

TUSCARORA TOWNSHIP

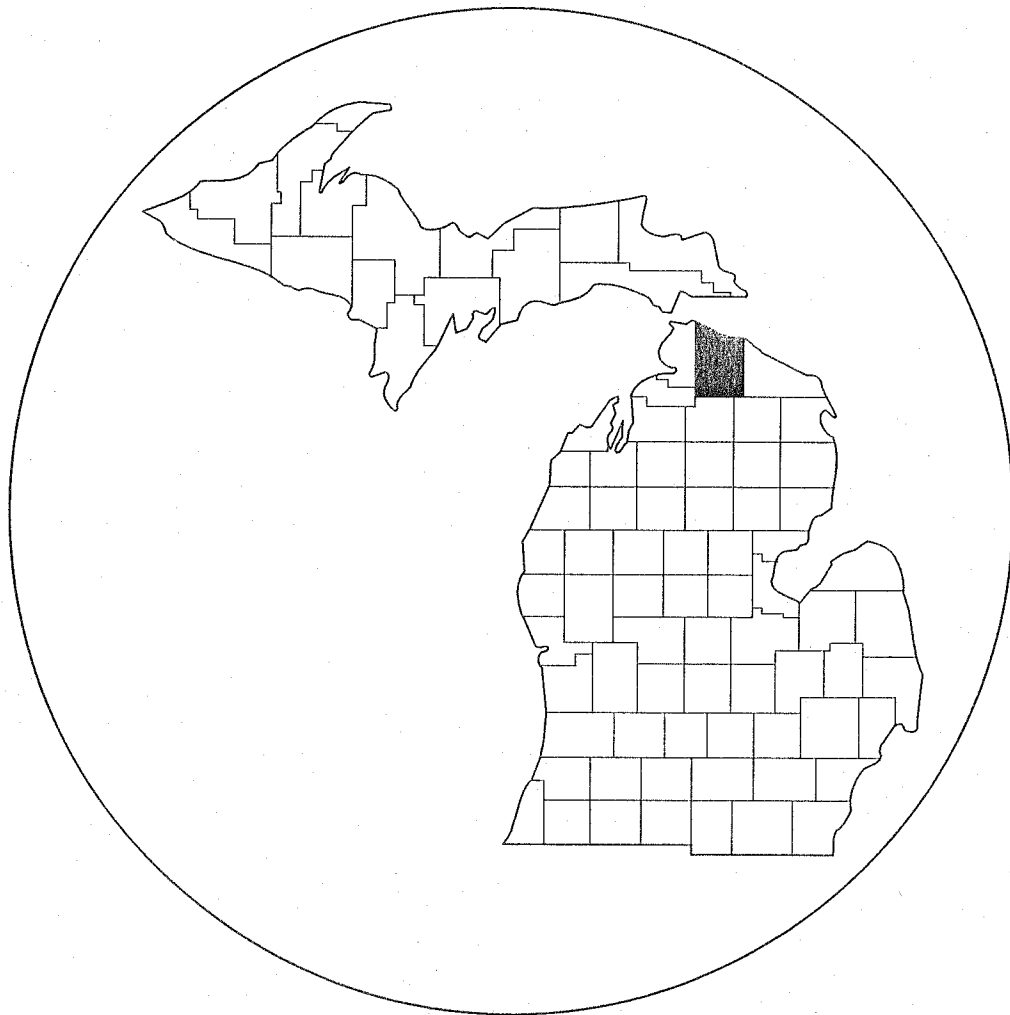
WASTEWATER TREATMENT PLANT EXPANSION

PROJECT OVERVIEW

THE PURPOSE OF THIS PROJECT IS TO EXPAND THE EXISTING WASTEWATER TREATMENT PLANT CAPACITY, APPROXIMATELY DOUBLING THE PLANT FROM 95,000 GPD TO 190,000 GPD. THE EXISTING PLANT UTILIZES A PROPRIETARY SBR SYSTEM, AEROMOD SEQUOX PLUS. THE SAME SYSTEM WILL BE UTILIZED IN THE NEW EXPANSION DESIGN, ALONG WITH AN EQUALIZATION/SURGE TANK OF APPROXIMATELY 150,000 GALLONS TO ACCOMMODATE THE INCREASED FLOW.

THE EXISTING RAPID INFILTRATION BASINS ARE ALREADY APPROPRIATELY SIZED TO DISCHARGE 190,000 GPD.

PROJECT NUMBER: 22-6036



COUNTY KEY

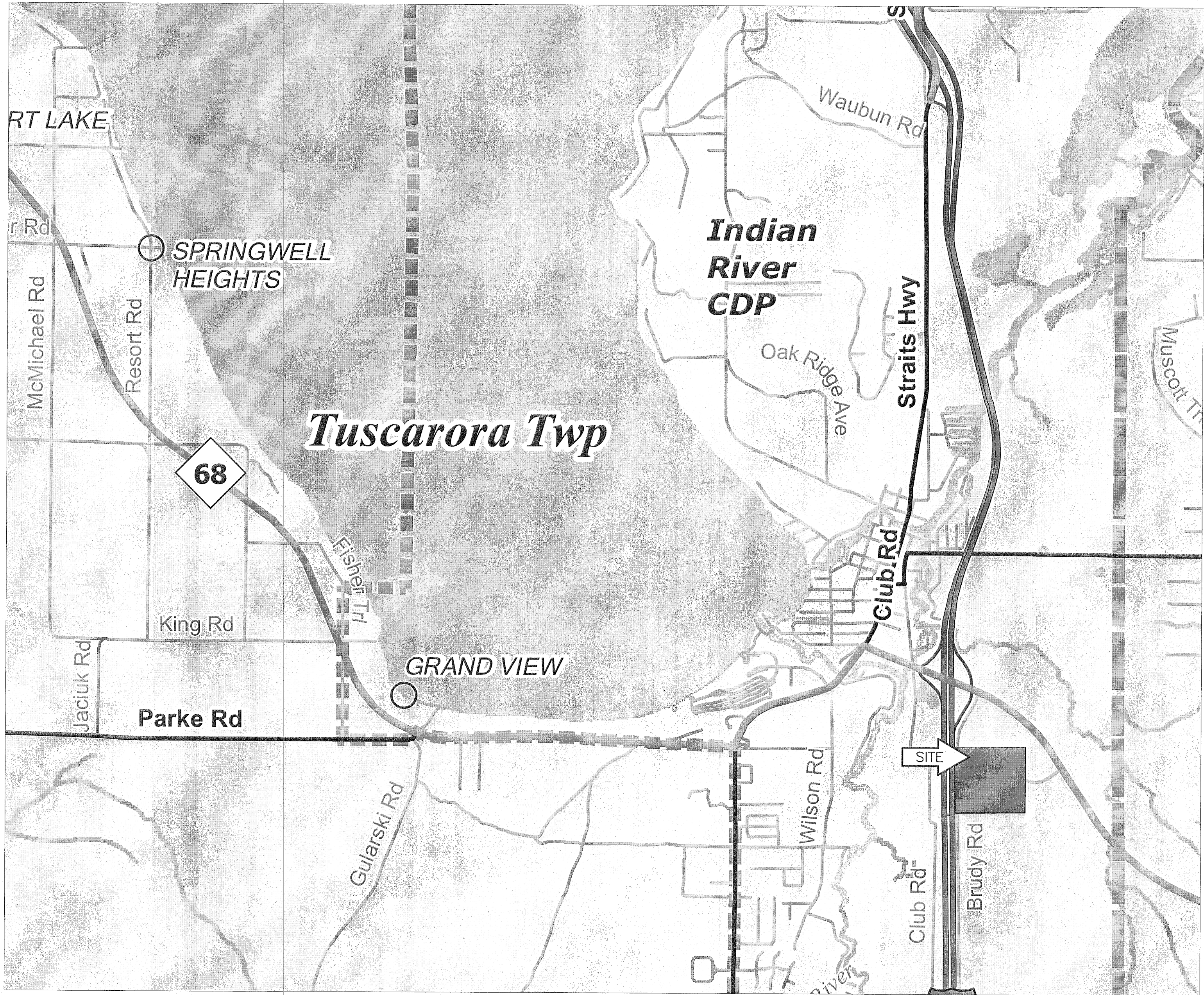
TITLE SHEET LEGEND

- PROPOSED PROJECT -----
- EXISTING ROADS
CITY STREET -----
STATE ROUTES -----
FEDERAL ROUTES -----
- CITY, VILLAGE LIMITS -----
TOWNSHIP LIMITS -----
COUNTY LINE -----



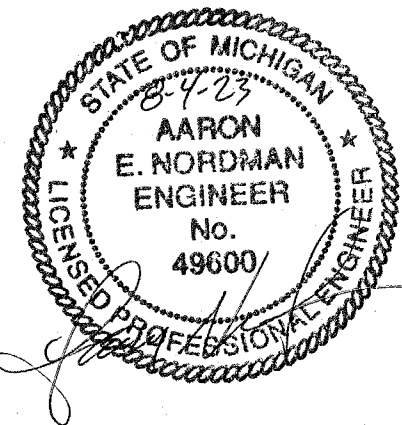
Know what's below.
Call before you dig.

PLAN INDEX	
DWG NO.	DESCRIPTION
C100	TITLE SHEET
C200	GENERAL NOTES & TYPICALS
C300	EXISTING CONDITIONS & DEMO PLAN
C301	SITE PLAN
C302	***RESERVED**
C303	***RESERVED**
C304	***RESERVED**
C305	PLANT EXPANSION LAYOUT
C306	TANK PIPING LAYOUT
C307	TANK PIPING DETAILS
C308	EQUIPMENT PLAN VIEW
C309	ELECTRICAL EQUIPMENT PLACEMENT
C310	PNEUMATIC EQUIPMENT PLACEMENT
D400	SANITARY DETAILS
D401	WALKWAY & HANDRAIL DETAILS
D402	CLARATOR DETAILS
D403	EQUIPMENT DETAIL 1
D404	EQUIPMENT DETAIL 2
D405	EQUIPMENT DETAIL 3
D406	TANK DETAIL - NOTCH & INSERT PLACEMENT
D407	TANK DETAIL - NOTCH & INSERT



LOCATION MAP
1"=2000'

CONTRACT FOR: TUSCARORA TOWNSHIP WASTEWATER
TREATMENT PLANT EXPANSION



MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

Performance Engineers, Inc.
Civil / Structural Engineering

406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com

TUSCARORA TOWNSHIP
WASTEWATER TREATMENT PLANT EXPANSION
CONTRACT NUMBER 23-6036

C:\USERS\AARON\ORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\C200_6036_NOTE.DWG - C200-NOTE - PLOTTED 8/1/2023 8:55 AM BY AARON NORDMAN

WATER AND SEWER SYMBOLS	
	PROPOSED CATCH BASIN
	EXISTING CATCH BASIN
	PROPOSED STORM MANHOLE
	EXISTING STORM MANHOLE
	PROPOSED SANITARY MANHOLE
	EXISTING SANITARY MANHOLE
	PROPOSED SANITARY CLEANOUT
	EXISTING SANITARY CLEANOUT
	PROPOSED WATER MANHOLE
	EXISTING WATER MANHOLE
	PROPOSED FIRE HYDRANT
	EXISTING FIRE HYDRANT
	PROPOSED WATER VALVE AND BOX
	EXISTING WATER VALVE
	PROPOSED WATER SHUTOFF
	EXISTING WATER SHUTOFF
	PROPOSED WATER WELL
	EXISTING WATER WELL

UTILITIES SYMBOLS	
	EXISTING TELEPHONE MANHOLE
	EXISTING CABLE TV MANHOLE
	EXISTING NATURAL GAS MANHOLE
	EXISTING GAS METER
	EXISTING GAS VALVE
	EXISTING ELECTRICAL MANHOLE
	PROP. PRIMARY ELECT. HAND HOLE
	EXIST. PRIMARY ELECT. HAND HOLE
	PROP. SECONDARY ELECT. HAND HOLE
	EXIST. SECONDARY ELECT. HAND HOLE
	EXISTING TRANSFORMER
	PROPOSED UTILITY POLE
	EXISTING UTILITY POLE
	PROPOSED LIGHT POST
	EXISTING LIGHT POST
	PROPOSED GUY WIRE
	EXISTING GUY WIRE

LANDSCAPING SYMBOLS	
	PROPOSED TREE
	EXISTING TREE
	PROPOSED CONIFER TREE
	EXISTING CONIFER TREE
	PROPOSED SHRUB
	EXISTING SHRUB

PROPERTY SYMBOLS	
	MONUMENT BOX
	MONUMENT
	NEW PROPERTY CORNER
	EXISTING PROPERTY CORNER
	BENCH MARK
	NAIL SET

MISCELLANEOUS SYMBOLS	
	SOIL BORING INDICATOR
	ADJUST STRUCTURE
	ADJUST FIRE HYDRANT
	ADJUST BY OTHERS
	RELOCATE BY OTHERS
DRIVEWAY TYPE	
SIDEWALK RAMP TYPE	
	SALVAGE
	PROPOSED BUILDING
	EXISTING BUILDING
	ABANDON
	BULKHEAD
	CLEARING
	REMOVAL
	SAVE

PLAN SHEET PATTERNS	
	CONCRETE PAVEMENT/DRIVE APPROACH
	REMOVING PAVEMENT (HMA)
	REMOVING (CONCRETE) PAVEMENT/DRIVEWAY/ SIDEWALK
	REMOVING CURB, GUTTER AND CURB & GUTTER

ROAD SURFACE PATTERNS	
	ASPHALT
	GRAVEL
	SEASONAL

UNDERGROUND UTILITY LIFESTYLES	
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	PROPOSED SANITARY SEWER
	EXISTING SANITARY SEWER
	PROPOSED WATER LINE
	EXISTING WATER LINE
	PROPOSED NATURAL GAS LINE
	EXISTING NATURAL GAS LINE
	PROPOSED ELECTRIC
	EXISTING ELECTRIC
	PROPOSED TELEPHONE
	EXISTING TELEPHONE
	PROPOSED CABLE TV
	EXISTING CABLE TV
	PROPOSED FIBER OPTIC
	EXISTING FIBER OPTIC

ABOVE GROUND UTILITY LIFESTYLES	
	PROPOSED ELECTRIC
	EXISTING ELECTRIC
	PROPOSED TELEPHONE
	EXISTING TELEPHONE
	PROPOSED CABLE TV
	EXISTING CABLE TV

PROPERTY/EASEMENT LIFESTYLES	
	PROPERTY LINE
	RIGHT OF WAY
	SETBACK LINE
	PROPOSED FENCE
	EXISTING FENCE
	PROPOSED UNIT LINE
	EXISTING UNIT LINE

TOPO LIFESTYLES	
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED TREE LINE
	EXISTING TREE LINE
	PROPOSED SWALE
	EXISTING SWALE

ABBREVIATIONS	
ABS - ACRYLONITRILE BUTADIENE STYRENE	HYD - HYDRANT
ADA - AMERICANS WITH DISABILITIES ACT	INV - INVERT ELEVATION
ALT - ALTERNATE	IRR - IRRIGATION WATER
ASPH - ASPHALT	LCY - LOOSE CUBIC YARD
BC - BACK OF CURB	LP - LIGHT POLE
BLDG - BUILDING	LFT - LINEAR FOOT
BM - BENCHMARK	LS - LUMP SUM
CB - CATCH BASIN	MB - MAIL BOX
CIP - CAST IRON PIPE	MH - MANHOLE
CL - CENTER LINE	N - NORTH
CMP - CORRUGATED METAL PIPE	NTS - NOT TO SCALE
CO - CLEANOUT	PC - POINT OF CURVE
CONC - CONCRETE	PED - PEDESTAL
CFT - CUBIC FEET	PERF - PERFORATED
CYD - CUBIC YARD	PL - PROPERTY LINE
DIP - DUCTILE IRON PIPE	PP - POWER POLE
E - EAST	PROP - PROPOSED
EL - ELEVATION	PVC - POLYVINYL CHLORIDE (PLASTIC)
FFE - FINISH FLOOR ELEVATION	R - RADIUS
FH - FIRE HYDRANT	RCP - REINFORCED CONCRETE PIPE
FC - FACE OF CURB	RD - ROAD
G - NATURAL GAS	REQD - REQUIRED
GEN - GENERATOR	ROW - RIGHT OF WAY
GIP - GALVANIZED IRON PIPE	S - SOUTH
HO - HANDICAP	SALV - SALVAGE
HDPE - HIGH DENSITY POLYETHYLENE	SAN - SANITARY
HDWL - HEADWALL	SB-xx - SOIL BORING-XX (E.G., SB-01)
HH - HAND HOLE	SCHD - SCHEDULE (PIPE)
HP - HORSEPOWER	SFT - SQUARE FOOT
SP EL - SPOT ELEVATION	SSW - SANITARY SEWER
STM - STORM SEWER	ST - STREET
STA - STATION	STD - STANDARD
SW - SIDEWALK	TBM - TEMPORARY BENCHMARK
TD - TRENCH DRAIN	TEL - TELEPHONE
TOC - TOP OF CONCRETE	TIFG - TOP OF CONCRETE FOOTING
TJFTG - TOP OF CONCRETE FOOTING	TJFTG - TOP OF CONCRETE FOOTING
TP - TELEPHONE POLE	TYP - TYPICAL
UGND - UNDERGROUND	UP - UTILITY POLE
UTL - UTILITY	VAR - VARIES
VC - VERTICAL CURVE	VCP - VITRIFIED CLAY PIPE
VEH - VEHICLE	VOL - VOLUME
W - WEST	WM - WATER MAIN
YD - YARD DRAIN	

GENERAL NOTES

- ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM AND THE STATE PLANE COORDINATE SYSTEM.
- SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL SECURE ASSISTANCE FROM THE APPROPRIATE UTILITY COMPANY IN LOCATING ITS LINES. THE CONTRACTOR SHALL ALSO: PROVIDE SUPPORT FOR ANY UTILITY WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE AND, IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION. THE CONTRACTOR SHALL PROTECT AND SAVE HARMLESS FROM DAMAGE ALL UTILITIES, WHETHER PRIVATELY OR PUBLICLY OWNED, ABOVE OR BELOW GROUND SURFACE, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
- THE LOCATION OF EXISTING PUBLIC UTILITIES AND UNDERGROUND STRUCTURES SUCH AS PIPE LINES, ELECTRIC CONDUITS, SEWER AND WATER LINES, OF RECORD ARE SHOWN ON THE PLANS. THE INFORMATION IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS NOR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY OPERATIONS IN THE VICINITY OF ANY UTILITIES, THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITIES WITH THE UTILITY PROVIDER. COST OF REPAIR FOR ANY DAMAGED UTILITY LINES THAT IS PROPERLY STAKED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK.
- FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL CALL 811 A MINIMUM OF THREE (3) FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS HAVE BEEN ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.
- EXISTING PROPERTY OWNERS ARE IDENTIFIED ON THE PLANS. IF A PROPERTY CORNER IRON IS DISTURBED DURING CONSTRUCTION IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A PROFESSIONAL LAND SURVEYOR.
- CONTRACTOR SHALL RESTORE ALL LAWN, LANDSCAPE PLANTINGS, SIDEWALKS, COMMERCIAL SIGNS, ETC., AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR UTILITY POLES AS NECESSARY. CONTRACTOR SHALL CONSULT WITH THE UTILITY COMPANY PRIOR TO ANY DISTURBANCE OF UTILITY POLE OR ANCHORING SYSTEM.

SOIL EROSION AND STORM WATER CONTROL NOTES

- THE CONTRACTOR SHALL PROVIDE TEMPORARY SOIL EROSION CONTROL MEASURES PER A.451 AS AMENDED. WITH THE USE OF SILT FENCE AND OTHER TEMPORARY MEASURES, THE CONTRACTOR SHALL PROTECT THE ADJACENT AREA FROM ACCELERATED EROSION AND SEDIMENTATION FLOWS RESULTING FROM CONSTRUCTION. THE CONTRACTOR SHALL INSTALL ADDITIONAL TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES, IF DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, AT NO ADDITIONAL COST TO THE PROJECT.
- INSTALLATION AND MAINTENANCE OF TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL PROVIDE THE REQUIRED PERMIT THROUGH CHEBOYGAN COUNTY, IF NECESSARY.
- SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS OR CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE ENGINEER.
- ALL DISTURBED NON-HARD SURFACE AREAS ARE TO BE STABILIZED WITH TOPSOIL, SEEDED, FERTILIZED AND MULCHED. DISTURBED AREAS SHALL BE TOPSOILED TO A DEPTH NOT LESS THAN FOUR (4) INCHES. SLOPES BETWEEN 1 ON 3 AND 1 ON 2 SHALL BE SODDED AND STAKED OR RECEIVE SEED WITH MULCH BLANKET.
- ALL STORM DRAINAGE PIPE SHALL BE CORRUGATED GALVANIZED STEEL PIPE, HDPE, OR APPROVED EQUAL.
- A MINIMUM OF TWO (2) FEET OF COVER FROM FINISHED ELEVATIONS SHALL BE MAINTAINED OVER ALL STORM DRAIN PIPES.
- ALL DRAINAGE PIPES THAT OUTLET AT GROUND SURFACE SHALL INCLUDE END SECTIONS.
- EXISTING STORM DRAINAGE DITCHES SHALL BE REBUILT IF FILLED IN OR REMOVED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE, AS REQUIRED, ALL DRAINAGE CULVERTS DAMAGED DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- THE CONTRACTOR SHALL REMOVE OR CAUSE TO BE REMOVED ALL SEDIMENT OR SOILS THAT HAVE BEEN DROPPED, WASHED ONTO, OR TRACKED OUT ONTO PUBLIC RIGHT-OF-WAY OR PRIVATE ROADS AT THE END OF EACH WORKING DAY OR AFTER EACH RAIN EVENT ON NON-WORK DAYS.
- ALL REMOVED TOPSOIL WILL BE STOCKPILED WITHIN THE PROJECT AREA. IF ADDITIONAL TOPSOIL IS AVAILABLE AFTER TOPSOILING THE CONSTRUCTION AREA, IT WILL BE STOCKPILED WITHIN 1000 FEET OF THE CONSTRUCTION AREA AT A LOCATION DIRECTED BY THE OWNER OR ENGINEER.
- THE CONTRACTOR SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD OF ONE (1) YEAR AT NO ADDITIONAL COST TO THE OWNER.

FACILITY CONSTRUCTION NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CURRENT REQUIREMENTS OF TUSCARORA TOWNSHIP. INSTALLATION OF PIPING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM STANDARDS AND THE PLANS AND SUPPLEMENTAL SPECIFICATIONS PROVIDED.
- OWNER WILL PROVIDE THE CONTRACTOR WITH REQUIRED EGLE PERMIT FOR THE SANITARY SEWER CONSTRUCTION. CONSTRUCTION IS NOT TO BEGIN UNTIL THIS PERMIT HAS BEEN OBTAINED. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL EGLE PERMIT CONDITIONS.
- THE EXISTING WWTP IS TO REMAIN IN SERVICE DURING THE CONSTRUCTION OF THE EXPANSION. CONTRACTOR MUST COORDINATE ALL ACTIVITIES THAT IMPACT ACCESS TO THE EXISTING FACILITIES WITH THE WWTP OPERATOR.
- NEW SANITARY SEWER CONSTRUCTION SHALL PROGRESS SUCH THAT THE NEW FACILITIES, ARE COMPLETE, INSPECTED, TESTED AND FULLY OPERATIONAL BEFORE CONNECTION TO EXISTING PLANT.
- THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE CONSTRUCTION INSPECTION BY THE ENGINEER INCLUDING ALL TESTING. ALL TESTING COSTS, ARE TO BE INCLUDED IN THE UNIT PRICE OF THOSE ITEMS MOST CLOSELY ASSOCIATED WITH THE WORK.
- THE CONTRACTOR SHALL COORDINATE START-UP OF THE PLANT EXPANSION WITH AEROMOD, THE OPERATOR, AND THE ENGINEER. COSTS ASSOCIATED WITH THE MANUFACTURER'S START-UP SHALL BE INCLUDED IN THE CONTRACT.

RECORD DRAWINGS

AFTER COMPLETION OF ALL CONSTRUCTION AND BEFORE FINAL PAYMENT IS MADE, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER ONE COMPLETE SET OF FULL SIZE BLUE LINE CONTRACT DRAWINGS WITH ALTERATIONS SHOWN IN RED PENCIL.

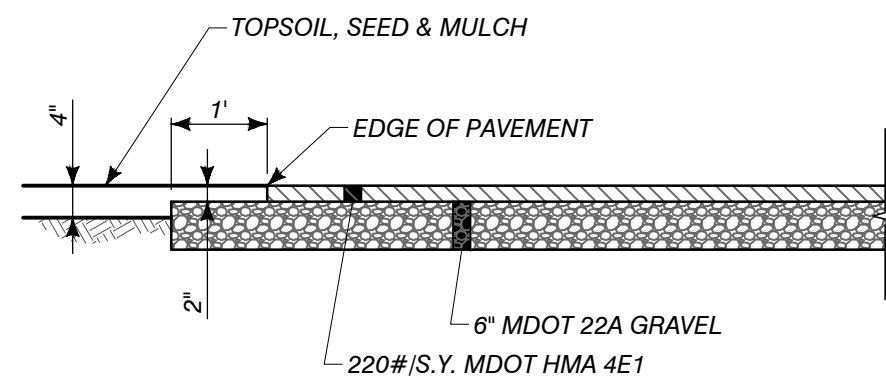
THESE RECORD DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR AT THE WORK SITE AND SHALL BE UPDATED BASED ON JOB PROGRESS TO REFLECT ALL CHANGES AND DEVIATIONS AND ACTUAL ROUTING OF ALL FIELD-ROUTED UTILITIES AND SERVICES. ALL LINES, LETTERS, AND DETAILS SHALL BE SHARP, CLEAR, AND FULLY LEGIBLE. ALL ADDITIONS TO THE DRAWINGS SHALL BE PRECISELY DRAWN TO SCALE OF THE ORIGINAL DRAWING AND THEIR LOCATIONS SHALL BE DIMENSIONED.

RECORD DRAWINGS SHALL BE MADE AVAILABLE FOR ENGINEER/OWNER REVIEW ON A WEEKLY BASIS AT THE JOB SITE. THIS REVIEW OF RECORD DRAWINGS WILL BE PART OF THE MONTHLY MONETARY PROGRESS REVIEW.

FINAL CLEAN UP

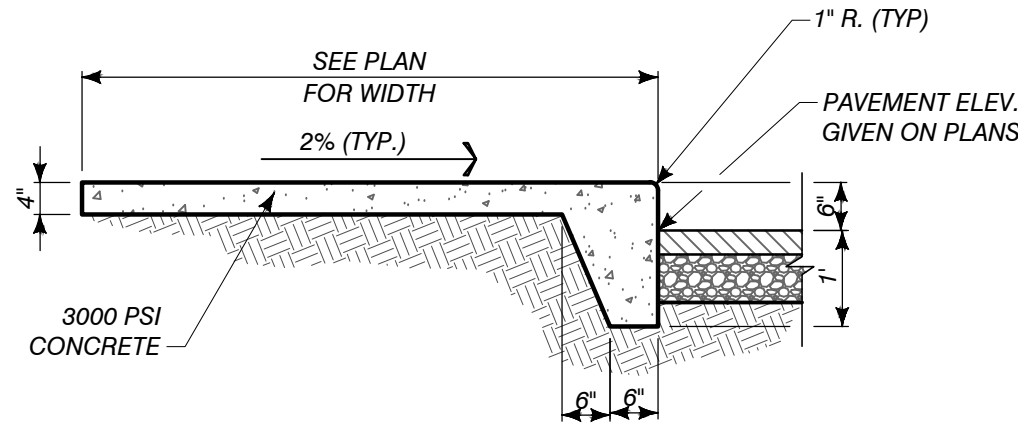
BEFORE FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL REMOVE ALL FALSEWORK, UNUSED MATERIALS, EROSION CONTROL DEVICES AND RUBBISH. UNLESS OTHERWISE PROVIDED IN THE CONTRACT OR ORDERED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE FROM THE RIGHT-OF-WAY ALL MACHINERY, EQUIPMENT, AND SURPLUS MATERIAL AND LEAVE ALL AREAS OCCUPIED BY THE CONTRACTOR IN CONJUNCTION WITH THE CONTRACT IN A NEAT AND PRESENTABLE CONDITION SATISFACTORY TO THE ENGINEER. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL DAMAGED FENCES. THE CONTRACTOR SHALL RESTORE IN AN ACCEPTABLE MANNER ALL PROPERTY WHICH MAY HAVE BEEN USED OR DAMAGED DURING THE PROSECUTION OF THE WORK. PAVED ROADBEDS SHALL BE CLEANED WITHIN FIVE WORKING DAYS PRIOR TO OPENING THE PAVEMENT SURFACE TO TRAFFIC. CLEANING OF ROADBEDS IN RESIDENTIAL AND URBAN AREAS SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE AIRBORNE DUST.

UNLESS OTHERWISE PROVIDED, FULL COMPENSATION FOR REMOVAL AND DISPOSAL OF MATERIALS FOR FINAL CLEAN UP WILL BE CONSIDERED AS INCLUDED IN OTHER ITEMS OF WORK AND NO SEPARATE PAYMENT WILL BE MADE.



NOTE: SUBGRADE SHALL BE PROOF ROLLED PER MDOT SPECIFICATIONS

A4 PAVEMENT SECTION
1/2"=1'



A5 INTEGRAL SIDEWALK/CURB DETAIL
1/2"=1'

Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com

Aero - Mod, Inc.



TUSCARORA TOWNSHIP
WWTP EXPANSION

4649 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER TUSCARORA TOWNSHIP

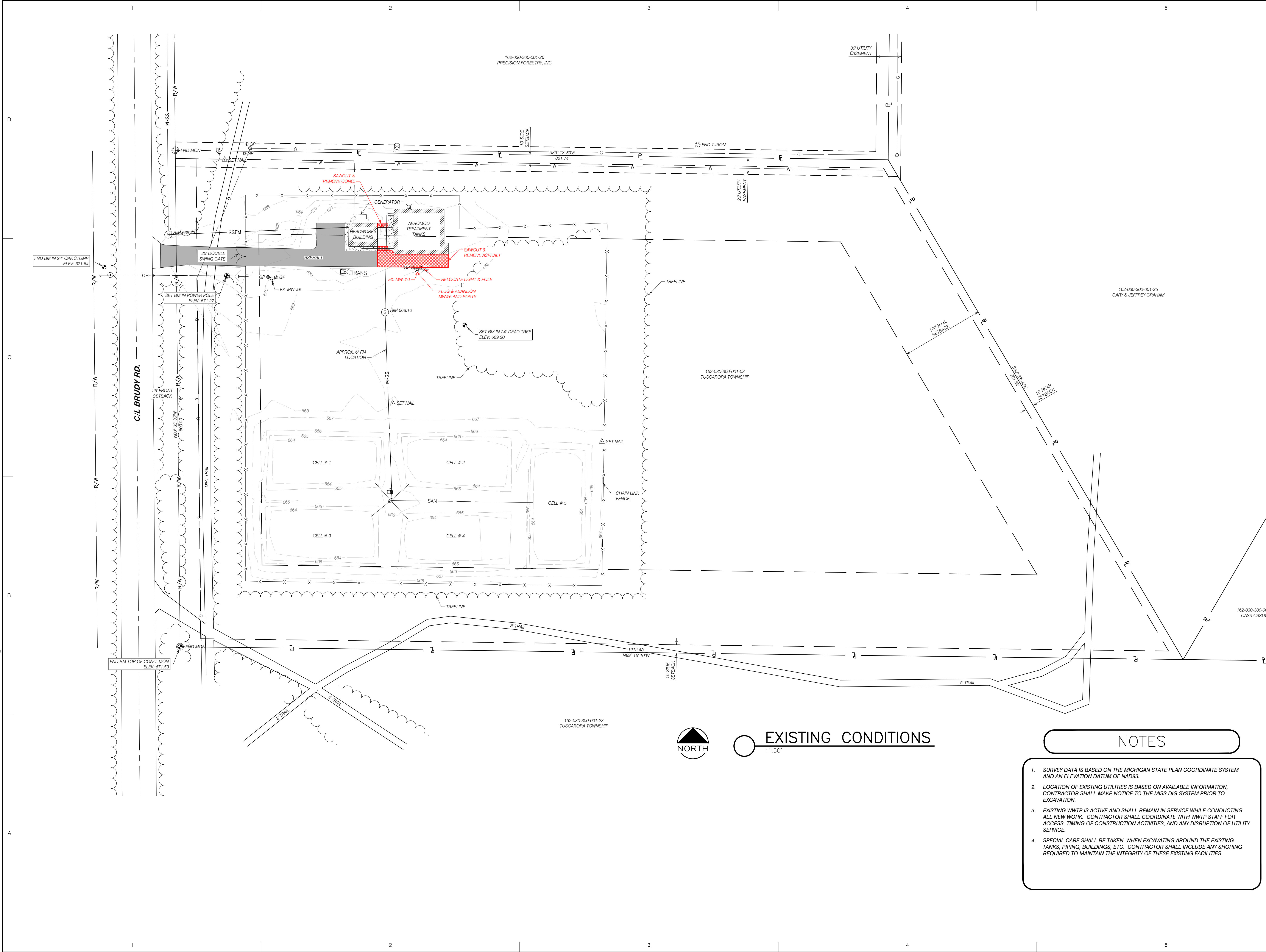
MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

PROJECT NO:	23-6036
CAD DWG FILE:	6036PLANT.DWG
DRAWN BY:	PEI
DESIGNED BY:	AMI
CHECKED BY:	AEN

SEAL

SHEET TITLE
GENERAL NOTES & TYPICALS

C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS\797 BASE.DWG - EX COND PLANT - PLOTTED 8/7/2023 1:00 PM BY AARON NORDMAN



NOTES

1. SURVEY DATA IS BASED ON THE MICHIGAN STATE PLAN COORDINATE SYSTEM AND AN ELEVATION DATUM OF NAD83.

2. LOCATION OF EXISTING UTILITIES IS BASED ON AVAILABLE INFORMATION, CONTRACTOR SHALL MAKE NOTICE TO THE MISS DIG SYSTEM PRIOR TO EXCAVATION.

3. EXISTING WWTP IS ACTIVE AND SHALL REMAIN IN-SERVICE WHILE CONDUCTING ALL NEW WORK. CONTRACTOR SHALL COORDINATE WITH WWTP STAFF FOR ACCESS, TIMING OF CONSTRUCTION ACTIVITIES, AND ANY DISRUPTION OF UTILITY SERVICE.

4. SPECIAL CARE SHALL BE TAKEN WHEN EXCAVATING AROUND THE EXISTING TANKS, PIPING, BUILDINGS, ETC. CONTRACTOR SHALL INCLUDE ANY SHORING REQUIRED TO MAINTAIN THE INTEGRITY OF THESE EXISTING FACILITIES.

Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com

TUSCARORA TOWNSHIP
WWTP EXPANSION
PART OF SECT. 30, T35N42W, INDIAN RIVER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN
OWNER
TUSCARORA TOWNSHIP

MARK	DATE	DESCRIPTION
0	7-28-23	PERMIT SUBMITTAL

PROJECT NO: 22-5797
CAD DWG FILE: 5797 BASE
DRAWN BY: PEI
DESIGNED BY: AEN
CHECKED BY: PEI

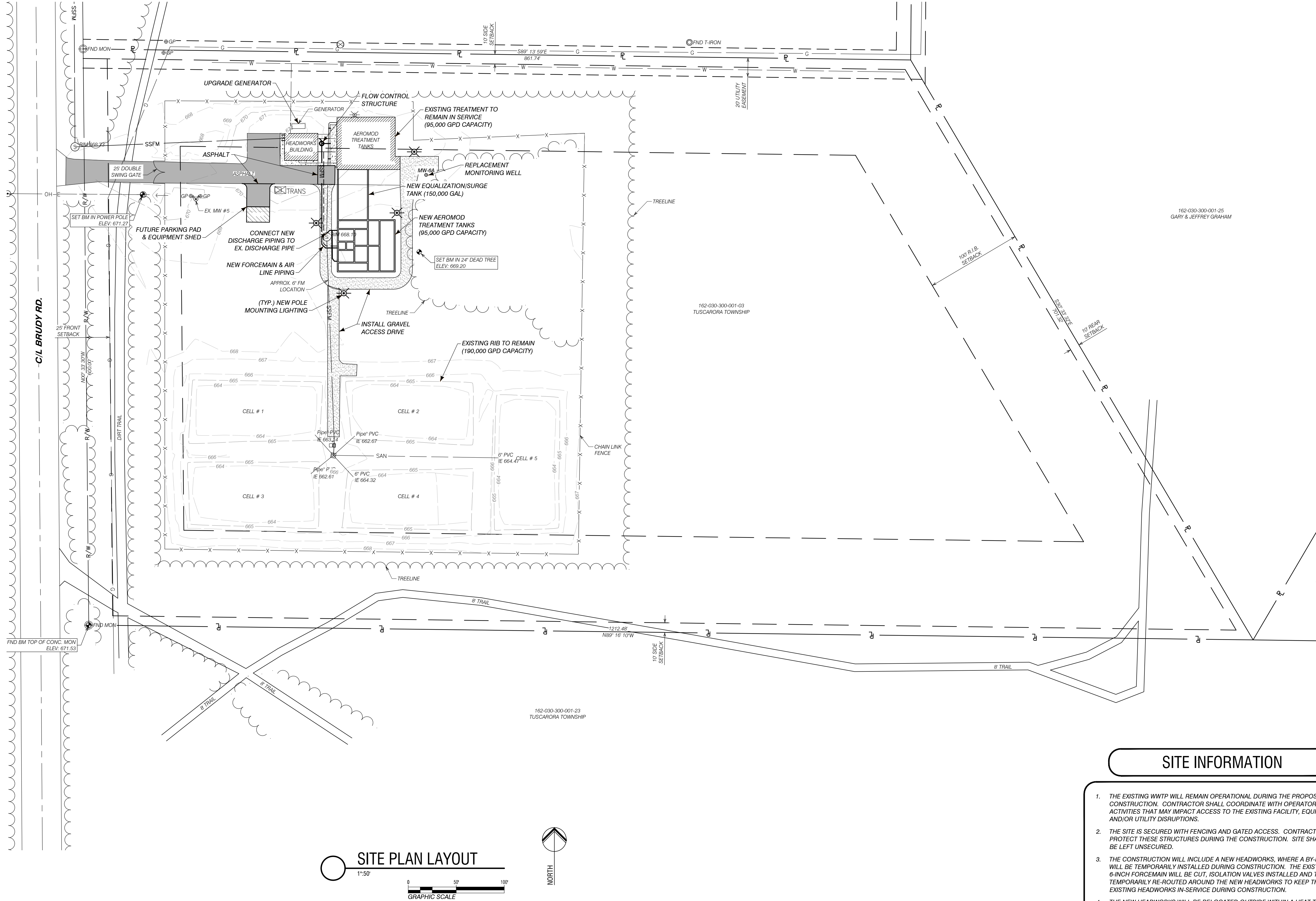
SEAL

SHEET TITLE
EX. CONDITIONS
& DEMO PLAN

C300
SHEET 3 OF 21

COPYRIGHT: PERFORMANCE ENGINEERS, INC 2023

C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\6036 SITE DWG - C301 - PLOTTED 8/7/2023 12:58 PM BY AARON NORDMAN



SITE INFORMATION

- THE EXISTING WWTP WILL REMAIN OPERATIONAL DURING THE PROPOSED CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH OPERATOR FOR ALL ACTIVITIES THAT MAY IMPACT ACCESS TO THE EXISTING FACILITY, EQUIPMENT, AND/OR UTILITY DISRUPTIONS.
- THE SITE IS SECURED WITH FENCING AND GATED ACCESS. CONTRACTOR SHALL PROTECT THESE STRUCTURES DURING THE CONSTRUCTION. SITE SHALL NOT BE LEFT UNSECURED.
- THE CONSTRUCTION WILL INCLUDE A NEW HEADWORKS, WHERE A BY-PASS LINE WILL BE TEMPORARILY INSTALLED DURING CONSTRUCTION. THE EXISTING 6-INCH FORCEMAIN WILL BE CUT, ISOLATION VALVES INSTALLED AND THEN TEMPORARILY RE-ROUTED AROUND THE NEW HEADWORKS TO KEEP THE EXISTING HEADWORKS IN-SERVICE DURING CONSTRUCTION.
- THE NEW HEADWORKS WILL BE RELOCATED OUTSIDE WITHIN A HEAT TRACED CONCRETE SLAB.
- THE CONSTRUCTION INCLUDES A NEW 150,000 GAL EQUALIZATION TANK AS PART OF THE PLANT EXPANSION.
- THE CONSTRUCTION INCLUDES AN APPROXIMATE DOUBLING OF THE TREATMENT PLANT TANKS. THE SAME AEROMOD TECHNOLOGY WILL BE USED FOR THE NEW EXPANSION.
- THE EXISTING RIBs WILL REMAIN IN THE EXISTING CONFIGURATION.

Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com



Aero - Mod, Inc.

162-030-300-0001-25
GARY & JEFFREY GRAHAM
162-030-300-0001-26
GARY & JEFFREY GRAHAM
162-030-300-0001-27
GARY & JEFFREY GRAHAM

TUSCARORA TOWNSHIP
WWTP EXPANSION
4648 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

PROJECT NO: 23-6036
CAD DWG FILE: 6036 SITE.DWG
DRAWN BY: PEI
DESIGNED BY: AEN
CHECKED BY:

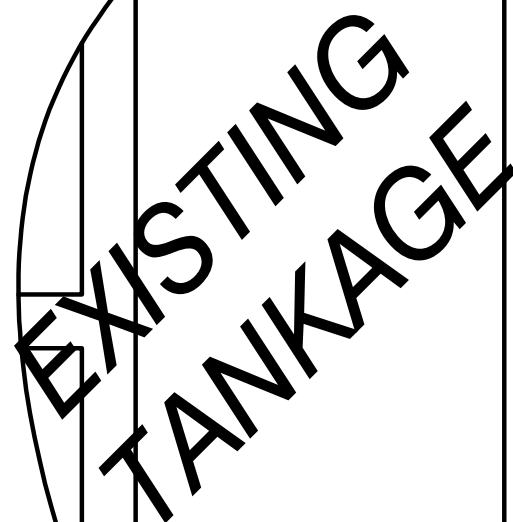
SEAL

SHEET TITLE

SITE PLAN

C301

SHEET 4 OF 21



- 17'-0" TALL EXTERIOR WALL WITH
16'-0" DEEP INTERIOR TANKS WITH A
14'-0" SIDE WATER DEPTH

PROJECT NO:	23-6036
CAD DWG FILE:	6036PLANT.DWG
DRAWN BY:	PEI
DESIGNED BY:	AMI
CHECKED BY:	AEN

SEAL

SHEET TITLE

PLANT EXPANSION LAYOUT

C305

SHEET 8 OF 21



C
CONSULTANTS

Aero - Mod, Inc.

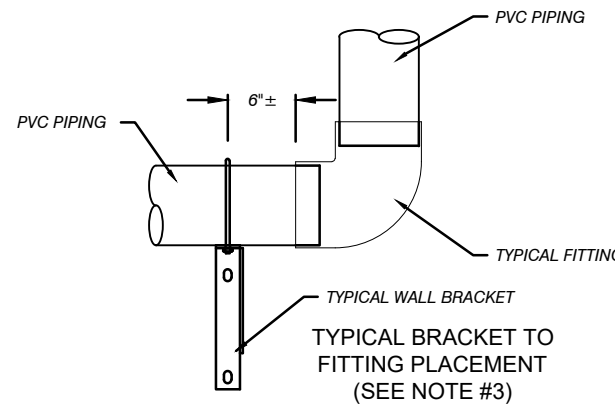
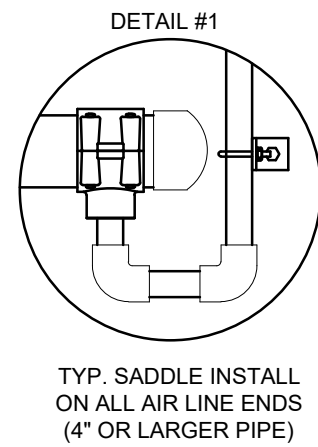
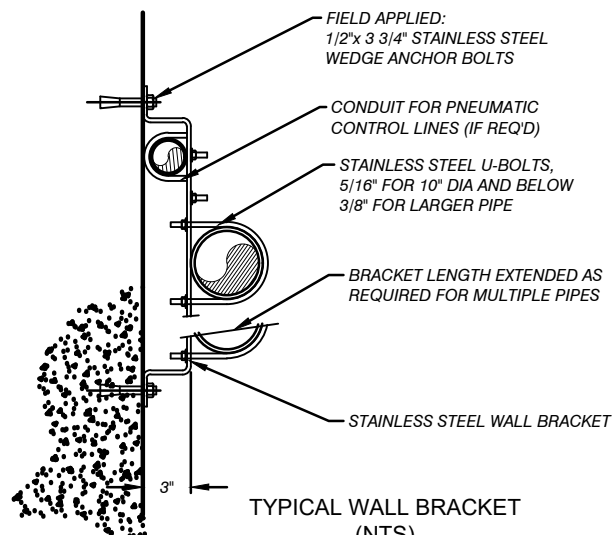
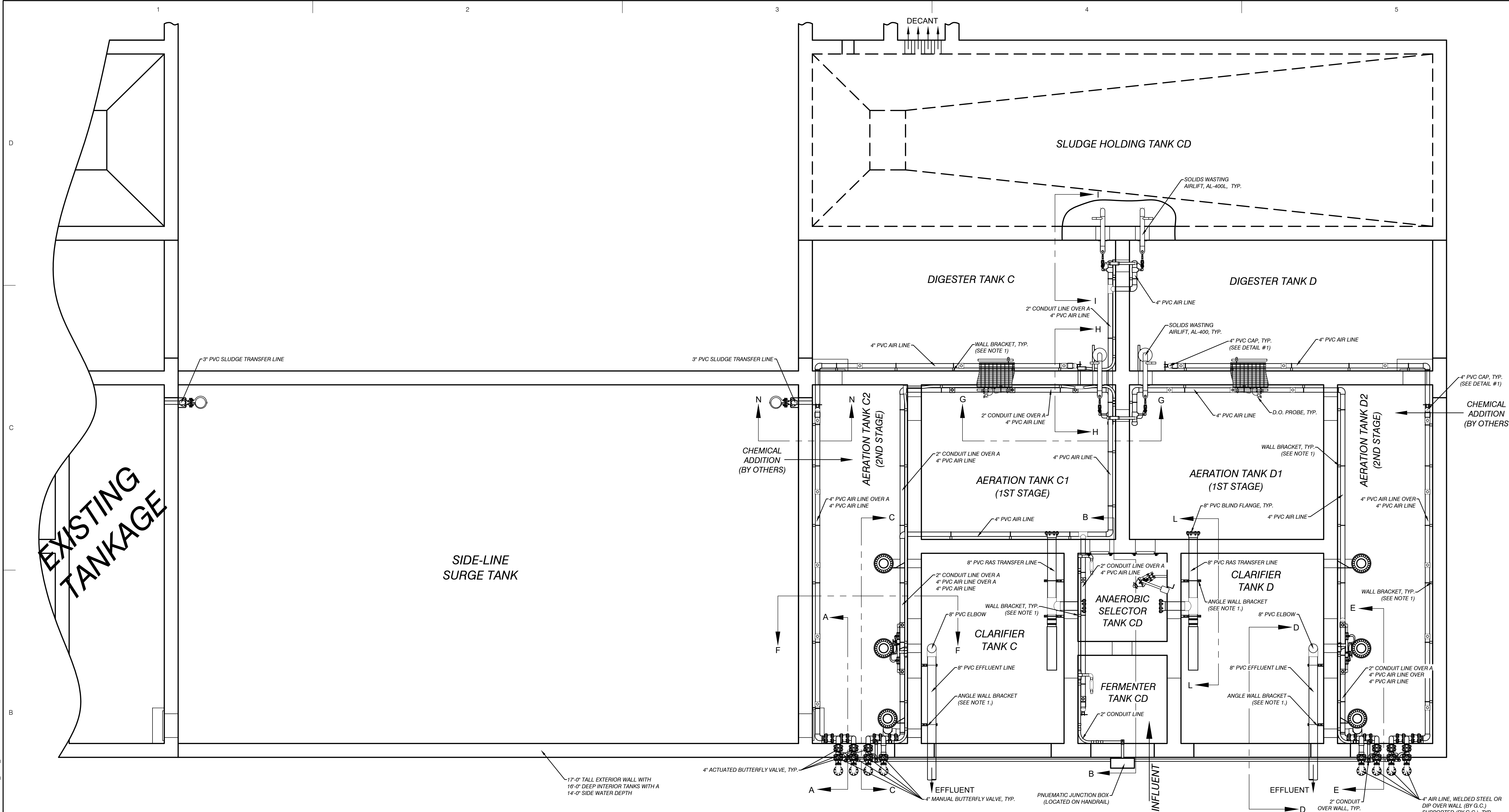
U.S. Highway 24
P.O. Box 100
Lafayette, Kansas 66502

PHONE: (785) 674-2424
FAX: (785) 674-2424

Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com

C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\C306_6036_PIPING.DWG - PIPING LAYOUT - PLOTTED 8/1/2023 10:13 AM BY AARON NORDMAN



- NOTE:
1. STAINLESS STEEL WALL BRACKETS AND ANGLE WALL BRACKETS ARE TYPICALLY SPACED 5'-0" APART, (SUPPLIED BY AERO-MOD) UNLESS NOTED PIPE IS SECURED TO WALL BRACKETS WITH A STAINLESS STEEL U-BOLT.
 2. EXPANSION JOINTS AND LOCATIONS TO BE DETERMINED AND SUPPLIED BY G.C.
 3. PLACE WALL BRACKETS IN PROPER LOCATIONS TO SUPPORT PIPE WITHOUT PUTTING UNNECESSARY STRESS ON PIPE FITTINGS & EXPANSION JOINTS

PLACE LEG OF U-BOLT AT THE TOP OF BRACKET SLOT TO PREVENT PIPE FROM PUSING AS TANK IS FILLED
SEE SUPPLIED INSTALLATION INSTRUCTIONS

Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com

Aero - Mod, Inc.
7827 U.S. Highway 96
P.O. Box 100
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.aeromod.com

CONSULTANTS

TUSCARORA TOWNSHIP

WWTP EXPANSION

4640 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

DESCRIPTION

DATE

MARK

PERMIT SUBMITTAL

7/28/23

0

PROJECT NO: 23-6036
CAD DWG FILE: C306_6036_PIPING.DWG
DRAWN BY: AMI
DESIGNED BY: AMI
CHECKED BY:

SEAL

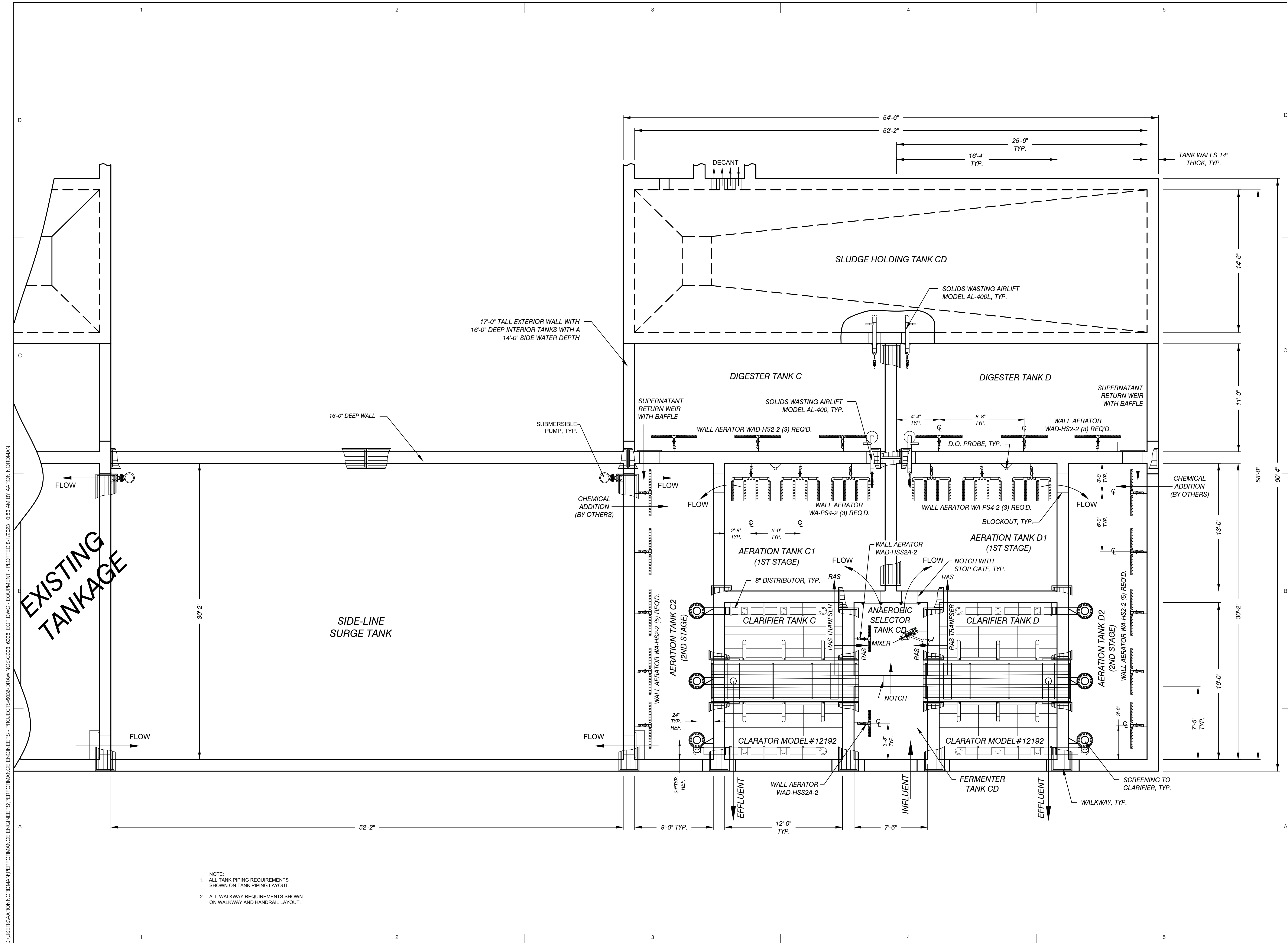
SHEET TITLE

TANK PIPING LAYOUT

C306

SHEET 9 OF 21

COPYRIGHT: PERFORMANCE ENGINEERS, INC 2023

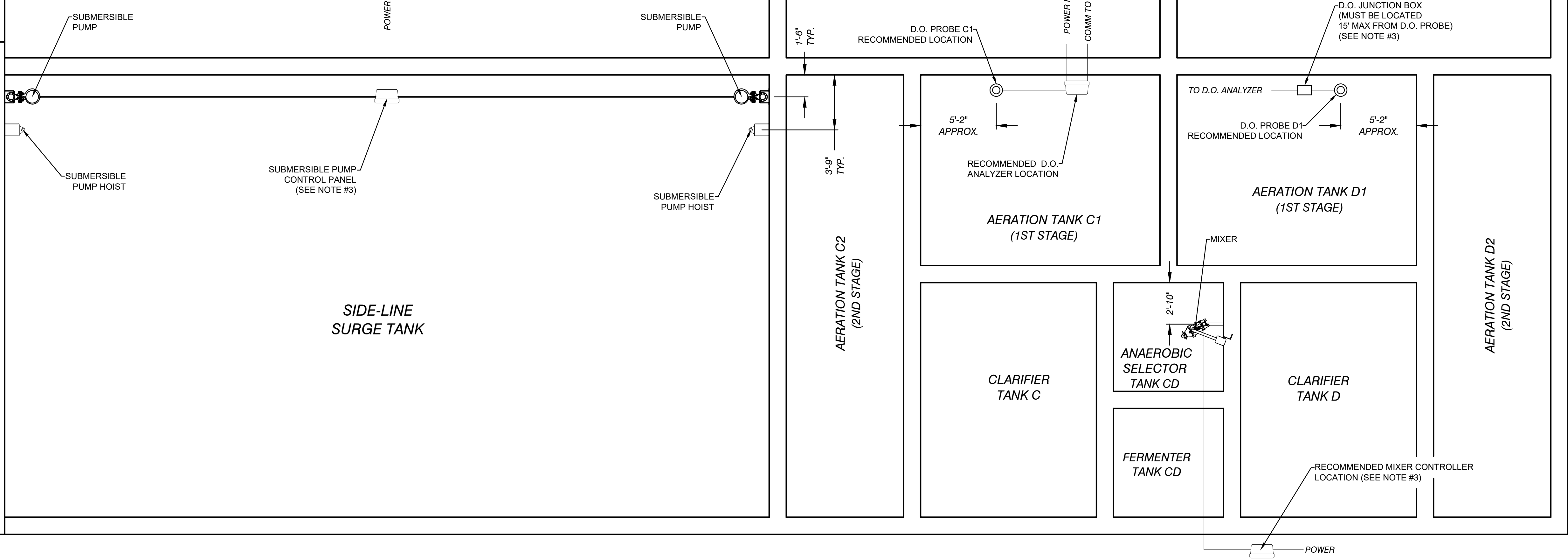


NOTE:

1. ALL TANK PIPING REQUIREMENTS SHOWN ON TANK PIPING LAYOUT.
2. ALL WALKWAY REQUIREMENTS SHOWN ON WALKWAY AND HANDRAIL LAYOUT.

C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS\PROJECTS\6036\DRAWINGS\C309_6036_ELE.DWG - ELECTRICAL - PLOTTED 8/1/2023 10:56 AM BY AARON NORDMAN

EXISTING
TANKAGE



- NOTE:
1. ALL POWER FROM DISTRIBUTION PANEL UNLESS OTHERWISE NOTED
 2. EXTENSION CABLES WILL REQUIRE ADDITIONAL CONDUIT (1") TO D.O. PROBE CONTROLLER VIA THE JUNCTION BOX. (GENERAL CONTRACTOR)
 3. HEIGHT AND LOCATION OF PANEL/JUNCTION BOX TO BE DETERMINED BY ELECTRICAL ENGINEER

SYMBOL KEY



CONTROL PANEL



JUNCTION BOX

Performance
Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com



Aero - Mod, Inc.

1827 U.S. Highway 2
P.O. Box 100
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084

CONSULTANTS

TUSCARORA TOWNSHIP

WWTP EXPANSION

4649 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

DESCRIPTION

DATE

MARK

PROJECT NO: 23-6036
CAD DWG FILE: C309_6036_ELE.DWG
DRAWN BY: AMI
DESIGNED BY: AMI
CHECKED BY: PEI

SEAL

SHEET TITLE

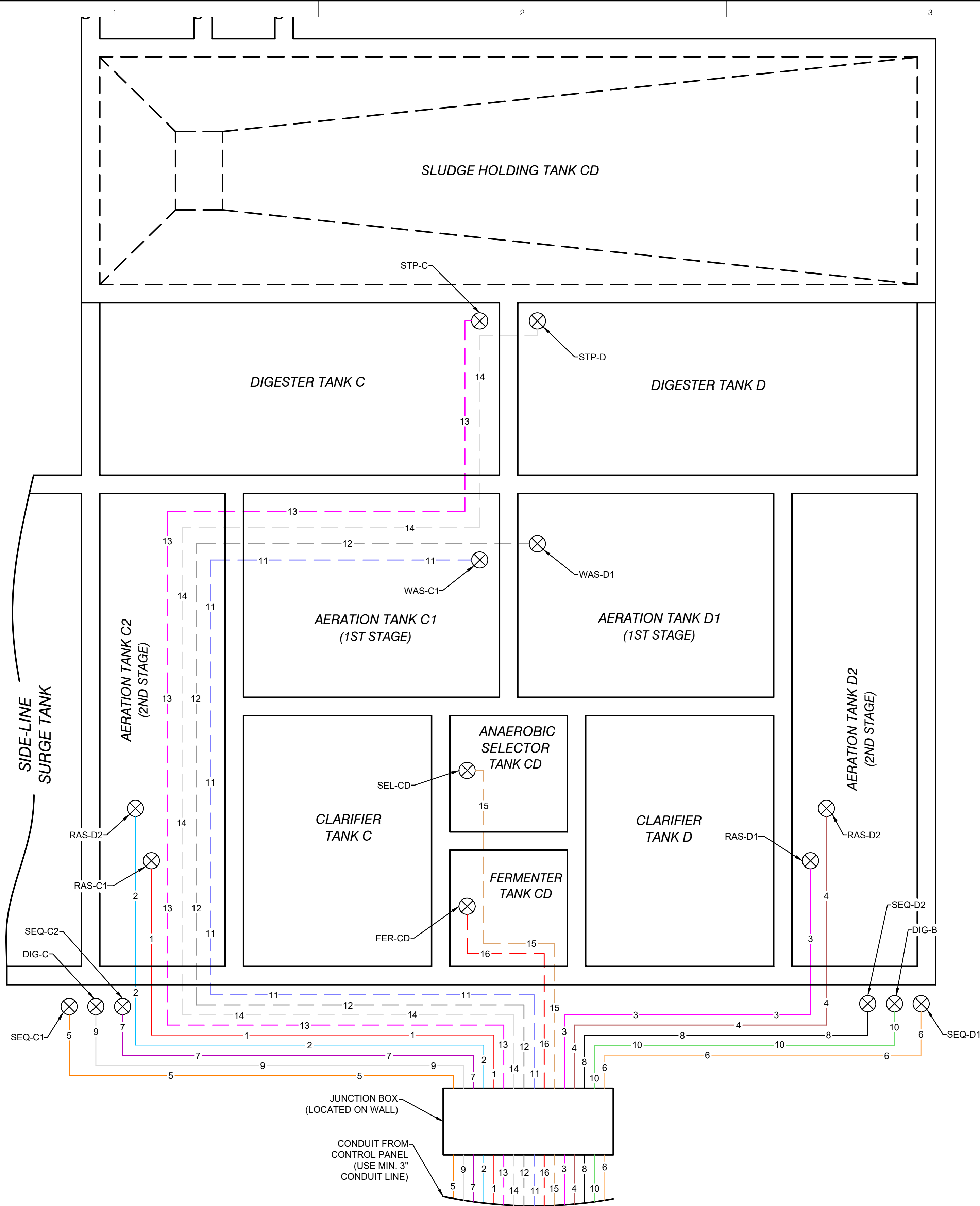
ELECTRICAL EQUIPMENT
PLACEMENT

C309

SHEET 12 OF 21

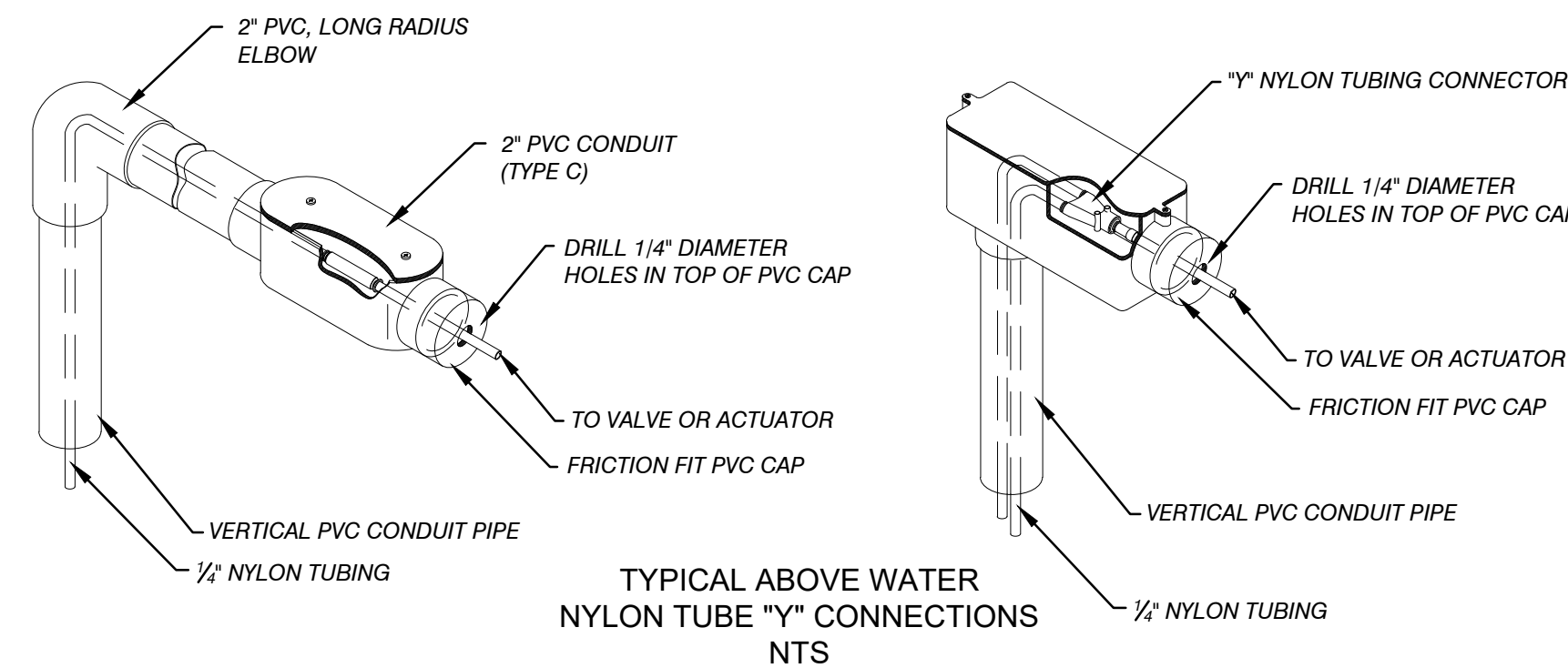
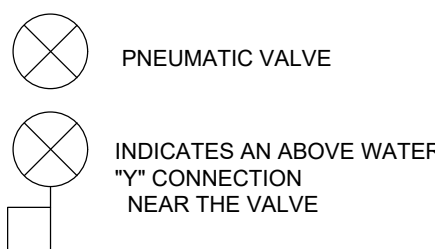
COPYRIGHT: PERFORMANCE ENGINEERS, INC 2023

C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\C309_6036_ELE.DWG - PNEUMATIC - PLOTTED 8/1/2023 11:11 AM BY AARON NORDMAN



- NOTE:
- ALL NYLON TUBE CONNECTIONS MUST BE MADE OUTSIDE OF PVC CONDUIT LINES AND ABOVE WATER LEVEL.
 - THE PNEUMATIC SCHEMATIC DRAWING IS FOR CONTRACTOR USE ONLY (TO AID IN INSTALLATION).
 - EXTENSION CABLES WILL REQUIRE ADDITIONAL CONDUIT (1") TO D.O. PROBE CONTROLLER VIA THE JUNCTION BOX. (GENERAL CONTRACTOR)

SYMBOL KEY



VALVE ABBREVIATION GUIDE	
XXX - X(X)# - #	INDICATES CYCLE/STAGE/ VALVE OR EQUIPMENT NUMBER
X - X(X)#	INDICATES CYCLE/STAGE
X - X(X)	INDICATES TRAIN(S)/LOCATION
X	INDICATES TYPE/FUNCTION FOR VALVE OR EQUIPMENT
RAS = RETURN ACTIVATED SLUDGE (RAS) VALVE	
SEQ = SEQUOX VALVE	
DIG = DIGESTER VALVE	
WAS = AIR LIFT VALVE	
SEL = SELECTOR VALVE (MAY HAVE BIO-P AS A PREFIX)	
SHT = SLUDGE HOLDING VALVE	
STP = SLUDGE TRANSFER VALVE	
FER = FERMENTOR VALVE	

NYLON TUBING GUIDE FOR PNEUMATIC SCHEMATICS

PNEUMATIC LINE NUMBER	NYLON TUBE COLOR AND ITEM NUMBER	NUMBER OF TUBES	DESCRIPTION AND VALVE NO.	NORMAL VALVE POSITION
1	RED (04126)	TWO	CYCLE VALVE RAS-C1	CLOSED
2	BLUE (04166)	TWO	CYCLE VALVE RAS-C2	CLOSED
3	PINK (041G6)	TWO	CYCLE VALVE RAS-D1	CLOSED
4	BROWN (041C6)	TWO	CYCLE VALVE RAS-D2	CLOSED
5	ORANGE (04136)	TWO	SEQUOX VALVE SEQ-C1	OPEN
6	NATURAL (04176)	TWO	SEQUOX VALVE SEQ-D1	OPEN
7	PURPLE (041D6)	TWO	SEQUOX VALVE SEQ-C2	OPEN
8	BLACK (04106)	TWO	SEQUOX VALVE SEQ-D2	OPEN
9	WHITE (04116)	TWO	DIGESTER VALVE DIG-A	OPEN
10	GREEN (04156)	TWO	DIGESTER VALVE DIG-B	OPEN
11	VIOLET (04186)	ONE	WASTING VALVE WAS-C1	CLOSED
12	GREY (04196)	ONE	WASTING VALVE WAS-D1	CLOSED
13	PINK (041G6)	ONE	WASTING VALVE STP-D	CLOSED
14	SILVER (041F6)	ONE	WASTING VALVE STP-D	CLOSED
15	TAN (041E6)	ONE	SELECTOR SEL-CD	CLOSED
16	RED (04126)	ONE	SELECTOR FER-CD	CLOSED



TUSCARORA TOWNSHIP
WWTP EXPANSION
4649 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

PROJECT NO:	23-6036
CAD DWG FILE:	C309_6036_ELE.DWG
DRAWN BY:	AMI
DESIGNED BY:	AMI
CHECKED BY:	PEI

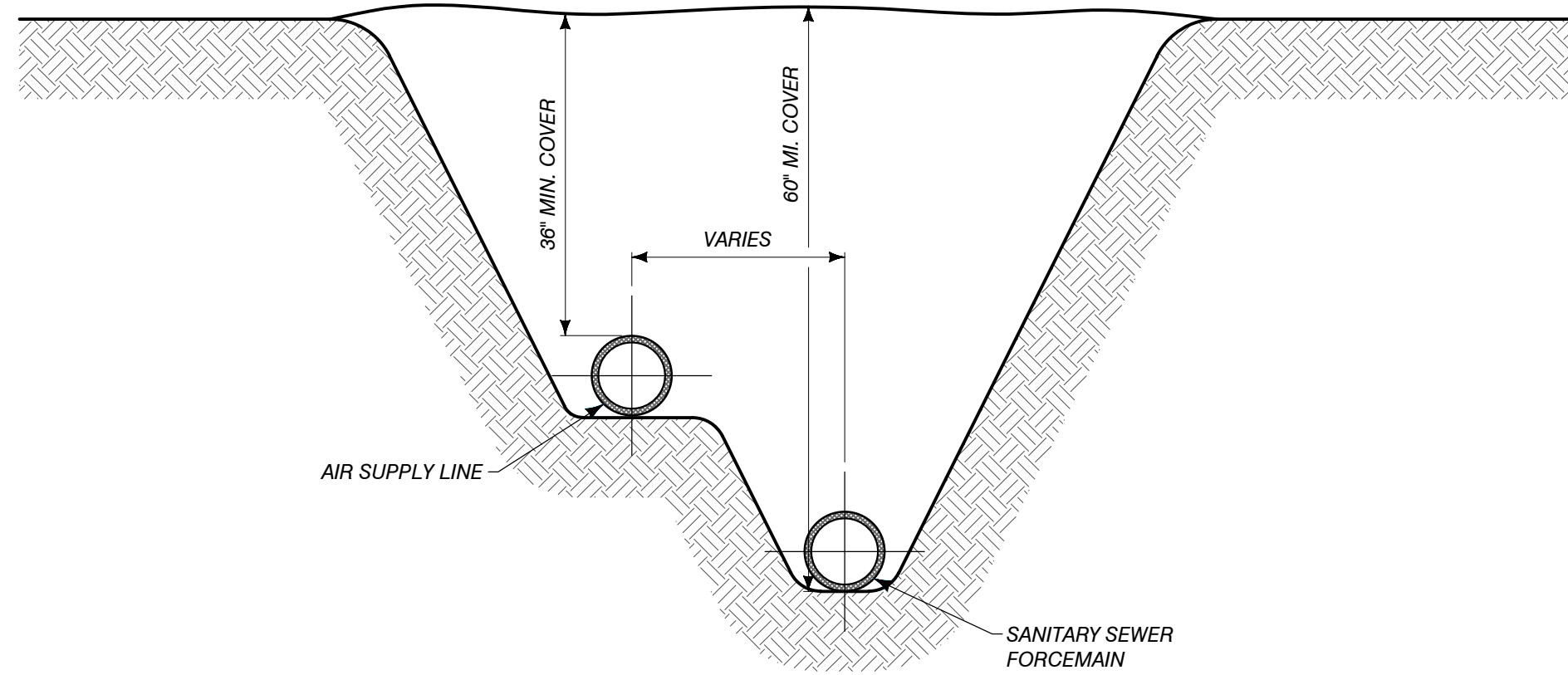
SEAL

SHEET TITLE
PNEUMATIC EQUIPMENT
PLACEMENT

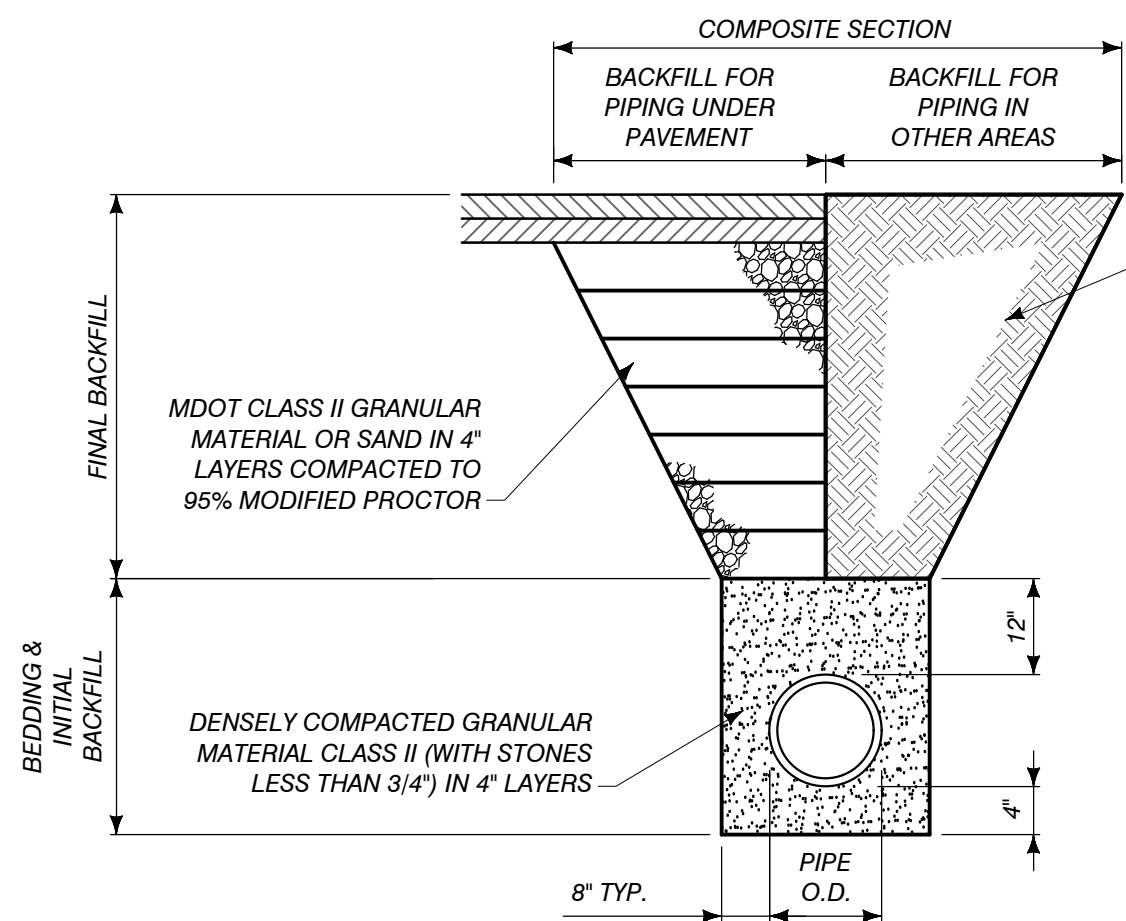
C310

SHEET 13 OF 21

C:\USERS\AARON\ORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\0400_6036 DETL DWG - C400 - PLOTTED 8/7/2023 6:17 PM BY AARON NORDMAN



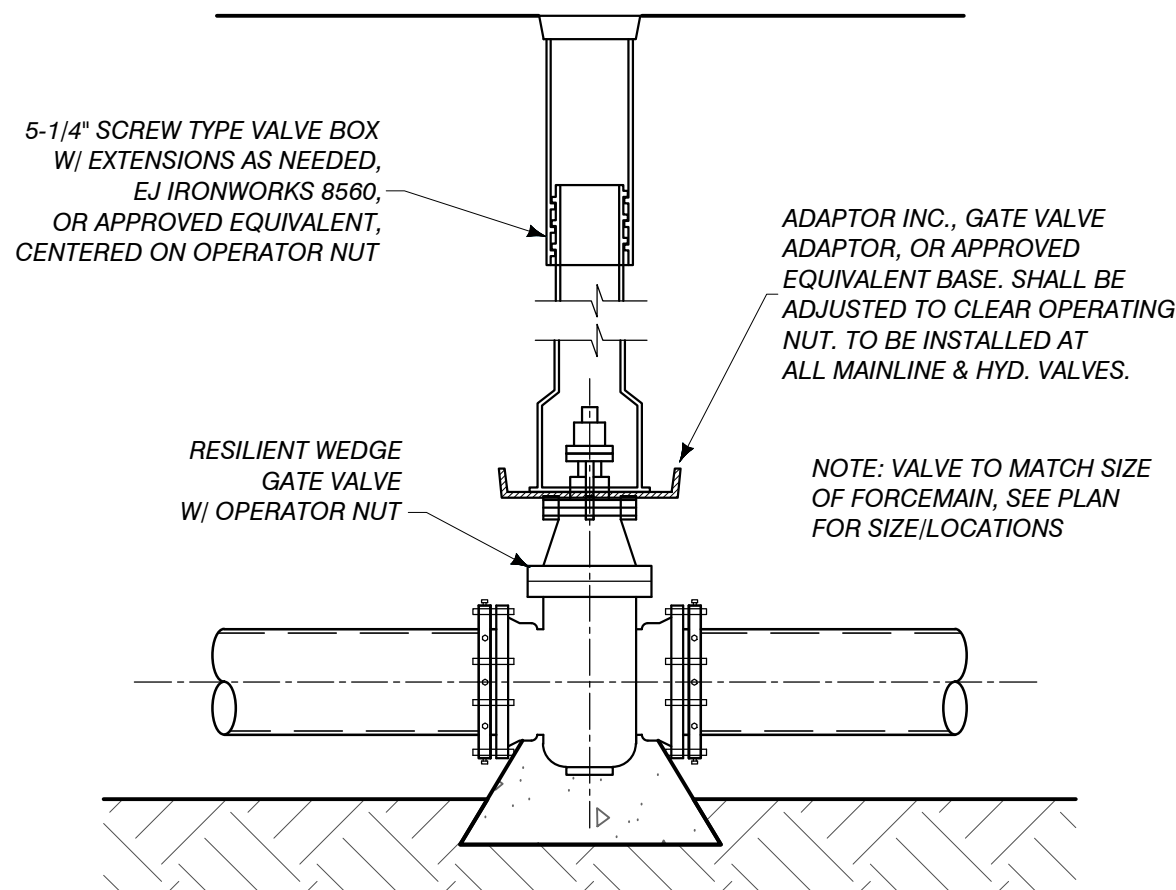
2 PIPE TRENCH DETAIL



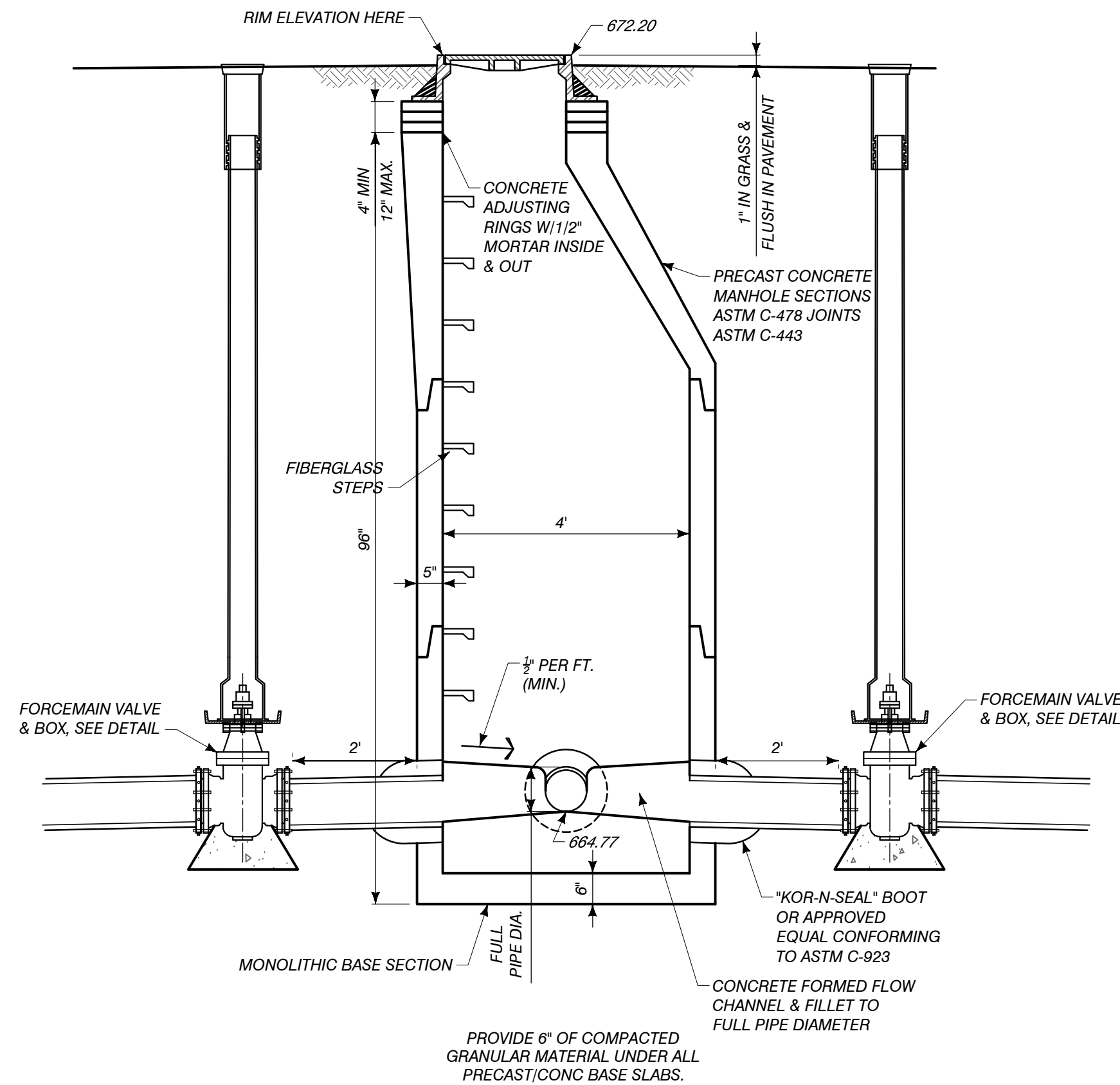
PIPE BEDDING & BACKFILL DETAIL

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CURRENT REQUIREMENTS OF THE STATE OF MICHIGAN, EGLE. INSTALLATION OF PVC PIPING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM D2321, THE PLANS AND SUPPLEMENTAL SPECIFICATIONS PROVIDED.
- THE OWNER WILL PROVIDE THE CONTRACTOR WITH THE REQUIRED EGLE PERMIT FOR THE SANITARY SEWER CONSTRUCTION. CONSTRUCTION IS NOT TO BEGIN UNTIL THIS PERMIT HAS BEEN OBTAINED.
- ALL SANITARY SEWER GRAVITY PIPING SHALL BE PVC SDR-26 WITH GASKET JOINTS, PIPING LESS THAN 24-INCH DIA. SHALL BE SET BY LASER ALIGNMENT.
- ALL SANITARY FORCEMAIN SEWER PIPING SHALL BE HDPE, DR-11 IPS PIPE SIZE. WHERE PVC FORCEMAIN IS TO BE INSTALLED IN AN OPEN TRENCH, IT SHALL BE A MINIMUM OF SDR-21. ALL FORCEMAIN PIPING SHALL BE INSTALLED WITH A TRACER WIRE FOR LOCATING.
- THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE FOR CONSTRUCTION INSPECTION BY THE ENGINEER AND PROVIDE ACCEPTANCE TESTING OF THE COMPLETED PIPING SYSTEM, PRIOR TO BEING ACCEPTED BY THE OWNER.
- NO INDIVIDUAL SERVICES SHALL BE CONNECTED UNTIL SEWER MAIN HAS BEEN ACCEPTED BY THE OWNER AND PLACED IN-SERVICE.
- SANITARY SERVICE LOCATIONS SHOWN ARE BASED UPON THE BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN. CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND ENSURE THAT EVERY HOME IS PROVIDED A CONNECTION TO THE NEW MAINS. THIS WORK IS INCIDENTAL TO THE SERVICE INSTALLATION.

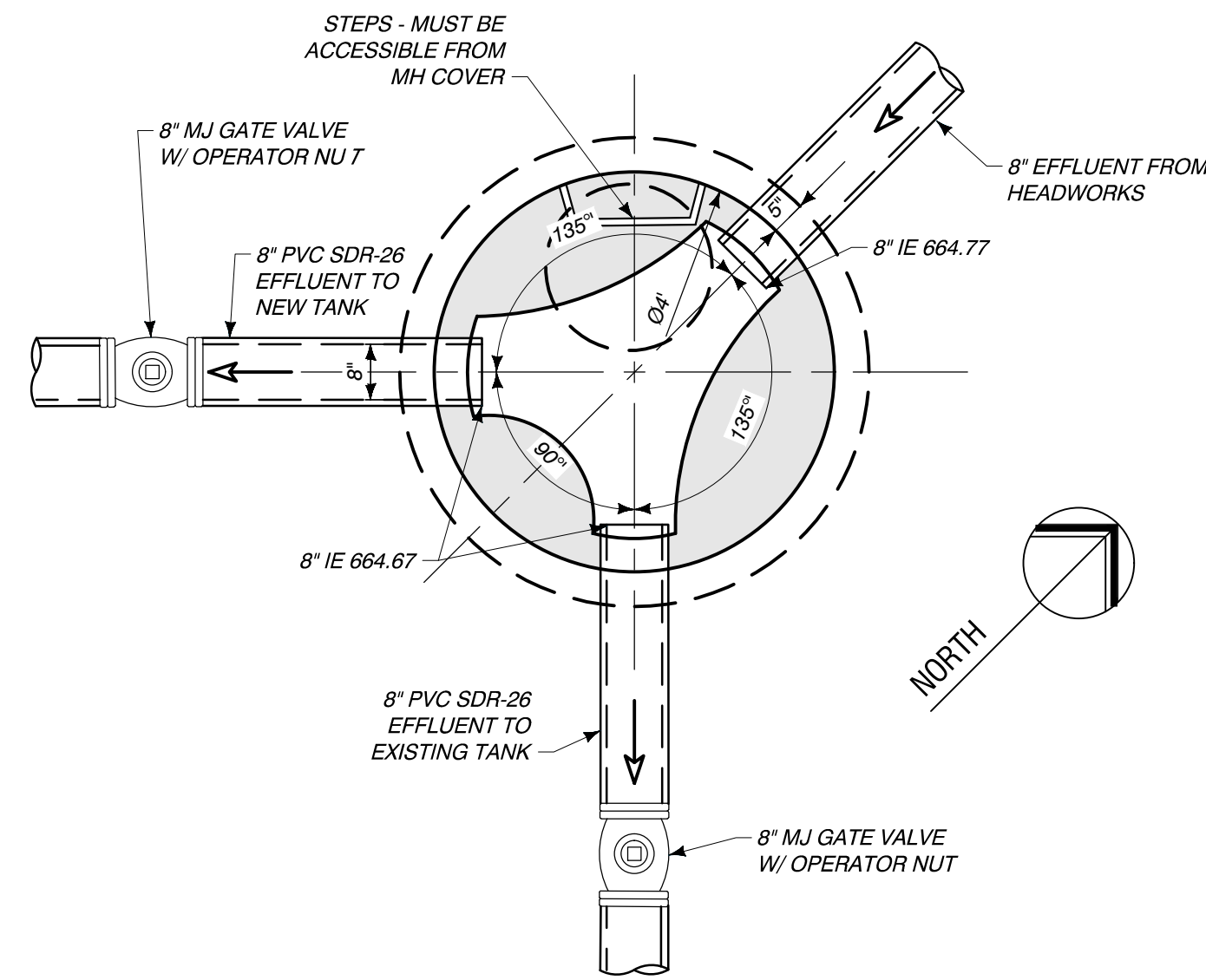
SANITARY CONSTRUCTION NOTES



FORCEMAIN VALVE & BOX DETAIL



FLOW CONTROL STRUCTURE



FLOW CONTROL SANITARY X-SECTION

MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

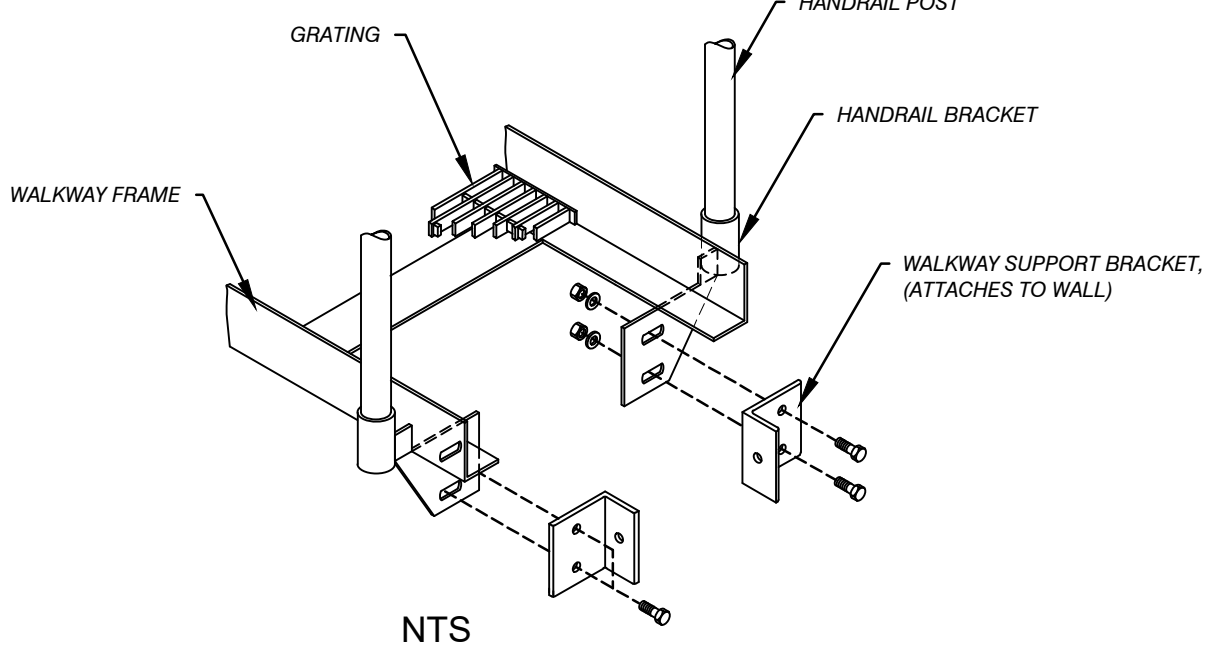
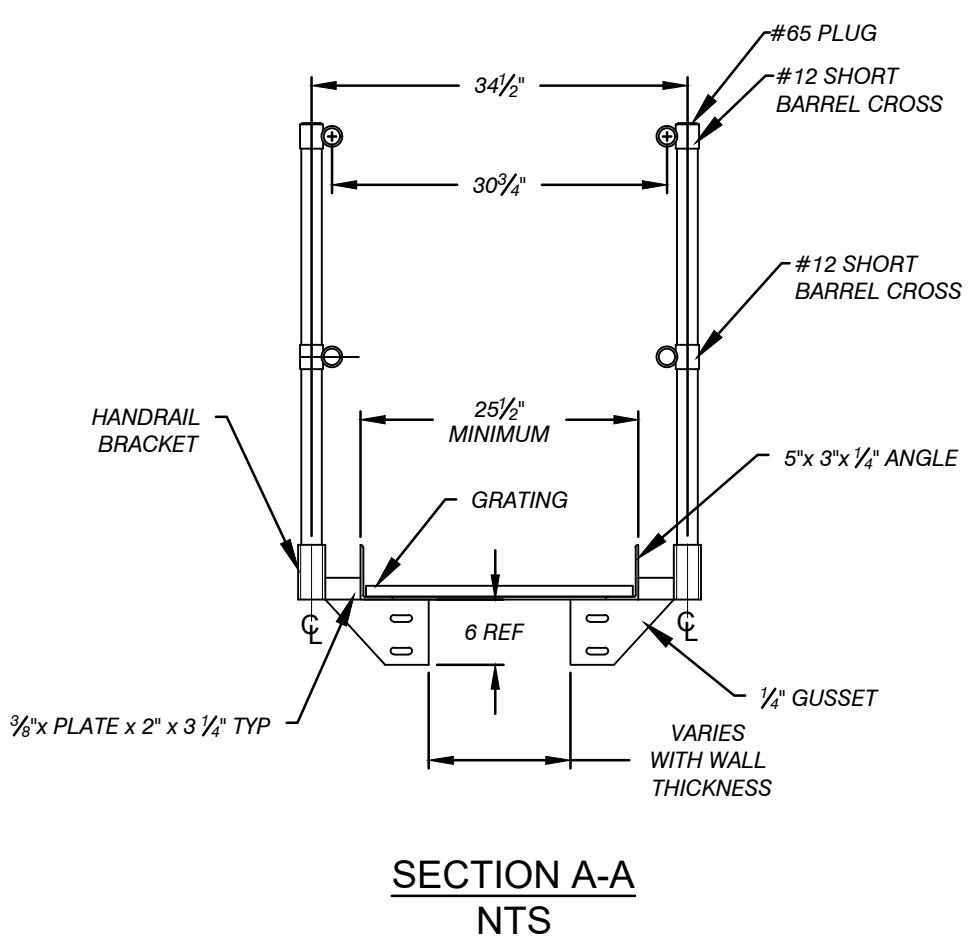
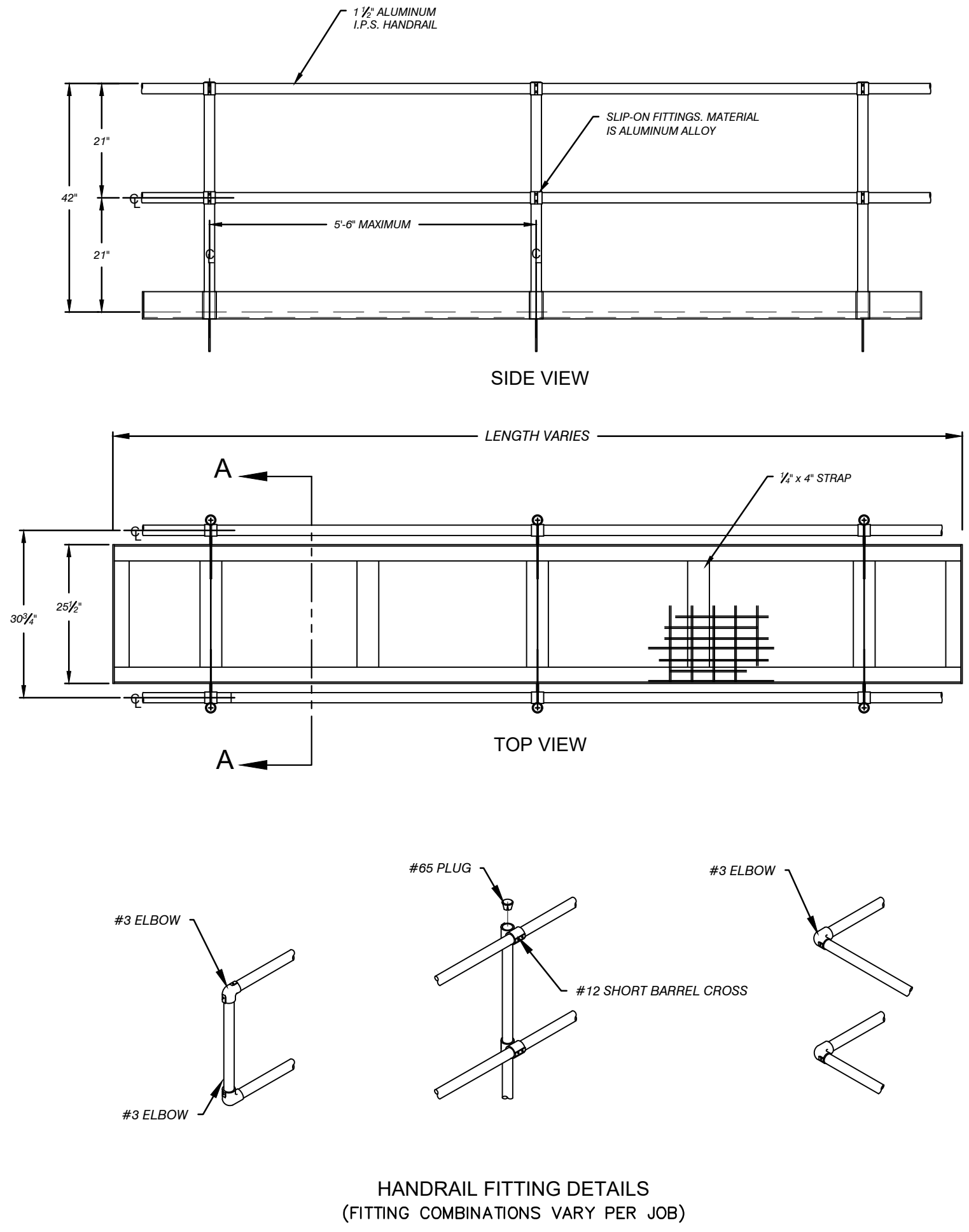
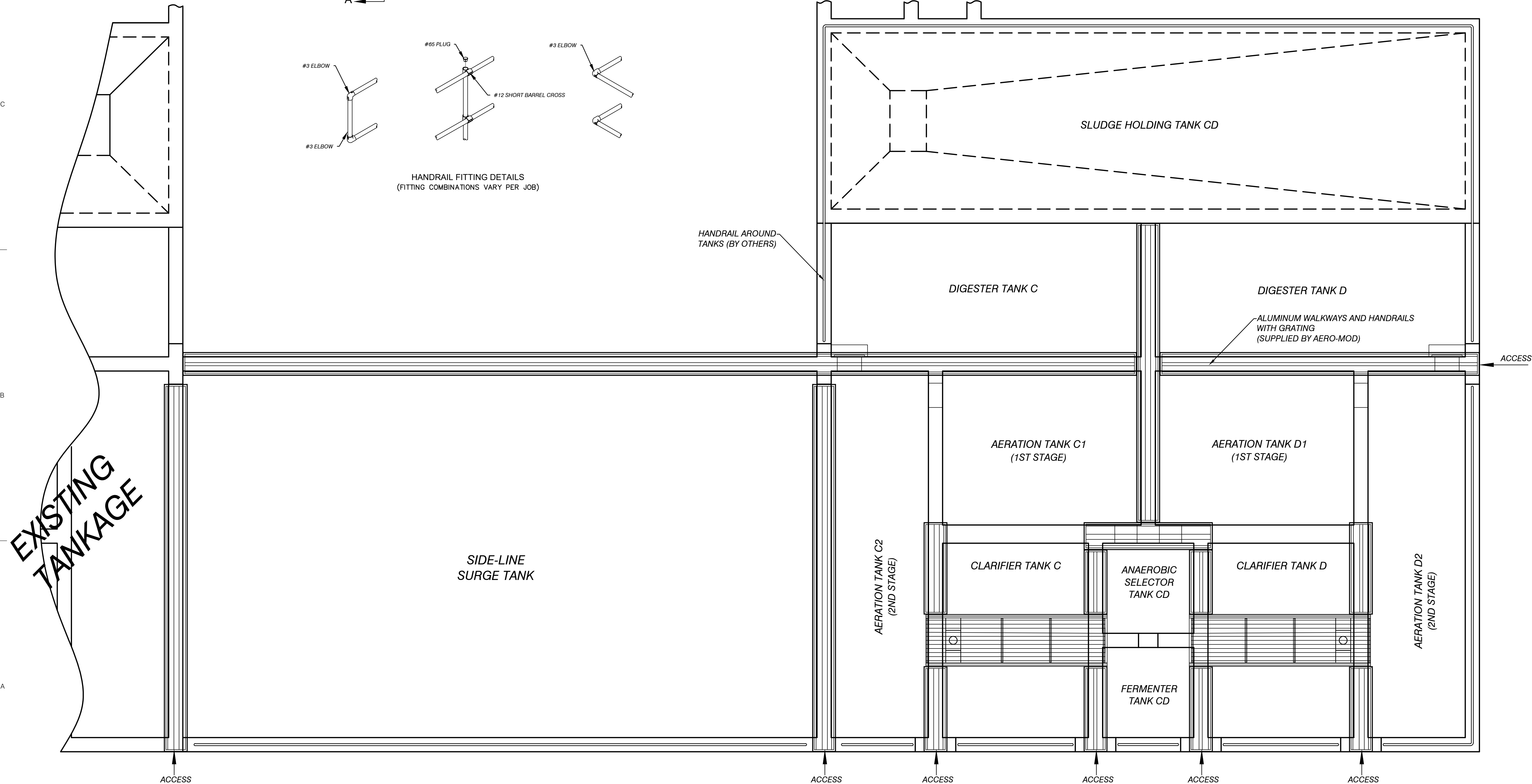
PROJECT NO:	23-6036
CAD DWG FILE:	D400_6036 DETL.DWG
DRAWN BY:	PEI
DESIGNED BY:	PEI
CHECKED BY:	

SEAL

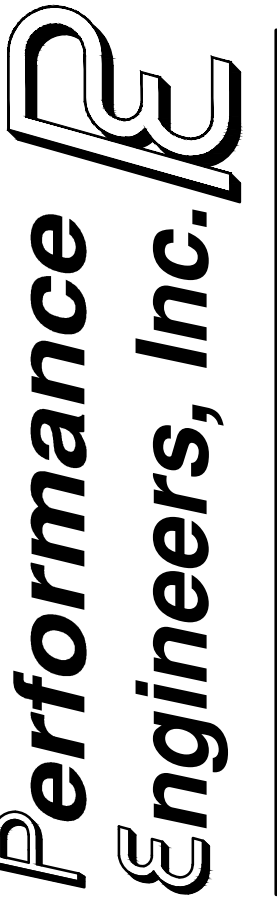
SHEET TITLE
SANITARY DETAILS

SHEET	D400	14 OF 21
-------	------	----------


C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\C308_6036_EOP.DWG - WALKWAY - PLOTTED 8/1/2023 11:17 AM BY AARON NORDMAN



EXISTING
TANKAGE



Performance Engineers, Inc.
Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com



Aero - Mod, Inc.
7827 U.S. Highway 2
P.O. Box 100
Charlevoix, Michigan 49720
CONSULTANTS

TUSCARORA TOWNSHIP
WWTP EXPANSION
4649 BRUDY RD.
INDIAN RIVER, MI 49749
OWNER

MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

PROJECT NO: 23-6036
CAD DWG FILE: C308_6036_EOP.DWG
DRAWN BY: AMI
DESIGNED BY: AMI
CHECKED BY: PEI

SEAL

SHEET TITLE

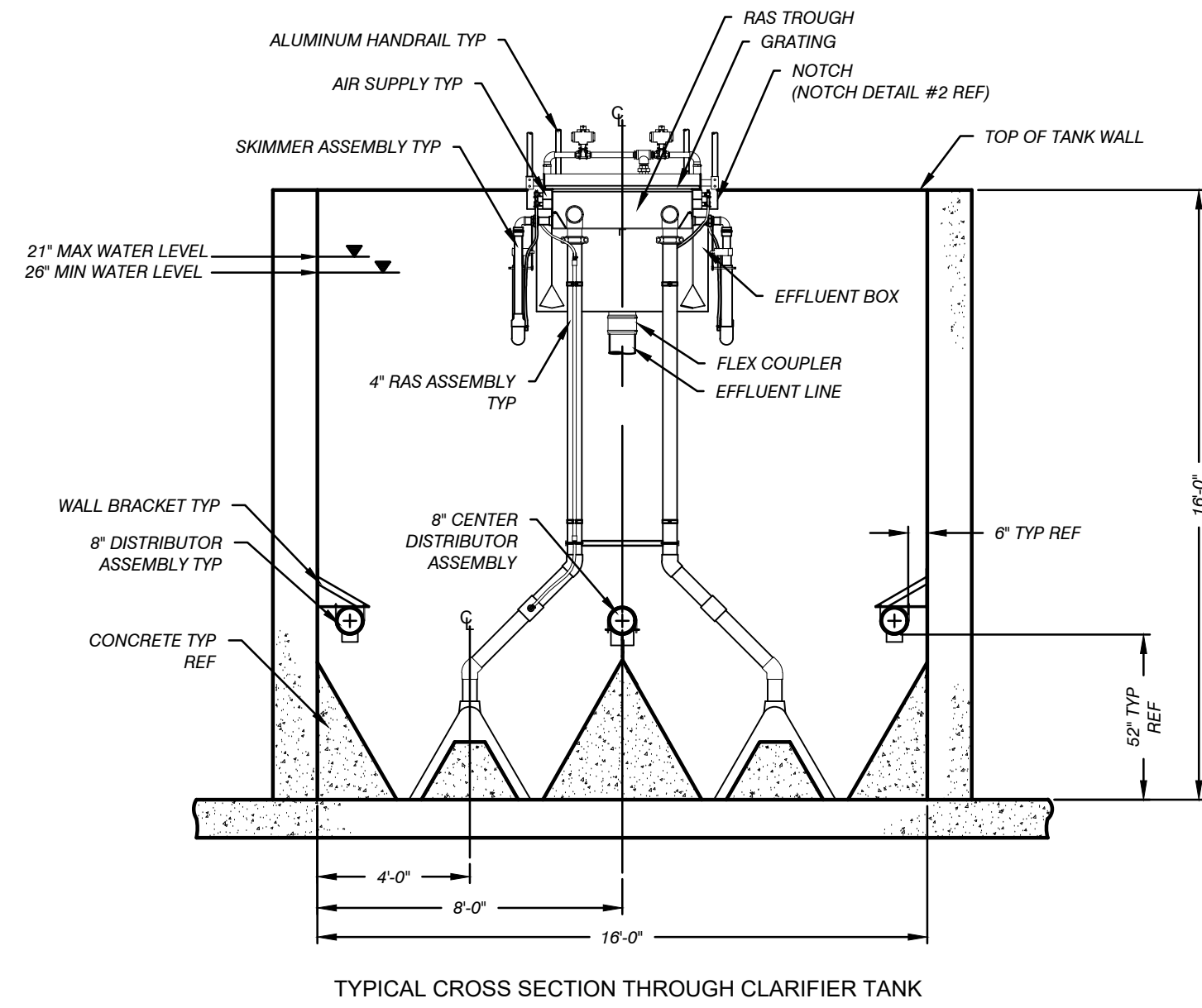
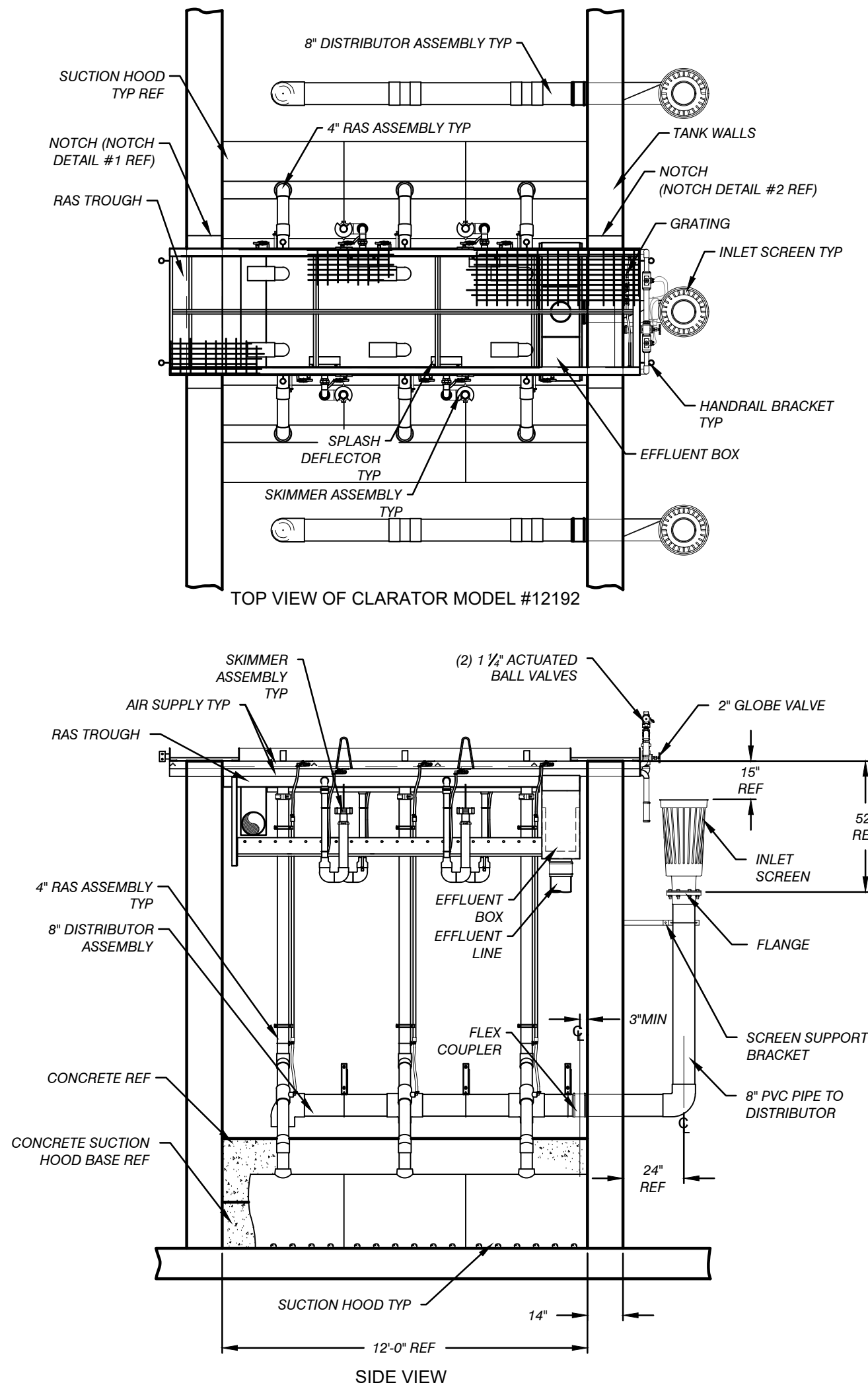
WALKWAY &
HANDRAIL DETAILS

D401

SHEET 15 OF 21

COPYRIGHT: PERFORMANCE ENGINEERS, INC 2023

C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\C308_6036_EQP.DWG - CLARATOR 1292 - PLOTTED 8/1/2023 11:20 AM BY AARON NORDMAN



TUSCARORA TOWNSHIP
WWTP EXPANSION

4649 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

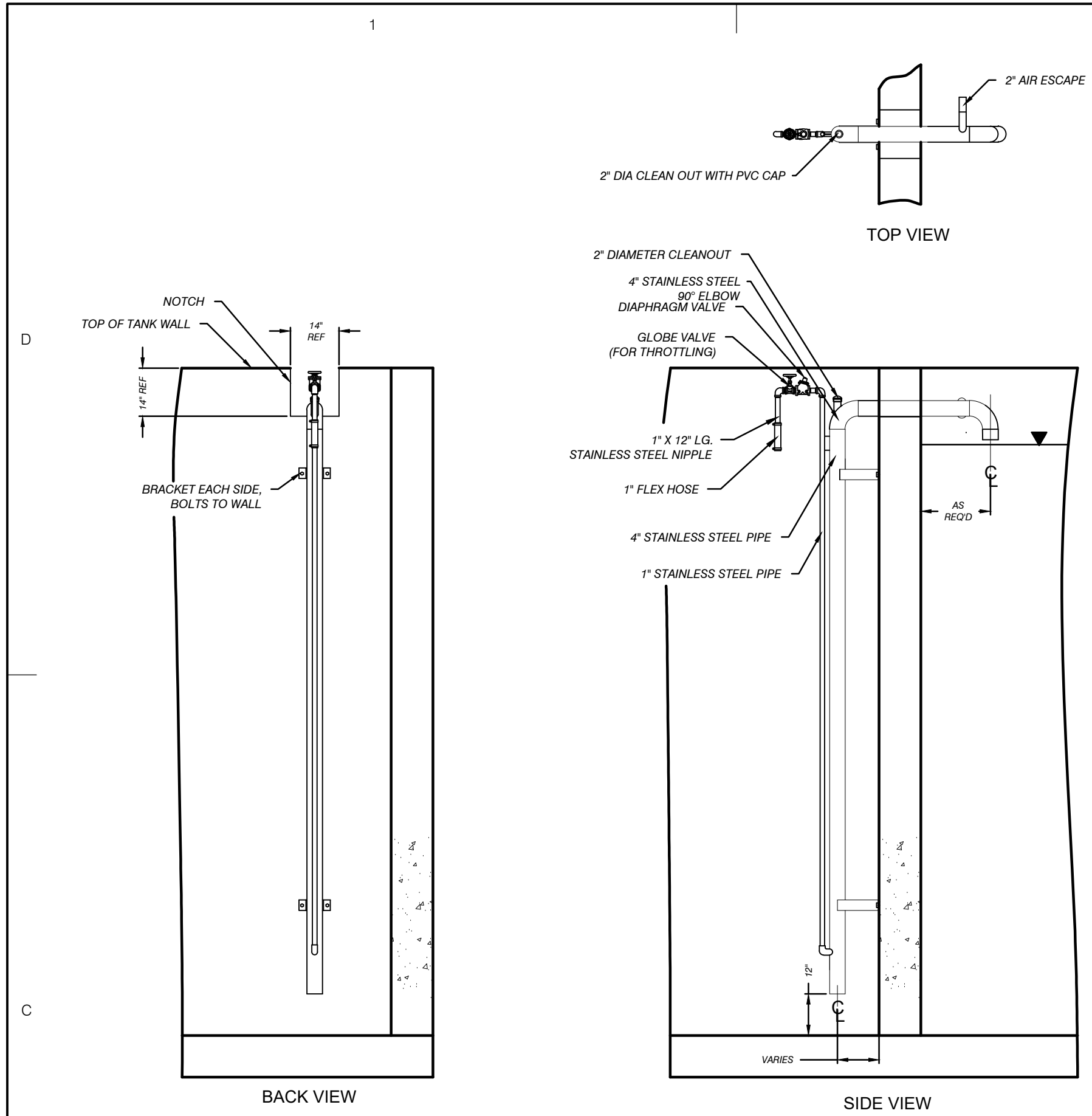
MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

PROJECT NO:	23-6036
CAD DWG FILE:	C308_6036_EQP.DWG
DRAWN BY:	AMI
DESIGNED BY:	AMI
CHECKED BY:	PEI

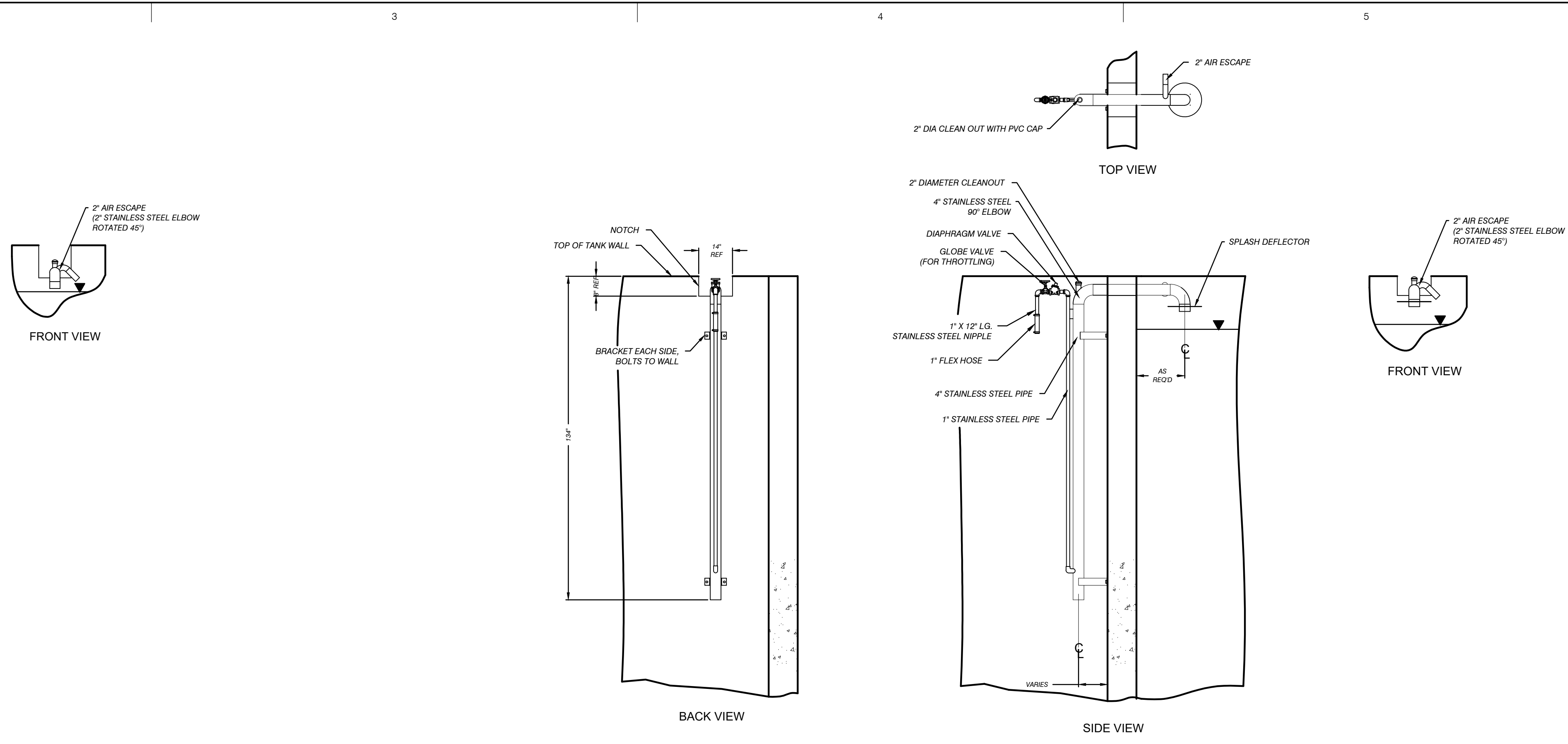
SEAL

SHEET TITLE
**CLARATOR
DETAILS**

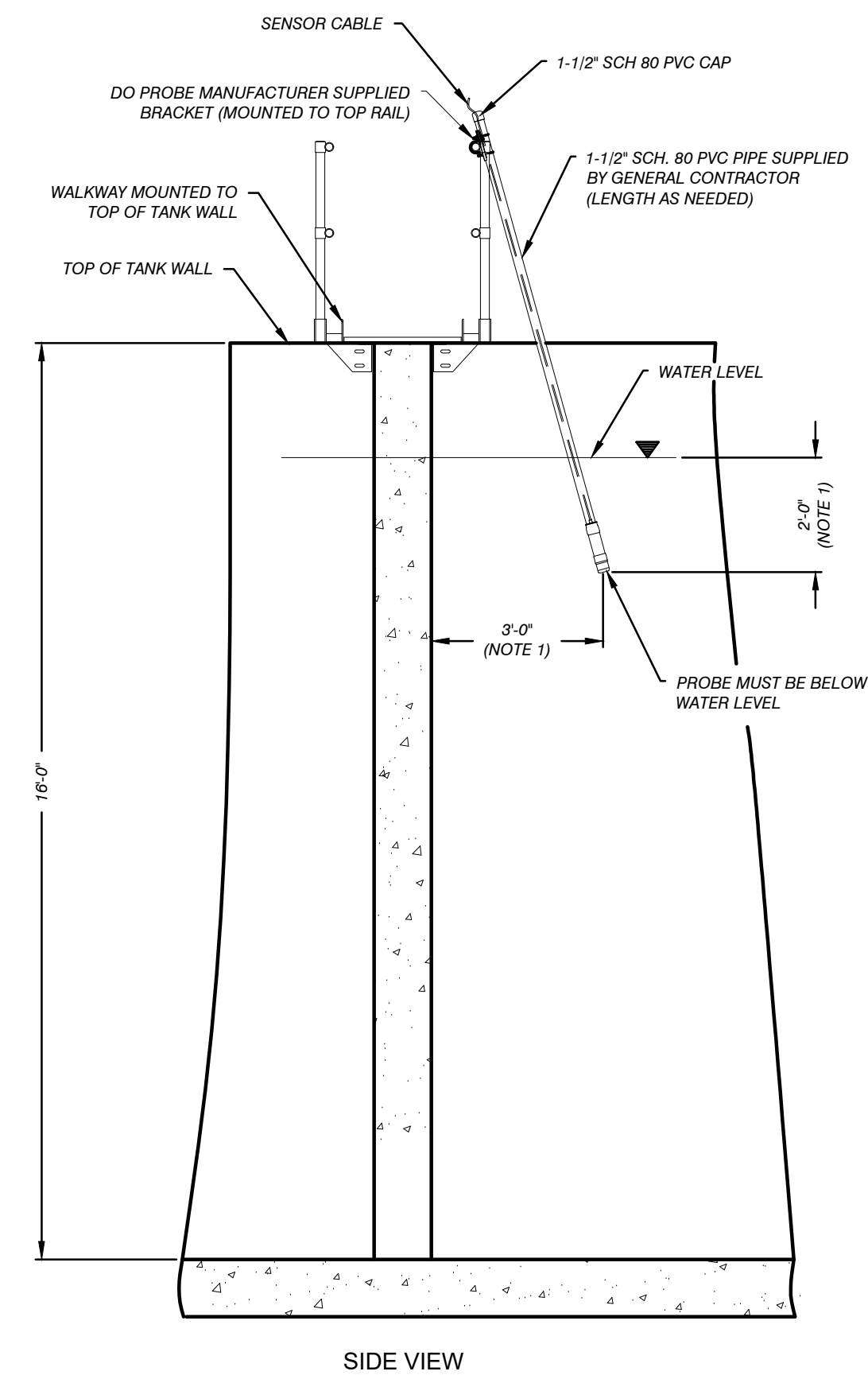
SHEET
D402
16 OF 21



MODEL AL-400L SOLIDS WASTING AIRLIFT EQUIPMENT DETAIL



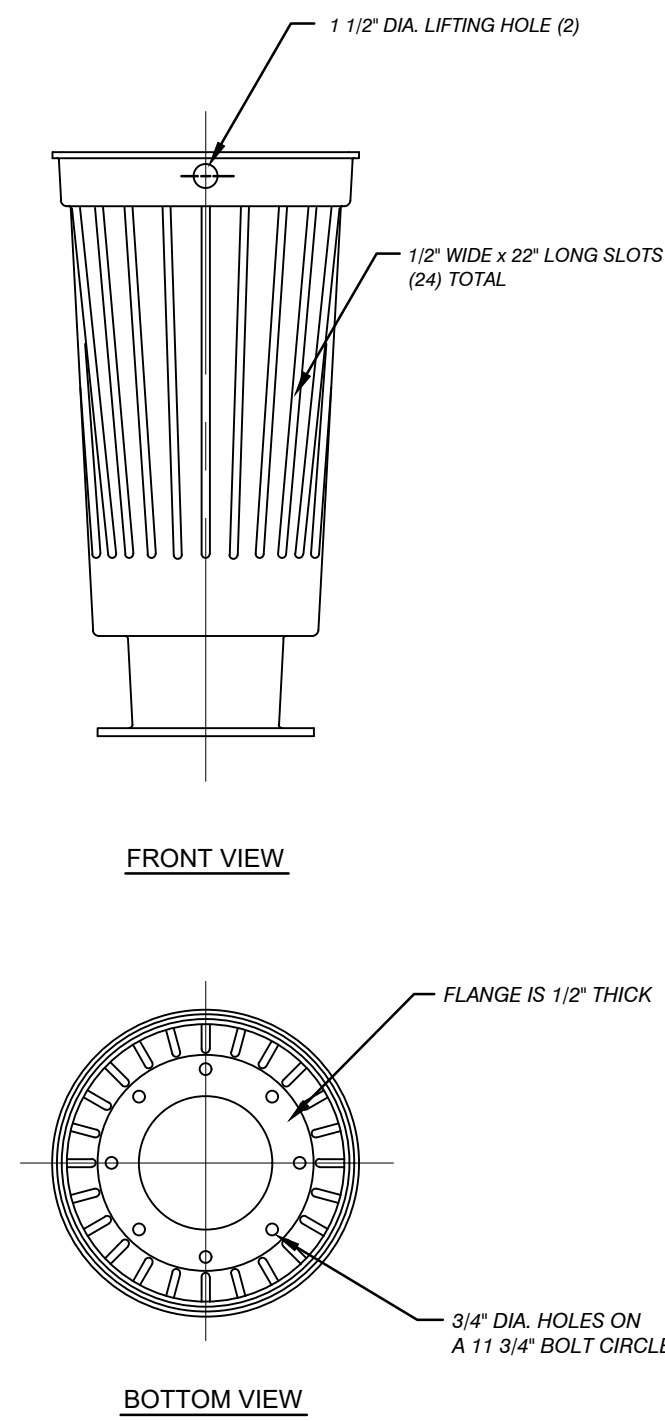
MODEL AL-400
SOLIDS WASTING AIRLIFT
EQUIPMENT DETAIL



D.O. PROBE EQUIPMENT DETAIL

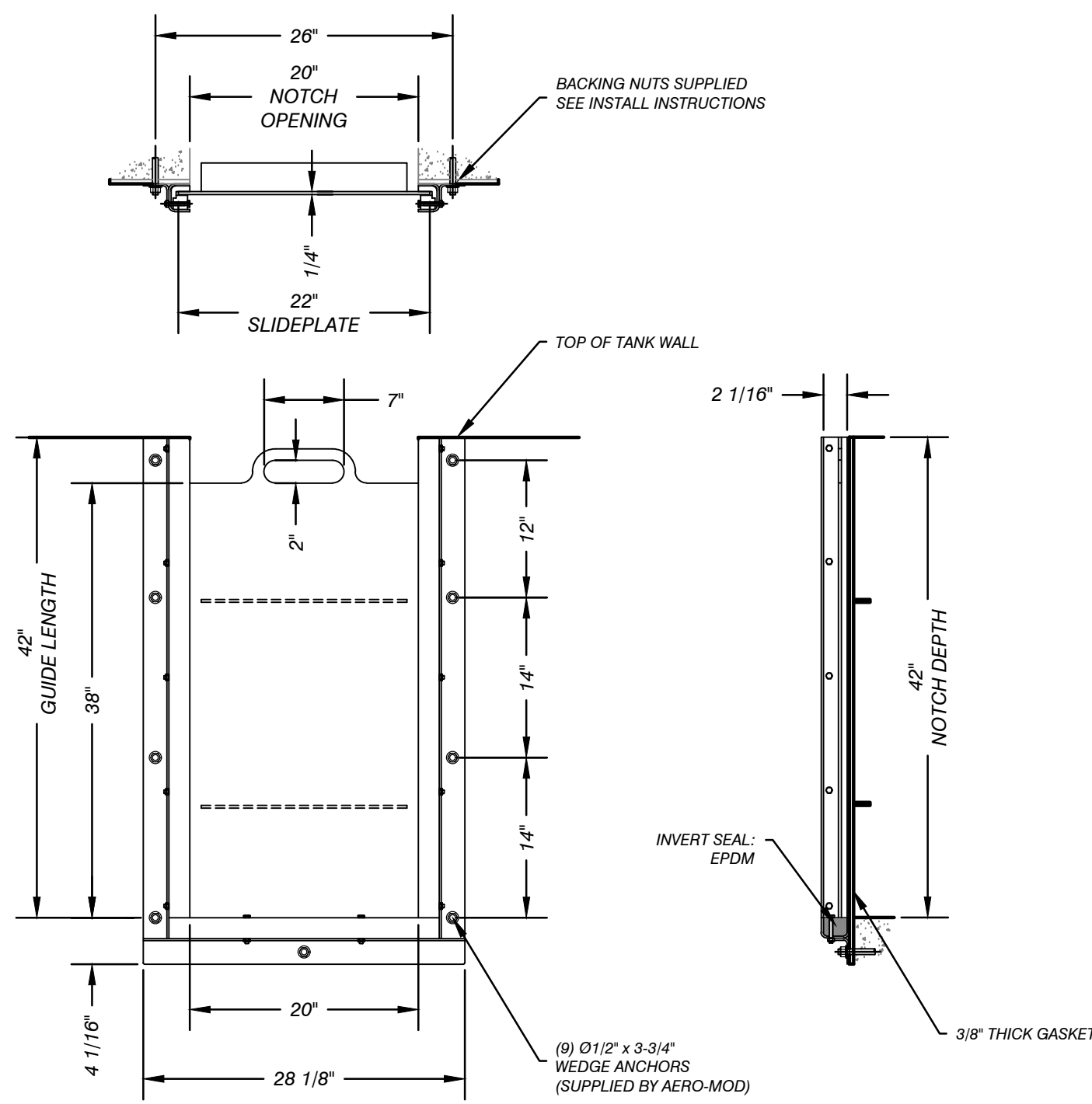
A	SHEET TITLE		EQUIPMENT DETAIL 1		D403	
	SEAL		PROJECT NO.: 23-6036 CAD DWG FILE: C308_6036_EQP.DWG DRAWN BY: AMI DESIGNED BY: AMI CHECKED BY: PEI		SHEET 17 OF 21	
B	MARK	DATE	DESCRIPTION	OWNER		
	0	7/28/23	PERMIT SUBMITTAL	TUSCARORA TOWNSHIP CHEBOYGAN COUNTY, MICHIGAN		
C	TUSCARORA TOWNSHIP WWTP EXPANSION 4649 BRUDY RD. INDIAN RIVER, MI 49749			Aero - Mod, Inc. 1800 E. 10th Street Northville, MI 48168 P.O. Box 100 Phone: (734) 547-2121 Fax: (734) 547-0084 www.performanceeng.com		
	Performance Engineers, Inc.			Civil / Structural Engineering 408 Petoskey Avenue Charlevoix, Michigan 49720 Phone: (231) 547-2121 Fax: (231) 547-0084 www.performanceeng.com		

C:\USERS\ARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\C308_6036_EOP.DWG - DETAIL 2 - PLOTTED 8/1/2023 11:24 AM BY ARON NORDMAN



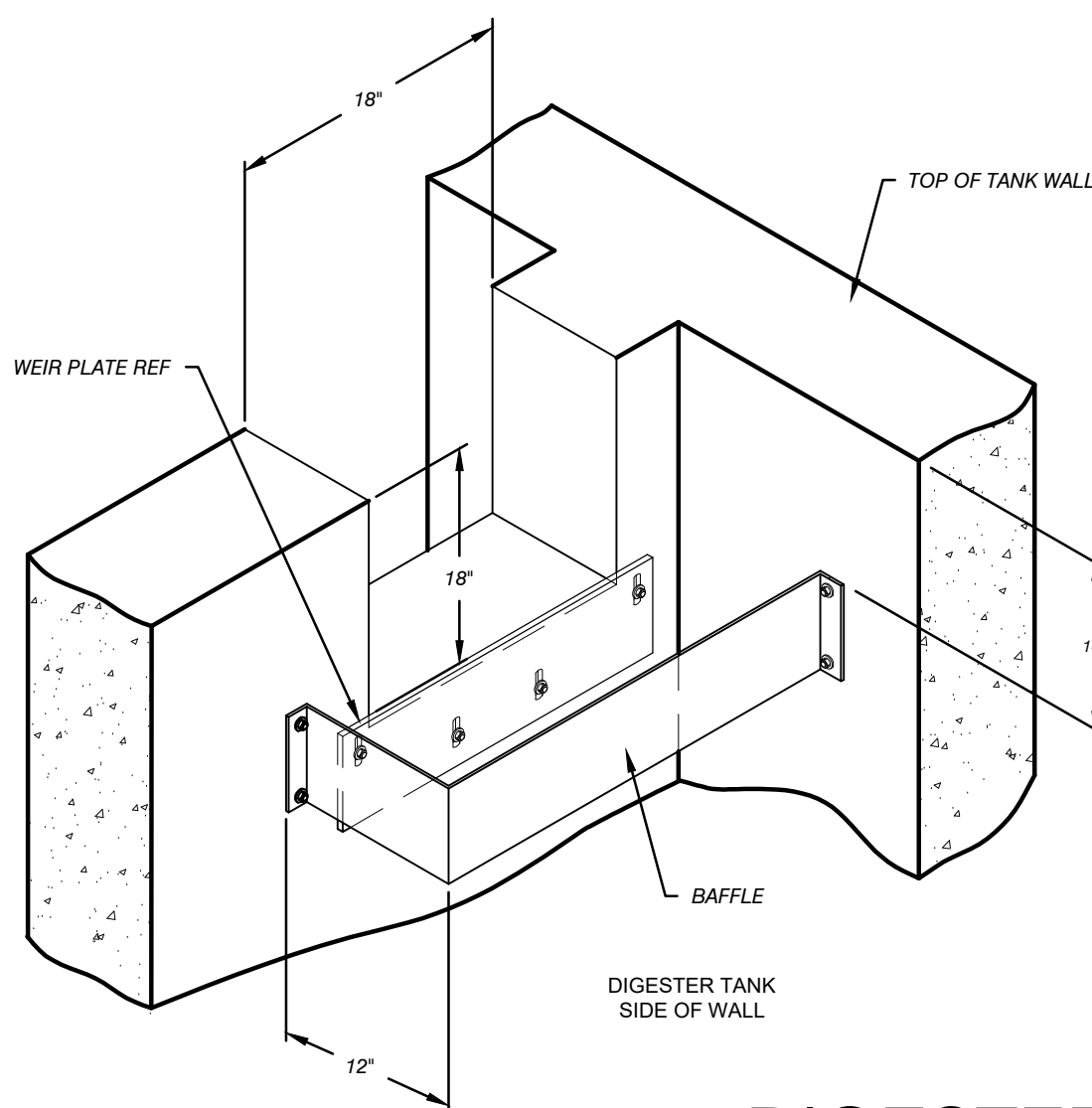
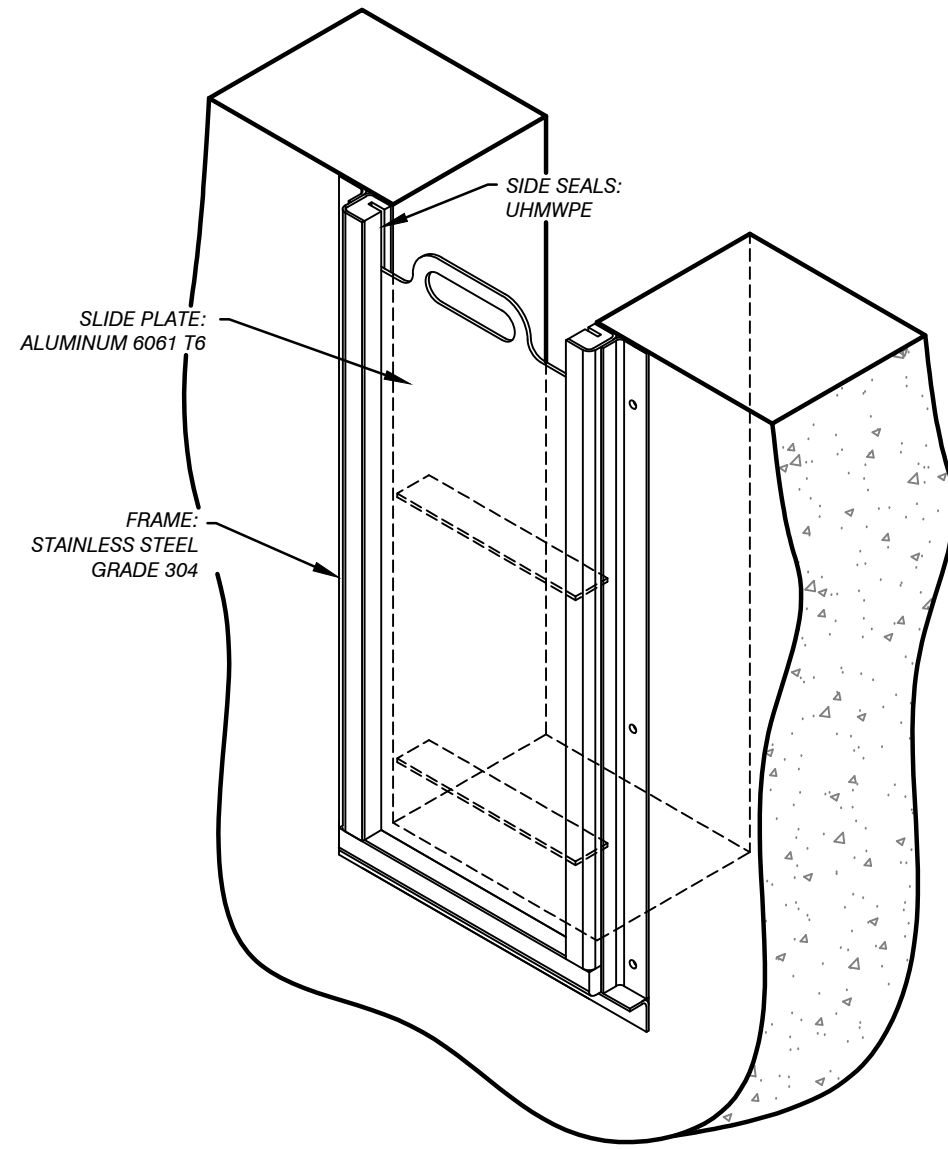
SCREEN EQUIPMENT DETAIL

NOTE:
1. MATERIAL IS .038 NOMINAL THICKNESS, PRESSURE MOLDED TELENE.

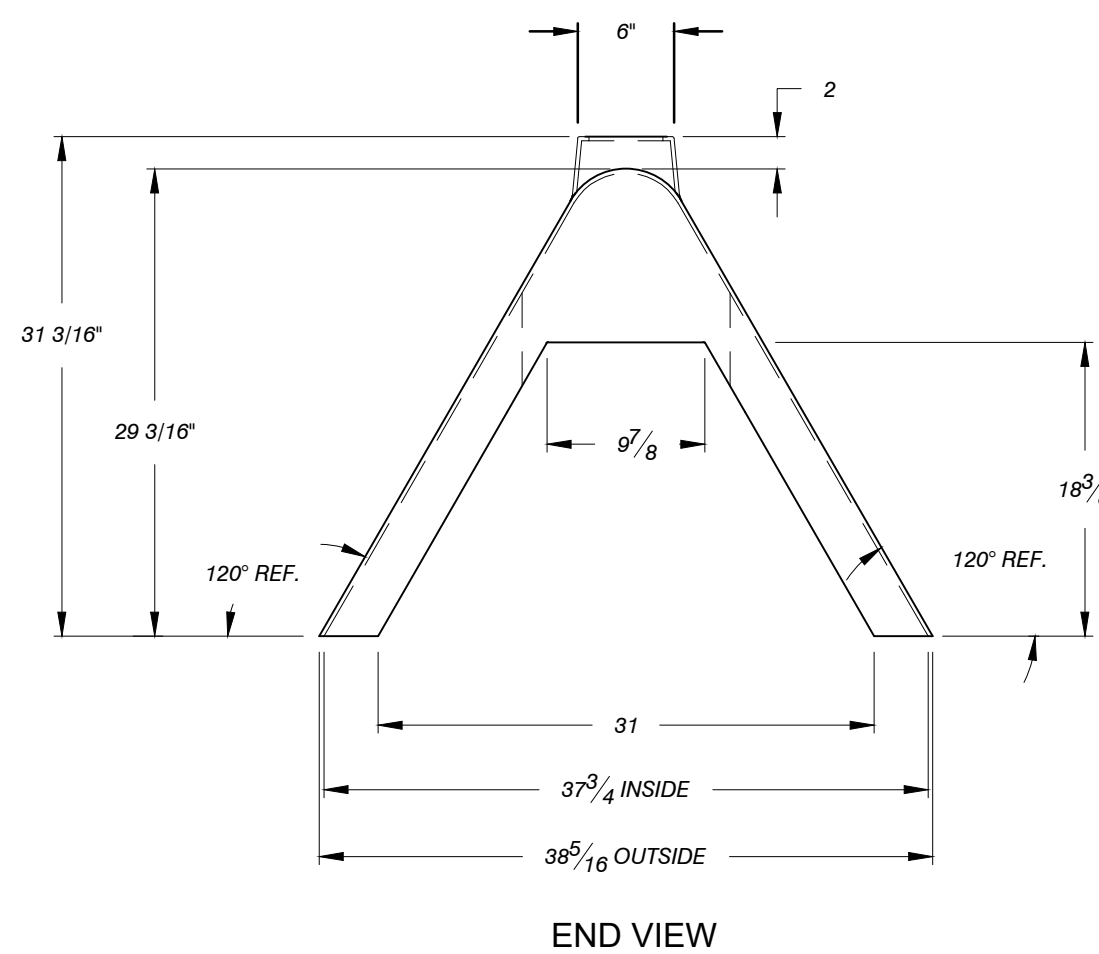
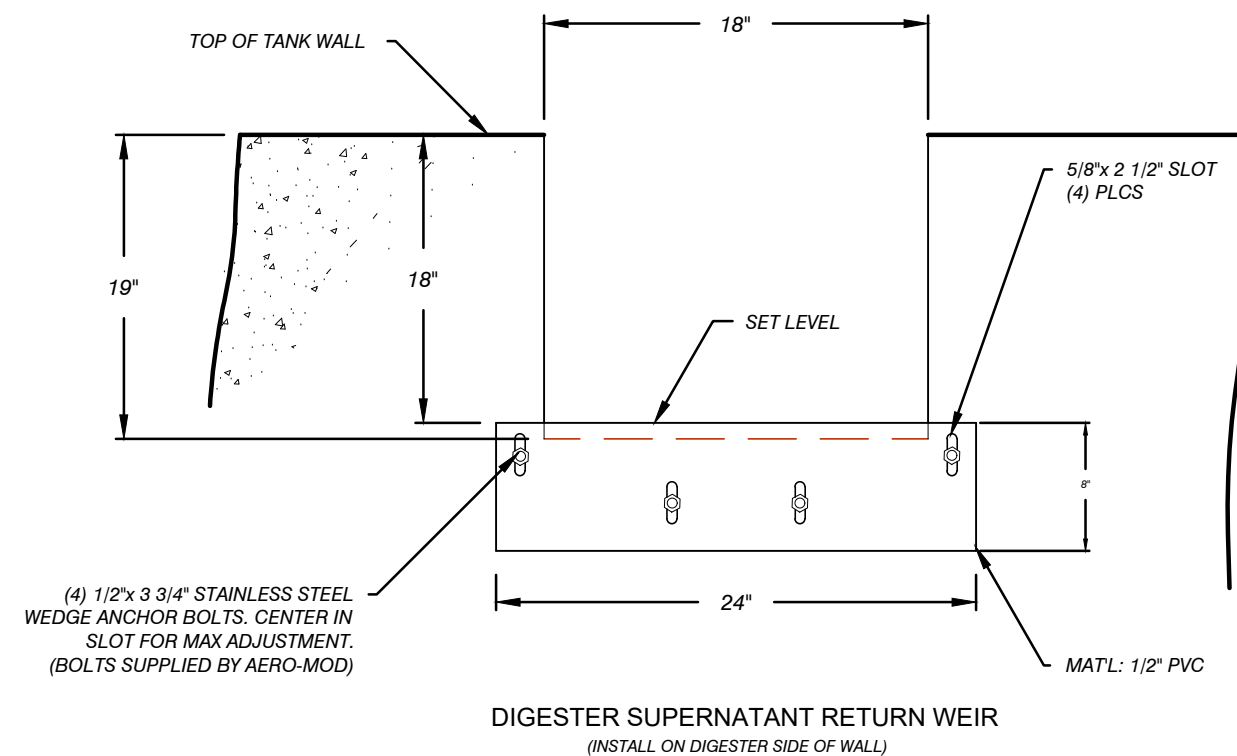


STOP GATE EQUIPMENT DETAIL

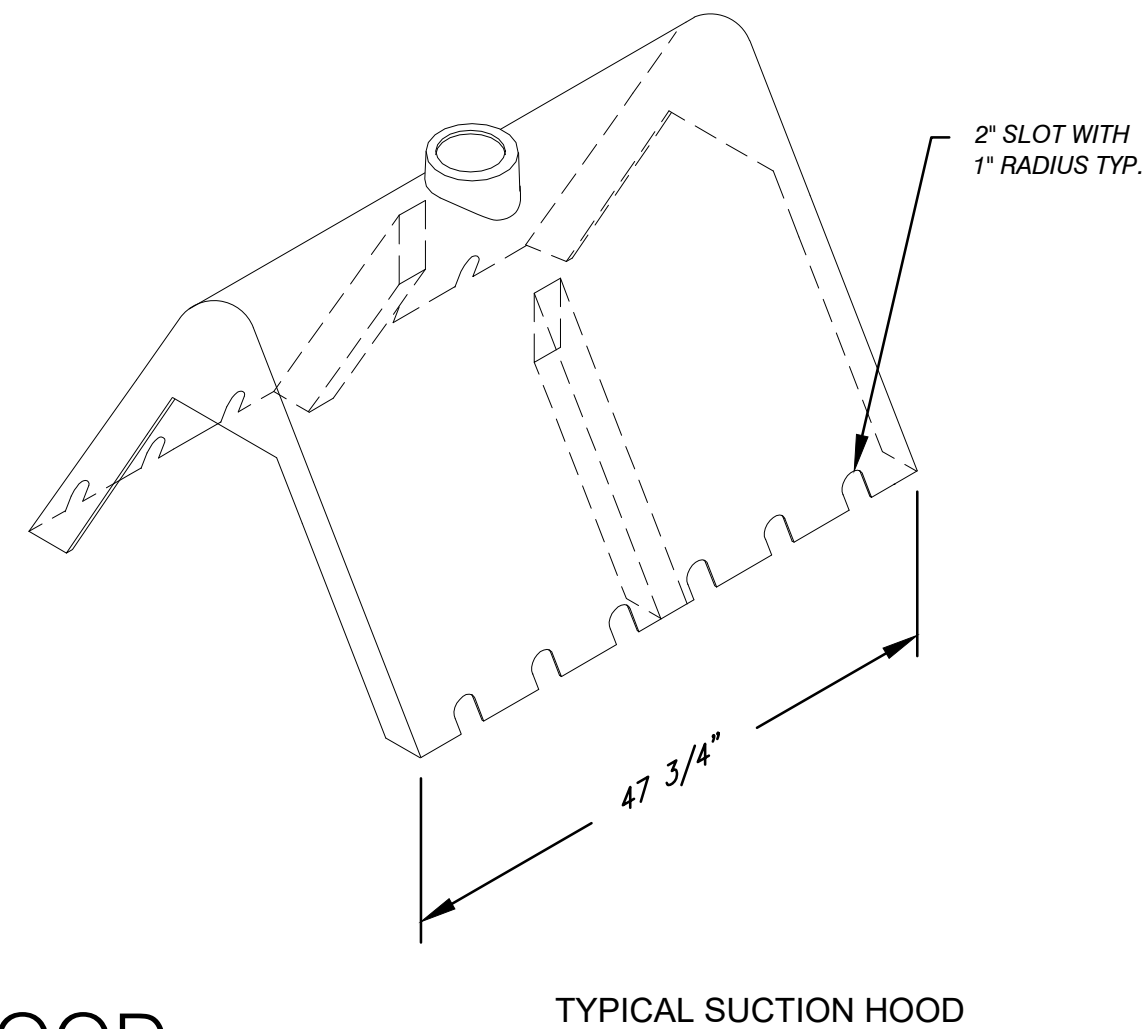
NOTE:
1. ALL EQUIPMENT INDICATED ON THIS SHEET PROVIDE BY AERO-MOD.
2. 1/4" RUBBER GASKET PROVIDED BY G.C.



DIGESTER SUPERNATANT WEIR EQUIPMENT DETAIL



SUCTION HOOD EQUIPMENT DETAIL



Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com



Aero - Mod, Inc.

1707 U.S. Highway 96
P.O. Box 100
Charlevoix, Michigan 49720

CONSULTANTS

TUSCARORA TOWNSHIP

WWTP EXANSION

4640 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

DESCRIPTION

PERMIT SUBMITTAL

DATE

7/28/23

MARK

0

PROJECT NO: 23-6036

CAD DWG FILE: C308_6036_EOP.DWG

DRAWN BY: AMI

DESIGNED BY: AMI

CHECKED BY: PEI

SEAL

SHEET TITLE

EQUIPMENT
DETAIL 2

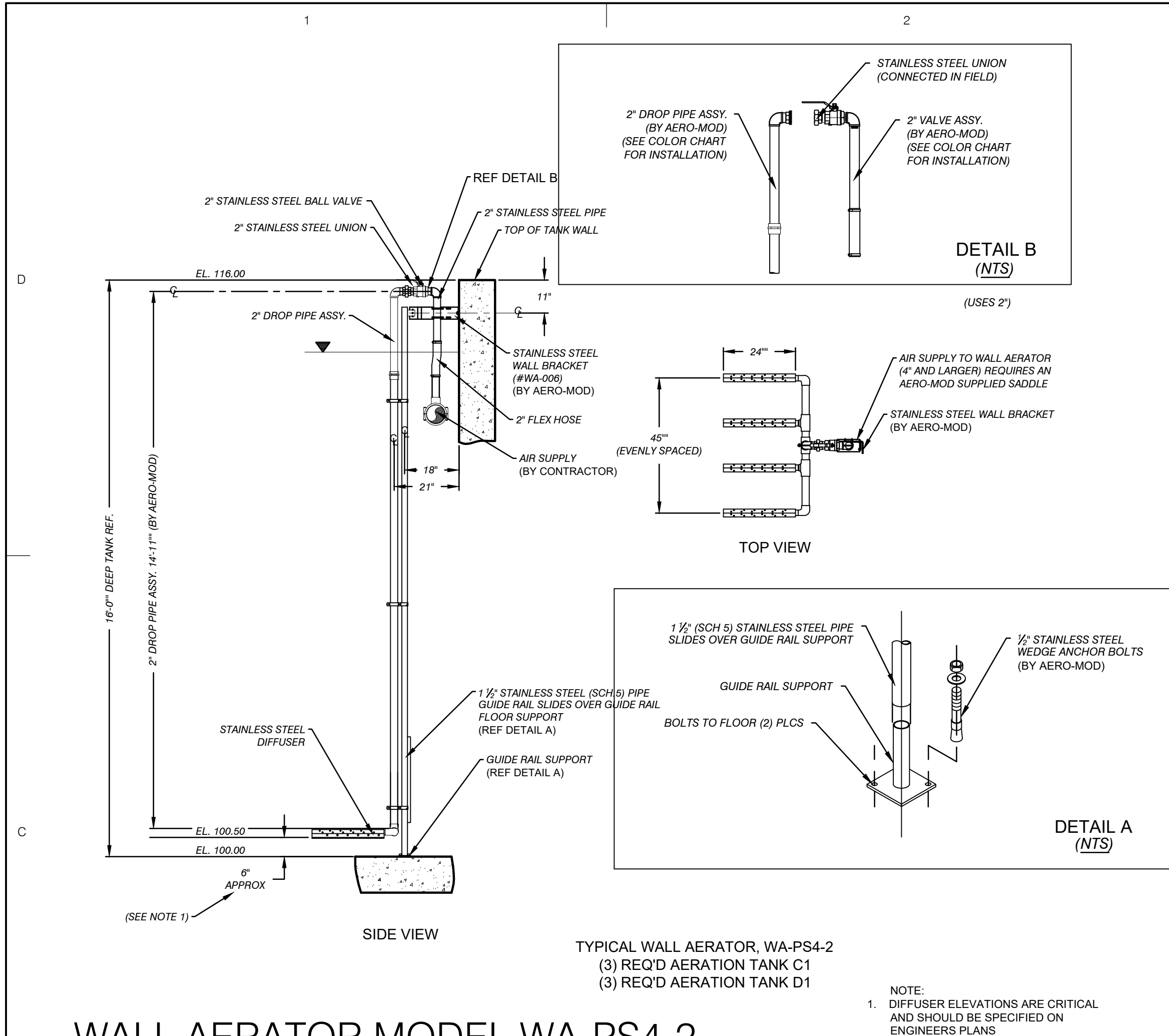
D404

SHEET 18 OF 21

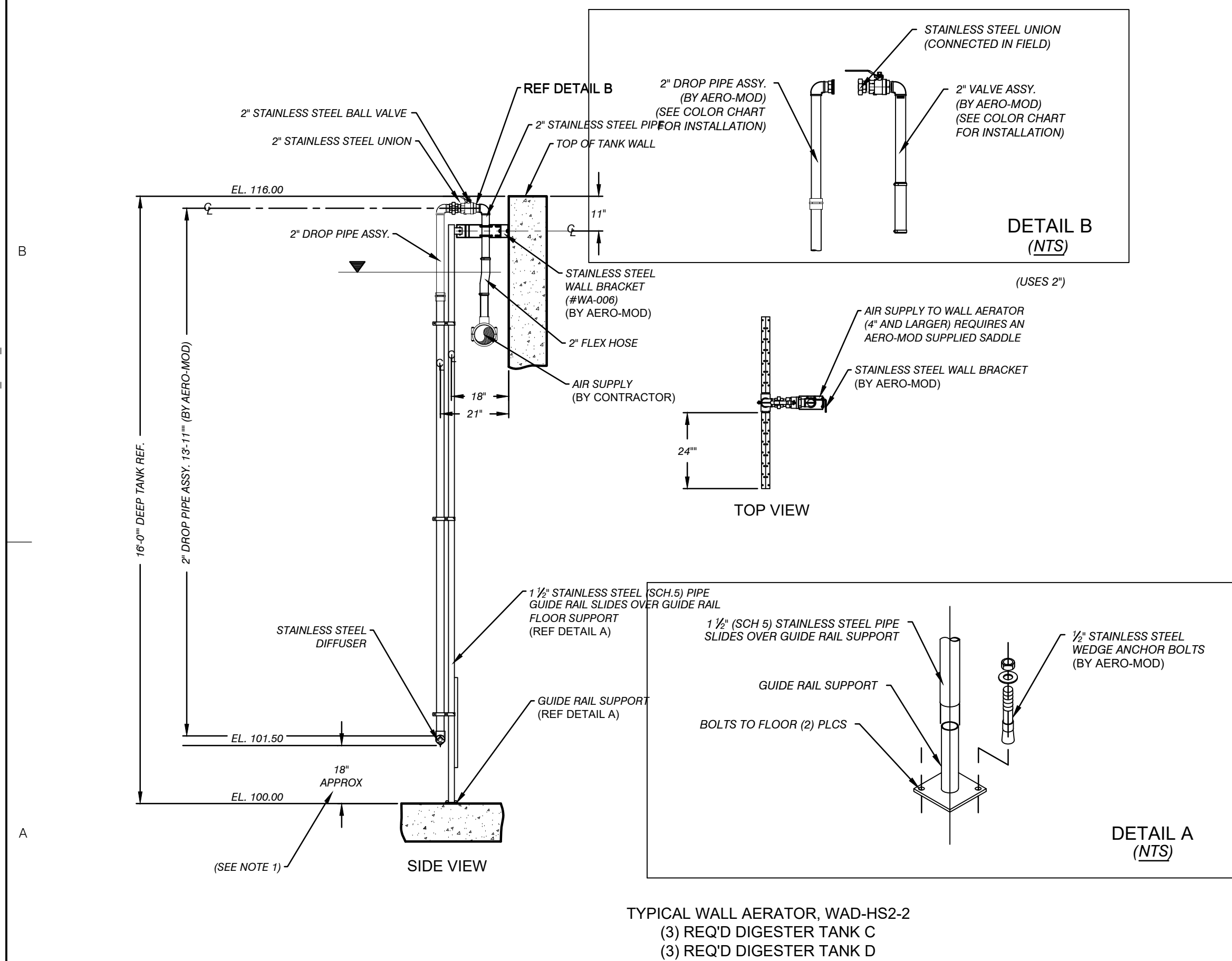
COPYRIGHT: PERFORMANCE ENGINEERS, INC 2021

C:\USERS\ARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS - PROJECTS\6036\DRAWINGS\C306_6036_EQP.DWG - DETAIL 3 - PLOTTED 8/1/2023 11:27 AM BY ARON NORDMAN

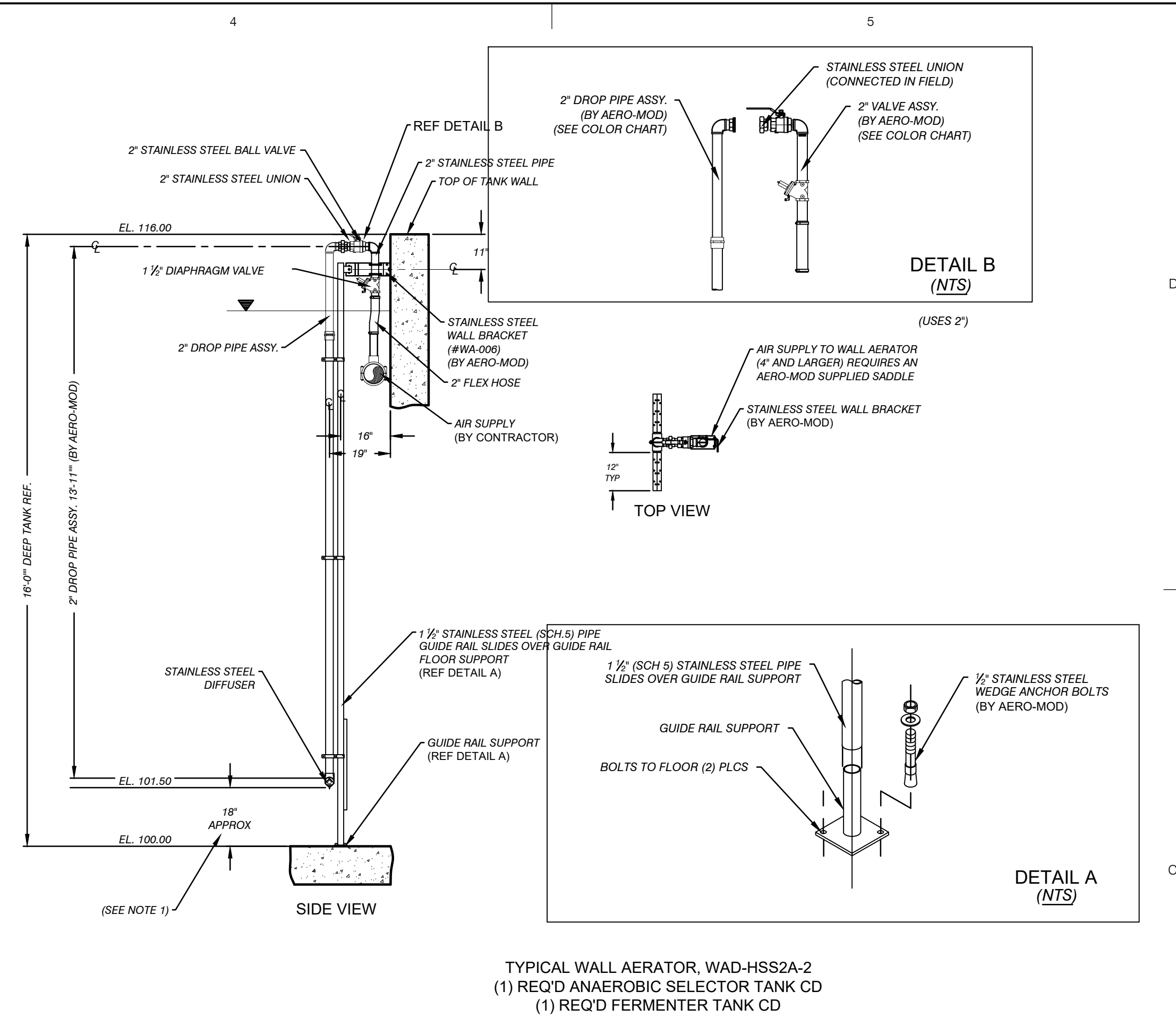
WALL AERATOR MODEL WA-PS4-2 EQUIPMENT DETAIL



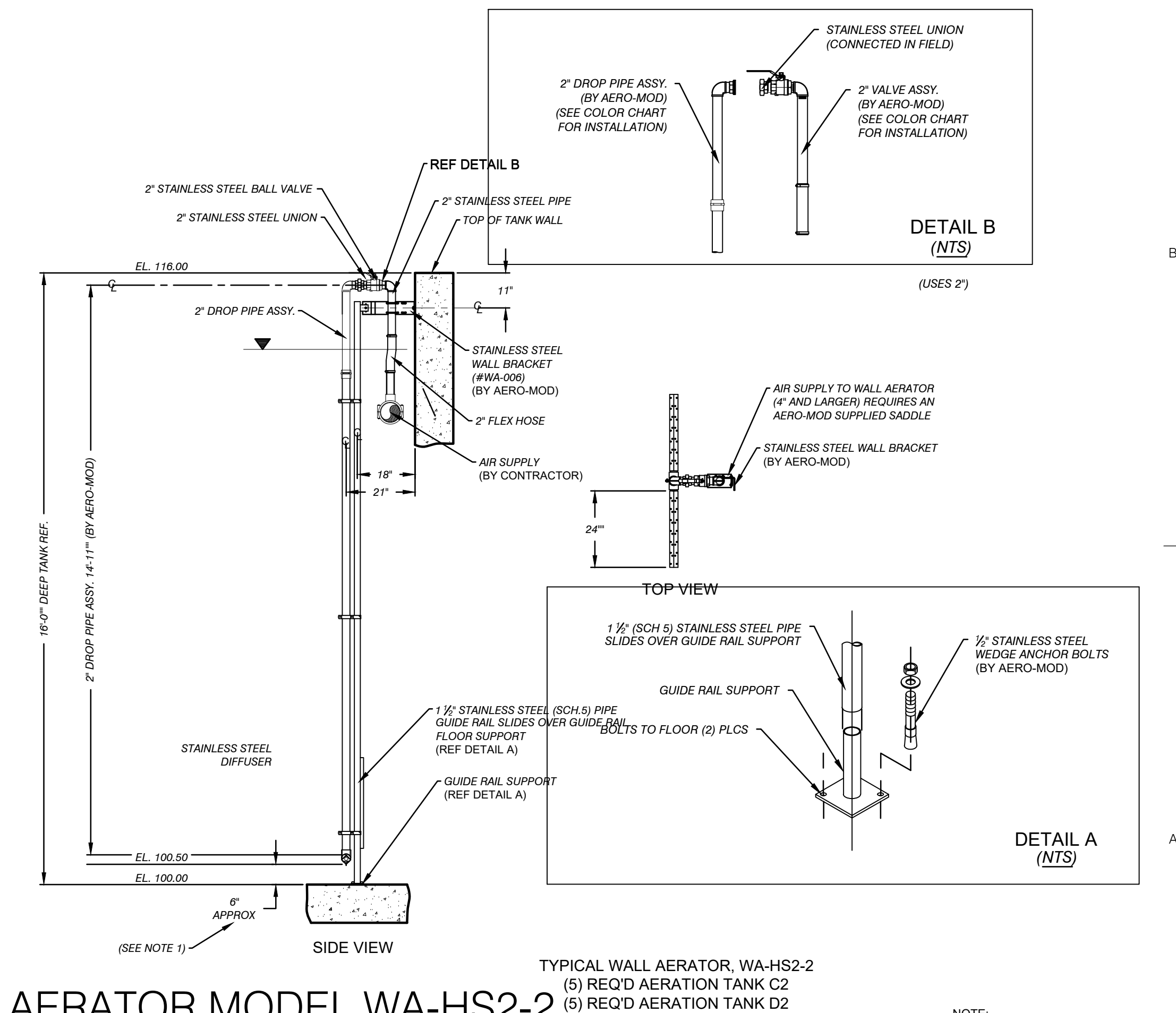
WALL AERATOR MODEL WAD-HS2-2 EQUIPMENT DETAIL



WALL AERATOR MODEL WAD-HSS2A-2 EQUIPMENT DETAIL



WALL AERATOR MODEL WA-HS2-2 EQUIPMENT DETAIL



Performance Engineers, Inc.
Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com

Aero - Mod, Inc.
7827 U.S. Highway 10
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084

TUSCARORA TOWNSHIP
WWTP EXPANSION
4649 BRUDY RD.
INDIAN RIVER, MI 49749
OWNER

TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

PROJECT NO.: 23-6036
CAD DWG FILE: C306_6036_EQP.DWG
DRAWN BY: AMI
DESIGNED BY: AMI
CHECKED BY: PEI

SEAL

EQUIPMENT
DETAIL 3

D405

SHEET 19 OF 21

COPYRIGHT: PERFORMANCE ENGINEERS, INC. 2023

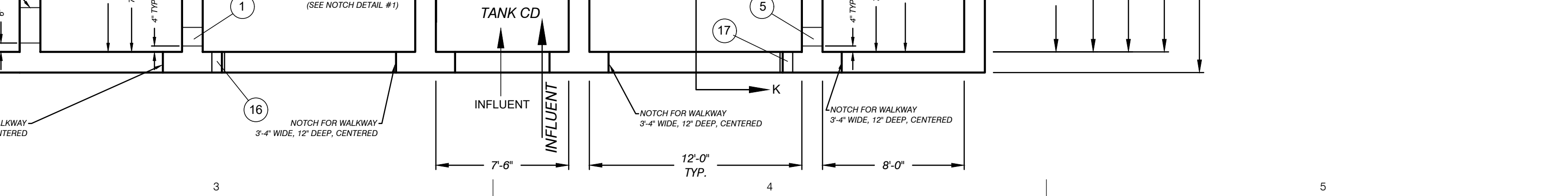
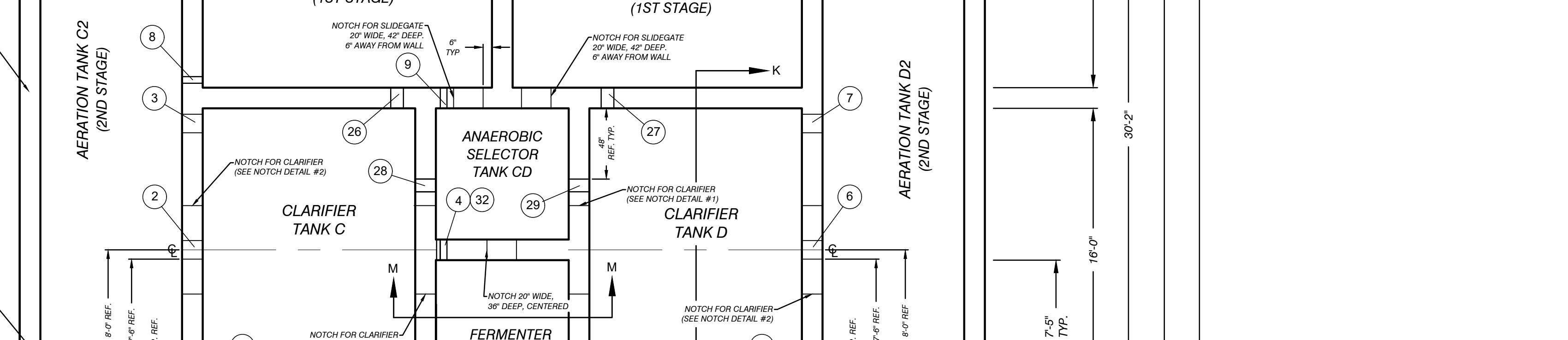
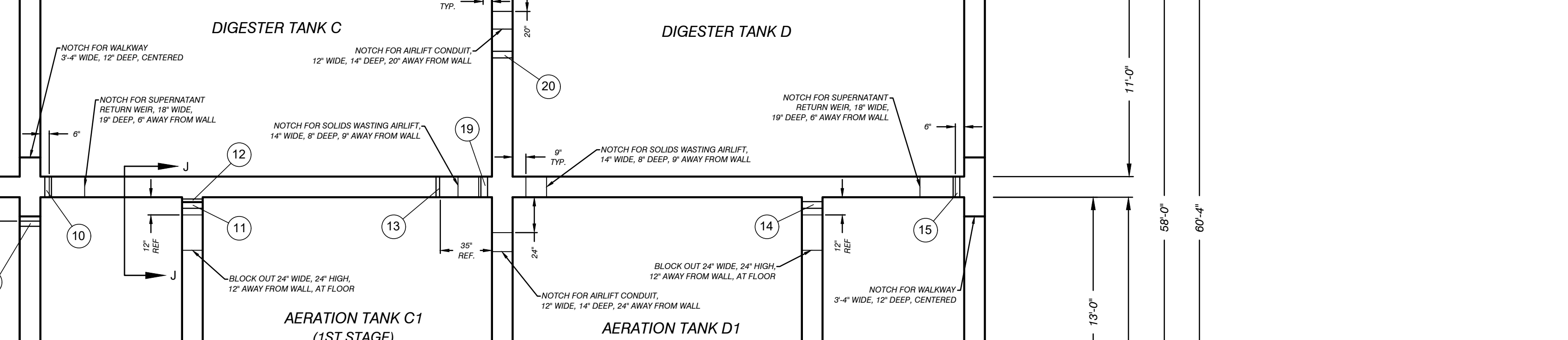
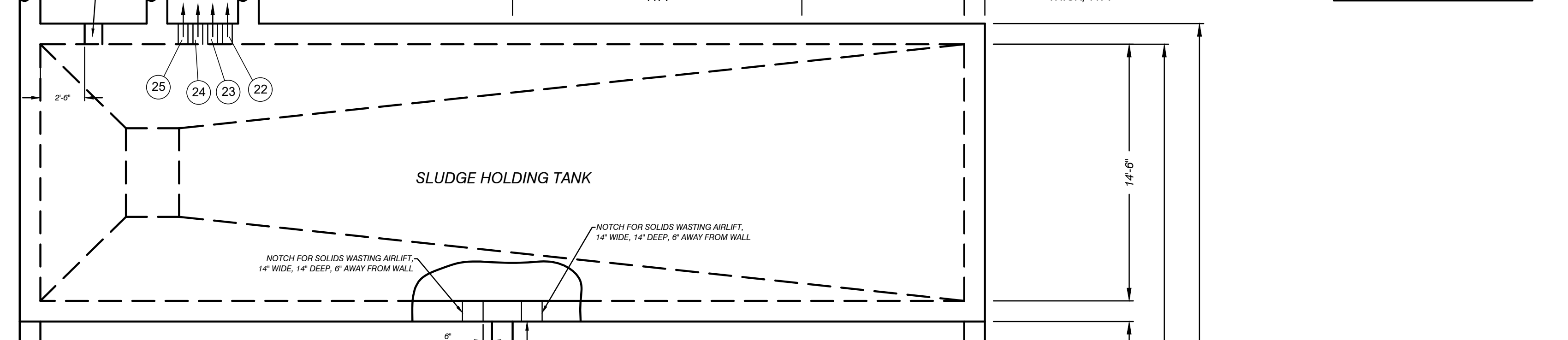
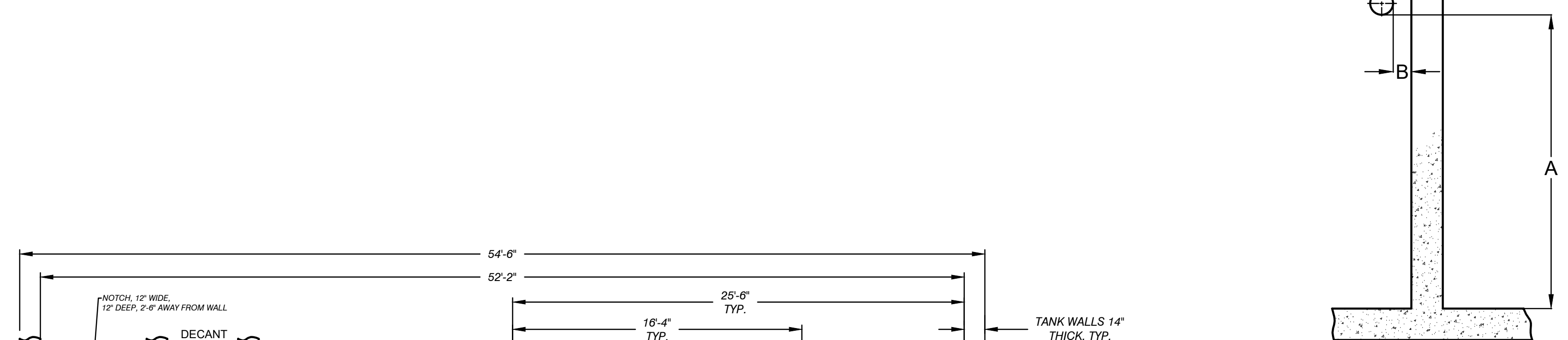
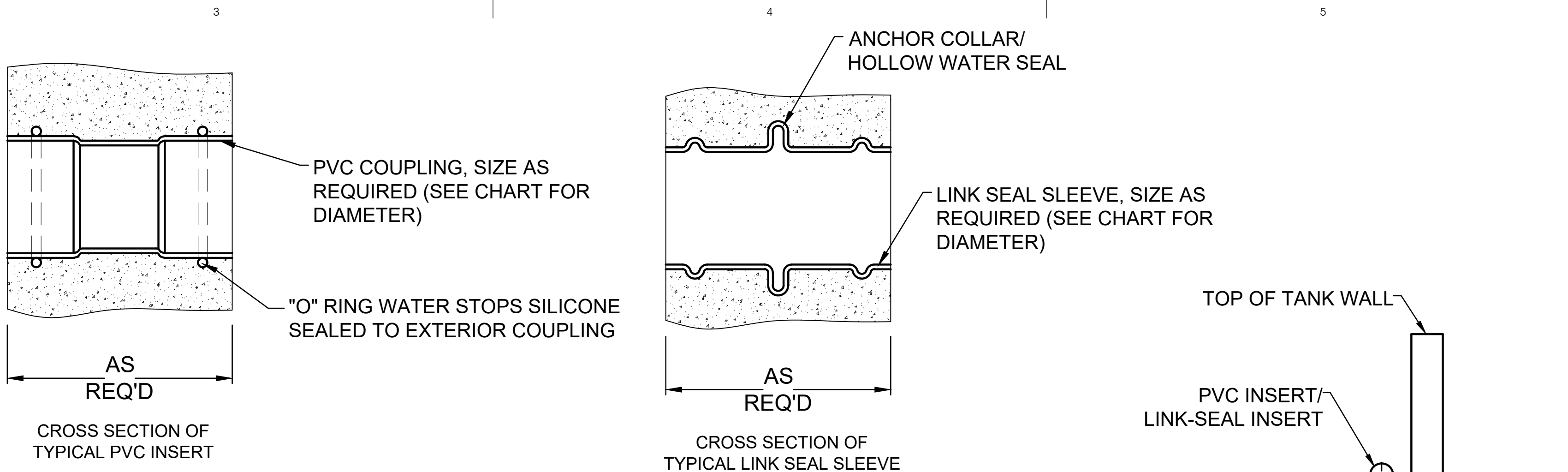
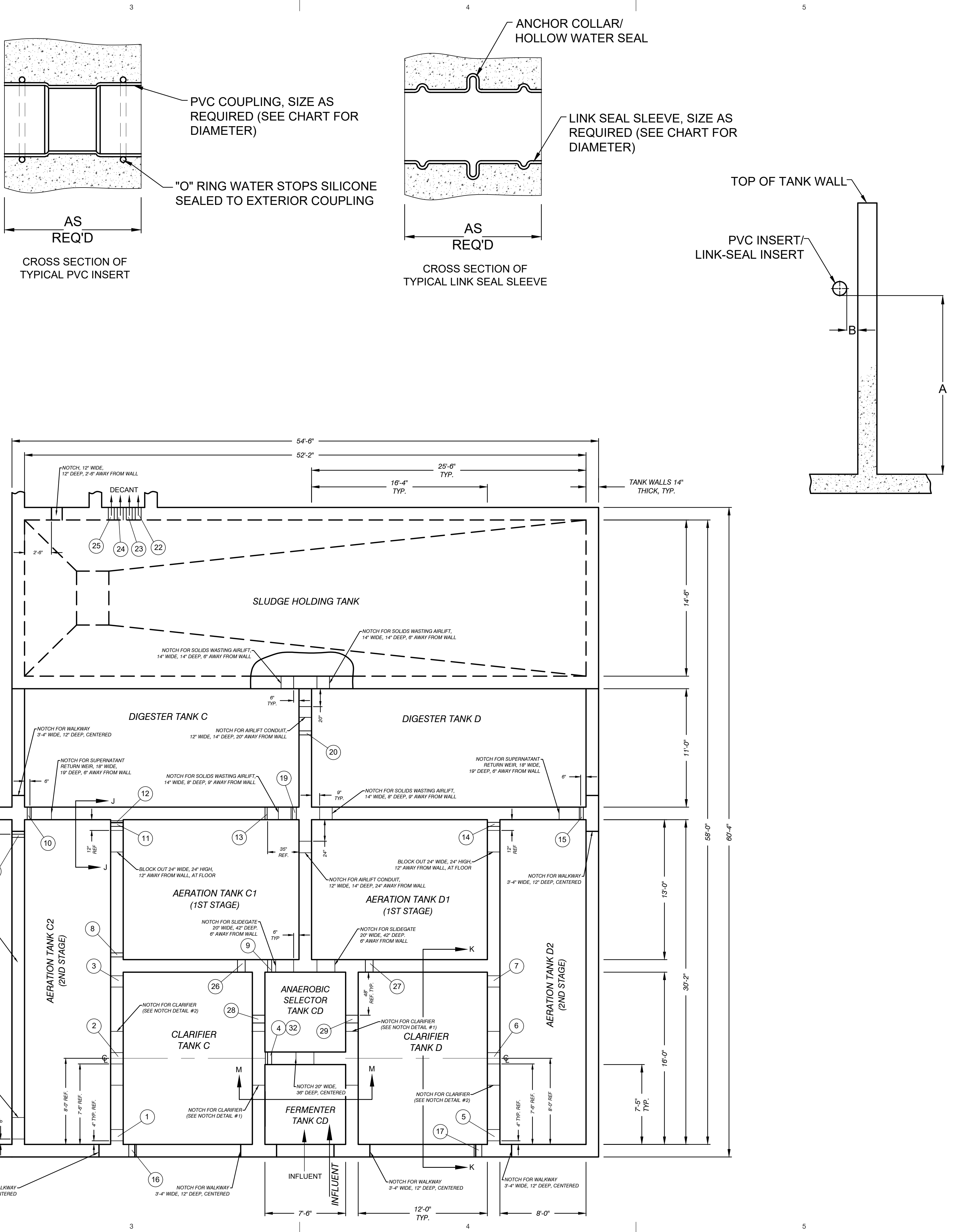
C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS\DRAWINGS\0406_6036_NOTCH.DWG - NOTCH LOC - PLOTTED 8/1/2023 11:33 AM BY AARON NORDMAN

EXISTING
TANKAGE

PVC INSERT LOCATION CHART				
REF NO	DIA.	A	B	DESCRIPTION
12	2"	174"	1/2"	CONDUIT LINE
13	2"	174"	35"	CONDUIT LINE
32	2"	174"	1/2"	CONDUIT LINE

LINK SEAL INSERT LOCATION CHART				
REF NO	INSERT DIA.	A	B	DESCRIPTION
1	12" FOR 8" PIPE	50"	4"	DISTRIBUTOR LINE
2	12" FOR 8" PIPE	50"	7'-6"	DISTRIBUTOR LINE
3	12" FOR 8" PIPE	50"	4"	DISTRIBUTOR LINE
4	6" FOR 4" PIPE	118"	1"	AIR LINE
5	12" FOR 8" PIPE	50"	4"	DISTRIBUTOR LINE
6	12" FOR 8" PIPE	50"	7'-6"	DISTRIBUTOR LINE
7	12" FOR 8" PIPE	50"	4"	DISTRIBUTOR LINE
8	6" FOR 4" PIPE	118"	1"	AIR LINE
9	6" FOR 4" PIPE	118"	1"	AIR LINE
10	6" FOR 4" PIPE	109"	1"	AIR LINE
11	6" FOR 4" PIPE	109"	1"	AIR LINE
14	6" FOR 4" PIPE	109"	1"	AIR LINE
15	6" FOR 4" PIPE	109"	1"	AIR LINE
19	6" FOR 4" PIPE	118"	1"	AIR LINE
20	6" FOR 4" PIPE	118"	46"	AIR LINE
26	12" FOR 8" PIPE	162"	7"	RAS LINE
27	12" FOR 8" PIPE	162"	7"	RAS LINE
28	12" FOR 8" PIPE	162"	48"	RAS LINE
29	12" FOR 8" PIPE	162"	48"	RAS LINE
30	5" FOR 3" PIPE	19"	16"	SLUDGE TRANSFER LINE
31	5" FOR 3" PIPE	19"	16"	SLUDGE TRANSFER LINE

OTHER PENETRATIONS LOCATION CHART (BY OTHERS)				
REF NO	DIA.	A	B	DESCRIPTION
16	8"	80"	6 1/2"	EFFLUENT LINE
17	8"	80"	6 1/2"	EFFLUENT LINE
18	SEE CONTRACTORS PLANS			INFLUENT LINE
21	SEE CONTRACTORS PLANS			SLUDGE DECANT FORCEMAIN
22	6"	22"	4"	DECANT LINE
23	6"	62"	14"	DECANT LINE
24	6"	102"	24"	DECANT LINE
25	6"	142"	34"	DECANT LINE



Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com

Aero - Mod, Inc.

CONSULTANTS
TUSCARORA TOWNSHIP
WWTP EXPANSION
4649 BRUDY RD.
INDIAN RIVER, MI 49749
OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

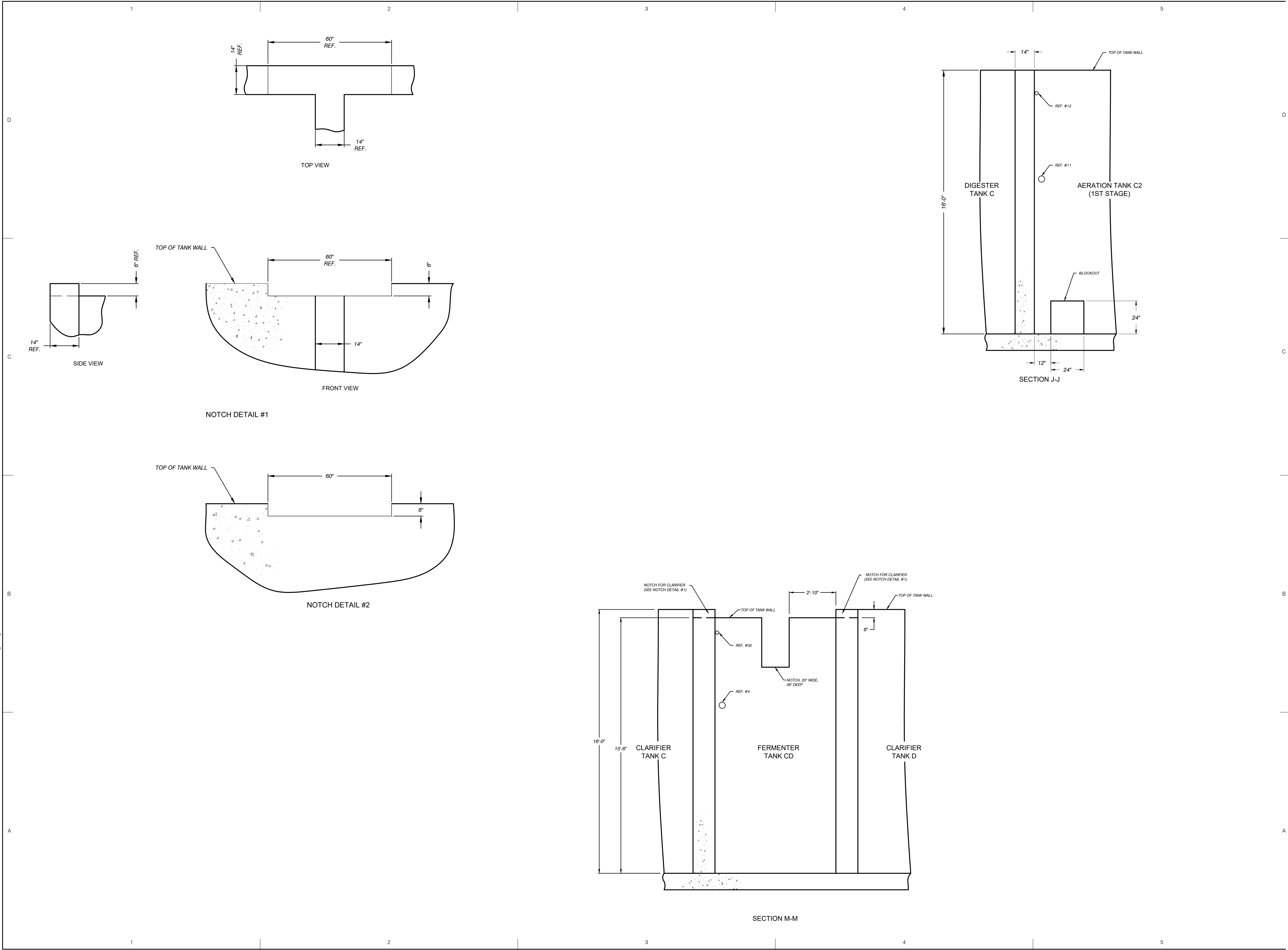
MARK	DATE	DESCRIPTION
0	6/20/23	OWNER REVIEW
1	8/2/23	PERMIT SUBMITTAL

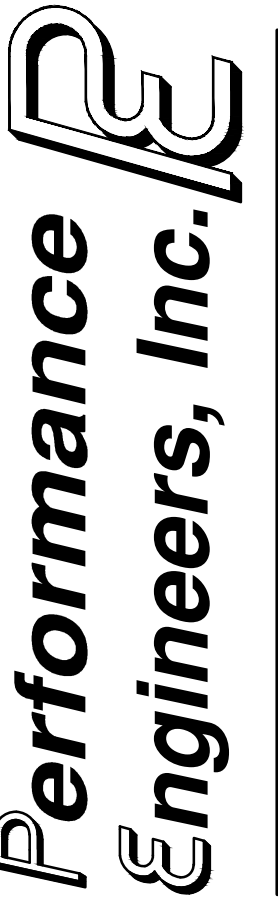
PROJECT NO: 23-6036
CAD DWG FILE: D406_6036_NOTCH.DWG
DRAWN BY: AMI
DESIGNED BY: AMI
CHECKED BY: PEI

SHEET TITLE
TANK DETAIL - NOTCH & INSERT PLACEMENT

SHEET
D406
20 OF 21


C:\USERS\AARONNORDMAN\PERFORMANCE ENGINEERS\PERFORMANCE ENGINEERS\PROJECTS\6036\DRAWINGS\D406_6036_NOTCH.DWG - NOTCH DET - PLOTTED 8/1/2023 1:13:11 AM BY AARON NORDMAN





Performance Engineers, Inc.

Civil / Structural Engineering
406 Petoskey Avenue
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084
www.performanceeng.com



Aero - Mod, Inc.

7027 U.S. Highway 2
P.O. Box 100
Charlevoix, Michigan 49720
Phone: (231) 547-2121
Fax: (231) 547-0084

TUSCARORA TOWNSHIP
WWTP EXPANSION
4640 BRUDY RD.
INDIAN RIVER, MI 49749

OWNER
TUSCARORA TOWNSHIP
CHEBOYGAN COUNTY, MICHIGAN

MARK	DATE	DESCRIPTION
0	7/28/23	PERMIT SUBMITTAL

PROJECT NO: 23-6036
CAD DWG FILE: D406 6036_NOTCH.DWG
DRAWN BY: AMI
DESIGNED BY: AMI
CHECKED BY: PEI

SEAL

SHEET TITLE

TANK DETAIL -
NOTCH & INSERT

SHEET D407
21 OF 21

COPYRIGHT: PERFORMANCE ENGINEERS, INC 2023