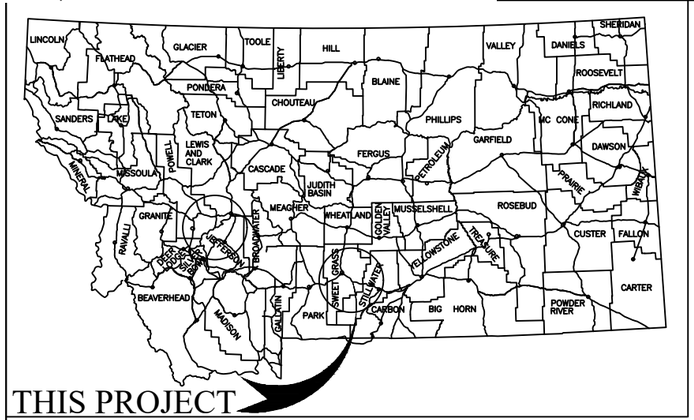
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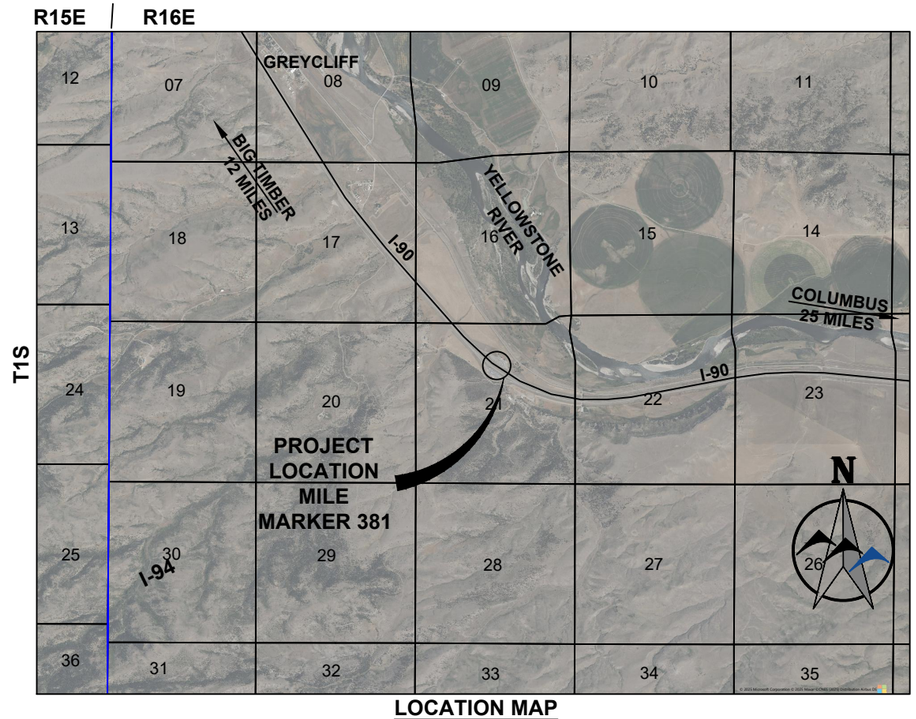


MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT IM 90-7(123)381
REST AREA REHABILITATION
GREYCLIFF REST AREA REHAB
SWEET GRASS COUNTY

LETTING DATE - _____

LENGTH N.A. MILES



LOCATION MAP

0 2500' 5000'

HORIZONTAL SCALE

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10	WASTEWATER SYSTEM PLAN AND PROFILE
11	10,000 GALLON TANK DETAILS
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E0.11	ELECTRICAL DETAILS
E0.12	WATER TREATMENT EQUIPMENT SCHEMATIC
E0.13	WATER TANK ELECTRICAL DETAIL
E0.14	WATER TANK ELECTRICAL DETAIL
ED1.0	OVERALL SITE POWER DEMOLITION PLAN
E1.0	OVERALL SITE NEW POWER PLAN
E1.1	NEW SITE POWER PLAN - WELL WATER
E1.2	WATER TREATMENT BUILDING POWER PLANS
E1.3	PUMP HOUSE LIGHTING & HVAC CONTROLS
E1.4	EXISTING REST AREA BUILDING POWER PLAN

PLANS PREPARED BY

WWC ENGINEERING
1275 Maple Street,
Helena, MT 59601
Phone: (406) 443-3962

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W & I.C.	
P. E.	IM 90-7(123)381

WWC ENGINEERING
DocuSigned by:
Jeremy Fadness
BY 52CFB3494C18450...
9/17/2026
DATE

JEREMY M. FADNESS
No. 15424
LICENSED PROFESSIONAL ENGINEER

MONTANA DEPARTMENT OF TRANSPORTATION
DocuSigned by:
Kelly Williams
RECEIVED BY 5EF1FDDAB5A747...
CONSULTANT DESIGN ENGINEER
9/17/2026
DATE

NOTE: SCALE SHOWN ON PLANS BASED ON 11"X17" PRINT SIZE.

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Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA REST AREA REHABILITATION
2		6/2026	REVIEWED BY	S. DUNKELBERGER		
			CHECKED BY	J. FADNESS		UPN 10095000

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GENERAL CONSTRUCTION NOTES

1. UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, ALL WORK MUST CONFORM TO MDT STANDARD SPECIFICATIONS AND THESE PLANS.
2. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL PERMITS REQUIRED AND CONSTRUCTION TESTING FOR CONSTRUCTION ACTIVITIES.
3. THE CONTRACTOR WILL RESTORE ALL ROADWAYS TO EQUAL OR BETTER CONDITION THAT EXISTED PRIOR TO CONSTRUCTION, AS DETERMINED BY THE ENGINEERING PROJECT MANAGER.
4. THE LOCATION, DEPTH AND SIZE OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR WILL FIELD VERIFY THE EXISTENCE, LOCATION, DEPTH, SIZE, LINE AND GRADE OF EXISTING UTILITY CONNECTIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING FACILITIES DUE TO FAILURE TO LOCATE OR PROVIDE PROPER PROTECTION WHEN LOCATION IS KNOWN.
5. THE CONTRACTOR WILL SUPPLY ALL NECESSARY FITTINGS, COUPLINGS AND SPOOL PIECES FOR CONNECTING NEW UTILITIES TO EXISTING UTILITIES. THESE PLANS MAY NOT SHOW ALL REQUIRED COMPONENTS FOR MAKING THE CONNECTIONS.
6. ALL BACKFILL FOR UTILITY TRENCHES AND PIPE BEDDING WILL MEET MDT STANDARD SPECIFICATION 701.04. THE COST OF THIS ADDITIONAL BEDDING WILL BE INCLUDED IN THE UNIT PRICE BID.
7. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST AND EROSION DURING CONSTRUCTION AT CONTRACTOR'S EXPENSE. EROSION MUST BE CONTROLLED IN ACCORDANCE WITH MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY REGULATIONS.
8. ALL PROFILES REPRESENT EXISTING GROUND (DASHED LINE) AND FINISHED GRADE (SOLID LINE) ALONG THE ALIGNMENTS INDICATED ON THE PLANS. ELEVATIONS ARE FINISHED GROUND ELEVATIONS.
9. ALL DISTURBED AREAS MUST BE SEEDED BY THE CONTRACTOR USING A SEED MIX PROVIDED IN THE CONTRACT DOCUMENTS.
10. THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATION OF UTILITY (PHONE/POWER/CATV) INSTALLATION WITH LOCAL UTILITY COMPANIES.
11. THE CONTRACTOR WILL NOTIFY ONE CALL @ 1-800-424-5555 FOR ONSITE UTILITY LOCATION. ALL EXISTING UTILITIES MUST BE MARKED BEFORE DIGGING.
12. THE CONTRACTOR WILL MAINTAIN SERVICE OF ALL EXISTING UTILITIES. IF SAID SERVICE IS DAMAGED, THE CONTRACTOR WILL IMMEDIATELY REPAIR THE DAMAGE AT THE CONTRACTOR'S EXPENSE.
13. THE CONTRACTOR WILL NOTIFY THE PROJECT MANAGER A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK.
14. ALL UTILITY CONDUITS FOR IRRIGATION, ELECTRICAL, GAS, PHONE, CATV, ETC. MUST BE BURIED A MINIMUM 24" FROM FINISHED GRADE WITH TYPE A BACKFILL, UTILIZING TYPE 1 BEDDING, UNLESS DIRECTED OTHERWISE BY THE PROJECT MANAGER.
15. QUANTITIES SHOWN IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES.
16. WETLANDS MAY EXIST BEYOND THE PROJECT LIMITS. A WETLAND DELINEATION WAS CONDUCTED, AND NO WETLANDS WERE IDENTIFIED WITHIN THE PROJECT CONSTRUCTION LIMITS. IMPACTS TO WETLAND AREAS ARE NOT ANTICIPATED IN ASSOCIATION WITH THE PROPOSED WORK. NO PERMITS HAVE BEEN OBTAINED. ANY ACTION IMPACTING WETLAND AREAS WITHOUT THE APPROPRIATE PERMITTING IS THE RESPONSIBILITY OF THE CONTRACTOR.

BLOCK LEGEND

EXISTING	PROPOSED
	SANITARY SEWER MANHOLE
	SANITARY SEWER CLEANOUT
	SANITARY SEWER CAP
	SANITARY SEWER METER VAULT
	SANITARY SEWER LIFT STATION
	SANITARY SEWER FM (TEE)
	SANITARY SEWER FM (11.25°)
	SANITARY SEWER FM (22.5°)
	SANITARY SEWER FM (45°)
	SANITARY SEWER FM (90°)
	SANITARY SEWER FM (CROSS)
	SANITARY SEWER FM FLANGE
	SANITARY SEWER FM VALVE
	SANITARY SEWER FM REDUCER
	SANITARY SEWER FM BF PREV.
	STORMWATER AREA INLET
	STORMWATER COMBO INLET
	STORMWATER FLARED END
	STORMWATER MANHOLE
	STORMWATER PUMP STATION
	STORM SEWER HEAD WALL
	WATER FITTING BEND 11.25°
	WATER FITTING BEND 22.5°
	WATER FITTING BEND 45°
	WATER FITTING BEND 90°
	WATER FITTING CAP
	WATER FITTING CROSS
	WATER FITTING FLANGE
	WATER FITTING TEE
	WATER FITTING VALVE
	WATER VENT
	WATER MANHOLE
	WATER REDUCER
	WATER MARKER
	FIRE HYDRANT
	WATER CURB STOP
	WATER METER
	WATER VAULT
	WATER BOOSTER STATION
	WATER WELL
	WATER MONITORING WELL
	WATER TEST STATION
	CABLE TELEVISION MARKER
	CABLE TELEVISION PULL BOX
	CABLE TELEVISION PEDESTAL
	CABLE TELEVISION VAULT
	POWER GUY ANCHOR
	POWER GUY POLE
	POWER MANHOLE
	POWER MARKER
	ELECTRIC POWER METER
	POWER POLE
	POWER TRANSFORMER
	POWER VAULT
	STREET LIGHT
	IRRIGATION PULL BOX
	IRRIGATION SPRINKLER HEAD
	IRRIGATION VALVE
	IRRIGATION VAULT
	FIBER OPTIC MANHOLE
	FIBER OPTIC MARKER
	FIBER OPTIC PULL BOX
	FIBER OPTIC PEDESTAL
	FIBER OPTIC VAULT
	NATURAL GAS MARKER
	NATURAL GAS METER
	NATURAL GAS VALVE
	TELEPHONE MANHOLE
	TELEPHONE MARKER
	TELEPHONE PULL BOX
	TELEPHONE PEDESTAL
	TELEPHONE VAULT
	TREE (DECIDUOUS)
	TREE (CONIFER)
	ADA RAMP
	SIGN
	BOLLARD
	MILEPOST
	CATTLE GUARD
	BORE LOCATION
	PROP CORNER ALUMINUM CAP
	PROP CORNER BRASS CAP
	PROP CORNER CHISELED X
	HIGHWAY ROW MONUMENT
	PROP CORNER IRON PIPE
	PROP CORNER LEAD & TACK
	PROP CORNER REBAR
	PROP CORNER STONE
	CONTROL POINT
	PROP CORNER PLASTIC CAP

LINE STYLE LEGEND

EXISTING	PROPOSED	
		MAJOR CONTOUR
		MINOR CONTOUR
OHT	OHT	OVERHEAD TELEPHONE
OHP	OHP	OVERHEAD POWER
NG	NG	NATURAL GAS
IR	IR	IRRIGATION LINE
FO	FO	FIBER OPTIC
FM	FM	FORCEMAIN
O	O	FENCE [CHAIN]
X	X	FENCE [BARBED]
[ ]	[ ]	FENCE [PRIVACY]
F	F	FIRE LINE
OHTV	OHTV	OVERHEAD TV
RW	RW	RAW WATER
SS	SS	SEWER
ST	ST	STORM
UGP	UGP	UNDERGROUND POWER
UGT	UGT	UNDERGROUND TELEPHONE
UGTV	UGTV	UNDERGROUND TV
W	W	WATER

DRAWING NOTATION

A / 10 — INDICATES CROSS SECTION LOCATION. "A" REFERS TO THE CROSS SECTION DESIGNATION. "10" REFERS TO THE SHEET NUMBER WHERE THE SECTION IS CUT OR SHOWN.

1 / 12 — INDICATES DETAIL LOCATION. "1" REFERS TO THE DETAIL DESIGNATION. "12" REFERS TO THE SHEET NUMBER WHERE THE DETAIL IS INDICATED OR SHOWN.

ABRREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE	EQ	EQUALIZATION TANK	R/W OR ROW	RIGHT OF WAY
BAR	REBAR	EVC	END VERTICAL CURVE	SAN	SANITARY
BMP	BEST MANAGEMENT PRACTICES	FT	FOOT OR FEET	SST	STAINLESS STEEL
BOT	BOTTOM	GPM	GALLONS PER MINUTE	STA	STATION
BVC	BEGIN VERTICAL CURVE	HP	HORSEPOWER	TBC	TOP BACK OF CURB
CFS	CUBIC FEET PER SECOND	HWY	HIGHWAY	TYP	TYPICAL
CL	CENTERLINE	INV	INVERT ELEVATION	UG	UNDERGROUND
CMP	CORRUGATED METAL PIPE	LF	LINEAR FEET	UGP	UNDERGROUND POWER
CONC	CONCRETE OR CONCENTRIC	MH	MANHOLE	WTR	WATER
CP	CONTROL POINT	MJ	MECHANICAL JOINT		
CSP	CORRUGATED STEEL PIPE	O.C.	ON CENTER		
CTR	CENTER	O.C.E.F.	ON CENTER EACH FACE		
CU FT	CUBIC FEET	OHP	OVERHEAD POWER		
CULV	CULVERT	PI	POINT OF INTERSECTION		
DI	DUCTILE IRON OR DRAIN INLET	POT	POINT ON TANGENT		
DIA	DIAMETER	PS	PIPE SUPPORT		
EA	EACH	PT	POINT, POINT OF TANGENCY		
E.F.	EACH FACE	PVC	POLYVINYL CHLORIDE		
EL, ELEV	ELEVATION	PWR	POWER		
EOP	EDGE OF PAVEMENT	RCP	REINFORCED CONCRETE PIPE		

WWC ENGINEERING
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Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	NOTES
2		6/2026	REVIEWED BY	S. DUNKELBERGER			IM 90-7(123)381
1			CHECKED BY	J. FADNESS		REST AREA REHABILITATION	UPN 10095000 / 2

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WASTEWATER QUANTITIES			
ITEM	**QUANTITY**	**UNIT**	**REMARKS**
PIPE - PVC 6 IN SANITARY	213	LF	GRAVITY SEWER - 6" SDR-35 PVC
PIPE - PVC 4 IN	31	LF	GRAVITY SEWER - 4" SCHEDULE 40 PVC
MISCELLANEOUS ITEMS-INSTALL-LNFT	787	LF	3" SDR-35 PVC FORCE MAIN - DOSE LINES TO DRAINFIELD, LIBERTY MODEL FL202M-2 SUBMERSIBLE PUMP OR APPROVED EQUAL, ONE (1) 5,000 GALLON PRECAST CONCRETE DOSE TANK
MISCELLANEOUS ITEMS A-EACH	2	EACH	10,000 PRECAST GALLON TANK
MISCELLANEOUS ITEMS-INSTALL-EACH	1	EACH	LEVEL II TREATMENT - ELIMINITE
MISCELLANEOUS ITEMS A-LNFT	60	LNFT	NEW MONITORING WELL INSTALLATION
ABANDON WELL-EACH	2	EACH	ABANDON EXISTING MONITORING WELLS
BUILDING-MISC	1	LS	NEW CONTROL BUILDING
MISCELLANEOUS ITEMS - EACH (3 DRAINFIELDS TOTAL)			
LATERALS	2,880	LF	LATERALS
BALL VALVES	36	EACH	BALL VALVES
PIPE - PVC 3 IN	216	LF	3" SCHEDULE 40 PVC - MANIFOLDS

WATER QUANTITIES			
ITEM	**QUANTITY**	**UNIT**	**REMARKS**
PIPE-PRESS POLYETHLENE 2 IN	1,498	LF	DIRECTIONAL DRILL WATER LINE FROM WEST BOUND TO EAST BOUND BUILDING
WATER SERVICE 1 1/2 IN	1	EACH	116 LNF OF 1.5" WATER SERVICE FROM WB BUILDING TO NEW CONTROL BUILDING
MISCELLANEOUS ITEMS _ LS			
PIPE - HDPE 2 IN WATER	99	LF	SERVICE FROM WELL TO WESTBOUND BUILDING AND HDPE PIPE TO WATER TANK
PIPE - PVC 4 IN	16	LF	FROM TANK TO WELLS
PIPE - PVC 2 IN	51	LF	WELLS TO BUILDING
ISOLATION VALVE	4	UNIT	
5,000 GALLON FIBERGLASS TANK	1	UNIT	
WELL CASING	2	UNIT	6" DIA STEEL WELL CASING
SUBMERSIBLE DISTRIBUTION PUMP	2	UNIT	COMMANDER PRO VS3035LT
211 GALLON HYDROPNEUMATIC TANK	1	UNIT	211 HYDROPNEUMATIC TANK (AMTROL WX-452) AND APPERTENANCES

GENERAL QUANTITIES			
ITEM	**QUANTITY**	**UNIT**	**REMARKS**
REVEGETATION AREA NO. 1	1	ACRES	GENERAL RESEEDED AREAS

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3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA		QUANTITIES	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION		UPN 10095000	3
1			CHECKED BY	J. FADNESS					

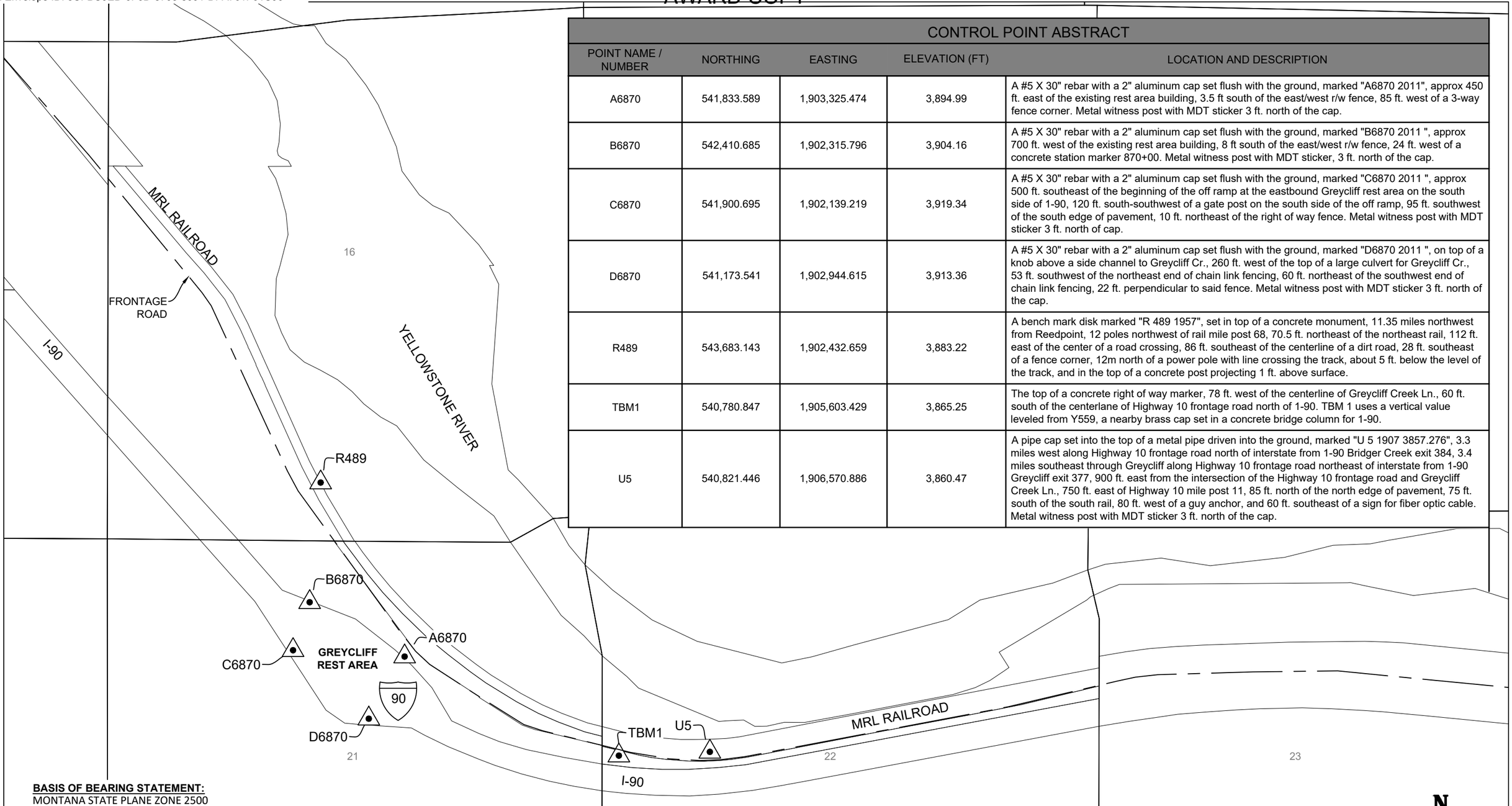
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CONTROL POINT ABSTRACT

POINT NAME / NUMBER	NORTHING	EASTING	ELEVATION (FT)	LOCATION AND DESCRIPTION
A6870	541,833.589	1,903,325.474	3,894.99	A #5 X 30" rebar with a 2" aluminum cap set flush with the ground, marked "A6870 2011", approx 450 ft. east of the existing rest area building, 3.5 ft south of the east/west r/w fence, 85 ft. west of a 3-way fence corner. Metal witness post with MDT sticker 3 ft. north of the cap.
B6870	542,410.685	1,902,315.796	3,904.16	A #5 X 30" rebar with a 2" aluminum cap set flush with the ground, marked "B6870 2011 ", approx 700 ft. west of the existing rest area building, 8 ft south of the east/west r/w fence, 24 ft. west of a concrete station marker 870+00. Metal witness post with MDT sticker, 3 ft. north of the cap.
C6870	541,900.695	1,902,139.219	3,919.34	A #5 X 30" rebar with a 2" aluminum cap set flush with the ground, marked "C6870 2011 ", approx 500 ft. southeast of the beginning of the off ramp at the eastbound Greycliff rest area on the south side of 1-90, 120 ft. south-southwest of a gate post on the south side of the off ramp, 95 ft. southwest of the south edge of pavement, 10 ft. northeast of the right of way fence. Metal witness post with MDT sticker 3 ft. north of cap.
D6870	541,173.541	1,902,944.615	3,913.36	A #5 X 30" rebar with a 2" aluminum cap set flush with the ground, marked "D6870 2011 ", on top of a knob above a side channel to Greycliff Cr., 260 ft. west of the top of a large culvert for Greycliff Cr., 53 ft. southwest of the northeast end of chain link fencing, 60 ft. northeast of the southwest end of chain link fencing, 22 ft. perpendicular to said fence. Metal witness post with MDT sticker 3 ft. north of the cap.
R489	543,683.143	1,902,432.659	3,883.22	A bench mark disk marked "R 489 1957", set in top of a concrete monument, 11.35 miles northwest from Reedpoint, 12 poles northwest of rail mile post 68, 70.5 ft. northeast of the northeast rail, 112 ft. east of the center of a road crossing, 86 ft. southeast of the centerline of a dirt road, 28 ft. southeast of a fence corner, 12m north of a power pole with line crossing the track, about 5 ft. below the level of the track, and in the top of a concrete post projecting 1 ft. above surface.
TBM1	540,780.847	1,905,603.429	3,865.25	The top of a concrete right of way marker, 78 ft. west of the centerline of Greycliff Creek Ln., 60 ft. south of the centerlane of Highway 10 frontage road north of 1-90. TBM 1 uses a vertical value leveled from Y559, a nearby brass cap set in a concrete bridge column for 1-90.
U5	540,821.446	1,906,570.886	3,860.47	A pipe cap set into the top of a metal pipe driven into the ground, marked "U 5 1907 3857.276", 3.3 miles west along Highway 10 frontage road north of interstate from 1-90 Bridger Creek exit 384, 3.4 miles southeast through Greycliff along Highway 10 frontage road northeast of interstate from 1-90 Greycliff exit 377, 900 ft. east from the intersection of the Highway 10 frontage road and Greycliff Creek Ln., 750 ft. east of Highway 10 mile post 11, 85 ft. north of the north edge of pavement, 75 ft. south of the south rail, 80 ft. west of a guy anchor, and 60 ft. southeast of a sign for fiber optic cable. Metal witness post with MDT sticker 3 ft. north of the cap.



BASIS OF BEARING STATEMENT:
MONTANA STATE PLANE ZONE 2500
N.G.S. O.P.U.S. SOLUTION
REFERENCE FRAME: NAD83(2011)(EPOCH:2010.0000)
PROJECT ORIGIN LOCATION:
LATITUDE = N45°44'08.6839235"
LONGITUDE = W109°45'19.2330408"
PROJECT HEIGHT = 3856.793 FT
HORIZONTAL COORDINATES SHOWN HEREON ARE GRID COORDINATES IN UNITS OF INTERNATIONAL FEET AND ELEVATIONS ARE UNITS OF U.S. SURVEY FEET.
GROUND SCALE FACTOR = 0.99945362

N

0 500' 1000'
SCALE: 1" = 1000'

WWC ENGINEERING
1275 Maple Street, Helena, MT 59601
Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	SCOTT DUNKELBERGER		GREYCLIFF REST AREA	CONTROL POINT ABSTRACT	IM 90-7(123)381
2		12/2025	REVIEWED BY	JEREMY FADNESS		SWEET GRASS COUNTY, MT		UPN 10095000
1			CHECKED BY	JAKE ZISKA				4

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N

0 50' 100'

SCALE: 1" = 100'

EXISTING MONITORING WELLS (TYP.)

EXISTING DRAINFIELD (TO BE ABANDONED)

(2) EXISTING WW FORCEMAINS (TO BE REMOVED)

EXISTING BUILDING (TO BE REMOVED)

EXISTING MANHOLE (TO BE REMOVED)

EXISTING SEPTIC TANKS

EXISTING LEVEL 2 TREATMENT SYSTEM (TO BE REUSED)

EXISTING SEWER SERVICE (TO BE RELOCATED)

EXISTING IRRIGATION SERVICE (TO REMAIN)

50' WELL SETBACK

EXISTING BUILDING (TO REMAIN)

EXISTING EDGE OF ASPHALT (TO REMAIN)

EXISTING ABANDONED SSWR LINE

EXISTING WW SERVICE TO BE REMOVED. UGP TO BE RELOCATED

MONTANA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY

MONTANA DEPARTMENT OF TRANSPORTATION RIGHT-OF-W

INTERSTATE 90 WESTBOUND

INTERSTATE 90 EASTBOUND

GREYCLIFF WESTBOUND REST AREA

GREYCLIFF EASTBOUND REST AREA

3890

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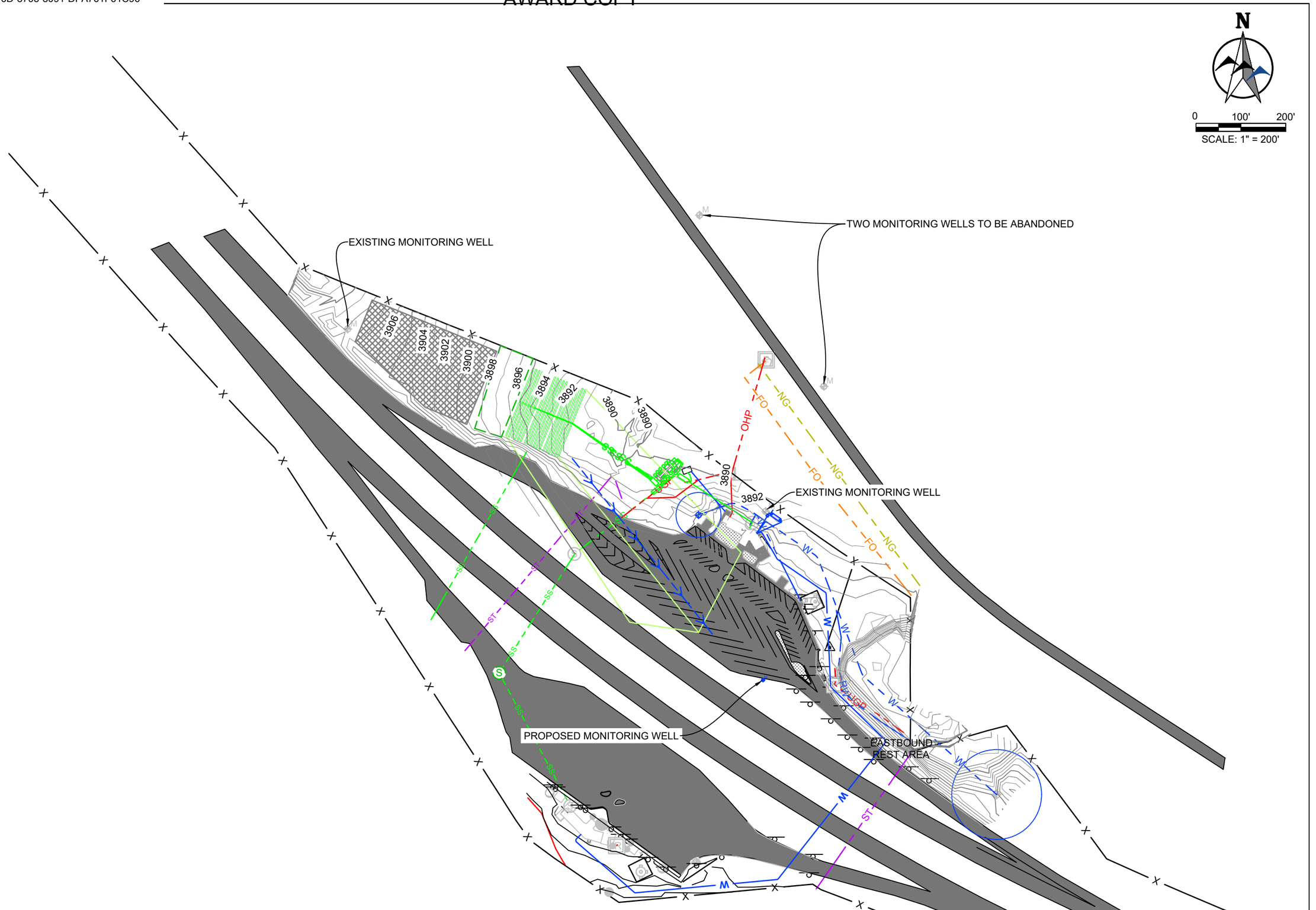
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3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	EXISTING CONDITIONS	IM 90-7(123)381
2		OCT. 2024	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	5
1			CHECKED BY	J. FADNESS				

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3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	MONITORING WELL SHEET	IM 90-7(123)381
2		OCT. 2024	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	6
1			CHECKED BY	J. FADNESS				

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K:\Helena\MDT\2022176-PRP Greycliff Rest Area Rehab\05CAD\Sheets\Wastewater\SITE OVERVIEW.dwg 7 SITE OVERVIEW 8/14/2026 12:16:46 PM

N

0 50' 100'

SCALE: 1" = 100'

GROUND SLOPE=2.96%

PROPOSED REPLACEMENT AREA (TYP.)

EXISTING DRAINFIELD (TO BE ABANDONED)

ELEVATIONS OF LATERALS VARY (SEE SHEET 12)

(3) 3" SCH 40 PVC PIPES
L1: 310 LF
L2: 264 LF
L3: 220 LF

GROUND SLOPE=2.90%

GROUND SLOPE=2.38%

ZONE 1

ZONE 2

ZONE 3

APPROX. LAYOUT AND SIZE OF PROPOSED ELIMINITE SYSTEM

PROPOSED EQ TANK ELIMINITE SYSTEM

PROPOSED LEVEL II TREATMENT BUILDING
SEE SHEETS 16, 17, 18, 19, & 20 FOR DETAILS

1.5" DOMESTIC WATER SERVICE
(FROM WB WELL ROOM)

PROPOSED 5,000 GAL DOSE TANK

EXISTING SEPTIC SERVICE LINE
(TO BE RELOCATED TO ENSURE 50'
SEPARATION FROM EXISTING WELL)

NEW WATER SYSTEM
COMPONENTS AND LAYOUT
SEE SHEETS 22-27

(2) PROPOSED
10,000 GAL
SEPTIC TANK

WESTBOUND
REST AREA BUILDING

50' WELL ISOLATION ZONE

ABANDONED
SERVICE LINE

EXISTING SEPTIC SERVICE LINE
(TO REMAIN)

GROUNDWATER GRADIENT

500' PROVISIONAL MIXING ZONE

I-90 EAST BOUND OFF-RAMP

EASTBOUND REST
AREA SEPTIC SERVICE

NEW WATER SERVICE TO
EASTBOUND REST AREA BUILDING

I-90 WEST BOUND OFF-RAMP

PROPOSED
MONITORING
WELL (SEE DETAIL
ON SHEET 15)

I-90 WEST BOUND ON-RAMP

I-90 WEST BOUND

I-90 EAST BOUND

GREYCLIFF ROAD

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2		OCT. 2024	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	7
1			CHECKED BY	J. FADNESS				

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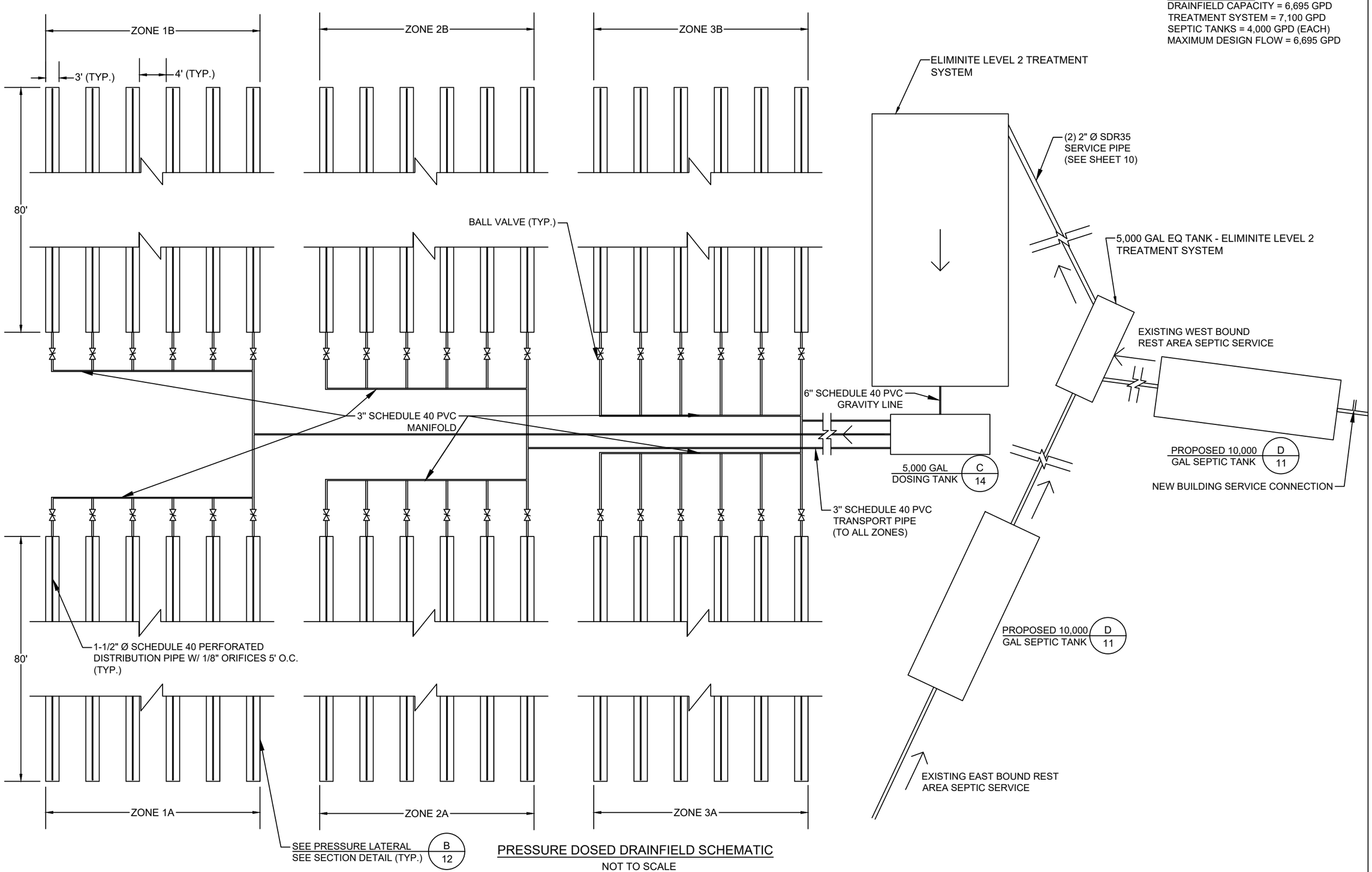
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S.KOPECK		GREYCLIFF REST AREA	TEST PIT LOCATIONS / IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000 / 8
1			CHECKED BY	J. FADNESS			

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K:\Helena\MDT\2022176-PRP Greycliff Rest Area Rehab\05CAD\Sheets\Wastewater\DRAINFIELD LAYOUT SCHEMATIC.dwg 9 DRAINFIELD LAYOUT SCHEMATIC 8/14/2026 12:17:37 PM

DESIGN CRITERIA:
DRAINFIELD CAPACITY = 6,695 GPD
TREATMENT SYSTEM = 7,100 GPD
SEPTIC TANKS = 4,000 GPD (EACH)
MAXIMUM DESIGN FLOW = 6,695 GPD



PRESSURE DOSED DRAINFIELD SCHEMATIC

NOT TO SCALE

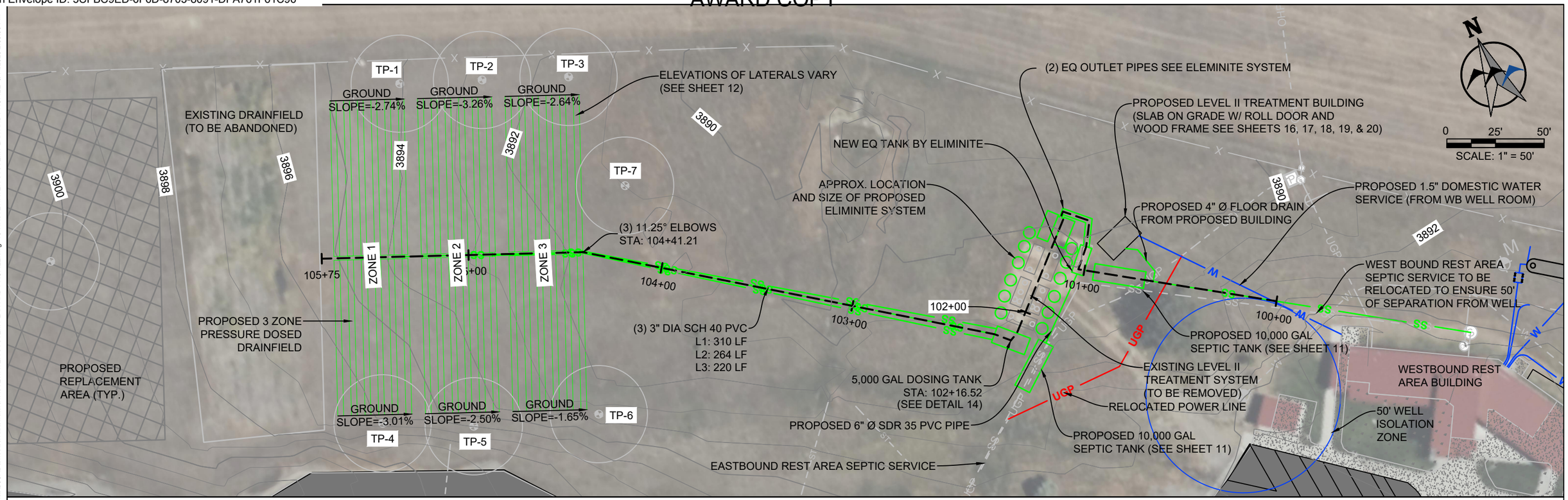
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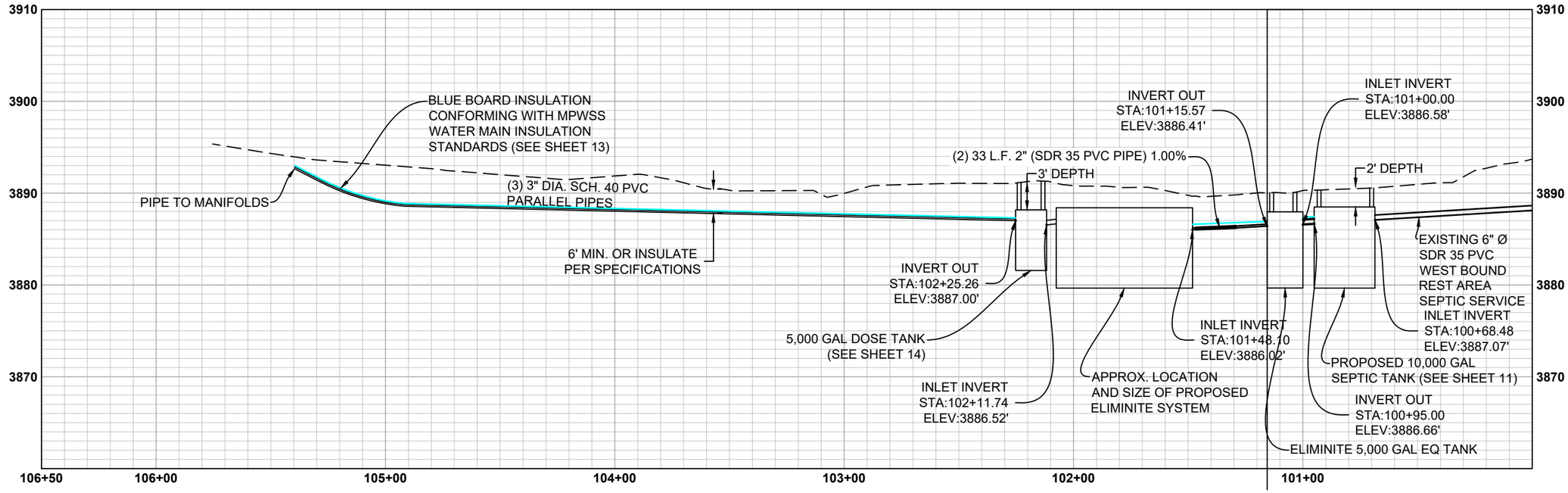
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	DRAINFIELD LAYOUT SCHEMATIC	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION		UPN 10095000	9
1			CHECKED BY	J. FADNESS				

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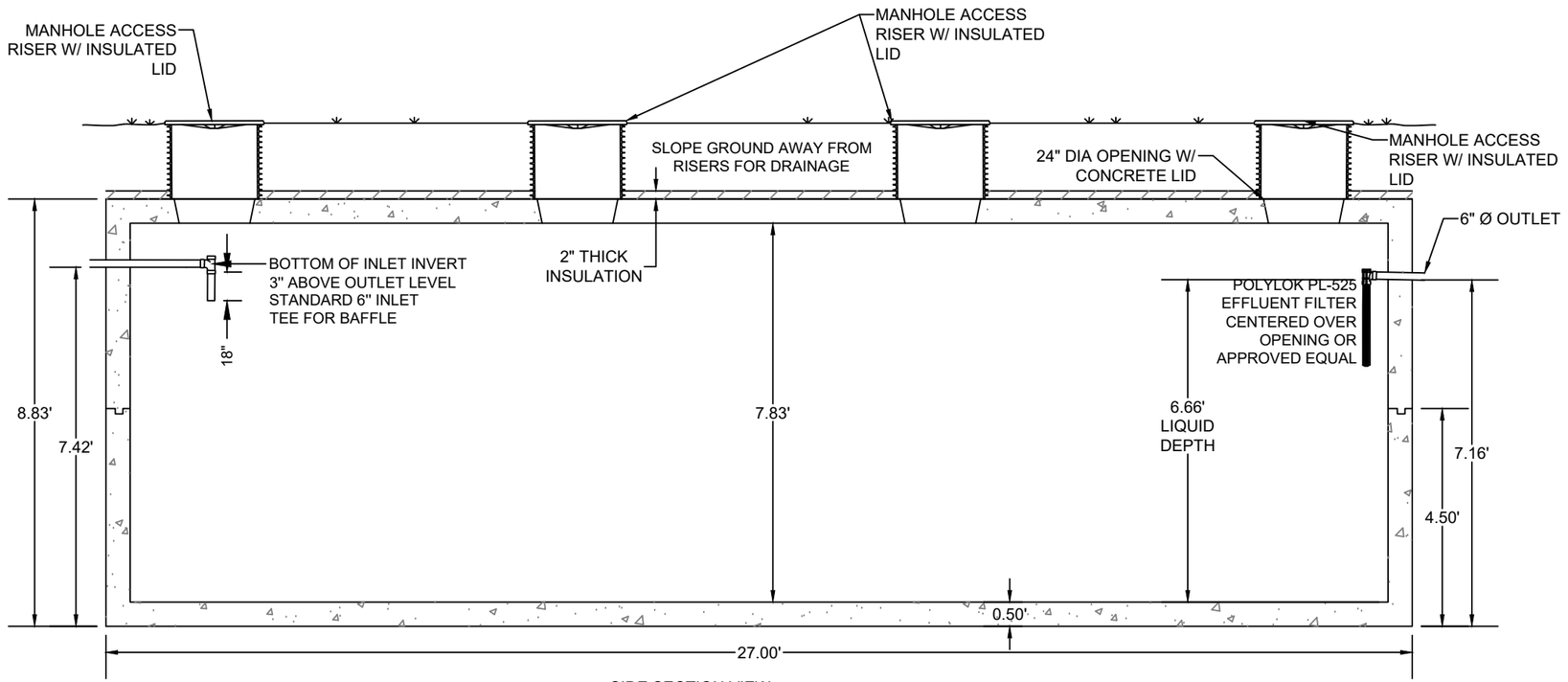


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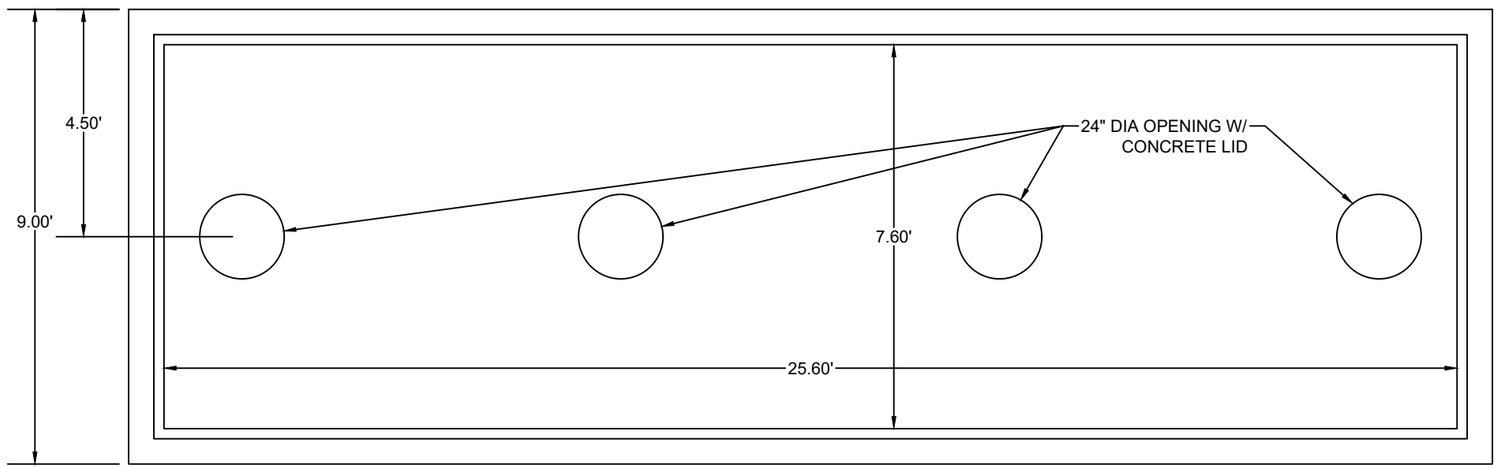
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK	GREYCLIFF REST AREA	WASTEWATER SYSTEM PLAN AND PROFILE	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER	REST AREA REHABILITATION	UPN 10095000	10
1			CHECKED BY	J. FADNESS			

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K:\Helena\MDT\2022176-PRP Greycliff Rest Area Rehab\05CAD\Sheets\Wastewater\DRAINFIELD DETAILS (3).dwg 11 10 000 GALLON TANK DETAILS 8/14/2026 2:33:53 PM



SIDE SECTION VIEW



PLAN VIEW

D
9

10,000 GALLON SEPTIC TANK DETAILS
NOT TO SCALE

NOTES:
1. HIGH LEVEL ALARM TO BE INSTALLED ON EFFLUENT FILTER.

RISER NOTES:
1. RISER SECTION TO BE A 24" Ø AND MECHANICALLY ATTACH TO TANK. SEAL BETWEEN ADAPTOR AND RISER WITH EPOXY MA 320. INSTALL CONCRETE LID WITH 4 STAINLESS STEEL BOLT CATCHES. INSTALL RISER SAFETY GRATES.

CAPACITY NOTES:
2. TANK TO HAVE A MINIMUM OPERATING VOLUME OF 10,000 GALLONS PLUS 15% ADDITIONAL AIR SPACE.

TANK NOTES:
3. EXTERIOR OF TANK SHALL BE SEALED WITH CONSEAL CS-1800 SEALANT OR ENGINEER-APPROVED EQUAL.
4. TANK TO BE PRECAST.
5. TANK DIMENSIONS SHALL BE VERIFIED BY MANUFACTURER.
6. TANK TO BE TWO PIECE PRECAST CONCRETE.

CONSTRUCTION NOTES:
7. ENSURE ALL EXISTING TANK MATERIAL ARE REMOVED PRIOR TO INSTALLATION OF NEW TANK.
8. IF GROUNDWATER IS ENCOUNTERED DURING INSTALLATION OF TANK NOTIFY ENGINEER.
9. INSTALL AND LEVEL TO A UNIFORM FLAT GRADE, 12" OF $\frac{3}{4}$" WASHED GRAVEL BELOW TANK.
10. SET TANK ELEVATION TO MATCH EXISTING OUTLET PIPE ELEVATION.
11. VERIFY INLET AND OUTLET PIPES HAVE A UNIFORM SLOPE MATCHING THE EXISTING PIPES.

HIGH WATER ALARM NOTES:
12. INSTALL CONTROL PANEL AND ALARM IN BUILDING.
13. BURY 2" Ø SCH. 40 PVC CONDUIT MIN. 1.5' BELOW FINISHED GRADE TO ENCASE ELECTRICAL WIRING.
14. SUBMIT ALARM SYSTEM AND HARDLINE TO MDT AND ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. SEE ELECTRICAL PLANS FOR FURTHER INFORMATION.
15. ALARM ON FLOAT TO BE SET AT 3" ABOVE INVERT OUT ELEVATION.

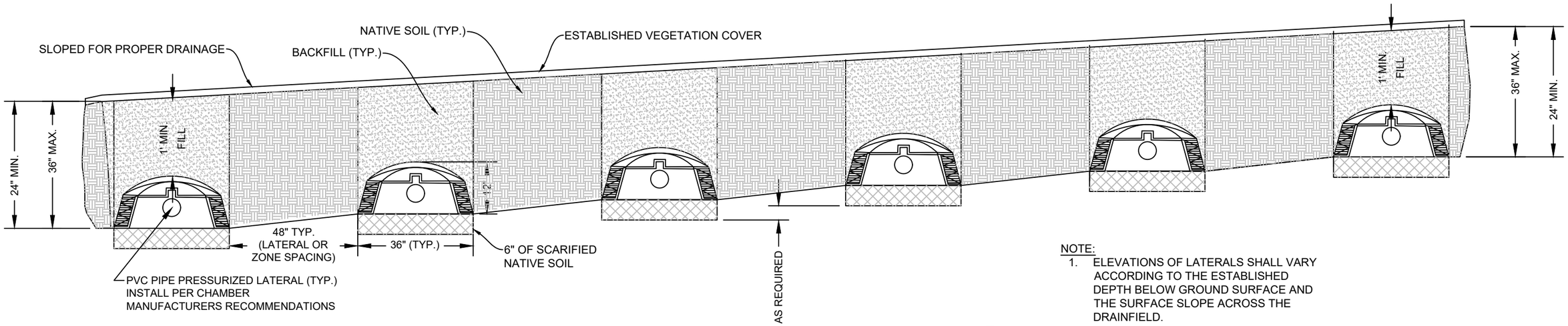
TESTING NOTES:
16. VACUUM (NEGATIVE AIR PRESSURE) TEST TANK TO ENSURE WATER TIGHTNESS PER ASTM C1244 OR METHOD APPROVED BY THE ENGINEER.

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2		6/2026	REVIEWED BY	S. DUNKELBERGER					
1			CHECKED BY	J. FADNESS		REST AREA REHABILITATION		UPN 10095000	11

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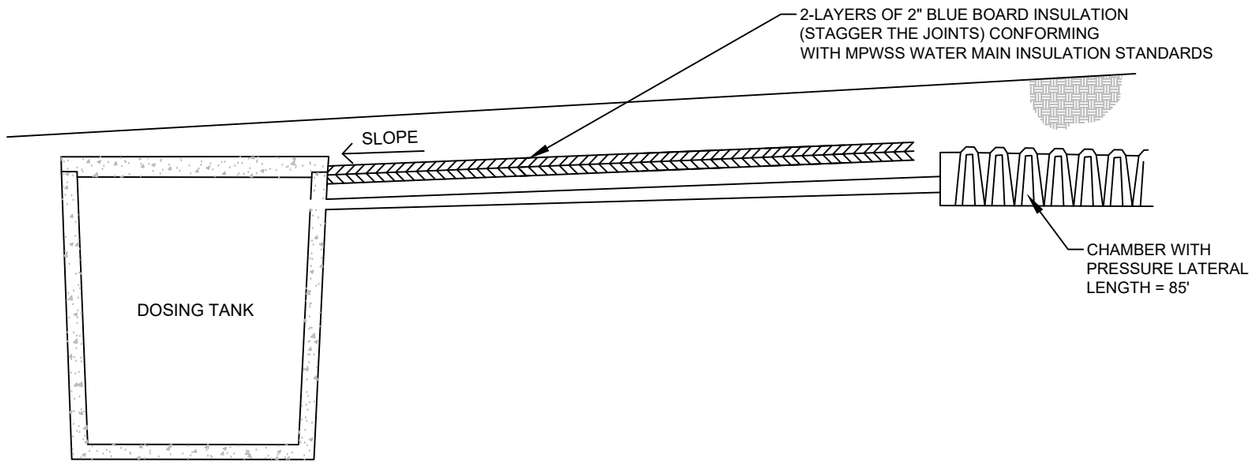
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NOTE:
1. ELEVATIONS OF LATERALS SHALL VARY ACCORDING TO THE ESTABLISHED DEPTH BELOW GROUND SURFACE AND THE SURFACE SLOPE ACROSS THE DRAINFIELD.

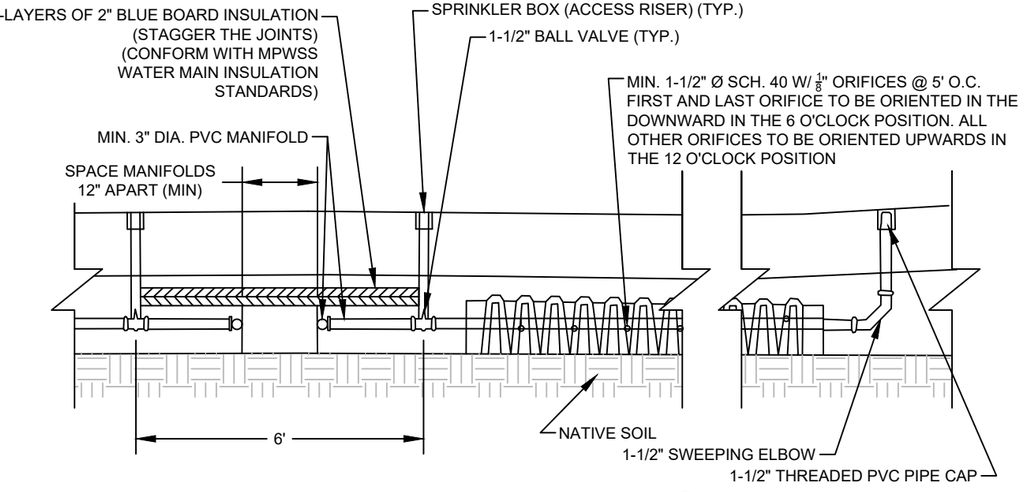
PRESSURE DOSED LATERAL SECTION DETAILS — B / 12

NOT TO SCALE



DOSING TANK TO PRESSURE LATERAL DETAIL

NOT TO SCALE



PRESSURE LATERAL DETAIL — C / 12

NOT TO SCALE

TESTING PROCEDURES FOR DRAINFIELD
1. FILL DOSING TANK WITH CLEAN WATER TO RUN THROUGH SYSTEM.
2. FILL A ZONE AND MEASURE THE SQUIRT HEIGHTS AT THE END OF EACH LATERAL.
3. USE BALL VALVES TO ADJUST THE HEIGHTS ALONG THE LATERALS TO HAVE A MINIMUM HEIGHT OF 5' AND NO MORE THAN 10% VARIANCE IN HEIGHT THROUGH A ZONE.
4. REPEAT FOR EACH ZONE.

CONSTRUCTION NOTES:
1. PRESSURE PIPE LOCATED WITHIN 6' OF GROUND SURFACE AND GRAVITY PIPE LOCATED WITHIN 4' OF GROUND SURFACE TO BE INSULATED WITH BLUE BOARD INSULATION TO PROTECT FROM FREEZING.

TESTING NOTES
1. FORCE MAINS TO BE HYDROSTATIC AND LEAKAGE TESTED IN ACCORDANCE WITH AWWA C600 AND MPWSS SECTION 02730 3.4.J.

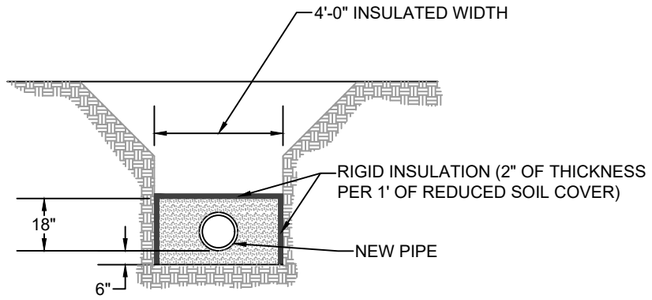
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	DRAINFIELD DETAILS (1)	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	12
1			CHECKED BY	J. FADNESS				

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PIPE INSULATION
NOT TO SCALE

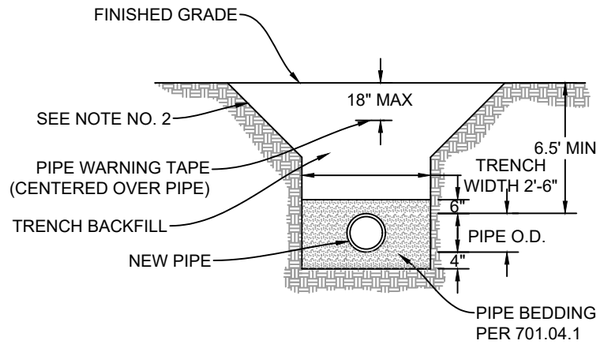
NOTES:

1. ALL PRESSURIZED MAINS SHALL BE INSTALLED WITH A MINIMUM COVER OF 6.5 FEET FROM THE TOP OF PIPE TO FINISHED GRADE.

2. THE CONTRACTOR SHALL INSTALL BLUE BOARD INSULATION ON PIPING WITH LESS THAN 6.5 FEET OF COVER.

3. BLUE BOARD DEPTH WILL BE PROPORTIONAL TO ADDITIONAL COVER NEEDED.

4. 2" OF BLUE BOARD IS EQUIVALENT TO 1' OF COVER. (EXAMPLE: PIPE ONLY HAS 4 FEET OF COVER, 4" OF BLUE BOARD WILL BE NECESSARY TO OBTAIN THE EQUIVALENCE OF 2' OF COVER.



PIPE BEDDING AND BACKFILL
NOT TO SCALE

NOTES:
1. TRENCH SHALL BE CONSTRUCTED TO OSHA SPECIFICATIONS FOR EXCAVATION, SECTION 1926, SUBPART P.

2. ALL SPOILS SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION.

3. NO ROCKS OR LUMPS LARGER THAN 2" IN ANY DIMENSION SHALL BE ALLOWED WITHIN 6" OF THE PIPE.

4. BEDDING TO BE WRAPPED WITH A NON-WOVEN SEPATATION GEOTEXTILE FABRIC IF SUBGRADE IS POOR/WET (MDT STANDARD SEPC 716.02).

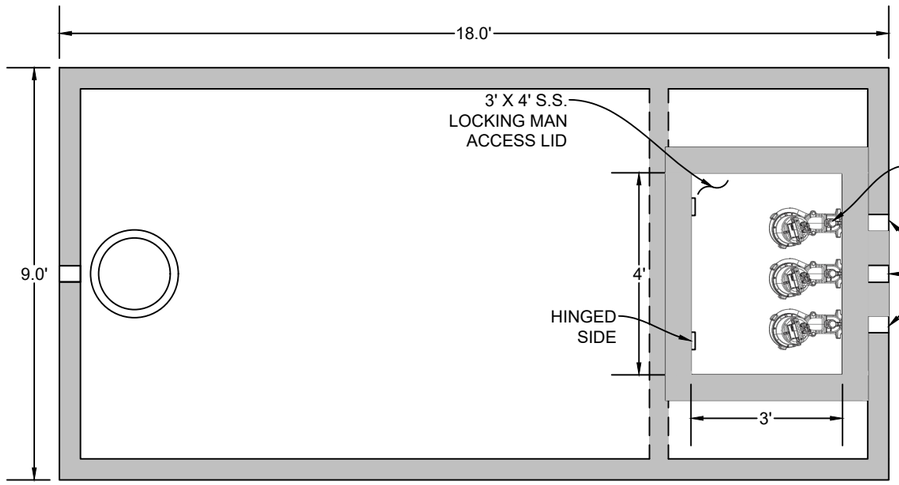
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2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	13
1			CHECKED BY	J. FADNESS				

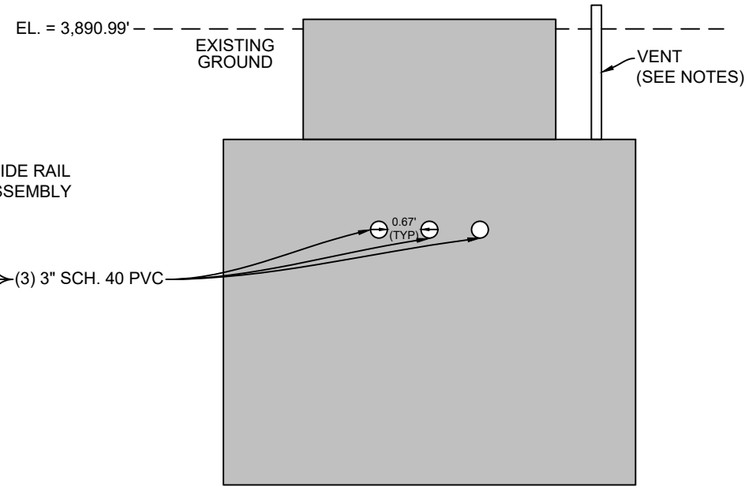
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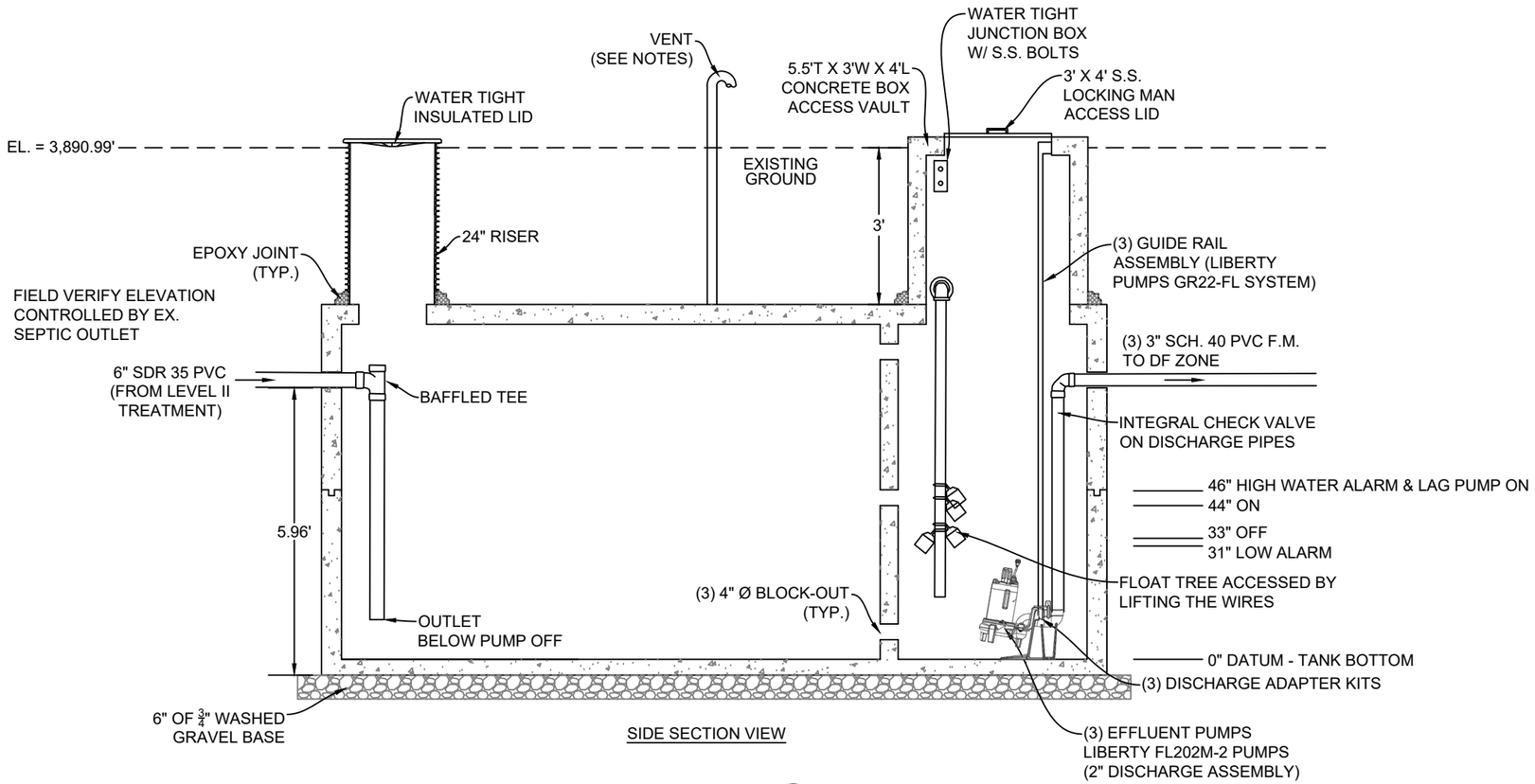
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PLAN VIEW



END DETAIL



SIDE SECTION VIEW

C
14

5,000 GALLON PRECAST CONCRETE DOSE TANK DETAILS

NOT TO SCALE

ELECTRICAL NOTES:
1. CONTRACTOR TO PROVIDE CONTROL PANEL PER THE ELECTRICAL CONTROLS REQUIREMENTS ON SHEET (FOREFRONT SHEETS) AND THE PROJECT SPECIFICATIONS.

RISER NOTES:
1. RISER SECTION TO BE MECHANICALLY ATTACHED TO TANK. SEAL BETWEEN ADAPTOR AND RISER WITH EPOXY MA 320. INSTALL FIBERGLASS LID WITH 4 STAINLESS STEEL BOLT CATCHES. INSTALL RISER SAFETY GRATES.
2. PROVIDE 4" OF BLUEBOARD INSULATION GLUED TO BOTTOM OF ACCESS RISER LID.

CAPACITY NOTES:
1. TANK TO HAVE A MINIMUM OPERATING VOLUME OF 5,000 GALLONS PLUS 15% ADDITIONAL AIR SPACE.

TANK NOTES:
1. EXTERIOR OF TANK SHALL BE SEALED WITH CONSEAL CS-1800 SEALANT OR ENGINEER-APPROVED EQUAL.
2. TANK TO BE TWO PIECE PRECAST CONCRETE, SEALED, AND LEAK TESTED.
3. TANK TO BE PRECAST CONCRETE AS APPROVED BY ENGINEER.
4. TANK DIMENSIONS SHALL BE VERIFIED BY MANUFACTURER.
5. PENETRATIONS TO BE SEALED WITH A CAST IN GASKET SEAL (A-LOK X-CEL, OR ENGINEER APPROVED EQUAL.
6. VENT TANK TO ATMOSPHERE WITH SCH. 40 PVC GOOSENECK W/ CARBON FILTER. TANK VENT OPENING TO BE 24" ABOVE EXISTING GROUND.
7. INSULATE TANK AND OUTLET PIPING TO PROVIDE 6' EQUIVALENT BURY DEPTH.

PUMP NOTES:
1. PUMP INSTALLATION SHALL MEET NEC FOR WASTEWATER EFFLUENT PUMPING.
2. HIGH AND LOW LEVEL ALARM TO BE INSTALLED ON FLOAT TREE. SEE ELECTRICAL NOTES BELOW FOR PUMP AND ALARM OPERATION SPECIFICATIONS.
3. PUMP CONTROLS AND TELEMETRY SYSTEM FROM DOSE PUMPS TO BE INCLUDED WITH ELIMINITE SYSTEM CONTROLS.

ELECTRICAL SPECIFICATIONS:
1. A QUALIFIED LICENSED ELECTRICIAN SHALL INSTALL THE ELECTRICAL EQUIPMENT NECESSARY TO RUN EACH PUMP STATION AS SPECIFIED. THE ELECTRICIAN IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS (LOCAL, STATE AND FEDERAL), AND MEETING ALL APPLICABLE ELECTRICAL CODES (LOCAL, STATE AND FEDERAL).
2. THE ELECTRICAL CONTROLS FOR THE LIFT STATION AND EFFLUENT PUMP STATION SHALL BE REWIRED, MOUNTED AND INTEGRATED INTO INDIVIDUAL CONTROL PANELS. EFFLUENT PUMP FLOW METER TO BE WIRED TO AND INTEGRATED INTO THE EFFLUENT CONTROL PANEL. PROVIDED ALARMS FOR THE LIFT STATION, EACH SEPTIC TANK, AND THE EFFLUENT TANK PROVIDE CIRCUIT PROTECTION FOR EACH PUMP.
3. THE CONTRACTOR MUST SUBMIT PRODUCT CUT SHEETS AND A SCHEMATIC REPRESENTING THE PLANS FOR PROVIDING ELECTRICAL CONTROLS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ORDERING PARTS OR PERFORMING INSTALLATION WORK.
4. PROVIDE PROGRAMMABLE CONTROL PANEL UNIT WITH H.M.I. DISPLAY. FOLLOW ELECTRICAL PLANS FOR FURTHER DETAILS. ALL CONTROLS TO BE EXTERIOR GRADE, HAVE DOSE COUNTER, AND PUMP RUN TIME CAPABILITIES. THE ELECTRICAL CONTROLS SHALL BE MOUNTED IN WEATHER RESISTANT PANELS THAT CAN BE LOCKED. THE ELECTRICAL CONTROLS SHALL HAVE A MEANS FOR SECURELY LOCKING ALL SWITCHES EXCEPT FOR THE SUDIBLE ALARM SILENCER WHICH SHALL BE ACCESSIBLE AT ALL TIMES.
5. CONTROLS FOR THE DOSE PUMP STATION SHALL BE TRIPLEX CONTROL PANEL AND SHALL OPERATE THE DOSE PUMP STATION IN THE FOLLOWING MANNER. THE BOTTOM FLOAT SHALL BE REDUNDANT OFF/LOW WATER ALARM CONTROL. THE SECOND FLOAT FROM THE BOTTOM SHALL BE THE NORMAL PUMP OFF FLOAT. THE THIRD FLOAT FROM THE BOTTOM SHALL BE THE LEAD PUMP ON FLOAT. THE LEAD OR PRIMARY PUMP SHALL ALTERNATE AFTER EACH DOSE. THE TOP FLOAT SHALL TURN THE LAG PUMP ON SO BOTH PUMPS ARE OPERATING AT THE SAME TIME. IT WILL ALSO ACTIVATE THE AUDIBLE AND VISUAL HIGH-LEVEL ALARM. TWO PUMPS SHALL RUN UNTIL THE LIQUID LEVEL REACHES THE SHUT OFF FLOAT. THE FLOAT SHALL BE SET TO OPERATE AT THE ELEVATIONS SHOWN ON THE PLANS. A NON-RESETTABLE RUN TIME METER SHALL BE INSTALLED FOR EACH PUMP
6. ALL PUMPS, CONTROLS AND APPURTENANCES TO BE CORROSION RESISTANT.

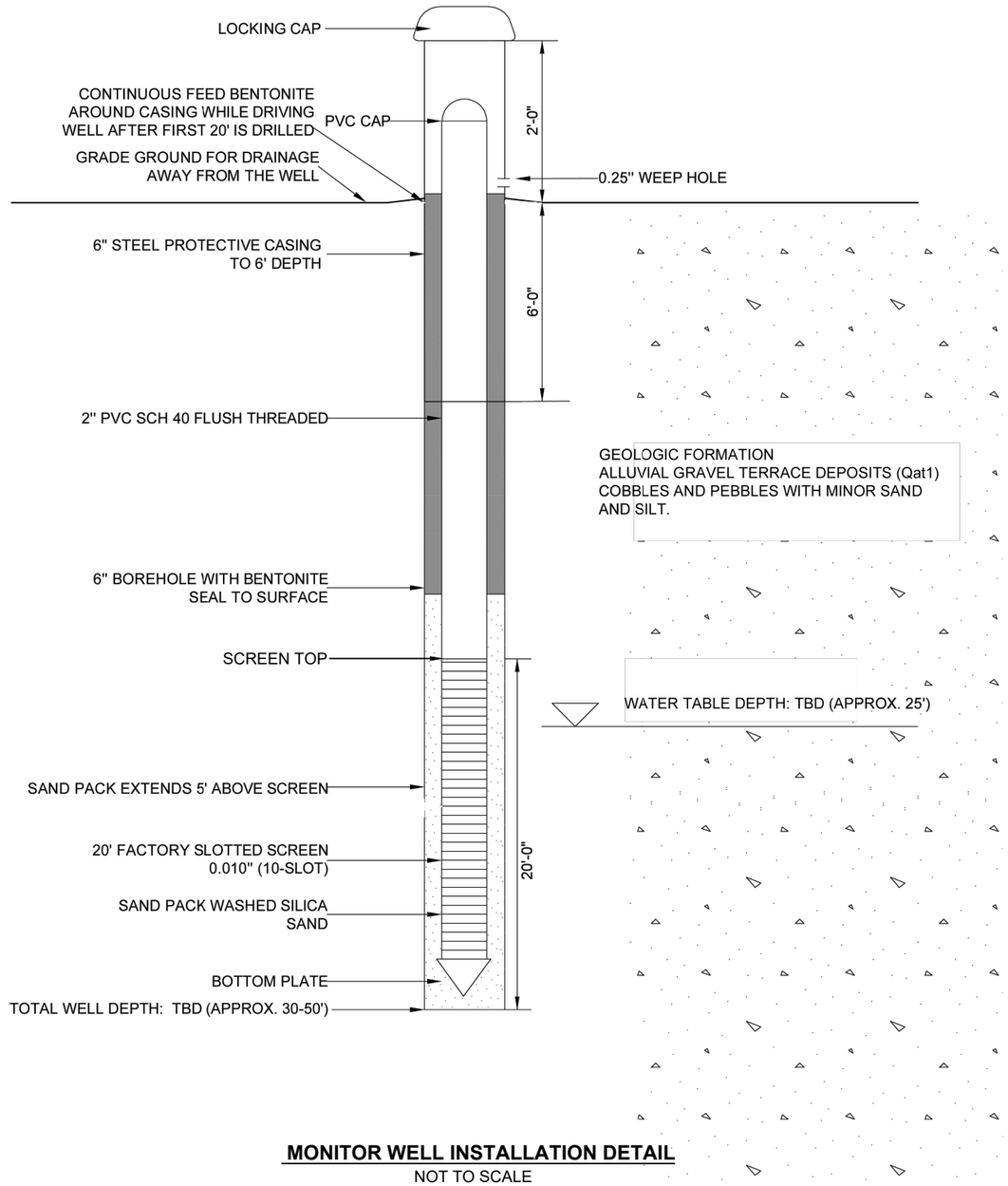
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2		6/2026	REVIEWED BY	S. DUNKELBERGER				
1			CHECKED BY	J. FADNESS		REST AREA REHABILITATION	UPN 10095000	**14**

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MONITOR WELL INSTALLATION DETAIL

NOT TO SCALE

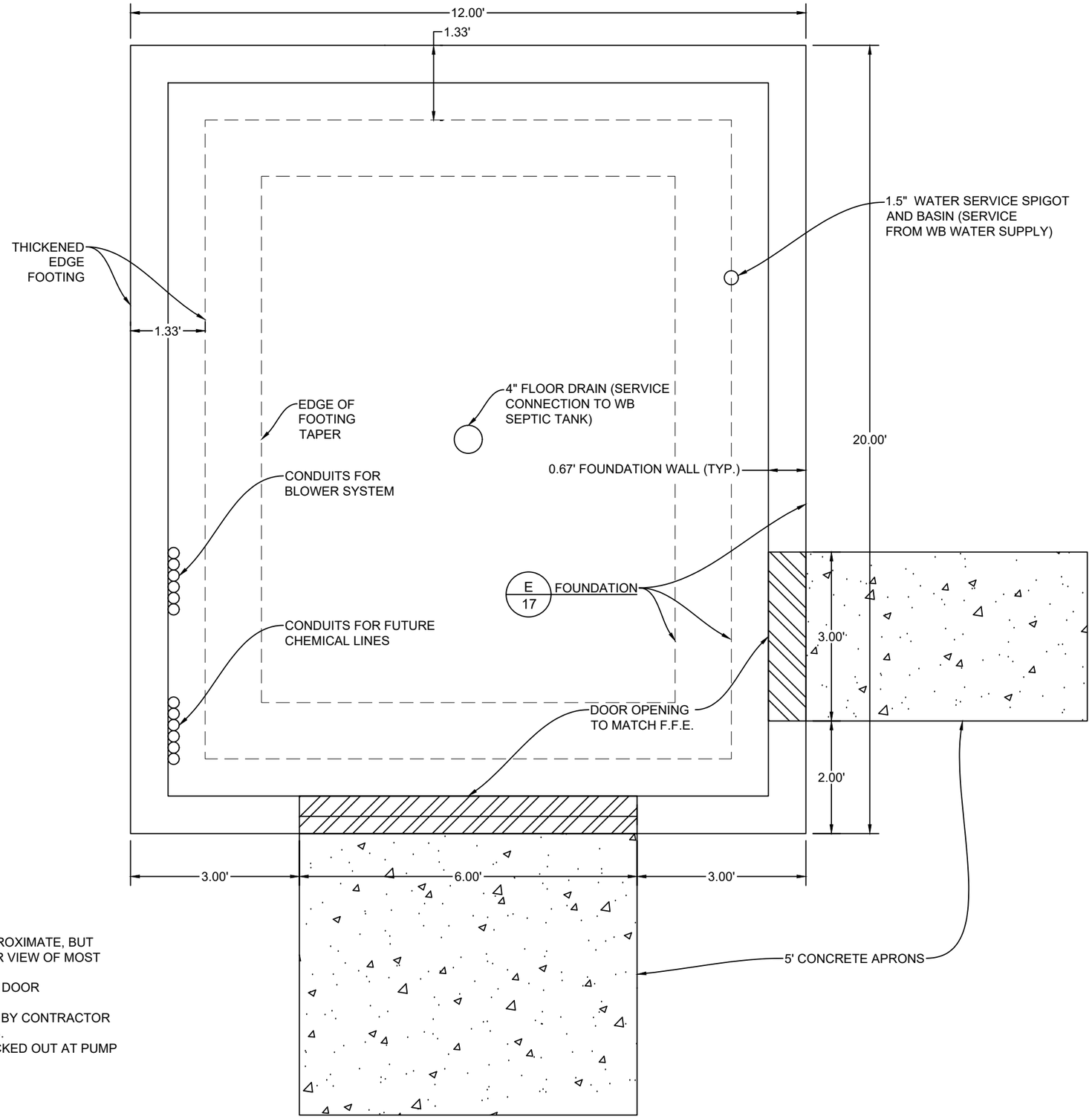
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	PROPOSED MGWPCS MONITORING WELL PROFILE PLAN	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	15
1			CHECKED BY	J. FADNESS				

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PUMP HOUSE FOUNDATION PLAN

NOT TO SCALE

NOTES:

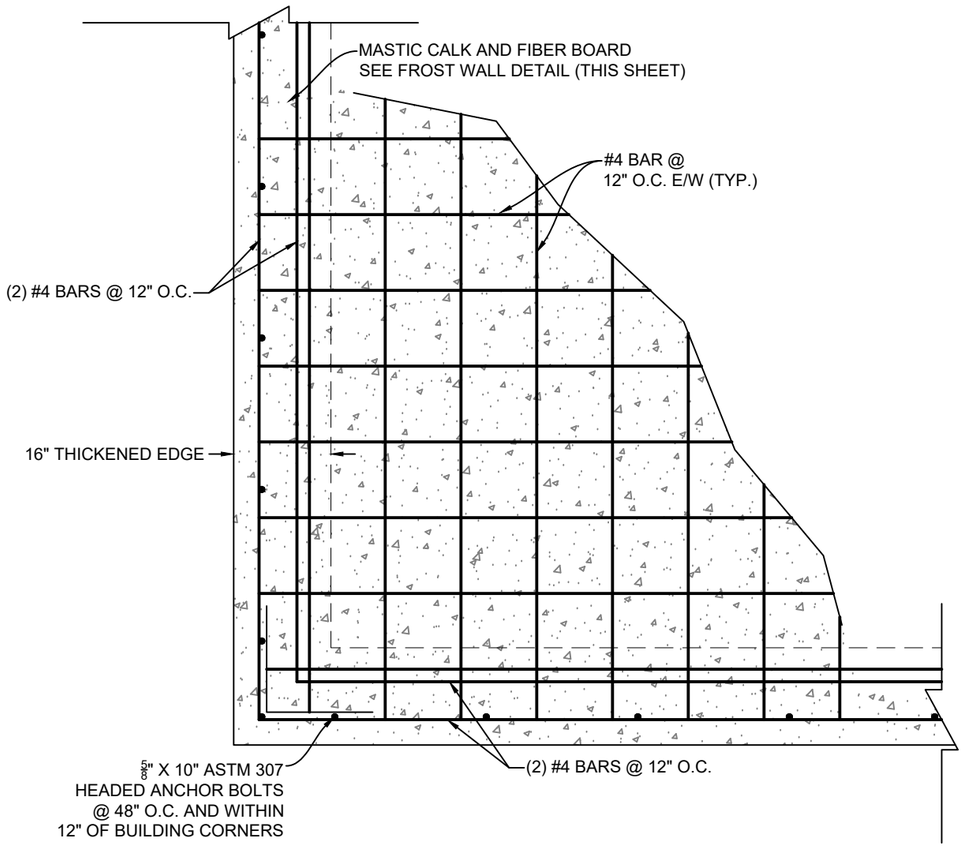
1. LOCATIONS OF DOOR OPENINGS ARE APPROXIMATE, BUT MUST BE LOCATED TO ALLOW FOR A CLEAR VIEW OF MOST LEVEL II TREATMENT MANHOLES.
2. FRAMING WIDTHS SHALL CORRESPOND TO DOOR MANUFACTURER'S SPECIFICATIONS.
3. PENETRATION LOCATIONS TO BE VERIFIED BY CONTRACTOR AFTER APPROVAL OF PIPING AND FITTINGS.
4. THICKENED EDGE SLAB TAPER TO BE BLOCKED OUT AT PUMP BASE AND PIPE PENETRATIONS.

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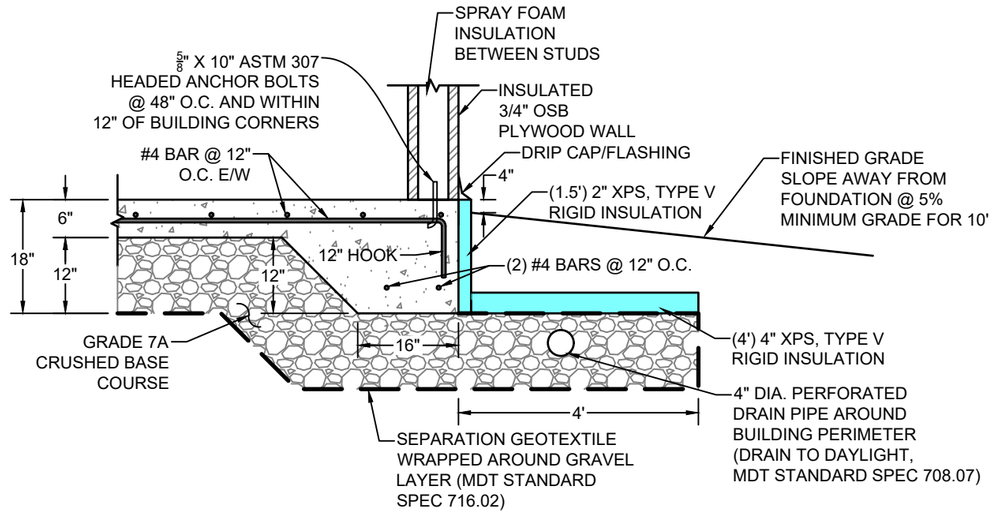
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	LEVEL II TREATMENT BUILDING FOUNDATION PLAN	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION		UPN 10095000	16
1			CHECKED BY	J. FADNESS				

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

K:\Helena\MDT\2022176-PRP Greycliff Rest Area Rehab\05CAD\Sheets\Wastewater\LEVEL II TREATMENT BUILDING FOUNDATION DETAILS.dwg 20 LEVEL II TREATMENT BUILDING FOUNDATION DETAILS 8/14/2026 2:35:12 PM



INTERIOR SLAB REINFORCEMENT PLAN



SLAB ON-GRADE DETAIL

FOUNDATION DETAILS E 17

NOT TO SCALE

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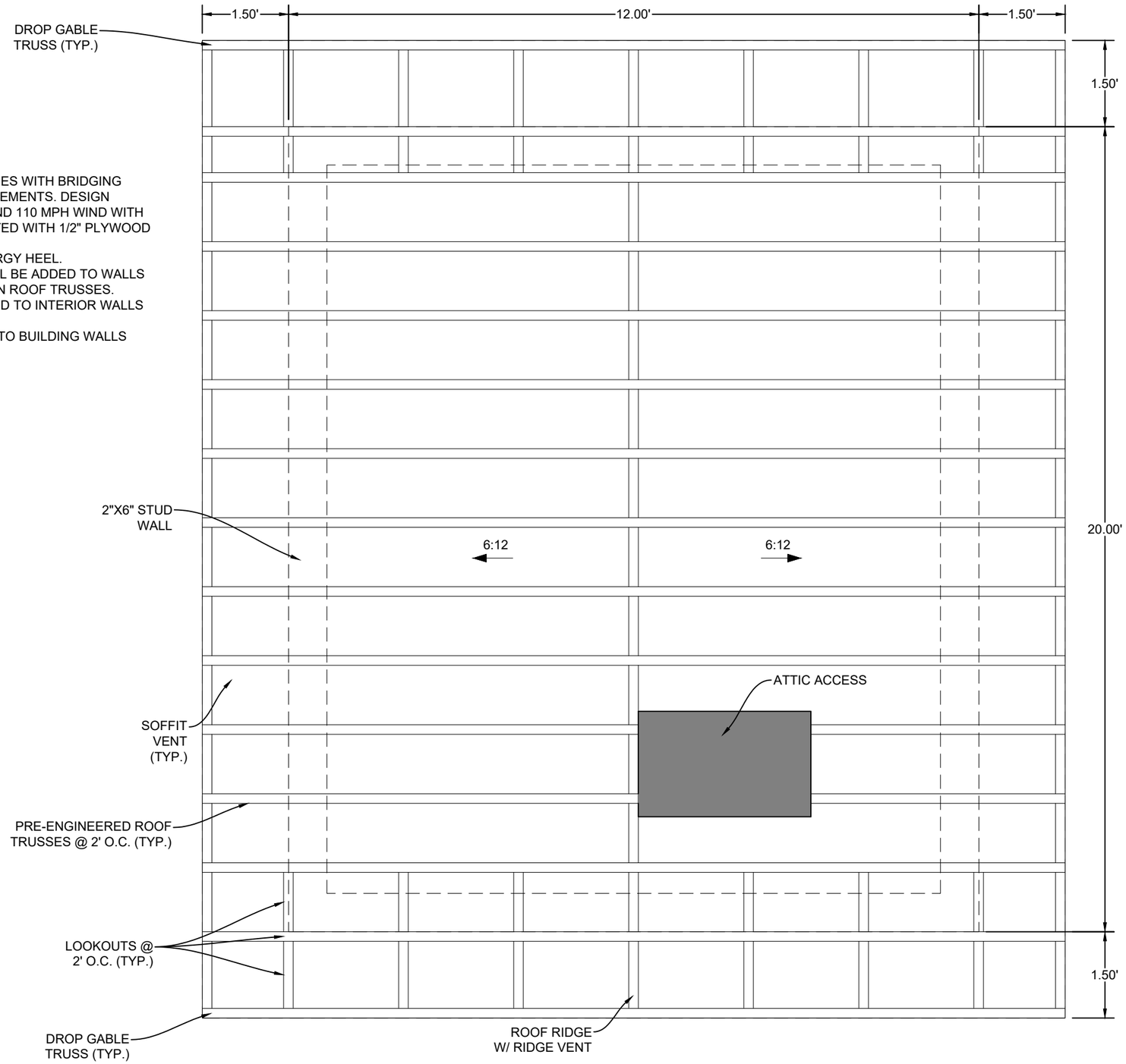
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	LEVEL II TREATMENT BUILDING FOUNDATION DETAILS	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	17
1			CHECKED BY	J. FADNESS				

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K:\Helena\MDT\2022176-PRP Greycliff Rest Area Rehab\05CAD\Sheets\Wastewater\LEVEL II TREATMENT BUILDING ROOF FRAMING PLAN.dwg 21 LEVEL II TREATMENT BUILDING ROOF FRAMING PLAN 8/14/2026 2:35:48 PM

NOTES:
1. PRE-ENGINEERED ROOF TRUSSES WITH BRIDGING PER MANUFACTURER'S REQUIREMENTS. DESIGN LOADING WITH 30 PSF SNOW AND 110 MPH WIND WITH (2) GABLE END TRUSSES SHEATED WITH 1/2" PLYWOOD AND METAL PANELS.
2. TRUSSES SHALL HAVE 12" ENERGY HEEL.
3. SPRAY FOAM INSULATION SHALL BE ADDED TO WALLS BETWEEN STUDS AND BETWEEN ROOF TRUSSES.
4. 1/2" OSB PLYWOOD TO BE ADDED TO INTERIOR WALLS FROM FLOOR TO CEILING.
5. ADD SPRAY FOAM INSULATION TO BUILDING WALLS AND ROOF.



ROOF FRAMING PLAN

NOT TO SCALE

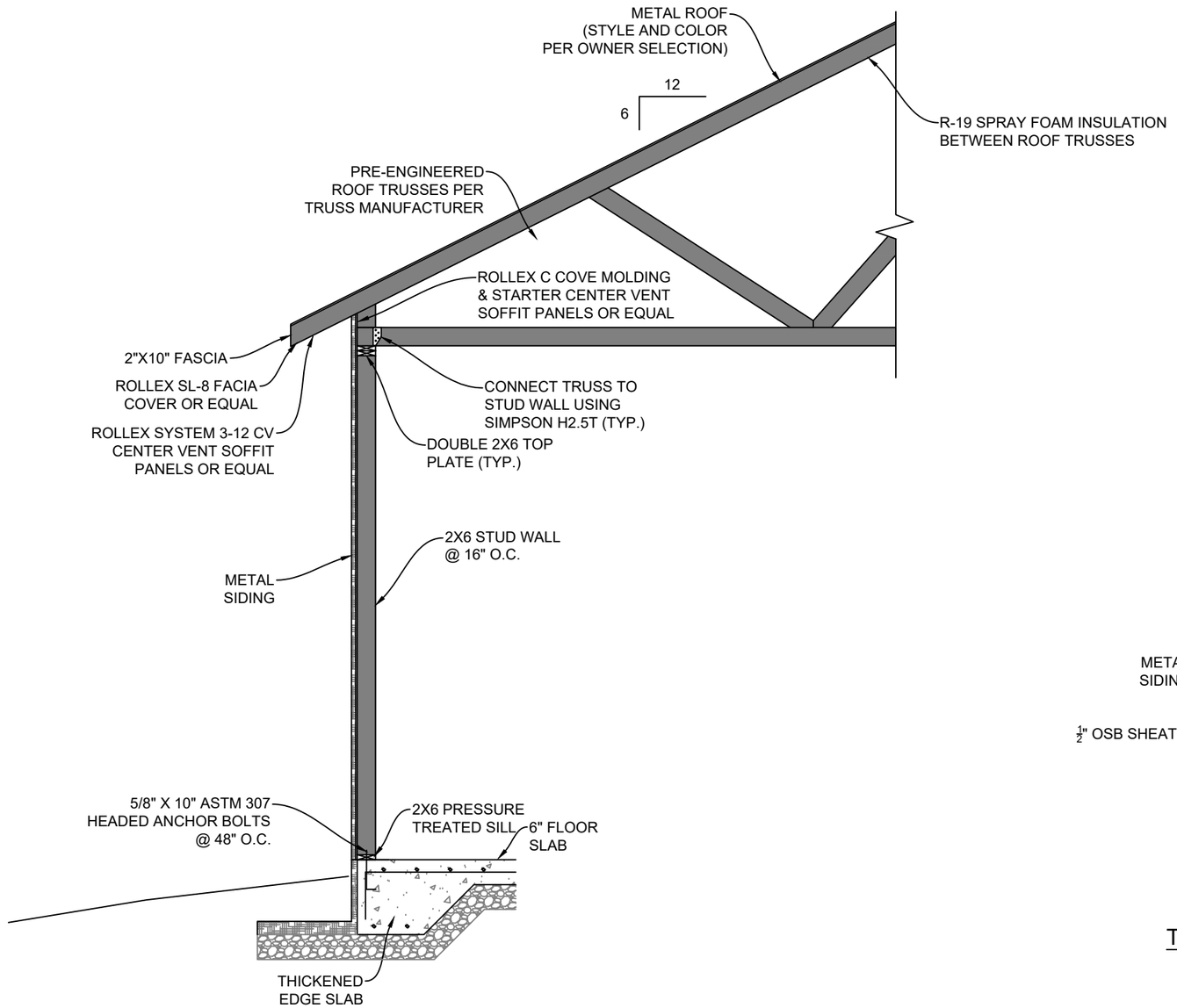
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	LEVEL II TREATMENT BUILDING ROOF FRAMING PLAN	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION		UPN 10095000
1			CHECKED BY	J. FADNESS				18

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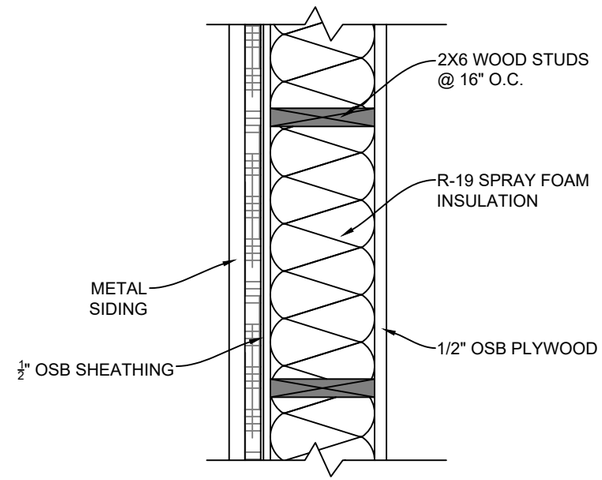
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TYPICAL EXTERIOR WALL DETAIL C/19

NOT TO SCALE



TYPICAL EXTERIOR SECTION DETAIL

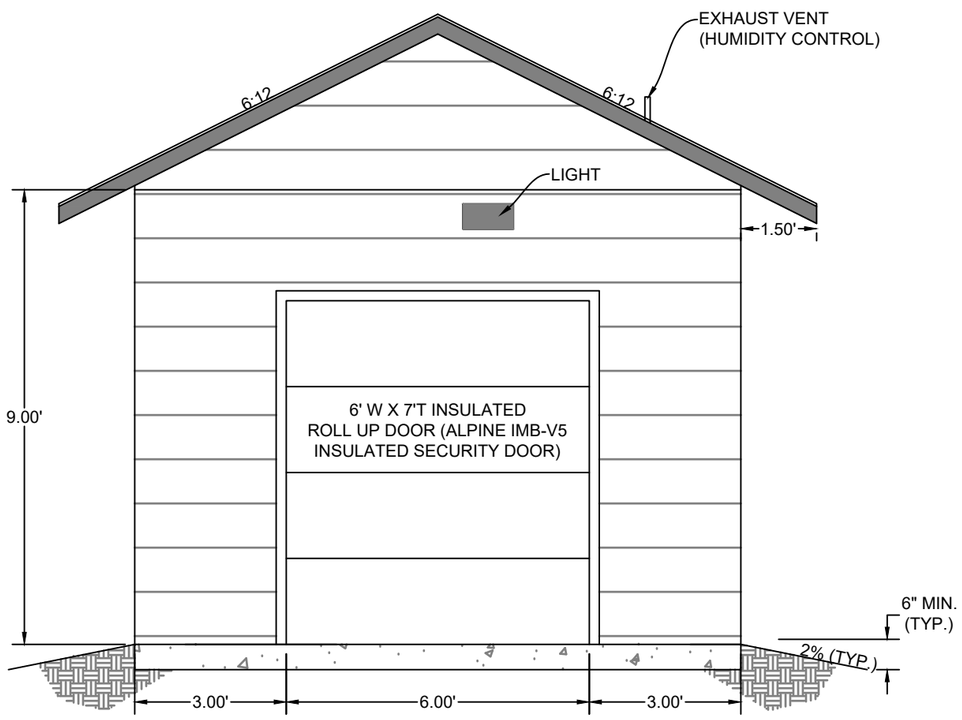
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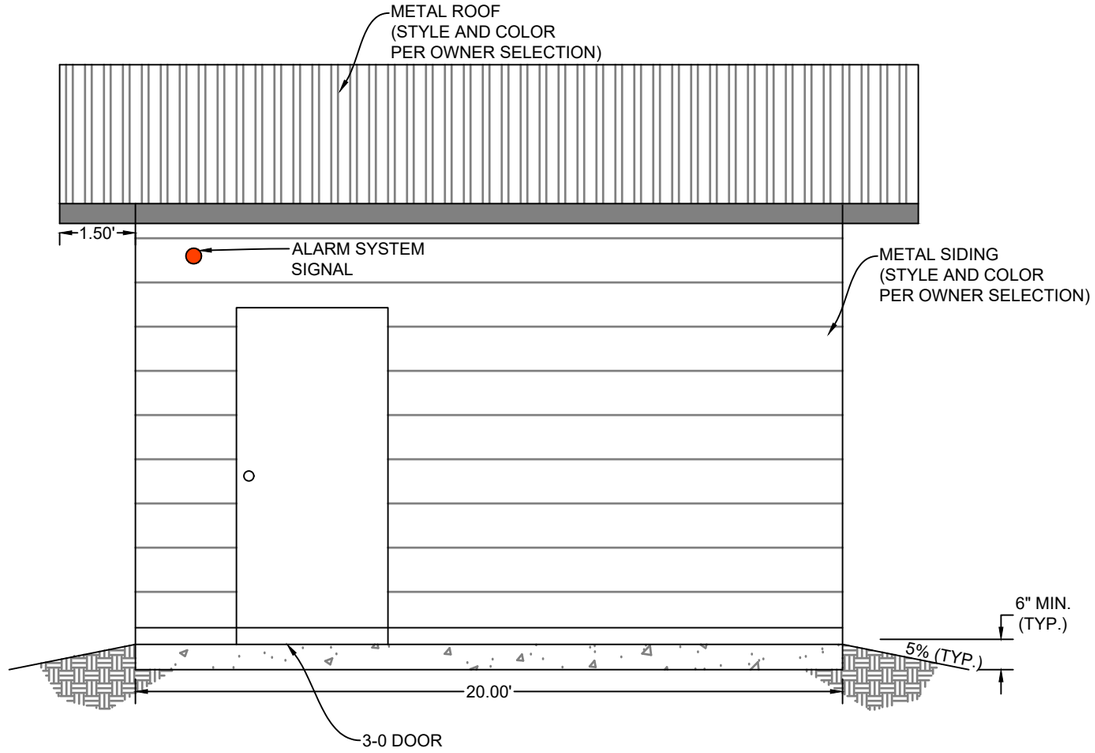
3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	LEVEL II TREATMENT BUILDING EXTERIOR WALL DETAILS	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION		UPN 10095000
1			CHECKED BY	J. FADNESS				19

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FRONT ELEVATION



SIDE ELEVATION

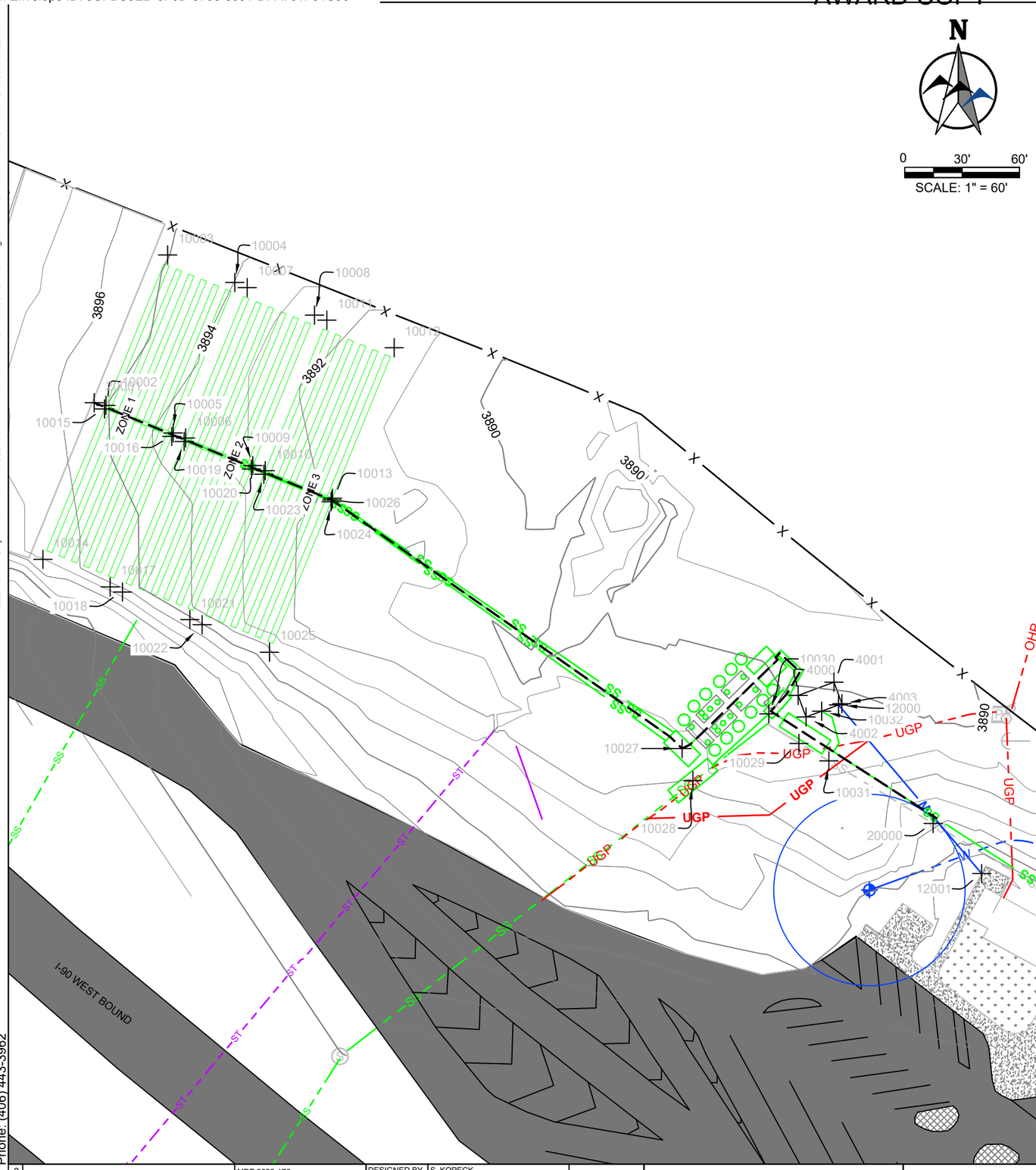
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	LEVEL II TREATMENT BUILDING ELEVATION VIEWS	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	20
1			CHECKED BY	J. FADNESS				

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Point Number	Easting	Northing	Full Description	Longitude	Latitude
4000	1,902,890.9575'	542,074.8058'	BLDG-1	-109°45'25.372"	45°44'11.052"
4001	1,902,909.7029'	542,081.7779'	BLDG-2	-109°45'25.108"	45°44'11.122"
4002	1,902,895.1407'	542,063.5586'	BLDG-3	-109°45'25.313"	45°44'10.941"
4003	1,902,913.8861'	542,070.5306'	BLDG-4	-109°45'25.049"	45°44'11.011"
10002	1,902,529.0770'	542,226.4562'	ZONE 1	-109°45'30.483"	45°44'12.538"
10003	1,902,561.2967'	542,305.1130'	ZONE 1	-109°45'30.032"	45°44'13.316"
10004	1,902,596.4609'	542,290.7090'	ZONE 1	-109°45'29.536"	45°44'13.175"
10005	1,902,564.2413'	542,212.0522'	ZONE 1	-109°45'29.986"	45°44'12.397"
10006	1,902,570.7189'	542,209.3988'	ZONE 2	-109°45'29.895"	45°44'12.371"
10007	1,902,602.9385'	542,288.0556'	ZONE 2	-109°45'29.444"	45°44'13.149"
10008	1,902,638.1027'	542,273.6515'	ZONE 2	-109°45'28.948"	45°44'13.008"
10009	1,902,605.8831'	542,194.9947'	ZONE 2	-109°45'29.398"	45°44'12.230"
10010	1,902,612.3607'	542,192.3413'	ZONE 3	-109°45'29.307"	45°44'12.204"
10011	1,902,644.5804'	542,270.9981'	ZONE 3	-109°45'28.856"	45°44'12.982"
10012	1,902,679.7446'	542,256.5941'	ZONE 3	-109°45'28.360"	45°44'12.841"
10013	1,902,647.5249'	542,177.9372'	ZONE 3	-109°45'28.810"	45°44'12.063"
10014	1,902,496.0993'	542,145.9487'	ZONE 1	-109°45'30.944"	45°44'11.742"
10015	1,902,528.3189'	542,224.6055'	ZONE 1	-109°45'30.494"	45°44'12.520"
10016	1,902,563.4832'	542,210.2014'	ZONE 1	-109°45'29.997"	45°44'12.379"
10017	1,902,531.2635'	542,131.5446'	ZONE 1	-109°45'30.448"	45°44'11.601"
10018	1,902,537.7411'	542,128.8912'	ZONE 2	-109°45'30.356"	45°44'11.575"
10019	1,902,569.9608'	542,207.5481'	ZONE 2	-109°45'29.906"	45°44'12.353"
10020	1,902,605.1250'	542,193.1440'	ZONE 2	-109°45'29.409"	45°44'12.212"
10021	1,902,572.9054'	542,114.4872'	ZONE 2	-109°45'29.860"	45°44'11.434"
10022	1,902,579.3830'	542,111.8338'	ZONE 3	-109°45'29.768"	45°44'11.408"
10023	1,902,611.6026'	542,190.4906'	ZONE 3	-109°45'29.318"	45°44'12.186"
10024	1,902,646.7668'	542,176.0865'	ZONE 3	-109°45'28.821"	45°44'12.044"
10025	1,902,614.5472'	542,097.4297'	ZONE 3	-109°45'29.272"	45°44'11.267"
10026	1,902,647.1424'	542,177.0133'	(2) 2" SCH 40 PVC 11.25 ELBOW	-109°45'28.816"	45°44'12.054"
10027	1,902,830.3054'	542,047.0625'	5000 GAL DOSE TANK	-109°45'26.226"	45°44'10.776"
10028	1,902,835.9464'	542,030.2614'	10000 GAL SEPTIC TANK	-109°45'26.146"	45°44'10.610"
10029	1,902,891.3895'	542,049.7395'	10000 GAL SEPTIC TANK	-109°45'25.365"	45°44'10.805"
10030	1,902,875.6532'	542,065.1818'	3500 GAL EQ TANK	-109°45'25.588"	45°44'10.957"
10031	1,902,907.0700'	542,040.5977'	END 4IN FLOOR DRAIN	-109°45'25.143"	45°44'10.715"
10032	1,902,903.2804'	542,066.5860'	START 4IN FLOOR DRAIN	-109°45'25.198"	45°44'10.971"
12000	1,902,912.0985'	542,069.8658'	START 1.5" WATER	-109°45'25.074"	45°44'11.004"
12001	1,902,986.9351'	541,981.7368'	END 1.5" WATER	-109°45'24.014"	45°44'10.136"
20000	1,902,961.5745'	542,007.8650'	START ALGN/STA: 100+00	-109°45'24.373"	45°44'10.393"
20001	1,902,522.9327'	542,227.8925'	END ALGN/STA: 105+82	-109°45'30.570"	45°44'12.552"

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	WASTEWATER STAKING SHEET
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	IM 90-7(123)381
1			CHECKED BY	J. FADNESS			UPN 10095000 — 21

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K:\Helena\MDT\2022176-PRP Greycliff Rest Area Rehab\05CAD\Sheets\Water System\INTERNAL PIPING DETAILS.dwg 25 SITE OVERVIEW - WATERLINE 8/14/2026 2:36:31 PM

IRRIGATION SERVICE LINE

TANK OVERFLOW

PROPOSED 5,000 GAL BURIED POTABLE WATER TANK

WATER SYSTEM SEE SHEETS 23-27

EXISTING IRRIGATION WELL

EXISTING WESTBOUND REST AREA

PROPOSED MONITORING WELL

EXISTING PUBLIC WATER SERVICE

EXISTING PUBLIC WATER SUPPLY WELL (TYP.)

PROPOSED 2" WATER LINE TO EASTBOUND REST AREA

EXISTING CULVERT DO NOT DISTURB

EXISTING EASTBOUND REST AREA

TIE INTO SERVICE AT FOUNDATION WALL

EXISTING WELL

3895

3890

190

N

0 50' 100'

SCALE: 1" = 100'

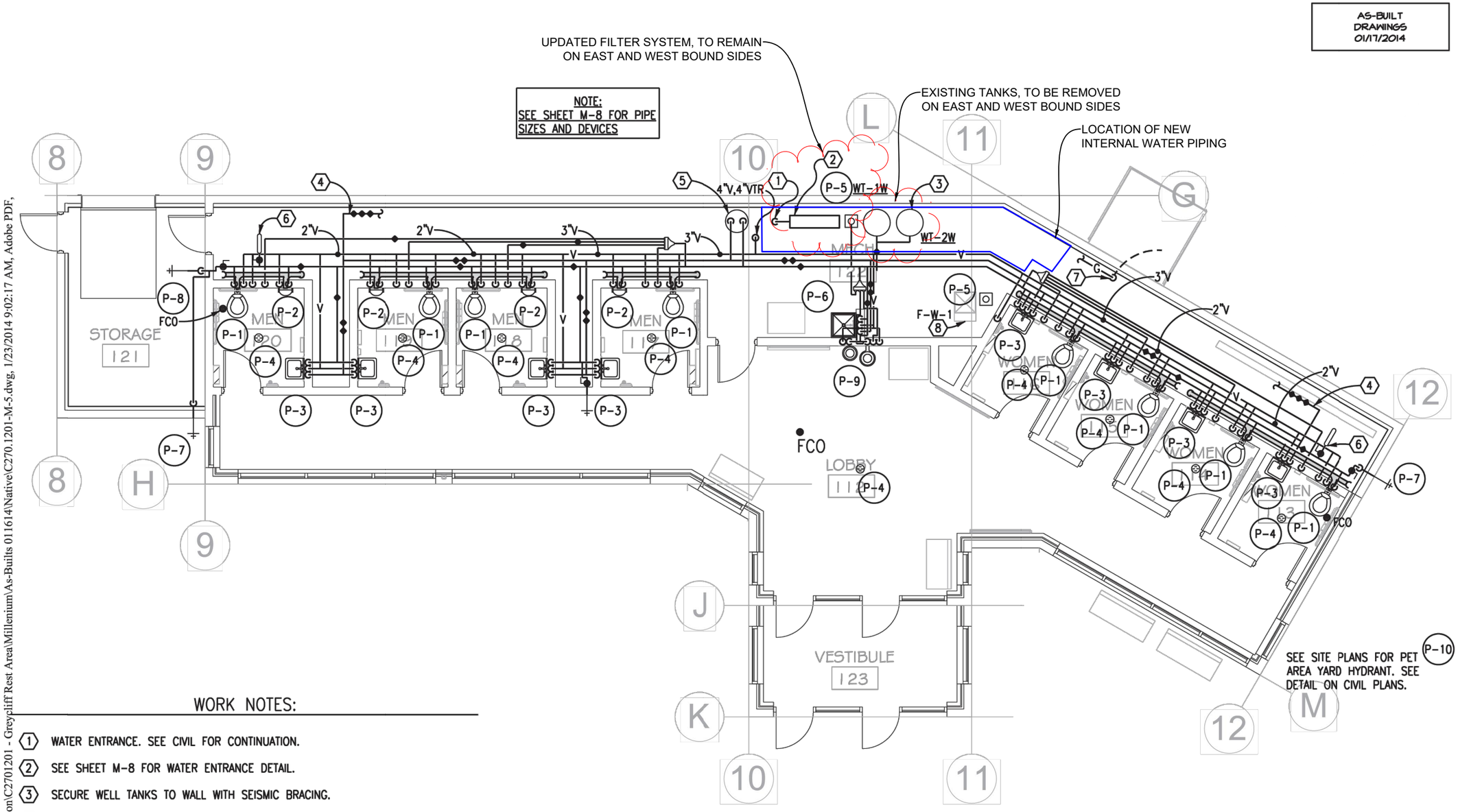
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2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	22
1			CHECKED BY	J. FADNESS				

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M:\ACLT-Drwgs\C270 - Diamond Construction\C2701201 - Greycliff Rest Area\Millenium\As-Builts 011614\Native\C270.1201-M-5.dwg, 1/23/2014 9:02:17 AM, Adobe PDF, 0.125:12



WORK NOTES:

1. WATER ENTRANCE. SEE CIVIL FOR CONTINUATION.
2. SEE SHEET M-8 FOR WATER ENTRANCE DETAIL.
3. SECURE WELL TANKS TO WALL WITH SEISMIC BRACING.
4. 1/2" DOMESTIC RECIRC. LINE WITH BALL VALVE AND CIRCUIT SETTER. BALANCE TO 1/2 GPM EACH. SEE WH PIPING DETAIL.
5. SEE WH PIPING DETAIL.
6. WATER HAMMER ARRESTER WITH ISOLATION BALL VALVE.
7. LPG PIPE FROM BELOW. SEE CIVIL FOR CONTINUATION. 3/4" SCH. 40 STEEL EXTENDED TO BRANCH LINE TO FURNACE. 1/2" TO FURNACE, 1/2" TO WH. SEE SHEET M-10 FOR APPLIANCE PIPING. ROUTE MAIN LINE HIGH AND TIGHT TO WALL.
8. ROUTE DRAINS FROM FURNACE TO FLOOR SINK.

FINAL

ABOVE FLOOR PLUMBING PLAN

WESTBOUND REST AREA — 1/8" = 1'-0"

1 / M-5

Millenium Engineering Incorporated
1063 Helena Avenue
P.O Box 5742
Helena, MT 59604
Phone: (406) 458-6599
Fax: (406) 458-6075

BJERKE ARCHITECTS PLLC
2905 N. MONTANA AVE
SUITE 202
HELENA, MONTANA 59601
406.443.5801
406.442.2450 FAX
www.bjerkearchitects.com

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AS-BUILT DRAWINGS

NEW BUILDING FACILITY FOR: GREYCLIFF REST AREA

SWEET GRASS COUNTY I-90, MONTANA

PREPARED FOR: MDT MONTANA DEPARTMENT OF TRANSPORTATION

SHEET NAME: WESTBOUND PLUMBING 2 OF 2

PROJECT NUMBER: 2000.01

DATE: 1-16-2014

DRAWN BY: BJB

CHECKED BY: BMM

M-5

OF M-11

SCALE: 1/8" = 1'-0"

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	EXISTING INTERNAL PUMBING	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	23
1			CHECKED BY	J. FADNESS				

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NOTE: EACH PUMP MUST HAVE A STANDARD PRESSURE GAUGE ON ITS DISCHARGE LINE, A COMPOUND GAUGE ON ITS SUCTION LINE AND MUST HAVE A WATER METER

FROM EXISTING IRRIGATION WELL (TO REMAIN)

EXISTING SERVICE TO WESTBOUND BUILDING TO BE DISCONNECTED

4" PVC OR DIP PIPE (FLOODED SUCTION)

(2) 6" DIA WELL CASING W/ COMMANDER PRO VS3035LT SUBMERSIBLE DISTRIBUTION PUMP

2" PVC PIPE FROM DISTRIBUTION PUMPS

ISOLATION VALVE (TYP.)

TANK OVERFLOW

5,000 GAL WATER STORAGE TANK

N

0 2.5' 5'

SCALE: 1" = 5'

2" HDPE PIPE TO WATER TANK

NEW 2" HDPE BUILDING SERVICE FROM EXISTING WELL

EXISTING WATER LINE FROM EXISTING PUBLIC WATER SUPPLY WELL

EXISTING ABANDONED WATER LINE (REMOVE AS NEEDED)

INTERNAL BUILDING PIPING SEE SHEETS 25 & 26

2" HDPE WATERLINE TO EASTBOUND REST AREA

3895

3893

K:\Helena\MDT\2022176-PRP Greycliff Rest Area Rehab\05CAD\Sheets\Water System\INTERNAL PIPING DETAILS.dwg 27 WATER TANK AND WELL LAYOUT 8/14/2026 2:36:31 PM

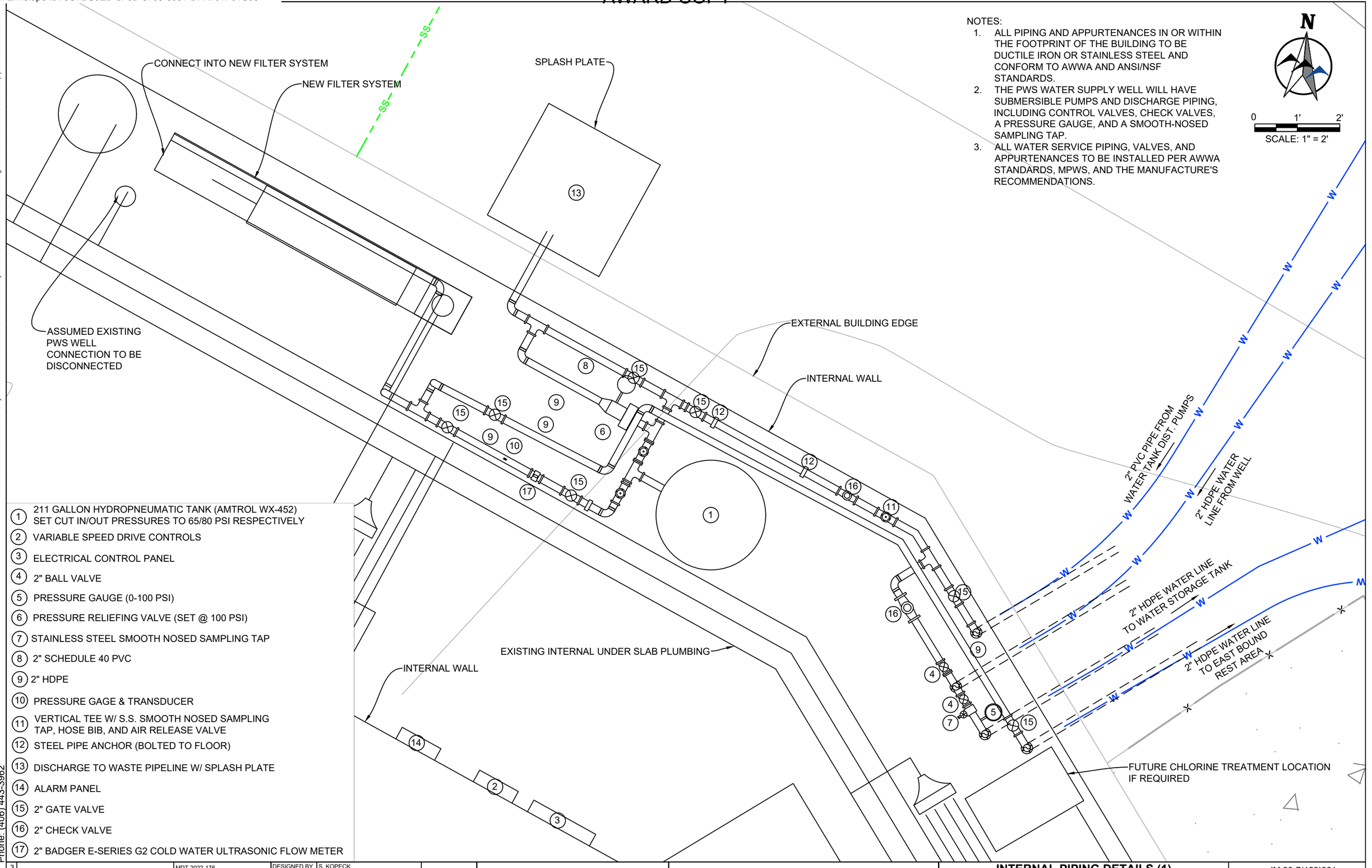
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK	GREYCLIFF REST AREA	WATER TANK AND WELL LAYOUT	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER	REST AREA REHABILITATION	UPN 10095000	24
1			CHECKED BY	J. FADNESS			

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NOTES:
1. ALL PIPING AND APPURTENANCES IN OR WITHIN THE FOOTPRINT OF THE BUILDING TO BE DUCTILE IRON OR STAINLESS STEEL AND CONFORM TO AWWA AND ANSI/NSF STANDARDS.
2. THE PWS WATER SUPPLY WELL WILL HAVE SUBMERSIBLE PUMPS AND DISCHARGE PIPING, INCLUDING CONTROL VALVES, CHECK VALVES, A PRESSURE GAUGE, AND A SMOOTH-NOSED SAMPLING TAP.
3. ALL WATER SERVICE PIPING, VALVES, AND APPURTENANCES TO BE INSTALLED PER AWWA STANDARDS, MPWS, AND THE MANUFACTURE'S RECOMMENDATIONS.

N

0 1' 2'
SCALE: 1" = 2'

1. 211 GALLON HYDROPNEUMATIC TANK (AMTROL WX-452) SET CUT IN/OUT PRESSURES TO 65/80 PSI RESPECTIVELY
2. VARIABLE SPEED DRIVE CONTROLS
3. ELECTRICAL CONTROL PANEL
4. 2" BALL VALVE
5. PRESSURE GAUGE (0-100 PSI)
6. PRESSURE RELIEFING VALVE (SET @ 100 PSI)
7. STAINLESS STEEL SMOOTH NOSED SAMPLING TAP
8. 2" SCHEDULE 40 PVC
9. 2" HDPE
10. PRESSURE GAGE & TRANSDUCER
11. VERTICAL TEE W/ S.S. SMOOTH NOSED SAMPLING TAP, HOSE BIB, AND AIR RELEASE VALVE
12. STEEL PIPE ANCHOR (BOLTED TO FLOOR)
13. DISCHARGE TO WASTE PIPELINE W/ SPLASH PLATE
14. ALARM PANEL
15. 2" GATE VALVE
16. 2" CHECK VALVE
17. 2" BADGER E-SERIES G2 COLD WATER ULTRASONIC FLOW METER

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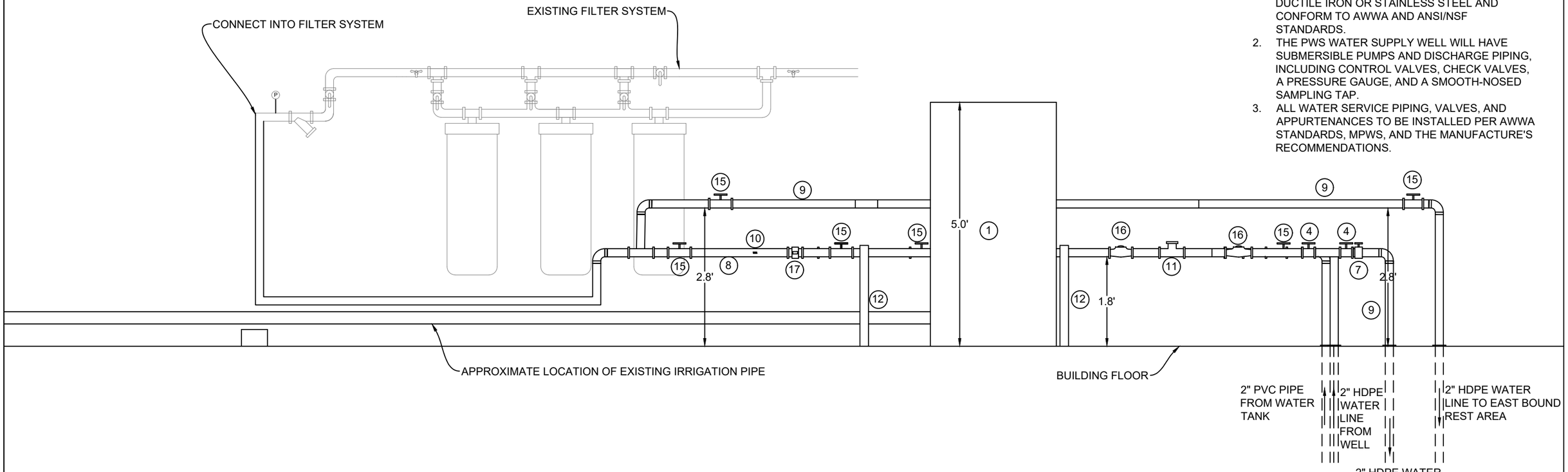
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	INTERNAL PIPING DETAILS (1) / IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000 / 25
1			CHECKED BY	J. FADNESS			

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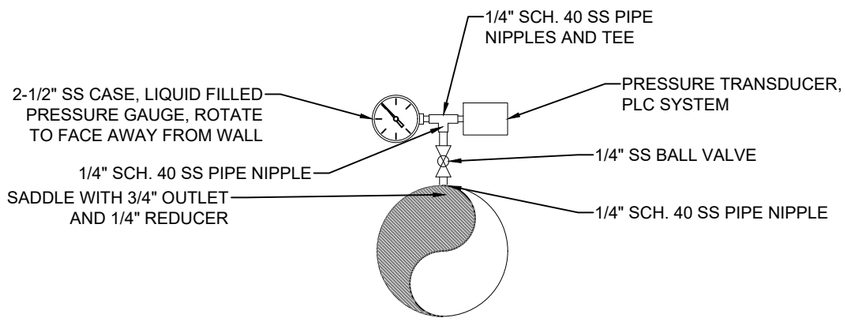
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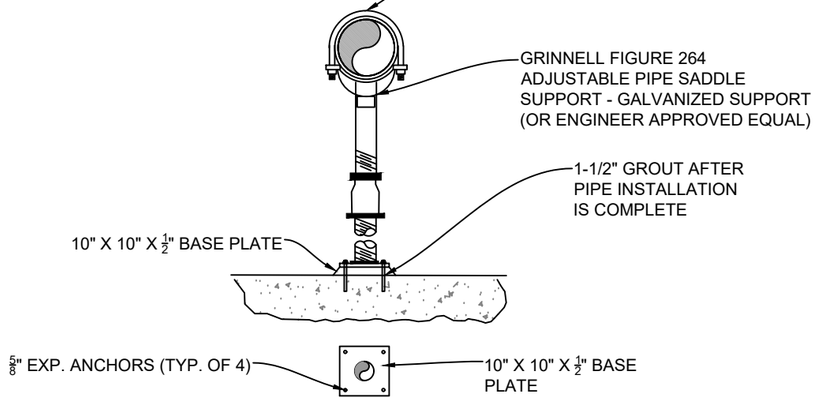
NOTES:
1. ALL PIPING AND APPURTENANCES IN OR WITHIN THE FOOTPRINT OF THE BUILDING TO BE DUCTILE IRON OR STAINLESS STEEL AND CONFORM TO AWWA AND ANSI/NSF STANDARDS.
2. THE PWS WATER SUPPLY WELL WILL HAVE SUBMERSIBLE PUMPS AND DISCHARGE PIPING, INCLUDING CONTROL VALVES, CHECK VALVES, A PRESSURE GAUGE, AND A SMOOTH-NOSED SAMPLING TAP.
3. ALL WATER SERVICE PIPING, VALVES, AND APPURTENANCES TO BE INSTALLED PER AWWA STANDARDS, MPWS, AND THE MANUFACTURE'S RECOMMENDATIONS.



1. 211 GALLON HYDROPNEUMATIC TANK (AMTROL WX-452) SET CUT IN/OUT PRESSURES TO 65/80 PSI RESPECTIVELY
2. VARIABLE SPEED DRIVE CONTROLS
3. ELECTRICAL CONTROL PANEL
4. 2" BALL VALVE
5. PRESSURE GAUGE (0-100 PSI)
6. PRESSURE RELIEFING VALVE (SET @ 100 PSI)
7. STAINLESS STEEL SMOOTH NOSED SAMPLING TAP
8. 2" SCHEDULE 40 PVC
9. 2" HDPE PIPE
10. PRESSURE GAGE & TRANSDUCER
11. VERTICAL TEE W/ S.S. SMOOTH NOSED SAMPLING TAP, HOSE BIB, AND AIR RELEASE VALVE
12. STEEL PIPE ANCHOR (BOLTED TO FLOOR)
13. DISCHARGE TO WASTE PIPELINE W/ SPLASH PLATE
14. ALARM PANEL
15. 2" GATE VALVE
16. 2" CHECK VALVE
17. 2" BADGER E-SERIES G2 COLD WATER ULTRASONIC FLOW METER



PRESSURE GAUGE MOUNTING
NO SCALE



PIPE SUPPORT DETAIL
NO SCALE

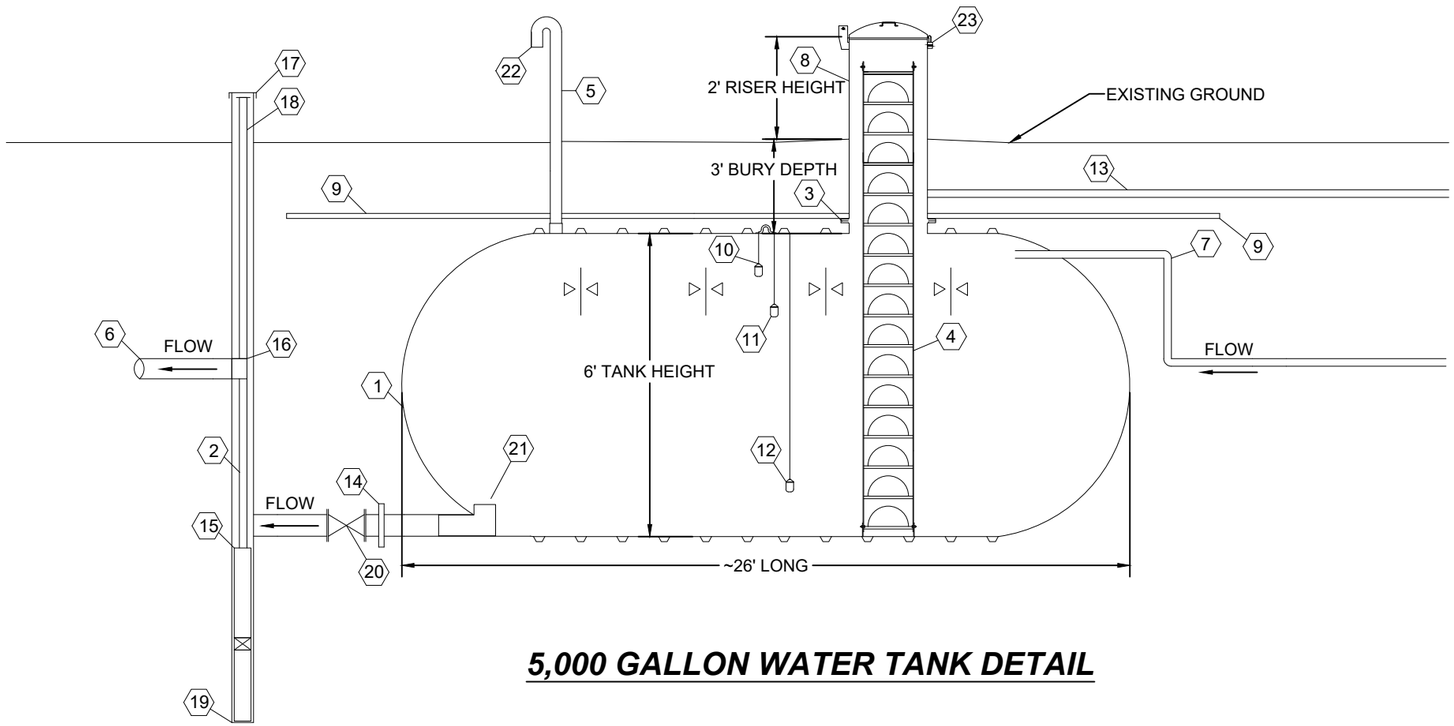
NOTES:
1. PROVIDE D.I. PIPE SUPPORT (2" AND 4") ALONG EACH RUN, AT 90° BENDS AND TEES.

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3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	**INTERNAL PIPING DETAILS (2)**	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	**26**
1			CHECKED BY	J. FADNESS				

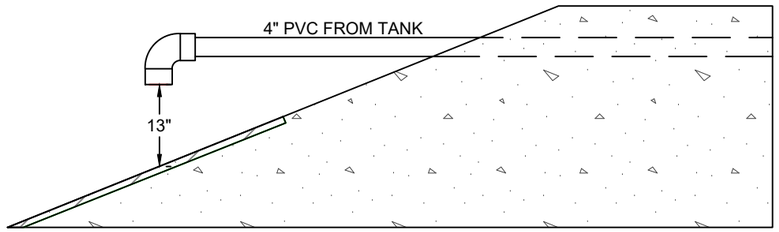
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5,000 GALLON WATER TANK DETAIL

NOTES:
1. DRAWING NOT TO SCALE.
2. INLET FROM WELL PUMP TO BE LOCATED ON TANK CENTERLINE.
3. INLET PIPING FROM WELL PUMP TO BE DIRECTED UPWARD TO PROMOTE TANK MIXING.
4. CONNECTION FROM TANK TO SUBMERSIBLE TURBINE WELL CASING CAN BE PVC, HDPE, OR DUCTILE IRON.
5. MINIMUM SIZE WELL CASING TO HOUSE PROPOSED **COMMANDER PRO VS3035LT** SUBMERSIBLE PUMP IS **6"**.
6. PROPOSED **6"** WELL CASING FOR SUBMERSIBLE PUMP MUST EXTEND A MINIMUM OF **8'** BELOW THE INVERT OF THE CONNECTION FROM THE TANK. THE PUMPS' MOTOR END MUST ALWAYS BE SUBMERGED IN THE WELL CASING.
7. THE DISCHARGE SIZE ON THE **VS3035LT** SUBMERSIBLE TURBINE IS **2"**.
8. MAXIMUM BURY DEPTH OF 5,000 GALLON TANK IS **5 FEET.**
9. TANK AND PIPING RUNS TO BE INSULATED WITH POLYSTYRENE FOAM OR EQUIVALENT.
10. WELL PUMP ON/OFF SET POINTS TO BE DETERMINED. SUBMERSIBLE TURBINE CONTROL PANEL TO CONTROL WELL PUMP VIA WIRELESS REMOTE CONTROL.
11. FIBERGLASS STORAGE TANK WILL MEET THE AWWA STANDARD D120.
12. ACCESS HATCH COVER TO BE WATERTIGHT AND EXTENDS AROUND THE FRAME AT LEAST **TWO INCHES**. THE FRAME IS TO BE AT LEAST **FOUR INCHES HIGH**.
13. TANK TO BE DISINFECTED IN ACCORDANCE WITH AWWA C652.
14. PROVIDE LEVEL CONTROL FLOATS (OR TRANSDUCER) FOR PUMP ON, PUMP OFF, HIGH-LEVEL ALARM, LOW-LEVEL ALARM (AND PUMP LOW-LEVEL CUTOUT). CONTROLS SHALL BE SET TO PROVIDE ADEQUATE DRAWDOWN TO PREVENT PUMP SHORT-CYCLING PER PUMP MANUFACTURER RECOMMENDATIONS. CONTRACTOR SHALL SUBMIT TANK SHOP DRAWINGS SHOWING INTERNAL DIMENSIONS AND PROPOSED SETPOINT ELEVATIONS AND CORRESPONDING VOLUMES (GALLONS BETWEEN SETPOINTS) FOR ENGINEER APPROVAL

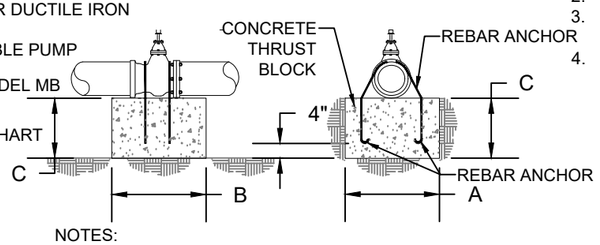


TANK OVERFLOW DETAIL

NOTES:
1. OVERFLOW DISCHARGE IS DIRECTED TO THE EAST VIA 4" SCH. 40 PVC.
2. SPLASH PLATE INSTALLED TO REDUCE EROSION FROM DISCHARGING WATER.
3. 24-MESH NON-CORRODIBLE SCREEN INSTALLED WITHIN ELBOW JOINT OF THE DISCHARGE PIPE.
4. GRADING AWAY FROM THE TANK OVERFLOW PAD MUST BE AT A MINIMUM SLOPE OF 0.1% AWAY FROM BUILDING, TANK, AND ANY OTHER SURROUNDING INFRASTRUCTURE.

TANK ELEVATION SCHEDULE

1. 5,000 GAL FIBERGLASS TANK
2. CHECK VALVE ASSEMBLY ON RISER PIPE
3. 30" DIA. MANWAY W/24" EXTENSION W/ GAUGE PLATES
4. NSP APPROVED FRP LADDER
5. 4" VENT
6. 2" PVC TO MECHANICAL ROOM
7. 2" HDPE INFLOW FROM WESTBOUND BUILDING
8. 30" DIA. HINGED AND LOCKABLE MANWAY EXTENSION. SANITARY SEAL FOR MANWAY ENTRANCE.
9. RIGID BOARD INSULATION
10. HIGH LEVEL FLOAT (TURN OFF WELL PUMP AT 4,900 GAL)
11. LOW LEVEL FLOAT (TURN ON WELL PUMP AT 3,900 GAL)
12. LOW LEVEL ALARM (SHUT OFF END SUCTION PUMP IN MECHANICAL ROOM AT 600 GAL)
13. 4" SCH. 40 PVC OVERFLOW WITH 24 MESH S.S. SCREEN AND TIDEFLEX (TF-1) CHECK VALVE (MINIMUM ALLOWABLE SLOPE OF 0.1%)
14. 4" DIA (MIN) FLANGED COUPLING TO PVC OR DUCTILE IRON
15. (2) COMMANDER PRO VS3035LT, SUBMERSIBLE PUMP
16. 4" PITLESS ADAPTOR - MAASS MIDWEST MODEL MB INDUSTRIAL PITLESS UNIT
17. (2) 6" Ø STEEL WELL CASING (T = 0.25"), BOSHART WTCC-6-CI WELL CAP
18. EXTRACTION PIPE
19. WELL CAP WELDED TO BOTTOM OF CASING
20. (2) 4" GATE VALVE
21. 90 DEGREE BEND POINTED UPWARDS
22. 24" MESH S.S. SCREEN ON VENT. OPENING TO BE 24" FROM FINISHED GROUND.
23. MANHOLE LOCK



NOTES:
1. COAT REBAR ANCHORS WITH "KOPPERS" BITUMASTIC NO. 50 OR EQUAL
2. PRESSURES SHOWN ABOVE ARE MAXIMUM WORKING PRESSURES IN SYSTEM.

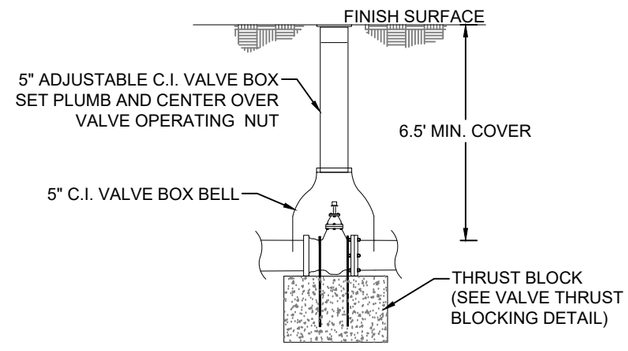
THRUST BLOCK DIMENSIONS				
ANCHOR ROD SIZE	VALVE SIZE	DIMENSIONS		
		A	B	C
3/4"	2", 4", 6" & 8"	2'-0"	2'-0"	2'-0"
3/4"	10"	2'-6"	2'-6"	2'-0"
3/4"	12"	3'-0"	3'-0"	2'-8"
1 3/8"	24"	6'-5"	4'-0"	4'-0"

NOTE: IF THRUST RESTRAIN IS PROVIDED BY MECHANICAL JOINT RESTRAINT, BLOCKS UNDER VALVES SHALL BE:

ANCHOR ROD SIZE	VALVE SIZE	DIMENSIONS		
		A	B	C
3/4"	2", 4" & 6"	2'	2'	0.5'
3/4"	10"	2'	2'	0.5'
3/4"	12"	2'	2'	0.5'
1"	24"	3'	3'	1'

VALVE THRUST BLOCKING DETAIL

NOT TO SCALE



VALVE AND BOX DETAIL

NOT TO SCALE

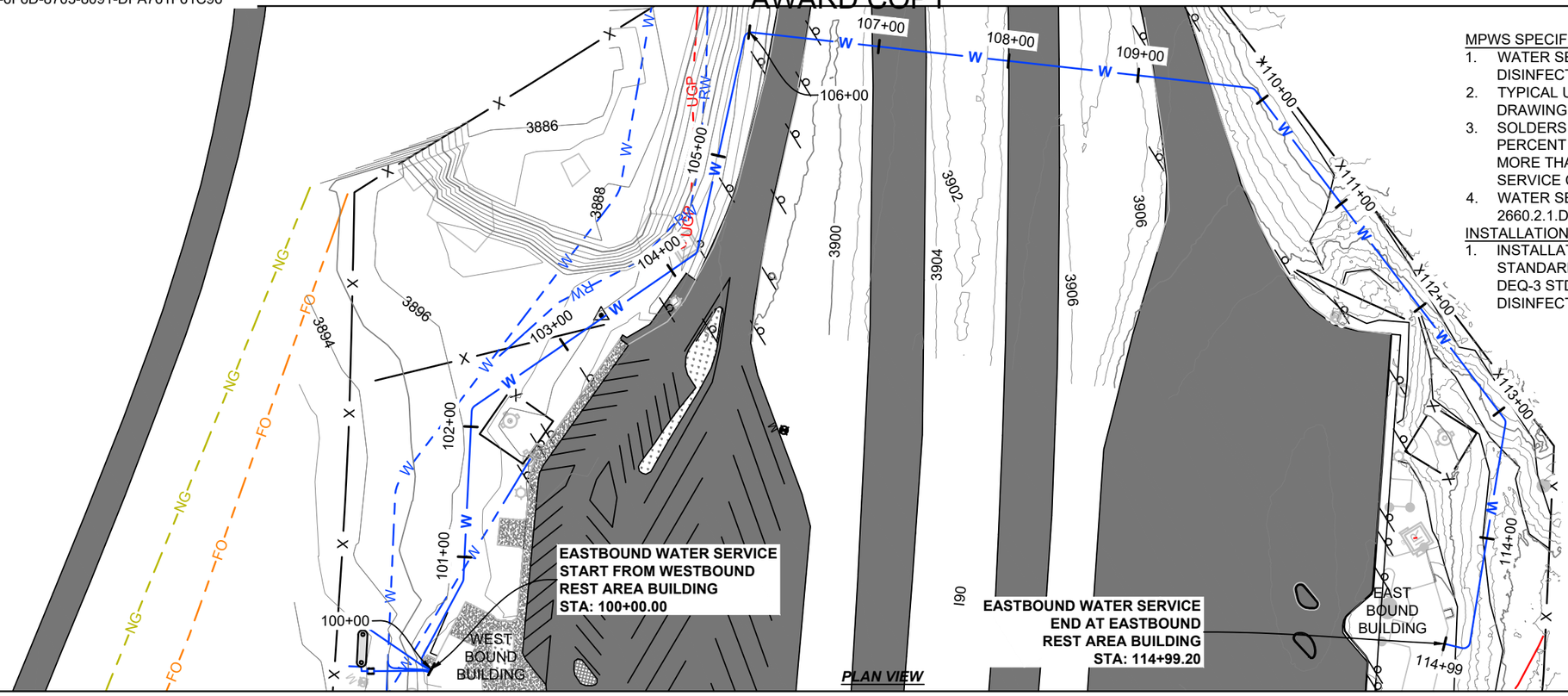
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Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	WATER TANK DETAILS	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER				
1			CHECKED BY	J. FADNESS		REST AREA REHABILITATION	UPN 10095000	27

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PLAN VIEW

MPWS SPECIFICATIONS:

1. WATER SERVICE TO BE PRESSURE/LEAK TESTED AND DISINFECTED PER MPWSS SECTION 2660.3.4
2. TYPICAL UTILITY TRENCH DETAIL PER MPWSS DETAIL DRAWING 0221-1.
3. SOLDERS AND FLUX CONTAINING MORE THAN 0.2 PERCENT LEAD AND PIPE FITTINGS CONTAINING MORE THAN 8 PERCENT LEAD MUST NOT BE USED ON SERVICE CONNECTIONS.
4. WATER SERVICE TO CONFORM WITH MPWSS SECTION 2660.2.1.D.

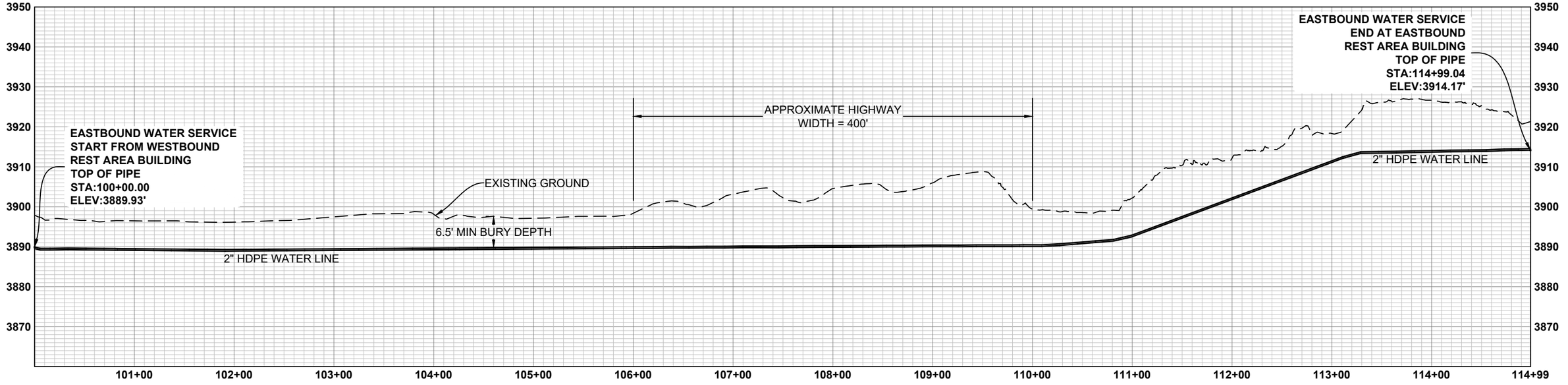
INSTALLATION NOTES:

1. INSTALLATION TO FOLLOW APPLICABLE AWWA STANDARDS AND MANUFACTURER PROCEDURES PER DEQ-3 STD. 8.3.1. PRESSURE/LEAK TESTING AND DISINFECTION PER AWWA C651.

N

0 50' 100'

SCALE: 1" = 100'



PROFILE VIEW

HORIZONTAL SCALE: 1" = 100'

VERTICAL EXAGGERATION: 1:4

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		EAST BOUND SERVICE PLAN & PROFILE	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER			
1			CHECKED BY	J. FADNESS		UPN 10095000	28
				GREYCLIFF REST AREA			
				REST AREA REHABILITATION			

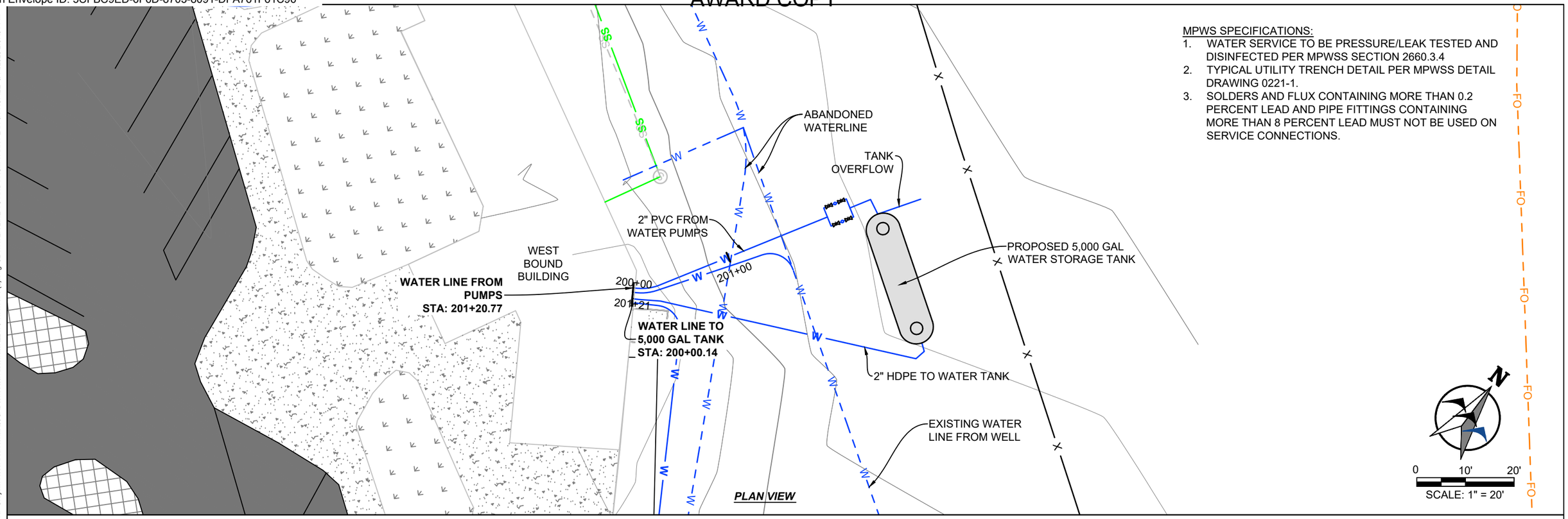
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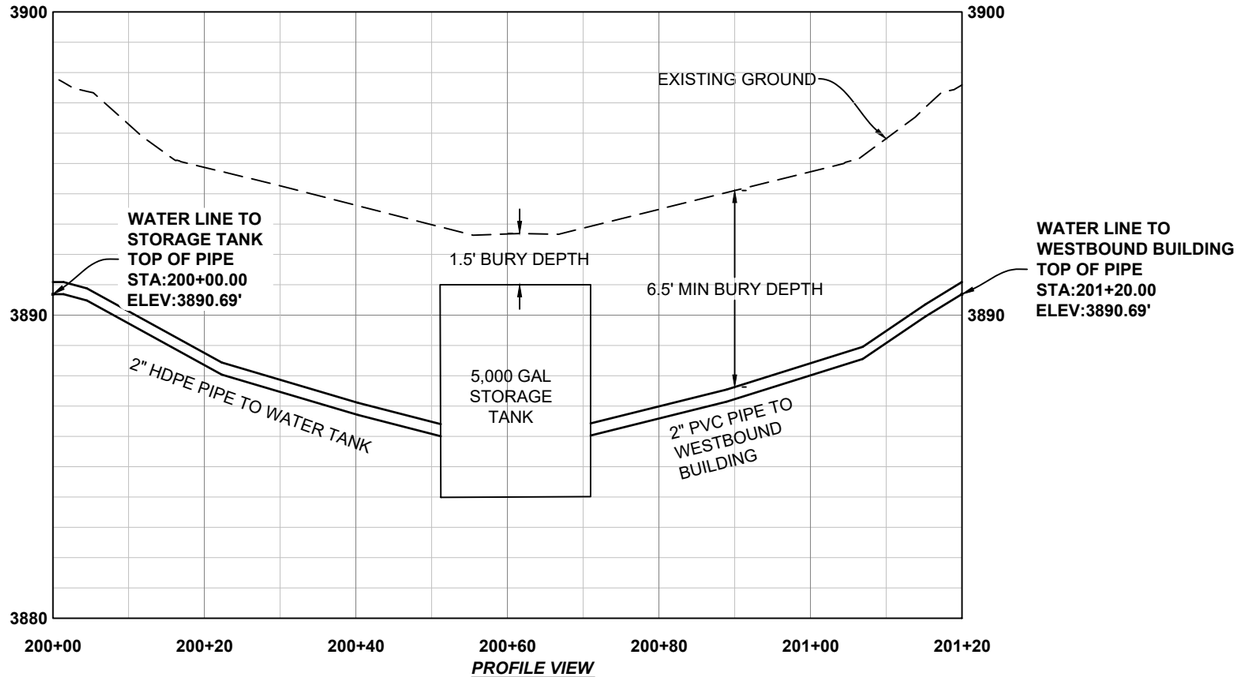
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MPWS SPECIFICATIONS:

1. WATER SERVICE TO BE PRESSURE/LEAK TESTED AND DISINFECTED PER MPWSS SECTION 2660.3.4
2. TYPICAL UTILITY TRENCH DETAIL PER MPWSS DETAIL DRAWING 0221-1.
3. SOLDERS AND FLUX CONTAINING MORE THAN 0.2 PERCENT LEAD AND PIPE FITTINGS CONTAINING MORE THAN 8 PERCENT LEAD MUST NOT BE USED ON SERVICE CONNECTIONS.





PROFILE VIEW

HORIZONTAL SCALE: 1" = 20'

VERTICAL EXAGGERATION: 1:4

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	S. KOPECK		GREYCLIFF REST AREA	WATER LINE TO AND FROM TANK PLAN & PROFILE	IM 90-7(123)381
2		6/2026	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 10095000	29
1			CHECKED BY	J. FADNESS				

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BASIC MECHANICAL REQUIREMENTS

FURNISH ALL LABOR AND MATERIALS AND PERFORM ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF COMPLETE AND OPERATING MECHANICAL SYSTEMS SUBJECT TO THE CONDITIONS OF THE CONTRACT. PROVIDE SATISFACTORY OPERATION OF ALL EQUIPMENT AND CONTROLS TO THE ARCHITECT/ENGINEER UPON REQUEST.

ALL MATERIALS SHALL BE NEW. SUBSTITUTIONS SHALL BE APPROVED BY OWNER AND/OR ENGINEER.

VISIT THE PREMISES BEFORE SUBMITTING BID AS NO CHANGE ORDERS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

COORDINATE AND ORDER THE PROGRESS OF WORK TO CONFORM TO THE PROJECT SCHEDULE AND THE PROGRESS OF THE WORK OF THE OTHER TRADES.

MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND BECAUSE OF THE SMALL SCALE, IT IS NOT POSSIBLE TO INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. VERIFY ALL SPACE REQUIREMENTS, COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.

PERFORM WORK IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE. THE GOOD APPEARANCE OF THE FINISHED WORK SHALL BE OF EQUAL IMPORTANCE WITH ITS MECHANICAL EFFICIENCY AND INTENT. THE OWNER MAY REJECT WORK IF WORKMANSHIP AND APPEARANCE ARE NOT SATISFACTORY.

INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE, OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AND ORDINANCES. COMPLY WITH REQUIREMENTS OF THE UTILITY COMPANIES. IN THE CASE OF DIFFERENCES BETWEEN THESE REQUIREMENTS AND ORDINANCES, THE MOST STRINGENT SHALL GOVERN. CALL FOR INSPECTIONS REQUIRED BY LOCAL BUILDING INSPECTION AUTHORITY.

PLANS AND SPECIFICATIONS GO HAND IN HAND. WHAT IS REQUIRED IN ONE IS REQUIRED IN BOTH. WHERE CONFLICTS BETWEEN SPECIFICATIONS AND PLANS EXIST, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

MECHANICAL PLANS SUPERCEDE ARCHITECTURAL PLANS. BACKGROUND FLOOR PLANS USED FOR MECHANICAL DRAWINGS MAY SHOW DIFFERENT THAN THE FINAL ARCHITECTURAL LAYOUT. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS AND LAYOUT PLACEMENTS FOR SPACE CONDITIONS.

MECHANICAL DETAILS MAY OR MAY NOT BE DIRECTLY REFERENCED. ALL DETAILS SHOWN ARE TO BE USED FOR BASIS OF INSTALLATION IN ALL CASES, IN COORDINATED EFFORT WITH MANUFACTURERS INSTALLATION RECOMMENDATIONS.

MECHANICAL SHEETS ARE NOT INTENDED TO SPECIFICALLY BE TRADE SPECIFIC TO MECHANICAL INSTALLATION WORK. ALL MECHANICAL AND ELECTRICAL TRADES ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES AND INCLUDING A COMPLETE PACKAGE WITHIN THEIR OFFER FOR A COMPLETE SYSTEM.

AT COMPLETION OF WORK, DELIVER COMPLETED PROJECT RECORD DOCUMENTS MARKED WITH FIELD CHANGES TO OWNER.

PROVIDE A WRITTEN WARRANTY TO THE OWNER COVERING THE ENTIRE MECHANICAL WORK TO BE FREE FROM DEFECTIVE MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF 1 YEAR AFTER DATE OF ACCEPTANCE.

CLEAN EXPOSED SURFACES OF FURNACES, HOT WATER HEATERS, PLUMBING FIXTURES AND OTHER EXPOSED ITEMS OF GREASE, DIRT OR OTHER FOREIGN MATERIAL. REMOVE RUBBISH AND DEBRIS RESULTING FROM THE OPERATIONS AND LEAVE EQUIPMENT SPACES CLEAN AND READY FOR USE.

MAINTAIN ALL CEILING, FLOOR AND WALL FIRE AND SMOKE PROTECTION RATINGS. SEAL ALL CONDUIT AND ENCLOSURE PENETRATIONS TO COMPLY WITH UL ASSEMBLY AND BUILDING CODE REQUIREMENTS. ALL SEALANTS AND CONSTRUCTIONS SHALL BE APPROVED BY OWNER PRIOR TO APPLICATION. ALL OPENINGS SHALL BE SEALED DAILY.

CONTRACT DRAWINGS FOR MECHANICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS, AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. MECHANICAL/ELECTRICAL TRADES SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THEIR WORK, CONSULT GENERAL CONSTRUCTION DRAWINGS TO FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THEIR WORK, AND SHALL VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED. COORDINATE WORK WITH OTHER TRADES AND AS PROJECT CONDITIONS REASONABLY REQUIRE WITHOUT EXTRA COSTS TO OWNER.

HVAC SPECIFIC:
ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.

PROVIDE ALL 90 DEGREE SQUARE ELBOWS WITH SINGLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED.

COORDINATE DIFFUSER, REGISTER, AND GRILLE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE DUCT MODIFICATIONS TO SUIT.

AT CONTRATORS OPTION, FLEXIBLE DUCT MAY BE USED TO CONNECT SUPPLY REGISTERS AND DIFFUSERS ON THIS PROJECT ONLY. RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FEET, UNLESS SPECIFICALLY SHOWN ON DRAWING.

ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

MECHANICAL SYSTEMS SHALL COMPLY WITH INTERNATIONAL MECHANICAL CODE VER 2021 AND INTERNATIONAL ENERGY CODE VER 2021.

PLUMBING/PIPING SPECIFIC:
PLUMBING/PIPING SYSTEMS SHALL COMPLY WITH INTERNATIONAL FUEL GAS CODE VER 2021 AND UNIFORM PLUMBING CODE VER 2021.

UTILITIES:
LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE EXACT LOCATIONS IN THE FIELD (NOT ALL UTILITIES ARE SHOWN).

REGULATORY AND CODE REQUIREMENTS:
APPLY FOR AND PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS. ALL WORK IS SUBJECT TO APPROVAL BY THE CODE OFFICIAL AND ENGINEER. ALL CORRECTIONS SHALL BE MADE WITHOUT EXTRA COSTS TO OWNER.

811 CALL BEFORE YOU DIG

MEP ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
A/G	ABOVE GRADE
B/G	BELOW GRADE
COND	CONDENSATE DRAIN
CPCI	CONTRACTOR PROVIDED CONTRACTOR INSTALLED
CPOI	CONTRACTOR PROVIDED OWNER INSTALLED
CWR	CHILLED (HYDRONIC) WATER RETURN
CWS	CHILLED (HYDRONIC) WATER SUPPLY
DCW	DOMESTIC (POTABLE) COLD WATER
DHW	DOMESTIC (POTABLE) HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
EA	ENTERING AIR
EC	ELECTRICAL CONTRACTOR
EX	EXHAUST
G-SAN	GREASE SANITARY SEWER
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
HWR	HOT (HYDRONIC) WATER RETURN
HWS	HOT (HYDRONIC) WATER SUPPLY
HP	HIGH PRESSURE
IJS	IN JOIST SPACE
LA	LEAVING AIR
LP	PROPANE GAS
MA	MIXED AIR
MC	MECHANICAL CONTRACTOR
MP	MEDIUM PRESSURE
MPG	MEDIUM PRESSURE NATURAL GAS
NG	NATURAL GAS
OA	OUTSIDE/OUTDOOR AIR
OPCI	OWNER PROVIDED CONTRACTOR INSTALLED
OPOI	OWNER PROVIDED OWNER INSTALLED
PC	PLUMBING CONTRACTOR
RA	RETURN AIR
RECT	RECTANGULAR
SA	SUPPLY AIR
SCR	STEAM CONDENSATE RETURN
SAN	SANITARY SEWER
SS	STORM WATER SEWER
STM	STEAM
SYS	SYSTEM
TEMP	TEMPERATURE
V	VENT

GENERAL CONSTRUCTION NOTES

ALL WORK PERFORMED IN CONJUNCTION WITH THESE DRAWINGS SHALL MEET ALL CURRENT APPLICABLE BUILDING AND ENERGY CODES.

ALL WORK PERFORMED IN CONJUNCTION WITH THESE DRAWINGS IS SUBJECT TO APPROVAL BY THE AUTHORITY HAVING JURISDICTION (CODE OFFICIAL).

ALL ROOF PENETRATIONS SHALL BE PATCHED AND SEALED, WITH WARRANTY FROM BUILDING ROOFING CONTRACTOR.

THIS SET OF DOCUMENTS IS INTENDED FOR AHJ REVIEW AND SHALL BE CONSIDERED AS CONSTRUCTION DOCUMENTS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL CONDITIONS, EXISTING AND/OR NEW, OF THE SITE AS WELL AS LOCATIONS, QUANTITIES, TYPE AND STYLE OF ALL PRODUCTS PROVIDED, WITH OWNER, PRIOR TO ORDERING OR INSTALLING.

MONTANA
RAYMOND E. DAWES
No. 19928PE
LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	PM		GREYCLIFF REST AREA	100% CD
2		06/13/2025	REVIEWED BY	AZ		REST AREA REHABILITATION	
1			CHECKED BY	RD			

MECHANICAL COVER

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HVAC & CONTROL SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
M	MOTOR	T	DUCT THERMOSTAT
	CENTRIFUGAL FAN	H	HUMIDISTAT, ROOM
T	ROOM OR ZONE THERMOSTAT	H	HUMIDISTAT, DUCT
SD	SMOKE DETECTOR, DUCT	P	PRESSURE SWITCH
	DAMPER, OPPOSED BLADE	TT	TEMPERATURE TRANSMITTER (SENSOR)
MD	MOTORIZED DAMPER ACTUATOR	PT/PS	PRESSURE TRANSMITTER OR SWITCH
FD	FIRE DAMPER	SP	DIFFERENTIAL PRESSURE CONTROLLER
SD	SMOKE DAMPER	BDD	BACKDRAFT DAMPER, GRAVITY
FSD	COMBINATION FIRE/SMOKE DAMPER		POINT OF CONNECTION SYMBOL
12"X10"	RECTANGULAR DUCT (REFER TO SYS)	8"Ø	ROUND DUCT-REFER TO SYSTEM SERVED
12"X10"	LINED RECTANGULAR DUCT	8"Ø	ROUND LINED OR DOUBLE WALL DUCT

DUCT CONSTRUCTION SPECIFICATION

1. RECTANGULAR DUCT SHALL BE GALVANIZED G60 OR G90 GRADE SHEETMETAL FORMED AND FABRICATED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE FOR PRESSURE CLASS OF 2" WG MINIMUM. 26 GAGE METAL MINIMUM.
2. SEAL ALL DUCT SEAMS IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE TABLE 1-2 SEAL CLASS B, MINIMUM.
3. DUCT CONNECTOR SHALL BE STANDARD SLIP 'S' AND DRIVE CONNECTOR OF METAL GAGE NOT LESS THAN DUCT GAGE SPECIFIED IN #1. PROPRIETARY FLANGE CONNECTIONS SUCH AS WARD OR DUCT-MATE ARE ENCOURAGED.
4. SUPPORT ALL DUCTING IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. NO EXCEPTIONS!

TEST & BALANCE INSTRUCTIONS:

BALANCING SHALL BE PERFORMED BY THE CONTRACTOR. THE BALANCING CONTRACTOR SHALL PERFORM AIR AND WATER BALANCE IN ACCORDANCE WITH MINIMUM NEBB GUIDELINES AND REPORT THE FOLLOWING DATA:

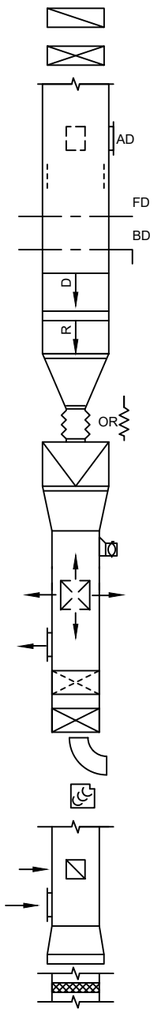
1. OPERATING AMPERAGE MEASURED UNDER FULL LOAD.
2. MEASURED VOLTAGE AT EACH UNIT.
3. ESP OF EACH AIR MOVING EQUIPMENT.
4. TOTAL MEASURED AND ADJUSTED CFM EXHAUST.
5. CFM GRILLES.

THE FOLLOWING PIECES OF EQUIPMENT SHALL RECEIVE TESTING & BALANCING TREATMENT:

A. ALL NEW GRD AS SCHEDULED.
B. UH-1.
C. EF-1.

A HANDWRITTEN REPORT ON REDLINE CONDITIONS, BALANCING INFORMATION, AND INFORMATION REQUESTED ABOVE SHALL BE SUBMITTED TO THE ENGINEER.

DUCTWORK SYMBOLS KEY



- SECTION THROUGH RETURN OR EXHAUST AIR
- SECTION THROUGH SUPPLY OR OUTSIDE AIR DUCT
- SUPPLY, RETURN, EXHAUST, OR OUTSIDE AIR DUCT
- ACCESS DOOR (BOTTOM OR SIDE)
- ACOUSTICALLY LINED DUCT
- DAMPER, FIRE
- DAMPER, MANUAL VOLUME
- INCLINED DROP IN DIRECTION OF ARROW
- INCLINED RISE IN DIRECTION OF ARROW
- TRANSITION, RECTANGULAR TO ROUND
- FLEXIBLE DUCT
- TRANSITION OR OFFSETTING TRANSITION
- TRANSITION, RECTANGULAR
- HIGH EFFICIENCY TAKEOFF WITH DAMPER
- CEILING SUPPLY AIR DIFFUSER [##]
- SIDEWALL SUPPLY AIR REGISTER [##]
- ELBOW TURNED DOWN
- ELBOW TURNED UP
- ELBOW, RADIUS TYPE
- ELBOW, SQUARE OR RECTANGULAR TYPE WITH 22 GA SINGLE TURNING VANES
- RETURN OR EXHAUST AIR DUCT
- CEILING RETURN AIR REGISTER [##]
- SIDEWALL RETURN AIR REGISTER [##]
- OPEN END DUCT
- FLEXIBLE CONNECTION

PLUMBING/PIPING SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	GATE, BALL, OR FUEL SOV VALVE		UNION, THREADED OR FLANGED
	GLOBE VALVE	WH	WATER HAMMER ARRESTOR
	GAS COCK		FLOOR DRAIN
	PLUG VALVE		FLOOR SINK
S	SOLENOID VALVE		FLOOR CLEANOUT, INT. OR EXT.
PRV	PRESSURE REDUCING VALVE	CO	WALL CLEANOUT
	CHECK VALVE		1/4 TURN BOILER DRAIN W/CAP
	PRESS./TEMP. RELIEF VALVE		HOSE BIBB, INTERIOR OR EXTERIOR
	RPP BACKFLOW PREVENTOR		90 DEGREE ELBOW (UP, DOWN, PLAN)
	DOUBLE CHECK BACKFLOW PREV.		TEE FITTING (UP, DOWN, PLAN)
	WATER METER		WYE (PLAN VIEW)
	PRESSURE REDUCING VALVE		COMBINATION WYE & 1/8 BEND
	THERMOMETER WITH WELL		WYE (VERTICAL) WITH 1/4 BEND
	PRESSURE GAGE WITH SHUTOFF		LONG RADIUS SAN. SEWER FITTING
P	PRESSURE SWITCH	ABV	AUTOMATIC BALANCING VALVE
	PUMP	MBV	MANUAL BALANCING VALVE
	CONTROL VALVE, 2-WAY		DIRECTION OF FLOW
	CONTROL VALVE, 3-WAY		STRAINER, CAST IRON OR BRONZE
	NG OR LP EQUIPMENT REGULATOR		STRAINER WITH BLOW DOWN & PLUG
	FLEXIBLE PIPE CONNECTOR		EXPANSION VALVE
S	STEAM TRAP		AUTO AIR VENT, EXTEND TO DRAIN
	POINT OF CONNECTION SYMBOL	FS OR F	FLOW SWITCH

PIPE MATERIAL & INSTALLATION REQUIREMENTS

SERVICE OR SYSTEM	MATERIAL	PIPE SIZE	INSULATION THICKNESS	PIPE SIZE	PRESSURE TEST*	NOTES:
DOMESTIC COLD WATER	TYPE L COPPER	ALL	1/2" FIBERGLASS	ALL	100 PSI AIR-30 MIN	1,2,3
SANITARY SEWER U/G	SCHEDULE 40 PVC DWV	ALL	NONE	N/A	20 PSI AIR-60 MIN	
SANITARY SEWER A/G	SCHEDULE 40 PVC DWV	ALL	NONE	N/A	20 PSI AIR-60 MIN	2

NOTES:
1. INSULATION TO BE OF HEAVY DENSITY BONDED FIBERGLASS WITH ALL SERVICE JACKET (WHITE). FITTING TO BE PVC ZESTON COVERS WITH FLEXIBLE INSULATION WRAP. SEAL ALL JOINTS WITH SEALANT. K VALUE NOT EXCEEDING 0.27 BTU PER IN/H*FT^2*DEG F.
2. SEISMIC BRACE ALL PIPE GREATER THAN 2-1/2" ID PER LOCAL CODE.
3. ALL PIPING IN MECHANICAL ROOMS AND WATER SERVICES TO BE NSF RATED METALLIC PIPE. NO EXCEPTIONS.

GENERAL NOTE ALL: SEAL ALL NON RATED STRUCTURE PIPE PENETRATIONS INCLUDING DRAFT STOPS WITH SILICON OR FIRE RATED EXPANDING FOAM. SEAL ALL RATED PIPE PENETRATIONS IN ACCORDANCE WITH CONTRACTOR SELECTED MFR FIRE CAULK SYSTEM (AND/OR FIRE COLLAR) AND MATCH RATING WITH SPECIFIC UL LISTING. PROVIDE ENGINEER AND INSPECTOR FOR AHJ WITH SHOP DRAWING OF RATED ASSEMBLY PRIOR TO INSTALLATION.

* PROVIDE WRITTEN AND SIGNED REPORT BY CONTRACTOR FOR ALL SYSTEMS TESTED, TYPE OF TEST, DATE, PRESSURE, TIME START, TIME END, AND SYSTEM TESTED. SUBMIT TO ENGINEER IN IOM SUBMITTAL.



FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	PM		GREYCLIFF REST AREA	100% CD	MECHANICAL REQUIREMENTS
2		06/13/2025	REVIEWED BY	AZ		REST AREA REHABILITATION		M-0.1
1			CHECKED BY	RD				

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ELECTRIC HEATER SCHEDULE

EH #

EQUIPMENT TAG	SERVICE	WEIGHT (LBS)	INPUT (KW) NOM	CFM	ELECTRIC		MANUFACTURER & MODEL	OPTIONS-ACCESSORIES
					FLA	VOLT.-PH.-CY.		
UH-1	HEATING	20	2.0	300	12.5	240/1/60	REZNOR EGW-TSL-2	1,2

NOTES:
1. PROVIDE WITH FACTORY CEILING MOUNTING BRACKET. MOUNT TO CEILING STRUCTURE.
2. PROVIDE WITH FACTORY WALL MOUNT THERMOSTAT, INITIALLY SET FOR 65°F (ADJ).

GRD ID SCHEDULE

TAG	STYLE	CFM	NECK SIZE
01	EG-1	150	12"x12"

GRILLE/REGISTER/DIFFUSER SCHEDULE

EG=EXHAUST GRILLE

TAG NO.	NECK SIZE	TYPE	MANUFACTURER & MODEL	MATL/FINISH	NOTES
EG-1	12"x12"	SURFACE WALL MOUNT LOUVERED GRILLE	NAILOR 5145H-S	WHITE	1

NOTES:
1. PROVIDE ALL NECESSARY HARDWARE FOR SURFACE MOUNTING.

LOUVER SCHEDULE

LV #

EQUIP. NO.	SERVICE	WIDTH	HEIGHT	THICKNESS OF WALL	MATERIAL	SCREEN	MANUFACTURER & MODEL	OPTIONS-ACCESSORIES
LV-1	OUTSIDE AIR	14"	14"	6"	ALUM	INSECT	GREENHACK ESD-635-14x14	1,2,3,4

NOTES:
1. PROVIDE WITH FLANGED FRAME. COORDINATE FINAL FINISH WITH SIDING CONTRACTOR.
2. PROVIDE ANNODIZED COLOR. COORDINATE FINAL SELECTION OF COLOR BY MDT.
3. PROVIDE WITH 120V MOTORIZED DAMPER. NORMALLY CLOSED, TO BE ENABLED WHEN EXHAUST FAN EF-1 IS ENABLED.
4. TOP OF LOUVER TO BE 12" BELOW CEILING/ROOF STRUCTURE.

FAN SCHEDULE

EF #

EQUIP. NO.	SERVICE	LOCATION	CFM	STATIC PRESS. (IN. W.G.)	MOTOR				MANUFACTURER & MODEL	NOTES
					AMP	HP	SONES	VOLT.-PH.-CY.		
EF-1	EXHAUST	PUMP HOUSE WALL	150	0.30	1.5	1/10	6.5	120-1-60	GREENHECK CUE-080-VG	1,2

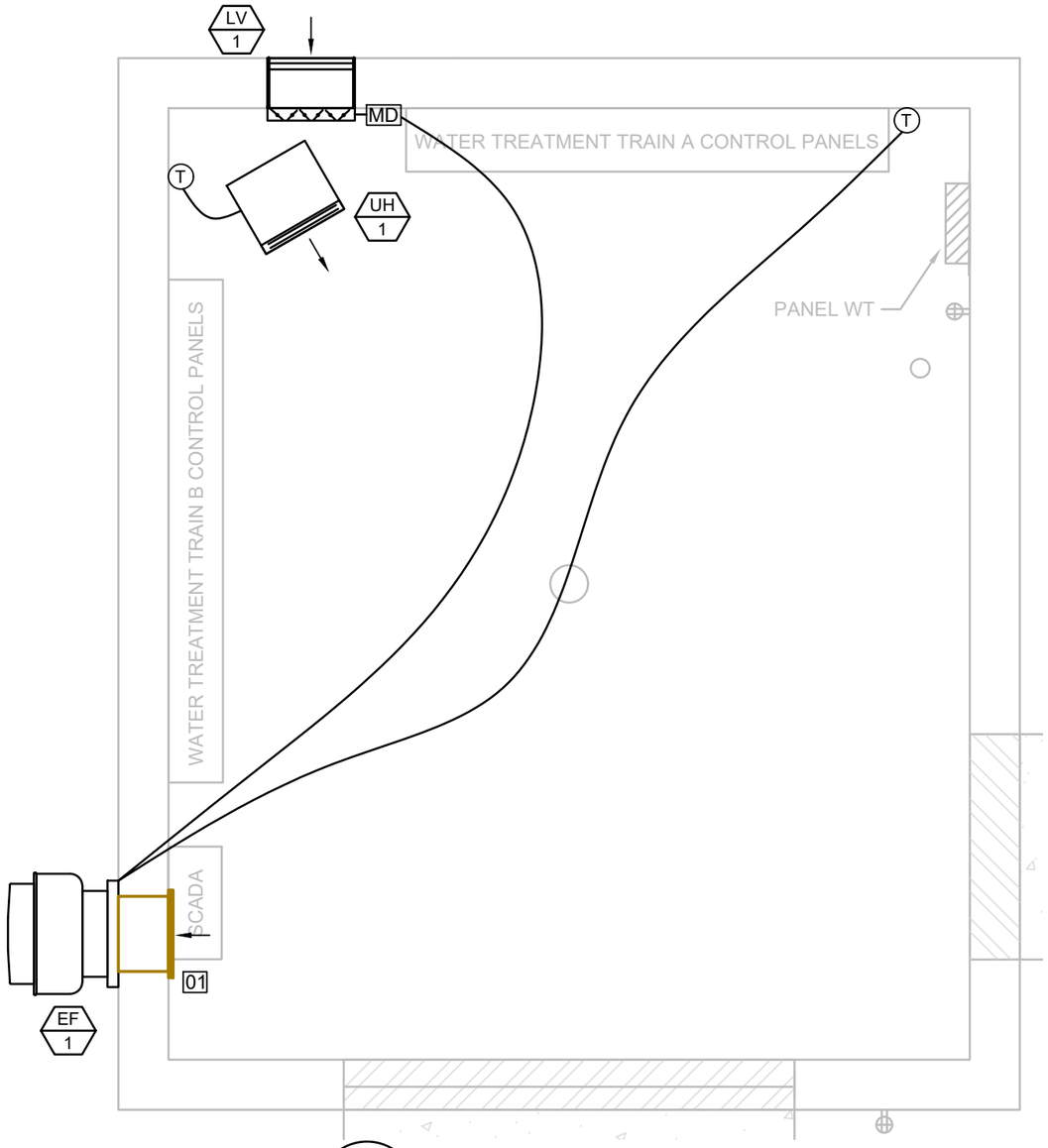
NOTES:
1. PROVIDE WITH FACTORY WALL BRACKET. BOTTOM OF FAN TO BE 8' ABOVE EXTERIOR GRADE.
2. PROVIDE WITH FACTORY BACKDRAFT DAMPER AND VARI-GREEN SPEED CONTROLLER.
3. ENABLE FAN WHEN THERMOSTAT CALLS FOR COOLING, 85°F (ADJ).



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HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

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2		06/13/2025	REVIEWED BY	AZ				
1			CHECKED BY	RD		REST AREA REHABILITATION		M-0.2

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1 M-1.0 HVAC FLOOR PLAN

SCALE: 1/2" = 1'

UH-1, EF-1 SEQUENCE OF OPERATIONS

UH-1 (HEATING)

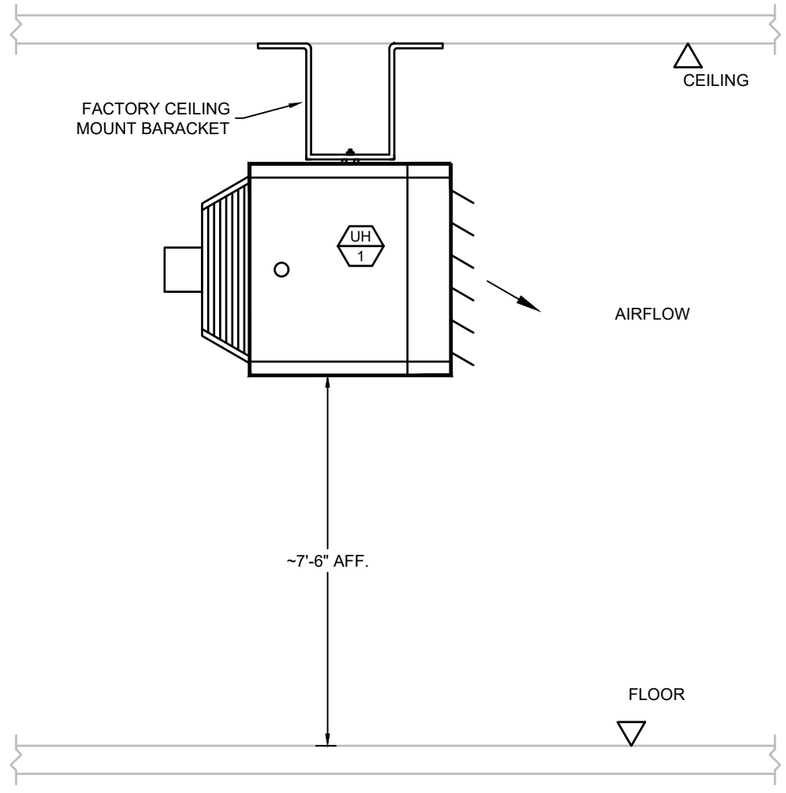
- UH-1 TO BE CONTROLLED BY FACTORY WALL MOUNTED THERMOSTAT. UH-1 HEATING SETPOINT TO INITIALLY BE 65°F (ADJ).

EF-1 (COOLING)

- EF-1 TO BE CONTROLLED BY A REMOTE WALL MOUNTED THERMOSTAT. WHEN THERMOSTAT CALLS FOR COOLING, 85°F (ADJ), EF-1 TO ENABLE AND LV-1 MOTORIZED DAMPER TO OPEN. WHEN COOLING SETPOINT IS SATISFIED, EF-1 TO DISABLE AND LV-1 MOTORIZED DAMPER TO RETURN CLOSED.

GRD ID SCHEDULE

TAG	STYLE	CFM	NECK SIZE
01	EG-1	150	12"x12"



1 M-1.0 UNIT HEATER DETAIL

SCALE: NTS

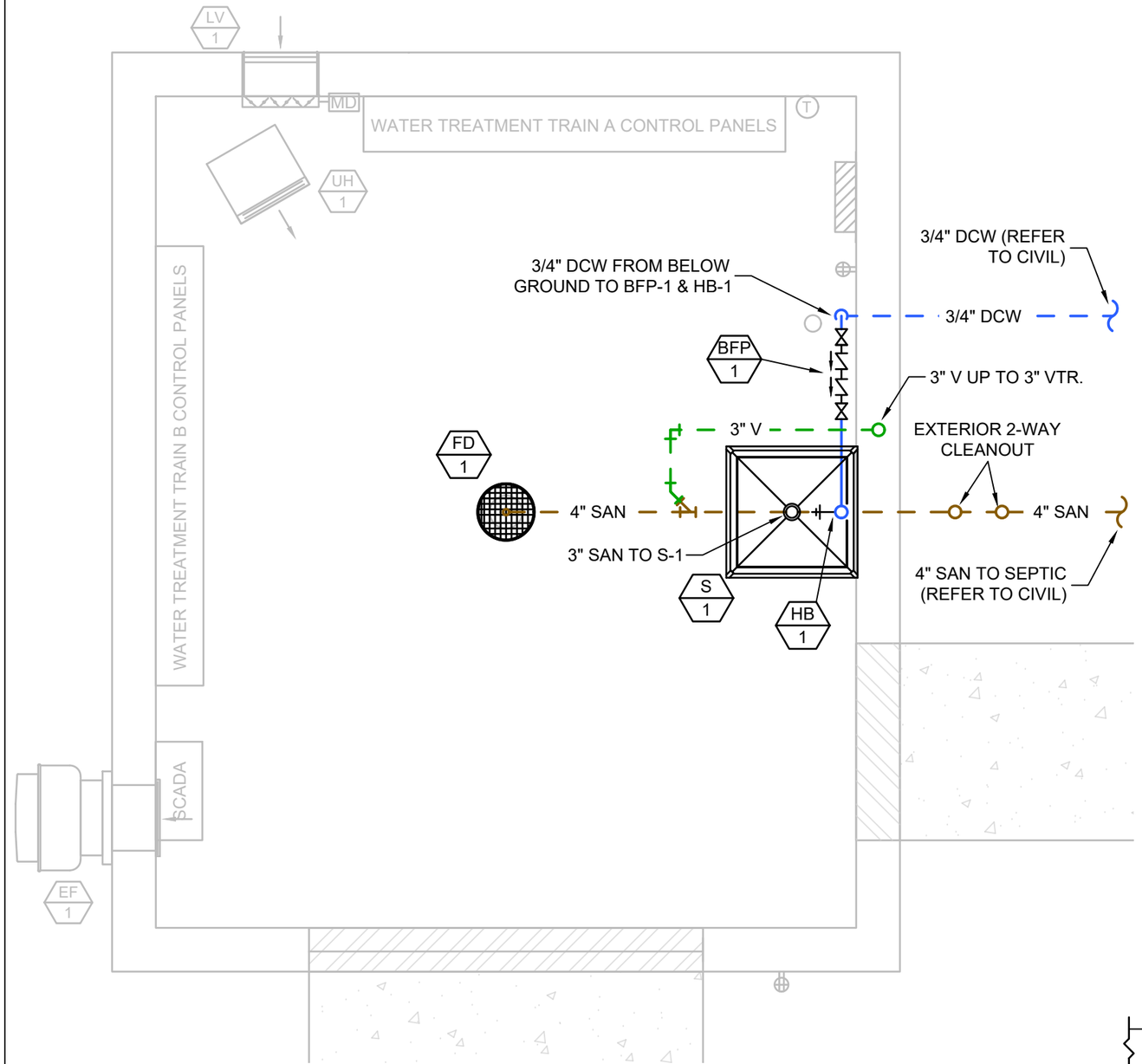
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46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

MONTANA RAYMOND E. DAWES No. 19926PE LICENSED PROFESSIONAL ENGINEER

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	PM		GREYCLIFF REST AREA	100% CD	HVAC FLOOR PLAN	
2		06/13/2025	REVIEWED BY	AZ					M-1.0
1			CHECKED BY	RD		REST AREA REHABILITATION			

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1 P-1.0 PLUMBING FLOOR PLAN

SCALE: 1/2" = 1'

PLUMBING SPECIALTY SCHEDULE

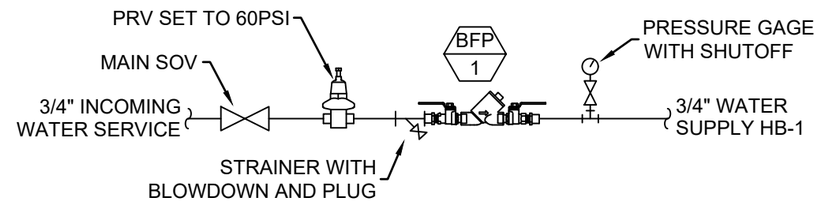
TAG	DESCRIPTION	MANUFACTURER & MODEL #	PIPING CONNECTIONS					REMARKS
			TRAP	S/W	VENT	C.W.	H.W.	
S-1	FLOOR MOUNTED MOP BASIN	MUSTEE 63M		3"	2"			
FD-1	FLOOR DRAIN	ZURN ZN415B-4		4"	3"			
HB-1	HOSE BIBB	JAY R SMITH #5675-H				¾"		1
BFP-1	DOUBLE CHECK BACKFLOW PREVENTER	ZURN 950XL3-3/4"				¾"		2

NOTES:
1. MOUNT EXPOSED 40" AFF. SUPPORT DCW PIPE WITH STRUT AND CLAMPS ON WALL AS REQUIRED.
2. MOUNT EXPOSED 12" AFF. SUPPORT DCW PIPE WITH STRUT AND CLAMPS ON WALL AS REQUIRED.

PLUMBING SPECIALTY MAY BE CALLED OUT ON PLANS AS TAGGED, SPECIFICALLY CALLED FOR IN NOTES/DETAILS, OR NOT AT ALL.

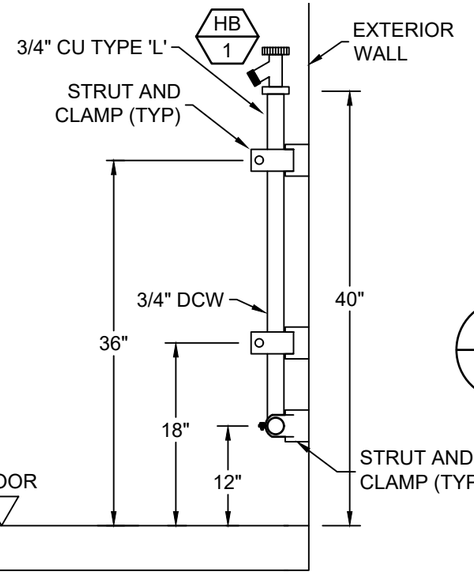
IF REFERENCE TO ANY OF THE ABOVE SPECIALTY IS NOT SPECIFICALLY CALLED OUT, THIS SCHEDULE ALSO PROVIDES BASIS OF SPECIFICATION FOR SUPPLY BY THE CONTRACTOR.

NOTE: ALL WATER SERVICE PIPING, FITTINGS, AND VALVE COMPONENTS TO BE METALLIC AND NSF RATED



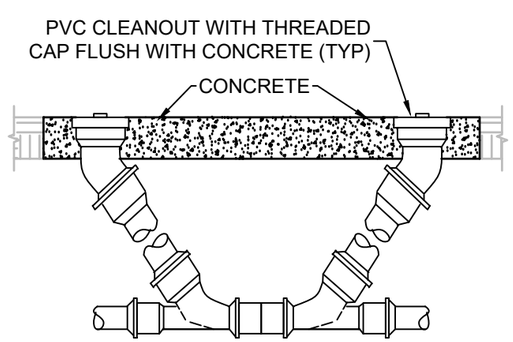
3 P-1.0 WATER SUPPLY DETAIL

SCALE: NTS



2 P-1.0 HOSE BIBB DETAIL

SCALE: NTS



4 P-1.0 EXTERIOR 2-WAY CLEANOUT DETAIL

SCALE: NTS



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TEL 406.441.4000
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2		06/13/2025	REVIEWED BY	AZ		REST AREA REHABILITATION	
1			CHECKED BY	RD			

PLUMBING FLOOR PLAN

P-1.0

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ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	ITEMS SHOWN IN GRAY ARE EXISTING TO REMAIN
	DASHED ITEMS ARE INSTALLED BELOW GRADE
	DEMOLITION PLANS: SOLID DARK ITEMS ARE TO BE REMOVED OR MODIFIED. NEW PLANS: SOLID DARK ITEMS ARE TO BE REMOVED OR MODIFIED.
J	JUNCTION BOX
C C	LADDER CABLE TRAY
	BRANCH CIRCUIT HOMERUN. LINES INDICATE NUMBER OF LINE, NEUTRAL, AND SWITCH LEG CONDUCTORS. ONE SEPARATE GREEN GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH HOMERUN; NOT SHOWN
PB	PULL BOX
P	POWER DUCT = P
AV	AUDIO VISUAL LINE = AV
FO	FIBEROPTICS LINE = FO
COM	COMMUNICATIONS LINE = COM
DP#	DISTRIBUTION PANEL
LP	LIGHTING PANEL
	PANELBOARD CABINET, FLUSH MOUNTED
	PANELBOARD CABINET, SURFACE MOUNTED
	RECEPTACLE, DUPLEX
	RECEPTACLE, DUPLEX ON EMERGENCY POWER
	RECEPTACLE, GFCI DUPLEX
	RECEPTACLE, QUADRAPLEX
A	RECEPTACLE, SPECIAL PURPOSE 120V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 5-20R.
B	RECEPTACLE, SPECIAL PURPOSE 208V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 6-20R.
C	RECEPTACLE, SPECIAL PURPOSE 120V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 5-30R.
D	RECEPTACLE, SPECIAL PURPOSE 208V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 6-30R.
E	RECEPTACLE, SPECIAL PURPOSE 208V, 60A, 1 PHASE, 3-POLE, 4W, NEMA 14-60R.
F	RECEPTACLE, SPECIAL PURPOSE 208V, 30A, 3 PHASE, 3-POLE 4W, NEMA 15-30R.
G	RECEPTACLE, SPECIAL PURPOSE 208V, 50A, 3 PHASE, 3 POLE, 4W, NEMA 15-50R.
H	RECEPTACLE, SPECIAL PURPOSE 208V, 60A, 3 PHASE, 3 POLE, 4W, NEMA 15-60R.
J	RECEPTACLE, SPECIAL PURPOSE 208V, 20A, 3 PHASE, 3 POLE, 4W, NEMA 15-20R.
S	RECEPTACLE, SWITCHED DUPLEX
	DROP CORD, SINGLE CONVENIENCE OUTLET, 3-WIRE, GROUNDING TYPE, 20A, W/#12 CONDUCTORS IN FLEXIBLE CORD (CENTER LINE OF OUTLET: 6'-6" [1981mm] AFF. MINIMUM).
	ELECTRICAL STRIP MOLD (OUTLETS ON 2'-0" [610mm] CENTERS OR AS DESIGNATED ON DRAWINGS), MTD 3'-6" [1067mm] AFF OR AS INDICATED.

SYMBOL	DESCRIPTION
	MOTOR, SINGLE-PHASE
	MOTOR, THREE-PHASE
T	TRANSFORMER
	EARTH GROUND
	DISCONNECT SWITCH, FUSED
	DISCONNECT SWITCH, UNFUSED
	STARTER, COMBINATION WITH DISCONNECT SWITCH
	STARTER OR MOTOR CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE
TC	TIME CLOCK
$	SWITCH, SPST
$2	SWITCH, DPST
$3	SWITCH, THREE WAY
$3D	SWITCH, THREE WAY DIMMER
$3OS	SWITCH, THREE WAY OCCUPANCY SENSOR
$4	SWITCH, FOUR WAY
$D	SWITCH, DIMMER
$DOOR	SWITCH, DOOR JAMB
$4OS	SWITCH, FOUR WAY OCCUPANCY SENSOR
$F	SWITCH, FUSED
$MC	SWITCH, MOMENTARY CONTACT
$OS	SWITCH, OCCUPANCY SENSOR
$OSD	SWITCH, OCCUPANCY SENSOR DIMMER
$P	SWITCH, WITH PILOT LIGHT
$PB	SWITCH, PUSH BUTTON
$PH	SWITCH, PHOTOCELL
$RC	SWITCH, REMOTE CONTROL
$WP	SWITCH, WEATHER PROOF
$X	SWITCH, EXPLOSION PROOF
	COMMUNICATIONS FLOOR RECEPTACLE
	COMMUNICATIONS WALL RECEPTACLE
	COMMUNICATIONS CEILING RECEPTACLE
M	TELEVISION FLOOR RECEPTACLE C = CAMERA (CCTV SYSTEM) M = MONITOR (CATV SYSTEM). AV= AUDIO VISUAL (CONFERENCE ROOM CONNECTION RECEPTACLES)
M	TELEVISION WALL RECEPTACLE C = CAMERA (CCTV SYSTEM) M = MONITOR (CATV SYSTEM). AV= AUDIO VISUAL (CONFERENCE ROOM CONNECTION RECEPTACLES)
M	TELEVISION CEILING RECEPTACLE C = CAMERA (CCTV SYSTEM) M = MONITOR (CATV SYSTEM). AV= AUDIO VISUAL (CONFERENCE ROOM CONNECTION RECEPTACLES)
	POINT OF CONNECTION SYMBOL
(E)	REPRESENTS EXISTING CONDITION
S	SPEAKER, CEILING MOUNTED

ELECTRICAL ABBREVIATIONS

AC	ALTERNATING CURRENT OR ARMORED CABLE	FA	FIRE ALARM	NEUT OR N	NEUTRAL
ACC	ACCESSIBLE	FACP	FIRE ALARM CONTROL PANEL	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT	FC	FOOTCANDLE	NIC	NOT IN CONTRACT
		FLA	FULL LOAD AMPS	NO	NORMALLY OPEN
		FLEX	FLEXIBLE METALLIC CONDUIT	NTS	NOT TO SCALE
AFF	ABOVE FINISHED FLOOR	FP	FIRE PROTECTION		
AFG	ABOVE FINISHED GRADE	FT	FEET OR FOOT	OC	ON CENTER
AHJ	AUTHORITY HAVING JURISDICTION			OD	OUTSIDE DIAMETER
AIC	AMPERE INTERRUPTING CAPACITY	G OR GND	GROUND	OP	OWNER PROVIDED
AMP	AMPERE	GEN	GENERATOR	OP/CI	OWNER PROVIDED/CONTRACTOR INSTALLED
ATS	AUTOMATIC TRANSFER SWITCH	GFCI	GROUND FAULT CIRCUIT INTERRUPTER		
AUTO	AUTOMATIC			OP/OI	OWNER PROVIDED/OWNER INSTALLED
AV	AUDIO VISUAL	HOA	HAND-OFF-AUTOMATIC	OS	OCCUPANCY SENSOR
		HP	HORSEPOWER		
BAS	BUILDING AUTOMATION SYSTEM	HZ	HERTZ	RCP	REFLECTED CEILING PLAN
BFF	BELOW FINISH FLOOR			REC	RECESSED
BLDG	BUILDING	IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA	RECP	RECEPTACLE
BRKR	BREAKER			RM	ROOM
BYP	BY PASS	IR	INFRARED		
				SD	SMOKE DETECTOR
C	CONDUIT	J	JUNCTION BOX	SF	SQUARE FOOT (FEET)
CD	CONSTRUCTION DOCUMENTS			SPEC	SPECIFICATION
CF	CONTRACTOR FURNISHED	kV	KILOVOLT	SPST	SINGLE POLE, SINGLE THROW
CP/CI	CONTRACTOR PROVIDED/CONTRACTOR INSTALLED	kVA	KILOVOLT AMPERE	SPDT	SINGLE POLE, DOUBLE THROW
		kW	KILOWATT	SWBD	SWITCHBOARD
CP/OI	CONTRACTOR PROVIDED/OWNER INSTALLED	kWH	KILOWATT HOUR	SWGR	SWITCHGEAR
		LED	LIGHT EMITTING DIODE		
CKT	CIRCUIT			TC	TIME CLOCK
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	TP	TWISTED PAIR
CRI	COLOR RENDERING INDEX	MCA	MINIMUM CIRCUIT AMPS	TPS	TWISTED PAIR SHIELDED
CT	CURRENT TRANSFORMER	MCB	MAIN CIRCUIT BREAKER	TTB	TELEPHONE TERMINAL BOARD
CU	COPPER	MCC	MOTOR CONTROL CENTER	TV	TELEVISION
CU FT	CUBIC FEET	MDP	MAIN DISTRIBUTION PANEL	TYP	TYPICAL
		MECH	MECHANICAL		
DC	DIRECT CURRENT	MH	MANHOLE	UL	UNDERWRITERS LABORATORY
DEMO	DEMOLITION	MIN	MINIMUM	UON	UNLESS OTHERWISE NOTED
DPDT	DOUBLE POLE, DOUBLE THROW	MOCP	MAXIMUM OVERCURRENT PROTECTION	UPS	UNINTERRUPTIBLE POWER SUPPLY
DPST	DOUBLE POLE, SINGLE THROW				
DWG	DRAWING	MTS	MANUAL TRANSFER SWITCH	V OR VOLT	VOLTAGE
		MVA	MEGAVOLT-AMPERE	VA	VOLT AMPERE
EC	ELECTRICAL CONTRACTOR	MW	MEGAWATT	VFD	VARIABLE FREQUENCY DRIVE
ELEC	ELECTRIC OR ELECTRICAL				
ELEV	ELEVATOR	NA	NOT APPLICABLE	W	WATT
EMER	EMERGENCY	NC	NORMALLY CLOSED	WH	WATER HEATER
EMT	ELECTRICAL METALLIC TUBING	NEC	NATIONAL ELECTRICAL CODE	WP	WEATHERPROOF
EWC	ELECTRIC WATER COOLER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION		
EWH	ELECTRIC WATER HEATER			XFMR	TRANSFORMER
EXIST	EXISTING				

811 CALL BEFORE YOU DIG

GENERAL CONSTRUCTION NOTES

ALL WORK PERFORMED IN CONJUNCTION WITH THESE DRAWINGS SHALL MEET ALL CURRENT APPLICABLE BUILDING AND ENERGY CODES.

ALL WORK PERFORMED IN CONJUNCTION WITH THESE DRAWINGS IS SUBJECT TO APPROVAL BY THE AUTHORITY HAVING JURISDICTION (CODE OFFICIAL).

ALL ROOF PENETRATIONS SHALL BE PATCHED AND SEALED, WITH WARRANTY FROM BUILDING ROOFING CONTRACTOR.

ALL NEW AND ALTERED LIGHTING SHALL BE SECURELY FASTENED TO GRID AND SHALL BE SEISMICALLY SUPPORTED AS PER APPLICABLE BUILDING CODES.

THIS SET OF DOCUMENTS IS INTENDED FOR AHJ REVIEW AND SHALL BE CONSIDERED AS CONSTRUCTION DOCUMENTS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL CONDITIONS, EXISTING AND/OR NEW, OF THE SITE AS WELL AS LOCATIONS, QUANTITIES, TYPE AND STYLE OF ALL PRODUCTS PROVIDED, WITH OWNER, PRIOR TO ORDERING OR INSTALLING.

MOUNTING HEIGHTS

DESCRIPTION	HEIGHT UNLESS OTHERWISE NOTED
THERMOSTAT, CONTROLLER	48"
WALL SWITCH/ OCCUPANCY SENSOR	46"
CONVENIENCE OUTLET	18"
WALL SWITCHES	46"
TELEPHONE/DATA/TV OUTLETS	18"
FIRE ALARM MANUAL STATION	42"
FIRE ALARM HORNS & STROBES	80"-96" AFF TO CENTER OF STROBE
EXIT SIGN	CENTER, 4" ABOVE DOOR
MANUAL MOTOR STARTER SWITCH	42"
PANELBOARDS, CABINETS	72"
MOUNTING HEIGHTS TO TOP OF BOX AND ABOVE FINISHED FLOOR GRADE UNLESS NOTED OTHERWISE. MATCH EXISTING MOUNTING HEIGHTS WHICH COMPLY WITH ADA REQUIREMENT.	

MONTANA
WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	ELECTRICAL LEGENDS & ABBREVIATIONS
2		12/15/2025	REVIEWED BY	WW				
1			CHECKED BY	RD		REST AREA REHABILITATION		E0.0

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ELECTRICAL HARDWARE

CONDUIT & RACEWAYS SHALL BE CONCEALED AND APPROVED FOR USE AND LOCATION.

DRY LOCATIONS	- GRC, IMC, EMT.
UNDERGROUND	- GRC, PVC.
FLEXIBLE CONDUIT	- ALLOWED ONLY FOR CONNECTION OF EQUIPMENT AND LIMITED TO LENGTHS OF SIX FEET. GALVANIZED, LIQUID TIGHT. MC OR AC ALLOWED WHEN PROTECTED. PROVIDE SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN CONDUIT.
NM-B CABLE	- NOT ALLOWED.

JUNCTION AND PULL BOXES:

DRY LOCATIONS	- STEEL WITH COVERS.
WET LOCATIONS	- CAST ALUMINUM.

SIZE PER NEC.

COUPLINGS AND CONNECTORS:

GRC - THREADED
IMC - THREADED
EMT - DRY-COMPRESSION OR SET SCREW, BOTH OF STEEL, WET-RAIN TIGHT
PVC - CEMENT JOINT TYPE
INDENTER TYPE CONNECTORS PROHIBITED.

CABELING DEVICES AND PLATES:

DUPLEX OUTLETS	- HUBBELL #CR20 SERIES, 20 AMP (OR APPROVED EQUAL)
GFCI OUTLETS	- HUBBELL #GF20 SERIES, 20 AMP (OR APPROVED EQUAL)
DEVICE COLOR	- COORDINATE COLOR W/ OWNER OR ARCHITECT
PLATES	- NYLON. COORDINATE COLOR W/ OWNER OR ARCHITECT

ANCHORS:

HOLLOW MASONRY	- TOGGLE BOLT.
SOLID MASONRY	- EXPANSION BOLT.
STEEL	- METAL MACHINE SCREWS, BOLTS.
WOOD	- WOOD SCREWS.

BASIC ELECTRICAL REQUIREMENTS

FURNISH ALL LABOR AND MATERIALS AND PERFORM ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF COMPLETE AND OPERATING ELECTRICAL SYSTEMS SUBJECT TO THE CONDITIONS OF THE CONTRACT. PROVIDE SATISFACTORY OPERATION OF ALL EQUIPMENT AND CONTROLS TO THE ARCHITECT/ENGINEER UPON REQUEST.

ALL MATERIALS SHALL BE NEW. SUBSTITUTIONS SHALL BE APPROVED BY OWNER AND/OR ENGINEER.

VISIT THE PREMISES BEFORE SUBMITTING BID AS NO CHANGE ORDERS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

COORDINATE AND ORDER THE PROGRESS OF WORK TO CONFORM TO THE PROJECT SCHEDULE AND THE PROGRESS OF THE WORK OF THE OTHER TRADES.

ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND BECAUSE OF THE SMALL SCALE, IT IS NOT POSSIBLE TO INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. VERIFY ALL SPACE REQUIREMENTS, COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.

PERFORM WORK IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE. THE GOOD APPEARANCE OF THE FINISHED WORK SHALL BE OF EQUAL IMPORTANCE WITH ITS ELECTRICAL EFFICIENCY AND INTENT. THE OWNER MAY REJECT WORK IF WORKMANSHIP AND APPEARANCE ARE NOT SATISFACTORY.

INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE, OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AND ORDINANCES. COMPLY WITH REQUIREMENTS OF THE UTILITY COMPANIES. IN THE CASE OF DIFFERENCES BETWEEN THESE REQUIREMENTS AND ORDINANCES, THE MOST STRINGENT SHALL GOVERN. CALL FOR INSPECTIONS REQUIRED BY LOCAL BUILDING INSPECTION AUTHORITY.

PLANS AND SPECIFICATIONS GO HAND IN HAND. WHAT IS REQUIRED IN ONE IS REQUIRED IN BOTH. WHERE CONFLICTS BETWEEN SPECIFICATIONS AND PLANS EXIST, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

ELECTRICAL PLANS SUPERCEDE ARCHITECTURAL PLANS. BACKGROUND FLOOR PLANS USED FOR ELECTRICAL DRAWINGS MAY SHOW DIFFERENT THAN THE FINAL ARCHITECTURAL LAYOUT. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS AND LAYOUT PLACEMENTS FOR SPACE CONDITIONS.

ELECTRICAL DETAILS MAY OR MAY NOT BE DIRECTLY REFERENCED. ALL DETAILS SHOWN ARE TO BE USED FOR BASIS OF INSTALLATION IN ALL CASES, IN COORDINATED EFFORT WITH MANUFACTURERS INSTALLATION RECOMMENDATIONS.

ELECTRICAL SHEETS ARE NOT INTENDED TO SPECIFICALLY BE TRADE SPECIFIC TO ELECTRICAL INSTALLATION WORK. ALL MECHANICAL AND ELECTRICAL TRADES ARE RESPONSIBLE FOR FAMILIARIZING THEMSELVES AND INCLUDING A COMPLETE PACKAGE WITHIN THEIR OFFER FOR A COMPLETE SYSTEM.

AT COMPLETION OF WORK, DELIVER COMPLETED PROJECT RECORD DOCUMENTS MARKED WITH FIELD CHANGES TO OWNER.

PROVIDE A WRITTEN WARRANTY TO THE OWNER COVERING THE ENTIRE ELECTRICAL WORK TO BE FREE FROM DEFECTIVE MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF 1 YEAR AFTER DATE OF ACCEPTANCE.

CLEAN EXPOSED SURFACES OF LIGHT FIXTURES, SWITCHGEAR, AND OTHER EXPOSED ITEMS OF GREASE, DIRT OR OTHER FOREIGN MATERIAL. REMOVE RUBBISH AND DEBRIS RESULTING FROM THE OPERATIONS AND LEAVE EQUIPMENT SPACES CLEAN AND READY FOR USE.

MAINTAIN ALL CEILING, FLOOR AND WALL FIRE AND SMOKE PROTECTION RATINGS. SEAL ALL CONDUIT AND ENCLOSURE PENETRATIONS TO COMPLY WITH UL ASSEMBLY AND BUILDING CODE REQUIREMENTS. ALL SEALANTS AND CONSTRUCTIONS SHALL BE APPROVED BY OWNER PRIOR TO APPLICATION. ALL OPENINGS SHALL BE SEALED DAILY.

CONTRACT DRAWINGS FOR ELECTRICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS, AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. MECHANICAL/ELECTRICAL TRADES SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THEIR WORK, CONSULT GENERAL CONSTRUCTION DRAWINGS TO FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THEIR WORK, AND SHALL VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED. COORDINATE WORK WITH OTHER TRADES AND AS PROJECT CONDITIONS REASONABLY REQUIRE WITHOUT EXTRA COSTS TO OWNER.

ELECTRICAL SPECIFIC:
RACEWAYS SHALL BE LEFT WITH 30% FREE SPACE FOR FUTURE NEEDS.

SHARING OF NEUTRALS BETWEEN PHASES SHALL NOT BE ALLOWED.

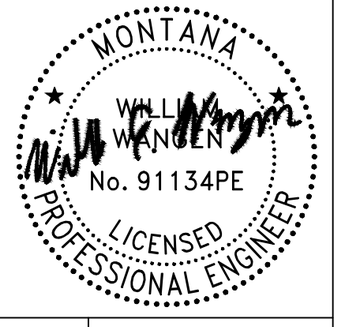
SEPARATE GROUNDING CONDUCTORS SHALL BE PROVIDED IN ALL RACEWAYS.

CONDUCTORS SHALL BE COPPER. COLOR CODING SHALL BE NEC APPROVED AND AT MINIMUM SHALL BE AS FOLLOWS:
120/208 VOLT-BLACK, RED, BLUE FOR PHASE CONDUCTORS, WHITE FOR NEUTRAL CONDUCTORS. 277/480 VOLT-BROWN, ORANGE, YELLOW FOR PHASE CONDUCTORS, GRAY FOR NEUTRAL CONDUCTORS. GROUNDING CONDUCTORS SHALL BE GREEN.

ELECTRICAL SYSTEMS SHALL COMPLY WITH 2020 NATIONAL ELECTRICAL CODE AND BE INSTALLED BY LICENSED CONTRACTORS. LIGHTING SHALL COMPLY WITH THE 2021 IECC.

UTILITIES:
LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE EXACT LOCATIONS IN THE FIELD (NOT ALL UTILITIES ARE SHOWN).

REGULATORY AND CODE REQUIREMENTS:
APPLY FOR AND PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS. ALL WORK IS SUBJECT TO APPROVAL BY THE CODE OFFICIAL AND ENGINEER. ALL CORRECTIONS SHALL BE MADE WITHOUT EXTRA COSTS TO OWNER.



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2		12/15/2025	REVIEWED BY	WW				
1			CHECKED BY	RD		REST AREA REHABILITATION		E0.1

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NEW PANEL "MDP"

PANEL LOCATION: EXTERIOR | L-L VOLT: 240 | PHASE: 1 | MAIN: LUG Y BREAKER N
MFR/MODEL: SQUARE D HCJ14486CU | L-N VOLT: 120 | WIRES: 3 | WIRE SIZE: (6) 500 KCMIL THWN + 3/0 CU | FED FROM: UTILITY TRANSFORMER T-1
AIC: 10,000 | RATED AMP: 600 | NEUTRAL 100% | COND. SIZE: (1) 4" EMT | MOUNT: SURFACE/STRUT RACK

DESCRIPTION	BREAKER TYPE	BREAKER POLE	BREAKER AMP	L-LOAD	R-LOAD	O-LOAD	T/S/O/M/A/E/H	PHASE			T/S/O/M/A/E/H	O-LOAD	R-LOAD	L-LOAD	BREAKER AMP	BREAKER POLE	BREAKER TYPE	DESCRIPTION
EXISTING PANEL "A"		2	200			23170	S	1	A	2	S	12016			200	2		EXISTING PANEL "B"
						23000	S	3	B	4	S	7596						
NEW PANEL "WT"		2	350			23576	S	5	A	6					100	2		SPARE
						23730	S	7	B	8								
SPACE								9	A	10					SPACE			
								11	B	12								
								13	A	14								
								15	B	16								
								17	A	18								
								19	B	20								
								21	A	22								
								23	B	24								
								25	A	26								
								27	B	28								
								29	A	30								
SUMMARY CONNECTED LOADS				0	0	0 0 93476 0 0 0 0	M A S E H T O	LOAD (VOLT-AMPERES)			M A S E H T O	0 0 19612 0 0 0 0	0	0	SUMMARY CONNECTED LOADS			

DESCRIPTION	CONN. KVA	D.F	DEM. KVA
LIGHTING	0.0	1.25	0.0
RECEPTACLES (FIRST 10KW)	0.0	1.0	0.0
RECEPTACLES (REMAINDER)	0.0	0.5	0.0
MOTORS	0.0	1.0	0.0
LARGEST MOTOR	0.0	1.25	0.0
APPLIANCES	0.0	1.0	0.0
SUBFEED	113.1	0.8	90.5
EQUIPMENT	0.0	1.0	0.0
HEATING	0.0	1.0	0.0
TRANSFORMER	0.0	1.0	0.0
OTHER	0.0	1.0	0.0
TOTAL KVA	113.1 KVA		90.5 KVA
TOTAL AMP	471.2 AMP		377.0 AMP
DESIGN (MAX)			600 AMP
SPARE			223.0 AMP

AMPERAGE FED TO PANEL	600 AMP	
TOTAL CONNECTED LOAD	471.2 AMP	113.1 KVA
TOTAL DEMAND LOAD	377.0 AMP	90.5 KVA
DESIGN (MAX)	600 AMP	144.0 KVA
SPARE LOAD	223 AMP	53.5 KVA
CONNECTED LOAD BALANCE SUMMARY		
PHASE A	489.7 AMP	58.762 KVA
PHASE B	452.7 AMP	54.326 KVA
A TO B	8 %	

LEGEND/KEY

T=TRANSFORMER
S=SUBFEED
O=OTHER
M=MOTOR
A=APPLIANCE
E=EQUIPMENT
H-HEATING
R=RECEPTACLES
L=LIGHTING
CONN.=CONNECTED
DEM.=DEMAND
SPR=SPARE
SPC=SPACE
D.F.=DEMAND FACTOR
GFCI=GROUND FAULT CIRCUIT
ST-SHUNT TRIP

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46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	ELECTRICAL PANEL SCHEDULE - NEW MDP
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION		E0.2
1			CHECKED BY	RD				

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NEW PANEL "WT"

PANEL LOCATION: NEW WATER TREATMENT BLDG | L-L VOLT: 240 | PHASE: 1 | MAIN: LUG | BREAKER 350A
MFR/MODEL: SQUARE D NQ54L4C | L-N VOLT: 120 | WIRES: 3 | WIRE SIZE: (6) 4/0 + (1) 2/0 CU | FED FROM: MDP
AIC: 10,000 | RATED AMP: 400 | NEUTRAL 100% | COND. SIZE: (1) 3" EMT | MOUNT: SURFACE

DESCRIPTION	BREAKER TYPE	BREAKER POLE	BREAKER AMP	L-LOAD	R-LOAD	O-LOAD	T/S/O/M/ A/E/H	PHASE			T/S/O/M /A/E/H	O-LOAD	R-LOAD	L-LOAD	BREAKER AMP	BREAKER POLE	BREAKER TYPE	DESCRIPTION
WT BUILDING LIGHTING		1	20	86				1	A	2	M	1800			35	2		DOSING PUMP: DP-1
WT BUILDING RCPS		1	20		360			3	B	4	M	1800						
EF-1 & LV-1		1	20			240	M	5	A	6	M	1800			35	2		DOSING PUMP: DP-2
SPARE		1	20					7	B	8	M	1800						
SPARE		1	20					9	A	10	M	1800			35	2		DOSING PUMP: DP-3
SPARE		1	20					11	B	12	M	1800						
SPARE		1	20					13	A	14	O	600			20	1		SCADA CONTROLLER
SPARE		1	20					15	B	16	M	1500			30	2		UNIT HEATER: UH-1
SPARE		1	20					17	A	18	M	1500						
CHEMICAL FEED PUMP		1	20			1920	M	19	B	20	E	480			20	2		CONTROL PNL EQ-B
CONTROL PNL CELL-A		1	20			1200	E	21	A	22	E	480						
CONTROL PNL PAD-A		2	20			480	E	23	B	24	E	480			20	2		CONTROL PNL PAD-B
						480	E	25	A	26	E	480						
CONTROL PNL PO1/PO2-A		2	20			480	E	27	B	28	E	480			20	2		CONTROL PNL PO1/PO2-B
						480	E	29	A	30	E	480						
CONTROL PNL SS1/SS2-A		2	20			480	E	31	B	32	E	480			20	2		CONTROL PNL SS1/SS2-B
						480	E	33	A	34	E	480						
CONTROL PNL FFBR-A		2	30			1470	E	35	B	36	E	2640			30	2		CONTROL PNL FFBR-B
						1470	E	37	A	38	E	2640						
CONTROL PNL DN COX-A		2	20			480	E	39	B	40	E	480			20	2		CONTROL PNL DN COX-B
						480	E	41	A	42	E	480						
BLOWER FAN A		2	30			1800	M	43	B	44	E	2520			30	2		CONTROL PNL DFD-B
						1800	M	45	A	46	E	2520						
BLOWER FAN B		2	30			1800	M	47	B	48					20	2		SPARE
						1800	M	49	A	50								
SPARE		2	30					51	B	52					20	2		SPARE
								53	A	54								
SUMMARY CONNECTED LOADS				86	360	9360 0 0 7980 0 0 0	M A S E H T O	LOAD (VOLT-AMPERES)			M A S E H T O	13800 0 0 15120 0 0 600	0	0	SUMMARY CONNECTED LOADS			

DESCRIPTION	CONN. KVA	D.F	DEM. KVA
LIGHTING	0.1	1.25	0.1
RECEPTACLES (FIRST 10KW)	0.4	1.0	0.4
RECEPTACLES (REMAINDER)	0.0	0.5	0.0
MOTORS	21.2	1.0	21.2
LARGEST MOTOR	1.9	1.25	2.4
APPLIANCES	0.0	1.0	0.0
SUBFEED	0.0	0.8	0.0
EQUIPMENT	23.1	1.0	23.1
HEATING	0.0	1.0	0.0
TRANSFORMER	0.0	1.0	0.0
OTHER	0.6	1.0	0.6
TOTAL KVA	47.3 KVA		47.8 KVA
TOTAL AMP	197.1 AMP		199.2 AMP
DESIGN (MAX)			350 AMP
SPARE			150.8 AMP

AMPERAGE FED TO PANEL	350 AMP	
TOTAL CONNECTED LOAD	197.1 AMP	47.3 KVA
TOTAL DEMAND LOAD	199.2 AMP	47.8 KVA
DESIGN (MAX)	350 AMP	84.0 KVA
SPARE LOAD	151 AMP	36.2 KVA
CONNECTED LOAD BALANCE SUMMARY		
PHASE A	196.5 AMP	23.576 KVA
PHASE B	197.8 AMP	23.73 KVA
A TO B	-1 %	

LEGEND/KEY
T=TRANSFORMER
S=SUBFEED
O=OTHER
M=MOTOR
A=APPLIANCE
E=EQUIPMENT
H-HEATING
R=RECEPTACLES
L=LIGHTING
CONN.=CONNECTED
DEM.=DEMAND
SPR=SPARE
SPC=SPACE
D.F.=DEMAND FACTOR
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2		12/15/2025	REVIEWED BY WW		REST AREA REHABILITATION	
1			CHECKED BY RD			

ELECTRICAL PANEL SCHEDULE - NEW MDP

E0.3

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UTILIZE EXISTING SPARE 30A 2-POLE BREAKER FOR NEW WELL PUMP WP-1.

DISCONNECT POWER CONDUCTORS FOR EXISTING DRAINFIELD PUMPS. REPLACE EXISTING 70A 2-POLE BREAKER WITH NEW 30A 2-POLE BREAKER FOR NEW WELL PUMP WP-2.

DISCONNECT POWER CONDUCTORS FOR EXISTING WATER TREATMENT SYSTEM AND DRAIN FIELD ACCESSORIES. CONNECT NEW PUMP CONTROL PANEL WIRING TO EXISTING BREAKERS.

DISCONNECT POWER CONDUCTORS FOR EXISTING ELIMINTIE WATER TREATMENT SYSTEM. MAINTAIN EXISTING BREAKER AS SPARE.

REMODELED EXISTING PANEL "B"

PANEL LOCATION:	EXISTING REST AREA BUILDING			L-L VOLT:	240	PHASE:	1	MAIN:	LUG			BREAKER	200A						
MFR/MODEL:	SQUARE D NQ			L-N VOLT:	120	WIRES:	3	WIRE SIZE:	EXISTING			FED FROM:	EXISTING METER MAIN						
AIC:	10,000			RATED AMP:	225	NEUTRAL	100%	COND. SIZE:	EXISTING			MOUNT:	SURFACE						

DESCRIPTION	BREAKER TYPE	BREAKER POLE	BREAKER AMP	L-LOAD	R-LOAD	O-LOAD	T/S/O/M/ A/E/H	PHASE			T/S/O/M /A/E/H	O-LOAD	R-LOAD	L-LOAD	BREAKER AMP	BREAKER POLE	BREAKER TYPE	DESCRIPTION
WELL PUMP (BOTH)		2	30			2500	M	1	A	2	O	1000			20	1		SECURITY SYSTEM
						2500	M	3	B	4	M	750			20	1		HAND DRYER
NEW WELL PUMP: WP-1		2	30			1188	M	5	A	6	M	750			20	1		HAND DRYER
						1188	M	7	B	8	M	750			20	1		HAND DRYER
NEW WELL PUMP: WP-2		2	30			1188	M	9	A	10	M	750			20	1		HAND DRYER
						1188	M	11	B	12			540		20	1		RECEPTACLES
WP-1 & 2 CONTROL PANEL		1	20			180	O	13	A	14	O	1100			20	1		DSF
(E)WELL PUMP CONTROL PNL		1	20			180	O	15	B	16	O	500			20	1		IRRIGATION
WELL PUMP (EAST)		1	25			2000	M	17	A	18			360		20	1		RECEPTACLES
SPARE		1	20					19	B	20					20	1		SPARE
WEST ADA DOOR		1	20			1000	O	21	A	22					20	1		SPARE
SPARE		2	150					23	B	24					20	1		SPARE
								25	A	26					20	1		SPARE
SPARE		1	20					27	B	28					20	1		SPARE
SPARE		1	20					29	A	30					20	1		SPARE
						11752	M				M	3000						
						0	A				A	0						
						0	S				S	0						
SUMMARY CONNECTED LOADS				0	0	0	E	LOAD			E	0	900	0	SUMMARY CONNECTED LOADS			
						0	H	(VOLT-AMPERES)			H	0						
						0	T				T	0						
						1360	O				O	2600						

DESCRIPTION	CONN. KVA	D.F	DEM. KVA
LIGHTING	0.0	1.25	0.0
RECEPTACLES (FIRST 10KW)	0.9	1.0	0.9
RECEPTACLES (REMAINDER)	0.0	0.5	0.0
MOTORS	12.3	1.0	12.3
LARGEST MOTOR	2.5	1.25	3.1
APPLIANCES	0.0	1.0	0.0
SUBFEED	0.0	0.8	0.0
EQUIPMENT	0.0	1.0	0.0
HEATING	0.0	1.0	0.0
TRANSFORMER	0.0	1.0	0.0
OTHER	4.0	1.0	4.0
TOTAL KVA	19.6 KVA		20.2 KVA
TOTAL AMP	81.7 AMP		84.3 AMP
DESIGN (MAX)			200 AMP
SPARE			115.7 AMP

AMPERAGE FED TO PANEL	200 AMP		
TOTAL CONNECTED LOAD	81.7 AMP	19.6 KVA	
TOTAL DEMAND LOAD	84.3 AMP	20.2 KVA	
DESIGN (MAX)	200 AMP	48.0 KVA	
SPARE LOAD	116 AMP	27.8 KVA	
CONNECTED LOAD BALANCE SUMMARY			
PHASE A	100.1 AMP	12.016 KVA	
PHASE B	63.3 AMP	7.596 KVA	
A TO B	37 %		

LEGEND/KEY
T=TRANSFORMER
S=SUBFEED
O=OTHER
M=MOTOR
A=APPLIANCE
E=EQUIPMENT
H-HEATING
R=RECEPTACLES
L=LIGHTING
CONN.=CONNECTED
DEM.=DEMAND
SPR=SPARE
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2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION			E0.4
1			CHECKED BY	RD					

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AWARD COPY

SCHEDULE OF DISCONNECTS

EQUIPMENT	CONNECTED LOAD							DISCONNECT			FUSE			FEEDER			NOTES
	HP	W	FLA	MCA	PH	VOLTS	NEMA CLASS	TYPE	MFR.	CATALOG NO.	TYPE	SIZE	POLES	SIZE	TYPE	GRND	
DP-1, DP-2, DP-3	1	-	12	-	1	240	1	COMBINATION SOFT STARTER DISCONNECT	SCHNEIDER ELECTRIC	ATS01N125FT	CARTRIDGE CLASS R	25A	2	(3) #10	THWN	#10	1
WP-1, WP-2	2	-	9.9	-	1	240	3	GENERAL DUTY	SCHNEIDER ELECTRIC	DU221RB	UNFUSED		2	(3) #10	THWN	#10	-
EF-1	1/10	-	1.5	2	1	120	1	FUSESTAT	COOPER	BP/SSU	EDISON BASE CLASS T	4A	1	(2) #12	THWN	#12	-
UH-1	-	-	12.5	-	1	240	1	GENERAL DUTY FUSED	SCHNEIDER ELECTRIC	D221N	CARTRIDGE CLASS R	25A	2	(3) #10	THWN	#10	-
LV-1	-	-	.5	-	1	120	1	FUSESTAT	COOPER	BP/SSU	EDISON BASE CLASS T	2A	1	(2) #12	THWN	#12	-

NOTES:
1. PROVIDE ALTISTART SOLID STATE MOTOR CONTROLLER WITH THE FOLLOWING OPTIONS: D10-EMERGENCY STOP BUTTON, F10-AUXILIARY RUN MODE CONTACTS, G10-AUXILIARY FB BYPASS CONTACTS, H10-AUXILIARY AUTO MODE CONTACTS AND J10-AUXILIARY TRIP INDICATION CONTACTS.

LIGHTING FIXTURE SCHEDULE

SYMBOL	LETTER DESIG.	FIXTURE						LAMP				NOTES		LINK
		MANUFACTURER	DESCRIPTION	CATALOG NO.	LOCATION	TYPE	HEIGHT	TYPE	# BULBS	WATTS	LUMENS			
	A	ELITE/ORACLE	4' LED UTILITY STRIP LIGHT	4-OEC-LED-3000L-DIM10-MVOLT-40K-85	CEILING	SURFACE	8'	LED	1	21	3231	1,2	-	SPEC
	B	ELITE/ORACLE	LED SLIMLINE FULL CUT-OFF WALL PACK	OWP-FC-116-LED	WALL	SURFACE	8'6"	LED	1	27	3500	1,2	A,B	SPEC

LUMINAIRE NOTES:
1. COLOR/FINISH TO BE DETERMINED BY ARCHITECT.
2. PROVIDE ALL NECESSARY HARDWARE OR KITS FOR MOUNTING LUMINAIRE AS NOTED BY LOCATION AND TYPE.

CONTROL NOTES:
A. INTEGRAL PHOTOCELL
B. INTEGRAL PIR MOTION SENSOR SWITCH

LIGHTING CONTROL SCHEDULE

AON = AUTO ON; AOF = AUTO OFF; MON = MANUAL ON; MOF = MANUAL OFF; MOWO = MANUAL OFF WHILE OCCUPIED; TDO = TIME DELAY OFF

DLD = DAY LIGHT DETECTION; 3W = THREE WAY; 4W = 4 WAY; E = ENABLED; D = DISABLED

SWITCH SYMBOL	DESCRIPTION	MANUFACTURER	MODEL	LIGHTING AMP RATING	FAN AMP RATING	LIGHTING + FAN AMP RATING	CONTROL OPTIONS											NOTES	LINK
							AON	AOF	MON	MOF	MOWO	TDO	DLD	3W	4W	0-10V DIM	TRIAC DIM		
$	WALL SWITCH	HUBBELL	CS120	20	20	20	-	-	E	E	-	-	-	-	-	-	-	-	SPEC

NOTES:

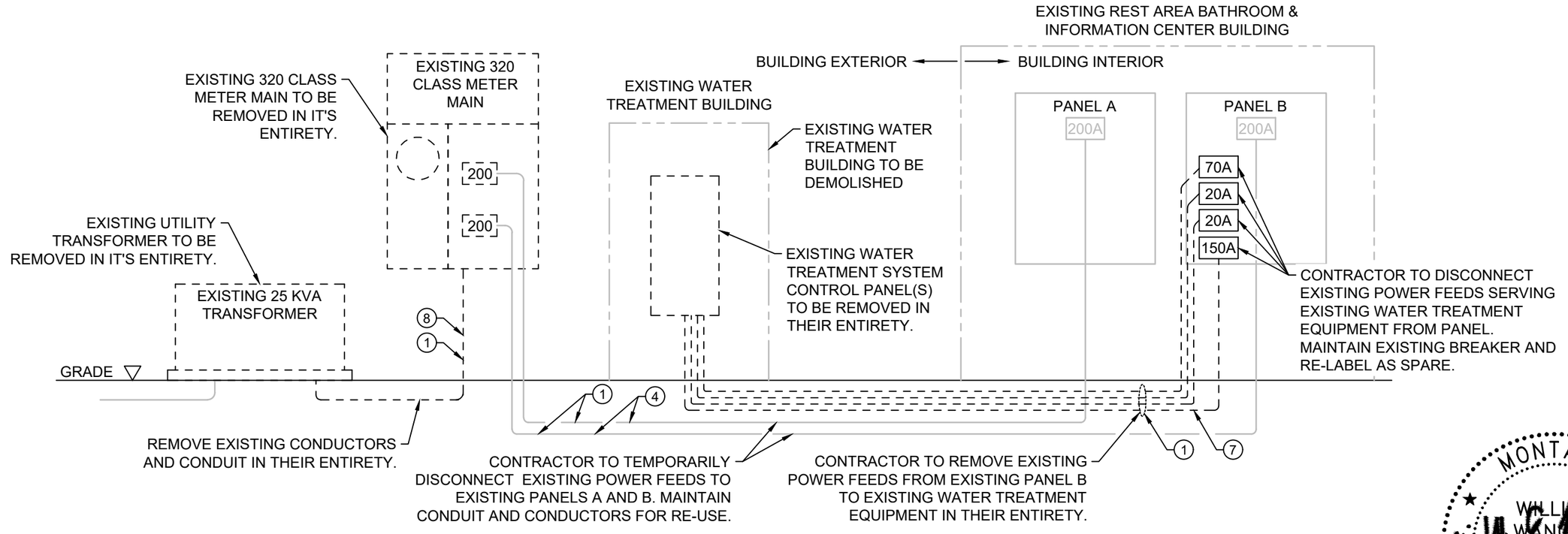
FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

MONTANA
WILLIAM WANGEN
No. 91134PE
PROFESSIONAL ENGINEER
LICENSED

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	ELECTRICAL SCHEDULES
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION		E0.5
1			CHECKED BY	RD				

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

WIRING & CONDUIT SCHEDULE	
1	EXISTING CONDUIT AND CONDUCTORS. CONTRACTOR TO FIELD VERIFY SIZE AND QUANTITY.
2	(2) 3" SCH 40 PVC CONDUIT. (CONDUCTORS BY UTILITY)
3	(6) 500 KCMIL THWN + (1) 3/0 CU IN (1) 4" EMT CONDUIT
4	(3) 3/0 THWN + (1) #2 CU IN (1) 2" SCH 80 CONDUIT
5	(6) 4/0 THWN + (1) 2/0 CU IN (1) 3" EMT CONDUIT
6	(6) 4/0 THWN + (1) 2/0 CU IN (1) 3" SCH 80 PVC CONDUIT
7	(3) 1/0 THWN + (1) #4 CU IN (1) 2" EMT CONDUIT
8	(1) 600 KCMIL THWN + (1) 1/0 CU IN (1) 4" SCH 80 CONDUIT



1 / E0.6 POWER SCHEMATIC DIAGRAM - DEMOLITION

SCALE: NTS

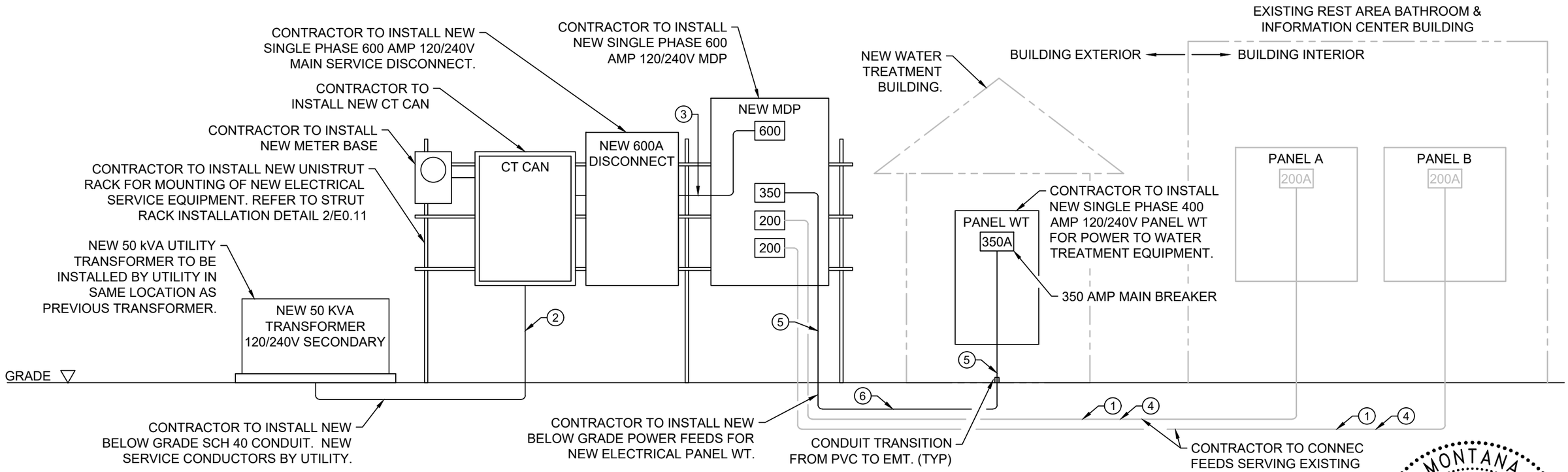
MONTANA
WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	POWER SCHEMATIC DIAGRAM - DEMOLITION	
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION			E0.6
1			CHECKED BY	RD					

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

WIRING & CONDUIT SCHEDULE	
1	EXISTING CONDUIT AND CONDUCTORS. CONTRACTOR TO FIELD VERIFY SIZE AND QUANTITY.
2	(2) 3" SCH 40 PVC CONDUIT. (CONDUCTORS BY UTILITY)
3	(6) 500 KCMIL THWN + (1) 3/0 CU IN (1) 4" EMT CONDUIT
4	(3) 3/0 THWN + (1) #2 CU IN (1) 2" SCH 80 CONDUIT
5	(6) 4/0 THWN + (1) 2/0 CU IN (1) 3" EMT CONDUIT
6	(6) 4/0 THWN + (1) 2/0 CU IN (1) 3" SCH 80 PVC CONDUIT
7	(3) 1/0 THWN + (1) #4 CU IN (1) 2" EMT CONDUIT
8	(1) 600 KCMIL THWN + (1) 1/0 CU IN (1) 4" SCH 80 CONDUIT



1 E0.7 POWER SCHEMATIC DIAGRAM - NEW CONSTRUCTION

SCALE: NTS

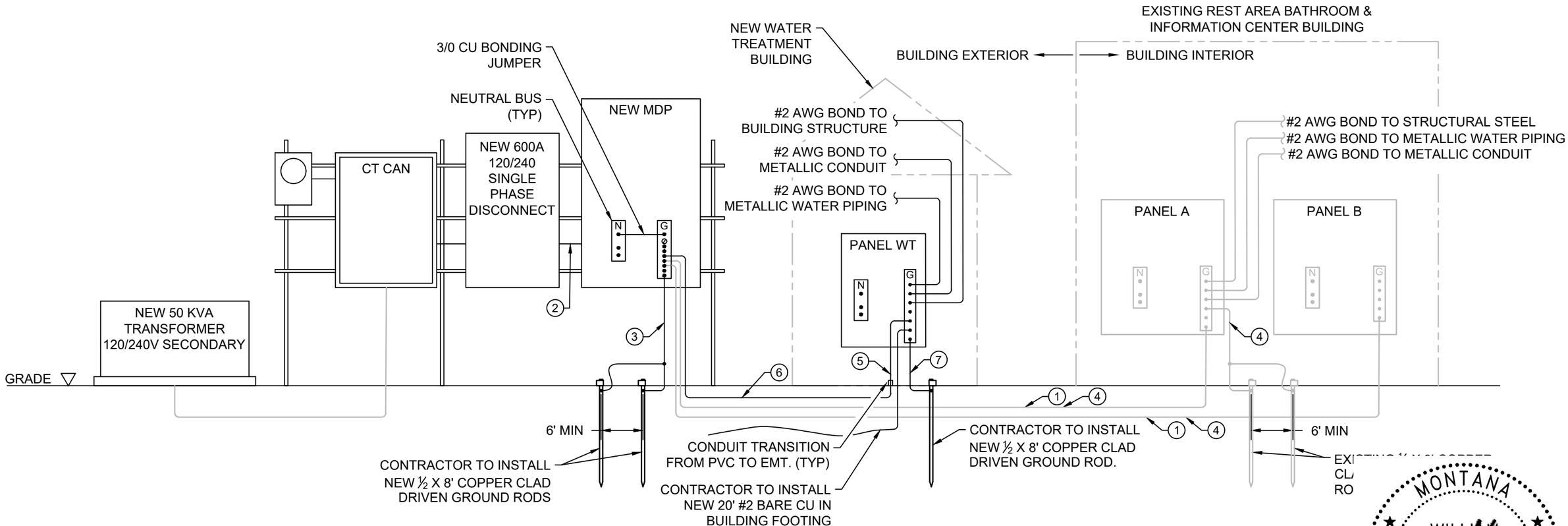
MONTANA
WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS	GREYCLIFF REST AREA	100% CD	POWER SCHEMATIC DIAGRAM - NEW
2		12/15/2025	REVIEWED BY	WW	REST AREA REHABILITATION		E0.7
1			CHECKED BY	RD			

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

WIRING & CONDUIT SCHEDULE	
1	EXISTING CONDUIT AND CONDUCTORS. CONTRACTOR TO FIELD VERIFY SIZE AND QUANTITY.
2	3/0 CU IN 4" EMT CONDUIT
3	3/0 CU IN 1" PVC CONDUIT
4	#2 CU IN 2" SCH 80 CONDUIT
5	2/0 CU IN 3" EMT CONDUIT
6	2/0 CU IN 3" PVC CONDUIT
7	2/0 CU IN 1" PVC CONDUIT



1 / E0.8 GROUNDING AND BONDING SCHEMATIC DIAGRAM - NEW CONSTRUCTION

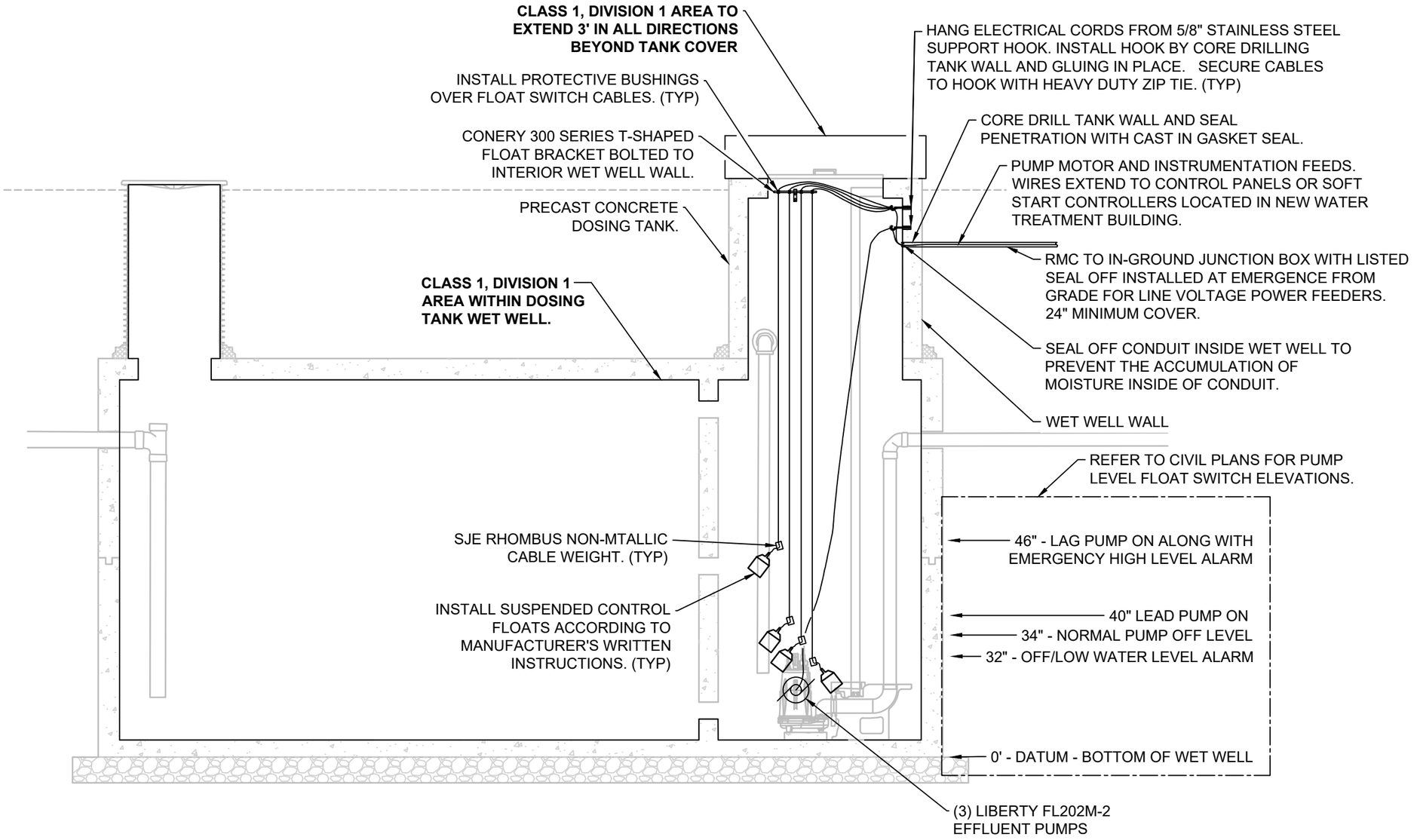
SCALE: NTS

MONTANA WILLIAM WANGEN No. 91134PE LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL. 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS	GREYCLIFF REST AREA	100% CD	GROUNDING & BONDING SCHEMATIC
2		12/15/2025	REVIEWED BY	WW	REST AREA REHABILITATION		E0.8
1			CHECKED BY	RD			

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96



1 / E0.9 DOSING TANK ELECTRICAL DETAIL

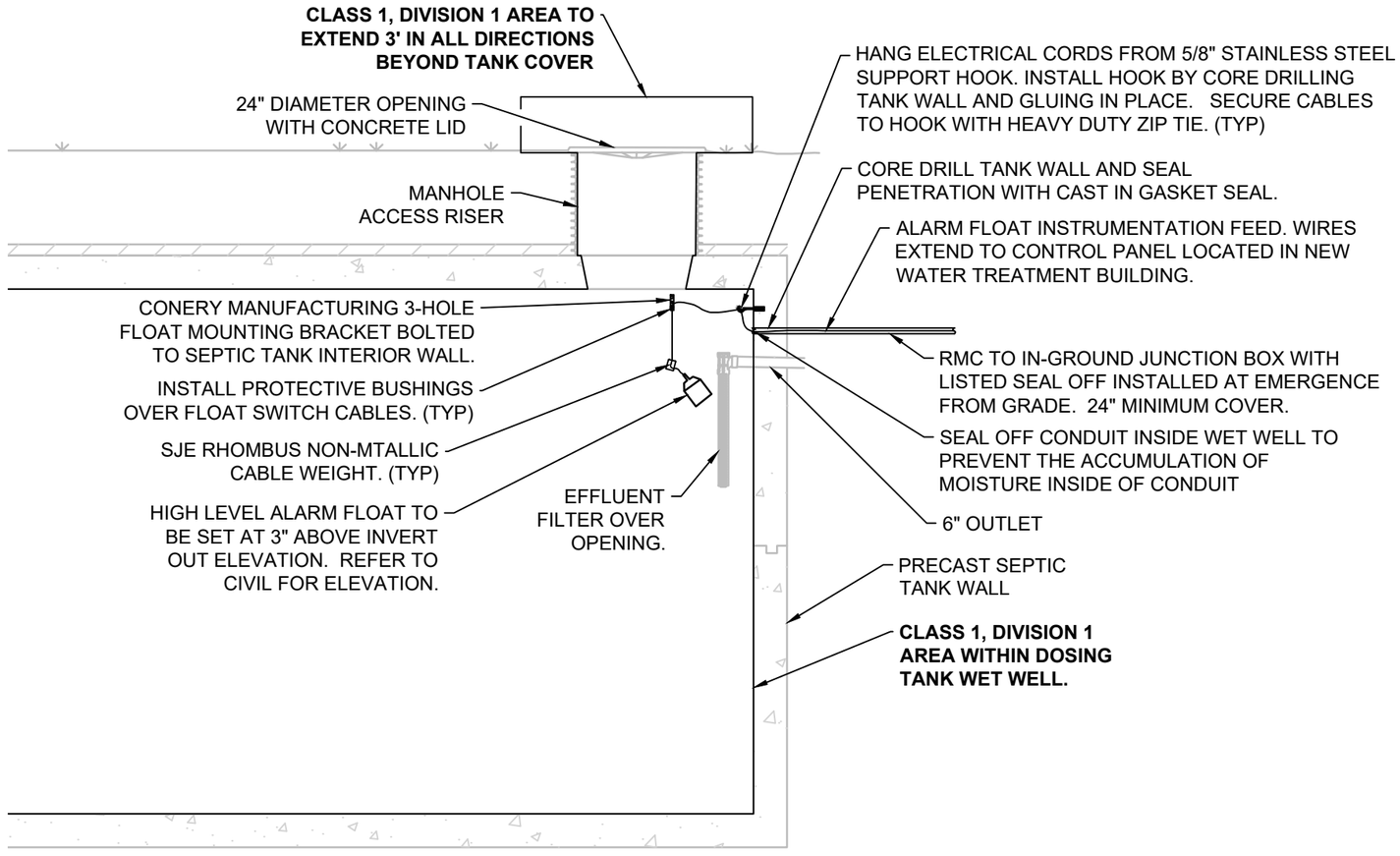
SCALE: NTS

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

MONTANA
WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

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2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION		E0.9
1			CHECKED BY	RD				

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1 E0.10 SEPTIC TANK ELECTRICAL DETAIL

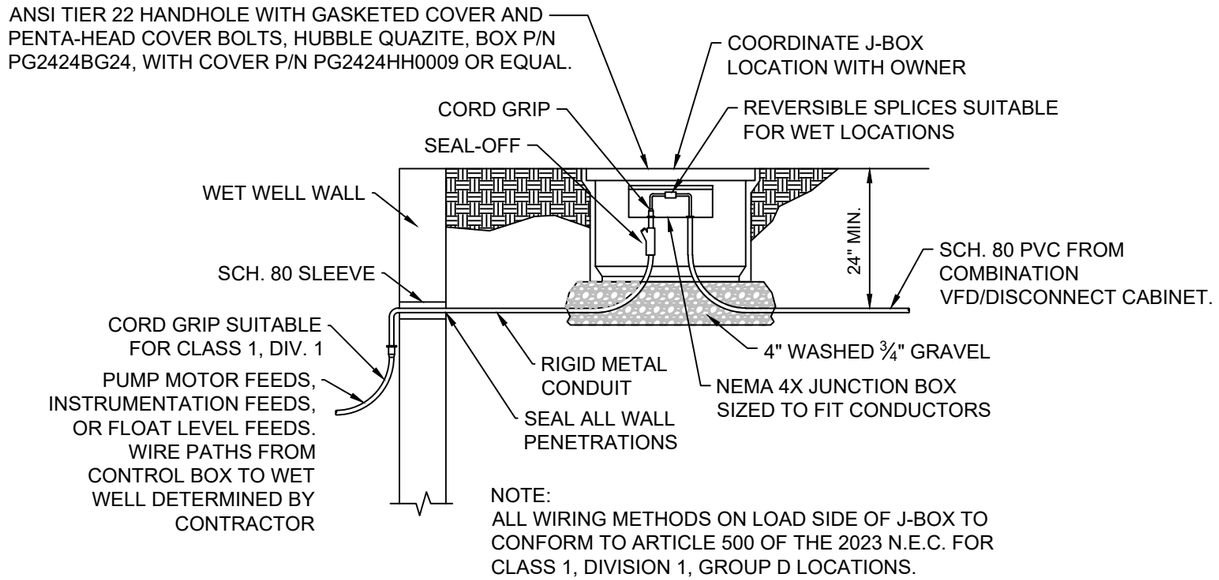
SCALE: NTS

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

MONTANA
WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

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2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION			E0.10
1			CHECKED BY	RD					

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

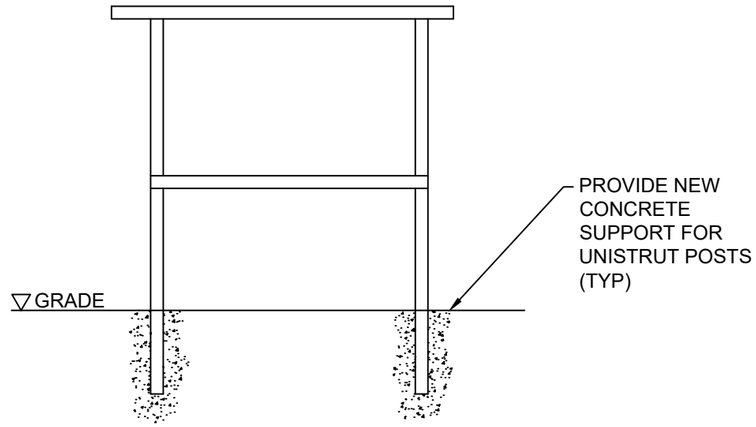


1 E0.11 IN-GROUND JUNCTION BOX WITH LISTED SEAL-OFF DETAIL

SCALE: NTS

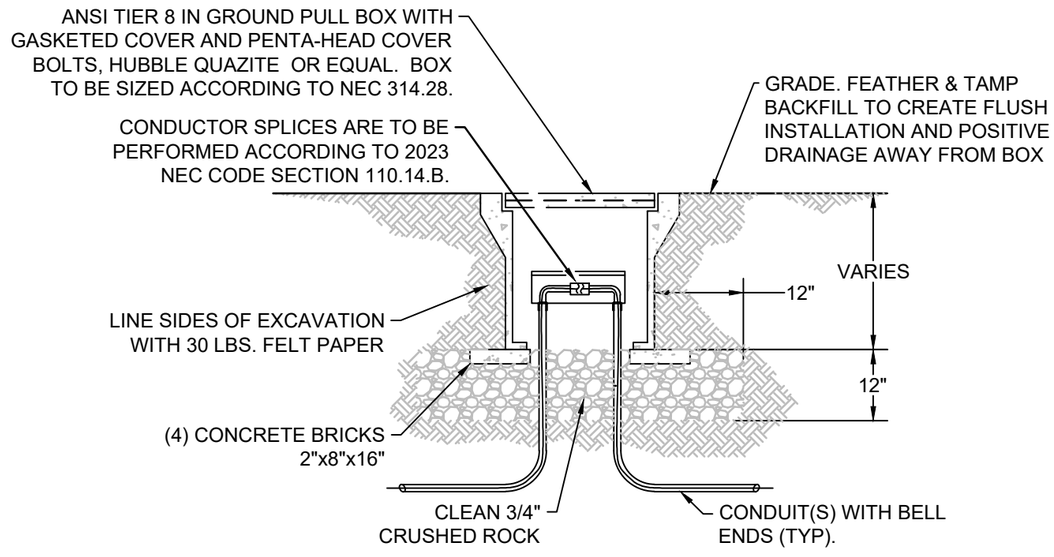
GENERAL NOTES ABOUT THIS DETAIL:

1. THIS DETAIL SHOWS GENERAL SPACE RELATIONSHIPS WITH THE DIMENSIONS OF THE EQUIPMENT SPECIFIED. CONTRACTOR TO COORDINATE AND FIT ALL EQUIPMENT FOR EASE OF MAINTENANCE.
2. POWERSTRUT CHANNEL SHALL BE 1-1/2" ELECTRO-GALV FINISH 12 GAGE.
3. A SINGLE RACK SYSTEM IS ANTICIPATED TO BE BUILT FOR ALL EQUIPMENT, NOT TWO SEPARATE RACKS.
4. TEE JOINTS SHALL BE POWERSTRUT PS714EG OR EQUAL TYPE OF CONNECTION.
5. WOOD POSTS TO NOT BE ALLOWED.



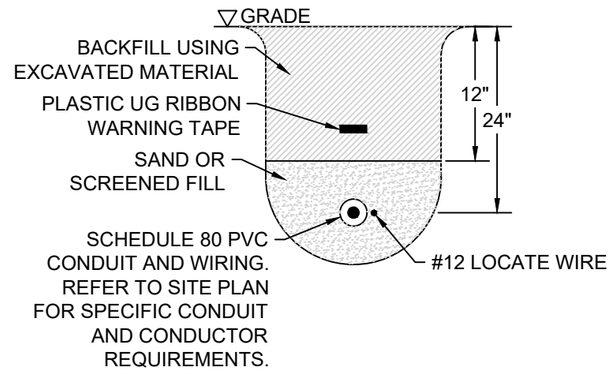
2 E0.11 UNISTRUT RACK INSTALLATION DETAIL

SCALE: NTS



3 E0.11 UNDERGROUND ELECTRICAL PULL BOX DETAIL - TURF AREAS

SCALE: NTS



4 E0.11 BURIED ELECTRICAL LINE DETAIL

SCALE: NTS

MONTANA
WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

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2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION			E0.11
1			CHECKED BY	RD					

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

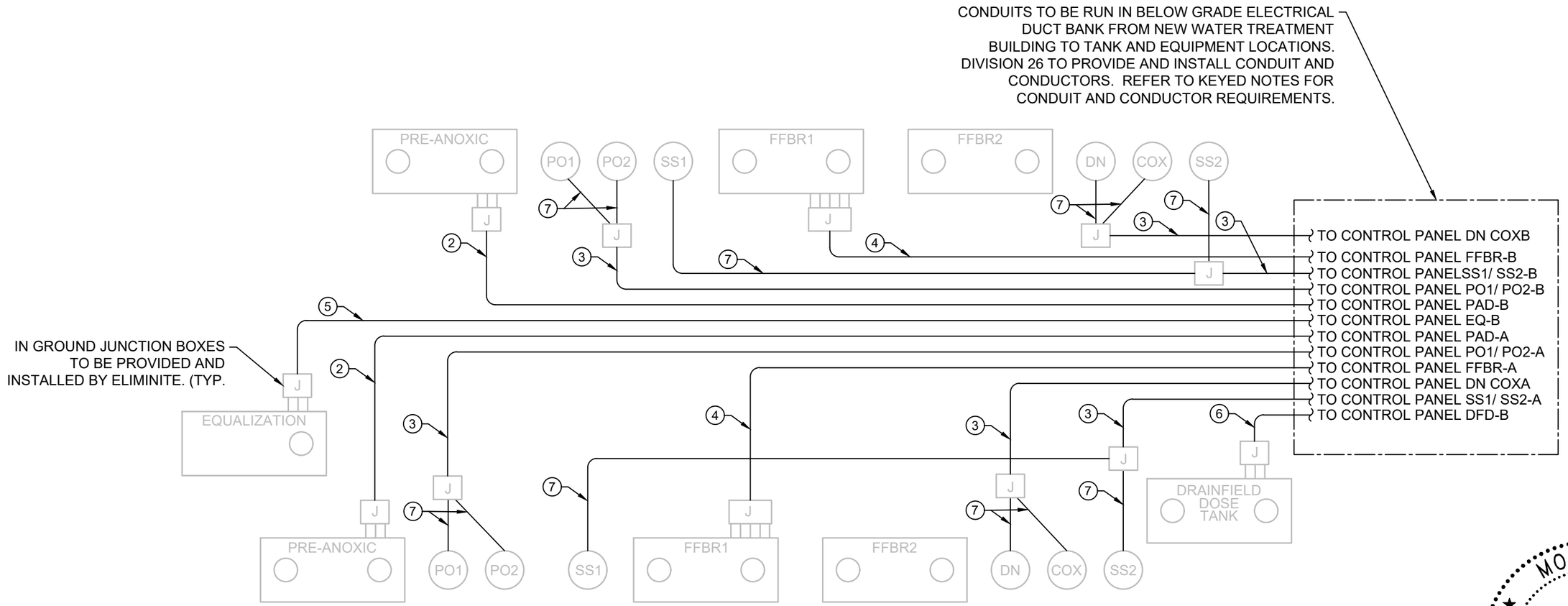
GENERAL NOTE

WATER TREATMENT TANK AND PROCESS EQUIPMENT LAYOUT SHOWN IS SCHEMATIC IN NATURE. ALL CONDUIT PATHWAYS, WIRING REQUIREMENTS AND JUNCTION BOX LOCATIONS ARE TO BE FIELD COORDINATED WITH ELIMINITE PRIOR TO INSTALLATION.

ALL EQUIPMENT, JUNCTION BOXES AND CONNECTIONS SHOWN IN GRAY WILL BE PROVIDED AND INSTALLED BY ELIMINITE. DIVISION 26 CONTRACTOR TO PROVIDE AND INSTALL CONDUIT AND WIRING CONNECTIONS SHOWN IN BLACK.

WIRING & CONDUIT SCHEDULE

1	(2) #12 THWN + (1) #12 CU IN (1) 1" SCH 80 PVC CONDUIT
2	(12) #12 THWN + (2) #12 CU IN (2) 1" SCH 80 PVC CONDUIT
3	(6) #12 THWN + (2) #12 CU IN (1) 1" SCH 80 PVC CONDUIT
4	(20) #12 THWN + (4) #12 CU IN (3) 1" SCH 80 PVC CONDUIT
5	(14) #12 THWN + (2) #12 CU IN (2) 1" SCH 80 PVC CONDUIT
6	(17) #12 THWN + (3) #12 CU IN (3) 1" SCH 80 PVC CONDUIT
7	(3) #12 THWN + (1) #12 CU IN (1) 1" SCH 80 PVC CONDUIT



1 / E0.12 WATER TREATMENT EQUIPMENT CONDUIT AND WIRING SCHEMATIC DIAGRAM

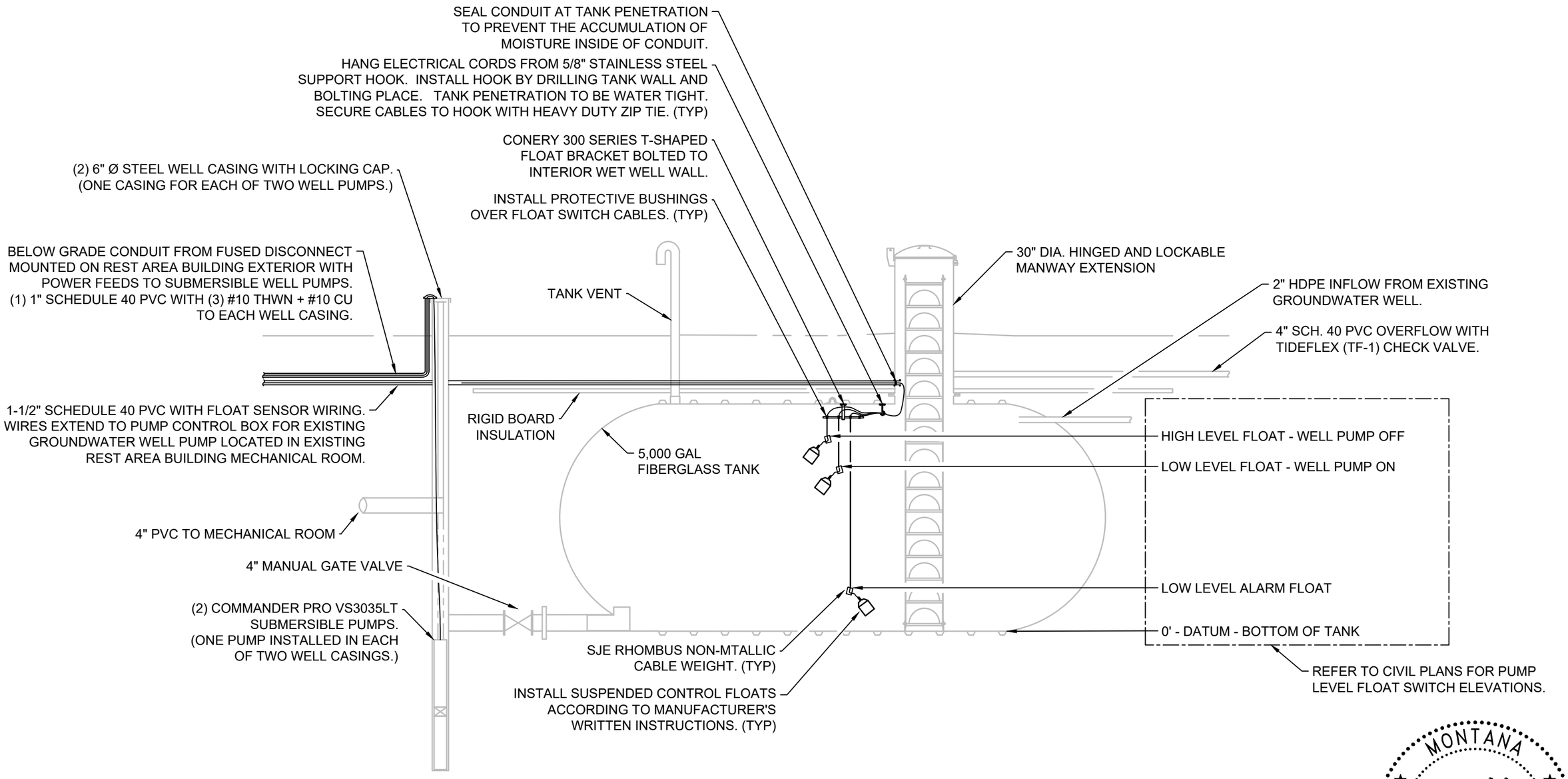
SCALE: NTS

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL. 406.441.4000
www.fourfrontdesign.com

MONTANA WILLIAM WANGEN No. 91134PE LICENSED PROFESSIONAL ENGINEER

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	WATER TREATMENT EQUIPMENT SCHEMATIC
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION		E0.12
1			CHECKED BY	RD				

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1 / E0.13 WATER STORAGE TANK ELECTRICAL DETAIL

SCALE: NTS

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WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	WATER TANK ELECTRICAL DETAIL
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION		E0.13
1			CHECKED BY	RD				

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SCHEMATIC DIAGRAM LEGEND

(PS)	PRESSURE SWITCH
(FS)	LEVEL FLOAT SWITCH
	SUBMERSIBLE WELL PUMP MOTOR
	DISCONNECT SWITCH
———	BLACK LINE WORK INDICATES NEW EQUIPMENT TO BE INSTALLED.
———	GREY LINE WORK INDICATES EXISTING EQUIPMENT TO REMAIN
– – –	DASHED GREY LINE WORK INDICATES EXISTING EQUIPMENT TO BE DEMOLISHED

NEW SUBMERSIBLE PUMPS SEQUENCE OF OPERATION

REVIEW OPERATION IN DETAIL WITH OWNER (MT DOT) PRIOR TO COMPLETION OF WORK

NEW SUBMERSIBLE WELL PUMPS WP-1 AND WP-2 SEQUENCE OF OPERATIONS:

THE PRIMARY (LEAD) PUMP SHALL BE ENABLED WHEN PRESSURE IN TANK DROPS BELOW LOWER PRESSURE LIMIT. WHEN PRESSURE RETURNS TO THE UPPER PRESSURE LIMIT THE PUMP WILL BE DISABLED.

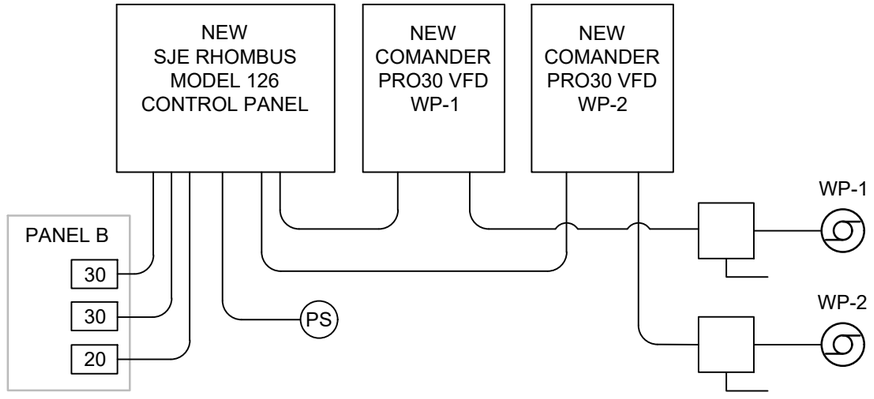
THE CURRENT LEAD PUMP SHALL ROTATE TO THE LAG PUMP, AND THE CURRENT LAG PUMP SHALL ROTATE TO THE LEAD PUMP, EVERY PUMP CYCLE TO EQUALIZE WEAR.

(E) SUBMERSIBLE PUMP SEQUENCE OF OPERATION

EXISTING SUBMERSIBLE PUBLIC GROUNDWATER WELL PUMP SEQUENCE OF OPERATIONS:

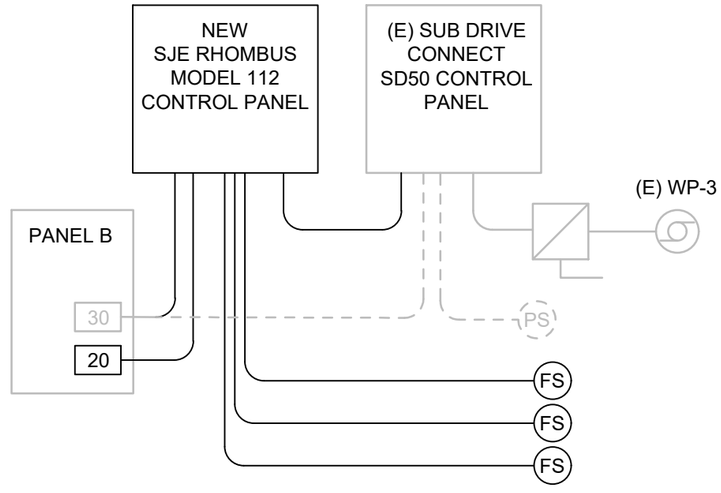
WHEN WATER LEVEL IS ABOVE LOW LEVEL FLOAT SET POINT, PUMP IS OFF. WATER FLOWS OUT OF TANK INTO THE NEW GROUND WATER WELL CASINGS ACCORDING TO GRAVITY/DEMAND. PUMP IS ENABLED WHEN WATER LEVEL DROPS BELOW THE LOW LEVEL FLOAT ELEVATION SET POINT. PUMP IS DISABLED WHEN WATER REACHES THE HIGH LEVEL FLOAT ELEVATION SET POINT.

LOW LEVEL ALARM: IF WATER LEVEL DROPS BELOW LOW LEVEL ALARM FLOAT ELEVATION SET POINT, CONTROL PANEL INITIATES LOW LEVEL ALARM. ALARM SHALL ENABLE LOCAL STROBE.



1 E0.14 NEW WATER PUMPS CONTROL SCHEMATIC AND OPERATIONAL SEQUENCE

SCALE: NTS



1 E0.14 EXISTING GROUNTWATER PUMP CONTROL SCHEMATIC AND OPERATIONAL SEQUENCE

SCALE: NTS

MONTANA
WILLIAM WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

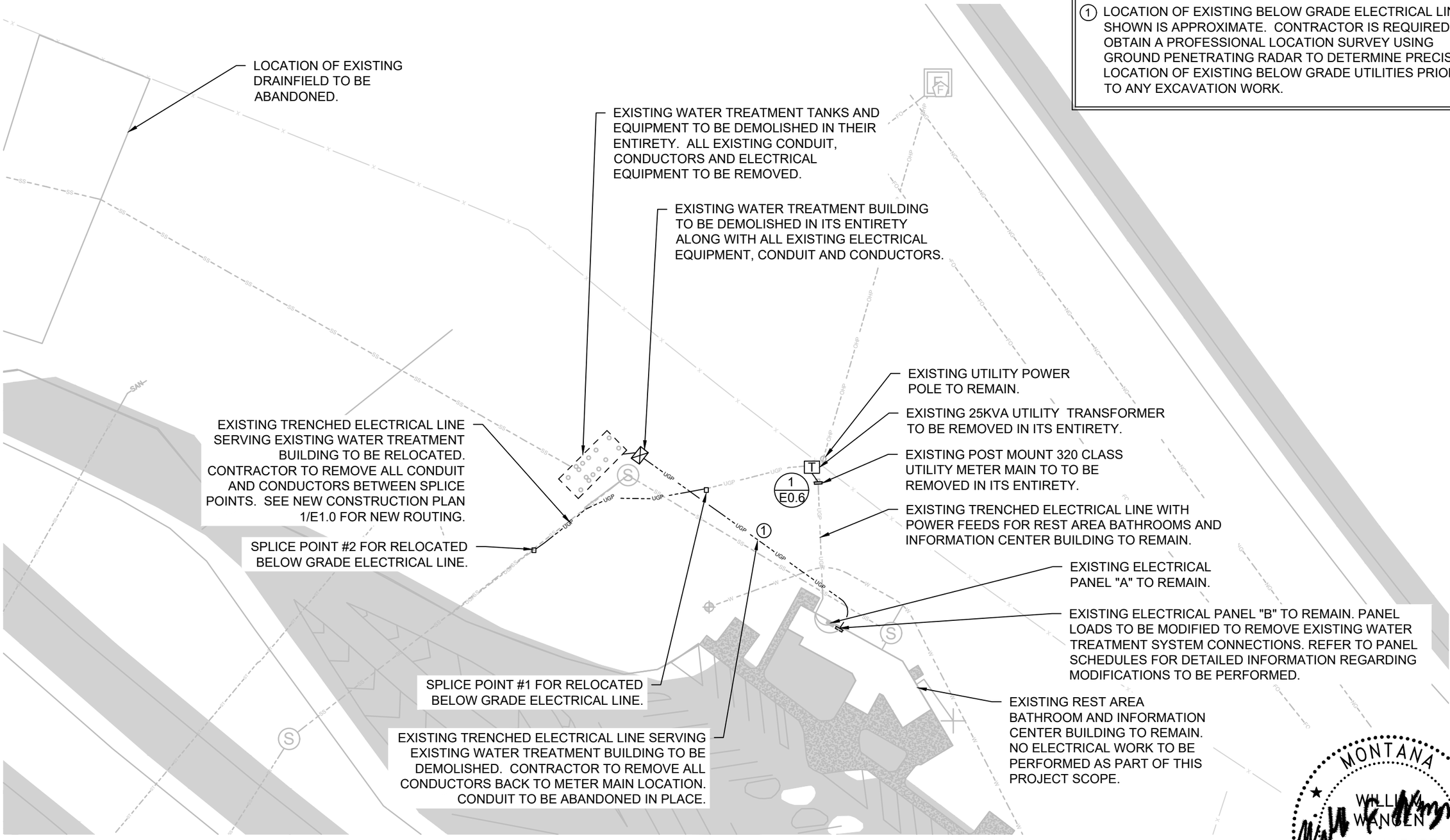
FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

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2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION			E0.14
1			CHECKED BY	RD					

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

KEYED ELECTRICAL NOTES

1. LOCATION OF EXISTING BELOW GRADE ELECTRICAL LINE SHOWN IS APPROXIMATE. CONTRACTOR IS REQUIRED TO OBTAIN A PROFESSIONAL LOCATION SURVEY USING GROUND PENETRATING RADAR TO DETERMINE PRECISE LOCATION OF EXISTING BELOW GRADE UTILITIES PRIOR TO ANY EXCAVATION WORK.



1 ED1.0 OVERALL SITE POWER DEMOLITION PLAN

SCALE: 1/64" = 1'

MONTANA
WILLIAM WANGEN
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LICENSED PROFESSIONAL ENGINEER

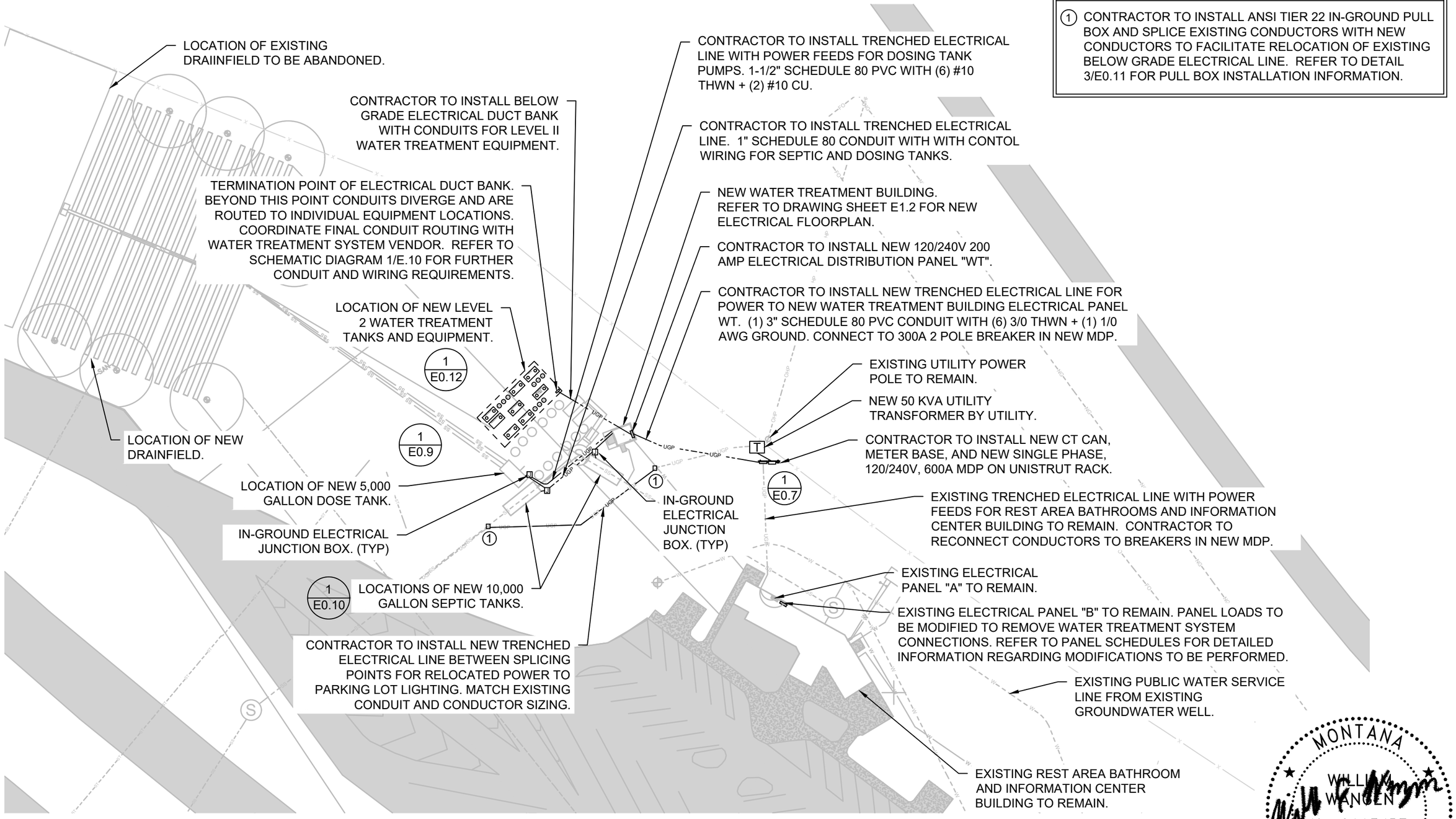
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46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS	GREYCLIFF REST AREA	100% CD	OVERALL SITE POWER DEMOLITION PLAN
2		12/15/2025	REVIEWED BY	WW	REST AREA REHABILITATION		ED1.0
1			CHECKED BY	RD			

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96

KEYED ELECTRICAL NOTES

(1) CONTRACTOR TO INSTALL ANSI TIER 22 IN-GROUND PULL BOX AND SPLICE EXISTING CONDUCTORS WITH NEW CONDUCTORS TO FACILITATE RELOCATION OF EXISTING BELOW GRADE ELECTRICAL LINE. REFER TO DETAIL 3/E0.11 FOR PULL BOX INSTALLATION INFORMATION.



1 E1.0 SITE POWER - NEW WASTE WATER CONSTRUCTION PLAN

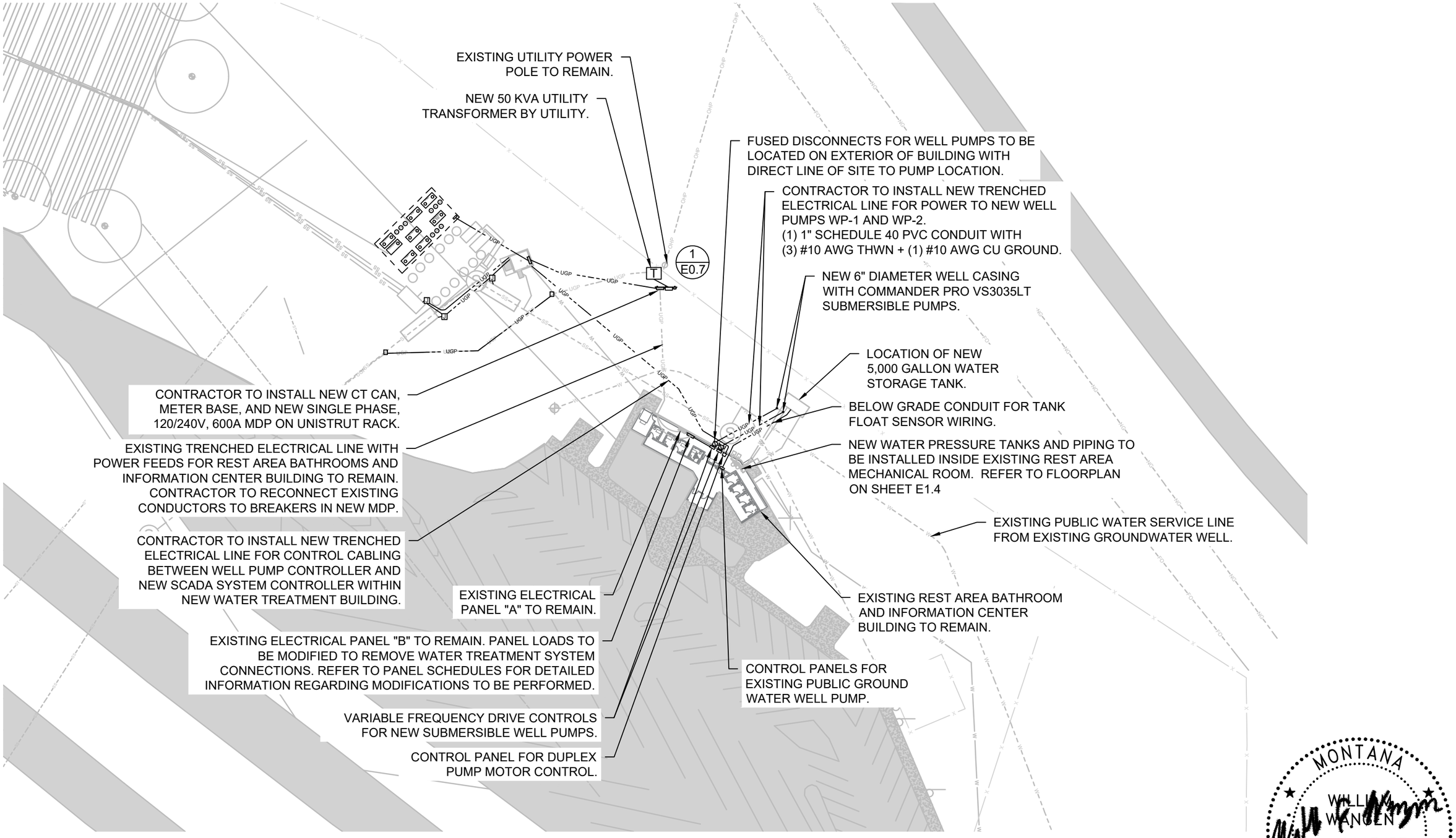
SCALE: 1/32" = 1'

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

MONTANA WILLIAM WANGEN No. 91134PE LICENSED PROFESSIONAL ENGINEER

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	OVERALL SITE NEW POWER PLAN
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION		E1.0
1			CHECKED BY	RD				

Docusign Envelope ID: 5CFBC9ED-6F6D-8703-8091-DFA761F61C96



1 / E1.1 SITE POWER - NEW WATER WELL CONSTRUCTION PLAN

SCALE: 1/32" = 1'

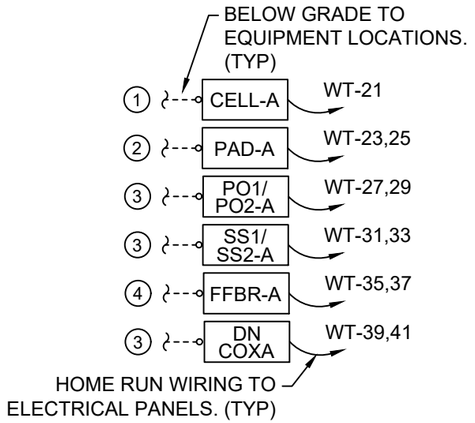
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No. 91134PE
LICENSED PROFESSIONAL ENGINEER

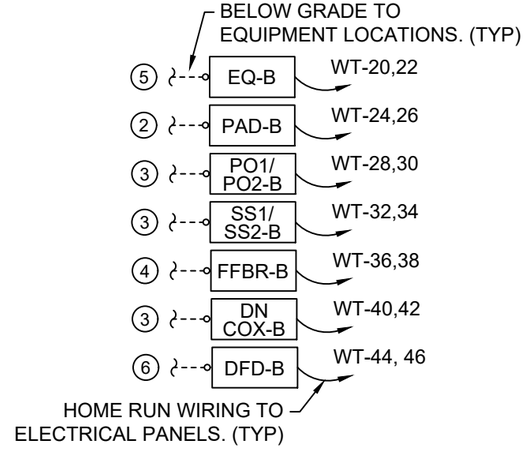
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	NEW SITE POWER PLAN - WELL WATER
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION		E1.1
1			CHECKED BY	RD				

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AWARD COPY



1 E1.2 WATER TREATMENT A TRAIN CONTROL PANEL HOME RUN WIRING INFORMATION
SCALE: NTS



2 E1.2 WATER TREATMENT B TRAIN CONTROL PANEL HOME RUN WIRING INFORMATION
SCALE: NTS

WIRING & CONDUIT SCHEDULE

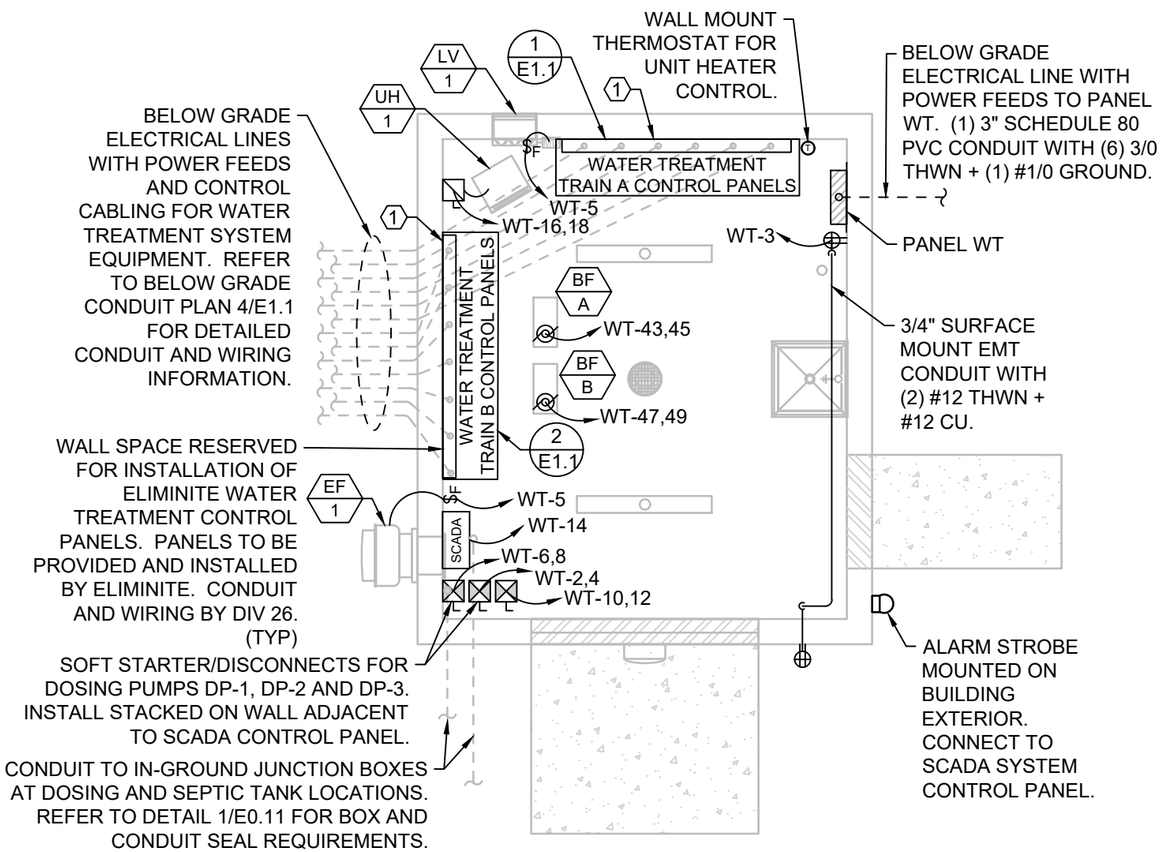
1	(2) #12 THWN + (1) #12 CU IN (1) 1" SCH 80 PVC CONDUIT
2	(12) #12 THWN + (2) #12 CU IN (2) 1" SCH 80 PVC CONDUIT
3	(6) #12 THWN + (2) #12 CU IN (1) 1" SCH 80 PVC CONDUIT
4	(20) #12 THWN + (4) #12 CU IN (3) 1" SCH 80 PVC CONDUIT
5	(14) #12 THWN + (2) #12 CU IN (2) 1" SCH 80 PVC CONDUIT
6	(17) #12 THWN + (3) #12 CU IN (3) 1" SCH 80 PVC CONDUIT
7	(3) #12 THWN + (1) #12 CU IN (1) 1" SCH 80 PVC CONDUIT

GENERAL NOTE

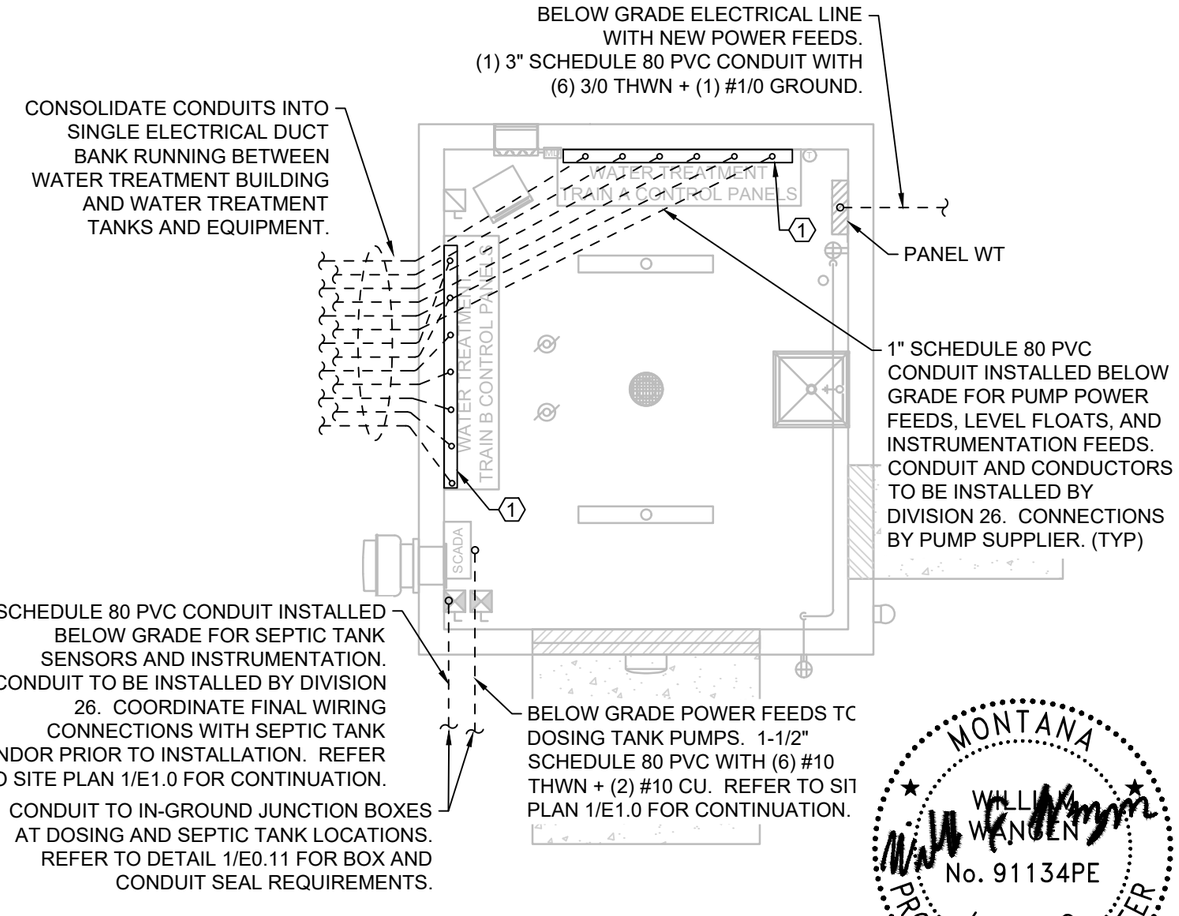
LAYOUT OF WATER TREATMENT CONTROL PANELS AND EQUIPMENT WITHIN NEW WATER TREATMENT BUILDING SHOWN IS SCHEMATIC IN NATURE. WALL-MOUNT PANELS SHOULD BE INSTALLED STACKED ON WALL TO CONSERVE SPACE. ALL PANEL LOCATIONS ARE TO BE FIELD COORDINATED WITH ELIMINITE PRIOR TO INSTALLATION.

KEYED ELECTRICAL NOTES

1. CONTRACTOR TO PROVIDE AND INSTALL GUTTER TO COLLECT ALL BELOW GRADE CONDUIT.



3 E1.2 NEW WATER TREATMENT BUILDING - POWER PLAN
SCALE: 1/4" = 1'



4 E1.2 NEW WATER TREATMENT BUILDING - BELOW GRADE CONDUIT PLAN
SCALE: 1/4" = 1'

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL. 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS	GREYCLIFF REST AREA	100% CD	WATER TREATMENT BUILDING POWER PLANS
2		12/15/2025	REVIEWED BY	WW	REST AREA REHABILITATION		E1.2
1			CHECKED BY	RD			

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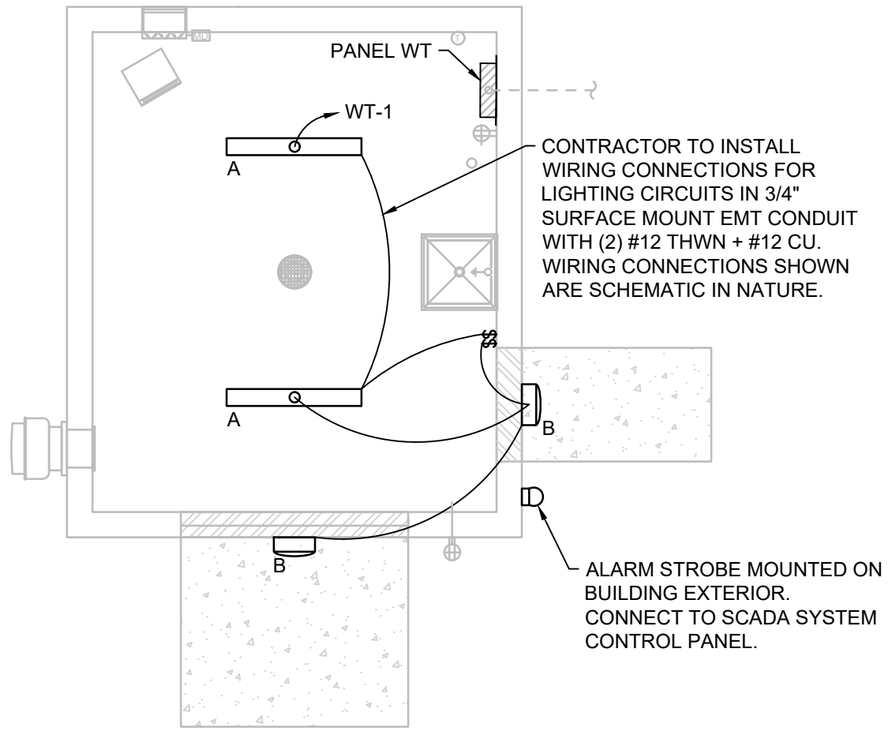
UH-1, EF-1 SEQUENCE OF OPERATIONS

UH-1 (HEATING)

- UH-1 TO BE CONTROLLED BY FACTORY UNIT MOUNTED THERMOSTAT. UH-1 HEATING SETPOINT TO INITIALLY BE 65°F (ADJ).

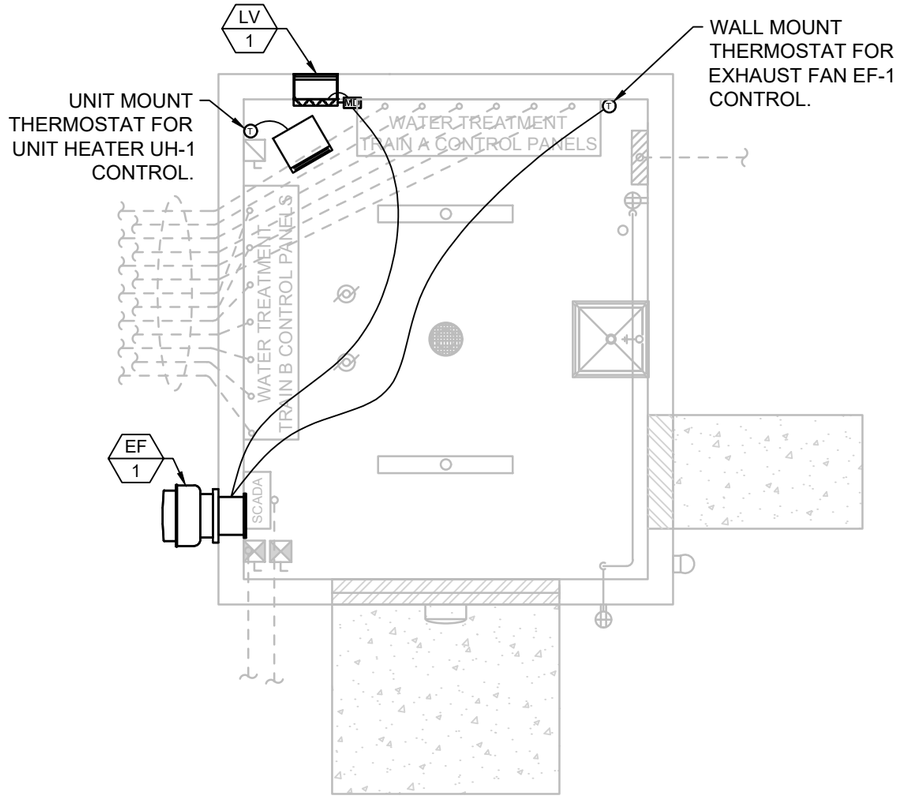
EF-1 (COOLING)

- EF-1 TO BE CONTROLLED BY A REMOTE WALL MOUNTED THERMOSTAT. WHEN THERMOSTAT CALLS FOR COOLING, 85°F (ADJ), EF-1 TO ENABLE AND LV-1 MOTORIZED DAMPER TO OPEN. WHEN COOLING SETPOINT IS SATISFIED, EF-1 TO DISABLE AND LV-1 MOTORIZED DAMPER TO RETURN CLOSED.



1 / E1.3 NEW WATER TREATMENT BUILDING LIGHTING PLAN

SCALE: 1/4" = 1'



2 / E1.3 NEW WATER TREATMENT BUILDING HVAC CONTROLS PLAN

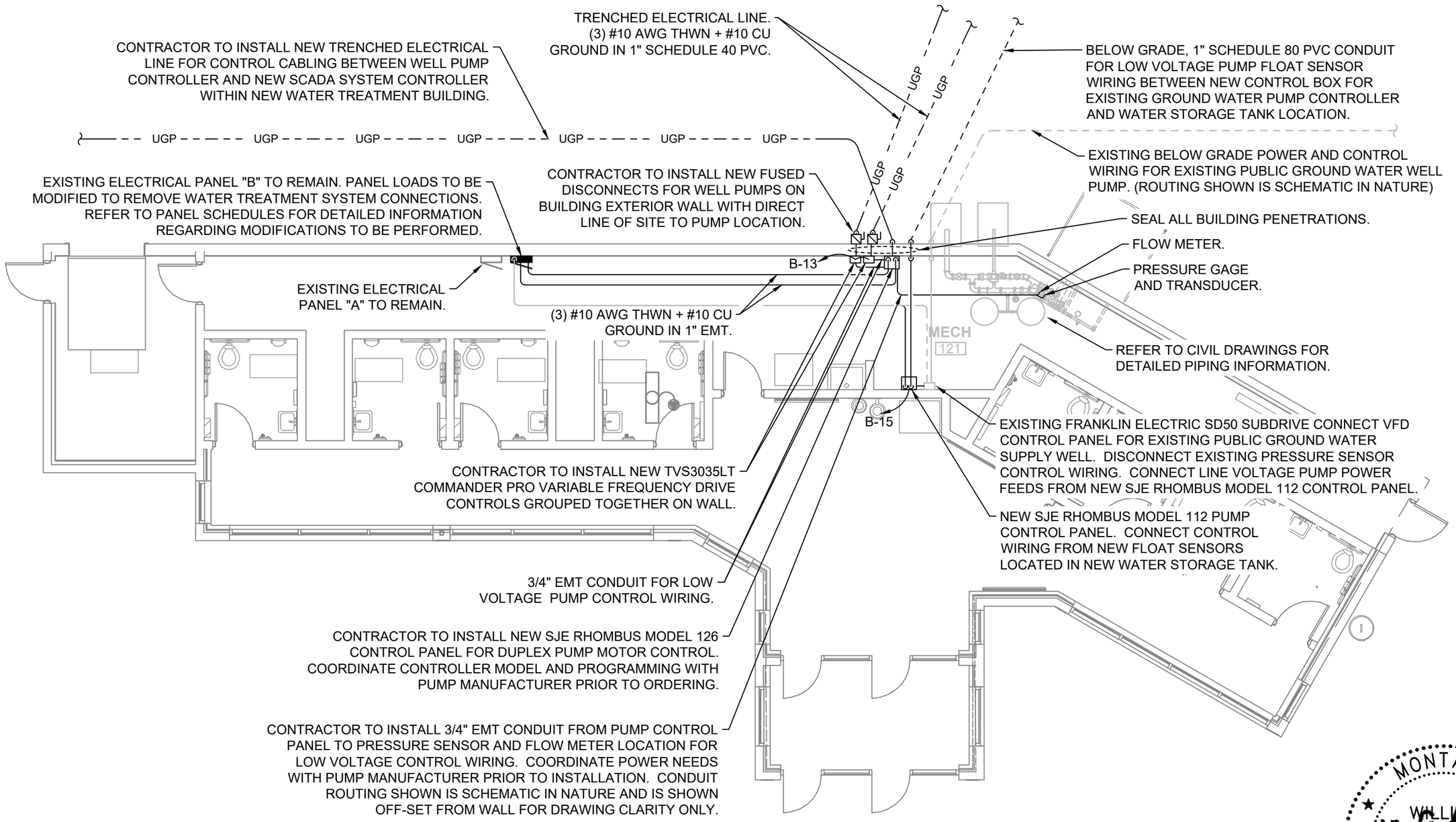
SCALE: 1/4" = 1'

MONTANA
WILLIAM W. WANGEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

FOURFRONT DESIGN INC
46 HIBBARD WAY
HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2022-176	DESIGNED BY	JS		GREYCLIFF REST AREA	100% CD	PUMP HOUSE LIGHTING & HVAC CONTROLS	
2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION			E1.3
1			CHECKED BY	RD					

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1 / E1.4 EXISTING REST AREA BUILDING MECHANICAL ROOM - NEW ELECTRICAL PLAN

SCALE: 1/8" = 1'

MONTANA
WILLIAM WANDEN
No. 91134PE
LICENSED PROFESSIONAL ENGINEER

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HELENA, MT 59601
TEL 406.441.4000
www.fourfrontdesign.com

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2		12/15/2025	REVIEWED BY	WW		REST AREA REHABILITATION			E1.4
1			CHECKED BY	RD					