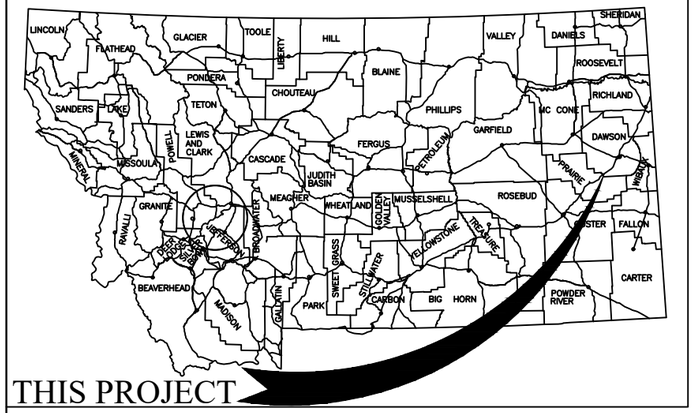
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K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-COVER.dwg TITLE SHEET 12/2/2024 3:53:59 PM

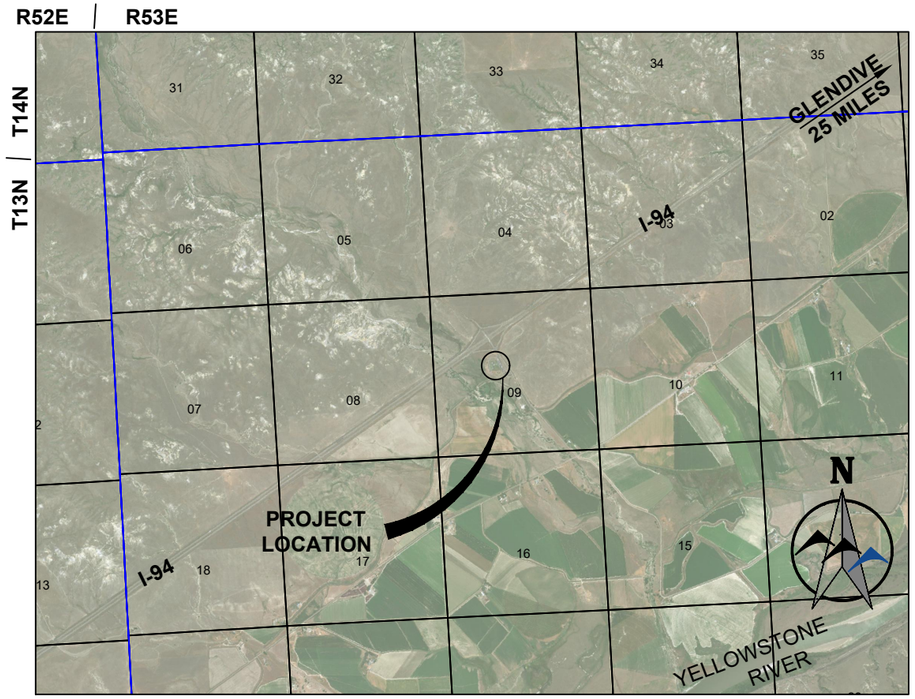
MONTANA DEPARTMENT OF TRANSPORTATION



FEDERAL AID PROJECT IM 94-6(68)193
REST AREA REHABILITATION
BAD ROUTE REST AREA
DAWSON COUNTY

LENGTH N.A. MILES

PRESENT _____
LETTING _____
DESIGN _____
LETTING DATE - _____



LOCATION MAP

0 2500' 5000'

HORIZONTAL SCALE

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C-5	EXISTING CONDITIONS & SITE DEMOLITION PLAN
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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 94-6(67)193

WWC ENGINEERING
BY Jeremy Fadness
DATE 4/3/2025

MONTANA
JEREMY M. FADNESS
No. 15424
LICENSED PROFESSIONAL ENGINEER

MONTANA
DEPARTMENT OF TRANSPORTATION

RECEIVED
BY Kelly M Williams 4/7/2025
CONSULTANT DESIGN ENGINEER 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 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA REST AREA REHABILITATION
2		12/2021	REVIEWED BY	S. DUNKELBERGER		
			CHECKED BY	J. FADNESS		UPN 9877000

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K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-NOTE.dwg GENERAL NOTES 12/2/2024 3:27:06 PM

GENERAL CONSTRUCTION NOTES

1. UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, ALL WORK MUST CONFORM TO MDT STANDARD SPECIFICATIONS AND THESE PLANS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS REQUIRED AND CONSTRUCTION TESTING FOR CONSTRUCTION ACTIVITIES.
3. THE CONTRACTOR SHALL 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 SHALL FIELD VERIFY THE EXISTENCE, LOCATION, DEPTH, SIZE, LINE AND GRADE OF EXISTING UTILITY CONNECTIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL 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 SHALL 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 SHALL MEET MDT STANDARD SPECIFICATIONS. THE COST OF THIS ADDITIONAL BEDDING WILL BE INCLUDED IN THE UNIT PRICE BID.
7. THE CONTRACTOR SHALL BE 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 SHALL BE SEEDED BY THE CONTRACTOR USING A SEED MIX PROVIDED IN THE CONTRACT DOCUMENTS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF UTILITY (PHONE/POWER/CATV) INSTALLATION WITH LOCAL UTILITY COMPANIES.
11. THE CONTRACTOR SHALL NOTIFY ONE CALL @ 1-800-424-5555 FOR ONSITE UTILITY LOCATION. ALL EXISTING UTILITIES MUST BE MARKED BEFORE DIGGING.
12. THE CONTRACTOR SHALL MAINTAIN SERVICE OF ALL EXISTING UTILITIES. IF SAID SERVICE IS DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY REPAIR THE DAMAGE AT THE CONTRACTOR'S EXPENSE.
13. THE CONTRACTOR SHALL 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 SHALL BE RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES.

BLOCK LEGEND

EXISTING	PROPOSED
	SANITARY SEWER MANHOLE
	SANITARY SEWER CLEANOUT
	SANITARY SEWER CAP
S	SANITARY SEWER METER VAULT
LS	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
PS	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

EXISTING	PROPOSED
	WATER VENT
	WATER MANHOLE
	WATER REDUCER
	WATER MARKER
	FIRE HYDRANT
W	WATER CURB STOP
W	WATER METER
W	WATER VAULT
BS	WATER BOOSTER STATION
	WATER WELL
M	WATER MONITORING WELL
TS	WATER TEST STATION
	CABLE TELEVISION MARKER
C	CABLE TELEVISION PULL BOX
C	CABLE TELEVISION PEDESTAL
C	CABLE TELEVISION VAULT
	POWER GUY ANCHOR
	POWER GUY POLE
	POWER MANHOLE
	POWER MARKER
E	ELECTRIC POWER METER
	POWER POLE
P	POWER TRANSFORMER
P	POWER VAULT
	STREET LIGHT
IR	IRRIGATION PULL BOX
	IRRIGATION SPRINKLER HEAD
	IRRIGATION VALVE
IR	IRRIGATION VAULT

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

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA	GENERAL NOTES	IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER				
1			CHECKED BY	J. FADNESS		REST AREA REHABILITATION	UPN 9877000	C-2

K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-NOTE.dwg C-3 SITE MATERIAL QUANTITIES 12/2/2024 3:27:06 PM

NOTE:
1. CONTRACTOR TO REMOVE AND DISPOSE OF EXCESS CUT AT AN APPROVED LOCATION.
2. SAWCUT CURB TO BE INCLUDED IN COST OF CURB.

SITE MATERIALS QUANTITIES

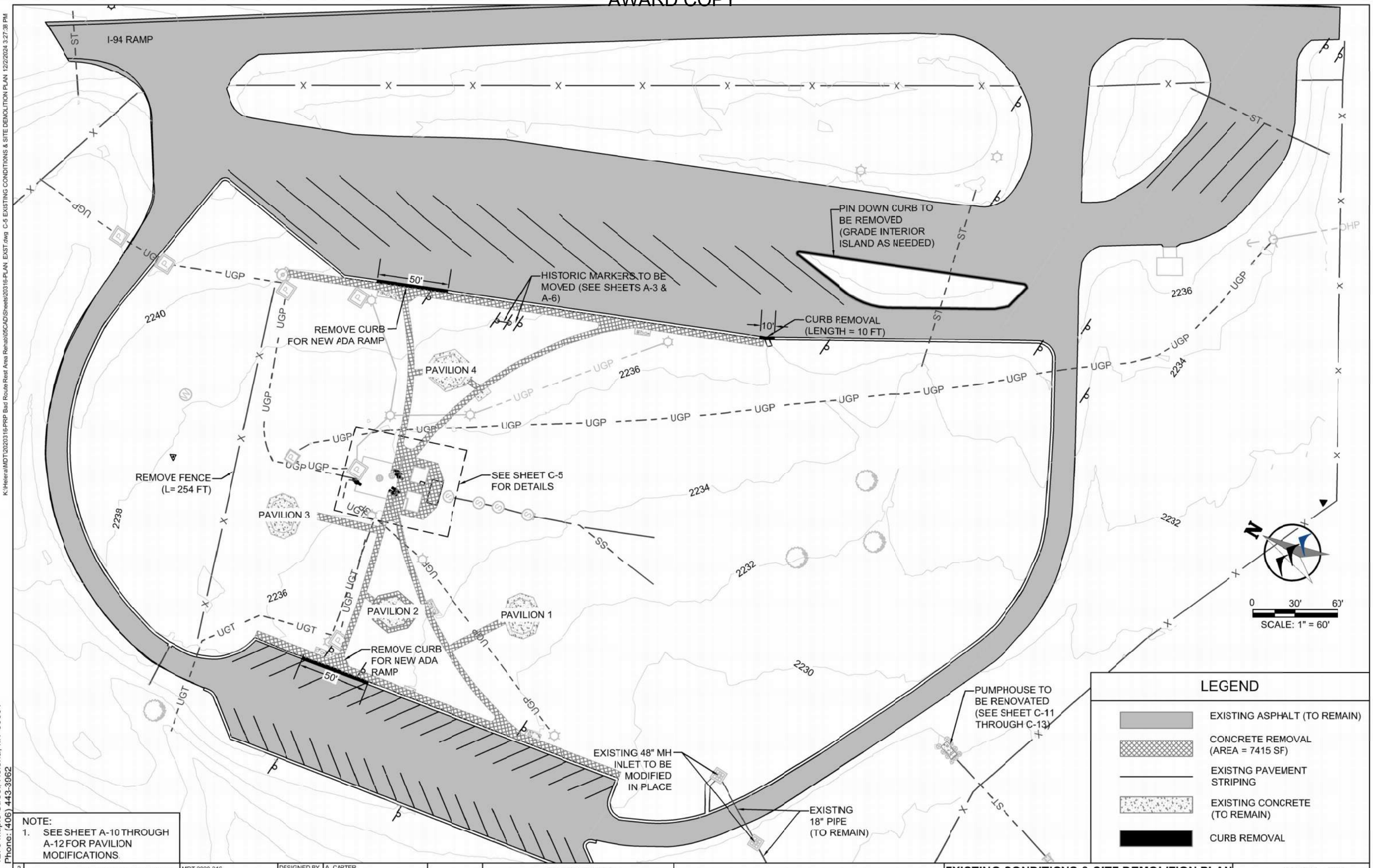
ITEM	QUANTITY	UNITS	DESCRIPTION
Commercial Mix - PG 58-28	45	TON	East Parking Lot Patch
Curb - Concrete	110	LF	Includes New Concrete Median Curb, & New Curbs by ADA Ramps
Curb - Conc Median Type A	185	LF	New Curb by Type "A" - Mat in Place
Sidewalk - Concrete 4 IN	1067	SY	5' Width, and East Parking Lot Concrete Median Cap
Sidewalk - Reinforced 6 IN	298	SY	Width Varies, 6" Thick
Remove Sdewalk	1260	SY	Sidewalks Ramps and East Parking Lot Concrete Median Cap
RCP IRR 18 IN Class 3	128	LF	Stormwater Pipe
Inlet Curb - Type A	1	EA	48" Dia. MH - Stormwater Inlet- Both the Curb Inlet Fram & Grate and Inlet Structure Base
Inlet Frame and Grate - Replace	2	EA	Replace Casting
Fence - Chain Link	404	LF	4'
Gate - Chain Link	8	LF	4'
DETEC Warning Devices - Type 1	2	SY	
Irrigation Structure	1	LS	Pump Station Renovations - New 5HP Suction Pump, Pump House, Misc.
Signs - Alum Refl Sheet IV	4.5	SF	Accessible Parking Sign (3)
Vegetated Concrete Block Mat	76	SY	Vegetated Concrete Block Mat - Pond Outlet Weirs, Inlet and Outlet Protection
Remove Chain Link Fence	254	LF	Northeast of Site Chain Link
Remove Curb	463	LF	Includes Removed Pin Down Curb Exterior, Removed Curb for New ADA Ramps, & Removed Curb for Type A Curb Inlet
Rehabilitate Building	1	LS	Renovated Restrooms and Pavilions 1-4
Excavation - Unclassified	561	CY	Stormwater Ditch and Ponds
Revegetation	1	LS	Dranfield Reclamation - See Special Provisions
Storage Building	1	EA	Prefab Utility Storage Shed - Minimum 12' X 16', 10" Thick Pad for Utility Shed
Concrete Apron	2	EA	

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K:\Helena\MDT\2020\316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-NOTE.dwg C-4 WASTEWATER QUANTITIES 12/2/2024 3:27:06 PM

WASTEWATER QUANTITIES			
ITEM	QUANTITY	UNIT	REMARKS
PIPE - PVC 6 IN SANITARY	140	LF	GRAVITY SEWER - 6" SDR-35 PVC
PIPE - PVC 6 IN SANITARY	25	LF	GRAVITY SEWER - 6" SCHEDULE 40 PVC
PIPE -PVC 4 IN	35	LF	SEWER SERVICE - 4" SCHEDULE 40 PVC
MANHOLE - 48 IN (1220 MM) TYPE 1	1	EACH	
MANHOLE - 72 IN (1830 MM) TYPE 3	1	EACH	DOSING MANHOLE
MISCELLANEOUS TEMS-INSTALL-LNFT	1166	LF	3" SDR-35 PVC FORCE MAIN - DOSE LINES TO MULTIZONE VALVES TO DRAINFIELD, ORENCO MODEL PFEF 5012-B SUBMERSIBLE PUMP OR APPROVED EQUAL
MISCELLANEOUS ITEMS-INSTALL-EACH	1	UNIT	10,000 PRECAST GALLON TANK
MISCELLANEOUS ITEMS-UNIT	2	EACH	MULTIZONE VALVE
MISCELLANEOUS ITEMS-LS	1	LS	LEVEL II TREATMENT - ELIMINITE
MISCELLANEOUS ITEMS - EACH (4 DRAINFIELDS TOTAL)			
LATERALS	1,440	LF	LATERALS
BALL VALVES	20	EACH	BALL VALVES
PIPE - PVC 3 IN	84	LF	3" SCHEDULE 40 PVC - MANIFOLDS

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NOTE:
1. SEE SHEET A-10 THROUGH A-12 FOR PAVILION MODIFICATIONS.

LEGEND

- EXISTING ASPHALT (TO REMAIN)
- CONCRETE REMOVAL (AREA = 7415 SF)
- EXISTNG PAVEMENT STRIPING
- EXISTING CONCRETE (TO REMAIN)
- CURB REMOVAL

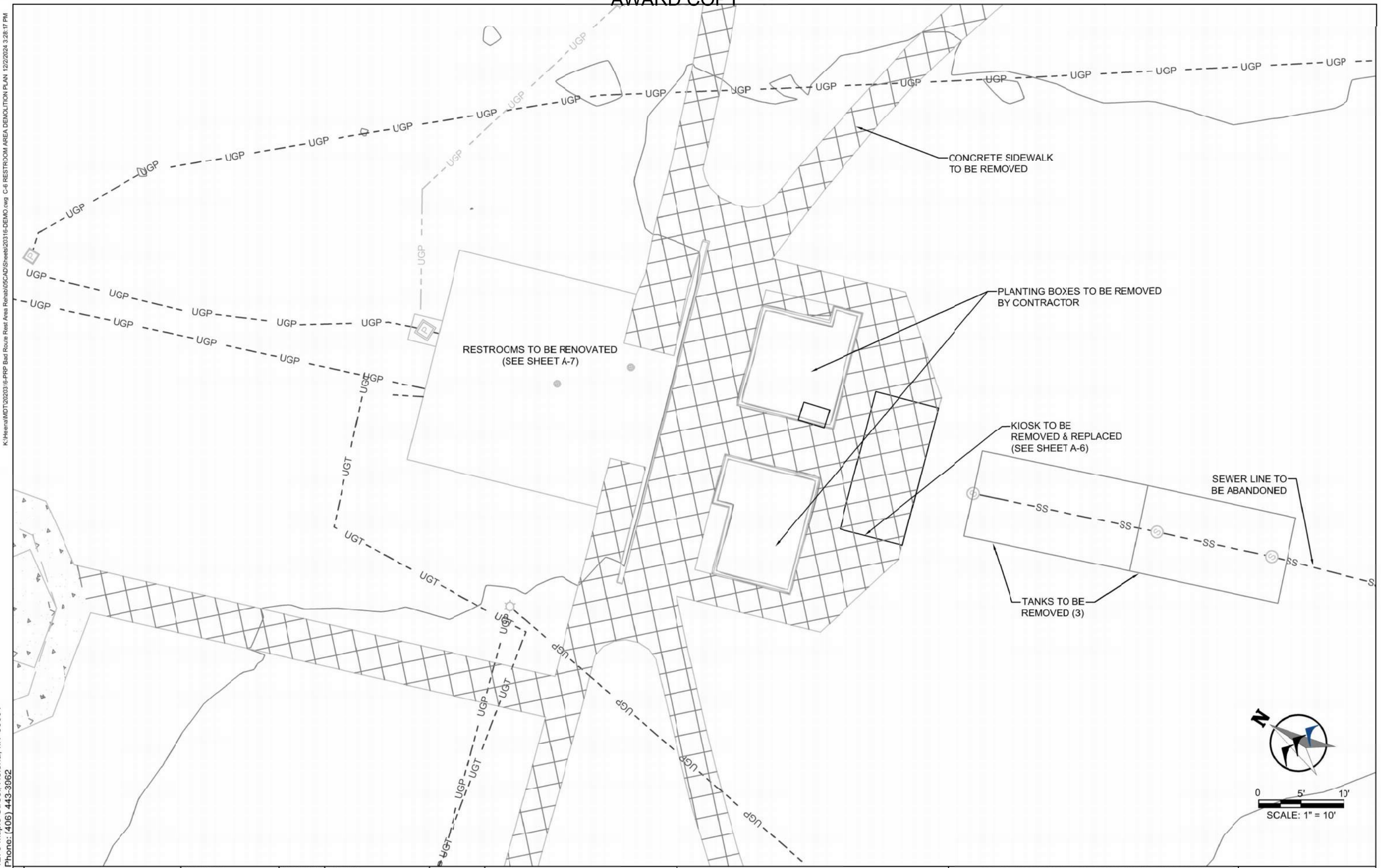
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Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA	EXISTING CONDITIONS & SITE DEMOLITION PLAN	IM 94-6(68)193
2		12/2021	REVIEWED BY	G. DUNKELBERGER		REST AREA REHABILITATION		UPN 9877000
1			CHECKED BY	J. FADNESS				C-5

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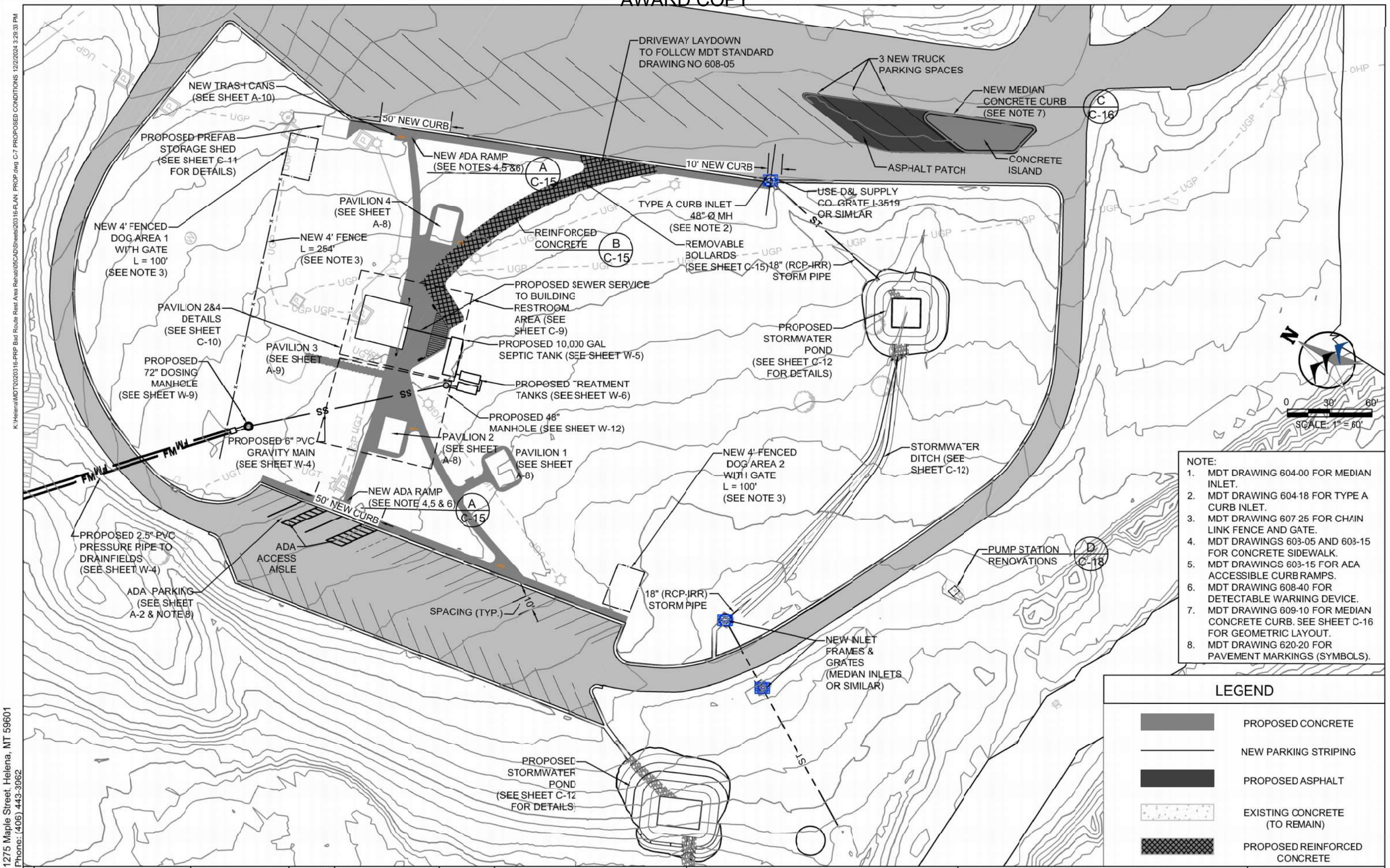
K:\Helena\MDT\2020\316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-DEMO.dwg C-6 RESTROOM AREA DEMOLITION PLAN 12/2/2024 3:28:17 PM



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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA	RESTROOM AREA DEMOLITION PLAN	IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 9877000	C-6
1			CHECKED BY	J. FADNESS				

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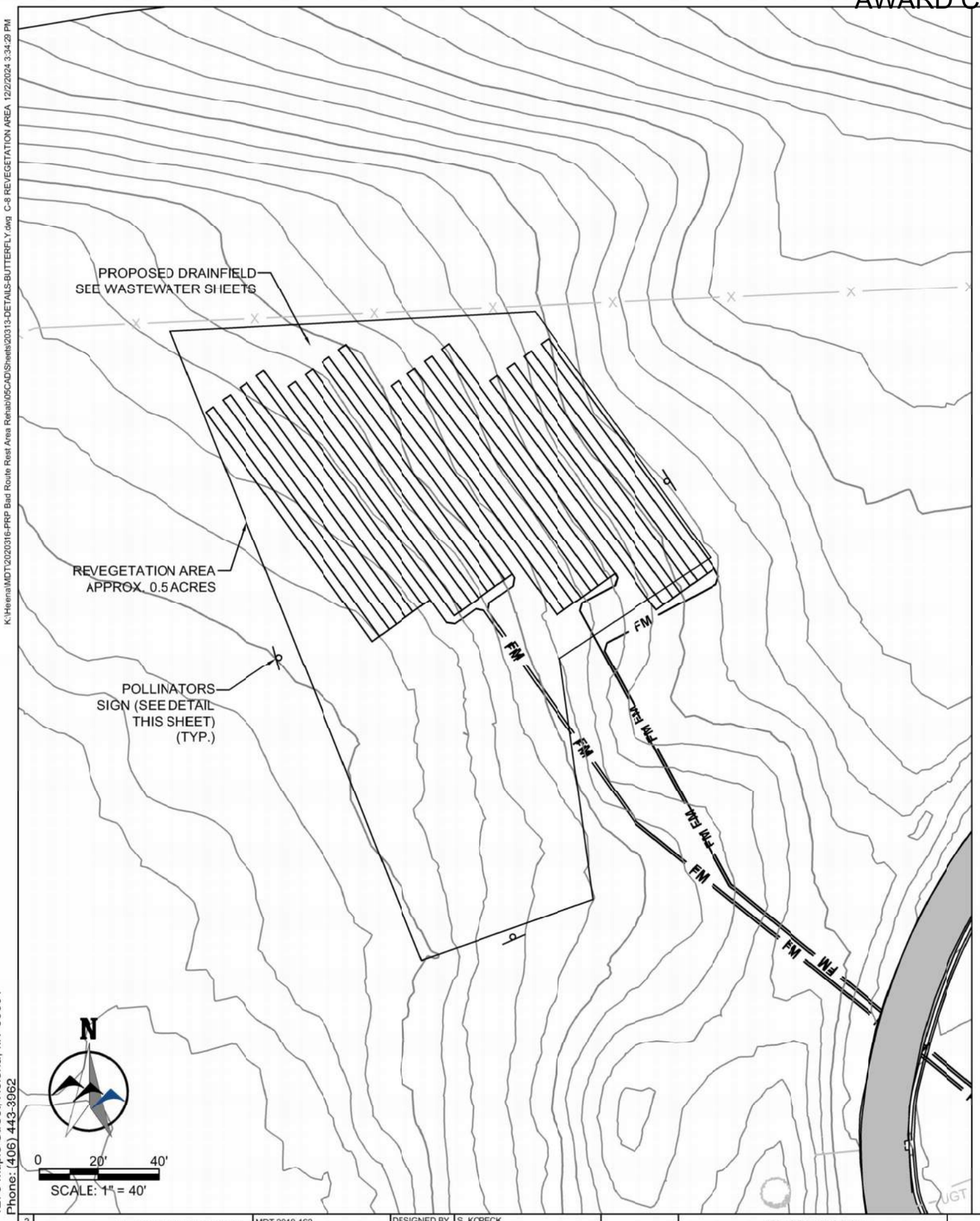


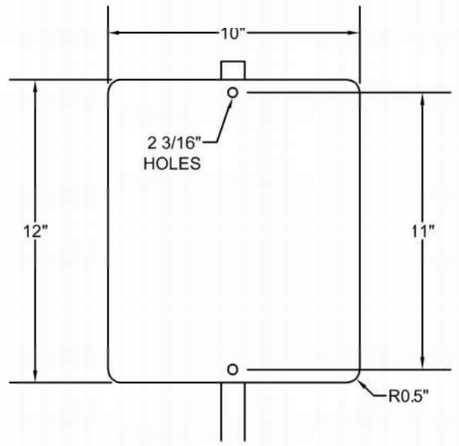
K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-PLAN_PROP.dwg C-7 PROPOSED CONDITIONS 12/2/2024 3:29:33 PM

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

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA REST AREA REHABILITATION	PROPOSED CONDITIONS
2		12/2021	REVIEWED BY	S. DUNKELBERGER			IM 94-6(68)193
1			CHECKED BY	J. FADNESS			UPN 9877000 C-7

K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CADD\Sheets\20313-DETAILS-BUTTERFLY.dwg C-8 REVEGETATION AREA 12/2/2024 3:34:29 PM





SIGN DETAILS
NOT TO SCALE



NOTES:

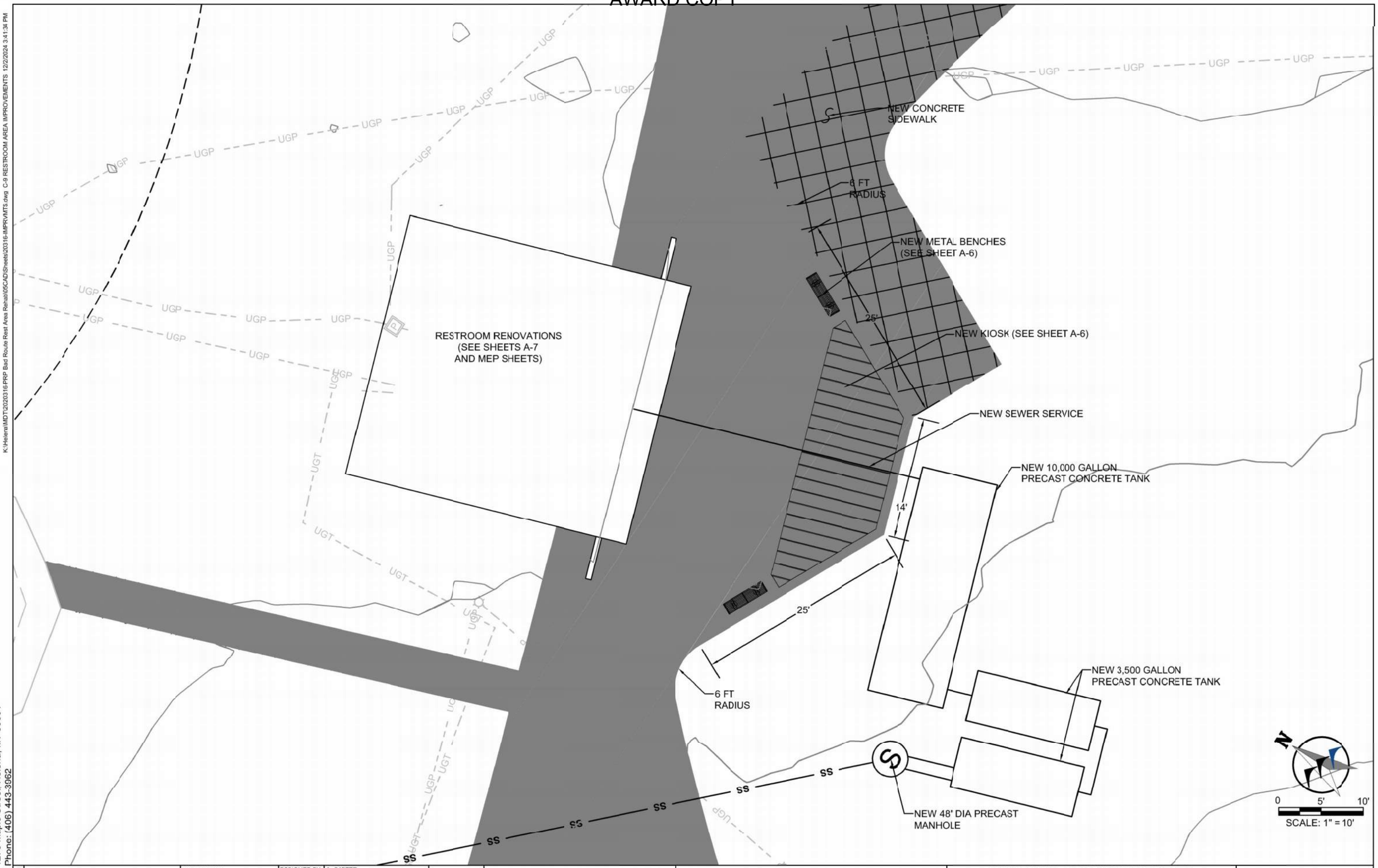
1. SIGN WILL BE MADE OF HEAVY DUTY 40 MILS THICK ALUMINUM AND ATTACHED TO A 3' TALL STAKE.
2. SIGNS WILL BE PRINTED WITH 3M SCREEN PRINTING OR 3M OUTDOOR DIGITAL INKS DESIGNED SPECIFICALLY FOR OUTDOOR TRAFFIC AND PROPERTY SIGNS
3. SIGNS WILL BE CLEAR UV LAMINATE
4. SIGN WILL INCLUDE BEND-PROOF ENAMEL COATED STEEL STAKE WITH ANTI-TWIST FLANGED TABS AT THE BOTTOM FOR EXTRA SUPPORT

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Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2019-162	DESIGNED BY	S. KOPECK	BAD ROUTE REST AREA	REVEGETATION AREA	IM 94-6(68)193
2		07/2021	REVIEWED BY	S. DUNKELBERGER		UPN 9877000	C-8
1			CHECKED BY	J. FADNESS	REST AREA REHABILITATION		

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K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-IMPRVMTS.dwg C-9 RESTROOM AREA IMPROVEMENTS 12/2/2024 3:41:34 PM



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Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA REST AREA REHABILITATION	RESTROOM AREA IMPROVEMENTS
2		12/2021	REVIEWED BY	S. DUNKELBERGER			IM 94-6(68)193
1			CHECKED BY	J. FADNESS			UPN 9877000 C-9

AWARD COPY

K:\Helena\MDT\2020316-PRF Bad Route Rest Area Rehab\05CAD\Sheets\20316-IMPRVMTS-CONT.dwg C-10 PAVILION 2 & 4 IMPROVEMENTS 12/2/2024 3:42:10 PM

PAVILION 3

PAVILION 2/4
(SEE SHEET A-10)

PAVILION 1
(SEE SHEET A-10)

NOTE: MIRROR LAYOUT FOR PAVILION 4

SCALE: 1" = 10'

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER	BAD ROUTE REST AREA REST AREA REHABILITATION	PAVILION 2 & 4 IMPROVEMENTS	IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER			UPN 9877000
1			CHECKED BY	J. FADNESS			C-10

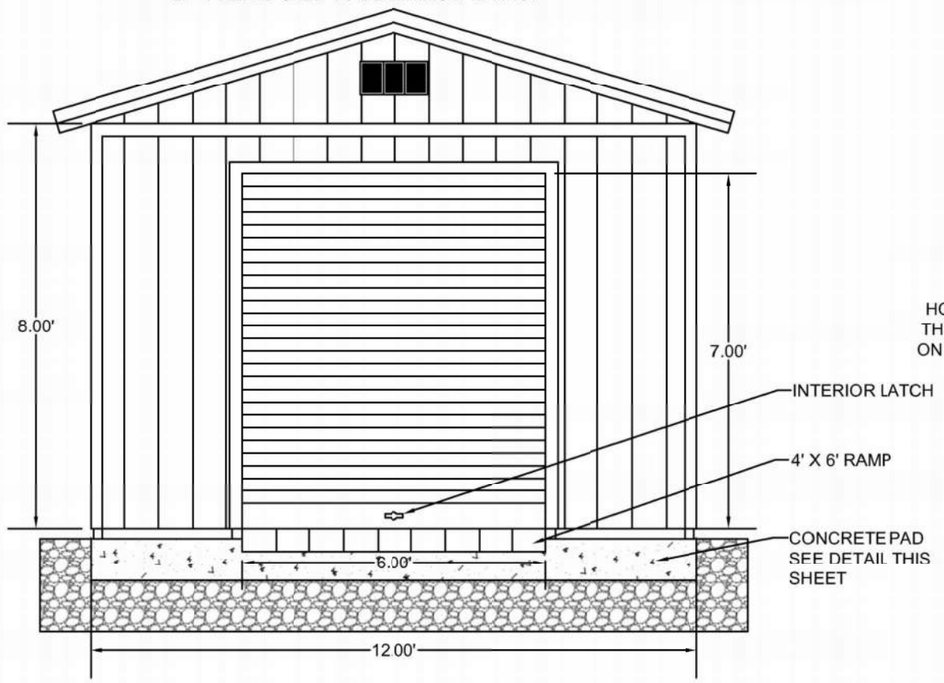
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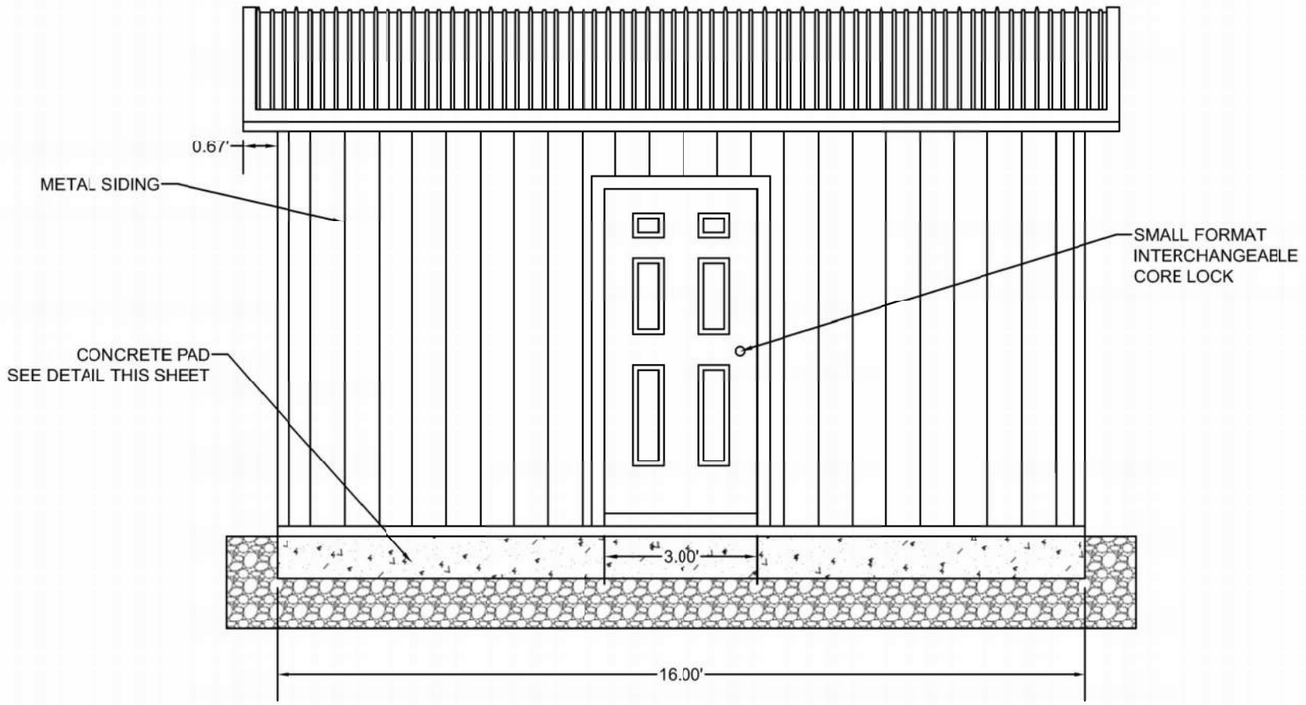


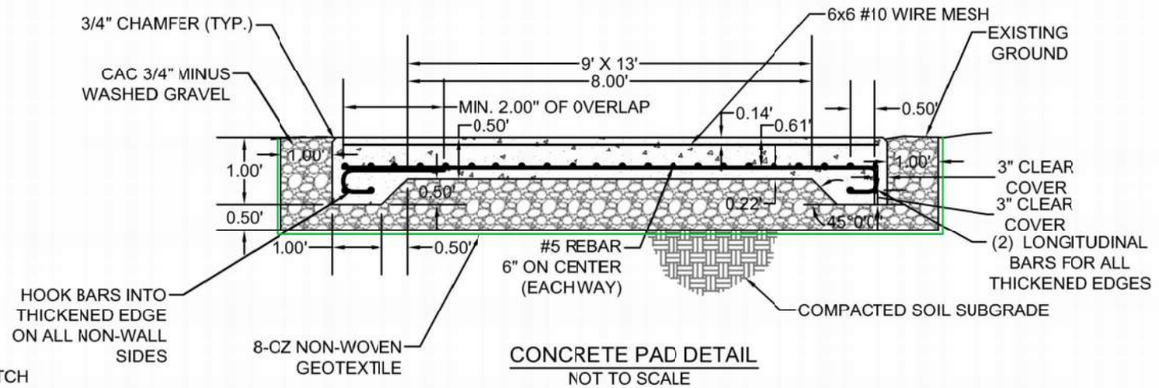
UTILITY SHED DETAIL
NOT TO SCALE

NOTES:

1. PREFAB UTILITY SHED WITH ROLL-UP DOOR AND ADDITIONAL SIDE DOOR, OR APPROVED EQUAL.
2. PREFAB SHED TO BE MINIMUM 12' X 16'.







CONCRETE PAD DETAIL
NOT TO SCALE

NOTES:

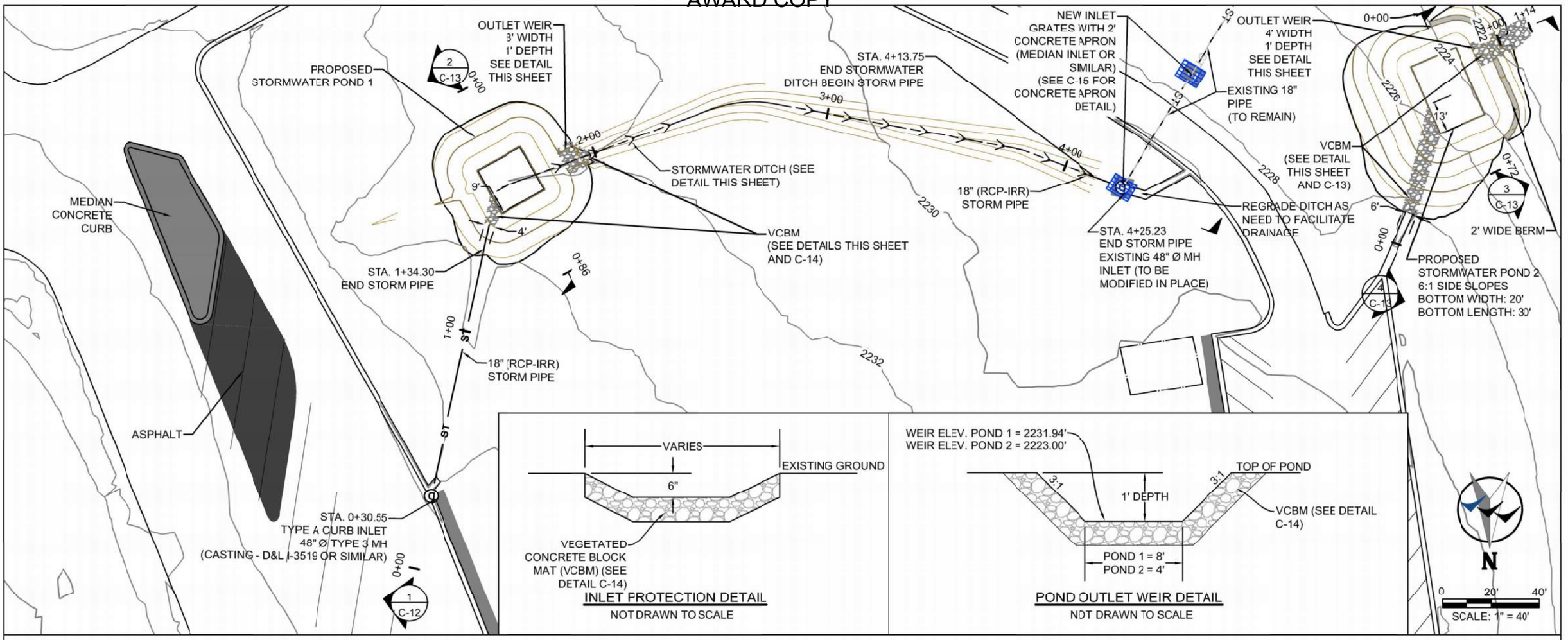
1. ENSURE 3" MINIMUM CLEAR COVER FOR ALL REINFORCEMENT.
2. ALL REBAR SHALL BE GRADE 60
3. MINIMUM REBAR LAP LENGTH SHALL BE 24".
4. ALL CONCRETE SHALL BE NORMAL WEIGHT WITH f'c = 4,000 psi MINIMUM.
5. REBAR SHALL BE SUPPORTED BY REBAR CHAIRS

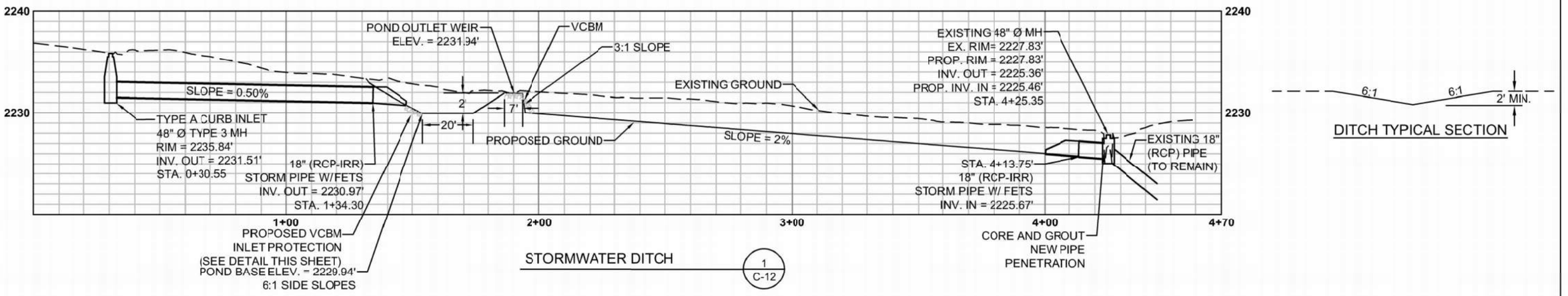
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2019-162	DESIGNED BY	S. KOPECK	BAD ROUTE REST AREA	PREFAB SHED DETAILS		IM 94-6(68)193
2		07/2021	REVIEWED BY	S. DUNKELBERGER				
1			CHECKED BY	J. FADNESS	REST AREA REHABILITATION		UPN 9877000	C-11

AWARD COPY

K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-DITCH.dwg C-12 STORMWATER DITCH DETAILS 12/2/2024 3:43:24 PM



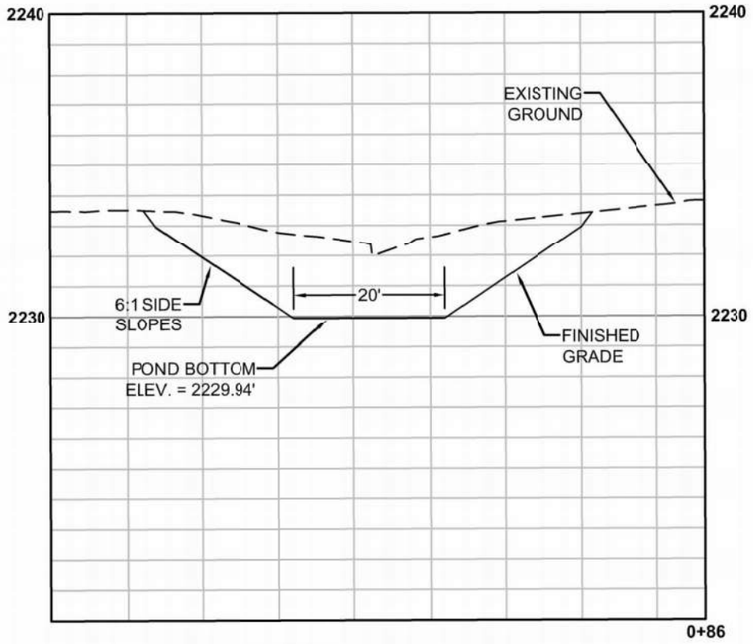


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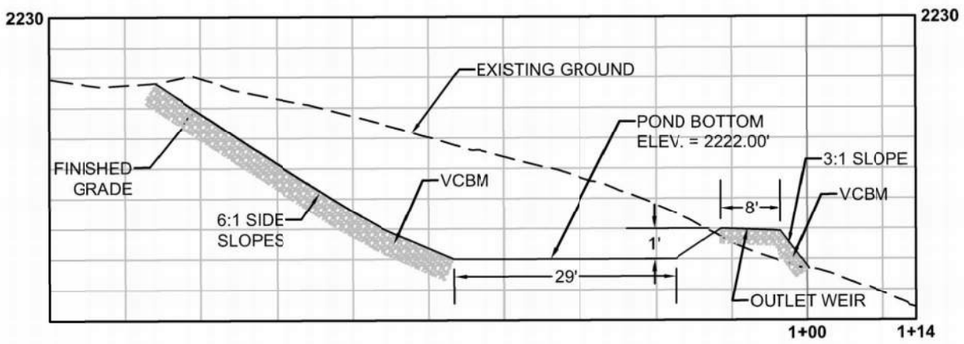
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER	BAD ROUTE REST AREA REHABILITATION	STORMWATER DITCH DETAILS	IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER			UPN 9877000
1			CHECKED BY	J. FADNESS			C-12

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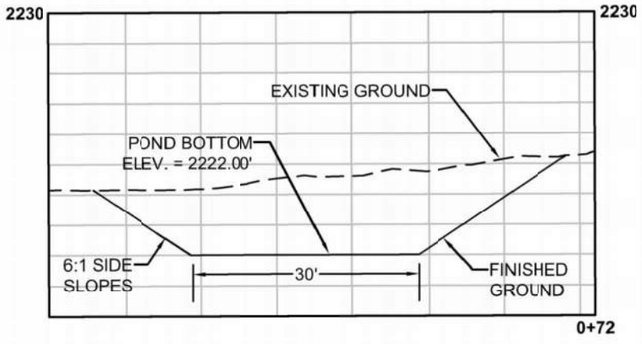
K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-DITCH.dwg C-13 STORMWATER PONDS CROSS SECTIONS 1 12/2/2024 3:43:24 PM



2 / C-12 POND 1 CROSS SECTION



4 / C-12 POND 2 CROSS SECTION



3 / C-12 POND 2 CROSS SECTION

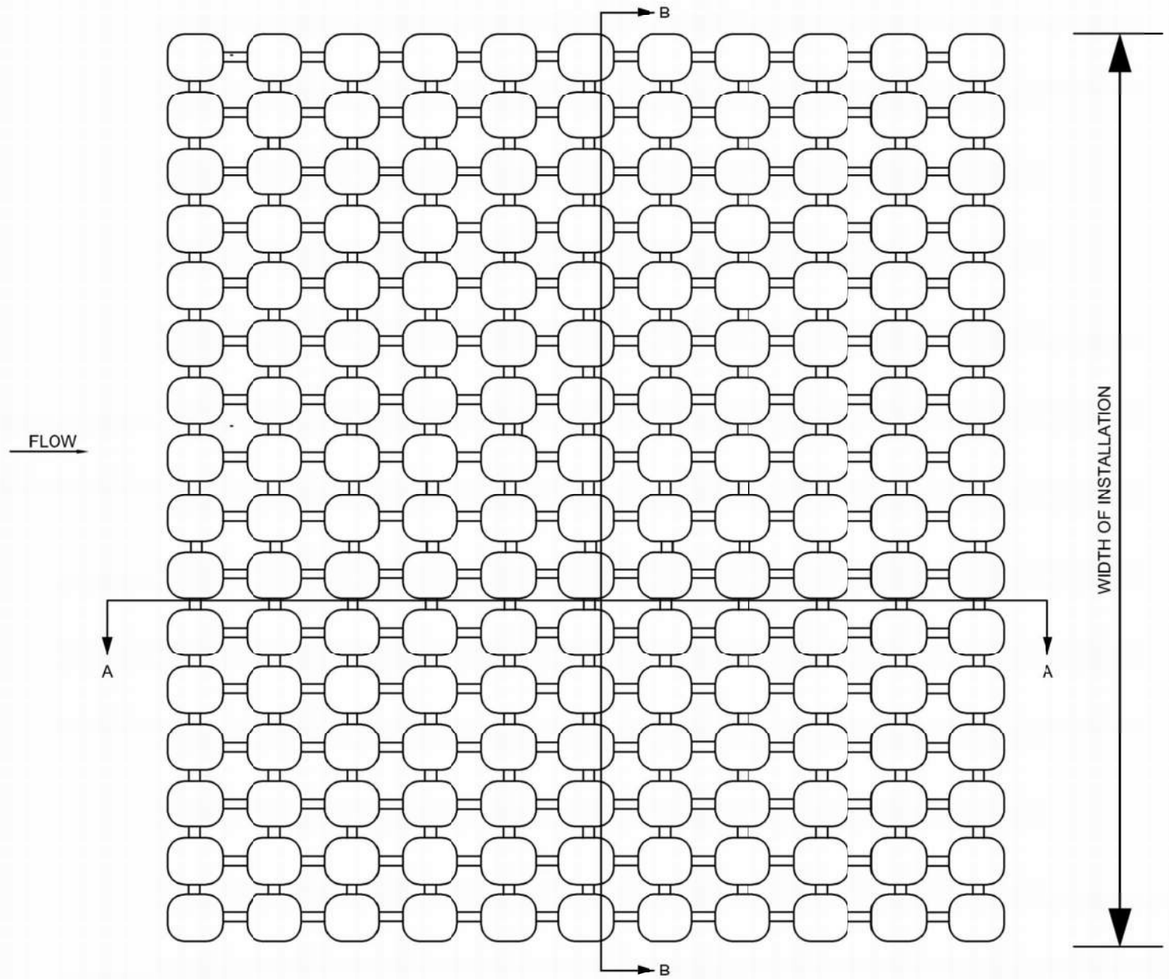
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SCALE: 1" = 20'

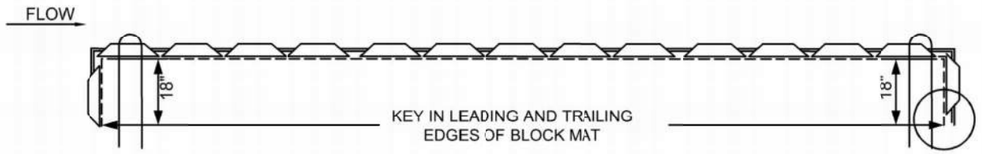
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA REST AREA REHABILITATION	STORMWATER PONDS CROSS SECTIONS	IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER			UPN 9877000	C-13
1			CHECKED BY	J. FADNESS				

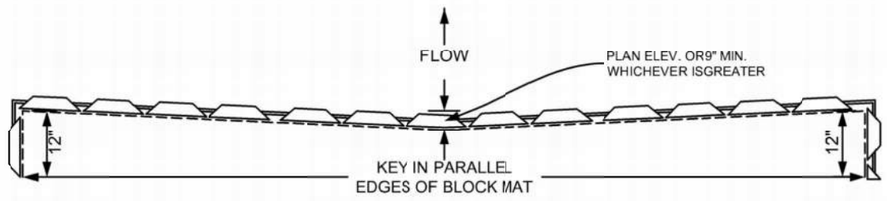
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SECTION A-A



SECTION B-B

NOTES:

1. GRADE DRAINAGE CHANNEL OR CHUTE SO THAT WATER WILL FLOW DOWN THE CHUTE AND BE CONFINED TO THE MAT. ALL SUBGRADE SURFACES PREPARES FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND. THE PREPARED SURFACE SHALL PROVIDE A FIRM, UNYIELDING FOUNDATION FOR THE MATS.

2. APPLY SEED DIRECTLY TO THE PREPARED SOIL PRIOR TO VEGETATED CONCRETE BLOCK INSTALLATION. USE SEED PER RIPRAP REVEGETATION SPECIFICATIONS.

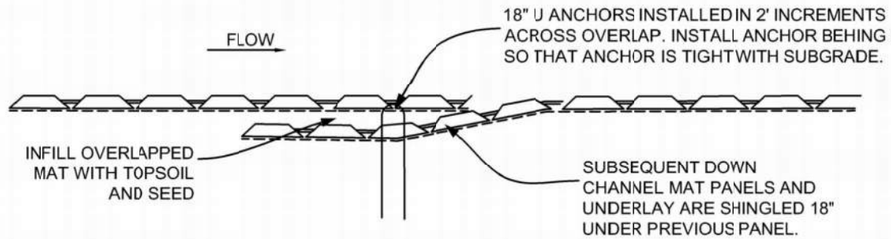
3. AT THE TOP OF THE DRAINAGE CHUTE. THE INITIAL LEADING EDGE OF VEGETATED CONCRETE BLOCK EXPOSED TO CONCENTRATED FLOWS SHALL BE EMBEDDED 18" PERPENDICULAR INTO THE SUBGRADE TO SERVE AS AN ANCHOR TRENCH. THE TRENCH SHALL BE FILLED AND COMPACTED WITH SUITABLE FILL. FOR CULVERT OR RCB OUTLET PROTECTION INSTALLATIONS, A GROUTED PAD OF 4,000 PSI CONCRETEE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF THE FETS OR OUTLET WING WALLS. REFER TO THE CULVERT AND RCB OUTLET PROTECTION DETAIL FOR ADDITICNAL DETAILS.

4. FOR ADDITIONAL SECTIONS OF VEGETATED CONCRETE BLOCK, OVERLAP THE DOWNSTREAM SECTION 18" WITH UPSTREAM SECTION OF MAT. PRIOR TO INSTALLING OVERLAP, FLIP UPSTREAM MAT BACK 24". EXCAVATE 2.25" OF SOIL 18" FROM END OF UPSTREAM MAT. DOWNSTREAM SECTION IS LAID IN THE SHALLOW TRENCH. LIGHTLY SPREAD TOPSOIL, SEED, AND FERTILIZER OVER INITIAL EDGE. FLIP END OF UPSTREAM MAT OVER THE SOIL COVERED INITIAL LEADING EDGE OF DOWNSTREAM MAT.

5. AT THE END OF THE ARMORED DRAINAGE CHUTE, EMBED THE MAT 18" PERPENDICULAR INTO THE SUBGRADE TO SERVE AS AN ACNHOR TRENCH. THE TRENCH SHALL BE FILLED AND COMPACTED WITH SUITABLE FILL.

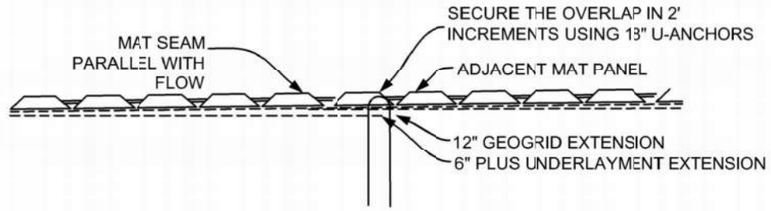
6. ANCHOR TRENCHES ARE NOT MEASURED FOR PAYMENT

7. INSTALL "U" ANCHORS 2' ON CENTER ALCNG ALL SEAMS AND LEADING AND TRAILING EDGES OF BLOCK MAT. "U" ANCHORS TO PENETRATE THROUGH VEGETATED CONCRETE BLOCK MAT. "U" ANCHOR TO BE TIGHT WITH SUBGRADE. "U" ANCHORS CONSIST OF #3 REBAR BENT INTO A "U" WITH 18" LEGS.



OVERLAP DETAIL FOR SEAMS PERPENDICULAR TO FLOW

NO SCALE



OVERLAP DETAIL FOR SEAMS PARALLEL TO FLOW

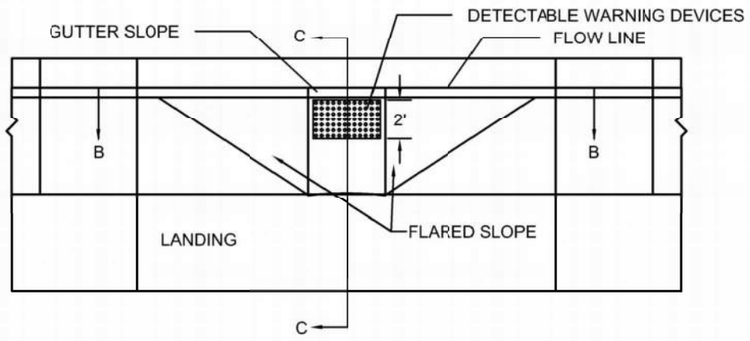
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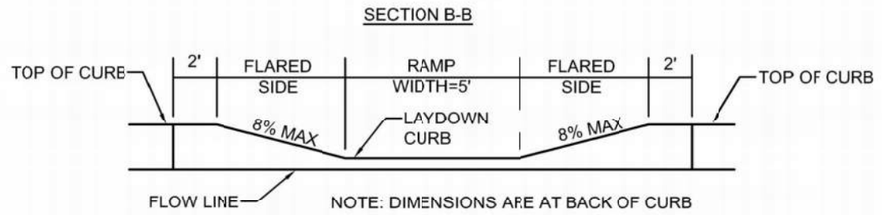
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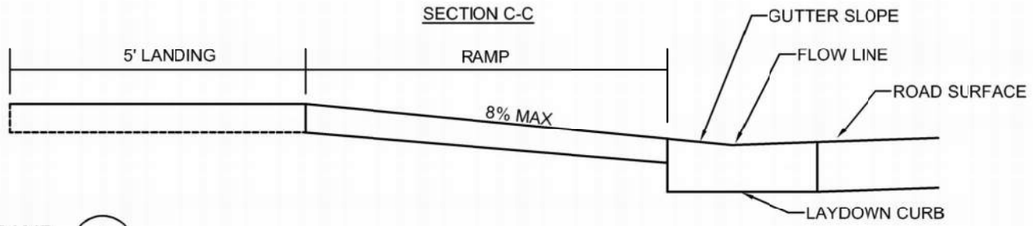
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2019-162	DESIGNED BY	S. KOPECK		BAD ROUTE REST AREA	VCBM DETAIL	IM 94-6(68)193
2		07/2021	REVIEWED BY	G. DUNKELBERGER				
1			CHECKED BY	J. FADNESS		REST AREA REHABILITATION	UPN 9877000	C-14

AWARD COPY

K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\DETAILS-ROAD, ADA RAMP AND CONCRETE APRON.dwg C-15 DETAILS-ROAD ADA RAMP AND CONCRETE APRON 12/2/2024 3:44:14 PM

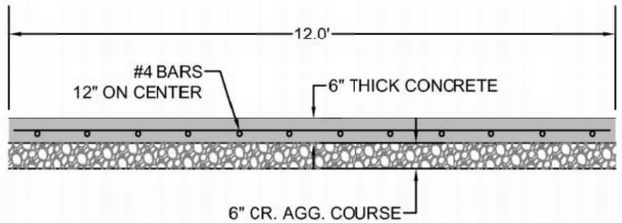




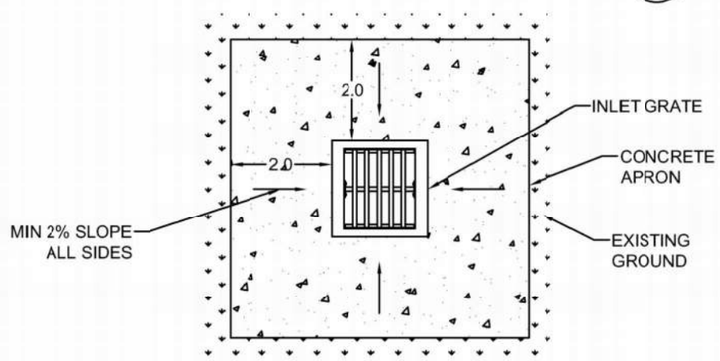


ADA SIDEWALK CURB RAMP (A / C-7)
NOT TO SCALE

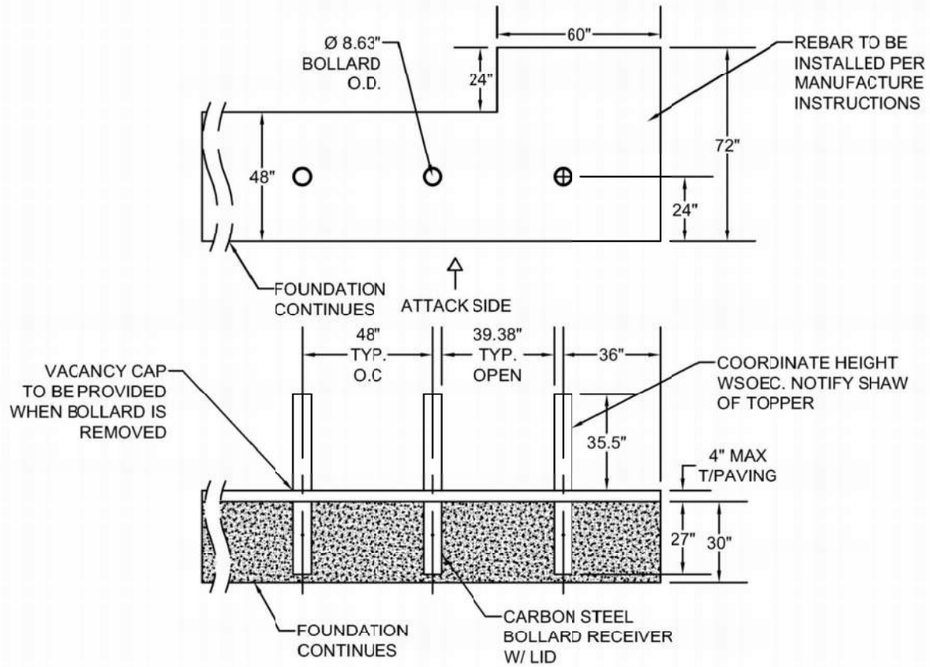
NOTE:
1. ADA RAMP DETAILS ARE TAKEN FROM SECTION 608 OF MDT STANDARDS, SPECIFICALLY DRAWINGS 608-15 AND 608-25.



REINFORCED CONCRETE TYPICAL SECTION (B / C-7)
SCALE: 1" = 3'



CONCRETE APRON DETAIL
NOT TO SCALE

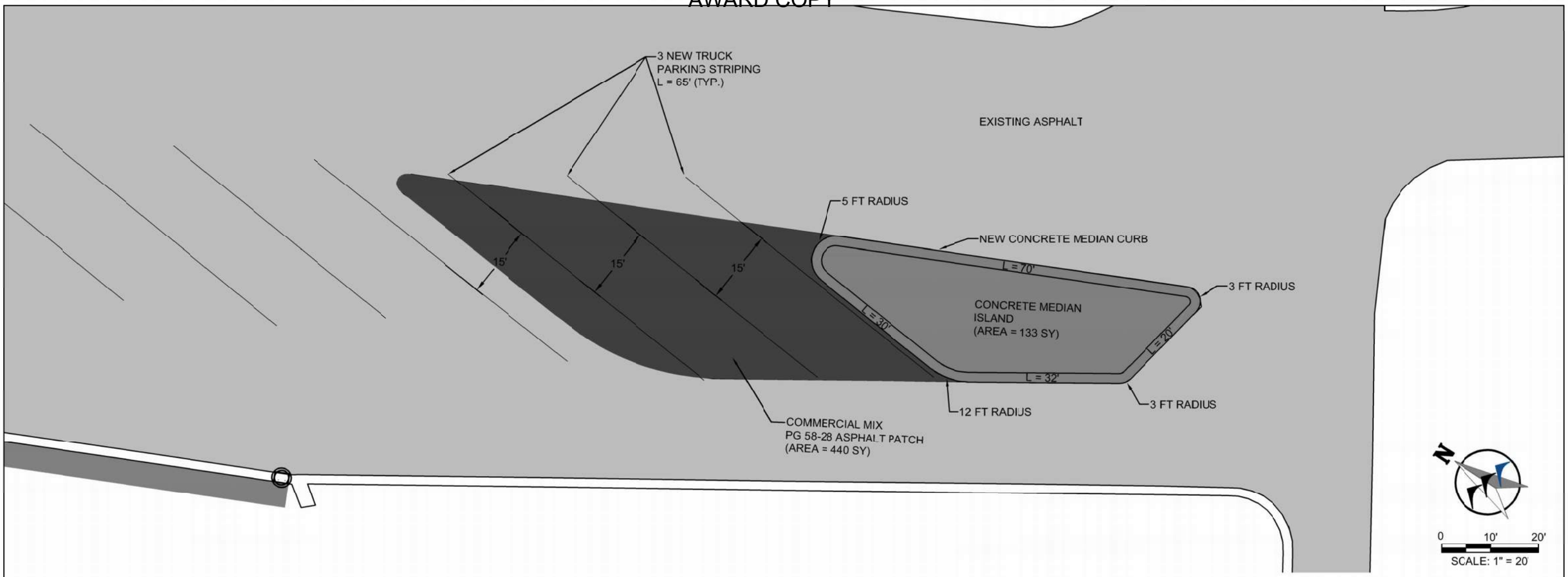


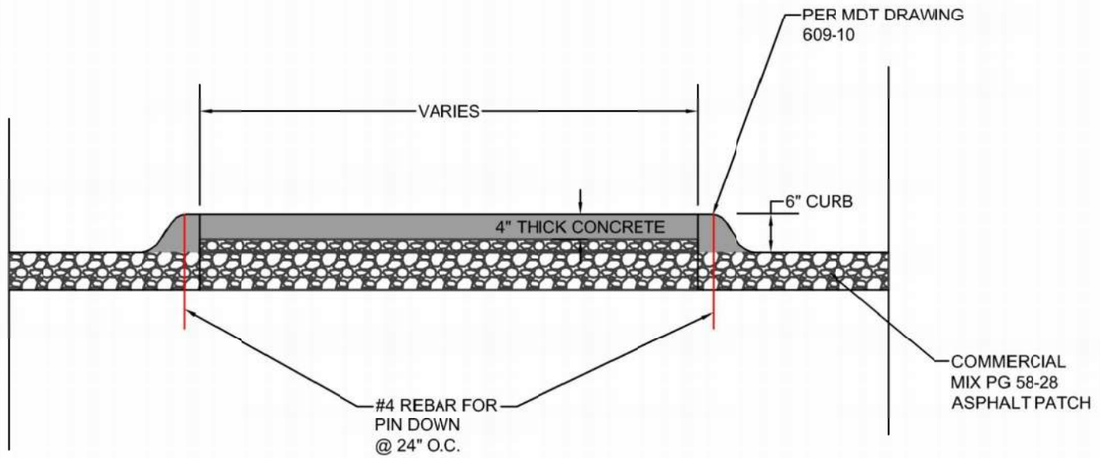
REMOVABLE BOLLARDS
NOT TO SCALE

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER	BAD ROUTE REST AREA	DETAILS-ROAD, ADA RAMP AND CONCRETE APRON	IM 94-6(68)193
2		12/2021	REVIEWED BY	G. DUNKELBERGER	REST AREA REHABILITATION	UPN 9877000	C-15
1			CHECKED BY	J. FADNESS			

K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\DETAILS-CURB.dwg C-16 DETAILS-CURB 12/2/2024 3:44:54 PM





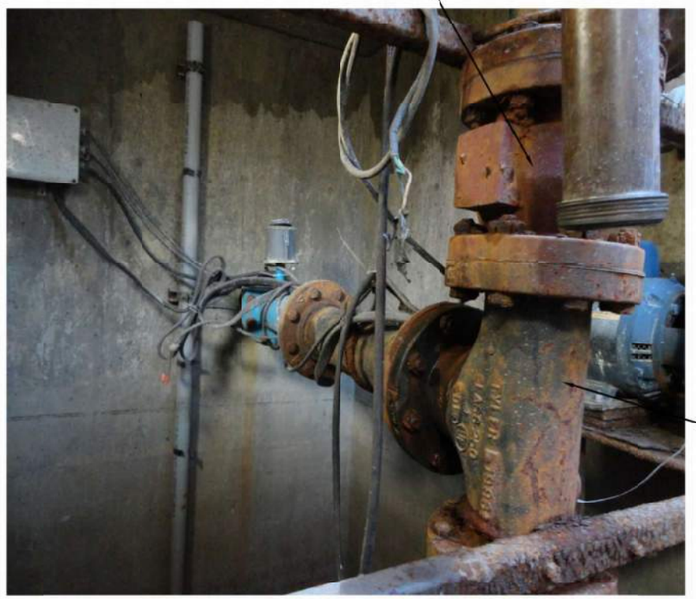
CONCRETE MEDIAN CURB DETAIL C / C-7

NOTE:
1. SEE MDT STANDARDS DRAWING 609-10 FOR MEDIAN CONCRETE CURB DETAILS. TYPE "A"-MAT IN PLACE.
2. COMMERCIAL MIX ASPHALT PATCH WILL EXTEND UNDER THE CONCRETE MEDIAN ISLAND AND FILL TO THE CONCRETE.

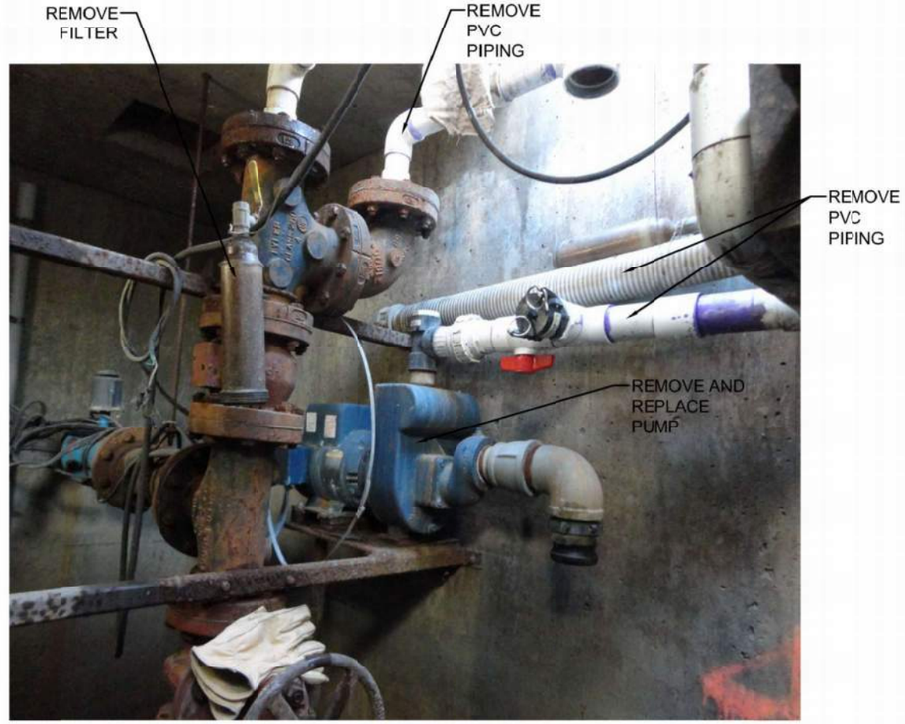
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER	BAD ROUTE REST AREA REST AREA REHABILITATION	DETAILS-CURB		IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER			UPN 9877000	C-16
1			CHECKED BY	J. FADNESS				

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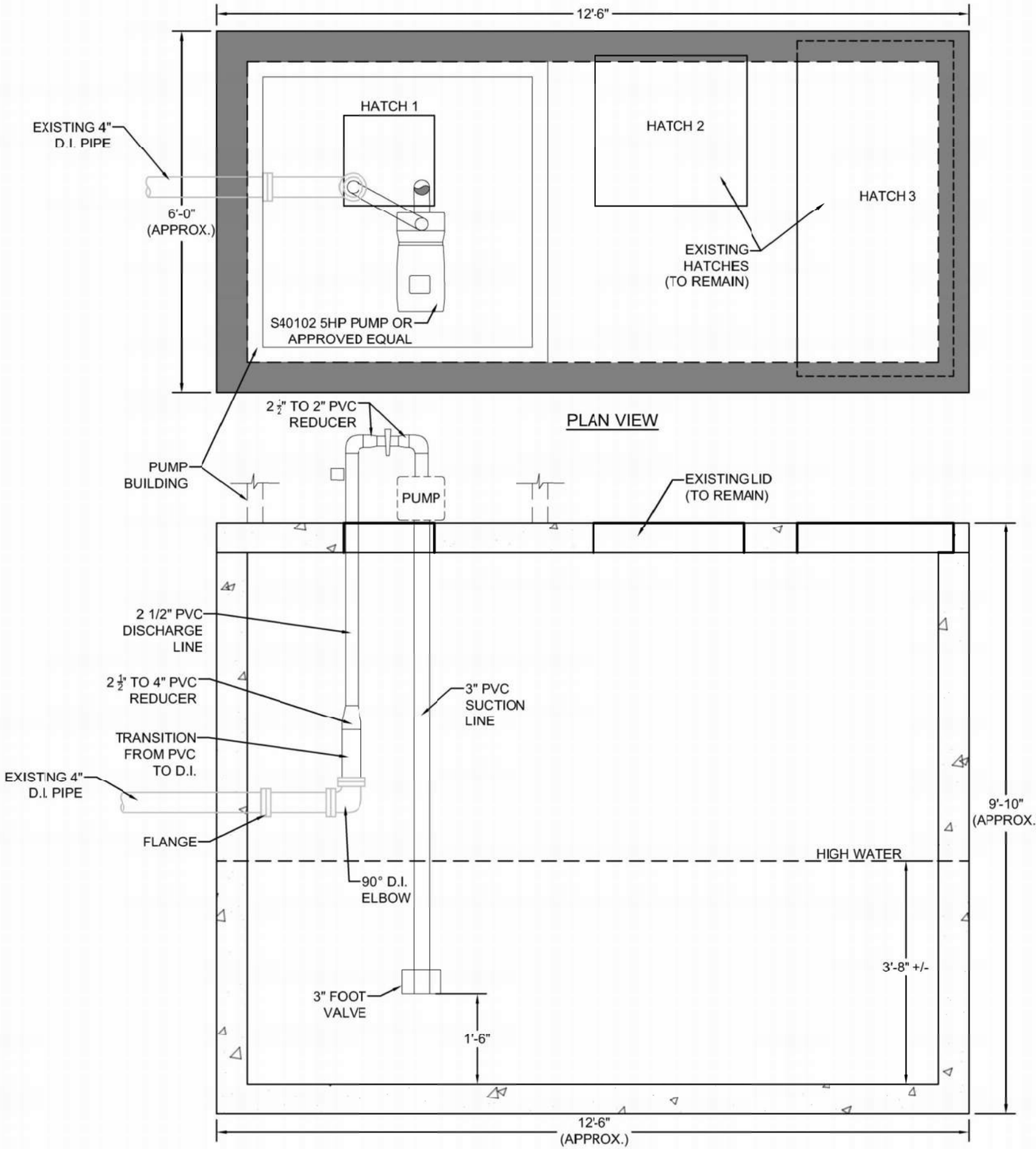
0 1' 2'
SCALE: 1" = 2'

K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\IRRIGATION PUMP DEMOLITON.dwg C-17 IRRIGATION PUMP DEMOLITION 12/2/2024 3:45:54 PM

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Phone: (406) 443-3962

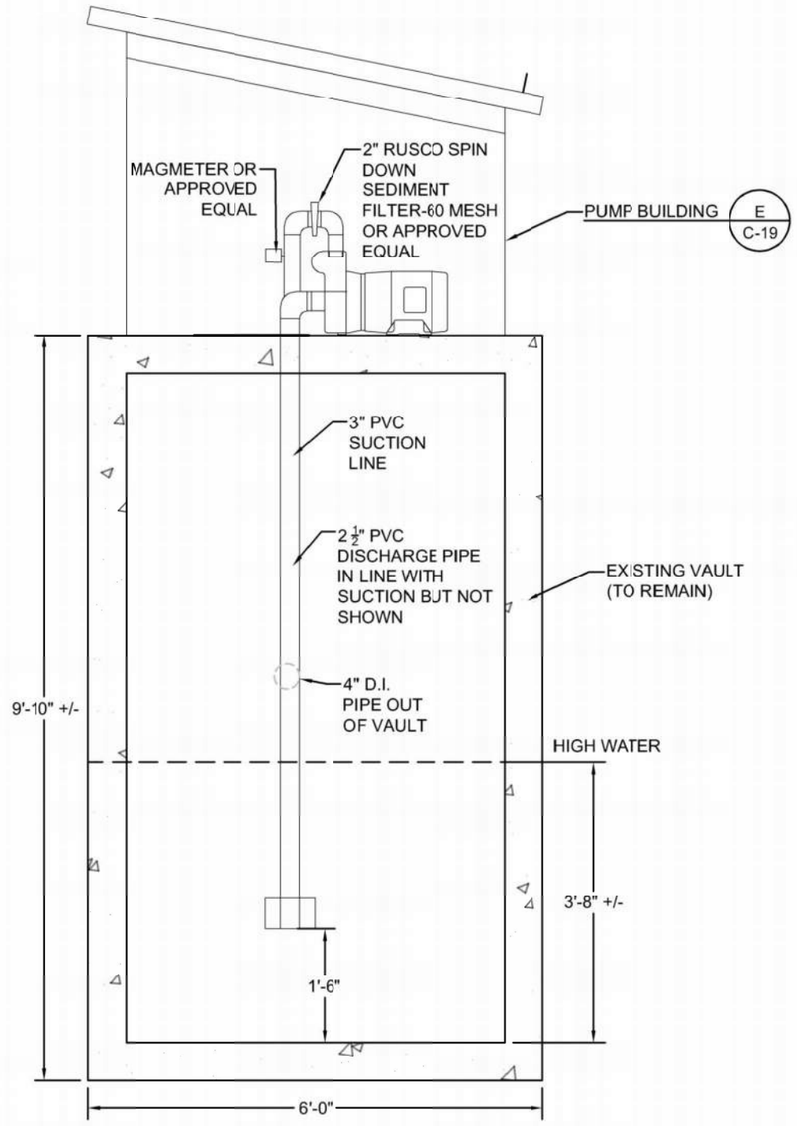
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA REST AREA REHABILITATION	IRRIGATION PUMP DEMOLITION	IM 94-6(68)193
2		12/2021	REVIEWED BY	G. DUNKELBERGER			UPN 9877000	C-17
1			CHECKED BY	J. FADNESS				

K:\Helena\MDT\2020315-PRP Bad Route Rest Area Rehab\05CAD\Sheets\DETAILS-PUMP BUILDING.dwg C-18 DETAILS-PUMP STATION 12/2/2024 3:47:02 PM



PLAN VIEW

SECTION VIEW



SIDE VIEW

PUMP STATION DETAILS D C-7

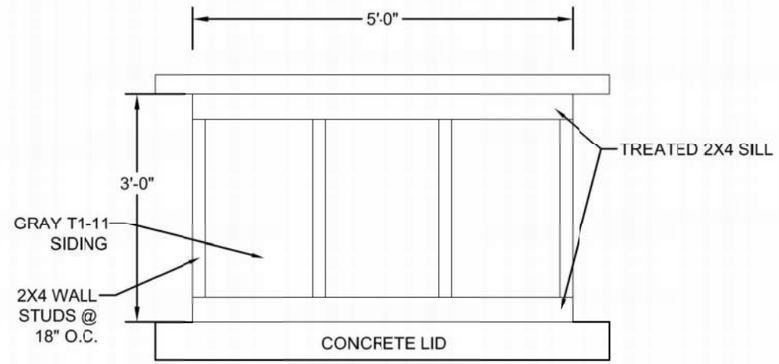
NOTES:
1. THE PROPOSED PUMP IS A 5 HP PENTAIR BERKELEY LTM SERIES SELF-PRIMING CAST IRON CENTRIFUGAL PUMP OR APPROVED EQUAL.
2. THE PROPOSED PUMP WILL ASSUME A DISCHARGE OF 65 GPM AT 65 PSI OR 150 FEET OF HEAD.
3. THE EXISTING 4" D.I. PIPE LOCATION IS APPROXIMATE. THE CONTRACTOR TO ASSESS ITS EXACT LOCATION PRIOR TO CONSTRUCTION.
4. THE PIPE BENDS ARE 90° ELBOWS.
5. ALL PVC TO BE SCHEDULE 40.
6. DETAILS IN GRAY SHOW EXISTING PIPE.

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

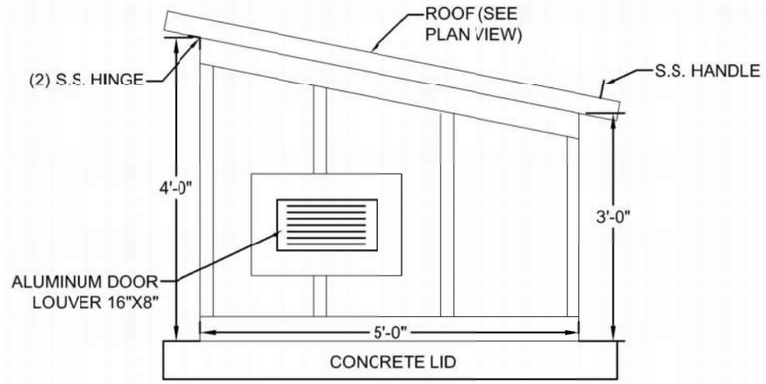
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER		BAD ROUTE REST AREA REST AREA REHABILITATION	DETAILS-PUMP STATION	IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER				
1			CHECKED BY	J. FADNESS			UPN 9877000	C-18

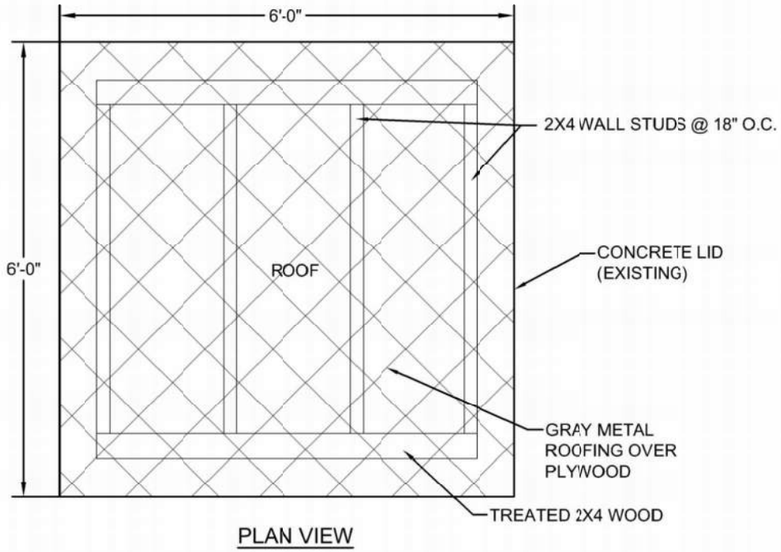
K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\DETAILS-PUMP BUILDING.dwg C-19 DETAILS-PUMP BUILDING 12/2/2024 3:47:02 PM



FRONT ELEVATION



SIDE ELEVATION



PLAN VIEW

NOTES:
1. FASTEN TIMBER BUILDING TO PUMP LID USING S.S. CONCRETE ANCHOR SCREWS OF $\frac{1}{2}$" DIAMETER AND 3 $\frac{1}{2}$" LENGTH. USE FOUR PER BUILDING SIDE.
2. TIMBER CONNECTIONS TO USE FRAMING BRACKETS.
3. ENCASE BUILDING ENVELOPE IN WEATHER BARRIER WRAP.
4. THE TIMBER BUILDNG WILL BE ATTACHED USING SIMPSON STRONG-TIE CONNECTORS AND FASTENERS.

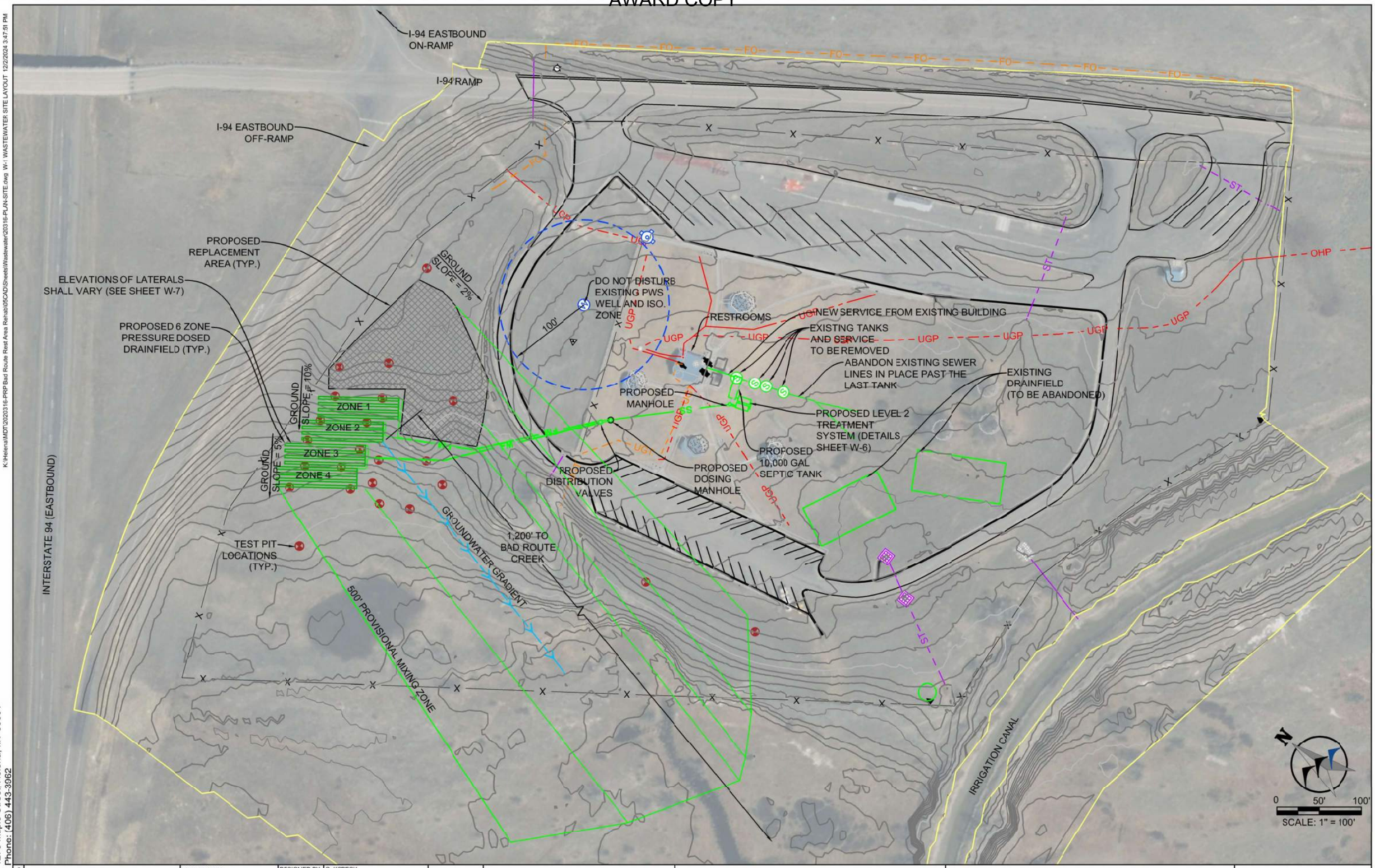
0 1' 2'
SCALE: 1" = 2'

PUMP BUILDING (E / C-18)

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	A. CARTER	BAD ROUTE REST AREA REHABILITATION	DETAILS-PUMP BUILDING	IM 94-6(68)193
2		12/2021	REVIEWED BY	S. DUNKELBERGER		UPN 9877000	C-19
1			CHECKED BY	J. FADNESS			

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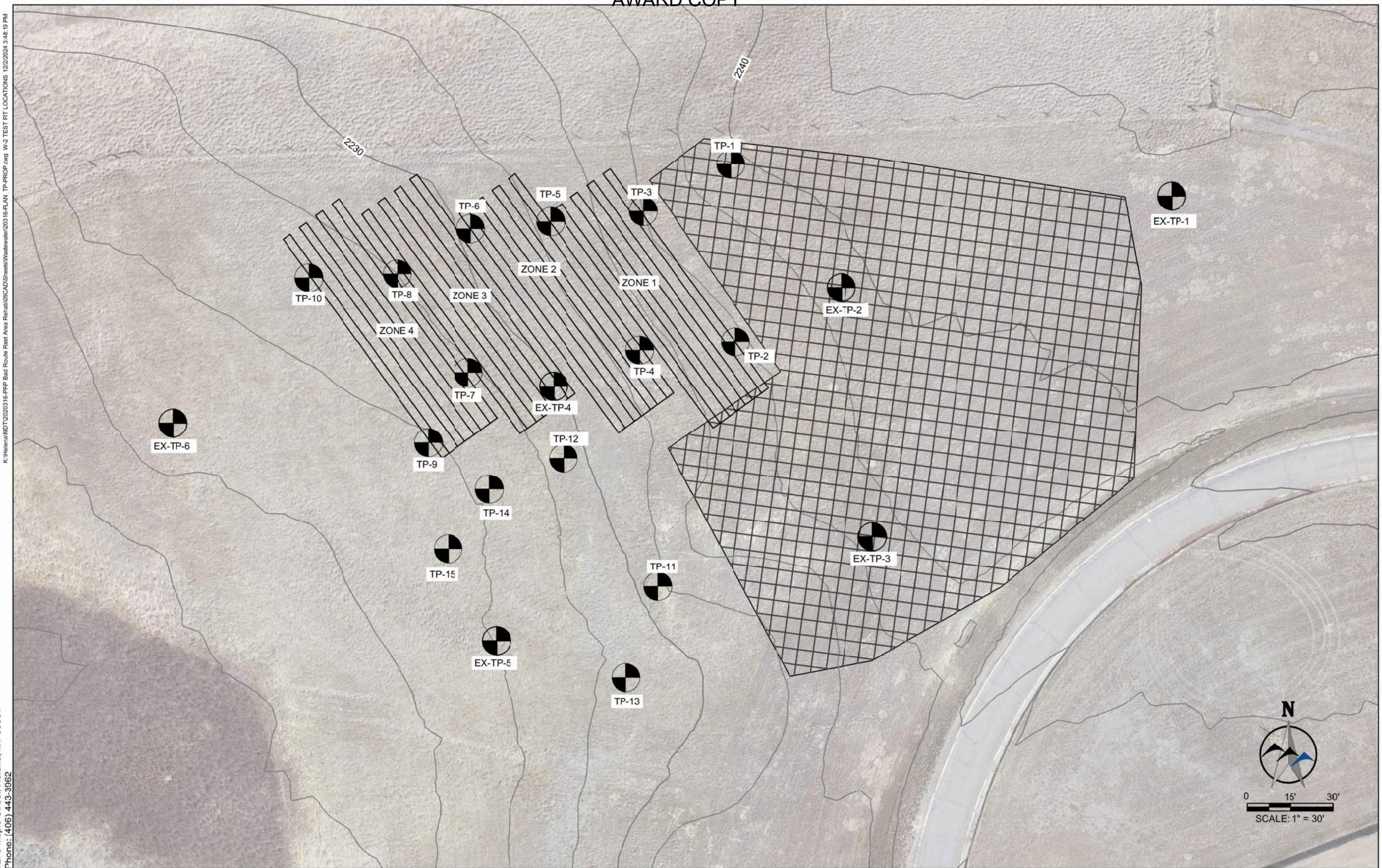
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	S. KOPECK	BAD ROUTE REST AREA REST AREA REHABILITATION	WASTEWATER SITE LAYOUT	IM 94-6(68)193
2		8/2023	REVIEWED BY	G. DUNKELBERGER		UPN 9877000	W-1
1			CHECKED BY	J. FADNESS			

AWARD COPY

K:\Helena\MDT\2020316-PFP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\20316-PLAN_TP-PROP.cwp W-2 TEST PIT LOCATIONS 12/2/2024 3:48:19 PM

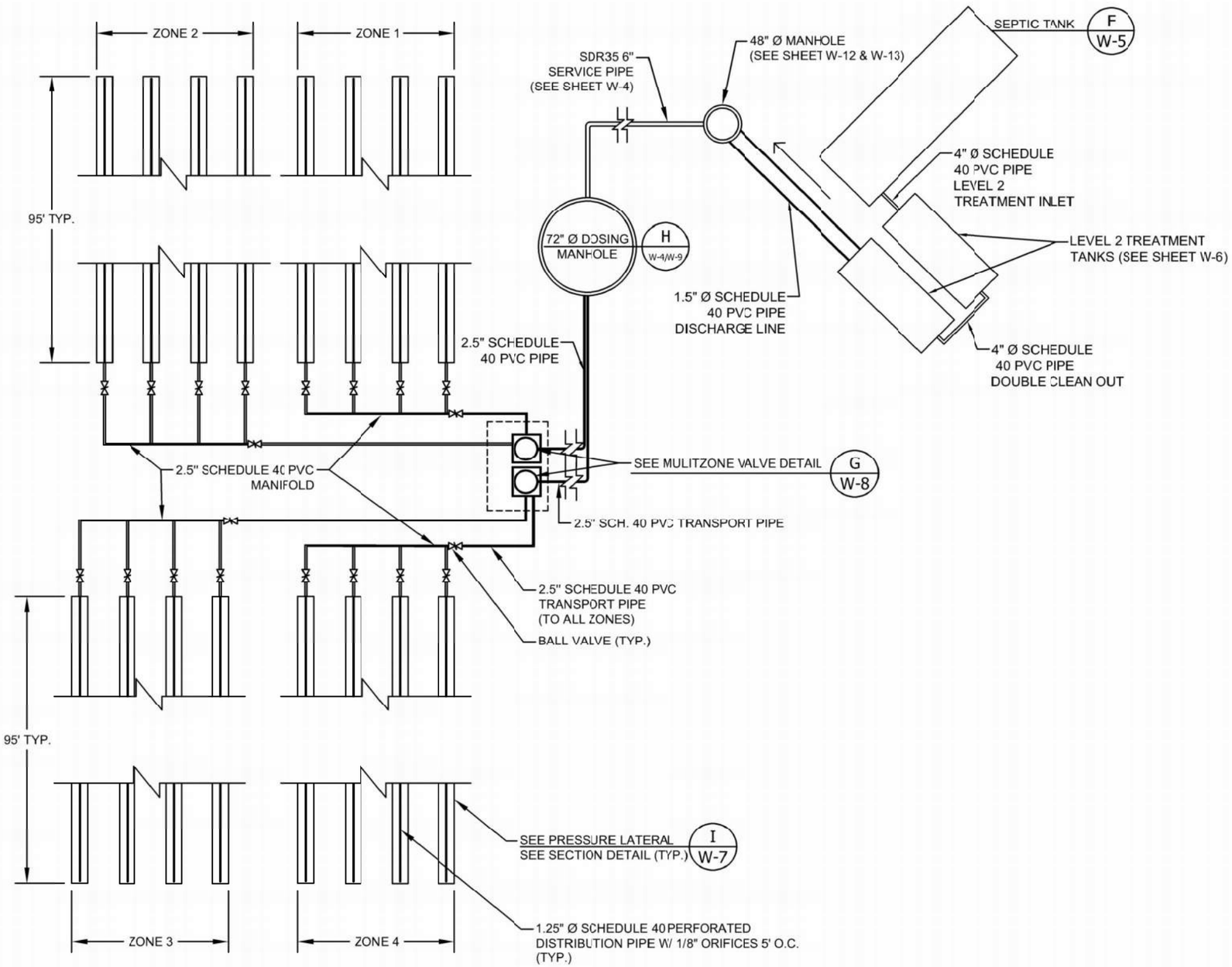


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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	S.KOPECK	BAD ROUTE REST AREA REST AREA REHABILITATION	TEST PIT LOCATIONS	IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER		UPN 9877000	W-2
1			CHECKED BY	J. FADNESS			

AWARD COPY

LENGTH OF PIPE FROM MULTIZONE VALVE TO FIRST BALL VALVE	
ZONE 1	290'
ZONE 2	275'
ZONE 3	292'
ZONE 4	300'



PRESSURE DOSED DRAINFIELD SCHEMATIC

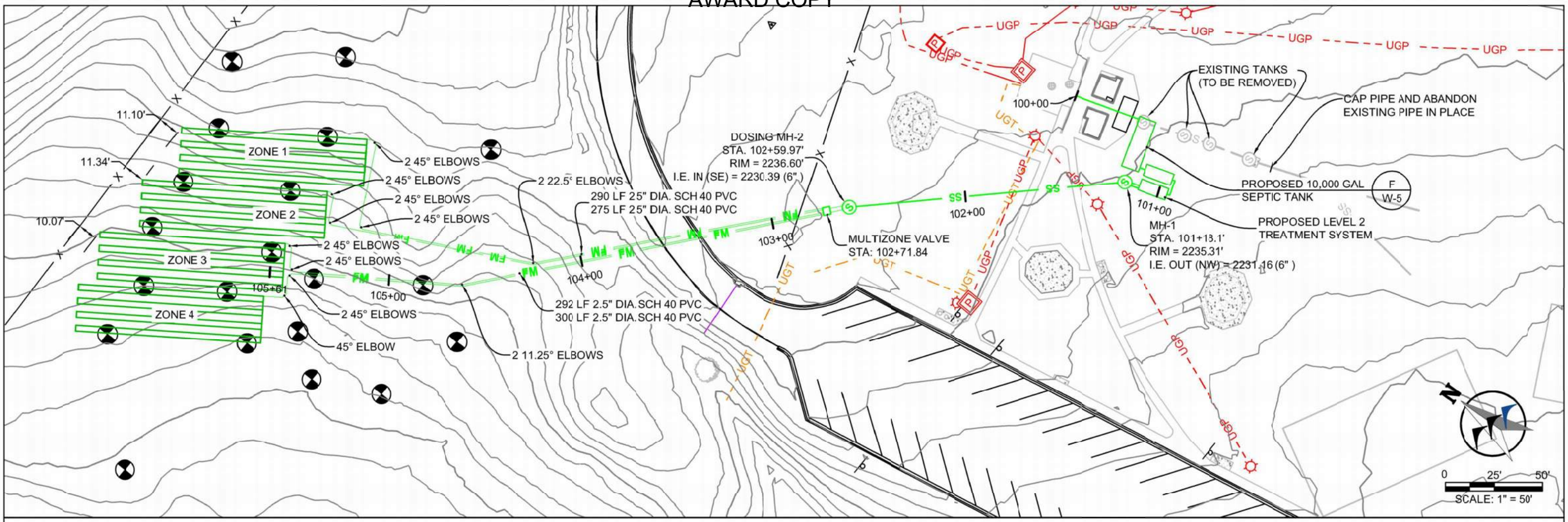
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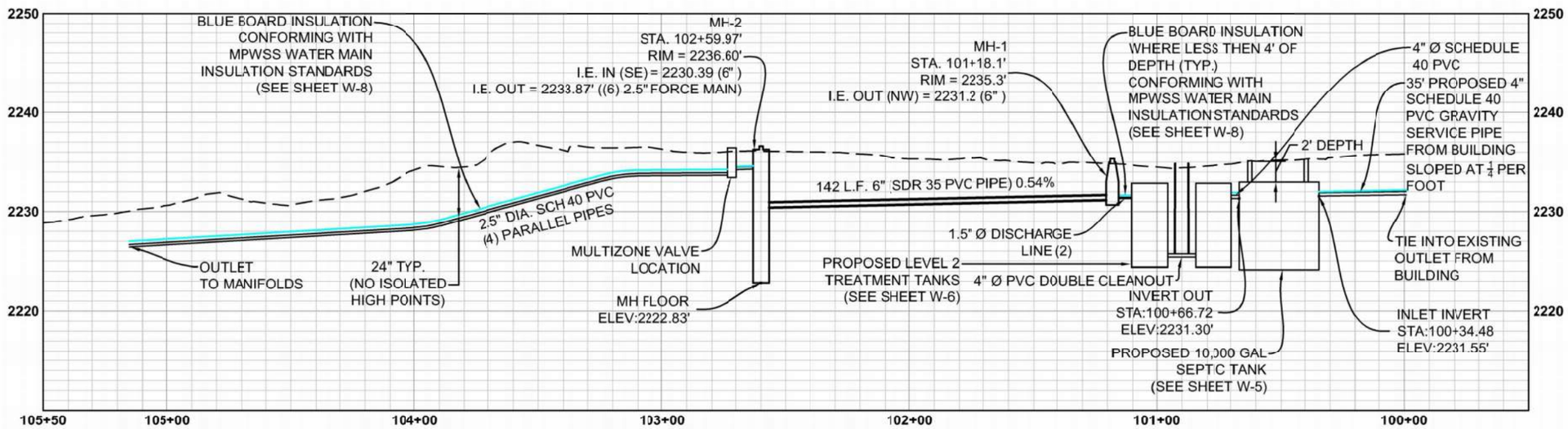
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K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\20316-PLAN-DRAIN.dwg W-3 DRAINFIELD LAYOUT SCHEMATIC 12/2/2024 3:48:58 PM

3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY S. KOPECK		BAD ROUTE REST AREA	DRAINFIELD LAYOUT SCHEMATIC	IM 94-6(68)193
2	MDT	8/2023	REVIEWED BY S. DUNKELBERGER		REST AREA REHABILITATION	UPN 9877000	W-3
1			CHECKED BY J. FADNESS				

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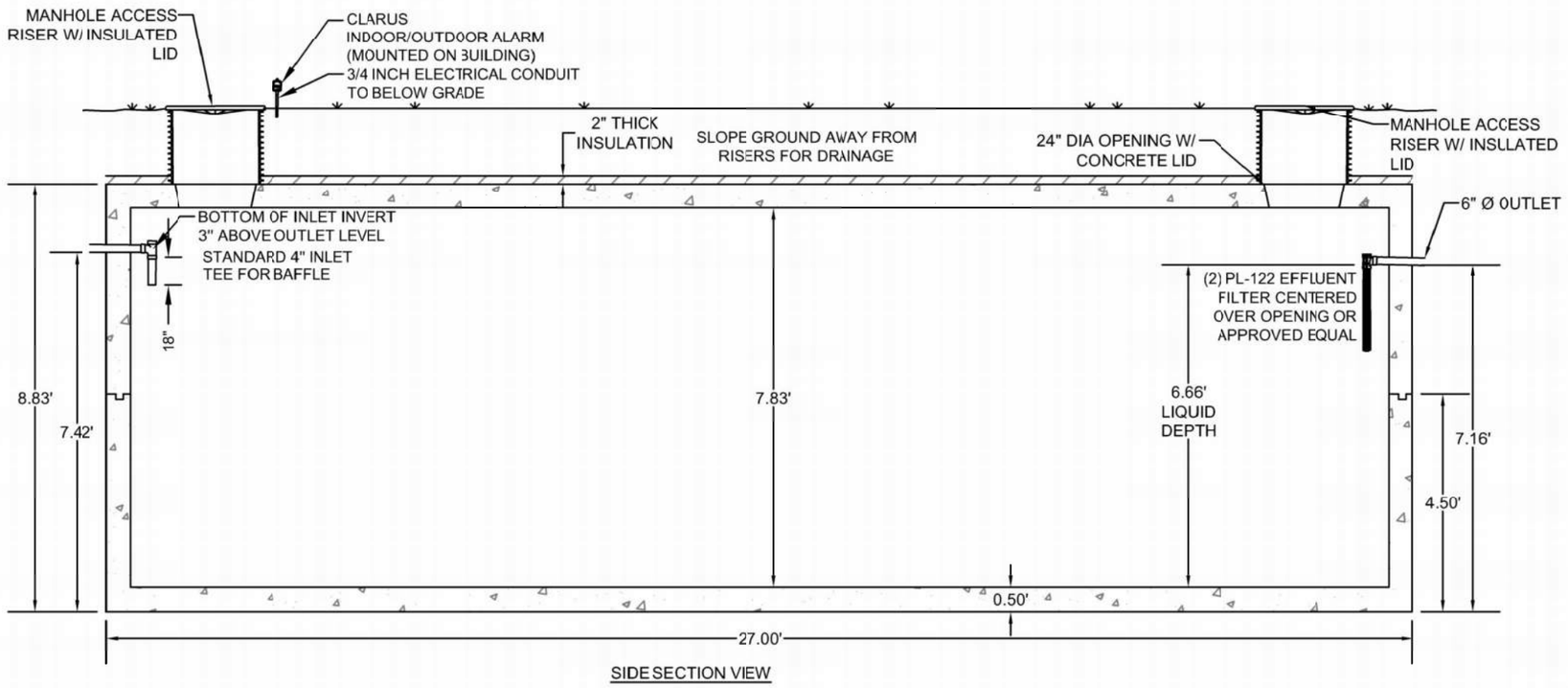
WASTEWATER SYSTEM PROFILE

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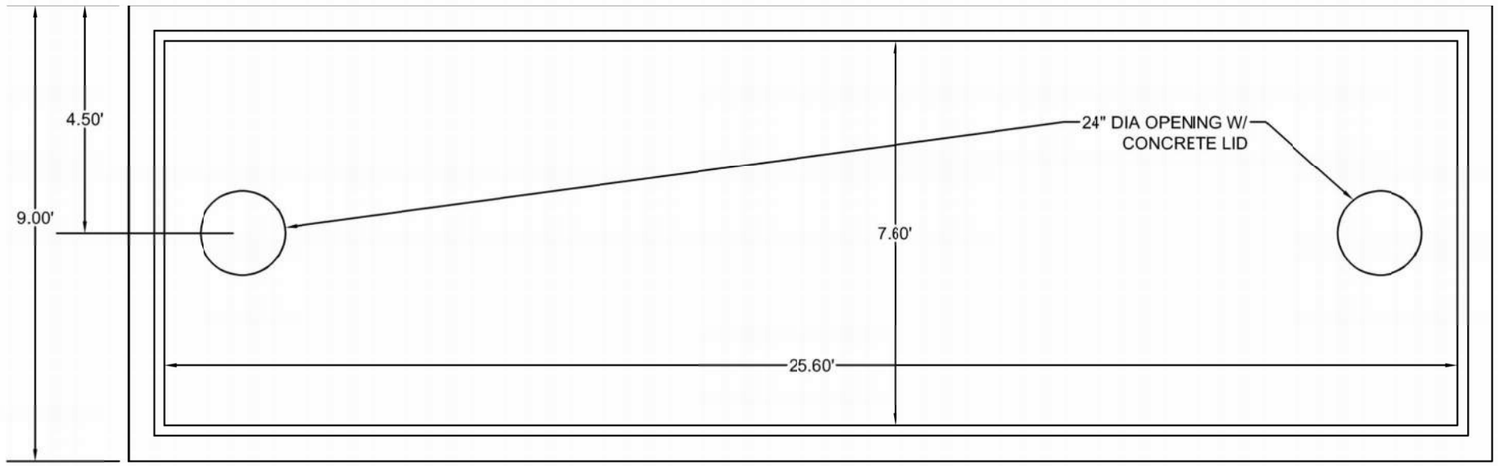
K:\Helena\M3T\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\20316-PP-SSWR.dwg W-4 WASTEWATER SYSTEM PLAN AND PROFILE 12/2/2024 3:50:09 PM

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	S. KOPECK	BAD ROUTE REST AREA REST AREA REHABILITATION	WASTEWATER SYSTEM PLAN AND PROFILE	IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER			
1			CHECKED BY	J. FADNESS		UPN 9877000	W-4

K:\Helena\MDT\2020\316-PSP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\20316-DETL.dwg W-5 10 000 GALLON TANK DETAILS 12/2/2024 3:52:38 PM



SIDE SECTION VIEW



PLAN VIEW

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

RISER NOTES:
1. RISER SECTION TO BE A 24" AND MECHANICALLY ATTACH TO TANK. SEAL BETWEEN ADAPTOR AND RISER WITH EPOXY MA 320. INSTALL CONCRETE LID WITH 4 STAINLESS STEAL 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 ON BUILDING FACE.
13. BURY 2" Ø SCH. 40 PVC CONDUIT MIN. 1.5' BELOW FINISHED GRADE TO ENCASE ELECTRICAL WIRING.
14. SUBMIT ALARM SYSTEM AND SOLAR PANEL MOUNTING LOCATION TO MDT AND ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
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.

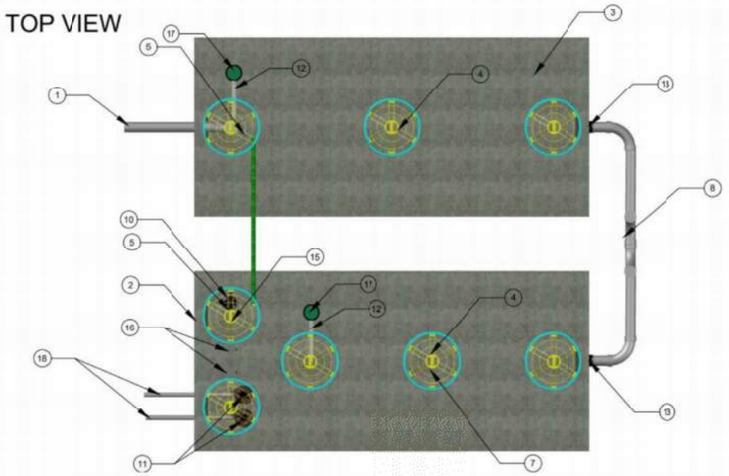
F / W-3 10,000 GALLON SEPTIC TANK DETAILS

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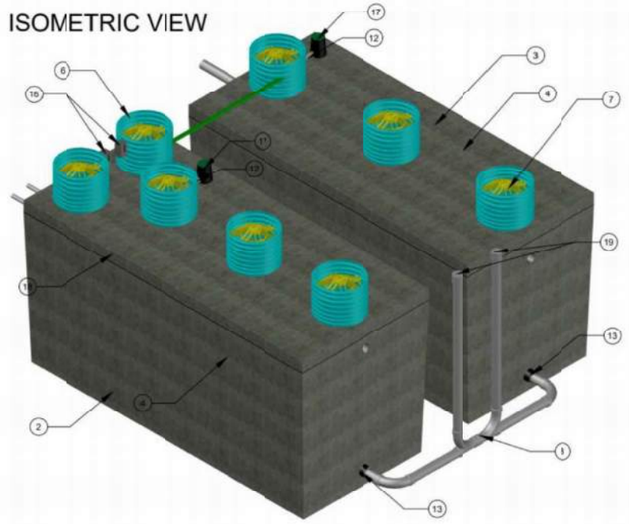
3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	S. KOPECK	BAD ROUTE REST AREA	10,000 GALLON TANK DETAILS		IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER			UPN 9877000	W-5
1			CHECKED BY	J. FADNESS	REST AREA REHABILITATION			

K:\Helena\MDT\2020\316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\20316-DETL.dwg W-6 BOD TREATMENT SYSTEM DETAILS 12/2/2024 3:52:38 PM

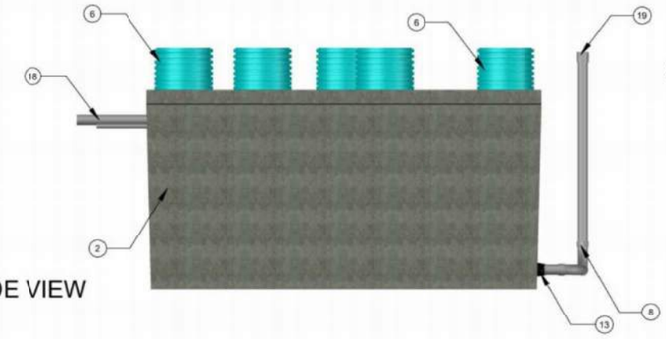
TOP VIEW



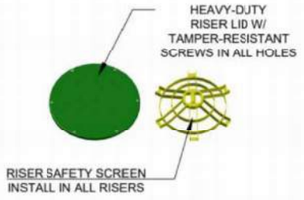
ISOMETRIC VIEW



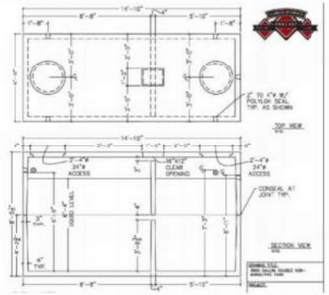
SIDE VIEW



SAFETY SCREEN AND LID



PRECAST CONCRETE TANK



METAROCKS TREATMENT MEDIA



GENERAL OPERATION

Wastewaer generated by the facility will be routed directly to the inlet of the primary tank(s). No petroleum based or derived chemical shall be discharged to any component of the system.

Clarification occurs in the primary tank(s). Constituents with specific gravity < 1 will be removed by flotation and constituents with specific gravity >1 by settling. Wastewaer then flows by gravity through an effluent filter sized according to the peak daily flow and enters treatment unit at the 2° Eliminite Advanced Treatment unit.

The treatnent units are fixed-film bioreactors designed to reduce BOD_5 to below 300 mg/L. The media supporting the biological organisms is not submerged. Wastewaer is sprayed periodically over the media and allowed to trickle through the media bed. Concurrently, air is drawn into the system through the Lung which also operates by the action of the recirculation pump. The treatment unit is therefore aspirated under a forced convection, counter-current flow regime. As the wastewater trickles past attached micro-organisms, organics and TKN are oxidized. Liquid is recirculated over the media in the treatment unt. This cycle repeats until the liquid level in the treatment unit reaches a predetermined level. At that point a portion of the liquid is transfered to disposal system designed by others.

DESIGN CRITERIA MAXIMUM INFLUENT
DAY FLOW: 3500 GAL
BOD_5: 370 MG/L
TSS: 67 MG/L
FOG: 8 MG/L

General Notes

ELIMINITE HAS NOT CONDUCTED ANY SITE EVALUATION OR SITE INVESTIGATION. THIS PLAN DESCRIBES A TREATMENT SYSTEM BASED UPON INFORMATION PROVIDED BY THE PROJECT ENGINEER.

ELIMINITE HAS NOT PROVIDED DRAINFIELD DESIGN OR DRAINFIELD DOSING TANK DESIGN.

WATER SOFTENERS ARE NOT TO BE USED WITH THIS DESIGN.

TEST ALL TANKS FOR WATERTIGHTNESS. Z-LOC CONNECTIONS MUST BE WATERTIGHT.

INSTALL TANKS ON SUITABLE BASE. MAXIMUM BURY DEPTH OF ELIMINITE UNITS IS 18"NO EXCEPTIONS. INSTALL 2" THICK POLYSTYRENE INSULATION TO TOP OF ELIMI TE UNITS.

SYSTEM EVALUATION REQUI WHEN ACTUAL DAILY FLOW E OR EXCEEDS 60% OF INDICA MAX DAY FLOW MORE THAN ANY 7-DAY PERIOD.

INFLUENT M ST NOT EXCEE INDICATED V IES PROVIDE ENGINEER.

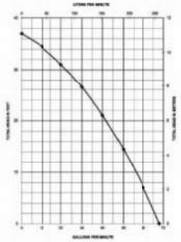
LIDS MUST E AND SECURED A NS RISER SAFE IN ALL RISE LOCATIONS

CONTRACTC PRECAST TA ELIMINITE FC APPROVAL F PRECAST TA

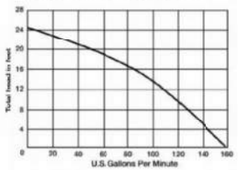
INSTALLATIC MAINTENAN Y BY PE ORIZE

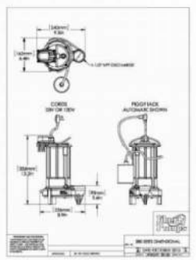
DESCRIPTION			
NUMBER	NAME	SPECIFICATION	NOTE
1	SYSTEM INLET	4"Ø SCH 40 PVC	FROM EFFLUENT FILTER
2	1° ELIMINITE UNIT	3500	PARALLEL ARRANGEMENT
3	2° ELIMINITE UNIT	3500	PARALLEL ARRANGEMENT
4	METAROCKS MEDIA	2-3"	MFG. BY ELIMINITE
5	ELIMINITE LUNG	2" INTAKE	COMMERCIAL DUTY
6	HEAVY DUTY RISERS	FIBERGLASS	18" MAX. LENGTH
7	RISER SAFETY SCREENS		ALL RISERS
8	DOUBLE CLEANOUT	4" Ø PVC	
9	EFFLUENT FILTER	ZABEL NOT SHOWN	A100 12X20 VC BALL. NO SUB.
10	RECIRCULATION PUMPS	LIBERTY PUMP	LE 52M 230V ½ HP 42LB
11	TRANSFER PUMPS	LIBERTY PUMP	230 HV 230V ½ HP 30LB
12	AIR INTAKE	2"Ø	UNDER VALVE BOX
13	Z-LOC BOOT	4"Ø	MUST BE WATERTIGHT
14	ANOXIC RETURN	1 ½ " Ø	NOT SHOWN
15	LEVEL FLOATS	HL,ON,OFF LLC	
16	JUNCTION BOX	WATERPROOF	
17	CIRCULAR VALVE BOX	6"Ø	INSTALL FLUSH W/ FG
18	DISCHARGE LINES	1 ½ "Ø	
19	THREADED CAP	4" PVC	

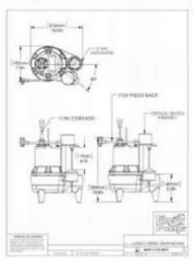
TRANSFER PUMPS
LIBERTY 280HV



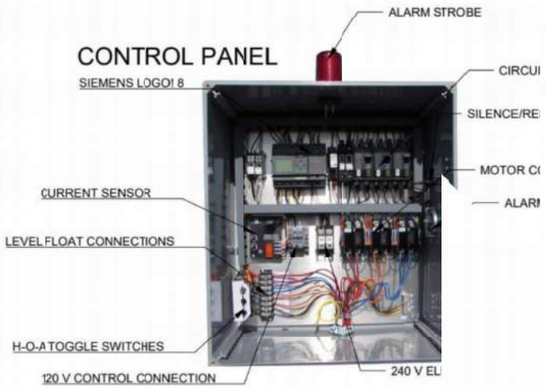
RECIRCULATION PUMPS
LIBERTY LE 52M 230V 6.8 FLA







CONTROL PANEL



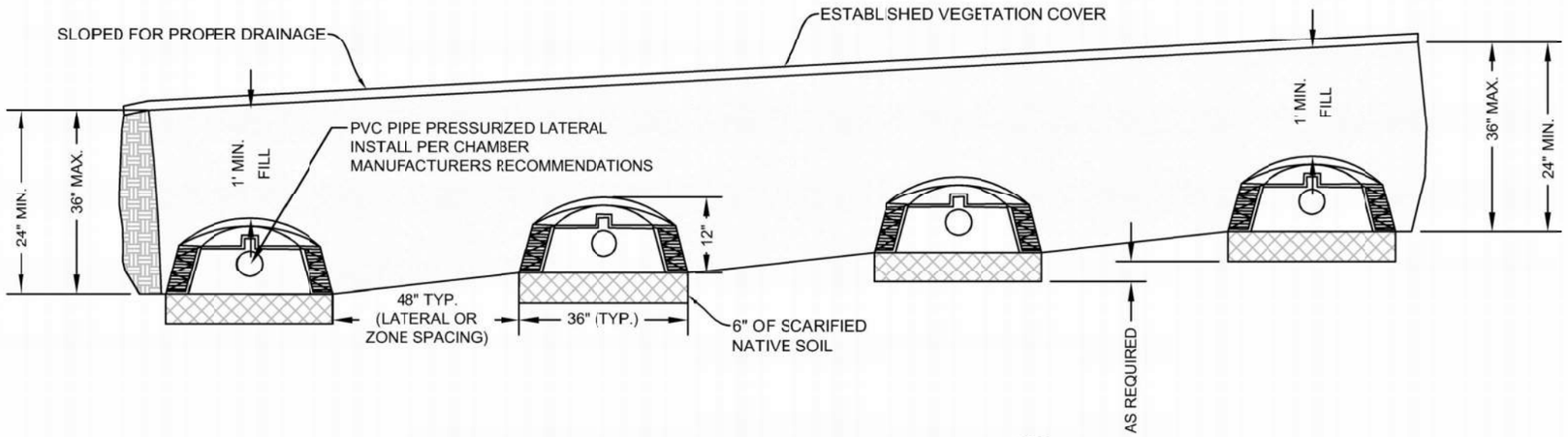
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	S. KOPECK	BAD ROUTE REST AREA	BOD TREATMENT SYSTEM DETAILS	IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER			
1			CHECKED BY	J. FADNESS	REST AREA REHABILITATION	UPN 9877000	W-6

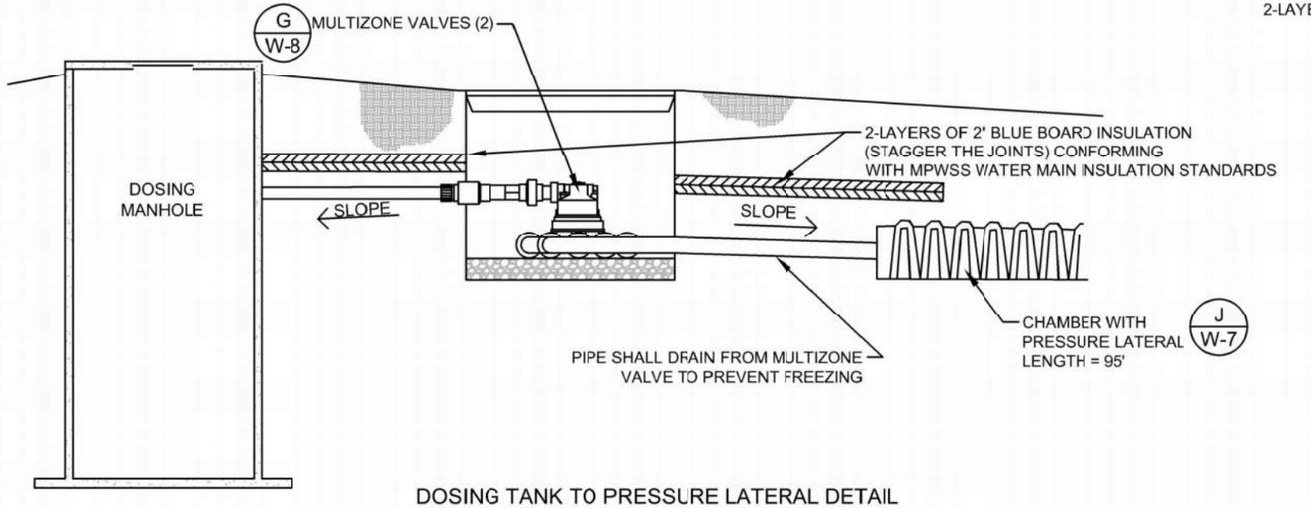
K:\Helena\MDT\2021\316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\20316-DETL.dwg W-7 DRAINFIELD DETAILS (1) 12/2/2024 3:52:38 PM

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



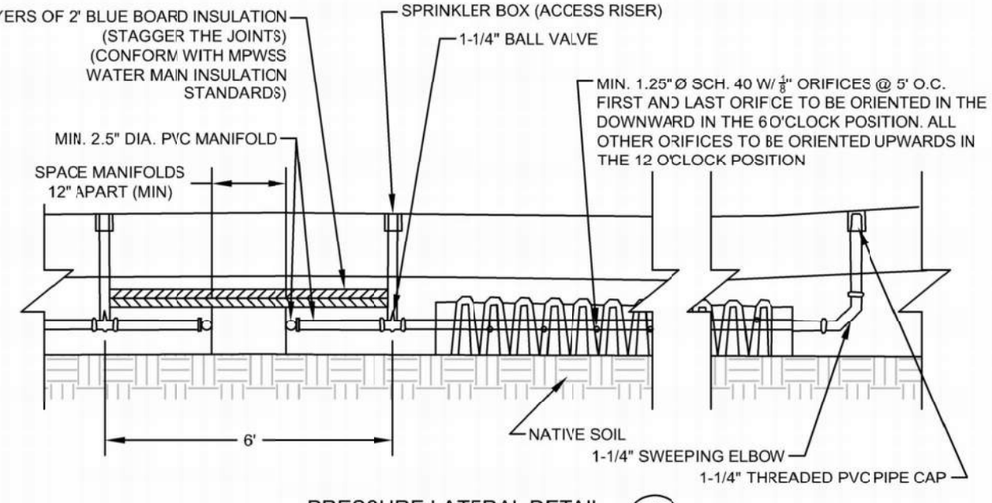
PRESSURE DOSED LATERAL SECTION DETAILS (J / W-7)

NOT TO SCALE



DOSING TANK TO PRESSURE LATERAL DETAIL

NOT TO SCALE



PRESSURE LATERAL DETAIL (I / W-3)

NOT TO SCALE

TESTING PROCEDURES FOR DRAINFIELD
1. FILL DOSING MANHOLE 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.

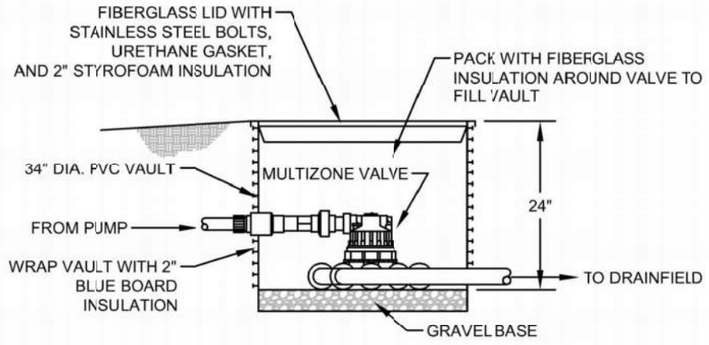
CONSTRUCTION NOTES:
1. PRESSURE PIPE LOCATED WITHIN 6' OF GROUND SURFACE AND GRAVITY PIPE LOCATED WITHIN 4' OF GROUND SURFACE TO BE INSULATED WITH BLUE BOARD INSULATION TO PROTECT FROM FREEZING.

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

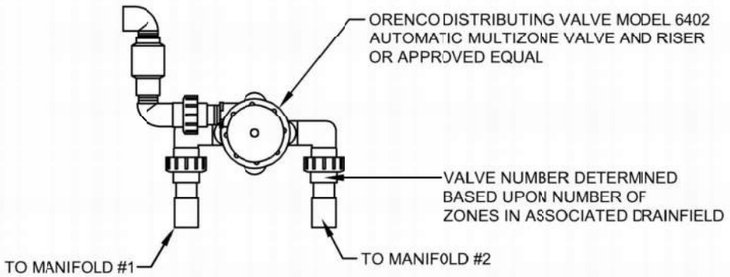
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	S. KOPECK	BAD ROUTE REST AREA REST AREA REHABILITATION		DRAINFIELD DETAILS (1)	IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER				UPN 9877000
1			CHECKED BY	J. FADNESS				W-7

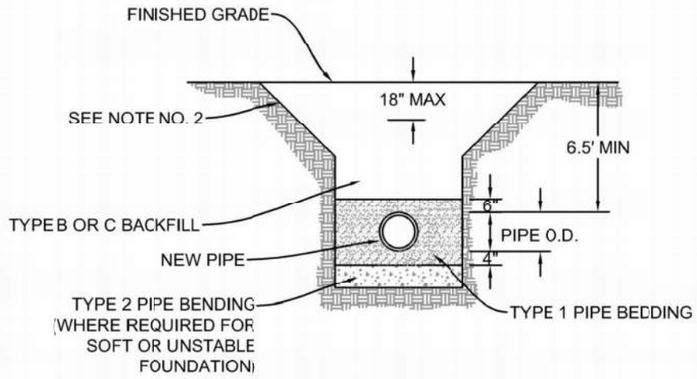
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MULTIZONE VALVE DETAIL - SIDE VIEW G
NOT TO SCALE W-3/W-7

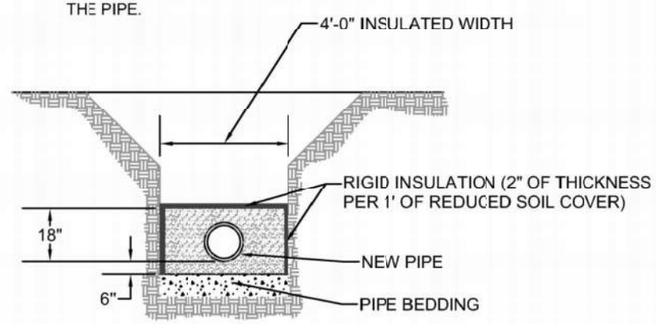


MULTIZONE VALVE DETAIL - TOP VIEW G
NOT TO SCALE W-3/W-7



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.



PIPE INSULATION
NOT TO SCALE

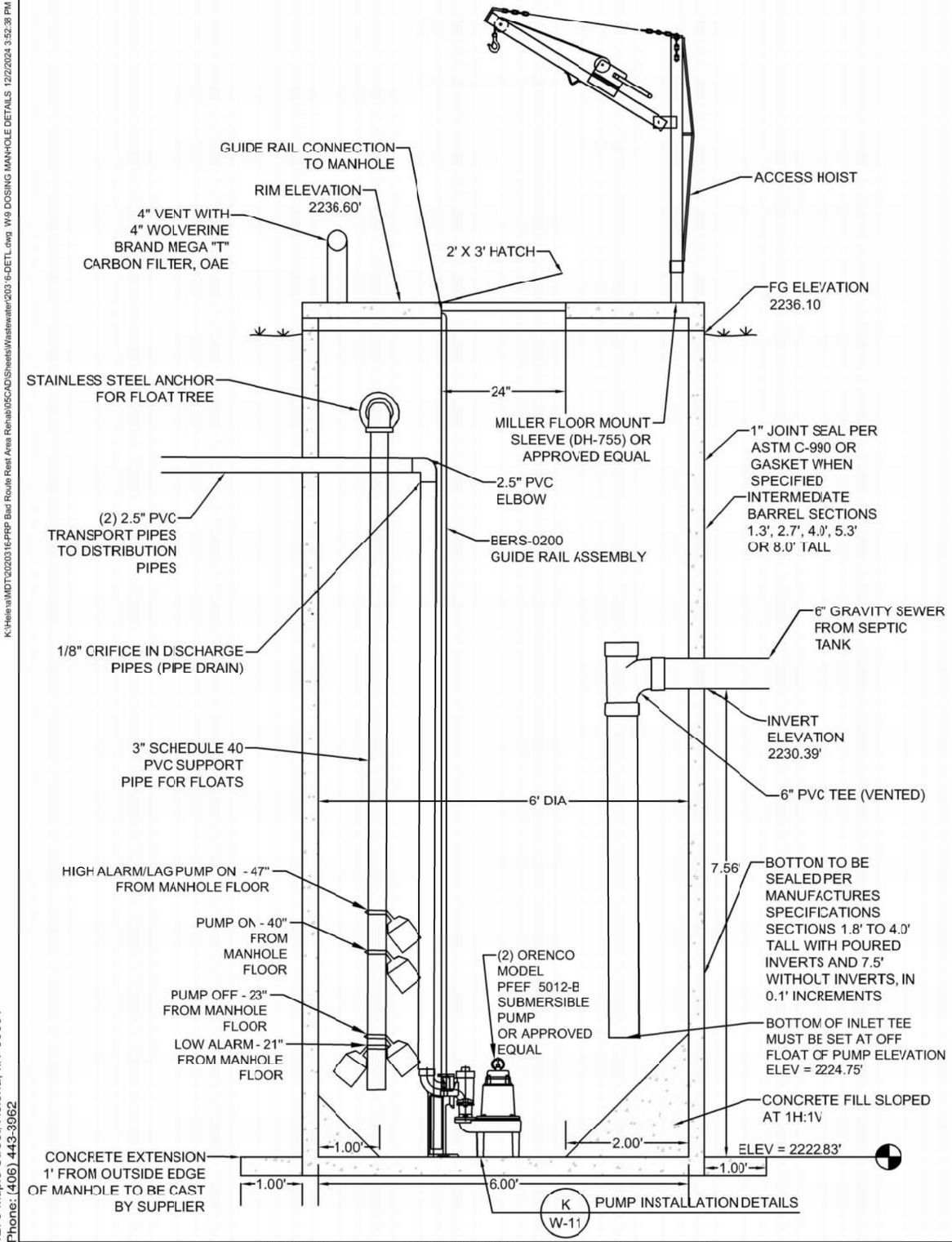
NOTES:

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.

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2		8/2023	REVIEWED BY	S. DUNKELBERGER			UPN 9877000	W-8
1			CHECKED BY	J. FADNESS				

K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\2203 6-DETL.dwg W-9 DOSING MANHOLE DETAILS 12/2/2024 3:52:38 PM



DOSING MANHOLE SECTION VIEW (H / W-3)

NOT TO SCALE

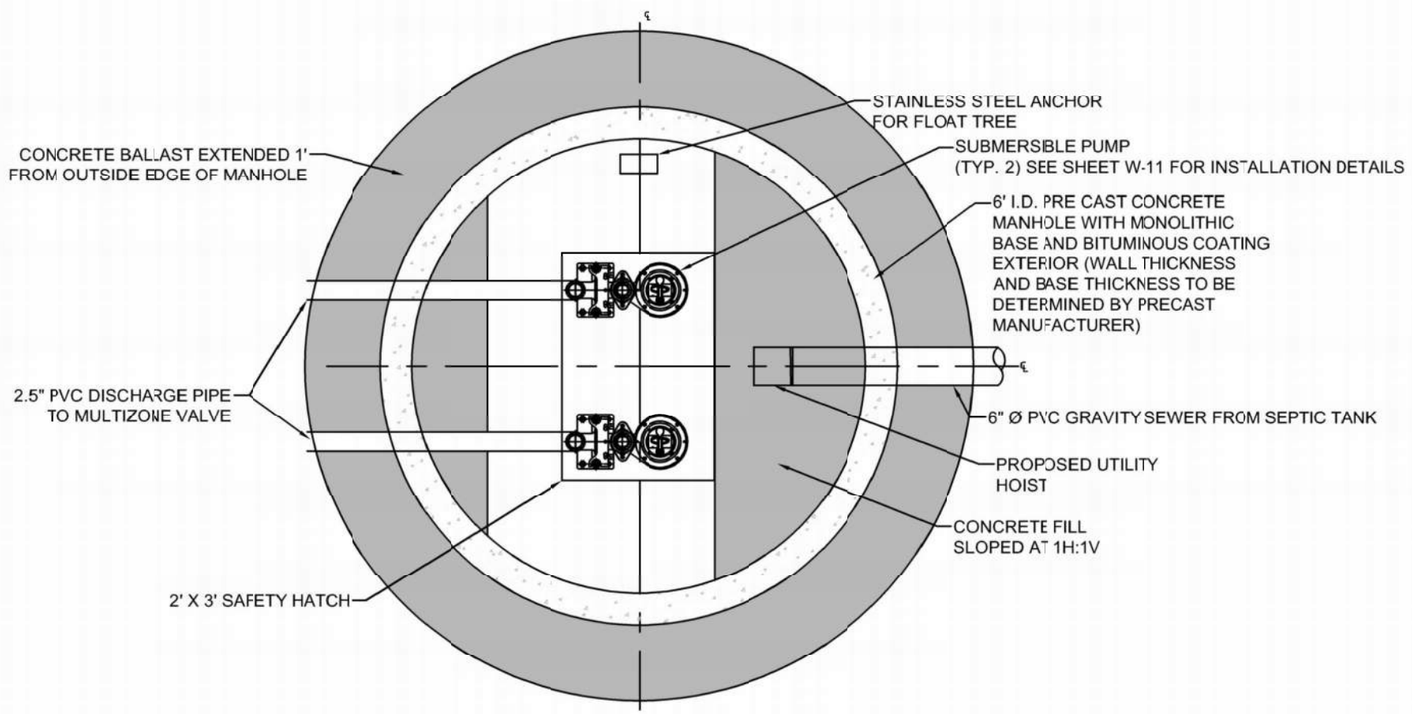
NOTES:

1. EXTERIOR OF MANHOLE SHALL HAVE A BITUMINOUS COATING
2. AT EVERY JOINT ALL CONCRETE RISERS SHALL: BE WRAPPED ON THE EXTERIOR WITH 12" WIDE BUTYL ADHESIVE TAPE, BE FURNISHED WITH TWO PARALLEL STRIPS OF RAM NECK BETWEEN BARREL SECTIONS AND BE COATED WITH BITUMINOUS TAR
3. ALL PRECAST TO BE MANUFACTURED PER ASTM C478.
4. POURED-IN INVERTS AS REQUIRED.
5. ALL MANHOLES TO BE VACUUMED TESTED PER ASTM C1244 OR HYDROSTATIC TESTED PER DEQ CIRCULAR 2, SECTION 34.7.
6. MAN LIFT DEVICE FOR THE MANHOLE MUST BE CAPABLE OF ALLOWING UNOBSTRUCTED ENTRY INTO THE WET WELL WITH OUT REMOVING THE ACCESS HATCH DOOR.
7. MANHOLE TO BE CONSTRUCTED BY BILLINGS PRECAST OR APPROVED EQUAL.
8. CONTRACTOR TO PROVIDE HOIST, ONE SAFETY HARNESS, AND STAINLESS STEEL CHAIN FOR PUMP REMOVAL.

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2		8/2023	REVIEWED BY	S. DUNKELBERGER	REST AREA REHABILITATION		UPN 9877000
1			CHECKED BY	J. FADNESS			W-9

K:\Helena\MDT\2020316-PRP Bad Route Resi Area Rehab\05CAD\Sheets\Wastewater\20316-DETL.dwg W-10 DOSING MANHOLE DETAILS (2) 12/2/2024 3:52:38 PM



DOSING MANHOLE PLAN VIEW (H / W-3)
NOT TO SCALE

NOTES:

1. PRECAST MANHOLE BASE AND FIRST BARREL SECTION SHALL BE A MONOLITHIC POUR.
2. MANHOLE SHALL HAVE A BITUMINOUS COATING EXTERIOR.
3. AT EVERY JOINT ALL CONCRETE MANHOLE RISES SHALL: BE WRAPPED ON THE EXTERIOR WITH 12" WIDE BUTYL ADHESIVE TAPE, BE FURNISHED WITH TWO PARALLEL STRIPS OF RAM NECK BETWEEN BARREL SECTIONS, AND COATED WITH BITUMINOUS TAR
4. THE MANHOLE PRECAST MANUFACTURER SHALL TEST FIT ALL PRECAST COMPONENT AT THEIR FACILITY, FIX ANY ISSUES THAT PREVENT THE MANHOLE SECTIONS FROM ASSEMBLING CORRECTLY, AND PAINT MATCH LINES ON THE EXTERIOR OF THE MANHOLE SECTIONS FOR HOW THEY'VE TESTED THE SECTIONS AND ACHIEVED PROPER ASSEMBLY.
5. ACCESS HATCH SHALL BE CAST FLUSH IN PRECAST CONCRETE COVER.
6. ALL HARDWARE WITHIN THE MANHOLE SHALL BE STAINLESS STEEL. AN INSPECTION REPORT CERTIFYING THESE MATERIALS ARE STAINLESS STEEL SHALL BE SUPPLIED TO MDT AT BOTH INTERIM AND FINAL ACCEPTANCE.

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Phone: (406) 443-3962

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	S. KOPECK		BAD ROUTE REST AREA	DOSING MANHOLE DETAILS (2)	IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 9877000	W-10
1			CHECKED BY	J. FADNESS				

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K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\Wastewater\20316-DETL.dwg W-11 PUMP AND GUIDE RAIL INSTALLATION 12/2/2024 3:52:38 PM

Basic Installation Instructions: BERS-0125 thru BERS-0300 Series

OR APPROVED EQUAL

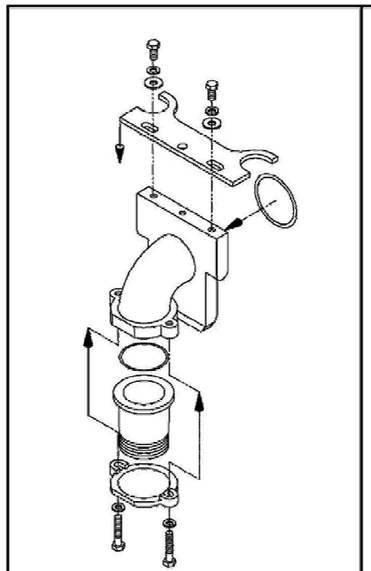


FIGURE 1

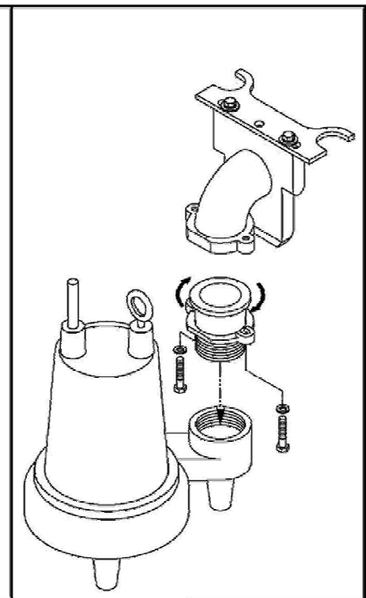


FIGURE 2

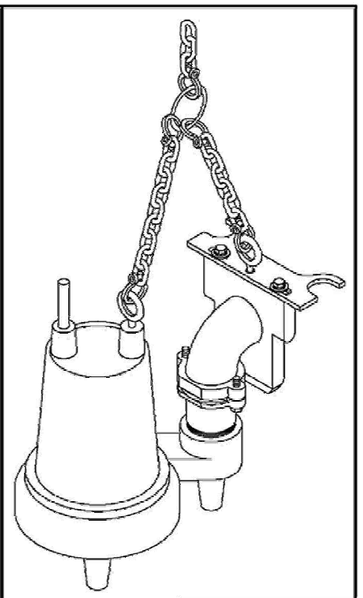
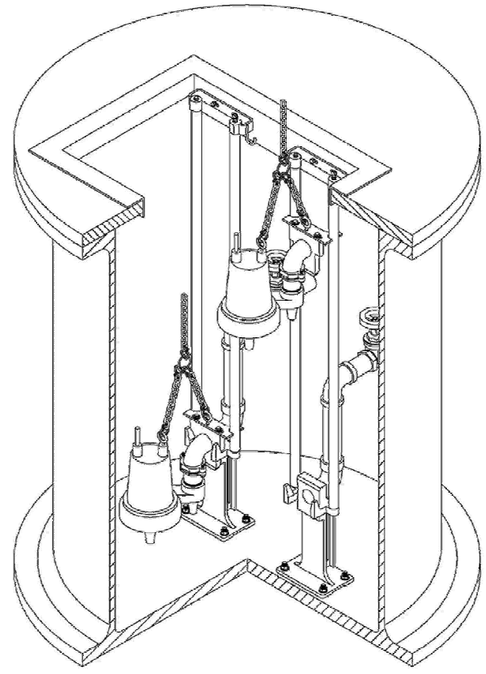


FIGURE 3

Pull Out Flange Assembly Instructions: Figure 1 shows all of the parts included with the pull-out flange assembly. This is the removable portion of the Freeflo™ base elbow rail system assembly, and it is this assembly that will attach to the discharge of the pump (see figure 2). The threaded pump adapter flange will thread into the pump discharge as shown. The pump adapter flange is secured by tightening the two (2) long cap screws provided. This allows the pump to be oriented as necessary before lowering into the basin or collection tank. After attaching the pull out flange assembly to the pump, the lifting chain or cable assembly should be attached (see figure 3). This should be adequately sized to handle the weight of the pump and the pull out flange assembly as well as be long enough to allow for easy access for pulling the pump (continued on reverse side of this page).

Basic Installation Instruction (cont.)

OR APPROVED EQUAL



Base Elbow Installation Instruction: There are two main components to the Freeflo™ base elbow rail system, the stationary base and the pull out flange assembly. The stationary base will be secured to the bottom of the basin or collection tank. The base elbow should be positioned per the job specifications and the pump manufacturer's recommendations to allow for proper alignment with the access hatch for removal and installation of the pump or pumps. The base elbow is designed to be secured with four (4) studs, lock-washers, and nuts. It is important to make sure the elbow is secured to the basin or collection tank bottom to prevent it from moving or vibrating. After the elbow is installed the remaining items can be installed (i.e. piping, valve, guide rails, rail supports, etc.) into the tank. After this is done simply attach the pull out flange assembly to the pump, and lower the pump into the tank as shown above.

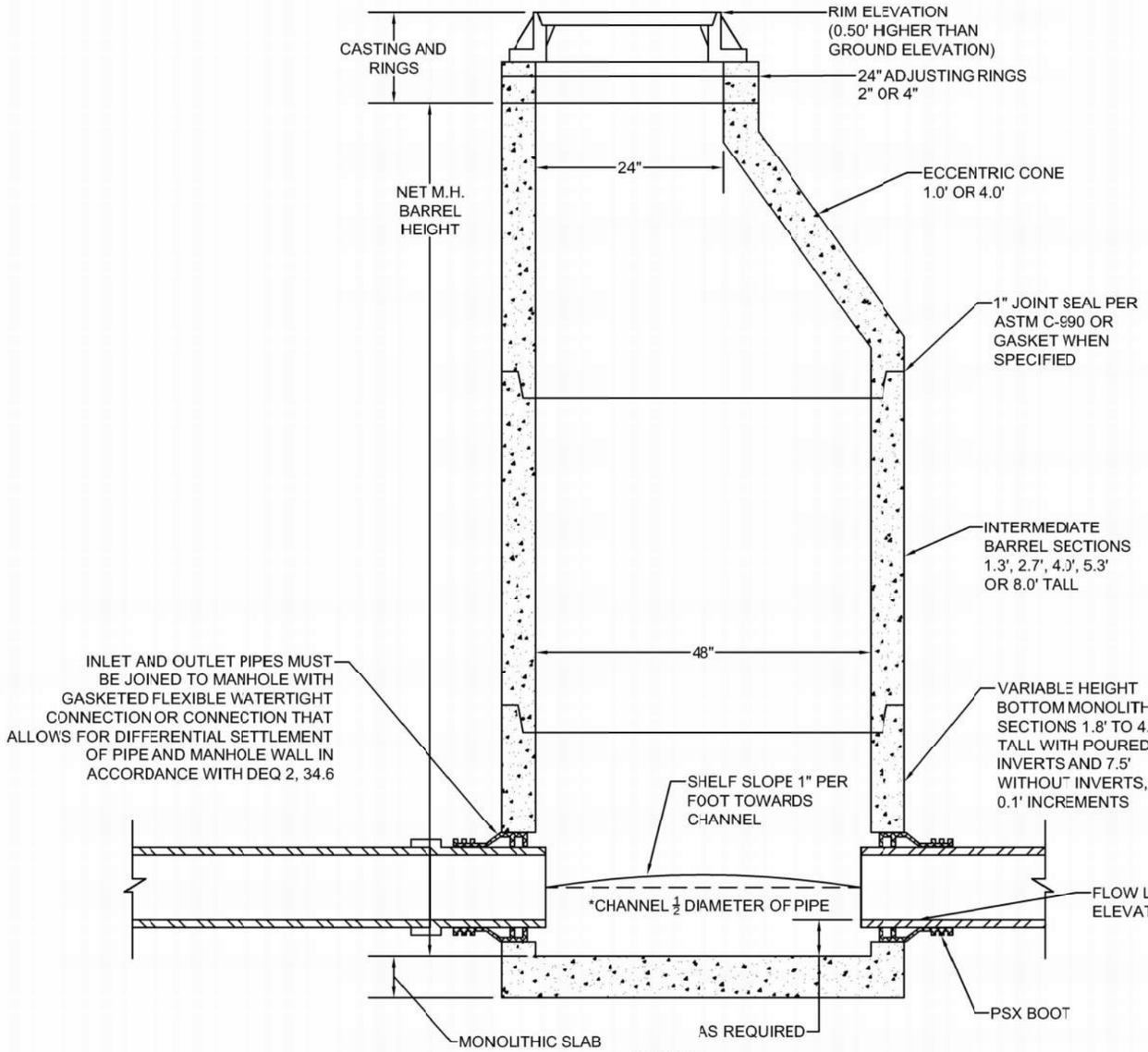
K / W-9 PUMP INSTALLATION DETAILS

NO SCALE

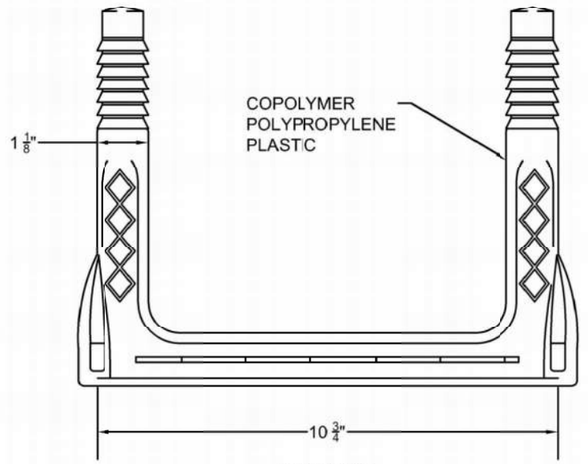
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2		8/2023	REVIEWED BY	S. DUNKELBERGER		REST AREA REHABILITATION	UPN 9877000	W-11
1			CHECKED BY	J. FADNESS				

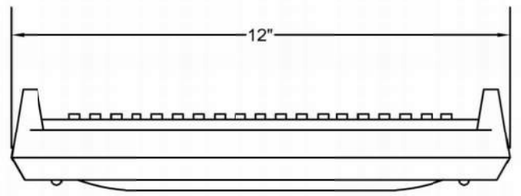
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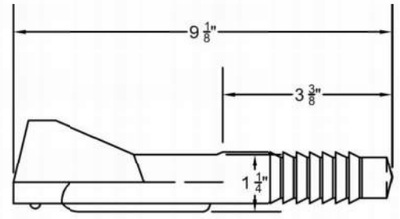
SECTION



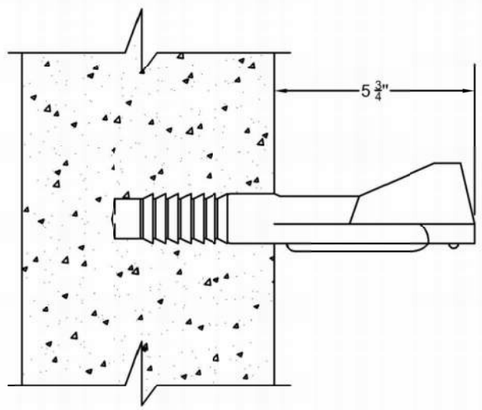
PLAN VIEW



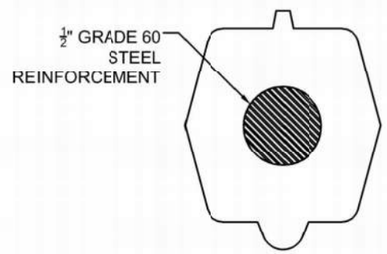
FRONT VIEW



SIDE VIEW



TYPICAL INSTALLATION



TYPICAL INSTALLATION

STANDARD SANITARY MANHOLE WITH MONOLITHIC BASE

NOT TO SCALE

NOTES:
1. ALL COMPONENTS ARE MANUFACTURED PER ASTM C478.
2. STEPS PROVIDED AND LOCATED AS REQUIRED.
3. POURED-IN INVERTS AS REQUIRED.
4. *WHERE PIPE DIAMETER IS 12 INCHES, FORM CHANNEL TO PIPE CROWN.
5. ALL MANHOLES TO BE VACUUMED TESTED PER ASTM C1244 OR HYDROSTATIC TESTED PER DEQ CIRCULAR 2, SECTION 34.7.

MANHOLE STEP

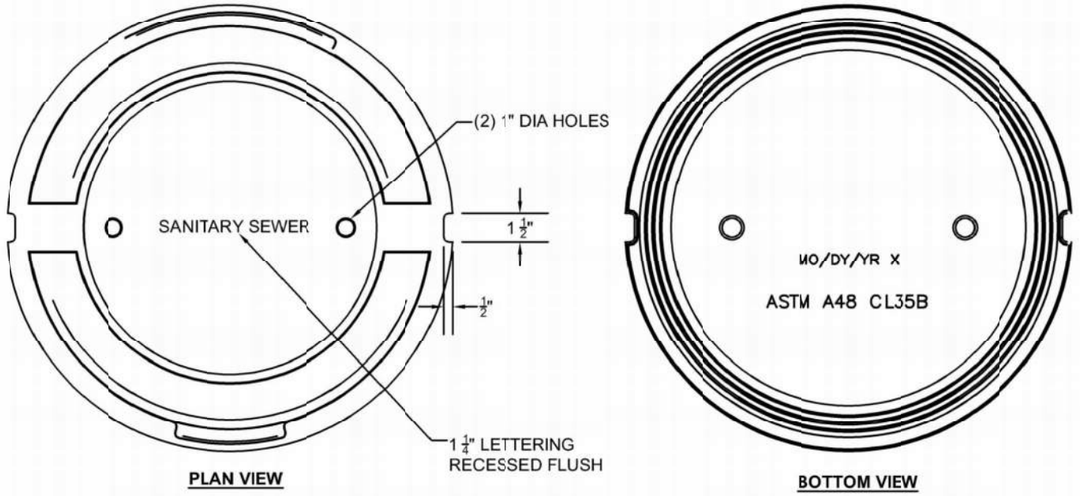
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NOTES:
1. THIS STEP MUST MEET THE REQUIREMENTS OF ASTM C 478

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2		8/2023	REVIEWED BY	S. DUNKELBERGER				UPN 9877000
1			CHECKED BY	J. FADNESS				W-12

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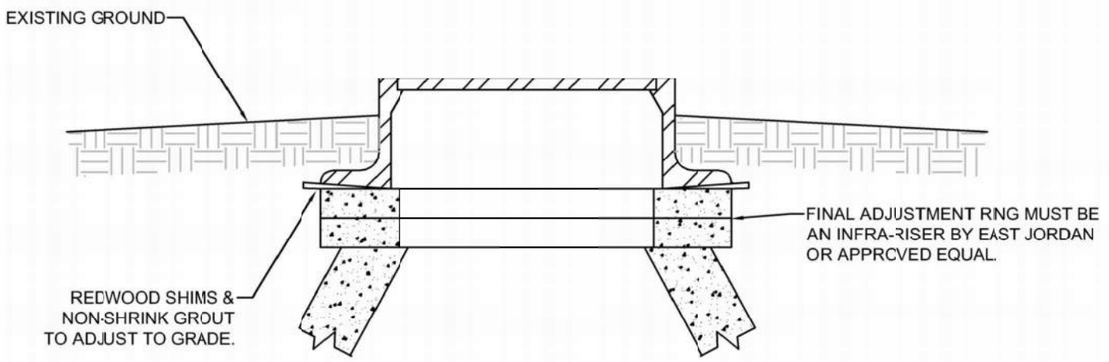


PLAN VIEW

BOTTOM VIEW

SECTION VIEW

MANHOLE LID
NOT TO SCALE



MANHOLE CASTING ADJUSTMENT
NOT TO SCALE

NOTES:

1. ADJUST MANHOLES UPWARD WITH ADJUSTING RINGS UNDER FRAME.
2. ADJUST MANHOLE DOWNWARD BY REMOVING CONE AND BARREL SECTIONS AS NECESSARY AND REPLACING WITH SECTIONS OF LENGTH REQUIRED TO MATCH GRADE.
3. SLOPE MANHOLE FRAME AS REQUIRED TO MATCH SLOPE OF EXISTING GROUND.
4. FINAL MANHOLE ADJUSTMENT SHALL BE MADE AFTER GRADING.

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1			CHECKED BY	J. FADNESS			UPN 9877000	W-13

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K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\20316-STRU-DETL.dwg S-1 GENERAL STRUCTURAL NOTES 12/2/2024 3:53:50 PM

STRUCTURAL GENERAL NOTES

1. CONTRACTOR RESPONSIBLE FOR COORDINATION OF WORK & IS RESPONSIBLE FOR REVIEWING ALL PLAN DOCUMENTS. NOTIFY ENGINEER OF DISCREPANCIES IN DOCUMENTS OR SITE CONDITIONS PRIOR TO STARTING WORK.
2. STRUCTURAL GENERAL NOTES ARE INTENDED TO HIGHLIGHT OR IN SOME CASES SUPPLEMENT PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR COMPLETE WORK COVERAGE.

A. GOVERNING CODES

1. INTERNATIONAL BUILDING CODE (IBC, 2018 EDITION)
2. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI, 318–14)
3. BUILDING CODE REQUIREMENTS AND SPECIFICATIONS FOR MASONRY STRUCTURES (ACI, 530–13)
4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC, 14TH EDITION)
5. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS, 2012 EDITION)

B. DESIGN LOADS AND CRITERIA

1. GRAVITY LOADS (PSF):

ROOF	DEAD LOAD 15	SNOW LOAD 30 (ROOF)
FLOOR	DEAD LOAD N/A	LIVE LOAD N/A

2. WIND CRITERIA: ULTIMATE DESIGN WIND SPEED = 115 MPH
   BUILDING CATEGORY: PARTIALLY ENCLOSED
   I = 1.0 / EXPOSURE C
3. SEISMIC CRITERIA: S_s = 0.08, S_1 = 0.03, C_s = 0.012
   I = 1.0 / SEISMIC DESIGN CATEGORY A
   ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE
4. FOOTING BEARING PRESSURE: 1,500 PSF ON APPROVED SUBGRADE, ASSUMED
5. SOIL FRICTION COEFFICIENT: 0.35
6. LATERAL SOIL PRESSURE: 35 PCF ACTIVE EQUIVALENT FLUID PRESSURE
   60 PCF AT–REST EQUIVALENT FLUID PRESSURE
   250 PCF PASSIVE EQUIVALENT FLUID PRESSURE
7. FROST DEPTH: 4'–0"

C. MATERIALS

1. CONCRETE:	STRUCTURE CONCRETE SHALL MEET MDT CLASSIFICATION SECTION 551 FOR STRUCTURAL CONCRETE
2. REINFORCING BARS:	ASTM A615, GRADE 60
3. DEFORMED BARS:	ASTM A706, GRADE 80 (WHERE INDICATED TO BE WELDED)
4. MECHANICAL SPLICES:	LENTON TAPERED, THREADED COUPLERS AS MFG BY ERICO
5. WELDED WIRE FABRIC:	ASTM A185, FLAT SHEET MATERIAL
6. ANCHOR RODS:	ASTM F1554 GRADE 36 OR 55
7. GROUT:	ASTM C1107, NON–METALLIC NON–SHRINK, 3 DAY f'c = 4000 PSI
8. MASONRY UNITS:	ASTM C90, GRADE N, f'c = 1900 PS
9. MORTAR:	ASTM C270, TYPE S
10. MASONRY GROUT:	ASTM C476 FINE, f'c = 2000 PSI WITH 10" SLUMP
11. CMU ASSEMBLIES:	28 DAY f'm = 1500 PSI, UNIT STRENGTH METHOD
12. STRUCTURAL STEEL:	
W SHAPES	ASTM A992, Fy = 50 KSI
OTHER ROLLED SHAPES	ASTM A36, Fy = 36 KSI
PLATES	ASTM A36, Fy = 36 KSI
PIPE	ASTM A53 GRADE B, TYPE E OR S, Fy = 35 KSI
HSS –SQUARE OR RECT	ASTM A500 GRADE B, Fy = 46 KSI
HSS –ROUND	ASTM A500 GRADE B, Fy = 42 KSI13.
13. HIGH STRENGTH BOLTS:	ASTM A325 TYPE 1 UNCOATED; STEEL TO STEEL CONNECTIONS
14. BOLTS:	ASTM A307; WOOD OR WOOD TO STEEL CONNECTIONS OR ERECTION ONLY
15. HEADED ANCHOR STUDS: 7.1, TYPE B)	ASTM A108 GRADE 1010 – 1020, TYPE B, Fu = 60 KSI (AWS D1.1 TABLE
16. WELD METAL:	F7X–EXXX OR E70XX
17. STEEL DECK:	ASTM A446 GRADE A OR A653, Fy = 33 KSI.
18. EXPANSION ANCHORS:	STUD TYPE EXPANSION ANCHOR WITH SINGLE PIECE WEDGE HILTI KWIK BOLT II EXPANSION ANCHOR OR EQUAL W/ COMPRESSION RING, EXPANSION CONE AND EXPANSION SLEEVE
19. ADHESIVE ANCHORS:	ASTM A36 SHANK – ALL THREAD TYPE, 'SIMPSON' SET–XP INJECTABLE ADHESIVE OR ALTERNATIVE AS APPROVED BY THE ENGINEER
20. GLUE LAMINATED TIMBER:	ANSI/AITC A190.1, COMBINATION SYMBOL 24F–V8–DF/DF
21. TIMBERSTRAND LSL:	ICC REPORT NO. PFC–5676 Fb = 2250 PSI, Fv = 400 PSI Fc = 1950 PSI, E = 1.5E6 PSI
22. PARALLAM PSL:	ICC REPORT NO. PFC–5676 Fb = 2900 PSI, Fv = 290 PSI Fc = 2900 PSI, E = 2.0E6 PSI
23. DIMENSION LUMBER:	GRADED BY WESTERN WOOD PRODUCTS ASSOCIATION (WWPA) OR WEST COAST LUMBER INSPECTION BUREAU (WCLIB). DOUG–FIR #2 UNLESS NOTED OTHERWISE
24. WOOD SHEATHING/PANELS:	AMERICAN PLYWOOD ASSOCIATION (APA) RATED STRUCTURAL I" OR "SHEATHING" SUITED FOR SPAN & USE.

D. FOUNDATIONS

1. FOUNDATIONS HAVE BEEN DESIGNED BASED ON ASSUMED VALUES PER IBC.c c
2. DO NOT BACKFILL WALLS WITH UNBALANCED SOIL LEVELS UNLESS ADEQUATELY SHORED OR PERMANENT FLOOR PLATES ARE INSTALLED AND CONNECTIONS ARE COMPLETE – THIS DOES NOT INCLUDE RETAINING WALLS. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SHORING DESIGN AND INSTALLATION.
3. BACKFILL AND COMPACT BURIED WALLS OR GRADE BEAMS EVENLY ON EACH SIDE TO AVOID UNBALANCED LOADS. COMPACT LAYERS TO 95% STANDARD PROCTOR ACCORDING TO ASTM D698 EXCEPT 92% UNDER NON–PAVED AREAS.
4. ALWAYS PROVIDE POSITIVE SURFACE WATER DRAINAGE AWAY FROM THE STRUCTURE.

E. CONCRETE

1. PERFORM CONCRETE WORK IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318–14) UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.
2. MINIMUM REINFORCING BAR COVER:
   3" AT UNFORMED SURFACES EXPOSED TO EARTH
   2" AT FORMED SURFACES EXPOSED TO EARTH OR WEATHER FOR #6 AND LARGER
   1½" AT FORMED SURFACES EXPOSED TO EARTH OR WEATHER FOR #3–#5
   1" AT SLABS AND WALLS NOT EXPOSED TO EARTH OR WEATHER
3. SPLICE REINFORCING BARS BY LAPPING ACCORDING TO THE SCHEDULE ON THE DRAWINGS. PLACE MECHANICAL CONNECTORS WHERE SHOWN. SPLICE WWF SHEETS BY LAPPING AT LEAST ONE PANEL WIDTH (TWO LONGITUDINAL BARS IN CONTACT) OR 6 INCHES MINIMUM.
4. ADD #4x2'–6" DIAGONAL EACH FACE AT ALL OPENING CORNERS AND #5x5'–0" DIAGONAL MID–DEPTH AT ALL RE–ENTRANT SLAB CORNERS UNLESS SHOWN OTHERWISE.
5. SECURE ALL REINFORCING, INCLUDING WWF, IN POSITION WITH CHAIRS BEFORE CONCRETE PLACEMENT. CONCRETE DOBIES MAY BE USED TO POSITION SLAB ON GRADE REINFORCEMENT.
6. TIE DOWELS IN PLACE BEFORE PLACING CONCRETE. DO NOT STAB OR "WET–SET" DOWELS.
7. INSTALL AND SECURE EMBEDMENTS SUCH AS ANCHOR BOLTS AND EMBEDMENT PLATES WITHIN SPECIFIED TOLERANCES BEFORE CONCRETE PLACEMENT.
8. ROUND ISOLATION JOINTS SHOWN AT COLUMN LOCATIONS MAY BE SIMILAR SIZE DIAMOND SHAPED JOINTS AT THE CONTRACTOR'S DISCRETION.
9. WHERE TOP SURFACES OF CONCRETE SLABS ARE SHOWN TO BE RECESSED MORE THAN ½", THICKEN SLAB TO MAINTAIN INDICATED SLAB THICKNESS.
10. MECHANICALLY VIBRATE ALL CONCRETE PLACEMENTS EXCEPT SLABS LESS THAN 5" THICK.
11. WHERE SLAB CONTRACTION JOINTS ARE SHOWN ON THE DRAWINGS, CONSTRUCTION JOINTS MAY BE SUBSTITUTED TO ACCOMMODATE THE CONTRACTOR'S PLACEMENT STRATEGY.
12. FREE WATER ON THE SLAB SURFACE DURING FINISHING OPERATIONS IS PROHIBITED. SOFT CUT CONTRACTION JOINTS AS SOON AS POSSIBLE – GENERALLY WITHIN 6 HOURS AFTER FINISHING.
13. PROTECT AND CURE ALL CONCRETE SURFACES. BEGIN CURING WALLS IMMEDIATELY AFTER STRIPPING FORMS AND FLATWORK IMMEDIATELY AFTER FINISHING.
14. CONCRETE SURFACES TO RECEIVE GROUT UNDER COLUMN BASE PLATES MUST BE PREPARED BY LIGHT BUSH HAMMERING (⅛" AMPLITUDE) THE GROUTED AREA AND PRE–SOAKING.

F. WOOD FRAMING

1. PREFABRICATED WOOD TRUSSES SHALL CONFORM TO THE TRUSS PLATE INSTITUTE DESIGN SPECIFICATION FOR METAL–PLATE CONNECTED WOOD TRUSSES (ANSI/TPI 1–2007). TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER TO SUPPORT ALL SUPERIMPOSED LOADS INDICATED AND LOADS TRANSFERRED BY FRAMING MEMBERS INDICATED ON ROOF FRAMING PLAN(S) AND ANY ADDITIONAL LOADS REQUIRED.
2. ENGINEERED WOOD PRODUCTS (WOOD I–JOISTS & PARALLE. STRAND LUMBER) SHOWN ON THE DRAWINGS ARE THE PRODUCTS OF TRUSS JOIST AND ARE DESIGNATED BY THE MANUFACTURER'S STANDARD PRODUCT NUMBERS. THE INTENT OF THE DESIGN IS FOR THESE ITEMS TO BE ATTACHED TO EACH OTHER AND TO THE SURROUNDING STRUCTURE TO BEHAVE AS A SYSTEM. WHETHER SHOWN OR NOT, PROVIDE ACCESSORY ITEMS (BLOCKS, CLIPS, STIFFENERS, STRAPS, ETC..) DESIGNED BY THE MANUFACTURER, FOR A COMPLETE SYSTEM. FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION AND USE.
3. FRAMING CONNECTORS, ANCHORS, AND HANGERS SHOWN ON THE DRAWINGS ARE PRODUCTS OF SIMPSON STRONG–TIE AND ARE DESIGNATED BY MANUFACTURER'S STANDARD PRODUCT NUMBERS, SEE EQUIVALENT HANGER SCHEDULE FOR EQUIVALENT ESP HANGER OPTIONS. FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION AND USE. ALL EXTERIOR HANGERS TO HAVE 'ZMAX' COATING OR BE HOT DIPPED GALVANIZED (HDG).
4. ALL LAG BOLTS SHALL HAVE LEAD HOLES DRILLED THE SAME DIAMETER FOR THE SHANK AND 50% OF THE SHANK DIAMETER FOR THE THREADED PORTION. LUBRICATE THREADS BEFORE INSTALLATION.
5. PROVDE HEADERS FOR ALL OPENINGS AS SCHEDULED. WHERE NOT INDICATED, SEE PLAN NOTES. INSULATE ALL BOX HEADERS.
6. DOUBLE TOP PLATES SHALL HAVE A MINIMUM LAP LENGTH OF 4 FEET FASTENED WITH 2 ROWS OF 16d NAILS @ 6" UNLESS INDICATED OTHERWISE.
7. INSTALL WOOD SHEATHING PANELS WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. STAGGER ALL END JOINTS 32" MINIMUM. FASTEN PANELS TO SUPPORTING FRAMING AND BLOCKING AS INDICATED. (SEE SHEAR WALL SCHEDULE AND FRAMING PLAN(S) FOR CRITICAL NAILING.) NAIL HEADS SHALL NOT PENETRATE BEYOND A FLUSH CONDITION WITH FACE OF SHEATHING.
8. NAILING REQUIREMENTS NOT SPECIFIED ON THE DRAWINGS SHALL BE IN ACCORDANCE WITH THE FASTENING SCHEDULE, TABLE 2304.9.1 IN THE 2012 IBC.
9. SHEATHING: (AT HORIZONTAL DIAPHRAGM) LAY PLYWOOD FANELS WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. STAGGER ALL END JOINTS AND PLACE AS INDICATED IN "CASE 1" OF 2012 IBC TABLE 2306.2.1.

LOCATION	MATERIAL	NAILING
FLOOR	⅜" CDX, 48/24 MIN. SPAN RATING	10d AT 6" O.C. AT PANEL EDGES
	UN–BLOCKED AT PANEL JOINTS, U.N.O.	10d AT 12" O.C. AT INTERMEDIATE SUPPORTS
ROOF	⅜" CDX, 32/16 MIN.. SPAN RATING	10d AT 6" O.C. AT PANEL EDGES
	UN–BLOCKED AT PANEL JOINTS, U.N.O.	10d AT 12" O.C. AT INTERMEDIATE SUPPORTS

10. SEE WALL FRAMING PLANS FOR SPECIFIC NAILING, SHEATHING AND FRAMING REQUIREMENTS AT VERTICAL WALLS.

G. PROPRIETARY PRODUCTS

1. JOIST TYPES AND SIZES SHALL BE AS INDICATED ON THESE DRAWINGS AS MANUFACTURED BY TRUS JOIST MACMILLAN CORP., BOISE CASCADE CORP. OR WRITTEN APPROVED EQUALS.
2. JOIST SHALL HAVE LOAD CARRYING CAPACITY IN ACCORDANCE WITH THE MANUFACTURERS PUBLISHED LOAD TABLES. INSTALLATION SHALL BE AS PER MANUFACTURERS RECOMMENDATIONS OR AS DETAILED.
3. SUBMIT SHOP DRAWINGS OF LAYOUT AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
4. LAMINATED VENEER LUMBER (LVL) SHALL BE FB=2600 PSI, E = 1.9 X 10^6 MINIMUM. MULTIPLE PLIES MAY BE USED TO ACHIEVE TOTAL WIDTH INDICATED ON DRAWINGS. PLIES MUST BE JOINED TO FORM A SINGLE MEMBER USING THE JOINING PATTERN PROVIDED BY LUMBER MANUFACTURER. PARALLAM PARALLEL STRAND LUMBER MAY BE SUBSTITUTED FOR LVL PRODUCTS WITH EQUIVALENT SIZES AS LONG AS ABOVE MINIMUM PROPERTIES ARE MAINTAINED.
5. ALL LIGHT GAUGE METAL CONNECTORS SHALL BE 'SIMPSON STRONG–TIE' OR USP STRUCTURAL CONNECTORS, UNLESS NOTED OTHERWISE ON PLANS. SEE EQUIVALENT HANGER SCHEDULE.
6. O.C., U.N.O. STUDS AT BEARING WALLS AND SHEAR WALLS TO BE 2x6, PER SPECIES SPECIFIED IN SECTION C.23

H. PRECAST PANELS

1. PRECAST PANELS SHALL BE FABRICATED PER ACI 318.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW BY ARCHITECT AND STRUCTDURAL ENGINEER PRIOR TO FABRICATION.
3. ALL PRECAST PANELS SHALL BE 4" IN THICKNESS WITH #3 REINFORCING BARS AT 8" ON CENTER, EACH WAY.

I. MISCELLANEOUS

1. REFERENCE CIVIL OR ARCHITECTURAL DRAWINGS FOR BUILDING LOCATION AND ORIENTATION ON THE SITE.
2. COORDINATE OPENINGS AND EMBEDDED ITEMS IN CONCRETE WORK WITH ALL TRADES.
3. NOTIFY ENGNEER OF ANY DISCREPANCIES DISCOVERED WITH OTHER TRADES.
4. CONSTRUCTION LOADS SHALL NOT BE GREATER THAN THE DESIGN LOADS INDICATED IN B.1 UNLESS REVIEWED AND APPROVED BY THE ENGINEER.
5. EQUIPMENT OPENINGS INDICATED ARE FOR REFERENCE ONLY. COORDINATE EXACT LOCATIONS, DIMENSIONS AND DETAILS WITH EQUIPMENT MANUFACTURERS.
6. TEMPORARILY BRACE THE STRUCTURE TO RESIST ALL LOADS OR COMBINATIONS OF LOADS UNTIL ALL PERMANENT ELEMENTS ARE IN PLACE AND ALL CONNECTIONS ARE COMPLETE AS SHOWN.
7. ALL COMPONENTS OF STAIRS INCLUDING THREADS, STRINGERS AND CONNECTIONS NOT DETAILED IN THE STRUCTURAL DOCUMENTS ARE THE RESPONSIBILITY OF OTHERS.

J. ABBREVIATIONS LIST – (SOME OF THE LISTED ABBREVIATIONS MAY NOT APPEAR ON THE DRAWINGS)

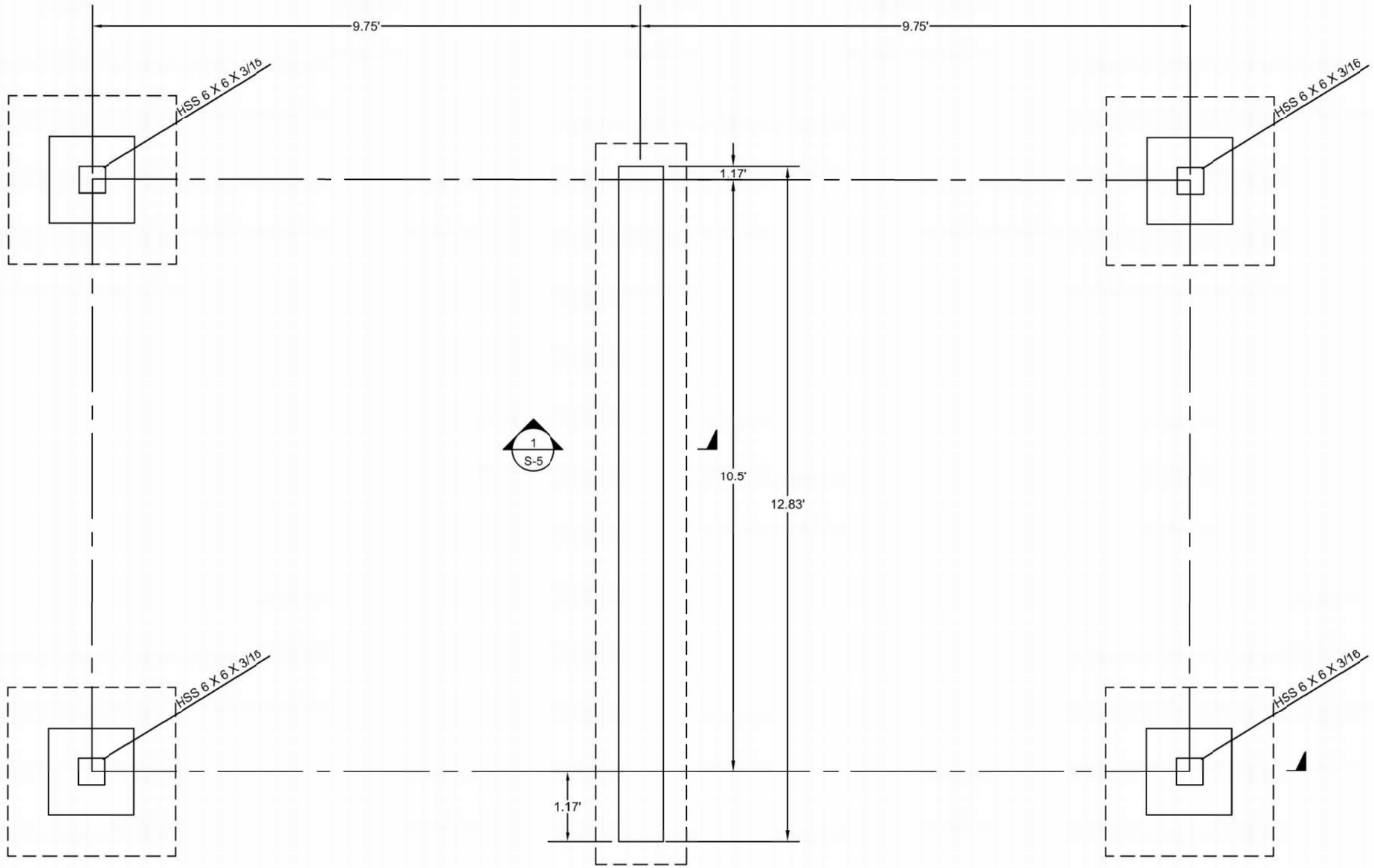
A&B	ABOVE & BELOW	HORIZ	HORIZONTAL
AA	ADHESIVE ANCHOR	INV	INVERT
ADH	ADHESIVE	ISJT	ISOLATION JOINT
AHR	ANCHOR	KB	KNEE BRACE
AR	ANCHOR ROD	LONG	LONGITUDINAL
BFG	BELOW FINISH GRADE	MBR	MEMBER
BLKG	BLOCKING	MC	MOMENT CONNECTION
BOT	BOTTOM	MFR REC	MANUFACTURER RECOMMENDATION
BRG	BEARNG	OH	OVERHANG
BU	BUILT–UP	OPP	OPPOSITE
CB	CARRIAGE BOLT	OTLKR	OUTLOOKER
CJ	CONSTRUCTION JOINT	PROJ	PROJECTION
CNCL	CONCEAL(ED)	REC	RECESSED
CSK	COUNTER SUNK	REINF	REINFORCING
DBA	DEFORMED BAR ANCHOR	SIM	SIMILAR
EQL SP	EQUALLY SPACED	STAG	STAGGERED
FAS BD	FASCIA BOARD	STIF	STIFFENER
FLASH	FLASHING	STIR	STIRRUP
FLG	FLANGE	T&B	TOP & BOTTOM
FSTNR	FASTINER	TB	THROUGH BOLT
FTG	FOOTNG	TFA	TO FLOOR ABOVE
FURG	FURRNG	TFB	TO FLOOR BELOW
GT	GROUT	THK	THICK(NESS)
HAS	HEADED ANCHOR STUD	TYP	TYPICAL
HDR	HEADER	VIF	VERIFY IN FIELD
HGR	HANGER	VNR	VENEER
HLDN	HOLDDWN	WWF	WELDED WIRE FABRIC
HSS	HOLLOW STRUCTURAL SECTION (TUBE STEEL)		

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	J. SCHNEIDER		BAD ROUTE REST AREA REST AREA REHABILITATION	GENERAL STRUCTURAL NOTES	IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER				
1			CHECKED BY	J. FADNESS			UPN 9877000	S-1

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K:\Helena\MDT\2020316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\23316-STRU-DET...dwg S-2 FOUNDATION PLAN 12/2/2024 3:53:50 PM



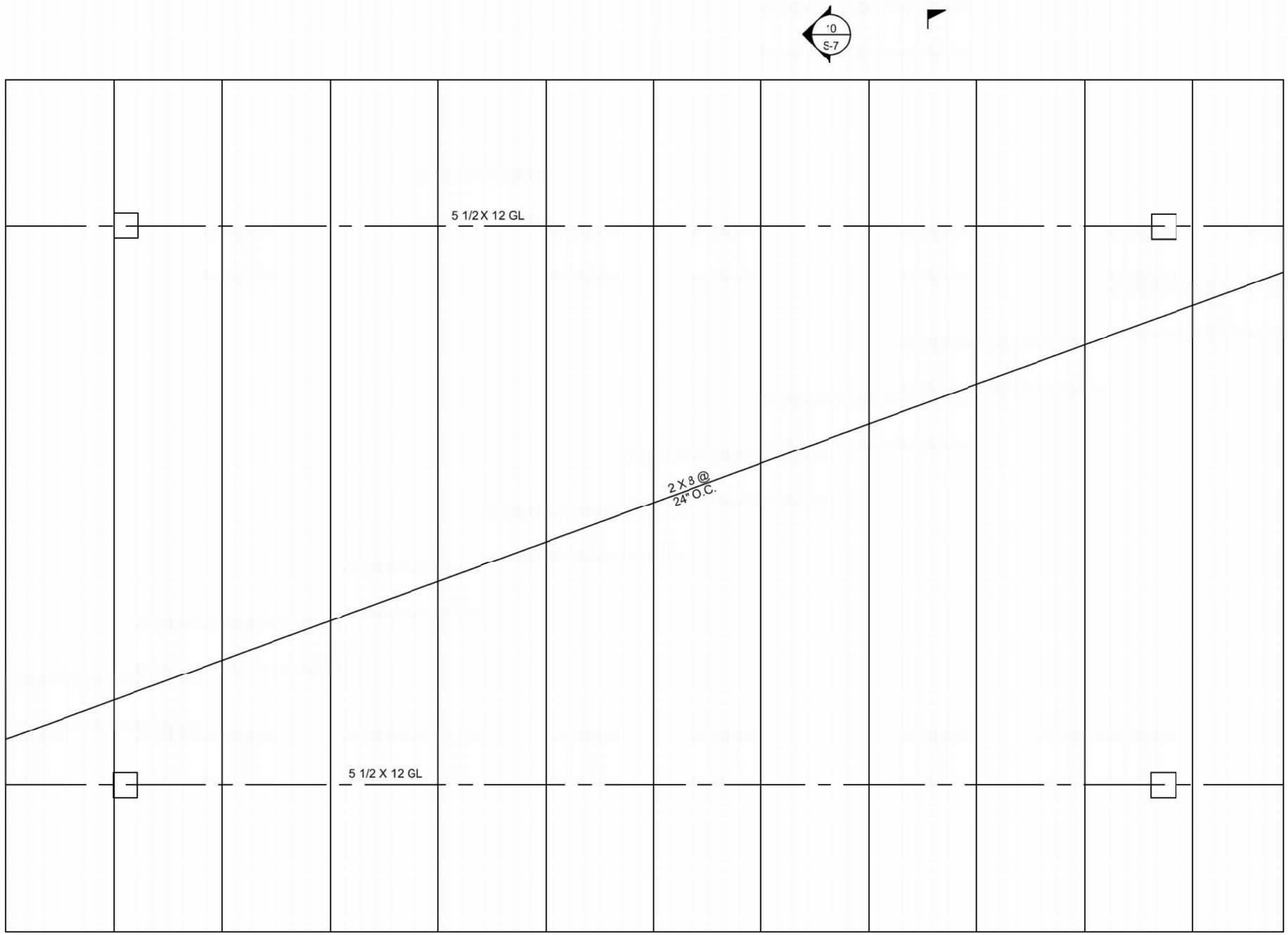
PAVILION FOUNDATION PLAN
SEE SHEET A-8

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

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	J. SCHNEIDER	BAD ROUTE REST AREA REST AREA REHABILITATION	FOUNDATION PLAN	IM 94-6(68)193
2		8/2023	REVIEWED BY	G. DUNKELBERGER		UPN 9877000	S-2
1			CHECKED BY	J. FADNESS			

K:\Helena\MDT\2020\316-PRP Bad Route Rest Area Rehab\05CAD\Sheets\2031fs-STRU-DETL.dwg S-3 ROOF FRAMING PLAN 12/2/2024 3:53:50 PM



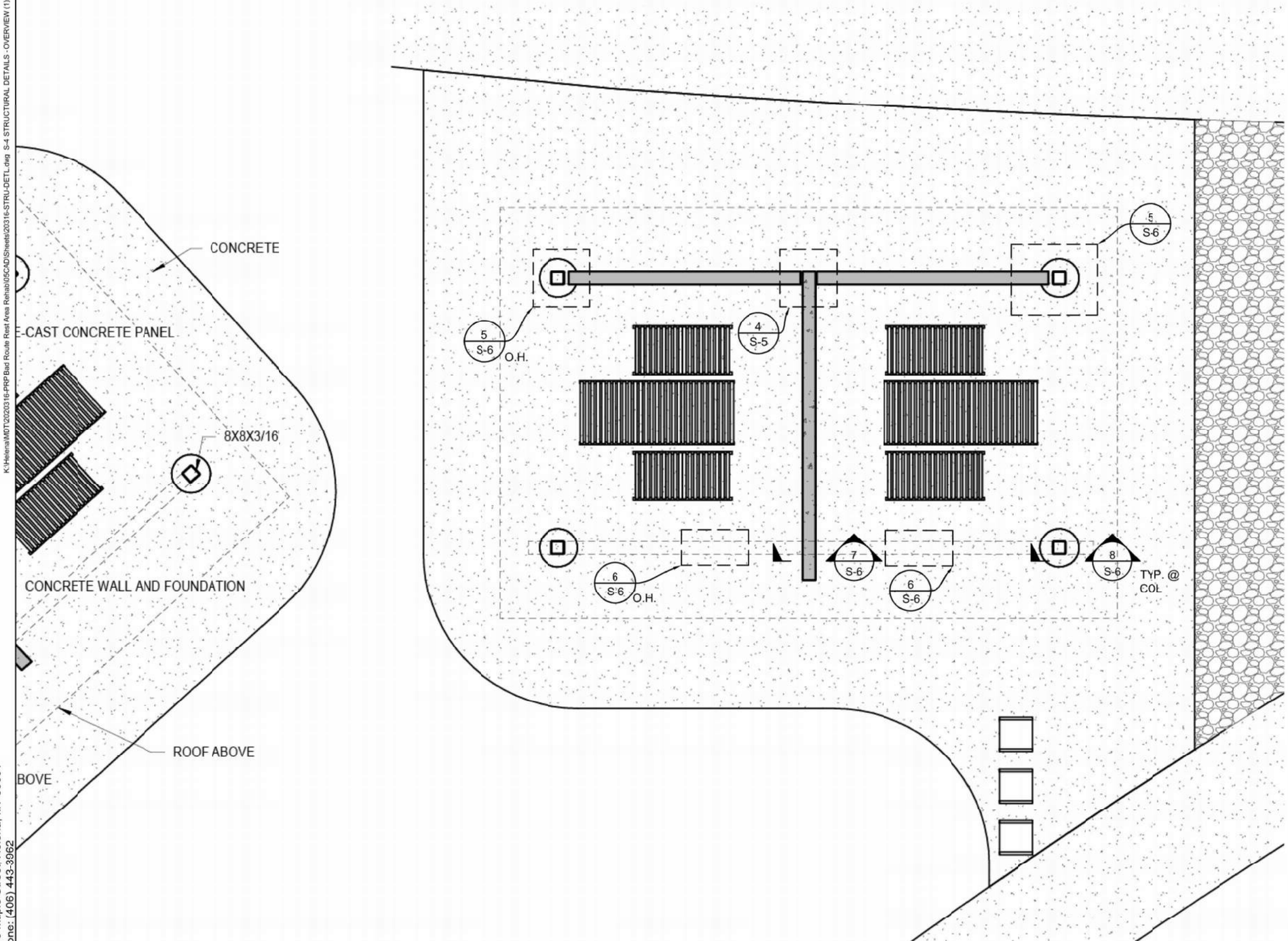
ROOF FRAMING PLAN
SEE SHEET A-8

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

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3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	J. SCHNEIDER	BAD ROUTE REST AREA REST AREA REHABILITATION	ROOF FRAMING PLAN	IM 94-6(68)193
2	MDT	8/2023	REVIEWED BY	S. DUNKELBERGER		UPN 9877000	S-3
1			CHECKED BY	J. FADNESS			

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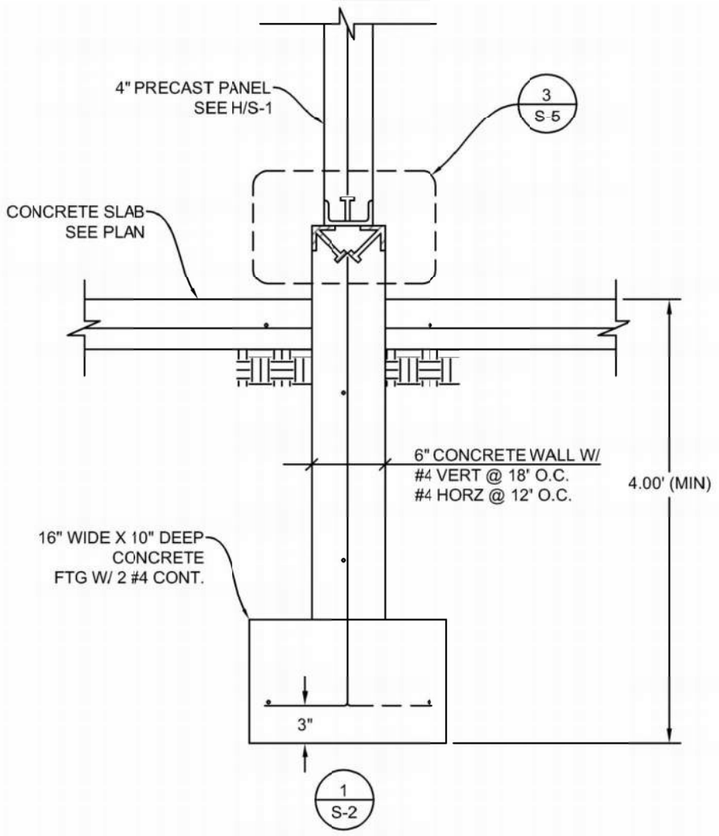


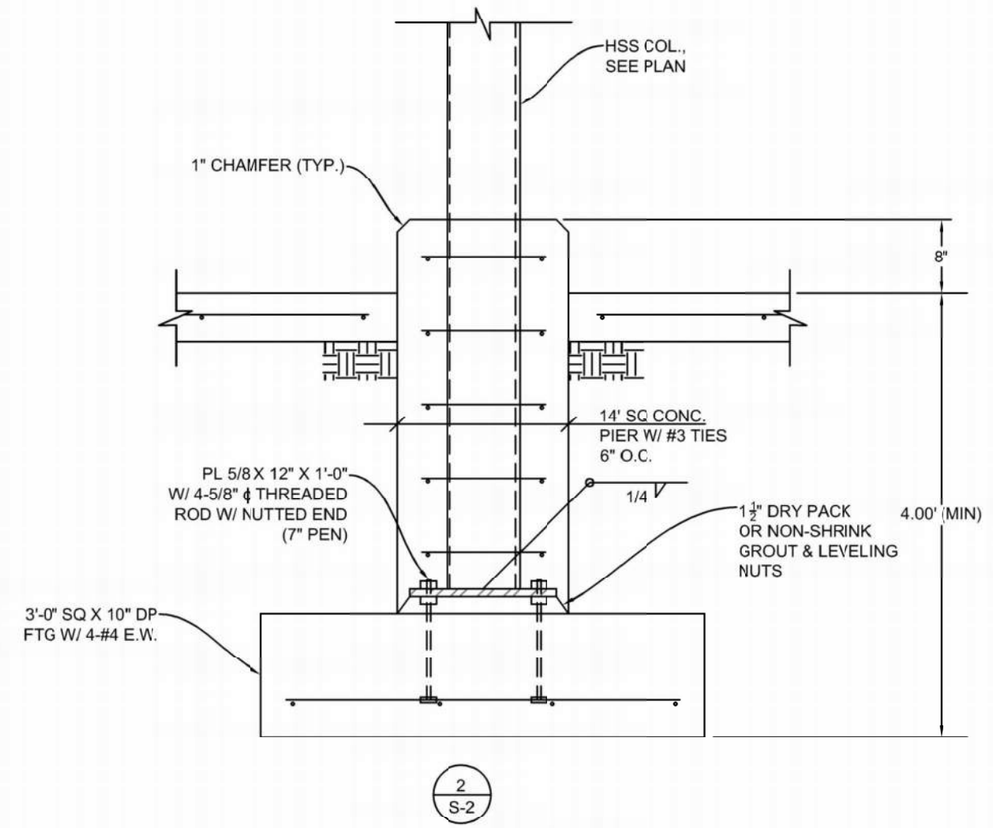
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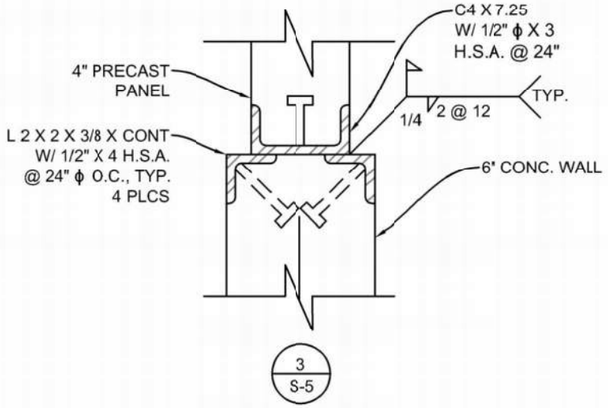
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1			CHECKED BY	J. FADNESS				

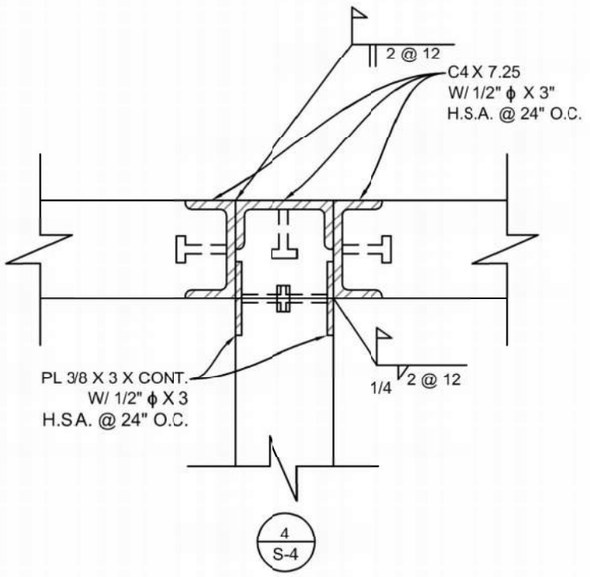
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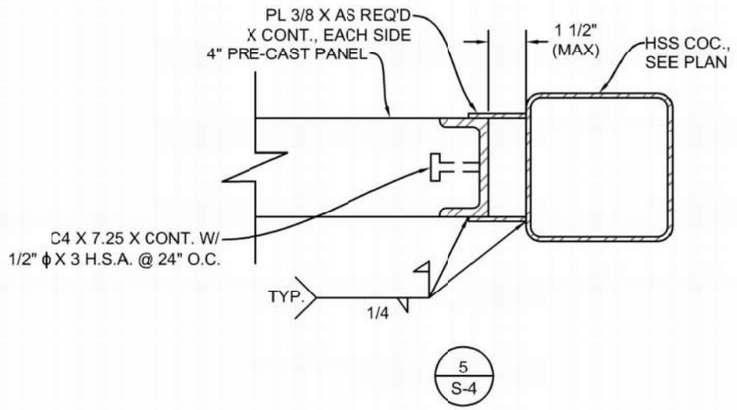




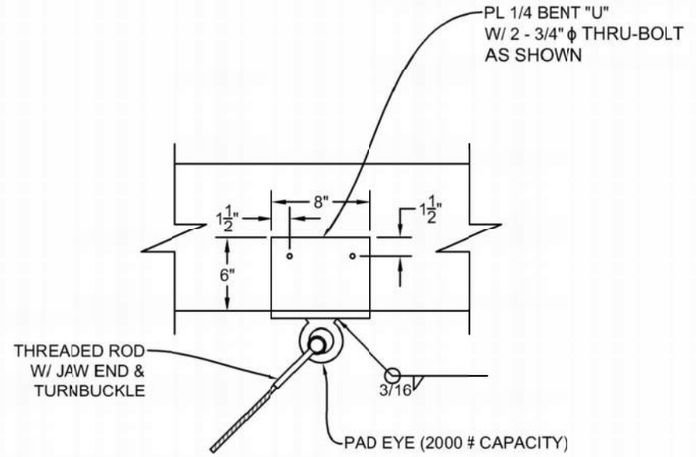
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2		8/2023	REVIEWED BY	S. DUNKELBERGER			UPN 9877000	S-5
1			CHECKED BY	J. FADNESS				

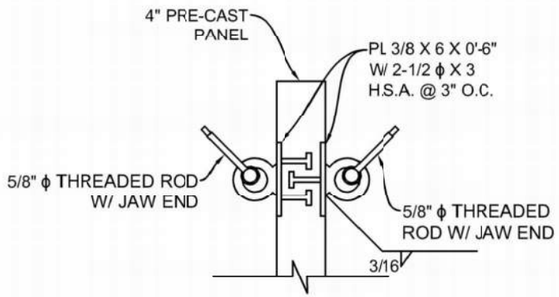
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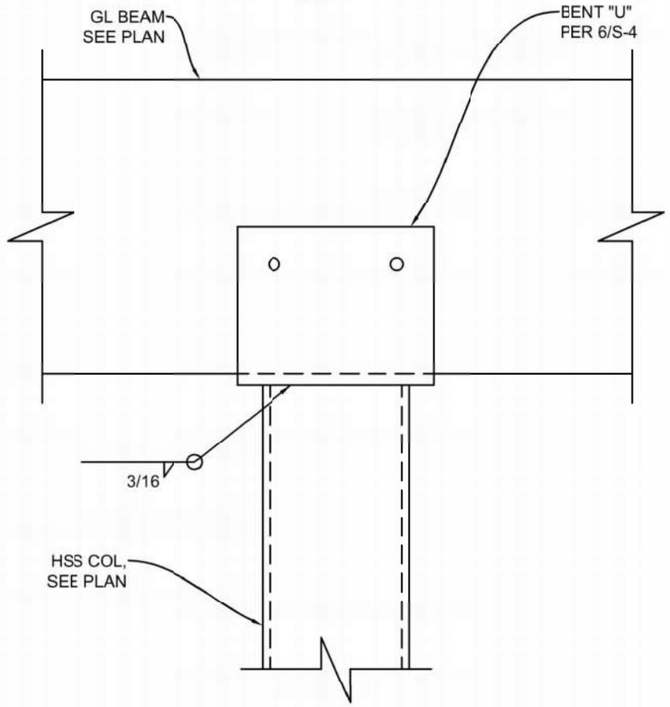
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S-4



6
S-4



7
S-4

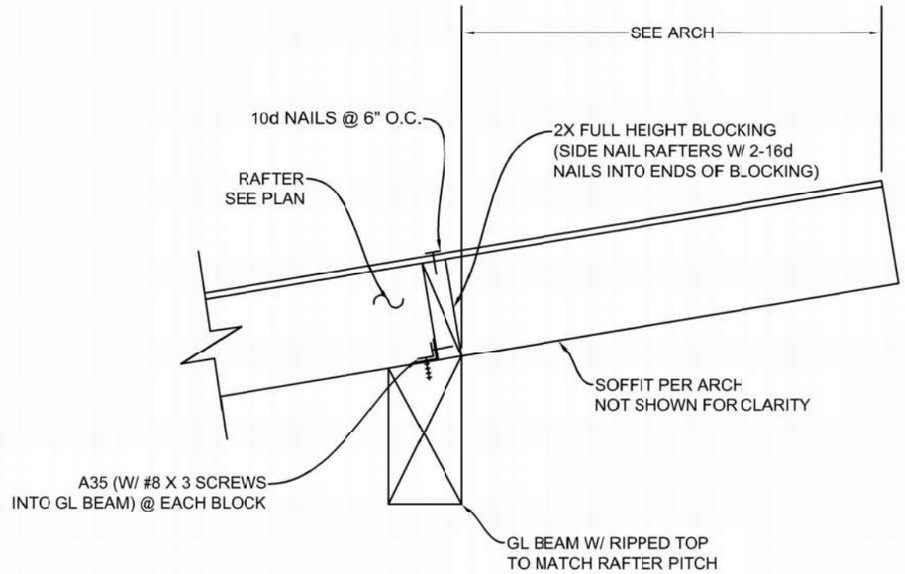


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S-4

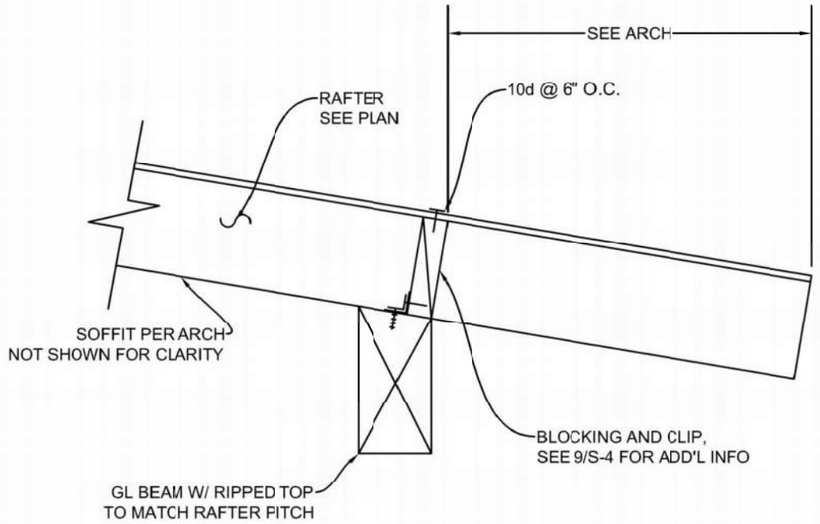
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	J. SCHNEIDER		BAD ROUTE REST AREA	STRUCTURAL DETAILS (2)	IM 94-6(68)193
2		8/2023	REVIEWED BY	S. DUNKELBERGER				
1			CHECKED BY	J. FADNESS		REST AREA REHABILITATION	UPN 9877000	S-6

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S-3



10
S-3

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	J. SCHNEIDER		BAD ROUTE REST AREA REST AREA REHABILITATION	STRUCTURAL DETAILS (3)	IM 94-6(68)193
2		8/2023	REVIEWED BY	G. DUNKELBERGER				
1			CHECKED BY	J. FADNESS			UPN 9877000	S-7

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HELENA, MT 59601
TEL| 406.457.0360
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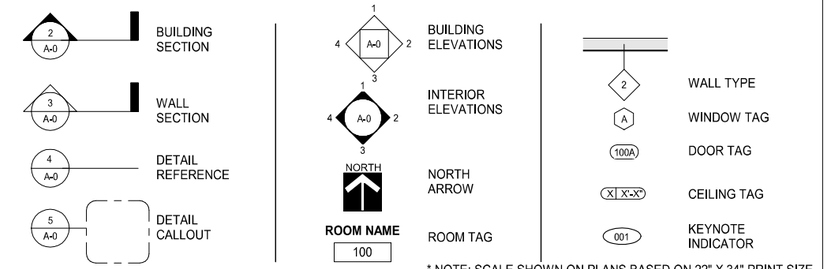
PROJECT SPECIFIC NOTES

1. THE DOCUMENTS CONSIST OF THESE DRAWINGS AND SPECIFICATIONS MANUAL EXCLUSIVELY.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NEW MATERIALS (U.N.O.) AND QUALIFIED CRAFTS PERSONS TO COMPLETE THE WORK.
3. DOCUMENTS SHOW THE DESIGN INTENT OF THE PROJECT AND MAY NOT SHOW MINOR DETAILS OF PROPOSED INSTALLATIONS. THE INCLUSION OF THESE MINOR DETAILS IS IMPLIED TO PROVIDE A COMPLETE PROJECT AND ARE TO BE INCLUDED AS PART OF THE BID.
4. IT IS THE GENERAL CONTRACTORS RESPONSIBILITY TO INSPECT THE SITE AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH EACH INSTALLATION OF PART OF THE WORK. DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT PRIOR TO PROCEEDING.
5. THE GENERAL CONTRACTOR IS TO COORDINATE THE INSTALLATION OF MATERIALS AND WORK OF OTHERS WHO ARE NOT SUB-CONTRACTORS TO THE G.C., YET ARE REQUIRED TO PROVIDE A COMPLETE PROJECT. AREAS OF WORK REQUIRING COORDINATION INCLUDE BUT ARE NOT LIMITED TO THOSE INDICATED AS N.I.C. IN THE CONSTRUCTION DOCUMENTS.
6. DIMENSIONS ARE SHOWN ON THE DRAWINGS. DO NOT SCALE THE DRAWINGS.
7. ALL DIMENSIONS ARE DETERMINED AS FOLLOWS: EXISTING CONSTRUCTION: FACE OF EXISTING WALL MATERIAL. SIPS PANELS: OUTSIDE FACE OF OSB. NEW CONSTRUCTION: FACE OF STUD.
8. ALL HEIGHTS ARE DIMENSIONAL FROM THE TOP OF FINISHED FLOOR (A.F.F.) UNLESS NOTED OTHERWISE.
9. ALL SHOP DRAWINGS DIMENSIONS TO BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR.
10. IN THE CASE OF CONTRADICTIONS, ASSUME THE MORE COSTLY APPROACH FOR BIDDING PURPOSES. BRING ALL CONTRADICTIONS TO THE ATTENTION OF THE ARCHITECT.
11. WHERE CONDITION OF FINISH ARISES THAT NO DETAIL OR NOTE COVERS, MATCH DETAIL TO EXISTING SITUATION OF SIMILAR CONDITION
12. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE REPAIR AND REFINISHING OF ALL HOLES OR DAMAGE ENCOUNTERED IN WORK AS A RESULT OF NECESSARY CUTTING, PATCHING, OR DEMOLITION BY ALL TRADES PERFORMING WORK.
13. GENERAL CONTRACTOR TO PROVIDE ALL REQUIRED BLOCKING, ANCHORAGES FOR ACCESSORIES, MILLWORK, GRAB BARS, MECHANICAL AND ELECTRICAL ITEMS.
14. WHERE COLUMNS AND STUD WALLS ALIGN, GYPSUM BOARD TO BE CONTINUOUS OVER COLUMNS.
15. SEAL ALL PENETRATIONS IN FLOORS, WALLS AND ROOF TIGHT AROUND DUCTS, PIPES, VENTS, SOIL-PIPES, TRAPS, ETC. CONTRACTOR TO COORDINATE.
16. ALL MECHANICAL AND ELECTRICAL LINES TO BE INSTALLED TIGHT TO STRUCTURE WHERE POSSIBLE IN ALL INSTANCES.
17. IN PAINTED OR FINISHED ROOMS, ALL HORIZONTAL AND VERTICAL PIPING AND CONDUITS SHALL BE FURRED TO MATCH ROOM FINISH AS INDICATED. WHEN DUCT WORK, PIPES, MECHANICAL UNITS, JUNCTION BOXES AND CONDUIT ARE EXPOSED IN PAINTED ROOMS, PAINT TO MATCH ADJACENT FINISH.

ABBREVIATIONS

A	AFF	ABOVE FINISHED FLOOR
	OAHU	AIR HANDLING UNIT
	ALT	ALTERNATE
	ALUM	ALUMINUM
	AMP	AMPERE
	APPROX	APPROXIMATE
	APT	APARTMENT
	ARCH	ARCHITECT
B	B	BELOW FINISH FLOOR
	BO	BOTTOM OF
	BD	BOARD
	BLDG	BUILDING
	BM	BEAM
	BOT	BOTTOM
	BRG	BEARING
	BSMT	BASEMENT
	BTUH	BRITISH THERMAL UNIT PER HOUR
C	CO	CLEAN OUT
	CAP	CAPACITY
	CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
	CFOI	CONTRACTOR FURNISHED, OWNER INSTALLED
	CG	CORNER GUARD
	CL	CENTERLINE
	CLG	CEILING
	CLO	CLOSET
	CLR	CLEAR
	CMU	CONCRETE MASONRY UNIT
	COL	COLUMN
	CONC	CONCRETE
	CONST	CONSTRUCTION
	CONT	CONTINUOUS
	CORR	CORRIDOOR
	CPT	CARPET
	CT	CERAMIC TILE
	CW	COLD WATER
D	DS	DOWNSPOUT
	DBL	DOUBLE
	DEPT	DEPARTMENT
	DF	DRINKING FOUNTAIN
	DIA,D	DIAMETER
	DIAG	DIAGONAL
	DIM	DIMENSION
	DISP	DISPENSER
	DIST	DISTANCE
	DN	DOWN
	DTL	DETAIL
	DW	DISHWASHER
E	E	EAST
	EA	EACH
	EIFS	EXTERIOR INSULATION FINISH SYSTEM
	EJ	EXPANSION JOINT
	ELEC	ELECTRICAL
	ELEV	ELEVATION
	EMERG	EMERGENCY
	EPDM	ETHYLENE PROPYLENE DIENEMONOMER
	EPS	EXTRUDED POLYSTYRENE
	EQ	EQUAL
	EQUIP	EQUIPMENT
	EXIST	EXISTING
	EXT	EXTERIOR
F	FCO	FLOOR CLEAN OUT
	FD	FLOOR DRAIN
	FE	FIRE EXTINGUISHER
	FEC	FIRE EXTINGUISHER CABINET
	FFE	FINISH FLOOR ELEVATION
	FIN	FINISH
	FLR	FLOOR
	FLUOR	FLUORESCENT
	FT	FOOT, FEET
	FTG	FOOTING
	FURN	FURNACE, FURNITURE
G	GA	GAUGE
	GALV	GALVANIZED
	GC	GENERAL CONTRACTOR
	GCO	GROUND CLEAN OUT
	GD	GARBAGE DISPOSAL
	GFI	GROUND FAULT INTERRUPTER
	GLU-LAM	GLUE LAMINATED WOOD
	GND	GROUND
	GPM	GALLONS PER MINUTE
	GWB	GYPSUM WALL BOARD
	GEJ	GUTTER EXPANSION JOINT
H	HDWR	HARDWARE
	HM	HOLLOW METAL
	HORIZ	HORIZONTAL
	HR	HOUR
	HT	HEIGHT
	HVAC	HEATING, VENTILATING, & AIR CONDITIONING
	HW	HOT WATER
I	IN	INCHES
	INFO	INFORMATION
	INST	INSTALLATION
	INSUL	INSULATION
	INT	INTERIOR
J	JAN	JANITOR
	JST	JOIST
	JT	JOINT
K	KO	KNOCK OUT
	KIP	1000 POUNDS
	KIT	KITCHEN
L	LAB	LABORATORY
	LAM	LAMINATED
	LBS	POUNDS
	LH	LEFT HAND
M	MACH	MACHINE
	MAINT	MAINTENANCE
	MATL	MATERIAL
	MAX	MAXIMUM
	MECH	MECHANICAL
	MEZZ	MEZZANINE
	MFR	MANUFACTURER
	MIN	MINIMUM
	MIR	MIRROR
	MISC	MISCELLANEOUS
	MTL	METAL
N	N	NORTH
	NIC	NOT IN CONTRACT
	NTS	NOT TO SCALE
	NO.#	NUMBER
O	OC	ON CENTER
	OFOI	OWNER FURNISHED, OWNER INSTALLED
	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
	OFF	OFFICE
	OPNG	OPENING
	OSB	ORIENTED STRAND BOARD
	OZ	OUNCE
P	PC	PRECAST
	PART	PARTITION
	PERP	PERPENDICULAR
	PLAM	PLASTIC LAMINATE
	PLAS	PLASTIC
	PLY	PLYWOOD
	PR	PAIR
	PREFAB	PREFABRICATED
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
	PT	PAINT
	PTD	PAPER TOWEL DISPENSER
Q	QT	QUARRY TILE
R	R	RADIUS
	RCP	REFLECTED CEILING PLAN
	RO	ROUGH OPENING
	ROW	RIGHT OF WAY
	RD	ROOF DRAIN
	REBAR	REINFORCING BAR
	RECEPT	RECEPTION
	REFL	REFLECTED
	REG	REGISTERED
	REINF	REINFORCED
	REQ'D	REQUIRED
	REV	REVISION
	RF	REFRIGERATOR
	RH	RIGHT HAND
	RM	ROOM
	RR	RESTROOM
S	S	SEALED
	S	SOUTH
	SAN	SANITARY
	SC	SOLIDCORE
	SCHED	SCHEDULE
	SD	SOAP DISPENSER
	SEC	SECOND
	SECT	SECTION
	SHT	SHEET
	SHTG	SHEETING
	SPEC	SPECIFICATION
	SQ	SQUARE
	SS	STAINLESS STEEL
	STC	SOUND TRANSMISSION LEVEL
	STL	STEEL
	STRUCT	STRUCTURAL
	SURF	SURFACE
	SUSP	SUSPENDED
	SVF	SHEET VINYL FLOORING
T	T&B	TOP & BOTTOM
	T&G	TONGUE & GROOVE
	TEL	TELEPHONE
	TEMP	TEMPORARY
	TER	TERRAZZO
	TFE	TOP OF FOOTING ELEVATION
	TO	TOP OF FOOTING
	TPD	TOILET PAPER DISPENSER
	TV	TELEVISION
	TYP	TYPICAL
U	UL	UNDERWRITER'S LABORATORY
	UNFIN	UNFINISHED
	UNO	UNLESS NOTED OTHERWISE
	UTIL	UTILITY
V	VAR	VARIES
	VB	VINYLBASE
	VCT	VINYL COMPOSITION TILE
	VERT	VERTICAL
	VEST	VESTIBULE
W	W	WEST
	W/	WITH
	W/O	WITH OUT
	WC	WATER CLOSET
	WD	WOOD
	WH	WATER HEATER
	WP	WALL PROTECTION
	WT	WEIGHT
	WWF	WELDED WIRE FABRIC

GRAPHIC SYMBOLS



* NOTE: SCALE SHOWN ON PLANS BASED ON 22" X 34" PRINT SIZE.

3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	SLATE ARCHITECTURE		FACILITIES REMODEL	ARCHITECTURAL ABBREVIATIONS, SYMBOLS & NOTES	IM 94-6(68)193
2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE				
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA	UPN 9877000	A-1

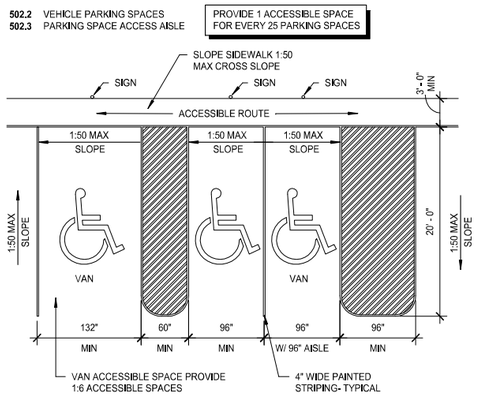
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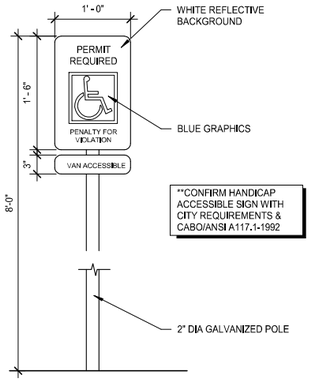
ICC/ANSI 117.1-2017 | ADA 2010

ADA INFORMATION SHOWN IS IN ACCORDANCE WITH STANDARD ADA MINIMUM REQUIREMENTS. IF MATERIALS/PRODUCTS SPECIFIED OR JOB CONDITIONS DO NOT MEET THESE REQUIREMENTS, NOTIFY THE ARCHITECT.
LAST REVISED: 10/2022.

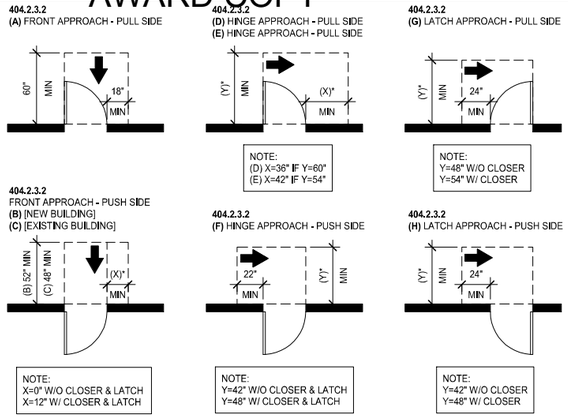
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1/8" = 1'-0"



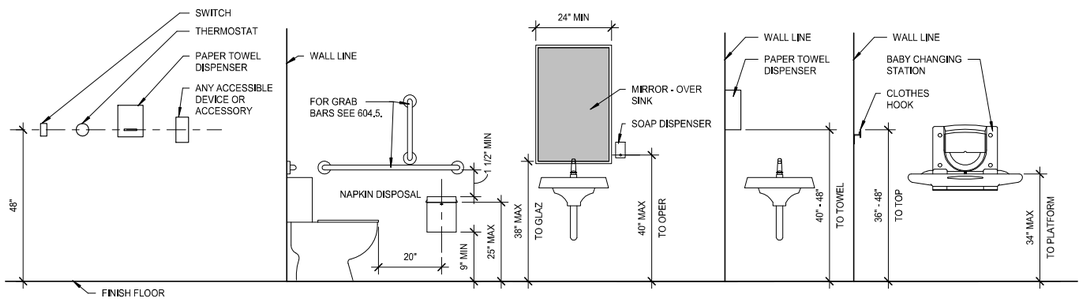
2 ACCESSIBLE PARKING SIGN
1" = 1'-0"



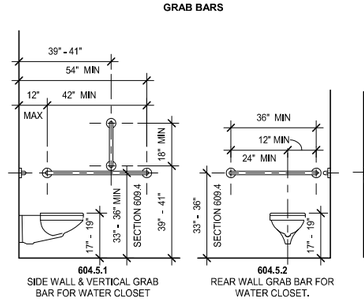
3 ADA MANEUVERING CLEARANCES
3/16" = 1'-0"



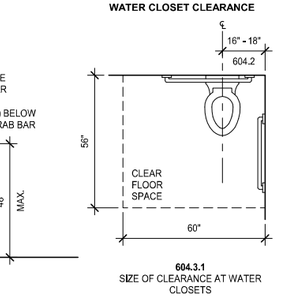
4 ADA FLOOR SPACE CLEARANCE
1/4" = 1'-0"



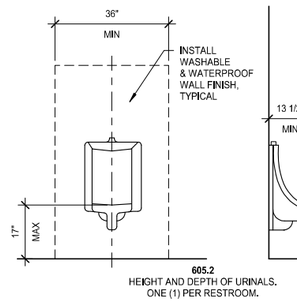
5 ADA HANDRAIL EXTENSIONS
1/2" = 1'-0"



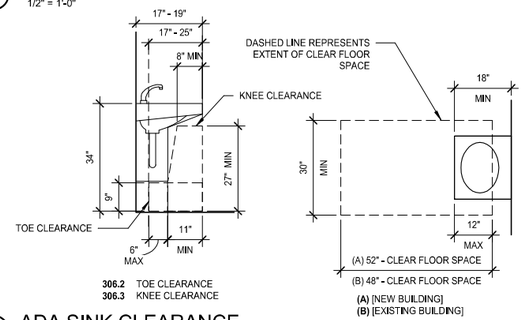
6 ADA HANDRAILS & GRAB BARS
3" = 1'-0"



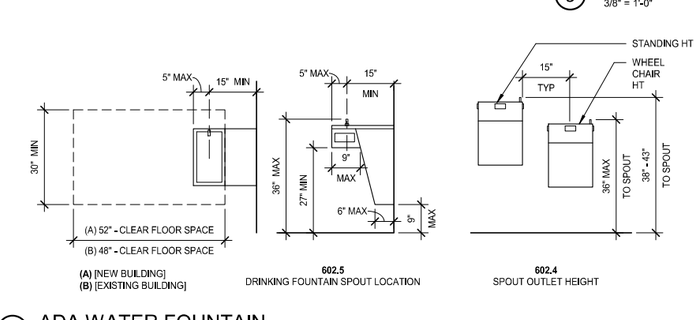
7 FIRE EXTINGUISHER CABINET
3/4" = 1'-0"



8 ADA ACCESSIBLE DEVICES & ACCESSORIES HEIGHT
1/2" = 1'-0"



9 ADA ACCESSIBLE TOILET
3/8" = 1'-0"



10 ADA URINAL HEIGHT AND DEPTH
1/2" = 1'-0"

11 ADA SINK CLEARANCE
1/2" = 1'-0"

12 ADA WATER FOUNTAIN
1/2" = 1'-0"

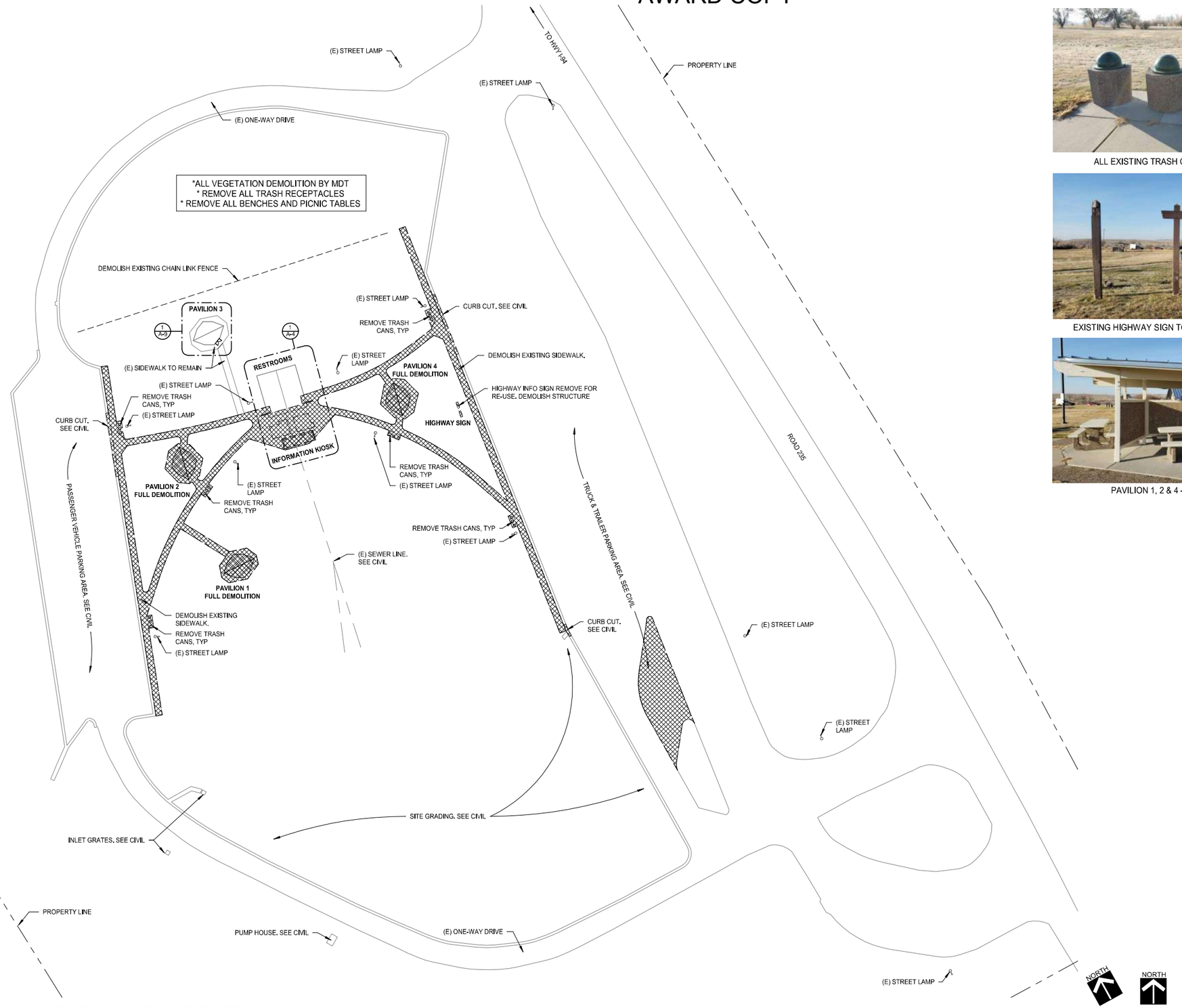
* NOTE: SCALE SHOWN ON PLANS BASED ON 22" X 34" PRINT SIZE.

1470 N. ROBERTS STREET
HELENA, MT 59601
TEL| 406.457.0360
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3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	SLATE ARCHITECTURE		FACILITIES REMODEL	ADA STANDARDS / UPN 9877000	IM 94-6(68)193
2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE				
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA		A-2

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1 ARCHITECTURAL DEMOLITION SITE PLAN
1" = 40'-0"



ALL EXISTING TRASH CANS TO BE REPLACED



EXISTING HIGHWAY SIGN TO BE RETAINED FOR RE-USE



PAVILION 1, 2 & 4 - FULL DEMOLITION

GENERAL DEMOLITION NOTES

1. SEE SPECIFICATIONS FOR A DETAILED SCHEDULE OF SELECTIVE DEMOLITION ITEMS.
2. ALL EQUIPMENT, FURNITURE, ETC. LEFT IN AREAS WHERE DEMOLITION IS TO COMMENCE IS TO BE COORDINATED WITH OWNER, PRIOR TO REMOVING FROM THE PREMISES.
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7. THE CONTRACTOR SHALL MAINTAIN AND ADHERE TO ALL CURRENT LIFE-SAFETY AND INTERIM LIFE-SAFETY RULES AND REGULATIONS THROUGHOUT THE CONSTRUCTION OF THIS PROJECT.

SYMBOL LEGEND

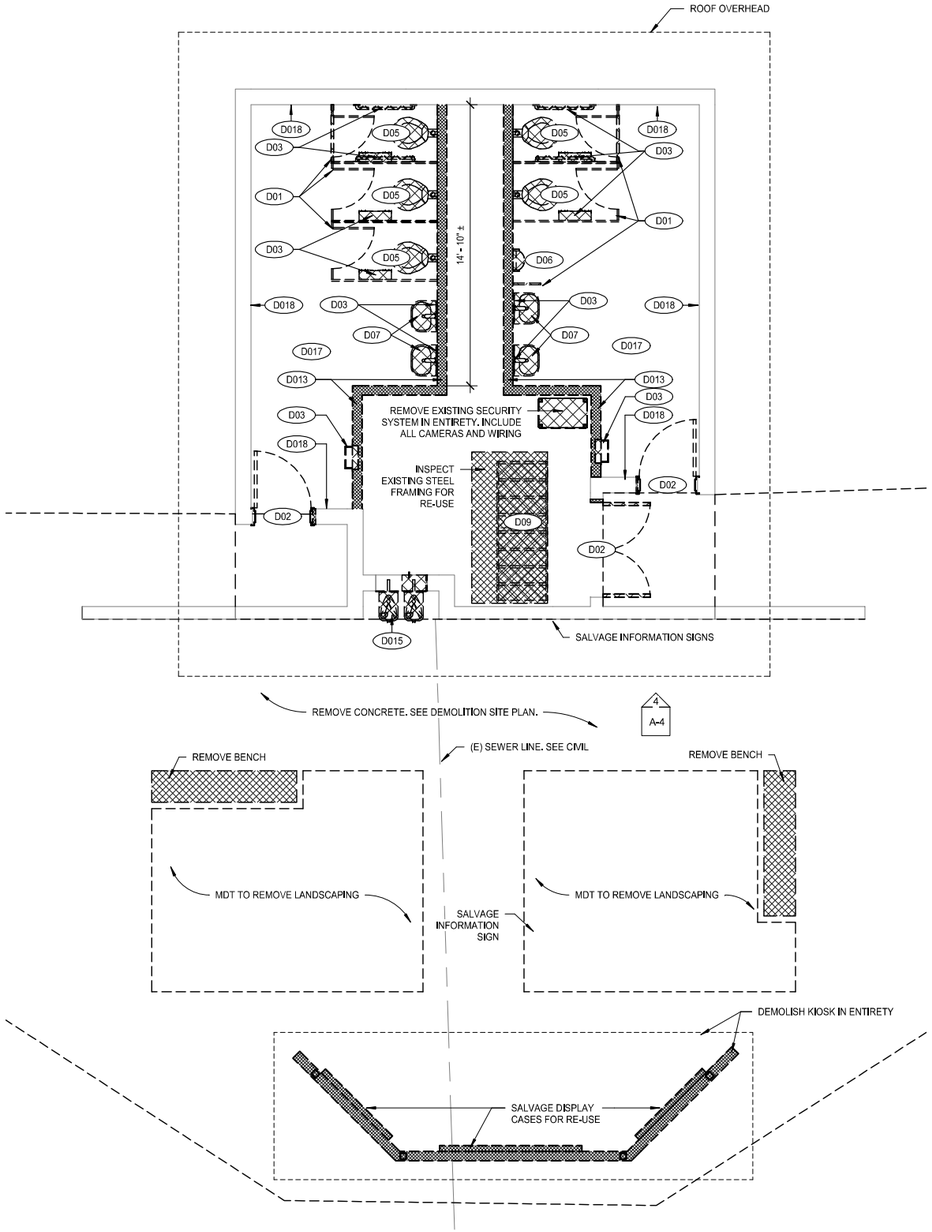
- EXISTING CEILING/FLOOR IS TO BE DEMOLISHED, FIELD VERIFY TYPES AND CONDITIONS
- EXISTING WALL/ITEM/ELEMENT TO BE DEMOLISHED, FIELD VERIFY TYPES AND CONDITIONS
- EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS

* NOTE: SCALE SHOWN ON PLANS BASED ON 22" X 34" PRINT SIZE.

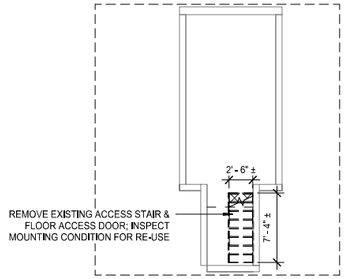
1470 N. ROBERTS STREET
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TEL| 406.457.0360
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2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE			UPN 9877000	A-3
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA		

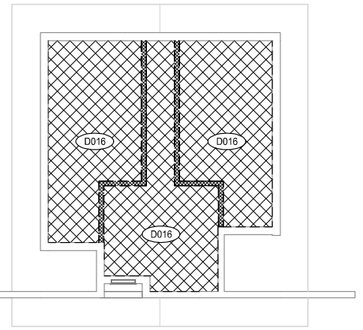
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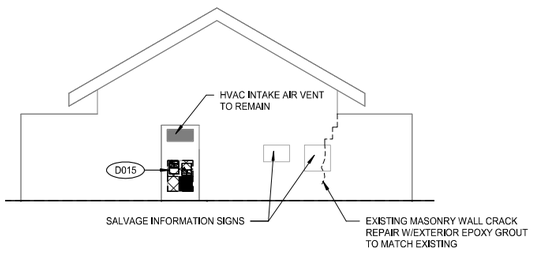
1 DEMOLITION PLAN - RESTROOMS
1/4" = 1'-0"



2 DEMOLITION RESTROOMS BASEMENT
1/8" = 1'-0"



3 DEMOLITION RCP FIRST FLOOR
1/8" = 1'-0"



4 DEMOLITION ELEVATION SOUTH
1/8" = 1'-0"



MEN'S ROOM WALL CRACK



EXISTING SIGNAGE, RETAIN FOR RE-USE



EXISTING KIOSK (SIGNS TO BE RETAINED FOR RE-USE)



EXISTING SIGNAGE; RETAIN FOR RE-USE



EXISTING LANDSCAPING TO BE REMOVED BY OWNER

GENERAL DEMOLITION NOTES

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SYMBOL LEGEND

- EXISTING CEILING/FLOOR IS TO BE DEMOLISHED, FIELD VERIFY TYPES AND CONDITIONS
- EXISTING WALL/ITEM/ELEMENT TO BE DEMOLISHED, FIELD VERIFY TYPES AND CONDITIONS
- EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS

DEMOLITION KEYNOTE LEGEND

NO.	DESCRIPTION
D01	DEMO BATHROOM STALLS.
D02	REMOVE DOOR, FRAME AND HARDWARE.
D03	DEMO TOILET ROOM ACCESSORIES.
D05	DEMO TOILET.
D06	DEMO URINALS.
D07	DEMO SINKS.
D09	DEMO STAIR AND FLOOR ACCESS DOOR.
D013	DEMO WALLS.
D015	DEMO DRINKING FOUNTAIN.
D016	DEMO CEILING TO STRUCTURE, SEE HAZARDIOUS MATERIAL REPORT.
D017	DEMO/ PREP FLOOR TILE FOR HIGH PERFORMANCE COATING.
D018	PREP WALL TILE FOR WALL PROTECTANT.

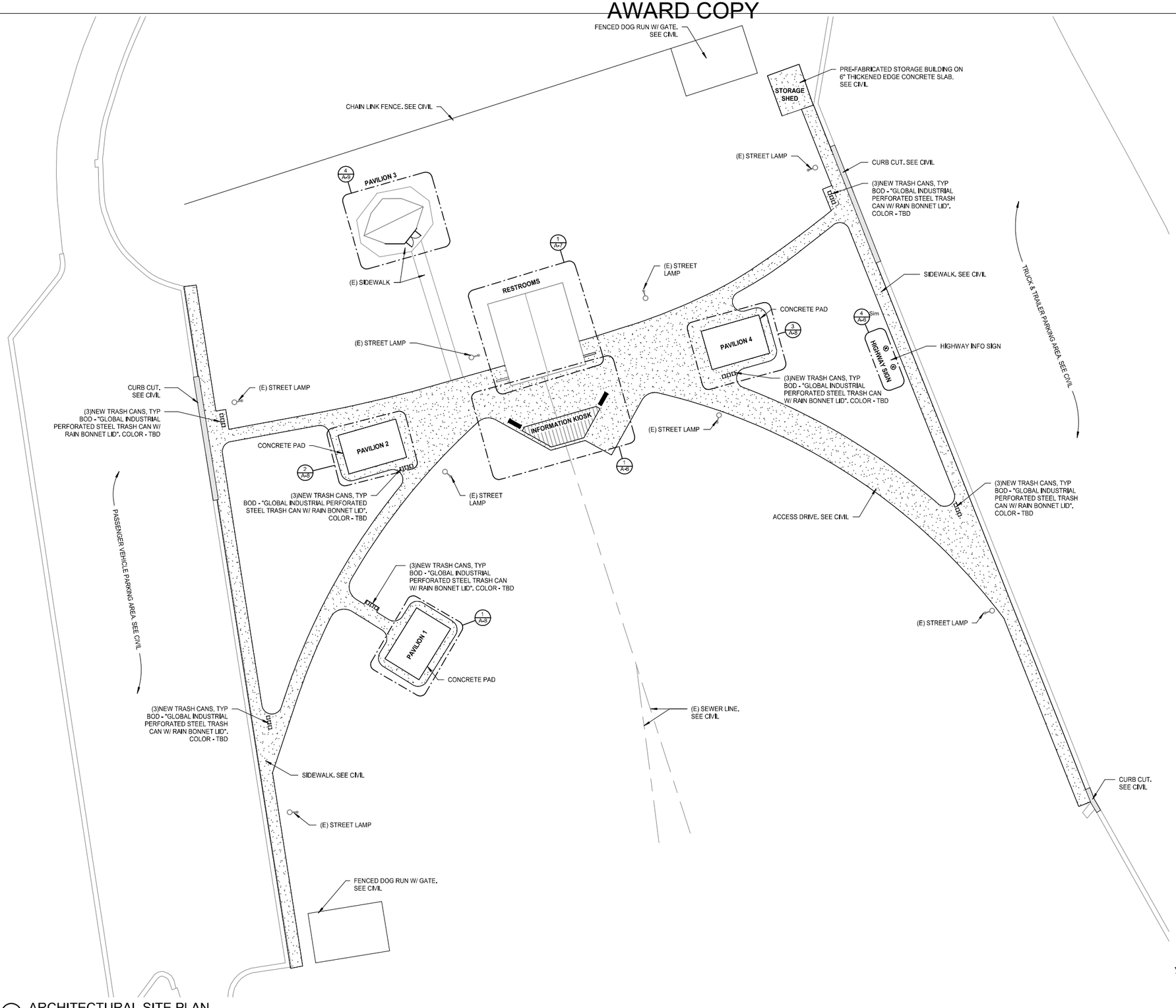
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2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE			UPN 9877000 / A-4
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA	

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SYMBOL LEGEND

NEW WALL/ITEM/ELEMENT TO BE CONSTRUCTED, FIELD VERIFY TYPES AND CONDITIONS

EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS

1 ARCHITECTURAL SITE PLAN

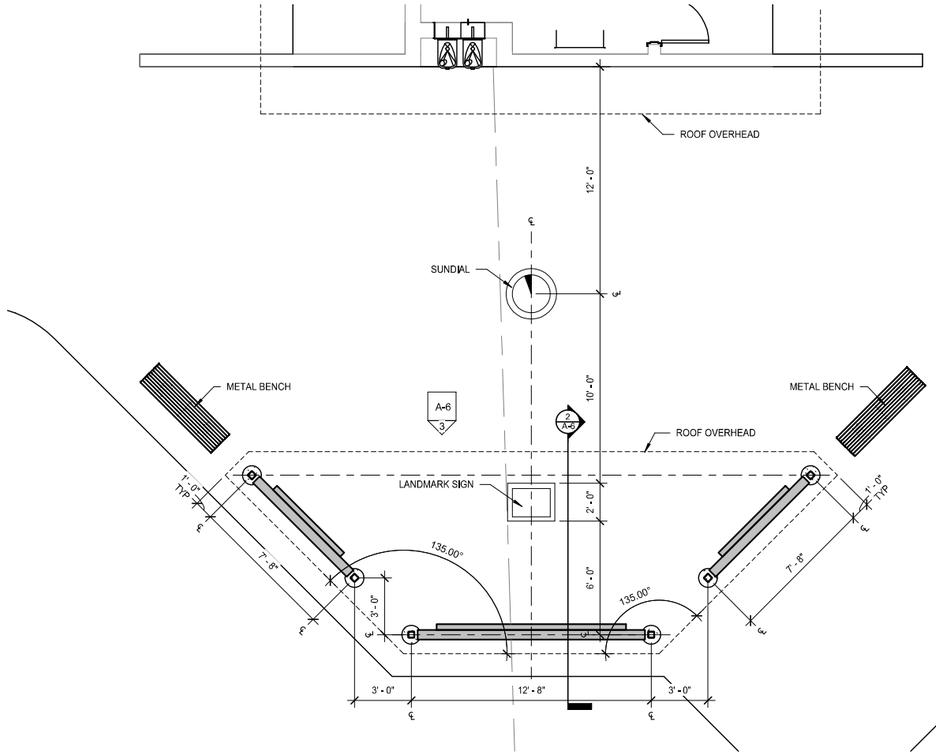
1" = 20'-0"

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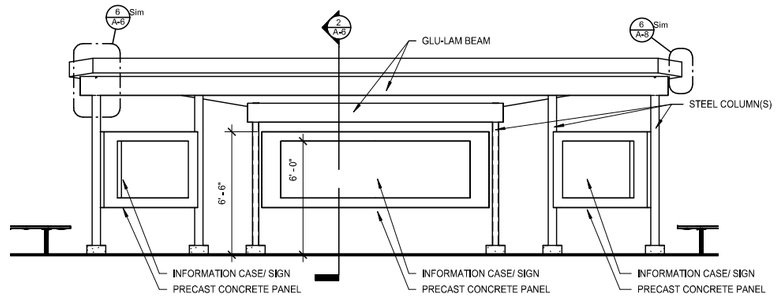
1470 N. ROBERTS STREET
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TEL| 406.457.0360
www.slatearchitecture.com

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2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE				
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA	UPN 9877000	A-5

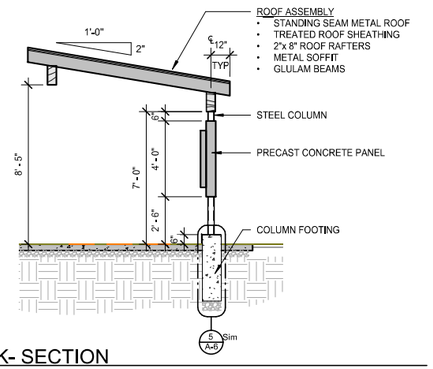
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1 KIOSK- PLAN
1/4" = 1'-0"



3 KIOSK ELEVATION
1/4" = 1'-0"



2 KIOSK- SECTION
1/4" = 1'-0"

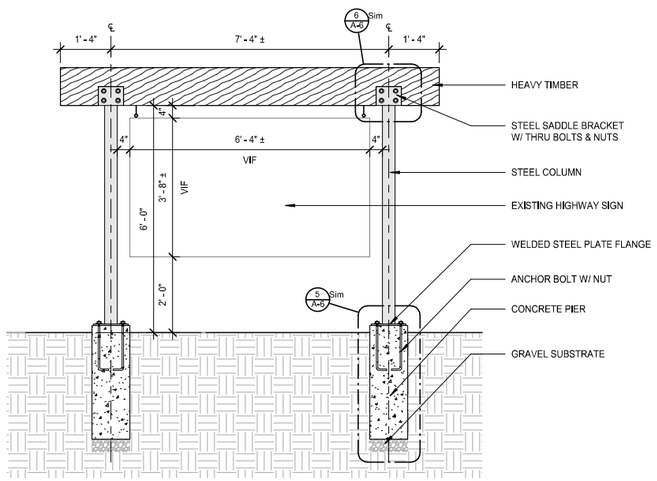
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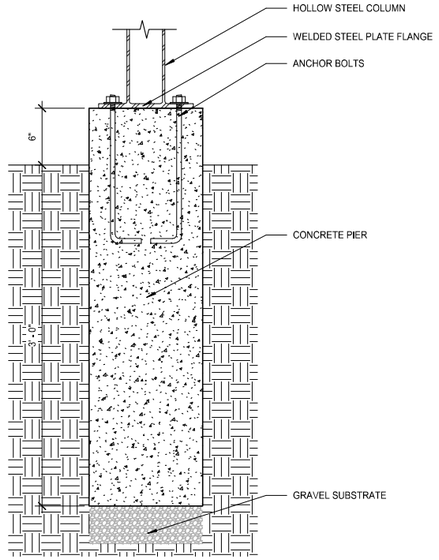
SYMBOL LEGEND

NEW WALL/ITEM/ELEMENT TO BE CONSTRUCTED, FIELD VERIFY TYPES AND CONDITIONS

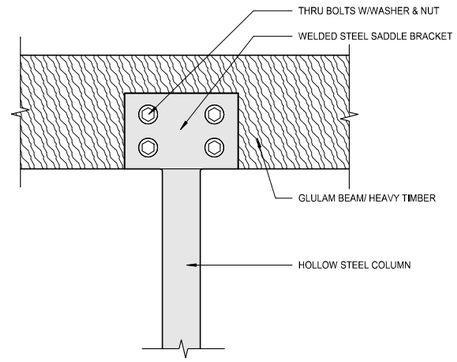
EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS



4 HIGHWAY SIGN
1/2" = 1'-0"



5 CONCRETE PIER DETAIL
1 1/2" = 1'-0"



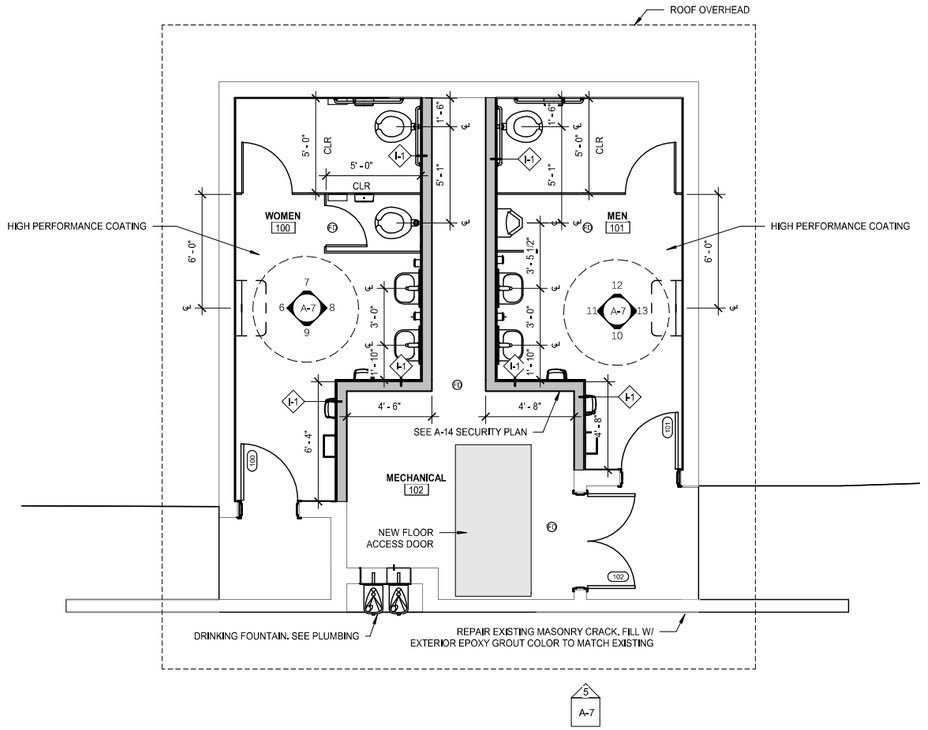
6 STEEL BRACKET CONNECTION
1 1/2" = 1'-0"

* NOTE: SCALE SHOWN ON PLANS BASED ON 22" X 34" PRINT SIZE.

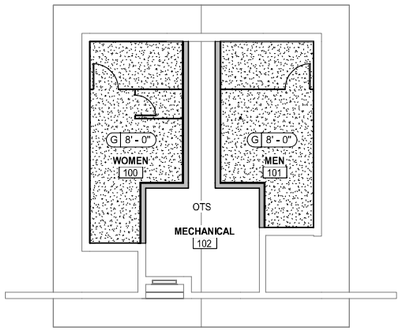
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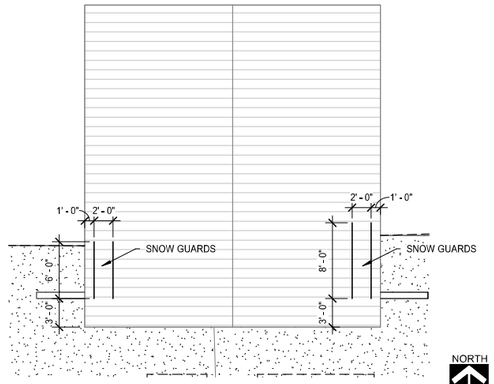
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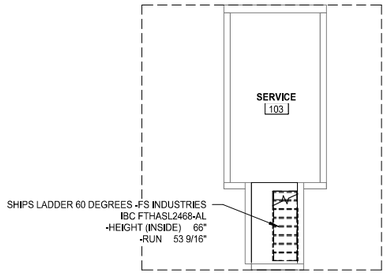
1 RESTROOMS FLOOR PLAN
1/4" = 1'-0"



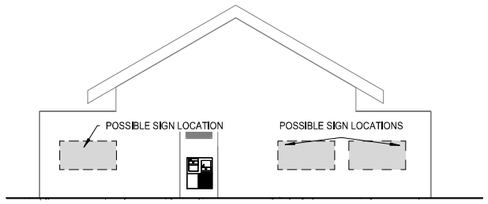
2 RESTROOMS RCP
1/8" = 1'-0"



3 RESTROOMS ROOF PLAN
1/8" = 1'-0"



4 RESTROOMS BASEMENT PLAN
1/8" = 1'-0"



5 ELEVATION SOUTH
1/8" = 1'-0"

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NEW WALL/ITEM/ELEMENT TO BE CONSTRUCTED, FIELD VERIFY TYPES AND CONDITIONS

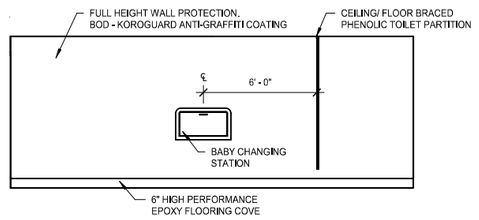
EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS

CEILING TYPE LEGEND

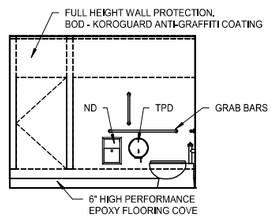
CEILING TAG
X TYPE MARK
X'-X" CEILING ELEVATION A.F.F.

'G' FIBER FACED 5/8" GYPSUM WALL BOARD ON EXISTING STRUCTURE

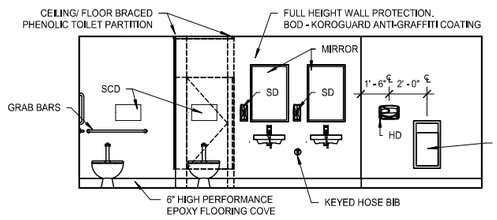
'OTS' OPEN TO STRUCTURE



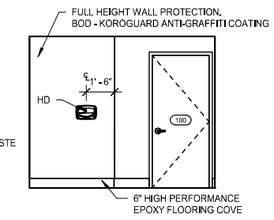
6 WOMENS ELEVATION WEST
1/4" = 1'-0"



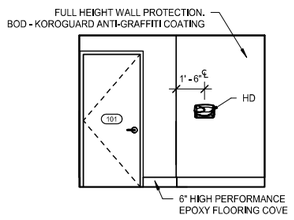
7 WOMENS ELEVATION NORTH
1/4" = 1'-0"



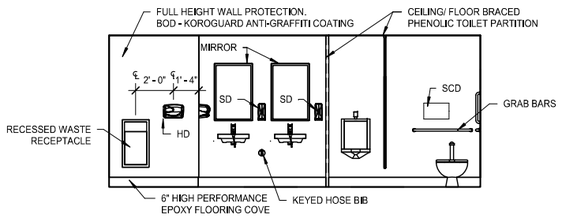
8 WOMENS ELEVATION EAST
1/4" = 1'-0"



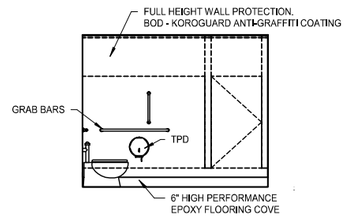
9 WOMENS ELEVATION SOUTH
1/4" = 1'-0"



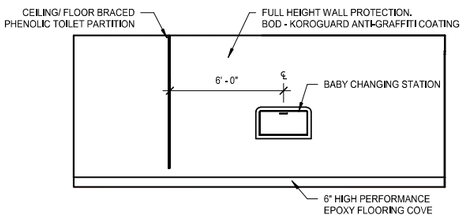
10 MENS ELEVATION SOUTH
1/4" = 1'-0"



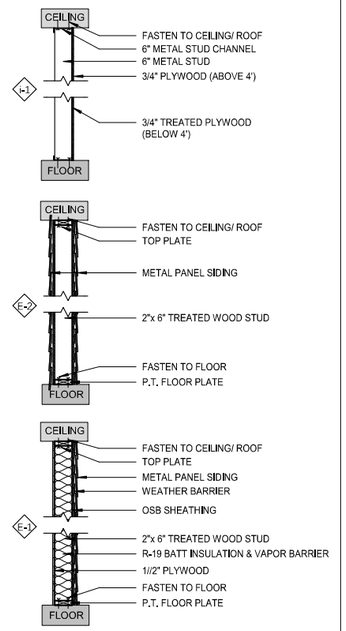
11 MENS ELEVATION WEST
1/4" = 1'-0"



12 MENS ELEVATION NORTH
1/4" = 1'-0"



13 MENS ELEVATION EAST
1/4" = 1'-0"



WALL TYPES LEGEND
1/2" = 1'-0"

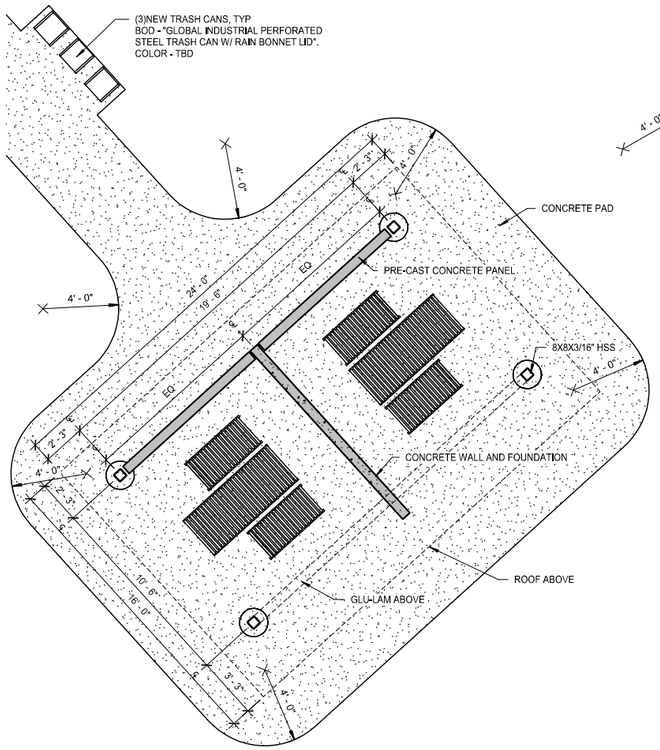
* NOTE: SCALE SHOWN ON PLANS BASED ON 22" X 34" PRINT SIZE.

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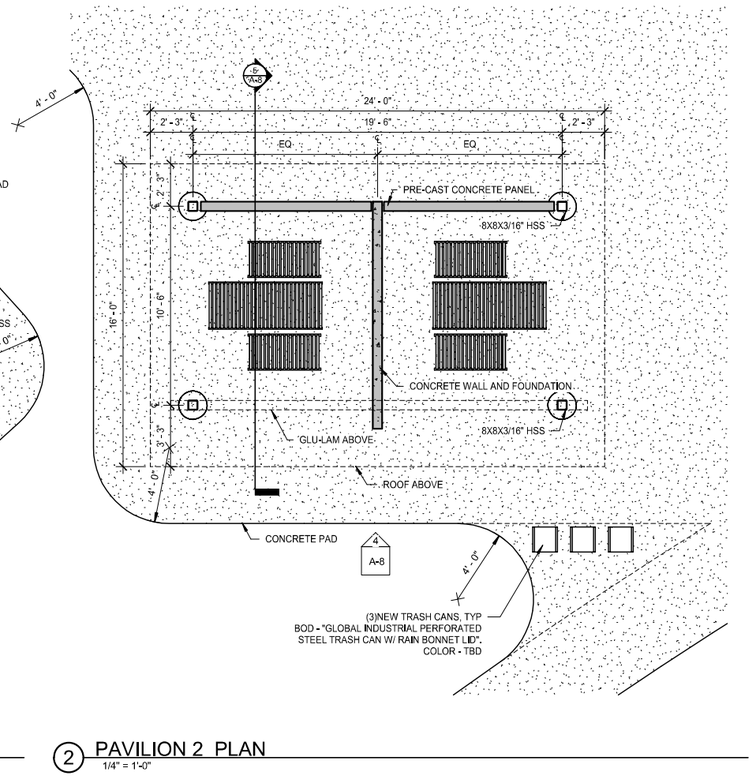
3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	SLATE ARCHITECTURE		FACILITIES REMODEL	RESTROOM PLANS & ELEVATIONS	IM 94-6(68)193
2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE			UPN 9877000	A-7
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA		

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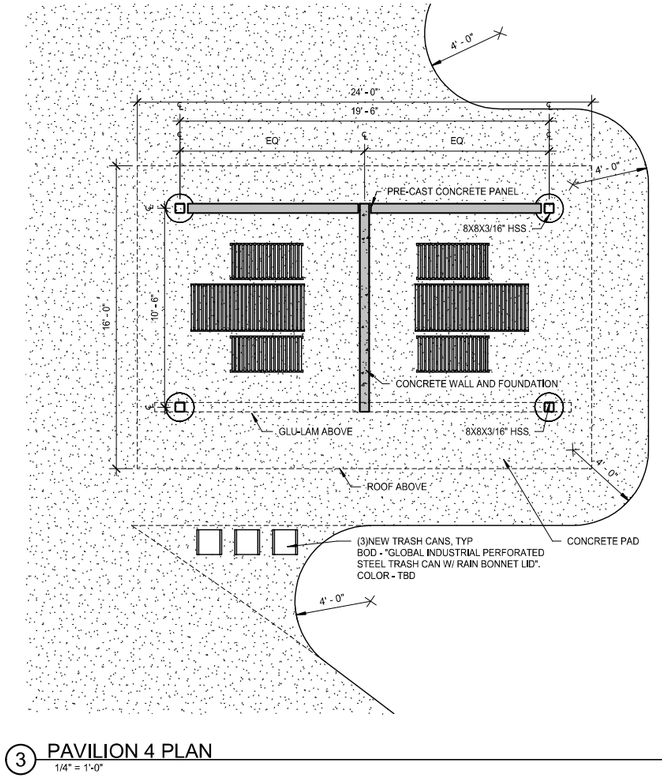
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1 PAVILION 1
1/4" = 1'-0"



2 PAVILION 2 PLAN
1/4" = 1'-0"



3 PAVILION 4 PLAN
1/4" = 1'-0"

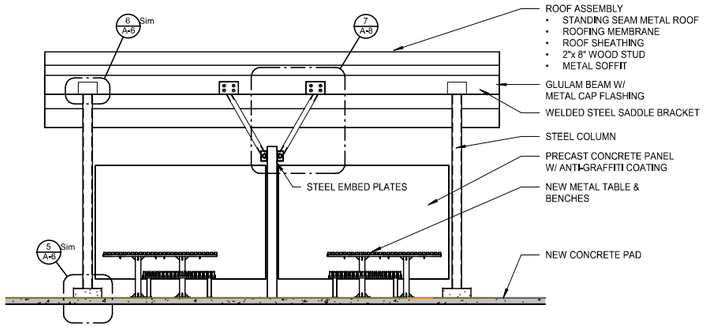
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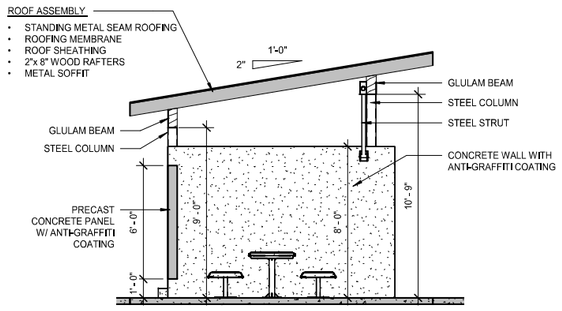
SYMBOL LEGEND

NEW WALL/ITEM/ELEMENT TO BE CONSTRUCTED, FIELD VERIFY TYPES AND CONDITIONS

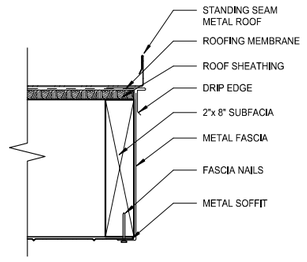
EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS



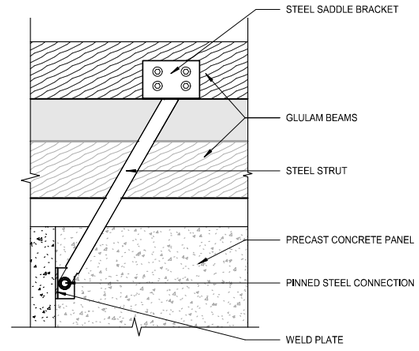
4 PAVILION ELEVATION
1/4" = 1'-0"



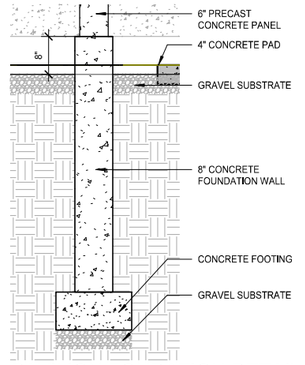
5 PAVILION SECTION
1/4" = 1'-0"



6 FACIA DETAIL
3" = 1'-0"



7 PAVILION STRUT DETAIL
3/4" = 1'-0"



8 PAVILION FOUDATION DETAIL
3/4" = 1'-0"

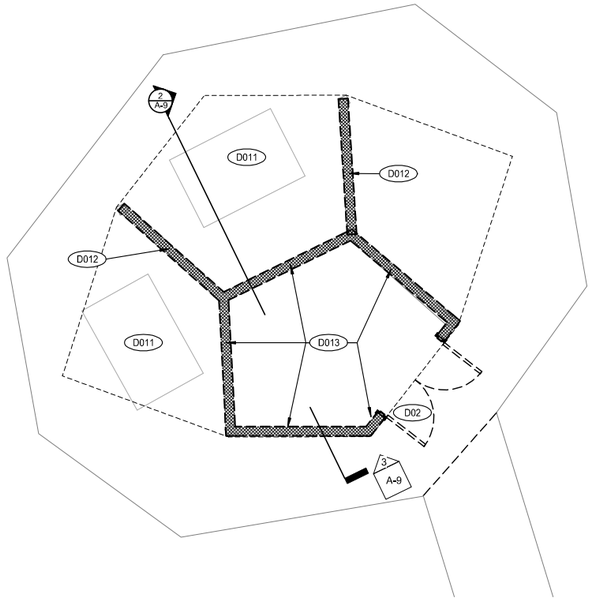
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2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE			UPN 9877000	A-8
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA		

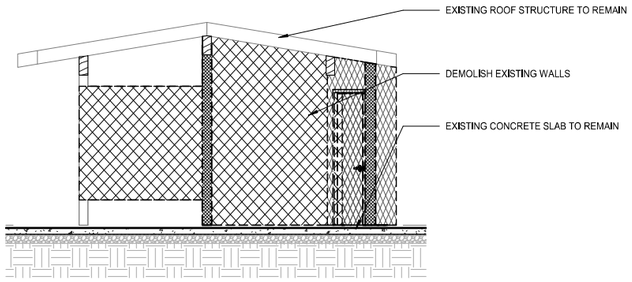
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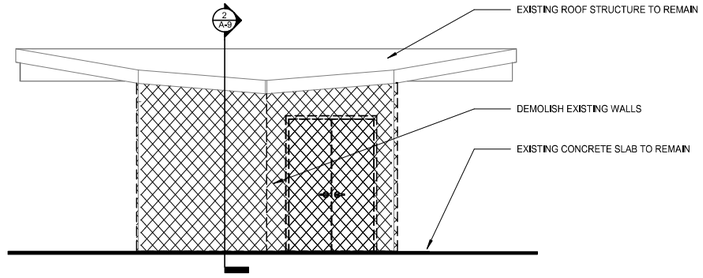


1 DEMOLITION PAVILION 3
1/4" = 1'-0"

NORTH



2 PAVILION 3 DEMOLITION SECTION
1/4" = 1'-0"



3 PAVILION 3 DEMOLITION ELEVATION
1/4" = 1'-0"

GENERAL DEMOLITION NOTES

1. SEE SPECIFICATIONS FOR A DETAILED SCHEDULE OF SELECTIVE DEMOLITION ITEMS.
2. ALL EQUIPMENT, FURNITURE, ETC, LEFT IN AREAS WHERE DEMOLITION IS TO COMMENCE IS TO BE COORDINATED WITH OWNER, PRIOR TO REMOVING FROM THE PREMISES.
3. PROTECT ALL ITEMS/ELEMENTS NOT SPECIFIED AS BEING DEMO'D, AND PATCH AND REPAIR ALL DAMAGED ITEMS/ELEMENTS TO REMAIN.
4. PATCH AND INFILL ALL MECHANICAL, ELECTRICAL & PLUMBING WORK THAT ARE OUTLINED IN THEIR SHEETS, EVEN IF NOT CALLED OUT IN THE ARCHITECTURAL SHEETS.
5. THE CONTRACTOR SHALL PROVIDE ALL DEMOLITION INCIDENTAL TO OR REQUIRED FOR NEW AND RENOVATION CONSTRUCTION WHETHER OR NOT IT IS SPECIFICALLY NOTED, INCLUDING, BUT NOT LIMITED TO, ALL OTHER WORK THAT MIGHT REASONABLY BE REQUIRED TO BE REMOVED IN PREPARATION FOR SPECIFIED FINISHES. DEMOLITION SHALL BE PERFORMED IN A MANNER THAT WILL NOT DAMAGE ANY ITEMS OR SURFACES INDICATED TO REMAIN. ITEMS OR SURFACES SHALL BE PATCHED IF NECESSARY TO PROVIDE A SUITABLE SUB-STRATA FOR NEW FINISHES.
6. PRIOR TO BIDDING, THE CONTRACTOR SHALL VISIT THE FACILITY AND THOROUGHLY FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS.
7. THE CONTRACTOR SHALL MAINTAIN AND ADHERE TO ALL CURRENT LIFE-SAFETY AND INTERIM LIFE-SAFETY RULES AND REGULATIONS THROUGHOUT THE CONSTRUCTION OF THIS PROJECT.

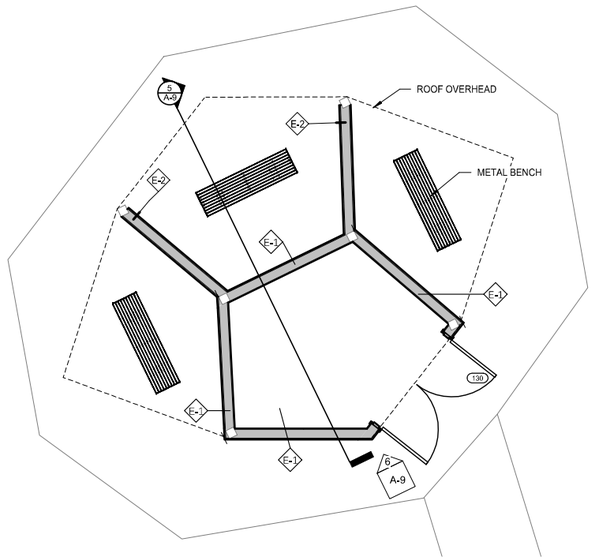
SYMBOL LEGEND

EXISTING CEILING/FLOOR IS TO BE DEMOLISHED, FIELD VERIFY TYPES AND CONDITIONS

EXISTING WALL/ITEM/ELEMENT TO BE DEMOLISHED, FIELD VERIFY TYPES AND CONDITIONS

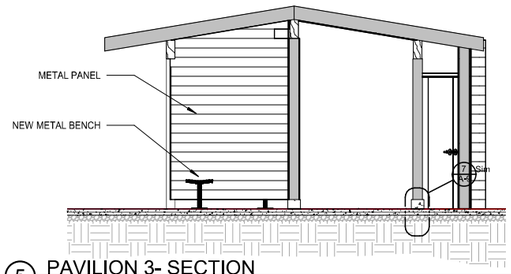
EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS

DEMOLITION KEYNOTE LEGEND	
NO.	DESCRIPTION
D02	REMOVE DOOR, FRAME AND HARDWARE.
D012	DEMO WALL PANELS.
D013	DEMO WALLS.

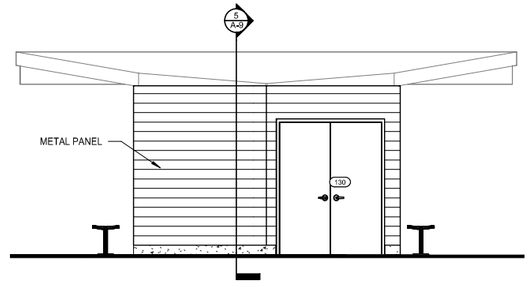


4 PAVILION 3 - PLAN
1/4" = 1'-0"

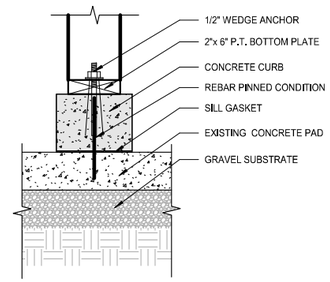
NORTH



5 PAVILION 3- SECTION
1/4" = 1'-0"



6 PAVILION 3- ELEVATION
1/4" = 1'-0"



7 PAVILION FOUNDATION CURB
1 1/2" = 1'-0"

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SYMBOL LEGEND

NEW WALL/ITEM/ELEMENT TO BE CONSTRUCTED, FIELD VERIFY TYPES AND CONDITIONS

EXISTING WALL/ITEM/ELEMENT TO REMAIN AND BE PROTECTED, FIELD VERIFY TYPES AND CONDITIONS



* NOTE: SCALE SHOWN ON PLANS BASED ON 22" X 34" PRINT SIZE.

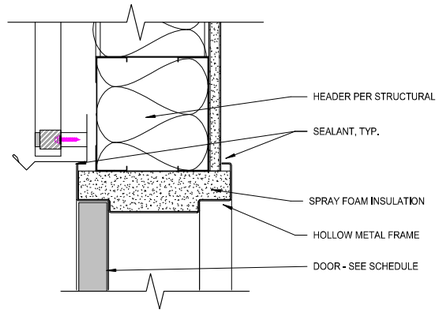
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3	MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	SLATE ARCHITECTURE		FACILITIES REMODEL	PAVILION 3 PLANS & ELEVATIONS / IM 94-6(68)193
2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE			
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA	UPN 9877000 / A-9

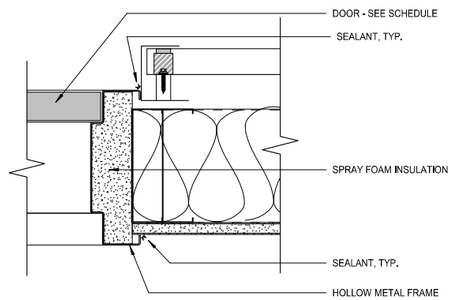
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DOOR SCHEDULE

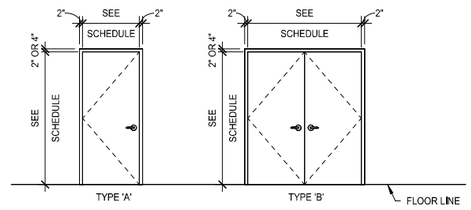
DOOR NO.	TYPE	DOOR THICKNESS	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	HARDWARE	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	COMMENTS
100	A	1 3/4"	3' - 0"	7' - 0"	H.M.	PNT	H.M.	PNT	H1				IN EXISTING MASONRY WALL
101	A	1 3/4"	3' - 0"	7' - 0"	H.M.	PNT	H.M.	PNT	H1				IN EXISTING MASONRY WALL
102	B	1 3/4"	5' - 0"	7' - 0"	H.M.	PNT	H.M.	PNT	H2				IN EXISTING MASONRY WALL
130	B	1 3/4"	6' - 0"	7' - 0"	H.M.	PNT	H.M.	PNT	H2				



2 EXTERIOR HM DOOR DETAIL - HEAD
3" = 1'-0"



3 EXTERIOR HM DOOR DETAIL - JAMB
3" = 1'-0"



DOOR AND FRAME ELEVATION
1/4" = 1'-0"

HARDWARE SCHEDULE

HARDWARE SET - "H1"
- 1 1/2 PAIR HINGES
- 1 CLOSER, EXTRA HEAVY DUTY ARM W/ HOLD OPEN
- 1 DEADBOLT, KEY BOTH SIDES
- 1 PUSH PLATE
- 1 PULL HANDLE
- 1 KICKPLATE
- 1 WALL STOP
- THRESHOLD
- WEATHER SEALS

HARDWARE SET - "H2"
- 3 PAIR HINGES
- 2 CLOSER(S), EXTRA HEAVY DUTY ARM W/ HOLD OPEN
- 1 DEADBOLT
- 1 MANUAL FLUSH BOLT, TOP AND BOTTOM
- 1 ASTRAGAL
- 1 PULL HANDLE
- 2 KICKPLATE(S)
- 2 WALLSTOP(S) - NO WALL STOPS @ DOOR 130.
- THRESHOLD
- WEATHER SEALS

4 HM DOOR THREASHOLD DETAIL
3" = 1'-0"

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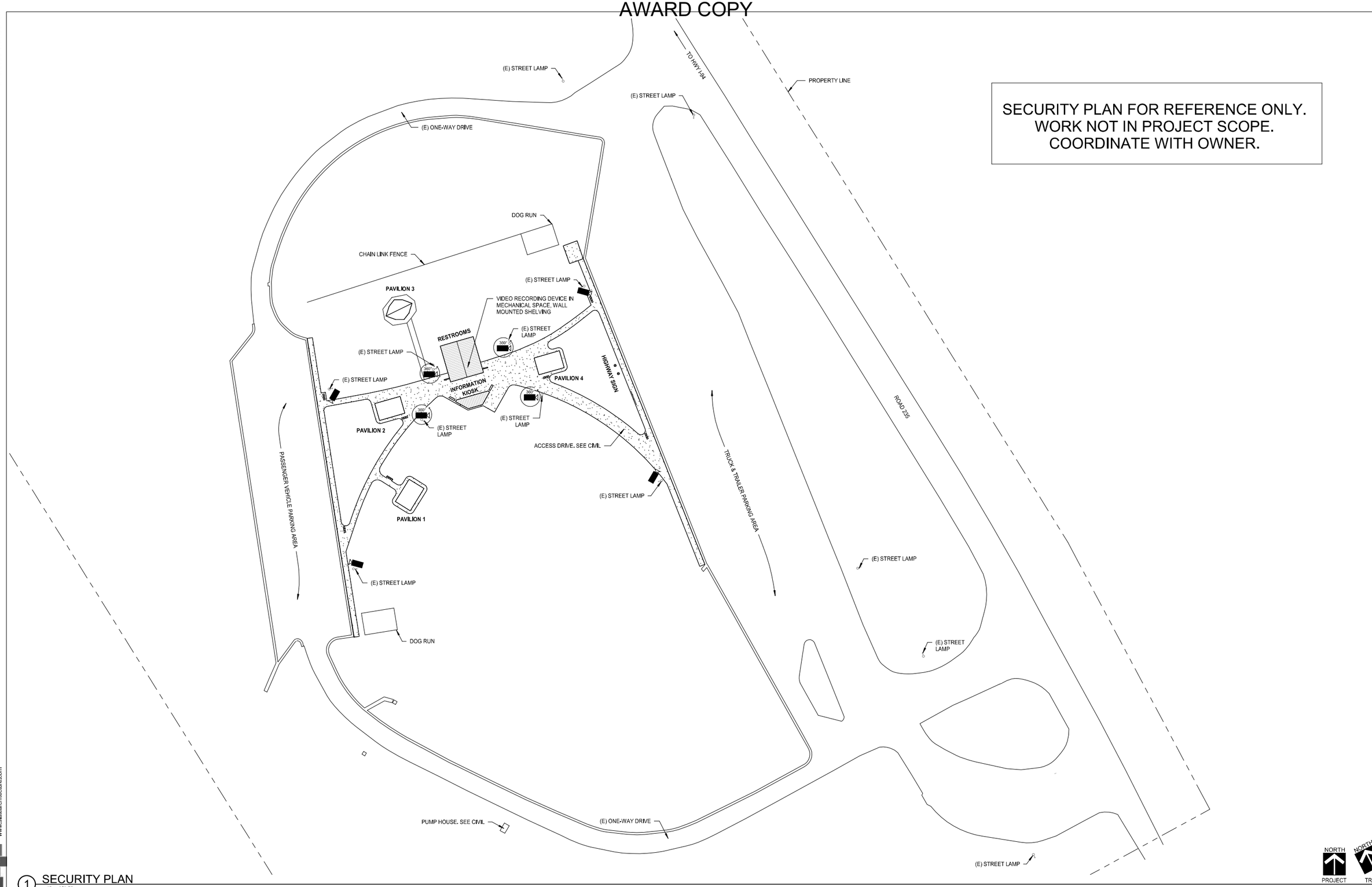
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2		07- 2022	REVIEWED BY	SLATE ARCHITECTURE				
1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA	UPN 9877000	A-10

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SECURITY PLAN FOR REFERENCE ONLY.
WORK NOT IN PROJECT SCOPE.
COORDINATE WITH OWNER.



1 SECURITY PLAN
1" = 40'-0"

NORTH PROJECT NORTH TRUE

* NOTE: SCALE SHOWN ON PLANS BASED ON 22" X 34" PRINT SIZE.

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1			CHECKED BY	SLATE ARCHITECTURE		BAD ROUTE REST AREA	UPN 9877000	A-11

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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
Θ_A	RECEPTACLE, SPECIAL PURPOSE 120V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 5-20R.
Θ_B	RECEPTACLE, SPECIAL PURPOSE 208V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 6-20R.
Θ_C	RECEPTACLE, SPECIAL PURPOSE 120V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 5-30R.
Θ_D	RECEPTACLE, SPECIAL PURPOSE 208V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 6-30R.
Θ_E	RECEPTACLE, SPECIAL PURPOSE 208V, 60A, 1 PHASE, 3-POLE, 4W, NEMA 14-60R.
Θ_F	RECEPTACLE, SPECIAL PURPOSE 208V, 30A, 3 PHASE, 3-POLE 4W, NEMA 15-30R.
Θ_G	RECEPTACLE, SPECIAL PURPOSE 208V, 50A, 3 PHASE, 3 POLE, 4W, NEMA 15-50R.
Θ_H	RECEPTACLE, SPECIAL PURPOSE 208V, 60A, 3 PHASE, 3 POLE, 4W, NEMA 15-60R.
Θ_J	RECEPTACLE, SPECIAL PURPOSE 208V, 20A, 3 PHASE, 3 POLE, 4W, NEMA 15-20R.
Θ_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
ACC	ACCESSIBLE
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
BAS	BUILDING AUTOMATION SYSTEM
BFF	BELOW FINISH FLOOR
BLDG	BUILDING
BRKR	BREAKER
BYP	BY PASS
C	CONDUIT
CD	CONSTRUCTION DOCUMENTS
CF	CONTRACTOR FURNISHED
CP/CI	CONTRACTOR PROVIDED/CONTRACTOR INSTALLED
CP/OI	CONTRACTOR PROVIDED/OWNER INSTALLED
CKT	CIRCUIT
CMU	CONCRETE MASONRY UNIT
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CU	COPPER
CU FT	CUBIC FEET
DC	DIRECT CURRENT
DEMO	DEMOLITION
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
FP	FIRE PROTECTION
FT	FEET OR FOOT
G OR GND	GROUND
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HZ	HERTZ
IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
IR	INFRARED
J	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kW	KILOWATT
kWH	KILOWATT HOUR
LED	LIGHT EMITTING DIODE
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTS	MANUAL TRANSFER SWITCH
MVA	MEGAVOLT-AMPERE
MW	MEGAWATT
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT OR N	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OP	OWNER PROVIDED
OP/CI	OWNER PROVIDED/CONTRACTOR INSTALLED
OP/OI	OWNER PROVIDED/OWNER INSTALLED
OS	OCCUPANCY SENSOR
RCP	REFLECTED CEILING PLAN
REC	RECESSED
RECP	RECEPTACLE
RM	ROOM
SD	SMOKE DETECTOR
SF	SQUARE FOOT (FEET)
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
SPDT	SINGLE POLE, DOUBLE THROW
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME CLOCK
TP	TWISTED PAIR
TPS	TWISTED PAIR SHIELDED
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V OR VOLT	VOLTAGE
VA	VOLT AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
WH	WATER HEATER
WP	WEATHERPROOF
XFMR	TRANSFORMER

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

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.

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

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	ELECTRICAL LEGENDS AND ABBREVIATIONS	IM 94-6(68)193
2		9/23/2024	REVIEWED BY	WW				
1			CHECKED BY	RD		BAD ROUTE REST AREA	UPN 9877000	E-1

AWARD COPY

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 2017 NATIONAL ELECTRICAL CODE AND BE INSTALLED BY LICENSED CONTRACTORS. LIGHTING SHALL COMPLY WITH THE 2012 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.

46 HIBBARD WAY
HELENA, MT 59601
TEL| 406.441.4000
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	ELECTRICAL REQUIREMENTS	IM 94-6(68)193
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SCHEDULE OF DISCONNECTS

EQUIPMENT	CONNECTED LOAD						DISCONNECT			FUSE			FEEDER			NOTES
	HP	W	FLA	MCA	PH	VOLTS	TYPE	MFR.	CATALOG NO.	TYPE	SIZE	POLES	SIZE	TYPE	GRND	
WATER HEATER: WH-1	-	4.5k	-	-	1	240	FUSED	SCHNEIDER ELECTRIC	D221N	CARTRIDGE CLASS R	30A	2	(2) #12	THHN	#12	-
WATER PUMP: P-1	1/2	-	8.2	-	1	120	FUSESTAT	COOPER	BP/SSU	EDISON BASE CLASS T	15A	1	(2) #12	THHN	#12	-
WATER PUMP: P-2	1/3	-	6.5	-	1	120	FUSESTAT	COOPER	BP/SSU	EDISON BASE CLASS T	15A	1	(2) #12	THHN	#12	-
RO UNIT: RO-1	-	-	1.0	1.25	1	120	FUSESTAT	COOPER	BP/SSU	EDISON BASE CLASS T	2A	1	(2) #12	THHN	#12	-
EF-1	1/10	-	1.4	-	1	120	FUSESTAT	COOPER	BP/SSU	EDISON BASE CLASS T	3A	1	(2) #12	THHN	#12	-
EF-2	1/10	-	1.4	-	1	120	FUSESTAT	COOPER	BP/SSU	EDISON BASE CLASS T	3A	1	(2) #12	THHN	#12	-
HP-1	-	-	-	29.8	1	240	FUSED	SCHNEIDER ELECTRIC	D221NRB	CARTRIDGE CLASS R	30A	2	(2) #12	THHN	#12	1
LIFT STATION PUMPS: P-3,P-4	-	-	-	10.8	1	240	FUSED	SCHNEIDER ELECTRIC	D221NRB	CARTRIDGE CLASS R	20A	2	(2) #10	THHN	#10	1
LEVEL 2 PUMP: P-5	-	-	12	-	1	120	PUMP CONTROL PANEL TO SERVE AS LOCAL DISCONNECT. BY PUMP VENDOR						(2) #10	THHN	#10	1
LEVEL 2 PUMP: P-6	-	-	8	-	1	120	PUMP CONTROL PANEL TO SERVE AS LOCAL DISCONNECT. BY PUMP VENDOR						(2) #10	THHN	#10	1

NOTES:
1. ENCLOSURE TO BE RAINTIGHT

NEW METER MAIN

PANEL LOCATION: EXTERIOR WALL | L-L VOLT: 240 | PHASE: 1 | MAIN: LUG N | BREAKER Y
MFR/MODEL: 320 CLASS METER MAIN | L-N VOLT: 120 | WIRES: 3 | WIRE SIZE: (6) 250 KCMIL THWN | FED FROM: DISCONNECT
AIC: 10,000 | RATED AMP: 400 | NEUTRAL 100% | COND. SIZE: 3" PVC | 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
(E) MDP-1		1	200			24054	S	1	A	2	S	4414			200	2		NEW MDP-2
						22339	S	3	B	4	S	4234						
SPARE		1	20					5	A	6					20	1		SPARE
SPARE		1	20					7	B	8					20	1		SPARE
SPARE		1	20					9	A	10					20	1		SPARE
SPARE		1	20					11	B	12					20	1		SPARE
SPARE		1	20					13	A	14					20	1		SPARE
SPARE		1	20					15	B	16					20	1		SPARE
SUMMARY CONNECTED LOADS				0	0	0 0 46393 0 0 0 0	M A S E H T O	LOAD (VOLT-AMPERES)			M A S E H T O	0 0 8648 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	55.0	0.8	44.0
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	55.0 KVA		44.0 KVA
TOTAL AMP	229.3 AMP		183.5 AMP
DESIGN (MAX)			400 AMP
SPARE			216.5 AMP

AMPERAGE FED TO PANEL	400 AMP	
TOTAL CONNECTED LOAD	229.3 AMP	55.0 KVA
TOTAL DEMAND LOAD	183.5 AMP	44.0 KVA
DESIGN (MAX)	400 AMP	96.0 KVA
SPARE LOAD	217 AMP	52.0 KVA
CONNECTED LOAD BALANCE SUMMARY		
PHASE A	237.2 AMP	28.468 KVA
PHASE B	221.4 AMP	26.573 KVA
A TO B	7 %	

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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CONTRACTOR REPLACE EXISTING BREAKER WITH NEW 2 POLE, 150 AMP BREAKER TO FEED EXISTING PANEL A.

CONTRACTOR REPLACE EXISTING BREAKER WITH NEW 2 POLE, 125 AMP BREAKER TO FEED EXISTING PANEL B.

EXISTING MDP-1 (REMODELED)

PANEL LOCATION:	EXTERIOR WALL			L-L VOLT:	240	PHASE:	1		MAIN:	LUG N		BREAKER	Y				
MFR/MODEL:	SQUARE D HOMELINE			L-N VOLT:	120	WIRES:	3		WIRE SIZE:	EXISTING			FED FROM:	METER MAIN			
AIC:	10,000			RATED AMP:	200	NEUTRAL	100%		COND. SIZE:	3" PVC			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
PANEL A		2	150			11370	S	1	A	2	S	10284			125	2		PANEL B - FURNACE
						9655	S	3	B	4	S	10284						
IRRIGATION PUMP		2	50			2400	M	5	A	6					20	1		UNLABELED
						2400	M	7	B	8					SPACE			
SPACE								9	A	10					SPACE			
SPACE								11	B	12					SPACE			
						4800	M				M	0						
						0	A				A	0						
						21025	S				S	20568						
SUMMARY CONNECTED LOADS				0	0	0	E	LOAD			E	0	0	0	SUMMARY CONNECTED LOADS			
						0	H	(VOLT-AMPERES)			H	0						
						0	T				T	0						
						0	O				O	0						

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	2.4	1.0	2.4
LARGEST MOTOR	2.4	1.25	3.0
APPLIANCES	0.0	1.0	0.0
SUBFEED	41.6	0.8	33.3
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	46.4 KVA		38.7 KVA
TOTAL AMP	193.3 AMP		161.1 AMP
DESIGN (MAX)			200 AMP
SPARE			38.9 AMP

AMPERAGE FED TO PANEL	200 AMP		
TOTAL CONNECTED LOAD	193.3 AMP	46.4 KVA	
TOTAL DEMAND LOAD	161.1 AMP	38.7 KVA	
DESIGN (MAX)	200 AMP	48.0 KVA	
SPARE LOAD	39 AMP	9.3 KVA	
CONNECTED LOAD BALANCE SUMMARY			
PHASE A	200.5 AMP	24.054 KVA	
PHASE B	186.2 AMP	22.339 KVA	
A TO B	7 %		

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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HELENA, MT 59601
TEL| 406.441.4000
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NEW MDP-2

PANEL LOCATION: EXTERIOR WALL | L-L VOLT: 240 | PHASE: 1 | MAIN: LUG N | BREAKER Y
MFR/MODEL: NQ30L2C | L-N VOLT: 120 | WIRES: 3 | WIRE SIZE: (6) 250 KCMIL THWN | FED FROM: METER MAIN
AIC: 10,000 | RATED AMP: 225 | NEUTRAL 100% | COND. SIZE: 3" PVC | 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
L2 TREATMENT PUMP 5		1	20			960	M	1	A	2	E	180			20	1		LIFT STATION CONTROL PANEL
L2 TREATMENT PUMP 6		1	20			1440	M	3	B	4					20	1		SPARE
L2 CONTROL PNL 1		1	20			1200	E	5	A	6	M	1037			25	2		LIFT STATION PUMP 1
L2 CONTROL PNL 2		1	20			1200	E	7	B	8	M	1037						
SPARE		1	20					9	A	10	M	1037			25	2		LIFT STATION PUMP 2
SPARE		1	20					11	B	12	M	1037						
SPARE		1	20					13	A	14					20	1		SPARE
SPARE		1	20					15	B	16					20	1		SPARE
SPARE		1	20					17	A	18					20	1		SPARE
SPARE		1	20					19	B	20					20	1		SPARE
SPACE								21	A	22					SPACE			
SPACE								23	B	24					SPACE			
SPACE								25	A	26					SPACE			
SPACE								27	B	28					SPACE			
SPACE								29	A	30					SPACE			
SUMMARY CONNECTED LOADS				0	0	2400 0 0 2400 0 0 0	M A S E H T O	LOAD (VOLT-AMPERES)			M A S E H T O	4148 0 0 180 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	5.1	1.0	5.1
LARGEST MOTOR	1.4	1.25	1.8
APPLIANCES	0.0	1.0	0.0
SUBFEED	0.0	0.8	0.0
EQUIPMENT	2.6	1.0	2.6
HEATING	0.0	1.0	0.0
TRANSFORMER	0.0	1.0	0.0
OTHER	0.0	1.0	0.0
TOTAL KVA	9.1 KVA		9.5 KVA
TOTAL AMP	38.0 AMP		39.5 AMP
DESIGN (MAX)			200 AMP
SPARE			160.5 AMP

AMPERAGE FED TO PANEL	200 AMP	
TOTAL CONNECTED LOAD	38.0 AMP	9.1 KVA
TOTAL DEMAND LOAD	39.5 AMP	9.5 KVA
DESIGN (MAX)	200 AMP	48.0 KVA
SPARE LOAD	160 AMP	38.5 KVA
CONNECTED LOAD BALANCE SUMMARY		
PHASE A	36.8 AMP	4.414 KVA
PHASE B	39.3 AMP	4.714 KVA
A TO B	-7 %	

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
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GENERAL ELECTRICAL PANEL NOTE

EXISTING PANELS ARE TO REMAIN AND BE REMODELED. PANEL SCHEDULES SHOW EXISTING BRANCH CIRCUIT DESCRIPTIONS, CIRCUIT BREAKERS AND ELECTRICAL LOADS TO BE REMOVED OR MODIFIED IN BLACK. COMPONENTS TO REMAIN AS IS ARE SHOWN IN GRAY.

PANEL "A" (REMODELED)

PANEL LOCATION:	1ST FLOOR MECHANICAL		L-L VOLT:	240	PHASE:	1	MAIN:	LUG N	BREAKER	Y	
MFR/MODEL:	GENERAL ELECTRIC P-150		L-N VOLT:	120	WIRES:	3	WIRE SIZE:	EXISTING	FED FROM:	MDP	
AIC:	10,000		RATED AMP:	150	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
WATER HEATER		2	30			2250	E	1	A	2			1620		20	1		MAIN LEVEL RECPS
						2250	E	3	B	4	M	700			20	1		EXISTING SUMP PUMP
BASEMENT RECPS		1	20		540			5	A	6	M	984			20	1		P-1
HAND DRYER - MENS		1	30			1240	A	7	B	8	E	780			20	1		P-2
HAND DRYER - MENS		1	30			1240	A	9	A	10		120			20	1		RO UNIT
BUILDING & SIGN LGT		1	20	621				11	B	12	E	220			20	1		DRINKING FOUNTAIN
HAND DRYER - WMENS		1	30			1240	A	13	A	14			540		20	1		IT & SECURITY POWER RECPS
HAND DRYER - WMENS		1	30			1240	A	15	B	16	M	336			20	1		EF-1 & EF-2
EXTERIOR POLE LIGHTS		1	30	568				17	A	18	M	1788			30	2		HP-1
SPARE		2	50					19	B	20	M	1788						
								21	A	22	T	480			20	1		FLUSH/FAUCET TRANSFORMERS
SPARE		1	20					23	B	24			360	120	20	1		STORAGE BLDG POWER & LIGHTS
						0	M				M	5596						
						4960	A				A	0						
						0	S				S	0						
SUMMARY CONNECTED LOADS				1189	540	4500	E	LOAD			E	1000	2520	120	SUMMARY CONNECTED LOADS			
						0	H	(VOLT-AMPERES)			H	0						
						0	T				T	480						
						0	O				O	120						

DESCRIPTION	CONN. KVA	D.F	DEM. KVA
LIGHTING	1.3	1.25	1.6
RECEPTACLES (FIRST 10KW)	3.1	1.0	3.1
RECEPTACLES (REMAINDER)	0.0	0.5	0.0
MOTORS	3.8	1.0	3.8
LARGEST MOTOR	1.8	1.25	2.2
APPLIANCES	5.0	1.0	5.0
SUBFEED	0.0	0.8	0.0
EQUIPMENT	5.5	1.0	5.5
HEATING	0.0	1.0	0.0
TRANSFORMER	0.5	1.0	0.5
OTHER	0.1	1.0	0.1
TOTAL KVA	21.0 KVA		21.8 KVA
TOTAL AMP	87.6 AMP		90.8 AMP
DESIGN (MAX)			150 AMP
SPARE			59.2 AMP

AMPERAGE FED TO PANEL	150 AMP		
TOTAL CONNECTED LOAD	87.6 AMP	21.0 KVA	
TOTAL DEMAND LOAD	90.8 AMP	21.8 KVA	
DESIGN (MAX)	150 AMP	36.0 KVA	
SPARE LOAD	59 AMP	14.2 KVA	
CONNECTED LOAD BALANCE SUMMARY			
PHASE A	94.8 AMP	11.37 KVA	
PHASE B	80.5 AMP	9.655 KVA	
A TO B	15 %		

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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GENERAL ELECTRICAL PANEL NOTE

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PANEL "B" (REMODELED)

PANEL LOCATION:	MAIN FLOOR MECHANICAL	L-L VOLT:	240	PHASE:	1	MAIN:	LUG N	BREAKER Y **	
MFR/MODEL:	GENERAL ELEC. - 054733	L-N VOLT:	120	WIRES:	3	WIRE SIZE:	EXISTING	FED FROM:	MDP
AIC:	10,000	RATED AMP:	125	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
FURNACE FAN MOTOR		2	30			684		1	A	2	H	9600			110	2		FURNACE ELECTRIC HEATER
						684		3	B	4	H	9600						
SPACE								5	A	6								SPACE
SPACE								7	B	8								SPACE
SPACE								9	A	10								SPACE
SPACE								11	B	12								SPACE
SPACE								13	A	14								SPACE
SPACE								15	B	16								SPACE
SPACE								17	A	18								SPACE
SPACE								19	B	20								SPACE
SPACE								21	A	22								SPACE
SPACE								23	B	24								SPACE
						0	M				M	0						
						0	A				A	0						
						0	S				S	0						
SUMMARY CONNECTED LOADS				0	0	0	E	LOAD			E	0	0	0				SUMMARY CONNECTED LOADS
						0	H	(VOLT-AMPERES)			H	19200						
						0	T				T	0						
						1368	O				O	0						

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	0.0	0.8	0.0
EQUIPMENT	0.0	1.0	0.0
HEATING	19.2	1.0	19.2
TRANSFORMER	0.0	1.0	0.0
OTHER	1.4	1.0	1.4
TOTAL KVA	20.6 KVA		20.6 KVA
TOTAL AMP	85.7 AMP		85.7 AMP
DESIGN (MAX)			125 AMP
SPARE			39.3 AMP

AMPERAGE FED TO PANEL	125 AMP		
TOTAL CONNECTED LOAD	85.7 AMP	20.6 KVA	
TOTAL DEMAND LOAD	85.7 AMP	20.6 KVA	
DESIGN (MAX)	125 AMP	30.0 KVA	
SPARE LOAD	39 AMP	9.4 KVA	
CONNECTED LOAD BALANCE SUMMARY			
PHASE A	85.7 AMP	10.284 KVA	
PHASE B	85.7 AMP	10.284 KVA	
A TO B	0 %		
** 80 AMP MAIN BREAKER TO BE REMOVED AND REPLACED WITH NEW 125 AMP MAIN BREAKER.			

LEGEND/KEY
T=TRANSFORMER
S=SUBFEED
O=OTHER
M=MOTOR
A=APPLIANCE
E=EQUIPMENT
H-HEATING
R=RECEPTACLES
L=LIGHTING
CONN.=CONNECTED
DEM.=DEMAND
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LIGHTING FIXTURE SCHEDULE

SYMBOL	LETTER DESIG.	FIXTURE						LAMP				NOTES		HYPERLINK
		MANUFACTURER	DESCRIPTION	CATALOG NO.	LOCATION	TYPE	HEIGHT	TYPE	NO.	WATTS	LUMEN			
	A	-	EXISTING 4' LINEAR LUMINAIRE	-	WALL	SURFACE	-	-	-	-	-	-	-	
	B	-	EXISTING 12" X 12" DOWNLIGHT	-	CEILING	SURFACE	-	-	-	-	-	-	-	
	C	-	EXISTING KEYLESS FIXTURE	-	CEILING	SURFACE	-	-	-	-	-	-	-	
	D	-	EXISTING KEYLESS FIXTURE	-	WALL	SURFACE	-	-	-	-	-	-	-	
	F	-	EXISTING EXTERIOR RECESSED DOWNLIGHT	-	CEILING	SURFACE	-	-	-	-	-	-	-	
	G	-	EXISTING HIGH PRESSURE SODIUM AREA LIGHT	-	POLE	-	30'	-	-	-	-	-	-	
	H	LUMINAIRE LED	VANDAL RESISTANT 4' LINEAR LED LUMINAIRE	VERTEX CFL11 4FT NODIM 120 CLP	CEILING	SURFACE	-	LED	-	50	5291	1,2	-	SPEC
	HE	LUMINAIRE LED	VANDAL RESISTANT 4' LINEAR LED LUMINAIRE	VERTEX CFL11 4FT NODIM 120 CLP EMB310	CEILING	SURFACE	-	LED	-	50	5291	1,2	E	SPEC
	J	LUMINAIRE LED	VANDAL RESISTANT LED WALLPACK	SWOOP SWP1212 YWP NODIM 120 PC	CEILING	SURFACE	-	LED	-	15	1466	1,2	-	SPEC
	K	LITHONIA LIGHTING	4' LINEAR LED LUMINAIRE	FMLWL 48	CEILING	SURFACE	-	LED	-	42	2900	1,2	-	SPEC
	L	LITHONIA LIGHTING	7" LOW PROFILE LED DOWNLIGHT	FMML 7 830 WL DBL	CEILING	SURFACE	-	LED	-	10	650	1,2	-	SPEC
	M	GOTHAM	VANDAL RESISTANT 6" LED DOWNLIGHT	EVO AR MWD CGL 120 EZ10 NLT ELRSD	CEILING	RECESSED	-	LED	-	20	1742	1,2	-	SPEC
	N	LITHONIA LIGHTING	LED AREA LUMINAIRE	RSX2-LED-P1-30K-R5-MVOLT-DDBXD	POLE	-	-	LED	-	71	10,271	1,2	-	SPEC
	O	LUMINAIRE LED	VANDAL RESISTANT LED WALLPACK	SWOOP SWP1212 YWP NODIM 120 PC	WALL	SURFACE	7' 6"	LED	-	15	1466	1,2	-	SPEC
	X1	BEGHELLI	ECCO LUNA COLD WEATHER REMOTE LED	EL-205LED-6-24V-B	WALL	SURFACE	7' 6"	LED	-	10	-	2	E	SPEC
	X2	DUAL-LITE	HI-LUMEN EMERGENCY LED	EVHC-12-I-06L	WALL	SURFACE	7' 6"	LED	-	12	1092	2,5	E	SPEC
	X	HOLOPHANE	VANDAL RESISTANT EXIT SIGN	DELEON DLTLX S EL N CW	WALL	SURFACE	7' 6"	LED	-	3.3 - 4.5	-	2,3	E	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.
3. REFER TO PLANS FOR DIRECTIONAL ARROWS, SINGLE OR DOUBLE SIDED, AND MOUNTING TYPE WILL BE WALL MOUNTED UNLESS OTHERWISE NOTED ON PLANS.

CONTROL NOTES:

A. ON BOARD OCCUPANCY SENSING.
B. ON BOARD PHOTO CONTROL.
C. 0-10 V DIMMING.
D. TRIAC DIMMING.
E. EMERGENCY BACKUP BATTERY ON FIXTURES WITH ADDITIONAL E TAG.

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	LIGTHING + FAN AMP RATING	CONTROL OPTIONS											NOTES	HYPERLINK
							AON	AOF	MON	MOF	MOWO	TDO	DLD	3W	4W	0-10V DIM	TRIAC DIM		
$	WALL SWITCH	HUBBELL	CS120	20	20	20	-	-	E	E	-	-	-	-	-	-	-	2	SPEC
$PH	OUTDOOR PHOTOCELL	HUBBELL	DLCPCO	-	-	-	-	-	-	-	-	-	10	-	-	E	-	2,3	SPEC
(OS)	CEILING OCCUPANCY SENSOR SWITCH	HUBBELL	OMNI-DT-500	.033	.033	.033	E	E	-	-	-	30m	-	-	-	-	-	3	SPEC

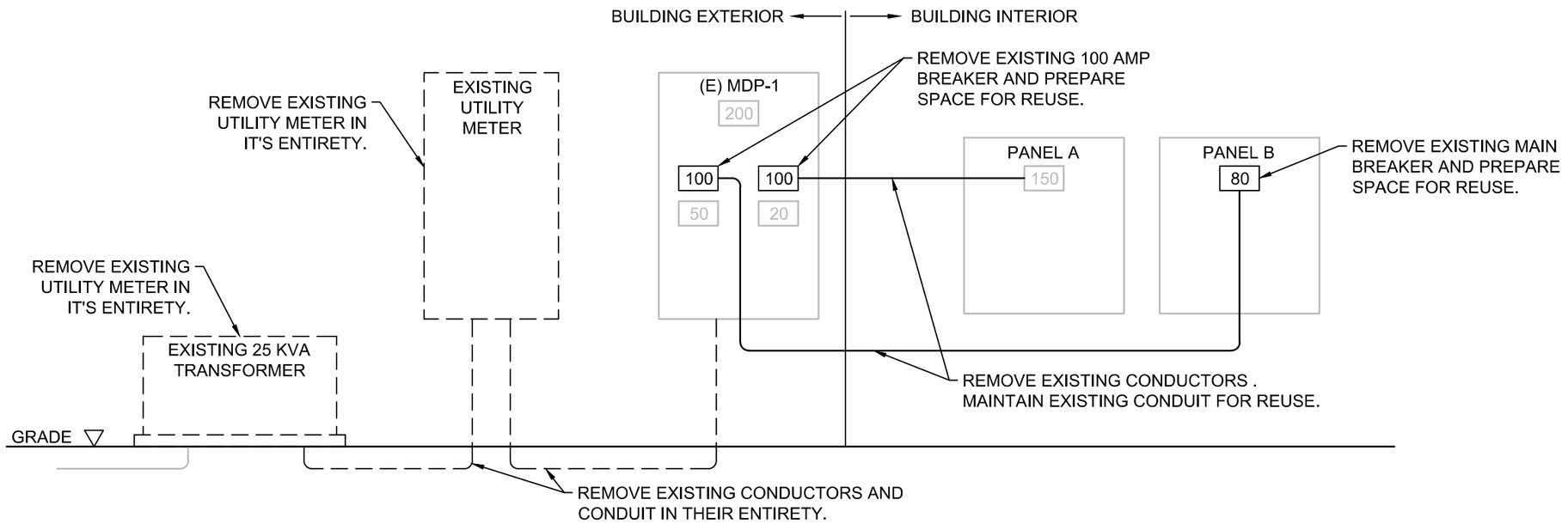
NOTES:

1. SWITCH TO BE DUAL POLE.
2. COORDINATE COLOR WITH OWNER/ARCHITECT.
3. SENSOR IS RATED FOR 24VDC INSTEAD OF LINE VOLTAGE. CONTRACTOR TO PROVIDE NECESSARY RELAYS AND WIRING COMPONENTS FOR A COMPLETE INSTALLATION.
4. SET DAYTIME LIGHTING HOURS FOR BETWEEN 6 AM AND 10 PM. SET NIGHTTIME LIGHTING HOURS BETWEEN 10 PM AND 6 AM.

PROVIDE SWITCHES WITH LOW VOLTAGE POWER PACKS AS REQUIRED.

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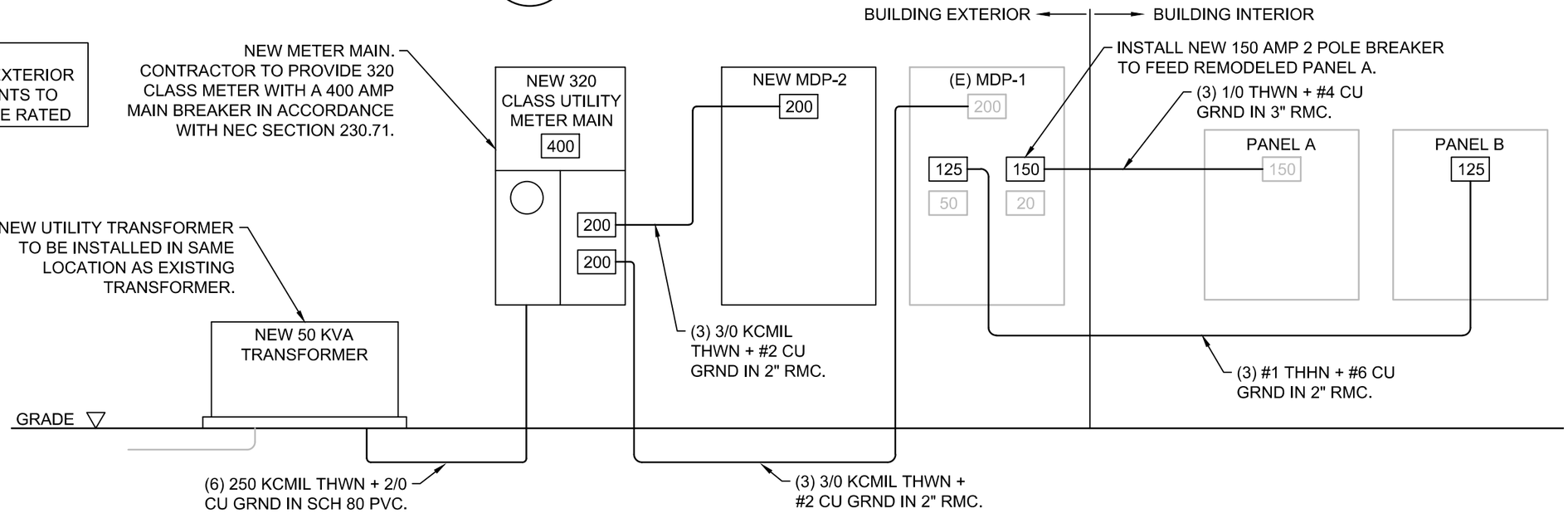
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1 / E-9 POWER DEMOLITION SCHEMATIC DIAGRAM

SCALE: 1/4" = 1'

NOTE:
ALL NEW EXTERIOR COMPONENTS TO BE SERVICE RATED

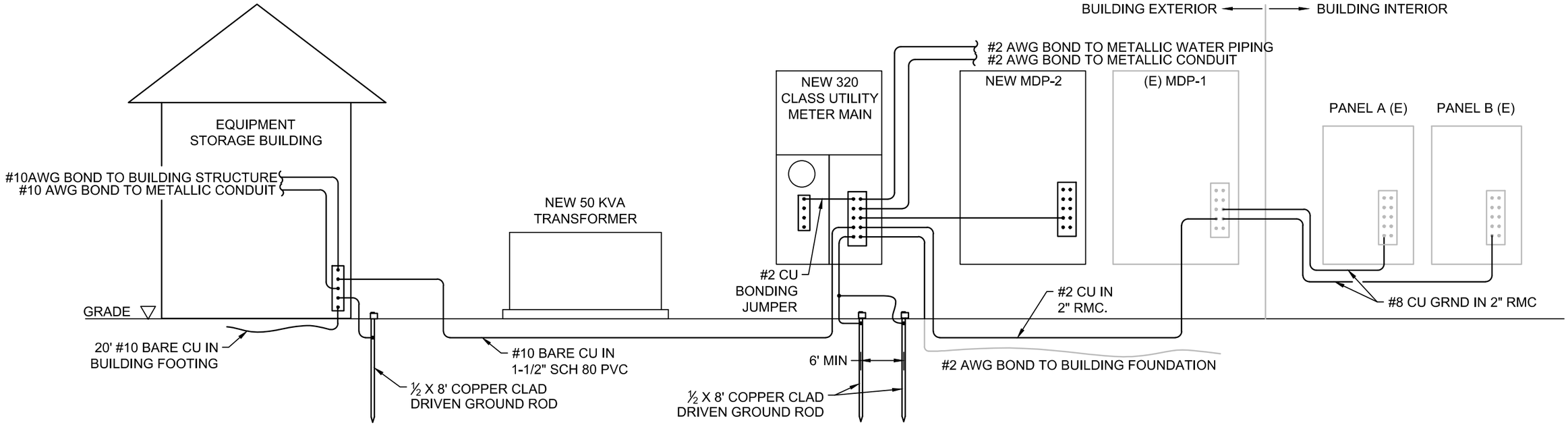


2 / E-9 NEW POWER SCHEMATIC DIAGRAM

SCALE: 1/4" = 1'

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	ELECTRICAL SCHEMATIC DIAGRAMS	IM 94-6(68)193
2		9/23/2024	REVIEWED BY	WW				
1			CHECKED BY	RD		BAD ROUTE REST AREA	UPN 9877000	E-9

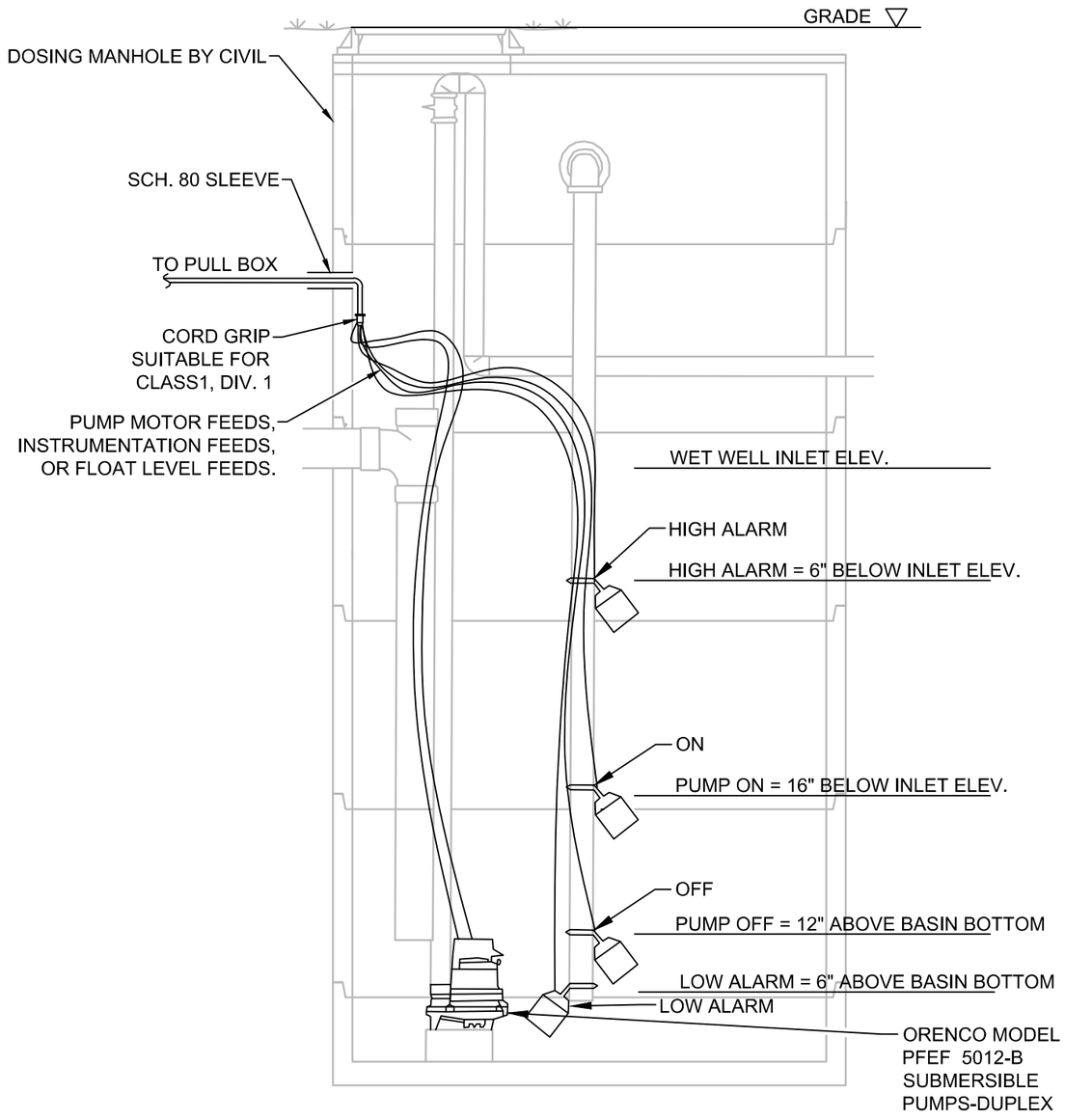


1 / E-10 GROUNDING & BONDING SCHEMATIC DIAGRAM

SCALE: 1/4" = 1'

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	GROUNDING & BONDING SCHEMATIC	IM 94-6(68)193
2		9/23/2024	REVIEWED BY	WW				
1			CHECKED BY	RD		BAD ROUTE REST AREA	UPN 9877000	E-10

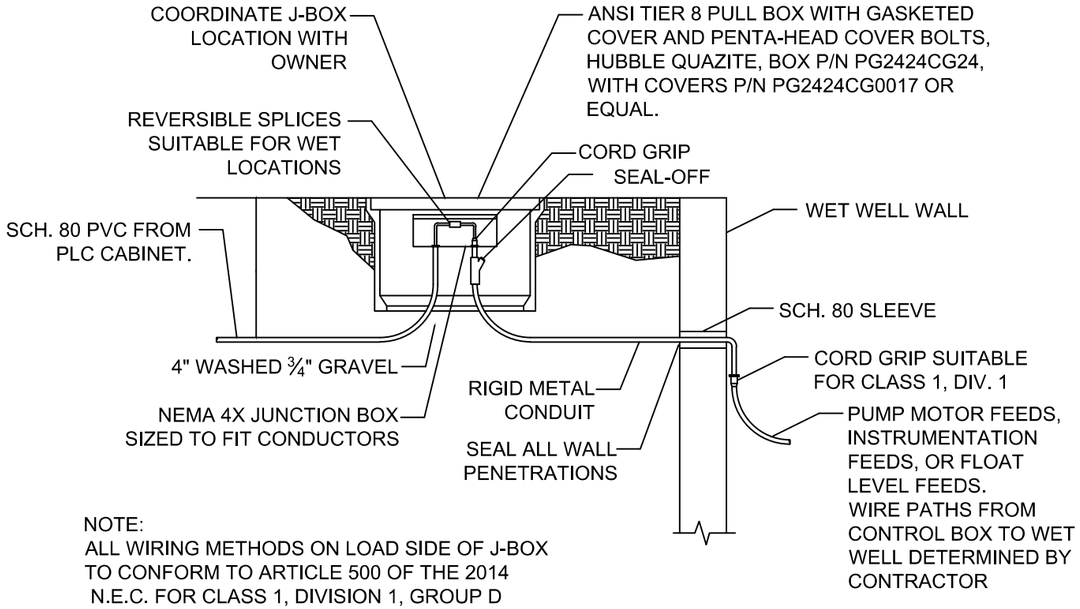


1 / E-11 DOSING MANHOLE DETAIL

SCALE: NTS

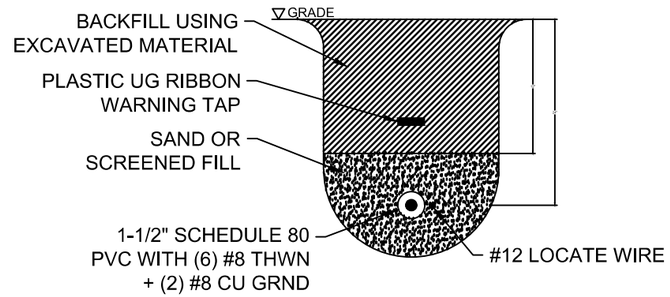
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	ELECTRICAL DETAILS	IM 94-6(68)193
2		9/23/2024	REVIEWED BY	WW				
1			CHECKED BY	RD		BAD ROUTE REST AREA	UPN 9877000	E-11



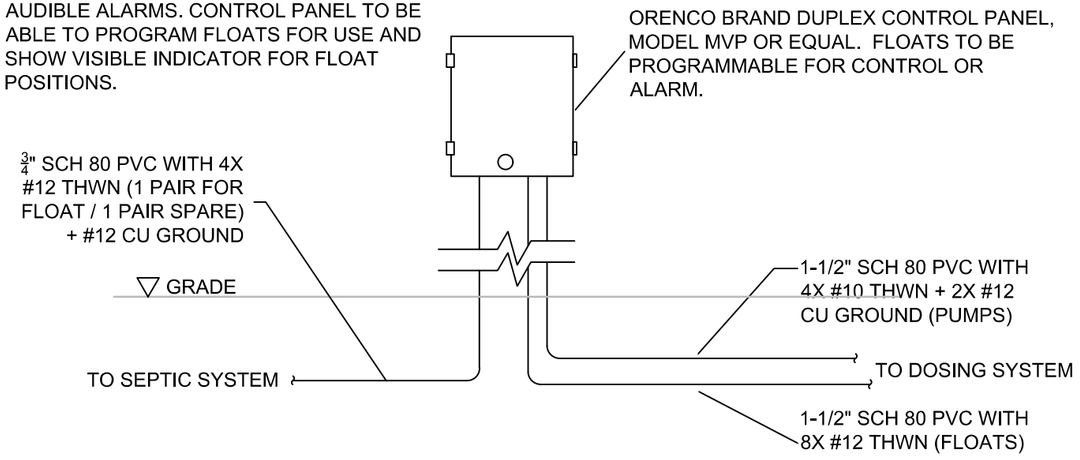
NOTE:
ALL WIRING METHODS ON LOAD SIDE OF J-BOX TO CONFORM TO ARTICLE 500 OF THE 2014 N.E.C. FOR CLASS 1, DIVISION 1, GROUP D LOCATIONS.

1 / E-12 PULL BOX DETAIL
SCALE: NTS

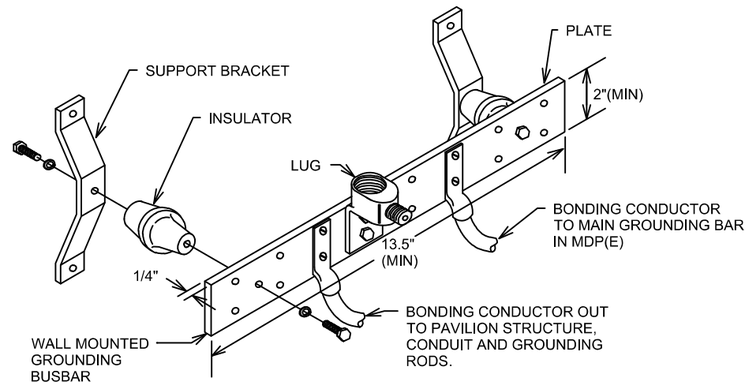


2 / E-12 BURIED CONDUIT DETAIL
SCALE: NTS

NOTE:
ALARM PANEL TO HAVE BOTH VISIBLE AND AUDIBLE ALARMS. CONTROL PANEL TO BE ABLE TO PROGRAM FLOATS FOR USE AND SHOW VISIBLE INDICATOR FOR FLOAT POSITIONS.



3 / E-12 DOSING SYSTEM CONTROLLER SINGLE LINE
SCALE: NTS

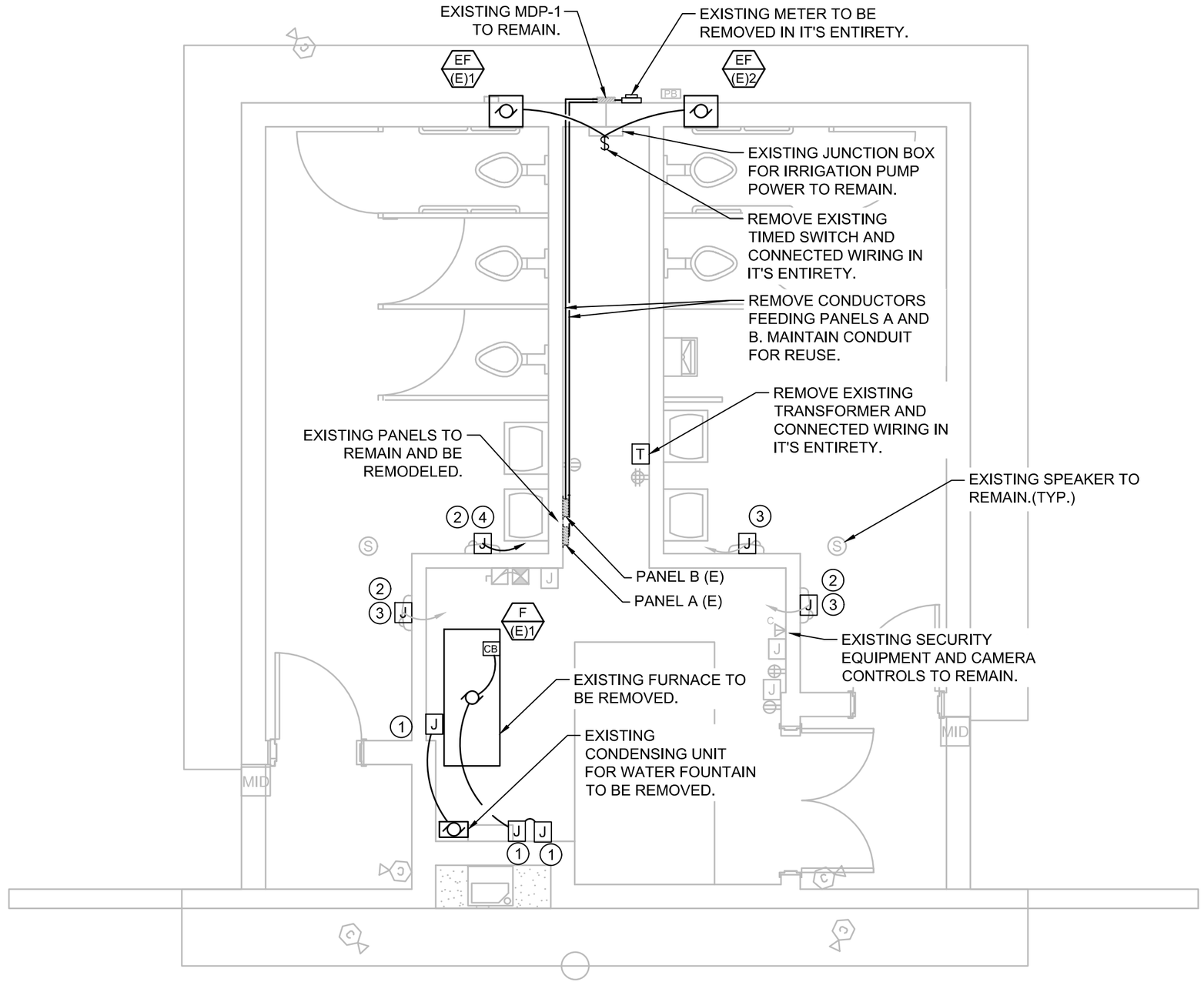


GENERAL NOTE:
G1. MINIMUM 2" STAND-OFF FROM WALL TO BACK SIDE OF PLATE

4 / E-12 ELECTRICAL BUS BAR MOUNTING DETAIL
SCALE: NTS

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	ELECTRICAL DETAILS	IM 94-6(68)193
2		9/23/2024	REVIEWED BY	WW				
1			CHECKED BY	RD		BAD ROUTE REST AREA	UPN 9877000	E-12



KEYED ELECTRICAL NOTES

1. REMOVE EXISTING JUNCTION BOX AND WIRING IN ITS ENTIRETY.
2. REMOVE EXISTING AIR DRYER IN ITS ENTIRETY.
3. MAINTAIN EXISTING HOME RUN WIRING AND JUNCTION BOX FOR REUSE.
4. REMOVE EXISTING JUNCTION BOX AND HOME RUN WIRING IN ITS ENTIRETY.

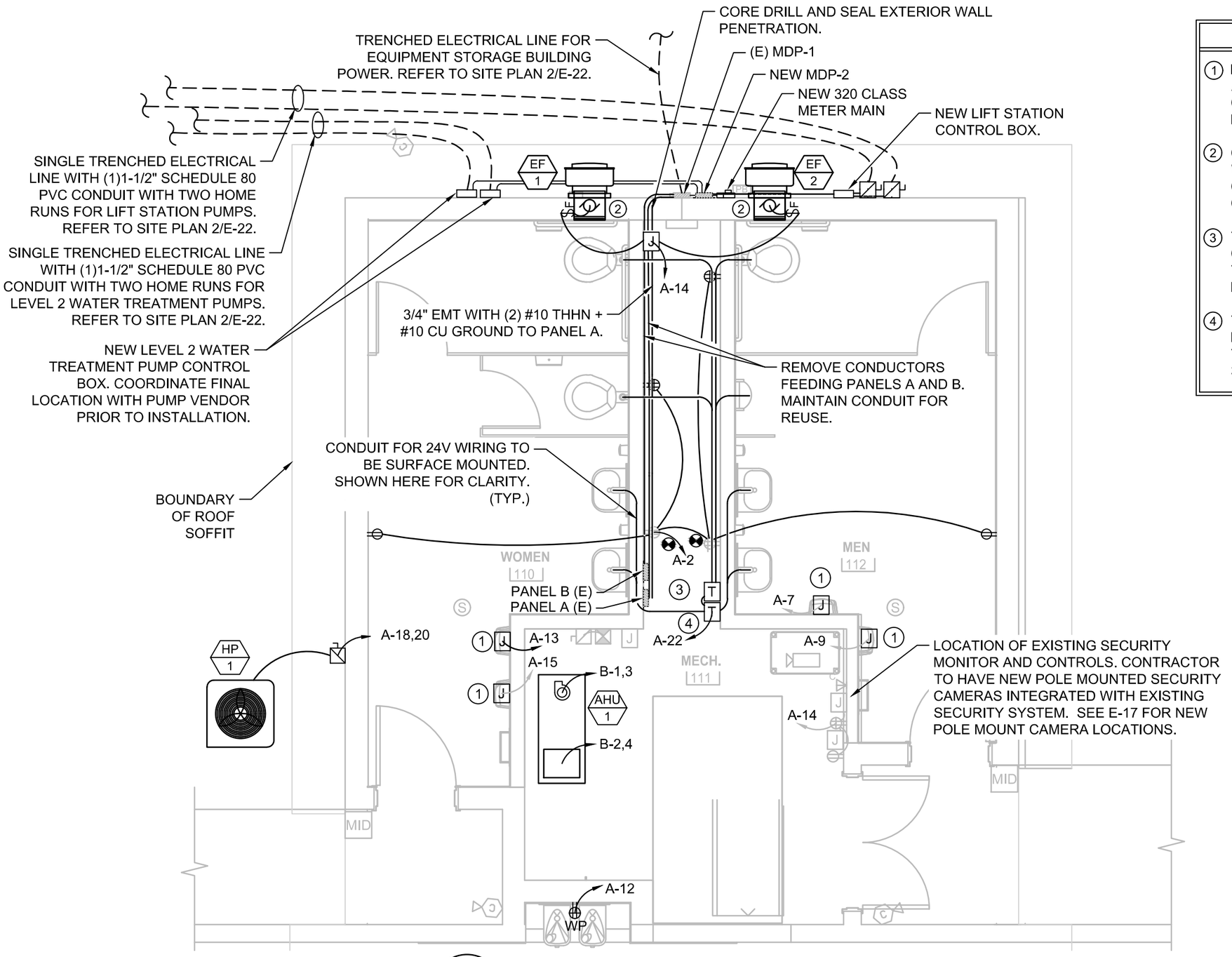
1 / E-10 MAIN FLOOR POWER DEMOLITION PLAN

SCALE: 1/4" = 1'

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	MAIN FLOOR POWER DEMOLITION PLAN	IM 94-6(68)193
2		9/23/2024	REVIEWED BY	WW				
1			CHECKED BY	RD		BAD ROUTE REST AREA	UPN 9877000	E-13

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1 / E-14 MAIN FLOOR POWER PLAN

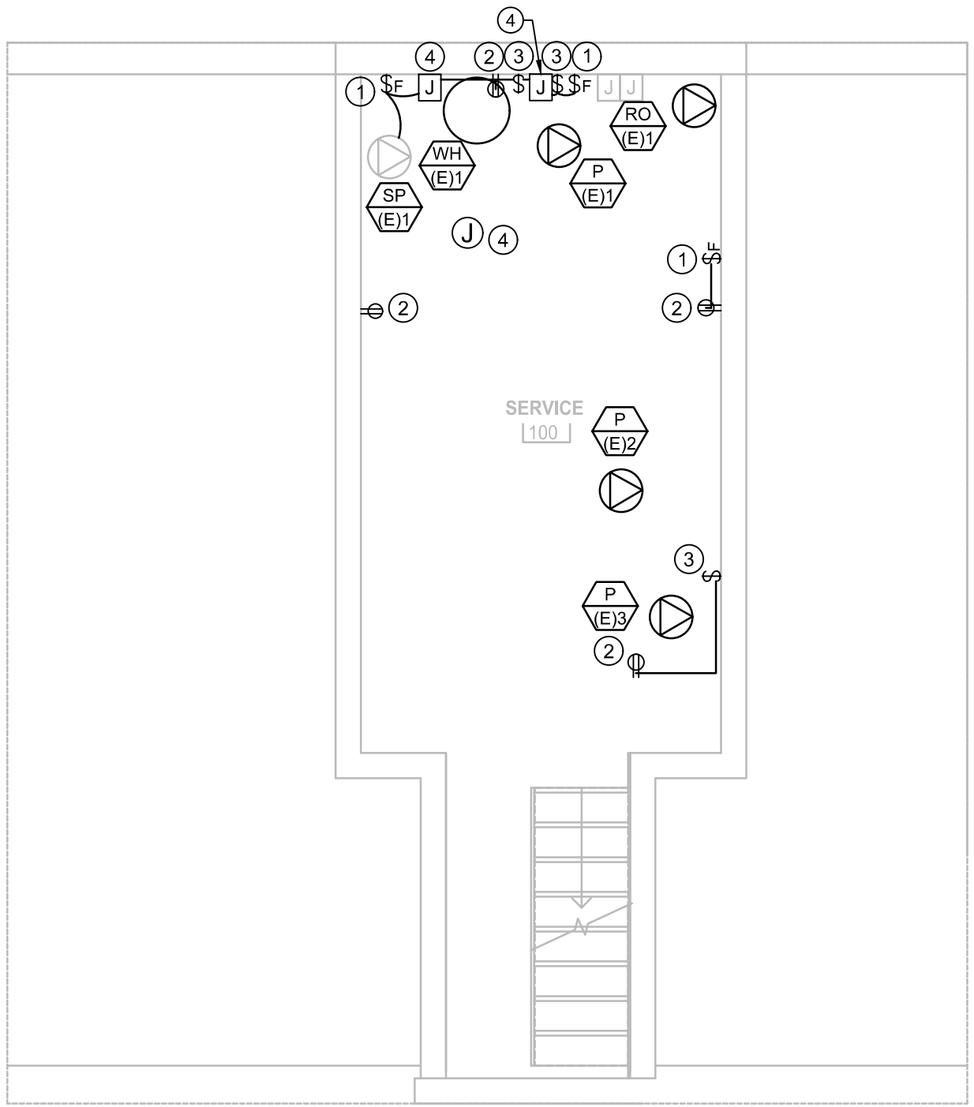
SCALE: 1/4" = 1'

KEYED ELECTRICAL NOTES

1. INSTALL NEW HAND DRYER. MOUNTING HEIGHT TO BE ACCORDING TO MANUFACTURERS INSTRUCTIONS. CONNECT TO EXISTING HOME RUN WIRING TO 20 AMP BREAKER IN PANEL A.
2. OPERATION OF EXHAUST FANS TO BE INTERLOCKED WITH OCCUPANCY SENSOR FOR RESTROOM LIGHTING. CONTRACTOR TO SET OCCUPANCY SENSOR TO DELAY OFF 30 MINUTES AFTER LAST SENSED ACTION.
3. TRANSFORMER(120V TO 24V) 0345154 FOR WATER CLOSET/URINAL FLUSH VALVES. 24V WIRING FROM TRANSFORMER TO WATER CLOSET/URINAL LOCATION TO BE IN 3/4" EMT CONDUIT.
4. TRANSFORMER HW6 (120V TO 24V) AND MINI JUNCTION BOX FOR LAVATORY FAUCETS. 24V WIRING FROM TRANSFORMER TO WATER FAUCET LOCATION TO BE IN 3/4" EMT CONDUIT.

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KEYED ELECTRICAL NOTES

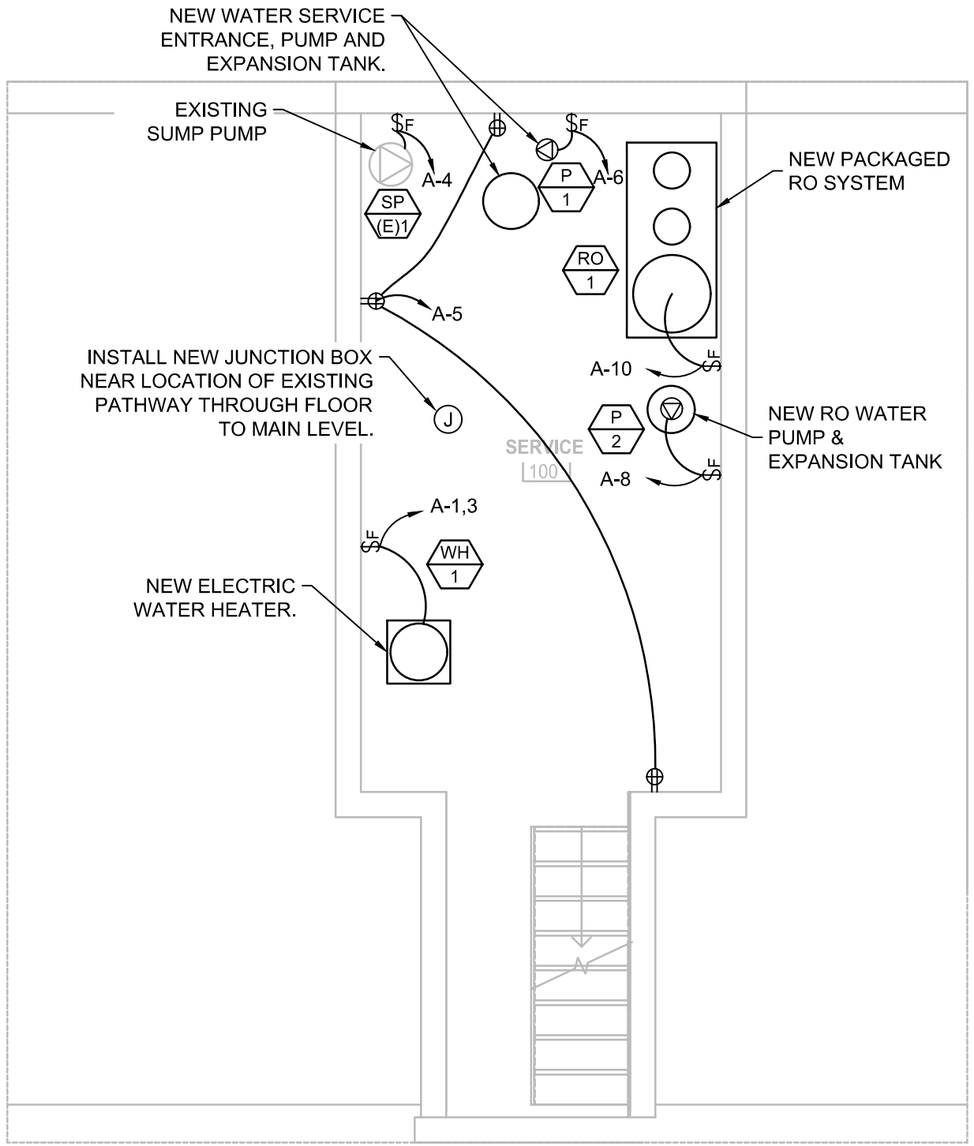
1. REMOVE EXISTING FUSED SWITCH AS WELL AS CONNECTED CONDUIT AND WIRING IN IT'S ENTIRETY.
2. REMOVE EXISTING RECEPTACLE AS WELL AS CONNECTED CONDUIT AND WIRING IN IT'S ENTIRETY.
3. REMOVE EXISTING SWITCH AS WELL AS CONNECTED CONDUIT AND WIRING IN IT'S ENTIRETY.
4. REMOVE EXISTING JUNCTION BOX AND WIRING IN IT'S ENTIRETY.

1 / E-15 BASEMENT POWER DEMOLITION PLAN

SCALE: 1/4" = 1'

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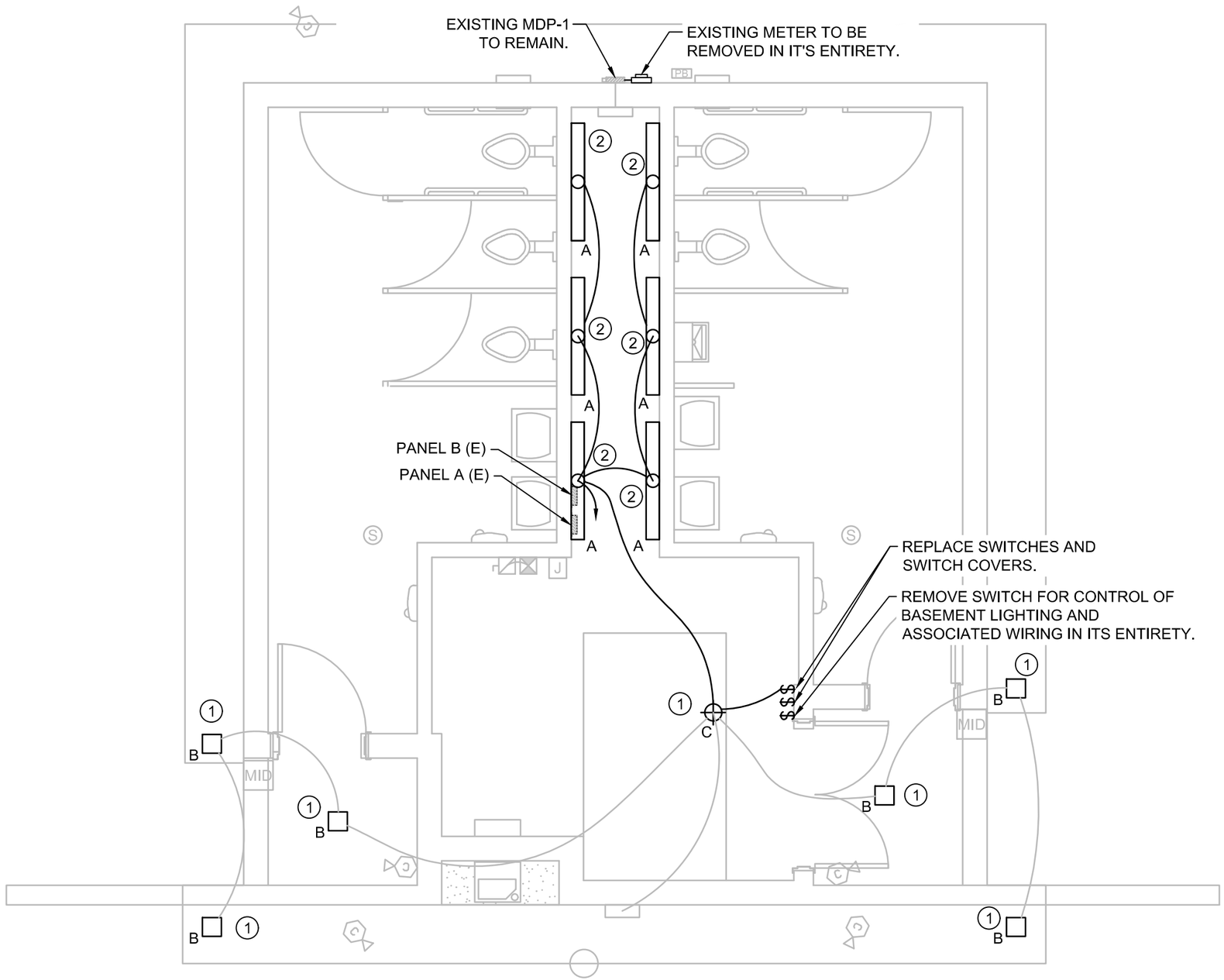
1
E-16

BASEMENT POWER PLAN

SCALE: 1/4" = 1'

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2		9/23/2024	REVIEWED BY	WW		BAD ROUTE REST AREA	UPN 9877000	E-16
1			CHECKED BY	RD				



KEYED ELECTRICAL NOTES

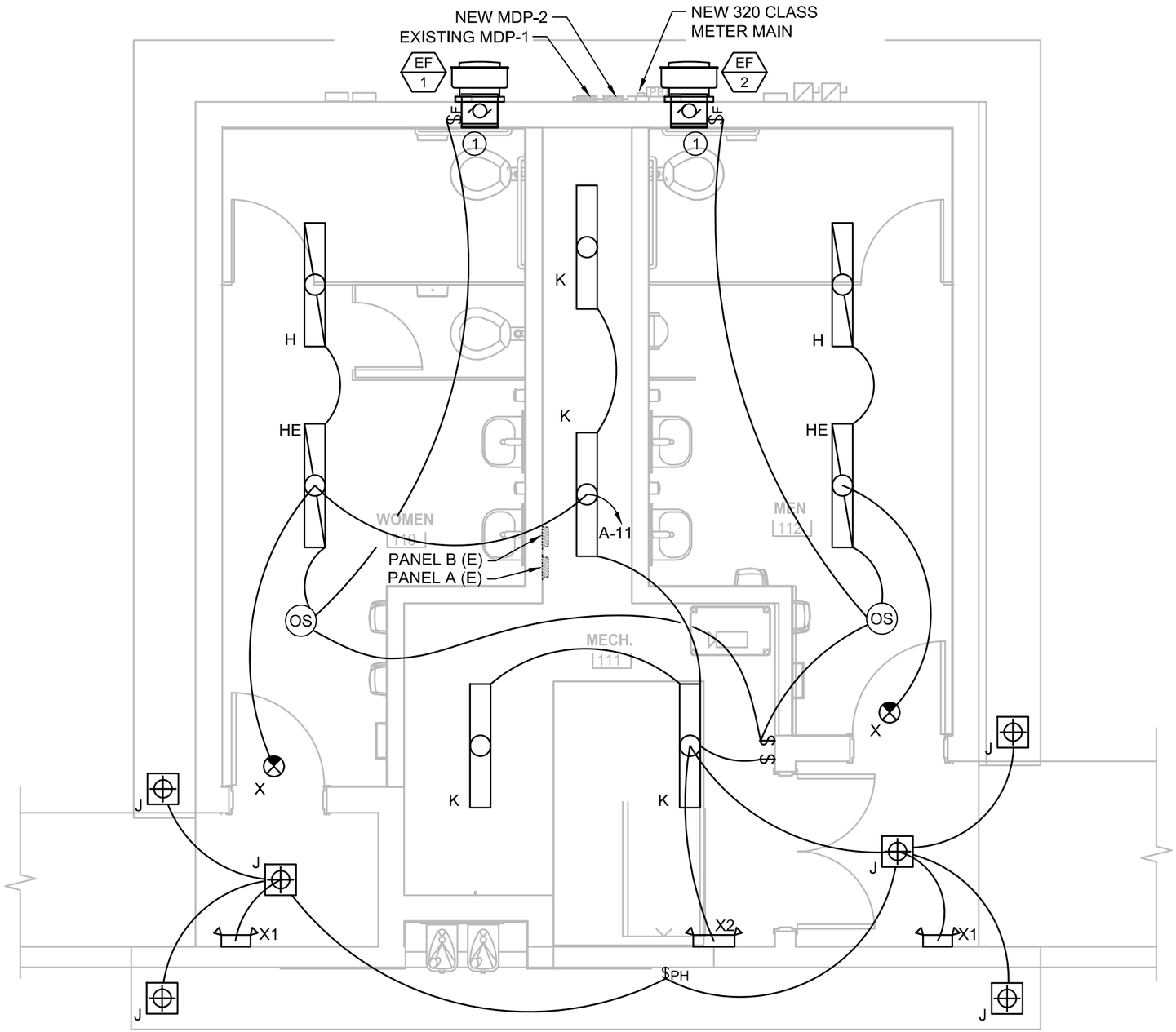
1. REMOVE EXISTING LUMINAIRE. MAINTAIN POWER SUPPLY WIRING AND PREPARE FOR INSTALLATION OF NEW LUMINAIRE IN SAME LOCATION.
2. REMOVE BOTH UPWARD AND DOWNWARD FACING EXISTING LUMINAIRES AND CONNECTED WIRING IN THEIR ENTIRETY.

1 / E-17 MAIN FLOOR LIGHTING DEMOLITION PLAN

SCALE: 1/4" = 1'

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1			CHECKED BY	RD				



KEYED ELECTRICAL NOTES

1. OPERATION OF EXHAUST FANS TO BE INTERLOCKED WITH OCCUPANCY SENSOR FOR RESTROOM LIGHTING.

1 / E-18 MAIN FLOOR LIGHTING PLAN

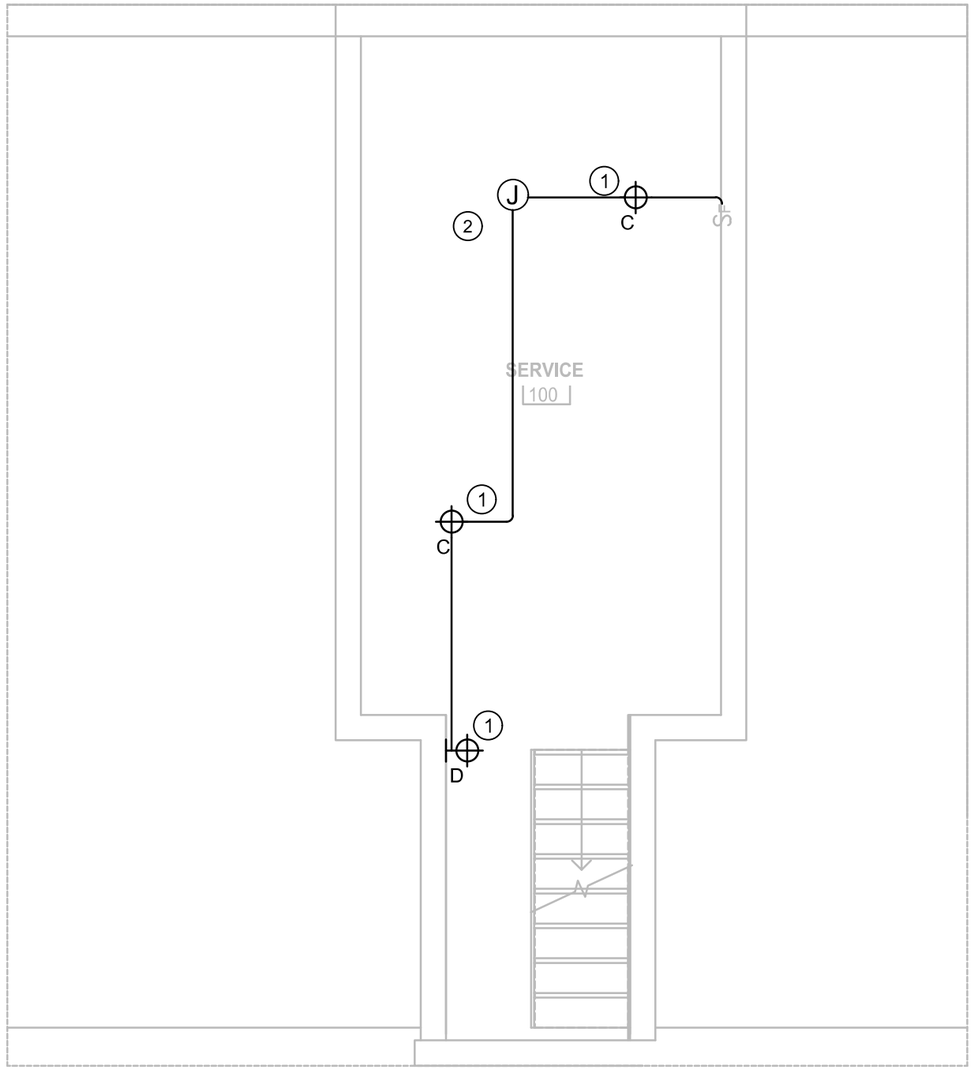
SCALE: 1/4" = 1'

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2		9/23/2024	REVIEWED BY	WW		BAD ROUTE REST AREA	UPN 9877000	E-18
1			CHECKED BY	RD				

KEYED ELECTRICAL NOTES

1. REMOVE EXISTING LUMINAIRE AS WELL AS CONNECTED CONDUIT AND WIRING IN IT'S ENTIRETY.
2. REMOVE EXISTING JUNCTION BOX AND WIRING IN IT'S ENTIRETY.

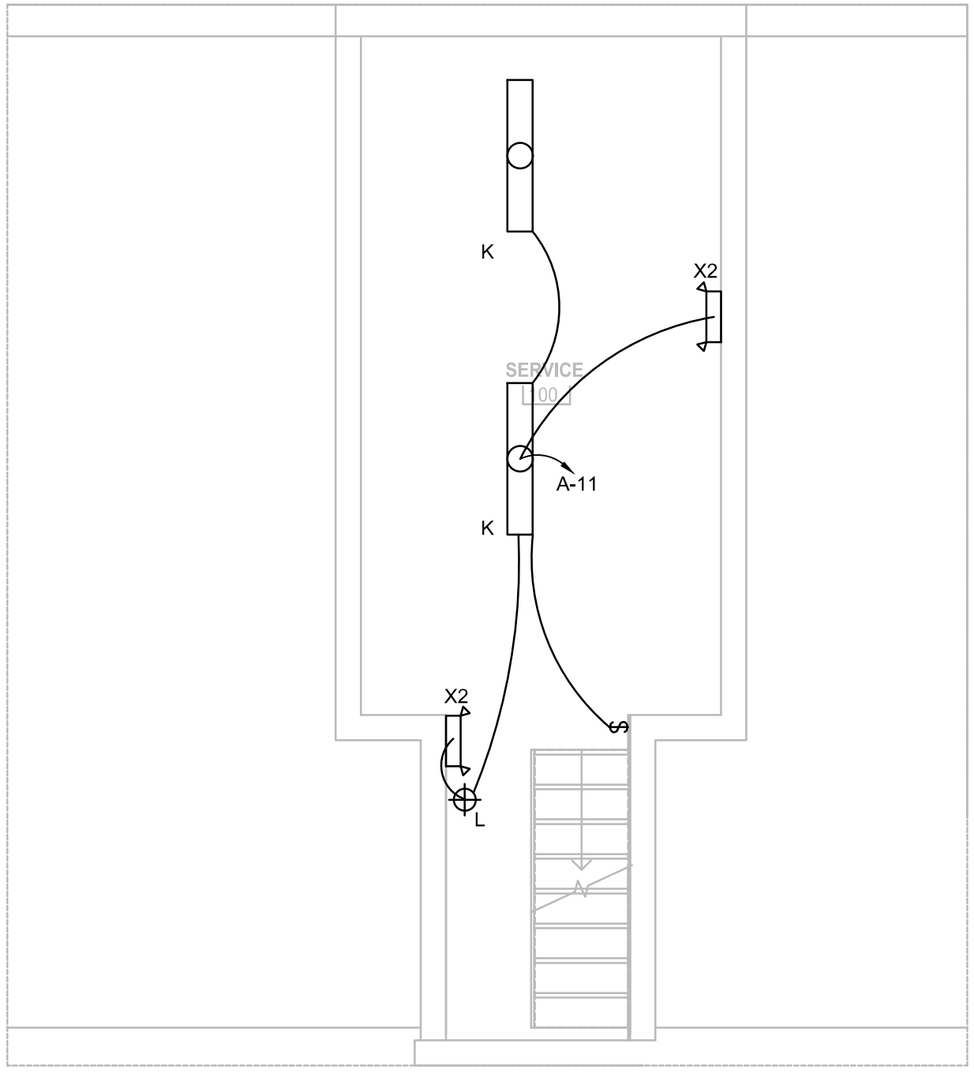


1 / E-19 BASEMENT LIGHTING DEMOLITION PLAN

SCALE: 1/4" = 1'

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2		9/23/2024	REVIEWED BY	WW				
1			CHECKED BY	RD		BAD ROUTE REST AREA	UPN 9877000	E-19



1 / E-20 BASEMENT LIGHTING PLAN

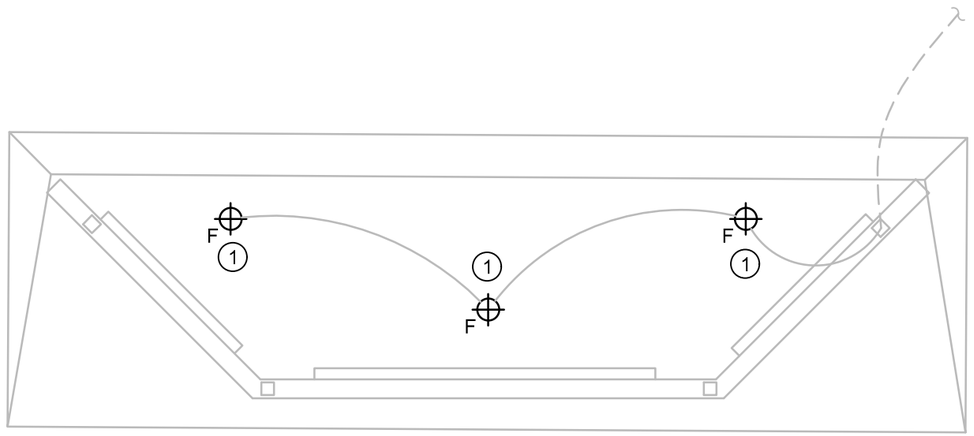
SCALE: 1/4" = 1'

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	BASEMENT LIGHTING PLAN	IM 94-6(68)193
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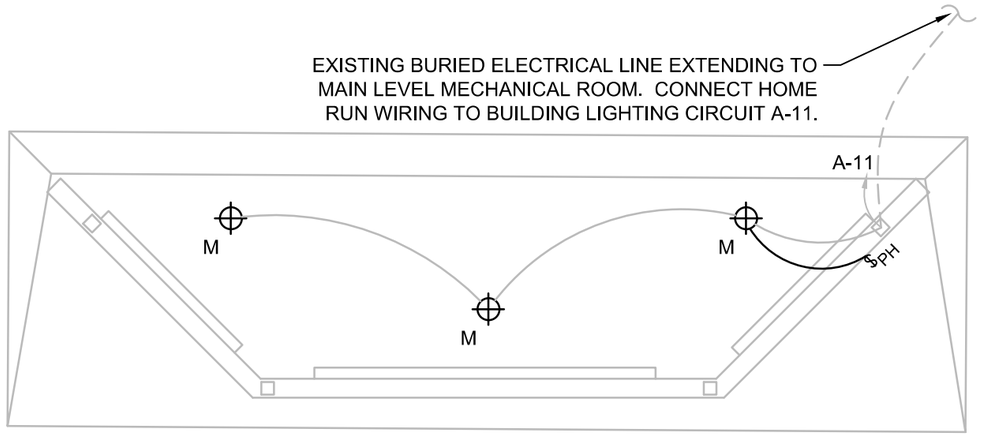
KEYED ELECTRICAL NOTES

(1) REMOVE EXISTING LUMINAIRE. MAINTAIN POWER SUPPLY WIRING AND PREPARE FOR INSTALLATION OF NEW LUMINAIRE IN SAME LOCATION.



1 / E-21 EXTERIOR KIOSK LIGHTING DEMOLITION PLAN

SCALE: 1/4" = 1'



2 / E-21 EXTERIOR KIOSK LIGHTING PLAN

SCALE: 1/4" = 1'

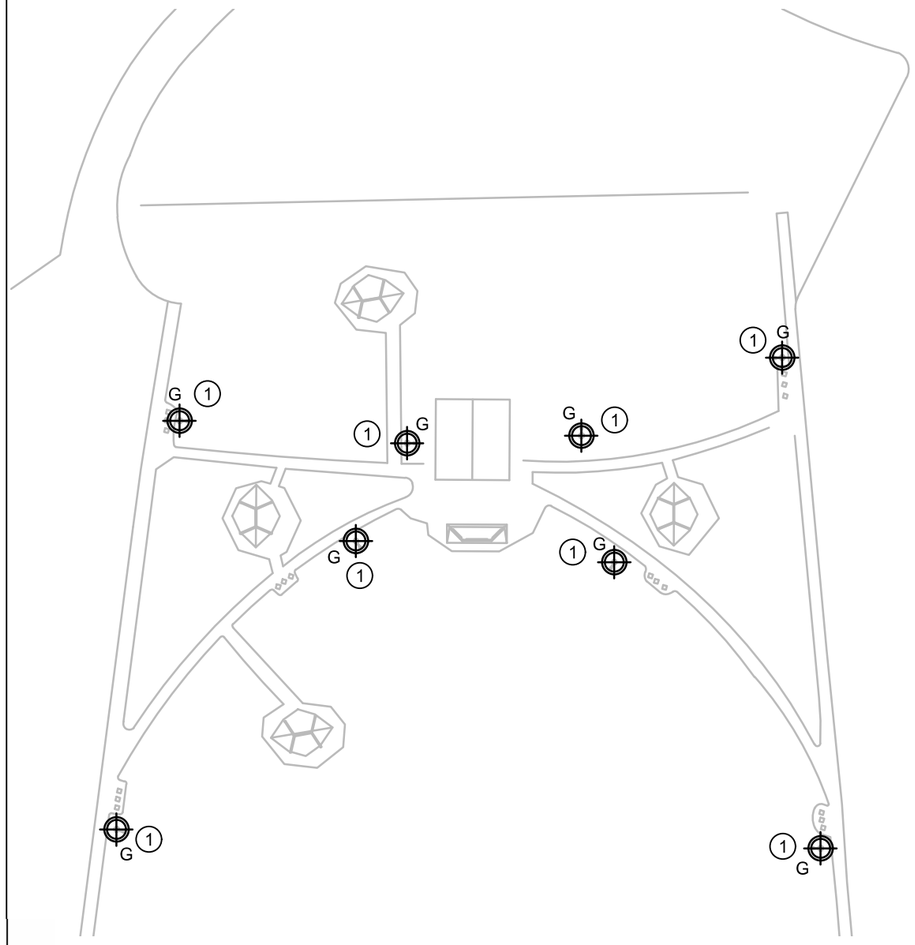
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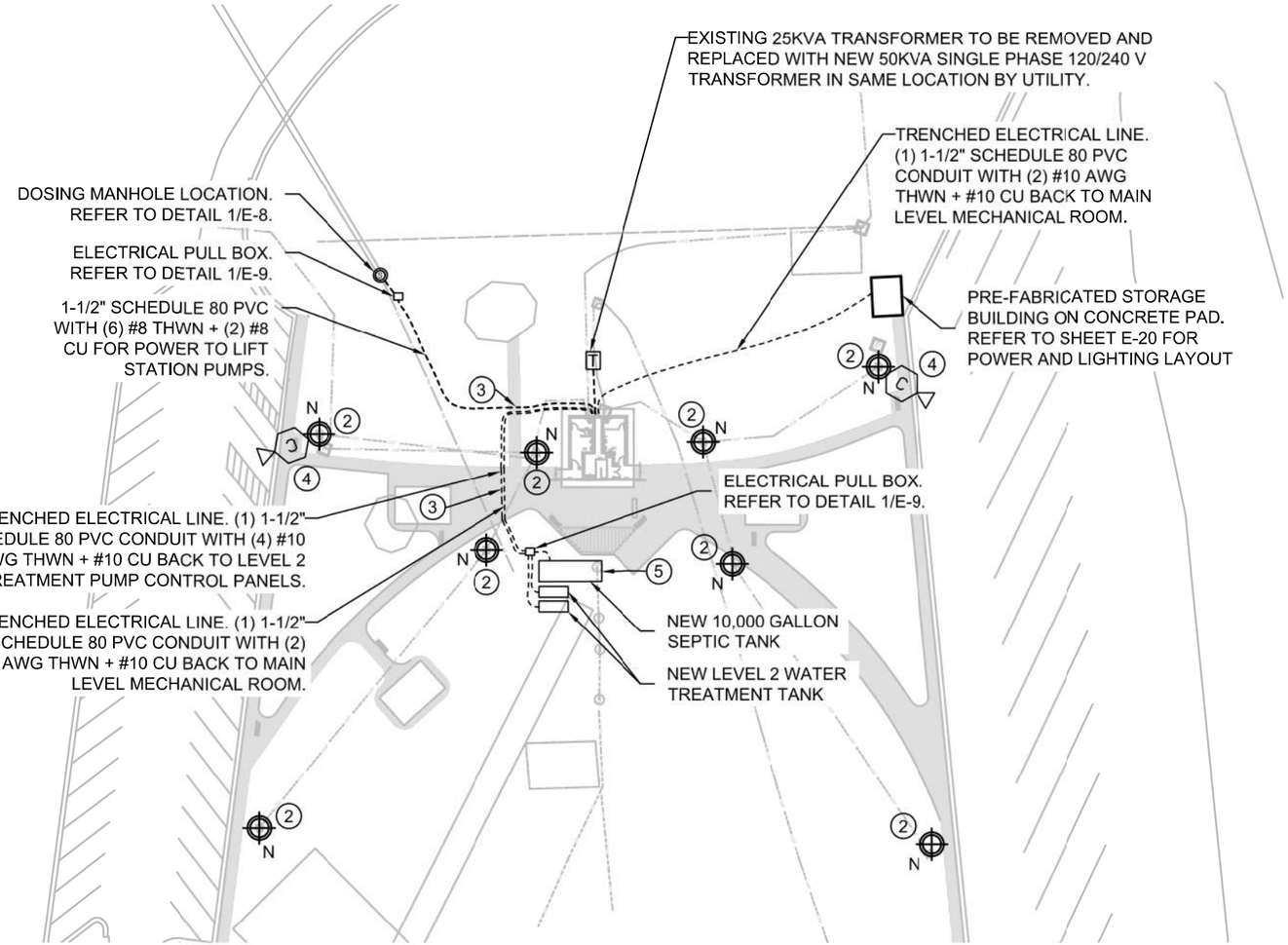
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	JS		FACILITIES REMODEL	EXTERIOR KIOSK LIGHTING PLANS	IM 94-6(68)193
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KEYED ELECTRICAL NOTES

1. REMOVE EXISTING POLE MOUNT LUMINAIRE. POLE AND EXISTING POWER TO BE MAINTAINED FOR MOUNTING OF NEW LED LUMINAIRE.
2. INSTALL NEW LED POLE MOUNT LUMINAIRE ON EXISTING POLE.
3. BORE UNDER WALKWAY TO INSTALL BELOW GRADE POWER LINE. USE SHORTEST /MOST DIRECT ROUTE TO MINIMIZE BORE DISTANCE.
4. MOUNT NEW NEW SECURITY CAMERA ON LIGHT POLE TO PROVIDE SURVEILLANCE OF PARKING AREA.
5. NEW BURIED SCH 80 PVC CONDUIT (3/4") FROM NEW SEPTIC TANK TO ALARM PANEL LOCATION SHOWN. INSTALL 4X #12 THWN (1 PAIR FOR FLOAT, ONE PAIR FOR SPARE). SPARE TO END AT GROUND BREAK CID2 JUNCTION BOX.





1 / E-22 SITE ELECTRICAL DEMOLITION PLAN

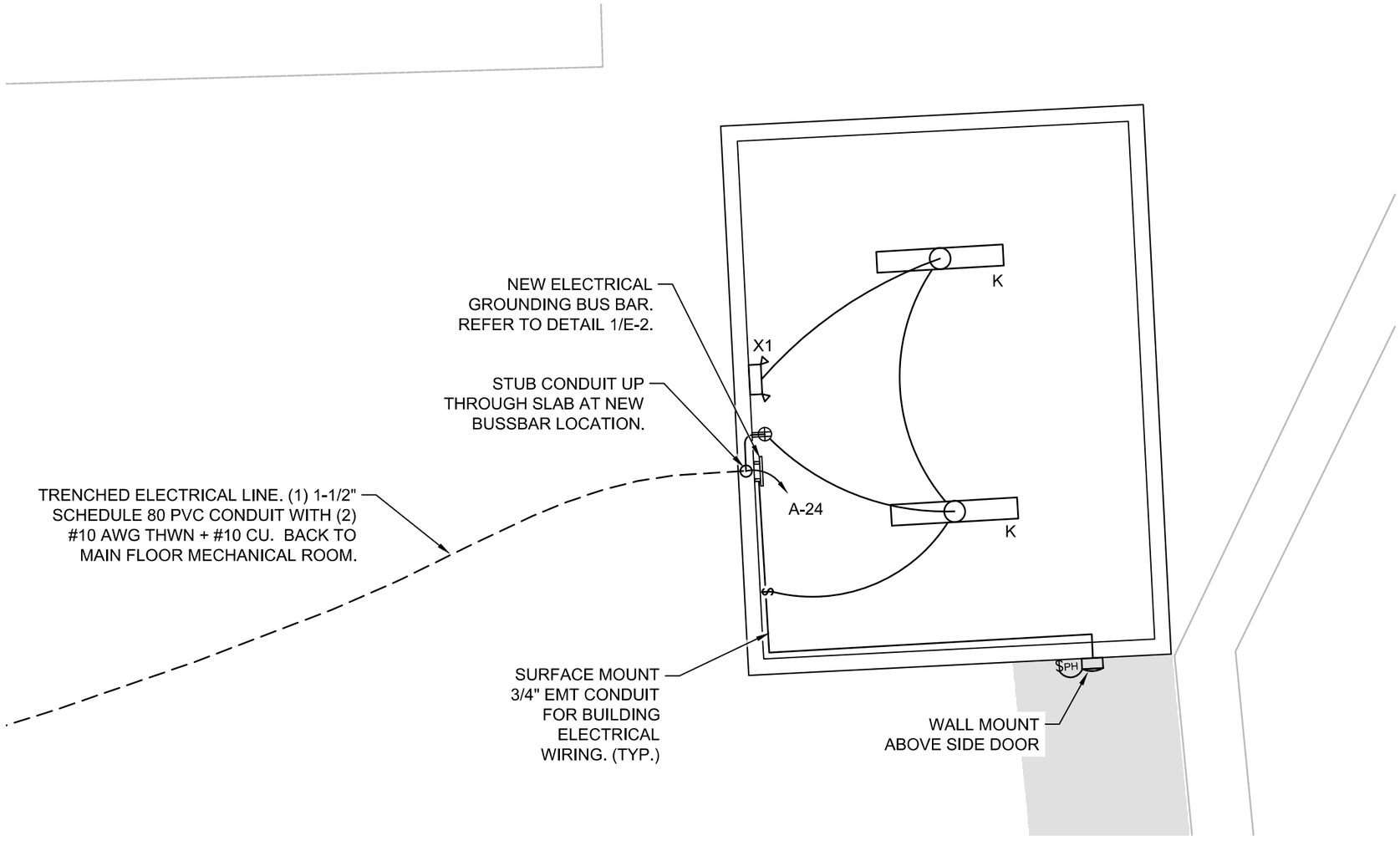
SCALE: 1/64" = 1'

2 / E-22 SITE ELECTRICAL PLAN - NEW CONSTRUCTION

SCALE: 1/64" = 1'

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1 / E-23 EQUIPMENT STORAGE BUILDING POWER AND LIGHTING PLAN

SCALE: 1/4" = 1'

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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

DUCT CONSTRUCTION SPECIFICATION

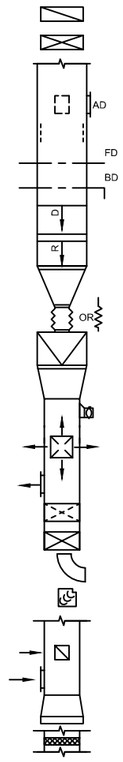
1. RECTANGULAR DUCT SHALL BE GALVANIZED G60 OR G90 GRADE SHEETMETAL FORMED AND FABRICATED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE FOR PRESSURE CLASS OF 2" WG MINIMUM. 26 GAGE METAL MINIMUM.
2. ROUND DUCT SHALL BE GALVANIZED G60 OR G90 GRADE SHEETMETAL SPIRAL DUCTING FORMED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE FOR PRESSURE CLASS OF 2" WG MINIMUM. DIE CAST OR WELDED ELBOWS AND FITTINGS MEETING THE SAME SPECIFICATION ALLOWED. AT CONTRACTOR OPTION, LONGITUDE LOCK SEAM (SNAPPY) DUCT AND ADJUSTABLE FITTINGS ARE ALLOWED ONLY ON RESTROOM EXHAUST. 26 GAGE METAL MINIMUM.
3. SEAL ALL DUCT SEAMS IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE TABLE 1-2 SEAL CLASS B, MINIMUM.
4. 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.
5. SUPPORT ALL DUCTING IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE. NO EXCEPTIONS!
6. DUCT LINER SHALL BE 1" OWENS CORNING 'LINA-COOUSTIC' BRAND, OR EQUAL. INSTALL ACCORDING TO MFR. RECOMMENDATIONS.
7. INSULATE ALL EXTERIOR (OUTDOOR) DUCTING WITH RIGID 2" FIBERGLASS INSULATION WITH SEALED GALVANIZED CLADDING.
8. ALL RECTANGULAR ELBOWS TO CONTAIN SINGLE OR DOUBLE TURNING VEIN.

DUCT INSULATION/LINER REQUIREMENTS

INSULATED DUCTWORK INCLUDES (2" THICKNESS/R-5 VALUE):
- ALL SUPPLY DUCT INSTALLED NEW ON THIS PROJECT.
- ALL OUTSIDE AIR DUCT.

LINED DUCTWORK INCLUDES (1" THICKNESS MINIMUM):
- ALL RETURN DUCT/PLENUM INSTALLED NEW ON THIS PROJECT.

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

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 2018 AND INTERNATIONAL ENERGY CODE VER 2018.

PLUMBING/PIPING SPECIFIC:
PLUMBING/PIPING SYSTEMS SHALL COMPLY WITH INTERNATIONAL FUEL GAS CODE VER 2018 AND UNIFORM PLUMBING CODE VER 2018.

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

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, RO) 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
ROCW	DOMESTIC (POTABLE, RO) COLD WATER
SA	SUPPLY AIR
SCR	STEAM CONDENSATE RETURN
SAN	SANITARY SEWER
SS	STORM WATER SEWER
STM	STEAM
SYS	SYSTEM
TEMP	TEMPERATURE
TMV	THERMOSTATIC MIXING VALVE
V	VENT

TEST & BALANCE INSTRUCTIONS:

BALANCER SHALL BE PRECISION AIR AND WATER BALANCE, RGO, AIR COMMANDER, ROCKIN DR RANCH, OR PRIOR APPROVED EQUAL. 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 RETURN, SUPPLY, OUTSIDE AIR, AND EXHAUST.
5. INITIAL PRESSURE DROP ACROSS FILTERS.
6. GPM AND HEAD OF PUMPS.
7. CFM GRILLES, REGISTERS , AND DIFFUSERS.
8. INITIAL AND FINAL OUTDOOR AIR CFM.

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

A. ALL NEW GRD AS SCHEDULED.
B. AHU-1, ECO-1
C. EF-1,2
D. P-1,2

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

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 AND 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
DOMESTIC HOT WATER (100-180 DEG F)	TYPE L COPPER	ALL	1" FIBERGLASS	ALL	100 PSI AIR-30 MIN	1,2,3
SANITARY SEWER U/G	SCHEDULE 40 PVC DWV, HUBLESS CAST IRON	ALL	NONE	N/A	20 PSI AIR-60 MIN	
SANITARY SEWER A/G	SCHEDULE 40 PVC DWV, HUBLESS CAST IRON	ALL	NONE	N/A	20 PSI AIR-60 MIN	2
CONDENSATE	SCHEDULE 40 PVC DWV (FLEXIBLE TUBING NOT ALLOWED)	ALL	NONE	N/A	VISUAL INSPECTION	

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.

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.

SHEET LIST INDEX

SHEET #	TITLE
MP-1	PROJECT REQUIREMENTS & SPECIFICATIONS
MP-2	MECHANICAL SCHEDULES
MP-3	HVAC DETAILS
MP-4	HVAC DEMOLITION PLAN
MP-5	NEW HVAC PLANS
MP-6	PLUMBING DETAILS
MP-7	PLUMBING DEMOLITION PLANS
MP-8	NEW PLUMBING PLANS

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TEL| 406.441.4000
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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	P. MORGAN		BAD ROUTE REST AREA	PROJECT REQUIREMENTS & SPECIFICATIONS	IM 94-6(68)193
2		06/30/2023	REVIEWED BY	R. DAWES		REST AREA REHABILITATION	UPN 9877000	MP-1
1			CHECKED BY					

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AIR COOLED HEAT PUMP SCHEDULE (HP #)

EQUIP. NO.	SERVICE	COOLING CAPACITY (TONS)	HEATING CAPACITY (KBTU/HR)	SEER OR EER	REFRIG. CONN. LIQUID	REFRIG. CONN. VAPOR	ELECTRICAL VOLT-PH-CY.	ELECTRICAL MCA	ELECTRICAL MOCP	MANUFACTURER & MODEL	NOTES
HP-1	HEAT/COOL	4	46	20	3/8"	1-1/8"	208/240-1	29.8	30	GOODMAN GVZC200481	1

NOTES:
1. SIZE AND INSTALL REFRIGERANT PIPING PER MANUFACTURER RECOMMENDATIONS.

AIR HANDLING UNIT & ECONOMIZER SCHEDULE (ECO #, AHU #)

EQUIP. NO.	SERVICE	LOCATION	MIN OUTSIDE AIR (CFM)	SUPPLY FAN CFM	SUPPLY FAN E.S.P. (IN. W.G.)	SUPPLY FAN HP	COOLING COIL	HEATING COIL	ELECTRICAL V-PH-CY.	ELECTRICAL FLA	ELECTRICAL MCA	ELECTRICAL MOCP	MANUFACTURER & MODEL	NOTES
AHU-1	H/C/V	MECH		1500	0.50	3/4	4 TON		208/240-1-60	5.7	7.1	15	GOODMAN ASPT-49C14	1
								19.0 KW	240-1-60	-	133	150	GOODMAN HKSC19CB	2
ECO-1	VENT	MECH	320										MICROMETL MB-GP10SA-DWEH	

NOTES:
1. PROVIDE WITH ALFH1912201E FILTER RACK AND HONEYWELL PRESTIGE HD THERMOSTAT.
2. PROVIDE WITH SINGLE POINT CONNECTION POWER KIT WITH DISCONNECT.

FAN SCHEDULE (EF #)

EQUIP. NO.	SERVICE	LOCATION	CFM	STATIC PRESS. (IN. W.G.)	MOTOR AMP	MOTOR HP-W	MOTOR SONES	MOTOR VOLT-PH-CY.	MANUFACTURER & MODEL	NOTES
EF-1	EXHAUST	WOMENS RESTROOM	160	0.30	1.38	1/10	7.8	120-1-60	GREENHECK CUE-080-VG	1,2,3
EF-2	EXHAUST	MENS RESTROOM	160	0.30	1.38	1/10	7.8	120-1-60	GREENHECK CUE-080-VG	1,2,3

NOTES:
1. PROVIDE WITH BACKDRAFT DAMPER, SPEED CONTROL, SIDEWALL MOUNTING KIT, AND FACTORY WALL GRILLE (PN 850580)
2. PROVIDE WITH FACTORY DISCONNECT SWITCH.
3. TO CONTROLLED BY RESTROOM OCCUPANCY SENSOR, MINIMUM 30 MINUTE DELAY OFF

GRD ID SCHEDULE

TAG	STYLE	CFM	NECK SIZE
01	SG-1	350	14"X8"
02	SG-2	300	12"X8"
03	SG-1	350	14"X8"
04	SG-2	100	8"x6"
05	SG-2	400	16"x8"
06	RG-1	-	16"x8"
07	RG-1	-	14"X14"

GRILLE/REGISTER/DIFFUSER SCHEDULE

SR=SUPPLYT REGISTER RG=RETURN GRILLE SD=SUPPLY DIFFUSER EG=EXHAUST GRILLE TG=TRANSFER GRILLE

TAG NO.	NECK SIZE	TYPE	MANUFACTURER & MODEL	MATL/FINISH	OPTIONS & ACCESSORIES
SG-1	VARIES	SECURITY DOUBLE DEFLECTION LOUVERED SUPPLY, SURFACE	NAILOR SG-61DH-O	STEEL	1,2
SG-2	VARIES	DOUBLE DEFLECTION LOUVERED SUPPLY, SURFACE	NAILOR 51DH-O-S	ALUM	1
RG-1	VARIES	LOUVERED RETURN GRILLE, SURFACE	NAILOR 5145H-O-S	ALUM	1

NOTES:
1. PROVIDE WITH FACTORY OPPOSED BLADE DAMPER.
2. PROVIDE WITH TAMPER PROOF SECURITY SCREWS FOR SURFACE MOUNTING

HVAC SPECIALTY SCHEDULE

TAG NO.	SIZE	TYPE	MANUFACTURER & MODEL	NOTES	ADDITIONAL NOTES
HETO*	VARIES	HIGH EFFICIENCY DUCT TAKEOFF	HERCULES HTO		WITH LOCKING QUAD
BD*	VARIES	BALANCING DAMPER ROUND	NAILOR 1890		WITH LOCKING QUAD
BD*	VARIES	BALANCING DAMPER RECTANGULAR (<10" SINGLE / GREATER OPP BLD)	NAILOR 1870 / 1020		WITH LOCKING QUAD
MD*	VARIES	MOTORIZED DAMPER ROUND	NAILOR 1090	1	
MD*	VARIES	MOTORIZED DAMPER ROUND	NAILOR 1870/1020	1	
DB-1	VARIES	MOTORIZED DAMPER RECTANGULAR (<10" SINGLE / GREATER OPP BLD	DRYER BOX BRAND DB-425		

1. PROVIDE WITH MOTORIZED ACTUATOR WITH END SWITCH PROOF, CONTRACTOR TO SELECT PREFERRED VOLTAGE AND WIRE TO CONTROL DEVICE AS NECESSARY.

NOTE: ALL ITEMS LISTED ON THIS SCHEDULE ARE CONSIDERED BASIS OF DESIGN, AND PRODUCTS CONSIDERED EQUAL SHALL BE ELIGIBLE TO BE SUPPLIED AND INSTALLED ON THIS PROJECT, UPON APPROVAL OF ENGINEER.

* INDICATES ITEMS THAT MAY NOT BE SPECIFICALLY TAGGED ON PLAN SHEETS, BUT ARE NOTED IN FLOOR PLANS, DETAILS, SECTIONS, OR CALLOUTS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR BASED ON REQUIREMENTS ASSOCIATED WITH THIS PROJECT.

ELECTRIC WATER HEATER SCHEDULE (WH #)

ITEM NO.	CAPACITY STORAGE	RECOVERY @# DEG./ F. RISE	HEATING ELEMENT KW	ELECTRIC V./PH.	WATER CONN.	MANUFACTURER & MODEL	NOTES
WH-1	40	21/90	4.5	240/1	3/4"	AO SMITH ENT-40t	1

NOTES:
1. PROVIDE WITH GALVANIZED STAND AND DRAIN PAN. PIPE DRAIN PAN AND RELIEF TO EXISTING FLOOR DRAIN

PUMP SCHEDULE (P #)

ITEM NO.	SERVICE	LOCATION	GPM	SIZE	MOTOR HP	MOTOR RPM	MOTOR VOLT-PH-CY.	MOTOR FLA	MANUFACTURER & MODEL	OPTIONS-ACCESSORIES
P-1	DCW SUPPLY	BASEMENT	18	1"	1/2	-	120-1-60	8.2	GRUNDFOS JP-PS-16-05-154	1,2
P-2	RO SUPPLY	BASEMENT	13	1"	1/3	-	120-1-60	6.5	GRUNDFOS JP-PS-13-03-137	1,2

NOTES:
1. INCLUDES ATTACHED PRESSURE SWITCH FOR CUT-IN AND CUT-OUT PRESSURES TO ENABLE PUMP.
2. MOUNT ON UNISTRUT RACK IN BASEMENT.

R/O SYSTEM SCHEDULE (RO #)

ITEM NO.	SERVICE	LOCATION	PERMEATE FLOW GPM	CONCENTRATE FLOW GPM	CONNECTION SIZES	MIN. FEED TEMP	MAX. FEED TEMP	MIN. FEED PRESSURE	MAX. FEED PRESSURE	ELECTRICAL VOLT-PH-CY.	ELECTRICAL FLA	MANUFACTURER & MODEL	NOTES
RO-1	R/O FILTER	BASEMENT	0.14	0.21	3/8" TUBE	40°F	85°F	45 PSI	85 PSI	120-1-60	1.0	HELLENBRAND HRO3.5-300	1,2

NOTES:
1. PROVIDE WITH 300 GALLON STORAGE TANK FOR POTABLE RO WATER.
2. PROVIDE WITH STORAGE TANK LOW LEVEL ALARM FLOAT.

PLUMBING SPECIALTY SCHEDULE

SPECIALTY TAG	DESCRIPTION	MANUFACTURER & MODEL #	PIPING CONNECTIONS TRAP	S/W	VENT	C.W.	H.W.	NOTES
FD-1	FLOOR DRAIN	ZURN ZN415BZ-3		3"	2"			
HB-1	FREEZELESS WALL HYDRANT	WOODFORD #65				3/4"		1
HB-2	INTERIOR WALL HYDRANT W/ COVER	WOODFORD #B74 W/ OPTIONAL FLAT DOOR				3/4"		2,3

NOTES:
1. MOUNT HYDRANT 12" AFG.
2. MOUNT INTERIOR HYDRANT AT 30" AFF. INCLUDES ADJUSTABLE MOUNTING BRACKET AND TEE KEY FOR COVER AND HYDRANT OPERATION.

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.

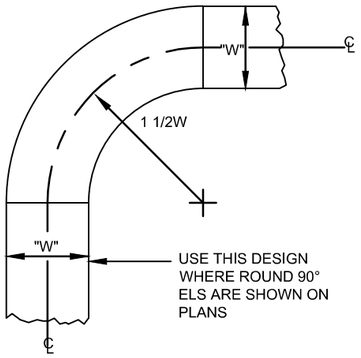
PLUMBING FIXTURE SCHEDULE

FIXTURE TAG	DESCRIPTION	MANUFACTURER & MODEL #	PIPING CONNECTIONS TRAP	S/W	VENT	C.W.	H.W.	NOTES
LAV-1	WALL-MOUNT LAVATORY	WILLOUGHBY HS-1014-96-HC-1CC-PT		2"	2"			
	AUTO CONTROL FAUCET W/ TMV	ZURN Z6950-XL-S-CWB-HW6-TMV-1-J				1/2"	1/2"	3
	WATER SUPPLY WITH STOP KIT	BRASSCRAFT KTCR19X C 1/4 TURN KIT						
	P-TRAP DRAIN ASSEMBLY	INCLUDED IN LAVATORY PACKAGE						
	LAVATORY CARRIER	ZURN Z1231EZ						
WC-1	WALL-MOUNT TOILET	WILLOUGHBY ETWS-1490-OF-BS-1.6GPFULF-HPS		4"	2"			
	ADA SEAT	INCLUDED IN WC PACKAGE						
	CONCEALED FLUSHOMETER	SLOAN ROYAL 152-EES-1.6-OR-2-10-3/4-LDIM-HW				1"		1
	WATER CLOSET CARRIER	ZURN Z1202-N4						
UR-1	WALL MOUNT URINAL	WILLOUGHBY UW-1317-HEU-BS-0.5		2"	2"			
	CONCEALED FLUSHOMETER	SLOAN ROYAL 195-ESS-0.5-2-10-3/4-LDIM-HW				3/4"		1
	URINAL CARRIER	ZURN Z1222-UA-58						
S-1	SERVICE SINK	ZURN Z5880		2"	2"			
	SERVICE FAUCET	ZURN Z843M1				1/2"	1/2"	
	P-TRAP DRAIN ASSEMBLY	ZURN Z5900-IP2						
DF-1	EXTERIOR DRINKING FOUNTAIN W/ FILLER	HAWS 1119FR		2"	2"	1/2"		2

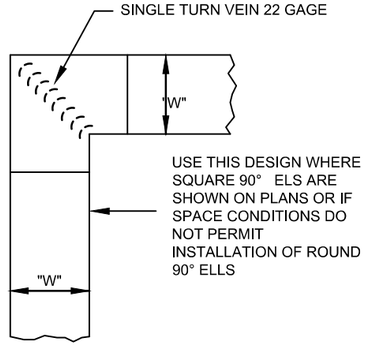
NOTES:
1. PROVIDE WITH (x1) FACTORY SLOAN EL-154 TRANSFORMER FOR URINAL AND ALL 3 WATER CLOSET FLUSHOMETERS.
2. PROVIDE WITH HAWS 6521FR IN WALL VALVE, 6469 STRAINER/DRIP TRAY, 1920FR FILLER, AND BP32 BACK PANEL.
3. PROVIDE WITH (x1) FACTORY P6000-HW6 TRANSFORMER AND P6000-MJ JUNCTION BOX TO POWER ALL 4 LAV-1 FAUCETS.

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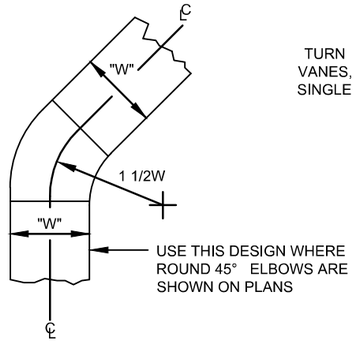


ROUND 90° ELBOW

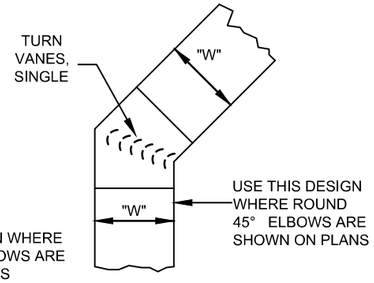


SQUARE 90° ELBOW

CONSTRUCTION OF 90° ELBOWS

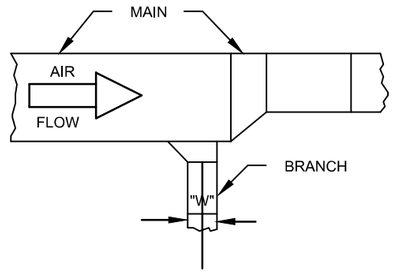


ROUND 45° ELBOW

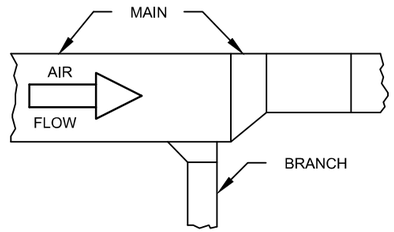


SQUARE 45° ELBOW

CONSTRUCTION OF 45° ELBOWS



ROUND BRANCH TAKEOFF



SQUARE BRANCH TAKEOFF

CONSTRUCTION OF BRANCH TAKEOFFS FROM MAIN

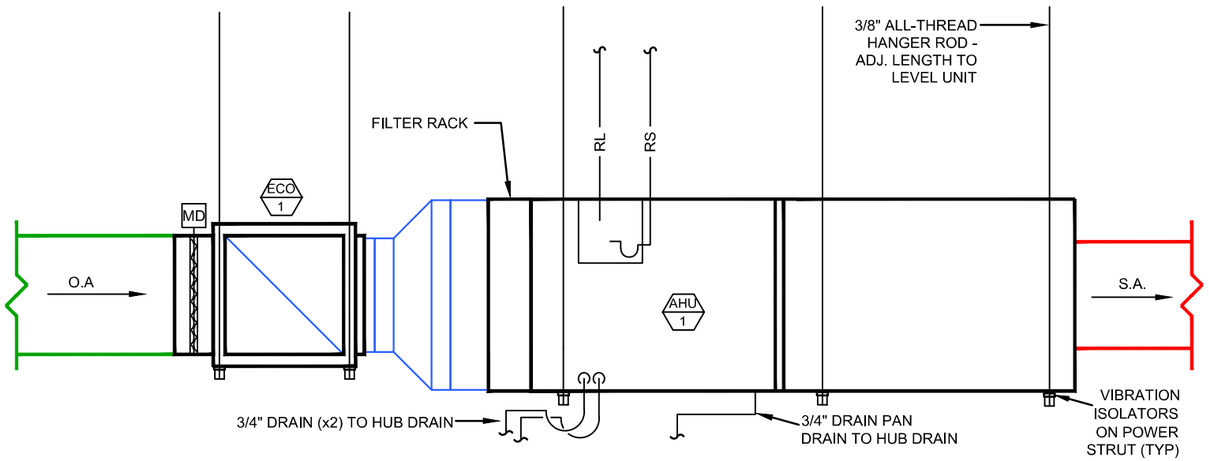
*-EQUALS WIDTH OF BRANCH DUCT UP TO 12". 12" FOR ALL BRANCH DUCTS LARGER THAN 12".

HIGH EFFICIENCY TAKE-OFF

TYPICAL RECTANGULAR TRANSITION

TYPICAL RECTANGULAR TO ROUND TRANSITION

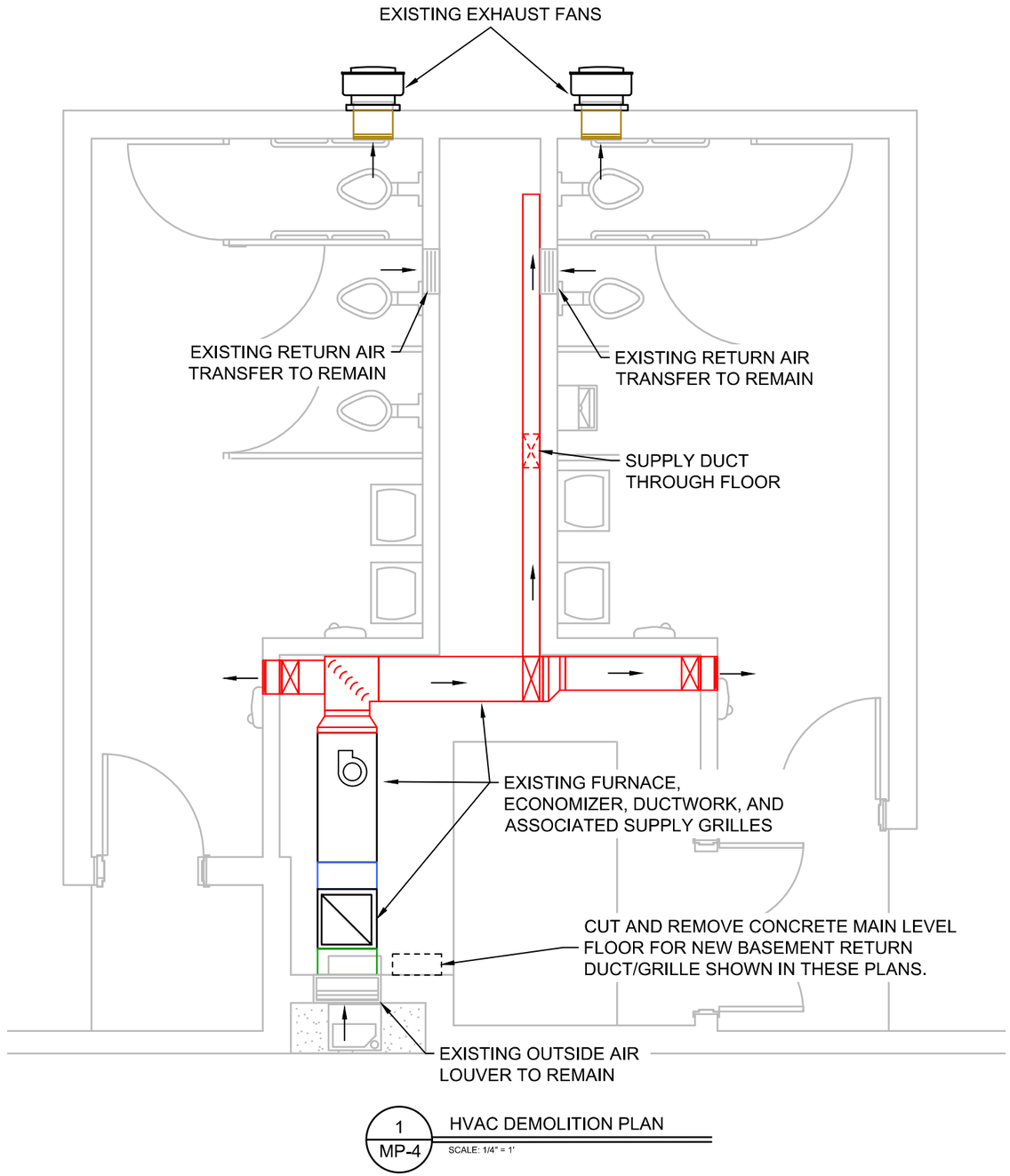
1 / MP-3 DUCT CONSTRUCTION STANDARDS
SCALE: NTS



2 / MP-3 SUSPENDED AHU-1 DETAIL
SCALE: NTS

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	P. MORGAN		BAD ROUTE REST AREA	HVAC DETAILS	IM 94-6(68)193
2		06/30/2023	REVIEWED BY	R. DAWES				
1			CHECKED BY			REST AREA REHABILITATION	UPN 9877000	MP-3



1 / MP-4 HVAC DEMOLITION PLAN

SCALE: 1/4" = 1'

DUCT KEY

#"Ø	DUCT SUPPLY
#"Ø	DUCT RETURN
#"Ø	DUCT OUTSIDE AIR
#"Ø	DUCT EXHAUST/RELIEF AIR

GENERAL HVAC DEMOLITION NOTES

- REMOVE EXISTING FURNACE AND ALL ASSOCIATED COMPONENTS, THERMOSTAT, ECONOMIZER ETC.
- REMOVE ALL EXISTING DUCTWORK AND SUPPLY GRILLES. EXISTING PENETRATIONS TO BE MODIFIED AND RE-USED FOR NEW DUCT SHOWN IN THESE PLANS.
- REMOVE EXISTING EXHAUST FANS AND ASSOCIATED COMPONENTS. EXISTING PENETRATIONS TO BE MODIFIED AND RE-USED AS REQUIRED FOR NEW EXHAUST FANS.

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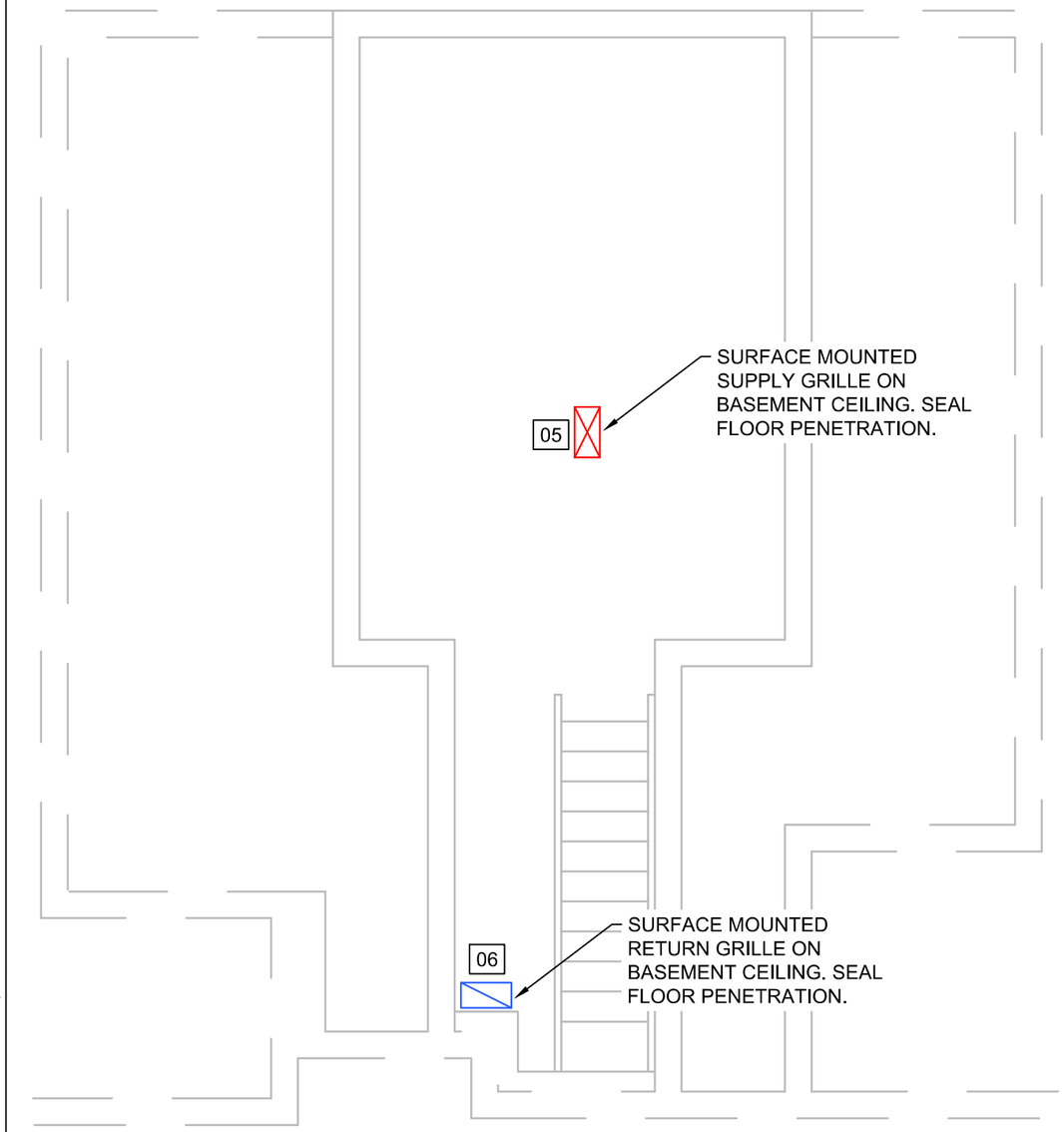
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	P. MORGAN		BAD ROUTE REST AREA	HVAC DEMOLITION PLAN	IM 94-6(68)193
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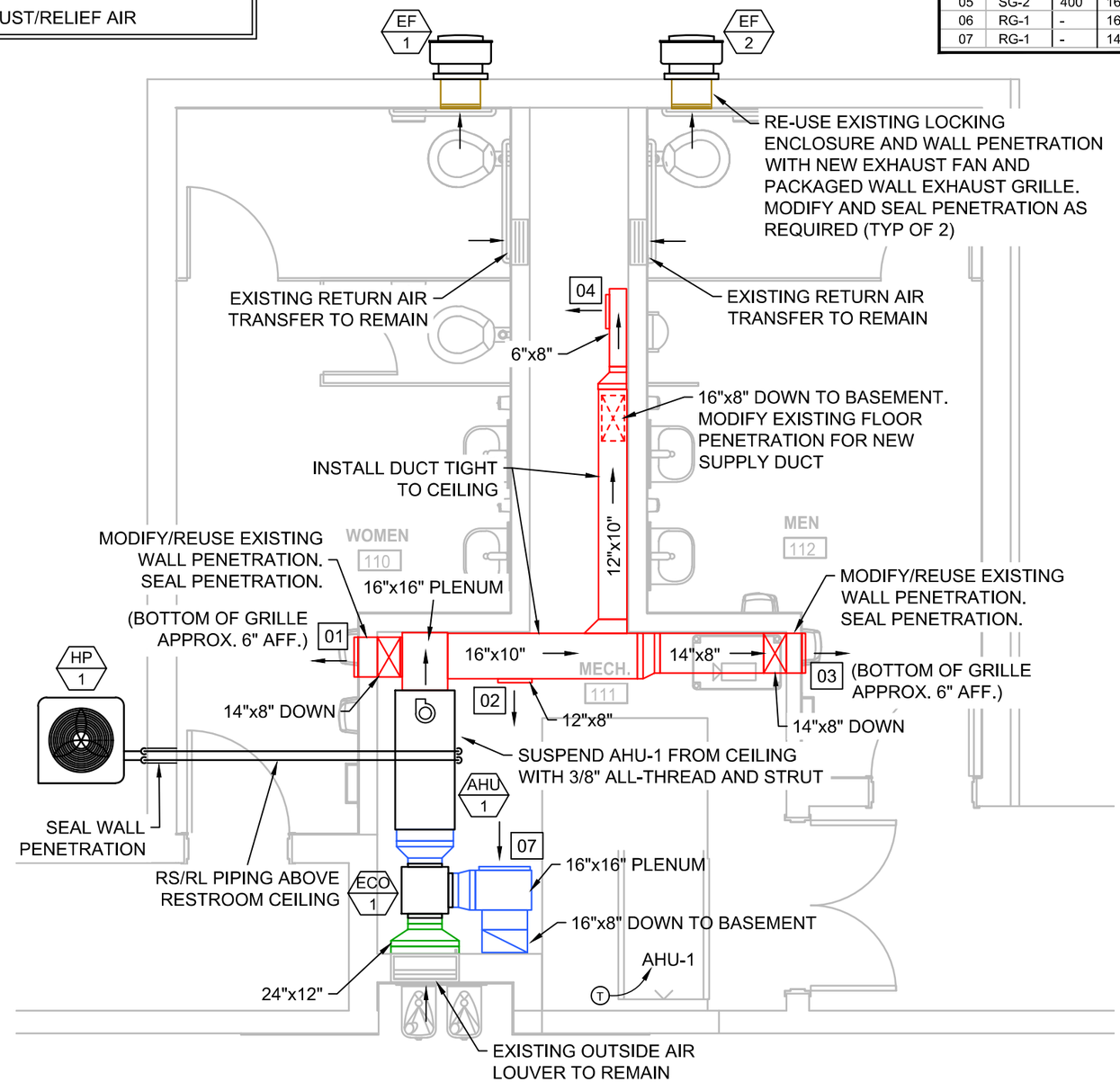
DUCT KEY	
#"Ø	DUCT SUPPLY
#"Ø	DUCT RETURN
#"Ø	DUCT OUTSIDE AIR
#"Ø	DUCT EXHAUST/RELIEF AIR

GRD ID SCHEDULE

TAG	STYLE	CFM	NECK SIZE
01	SG-1	350	14"X8"
02	SG-2	300	12"X8"
03	SG-1	350	14"X8"
04	SG-2	100	8"x6"
05	SG-2	400	16"x8"
06	RG-1	-	16"x8"
07	RG-1	-	14"X14"



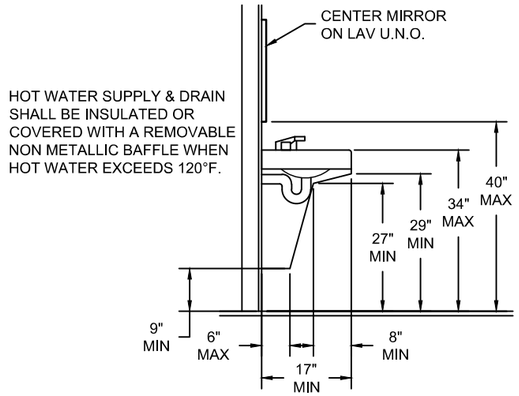
1 MP-5 NEW BASEMENT HVAC PLAN
SCALE: 1/4" = 1'



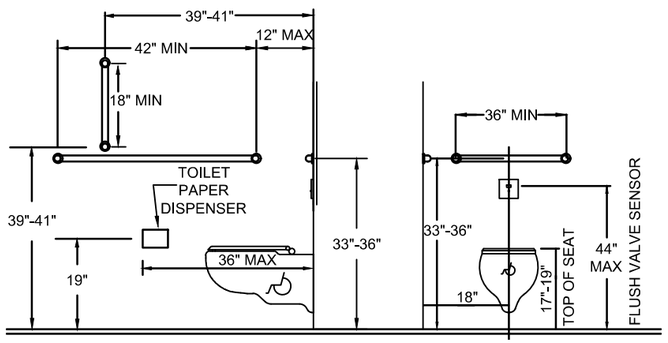
2 MP-5 NEW MAIN LEVEL HVAC PLAN
SCALE: 1/4" = 1'

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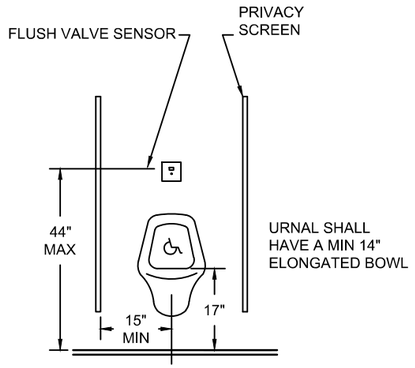
3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	P. MORGAN		BAD ROUTE REST AREA	NEW HVAC PLANS	IM 94-6(68)193
2		06/30/2023	REVIEWED BY	R. DAWES			UPN 9877000	MP-5
1			CHECKED BY			REST AREA REHABILITATION		



1 MP-6 ADA LAVATORY DETAIL
SCALE: NTS

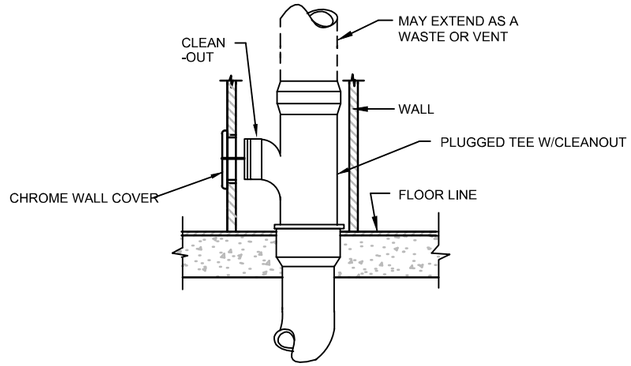


2 MP-6 ADA WATER CLOSET DETAIL
SCALE: NTS

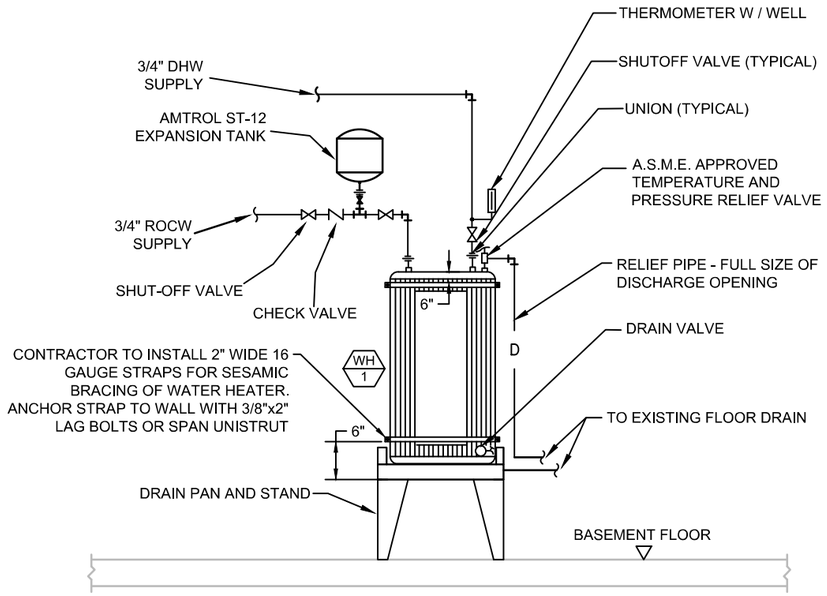


3 MP-6 ADA URINAL DETAIL
SCALE: NTS

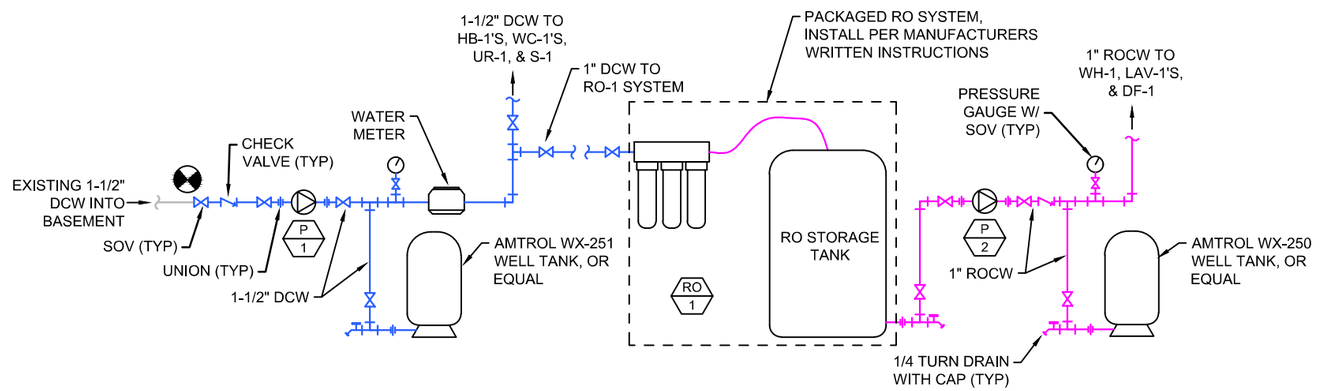
ALL SINKS LABELED S-X AND URINALS SHALL BE REQUIRED TO CONTAIN THIS CLEANOUT DETAIL UNDER COUNTER. NO EXCEPTIONS.



4 MP-6 WALL CLEANOUT DETAIL
SCALE: NTS



5 MP-6 WATER HEATER PIPING DETAIL
SCALE: NTS



6 MP-6 WATER ENTRANCE AND RO-1 PIPING DETAIL
SCALE: NTS

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1211 ECHELON PLACE, SUITE B
HELENA, MT 59602
TEL | 406.441.4000
www.fourfrontdesign.com

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	MDT 2020-316	DESIGNED BY	P. MORGAN		BAD ROUTE REST AREA	PLUMBING DETAILS	IM 94-6(68)193
2		06/30/2023	REVIEWED BY	R. DAWES				
1			CHECKED BY			REST AREA REHABILITATION	UPN 9877000	MP-6

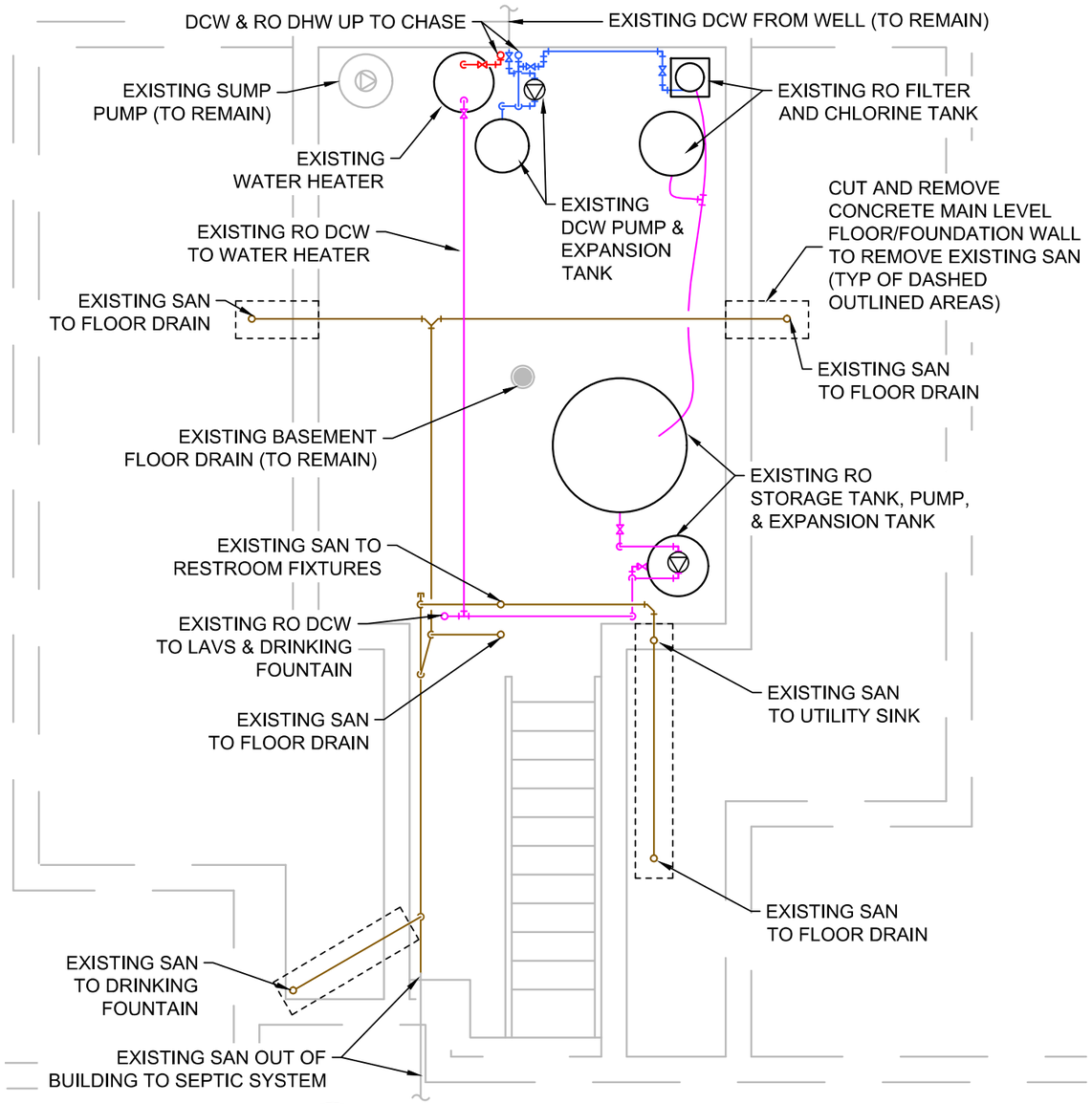
AWARD COPY

GENERAL PLUMBING DEMOLITION NOTES

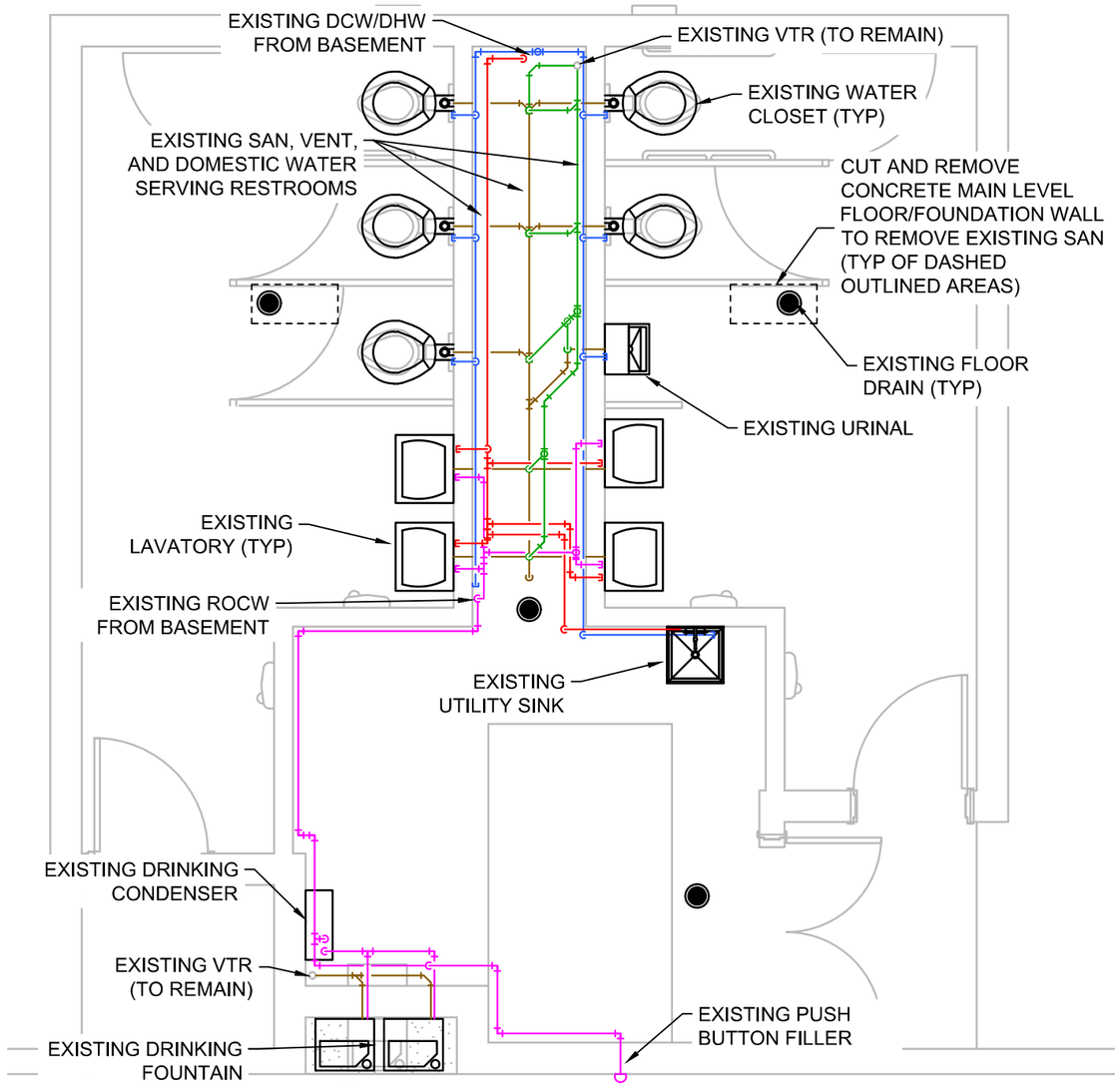
- SOLID, DARK LINES INDICATE ITEMS TO BE DEMOLISHED.
- REMOVE ALL EXISTING DOMESTIC AND RO WATER SYSTEMS BACK TO EXISTING BUILDING ENTRANCE.
- REMOVE ALL EXISTING SANITARY SEWER TO THE POINT WHERE THE SANITARY SEWER LEAVES THE BUILDING (NOTED ON PLANS)
- CUT AND REMOVE CONCRETE FLOOR, FOUNDATION AS REQUIRED TO REMOVE ALL EXISTING SANITARY SEWER (SHOWN ON PLANS FOR REFERENCE)
- REMOVE ALL EXISTING PLUMBING FIXTURES IN THE RESTROOMS AND MECHANICAL ROOM, INCLUDING FLOOR DRAINS.
- REMOVE ALL EXISTING VENTS TO THE VTR LOCATIONS (NOTED ON PLANS). EXISTING VTR'S TO BE RE-USED WITH NEW VENTS SHOWN IN THESE PLANS.

PIPE KEY

#" DCW	DOMESTIC COLD WATER
#" DHW	DOMESTIC RO HOT WATER
#" ROCW	DOMESTIC RO COLD WATER
#" SAN	SANITARY SEWER
#" V	SANITARY VENT



1 MP-7 BASEMENT PLUMBING DEMOLITION PLAN
SCALE: 1/4" = 1'



2 MP-7 MAIN LEVEL PLUMBING DEMOLITION PLAN
SCALE: 1/2" = 1'

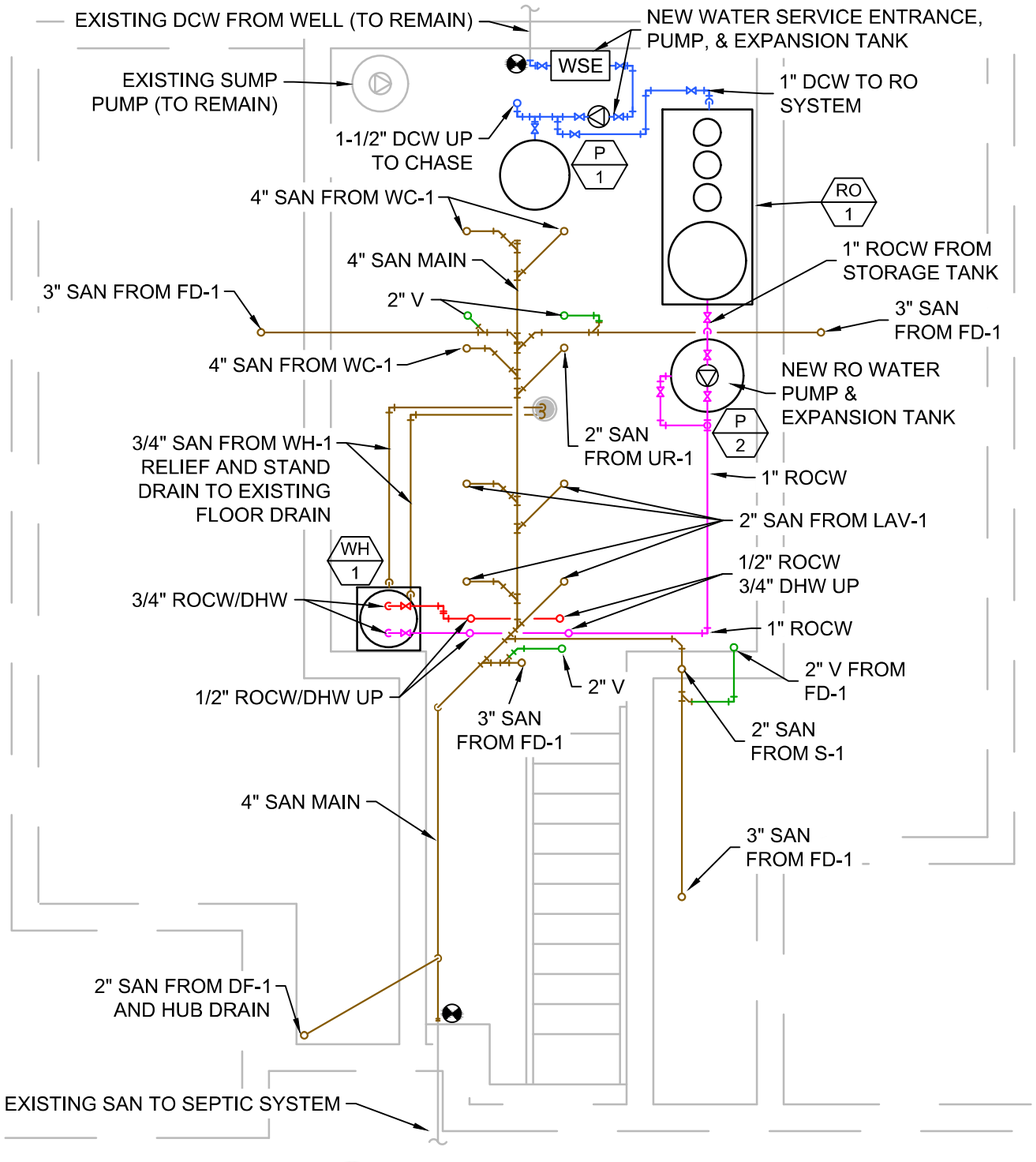
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HELENA, MT 59602
TEL | 406.441.4000
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2		06/30/2023	REVIEWED BY	R. DAWES			UPN 9877000 / MP-7
1			CHECKED BY			REST AREA REHABILITATION	

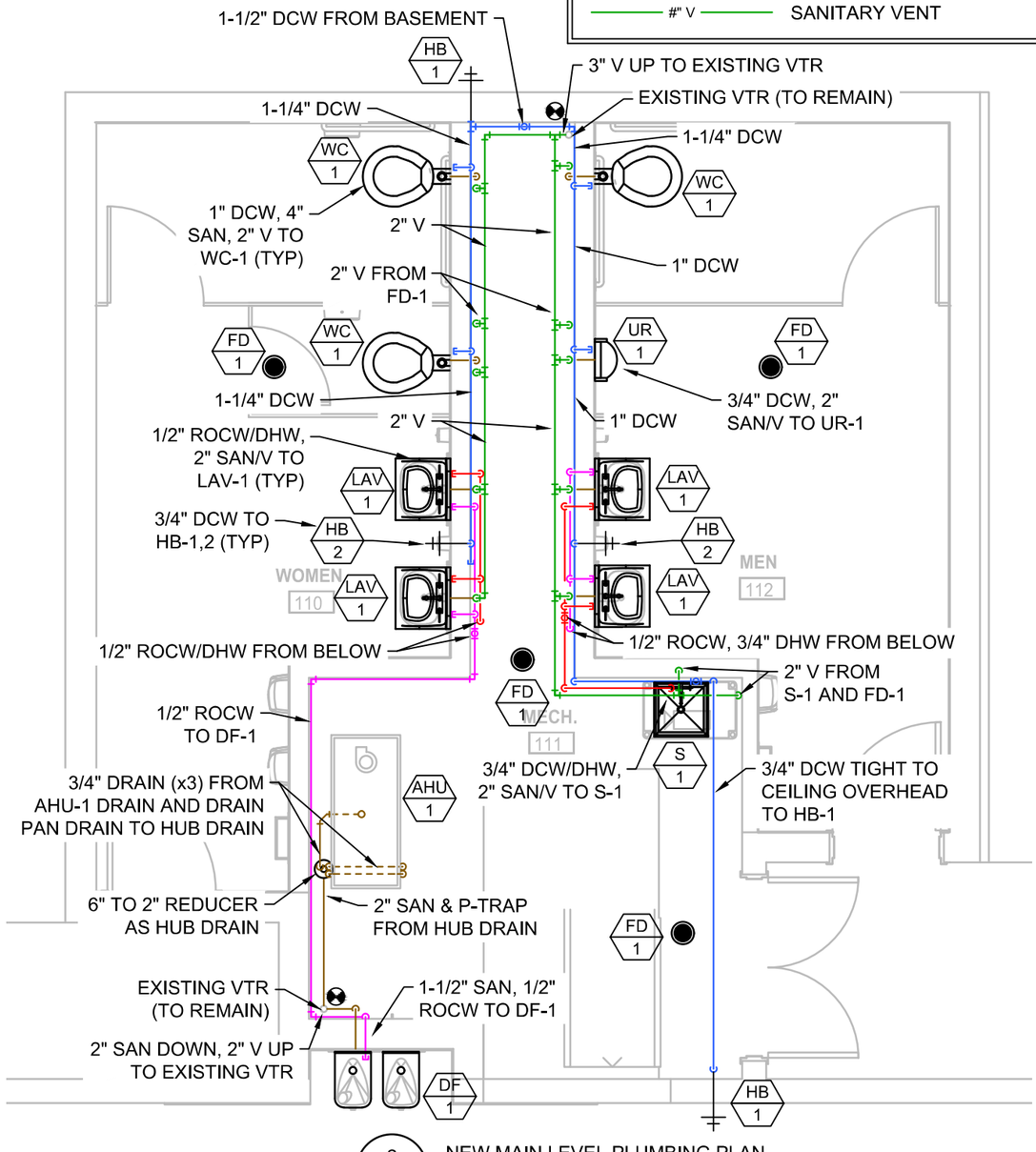
AWARD COPY

PIPE KEY

#" DCW	DOMESTIC COLD WATER
#" DHW	DOMESTIC RO HOT WATER
#" ROCW	DOMESTIC RO COLD WATER
#" SAN	SANITARY SEWER
#" V	SANITARY VENT



1 MP-8 NEW BASEMENT PLUMBING PLAN
SCALE: 1/4" = 1'



2 MP-8 NEW MAIN LEVEL PLUMBING PLAN
SCALE: 1/4" = 1'

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2		06/30/2023	REVIEWED BY	R. DAWES				
1			CHECKED BY			REST AREA REHABILITATION	UPN 9877000	MP-8