



SAGINAW CORRECTIONAL FACILITY SEWER SCREENING IMPROVEMENTS

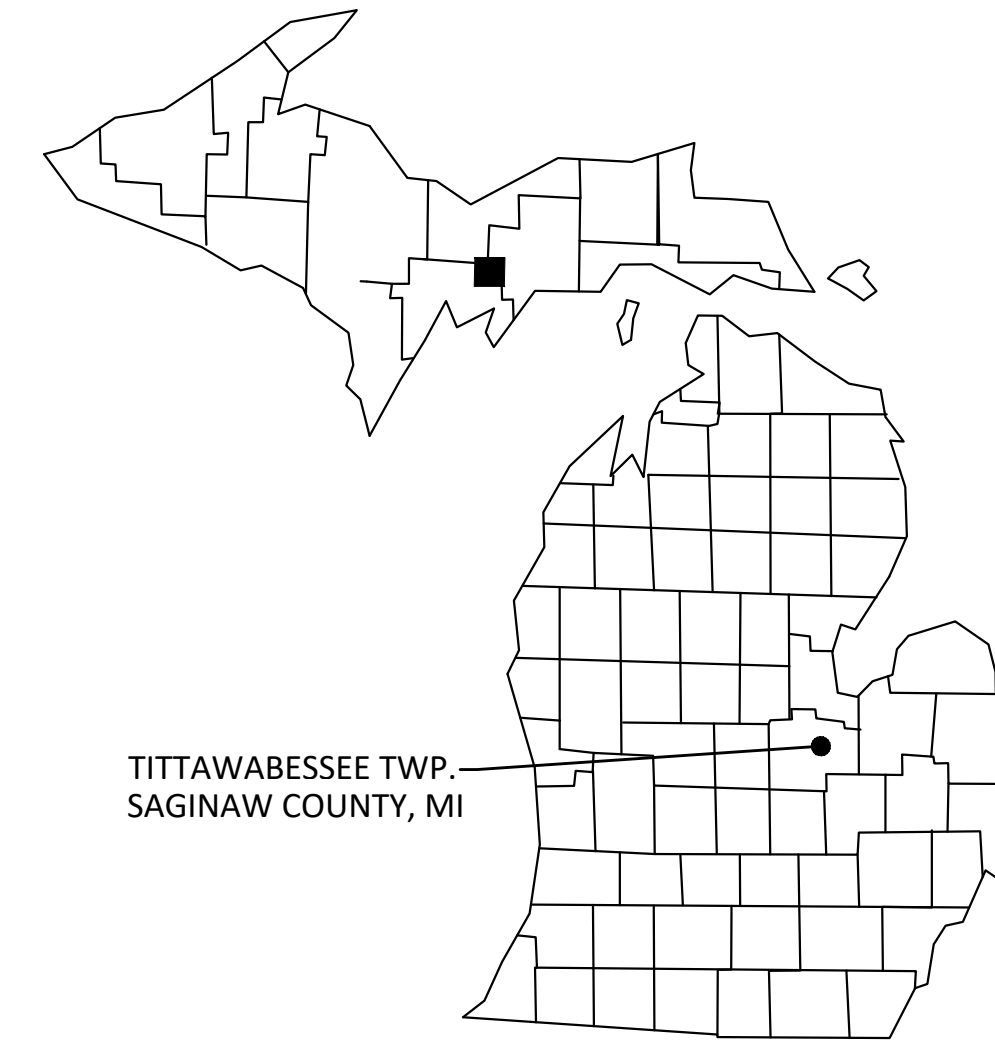
9625 PIERCE RD., FREELAND, MICHIGAN

BID DOCUMENTS

CONSTRUCTION PLANS FOR

MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT & BUDGET

FILE NO.: 472/25355.CTS



TITTABAWESSEE TWP.
SAGINAW COUNTY, MI

VICINITY MAP

N.T.S.

PROJECT PERMITS

STATE OF MICHIGAN, BUREAU OF CONSTRUCTION CODES PERMITS ELECTRICAL AND MECHANICAL PERMITS WILL BE REQUIRED PRIOR TO STARTING WORK. THE CONTRACTOR SHALL OBTAIN THE PERMIT, PAY ANY FEES AND COORDINATE NEEDED INSPECTIONS.



LOCATION MAP

N.T.S.

SHEET INDEX

SHEET NO.	TITLE
T	TITLE SHEET
C1	TOPOGRAPHIC SURVEY
C2	OVERALL IMPROVEMENTS PLAN
C3	SEWER SCREENING/WASHING AND MUFFIN MONSTER EQUIPMENT DETAILS
C4	SANITARY IMPROVEMENTS INFORMATION
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P-400	BAR SCREEN - BUILDING FIRST FLOOR PLAN - PLUMBING NEW
M-100	MECHANICAL SYMBOLS, NOTES, AND ABBREVIATIONS
M-400	BAR SCREEN BUILDING/WEST, PUMP HOUSE - FIRST FLOOR, MECHANICAL FIRST FLOOR PLAN - MECHANICAL DEMOLITION & NEW
M-900	MECHANICAL DETAILS AND SCHEDULES
E-100	ELECTRICAL SYMBOLS, NOTES & ABBREVIATIONS
E-200	PARTIAL ELECTRICAL SITE PLAN, MUFFIN MONSTER WELL, DEMO & NEW
E-500	BAR SCREEN FIRST FLOOR PLAN - ELECTRICAL DEMOLITION & NEW
E-600	PARTIAL ELECTRICAL RISER DIAGRAM
E-900	ELECTRICAL PANEL SCHEDULES

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, RA, DIRECTOR

BID DOCUMENTS	DATE	REVIEW
PHASE 500 - 90%	03-30-2026	
PHASE 500 - 50%	03-18-2026	
PHASE 300 - 100%	03-02-2026	
PHASE 300 - 50%	01-13-2026	
PHASE 300 - 50%	12-11-2025	Review

PROJECT DESCRIPTION
SAGINAW CORRECTIONAL FACILITY
SEWER SCREENING IMPROVEMENTS
TITTABAWESSEE TWP., SAGINAW COUNTY, MI

TITLE SHEET

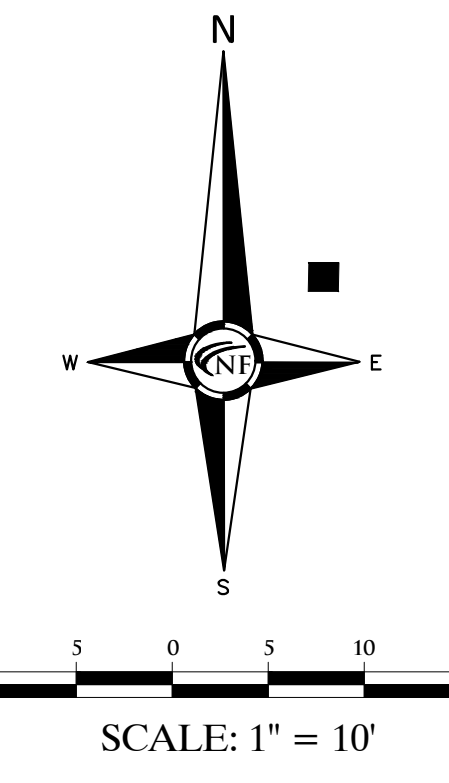
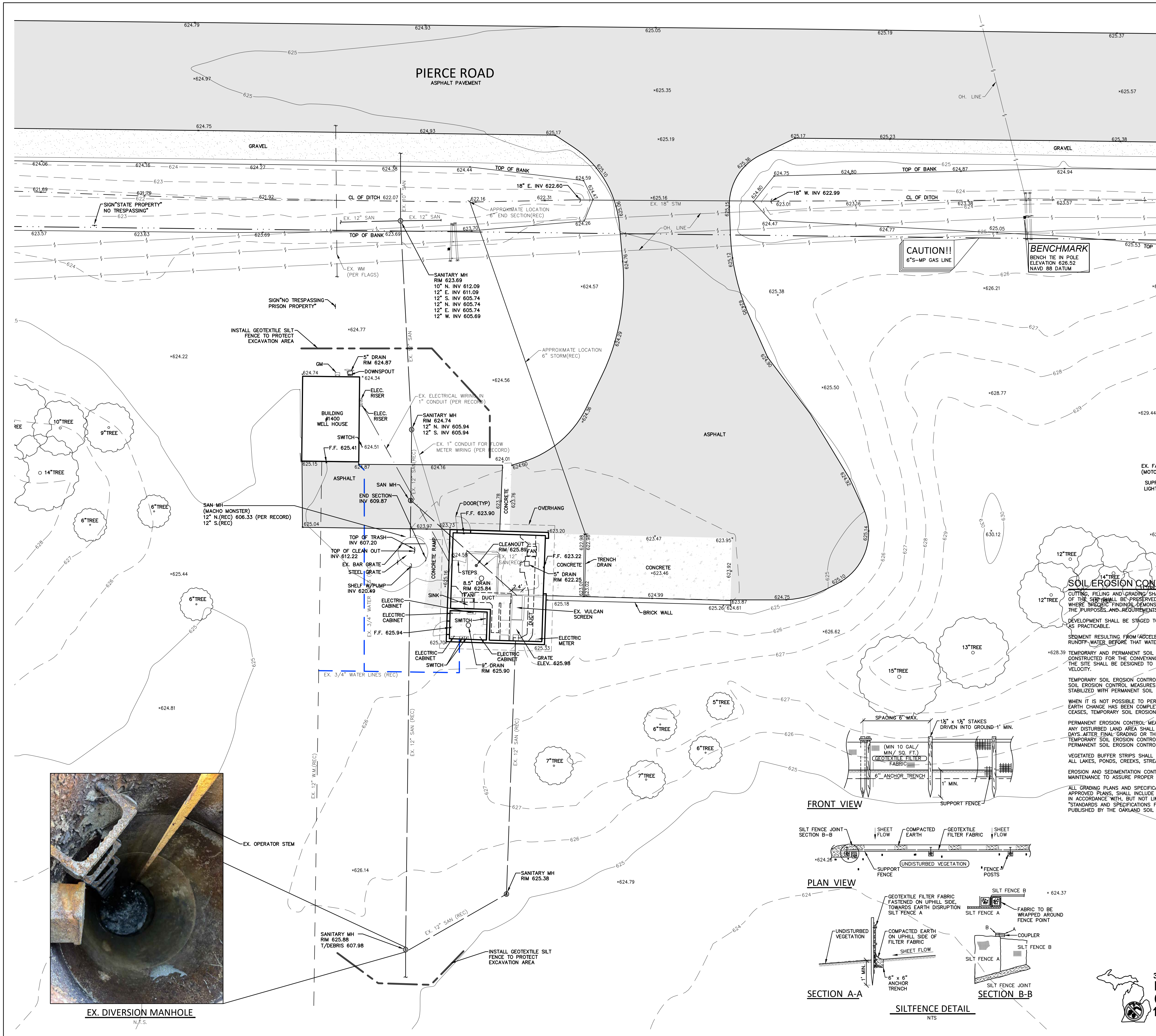
PROJECT NO.	INDEX	PCA	DRAWN BY	DESIGNED BY	CHKD BY	SWS
472/25355.CTS		00-0000	KAR	KAR		

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LANSING, MI 48906
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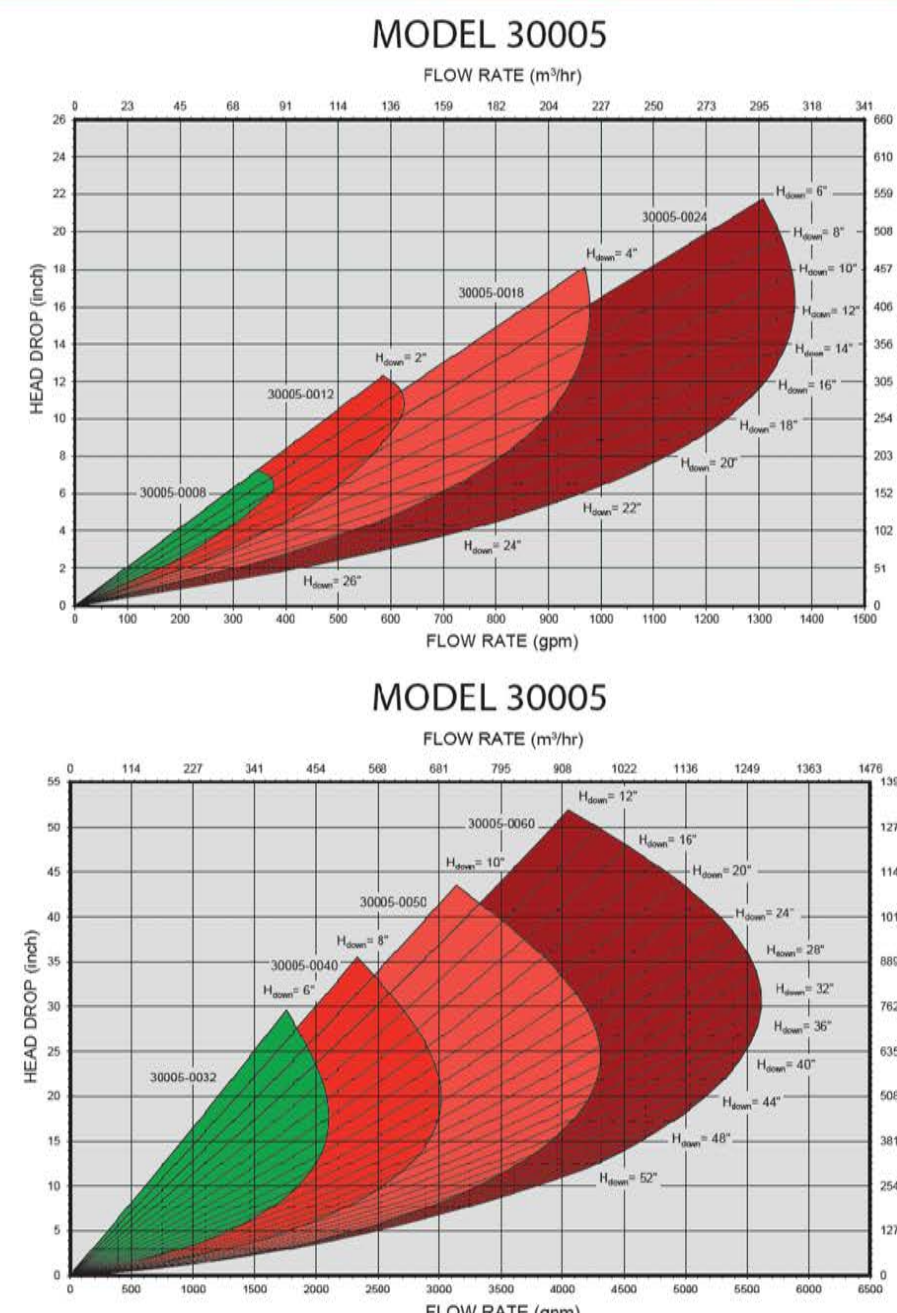
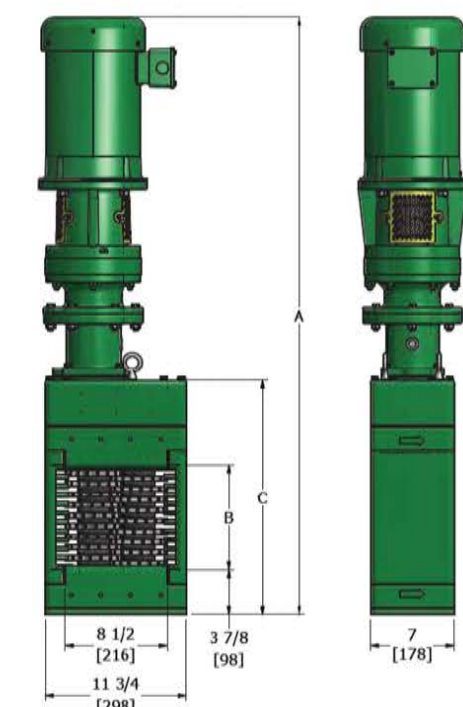
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SEWER SCREENING IMPROVEMENTS
TITTABAWASSEE TWP., SAGINAW COUNTY, MI

TOPOGRAPHIC SURVEY/
BUILDING FLOOR PLAN

PROJECT NO. 472/25355.CTS	INDEX	PCA	00-0000	KAR	KAR	KAR	SWS
	DRAWN BY	DESIGNED BY	JCI	JCI	JCI	JCI	JCI

C1

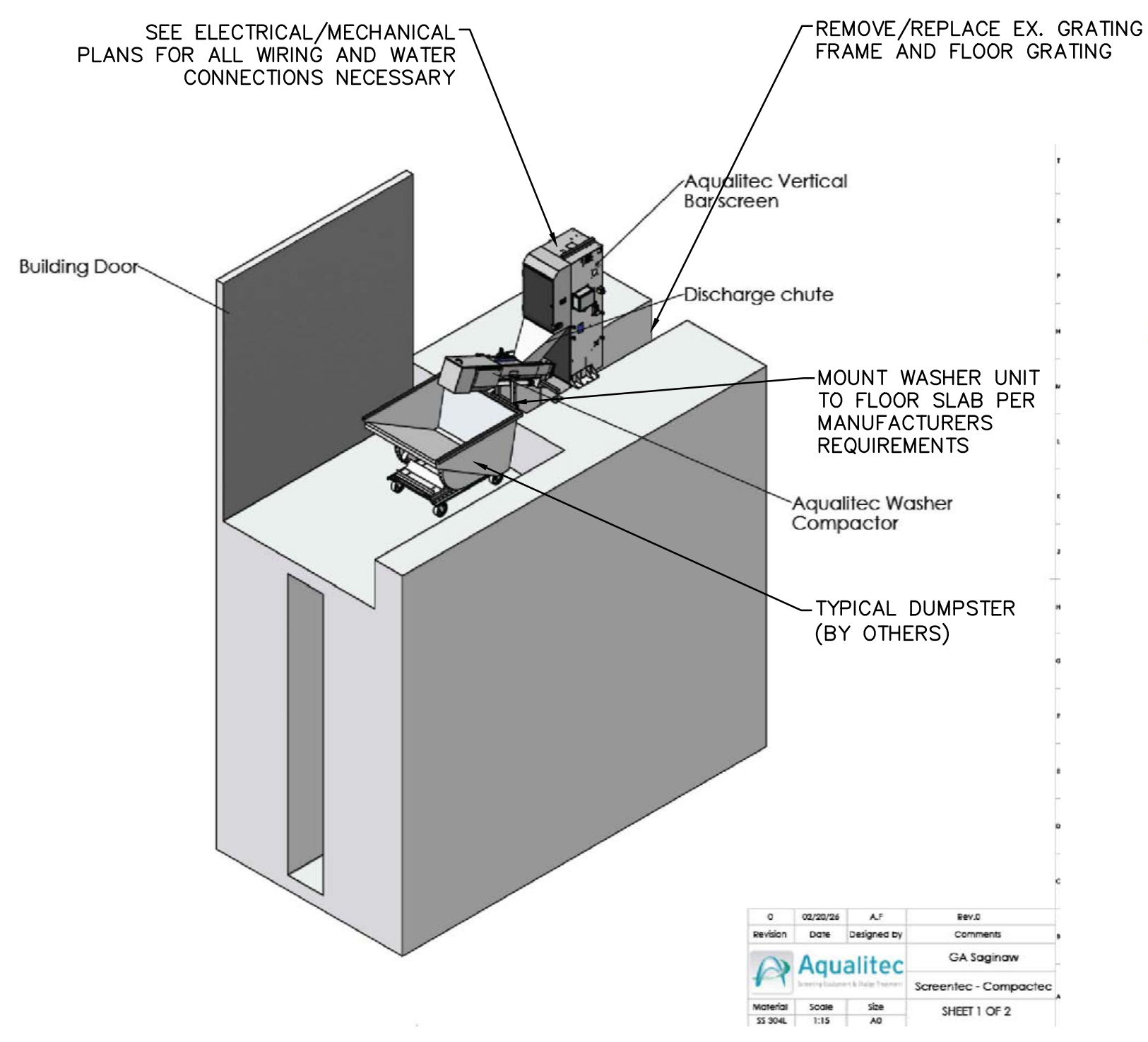
30K Muffin series Monster



Open-channel Model	Flow Rate - gpm (m³/hr)	Head Drop - inches (mm)	Standard Dimensions - inches (mm)			Approximate Net Weight - lbs (kg)
			A	B	C	
30005-0008	370 (84)	7 (178)	49-1/2 (1257)	8 (203)	19-1/2 (495)	370 (168)
30005-0012	620 (141)	11-1/2 (290)	53-5/8 (1362)	12 (305)	23-5/8 (600)	410 (186)
30005-0018	980 (223)	16 (405)	59-1/2 (1511)	18 (457)	29-1/2 (749)	465 (211)
30005-0024	1370 (311)	16 (405)	65-1/4 (1657)	24 (609)	35-1/4 (895)	520 (236)
30005-0032	2100 (477)	17-1/2 (445)	73 (1854)	32 (813)	43 (1092)	580 (263)
30005-0040	3020 (686)	19-1/2 (495)	81 (2057)	40 (1016)	51 (1295)	650 (295)
30005-0050	4310 (979)	23-1/2 (595)	90-7/8 (2308)	50 (1270)	60-7/8 (1546)	740 (336)
30005-0060	5620 (1277)	30 (762)	101-3/8 (2575)	60 (1524)	71-3/8 (1813)	845 (383)

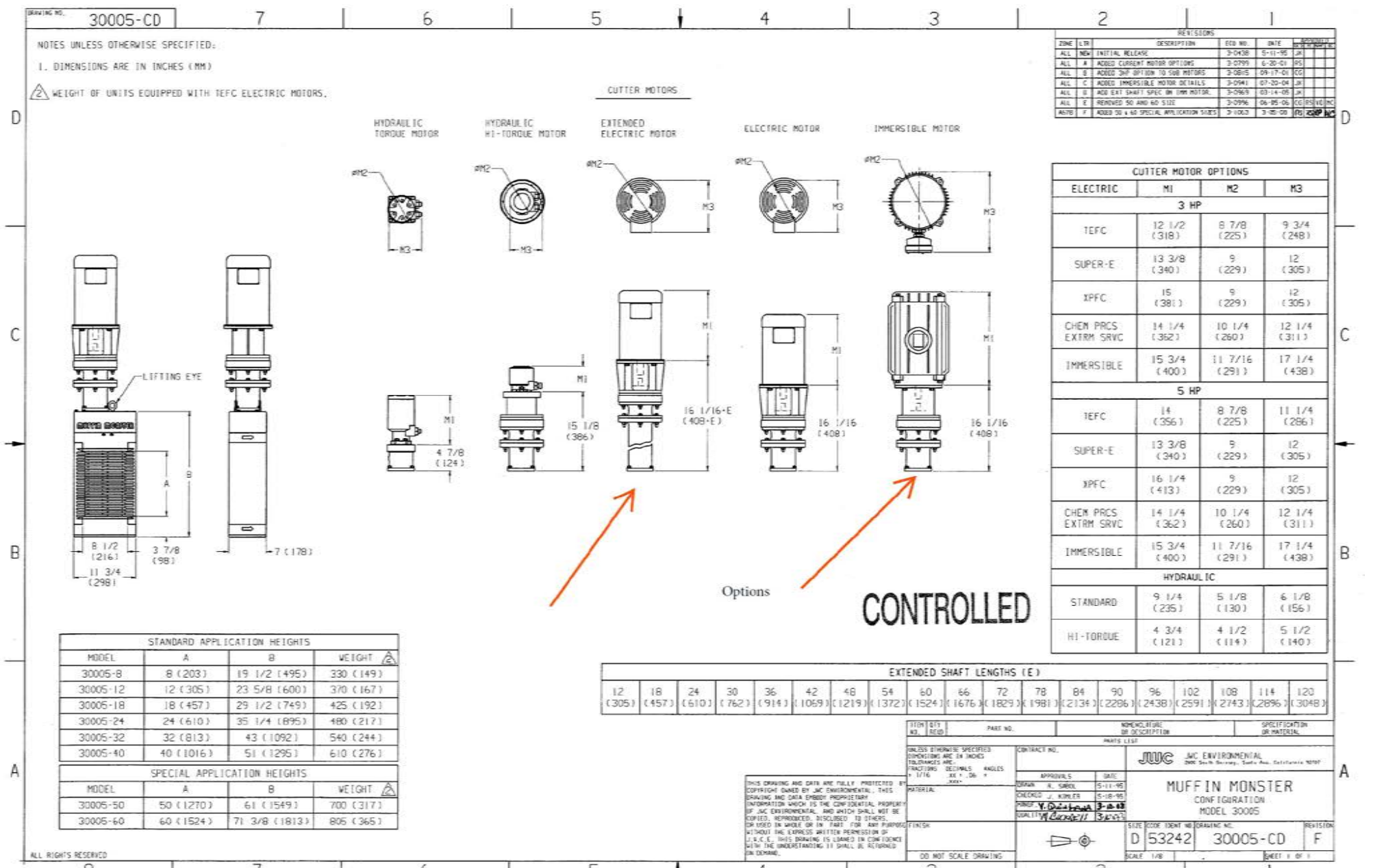
MUFFIN MONSTER SPECIFICATIONS

N.T.S.



REV	DATE	BY	CHKD	COMMENTS
0	05/20/20	AJ		
1	05/20/20	GA	GA	Signatures

Screenotec - Compactac
SHEET 1 OF 2



SCREENING EQUIPMENT TO BE REMOVED. UNIT TO BE REMOVED IN SECTIONS AS REQUIRED, NO ROOF ACCESS.



REMOVE AND REPLACE HANDRAILS TO ACCOMMODATE FOR NEW EQUIPMENT CLEARANCES. REPLACEMENT ONLY ADJACENT TO SCREEN AND WASHER UNIT. OTHER SECTIONS TO REMAIN.

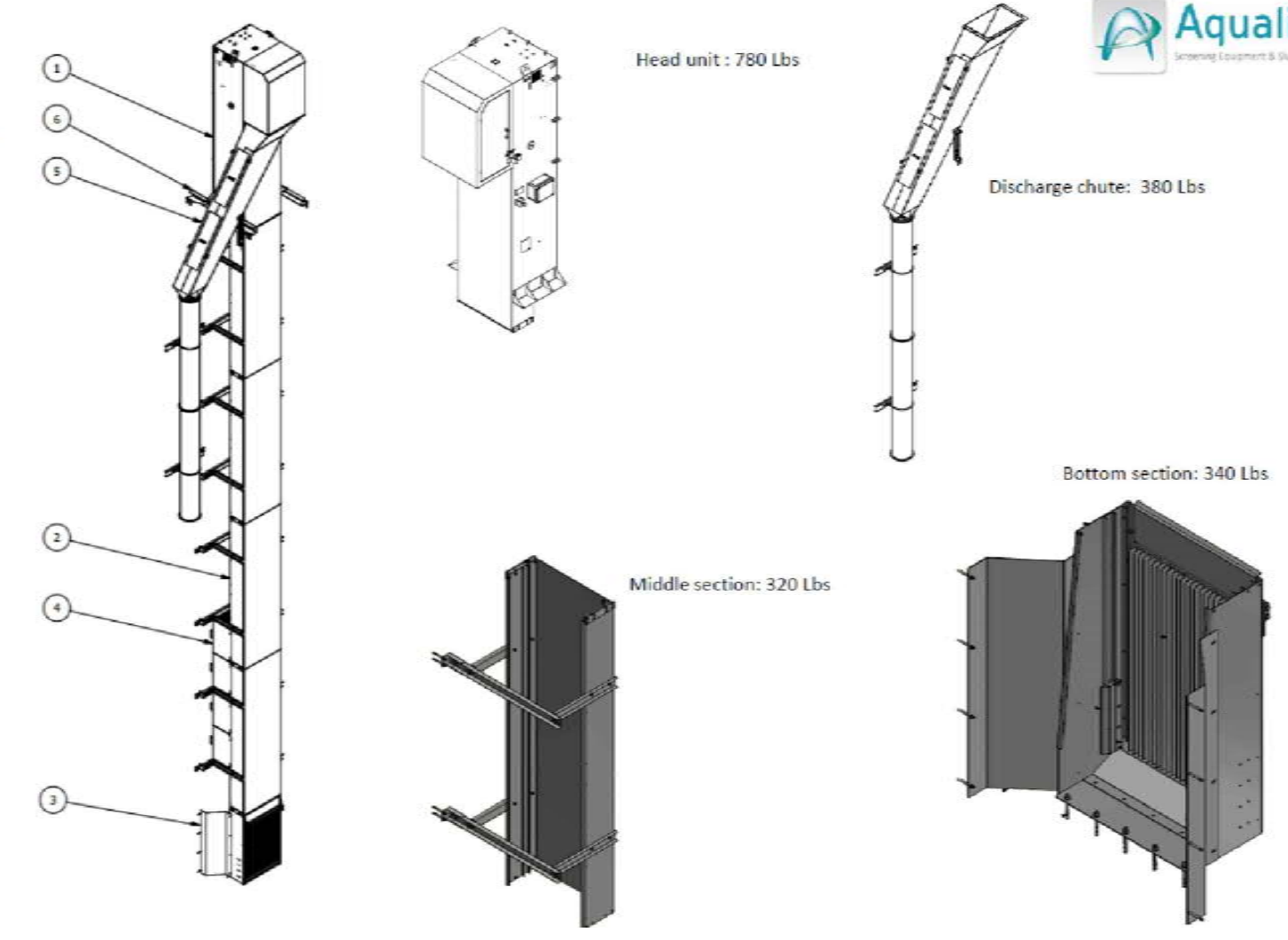
- PROVIDE CORROSION-RESISTANT FRP (FIBERGLASS PLASTIC) HANDRAIL SYSTEM.
- HANDRAIL TO BE PULVERIZED FIBERGLASS WITH UV-INHIBITED RESIN, SAFETY YELLOW COLOR.
- MINIMAL RAIL SIZE: 1.5" - 2" OUTSIDE DIAMETER; POSTS SPACED AT MAX 6" - 0" O.C.
- INCLUDE ALL FITTING, CONNECTIONS, FASTENERS, AND HARDWARE AS REQUIRED FOR A COMPLETE INSTALLATION.

OPERATING MODE:

Two heavy-duty chains, driven by a powerful drive shaft, carry a system of rakes placed three feet apart. Each rake contains multiple teeth and/or brushes, and the stainless steel drive chains are connected with links bearings free to minimize maintenance. The chain rollers are made of stainless steel and the chain guides are made of high-density polyethylene (HDPE), with no metallic lower bearings and no lower sprockets. A scraper, placed at the point of discharge, cleans the screened material from the rakes and ejects the debris. Raketec's rakes are designed to mesh perfectly with the bar screen system. The rakes clean debris from the bar screen, and convey waste material up to grade level. Raketec can be set to run continuously, on a timer program (cycle on/off), or with a water level sensor.

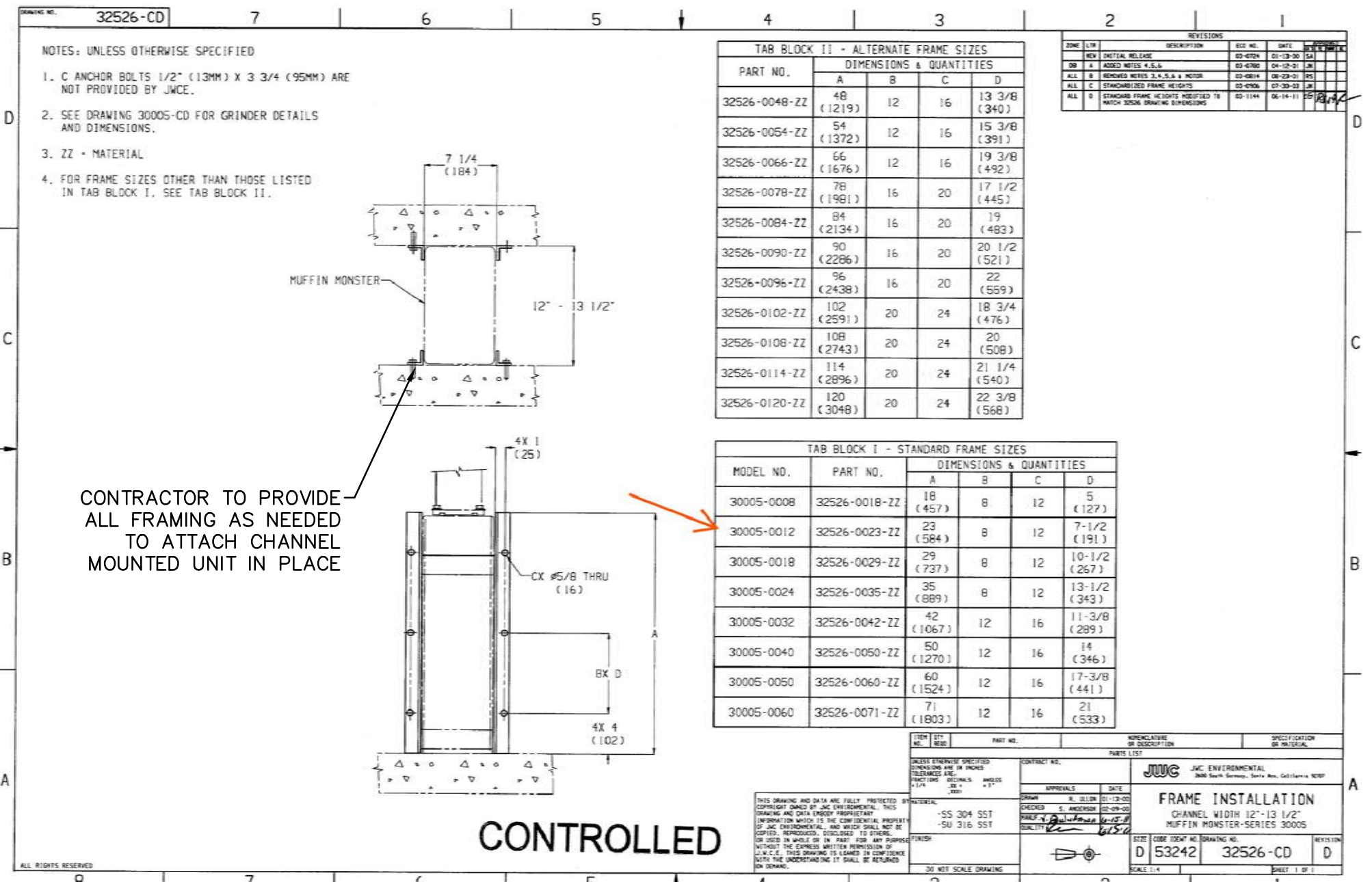
Overall:

- 1: Head unit
 - 2: Middle sections (x4)
 - 3: Bottom section (with barscreen)
 - 4: Cover (x8)
 - 5: Discharge chute
 - 6: Cross beam for support
- Total unit weight: 2900 Lbs



BAR SCREEN AND COMPACTOR LAYOUT/INSTALLATION

N.T.S.



CONTRACTOR TO PROVIDE ALL FRAMING AS NEEDED TO ATTACH CHANNEL MOUNTED UNIT IN PLACE

CONTROLLED

ELECTRICAL DISCONNECT PLACED ADJACENT TO UNIT, TO MEET CODE REQUIREMENTS

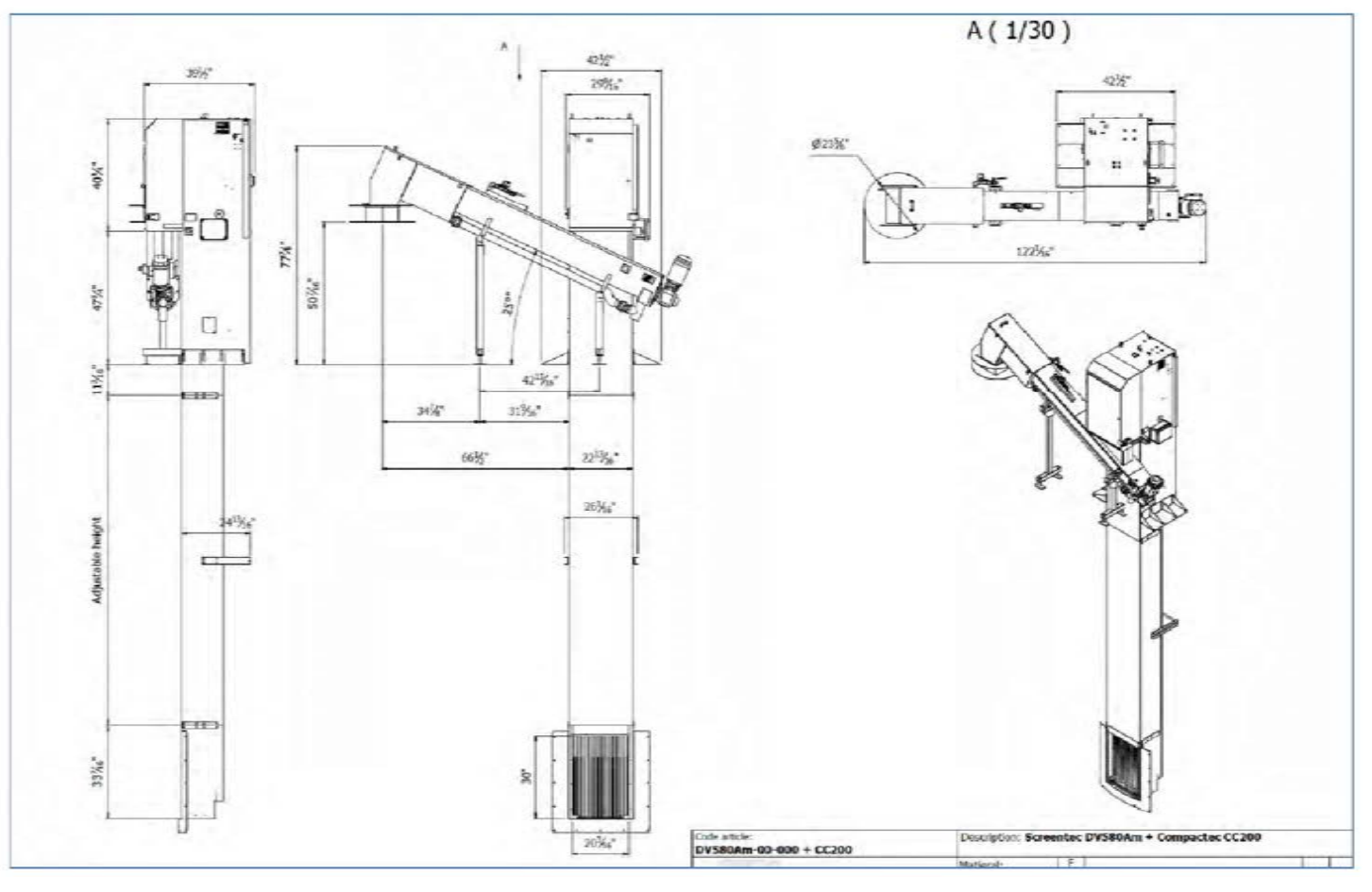
SEE MECHANICAL/ELECTRICAL DRAWING FOR LOCATION OF CONTROLS INSIDE THE CONTROL ROOM.



TYPICAL SCREENING/WASHER UNIT ASSEMBLY (FOR REFERENCE ONLY)

N.T.S.

Drawings



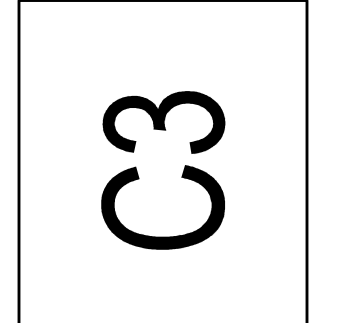
STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
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PROJECT DESCRIPTION
SAGINAW CORRECTIONAL FACILITY
SEWER SCREENING IMPROVEMENTS
TITTABAWASSEE TWP., SAGINAW COUNTY, MI

SEWER SCREENING/WASHING AND MUFFIN MONSTER EQUIPMENTS DETAILS

PROJECT NO. 472/25355.CTS	00-0000	KAR	KAR	SWS
INDEX	PCA	DRAWN BY	DESIGNED BY	JCIENG BY



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Pontiac, MI 48342-5032
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Civil Engineers
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WET WELL REHABILITATION – MINIMUM REQUIREMENTS:

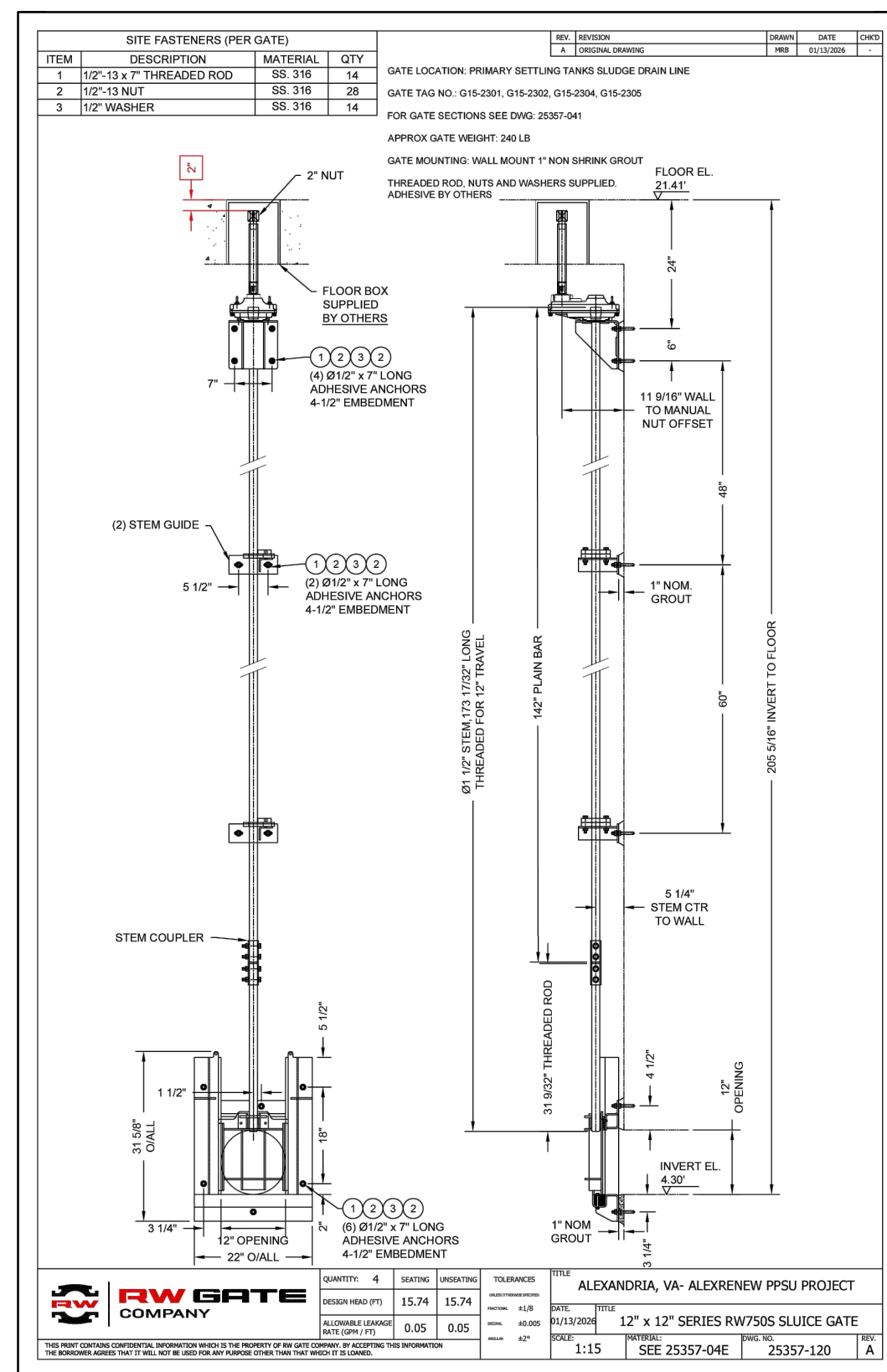
1. ESTABLISH APPROVED BYPASS PUMPING AND DIVERT ALL SEWERAGE FLOWS AROUND THE EXISTING WET WELL FOR THE DURATION OF THE WORK.
2. DE-ENERGIZE. LOCK OUT AND TAG OUT ALL ELECTRICAL CIRCUITS SERVING THE EXISTING PUMPS, LIGHTING, CONTROLS, AND ANY OTHER EQUIPMENT WITHIN THE WET WELL.
3. REMOVE ALL SEPTAGE, SLUDGE, RAGS, AND DEBRIS USING VACUUM EQUIPMENT AND DISPOSE OF MATERIALS AT AN APPROVED FACILITY.
4. HIGH-PRESSURE CLEAN THE ENTIRE INTERIOR OF THE WET WELL, INCLUDING WALLS, FLOOR, SHELVES, AND ALL APPURTENANCES.
5. REMOVE ALL EXISTING EQUIPMENTS INCLUDING PUMPS, MOTORS, DISCHARGE ELBOWS, LEVEL SENSORS, FLOATS, LADDER AND PLATFORM COMPONENTS, EXISTING LIGHTING, CONDUIT, JUNCTION BOXES, AND ANY OTHER ELECTRICAL OR MECHANICAL APPURTENANCES.
6. PERFORM ANY REQUIRED INTERIOR MASONRY PATCHING, SURFACE REPAIRS, ETC. PRIOR TO INSTALLING NEW EQUIPMENT. REVIEW THE FLOW CHANNEL FOR ANY MODIFICATIONS REQUIRED TO FIT THE NEW GRINDING UNIT. WORK MAY INCLUDE CONCRETE MODIFICATION TO SIZE UP OR DOWN THE FLOW CHANNEL TO PROPERLY SEAT THE UNIT.
7. INSTALL NEW SEWERAGE GRINDER UNIT COMPLETE WITH MOUNTING HARDWARE, BASE SUPPORTS, AND ALL REQUIRE CONNECTIONS.
8. INSTALL NEW GUIDE RAILS, DISCHARGE BASE ELBOWS, LIFTING CHAINS, AND ALL ASSOCIATED HARDWARE FOR THE REPLACEMENT PUMP SYSTEM.
9. INSTALL ALL NEW EXPLOSION-PROOF LIGHTING, CONDUIT, JUNCTION BOXES, CABLE SUPPORTS, AND ELECTRICAL INFRASTRUCTURE NECESSARY TO SUPPORT THE NEW GRINDER, PUMPS, AND LIGHTING.
10. RECONNECT POWER AND CONTROLS, TERMINATE ALL NEW CABLING AT CONTROL PANELS, FUNCTIONAL VERIFICATION UNDER ENGINEER OBSERVATIONS.
11. REMOVE BYPASS PUMPING ONLY AFTER THE NEW EQUIPMENT HAS BEEN TESTED AND IS FULLY FUNCTIONAL. RESTORE SITE TO ORIGINAL CONDITION. CONTRACTOR SHALL FOLLOW ALL CONFINED SPACE ENTRY.

CONSTRUCTION SEQUENCE—REMOVAL & REPLACEMENT OF DIVERSION GATE AND INSTALLATION OF NEW SLUICE GATES:

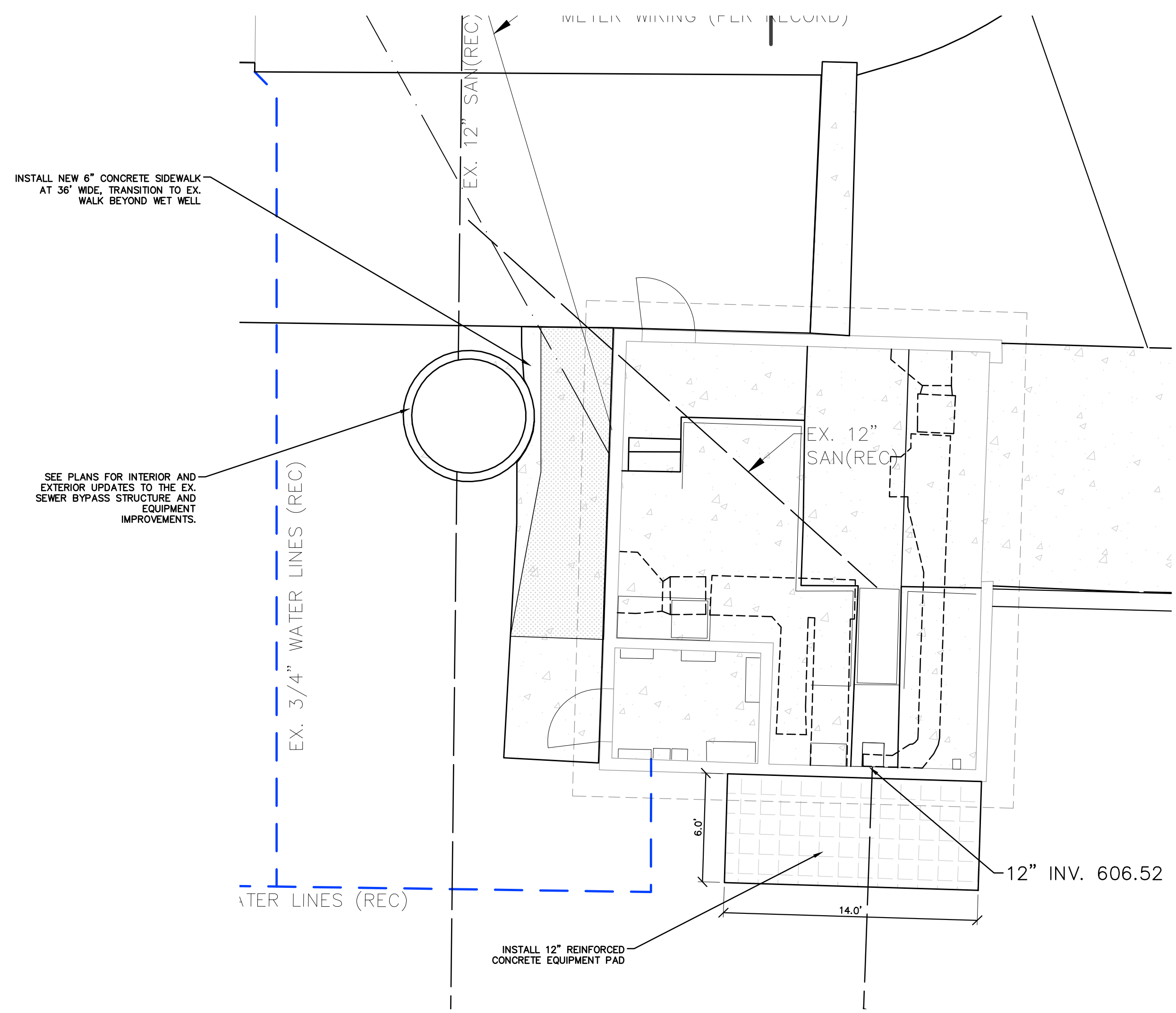
- PRE-CONSTRUCTION PREPARATIONS**
- CONFIRM EXISTING CONDITIONS INCLUDING STRUCTURE DIMENSIONS, PIPE ELEVATIONS, GATE SIZES, ACCESS CONSTRAINTS, AND CONDITION OF EXISTING EMBEDMENTS.
 - REVIEW MANUFACTURER REQUIREMENTS FOR NEW SLUICE GATES, FRAMES, ANCHORS, AND SEAL INSTALLATION.
 - DEVELOP AND SUBMIT BYPASS PUMPING PLAN, INCLUDING PUMP SIZING CALCULATIONS, PROPOSED DISCHARGE LOCATIONS, STANDBY PUMPS PROVISIONS, AND FLOW CONTROL MEASURES.
 - COORDINATE WITH OWNER TO SCHEDULE TEMPORARY DIVERSION OR SHUTDOWNS.
 - INSTALL TEMPORARY SAFETY MEASURES INCLUDING CONFINED SPACE ENTRY EQUIPMENT, VENTILATION, GAS MONITORING, AND FALL PROTECTIONS.
- IMPLEMENT SEWER BYPASS PUMPING**
- INSTALL UPSTREAM PLUGS, TEMPORARY BULKHEADS, OR INFLATABLE PIPE STOPPERS AS REQUIRED TO ISOLATE FLOW ENTERING THE DIVERSION STRUCTURE.
 - SET UP BYPASS PUMPING SYSTEM, INCLUDING SUCTION POINTS, PUMPS, DISCHARGE PIPING, CHECK VALVES, AND BACKUP POWER.
 - TEST BYPASS SYSTEM UNDER CONTROLLED FLOW TO VERIFY CAPACITY AND RELIABILITY.
 - MAINTAIN CONTINUOUS MONITORING OF FLOW, PUMP OPERATION, AND ALARMS FOR THE DURATION OF CONSTRUCTION.
- REMOVE EXISTING DIVERSION GATE AND EQUIPMENT**
- VERIFY ZERO-FLOW CONDITION INSIDE THE STRUCTURE BEFORE ENTERING.
 - REMOVE ACCESS HATCHES, GRATING, OR OBSTRUCTIONS NECESSARY TO REACH THE EXISTING GATE AND HARDWARE.
 - DISCONNECT AND REMOVE ALL MECHANICAL COMPONENTS INCLUDING:
- CLEAN AND PREPARE STRUCTURE**
- POWER WASH OR ABRASIVE CLEAN ALL MOUNTING SURFACES OF THE DIVERSION STRUCTURE AND OUTLET PIPES.
 - REMOVE DEBRIS, SEDIMENTS, AND BIOLOGICAL BUILDUP FROM THE STRUCTURE.
 - GRIND OR CHIP RESIDUAL GROUT, CONCRETE, OR OLD SEALANT TO CREATE A SMOOTH, CLEAN MOUNTING SURFACE.
 - PERFORM CONCRETE PATCHING OR SURFACE REPAIRS, IF REQUIRED, TO ENSURE A UNIFORM AND PLUMB INSTALLATION FOR THE NEW GATES.
 - VERIFY INLET/OUTLET PIPE ENDS ARE CLEAN AND ROUND FOR PROPER GATE SEALING.
- INSTALL NEW MANUAL SLUICE GATES AT EACH OUTLET PIPE**
- DRY-FIT EACH GATE TO CONFIRM ALIGNMENT, SQUARENESS, AND BOLT PATTERN COMPATIBILITY.
 - INSTALL GATES FRAMES, ENSURING CORRECT ORIENTATION AND FLOW DIRECTION AND PROPER CENTERING ON PIPE OPENING WITH FULL AND UNIFORM CONTACT WITH STRUCTURE WALL.
 - ANCHOR THE FRAMES USING SPECIFIED STAINLESS-STEEL BOLTS, EXPANSION ANCHORS, OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.
 - INSTALL GATE LEAF, STEM, GUIDES, SEALS, AND OPERATORS ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
 - ADJUST STEMS AND OPERATORS TO ENSURE SMOOTH OPENING/CLOSING WITHOUT BINDING.
 - TORQUE ALL FASTENERS TO MANUFACTURER-SPECIFIED VALUES.
- TESTING AND COMMISSIONING**
- REMOVE BYPASS PUMPING AND GRADUALLY RESTORE FLOW INTO THE STRUCTURE.
 - CYCLE EACH GATE FROM FULL-OPEN TO FULL-CLOSE TO VERIFY OPERATION.
 - PERFORM LEAKAGE TESTING AGAINST MANUFACTURER TOLERANCES (TYPICALLY PER AWWA C56/C560 IF APPLICABLE).
 - RECORD TEST RESULTS AND PROVIDE TO ENGINEER/OWNER.

SLUICE GATE BASIS OF DESIGN:

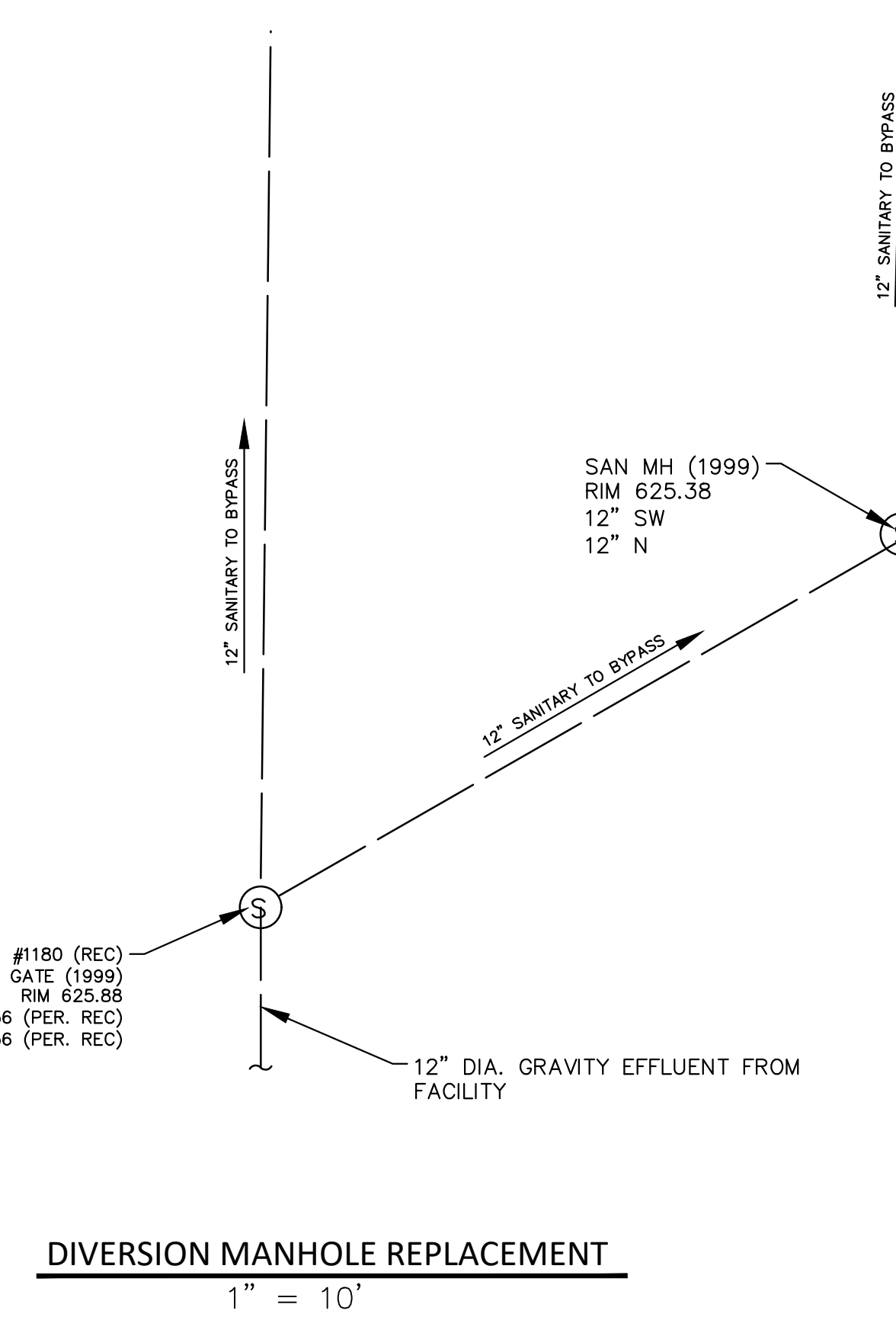
MANUFACTURERS SHOWN OF THE PLANS ARE INTENDED AS THE BASIS OF DESIGN TO ESTABLISH MINIMUM REQUIREMENTS. ALTERNATIVE MANUFACTURERS AND PRODUCTS SHALL BE PERMITTED, PROVIDED THE PROPOSED SLUICE MEETS OR EXCEEDS ALL FUNCTIONAL, DIMENSIONAL, MATERIAL, PERFORMANCE, AND INSTALLATION REQUIREMENTS INDICATED IN THE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING FULL EQUIVALENCY.



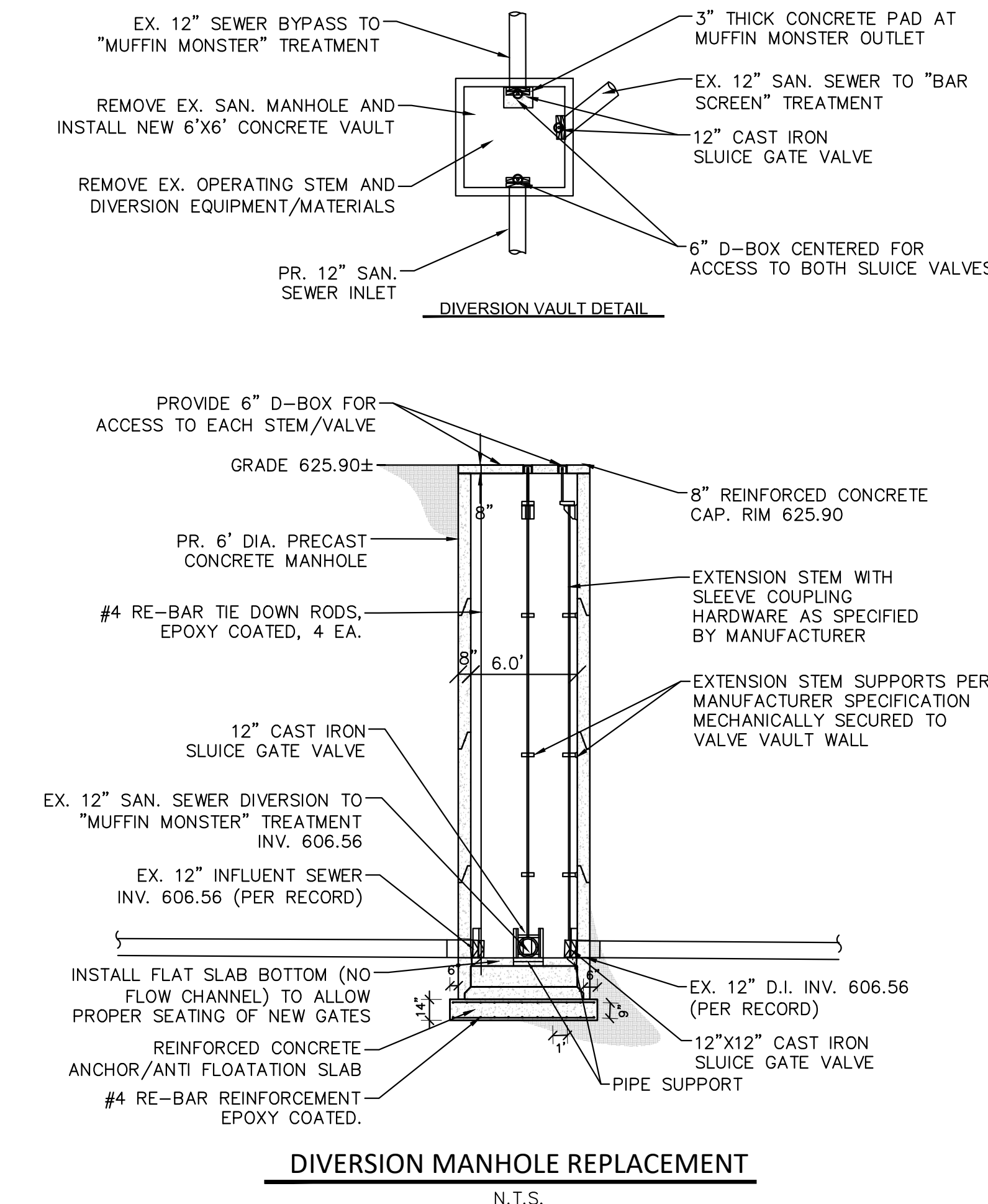
SLUICE GATE W/NUT AND THREADED ROD IN D-BOX
N.T.S.



BYPASS GRINDER STATION REPLACEMENT
N.T.S.



DIVERSION MANHOLE REPLACEMENT
N.T.S.



DIVERSION MANHOLE REPLACEMENT
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**SAGINAW CORRECTIONAL FACILITY
SEWER SCREENING IMPROVEMENTS**

TITTABAWASSEE TWP., SAGINAW COUNTY, MI

**SANITARY IMPROVEMENTS
INFORMATION**

PROJECT NO. 472/25355/CTS	INDEX	DESIGNED BY	JCIENG BY
PCA	00-0000	KAR	KAR
DRAWN BY	KAR	KAR	SWS

C4

PLUMBING ABBREVIATIONS

AD	AREA DRAIN	NTS	NOT TO SCALE
ASR	AUTOMATIC SPRINKLER RISER	ORD	OVERFLOW ROOF DRAIN
BFS	BELOW FLOOR SLAB	OXY	OXYGEN
BWV	BACK WATER VALVE	P	PUMP
CB	CATCH BASIN	PD	PRESSURE DROP
CI	CAST IRON	PVC	POLY-VINYL-CHLORIDE
CO	CLEAN OUT	RC	RAIN CONDUCTOR
CV	CONTROL VALVE	RD	ROOF DRAIN
DF	DRINKING FOUNTAIN	RI	ROUGH-IN
DIA	DIAMETER	REQD	REQUIRED
DN	DOWN	SAN	SANITARY
DWH	DOMESTIC WATER HEATER	SHWR	SHOWER
E.T.C.	ELECTRICAL TRADES CONTRACTOR	SK	SINK
EWC	ELECTRIC WATER COOLER	SP	STAND PIPE
EXIST	EXISTING	SQ. FT.	SQUARE FEET
FD	FLOOR DRAIN	SS	SERVICE SINK
FC	FINAL CONNECTIONS	ST	STORM
FDC	FIRE DEPT. CONNECTION	STW	STOP & WASTE
FF	FINISH FLOOR	STR	STRAINER
FHV	FIRE HOSE VALVE	SV	STACKED VENT
FT	FEET	TYP.	TYPICAL
GAL	GALLON	UR	URINAL
GD	GARBAGE DISPOSAL	VB	VACUUM BREAKER
GI	GREASE INTERCEPTOR	VS	VENT STACK
GPH	GALLONS PER HOUR	V.F.D	VARIABLE FREQUENCY DRIVE
GPM	GALLONS PER MINUTE	VTR	VENT THRU ROOF
HB	HOSE BIB	W	WASTE
HD	HEAD (FT)	WB	WET BULB
HP	HORSE POWER	WC	WATER CLOSET
ID	INSIDE DIAMETER	WH	WALL HYDRANT
I.E.	INVERT ELEVATION	WS	WASTE STACK
LAV	LAVATORY	W&V	WASTE AND VENT
LT	LAUNDRY TRAY	X-CW	EXIST. CW PIPING
MA	MEDICAL AIR	ITEM	ITEM
MAX	MAXIMUM	EXISTING	EXISTING
MGC	MEDICAL GAS CONSOLE		
MH	MAN HOLE		
MIN	MINIMUM		
MS	MOP SINK		
M.T.C.	MECHANICAL TRADES CONTRACTOR		

GENERAL PLUMBING NOTES

- ALL PLUMBING WORK SHALL CONFORM TO MICHIGAN PLUMBING CODE, LATEST APPLICABLE EDITION, AND ALL APPLICABLE LOCAL CODES.
- INSTALL ALL EQUIPMENT, MATERIALS, AND ACCESSORIES PER MANUFACTURERS WRITTEN INSTRUCTIONS.
- INSTALL ISOLATION BALL VALVES @ ALL FIXTURE WATER SUPPLY LINES.
- SITE CONTRACTOR TO RUN UTILITIES TO 5'-0" FROM BUILDING LINE.
- ALL PIPE SIZES SHOWN ARE SERVICE SIZE. SIZE SLEEVES FOR 1" CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLATION OF MECHANICAL SEAL.
- CONTRACTOR SHALL DEMOLISH & REMOVE EXISTING PIPING, FITTINGS, & EQUIPMENT AS REQUIRED FOR NEW INSTALLATIONS. VALVE & CAP PIPING TO REMAIN.
- FIELD VERIFY LOCATIONS OF EXISTING PIPING THAT MAY CONFLICT WITH NEW CONSTRUCTION AND RELOCATE AS NEEDED.
- NOTIFY OWNER OF ANY PIPING DEMOLITION THAT MAY AFFECT NORMAL OPERATION OF OTHER AREAS.
- MECHANICAL SEALS REQUIRED FOR BELOW GRADE WALL PENETRATIONS. ALL WALL AND SLAB PENETRATIONS OF MASONRY OR CONCRETE CONSTRUCTION SHALL BE SLEEVED.
- 2% SLOPE FOR ALL SANITARY PIPING 2-1/2" OR LESS IN DIAMETER. 1% SLOPE FOR ALL SANITARY PIPING 3" OR MORE IN DIAMETER.
- PROVIDE SHOCK STOPS FOR EVERY PLUMBING GROUP. PROVIDE SHOCK ABSORBER IN THE DOMESTIC COLD AND HOT WATER PIPING. SHOCK ABSORBERS TO BE LOCATED IN AN ACCESSIBLE LOCATION.
- PROVIDE AIR ELIMINATION DEVICES FOR EACH PLUMBING SYSTEM.
- THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A "NEW" CONDITION DURING CONSTRUCTION.
- ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS AND SUBCONTRACTORS AS REQUIRED BY LAW.
- DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CODES AND REGULATIONS ENFORCED BY LOCAL BUILDING OFFICIALS.
- IF THERE IS CONFLICTING INFORMATION IN THE PLANS OR SPECIFICATIONS THE MORE STRINGENT AND GREATER COST ITEM SHALL BE USED.
- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND SUGGESTED ROUTES. IT IS NOT INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE. AVOID OBSTRUCTIONS. PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.
- ANY INFORMATION FOUND ON THE DRAWINGS AND NOT IN THE SPECIFICATIONS, OR FOUND IN SPECIFICATIONS AND NOT IN THE DRAWINGS, SHALL BE CONSTRUED AS TO BE INCLUDED IN BOTH THE SPECIFICATIONS AND THE DRAWINGS. ANY CONFLICT BETWEEN THE PLANS AND THE SPECIFICATIONS WILL BE INTERPRETED BY THE ARCHITECT. IN THE EVENT OF CONFLICT, FOR THE PURPOSE OF BIDDING, THE CONTRACTOR SHALL PRESUME THE MOST EXPENSIVE COMBINATION OF QUALITY AND QUANTITY OF WORK SHALL PREVAIL.
- UNLESS OTHERWISE NOTED, ALL PIPING SHALL BE CONCEALED WHEREVER POSSIBLE. PROVIDE CHROME ESCUTCHEON AT EACH PENETRATION OF A FINISHED SURFACE.
- PLUMBING UTILITY PIPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR OR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- PROVIDE ISOLATION SEPARATORS FOR COPPER PIPING RUNNING THROUGH METAL STUDS.
- PROVIDE FIRE STOPPING AT ALL PENETRATIONS OF FIRE RATED ENCLOSURES.
- CONTRACTOR TO PATCH, PRIME, AND PAINT EXISTING WALLS/CEILINGS AS NEEDED TO MATCH EXISTING WHERE DEMOLITION AND/OR NEW WORK IS COMPLETED.
- CONTRACTOR TO ATTEND A 6 MONTH AND AN 11 MONTH POST CONSTRUCTION MEETING WITH THE ENGINEER AND OWNER TO REVIEW AND FIX ISSUES DURING THE WARRANTY PERIOD.
- CONTRACTOR TO TRACK AND PROVIDE PAPERWORK TO OWNER OF THE AMOUNT OF MATERIAL BEING RECYCLED THROUGHOUT THE PROJECT.
- CONTRACTOR WILL HAVE 1 ESCORT TO WORK WITH THROUGH AT THE PROJECT.
- CONTRACTOR TO NOTIFY THE FACILITY AT LEAST 1 DAY IN ADVANCE FOR ANY HOT WORK TO ALLOW THE OWNER TO DISABLE THE FIRE ALARM.
- ALL FASTENERS USED IN AREAS EXPOSED TO INMATES SHALL USE TAMPERPROOF SCREWS.
- ALL COORDINATION ITEMS AND/OR REQUIRED SYSTEM SHUTDOWNS MUST BE COORDINATED AND APPROVED BY MDOC 10 DAYS IN ADVANCE. CONTRACTOR TO PROVIDE DETAILED SCHEDULE OF WHAT IS GOING TO OCCUR AND WHAT WILL BE AFFECTED. CONTRACTOR TO ALSO PROVIDE MDOC WITH SAFETY AND BACKUP PLANS IF AN UNEXPECTED EVENT WERE TO OCCUR DURING THE COORDINATION ITEMS AND/OR REQUIRED SYSTEM SHUTDOWNS.
- ALL WORK IN THE SCREEN ROOM SHALL BE COMPLETED WITH PROPER PRECAUTIONS FOR A CLASS 1, DIVISION 1 HAZARDOUS ENVIRONMENT.
- ALL MATERIALS SHALL BE RATED FOR USE IN A CLASS 1, DIVISION 1 HAZARDOUS ENVIRONMENT.

PLUMBING SYMBOLS LEGEND

PLUMBING PIPING

— CW ———	COLD WATER
- - CW - - - - -	COLD WATER BELOW FINISH SLAB
— HW ———	HOT WATER
- - HW - - - - -	HOT WATER BELOW FINISH SLAB
— HWR ———	HOT WATER RETURN
- - HWR - - - - -	HOT WATER RETURN BELOW FINISH SLAB
— SW ———	SOFTENED WATER
- - SW - - - - -	SOFTENED WATER BELOW FINISH SLAB
— SWR ———	SOFTENED WATER RETURN
- - SWR - - - - -	SOFTENED WATER RETURN BELOW FINISH SLAB
— TW ———	TEMPERED WATER
- - TW - - - - -	TEMPERED WATER BELOW FINISH SLAB
— TWR ———	TEMPERED WATER RETURN
- - TWR - - - - -	TEMPERED WATER RETURN BELOW FINISH SLAB
— DI ———	DEIONIZED WATER
- - DI - - - - -	DEIONIZED WATER BELOW FINISH SLAB
— RO ———	REVERSE OSMOSIS WATER
- - RO - - - - -	REVERSE OSMOSIS WATER RETURN BELOW FINISH SLAB
— FP ———	FIRE PROTECTION
— G ———	GAS (NATURAL)
— LP ———	GAS (LIQUID PETROLEUM)
— ARV ———	ACID RESISTANT
— ARW ———	VENT ACID RESISTANT WASTE
— ARW ———	ACID RESISTANT WASTE BELOW FINISH SLAB
— RC ———	RAIN CONDUCTOR
— ST ———	STORM BELOW FINISH SLAB
— ORC ———	OVERFLOW RAIN CONDUCTOR
— ORC ———	OVERFLOW RAIN CONDUCTOR BELOW FINISH SLAB
— SAN ———	SANITARY WASTE
— SAN ———	SANITARY WASTE BELOW FINISH SLAB
— V ———	VENT PIPING
- - V - - - - -	VENT PIPING BELOW FINISH SLAB
— CA ———	COMPRESSED AIR
— O2 ———	OXYGEN
— NO ———	NITROUS OXIDE
— N2 ———	NITROGEN
— MA ———	MEDICAL AIR
— VAC ———	VACUUM
- - - - -	DEMOLITION

PLUMBING VALVES

	GATE VALVE
	GAS COCK
	CHECK VALVE
	BALANCE COCK
	CIRCUIT SETTER
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	GLOBE VALVE
	BALL VALVE
	OS&Y VALVE
	SOLENOID VALVE
	EXPANSION VALVE WITH THERMOSTATIC BULB
	PLUG VALVE
	BUTTERFLY VALVE
	RELIEF VALVE
	HOSE & DRAIN END VALVE
	PRESSURE RELIEF VALVE
	PRESSURE REDUCING VALVE
	TRIPLE DUTY VALVE
	GAS PRESSURE REGULATOR
	STRAINER (BLOW-OFF)

MISCELLANEOUS NOTES

	POINT OF CONNECTION BETWEEN NEW AND EXISTING
	POINT OF EXISTING TO REMAIN AND EXISTING TO BE REMOVED
	INDICATES PLAN NOTE
	INDICATES DEMOLITION NOTE
	DETAIL BUBBLE
	DETAIL NUMBER
	PAGE LOCATION INDICATES
	DIRECTION OF DETAIL SECTION

PLUMBING EQUIPMENT

	FLOW DIRECTION
	PIPING DROP
	PIPING RISE
	FLOOR CLEANOUT
	INLINE PIPING DROP
	INLINE PIPING RISE
	PIPING TEE
	PIPING ELBOW
	INLINE CLEANOUT
	PLUMBING TRAP
	THERMOMETER
	CONNECTION
	PUMP
	UNION
	PIPE ANCHOR
	PIPE GUIDE
	FLOOR DRAIN & FLOOR SINK
	BACK FLOW PREVENTER
	FLANGE END CONNECTION
	WALL HYDRANT & HOSE BIBB
	REGULAR & OVERFLOW ROOF DRAIN
	PIPE CAP
	PIPE BREAK
	WATER METER
	GAS METER
	PRESSURE GAUGE
	FIRE HYDRANT
	SPRINKLER HEAD (PENDANT)
	SPRINKLER HEAD (UPRIGHT)
	SPRINKLER HEAD (SIDEWALL)
	FIRE DEPARTMENT CONNECTION
	PIPING FLEXIBLE CONNECTOR
	SIGHT GLASS
	PIPE EXPANSION
	COMPENSATOR FLOW SENSOR DEVICE
	FLOW METER
	FLOW SWITCH
	PRESSURE SWITCH
	SUPERVISORY SWITCH INVERTED
	BUCKET TRAP
	FLOAT & THERMOSTATIC TRAP

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STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, R.A., DIRECTOR

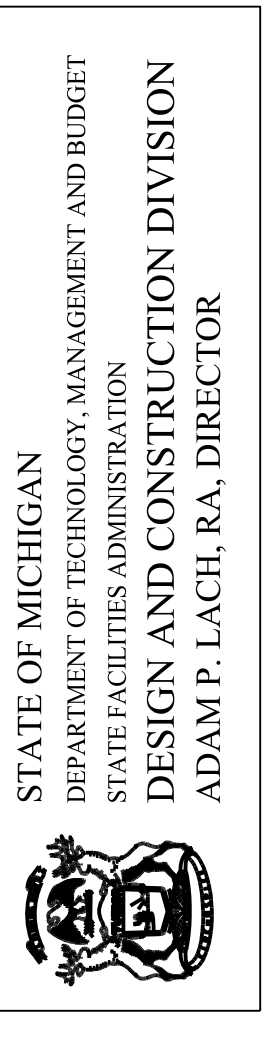
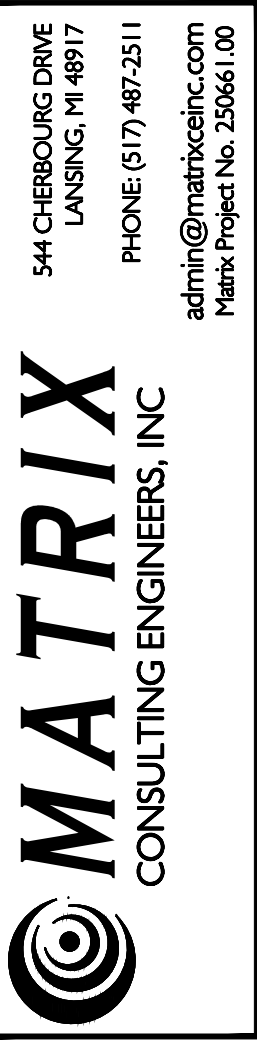
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BID DOCUMENTS	
Review	

PROJECT DESCRIPTION
**SAGINAW CORRECTIONAL FACILITY
BAR SCREEN BUILDING IMPROVEMENTS**
TITTABAWASSEE TWP., SAGINAW COUNTY, MI

**PLUMBING SYMBOLS, NOTES,
AND ABBREVIATIONS**

PROJECT NO.	47125355.CTS
INDEX	
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DESIGNED BY	TAT
DATE	JCE/ENG BY

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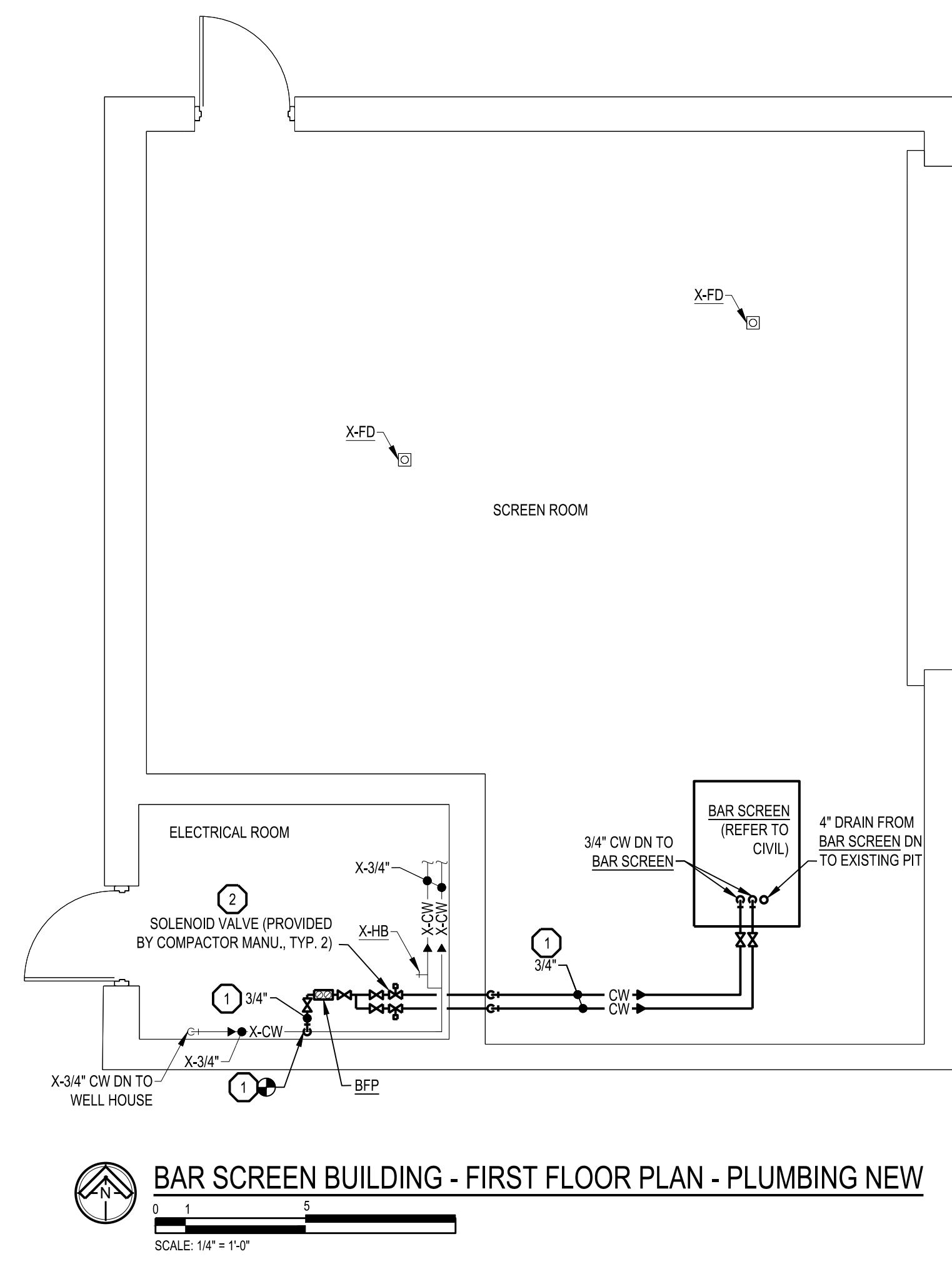
DATE	3/30/2026
BID DOCUMENTS	
Review	

PROJECT DESCRIPTION
SAGINAW CORRECTIONAL FACILITY
BAR SCREEN BUILDING IMPROVEMENTS
 TITTABAWASSEE TWP., SAGINAW COUNTY, MI

BAR SCREEN BUILDING - FIRST FLOOR PLAN - PLUMBING NEW

PROJECT NO.	47125355.CTS
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DESIGNED BY	TAT
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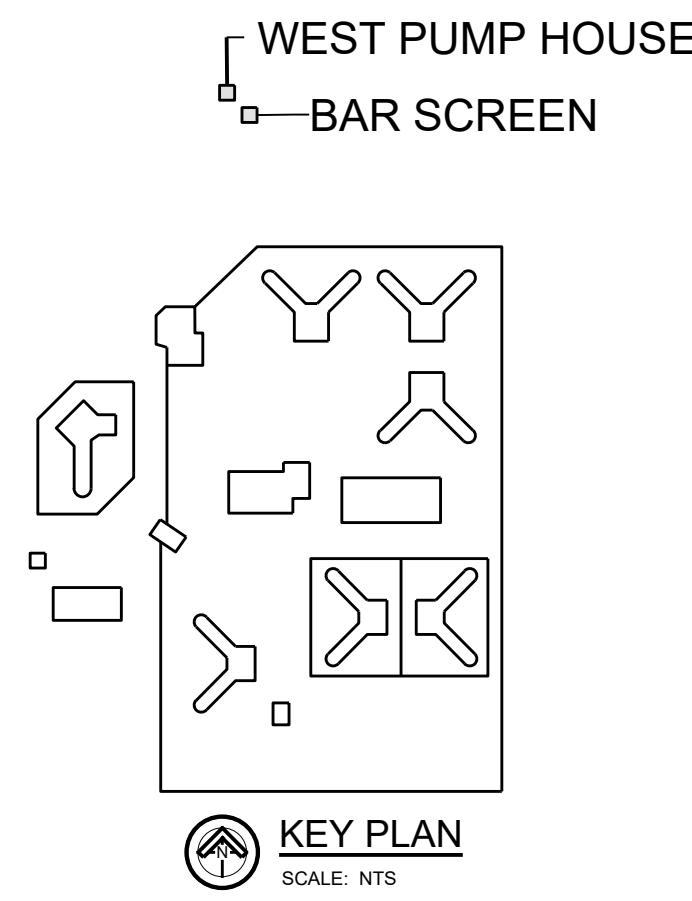
BAR SCREEN BUILDING - FIRST FLOOR PLAN - PLUMBING NEW
 SCALE: 1/4" = 1'-0"

GENERAL PLUMBING NOTES

1. ALL WORK AND MATERIAL IN SCREEN ROOM SHALL BE FOR CLASS 1, DIVISION 1 HAZARDOUS ENVIRONMENT.
2. NEW COLD WATER PIPING IN THE ELECTRICAL ROOM SHALL NOT BE ROUTED OVER ELECTRICAL GEAR AND/OR PANELS.
3. CONTRACTOR TO INSTALL NEW NIRON (OR PRE-APPROVED EQUIVALENT) POLYPROPYLENE PIPING, VALVES, FITTINGS, AND ALL ASSOCIATED ACCESSORIES PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONTRACTOR TO HANG/SUPPORT NEW NIRON (OR PRE-APPROVED EQUIVALENT) POLYPROPYLENE PER THE PROJECT SPECIFICATIONS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. CONTRACTORS TO PROVIDE ALL REQUIRED ADDITIONAL PIPE RACKING, SUPPORTS, HANGERS, AND ALL ASSOCIATED EQUIPMENT TO ENSURE THE NEW NIRON (OR PRE-APPROVED EQUIVALENT) POLYPROPYLENE PIPING IS PROPERLY INSTALLED.

PLUMBING KEY NOTES

1. INSTALL NEW COLD WATER PIPING, VALVES, FITTINGS, HANGERS, SUPPORTS, AND ALL ASSOCIATED ACCESSORIES IN THE LOCATION SHOWN. CONTRACTOR TO REFER TO BARSCREEN MANUFACTURER INSTALLATION INSTRUCTIONS FOR FINAL CONNECTIONS. CONTRACTOR TO MODIFY EXISTING DOMESTIC COLD WATER PIPING AS REQUIRED TO MAKE NEW CONNECTION.
2. CONTRACTOR TO INSTALL NEW SOLENOID VALVES PROVIDED BY BARSCREEN/COMPACTOR MANUFACTURER. CONTRACTOR TO INSTALL NEW SOLENOID VALVES, CONTROLS, CONTROL WIRING, AND ALL ASSOCIATED ACCESSORIES PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CONNECT THEM TO THE NEW BARSCREEN/COMPACTOR CONTROL PANEL. CONTRACTOR TO COORDINATE THE CONNECTION OF THE SOLENOID VALVES TO THE BARSCREEN/COMPACTOR CONTROL PANEL WITH THE MANUFACTURER.



KEY PLAN
 SCALE: NTS

MECHANICAL ABBREVIATIONS

AFF	ABOVE FINISH FLOOR	ID	INSIDE DIAMETER
AC	AIR COMPRESSOR	IE	INVERT ELEVATION
AHU	AIR HANDLING UNIT	IAH	INTAKE HOOD
AS	AIR SEPARATOR	LAT	LEAVING AIR TEMPERATURE
A.T.C.	ARCHITECTURAL TRADES CONTRACTOR	LH	LATENT HEAT (MBH)
		LWT	LEAVING WATER TEMPERATURE
B	BOILER		
B.A.S.	BUILDING AUTOMATION SYSTEM	MAX	MAXIMUM
CAF	COMBUSTION AIR FAN	MBH	BTU PER HOUR (THOUSAND)
CC	COOLING COIL	MIN	MINIMUM
CFM	CUBIC FEET PER MINUTE	M.T.C.	MECHANICAL TRADES CONTRACTOR
CHLR	CHILLER		
CHP	CONSOLE HEAT PUMP	N.C.	NOISE CRITERIA
CONV	CONVECTOR	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CT	COOLING TOWER	NTS	NOT TO SCALE
CU	CONDENSING UNIT		
CUH	CABINET UNIT HEATER	P	PUMP
CV	CONTROL VALVE	PCR	PUMPED CONDENSATE RETURN
CWP	CHILLED WATER PUMP	PD	PRESSURE DROP
		RCP	RADIANT CEILING PANEL
DB	DRY BULB	REQD	REQUIRED
DFU	DUCT FURNACE	RG	RETURN GRILLE
DIA	DIAMETER	RH	RELATIVE HUMIDITY
DN	DOWN	RLH	RELIEF HOOD
DPR	DAMPER	RTU	ROOF TOP UNIT
DS	DUCT SILENCER		
		SD	SUPPLY DIFFUSER
EAT	ENTERING AIR TEMPERATURE	SF	SUPPLY FAN
EF	EXHAUST GRILLE	SG	SUPPLY GRILLE
EG	ELECTRICAL TRADES CONTRACTOR	SH	SENSIBLE HEAT (MBH)
E.T.C.	E.T.C.	SM	SHEET METAL
EVR	EVAPORATOR	SQ. FT.	SQUARE FEET
EWT	ENTERING WATER TEMPERATURE	SST	SATURATED SUCTION TEMPERATURE
EXH	EXHAUST	STR	STRAINER
EXIST	EXISTING		
		TC	TOTAL COOLING (MBH)
FF	FINISH FLOOR	TCL	TEMPERATURE CONTROL
FPM	FEET PER MINUTE	T&P	TEMPERATURE & PRESSURE RELIEF VALVE
FT	FEET	TYP	TYPICAL
FR	FINNED TUBE RADIATION		
FU	FURNACE	UH	UNIT HEATER
		VAV	VARIABLE AIR VOLUME BOX
GAL	GALLON	VRH	VARIABLE AIR VOLUME REHEAT BOX
QFRH	GAS FIRED RADIANT HEATER	FPVAV	FAN POWERED VARIABLE AIR VOLUME BOX
GR	GRILLE	V.F.D	VARIABLE FREQUENCY DRIVE
		ZD	ZONE DAMPER
H	HUMIDIFIER	X-SA	EXISTING ITEM (EXISTING SUPPLY AIR DUCT)
HC	HEATING COIL		ITEM
HD	HEAD (FT)		EXISTING
HP	HORSE POWER		
HHP	HORIZONTAL HEAT PUMP		
HTG	HEATING		
HVAC	HEATING, VENTILATION, & AIR CONDITIONING		
HWP	HEATING WATER PUMP		
HX	HEAT EXCHANGER		

GENERAL HVAC NOTES

- ALL WORK SHALL CONFORM TO MICHIGAN MECHANICAL CODE, LATEST APPLICABLE EDITION.
- LOCATE EXHAUST OUTLETS OF VENTILATION SYSTEMS AT LEAST 10 FEET FROM OUTDOOR AIR INTAKES.
- INSTALL ALL EQUIPMENT, MATERIALS, AND ACCESSORIES PER MANUFACTURERS WRITTEN INSTRUCTIONS.
- BOTTOM OF EQUIPMENT ON ROOF SHALL BE A MINIMUM OF 12" ABOVE ROOF MEMBRANE. CONTRACTOR SHALL COORDINATE ASSOCIATED ROOF CURB HEIGHT AS REQUIRED.
- ALL EXISTING SYSTEMS THAT SERVE AREAS BEING RENOVATED SHALL BE REBALANCED AS REQUIRED.
- NOTIFY OWNER OF ANY PIPING OR DUCTWORK DEMOLITION THAT MAY AFFECT NORMAL OPERATION OF OTHER AREAS.
- FIELD VERIFY LOCATIONS OF EXISTING PIPING THAT MAY CONFLICT WITH NEW CONSTRUCTION AND RELOCATE AS NEEDED.
- LOCATIONS OF THE THERMOSTATS TO BE VERIFIED IN FIELD.
- CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER DISCIPLINES PRIOR TO CONSTRUCTION TO AVOID CONFLICTS.
- OFFSET PIPING TO ACCOMMODATE LARGE DUCTWORK.
- THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A 'NEW' CONDITION DURING CONSTRUCTION.
- ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS AND SUBCONTRACTORS AS REQUIRED BY LAW.
- CONTRACTOR SHALL USE LOW PRESSURE LOSS DUCT FITTINGS IN ACCORDANCE WITH SMACNA. (WYES, RADIIUSED OR VANED TEES, ETC.) DUCTWORK SHALL BE STAINLESS STEEL OR ALUMINUM.
- ALL EXTERNALLY ISOLATED HVAC EQUIPMENT SHALL HAVE FLEXIBLE DUCT CONNECTORS.
- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS NOT INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.
- ANY INFORMATION FOUND ON THE DRAWINGS AND NOT IN THE SPECIFICATIONS, OR FOUND IN SPECIFICATIONS AND NOT IN THE DRAWINGS, SHALL BE CONSTRUED AS TO BE INCLUDED IN BOTH THE SPECIFICATIONS AND THE DRAWINGS. ANY CONFLICT BETWEEN THE PLANS AND THE SPECIFICATIONS WILL BE INTERPRETED BY THE ARCHITECT. IN THE EVENT OF CONFLICT, FOR THE PURPOSE OF BIDDING, THE CONTRACTOR SHALL PRESUME THE MOST EXPENSIVE COMBINATION OF QUALITY AND QUANTITY OF WORK SHALL PREVAIL.
- PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
- WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA OR OTHERS, THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.
- DUCTWORK SHALL BE ACOUSTICALLY LINED WITHIN 10 FT OF THE INTAKE AND/OR DISCHARGE OF A FAN.
- DUCTPIPPING LAYOUT IS SCHEMATIC. EXACT LOCATION OF DUCTPIPPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE. EQUIPMENT FURNISHED, ARCHITECTURAL DRAWINGS, AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK WITHOUT PRIOR COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL TRADES WORK.
- UNLESS OTHERWISE NOTED, ALL DUCTPIPPING SHALL BE CONCEALED WHEREVER POSSIBLE. PROVIDE CHROME ESCUTOCHION OR ALUMINUM DUCT COLLAR AT EACH PENETRATION OF A FINISHED SURFACE.
- DUCTPIPPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- ANY ADDITIONAL LOW VOLTAGE CONTROL WIRING THAT IS REQUIRED SHALL BE PROVIDED BY THE HVAC CONTRACTOR. CONTROL WIRING SHALL BE RUN IN CONDUIT IF REQUIRED BY LOCAL CODES OR THE SPECIFICATIONS. POWER SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- PROVIDE VIBRATION ISOLATION AT EACH CONNECTION TO A MOTORIZED PIECE OF EQUIPMENT BY THE HVAC CONTRACTOR.
- MOUNT THERMOSTAT/SENSORS AT 48" AFF UNLESS NOTED OTHERWISE.
- CONTRACTOR TO PATCH, PRIME, AND PAINT EXISTING WALLS/CEILINGS AS NEEDED TO MATCH EXISTING WHERE DEMOLITION AND/OR NEW WORK IS COMPLETED.
- CONTRACTOR TO PATCH EXISTING ROOF AS REQUIRED TO MATCH EXISTING, SEAL WATER TIGHT, AND MAINTAIN EXISTING ROOF WARRANTIES AFTER DEMOLITION/NEW WORK IS COMPLETED.
- CONTRACTOR TO ATTEND A 6 MONTH AND AN 11 MONTH POST CONSTRUCTION MEETING WITH THE ENGINEER AND OWNER TO REVIEW AND FIX ISSUES DURING THE WARRANTY PERIOD.
- CONTRACTOR TO TRACK AND PROVIDE PAPERWORK TO OWNER OF THE AMOUNT OF MATERIAL BEING RECYCLED THROUGHOUT THE PROJECT.
- CONTRACTOR WILL HAVE 1 ESCORT TO WORK WITH THROUGH AT THE PROJECT.
- CONTRACTOR TO NOTIFY THE FACILITY AT LEAST 1 DAY IN ADVANCE FOR ANY HOT WORK TO ALLOW THE OWNER TO DISABLE THE FIRE ALARM.
- ALL FASTENERS USED IN AREAS EXPOSED TO INMATES SHALL USE TAMPERPROOF SCREWS.

GENERAL DEMOLITION NOTES

- EXISTING EQUIPMENT LAYOUT IS SCHEMATIC. EXACT LOCATION OF EXISTING DUCTPIPPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE, EQUIPMENT FURNISHED, AND ALL OTHER TRADES PRIOR TO DEMOLITION.
- PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
- WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA OR OTHERS, THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.
- COORDINATE CUTTING AND PATCHING WITH GENERAL CONTRACTOR.
- ALL BOLD DASHED LINES INDICATE ITEMS TO BE REMOVED UNLESS NOTED BY KEYNOTE. ALL OTHER EXISTING SYSTEMS SHOWN FOR REFERENCE ONLY.
- PATCH AND REPAIR ALL FLOOR/CEILING/WALL SURFACES LEFT DAMAGED OR INCOMPLETE FROM REMOVAL OF FIXED ACCESSORIES AND EQUIPMENT WITH MATERIALS TO MATCH EXISTING, AS ACCEPTABLE TO THE OWNER.
- NOTATIONS ARE MADE IN VARIOUS PLACES ON THE DRAWINGS TO CALL ATTENTION TO DEMOLITION WHICH IS REQUIRED. HOWEVER, THESE DRAWINGS ARE NOT INTENDED TO SHOW EACH AND EVERY ITEM TO BE REMOVED. CONTRACTOR SHALL REMOVE ALL MATERIALS RELATED TO THEIR RESPECTIVE TRADES AS REQUIRED TO PERMIT THE CONSTRUCTION OF THE NEW WORK AS SHOWN.
- THE GENERAL CONTRACTOR SHALL COORDINATE THE EXTENT OF THE REQUIRED DEMOLITION OF THE EXISTING BUILDING AS REQUIRED TO FACILITATE THE CONSTRUCTION OF THE PROJECT AS SHOWN AS PART OF THIS WORK.
- ALL DEMOLITION SHALL BE APPROVED BY THE OWNER/TENANT PRIOR TO COMMENCEMENT AND SHALL BE PERFORMED UNDER REQUIREMENTS AND APPROVAL OF THE LOCAL CODE JURISDICTIONS.
- PROTECT ALL EXISTING WORK WHICH IS TO REMAIN AND RESTORE IN AN APPROVED MANNER ANY SUCH WORK WHICH BECOMES DAMAGED.
- RUBBISH AND DEBRIS RESULTING FROM THE WORK SHALL BE REMOVED IMMEDIATELY FROM THE SITE IN A SAFE AND LEGAL MANNER BY THE CONTRACTOR.
- DEMOLITION CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT BUILDING REPRESENTATIVE TO CLARIFY ANY ITEMS NOT SHOWN ON THESE DOCUMENTS OR SHOWN NOT MATCHING FIELD CONDITIONS.

MECHANICAL SYMBOLS LEGEND

HVAC DUCTWORK SYMBOLS

	SUPPLY AIR DUCT RISER
	RETURN AIR DUCT RISER
	OUTSIDE AIR DUCT RISER (AS NOTED)
	EXHAUST AIR DUCT
	INSULATED DUCTWORK (AS NOTED)
	SUPPLY AIR DIFFUSER (SQUARE)
	SUPPLY AIR DIFFUSER (INLINE)
	TURNING VANES
	SURFACE MTD. GRILLE
	SUPPLY AIR DIFFUSER (ROUND)
	90° TEE W/45° APPROACH
	CONICAL TAKE-OFF
	CONICAL TAKE-OFF W/ DAMPER
	BALANCE DAMPER
	RETURN AIR DUCT BOOT
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	UNIT HEATER
	CEILING EXHAUST FAN
	ROOF MOUNTED EXHAUST FAN
	DEMOLITION

HVAC DUCTWORK & DIFFUSER TAGS

	TAG	CFM
	NECK	REMARKS
	SIZE	

MISCELLANEOUS NOTES

	POINT OF CONNECTION BETWEEN NEW AND EXISTING
	POINT OF EXISTING TO REMAIN AND EXISTING TO BE REMOVED
	INDICATES PLAN NOTE
	INDICATES DEMOLITION NOTE
	DETAIL BUBBLE
	DETAIL NUMBER
	PAGE LOCATION INDICATES
	DIRECTION OF DETAIL SECTION

HVAC PIPING

	CWS	CHILLED WATER SUPPLY
	CWR	CHILLED WATER RETURN
	CD	CONDENSATE DRAIN
	CS	CONDENSER WATER SUPPLY
	CR	CONDENSER WATER RETURN
	CTS	COOLING TOWER WATER SUPPLY
	CTR	COOLING TOWER WATER RETURN
	DX	DIRECT EXPANSION
	HPS	HEAT PUMP WATER SUPPLY
	HPR	HEAT PUMP WATER RETURN
	HS	HEATING WATER SUPPLY
	HR	HEATING WATER RETURN
	S	SUCTION (REFRIGERANT)
	L	LIQUID (REFRIGERANT)
	DXS	SUCTION (DIRECT EXPANSION)
	DXL	LIQUID (DIRECT EXPANSION)
	LPS	LOW PRESSURE STEAM (0-20 LBS.)
	MPS	MEDIUM PRESSURE STEAM (21-75 LBS.)
	HPS	HIGH PRESSURE STEAM (76 LBS. & ABV.)
	SC	STEAM CONDENSATE (GRAVITY)
	SCP	PUMPED STEAM CONDENSATE
	SC (BF)	STEAM CONDENSATE BOILER FEED

HVAC PIPING VALVES

	GATE VALVE
	GAS COCK
	CHECK VALVE
	BALANCE COCK
	CIRCUIT SETTER
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	GLOBE VALVE
	BALL VALVE
	SOLENOID VALVE
	EXPANSION VALVE WITH THERMOSTATIC BULB
	PLUG VALVE
	BUTTERFLY VALVE
	RELIEF VALVE
	HOSE & DRAIN END VALVE
	PRESSURE RELIEF VALVE
	PRESSURE REDUCING VALVE
	TRIPLE DUTY VALVE
	GAS PRESSURE REGULATOR
	STRAINER (BLOW-OFF)

HVAC PIPING SYMBOLS

	FLOW DIRECTION
	PIPPING DROP
	PIPPING RISE
	INLINE PIPING DROP
	INLINE PIPING RISE
	PIPPING TEE
	PIPPING ELBOW
	THERMOMETER
	PUMP
	UNION
	PIPE ANCHOR
	PIPE GUIDE
	BACK FLOW PREVENTER
	PIPE CAP
	PIPE BREAK
	THERMOMETER WELL
	EXPANSION LOOP
	EXPANSION COMPENSATOR
	FLOAT & THERMOSTATIC STEAM TRAP
	INVERTED BUCKET STEAM TRAP

TEMPERATURE CONTROL SYMBOLS

	THERMOSTAT
	PROGRAMMABLE THERMOSTAT
	THERMOSTAT (W/ NIGHT SETBACK)
	ROOM SENSOR
	HUMIDISTAT
	PRESSURE GAUGE
	DAMPER (ELECTRIC OPERATION)
	DAMPER (PNEUMATIC OPERATION)
	DAMPER BLADES

HVAC DUCTWORK

	SUPPLY AIR DUCT
	EXIST SUPPLY AIR DUCT
	RETURN AIR DUCT
	EXIST RETURN AIR DUCT
	OUTSIDE AIR DUCT
	EXIST OUTSIDE AIR DUCT
	EXHAUST AIR DUCT
	EXIST EXHAUST AIR DUCT

541 CHERBOURG DRIVE
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Matrix Project No. 250641.00

MATRIX
CONSULTING ENGINEERS, INC.

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ADAM P. LACH, R.A., DIRECTOR

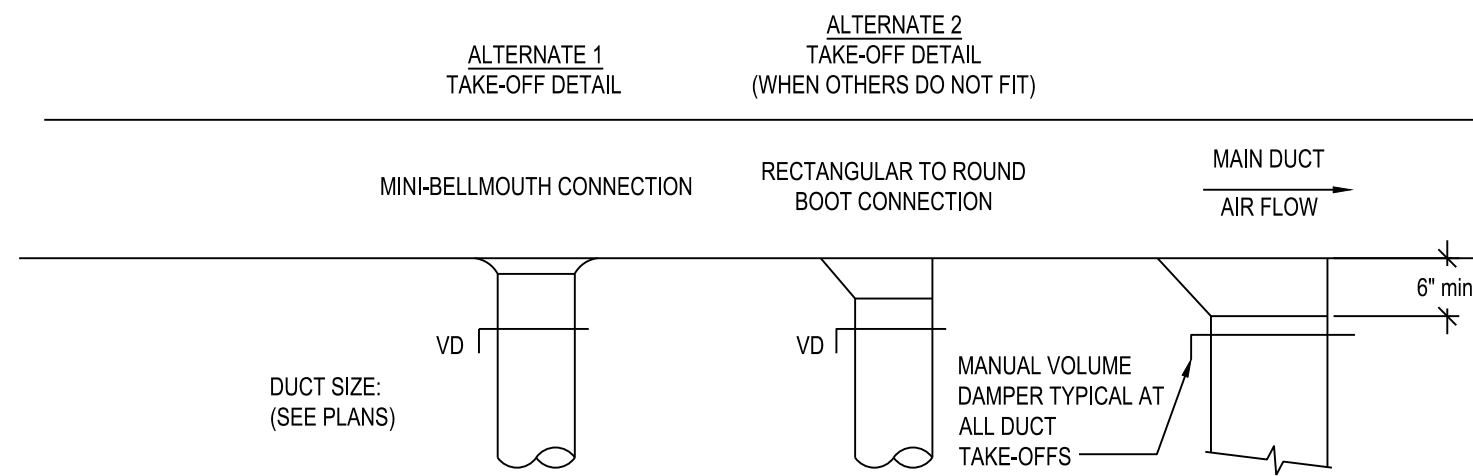
3/30/2026	BID DOCUMENTS	Review
DATE		

PROJECT DESCRIPTION
**SAGINAW CORRECTIONAL FACILITY
BAR SCREEN BUILDING IMPROVEMENTS**
TITTABAWASSEE TWP., SAGINAW COUNTY, MI

MECHANICAL SYMBOLS,
NOTES, AND ABBREVIATIONS

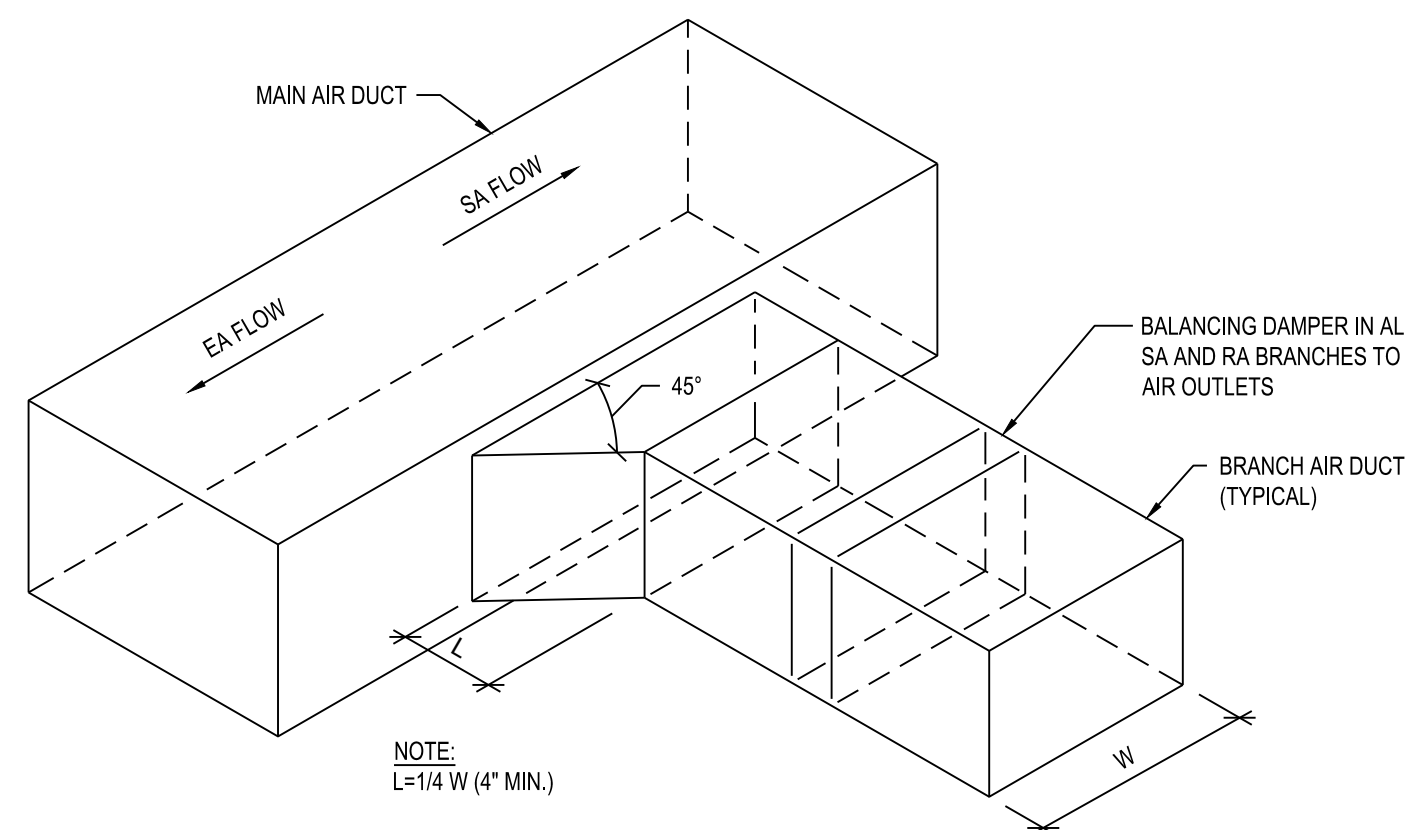
PROJECT NO. 471253556.CTS	INDEX	PCA	00-0000	TAT	TAT	TAT	CAT

M-100

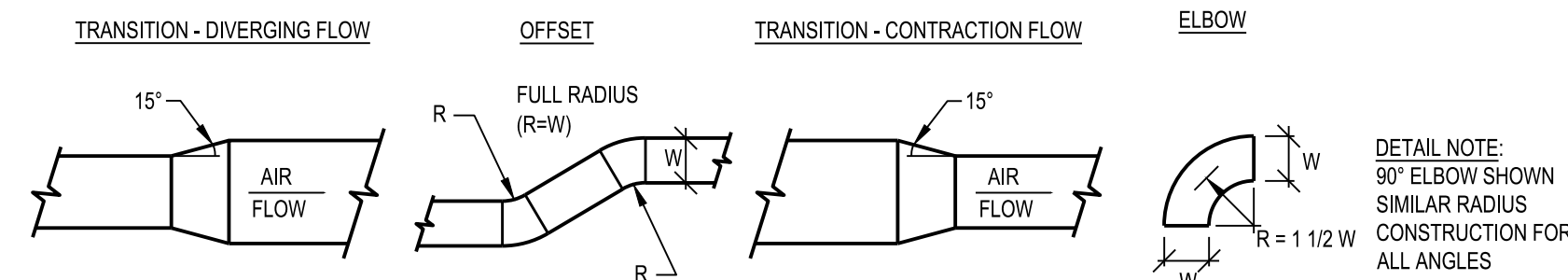


- NOTES:**
- "ALTERNATE" FITTINGS SHALL BE ACCEPTABLE ONLY WHEN DUCT HEIGHT DOES NOT PERMIT THE USE OF "PERMITTED" FULL SIZE BELLMOUTH CONNECTION
 - THIS DETAIL APPLIES TO SINGLE TAKEOFFS TO DIFFUSER AS WELL AS BRANCH TAKEOFFS. IT ALSO APPLIES TO TAKEOFFS IN THE HORIZONTAL AS WELL AS THE VERTICAL DIRECTION.

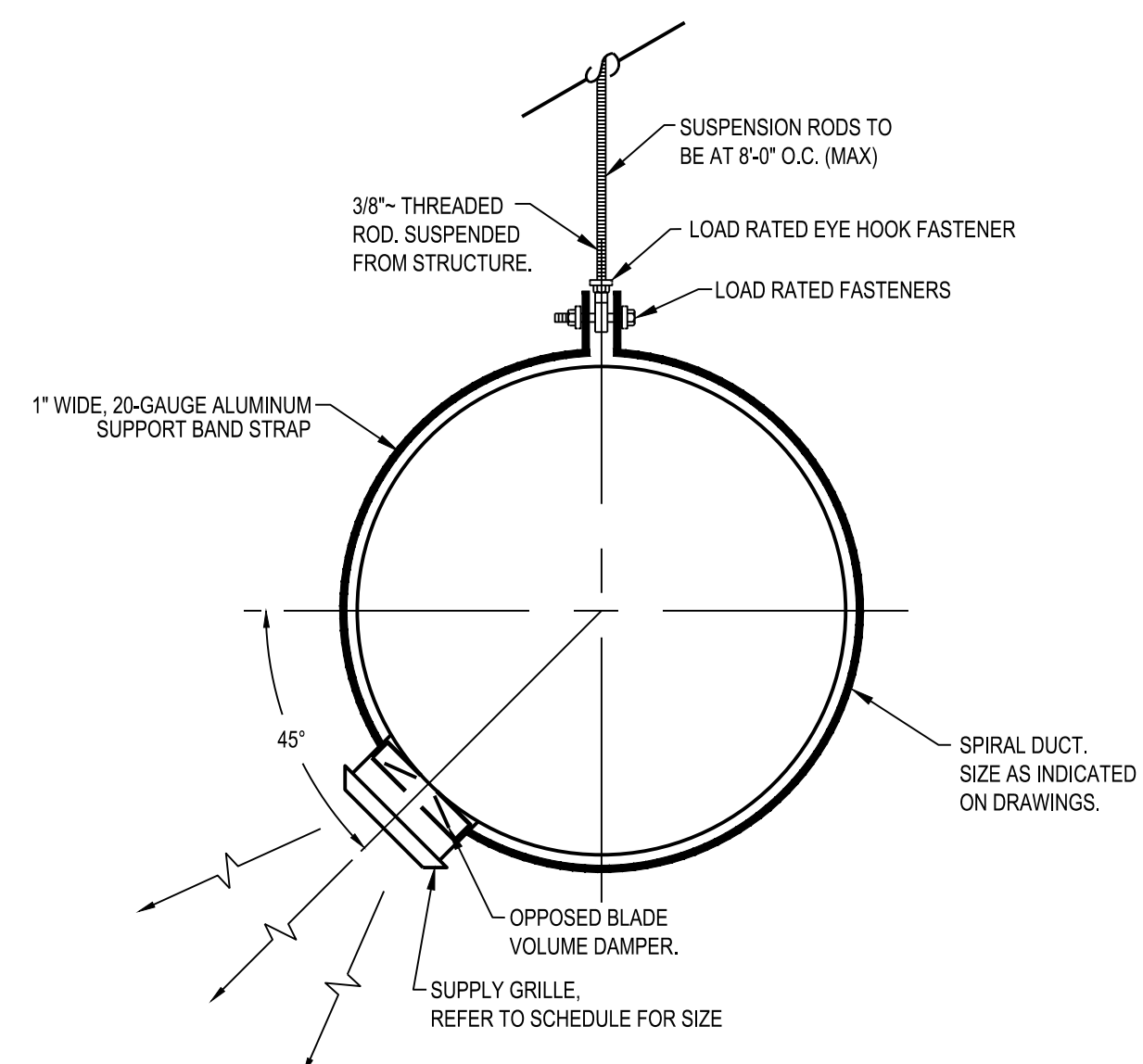
4 DUCT TRANSITION DETAIL
SCALE: NTS



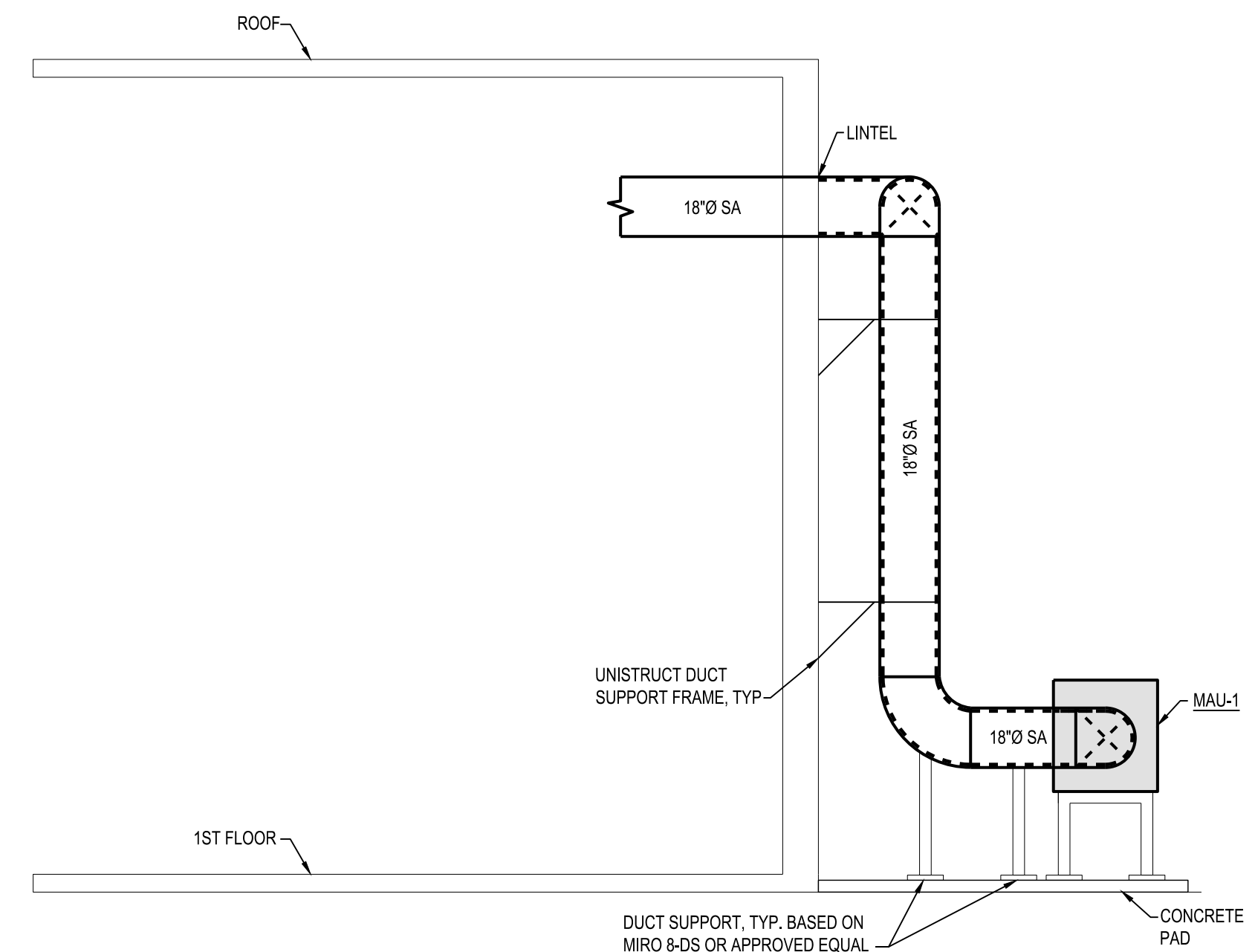
2 DUCT TRANSITION DETAIL
SCALE: NTS



3 OFFSETS, ELBOWS, & TRANSITIONS FOR RECTANGULAR DUCTWORK
SCALE: NTS



1 EXPOSED SUPPLY SPIRAL DUCT DETAIL
SCALE: NTS



5 MAU DUCTWORK ELEVATION
SCALE: NTS

ELECTRIC HEATER SCHEDULE											
TAG	MODEL	LOCATION	TYPE	CAPACITY (KW)	EAT °F	ELECTRICAL			DISC. BY	COMMENTS	
						VOLTS	PHASE	FLA			
EUH-1	HLA 12-208160-3.0-24	ELECTRICAL	FAN FORCED	3.0	70	208	1	16.3	EC	1,2,3,4	

NOTES:

- BASED ON MARKEL
- WALL MOUNTED THERMOSTAT
- MANUFACTURER PROVIDED WALL BRACKET
- CLASS 1, DIVISION 1, EXPLOSION PROOF

ABBREVIATIONS:
EC - ELECTRICAL CONTRACTOR

EXHAUST FAN SCHEDULE														
TAG	MODEL	SERVICE/ LOCATION	CFM	TYPE	DRIVE	ESP (IN WC)	FAN RPM	SONES	ELECTRICAL				COMMENTS	
									FAN HP	VOLTAGE	FLA	PHASE		
EF-1	QEI-12	BAR SCREEN	1650	INLINE	BELT	0.6	1,334	6.4	1/3	480	1.1	3	EC	1,2,3,4
EF-2	G-060-D	ELECTRICAL	75	ROOF MOUNTED	DIRECT	0.3	1,550	3.5	1/60	120	-	1	EC	1,2,5,6

NOTES:

- BASED ON GREENHECK
- GRAVITY BACKDRAFT DAMPER
- FAN SHALL RUN CONTINUOUSLY
- CLASS 1, DIVISION 1, EXPLOSION PROOF
- MANU. PROVIDED ROOF CURB ADAPTER
- REVERSE ACTING THERMOSTAT TO OPERATE FAN PER SEQUENCE OF OPERATIONS

ABBREVIATIONS:
EC - ELECTRICAL CONTRACTOR
CC - CONTROLS CONTRACTOR
MANU - MANUFACTURER

DIFFUSER, REGISTER, & GRILLE SCHEDULE										
TAG	MODEL	NECK SIZE	FACE SIZE	CFM RANGE (MIN-MAX.)	PATTERN	MOUNT	MATERIAL	COLOR	100 FPM THROW	COMMENTS
SD-1	US-DL	18x12	18x12	470-935	DRUM LOUVER	DUCT	ALUMINUM	ALUM. PAINT	18'	1,2,3,4,5
EG-1	50F	12x12	12x12	300-700	1/2"x1/2"x1/2" GRID	DUCT	ALUMINUM	ALUM. PAINT	-	1,2,3,4
EG-1	50F	18x12	18x12	500-1100	1/2"x1/2"x1/2" GRID	DUCT	ALUMINUM	ALUM. PAINT	-	1,2,3,4

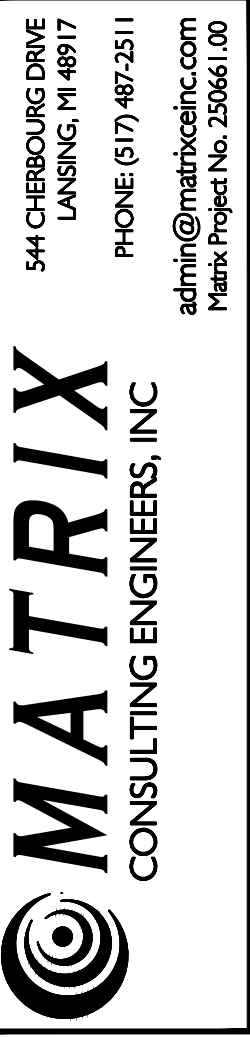
NOTES:

- BASED ON: TITUS
- MAX. NC = 30
- MAX. APD - 0.10 INCHES
- SELECT BORDER TO MATCH ROOM FINISH SCHEDULE
- INTEGRAL BALANCE DAMPER

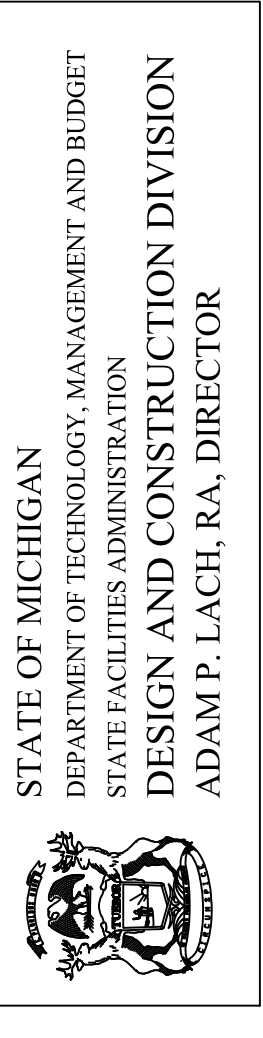
MAKE-UP AIR HANDLING UNIT SCHEDULE														
TAG	SERVICE	LOCATION	MODEL	TYPE	SA CFM	OA CFM	ESP ("WC)	MBH		HP	ELECTRICAL			COMMENTS
								INPUT	OUTPUT		VOLT	PHASE	DISC. BY	
MAU-1	EF-1	BAR SCREEN	IFG-110	GAS FIRED	1,650	1,650	0.5	200	160	1	480	3	EC	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16

NOTES:

- BASED ON KEES
- MOTORIZED INTAKE DAMPER
- FIELD INSTALLED 2-POSITION DISCHARGE DAMPER
- END DISCHARGE
- FULLY MODULATING GAS BURNER
- STAINLESS STEEL HEAT EXCHANGER
- 20" INSULATED CURB
- NON-SPARKING FAN WHEEL (AMCA TYPE B)
- ANTI-STATIC BELTS
- END SWITCH ON DAMPERS
- 2" 30% EFFICIENT PLEATED FILTERS
- 2" MOISTURE ELIMINATORS
- HINGED ACCESS DOORS
- SPECIAL MOTOR, CLASS 1 DIV 2
- INDIRECT FIRED BURNER
- CLASS 1, DIVISION 1 THERMOSTAT



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PROJECT DESCRIPTION
SAGINAW CORRECTIONAL FACILITY
BAR SCREEN BUILDING IMPROVEMENTS
TITTABAWASSEE TWP., SAGINAW COUNTY, MI

ELECTRICAL PANEL & LIGHT
FIXTURE SCHEDULES

PROJECT NO. 47125355.CTS
INDEX
PCA
DRAWN BY VHV
DESIGNED BY VHV
JC/ENG BY JFS

E-900

EXISTING PANEL "LP1"									
LOCATION: ELEC ROOM SUPPLY FROM: SUB PANEL A			MOUNTING: SURFACE ENCLOSURE: NEMA 1			A.I.C. RATING: 22 KA NOTES:			
VOLTS: 208 /120 PHASE: 3 WIRE: 4 AMPS: 30 MAIN: MCB									
BRKR	DESCRIPTION	CIRCUIT	PHASE LOADS			CIRCUIT	DESCRIPTION	BRKR	
A	P	VA	A	B	C	VA	A	P	
20	1	POWER WASHER	500	1	656	2	156 EF-2	20	1
20	1	OUTSIDE RECPT	180	3	360	4	180 ALARM PANEL	20	1
20	1	WATER MIXER	180	5		6	SPARE	20	1
30	2	NEW EHU-1	1695	7	1875	8	180 HVAC CONTROL PANEL	20	1
-	-	SPACE	1695	9	1695	10	SPACE		
		SPACE		11		12	SPACE		
CONNECTED			2531	2055	180	TOTAL CONNECTED LOAD			4766 VOLT-AMPS
TOTAL CONNECTED			4766						13.23 AMPS

EXISTING PANEL "MDP-1401"									
LOCATION: BAR SCREEN MAINT. ROOM SUPPLY FROM: BLDG 100 EMPB			MOUNTING: SURFACE ENCLOSURE: NEMA 1			A.I.C. RATING: 35 KA NOTES: FED FROM 60A BREAKER IN BLDG 100 "EMPB"			
VOLTS: 480 /277 PHASE: 3 WIRE: 4 AMPS: 200 MAIN: MCB									
BRKR	DESCRIPTION	CIRCUIT	PHASE LOADS			CIRCUIT	DESCRIPTION	BRKR	
A	P	VA	A	B	C	VA	A	P	
15	3	BAR SCREEN	885	1	1189	2	304 EF-1	15	3
-	-		885	3	1189	4	304	-	-
-	-		885	5	1189	6	304	-	-
40	3	SPARE		7	500	8	500 EX. LIGHTS	20	1
-	-			9	500	10	500 EX. LIGHTS	20	1
-	-			11	956	12	956 9KVA XFMR	15	3
15	3	NEW OVERHEAD DR. MOTOR	498	13	858	14	360 30A PANEL LP1	-	-
-	-		498	15	678	16	180	-	-
-	-		498	17	498	18	SPARE	40	3
15	3	NEW MAU-1	582	19	582	20		-	-
-	-		582	21	582	22		-	-
-	-		582	23	582	24	BLANK		
20	1	EM LIGHTS	500	25	500	26	BLANK		
		BLANK		27	0	28	BLANK		
		BLANK		29	0	30	BLANK		
CONNECTED			3629	2949	3225	TOTAL CONNECTED LOAD			9803 VOLT-AMPS
TOTAL CONNECTED			9803						11.79 AMPS

EXISTING BLDG 100 PANEL "EMPB"									
LOCATION: BLDG 100 MAIN ELEC ROOM SUPPLY FROM: SEMPB			MOUNTING: SURFACE ENCLOSURE: NEMA 1			A.I.C. RATING: 25 KA NOTES:			
VOLTS: 480 /277 PHASE: 3 WIRE: 4 AMPS: 225 MAIN: MCB									
BRKR	DESCRIPTION	CIRCUIT	PHASE LOADS			CIRCUIT	DESCRIPTION	BRKR	
A	P	VA	A	B	C	VA	A	P	
60	3	EXISTING	3845		9997		6152	EXISTING	
		NORTH & WEST PERIMETER LTG	3845	1	9997	2	6152	SITE INTERIOR LTG POLES	100 3
			3845				6152		
30	3	EXISTING	1923		2643		720	EXISTING	
		EAST & SOUTH PERIMETER LTG	1923	3	2643	4	720	PUMP P-5	15 3
			1923				720		
70	3	EXISTING	8500		11263		2763	EXISTING	
		45KVA XFMR PNL RPX	8500	5	11263	6	2763	PNL LP-XX	30 3
			8500				2763		
15	3	EXISTING	1329		2049		720	EXISTING	
		IAC-1 COMPRESSOR	1329	7	2049	8	720	PUMP P-1	15 3
			1329				720		
15	3	EXISTING	388		1108		720	EXISTING	
		EF-2	388	9	1108	10	720	PUMP P-2	15 3
			388				720		
30	3	EXISTING	1923		2311		388	EXISTING	
		NORTH & EAST PERIMETER LTG	1923	11	2311	12	388	PUMP P-4	15 3
			1923				388		
45	3	EXISTING	5813		9688		3875	EXISTING	
		BLDG 1400 BOOSTER PUMP 1	5813	13	9688	14	3875	BLDG 1400 COMMUNITOR	30 3
			5813				3875		
60	3	NEW	9324		9324			SPACE	
		BLDG 1400 & 1401 EM	6949	15	6949	16		SPACE	
			8800				8800		
		SPACE		17	0	18		SPACE	
					0				
CONNECTED			48382	46008	47859	TOTAL CONNECTED LOAD			142249 VOLT-AMPS
TOTAL CONNECTED			142249						171.10 AMPS

LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER	CATALOG NO.	DESCRIPTION AND COMMENTS	DIMMING INFO	FIXTURE MOUNTING HEIGHT	LIGHT ENGINE
LA	SOLAS RAY LIGHTING	HTR91C-060-30-120-AB	HAZARDOUS LOCATION ROUND LED LIGHT, CLASS 1, DIVISION 1 GROUP D		WALL MOUNT	6000 LUMENS 3000K 60W
LB	SOLAS RAY LIGHTING	HJL21-040-40-U-120-HJUB	HAZARDOUS LOCATION LINEAR LED LIGHT, CLASS 1, DIVISION 1 GROUP D		CEILING MOUNT	5600 LUMENS 3000K 40W