Ann Arbor Water Treatment Plant

Valve and Finished Water Tank & Reservoir Improvements

Ann Arbor, Michigan

Issued for Bids and Construction May 25, 2022

Project Number: 211162
RFP No. 22-53
File No. 22003

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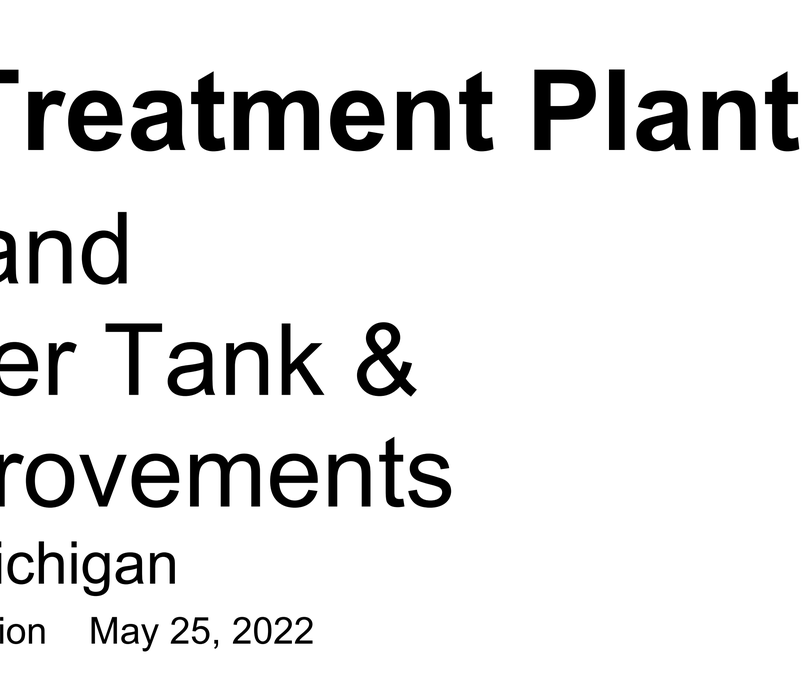
1515 Arboretum Drive,
Grand Rapids, Michigan

SHEET INDEX

VICINITY MAP
NO SCALE



LOCATION MAP
NO SCALE
NORTH

GENERAL ABBREVIATIONS

ACM	ALUMINUM COMPOSITE MATERIAL	EF	EXHAUST FAN	IN	INCH/INCHES	NRC	NOISE REDUCTION COEFFICIENT	SGT	STRUCTURAL GLAZED TILE
AFF	ABOVE FINISHED FLOOR	EL	ELEVATION	INSUL	INSULATION	NTS	NOT TO SCALE	SIM	SIMILAR
AHU	AIR HANDLING UNIT	EJ	EXPANSION JOINT	LAV	LAVATORY	OC	ON CENTER	SP	SPACE/SPACING
AL	ALUMINUM	EQ	EQUAL	LED	LIGHT EMITTING DIODE	OD	OUTSIDE DIAMETER	SQ	SQUARE
ALT	ALTERNATE	EWC	ELECTRIC WATER COOLER	LLH	LONG LEG HORIZONTAL	OH	OVERHEAD	SS	STAINLESS STEEL
BF	BARRIER FREE	FD	FLOOR DRAIN	LLV	LONG LEG VERTICAL	OPP	OPPOSITE	STD	STANDARD
BRG	BEARING	FRT	FIRE RETARDANT TREATED	LP	LOW POINT	ORD	OVERFLOW ROOF DRAIN	TAN	TANGENT
CJ	CONTROL JOINT	FT	FOOT/FEET	MFR	MANUFACTURER	OS	OUTSIDE	TYP	TYPICAL
CL	CENTERLINE	GA	GUAGE/GAGE	MAX	MAXIMUM	PERP	PERPENDICULAR	UL	UNDERWRITER'S LABORATORY
CW	CURTAINWALL	GALV	GALVANIZED	MEZZ	MEZZANINE	PL	PLATE	UNO	UNLESS NOTED OTHERWISE
CLG	CEILING	GC	GENERAL CONTRACTOR	MIN	MINIMUM	PSF	POUNDS PER SQUARE FOOT	VERT	VERTICAL
CMU	CONCRETE MASONRY UNIT	HB	HOSE BIBB	MO	MASONRY OPENING	PSI	POUNDS PER SQUARE INCH	VTR	VENT THROUGH ROOF
CO	CLEANOUT	HP	HIGH POINT	MTD	MOUNTED	PVC	POLYVINYL CHLORIDE	W/	WITH
CONC	CONCRETE	HORIZ	HORIZONTAL	N/A	NOT APPLICABLE	R	RADIUS	WC	WATER CLOSET
CONST	CONSTRUCTION	HVAC	HEATING VENTILATING AIR CONDITIONING	NC	NOISE CRITERIA	REQD	REQUIRED	WH	WATER HEATER
CONT	CONTINUOUS	ID	INSIDE DIAMETER	NIC	NOT IN CONTRACT	RD	ROOF DRAIN	W/O	WITHOUT
DIA	DIAMETER	IE	INVERT ELEVATION	NO	NUMBER	SCH	SCHEDULE	WP	WEATHERPROOF
DN	DOWN	IMP	INSULATED METAL PANEL			SF	SQUARE FOOT	WT	WEIGHT
DS	DOWNSPOUT								

PLOT INFO: 5/25/2022 11:49:07 AM C:\Work\Revit\2022_CoverSheet_211162_record.rvt

BUILDING CODE INFORMATION

SEAL

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan
Valve and
Finished Water Tank & Reservoir Improvements
COVER SHEET

REVISIONS

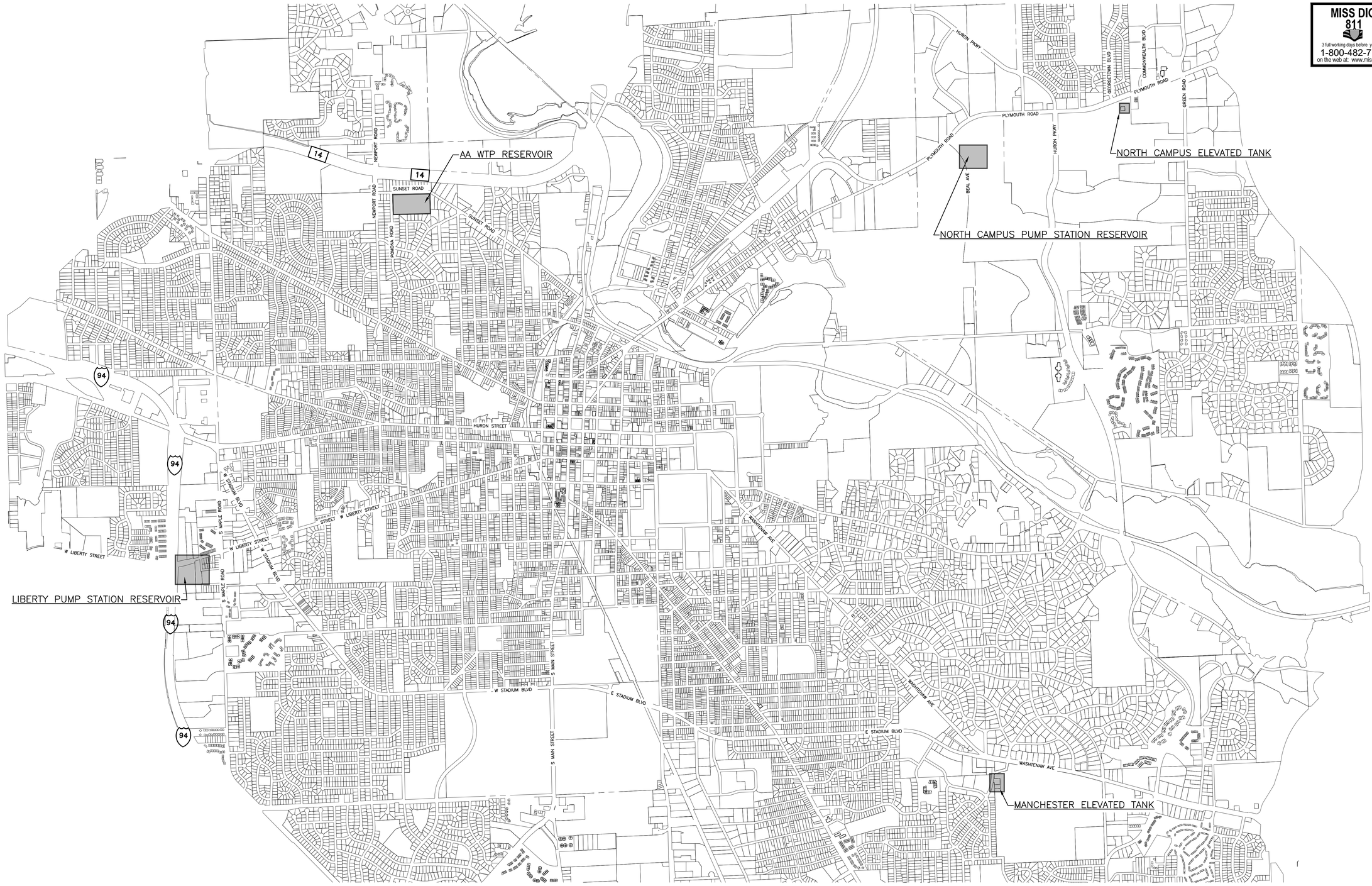
5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
211162

SHEET NO.
1



OVERALL LOCATION PLAN

SCALE: 1" = 1100'

NORTH

0 550 1100 2200

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City of Ann Arbor
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
OVERALL LOCATION PLAN

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PROJECT NO.
211162

SHEET NO.
2

PLOT INFO: Z:\2021\211162\CAD\CD\2_211162 OVERALL SP.DWG LAYOUT: OVERALL SITE PLAN DATE: 5/26/2022 TIME: 9:12:45 AM USER: KROSTROWSKI

TOPOGRAPHY – PLAN

- SHRUBS
- CONIFEROUS TREE
- DECIDUOUS TREE
- HEDGE OR DRIP LINE
- MARSH (SWAMP)
- EXISTING DITCH
- PROPOSED DITCH
- EDGE OF WATER
- EX. CONTOUR MAJOR (25)
- EX. CONTOUR MINOR (24)
- LIGHT/LIGHT POLE
- GUY ANCHOR
- UTILITY POLE
- SIGN
- GUARD RAIL
- RAILROAD TRACKS SCALE: 1" = 60' OR LESS
- RAILROAD TRACKS SCALE: 1" = 100' OR MORE
- EXISTING FENCE
- SILT FENCE
- PROPOSED FENCE
- GRAVEL SURFACE
- PAVED SURFACE
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- CONCRETE MONUMENT
- PROPERTY IRON
- SET PROPERTY IRON
- LOT LINE (AS PLATTED)
- PROPERTY HOOK (COMMON PROPERTY OWNERSHIP)
- TITLE LINE / PROPERTY LINE
- ROW LINE
- SECTION LINE
- BENCH MARK (BM)
- SECTION CORNER
- CENTER OF SECTION
- QUARTER CORNER
- SOIL BORING LOCATION

EXISTING UTILITIES

- 8" SAN. — SANITARY SEWER & MANHOLE
- 12" STM. — STORM SEWER & MANHOLE
- CATCH BASIN CURB TYPE
- CATCH BASIN LAWN TYPE
- VALVE
- HYDRANT
- PLUG
- 6" WTR. — WATER MAIN
- 4" FM — FORCE MAIN
- 2" GAS — GAS MAIN
- ELEC — UNDERGROUND ELECTRIC
- OP — FIBER OPTICS
- TEL — UNDERGROUND TELEPHONE
- 2" OIL — OIL TRANSMISSION LINE
- 6" STEAM — UNDERGROUND STEAM
- 2" SPRK. — UNDERGROUND SPRINKLER
- CATV — CABLE TELEVISION
- TELEPHONE PEDESTAL
- PIPE–ONLY CULVERT
- FLARED END SECTION CULVERT
- HEADWALL CULVERT

EXISTING UTILITIES BY OTHERS

- 12"SAN — SANITARY SEWER & MANHOLE
- ST — ST — STORM SEWER & MANHOLE
- 24"DHS — WATER MAIN
- UNDERGROUND ELECTRIC

PROPOSED UTILITIES

- 8" SAN. SWR. — SANITARY SEWER & MANHOLE
- WYE & LEAD
- RISER & LEAD
- STANDARD SEWER CLEANOUT
- 832.56 — MAX. ELEVATION OF LOT LEAD AT PROPERTY LINE
- 12" STM. SWR. — STORM SEWER & MANHOLE
- CATCH BASIN
- UNDERDRAIN
- 8" WTR — WATER MAIN
- VALVE & BOX
- VALVE & CHAMBER
- M — METER
- PLUG
- STANDARD FIRE HYDRANT ASSEMBLY
- CURB STOP & BOX
- 6" FORCE MAIN (FM) — FORCE MAIN
- AIR RELEASE STRUCTURE
- 12" CSP — PIPE–ONLY CULVERT
- 12" CSP — FLARED END SECTION CULVERT
- 12" CSP — HEADWALL CULVERT

MISCELLANEOUS

- EXISTING EASEMENT LINE
- EASEMENT LINE
- SURVEY LINE STATIONING
- TRAVERSE POINT
- SOIL BORING LOCATION
- 855.00 — PROPOSED PAVEMENT/GUTTER ELEVATION
- PROPOSED PAVEMENT MARKING (PAINTING)
- PROPOSED BARRIER FREE PARKING
- R — REMOVE
- REL–BO — RELOCATE BY OTHERS
- ADJ — ADJUST STRUCTURE COVER
- PROPOSED OR REINSTALLED SIGN

SECTION NUMBER 1 / 2 — SECTION
SCALE: SCALE OF SECTION
SHEET NUMBER SECTION IS DRAWN ON

DETAIL LETTER A / 2 — DETAIL
SCALE: SCALE OF DETAIL
SHEET NUMBER DETAIL IS DRAWN ON

EGLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

KEY	DETAIL	CHARACTERISTICS
6	Seeding with Mulch and/or Matting	Facilitates establishment of vegetative cover Effective for drainageways with low velocity Easily placed in small quantities by inexperienced personnel Should include prepared topsoil bed
54	Geotextile Silt Fence	Use geotextile and posts or poles May be constructed or prepackaged Easy to construct and locate as necessary
56	Catch Basin, Filter Bag	Manufactured filter bag inserted under casting. Collects sediment at catch basin inlet.

ABBREVIATIONS

ABBREV.	MEANING	ABBREV.	MEANING	ABBREV.	MEANING
ABAN.	ABANDON	GEN.	GENERATOR	PERF.	PERFORATED
ADJ.	ADJACENT	GND.	GROUND	PI	POINT OF INTERSECTION
AGG.	AGGREGATE	GPD	GALLONS PER DAY	PIV	POST INDICATOR VALVE
ALT.	ALTERNATE	GPM	GALLONS PER MINUTE	PL	PROPERTY LINE
APPD.	APPROVED	HDPE	HIGH DENSITY POLYETHELYNE	POB	POINT OF BEGINNING
APPROX.	APPROXIMATE	HDWL.	HEADWALL	POE	POINT OF ENDING
B/B	BACK TO BACK	H.	HEIGHT	PRC	POINT OF REVERSE CURVE
BIT.	BITUMINOUS	HORIZ.	HORIZONTAL	PROP.	PROPOSED
BLDG.	BUILDING	HP	HIGH POINT	PSF	POUNDS PER SQUARE FOOT
BLVD.	BOULEVARD	HWL	HIGH WATER LEVEL	PSI	POUNDS PER SQUARE INCH
BM	BENCH MARK	HWY.	HIGHWAY	PT	POINT OF TANGENCY
BNDY.	BOUNDARY	HYD.	HYDRANT	PVC	POLYVINAL CHLORIDE
BOT.	BOTTOM	ID	INSIDE DIAMETER	PVC	POINT OF VERTICAL CURVE
BSMT.	BASEMENT	INV	INVERT ELEVATION	PVI	POINT OF VERTICAL INTERSECTION
C & G	CURB AND GUTTER	INCL.	INCLUDE	PVMT.	PAVEMENT
C/C	CENTER TO CENTER	LAT.	LATERAL	PVT	POINT OF VERTICAL TANGENCY
CATV	CABLE TELEVISION	LF	LINEAL FEET	QTY.	QUANTITY
CB	CATCH BASIN	L.	LENGTH	R.	RADIUS
CF	CUBIC FEET	LP	LOW POINT	RCP	REINFORCED CONCRETE PIPE
CFS	CUBIC FEET PER SECOND	LS	LUMP SUM	RED.	REDUCER
CL	CENTERLINE	LWL	LOW WATER LEVEL	REF.	REFERENCE
CMP	CORREGATED METAL PIPE	M/L	MORE OR LESS	REQD.	REQUIRED
CO.	CLEANOUT	MAINT.	MAINTENANCE	REV.	REVISION
CONC.	CONCRETE	MATL.	MATERIAL	RJ	RESTRAINED JOINT
CONST.	CONSTRUCTION	MAX.	MAXIMUM	ROW	RIGHT OF WAY
COORD.	COORDINATE	MB.	MAILBOX	SF	SQUARE FOOT
CP	COPPER PIPE	MDNR	MICHIGAN DEPARTMENT OF NATURAL RESOURCES	SPEC.	SPECIFICATION
CSP	CORREGATED STEEL PIPE	MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION	SS	SIDE SLOPE
CSPA	CORRUGATED STEEL PIPE ARCH	MDPH	MICHIGAN DEPARTMENT OF PUBLIC HEALTH	STA.	STATION
CULV.	CULVERT	MFGR	MANUFACTURER	STD.	STANDARD
CY	CUBIC YARD	MGD	MILLION GALLONS PER DAY	STL.	STEEL
DEG (°)	DEGREE	MH.	MANHOLE	SYD	SQUARE YARD
DEMO.	DEMOLISH	MIN.	MINIMUM	TC	TOP OF CURB
DIP	DUCTILE IRON	MISC.	MISCELLANEOUS	TAN.	TANGENT
DIA.	DIAMETER	MJ	MECHANICAL JOINT	TEMP.	TEMPORARY
DIM.	DIMENSION	MON.	MONUMENT	TOC	TOP OF CASTING
DIST.	DISTANCE	NA	NOT APPLICABLE	T/W	TOP OF WALL
EL.	ELEVATION	NIC	NOT IN CONTRACT	TYP.	TYPICAL
ENGR.	ENGINEER	NRCP	NON-REINFORCED CONCRETE PIPE	UD.	UNDERDRAIN
EOM	EDGE OF METAL	NTS	NOT TO SCALE	UTIL.	UTILITY
EQUIP.	EQUIPMENT	OC	ON CENTER	VB	VALVE BOX
ESMT.	EASEMENT	OD	OUTSIDE DIAMETER	VCP	VITRIFIED CLAY PIPE
EXIST. EX.	EXISTING	OE	OVERHEAD ELECTRIC	VERT.	VERTICAL
EXT.	EXTERIOR	OP	FIBER OPTICS	W/	WITH
F/F	FACE TO FACE	ORIG.	ORIGINAL	W/O	WITHOUT
FDN.	FOUNDATION	OT	OVERHEAD TELEPHONE	WL	WATER LEVEL
FIG.	FIGURE	PC	POINT OF CURVE	WWF	WELDED WIRE FABRIC
FF	FINISH FLOOR	PCC	POINT OF COMPOUND CURVATURE	XFMR.	TRANSFORMER
FIN. GR.	FINISH GRADE	PE	POLYETHYLENE		
FTG.	FOOTING	PE PERF.	POLYETHYLENE PIPE PERFORATED		

REMOVAL LEGEND

- REMOVE FULL–DEPTH HMA PAVEMENT
- COLD MILL HMA PAVEMENT
- REMOVE CONCRETE PAVEMENT
- REMOVE GRAVEL PAVEMENT
- SAWCUT
- REMOVE CURB AND GUTTER
- REMOVE UTILITY
- ABANDON UTILITY
- R — REMOVE
- REMOVE TREE

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SITE NOTES AND SPECIFICATIONS:

1. CONTROL SOIL EROSION AND SEDIMENTATION. PROVIDE MEASURES TO PREVENT EXCAVATED MATERIALS FROM LEAVING THE SITE.
2. CLEANUP AND DISPOSE OF ALL EXCESS MATERIALS OFF SITE.

GENERAL NOTES

1. COMPLETE ALL WORK IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL CODES, RULES AND REGULATIONS. OBTAIN ALL NECESSARY LOCAL, STATE AND FEDERAL PERMITS AND PAY PERMIT FEES FOR THE WORK OR CONFIRM REQUIRED PERMITS HAVE BEEN OBTAINED BY OTHERS PRIOR TO COMMENCING CONSTRUCTION.
2. BE RESPONSIBLE AT ALL TIMES FOR SITE SAFETY IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY HAVING JURISDICTION.
3. LOCATIONS OF ALL SITE FEATURES INCLUDING BUILDINGS, UTILITIES, SIDEWALKS, TREES AND GROUND ELEVATIONS ARE FROM SITE DOCUMENTS PROVIDED BY THE OWNER OR THE OWNER'S ARCHITECT. ALL FEATURES AND THE EXTENT OF REMOVALS AND DEMOLITION SHALL BE FIELD VERIFIED PRIOR TO BEGINNING CONSTRUCTION. FIELD ADJUSTMENTS MAY BE NECESSARY TO FULFILL THE INTENT OF THE SITE WORK AS DEPICTED ON THESE CONSTRUCTION DOCUMENTS.
4. CALL MISS DIG @ 1–800–482–7171 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO CONFIRM THE LOCATIONS OF EXISTING BURIED UTILITIES. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM. BE RESPONSIBLE FOR PROTECTING EXISTING UTILITIES AND REPAIRING DAMAGE TO EXISTING UTILITIES RESULTING FROM THE WORK AT NO EXPENSE TO THE OWNER.
5. COORDINATE THE LOCATION OF ALL UTILITIES ON THE WTP SITE AND AT RESERVOIR AND TANK SITES WITH CITY STAFF.
6. COMPLY WITH THE CONDITIONS AND REQUIREMENTS OF THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT, INCLUDING BUT NOT LIMITED TO, CERTIFIED STORMWATER OPERATOR REQUIREMENTS. INSTALL ALL CONTROL MEASURES PRIOR TO COMMENCING CONSTRUCTION.
7. PROVIDE TRAFFIC CONTROL BARRICADES, SIGNS, LIGHTS, ETC. IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AS NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC. MAINTAIN THESE DEVICES AT ALL TIMES DURING CONSTRUCTION.
8. SUBMIT SHOP DRAWINGS FOR ALL MATERIALS TO BE INCORPORATED INTO THE WORK WHICH DIFFER FROM ITEMS CALLED FOR ON THE DRAWINGS.
9. MAINTAIN A CLEAN WORK AREA. THOROUGHLY CLEAN AND/OR SWEEP STREETS AND ROADWAYS AS REQUIRED BY THE GOVERNING AUTHORITY.
10. PROTECT EXISTING BITUMINOUS PAVEMENT DURING CONSTRUCTION OF PROJECT.
11. MAINTAIN ACCESS TO EXISTING DRIVEWAYS, MAIL BOXES, PUMP STATION ACCESS, CHEMICAL DELIVERY LOCATIONS, ETC. DURING CONSTRUCTION. COORDINATE WITH THE AUTHORITIES HAVING JURISDICTION. CONDUCT OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. ANY CLOSURE REQUIRES PERMISSION FROM THE AUTHORITIES HAVING JURISDICTION.
12. DISPOSE OF REMOVED MATERIALS OFF SITE AT A LOCATION DESIGNATED FOR DISPOSAL FOR THESE MATERIALS.
13. PROTECT EXISTING SITE IMPROVEMENTS TO REMAIN FROM DAMAGE. RESTORE/REPLACE DAMAGED IMPROVEMENTS TO ORIGINAL CONDITION ACCEPTABLE TO PARTIES HAVING JURISDICTION.
14. PROTECT TREES TO REMAIN FROM DAMAGE DURING CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
15. DO NOT SCALE DRAWINGS TO DETERMINE DIMENSIONS. REFER DISCREPANCIES TO THE ENGINEER FOR CLARIFICATION.
16. THE INFORMATION CONTAINED ON THESE DRAWINGS PERTAINING TO EXISTING CONDITIONS, SUCH AS BUT NOT LIMITED TO, UTILITIES, TOPOGRAPHY, SUBSURFACE CONDITIONS, IS FURNISHED SOLELY AS THE BEST INFORMATION AVAILABLE AND ITS ACCURACY IS NOT GUARANTEED. THE USE OF THIS INFORMATION DOES NOT PROVIDE RELIEF FOR ANY RESPONSIBILITY FOR DAMAGES DUE TO ANY INACCURACIES.
17. ALL REMOVED MATERIALS ARE THE PROPERTY OF THE CONTRACTOR. CLEANUP AND DISPOSE OF ALL EXCESS MATERIALS OFF SITE AT A LOCATION DESIGNATED FOR THIS USE AND IN ACCORDANCE WITH LOCAL REGULATIONS OR AT AN ON SITE LOCATION DESIGNATED BY THE OWNER.
18. USE (2) TWO BENCH MARKS FOR VERIFICATION OF ALL CONSTRUCTION ELEVATIONS. SET ADDITIONAL BENCH MARKS TO COMPLY WITH THIS REQUIREMENT.
19. RESTORE ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE DITCHES, AND OTHER PUBLIC OR PRIVATE STRUCTURES THAT ARE DISTURBED OR DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITIONS AND TO THE SATISFACTION OF THOSE HAVING JURISDICTION, UNLESS NOTED OTHERWISE IN THE PLANS.
20. SURFACE RESTORATION: COVER ALL DISTURBED AREAS NOT COVERED BY OTHER SURFACE TREATMENTS WITH A MINIMUM OF 4" OF TOPSOIL. SEED TOPSOILED AREAS WITH MDOT CLASS A SEED AT 100#/ACRE. FERTILIZE AND MULCH SEEDED AREAS.

GENERAL DEMOLITION NOTES

1. FIELD VERIFY THE EXTENT OF REMOVAL AND DEMOLITION PRIOR TO CONSTRUCTION. NOTIFY THE ENGINEER OF ANY DEVIATION FROM THE INFORMATION SHOWN.
2. DISPOSE OF DEMOLITION AND EXCAVATION MATERIALS IN ACCORDANCE WITH CONTRACT DOCUMENTS.
3. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE IN PLACE PRIOR TO STARTING REMOVALS AND DEMOLITION.
4. UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE PLANS, PROTECT ALL SIDEWALKS, DRIVES, CULVERTS, DRAINAGE STRUCTURES, AND ABOVE AND BELOW GRADE UTILITIES. REMOVE AND REPLACE ALL SUCH ITEMS DAMAGED OR DESTROYED DURING CONSTRUCTION WITH NEW ONES AT NO ADDITIONAL COST TO THE OWNER.
5. PROTECT EXISTING TREES TO REMAIN TEMPORARY FENCING AT THE DRIP LINE. NO GROUND DISTURBANCE OR STORAGE OF MATERIAL/ EQUIPMENT SHALL OCCUR WITHIN THE DRIP LINE LIMITS.
6. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. VERIFY CRITICAL INVERT INFORMATION PRIOR TO BEGINNING CONSTRUCTION.
7. SAW CUT AND REPLACE DAMAGE CAUSED TO SURROUNDING AREA PAVEMENT OUTSIDE THE CONSTRUCTION LIMITS AT NO ADDITIONAL COST TO THE OWNER.
8. COORDINATE SEQUENCING AND PHASING OF DEMOLITION WITH THE OWNER.
9. SEE OWNER DRAWINGS FOR ADDITIONAL SITE DEMOLITION.

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SHEET NO.
3

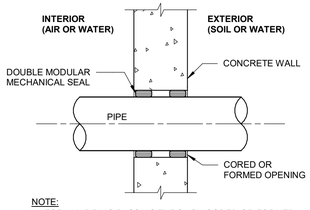
PLOT INFO: Z:\2021\211162\CAD\CDS_211162 LEGEND-DETAIL_NOTE.DWG LAYOUT: 3 GENERAL NOTES ABBREVIATIONS AND SYMBOLS DATE: 5/26/2022 TIME: 9:13:09 AM USER: KROSTROWSKI

EXISTING VALVE SCHEDULE

VALVE TAG	SIZE	TYPE	OPERATOR	LOCATION	SERVICE	NOTES
FW0210	-----	----------	----------	PUMP ROOM 1 BASEMENT	CW-CW INTERCONNECT	NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK
FW0212	36"	BUTTERFLY	----------	PUMP ROOM 1 BASEMENT	CW-CW INTERCONNECT	NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK
FW1214	36"	BUTTERFLY	----------	PUMP ROOM 1	EHS SUCTION	NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK
FW6305	24"	GATE	HANDWHEEL	VAULT HOUSE	CLEARWELL	
FW6306	24"	BUTTERFLY	HANDWHEEL	VAULT 1	CLEARWELL	
FW6307	24"	BUTTERFLY	HANDWHEEL	VAULT 3	CLEARWELL	
FW6308	24"	BUTTERFLY	HANDWHEEL	VAULT 4	CLEARWELL	
FW6309	24"	GATE	HANDWHEEL	WTP RESERVOIR	WHS	UNIT 1 - UNIT 2 INTERCONNECT, NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK
FW6310	24"	GATE	HANDWHEEL	WTP RESERVOIR	WHS	UNIT 2 - UNIT 3 INTERCONNECT, NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK
FW6313	24"	BUTTERFLY	HANDWHEEL	VAULT 2	WHS	EHS-WHS INTERCONNECT, NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK
FW6314	24"	BUTTERFLY	HANDWHEEL	VAULT 3	WHS	
FW6315	24"	BUTTERFLY	HANDWHEEL	VAULT 4	WHS	
FW6316	24"	GATE	HANDWHEEL	VAULT HOUSE	GRAVITY	
FW6317	24"	GATE	HANDWHEEL	VAULT HOUSE	GRAVITY	
FW6318	24"	GATE	HANDWHEEL	VAULT 5	GRAVITY	
RIV0101	30"	BUTTERFLY	HANDWHEEL	CHEMICAL BUILDING BASEMENT	RAW WATER	
RIV6103	30"	BUTTERFLY	HANDWHEEL	WTP YARD	RAW WATER	NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK
WIP1401	24"	GATE	HANDWHEEL	BOILER ROOM SUMP	RAW WATER	NOT SCHEDULED FOR REPLACEMENT, BUT CRITICAL FOR ISOLATION AND SEQUENCING WORK

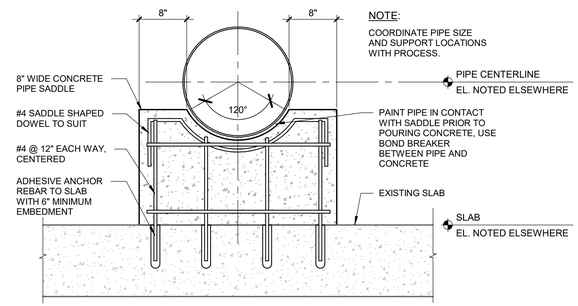
NEW VALVE SCHEDULE

VALVE TAG	SIZE	TYPE	OPERATOR	LOCATION	SERVICE	NOTES
FE1650	24"	AWWA BUTTERFLY	MANUAL	PIPE GALLERY	FILTERED WATER	
FE1651	24"	AWWA BUTTERFLY	MANUAL	PIPE GALLERY	FILTERED WATER	
FW6305	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT HOUSE	CW	
FW6306	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT 1	CLEARWELL	
FW6307	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT 3	CW	
FW6308	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT 4	CLEARWELL	
FW6314	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT 3	WHS	
FW6315	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT 4	WHS	
FW6316	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT HOUSE	GRAVITY	
FW6317	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT HOUSE	GRAVITY	
FW6318	24"	BUTTERFLY	2" NUT WITH EXTENSION	VAULT 5	GRAVITY	
OVFL-1	12"	FLAP GATE	COUNTER WEIGHT	AA WTP RESERVOIR	OVERFLOW	
OVFL-2	12"	FLAP GATE	COUNTER WEIGHT	LIBERTY RESERVOIR	OVERFLOW	
OVFL-3	12"	FLAP GATE	COUNTER WEIGHT	NORTH CAMPUS RESERVOIR	OVERFLOW	
RIV0101	30"	BUTTERFLY	HANDWHEEL	CHEMICAL BUILDING BASEMENT	RAW WATER	

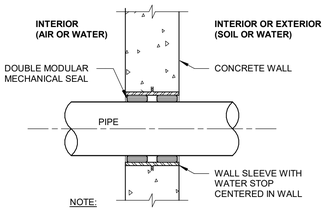


NOTE:
1. FOR ALL PIPING PASSING THROUGH CORED OR FORMED OPENINGS IN NEW OR EXISTING CONCRETE WALLS, WHERE NO SLEEVE IS USED.

WALL PENETRATION DETAIL
NO SCALE

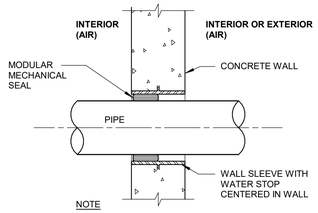


TYPICAL CONCRETE PIPE SADDLE
NO SCALE



NOTE:
1. FOR ALL PIPING PASSING THROUGH NEW CAST-IN-PLACE CONCRETE WALLS.

WALL SLEEVE DETAIL - VENT
NO SCALE

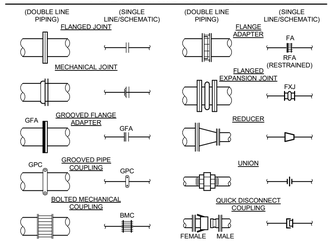


NOTE
1. FOR ALL PIPING PASSING THROUGH NEW CONCRETE HEADWALLS.

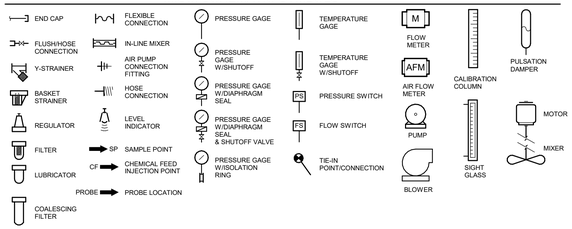
WALL SLEEVE DETAIL
NO SCALE

PROCESS SYMBOL LEGEND

PIPE/FITTINGS SYMBOLS



MISC. SCHEMATIC SYMBOLS



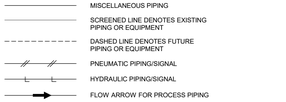
SCHEMATIC VALVE SYMBOLS

THE FOLLOWING ADDITIONAL DESIGNATIONS MAY BE UTILIZED ADJACENT TO SOME VALVE OR GATE SYMBOLS:

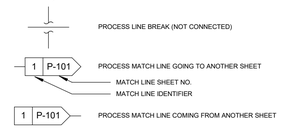
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
FC	FAILS CLOSED
FO	FAILS OPEN
FIP	FAILS IN LAST KNOWN POSITION

EQUIPMENT TAG NUMBERS

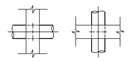
PIPELINE IDENTIFICATION NUMBERS



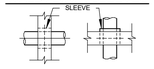
LINE SYMBOLS



WALL/FLOOR PIPES



WALL/FLOOR SLEEVES



PROCESS DEMOLITION NOTES

1. REMOVE ALL PORTIONS OF WORK IDENTIFIED BY CROSS HATCHING UNLESS NOTED OTHERWISE.
2. DEMOLITION NOTES AND PLANS DO NOT FULLY REPRESENT ALL DEMOLITION WORK REQUIRED TO INSTALL NEW WORK IN ACCORDANCE WITH CONTRACT DOCUMENTS. BUT ARE INTENDED TO SERVE AS GENERAL DEMOLITION GUIDELINES.
3. GRAPHICAL REPRESENTATION OF EXISTING SYSTEMS WERE OBTAINED FROM PREVIOUS CONSTRUCTION AND/OR RECORD DRAWINGS MAY NOT FULLY REPRESENT EXISTING CONDITIONS AND IS FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT OF WORK.
4. COORDINATE PHASING AND SEQUENCING OF DEMOLITION IN ACCORDANCE WITH PLANS AND SPECIFICATIONS AND WITH OTHER CONTRACTORS IN ORDER TO MAINTAIN CONTINUING OPERATIONS FOR OWNER. ALSO, TO MAINTAIN BUILDING SECURITY AND WEATHER TIGHTNESS.
5. COORDINATE ITEMS, IF ANY TO BE TURNED OVER TO THE OWNER PRIOR TO BEGINNING DEMOLITION. CONTRACTOR TO REMOVE, PROTECT AND RELOCATE ITEMS TO BE TURNED OVER TO THE OWNER.
6. FIELD VERIFY ALL EXISTING UTILITIES AND BURIED PIPING PRIOR TO ABANDONMENT AND INSTALLATION OF PIPING. PROTECT EXISTING STRUCTURES AND PIPING TO REMAIN. SOME PIPING TO BE REMOVED OR ABANDONED MAY BE UNDER PRESSURE. COORDINATE WITH OWNER TO ISOLATE SECTIONS TO BE DISTURBED.
7. USE APPROPRIATE FITTINGS AND/OR PIPE JOINT DEFLECTION AS NECESSARY TO INSTALL PIPE ELEVATIONS INDICATED.
8. SUPPORT PIPING TO REMAIN IN PLACE DURING AND AFTER DEMOLITION.
9. REMOVE ALL UTILITIES ASSOCIATED WITH EQUIPMENT TO BE REMOVED. REMOVE ALL PIPING, SUPPORTS, ANCHOR BOLTS, AND APPURTENANCES TO SOURCE AND PROVIDE SUITABLE CAP.
10. REMOVE EMBEDDED EQUIPMENT AND HARDWARE A MINIMUM OF 1" BELOW THE SURFACE IT IS ATTACHED TO. PATCH OVER REMAINING PORTION OF ANCHOR BOLT IN ACCORDANCE WITH SPECIFICATIONS.
11. WHERE ITEMS ARE REMOVED AND OPENINGS ARE CREATED BY DEMOLITION, IN ROOFS, WALLS, FLOORS, AND ADJACENT SURFACES, PATCH TO MATCH ADJACENT SURFACES OR APPLY NEW FINISHES WHERE SCHEDULED.

PROCESS ABBREVIATIONS

A	AIR
ABAN	ABANDON
ADJ	ADJACENT
AGGR	AGGREGATE
AL	ALUMINUM
ALT	ALTERNATE (IVE)
APPROX	APPROXIMATE
ASSY	ASSEMBLY
B/B	BACK TO BACK
BFV	BUTTERFLY VALVE
BIP	BLACK IRON PIPE
BLDG	BUILDING
BLWDN	BLOW DOWN
BMC	BOLTED MECHANICAL COUPLING
BOT	BOTTOM
BSMT	BASEMENT
BSP	BLACK STEEL PIPE
BF	BLIND FLANGE
C/C	CENTER TO CENTER
CF	CUBIC FEET
CIP	CAST IRON PIPE
CL	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CONC	CONCENTRIC
CONST	CONSTRUCTION
COORD	COORDINATE
CP	COPPER PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CSP	CORRUGATED STEEL PIPE
CSP	CARBON STEEL PIPE
CW	COLD WATER
CY	CUBIC YARD
DEG	DEGREE
DEMO	DEMOLITION
DIA	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIST	DISTANCE
DWV	DRAIN WASTE VENT
ECC	ECCENTRIC
EL	ELEVATION
ELL	ELBOW
ENGR	ENGINEER
EQUIP	EQUIPMENT
EXC	EXCAVATE (ION)
EXIST	EXISTING
EXT	EXTERIOR
F/F	FACE TO FACE
FF	FINISHED FLOOR
FIG	FIGURE
FIT	FLOW INDICATING TRANSMITTER
FRP	FIBERGLASS REINFORCED PLASTIC
FSP	FABRICATED STEEL PIPE
F.V.	FIELD VERIFY
GA	GAUGE
GAC	GRANULAR ACTIVATED CARBON
GFA	GROOVED FLANGE ADAPTER
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE EXTRUSION
HDWL	HEADWALL
HORIZ	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
HW	HOT WATER
HWL	HIGH WATER LEVEL
I.E.	INVERT ELEVATION
I.D.	INSIDE DIAMETER
INCL	INCLUDE
INT	INTERIOR
INV	INVERT
IPS	IRON PIPE SIZE
IR	ISOLATION RING
LAT	LATERAL
LF	LINEAL FEET
LGTH	LENGTH
LIT	LEVEL INDICATING TRANSMITTER
LIQ	LIQUID
LP	LOW POINT
LWL	LOW WATER LEVEL
MAINT	MAINTENANCE
MATL	MATERIAL
MAX	MAXIMUM
MFGR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MIP	MALLEABLE IRON PIPE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRICAL
OPNG	OPENING
ORIG	ORIGINAL
PAC	POWDERED ACTIVATED CARBON
PCCP	PRESTRESSED CONCRETE CYLINDRICAL PIPE
PE	POLYETHYLENE
PERF	PERFORATED
PIT	PRESSURE INDICATING TRANSMITTER
PIV	POST INDICATOR VALVE
PP	POLYPROPYLENE PIPE
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSV	PRESSURE SUSTAINING VALVE
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE PIPE
PVDF	POLYVINYLIDENE FLUORIDE PIPE
PT	PRESSURE TRANSMITTER
PIT	PRESSURE INDICATING TRANSMITTER
QTY	QUANTITY
RCP	REINFORCED CONCRETE PIPE
RECIRC	RECIRCULATE (ING, ION)
RED	REDUCER
REF	REFERENCE
REQD	REQUIRED
REV	REVISION
RJ	RESTRAINED JOINT
RFA	RESTRAINED FLANGE ADAPTER
SAN	SANITARY
SHP	PHOSPHATE
SP	SAMPLE POINT
SQ. FT.	SQUARE FOOT
SQ. YD.	SQUARE YARD
SRV	SURGE RELIEF VALVE
SS	STAINLESS STEEL
SSP	STAINLESS STEEL PIPE
STD	STANDARD
STL	STEEL
SUCT	SUCTION
SYS	SYSTEM
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPORARY
TYP	TYPICAL
UTIL	UTILITY
VB	VALVE BOX
VERT	VERTICAL
W/	WITH
W/O	WITH OUT
WL	WATER LEVEL

PIPE CONTENT ABBREVIATIONS

ACID	SULFURIC ACID
AS	AIR SCOUR
BWR	BACKWASH RETURN
BWS	BACKWASH SUPPLY
BWW	BACKWASH WATER
CA	COMPRESSED AIR
D/DR	DRAIN
EFF	EFFLUENT
FECL	FERRIC CHLORIDE
FILT	FILTERED
FILT to W	FILTER TO WASTE
FL	FLUORIDE
FW	FILTERED WATER
HFA	HYDROFLUOSILICIC ACID
HYPO	SODIUM HYPOCHLORITE
IA	INSTRUMENT AIR
INFL	INFLUENT
LIME	LIME
LPG	LIQUIFIED PETROLEUM GAS
NG	NATURAL GAS
NPW	NON-POTABLE WATER
OF	OVERFLOW
PA	PLANT AIR
PAC	POWDER ACTIVATED CARBON
PH	PHOSPHATE
PI	PRIMARY INFLUENT
PIW	PRIMARY INFLUENT W/PLANT RECYCLE
POLY	POLYMER
PSW	PLANT SERVICE WATER
PU	PNEUMATIC UNLOADING
PSW	PLANT SERVICE WATER
PUW	PLANT UTILITY WATER
PW	POTABLE/FINISHED WATER
RW	RAW WATER
S	SLUDGE
SAN	SANITARY
SODA	SODA ASH
SL	SAMPLE LINE
SPD	SUMP PUMP DISCHARGE
SR	SLUDGE RECIRCULATION
STR	SLUDGE TRANSFER
STW	SETTLED/CLARIFIED WATER
SW	SERVICE WATER
V	VENT
W	WASTE
WTR	WATER
WW	WASTE WATER
WWS	WASH WATER SUPPLY

PIPE/TUBING MATERIAL ABBREVIATIONS

CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL
CU	COPPER
DI	DUCTILE IRON
FRP	FIBERGLASS REINFORCED PLASTIC
GALV	GALVANIZED STEEL
PE	POLYETHYLENE
PP	POLYPROPYLENE
PTFE PVC	TEFLON PIPE
PVDF	POLYVINYL CHLORIDE
316SS	POLYVINYLIDENE FLUORIDE STAINLESS STEEL (NUMERIC INDICATES GRADE)
TT	TITANIUM

PROCESS GENERAL NOTES

1. THE FOLLOWING NOTES SHALL APPLY TO ALL SHEETS.
2. ALL GENERAL NOTES, SYMBOLS, LEGENDS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY NOT BE ALL INCLUSIVE, AND ONLY APPLY TO PROCESS DRAWINGS USED IN THIS SET. ALSO WHEN DESIGNATED, INCLUDES PROCESS DEMOLITION SHEETS.
3. GRAPHICAL REPRESENTATION OF EXISTING SYSTEMS WERE OBTAINED FROM PREVICOUS CONSTRUCTION AND/OR RECORD DRAWINGS AND MAY NOT FULLY REPRESENT EXISTING CONDITIONS AND IS FOR REFERENCE ONLY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS TO DETERMINE EXTENT OF WORK.
4. FIELD VERIFY ALL DIMENSIONS SHOWN.
5. REFER TO PIPING PLAN VIEWS FOR CORRECT PIPE ORIENTATION TO BUILDINGS AND STRUCTURES.
6. PAINT PIPE SURFACES THAT WILL BE CONCEALED BY PIPE SUPPORTS PRIOR TO INSTALLING PIPE.
7. COORDINATE NEW WORK WITH DEMOLITION.
8. RESTRAIN ALL BURIED/EXPOSED PIPE JOINTS NEW AND EXISTING FOR NEW PIPING INSTALLATIONS, UNLESS NOTED OTHERWISE.
9. FIELD VERIFY THAT ALL EXISTING PIPE PENETRATIONS, WALL SLEEVES AND WALL PIPES ARE AS SHOWN ON PLANS.

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Ann Arbor Water Treatment Plant

Ann Arbor, Michigan

Valve and Water Tank & Reservoir Improvements

Finished Water Reservoir

PROCESS GENERAL NOTES, ABBREVIATIONS, SYMBOLS, DETAILS AND VALVE SCHEDULES

REVISIONS

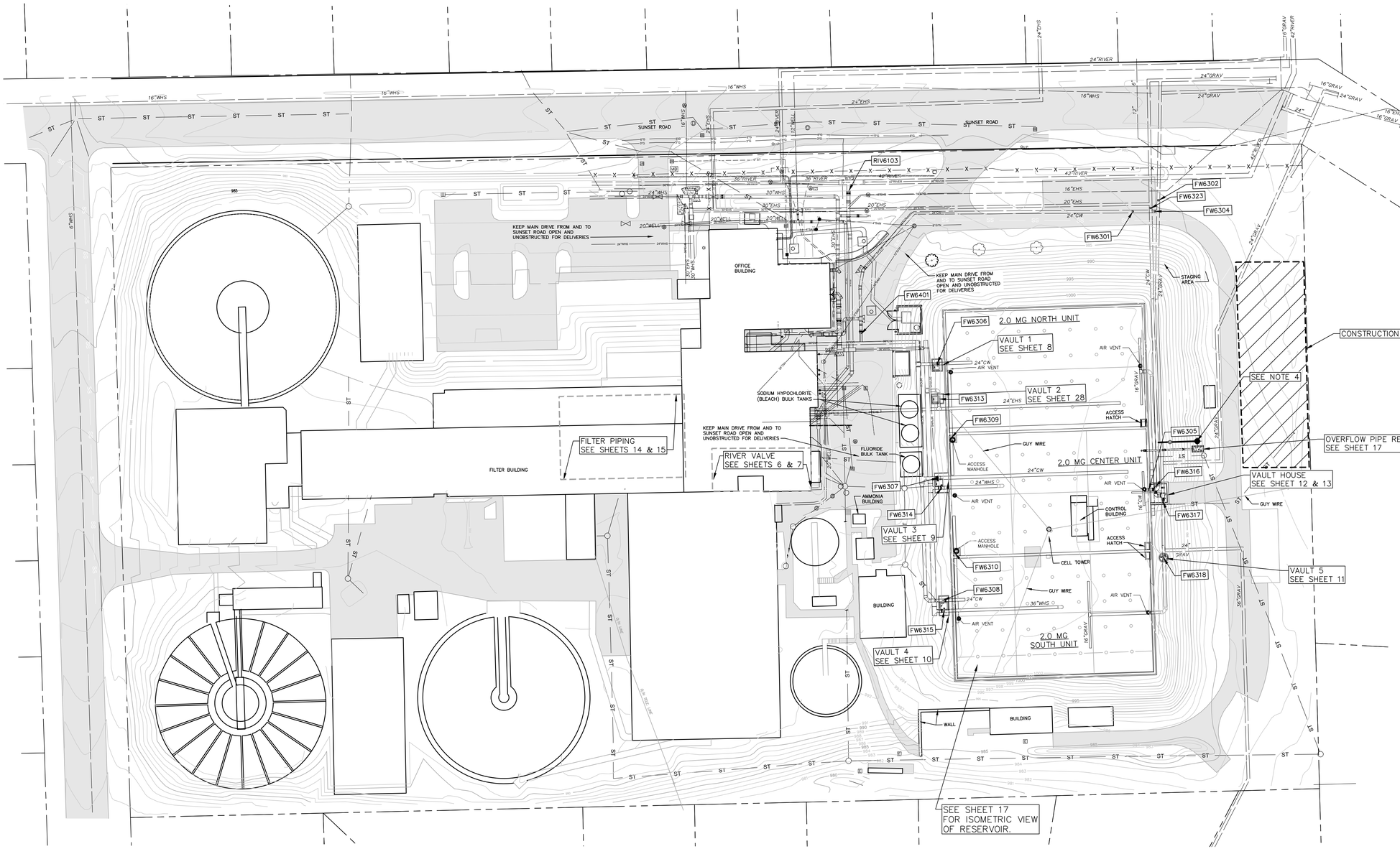
5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
211162

SHEET NO.
4



NORTH

SCALE: 1" = 40'

0 20 40 80

WTP SITE PLAN AND YARD PIPING PLAN

NOTES:

1. BARRICADE WORK AREA AND PROTECT ADJACENT FACILITIES, STRUCTURES, AND EQUIPMENT.
2. MAINTAIN ACCESS FROM SUNSET ROAD TO WATER TREATMENT PLAN FACILITIES, MAINTAIN DELIVERIES, HAULING OFF OF SLUDGE, AND GENERAL ACCESS REQUIRED FOR MAINTENANCE AND OPERATIONS.
3. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY EARTH RETENTION AT EXCAVATIONS ADJACENT TO THE RESERVOIR.
4. INSTALL YARD HYDRANT ON 24" CW PIPING. RECORD DRAWING INDICATES PIPING MAY BE STEEL. CONTRACTOR TO EXCAVATE AND CONFIRM PIPING MATERIAL PRIOR TO ORDERING TAPPING SLEEVE. HYDRANT TO BE INSTALLED PRIOR TO VALVE REPLACEMENT TO FACILITATE FLUSHING DURING DISINFECTION AND REFILLING ACTIVITIES.
5. RESTORE ALL WORK AND STAGING AREAS TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

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City of Ann Arbor
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
WTP SITE PLAN AND YARD PIPING PLAN

REVISIONS

5/25/2022	BIDS AND CONSTRUCTION

Drawn By	IB
Designer	JS
Reviewer	TDM
Manager	JS

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PROJECT NO.
211162

SHEET NO.
5

PLOT INFO: Z:\2021\211162\CAD\CDS_211162 AA WTP-SITE PLAN.DWG LAYOUT: 5 AA WTP-SITE PLAN DATE: 6/1/2022 TIME: 2:36:52 PM USER: IBLAZEVSKI

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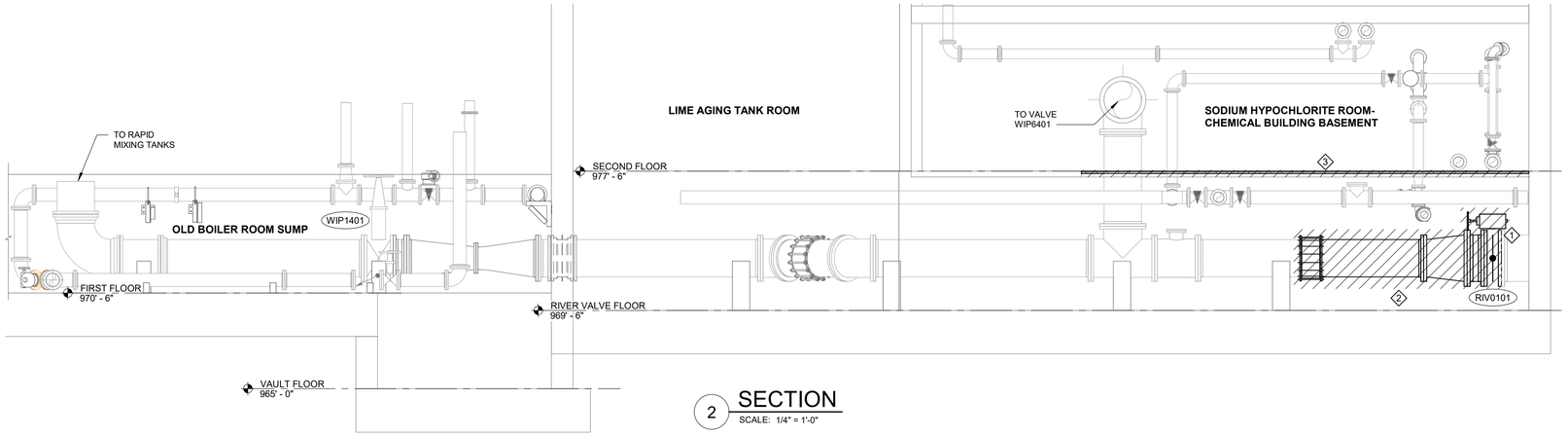
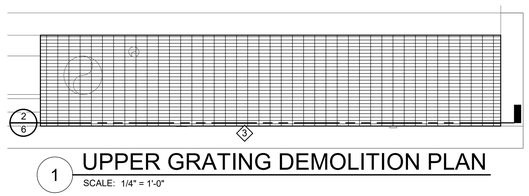
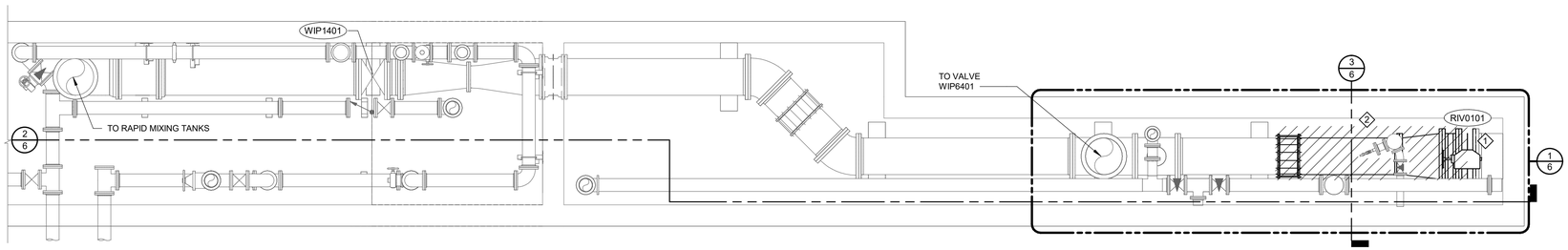


2 SECTION
SCALE: 1/4" = 1'-0"

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



1 UPPER GRATING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



NORTH

WTP - CHEMICAL BUILDING
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"
0 2 4 8

NOTES

1. REMOVE AND REPLACE EXISTING SLUDGE PIPING AS NEEDED TO REPLACE EXISTING VALVE. SYSTEM CAN BE TEMPORARILY SHUT DOWN WHILE VALVE REPLACEMENT IS COMPLETED. COORDINATION WITH STAFF WILL BE REQUIRED FOR PLANNING RELOCATIONS.
2. VERIFY ALL PIPE AND OPERATOR PENETRATIONS IN NEW GRATING TO BE FURNISHED AND INSTALLED.
3. CLEAN OUT ANY SLUDGE AND DEBRIS FROM THE PIPE PIT. SLUDGE AND DEBRIS MAY ACCUMULATE UP TO THE HAUNCH OF THE 30" PIPE.
4. CLEAN AND INSPECT THE CONNECTIONS OF THE PIPING TO THE EXISTING WALL PIPE FROM BOTH SIDES BEFORE AND AFTER THE PIPELINE SHUTDOWN AND RE-CHARGING TO CHECK FOR LEAKS.
5. VERIFY DIMENSION FOR VALVE STEM AND HANDWHEEL OPERATOR LOCATION FOR EASE OF OPERATION PRIOR TO ORDERING VALVE.
6. INSPECT ALL METALLIC PIPE HANGERS AND SUPPORTS IN THE CHEMICAL BUILDING BASEMENT. OWNER TO CONFIRM WHICH HANGERS AND SUPPORTS TO BE REMOVED AND REPLACED. WORK TO BE PAID FOR THROUGH THE MISCELLANEOUS REPAIR ALLOWANCE.

KEY NOTES

1. REMOVE 30" BUTTERFLY VALVE..
2. REMOVE EXISTING 30"x24" REDUCER, 24" PIPING AND 24" COUPLING.
3. REMOVE AND SALVAGE EXISTING FIBERGLASS GRATING. CLEAN TRENCH AS REQUIRED TO PERMIT CONSTRUCTION. CLEAN EXISTING LEDGE AROUND PERIMETER OF TRENCH OF LOOSE METAL AND CONCRETE AND ABANDON EMBEDDED GRATING FRAME IN PLACE. FIELD VERIFY LAYOUT AND SPANS OF EXISTING GRATING SUPPORTS SPANNING APPROXIMATELY 4-FEET ON CENTER ACROSS THE TRENCH AND AROUND PENETRATIONS. AFTER FIELD VERIFICATION, DEMOLISH GRATING SUPPPORTS AND SUPPORTS AROUND PENETRATIONS FLUSH TO THE FACE OF THE CONCRETE.

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
WTP RIVER VALVE DEMOLITION PLAN AND SECTIONS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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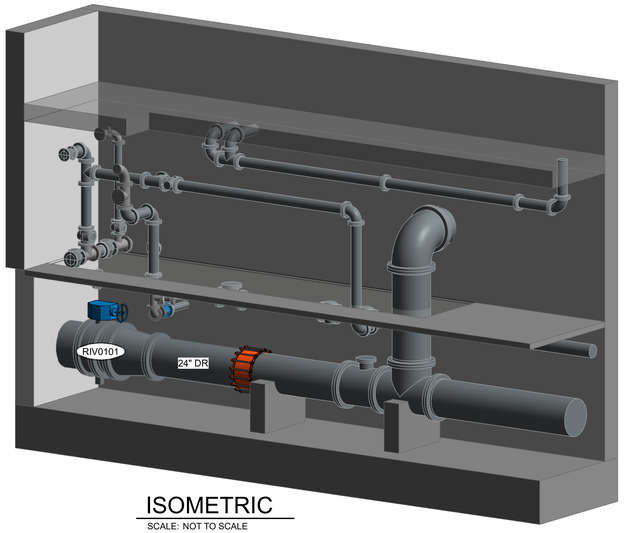
PROJECT NO.
211162

SHEET NO.
6

PLOT INFO: 5/31/2022 12:58:44 PM C:\Work\Revit\2022_PR_211162_RIVER VALVE REPLACEMENT_rsecord.rvt

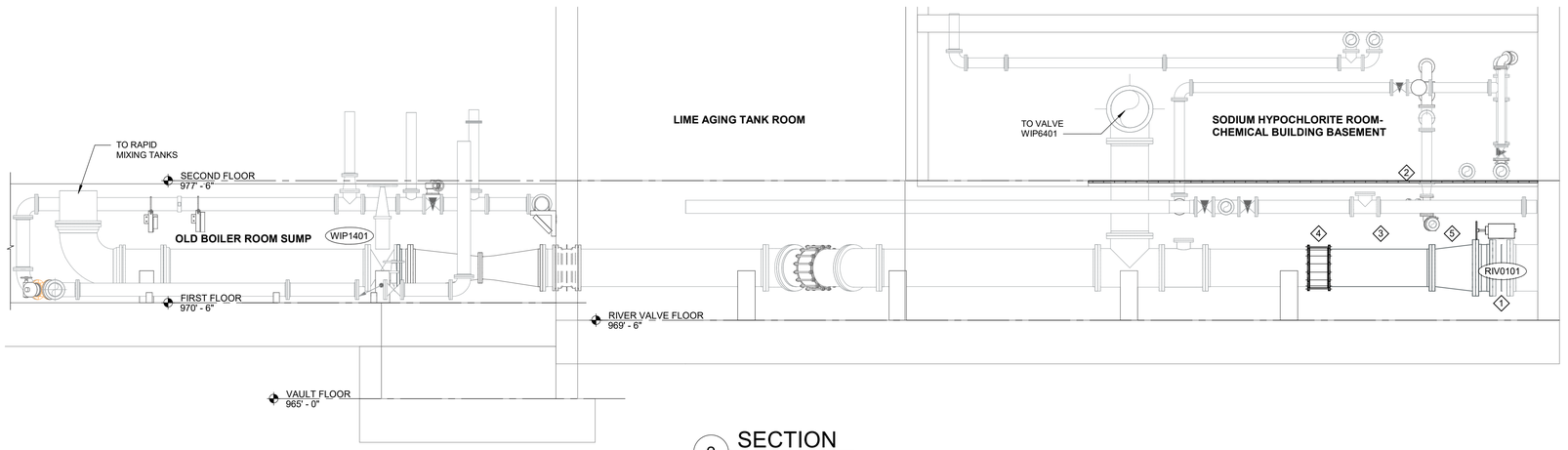


ISOMETRIC

SCALE: NOT TO SCALE

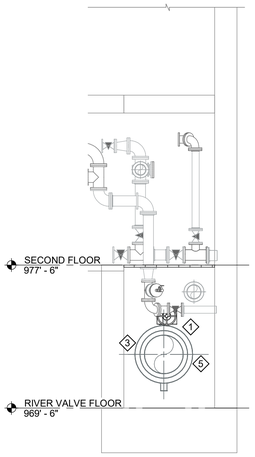
KEY NOTES

1. 30" BUTTERFLY VALVE.
2. INSTALL PAINTED, GALVANIZED W8X10 GRATING SUPPORTS ACCORDING TO THE DETAIL THIS SHEET AND TO MATCH THE LAYOUT THAT WAS FIELD VERIFIED. INSTALL PAINTED, GALVANIZED W8X10 SUPPORTS AT ENDS OF GRATING AT PENETRATIONS, AND FRAME BACK TO GRATING SUPPORTS SPANNING ACROSS TRENCH. INSTALL PAINTED, GALVANIZED L5X3X1/4 ACCORDING TO THE DETAIL THIS SHEET AT EACH END OF THE TRENCH. ENSURE ENDS OF GRATING SPANS WILL BE SUPPORTED AND THAT GRATING DOES NOT SPAN MORE THAN 4-FEET. INSTALL SALVAGED GRATING ON NEW SUPPORT SYSTEM AND ANCHOR TO SUPPORTS WITH STAINLESS STEEL SADDLE CLIPS IN A CONFIGURATION THAT PERMITS GRATING TO BE REMOVED IN THE FUTURE.
3. 24" PIPING.
4. 24" COUPLING.
5. 30"x24" REDUCER.



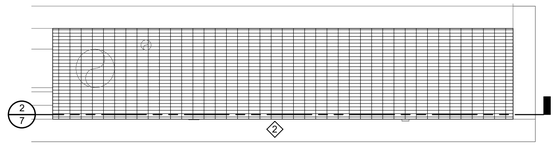
2 SECTION

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



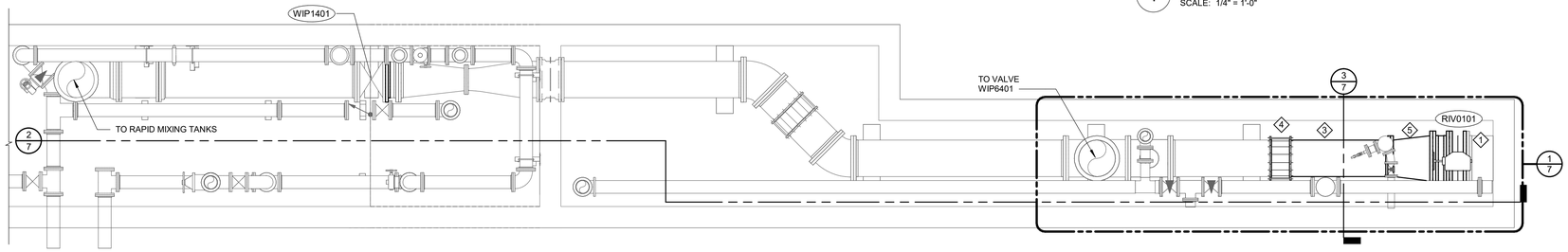
3 SECTION

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



1 UPPER GRATING PLAN

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



WTP - CHEMICAL BUILDING

EQUIPMENT AND PIPING PLAN

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

0 2 4 8

NORTH

PLOT INFO: 5/25/2022 1:39:58 PM C:\Work\Revit\2022_PR_211162_RIVER VALVE REPLACEMENT_rsecord.rvt

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Ann Arbor Water Treatment Plant

Ann Arbor, Michigan

Valve and

Finished Water Tank & Reservoir Improvements

WTP RIVER VALVE PLANS, SECTIONS AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2

Designer JS

Reviewer TDM/DJV

Manager JS

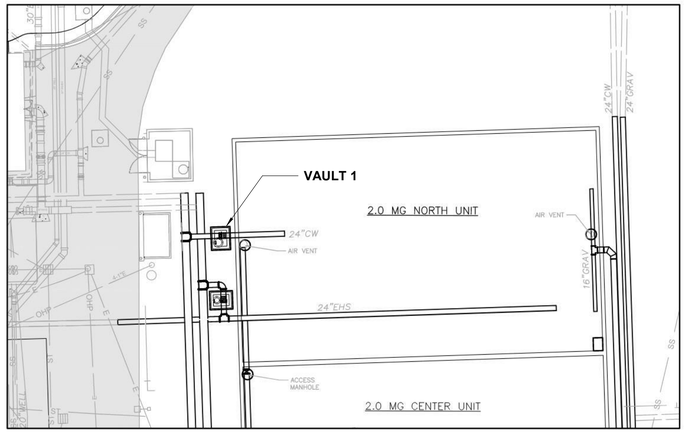
Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.

211162

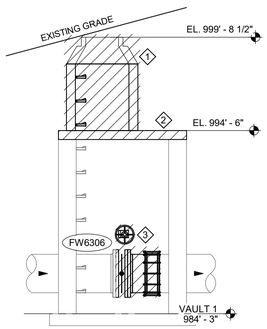
SHEET NO.

7

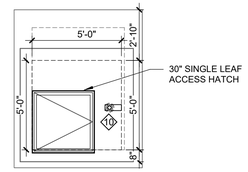


VAULT 1
SITE LAYOUT PLAN
SCALE: 1" = 30'-0"

NORTH



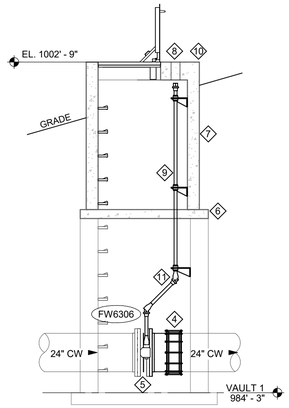
1 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



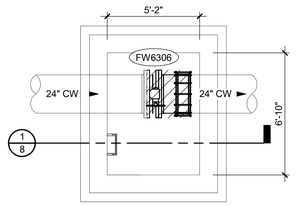
VAULT 1
TOP HATCH PLAN
SCALE: 1/4" = 1'-0"

NORTH

0 2 4 8



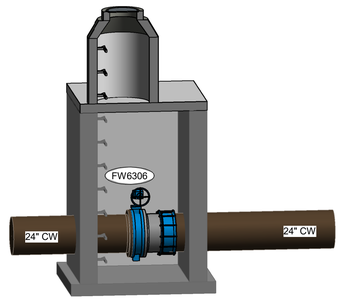
2 SECTION
SCALE: 1/4" = 1'-0"



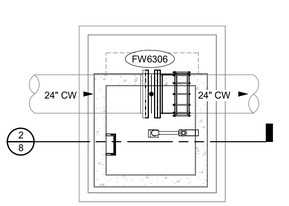
VAULT 1
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

NORTH

0 2 4 8



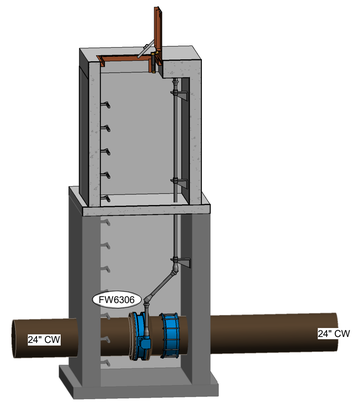
VAULT 1
EXISTING ISOMETRIC
SCALE:



VAULT 1
EQUIPMENT AND PIPING PLAN
SCALE: 1/4" = 1'-0"

NORTH

0 2 4 8



VAULT 1
ISOMETRIC
SCALE:

NOTES

1. PAINT NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.

KEY NOTES

1 REMOVE EXISTING BLOCK MANHOLE RISER AND MANHOLE FRAME AND COVER.
2 REMOVE EXISTING PRECAST CONCRETE TOP SLAB.
3 REMOVE EXISTING 24" BUTTERFLY VALVE, 24" PIPING AND 24" COUPLING.
4 24" COUPLING.
5 24" BUTTERFLY VALVE.
6 PRECAST CONCRETE TOP SLAB WITH OPENING TO ACCOMODATE NEW MANHOLE RISER.
7 5' SQUARE PRECAST CONCRETE MANHOLE RISER.
8 5' SQUARE PRECAST CONCRETE TOP SLAB WITH CAST 36" SQUARE HATCH.
9 EXTENDED VALVE STEM WITH SUPPORTS SPACED 5'-0" APART MAX. 2 UNIVERAL JOINTS TO OFFSET VALVE STEM EXTENSION.
10 6" VALVE BOX CAST IN TOP SLAB.
11 UNIVERSAL JOINT (TYPICAL OF 2).

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
WTP VAULT 1 PLANS, SECTIONS AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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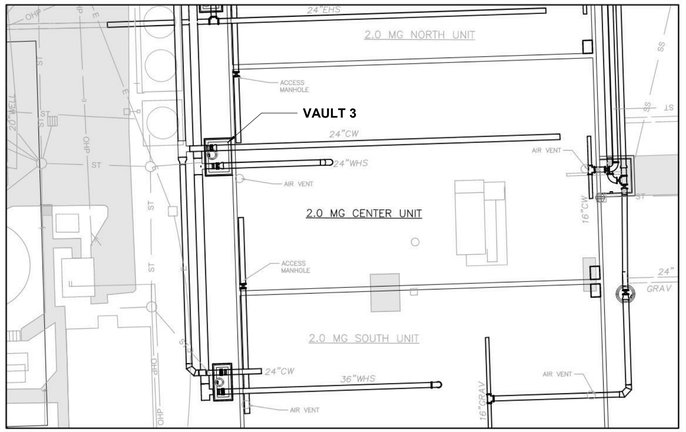
PROJECT NO.
211162

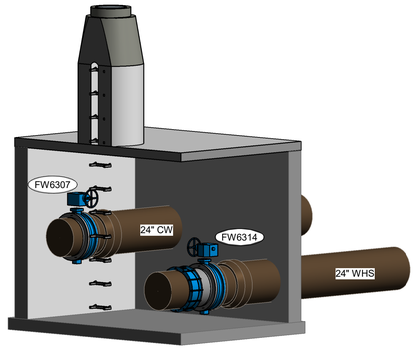
SHEET NO.
8

PLOT INFO: 5/25/2022 1:36:08 PM C:\Work\Revit\2022_PR_211162_VALVE VAULTS_rsecord.rvt

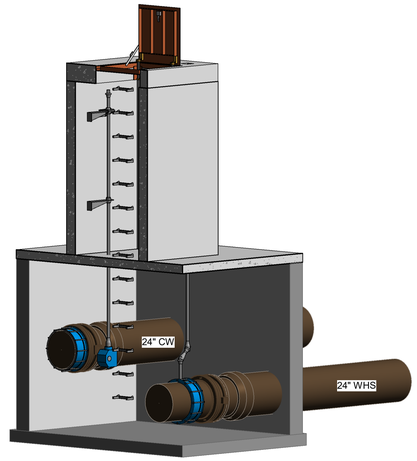


VAULT 3
SITE LAYOUT PLAN
SCALE: 1" = 30'-0"

NORTH



VAULT 3
EXISTING ISOMETRIC
SCALE:



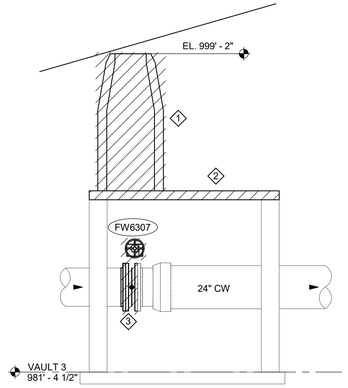
VAULT 3
ISOMETRIC
SCALE:

NOTES

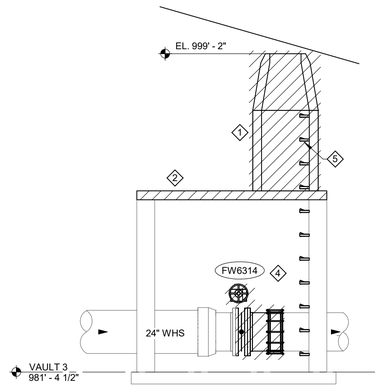
1. PAINT ALL NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.
3. A TEMPORARY CAP WILL NEED TO BE INSTALLED ON THE END OF THE EXISTING 24" CW PIPE IN UNIT 2 TO FACILITATE THE REPLACEMENT OF VALVE 6307. IN ORDER TO MAINTAIN TWO RESERVOIR UNITS IN SERVICE AT ALL TIMES, RESERVOIR UNIT 2 WILL NEED TO BE SHUT DOWN AND THE CAP INSTALLED. RESERVOIR 2 WILL THEN NEED TO BE RE-FILLED AND DISINFECTED, SO THAT UNITS 1 & 3 CAN BE FILLED THROUGH UNIT 2. ONCE VALVE 6307 HAS BEEN REPLACED, THE CAP CAN BE REMOVED FROM THE 24" CW PIPE IN UNIT 2.

KEY NOTES

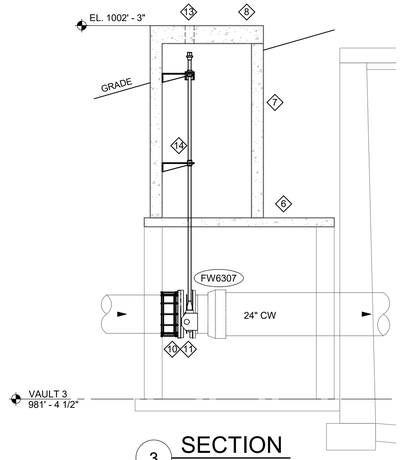
1 REMOVE EXISTING BLOCK MANHOLE RISER AND MANHOLE FRAME AND COVER.
2 REMOVE EXISTING PRECAST CONCRETE TOP SLAB.
3 REMOVE EXISTING 24" BUTTERFLY VALVE.
4 REMOVE EXISTING 24" BUTTERFLY VALVE, 24" PIPING AND 24" COUPLING.
5 REMOVE EXISTING MANHOLE STEPS.
6 PRECAST CONCRETE TOP SLAB WITH OPENING TO ACCOMODATE NEW MANHOLE RISER.
7 5' SQUARE PRECAST CONCRETE MANHOLE RISER.
8 5' SQUARE PRECAST CONCRETE TOP SLAB WITH CAST 36" SQUARE HATCH.
9 24" BUTTERFLY VALVE AND 24" COUPLING.
10 24" COUPLING.
11 24" BUTTERFLY VALVE.
12 MANHOLE STEPS.
13 6" VALVE BOX CAST IN TOP SLAB.
14 VALVE STEM SUPPORTS SPACED 5'-0" APART MAX.
15 UNIVERSAL JOINT (TYPICAL OF 2).



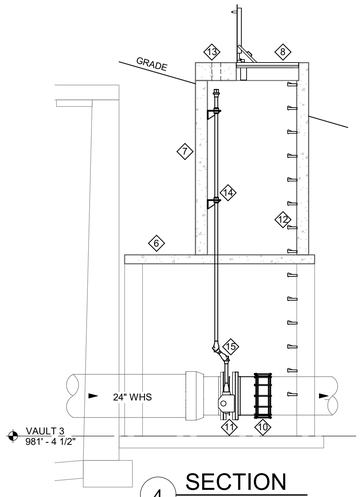
1 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



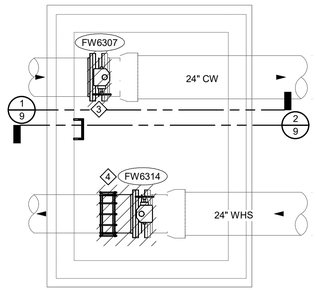
2 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



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

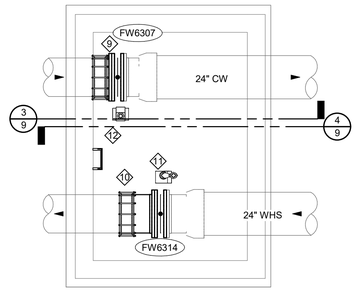


4 SECTION
SCALE: 1/4" = 1'-0"



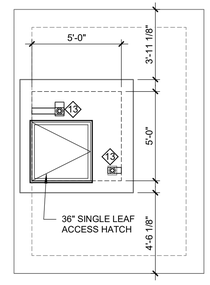
VAULT 3
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

NORTH
0 2 4 8



VAULT 3
EQUIPMENT AND PIPING PLAN
SCALE: 1/4" = 1'-0"

NORTH
0 2 4 8



VAULT 3
TOP HATCH PLAN
SCALE: 1/4" = 1'-0"

NORTH
0 2 4 8

PLOT INFO: 5/25/2022 1:36:11 PM C:\Work\Revit\2022_PR_211162_VALVE VAULTS_rsecord.rvt

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
WTP VAULT 3 PLANS, SECTIONS AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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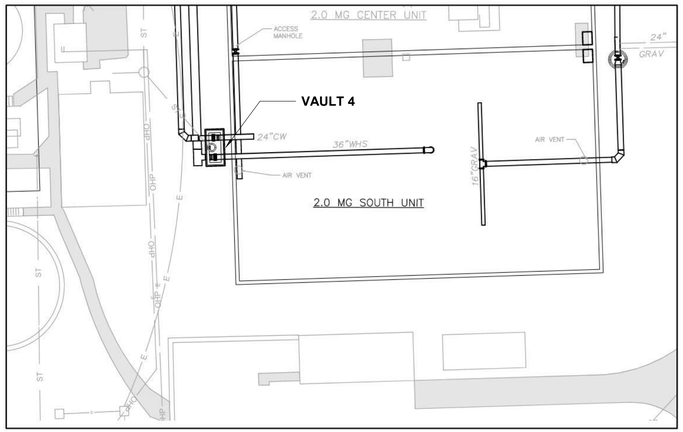
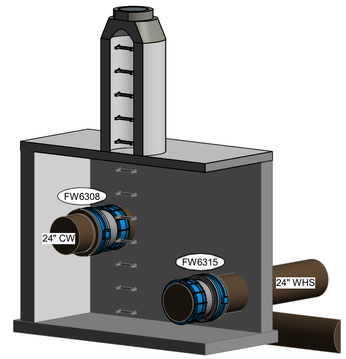
PROJECT NO.
211162

SHEET NO.
9

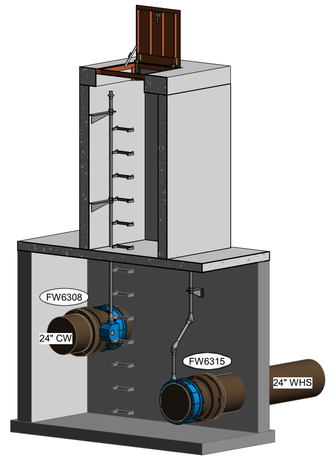


NORTH

VAULT 4
SITE LAYOUT PLAN
SCALE: 1" = 30'-0"



VAULT 4
EXISTING ISOMETRIC
SCALE:



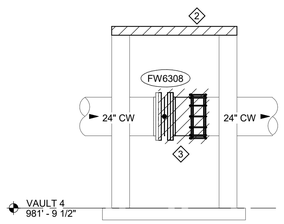
VAULT 4
ISOMETRIC
SCALE:

NOTES

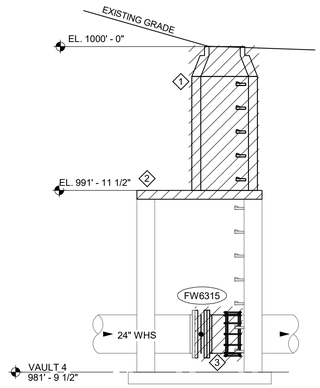
1. PAINT ALL NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.

KEY NOTES

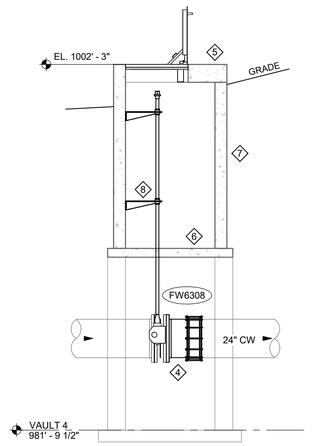
1 REMOVE EXISTING BLOCK MANHOLE RISER AND MANHOLE FRAME AND COVER.
2 REMOVE EXISTING PRECAST CONCRETE TOP SLAB.
3 REMOVE EXISTING 24" BUTTERFLY VALVE, 24" PIPING AND 24" COUPLING.
4 24" BUTTERFLY VALVE AND 24" COUPLING.
5 5' SQUARE PRECAST CONCRETE TOP SLAB WITH CAST 36" SQUARE HATCH.
6 PRECAST CONCRETE TOP SLAB WITH OPENING TO ACCOMODATE NEW MANHOLE RISER.
7 5' SQUARE PRECAST CONCRETE MANHOLE RISER.
8 VALVE STEM SUPPORTS SPACED 5'-0" APART MAX.
9 MANHOLE STEPS.
10 6" VALVE BOX CAST IN TOP SLAB.
11 UNIVERSAL JOINT (TYPICAL OF 2).



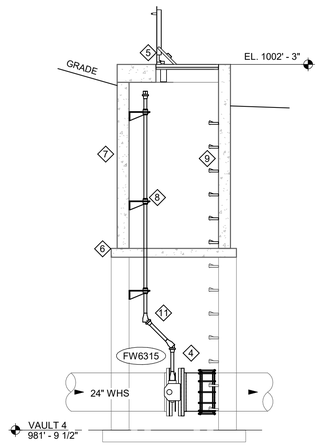
1 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



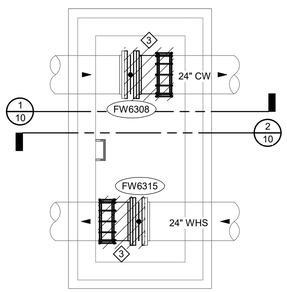
2 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



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

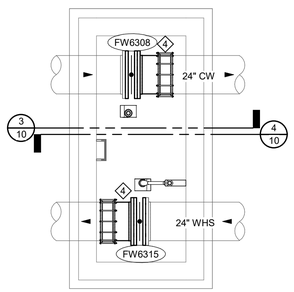


4 SECTION
SCALE: 1/4" = 1'-0"



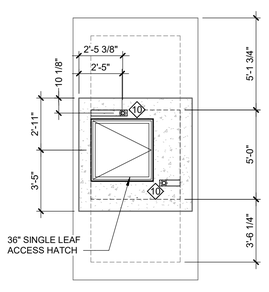
VAULT 4
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"
0 2 4 8

NORTH



VAULT 4
EQUIPMENT AND PIPING PLAN
SCALE: 1/4" = 1'-0"
0 2 4 8

NORTH



VAULT 4
TOP HATCH PLAN
SCALE: 1/4" = 1'-0"
0 2 4 8

NORTH

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Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements
Valve and
WTP VAULT 4 PLANS, SECTIONS AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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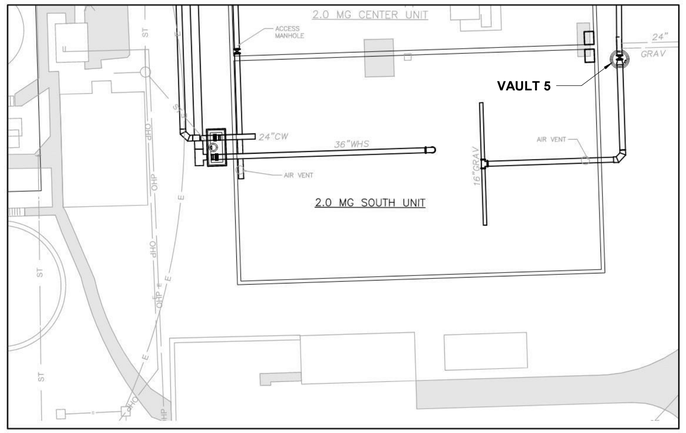
PROJECT NO.
211162

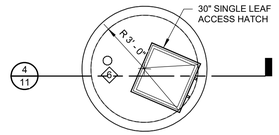
SHEET NO.
10

PLOT INFO: 5/25/2022 1:36:14 PM C:\Work\Revit2022_PR_211162_VALVE VAULTS_rsecord.rvt



VAULT 5
SITE LAYOUT PLAN
SCALE: 1" = 30'-0"

NORTH



VAULT 5
TOP HATCH PLAN
SCALE: 1/4" = 1'-0"

0 1 2 4

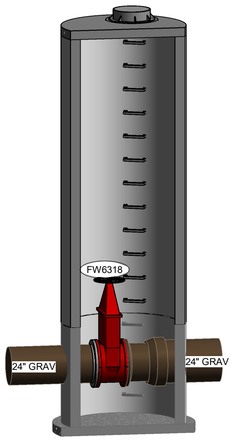
NORTH

NOTES

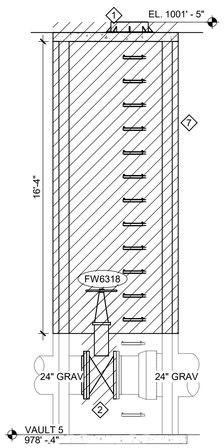
1. PAINT ALL NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.

KEY NOTES

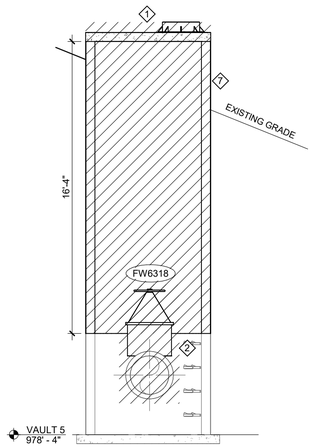
1 REMOVE EXISTING PRECAST CONCRETE TOP SLAB, MANHOLE FRAME AND COVER.
2 REMOVE EXISTING 24" GATE VALVE.
3 24" BUTTERFLY VALVE AND 24" COUPLING.
4 6' DIA. PRECAST CONCRETE TOP SLAB WITH CAST 30" SQUARE HATCH.
5 VALVE STEM SUPPORTS SPACED 5'-0" APART MAX.
6 6" VALVE BOX CAST IN TOP SLAB.
7 REMOVE PORTION OF EXISTING 6' DIAMETER BLOCK MANHOLE RISER NECESSARY TO COMPLETE VALVE REPLACEMENT.
8 RECONSTRUCT VALVE VAULT WITH PRECAST CONCRETE MANHOLE RISER SECTIONS.



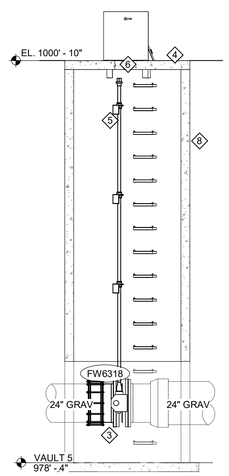
VAULT 5
EXISTING ISOMETRIC
SCALE:



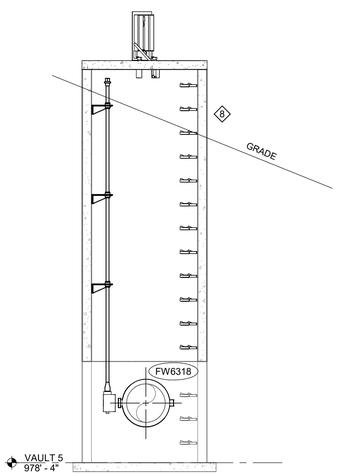
1 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



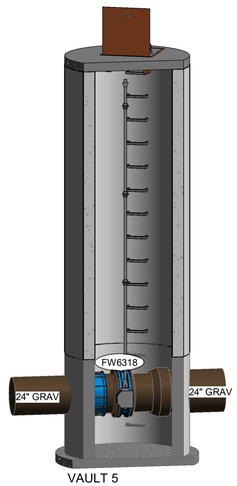
2 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



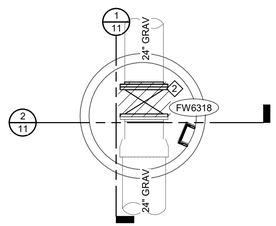
3 SECTION
SCALE: 1/4" = 1'-0"



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



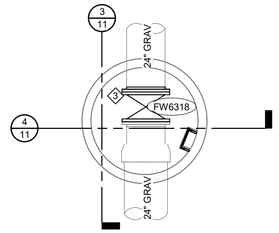
VAULT 5
ISOMETRIC
SCALE:



VAULT 5
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

0 1 2 4

NORTH



VAULT 5
EQUIPMENT AND PIPING PLAN
SCALE: 1/4" = 1'-0"

0 1 2 4

NORTH

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Finished Water Tank & Reservoir Improvements
WTP VAULT 5 PLANS, SECTIONS AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

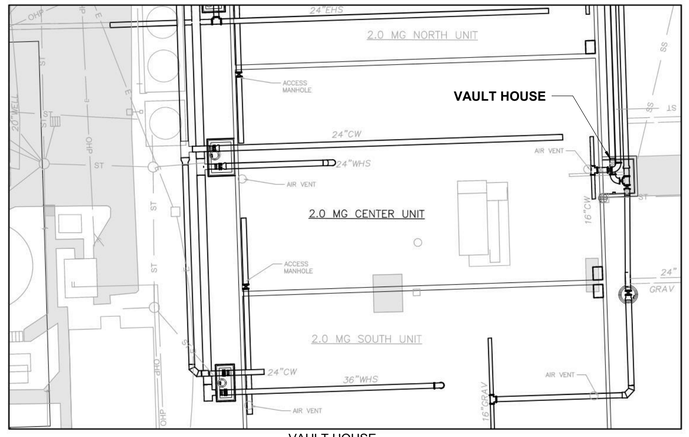
Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
211162

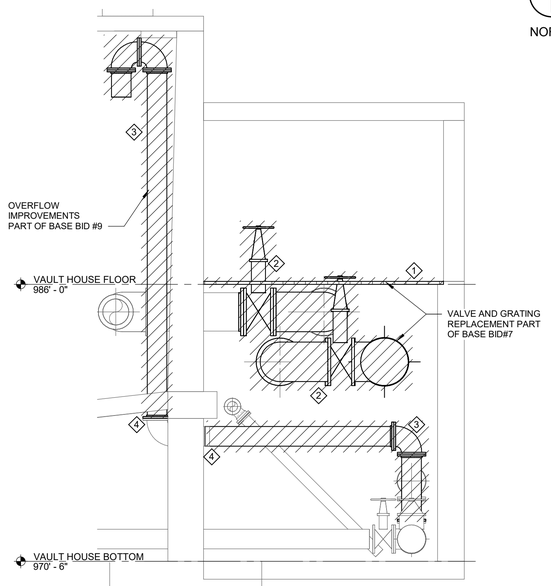
SHEET NO.
11

PLOT INFO: 5/25/2022 1:36:17 PM C:\Work\Revit\2022_PR_211162_VALVE VAULTS_rsecord.rvt

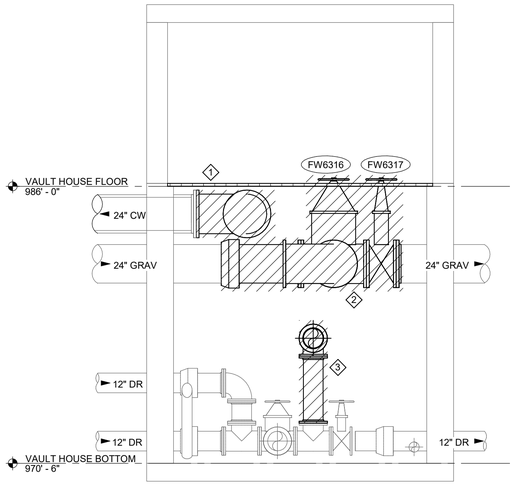


VAULT HOUSE
SITE LAYOUT PLAN
SCALE: 1" = 30'-0"

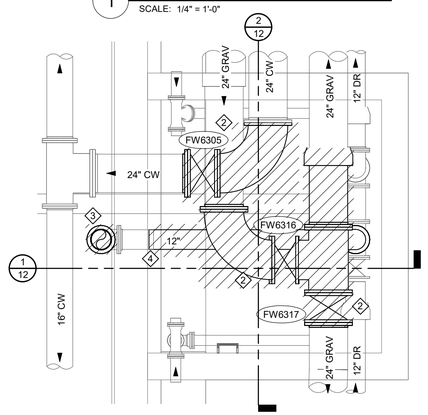
NORTH



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

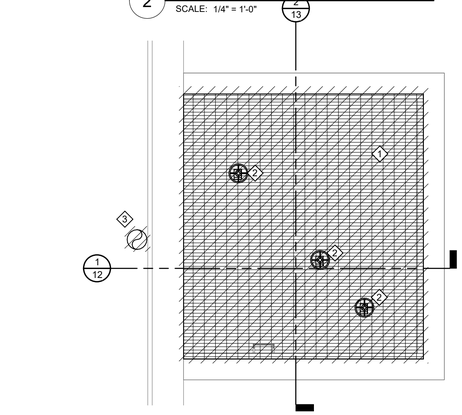


2 DEMOLITION SECTION
SCALE: 1/4" = 1'-0"



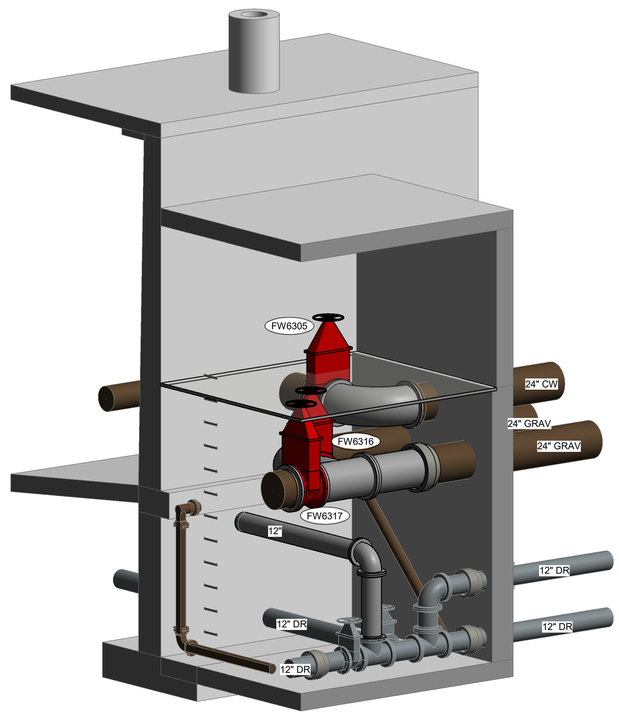
VAULT HOUSE LOWER LEVEL
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

NORTH
0 2 4 8



VAULT HOUSE UPPER LEVEL
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

NORTH
0 2 4 8



VAULT HOUSE
EXISTING ISOMETRIC
SCALE:

NOTES

1. PAINT ALL NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.
3. REUSE EXISTING GRATING FRAMES.

KEY NOTES

1 REMOVE EXISTING GRATING.
2 REMOVE EXISTING 24" GATE VALVES, 24" PIPING AND 24" COUPLINGS.
3 REMOVE EXISTING 12" OVERFLOW PIPING.
4 REMOVE EXISTING PIPING TO WALL. LEAVE ENOUGH SPACE TO INSTALL CAPS. UTILIZE EXISTING JOINTS WHERE POSSIBLE.

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Valve and Tank & Reservoir Improvements

Finished Water Tank & Reservoir Improvements
WTP VAULT HOUSE DEMOLITION PLANS, SECTIONS AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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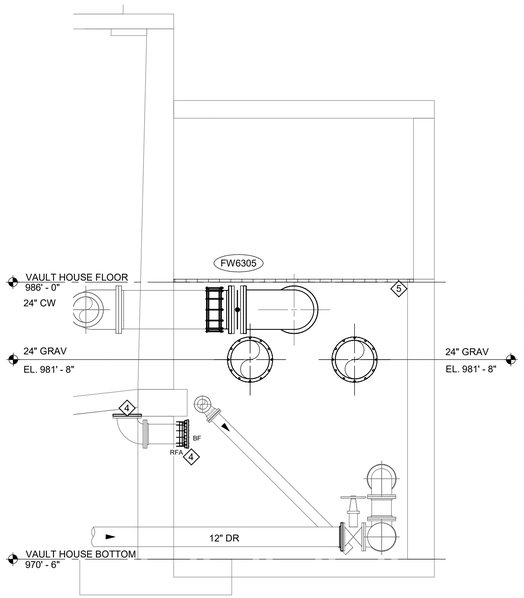
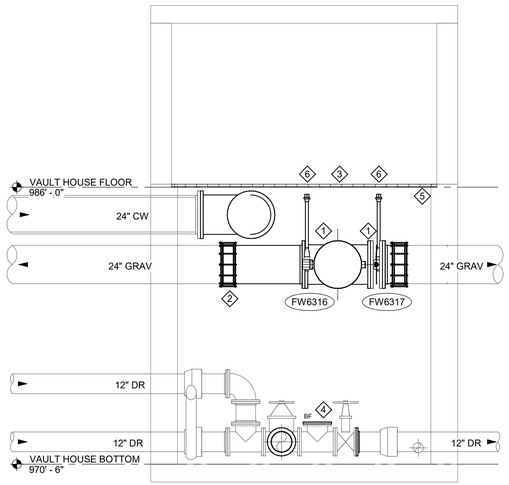
PROJECT NO.
211162

SHEET NO.
12

PLOT INFO: 5/25/2022 1:36:20 PM C:\Work\Revit\2022_PR_211162_VALVE VAULTS_rscord.rvt



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



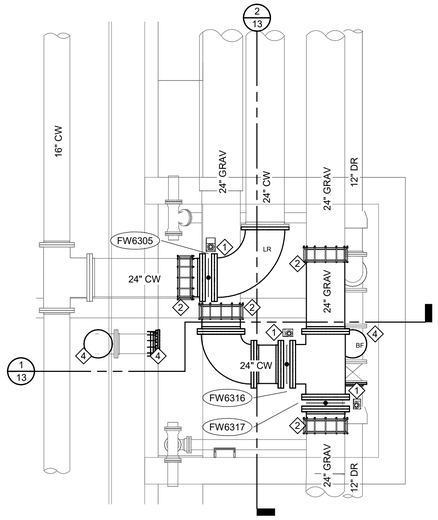
2 SECTION
SCALE: 1/4" = 1'-0"

NOTES

1. PAINT ALL NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.

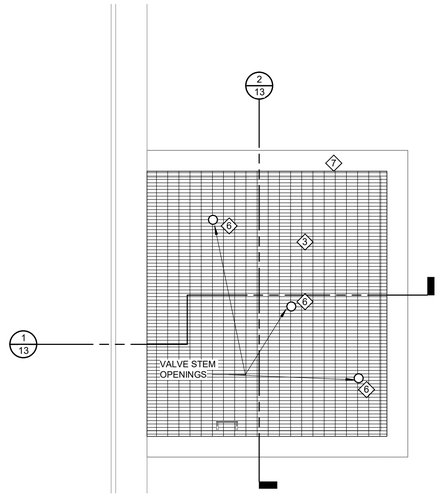
KEY NOTES

1 24" BUTTERFLY VALVE.
2 24" COUPLING.
3 FABRICATE NEW GALVANIZED STEEL GRATING TO SPAN TO EXISTING SUPPORT LAYOUT THAT WAS FIELD VERIFIED. COORDINATE LAYOUT OF OPENINGS IN NEW GRATING FOR PIPE AND OPERATOR PENETRATIONS. OPENINGS 6 INCH DIAMETER AND LESS NEED ONLY BE BANDED AND NEED NO SUPPLEMENTARY SUPPORT FRAMING. FABRICATE TRAP HATCH IN NEW GRATING TO MATCH EXISTING. INSTALL NEW GRATING. ANCHOR TO SUPPORTS WITH GALVANIZED SADDLE CLIPS IN A CONFIGURATION THAT PERMITS GRATING TO BE REMOVED IN THE FUTURE.
4 BLIND FLANGE 12" OVERFLOW THROUGH WALL, AND AT ABANDONED CONNECTION TO DRAIN.
5 FIELD VERIFY THAT THE ELEVATION OF EXISTING SUPPORTS WILL SUPPORT GRATING GENERALLY 1-1/2 INCH THICK (1-1/4 INCH THICK AT HINGED TRAP HATCH) THAT WILL BE FLUSH WITH SURROUNDING FLOOR. FIELD VERIFY LAYOUT AND CONDITION OF EXISTING GRATING SUPPORTS AND LEDGE ANGLE EMBEDDED IN CONCRETE PERIMETER. REPORT DEFICIENCEIES TO ENGINEER.
6 NEW GRATING WITH 6" OPENINGS OVER 24".
7 FIELD VERIFY AND MATCH THE EXISTING SIZE OF GRATING.



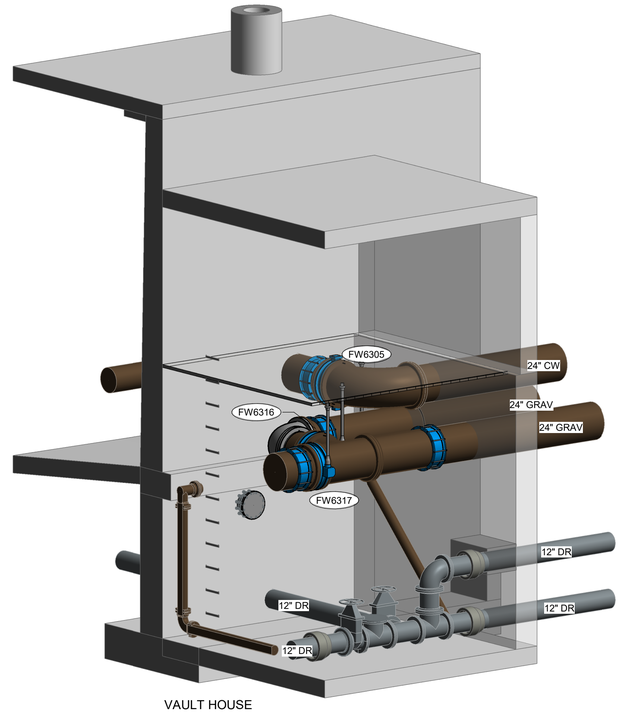
VAULT HOUSE LOWER LEVEL
EQUIPMENT AND PIPING PLAN
SCALE: 1/4" = 1'-0"

NORTH
0 2 4 8



VAULT HOUSE UPPER LEVEL
EQUIPMENT AND PIPING PLAN
SCALE: 1/4" = 1'-0"

NORTH
0 2 4 8



VAULT HOUSE
ISOMETRIC
SCALE:

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements
Valve and
WTP VAULT HOUSE PLANS, SECTIONS AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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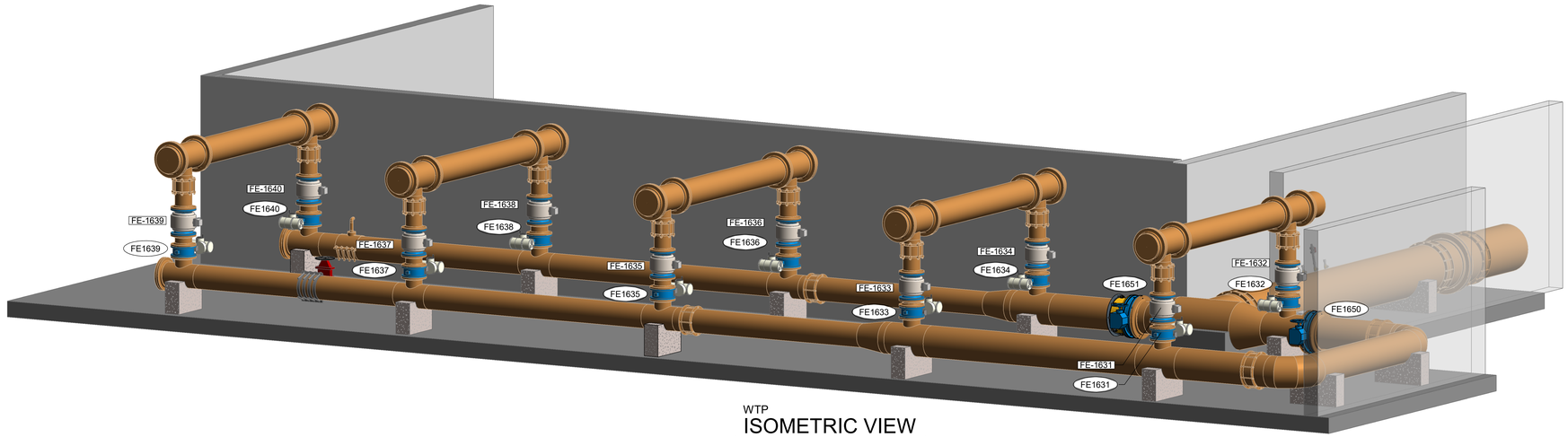
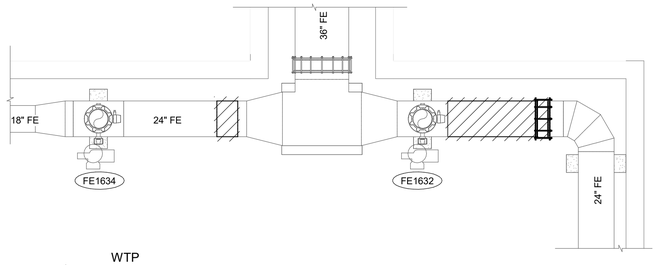
PROJECT NO.
211162

SHEET NO.
13

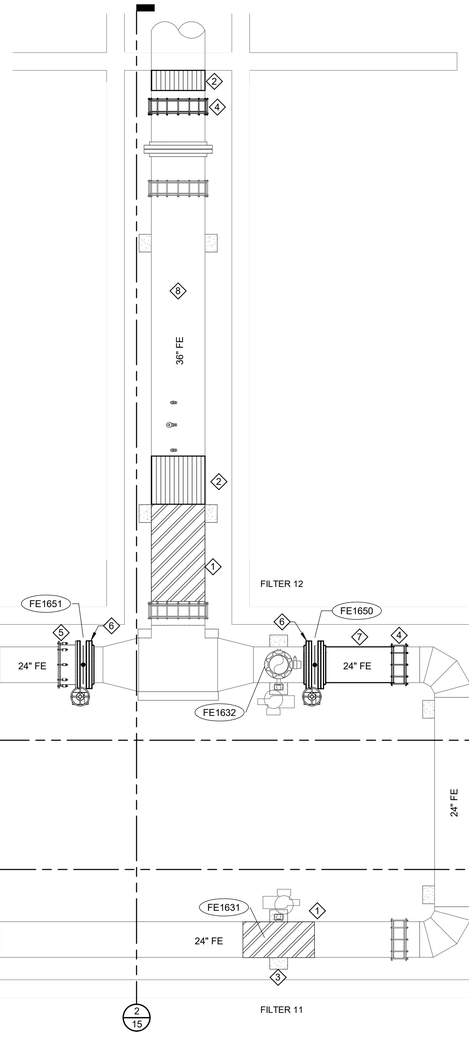
PLOT INFO: 5/25/2022 1:36:24 PM C:\Work\Revit\2022_PR_211162_VALVE VAULTS_rsecord.rvt

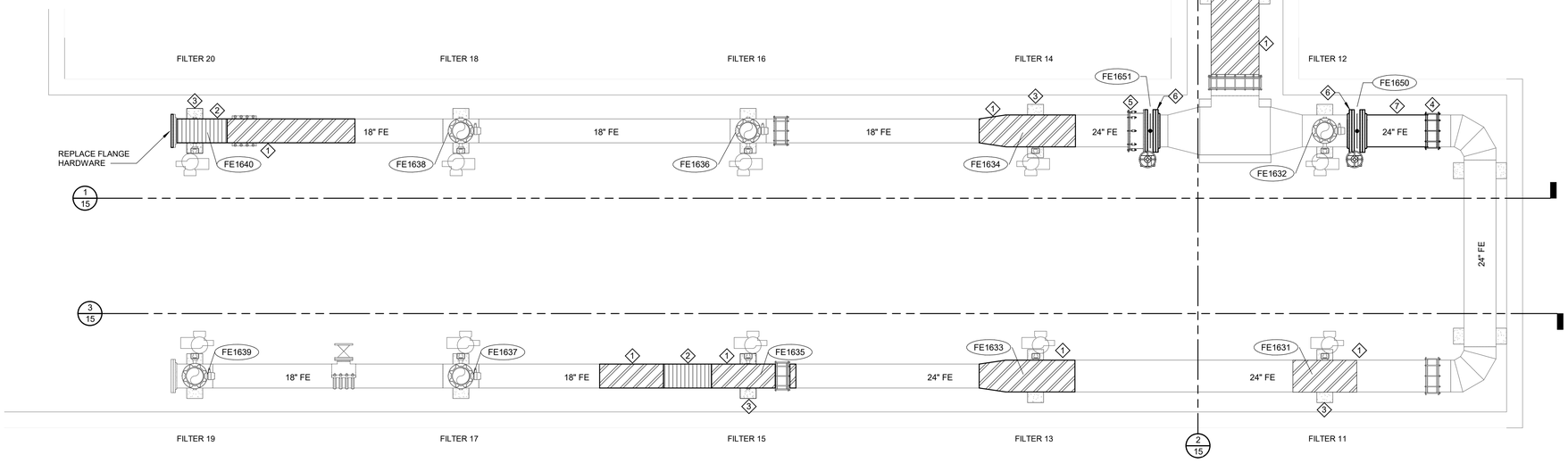


WTP
ISOMETRIC VIEW
SCALE: NOT TO SCALE



WTP
FILTER EFFLUENT PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"
0 2 4 8
NORTH





WTP
FILTER EFFLUENT PIPING PLAN
SCALE: 1/4" = 1'-0"
0 2 4 8
NORTH

NOTES

1. NOT ALL PIPING WITHIN THE GALLERY IS SHOWN FOR CLARITY.
2. PAINT THE 36" FILTER EFFLUENT PIPING AND FILTER EFFLUENT PIPING AT THE LOCATIONS OF SPOT REPAIRS AND PIPE WRAP REPAIRS IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.

KEY NOTES

1 LOCATION OF SPOT REPAIR.
2 LOCATION OF PIPE REPAIR WRAP.
3 REMOVE EXISTING CONCRETE PIPE SUPPORT. PERFORM PAINT MANUFACTURERS RECOMMENDED SURFACE PREPERATION AND RECOAT PIPING PER SECTION 09 91 00. PROVIDE CONCRETE PIPE SADDLE PER THE PROCESS DETAIL. PROVIDE TEMPORARY SUPPORT OF PIPING SYSTEM WHILE WORK IS OCCURRING.
4 NEW DRESSER COUPLING AND GASKETS.
5 NEW FLANGE COUPLING ADAPTER; SMITH BLAIR SERIES 913 OR APPROVED EQUAL.
6 WELD 150# FLANGE ONTO EXISTING 24" FE WATER PIPE. PAINT INTERIOR AND EXTERIOR OF PIPE AT WELD LOCATION PER SECTION 09 91 00.
7 NEW 24" FLANGE x PE SPOOL.
8 PAINT IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.

LEGEND

DEMOLITION
SPOT REPAIR
PIPE REPAIR WRAP

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements
Valve and
WTP FILTER EFFLUENT PIPING PLAN AND ISOMETRIC

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer BP
Reviewer TDM
Manager JS

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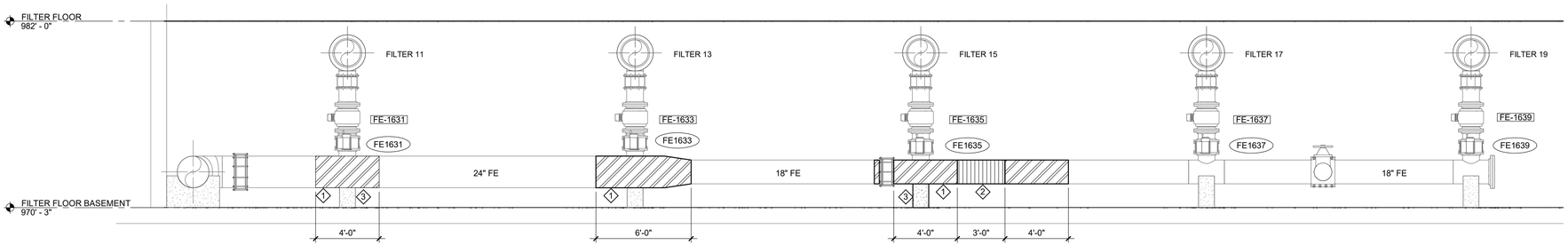
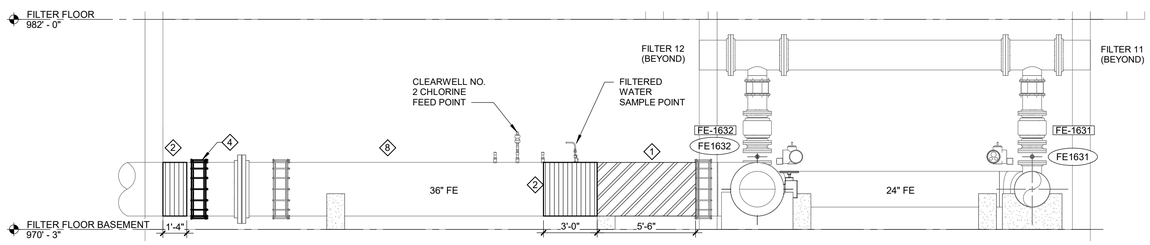
PROJECT NO.
211162

SHEET NO.
14

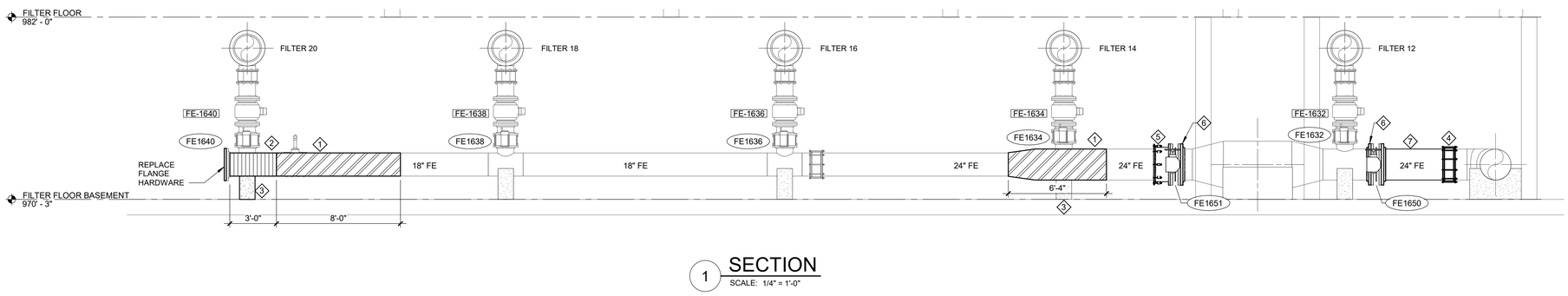
PLOT INFO: 5/31/2022 3:34:17 PM C:\Work\Revit\2022_PR_211162_FILTER EFFLUENT_rsecord.rvt



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



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



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

LEGEND

SPOT REPAIR

PIPE REPAIR WRAP

NOTES

1. NOT ALL PIPING WITHIN THE GALLERY IS SHOWN FOR CLARITY.
2. PAINT THE 36" FILTER EFFLUENT PIPING AND FILTER EFFLUENT PIPING AT THE LOCATIONS OF SPOT REPAIRS AND PIPE WRAP REPAIRS IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.

KEY NOTES

1. LOCATION OF SPOT REPAIR. REPAIRS TO BE PAID OUT OF SPOT REPAIR ALLOWANCE.
2. LOCATION OF PIPE REPAIR WRAP. SEE SPECIFICATION SECTION 40 48 00 FOR ADDITIONAL INFORMATION.
3. REMOVE EXISTING CONCRETE PIPE SUPPORT. PERFORM PAINT MANUFACTURERS RECOMMENDED SURFACE PREPERATION AND RECOAT PIPING PER SECTION 09 91 00. PROVIDE CONCRETE PIPE SADDLE PER THE PROCESS DETAIL. PROVIDE TEMPORARY SUPPORT OF PIPING SYSTEM WHILE WORK IS OCCURRING.
4. NEW DRESSER COUPLING AND GASKETS.
5. NEW FLANGE COUPLING ADAPTER.
6. WELD 150# FLANGE ONTO EXISTING 24" FE WATER PIPE. PAINT INTERIOR AND EXTERIOR OF PIPE AT WELD LOCTION PER SECTION 09 91 00.
7. NEW 24" FLANGE x PE SPOOL.
8. PAINT IN ACCORDANCE WITH SPECIFICATION SECTION 09 91 00.

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Ann Arbor Water Treatment Plant

Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements
Valve and
WTP FILTER EFFLUENT PIPING SECTIONS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer BP
Reviewer TDM
Manager JS

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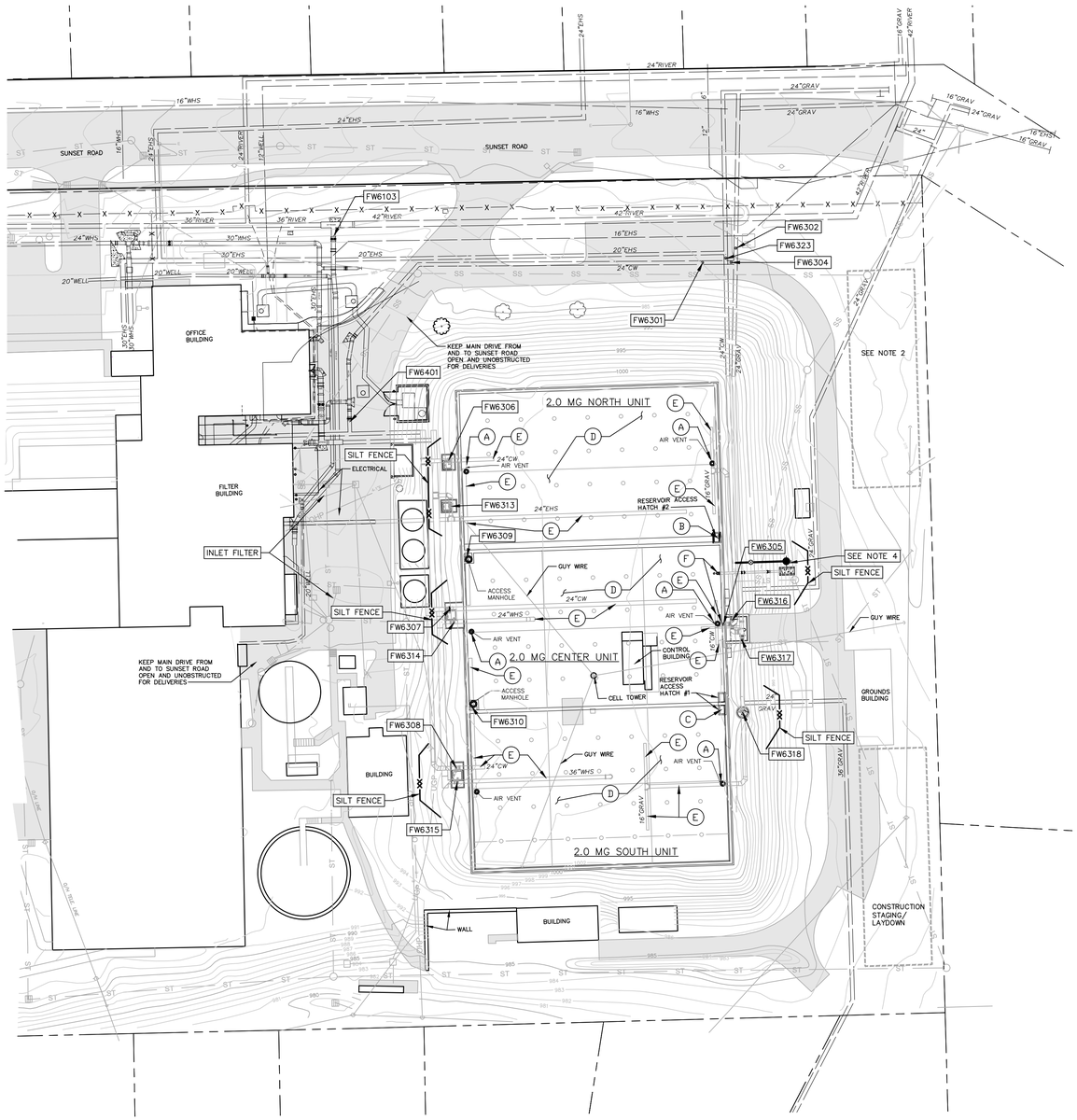
PROJECT NO.
211162

SHEET NO.
15

PLOT INFO: 5/31/2022 3:34:19 PM C:\Work\Revit\2022_PR_211162_FILTER EFFLUENT_record.rvt



WTP RESERVOIR SITE PLAN

SCALE: 1" = 40'

NORTH

0 20 40 80

NOTES:

1. COORDINATE OPERATIONS WITH THE EXISTING DAILY OPERATIONS OF THE WTP, AS WELL AS ANY CONCURRENT CONSTRUCTION PROJECTS AT THE WTP.
2. POTENTIAL CONSTRUCTION STAGING AND / OR LAY DOWN AREA. COORDINATE AREA NEEDED WITH OWNER.
3. INTERIOR ROOF SPALLING IS RANDOMLY LOCATED IN ALL THREE RESERVOIR UNITS. PER LATEST INSPECTION REPORT:

   NORTH UNIT: APPROXIMATELY 200+ SPALLS, 1/2 – 3" DIA. AND 1/4–1/2" DEEP.

   MIDDLE UNIT: APPROXIMATELY 100+ SPALLS, 1/2"–2" DIA. AND 1/4–1/2" DEEP.

   SOUTH UNIT: APPROXIMATELY 100+ SPALLS, 1/4–1/2" DIA. AND 1/4–1/2" DEEP.

   REINFORCEMENT IS VISIBLE AT SEVERAL SPALLS. ABRASIVE BLAST ALL EXPOSED REBAR AND COAT WITH EPOXY PRIOR TO PATCHING SPALLS.
4. NSTALL YARD HYDRANT ON 24" CW PIPING. RECORD DRAWING INDICATES PIPING MAY BE STEEL. CONTRACTOR TO EXCAVATE AND CONFIRM PIPING MATERIAL PRIOR TO ORDERING TAPPING SLEEVE. HYDRANT TO BE INSTALLED PRIOR TO VALVE REPLACEMENT TO FACILITATE FLUSHING DURING DISINFECTION AND REFILLING ACTIVITIES.

(A) REPLACE EXISTING AIR VENT SCREEN WITH #24 MESH SCREEN (6 EA)

(B) MODIFY EXISTING RESERVOIR ACCESS HATCH #1 (SEE DETAIL ON SHEET 25)

(C) MODIFY EXISTING RESERVOIR ACCESS HATCH #2 (SEE DETAIL ON SHEET 25)

(D) COAT REBAR AND PATCH CONCRETE SPALLS INSIDE WET INTERIOR (SEE NOTE 3)

(D)

(E) RE–COAT WET INTERIOR PIPING AND APPURTENANCES TYPICAL ALL UNITS, FILL, DRAW, INTERCONNECT AND OVERFLOW PIPING.

(F) MODIFY EXISTING OVERFLOW PIPING PER SHEET 17

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City of Ann Arbor
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
WTP RESERVOIR SITE PLAN

REVISIONS

5/25/2022	BIDS AND CONSTRUCTION

Drawn By	IB
Designer	JS
Reviewer	TDM
Manager	JS

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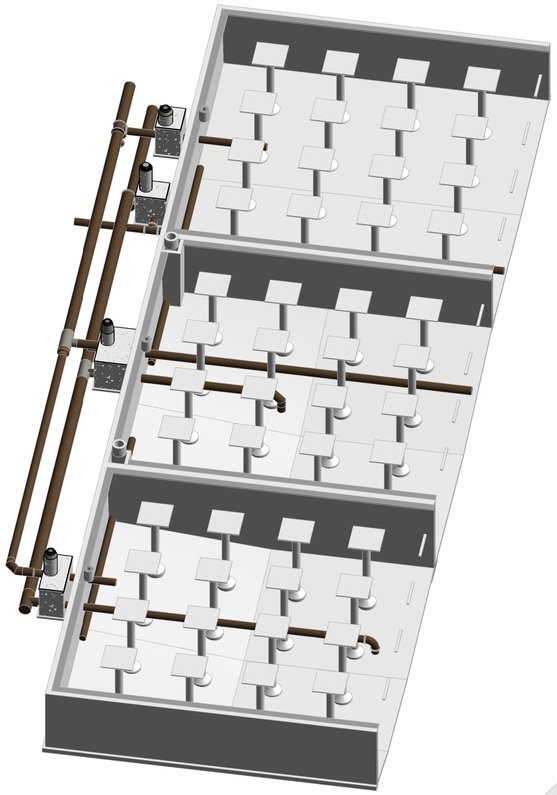
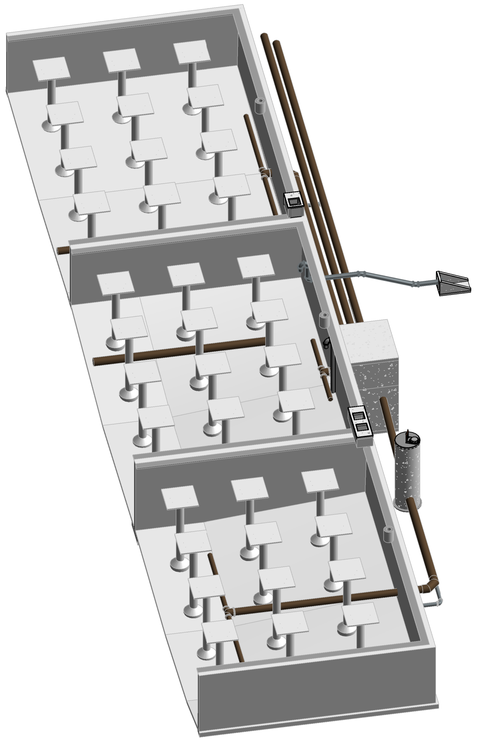
PROJECT NO.
211162

SHEET NO.
16

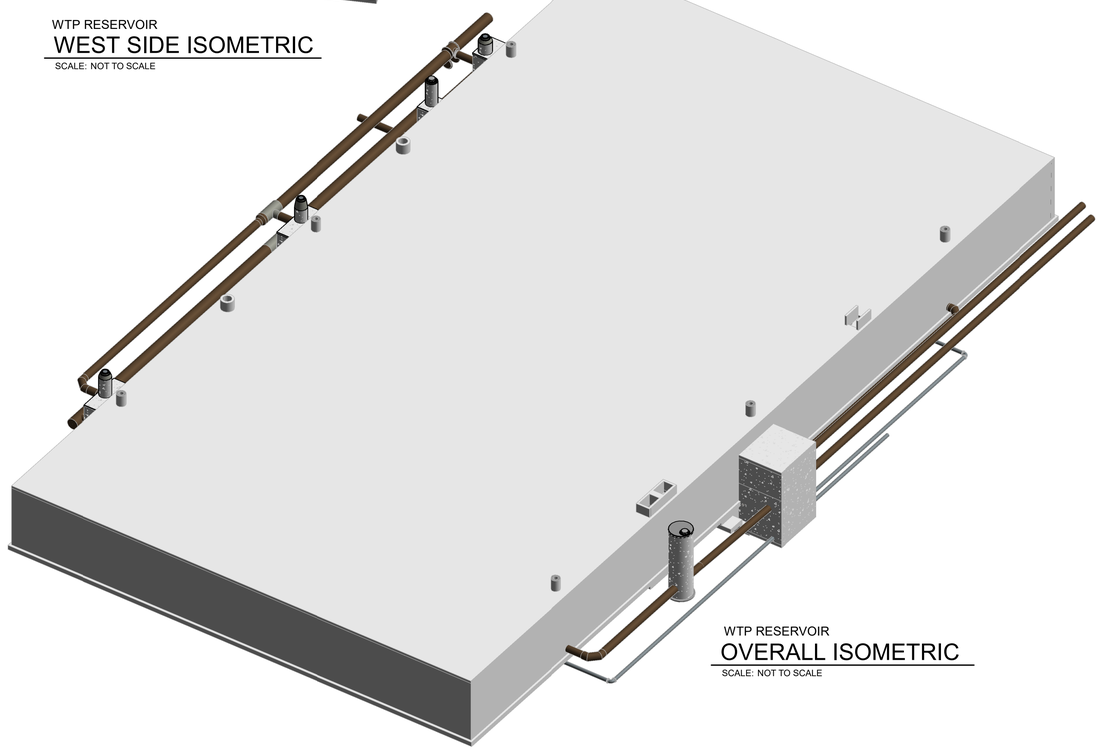
PLOT INFO: Z:\2021\211162\CAD\GDI\16_18_20_22_23_211162-SP.DWG LAYOUT: 16 AA WTP 6.0 MG RESERVOIR DATE: 6/1/2022 TIME: 2:42:46 PM USER: IBLAZEVSKI



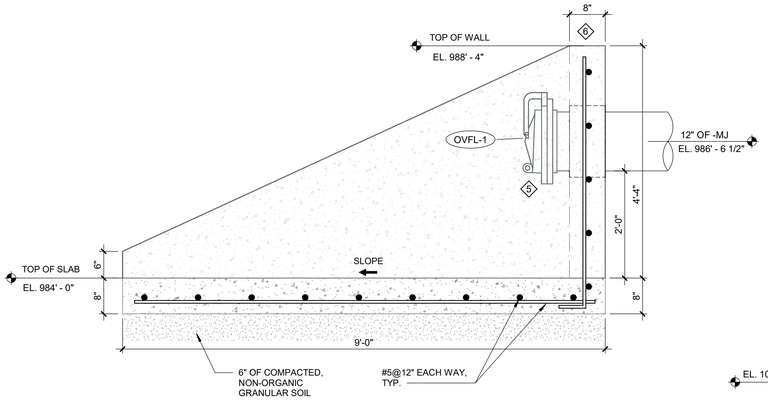
WTP RESERVOIR
WEST SIDE ISOMETRIC
SCALE: NOT TO SCALE



WTP RESERVOIR
EAST SIDE ISOMETRIC
SCALE: NOT TO SCALE



WTP RESERVOIR
OVERALL ISOMETRIC
SCALE: NOT TO SCALE



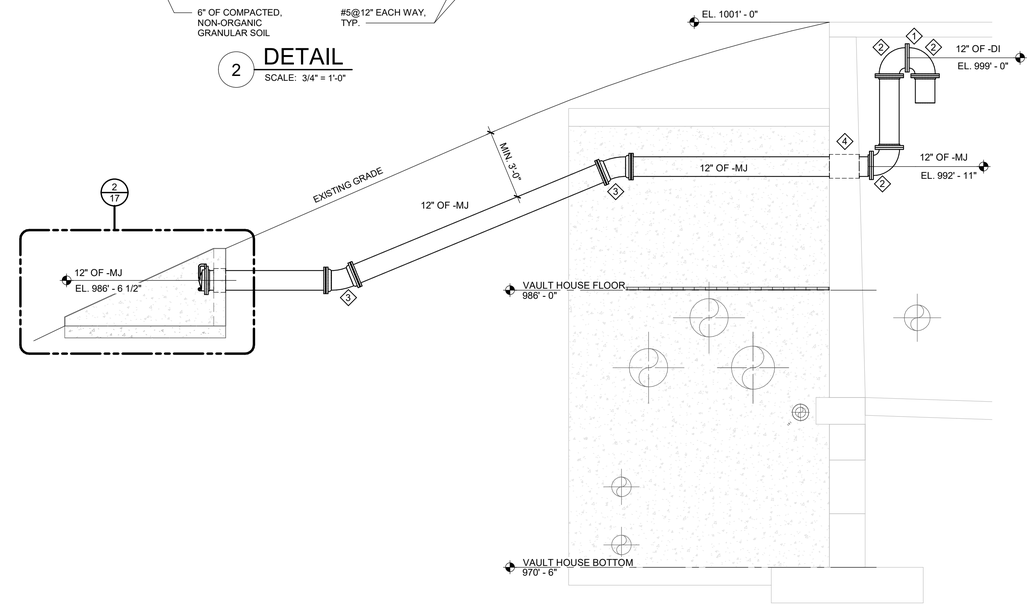
2 DETAIL
SCALE: 3/4" = 1'-0"

NOTES

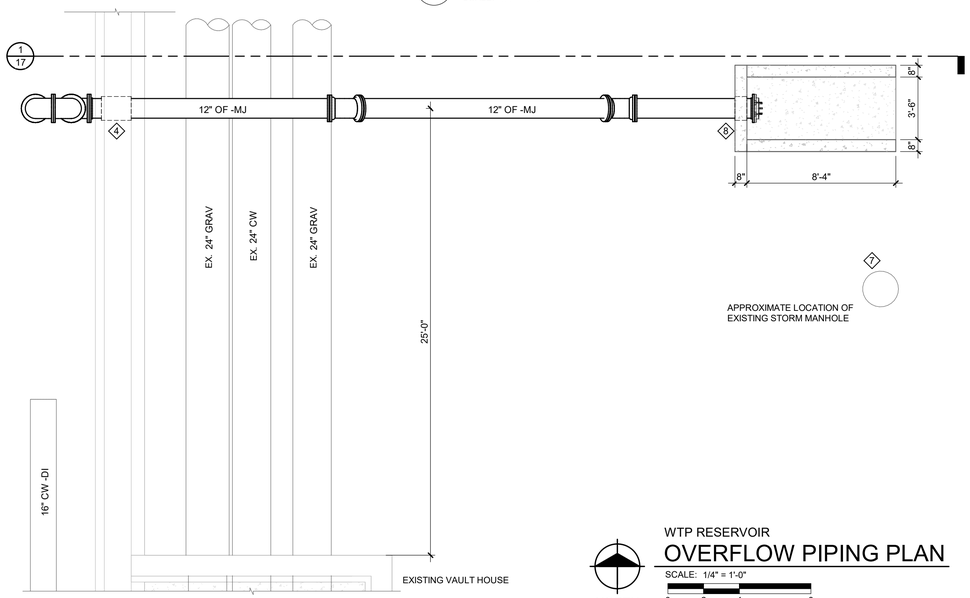
1. SEE STRUCTURAL FOR CONCRETE NOTES AND DETAILS.
2. FIELD VERIFY THE ELEVATION OF THE CONCRETE HEADWALL AND LOCATION WHERE PIPE WILL EXIT THE EMBANKMENT AND THE TOP OF THE HEADWALL SPLASH PAD MATCHES THE TOE OF THE SLOPE. ONCE CONFIRMED WITH THE ENGINEER, CONTRACTOR TO ADJUST THE FORMWORK FOR THE SIDEWALLS AS NEEDED TO MATCH THE EXISTING GRADE.
3. BACKFILL BEHIND HEADWALL AS NEEDED TO MATCH EXISTING SLOPE AND DIRECT DRAINAGE AROUND THE HEADWALL.

KEY NOTES

1 12" OVERFLOW PIPING. FIELD VERIFY ELEVATIONS OF EXISTING OVERFLOW PIPING AND MATCH ELEVATION.
2 90 DEG DI FLANGED ELBOW.
3 22.5° RESTRAINED DI MJ ELBOW.
4 CORE RESERVOIR WALL, SEE WALL PENETRATION DETAIL.
5 12" FLAP GATE WITH #24 MESH SCREEN.
6 CONCRETE HEADWALL.
7 REPLACE EXISTING STORM MANHOLE CASTING AND COVER WITH CITY OF ANN ARBOR STANDARD YARD DRAIN CASTING, GRADE ADJACENT SOIL TO PROMOTE DRAINAGE FROM OVERFLOW TO MANHOLE.
8 WALL SLEEVE, SEE DETAIL.



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



NORTH

WTP RESERVOIR
OVERFLOW PIPING PLAN
SCALE: 1/4" = 1'-0"
0 2 4 8

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Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
WTP RESERVOIR OVERFLOW AND ISOMETRICS

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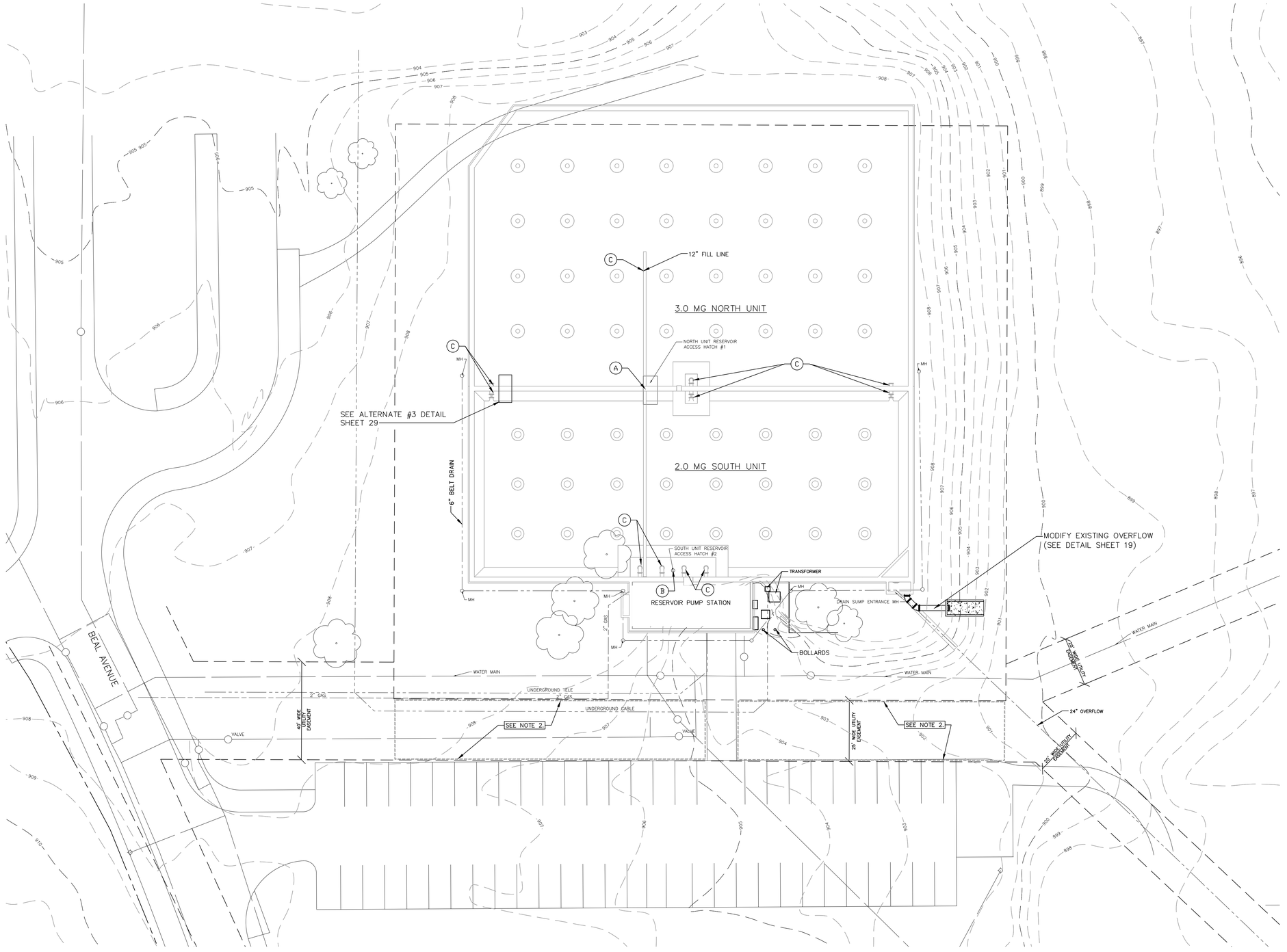
PROJECT NO.
211162

SHEET NO.
17

PLOT INFO: 5/25/2022 10:49:03 AM C:\Work\Revit\2022_PR_211162_TANK_rsecord.rvt



NORTH

NORTH CAMPUS RESERVOIR SITE PLAN

SCALE: 1" = 20'

0 10 20 40

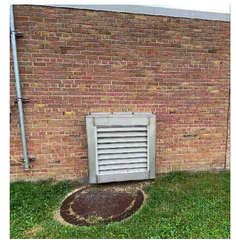
NOTES:

1. SITE IS LOCATED WITHIN EASEMENTS ON UNIVERSITY OF MICHIGAN PROPERTY. COORDINATE USE OF GROUNDS OUTSIDE OF EASEMENTS AS SHOWN DIRECTLY WITH THE UNIVERSITY OF MICHIGAN.

2. POTENTIAL CONSTRUCTION STAGING AND/OR LAYDOWN AREA. COORDINATE LOCATIONS WITH CITY STAFF AND UNIVERSITY OF MICHIGAN.

(A) MODIFY EXISTING RESERVOIR ACCESS HATCH #1 (SEE DETAIL ON SHEET 26)

(B) MODIFY EXISTING RESERVOIR ACCESS HATCH #2 (SEE DETAIL ON SHEET 27)



(C) RE-COAT EXISTING WET INTERIOR PIPING AND APPURTENANCES

(C)

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Valve and

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NORTH CAMPUS RESERVOIR SITE PLAN

REVISIONS

5/25/2022	BIDS AND CONSTRUCTION

Drawn By	IB
Designer	JS
Reviewer	TDM
Manager	JS

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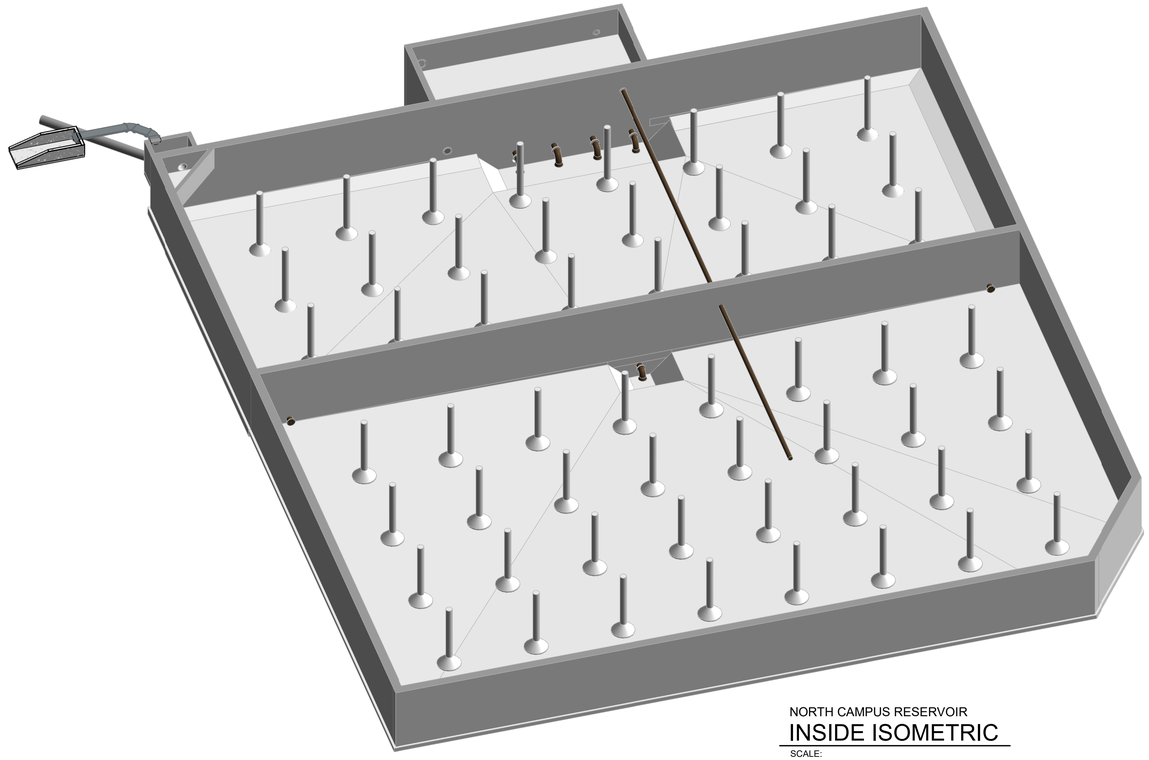
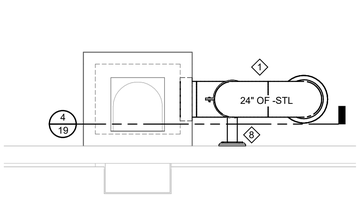
PROJECT NO.
211162

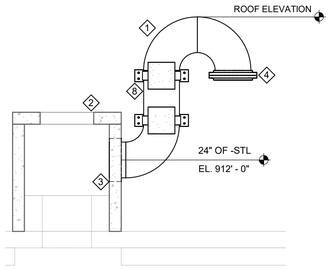
SHEET NO.
18

PLOT INFO: Z:\2021\211162\CAD\CD\16_18_20_22_23_211162-SP.DWG LAYOUT: 18 NORTH CAMPUS 5.0 MG RESERVOIR DATE: 5/31/2022 TIME: 5:29:28 PM USER: IBLAZEVSKI



NORTH CAMPUS RESERVOIR
INSIDE ISOMETRIC
SCALE:





NORTH CAMPUS RESERVOIR
VENT PIPING PLAN
SCALE: 1/4" = 1'-0"

NORTH

0 2 4 8

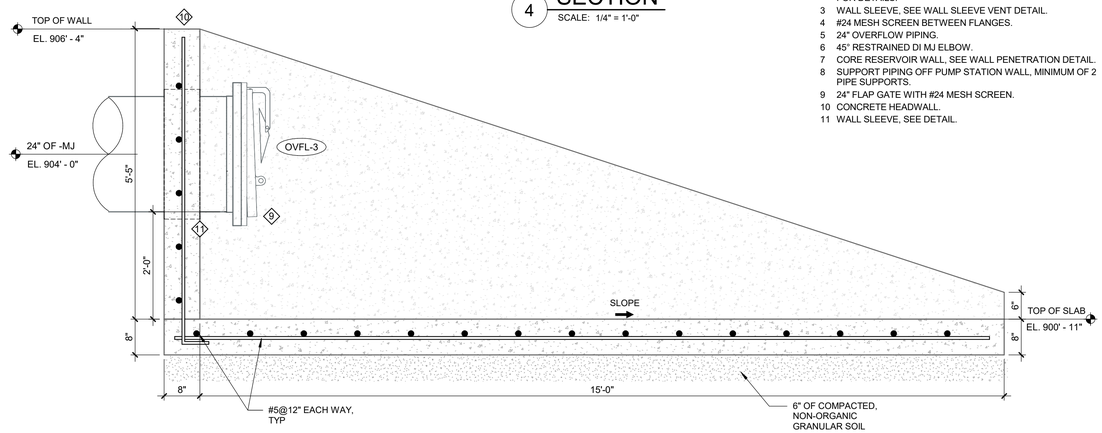
4 SECTION
SCALE: 1/4" = 1'-0"

NOTES

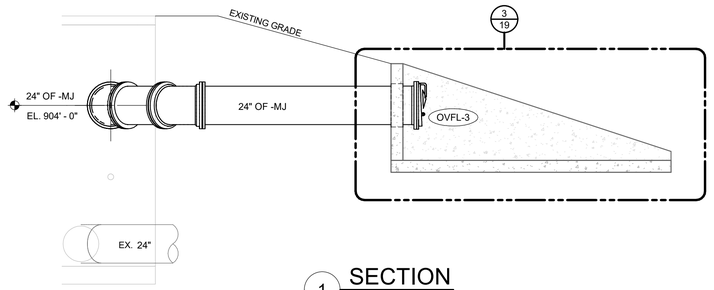
1. SEE STRUCTURAL FOR CONCRETE NOTES AND DETAILS.
2. FIELD VERIFY THE ELEVATION OF THE CONCRETE HEADWALL AND LOCATION WHERE PIPE WILL EXIT THE EMBANKMENT AND THE TOP OF THE HEADWALL SPLASH PAD MATCHES THE TOE OF THE SLOPE. ONCE CONFIRMED WITH THE ENGINEER, CONTRACTOR TO ADJUST THE FORMWORK FOR THE SIDEWALLS AS NEEDED TO MATCH THE EXISTING GRADE.
3. BACKFILL BEHIND HEADWALL AS NEEDED TO MATCH EXISTING SLOPE AND DIRECT DRAINAGE AROUND THE HEADWALL.

KEY NOTES

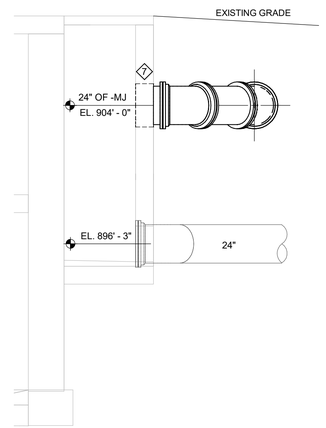
1 24" VENT PIPING.
2 CONCRETE CURB AND ACCESS HATCH. SEE STRUCTURAL FOR DETAILS.
3 WALL SLEEVE, SEE WALL SLEEVE VENT DETAIL.
4 #24 MESH SCREEN BETWEEN FLANGES.
5 24" OVERFLOW PIPING.
6 45° RESTRAINED DI MJ ELBOW.
7 CORE RESERVOIR WALL, SEE WALL PENETRATION DETAIL.
8 SUPPORT PIPING OFF PUMP STATION WALL, MINIMUM OF 2 PIPE SUPPORTS.
9 24" FLAP GATE WITH #24 MESH SCREEN.
10 CONCRETE HEADWALL.
11 WALL SLEEVE, SEE DETAIL.



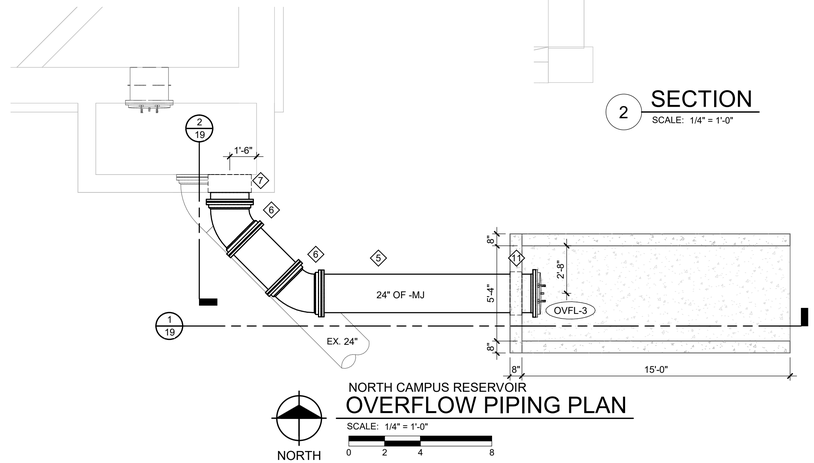
3 DETAIL
SCALE: 3/4" = 1'-0"



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



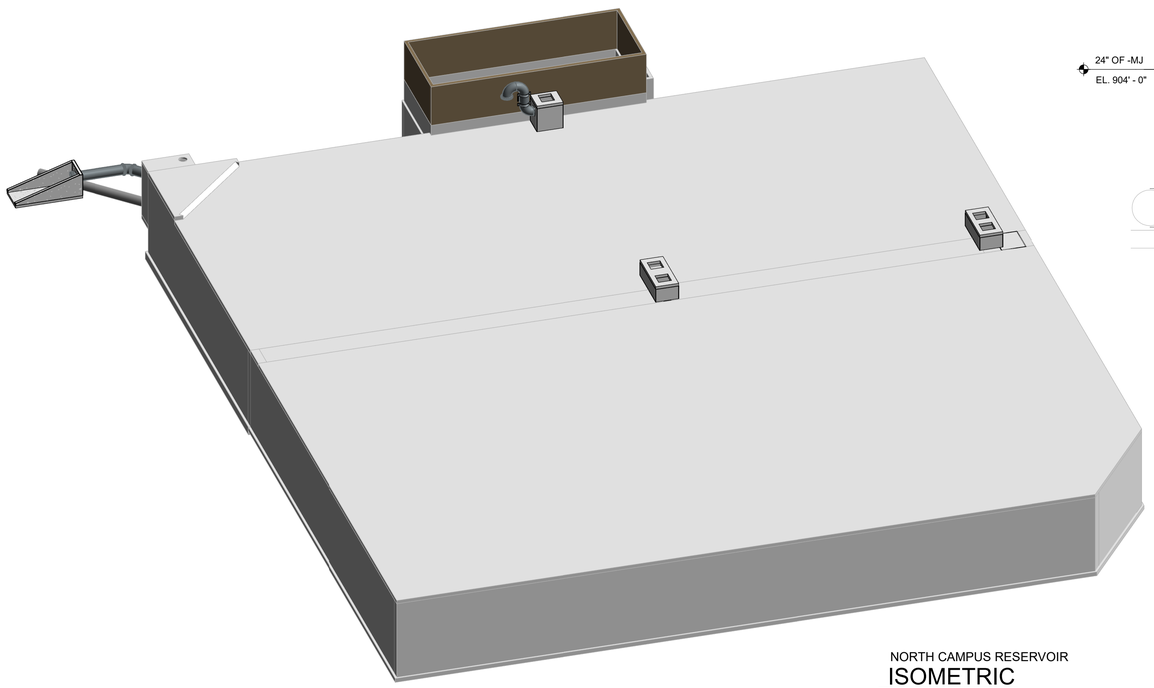
2 SECTION
SCALE: 1/4" = 1'-0"



NORTH CAMPUS RESERVOIR
OVERFLOW PIPING PLAN
SCALE: 1/4" = 1'-0"

NORTH

0 2 4 8



NORTH CAMPUS RESERVOIR
ISOMETRIC
SCALE: NOT TO SCALE

PLOT INFO: 5/25/2022 1:25:50 PM C:\Work\Revit\2022_PR_211162_TANK_rsecond.rvt

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NORTH CAMPUS RESERVOIR OVERFLOW AND ISOMETRICS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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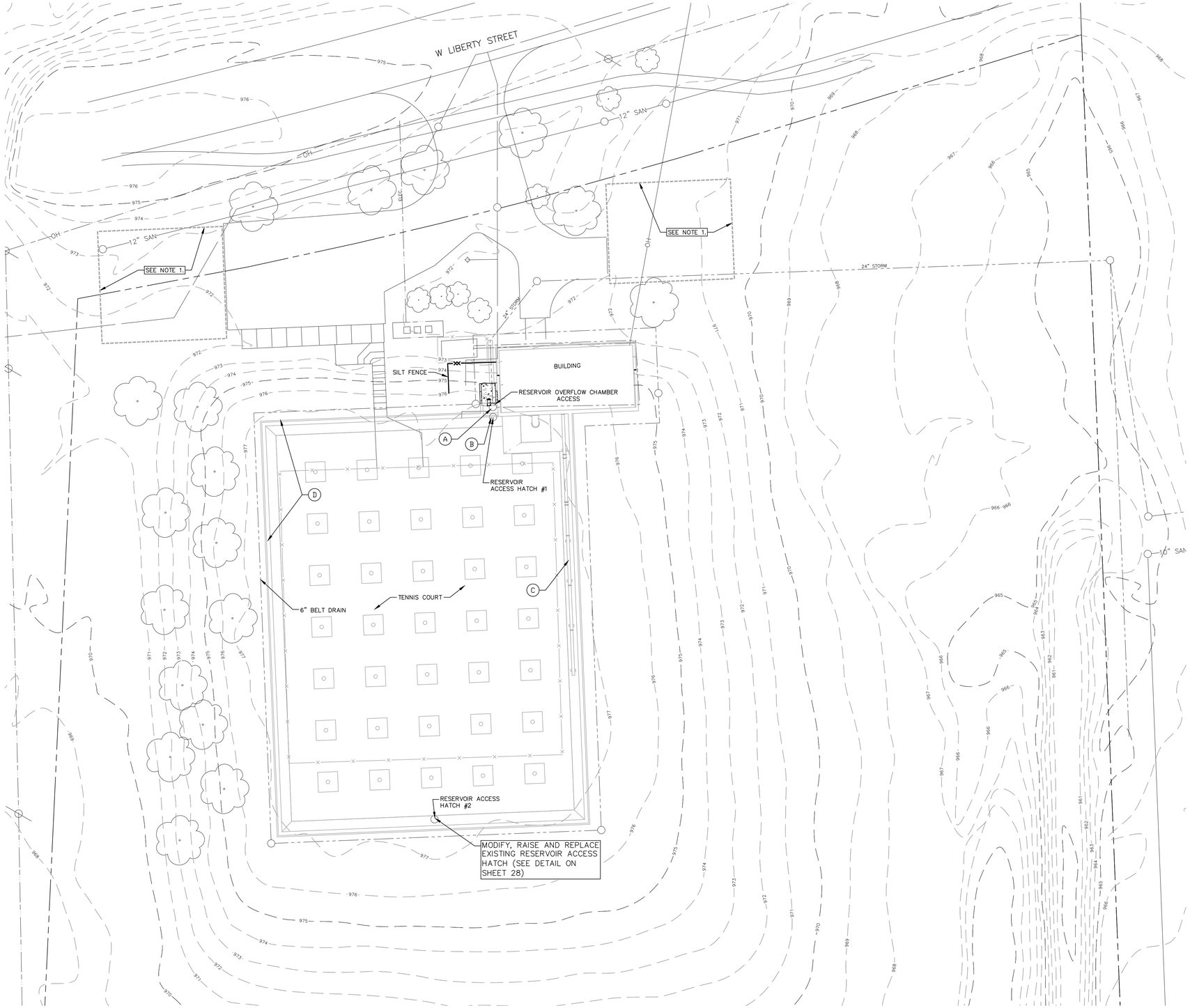
PROJECT NO.
211162

SHEET NO.
19



NORTH

LIBERTY RESERVOIR SITE PLAN

SCALE: 1" = 20'

0 10 20 40

NOTES:

1. POTENTIAL CONSTRUCTION STAGING AND / OR LAYDOWN AREA. COORDINATE LOCATIONS WITH CITY STAFF.

(A) MODIFY EXISTING 20 INCH DIP OVERFLOW DISCHARGE PIPE (SEE DETAIL SHEET 21)

(B) MODIFY EXISTING RESERVOIR ACCESS HATCH #1 (SEE DETAIL SHEET 25)

(C) RE-COAT EXISTING WET INTERIOR PIPING AND APPURTENANCES

(D) REPAIR CONCRETE SPALLING (2 LOCATIONS)

(D)

(E) MODIFY EXISTING RESERVOIR ACCESS HATCH #2 (SEE DETAIL SHEET 25)

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LIBERTY RESERVOIR SITE PLAN

REVISIONS

5/25/2022	BIDS AND CONSTRUCTION

Drawn By	IB
Designer	JS
Reviewer	TDM
Manager	JS

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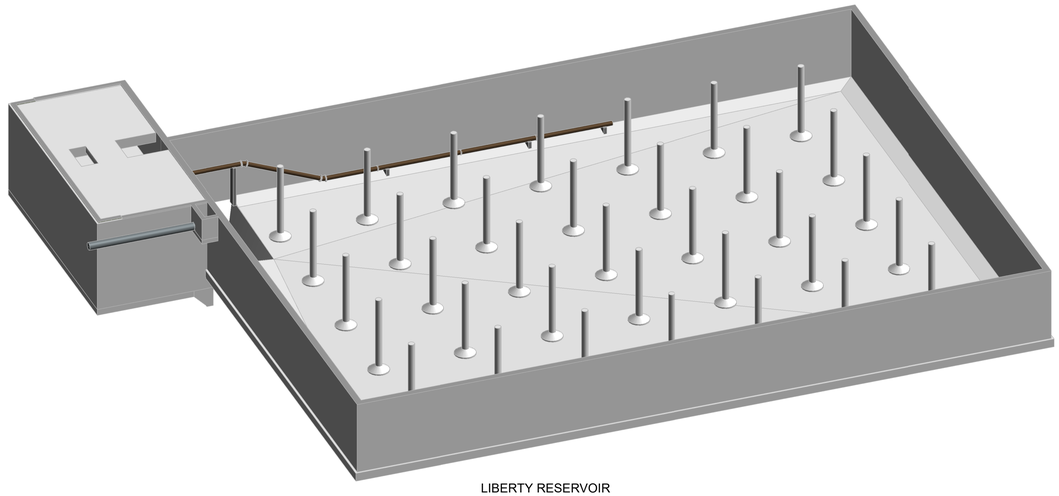
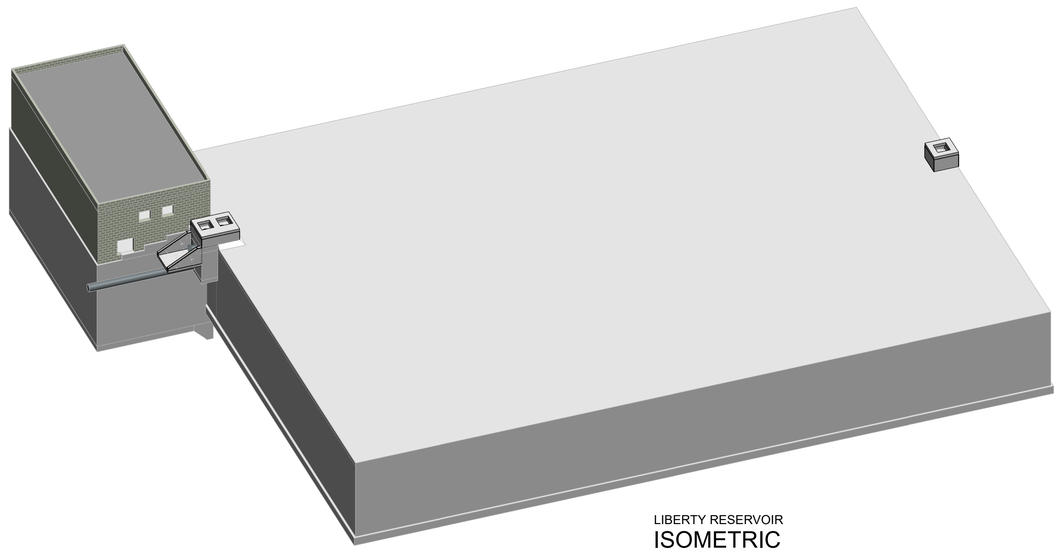
PROJECT NO.
211162

SHEET NO.
20

PLOT INFO: Z:\2021\211162\CAD\CD\16_18_20_22_23_211162-SP.DWG LAYOUT 20 LIBERTY 3.0 MG RESERVOIR DATE: 5/31/2022 TIME: 5:29:39 PM USER: IBLAZEVSKI



LIBERTY RESERVOIR
INSIDE ISOMETRIC
SCALE:



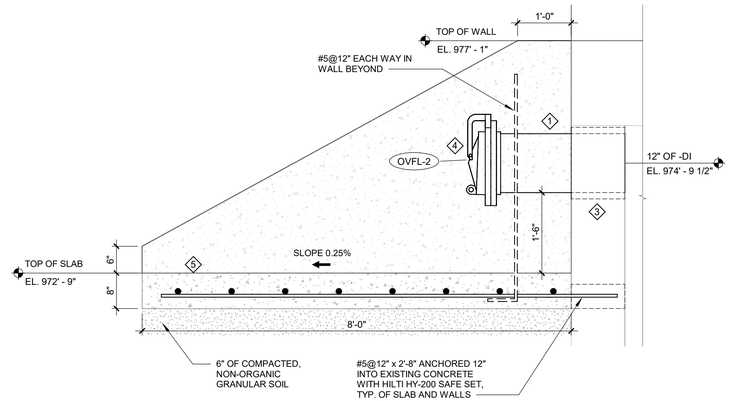
LIBERTY RESERVOIR
ISOMETRIC
SCALE: NOT TO SCALE

NOTES

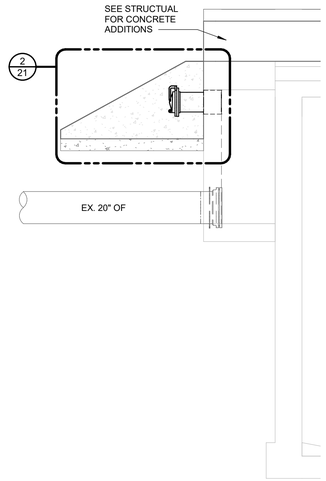
1. SEE STRUCTURAL FOR CONCRETE NOTES AND DETAILS.
2. FIELD VERIFY THE ELEVATION OF THE CONCRETE HEADWALL AND LOCATION WHERE PIPE WILL EXIT THE EMBANKMENT AND THE TOP OF THE HEADWALL SPLASH PAD MATCHES THE TOE OF THE SLOPE. ONCE CONFIRMED WITH THE ENGINEER, CONTRACTOR TO ADJUST THE FORMWORK FOR THE SIDEWALLS AS NEEDED TO MATCH THE EXISTING GRADE.
3. BACKFILL BEHIND HEADWALL AS NEEDED TO MATCH EXISTING SLOPE AND DIRECT DRAINAGE AROUND THE HEADWALL.

KEY NOTES

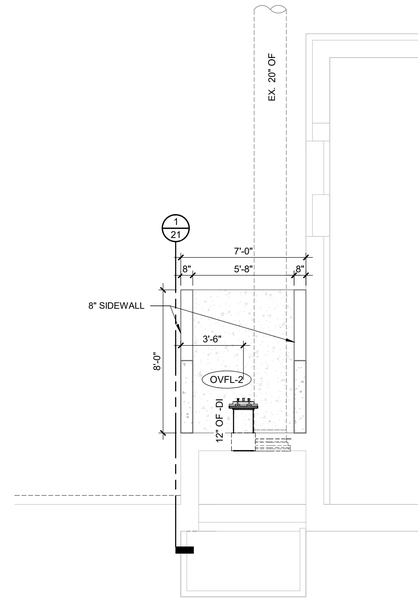
1 12" OVERFLOW PIPING. FIELD VERIFY ELEVATIONS OF EXISTING OVERFLOW VENT AND MATCH ELEVATIONS.
3 CORE RESERVOIR WALL, SEE WALL PENETRATION DETAIL.
4 12" FLAP GATE WITH #24 MESH SCREEN.
5 CONCRETE HEADWALL.



2 DETAIL
SCALE: 3/4" = 1'-0"



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



NORTH

LIBERTY RESERVOIR
OVERFLOW PIPING PLAN
SCALE: 1/4" = 1'-0"

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LIBERTY RESERVOIR OVERFLOW AND ISOMETRICS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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PROJECT NO.
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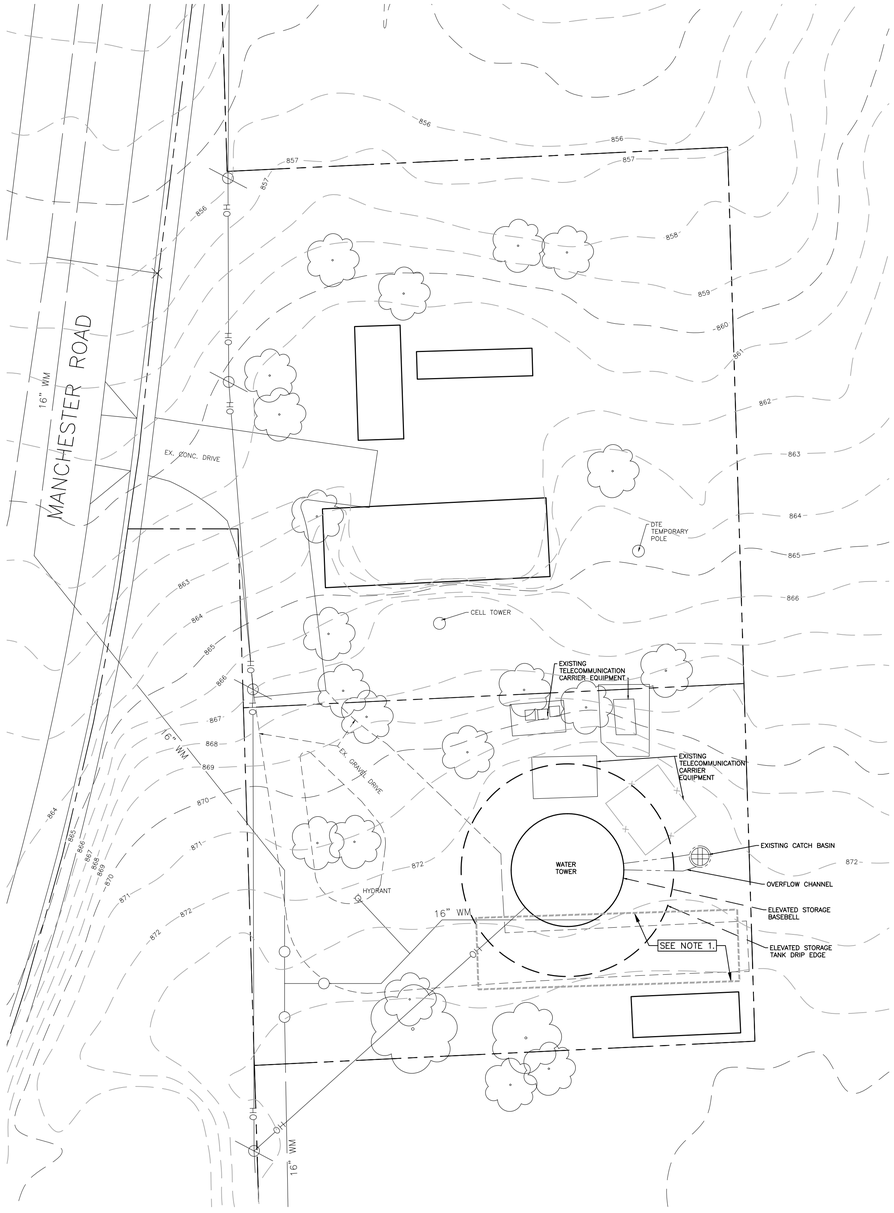
SHEET NO.
21

PLOT INFO: 5/25/2022 10:49:06 AM C:\Work\Revit\2022_PR_211162_TANK_rsecond.rvt

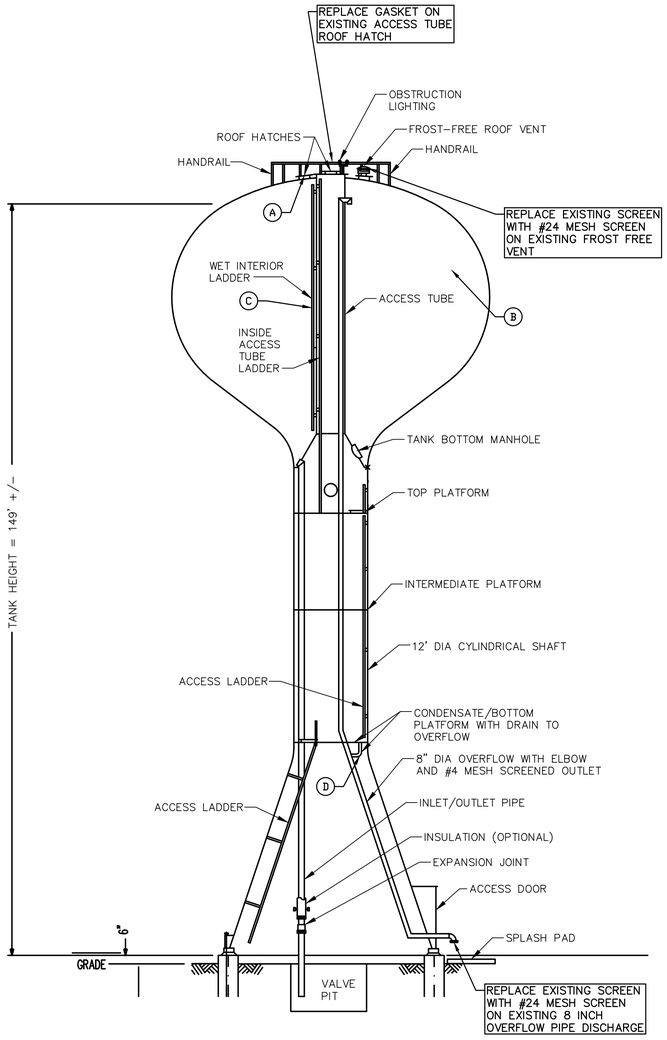


NORTH

MANCHESTER TANK SITE PLAN

SCALE: 1" = 20'

0 10 20 40



NOTES:

1. POTENTIAL CONSTRUCTION STAGING AND / OR LAYDOWN AREA. COORDINATE LOCATIONS WITH CITY STAFF.

(A) REPLACE WET INTERIOR ROOF HATCH (ALTERNATE #4)

WET INTERIOR ROOF HATCH

(B) INSTALL CATHODIC PROTECTION IN WET INTERIOR (ALTERNATE #5)

(C) INSTALL FALL PROTECTION DEVICE ON WET INTERIOR LADDER (ALTERNATE #6)

(D) INSTALL 2-1/2 INCH CHECK VALVE ON CONDENSATE DRAIN

OVERFLOW PIPE AND CONDENSATE DRAIN

PLOT INFO: Z:\2021\211162\CAD\CD\16_18_20_22_23_211162-SP.DWG LAYOUT: 22 MANCHESTER 0.5 MG TANK DATE: 5/31/2022 TIME: 5:29:42 PM USER: IBLAZEVSKI

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MANCHESTER TANK SITE PLAN

REVISIONS

5/25/2022	BIDS AND CONSTRUCTION

Drawn By	IB
Designer	JS
Reviewer	TDM
Manager	JS

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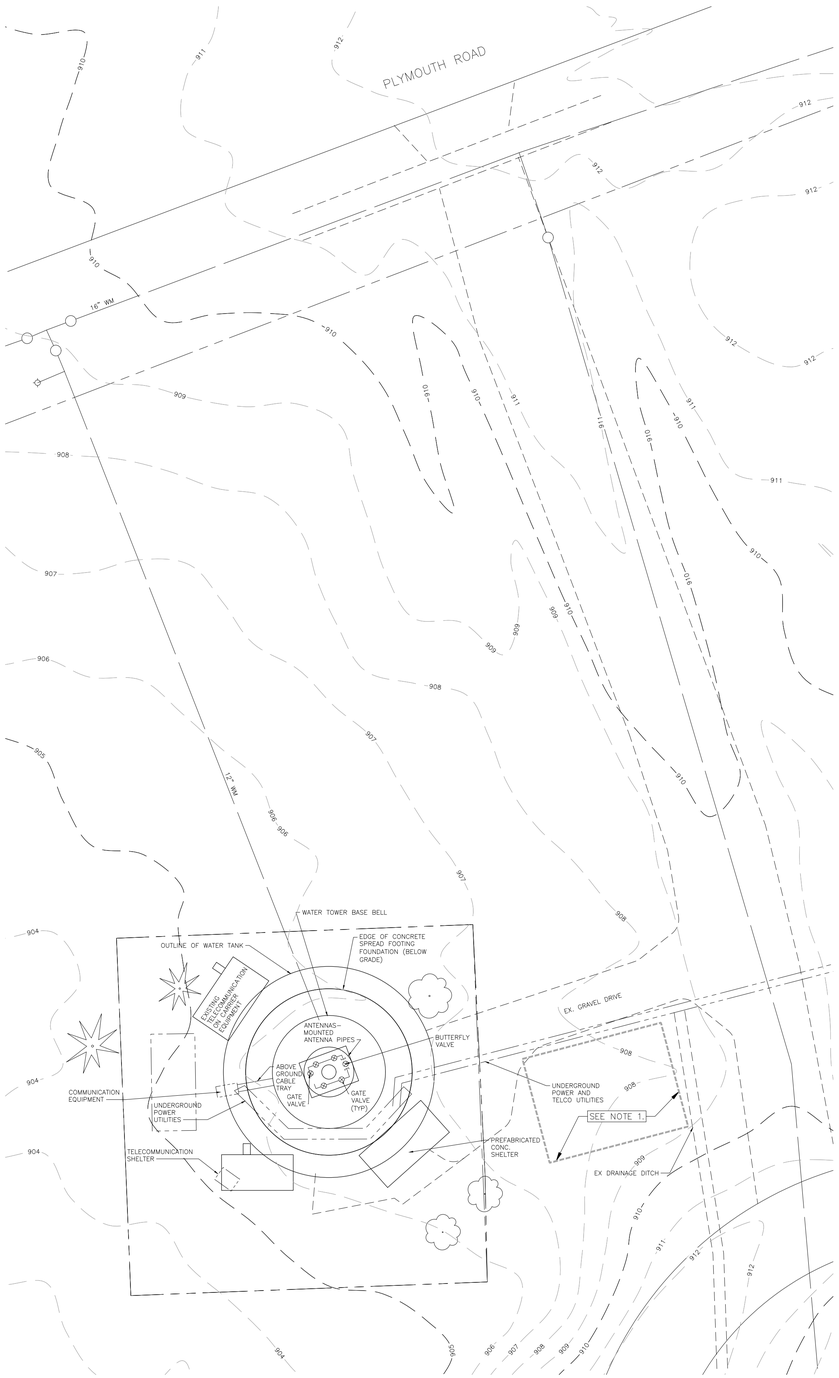
PROJECT NO.
211162

SHEET NO.
22

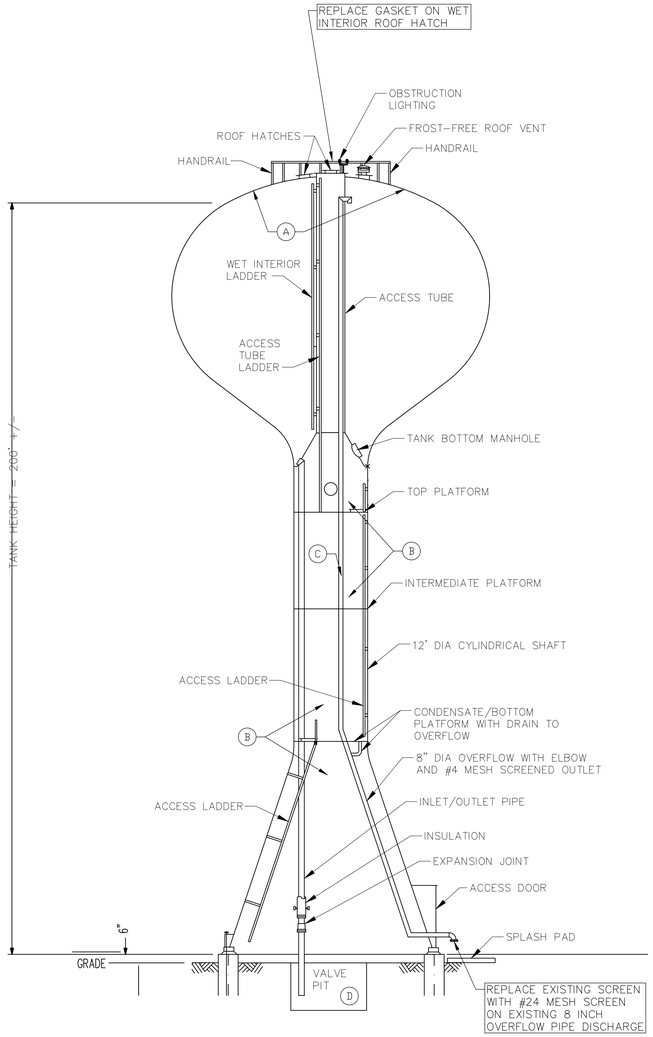


NORTH

NORTH CAMPUS TANK SITE PLAN

SCALE: 1" = 20'

0 10 20 40



NOTES:

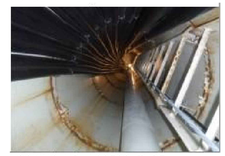
1. POTENTIAL CONSTRUCTION STAGING AND/ OR LAYDOWN AREA. COORDINATE LOCATIONS WITH CITY STAFF.

(A) SPOT COAT WET INTERIOR ROOF (ALTERNATE #7)

WET INTERIOR ROOF LAP SEAM WITH CORROSION

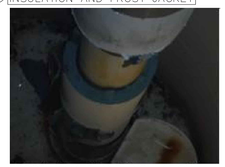
(B) DRY INTERIOR MAINTENANCE PAINTING

HEAVY COATING FAILURE ON CONDENSATE PLATFORM



LOOKING UP ACCESS TUBE

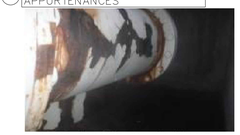
(C) REPLACE MISSING FILL PIPE INSULATION AND FROST JACKET



FROST JACKET AND INSULATION REMOVED FROM FILL PIPE AT CONDENSATE PLATFORM

FILL PIPE WITH FROST JACKET REMOVED AND INSULATION CUT AWAY AT SECOND PLATFORM

(D) RECOAT VALVE PIT PIPING AND APPURTENANCES



COATING FAILURE ON PIT PIPING

PIT PIPING

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NORTH CAMPUS TANK SITE PLAN

REVISIONS

5/25/2022	BIDS AND CONSTRUCTION

Drawn By	IB
Designer	
Reviewer	
Manager	JS

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PROJECT NO.
211162

SHEET NO.
23

PLOT INFO: Z:\2021\211162\CAD\CIV\16_18_20_22_23_211162-SP.DWG LAYOUT: 23 NORTH CAMPUS 0.5 MG TANK DATE: 5/26/2022 TIME: 9:13:41 AM USER: KROSTROWSKI

GENERAL NOTES

GENERAL NOTES:

1. THE INFORMATION ON THIS SHEET SHALL APPLY TO ALL STRUCTURAL DRAWING SHEETS.
2. INFORMATION ON THIS SHEET SUPPLEMENTS THE PROJECT SPECIFICATIONS, REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. DRAWINGS HAVE NOT NECESSARILY BEEN ORGANIZED ACCORDING TO TRADES. A FULL SET OF DESIGN DRAWINGS MAY BE REQUIRED FOR AN INDIVIDUAL TRADE TO DETERMINE THE FULL SCOPE OF WORK, REFER TO OTHER DISCIPLINE DRAWINGS FOR OTHER ELEMENTS OF CONCRETE, MASONRY, STEEL AND WOOD CONSTRUCTION.
4. DRAWINGS HAVE BEEN SET UP TO PLOT AS INTENDED WHEN PLOTTED AS FULL SIZE DRAWINGS. USE OF REDUCED SIZE DRAWINGS SHALL BE AT CONTRACTOR'S RISK.
5. COORDINATE WORK OF ALL TRADES. NOTIFY ENGINEER OF ANY VARIANCE BEFORE WORK BEGINS.
6. COORDINATE SIZE AND LOCATION OF SLAB OPENINGS WITH ASSOCIATED TRADES.
7. ALTERATIONS TO A STRUCTURAL ITEM OR MEMBER SHALL ONLY BE MADE AFTER APPROVAL BY THE ENGINEER.
8. DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONS NOT INDICATED.
9. WHERE SHOP DRAWINGS ARE REQUIRED BY THE SPECIFICATIONS, DESIGN DRAWINGS SHALL NOT BE USED AS SHOP AND/OR ERECTION DRAWINGS.
10. FIELD VERIFY EXISTING CONDITIONS.
11. NOT NECESSARILY ALL KEYNOTES ON A DRAWING APPLY TO THAT DRAWING.

CAST-IN-PLACE CONCRETE NOTES:

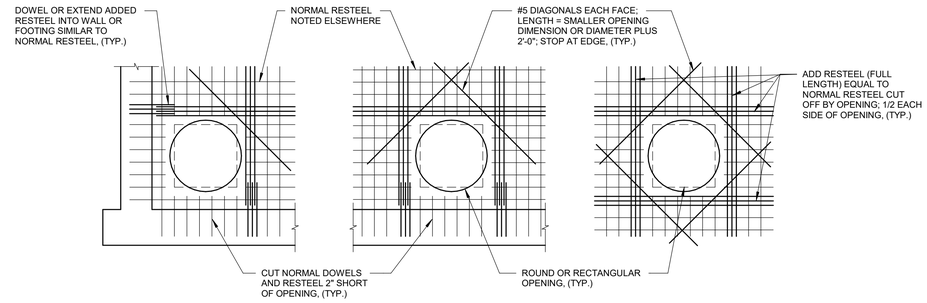
1. COORDINATE SIZE, LOCATION AND PLACEMENT OF EMBEDDED ITEMS (PLATES, HARDWARE, PIPE SLEEVES, ETC.) WITH ALL RESPECTIVE TRADES.
2. EMBEDDED ITEMS SHALL BE SECURELY PLACED PRIOR TO PLACING CONCRETE.
3. CORING OR CUTTING CONCRETE SHALL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER.
4. IF DRILLING OR CUTTING INTO HARDENED CONCRETE IS REQUIRED, FIELD LOCATE REINFORCEMENT WITH A REBAR DETECTOR TO AVOID DAMAGING THE REBAR.
5. DO NOT SAW CUT ELEVATED SLABS.
6. THE LOCATION OF CONSTRUCTION OR CONTROL JOINTS, OTHER THAN INDICATED ON THE DRAWINGS, SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACING CONCRETE.
7. CORNER BARS OF THE SAME SIZE AND SPACING AS HORIZONTAL WALL REINFORCING ARE REQUIRED FOR ALL WALLS UNLESS NOTED OTHERWISE.
8. UNLESS NOTED OTHERWISE, PROVIDE CLEAR COVER TO REINFORCING BARS AS SCHEDULED, SEE SCHEDULE THIS SHEET.
9. UNLESS NOTED OTHERWISE, PROVIDE 3/4" CHAMFERS ON ALL EXPOSED EDGES.
10. UNLESS NOTED OTHERWISE, DOWELS AND BENT BARS TO HAVE STANDARD ACI/CRSI 90 OR 180 DEGREE BEND AS INDICATED.
11. OPENINGS REQUIRED FOR SLABS AND WALLS REQUIRE ADDITIONAL REINFORCING AROUND THE PERIMETER, SEE TYPICAL DETAIL ON THIS SHEET.
12. LAP #5 BARS 20".
13. SEE CIVIL AND PROCESS FOR ADDITIONAL CONCRETE WORK.

CONSTRUCTION LOAD LIMIT:

1. LIMIT THE WEIGHT OF CONSTRUCTION STOCK PILES AND EQUIPMENT USED ON TOP OF EXISTING RESERVOIRS TO 100 PSF EQUIVALENT UNIFORM WEIGHT OVER THE FOOTPRINT OF EACH PIECE OF EQUIPMENT OR STOCKPILE.

DESIGN DATA

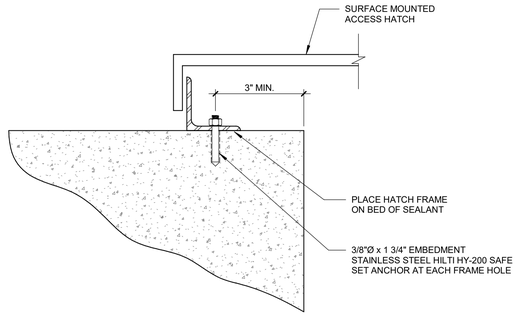
BUILDING CODE	2015 MICHIGAN BUILDING CODE
RISK CATEGORY	IV
DESIGN STRESSES	
CONCRETE REINFORCING	Fy = 60,000 PSI
WELDED WIRE FABRIC	Fy = 65,000 PSI
CONCRETE	4,000 PSI
DESIGN LOADS	
LIVE LOADS	
HATCHES & HATCH SLABS	100 PSF



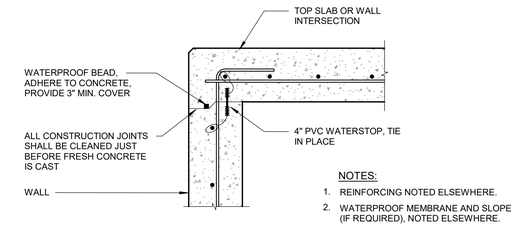
CONCRETE WALL AND SLAB OPENINGS ADDITIONAL REINFORCEMENT
NO SCALE

SCHEDULES / DIAGRAMS

CONCRETE REINFORCEMENT COVER REQUIREMENTS	
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	
ALL	3"
CONCRETE EXPOSED TO EARTH, LIQUID, WEATHER OR CAST AGAINST A CONCRETE WORK MAT:	
SLABS AND JOISTS:	2"
BEAMS, COLUMNS:	
STIRRUPS, SPIRALS, AND TIES:	2"
PRIMARY REINFORCEMENT:	2 1/2"
WALLS:	2"
FOOTINGS AND BASE SLABS:	
FORMED SURFACES:	2"
TOP OF FOOTINGS AND BASE...	2"



SURFACE MOUNTED HATCH ANCHORAGE
NO SCALE

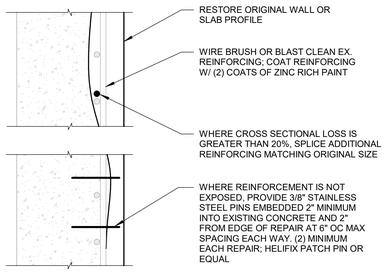


WATERSTOP CONSTRUCTION JOINT (WSJ)
NO SCALE

LEGENDS

CONCRETE LEGEND:

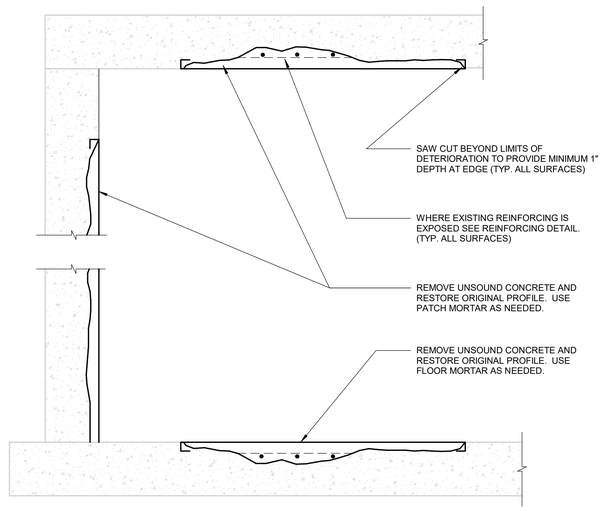
WSJ WATERSTOP CONSTRUCTION JOINT, SEE TYPICAL DETAIL.



TYPICAL VERTICAL AND OVERHEAD REINFORCING DETAIL

NOTE:

MOIST CURE REPAIR MATERIALS IN ACCORDANCE WITH MANUFACTURER'S BASED ON SPECIFIC ENVIRONMENT AT TIME OF REPAIRS, (TYP.)



SPALL / DELAMINATION REPAIR
NO SCALE

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	EA.	EACH	IN.	INCHES	PSI	POUNDS PER SQUARE INCH
ADJ.	ADJUSTABLE	EF	EACH FACE	ID	INSIDE DIAMETER	PREFAB.	PREFABRICATED
AB	ANCHOR BOLT	EW	EACH WAY	IF	INSIDE FACE	PROP.	PROPOSED
APPROX.	APPROXIMATE	EOS	EDGE OF STEEL	INV.	INVERT	R.	RADIUS
ARCH.	ARCHITECT	EL.	ELEVATION	LLH	LONG LEG HORIZONTAL	REF.	REFERENCE
BRG.	BEARING	EQ.	EQUAL	LLV	LONG LEG VERTICAL	REINF.	REINFORCING
BOT.	BOTTOM	EQUIP.	EQUIPMENT	LP	LOW POINT	REQD.	REQUIRED
BOD	BOTTOM OF DECK	EXIST.	EXISTING	MH.	MANHOLE	REV.	REVISION
BOF	BOTTOM OF FOOTING	EXP.	EXPANSION	MFR.	MANUFACTURER	SCHED.	SCHEDULE
CIP	CAST IN PLACE	EJ	EXPANSION JOINT	MATRL.	MATERIAL	SIM.	SIMILAR
CTR.	CENTER	EXT.	EXTERIOR	MAX.	MAXIMUM	SQ. FT.	SQUARE FOOT
CL	CENTERLINE	FAB.	FABRICATED	MTL.	METAL	STD.	STANDARD
COL.	COLUMN	FF	FAR FACE	MIN.	MINIMUM	STL.	STEEL
CONC.	CONCRETE	FS	FAR SIDE	MISC.	MISCELLANEOUS	STRUC.	STRUCTURAL
CONN.	CONNECTION	FT.	FEET	NF	NEAR FACE	T & B	TOP AND BOTTOM
CMU	CONCRETE MASONRY UNIT	FIN.	FINISH	NS	NEAR SIDE	TOC	TOP OF CONCRETE
CONST.	CONSTRUCTION	FF	FINISHED FLOOR	NIC	NOT IN CONTRACT	TOF	TOP OF FOOTING
CJ	CONSTRUCTION JOINT	FLR.	FLOOR	NTS	NOT TO SCALE	TOM	TOP OF MASONRY
CONT.	CONTINUOUS	FTG.	FOOTING	NO.	NUMBER	TOS	TOP OF SLAB
CJ	CONTROL JOINT	FDN.	FOUNDATION	OC	ON CENTER	TOS	TOP OF STEEL
COORD.	COORDINATE	GA.	GAUGE	OPP.	OPPOSITE	TOW	TOP OF WALL
DEG.	DEGREES	GALV.	GALVANIZED	ORIG.	ORIGINAL	TYP.	TYPICAL
DEMO.	DEMOLITION	GC	GENERAL CONTRACTOR	OD	OUTSIDE DIAMETER	VERT.	VERTICAL
DIA.	DIAMETER	GT.	GROUT	OF	OUTSIDE FACE	WSJ	WATER STOP JOINT
DIM.	DIMENSION	HT.	HEIGHT	PERP.	PERPENDICULAR	WT.	WEIGHT
DWL.	DOWEL	HP	HIGH POINT	PL.	PLATE	WWF	WELDED WIRE FABRIC
DN.	DOWN	HORIZ.	HORIZONTAL	#	POUND	W/	WITH
DWG.	DRAWING	HEF	HORIZONTAL EACH FACE	PSF	POUNDS PER SQUARE FOOT	WP	WORKPOINT

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements
Valve and
STRUCTURAL GENERAL NOTES, SCHEDULES & LEGENDS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RJM
Designer DJV
Reviewer DJV
Manager JS

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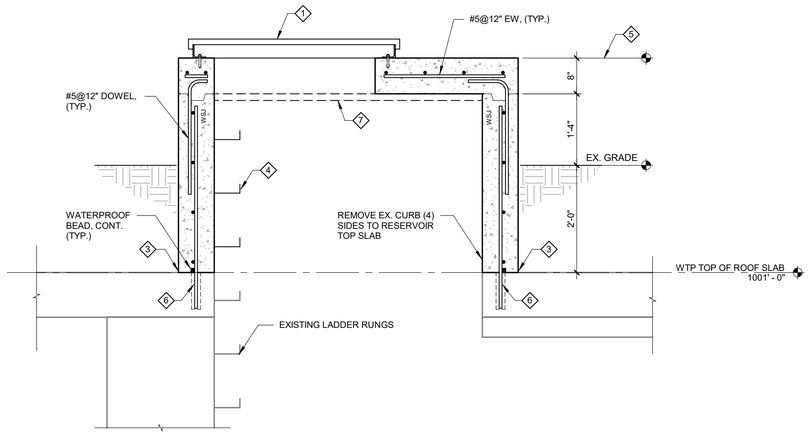
PROJECT NO.
211162

SHEET NO.
24



1 SECTION
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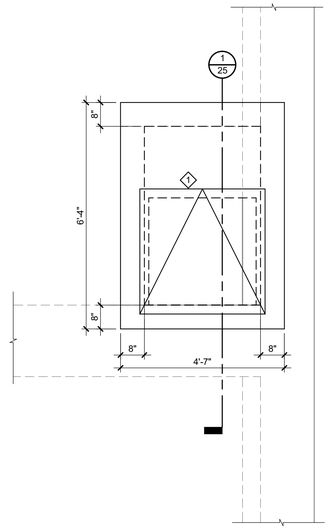
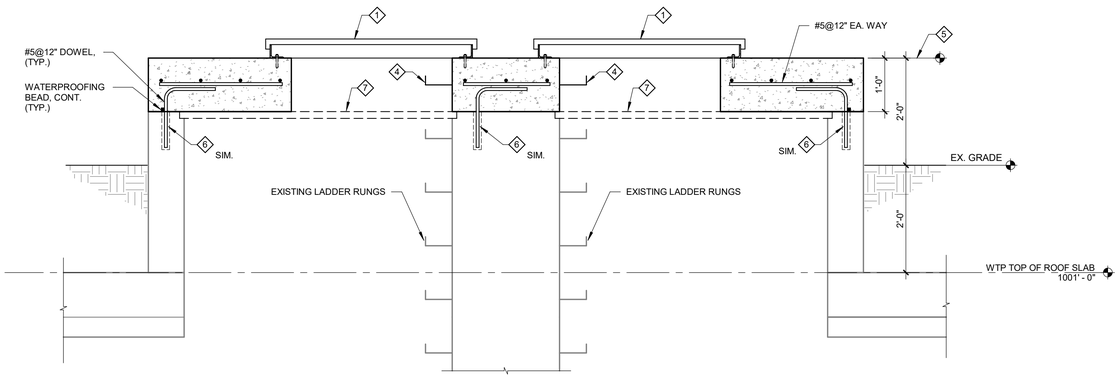


SINGLE ACCESS HATCH #1 PLAN
WATER TREATMENT RESERVOIR
SCALE: 1/2" = 1'-0"

NORTH

KEY NOTES

1. 42" SQUARE SURFACE MOUNTED ACCESS HATCH CENTERED OVER 36" SQUARE OPENING IN NEW SLAB, POSITIONED OVER EXISTING MANHOLE OPENING. FIELD VERIFY NEW HATCH ORIENTATION WITH RESPECT TO EXISTING LADDERS OR MANHOLE RUNGS AND WITH OWNER.
2. REMOVE EXISTING MANHOLE COVER; MANHOLE FRAME TO REMAIN. DO NOT DISTURB EXISTING CAM LOCK COVER BELOW MANHOLE COVER.
3. FIELD VERIFY EXISTING WATERPROOFING. REMOVE AS REQUIRED TO PLACE NEW CONCRETE. PROTECT REMAINING WATERPROOFING IN PLACE. PLACE NEW WATERPROOFING AND PROTECTION BOARD, LAPPED WATERTIGHT OVER EXISTING AND UP NEW WALLS TO GRADE. SECURE TOP WITH CONTINUOUS TERMINATION BAR. VERIFY COMPATIBILITY OF NEW WATERPROOFING WITH EXISTING, IF ANY.
4. NEW MANHOLE RUNGS AT 12" ON CENTER. ALIGN OVER AND SPACE TO EXISTING LADDER OR RUNGS.
5. FIELD VERIFY THAT TOP OF NEW SLAB WILL BE 2'-0" MINIMUM ABOVE EXISTING GRADE.
6. ANCHOR BAR 8" INTO EXISTING SLAB WITH HILTI HY-200 SAFE SET.
7. REMOVE EXISTING HATCH LID.



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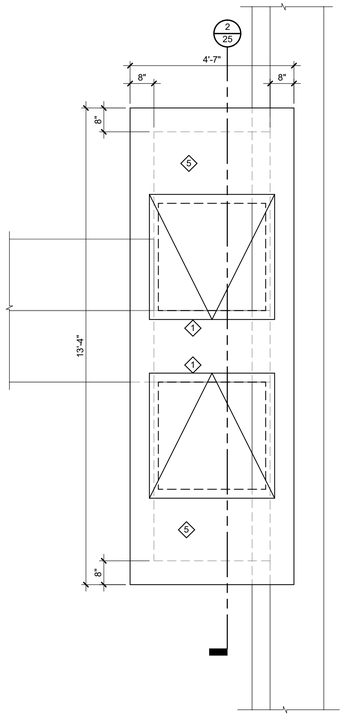

DOUBLE ENTRANCE ACCESS HATCH #2 PLAN
WATER TREATMENT RESERVOIR
SCALE: 1/2" = 1'-0"

NORTH

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
WTP RESERVOIR PLANS AND SECTIONS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RJM
Designer DJV
Reviewer DJV
Manager JS

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PROJECT NO.
211162

SHEET NO.
25

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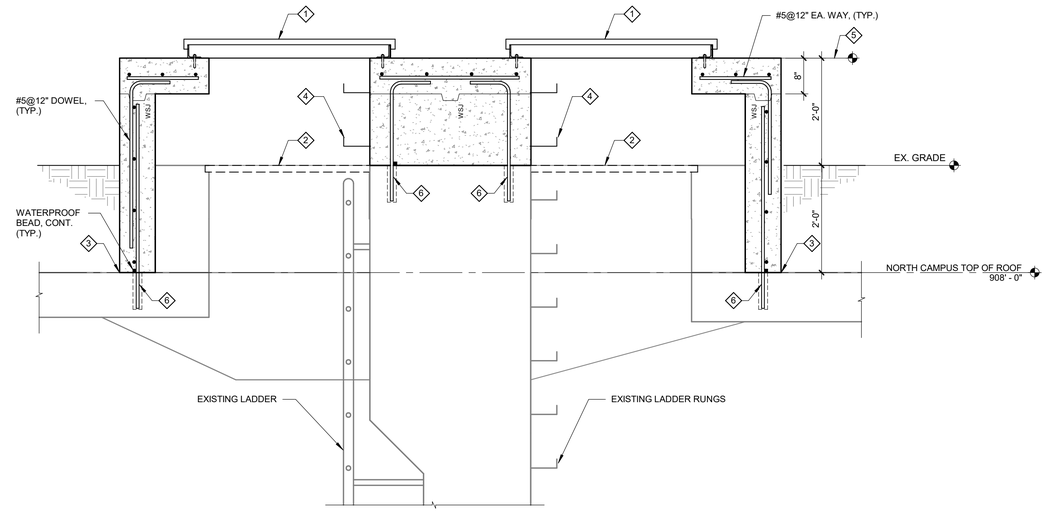

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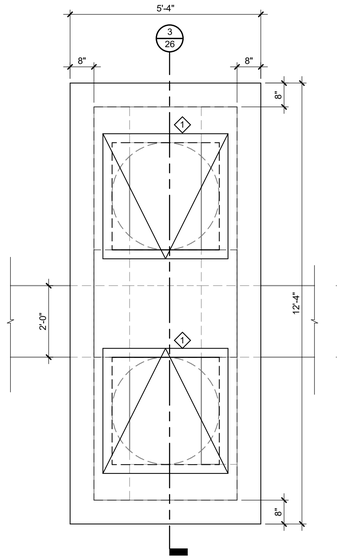
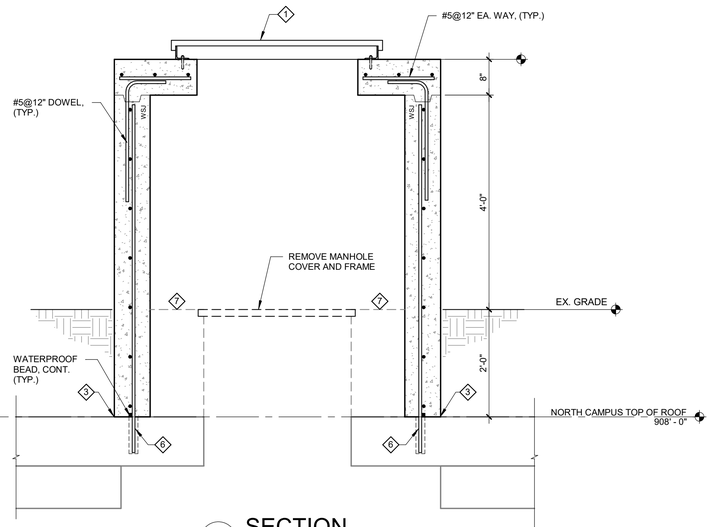


NORTH

DOUBLE ACCESS HATCH #1 PLAN
NORTH CAMPUS RESERVOIR
SCALE: 1/2" = 1'-0"

KEY NOTES

1. 42" SQUARE SURFACE MOUNTED ACCESS HATCH CENTERED OVER 36" SQUARE OPENING IN NEW SLAB, POSITIONED OVER EXISTING MANHOLE OPENING. FIELD VERIFY NEW HATCH ORIENTATION WITH RESPECT TO EXISTING LADDERS OR MANHOLE RUNGS AND WITH OWNER.
2. REMOVE EXISTING MANHOLE COVER; MANHOLE FRAME TO REMAIN. DO NOT DISTURB EXISTING CAM LOCK COVER BELOW MANHOLE COVER.
3. FIELD VERIFY EXISTING WATERPROOFING. REMOVE AS REQUIRED TO PLACE NEW CONCRETE. PROTECT REMAINING WATERPROOFING IN PLACE. PLACE NEW WATERPROOFING AND PROTECTION BOARD, LAPPED WATERTIGHT OVER EXISTING AND UP NEW WALLS TO GRADE. SECURE TOP WITH CONTINUOUS TERMINATION BAR. VERIFY COMPATIBILITY OF NEW WATERPROOFING WITH EXISTING, IF ANY.
4. NEW MANHOLE RUNGS AT 12" ON CENTER. ALIGN OVER AND SPACE TO EXISTING LADDER OR RUNGS.
5. FIELD VERIFY THAT TOP OF NEW SLAB WILL BE 2'-0" MINIMUM ABOVE EXISTING GRADE.
6. ANCHOR BAR 8" INTO EXISTING SLAB WITH HILTI HY-200 SAFE SET.
7. DEMOLISH EXISTING CONCRETE CURB BACK TO FACE OF BUILDING/BUILDING FOUNDATION AND RESERVOIR LID. REMOVE EXPOSED DOWELS TO 1" BELOW CONCRETE SURFACE AND PATCH CONCRETE TO MATCH EXISTING.
8. NEW RESERVOIR VENT PIPE; SEE PROCESS.
9. REMOVE EXISTING 2'-8" HIGH x 2'-4" WIDE (APPROX.) LOUVER COVER AND LOUVER. PATCH WITH NEW 8" CMU IN OPENING TO MATCH EXISTING. COORDINATE SLEEVE WITH PROCESS.
10. PLACE 15# FELT BOND BREAKER BETWEEN EXISTING WALL AND NEW CONCRETE. TRIM EXPOSED EDGES AFTER FORM REMOVAL.



2 SECTION
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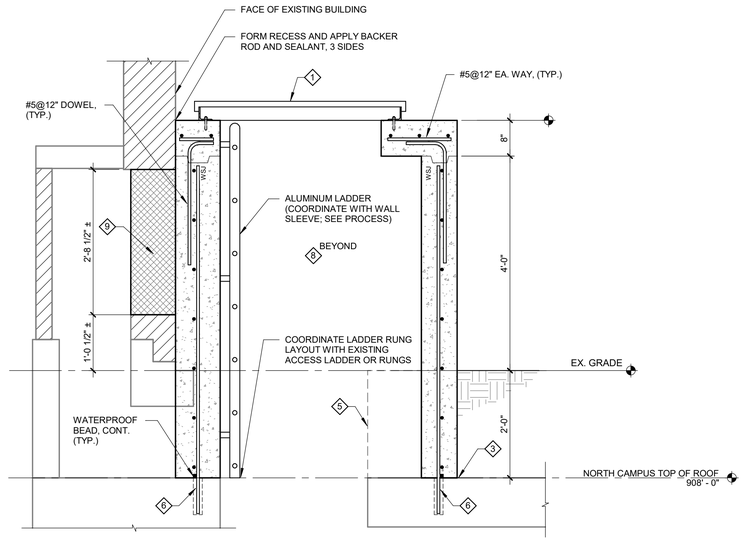

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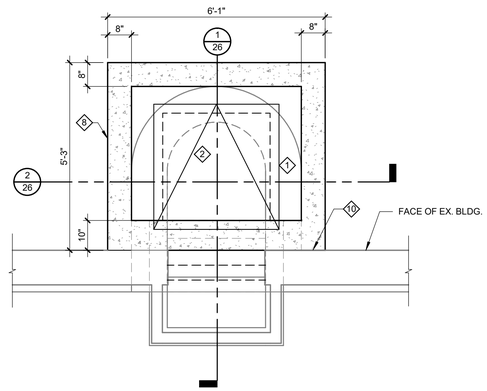

SINGLE ACCESS HATCH #2 PLAN
NORTH CAMPUS RESERVOIR
SCALE: 1/2" = 1'-0"

NORTH

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements
Valve and
NORTH CAMPUS RESERVOIR PLANS AND SECTIONS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RJM
Designer DJV
Reviewer DJV
Manager JS

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SHEET NO.
26

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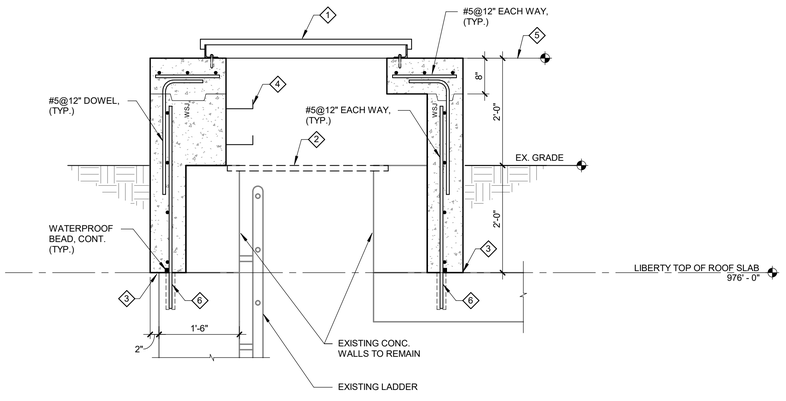

1 SECTION
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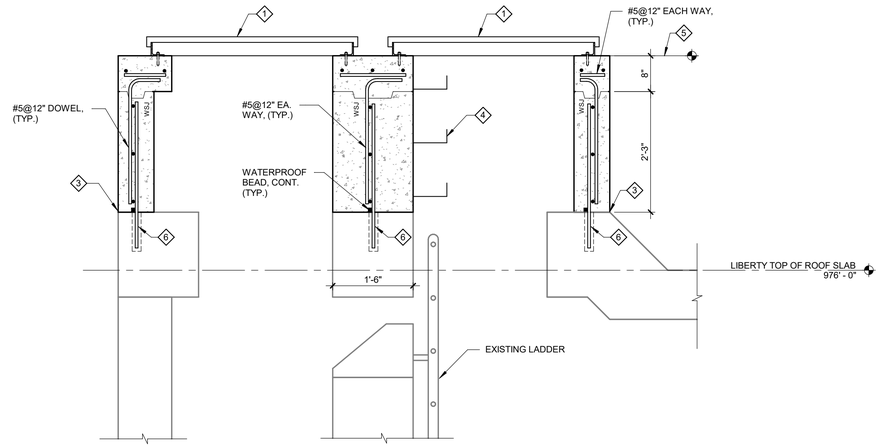

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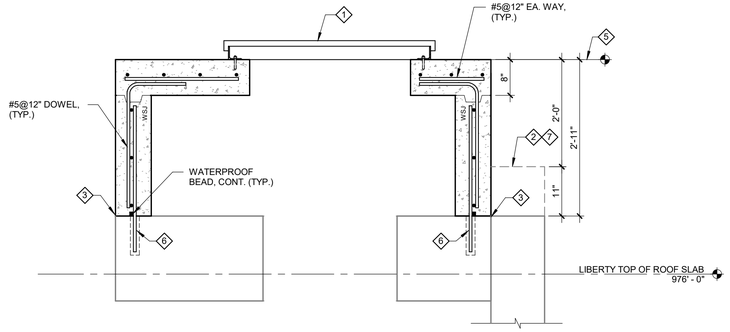
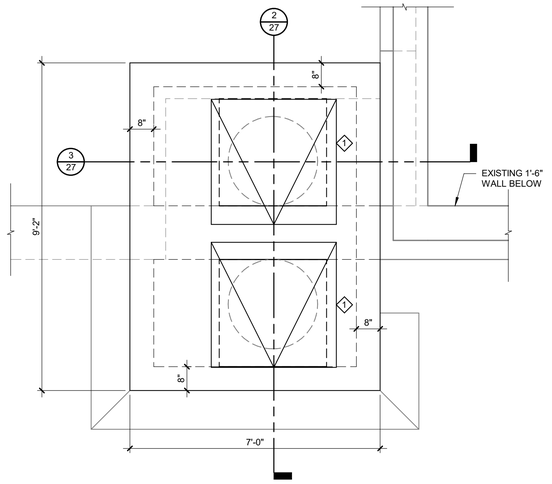


3 SECTION
SCALE: 3/4" = 1'-0"

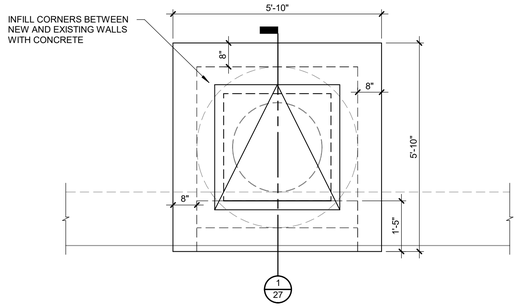


NORTH

DOUBLE ACCESS HATCH #1 PLAN
LIBERTY RESERVOIR
SCALE: 1/2" = 1'-0"

KEY NOTES

1. 42" SQUARE SURFACE MOUNTED ACCESS HATCH CENTERED OVER 36" SQUARE OPENING IN NEW SLAB, POSITIONED OVER EXISTING MANHOLE OPENING. FIELD VERIFY NEW HATCH ORIENTATION WITH RESPECT TO EXISTING LADDERS OR MANHOLE RUNGS AND WITH OWNER.
2. REMOVE EXISTING MANHOLE COVER; MANHOLE FRAME TO REMAIN. DO NOT DISTURB EXISTING CAM LOCK COVER BELOW MANHOLE COVER.
3. FIELD VERIFY EXISTING WATERPROOFING. REMOVE AS REQUIRED TO PLACE NEW CONCRETE. PROTECT REMAINING WATERPROOFING IN PLACE. PLACE NEW WATERPROOFING AND PROTECTION BOARD, LAPPED WATERTIGHT OVER EXISTING AND UP NEW WALLS TO GRADE. SECURE TOP WITH CONTINUOUS TERMINATION BAR. VERIFY COMPATIBILITY OF NEW WATERPROOFING WITH EXISTING, IF ANY.
4. NEW MANHOLE RUNGS AT 12" ON CENTER. ALIGN OVER AND SPACE TO EXISTING LADDER OR RUNGS.
5. FIELD VERIFY THAT TOP OF NEW SLAB WILL BE 2'-0" MINIMUM ABOVE EXISTING GRADE.
6. ANCHOR BAR 8" INTO EXISTING SLAB WITH HILTI HY-200 SAFE SET.
7. DEMOLISH EXISTING 11" x 5'-4" x 8'-8" (APPROX.) SLAB. CUT EXISTING DOWELS FLUSH OR BELOW REMAINING CONCRETE SURFACE.



NORTH

SINGLE ACCESS HATCH #2 PLAN
LIBERTY RESERVOIR
SCALE: 1/2" = 1'-0"

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Valve and
Finished Water Tank & Reservoir Improvements
LIBERTY RESERVOIR PLANS AND SECTIONS

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RJM
Designer DJV
Reviewer DJV
Manager JS

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PROJECT NO.
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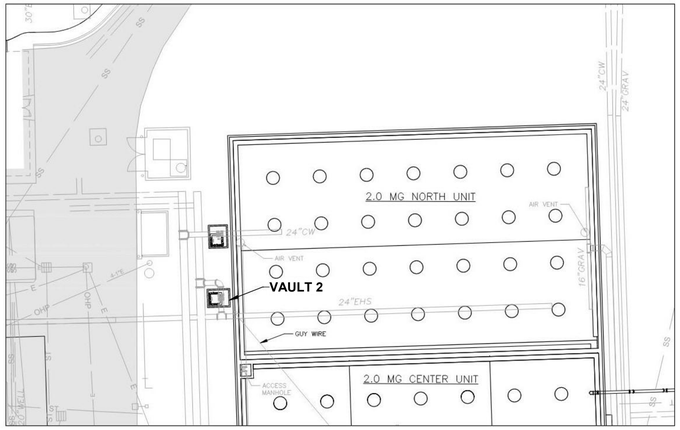
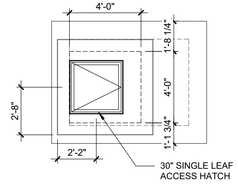
SHEET NO.
27



NORTH

VAULT 2 - ALTERNATE 1
SITE LAYOUT PLAN
SCALE: 1" = 30'-0"



NORTH

VAULT 2 - ALTERNATE 1
TOP HATCH PLAN
SCALE: 1/4" = 1'-0"

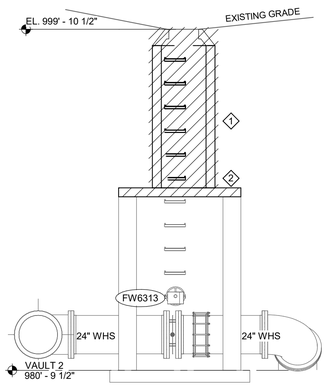
0 2 4 8

NOTES

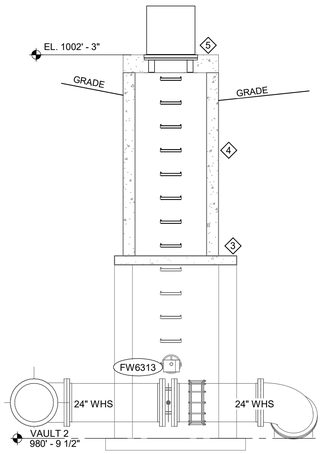
1. PAINT ALL NEW AND EXISTING FINISHED WATER PIPING IN VALVE VAULT IN ACCORDANCE WITH SECTION 09 91 00 - PROCESS PAINTING.
2. CLEAN AND INSPECT EXISTING PIPING AND CONCRETE STRUCTURE TO REMAIN, INCLUDING WALLS AND FLOORS. NOTIFY ENGINEER OF DEFECTS OR ABNORMALITIES.
3. AVOID DISTURBING CELL TOWER GUY WIRE AND ANCHOR DURING EXCAVATION OF VAULT 2.

KEY NOTES

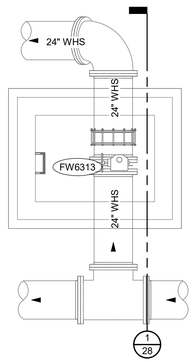
1 REMOVE EXISTING BLOCK MANHOLE RISER AND MANHOLE FRAME AND COVER.
2 REMOVE EXISTING PRECAST CONCRETE TOP SLAB.
3 PRECAST CONCRETE TOP SLAB WITH OPENING TO ACCOMODATE NEW MANHOLE RISER.
4 4' SQUARE PRECAST CONCRETE MANHOLE RISER.
5 4' SQUARE PRECAST CONCRETE TOP SLAB WITH CAST 30" SQUARE HATCH.



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



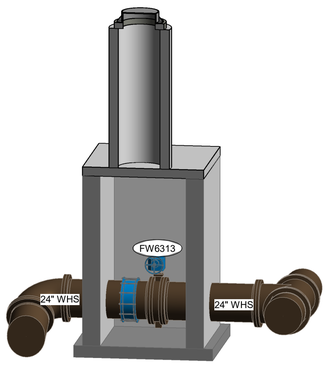
2 SECTION
SCALE: 1/4" = 1'-0"



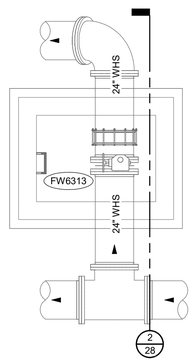
NORTH

VAULT 2 - ALTERNATE 1
EQUIPMENT AND PIPING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

0 2 4 8



VAULT 2 - ALTERNATE 1
EXISTING ISOMETRIC
SCALE:



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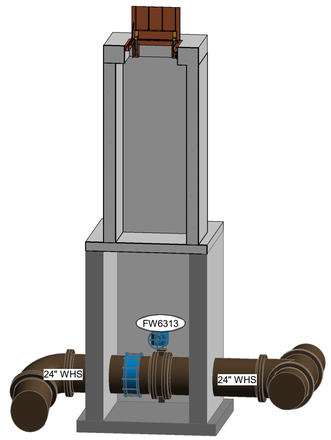
VAULT 2 - ALTERNATE 1
EQUIPMENT AND PIPING PLAN
SCALE: 1/4" = 1'-0"

0 2 4 8



VAULT 2 - ALTERNATE 1
ISOMETRIC
SCALE:

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Ann Arbor Water Treatment Plant
Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements
Valve and
WTP VAULT 2 PLANS, SECTIONS AND ISOMETRIC - ALTERNATE 1

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RS2
Designer JS
Reviewer TDM
Manager JS

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28

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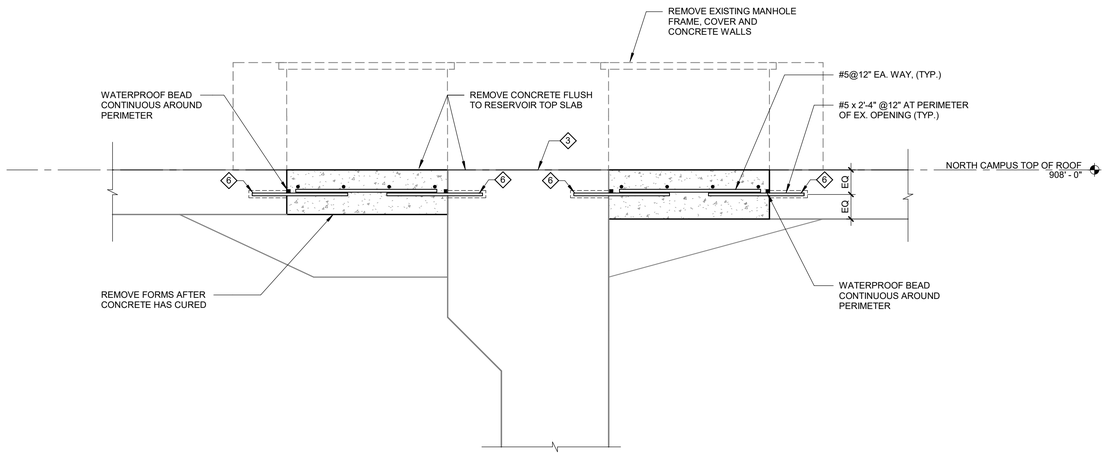
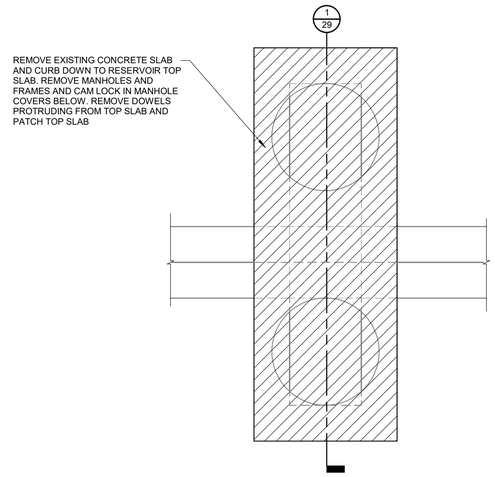


ALTERNATE 3

1 EXISTING SECTION

SCALE: 3/4" = 1'-0"



ALTERNATE 3

ACCESS HATCH #1 PLAN

NORTH CAMPUS RESERVOIR

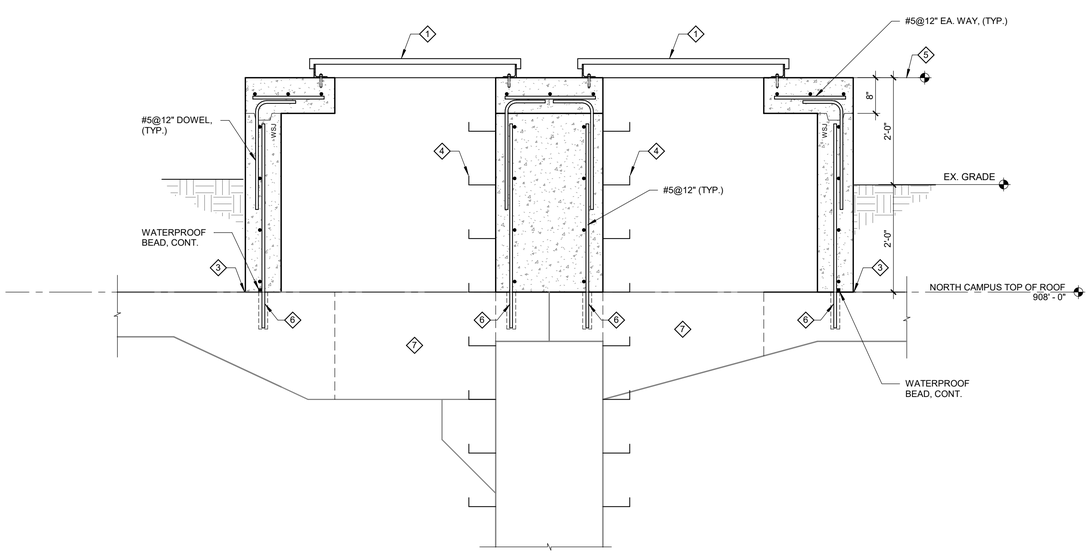
SCALE: 1/2" = 1'-0"

NORTH

0 1 2 4

KEY NOTES - ALTERNATE 3

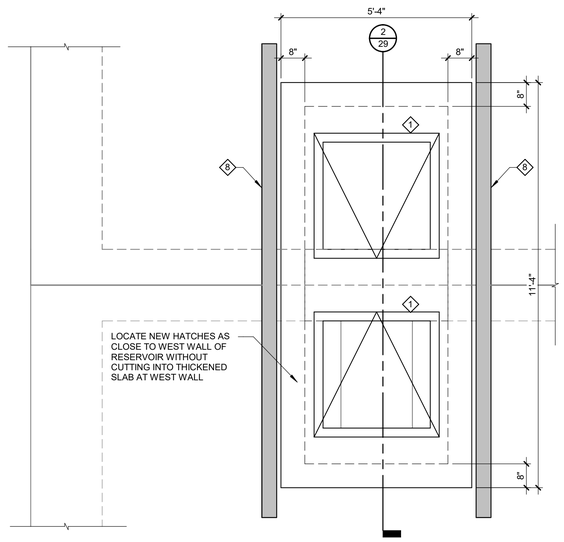
1. 42" SQUARE SURFACE MOUNTED ACCESS HATCH CENTERED OVER 36" SQUARE OPENING IN NEW SLAB, POSITIONED OVER NEW SAWCUT OPENING IN EXISTING SLAB.
2. NOT USED.
3. FIELD VERIFY EXISTING WATERPROOFING. REMOVE AS REQUIRED TO PLACE NEW CONCRETE AND CFRP. PROTECT REMAINING WATERPROOFING IN PLACE. PLACE NEW WATERPROOFING AND PROTECTION BOARD, LAPPED WATERTIGHT OVER EXISTING AND UP NEW WALLS TO GRADE AND SECURE TOP WITH TERMINATION BAR, OR LAPPED OVER ABANDONED INFILLED HATCH OPENINGS. VERIFY COMPATIBILITY OF NEW WATERPROOFING WITH EXISTING, IF ANY.
4. NEW MANHOLE RUNGS AT 12" ON CENTER TO RESERVOIR FLOOR AT ELEVATION 887.25'.
5. FIELD VERIFY THAT TOP OF NEW SLAB WILL BE 2'-0" MINIMUM ABOVE EXISTING GRADE.
6. ANCHOR BAR 8" INTO EXISTING SLAB WITH HILTI HY-200 SAFE SET.
7. SAWCUT NEW 24" WIDE (EAST/WEST) x 36" LONG ACCESS HOLES IN RESERVOIR TOP SLAB. FIELD VERIFY SLAB THICKNESS. DO NOT OVERCUT OPENING.
8. PROVIDE CARBON FIBER REINFORCING PLASTIC (CFRP) ON TOP OF TOP SLAB OF RESERVOIR, EACH SIDE OF NEW ACCESS HOLES, EACH DESIGNED TO OFFSET THE CUTTING OF 1.64 SQ. IN. OF GRADE 60 REINFORCING. LAP CFRP PAST HOLES AS REQUIRED TO DEVELOP FULL STRENGTH OF CFRP.



ALTERNATE 3

2 SECTION

SCALE: 3/4" = 1'-0"



ALTERNATE 3

ACCESS HATCH #1 PLAN

NORTH CAMPUS RESERVOIR

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

NORTH

0 1 2 4

ALTERNATE 3:

IN LIEU OF RAISING HATCH #1 AS INDICATED ON SHEET 26, ABANDON EXISTING MODIFIED HATCH #1, CLOSE OPENINGS, AND INSTALL HATCH #1 IN ALTERNATE LOCATION AS INDICATED ON THIS SHEET.

fishbeck

Engineers | Architects | Scientists | Constructors

Ann Arbor Water Treatment Plant

Ann Arbor, Michigan

Finished Water Tank & Reservoir Improvements

Valve and

NORTH CAMPUS RESERVOIR PLANS AND SECTIONS - ALTERNATE 3

REVISIONS

5/25/2022 BIDS AND CONSTRUCTION

Drawn By RJM

Designer DJV

Reviewer DJV

Manager JS

Hard copy is intended to be 24"x36" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.

211162

SHEET NO.

29

PLOT INFO: 6/1/2022 8:02:42 AM C:\Work\Revit\2022_S_211162_TANK_rmeissner5SJUZ.rvt