
BY	BEM		BY	BEM	
FOR	PERMIT REVIEW COMMENTS		FOR	PERMIT REVIEW COMMENTS	
DATE	12/27/04		DATE	12/27/04	
BY	BEM		BY	BEM	
FOR	ISSUED FOR TDEC OPERATING PERMIT		FOR	ISSUED FOR TDEC OPERATING PERMIT	
DATE	07/30/04		DATE	07/30/04	
BY	BEM		BY	BEM	
FOR	ISSUED FOR CONTRACTOR BIDDING		FOR	ISSUED FOR CONTRACTOR BIDDING	
DATE	04/02/04		DATE	04/02/04	
BY	BEM		BY	BEM	
FOR	REVISIONS		FOR	REVISIONS	
DATE			DATE		
BY			BY		
FOR			FOR		



PREPARED FOR
WATERBRIDGE DEVELOPMENT
 4521 TENNESSEE DRIVE
 NASHVILLE, TENNESSEE 37204-4513

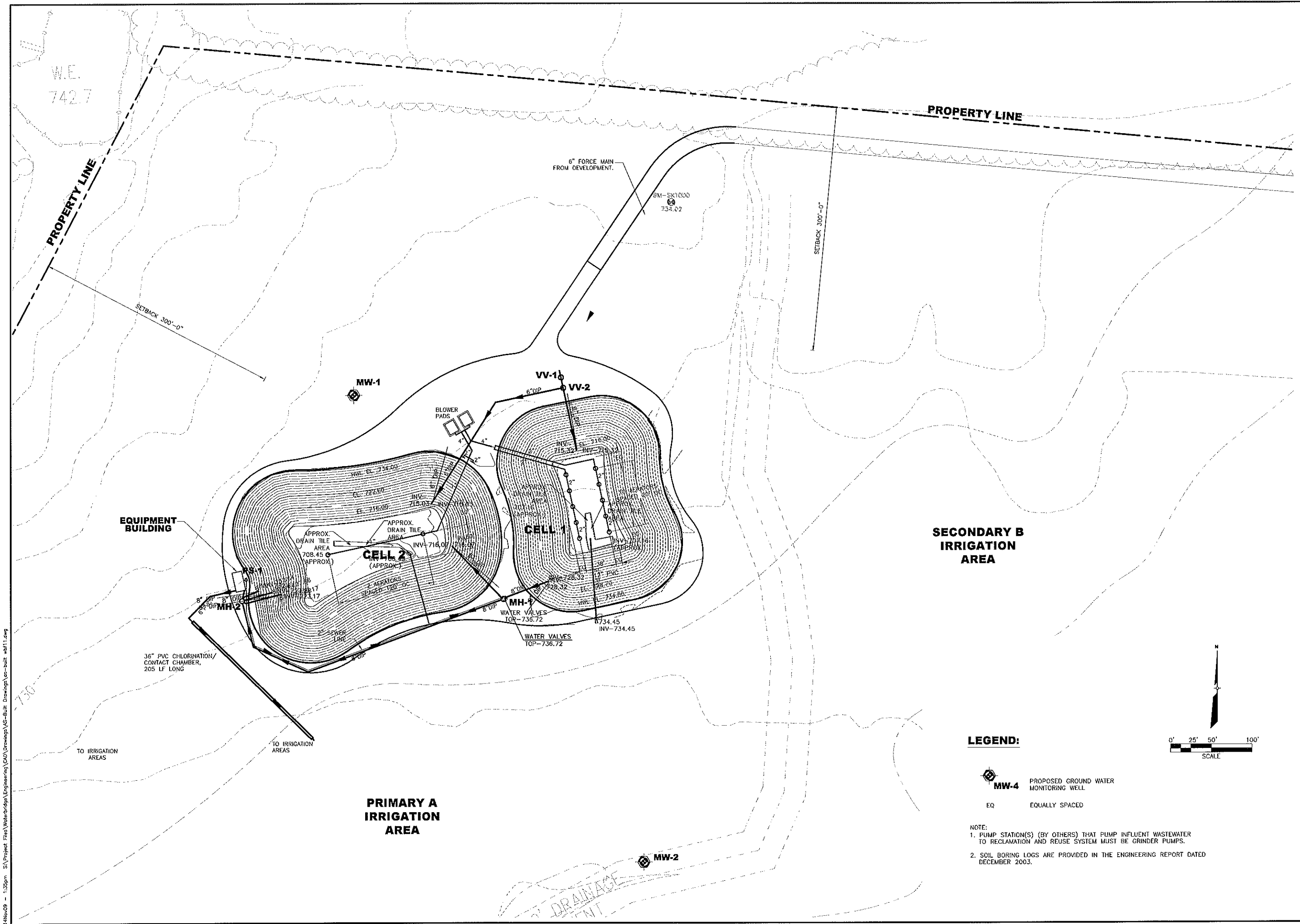
PREPARED BY
SHEAFFER INTERNATIONAL, L.L.C.
 800 ROOSEVELT ROAD BLDG. C, SUITE 20
 GLEN ELLYN, ILLINOIS 60137

WATERBRIDGE DEVELOPMENT
 SHEAFFER MODULAR RECLAMATION
 AND REUSE SYSTEM
 WILLIAMSON COUNTY, TENNESSEE

**EMBANKMENT
 CROSS SECTIONS**

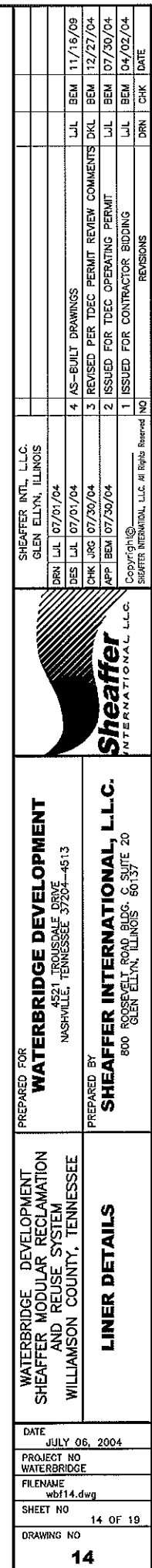
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PROJECT NO.	WATERBRIDGE
FILENAME	wb110.dwg
SHEET NO.	10 OF 19
DRAWING NO.	10

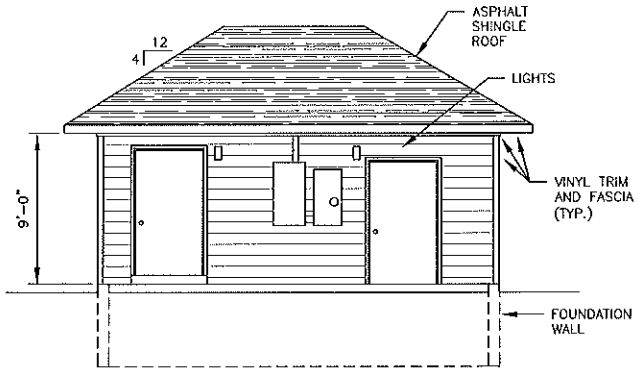
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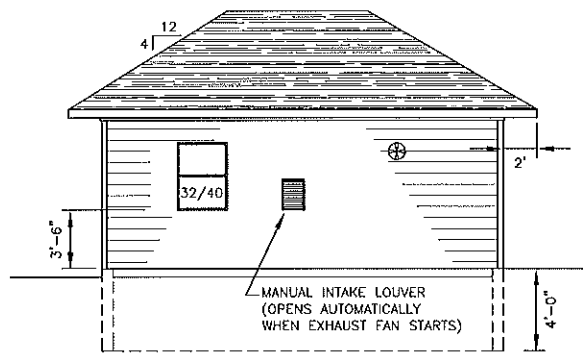
DATE JULY 06, 2004		WATERBRIDGE DEVELOPMENT SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE		PREPARED FOR WATERBRIDGE DEVELOPMENT 452 TROUSDALE DRIVE NASHVILLE, TENNESSEE 37204-4613				SHEAFFER INT'L, L.L.C. GLEN ELLYN, ILLINOIS			
PROJECT NO WATERBRIDGE				PREPARED BY SHEAFFER INTERNATIONAL, L.L.C. 800 ROOSEVELT ROAD BLDG. C SUITE 20 GLEN ELLYN, ILLINOIS 60137							
FILENAME wb11.dwg											
SHEET NO 11 OF 19											
DRAWING NO 11											
PIPING AND AERATION PLAN											
5 AS-BUILT DRAWINGS		5		JUL 07/01/04		DRN		JUL 07/01/04		11/16/09	
4 REVISED TO SHOW MH. COORDINATES LOCATIONS		4		JUL 07/01/04		DES		JUL 07/01/04		10/01/08	
3 REVISED PER TDEC PERMIT REVIEW COMMENTS		3		JUL 07/30/04		CHK		JRG 07/30/04		12/22/04	
2 ISSUED FOR TDEC OPERATING PERMIT		2		JUL 07/30/04		APP		BEM 07/30/04		07/30/04	
1 ISSUED FOR CONTRACTOR BIDDING		1		Copyright©						04/02/04	
REVISIONS		NO								CHK	
DATE		NO								DATE	



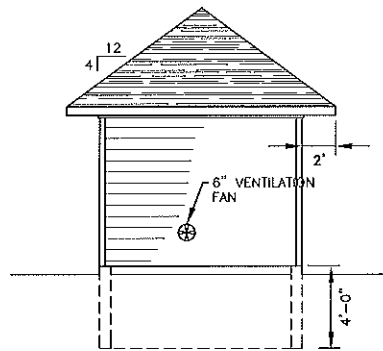




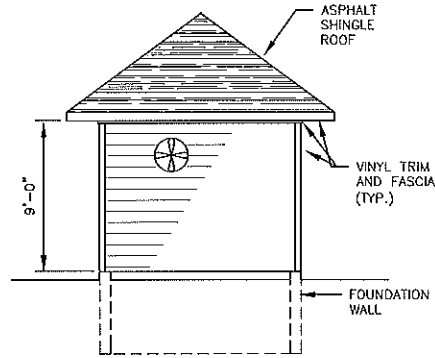
WEST ELEVATION
SCALE: 3/16"=1'



EAST ELEVATION
SCALE: 3/16"=1'

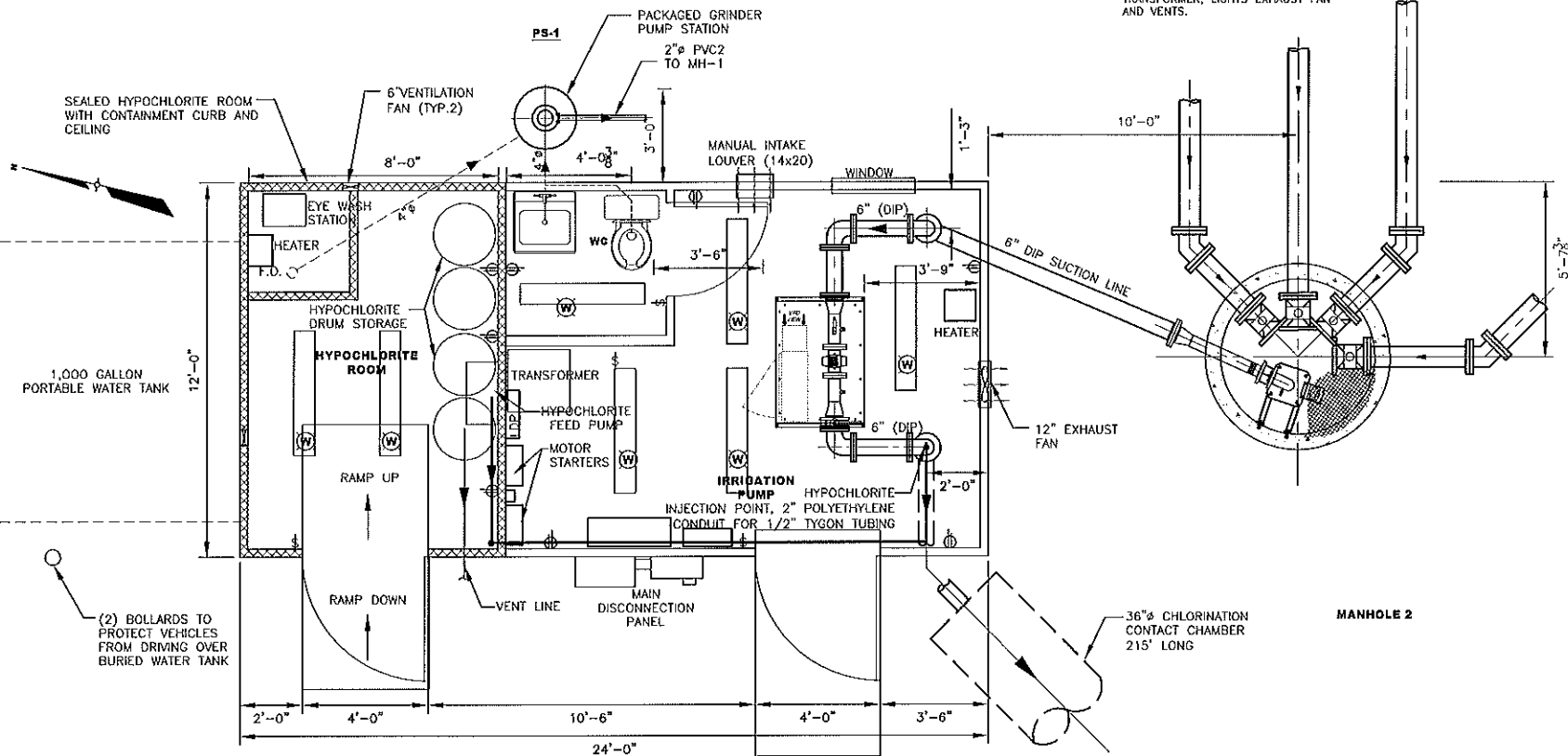


NORTH ELEVATION
SCALE: 3/16"=1'

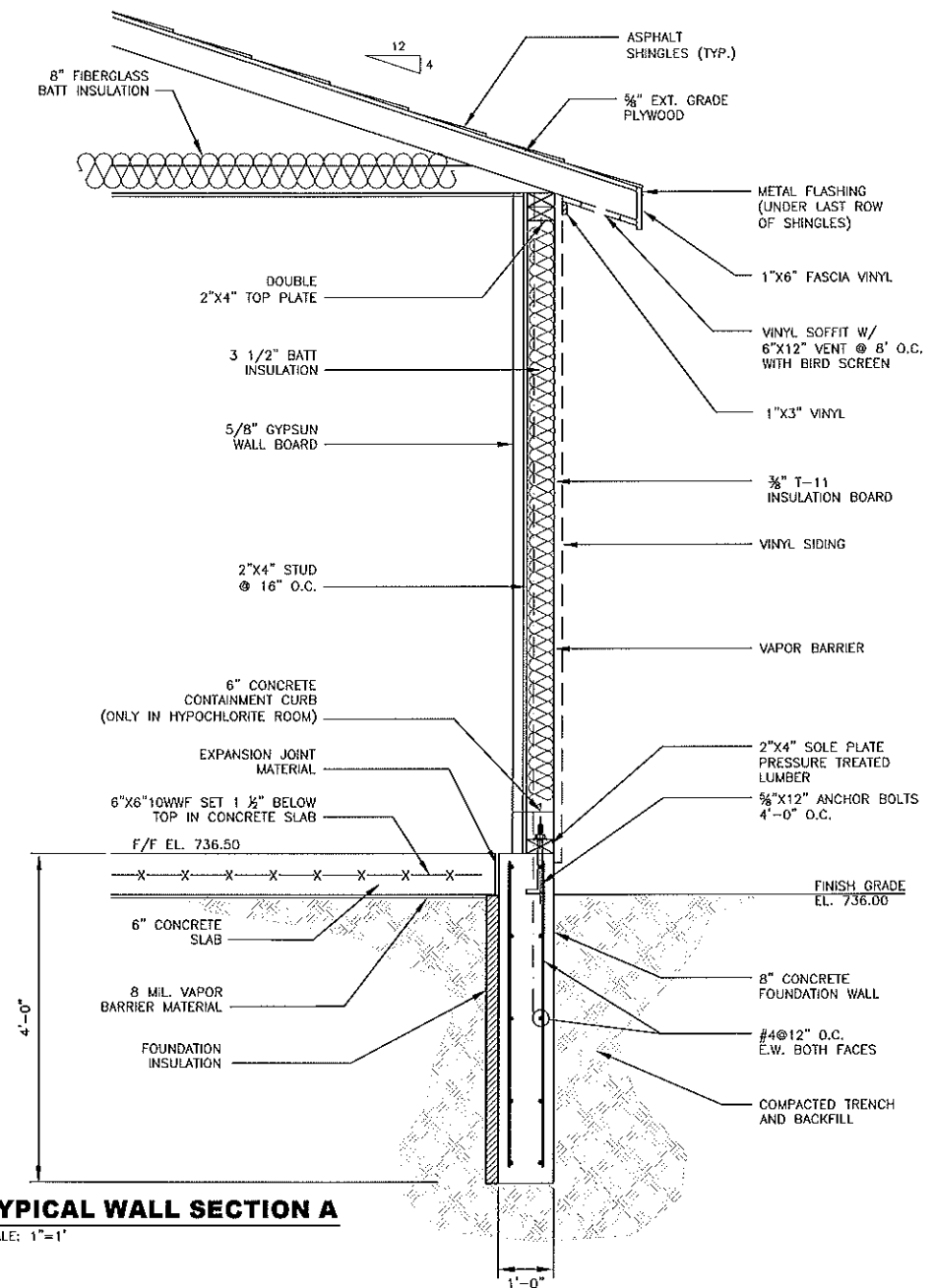


SOUTH ELEVATION
SCALE: 3/16"=1'

NOTE:
12'x24' STANDARD WOOD FRAME CONSTRUCTION
BUILDING WITH ELECTRICAL POWER,
TRANSFORMER, LIGHTS EXHAUST FAN
AND VENTS.



BUILDING PLAN
SCALE: 3/8"=1'



TYPICAL WALL SECTION A
SCALE: 1"=1'

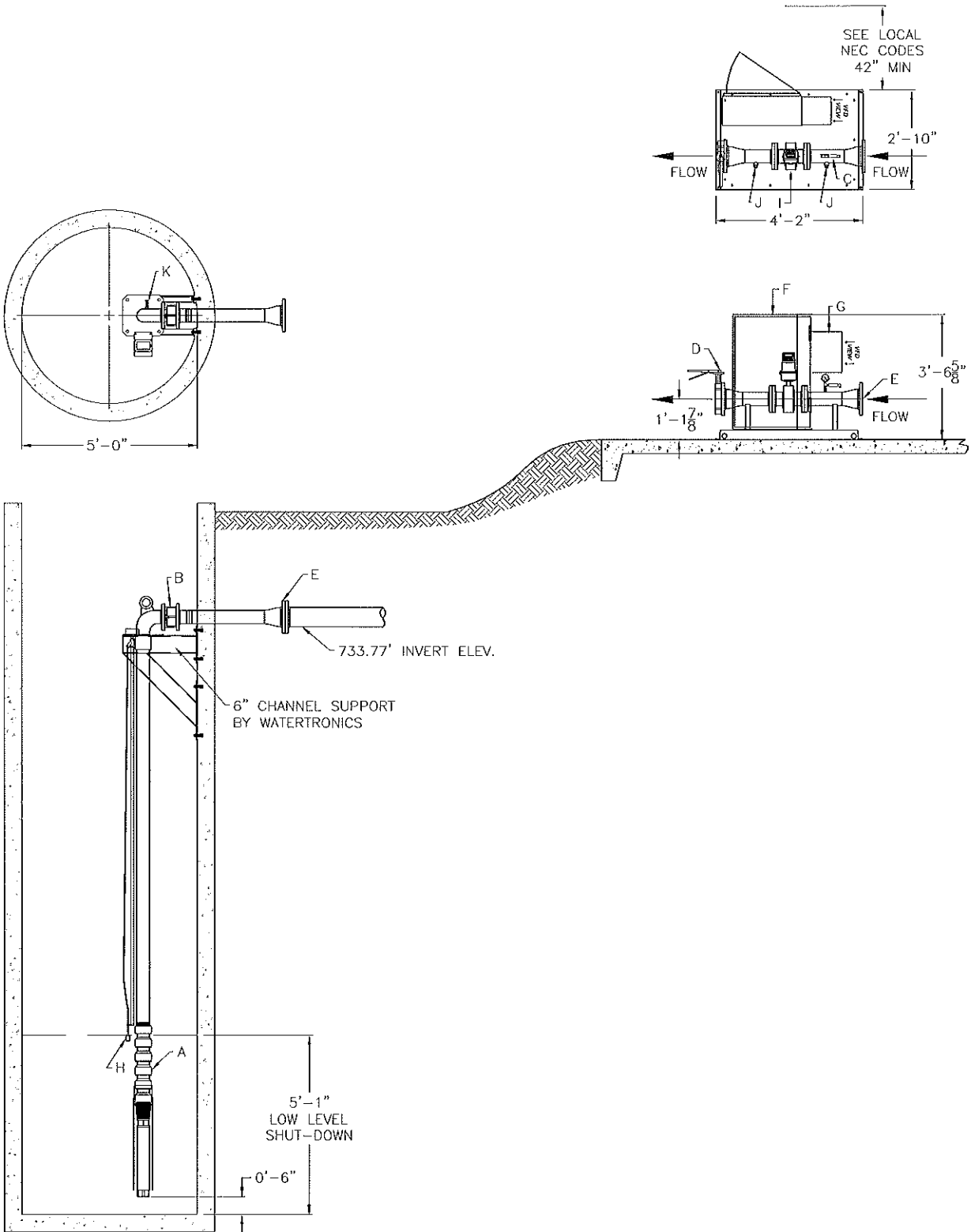
PREPARED FOR WATERBRIDGE DEVELOPMENT 422 ROOSEVELT DRIVE NASHVILLE, TENNESSEE 37204-4513	PREPARED BY SHEAFFER INTERNATIONAL, L.L.C. 800 ROOSEVELT ROAD BLDG. C SUITE 20 GLEN ELLYN, ILLINOIS 60137	DATE MAY 12, 2004 PROJECT NO WATERBRIDGE FILENAME wbf15.dwg SHEET NO 15 OF 19 DRAWING NO 15	WATERBRIDGE DEVELOPMENT SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE EQUIPMENT BUILDING - PLAN, WALL SECTION, ELEVATIONS	SHEAFFER INT'L, L.L.C. GLEN ELLYN, ILLINOIS	DRN LUL 07/01/04 DES LUL 07/01/04 CHK JRG 07/30/04 APP BEM 07/30/04 COPY/CHK SHEAFFER INTERNATIONAL, L.L.C. All Rights Reserved	4 AS-BUILT DRAWINGS 3 REVISED PER DEC PERMIT REVIEW COMMENTS 2 ISSUED FOR TDEC OPERATING PERMIT 1 ISSUED FOR CONTRACTOR BIDDING	LUL BEM 11/16/09 LUL BEM 12/27/04 LUL BEM 07/30/04 LUL BEM 04/02/04 DRN CHK DATE

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PUMP STATION SPECIFICATIONS:
NAME: WATERBRIDGE
STATION MODEL: LSTSTV-3-25-460-3-362-65
STATION TOTAL PERFORMANCE: 362 GPM @ 65 PSI
PUMP HORSEPOWER:
PUMP NO.1 25HP (163TDH, 3600RPM)
CHECK VALVE SIZES:
PUMP NO.1 4"
ISOLATION VALVE SIZES:
DISCHARGE ISOLATION VALVE SIZE: 6"
DISCHARGE MANIFOLD SIZE: 4"

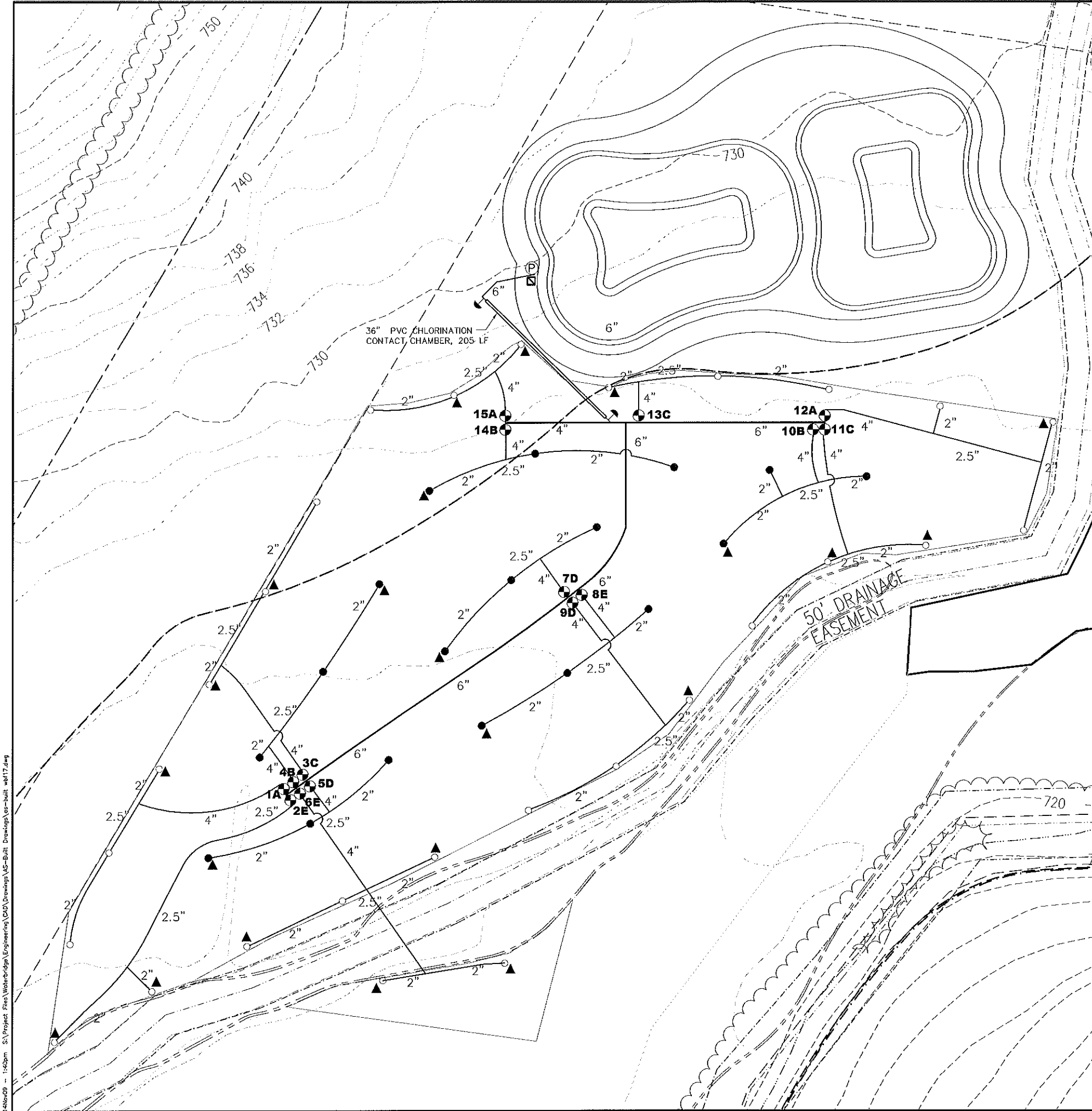
POWER REQUIREMENTS: 460 V, 60 HZ, 3 PHZ, 38 FLA
PUMP STATION DISCONNECT: 60 AMP

STATION COMPONENTS:
A PUMP AND MOTOR
B CHECK VALVE
C PRESSURE TRANSDUCER WITH GAUGE
D 6" DISCHARGE ISOLATION VALVE
E 6" FLANGE CONNECTION
F CONTROL BOX
G VFD
H LOW LEVEL FLOAT
I MAGNETIC FLOW METER
J 3/4" PORT W/ PLUG
K AIR RELEASE



WATERBRIDGE DEVELOPMENT SHEAFFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE		PREPARED FOR WATERBRIDGE DEVELOPMENT 402 TROUSDALE DRIVE NASHVILLE, TENNESSEE 37204-4513		SHEAFFER INT'L, L.L.C. GLEN ELLYN, ILLINOIS	
DATE MAY 12, 2004		PROJECT NO WATERBRIDGE		DRN LIL 07/01/04	
FILENAME wbf16.dwg		SHEET NO 16 OF 19		DES LIL 07/01/04	
DRAWING NO		16		CHK JRG 07/30/04	
				APP BEM 07/30/04	
				1 ISSUED FOR CONTRACTOR BIDDING	
				2 ISSUED FOR TDEC OPERATING PERMIT	
				3 REVISED PER TDEC PERMIT REVIEW COMMENTS	
				4 AS-BUILT DRAWINGS	
				LIL BEM 11/16/09	
				LIL BEM 12/27/04	
				LIL BEM 07/30/04	
				LIL BEM 04/02/04	
				DRN CHK	
				NO	
				REVISIONS	
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				Copyright ©	
				SHEAFFER INTERNATIONAL, L.L.C.	
				INTERNATIONAL, L.L.C.	
				800 ROOSEVELT ROAD BLDG. C SUITE 20	
				GLEN ELLYN, ILLINOIS 60137	
				PREPARED BY	
				SHEAFFER INTERNATIONAL, L.L.C.	
				800 ROOSEVELT ROAD BLDG. C SUITE 20	
				GLEN ELLYN, ILLINOIS 60137	
				DATE	
				MAY 12, 2004	
				PROJECT NO	
				WATERBRIDGE	
				FILENAME	
				wbf16.dwg	
				SHEET NO	
				16 OF 19	
				DRAWING NO	
				16	

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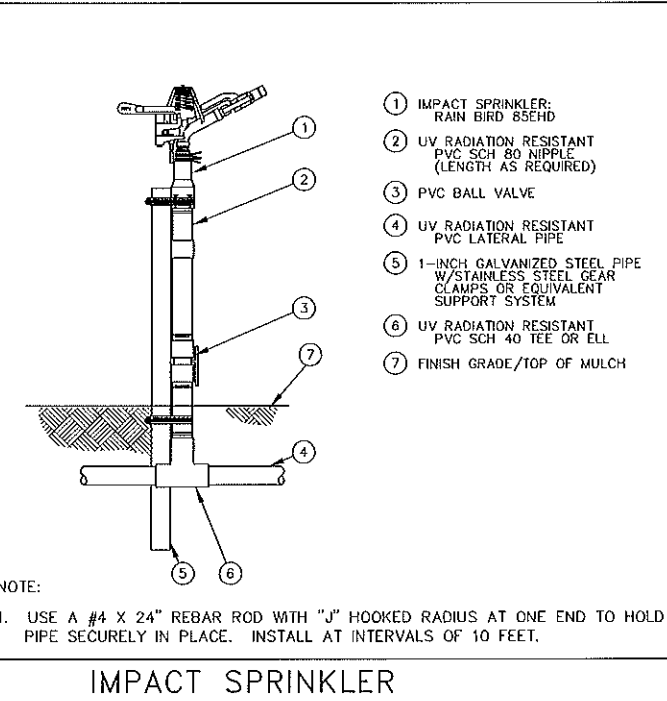
IRRIGATION LEGEND

- RAIN BIRD, 85EH, IMPACT SPRINKLER, W/ 1/2" NOZZLE, PART CIRCLE
- RAIN BIRD, 85EH, IMPACT SPRINKLER, W/ 1/2" NOZZLE, FULL CIRCLE
- ⊙ RAIN BIRD, 300BP SERIES, BRASS ELECTRIC CONTROL VALVE W/ PRS UNIT, 3"
- ⊞ TUCOR TWC 50 AUTOMATIC CONTROLLER (SEE SPECIFICATION)
- Ⓟ PUMP STATION, BY OTHERS, TO PROVIDE 360 GPM @ 57 PSI
- PVC MAINLINE, CLASS 200, GJ, SIZE AS SHOWN
- ▲ KING DRAIN
- ↑ ISOLATION VALVES

IRRIGATION AS-BUILT INFORMATION FROM CONTRACTOR

DECODER ADDRESSES

ZONE	ADDRESS
1A	40362
2E	40363
3C	40361
4B	40360
5D	40364
6E	40365
7D	37756
8E	37757
9D	37758
10B	37649
11C	37650
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13C	12567
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15A	33580

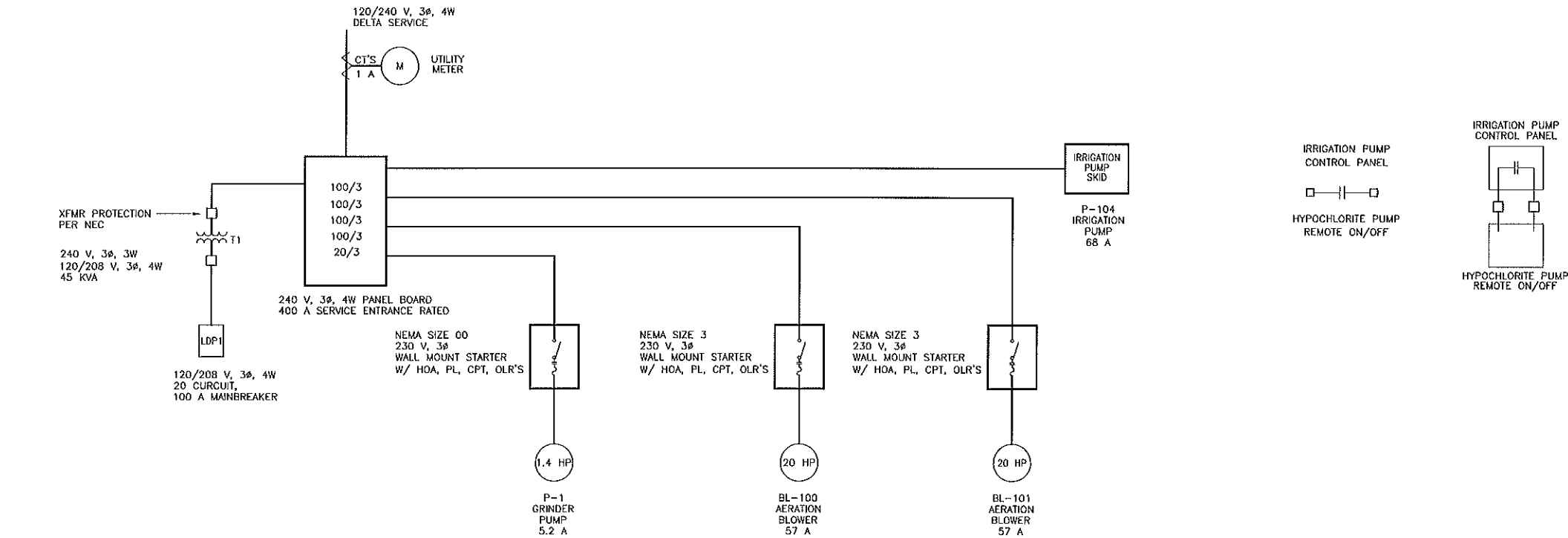


IRRIGATION SPECIFICATIONS

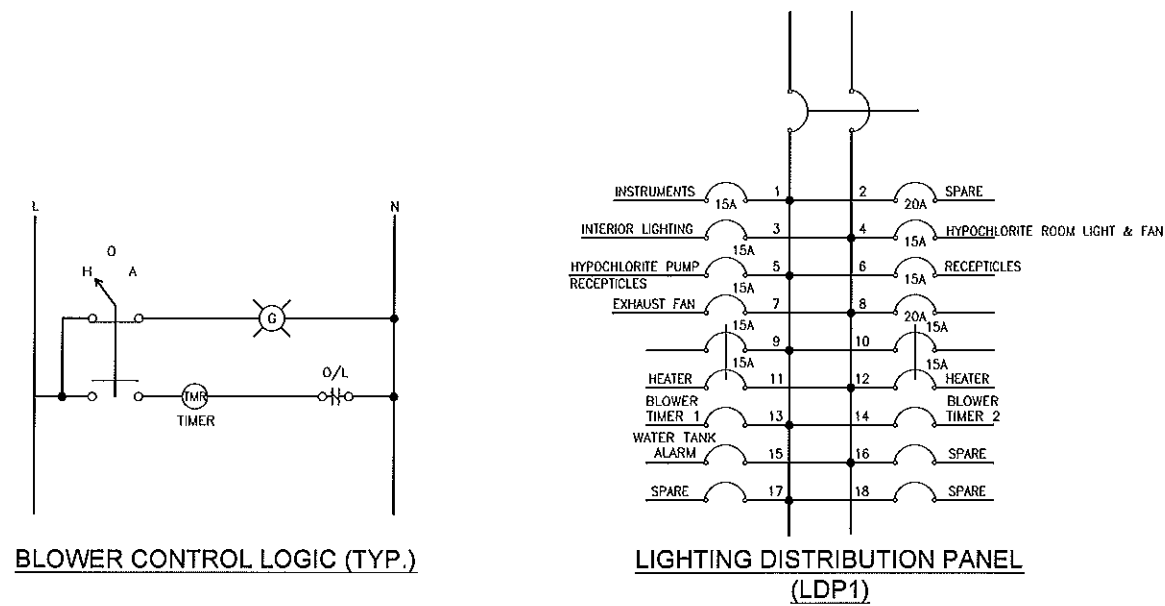
- ALL WORK IS TO BE IN COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL CODES AND ORDINANCES.
- ALL UNDERGROUND ELECTRICAL CONNECTIONS ARE TO BE MADE WITH 3-M WIRE CONNECTORS, DBY, AND SHALL BE PLACED IN VALVE BOXES.
- ALL CONTROL WIRING DOWNSTREAM OF THE CONTROLLER IS TO BE 14 AWG, UL APPROVED FOR DIRECT BURY.
- SYSTEM DESIGN BASED UPON 360 GPM @ 57 PSI.
- ANY CHANGES IN AVAILABILITY OF SUPPLY SHOULD BE NOTED AND MODIFICATIONS TO THE DESIGN SHOULD BE MADE.
- 120V. TO CONTROLLER AND PUMP STATION, BY OTHER THAN IRRIGATION CONTRACTOR.
- IRRIGATION CONTROLLER SHALL OPERATE 3 CONTROL VALVES SIMULTANEOUSLY, NO MORE THAN 2.25 INCHES PER WEEK AVERAGE SHALL BE APPLIED THROUGH THE 46 WEEK IRRIGATION SEASON.
- VALVES WITH THE SAME LETTER DESIGNATION SHALL OPERATE SIMULTANEOUSLY.
- LATERAL SHALL HAVE MINIMUM OF 12" COVER. MAIN HEADER SHALL HAVE MIN OF 18" COVER.

SHEAFER INT'L, L.L.C. GLEN ELLYN, ILLINOIS	DRN	L/L	07/01/04	4 AS-BUILT DRAWINGS	L/L	BEM	11/16/09
	DES	L/L	07/01/04	3 REVISED PER TDEC PERMIT REVIEW COMMENTS	L/L	BEM	12/27/04
	CHK	380	07/30/04	2 ISSUED FOR TDEC OPERATING PERMIT	L/L	BEM	07/30/04
	API	BEM	07/30/04	1 ISSUED FOR CONTRACTOR BIDDING	L/L	BEM	04/02/04
Copyright © SHEAFER INTERNATIONAL, L.L.C. All Rights Reserved				REVISIONS			
				NO	DRN	CHK	DATE
PREPARED FOR WATERBRIDGE DEVELOPMENT 4521 ROOSEVELT DRIVE NASHVILLE, TENNESSEE 37204-4513				PREPARED BY SHEAFER INTERNATIONAL, L.L.C. 800 ROOSEVELT ROAD BLDG. C SUITE 20 GLEN ELLYN, ILLINOIS 60137			
WATERBRIDGE DEVELOPMENT SHEAFER MODULAR RECLAMATION AND REUSE SYSTEM WILLIAMSON COUNTY, TENNESSEE				IRRIGATION PLAN AND DETAILS			
DATE JULY 05, 2004				PROJECT NO WATERBRIDGE			
FILENAME wbf17.dwg				SHEET NO 17 OF 19			
DRAWING NO				17			

S:\Project Files\Waterbridge\Engineering\CAD\Drawings\AS-Built Drawings\as-built wb18.dwg 14Nov09 - 1:42pm



SINGLE LINE DIAGRAM



BLOWER CONTROL LOGIC (TYP.)

LIGHTING DISTRIBUTION PANEL (LDP1)

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PIPING LINE LIST

[illegible]

* Note 1: Pipe, foot valve and low level switch for line 110 are to be provided by Irrigation Pump skid supplier. See specification 13280. Fittings to be provided by contractor.

*** Note 2: The slopes of the cell berm walls are 18.4 degrees (1:3 slope), both inside and outside the cells. For ductile iron pipe, contractor shall use standard fittings and account for the difference in angles in the field routing of the piping. For galvanized pipe, contractor shall bend pipe to the correct 18.4 degree angle.

INSTRUMENT LIST

INSTRUMENT LIST					
Type	Tag Number	Description	Type	Mounting	Switch Type
Flow Meter	FI-100	Influent Line	Transit Time	Pipe Surface	
Flow Meter	FI-101	Irrigation Flow Rate	Magnetic	Inline	

VALVE LIST

VALVE LIST									
TYPE	SIZE	CONNECTION	STYLE	BODY	TRIM	SEAT	STEM	Class	QUANTITY
Air/Vacuum	2" x 1/2"	2"	5/16" orifice	Cl	SS	SS	SS	ASTM A126 Cl B	1
Ball	1"	Threaded	Full Port	Brass	Chrome plated brass	PTFE	Brass	600	1
	2"	Threaded	Full Port	Brass	Chrome plated brass	PTFE	Brass	600	5
Butterfly	4"	Bolted	Wafer	CS	SS	PTFE	SS	150	2
Check - Swing	6"	Flange		Ductile Iron	Ductile Iron	Buna-N		150	1
Gate	6"	Bolted	Wafer	Cl	SS	NBR	SS	150	1
	8"	Bolted	Wafer	Cl	SS	NBR	SS	150	7

Note 1: Blower packages to include discharge check valves.

Note 2: Chemical Feed Pumps to be supplied as a package with injection (ball) valve, suction (ball) valve, foot valve/strainer, and at least 16 ft. of 1/4" polyethylene tubing.

Note 3: Irrigation pump package skid to be pre-piped with all valves and instrumentation. See Specification 13260.

Note 4: Valve counts do not include spares. Valve counts assume vendor supplied packages are complete with all valves and fittings.

EQUIPMENT LINE LIST

Description	Supplier	Model	Size	Material of Construction	Motor Size	Volts	Phase	Full Load Amps	Quantity
Blower 1	Roots (or approved equal)	53-URAI-DSL	223 SCFM	Ductile Iron Body / Alloy Shafts	20 HP	460	3		1
Blower 2	Roots (or approved equal)	53-URAI-DSL	223 SCFM	Ductile Iron Body / Alloy Shafts	20 HP	460	3		1
Aerators Cell 1	Air Aqua (or approved equal)	966 Tirbo Flo	20 SCFM	Polypropylene / PVC					10
Aerators Cell 2	Air Aqua (or approved equal)	966 Turbo Flo	10 SCFM	Polypropylene / PVC					2
Irrigation Pump	Watertronics	LSTSTV-3-25-460-3-362-65	3x4-13	CI	25 HP	460	3	60	2*
Chemical Feed Pump -Hypochlorite	LMI (or approved equal)	BB12139BI	60 GPD	PVDF/PVC		120	1	4	2*
Package E ONE Grinder Pump	E ONE		10 GPM	Durable Cast Iron	1.4 HP		3	5.2	1
Fresh Water Supply Pump	Grundfos	Grundfos MQ	10 GPM						

* One Installed Submersible Pump and One on-the-shelf Spare; One (each) Installed Chemical Feed Pump and One (each) on-the-shelf Spare

Chemical Feed Pumps to be supplied as a package with injection (ball) valve, suction (ball) valve, foot valve/strainer, and at least 16 ft. of 1/4" polyethylene tubing.

EXHIBIT 2

HIDEAWAY WWTP PHASE II EXPANSION

WILLIAMSON COUNTY, TENNESSEE

DISCOVERY LAND COMPANY

DESIGN DRAWINGS ISSUED FOR REVIEW AUGUST 2020

GENERAL

- 1. G-000 COVER SHEET
- 2. G-001 WWTP PROCESS FLOW DIAGRAM
- 3. G-002 WWTP HYDRAULIC PROFILE

CIVIL

- 4. C-001 WWTP EXISTING SITE PLAN
- 5. C-002 WWTP PIPING DEMOLITION PLAN
- 6. C-101 WWTP PROPOSED SITE PLAN
- 7. C-102 WWTP PROPOSED PIPING PLAN
- 8. C-701 CIVIL DETAILS

PROCESS

- 9. D-001 ABBREVIATIONS
- 10. D-002 PROCESS LEGEND AND SYMBOLS
- 11. D-003 PROCESS NOTES
- 12. D-100 CONTROL BUILDING DEMOLITION PLAN
- 13. D-101 CONTROL BUILDING PLAN
- 14. D-111 CAMBRIAN BUILDING & INFLUENT SCREEN PLANS
- 15. D-115 CAMBRIAN INFLUENT PS PLANS & SECTION
- 16. D-120 WWTP DRIP FIELD PLANS
- 17. D-121 PHASE 2 DRIP FIELD ZONE LAYOUT
- 18. D-301 CAMBRIAN BUILDING SECTIONS
- 19. D-302 INFLUENT SCREEN & SLUDGE TRANSFER TANK SECTIONS
- 20. D-303 CAMBRIAN TANKS PLAN & SECTION
- 21. D-310 PHASE 2 DRIP FIELD RETURN PS
- 22. D-510 DRIP IRRIGATION DETAILS
- 23. D-701 PROCESS DETAILS
- 24. DI-001 INFLUENT SCREENING & AERATED LAGOON P&ID
- 25. DI-002 CAMBRIAN TANKS & ODOR CONTROL P&ID

- 26. DI-003 CAMBRIAN PUMP SKID P&ID
- 27. DI-004 CLARIFICATION & SLUDGE MANAGEMENT P&ID
- 28. DI-005 TERTIARY FILTRATION & UV DISINFECTION P&ID
- 29. DI-006 DRIP IRRIGATION FEED TANK & PUMPS P&ID
- 30. DI-007 DRIP FIELDS & RETURN PS P&ID

STRUCTURAL

- 31. S-001 STRUCTURAL NOTES & CRITERIA
- 32. S-100 STRUCTURAL DEMOLITION PLANS
- 33. S-101 CONTROL BUILDING SLAB & FLOOR PLANS
- 34. S-102 CONTROL BUILDING ROOF PLANS
- 35. S-111 CAMBRIAN BUILDING SLAB & FLOOR PLANS
- 36. S-112 CAMBRIAN BUILDING ROOF PLANS
- 37. S-301 WALL SECTIONS
- 38. S-500 BUILDING FOUNDATION & SLAB DETAILS
- 39. S-501 BUILDING WALL & ROOF DETAILS
- 40. S-600 BUILDING SCHEDULES & DETAILS
- 41. S-700 CONCRETE DETAILS
- 42. S-701 CONCRETE DETAILS
- 43. S-710 MASONRY DETAILS
- 44. S-720 STAIR & GUARDRAIL DETAILS
- 45. S-721 FRAMING DETAILS

BUILDING MECHANICAL

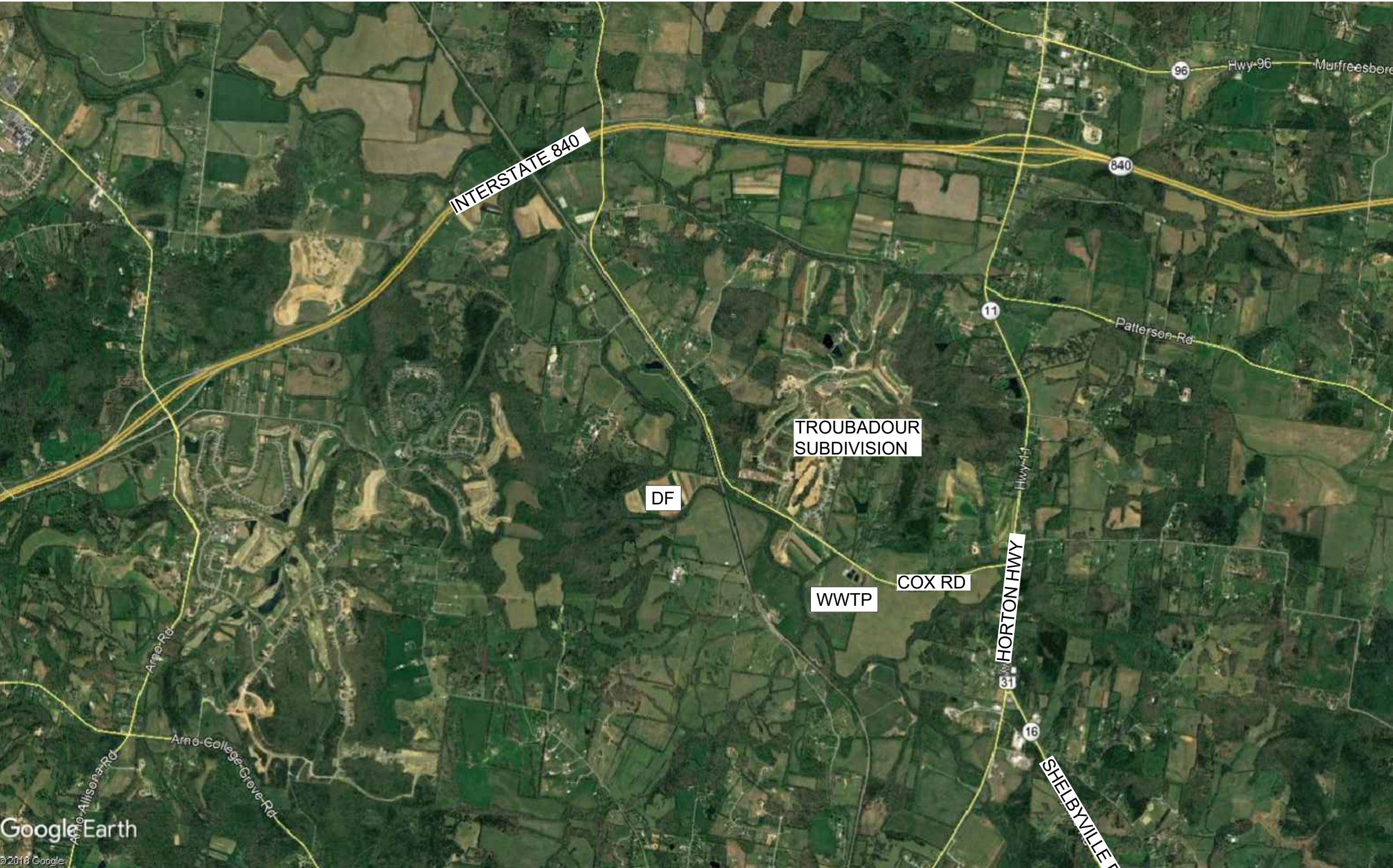
- 46. M-001 MECHANICAL GENERAL NOTES & LEGENDS
- 47. M-101 CONTROL BUILDING MECHANICAL PLAN
- 48. M-102 CONTROL BUILDING MECHANICAL ROOF PLAN
- 49. M-103 CAMBRIAN BUILDING MECHANICAL PLAN
- 50. M-104 CAMBRIAN BUILDING MECHANICAL ROOF PLAN
- 51. M-501 MECHANICAL DETAILS
- 52. M-502 MECHANICAL DETAILS
- 53. M-601 MECHANICAL SCHEDULES

ELECTRICAL

- 54. E-001 'MDP-C' ONE-LINE DIAGRAM
- 55. E-002 EXISTING MPD ONE-LINE DIAGRAM
- 56. E-100 WWTP ELECTRICAL SITE PLAN
- 57. E-102 PARTIAL WWTP ELECTRICAL SITE PLANS
- 58. E-103 CAMBRIAN BUILDING & INFLUENT SCREEN ELECTRICAL PLANS
- 59. E-104 CONTROL BUILDING ELECTRICAL PLANS
- 60. E-105 CAMBRIAN BUILDING ROOF ELECTRICAL PLAN
- 61. E-121 PHASE 2 DRIP FIELD ZONE LAYOUT ELECTRICAL
- 62. E-310 PHASE 2 DRIP FIELD RETURN PS ELECTRICAL
- 63. E-400 ELECTRICAL DETAILS
- 64. E-401 ELECTRICAL DETAILS
- 65. E-402 ELECTRICAL SCHEDULES

INSTRUMENTATION

- 66. I-001 INSTRUMENT NETWORK ARCHITECTURE
- 67. I-002 CONTROL WIRING BLOCK DIAGRAM
- 68. I-003 NEW PLANT PLC PANEL I/O AND WIRE LIST
- 69. I-004 NEW PLANT PLC PANEL I/O AND WIRE LIST
- 70. I-005 NEW PLANT PLC PANEL I/O AND WIRE LIST
- 71. I-006 CAMBRIAN PLC PANEL I/O AND WIRE LIST
- 72. I-102 PARTIAL WWTP INSTRUMENTATION SITE PLAN
- 73. I-103 CAMBRIAN BUILDING & INFLUENT SCREEN INSTRUMENT PLAN
- 74. I-104 CONTROL BUILDING INSTRUMENT PLAN
- 75. I-121 PHASE 2 DRIP FIELD INSTRUMENT SITE PLAN



LOCATION PLAN
SCALE: NONE

- WWTP INDICATES LOCATION OF EXISTING WASTE WATER TREATMENT PLANT & PHASE I DRIP FIELDS
- DF INDICATES PROPOSED LOCATION OF PHASE II DRIP FIELDS & RETURN PUMP STATION

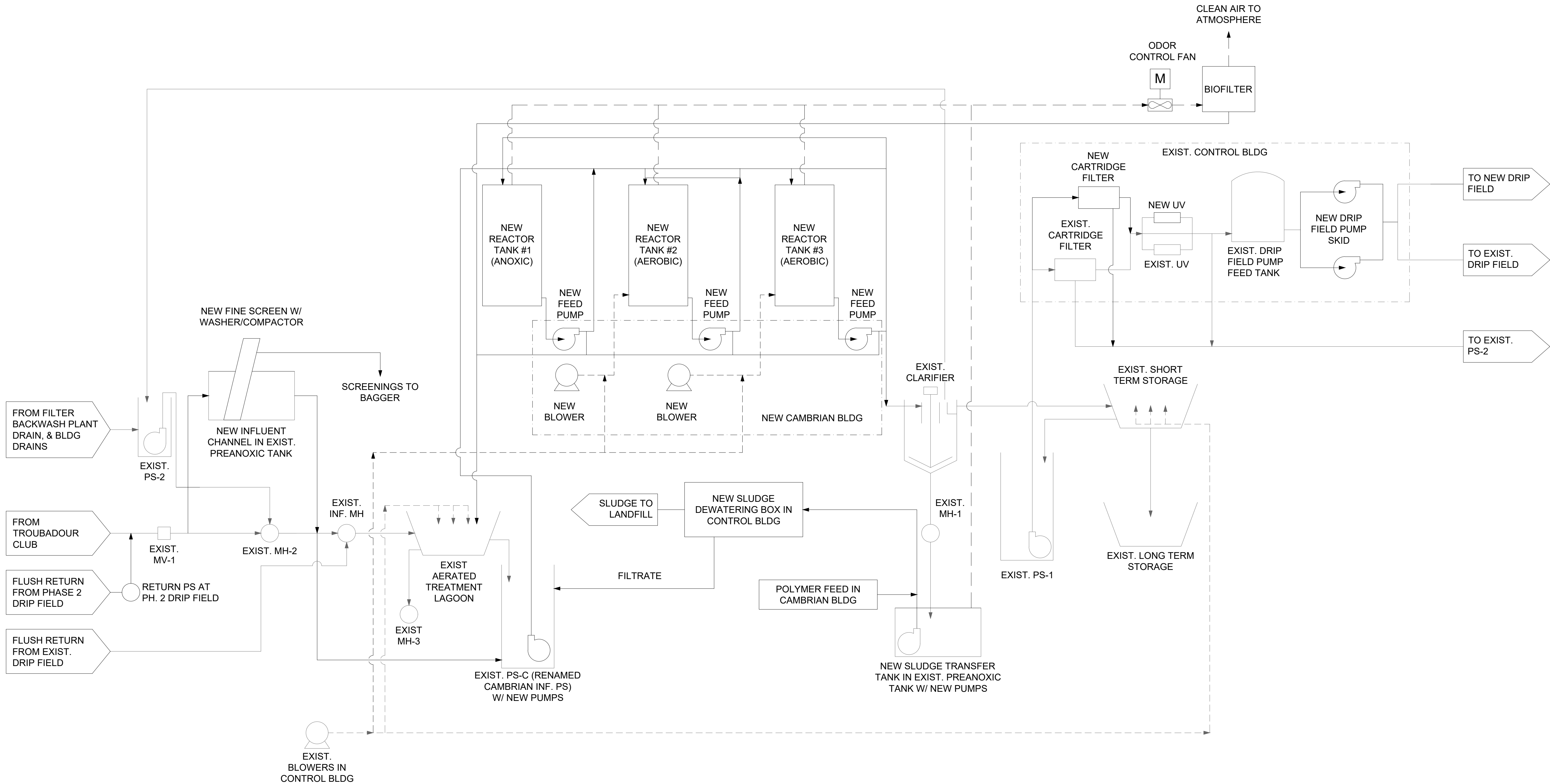
TREATMENT PLANT OWNER: CARTWRIGHT CREEK, LLC
ADDRESS: 6545 COX ROAD,
COLLEGE GROVE, TN 37046
PLANT MANAGER: BRUCE MEYER

ENGINEERING CONSULTANT: INFLO DESIGN GROUP, LLC
ADDRESS: 7000 EXECUTIVE CENTER DRIVE, SUITE 240
BRENTWOOD, TN 37027
PROJECT MANAGER: JASON ENGLISH, P.E.



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Last plotted by: Daniel Morgan, Plot Style: ---, Plot Date: 8/4/2020 2:55 PM, Plotter used: Microsoft Print to PDF

HIDEAWAY WWTP PHASE II DESIGN TABLE						
	BOD (mg/L)	BOD (lb/d)	TSS (mg/L)	TSS (lb/d)	TN (mg/L)	TN (lb/d)
Influent to Lagoon	369	361.8	143.0	140	77.7	76.0
Influent to Cambrian T-100	250	245	142.8	140	77.5	76
Effluent to Drip Fields	30	29.42	30	29.42	25	24.5



PROPOSED PROCESS FLOW DIAGRAM
SCALE: NONE



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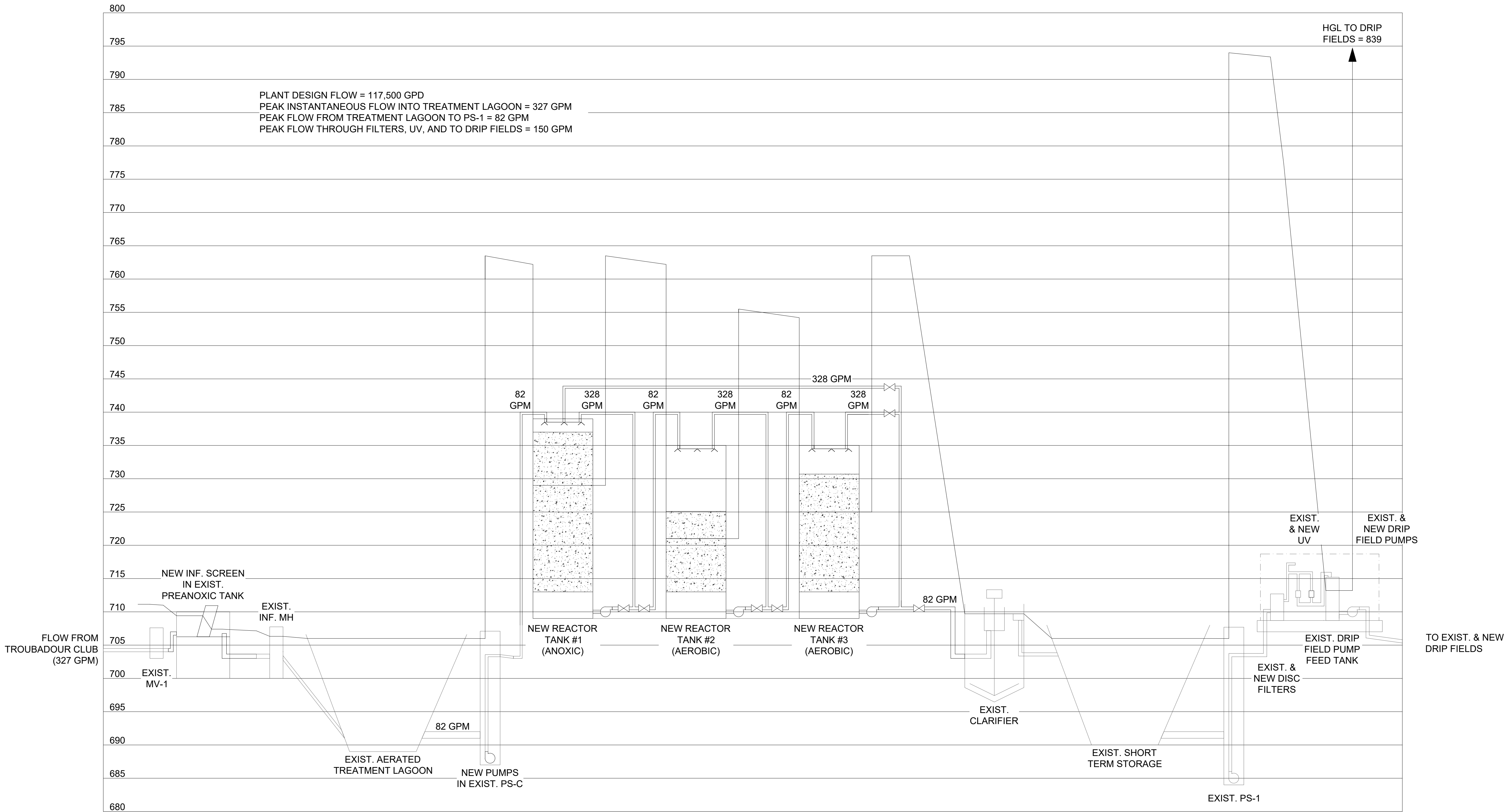
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP
PROCESS
FLOW
DIAGRAM

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
G-001
SHEET NUMBER
02

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Last plotted by: Daniel Morgan Plot Style: 1:1 Plot Date: 8/4/2020 2:55 PM Plotter used: Microsoft Print to PDF



PROPOSED HYDRAULIC PROFILE
VERTICAL SCALE: 1" = 8'-0"
HORIZONTAL SCALE: NONE



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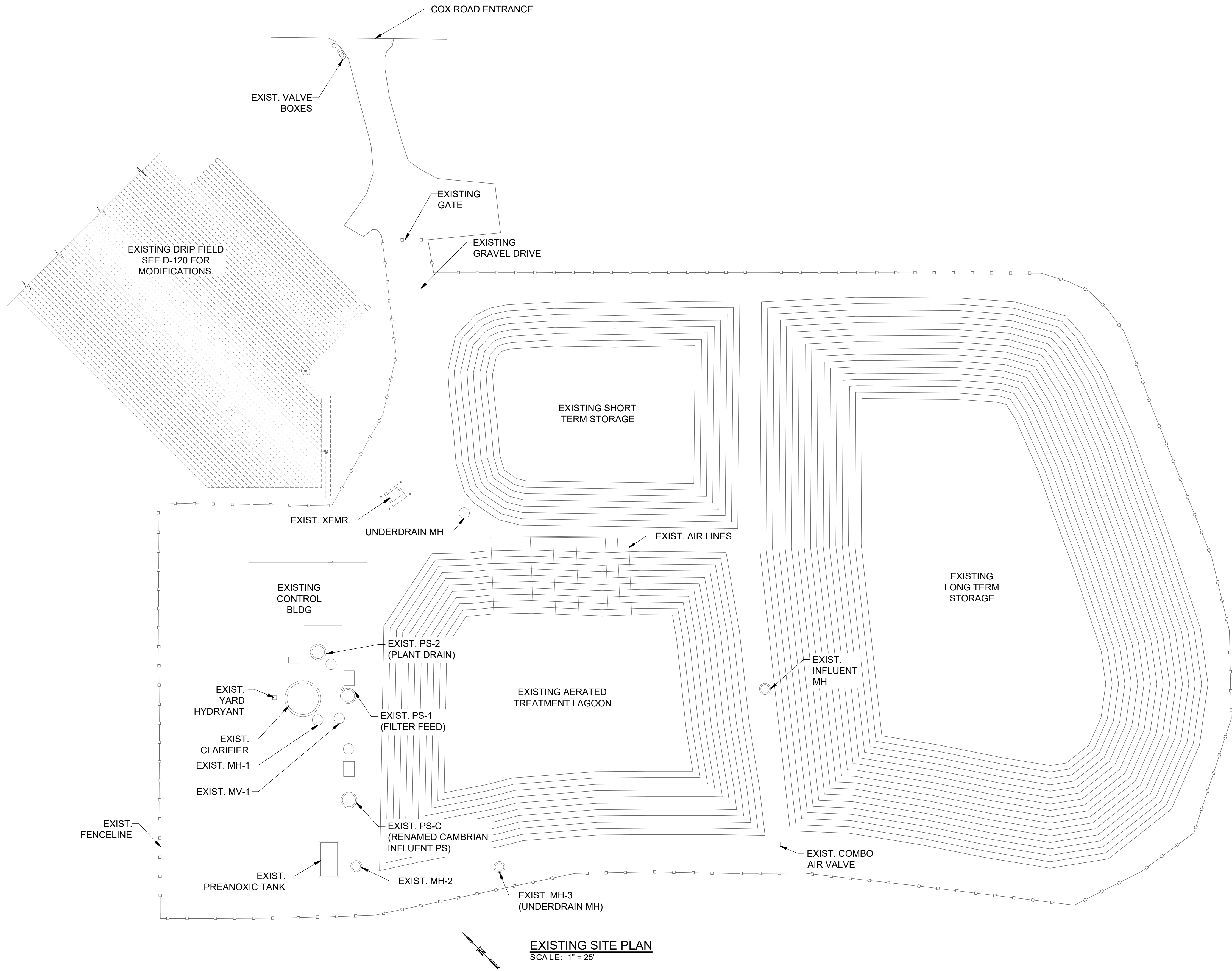
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP
HYDRAULIC
PROFILE

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
G-002
SHEET NUMBER
03

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Last plotted by: Daniel Morgan Plot Style: --- Plot Date: 8/4/2020 2:52 PM Plotter used: Microsoft Print to PDF



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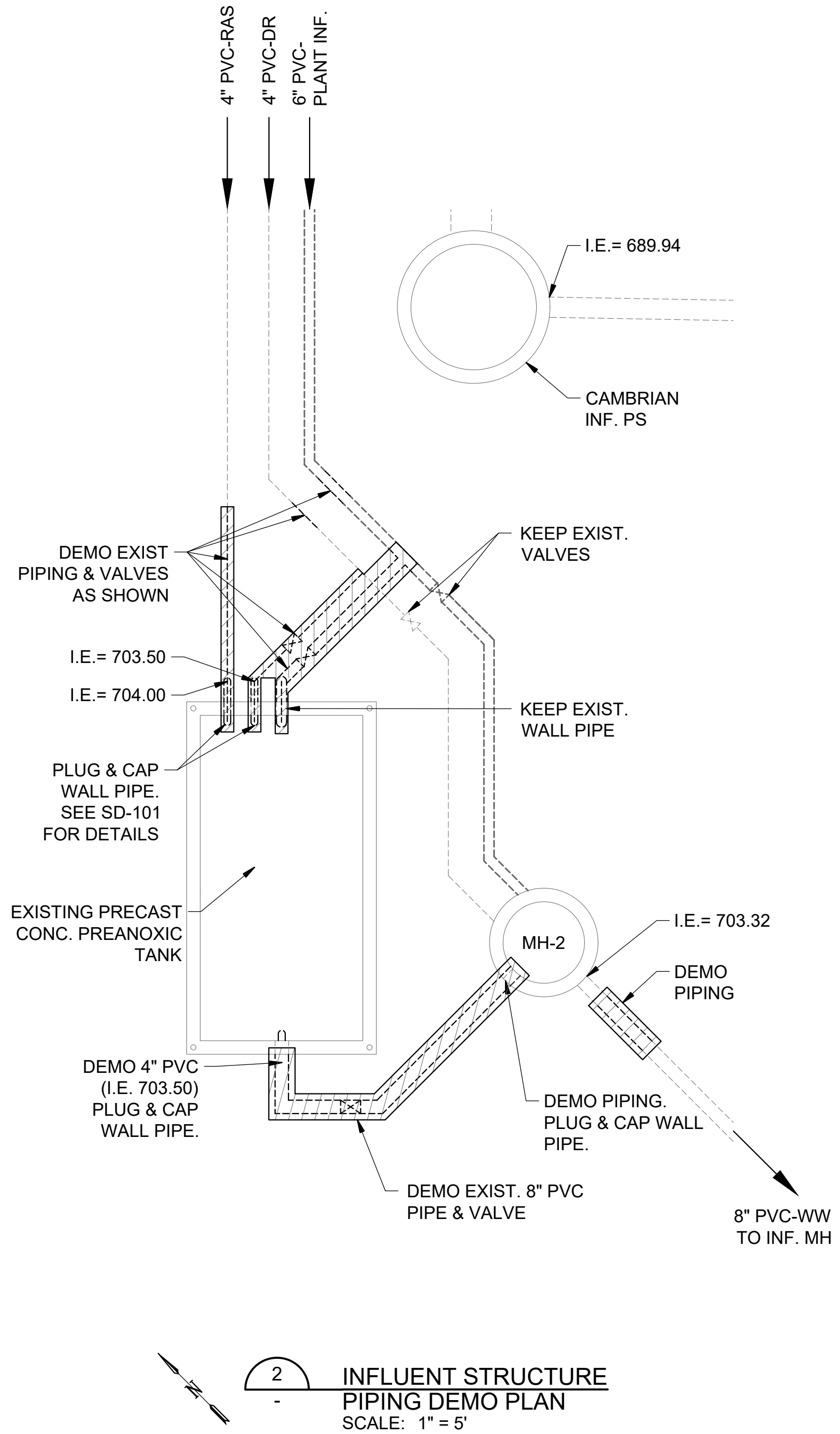
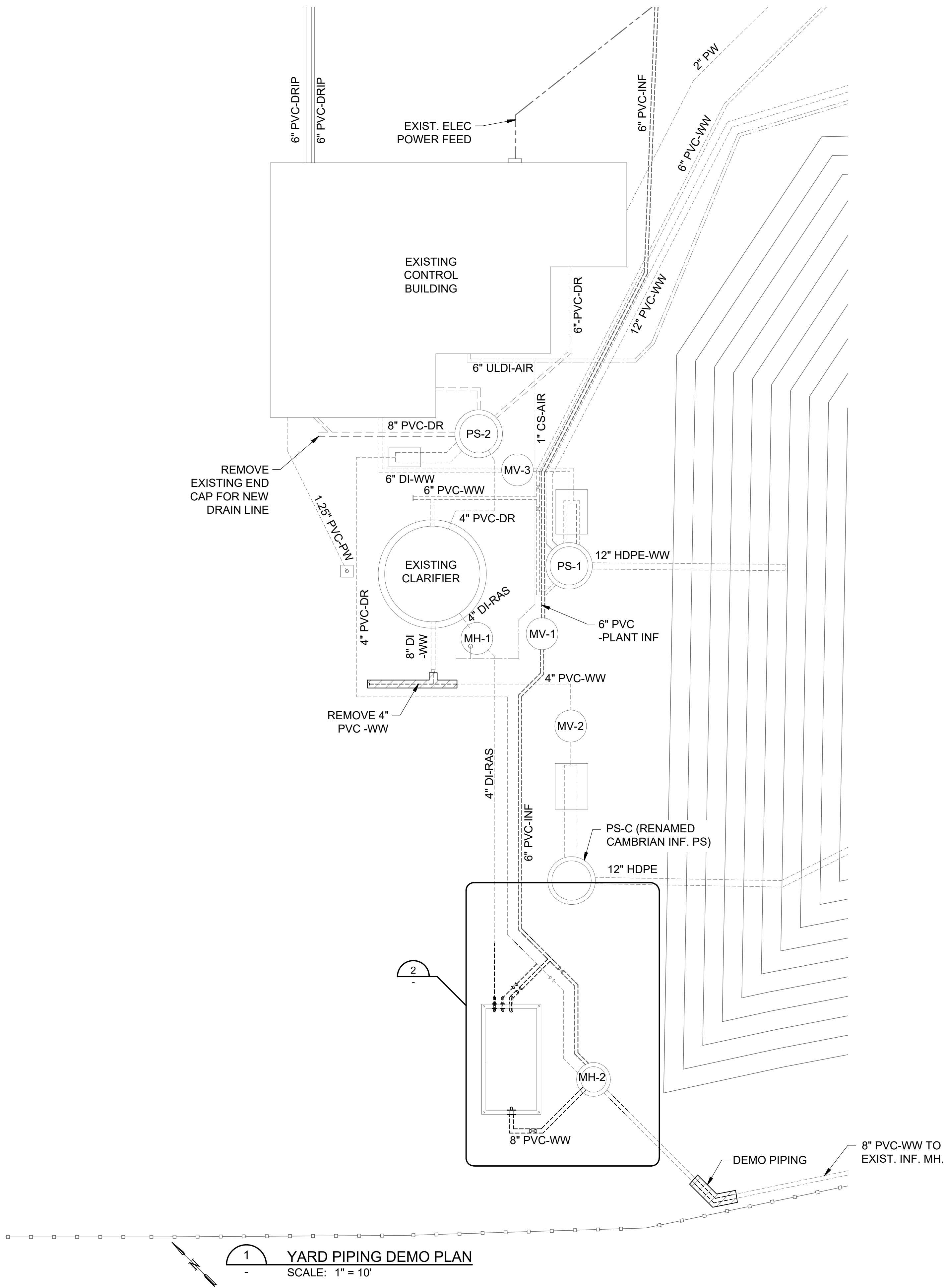
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WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**WWTP
EXISTING
SITE PLAN**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
C-001

SHEET NUMBER
04



DESIGN NOTES:

1. EXISTING PIPING INFORMATION IS APPROXIMATE BASED ON DESIGN DRAWINGS FROM PHASE 1 OF THE WWTP. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL PIPING AND VERIFYING EXISTING INFORMATION.
2. EXISTING WALL PIPES INDICATED AS PLUG & CAP SHALL BE CAPPED ON THE INTERIOR OF THE TANK W/ 1/2" SSTL PLATE WHICH IS SEAL WELDED TO WALL PIPE, THEN FILLED WITH 4,000 PSI NONSHRINK GROUT & CAPPED ON EXTERIOR OF TANK W/ 1/2" SSTL PLATE WHICH IS SEAL WELDED TO WALL PIPE. SEE 3/S-100

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP PIPING DEMOLITION PLAN

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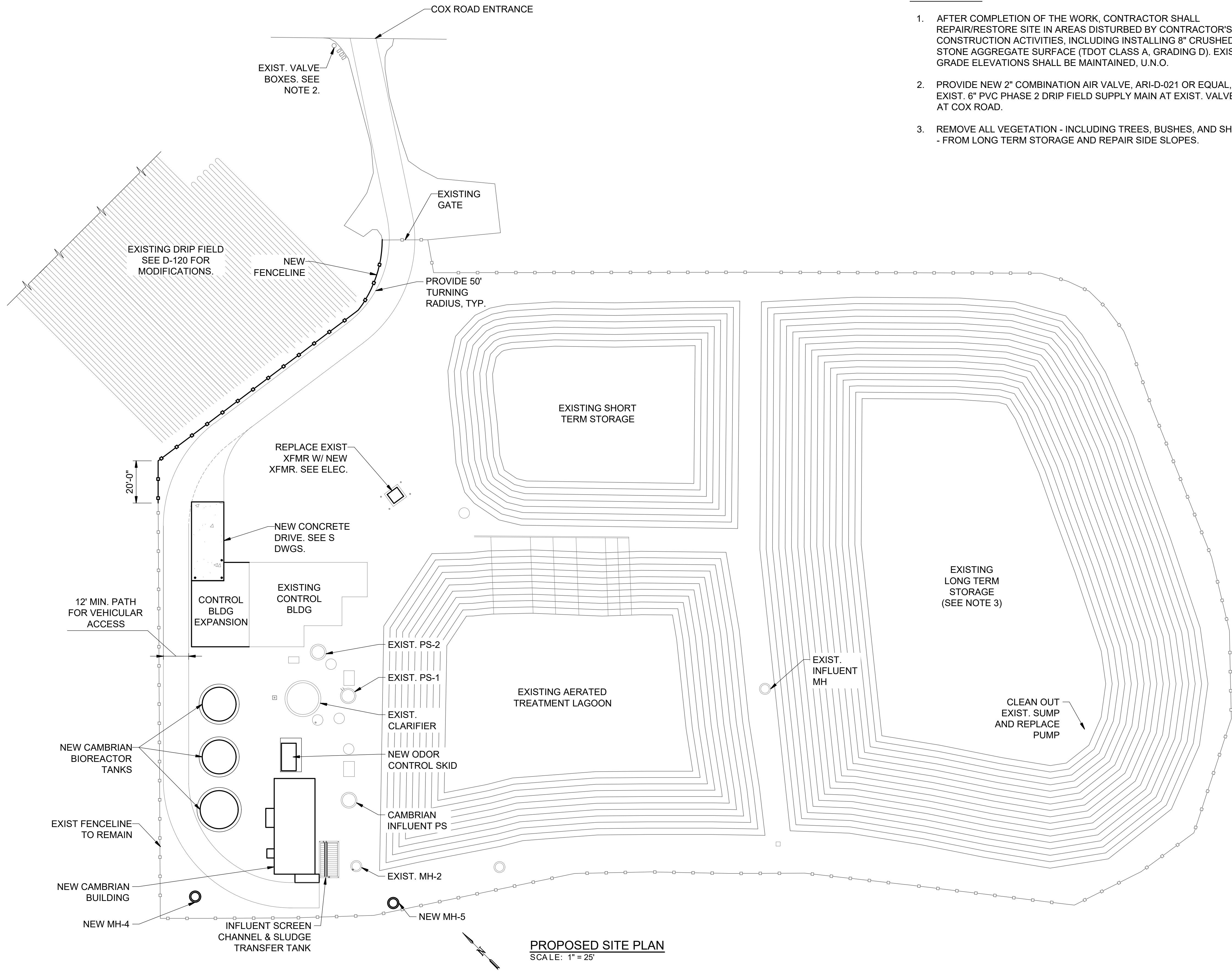
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C-002

SHEET NUMBER

05

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Last plotted by: Daniel Morgan Plot Style: --- Plot Scale: 1"=25' Plot Date: 8/4/2020 2:53 PM Plotter used: Microsoft Print to PDF



- DESIGN NOTES:
1. AFTER COMPLETION OF THE WORK, CONTRACTOR SHALL REPAIR/RESTORE SITE IN AREAS DISTURBED BY CONTRACTOR'S CONSTRUCTION ACTIVITIES, INCLUDING INSTALLING 8" CRUSHED STONE AGGREGATE SURFACE (TDOT CLASS A, GRADING D). EXISTING GRADE ELEVATIONS SHALL BE MAINTAINED, U.N.O.
 2. PROVIDE NEW 2" COMBINATION AIR VALVE, ARI-D-021 OR EQUAL, ON EXIST. 6" PVC PHASE 2 DRIP FIELD SUPPLY MAIN AT EXIST. VALVE BOX AT COX ROAD.
 3. REMOVE ALL VEGETATION - INCLUDING TREES, BUSHES, AND SHRUBS - FROM LONG TERM STORAGE AND REPAIR SIDE SLOPES.



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP
PROPOSED
SITE PLAN

THIS LINE
IS 1" AT
FULL SIZE

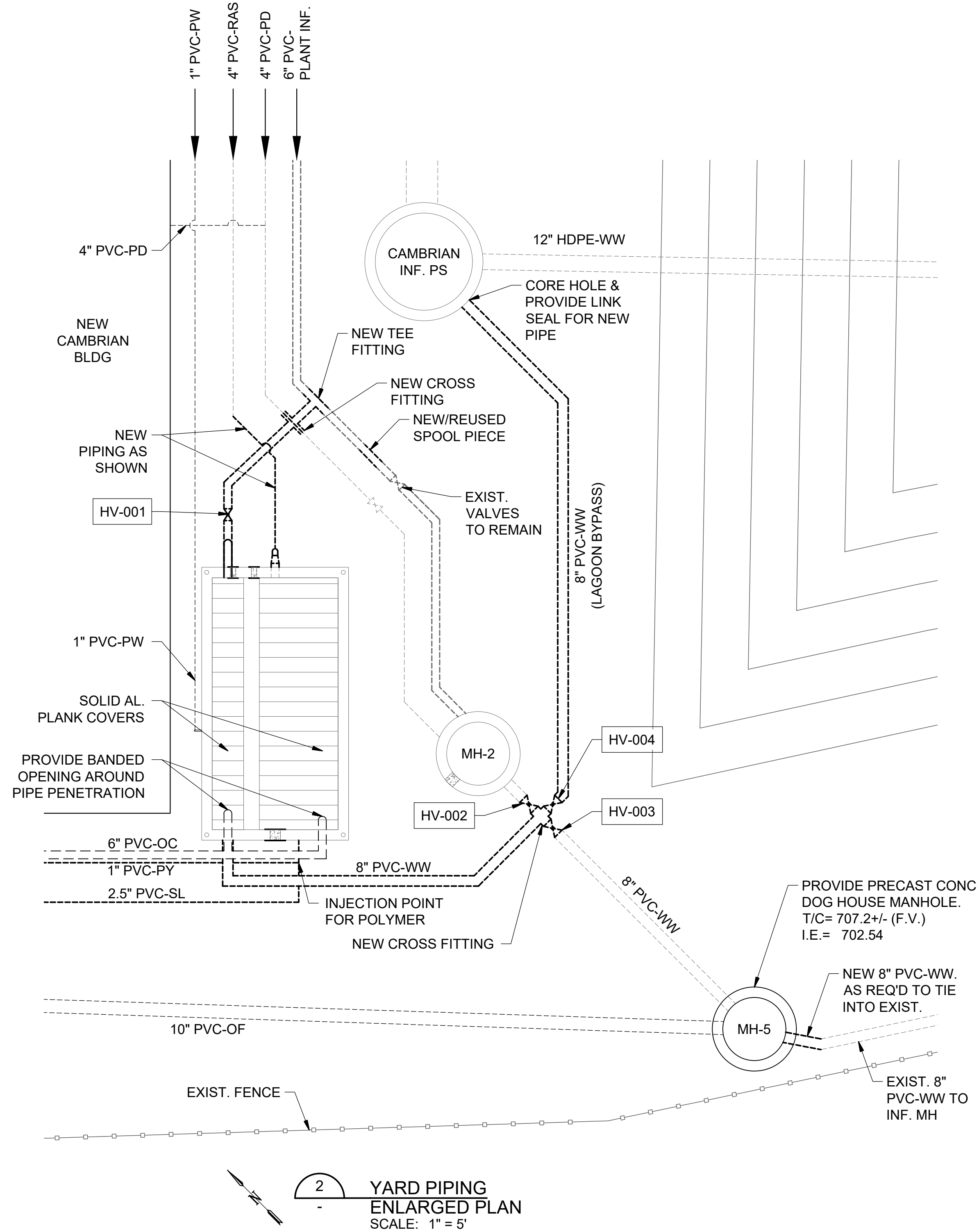
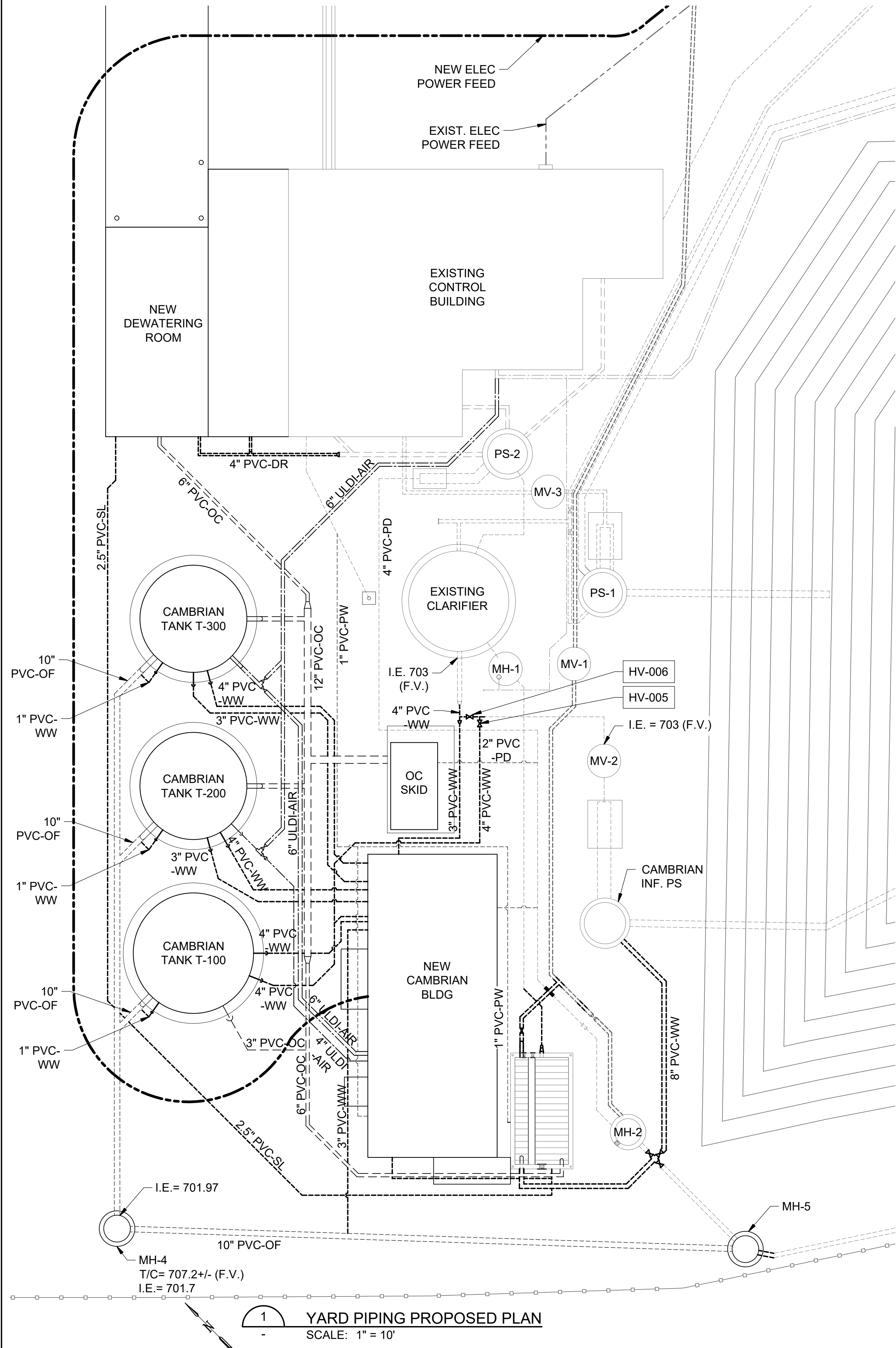
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C-101

SHEET NUMBER

06

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DESIGN NOTES:

- EXISTING PIPING INFORMATION IS APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL PIPING AND VERIFYING EXISTING INFORMATION.
- REFER TO CIVIL DRAWINGS BY M2 GROUP FOR PIPE ROUTING ALONG COX ROAD TO/FROM PHASE 2 DRIP FIELD. SEE D-121 FOR PHASE 2 DRIP FIELD SITE PLAN.

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**WWTP
PROPOSED
PIPING PLAN**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

C-102

SHEET NUMBER

07

VALVE & GATE TYPES	
– VALVES –	
ARV	AIR RELEASE VALVE
AVV	AIR VACUUM VALVE
BCV	BALL CHECK VALVE
BFP	BACKFLOW PREVENTER
BPV	BACKPRESSURE VALVE
BV	BALL VALVE
BFV	BUTTERFLY VALVE
CNV	CONE VALVE
CV	CHECK VALVE
DDCV	DOUBLE DISC CHECK VALVE
DV	DIAPHRAGM VALVE
DWV	DIAPHRAGM WEIR VALVE
GBV	GLOBE VALVE
GTV	GATE VALVE
HOV	HYDRAULICALLY OPERATED VALVE
KGV	KNIFE GATE VALVE
MOV	MOTOR OPERATED VALVE
MV	MUD VALVE
NV	NEEDLE VALVE
PHV	PINCH VALVE
POV	PNEUMATICALLY OPERATED VALVE
PRV	PRESSURE REDUCING/RELIEF VALVE
PSV	PRESSURE SUSTAINING VALVE
PV	PLUG VALVE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
RV	ROTARY VALVE
SRV	SURGE RELIEF VALVE
SV	SOLENOID VALVE
SWCV	SWING CHECK VALVE
TDCV	TILT DISC CHECK VALVE
– GATES –	
DVG	DIVERTER GATE
RG	ROLLER GATE
SLG	SLUICE GATE
SHG	SHEAR GATE
SG	SLIDE GATE
WG	WEIR GATE

PIPE SERVICES/SYSTEM IDENTIFIERS		
*	AA	ACETIC ACID
**	ACS	ACTIVATED CARBON SYSTEM
**	AER	AERATION SYSTEM
*	AG	AMMONIA GAS
*	AIR	AIR
*	AL	ALUMINUM SULFATE
*	ALUM	ALUMINUM CHLORIDE, ALUMINUM HYDROXIDE
*	AM	AMMONIA
*	AS	AQUEOUS AMMONIA (SOLUTION)
	BD	BUILDING DRAIN
*	BW	BACKWASH
*	BWR	BACKWASH RETURN
	CA	COMPRESSED AIR
*	CAUS	CAUSTIC
*	CHLMN	CHLORAMINE
	CHR	CHILLED WATER RETURN
	CHS	CHILLED WATER SUPPLY
**	CI	CHEMICAL INJECTION SYSTEM
**	CIP	CLEAN IN PLACE SYSTEM
*	CIT	CITRIC ACID
*	CL	LIQUID CHLORINE
*	CLDX	CHLORINE DIOXIDE
	CLG	CHLORINE GAS
	CLGV	CHLORINE GAS VACUUM
	CLS	CHLORINE SOLUTION
	CO2	CARBON DIOXIDE
*	COAG	COAGULANT
*	CORH	CORROSION INHIBITOR
*	CS	CHLORINE SOLUTION
*	CUS	COPPER SULFATE
**	CW	CLEARWELL
**	CWS	CHILLED WATER SYSTEM
**	DAF	DISSOLVED AIR FLOTATION SYSTEM
	DCNT	DECANT
*	DR	DRAIN
**	EQ	EQUALIZATION SYSTEM
*	FECL	FERRIC CHLORIDE
*	FES	FERROUS SULFATE
*	FES04	FERRIC SULFATE
*	FIL	FILTRATE / FILTERED
**	FIL	FILTRATION SYSTEM
*	FL	FLUORIDE
**	FLOC	FLOCCULATION SYSTEM

PIPE SERVICES/SYSTEM IDENTIFIERS	
** FMX	FLASH MIX SYSTEM
FOR	FUEL OIL RETURN
* FOS	FUEL OIL SUPPLY
* FP	FIRE PROTECTION
* FW	FINISHED WATER
* GAS	GASOLINE
* GOX	GASEOUS OXYGEN
* H2S	HYDROGEN SULFIDE
* HS	HIGH SERVICE
HWR	HOT WATER RETURN
* HWS	HOT WATER SUPPLY
* IA	INSTRUMENT AIR
** IES	ION EXCHANGE SYSTEM
IRR	IRRIGATION
* LI	LIME
* LNG	LIQUID NATURAL GAS
* LOX	LIQUID OXYGEN
* LPG	LIQUID PROPANE GAS
* LS	LIME SOLUTION OR SLURRY
** MEM	MEMBRANE FILTRATION SYSTEM
* N2	NITROGEN GAS
* NACL	SALT/SALT SOLUTION
* NG	NATURAL GAS
NPW	NON POTABLE WATER
* O3	OZONE
OF	OVERFLOW
OG	OFF GAS
** OZ	OZONE SYSTEM
PA	PROCESS AIR
* PAC	POWDERED ACTIVATED CARBON
* PACL	POLYALUMINUM CHLORIDE
* PD	PROCESS DRAIN
* POA	PHOSPHORIC ACID
* POT	POTASSIUM PERMANGANATE
* PRM	PERMEATE
PW	POTABLE WATER
* PY	POLYMER
RC	REJECT CLARIFIER
RD	ROOF DRAIN
* REC	RECYCLE
* REW	REWASH
* RW	RAW WATER
* SA	SULFURIC ACID
* SAMP	SAMPLE
* SBS	SODIUM BISULFITE
** SCC	SOLIDS CONTACT CLARIFIER

PIPE SERVICES/SYSTEM IDENTIFIERS		
** SCR	SOLIDS CONTACT REACTOR SYSTEM	
** SCRN	SCREENINGS	
** SCS	SURGE CONTROL SYSTEM	
SD	STORM DRAIN	
** SED	SEDIMENTATION SYSTEM	
SFTW	SOFTENED WATER	
* SH	SODIUM HYDROXIDE	
* SHCLR	SODIUM HYPOCHLORITE	
* SL	SLUDGE	
SN	SUPERNATANT	
* SP	SODIUM PERMANGANATE	
SS	SANITARY SEWER	
SW	SETTLED WATER	
* TS	THICKENED SLUDGE	
TW	TREATED WATER	
* UD	UNDER DRAINS	
** UV	ULTRAVIOLET LIGHT DISINFECTION SYSTEM	
* UW	UTILITY WATER	
VENT	VENT	

* INDICATES BOTH PIPE SERVICE AND SYSTEM IDENTIFIER.

** INDICATES SYSTEM IDENTIFIER ONLY.

NO ASTERISK INDICATES PIPE SERVICE ONLY.

JOINT TYPE	
CC	CORRUGATED COUPLING
CPL	COUPLING
FCA	FLANGED COUPLING ADAPTOR
FLG	FLANGE
FREJ	FLEXIBLE RUBBER EXPANSION JOINT
GVD	GROOVED
MJ	MECHANICAL JOINT
NPT	THREADED

PIPE MATERIAL	
ABS	ACRYLONITRILE BUTADIENE STYRENE
BSP	BLACK STEEL PIPE
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CMP	CORRUGATED METAL PIPE
CP	CONCRETE PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CSP	CARBON STEEL PIPE (SEAMLESS)
CU	COPPER
DIP	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PLASTIC
GIP	GALVANIZED IRON PIPE
GSP	GALVANIZED STEEL PIPE
HA	HALAR
HASTC	HASTALLOY C
HDPE	HIGH DENSITY POLYETHYLENE
IP	IRON PIPE
PB	POLYBUTYLENE
PCP	PRESTRESSED CONCRETE PRESSURE
PE	POLYETHYLENE
PEX	CROSSLINKED PE
PP	POLYPROPYLENE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE
RCP	REINFORCED CONCRETE PIPE
RH	RUBBER HOSE
SST	STAINLESS STEEL PIPE
STL	STEEL (FABRICATED)
TEF	TEFLON
TI	TITANIUM
VCP	VITRIFIED CLAY PIPE

JOINT TYPE	
OR	O RING
PE	PLAIN END
PO	PUSH ON
RFA	RESTRAINED FLANGE ADAPTOR
RJ	RESTRAINED JOINT
SW	SOLVENT WELD
SWT	SWEAT

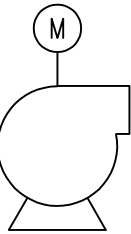
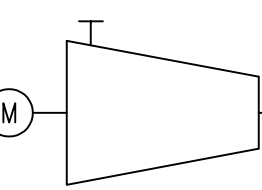
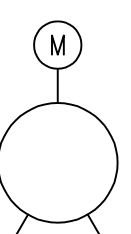
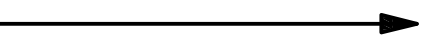
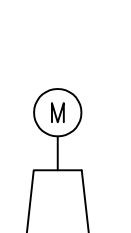
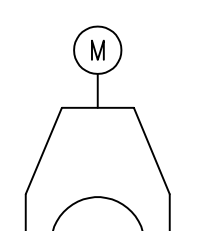
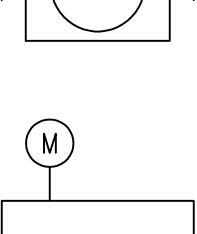
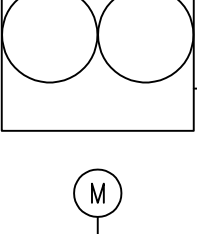
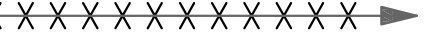
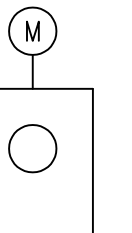
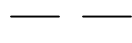
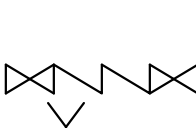
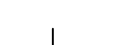
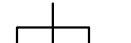
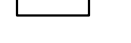
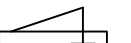
UNIT DESIGNATION	
BC	BRIDGE CRANE
BFP	BELT FILTER PRESS
BL	BLOWER
BLR	BOILER
CC	CALIBRATION COLUMN
CCR	CARBON COLUMN REACTOR
CENT	CENTRIFUGE
CH	CHILLER
CHLR	CHLORINATOR
CLAS	CLASSIFIER
CNVR	CONVEYOR
COMP	COMPRESSOR
DC	DAVIT CRANE
DIFF	DIFFUSER
DRY	DRYER
DTK	DAY TANK
DVG	DIVERTER GATE
EDU	EDUCTOR
F	FAN
FDR	FEEDER
FLTR	FILTER
FP	FILTER PRESS
GBT	GRAVITY BELT THICKENER
HEX	HEAT EXCHANGER
HST	HOIST
MRL	MONORAIL
MX	MIXER
P	PUMP
PD	PULSATION DAMPENER
PE	PROCESS EQUIPMENT
PR	PRESS
R	REACTOR
RCVR	RECEIVER
RDT	ROTARY DRUM THICKENER
SAMP	SAMPLER
SCRB	SCRUBBER
SCRN	SCREEN
SMX	STATIC MIXER
STLR	TUBE OR PLATE SETTLERS
STN	STRAINER
TC	TOWER/COLUMNS
TCENT	THICKENING CENTRIFUGE
TK	TANK
VIB	VIBRATOR



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PROCESS ABBREVIATIONS

PIPING AND VALVE SYMBOLS		PUMP SYMBOLS		BLOWER/COMPRESSOR SYMBOLS		FLOW ELEMENT SYMBOLS		LINE SYMBOLS	
	- GATE VALVE		- STEAM TRAP		- CENTRIFUGAL PUMP		- CENTRIFUGAL COMPRESSOR		- PRIMARY PROCESS LINE
	- GLOBE VALVE		- FLEXIBLE CONNECTION		- SPLIT CASE PUMP		- CORIOLIS FLOW METER		- SECONDARY PROCESS LINE
	- BALL VALVE		- EXPANSION JOINT		- SUBMERSIBLE OR SUMP PUMP		- PROPELLER FLOW METER		- EXISTING
	- CHECK VALVE		- REDUCER		- CENTRIFUGAL BLOWER		- ORIFICE PLATE		- EXISTING TO BE REMOVED
	- TWIN DISC CHECK VALVE		- UNION		- POSITIVE DISPLACEMENT COMPRESSOR		- PARSHALL FLUME		- EXISTING TO BE ABANDONED
	- CUSHIONED SWING CHECK VALVE		- WYE STRAINER		- POSITIVE DISPLACEMENT COMPRESSOR		- MAGNETIC FLOW METER		- HYDRAULIC
	- BUTTERFLY VALVE		- COUPLING (TRANSITION)		- POSITIVE DISPLACEMENT BLOWER		- FLOW TUBE (VENTURI)		- FUTURE
	- PLUG VALVE		- QUICK COUPLING				- DISC FLOW METER		- PIPE SPEC CHANGE
	- CONE VALVE		- CALIBRATION CHAMBER						- PVC DIP
	- DIAPHRAGM		- WATER HAMMER ARRESTOR						- SHEET CONTINUATION
	- ANGLE VALVE		- ROTAMETER						- CONTINUATION ELSEWHERE, SAME SHEET
	- THREE WAY VALVE		- PULSATION DAMPER						
	- PRESSURE REDUCING VALVE		- EDUCTOR						
	- BACKFLOW PREVENTER		- INJECTOR						
	- SOLENOID OPERATED VALVE		- STATIC METER						
	- BACK PRESSURE VALVE		- MIXER						
	- PRESSURE RELIEF OR SAFETY VALVE		- V-NOTCH WEIR						
	- AIR RELEASE VALVE		- DRAIN						
	- KNIFE GATE VALVE		- AIR SET						
	- NEEDLE VALVE		- INSERTION INSTRUMENT						
	- FOOT VALVE		- AUTOMATIC CONDENSATE TRAP						
	- MUD VALVE		- RUPTURE DISK (ON PRESSURE)						
	- POST INDICATING VALVE		- RUPTURE DISK (ON VACUUM)						
	- PINCH VALVE		- FLEXIBLE HOSE WITH QUICK COUPLINGS						
	- DIAPHRAGM WEIR VALVE		- FLANGES						
	- PNEUMATIC DIAPHRAGM OPERATED VALVE		- PRESSURE INSTRUMENT PROTECTOR						
	- ELECTRIC MOTOR OPERATED VALVE		- PARTICULATE FILTER						
	- FLOAT VALVE		- DESICCANT DRYER						
	- PRESSURE CONTROL VALVE		- SEPARATOR						
	- WEIR GATE		- BASKET STRAINER						
	- SLIDE GATE		- BUBBLER SYSTEM						
	- SLUICE GATE								
	- TELESCOPING VALVE								
	- SPACE HEATER/HEAT TRACING								
	- ELECTRIC MOTOR								
	- AUTOMATIC AIR VENT								
	- MANUAL AIR VENT								
	- THERMOWELL								
	- CAP								

REV	DATE	DESCRIPTION	BY
-	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**PROCESS
LEGEND &
SYMBOLS**

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IS 1" AT
FULL SIZE

DRAWING NUMBER

D-002

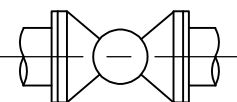
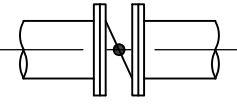
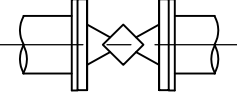
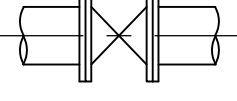
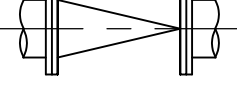
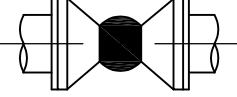
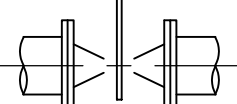
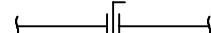
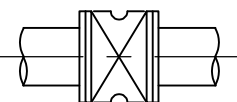
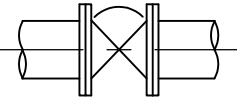
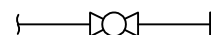
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PIPE AND FITTING SYMBOLS			
DOUBLE LINE	SINGLE LINE		
		- EXISTING PIPE	
		- DEMOLISHED PIPE	
		- ABANDON PIPE	
		- NEW PIPE	
		- WELDED JOINT	
		- GROOVED END JOINT	
		- FLANGED JOINT	
		- MECHANICAL JOINT	
		- PUSH ON JOINT	
		- BALL JOINT	
		- FLANGE ADAPTOR	
		- RESTRAINED FLANGE ADAPTOR	
		- EXPANSION COUPLING	
		- 90° BEND	
		- 90° BEND DOWN	
		- 90° BEND UP	
		- 45° BEND	
		- 45° BEND DOWN	
		- 45° BEND UP	
		- TEE	
		- CROSS	
		- TEE DOWN	
		- TEE OR CROSS UP	
		- WYE	
		- WYE DOWN	
		- WYE UP	
		- CONCENTRIC REDUCER	
		- ECCENTRIC REDUCER	
		- BELLOWS EXPANSION JOINT - ELASTOMERIC	
		- BELLOWS EXPANSION JOINT - METAL	
NOTE: 1. DOUBLE LINE FITTINGS ARE FLANGED. OTHER CONNECTIONS ARE SHOWN SIMILAR ON THE DRAWINGS. 2. SINGLE LINE FITTINGS ARE GENERIC ONLY.			

NOTE:
1. THIS IS A STANDARD LEGEND SHEET. ALL INFORMATION ON THIS LEGEND MAY NOT BE USED.

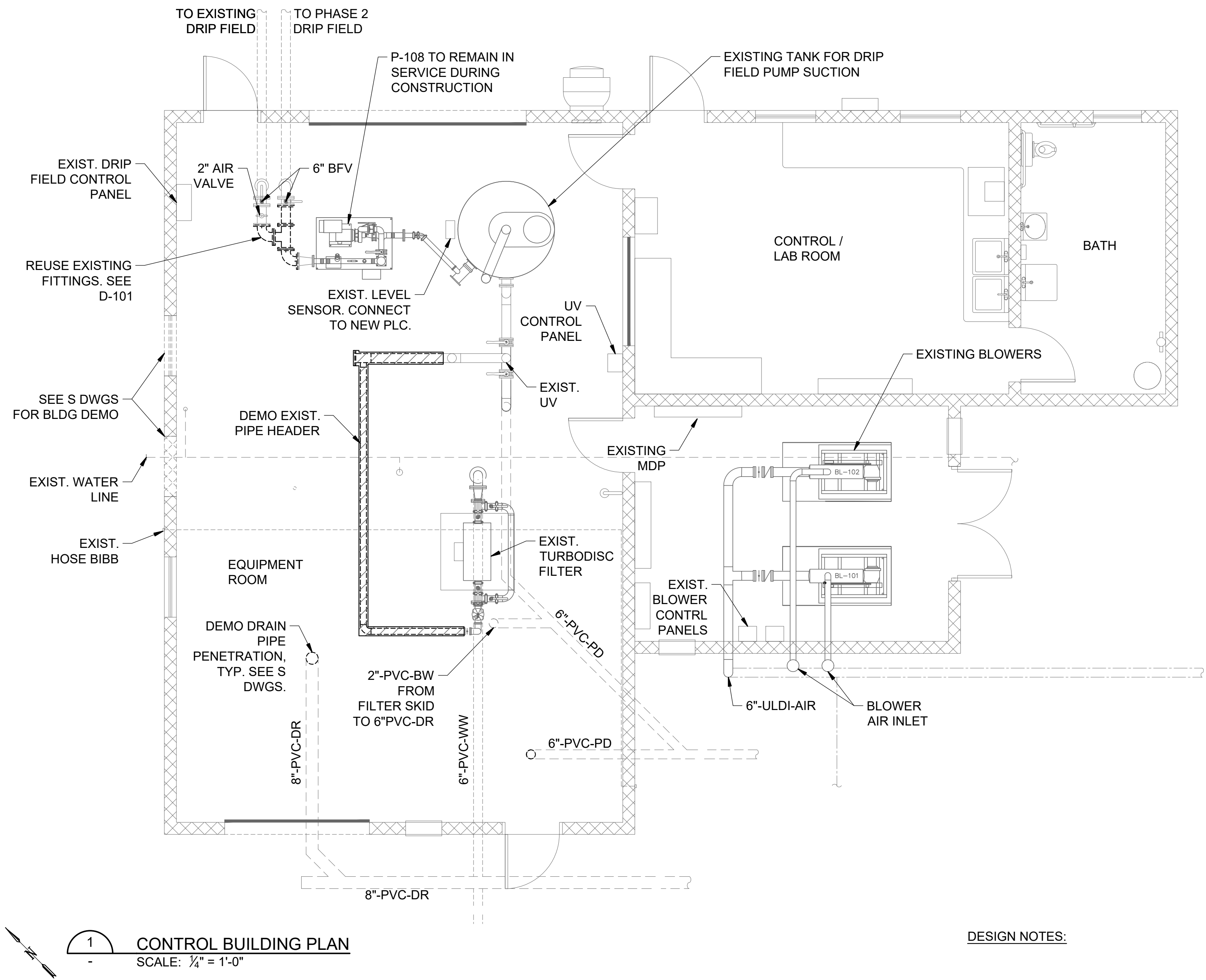
VALVE SYMBOLS		
DOUBLE LINE	SINGLE LINE	
		- BALL VALVE
		- BUTTERFLY VALVE
		- PLUG VALVE
		- GATE VALVE
		- CHECK VALVE
		- GLOBE VALVE
		- KNIFE GATE VALVE
		- PINCH VALVE
		- DIAPHRAGM VALVE
		- SOLENOID VALVE
		- NEEDLE VALVE
		- FLUSHING CONNECTION W/QUICK DISCONNECT

GENERAL NOTES:

- LAY GRAVITY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT PIPING, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT PIPE SEGMENTS.
- INDICATED LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS ARE APPROXIMATE. CONTRACTOR SHALL DESIGN SUPPORTS AS SPECIFIED.
- ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL UNLESS INDICATED OTHERWISE.
- ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR 110% OF TEST PRESSURES SPECIFIED.
- SYMBOLS, LEGENDS AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS WHEREVER APPLICABLE.

- ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED OR SCREWED PIPING, SHALL BE PROVIDED WITH THRUST RESTRAINTS AS SPECIFIED AT ALL DIRECTION CHANGES, SIZE CHANGES, AND DEAD ENDS UNLESS OTHERWISE NOTED. SEE THRUST RESTRAINT DETAILS (DETAIL SHEETS) AND NOTES ON THIS SHEET. ALL CONNECTIONS TO EXISTING PIPE SHALL BE MADE WITH RETAINER GLANDS.
- NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND PROCESS EQUIPMENT.
- WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.
- ALL PIPELINES LEAVING STRUCTURES SHALL INCORPORATE FLEXIBILITY FEATURES AS SPECIFIED IN SECTION 02610 AND SECTION 15062. IN SOME CASES, PIPING JOINTS OUTSIDE FACILITIES ARE SHOWN ON DRAWINGS. PIPING FLEXIBILITY FEATURES SHALL BE INCORPORATED AS SPECIFIED REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON A DRAWING.
- ALL PROCESS PIPING IS TO BE LABELED IN ACCORDANCE WITH ASME A131 AND SECTION 09900 OF THE SPECIFICATIONS.
- VALVE SYMBOLS SHOWN ON THIS SHEET ARE APPLICABLE TO STANDARD DETAILS

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONTROL BUILDING DEMOLITION PLAN

THIS LINE IS 1" AT FULL SIZE

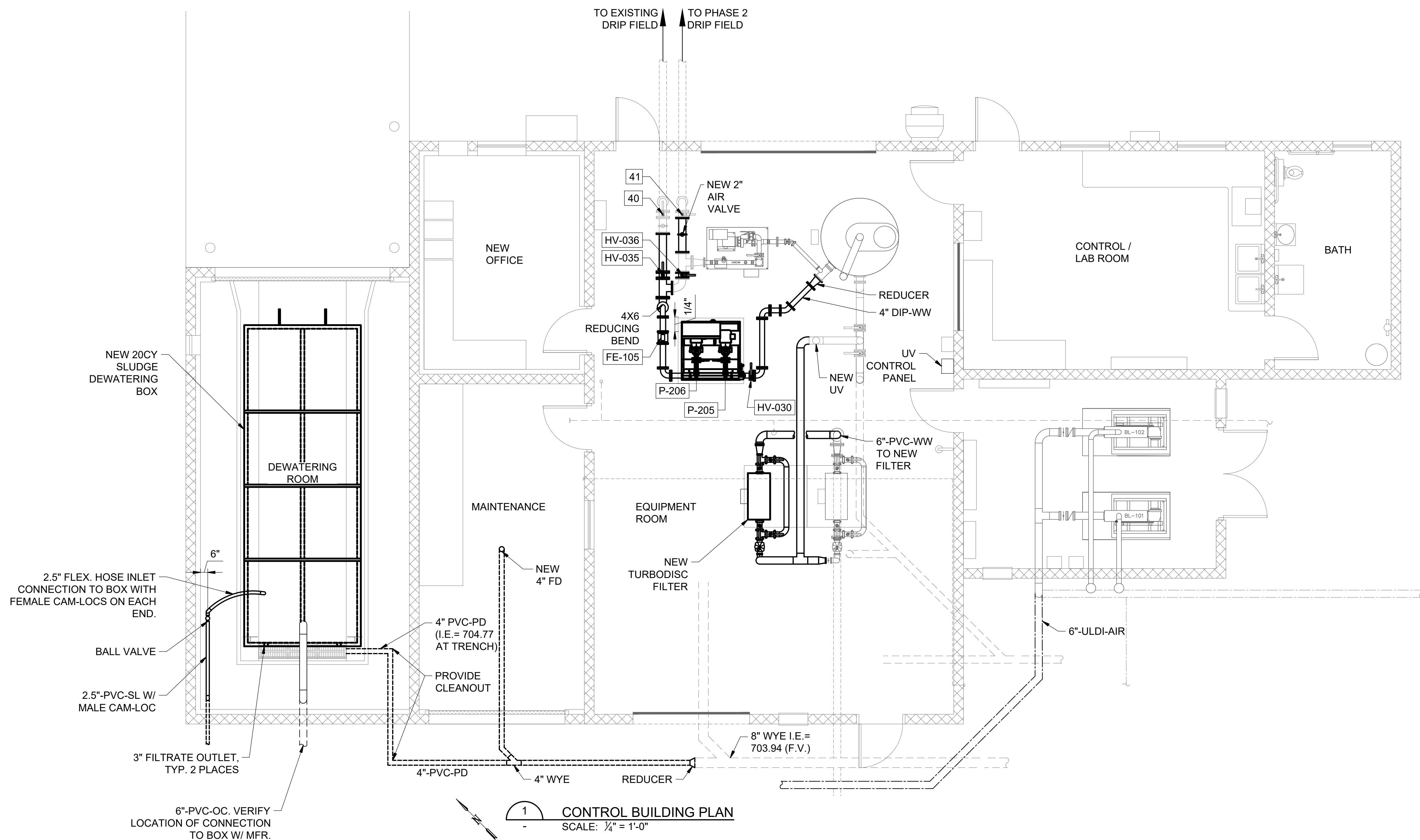
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D-100

SHEET NUMBER

12

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CONTROL
BUILDING
PLAN**

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IS 1" AT
FULL SIZE

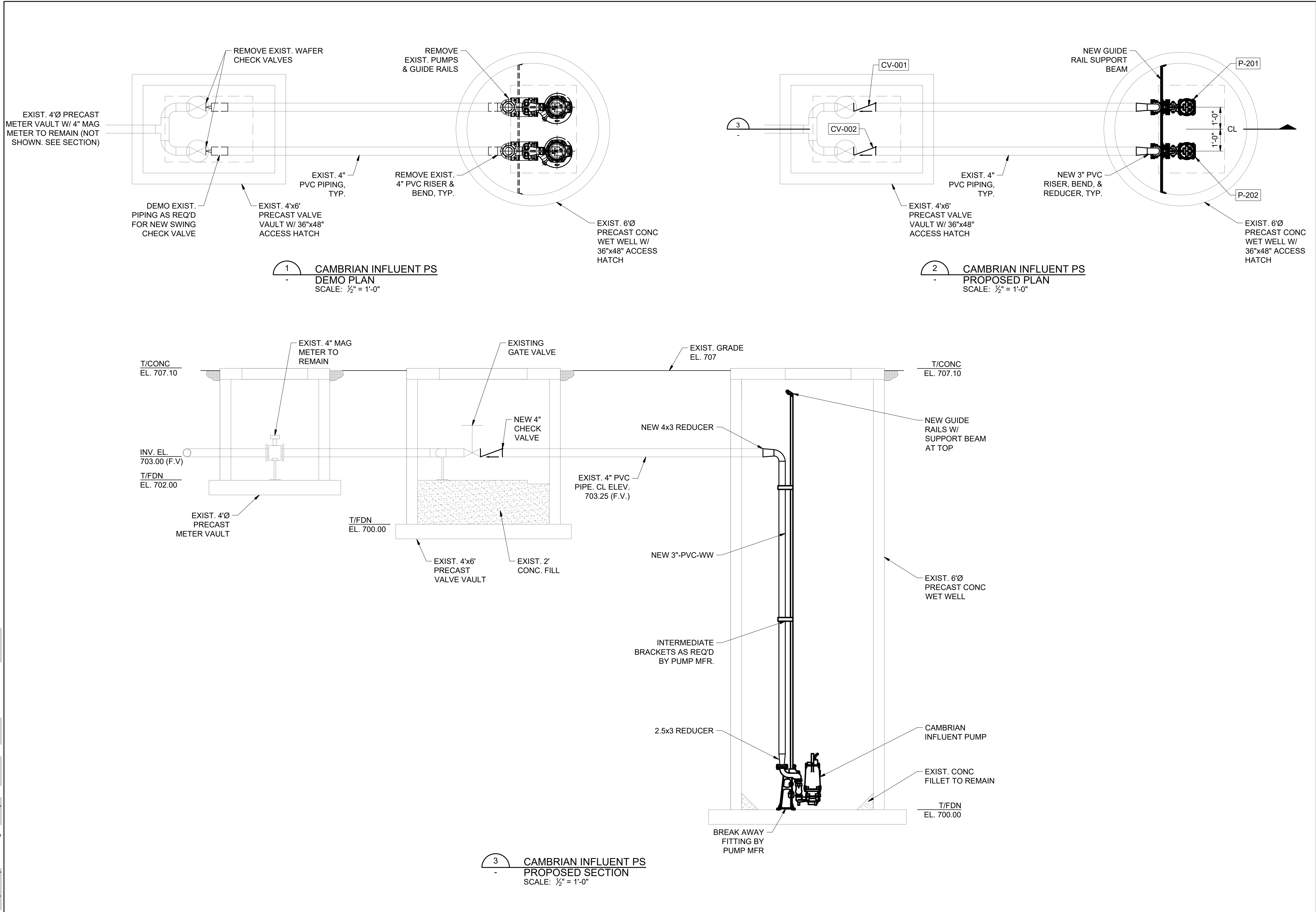
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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CAMBRIAN
INFLUENT PS
PLANS &
SECTION**

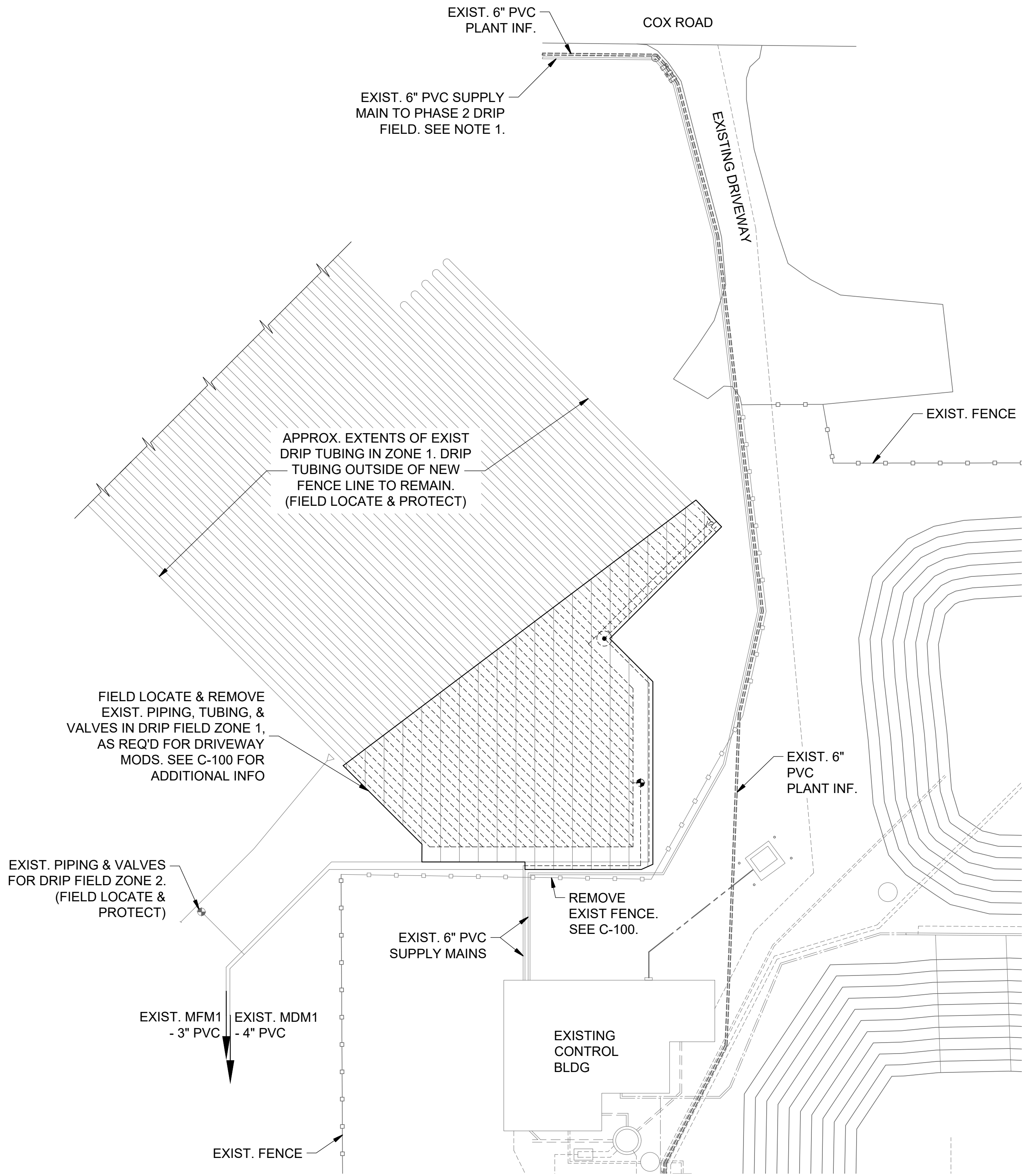
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DRAWING NUMBER
D-115
SHEET NUMBER
15



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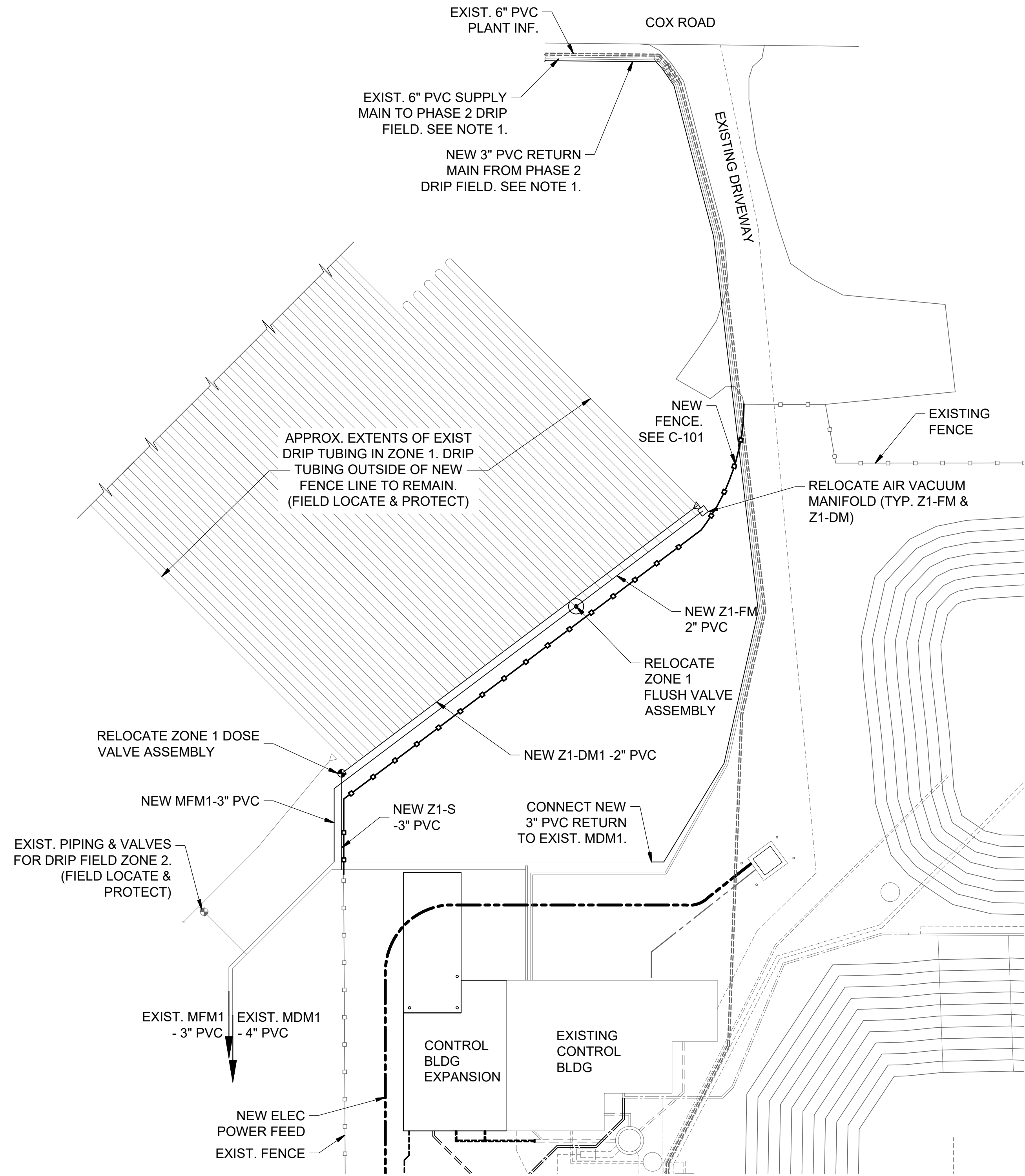
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1
DRIP FIELD MODIFICATIONS
ZONE 1 DEMO PLAN
SCALE: 1" = 20'

NOTES:

1. REFER TO CIVIL DRAWINGS BY M2 GROUP FOR PIPE ROUTING ALONG COX ROAD. SEE D-121 FOR PHASE 2 DRIP FIELD.
2. DRIP FIELD PIPING, TUBING, AND VALVES ARE REPRESENTATIVE OF PORTIONS OF ZONES 1 & 2 FROM EXISTING INSTALLATION. CONTRACTOR SHALL REFER TO PHASE 1 DRIP IRRIGATION DRAWINGS FOR ADDITIONAL INFO. FIELD VERIFY LOCATIONS AND EXTENTS DURING CONSTRUCTION.
3. SEE D-510 FOR DRIP IRRIGATION SYSTEM DETAILS AND REQUIREMENTS.
4. PRIOR TO REUSING ZONE 1 FOR DRIP IRRIGATION, CONTRACTOR SHALL FLUSH ZONE. REFER TO SPECIFICATION SECTION 01 92 10 FOR ADDITIONAL REQUIREMENTS.
5. EXISTING DRIP IRRIGATION VALVES SHALL BE REUSED & RELOCATED AS INDICATED. EXISTING DRIP IRRIGATION TUBING & PIPING WHICH IS REMOVED MAY BE REUSED, WHERE PRACTICAL, FOR NEW TUBING & PIPING.



2
DRIP FIELD MODIFICATIONS
ZONE 1 NEW PLAN
SCALE: 1" = 20'

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

WWTP DRIP
FIELD PLANS

THIS LINE
IS 1" AT
FULL SIZE

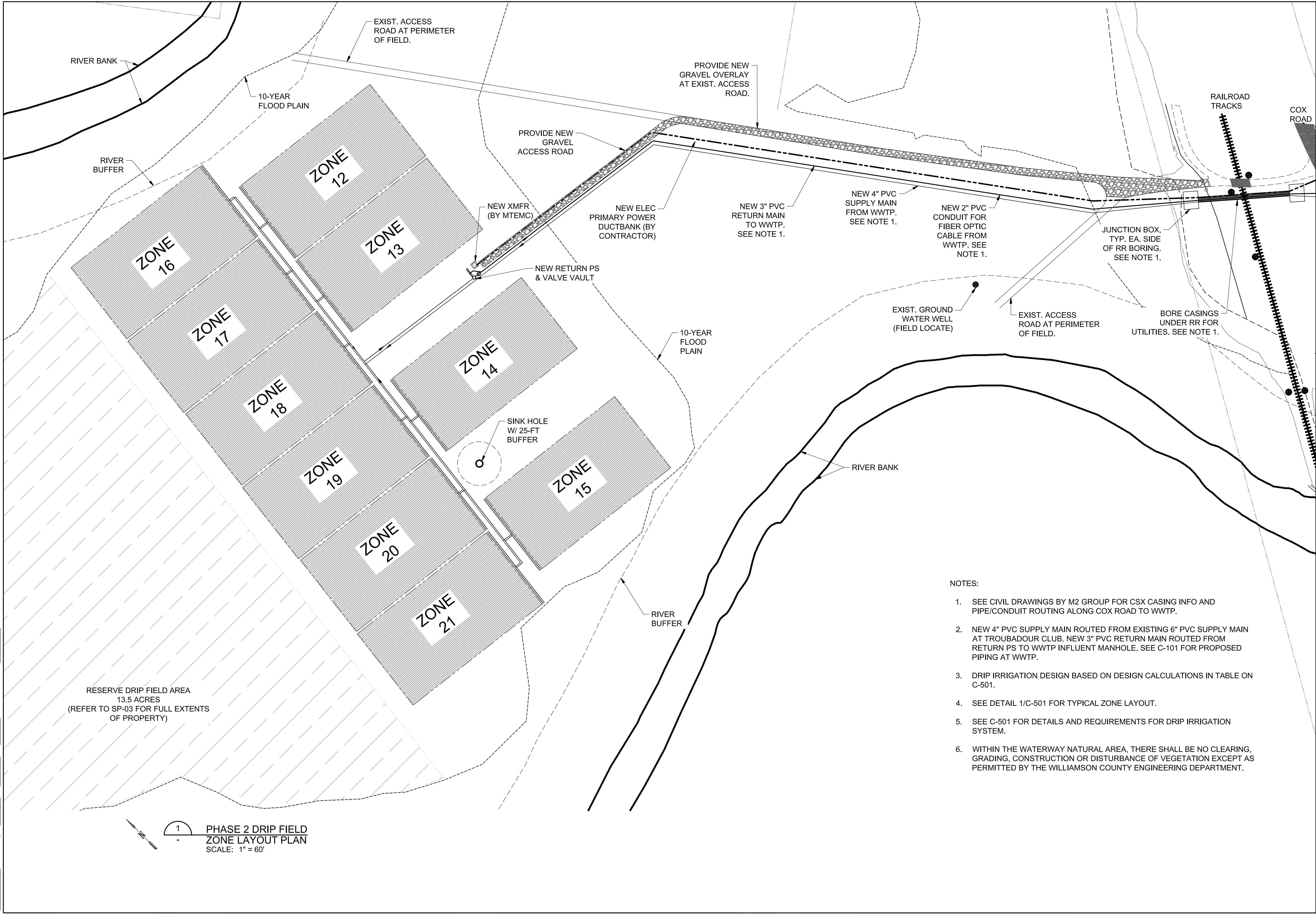
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D-120

SHEET NUMBER

16

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- NOTES:
- SEE CIVIL DRAWINGS BY M2 GROUP FOR CSX CASING INFO AND PIPE/CONDUIT ROUTING ALONG COX ROAD TO WWTP.
 - NEW 4" PVC SUPPLY MAIN ROUTED FROM EXISTING 6" PVC SUPPLY MAIN AT TROUBADOUR CLUB. NEW 3" PVC RETURN MAIN ROUTED FROM RETURN PS TO WWTP INFLUENT MANHOLE. SEE C-101 FOR PROPOSED PIPING AT WWTP.
 - DRIP IRRIGATION DESIGN BASED ON DESIGN CALCULATIONS IN TABLE ON C-501.
 - SEE DETAIL 1/C-501 FOR TYPICAL ZONE LAYOUT.
 - SEE C-501 FOR DETAILS AND REQUIREMENTS FOR DRIP IRRIGATION SYSTEM.
 - WITHIN THE WATERWAY NATURAL AREA, THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION EXCEPT AS PERMITTED BY THE WILLIAMSON COUNTY ENGINEERING DEPARTMENT.

1
PHASE 2 DRIP FIELD
ZONE LAYOUT PLAN
SCALE: 1" = 60'

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

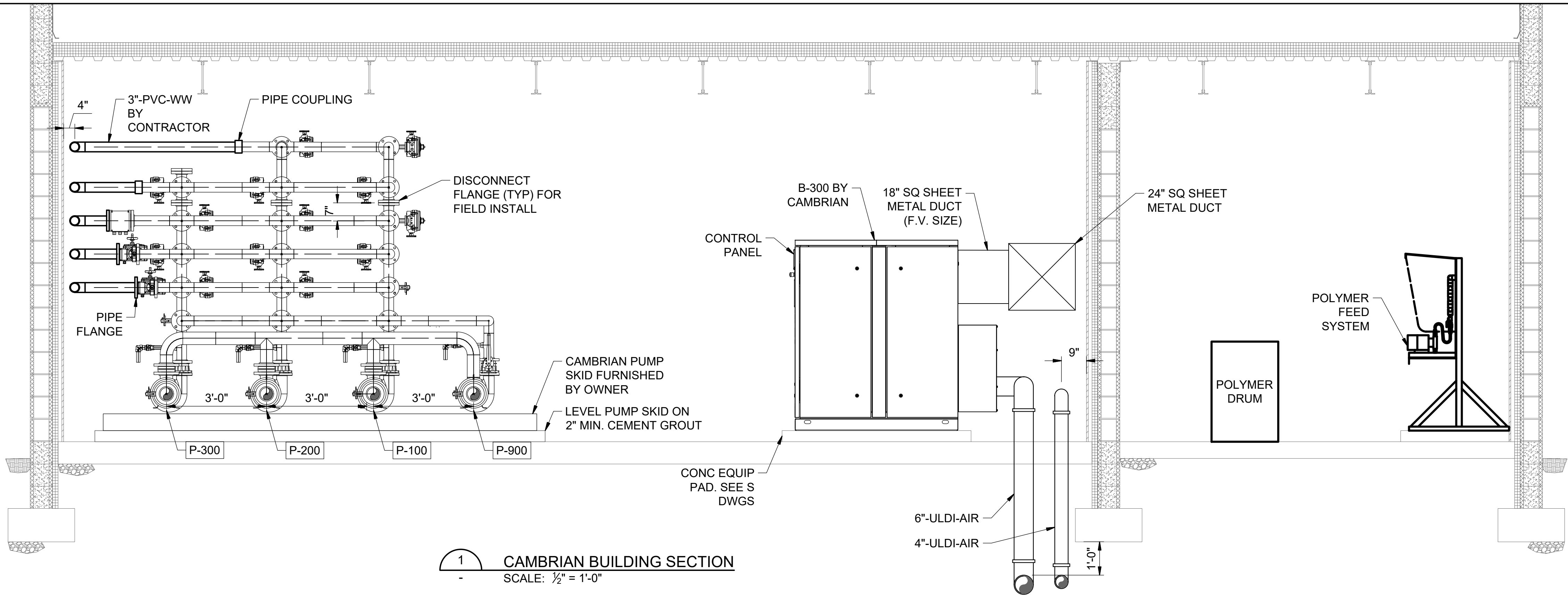
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DRIP FIELD
ZONE
LAYOUT**

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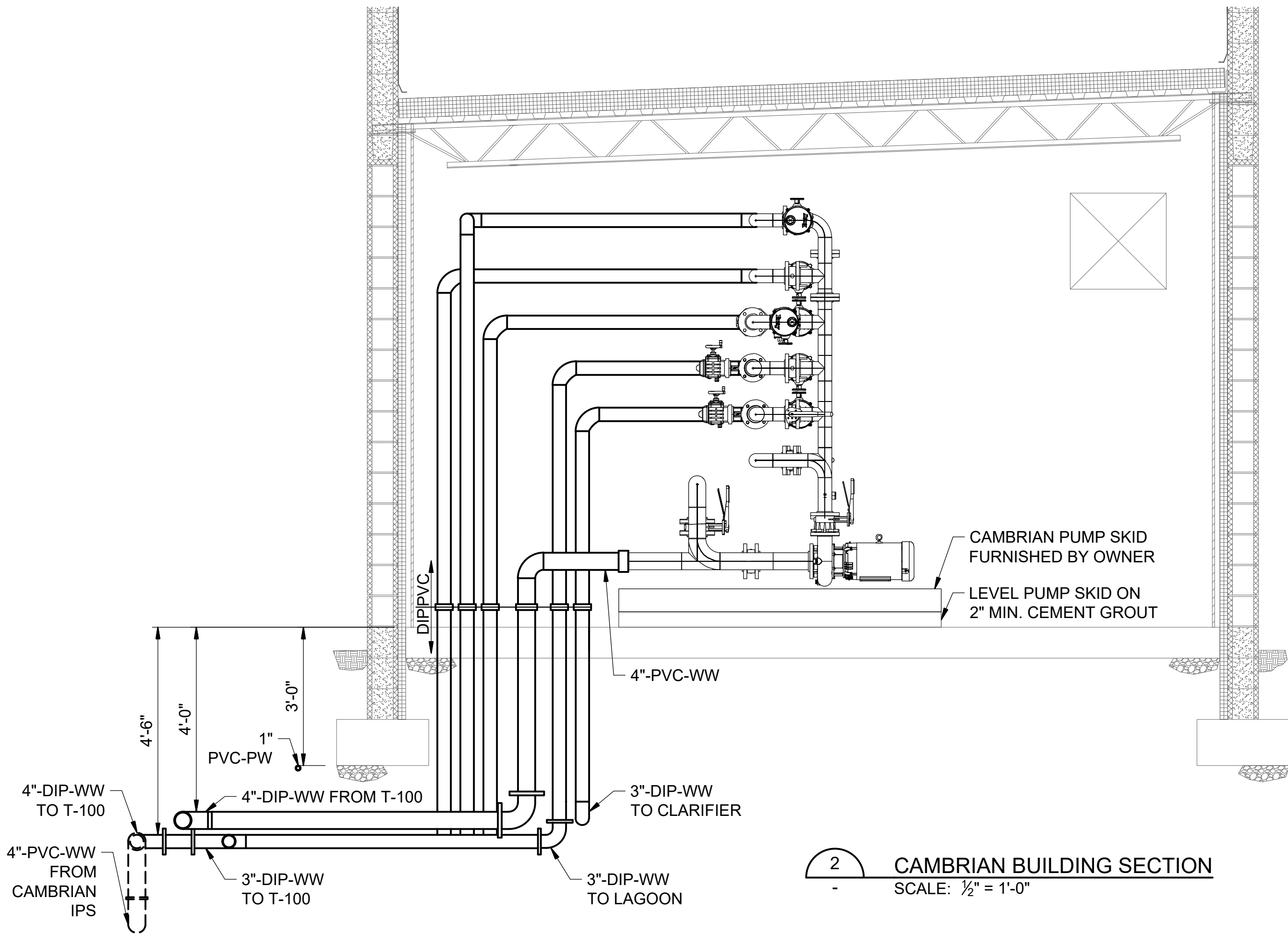
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SHEET NUMBER
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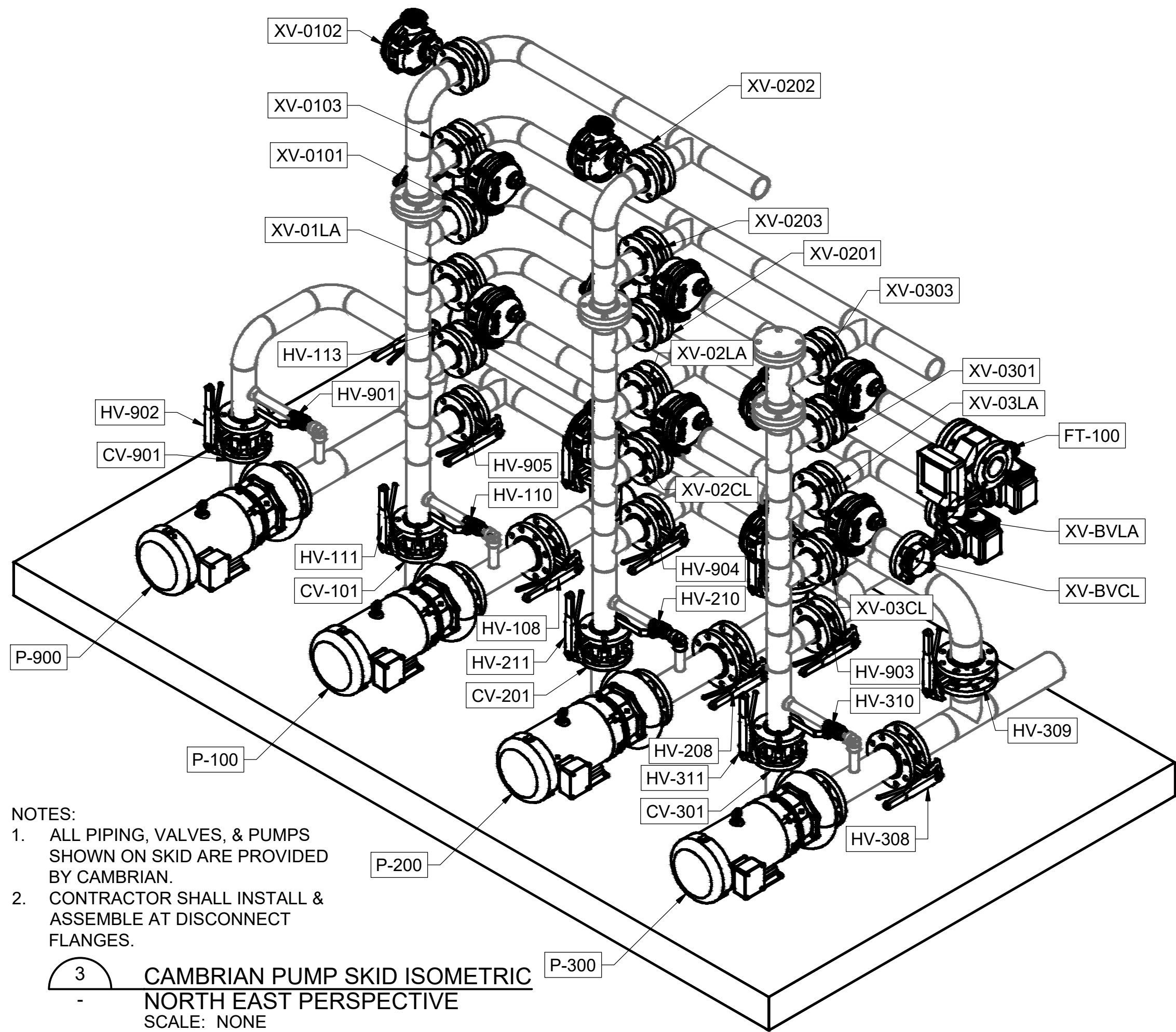
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1
- CAMBRIAN BUILDING SECTION
SCALE: 1/2" = 1'-0"



2
- CAMBRIAN BUILDING SECTION
SCALE: 1/2" = 1'-0"



- NOTES:
1. ALL PIPING, VALVES, & PUMPS SHOWN ON SKID ARE PROVIDED BY CAMBRIAN.
 2. CONTRACTOR SHALL INSTALL & ASSEMBLE AT DISCONNECT FLANGES.

3
- CAMBRIAN PUMP SKID ISOMETRIC
NORTH EAST PERSPECTIVE
SCALE: NONE

REV	DATE	DESCRIPTION	BY
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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CAMBRIAN
BUILDING
SECTIONS**

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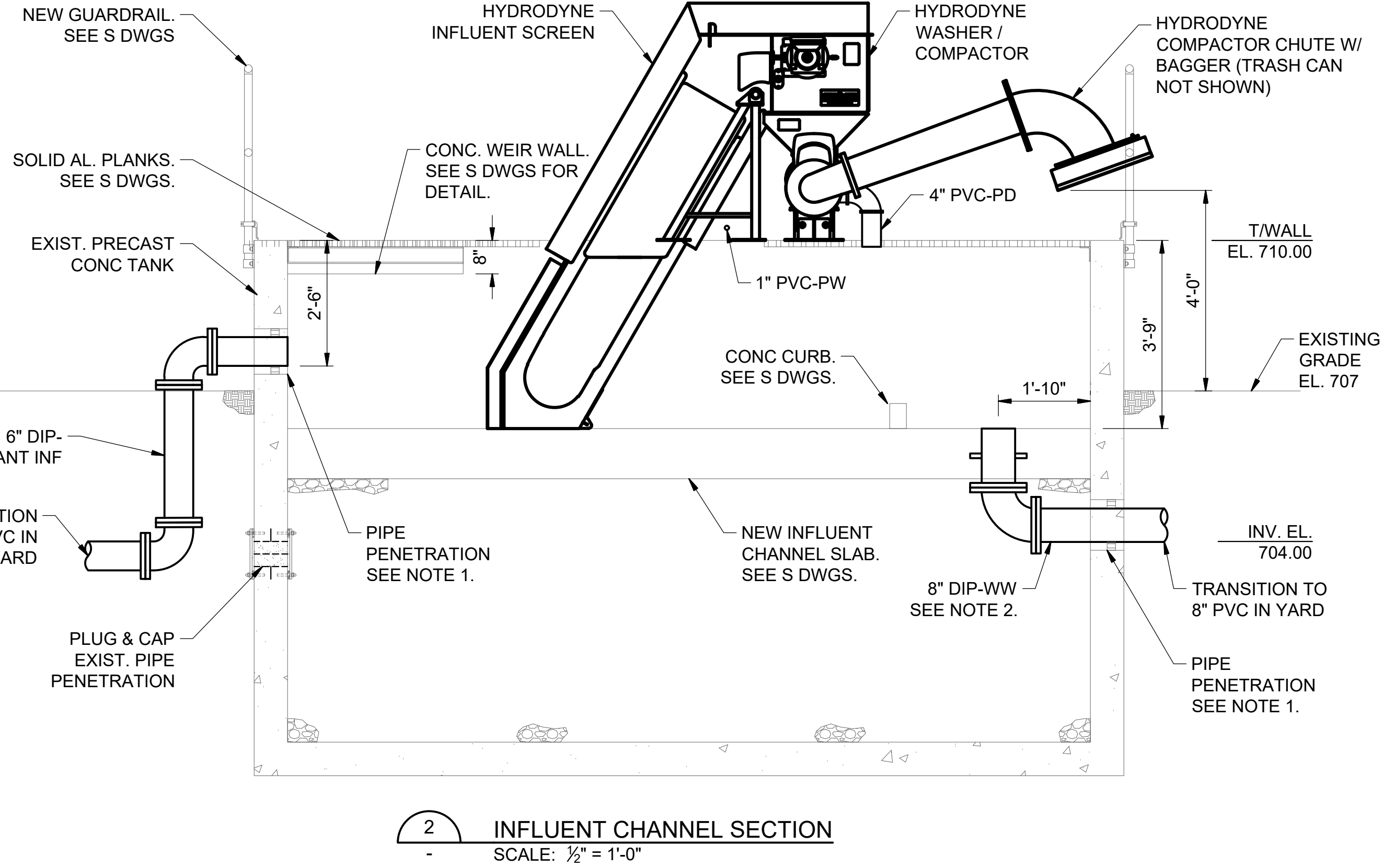
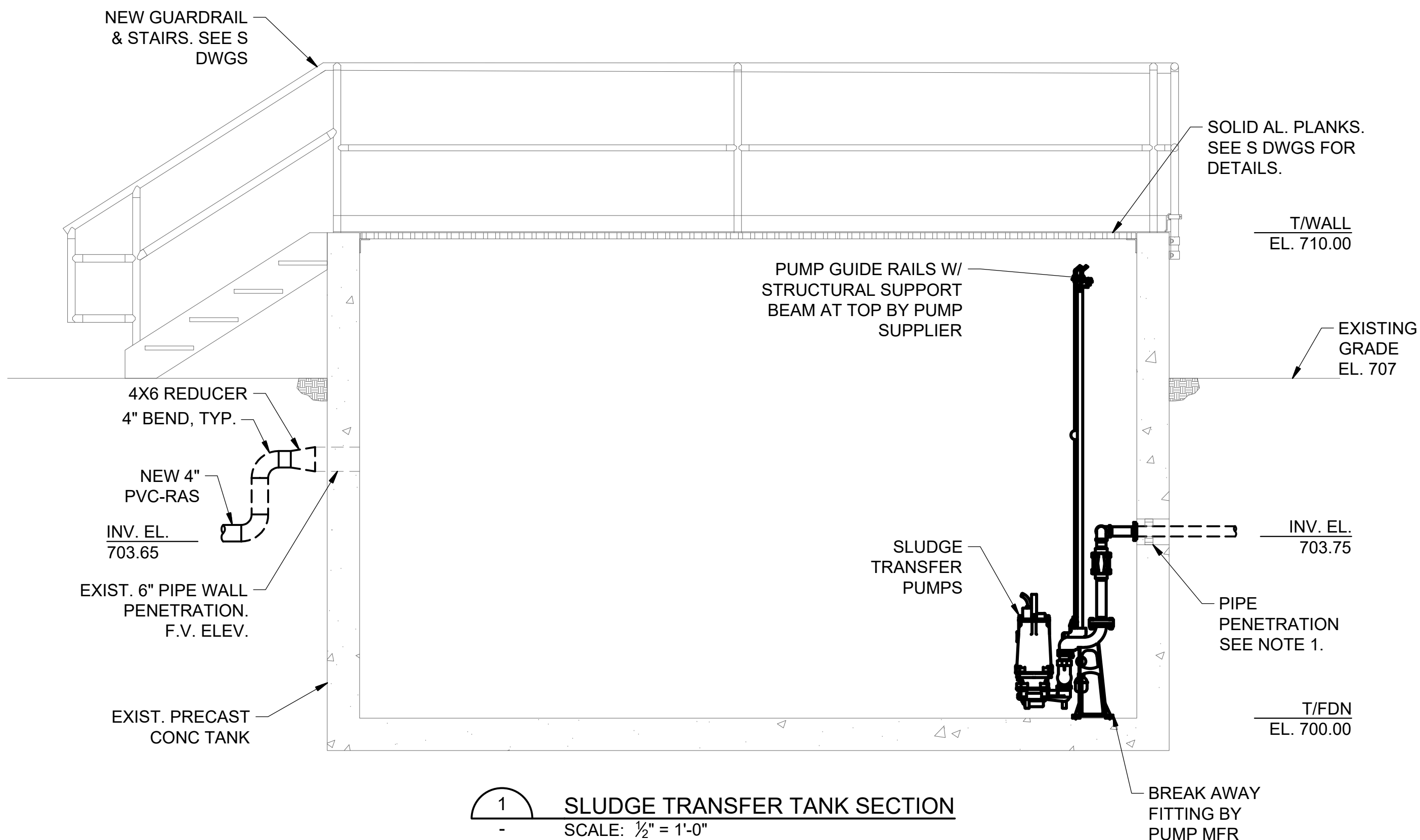
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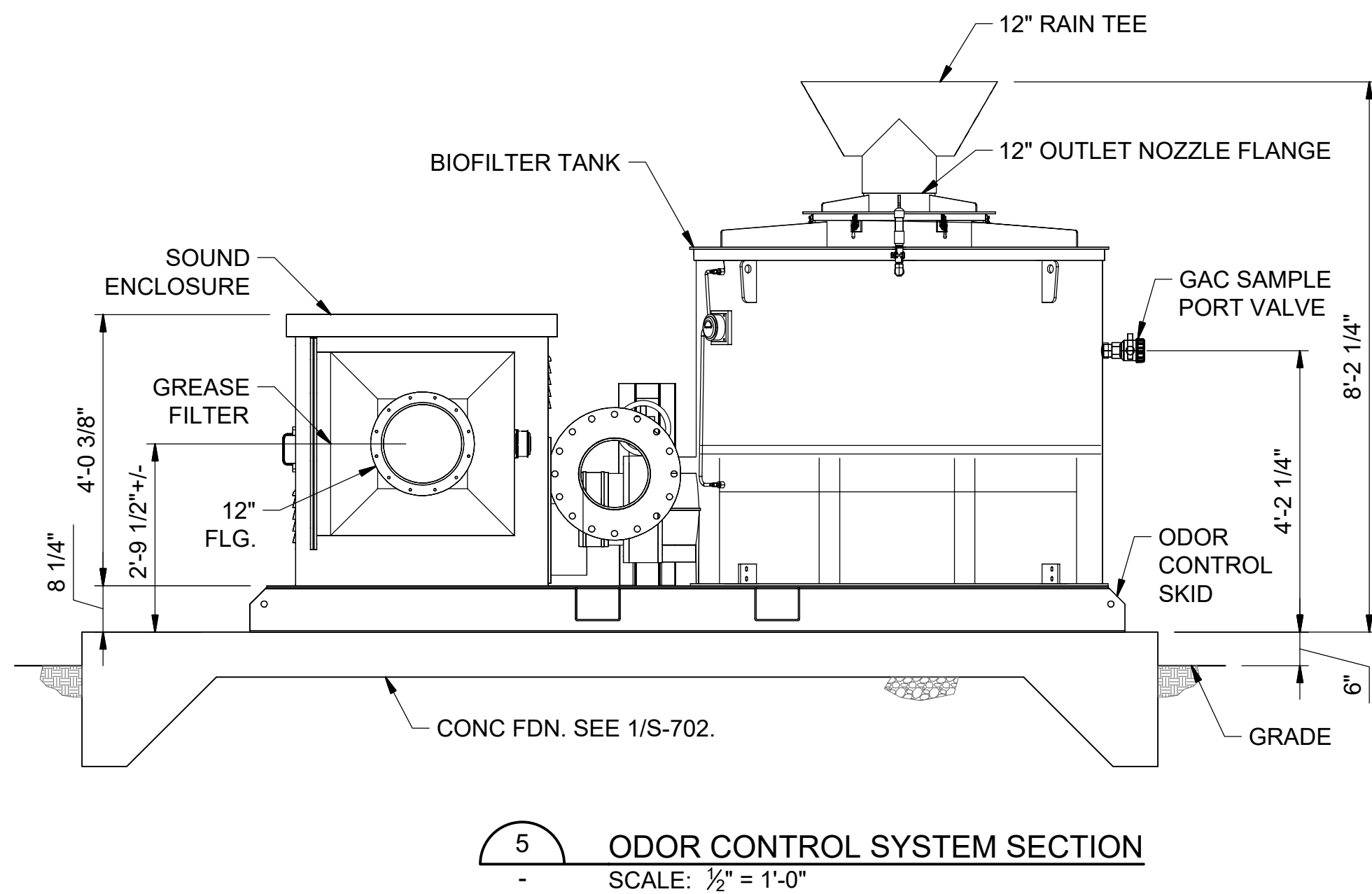
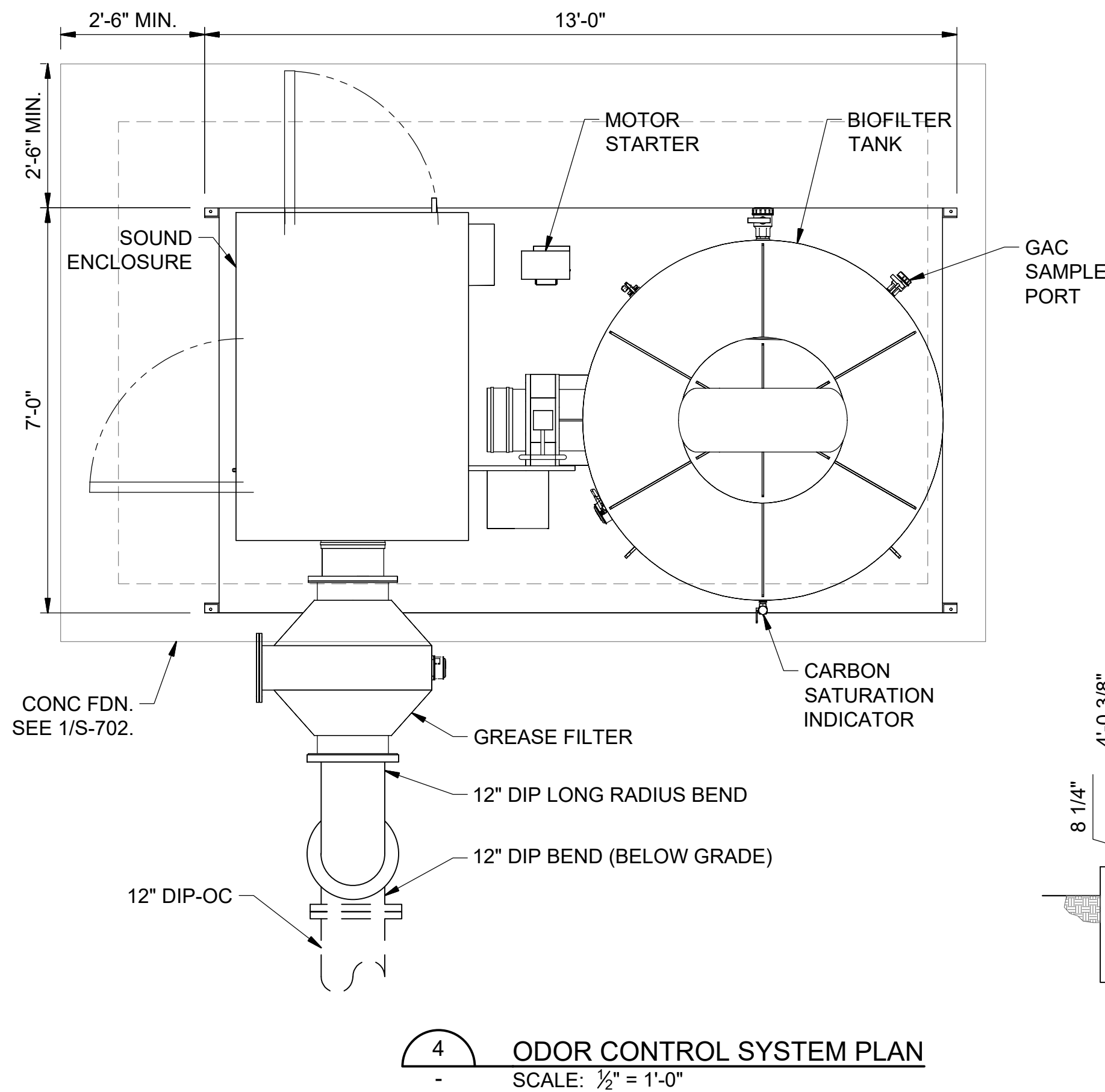
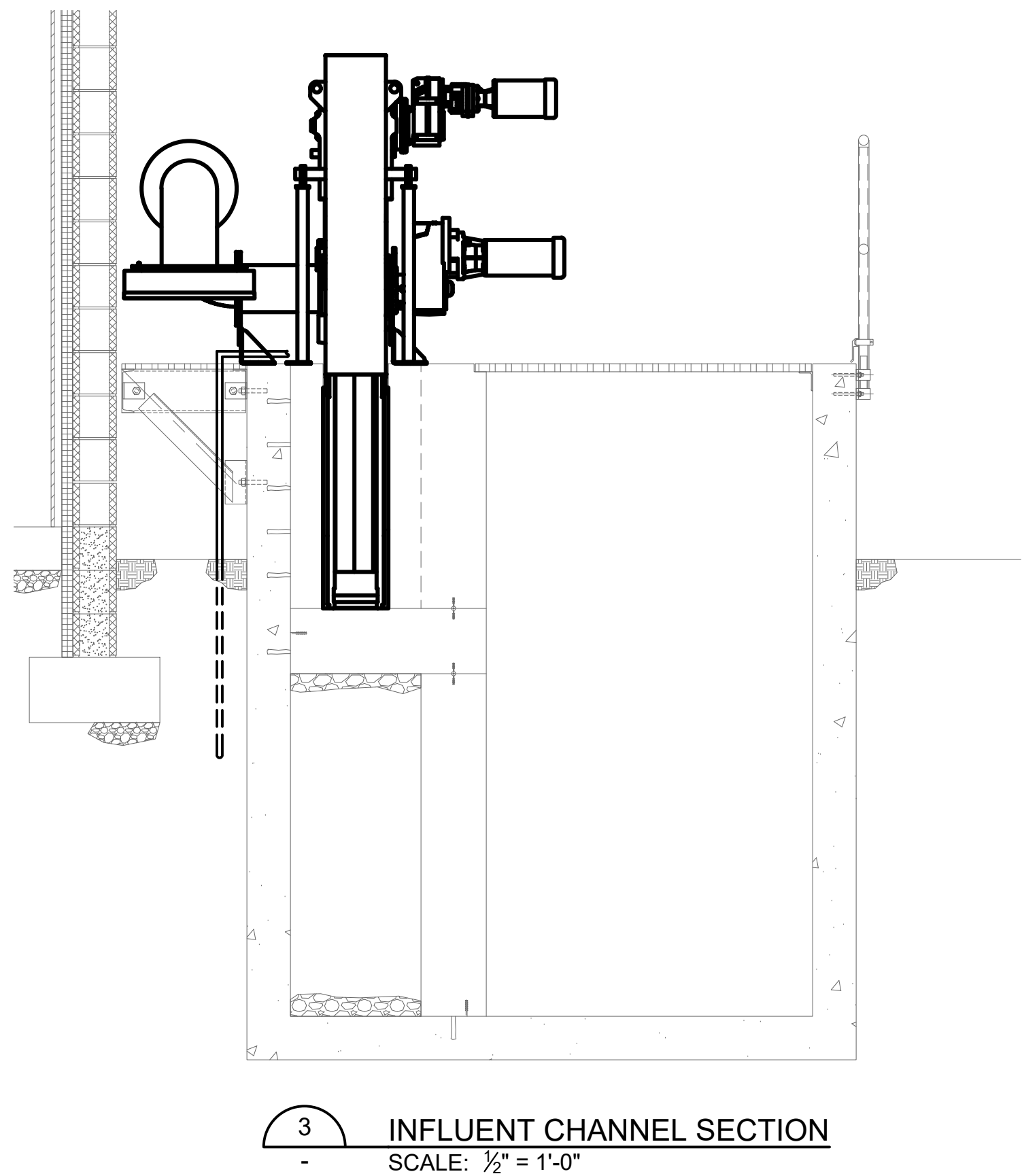
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DESIGN NOTES:

1. CORE DRILL EXISTING WALL. INSTALL LINK SEAL AND GROUT ANNULAR SPACE ON INSIDE SURFACE OF BASIN.
2. ALL NEW PIPING PENETRATIONS AND PIPING INSIDE BASIN SHALL BE DIP. TRANSITION TO PVC IN YARD, WHERE INDICATED.
3. ODOR CONTROL SYSTEM BY CAMBRIAN AND FURNISHED BY OWNER. CONTRACTOR TO INSTALL.



REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	DBM

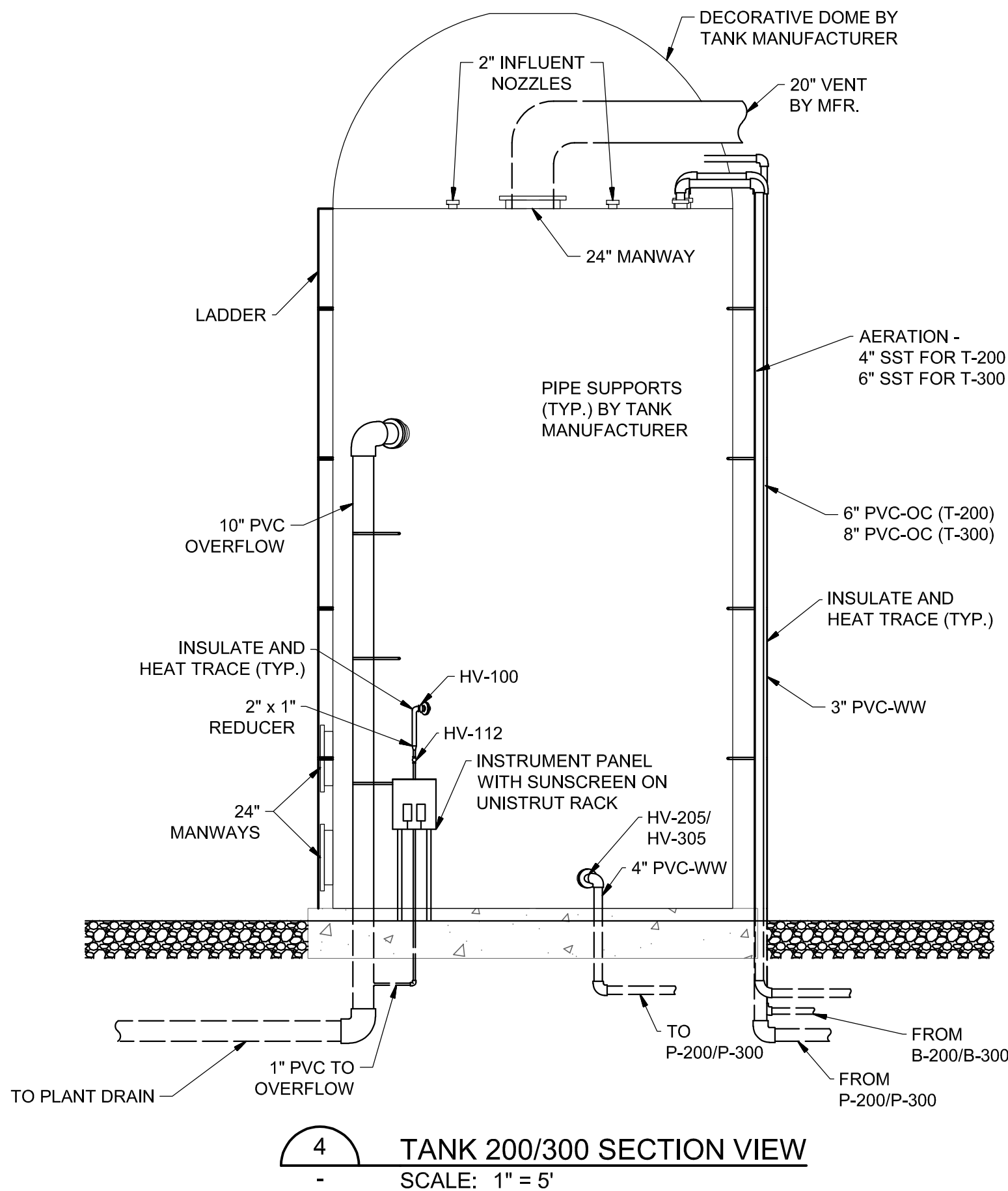
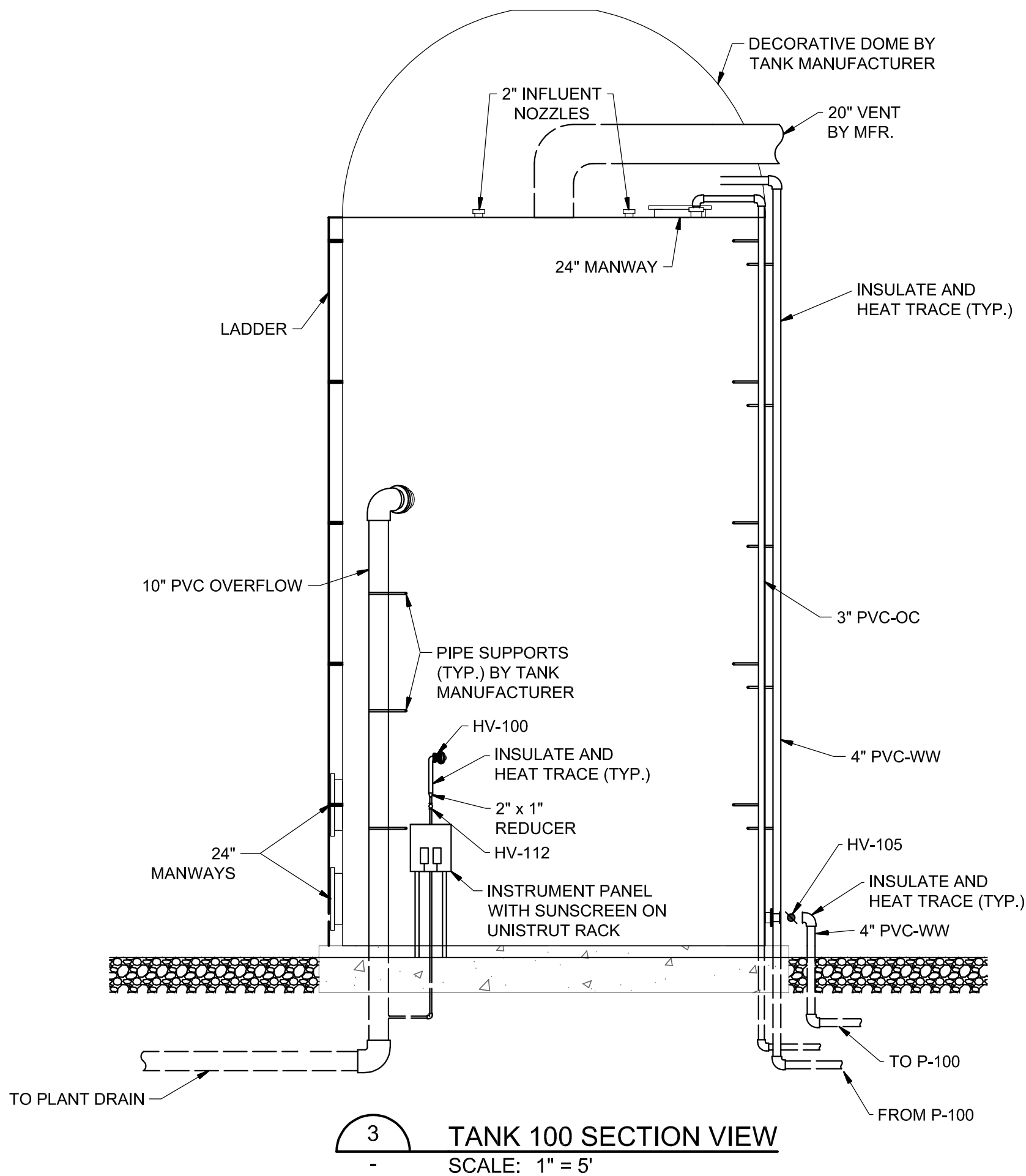
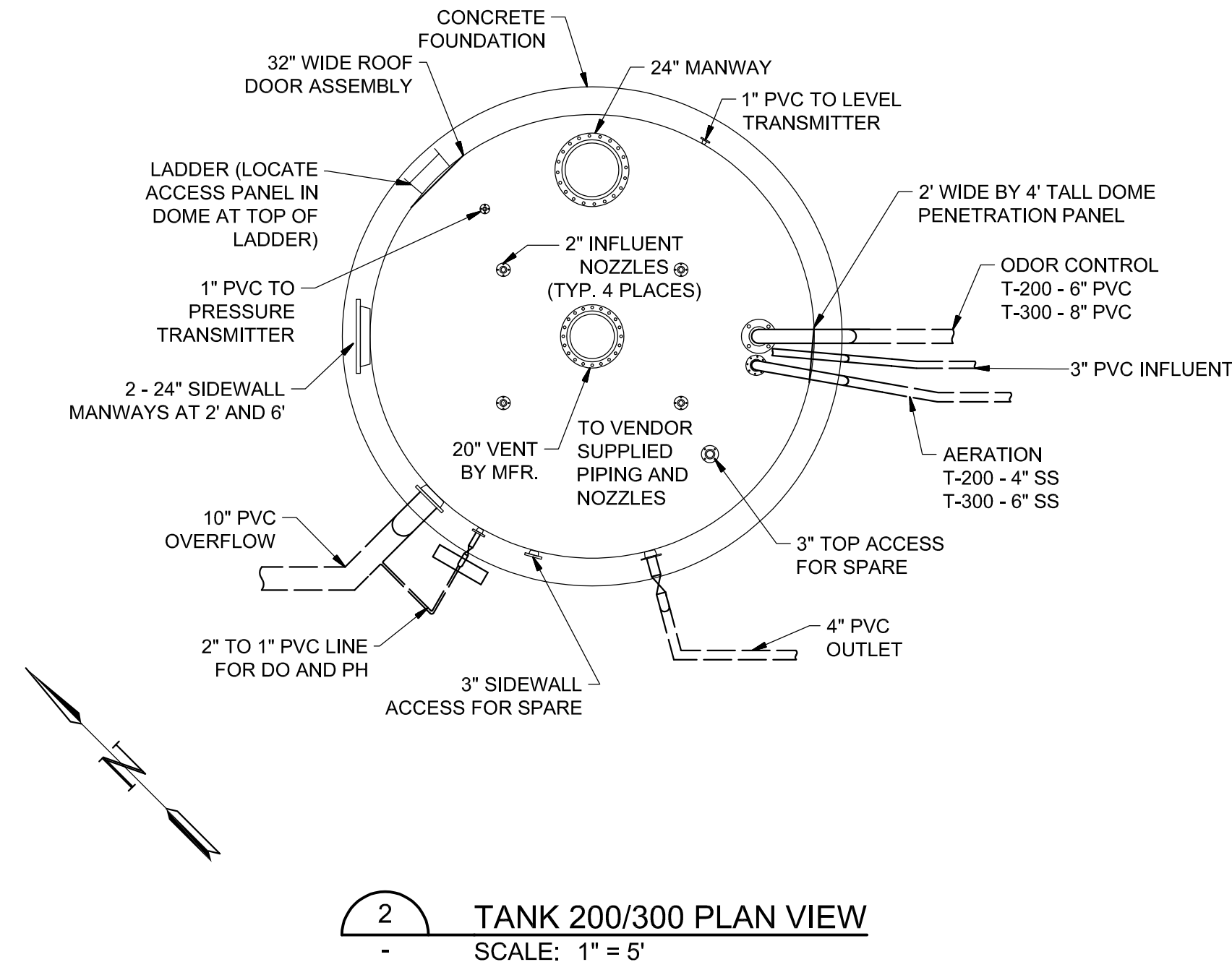
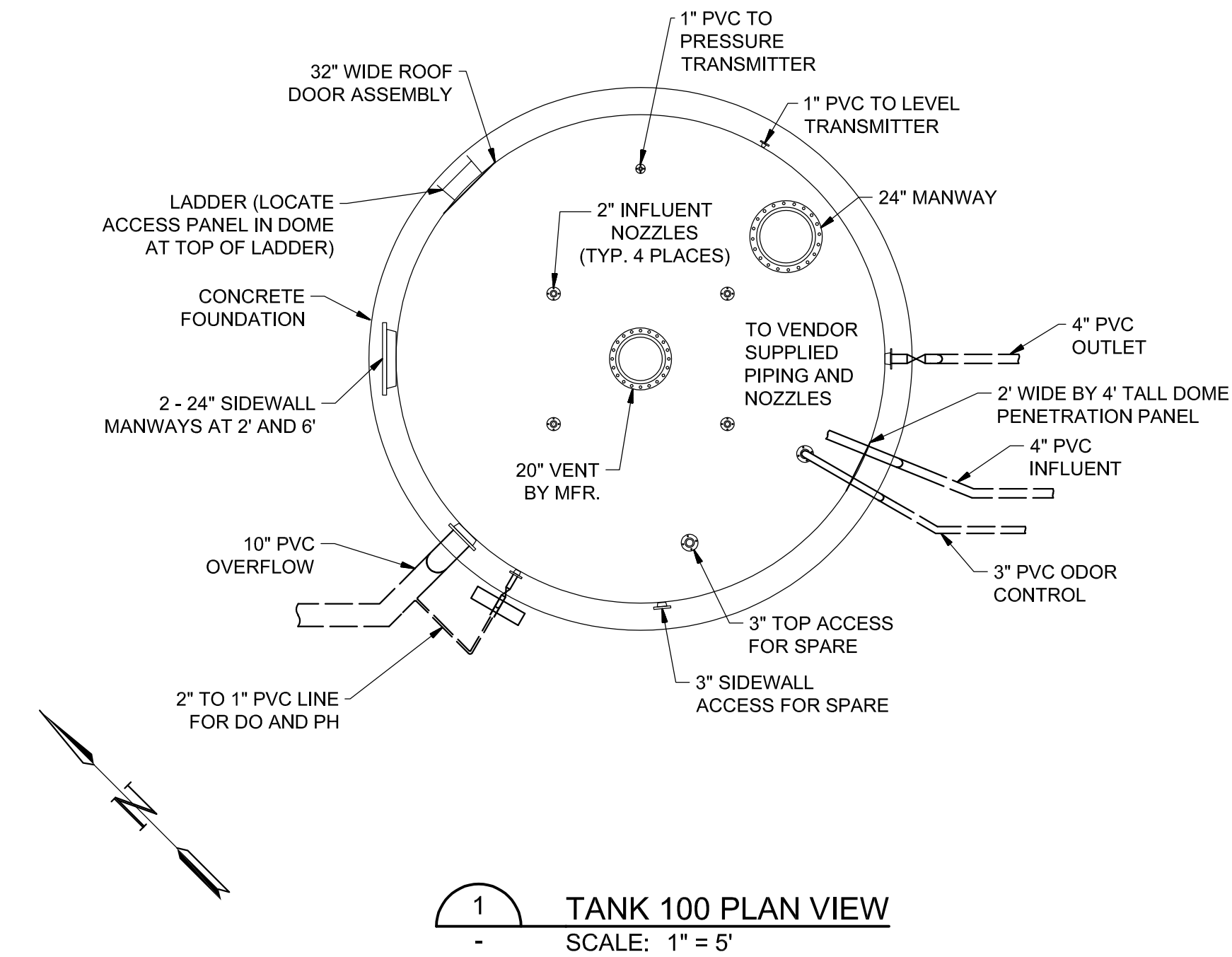
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

INFLUENT
SCREEN &
SLUDGE
TRANSFER
TANK
SECTIONS

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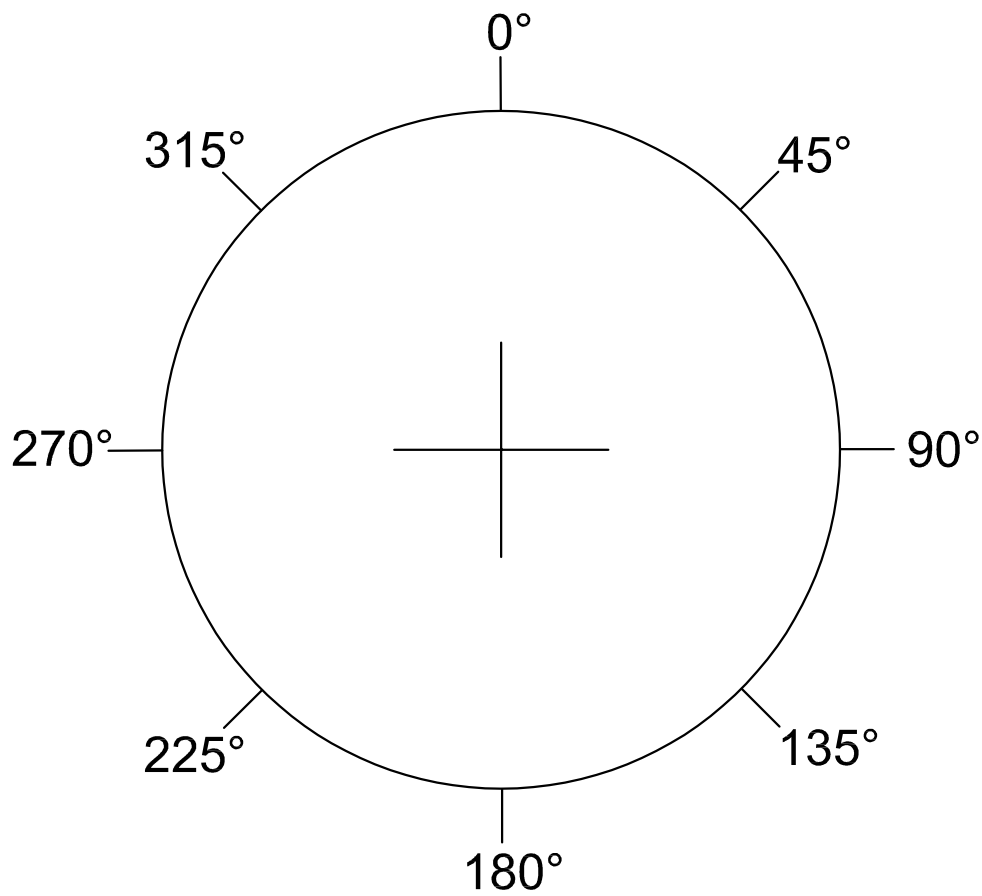
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T-100					
ID	SIZE	SERVICE	LOCATION	DISTANCE ABOVE BOTTOM TANK (FT)	DISTANCE FROM TANK CENTER (FT)
A1-4	2"	FILL	TOP	TOP	4
C	4"	INLET	112°	TOP	N/A
D	4"	OUTLET	90°	1.2	N/A
E	2"	MONITORING (DO, PH)	210°	8	N/A
L1	10"	OVERFLOW	225°	19	N/A
P1	1"	LEVEL TRANSMITTER	30°	2	N/A
MW1	24"	PRESSURE TRANSMITTER	TOP	TOP	7
MW2	24"	MANWAY	TOP	TOP	7
MW3	24"	SIDE MANWAY	270°	6	N/A
V1	24"	SIDE MANWAY	270°	2	N/A
O	20"	VENTING	TOP	TOP	0
S1	3"	ODOR CONTROL	120°	TOP	7
S2	3"	SPARE	TOP	TOP	7
	3"	SPARE	175°	2	N/A
		LADDER	315°	31	N/A

T-200/300					
ID	SIZE	SERVICE	LOCATION	DISTANCE ABOVE BOTTOM TANK (FT)	DISTANCE FROM TANK CENTER (FT)
A1-4	2"	FILL	TOP	TOP	4
C	3"	INLET	95	TOP	N/A
D	4"	OUTLET	165°	1.2	N/A
E	2"	MONITORING (DO, PH)	210°	8	N/A
F	10"	OVERFLOW	225°	19	N/A
L1	4"/6"	PROCESS AIR	100°	TOP	6
P1	1"	LEVEL TRANSMITTER	30°	2	N/A
MW1	1"	PRESSURE TRANSMITTER	TOP	TOP	6
MW2	24"	MANWAY	TOP	TOP	6
MW3	24"	SIDE MANWAY	270°	6	N/A
V1	24"	SIDE MANWAY	270°	2	N/A
O	20"	VENTING	TOP	TOP	0
S1	6"/8"	ODOR CONTROL	90°	TOP	6
S2	3"	SPARE	TOP	TOP	6
	3"	SPARE	195°	2	N/A
		LADDER	315°	28	N/A



- DESIGN NOTES:**
- TANK DESIGN AND INSTALLATION BY TANK MFR. CONTRACTOR TO INSTALL PIPING. SEE C-102 FOR YARD PIPING.
 - TANK FOUNDATION DESIGN BY TANK MFR. CONTRACTOR TO PROVIDE MATERIALS AND INSTALLATION OF FOUNDATIONS.
 - TANK MFR IS RESPONSIBLE FOR PROVIDING OSHA-COMPLIANT LADDER OR PLATFORM FOR ACCESSING TOP OF TANK.
 - PROVIDE DOME ACCESS DOOR PANEL AT TOP OF LADDER. TANK MFR. TO COORDINATE REQUIREMENTS WITH DOME MFR.

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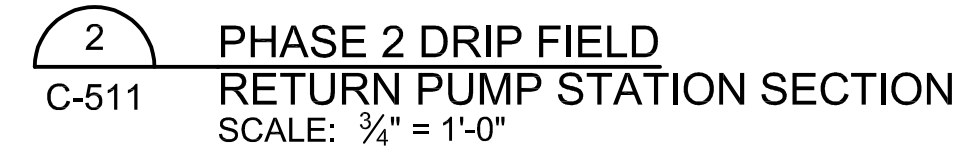
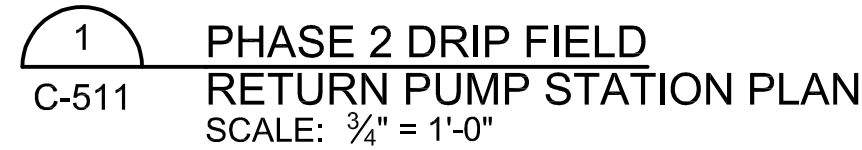
HIDEAWAY WWTP PHASE II EXPANSION
 WILLIAMSON COUNTY, TENNESSEE
 DISCOVERY LAND COMPANY

**CAMBRIAN
TANKS PLAN
& SECTION**

THIS LINE
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FULL SIZE

DRAWING NUMBER
D-303

SHEET NUMBER
20



REV	DATE	ISSUED FOR BIDS AND TDEC REVIEW	DESIGN FOR DBM
0	08/07/20		

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PHASE 2

DRIP FIELD

RETURN PS

THIS LINE
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FULL SIZE

DRAWING NUMBER

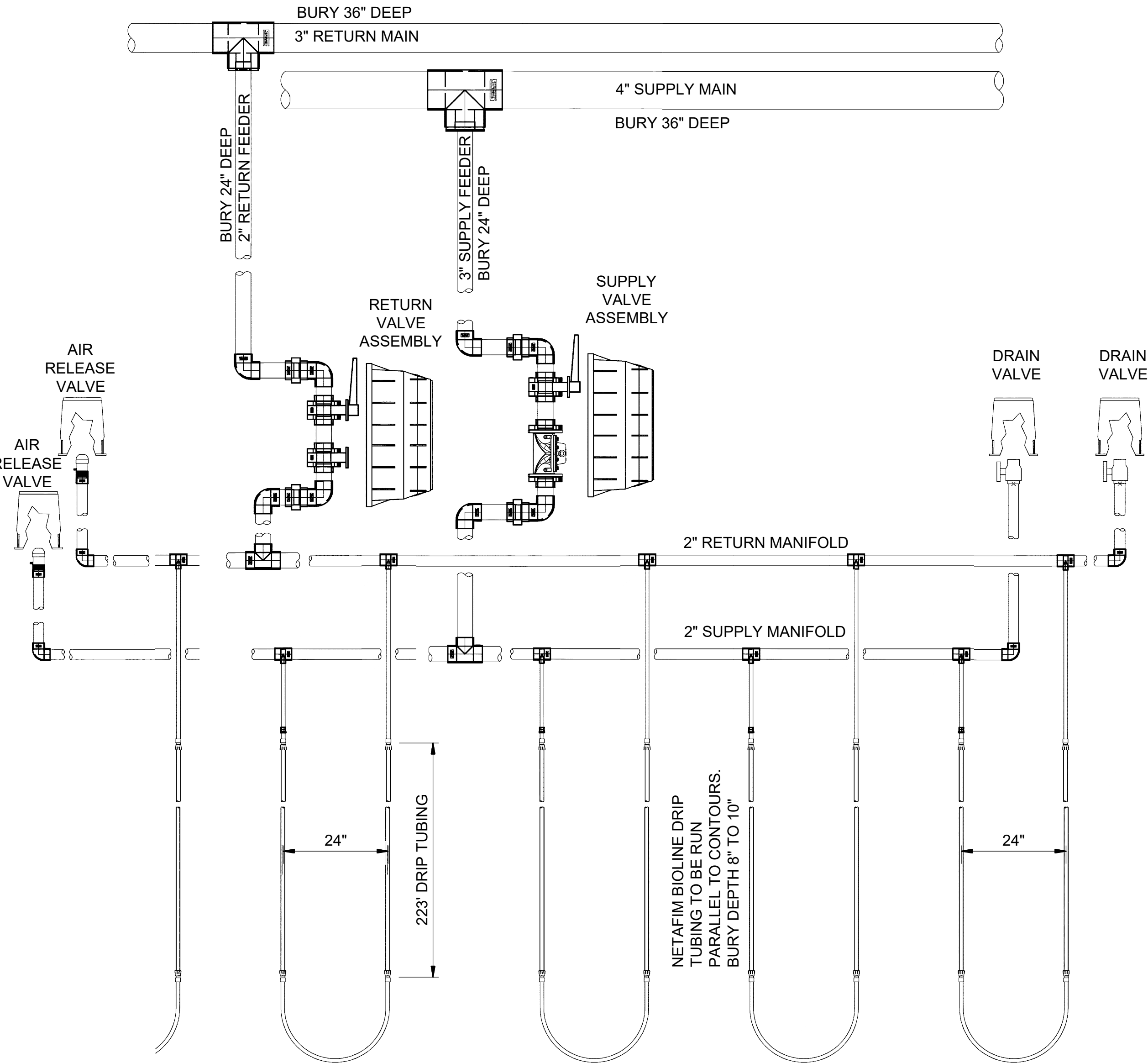
D-310

SHEET NUMBER

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TABLE 2: DESIGN CALCULATIONS FOR SIZING DRIP IRRIGATION ZONES- PHASE 2											
DAILY AVERAGE FLOW			55,523	GPD	EMITTER SPACING			2.00	FT		
PUMP DESIGN FLOW			120	GPM	FLOW / EMITTER			0.61	GPH		
TOTAL PUMP RUNTIME / DAY			463	MINUTES	DISTAL END FLOW			1.60	GPM		
ZONE #	AREA (SF)	AREA (AC)*	APPROX LENGTH OF TUBING (LF)	NUMBER OF DRIP EMITTERS	DOSING FLOW (GPM)	DOSE TIME (MIN /DAY)	TOTAL FLOW (GPD /ZONE)	HYDRAULIC LOADING RATE (GPD /SF)	# OF DISTAL ENDS	FLUSH FLOW-BACK (GPM)	TOTAL FLUSHING FLOW (GPM)
12	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
13	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
14	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
15	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
16	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
17	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
18	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
19	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
20	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
21	27,652	0.63	13,826	6,913	70.3	79	5,552	0.20	31	49.6	120
PH2 Total			276,520	6.35	138,260			55,523			
PH1 Total (per previous design documents)							63,849				
Existing Zone 1A (removed for driveway modifications at WWTP)							-1,465				
WWTP Total Treatment Capacity							117,907				

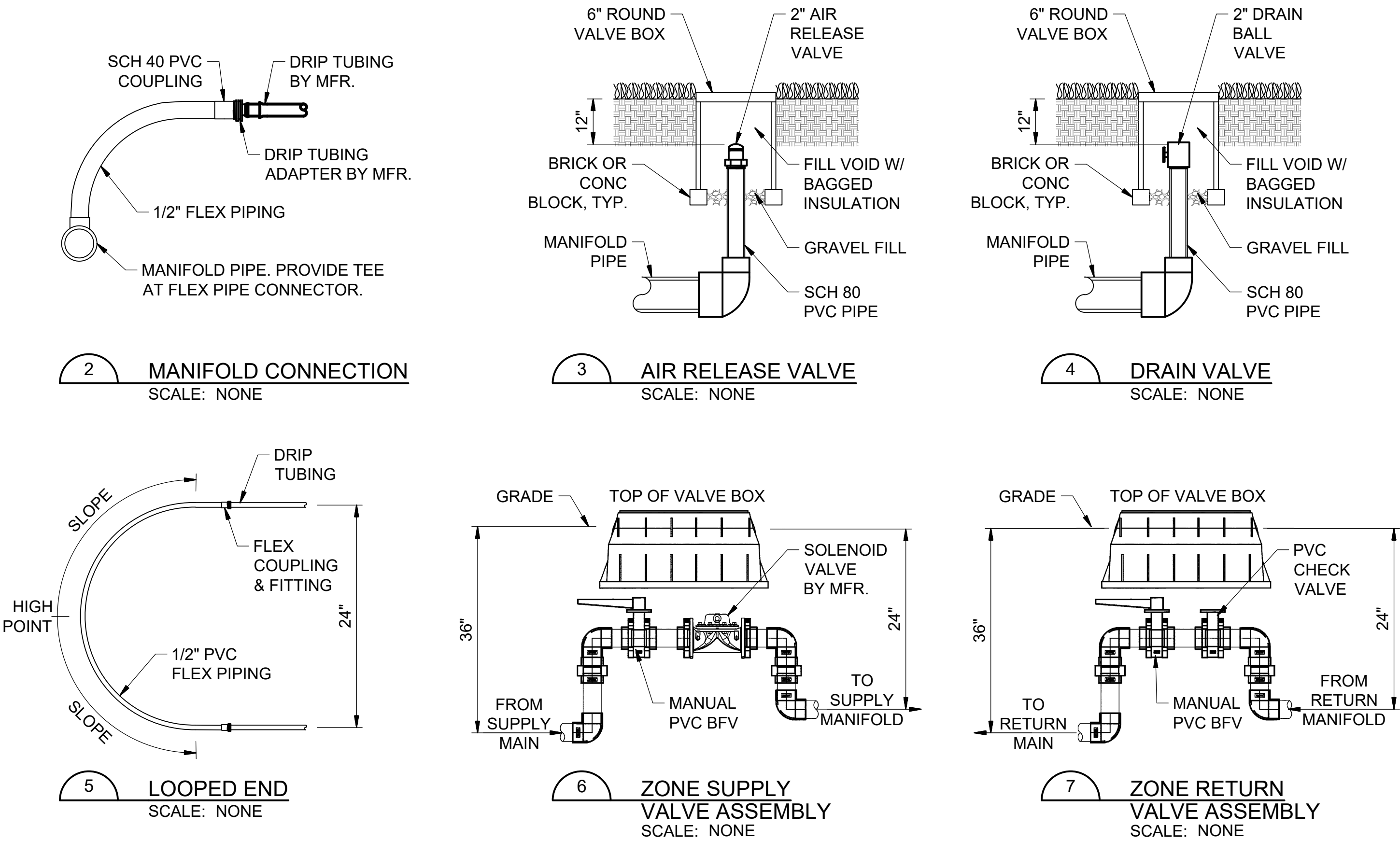


- NOTE:
1. PROVIDE A TOTAL OF 31 LOOPED RUNS PER ZONE.
 2. PROVIDE 5' SPACING BETWEEN DRIP TUBING OF ADJACENT ZONES.

1 PHASE 2 DRIP FIELD
C-111 TYPICAL ZONE LAYOUT
SCALE: NONE

NOTES:

1. GENERAL
 - 1.1. DRIP IRRIGATION SYSTEM DESIGN, DRIP TUBING (INCL. ANY REQUIRED COUPLERS AND ADAPTERS), AND VALVES BY NETAFIM USA.
 - 1.2. MFR SHALL REVIEW DESIGN DRAWINGS AND PROVIDE VERIFICATION OF DESIGN TO ENGINEER PRIOR TO ORDERING MATERIALS.
 - 1.3. DRIP IRRIGATION SYSTEM INSTALLER SHALL BE MANUFACTURER-CERTIFIED DEALER FOR WASTEWATER APPLICATIONS.
2. MATERIALS
 - 2.1. MAIN SUPPLY HEADER SHALL BE PVC PIPE SDR 32.5 (125 PSI RATED) AND SHALL CONFORM TO ASTM D2241.
 - 2.2. MAIN RETURN HEADER SHALL BE PVC PIPE SDR 32.5 (125 PSI RATED) AND SHALL CONFORM TO ASTM D2241.
 - 2.3. ZONE MANIFOLDS (DOSE AND FLUSH) SHALL BE PVC SCH. 40 PIPE CONFORMING TO ASTM D1785 & D2665.
 - 2.4. PVC FITTINGS SHALL BE SCH. 40 CONFORMING TO ASTM D1785 & D2665.
 - 2.5. ZONE CONTROL VALVES SHALL BE NETAFIM 323 PRESSURE REGULATING VALVES.
 - 2.6. CHECK VALVES SHALL BE SWING CHECK VALVES (1.5" TO 3") WITH PVC BODY, VITON SEATS, AND RATED FOR 150 PS.
 - 2.7. BUTTERFLY VALVES (3" TO 6") SHALL HAVE CAST IRON BODY, BUNA N SEATS, EPOXY COVERED IRON DISCS, RATED FOR 200 PSI, AND CONFORMED TO AWWA C504. BUTTERFLY VALVES SHALL BE ORDERED WITH 2" SQUARE NUT OPERATORS AND A 46" RISER.
 - 2.8. PRESSURE RELIEF VALVE FOR MAIN SUPPLY HEADER SHALL BE KUNKLE VALVE BY PENTAIR (MODEL 0019-H01-MG-0065 2" VALVE SET AT 65 PSI RELIEF PRESSURE.
 - 2.9. AIR/VACUUM RELEASE VALVES (1" & 2") FOR EACH INDIVIDUAL ZONE SHALL BE NETAFIM GUARDIAN AIR & VACUUM RELIEF VENTS.
 - 2.10. DRIP TUBING- NETAFIM BIOLINE WASTEWATER TUBING 08WRAM.6-24V (0.66" O.D. & 0.57" I.D. W/ 0.61 GPH EMITTERS SPACED @ 24")
3. INSTALLATION
 - 3.1. PIPING MAINS SHALL BE INSTALLED WITH A MINIMUM OF 36" OF SOIL COVER.
 - 3.2. ZONE MANIFOLDS SHALL BE INSTALLED WITH 24" OF SOIL COVER.
 - 3.3. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE WITH ASTM GUIDELINES AND MANUFACTURER RECOMMENDATIONS.
 - 3.4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL PIPING IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
 - 3.5. ZONE CONTROL VALVES AND ACCESSORIES SHALL BE INSTALLED IN CARSON VALVE BOXES PER MANUFACTURER'S INSTRUCTIONS.
 - 3.6. DRIP TUBING SHALL BE PLOUGHED IN AT A DEPTH OF 10" USING A VIBRATORY PLOUGH. DRIP LATERALS SHALL BE SET AT 24" O.C. AS SHOWN ON THE DRAWINGS AND DETAILS.



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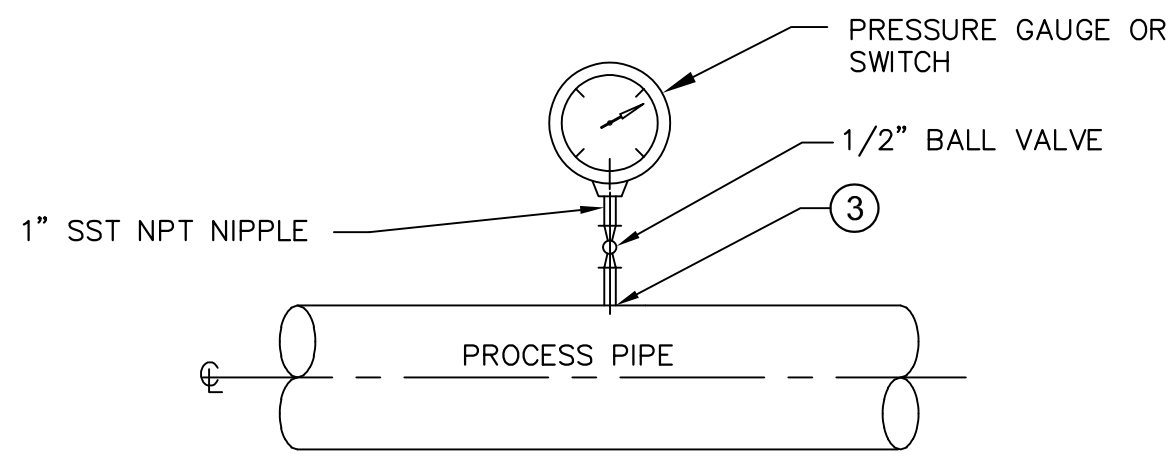
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

PHASE 2
DRIP
IRRIGATION
DETAILS

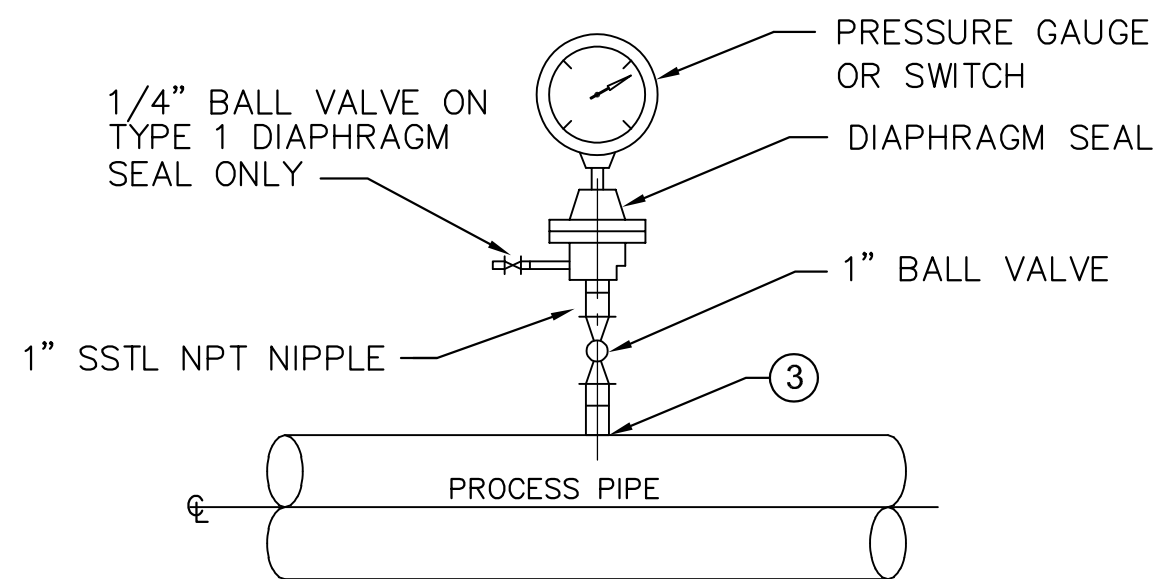
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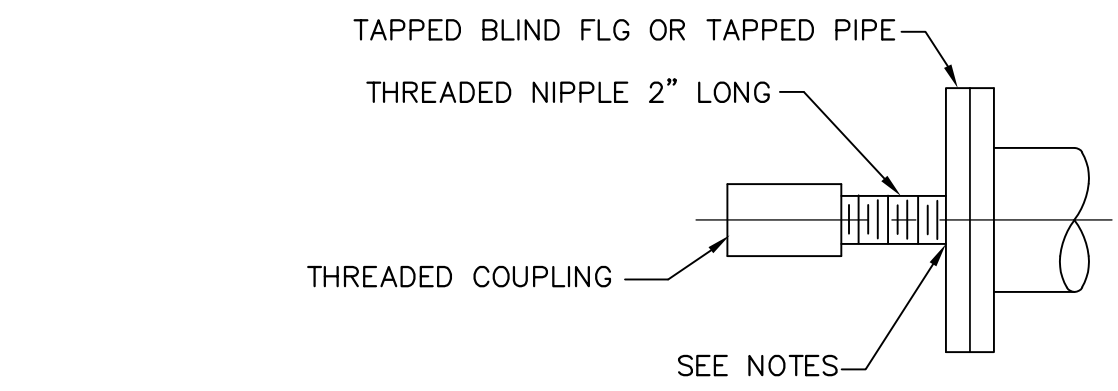
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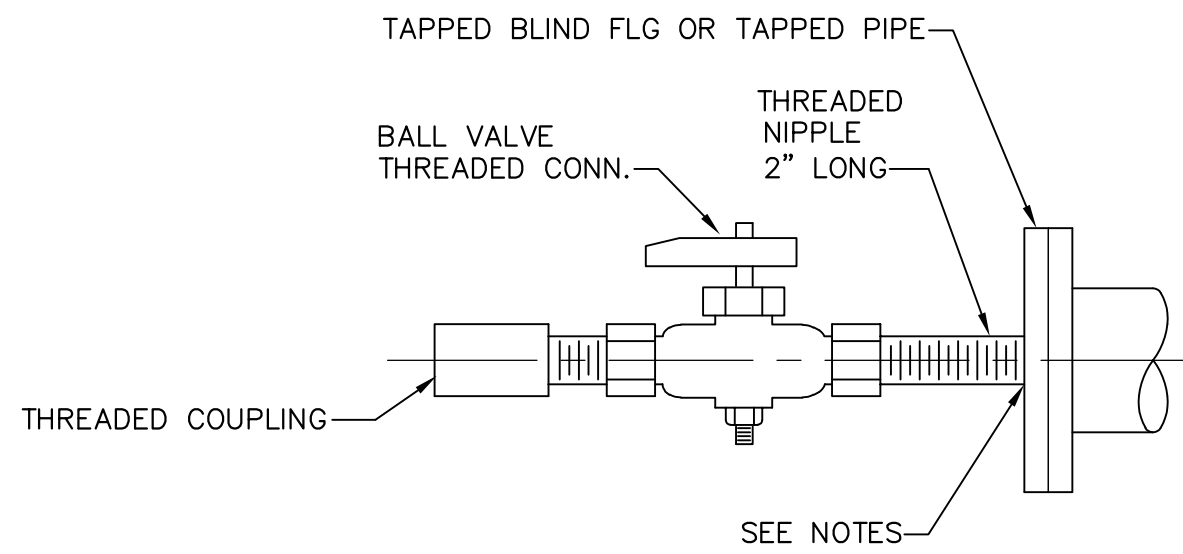
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PRESSURE GAUGE
SCALE: NONE



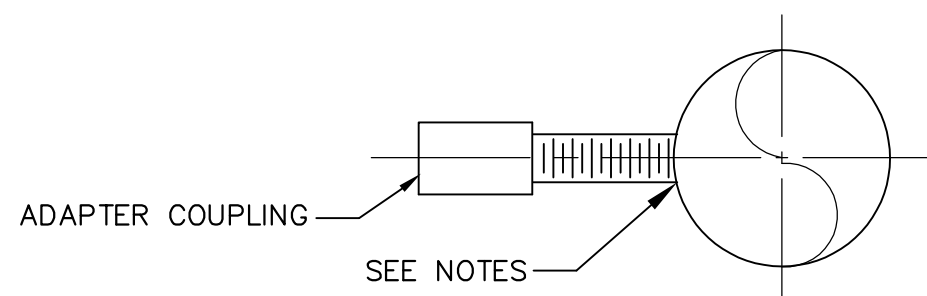
2
-
PRESSURE GAUGE WITH DIAPHRAGM SEAL
SCALE: NONE



3
-
TAP CONNECTION W/O ISOLATION VALVE
SCALE: NONE



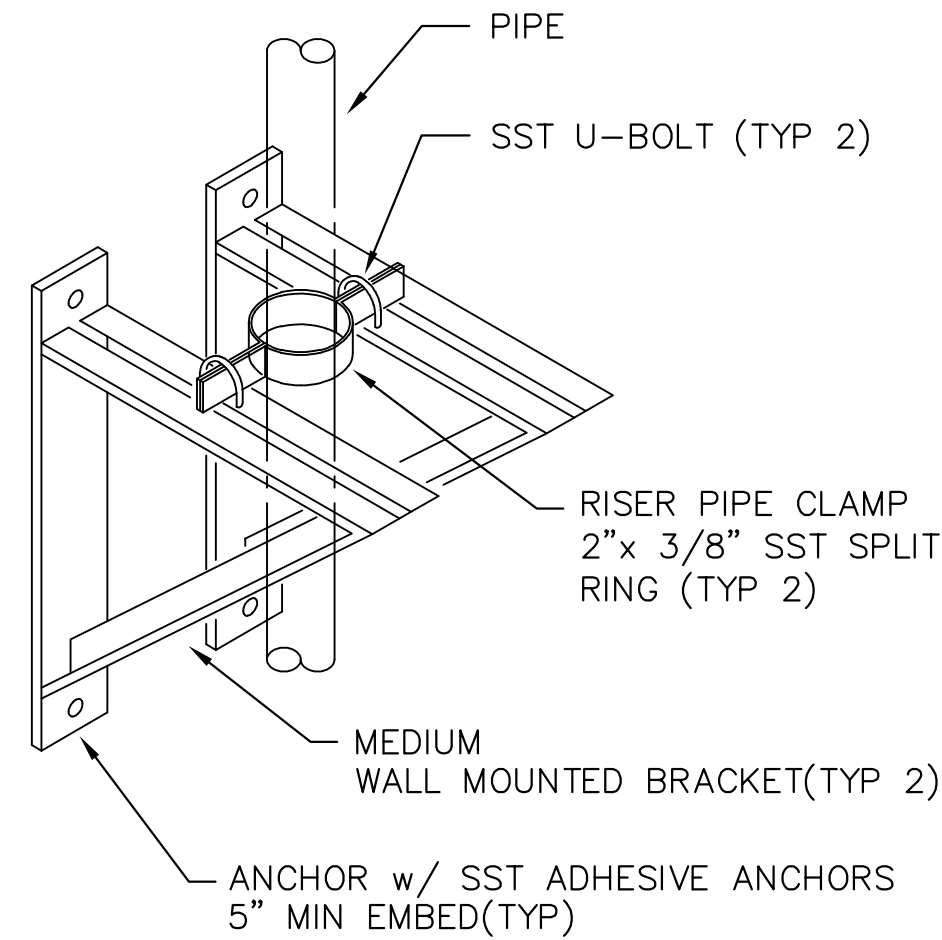
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TAP CONNECTION W/ISOLATION VALVE
SCALE: NONE



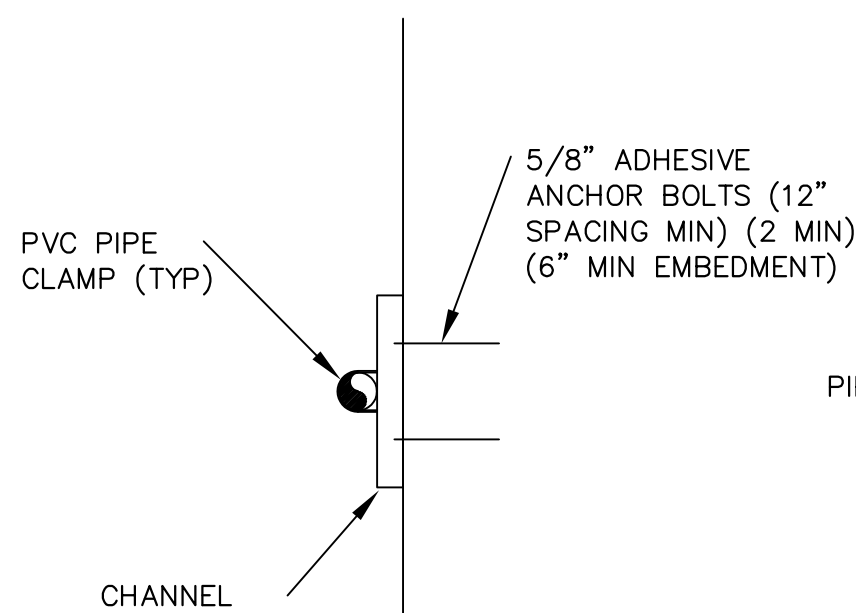
5
-
TAP CONNECTION FOR PIPE
SCALE: NONE

- NOTES:
1. FOR STL GALV AND PVC 2 1/2" AND SMALLER USE BUSHING IN A TEE
 2. FOR DIP ALL SIZES USE DIRECT PIPE TAP (2" MAX TAP SIZE)
 3. FOR TAP SIZES OVER 2", USE A SERVICE SADDLE OR SERVICE CLAMP
 4. FOR FRP, ALL SIZES, USE PIPE SADDLE W/BUSHING
 5. FOR STL AND SST PIPES 3" AND LARGER AND PRESSURE VESSELS, USE THREAD-O-LET

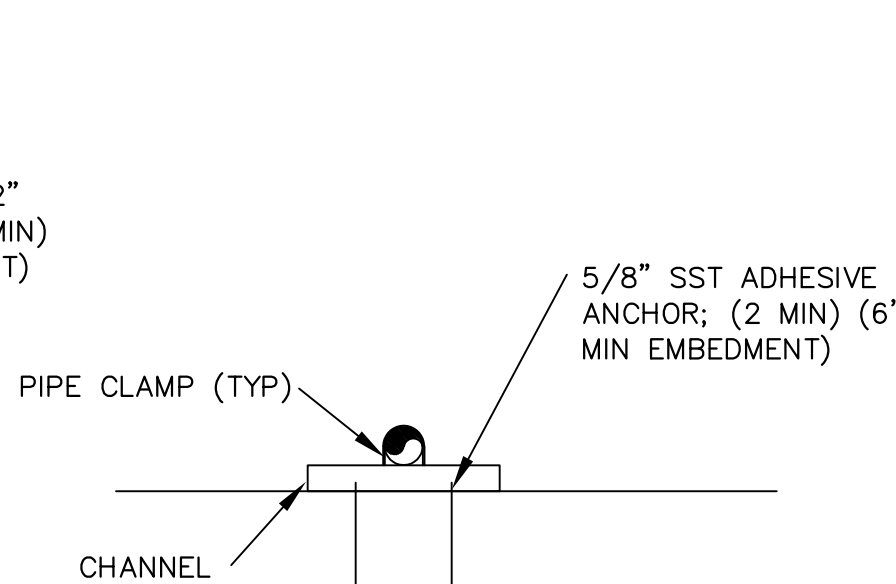
3
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TAP CONNECTION
SCALE: NONE



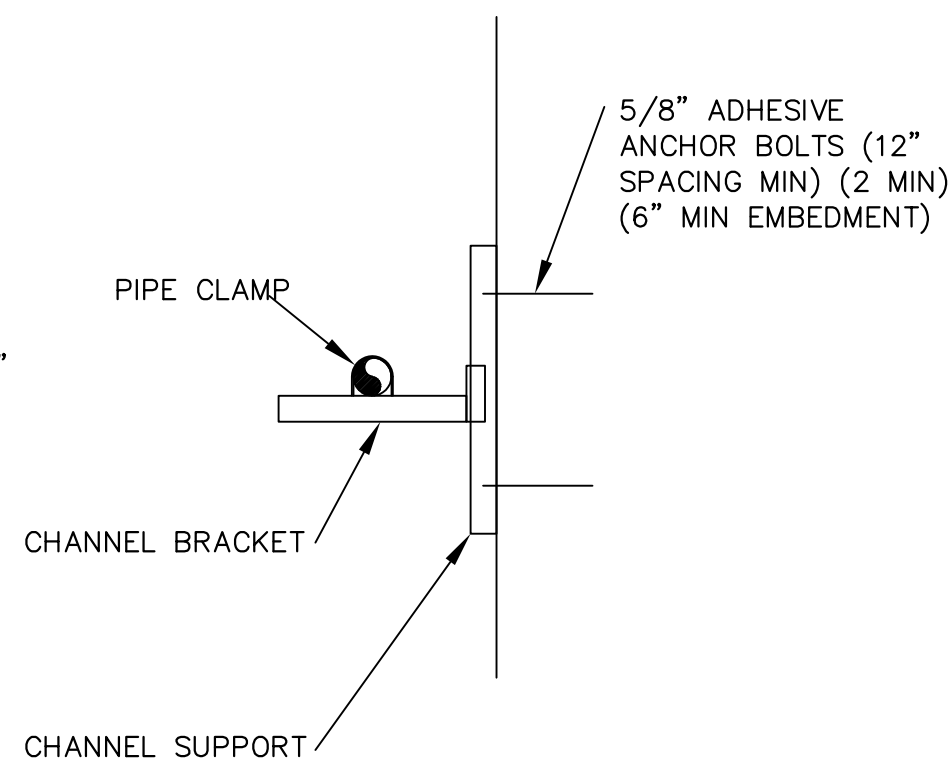
4
-
RISER PIPE SUPPORT
SCALE: NONE



7
-
WALL MOUNT
SCALE: NONE



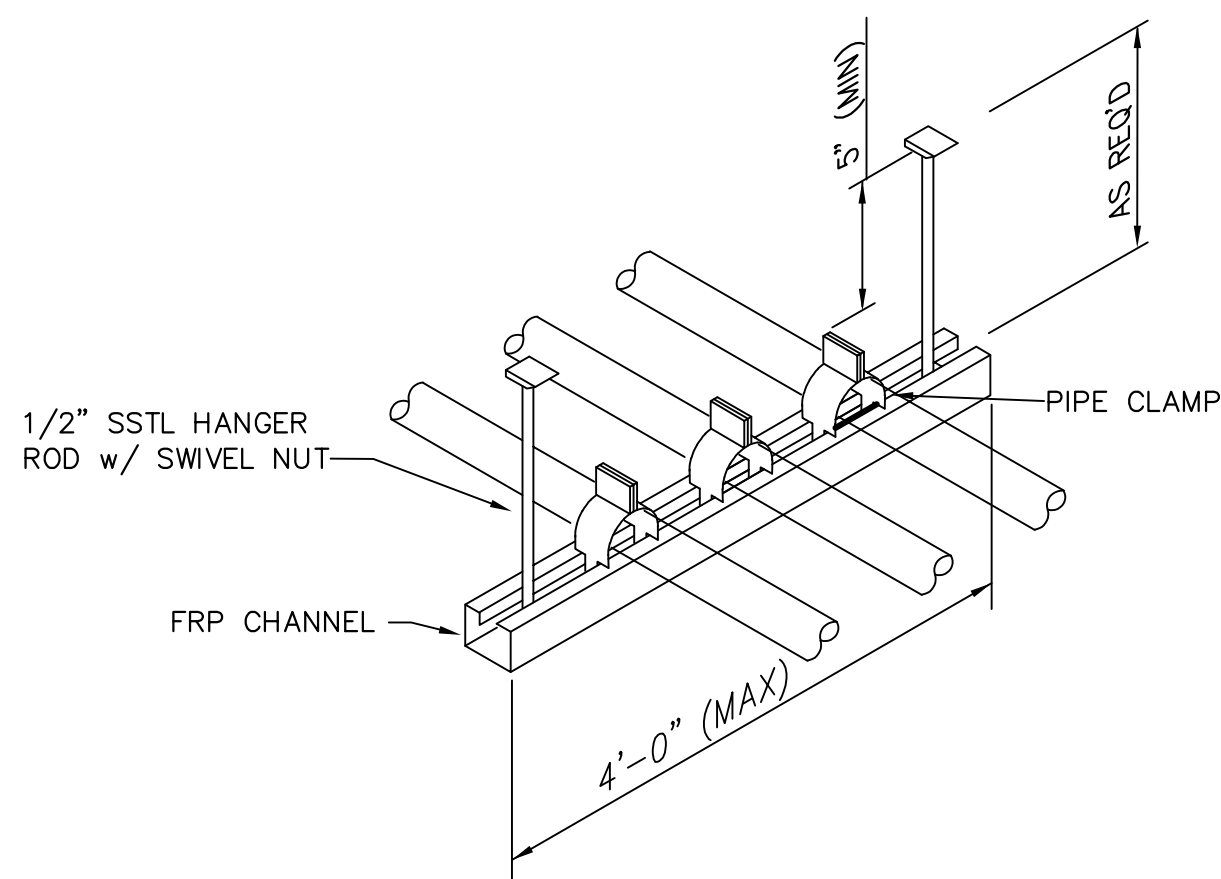
8
-
FLOOR MOUNT
SCALE: NONE



9
-
WALL MOUNT
SCALE: NONE

- NOTES:
1. ALL STEEL COMPONENTS TO BE TYPE 316 SST.
 2. CHANNEL TO BE FRP IN CHEM. ENVIRONMENTS & SST ELSEWHERE.

5
-
FLOOR/WALL MOUNT CHANNEL SUPPORTS
SCALE: NONE



6
-
TRAPEZE PIPE HANGER
SCALE: NONE

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DISCOVERY LAND COMPANY

**PROCESS
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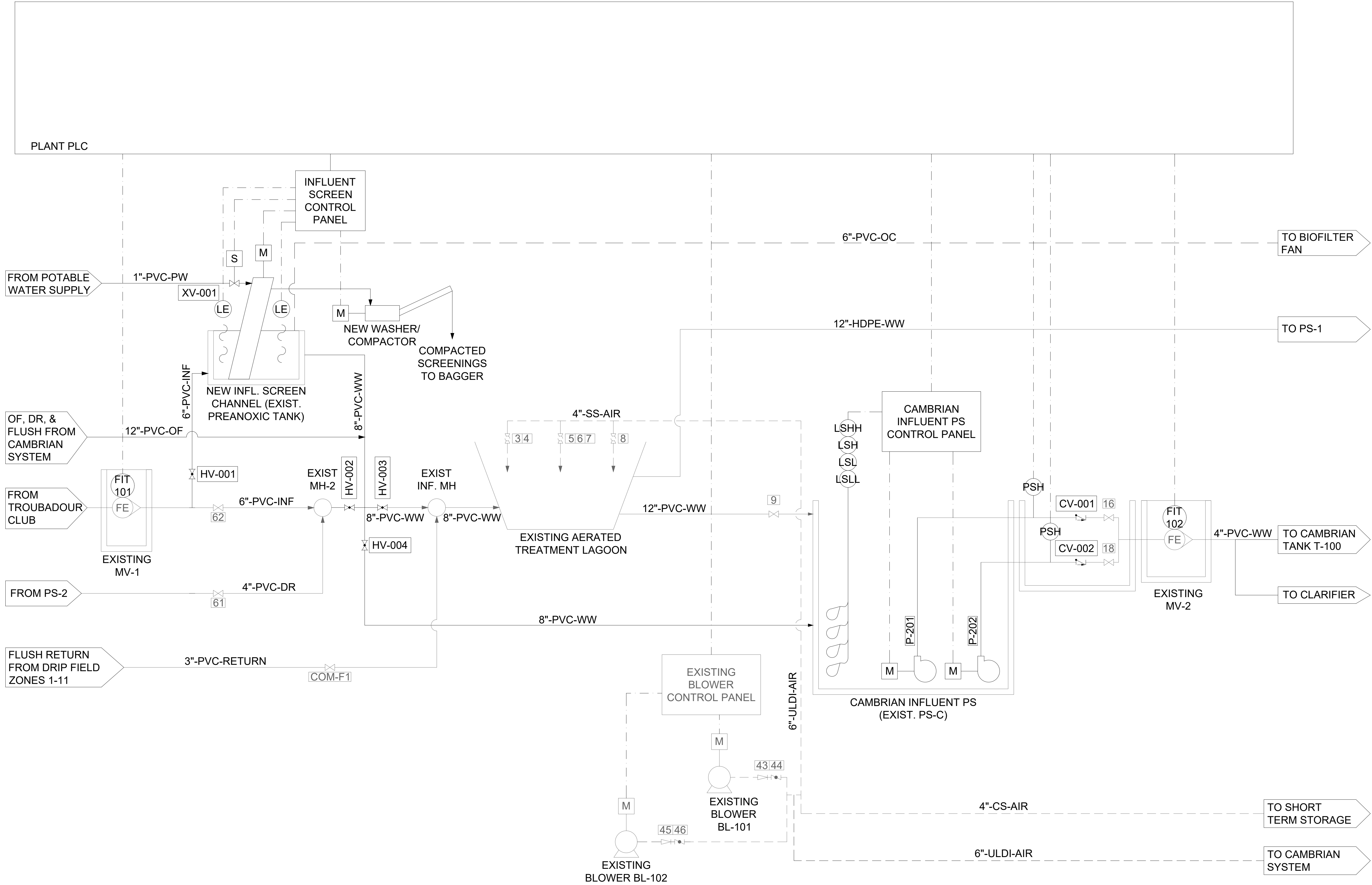
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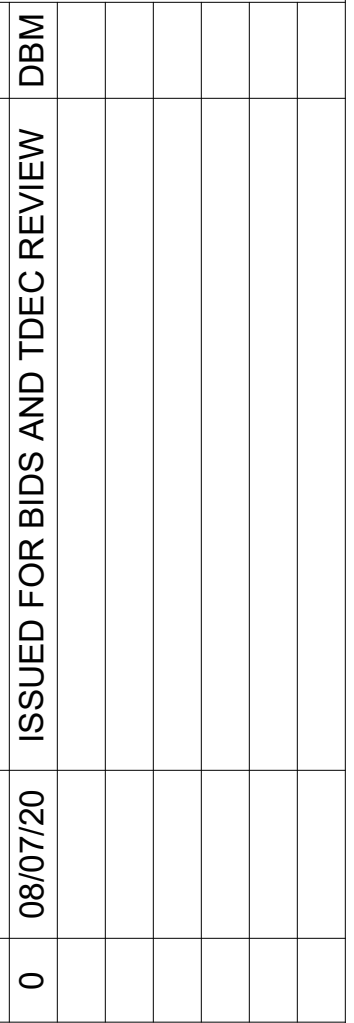
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WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**INFLUENT
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24



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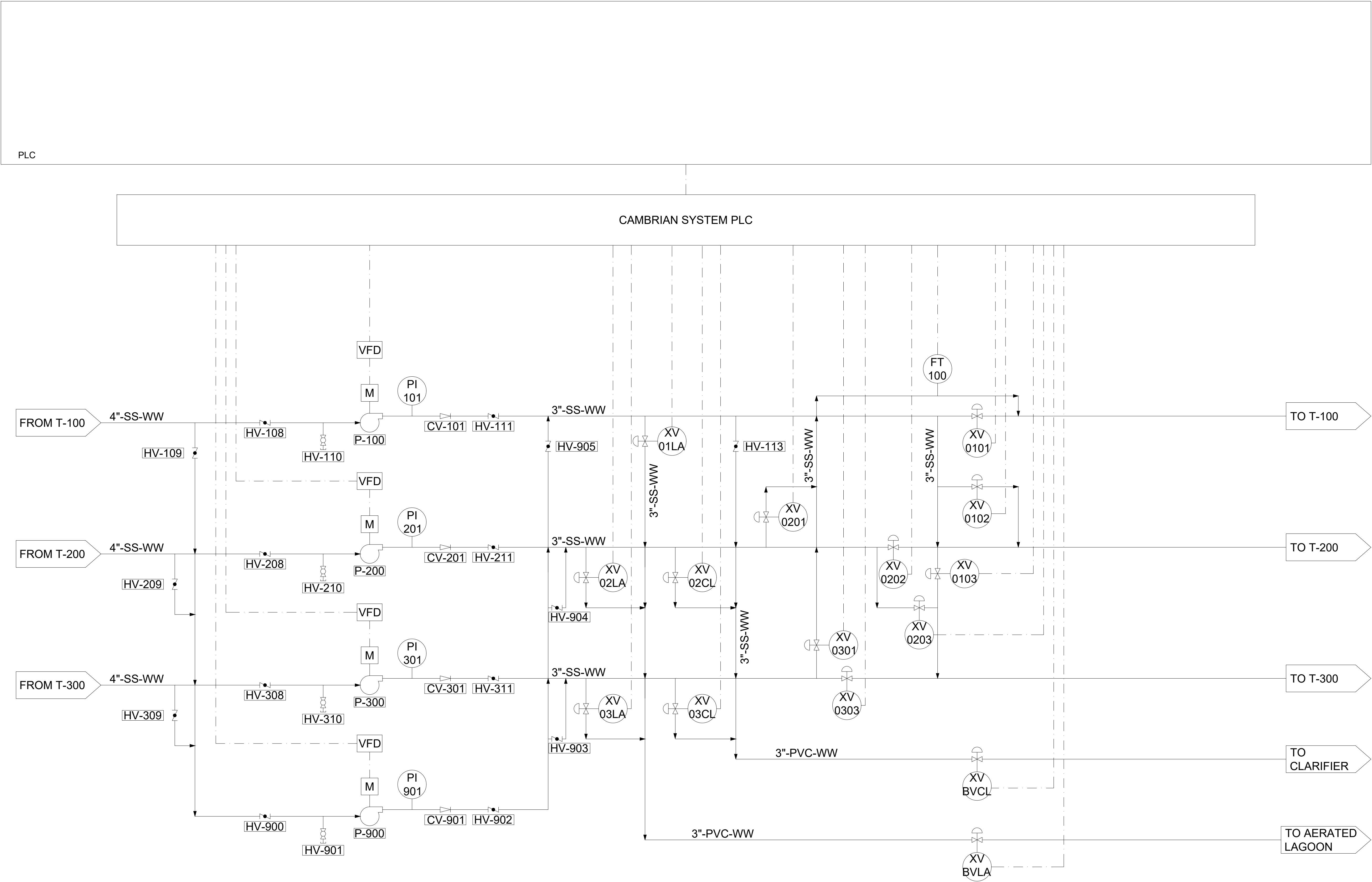
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WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

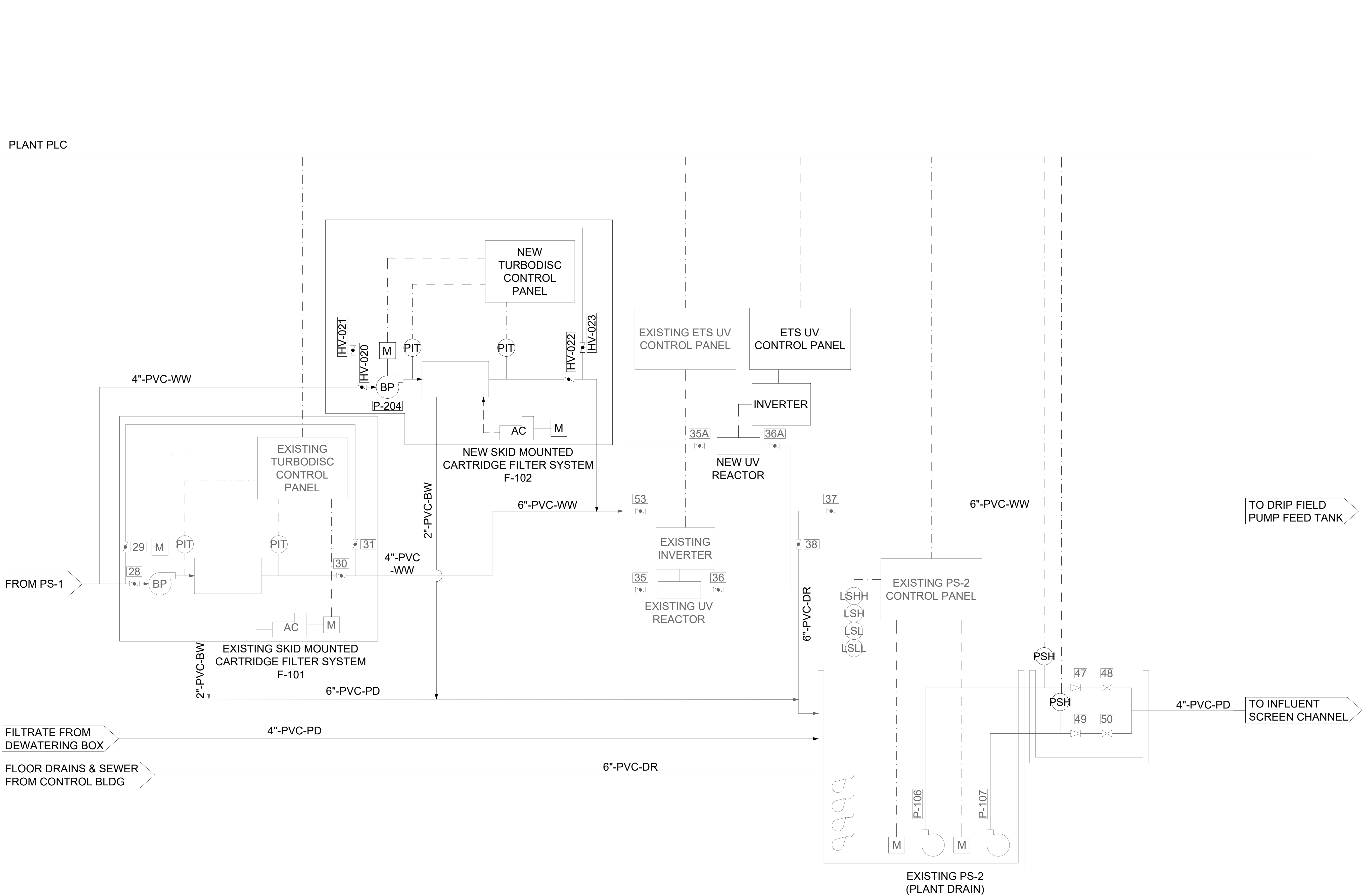
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WILLIAMSON COUNTY, TENNESSEE
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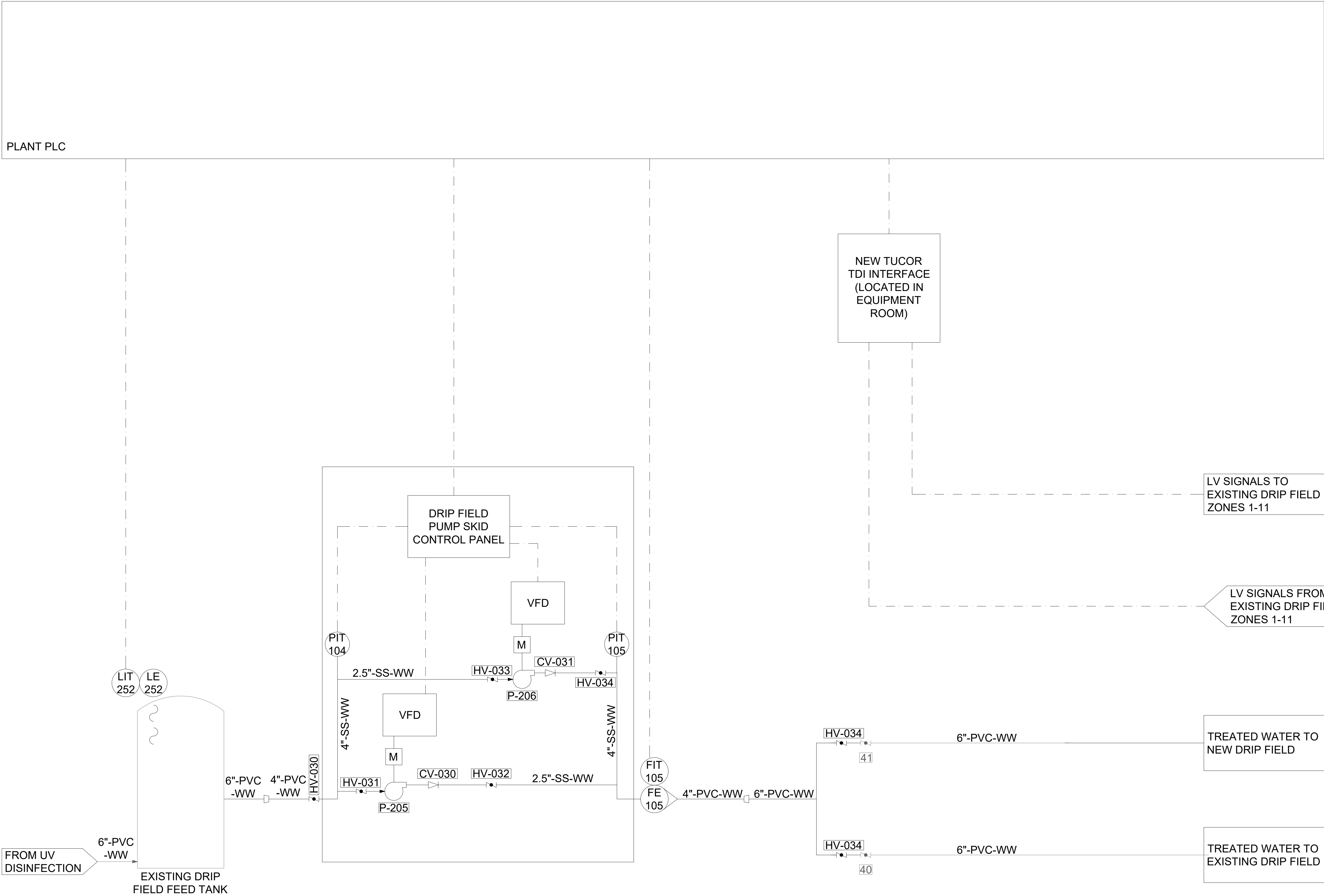
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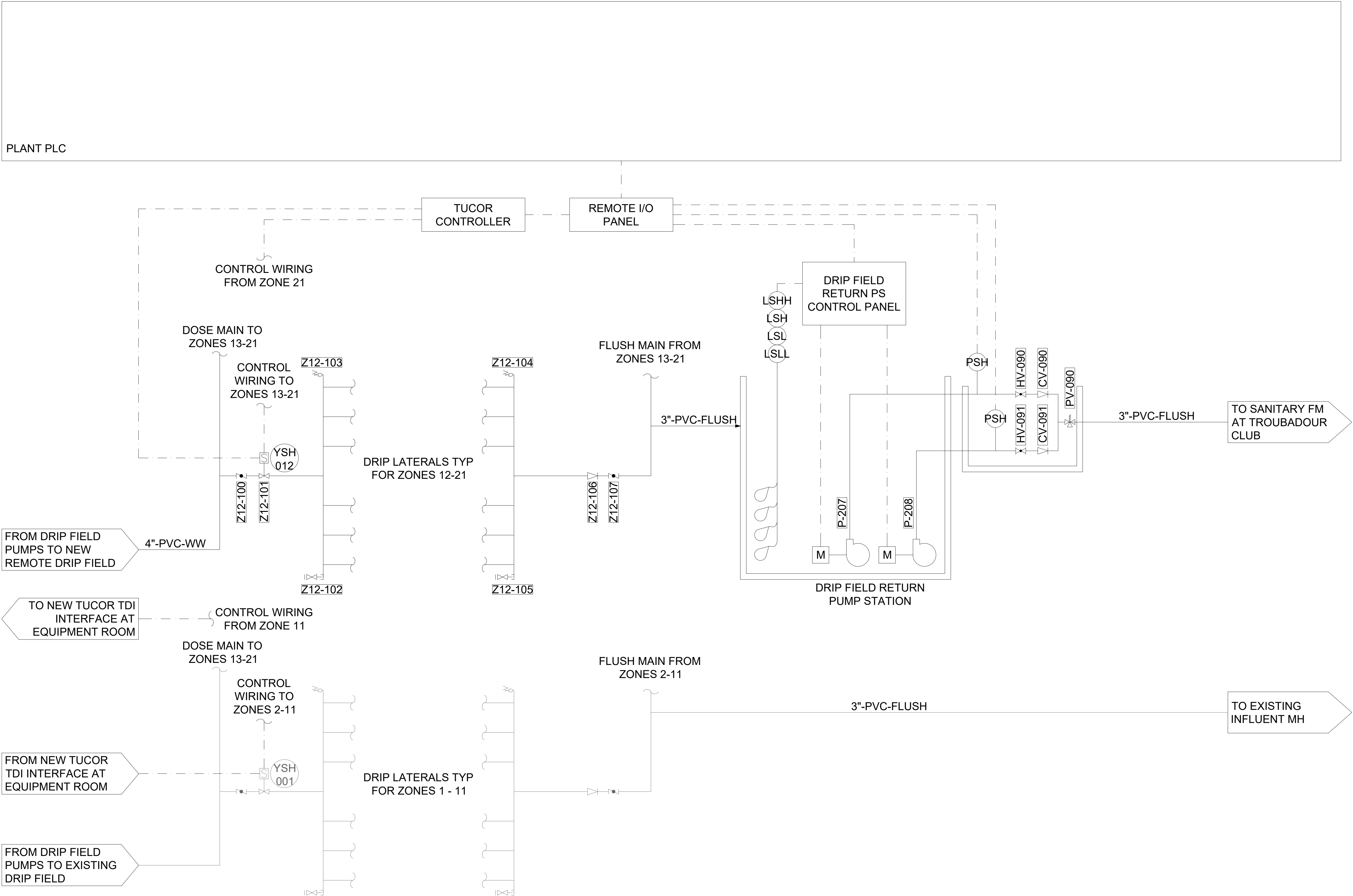
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FEED TANK
& PUMPS
P&ID**

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
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**DRIP FIELDS
& RETURN
PS P&ID**

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DI-007

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CODES & STANDARDS:

1. THE STRUCTURAL DESIGN HAS BEEN PERFORMED BASED ON THE CODES, STANDARDS, AND LISTED DESIGN CRITERIA LISTED BELOW. ALL DELEGATED DESIGN ITEMS PROVIDED BY THE CONTRACTOR SHALL ALSO BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS.

2. THE FOLLOWING CODES AND STANDARDS SHALL BE USED BY THE CONTRACTOR TO ESTABLISH A MINIMUM LEVEL OF QUALITY AND CONSTRUCTION TECHNIQUES.

3. GOVERNING BUILDING CODE:

3.1. 2015 INTERNATIONAL BUILDING CODE (IBC)

4. DESIGN LOADS:

4.1. ASCE 7-2010, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"

4.2. ASCE 24-2014, "FLOOD RESISTANT DESIGN AND CONSTRUCTION"

5. STRUCTURAL CONCRETE:

5.1. ACI 318-2014, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

5.2. ACI 350-2006, "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES"

5.3. ACI 117, LATEST EDITION, "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"

5.4. ACI 301, LATEST EDITION, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"

5.5. ACI 302.1, LATEST EDITION, "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION"

5.6. ACI 308.1, LATEST EDITION, "SPECIFICATION FOR CURING CONCRETE"

5.7. CRSI "MANUAL OF STANDARD PRACTICE", LATEST EDITION

6. MASONRY:

6.1. ACI 530-2013, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"

6.2. ACI 530.1-2013, "SPECIFICATION FOR MASONRY STRUCTURES"

7. STRUCTURAL STEEL:

7.1. AISC "MANUAL OF STEEL CONSTRUCTION, 14TH EDITION"

7.2. AWS D1.1, "STRUCTURAL WELDING CODE- STEEL"

7.3. AWS D1.3, "STRUCTURAL WELDING CODE- SHEET STEEL"

7.4. AWS D1.6, "STRUCTURAL WELDING CODE- STAINLESS STEEL"

7.5. SDI, "DESIGN MANUAL FOR COMPOSITE DECK, FORM DECKS, AND ROOF DECKS"

7.6. SJI 100-2015, "STANDARD SPECIFICATION FOR K-SERIES, LH-SERIES, & DLH-SERIES OPEN WEB STEEL JOISTS"

8. ALUMINUM:

8.1. 2015 ALUMINUM DESIGN MANUAL (ADM1-2015)

8.2. AWS D1.2, "STRUCTURAL WELDING CODE- ALUMINUM"

9. WOOD:

9.1. AWC NDS-2015, "NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION WITH 2015 NDS SUPPLEMENT"

9.2. AWC SDPWS-2015, "SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC"

9.3. TPI 1-2014, "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION"

BUILDING CODE NOTES:

1. PROJECT DESCRIPTION: EXPANSION OF EXISTING RESIDENTIAL WASTEWATER TREATMENT PLANT TO INCREASE TREATMENT CAPACITY. THE PROJECT INCLUDES MODIFICATION TO EXISTING TANKS AND CONTROL BUILDING, AS WELL CONSTRUCTION OF NEW TANKS AND EQUIPMENT BUILDING.

1.1. CONTROL BUILDING: 960-SF ADDITION TO EXISTING CONTROL BUILDING, INCLUDING AN OFFICE, MAINTENANCE ROOM, AND DUMPSTER ROOM. BUILDING CONSTRUCTION TO MATCH EXISTING BUILDING (SLAB ON GRADE, CMU BLOCK WALLS, WOOD ROOF TRUSSES & METAL ROOFING).

1.1.1. USE & OCCUPANCY CLASSIFICATION: F-2

1.1.2. CONSTRUCTION TYPE: V-B

1.1.3. NOT REQUIRED TO BE SPRINKLERED PER SECTION 903.

1.1.4. ALLOWABLE AREA / HEIGHT / STORIES: 13,000 SF / 40-FT / 2-STORIES

1.1.5. BUILDING AREA / HEIGHT / STORIES: 2,736 SF / 15-FT / 1-STORY

1.2. CAMBRIAN BUILDING: NEW BUILDING TO HOUSE EQUIPMENT FOR WASTEWATER TREATMENT PROCESSES. BUILDING CONSTRUCTION WILL CONSIST OF SLAB ON GRADE, CMU BLOCK WALLS, STEEL JOISTS & METAL ROOFING.

1.2.1. USE & OCCUPANCY CLASSIFICATION: F-2

1.2.2. CONSTRUCTION TYPE: V-B

1.2.3. NOT REQUIRED TO BE SPRINKLERED PER SECTION 903.

1.2.4. ALLOWABLE AREA / HEIGHT / STORIES: 13,000 SF / 40-FT / 2-STORIES

1.2.5. BUILDING AREA / HEIGHT / STORIES: 876 SF / 15-FT / 1-STORY

STRUCTURAL DESIGN CRITERIA:

1. BUILDING RISK CATEGORY: III

2. DEAD LOADS: ACTUAL WEIGHTS OF BUILDING MATERIALS, STRUCTURAL COMPONENTS, & EQUIPMENT.

3. LIVE LOADS: ASCE 7

3.1. ROOF: 20 PSF OR 300 LB CONCENTRATED LOAD APPLIED AT ANY POINT

3.2. OFFICES: 50 PSF

3.3. EQUIPMENT AREAS: 150 PSF

3.4. STAIRS/PLATFORMS: 100 PSF

3.5. FIXED LADDERS: 300 LB CONCENTRATED LOAD FOR EVERY 10-FT OF HEIGHT

3.5.1. RAIL EXTENSIONS: 100 LB CONCENTRATED LOAD IN ANY DIRECTION
- 3.6. GUARDRAILS/HANDRAILS (THE WORST CASE OF THE FOLLOWING):

3.6.1. 20 PLF FOR AREAS W/ OCCUPANT LOAD LESS THAN 50

3.6.2. 200 LB CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT
- 3.7. VEHICULAR DRIVEWAYS & YARDS SUBJECT TO TRUCKING: 250 PSF
4. WIND DESIGN PARAMETERS: ASCE 7

4.1. ULTIMATE WIND SPEED: 120 MPH

4.2. NOMINAL WIND SPEED: 93 MPH

4.3. EXPOSURE CATEGORY: C

4.4. INTERNAL PRESSURE COEFFICIENT, GCPI:

4.4.1. PARTIALLY ENCLOSED: ± 0.55

5. SEISMIC DESIGN PARAMETERS: ASCE 7

5.1. IMPORTANCE FACTOR, I_e: 1.25

5.2. SITE CLASS: C

5.3. MAPPED SPECTRAL RESPONSE ACCELERATIONS:

5.3.1. S_s: 0.276g S₁: 0.136g

5.4. SEISMIC DESIGN CATEGORY: C

5.5. SPECTRAL DESIGN ACCELERATIONS:

5.5.1. S_{DS}: 0.221g S_{D1}: 0.151g

5.6. ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

5.7. BASIC SEISMIC FORCE RESISTING SYSTEM: INTERMEDIATE REINFORCED MASONRY SHEAR WALLS

5.8. RESPONSE MODIFICATION FACTOR, R: 3.5

5.9. SEISMIC RESPONSE COEFFICIENT, C_s: 0.08

5.10. DESIGN BASE SHEAR: CONTROL BUILDING: 27.5 KIPS

5.11. DESIGN BASE SHEAR: BASWOOD BUILDING: 11.0 KIPS

6. SNOW DESIGN PARAMETERS: ASCE 7

6.1. IMPORTANCE FACTOR, I_s: 1.10

6.2. GROUND SNOW LOAD, P_g: 10 PSF

6.3. EXPOSURE FACTOR, C_e: 0.90

6.4. THERMAL FACTOR, C_t: 1.0

6.5. FLAT ROOF SNOW LOAD, P_f: 7 PSF

7. FLOOD DESIGN PARAMETERS: ASCE 24

7.1. FLOOD DESIGN CLASS: 3

7.2. FLOOD HAZARD MAP: 47187C0385F (EFF. 09/29/06)

7.3. FLOOD HAZARD AREA: ZONE X

7.4. BASE FLOOD ELEVATION (BFE): EL. 700

7.5. ELEVATION OF LOWEST FLOOR: EL. 708

7.6. ELEVATION OF LOWEST STRUCTURE: EL. 700

7.7. DESIGN FLOOD ELEVATION (DFE): BFE + 1-FOOT

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO ANY PERTINENT WORK. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE NOTED ON THE SHOP DRAWINGS.

2. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE DESIGN DRAWINGS, SUBMITTALS, AND EXISTING CONDITIONS TO DETERMINE WHERE OPENINGS ARE REQUIRED IN WALLS AND SLABS.

3. THE STRUCTURE SHOULD NOT BE CONSIDERED TO BE STABLE DURING CONSTRUCTION UNTIL ALL ELEMENTS ARE IN PLACE AND CONNECTED. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING ALL TEMPORARY CONSTRUCTION BRACING, AS REQUIRED.

4. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL TAKE THE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION, NEW AND EXISTING, AT ALL STAGES.

5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING OR RELOCATING, AS APPLICABLE, ALL EXISTING UNDERGROUND UTILITIES AND OTHER STRUCTURES FROM DAMAGE DURING CONSTRUCTION.

FOUNDATIONS:

1. ALLOWABLE SOIL BEARING PRESSURE IS 2,500 PSF.

2. ALL EXCAVATED AREAS SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER OR ENGINEER'S REPRESENTATIVE. UNSUITABLE BEARING MATERIALS SHALL BE REMOVED AND REPLACED WITH COMPACTED FILL, AS DIRECTED BY THE ENGINEER.

3. ALL BACKFILL BENEATH FOUNDATIONS/SLABS, AND AGAINST BELOW GRADE WALLS SHALL BE COMPACTED GRANULAR FILL (ASTM C-33 #57 OR #67 STONE).

4. FOR FILL PLACED WITHIN 5-FEET OF BUILDING OR TANK FOUNDATIONS AND UNDERNEATH ALL SLABS ON GRADE, COMPACT TO 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-698 (STANDARD PROCTOR).

5. PROVIDE VAPOR BARRIER UNDER BUILDING SLABS ON GRADE.

CONCRETE:

1. STRUCTURAL CONCRETE: MIN. 28-DAY COMPRESSIVE STRENGTH: 4,500 PSI

2. NON-STRUCTURAL CONCRETE: MIN. 28-DAY COMPRESSIVE STRENGTH: 3,000 PSI

3. CONCRETE SHALL BE PROPORTIONED, MIXED, PLACED, CONSOLIDATED, AND CURED IN ACCORDANCE WITH THE REFERENCED CODES AND STANDARDS.

4. CONSTRUCTION JOINTS SHALL BE LOCATED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

5. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4-INCH.

6. ALL INTERIOR SLABS ON GRADE SHALL BE FINISHED WITH FLOOR HARDENER AND SEALER.

7. EXTERIOR WALKWAYS AND SIDEWALKS SHALL BE POURED WITH SLIGHT SLOPE AWAY FROM ANY ADJACENT STRUCTURES.

8. WATERSTOPS SHALL BE PROVIDED AT ALL CONCRETE JOINTS IN LIQUID-CONTAINING STRUCTURES. SEE SPECS FOR ADDITIONAL INFO.

9. PRECAST MANHOLES SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER AND COMPLY WITH ASTM C-478 AND C-443.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL COMPLY WITH ASTM A-615 GRADE 60 (DEFORMED BARS).

2. DETAILING SHALL BE IN ACCORDANCE WITH THE REFERENCED CODES AND STANDARDS.

3. ALL LAP SPLICES SHALL BE CLASS B TENSION LAP SPLICES. SEE DETAIL 1/S-700.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHAPES SHALL CONFORM TO THE FOLLOWING MATERIALS, U.N.O.: W- ASTM A992; M, S, C, MC- ASTM A36; HSS- ASTM A500, GRADE B; PIPE- ASTM A53, GRADE B; ANGLES, PLATES, BARS: ASTM A36.

2. STRUCTURAL BOLTS SHALL CONFORM TO THE FOLLOWING, U.N.O.: STEEL BOLTS- ASTM A325; STAINLESS STEEL (SST) BOLTS- ASTM F593

3. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE REFERENCED CODES AND STANDARDS. WELDING ELECTRODE- E70XX.

4. NO OPENINGS SHALL BE CUT IN STRUCTURAL STEEL MEMBERS, EXCEPT AS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.

5. NONSHRINK GROUT FOR BASE PLATES SHALL BE MASTER BUILDERS MASTERFLOW 885.

MASONRY:

1. HOLLOW CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C-90, TYPE 1 NORMAL WEIGHT UNITS, WITH 2 CELL BLOCKS AND HAVE A MIN. SPECIFIED COMPRESSIVE STRENGTH OF 1,900 PSI ON THE NET AREA AT 28-DAYS.

2. MORTAR SHALL CONFORM TO ASTM C-270, TYPE S.

3. CMU AND MORTAR SHALL CONTAIN INTEGRAL WATER REPELLENT ADMIXTURES, WHICH ARE COMPATIBLE.

4. MASONRY GROUT SHALL CONFORM TO ASTM C-476 AND HAVE A MIN. COMPRESSIVE STRENGTH OF 3,000 PSI.

5. ALL CELLS CONTAINING REINFORCING OR EMBEDDED ANCHORS SHALL BE FULLY GROUTED. ALL COURSES BELOW GRADE SHALL BE FULLY GROUTED.

6. ALL WALL CORNERS AND INTERSECTIONS SHALL BE INTERWOVEN WITH CORNER BLOCKS OR T-BLOCKS.

7. LADDER TYPE HORIZONTAL JOINT REINFORCING SHALL BE PROVIDED IN ALL REINFORCED CMU AND START IN THE FIRST JOINT ABOVE THE BOTTOM OF THE WALL. JOINT REINFORCING SHALL BE 9GA. (0.148-INCH OR W1.7) LADDER MESH WITH COLD-DRAWN WIRE & CONFORM TO ASTM A-951. SPACE AT 16-INCHES VERTICALLY AND LAP 8-INCHES AT EACH END.

8. PRE-FORMED CONTROL JOINT GASKETS SHALL BE EXTRUDED RUBBER MATERIAL CONFORMING TO ASTM D2000 M2AA-805.

ANCHORING TO CONCRETE & MASONRY:

1. CAST-IN-PLACE ANCHORING SHALL BE WITH ASTM F1554 (GRADE 36, U.N.O.) THREADED RODS AND HEAVY NUT OR PLATE WASHER TACK WELDED TO THE ROD. SIZE AND EMBEDMENT DEPTH SHALL BE AS INDICATED ON THE DRAWINGS.

2. POST-INSTALLED ANCHORING SYSTEMS FOR CONCRETE:

2.1. BASIS OF DESIGN: HILTI, INC. SEE SECTION 05 05 23 FOR ADDITIONAL INFO.

2.2. ADHESIVE ANCHORING- HIT-HY 200 W/ HIT-Z-R SST 316, HAS-R SST 316, OR ASTM F593 SST 316 THREADED ROD.

2.3. MECHANICAL ANCHORING- KWIK BOLT TZ SST 316 EXPANSION ANCHOR.

3. POST-INSTALLED ANCHORING SYSTEMS FOR MASONRY:

3.1. BASIS OF DESIGN: HILTI CORPORATION, OR APPROVED EQUAL. SEE SPEC FOR ADDITIONAL INFO.

3.2. ADHESIVE ANCHORING- HIT-HY 70 W/ HAS-R SST 316, OR ASTM F593 SST 316 THREADED ROD. FOR ANCHORAGE TO HOLLOW MASONRY, PROVIDE MFR'S SCREEN TUBE AS APPROPRIATE FOR THE ANCHOR SIZE INDICATED.

3.3. MECHANICAL ANCHORING- KWIK BOLT TZ SST 316 EXPANSION ANCHOR.

ALUMINUM FRAMING, GUARDRAIL, & GRATING:

1. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE, MASONRY, OR DISSIMILAR METALS SHALL BE COATED WITH BITUMINOUS PAINT.

2. ALUMINUM SHAPES SHALL CONFORM TO THE FOLLOWING MATERIALS, U.N.O.:

2.1. STRUCTURAL SHAPES & EXTRUSIONS- ASTM B221, 6061-T6; PLATE & SHEET- ASTM B209, 6061-T6; CASTINGS- ASTM B26, ALLOY 443.0-F.

3. GRATING AND PLANK SHALL CONFORM TO ASTM B221, 6063, I-BAR TYPE GRATING. PROFILE A-19-4, WITH SIZE AS INDICATED, SHALL BE USED FOR ALL WALKING SURFACES WITHOUT VEHICULAR TRAFFIC, U.N.O. PANEL SECTIONS SHALL BE FABRICATED IN THE LARGEST PRACTICAL SIZE FOR HANDLING, BUT NO PIECE SHALL WEIGH MORE THAN 100 LB, U.N.O.

4. GUARDRAIL SHALL BE AS INDICATED ON THE DRAWINGS AND CONFORM TO ASTM-B429 OR B221, ALLOY 6105-T5 OR 6063-T5.

WOOD TRUSSES:

1. ROOF TRUSSES SHALL BE DESIGNED TO SUPPORT THE FOLLOWING LOADS:

1.1. TOP CHORD- DEAD LOAD = 12 PSF

1.2. TOP CHORD- LIVE LOAD = 20 PSF

1.3. BOTTOM CHORD- DEAD LOAD = 8 PSF

1.4. IN ADDITION TO THE UNIFORM LOADING, THE TRUSS DESIGNER SHALL INCLUDE ANY CONCENTRATED LOADS CAUSED BY ARCHITECTURAL FEATURES & MECHANICAL OR ELECTRICAL PIPING OR EQUIPMENT.

2. ROOF TRUSSES SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TENNESSEE. SHOP DRAWINGS- INCLUDING TRUSS DESIGNS, PLAN LAYOUT, TEMPORARY BRACING, PERMANENT BRACING, & TYPICAL JOINT DETAILS- SHALL BE SIGNED AND SEALED BY THE TRUSS DESIGNER AND SUBMITTED THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

3. UNLESS NOTED OTHERWISE ON DRAWINGS, TRUSS SUPPLIER SHALL BE RESPONSIBLE FOR DESIGNING AND SUPPLYING OR SPECIFYING ALL TEMPORARY BRACING AND PERMANENT INDIVIDUAL TRUSS MEMBER BRACING REQUIRED BY DESIGN, ALL TRUSS-TO-TRUSS CONNECTIONS, AND ALL UPLIFT CONNECTIONS AT BEARING LOCATIONS. ALL PERMANENT BRACING OF TRUSS MEMBERS SHALL BE CONTINUOUS AND BE ATTACHED TO AN END WALL STUD OR HIP TRUSS TOP CHORD WITH 2 #16D COMMON NAILS.

4. REFER TO THE T.P.I. "HIB SUMMARY SHEET COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING, & BRACING METAL PLATE CONNECTED WOOD TRUSSES".

LUMBER FRAMING:

1. ALL NON-PREFABRICATED LOAD BEARING FRAMING MEMBERS SHALL BE #2 SOUTHERN PINE W/ 19% MOISTURE CONTENT.

2. ALL PLYWOOD SHEATHING SHALL BE APA RATED. SEE PLANS FOR ADDITIONAL INFORMATION.

3. ½"Ø ANCHOR BOLTS EMBEDDED IN TOP OF CMU WALL SHALL HAVE 2"x2"x¾" PLATE WASHER BETWEEN NUT AND WOOD TOP PLATE.

STRUCTURAL SPECIAL INSPECTION REQUIREMENTS:

1. THE CONTRACTOR SHALL MAKE THE WORK AVAILABLE &, WHEN NECESSARY, PROVIDE EQUIPMENT FOR ACCESSING THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER OR OWNER'S REP. AT LEAST 72-HOURS PRIOR TO ANY INSPECTIONS.

2. ALL DISCREPANCIES SHALL BE RESOLVED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER OR OWNER'S REP. PRIOR TO PROCEEDING WITH THE WORK.

3. THE FOLLOWING SHALL BE PERFORMED BY AN INDEPENDENT TESTING AGENCY:

3.1. CONCRETE TESTING - REFER TO SPEC SECTION 03 30 00.

3.2. MASONRY GROUT & MORTAR TESTING - REFER TO SPEC SECTION 04 20 00.

3.3. SOIL COMPACTION TESTING - REFER TO SPEC SECTIONS 31 23 00 & 31 23 33.

4. ALL REINF. BARS FOR CONC. & MASONRY SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER OR OWNER'S REP. PRIOR TO PLACING CONC. OR GROUT.

5. ADHESIVE ANCHORING FOR REINF. & THREADED RODS, SHALL BE PERIODICALLY INSPECTED FOR PROPER DRILL BIT, HOLE PREPARATION, ADHESIVE INSTALLATION, & EMBEDMENT DEPTH IN ACCORDANCE WITH THE DWGS, SECTION 05 05 23, & ADHESIVE MFR'S WRITTEN INSTRUCTIONS.

6. WOOD TRUSS INSTALLATION, INCLUDING BLOCKING, BRACING, AND CONNECTORS, SHALL BE INSPECTED BY THE ENGINEER OR OWNER'S REP FOR CONFORMANCE WITH THE DESIGN DRAWINGS & THE TRUSS ENGINEER'S REQUIREMENTS.



HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
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STRUCTURAL
NOTES &
CRITERIA

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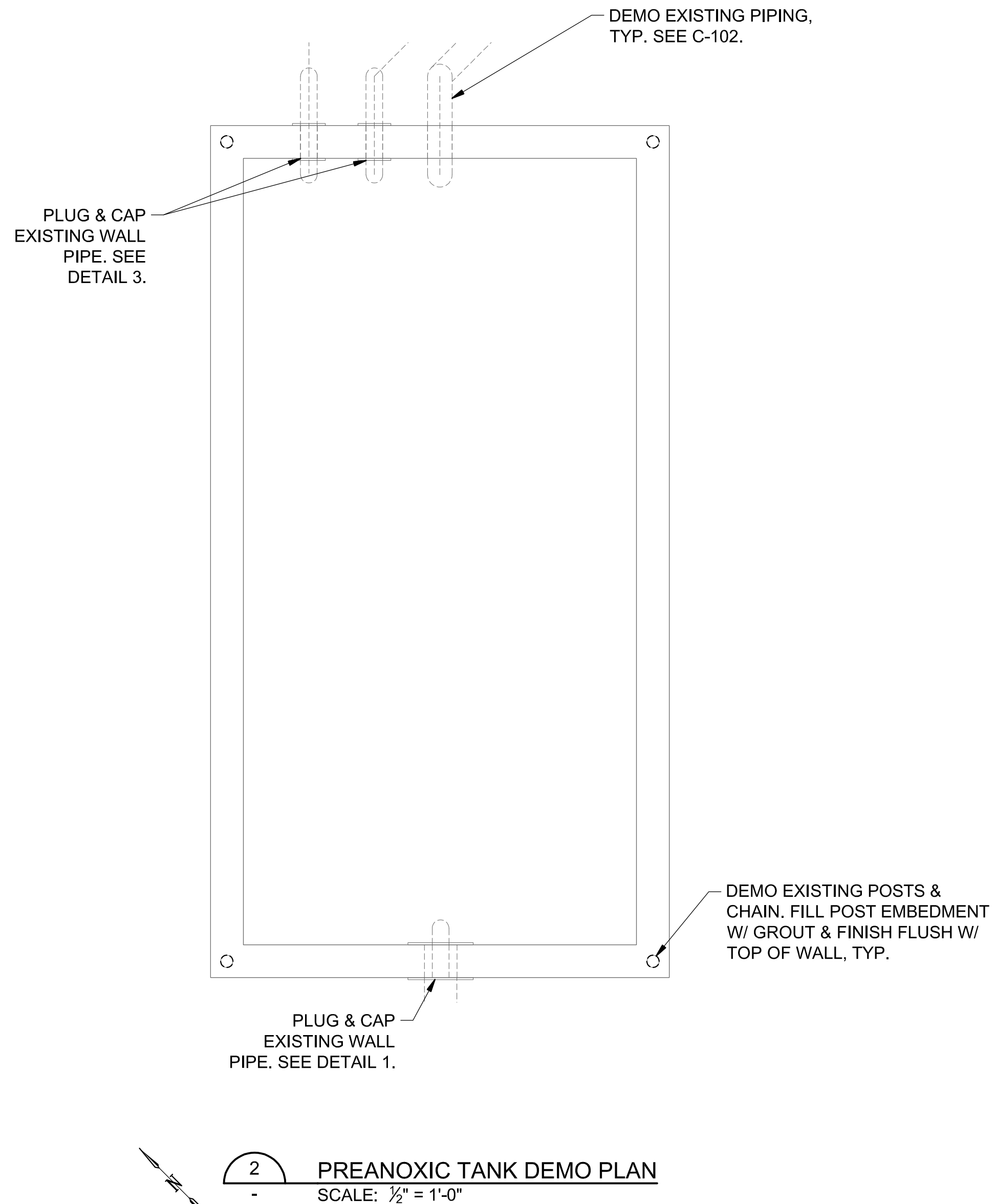
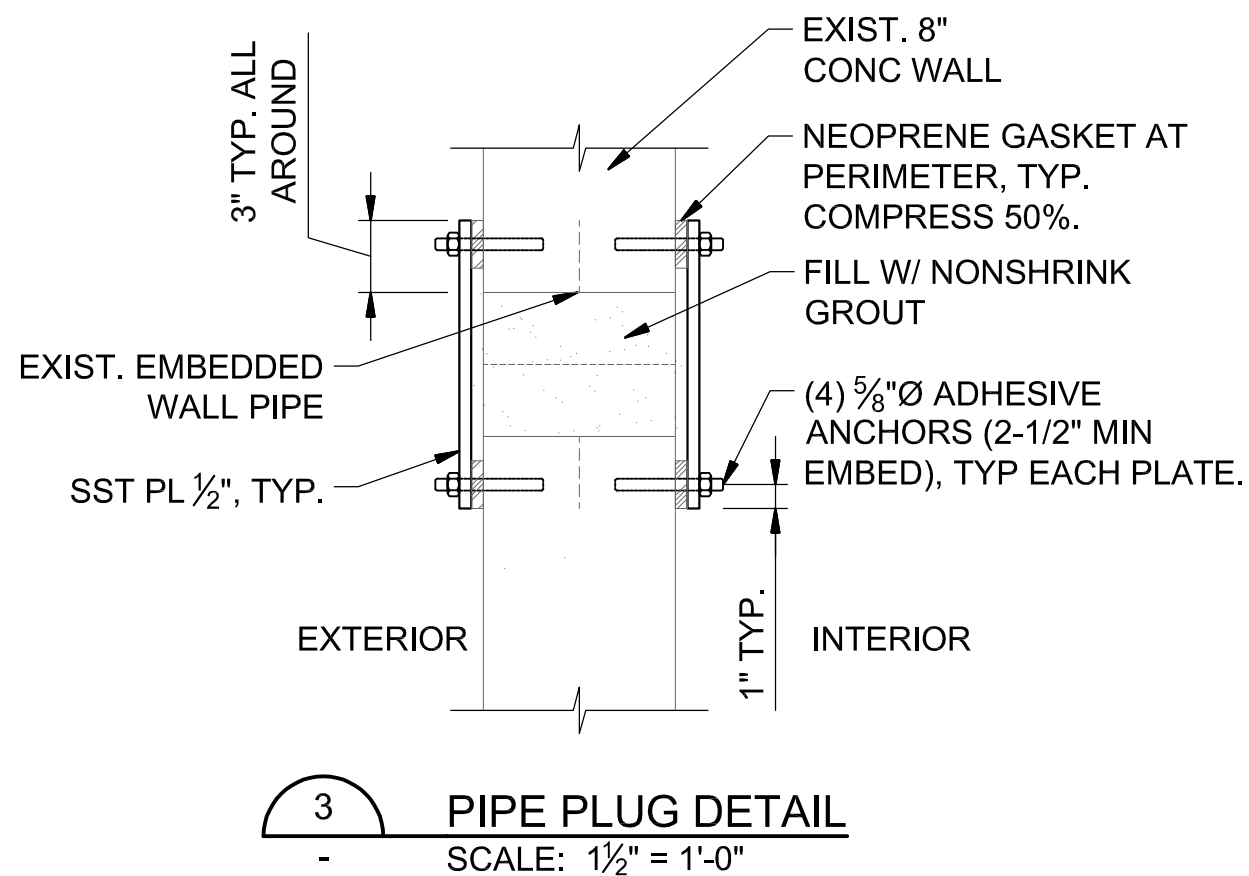
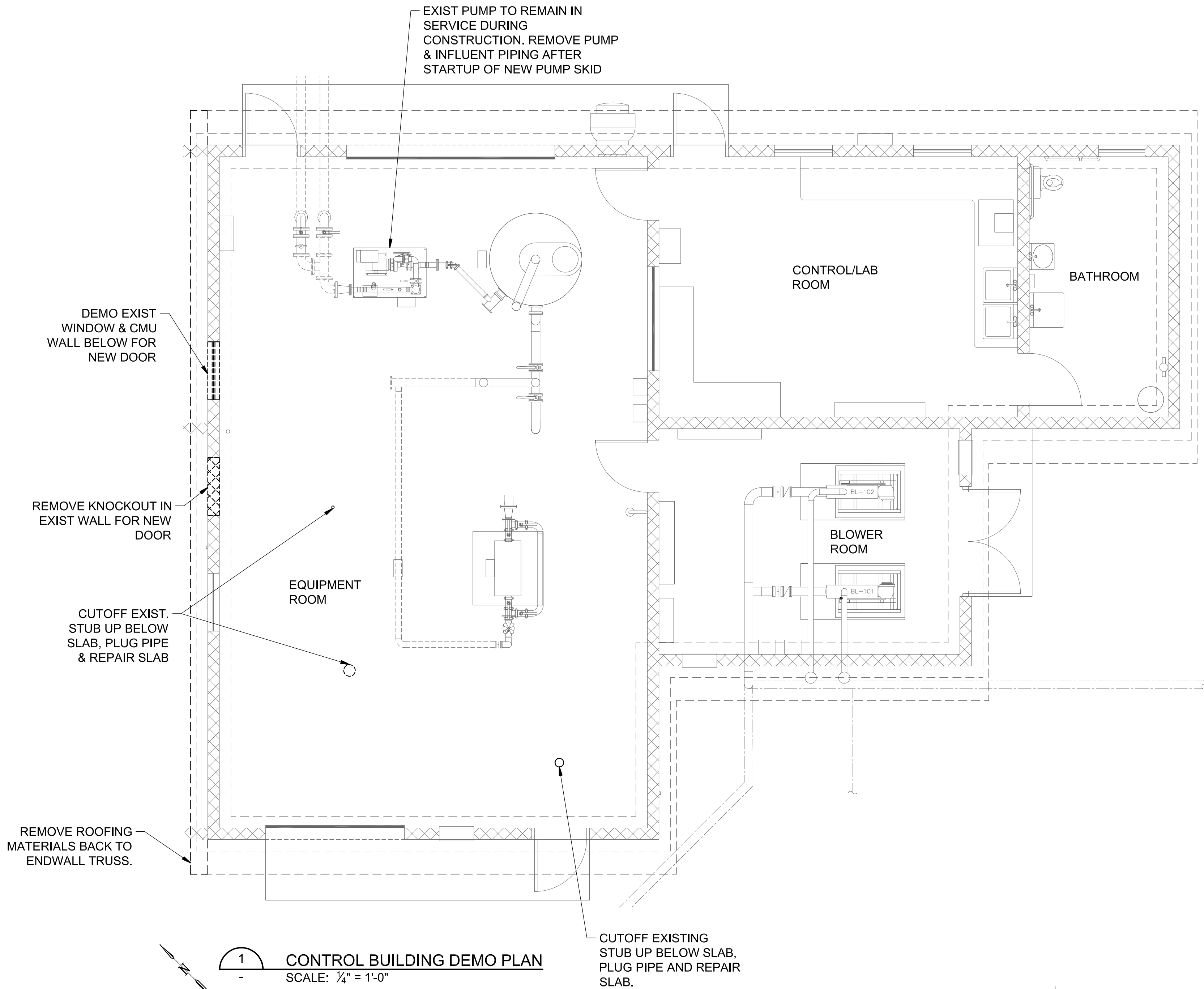
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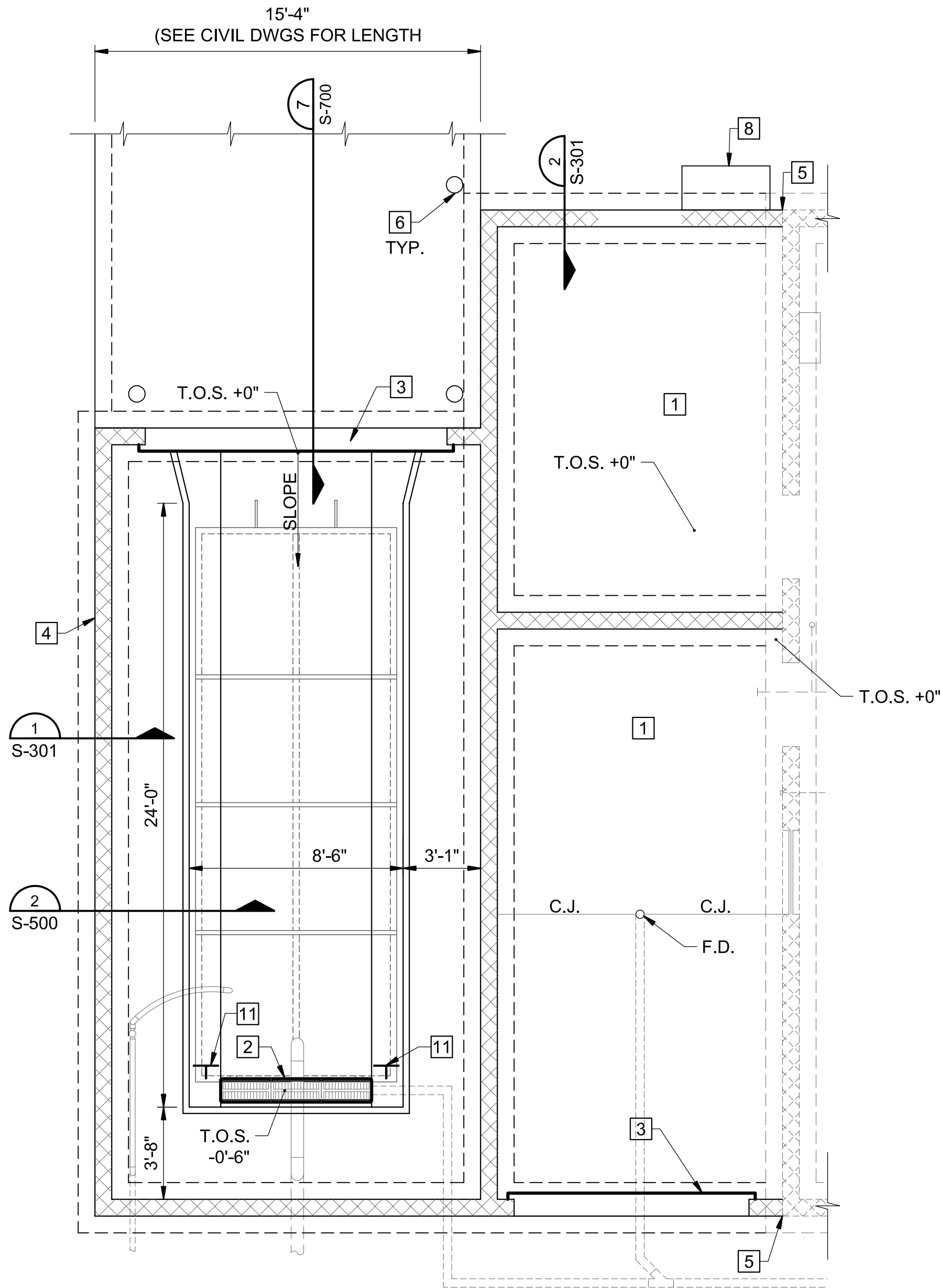
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PREANOXIC TANK DEMO & CLEANING NOTES:

1. REMOVE ALL EXISTING EQUIPMENT, PIPING, & SUPPORTS.
2. REMOVE DEBRIS, WASTE, & SLUDGE
3. PRESSURE WASH EXISTING CONCRETE SURFACES & PUMP WASH WATER TO LAGOON.

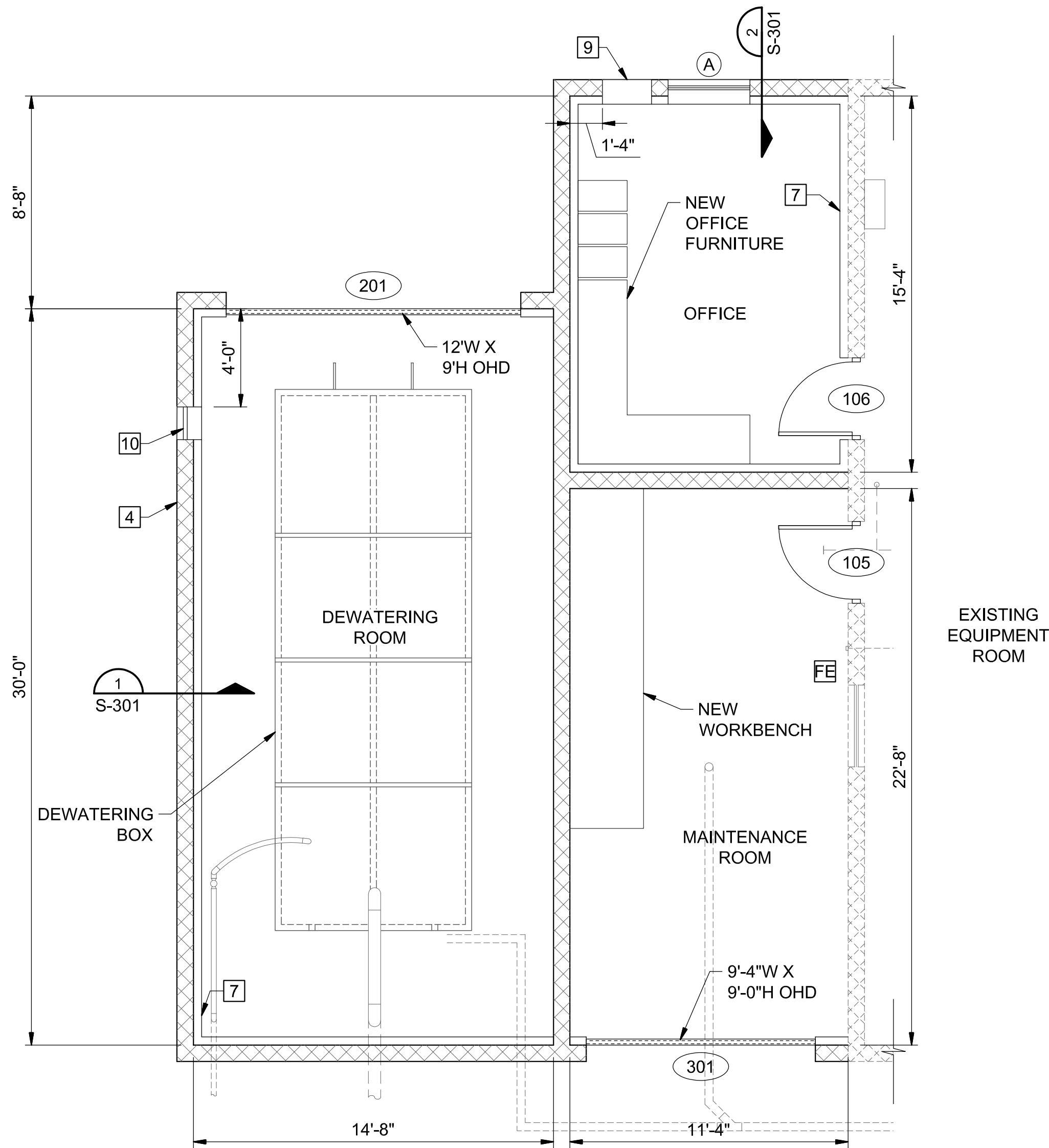
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1
-
CONTROL BUILDING SLAB PLAN
SCALE: 7/8" = 1'-0"

KEYED NOTES:

- 6" CONC. SLAB OVER 10 MIL. VAPOR BARRIER & 6" COMPACTED GRANULAR BASE. SEE DETAILS ON S-500 FOR REINFORCING.
- CONC. TRENCH W/ NEENAH R-4990-CX (TYPE A) TRENCH GRATE W/ BOTTOM OUTLET PIPE
- 1-1/2" SLAB DEPRESSION, TYP. AT OH DOORS. SEE DETAIL 7/S-700.
- 8" NOM. SPLIT-FACE CMU BLOCK. REINFORCED W/ #5@48". SEE CMU DETAILS ON S-710 FOR ADDITIONAL REINF. REQUIREMENTS.
- CONNECTION TO EXIST. BUILDING. SEE DET. 3/S-500.
- 6" CONCRETE PIPE BOLLARD. SEE DETAIL 11/S-700.
- 5/8" TYPE 'X' MOLD RESISTANT GYP. BD. OVER 7/8" METAL FURRING CHANNELS OVER CONT. RIGID INSULATION.
- CONCRETE EQUIPMENT PAD FOR CONDENSING UNIT. SEE DETAIL ON S-700
- 24"X24" SUPPLY GRILL. BOTT. AT 7'-4" AFF. SEE M DWGS FOR INFO.
- 16"X16" MECHANICAL LOUVER. BOTT. AT 7'-4" AFF. SEE M DWGS FOR INFO.
- STEEL STOP PL 1/2"x8"x1'-0" W/ STIFFENER (A588), FIELD WELD CONT. TO EMBEDDED SKID PLATE.



2
-
CONTROL BUILDING FLOOR PLAN
SCALE: 7/8" = 1'-0"

DESIGN NOTES:

- TOP OF SLAB (T.O.S.) IS BASED OFF OF FINISHED FLOOR ELEVATION IN EXISTING CONTROL BUILDING ~ 708.07'. CONTRACTOR TO VERIFY.
- FE INDICATES WALL MOUNTED FIRE EXTINGUISHER (TYPE 2-A 10-B/C)

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CONTROL BUILDING
SLAB & FLOOR
PLANS

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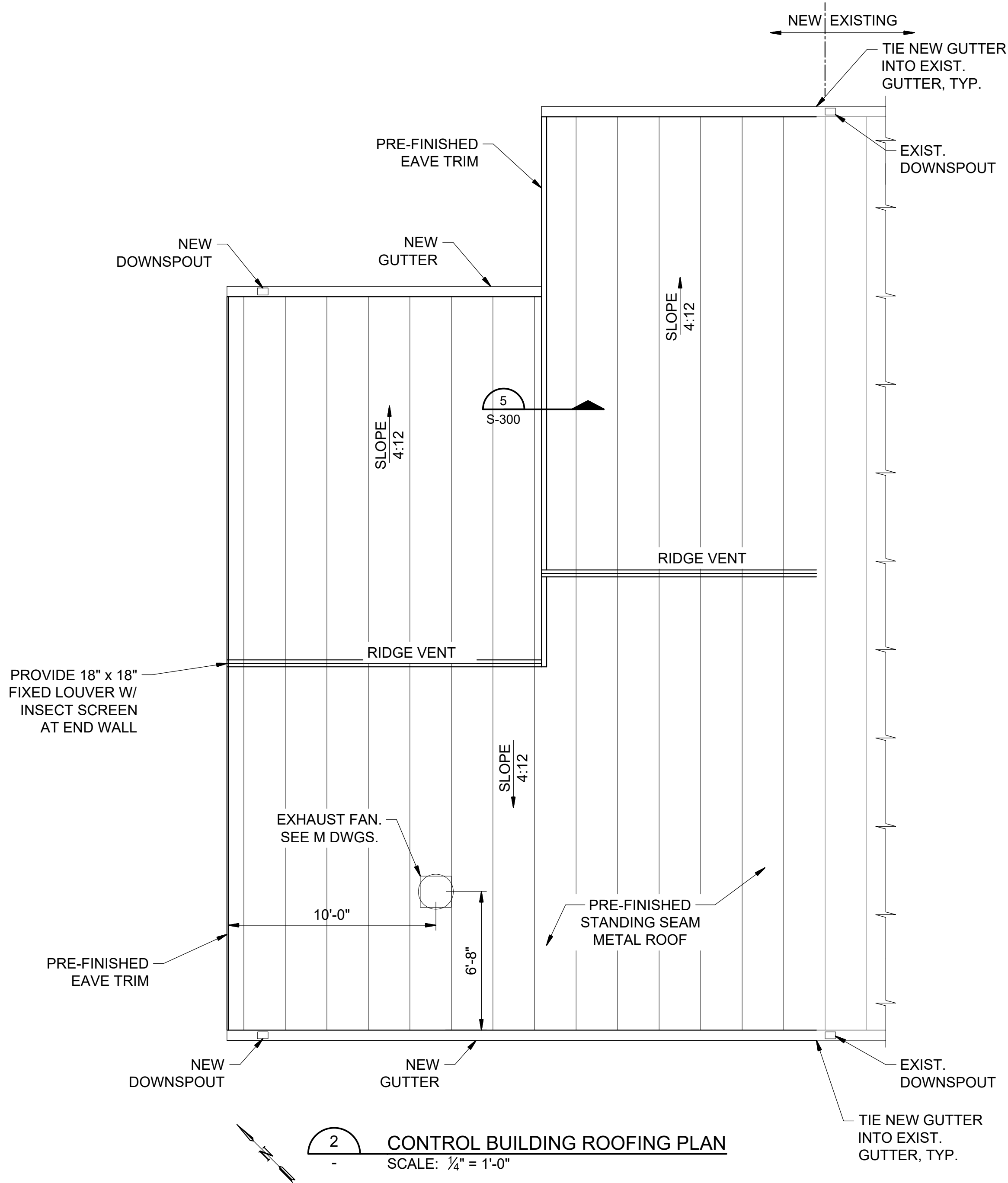
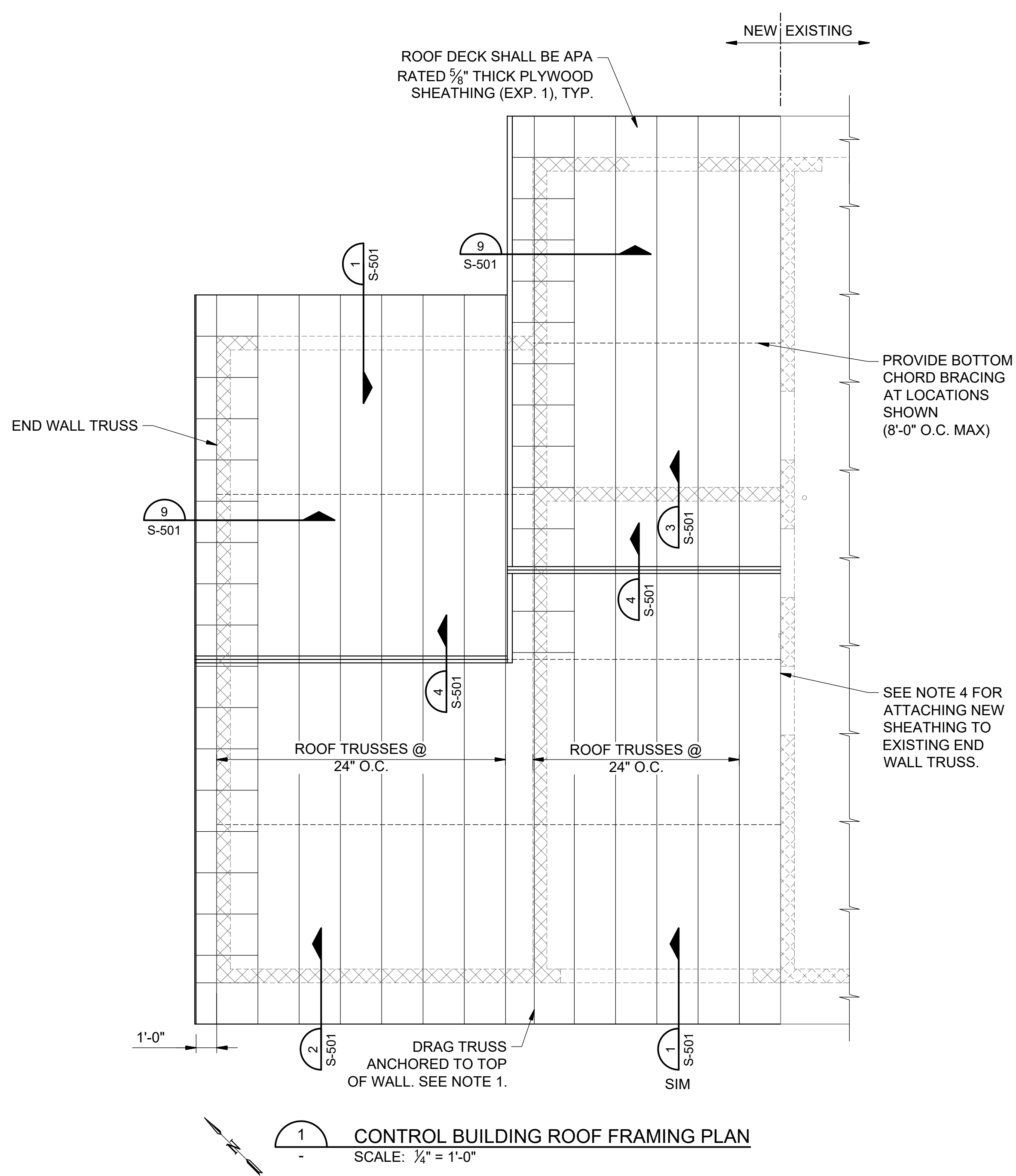
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DESIGN NOTES:

1. REFER TO DESIGN NOTES ON S-000 FOR TRUSS DESIGN REQUIREMENTS.
 - 1.1. DRAG TRUSS ALLOWABLE DESIGN SHEAR FORCE = 5,200 LB (0.7*Q*E)
2. ALL BLOCKING AND BRACING TO BE JOB CUT AND FRAMED. SEE SHEET 501 FOR DETAILS.
3. PROVIDE 1 SIMPSON PSCL SHEATHING CLIP BETWEEN TRUSSES AT ALL UNSUPPORTED EDGES.
4. AT EXISTING END WALL, NEW SHEATHING SHALL BE INTERWOVEN WITH EXISTING SHEATHING, SO THAT PANEL END JOINTS ARE STAGGERED AS SHOWN IN DETAIL 5/S-501.
5. PRE-FINISHED STANDING SEAM METAL ROOF SHALL MATCH EXISTING METAL ROOF IN COLOR AND RIB PATTERN.
6. PROVIDE ALUMINUM SEAMLESS GUTTERS & DOWNSPOUTS (MATCH EXISTING) W/ PRECAST CONCRETE SPLASH BLOCKS.

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
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**CONTROL BUILDING
ROOF
FRAMING &
ROOFING
PLANS**

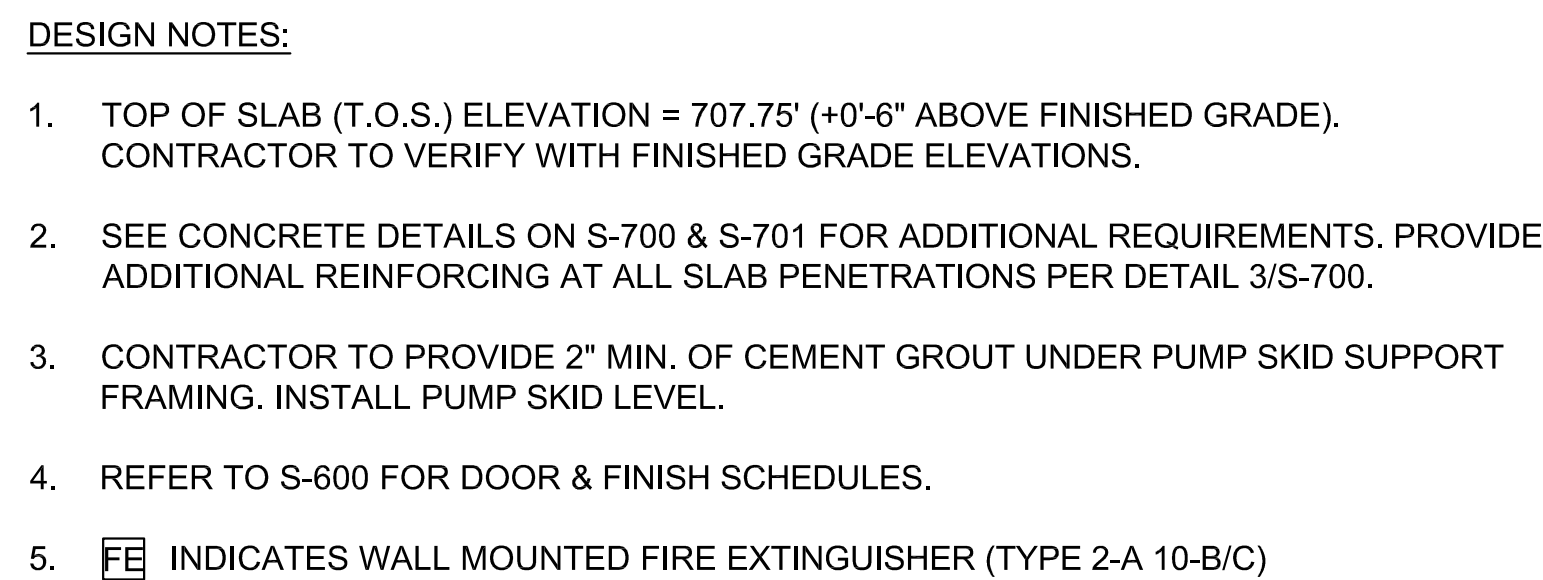
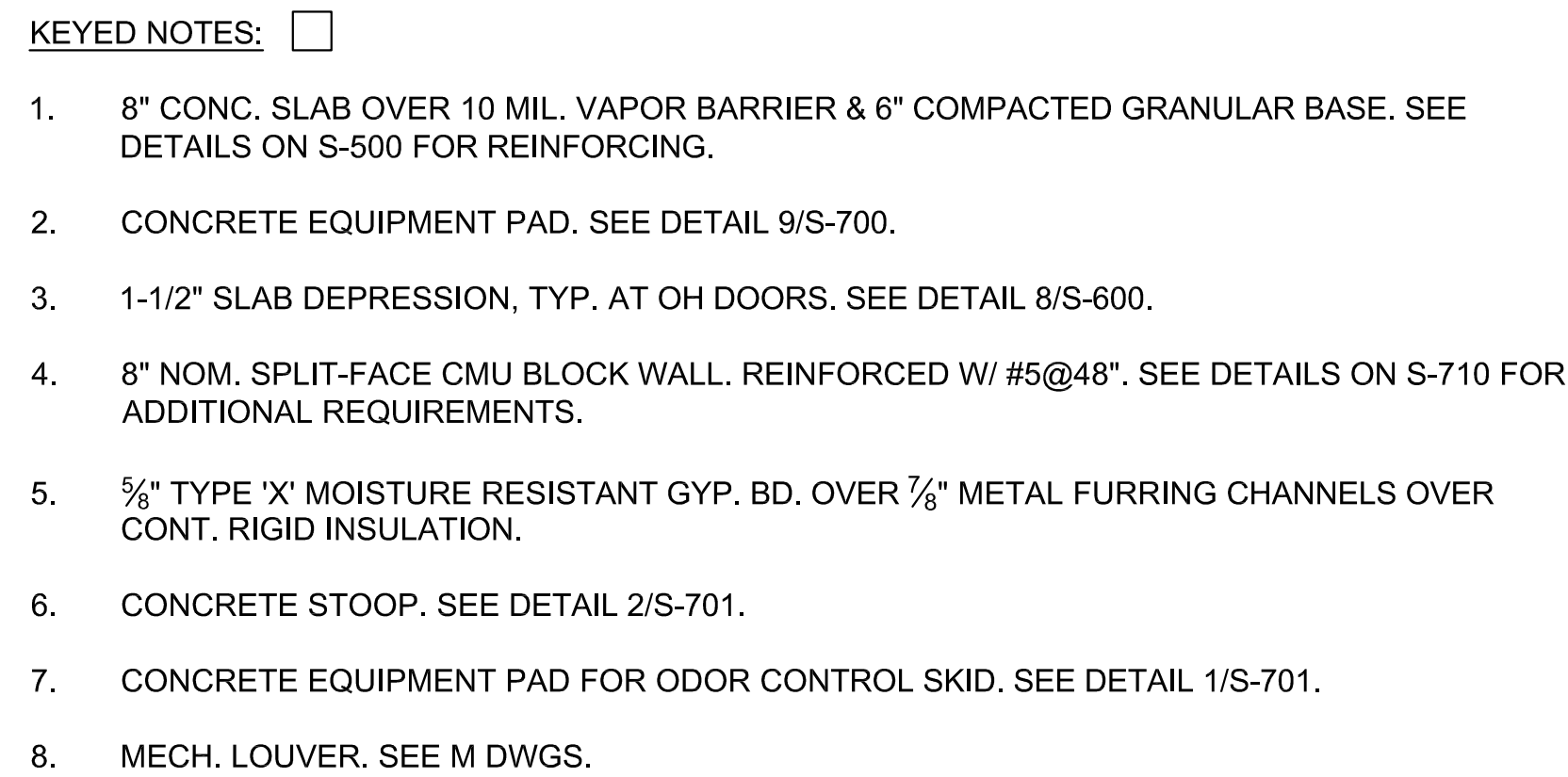
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CAMBRIAN BUILDING & INFLUENT SCREEN PLANS

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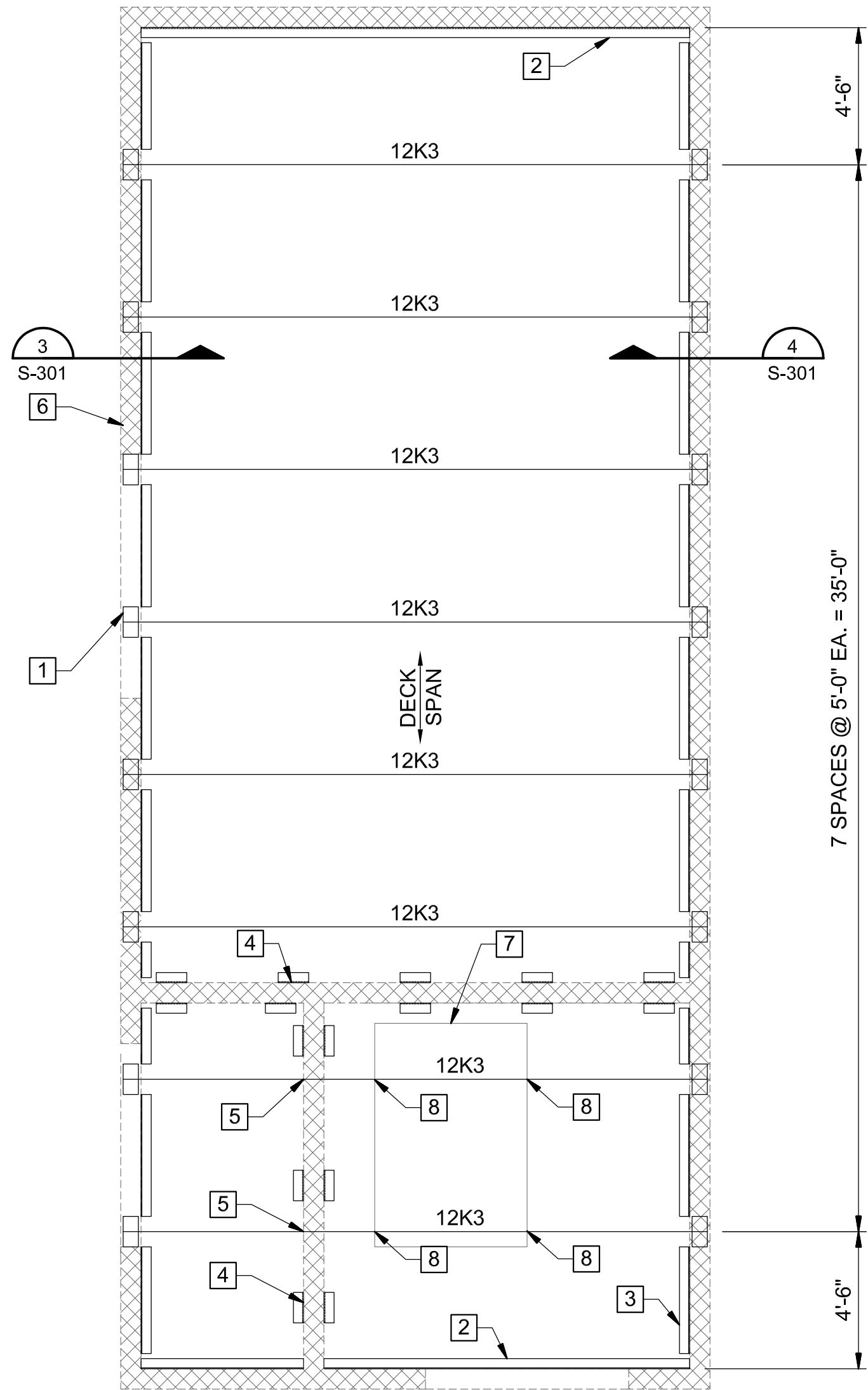
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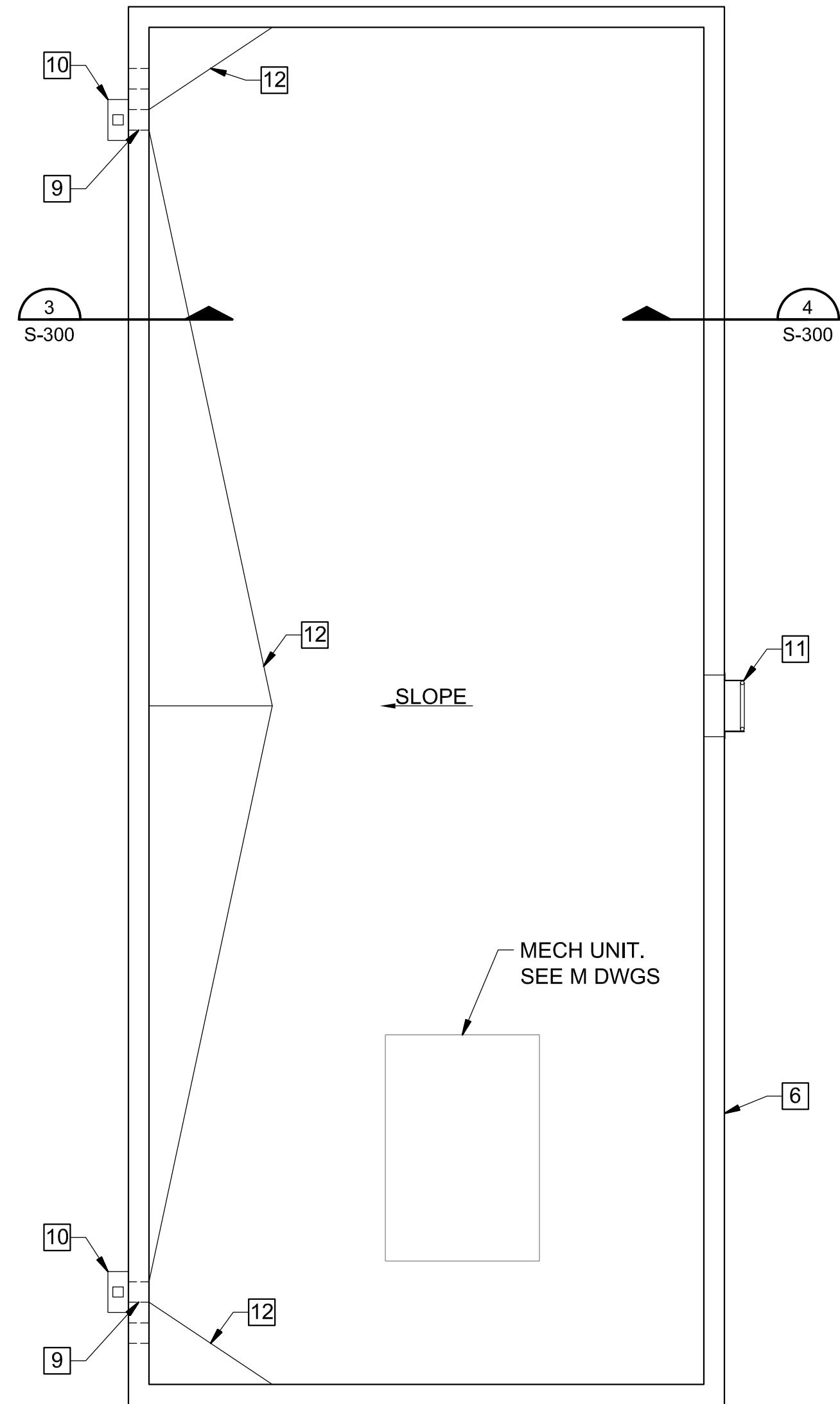
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1 ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

KEYED NOTES:

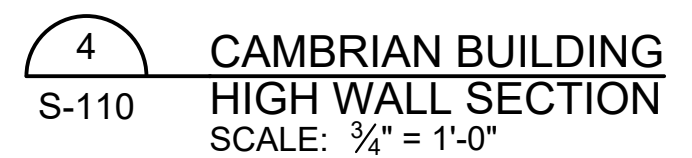
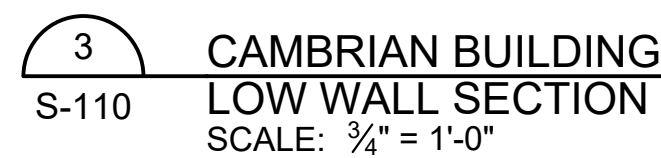
- JOIST BEARING PLATE. SEE DETAIL 8/S-501.
- L6X4X3/8" GALV. STEEL ANGLE. SEE DETAIL 7/S-501.
- DECK EDGE SUPPORT, TYP. AT PERIMETER. SEE DET. 6/S-501.
- NON-LOAD BEARING CMU WALL. SEE DETAIL 6/S-710 FOR INFO.
- STEEL JOIST AT INTERIOR NON-LOAD BEARING CMU BLOCK WALL. SEE DET. 8/S-710 FOR INFO.
- EXTERIOR LOAD-BEARING CMU BLOCK WALL.
- MECH. ROOF TOP UNIT. COORDINATE ROOF DECK OPENING REQUIREMENTS WITH EQUIP SUBMITTAL. PROVIDE DECK OPENING REINF. PER DET. 5/S-721, AS REQ'D.
- PROVIDE JOIST REINF. AT CONCENTRATED LOADS PER DET. 6/S-721
- AL. SCUPPER. PROVIDE OVERFLOW SCUPPER 2" HIGHER AND ADJACENT TO SCUPPER.
- 4" AL. PRE-FINISHED DOWNSPOUT
- AL. LADDER W/ WALL BRACKETS ANCHORED TO CMU. PROVIDE 2'-0" OPENING IN PARAPET.
- BUILT UP INSULATION



2 ROOFING PLAN
SCALE: 1/4" = 1'-0"

DESIGN NOTES:

- ROOF DECK SHALL BE 1.5B 22GA GALVANIZED METAL DECK. ATTACH TO SUPPORT USING #12 SCREWS ON 36/4 PATTERN. SIDELAP FASTENERS SHALL BE (4) #10 TEK SCREWS EQUALLY SPACED PER SPAN.
- UNFACTORED UNIFORM JOIST LOADS (BASED ON 6'-0" TRIBUTARY WIDTH):
 - DEAD LOAD, PERMANENT = 72 PLF (INCL. JOIST WEIGHT)
 - DEAD LOAD, COLLATERAL = 150 PLF
 - ROOF LIVE LOAD = 120 PLF
 - WIND LOAD (+C&C, ALL ZONES) = 96 PLF
 - WIND LOAD (-C&C, ZONES 2&3) = -204 PLF (UPLIFT)
 - EFFECTIVE WIND AREA > 100 SF
 - WIDTH, a = 3'-0"
 - SNOW (MIN.) = 66 PLF
 - SNOW (BALANCED) = 42 PLF
 - SNOW (DRIFT SURCHARGE) = 54 PLF
 - DRIFT WIDTH, w = 4'-0"
 - JOIST BRIDGING NOT SHOWN. JOIST MFR. IS RESPONSIBLE FOR DESIGNING AND PROVIDING BRIDGING AS REQUIRED.



HIDEAWAY WWTP PHASE II EXPANSION
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DISCOVERY LAND COMPANY

WALL SECTIONS

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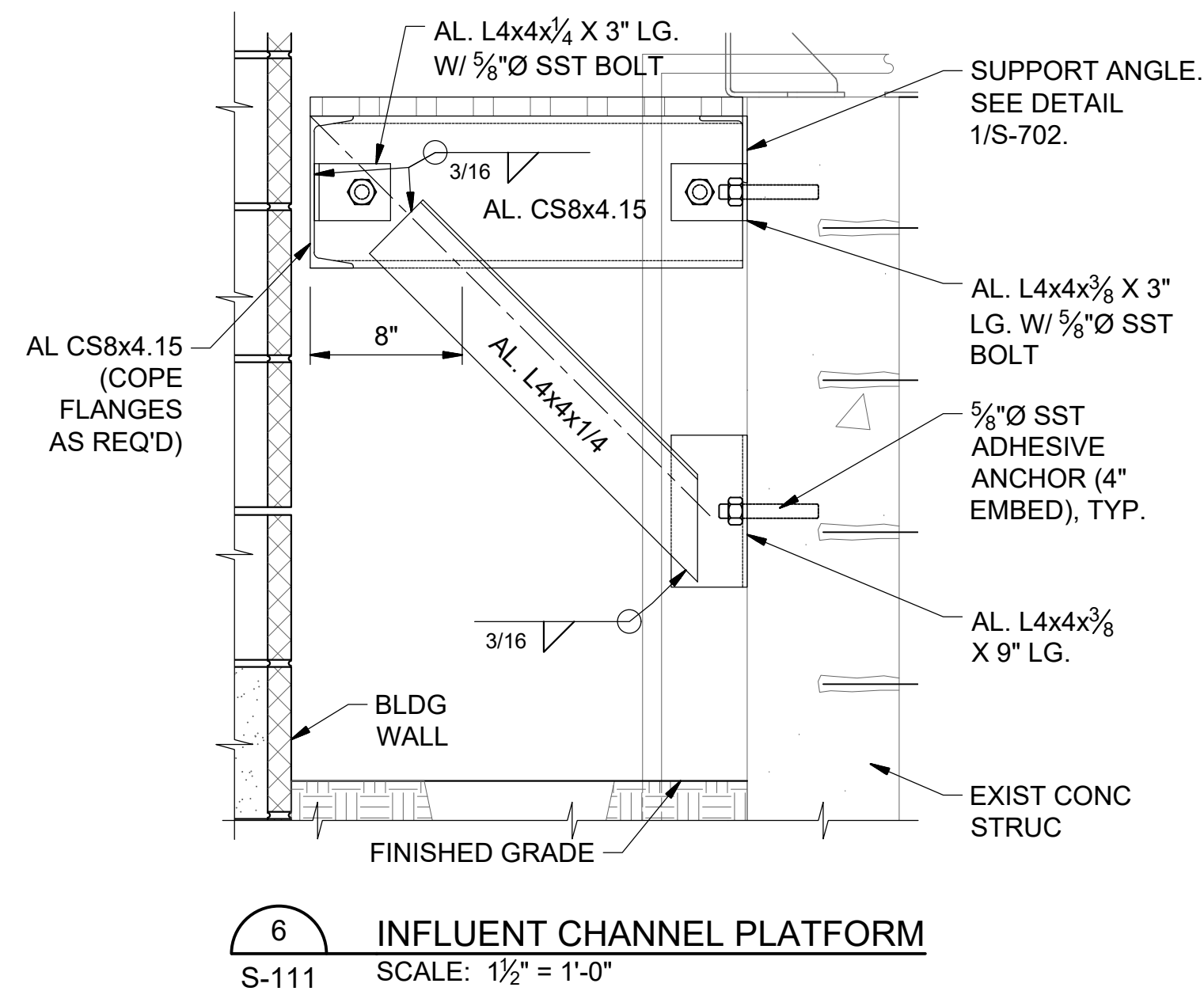
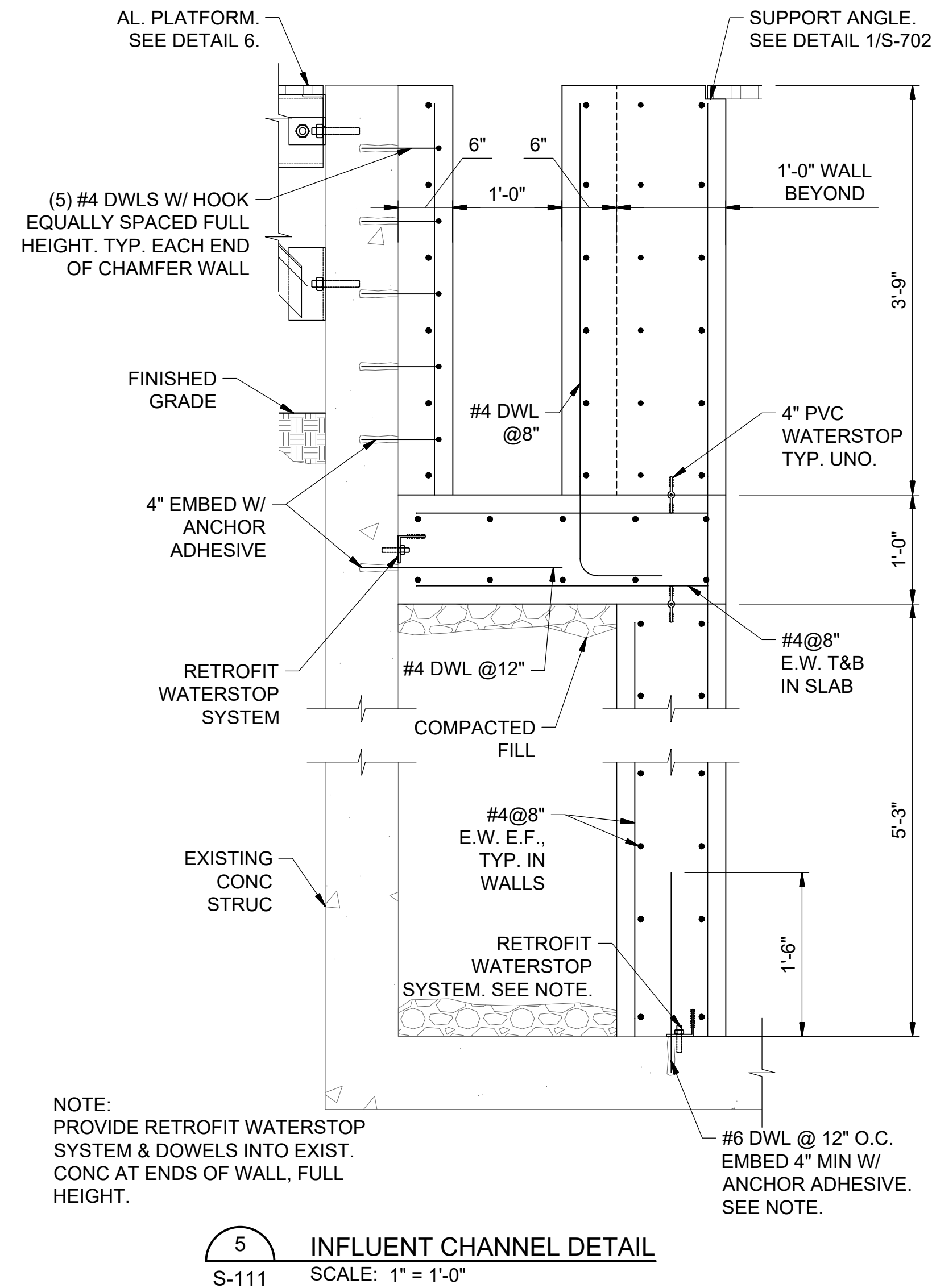
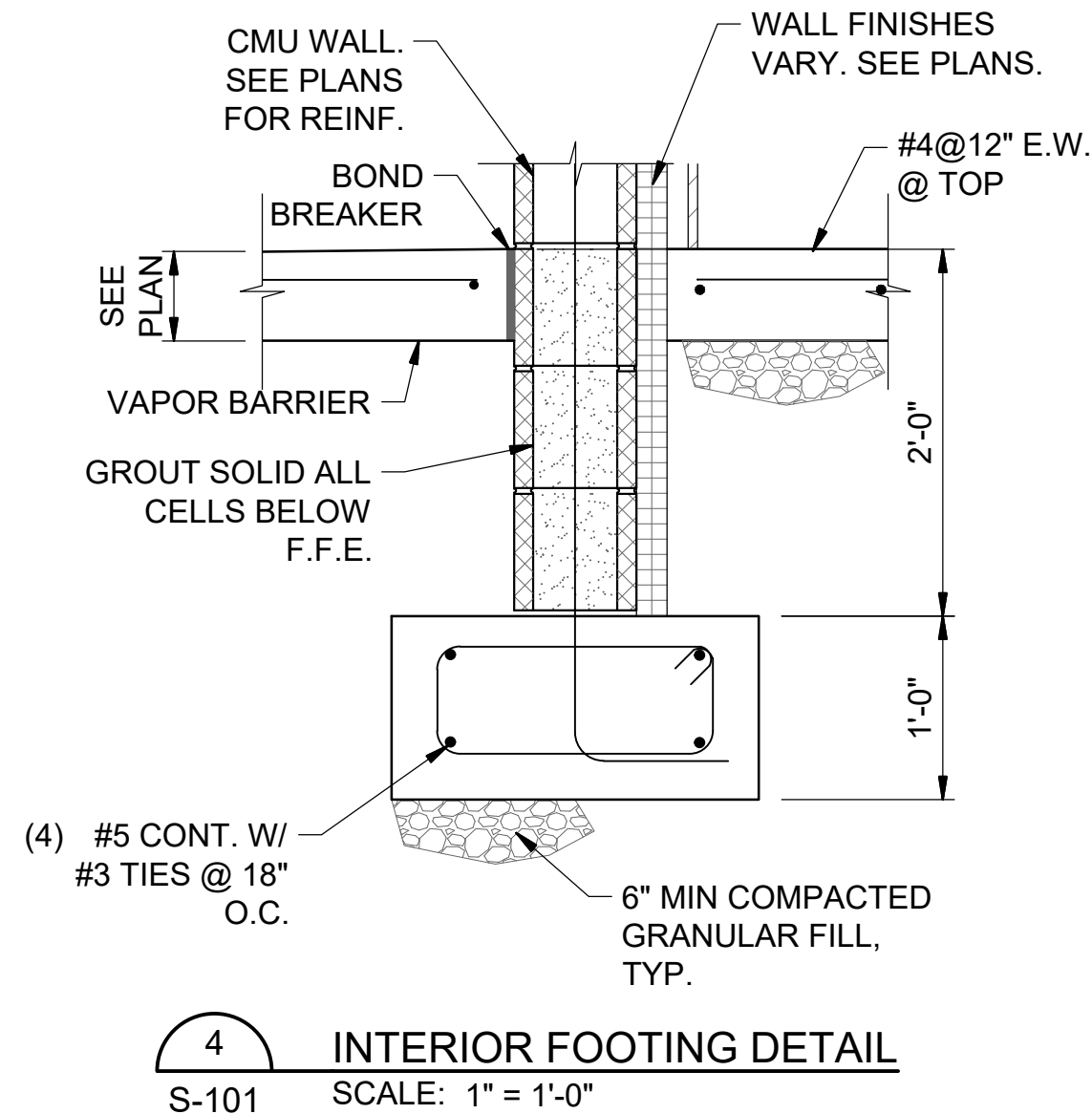
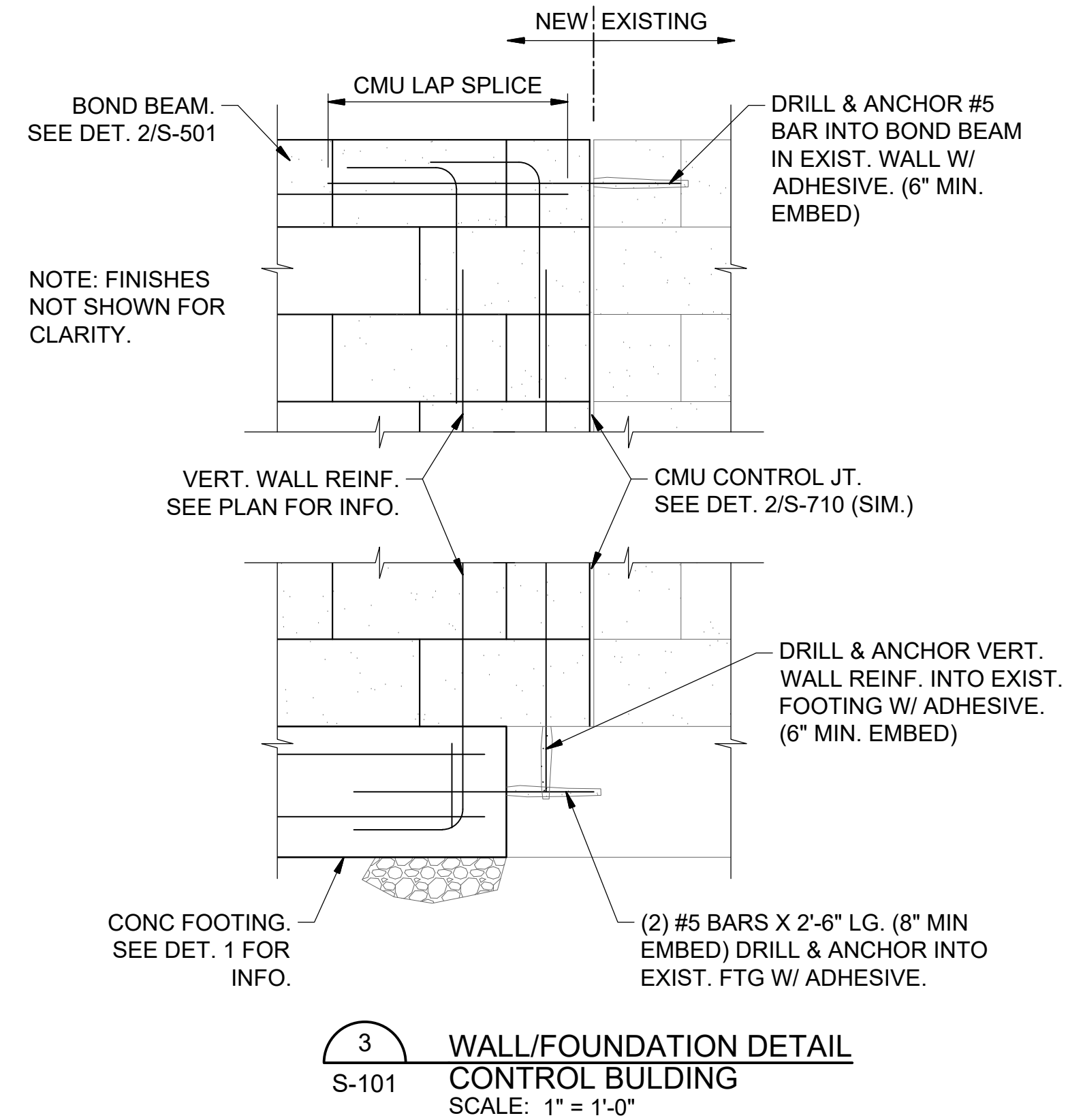
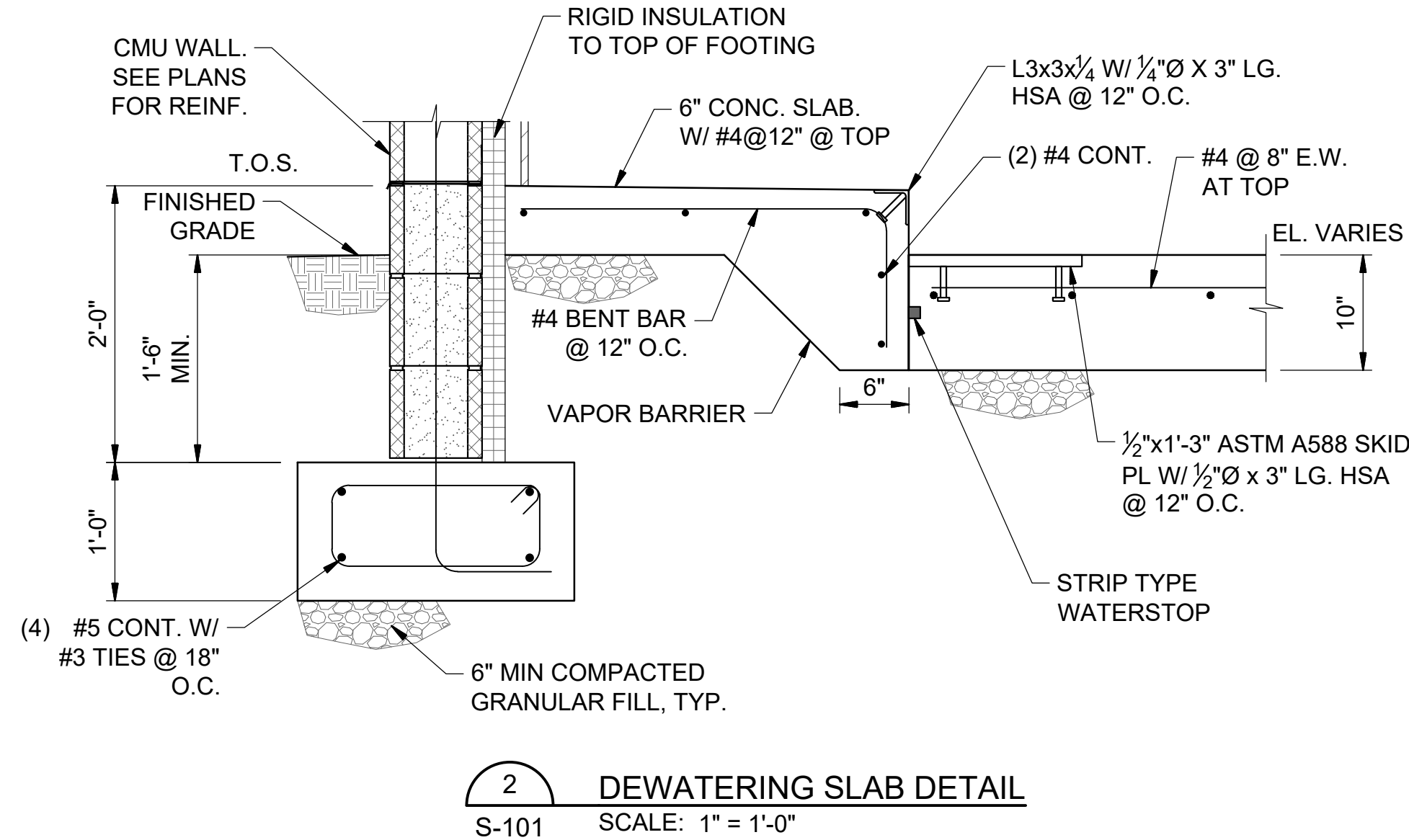
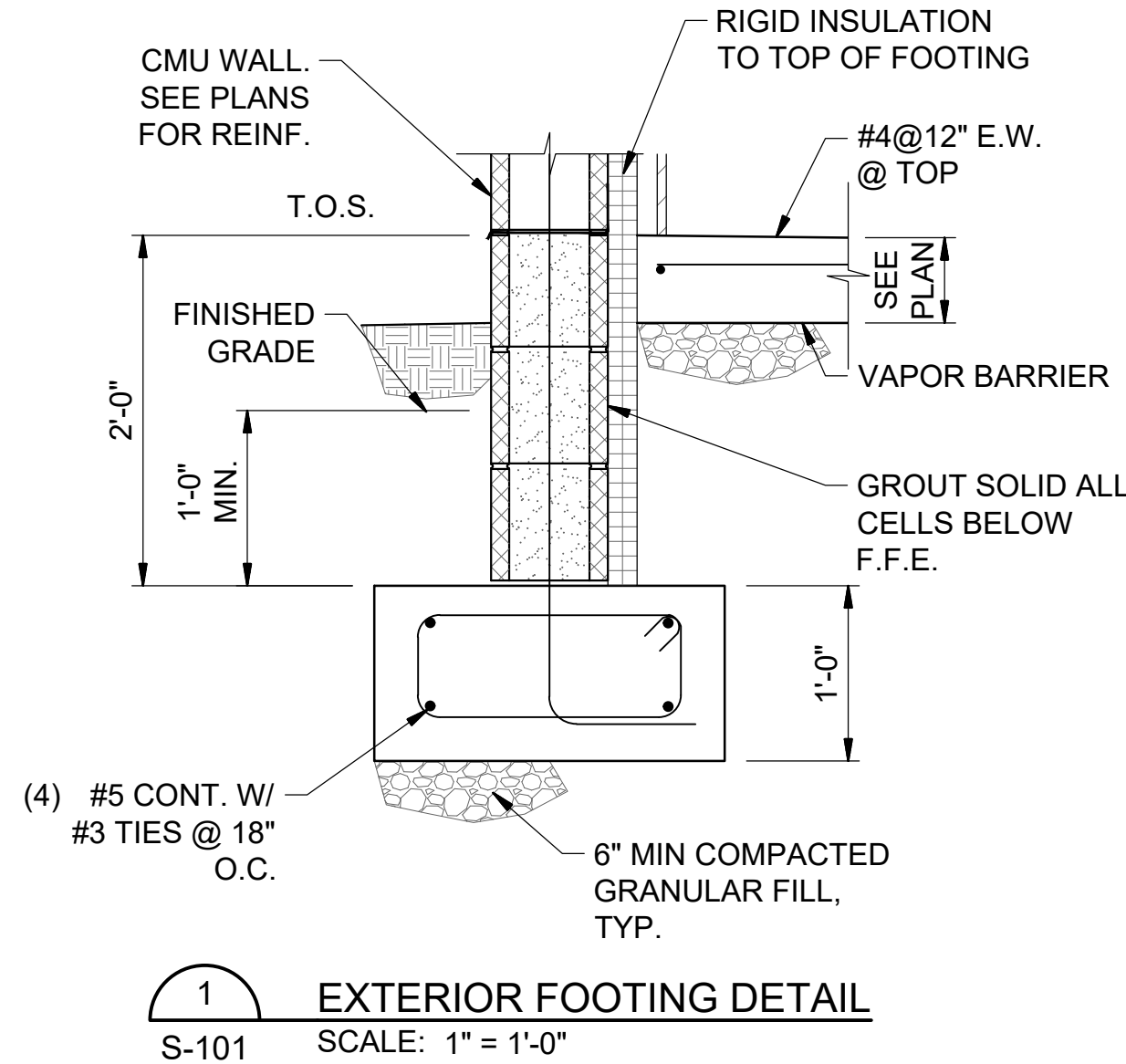
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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**BUILDING
FOUNDATION
& SLAB
DETAILS**

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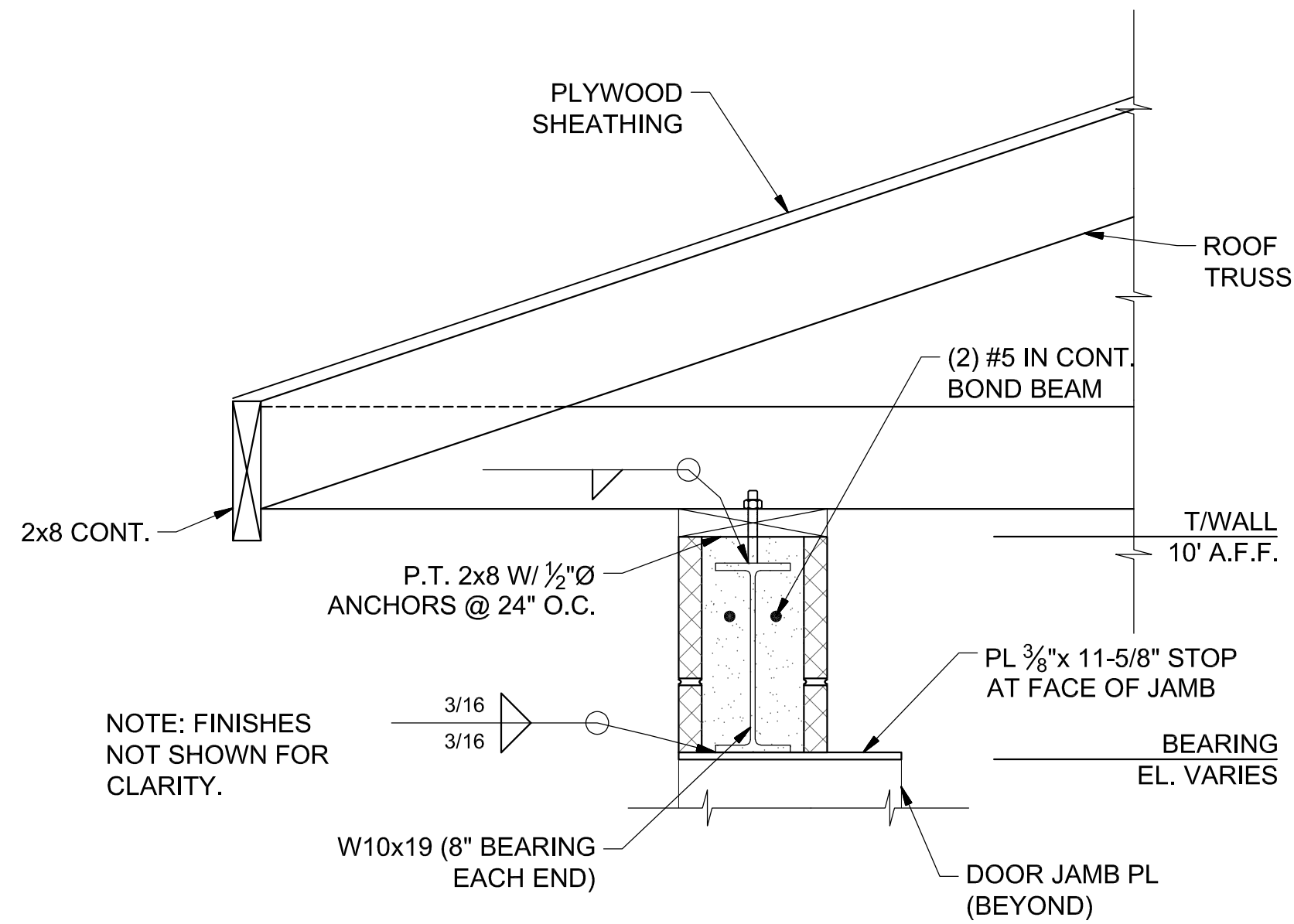
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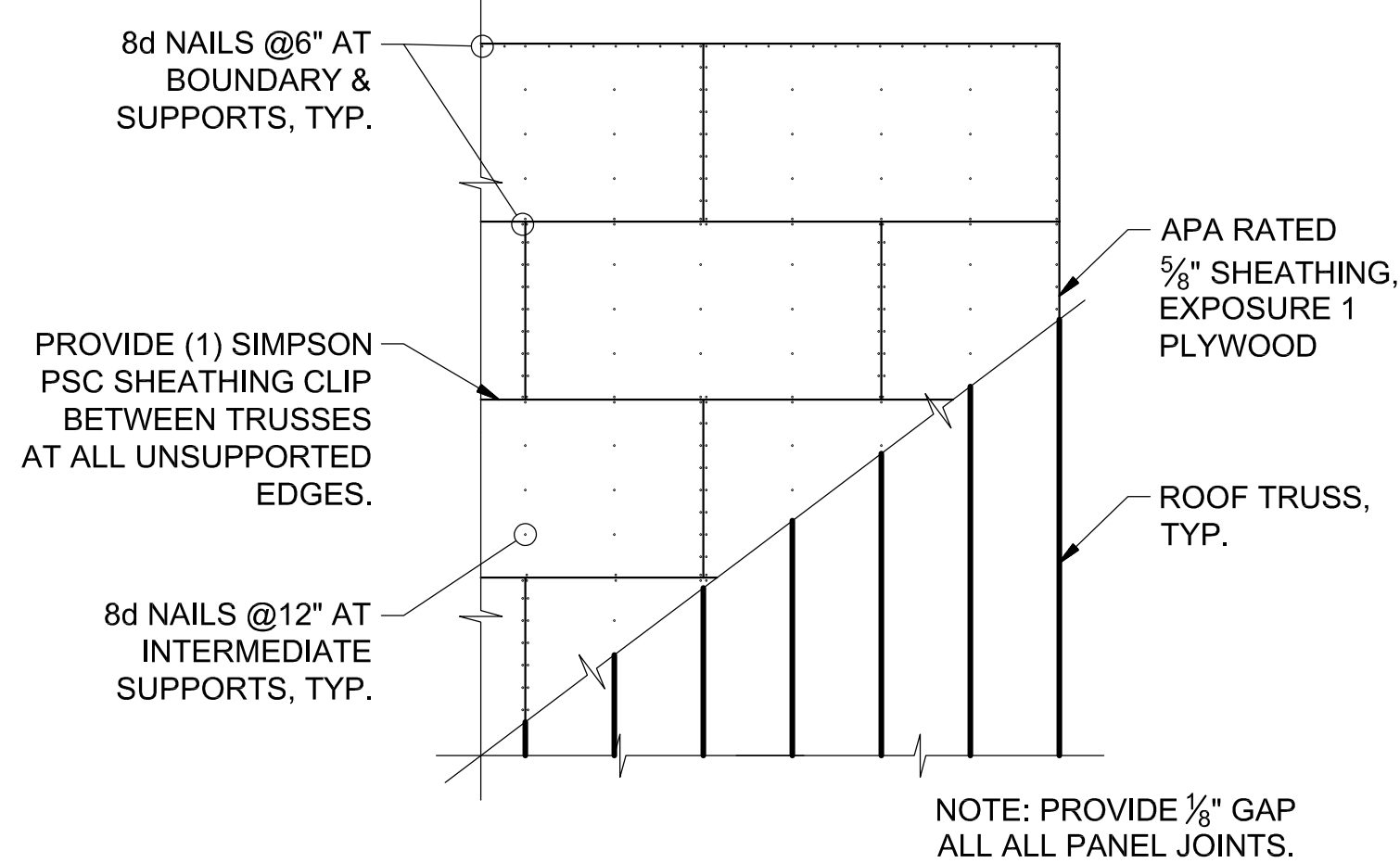
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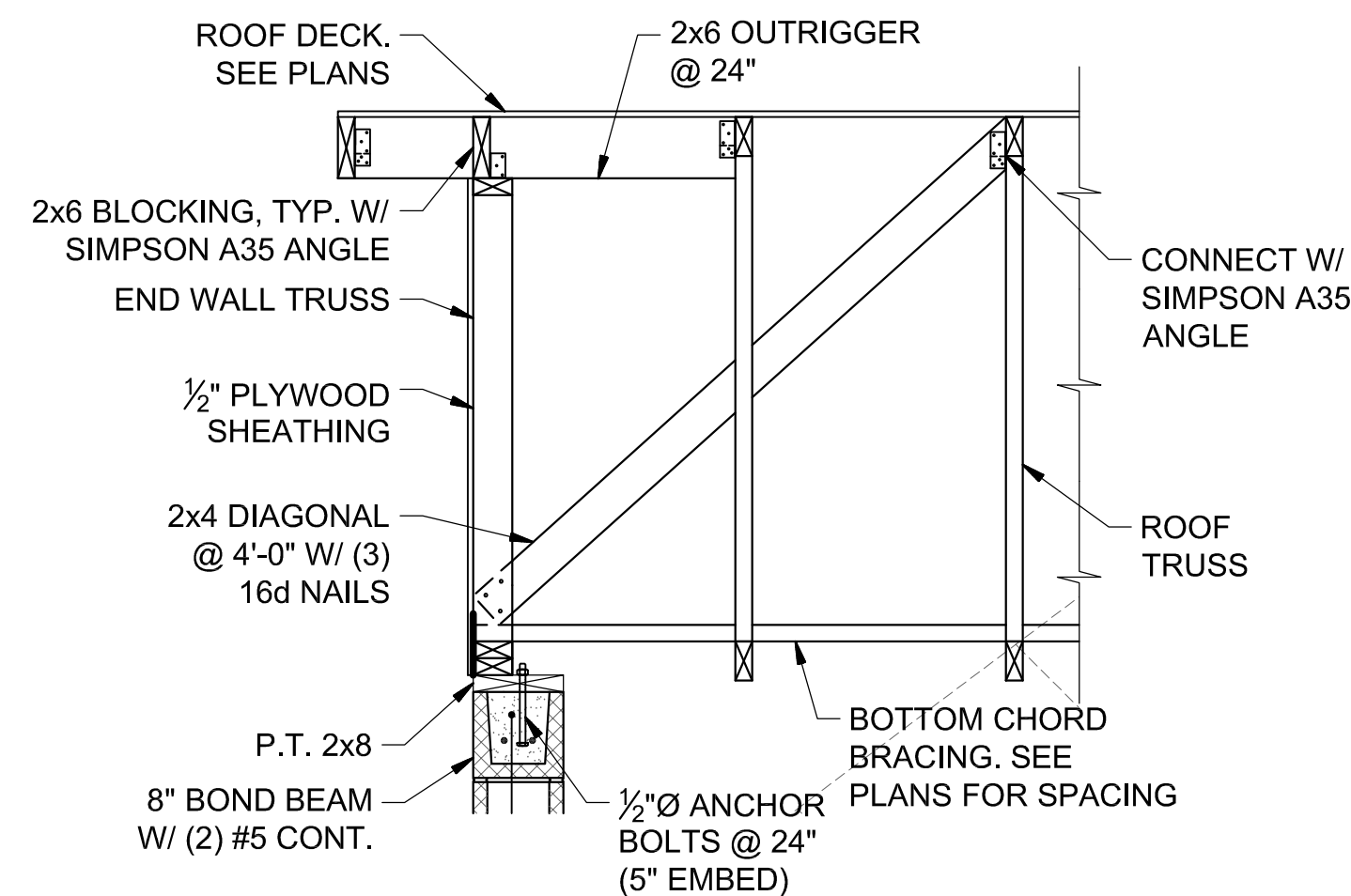
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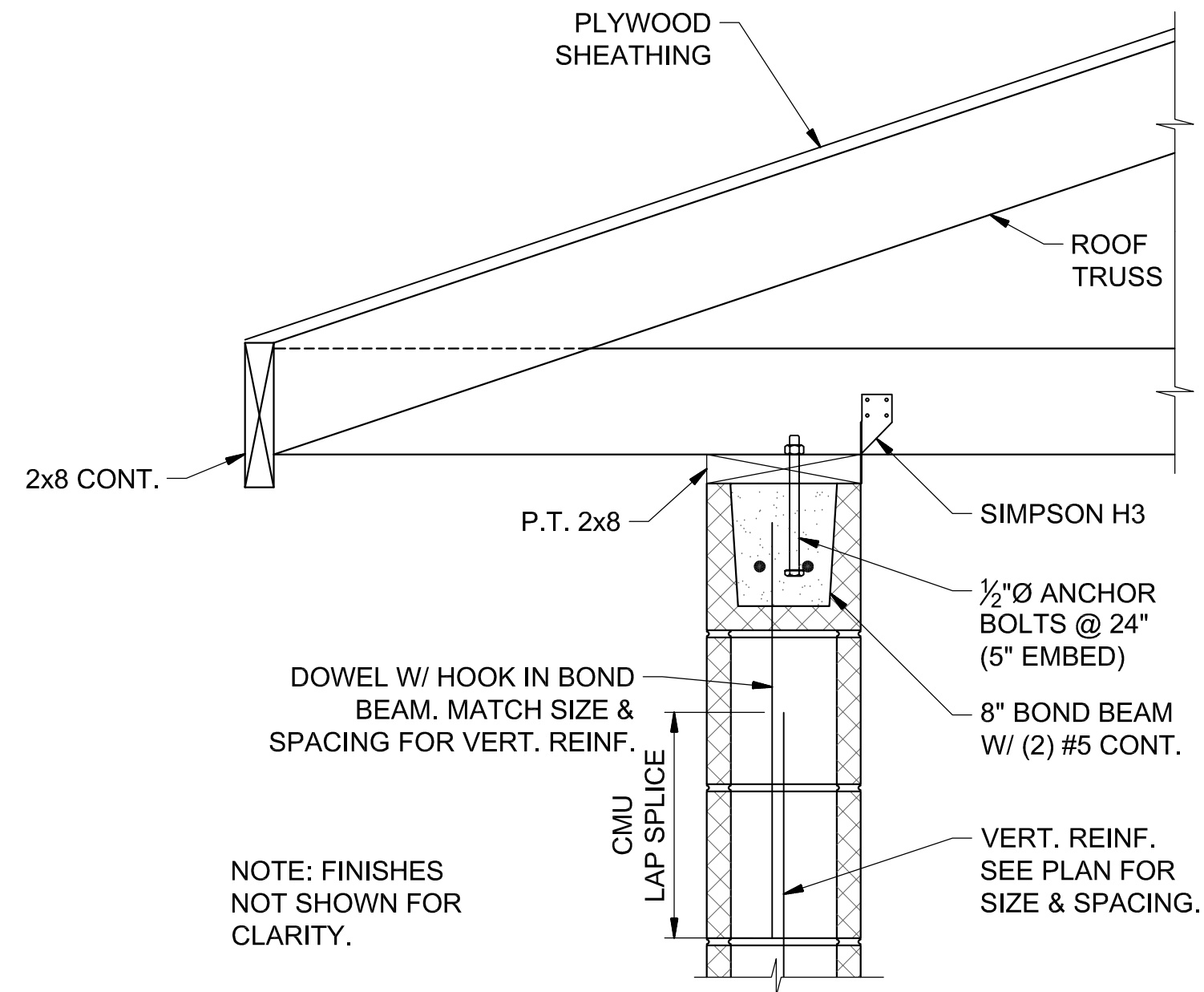
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AT CONTROL BLDG
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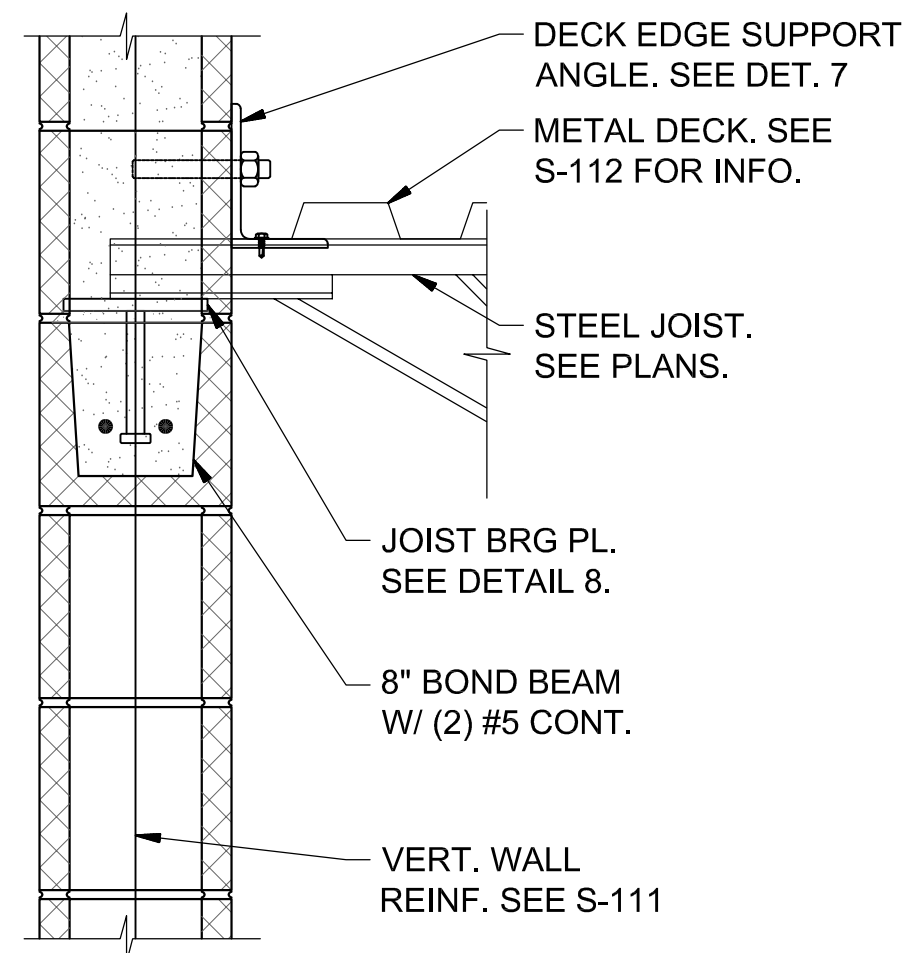
5 ROOF SHEATHING DETAIL
AT CONTROL BLDG
SCALE: 1/4" = 1'-0"



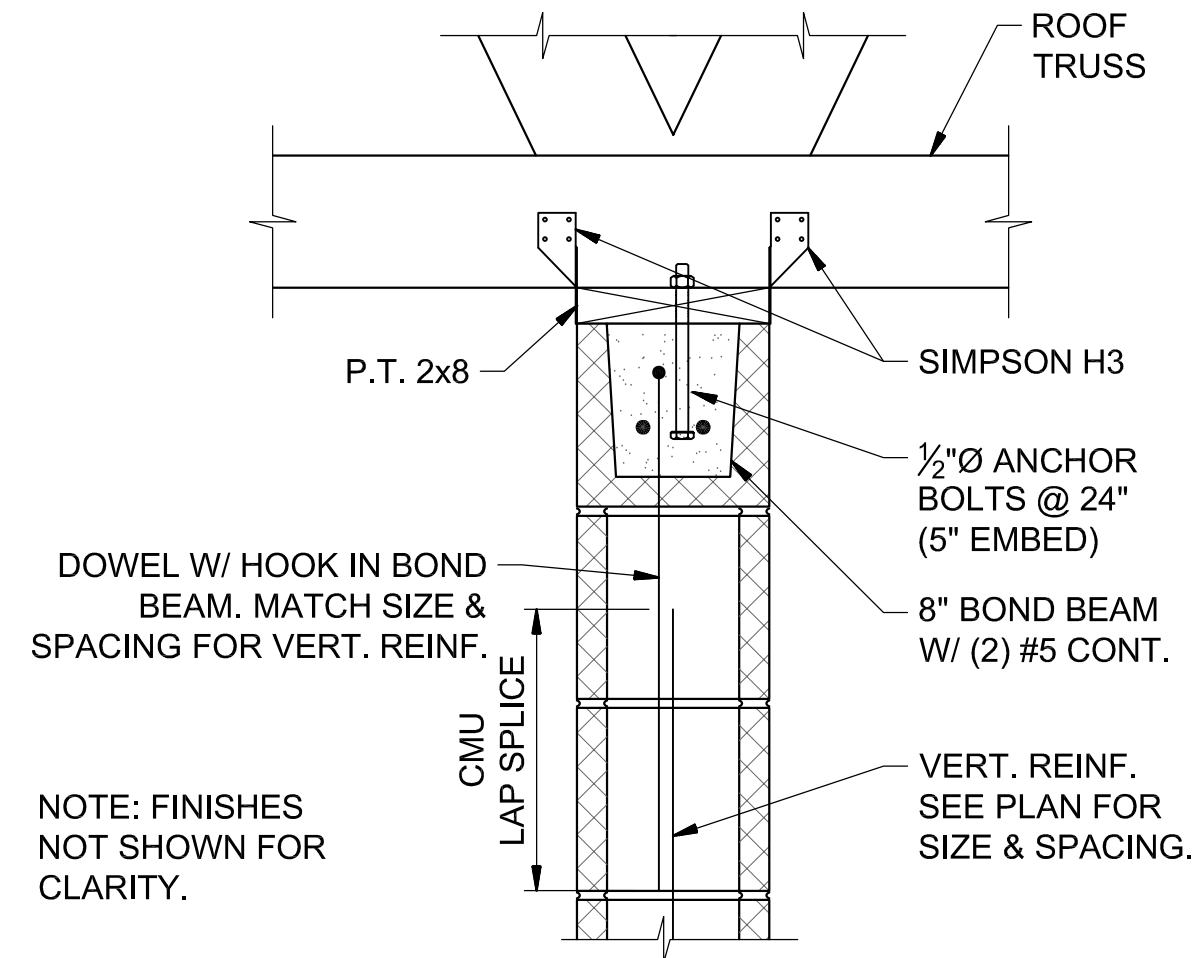
9 ROOF EAVE SECTION
AT CONTROL BLDG
SCALE: 3/4" = 1'-0"



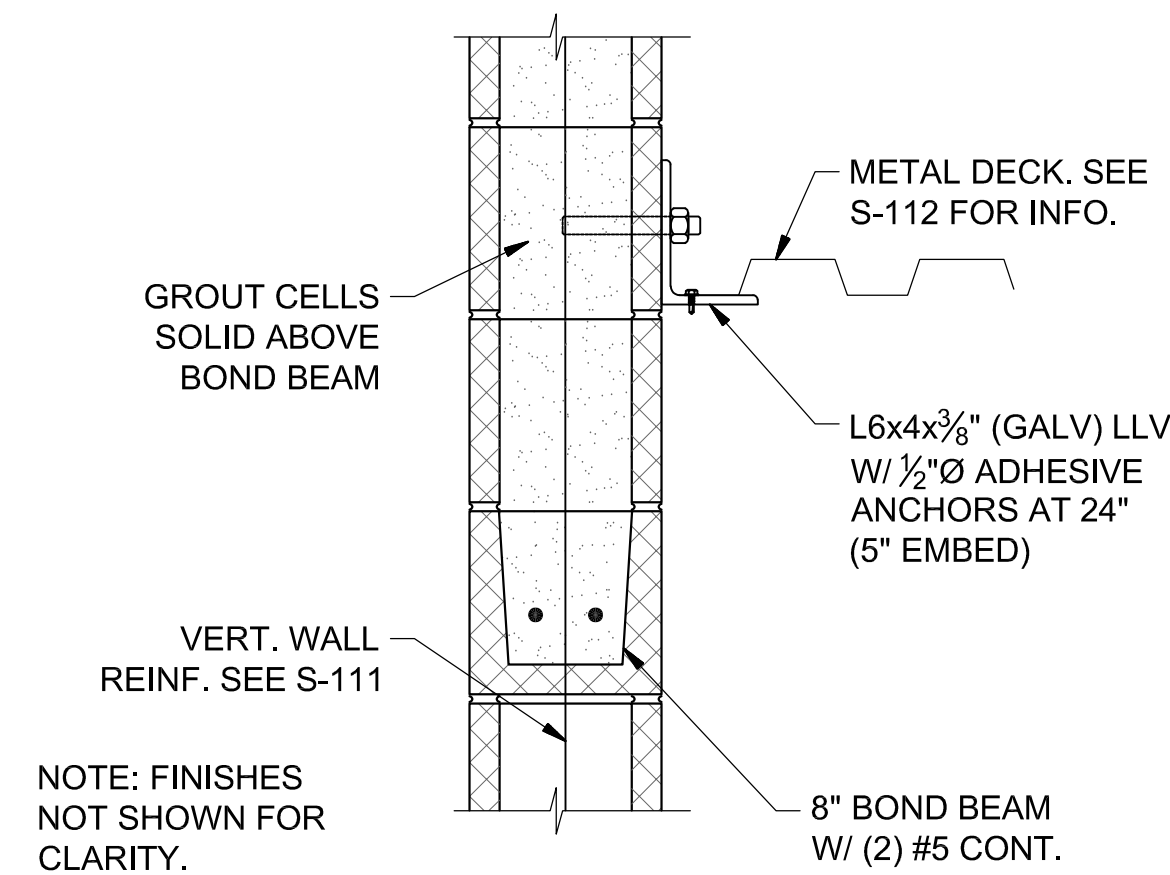
2 TYP. TRUSS CONNECTION
AT CONTROL BLDG
SCALE: 1 1/2" = 1'-0"



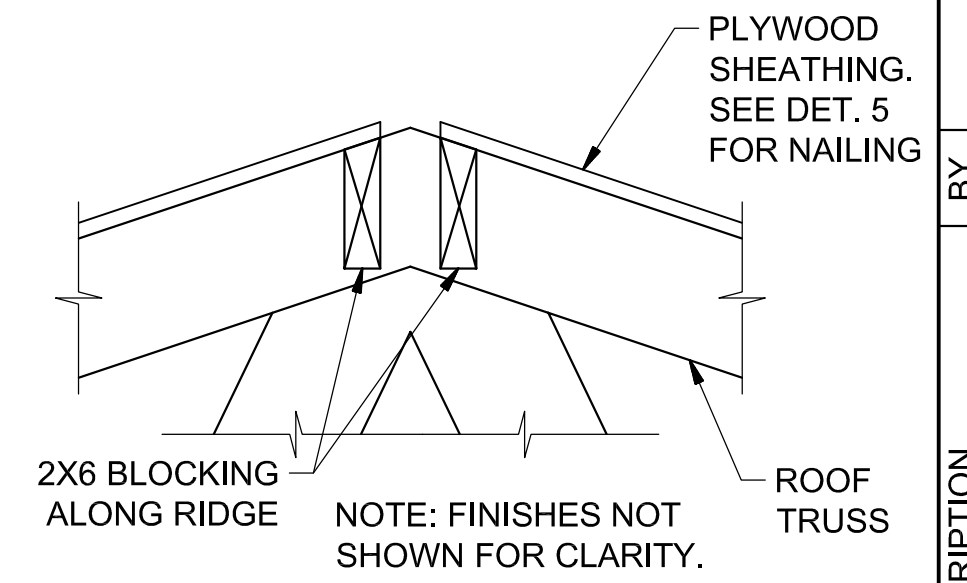
6 JOIST BEARING DETAIL
AT CAMBRIAN BLDG
SCALE: 1 1/2" = 1'-0"



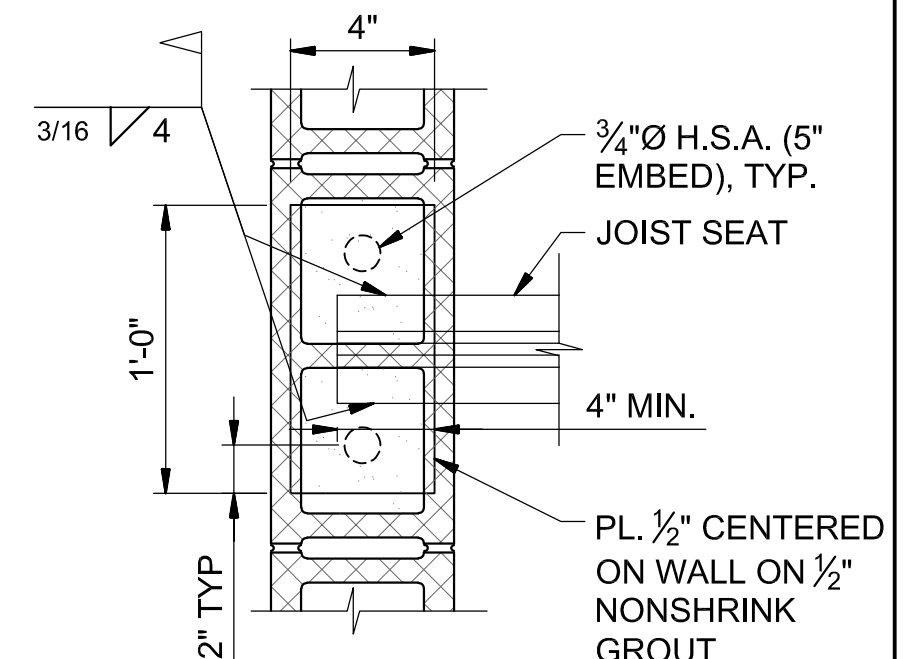
3 TYP. TRUSS CONNECTION
AT CONTROL BLDG
SCALE: 1 1/2" = 1'-0"



7 DECK EDGE DETAIL
AT CAMBRIAN BLDG
SCALE: 1 1/2" = 1'-0"



4 RIDGE DETAIL
AT CONTROL BLDG
SCALE: 1 1/2" = 1'-0"



8 JOIST BEARING PLATE
AT CAMBRIAN BLDG
SCALE: 1 1/2" = 1'-0"

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**BUILDING
WALL &
ROOF
DETAILS**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

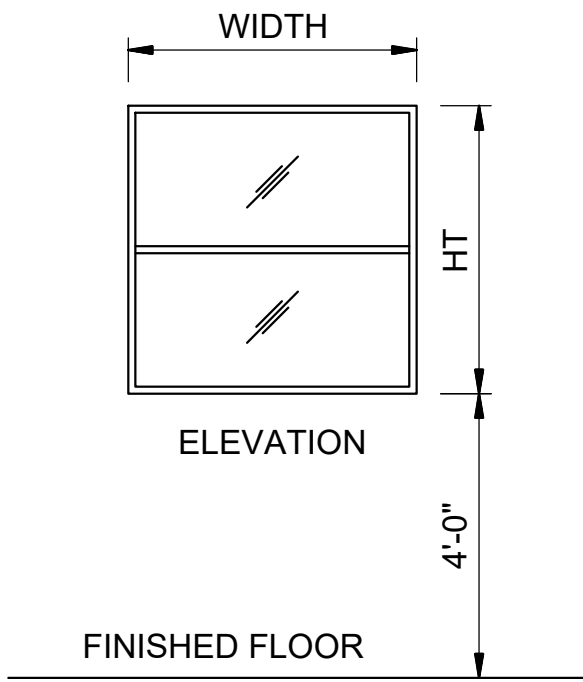
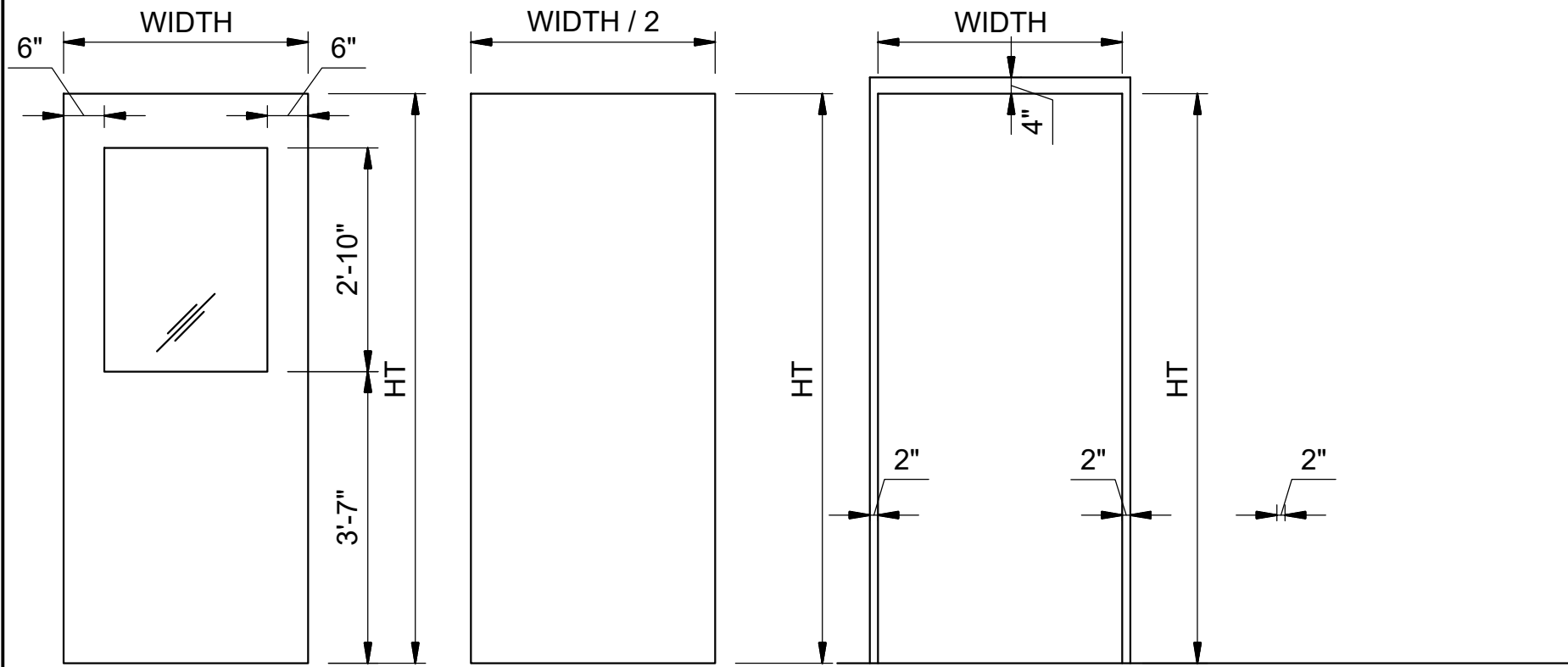
S-501

SHEET NUMBER

39

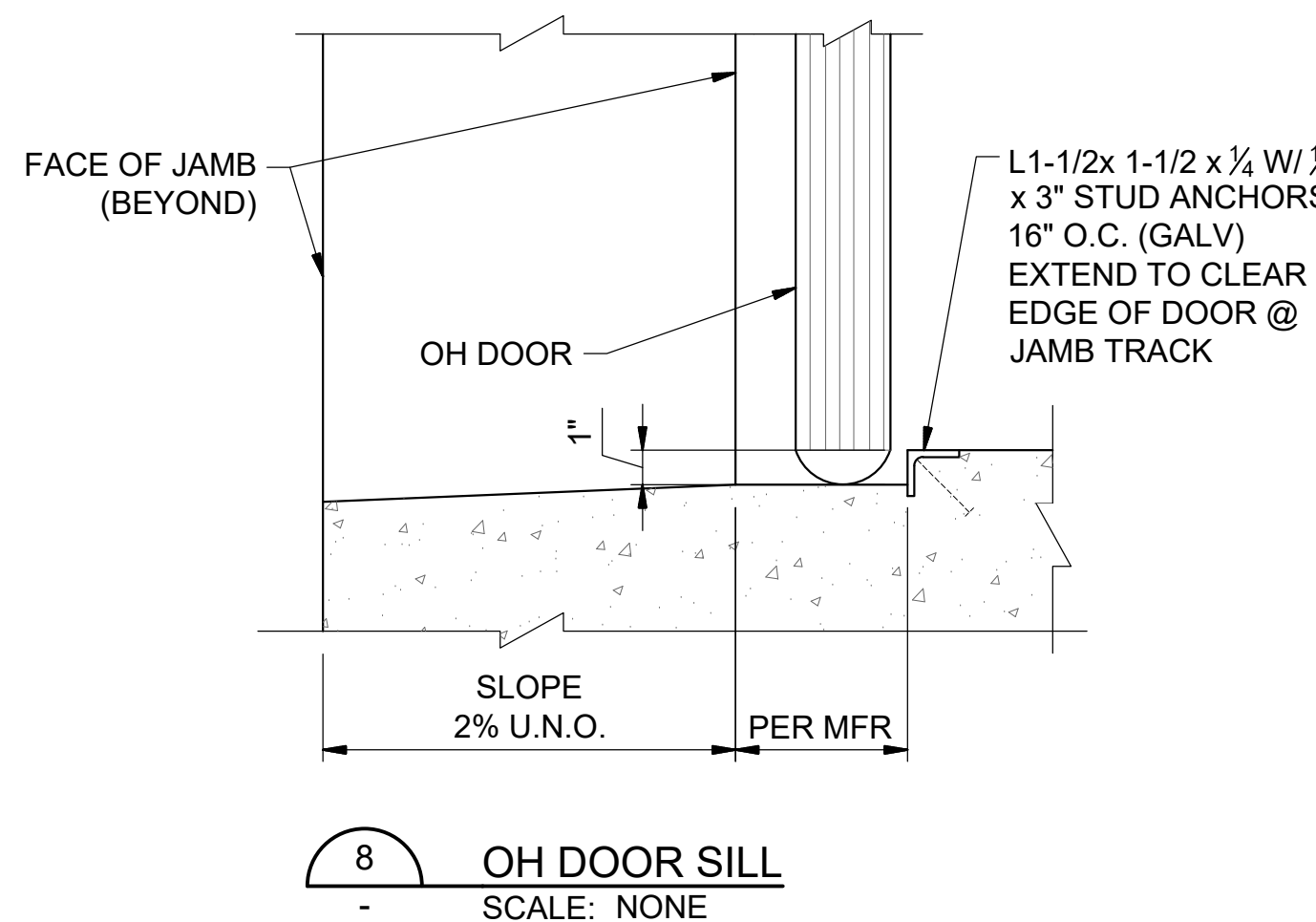
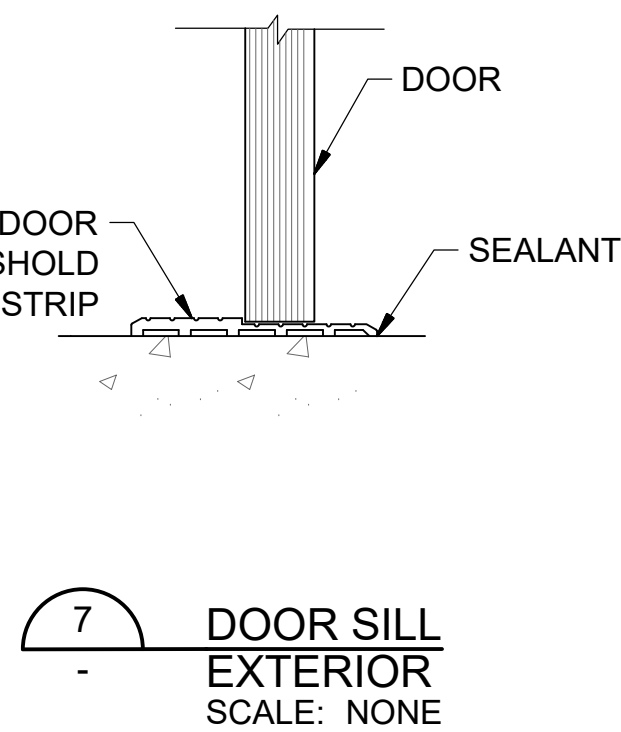
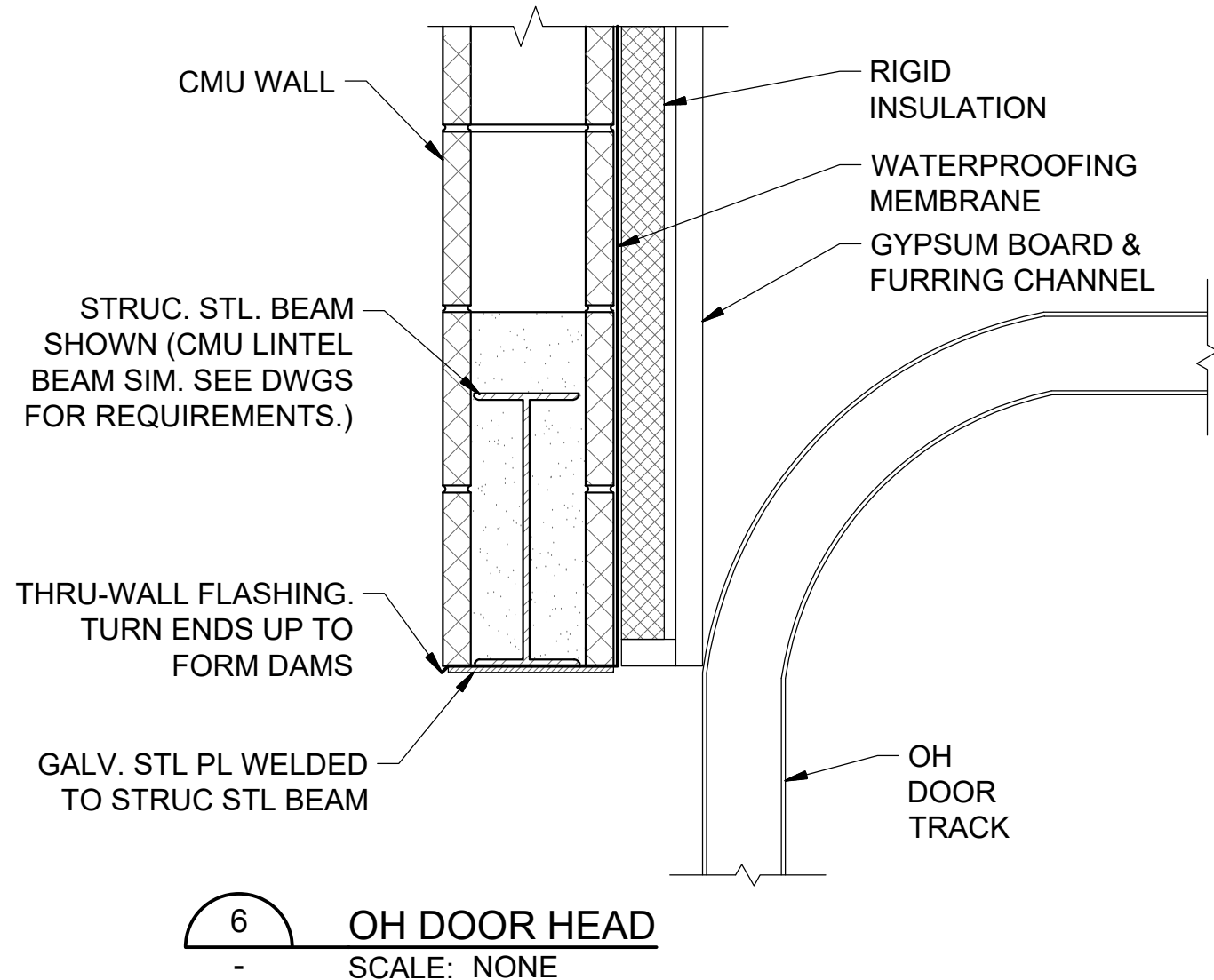
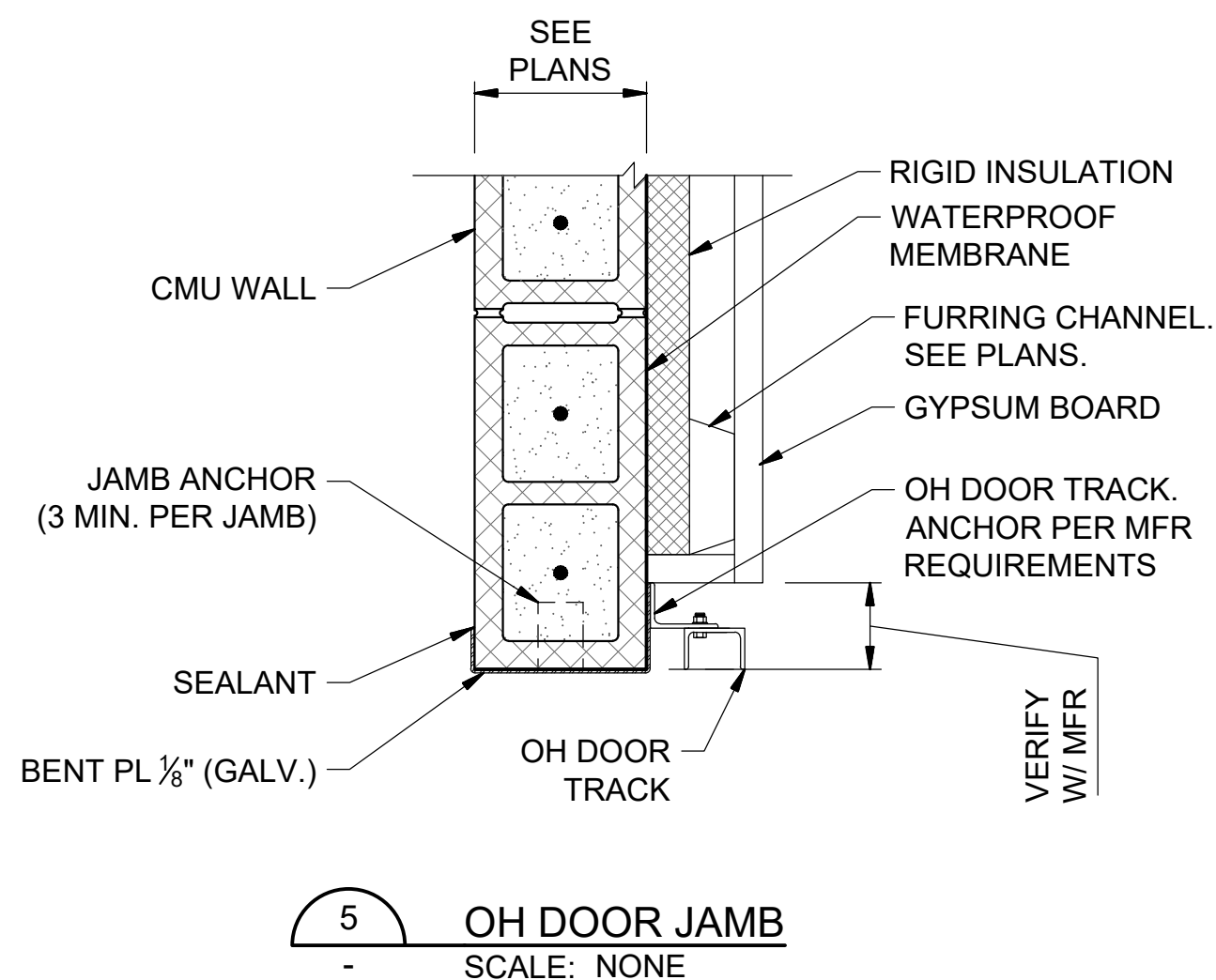
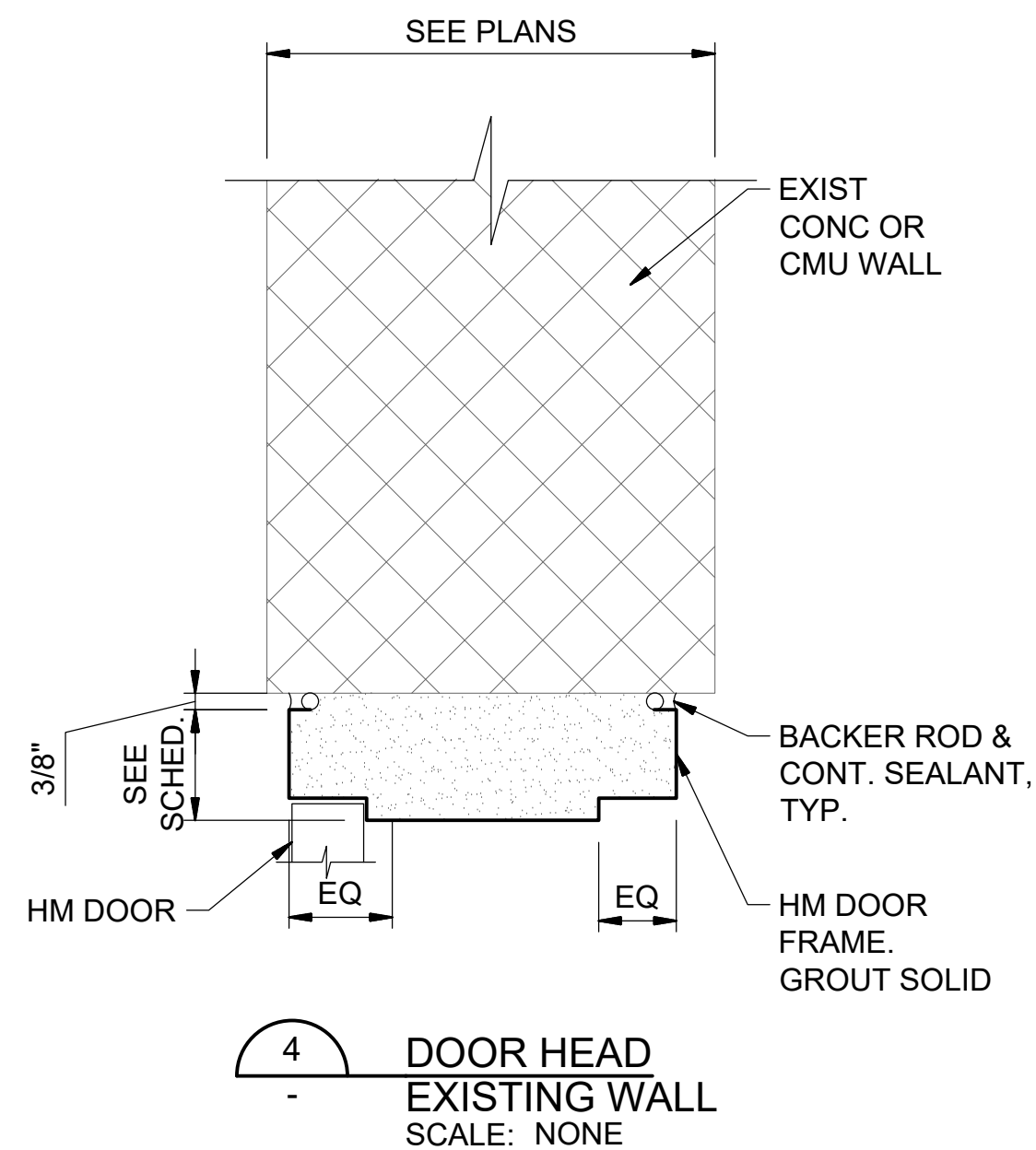
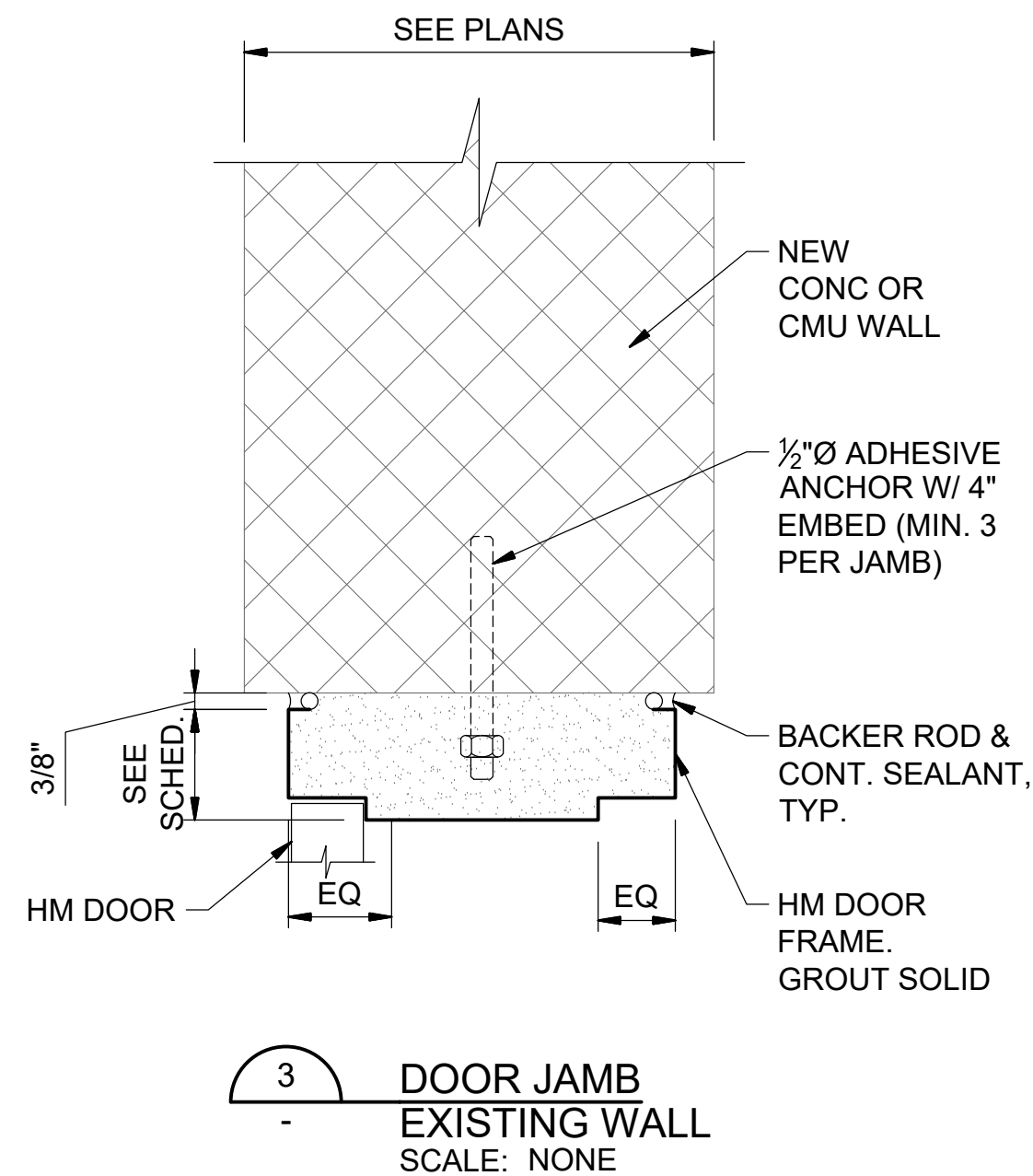
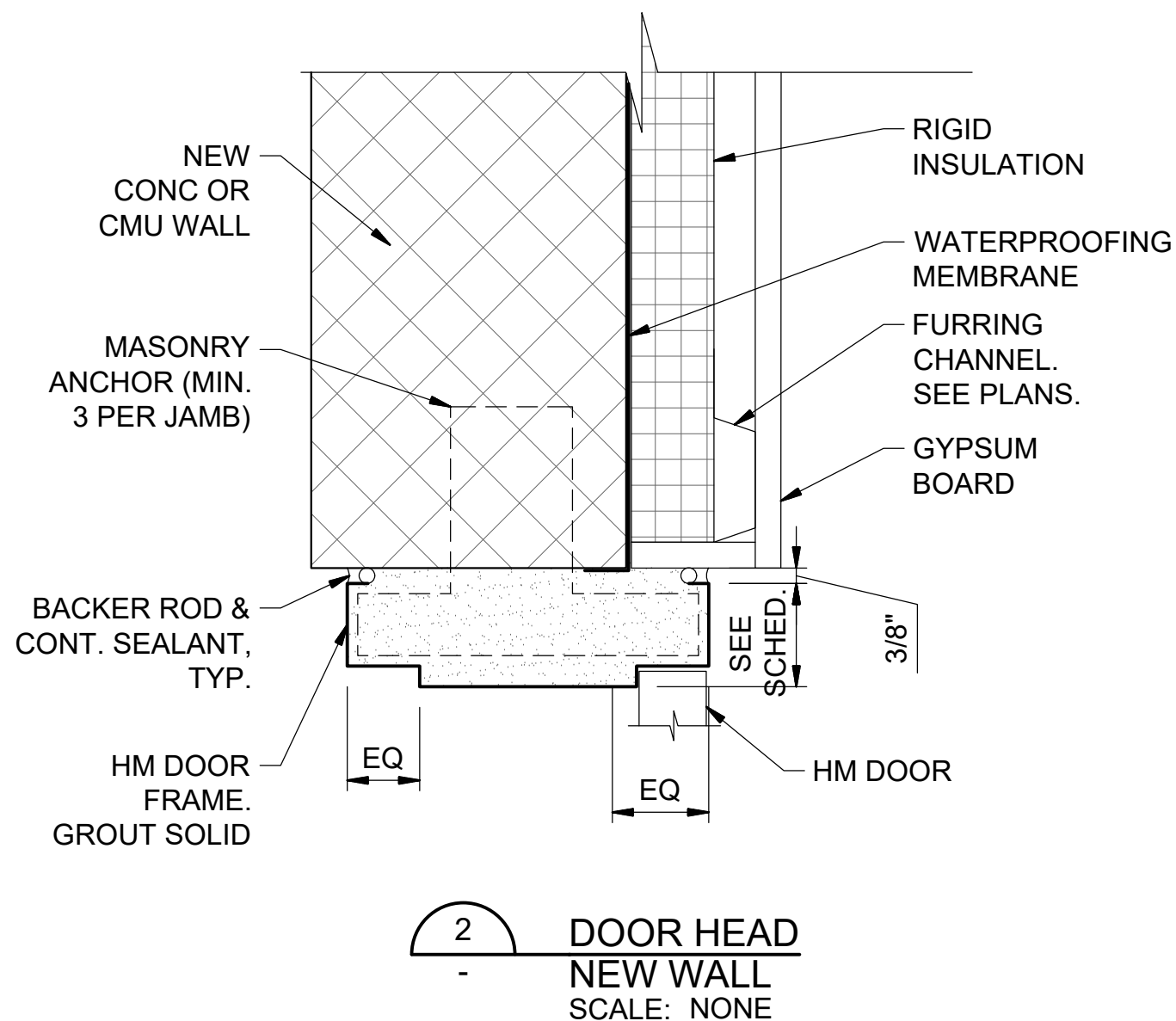
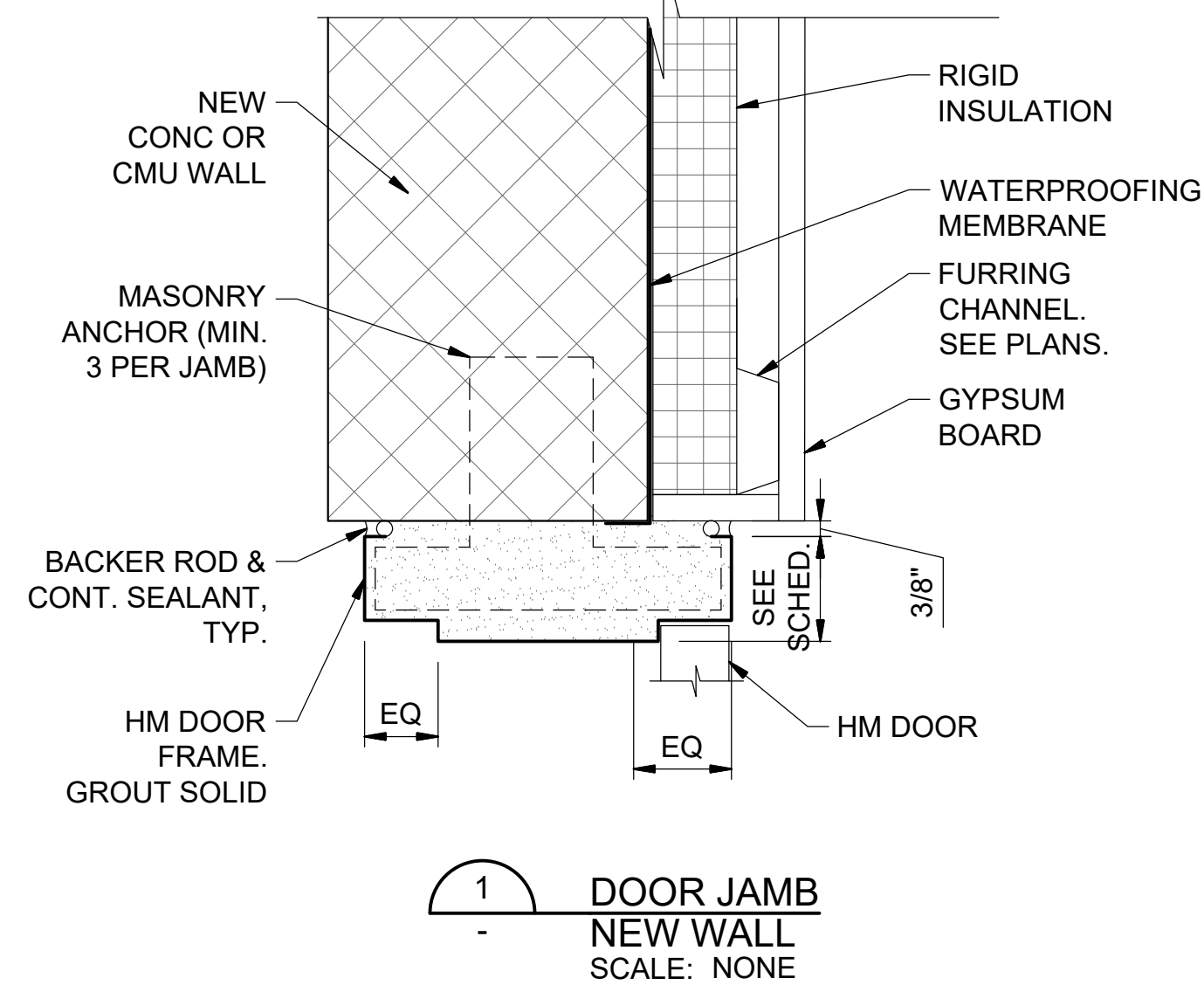
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Last plotted by: Daniel Morgan Plot Style: --- Plot Scale: 1:1 Plot Date: 7/30/2020 7:56 AM Plotter used: Microsoft Print to PDF

DOOR SCHEDULE											
NO.	DOOR					FRAME		DETAILS			HARD WARE
	WIDTH	HT	THICK	TYPE	MAT'L	TYPE	MAT'L	HEAD	JAMB	SILL	
105	3'-0"	7'-0"	1-3/4"	A	AL	F-1	AL	4	3	7	-
106	3'-0"	7'-0"	1-3/4"	A	AL	F-1	AL	4	3	7	-
201	12'-0"	9'-0"	2"	OH	AL	OH	-	6	5	8	-
301	9'-4"	9'-0"	2"	OH	AL	OH	-	6	5	8	-
401	7'-8"	7'-0"	1-3/4"	B	AL	F-1	AL	4	3	7	-
501	6'-0"	7'-0"	1-3/4"	B	AL	F-1	AL	2	1	7	-
601	6'-0"	7'-0"	1-3/4"	B	AL	F-1	AL	2	1	7	-
NOTE: 1. SEE SPEC SECTION 08 71 00 FOR HARDWARE SETS. 2. SEE SPEC SECTION 08 33 23 FOR REQUIREMENTS FOR DOOR TYPE OH.											



WINDOW SCHEDULE						
TYPE	QTY	WIDTH	HT	ELEV	FRAME	NOTES
W1	1	3'-4"	3'-4"	A	AL	
NOTE: 1. PROVIDE INSULATED DOUBLE HUNG WINDOW TO MATCH EXISTING.						

FINISH SCHEDULE							
ROOM NAME	FLOOR	WALL				BASE	CEILING
		NORTH	EAST	SOUTH	WEST		
OFFICE	F1	W1	W1	W1	W1	B1	C1
MAINTENANCE SHOP	F1	W2	W2	W1	W2	B1 (SOUTH)	C1
DEWATERING ROOM	F1	W1	W2	W1	W1	B1	C1
CAMBRIAN EQUIPMENT ROOM	F1	W1	W1	W1	W1	B1	C2
POLYMER ROOM	F1	W1	W1	W1	W1	B1	C2
MECHANICAL ROOM	F1	W1	W1	W1	W1	B1	C2
FINISH LEGEND							
FLOOR FINISH:		WALL FINISH:		BASE FINISH:		CEILING FINISH:	
F1 - SEALED CONCRETE	W1 - 5/8" GYP. BD. OVER 7/8" FURRING CHANNELS	W2 - CMU		B1 - 4" VINYL BASE		C1 - 5/8" GYP. BD. C2 - EXPOSED TO STRUC.	
NOTES:							
1. REFER TO SPECS FOR ADDITIONAL INFORMATION.							
2. PAINT & COATINGS SHALL BE PER SCHEDULE IN SPEC SECTION 09 90 00.							



HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**BUILDING
SCHEDULES
& DETAILS**

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FULL SIZE

DRAWING NUMBER

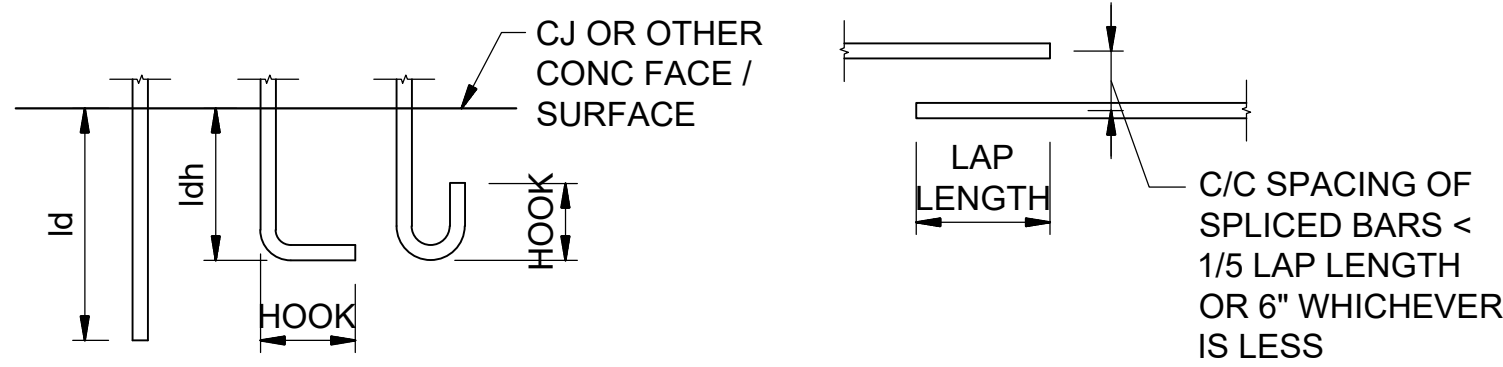
S-600

SHEET NUMBER

40

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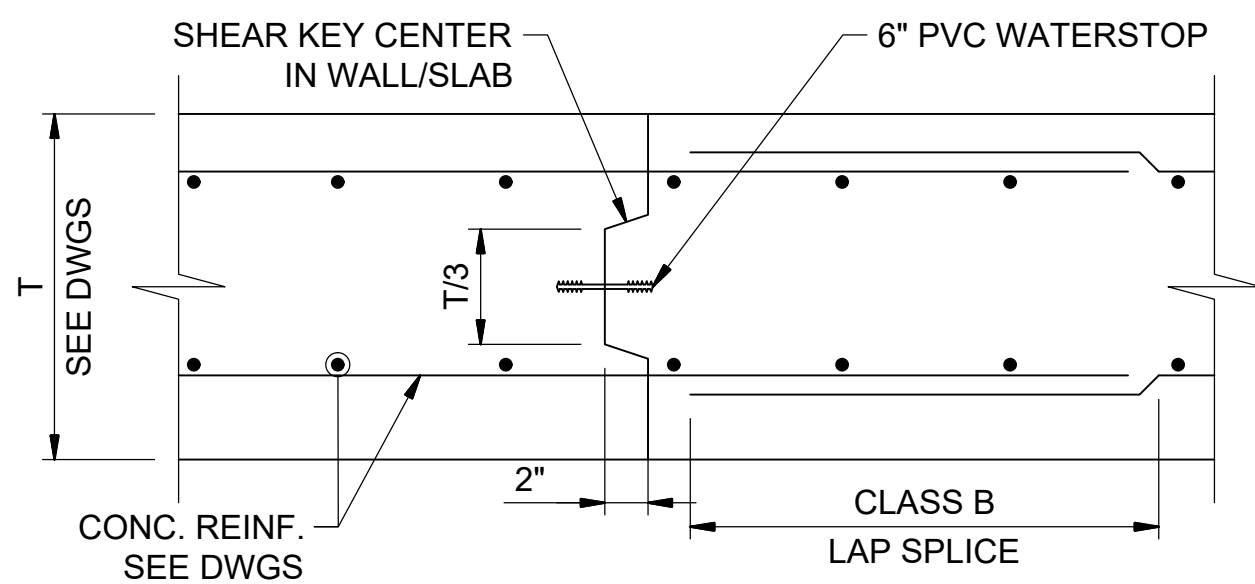
REBAR DEVELOPMENT LENGTH, LAP SPLICE, AND STANDARD HOOKS								
BASED ON THE FOLLOWING: NORMAL WEIGHT CONCRETE ; UNCOATED BARS f _c ≥ 4,500 PSI ; f _y = 60,000 PSI ; CLEAR COVER ≥ 2"								
BAR SIZE	DEVELOPMENT LENGTH, l _d		CLASS B TENSION LAP SPLICE		HOOK DEVELOPMENT LENGTH, l _{dh}		STANDARD HOOK LENGTHS	
	"TOP" BARS	OTHER	"TOP" BARS	OTHER	"CONC COVER"	OTHER	90° HOOK	180° HOOK
#3	12	12	14	12	6	8	7	5
#4	14	12	20	14	7	10	9	6
#5	18	14	24	18	8	12	12	7
#6	21	17	28	22	10	14	14	8
#7	32	24	40	32	12	16	16	9
#8	36	28	46	36	14	18	18	10
#9	44	34	58	44	15	20	23	14
#10	54	42	70	54	16	24	26	15
#11	64	50	84	64	18	26	28	17



NOTES:

- FOR OTHER MATERIALS OR CONDITIONS, LENGTHS SHALL BE DETERMINED IN ACCORDANCE WITH ACI 318.
- ALL LENGTHS ARE INCHES.
- ALL LAP SPLICES SHALL BE CLASS B U.N.O. IF BAR SIZES DIFFER, USE THE MINIMUM LAP LENGTH AS REQUIRED FOR THE SMALLER OF THE TWO BARS BEING SPLICED.
- "TOP" BARS SHALL BE HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE.
- "CONC COVER" DEVELOPMENT LENGTHS SHALL APPLY FOR SIDE COVER NORMAL TO PLANE OF HOOK AT LEAST 2-1/2", AND FOR 90° HOOK, END COVER BEYOND OUTSIDE END OF HOOK AT LEAST 2".

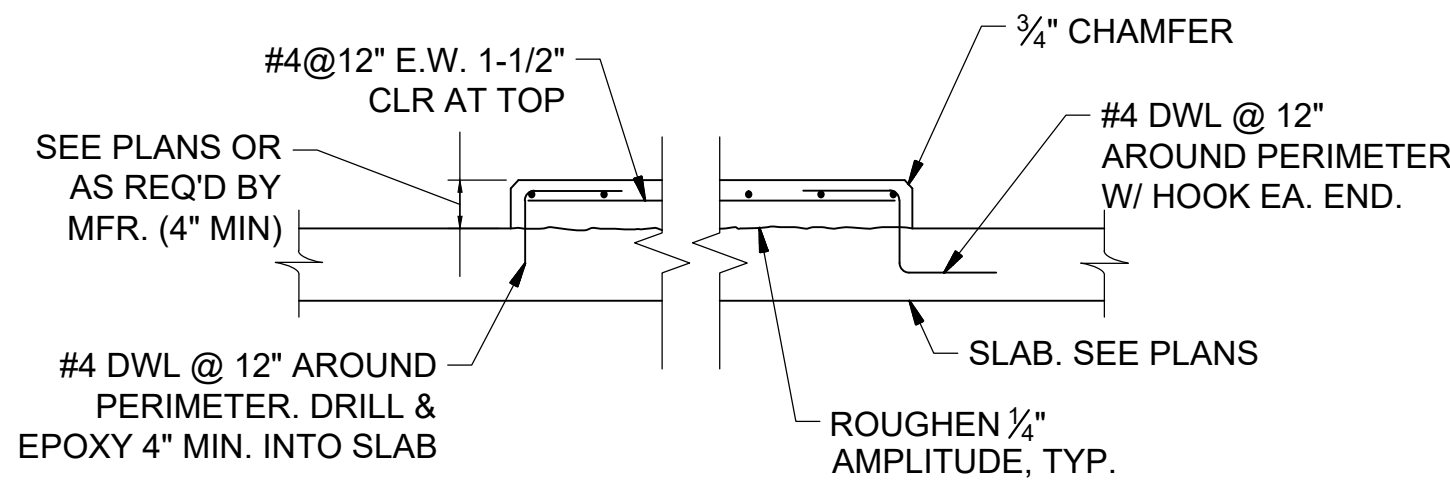
1 CONCRETE REBAR SCHEDULE DEVELOPMENT, SPLICES, & HOOKS
SCALE: NONE



NOTES:

- SIMILAR FOR WALL OR SLAB IN LIQUID CONTAINING STRUCTURE.
- OMIT WATERSTOP IN NON-LIQUID CONTAINING STRUCTURE.
- SEE DWGS FOR REBAR ORIENTATION.

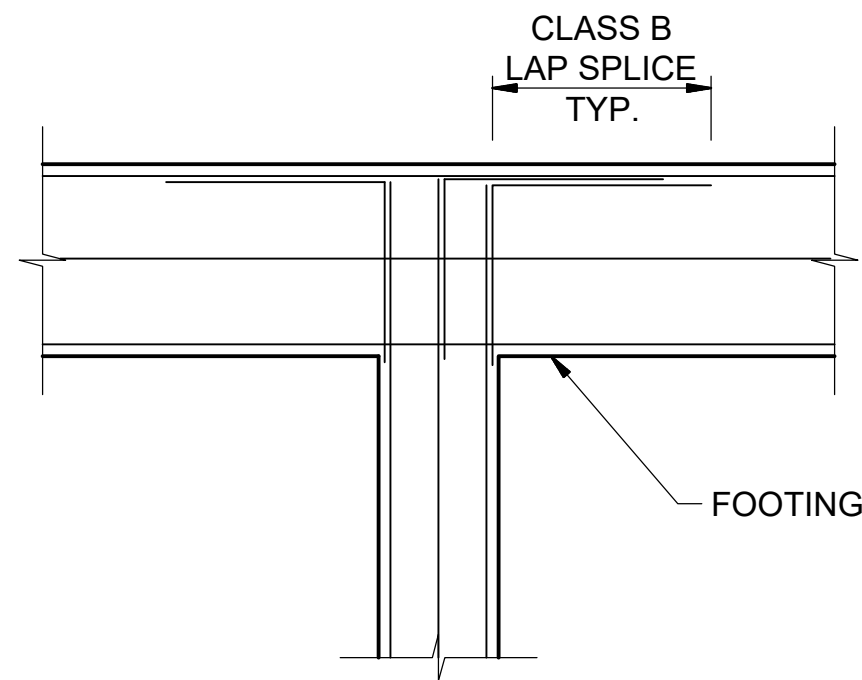
5 TYPICAL CONCRETE CONSTRUCTION JOINT
SCALE: NONE



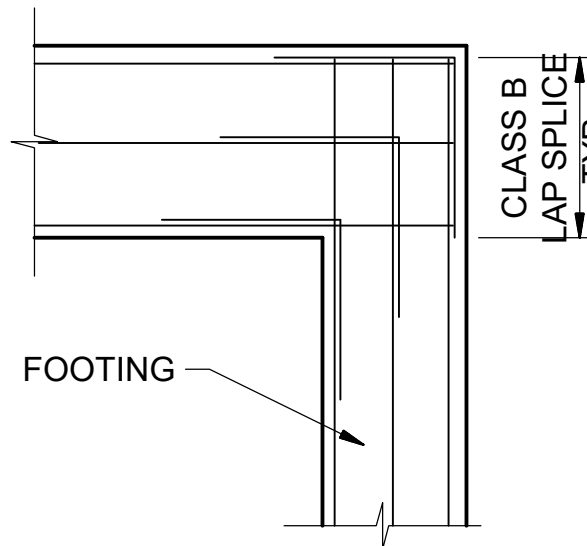
NOTES:

- PROVIDE PAD 4" LARGER THAN EQUIP. ON ALL SIDES U.N.O. OR AS REQUIRED BY EQUIP. MFR.
- CONTRACTOR MAY ELECT TO CAST DOWELS INTO SLAB OR DRILL & EPOXY, AS SHOWN.

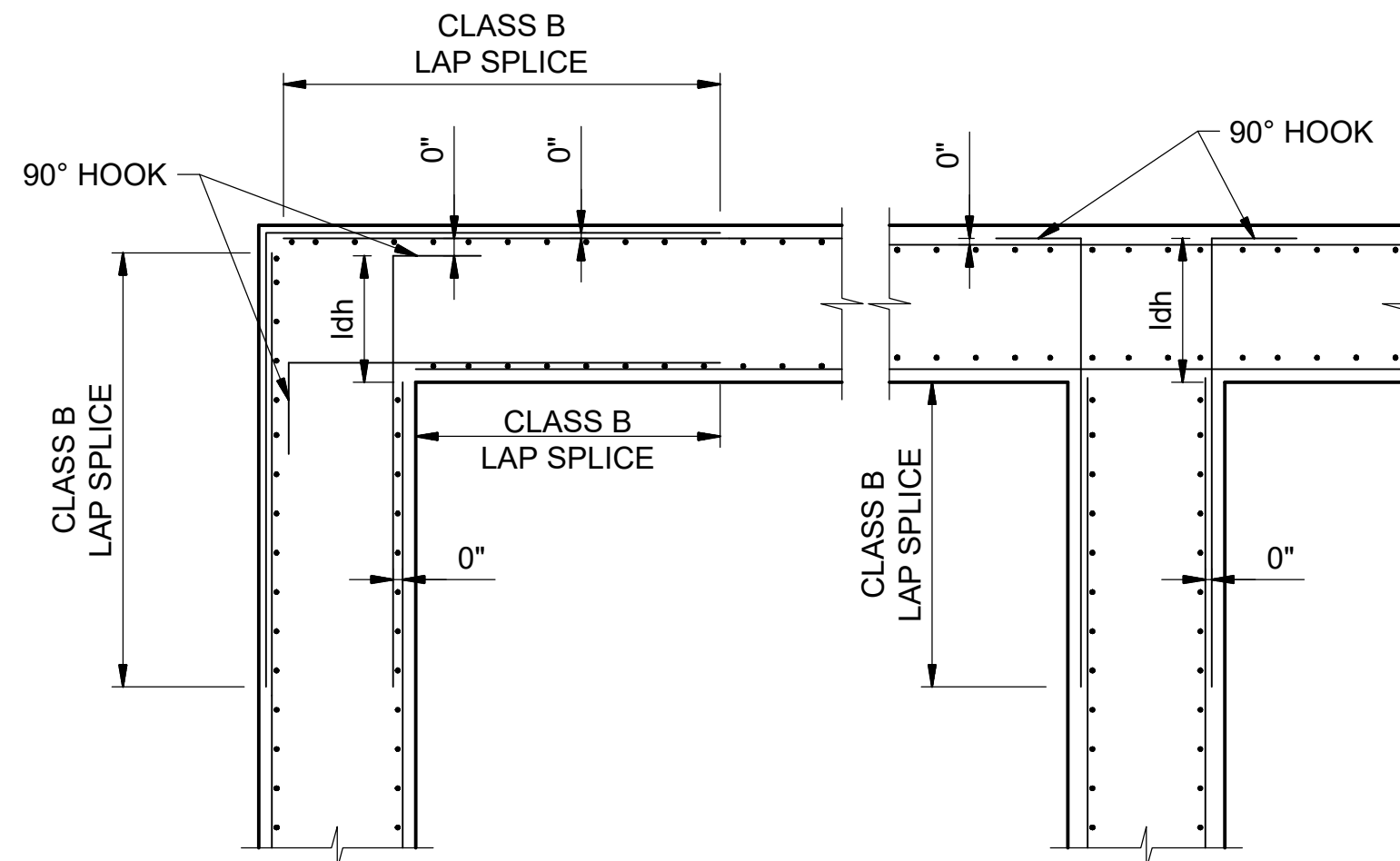
2 TYPICAL EQUIPMENT PAD DETAIL
SCALE: NONE



4 FOOTING INTERSECTION DETAIL
SCALE: NONE



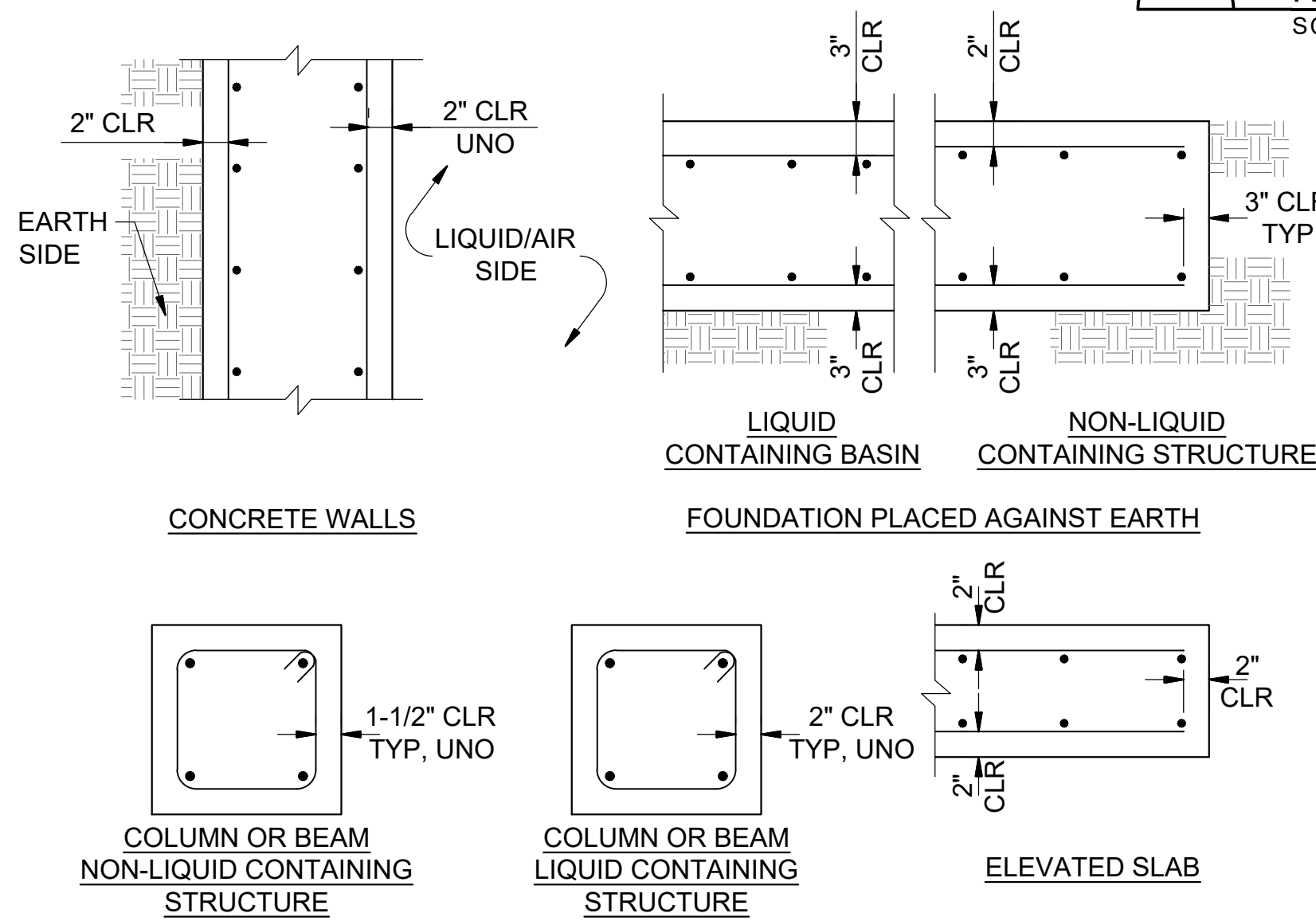
5 FOOTING CORNER DETAIL
SCALE: NONE



NOTES:

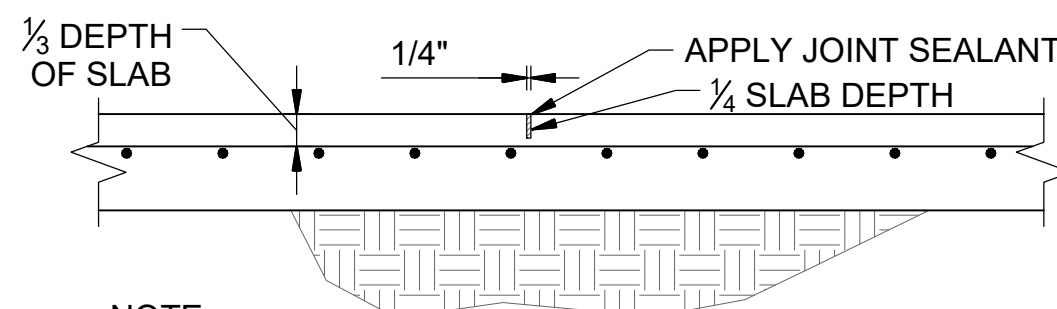
- LAP SPLICE, DEVELOPMENT LENGTH, AND HOOKS SHALL BE FULLY CONTAINED WITHIN MONOLITHIC CONCRETE POUR.
- CORNER BAR SIZE AND SPACING SHALL MATCH HORIZ. BAR SIZE AND SPACING. SEE PLANS FOR REINFORCEMENT SIZE, SPACING, AND ORIENTATION.

2 TYPICAL WALL REINFORCING DETAIL
SCALE: NONE



NOTE: SEE DRAWINGS FOR PROPER REBAR ORIENTATION.

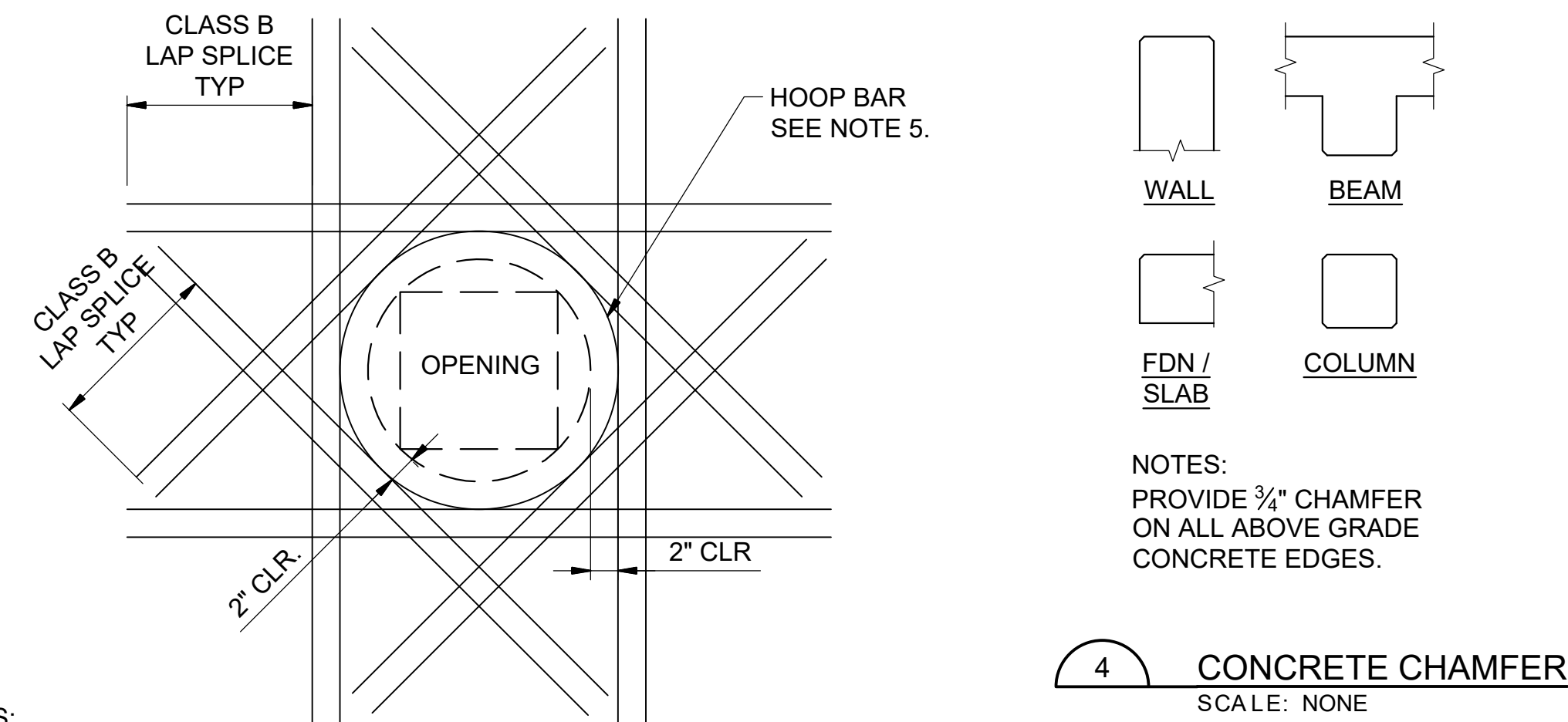
7 CONCRETE REBAR CLEAR COVER
SCALE: NONE



NOTE:

CONTRACTOR MAY TOOL OR SAWCUT CONTROL JOINTS

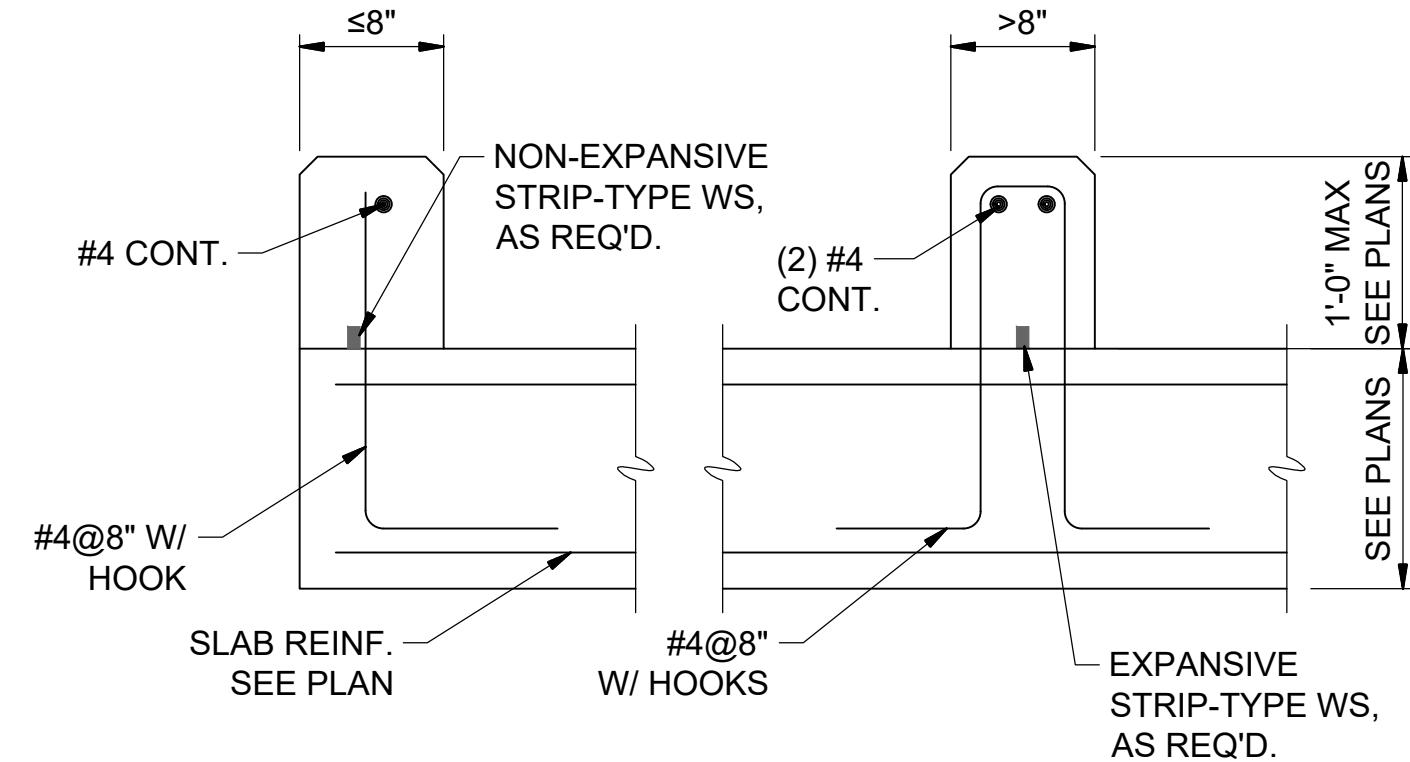
8 SLAB ON GRADE CONTROL JOINT
SCALE: NONE



NOTES:

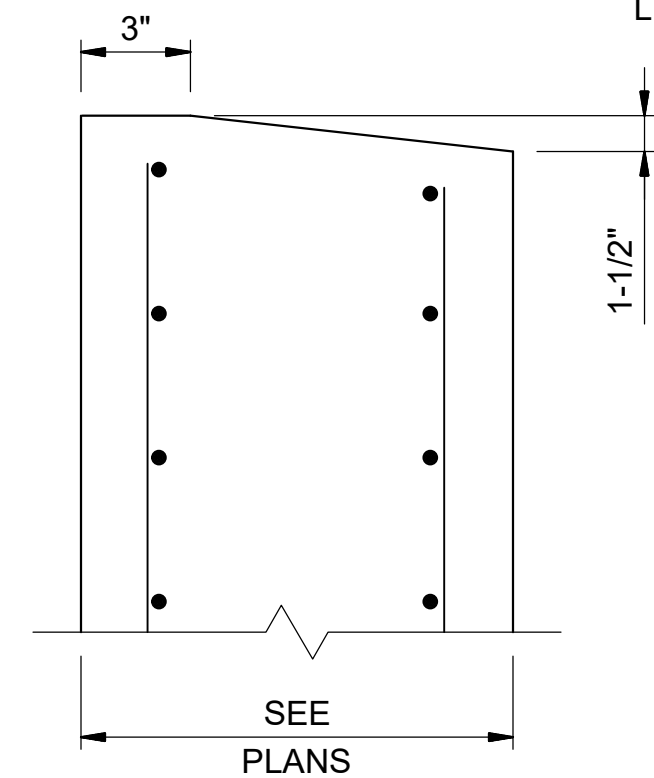
- THIS DETAIL APPLIES FOR OPENINGS 8" & LARGER. FOR SMALLER OPENINGS, BEND BARS OR ADJUST SPACING OF REINF. TO AVOID OPENING.
- HORIZ. AND VERT. BARS SHALL BE SAME SIZE AS INTERRUPTED REINF. & SPACED AT 6" O.C. ADDITIONAL REINF. SHALL BE PROVIDED IN EACH FACE OF MEMBER.
- QUANTITY OF ADDITIONAL BARS AT EACH SIDE OF OPENING SHALL EQUAL HALF THE QUANTITY OF INTERRUPTED BARS.
- PROVIDE TWO DIAGONAL BARS AT EACH FACE OF OPENING INSIDE OF PRIMARY REINF. DIAGONALS BAR SIZE SHALL MATCH VERT BAR SIZE.
- AT EMBEDDED WALL PIPE PENETRATIONS, PROVIDE #4 HOOP BAR IN EACH FACE INSIDE OF NORMAL REINF.
- WHERE OPENING IS LOCATED CLOSER THAN A LAP SPLICE LENGTH TO AN ADJACENT WALL OR SLAB, PROVIDE DOWELS INTO ADJACENT WALL OR SLAB FOR ADDITIONAL VERT. AND HORIZ. BARS. DIAGONAL BARS MAY BE TERMINATED 2" FROM THE ADJACENT WALL OR SLAB.

3 REINFORCING AT OPENINGS DETAIL
SCALE: NONE



NOTES:

- SEE PLANS FOR CONCRETE CURB DIMENSIONS.
- WATERSTOPS (WS) SHALL BE PROVIDED IN LIQUID CONTAINING AREAS ONLY, AS INDICATED ON THE PLANS.
- DOWELS MAY BE CAST-IN-PLACE W/ APPLICABLE DEVELOPMENT LENGTH AND STANDARD HOOK PROVIDED OR DRILLED AND EPOXIED WITH REBAR ADHESIVE. EMBEDMENT DEPTH SHALL BE LESSER OF 6" MIN. AND 2" FROM BOTTOM OF SLAB.



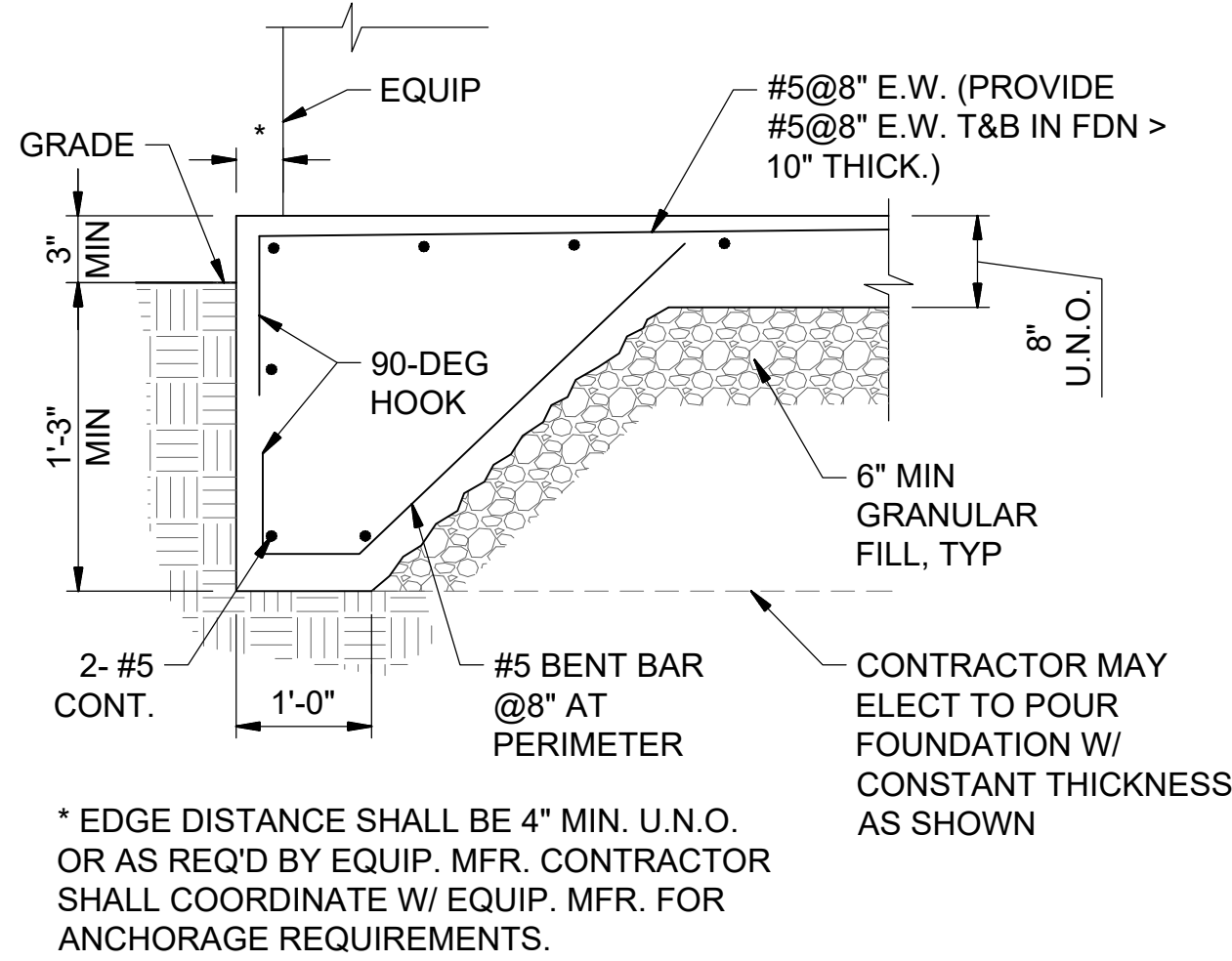
1 CONCRETE CURB DETAIL
SCALE: NONE

10 WEIR WALL DETAIL
SCALE: NONE

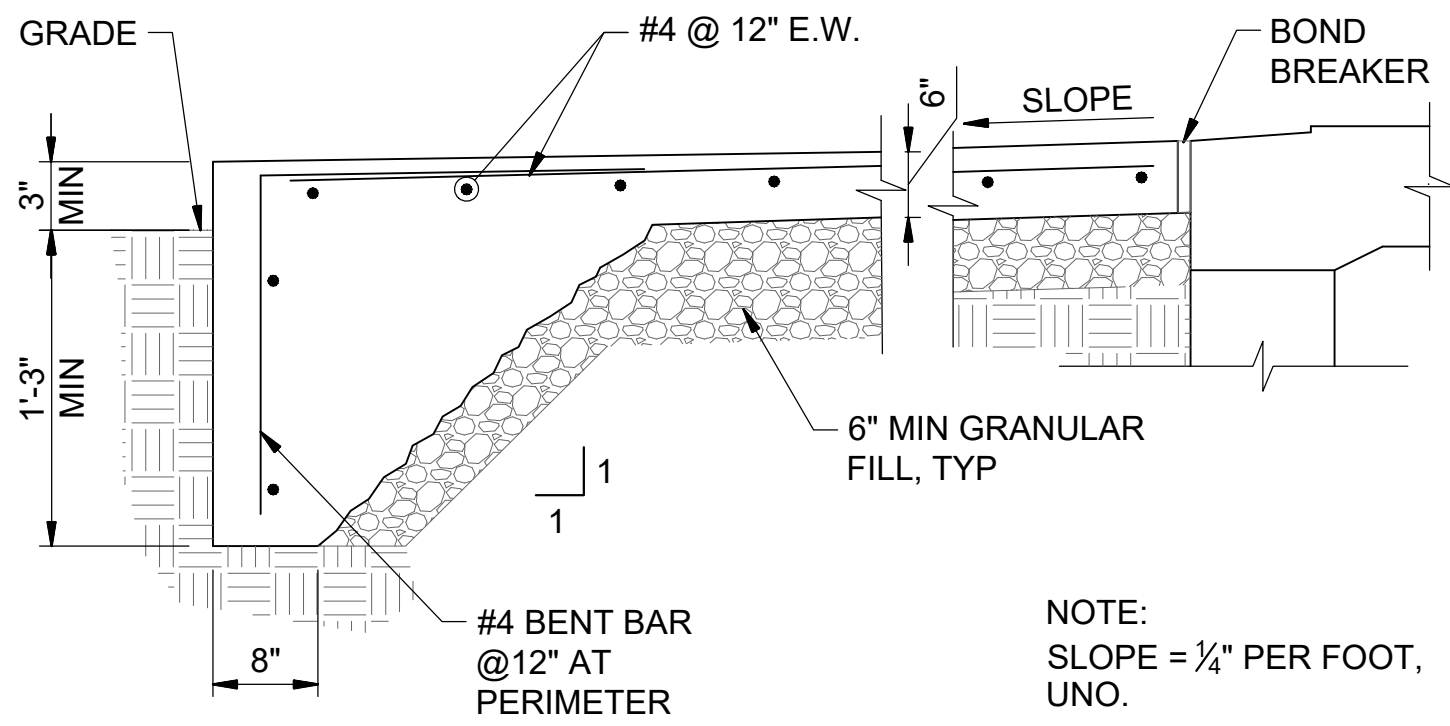
NOTE:

- SEE PLANS FOR REBAR SIZE, SPACING, & ORIENTATION.
- SEE PROCESS DETAILS FOR WEIR PLATE, WHERE APPLICABLE.

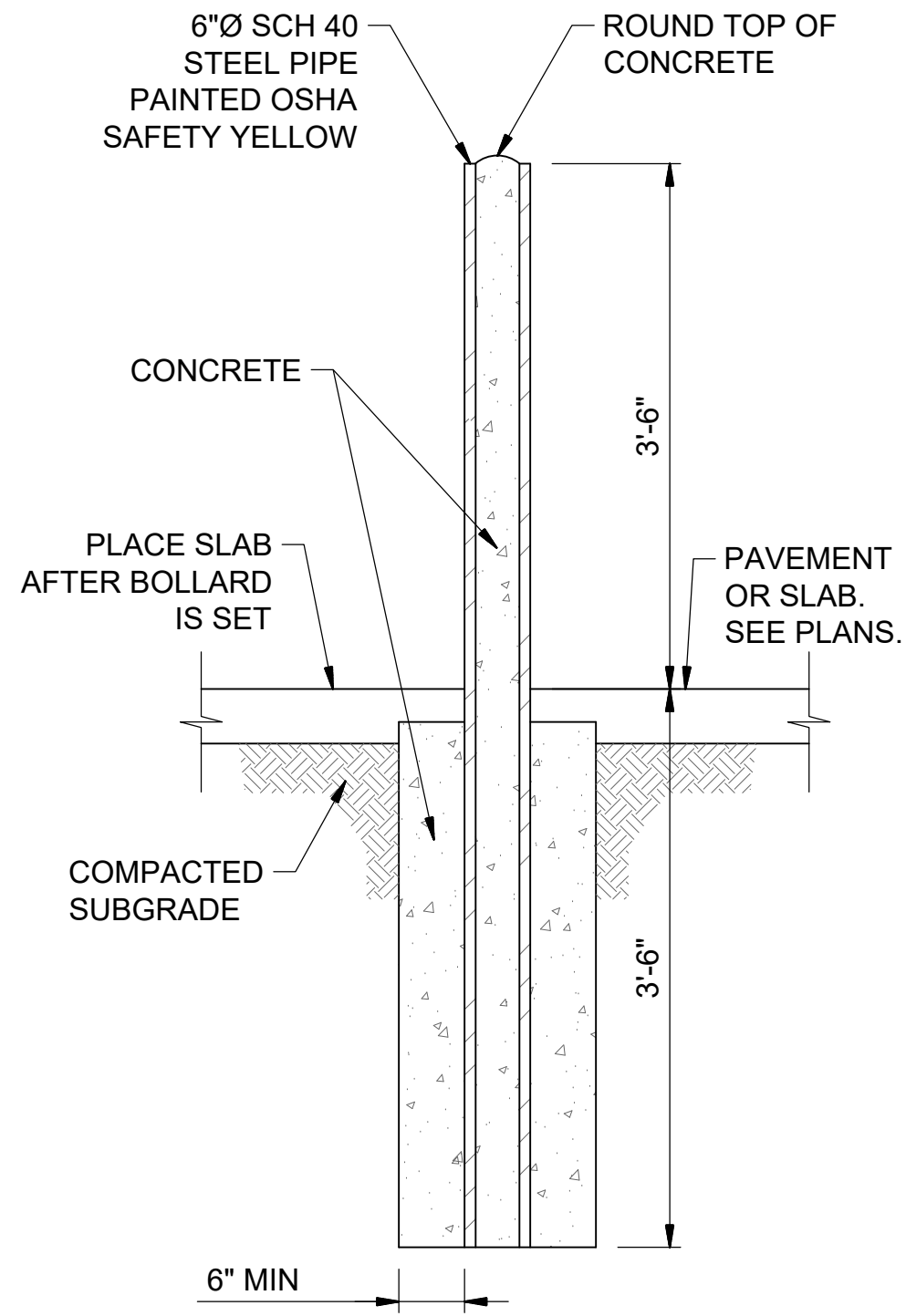
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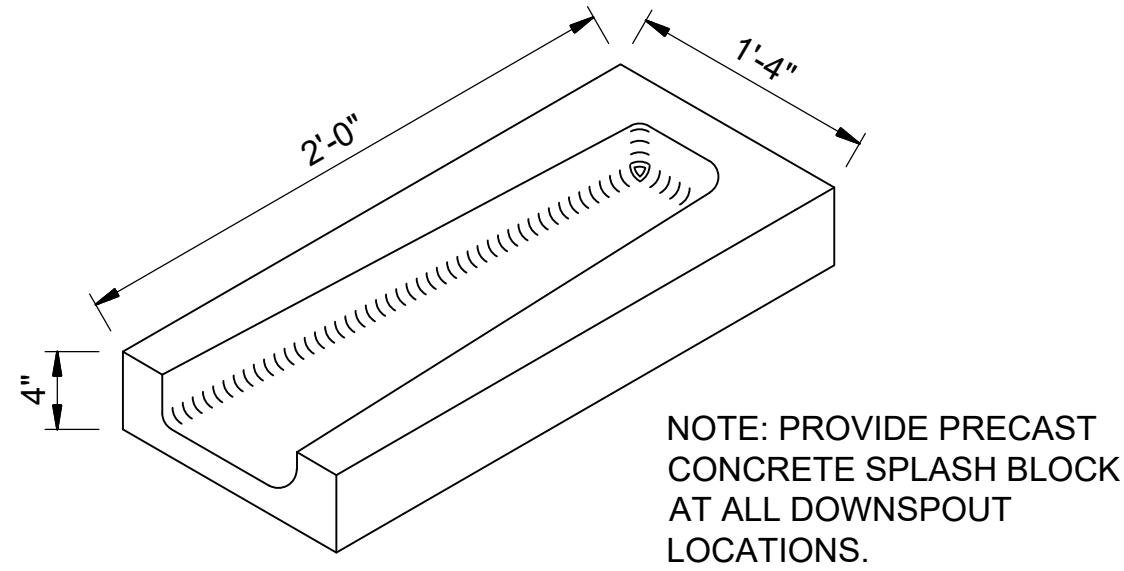
1 EXTERIOR CONC EQUIP FOUNDATION
SCALE: NONE



2 STOOP/APPROACH SLAB
SCALE: NONE



3 EXTERIOR PIPE BOLLARD
SCALE: NONE



4 CONCRETE SPLASH BLOCK DETAIL
SCALE: NONE

REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	DBM

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CONCRETE
DETAILS

THIS LINE
IS 1" AT
FULL SIZE

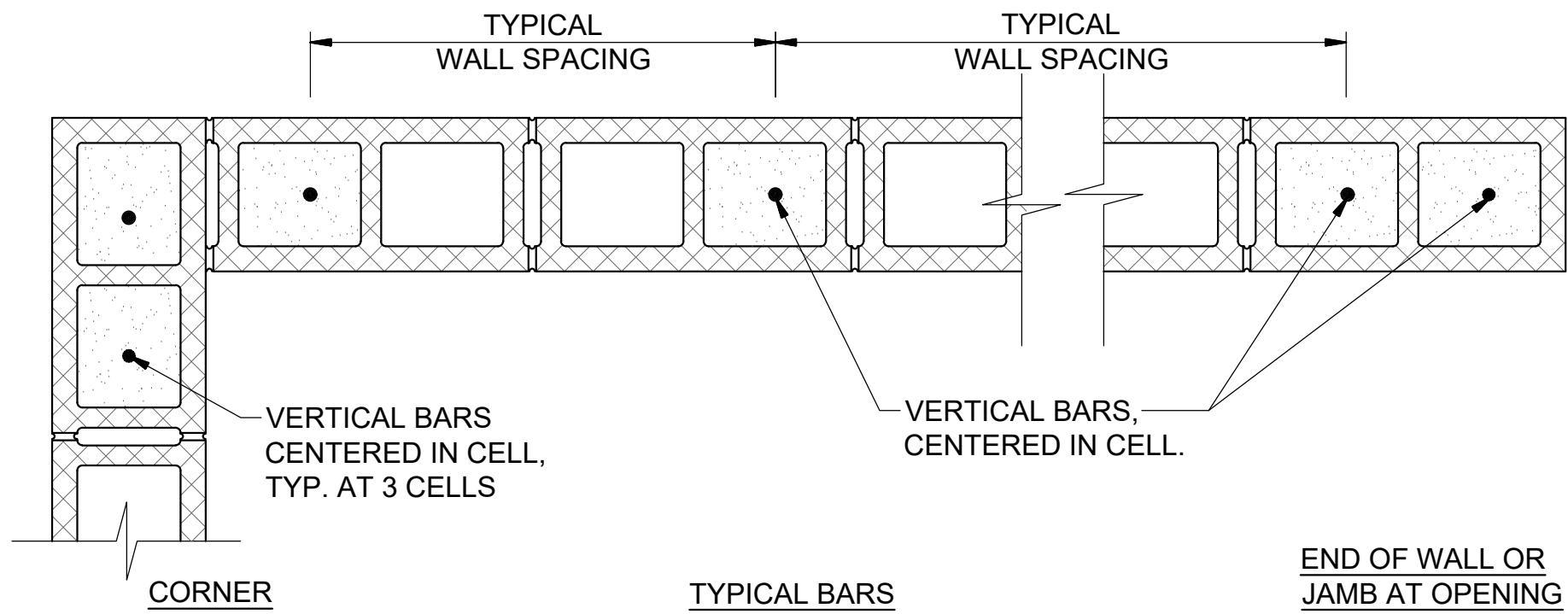
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S-701

SHEET NUMBER

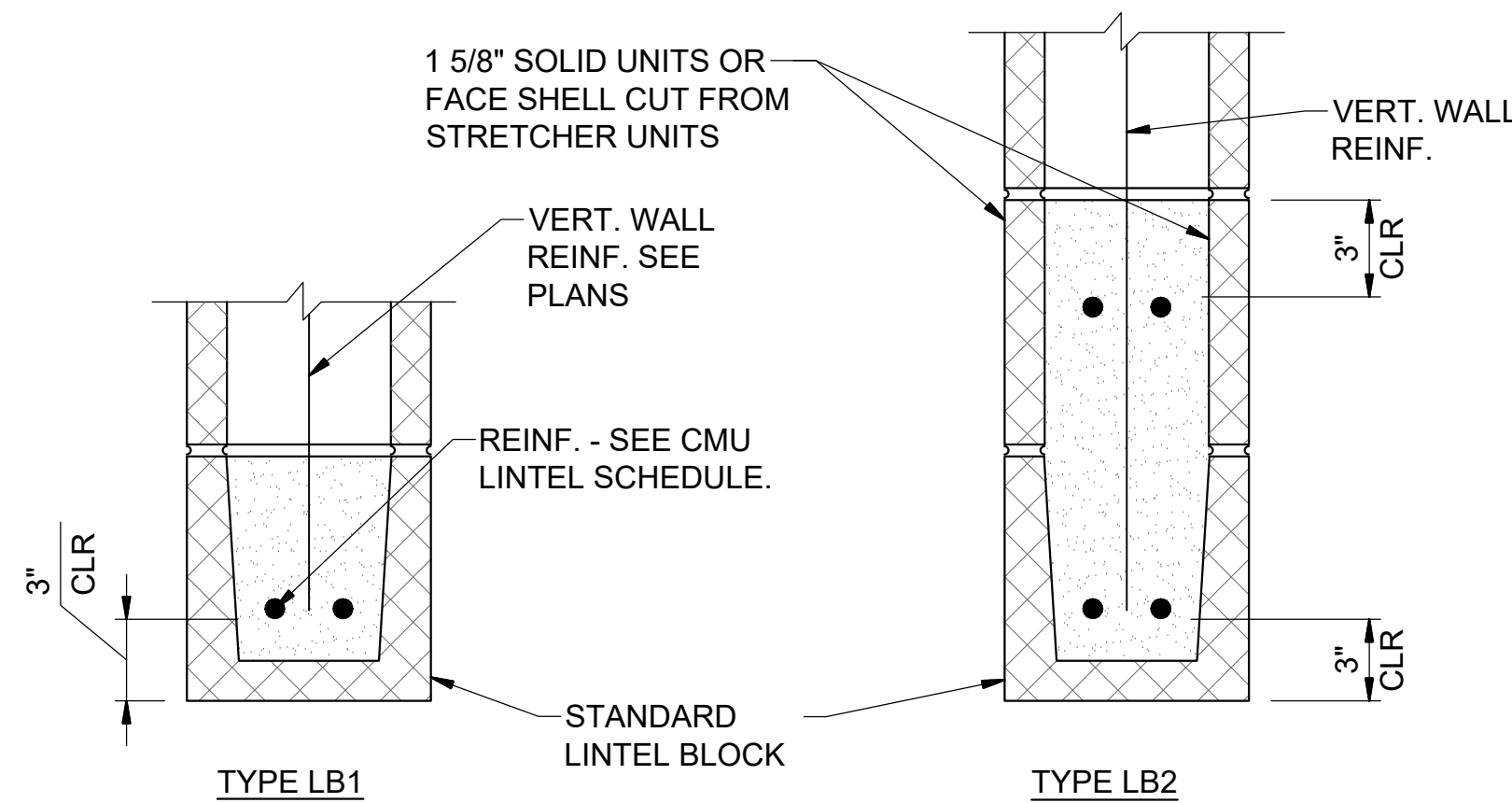
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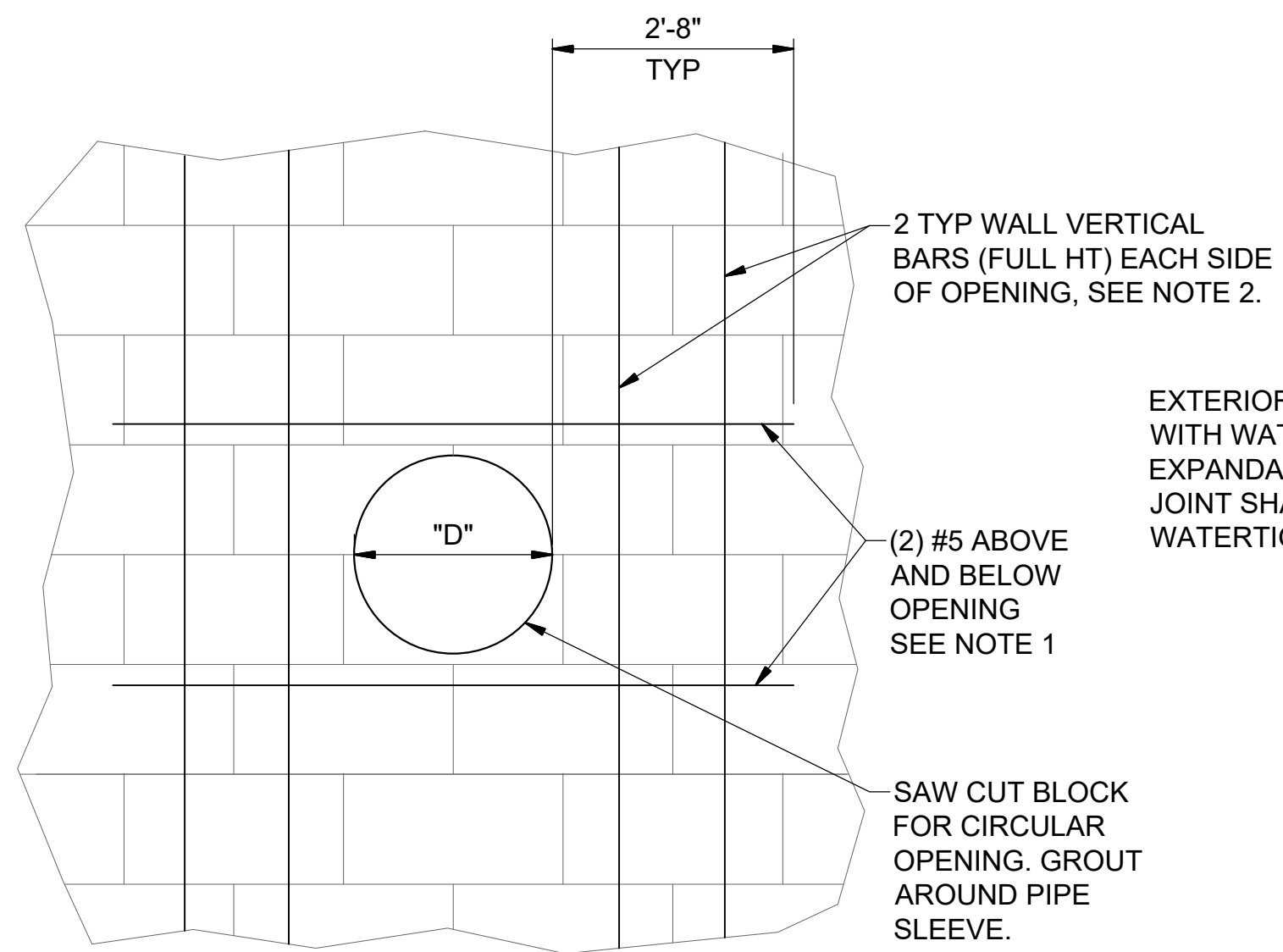


- NOTES:
- SEE S-102 FOR VERT. BAR SIZE AND TYP. SPACING. ALL REINF. CELLS SHALL BE GROUT FILLED.
 - ALL VERT. BARS SHALL LAP WITH FOUNDATION DOWEL BAR & EXTEND 6" INTO BOND BEAM AT TOP OF WALL, U.N.O.
 - PROVIDE 9 GA. LADDER TYPE HORIZONTAL JOINT REINFORCING @ 16" O.C. VERTICALLY, U.N.O.
 - PROVIDE 3 REINF. CELLS FOR EACH JAMB OF OH DOOR OPENING.

1 TYPICAL CMU WALL REINFORCEMENT
SCALE: NONE

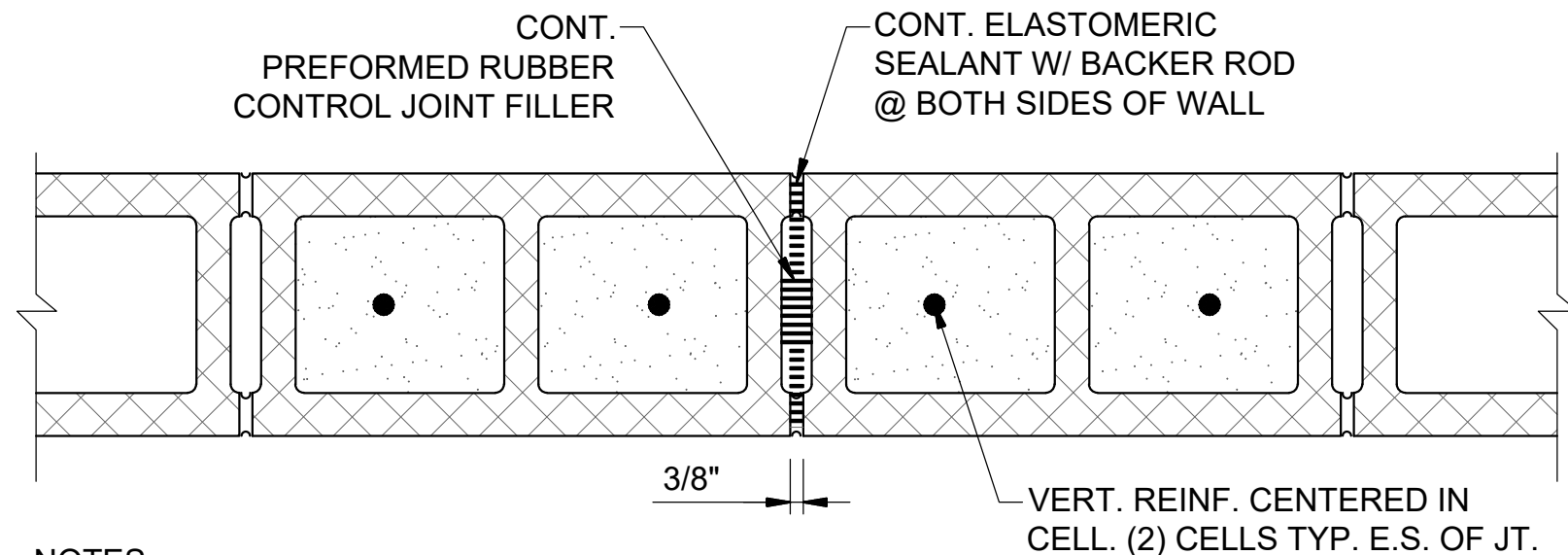


4 CMU LINTEL DETAIL
SCALE: NONE



- NOTES:
- AT ADJACENT OPENINGS, CONTINUE HORIZONTAL REINFORCING TO 2'-8" BEYOND FURTHEST OPENING.
 - FOR VERTICAL REINFORCING:
 - IN 8" NOM. CMU, PROVIDE 1 BAR CENTERED IN EACH CELL.
 - IN 12" NOM. CMU, PROVIDE 1 BAR EACH FACE OF WALL.
 - GROUT ALL REINFORCED CELLS SOLID.

8 CMU WALL PIPE PENETRATION
SCALE: NONE

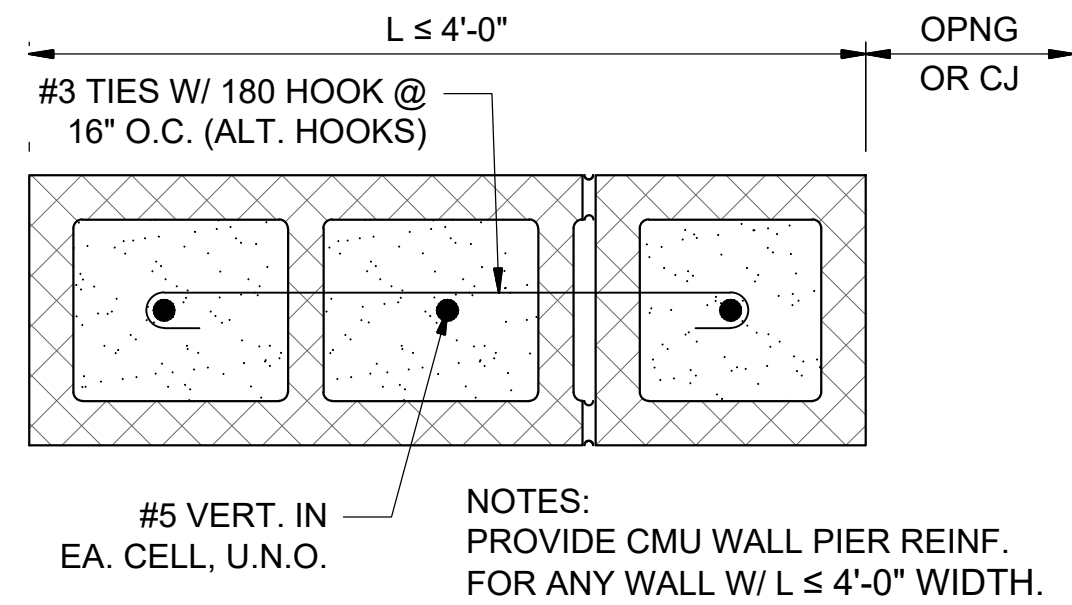


- NOTES:
- CONTROL JOINTS SHALL BE LOCATED AS SHOWN ON PLANS OR AS APPROVED BY THE ENGINEER. (16" MIN. FROM OPENINGS IN WALL. 25'-0" MAX SPACING.)
 - SEE S-102 FOR VERT. BAR SIZE AND TYP. SPACING. ALL REINF. CELLS SHALL BE GROUT FILLED.
 - ALL VERT. BARS SHALL LAP WITH FOUNDATION DOWEL BAR & EXTEND 6" INTO BOND BEAM AT TOP OF WALL, U.N.O.
 - DISCONTINUE HORIZONTAL JOINT REINFORCING AT EACH SIDE OF JOINT.
 - BOND BEAM REINF. AT TOP OF WALL SHALL BE CONTINUOUS THROUGH JOINT.

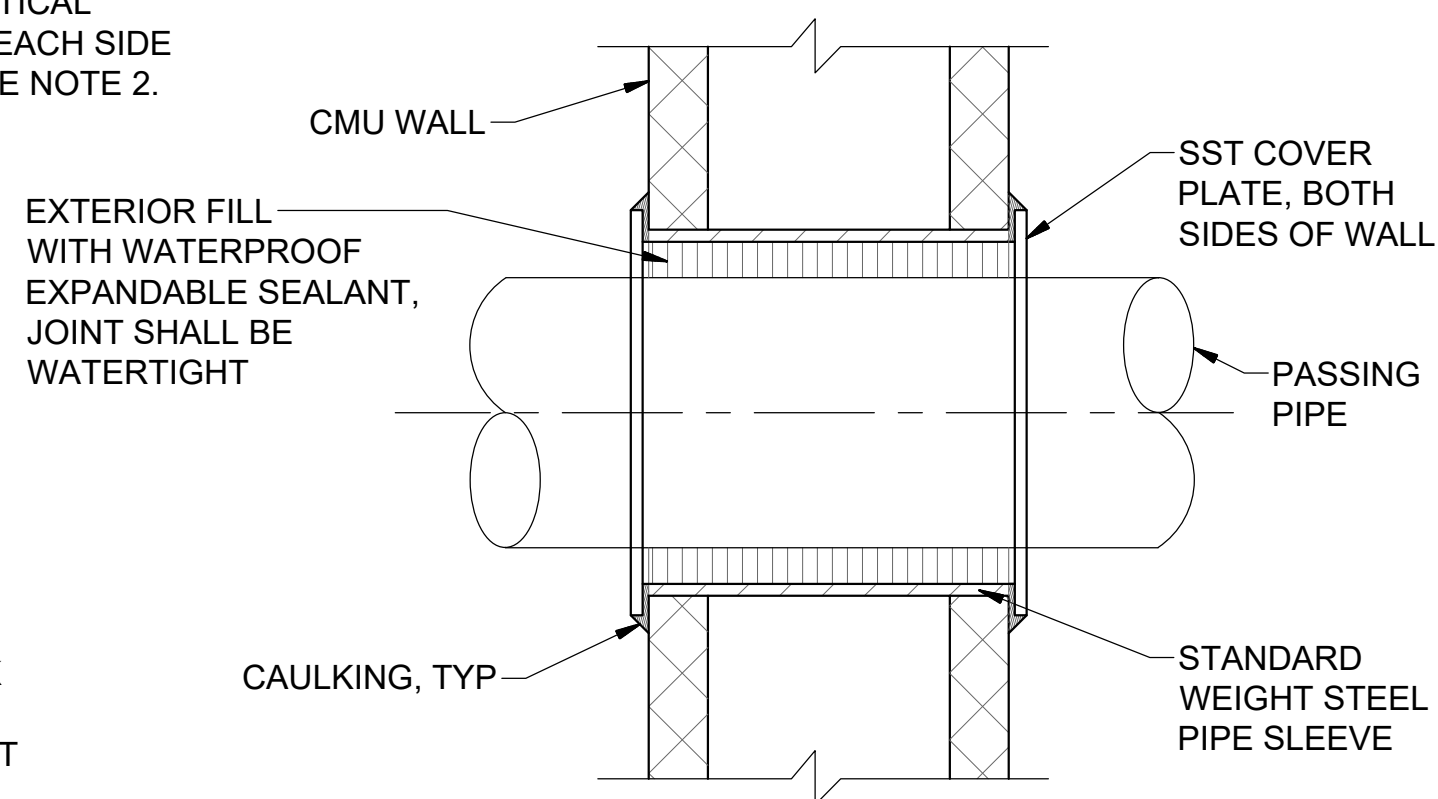
2 CMU CONTROL JOINT DETAIL
SCALE: NONE

CMU LINTEL SCHEDULE					
OPENING DESCRIPTION	NOM. THICKNESS	BEAM DEPTH	BOTT. REINF.	TOP REINF.	NOTES
≤ 3'-4"	8"	8"	2- #5	--	TYPE LB1
3'-4" TO 6'-4"	8"	16"	2- #5	2- #5	TYPE LB2
6'-6" TO 8'-0"	8"	16"	2- #6	2- #6	TYPE LB2

NOTE: ALL LINTEL BEAMS SHALL BEAR 16" MIN. EACH END OF OPENING.

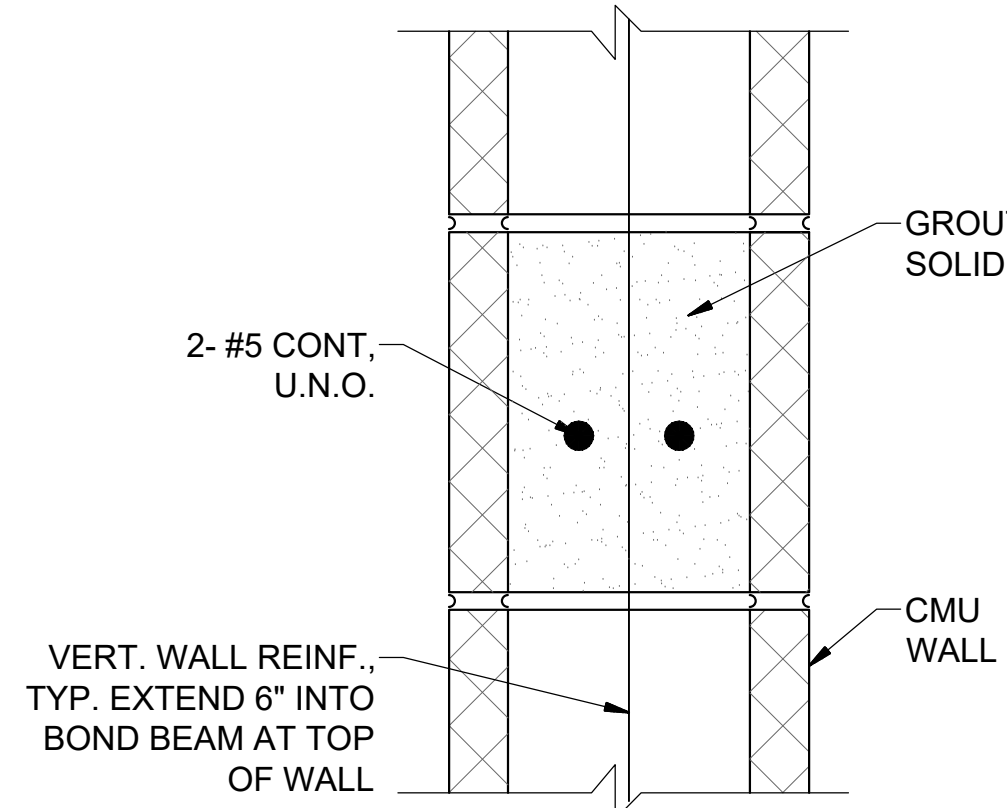


12 CMU PIER DETAIL
SCALE: NONE

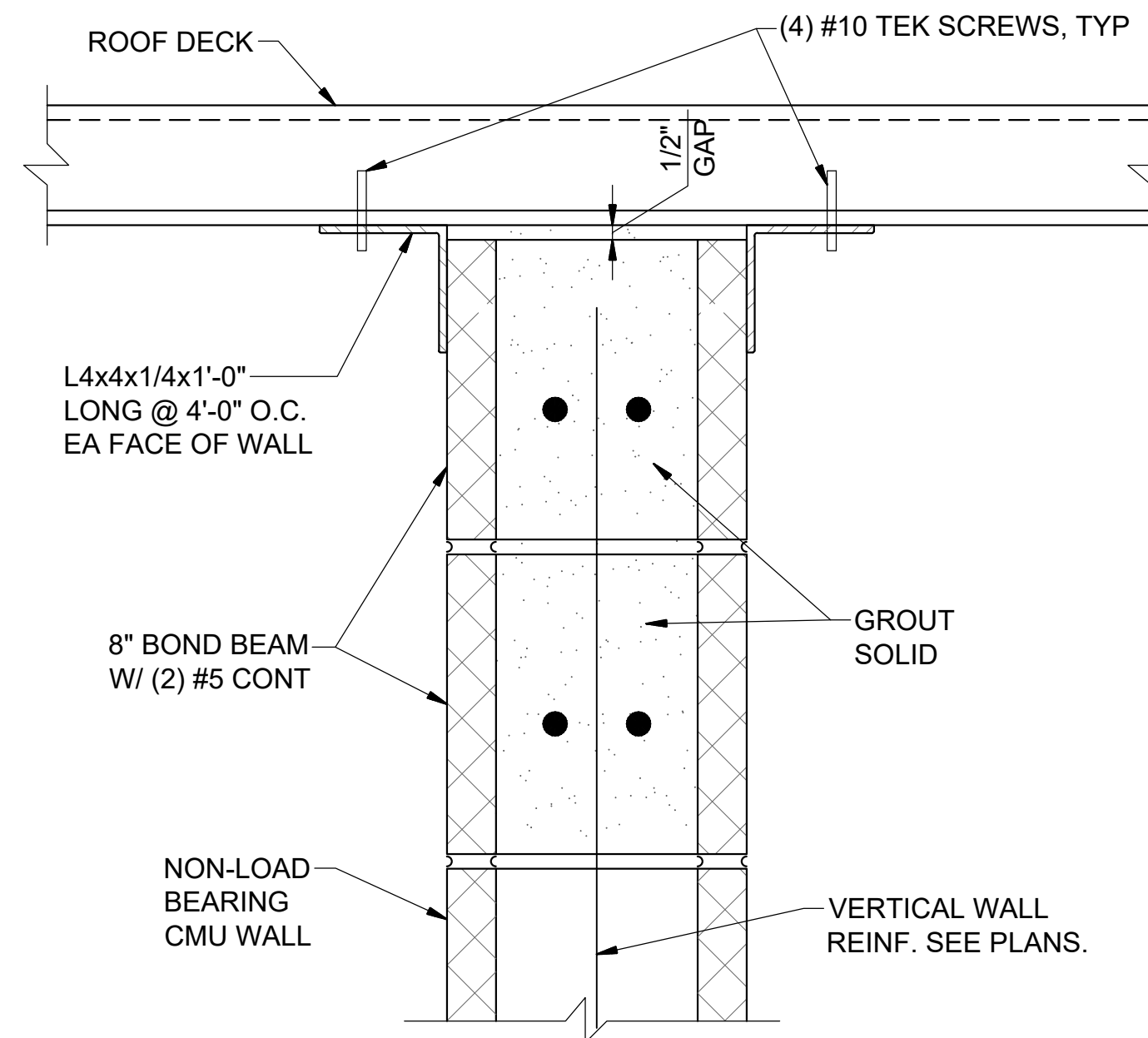


6 STEEL JOIST AT INTERIOR
NON-LOAD BEARING CMU WALL
SCALE: NONE

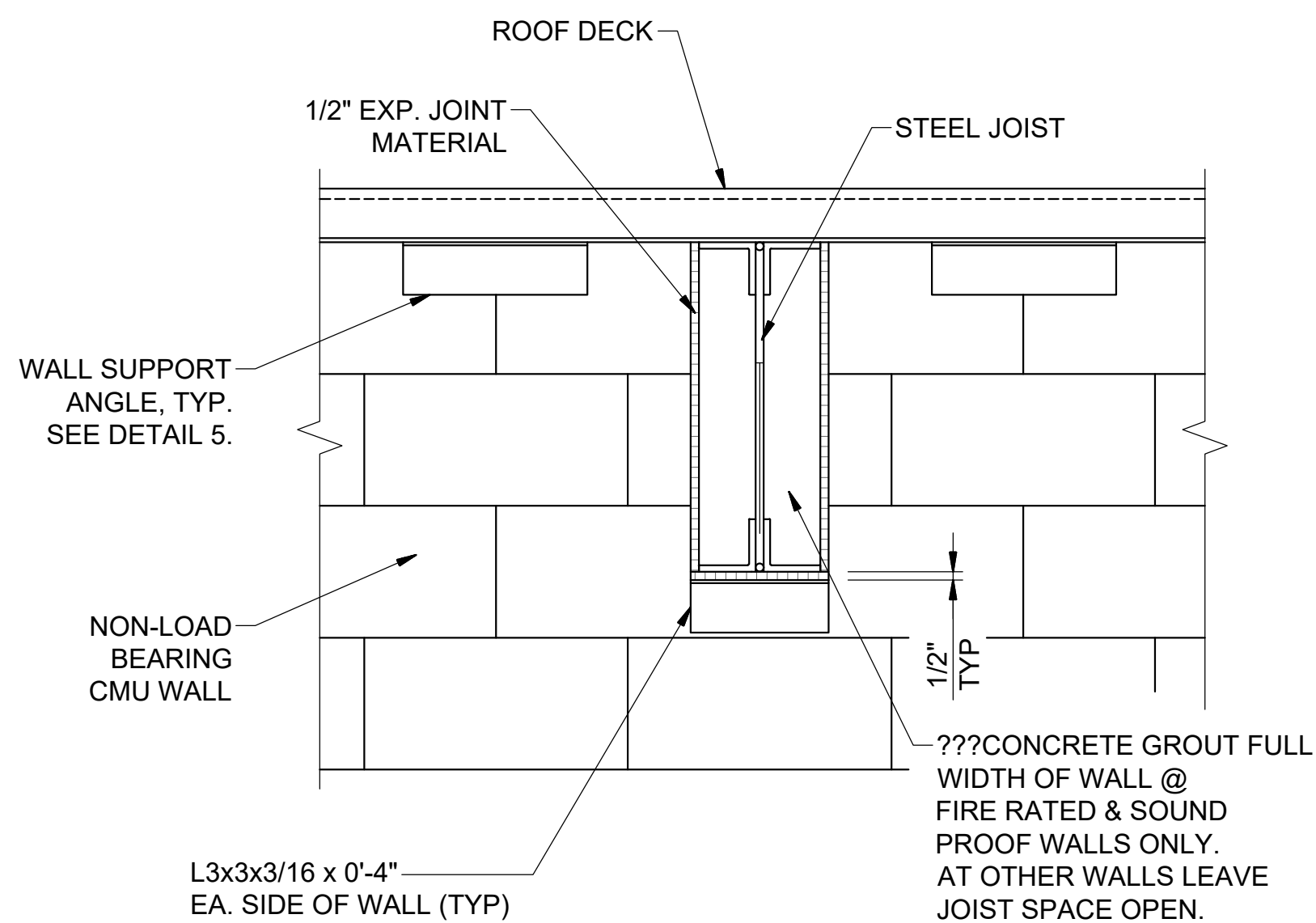
CMU LAP SPLICE LENGTHS (f'm = 1,900 PSI)		
BAR SIZE	8" CMU	12" CMU
	SINGLE BAR	SINGLE BAR
#3	14"	14"
#4	18"	18"
#5	22"	22"
#6	38"	27"
#7	53"	34"



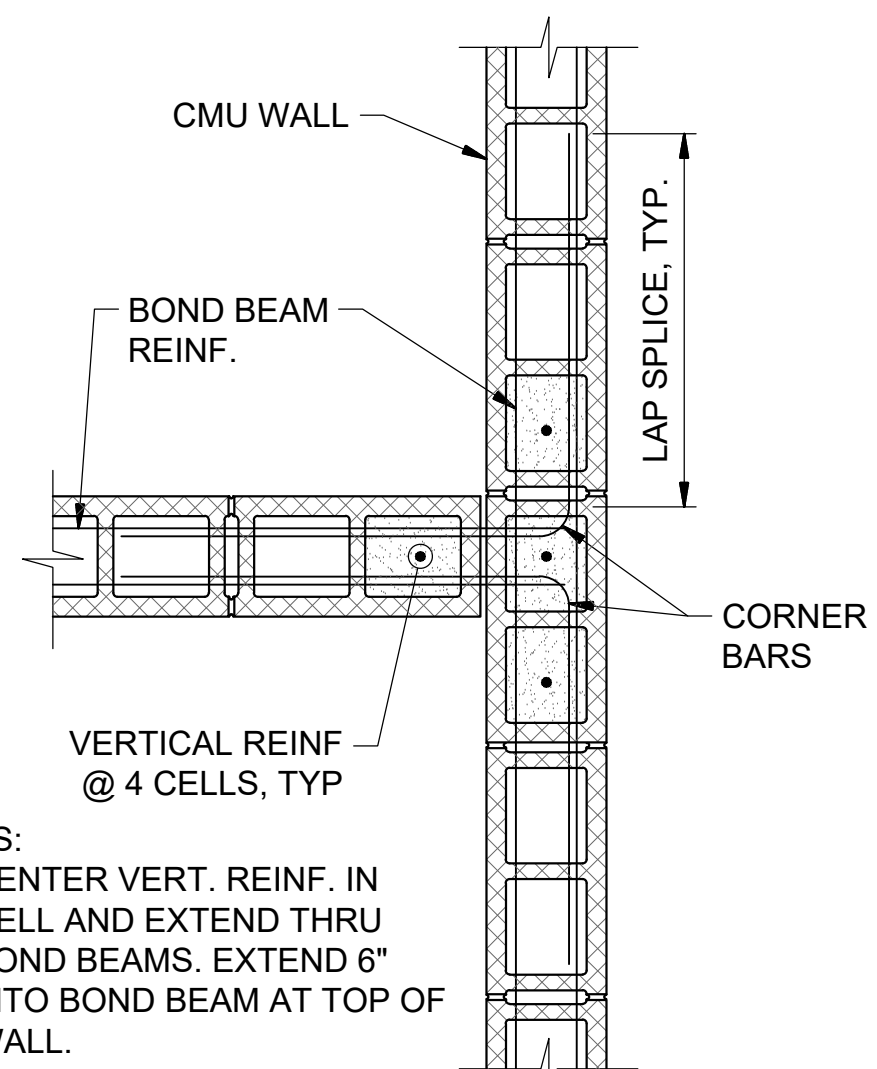
3 8" BOND BEAM DETAIL
SCALE: NONE



5 NON-LOAD BEARING CMU WALL SUPPORT DETAIL
SCALE: NONE

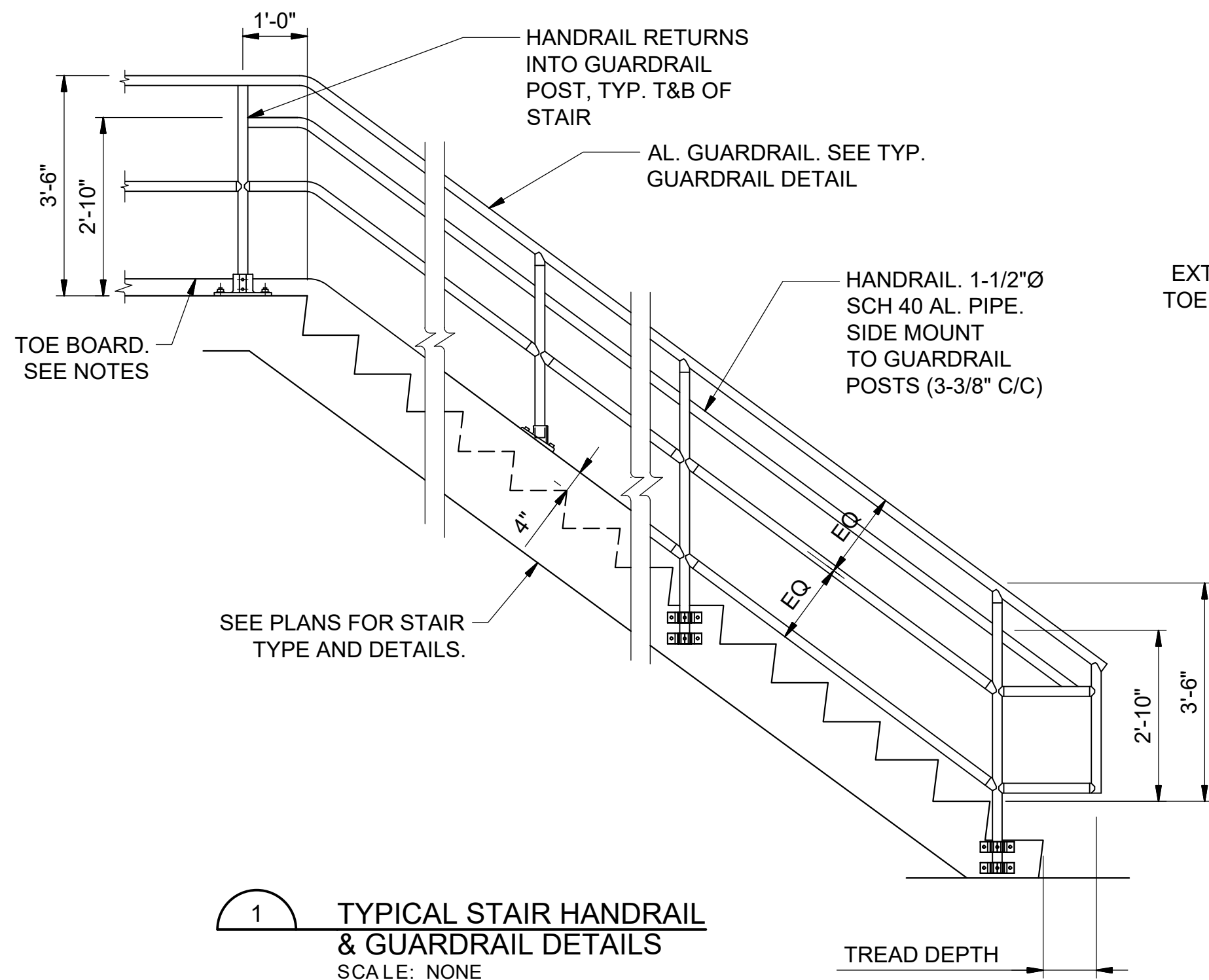


6 STEEL JOIST AT INTERIOR
NON-LOAD BEARING CMU WALL
SCALE: NONE

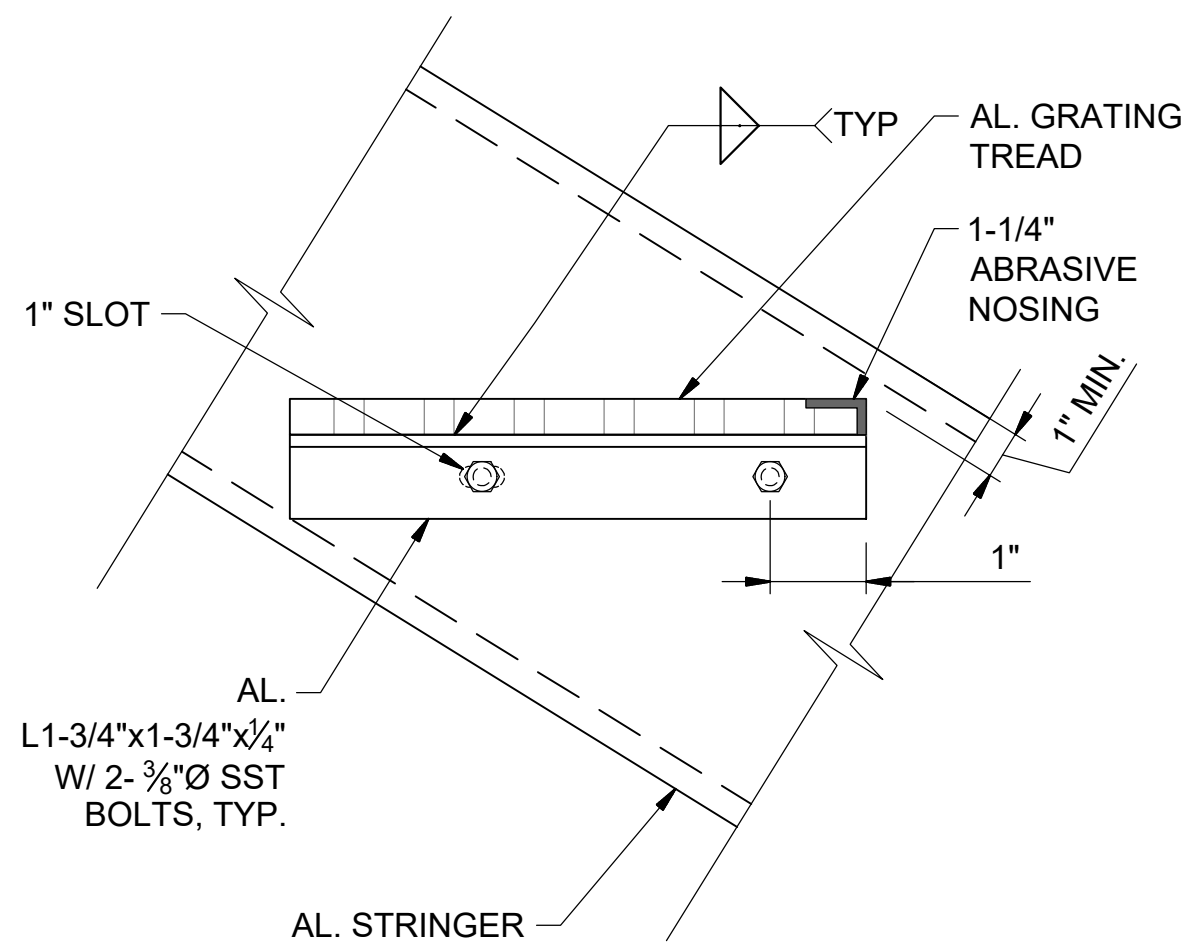


9 BOND BEAM & WALL
INTERSECTION DETAIL
SCALE: NONE

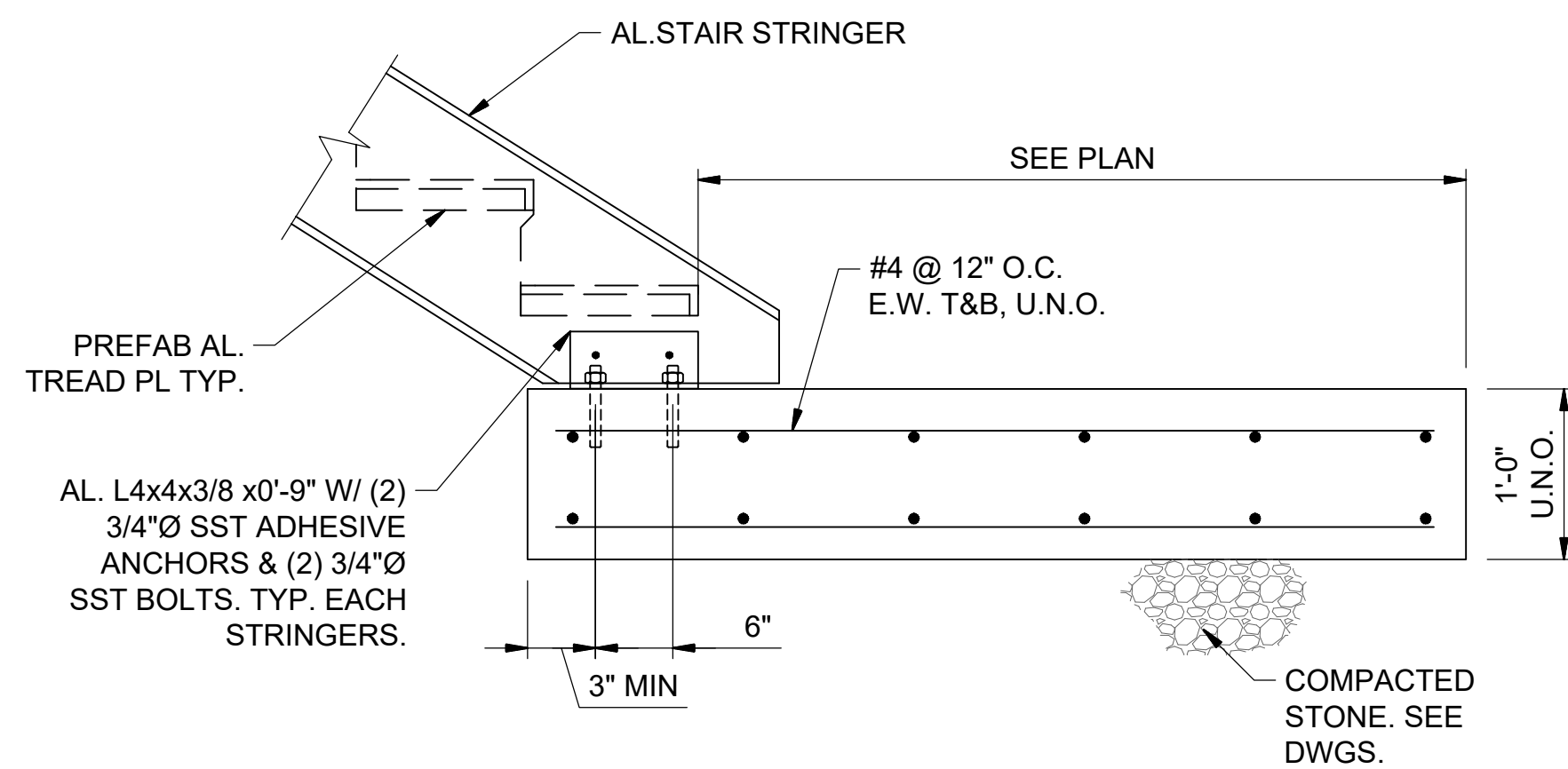
- NOTES:
- CENTER VERT. REINF. IN CELL AND EXTEND THRU BOND BEAMS. EXTEND 6" INTO BOND BEAM AT TOP OF WALL.



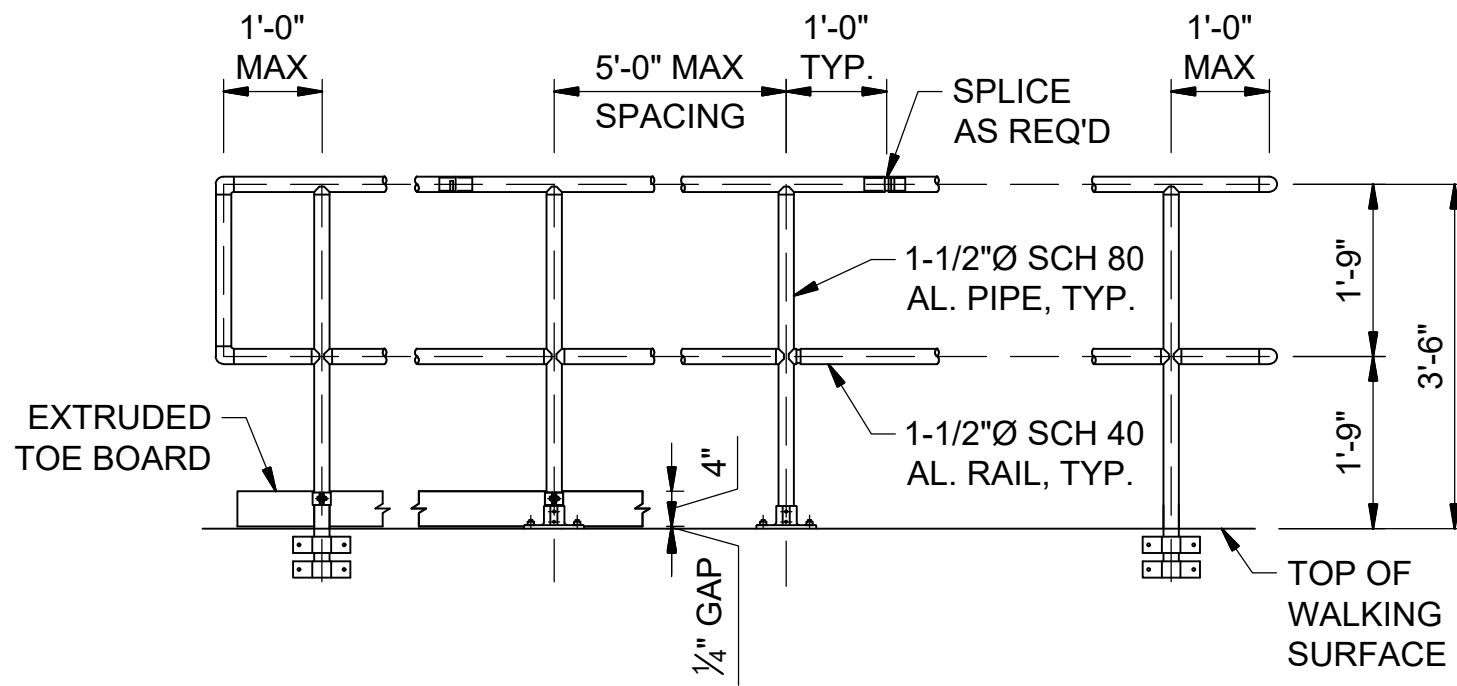
1 TYPICAL STAIR HANDRAIL
& GUARDRAIL DETAILS
SCALE: NONE



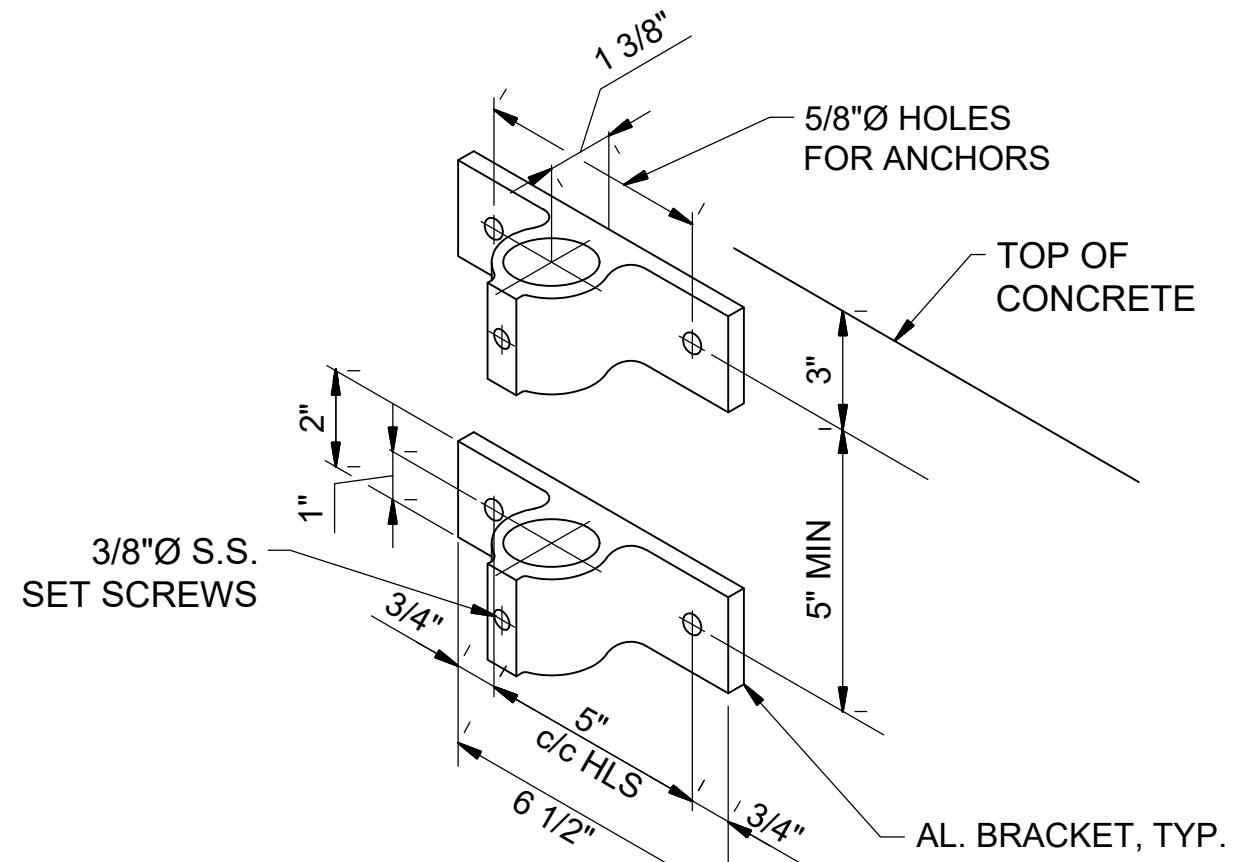
6 TREAD DETAIL
SCALE: NONE



9 BASE OF STAIR
AT CONC. SLAB
SCALE: NONE



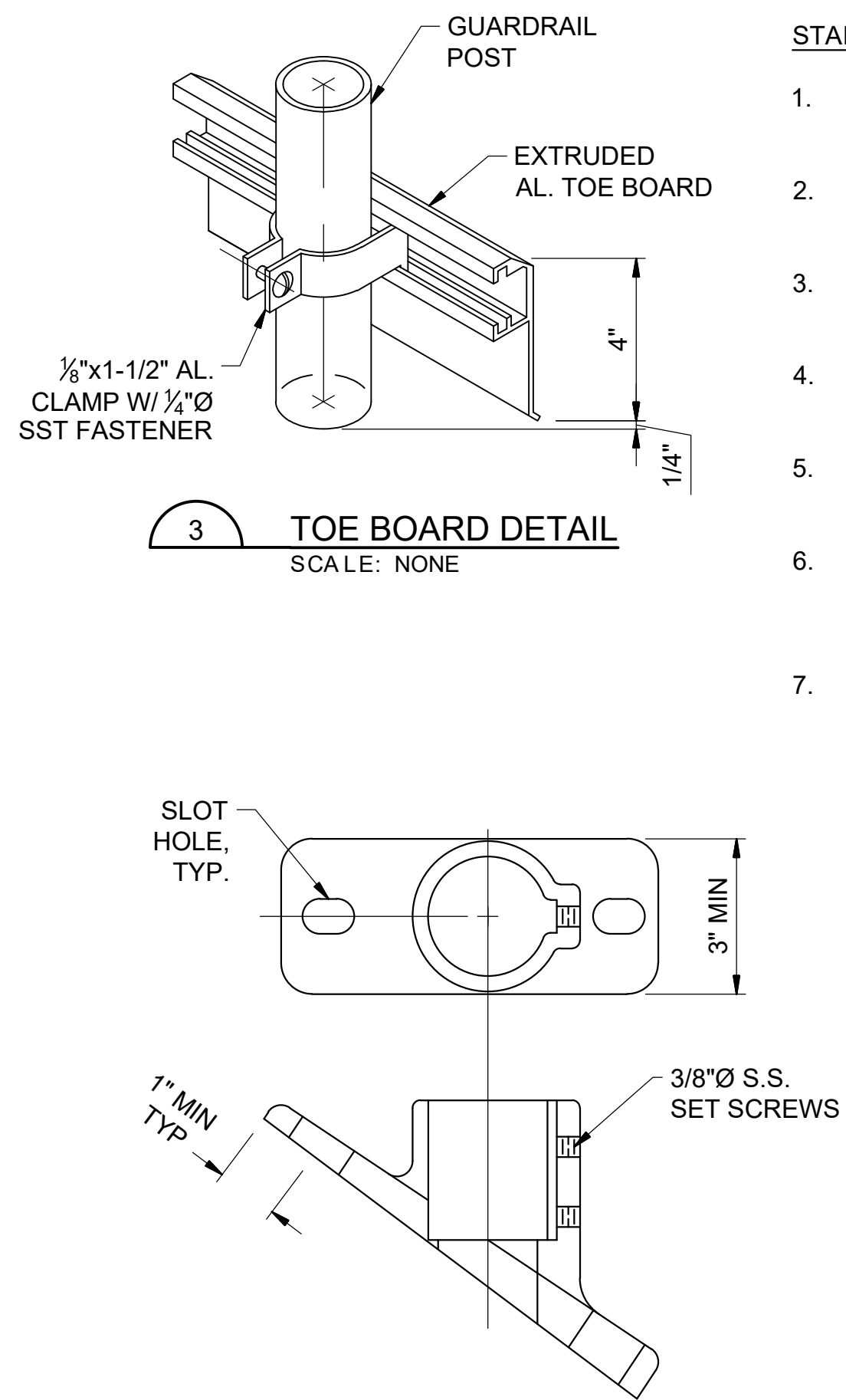
2 TYPICAL GUARDRAIL DETAIL
SCALE: NONE



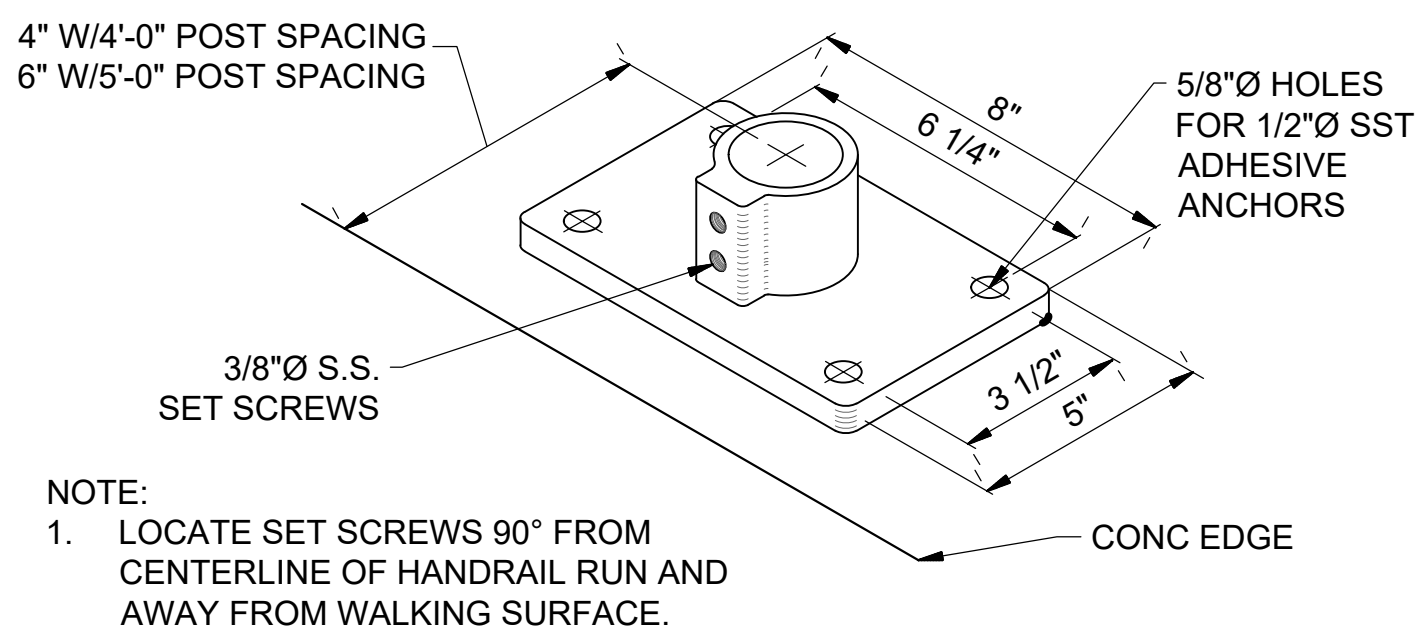
NOTES:

1. PROVIDE 4- 1/2"Ø ADHESIVE ANCHORS W/ 5" MIN. EMBED.

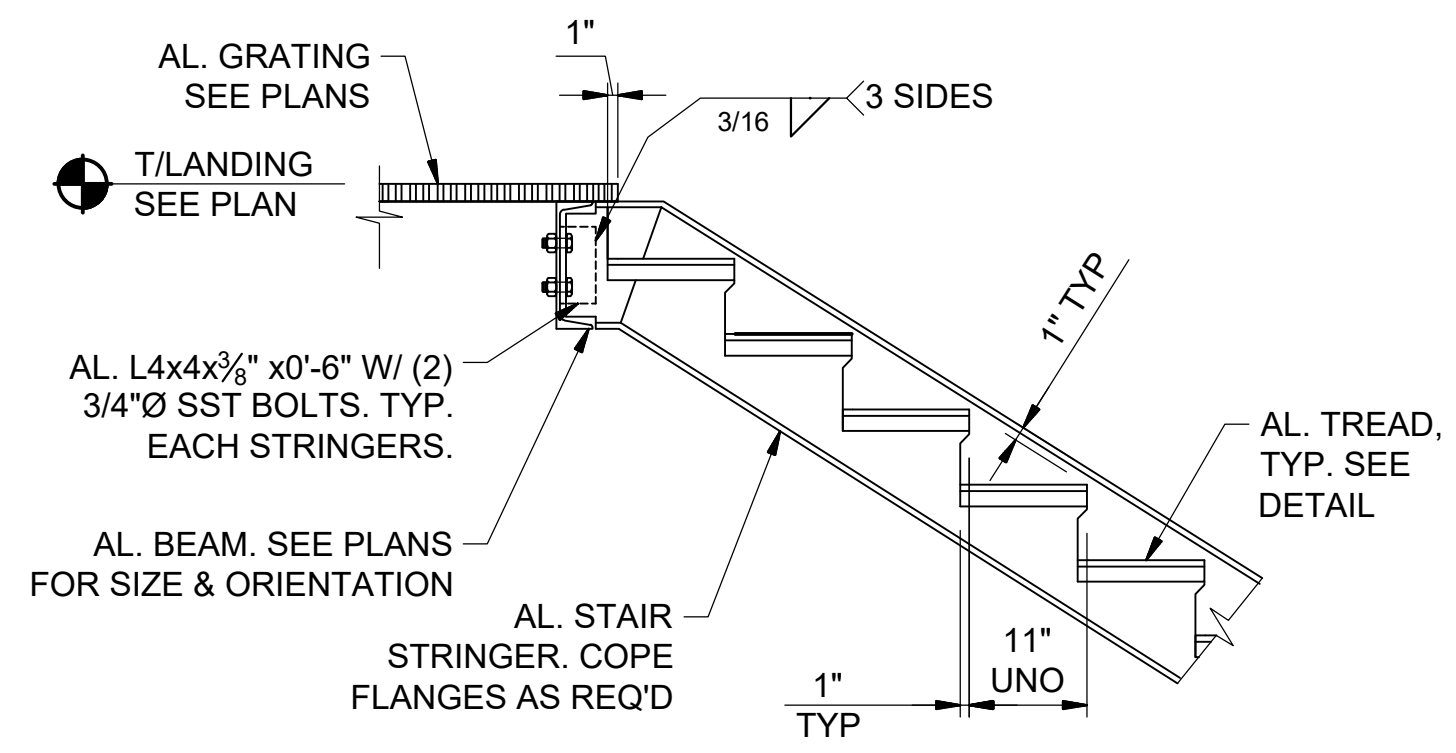
4 GUARDRAIL BASE FLANGE DETAIL SIDE MOUNT TO CONCRETE SCALE: NONE



5 GUARDRAIL BASE FLANGE DETAIL
TOP MOUNT TO METAL STAIR
SCALE: NONE



7 GUARDRAIL BASE FLANGE DETAIL
TOP MOUNT BRACKET
SCALE: NONE



11 HEAD OF STAIR AT
LANDING PLATFORM
SCALE: NONE

STAIR NOTES:

1. SEE STRUCTURAL GENERAL NOTES & SPECS FOR ADDITIONAL REQUIREMENTS.
2. SEE PLANS FOR REQUIRED GUARDRAIL TYPE, TOP OF STAIR DETAIL, BASE OF STAIR DETAIL, AND BASE FLANGE DETAIL.
3. MAX POST SPACING SHALL BE AS REQUIRED BY DETAILS OR AS INDICATED ON THE PLANS.
4. STAIR STRINGER SHALL BE AL. C12x10.4 MIN. U.N.O. COORDINATE DETAILING REQUIREMENTS W/ STAIR MFR.
5. AL. EXTRUDED TOE BOARD NOT REQ'D WHERE GUARDRAIL IS INSTALLED ON A 4" HIGH CONCRETE CURB.
6. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.
7. TOP MOUNT BASE FLANGE FOR STAIR STRINGER SHALL BE MFR. STANDARD BASE FLANGE DESIGNED TO MEET OSHA, IBC, & ASCE 7.



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STAIR & GUARDRAIL DETAILS

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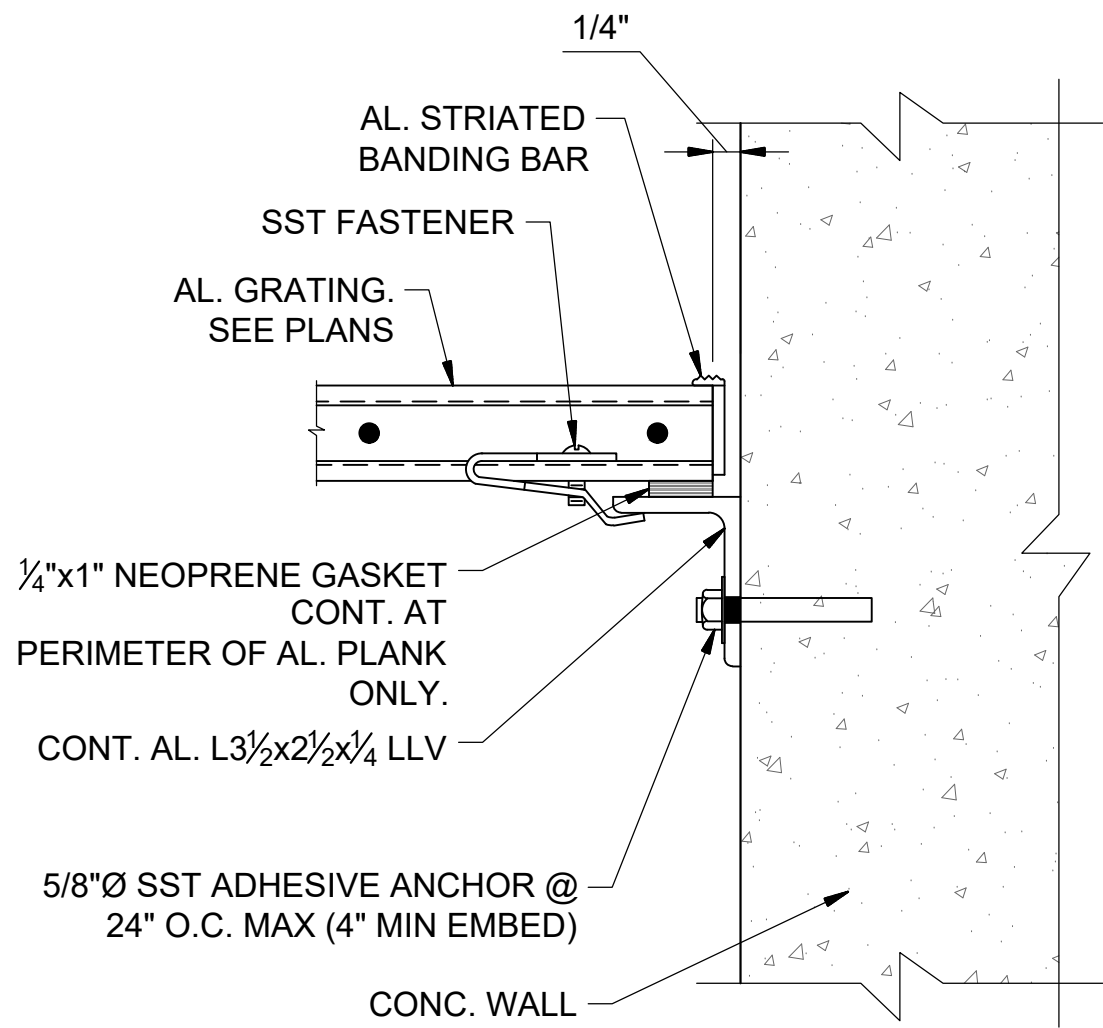
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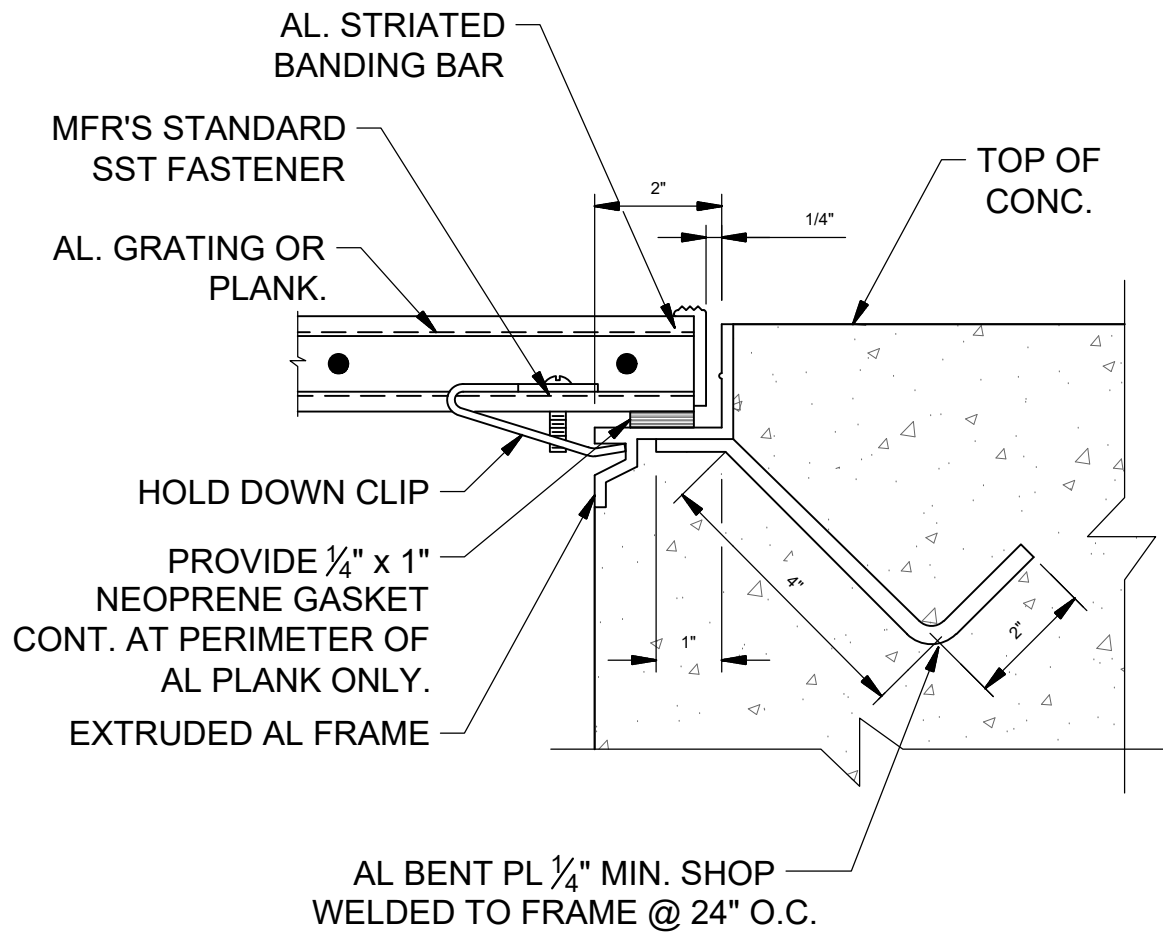
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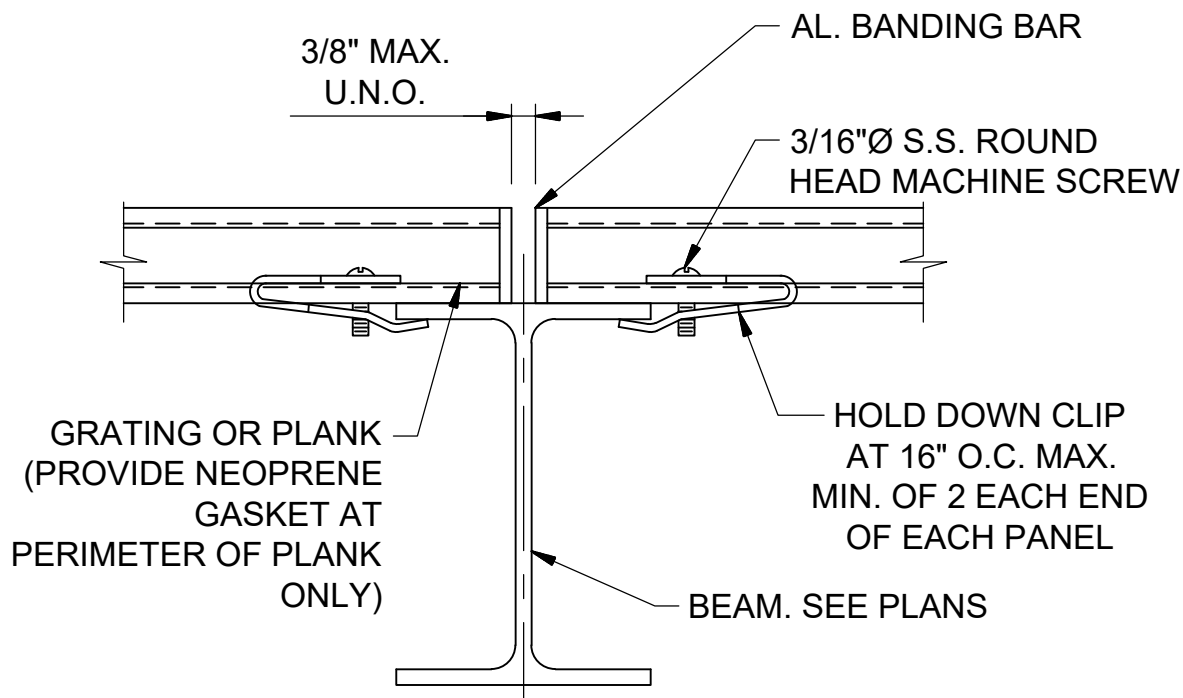
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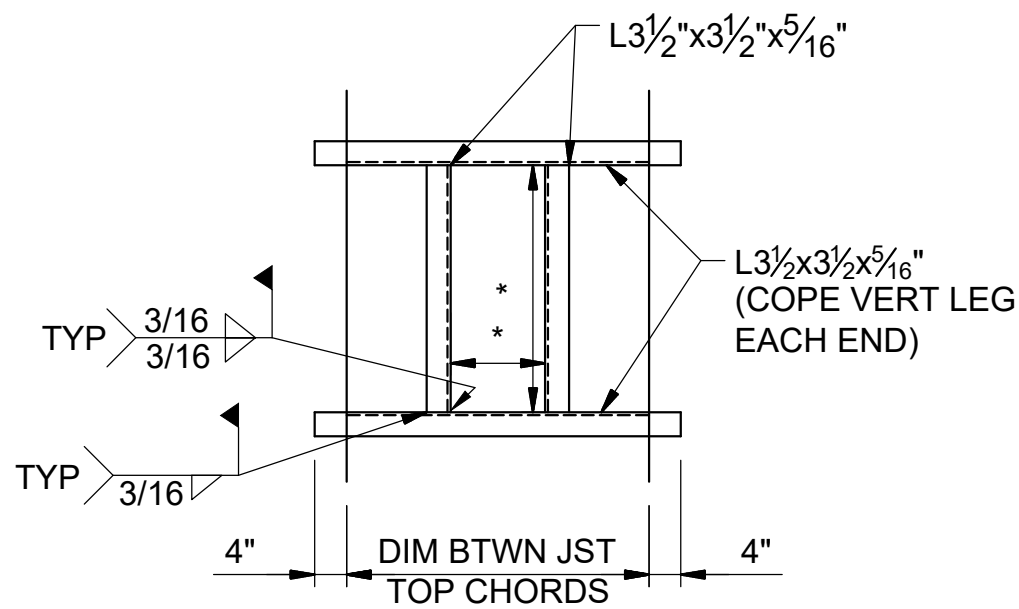
1 SUPPORT ANGLE DETAIL
SCALE: NONE



2 EMBED ANGLE DETAIL
SCALE: NONE

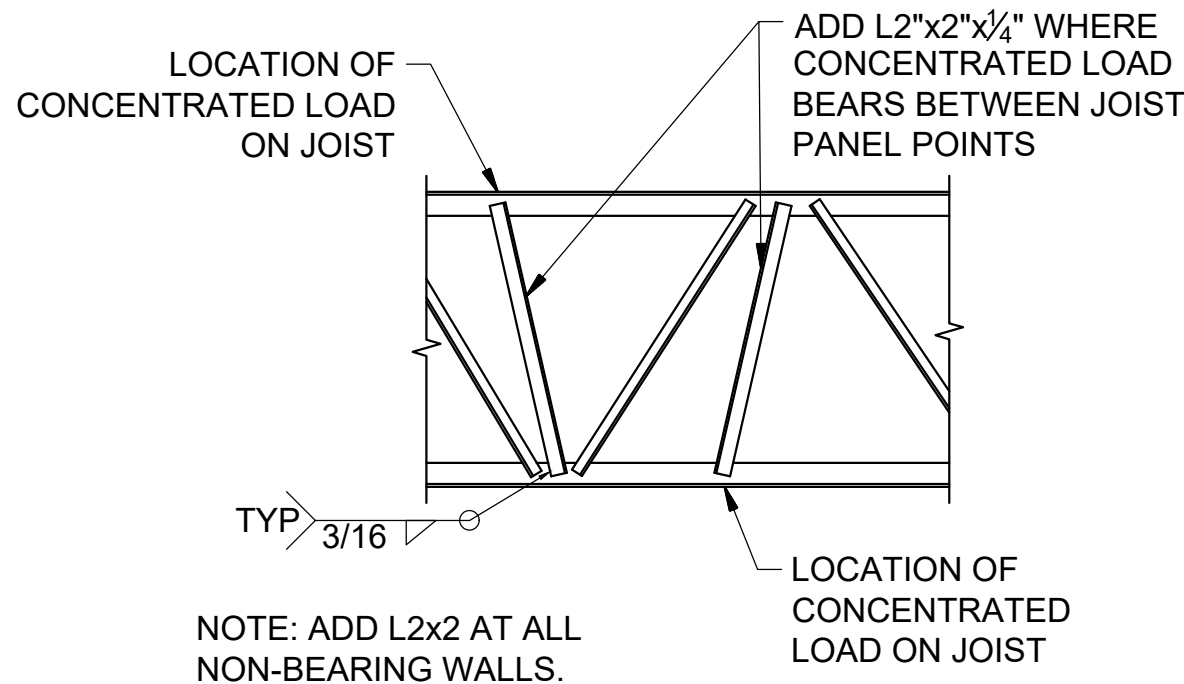


3 BEAM SUPPORT DETAIL
SCALE: NONE

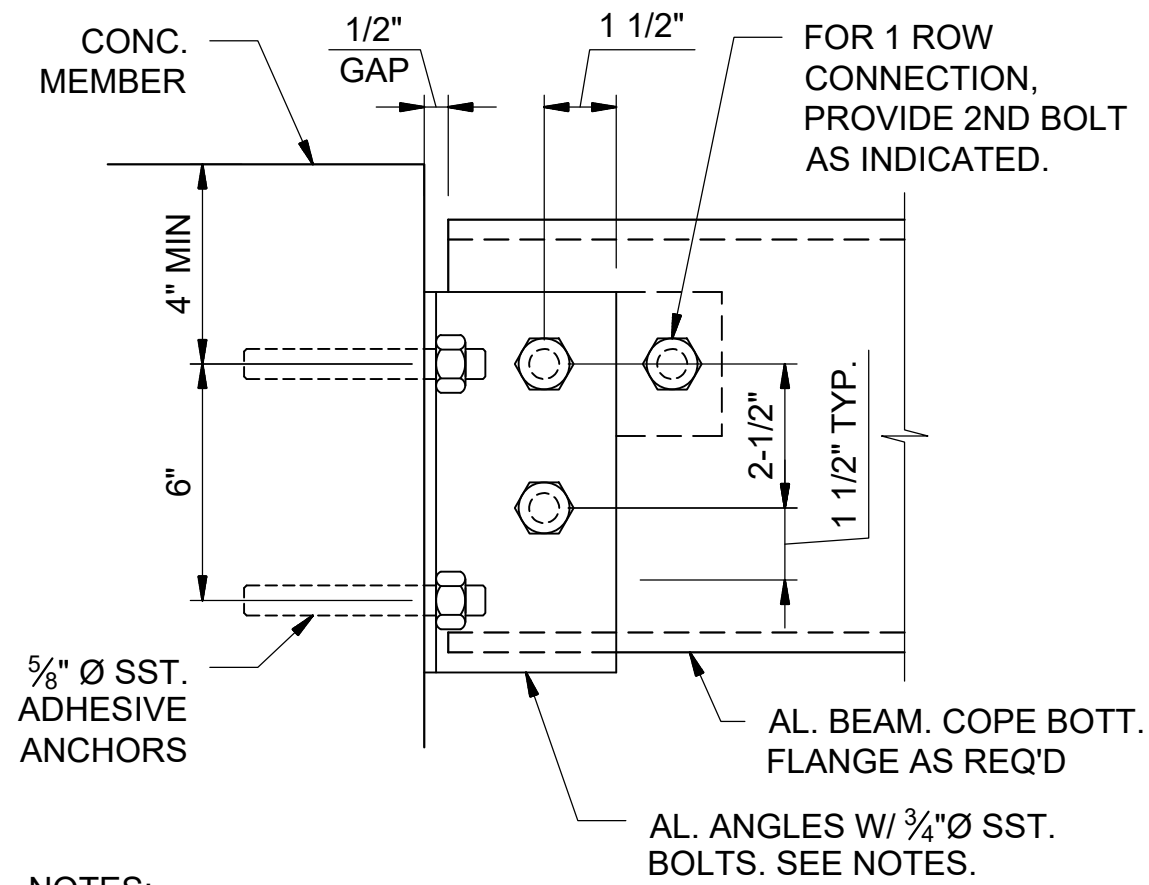


- NOTES:
1. DECK SUPPLIER TO PROVIDE 1 1/2" HIGH, 20GA. CHANNEL CLOSURE ALONG NON-BEARING SIDES OF DECK.
 2. * DIMENSION BY MECH. CONTRACTOR.

5 DECK OPENING REINFORCEMENT DETAIL
SCALE: NONE



6 JOIST REINFORCEMENT DETAIL
SCALE: NONE



- NOTES:
1. SEE PLANS FOR BEAM SIZE & CONC THICKNESS.
 2. AL. ANGLES & FASTENERS SHALL BE BASED ON THE FOLLOW:
 - 2.1. FOR BEAM DEPTHS ≤ 6", PROVIDE 2- L6x4x3/8 X 0'-3" LG. ANGLES W/ 1 ROW OF BOLTS & 2 ADHESIVE ANCHORS (4" MIN EMBED)
 - 2.2. FOR BEAM DEPTHS > 6" & < 12", PROVIDE 2- L4x4x3/8 x 9" LG. ANGLES W/ 2 ROWS OF BOLTS & 4 ADHESIVE ANCHORS (5" MIN EMBED), AS SHOWN.
 - 2.3. FOR BEAM DEPTHS ≥ 12", PROVIDE 2- L4x4x3/8 x 9" LG. ANGLES W/ 3 ROWS OF BOLTS & 4 ADHESIVE ANCHORS (6" MIN EMBED)

7 AL. CHANNEL CONNECTION DETAIL
BEAM TO CONCRETE
SCALE: NONE

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MECHANICAL GENERAL NOTES:

1. 1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE OPERATIONAL COOLING, VENTILATION, AND HEATING SYSTEM IN ACCORDANCE WITH THE DESIGN DRAWINGS.
2. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2015 INTERNATIONAL MECHANICAL CODE, NFPA REQUIREMENTS, AND ALL LOCAL CODES.
3. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS. DRAWINGS SHALL NOT BE SCALED.
4. CONTRACTOR SHALL FIELD VERIFY BY MEASUREMENT THE EXACT LOCATION OF EQUIPMENT, DUCTWORK, PIPING, STRUCTURE, AND OTHER CONDITIONS WHICH WILL AFFECT INSTALLATION. CONTRACTOR SHALL LOCATE EQUIPMENT AND ROUTE DUCTWORK AND PIPING TO AVOID CONFLICTS AND INTERFERENCES WITH EXISTING CONDITIONS.
5. COORDINATE DUCT, PIPING, AND EQUIPMENT LOCATIONS WITH ELECTRICAL ROOMS, ELEVATOR EQUIPMENT ROOMS, AND ALL ELECTRICAL PANEL LOCATIONS. DO NOT PASS ANY MECHANICAL OR PLUMBING PIPING OR CONDENSATE PRODUCING EQUIPMENT DIRECTLY OVER ELECTRICAL PANELS, ELECTRICAL EQUIPMENT, ELEVATOR EQUIPMENT, CONTROLS, OR TELECOMMUNICATIONS EQUIPMENT. SEE ELECTRICAL AND TELECOMMUNICATION DRAWINGS FOR EXACT EQUIPMENT LOCATIONS.
6. CEILING DIFFUSER AND REGISTER LOCATIONS ARE APPROXIMATE ONLY.
7. ALL CUTTING AND PATCHING SHALL BE COORDINATED. ALL PATCHING SHALL RESTORE EACH DAMAGED SURFACE TO ITS ORIGINAL FINISH.
8. ALL EXPOSED DUCTWORK, PIPING, AND EQUIPMENT IN FINISHED SPACES TO BE INSTALLED AS HIGH AS POSSIBLE ABOVE FINISHED FLOOR.
9. ALL AIR DISTRIBUTION SYSTEM(S) SHALL BE TESTED AND BALANCED IN ACCORDANCE WITH A.A.B.C. OR N.E.B.B. REQUIREMENTS. A CERTIFIED AIR BALANCE REPORT SHALL BE PREPARED PRIOR TO PROJECT CLOSEOUT.
10. ALL LOW PRESSURE DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA HVAC DUCT CONSTRUCTION MANUAL FOR 2" W.G. STATIC PRESSURE. DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL.
11. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE CLEAR. ALLOWANCE MUST BE MADE IN SHEET METAL SIZE WHERE DUCT LINER IS SPECIFIED.
12. CONCEALED LOW PRESSURE SUPPLY DUCT NOT SHALL HAVE EXTERIOR WRAP INSULATION AS SPECIFIED.
13. NO FLEXIBLE DUCT SHALL BE EXPOSED. NO DUCT WRAP INSULATION SHALL BE EXPOSED. DUCT EXPOSED IN MECHANICAL ROOMS SHALL BE EXTERNALLY INSULATED WITH RIGID INSULATION AS SPECIFIED.
14. DUCT RUNOUTS TO REGISTERS TO BE AS SCHEDULED UNLESS OTHERWISE INDICATED ON PLANS. CONTRACTOR TO PROVIDE A TRANSITION AT NECK OF EACH AIR DISTRIBUTION DEVICE AS REQUIRED.
15. PROVIDE 4" HIGH CONCRETE PAD FOR ALL GROUND / FLOOR-MOUNTED EQUIPMENT.
16. WHERE BRANCH TAPS OCCUR, PROVIDE INDIVIDUAL SPIN-IN FITTINGS WITH MANUAL-VOLUME DAMPERS FOR BALANCING. DO NOT USE TYPE WITH AIR SCOOP/EXTRACTOR. ADDITIONALLY, PROVIDE OPPOSED-BLADE VOLUME DAMPERS AT EACH AIR DISTRIBUTION DEVICE.
17. COORDINATE LOCATION AND PROVIDE DUCT ACCESS DOORS FOR ACCESS TO VALVES AND OTHER ENCLOSED ITEMS. DUCT ACCESS DOORS MAY BE OMITTED WHERE TYPE "A" FIRE DAMPERS ARE ACCESSIBLE THROUGH SIDEWALL REGISTER FACE. ENSURE DUCT ACCESS DOORS AND DAMPERS ARE ACCESSIBLE THROUGH CEILINGS AND WALLS. LOCATE DUCT ACCESS DOORS ABOVE SPACES WITH LAY-IN CEILINGS OR EXPOSED CEILINGS WHERE POSSIBLE. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPES.
18. PROVIDE CANVAS, FLAME RETARDANT FLEXIBLE DUCT CONNECTORS AT ALL CONNECTIONS OF FANS OR AIR HANDLING EQUIPMENT TO DUCTWORK.
19. PROVIDE A MINIMUM 10'-0" SEPARATION BETWEEN ANY FRESH AIR INTAKE AND ANY MECHANICAL EXHAUST, PLUMBING VENT, OR OTHER VENT OUTLETS.
20. COORDINATE INSTALLATION OF DUCT-MOUNTED SMOKE DETECTORS WITH FIRE ALARM SYSTEM PROVIDER. DUCT SMOKE DETECTORS TO BE 120 VOLT.
21. DUCT-MOUNTED SMOKE DETECTORS ARE PROVIDED BY DIV. 26, INSTALLED BY DIV. 23. DUCT SMOKE DETECTORS TO BE 120 VOLT.
22. DUCTWORK AND PIPE UNDER ROOF DECK SHALL BE SUPPORTED FROM STEEL BEAMS OR FROM SUPPLEMENTARY FRAMING SUPPORTED BY STEEL BEAMS.
23. REFER TO THE IBC AND NFPA FOR CAULKING REQUIREMENTS AROUND FIRE AND FIRE/SMOKE DAMPERS.
24. PROVIDE 3/4" MCD FOR ALL A/C UNITS. ROUTE MCD FROM A/C UNITS TO NEAREST FLOOR DRAIN, HUB DRAIN OR SINK TAIL PIECE.

SUPPLY DIFFUSER SCHEDULE

SYMBOL	ADAPTOR/ NECK SIZE	FACE SIZE	MAX CFM	MAX TP	MAX NC	THROW	DUCT RUNOUT SIZE *
SA	6" Ø	24"x24"	100	0.022	20	4-WAY	8"x5"/6" Ø
SB	8" Ø	24"x24"	200	0.042	20	4-WAY	10"x7"/8" Ø

1. SA THRU SE ARE TITUS MODEL OMNI STEEL DIFFUSERS.

ALL SUPPLY DIFFUSERS SHALL BE PROVIDED W/2" INSULATION BLANKET ON BACK OF DIFFUSER.
ALL DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPERS (OBD).
* RUNOUTS ARE DUCTS SERVING ONLY ONE SUPPLY DIFFUSER.

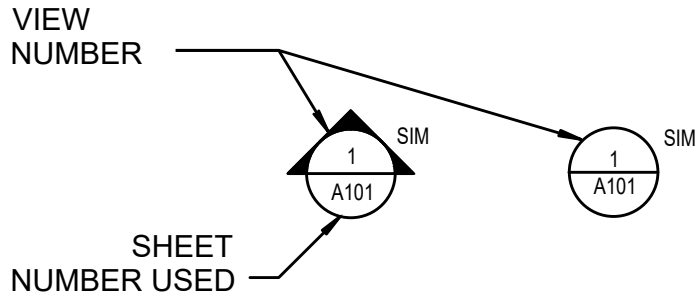
SIDEWALL GRILLE SCHEDULE

SYMBOL	ADAPTOR / NECK SIZE	FACE SIZE	MAX CFM	MAX TP	MAX NC	THROW	DUCT RUNOUT SIZE
SWD	12"x10"	14"x12"	500	0.152	25	2-WAY	12"x10"

REMARKS:

1. COORDINATE FINISH WITH OWNER.
2. PROVIDE OPPOSED BLADE DAMPERS.

VIEW NAME LEGEND



LEGEND

	MEDIUM PRESSURE TEE		DUCT TERMINATION
	RECTANGULAR DUCT TURNING DOWN		45° FULL RADIUS TURN
	ROUND DUCT TURNING DOWN		SQUARE ELBOW WITH TURNING VANES
	DUCT TURNING DOWN TO SIDEWALL REGISTER		FULL RADIUS TURN
	DUCTWORK		HUMIDISTAT
	DUCT LINER IN LOW PRESSURE DUCT OR DOUBLE WALL INSULATED MEDIUM PRESSURE DUCT		THERMOSTAT
	BRANCH TAP OFF MAIN W/45° BOOT FITTING OR SPIN-IN FITTING W/DAMPER (LOW PRESSURE)		MANUAL VOLUME DAMPER
	TRANSITION IN DUCT (NOT DIRECTION OF AIRFLOW)		VARIABLE VOLUME BOX
	REGISTER TAPPING INTO BOTTOM OF DUCT		INDICATES A SIZE "A" EXHAUST REGISTER SET FOR 100 CFM
	FIRE DAMPER		INDICATES A SIZE "B" RETURN REGISTER SET FOR 200 CFM
	FIRE/SMOKE DAMPER		INDICATES A SIZE "B" SUPPLY DIFFUSER SET FOR 200 CFM
	SMOKE DETECTOR		SUPPLY DIFFUSER (1-WAY)
	DUCT SMOKE DETECTOR		SUPPLY DIFFUSER (2-WAY)
	ACCESS DOOR		SUPPLY DIFFUSER (3-WAY)
	ABOVE FINISHED FLOOR		SUPPLY DIFFUSER (4-WAY)
	BELOW FINISHED FLOOR		EXHAUST GRILLE
	VARIABLE FREQUENCY DRIVE		RETURN GRILLE
	TRANSFER AIR DUCT		DOOR GRILLE
	TRANSFER AIR OPENING		AIR PRESSURIZATION WITH CFM
	BUILDING AUTOMATION CONTROL SYSTEM		
	PRESSURE SENSOR		
	3/4" DOOR UNDERCUT WITH CFM		



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MECHANICAL
GENERAL
NOTES &
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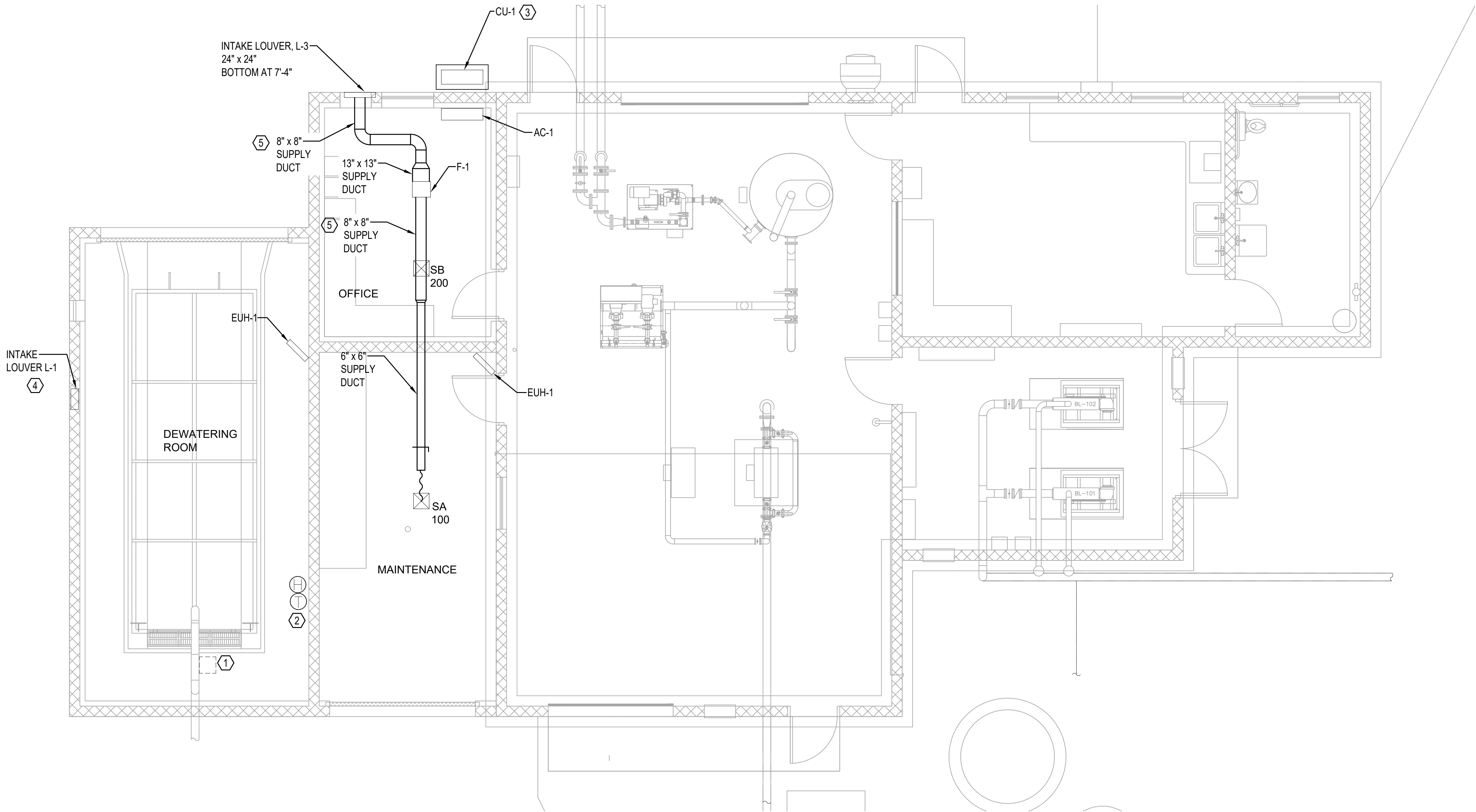
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M-001

SHEET NUMBER

46

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CONTROL BUILDING MECHANICAL PLAN

SCALE: 1/4"=1'-0"



SCALE: 1/4"=1'-0"



KEY NOTES:

1. 12.5" x 12.5" OPENING FOR EXHAUST FAN, F-2, ON ROOF.
2. COMBINATION H-STAT / T-STAT FOR EXHAUST FAN, F-2, ON ROOF.
3. PROVIDE CONCRETE PAD FOR CONDENSING UNIT, CU-1. EXTEND 4" BEYOND A/C UNIT.
4. INTAKE LOUVER BOTTOM ELEVATION AT 7'-4" AFF.
5. SUPPLY DUCT TO BE ROUTED THROUGH ATTIC SPACE.



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**CONTROL
BUILDING
MECHANICAL
PLAN**

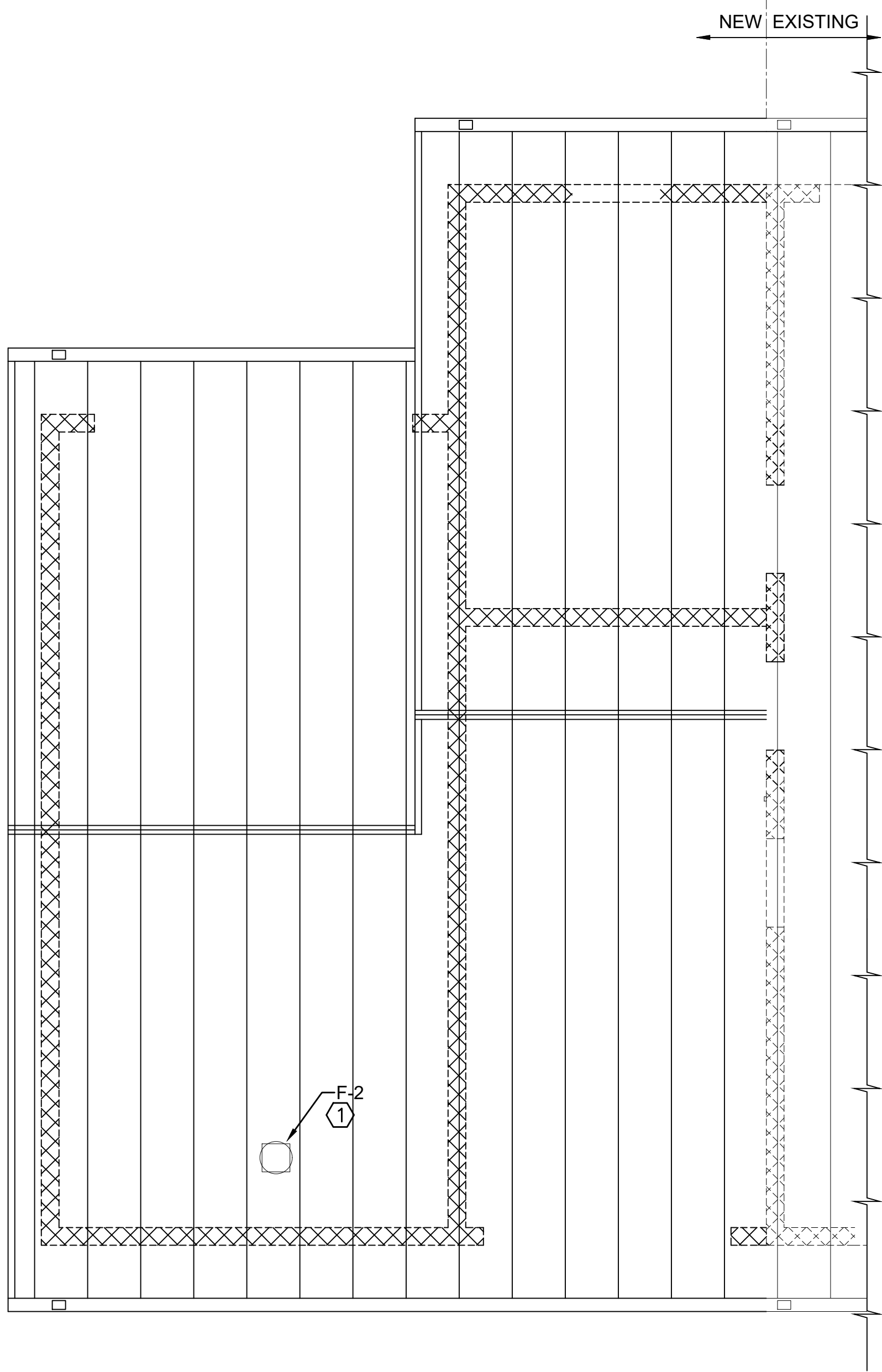
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M-101

SHEET NUMBER
47

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

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CONTROL BUILDING ROOF MECHANICAL PLAN

SCALE: 1/4"=1'-0"

0 1' 2' 4' 8'

SCALE: 1/4"=1'-0"

KEY NOTES:

1. 12.5" x 12.5" DUCT OPENING FOR EXHAUST FAN, F-2, ON ROOF.

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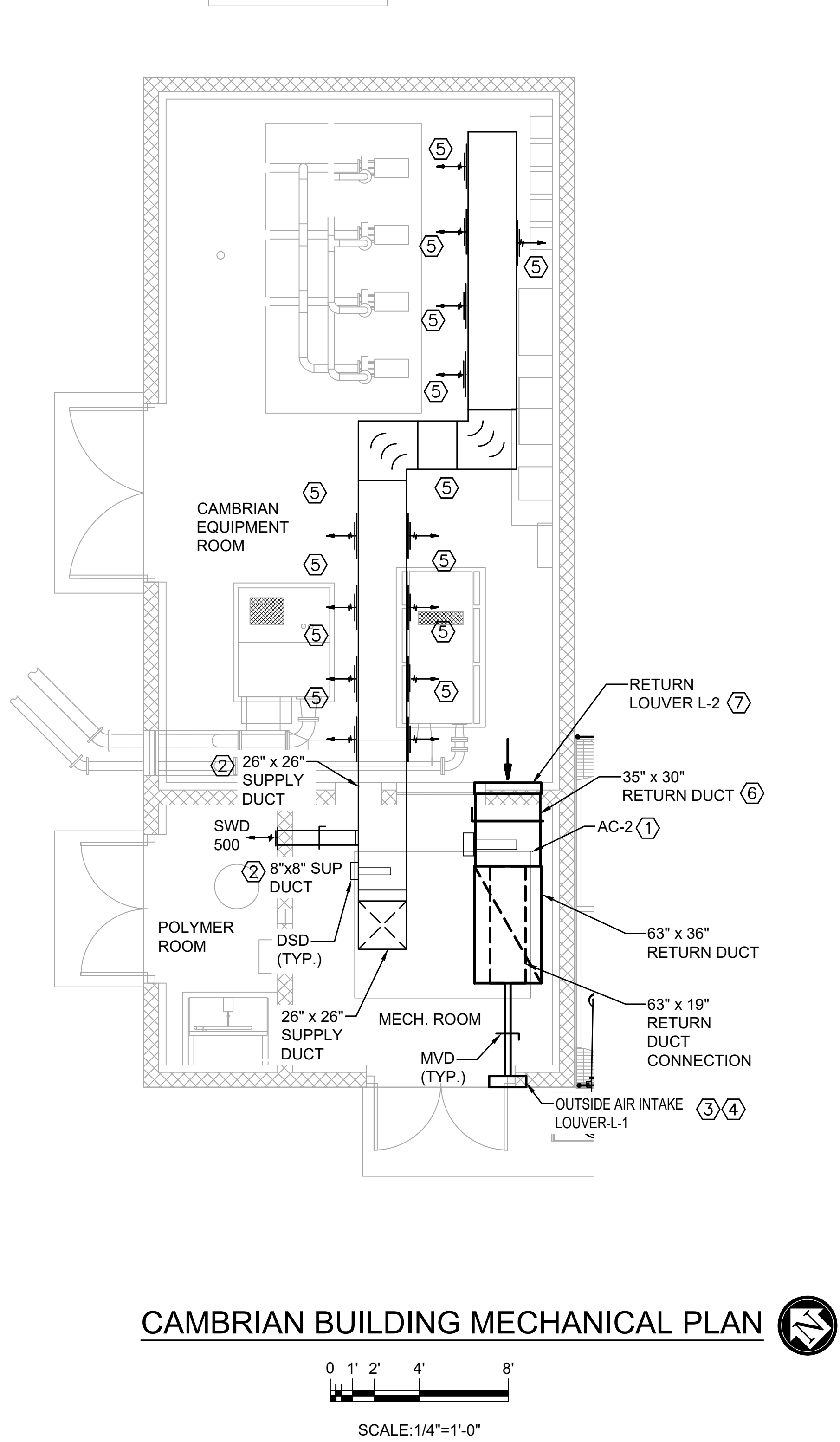
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CONTROL
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48

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KEY NOTES:

1. ROUTE CONDENSATE DRAIN TO NEAREST FLOOR DRAIN OR OUTSIDE WALL.
2. BOTTOM OF DUCT MINIMUM 7'-4" AFF.
3. BOTTOM LOUVER 8'-8" AFF.
4. DUCT TO BE 3" x 3". SIZE IS ALLOWED TO CHANGE AT CONNECTION POINTS.
5. METALAIR SIDEWALL GRILLE MODEL 4000 SERIES OR EQUAL. 770 CFM, 24"x10".
6. ROUTE AS NECESSARY TO BE BELOW STRUCTURAL BOND BEAM IN CMU WALL.
7. LOUVER TO BE BELOW STRUCTURAL BOND BEAM IN CMU WALL. CONTRACTOR TO COORDINATE.

GENERAL NOTES:

- A. PROVIDE TURNING VANES IN ALL 90 DEGREE ELBOWS.

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**CAMBRIAN
BUILDING
MECHANICAL
PLAN**

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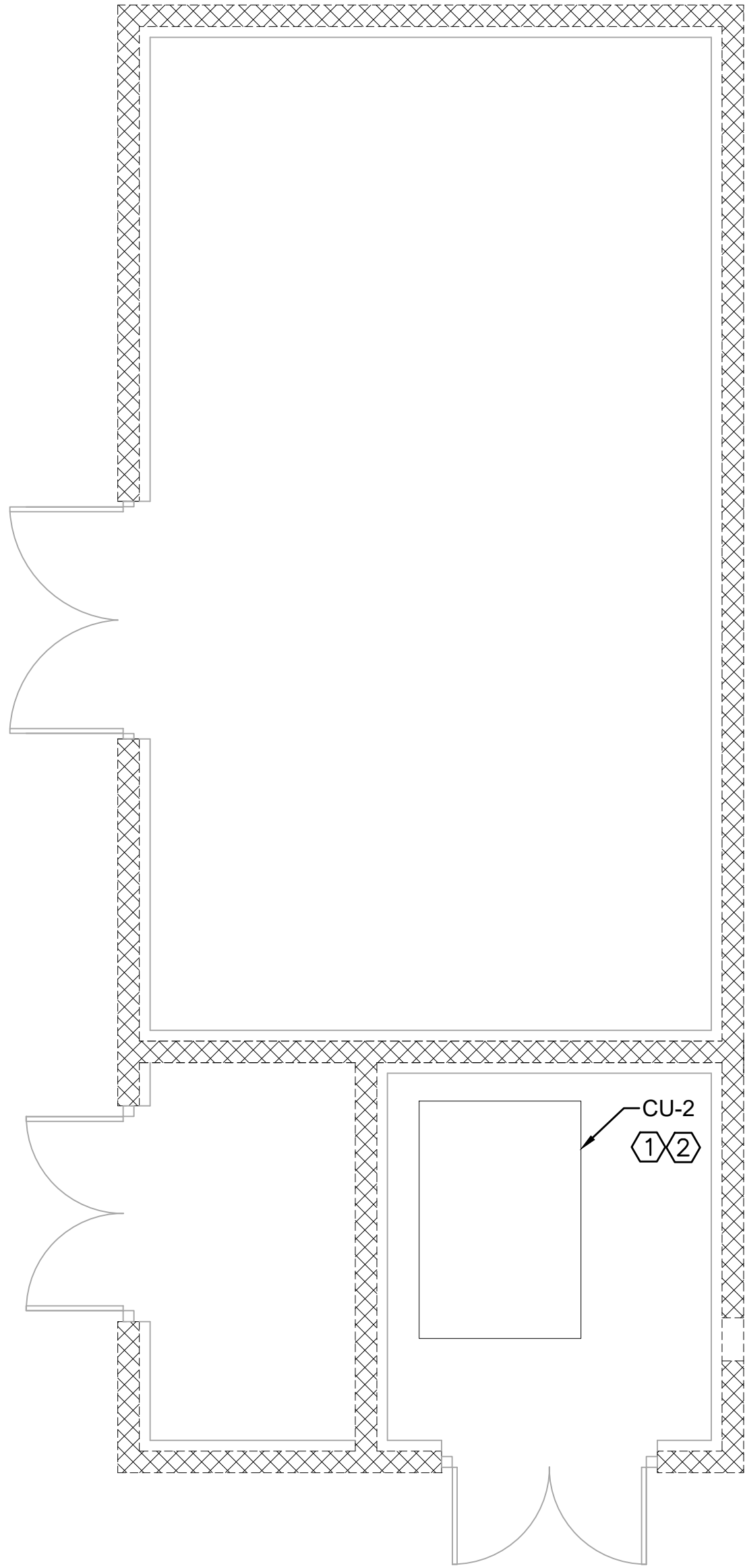
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M-103

SHEET NUMBER

49

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CAMBRIAN BUILDING ROOF MECHANICAL PLAN

SCALE: 1/4"=1'-0"



SCALE: 1/4"=1'-0"



- KEY NOTES: 
- CONDENSING UNIT ON ROOF.
 - ROUTE SUPPLY AND RETURN REFRIGERANT PIPING DOWN THROUGH ROOF TO AC-2 UNIT IN MECH ROOM.



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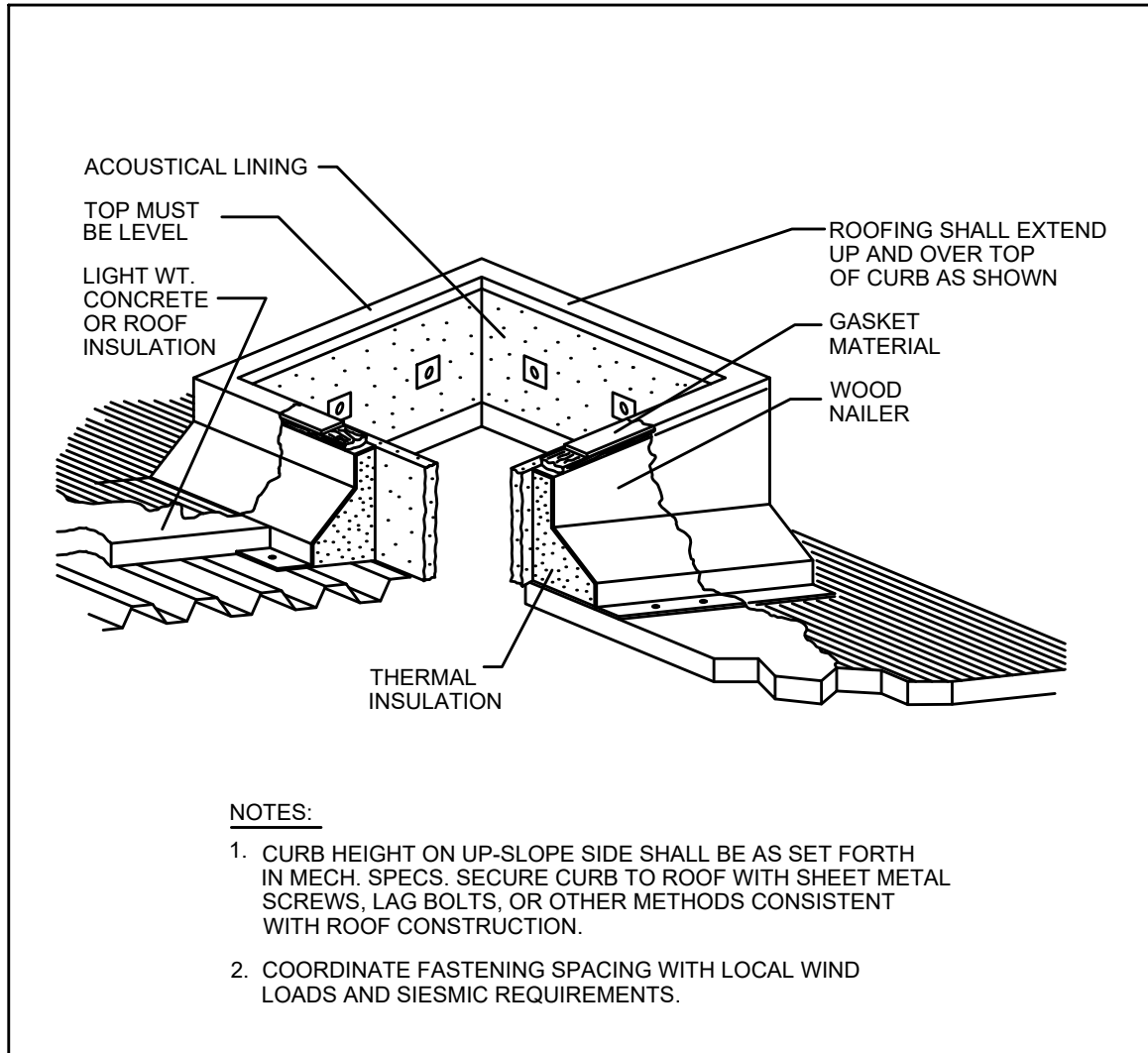
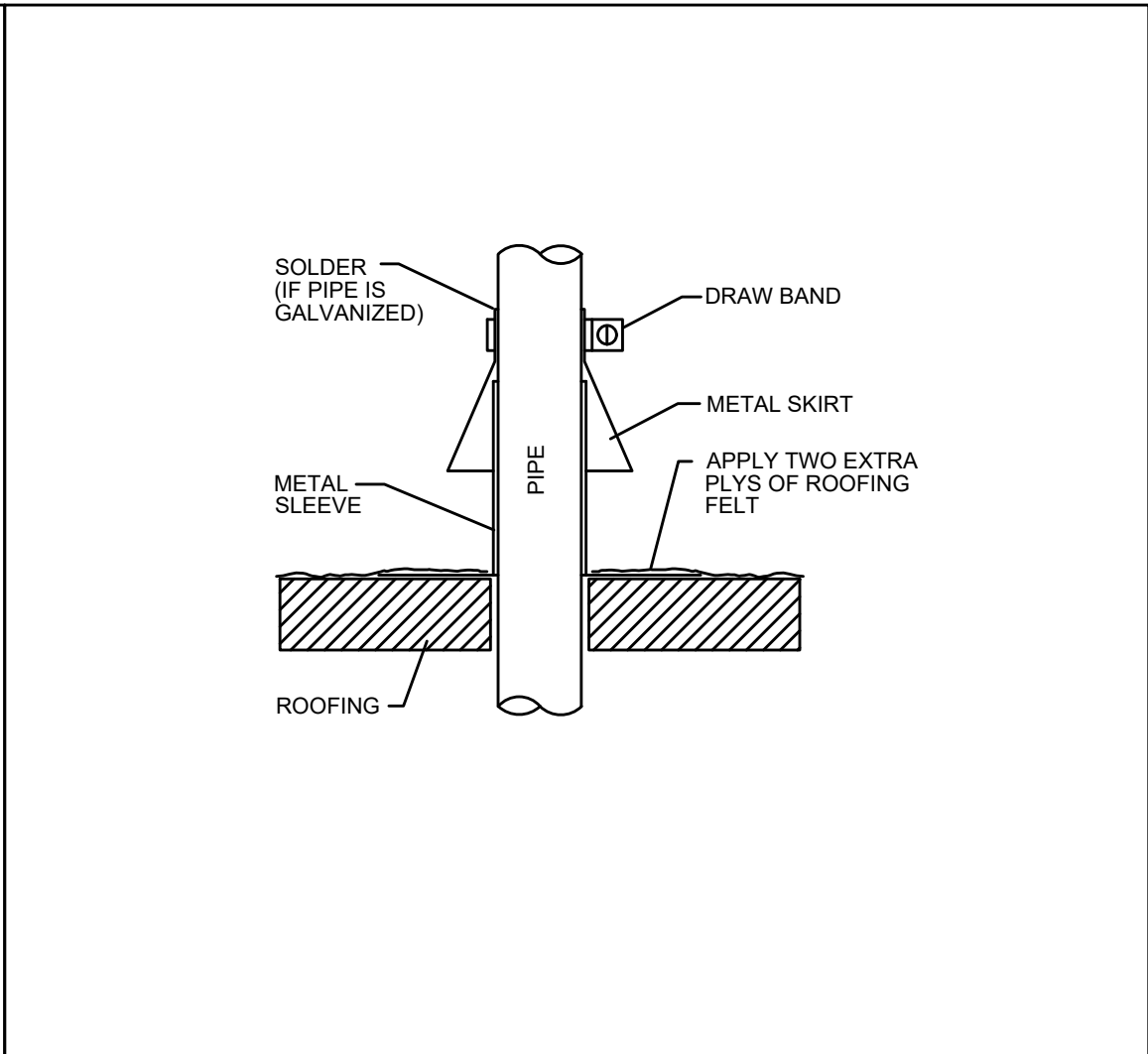
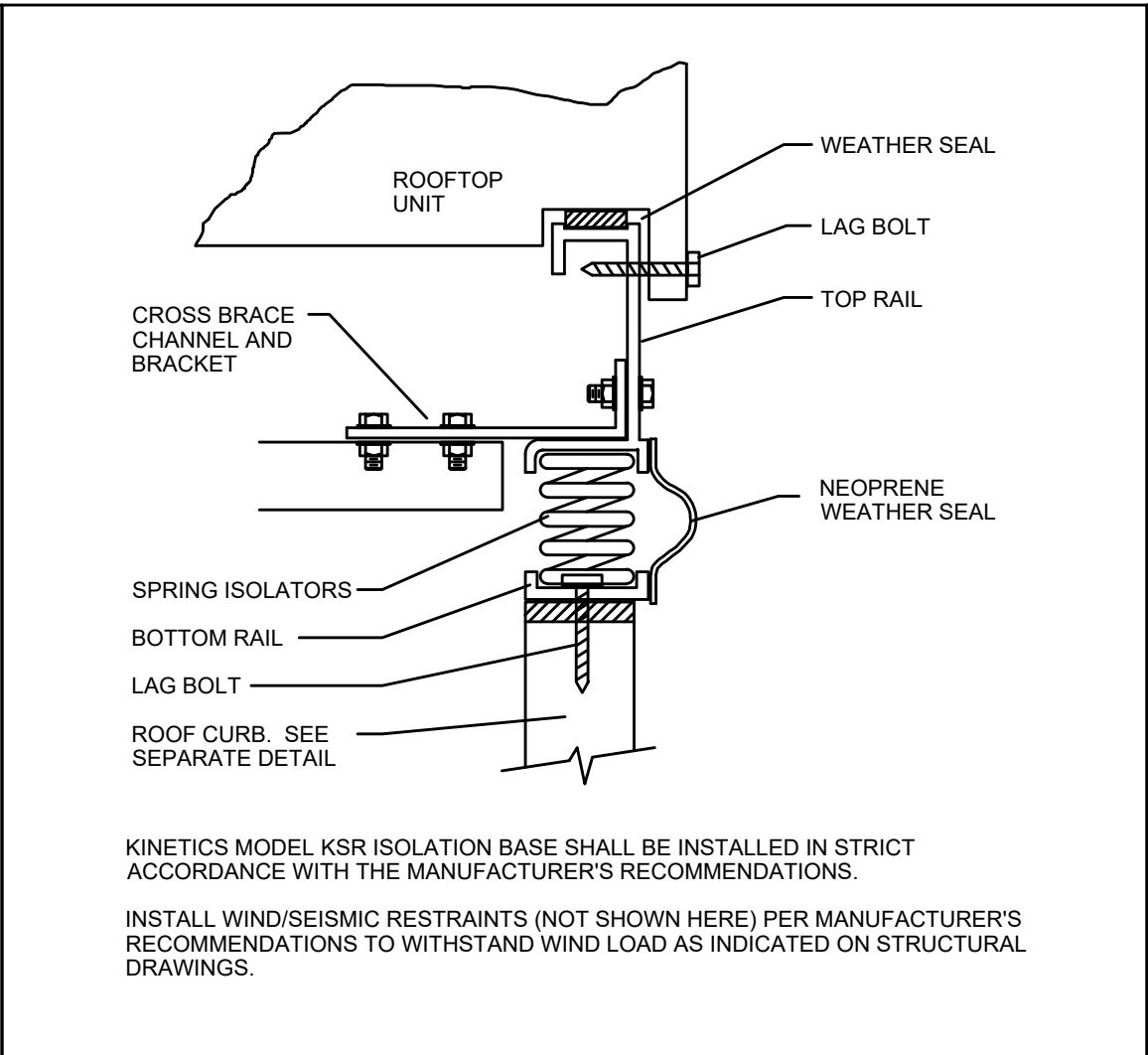
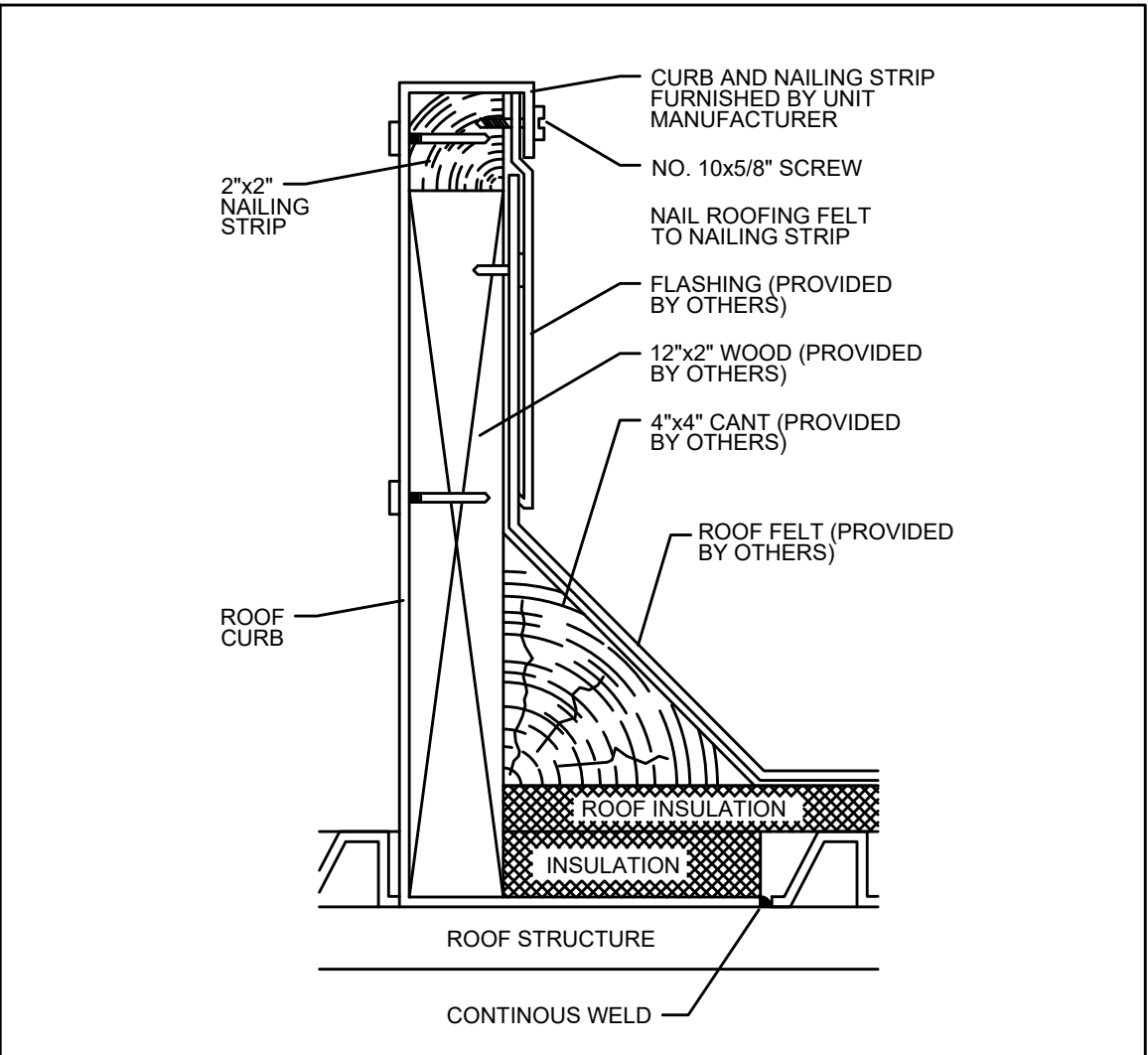
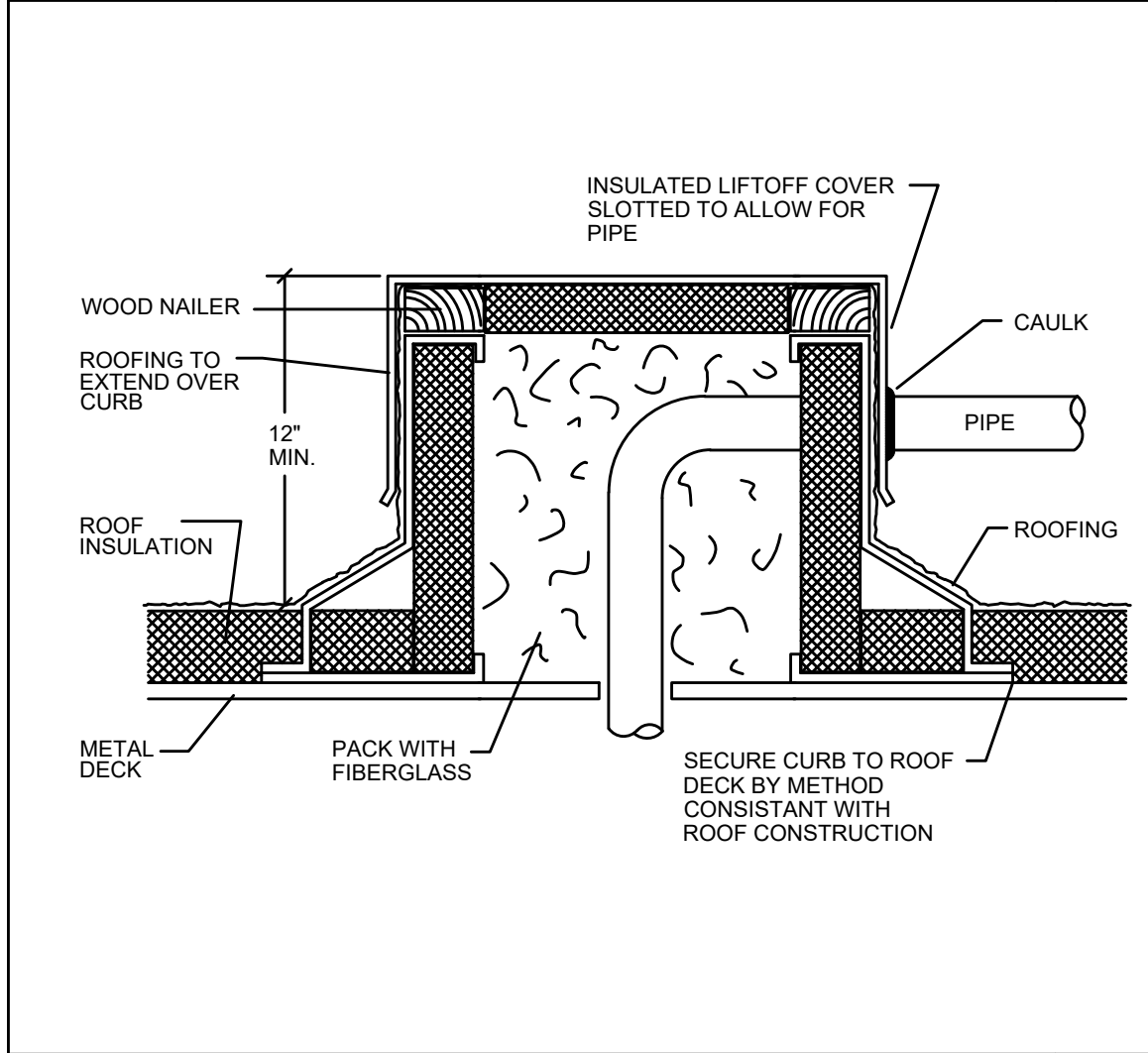
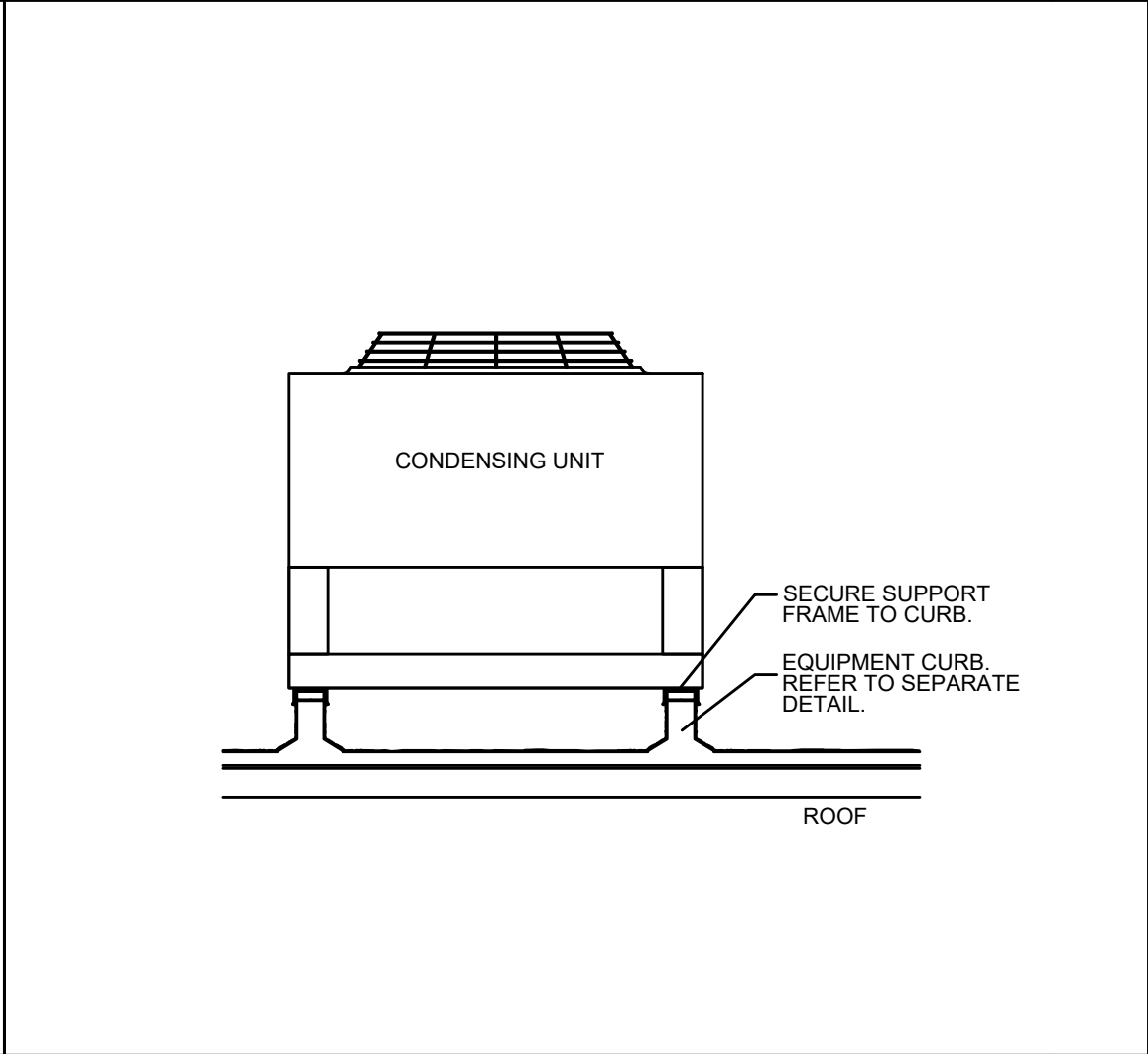
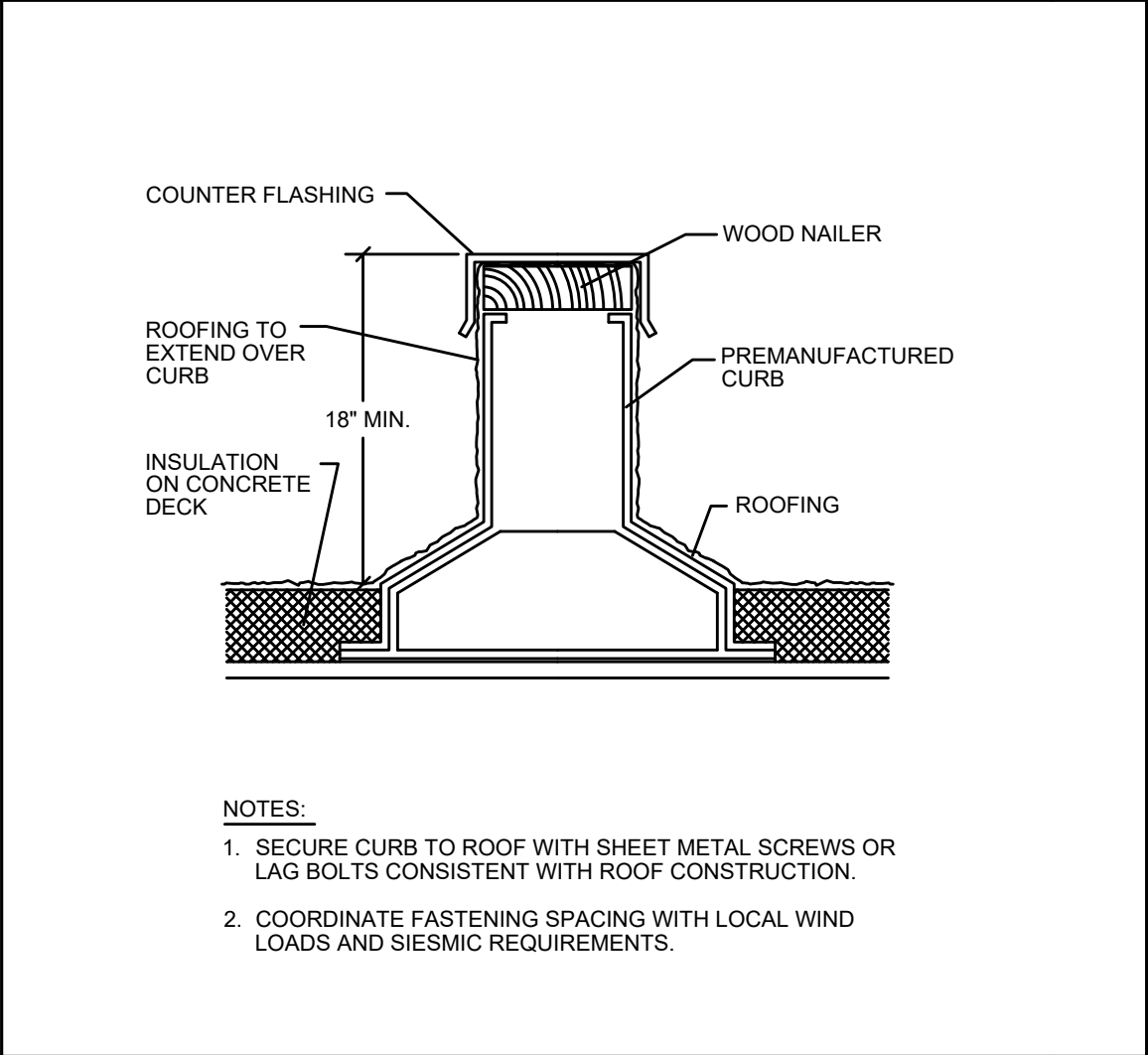
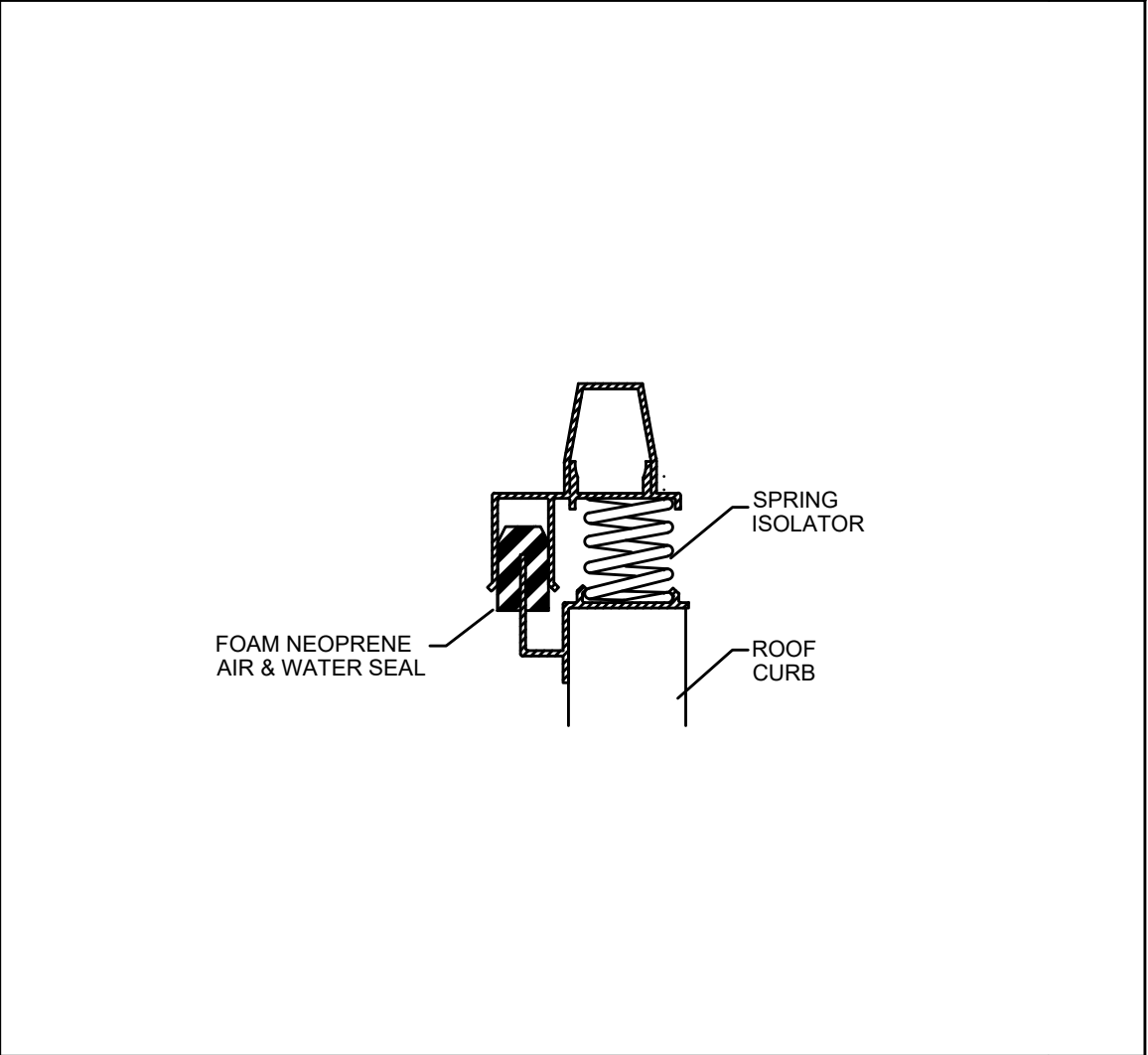
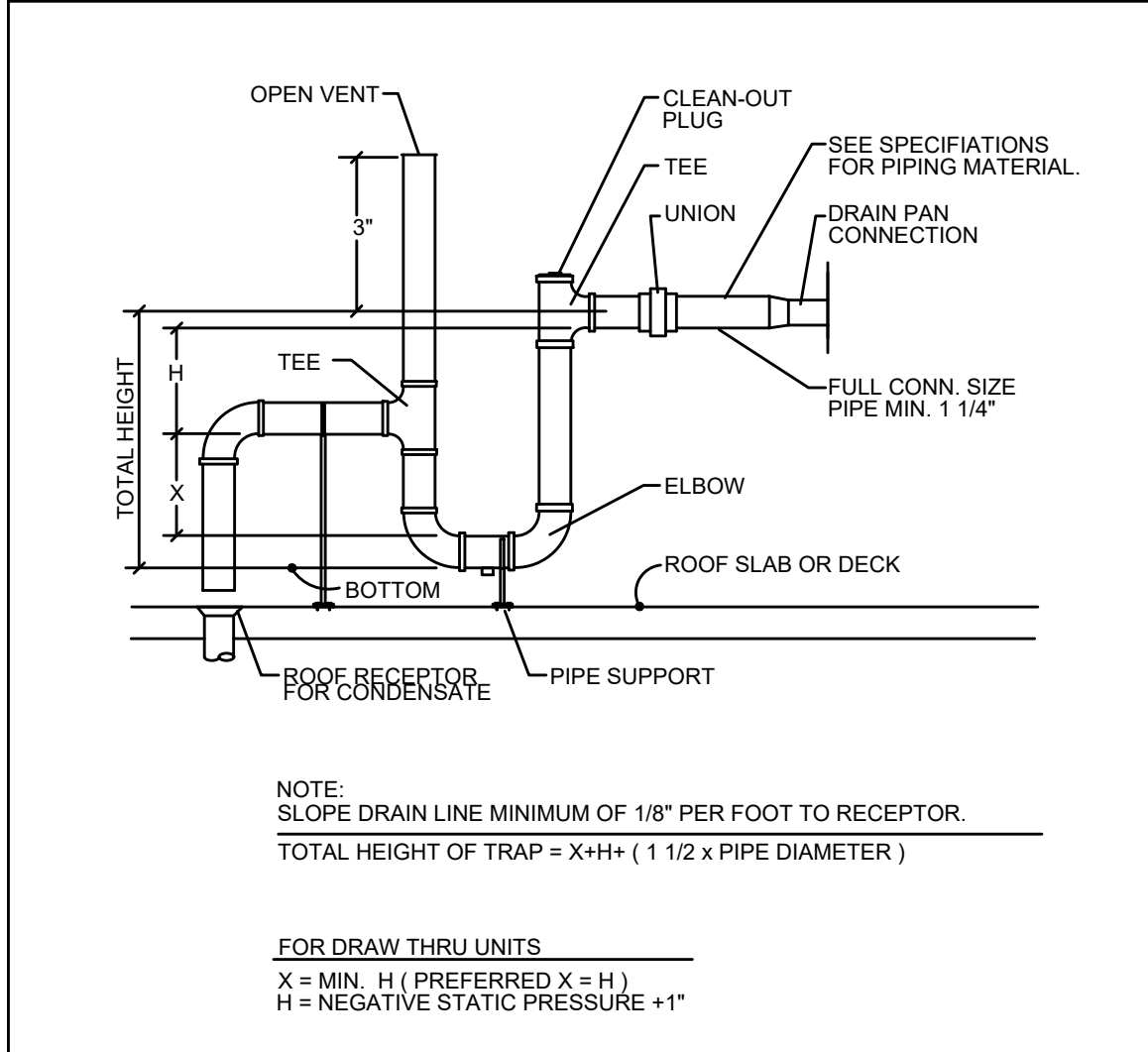
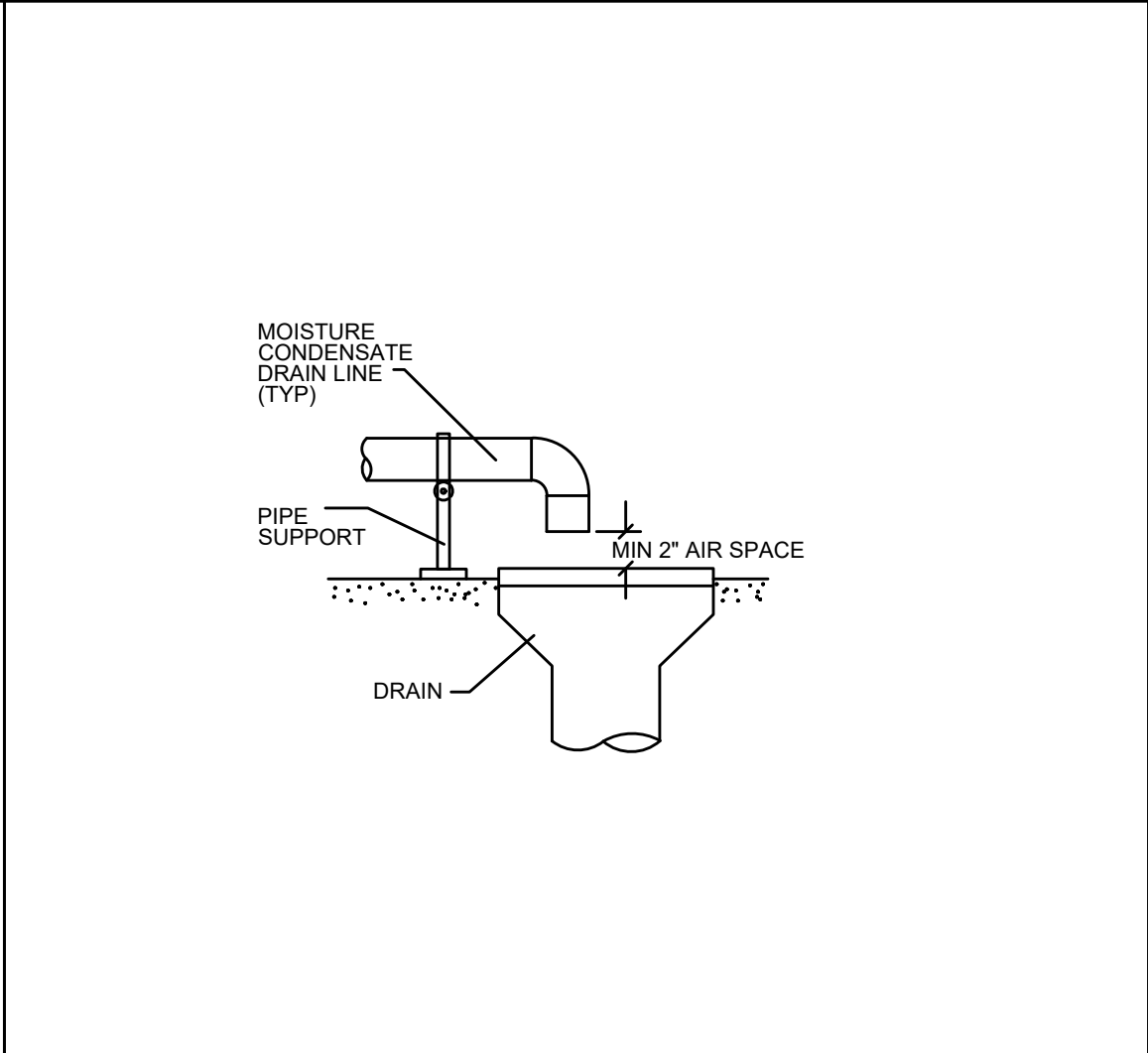
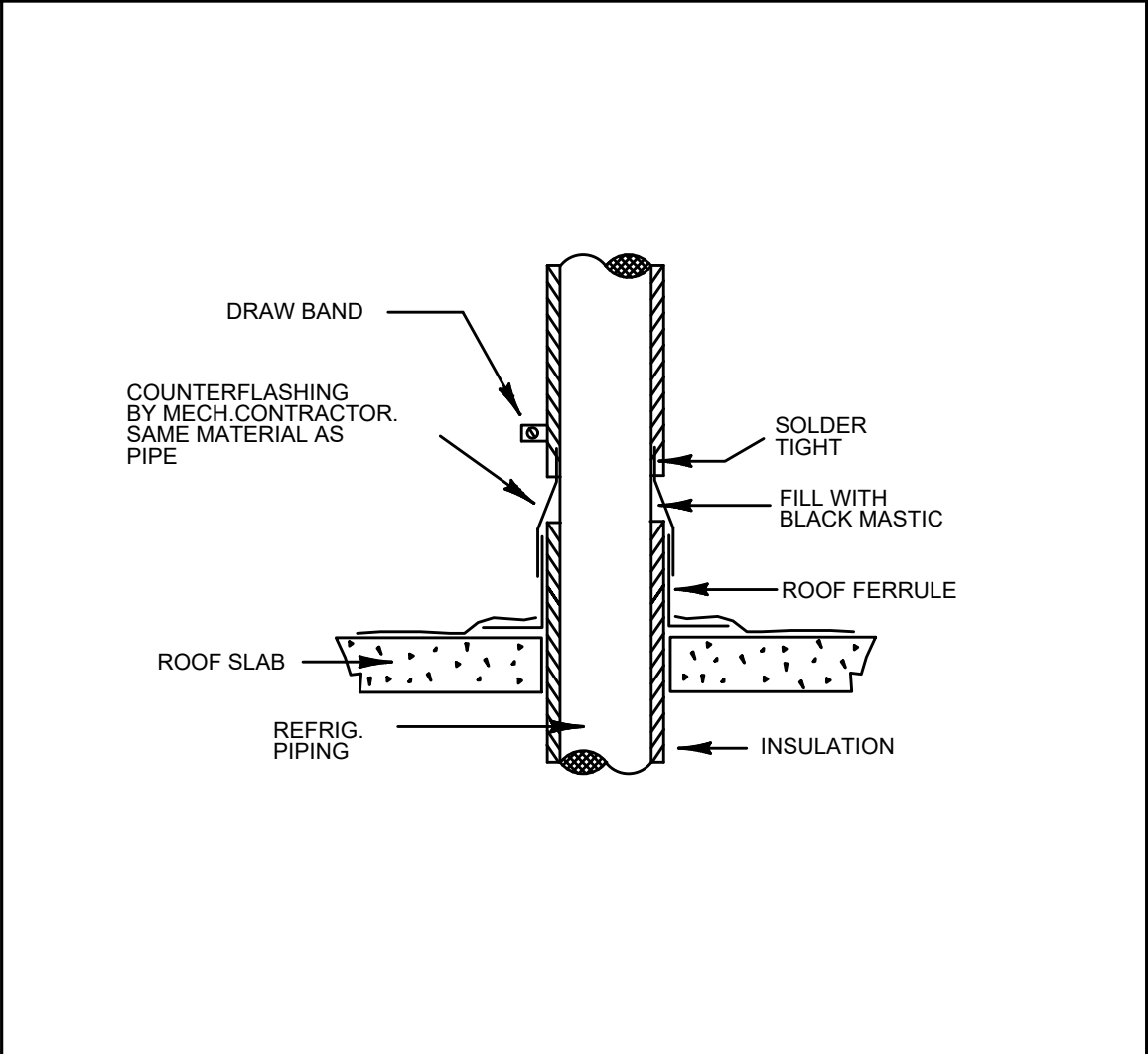
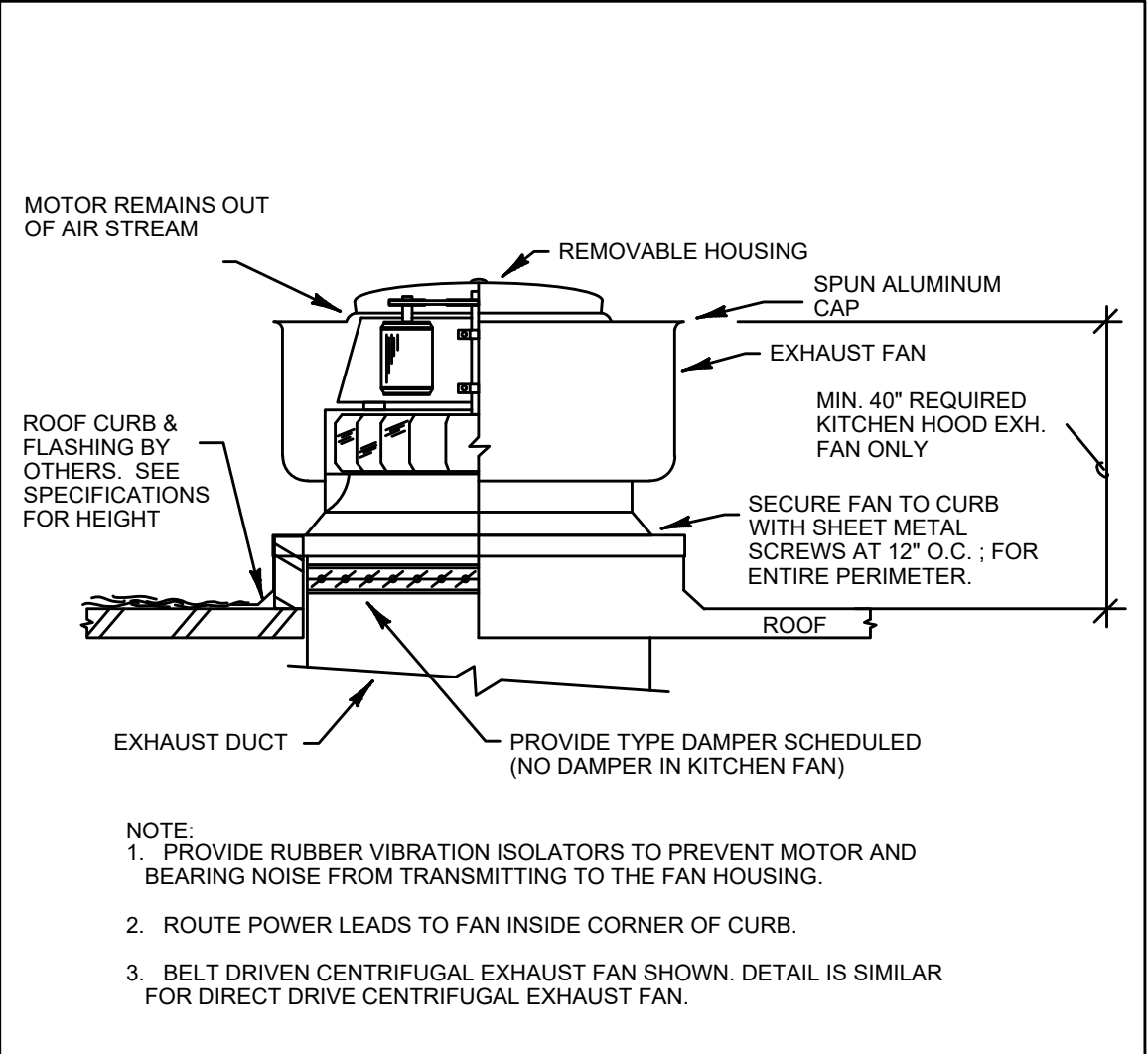
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CAMBRIAN
BLDG ROOF
MECHANICAL
PLAN

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M-104
SHEET NUMBER
50

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 SLOPED ROOF CURB ON METAL DECK DETAIL No Scale		1	 PIPING THRU ROOF DETAIL No Scale		2	 ROOFTOP UNIT VIBRATION ISOLATION BASE No Scale		3	 ROOFTOP UNIT CURB DETAIL No Scale		4
 PIPE THRU ROOF DETAIL No Scale		5	 CONDENSING UNIT ON ROOF No Scale		6	 EQUIPMENT SUPPORT CURB No Scale		7	 ROOFTOP EQUIPMENT ISOLATION No Scale		8
 TYPICAL DRAIN TRAP No Scale		9	 TERMINATION DETAIL OF MOISTURE CONDENSATE LINE No Scale		10	 INSUL. REFRIG. PIPING THRU ROOF No Scale		11	 UPBLAST CENTRIFUGAL EXHAUST FAN No Scale		12

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**MECHANICAL
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51

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112M-502.dwg Last Save: 7/31/2020 2:01 PM Last saved by: Clewis
Last plotted by: Corey R. Lewis Plot Style: ---- Plot Date: 8/6/2020 10:24 AM Plotter used: Microsoft Print to PDF

DETAIL FOR REFRIGERANT LINE HANGER No Scale		1	REFRIGERANT PIPING SCHEMATIC No Scale	2	LOW PRESSURE ROUND BRANCH DUCT RUNOUT No Scale	3	LOW PRESSURE RECTANGULAR BRANCH DUCT RUNOUT No Scale	4
IN-LINE SUPPLY FAN ABOVE CEILING MOUNTING DETAIL No Scale		5	TYPICAL HVAC WALL LOUVER No Scale	6				

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**MECHANICAL
DETAILS**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

M-502

SHEET NUMBER

52

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112M-601.dwg Last Save: 8/5/2020 5:42 PM Last saved by: Clewis
Last plotted by: Corey R. Lewis Plot Style: ---- Plot Date: 8/6/2020 10:27 AM Plotter used: Microsoft Print to PDF

LOUVER SCHEDULE											
TAG	MANUFACTURER	MODEL	HEIGHT	WIDTH	TYPE	CONSTRUCTION	FINISH	DAMPER	OPERATOR	SCREEN	NOTES
L-1	GREENHECK	ESD-635	16	16	STATIONARY	ALUMINUM	STANDARD	NONE	NONE	BIRDSCREEN	
L-2	GREENHECK	ESD-635	60	36	STATIONARY	ALUMINUM	STANDARD	NONE	NONE	BIRDSCREEN	
L-3	GREENHECK	ESD-635	24	24	STATIONARY	ALUMINUM	STANDARD	NONE	NONE	BIRDSCREEN	
NOTES: 1. PROVIDE 6" DEEP LOUVERS AND COORDINATE LOUVER LOCATION WITH STRUCTURAL ENGINEER.											

ELECTRICAL UNIT HEATER SCHEDULE								
TAG	MANUFACTURER	MODEL	TYPE	SERVICE	HEAT CAPACITY (KW)	VOLTS / PH / HZ	MOUNTING	NOTES
EUH-1	TRANE	UHEC031A0100	ELECTRIC	MAINTENANCE	3.3	208 / 1 / 60	VERTICAL	
NOTES: 1. PROVIDE WALL MOUNTED THERMOSTAT 2. PROVIDE DISCONNECT SWITCH 3. SEE ARCHITECTURAL/STRUCTURAL PLANS FOR CEILING TYPE. 4. PROVIDE SUPPORTS FOR HANGING FROM STRUCTURE								

FAN SCHEDULE											
TAG	MANUFACTURER	MODEL	TYPE	CFM	E.S.P.	RPM	DRIVE TYPE	HORSEPOWER	WEIGHT (LBS)	VOLTS / PH / HZ	NOTES
F-1	GREENHECK	CSP-A390-VG	SUPPLY	50	0.1	760	DIRECT	-	30	115 / 1 / 60	
F-2	GREENHECK	CUE-080-VG	EXHAUST	315	0.25	1406	DIRECT	1/10	40	115 / 1 / 60	
NOTES: 1. PROVIDE WALL MOUNTED THERMOSTAT 2. PROVIDE DISCONNECT SWITCH 3. PROVIDE BIRDSCREEN 4. PROVIDE ROOF CURB											

SPLIT SYSTEM A/C (INDOOR) UNIT SCHEDULE																
TAG	MANUFACTURER	MODEL	SERVICE	NOMINAL TONS	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH)	CFM	SEER	E.A.T. (DB / WB)	OUTDOOR AMBIENT	HEATING TYPE	HEATING BTUH	VOLTS / PH / HZ	MCA	MOCP	NOTES
AC-1	TRANE	NTXWST09A112A	OFFICE	0.75	9000	7800	212	24.6	90 / 73	95	ELECTRICAL	10,900	208 / 1 / 60	1	15	
AC-2	TRANE	UCCAB21C0F0RU03	CAMBRIAN BLDG.	25	365,670	255,560	10,000	-	80 / 67	95	ELECTRICAL	56,060	480 / 3 / 60	44.6	*	
NOTES: 1. 10 YEAR COMPRESSOR WARRANTY 2. WALL MOUNTED WIRED CONTROLLER/THERMOSTAT 3. 0°F LOW AMBIENT COOLING. PROVIDE & INSTALL ALL NECESSARY HOODS & WIND BAFFLES AS REQUIRED. 4. CONTRACTOR SHALL REVIEW REFRIGERANT PIPE LENGTHS & SIZING PRIOR TO SUBMITTING A BID 5. PROVIDE CONDENSATE PUMP TO DISPOSE OF CONDENSATE. * MAX FUSE SIZE 50A.																

SPLIT SYSTEM CONDENSING (OUTDOOR) UNIT SCHEDULE													
TAG	MANUFACTURER	MODEL	SERVICE	NOMINAL TONS	TOTAL CAPACITY (BTUH)	C.A.T. (MAX / MIN)	OUTDOOR AMBIENT	DIMENSIONS (IN.)	WEIGHT (LBS)	VOLTS / PH / HZ	MCA	MOCP	NOTES
CU-1	TRANE	NTXSST09A112AA	OFFICE	0.75	9000	115 / 14	95	31.5 x 11 x 22	10,900	208 / 1 / 60	9	15	
CU-2	TRANE	CAUJ	CAMBRIAN BLDG.	25	300,000	-	95	88.5 x 60 x 74	1238	480 / 3 / 60	5.9	*	
NOTES: 1. 10 YEAR COMPRESSOR WARRANTY 2. WALL MOUNTED WIRED CONTROLLER/THERMOSTAT 3. PROVIDE 0° F LOW AMBIENT COOLING. PROVIDE & INSTALL ALL NECESSARY HOODS & WIND BAFFLES AS REQUIRED. 4. CONTRACTOR SHALL REVIEW REFRIGERANT PIPE LENGTHS & SIZING PRIOR TO SUBMITTING A BID * MAX FUSE SIZE 15A													

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

MECHANICAL
SCHEDULES

THIS LINE
IS 1" AT
FULL SIZE

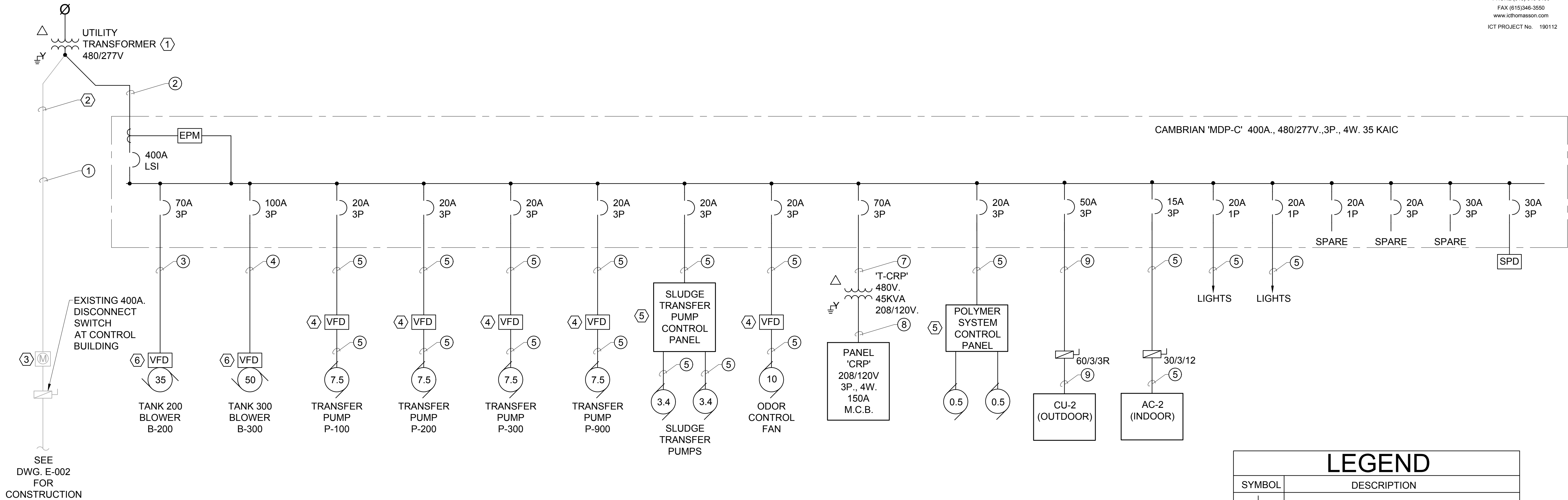
DRAWING NUMBER

M-601

SHEET NUMBER

53

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Last plotted by: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 7/31/2020 2:08 PM Plotter used: Microsoft Print to PDF



ELECTRICAL NOTES:

- UTILITY TO REPLACE EXISTING TRANSFORMER IN SAME LOCATION. UTILITY METER TO BE AT TRANSFORMER.
- RE-CONNECT EXISTING CONDUCTORS TO NEW UTILITY TRANSFORMER.
- REMOVE EXISTING METER / CT CABINET ON OUTSIDE WALL OF CONTROL BUILDING AFTER NEW UTILITY TRANSFORMER IS INSTALLED.
- VFD TO BE PROVIDED BY CAMBRIAN AND INSTALLED BY CONTRACTOR.
- CONTROL PANEL TO BE PROVIDED BY PUMP VENDOR AND INSTALLED BY CONTRACTOR.
- VFD IS INTEGRAL WITH BLOWER HOUSING.

CONDUIT AND CONDUCTOR SCHEDULE

1	EXISTING 4"C. - 4 #600KCMIL.
2	4"C. - 4 #600KCMIL & 1-4"C. SPARE
3	1"C. - 3 #4, 1 #8 GND.
4	1"C. - 3 #3, 1 #8 GND.
5	3/4"C. - 3 #12, 1 #12 GND.
6	3/4"C. - 2 #12, 1 #12 GND.
7	1"C. - 3 #4, 1 #8 GND.
8	2"C. - 4 #1/0, 1 #6 GND.

LEGEND

SYMBOL	DESCRIPTION
	TRANSFORMER
	DELTA CONFIGURATION
	WYE CONFIGURATION
	METER
	UTILITY POLE
	CIRCUIT BREAKER
	REMOTE NON-FUSIBLE DISCONNECT
	ELECTRONIC POWER METER
	VARIABLE FREQUENCY DRIVE
	MOTOR; HORSEPOWER AS INDICATED
	SURGE PROTECTIVE DEVICE
LSI	LONG SHORT INSTANTANEOUS TRIP
LSIG	LONG SHORT INSTANTANEOUS GROUND FAULT
	CURRENT OR POTENTIAL TRANSFORMER

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.

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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**'MDP-C'
ONE-LINE
DIAGRAM**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

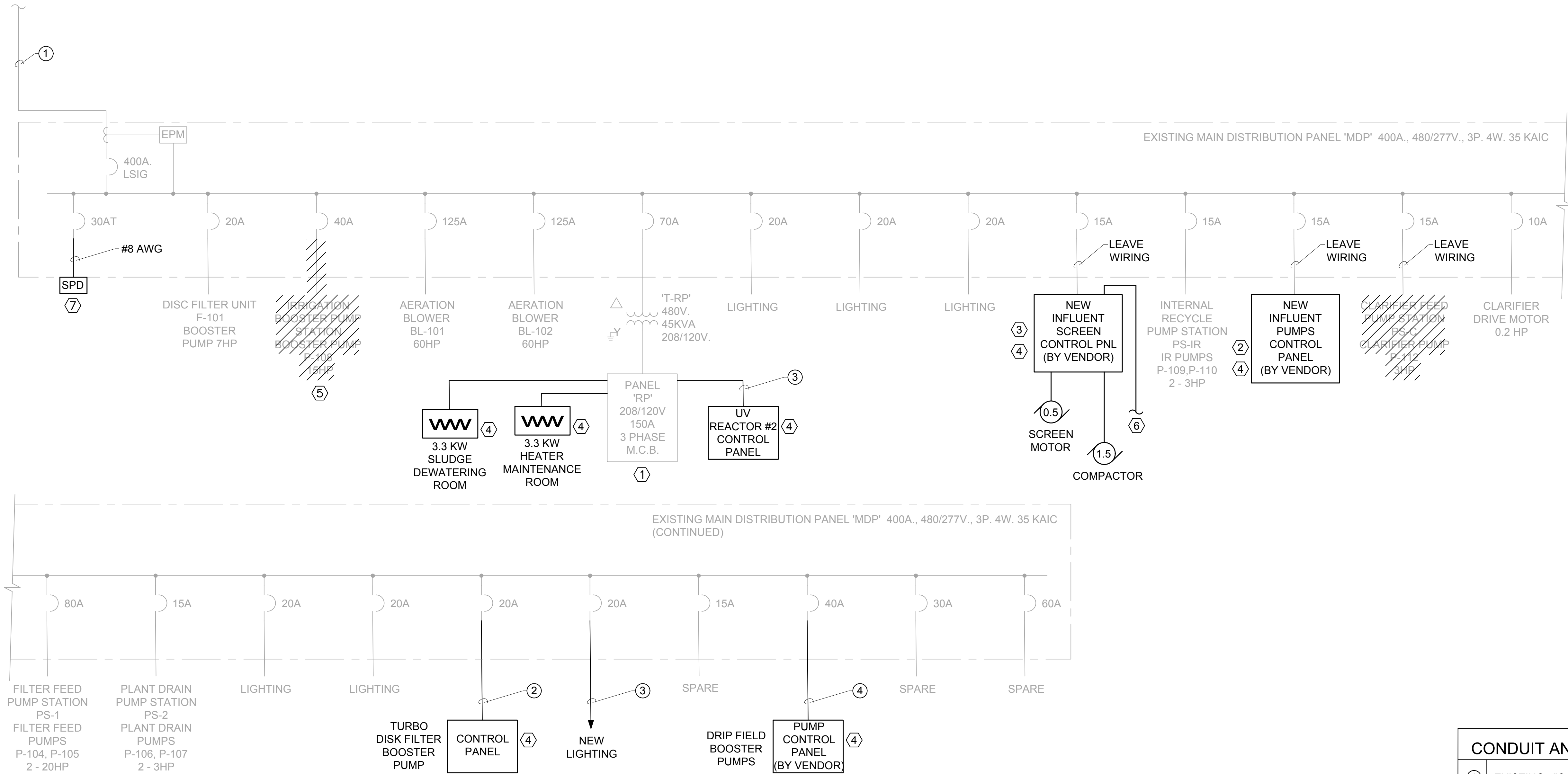
E-001

SHEET NUMBER

54

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SEE
DWG. E - 001
FOR
CONTINUATION



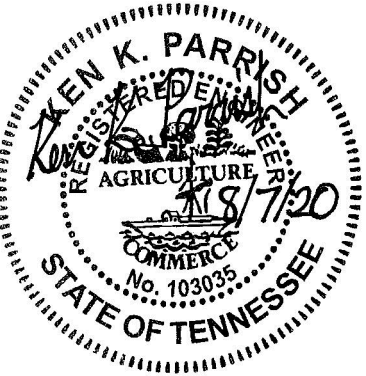
ELECTRICAL NOTES: ⬡

1. INSTALL TWO 20A., 2-POLE BREAKERS IN PANEL 'RP' FOR NEW UV REACTOR #2 AND FOR HEATER IN DEWATERING ROOM.
2. REMOVE EXISTING CONTROL PANEL AT MANHOLE 'PS-C' AND RE-USE WIRING TO FEED NEW 'PS-C INFLUENT' PUMPS CONTROL PANEL.
3. REMOVE EXISTING CONTROL PANEL AT PRE-ANOXIC TANK AND RE-USE WIRING TO FEED NEW INFLUENT SCREEN CONTROL PANEL.
4. CONTROL PANEL TO BE PROVIDED BY VENDOR AND INSTALLED BY CONTRACTOR.
5. REMOVE EXISTING WIRING TO BOOSTER PUMP STATION.
6. INSTALL SPARE 3/4"C. TO PANEL 'MDP-C' AS SHOWN ON DRAWING E-102.
7. INSTALL NEW SURGE PROTECTIVE DEVICE ON SIDE OF PANEL 'MDP'. CONNECT TO SPARE 30A. BREAKER WITH #8 AWG WIRE.

CONDUIT AND CONDUCTOR SCHEDULE

①	EXISTING 4"C. - 4 #600KCMIL.
②	3/4"C. - 3 #12, 1 #12 GND.
③	3/4"C. - 2 #12, 1 #12 GND.
④	1"C. - 3 #8 ,1 #10 GND.

NOTE: EXISTING ITEMS ARE SHOWN SCREENED BACK.



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**EXISTING
'MPD'
ONE-LINE
DIAGRAM**

THIS LINE
IS 1" AT
FULL SIZE

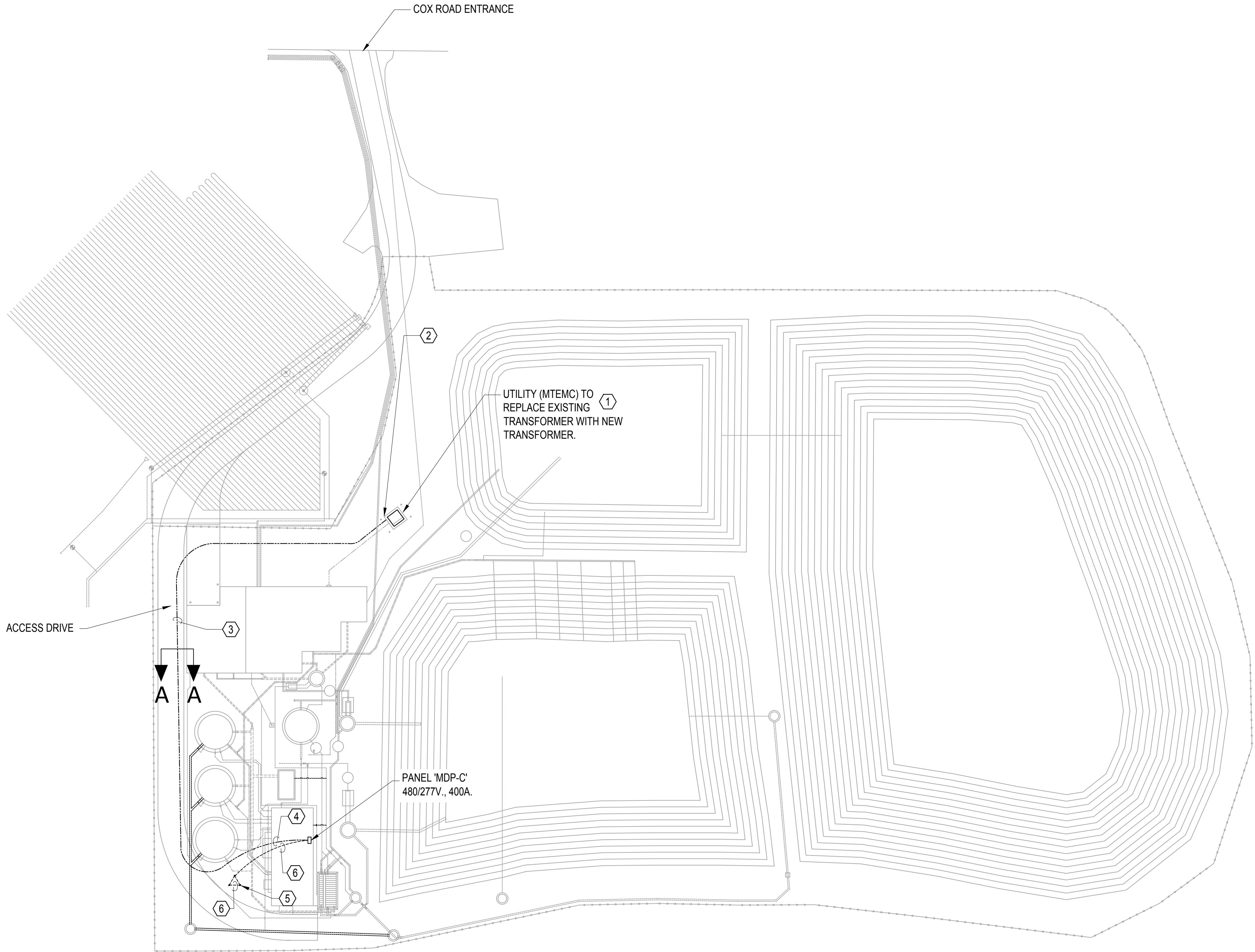
DRAWING NUMBER

E-002

SHEET NUMBER

55

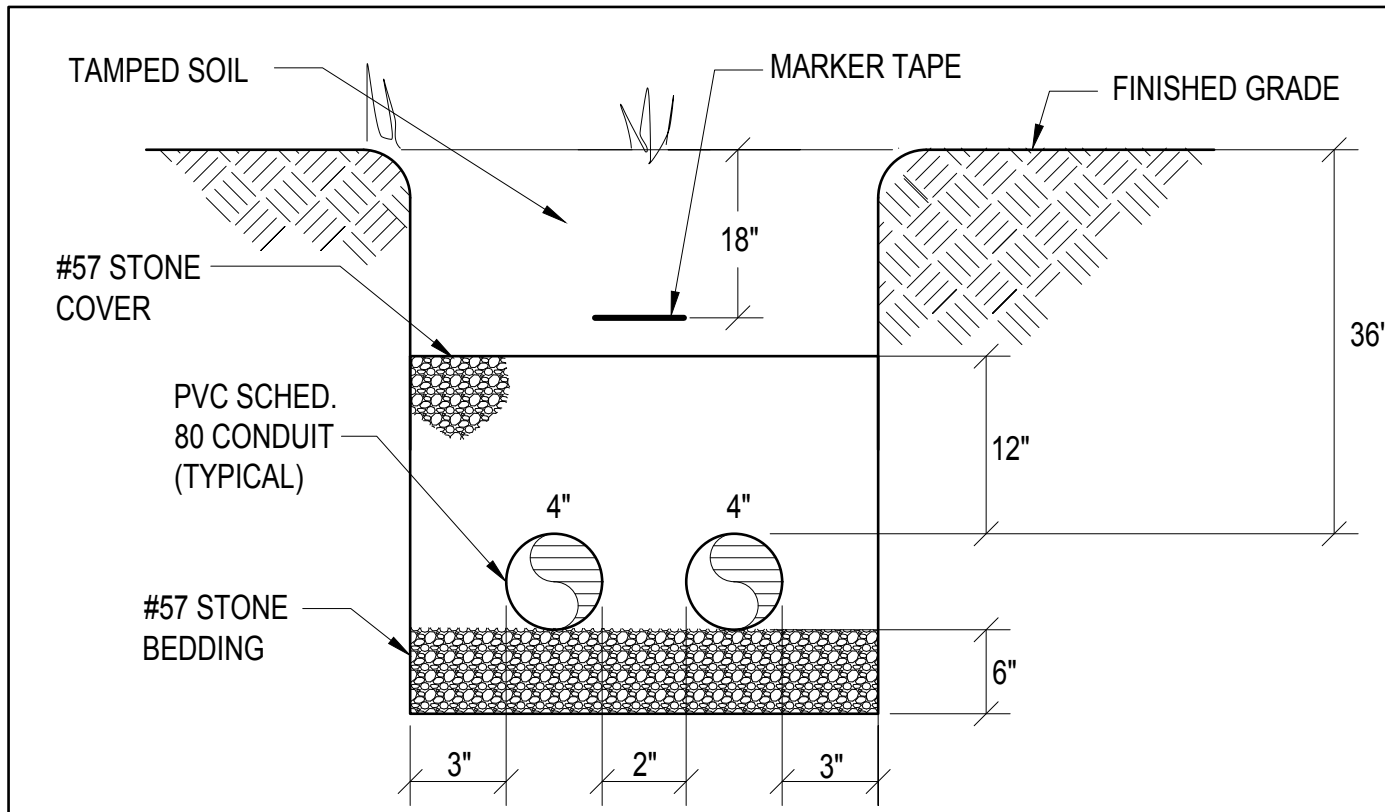
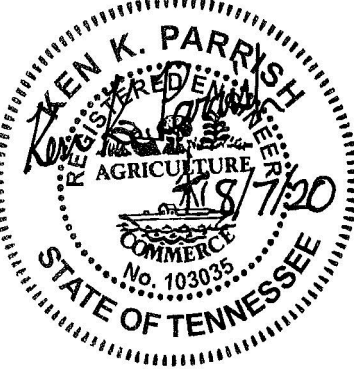
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Last plotted by: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 7/31/2020 2:06 PM Plotter used: Microsoft Print to PDF



WWTP ELECTRICAL SITE PLAN
SCALE: 1"=30'-0"

0 10' 20' 30' 60'
SCALE: 1"=30'-0"

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SECTION 'A-A'
SCALE: NONE

- NOTES:**
- COORDINATE WITH MTEM FOR TRANSFORMER REPLACEMENT. CONTACT JONATHAN McPHERSON AT (615) 595-4695.
 - INSTALL 2-4"C. UNDER EXISTING TRANSFORMER PAD INTO SECONDARY COMPARTMENT. PULL CONDUCTORS THROUGH 1-4"C. AS SHOWN ON DRAWING E-001. MTEM TO MAKE FINAL TERMINATIONS.
 - (1) 4"C. - 4 #600KCMIL AND 1-4"C. SPARE INSTALLED UNDERGROUND AS SHOWN IN SECTION 'A-A'.
 - ROUTE CONDUITS UNDER FLOOR SLAB TO PANEL 'MDP-C'. SEE DRAWING E-103 FOR LOCATION OF PANEL.
 - 3/4" DIA. x10'-0" L COPPER CLAD GROUND ROD, DRIVEN 12" BELOW GRADE (TYP FOR 3).
 - #2/0 AWG BARE COPPER, BURIED 30" BELOW GRADE (TYPICAL). MAKE EXOTHERMIC WELDS TO GROUND RODS.

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HIDEAWAY WWTP PHASE II EXPANSION
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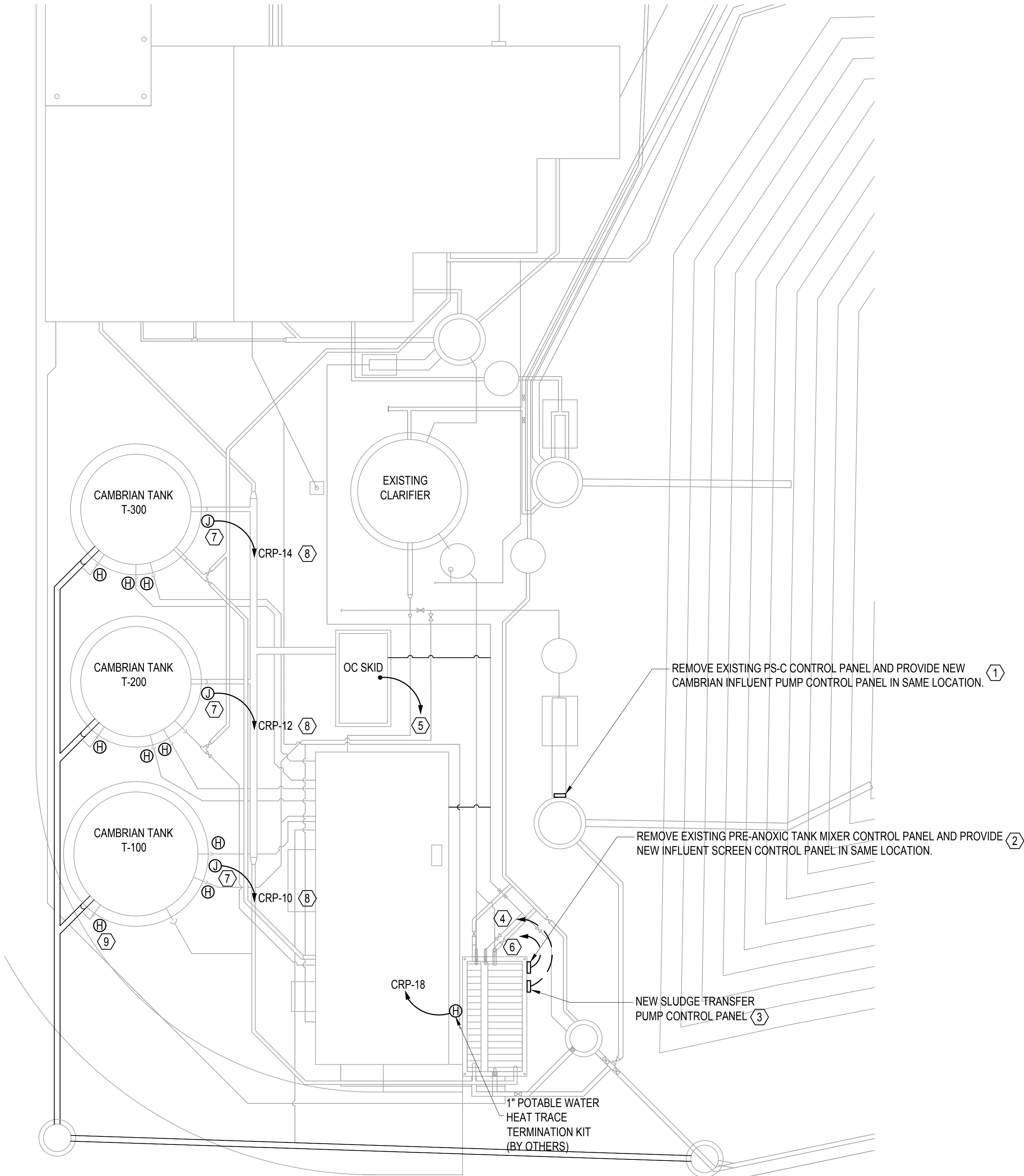
WWTP ELECTRICAL SITE PLAN

THIS LINE IS 1" AT FULL SIZE

DRAWING NUMBER
E-100

SHEET NUMBER
56

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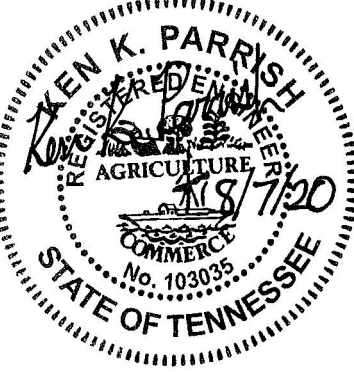


- NOTES:
1. AFTER REMOVING EXISTING PS-C CONTROL PANEL, INSTALL NEW CAMBRIAN INFLUENT PUMPS CONTROL PANEL (PROVIDED BY VENDOR) ON EXISTING STAND AND RE-TERMINATE EXISTING #12 AWG, 480V. POWER CONDUCTORS FROM CONTROL BUILDING PANEL 'MDP'.
 2. AFTER REMOVING EXISTING CONTROL PANEL, INSTALL NEW INFLUENT SCREEN CONTROL PANEL (PROVIDED BY VENDOR) ON EXISTING STAND AND RE-TERMINATE EXISTING #12 AWG, 480V. POWER CONDUCTORS FROM CONTROL BUILDING PANEL 'MDP'.
 3. INSTALL CONTROL PANEL (PROVIDED BY VENDOR) ON STAINLESS STEEL STAND SIMILAR TO EXISTING PUMP CONTROL PANELS ON SITE.
 4. 3/4"C - 3 #12, 1 #12 GND TO 480V PANEL 'MDP-C' IN CAMBRIAN BUILDING. SEE DRAWING E-103.
 5. 3/4"C - 3 #12, 1 #12 GND TO 480V VFD IN CAMBRIAN BUILDING. SEE DRAWING E-103.
 6. INSTALL SPARE 3/4"C. FROM NEW INFLUENT SCREEN CONTROL PANEL TO PANEL 'MDP'.
 7. INSTALL STAINLESS STEEL JUNCTION BOX AT TANK FOR PIPING HEAT TRACE. EACH TANK HAS THREE (3) HEAT TRACE CONNECTION POINTS AT TERMINATION KITS AS SHOWN. WIRE TO EACH HEAT TRACE KIT WITH 3/4"C. - 2 #12, 1 #12 GND.
 8. 3/4"C - 2 #12, 1 #12 GND ROUTED WITH PIPING INTO BUILDING.
 9. PIPING HEAT TRACE TERMINATION KIT BY OTHERS (TYPICAL).

WWTP PARTIAL ELECTRICAL SITE PLAN
SCALE:1"=10'-0"

0 5' 10' 20'
SCALE:1"=10'-0"

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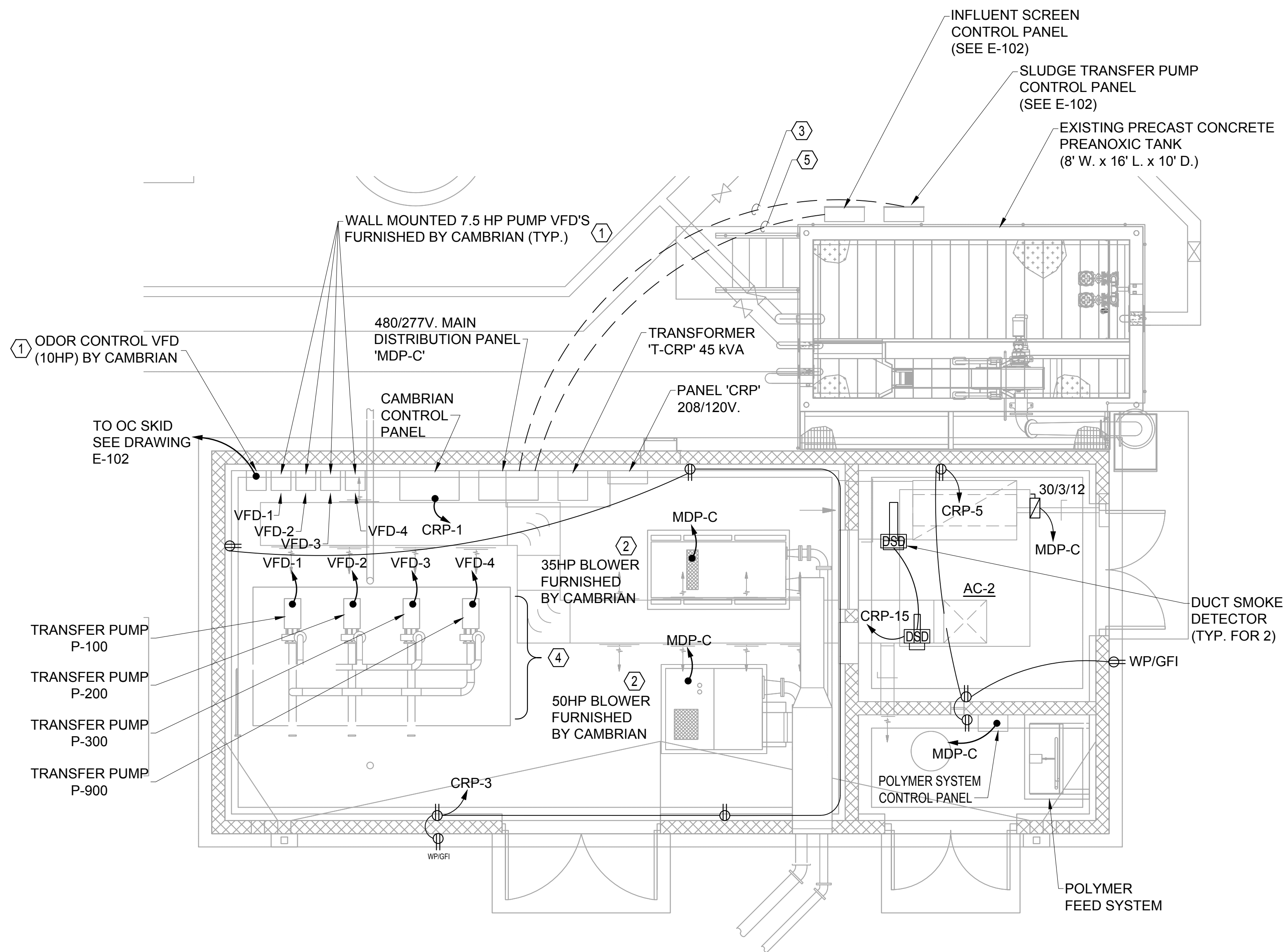
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**PARTIAL
WWTP
ELECTRICAL
SITE PLAN**

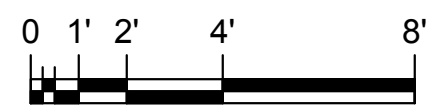
THIS LINE
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DRAWING NUMBER
E-102

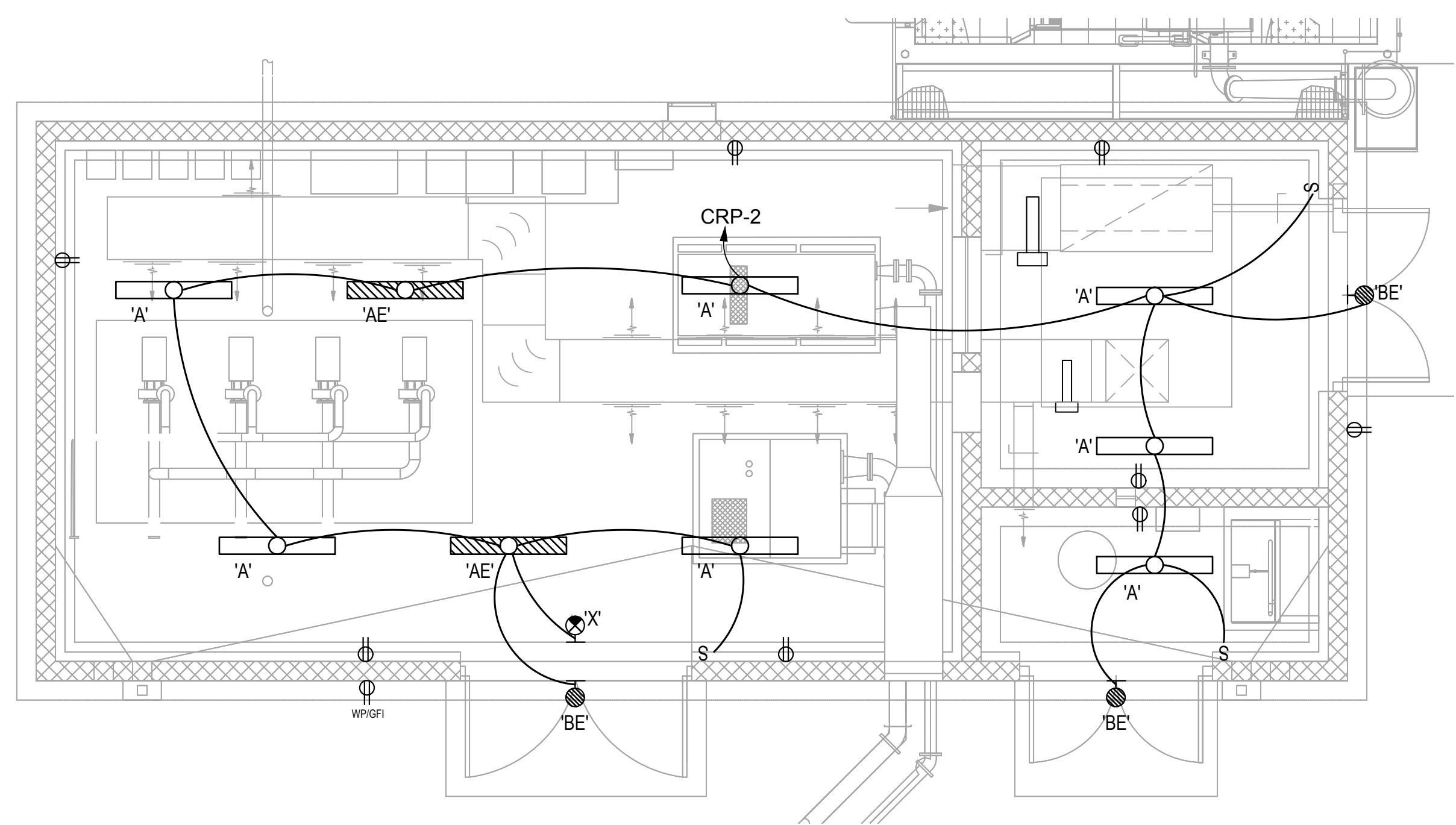
SHEET NUMBER
57



CAMBRIAN BUILDING POWER PLAN



SCALE:1/4"=1'-0"



CAMBRIAN BUILDING LIGHTING PLAN



SCALE:1/4"=1'-0"

ELECTRICAL NOTES:

1. INSTALL CONDUIT AND WIRING FROM VFD'S TO PANEL 'MDP-C' AS SHOWN ON DRAWING E-001.
2. VFD IS INTEGRAL WITH BLOWER.
3. 3/4"C. - 3 #12, 1 #12 GND. TO PANEL 'MDP-C'.
4. SEE DRAWING I-104 FOR 120V. POWER TO MODULATING VALVES ON PUMP SKID.
5. SPARE 3/4"C. TO PANEL 'MDP-C'.

GENERAL NOTES:

- A. SEE DRAWING E-001 FOR CONDUIT AND CABLE SIZES TO EQUIPMENT.
- B. 120V. WIRING TO PANEL 'CRP' TO BE #12 AWG IN 3/4"C. UNLESS OTHERWISE NOTED.

LIGHTING FIXTURE SCHEDULE					
TYPE	MANUFACTURER	MODEL	LAMP	WATTAGE	DESCRIPTION
'A'	LITHONIA LIGHTING	FEM L48 4000LM IMACD WD MVOLT GZ10 40K 80CRI	LED	31W	1' X 4' LED SURFACE MOUNT, 4000 LUMEN, ENCLOSED AND GASKETED.
'AE'	LITHONIA LIGHTING	FEM L48 4000LM IMACD WD MVOLT GZ10 40K 80CRI - E15WCP	LED	31W	1' X 4' LED SURFACE MOUNT, 4000 LUMEN, ENCLOSED AND GASKETED, WITH EMERG. BATTERY PACK.
'BE'	RAB LIGHTING	WP1LED 30N 120-277V PC - EM	LED	30W	WALL PACK LIGHTING WITH EMERG. BATTERY PACK
'X'	LITHONIA LIGHTING	LQM-S-W-1-R-120/277-EL N-SD			EXIT SIGN - SINGLE FACE - STENCIL LETTERS, WHITE HOUSING, RED LETTERS, NICKLE CADMIUM BATTERY - SELF DIAGNOSTICS



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ICT PROJECT N° 1004

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WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

CAMBRIAN BUILDING & INFLUENT SCREEN ELECTRICAL PLANS

THIS LINE
IS 1" AT
FULL SIZE

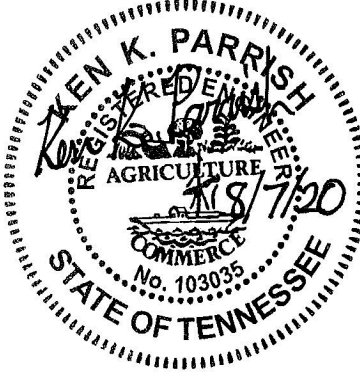
DRAWING NUMBER

E-103

SHEET NUMBER

58

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Last Plotted by: Steve Norfleet, Plot Style: ---, Plot Scale: 1:1, Plot Date: 8/5/2020 7:58 AM, Printer used: Microsoft Print to PDF



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CONTROL
BUILDING
ELECTRICAL
PLANS**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
E-104

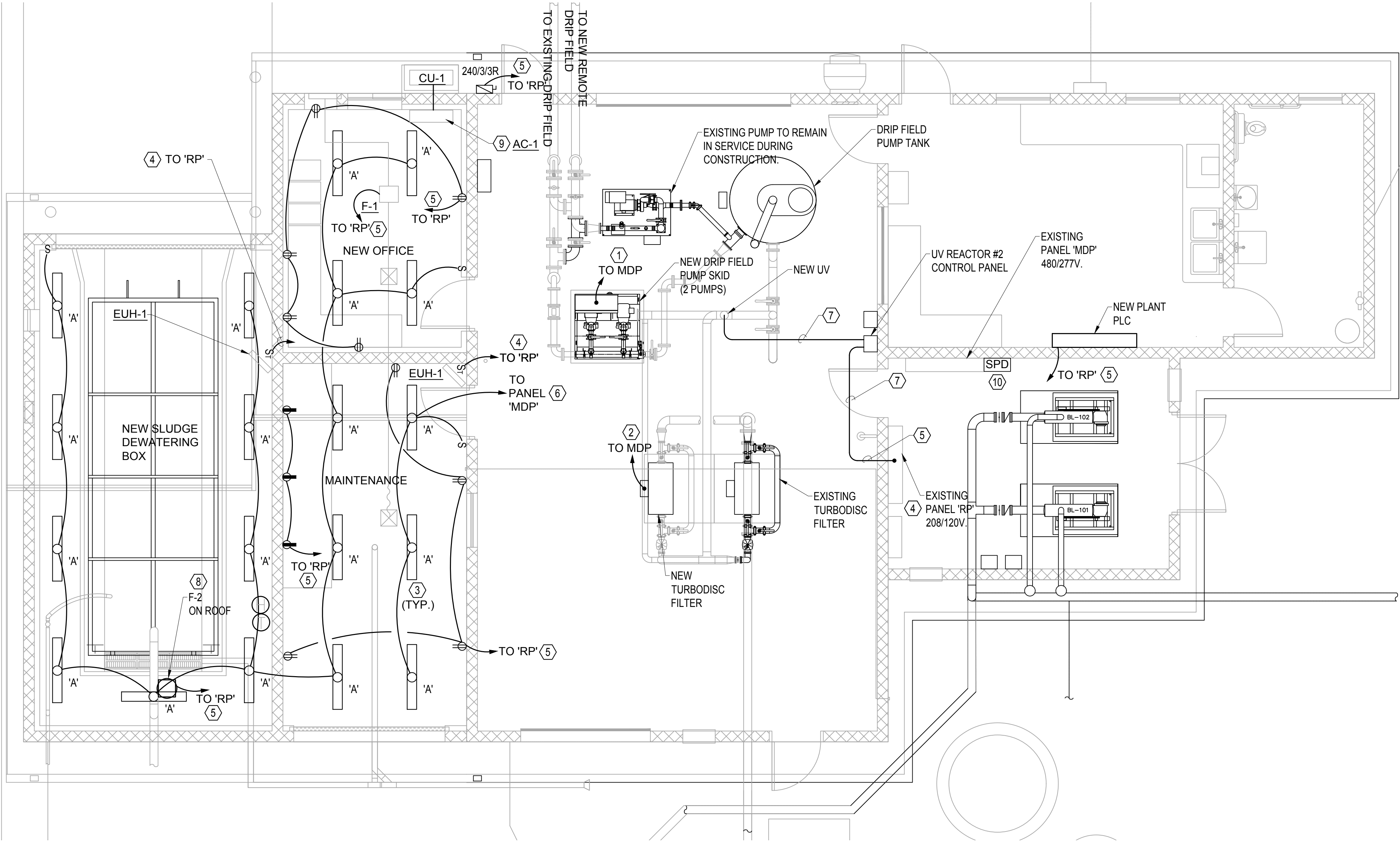
SHEET NUMBER
59

KEY NOTES:

- 1" C. - 3 #8, 1 #10 GND. TO SPARE 40A. BREAKER IN PANEL 'MDP'.
- 3/4" C. - 3 #12, 1 #12 GND. TO SPARE 20A. BREAKER IN PANEL 'MDP'.
- TYPE 'A' FIXTURE TO BE LITHONIA MODEL No. FEM L48 4000LM IMACD WD MVOLT GZ10 40K 80CRI OR APPROVED SUBSTITUTE. MOUNT FIXTURE AGAINST GYP BOARD CEILING.
- INSTALL THREE NEW 20A., 2-POLE BREAKERS IN PANEL 'RP' FOR UV REACTOR #2 AND FOR HEATERS IN SLUDGE DEWATERING AND MAINTENANCE ROOMS.
- CONNECT WIRING TO SPARE 20A., 1P. BREAKER IN EXISTING PANEL 'RP'.
- 3/4" C. - 2 #12, 1 #12 GND. TO SPARE 20A., 1 POLE BREAKER IN PANEL 'MDP'.
- 3/4" C. - 2 #12, 1 #12 GND.
- SEE DRAWING M-102 FOR EXHAUST FAN ON ROOF.
- AC-1 GETS POWER FROM CU-1. ROUTE 3/4" C. FROM AC-1 TO CU-1.
- INSTALL NEW SURGE PROTECTIVE DEVICE ON SIDE OF PANEL 'MDP' AS SHOWN ON DRAWING E-002.

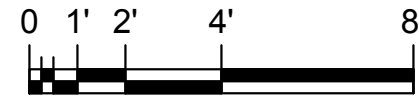
GENERAL NOTES:

- SEE DRAWING E-001 FOR CONDUIT AND CABLE SIZES TO EQUIPMENT.
- 120V. WIRING TO PANEL 'RP' TO BE #12 AWG UNLESS OTHERWISE NOTED.



CONTROL BUILDING ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"



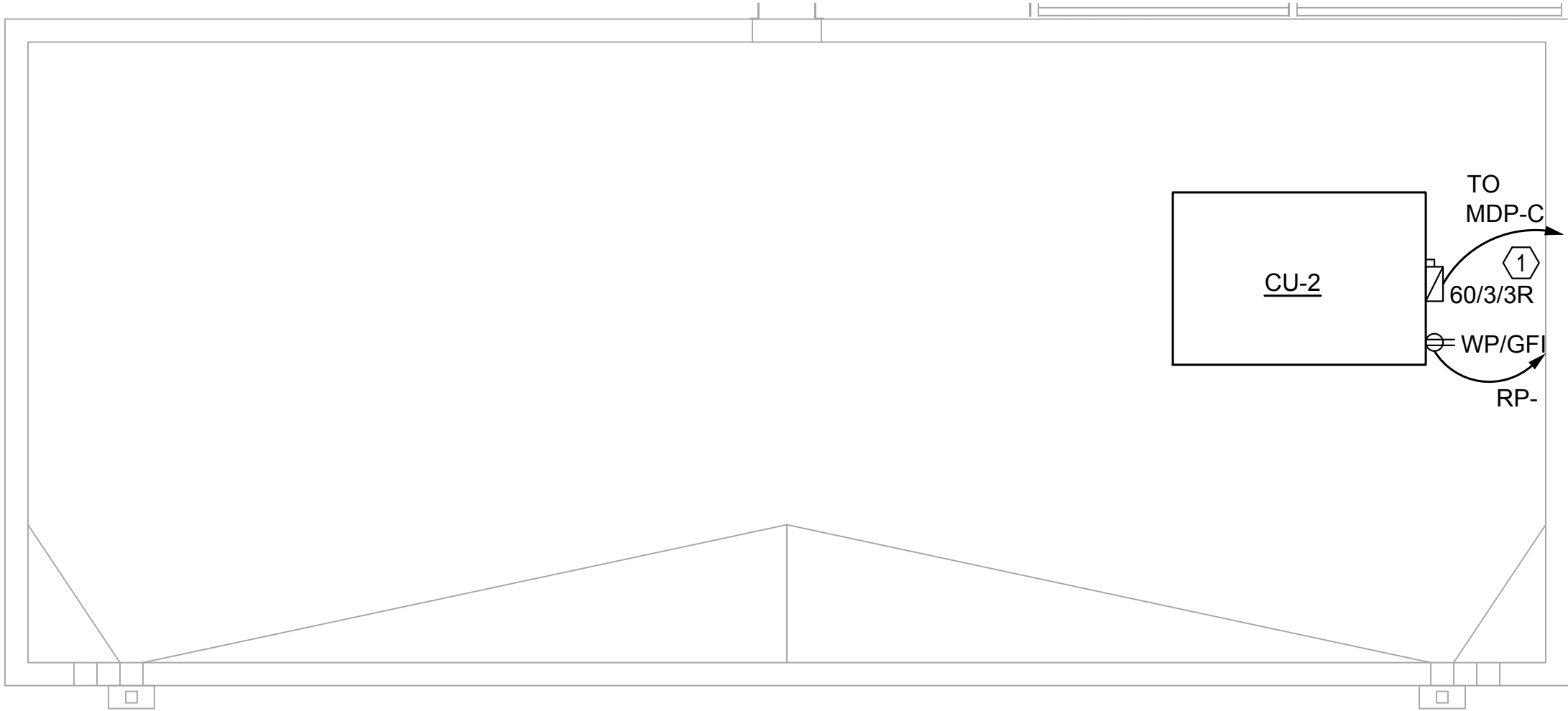
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Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 7/31/2020 2:02 PM Plotter used: Microsoft Print to PDF



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CAMBRIAN BUILDING ROOF ELECTRICAL PLAN



SCALE: 1/4"=1'-0"

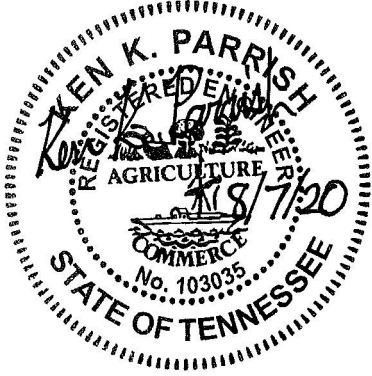
ELECTRICAL NOTES:



1. INSTALL DISCONNECT SWITCH ON SIDE OF CONDENSING UNIT.

GENERAL NOTES:

- A. SEE DRAWING E-001 FOR CONDUIT AND CABLE SIZES TO EQUIPMENT.



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

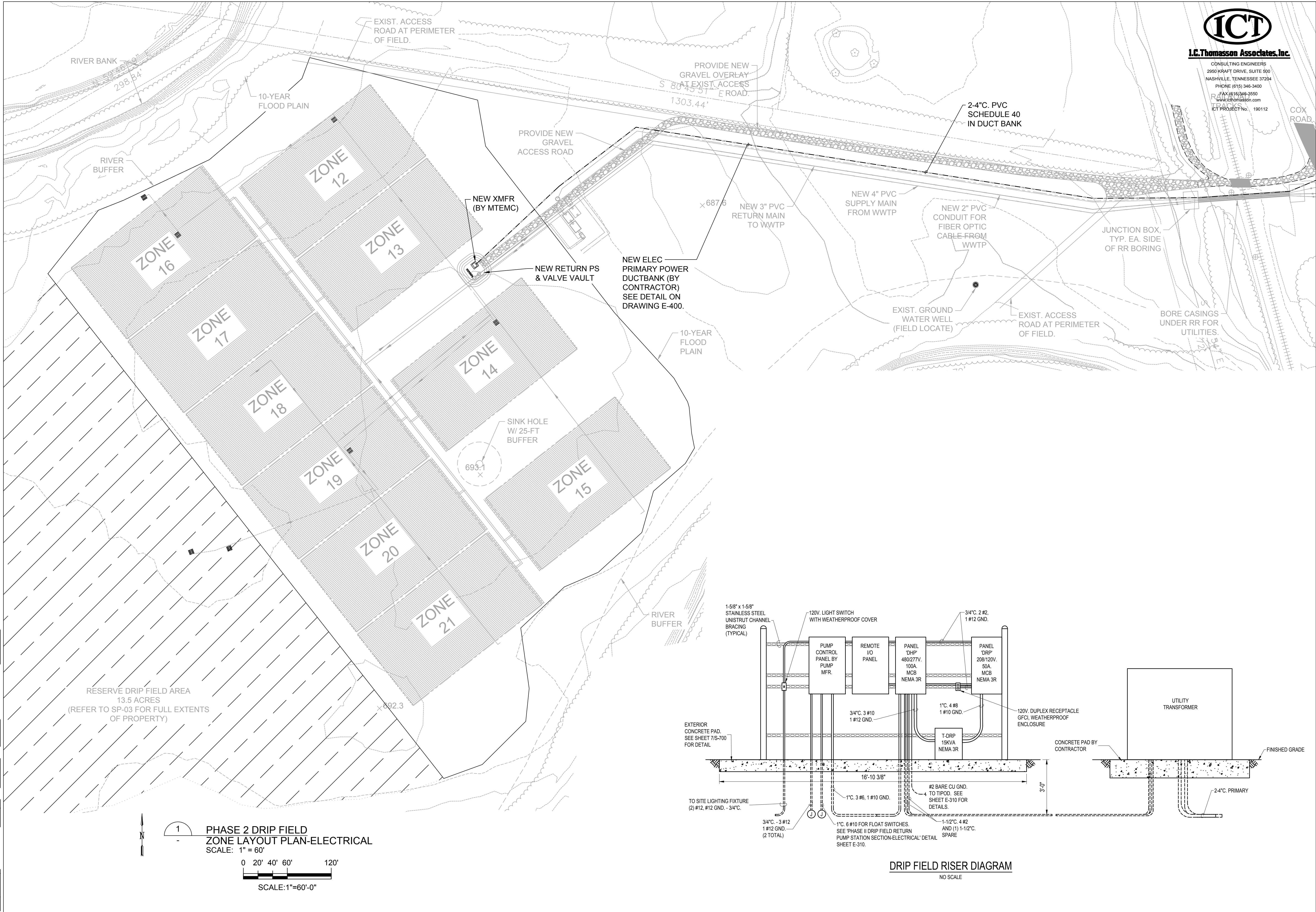
**CAMBRIAN
BUILDING
ROOF
ELECTRICAL
PLAN**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
E-105

SHEET NUMBER
60

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\Hideaway DF-ELECT.dwg Last Save: 7/31/2020 2:10 PM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Date: 7/31/2020 2:11 PM Plotter used: Microsoft Print to PDF



I.C.Thomasson Associates, Inc.

CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
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www.icthomasson.com
ICT PROJECT No. 190112



REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**PHASE 2
DRIP FIELD
ZONE
LAYOUT
ELECTRICAL
& RISER
DIAGRAM**

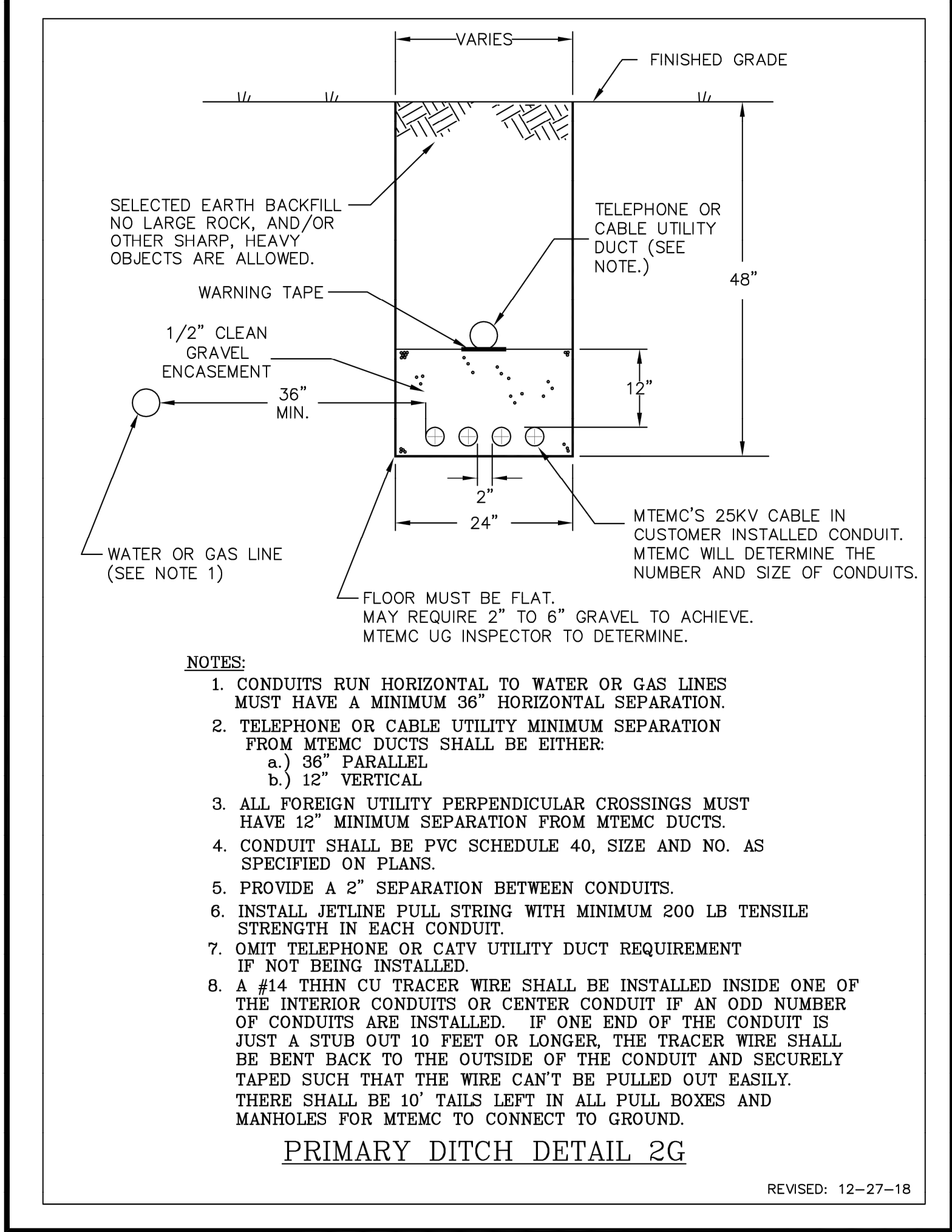
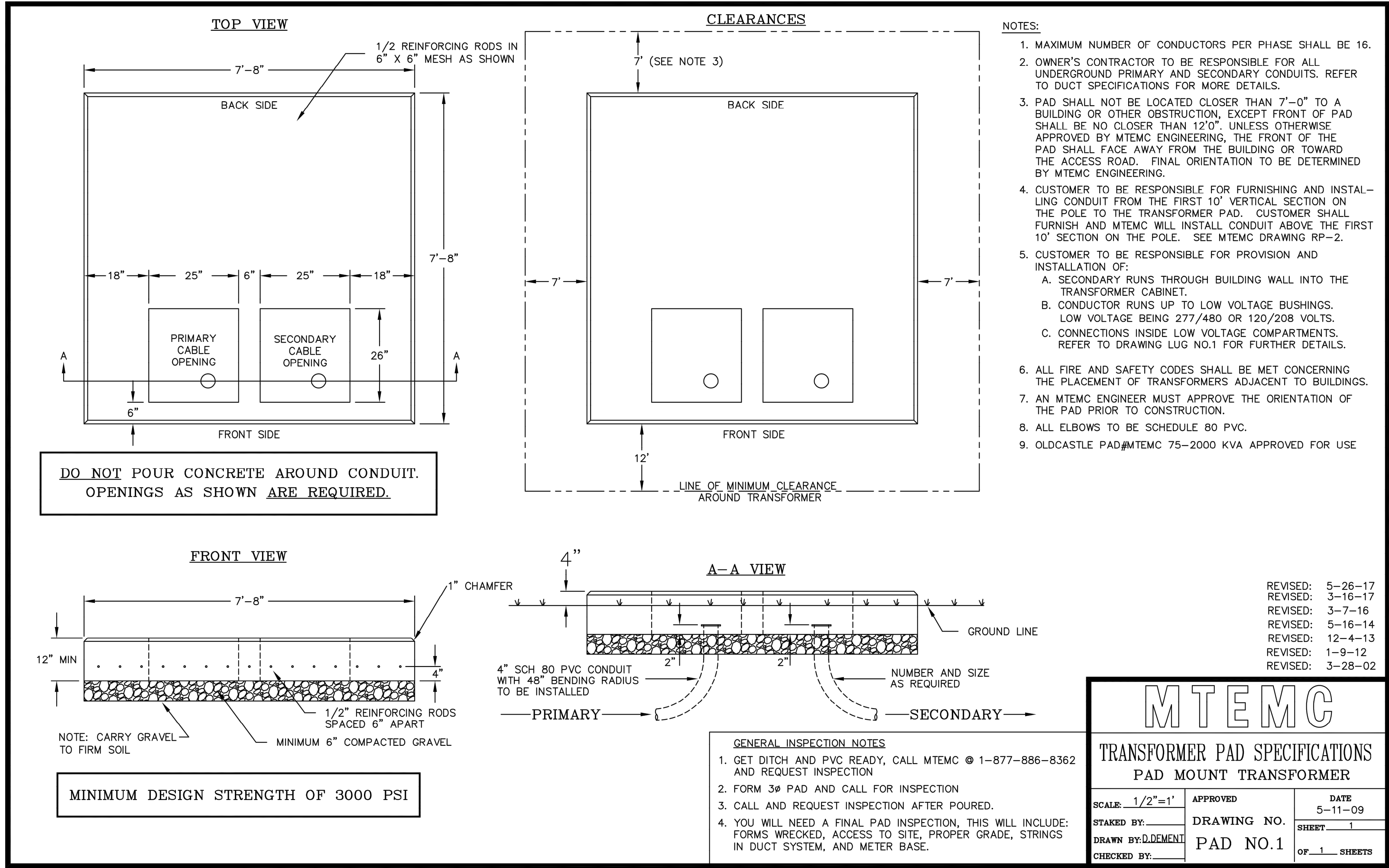
THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

E-121

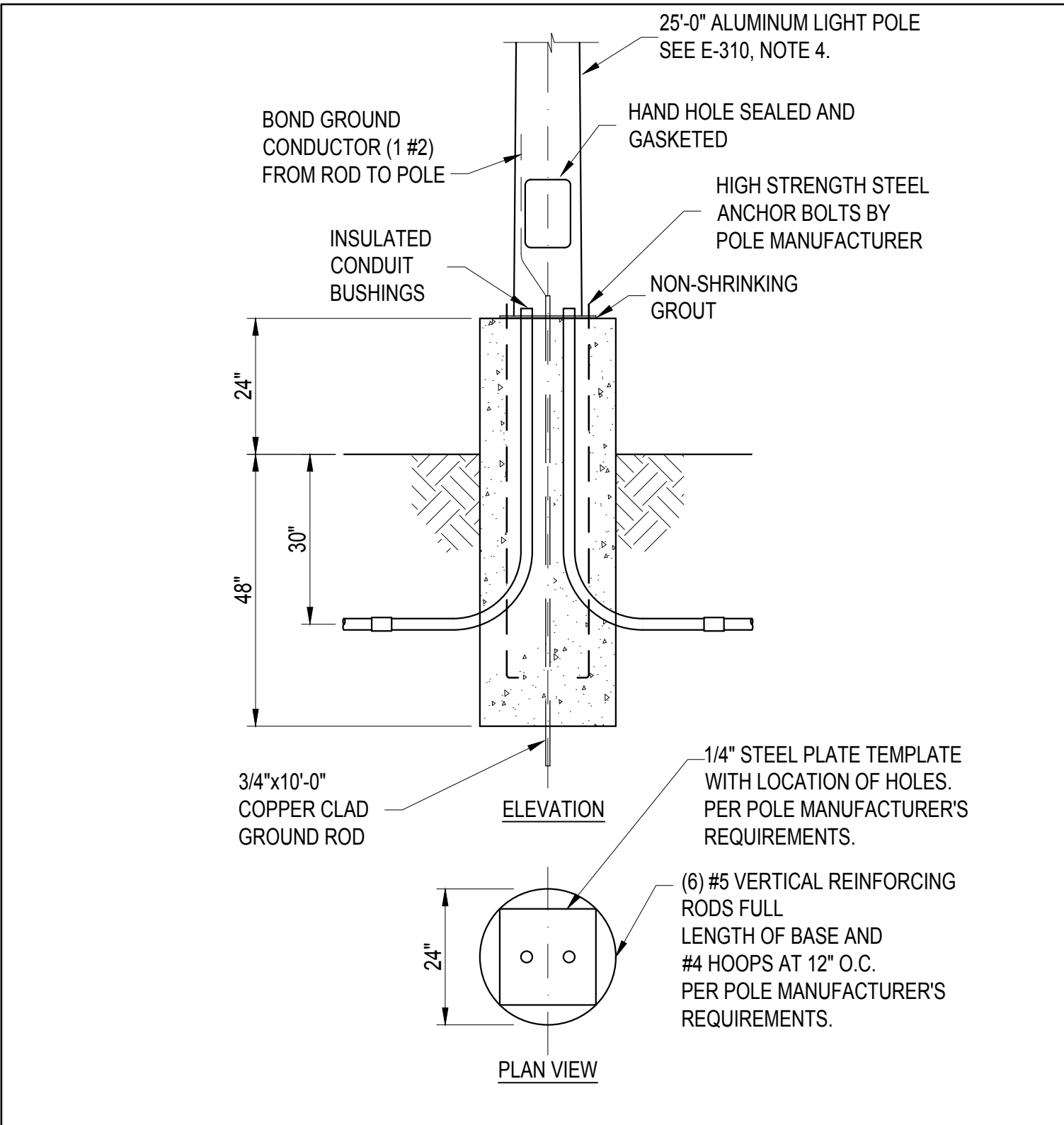
SHEET NUMBER

61



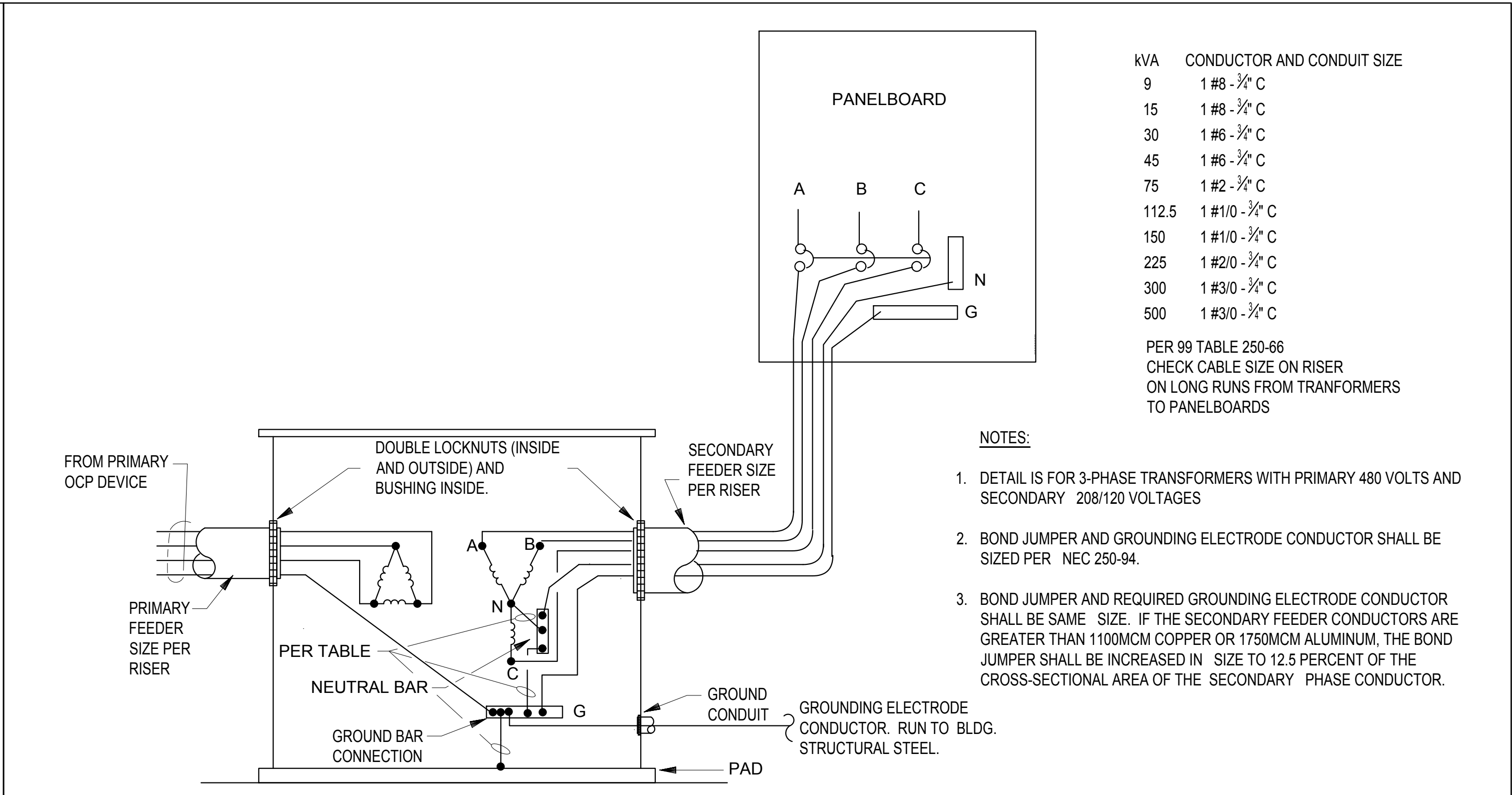
BY	KKP
DESCRIPTION	ISSUED FOR BIDS AND TDEC REVIEW
DATE	08/07/20
REV	0
HIDEAWAY WWTP PHASE II EXPANSION WILLIAMSON COUNTY, TENNESSEE DISCOVERY LAND COMPANY	
ELECTRICAL DETAILS	
THIS LINE IS 1" AT FULL SIZE	
DRAWING NUMBER E-400	
SHEET NUMBER 63	

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112E-401.dwg Last Save: 7/31/2020 1:58 PM Last saved by: Snorfleet
Last plotted by: Steve Norfleet Plot Style: ---- Plot Scale: 1:1 Plot Date: 7/31/2020 1:59 PM Plotter used: Microsoft Print to PDF



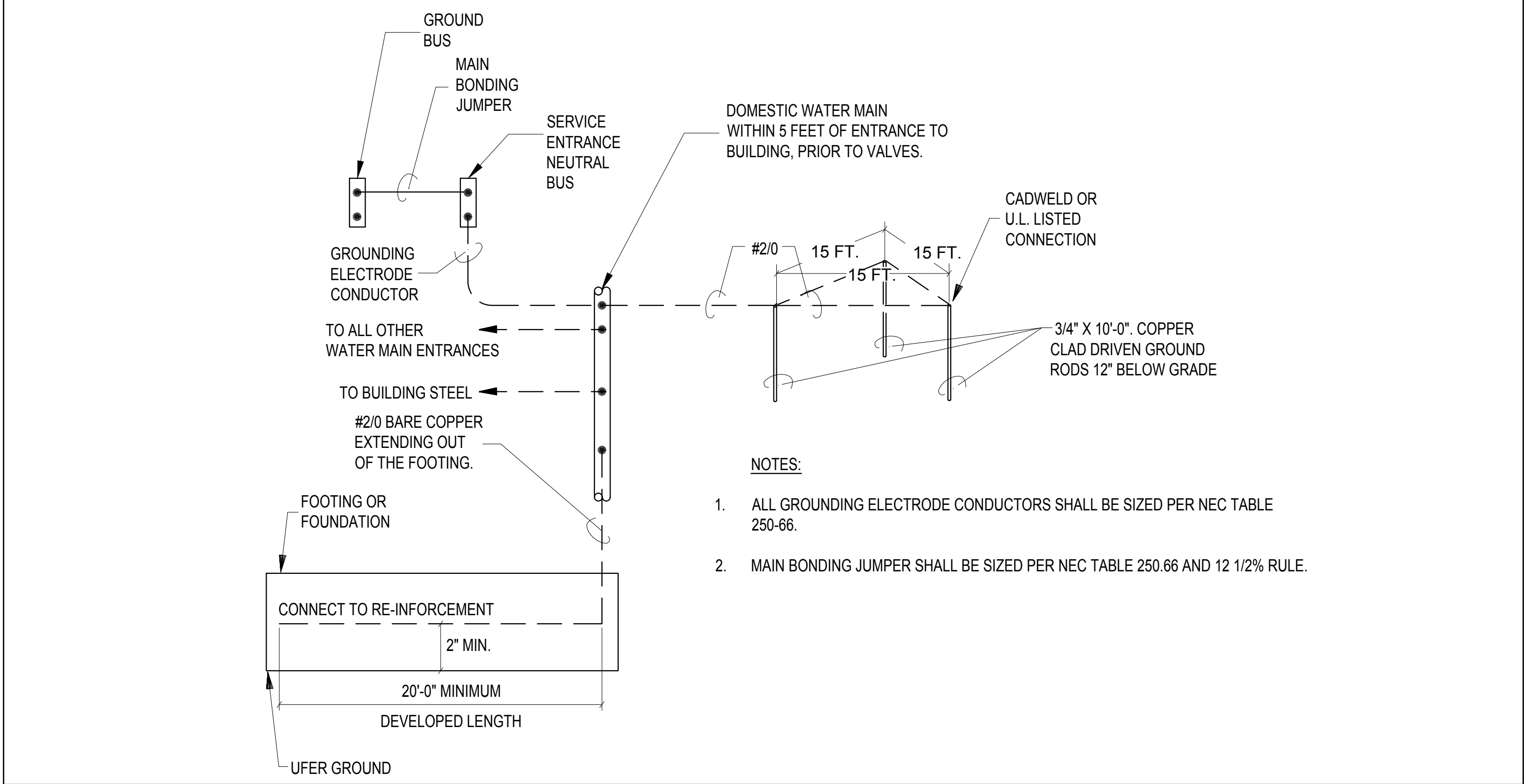
POLE BASE DETAIL

SCALE: NONE



GROUND FOR TRANSFORMER DETAIL

SCALE: NONE

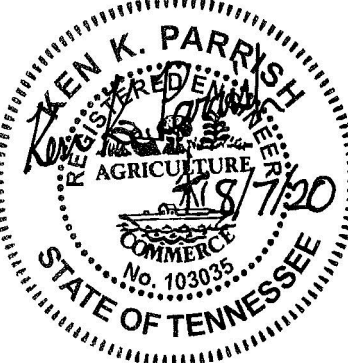


SERVICE ENTRANCE GROUNDING DETAIL

SCALE: NONE

ICT
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idg
INFLO DESIGN GROUP



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

ELECTRICAL DETAILS

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

E-401

SHEET NUMBER

64



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

ELECTRICAL SCHEDULES

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

E-402

SHEET NUMBER

65

'CRP"

120/208

VOLT,

3

PHASE,

4

W.

10

KA

INTERRUPT

RATING

150

AMP

X

MCB

MLO

X

SURFACE

FLUSH

NOTE: ALL BREAKERS TO BE 20A SINGLE POLE, U.O.N.

SYSTEM AVAILABLE FAULT

CURRENT:

REMARKS:

TOTAL PANEL
CONNECTED LOAD

(KW)

9.35

AMPS

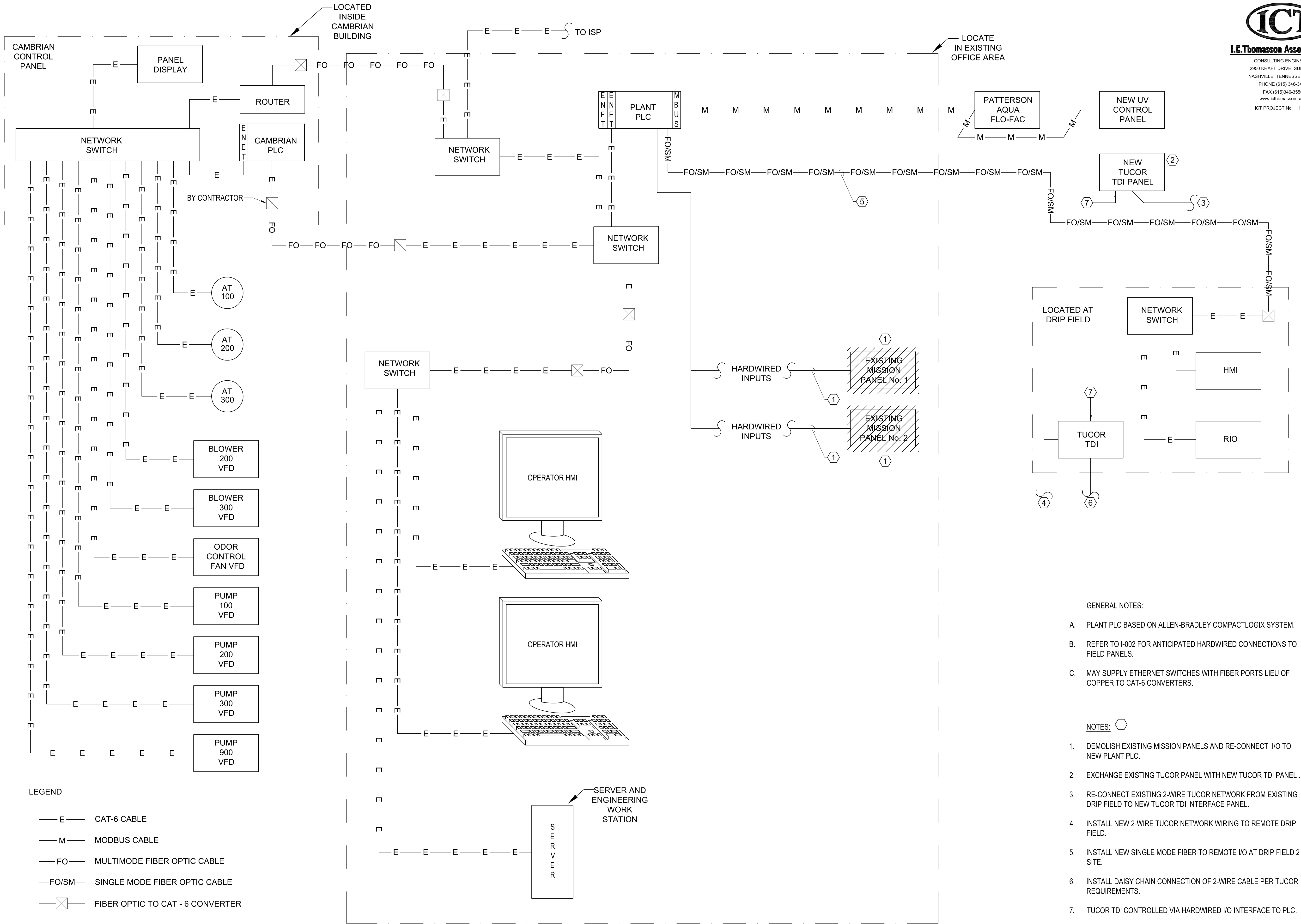
25.95

DESCRIPTION	KW PER PHASE			CKT NO	BREAKER		A	B	C	POLE	AMP	CKT NO	KW PER PHASE			DESCRIPTION
	A	B	C		AMP	POLE							A	B	C	
MASTER CONTROL PANEL - CAMBRIAN	1.60			1	30	1				1	20	2	0.30			MODULATING VALVE - BIOVAPOR TANKS
RECEPTACLES		0.90		3	20	1				1	20	4	0.50			MODULATING VALVE - PUMP SKID
RECEPTACLES			0.54	5	20	1				2	30	6				SPARE
MODULATING VALVES - PUMP SKID	1.00			7	20	1				-	-	8				
MODULATING VALVES - PUMP SKID		1.00		9	20	1				1	20	10	0.47			HEAT TRACE - TANK T-100
MODULATING VALVES - PUMP SKID			1.00	11	20	1				1	20	12			0.47	HEAT TRACE - TANK T-200
MODULATING VALVES - PUMP SKID	1.00			13	20	1				1	20	14	0.47			HEAT TRACE - TANK T-300
DUCT SMOKE DETECTORS				15	20	1				1	20	16		0.10		HEAT TRACE - 1" POTABLE WATER LINE
SPARE				17	20	1				1	20	18				SPARE
SPARE				19	20	1				1	20	20				SPARE
SPARE				21	20	1				1	20	22				SPARE
SPARE				23	20	1				1	20	24				SPARE
SPARE				25	20	2				1	20	26				SPARE
				27	-	-				1	20	28				SPARE
SPACE				29						1	20	30				SPARE
SPACE				31								32				SPACE
SPACE				33								34				SPACE
SPACE				35								36				SPACE
SPACE				37								38				SPACE
SPACE				39								40				SPACE
SPACE				41								42				SPACE
PANEL TOTAL	3.60	1.90	1.54										0.77	1.07	0.47	PANEL TOTAL

PANEL SCHEDULE													SYSTEM AVAILABLE FAULT				TOTAL PANEL CONNECTED LOAD	
'DRP" 120/208 VOLT, 3 PHASE, 4 W, 10 KA INTERRUPT RATING 50 AMP X_MCB __ MLO X_SURFACE __ FLUSH NOTE: ALL BREAKERS TO BE 20A SINGLE POLE, U.O.N.													CURRENT:				(KW) 2.70 AMPS 7.49	
REMARKS:																		
DESCRIPTION	KW PER PHASE			CKT NO	BREAKER			A	B	C	BREAKER POLE	AMP	CKT NO	KW PER PHASE			DESCRIPTION	
	A	B	C		AMP	POLE	A							B	C	POLE		AMP
PUMP CONTROL PANEL - DRIP FIELD	1.60			1	30	1					1	20	2	0.60			SITE LIGHT	
RECEPTACLES		0.50		3	20	1					1	20	4				SPARE	
SPARE				5	20	1					1	20	6				SPARE	
SPARE				7	20	1					1	20	8				SPARE	
SPARE				9	20	1					1	20	10				SPARE	
SPARE				11	20	1					1	20	12				SPARE	
SPARE				13	20	2					1	20	14				SPARE	
SPARE				15	-						1	20	16				SPARE	
SPARE				17	20	1					1	20	18				SPARE	
SPARE				19	20	1					1	20	20				SPARE	
SPARE				21	20	1					1	20	22				SPARE	
SPACE				23									24				SPACE	
SPACE				25									26				SPACE	
SPACE				27									28				SPACE	
PANEL TOTAL	1.60	0.50	0.00											0.60	0.00	0.00	PANEL TOTAL	

DHP PANEL SCHEDULE										SYSTEM AVAILABLE FAULT				CONNECTED LOAD			
277/480 VOLT, 3 PHASE, 4 W 42 KA INTERRUPT RATING 100 AMP X MCB MLO X SURFACE FLUSH NOTE: ALL BREAKERS TO BE 20A SINGLE POLE, U.O.N.										CURRENT:				(KW) 18 AMPS 21.65			
										REMARKS: SERVICE ENTRANCE RATED, NEMA 4X ENCLOSURE							
DESCRIPTION	KW PER PHASE			CKT NO	BREAKER			A	B	C	BREAKER POLE	CKT AMP	NO	KW PER PHASE			DESCRIPTION
	A	B	C		NO	AMP	POLE							A	B	C	
TRANSFORMER T-DRP	1			1	25	3					3	60	2	5			PUMP CONTROL PANEL
		1		3								4		5			
			1	5								6			5		
SPARE				7	20	3					3	20	8				SPARE
				9								10					
				11								12					
SPARE				13	20	1					1	20	14				SPARE
SPARE				15	20	1					1	20	16				SPARE
SPARE				17	20	1					1	20	18				SPARE
SPARE				19	20	3					1	20	20				SPARE
SPACE				21								22					SPACE
SPACE				23								24					SPACE
TOTAL	1	1	1											5	5	5	TOTAL

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112\001.dwg Last Save: 8/3/2020 9:48 AM Last saved by: Snorfleet
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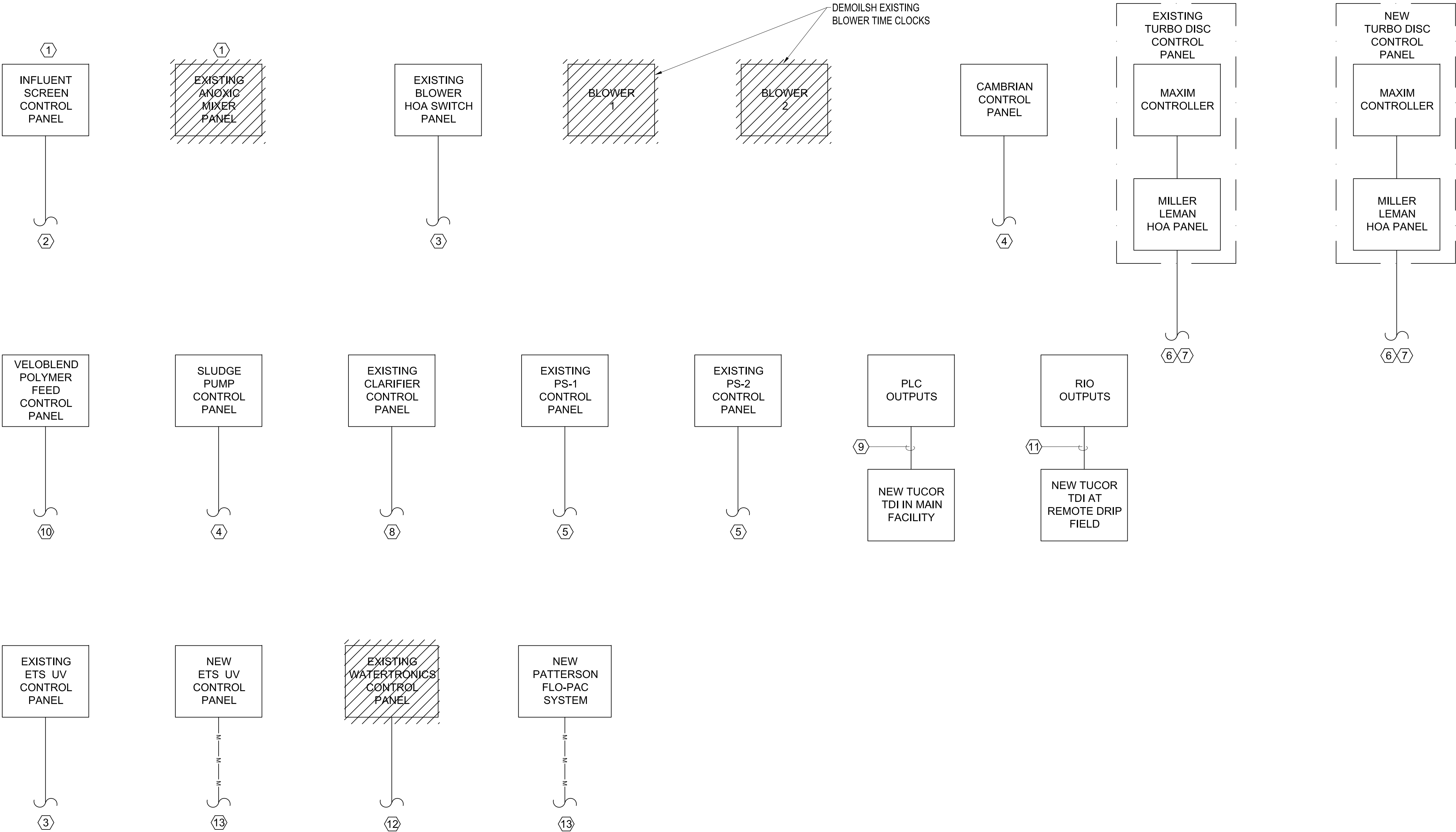
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**NETWORK
ARCHITECTURE**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-001
SHEET NUMBER
66

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112\002.dwg Last Save: 8/3/2020 9:47 AM Last saved by: Snorfleet
Last Plotted by: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 8/3/2020 9:47 AM Printer used: Microsoft Print to PDF



- GENERAL NOTES:
- A. WIRING FROM FIELD PANELS ROUTES TO NEW PLANT PLC PANEL FOR I/O TERMINATION.
 - B. PANELS LABELED AS "EXISTING" MAY USE EXISTING BURIED CONDUIT TO OFFICE AREA WIREWAY. USE OLD WIRING TO PULL NEW WIRING WHERE POSSIBLE.
 - C. WIRING QUANTITIES ARE APPROXIMATE BASED ON ON I/O LIST. COORDINATE WITH PANEL DRAWINGS FOR FINAL WIRING REQUIREMENTS.

- NOTES:
- 1. INFLUENT SCREW REPLACES ANOXIC MIXER. MAY RE-USE EXISTING CONTROL CONDUIT FOR NEW SCREEN CONTROL. DEMOLISH EXISTING ANOXIC MIXER PANEL.
 - 2. 2 - TSP & 12 - #14 TO NEW PLANT PLC PANEL.
 - 3. 12 - #14 TO NEW PLANT PLC PANEL. REQUIRES NEW 3/4"C.
 - 4. 2 - TSP & 40 - #14 TO NEW PLANT PLC PANEL.
 - 5. 4 - TSP AND 40 - #14 TO NEW PLANT PLC PANEL.
 - 6. 6 - #14 TO NEW PLANT PLC PANEL.
 - 7. REQUIRES INTERPOSING RELAY TO BE MOUNTED IN PANEL.
 - 8. 8 - #14 TO NEW PLANT PLC PANEL.
 - 9. 60 - #14 TO NEW PLANT PLC PANEL.
 - 10. 1- TSP & 8 - #14 TO NEW PLANT PLC PANEL.
 - 11. 20 - #14 TO RIO PANEL.
 - 12. PANEL AND SKID REMAIN UNTIL PATTERSON FLO-PAC IS OPERATIONAL. NO PLC CONNECTION.
 - 13. MODBUS RS-485 DATA CONNECTION.



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CONTROL
WIRING
BLOCK
DIAGRAM**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-002
SHEET NUMBER
67

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112\003.dwg Last Save: 8/3/2020 9:45 AM Last saved by: Snorfleet
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HIDEAWAY WASTE WATER TREATMENT PLANT												
NEW PLANT PLC PANEL IO AND WIRE LIST												
	AI = ANALOG INPUT AO = ANALOG OUTPUT	DI = DISCRETE INPUT RO = RELAY OUTPUT				TSP = TWISTED SHIELDED PAIR						
	DESCRIPTION	4 WIRE AI	2-WIRE AI	DI	DO	AO	RO	PULSE IN	REQ'D WIRING	FROM	TO	COMMENTS
FIELD DEVICES												
	EXISTING CLARIFIER FEED FLOW METER FIT-100	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
	EXISTING FILTER FEED FLOW METER FIT-101	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
	EXISTING FLOW METER FIT-102	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
	EXISTING INFLUENT FLOW METER FIT-103	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
	EXISTING BOOSTER PUMP FLOW METER FIT- 104	1						1	1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
	EXISTING BOOSTER PUMP TANK LEVEL LIT-252	1							1-TSP	DEVICE	NEW PLANT PLC PANEL	POWER ALREADY INSTALLED
	NEW BOOSTER PUMP FLOW METER FIT- 105	1						1	1-TSP & 2-#14W/GND	DEVICE	NEW PLANT PLC PANEL	
	CLARIFIER FEED NEW pH ANALYZER TRANSMITTER	1							1-TSP & 2-#14W/GND	DEVICE	NEW PLANT PLC PANEL	
EXISTING WATERTRONICS PANEL												
	NO CONNECTION									EXISTING WATERTRONICS PANEL	NEW PLANT PLC PANEL	
	Existing panel remains operational until new Patterson											
	Flo-Pac is in service, but no new connections											
NEW PATTERSON FLO-PAC												
	REMOTE RESET								MODBUS RS-485	EXISTING WATERTRONICS PANEL	NEW PLANT PLC PANEL	MODBUS CONNECTION
	VFD NOT FAULTED											Expect at least the
	PHASE SYSTEM MONITOR											items listed for
	PLC BYPASS MODE											points to PLC.
	PUMP No.1 IN AUTO											
	PUMP No.1 IN HAND											
	PUMP No. 1 RUNNING											
	PUMP No.1 HIGH TEMP											
	STATION COOLING FAN START											
	VFD ENABLE											
	VFD RESET											
	PUMP No.1 START/STOP											
	VFD CONTACT PUMP No.1											
	VFD SPEED REFERENCE PUMP No.1											
	GENERAL ALARM											
EXISTING TURBODISC FILTER PANEL												
	REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING TURBODISC FILTER PANEL	
	IN AUTO			1					2-#14	EXISTING TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
	RUNNING			1					2-#14	EXISTING TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
NEW TURBODISC FILTER PANEL												
	REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW TURBODISC FILTER PANEL	
	IN AUTO			1					2-#14	NEW TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
	RUNNING			1					2-#14	NEW TURBODISC FILTER PANEL	NEW PLANT PLC PANEL	
EXISTING ETS UV PANEL												
	PROCESS INTERLOCK						1		2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
	REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING ETS UV PANEL	
	EXTERNAL LOW POWER						1		2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
	CRITICAL ALARM HEALTHY				1				2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
	REMOTE SELECTED				1				2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
	NON-CRITICAL ALARM HEALTHY				1				2-#14	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
	FLOW	1							1-TSP & 2-#14W/GND	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
	LAMP CURRENT/UV DOSE					1			1-TSP	EXISTING ETS UV PANEL	NEW PLANT PLC PANEL	
NEW ETS UV PANEL												
	PROCESS INTERLOCK								MODBUS RS-485	NEW ETS UV PANEL	NEW PLANT PLC PANEL	REQUIRE VENDOR SUPPLY MODBUS CONNECTION FOR THIS PANEL
	REMOTE START/STOP											MODBUS CONNECTION
	EXTERNAL LOW POWER											Expect at least the
	CRITICAL ALARM HEALTHY											items listed for
	REMOTE SELECTED											points to PLC.
	NON-CRITICAL ALARM HEALTHY											
	FLOW											
	LAMP CURRENT/UV DOSE											



ICT
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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

NEW PLANT
PLC PANEL
I/O AND WIRE
LIST

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-003
SHEET NUMBER
68

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112\004.dwg Last Save: 8/3/2020 9:42 AM Last saved By: Snorfleet
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HIDEAWAY WASTE WATER TREATMENT PLANT NEW PLANT												
NEW PLANT PLC PANEL IO AND WIRE LIST(CONT.)												
	AI = ANALOG INPUT AO = ANALOG OUTPUT	DI = DISCRETE INPUT RO = RELAY OUTPUT				TSP = TWISTED SHIELDED PAIR						
	DESCRIPTION	4 WIRE AI	2-WIRE AI	DI	DO	AO	RO	PULSE IN	REQ'D WIRING	FROM	TO	COMMENTS
	CAMBRIAN INFLUENT PANEL (EXISTING PS-C)											
	PUMP No.1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
	PUMP No.1 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
	PUMP No.1 SPEED INDICATION		1						1-TSP	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.1 HIGH TEMP			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.1 HIGH MOISTURE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.1 VFD FAULT			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.1 VFD RUNNING			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.1 VFD IN REMOTE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
	PUMP No.2 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	CAMBRIAN INFLUENT PANEL	
	PUMP No.2 SPEED INDICATION		1						1-TSP	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.2 HIGH TEMP			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.2 HIGH MOISTURE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.2 VFD FAULT			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.2 VFD RUNNING			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	PUMP No.2 IN REMOTE			1					2-#14	CAMBRIAN INFLUENT PANEL	NEW PLANT PLC PANEL	
	LSHH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	LSH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	LSL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	LSLL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	PUMP No. 1 PSH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	PUMP No. 1 PSL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	PUMP No. 2 PSH			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	PUMP No. 2 PSL			1					2-#14	DEVICE	NEW PLANT PLC PANEL	
	EXISTING PANEL PS-1											
	PUMP No. 1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
	PUMP No.1 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
	PUMP No.1 SPEED INDICATION		1						1-TSP	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.1 HIGH TEMP			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.1 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.1 VFD FAULT			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.1 VFD RUNNING			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.1 VFD IN REMOTE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
	PUMP No.2 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	EXISTING PANEL PS-1	
	PUMP No.2 SPEED INDICATION		1						1-TSP	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.2 HIGH TEMP			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.2 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.2 VFD FAULT			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.2 VFD RUNNING			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No.2 IN REMOTE			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	LSHH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	LSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	LSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	LSLL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 1 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 1 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 2 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 2 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	EXISTING PANEL PS-2											
	PUMP No.1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-2	
	PUMP No.1 HIGH TEMP			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.1 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.1 FAULT			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.1 RUNNING			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.1 IN REMOTE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING PANEL PS-2	
	PUMP No.2 HIGH TEMP			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.2 HIGH MOISTURE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.2 FAULT			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.2 RUNNING			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	PUMP No.2 IN REMOTE			1					2-#14	EXISTING PANEL PS-2	NEW PLANT PLC PANEL	
	LSHH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	LSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	LSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	LSLL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 1 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 1 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 2 PSH			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	PUMP No. 2 PSL			1					2-#14	EXISTING PANEL PS-1	NEW PLANT PLC PANEL	
	EXISTING CLARIFIER PANEL											
	MOTOR REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING CLARIFIER PANEL	
	MOTOR RUNNING			1					2-#14	EXISTING CLARIFIER PANEL	NEW PLANT PLC PANEL	
	MOTOR FAULT			1					2-#14	EXISTING CLARIFIER PANEL	NEW PLANT PLC PANEL	
	MOTOR IN REMOTE			1					2-#14	EXISTING CLARIFIER PANEL	NEW PLANT PLC PANEL	

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ICT PROJECT No. 190112



BY	DESCRIPTION	DATE	REV
KKP	ISSUED FOR BIDS AND TDEC REVIEW	08/07/20	0

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

NEW PLANT
PLC PANEL
I/O AND WIRE
LIST

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-004
SHEET NUMBER
69

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112\005.dwg Last Save: 8/3/2020 9:19 AM Last saved by: Snorfleet
Last Plotted by: Steve Norfleet Plot Date: 8/3/2020 9:37 AM Plot Scale: 1:1 Plot Size: 11" x 17" Plot Style: Microsoft Plot to PDF

HIDEAWAY WASTE WATER TREATMENT PLANT NEW PLANT												
NEW PLANT PLC PANEL IO AND WIRE LIST(CONT.)												
	AI = ANALOG INPUT	DI = DISCRETE INPUT				TSP = TWISTED SHIELDED PAIR			REQ'D WIRING	FROM	TO	COMMENTS
	AO = ANALOG OUTPUT	RO = RELAY OUTPUT				AO	RO	PULSE IN				
	DESCRIPTION	4 WIRE AI	2-WIRE AI	DI	DO							
	NEW INFLUENT SCREEN PANEL											
	REMOTE SYSTEM START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW INFLUENT SCREEN PANEL	
	SYSTEM RUNNING			1					2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	COMMON SYSTEM ALARM			1					2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	REMOTE RESET						1		2-#14	NEW PLANT PLC PANEL	NEW INFLUENT SCREEN PANEL	
	COMPACTOR FAULT			1					2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	DIFFERENTIAL LEVEL	1							2-#14 W/GND & 1-TSP	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	VFD SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW INFLUENT SCREEN PANEL	
	SOLENOID VALVE XV-001				1				2-#14	NEW INFLUENT SCREEN PANEL	NEW PLANT PLC PANEL	
	NEW VELOBLEND POLYMER FEED PANEL											
	REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW VELOBLEND POLYMER FEED PANEL	
	PACING DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW VELOBLEND POLYMER FEED PANEL	
	SYSTEM RUNNING			1					2-#14	NEW VELOBLEND POLYMER FEED PANEL	NEW PLANT PLC PANEL	
	SYSTEM IN REMOTE			1					2-#14	NEW VELOBLEND POLYMER FEED PANEL	NEW PLANT PLC PANEL	
	COMMON ALARM			1					2-#14	NEW VELOBLEND POLYMER FEED PANEL	NEW PLANT PLC PANEL	
	NEW SLUDGE PUMP CONTROL PANEL (EXISTING PREANOXIC MIX)											
	PUMP 1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 1 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 1 HIGH TEMP			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 1 HIGH MOISTURE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 1 FAULT			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 1 RUNNING			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 1 IN REMOTE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 2 SPEED DEMAND					1			1-TSP	NEW PLANT PLC PANEL	NEW SLUDGE PUMP CONTROL PANEL	
	PUMP 2 HIGH TEMP			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 2 HIGH MOISTURE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 2 FAULT			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	VFD 2 RUNNING			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	PUMP 2 IN REMOTE			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSHH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	LSLL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 1 PUMP PSH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 1 PUMP PSL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 2 PUMP PSH			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	No. 2 PUMP PSL			1					2-#14	NEW SLUDGE PUMP CONTROL PANEL	NEW PLANT PLC PANEL	
	EXISTING BLOWER HOA PANEL											
	BLOWER 1 IN AUTO			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	BLOWER 1 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING BLOWER HOA PANEL	
	BLOWER 1 RUNNING			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	BLOWER 2 IN AUTO			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	BLOWER 2 REMOTE START/STOP						1		2-#14	NEW PLANT PLC PANEL	EXISTING BLOWER HOA PANEL	
	BLOWER 2 RUNNING			1					2-#14	EXISTING BLOWER HOA PANEL	NEW PLANT PLC PANEL	
	REMOTE DRIP FIELD PANEL											THESE POINTS ARE TRANSMITTED WIRELESSLY.
	PUMP 1 IN AUTO			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	THEY ORIGINATE AT THE REMOTE SITE.
	PUMP 1 REMOTE START/STOP						1		2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	THEN THEY ARE DECODED AND REPEATED
	PUMP 1 RUNNING			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	TO BECOME PLC INPUTS AT THE MAIN
	PUMP 2 IN AUTO			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	PLANT PLC.
	PUMP 2 REMOTE START/STOP						1		2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	
	PUMP 2 RUNNING			1					2-#14	REMOTE DRIP FIELD PANEL	NEW PLANT RIO PANEL	
	LSHH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	LSH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	LSL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	LSLL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 1 PUMP PSH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 1 PUMP PSL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 2 PUMP PSH			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	No. 2 PUMP PSL			1					2-#14	DEVICE	NEW PLANT RIO PANEL	
	OUTPUTS TO NEW TUCOR TDI PANEL AT REMOTE DRIP FIELD						10		20 - #14	TUCOR TDI PANEL AT REMOTE DRIP FIELD	NEW PLANT RIO PANEL	
	OUTPUTS TO NEW TUCOR TDI PANEL AT MAIN PLANT						30		60 - #14	TUCOR TDI PANEL AT MAIN PLANT	NEW PLANT PLC PANEL	
	TOTALS IO	10	4	101	4	9	61	2				

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BY	DESCRIPTION	DATE	REV
KKP	ISSUED FOR BIDS AND TDEC REVIEW	08/07/20	0

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

NEW PLANT
PLC PANEL
I/O AND WIRE
LIST

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-005
SHEET NUMBER
70

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112\006.dwg Last Save: 8/3/2020 9:37 AM Last saved by: Snorfleet
Last Plotted by: Steve Norfleet Plot Style: ---- Plot Date: 8/3/2020 9:37 AM Plotter used: Microsoft Print to PDF

CAMBRIAN PANEL												
I/O AND WIRE LIST												
P&ID	Subassembly	Tag	ID	Tag No.	Description			TYPE I/O	Signal Information		Wiring	
13-1-1	BioViper Tanks	AT-101	AT	101	DO Meter for T-100			Ethernet/IP	Factory Wire (from DO)		CAT-6	
13-1-1	BioViper Tanks	AT-100	AT	100	pH Meter for T-100			Ethernet/IP	Factory Wire (from pH)		CAT-6	
13-1-1	BioViper Tanks	AT-201	AT	201	DO Meter for T-200			Ethernet/IP	Factory Wire (from DO)		CAT-6	
13-1-1	BioViper Tanks	AT-200	AT	200	pH Meter for T-200			Ethernet/IP	Factory Wire (from pH)		CAT-6	
13-1-1	BioViper Tanks	AT-301	AT	301	DO Meter for T-300			Ethernet/IP	Factory Wire (from DO)		CAT-6	
13-1-1	BioViper Tanks	AT-300	AT	300	pH Meter for T-300			Ethernet/IP	Factory Wire (from pH)		CAT-6	
13-1-1	BioViper Tanks	LSH-100	LSH	100	High Level Switch	T-100 High Level Switch		DI	Digital	24V	2-#14	
13-1-1	BioViper Tanks	LSHH-101	LSHH	101	High High Level Switch	T-100 High High Level Switch		DI	Digital	24V	2-#14	
13-1-1	BioViper Tanks	LSH-200	LSH	200	High Level Switch	T-200 High Level Switch		DI	Digital	24V	2-#14	
13-1-1	BioViper Tanks	LSHH-201	LSHH	201	High High Level Switch	T-200 High High Level Switch		DI	Digital	24V	2-#14	
13-1-1	BioViper Tanks	LSH-300	LSH	300	High Level Switch	T-300 High Level Switch		DI	Digital	24V	2-#14	
13-1-1	BioViper Tanks	LSHH-301	LSHH	301	High High Level Switch	T-300 High High Level Switch		DI	Digital	24V	2-#14	
13-1-1	BioViper Tanks	LT-100	LT	100	Level Transmitter	T-100 Level Transmitter		AI	4 - 20mA	24V	TSP	
13-1-1	BioViper Tanks	LT-200	LT	200	Level Transmitter	T-200 Level Transmitter		AI	4 - 20mA	24V	TSP	
13-1-1	BioViper Tanks	LT-300	LT	300	Level Transmitter	T-300 Level Transmitter		AI	4 - 20mA	24V	TSP	
13-1-1	BioViper Tanks	PT-100	PT	100	Pressure Transmitter	T-100 Air Pressure Transmitter		AI	4 - 20mA	24V	TSP	
13-1-1	BioViper Tanks	PT-200	PT	200	Pressure Transmitter	T-200 Air Pressure Transmitter		AI	4 - 20mA	24V	TSP	
13-1-1	BioViper Tanks	PT-300	PT	300	Pressure Transmitter	T-300 Air Pressure Transmitter		AI	4-20mA	24V	TSP	
13-1-1	BioViper Tanks	TI-100	TI	100	Temperature Signal	Temperature of T-100		Ethernet/IP	Factory Wire		CAT-6	
13-1-1	BioViper Tanks	TI-200	TI	200	Temperature Signal	Temperature of T-200		Ethernet/IP	Factory Wire (from		CAT-6	
13-1-1	BioViper Tanks	TI-300	TI	300	Temperature Signal	Temperature of T-300		Ethernet/IP	Factory Wire (from		CAT-6	
13-1-1	BioViper Tanks	XV-LA01	XV	LA01	Modulating Valve	Inlet to T-100 from		AI, AO	4-20mA	120V	2-TSP	
13-1-1	BioViper Tanks	XV-01DO	XV	01DO	Solenoid	On/Off Valve for pH and DO, T-100		DO	Digital	120V	2-#14	
13-1-1	BioViper Tanks	XV-02DO	XV	02DO	Solenoid	On/Off Valve for pH and DO, T-200		DO	Digital	120V	2-#14	
13-1-1	BioViper Tanks	XV-03DO	XV	03DO	Solenoid	On/Off Valve for pH and DO, T-300		DO	Digital	120V	2-#14	
13-1-2	BioViper Pump Skid	FT-100	FT	100	Flow Transmitter	Flow transmitter for recirculation to T-100		AI	4 - 20mA	24V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-01LA	XV	01LA	Modulating Valve	T-100 Return to Lagoon		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0101	XV	0101	Modulating Valve	T-100 Internal Recirculation Line		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0102	XV	0102	Modulating Valve	T-100 Transfer to T-200		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0103	XV	0103	Modulating Valve	T-100 Transfer to T-300		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-02LA	XV	02LA	Modulating Valve	T-200 Return to Lagoon		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0201	XV	0201	Modulating Valve	T-200 Return to T-100		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-02CL	XV	02CL	Modulating Valve	T-200 Effluent to Clarifier		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0202	XV	0202	Modulating Valve	T-200 Internal Recirculation Line		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0203	XV	0203	Modulating Valve	T-200 Transfer to T-300		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0301	XV	0301	Modulating Valve	T-300 Return to T-100		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-03LA	XV	03LA	Modulating Valve	T-300 Return to Lagoon		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-03CL	XV	03CL	Modulating Valve	T-300 Effluent to Clarifier		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-0303	XV	0303	Modulating Valve	T-300 Internal Recirculation Line		AI, AO	4 - 20mA	120V	TSP + 2-#14 + GND	
13-1-2	BioViper Pump Skid	XV-BVLA	XV	BVLA	On/off Valve	BioViper Return to Lagoon		2 DI, DO	Digital	24V	5-#14	
13-1-2	BioViper Pump Skid	XV-BVCL	XV	BVCL	On/off Valve	BioViper Effluent to Clarifier		2 DI, DO	Digital	24V	5-#14	
15-1-1	BioViper Odor	LS-1501	LS	1501	High Level Switch	High Level Switch for KOP		DI	Digital	24V	2-#14	
15-1-1	BioViper Odor	XV-1501	XV	1501	Solenoid	On/Off valve for KOP condensate		DO	Digital	120V	2-#14	

NOTES:

1. ALL DEVICES WIRE FROM DEVICE TO CAMBRIAN CONTROL PANEL. SEE ELECTRICAL PANEL SCHEDULES FOR MODULATING VALVE POWER.



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DATE	08/07/20					
REV	0					

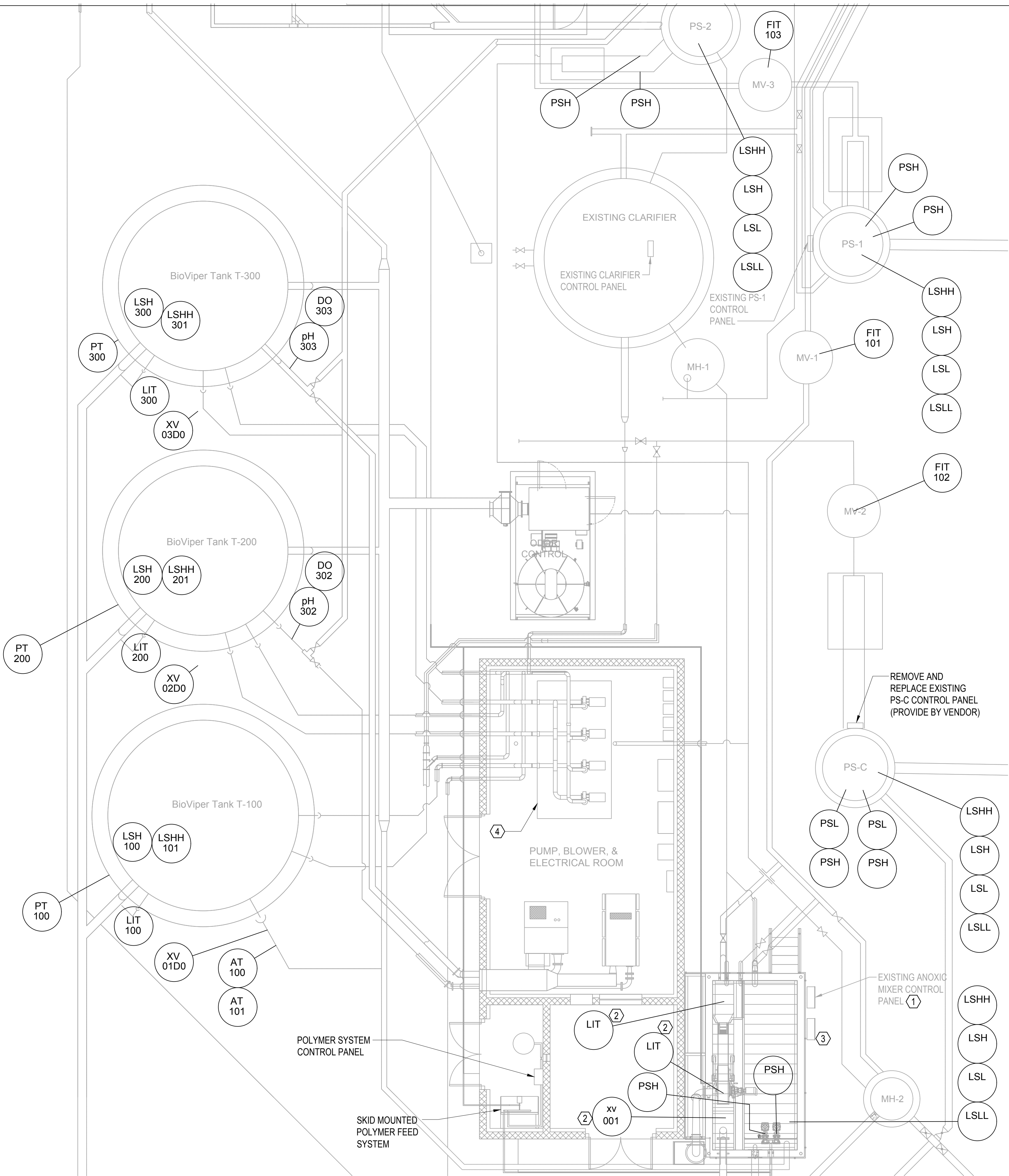
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CAMBRIAN
PANEL I/O
AND WIRE
LIST**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-006
SHEET NUMBER
71

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Last Plotted By: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 8/3/2020 3:42 PM Plotter used: Microsoft Print to PDF



- NOTES:
- INFLUENT SCREEN REPLACES ANOXIC MIXER. MAY RE-USE EXISTING CONTROL CONDUIT FOR NEW SCREEN CONTROL WIRING TO PLANT PLC PANEL. DEMOLISH EXISTING ANOXIC MIXER PANEL.
 - FIELD DEVICES HERE WIRE TO NEW SCREEN CONTROL PANEL.
 - CONTROL WIRING FOR SLUDGE PANEL MAY SHARE EXISTING CONDUIT FOR SCREEN CONTROL BACK TO CONTROL ROOM TO PLC.
 - SEE PUMP SKID INFORMATION ON I-103 FOR VALVE AND PUMP LOCATION.

- GENERAL NOTES:
- REFER TO DRAWING I-003, I-004, I-005, AND I-006 FOR WIRING REQUIREMENTS.
 - ANALYZERS REQUIRE FIELD INSTALL FACTORY CABLE FROM DETECTION ELEMENT IN PIPE TO ANALYZER. EACH ANALYZER REQUIRES CAT-6 CABLE TO CAMBRIAN PANEL NETWORK SWITCH.
 - CONTRACTOR TO COORDINATE FINAL LOCATION OF TANK INSTRUMENTATION WITH TANK MANUFACTURER. SEE D-303 FOR ADDITIONAL INFORMATION.



REV	DATE	DESCRIPTION	BY
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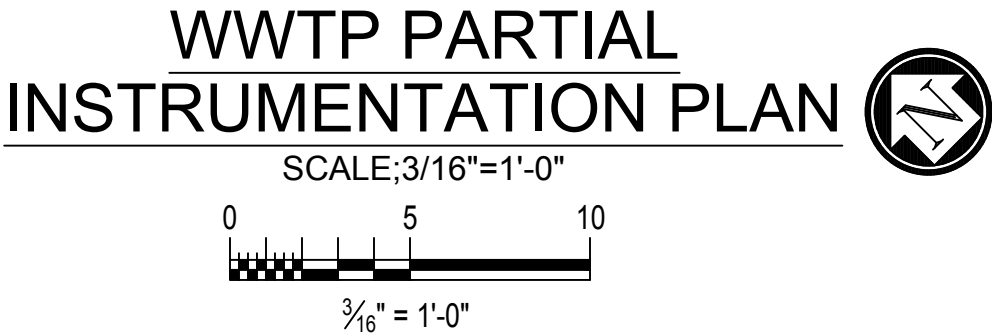
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**WWTP
PARTIAL
INSTRUMENTATION
SITE PLAN**

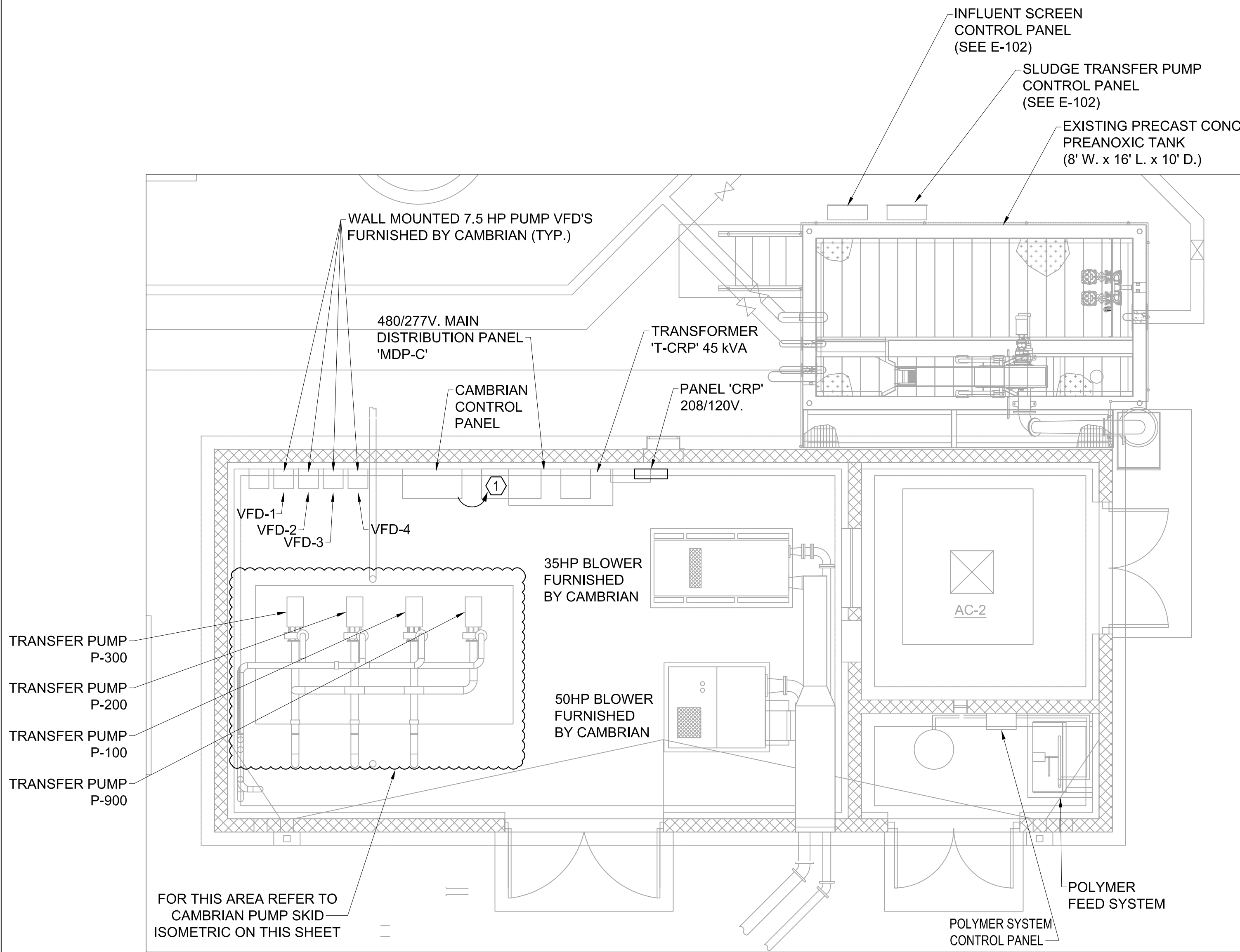
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IS 1" AT
FULL SIZE

DRAWING NUMBER
I-102

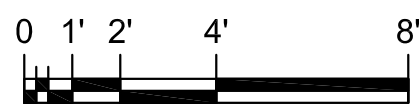
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CAMBRIAN BUILDING PLAN



SCALE:1/4"=1'-0"

NOTES:

1. INSTALL CONDUIT AND ETHERNET CAT-6 WIRING FROM CAMBRIAN PANEL TO PLANT PLC PANEL IN CONTROL BUILDING.

GENERAL NOTES:

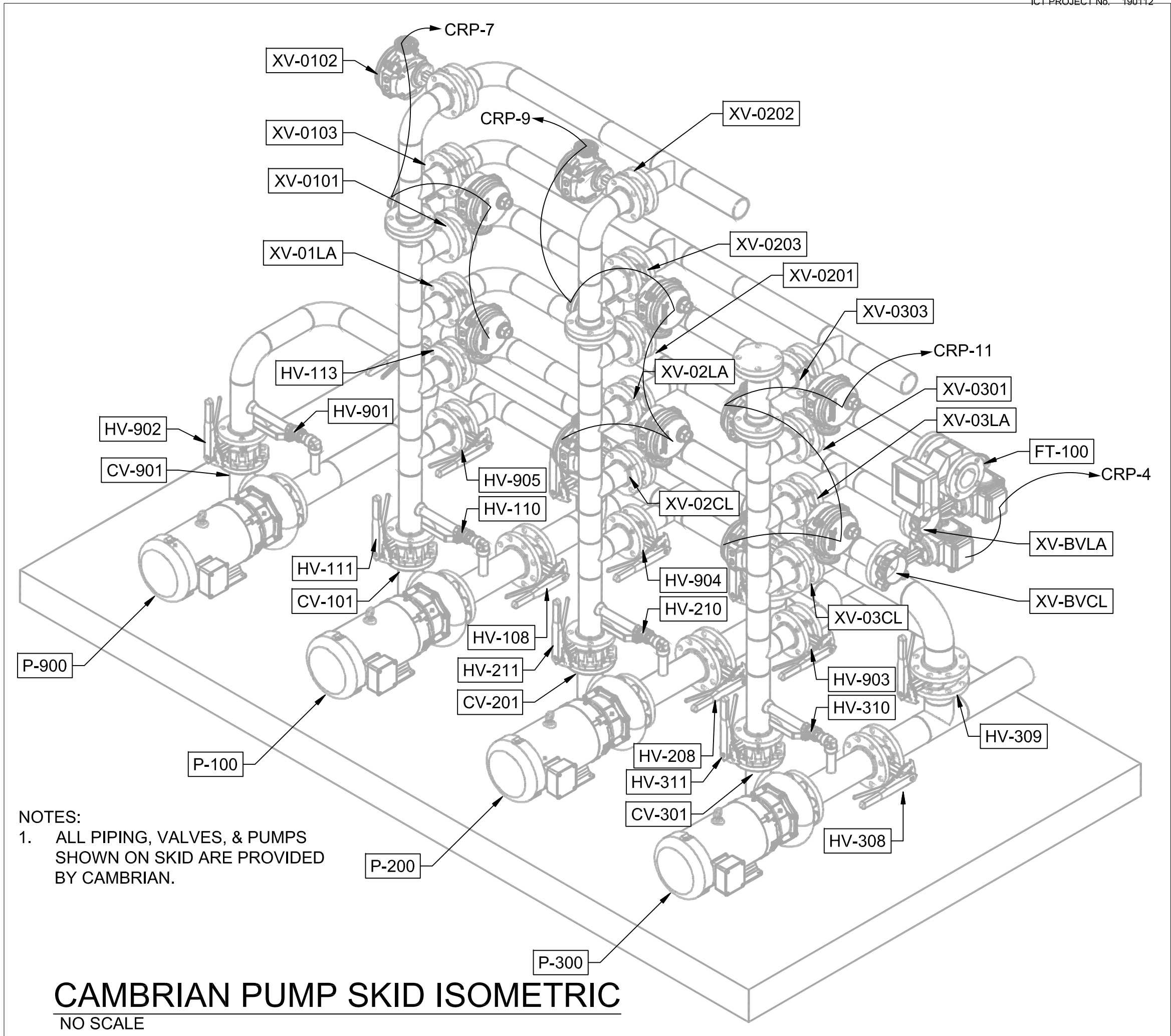
- A. POWER MOTOR OPERATED CONTROL VALVES FROM PANEL CRP.
- B. SOLENOID VALVES ENERGIZED FROM CAMBRIAN CONTROL PANEL.
- C. SEE I-003, I-004, AND I-005 FOR INSTRUMENT WIRING INFORMATION.



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ICT PROJECT No. 190112



NOTES:

1. ALL PIPING, VALVES, & PUMPS SHOWN ON SKID ARE PROVIDED BY CAMBRIAN.

CAMBRIAN PUMP SKID ISOMETRIC

NO SCALE



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HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CAMBRIAN
BUILDING &
INFLUENT
SCREEN
INSTRUMENTATION
PLAN**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER

I-103

SHEET NUMBER

73

File: K:\2019\190112 Hideaway WWTP Phase II Expansion\Cadd\190112-104.dwg Last Save: 8/3/2020 9:53 AM Last saved by: Snorfleet
Last Plotted by: Steve Norfleet Plot Style: --- Plot Scale: 1:1 Plot Date: 8/3/2020 9:34 AM Plotter used: Microsoft Print to PDF



REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

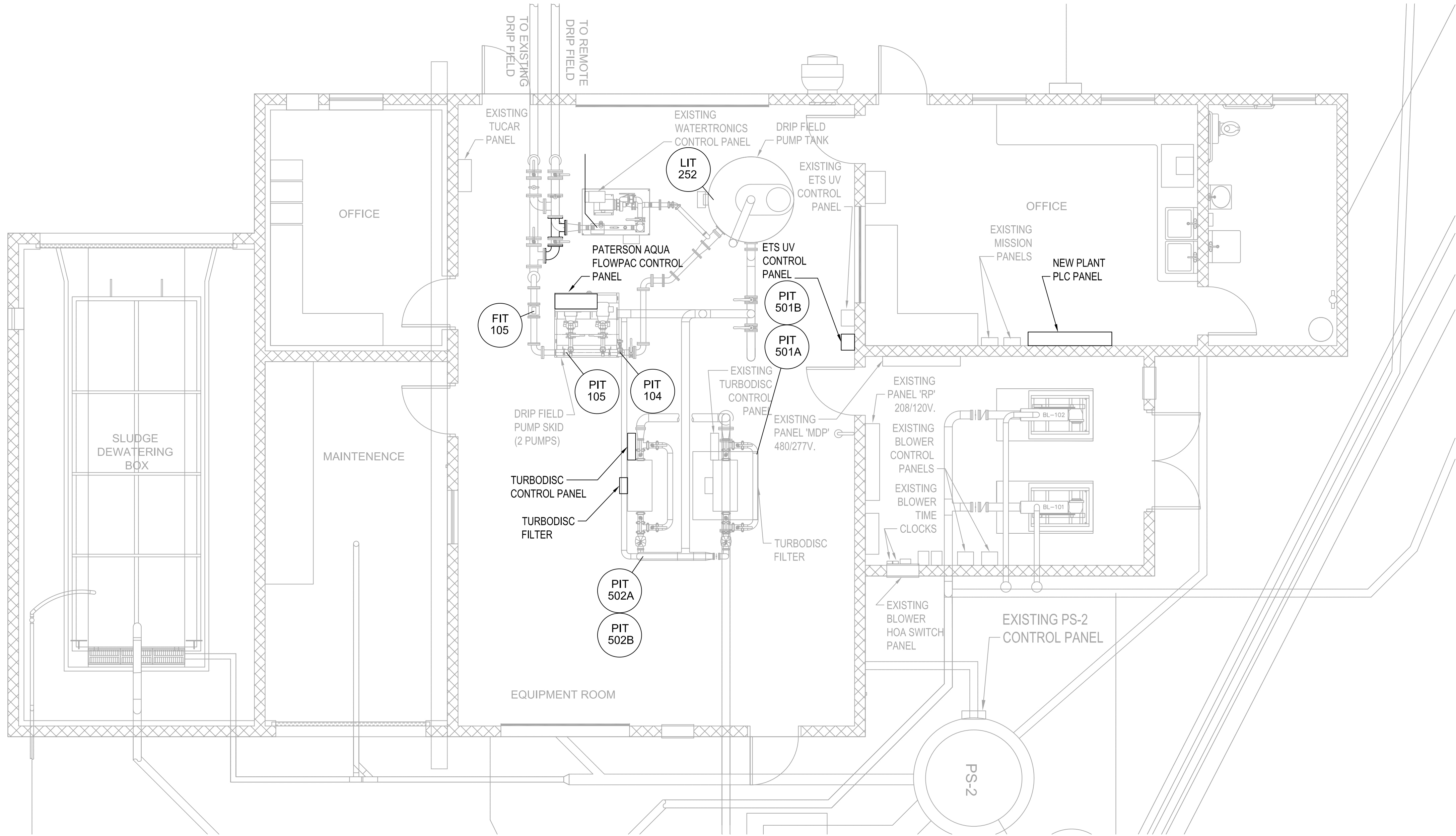
HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**CONTROL
BUILDING
INSTRUMENTATION
PLANS**

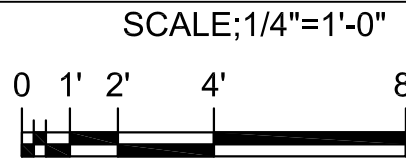
THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-104

SHEET NUMBER
74



**CONTROL BUILDING
INSTRUMENTATION PLAN**



SCALE: 1/4"=1'-0"

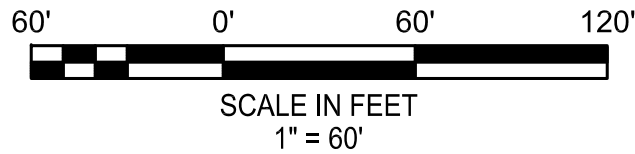
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Last Plotted By: Steve Norfleet Plot Style: --- Plot Scale: 1" = 60' Date: 8/3/2020 9:28 AM Plotter used: Microsoft Print to PDF

NOTES: 

- 12 FIBER SINGLE MODE FIBER CABLE EXTENDS BACK TO MAIN WWTP. ROUTE WITH RETURN PIPING IN RIGID 1 1/4" C.
- DAISY CHAIN 2-WIRE CONNECTION FROM EACH ZONE VALVE BACK TO TUCOR ELECTRONICS. CABLE INSTALLED PER TUCOR REQUIREMENTS.
- CONNECT SWITCHES TO REMOTE I/O PANEL. SEE I/O AND WIRE LIST.
- 1" CONDUIT WITH PUMP CONTROL CONNECTION FROM PUMP CONTROL PANEL TO REMOTE I/O. SEE I/O AND WIRE LIST.

DRIP FIELD ZONE SITE PLAN

SCALE: 1"=60'-0"



I.C. Thomasson Associates, Inc.
CONSULTING ENGINEERS
2950 KRAFT DRIVE, SUITE 500
NASHVILLE, TENNESSEE 37204
PHONE (615) 346-3400
FAX (615) 346-3550
www.icthomasson.com
ICT PROJECT No. 190112



REV	DATE	DESCRIPTION	BY
0	08/07/20	ISSUED FOR BIDS AND TDEC REVIEW	KKP

HIDEAWAY WWTP PHASE II EXPANSION
WILLIAMSON COUNTY, TENNESSEE
DISCOVERY LAND COMPANY

**DRIP FIELD
INSTRUMENTATION
SITE PLAN**

THIS LINE
IS 1" AT
FULL SIZE

DRAWING NUMBER
I-121

SHEET NUMBER
75

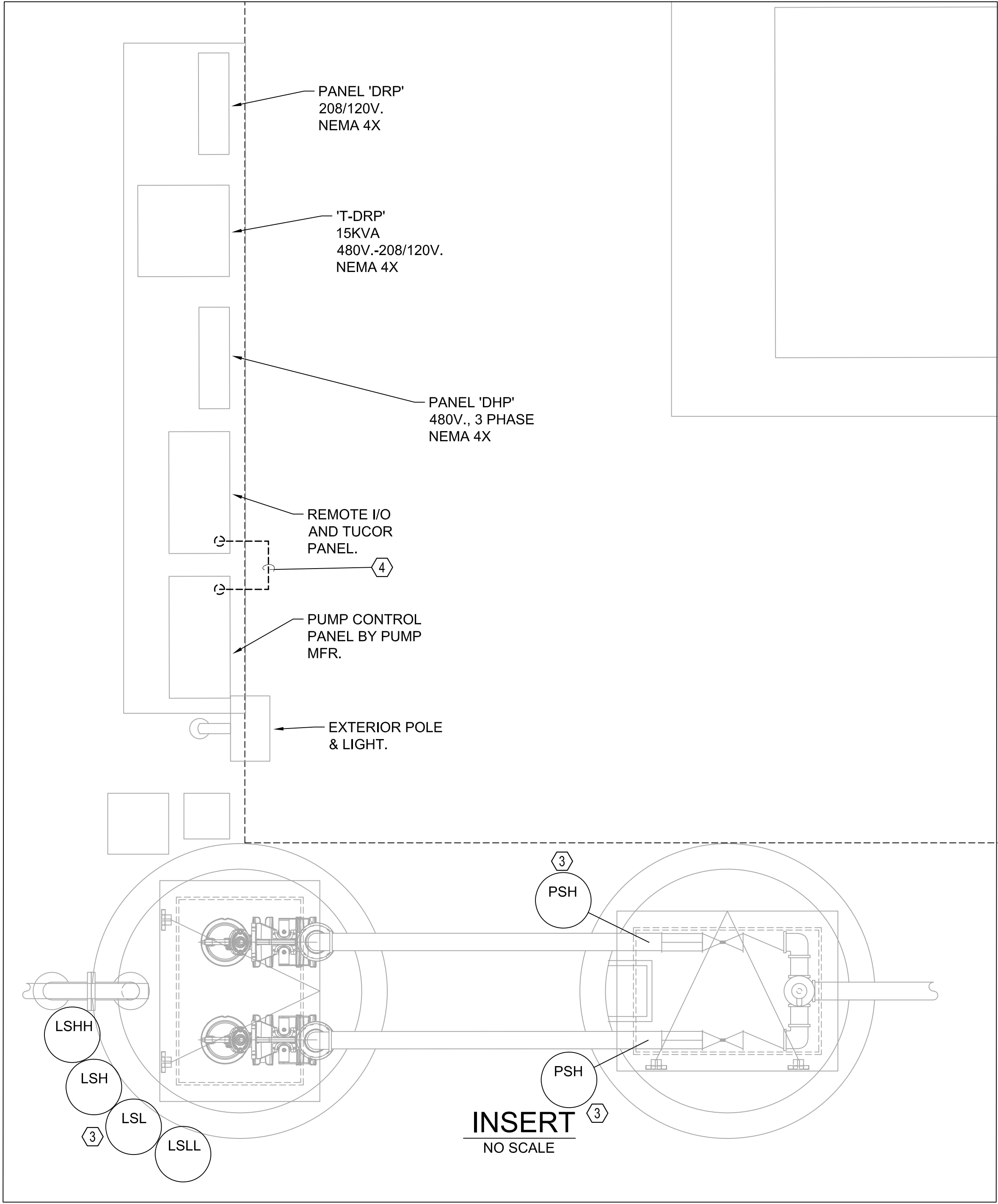


EXHIBIT 3

Hardeman Springs

5006-14 Murfreesboro Road

STEP System Design Wastewater Site Plan

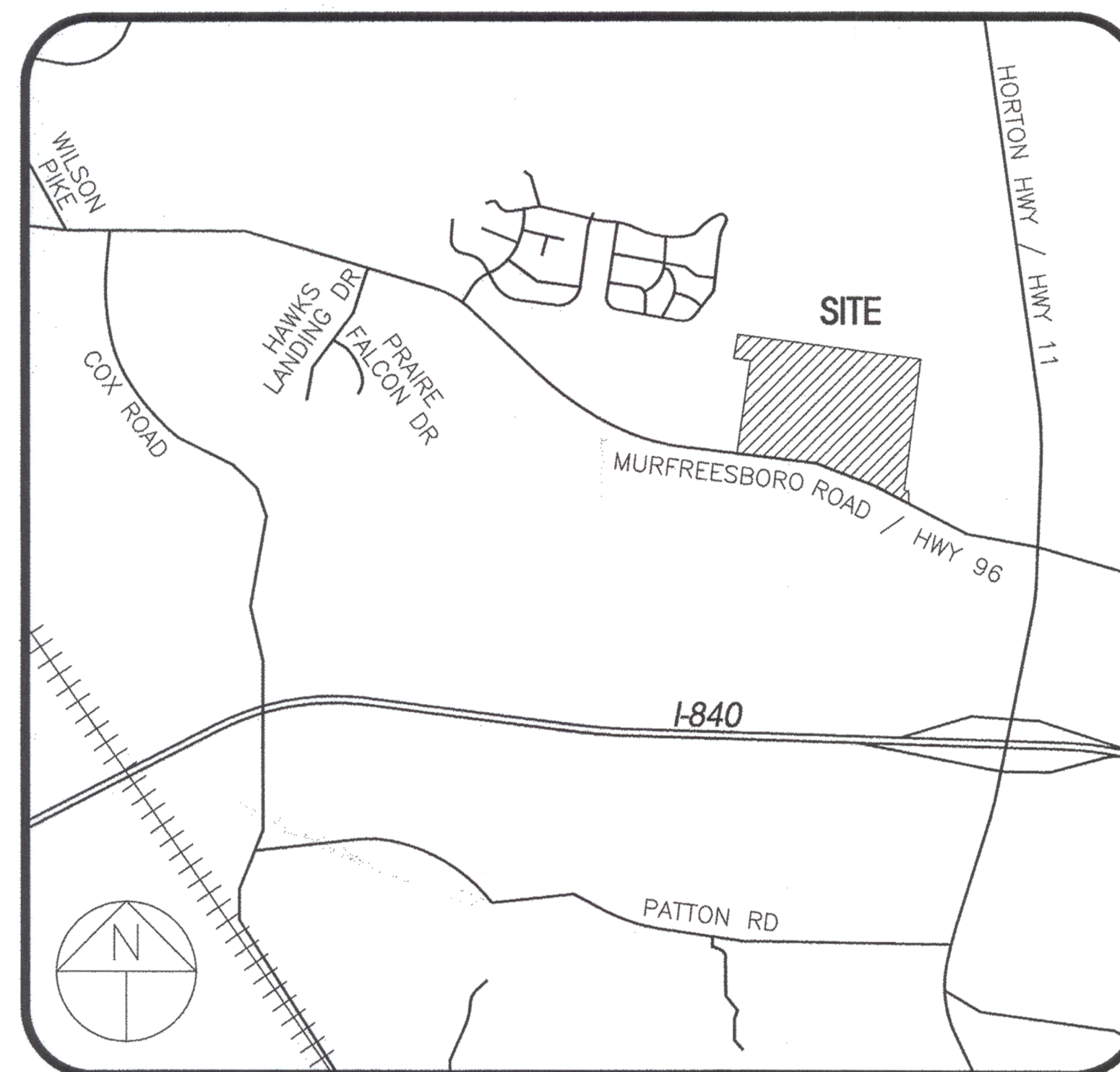
Williamson County, Tennessee

SOP No. 17002

Construction Drawings

Drawing Index

Sheet No.	Title
C0.0	Cover Sheet
C0.1	Master Site Plan
C1.0-C1.4	Site Plan
C2.0	Grading & Drainage Plan
C3.0-C3.1	Cross Sections
C4.0	Master Plan
C5.0	Soils Map
C6.0	Notes & Details
C6.1-C6.6	Details



Site Location Map

Not To Scale

Watershed: Nelson Creek

Owner:

Paula E Harris Revocable Living Trust
5006-14 Murfreesboro Rd.
Arlington, TN 37014-9169

Developer:

Park Trust
640 Broadmor Blvd., Suite 100
Murfreesboro, TN 37129

Floodplain Note:

No Portion of this site lies within a 100 Year Flood Hazard Area per F.E.M.A. Map No. 47187C0240F dated Sept. 29, 2006.

Land Data:

162.31 Ac.±
Zoned: RD-1 (Rural Development-District 1)

Deed Reference:

The property shown hereon is Tax Map 114, Parcel 15.00, in Williamson County, as recorded in D.B. 6094, Pg. 724.

S.T.E.P. System Data:

Wastewater Lots: 13.89± Acres
Design Flow = 120 Lots x 300 gal/lot=36,000 GPD
Required Land Application Area + Reserve Area = 8.33± Ac.
Provided Land Application Area + Reserve Area = 9.71± Ac.

Approved by the Williamson County Planning Commission, with such conditions as are indicated in the minutes of the Commission on 1/1.

Contacts:

Middle Tennessee Electric Membership Corp.
2156 Edward Curd Lane
Franklin, TN 37067
Phone: (615) 794-3561
Contact: Gary Osburn

Engineer/Surveyor:

Site Engineering Consultants, Inc.
850 Middle Tennessee Blvd.
Murfreesboro, TN 37129
Phone: (615) 890-7901
Contact: Jamie Reed

County Engineering:

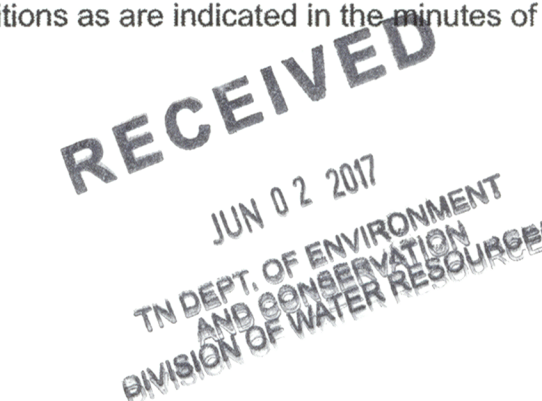
Williamson County Engineering Dept.
Suite 400
1320 West Main St.
Franklin, TN 37064
Phone: (615) 790-5809
Contact: Floyd Heflin

Nolensville College Grove Utility District

2002 Johnson Industrial Blvd.
Nolensville, TN 37135
Phone: (615) 776-2511
Contact: Mike Polston

Cartwright Creek, LLC

1551 Thompson Station Road West
Thompson Station, TN 37179
Phone: (615) 261-8600
Contact: Bruce Meyer



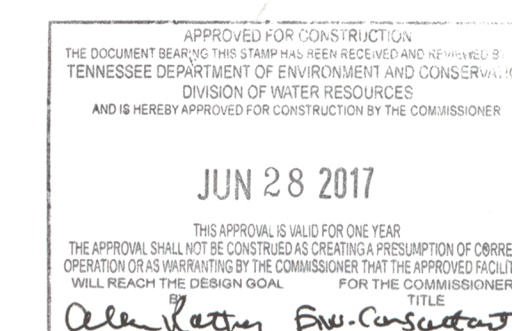
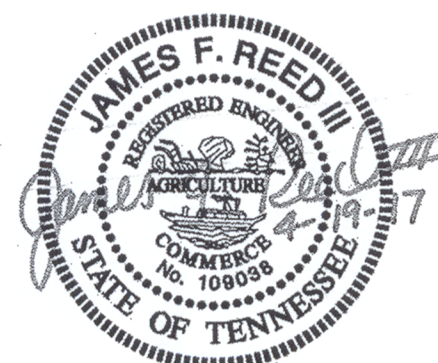
WPN17 0382

SEC, Inc. SITE ENGINEERING CONSULTANTS
ENGINEERING • SURVEYING • LAND PLANNING
LANDSCAPE ARCHITECTURE

850 MIDDLE TENNESSEE BOULEVARD MURFREESBORO, TENNESSEE 37129
PHONE: (615) 890-7901 E-MAIL: JREED@SEC-CIVIL.COM FAX: (615) 895-2567

NO PORTION OF THIS DRAWING MAY BE REPRODUCED WITHOUT THE EXPRESSED WRITTEN CONSENT OF S.E.C. INC.

By: James F. Reed III Date: April 19, 2017
James F. Reed III, P.E., R.L.S. TN. Reg. #109038



Sheet 1 of 19
Hardeman Springs
S.E.C. Project #16162
Date: 3-28-17
Revised: 4-19-27

NOTE:

- 1) This property has been reviewed for the existence of intermittent and perennial streams. Streams that would require Waterway Natural Areas as described in Section 4 of the Williamson County Storm Water Management Regulations have been located as shown.
- 2) Within the Waterway Natural Area, there shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the Williamson County Engineering Department.

Use Type:

Single family residences.
Wastewater Treatment Area: 13.89± Acres
Total acreage of original tract: 148.42± Acres
Area of R.O.W. dedication in Subdivision: 8.69± Acres
Area of Land to be subdivided: 63.13± Acres
Open Space: 74.84± Acres (50%)
Number of lots: 120 Lots

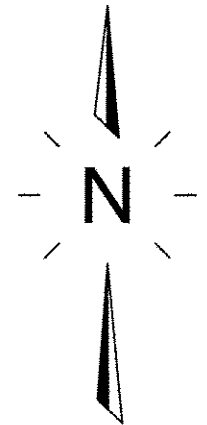
Address:

5006-14 Murfreesboro Rd.
Arrington, TN 37014
Land Data:
162 Ac.±
Zoned: RD-1 - Rural Development District 1
Proposed Use:
Conservation Subdivision
Deed Reference:
The property shown hereon is Tax Map 114, Parcels 15, in Williamson County, as recorded in D.B. 6094, Pg. 724

Revision Note:
Relocate Wastewater access drive.



Know what's below.
Call before you dig.



200' 0 200' 400'
SCALE: 1"=200'

Legend:			
	EXIST. CONCRETE MONUMENT		INLET FILTER PROTECTION
	IRON PIN SET (I.P.S.)		HANDICAP RAMP SYMBOL
	IRON PIN FOUND (I.P.F.)		HC SIGN
	EXIST. SIGN POST		PROPOSED SIGN POST
	EXIST. SEWER CLEANOUT		HEADWALL
	EXIST. MANHOLE (SEWER & STORM)		WINGED HEADWALL
	EXIST. CATCH BASIN (STORM SEWER)		MANHOLE
	EXIST. WATER/GAS VALVE		PROPOSED SPOT ELEVATION
	EXIST. TELEPHONE RISER		EXIST. SPOT ELEVATION
	EXIST. GAS RISER		POST INDICATOR VALVE
	ELECTRICAL ENCLOSURE		REDUCER
	EXIST. WATER METER		REMOTE FIRE DEPT. CONNECTION
	EXIST. UTILITY POLE		REVISION NUMBER
	EXIST. FIRE HYDRANT		RIP RAP
	BENCHMARK		RUNOFF FLOW ARROW
	BLOW OFF VALVE		SEWER/STORM FLOW DIRECTION
	CONCRETE BOLLARD		TRAFFIC ARROW
	CATCH BASIN		TURN LANE ARROWS
	CURB INLET		VAN ACCESSIBLE HANDICAP DESIGNATION
	AREA DRAIN		WHEEL STOP
	CONCRETE THRUST BLOCK		GREASE TRAP
	DOUBLE DETECTOR CHECK VALVE		DRAINAGE STRUCTURE DESIGNATION
	FIRE DEPT. CONNECTION		DRAINAGE PIPE DESIGNATION
	FIRE HYDRANT		CONCRETE SIDEWALK
	GAS METER		EXTRUDED CURB
	GATE VALVE & BOX		CURB & GUTTER
	EXTERIOR CLEANOUT ECO		CONCRETE SWALE
	WATER METER		TYPE- "U" HEADWALL

EXISTING PHONE	PH
EXISTING ELECTRIC	OH
PROPERTY LINE	
EsmtS	
RIGHT OF WAY	ROW
EROSION CONTROL SILT FENCE	SF SF
EXISTING TREELINE	
EXISTING FENCELINE	X X
MINIMUM BUILDING SETBACK LINE	MBSL
PHASE BOUNDARY	
EXISTING GAS LINE	GAS
PROPOSED GAS LINE	GAS
EXISTING STORM	STM
PROPOSED STORM	STM
EXISTING CONTOUR LINES	-601-
PROPOSED CONTOUR LINES	601
EXISTING SANITARY SEWER	SS SS
PROPOSED SANITARY SEWER	SS SS
EXISTING WATER	W W
PROPOSED WATER	W W
EROSION EEL	E E E

S.T.E.P. LEGEND

	STEP TANK
	DOSING TANK
	RECIRCULATING TANK
	TREATMENT TANK
	ULTRAVIOLET DISINFECTION
	FORCE MAIN
	FORCE MAIN RETURN (FLUSH LINE)
	SOLENOID VALVE
	CHECK/FLUSHING VALVE
	TIGHT LINE
	ECO (EXTERIOR CLEAN OUT)

SEC, Inc.
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THE SITE SHOWN ON THESE CONSTRUCTION DRAWINGS IS INTENDED TO ACHIEVE SPECIFIC ENGINEERING DESIGN CRITERIA AND OBJECTIVES. IT IS THE RESPONSIBILITY OF THE ENGINEER TO OBTAIN ALL NECESSARY DATA AND INFORMATION TO PREPARE THESE DRAWINGS. THE ENGINEER ASSUMES NO ADMINISTRATIVE LIABILITY OR RESPONSIBILITY IN THE CONSTRUCTION OF THE PROJECT.

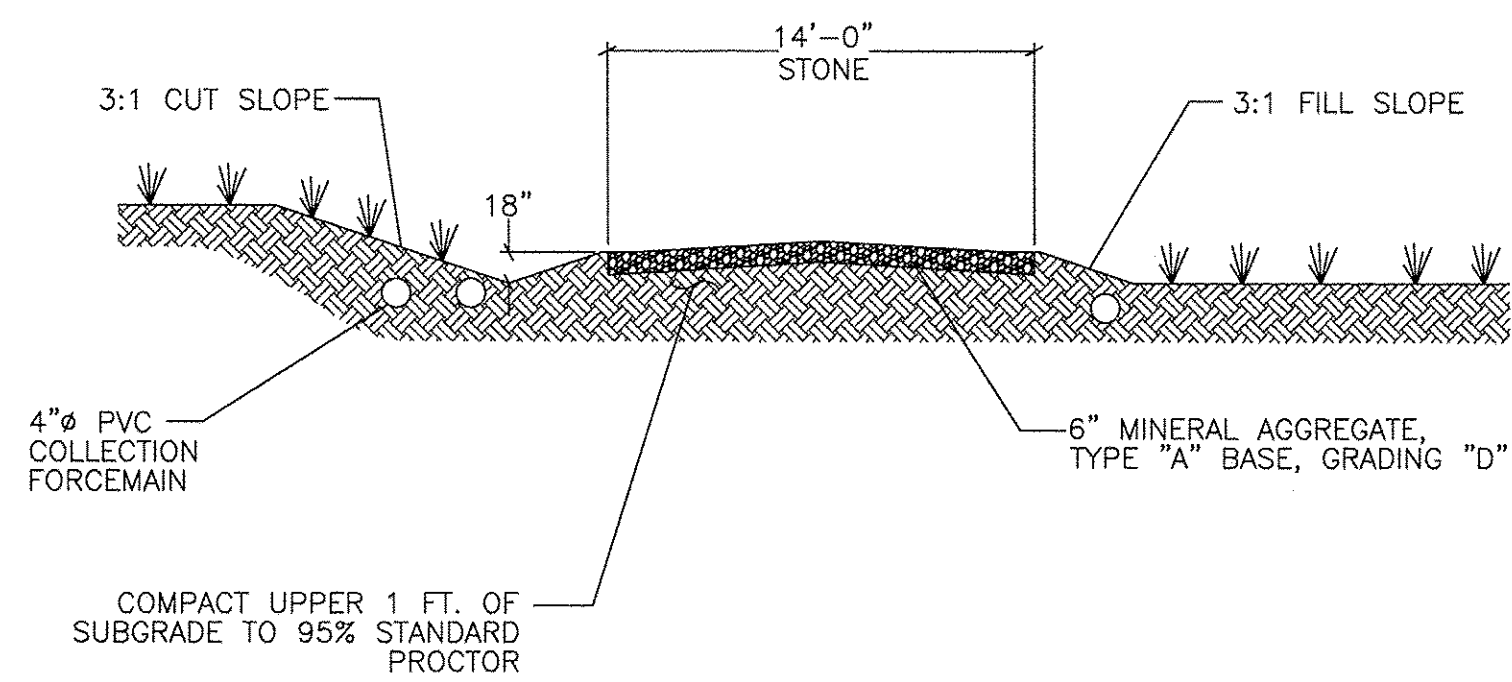
Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

REVISIONS: 4-19-17 Comments
6-19-17 Per Phase 1 Comments

DRAWN: MLG
DATE: 3-28-17
CHECKED: JFR
FILE NAME: 16162project.dwg
SCALE: 1"=200'
JOB NO. 16162
SHEET: C0.1

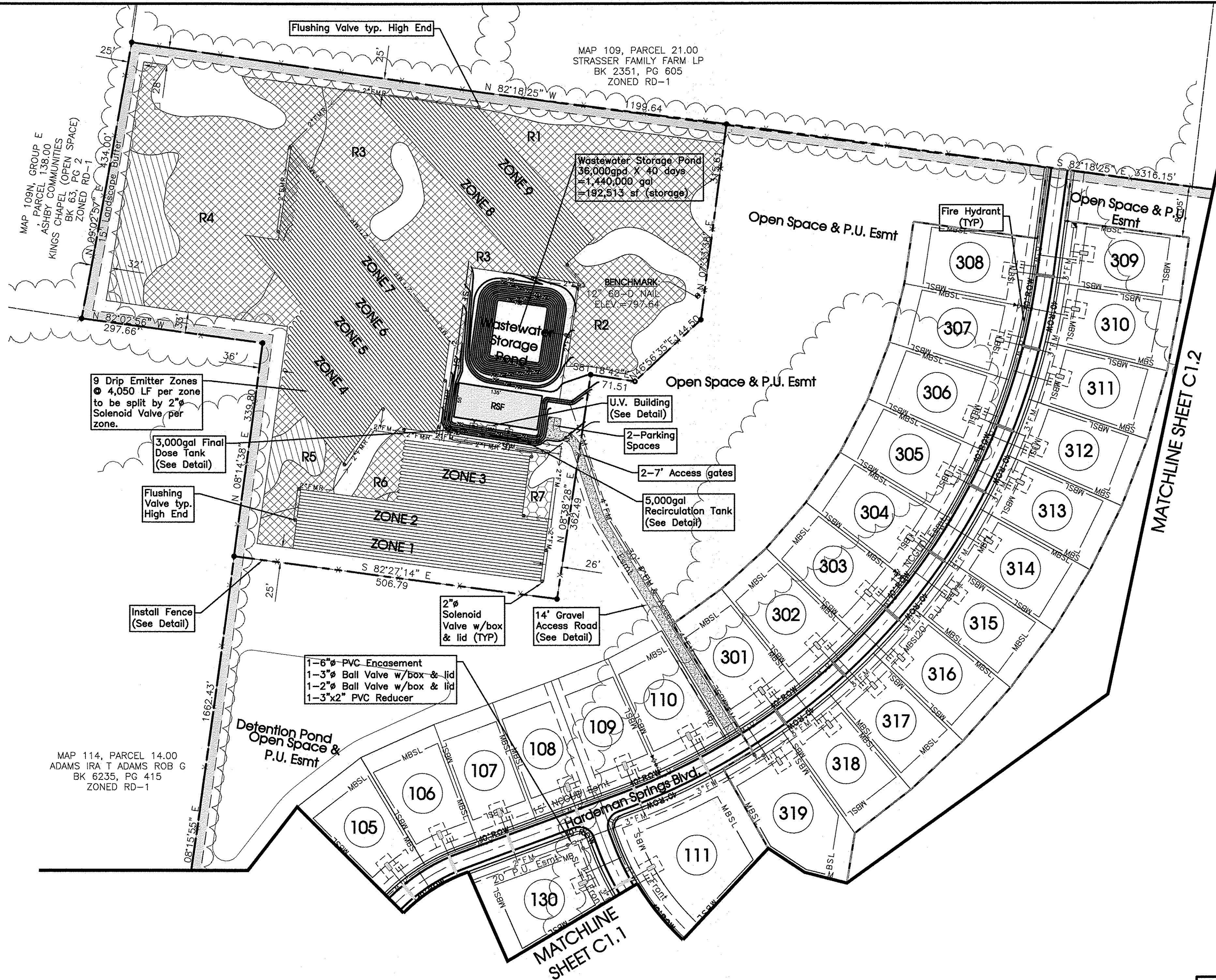
Master Site Plan

Plot Style: S.E.C. Standard Map.ctb Plot Date: 9/14/2017 9:15 AM User: CADTECH4



- NOTES:
1. ACCESS DRIVE MATERIALS AND CONSTRUCTION PER STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION, LATEST EDITION
 2. SEE PLANS FOR CONCRETE ACCESS AT ENTRANCE

GRAVEL ACCESS DRIVE
SCALE NONE



Soil Reserves			
Soils	Area (Ft.)	Soils	Area (Ft.)
R1	47200	R5	17412
R2	23031	R6	5729
R3	53179	R7	3459
R4	91224		
Total Reserve Soils		5.54	Ac.

RSF 1 (Zones 1-9)						
Zones	L.F. Drip	Distal Ends	Min. Drip L.F.	Max. Drip L.F.	Tight Line L.F.	Sq. Ft.
Zone 1	4000	10	400	400	0	20000
Zone 2	4000	10	400	400	0	20000
Zone 3	4000	10	400	400	0	20000
Zone 4	4016	11	307	400	0	20080
Zone 5	4000	10	400	400	0	20000
Zone 6	4000	10	40	400	0	20000
Zone 7	4000	10	400	400	0	20000
Zone 8	4316	11	392	393	0	21580
Zone 9	4083	13	279	350	0	20415
Total	36415					182075

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Single family residences.
Wastewater Treatment Area: 13.89± Acres
Total acreage of original tract: 148.42± Acres
Area of R.O.W. dedication in Subdivision: 8.69± Acres
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Conservation Subdivision
Deed Reference:
The property shown hereon is Tax Map 114, Parcels 15, in Williamson County, as recorded in D.B. 6094, Pg. 724

Revision Note:
Relocate Wastewater access drive.



100' 0 100' 200'
SCALE: 1"= 100'

Legend:			
EXIST. CONCRETE MONUMENT	INLET FILTER PROTECTION	EXIST. TELEPHONE RISER	EXIST. SPOT ELEVATION
IRON PIN SET (I.P.S.)	HANDICAP RAMP SYMBOL	EXIST. GAS RISER	POST INDICATOR VALVE
IRON PIN FOUND (I.P.F.)	HC SIGN	ELECTRICAL ENCLOSURE	REDUCER
EXIST. SIGN POST	PROPOSED SIGN POST	EXIST. WATER METER	REMOTE FIRE DEPT. CONNECTION
EXIST. SEWER CLEANOUT	HEADWALL	EXIST. UTILITY POLE	REVISION NUMBER
EXIST. MANHOLE (SEWER & PHONE)	WINGED HEADWALL	EXIST. FIRE HYDRANT	RIP RAP
EXIST. CATCH BASIN (STORM SEWER)	MANHOLE	BENCHMARK	RUNOFF FLOW ARROW
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EXIST. TELEPHONE RISER	EXIST. SPOT ELEVATION	CONCRETE BOLLARD	TRAFFIC ARROW
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ELECTRICAL ENCLOSURE	REDUCER	CURB INLET	V.A. VAN ACCESSIBLE HANDICAP DESIGNATION
EXIST. WATER METER	REMOTE FIRE DEPT. CONNECTION	AREA DRAIN	WHEEL STOP
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EXIST. FIRE HYDRANT	RIP RAP	DOUBLE DETECTOR CHECK VALVE	DRAINAGE STRUCTURE DESIGNATION
BENCHMARK	RUNOFF FLOW ARROW	FIRE DEPT. CONNECTION	DRAINAGE PIPE DESIGNATION
BLOW OFF VALVE	SEWER/STORM FLOW DIRECTION	FIRE HYDRANT	CONCRETE SIDEWALK
CONCRETE BOLLARD	TRAFFIC ARROW	GAS METER	EXTRUDED CURB
CATCH BASIN	TURN LANE ARROWS	GATE VALVE & BOX	CURB & GUTTER
CURB INLET	V.A. VAN ACCESSIBLE HANDICAP DESIGNATION	EXTERIOR CLEANOUT ECO	CONCRETE SWALE
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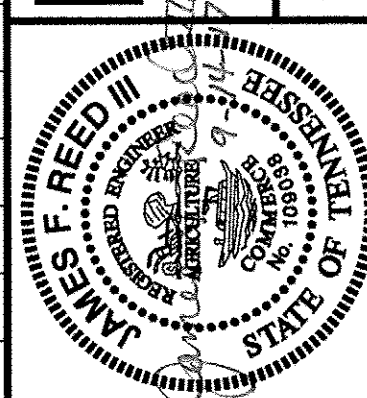
EXISTING PHONE	PH
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EsmtS	
RIGHT OF WAY	ROW
EROSION CONTROL SILT FENCE	SF SF
EXISTING TREELINE	
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EXISTING CONTOUR LINES	601
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S.T.E.P. LEGEND

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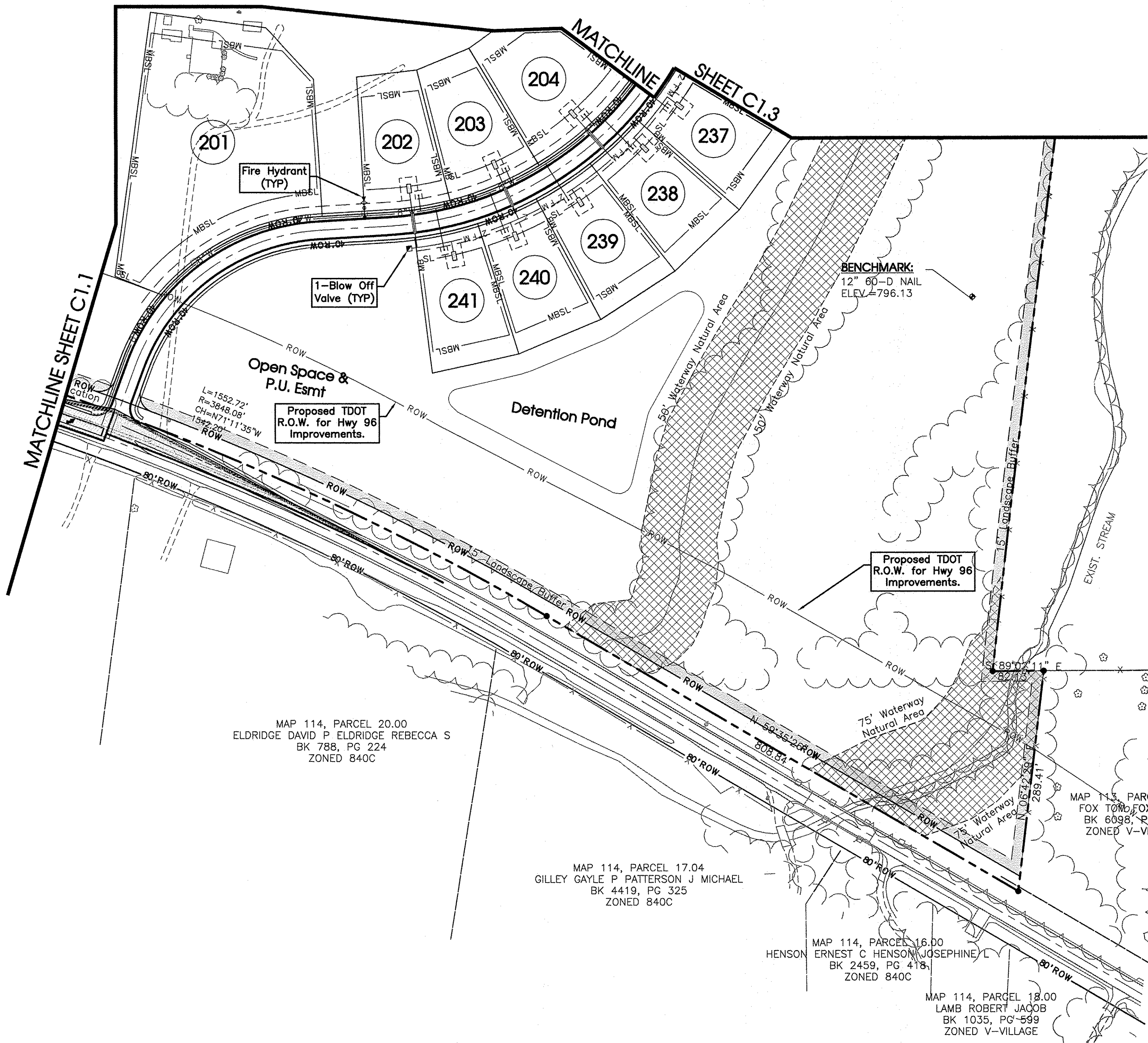
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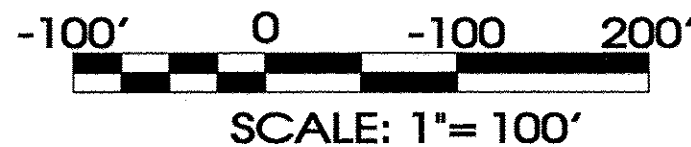
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	EXIST. FIRE HYDRANT		RIP RAP
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EXISTING ELECTRIC	OH
PROPERTY LINE	
EsmtS	
RIGHT OF WAY	ROW
EROSION CONTROL SILT FENCE	SF SF
EXISTING TREELINE	
EXISTING FENCELINE	X X
MINIMUM BUILDING SETBACK LINE	MBSL
PHASE BOUNDARY	
EXISTING GAS LINE	GAS
PROPOSED GAS LINE	GAS
EXISTING STORM	STM
PROPOSED STORM	STM
EXISTING CONTOUR LINES	601
PROPOSED CONTOUR LINES	601
EXISTING SANITARY SEWER	SS SS
PROPOSED SANITARY SEWER	SS SS
EXISTING WATER	W W
PROPOSED WATER	W W
EROSION EEL	E E

S.T.E.P. LEGEND	
	STEP TANK
	DOSING TANK
	RECIRCULATING TANK
	TREATMENT TANK
	ULTRAVIOLET DISINFECTION
	FORCE MAIN
	FORCE MAIN RETURN (FLUSH LINE)
	SOLENOID VALVE
	CHECK/FLUSHING VALVE
	TIGHT LINE
	ECO (EXTERIOR CLEAN OUT)

SEC, Inc.

ENGINEERING • SURVEYING • LAND PLANNING
LANDSCAPE ARCHITECTURE
850 MIDDLE TENNESSEE BOULEVARD
MURFREESBORO, TENNESSEE 37129
PHONE: (615) 890-7301 E-MAIL: JREED@SEC-CIVIL.COM FAX: (615) 895-2567
NO PORTION OF THIS DRAWING MAY BE REPRODUCED WITHOUT THE EXPRESSED WRITTEN CONSENT OF S.E.C. INC.

MAKING F. REED III

REGISTERED PROFESSIONAL ENGINEER
STATE OF TENNESSEE
No. 16162

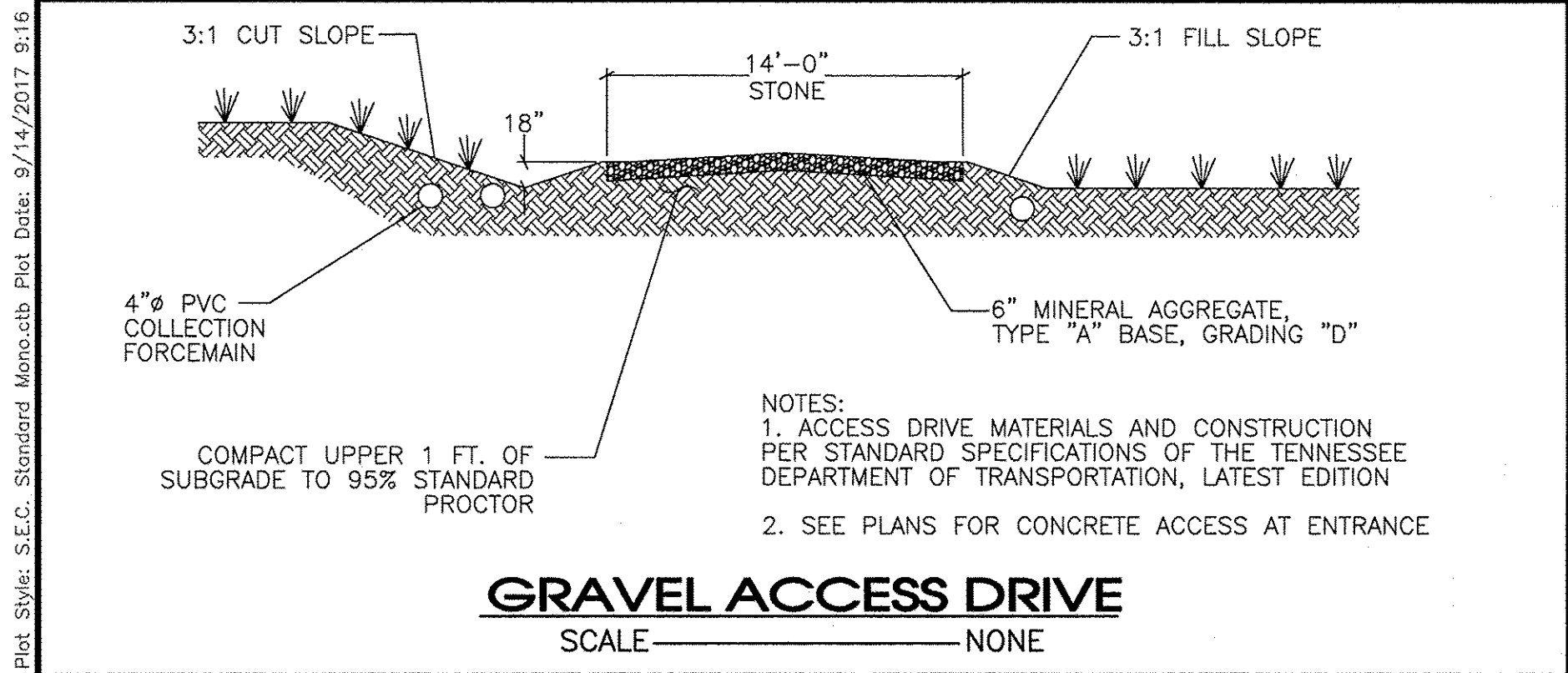
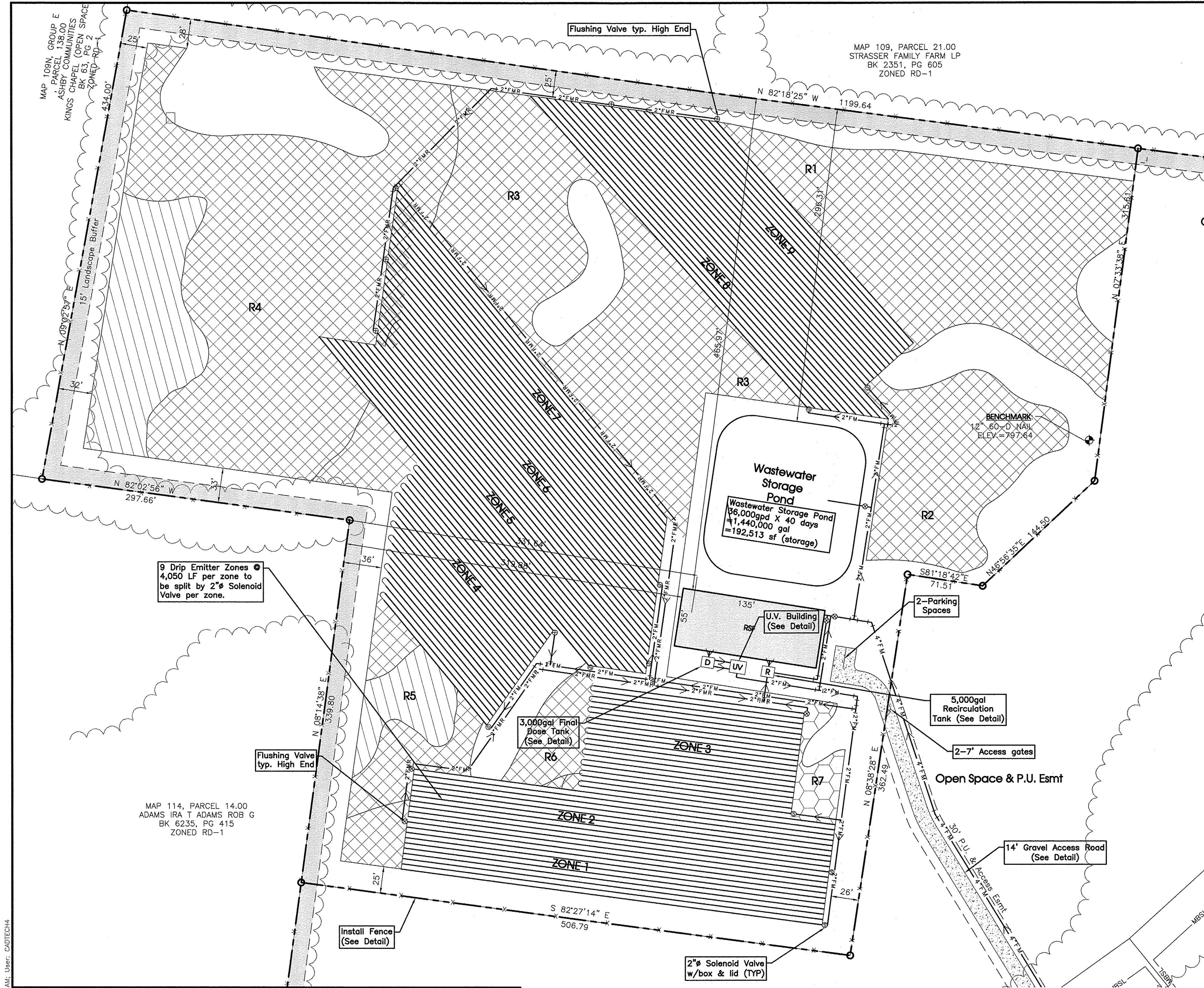
Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

Site Plan

REVISED: 4-19-17 Comments
6-19-17 Per Phase 1 Comments

DRAWN: MLG
DATE: 3-28-17
CHECKED: JFR
FILE NAME: 16162project.dwg
SCALE: 1"=100'
JOB NO. 16162
SHEET: C1.2

The site as shown on these construction drawings is intended to achieve specific engineering design criteria and objectives. It is the responsibility of the engineer to ensure that the design and construction of the project complies with all applicable laws, regulations, and standards. The engineer assumes no administrative liability or responsibility in the assurance that the site is constructed in accordance with the construction plans.



RSF 1 (Zones 1-9)						
Zones	L.F. Drip	Distal Ends	Min. Drip L.F.	Max. Drip L.F.	Tight Line L.F.	Sq. Ft.
Zone 1	4000	10	400	400	0	20000
Zone 2	4000	10	400	400	0	20000
Zone 3	4000	10	400	400	0	20000
Zone 4	4016	11	307	400	0	20080
Zone 5	4000	10	400	400	0	20000
Zone 6	4000	10	40	400	0	20000
Zone 7	4000	10	400	400	0	20000
Zone 8	4316	11	392	393	0	21580
Zone 9	4083	13	279	350	0	20415
Total	36415					182075

Revision Note:
Relocate Wastewater access drive.

Soil Reserves			
Soils	Area (Ft.)	Soils	Area (Ft.)
R1	47200	R5	17412
R2	23031	R6	5729
R3	53179	R7	3459
R4	91224		
Total Reserve Soils	5.54	Ac.	

Address:
5006-14 Murfreesboro Rd.
Arrington, TN 37014
Land Data:
162 Ac.±
Zoned: RD-1 - Rural Development District 1
Proposed Use:
Conservation Subdivision
Deed Reference:
The property shown hereon is Tax Map 114, Parcels 15, in Williamson County, as recorded in D.B. 6094, Pg. 724

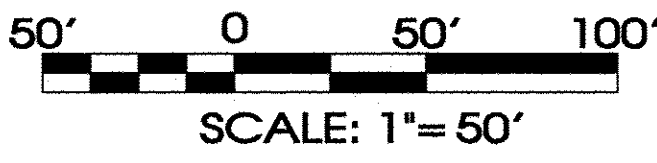
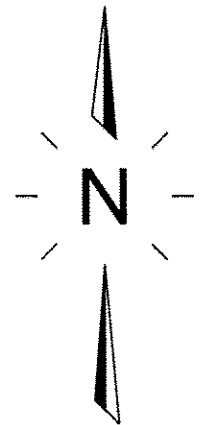
Use Type:
Single family residences.
Wastewater Treatment Area: 13.89± Acres
Total acreage of original tract: 148.42± Acres
Area of R.O.W. dedication in Subdivision: 8.69± Acres
Area of Land to be subdivided: 63.13± Acres
Open Space: 74.84± Acres (50%)

NOTE:
1) This property has been reviewed for the existence of intermittent and perennial streams. Streams that would require Waterway Natural Areas as described in Section 4 of the Williamson County Storm Water Management Regulations have been located as shown.
2) Within the Waterway Natural Area, there shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the Williamson County Engineering Department.

Legend:			
EXIST. CONCRETE MONUMENT	EXIST. SEWER CLEANOUT	INLET FILTER PROTECTION	
IRON PIN SET (I.P.S.)	EXIST. MANHOLE (SEWER & PHONE)	HANDICAP RAMP SYMBOL	
EXIST. SIGN POST	EXIST. CATCH BASIN (STORM SEWER)	HO SIGN	
EXIST. WATER/GAS VALVE	EXIST. TELEPHONE RISER	PROPOSED SIGN POST	
EXIST. UTILITY POLE	EXIST. GAS RISER	HEADWALL	
EXIST. FIRE HYDRANT	ELECTRICAL ENCLOSURE	WINGED HEADWALL	
BENCHMARK	EXIST. WATER METER	MANHOLE	
BLOW OFF VALVE	EXIST. UTILITY POLE	PROPOSED SPOT ELEVATION	
CONCRETE BOLLARD	EXIST. FIRE HYDRANT	EXIST. SPOT ELEVATION	
CATCH BASIN	BENCHMARK	POST INDICATOR VALVE	
CURB INLET	BLOW OFF VALVE	REDUCER	
AREA DRAIN	CONCRETE BOLLARD	REMOTE FIRE DEPT. CONNECTION	
CONCRETE THRUST BLOCK	CATCH BASIN	REVISION NUMBER	
DOUBLE DETECTOR CHECK VALVE	CURB INLET	RIP RAP	
FIRE DEPT. CONNECTION	AREA DRAIN	RUNOFF FLOW ARROW	
FIRE HYDRANT	CONCRETE THRUST BLOCK	SEWER/STORM FLOW DIRECTION	
GAS METER	DOUBLE DETECTOR CHECK VALVE	TRAFFIC ARROW	
GATE VALVE & BOX	FIRE DEPT. CONNECTION	TURN LANE ARROWS	
EXTERIOR CLEANOUT ECO	FIRE HYDRANT	VAN ACCESSIBLE HANDICAP DESIGNATION	
WATER METER	GAS METER	WHEEL STOP	
	GATE VALVE & BOX	GREASE TRAP	
	EXTERIOR CLEANOUT ECO	DRAINAGE STRUCTURE DESIGNATION	
	WATER METER	DRAINAGE PIPE DESIGNATION	
		CONCRETE SIDEWALK	
		EXTRUDED CURB	
		CURB & GUTTER	
		CONCRETE SWALE	
		TYPE- "U" HEADWALL	

EXISTING PHONE	PH
EXISTING ELECTRIC	OH
PROPERTY LINE	
ESMTS	
RIGHT OF WAY	ROW
EROSION CONTROL SILT FENCE	SF
EXISTING TREELINE	
EXISTING FENCELINE	X
MINIMUM BUILDING SETBACK LINE	MBSL
PHASE BOUNDARY	
EXISTING GAS LINE	GAS
PROPOSED GAS LINE	GAS
EXISTING STORM	STM
PROPOSED STORM	STM
EXISTING CONTOUR LINES	601
PROPOSED CONTOUR LINES	601
EXISTING SANITARY SEWER	SS
PROPOSED SANITARY SEWER	SS
EXISTING WATER	W
PROPOSED WATER	W
EROSION EEL	E

S.T.E.P. LEGEND	
S	STEP TANK
D	DOSING TANK
R	RECIRCULATING TANK
T	TREATMENT TANK
UV	ULTRAVIOLET DISINFECTION
F M	FORCE MAIN
F MR	FORCE MAIN RETURN (FLUSH LINE)
SV	SOLENOID VALVE
CF	CHECK/FLUSHING VALVE
TL	TIGHT LINE
ECO	ECO (EXTERIOR CLEAN OUT)



SEC, Inc.
850 MIDDLE TENNESSEE BOULEVARD
MURFREESBORO, TENNESSEE 37129
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E-MAIL: JREED@SEC-CIVIL.COM
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Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

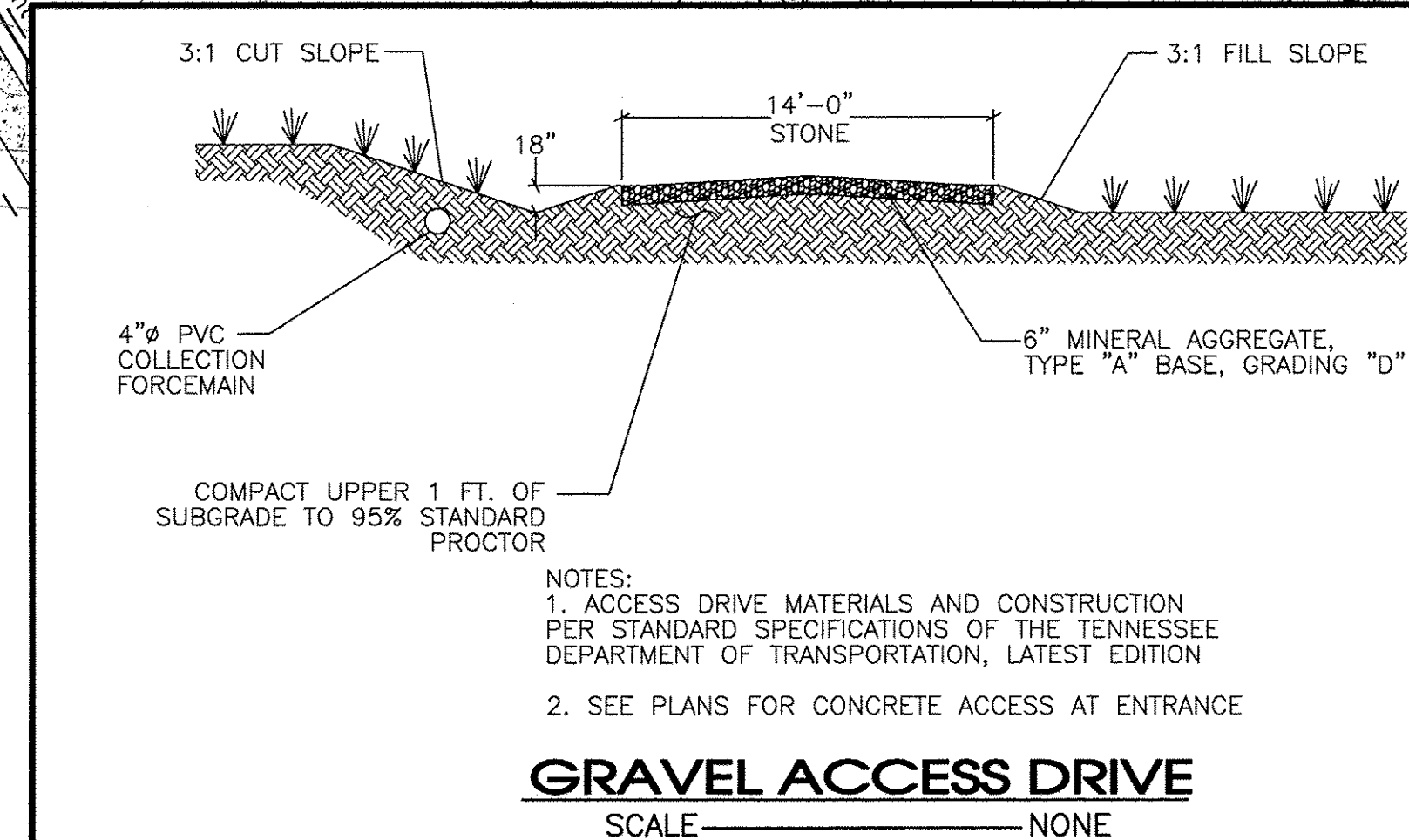
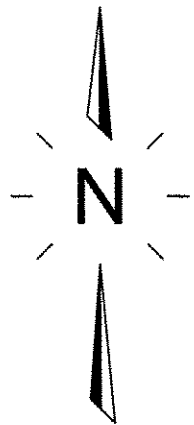
Site Plan
DRAWN: MLG
DATE: 3-28-17
CHECKED: JFR
FILE NAME: 16162project.dwg
SCALE: 1" = 50'
JOB NO: 16162
SHEET: C1.4

Plot Style: S.E.C. Standard Macro Plot Date: 9/14/2017 9:16 AM User: CADTECH4



RSF 1 (Zones 1-9)						
Zones	L.F. Drip	Distal Ends	Min. Drip L.F.	Max. Drip L.F.	Tight Line L.F.	Sq. Ft.
Zone I 1	4000	10	400	400	0	20000
Zone I 2	4000	10	400	400	0	20000
Zone I 3	4000	10	400	400	0	20000
Zone I 4	4016	11	307	400	0	20080
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Zone I 6	4000	10	40	400	0	20000
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Total	36415					182075

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Soils	Area (Ft.)	Soils	Area (Ft.)
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R2	23031	R6	5729
R3	53179	R7	3459
R4	91224		
Total Reserve Soils	5.54	Ac.	



NOTES:
1. ACCESS DRIVE MATERIALS AND CONSTRUCTION PER STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION, LATEST EDITION
2. SEE PLANS FOR CONCRETE ACCESS AT ENTRANCE

GRAVEL ACCESS DRIVE
SCALE _____ NONE

Address:
5006-14 Murfreesboro Rd.
Arrington, TN 37014
Land Data:
162 Ac.±
Zoned: RD-1 - Rural Development District 1
Proposed Use:
Conservation Subdivision
Deed Reference:
The property shown hereon is Tax Map 114, Parcels 15, in Williamson County, as recorded in D.B. 6094, Pg. 724

Legend:			
	EXIST. CONCRETE MONUMENT		INLET FILTER PROTECTION
	IRON PIN SET (I.P.S.)		HANDICAP RAMP SYMBOL
	IRON PIN FOUND (I.P.F.)		HC SIGN
	EXIST. SIGN POST		PROPOSED SIGN POST
	EXIST. SEWER CLEANOUT		HEADWALL
	EXIST. MANHOLE (SEWER & PHONE)		WINGED HEADWALL
	EXIST. CATCH BASIN (STORM SEWER)		MANHOLE
	EXIST. WATER/GAS VALVE	63.25 x	PROPOSED SPOT ELEVATION
	EXIST. TELEPHONE RISER	63.25 x	EXIST. SPOT ELEVATION
	EXIST. GAS RISER		POST INDICATOR VALVE
	ELECTRICAL ENCLOSURE		REDUCER
	EXIST. WATER METER		REMOTE FIRE DEPT. CONNECTION
	EXIST. UTILITY POLE		REVISION NUMBER
	EXIST. FIRE HYDRANT		RIP RAP
	BENCHMARK		RUNOFF FLOW ARROW
	BLOW OFF VALVE		SEWER/STORM FLOW DIRECTION
	CONCRETE BOLLARD		TRAFFIC ARROW
	CATCH BASIN		TURN LANE ARROWS
	CURB INLET	V.A.	VAN ACCESSIBLE HANDICAP DESIGNATION
	AREA DRAIN		WHEEL STOP
	CONCRETE THRUST BLOCK		GREASE TRAP
	DOUBLE DETECTOR CHECK VALVE	#1	DRAINAGE STRUCTURE DESIGNATION
	FIRE DEPT. CONNECTION		DRAINAGE PIPE DESIGNATION
	FIRE HYDRANT		CONCRETE SIDEWALK
	GAS METER		EXTRUDED CURB
	GATE VALVE & BOX		CURB & GUTTER
	EXTERIOR CLEANOUT ECO		CONCRETE SWALE
	WATER METER		TYPE- "U" HEADWALL
EXISTING PHONE		PH	
EXISTING ELECTRIC		OH	
PROPERTY LINE			
Easms			
RIGHT OF WAY		ROW	
EROSION CONTROL SILT FENCE		SF SF	
EXISTING TREELINE			
EXISTING FENCELINE		X X	
MINIMUM BUILDING SETBACK LINE		MBSL	
PHASE BOUNDARY			
EXISTING GAS LINE		GAS	
PROPOSED GAS LINE		GAS	
EXISTING STORM		STM	
PROPOSED STORM		STM	
EXISTING CONTOUR LINES		601	
PROPOSED CONTOUR LINES		601	
EXISTING SANITARY SEWER		SS SS	
PROPOSED SANITARY SEWER		SS SS	
EXISTING WATER		W W	
PROPOSED WATER		W W	
EROSION EEL		E E E	

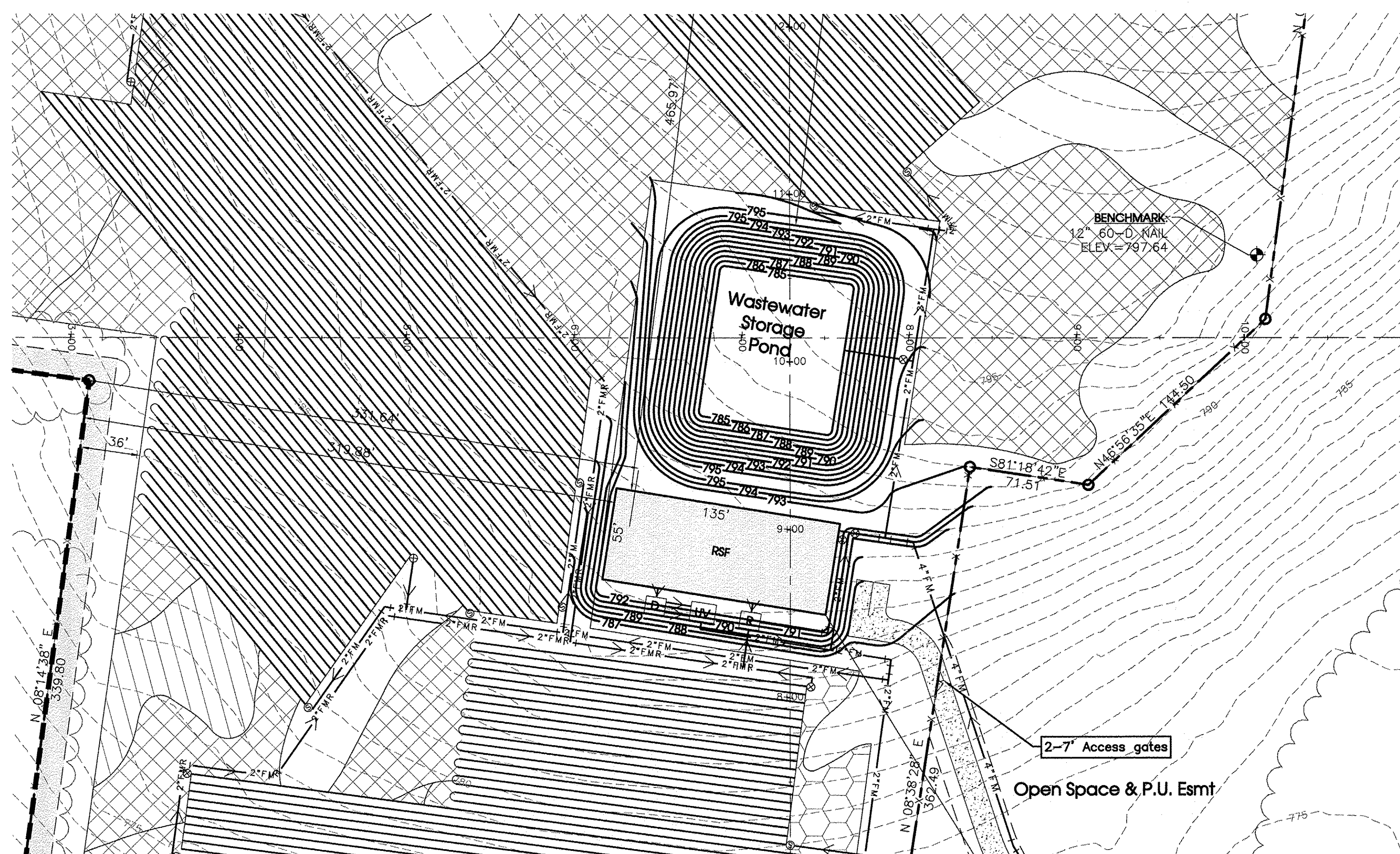
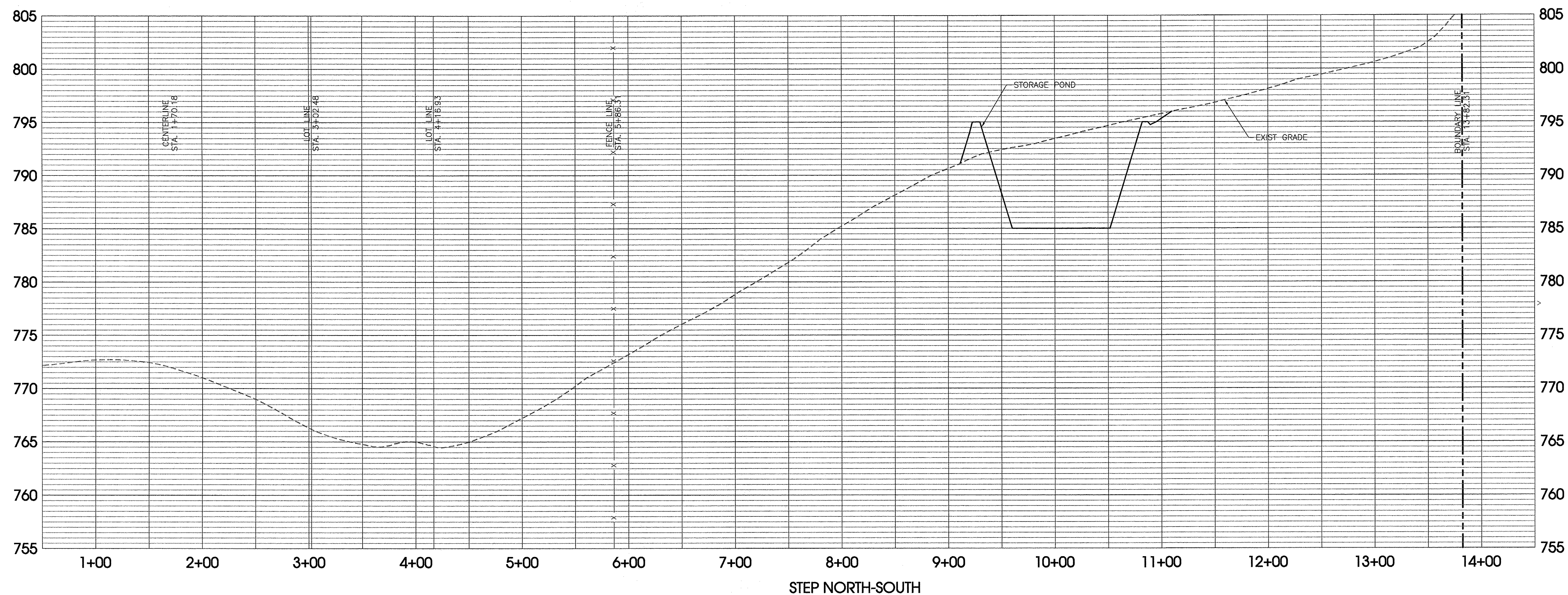
S.T.E.P. LEGEND	
	STEP TANK
	DOSING TANK
	RECIRCULATING TANK
	TREATMENT TANK
	ULTRAVIOLET DISINFECTION
	FORCE MAIN
	FORCE MAIN RETURN (FLUSH LINE)
	SOLENOID VALVE
	CHECK/FLUSHING VALVE
	TIGHT LINE
	ECO (EXTERIOR CLEAN OUT)
Revision Note: Relocate Wastewater access drive.	

SEC, Inc.
ENGINEERING, SURVEYING, AND PLANNING
LANDSCAPE ARCHITECTURE
850 MIDDLE TENNESSEE BOULEVARD
MURFREESBORO, TENNESSEE 37129
PHONE: (615) 890-7901 E-MAIL: JREED@SEC-CIVIL.COM FAX: (615) 895-2667
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Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

REVISED: 4-28-12 Comments: 5-19-17 Per Phase I Comments

DRAWN: MLG
DATE: 3-28-17
CHECKED: JFR
FILE NAME: 16162project.dwg
SCALE: 1" = 50'
JOB NO. 16162
SHEET: C2.0



Legend:				
	EXIST. CONCRETE MONUMENT		INLET FILTER PROTECTION	EXISTING PHONE _____ PH _____
	IRON PIN SET (I.P.S.)		HANDICAP RAMP SYMBOL	EXISTING ELECTRIC _____ OH _____
	IRON PIN FOUND (I.P.F.)		HC SIGN	PROPERTY LINE _____
	EXIST. SIGN POST		PROPOSED SIGN POST	_____ EsmTS _____
	EXIST. SEWER CLEANOUT		HEADWALL	RIGHT OF WAY _____ ROW _____
	EXIST. MANHOLE (SEWER & PHONE)		WINGED HEADWALL	EROSION CONTROL SILT FENCE _____ SF _____ SF _____
	EXIST. CATCH BASIN (STORM SEWER)		MANHOLE	EXISTING TREELINE _____
	EXIST. WATER/GAS VALVE	63.25 x x	PROPOSED SPOT ELEVATION	EXISTING FENCELINE _____ X _____ X _____
	EXIST. TELEPHONE RISER	63.25 x x	EXIST. SPOT ELEVATION	MINIMUM BUILDING SETBACK LINE _____ MBSL _____
	EXIST. GAS RISER		POST INDICATOR VALVE	PHASE BOUNDARY _____
	ELECTRICAL ENCLOSURE		REDUCER	EXISTING GAS LINE _____ GAS _____
	EXIST. WATER METER		REMOTE FIRE DEPT. CONNECTION	PROPOSED GAS LINE _____ GAS _____
	EXIST. UTILITY POLE		REVISION NUMBER	EXISTING STORM _____ STM _____
	EXIST. FIRE HYDRANT		RIP RAP	PROPOSED STORM _____ STM _____
	BENCHMARK		RUNOFF FLOW ARROW	EXISTING CONTOUR LINES _____ -601- _____
	BLOW OFF VALVE		SEWER/STORM FLOW DIRECTION	PROPOSED CONTOUR LINES _____ 601 _____
	CONCRETE BOLLARD		TRAFFIC ARROW	EXISTING SANITARY SEWER _____ SS _____ SS _____
	CATCH BASIN		TURN LANE ARROWS	PROPOSED SANITARY SEWER _____ SS _____ SS _____
	CURB INLET	V.A.	VAN ACCESSIBLE HANDICAP DESIGNATION	EXISTING WATER _____ W _____ W _____
	AREA DRAIN		WHEEL STOP	PROPOSED WATER _____ W _____ W _____
	CONCRETE THRUST BLOCK		GREASE TRAP	EROSION EEL _____ E _____ E _____
	DOUBLE DETECTOR CHECK VALVE	#1	DRAINAGE STRUCTURE DESIGNATION	
	FIRE DEPT. CONNECTION		DRAINAGE PIPE DESIGNATION	
	FIRE HYDRANT		CONCRETE SIDEWALK	
	GAS METER		EXTRUDED CURB	
	GATE VALVE & BOX		CURB & GUTTER	
	EXTERIOR CLEANOUT ECO		CONCRETE SWALE	
	WATER METER		TYPE- "U" HEADWALL	

S.T.E.P. LEGEND

	STEP TANK
	DOSING TANK
	RECIRCULATING TANK
	TREATMENT TANK
	ULTRAVIOLET DISINFECTION
_____ FM _____	FORCE MAIN
_____ FMR _____	FORCE MAIN RETURN (FLUSH LINE)
⊙	SOLENOID VALVE
⊗	CHECK/FLUSHING VALVE
_____ TL _____	TIGHT LINE
⬢	ECO (EXTERIOR CLEAN OUT)

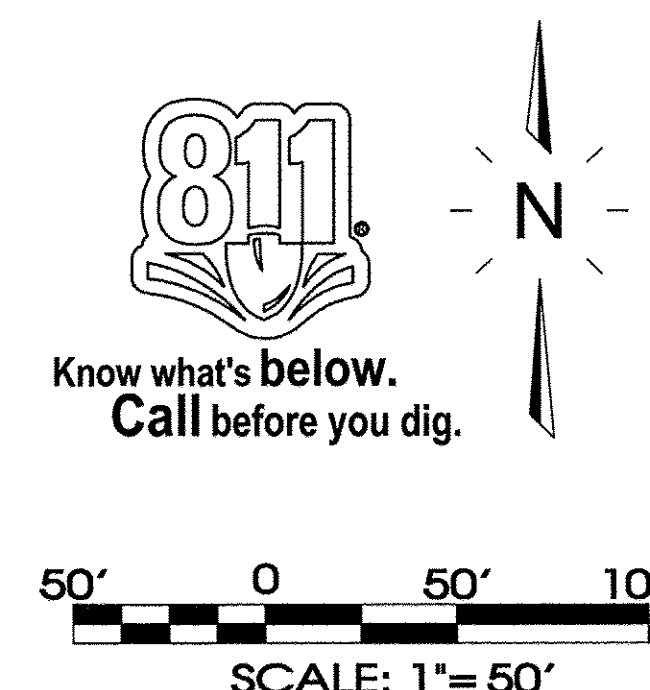
Revision Note:
Relocate Wastewater access drive.

Address:
5006-14 Murfreesboror Rd.
Arrington, TN 37014

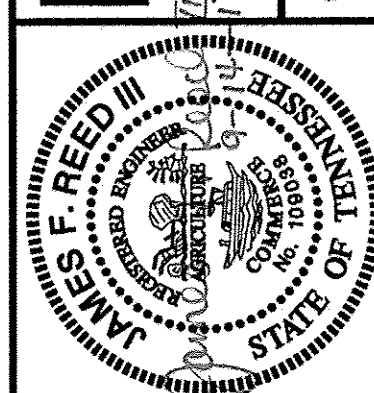
Land Data:
162 Ac.±
Zoned: RD-1 - Rural Development District 1

Proposed Use:
Conservation Subdivision

Deed Reference:
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Parcels 15, in Williamson County, as recorded
in D.B. 6094, Pg. 724



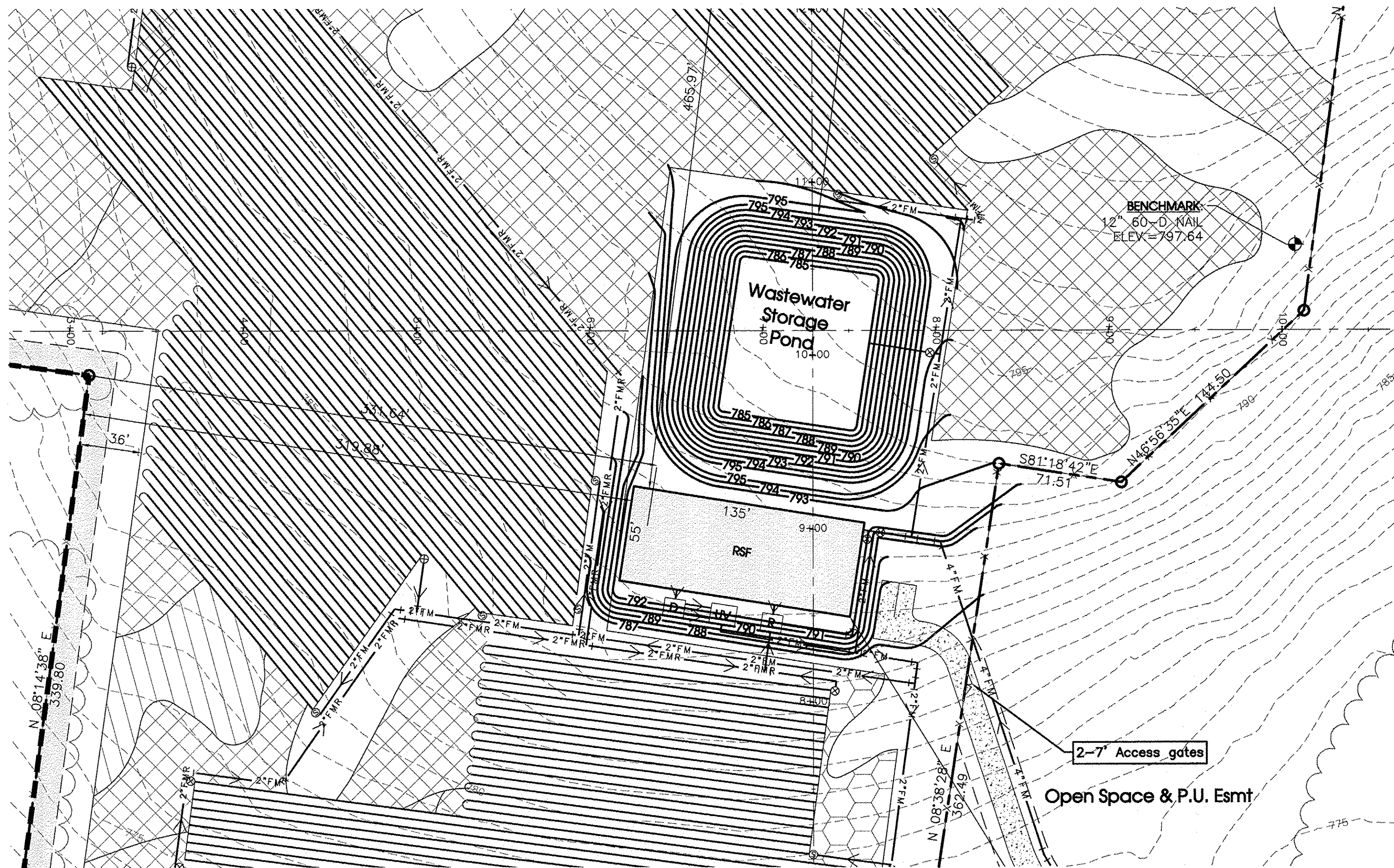
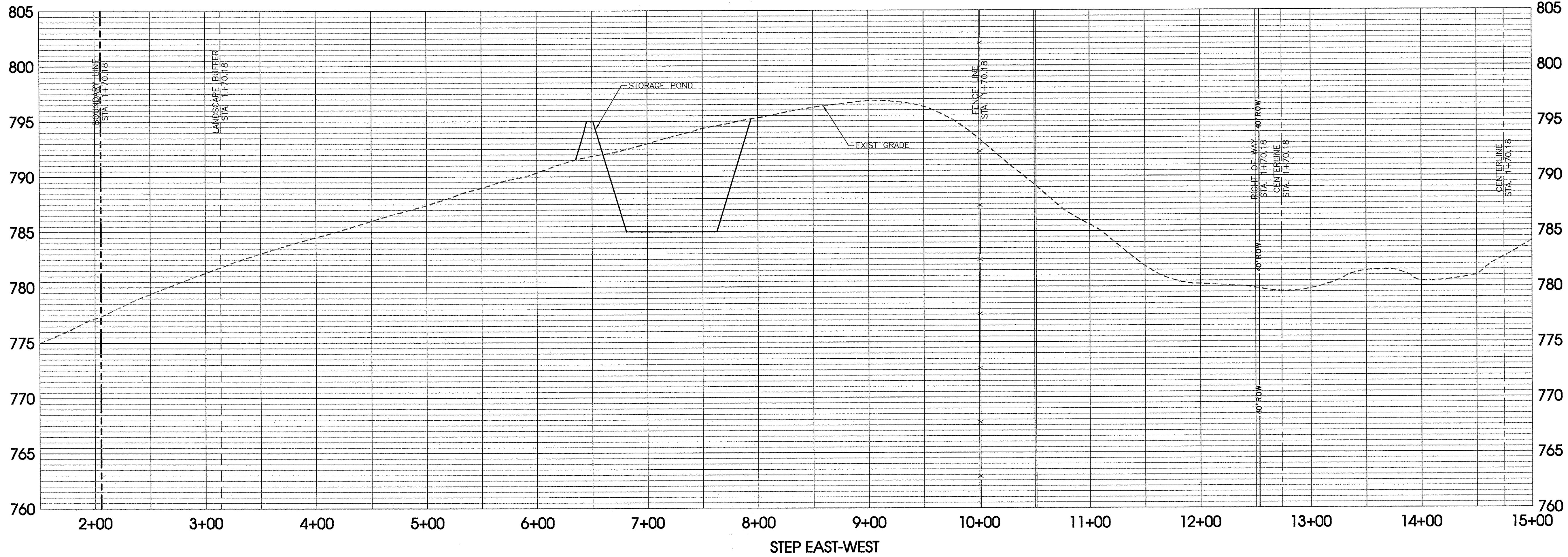
SEC, Inc.
850 MIDDLE TENNESSEE BOULEVARD
NASHVILLE, TENNESSEE 37212
PHONE: (615) 890-7201 E-MAIL: JREDD@SEC-CIVIL.COM FAX: (615) 895-2567



Hardeman Springs
5006-14 Murfreesboro Road
Williamson County, Tennessee

Cross Sections

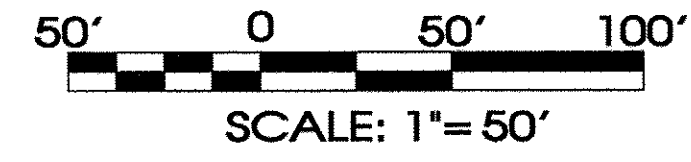
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Legend:			
☐	EXIST. CONCRETE MONUMENT	☐	INLET FILTER PROTECTION
☐	IRON PIN SET (I.P.S.)	☐	HANDICAP RAMP SYMBOL
☐	IRON PIN FOUND (I.P.F.)	☐	HC SIGN
☐	EXIST. SIGN POST	☐	PROPOSED SIGN POST
☐	EXIST. SEWER CLEANOUT	☐	HEADWALL
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☐	EXIST. CATCH BASIN (STORM SEWER)	☐	MANHOLE
☐	EXIST. WATER/GAS VALVE	☐	PROPOSED SPOT ELEVATION
☐	EXIST. TELEPHONE RISER	☐	EXIST. SPOT ELEVATION
☐	EXIST. GAS RISER	☐	POST INDICATOR VALVE
☐	ELECTRICAL ENCLOSURE	☐	REDUCER
☐	EXIST. WATER METER	☐	REMOTE FIRE DEPT. CONNECTION
☐	EXIST. UTILITY POLE	☐	REVISION NUMBER
☐	EXIST. FIRE HYDRANT	☐	RIP RAP
☐	BENCHMARK	☐	RUNOFF FLOW ARROW
☐	BLOW OFF VALVE	☐	SEWER/STORM FLOW DIRECTION
☐	CONCRETE BOLLARD	☐	TRAFFIC ARROW
☐	CATCH BASIN	☐	TURN LANE ARROWS
☐	CURB INLET	☐	V.A. VAN ACCESSIBLE HANDICAP DESIGNATION
☐	AREA DRAIN	☐	WHEEL STOP
☐	CONCRETE THRUST BLOCK	☐	GREASE TRAP
☐	DOUBLE DETECTOR CHECK VALVE	☐	DRAINAGE STRUCTURE DESIGNATION
☐	FIRE DEPT. CONNECTION	☐	DRAINAGE PIPE DESIGNATION
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☐	ECO (EXTERIOR CLEAN OUT)	☐	

Revision Note:
Relocate Wastewater access drive.

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162 Ac.±
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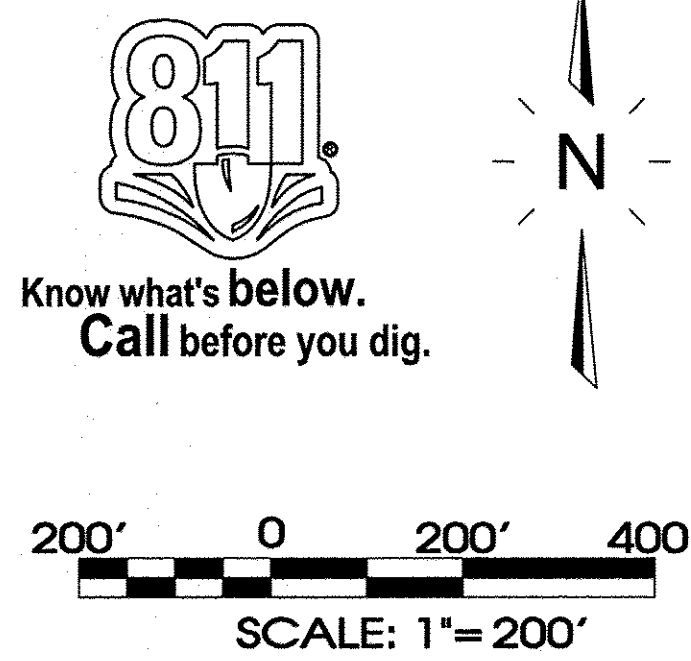
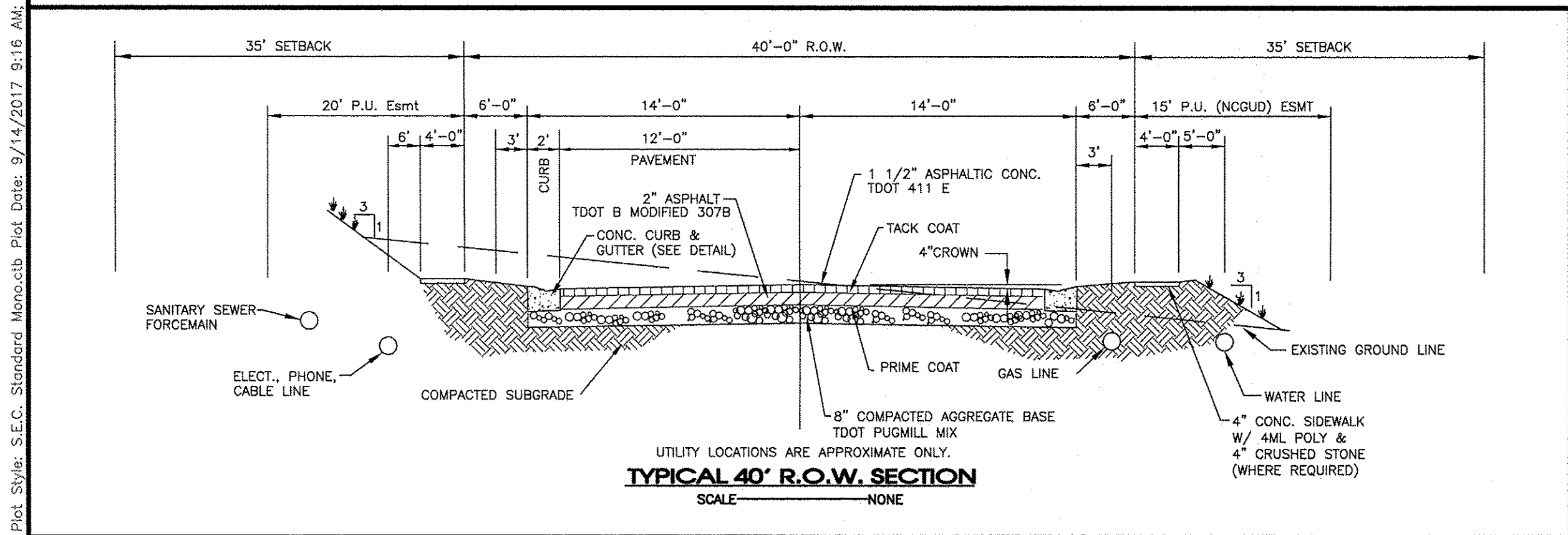
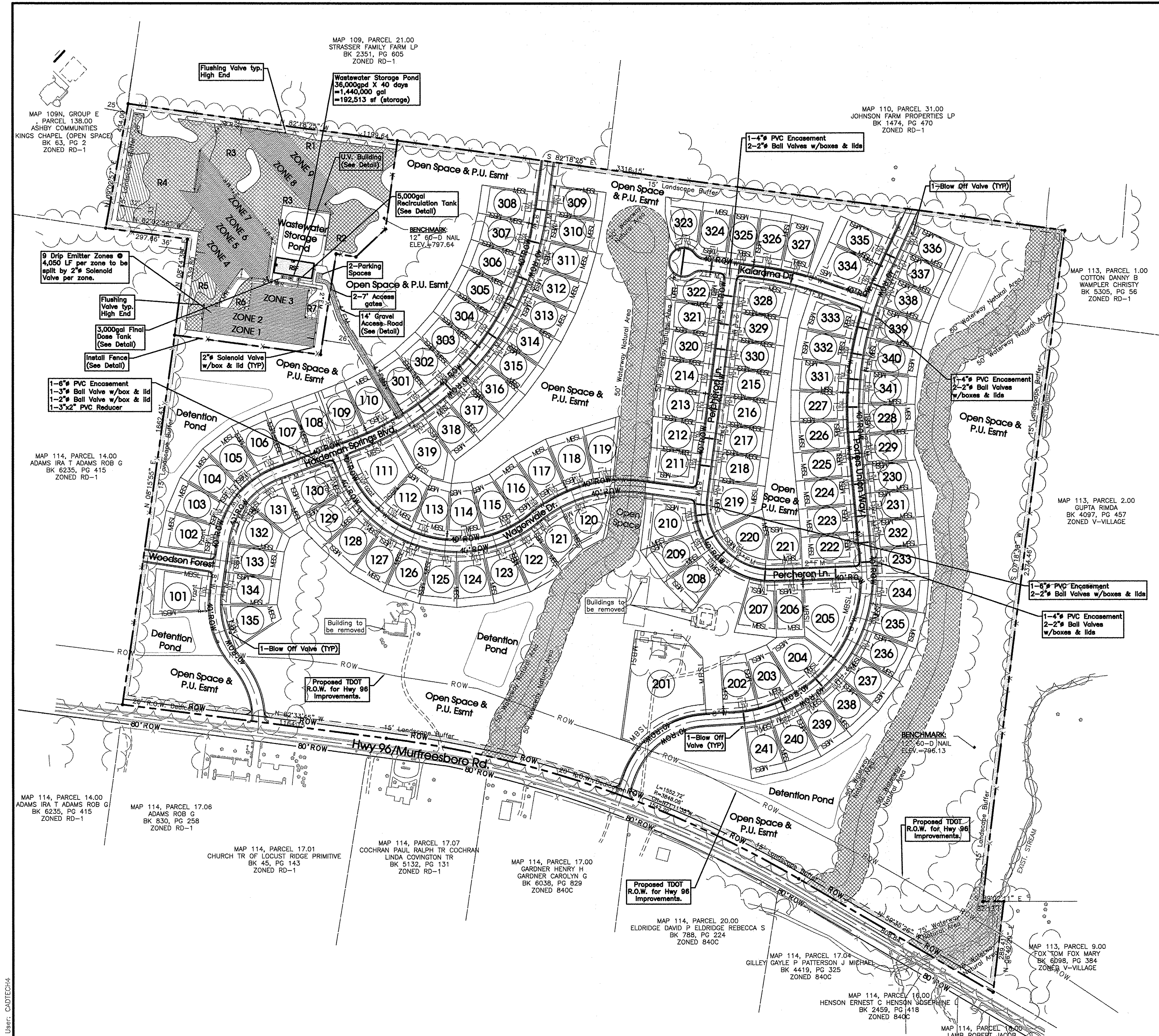
SEC, Inc.
SITE ENGINEERING CONSULTANTS
ENGINEERING, SURVEYING, LAND PLANNING
LANDSCAPE ARCHITECTURE
850 MIDDLE TENNESSEE BOULEVARD
MURFREESBORO, TENNESSEE 37129
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Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

REVISED: 4-19-17 Comments
6-19-17 Per Phase 1 Comments
DRAWN: MLG
DATE: 3-28-17
CHECKED:
JFR
FILE NAME:
16162project.dwg
SCALE:
1" = 50'
JOB NO.
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SHEET:
C3.1

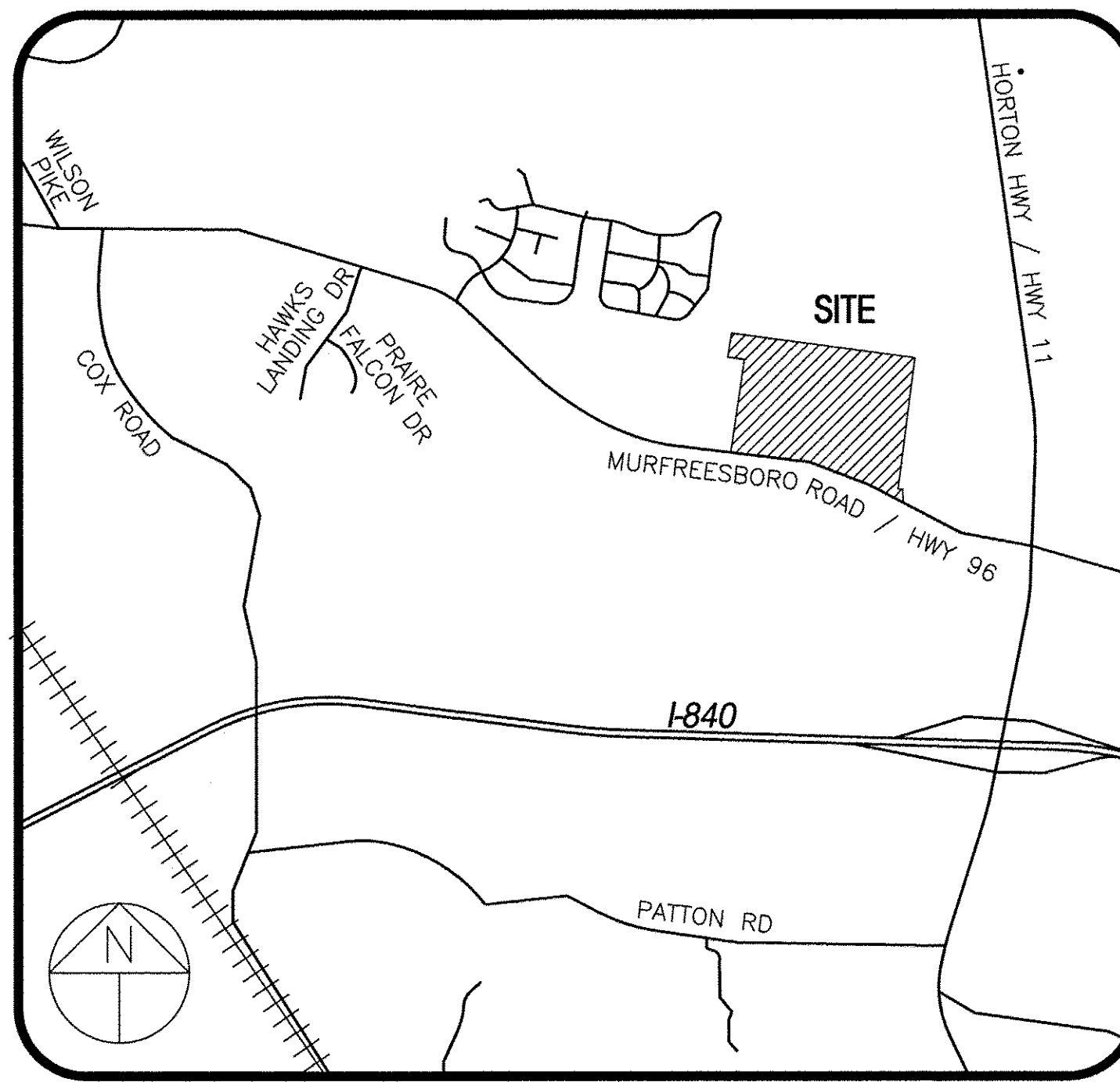
Cross Sections



Use Type:
Single family residences.
Wastewater Treatment Area: 13.89± Acres
Total acreage of original tract: 148.42± Acres
Area of R.O.W. dedication in Subdivision: 8.69± Acres
Area of Land to be subdivided: 63.13± Acres
Open Space: 74.84± Acres (50%)

- NOTE:**
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Deed Reference:
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Site Location Map
Not To Scale

Legend:			
	EXIST. CONCRETE MONUMENT		INLET FILTER PROTECTION
	IRON PIN SET (I.P.S.)		HANDICAP RAMP SYMBOL
	IRON PIN FOUND (I.P.F.)		HC SIGN
	EXIST. SIGN POST		PROPOSED SIGN POST
	EXIST. SEWER CLEANOUT		HEADWALL
	EXIST. MANHOLE (SEWER & STORM)		WINGED HEADWALL
	EXIST. CATCH BASIN (STORM SEWER)		MANHOLE
	EXIST. WATER/GAS VALVE		PROPOSED SPOT ELEVATION
	EXIST. TELEPHONE RISER		EXIST. SPOT ELEVATION
	EXIST. GAS RISER		POST INDICATOR VALVE
	ELECTRICAL ENCLOSURE		REDUCER
	EXIST. WATER METER		REMOTE FIRE DEPT. CONNECTION
	EXIST. UTILITY POLE		REVISION NUMBER
	EXIST. FIRE HYDRANT		RIP RAP
	BENCHMARK		RUNOFF FLOW ARROW
	BLOW OFF VALVE		SEWER/STORM FLOW DIRECTION
	CONCRETE BOLLARD		TRAFFIC ARROW
	CATCH BASIN		TURN LANE ARROWS
	CURB INLET		VAN ACCESSIBLE HANDICAP DESIGNATION
	AREA DRAIN		WHEEL STOP
	CONCRETE THRUST BLOCK		GREASE TRAP
	DOUBLE DETECTOR CHECK VALVE		DRAINAGE STRUCTURE DESIGNATION
	FIRE DEPT. CONNECTION		DRAINAGE PIPE DESIGNATION
	FIRE HYDRANT		CONCRETE SIDEWALK
	GAS METER		EXTRUDED CURB
	GATE VALVE & BOX		CURB & GUTTER
	EXTERIOR CLEANOUT EGO		CONCRETE SWALE
	WATER METER		TYPE- "U" HEADWALL

EXISTING PHONE	PH
EXISTING ELECTRIC	OH
PROPERTY LINE	
EsmtS	
RIGHT OF WAY	ROW
EROSION CONTROL SILT FENCE	SF SF
EXISTING TREELINE	
EXISTING FENCELINE	X X
MINIMUM BUILDING SETBACK LINE	MSBL
PHASE BOUNDARY	
EXISTING GAS LINE	GAS
PROPOSED GAS LINE	GAS
EXISTING STORM	STM
PROPOSED STORM	STM
EXISTING CONTOUR LINES	-601-
PROPOSED CONTOUR LINES	601
EXISTING SANITARY SEWER	SS SS
PROPOSED SANITARY SEWER	SS SS
EXISTING WATER	W W
PROPOSED WATER	W W
EROSION EEL	E E E

S.T.E.P. LEGEND	
	STEP TANK
	DOSING TANK
	RECIRCULATING TANK
	TREATMENT TANK
	ULTRAVIOLET DISINFECTION
	FORCE MAIN
	FORCE MAIN RETURN (FLUSH LINE)
	SOLENOID VALVE
	CHECK/FLUSH VALVE
	TIGHT LINE
	ECO (EXTERIOR CLEAN OUT)

Revision Note:
Relocate Wastewater access drive.

SEC, Inc.
ENGINEERING, SURVEYING, LAND PLANNING
1850 MIDDLE TENNESSEE BOULEVARD
MURFREESBORO, TENNESSEE 37129
PHONE: (615) 890-7800 FAX: (615) 890-2587
E-MAIL: JREDD@SEC-CIVIL.COM
NO PORTION OF THIS DRAWING MAY BE REPRODUCED WITHOUT THE EXPRESSED WRITTEN CONSENT OF SEC, INC.

Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

Master Plan

REVISIONS:
4-25-17 Comments
5-19-17 Per Phase 1 Comments

DRAWING: MLG
DATE: 3-28-17
CHECKED: JFR
FILE NAME: 16162project.dwg
SCALE: 1"=200'
JOB NO. 16162
SHEET:

C4.0



SOILS LEGEND

	ST-ARM 24+ 39,847 s.f.
	SW-ST 20+ 347,242 s.f.
	ST 24+ 37,975 s.f.

Soils Total=9.76± Ac.

Use Type:
Single family residences.
Wastewater Treatment Area: 13.89± Acres
Total acreage of original tract: 148.42± Acres
Area of R.O.W. dedication in Subdivision: 8.69± Acres
Area of Land to be subdivided: 63.13± Acres
Open Space: 74.84± Acres (50%)

Address:
5006-14 Murfreesboror Rd.
Arrington, TN 37014
Land Data:
162 Ac.±
Zoned: RD-1 - Rural Development District 1
Proposed Use:
Conservation Subdivision
Deed Reference:
The property shown hereon is Tax Map 114,
Parcels 15, in Williamson County, as recorded in
D.B. 6094, Pg. 724

Revision Note:
Relocate Wastewater access drive.

Know what's below.
Call before you dig.

N

50' 0 50' 100'
SCALE: 1"= 50'

Legend:			
	EXIST. CONCRETE MONUMENT		INLET FILTER PROTECTION
	IRON PIN SET (I.P.S.)		HANDICAP RAMP SYMBOL
	IRON PIN FOUND (I.P.F.)		HC SIGN
	EXIST. SIGN POST		PROPOSED SIGN POST
	EXIST. SEWER CLEANOUT		HEADWALL
	EXIST. MANHOLE (SEWER & PHONE)		WINGED HEADWALL
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	EXIST. WATER/GAS VALVE	63.25 x	PROPOSED SPOT ELEVATION
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	EXIST. GAS RISER		POST INDICATOR VALVE
	ELECTRICAL ENCLOSURE		REDUCER
	EXIST. WATER METER		REMOTE FIRE DEPT. CONNECTION
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	EXIST. FIRE HYDRANT		RIP RAP
	BENCHMARK		RUNOFF FLOW ARROW
	BLOW OFF VALVE		SEWER/STORM FLOW DIRECTION
	CONCRETE BOLLARD		TRAFFIC ARROW
	CATCH BASIN		TURN LANE ARROWS
	CURB INLET	V.A.	VAN ACCESSIBLE HANDICAP DESIGNATION
	AREA DRAIN		WHEEL STOP
	CONCRETE THRUST BLOCK		GREASE TRAP
	DOUBLE DETECTOR CHECK VALVE	#1	DRAINAGE STRUCTURE DESIGNATION
	FIRE DEPT. CONNECTION	A	DRAINAGE PIPE DESIGNATION
	FIRE HYDRANT		CONCRETE SIDEWALK
	GAS METER		EXTRUDED CURB
	GATE VALVE & BOX		CURB & GUTTER
	EXTERIOR CLEANOUT ECO		CONCRETE SWALE
	WATER METER		TYPE- "U" HEADWALL
EXISTING PHONE		_____ PH _____	
EXISTING ELECTRIC		_____ OH _____	
PROPERTY LINE		=====	
EsmtS		-----	
RIGHT OF WAY		===== ROW =====	
EROSION CONTROL SILT FENCE		===== SF ===== SF =====	
EXISTING TREELINE			
EXISTING FENCELINE		_____ X _____ X _____	
MINIMUM BUILDING SETBACK LINE		===== MBSL =====	
PHASE BOUNDARY		=====	
EXISTING GAS LINE		_____ GAS _____	
PROPOSED GAS LINE		_____ GAS _____	
EXISTING STORM		_____ STM _____	
PROPOSED STORM		_____ STM _____	
EXISTING CONTOUR LINES		_____ -60.1- _____	
PROPOSED CONTOUR LINES		_____ 60.1 _____	
EXISTING SANITARY SEWER		_____ SS _____ SS _____	
PROPOSED SANITARY SEWER		_____ SS _____ SS _____	
EXISTING WATER		_____ W _____ W _____	
PROPOSED WATER		_____ W _____ W _____	
EROSION EEL		_____ E _____ E _____ E _____	

S.T.E.P. LEGEND	
	STEP TANK
	DOSING TANK
	RECIRCULATING TANK
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	FORCE MAIN
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STATE OF TENNESSEE
JAMES F. REDD III
REGISTERED PROFESSIONAL ENGINEER
No. 16162
Exp. 12/31/2017

Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

REVISED: 4-18-17 Comments:
6-19-17 Per Phase 1 Comments:
DRAWN: MLG
DATE: 3-28-17
CHECKED: JFR
FILE NAME: 16162project.dwg
SCALE: 1" = 50'
JOB NO. 16162
SHEET: C5.0

Soils Plan

Plot Style: S.E.C. Standard Monocolor Plot Date: 9/14/2017 9:17 AM User: CADTECH4

Grading and Drainage Notes:

1. The site work contractor shall coordinate the installation of all underground utilities with his work. All underground utilities (water, sanitary sewer, storm sewer, electrical conduit, irrigation sleeves, and any other miscellaneous underground utilities, devices, or structures), shall be in-place prior to the placement of base course material.
2. The contractor shall cut existing pavement as necessary to assure a smooth fit and continuous grade.
3. The contractor shall verify horizontal and vertical location of all existing storm sewer structures, pipes and all utilities prior to construction.
4. Clearing and grubbing limits shall include all areas disturbed by grading operation.
5. Any graded or disturbed areas shall have 4 inches of topsoil, seed, mulch, fertilizer and water applied until a healthy stand of grass is obtained. The restoration shall closely follow construction.
6. This site lies within Zone X, not in a 100 Year Flood Hazard Area per F.E.M.A. Map No. 47187C0240F dated September 29, 2006.
7. All cut/fill slopes and drainage swales shall be stabilized to the satisfaction of the Williamson County Engineering Department. If stabilization is not achieved by seeding or sodding, then more stringent measures such as erosion control fabric, permanent turf reinforcement matting or concrete lining shall be used.
8. Contact the Williamson County Engineering Department at 615-790-5809 to request permits to perform work within the public right-of-way.
9. Any improvements or modifications within the public right-of-way require the approval of the Williamson County Highway Department.

Erosion Control Notes:

1. The site contractor is responsible for establishing and maintaining suitable erosion and sediment control devices on-site during construction as required to prevent silt from leaving site. Silt will not be allowed beyond construction limits.
2. The contractor is responsible for removing silt from site if not reusable on-site and assuring plan alignment and grade in all ditches at completion of construction.
3. The contractor is responsible for cleaning out all storm drainage structures, including flumes, pipes, etc., prior to completion of this project.
4. Erosion control shall be provided for all cut and fill operations within the limits of the construction site, throughout the construction period to provide the site with maximum protection from erosion at all times.
5. Erosion control measures are to be installed prior to any grading on-site and are to be maintained in place until stabilization of erodible soils has been accomplished.

General Utility Notes:

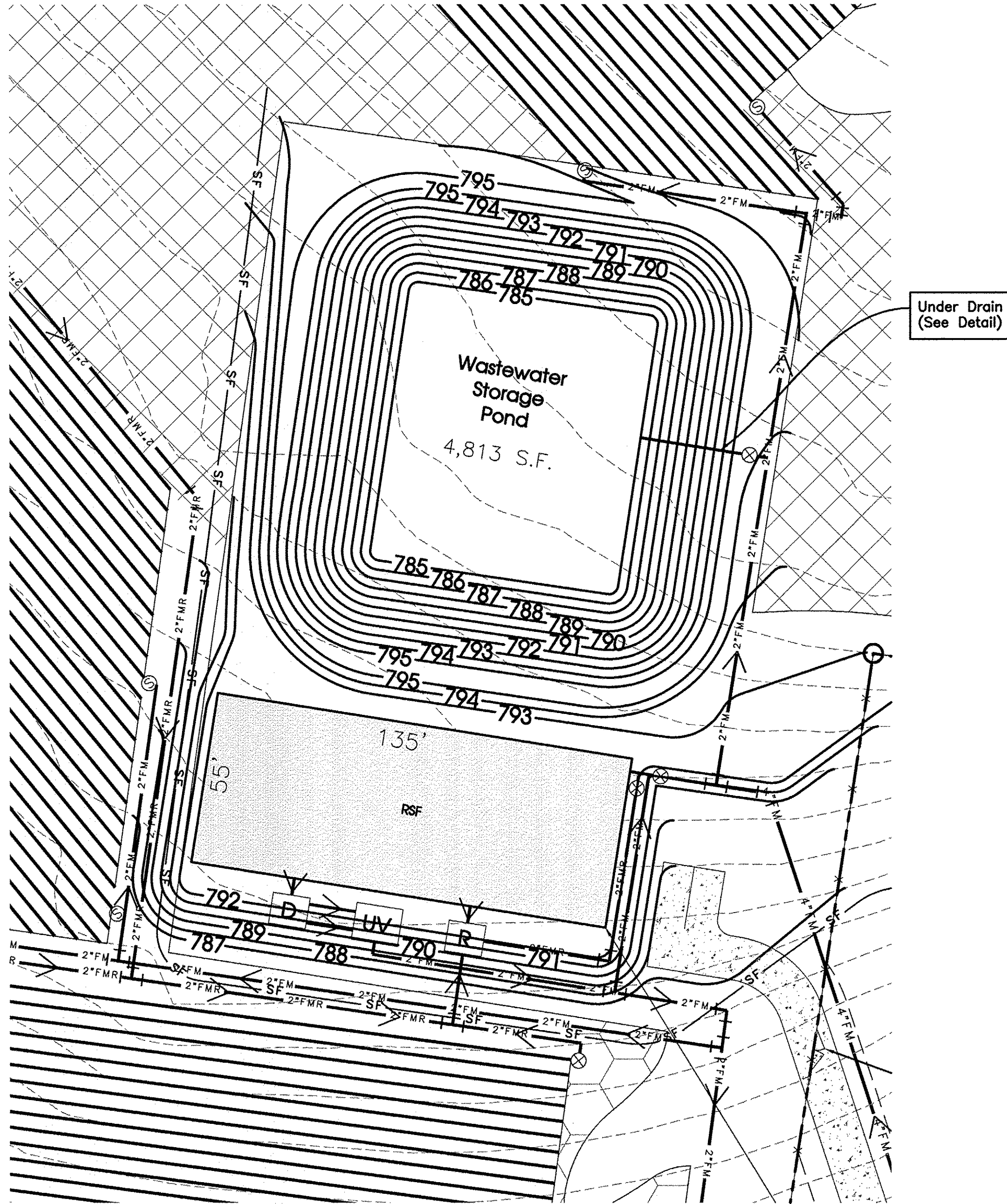
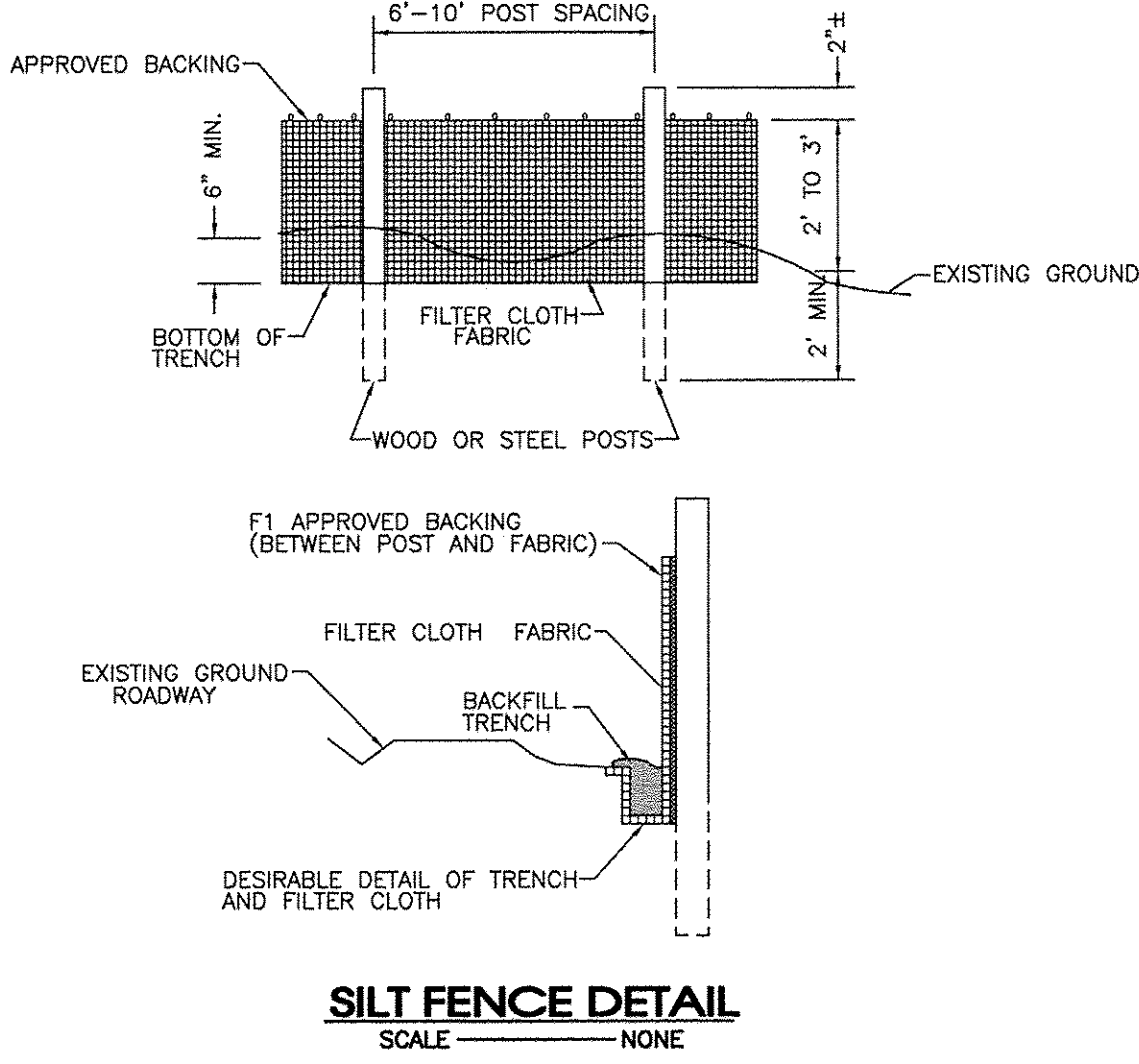
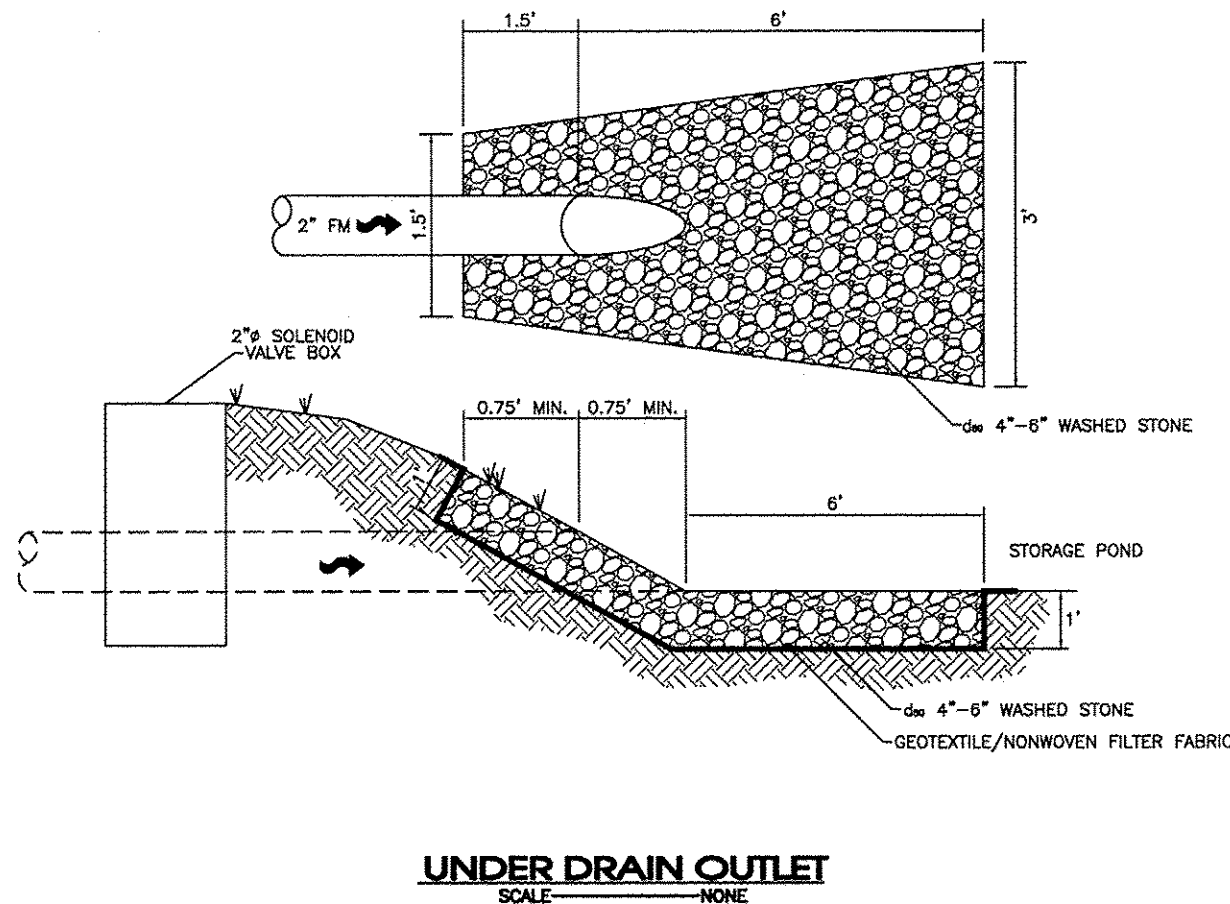
1. Existing utility lines shown are approximate locations only. The contractor shall field verify all existing utility line locations prior to any construction. Any deviations from the design locations shall be reported to the owner or engineer prior to beginning construction.
2. The contractor will provide all necessary protective measures to safeguard existing utilities from damage during construction of this project. In the event that special equipment is required to work over and around the utilities, the contractor will be required to furnish such equipment. The cost of protecting utilities from damage and furnishing special equipment will be included in the price bid for other items of construction.
3. The contractor shall notify each individual utility owner of his plan of operation in the area of the utilities, prior to commencing work, the contractor shall contact the utility owners and request them to properly locate their respective utility on the ground. This notification shall be given at least three (3) business days prior to commencement of operations around the utility.
4. The contractor shall refer to engineer's plans and specifications for actual location of all utility entrances to include sanitary sewer, lateral, domestic water, and electrical service. This contractor shall coordinate installation of utilities in such a manner as to avoid conflicts and assure proper depths are achieved as well as coordinating with the regulatory agency as to location and scheduling of tie-ins/connections to their facilities.
5. All underground utilities (water, sewer, storm sewer, electrical conduit, irrigation sleeves, and any other miscellaneous), shall be in-place prior to the placement of base course material.
6. Location of site utilities shall be verified with proper utility company providing service.
7. In Tennessee it is a requirement per "the underground utility damage prevention act" that anyone who engages in excavation must notify all known utility owners, no less than three nor more than ten working days, prior to their intended excavation. A list of these utility owners may be obtained from the county register of deeds those utility owners who participate in the Tennessee one call system can be notified toll free at 1-800-351-1111.

S.T.E.P. System General Notes:

1. The location of treatment system components as shown are general in nature. Minor field adjustments may be necessary. The contractor may request to modify the location of the components through the owner and the Tennessee Division of Water Pollution Control.
2. This design is for the treatment and disposal of wastewater collected from Hardeman Springs, design flow 36,000 gpd.
3. All flows for this system shall be controlled and monitored by FFRT-12RZ-2D-28DZ model control panel and compatible with Hawk MS (Hawk Monitoring System). This monitoring shall be considered the flow meter for this system.
4. The minimum horizontal separation between the closest two points of the water and sewer line is ten (10) feet. The minimum vertical separation between the closest two points of the water and sewer line shall be 18 inches, with waterlines being above sewerlines.
5. Contractor shall comply with the most current requirements, specifications, and detail drawings for the installation of STEP system collection lines as outlined per specifications of Consolidated Utility District (C.U.D.).
6. All trenches, pipe laying, and backfilling shall be in accordance with federal O.S.H.A. regulations.
7. Utility contractor shall have approval of all governing agencies having jurisdiction over this system prior to installation.
8. All tanks shall be one-piece, structurally sound, watertight tanks as manufactured by Jarrett Concrete Products, or approved equal.
9. Testing procedure for water tightness is as follows. Fill tank 2" into the riser. After a period of 24 hours, the water level should have lowered no more than $\frac{1}{4}$ ".
10. Collection forcemain shall be 2", 3", & 4" SDR21 green PVC pipe (color to be coordinated with Cartwright Creek, LLC). Forcemain shall be tested and rated for a 150 PSI working pressure.

Site Notes:

1. Contractor shall immediately notify the engineer of any discrepancies found between these plans, and/or field conditions prior to construction.
2. Apparent errors, discrepancies, or omissions on the drawing shall be brought to the attention of the owner prior to bid submittal. The contractor may not use apparent errors, discrepancies, or omissions present on the drawings presented for bidding for additional charges after bids have been submitted. The architect shall be permitted to make corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the contract documents.
3. The contractor shall stake all improvements using the geometric data provided in the drawings. It is the sole responsibility of the contractor to completely stake and check all improvements to ensure adequate positioning, both horizontal and vertical, prior to the installation of any improvements. No digital file will be provided.
4. The notes and plans shown call attention to certain required features of the construction but do not claim to cover all details of design and construction. The contractor shall furnish and install the work complete and ready for operation.
5. After completion of construction, the contractor shall perform site cleanup to remove all trash, debris, excess materials, equipment, and other deleterious materials associated with construction. The contractor is expressly responsible for ensuring the site is clean and in operable condition at the time of final acceptance.
6. The contractor is responsible for the protection and replacement of all property pins on this site.
7. These drawings are intended for use on this site only and as an integrated set for this specific project. These drawings may not be used in whole or in part on any other project under the professional engineer's seal. The owner shall hold harmless and indemnify the architect and engineer from and against any and all claims of any nature whatsoever arising from such use.
8. Existing conditions and topo shown herein are taken from an aerial survey from Atlantic Survey December 2016.
9. A separate R.O.W. Excavation Permit issued from Williamson County shall be required for any excavation or construction in the public R.O.W.



Revision Note:
Relocate Wastewater access drive.

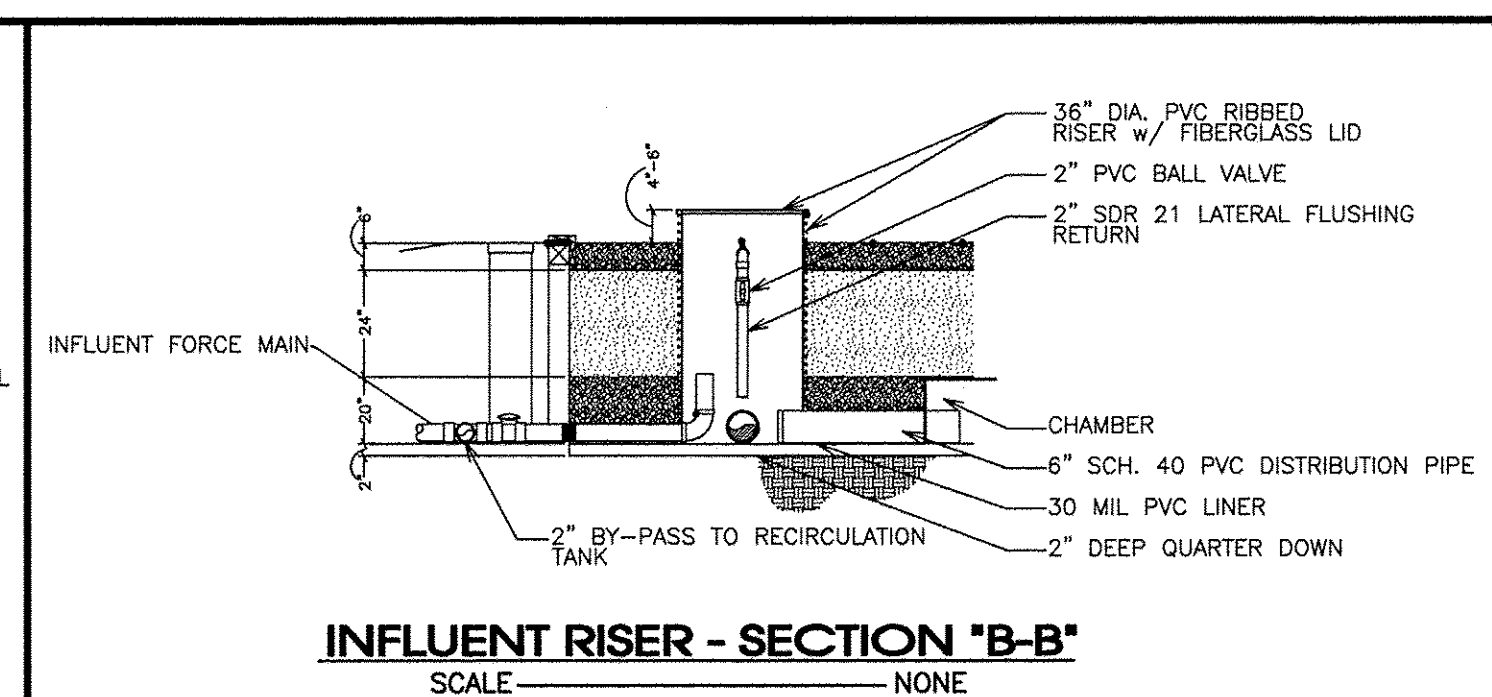
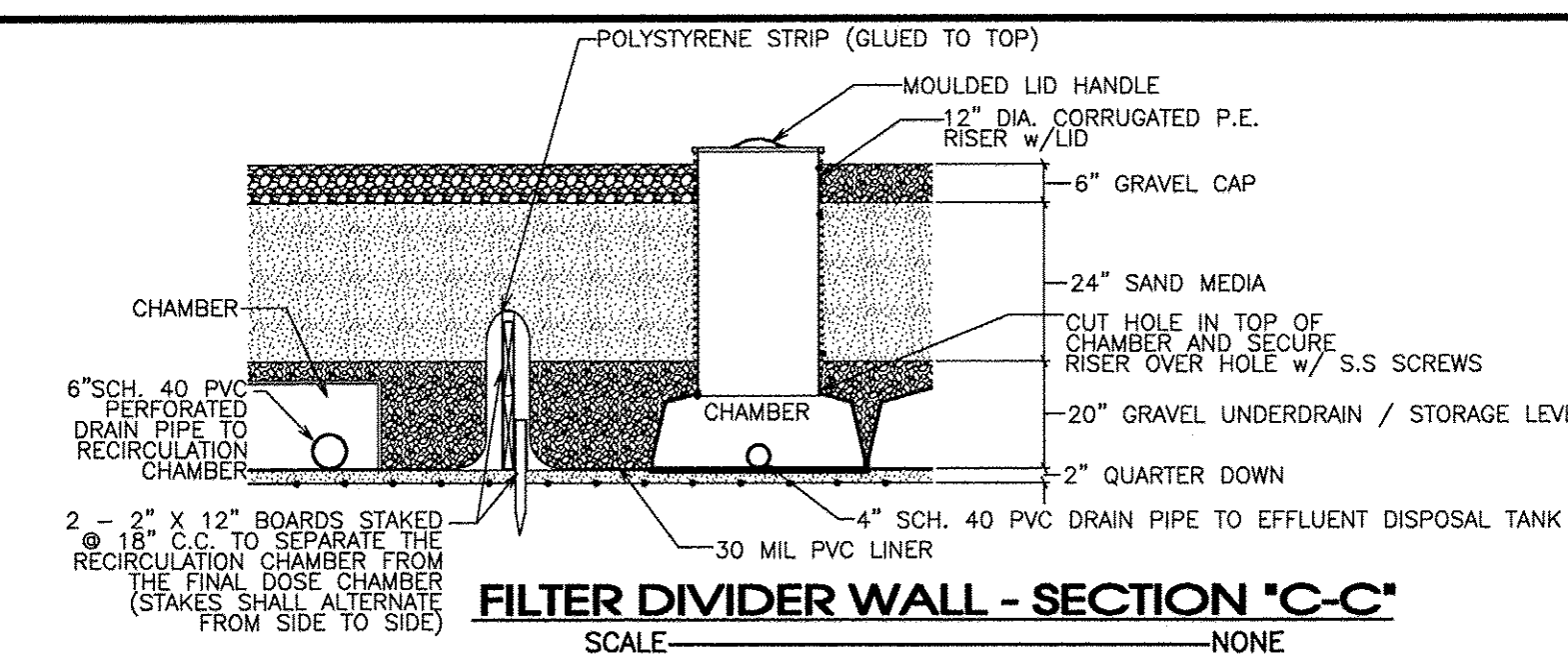
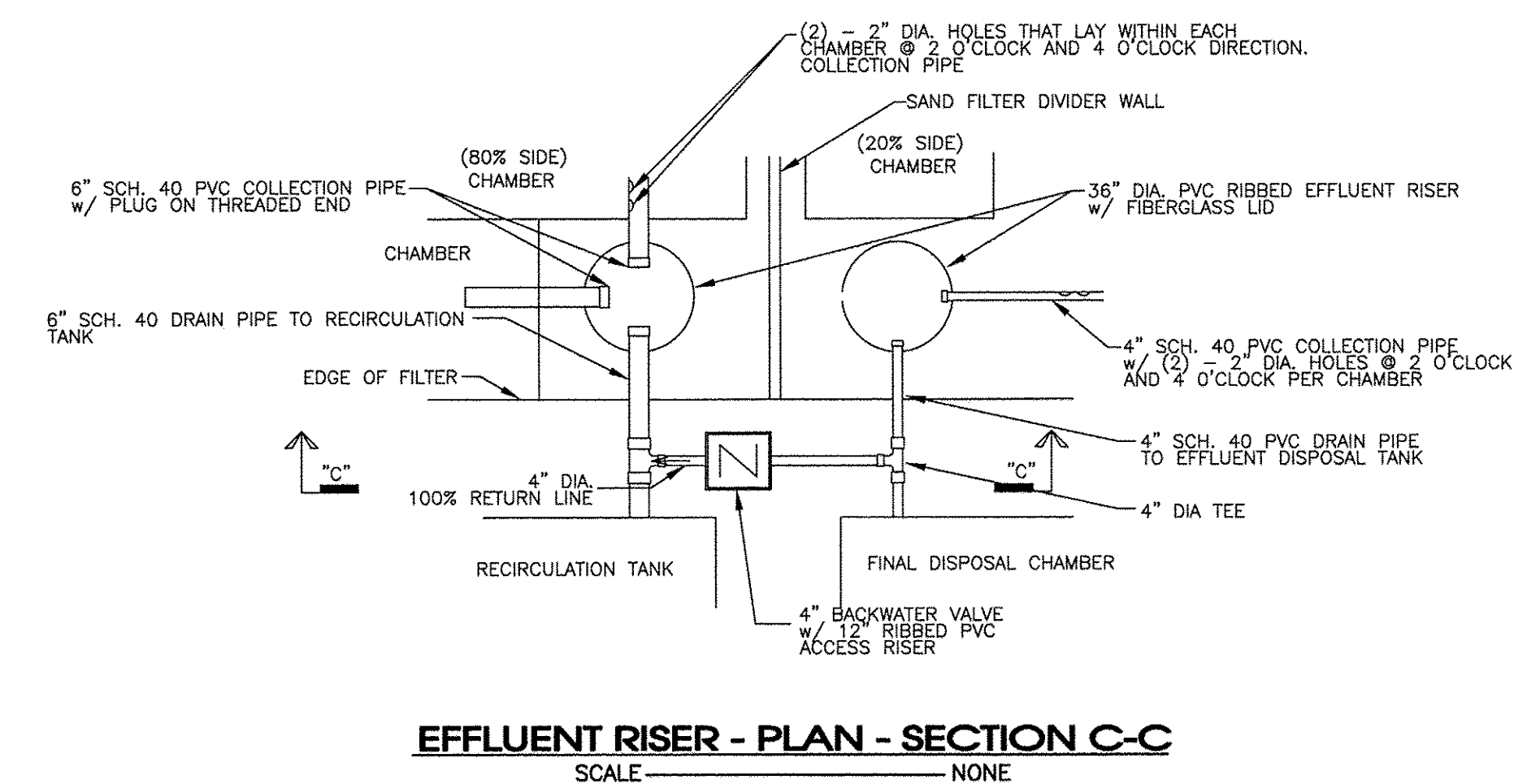
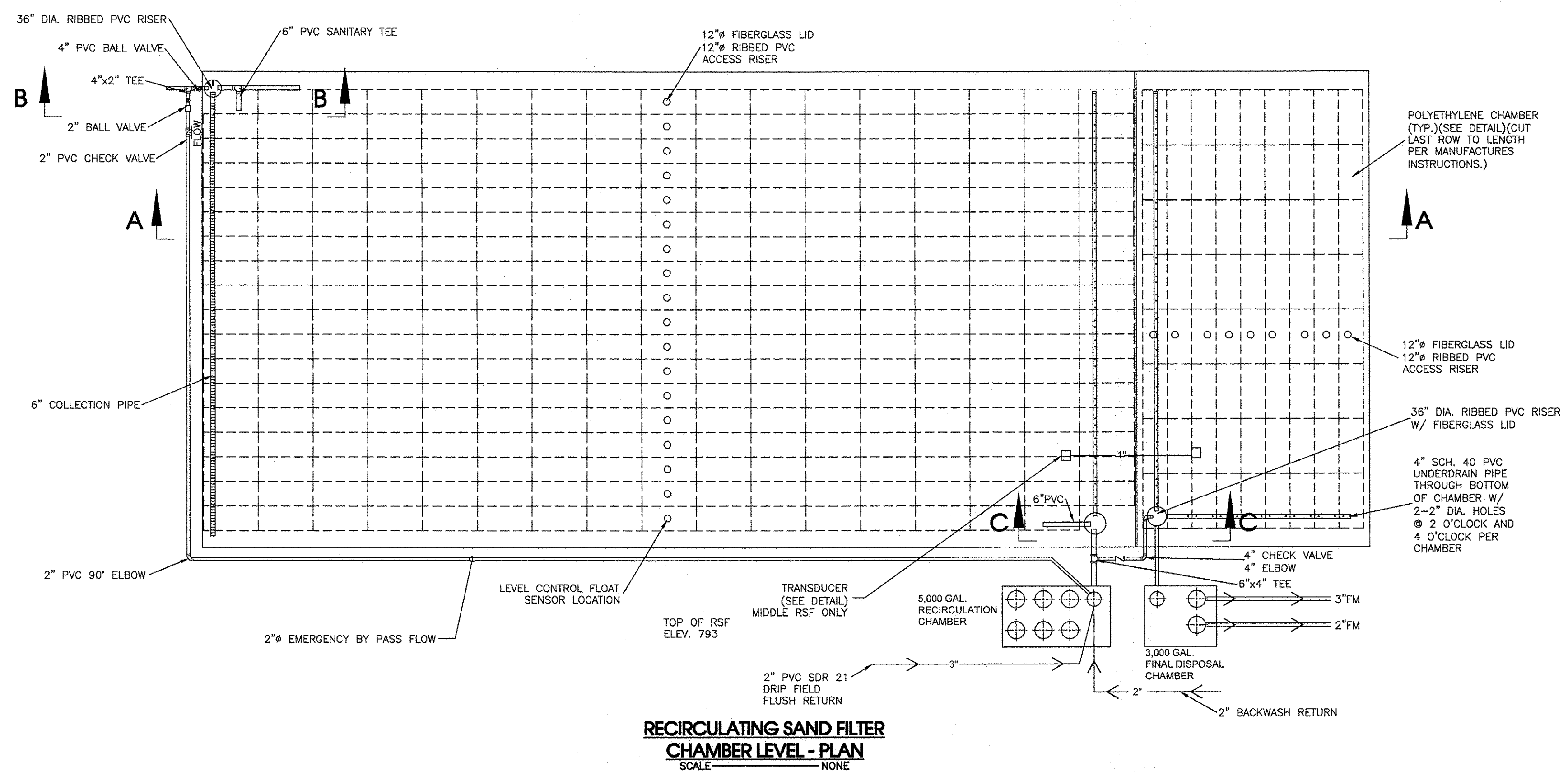
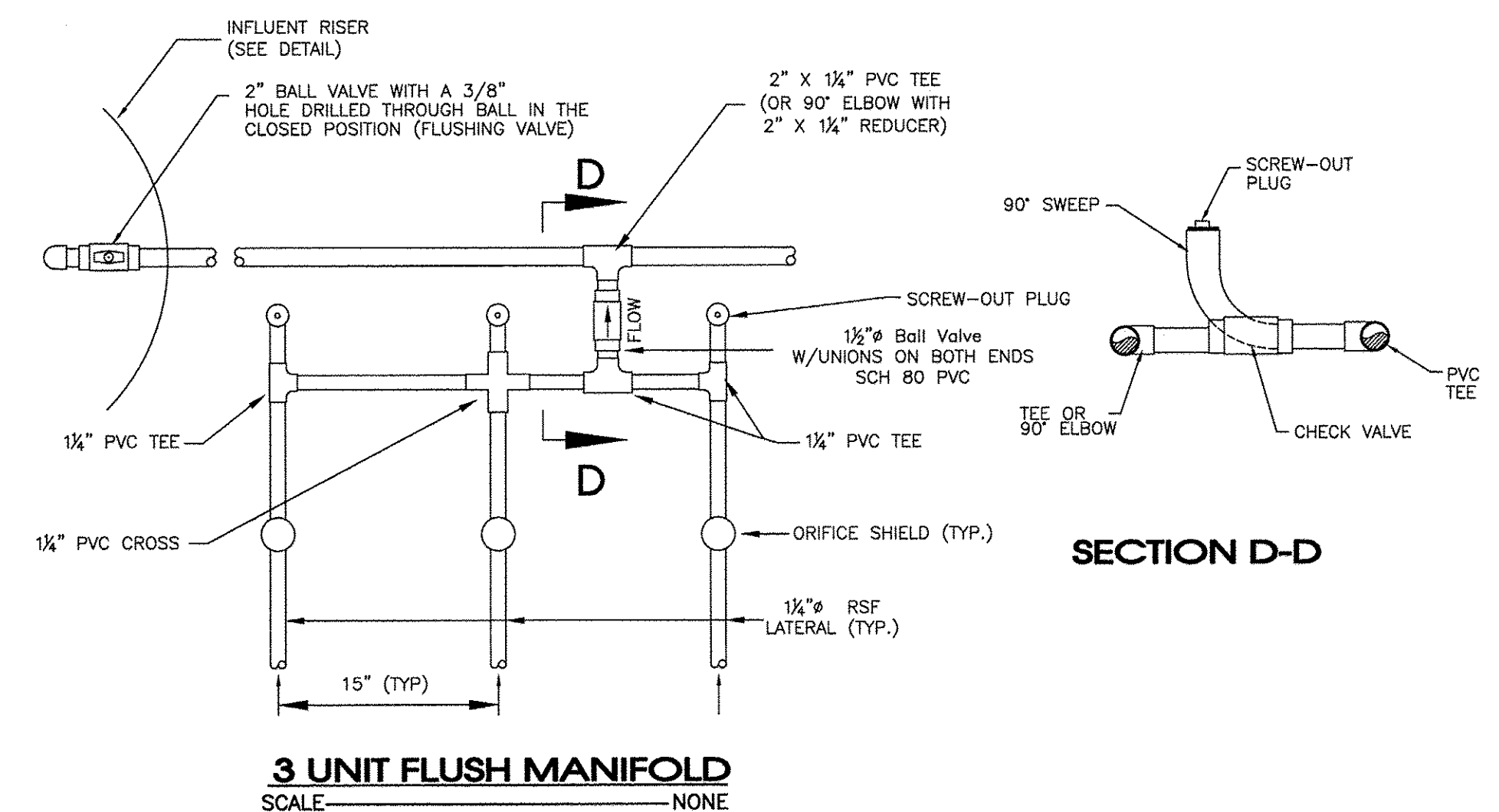
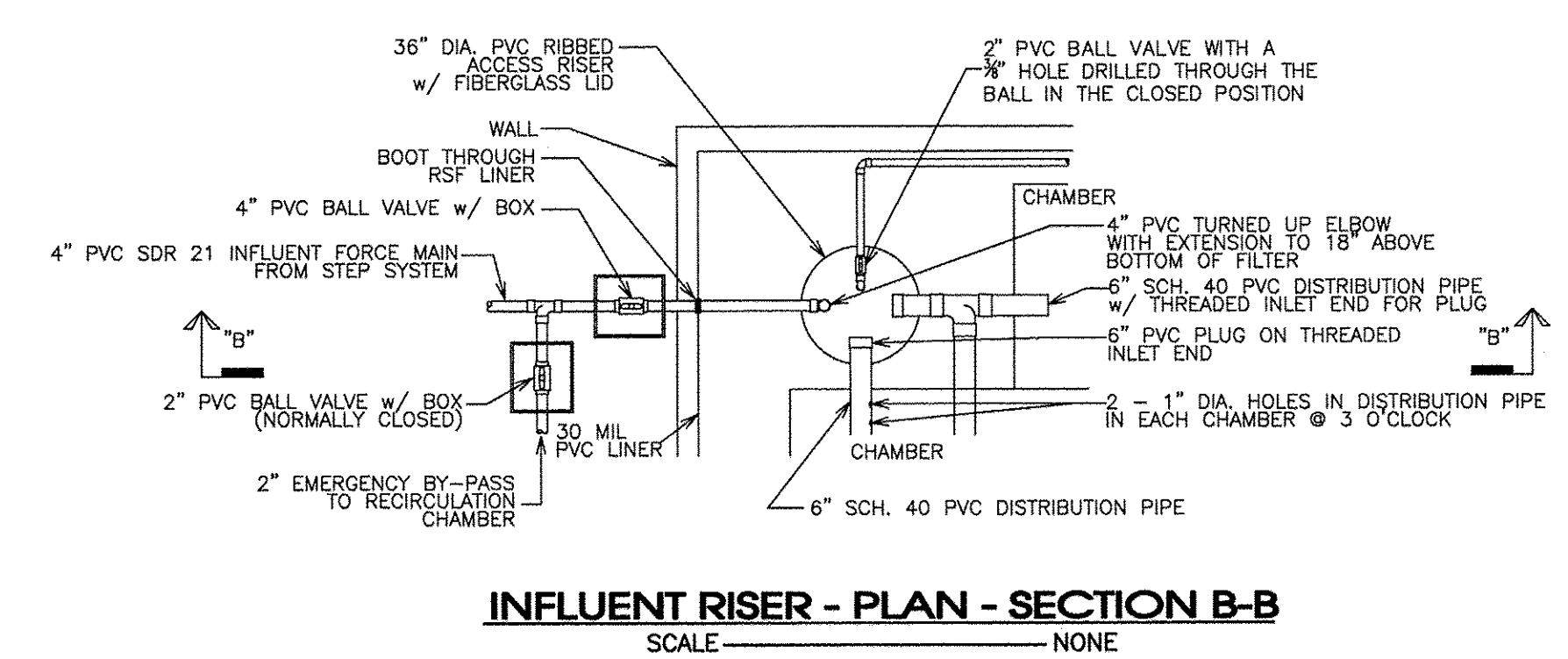
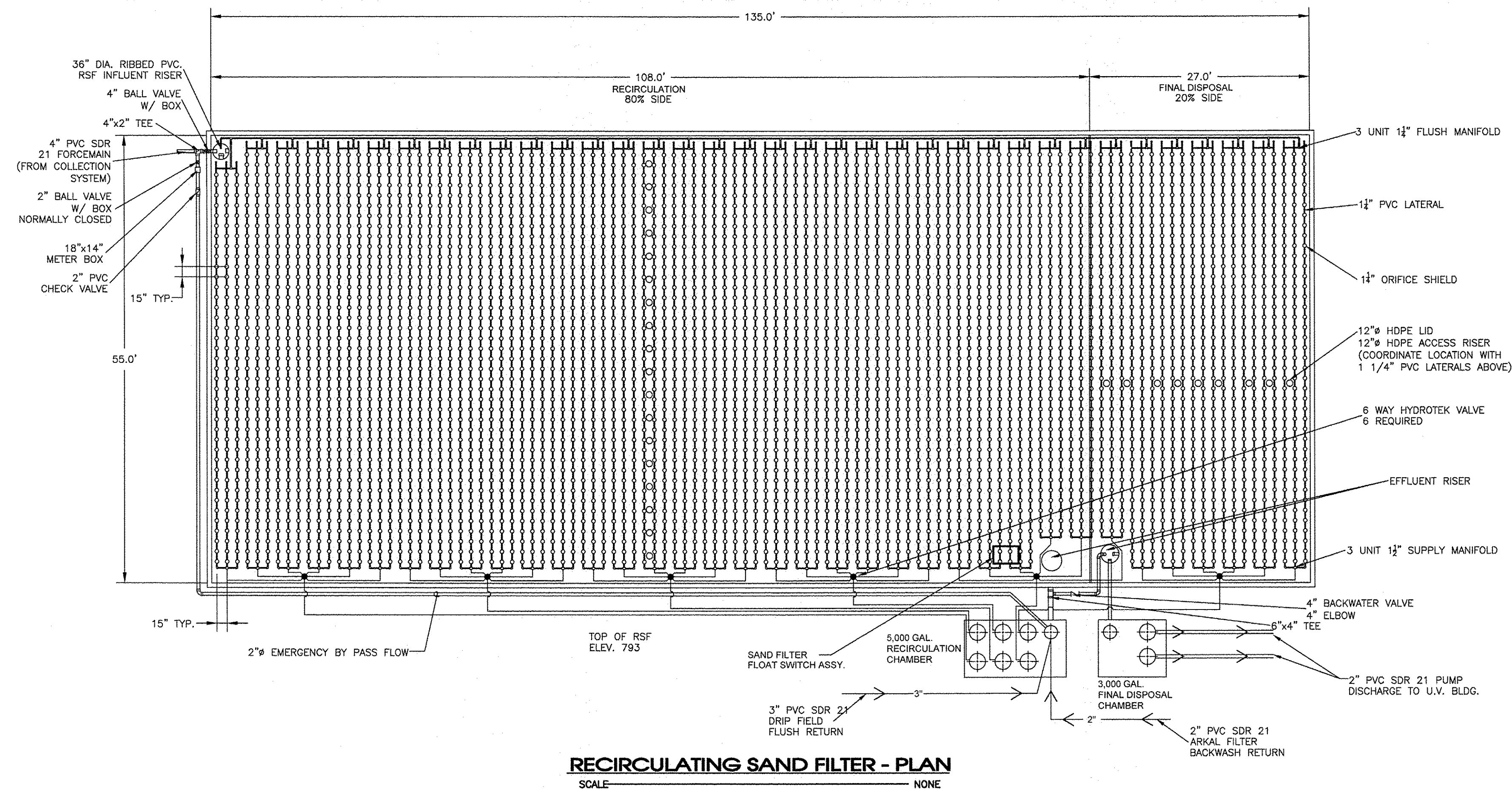
SITE ENGINEERING CONSULTANTS
ENGINEERING SURVEYING AND PLANNING
LANDSCAPE ARCHITECTURE
SEC, Inc.
850 MIDDLE TENNESSEE BOULEVARD
MURFREESBORO, TENNESSEE 37129
PHONE: (615) 890-7901 E-MAIL: JRE@SEC-CIVIL.COM FAX: (615) 895-2667
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Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

REVISIONS: 4-18-17 Comments: 6-18-17 Per Phase 1 Comments

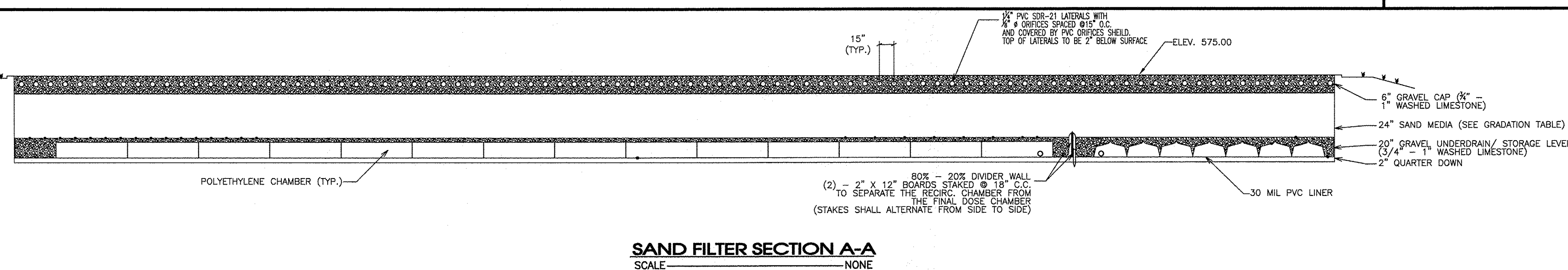
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DATE: 3-28-17	
CHECKED: JFR	
FILE NAME: 16162project.dwg	
SCALE: 1"=30'	JOB NO. 16162
SHEET: C6.0	



SAND GRADATION FOR FILTER SAND

SIEVE SIZE	PERCENT PASSING
3/8	100
4	60 - 100
8	7 - 75
16	0 - 5
30	0 - 3
50	0 - 2

Cu = 1.5 TO 2.5
EFFECTIVE SIZE: D_{10} = 1.5 TO 2.5 mm
SAND MUST BE WELL WASHED



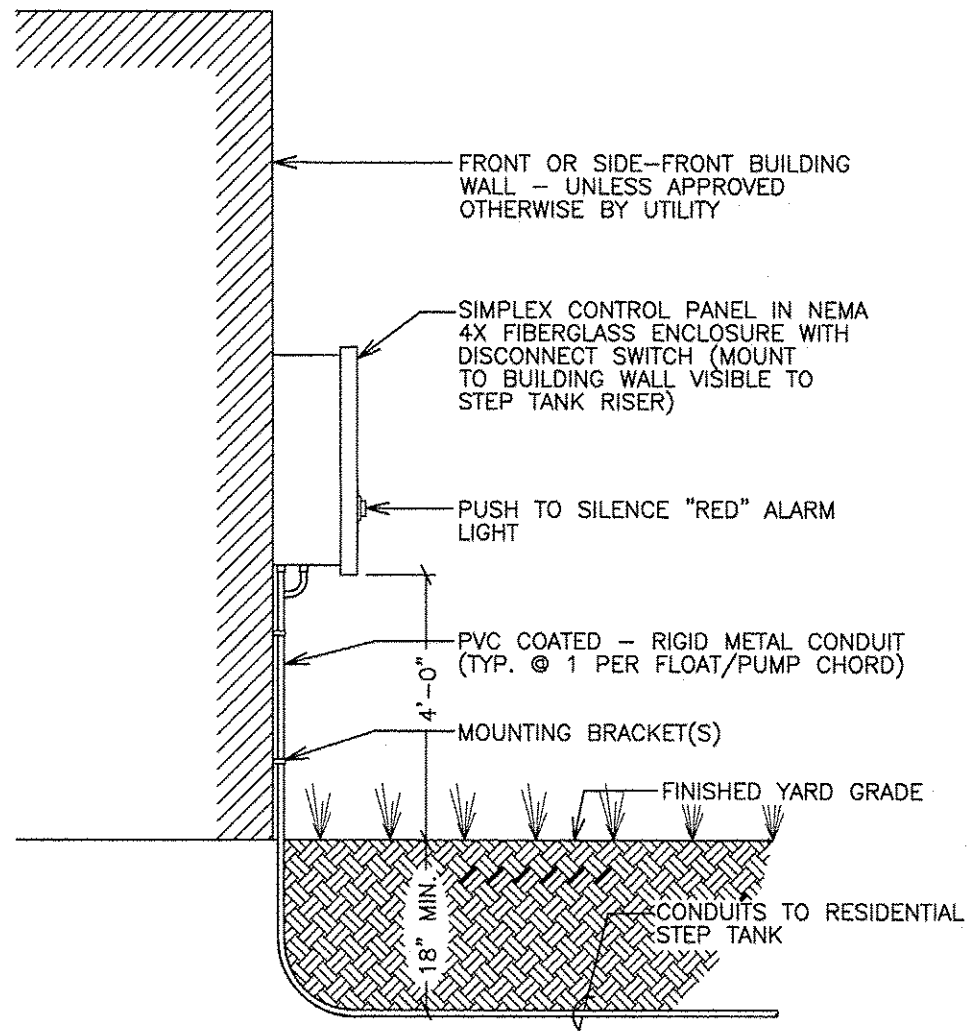
SEC, Inc.
ENGINEERING • SURVEYING • LAND PLANNING
LANDSCAPE ARCHITECTURE
P.O. BOX 10000, SUITE 200, DALLAS, TEXAS 75210-0000

Hardeman Springs
5006-14 Murfreesboro Road
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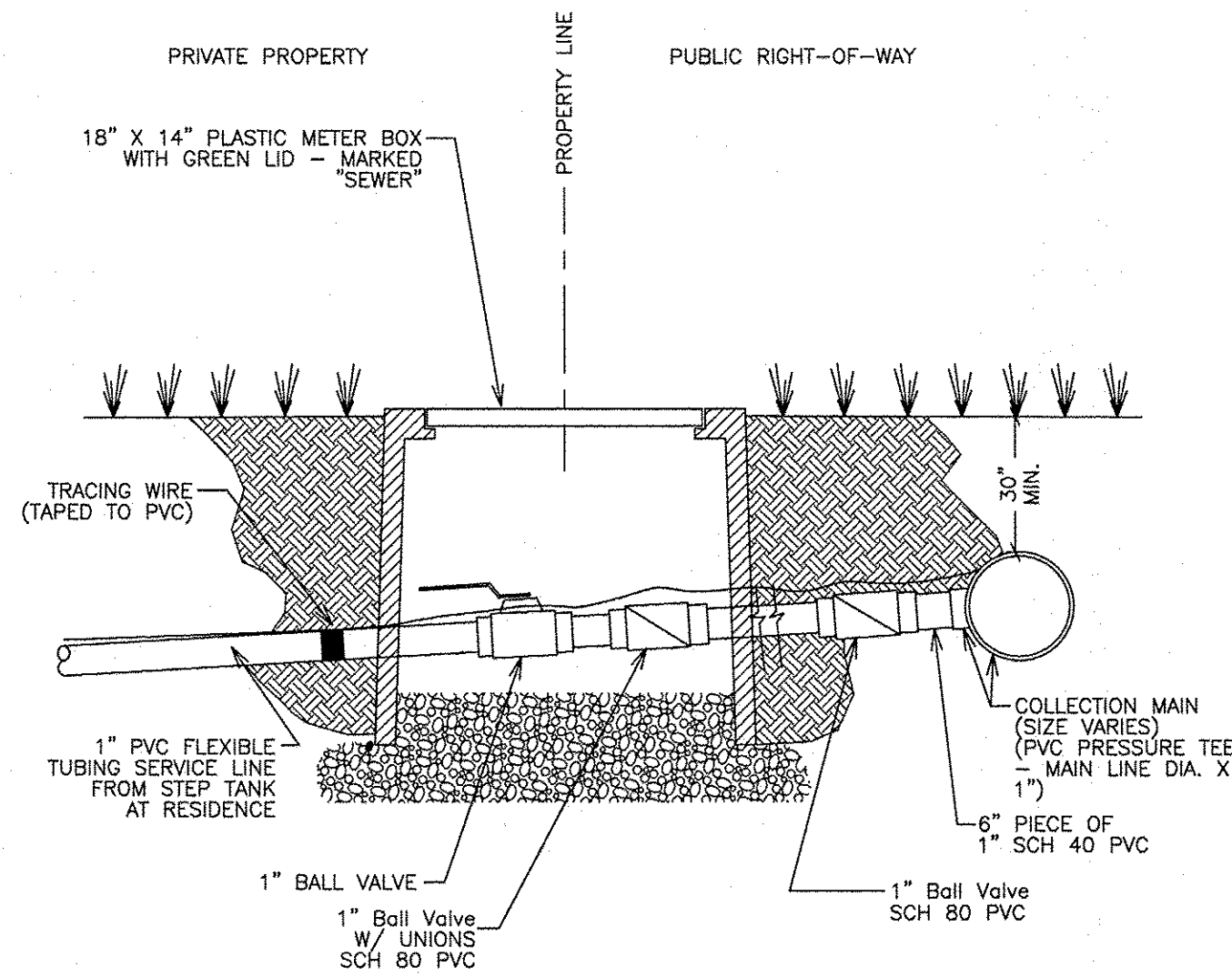
Details

LG
8-17
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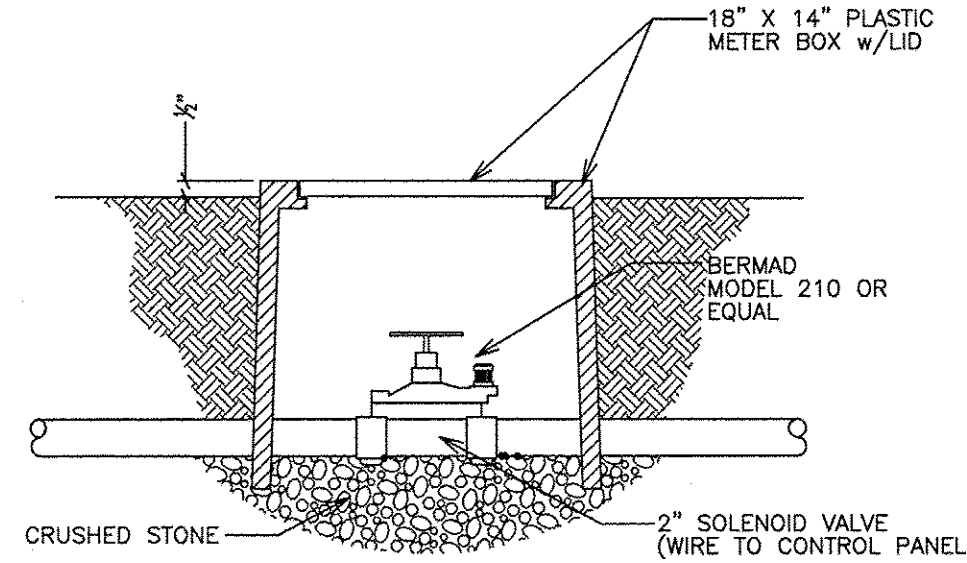
the sole responsibility of the owner/developer to ensure that the construction of the site shown on these construction drawings is in total accordance with the design as noted, described, and illustrated. The engineer assumes no administrative liability or responsibility in the assurance that the site is constructed in accordance with the construction plans.



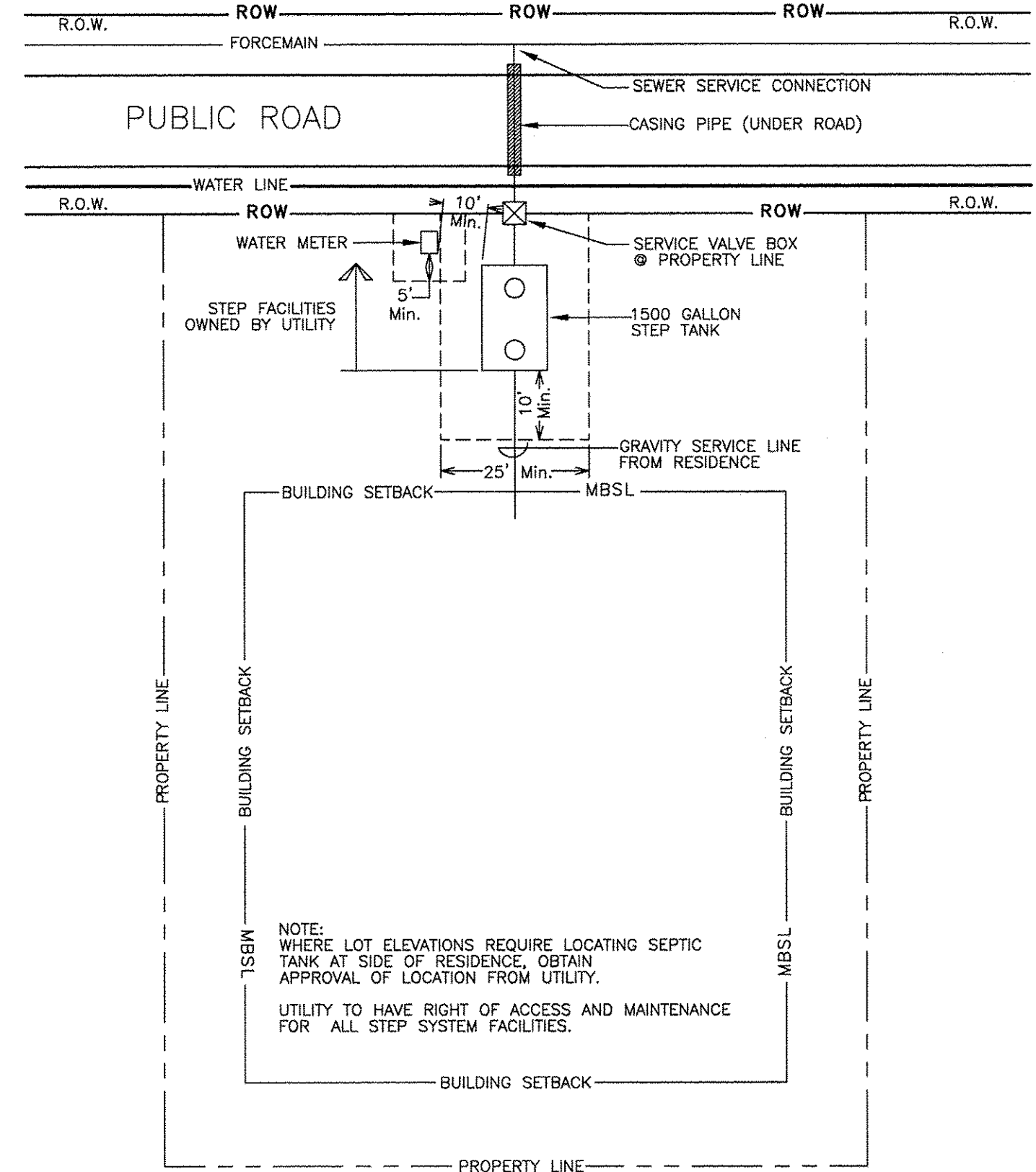
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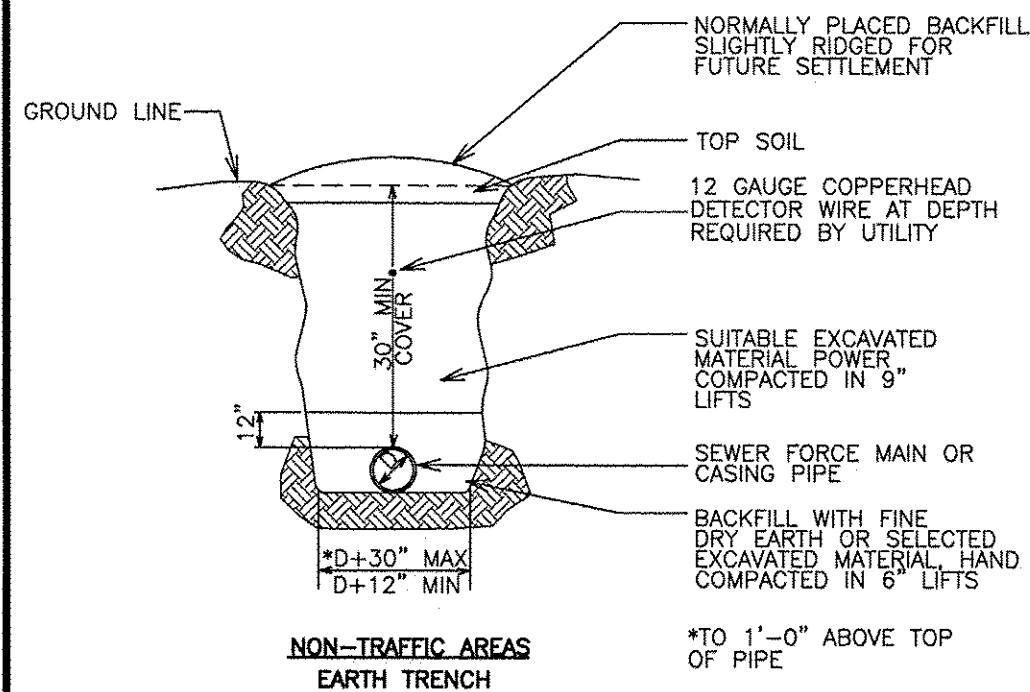
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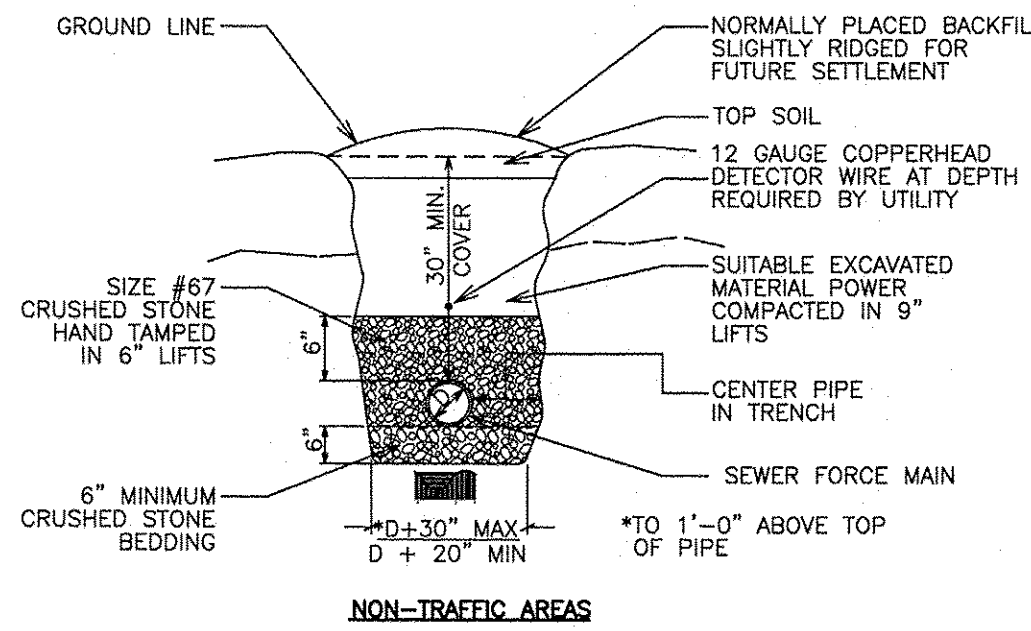
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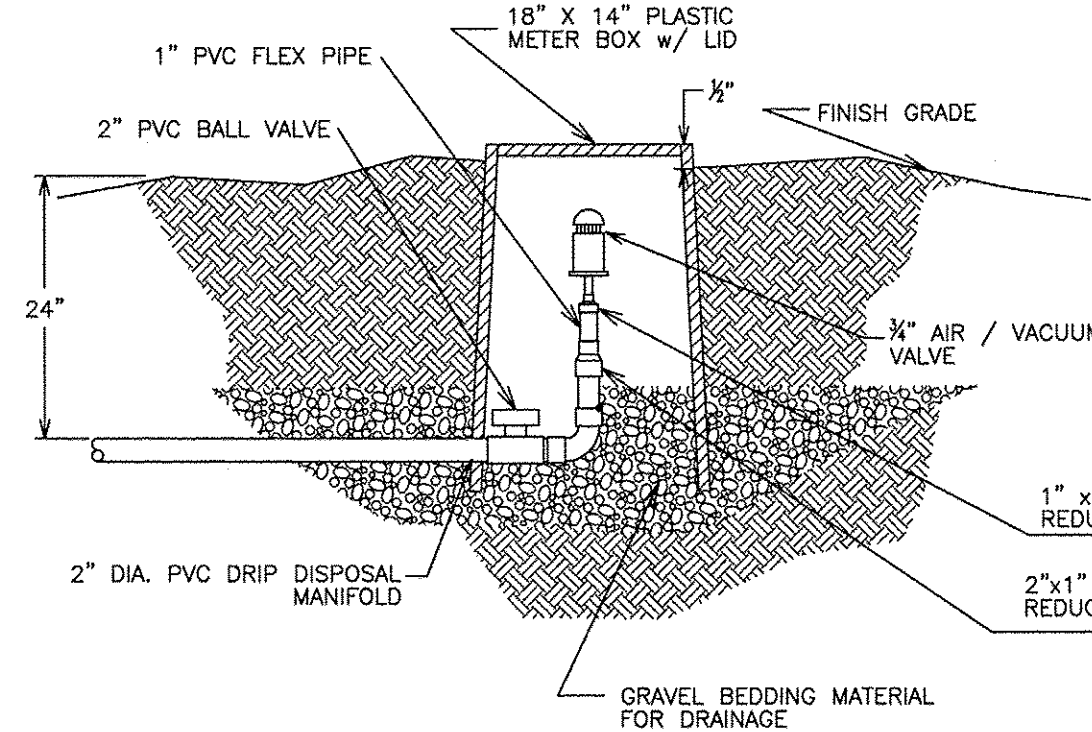
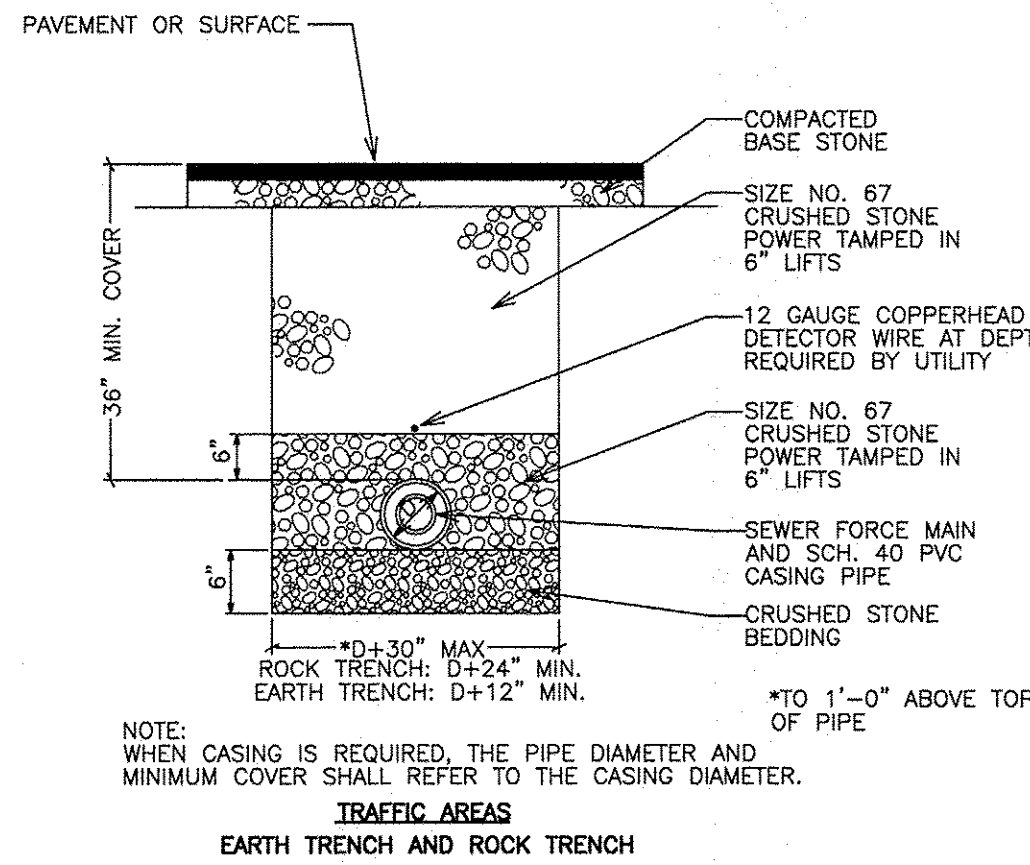
TYPICAL RESIDENTIAL SERVICE CONNECTION PLAN
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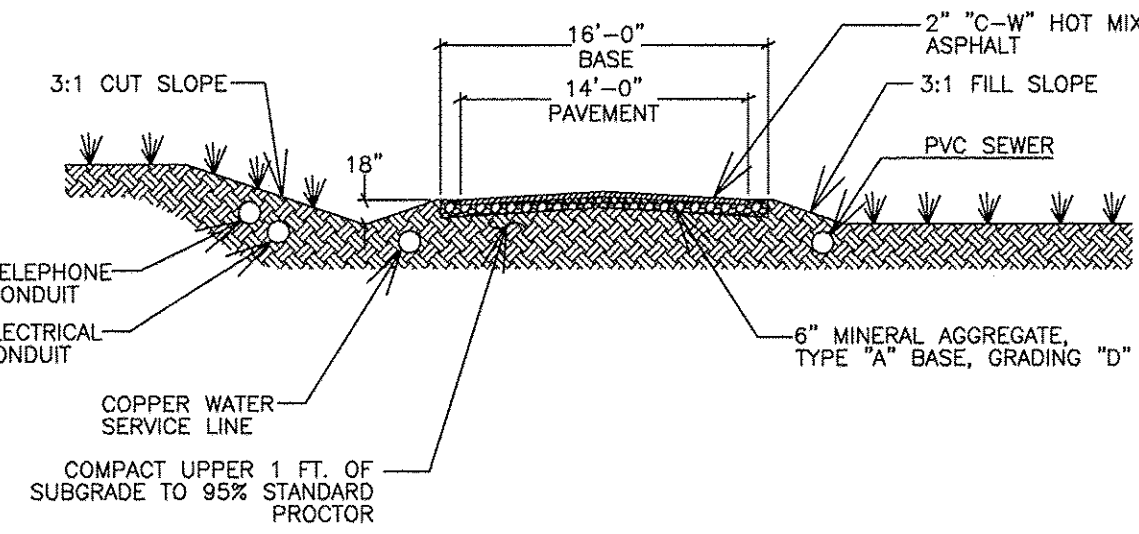
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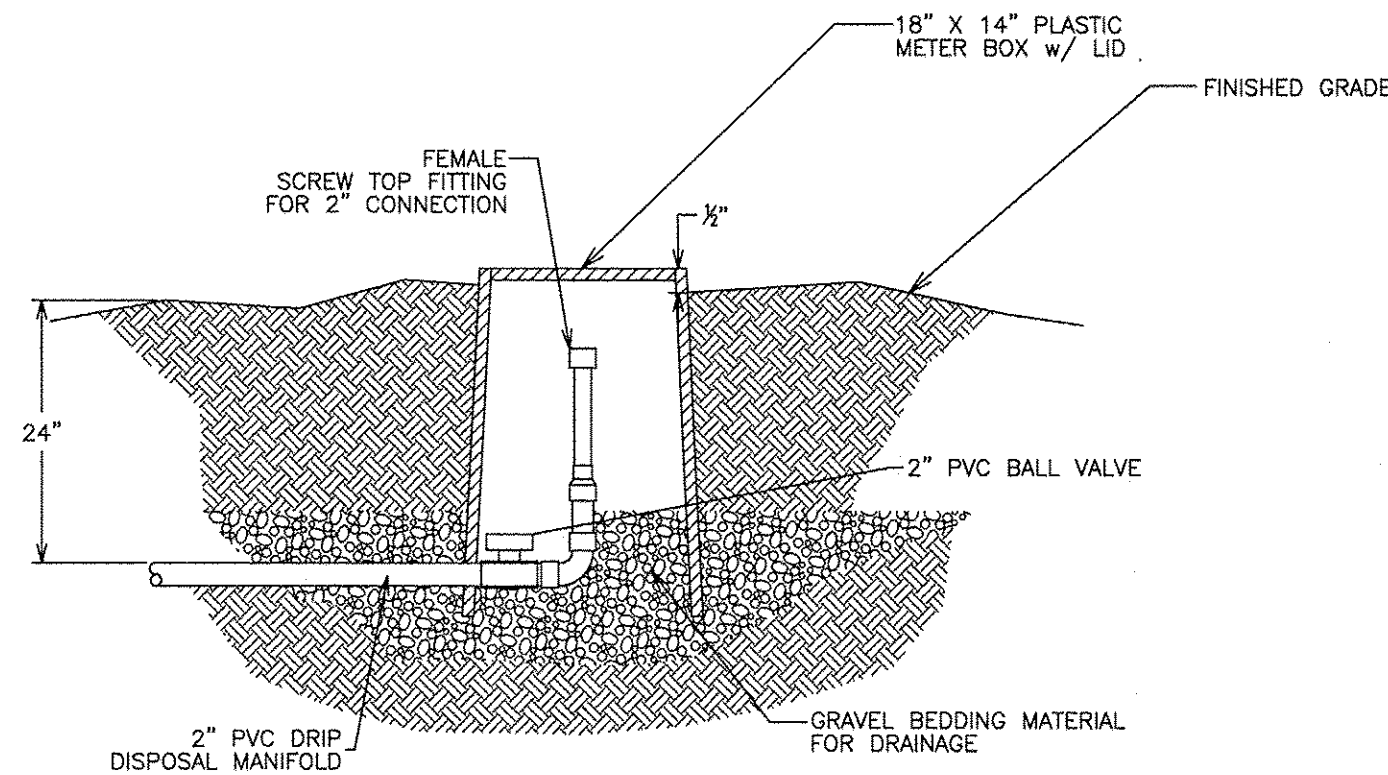
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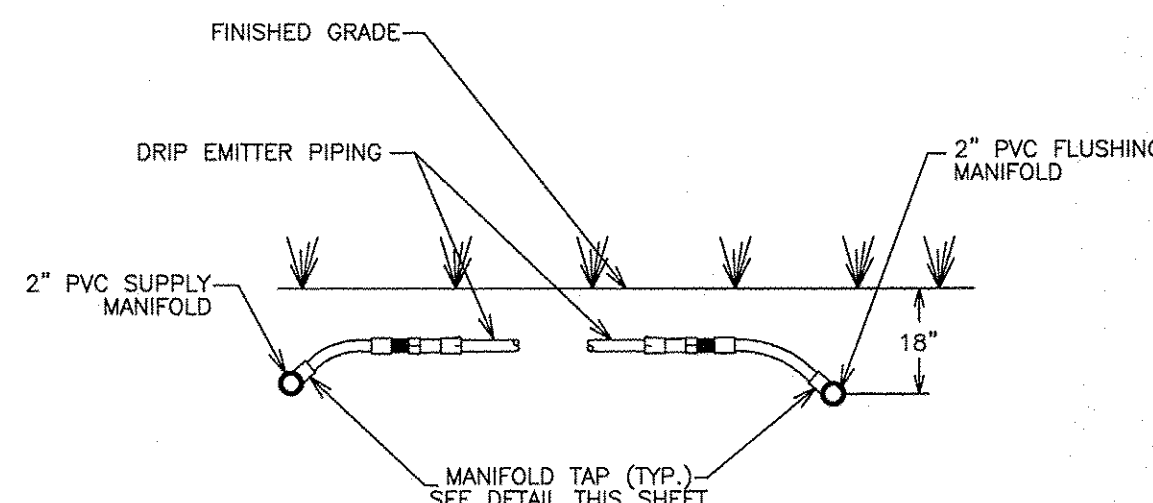
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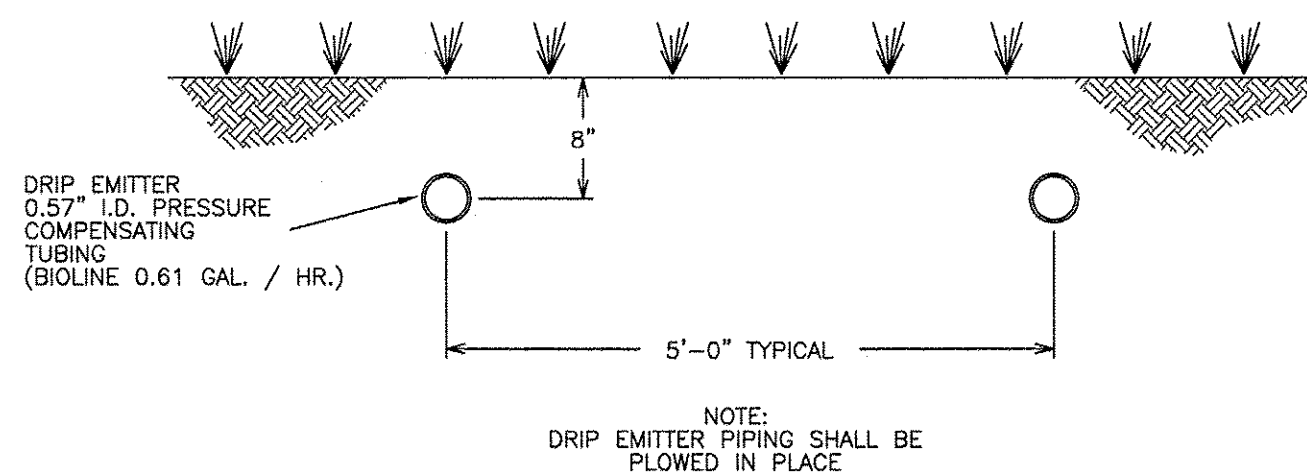
PAVED ACCESS DRIVE
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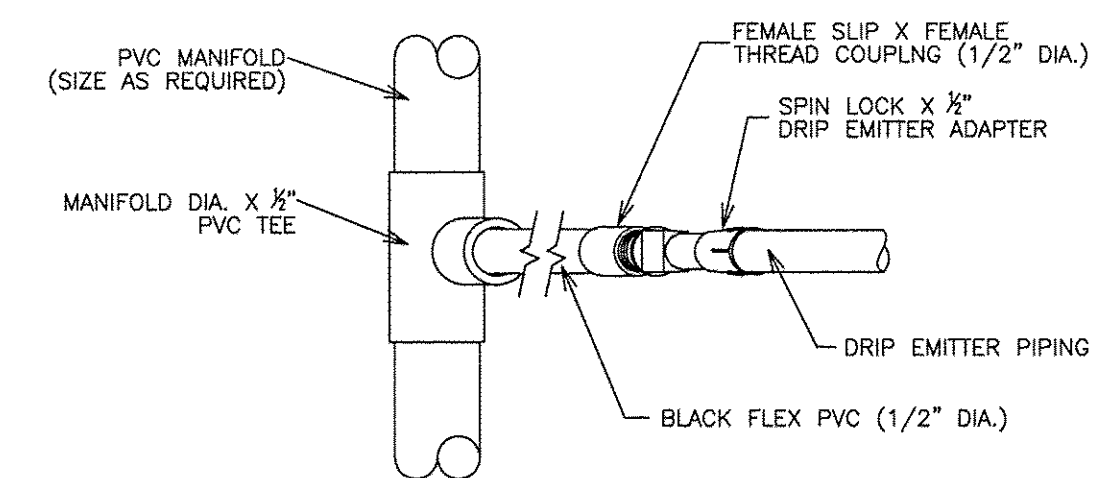
END-OF-LINE BLOW-OFF ASSEMBLY
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DRIP DISPOSAL PIPING END MANIFOLD ELEVATION
SCALE NONE

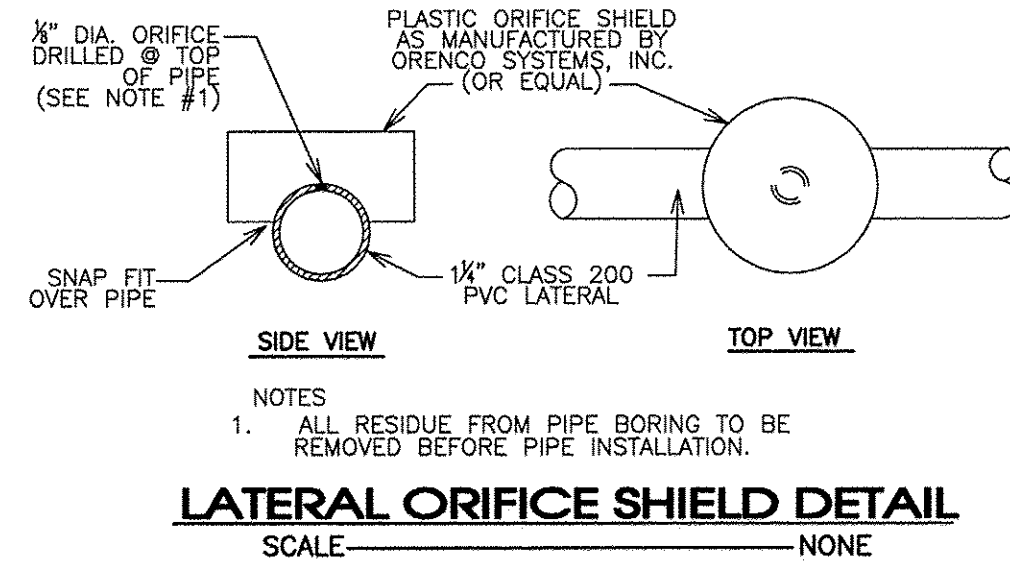
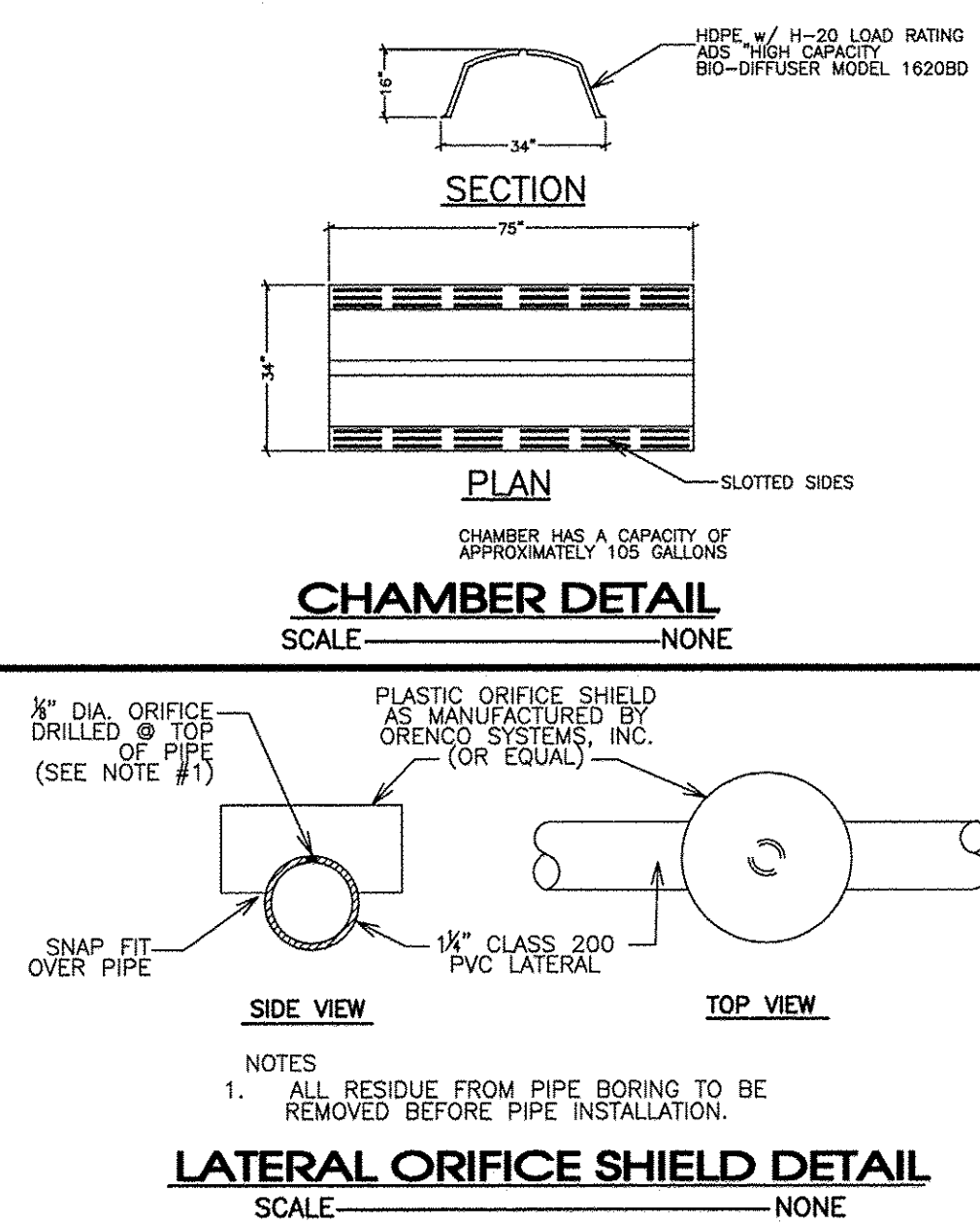
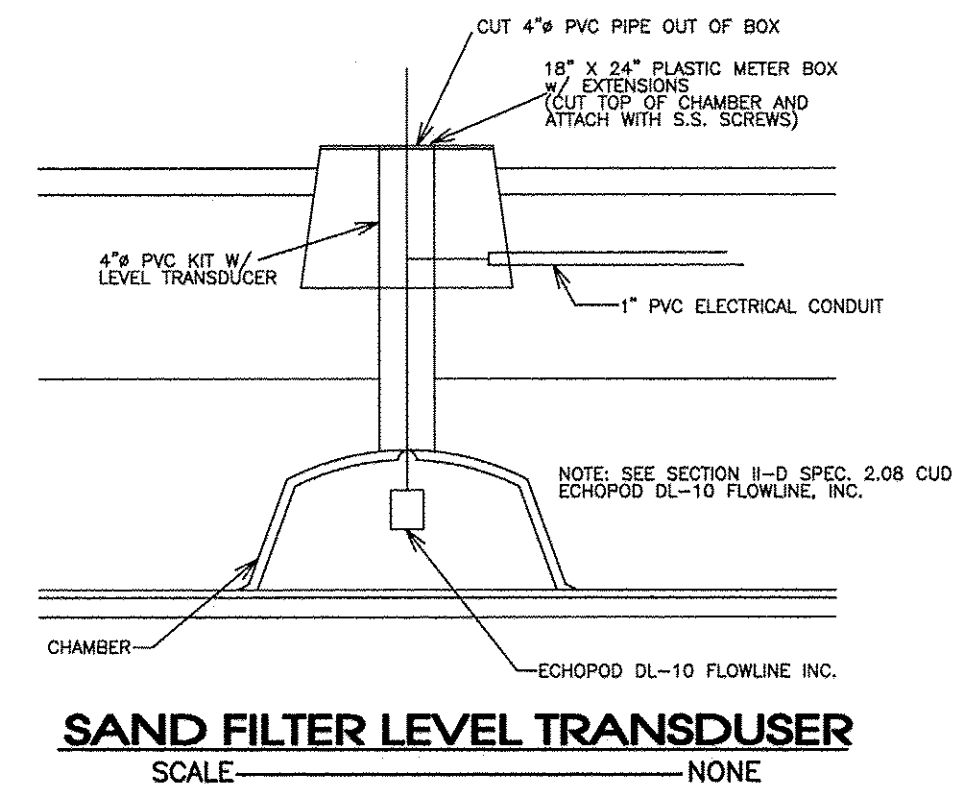
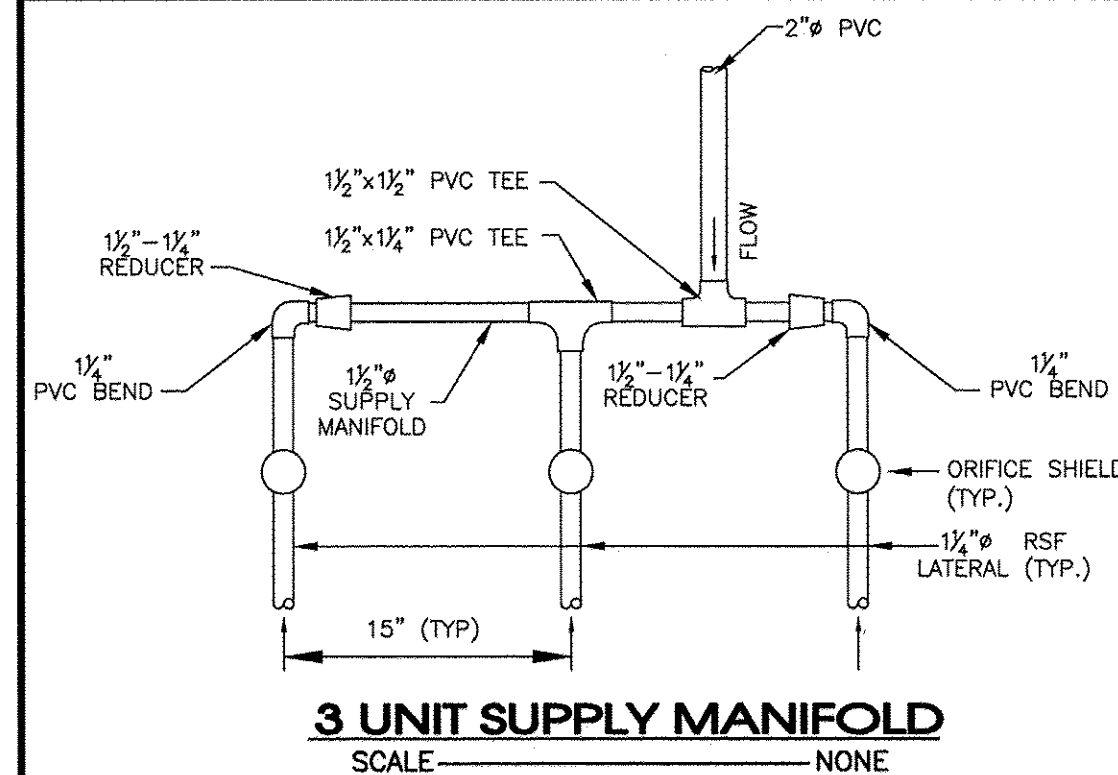
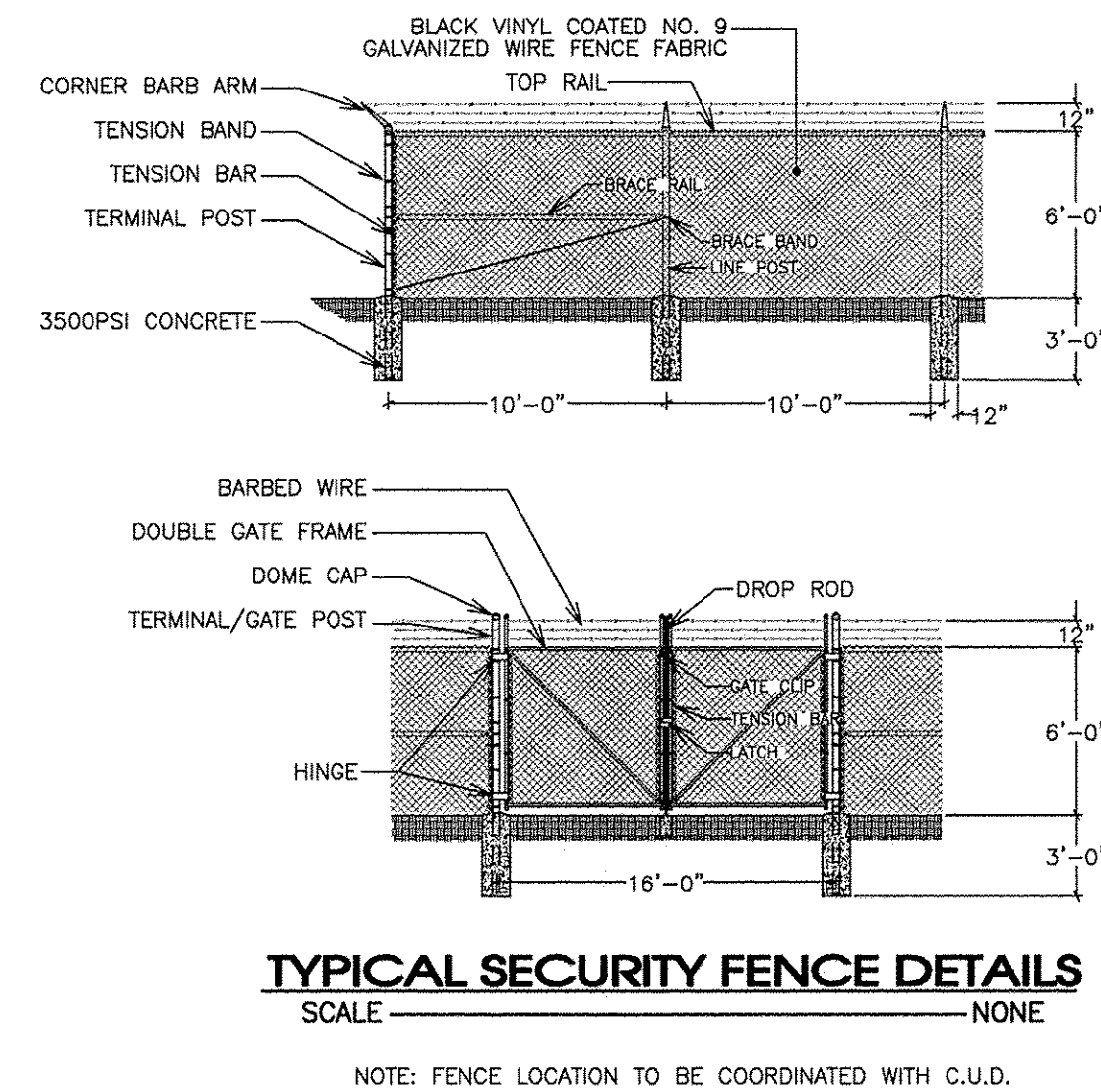
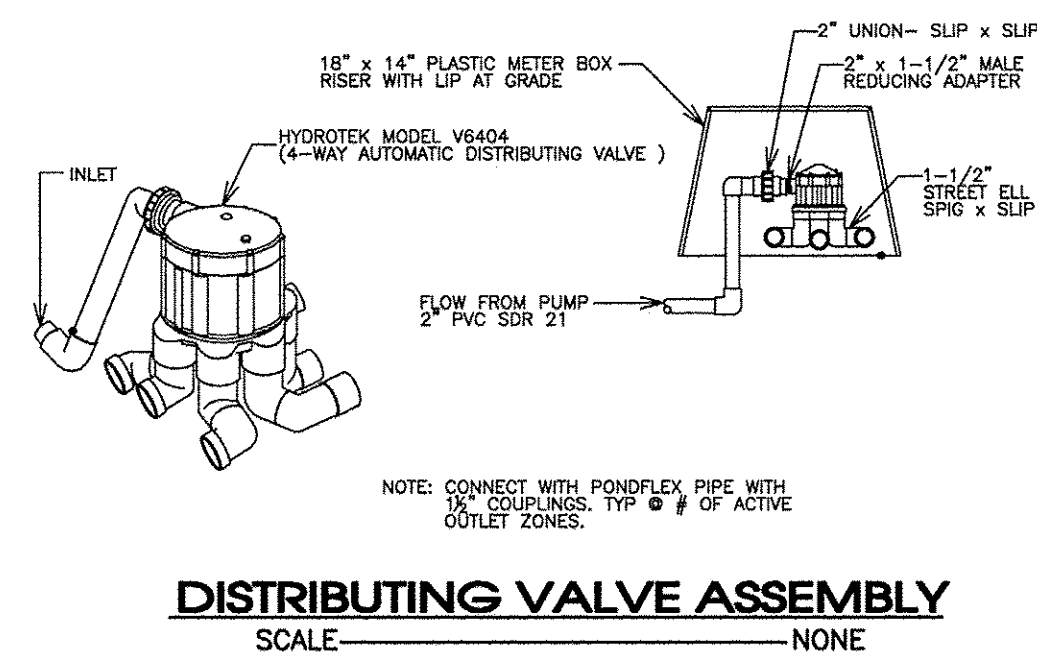
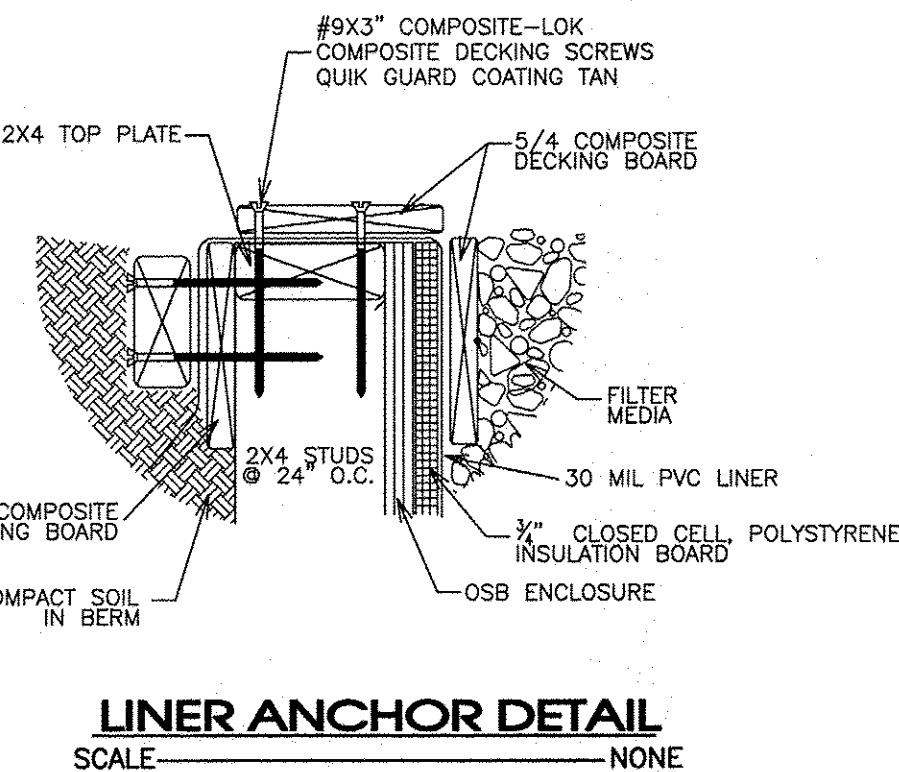
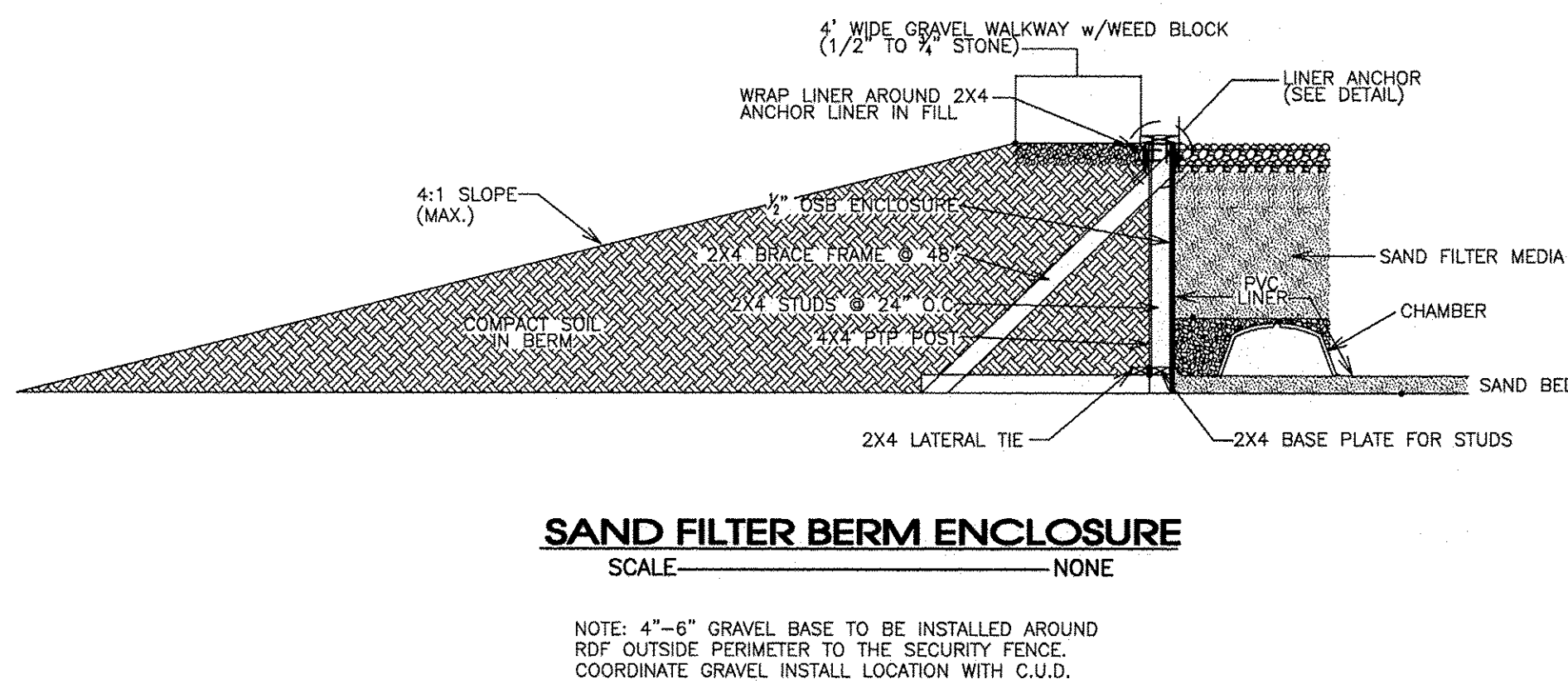
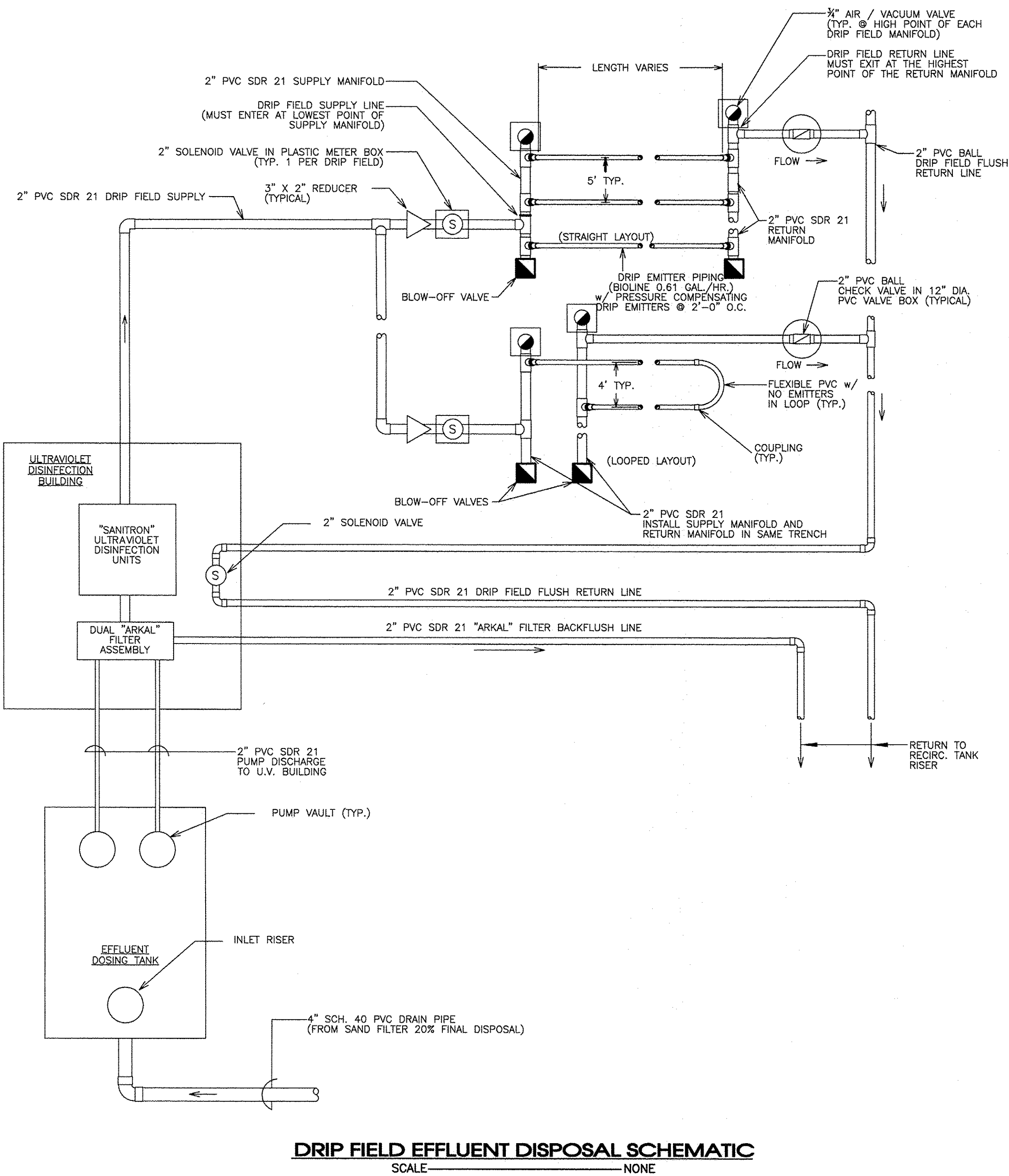


DRIP EMITTER PIPING
SCALE NONE



DRIP PIPING MANIFOLD TAP
SCALE NONE

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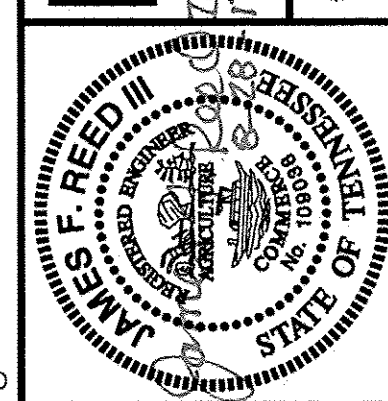


Hardeman Springs
5006-14 Murfreesboro Road
STEP System Design & Wastewater Site Plan
Williamson County, Tennessee

REVISIONS:
DRAWN: MLG
DATE: 3-28-17
CHECKED: JFR
FILE NAME: 16162project.dwg
SCALE: N.T.S.
JOB NO. 16162
SHEET:

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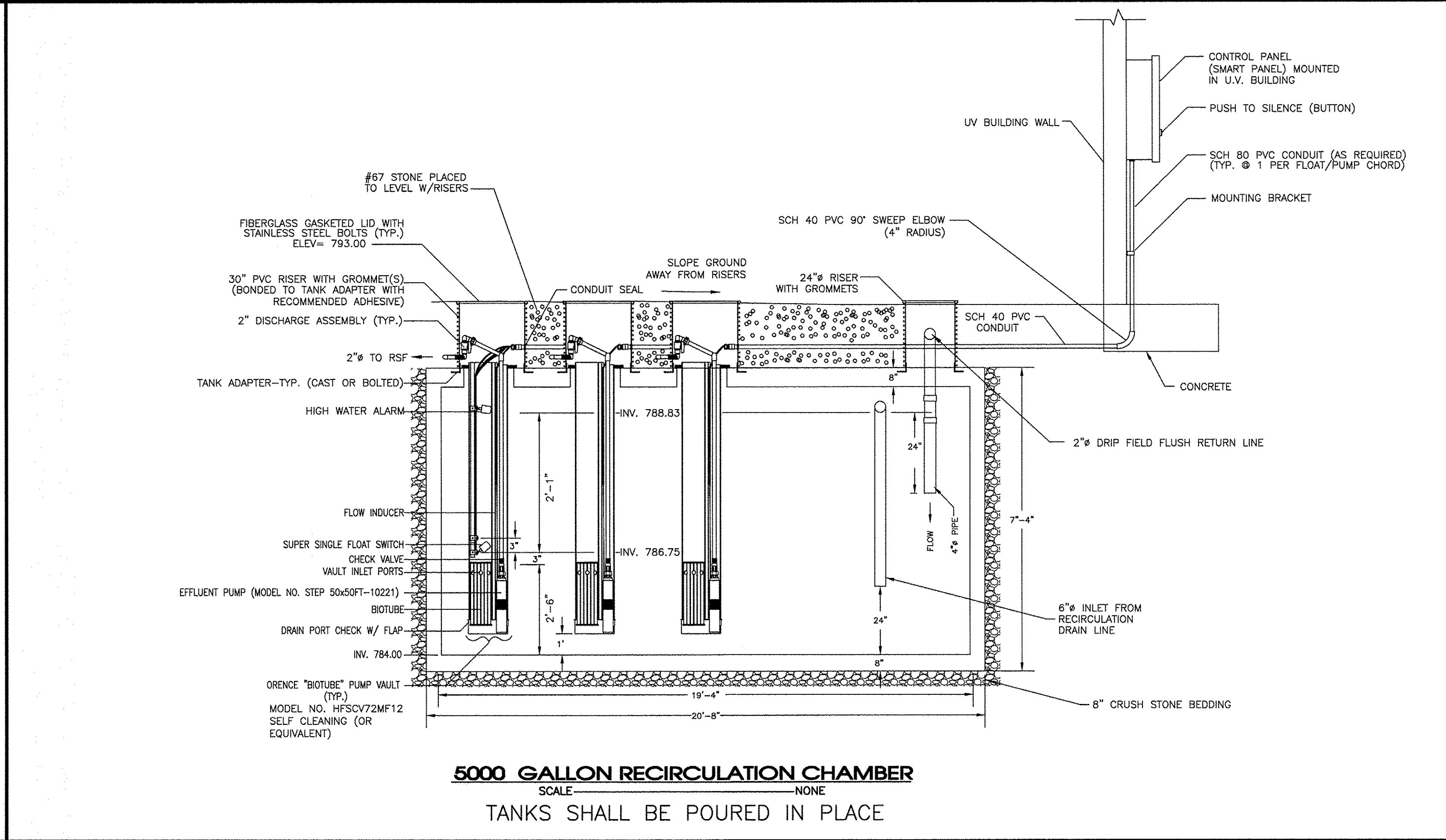
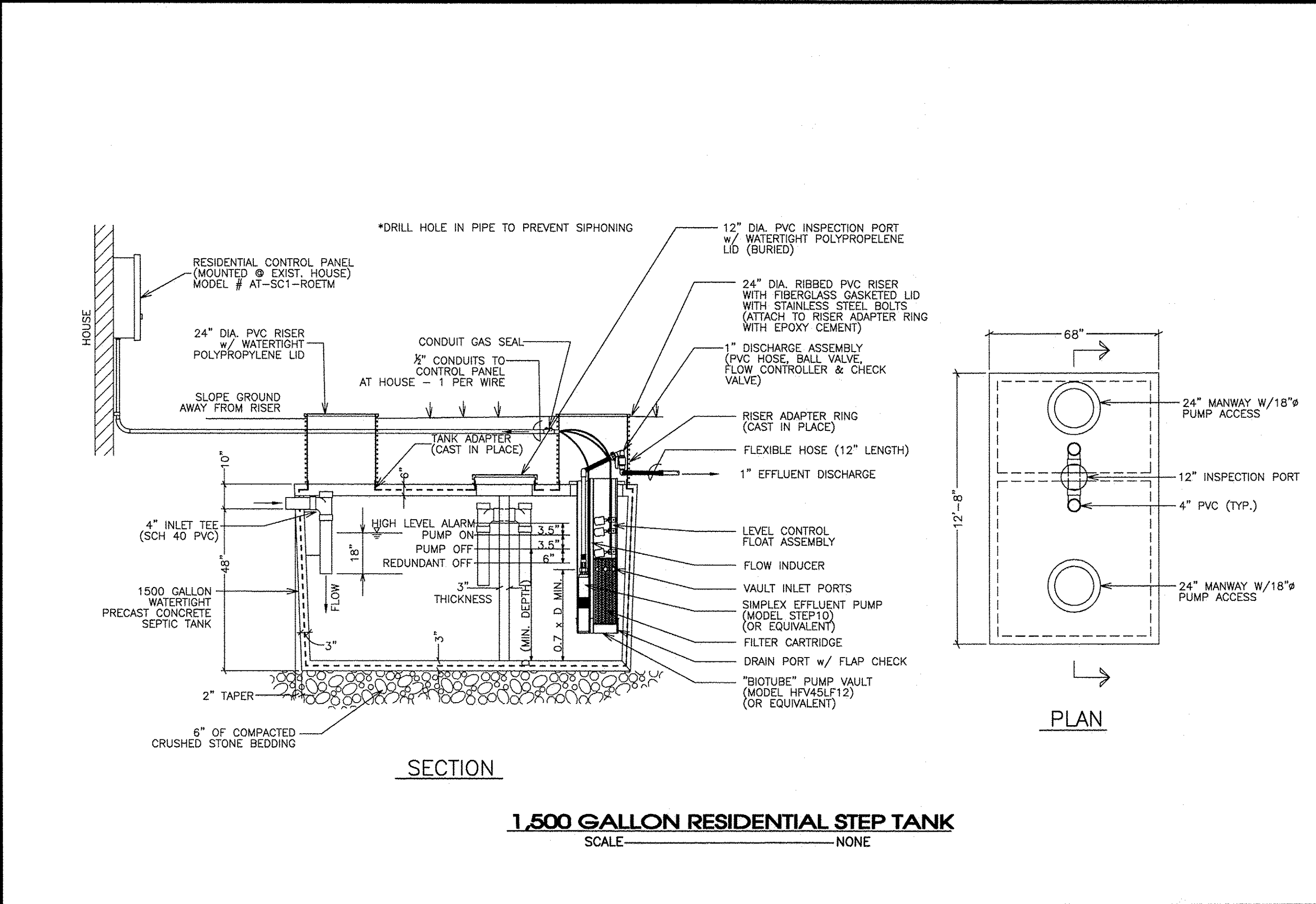
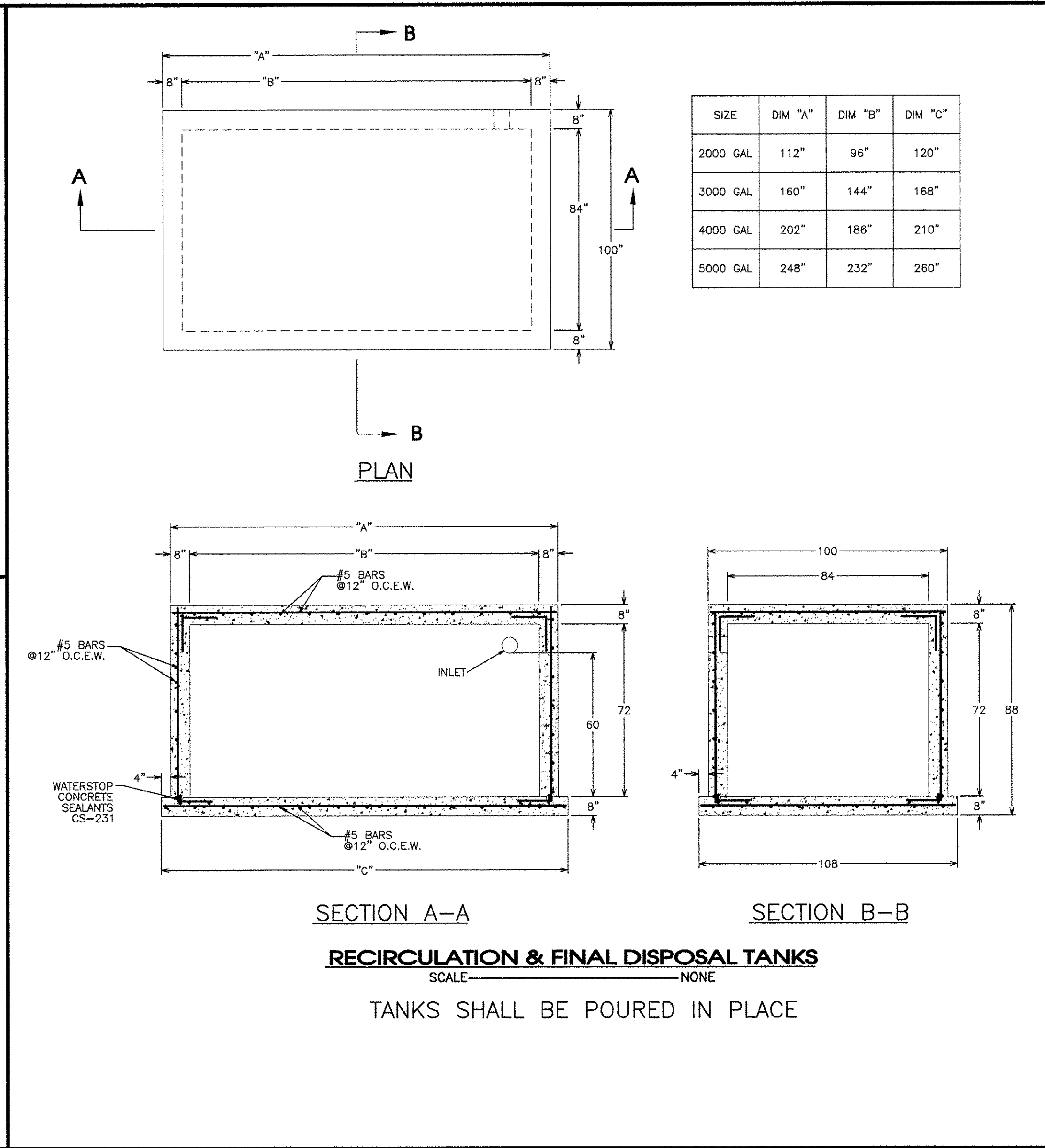
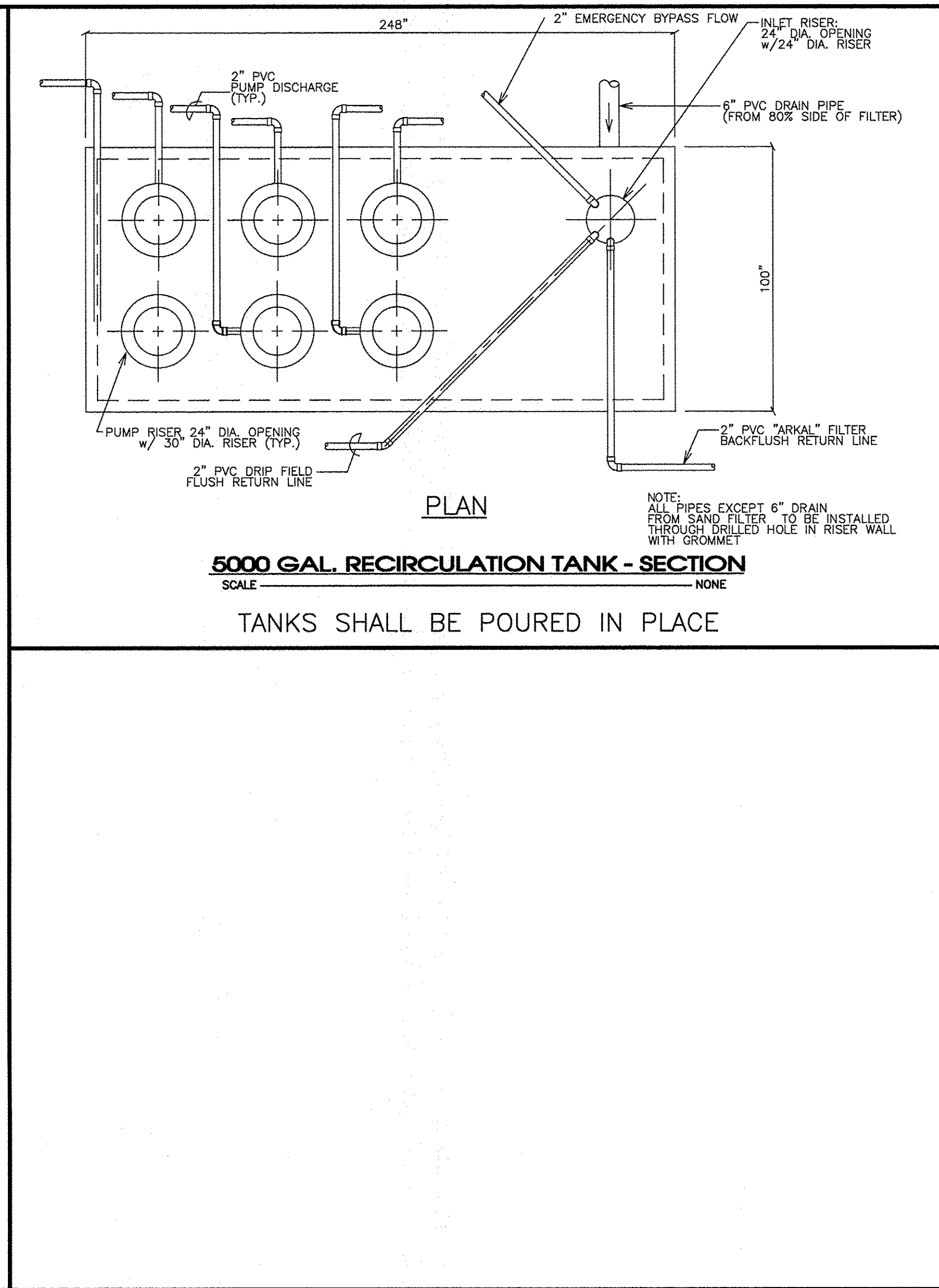
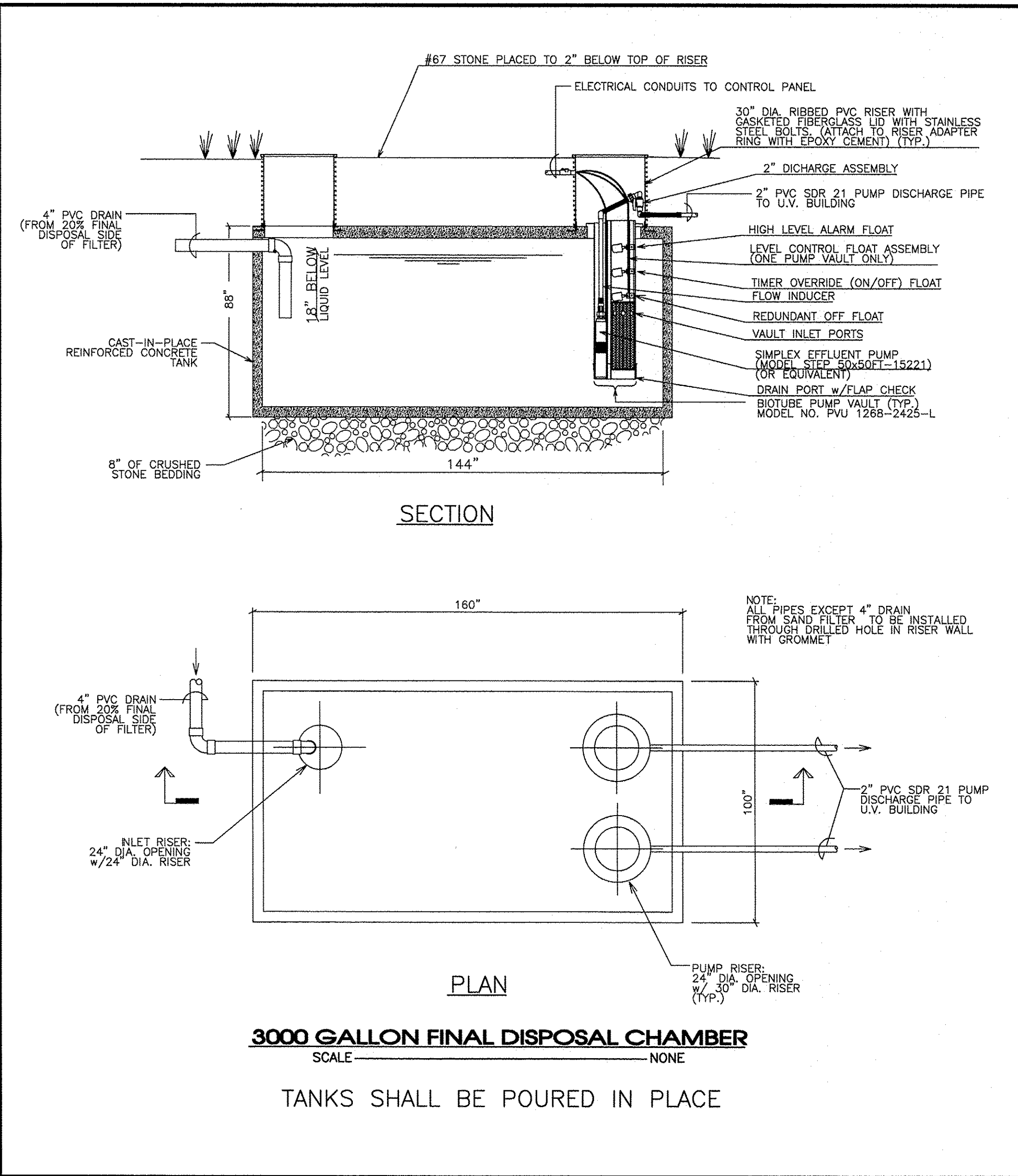
SEC, Inc.



SITE ENGINEERING CONSULTANTS
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The site as shown on these construction drawings is intended to achieve specific engineering design criteria and objectives. It is the responsibility of the engineer to ensure that the design is feasible, practical, and constructible. The engineer assumes no administrative liability for the construction of the site.

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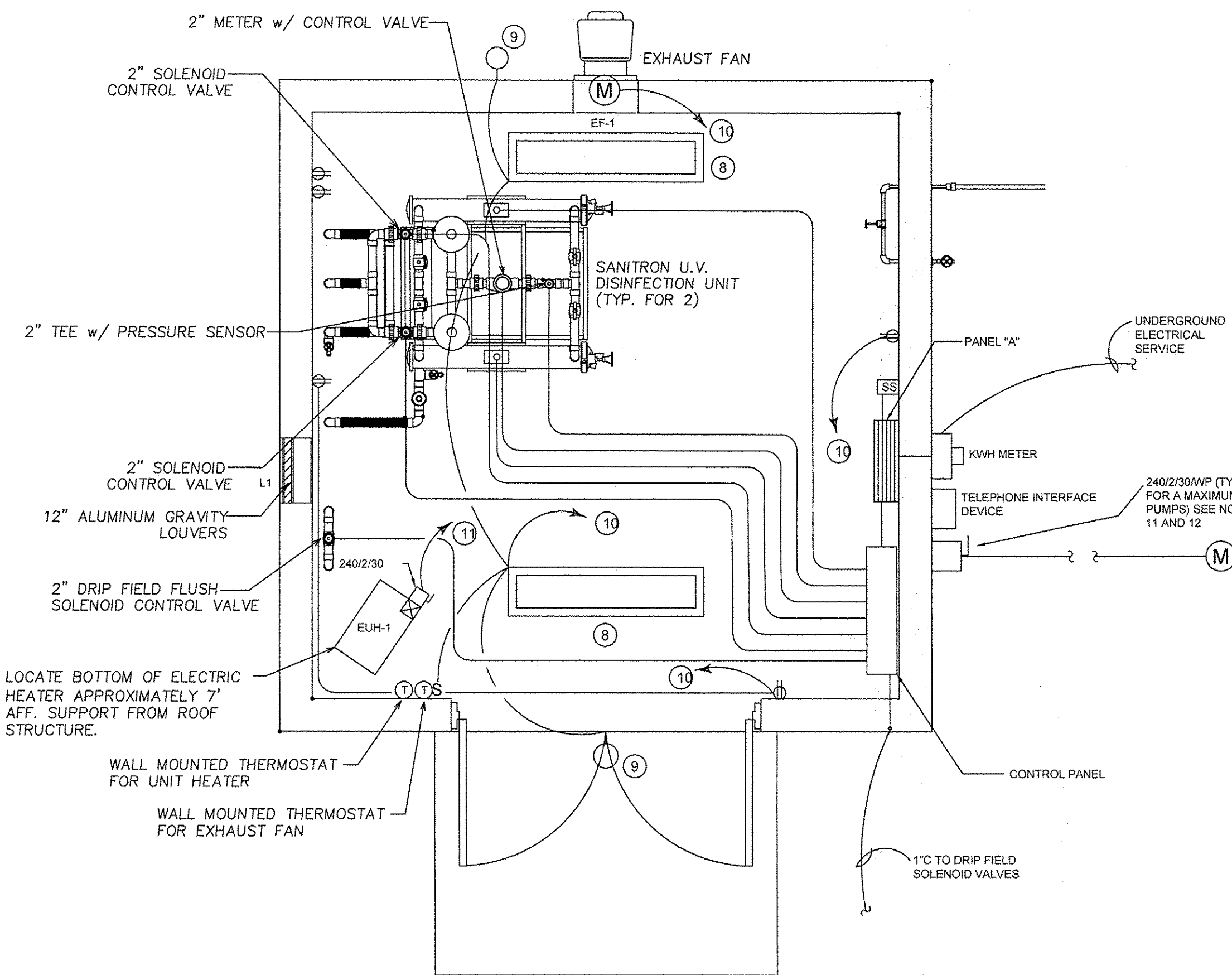
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ELECTRICAL PLAN
SCALE: 1/2" = 1'-0"

UNIT HEATER SCHEDULE								
EQUIP. NO.	SERVICE	MANUFACTURER: MODEL	KW		FLUE DIA	VOLTS/PH	FANS/HP	WEIGHT (LBS)
			IN	OUT				
EUH-1	UV BUILDING	MARKEL 5500 SERIES	3.3	3.3	NA	240/1	10 INCL	75
NOTES: 1 MOUNT FROM STRUCTURE ABOVE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. 2 PROVIDE REMOTE 40 TO 100 DEGREE WALL STAT, MN: TA109 (NEMA 4X). 3 MECHANICAL CONTRACTOR PROVIDE FACTORY WALL MOUNT SUPPORT. 4 - 5 -								

SHUTTER / LOUVER SCHEDULE						
EQUIP. NO.	SERVICE	MANUFACTURER: MODEL	SIZE (W x H)	CFM	VELOCITY / PRESS DROP	FREE AREA (%)
L1	GRAVITY LOUVER FOR EF-1	NCA MN: HD ALUMINUM, DRAINABLE	12' W x 12' H	200 TO 400	600/025	565
NOTES: 1 PROVIDE WALL SLEEVE FOR BLOCK WALL AND DRAINABLE DAMPER. 2 PROVIDE INSECT SCREEN. 3 PROVIDE COMBINATION MOTORIZED SHUTTER/LOUVER. 4 PROVIDE SEPARATE MOTORIZED SHUTTER AND SEPARATE FIXED DRAINABLE LOUVER. 5 -						

EXHAUST & SUPPLY FAN SCHEDULE							
EQUIP. NO.	SERVICE	MANUFACTURER: MODEL	CFM	HP	VOLTS/PH	BACKDRAFT DAMPER	WEIGHT (LBS)
EF-1	UV BUILDING	FIBER-AIRE: 10HA1, DIRECT DRIVE	255 @ 3/8" WC	1/8	120	SEE NOTES	75
NOTES: 1 PROVIDE AEROWENT EXTRA DUTY GRAVITY DAMPER. 2 PROVIDE FACTORY ROOF CURB, MATCH PITCH TO ROOF. 3 PROVIDE TFC MOTORS. 4 SUPPORT FROM FRAMING ABOVE. 5 INSULATE EXHAUST DUCT. 6 PROVIDE MOISTURE PROOF 40 TO 80 DEGREE WALL MOUNTED T'STAT. 7 SWITCH WITH LIGHT. 8 PROVIDE 2-PART CATALYZED EPOXY APPLIED TO SSPQ#3 POWER CLEANED BASE. APPLY 2 COATS 4 MILS THICK. 9 PROVIDE TWO SPEED FAN AND WALL SWITCH. 10 PROVIDE BIRD SCREEN/OSHA SAFETY FAN/BELT GUARD.							

GENERAL ELECTRICAL NOTES

- VISIT PROJECT SITE BEFORE SUBMISSION OF BID AND BECOME FAMILIAR WITH EXISTING CONDITIONS, AND LOCATIONS OF UTILITIES.
- COORDINATE INSTALLATION OF NEW 120/240 VOLT, SINGLE PHASE, 200 AMP UNDERGROUND ELECTRICAL SERVICE WITH LOCAL ELECTRIC UTILITY COMPANY. PROVIDE TRENCHING, CONDUIT, METER BASE, AND OTHER ITEMS AS REQUIRED.
- COORDINATE INSTALLATION OF TELEPHONE SERVICE CONDUIT WITH LOCAL TELEPHONE COMPANY. INSTALL 1" CONDUIT FROM TELEPHONE SERVICE POINT TO TELEPHONE INTERFACE DEVICE ON EXTERIOR OF BUILDING. INSTALL 4 PAIR, CATEGORY 5 CABLE FROM INTERFACE DEVICE TO CONTROL PANEL.
- CONTROL PANEL IS TO INCLUDE ALL MOTOR STARTERS, CONTROL RELAYS, TERMINAL STRIPS, AND OTHER DEVICES AS REQUIRED.
- VERIFY ELECTRICAL POWER REQUIREMENTS FOR ALL EQUIPMENT. PROVIDE CIRCUITS AND FUSES SIZED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
- PROVIDE TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE (TVSS) AT PANELBOARD. TVSS EQUIPMENT TO BE RATED FOR 160,000 AMPS SURGE WITH A CLAMPING VOLTAGE OF 400 VOLTS.
- PANELBOARD SHALL BE RATED 120/240 VOLTS, SINGLE PHASE, WITH A 200 AMP MAIN BREAKER AND BE UL LISTED FOR SERVICE ENTRANCE EQUIPMENT. PANEL SHALL HAVE 8-20 AMP/1 POLE BRANCH BREAKERS, ONE 30 AMP/2 POLE BREAKER FOR SURGE SUPPRESSION, AND A QUANTITY OF ONE OR TWO POLE BREAKERS, SIZE AS REQUIRED, FOR PUMPS. QUANTITY AND SIZE OF PUMPS TO BE DETERMINED.
- INTERIOR LIGHTING FIXTURES TO BE FLUORESCENT, 4 FEET LONG, TWO T8 LAMPS, 120 VOLT, ELECTRONIC BALLAST, INTEGRAL PHOTOCELL, LITHONIA VR28 SERIES OR APPROVED EQUAL. MOUNT FIXTURES AT 8'-0" ABOVE FINISHED FLOOR LEVEL. LOCATE ONE FIXTURE OVER DOOR AND OTHER FIXTURE ON SIDE OF BUILDING FACING SAND FILTER.
- EXTERIOR LIGHTING FIXTURES TO BE 13 WATT COMPACT FLUORESCENT, WALL-PACK, ELECTRONIC BALLAST, INTEGRAL PHOTOCELL, LITHONIA VR28 SERIES OR APPROVED EQUAL. MOUNT FIXTURES AT 8'-0" ABOVE FINISHED FLOOR LEVEL. LOCATE ONE FIXTURE OVER DOOR AND OTHER FIXTURE ON SIDE OF BUILDING FACING SAND FILTER.
- CONNECT TO A 20 AMP, 1 POLE BREAKER IN PANEL "A". CIRCUIT CONDUCTORS SHALL BE 2 #12, #650, IN 1/2" CONDUIT.
- CONNECT TO A 20 AMP, 2 POLE BREAKER IN PANEL "A". CIRCUIT CONDUCTORS SHALL BE 3 #10, #106, IN 3/4" CONDUIT.
- POWER CIRCUIT FOR EACH PUMP TO BE ROUTED THROUGH MAGNETIC STARTER IN CONTROL PANEL AND THROUGH A WEATHERPROOF DISCONNECT SWITCH LOCATED ON THE EXTERIOR OF THE BUILDING. FOR PUMPS MORE THAN 50 FEET FROM BUILDING, ADD A LOCAL DISCONNECT SWITCH.
- CIRCUITS FROM CONTROL PANEL TO SOLENOID VALVES, PRESSURE SENSORS, AND UV CONTROL SHALL BE 2 #14, 1/2" CONDUIT UNLESS INDICATED OTHERWISE.
- INSTALL 2 #14, 3/4" CONDUIT FROM FLOAT SWITCH AT EACH PUMP TO CONTROL PANEL.

ELECTRICAL LEGEND

- CONDUIT RUN CONCEALED IN WALL, CEILING, OR FLOOR
- CONDUIT RUN, CONCEALED IN FLOOR OR UNDERGROUND
- HOMERUN TO PANEL INDICATED
- RECEPTACLE, DUPLEX, 120V, 15A, UNO, @ 18" AFF TO BOTTOM
- SWITCH, SINGLE POLE, 120/277V, 20A, 45" AFF TO BOTTOM
- DISCONNECT SWITCH, NON-FUSED, DESCRIBED BY: VOLTAGE RATING/NO. OF POLES/SWITCH SIZE IN AMPS
- DISCONNECT SWITCH, FUSED, DESCRIBED BY: VOLTAGE RATING/NO. OF POLES/FUSE SIZE IN AMPS
- SM SWITCH, MOTOR STARTING, MANUAL, SIZE AS REQUIRED
- M MOTOR STARTER, MAGNETIC, SIZE AS REQUIRED
- M MOTOR, SEE PANEL SCHEDULE FOR SIZE AND SERVICE
- LIGHTING FIXTURES SEE FIXTURE SCHEDULE
- REFER TO NOTE INDICATED
- SURGE SUPPRESSOR
- AFB ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- EF EXHAUST FAN
- GFI GROUND FAULT INTERRUPTER
- WP WEATHERPROOF

- SECTION 15000 MECHANICAL GENERAL SPECIFICATIONS
- All work shall comply with applicable codes and laws, including referenced regulations. The requirements of the authority having jurisdiction shall prevail unless the requirements of the architect / engineer and these design documents are more stringent. The governing codes for this project are:
 - International Mechanical Code ? 2000 edition, with local amendments.
 - Sheet Metal and Air-conditioning Contractors National Association (SMACNA)
 - The mechanical and plumbing contractors shall coordinate electrical characteristics with the electrical drawings and electrical contractor to assure equipment matches building power and wiring.
 - All contractors work as well as equipment furnished and installed shall be warranted for at least one year including labor and materials. The start date shall be the date of official turnover to the owner.
 - All equipment and apprentices required to complete the intent of these specifications and drawings shall be furnished new and in the original packaging. All unacceptable work shall be replaced, repaired or reworked until acceptable to the architect.
 - Submittals shall be provided for all materials. Submittal data shall be arranged in a binder. Binders shall have a description of equipment including sizes, capacities, operation characteristics, brand names, motor horsepower, accessories, materials, gauges, manufacturer's maintenance instructions and other pertinent information required to establish the quality of the product and construction method.

ELECTRICAL SPECIFICATIONS

SECTION 16000 GENERAL PROVISIONS

PART 1 GENERAL

1.01 REFERENCE STANDARDS

- NFPA 70 NATIONAL ELECTRICAL CODE
- STANDARD BUILDING CODE
- ALL OTHER APPLICABLE STATE AND LOCAL CODES.

1.02 SUBMITTALS

A. SHOP DRAWINGS:

- SUBMIT FOR APPROVAL, PRIOR TO INSTALLATION, SIX COPIES OF COMPLETE DESCRIPTIVE DATA ON ALL EQUIPMENT AND SYSTEMS AS REQUIRED BY OTHER SECTIONS OF THIS SPECIFICATION. CLEARLY INDICATE ALL PROPOSED SUBSTITUTIONS AND DEVIATIONS FROM DRAWINGS AND SPECIFICATIONS.
- CHECK ALL SUBMITTALS FOR CLEARANCES AND COORDINATION WITH OTHER TRADES. SUBMITTALS SHALL BE CERTIFIED BY THE CONTRACTOR'S APPROVAL STAMP, THAT ALL CONDITIONS HAVE BEEN CHECKED AND THAT NO CONFLICTS EXIST.

B. RECORD DRAWINGS

- SUBMIT TO THE OWNER, RECORD DRAWINGS SHOWING FIELD CHANGES MARKED IN RED.

1.03 COORDINATION

A. UTILITY COMPANIES

- COORDINATE WITH UTILITY COMPANIES FOR SPECIFIC REQUIREMENTS FOR ELECTRICAL POWER AND TELEPHONE SERVICE.

B. OTHER TRADES

- COORDINATE WITH APPROVED SUBMITTALS FOR ALL EQUIPMENT TO VERIFY ELECTRICAL POWER, CONTROL, AND SIGNAL WIRING REQUIREMENTS.

1.04 WORK INCLUDED

- THE WORK OF THIS SECTION INCLUDES FURNISHING OF LABOR AND MATERIALS AS REQUIRED FOR INSTALLATION OF A NEW ELECTRICAL DISTRIBUTION SYSTEM INCLUDING SERVICE, PANELBOARD, BRANCH CIRCUITS, LIGHTING, AND CONNECTIONS TO ALL EQUIPMENT REQUIRING ELECTRICAL POWER.

- INSTALLATION OF CONDUIT AND WIRE FOR TELEPHONE, DATA, AND CONTROL SYSTEMS.

1.05 DRAWINGS

- THE DRAWINGS ARE PARTLY DIAGRAMMATIC AND DO NOT SHOW IN DETAIL ALL REQUIRED FEATURES OF THE WORK NOR CONCEALED CONDITIONS. THEY SHALL BE SUPPLEMENTED BY THE CONTRACTOR'S KNOWLEDGE AND EXPERIENCE.

PART 2 PRODUCTS

2.01 GENERAL

- ALL ELECTRICAL EQUIPMENT INSTALLED SHALL BEAR THE UL LABEL EXCEPT WHERE UL DOES NOT LABEL SUCH EQUIPMENT.

2.02 GUARANTEE

- FURNISH A WRITTEN GUARANTEE THAT ALL EQUIPMENT FURNISHED AND INSTALLED WILL BE FREE OF DEFECTS OF MATERIAL AND WORKMANSHIP FOR A PERIOD OF 1 YEAR FROM DATE OF ACCEPTANCE OF THE WORK BY THE OWNER. PROMPTLY REPLACE AND REPAIR ALL DEFECTIVE EQUIPMENT AND ALL OTHER EQUIPMENT DAMAGED THEREBY AT NO ADDITIONAL COST TO THE OWNER.

PART 3 EXECUTION

3.01 GENERAL

- VISIT PROJECT SITE BEFORE SUBMISSION OF BID AND BECOME FAMILIAR WITH EXISTING CONDITIONS AND LOCATIONS OF EXISTING UTILITIES.

- THE ENTIRE INSTALLATION SHALL BE MADE IN A NEAT MANNER BY PERSONS SKILLED IN THE ELECTRICAL TRADE AND SHALL BE IN ACCORDANCE WITH THE REFERENCE STANDARDS LISTED ABOVE.

- MAKE POWER CONNECTIONS TO HEATING AND VENTILATION EQUIPMENT AND ALL EQUIPMENT FURNISHED BY OTHERS. FURNISH AND INSTALL ALL ASSOCIATED RECEPTACLES AND DISCONNECT SWITCHES. FUSE SIZES FOR DISCONNECT SWITCHES SHALL BE AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

3.02 TESTING

- ALL SYSTEMS AND EQUIPMENT INSTALLED SHALL BE COMPLETELY TESTED AND SHALL BE LEFT IN GOOD WORKING ORDER.

SECTION 16050 BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

NOT APPLICABLE

PART 2 PRODUCTS

2.01 RACEWAYS

- RIGID STEEL CONDUIT
- ELECTRICAL METALLIC TUBING
- POLYVINYLCHLORIDE CONDUIT

2.02 WIRES AND CABLES

- FEEDERS AND BRANCH CIRCUIT WIRES: COPPER CONDUCTOR, 600 VOLT, TYPE THHN OR THWN INSULATION.
- BRANCH CIRCUIT CABLES: COPPER CONDUCTOR, 600 VOLT, TYPE MC WITH INSULATED EQUIPMENT GROUNDING CONDUCTOR.
- CONTROL CIRCUIT CABLES: COPPER CONDUCTOR, NO.14 AWG, TYPE THHN, OR AS REQUIRED BY EQUIPMENT MANUFACTURER.

2.03 WIRING DEVICES

- WALL SWITCHES: AC GENERAL USE SNAP SWITCH WITH TOGGLE HANDLE. SPECIFICATION GRADE, GRAY COLOR, 20 AMPERES, 120-277 VOLTS.
- RECEPTACLES: TYPE S-20R, UNLESS INDICATED OTHERWISE, SPECIFICATION GRADE, GRAY PLASTIC FACE.
- COVERPLATES: GALVANIZED STEEL.

2.04 IDENTIFICATION

- PROVIDE LAMINATED PLASTIC TAGS FOR ALL PANELBOARDS AND DISCONNECT SWITCHES. TAGS SHALL COMPLETELY IDENTIFY EQUIPMENT MARKED OR CONTROLLED.

PART 3 EXECUTION

3.01 RACEWAYS

- ALL RACEWAYS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.

B. PERMITTED USAGE:

- ALL INTERIOR RACEWAYS SHALL BE GALVANIZED ELECTRICAL METALLIC TUBING (EMT) EQUIPPED WITH STEEL SET SCREW COUPLINGS AND BOX CONNECTORS.
- RACEWAYS UNDERGROUND, EXPOSED TO EXTERIOR, OR CAST IN CONCRETE SHALL BE GALVANIZED RIGID STEEL CONDUIT (RGS) OR SCHEDULE 40 PVC.

C. INSTALLATION:

- IN LONG RACEWAYS FURNISH AND INSTALL THE PROPER NUMBER AND SIZE PULL BOXES TO FACILITATE INSTALLATION OF CONDUCTORS.
- INSTALL SEPARATE GROUNDING CONDUCTOR IN EACH POWER RACEWAY.
- PROVIDE RIGID GALVANIZED STEEL ELBOWS AND VERTICAL SECTIONS FOR UNDERGROUND AND UNDERFLOOR RUNS OF PVC CONDUIT.

3.02 WIRES AND CABLES

- ALL WIRING SHALL BE INSTALLED IN CONDUIT.

SECTION 16400 SERVICE AND DISTRIBUTION

PART 1 GENERAL

1.01 SUBMITTALS

A. PANELBOARDS

B. DISCONNECT SWITCHES

PART 2 PRODUCTS

2.01 PANELBOARDS

- CIRCUIT BREAKER TYPE AS DESCRIBED IN THE GENERAL NOTES. PANELBOARDS SHALL BE FULLY RATED FOR 10,000 AMPS SYMMETRICAL SHORT CIRCUIT INTERRUPTING CAPACITY. LOAD CENTER TYPE PANELBOARDS ARE NOT ACCEPTABLE. APPROVED MANUFACTURERS ARE GENERAL ELECTRIC, SIEMENS, AND SQUARE D.

2.02 DISCONNECT SWITCHES

- FUSIBLE OR NONFUSIBLE QUICK-MAKE, QUICK-BREAK, LOAD INTERRUPTER ENCLOSED KNIFE SWITCH WITH EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN "ON" POSITION. APPROVED MANUFACTURERS ARE GENERAL ELECTRIC, SIEMENS, AND SQUARE D.

PART 3 EXECUTION

3.01 GENERAL

- MAINTAIN CODE REQUIRED WORKING CLEARANCES AROUND ALL ELECTRICAL EQUIPMENT. COORDINATE INSTALLATION WITH BUILDING FEATURES, PIPING, LOCATIONS, AND OTHER EQUIPMENT.

3.02 PANELBOARDS

- INSTALL NEW PANELBOARDS AS INDICATED.
- ALL PANELS SHALL HAVE TYPEWRITTEN DIRECTORIES.

SECTION 16500 LIGHTING

PART 1 GENERAL

1.01 SUBMITTALS

A. LIGHTING FIXTURES

PART 2 PRODUCTS

2.01 GENERAL

- PROVIDE LIGHTING FIXTURES AS SPECIFIED IN GENERAL NOTES OF SIZES, TYPES, RATINGS, AND WITH FEATURES INDICATED. SUBSTITUTIONS SHALL BE EQUAL IN PERFORMANCE AND APPEARANCE TO FIXTURES LISTED.
- FIXTURES SHALL BE COMPLETE WITH LAMPS, BALLASTS, AND ALL PARTS, HARDWARE, AND ACCESSORIES FOR INSTALLATION AND PROPER OPERATION.

2.02 LAMPS

- FLUORESCENT LAMPS: T8 TYPE BY GENERAL ELECTRIC OR PHILIPS.

2.03 FLUORESCENT BALLASTS

- ELECTRONIC TYPE, BY ADVANCE OR UNIVERSAL.

PART 3 EXECUTION

3.01 GENERAL

- INSTALL FIXTURES AS INDICATED ON DRAWINGS. END OF ELECTRICAL SPECIFICATIONS



CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing was served via U.S. Mail or electronic mail upon:

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This the 21st day of June 2024.



Katherine Barnes