

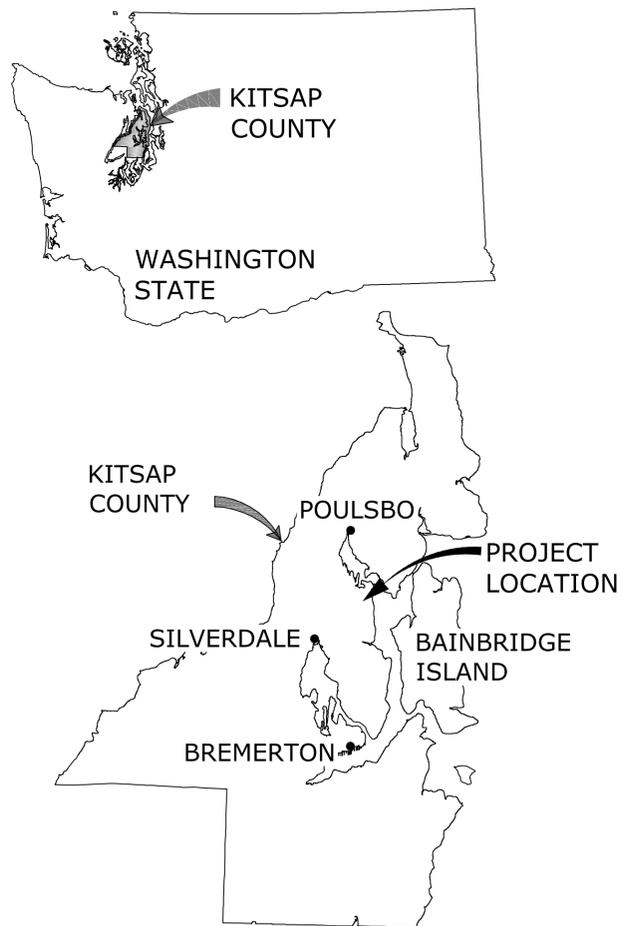


CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

APRIL 2022

LOCATION MAPS

NTS



VICINITY MAP
SCALE: 1"=500'

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COUNTY COMMISSIONERS

ROBERT GELDER - DISTRICT #1
CHARLOTTE GARRIDO - DISTRICT #2
EDWARD WOLFE - DISTRICT #3

APPROVED FOR CONSTRUCTION

4/16/2022
DATE

Stella V. Tucker for
DAVID TUCKER
ASSISTANT DIRECTOR OF PUBLIC WORKS

murraysmith

600 UNION STREET, SUITE 300
SEATTLE, WA 98101
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H:\evl_projects\20\2840 - Kitsap County Facility Plans\CAD\Sheets\digester Amendment 2\20-2840-WA-DA2 GEN.dwg G-2 4/5/2022 10:42 AM HCM 23.0s (LMS Tech)

ABBREVIATIONS

ABAND	ABANDONED	MAG	MAGNETIC NAILS	W	WATER, WEST
AL	ALUMINUM	MAX	MAXIMUM	WAS	WASTE ACTIVATED SLUDGE
ASSY	ASSEMBLY	MCC	MOTOR CONTROL CENTER	W.M.	WESTERN MERIDIAN
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MFR	MANUFACTURER	WS	WATER SURFACE
ATB	ASPHALT TREATED BASE	MH	MANHOLE	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
AVE	AVENUE	MJ	MECHANICAL JOINT	WV	WATER VALVE
AWWA	AMERICAN WATER WORKS ASSOCIATION	ML	MIXED LIQUOR	WWTP	WASTE WATER TREATMENT PLANT
		MW	MONITORING WELL	#S	#-INCH STRAND (FIBER OPTIC)
B&B	BALLED AND BURLAP	N	NORTH		
BF	BLIND FLANGE	NIC	NOT IN CONTRACT		
BGS	BELOW GRADE SURFACE	NGVD	NATIONAL GEODETIC VERTICAL DATUM		
BH	BOREHOLE	NOM	NOMINAL		
BLDG	BUILDING	NPT	NATIONAL PIPE THREAD		
BM	BEAM	NTS	NOT TO SCALE		
BOW	BACK OF WALK	NW	NORTH WEST		
BP	BURIED POWER	OC	ON CENTER		
BPA	BONNEVILLE POWER ADMINISTRATION	OD	OUTSIDE DIAMETER		
BTM	BOTTOM	OH	OVERHEAD		
BT	BURIED TELEPHONE	OHP	OVERHEAD POWER		
BV	BALL VALVE	OHW	OVERHEAD WIRE		
CB	CATCH BASIN	PE	PLAIN END		
CDF	CONTROLLED DENSITY FILL	PG	PERFORMANCE GRADE		
CJP	COMPLETE JOINT PENETRATION	PH	POT HOLE		
CKTP	CENTRAL KITSAP TREATMENT PLANT	PL	PLASTIC		
CL	CENTERLINE	PLT	PLATE		
CLR	CLEARANCE	POC	POINT OF CONNECTION		
CMP	CORRUGATED METAL PIPE	PRV	PRESSURE REDUCING VALVE		
COORD	COORDINATE	PS	PUMP STATION		
CONC	CONCRETE	PV	PLUG VALVE		
CPLG	COUPLING	PVC	POLYVINYL CHLORIDE		
CSBC	CRUSHED SURFACE BASE COURSE	PWR	POWER		
CSTC	CRUSHED SURFACING TOP COURSE	RESTR	RESTRAIN(ED)		
CY	CUBIC YARD	REQ'D	REQUIRED		
DEMO	DEMOLITION	RD	ROAD		
DET	DETAIL	RDCR	REDUCER		
DI	DUCTILE IRON	RFCA	RESTRAINED FLANGE COUPLING ADAPTER		
DIA	DIAMETER	RJ	RESTRAINED JOINT PIPE		
D/W	DRIVEWAY	RSKV	RESILIENT SEATED GATE VALVE		
DR	DIMENSION RATIO	RT	RIGHT		
DS	DIGESTED SLUDGE	R/W, ROW	RIGHT OF WAY		
DW	DEWATERING WELL	S	SOUTH		
DWG	DRAWING	SCHD	SCHEDULE		
E.W.	EACH WAY	SCM	SCUM		
E	EAST	SD	STORM DRAIN		
EA	EACH	SDMH	STORM MANHOLE		
EL, ELEV	ELEVATION	SDR	STANDARD DIMENSION RATIO		
EQ	EQUAL	SE	SOUTHEAST		
ESC	EROSION AND SEDIMENT CONTROL	SERV	SERVICE		
ESMT	EASEMENT	SHT(S)	SHEET(S)		
EX	EXISTING	SL	SLOPE		
EXIST	EXISTING	SLV	SLEEVE		
FH	FIRE HYDRANT	SMFO	SINGLE MODE FIBER OPTIC		
FIN	FINISHED	SP	SPECIAL PROVISIONS		
FLG	FLANGE	SPEC(S)	SPECIFICATIONS		
FM	FORCE MAIN	SPL	SPOOL		
FO	FIBER OPTICS	SQ	SQUARE		
FT	FEET	SS	SANITARY SEWER		
G	GAS	SSCO	SANITARY SEWER CLEANOUT		
GALV	GALVANIZED	SSFM	SANITARY SEWER FORCE MAIN		
GC	GROUND COVER	SSMH	SANITARY SEWER MANHOLE		
GEN	GENERAL	SST	STAINLESS STEEL		
GPR	GROUND PENETRATING RADAR	ST	STREET		
GR	GRADE	STA	STATION		
GV	GATE VALVE	STD	STANDARD		
HA	HAND AUGER	STL	STEEL		
HDPE	HIGH DENSITY POLYETHYLENE (PIPE)	SV	SOLENOID VALVE		
HMA	HOT MIX ASPHALT	SW	SOUTHWEST		
HORIZ	HORIZONTAL(LY)	S/W	SIDEWALK		
HP	HIGH PRESSURE	T, TE, TEL	TELEPHONE		
HW	HANDWHEEL	TB	THRUST BLOCK		
HWY	HIGHWAY	TEMP	TEMPORARY		
ID	INSIDE DIAMETER	TESC	TEMPORARY EROSION AND SEDIMENT CONTROL		
IE	INVERT ELEVATION	THS	THICKENED SLUDGE		
INSTL	INSTALL	TN	TOP OF NUT		
INV	INVERT	TRANS	TRANSITION		
IPS	INDIVIDUAL PUMP STATION	TYP	TYPICAL		
L	LENGTH	VAR	VARIABLES		
LF	LINEAR FOOT	VERT	VERTICAL(LY)		
LS	LONG BODY SLEEVE	V.I.F.	VERIFY IN FIELD		
LT	LEFT	UGP	UNDERGROUND POWER LINE		
LTF	LENGTH TO FIT	UST	UNDERGROUND STORAGE TANK		

SYMBOLS & LEGEND

CIVIL

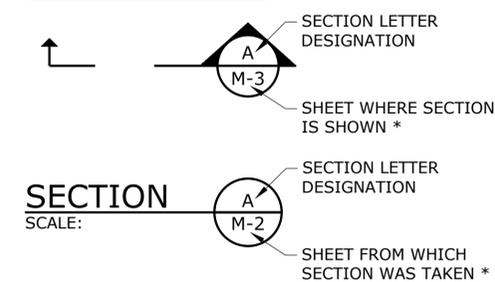
	NATURAL GROUND OR GRADE		SOIL BORING AND DESIGNATION
	GRANULAR MATERIAL SUCH AS CRUSHED ROCK OR GRAVEL		FIRE HYDRANT OR FIRE DEPT CONNECTION (W/TRAFFIC BOLLARDS)
	EDGE OF ASPHALT PAVEMENT IN PLAN		BURIED VALVE (EXISTING SCREENED)
	ASPHALT PAVEMENT IN SECTION		MANHOLE OR TYPE 2 CATCH BASIN
	GRAVEL SURFACE OR ROADWAY		BURIED ACCESS VAULT
	ASHPALT SURFACE OR ROADWAY		TYPE 1 CATCH BASIN OR INLET
	CONCRETE SURFACE, SLAB OR BLOCK		WATER METER OR IRRIG VALVE BOX
	WATER MAIN INSPECTION		UTILITY POLE/POWER POLE
	ASPHALT REMOVAL		HORIZONTAL CONTROL POINT
	DELINEATED WETLAND		SURVEY CONTROL POINT
	WETLAND MITIGATION AREA		COORDINATE POINT
	GENERAL TREE REMOVAL AREA		CLEARING LIMITS / LIMITS OF WORK
	FENCE (EXISTING SCREENED)		CONCRETE BARRIER BLOCKS (ECOLOGY BLOCKS)
	EXISTING GRADE CONTOURS (OR SCREENED)		HIGH VISIBILITY OR TREE PROTECTION FENCE
	FINISH GRADE CONTOURS		STRAW WATTLE OR SILT CONTROL FENCE
	EXISTING SPOT ELEVATION (OR SCREENED)		STORM DRAIN INLET PROTECTION
	FINISH GRADE SPOT ELEVATION		NEW BURIED PIPE
	TOP OF CURB ELEVATION		NEW ABOVE GRADE / OVERHEAD PIPE
	GUTTER OR GROUND ELEVATION		
	SWALE OR DEPRESSION		
	EDGE OF WATER; FLOWLINE WITH DIRECTIONAL ARROW		
	SLOPE (3 HOR TO 1 VERT), PLAN		
	SLOPE (3 HOR TO 1 VERT), SECTION		
	TREES (EXISTING SCREENED)		

GENERAL NOTES:

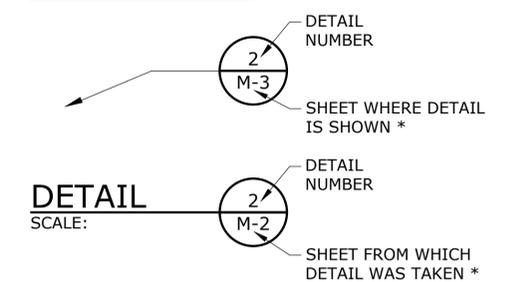
- THIS DRAWING IS GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS.
- SEE OTHER DRAWINGS FOR ABBREVIATIONS AND ADDITIONAL SYMBOLS.
- SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS.
- PROTECTION OF THE ENVIRONMENT: NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW A DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL OF THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY.

SECTION AND DETAIL DESIGNATIONS

SECTION DESIGNATIONS

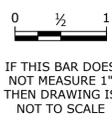


DETAIL DESIGNATIONS



* NOTE: IF PLAN AND SECTION FOR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON THE SAME DRAWING, DRAWING NUMBER IS REPLACED WITH A DASH.

NOTICE



JJM
DESIGNED
HCM
DRAWN
MZ
CHECKED



murraysmith



**CENTRAL KITSAP
TREATMENT PLANT -
DIGESTER
REHABILITATION**

ABBREVIATIONS, SYMBOLS AND LEGEND

SHEET

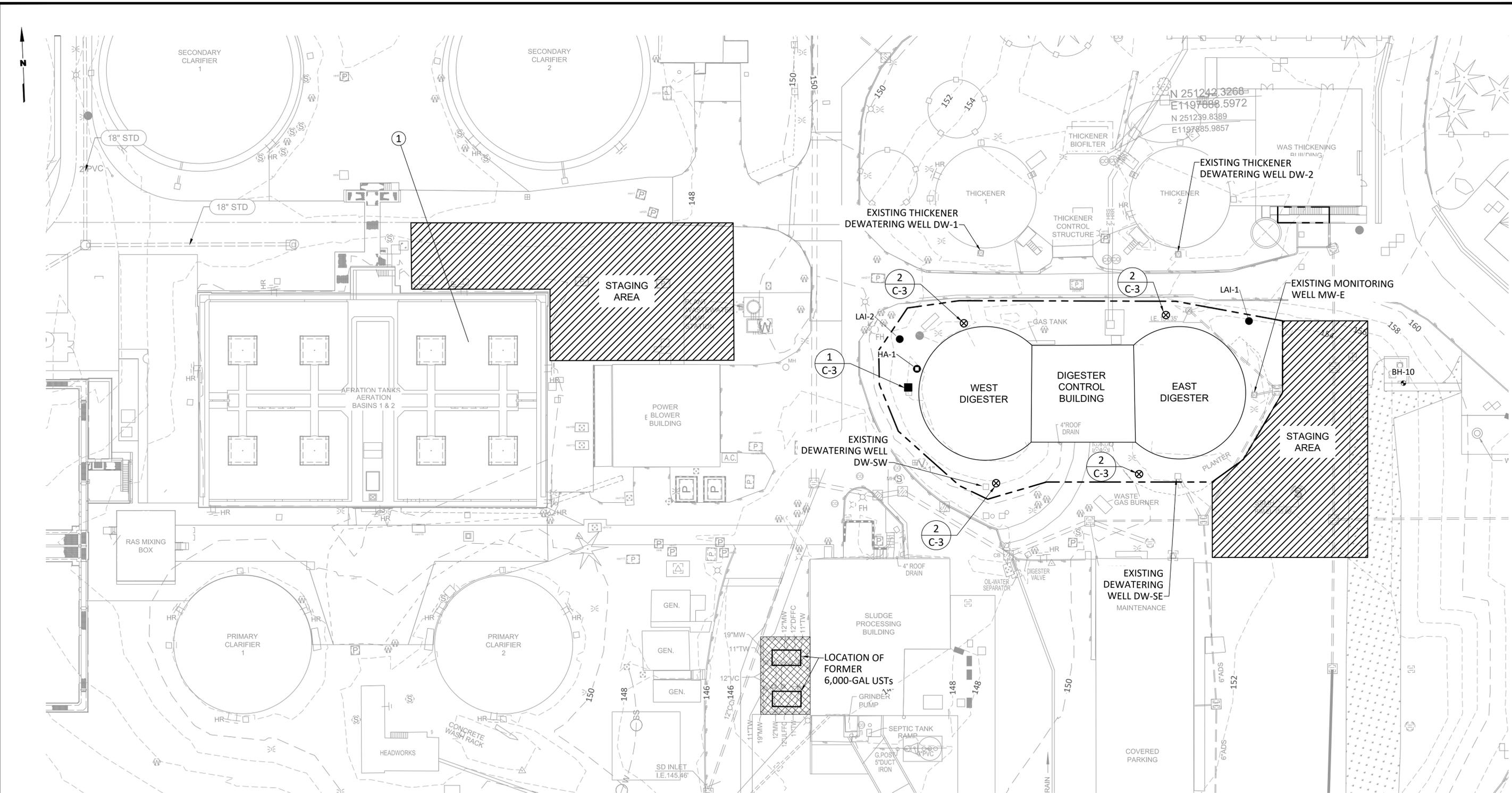
G-2

PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

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NO.	DATE	BY	REVISION

G:\Projects\1490\009\010\PLAN SHEETS\LAI PLAN SITE.dwg C-1 4/6/2022 10:54 AM JVALLUZZI 24.0s (LMS Tech)



LEGEND

- ⊗ PROPOSED NEW PERMANENT DEWATERING WELL (4 LOCATIONS)
- PROPOSED NEW MONITORING WELL (1 LOCATION)
- LAI-1 ● MONITORING WELL BY LANDAU ASSOCIATES, INC.
- HA-1 ○ HAND AUGER BY LANDAU ASSOCIATES, INC.
- BH-10 ● BORING BY HWA (1994)
- PROJECT AREA
- ▨ STAGING AREA
- ▩ EXCAVATION AREA FOR UST DECOMMISSIONING (2016)

SITE PLAN



KEY NOTES

- ① PROVIDE TEMPORARY PIPING AND GROUNDWATER TREATMENT SYSTEM TO TREAT AND CONVEY THE EXTRACTED GROUNDWATER FROM THE DEWATERING WELLS IN ACCORDANCE WITH THE SPECIFICATIONS. DISCHARGE TREATED GROUNDWATER TO THE EMPTY AERATION BASIN 2. COORDINATE WITH COUNTY FOR DISCHARGE PIPE LOCATION.



NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

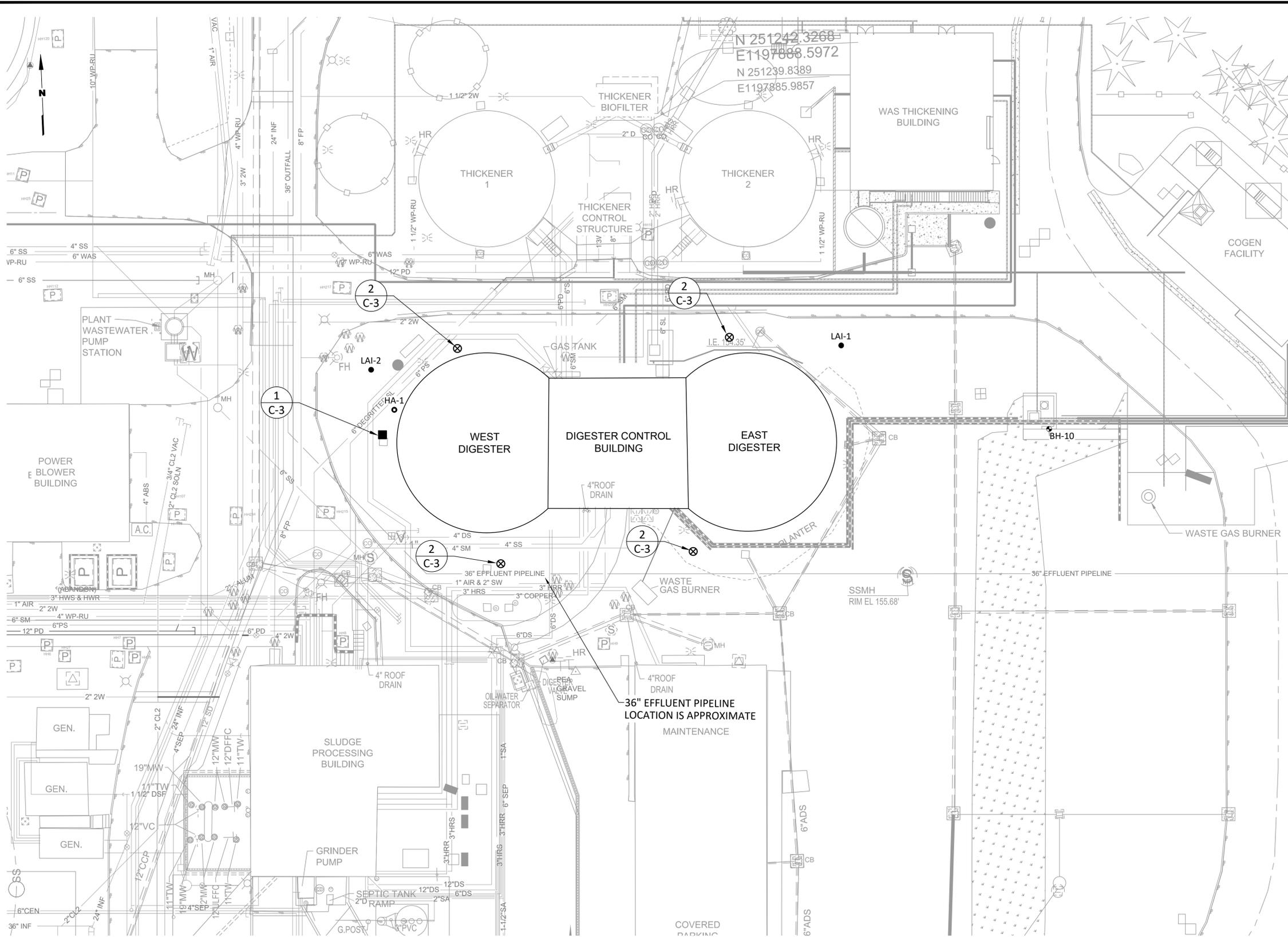
BDL
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JJV
DRAWN
WLC
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**CENTRAL KITSAP
TREATMENT PLANT -
DIGESTER
REHABILITATION**

SITE PLAN	C-1	SHEET	
PROJECT NO.: 20-2840	SCALE:	DATE: APRIL 2022	3 of 27

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NOTES

1. DEWATERING SYSTEM DESIGN AND CONSTRUCTION AS DESCRIBED IN DEWATERING SPECIFICATION 31 23 19.
2. DEWATERING WELLS ARE TO BE CONSTRUCTED AS PERMANENT WELLS PER SHEET C-3 AND SPECIFICATION 31 23 20. DEWATERING WELLS TO REMAIN IN PLACE FOLLOWING TEMPORARY DEWATERING ACTIVITIES.
3. MONITORING WELL IS TO BE CONSTRUCTED AS PERMANENT WELLS PER SHEET C-3 AND SPECIFICATION 31 23 21. MONITORING WELL TO REMAIN IN PLACE FOLLOWING TEMPORARY DEWATERING ACTIVITIES.
4. CONTRACTOR TO FIELD-VERIFY UTILITY LOCATIONS PRIOR TO EXCAVATION FOR INSTALLATION OF MONITORING WELL AND DEWATERING WELLS.

LEGEND

- ⊗ PROPOSED NEW PERMANENT DEWATERING WELL (4 LOCATIONS)
- PROPOSED NEW MONITORING WELL (1 LOCATION)
- LAI-1 ● MONITORING WELL BY LANDAU ASSOCIATES, INC.
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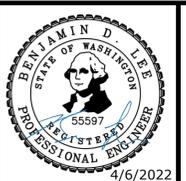
EXISTING UTILITY PLAN 0 20 40
SCALE IN FEET

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NOTICE

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BDL DESIGNED
 JJV DRAWN
 WLC CHECKED



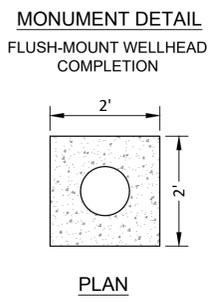
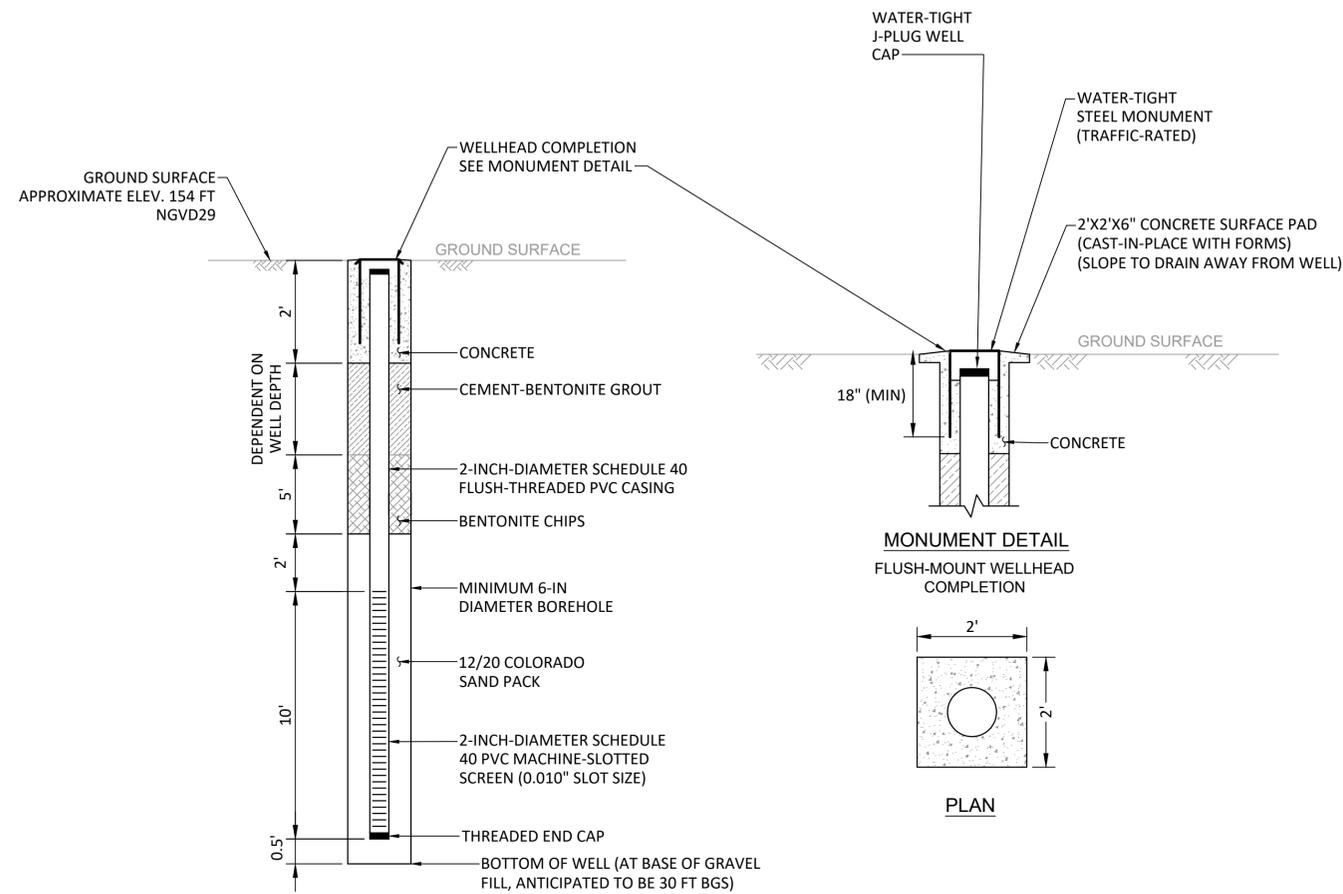
CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DIGESTER AREA DEWATERING AND MONITORING WELLS

PROJECT NO.: 20-2840 SCALE: DATE: APRIL 2022

SHEET
C-2
 4 of 27

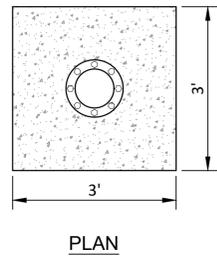
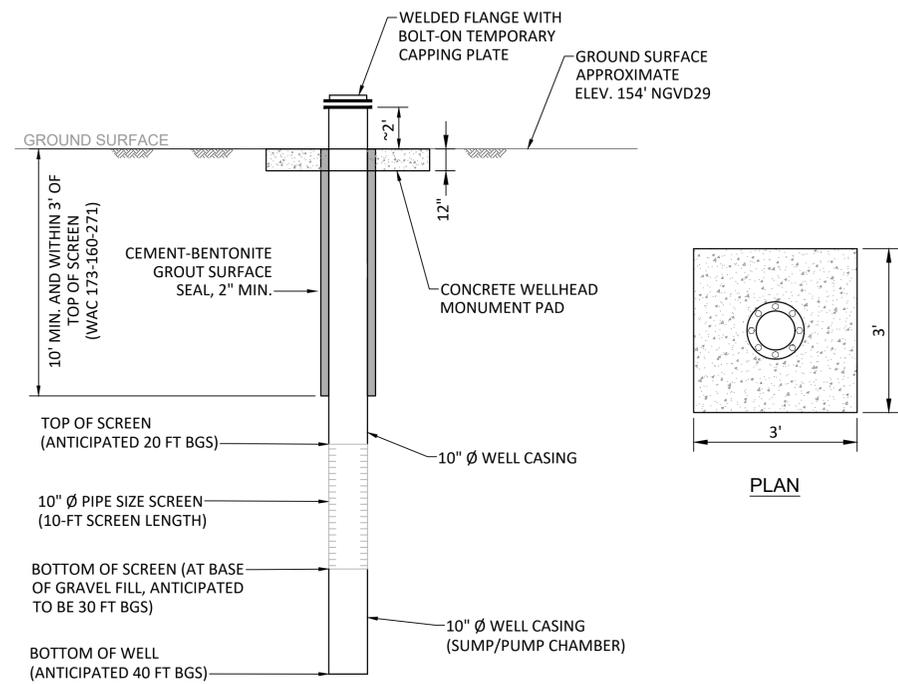
G:\Projects\1490\009\10\PLAN SHEETS\LAI DETAILS DEWATERING MONWELL.dwg C-3 4/5/2022 1:40 PM JVALLUZZI 24.0s (LMS Tech)



NOTES

1. MONITORING WELL CONSTRUCTION PER SPEC SECTION 31 23 21

1 MONITORING WELL DETAIL
C-2
NTS



NOTES

1. BGS = BELOW GROUND SURFACE
2. DEWATERING WELL CONSTRUCTION PER SPEC SECTION 31 23 20

2 PERMANENT DEWATERING WELL DETAIL
C-2
NTS



NOTICE
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

BDL
DESIGNED
JJV
DRAWN
WLC
CHECKED



CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DEWATERING AND MONITORING WELL DETAILS

SHEET

C-3

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NO.	DATE	BY	REVISION

PROJECT NO.: 20-2840 SCALE: DATE: APRIL 2022

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GENERAL STRUCTURAL NOTES:

- THESE NOTES ARE GENERAL IN NATURE AND ARE INTENDED TO SET MINIMUM STANDARDS FOR CONSTRUCTION. THE CONTRACTOR SHALL BE COMPLETELY FAMILIAR WITH THE CONTRACT DOCUMENTS AND HAVE A COPY OF THEM ON SITE AT ALL TIMES.
- FOR ANY PORTION OF THE CONSTRUCTION WHICH THE CONTRACTOR IS UNABLE TO ASCERTAIN THE REQUIRED CONSTRUCTION OR WHERE CONFLICTS EXIST, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST ADDITIONAL INFORMATION (RFIs) AND/OR CLARIFICATIONS BEFORE CONSTRUCTION.
- ALL WORK SHALL BE IN STRICT CONFORMANCE WITH THE 2018 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE STATE OF WASHINGTON.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS BEFORE CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
- THE CONTRACTOR AND SUPPLIERS SHALL ENSURE COORDINATION OF CONTRACTOR SUPPLIED/DESIGNED ELEMENTS AND DEFERRED SUBMITTALS WITH ALL DESIGN DISCIPLINES WITHIN THE CONSTRUCTION SET. COORDINATION SHALL IDENTIFY AND RECONCILE CONFLICTS BETWEEN THE CONTRACTOR SUPPLIED/DESIGNED ELEMENTS AND THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION AND DELIVERY TO THE PROJECT SITE. THE PROJECT ENGINEER SHALL BE NOTIFIED IF CONFLICTS EXIST.
- THE CONTRACT STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. METHODS, PROCEDURES, AND SEQUENCE OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.
- CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD FOR THE STRUCTURE. PROVIDE SHORING AND/OR BRACING WHERE LOADS EXCEED DESIGN CAPACITY AND WHERE STRUCTURES HAVE NOT ATTAINED DESIGN STRENGTH.
- MECHANICAL AND ELECTRICAL FEATURES ARE OUTSIDE THE STRUCTURAL SCOPE OF WORK. ANY DEPICTION OF SUCH FEATURES ON THE STRUCTURAL DRAWINGS ARE NOT INTENDED TO BE USED FOR CONSTRUCTION. REPRESENTATION OF SUCH FEATURES ON THESE DRAWINGS MAY OR MAY NOT BE ACCURATE. REFER TO MECHANICAL OR ELECTRICAL DRAWINGS AND/OR SPECIFICATIONS.

JOB SITE CONDITIONS AND SAFETY:

CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ENGINEER AND IT'S REPRESENTATIVE HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.

DESIGN LOADS: PER 2018 IBC AS AMENDED BY THE STATE OF WASHINGTON

1603.1.4 - WIND DESIGN CRITERIA:	
ULTIMATE WIND DESIGN SPEED	108 MPH
RISK CATEGORY	IV
WIND EXPOSURE	C
1603.1.5 - EARTHQUAKE DESIGN CRITERIA:	
RISK CATEGORY	IV
SEISMIC IMPORTANCE FACTOR, <i>I_p</i>	1.50
SITE CLASS	D (ASSUMED)
SHORT-PERIOD SPECTRAL ACCELERATION	1.431 g
SPECTRAL RESPONSE COEFFICIENT, <i>S_{DS}</i>	1.145 g
SEISMIC DESIGN CATEGORY	D
EQUIPMENT LOADS (PER EQUIP. SPECS):	
GAS DOME	2,260 LBS
MIXING PUMP	3,100 LBS

STRUCTURAL STEEL:

- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING GRADES, UNLESS NOTED OTHERWISE ON THE PLANS:

 ROLLED W-SHAPES - ASTM A992, F_y = 50 ksi
 ALL OTHER STEEL ROLLED SECTIONS & PLATES- ASTM A36 GR. 36
 HSS (RECTANGULAR) - ASTM A500 GR. B, F_y = 46 ksi
 HSS (ROUND) - ASTM A500 GR. B, F_y = 42 ksi
- WELD ACCORDING TO CURRENT AWS STANDARDS WITH E70XX ELECTRODES.
- WELD SIZES SHOWN ON THE DESIGN DRAWINGS ARE CONSIDERED EFFECTIVE WELD SIZES AND SHALL BE INCREASED IN ACCORDANCE WITH AWS AS REQUIRED BY GAPS OR SKEWS BETWEEN COMPONENTS.
- ALL STRUCTURAL CONNECTION BOLTS SHALL BE ASTM F3125 GRADE A325, UNLESS NOTED OTHERWISE. ALL COUNTERSUNK BOLTS OR CARRIAGE BOLTS SHALL BE ASTM A307, UNLESS NOTED OTHERWISE.
- CONTACT BETWEEN DISSIMILAR METALS SHALL BE ISOLATED USING PHENOLIC OR OTHERWISE APPROVED ISOLATION HARDWARE.

CONCRETE:

- ALL CONCRETE SHALL BE HARD ROCK CONCRETE MEETING REQUIREMENTS OF ACI-301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". MIX PROPORTIONS SHALL BE PER ACI-301, METHOD 2 OR THE ALTERNATE PROCEDURE. SUBMIT MIX DESIGN FOR REVIEW BY STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. HANDMIX DESIGN IS ACCEPTABLE FOR FOUNDATION AND PIER POURS.
- STRUCTURAL CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

TYPE	f' _c	SLUMP	w/c	AIR
EQUIP. PADS	2,500 psi*	1-4"	0.50	0%

*SPECIAL INSPECTION NOT REQUIRED PER IBC SECTION 1705.3.
- ALL CONCRETE EXPOSED TO WEATHER SHALL CONTAIN 5% (±) 1.5% AIR ENTRAINMENT BY VOLUME. AIR ENTRAINMENT SHALL BE IN CONFORMANCE WITH ASTM C260 AND C494.
- COLD WEATHER PLACEMENT SHALL CONFORM TO ACI-306. HOT WEATHER PLACEMENT SHALL CONFORM TO ACI-305. MECHANICALLY VIBRATE ALL FORMED CONCRETE. DO NOT OVER-VIBRATE. PLACE CONCRETE MONOLITHICALLY BETWEEN CONSTRUCTION OR CONTROL JOINTS. PROTECT ALL CONCRETE FROM PREMATURE DRYING.
- CHAMFER ALL EXTERIOR CORNERS ¼" UNLESS SHOWN OTHERWISE.
- SLUMP LIMITS MAY BE INCREASED BY ADDITION OF ADMIXTURES PROVIDED THAT THE WATER/CEMENT RATIO OF THE ORIGINAL MIX DESIGN IS NOT EXCEEDED. WATER REDUCING ADMIXTURE SHALL BE IN CONFORMANCE WITH ASTM494, USED IN CONFORMANCE WITH MANUFACTURER'S INSTRUCTIONS. SUBMIT ADMIXTURES TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
- CEMENT SHALL BE TYPE I OR II IN CONFORMANCE WITH ASTM C150 OR AN APPROVED SACK MIX. AGGREGATES SHALL BE IN CONFORMANCE WITH ASTM C33 AND USE CRUSHED (NOT ROUND) GRAVEL OR STONE. COARSE AGGREGATES SHALL NOT EXCEED 3/4". WATER SHALL BE CLEAN AND POTABLE.
- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. GRADE 40 MAY BE USED FOR #3 AND SMALLER TIES AND STIRRUPS. DETAIL AND PLACE ACCORDING TO ACI MANUAL SP-66.
- UNLESS OTHERWISE NOTED, MINIMUM COVER SHALL BE 1½" FOR #5 AND SMALLER BARS, 2" FOR #6 AND LARGER BARS AND 3" WHEN POURED AGAINST EARTH. SUPPORT REINFORCEMENT WITH APPROVED CHAIRS, SPACERS, OR TIES.
- SPICES IN REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN OTHERWISE ON THE PLANS.
- FORMWORK SHALL BE IN ACCORDANCE WITH ACI-347 "GUIDE TO FORMWORK FOR CONCRETE". FORMS SHALL BE DESIGNED BY THE CONTRACTOR. BRACING SHALL BE PROVIDED AS REQUIRED OR UNTIL THE CONCRETE HAS REACHED ITS SPECIFIED 28-DAY STRENGTH. ALL SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMWORK, SUPPORTS, AND SHORING SHALL PROVIDE FINISHED CONCRETE SURFACES AT ALL FACES: LEVEL, PLUMB, AND TRUE TO DIMENSIONS AND ELEVATIONS SHOWN IN THE DRAWINGS.

QUALITY ASSURANCE AND CONTROL PLAN:

QUALITY ASSURANCE FOR SEISMIC RESISTANCE SHALL BE ENSURED BY THE REVIEW OF THE FOLLOWING SUBMITTALS, PERFORMING THE LISTED STRUCTURAL OBSERVATIONS, AND IMPLEMENTATION OF THE LISTED SPECIAL INSPECTION AND MATERIAL TESTING.

SHOP DRAWINGS & SUBMITTALS:

SHOP DRAWINGS, CALCULATIONS, SUBMITTALS AND/OR MILL CERTIFICATES FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE OWNER AND ENGINEER OF RECORD FOR REVIEW A MINIMUM OF 21 DAYS PRIOR TO FABRICATION:

- 3-WAY VALVE AND PVRY ASSEMBLY BRACE DESIGN
- MECHANICAL/ELECTRICAL EQUIPMENT ANCHORAGE
- CONCRETE MIX DESIGN
- 3-WAY VALVE AND PVRY ASSEMBLY PRODUCT DATA
- MIXING PUMP PRODUCT DATA

STRUCTURAL OBSERVATION REQUIREMENTS:

- THE OWNER SHALL EMPLOY THE ENGINEER OF RECORD OR AN ALTERNATE WASHINGTON LICENSED PROFESSIONAL ENGINEER, APPROVED BY THE ENGINEER OF RECORD, TO PERFORM STRUCTURAL OBSERVATIONS IN ACCORDANCE WITH SECTION 1704.6 OF THE INTERNATIONAL BUILDING CODE.
- STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM BY A REGISTERED DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY OTHER INSPECTION CRITERIA, INCLUDING SPECIAL INSPECTION, AS REQUIRED BY THE BUILDING OFFICIAL OR AS INDICATED WITHIN THE INTERNATIONAL BUILDING CODE.
- DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER AND THE BUILDING OFFICIAL (AND THE ENGINEER OF RECORD IF AN ALTERNATE ENGINEER IS USED FOR STRUCTURAL OBSERVATION). AT THE CONCLUSION OF THE STRUCTURAL WORK INCLUDED WITHIN THE PERMIT, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL AND THE OWNER (AND THE ENGINEER OF RECORD IF AN ALTERNATE ENGINEER IS USED FOR STRUCTURAL OBSERVATION) A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES WHICH, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.
- THE CONTRACTOR SHALL MAKE AVAILABLE ALL MEANS AND METHODS NECESSARY FOR THE STRUCTURAL OBSERVER TO PERFORM THE REQUIRED STRUCTURAL OBSERVATIONS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE OWNER AND STRUCTURAL OBSERVER A MINIMUM OF 48 HOURS BEFORE THE TIME AT WHICH THE SPECIFIED STRUCTURAL OBSERVATIONS MAY BE PERFORMED. IN ADDITION THE CONTRACTOR SHALL UPDATE THE STRUCTURAL OBSERVER OF THE CONSTRUCTION PROGRESS.
- STRUCTURAL OBSERVATIONS SHALL BE PERFORMED AT THE OWNER'S DISCRETION AND COORDINATED WITH THE PROJECT ENGINEER.

SPECIAL INSPECTIONS:

- AN INDEPENDENT TESTING LABORATORY CHOSEN BY THE OWNER SHALL PROVIDE SPECIAL INSPECTIONS IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE AS OUTLINED IN TABLE 2 FOR THE STRUCTURAL SYSTEMS OUTLINED HEREIN. ALL OTHER ELEMENTS SHALL COMPLY WITH THE SPECIAL INSPECTION & TESTING REQUIREMENTS OF CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.
- THE TESTING AGENCY SHALL PROVIDE THE ENGINEER OF RECORD, THE OWNER, AND THE BUILDING OFFICIAL COPIES OF ALL RELEVANT TEST REPORTS AND SPECIAL INSPECTIONS.
- INSPECTION/TESTING COMPANIES SHALL BE SUBMITTED TO, AND APPROVED BY, THE ENGINEER PRIOR TO COMMENCEMENT OF TESTING.
- SPECIAL INSPECTION REQUIREMENTS FOR SEISMIC RESISTANCE SHALL APPLY TO THE SYSTEMS AND COMPONENTS LISTED IN STATEMENT OF SPECIAL INSPECTION TABLE 7 AND 8. EQUIPMENT INCLUDES: PUMPS, MOTORS, MOTOR CONTROL CENTERS, STANDBY GENERATORS, REMOTE TELEMETRY UNIT, AND THE AUTOMATIC TRANSFER SWITCH.

TABLE 7					
REQUIRED VERIFICATION AND INSPECTION OF SEISMIC REQUIREMENTS					
ITEM NO.	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCE STANDARD / SPECIFICATION	IBC / ASCE 7 REFERENCE
ELECTRICAL AND INSTRUMENTATION					
1	INSTALLATION OF SUPPORTS FOR SYSTEMS, THEIR COMPONENTS, AND ANCHORAGES	X	X	-	1705.13.3/ 13.2.2
2	ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY STANDBY POWER	-	X	-	-
3	ANCHORAGE OF OTHER ELECTRICAL OR MECHANICAL EQUIPMENT OVER 400 LB. ON FLOORS OR ROOFS	-	X	X	-
PROCESS MECHANICAL					
4	ANCHORAGE OF PIPELINES GREATER THAN 8 INCHES IN DIAMETER	-	X	-	X
5	ANCHORAGE OF DUCTS GREATER THAN 6 SF IN CROSS-SECTION	-	X	-	X
BUILDING MECHANICAL					
6	INSTALLATION OF OTHER SEISMIC SUPPORTS FOR DESIGNATED ELECTRICAL SYSTEMS AND THEIR COMPONENTS	-	X	X	1705.13.3/ 13.2.2

TABLE 8							
TESTING FOR SEISMIC RESISTANCE							
MATERIAL	TYPE OF SCOPE	STANDARD	IBC CODE REFERENCE	FREQUENCY	BY WHOM	REQUIRED REPORTING TO DESIGNATED DISTRIBUTION LIST	COMMENT
DESIGNATED SEISMIC SYSTEM COMPONENTS (AND ASSOCIATED ANCHORAGES) SUBJECT TO PROVISIONS OF ASCE 7 SECTION 13.2.1	CERTIFICATE OF COMPLIANCE	ASCE 7 SECTION 13.2.1	1705.12.4	EACH SYSTEM OR COMPONENT	MANUFACTURER SUBMITTAL	X	TESTING OF SYSTEMS AND THEIR ANCHORAGE SHALL BE IN CONFORMANCE WITH TABLE 7, 8, AND IBC 1705.12.4 AND 1705.13.3
DESIGNATED SEISMIC SYSTEM COMPONENTS (AND ASSOCIATED ANCHORAGES) SUBJECT TO PROVISIONS OF ASCE 7 SECTION 13.2.2		ASCE 7 SECTION 13.2.2					

POST-INSTALLED CONCRETE ANCHORS, SPECIAL INSPECTION NOTES:

- ADHESIVE:
 - ADHESIVE ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL TRAINED TO INSTALL ADHESIVE ANCHORS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND WITH STRICT ADHERENCE TO THE PROVISIONS WITHIN THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.
 - AT THE TIME OF ANCHOR INSTALLATION, IN ACCORDANCE WITH ACI 318-14 SECTION 17.1.2, ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS.
 - WHERE THE AUTHORITY HAVING JURISDICTION OVER THIS PROJECT REQUIRES ADHERENCE TO ACI 318-14 SECTION 17.8.2.2, INSTALLATION OF ADHESIVE ANCHORS IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI AND IN ACCORDANCE WITH ACI 318-14 SECTION 17.8.2.2. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.
- MECHANICAL:
 - MECHANICAL ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL TRAINED TO INSTALL MECHANICAL ANCHORS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND WITH STRICT ADHERENCE TO THE PROVISIONS WITHIN THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.



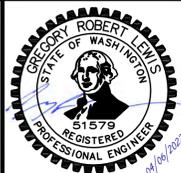
708 Broadway, Suite 110
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(253) 850-2140

NOTICE



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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

GENERAL STRUCTURAL NOTES & QUALITY ASSURANCE PLAN

SHEET

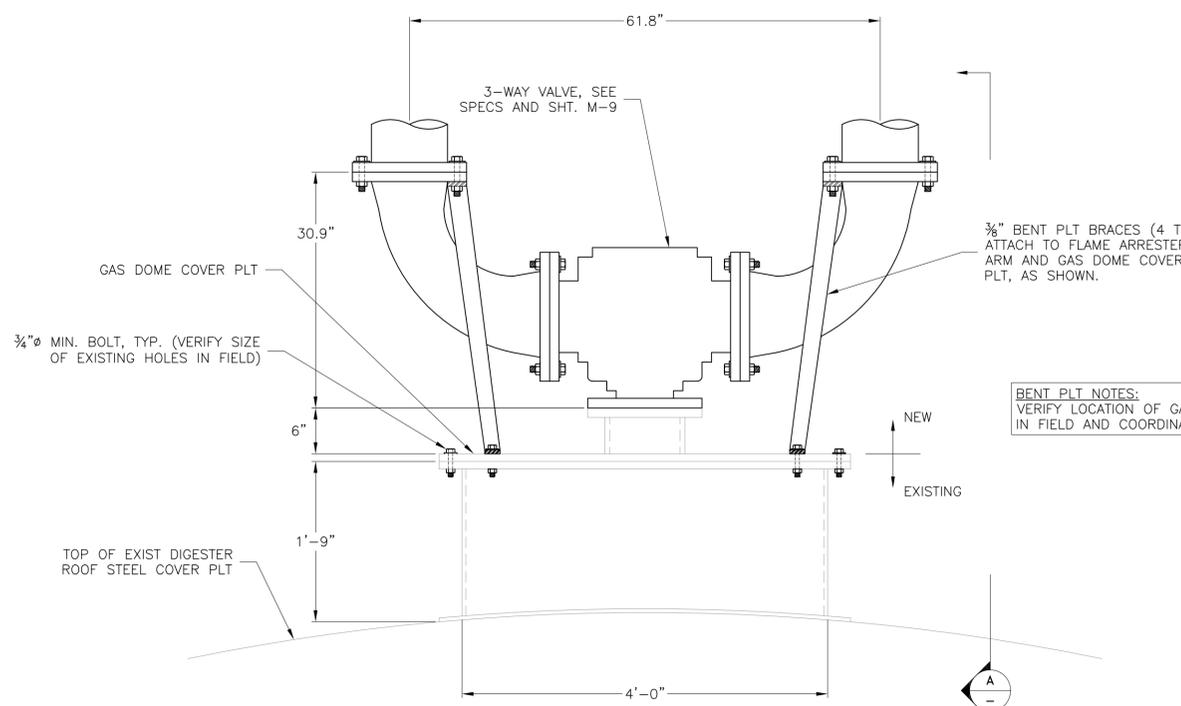
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6 of 27

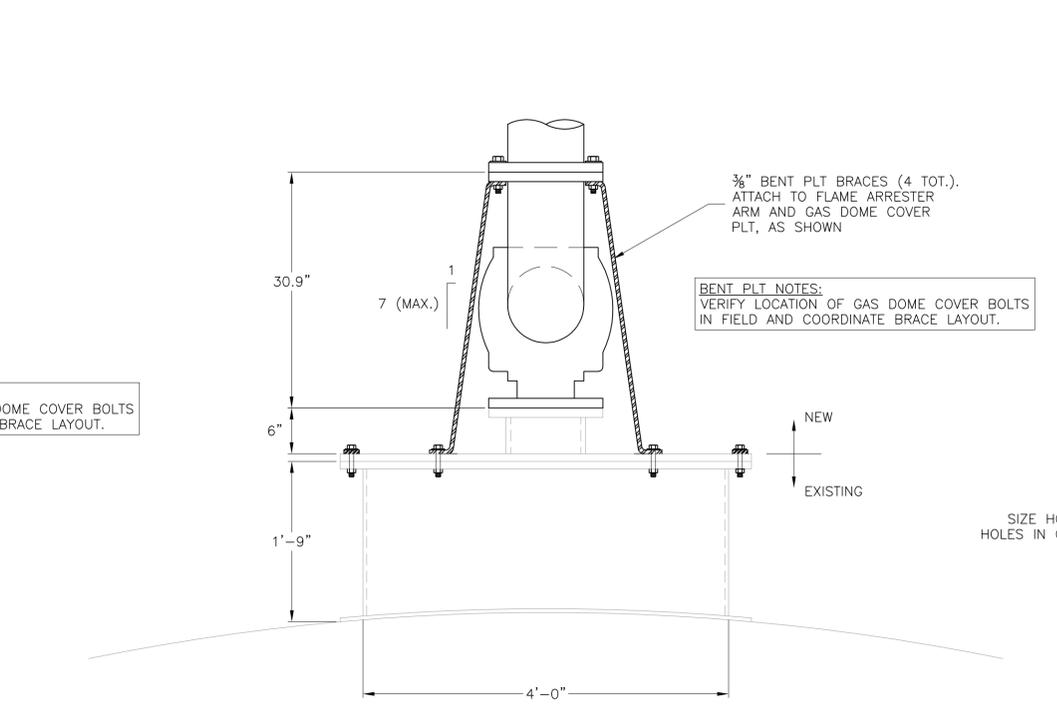
PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

NO.	DATE	BY	REVISION

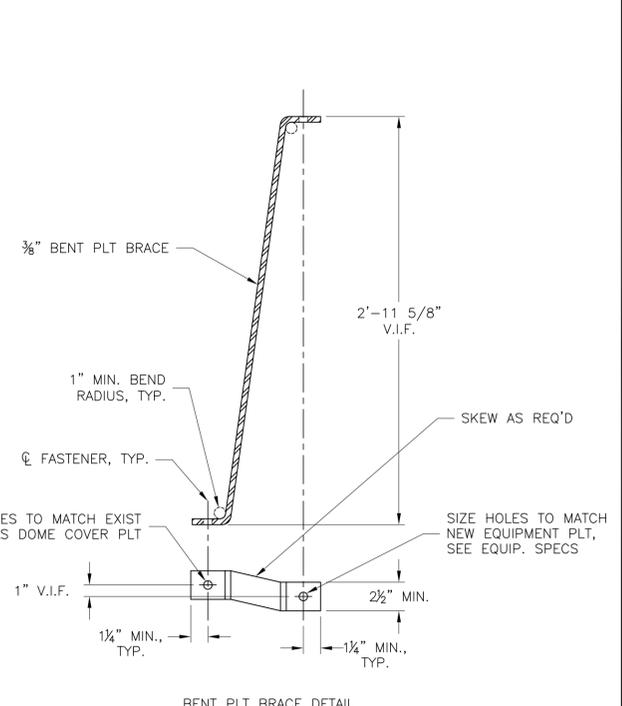
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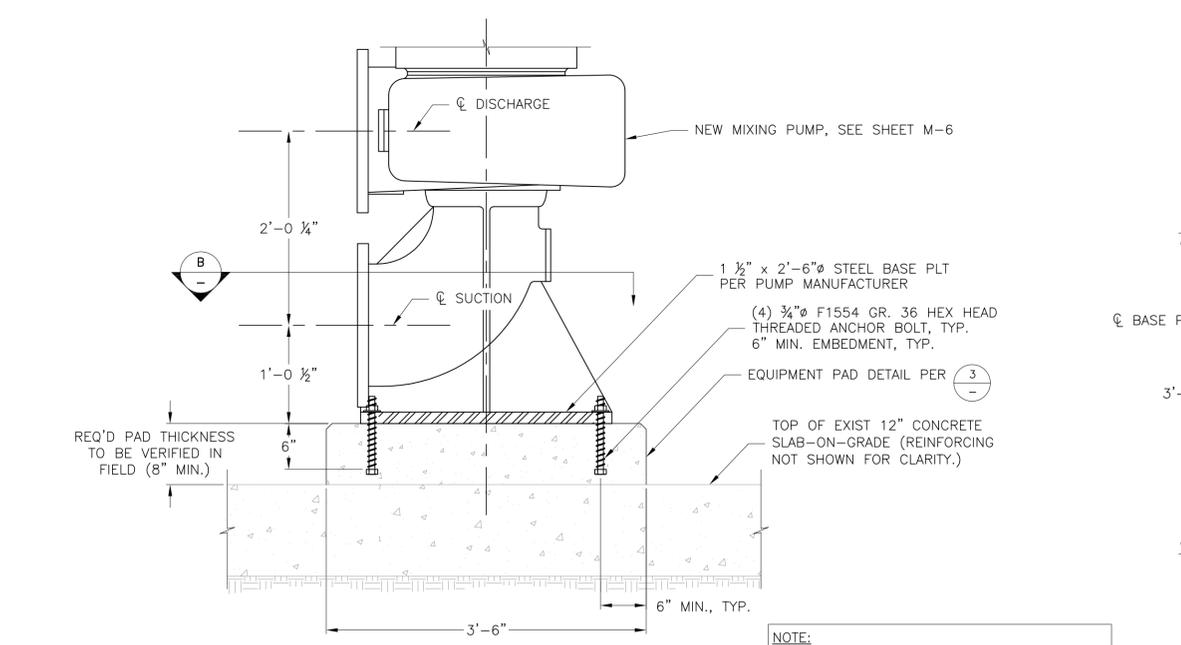
3-WAY VALVE AND PVRV ASSEMBLY SUPPORT DETAIL - FRONT VIEW (1) NO SCALE



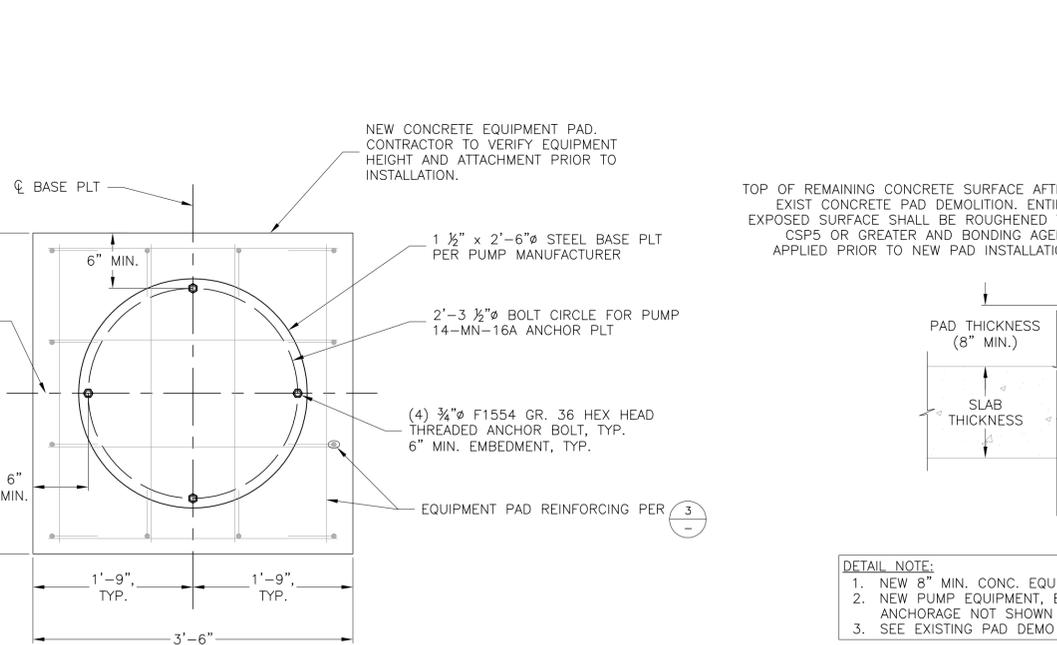
3-WAY VALVE AND PVRV ASSEMBLY SUPPORT DETAIL - SIDE VIEW (A) NO SCALE



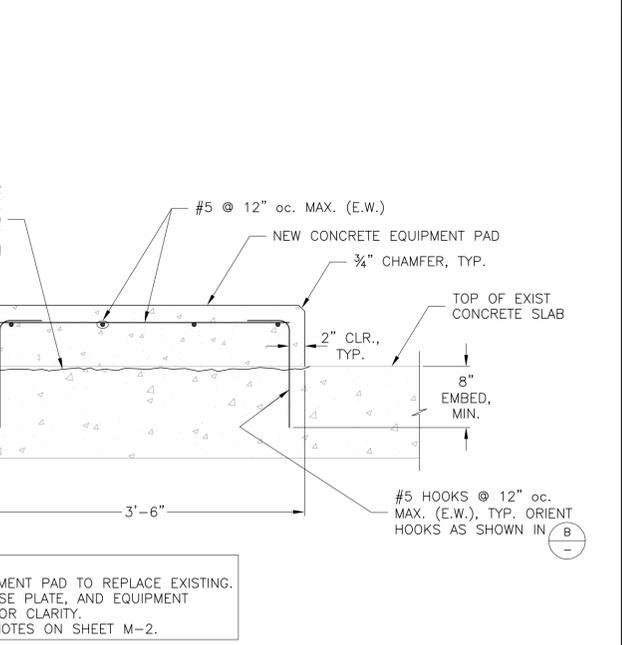
BENT PLT BRACE DETAIL



MIXING PUMP EQUIPMENT PAD DETAIL (2) 1" = 1'-0"



MIXING PUMP BASE PL DETAIL (B) 1" = 1'-0"



DETAIL NOTE:
 1. NEW 8" MIN. CONC. EQUIPMENT PAD TO REPLACE EXISTING.
 2. NEW PUMP EQUIPMENT, BASE PLATE, AND EQUIPMENT ANCHORAGE NOT SHOWN FOR CLARITY.
 3. SEE EXISTING PAD DEMO NOTES ON SHEET M-2.

EQUIPMENT PAD REINFORCING DETAIL (3) 1" = 1'-0"



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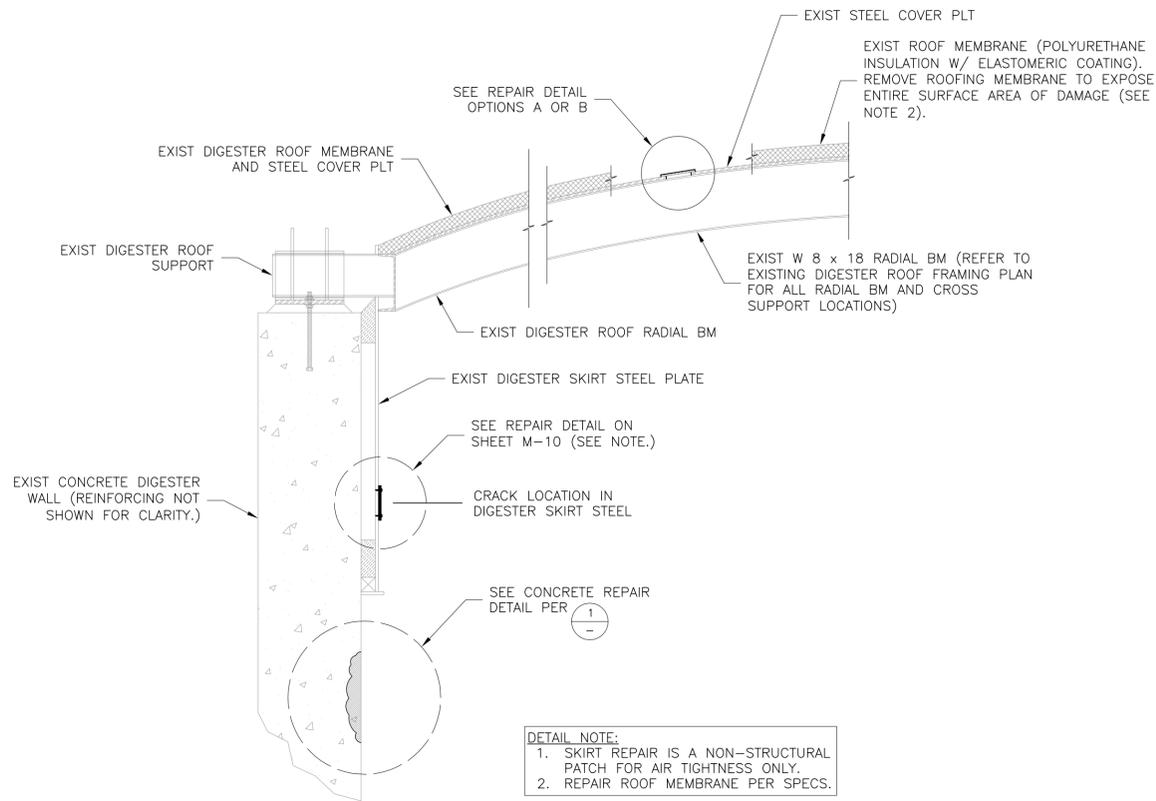
CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

EQUIPMENT SUPPORT DETAILS
 PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

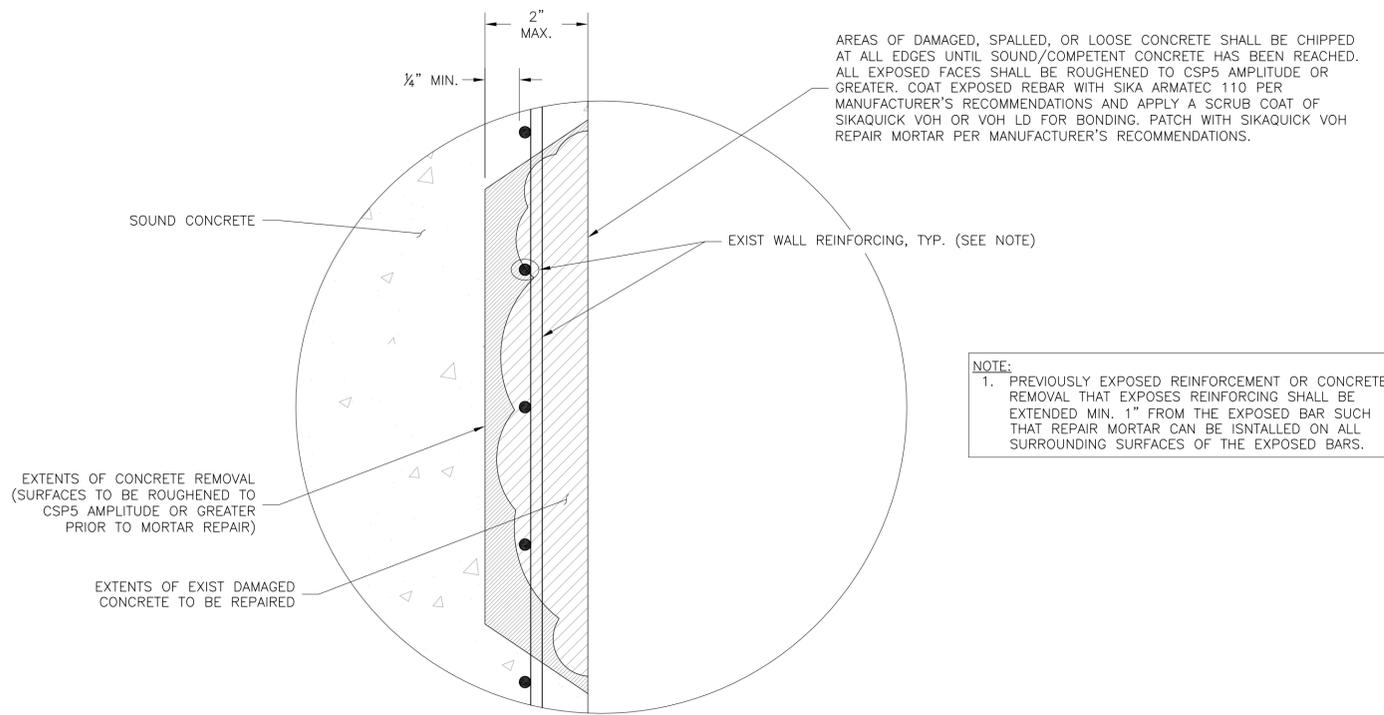
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S-2
 7 of 27

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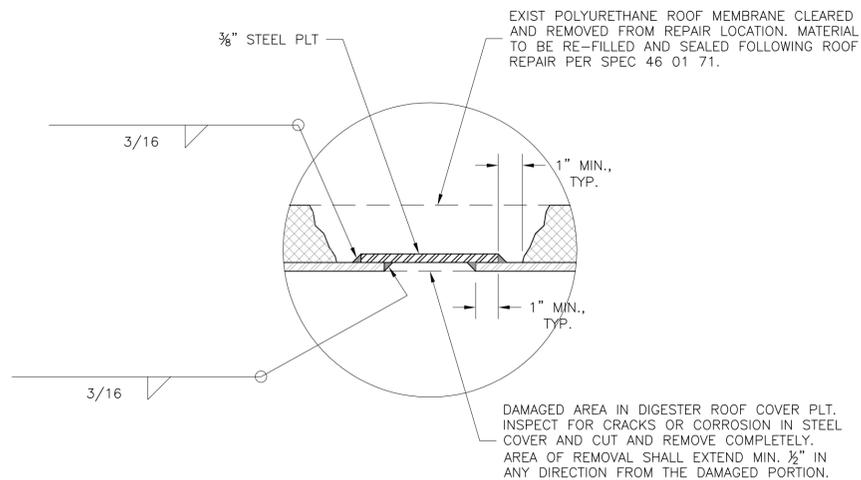
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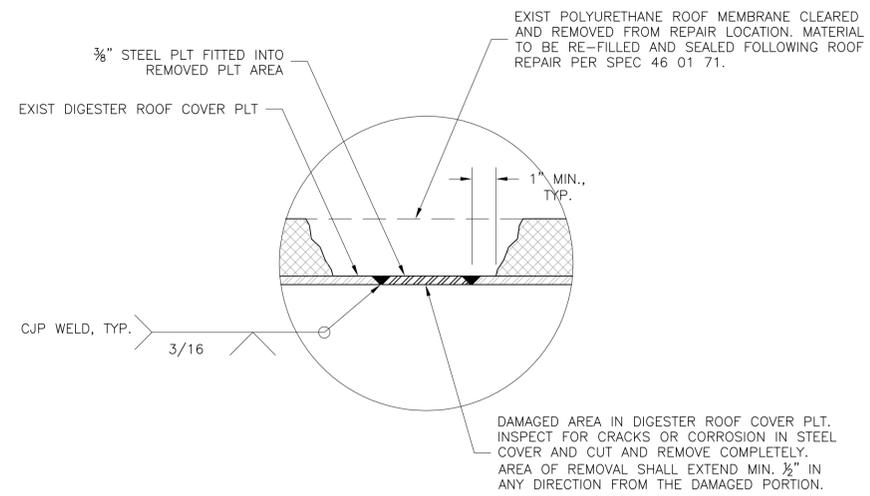
SKIRT STEEL AND CONCRETE WALL DETAIL A
3/4" = 1'-0"



CONCRETE REPAIR DETAIL 1
3" = 1'-0"



OPTION A

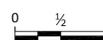


OPTION B



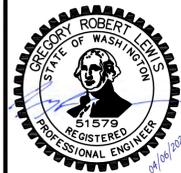
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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DIGESTER REPAIR DETAILS

PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

SHEET

S-3

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GENERAL

 EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED  NEW FACILITIES (SOLID)  EXISTING (OR SCREENED)	 PHOTO ARROW  WATER SURFACE  PROPERTY LINE, PHANTOM LINE OR MATCH LINE  CENTERLINE  HIDDEN LINE OR BURIED OR FUTURE IMPROVEMENTS
---	---

PIPING SCHEDULE

PIPING SYSTEM	ABBREVIATION	LOCATION	SIZE	MATERIAL	SPECIFICATION
THICKENED SLUDGE	THS	ALL	ALL	DI	40 05 10.01
DIGESTED SLUDGE	DS	ALL, EXCEPT MIXING DISCHARGE MANIFOLD INSIDE DIGESTERS	ALL	DI	40 05 10.01
		MIXING DISCHARGE MANIFOLD INSIDE DIGESTERS	16"	HDPE	40 05 10.07
NON-POTABLE WATER	2W	ALL	ALL	SCHD 80 PVC	N/A

PIPING SYSTEMS

PIPING SYSTEMS ARE CALLED OUT BY SIZE FOLLOWED BY PIPING SYSTEM, ENCLOSED AS SHOWN.



EXISTING PIPING*



FUTURE PIPING

PIPE SIZE

PIPING SYSTEM (SEE SEC 40 05 10 OF SPECIFICATIONS)

* PIPING SYSTEM DESIGNATIONS INDICATE TYPE OF SERVICE ONLY AND DO NOT IMPLY PIPE MATERIALS USED.

MECHANICAL PIPE AND FITTINGS

SINGLE LINE	DOUBLE LINE	3D	DESCRIPTION
			FLANGED JOINT
			GROOVED END/ FLANGED JOINT
			PLAIN OR GROOVED END MECHANICAL COUPLING
			PUSH ON, MECHANICAL OR BALL AND SOCKET JOINT
			WELDED JOINT
			SLEEVE TYPE MECHANICAL COUPLING
			RESTRAINED SLEEVE TYPE MECHANICAL COUPLING
			FLANGED COUPLING ADAPTER
			RESTRAINED FLANGED COUPLING ADAPTER
			GROOVED END ADAPTER FLANGE
			UNION
			ELASTOMER AND FABRIC EXPANSION JOINT
			EXPANSION JOINT (SEE SPECS FOR TYPE)
			FLEXIBLE METAL HOSE
			ELBOW UP
			ELBOW DOWN
			TEE UP
			TEE DOWN
			LATERAL UP
			LATERAL DOWN
			CONCENTRIC REDUCER
			ECCENTRIC REDUCER
			EQUIPMENT CONNECTION FITTING (ECF)

MISCELLANEOUS DEVICES

	UTILITY STATION (LETTER, IF ANY, DESIGNATES TYPE)
	HOSE RACK
	FLOOR DRAIN
	CLEANOUT; X=DESIGNATION IF ANY
	SEAL WATER OR WATER PURGE CONTROL UNIT
	AIR OR WATER PURGE FOR LEVEL MEASUREMENT
	PIPE ANCHOR
	IN LINE PRESSURE SENSOR
	ROTAMETER
	XX INSTRUMENT
	DE DENSITY ELEMENT
	FE FLOW ELEMENT
	LE LEVEL ELEMENT
	PE PRESSURE ELEMENT
	PI PRESSURE INDICATOR (GAUGE)
	TE TEMPERATURE ELEMENT
	TI TEMPERATURE INDICATOR

MECHANICAL VALVES

3D	2D	DESCRIPTION	2D	DESCRIPTION	2D	DESCRIPTION
		THREE WAY VALVE		BALL CHECK VALVE		BACK PRESSURE REGULATING VALVE
		GATE VALVE (NORMALLY OPEN)		PUMP DISCHARGE VALVE		PRESSURE REDUCING REGULATOR (SELF-CONTAINED)
		GATE VALVE (NORMALLY CLOSED)		GAUGE OR ROOT VALVE		BACK PRESSURE REGULATING VALVE (SELF-CONTAINED)
		PLUG VALVE (NORMALLY OPEN)		KNIFE GATE VALVE		BACK PRESSURE REGULATING VALVE (SELF-CONTAINED)
		PLUG VALVE (NORMALLY CLOSED)		FLAP GATE		SOLENOID VALVE
		BALL VALVE (NORMALLY OPEN)		BALANCING COCK		DIAPHRAGM OPERATED VALVE
		BALL VALVE (NORMALLY CLOSED)		CIRCUIT SETTER		PRESSURE BALANCE OPERATED VALVE
		BUTTERFLY VALVE		THERMOSTATICALLY CONTROLLED VALVE		MOTOR OPERATED VALVE
		GLOBE VALVE		PRESSURE AND VACUUM RELIEF VALVE		PISTON OPERATED VALVE
		DIAPHRAGM VALVE		VACUUM RELIEF VALVE		CHLORINE INSTITUTE CONTAINER VALVE
		ANGLE VALVE		PRESSURE RELIEF VALVE		MUD VALVE
		FLOAT VALVE		IN-LINE, SPRING LOADED RELIEF VALVE		FLOW BALANCING VALVE
		PINCH VALVE		PRESSURE REGULATING VALVE		
		NEEDLE VALVE				
		DOUBLE LEAF CHECK VALVE				
		CHECK VALVE				

NO.	DATE	BY	REVISION

NOTICE



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**CENTRAL KITSAP
TREATMENT PLANT -
DIGESTER
REHABILITATION**

MECHANICAL LEGEND			
PROJECT NO.:	20-2840	SCALE:	AS SHOWN
DATE:	APRIL 2022		

SHEET
M-1
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EXISTING WEST MIXING PUMP
SCALE: NTS

1

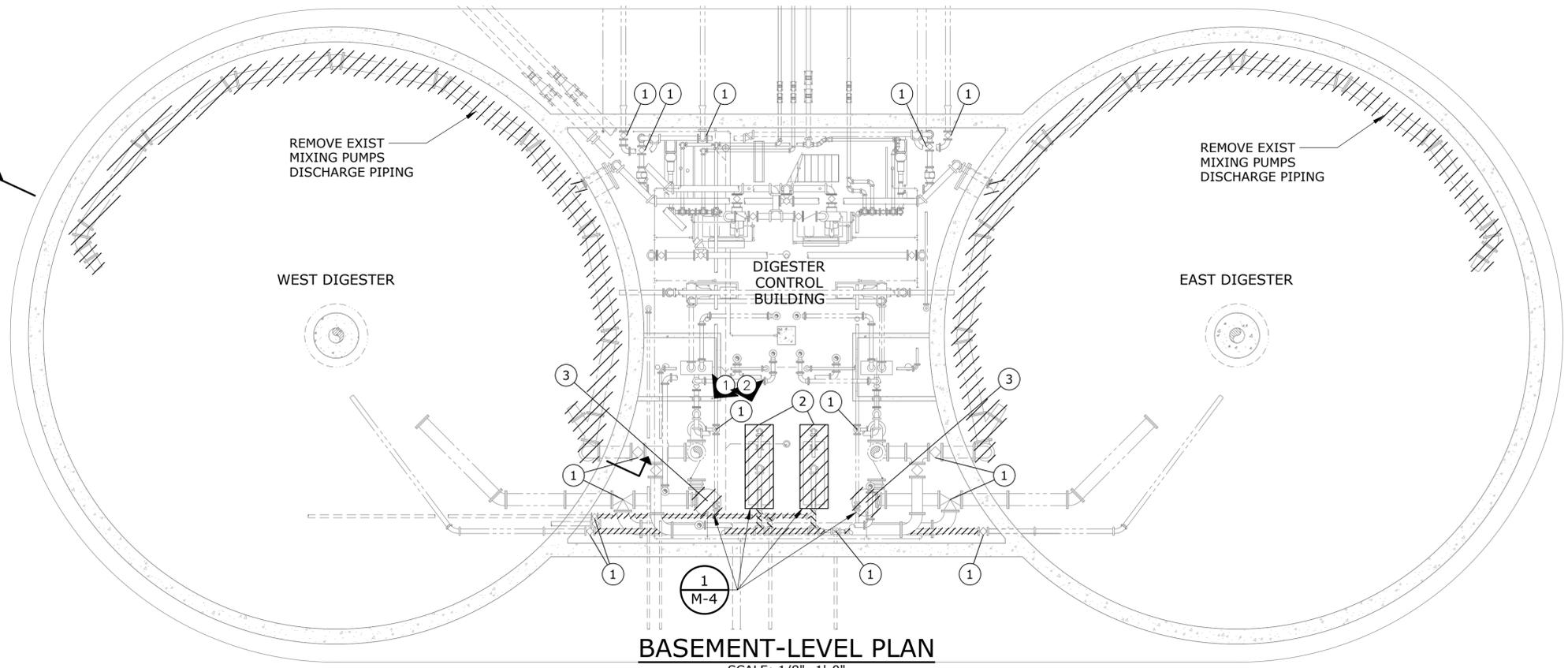


EXISTING TRANSFER PUMPS
SCALE: NTS

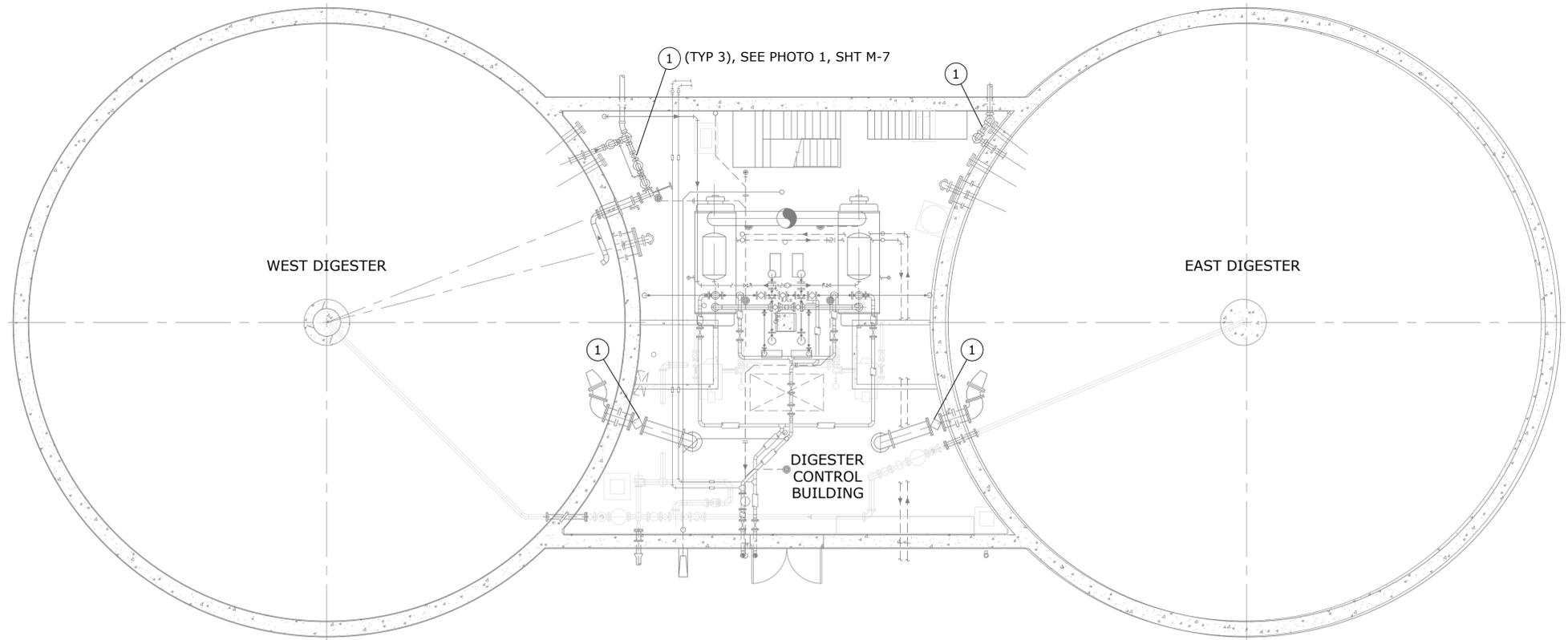
2

KEY NOTES:

- 1 REMOVE AND DISPOSE OF EXISTING VALVE.
- 2 REMOVE ABANDONED TRANSFER PUMPS, MOTORS, PUMP PADS, AND ASSOCIATED PIPING, ELECTRICAL AND CONTROL COMPONENTS PER COUNTY STAFF'S DIRECTION, SEE PHOTO 2 OF THIS SHEET AND DETAIL 1 ON SHEET M-4.
- 3 REMOVE AND DISPOSE OF TWO EXISTING MIXING PUMPS, MOTORS, PUMP PADS, RUBBER EXPANSION JOINT, AND ASSOCIATED SEAL WATER PIPING. SEE PHOTO 1 OF THIS SHEET. KEEP AND PROTECT THE CONNECTING INLET AND OUTLET PIPING, ELECTRICAL AND CONTROL COMPONENTS FOR REUSE. DEMOLISH EXISTING PUMP PAD PER DETAIL 1 ON SHEET M-4.



BASEMENT-LEVEL PLAN
SCALE: 1/8"=1'-0"



GROUND-LEVEL PLAN
SCALE: 1/8"=1'-0"

NO.	DATE	BY	REVISION

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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

PROJECT NO.:	20-2840	SCALE:	AS SHOWN	DATE:	APRIL 2022
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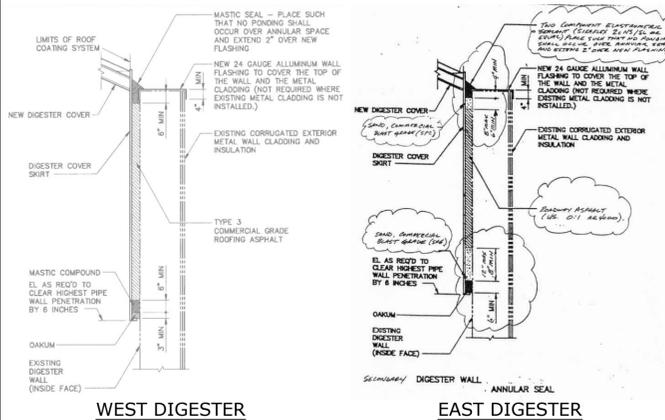
SHEET
M-2
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EXISTING PVRVS, FLAME ARRESTERS, AND 3-WAY PLUG VALVE
SCALE: NTS

1

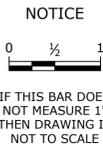


EXISTING ANNULAR SEAL REFERENCE DETAILS
SCALE: NTS

2

KEY NOTES:

- 1 FIELD CUT TOP OF DRAFT TUBE TO THE BOTTOM OF THE REDUCER. KEEP THE EXISTING TIE RODS INTACT. BLAST CLEAN THE CUT SECTION SO AS TO REMOVE UNSOUND MATERIAL, GREASE, AND OTHER CONTAMINATES TO A 3" ZONE AROUND THE CUT. FIELD APPLY SIKAGUARD 62 EPOXY COATING TO BOTH THE CUT AND CLEANED SURFACES.
- 2 REMOVE FLAME ARRESTERS AND DELIVER TO THE COUNTY STAFF FOR REFURBISHING BEFORE REINSTALLING WITH NEW PVRV AND 3-WAY VALVE.
- 3 REMOVE EXISTING ANNULAR SEAL, SEE DETAIL 2, THIS SHEET AND SPECIFICATION SECTION 02 41 00 DEMOLITION.
- 4 EXISTING ANNULAR SEAL REFERENCE DETAIL IS FROM 1991 AS-BUILTS FOR CONTRACTOR REFERENCE ONLY. THE ANNULAR SEAL HAS DEGRADED SIGNIFICANTLY AND ACTUAL CONDITION VARIES.



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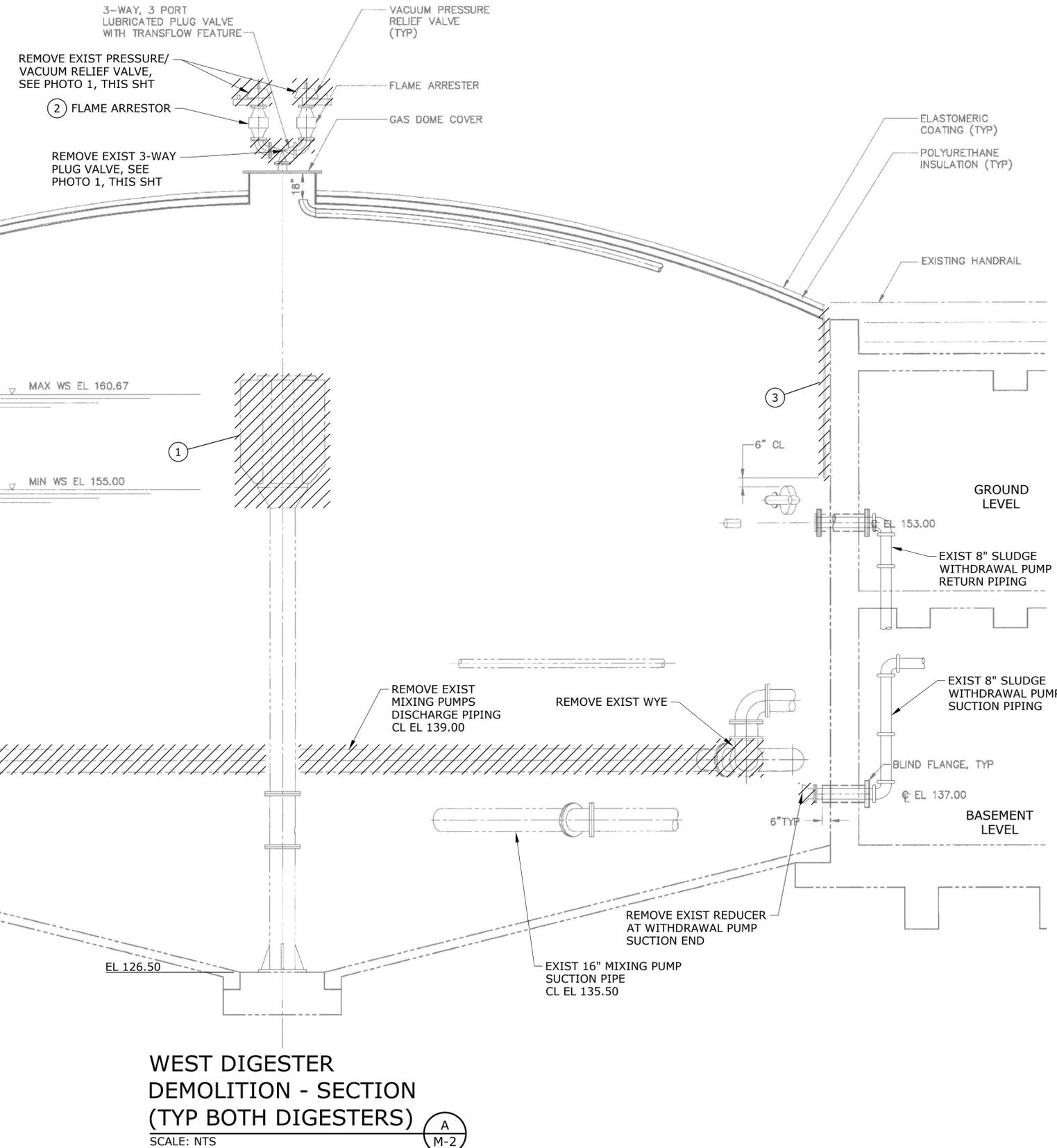
CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DEMOLITION - SECTION

M-3

PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

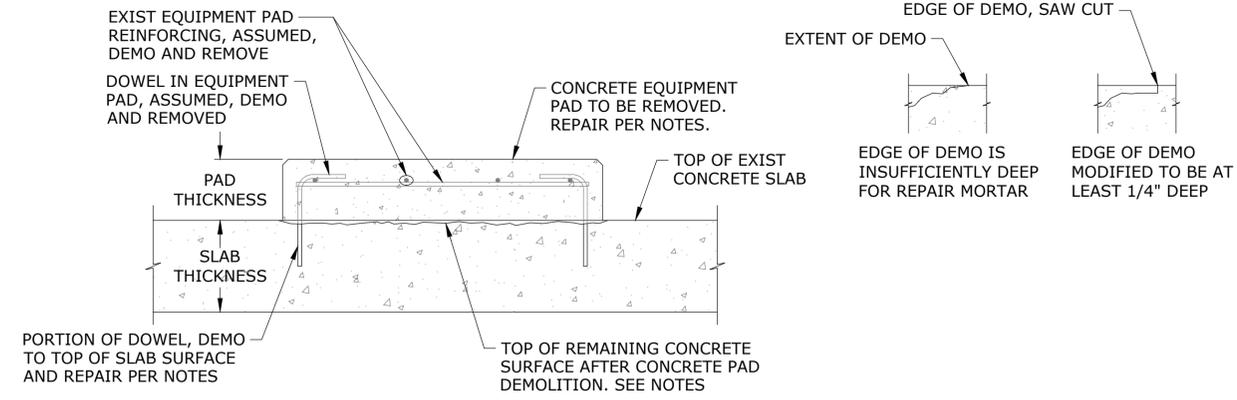
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WEST DIGESTER DEMOLITION - SECTION (TYP BOTH DIGESTERS)
SCALE: NTS

A
M-2

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DETAIL NOTES:

1. ALL DEMOLISHED ELEMENTS SHALL BE COMPLETELY REMOVED TO BE AS FLUSH AS POSSIBLE WITH THE FACE OF THE EXISTING REMAINING ELEMENTS/SURFACES.
2. REBAR SHALL BE CUT/GROUND BACK TO REMAINING SURFACE. COAT CUT REBAR SURFACE WITH SIKA ARMATEC 110.
3. FOR DAMAGED AREAS THAT ARE TO BE HIDDEN OR RE-COVERED WITH NEW ELEMENTS, TREAT REBAR WITH SIKA ARMATEC 110, SEE SHEET S-2 FOR EQUIPMENT PAD INSTALLATION.
4. CARE SHALL BE TAKEN TO MINIMIZE DAMAGE TO REMAINING VISIBLE SLAB SURFACES.
 - 4.1. FOR MINIMAL DAMAGE TO THE CONCRETE SURFACE THAT IS TO BE LEFT EXPOSED, GRIND CONCRETE SURFACE SMOOTH.
 - 4.2. FOR MODERATE DAMAGE TO THE CONCRETE SURFACE THAT IS TO BE LEFT EXPOSED, GRIND CONCRETE SURFACE SMOOTH AND TREAT WITH (2) COATS OF SIKAGARD 62.
 - 4.3. FOR EXTENSIVE DAMAGE ON CONCRETE SURFACES TO BE LEFT EXPOSED, ENSURE EDGES OF DAMAGE CONCRETE ARE SQUARE CUT AND AT LEAST 1/4" DEEP (SEE FIGURE). FILL DAMAGED AREAS WITH SIKAQUICK VOH

EQUIPMENT PAD REMOVAL DETAIL 1
 SCALE: 1" = 1'-0" M-2

NO.	DATE	BY	REVISION

NOTICE
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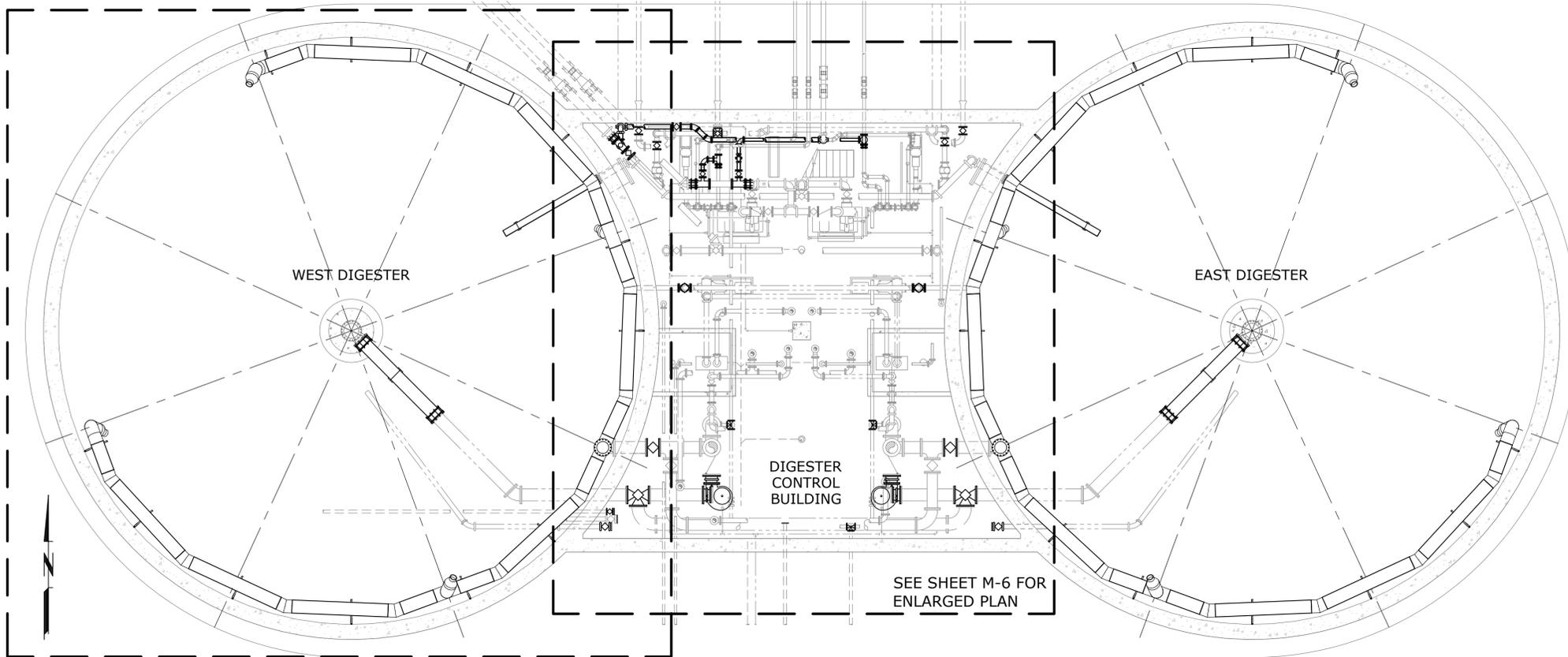
CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DEMOLITION - DETAIL			
PROJECT NO.:	20-2840	SCALE:	AS SHOWN
DATE:	APRIL 2022		

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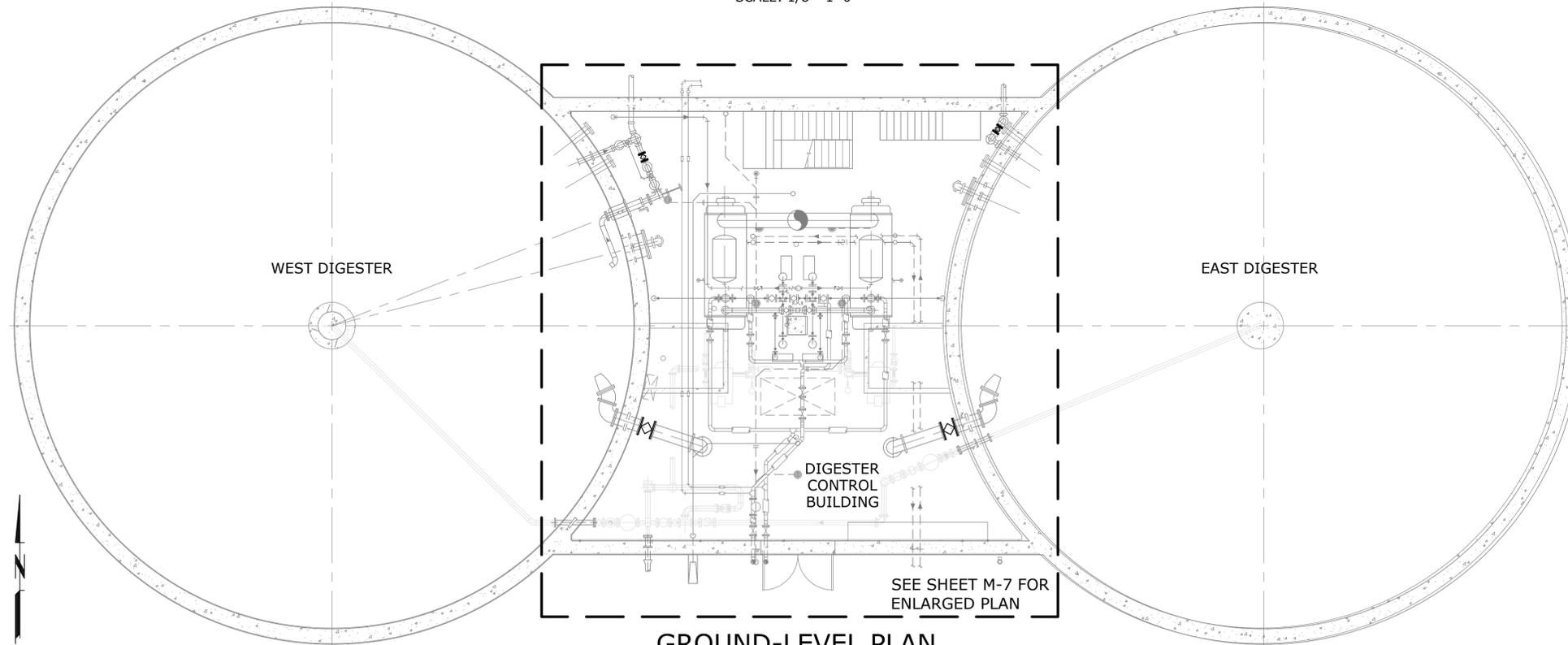
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SEE SHEET M-8 FOR ENLARGED PLAN



BASEMENT-LEVEL PLAN

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



GROUND-LEVEL PLAN

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

NO.	DATE	BY	REVISION

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JJM
 DESIGNED
 HCM
 DRAWN
 MZ
 CHECKED



CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

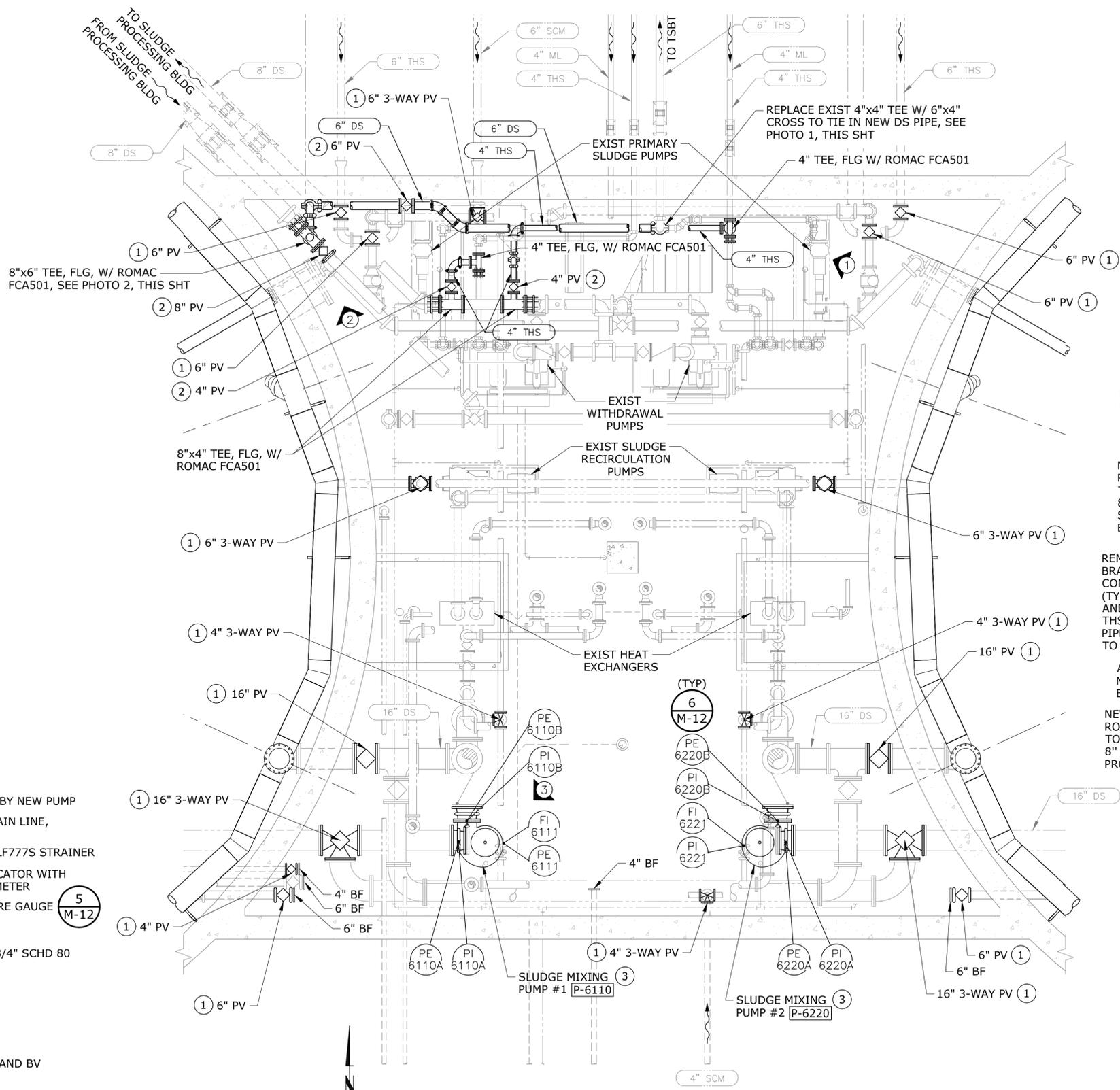
OVERVIEW PLAN			
PROJECT NO.:	20-2840	SCALE:	AS SHOWN
DATE:	APRIL 2022		

SHEET

M-5

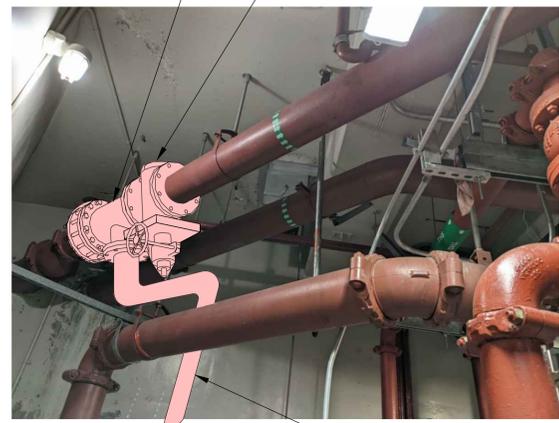
13 of 27

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- KEY NOTES:**
- 1 REMOVE VALVE AND REPLACE IN-KIND WITH NEW VALVE PROVIDED BY COUNTY
 - 2 INSTALL NEW VALVE PROVIDED BY COUNTY
 - 3 INSTALL NEW PUMP PROVIDED BY COUNTY. REPLACE RUBBER EXPANSION JOINT (METRAFLEX OR EQUAL), PRESSURE GAUGES, SEAL WATER ASSEMBLY, AND SEAL WATER DRAIN, SEE PHOTO 3, THIS SHEET

- NOTES:**
1. FIELD VERIFY ALL PIPING DIMENSIONS BEFORE FINALIZING THE SHOP DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR ANY FIELD ADJUSTMENT NECESSARY TO ENSURE THE NEW PIPING TO FIT WITHIN THE EXISTING SYSTEM.
 2. EXISTING SEAL WATER ASSEMBLY COMPONENTS, SIZE, AND CONFIGURATION VARIES. NEW SEAL WATER ASSEMBLY SHALL BE A COMPLETE, NEW ASSEMBLY, INCLUDE ALL COMPONENTS SHOWN ON PLANS, FIELD FIT AS REQUIRED.



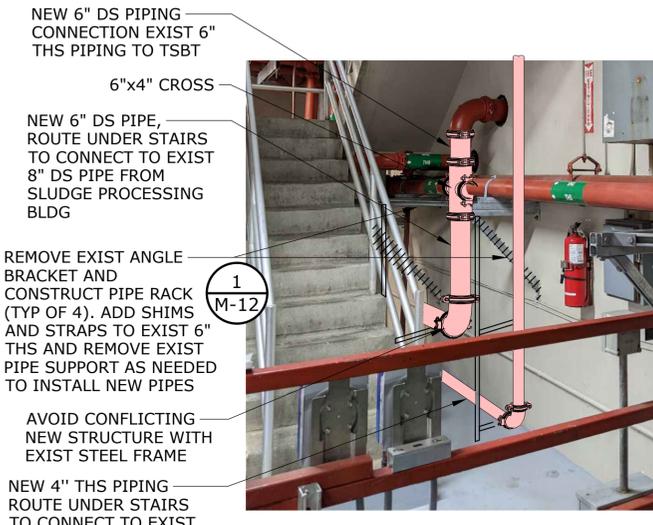
RETURN SLUDGE CONNECTION
SCALE: NTS

2



PUMP SEAL WATER ASSEMBLY
SCALE: NTS

3



BYPASS CONNECTION DETAIL
SCALE: NTS

1

BASEMENT LEVEL PLAN
SCALE: 1/4"=1'-0"

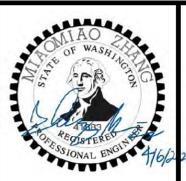
NO.	DATE	BY	REVISION

NOTICE

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JJM DESIGNED
HCM DRAWN
MZ CHECKED



CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DIGESTER CONTROL BUILDING BASEMENT LEVEL PLAN

PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

SHEET **M-6**
14 of 27

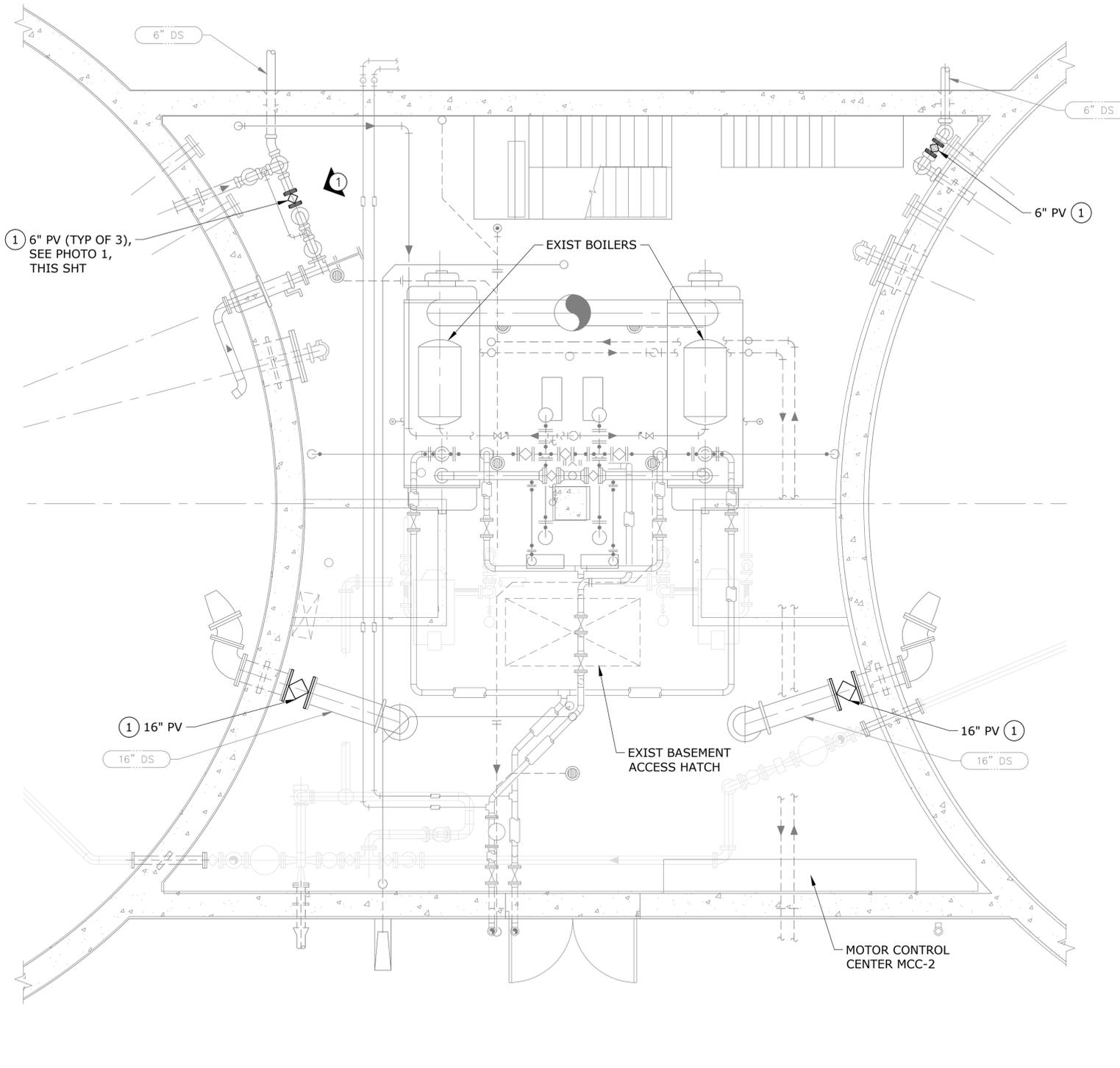
H:\evl_projects\20\2840 - Kitsap County Facility Plans\CAD\Sheets\digester Amendment 2\20-2840-WA-DA2 MECH.dwg M-7 4/5/2022 12:34 PM HCM 23.05 (LMS Tech)



OVERFLOW ASSEMBLY VALVES

SCALE: NTS

1
-



KEY NOTES:

- ① REMOVE VALVE AND REPLACE IN-KIND WITH NEW VALVE PROVIDED BY COUNTY

GROUND LEVEL PLAN

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

NO.	DATE	BY	REVISION

NOTICE
 0 1/2 1
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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DIGESTER CONTROL BUILDING GROUND LEVEL PLAN

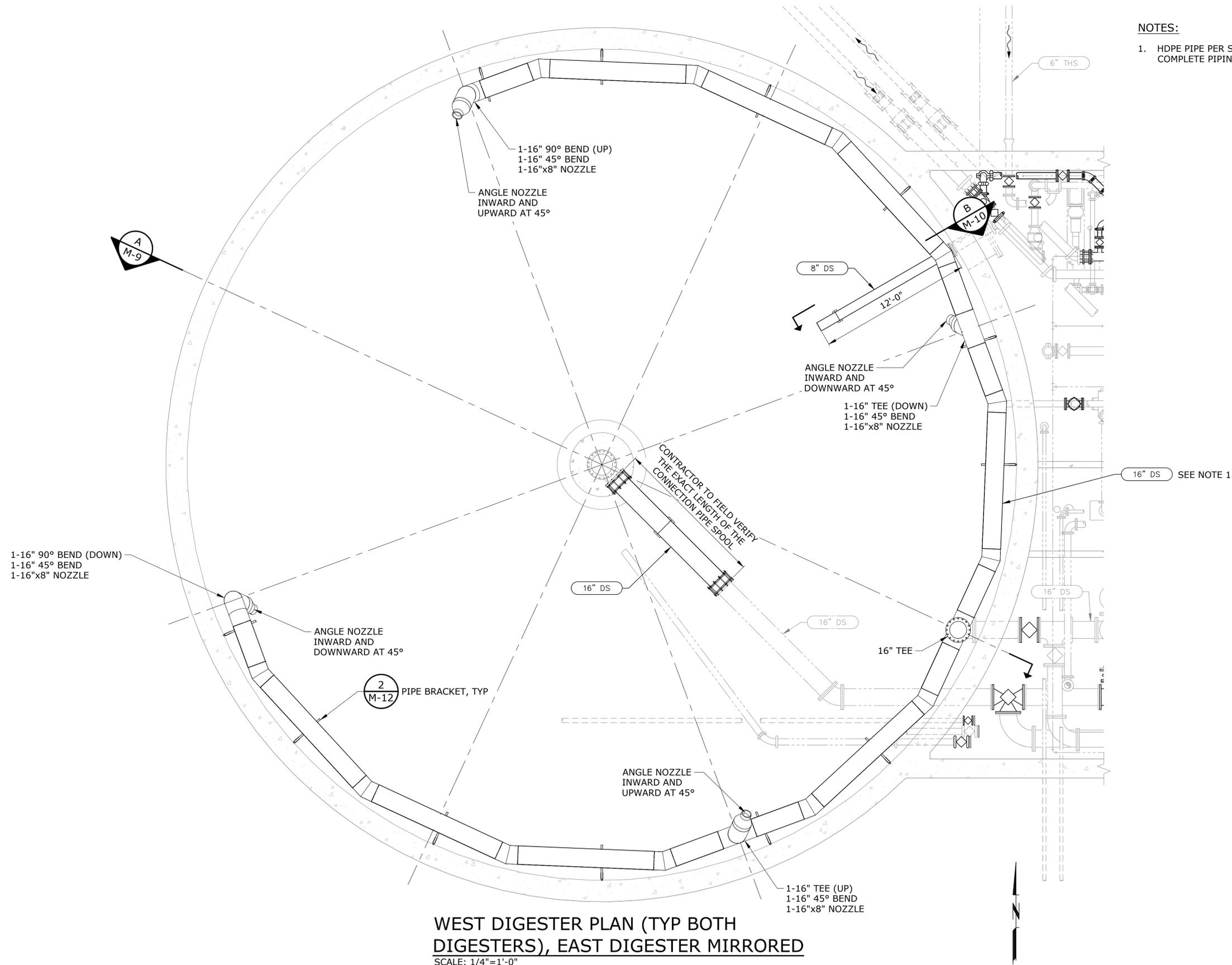
PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

SHEET
M-7
 15 of 27

H:\evl_projects\20\2840 - Kitsap County Facility Plans\CAD\Sheets\digester Amendment 2\20-2840-WA-DA2 MECH.dwg M-8 4/5/2022 12:34 PM HCM 23.05 (LMS Tech)

NOTES:

1. HDPE PIPE PER SPEC SECTION 40 05 10.07. SEE COMPLETE PIPING SCHEDULE ON SHEET M-1.



WEST DIGESTER PLAN (TYP BOTH DIGESTERS), EAST DIGESTER MIRRORED
 SCALE: 1/4"=1'-0"

NO.	DATE	BY	REVISION

NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

JJM
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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

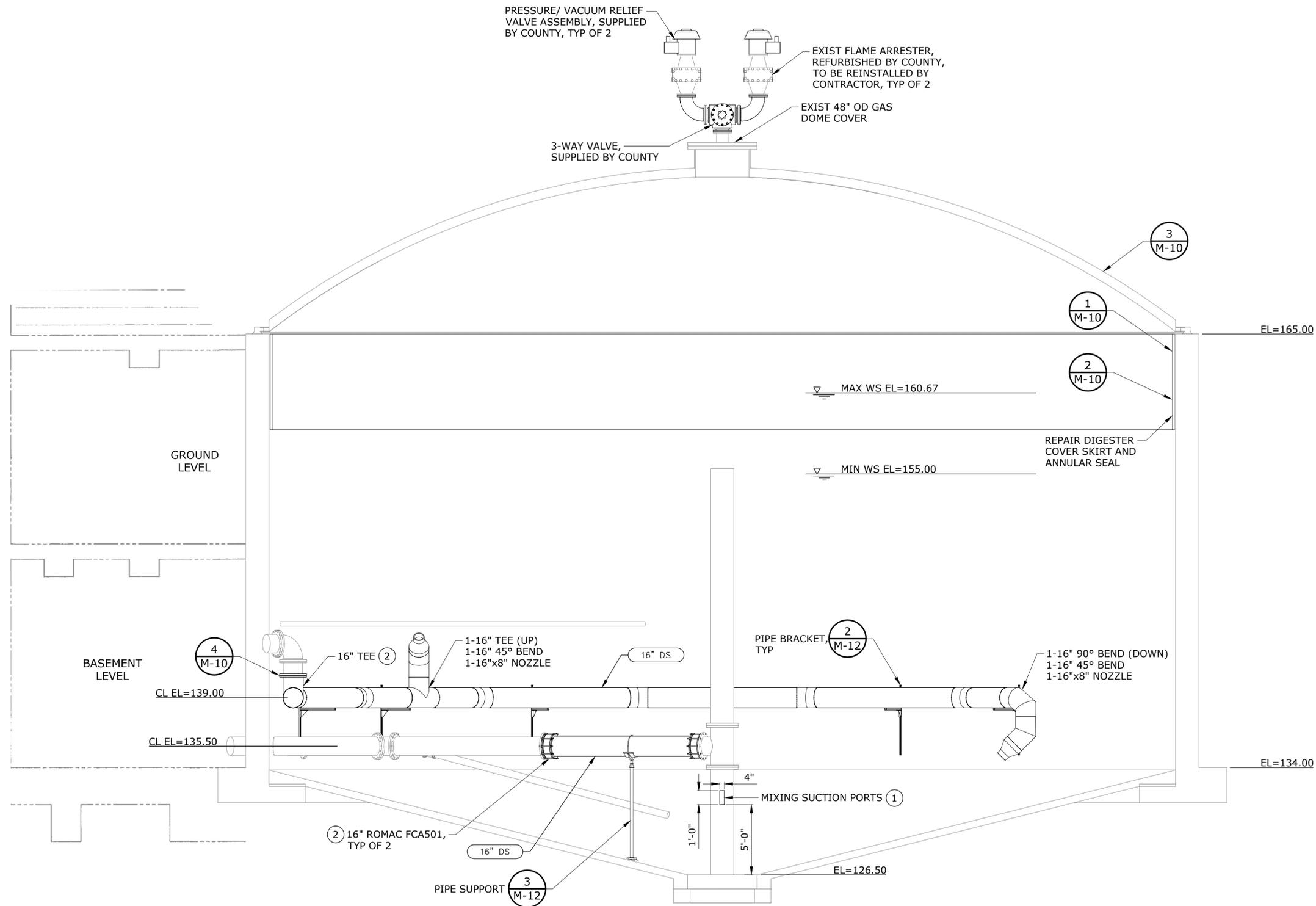
DIGESTER PLAN
 PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

SHEET
M-8
 16 of 27

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KEY NOTES:

- ① FIELD CUT TWO 4"x12"L OPENINGS FACING EACH OTHER AT BOTTOM OF THE DRAFT TUBE. BLAST CLEAN AROUND THE CUT OPENINGS SO AS TO REMOVE UNSOUND MATERIAL, GREASE, AND OTHER CONTAMINATES TO A 3" ZONE AROUND THE CUT. ENSURE THE INTERIOR FACE IS BLAST CLEANED AS WELL. FIELD APPLY SIKAGUARD 62 EPOXY COATING TO BOTH THE CUT AND CLEANED SURFACES.
- ② CLEAN AND PREP EXISTING FLANGE CONNECTIONS PRIOR TO INSTALLING NEW PIPE.



WEST DIGESTER SECTION (TYP BOTH DIGESTERS), EAST DIGESTER MIRRORED
 SCALE: 1/4"=1'-0"

A
M-8

NO.	DATE	BY	REVISION

NOTICE
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 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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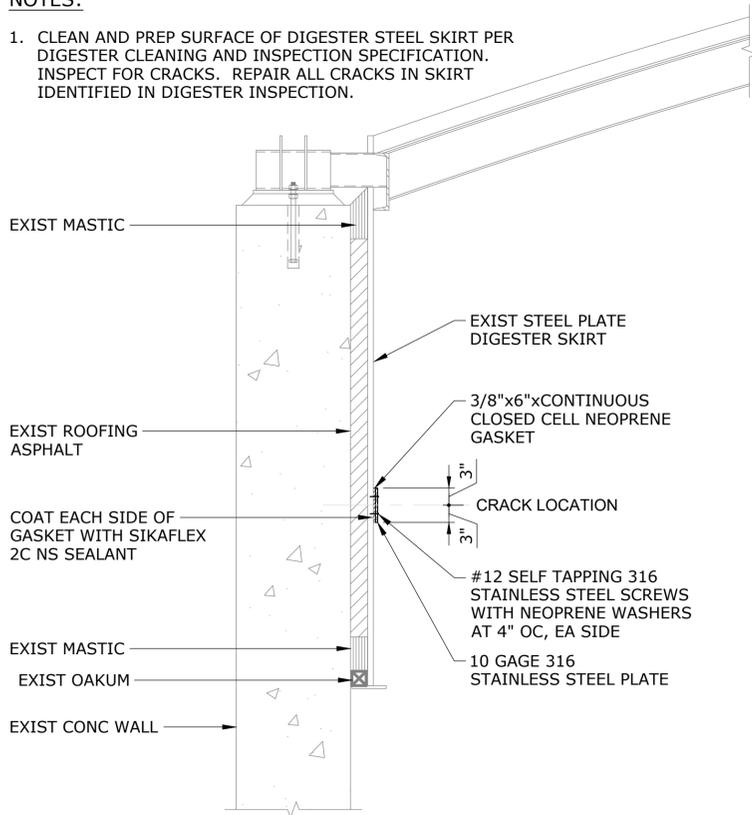
CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

PROJECT NO.:	20-2840	SCALE:	AS SHOWN	DATE:	APRIL 2022
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SHEET
M-9
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NOTES:

- CLEAN AND PREP SURFACE OF DIGESTER STEEL SKIRT PER DIGESTER CLEANING AND INSPECTION SPECIFICATION. INSPECT FOR CRACKS. REPAIR ALL CRACKS IN SKIRT IDENTIFIED IN DIGESTER INSPECTION.

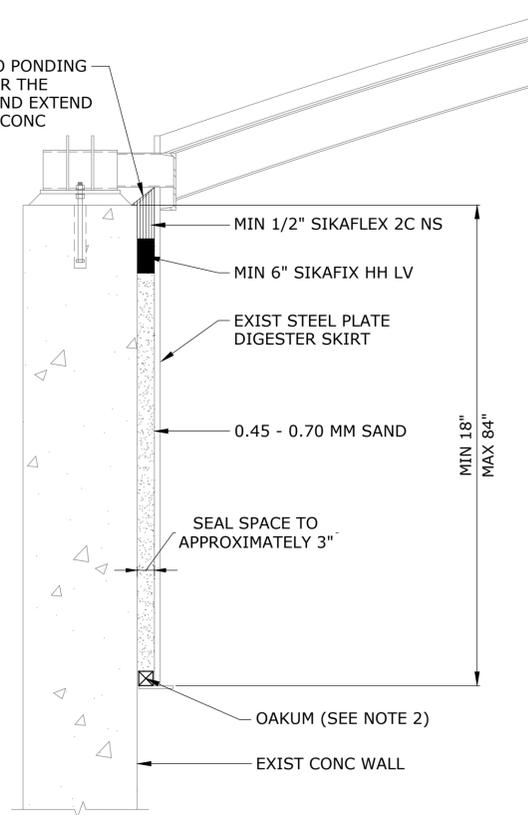


DIGESTER SKIRT CRACK REPAIR DETAIL
SCALE: 3/4" = 1'-0"
1
M-9

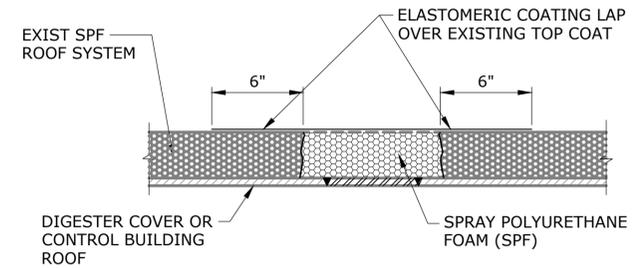
NOTES:

- PER DEMOLITION SPECIFICATION, REMOVE ALL EXISTING MASTIC AND REMOVE ASPHALT FROM THE ANNULAR SEAL SPACE. CLEAN THE ANNULAR SEAL SPACE TO THE EXTENT POSSIBLE, BETWEEN A MINIMUM OF 18 INCHES AND A MAXIMUM OF 84 INCHES. REMOVE EXISTING OAKUM IF POSSIBLE. REPLACE ANNULAR SEAL MATERIALS AS SHOWN IN THE DETAIL AND AS DESCRIBED IN THE DEMOLITION SPECIFICATION.
- IF IT IS NOT POSSIBLE TO CLEAN ANNULAR SPACE TO THE BOTTOM OF THE SKIRT, OAKUM SHALL BE PLACED OVER EXISTING ROOFING ASPHALT, NO LESS THAN 18 INCHES BELOW THE TOP OF THE DIGESTER SKIRT.

PLACE SUCH AS NO PONDING SHALL OCCUR OVER THE ANNULAR SPACE AND EXTEND 2" TO THE TOP OF CONC

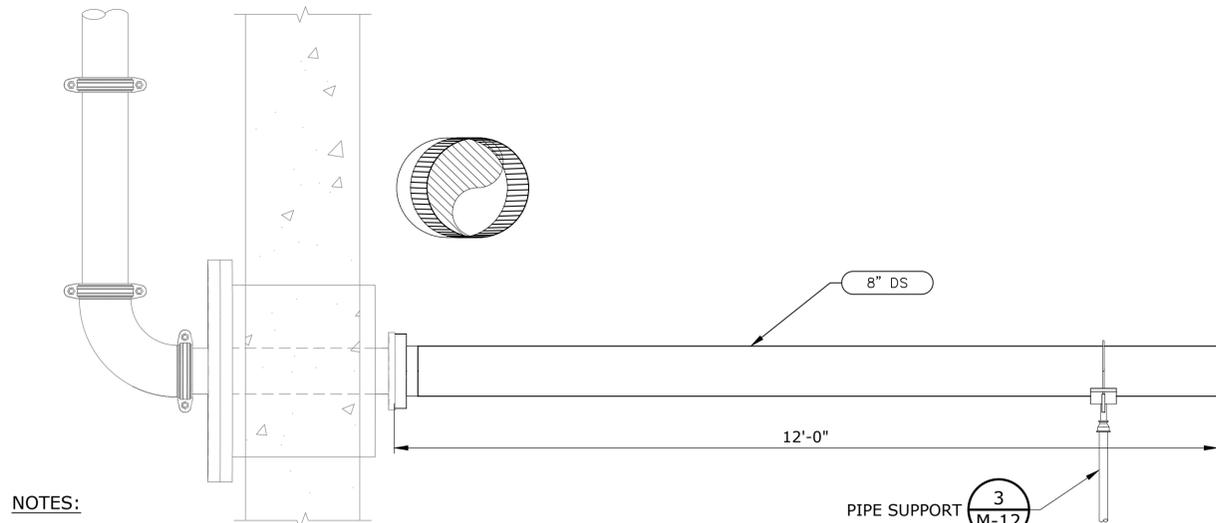


DIGESTER ANNULAR SEAL REPAIR DETAIL
SCALE: 3/4" = 1'-0"
2
M-9



ROOF DETAIL

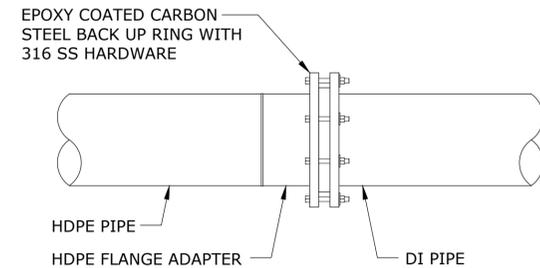
EXTERIOR INSULATION REPAIR DETAIL
SCALE: 3" = 1'-0"
3
M-9



NOTES:

- CLEAN AND PREP EXISTING FLANGE CONNECTIONS PRIOR TO INSTALLING NEW PIPE.

SLUDGE WITHDRAWAL LOOP SUCTION PIPING SECTION
SCALE: 3/4" = 1'-0"
B
M-8



HDPE PIPE FLANGE CONNECTION
SCALE: NTS
4
M-9

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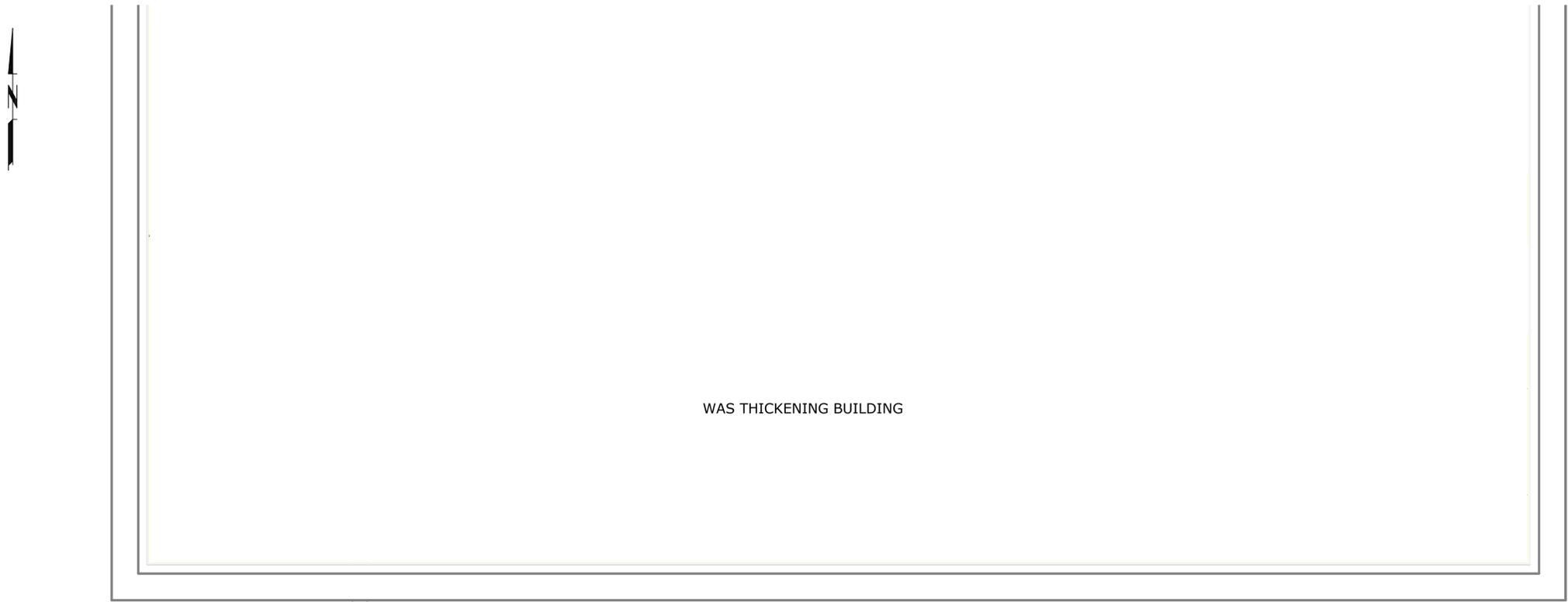
JJM DESIGNED
HCM DRAWN
MZ CHECKED



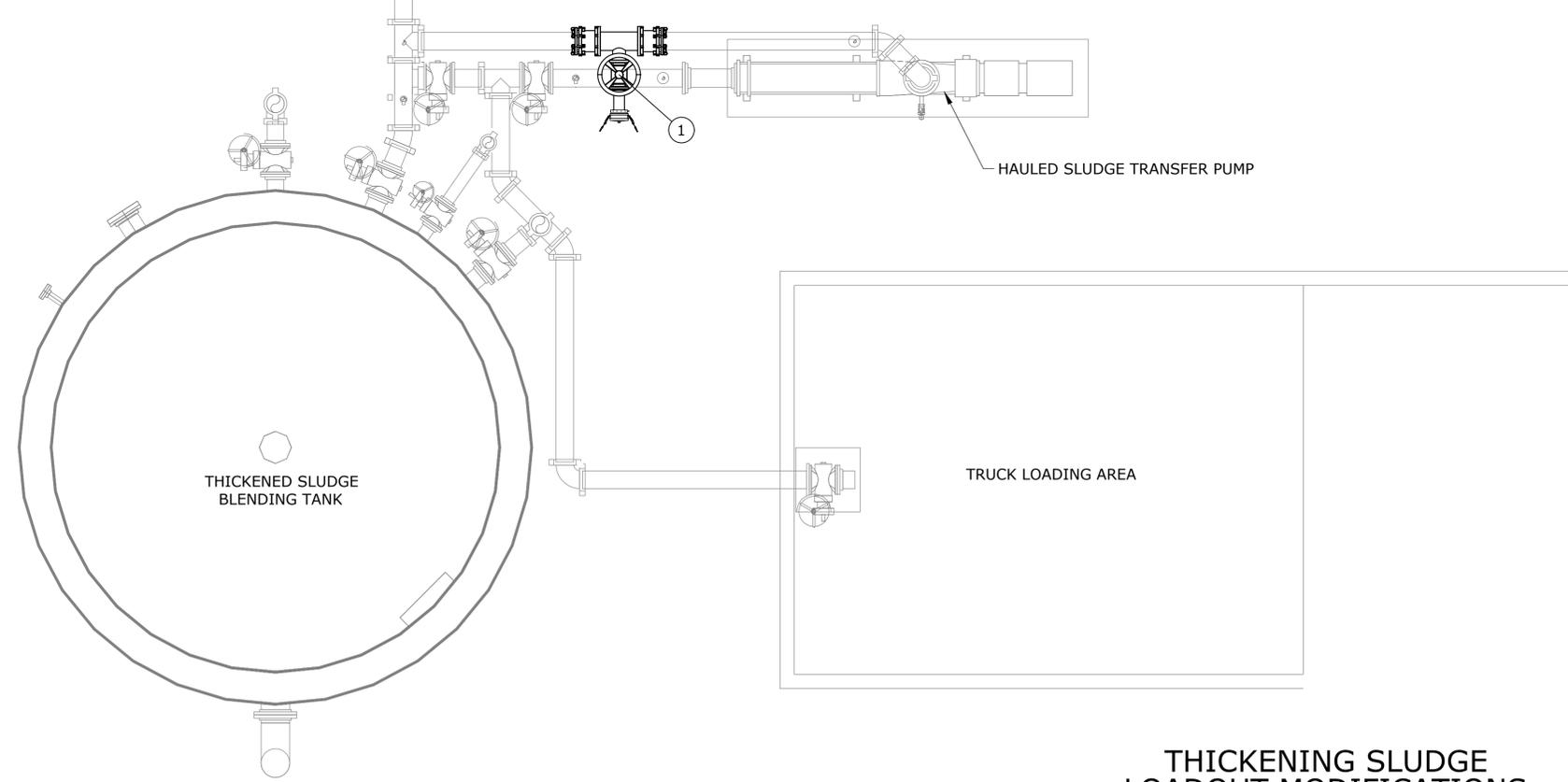
CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DIGESTERS SECTIONS AND DETAILS			
PROJECT NO.:	20-2840	SCALE:	AS SHOWN
DATE:	APRIL 2022		

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WAS THICKENING BUILDING



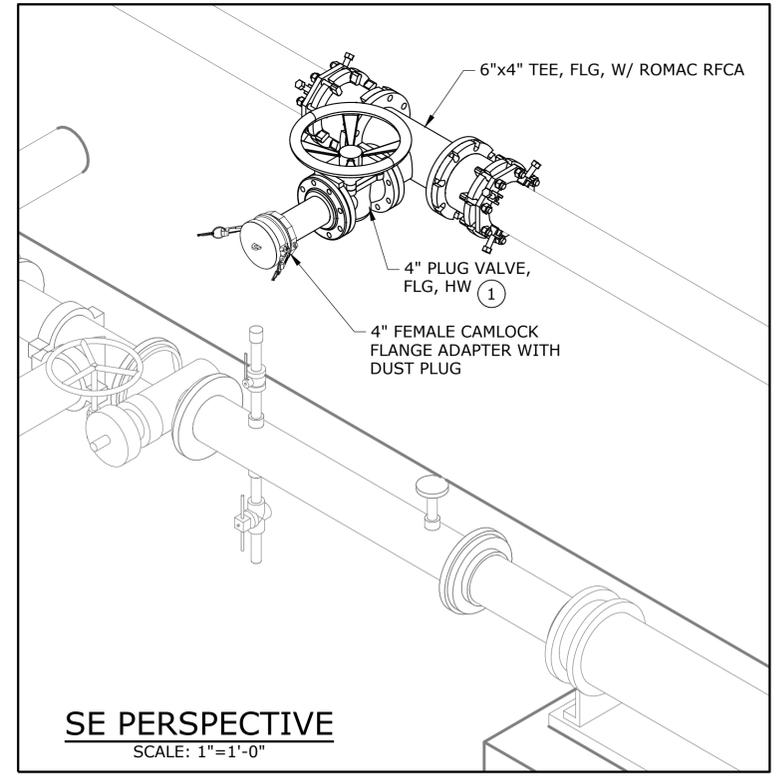
THICKENED SLUDGE BLENDING TANK

HAULED SLUDGE TRANSFER PUMP

TRUCK LOADING AREA

THICKENING SLUDGE LOADOUT MODIFICATIONS
SCALE: 3/8"=1'-0"

- KEY NOTES:**
- ① TRIM EXISTING INSULATION, PROTECT EXISTING HEAT TAPE, INSTALL NEW VALVE PROVIDED BY COUNTY, AND INSTALL NEW INSULATION AROUND NEW VALVE APPARATUS

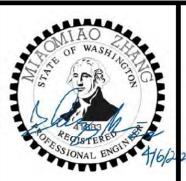


SE PERSPECTIVE
SCALE: 1"=1'-0"

NO.	DATE	BY	REVISION

NOTICE
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JJM
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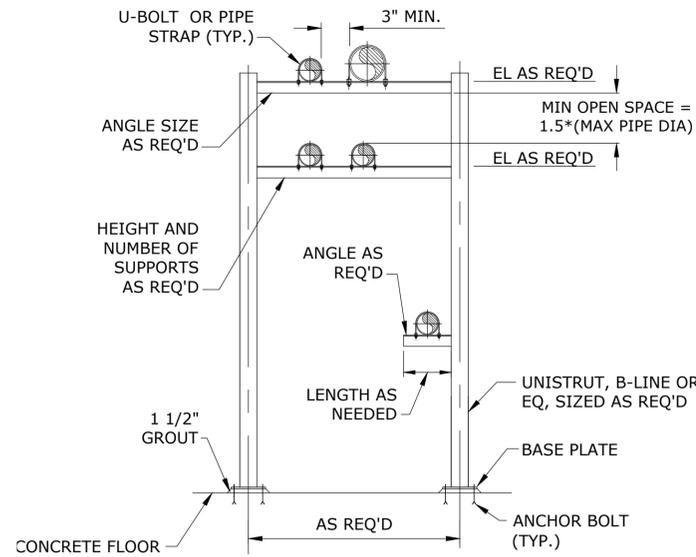


CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

THICKENED SLUDGE LOADOUT MODIFICATIONS
PROJECT NO.: 20-2840 SCALE: AS SHOWN DATE: APRIL 2022

SHEET
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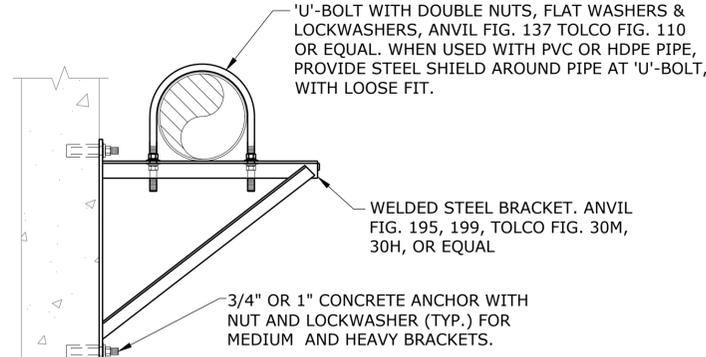
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PIPE RACK DETAIL

SCALE: NTS

1
-

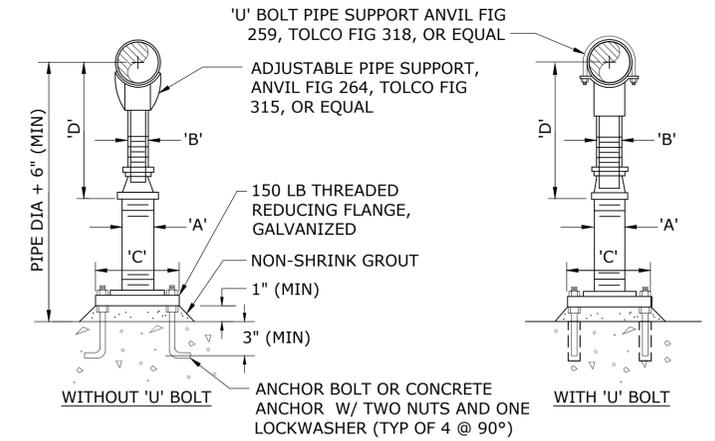


PIPE BRACKET DETAIL

SCALE: NTS

2
-

- NOTES:**
1. GALVANIZE ALL PARTS AFTER FABRICATION. WHERE SUBMERGED, BRACKET, 'U'-BOLT, LOCKWASHERS, AND ANCHORS TO BE TYPE 316 STAINLESS STEEL.
 2. THIS PIPE BRACKET IS LIMITED TO PIPES UP TO 24" DIAMETER, INCLUSIVE.



ADJUSTABLE PIPE SUPPORT APPROXIMATE DIMENSIONS IN INCHES

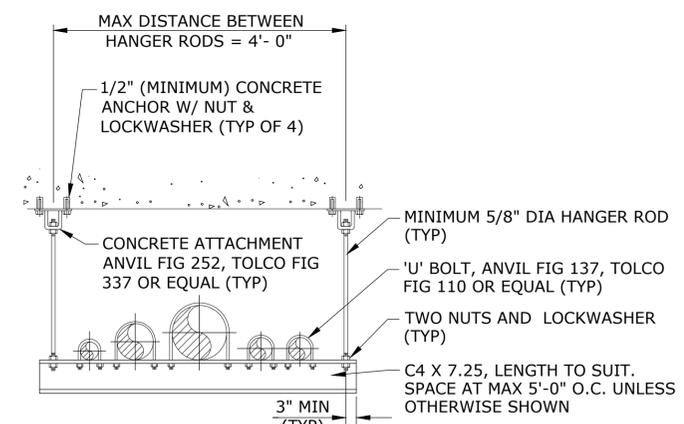
PIPE SIZE	'A'	'B'	'C'	'D' MINIMUM	'D' MAXIMUM
3	2-1/2	1-1/2	9	8-1/4	11-3/4
3-1/2	2-1/2	1-1/2	9	8-1/2	12
4	3	* 2-1/2	9	10-1/4	14
6	3	* 2-1/2	9	11-5/8	15-1/4
8	3	* 2-1/2	9	13-5/8	16-1/2
10	3	* 2-1/2	9	14-5/8	18-1/4
12	3	* 2-1/2	9	15-5/8	19-3/4
14	4	3	11	18-7/8	20-3/4
16	4	3	11	19-7/8	22-1/4
18	6	3-1/2	13-1/2	21-1/4	24
20	6	3-1/2	13-1/2	23-1/4	25-1/2
24	6	4	13-1/2	26-1/2	28-1/4
30	6	4	13-1/2	29-5/8	31-1/2
32	6	4	13-1/2	30-5/8	32-3/4
36	6	4	13-1/2	32-5/8	34-3/4

*SEE MFR

ADJUSTABLE PIPE SUPPORT DETAIL

SCALE: NTS

3
-

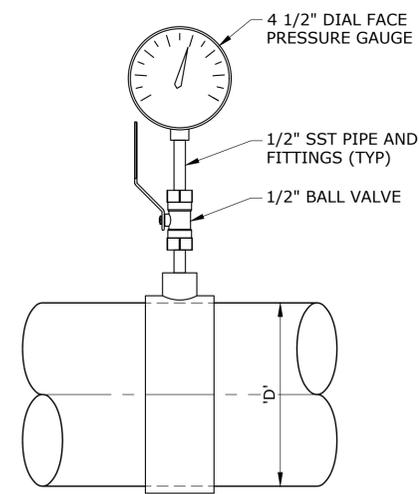


- NOTES:**
1. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATION SECTION 'PIPE SUPPORTS'.
 2. THIS PIPE HANGER IS LIMITED TO PIPE SIZES 1/2" THRU 24" DIAMETER.
 3. THIS PIPE HANGER NOT SUITABLE FOR PRECAST TEE BEAMS.
 4. FOR PVC OR FIBERGLASS PIPES PROVIDE STEEL SHIELD AROUND PIPE AT 'U' BOLT, WITH LOOSE FIT. WRAP COPPER TUBES 360° WITH 2" WIDE 1/8" THICK STRIP OF RUBBER FABRIC.

TRAPEZE PIPE HANGER DETAIL

SCALE: NTS

4
-

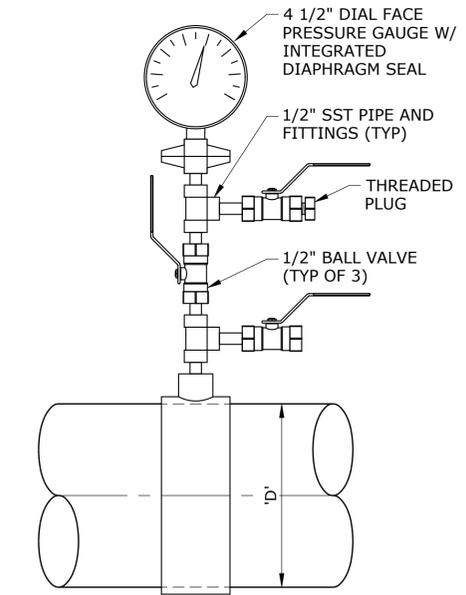


- NOTES:**
1. FOR STL, GALV & PVC 2-1/2" & SMALLER, USE A BUSHING IN A TEE.
 2. FOR DI & FRP ALL SIZES, USE PIPE SADDLE W/ BUSHING.
 3. FOR STL & SST PIPES 3" & LARGER, & PRESSURE VESSELS, USE THRED-O-LET.
 4. PROVIDE SNUBBER FOR POSITIVE DISPLACEMENT PUMP INSTALLATIONS.

SEAL WATER PRESSURE GAUGE DETAIL

SCALE: NTS

5
-



- NOTES:**
1. FOR STL, GALV & PVC 2-1/2" & SMALLER, USE A BUSHING IN A TEE.
 2. FOR DI & FRP ALL SIZES, USE PIPE SADDLE W/ BUSHING.
 3. FOR STL & SST PIPES 3" & LARGER, & PRESSURE VESSELS, USE THRED-O-LET.
 4. PROVIDE SNUBBER FOR POSITIVE DISPLACEMENT PUMP INSTALLATIONS.

MIXING PUMP PRESSURE GAUGE DETAIL

SCALE: NTS

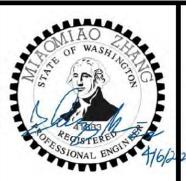
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NO.	DATE	BY	REVISION

NOTICE

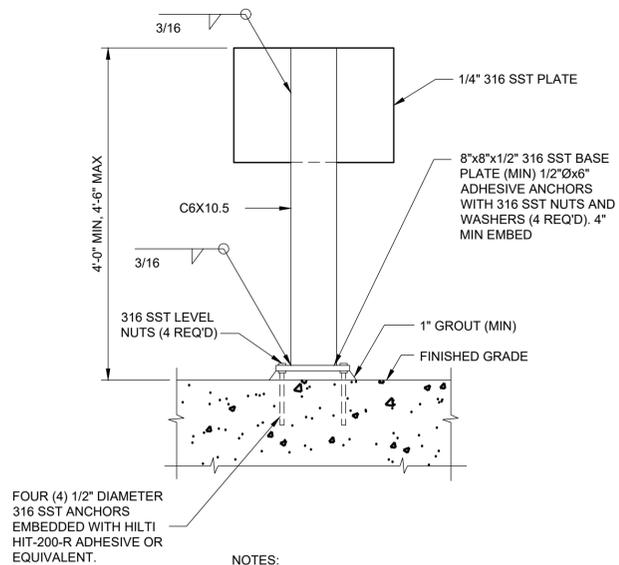
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HCM DRAWN
MZ CHECKED



CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

STANDARD MECHANICAL DETAILS			
PROJECT NO.:	20-2840	SCALE:	AS SHOWN
DATE:	APRIL 2022		



FOUR (4) 1/2\"/>

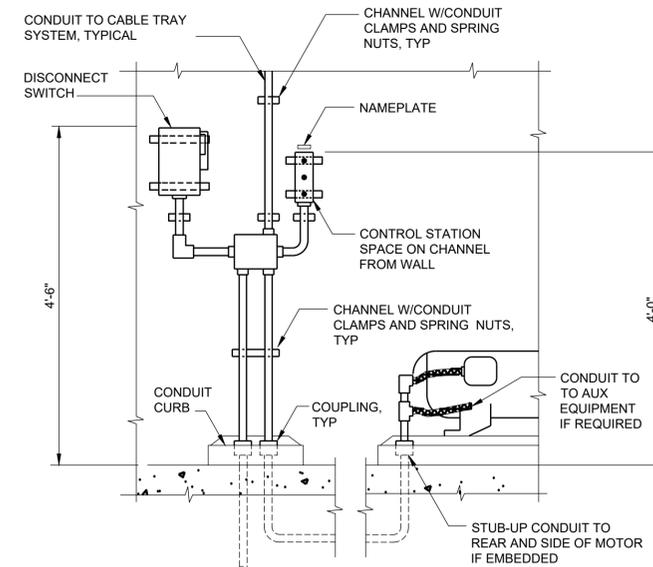
NOTES:

1. 316 SST MOUNTING STAND, BASE PLATE AND 1/4\"/>
2. PANELS, CONTROL STATIONS, BOXES, AND OTHER MISCELLANEOUS ELECTRICAL STATIONS TO BE MOUNTED UTILIZING THIS DETAIL.

MOUNTING STAND (1)
NTS

NOT USED (2)
NTS

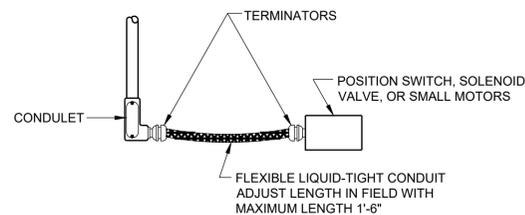
NOT USED (3)
NTS



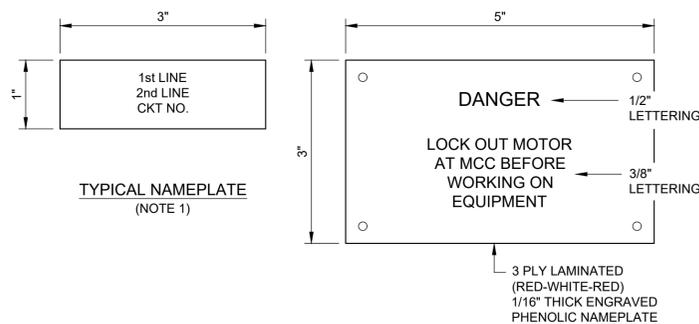
NOTES:

1. MOUNTING HARDWARE AND UNISTRUT TO BE 316 SST.

CONTROL STATION MOUNTED ON WALL (4)
NTS

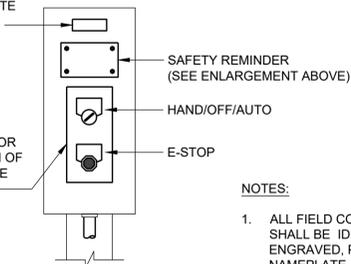


TYPICAL CONDUIT TERMINATION AT LIMIT SWITCHES, PRESSURE SWITCHES, SOLENOID VALVES OR SMALL MOTORS (5)
NTS



NAMEPLATE, NOTE 1 (SEE TYPICAL NAMEPLATE ENLARGEMENT ABOVE)

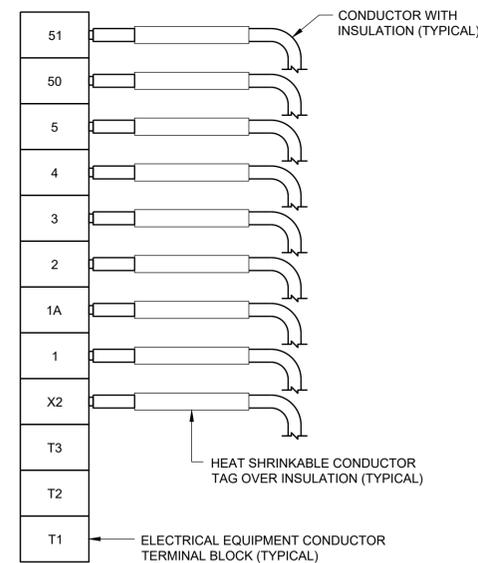
OPERATOR DEVICES SHOWN AS EXAMPLE. FOR EXACT CONFIGURATION OF DEVIDES REQUIRED, SEE CONTROL DIAGRAM



NOTES:

1. ALL FIELD CONTROL STATIONS SHALL BE IDENTIFIED WITH AN ENGRAVED, PHENOLIC NAMEPLATE. SEE SPECIFICATIONS FOR NAMEPLATE REQUIREMENTS.
2. MOUNTING HARDWARE AND UNISTRUT TO BE 316 SST.

CONTROL STATION (CS) NAMEPLATE AND SAFETY REMINDER (6)
NTS



NOTES:

1. PROVIDE CONDUCTOR TAGS AT EACH CONDUCTOR TERMINATION.
2. PROVIDE CONDUCTOR TAGS WITH THE NOMENCLATURE AS SHOWN ON THE WIRING DIAGRAMS.

TYPICAL WIRE TAGGING (7)
NTS

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NO.	DATE	BY	REVISION

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IF THIS BAR DOES NOT MEASURE 1\"/>

L. KIRMEYER
DESIGNED
E. PILAPIL
DRAWN
D. BEST
CHECKED

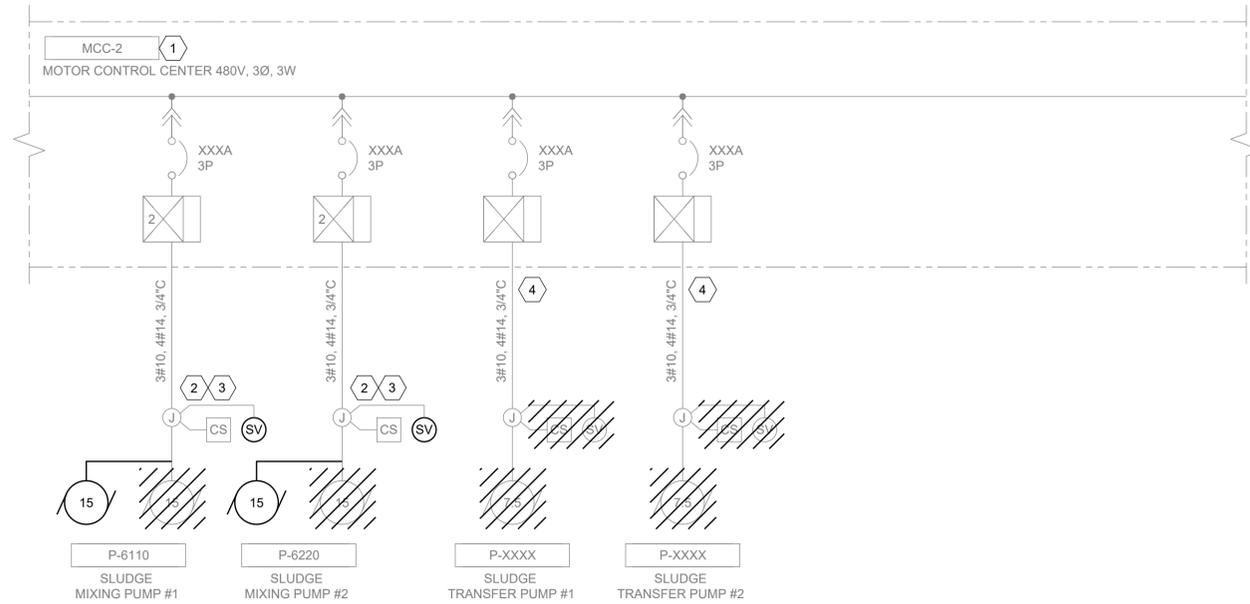


CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

PROJECT NO.: 20-2840 SCALE: NONE DATE: APRIL 2022

ELECTRICAL DETAILS

SHEET
E-2
22 of 27



GENERAL NOTES:

- MOTOR CONTROL CENTER IS GE 7700, CAT.NO. 427X06929M08.
- REMOVE ELECTRICAL WIRING TO ITS SOURCE.

KEY NOTES:

- EXISTING MCC LOCATED IN DIGESTER CONTROL BUILDING, GROUND LEVEL. SEE PLAN.
- REMOVE EXISTING CONDUCTORS. RETAIN EXISTING CONDUITS. EXISTING CIRCUITRY: 3#10, 4#14, 3/4" C. RETAIN CONTROL STATION. REPLACE SOLENOID VALVE.
- INTERCEPT EXISTING CONDUIT AND EXTEND NEW CONDUIT TO EQUIPMENT. INCLUDING BUT NOT LIMITED TO MOTOR, CONTROL STATION, SOLENOID VALVE, ETC. PROVIDE NEW CIRCUITRY: CONDUCTORS AND CONDUIT. MCC-2 TO J-BOX CIRCUITRY: 3#10, 1#10G, 6#14, 3/4". MOTOR CIRCUITRY: 3#10, 1#10G, 3/4". CONTROL STATION CIRCUITRY: 4#14, 1#14G, 3/4". SOLENOID VALVE CIRCUITRY: 2#14, 1#14G, 3/4". FIELD VERIFY CONDUCTOR QUANTITY PRIOR TO INSTALLATION.
- REMOVE EXISTING CONDUCTORS. RETAIN EXISTING CONDUITS. CONVERT TO SPARE. PROVIDE NEW NAMEPLATE. CONTRACTOR TO COORDINATE WITH COUNTY CONSTRUCTION MANAGER ON POTENTIAL POSSIBILITY OF USING THESE FOR TEMPORARY DEWATERING PUMPS OR TEMPORARY ODOR CONTROL UNIT.

SECTION 1	SECTION 2	SECTION 3	SECTION 4	SECTION 5	SECTION 6	SECTION 7	SECTION 8	SECTION 9
WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS
DISTRIBUTION PANEL E (1)	PNL D (1) CKT 11	EAST CLARIFIER THICKENER	GRIT CLASSIFIER	DIGESTER WITHDRAWAL 3-WAY VALVE 1 CV6193	SLUDGE MIXING PUMP #1	BOILER NO.1	HOT WATER RECIRC PUMP NO.2	HOT WATER RECIRC PUMP NO.4
DISTRIBUTION PANEL E (1)	DISTRIBUTION PANEL E MAIN BREAKER AND CONTACTOR	WEST CLARIFIER THICKENER	THICKENED SLUDGE PUMP NO. 1	NEW SHOP BLDG	SLUDGE MIXING PUMP #2	DIG WITHDRAWAL PUMP 1 P6191	HOT WATER RECIRC PUMP NO.1	HOT WATER RECIRC PUMP NO.3
FED FROM SWGR 2961 IN SLUDGE PROCESS BLDG BUSS A (102B)	DISTRIBUTION TRANSFER E	BIOFILTER BLOWER	THICKENED SLUDGE PUMP NO. 2	SECONDARY SLUDGE FROM THICKENER TO DIG (CKT 19) THICKENED SLUDGE PUMP NO. 1, NO. 2 GRINDER 1,2	SLUDGE TRANSFER PUMP #1	SLUDGE RECIRC PUMP NO.1	MUA 6280	DIG WITHDRAWAL 3-WAY VALVE 2 CV6194
		AIR PURIFIER NO.1	GRINDER #1		SLUDGE TRANSFER PUMP #2	SLUDGE RECIRC PUMP NO.2	ROOF EXHAUST FAN F6210	DIG WITHDRAWAL PUMP 2 P6192
WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS	WIRING ACCESS

LEFT

RIGHT

MOTOR CONTROL CENTER MCC-2 A
 NTS E-5



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NOTICE
 0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

L. KIRMEYER
 DESIGNED
 E. PILAPIL
 DRAWN
 D. BEST
 CHECKED



CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

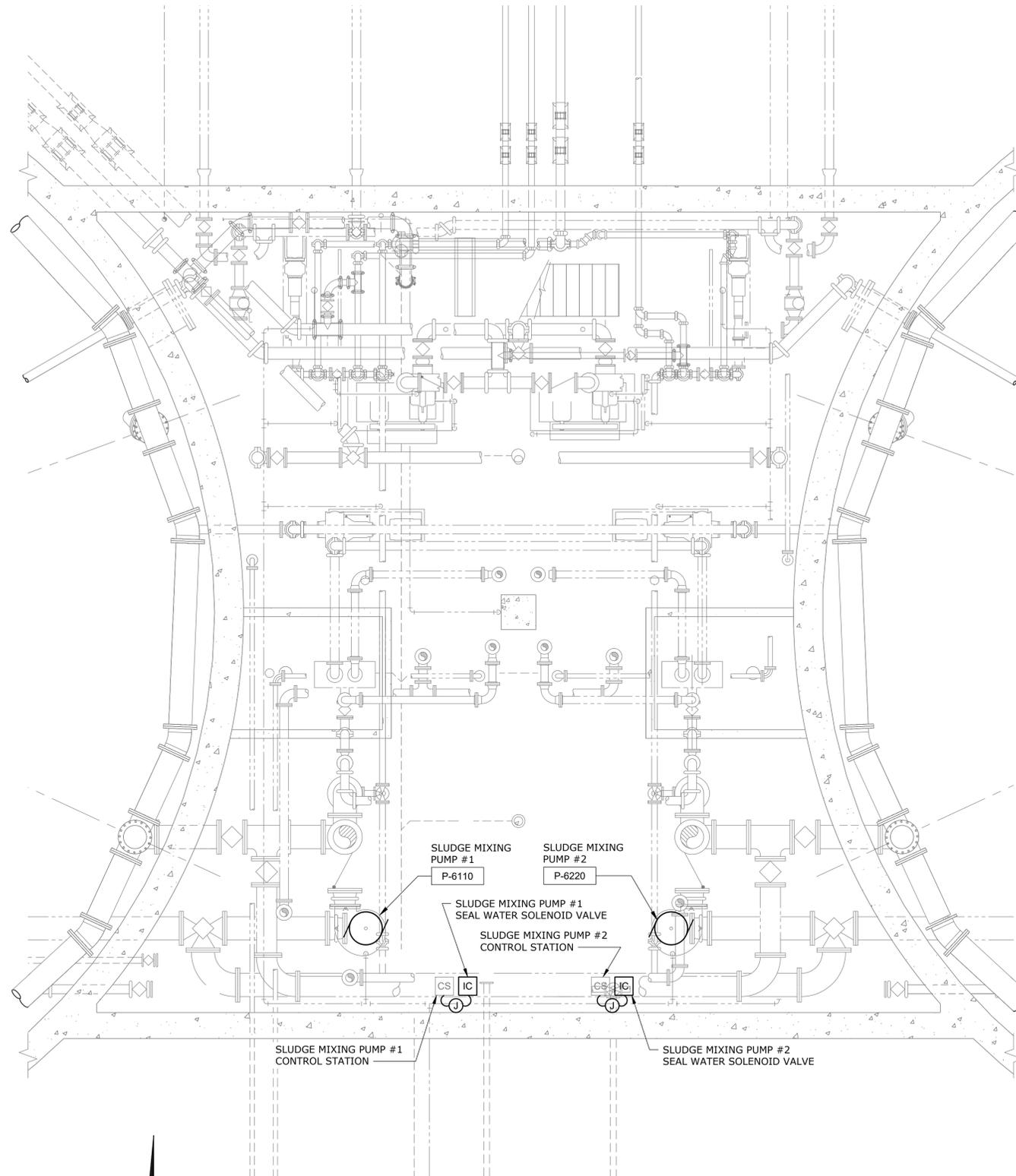
ELECTRICAL PARTIAL ONE LINE DIAGRAM AND ELEVATION

SHEET

E-3

23 of 27

PROJECT NO.: 20-2840 SCALE: NONE DATE: APRIL 2022



NOTES:

1. SEE DEMOLITION PLANS FOR LOCATIONS OF SLUDGE TRANSFER PUMPS AND ASSOCIATED EQUIPMENT, ACCESSORIES, AND COMPONENTS.
2. MURRAYSMITH HAS DETERMINED THE AREA CLASSIFICATIONS FOR THIS PROJECT. THE DIGESTER BUILDING SHALL BE CONSIDERED CLASS I DIVISION 2 GROUP D FOR WORK PERFORMED IN THIS CONTRACT.
3. THE DIGESTER BUILDING SHALL BE CONSIDERED HAZARDOUS, WET, AND CORROSIVE.

DIGESTER BUILDING BASEMENT LEVEL PLAN

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

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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

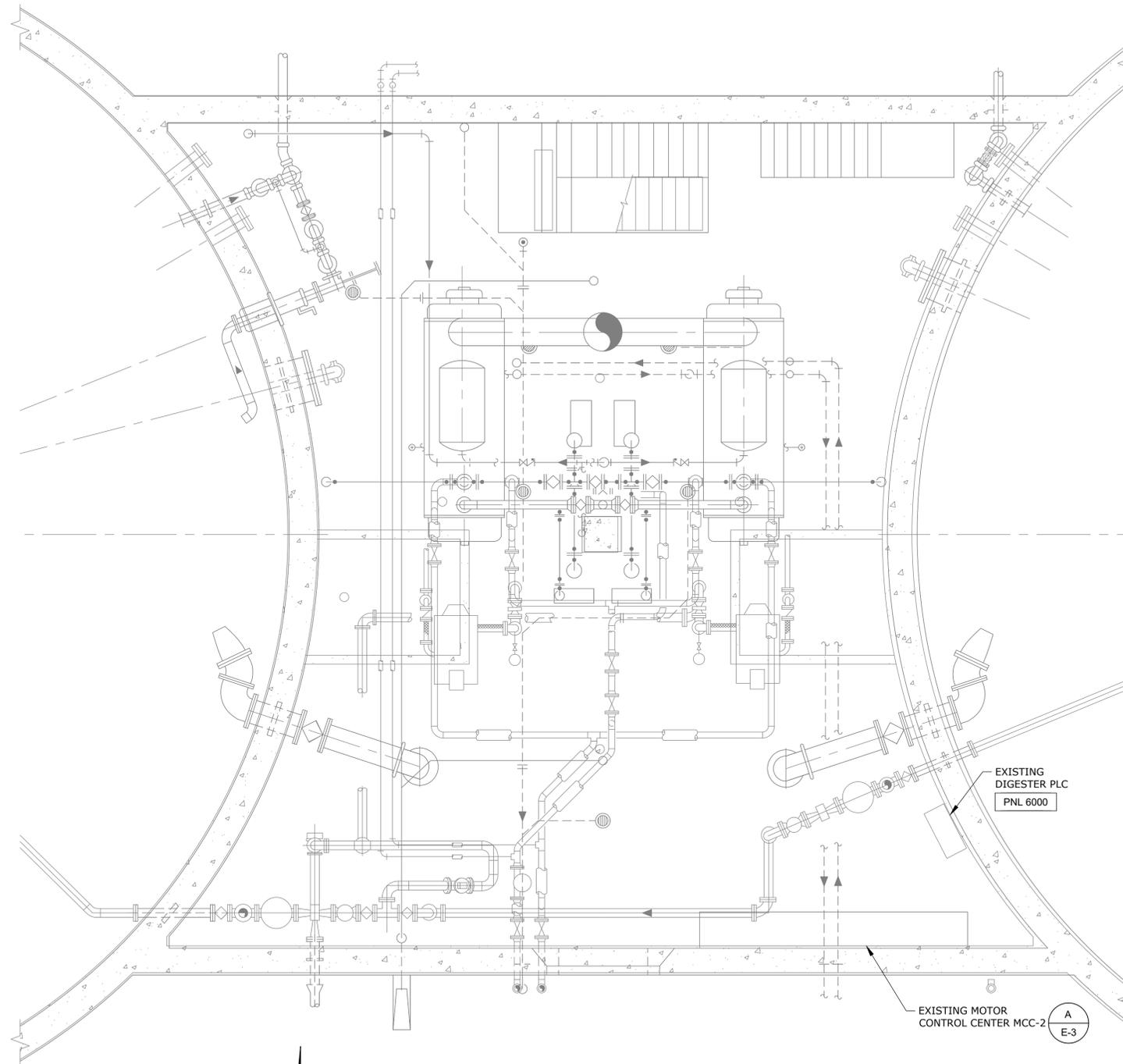
DIGESTER POWER AND INSTRUMENTATION PLAN BASEMENT LEVEL

PROJECT NO.: 20-2840 SCALE: AS NOTED DATE: APRIL 2022

SHEET
E-4
 24 of 27

NOTES:

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- THE DIGESTER BUILDING SHALL BE CONSIDERED HAZARDOUS, WET, AND CORROSIVE.



DIGESTER BUILDING GROUND LEVEL PLAN

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

C:\pwworking\west01\d2458954\E-5.dwg DIG Pwr and Instr Ground Level 3/29/2022 12:27 PM EPLAPIL 23.1s (LMS Tech)



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 DRAWN
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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DIGESTER POWER AND INSTRUMENTATION PLAN GROUND LEVEL			
PROJECT NO.:	20-2840	SCALE:	AS NOTED
DATE:	APRIL 2022		

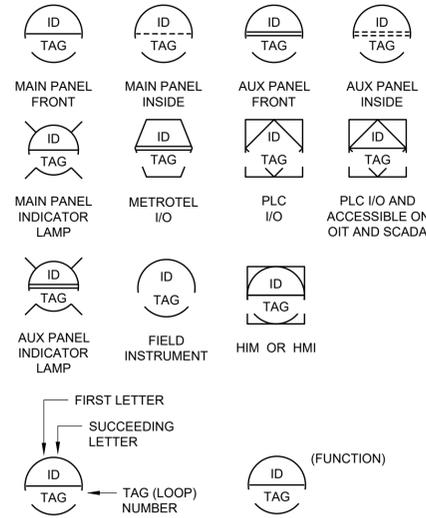
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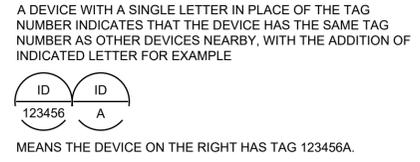
PROCESS AND INSTRUMENT SYMBOLY / IDENTIFICATION

PROCESS AND INSTRUMENT CONTROL SWITCH NOTATION - ABBREVIATIONS



FIRST LETTER	SUCCEEDING LETTERS				
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSED
D	USER'S CHOICE	DIFFERENTIAL			DEVIATION
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)		FORWARD	
G	USER'S CHOICE		GLASS, GAUGE VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN	SCAN		
K	TIME, TIME SCHEDULE	TIME; RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOTOR				MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE TOTALIZE		
R	RADIATION		RECORD	REVERSE	RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECH. ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL PROBE		
X	UNCLASSIFIED	X AXIS	ACCESSORY DEVICES UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		AUXILLIARY DEVICES	
Z	POSITION DIMENSION	Z AXIS SAFETY INSTRUMENTED SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

AAB	LIT-A / AUTO /LIT-B	H ₂ S	HYDROGEN SULFIDE	M	MOTOR	SIL	SUPPLY FAN
ACK	ACKNOWLEDGE	H	HAND	MH	MANHOLE	SL	SILENCE
ACUPS	AC UPS	HIM	HUMAN INTERFACE MODULE	MTS	MANUAL TRANSFER SWITCH	SLC	STROBE LIGHT
AE	ANALYTICAL ELEMENT	HMI	HUMAN MACHINE INTERFACE	NP	NORMAL / PUMP-DOWN	SP	SILENCER
AI	ANALYTICAL INDICATOR	HO	HAND / OFF	O ₂	OXYGEN	SS	STOP
AIT	ANALYTICAL INDICATING TRANSMITTER	HOA	HAND / OFF / AUTO	OC	OFF / AUTO	ST	START/STOP
ALL	AUTO / MANUAL	HOAL	HAND / OFF / AUTO / LOCAL	OCA	OPEN / CLOSE / AUTO	SW	START SWITCH
AM	ANALYTICAL ALARM LOW	HOR	HAND / OFF / REMOTE	OCU	ODOR CONTROL PANEL OFF / ENABLE	T	TANK
AO	AUTO / OFF	HORL	HAND / OFF / REMOTE / LOCAL	OL	ODOR CONTROL UNIT OVERLOAD	TMR	TIMER
AOM	AUTO / OFF / MANUAL	HS	HAND SWITCH	OO	ON / OFF	TP	TELEPHONE PANEL
ASH	ANALYTICAL SWITCH HIGH	I/I	CURRENT ISOLATOR	OOC	ON / OFF / AUTO	TMR	TROUBLE
ASL	ANALYTICAL SWITCH LOW	INV	INVERTER	OOR	ON / OFF / REMOTE	TP	TEMPERATURE SWITCH HIGH
ATS	AUTO TRANSFER SWITCH	INT	INTERMEDIATE	OOS	OUT OF SERVICE	TSH	TEMPERATURE SWITCH HIGH
AU	AUTO	IS	CURRENT SWITCH	OP	OPENED	TST	TEST
AV	AUTO LEVEL	IY	INTRINSIC SAFETY BARRIER	OSC	OFF / REMOTE	UVT	ULTRAVIOLET TRANSMITTANCE
BA	BACKUP/AUTO	JAM	JAM	OSCA	OPEN / STOP / CLOSE	V	VALVE
CL	CLOSED	JE	POWER ELEMENT	OSCR	OPEN / STOP / CLOSE / REMOTE	VFD	VARIABLE FREQUENCY DRIVE
CMD	COMMAND	JN	JOG / NORMAL	P	PUMP		
CONC	CONCENTRATION	JOG	JOG	PAC	PROGRAMMABLE AUTOMATION CONTROLLER		
CP	CONTROL POWER	JQT	ENERGY TRANSMITTER	PDI	PRESSURE DIFFERENTIAL INDICATOR		
CS	CONTROL STATION	KQ	TIME INTEGRATING INDICATOR	PI	PRESSURE INDICATOR		
CV	CHECK VALVE	LAF	LEVEL / AUTO / FLOATS	PIT	PRESSURE INDICATING TRANSMITTER		
D/A	DIGITAL TO ANALOG CONVERTER	LAH	LEVEL ALARM HIGH	POS	POSITION		
DMP	DAMPER	LCP	LOCAL CONTROL PANEL	PP	POWER PANEL		
DP	DIFFERENTIAL PRESSURE	LCS	LOCAL CONTROL STATION	PT	PRESSURE TRANSMITTER		
E/I	VOLTAGE-TO-CURRENT CONVERTER	LE	LEVEL ELEMENT	PV	PLUG VALVE		
ECAB	ELECTRICAL COMMUNICATION CABINET	LEL	LOWER EXPLOSIVE LIMIT	RDY	READY		
ED	ENABLE/DISABLE	LL	LEAD / LAG	REM	REMOTE		
EE	VOLTAGE ELEMENT	LLCO	LOW LEVEL CUT OFF	RNG	RUNNING		
EF	EXHAUST FAN	LOC	LOCAL	RPBA	REDUCED PRESSURE BACKFLOW ASSEMBLY		
ESTOP	EMERGENCY STOP	LOH	LOCAL / OFF / HAND	RST	RESET		
ETM	ELAPSED TIME METER	LOR	LOCAL / OFF / REMOTE	RUN	RUN		
FAL	FLOW ALARM LOW	LOS	LOCKOUT STOP				
FAU	FAULT	LP	LIGHTING PANEL				
FCV	FLOW CONTROL VALVE	LSC	LEVEL SWITCH CONTROLLER				
FE	FLOW ELEMENT	LSH	LEVEL SWITCH HIGH				
FIT	FLOW INDICATING TRANSMITTER	LSHH	LEVEL SWITCH HIGH HIGH				
FLT	FLOAT(S)	LSM	LEVEL SWITCH MIDDLE				
FOR	FORWARD / OFF / REVERSE	LSR	LOCAL / STOP / REMOTE				
FOS	FAST / OFF / SLOW	LSL	LEVEL SWITCH LOW				
FR	FORWARD / REVERSE	LSLL	LEVEL SWITCH LOW LOW				
FREQ	FREQUENCY	LT	LEVEL TRANSMITTER				
FS	FAST/SLOW	LVL	LEVEL				
FSL	FLOW SWITCH LOW						
FV	FLOW VALVE						



PLC INTERFACE, INTERLOCK, AND PACKAGE LEGEND	
▲ ANALOG INPUT	△ DISCRETE INPUT
▼ ANALOG OUTPUT	▽ DISCRETE OUTPUT
* VENDOR PACKAGE SYSTEM	▶ DIRECTION
** ELECTRICAL SPECIFICATION	◇ INTERLOCK
LINETYPE AND CABLE TYPE	
—————	MAIN PROCESS LINE
-----	SECONDARY PROCESS LINE
←—————	DIRECTION OF FLOW
-----	DIAGRAM CABLE
-----	ANALOG
-----	DISCRETE
-----	PNEUMATIC
-----	POWER
-----	ETHERNET, MODBUS, RADIO (AS NOTED)
-----	AREA (ie: FIELD, BUILDING, ETC)
-----	EQUIPMENT CONTROL (ie: PANEL, VFD, ETC)
-----	EQUIPMENT CONTROL (INTERNAL DEVICES)
-----	EQUIPMENT CONTROL (VENDOR PROVIDED)

CROSS REFERENCE
00YXXX → A
B → 00YXXX
CONTINUATION TO AND FROM SOURCE / DESTINATION
OR
XXXXX → MULTI-DIRECTION
FE/FIT-XXXXXX → EQUIPMENT TAG
ACTUATOR
ACTUATOR DEVICE CIRCLE = INDICATES REMOTE ACTUATOR SQUARE = INDICATES INTEGRAL ACTUATOR X = INDICATES:
E = ELECTRIC F = FLOAT H = HYDRAULIC M = MOTOR P = PNEUMATIC S = SOLENOID
PIPING ENDPOINT
[CAP C-1 DOWN { BREAK CH UP

PIPING CONNECTOR		VALVES	
FLANGE	∩ VICTAULIC FLEX	O BALL VALVE	∩ DIAPHRAGM VALVE
● WELDED	∩ VICTAULIC RIGID	O PLUG VALVE	∩ GATE VALVE
○ SOLDERED	∩ MECHANICAL JOINT	O BUTTERFLY VALVE	∩ GLOBE VALVE
THREADED	∩ UNION	O CHECK VALVE	∩ PINCH VALVE
PIPING REDUCER		O DOUBLE SWING CHECK VALVE	∩ SAMPLE VALVE
∩ ECCENTRIC LEFT	∩ ECCENTRIC RIGHT	O BALL CHECK VALVE	∩ THROTTLE VALVE
∩ CONCENTRIC LEFT	∩ CONCENTRIC RIGHT	O STOP CHECK VALVE	∩ DRY TYPE VALVE
GATES		O CONE VALVE	∩ VACUUM RELIEF VALVE WITH SETTING
∩ BUTTERFLY GATE	∩ FUSIBLE VALVE	∩ PRESSURE REGULATING WITH SETTING VALVE	∩ BACK PRESSURE VALVE
∩ SHEAR GATE	∩ FLOAT VALVE	∩ ROTARY VALVE	∩ MUD VALVE
∩ SLUICE GATE	∩ PRESSURE REDUCING VALVE	∩ TELESCOPING VALVE	∩ ANTI-SYPHON VALVE
∩ SLIDE GATE	∩ PRESSURE REGULATING VALVE	∩ 4-WAY GATE VALVE WITH FAIL POSITION	∩ HAND OPERATED GATE VALVE
∩ STOP GATE	∩ RELIEF VALVE	∩ SPRING LOADED RELIEF VALVE WITH SETTING	∩ AIR REGULATION VALVE
∩ FLAP GATE	∩ 3-WAY GATE VALVE WITH FAIL POSITION	∩ RELIEF VALVE WITH SETTING	
∩ KNIFE GATE	∩ AIR RELIEF VALVE WITH SETTING	∩ NEEDLE VALVE	
∩ GATE	∩ RELEASE VALVE		

MISCELLANEOUS			
∩ SPRAY NOZZLE	∩ VENTURI	∩ WEIR	∩ EJECTOR
∩ EXPANSION JOINT	∩ FLEX COUPLING	∩ FLUME	∩ FLAME ARRESTER
∩ GREASE FILTER	∩ SILENCER	∩ SUMP PUMP	∩ METERING PUMP
∩ TANK HEATER	∩ AIR FILTER	∩ LOUVER	∩ HEAT EXCHANGER
∩ IN-WALL PUMP	∩ BASKET STRAINER	∩ ULTRA SONIC SENSOR	∩ IN SITU PROBE SENSOR
∩ BUBBLER	∩ RADAR SENSOR	∩ TURBINE DRIVER	∩ PERISTALTIC PUMP
∩ BLOWER	∩ PUMP	∩ GRINDER	∩ MIXER
∩ INLINE DIAPHRAGM SEAL	∩ AIR COMPRESSOR	∩ VERTICAL PUMP	∩ SPIRAL HEAT EXCHANGER
GENERAL NOTES			
1. THIS IS A STANDARD INSTRUMENTATION SYMBOLS AND ABBREVIATION SHEET. LISTING OF SYMBOLS AND ABBREVIATIONS DOES NOT IMPLY ALL SYMBOLS AND ABBREVIATIONS HAVE BEEN USED ON THIS PROJECT.			
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.			
3. SEE OTHER DISCIPLINES FOR SYMBOLS AND ABBREVIATIONS SPECIFIC TO THE PROJECT.			
4. INSTRUMENT IDENTIFICATIONS LETTER TABLE IS EXCERPTED FROM ISA S50.1			



NOTICE
0 1/2 1
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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

INSTRUMENTATION LEGEND

PROJECT NO.: 20-2840 SCALE: NONE DATE: APRIL 2022

SHEET
P-1
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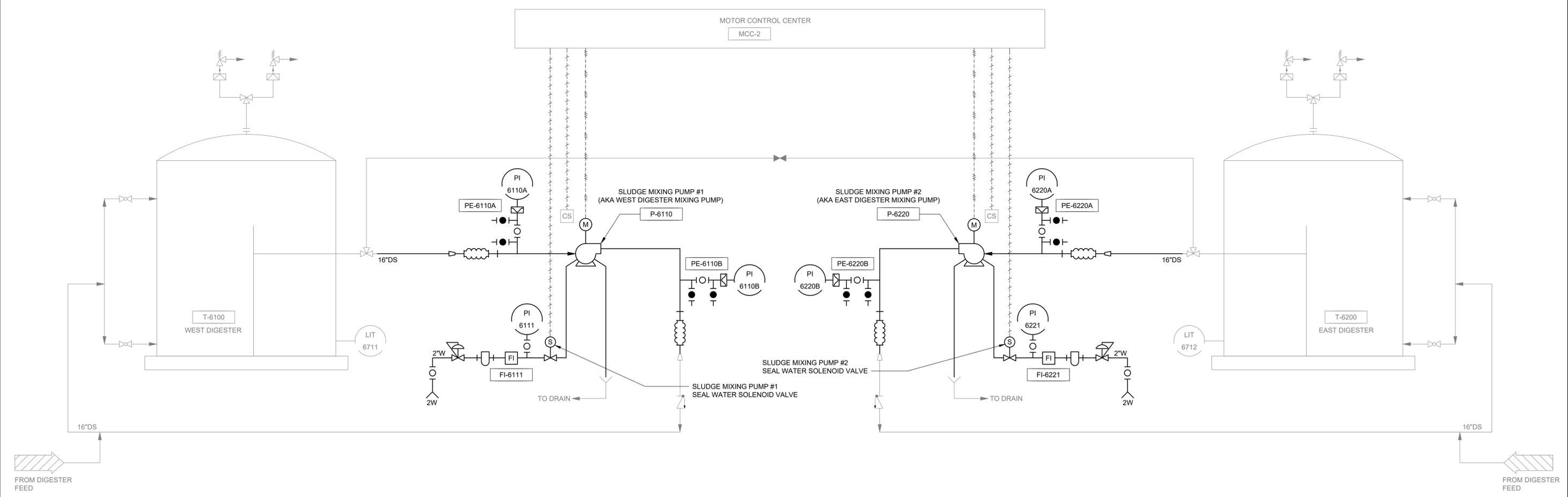
C:\pwworking\west01\d2458954\p-1.dwg Instrumentation Legend 3/29/2022 12:27 PM EPILAPIL 23.1s (LMS Tech)

NOTES:
 1. EXISTING EQUIPMENT, INSTRUMENTS, AND SIGNALS MAY NOT BE SHOWN.

SCADA

PLC PNL-4905

FIELD



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CENTRAL KITSAP TREATMENT PLANT - DIGESTER REHABILITATION

DIGESTER MIXING SYSTEM P&ID
 PROJECT NO.: 20-2840 SCALE: NONE DATE: APRIL 2022

SHEET
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 27 of 27