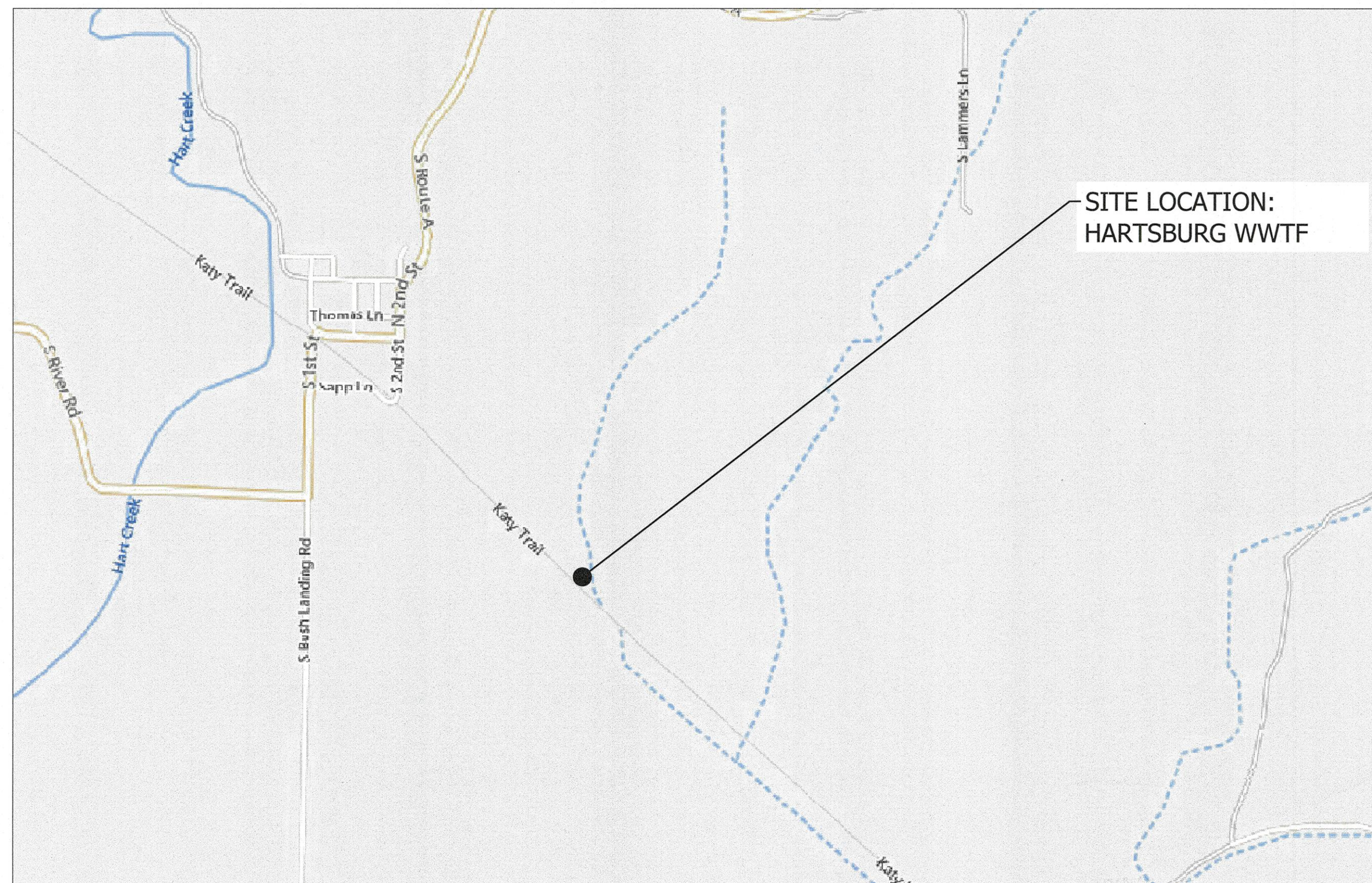


HARTSBURG WWTF TREATMENT UPGRADES BOONE COUNTY, MO

<u>UTILITY OWNERS</u>	<u>UTILITY</u>	<u>CONTACT PERSON</u>
BCRSD	WASTEWATER	JESSE STEPHENS 573-443-2774
AMEREN MISSOURI	ELECTRIC	CHRIS BROWN 573-681-7512
MDNR MISSOURI STATE PARKS	KATY TRAIL	JESSE STEPHENS (BCRSD) 573-443-2774

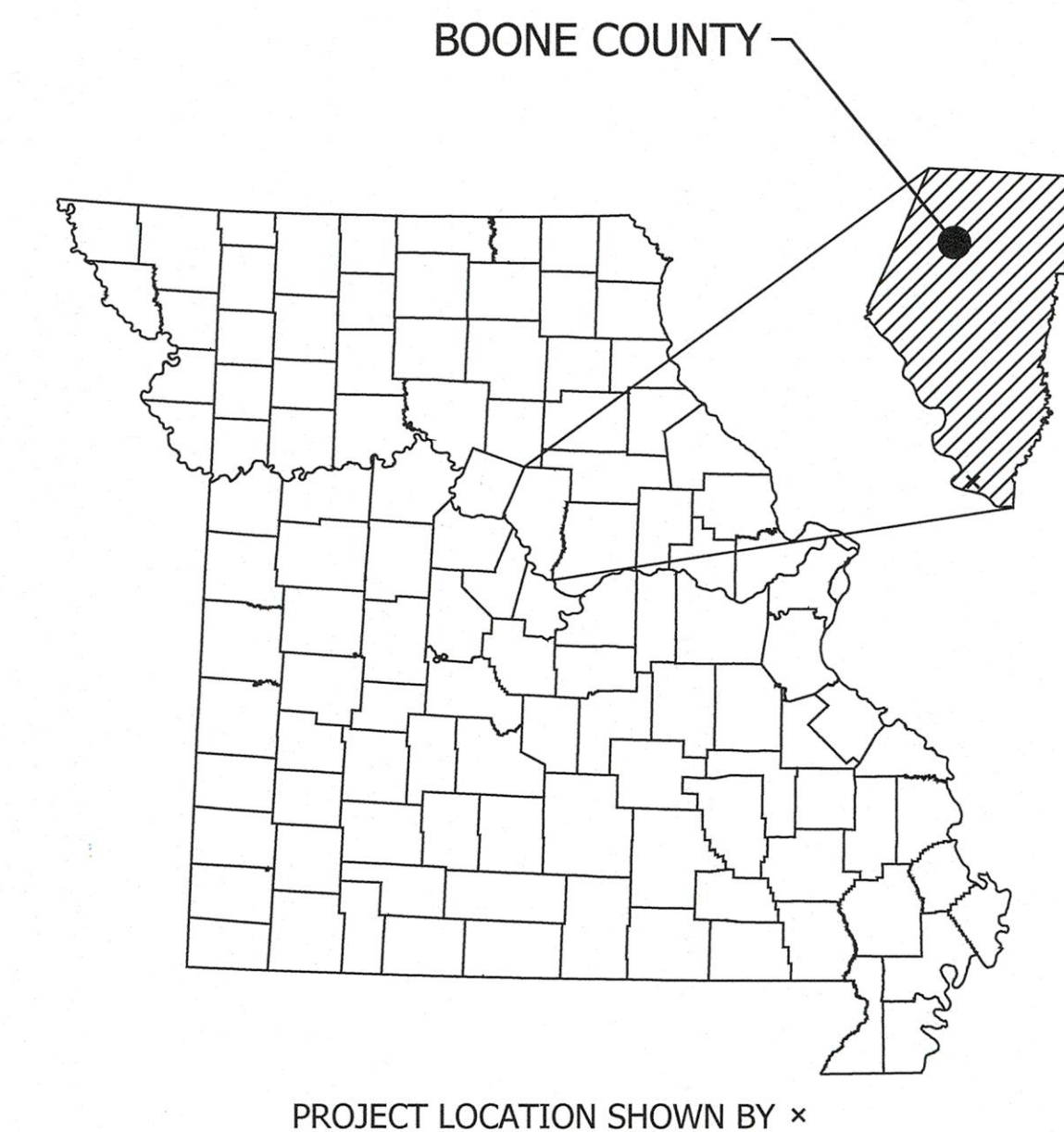
OWNER
BOONE COUNTY REGIONAL SEWER DISTRICT
1314 N. 7TH STREET
COLUMBIA, MO 65201

FACILITY ADDRESS
HARTSBURG WASTEWATER TREATMENT FACILITY
0.5 MILES SE OF 2ND STREET & KATY TRAIL INTERSECTION
HARTSBURG, MO 65039



NOT TO SCALE

SE¼ OF THE SW¼ OF SECTION 08, TOWNSHIP 45 NORTH, RANGE 12 WEST, 5TH PRINCIPAL MERIDIAN



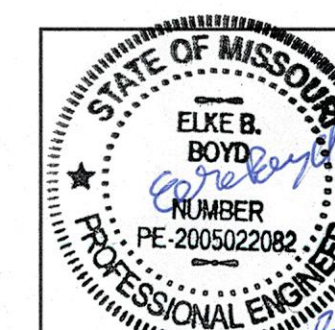
Know what's below.
Call before you dig.

BCRSD PROJECT NO. 08-2025
LOCHMUELLER PROJECT NO. 524-1025-01W-PHASE 2

APPROVED:

Elke Boyd

10/29/2025
Date:



REVISIONS		
DATE	REVISION	B



Date: Oct 31, 2025, 1:02pm User Name: Paul Henderson
File: X:\Production\Files\2024\524-1025\CAD\PlanSet\WIR Title Sheet.dwg

LEGEND

	PROPERTY LINE
	EXIST. UNDERGROUND ELECTRIC LINE
	EXIST. OVERHEAD ELECTRIC LINE
	EXIST. SANITARY SEWER LINE
	EXIST. FORCE MAIN
	EXIST. FENCE
	EXIST. TREE & BRUSH LINE
	EXIST. DRAINAGE SWALE
	FLOODWAY/PLAIN
	EXISTING CONTOUR
	EXISTING ANCHOR
	EXISTING RIP-RAP
	IRON
	CONTROL POINT
	EXISTING SANITARY MANHOLE
	EXIST. BOLLARD/WOOD POST
	EXISTING VALVE BOX
	EXISTING AERATOR
	PROPOSED CONTOUR
	PROPOSED SANITARY SEWER
	PROPOSED SANITARY MANHOLE
	PROPOSED VALVE BOX
	PROPOSED GRAVEL
	PROPOSED FENCE
	EXISTING FENCE
	TOP OF BERM
	BOTTOM OF BERM
	DUCTILE IRON PIPE
	FLOW LINE
	ELECTRIC METER
	TOP OF WALL
	UTILITY POLE
	USE IN PLACE
	ELECTRIC PANEL

GENERAL NOTES

1. All trenching shall be carried out in accordance with all Federal rules and regulations regarding safe practices.

2. Approximate property lines are shown based on the "Topographic Survey" performed by ES&S and dated August 7, 2025.

3. The Contractor shall provide all barricades & construction signs as required by Local, Federal and State rules and regulations.

4. It shall be the Contractor's sole responsibility to maintain the integrity of all existing utilities, structures, and abutting properties. The cost of any repair or replacement of damaged items shall be borne solely by the Contractor.

5. The Contractor shall coordinate all utility installations and inspections with the appropriate utility company. Advance notice is required before work commencement.

6. The Contractor shall be responsible for establishing and maintaining all temporary sediment and erosion controls.

7. Contractor is responsible for establishing, maintaining and modifying as necessary, sediment and erosion control measures before construction may begin. At a minimum, sediment and erosion control measures shall include perimeter silt fence along downhill side of facility. Contractor shall be responsible for removing any material tracked out onto public road.

8. Any damage to utilities caused by the Contractor's operations shall be the responsibility of the Contractor and the cost of repairs shall be borne by the Contractor at no additional cost to the owner.

9. Support existing utilities which are to remain in place during construction.

10. Coordinate removal of abandoned utilities with the appropriate utility company.

11. All piping shall be ductile iron unless noted otherwise.

12. All exposed concrete edges on walls and equipment pads shall be chamfered 3/4".

13. The engineering information shown on these plans is from studies made in the field and represents the best information available to Lochmueller Group.

14. All grassed area disturbed by the contractor shall be fertilized, seeded, and mulched unless otherwise noted on the plans.

15. All utilities and their connections shall be moved or adjusted by the contractor to fit the new construction unless otherwise noted on the plans.

16. Contractor shall contact utility companies at least three working days, but no more than ten working days, prior to digging by calling Missouri 811.
17. It is the contractor's responsibility to coordinate the adjustment of the various utilities by the respective companies.

18. All roads, driveways, trails, culverts, sidewalks, fences, and landscaping damaged during construction shall be repaired or replaced to equal or better conditions than prior to said damage. The contractor shall bear all related expenses.

19. Any damage to gravel roads, trails, or drives shall be repaired with granular material.

20. All erosion control devices shall be installed in conformity with the Boone County Stormwater Design Manual.

21. All construction shall be in accordance with Boone County Regional Sewer District Standards.

22. The locations of utility mains, structures and service connections plotted on these drawings are approximate only and were obtained from records made available to Lochmueller Group. There may be other existing utility mains, structures and service connections not known to Lochmueller Group and not shown on the drawings. The verification of the existence and the determination of the exact location of the utility mains, structures and service connections shall be the responsibility of the construction contractor(s).

23. Site cleanup shall be on a daily basis.

24. All open excavations shall be protected.

25. Replace any property monuments removed or destroyed by construction. All monuments shall be set by a surveyor licensed in the State of Missouri.

26. Contractor is to coordinate electrical power installation with electrical utility.

27. It is the intention of these plans to comply with the requirements of the Missouri Clean Water Commission.

28. Finish grade all areas to provide efficient and natural drainage and uniform grades. Blend with existing features. Properly dispose of all excess and waste material.

29. The excavation work for this project is unclassified and Contractor is responsible for his own investigations into the type of materials and conditions to be encountered.

30. The Owner has acquired a construction easement for the project. Contractor shall maintain his operations within the limits of the project property and under the terms of the easement agreement. The Katy Trail shall be kept usable by the public at all times.

BENCH MARK

- BM - MISSOURI DEPARTMENT OF TRANSPORTATION VRS NETWORK.
- TBM - CHISELED SQUARE ON SOUTHERLY CORNER OF SANITARY FLUME CONCRETE WALL LOCATED 27 FEET NORTHEAST OF THE SOUTHERLY CORNER POST OF THE WOVEN WIRE FENCE AND 77 FEET WEST OF THE SOUTHWESTERLY CORNER OF CONCRETE WALL OF SANITARY ULTRAVIOLET BOX.

ELEVATION = 567.12

SURVEY GENERAL NOTES

1. ACCURATE ELEVATIONS HAVE BEEN SURVEYED AS SHOWN. CONTOURS SHOWN ARE INTERPOLATED BASED ON THESE ELEVATIONS.
2. THIS DOES NOT CONSTITUTE A BOUNDARY SURVEY SUITABLE FOR RECORDING AS DEFINED BY THE CURRENT MISSOURI STANDARDS FOR BOUNDARY SURVEYS.
3. NO TITLE WORK WAS PERFORMED, EASEMENTS AND OTHER SPECIAL CONDITIONS AFFECTING THE PROPERTY MAY NOT BE SHOWN.
4. THE MANHOLE D PIPE (FL IN) HAS A 90 DEGREE BEND TURNED UP VERTICAL. FLOW LINE OF PIPE INTO THE STRUCTURE IS 564.96. TOP OF PIPE (OVERFLOW) IS 567.68

UTILITY NOTES

THE LOCATIONS, SIZES AND MATERIAL TYPES OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS, NOT VISIBLE OR APPARENT FROM THE SURFACE, ARE SHOWN IN THEIR APPROXIMATE LOCATIONS FROM A MISSOURI 811 SYSTEM LOCATE, OR UTILITY COMPANY RECORDS AND WERE NOT VERIFIED IN THE FIELD. UNDERGROUND UTILITY SERVICES TO BUILDINGS WERE NOT LOCATED.

FLOODPLAIN NOTE

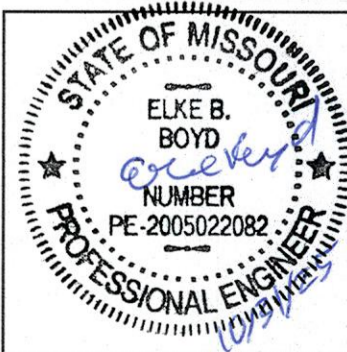
THIS PROPERTY IS LOCATED IN ZONE "AE" AREAS WITH BASE FLOOD ELEVATION OR DEPTH, ZONE "A" AREAS WITHOUT BASE FLOOD ELEVATION, AND ZONE "X" AREAS DETERMINED TO BE WITHIN THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS SHOWN BY FLOOD INSURANCE RATE MAP NUMBER 29019C0435E, DATED APRIL 19, 2017.

SURVEY CONTROL POINTS

MODIFIED STATE PLANE COORDINATES
NAD 83, MISSOURI CENTRAL ZONE, NAVD 88, U.S. SURVEY FEET

POINT #	NORTH	EAST	ELEVATION	DESCRIPTION
CP3	1039951.15	1696551.11	568.94	DRILL HOLE
CP4	1039834.54	1696676.19	569.13	DRILL HOLE
CP6	1039710.18	1696726.44	561.54	IRON
CP7	1039909.25	1696479.95	561.22	IRON

REVISIONS		
DATE	REVISION	BY



RECOMMENDED FOR APPROVAL	10/29/2025
Elke Boyd	DATE
DESIGNED: EBB	DRAWN: PMH
CHECKED: EWS	CHECKED: EWS

HARTSBURG WWTF TREATMENT UPGRADES
GENERAL NOTES AND LEGEND

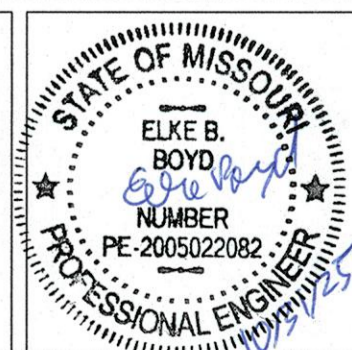
SCALE
NTS
CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
2

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DATE	REVISION	BY



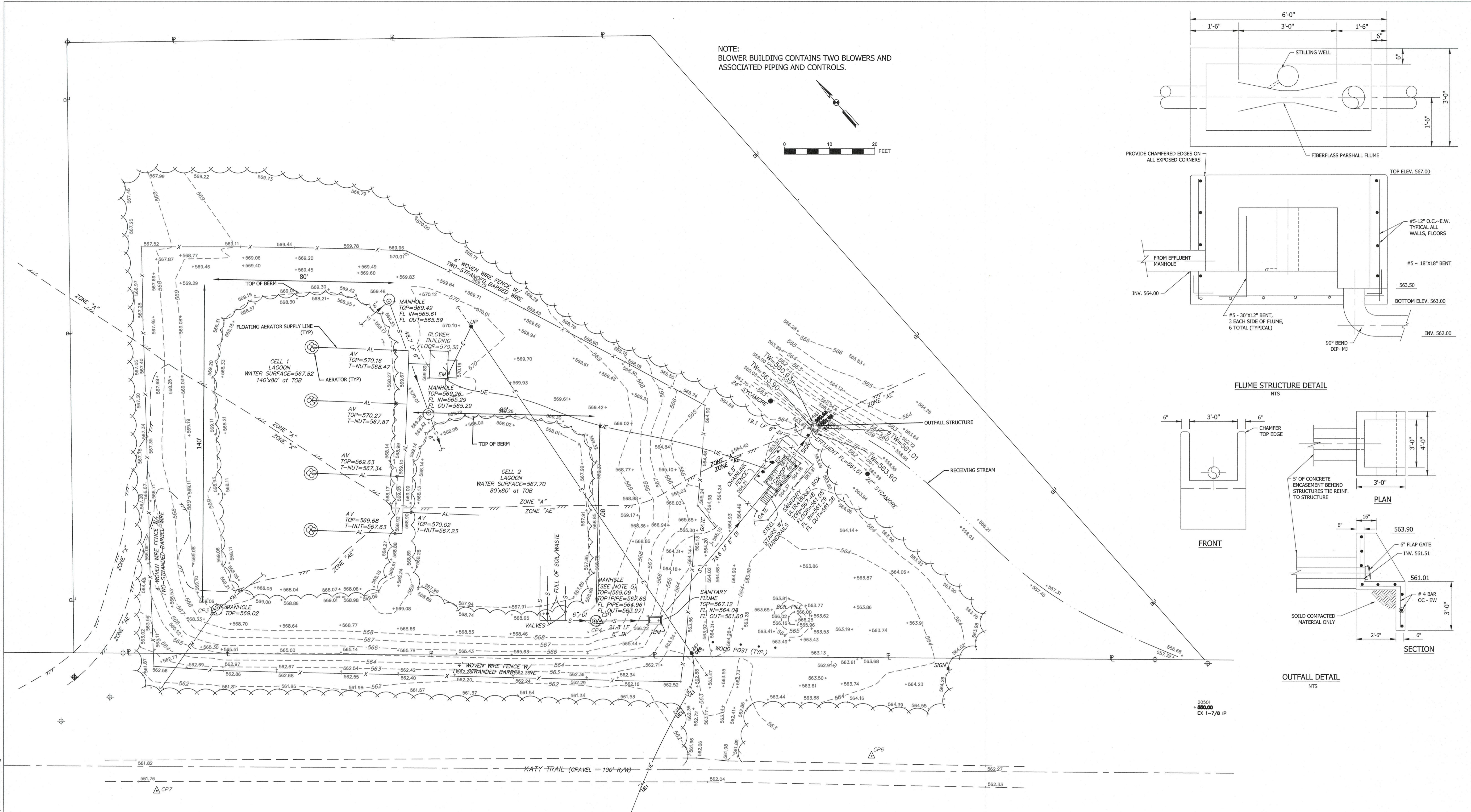
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RECOMMENDED FOR APPROVAL		10/29/2025
Elke Boyd		DATE
DESIGNED: EBB	DRAWN: PMH	
CHECKED: EWS	CHECKED: EWS	

HARTSBURG WWTF TREATMENT UPGRADES	
EXISTING SITE CONDITIONS	

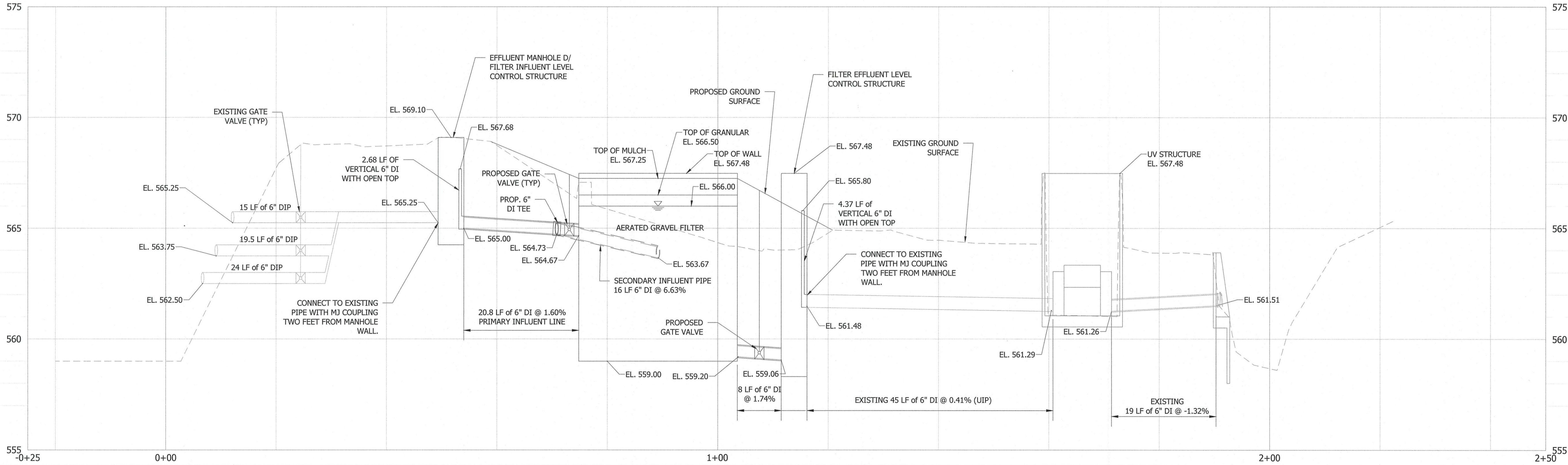
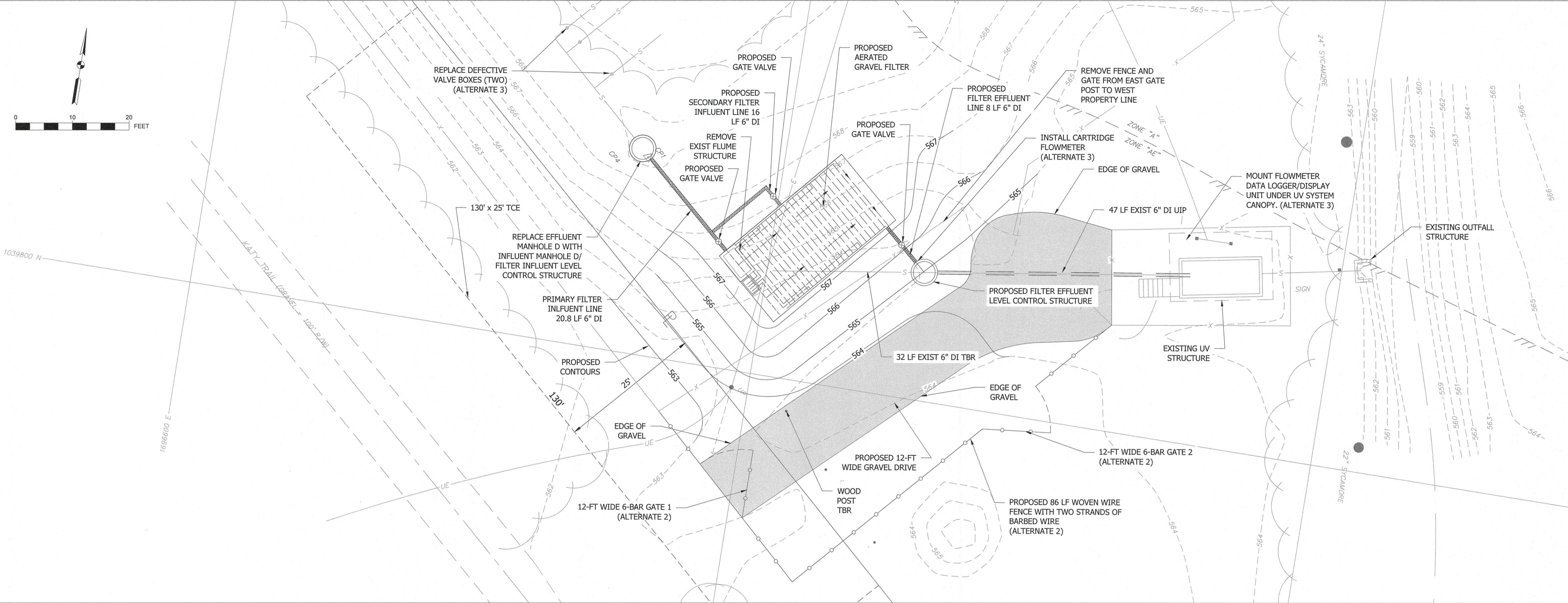
SCALE
1" = 20'
CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
3



NORTHING/EASTING TABLE		
ALTERNATIVE 1	NORTH	EAST
CENTER OF FILTER INFLUENT LEVEL CONTROL STRUCTURE	1039835.94'	1696674.95'
CENTER OF FILTER EFFLUENT LEVEL CONTROL STRUCTURE	1039822.41'	1696727.43'
SOUTH CORNER OF FILTER	1039809.60'	1696702.60'
ALTERNATE 2	NORTH	EAST
SOUTH CORNER OF GATE 1	1039774.74'	1696702.67'
SOUTH CORNER OF GATE 2	1039796.95'	1696741.94'
SOUTH CORNER OF FENCE	1039765.07'	1696713.17'

NOTES:

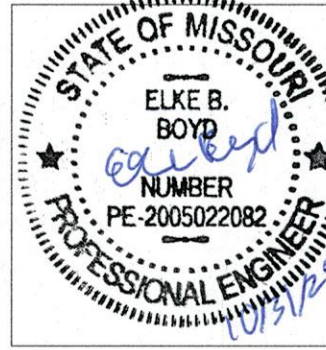
- COORDINATE REMOVAL AND STORAGE OF SALVAGEABLE EQUIPMENT WITH THE BCRSD.
- REMOVE AND DISPOSE OF OBSOLETE YARD PIPING AND EQUIPMENT NOT WANTED BY BCRSD.
- ALTERNATE 1 - SEE DETAILS ON SHEETS 5 THROUGH 9.
- ALTERNATE 2 - SEE DETAIL ON SHEET 8.
- ALTERNATE 3 - SEE DETAILS ON SHEET 5. REFER TO SPECIFICATIONS FOR FLOWMETER REQUIREMENTS.
- ALTERNATE 3 - RUN FLOWMETER POWER AND DATA CABLES ABOVE SEWER LINE. MOUNT DATA LOGGER/DISPLAY UNIT ADJACENT TO UV SYSTEM POWER FEED. INSTALL FLOWMETER PER SPECIFICATIONS.
- CONTRACTOR IS TO VERIFY ALL MEASUREMENTS AND DIMENSION PRIOR TO COMMENCING WORK OR ORDERING MATERIALS OR EQUIPMENT.
- ALL PIPING SHALL BE FREE OF LEAKS AND INSTALLED TRUE AND TO REQUIRED GRADELINES. BOLTED JOINTS SHALL BE PROPERLY TORQUED.
- VALVE NUTS SHALL BE CENTERED IN VALVES BOXES, OPERATIVE BY A STANDARD VALVE WRENCH AND OPERATE FREELY.
- CONNECTIONS AND STRUCTURES SHALL BE WATERTIGHT AND INTERIOR SURFACES SLOPED TO AVOID SOLIDS ACCUMULATIONS.
- DUCTILE IRON PIPES SHALL BE MORTAR LINED. COAT ALL EXPOSED PIPING WITH FIELD COATING OF COAL TAR EPOXY.
- FILTER EFFLUENT LEVEL CONTROL STRUCTURE SHALL ACCOMMODATE INSTALLATION OF THE FLOWMETER SPECIFIED UNDER ALTERNATE 3, WHETHER ALTERNATE 3 IS AWARDED OR NOT.
- ESTIMATED CUT: 121 CY. ESTIMATED FILL: 64 CY.



REVISIONS		
DATE	REVISION	BY



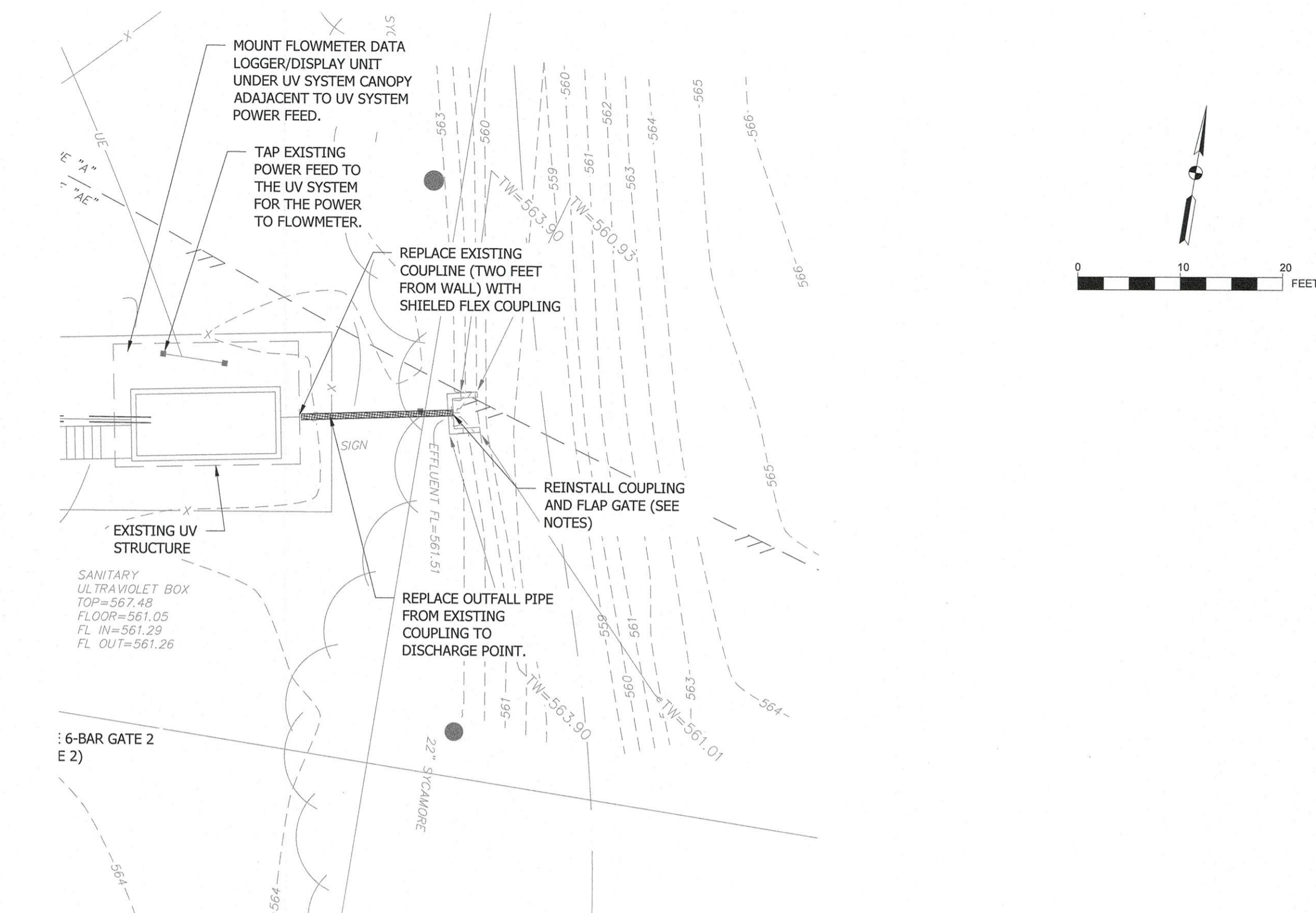
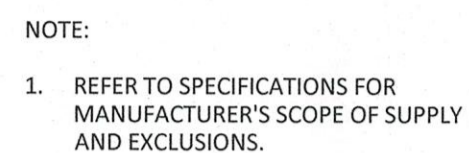
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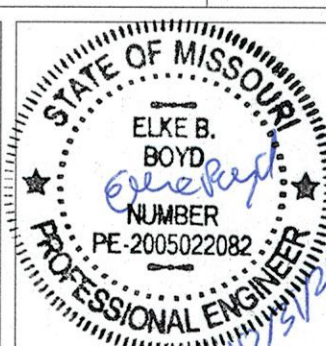
RECOMMENDED FOR APPROVAL	Elke Boyd	10/29/2025	DATE
DESIGNED:	EBB	DRAWN:	PMH
CHECKED:	EWS	CHECKED:	EWS

HARTSBURG WWTF TREATMENT UPGRADES
PROPOSED SYSTEM LAYOUT (ALTERNATES 1, 2 AND 3)

SCALE
H: 1" = 20' - V: 1" = 10'
CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
4



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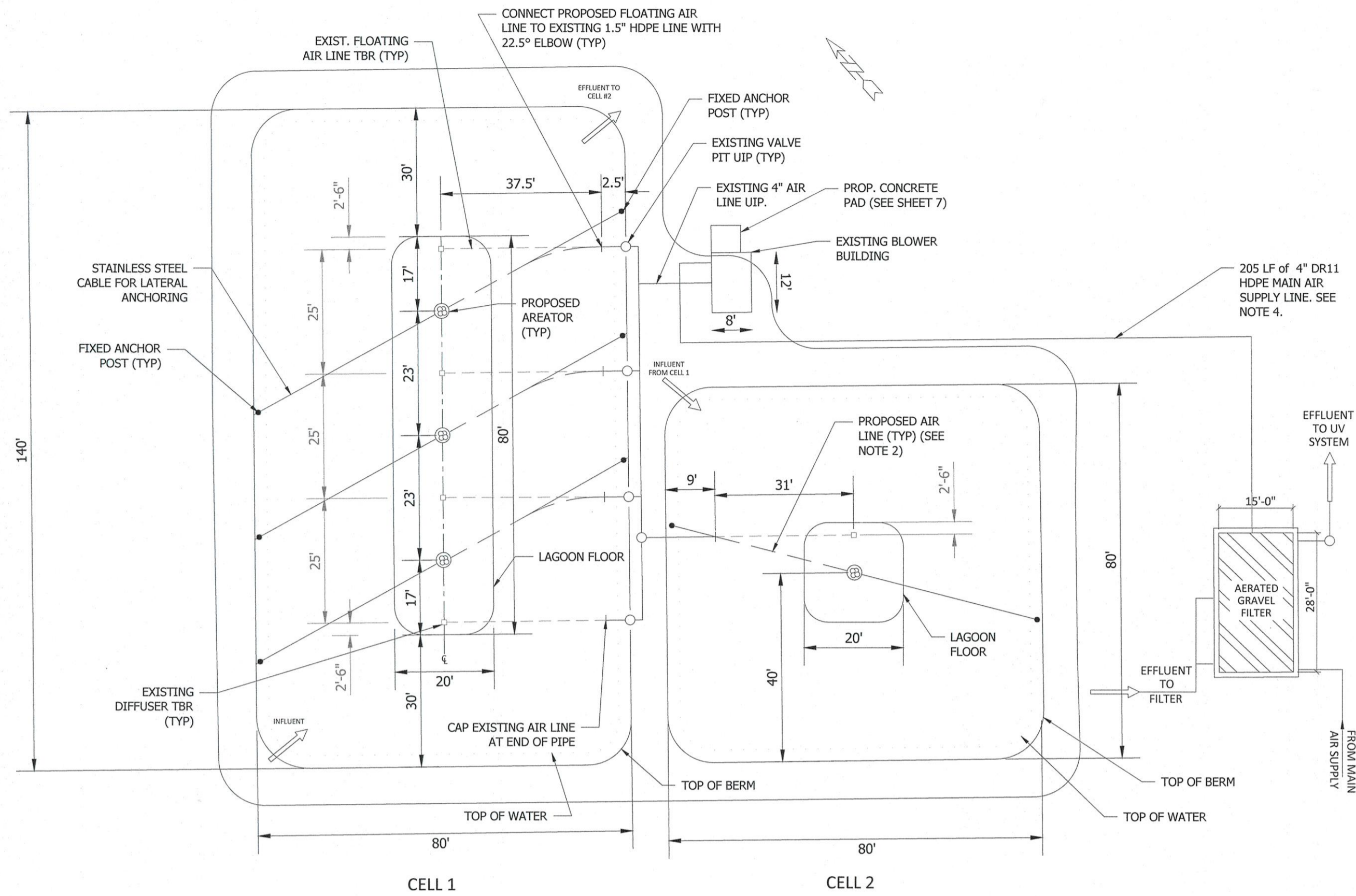
RECOMMENDED FOR APPROVAL		10/29/2025	
Elke Boyd		DATE	
DESIGNED: EBB	DRAWN: PMH		
CHECKED: EWS	CHECKED: EWS		

HARTSBURG WWTF
TREATMENT UPGRADES

FILTER & OUTFALL DETAILS ALTERNATES 1 & 3

SCALE
H: 1" = 20' - V: 1" = 10'
CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
5

Date: Oct 31, 2025, 1:02pm User Name: Paul.Henderson
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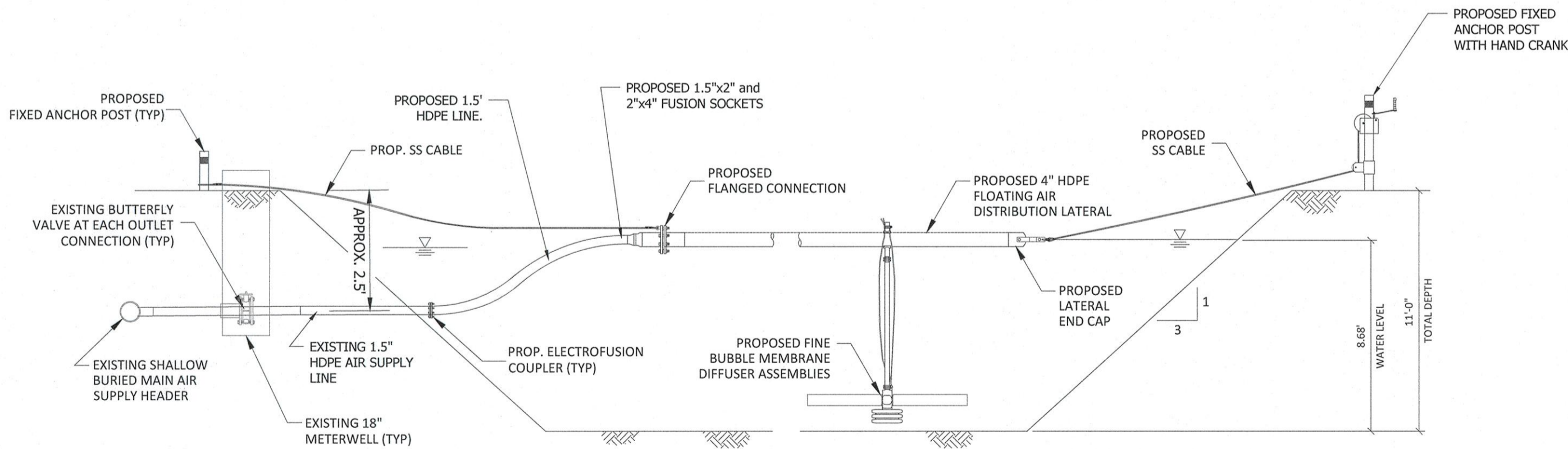


AERATION LAYOUT

NTS

NOTES:

1. REMOVE AND DISPOSE OF EXISTING FLOATING AIR LINES, DIFFUSERS AND WEIGHTS.
2. CONNECT PROPOSED FLOATING AIR LINES INTO EXISTING PIPING DOWNSTREAM OF EXISTING VALVE PITS.
3. PLACE FIXED ANCHOR POSTS SO THAT SS TENSION CABLES FORM STRAIGHT LINE ACROSS THEIR DIFFUSER. PLACE POSTS TWO FEET INTO LAGOON FROM INSIDE TOP OF BERM.
4. INSTALL AIR MAINS IN 18 INCHES DEEP TRENCH.
5. REFER TO SPECIFICATIONS FOR MANUFACTURER'S SCOPE OF SUPPLY AND EXCLUSIONS.

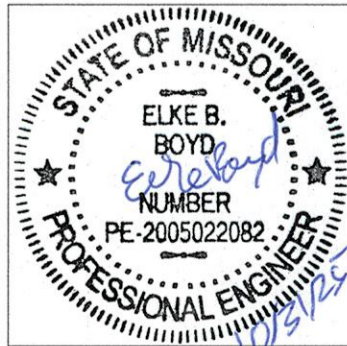


AERATED LAGOON SECTION

SCALE: N.T.S.

NOTE:

1. ALL PROPOSED ITEMS IN SECTION VIEW SUPPLIED BY SYSTEM MANUFACTURER.



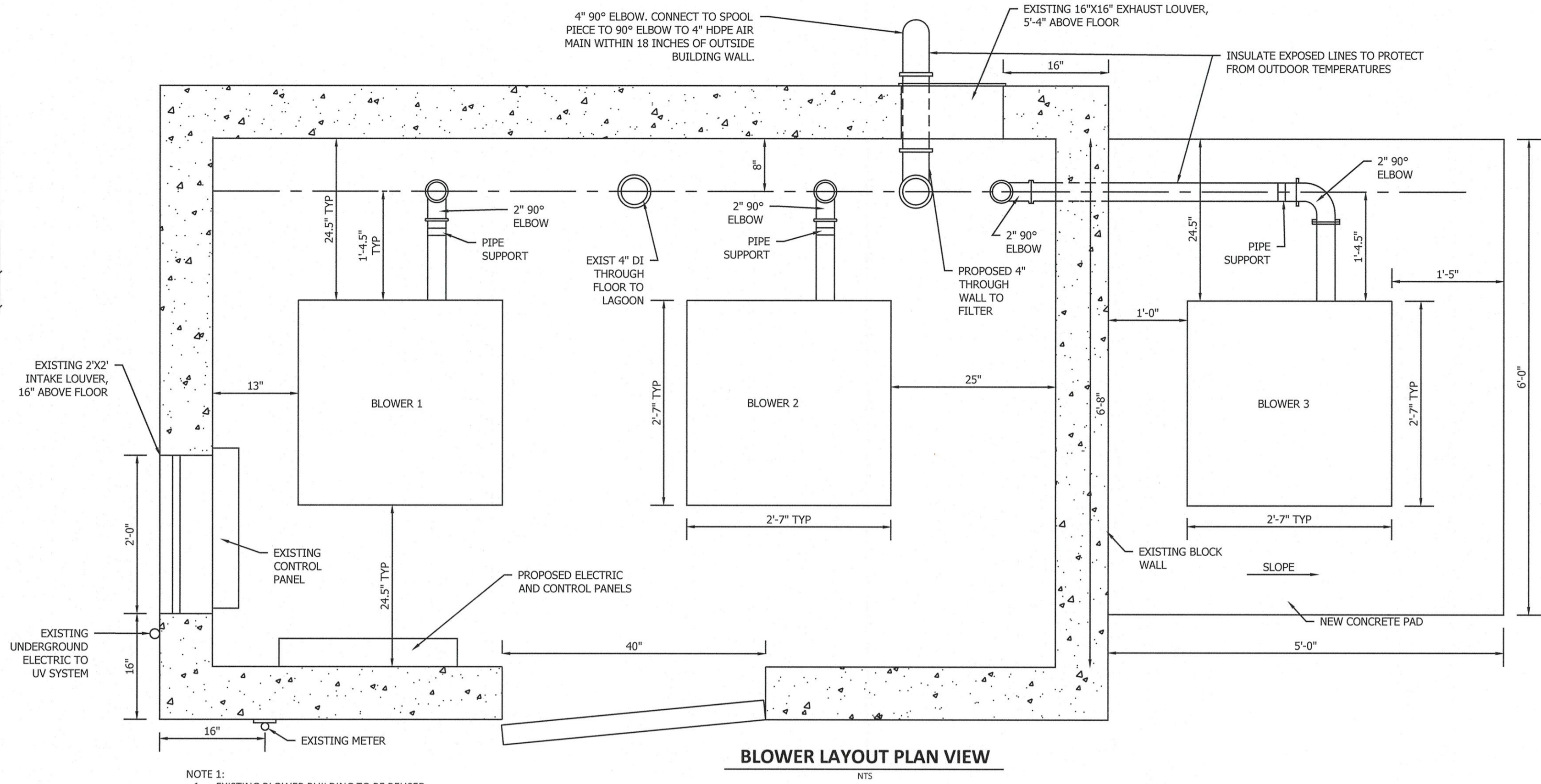
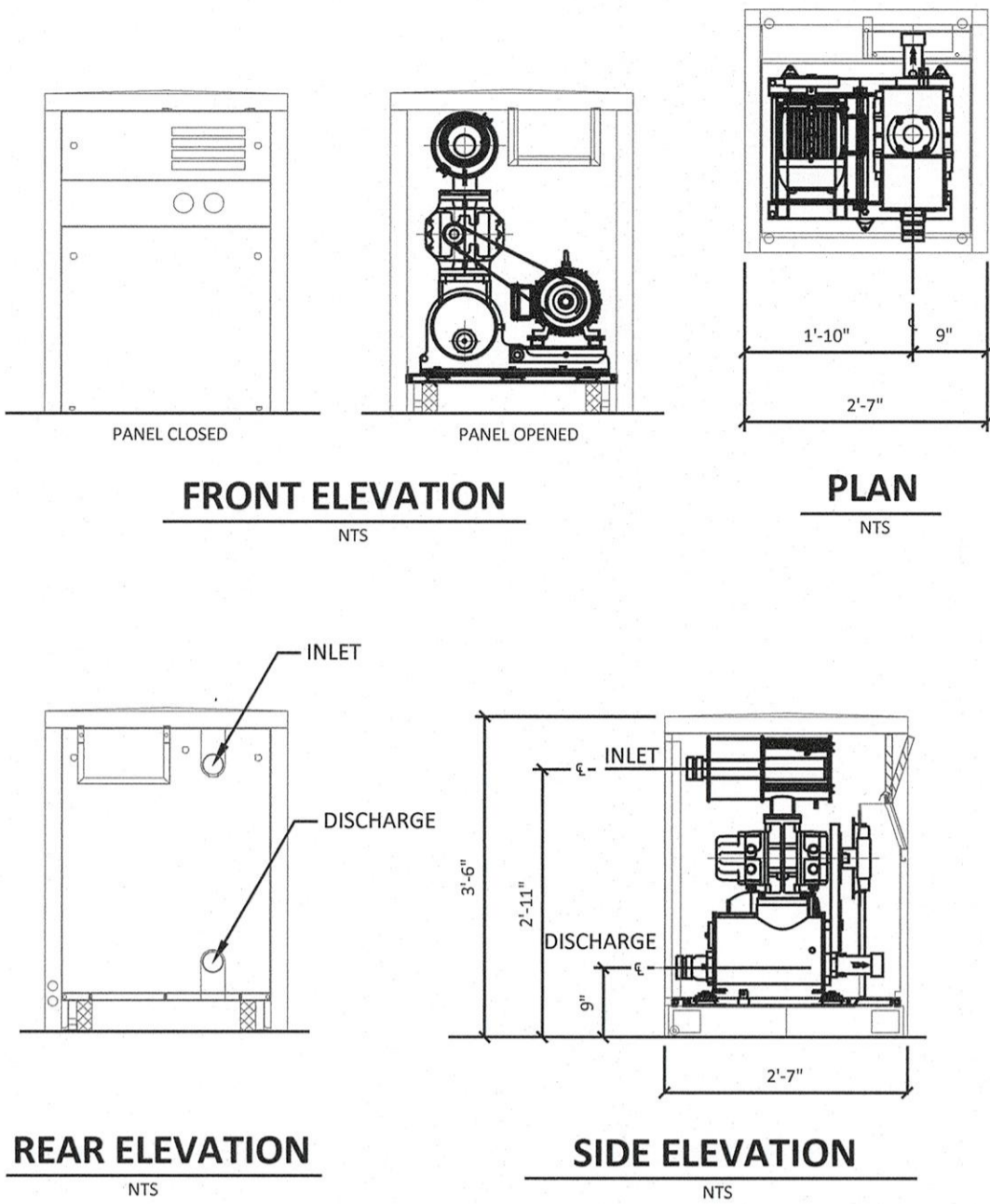
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Elke Boyd		DATE
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CHECKED: EWS	CHECKED: EWS	

HARTSBURG WWTF
TREATMENT UPGRADES

AERATION DETAILS
(ALTERNATE 1)

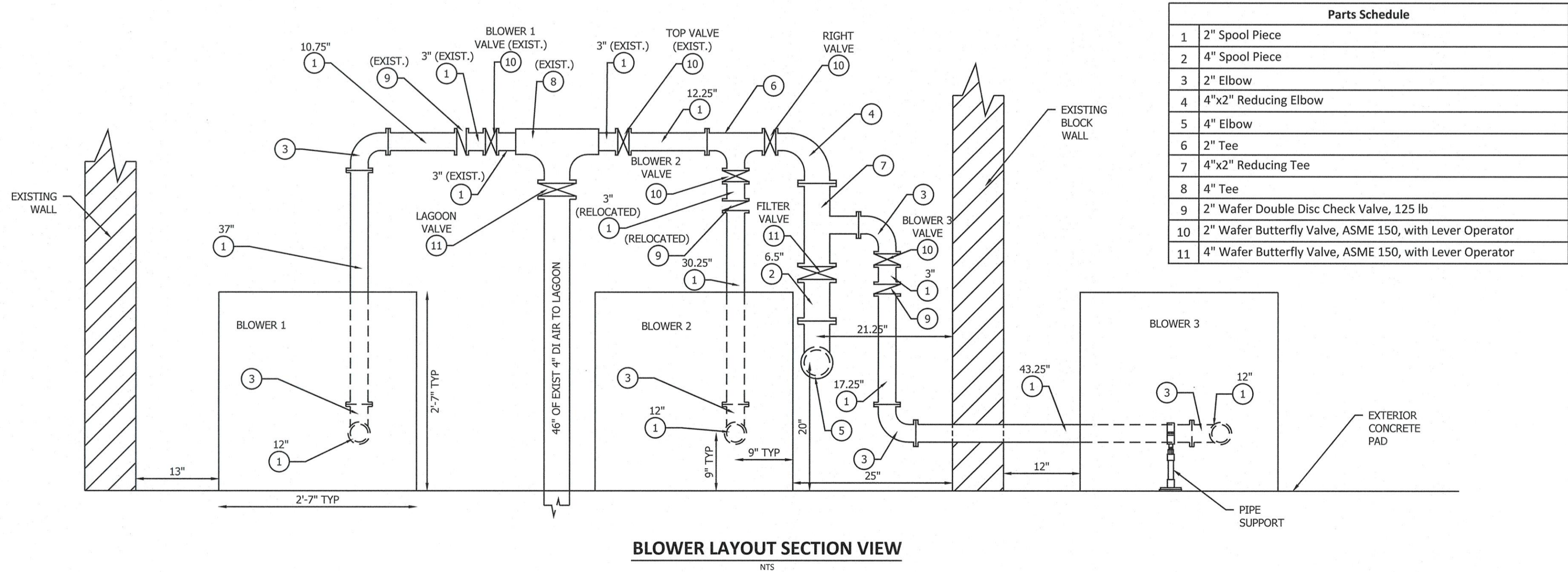
SCALE
NTS
CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
6

Performance Data, each blower		
Motor Nameplate Horsepower	5	HP
Estimated Power Consumption	3	BHP
Design Maximum Airflow	48	SCFM
Maximum Operating Pressure	9.2	PSI
Normal Operating Pressure	5.6	PSI
Inlet Temperature	104	oF
Discharge Temperature	180	oF
Blower Speed	3,460	RPM
VFD Frequency	60	Hz
Sound Level	65	dB(A)

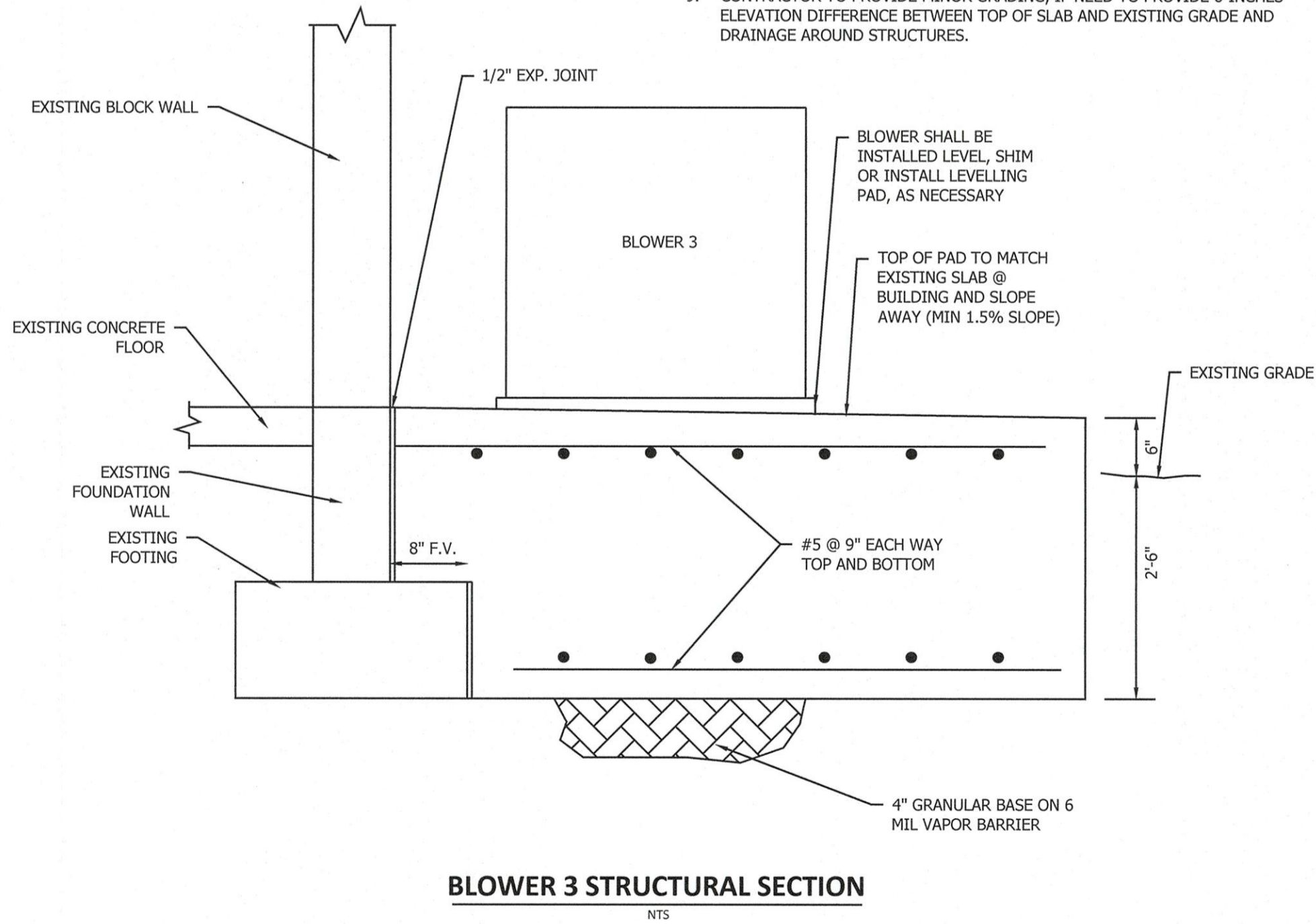


- NOTE 1:
- EXISTING BLOWER BUILDING TO BE REUSED.
 - CONTRACTOR REMOVE EXISTING BLOWERS, CONTROL PANEL AND RELATED EQUIPMENT AND STORE ON SITE FOR OWNER.
 - REPLACE THE EXISTING ELECTRICAL PANEL AND UTILITY METER CABINET. SEE ELECTRICAL SHEET FOR DETAILS.
 - SEE TECHNICAL SPECIFICATIONS REGARDING SEQUENCING TO MAINTAIN TREATMENT.
 - REFER TO SPECIFICATIONS FOR MANUFACTURER'S SCOPE OF SUPPLY AND EXCLUSIONS.
 - FILL ALL VOIDS AROUND PIPE WALL PENETRATIONS WITH NON-SHRINK GROUT TO FULL DEPTH OF BLOCKS, FORMING A SMOOTH OUTER SURFACE ON EACH SIDE OF WALL AND PREVENTING THE INTRUSION OF MOISTURE FROM PRECIPITATION.
 - AIR PIPING TO BE BLACK STEEL, SCHEDULE 40.

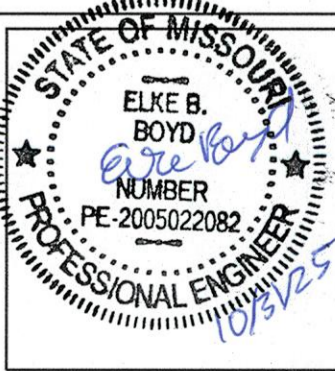
- GENERAL CONCRETE PAD NOTES:
- CONCRETE SHALL HAVE MINIMUM 28-DAY DESIGN STRENGTH, $f_c = 4000$ psi.
 - CONCRETE SHALL BE AIR ENTRAINED 6% +/- 1%.
 - REINFORCING BARS SHALL BE ASTM A615, GRADE 60.
 - CONCRETE COVER SHALL BE 3" AT BOTTOM OF PAD AND 2" OTHERWISE.
 - COORDINATE ANY NECESSARY PIPING THROUGH CONCRETE PAD.
 - CHAMFER EXPOSED EDGES OF CONCRETE 3/4", UNLESS OTHERWISE NOTED.
 - ALL EXPOSED SURFACES OF CONCRETE SHALL HAVE A RUBBED FINISH.
 - CONTRACTOR TO VERIFY MINIMUM SOIL BEARING CAPACITY = 1500 PSF.
 - CONTRACTOR TO PROVIDE MINOR GRADING, IF NEED TO PROVIDE 6-INCHES ELEVATION DIFFERENCE BETWEEN TOP OF SLAB AND EXISTING GRADE AND DRAINAGE AROUND STRUCTURES.



Parts Schedule	
1	2" Spool Piece
2	4" Spool Piece
3	2" Elbow
4	4"x2" Reducing Elbow
5	4" Elbow
6	2" Tee
7	4"x2" Reducing Tee
8	4" Tee
9	2" Wafer Double Disc Check Valve, 125 lb
10	2" Wafer Butterfly Valve, ASME 150, with Lever Operator
11	4" Wafer Butterfly Valve, ASME 150, with Lever Operator



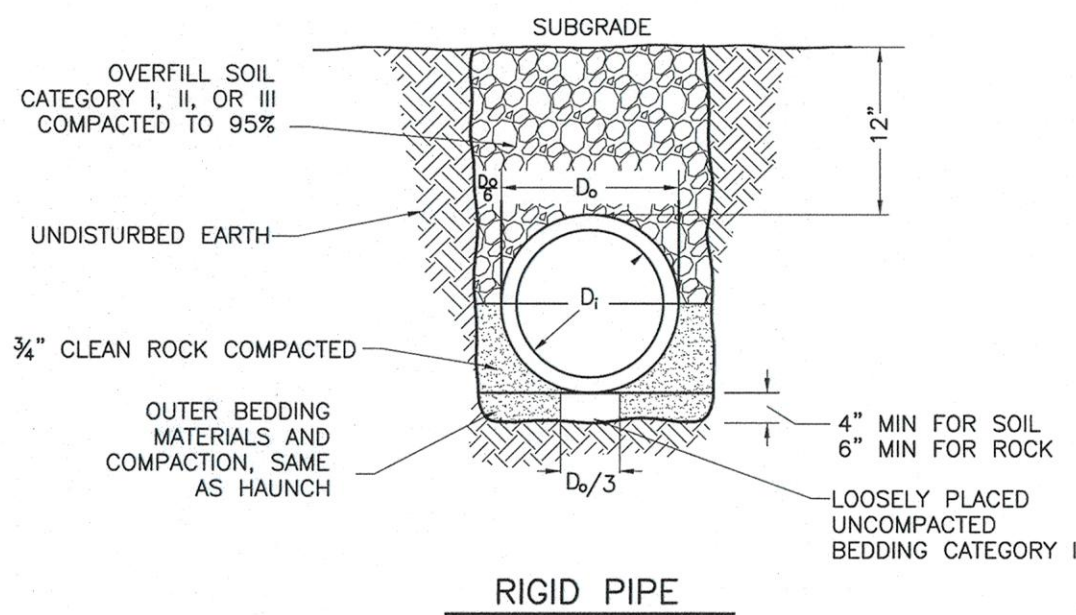
REVISIONS		
DATE	REVISION	BY



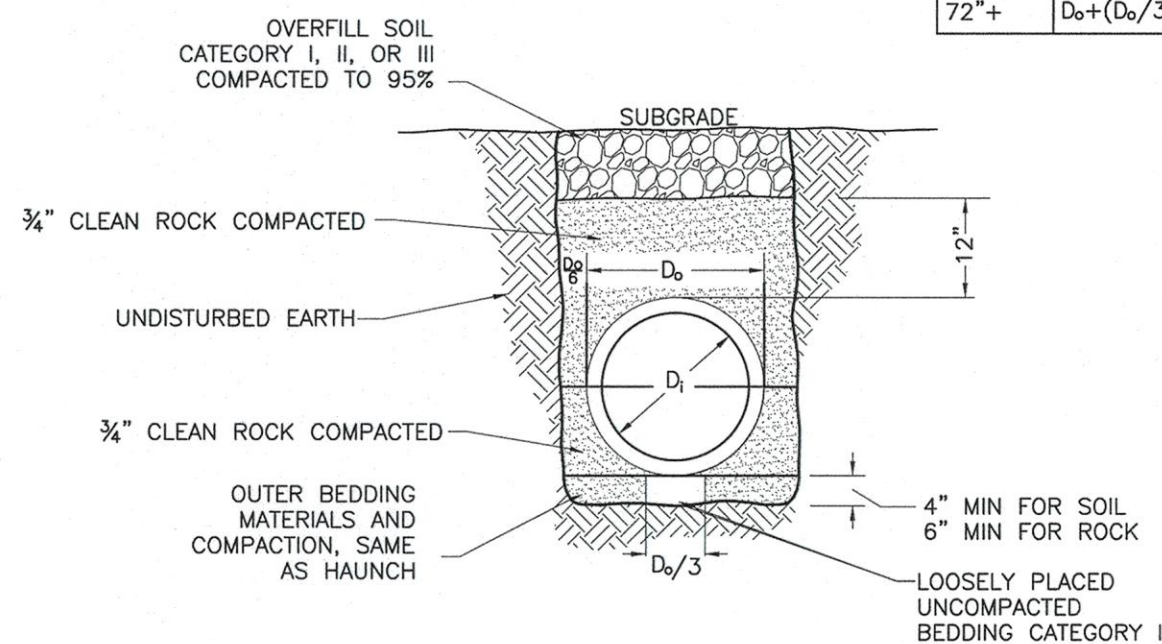
RECOMMENDED FOR APPROVAL	10/29/2025
Elke Boyd	DATE
DESIGNED: EBB	DRAWN: PMH
CHECKED: EWS	CHECKED: EWS

HARTSBURG WWTF TREATMENT UPGRADES
STRUCTURAL & BLOWER DETAILS (ALTERNATE 1)

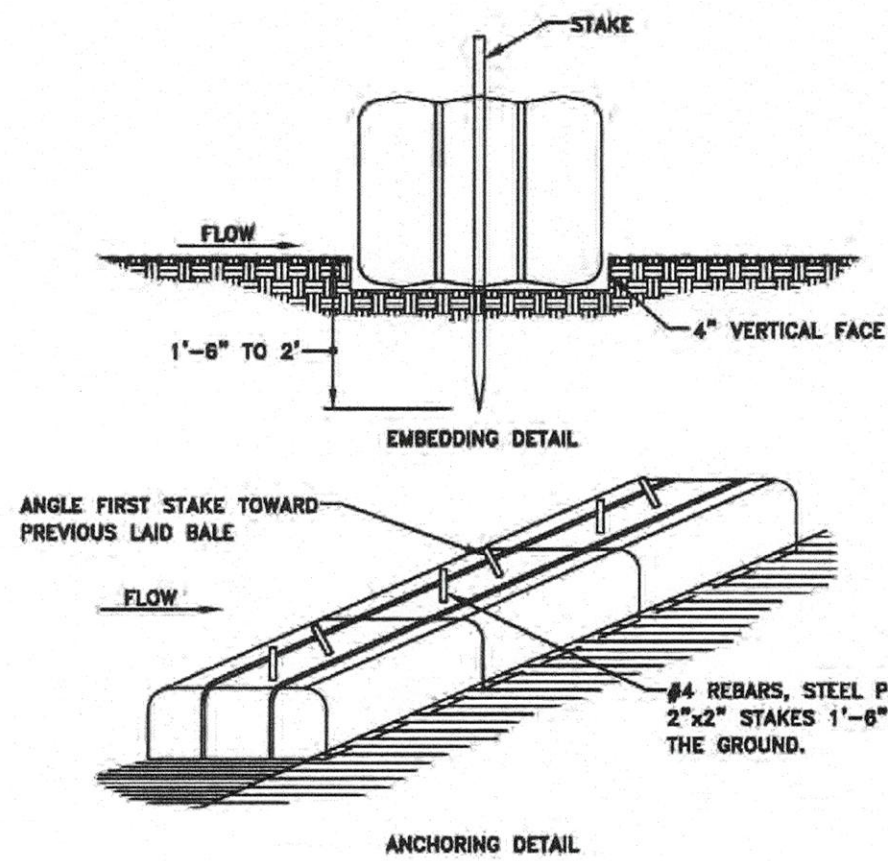
SCALE
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CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
7



PIPE DIAMETER	PAYLINE/ MIN. TRENCH WIDTH	MAX. TRENCH WIDTH
8"-36"	$D_o + 12"$	$D_o + 24"$
42"-72"	$D_o + (D_o/3)$	$D_o + 30"$
72"+	$D_o + (D_o/3)$	$D_o + 48"$

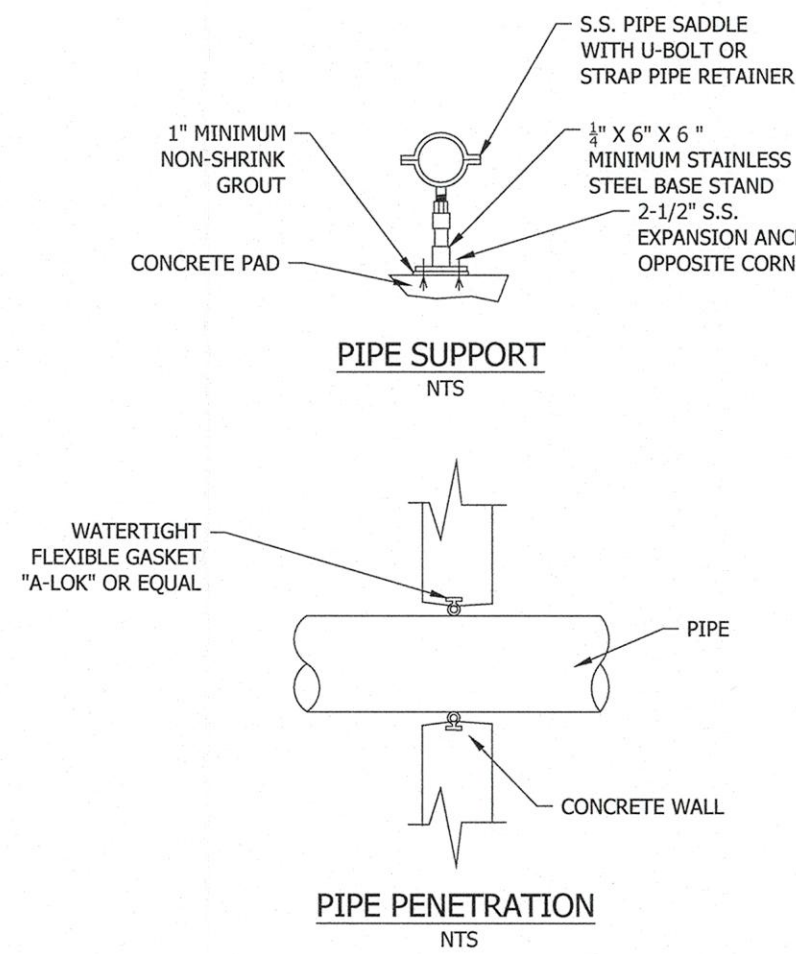
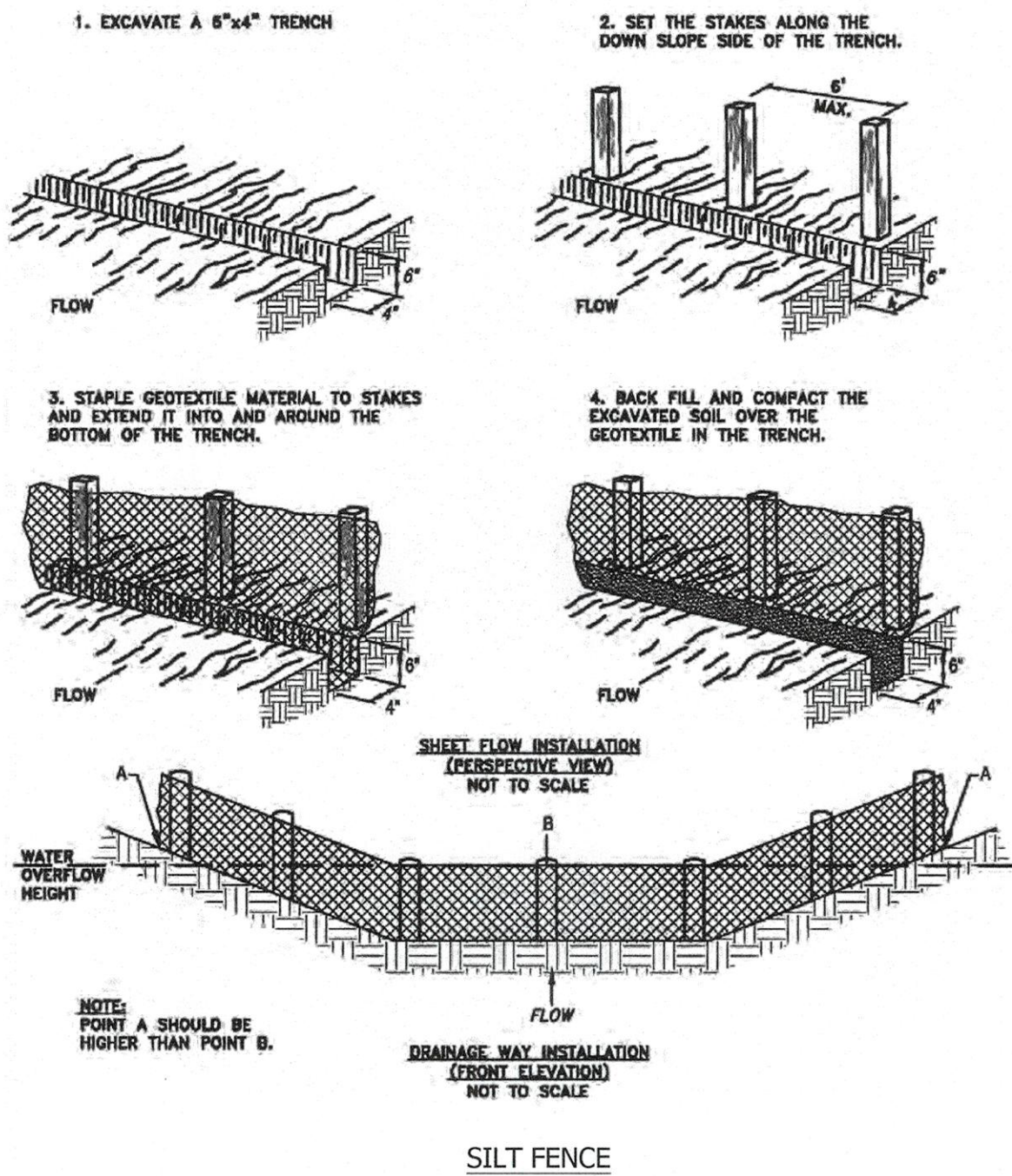


PIPE EMBEDMENT (ALTERNATE 1 & 3)

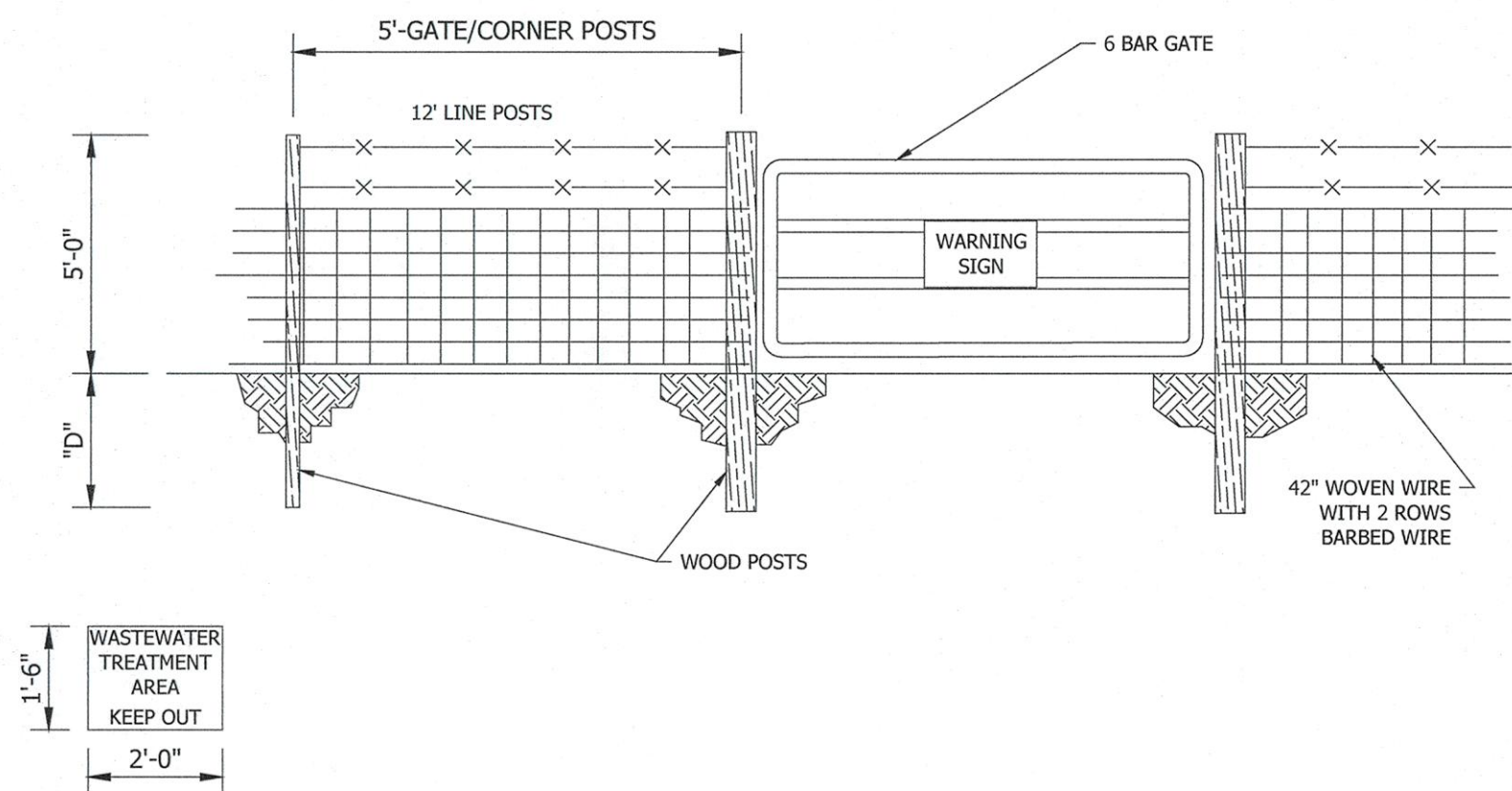
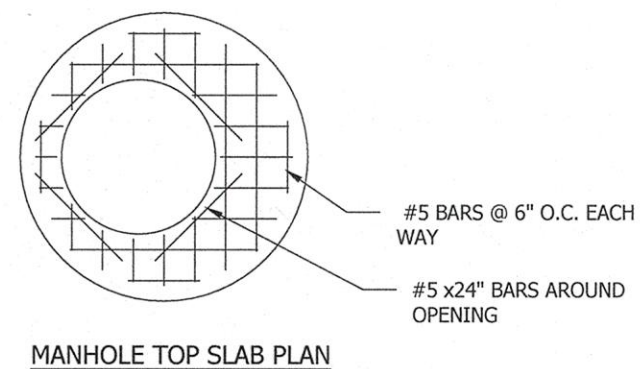
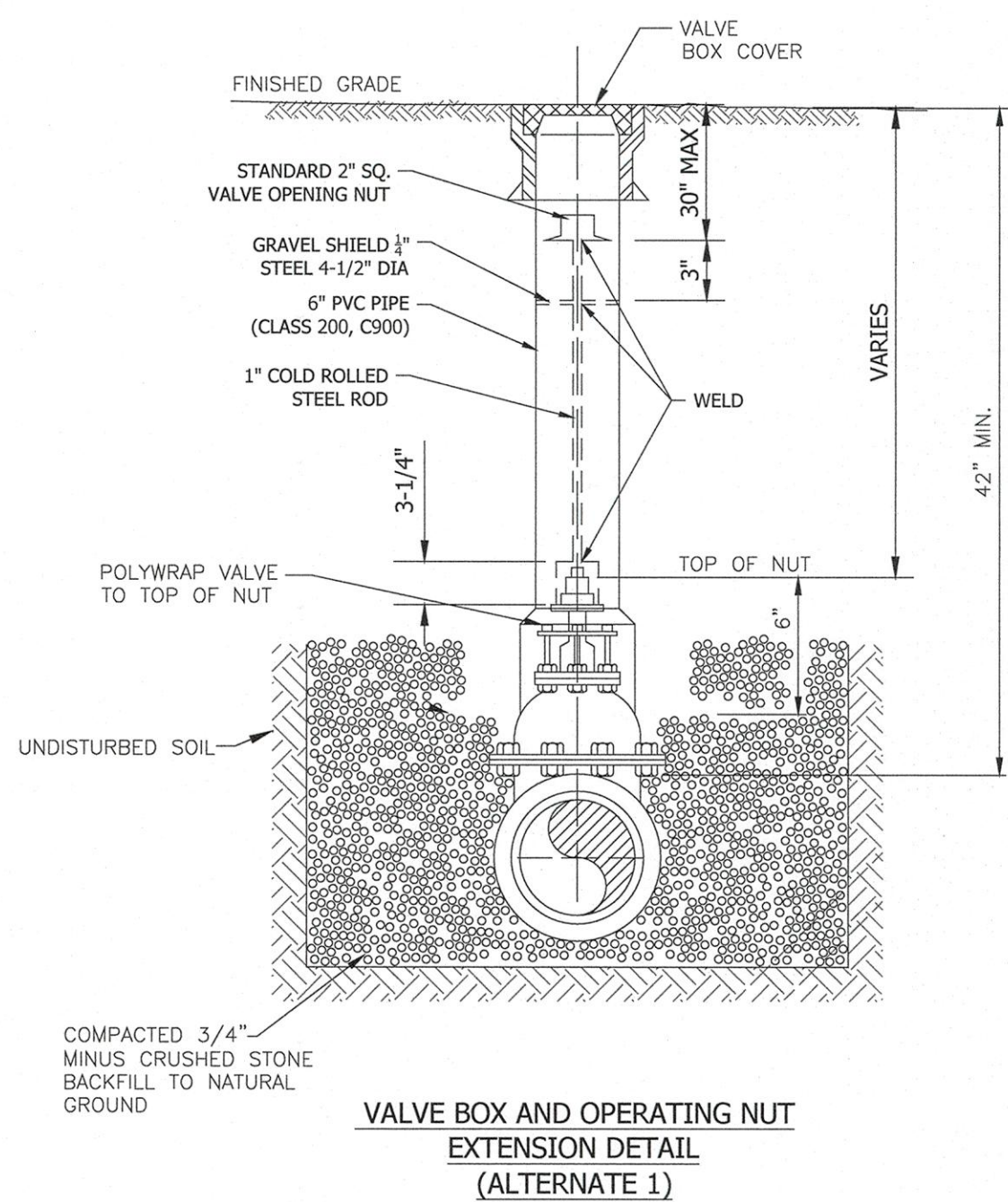


- BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
- INSPECTION SHALL BE AT LEAST ONCE A WEEK AND AFTER EACH 1/2" RAIN. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY.
- BALES SHALL BE REMOVED BY THE OWNER WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

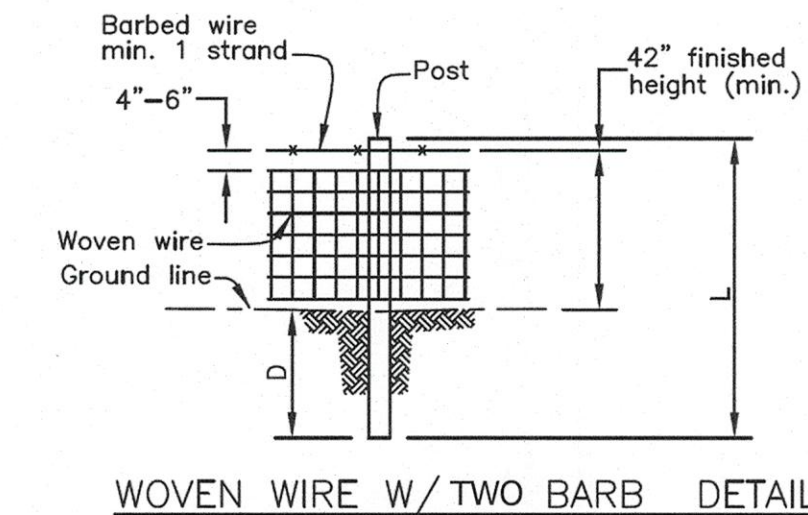
ANCHORING DETAIL



NOTE: THE PIPE GASKET SHALL BE A RUBBER LABRINTH WATERSTOP WITH STAINLESS STEEL CLAMPING BANDS LOCATED AT THE CENTER OF WALL AND THE SPACES BETWEEN PIPE AND WALL COMPLETELY GROUTED WITH FLEXIBLE GROUT ON OUTSIDE OF STRUCTURE ONLY.

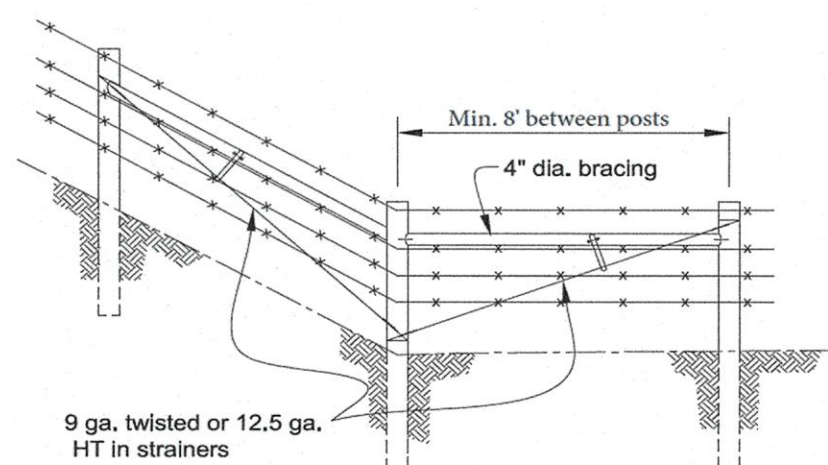


- WARNING SIGN TO BE PLACED ON EACH GATE.
- WHITE BACKGROUND.
- RED BLOCK LETTERS - 2 1/2" HIGH.
- SIGNS TO BE 1/8" THICK ALUMINUM.
- FASTEN SIGN TO GATES USING GALVANIZED 1" GALVANIZED U-BOLTS.



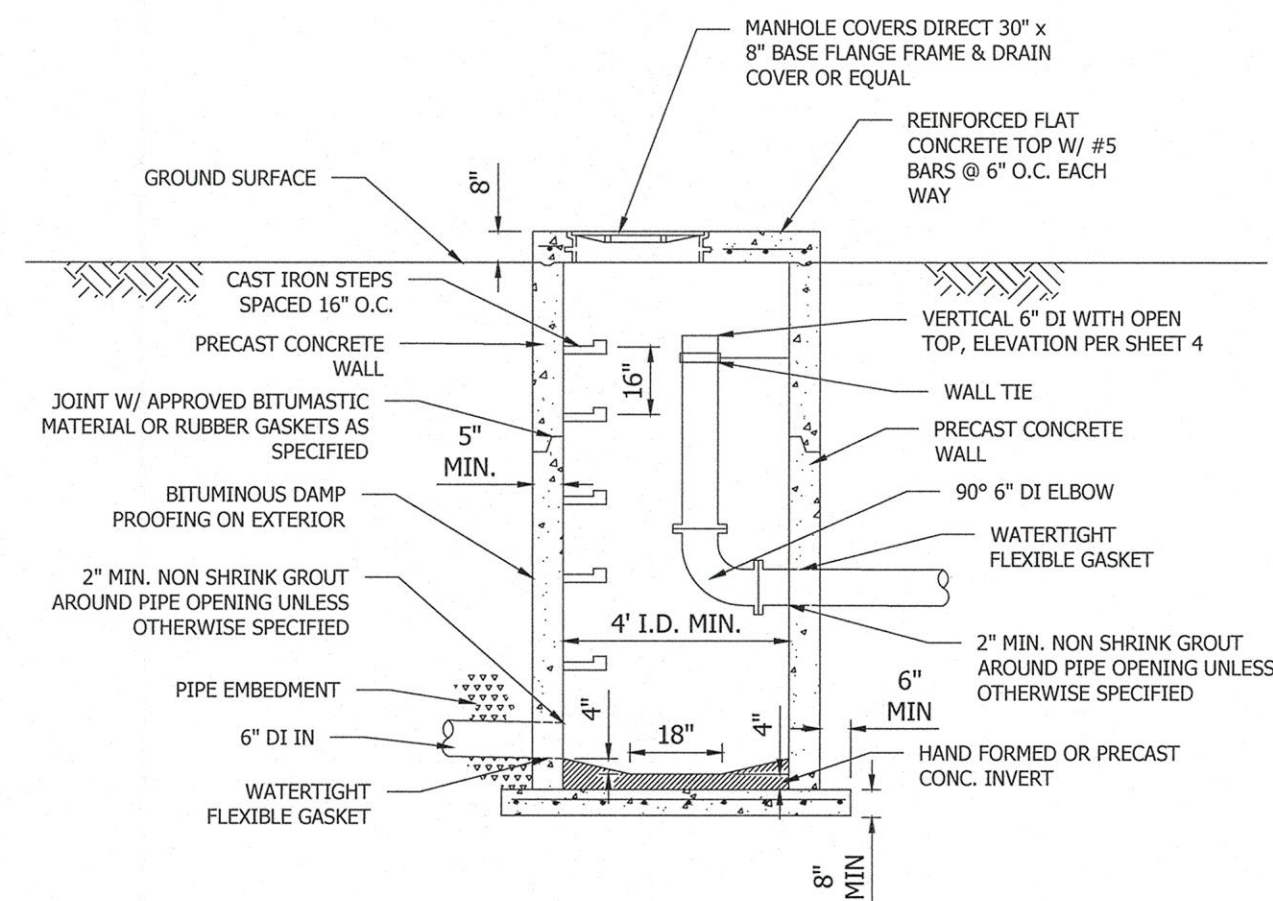
- LINE Wood: L = 6 ft. min.
D = 2 ft. min.
Dia. = 3 in. min.
*Do not use landscape timbers
- CORNER, GATE OR PULL POST Wood: Dia. = 5 in. min.
D = 3 ft. min. or 30" w/ concrete in 12" dia. hole.
- STAPLES: 9 gauge (min), 1 1/2" w/barbs for softwoods and 1" for hardwoods
- WOVEN WIRE Standard: Top and bottom wires shall be 12 1/2 gauge or heavier. Line and stay wires shall be 14 1/2 gauge or heavier.
- High Tensile: Wire shall be 14 gauge or heavier.

FENCING DETAILS (ALTERNATE 2)



CORNER BRACE

For all horizontal brace members:
Min. of 8' long
Min. 4" diameter treated wood or 2" diameter steel pipe
Place 8" - 12" below top of fence post.
Required at all corners and gates.



- NOTE:
- PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
 - BASES NOT BUILT MONOLITHIC WITH BOTTOM SECTION SHALL BE POURED OF 3000 PSI CONCRETE.
 - THE BOTTOM SECTION OF ALL PRECAST MANHOLES NOT BUILT MONOLITHIC WITH THE BASE SHALL BE SET INTO A STEEL REINFORCED POURED CONCRETE BASE A MINIMUM OF 4" (#5 @ 6" E.W.)
 - THE COMPRESSIVE STRENGTH OF CONCRETE USED IN THE CONSTRUCTION OF PRECAST REINFORCED CONCRETE MANHOLES SHALL NOT BE LESS THAN 4000 PSI.
 - MANHOLE JOINTS SHALL BE UNIFORM, PROVIDE COMPATIBLE FIT AND BE FREE FROM HONEYCOMBS OR CHIPS.
 - PLUG ALL LIFT HOLES COVER OUTSIDE WITH BITUMASTIC SEALER.

SEE PROFILE FOR ELEVATIONS

DATE	REVISION	BY



Know what's below.
Call before you dig.

LOCHMUELLER GROUP
820 S Main Street, Suite 207
St. Charles, Missouri 63301
PHONE: 314.621.3395

STATE OF MISSOURI
ELKE B. BOYD
PE-2005022082
PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	10/29/2025
Elke Boyd	DATE
DESIGNED: EBB	DRAWN: PMH
CHECKED: EWS	CHECKED: EWS

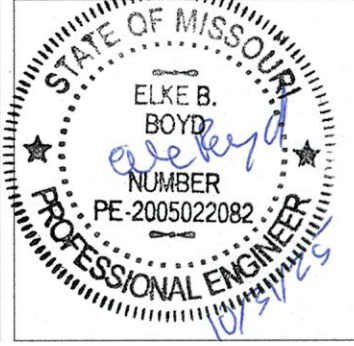
HARTSBURG WWTF TREATMENT UPGRADES

ALTERNATES 1, 2, & 3 DETAILS

SCALE
NTS
CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
8

Date: Oct 31, 2025, 1:02pm User Name: Paul Henderson
File: X:\Production\Files\2024\524-1025\CAD\PlanSet\WR\Electrical.dwg

REVISIONS		
DATE	REVISION	BY

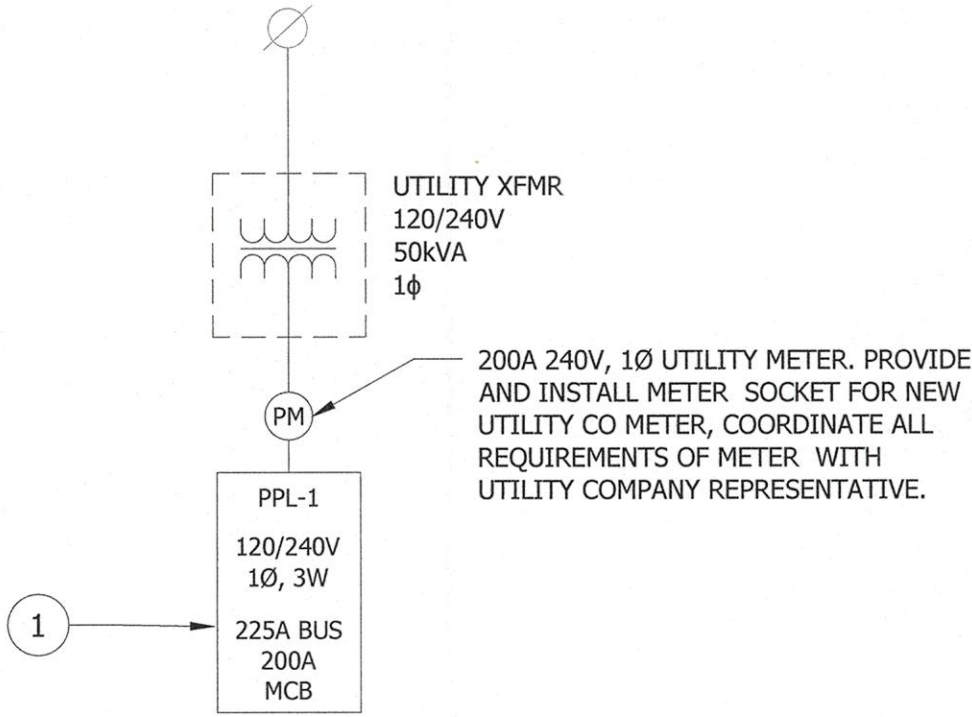


RECOMMENDED FOR APPROVAL		10/29/2025
Christopher Campbell, P.E.		DATE
DESIGNED: _____	CRC	DRAWN: _____
		KCK
CHECKED: _____	CRC	CHECKED: _____
		PEB

HARTSBURG WWTF TREATMENT UPGRADES	
ELECTRICAL SCHEDULES AND DIAGRAMS (ALTERNATE 1)	

SCALE
NONE
CONSULTANT PROJECT NUMBER
524-1025-01W-PHASE 2
SHEET
9

EXISTING PANEL SCHEDULE																
WIRING (SEE SCHEDULE)	DESIGNATION:				PPL-1		MAINS TYPE:				Circuit Breaker					
	LOCATION:				BLOWER BUILDING		OCPD RATING:				100A					
	FED FROM:				UTILITY		BUS RATING:				125A					
	VOLTAGE:				240/120V		PANEL MOUNTING:				SURFACE (NEMA 1)					
	PHASE:				1 PHASE, 3 WIRE		MIN. BUS BRACING				22,000 AIC (RMS SYMMETRICAL)					
CKT	LOAD		**	KVA	CKT. BKR.		PHASE		CKT. BKR.		KVA	**	LOAD		CKT	
NO.	DESCRIPTION				AMPS	POLE	A	B	AMPS	POLE			DESCRIPTION			NO.
1	BLOWER #1			2.04	30	2	4.08		30	2	2.04		BLOWER #2		2	
3				2.04				4.08			2.04				4	
5	RECEPTACLE, HEATER			0.84	20	1	3.24		60	2	2.40		UV SYSTEM		6	
7	LIGHTING				20	1		2.40			2.40				8	
								7.32		6.48	TOTAL 13.80					
** NOTES: (G = GFCI, A = AFCI, L = LOCKABLE, S = SHUNT TRIP, GF = GROUND FAULT PROTECTION FOR EQUIPMENT 1 PROVIDE A 30A, 2P CIRCUIT BREAKER AND INSTALL IN EXISTING SPACES. BREAKERS SHALL BE MINIMUM 10KAIC.																
LOAD CLASSIFICATION			CONN. LOAD		DEMAND FACTOR			DEMAND LOAD			PANEL TOTALS					
RECEPTACLE (R)			0.84		NEC 220.44			0.84								
LIGHTING (L)			1.20		100%			1.20								
HVAC HEATING (HH)			0.00		NEC 220.60			0.00			CONNECTED LOAD (A):		62.50			
HVAC COOLING (HC)			0.00					0.00		DEMANDED LOAD (A):		71.75				
MOTOR (M)			4.08		100%			4.08			SPARE CAPACITY (0%):		0.00			
LARGEST MOTOR (LM)			4.08		125%			5.10			PANEL CURRENT (A): 71.75					
CONTINUOUS (C)			4.80		125%			6.00								
NON-CONTINUOUS (N)			0.00		100%			0.00								



ELECTRICAL ONE-LINE

GENERAL NOTES:

- ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 80 PVC BURIED A MINIMUM OF 24" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED.
- ALL CONDUITS INSTALLED ABOVE GRADE SHALL BE RIGID GALVANIZED UNLESS OTHERWISE NOTED.
- TRANSITION FROM SCHEDULE 80 PVC TO RIGID GALVANIZED PRIOR TO EMERGING FROM GRADE USING RG ELBOWS.
- CONTRACTOR TO INSTALL AND COORDINATE NEW UTILITY FEED, NEW METER SOCKET CABINET, AND NEW 200A PANEL. AFTER THE NEW BLOWERS ARE OPERATIONAL AND THE EXISTING CIRCUITS TO REMAIN ARE TRANSFERRED OVER TO THE NEW PANEL, DEMO THE EXISTING UTILITY SERVICE AND THE EXISTING 100A PANEL. TURN OVER PANEL TO OWNER.

CODED NOTES:

- CONTRACTOR TO PROVIDE NEW 200A, 18 CIRCUIT, 120/240V, 1PH, SQUARE D NO PANELBOARD. PROVIDE AND INSTALL 2" CONDUIT WITH (2) #2/0AWG AND # 4 GND FROM THE UTILITY TRANSFORMER TO THE NEW PANEL. COORDINATE UPGRADED SERVICE REQUEST AND ALL UTILITY REQUIREMENTS WITH THE ELECTRIC UTILITY.
- CONTRACTOR TO PROVIDE NEW CONDUIT AND WIRE POWER FEED TO THE BLOWER VFDS, 3/4" CONDUIT W/ (2) #8 AWG & #10 GND. INSTALL ALL NECESSARY POWER AND CONTROLS FOR THE BLOWER SYSTEMS.
- CONTRACTOR TO RECONNECT ALL EXISTING EQUIPMENT TO THE NEW PANELBOARD AS NEEDED FOR CONTINUOUS OPERATION. EXTEND CONDUIT AND WIRE AS NECESSARY.

NEW PANEL SCHEDULE															
WIRING (SEE SCHEDULE)	DESIGNATION:		PPL-1		MAINS TYPE:		Circuit Breaker		WIRING (SEE SCHEDULE)						
	LOCATION:		BLOWER BUILDING		OCPD RATING:		200A								
	FED FROM:		UTILITY		BUS RATING:		225A								
	VOLTAGE:		240/120V		PANEL MOUNTING:		SURFACE (NEMA 1)								
	PHASE:		1 PHASE, 3 WIRE		MIN. BUS BRACING		22,000 AIC (RMS SYMMETRICAL)								
CKT NO.	LOAD DESCRIPTION	**	KVA	AMPS	POLE	PHASE	A	B	POLE	AMPS	KVA	**	LOAD DESCRIPTION	CKT NO.	
1	BLOWER #1		3.36	40	2	3.96		1	20	0.60	RECEPTACLE		2		
3			3.36				3.96	1	20	0.60	RECEPTACLE		4		
5	BLOWER #2		3.36	40	2	4.56		1	20	1.20	LIGHTING		6		
7			3.36				3.60	1	20	0.24	HEATER		8		
9	BLOWER #3		3.36	40	2	3.36		1	20		SPARE		10		
11			3.36				3.36	1	20		SPARE		12		
13	UV SYSTEMS		2.40	60	2	2.40		1	20		SPARE		14		
15			2.40				2.40	1	20		SPARE		16		
17	SPARE			20	1	0.00		1	20		SPARE		18		
14.28 13.32 TOTA 27.60															
** NOTES: (G = GFCI, A = AFCI, L = LOCKABLE, S = SHUNT TRIP, GF = GROUND FAULT PROTECTION FOR EQUIPMENT 1 PROVIDE A 30A, 2P CIRCUIT BREAKER AND INSTALL IN EXISTING SPACES. BREAKERS SHALL BE MINIMUM 10KAIC.															
LOAD CLASSIFICATION		CONN. LOAD		DEMAND FACTOR		DEMAND LOAD		PANEL TOTALS							
RECEPTACLE (R)		1.20		NEC 220.44		1.20									
LIGHTING (L)		1.20		100%		1.20									
HVAC HEATING (HH)		0.24		NEC 220.60		0.24		CONNECTED LOAD (A): 115.00							
HVAC COOLING (HC)		0.00				0.00		DEMANDED LOAD (A): 127.00							
MOTOR (M)		13.44		100%		13.44		SPARE CAPACITY (0%): 0.00							
LARGEST MOTOR (LM)		6.72		125%		8.40		PANEL CURRENT (A): 127.00							
CONTINUOUS (C)		4.80		125%		6.00									
NON-CONTINUOUS (N)		0.00		100%		0.00									

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