

DRAWN BY: K.E. McCARTNEY & ASSOCIATES, INC., V:\Shared\Projects\SW\SW0392.00.0000 MARC SR 95-98 PS Rehab\Plan Sheets\SW0392_I.dwg\1 TITLE SHEET.pbeatz

S.R. 95/98 PUMP STATION REHAB

MARION COUNTY

STATE OF OHIO

2026

UNDERGROUND UTILITIES

Contact Two Working Days
Before You Dig

**OHIO811.org**
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
(Non-members must be called directly)

52 N. Diamond Street
Mansfield, OH 44902
T: (419) 525-0093

526 E. Broad Street
Elyria, OH 44035
T: (440) 323-9608

**KEM**
K.E. McCARTNEY & ASSOCIATES
ENGINEERS PLANNERS SURVEYORS

5065 Oberlin Avenue
Lorain, OH 44053
T: (440) 444-1022

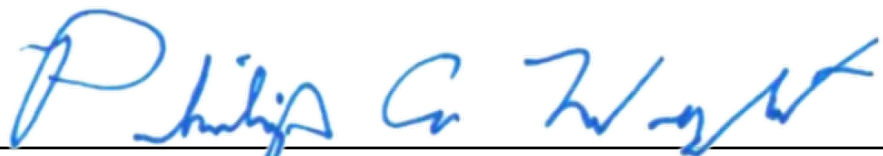
www.kemccartney.com



MARION COUNTY COMMISSIONERS

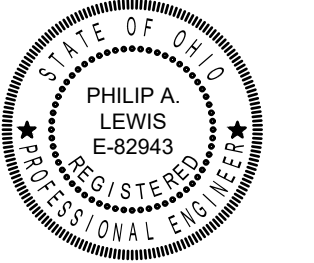
KEVIN DAVIDSON
ANDY APPELFELLER
MARK DAVIS

APPROVALS

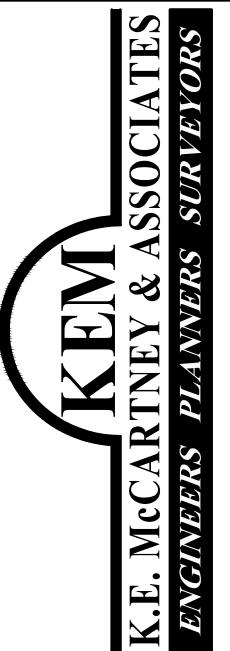
BY:  8/3/2026
PHIL WRIGHT, P.E., P.S. DATE
MARION COUNTY SANITARY ENGINEER

INDEX OF SHEETS

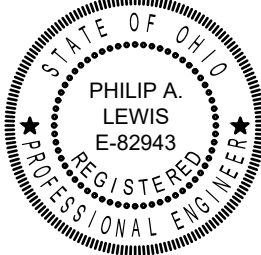
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PHILIP A. LEWIS, P.E. 8-3-26
DATE

**K.E. McCARTNEY & ASSOCIATES**
ENGINEERS PLANNERS SURVEYORS

NOT FOR
CONSTRUCTION



MARION COUNTY
S.R. 95/98 PUMP STATION
REHAB

REVISIONS

NO.	DESCRIPTION	DATE

PROJECT DESIGNED DRAWN CHECKED
SW0392 PB PB PL

SHEET NAME

TITLE SHEET

SHEET NUMBER

1 / 8

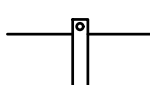
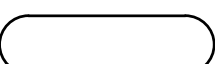
DRAFTED BY K.E. McCARTNEY & ASSOCIATES, INC., V:\Shared\Projects\SW\SW0392\00.0000 MARC SR 95-98 PS Rehab\Plan Sheets\SW0392_SYAB.dwg, 2 SYMBOLS & ABBREVIATIONS\pbeetraz

ABBREVIATIONS

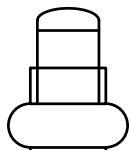
AC – ACRES	LSL – LEVEL SWITCH LOW
ARV – AIR RELEASE VALVE	LSLL – LEVEL SWITCH LOW LOW
ASP – JET ASPIRATOR	LWL – LOW WATER LEVEL
BL – BLOWER	MEX – MATCH EXISTING
BV – BALL VALVE	MIN. – MINIMUM
BFV – BUTTERFLY VALVE	MJ – MECHANICAL JOINT
CB – CATCH BASIN	NO. – NUMBER
CV – CHECK VALVE	O.D. – OUTSIDE DIAMETER
CL – CENTERLINE	P&I.D. – PIPING AND INSTRUMENTATION DIAGRAM
CY – CUBIC YARD	P – PUMP
D – DECANTED	PR – PROPOSED
DIA. – DIAMETER	PI – PRESSURE INDICATOR
DND – DO NOT DISTURB	PS – PUMP STATION
DO – DISSOLVED OXYGEN	P.S.I. – POUNDS PER SQUARE INCH
EA – EACH	PSL – PRESSURE SWITCH LOW
EL. – ELEVATION	PSH – PRESSURE SWITCH HIGH
EOP – EDGE OF PAVEMENT	PV – PLUG VALVE
EQ. – EQUALIZATION	R – RADIUS
EX. – EXISTING	RBC – ROTATING BIOLOGICAL CONTACTOR
FE – FLOW ELEMENT	SAN – SANITARY
FG – FINISHED GRADE	SBR – SEQUENCE BATCH REACTOR
FIT – FLOW INDICATING TRANSMITTER	SPEC – SPECIFICATIONS
FL – FLOW LINE	S.S. – STAINLESS STEEL
FLG – FLANGE	STD. – STANDARD
FR – FLOW RECORDER	TBA – TO BE ABANDONED
FT – FEET	TBR – TO BE REMOVED
G – GATE	T/C – TOP OF CASTING
GE – GROOVED END	TG – TOP OF GRATE
HWL – HIGH WATER LEVEL	TSH – TEMPERATURE SWITCH HIGH
INV – INVERT	TOC – TOP OF CONCRETE
LBS – POUNDS	TYP. – TYPICAL
LCP – LOCAL CONTROL PANEL	UV – ULTRAVIOLET
LF – LINEAR FEET	WWTP – WASTEWATER TREATMENT PLANT
LIT – LEVEL INDICATING TRANSMITTER	ZS – POSITION SWITCH
LS – LUMP SUM	
LSH – LEVEL SWITCH HIGH	

NOTE: FOR FLUID ABBREVIATIONS, SEE PIPING SCHEDULE

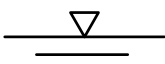
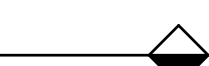
VALVE & PIPING SYMBOLS

	– AIR FILTER
	– AIR RELEASE VALVE
	– ANNULAR RING
	– BALL VALVE
	– BUTTERFLY VALVE
	– CHECK VALVE
	– EXPANSION JOINT
	– FLAP VALVE
	– FLEXIBLE CONNECTOR
	– FLOW METER
	– GROOVED END COUPLING
	– MOTOR CONTROLLED
	– MUD VALVE
	– NOZZLE
	– PLUG VALVE
	– PRESSURE RELIEF VALVE
	– REDUCER
	– SLEEVE COUPLING
	– SILENCER
	– SLIDE GATE
	– YARD HYDRANT

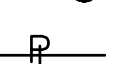
EQUIPMENT SYMBOLS

	– SUBMERSIBLE PUMP
	– BLOWER
	– CENTRIFUGAL PUMP

MISC. SYMBOLS

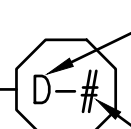
	– WATER ELEVATION
	– PIPING MATERIAL CHANGE

CIVIL DRAWING SYMBOLS

● SURVEY SPIKE SET–3” LONG STAMPED “SURVEY MARKER”	
● IRON PIN SET–5/8” REBAR W/CAP STAMPED “McCARTNEY S–7921”	
• M.N.S. MAGNAIL SPIKE SET–2” LONG	– EX. R/W – EX. RIGHT OF WAY
	– R/W – PROPOSED RIGHT OF WAY
○ I.P.F. IRON PIN FOUND–UNLESS NOTED	– UT ESMT – PROPOSED UTILITY EASEMENT
	===== EX. STORM SEWER
⊕ BENCHMARK	———— EX. SANITARY SEWER
○ IRON PIN FOUND	— W — EX. WATER LINE
⊙ EX. STORM SEWER MANHOLE	— G — EX. GAS LINE
	— E — EX. ELECTRIC LINE
	— T — EX. TELEPHONE LINE
⊕ EX. TELEPHONE MANHOLE	— X — EX. FENCE
	⊙ SA EX. SANITARY MANHOLE
	 OR ⊙ EX. CATCH BASIN
	⊙ EX. CLEAN–OUT
	± OR ± EX. PUBLIC SIGN
	 EX. SHRUB
⋈ GUY ANCHOR (DEAD MAN)	 EX. TREE  EX. STUMP
	○ EX. POST
	 EX. MAILBOX
	 EX. LANDSCAPING STONE
	 EX. AIR CONDITIONING UNIT
⊕ EX. UNKNOWN VALVE	 EX. GAS VALVE
⊙ SA PROPOSED SANITARY MANHOLE	 EX. GAS METER
⊗ PROPOSED WATER VALVE	± G EX. GAS LINE MARKER
	— W — PROPOSED WATER LINE
	– FM – PROPOSED FORCE MAIN
———— EX. GUARDRAIL	– E — PROPOSED ELECTRIC LINE
– FOC – EX. FIBER OPTIC CABLE	– EFF – PROPOSED WWTP EFFLUENT LINE
	– SAN – PROPOSED SANITARY SEWER
	
	

DRAWING SHEET SYMBOLOGY

DETAIL CALLOUT

	LETTER DENOTES DISCIPLINE, SEE DRAWING LIST SHEET FOR DISCIPLINE DESIGNATIONS.
	NUMBER DENOTES SEQUENTIAL DETAILS # OF DISCIPLINE’S DETAILS.

SHEET KEYNOTE

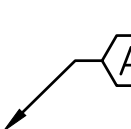
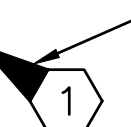
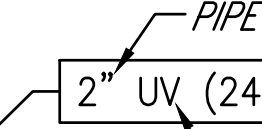
	SHEET KEYNOTES DETAIL SPECIFIC NOTES OR INSTRUCTIONS FOR A PARTICULAR PART OF A DRAWING. KEYNOTES APPLY TO THE DRAWING SHEET ON WHICH IT IS SHOWN ONLY.
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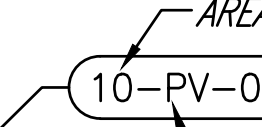
PHOTO CALLOUT

	ARROW PORTION DENOTES THE DIRECTION THE PHOTO WAS TAKEN IN RELATION TO THE PARTICULAR DRAWING. PHOTO NUMBER IS PARTICULAR TO THE DRAWING ON WHICH IT IS SHOWN.
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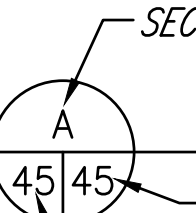
PIPING CALLOUT

	PIPE INSIDE DIAMETER, UNLESS OTHERWISE NOTED.
	MATERIAL GROUP NUMBER, SPECIFIES SPECIFIC MATERIAL TYPE.
	IF OMITTED, SEE PIPING SCHEDULE FOR APPLICABLE MATERIALS PER FLUID TYPE.
	FLUID ABBREVIATION, SEE PIPING SCHEDULE

EQUIPMENT & VALVE TAG IDENTIFICATION

	AREA NUMBER, SEE DRAWING LIST FOR AREA # DESIGNATIONS
	SEQUENTIAL NUMBER OF EQUIPMENT
	EQUIPMENT ABBREVIATION, SEE ABBREVIATION LIST

SECTION IDENTIFICATION

	SECTION LETTER; SEQUENTIAL PER AREA DESIGNATION AND DISCIPLINE
	SHEET ON WHICH SECTION IS DRAWN
	SHEET ON WHICH SECTION IS CUT

GENERAL CONSTRUCTION IDENTIFICATION

	EXISTING TO BE REMOVED OR DEMOLISHED
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CLEARING & GRUBBING

	AREA OF CLEARING & GRUBBING
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REVISIONS

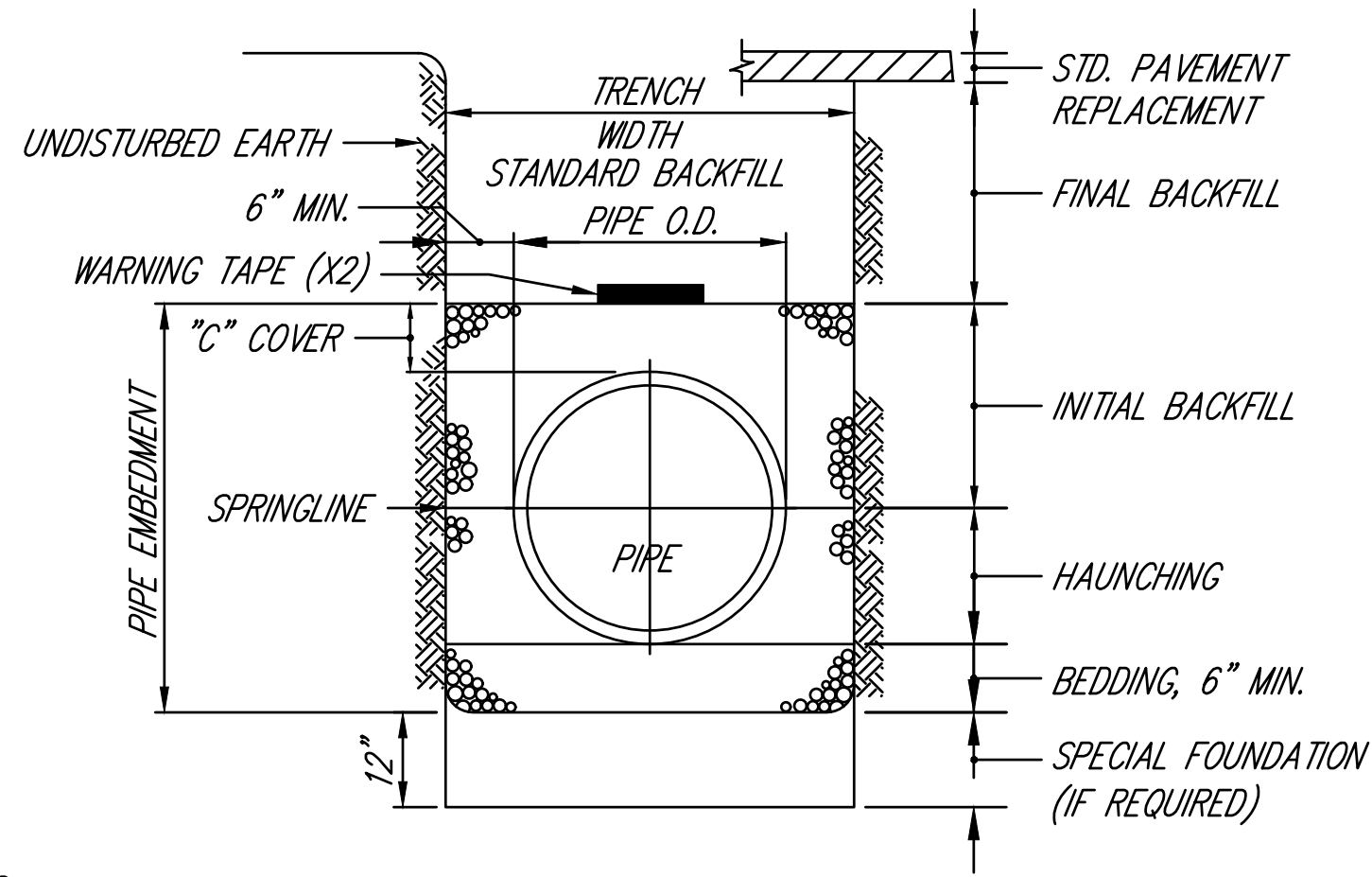
PROJECT	DESIGNED	DRAWN	CHECKED
SW0392	PB	PB	PL

SHEET NAME

SYMBOLS &
ABBREVIATIONS

SHEET NUMBER

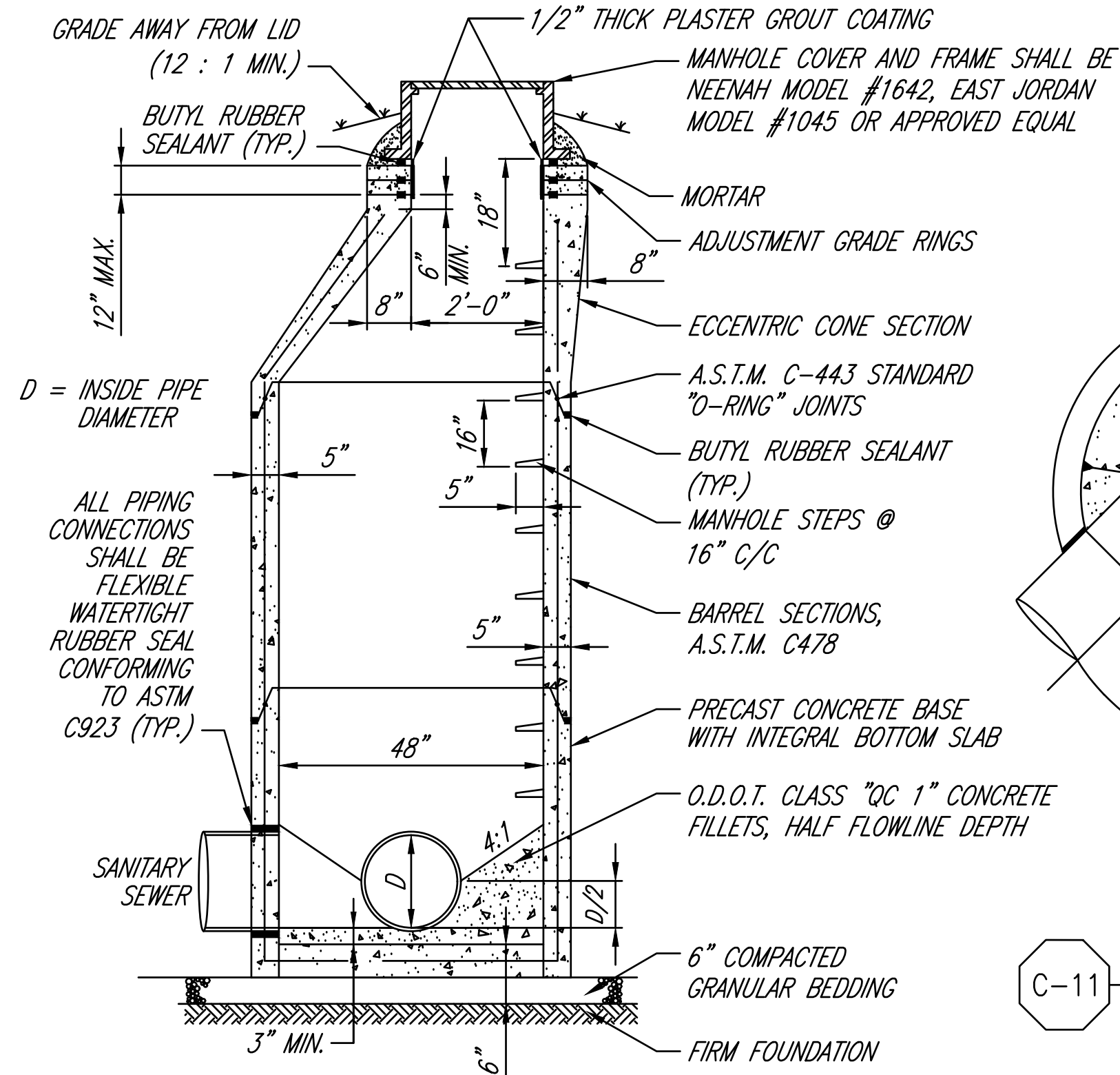
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NOTES:

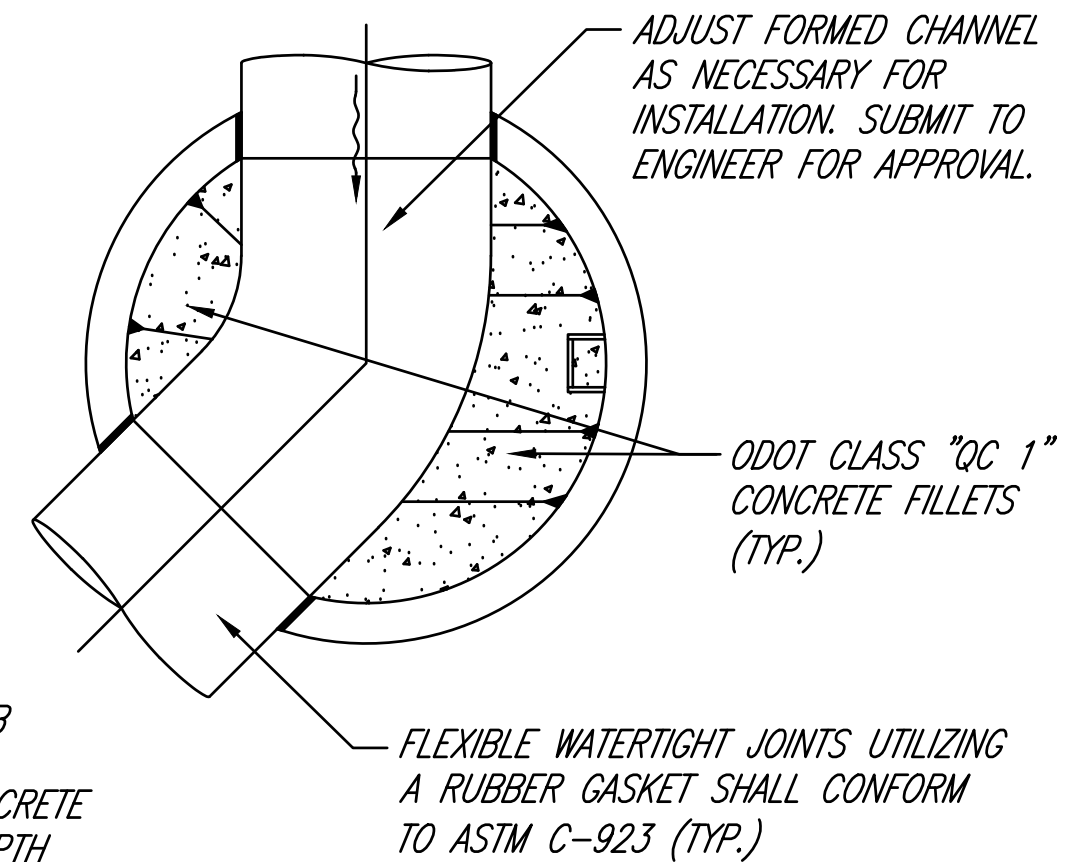
1. FOUNDATION SHALL BE FIRM, STABLE, UNIFORM SUPPORT. SPECIAL FOUNDATION, IF REQUESTED BY THE ENGINEER, SHALL BE COMPACTED BEDDING MATERIAL.
2. PIPE EMBEDMENT FOR ALL SANITARY SEWERS SHALL BE A.S.T.M. #57 OR #67 CRUSHED GRADED AGGREGATE AS DEFINED IN A.S.T.M. D2321 (CLASS 1).
3. ALL HAUNCHING AGGREGATE SHALL BE SHOVEL SLICED TO FILL VOIDS, AND COMPACTED IN PLACE.
4. FINAL BACKFILL AT ALL ROADWAYS, DRIVES, WALKS, BERMS AND PARKING AREAS SHALL BE COMPACTED STRUCTURAL BACKFILL.
5. "C" MINIMUM = 6" RIGID CONDUIT, 12" FLEXIBLE CONDUITS.
6. MINIMUM TRENCH WIDTH (W) AT THE TOP OF ALL FLEXIBLE CONDUITS SHALL BE PER A.S.T.M. - D2321. MAXIMUM TRENCH WIDTH (W) AT THE TOP OF ALL RIGID CONDUITS SHALL BE PIPE O.D. + 24" INCHES.
7. TRACING TAPE SHALL BE 3"x5 MIL, DETECTABLE, GREEN MARKED "SEWER" OR BLUE MARKED "WATER MAIN" AS PER "NORTH TOWN COMPANY" OR ENGINEER APPROVED EQUAL AND PLACED AND 1' FOOT ABOVE TOP OF PIPE.

C-5 **TYPICAL TRENCH DETAIL**
NOT TO SCALE



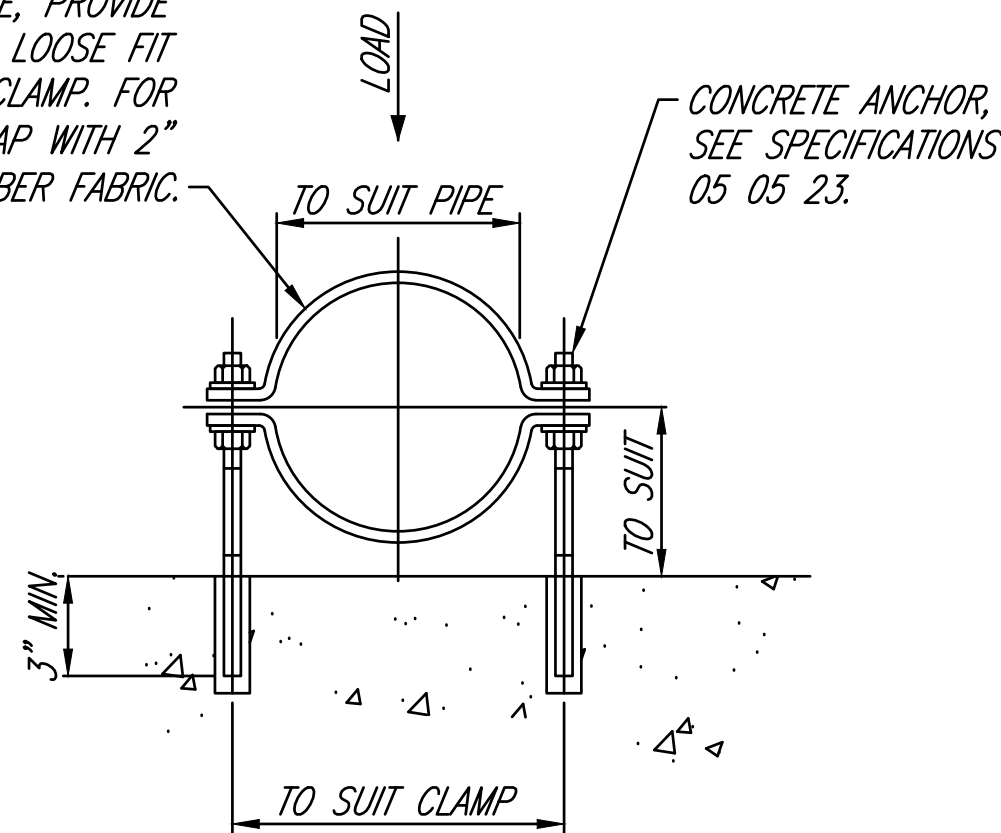
NOTES:

MANHOLE TOPS SHALL BE SET FLUSH WITH PAVED AREAS, 18" ABOVE GRADE IN UNDEVELOPED AREAS, AND 4" ABOVE GRADE IN LAWN AREAS UNLESS OTHERWISE NOTED ON THE DRAWINGS.



C-11 **STANDARD PRECAST SANITARY MANHOLE**
NOT TO SCALE

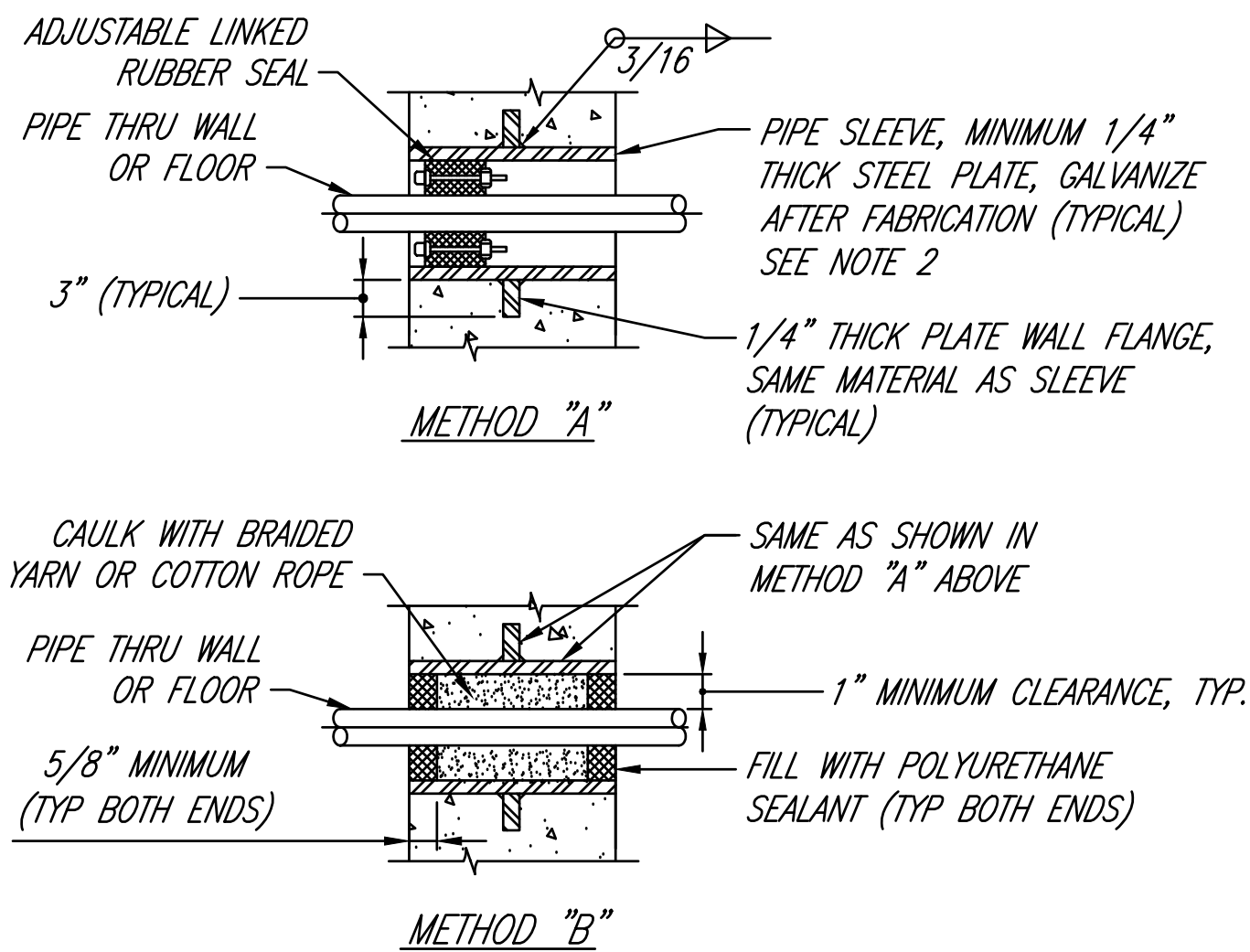
PIPE CLAMP, MIN 1-1/2" x 1/4" FLAT BAR. WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD WITH LOOSE FIT AROUND PIPE AT CLAMP. FOR COPPER TUBING WRAP WITH 2" WIDE STRIP OF RUBBER FABRIC.



NOTES:

1. GALVANIZE ALL PARTS INCLUDING, BUT NOT LIMITED TO, PIPE CLAMP, NUTS, LOCKWASHERS, ANCHORS AND SHIELDS TO BE TYPE 316 STAINLESS STEEL.
2. THIS PIPE CLAMP IS LIMITED TO PIPES UP TO 4" DIAMETER INCLUSIVE.
3. FOR ADDITIONAL REQUIREMENTS SEE SPECIFICATIONS SECTION 'PIPE SUPPORTS'.
4. PIPE SUPPORTS LOCATED IN CHEMICAL STORAGE OR CHEMICAL FEED AREAS, ALL MATERIALS SHALL BE TYPE 316 SS OR FIBERGLASS.

P-1 **PIPE CLAMP**
NOT TO SCALE (FOR PIPE 4" DIAMETER AND SMALLER)



NOTES:

1. METHOD B PIPE OPENING DETAIL IS TO BE USED IN DRY WALLS ONLY AND SHALL NOT BE USED FOR WALLS WITH WATER ON ONE SIDE OR BOTH SIDES.
2. SLEEVES ARE NOT REQUIRED IN CORE DRILLED WALLS, PENETRATIONS THROUGH EXISTING WALLS, OR FLOORS.
3. METHOD A DETAIL SHALL ONLY BE USED IN WATER PER SEAL MANUFACTURE'S RECOMMENDATIONS.

P-19 **SLEEVED PIPE OPENING**
NOT TO SCALE

HD: 8" ODOT ITEM 304 (LIMESTONE ONLY)
LD: 6" ODOT ITEM 304 (LIMESTONE ONLY)



ODOT ITEM 204 SUBGRADE COMPACTION

C-47 **AGGREGATE PAVEMENT SECTION PUMP STATION SITE**
NOT TO SCALE

REVISIONS

NO.	DESCRIPTION	DATE

PROJECT	DESIGNED	DRAWN	CHECKED
SW0392	PB	PB	PL

SHEET NAME

STANDARD
DETAILS

SHEET NUMBER

3 / 8

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GENERAL:
ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILED PLANS AND AS OUTLINED IN THE TECHNICAL SPECIFICATIONS, AND SHALL MEET THE RULES AND REGULATIONS OF THE COUNTY OF MARION, THE OHIO ENVIRONMENTAL PROTECTION AGENCY, AND ALL OTHER GOVERNING CODES AND AGENCIES UNLESS HERE-IN-AFTER AMENDED. IN CASE OF CONFLICT BETWEEN APPLICABLE RULES, REGULATIONS, STANDARDS OR REQUIREMENTS, THE MOST STRINGENT SHALL APPLY.

ENGINEER:
ENGINEER AS USED IN THESE NOTES IS DEFINED AS THE ENGINEER DURING CONSTRUCTION AS DESIGNATED BY THE COUNTY OF MARION.

SPECIFICATIONS:
THE CONSTRUCTION SPECIFICATIONS SHALL BE THE JANUARY 1, 2025 "STATE OF OHIO, DEPARTMENT OF TRANSPORTATION-CONSTRUCTION AND MATERIAL SPECIFICATIONS", INCLUDING SUPPLEMENTAL SPECIFICATIONS AND STANDARD DRAWINGS, AS MODIFIED HEREIN OR IN THE TECHNICAL SPECIFICATIONS AND BID DOCUMENTS. THE CONTRACTOR SHALL OBTAIN, AT HIS EXPENSE, COPIES OF ALL STATE OF OHIO SPECIFICATIONS. TABLE 104.02-2 OF THE ABOVE SPECIFICATIONS DOES NOT APPLY.

UNDERGROUND UTILITIES:
THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 O.R.C.. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT BUT THE OWNER DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE UTILITY AS TO LINE AND GRADE BEFORE STARTING ANY OPERATION THAT INTERFERES WITH THE UTILITY.

AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN AN AREA WHICH MAY INVOLVE UNDERGROUND UTILITY FACILITIES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE REGISTERED UTILITY PROTECTION SERVICE AND THE OWNERS OF EACH UNDERGROUND UTILITY FACILITY SHOWN IN THE PLANS. THE OWNER OF THE UNDERGROUND UTILITY FACILITY SHALL, WITHIN FORTY-EIGHT HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, AFTER NOTICE IS RECEIVED, STAKE, MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND UTILITY FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO DAYS AHEAD OF THE PLANNED CONSTRUCTION. THE FOLLOWING IS A PARTIAL LIST OF UTILITY OWNERS WHO MUST BE NOTIFIED. THE CONTRACTOR SHALL COMPLY WITH THE REGULATIONS SET FORTH BY THE RESPECTIVE PUBLIC SERVICE CORPORATIONS AS LISTED:

COLUMBIA GAS OF OHIO, INC. 1021 N. MAIN ST. MANSFIELD, OH 44903 419-619-8029	FRONTIER COMMUNICATION 1309 WILSON DR. MARION, OHIO 43302 740-360-8001
AQUA OHIO 365 E. CENTER ST. MARION, OH 43302 740-383-0935	CHARTER COMMUNICATION 3760 INTERCHANGE RD. COLUMBUS, OHIO 43204 614-496-2851
ODOT 6 TRAFFIC (DISTRICT 6) 400 E. WILLIAM ST. DELAWARE, OH 43015 740-833-8374	MARION COUNTY SANITARY ENGINEER 222 W. CENTER STREET, MARION, OHIO 43302 740-223-4130
EVERSTREAM SOLUTIONS 1228 EUCLID AVENUE, SUITE 250 CLEVELAND, OHIO 44115 1-844-588-4891	OHIO EDISON 1040 S. PROSPECT ST. MARION, OH 43302 740-382-7174

ROADWAY LIMITS:
THE CONTRACTOR SHALL COMPLY WITH ALL CURRENT STATE OF OHIO LOAD ROAD LIMITS AND ALL POSTED REDUCED LOAD LIMITS FOR ALL VEHICLES USED ON THIS PROJECT.

COOPERATION WITH UTILITIES:
THE CONTRACTOR SHALL MAINTAIN AND PROTECT ALL PUBLIC OR PRIVATE UTILITY FACILITIES DURING CONSTRUCTION AS PER ITEM 105.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS. SHOULD IT BECOME NECESSARY TO MOVE, ADJUST OR TEMPORARILY RELOCATE ANY SUCH FACILITY, THE WORK SHALL BE DONE BY THE OWNER OF THE UTILITY. ANY DAMAGE TO UTILITY FACILITIES BY THE CONTRACTOR OR HIS SUBCONTRACTORS SHALL BE REPAIRED BY THE OWNER OF SAID UTILITY, AND THE COST OF SAID REPAIRS WILL BE DEDUCTED FROM PAYMENT TO BE MADE TO CONTRACTOR UNDER THE CONTRACT.

IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR HAS CONSIDERED IN HIS BID ALL OF THE PERMANENT AND TEMPORARY UTILITY APPURTENANCES IN THEIR PRESENT OR RELOCATED POSITION AND THAT NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY DELAYS, INCONVENIENCE, OR DAMAGE SUSTAINED BY HIM DUE TO ANY INTERFERENCE FROM THE SAID UTILITY APPURTENANCES OR THE OPERATION OF MOVING THEM.

THE CONTRACTOR SHALL CONSULT WITH AQUA OHIO WATER DEPARTMENT PERSONNEL CONCERNING WATER SERVICE LOCATIONS.

THE EXISTING WATER SERVICES, WATER MAINS, GAS SERVICES, SANITARY SEWER BUILDING LATERALS, TELEPHONE, ELECTRIC AND FIBER OPTIC CABLES ARE NOT SHOWN IN PROFILE BECAUSE THEIR EXACT LOCATION & DEPTH IS NOT KNOWN AND MUST NOT BE ASSUMED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND ESTABLISHING THE DEPTH OF ALL UNDERGROUND UTILITIES.

PROTECTION AND RESTORATION OF PROPERTY AS PER PLAN:
THE CONTRACTOR SHALL USE CARE TO PROTECT PUBLIC AND PRIVATE PROPERTY AS PER ITEM 107.10 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS. AFTER COMPLETION OF THE PROJECT OR AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL RESTORE THE DISTURBED AREAS TO AN ACCEPTABLE CONDITION INCLUDING GRADING, SEEDING, AND REPLACEMENT OF PAVEMENT, DRIVEWAYS, BERMS, SIDEWALK, CURBING, AND OTHER ITEMS AS DIRECTED BY THE ENGINEER. THE COST FOR THE ABOVE WORK SHALL BE INCLUDED WITHIN THE UNIT PRICE BID FOR THE VARIOUS BID ITEMS, SEPARATE PAYMENT WILL NOT BE MADE.

PROTECTION OF MONUMENTS, PROPERTY CORNER MARKERS, ETC.:
MONUMENTS, PROPERTY CORNER MARKERS, ETC., SHALL NOT BE DISTURBED BY THE CONTRACTOR. IN THE EVENT IT IS NECESSARY TO REMOVE THESE ITEMS, THE CONTRACTOR SHALL AT HIS EXPENSE, EMPLOY A PROFESSIONAL SURVEYOR TO PROPERLY REFERENCE THE POINTS AND RESET SAME AFTER CONSTRUCTION HAS BEEN COMPLETED IN THE AREA.

ITEM 614 - MAINTAINING TRAFFIC:
LOCAL TRAFFIC SHALL HAVE ACCESS TO THEIR RESPECTIVE RESIDENCES AT ALL TIMES, EXCEPT DURING RECONSTRUCTION OF DRIVEWAYS, PAVING OPERATIONS AND OTHER CONSTRUCTION OPERATIONS WHICH REQUIRES THE CLOSING OF DRIVEWAYS FOR SAFETY REASONS DURING THE ACTUAL HOURS OF CONSTRUCTION.

THE CONTRACTOR SHALL GIVE SUFFICIENT PRIOR NOTICE TO PROPERTY OWNERS BEFORE CLOSING ANY PRIVATE DRIVEWAYS (MINIMUM 24 HOURS). NO PRIVATE DRIVEWAYS MAY BE CLOSED FOR MORE THAN SEVEN (7) CONSECUTIVE HOURS AND SHALL BE OPEN TO TRAFFIC AT THE END OF EACH WORKING DAY.

WHEN CONSTRUCTION OPERATIONS REQUIRE CLOSING OF ANY STREETS OR ALLEYS FOR TRAFFIC, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM THE OFFICE OF THE ENGINEER FORTY-EIGHT (48) HOURS PRIOR TO ANY CHANGES IN TRAFFIC PATTERNS, AND IN ALL CASES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND THE OWNER.

TEMPORARY SURFACES WHERE EXCAVATIONS ARE LOCATED IN STREETS, DRIVEWAYS, AND PARKING AREAS SHALL BE FURNISHED AND PLACED BY THE CONTRACTOR AND SHALL BE FULLY MAINTAINED WITH ODOT ITEM 304.

ALL CONSTRUCTION SIGNS AND TEMPORARY TRAFFIC CONTROL AND PROTECTION DEVICES SHALL BE ERECTED AND MAINTAINED IN ACCORDANCE WITH "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS." THE COST FOR ALL THE ABOVE WORK SHALL BE INCLUDED WITHIN THE VARIOUS BID ITEMS.

DUST CONTROL:
THE CONTRACTOR SHALL PROVIDE CALCIUM CHLORIDE AND WATER TO BE USED, AS DIRECTED BY THE ENGINEER, FOR DUST CONTROL. ALL SURFACES SHALL BE WATERED PRIOR TO MECHANICAL SWEEPING IN RESIDENTIAL AREAS. COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE FOR VARIOUS BID ITEMS, SEPARATE PAYMENT WILL NOT BE MADE.

DEWATERING:
THE CONTRACTOR SHALL AT ALL TIMES DURING CONSTRUCTION, PROVIDE PROPER AND SATISFACTORY MEANS AND DEVICES FOR THE REMOVAL OF ALL WATER ENTERING THE EXCAVATION AND SHALL REMOVE SUCH WATER AS FAST AS IT MAY COLLECT IN SUCH A MANNER AS NOT TO INTERFERE WITH THE PROSECUTION OF THE WORK AT NO COST TO THE OWNER.

SILT FROM CONSTRUCTION OPERATIONS SHALL NOT BE PERMITTED TO ENTER THE STORM SEWER SYSTEM. WHEN CONSTRUCTION OCCURS NEAR STORM SEWER INLETS, EROSION CONTROL MEASURES SUCH AS INLET FILTERS AND STRAW BALES SHALL BE USED TO PREVENT SILT FROM ENTERING THE STORM SEWERS. IF DEWATERING IS NECESSARY, FLOWS SHOULD BE FILTERED BEFORE ENTERING STORM DRAINS OR STREAMS. COST OF THIS WORK SHALL BE INCLUDED IN THE VARIOUS BID ITEMS, SEPARATE PAYMENT WILL NOT BE MADE.

ROCK EXCAVATION:
THE CONTRACTOR SHALL PERFORM THEIR OWN SUB-SURFACE INVESTIGATIONS TO DETERMINE SOIL PROFILES. ALL ROCK ENCOUNTERED SHALL BE REMOVED TO LINES AND GRADES AS SPECIFIED. UNDER THIS CONTRACT ALL ROCK EXCAVATION SHALL BE BY THE MECHANICAL METHOD ONLY. EXCAVATION BY BLASTING, USING EXPLOSIVES, IS NOT ACCEPTABLE. ALL ROCK EXCAVATION IS UNCLASSIFIED, AND THERE WILL BE NO PAYMENT FOR ROCK REMOVAL.

COMPACTED STRUCTURAL BACKFILL:
EXCAVATION AT OR WITHIN 3 FEET OF ALL STREETS, DRIVES, BERMS, WALKS, PARKING AREAS, AND OTHER ROADWAYS SHALL BE BACKFILLED AND COMPACTED WITH GRANULAR MATERIAL CONFORMING TO O.D.O.T. SPECIFICATION ITEM 703.11, TYPE 1 (304 GRADATION). SLAG IS NOT ALLOWABLE. ADDITIONAL GRANULAR MATERIAL SHALL BE STOCKPILED AT SELECTED LOCATIONS (APPROVAL BY ENGINEER) FOR USE WHEN SETTLEMENT OCCURS. ALL GRANULAR MATERIAL SHALL BE MECHANICALLY COMPACTED IN FOUR (4) INCH LIFTS. THE COST OF ALL STRUCTURAL BACKFILL SHALL BE INCLUDED WITHIN THE VARIOUS BID ITEMS. SEPARATE PAYMENT WILL NOT BE MADE. STRUCTURAL BACKFILL OF THE PIPE TRENCH IN ROADWAYS AND DRIVES SHALL BE UP TO FINISHED PAVEMENT. STRUCTURAL BACKFILL IN GRASS COVERED AREAS, SHALL BE INSTALLED UP TO 12" OF FINISHED GRADE AND COMPLETED WITH TOP SOIL FOR SEEDING PURPOSES.

SUPPLEMENT SPECIFICATION ITEM 832 - TEMPORARY SEDIMENT AND EROSION CONTROLS:
THIS ITEM SHALL CONSIST OF FURNISHING, LOCATING AND MAINTAINING TEMPORARY SEDIMENT AND EROSION CONTROLS TO COMPLY WITH THE CLEAN WATER ACT, 33 USC SECTION 1251 ET SEG., AND THE OHIO WATER POLLUTION CONTROL ACT, ORC 6111.01 ET SEG., ALL CONDITIONS OF THE 404 PERMIT/401 WATER QUALITY CERTIFICATION/ISOLATED WETLAND PERMIT AND RELATED RULES, LOCAL GOVERNMENT AGENCY REQUIREMENTS, SPECIFICATIONS, STANDARD CONSTRUCTION DRAWINGS AND PERMITS. THE CONTRACTOR SHALL FURNISH A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) TO REPRESENT AND WARRANT COMPLIANCE WITH ODOT SUPPLEMENT SPECIFICATION 832 (DATED JAN.17, 2014 RELATED RULES, SPECIFICATIONS, SCD AND PERMITS. THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 832.11 A-C FOR THE INSPECTIONS/REPORTS TO BE COMPLETED UNDER THE DIRECTION OF THE ENGINEER WHO PREPARED THE PLANS ARE WAIVED.

EXCESS EXCAVATION:
ALL EXCESS EXCAVATION, SURPLUS MATERIAL AND RUBBISH SHALL BE DISPOSED OF BY THE CONTRACTOR PER ITEM 105.16 - 105.17.

ALL MATERIALS TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AT A SITE APPROVED BY THE ENGINEER. NO EXCESS MATERIALS ARE TO BE DISPOSED OF IN ANY WETLAND, FLOODPLAIN, SURFACE WATER OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. EROSION CONTROL MEASURES AT THE DISPOSAL SITE MUST BE INSTALLED AND MAINTAINED UNTIL DISPOSAL IS COMPLETE AND THE DISPOSAL SITE IS PERMANENTLY STABILIZED. GIVING EXCAVATED SOIL AWAY DOES NOT RELIEVE THE CONTRACTOR OR ENGINEER OF THE ABOVE RESPONSIBILITY.

REMOVE AND RESET:
SIGNS, DRAINAGE STRUCTURES, MAIL BOXES, PAPER BOXES, RAILROAD TIES, FENCE, SMALL SHRUBS, HEDGES, LANDSCAPING, LAWN ORNAMENTS AND SPRINKLER SYSTEMS LOCATED WITHIN THE WORK LIMITS FOR THE CONSTRUCTION SHALL BE CAREFULLY REMOVED, STORED AND RESET OR REPLACED PER THE APPROVAL OF THE ENGINEER. PRIOR TO BEGINNING WORK, THE CONTRACTOR, SUPERINTENDENT OR HIS/HER REPRESENTATIVE, THE ENGINEER, AND A REPRESENTATIVE OF THE MAINTAINING AGENCY SHALL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE RIGHT-OF-WAY (BOTH WITHIN AND OUTSIDE THE CONSTRUCTION LIMITS). A RECORD OF THIS REVIEW WILL BE KEPT IN THE ENGINEER'S FILES. PRIOR TO FINAL ACCEPTANCE, A FINAL REVIEW OF LANDSCAPING ITEMS WILL BE MADE. ANY ITEMS DAMAGED WILL BE REPLACED IN KIND OR AS DIRECTED BY THE ENGINEER. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE OF ITEM 638 - WATER MAINS. SEPARATE PAYMENT WILL NOT BE MADE.

PAVEMENT OPENING:
THE CONTRACTOR SHALL SAW CUT THE ASPHALT AND CONCRETE PAVEMENTS BEFORE STARTING EXCAVATION.

ESTIMATED QUANTITIES:
THE ESTIMATED PLAN QUANTITIES ARE FOR COMPETITIVE BIDDING AND ARE NOT NECESSARILY THE FINAL PAY QUANTITIES. FINAL FIELD MEASUREMENTS AND CALCULATIONS SHALL DETERMINE FINAL PAY QUANTITY.

ARCHAEOLOGICAL/HISTORICAL RESOURCES:
CONTRACTORS AND SUBCONTRACTORS ARE REQUIRED UNDER OHIO REVISED CODE SECTION 149.53 TO NOTIFY THE OHIO HISTORICAL SOCIETY AND THE OHIO HISTORIC SITE PRESERVATION BOARD OF ARCHAEOLOGICAL AND HISTORIC SURVEYS AND SALVAGE EFFORTS IF SUCH DISCOVERIES ARE UNCOVERED WITHIN THE PROJECT AREA. CONTACT: OHIO HISTORIC PRESERVATION OFFICE PHONE: 614-298-2000.

POWER & TELEPHONE POLES:
THE CONTRACTOR SHALL PROVIDE LINE TRUCKS AND PERSONNEL FOR HOLDING POWER AND TELEPHONE POLES WHEN EXCAVATING NEAR THESE EXISTING UTILITIES.

CONSTRUCTION STAKING:
COORDINATES, BEARINGS, STATIONS AND/OR OFFSETS HAVE BEEN SHOWN ON THESE DRAWINGS FOR HORIZONTAL CONTROL. THE ENGINEER WILL PROVIDE AN ELECTRONIC FILE OF CONTROL POINT COORDINATES AND CONSTRUCTION DRAWINGS TO BE USED BY THE CONTRACTOR FOR CONSTRUCTION LAYOUT AND STAKING. NO ADDITIONAL FIELD MONUMENTATION WILL BE PROVIDED.

WORK LIMITS:
WORK LIMITS ARE DEFINED AS THE LIMITS OF THE EASEMENTS, OR LIMITS OF THE RIGHT OF WAY. THE CONTRACTOR SHALL LIMIT OPERATIONS TO THOSE AREAS. AGREEMENTS FOR USE OF PRIVATE LANDS SHALL BE FORMALIZED IN WRITING.

NON-RUBBERED TIRED VEHICLES:
THE USE OF NON-RUBBERED TIRED VEHICLES SHALL BE LIMITED TO OFF ROAD CONSTRUCTION ONLY. EXCEPTIONS MAY BE GRANTED BY THE OWNER OR AUTHORIZED REPRESENTATIVE WHERE SHORT DISTANCES AND SPECIAL CIRCUMSTANCES ARE INVOLVED. GRANTING OF EXCEPTIONS MUST BE IN WRITING AND ANY RESULTING DAMAGE MUST BE REPAIRED TO THE SATISFACTION OF THE OWNER AT THE CONTRACTORS EXPENSE.

PROHIBITED CONSTRUCTION ACTIVITIES:
THE FOLLOWING LIST IS NOT MEANT TO BE A COMPLETE LIST OF PROHIBITED ACTIVITIES:

- DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL IN WETLANDS OR FLOOD PLAINS EVEN WITH THE PERMISSION OF THE PROPERTY OWNER;
- LOCATING STOCKPILE STORAGE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS;
- INDISCRIMINATE, ARBITRARY, OR CAPRICIOUS OPERATION OF EQUIPMENT IN ANY STREAMS OR STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR OUTSIDE THE EASEMENT LIMITS;
- DISCHARGE POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE AND OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS, OR INTO NATURAL OR MANMADE CHANNELS LEADING THERETO;
- DISPOSING OF TREES, BRUSH AND OTHER DEBRIS IN ANY STREAM CORRIDOR, ANY WETLANDS, ANY SURFACE WATERS, OR AT UNSPECIFIED LOCATIONS;
- OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT;
- DISCHARGING INJURIOUS SILICA DUST CONCENTRATIONS INTO THE ATMOSPHERE RESULTING FROM BREAKING, CUTTING, CHIPPING, DRILLING, BUFFING, GRINDING, POLISHING, SHAPING OR SURFACING CLOSER THAN 200 FEET TO PLACES OF RESIDENCES OR COMMERCIAL, PROFESSIONAL, QUASI-PUBLIC OR PUBLIC PLACES OF HUMAN OCCUPATION;
- STORING CONSTRUCTION EQUIPMENT AND VEHICLES AND/OR STOCKPIILING CONSTRUCTION MATERIALS ON PROPERTY, PUBLIC OR PRIVATE, NOT PREVIOUSLY SPECIFIED ON THE PLANS BY THE ENGINEER FOR SUCH PURPOSES;
- RUNNING WELL POINT OR PUMP DISCHARGE LINES THROUGH PRIVATE PROPERTY AND RIGHT-OF-WAY WITHOUT THE WRITTEN PERMISSION OF THE PROPERTY OWNER AND THE CONSENT OF THE ENGINEER;
- OPERATIONS ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OF 8:00AM AND 5:00 PM OR OUTSIDE THE HOURS ALLOWED FOR CONSTRUCTION BY LOCAL ORDINANCES OR REGULATIONS;
- CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE OR BOULEVARD WITHOUT THE PRIOR CONSENT OF MUNICIPAL OFFICIALS AND THE ENGINEER, AND THE CLOSING CLEAR ACCESS: BY FIRE PROTECTION EQUIPMENT AND EMERGENCY VEHICLES; BY THE PUBLIC TO ANY COMMERCIAL OR PROFESSIONAL PLACE OF BUSINESS, QUASI-PUBLIC OR PUBLIC ESTABLISHMENT, OR PLACE OF RESIDENCE; OR BY VEHICLES TO DRIVEWAYS WITHOUT THE PROVISION OF ALTERNATIVE MEANS OF BUILDING INGRESS AND EGRESS.

WATER AVAILABILITY:
CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, BACKFLOW PREVENTERS, METERS, ETC. FROM AQUA WATER. COSTS OF PERMIT AND WATER SHALL BE INCLUDED BY THE CONTRACTOR IN THE UNIT BID PRICE FOR THE VARIOUS BID ITEMS, SEPARATE PAYMENT WILL NOT BE MADE.

SALVAGEABLE MATERIALS:
THE ENGINEER SHALL DESIGNATE A LOCATION WITHIN THE PROJECT LIMITS FOR THE STOCKPIILING OF ALL SALVAGEABLE MATERIALS.

DAILY CLEANUP:
AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND WASTE MATERIALS FROM THE WORK AREA.

FINAL CLEANUP:
THE CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND MATERIALS RESULTING FROM THE WORK PER ITEM 104.04 AND RESTORE ALL SURFACES, STRUCTURES, DITCHES AND PROPERTY NOT INTENDED FOR WORK IN THIS CONTRACT TO ITS ORIGINAL CONDITION, AND TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AND/OR THE OWNER. THE COST OF THIS WORK SHALL BE INCLUDED IN THE VARIOUS BID ITEMS, SEPARATE PAYMENT WILL NOT BE MADE.

TEMPORARY FENCING:
TEMPORARY FENCING SHALL BE ERECTED PRIOR TO COMMENCING ANY EXCAVATION. FENCING SHALL BE MAINTAINED UNTIL ALL CONSTRUCTION, EXCLUDING RESTORATION, IS COMPLETED AND ACCEPTED. PAYMENT FOR THIS WORK TO BE INCLUDED IN THE VARIOUS BID ITEMS OF THE CONTRACT, SEPARATE PAYMENT WILL NOT BE MADE.

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN:
ALL SOD AREAS DISTURBED ON THIS PROJECT SHALL BE RESTORED AND SEEDED PER ITEM 659 USING THE URBAN SEED MIXTURE. THE COST OF SEEDING, MULCHING AND RESEEDING SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE VARIOUS ITEMS OF THE CONTRACT, SEPARATE PAYMENT WILL NOT BE MADE.

KEM
K.E. McCARTNEY & ASSOCIATES
ENGINEERS PLANNERS SURVEYORS

NOT FOR
CONSTRUCTION

STATE OF OHIO
PHILIP A. LEWIS
E-82943
REGISTERED
PROFESSIONAL ENGINEER

MARION COUNTY
S.R. 95/98 PUMP STATION
REHAB

REVISIONS			
PROJECT	DESIGNED	DRAWN	CHECKED
SW0392	PB	PB	PL

SHEET NAME

GENERAL NOTES
1

SHEET NUMBER

4 / 8

DRAFTED BY K.E. McCARTNEY & ASSOCIATES, INC., V:\Shared\Projects\SW\S\SW0392.00.0000 - MARC SR 95-98 PS Rehab\Plan Sheets\SW0392_GN.dwg\5 - GENERAL NOTES JL pbeatree

ITEM 611 – PIPE CULVERTS, SEWER, DRAINS AND DRAINAGE STRUCTURES, AS PER PLAN:
ALL SEWER AND DRAINAGE STRUCTURES SHALL BE INSTALLED PER ODOT ITEM 611, THE TYPICAL TRENCH DETAIL, AND MANUFACTURER'S RECOMMENDATIONS. THE MOST STRINGENT SHALL APPLY. THE FOLLOWING ODOT 611 SPECIFICATION SECTIONS DO NOT APPLY TO THIS PROJECT: 611.04, 611.12, 611.13, 611.14 AND 611.15.

- ALL DRAIN TILE, STORM SEWERS, AND PROCESS PIPES DAMAGED, DISTURBED OR REMOVED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH THE SAME QUALITY OF PIPE OR BETTER, MAINTAINING THE SAME GRADIENT AS EXISTED. REPLACED DRAIN TILE SHALL BE ENCASED WITH AGGREGATE, AS PER TYPICAL TRENCH DETAIL.
- THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO REPAIR OR REPLACE MISCELLANEOUS CONDUITS NOT SHOWN ON THE PLANS. UNIT COST SHALL INCLUDE INSTALLATION OF THE NEW PIPE AND CONNECTION TO THE EXISTING PIPE, SEPARATE PAYMENT WILL NOT BE MADE. REPLACEMENT SHALL BE IN KIND OR BETTER.

ITEM 611 – 4", 6" CONDUIT REPLACEMENT	10 LF
ITEM 611 – 8", 10" CONDUIT REPLACEMENT	10 LF
ITEM 611 – 12", 15" CONDUIT REPLACEMENT	10 LF

MOBILIZATION:
MOBILIZATION SHALL CONSIST OF ALL PREPARATORY WORK INCLUDING, BUT NOT LIMITED TO, MOVEMENT OF PERSONNEL, EQUIPMENT, SUPPLIES, AND INCIDENTALS TO THE PROJECT SITE AND SHALL BE IN ACCORDANCE WITH ODOT ITEM 624.

STORM WATER CONNECTIONS:
ROOF DRAINS, FOUNDATION DRAINS, AND ALL OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.

CONSTRUCTION MANAGEMENT:
THE CONTRACTOR IS RESPONSIBLE FOR SELECTION OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES AND SAFETY PRECAUTIONS. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE INDUSTRIAL COMMISSION OF OHIO RULES CONCERNING SUPPORT OF TRENCH EXCAVATION.

PROTECTION OF EXISTING WATER AND GAS LINES:
UNLESS OTHERWISE DIRECTED BY THE ENGINEER, WHERE THE PROPOSED SEWER CROSSES UNDER EXISTING WATER AND GAS LINES, THE EXISTING WATER OR GAS LINE SHALL BE PROPERLY SUPPORTED AT ALL TIMES PER THE APPROVAL OF THE UTILITY OWNER AND THE PROJECT ENGINEER. STANDARD EMBEDMENT MATERIAL, AS SHOWN ON THE TYPICAL TRENCH DETAIL, SHALL BE PLACED BETWEEN THE PIPES, COMPACTED IN PLACE, FOR THE FULL WIDTH OF THE TRENCH. ALL WORK SHALL BE ACCEPTABLE TO BOTH THE UTILITY OWNER AND THE ENGINEER PRIOR TO FINAL BACKFILL PLACEMENT OVER THE WATER AND OR GAS LINE. THE COST OF PROVIDING THIS WORK SHALL BE INCLUDED IN THE UNIT BID PRICE AND SEPARATE PAYMENT WILL NOT BE MADE.

AGGREGATE BERMING:
ALL ROADWAY SHOULDERS AND BERMS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED FOLLOWING CONSTRUCTION PER THE APPROVAL OF THE ENGINEER. REBERMING MATERIAL SHALL BE ITEM 411 LESTONE PLACED AND COMPACTED PER ITEM 617.05. THE COST OF THIS WORK SHALL BE INCLUDED UNDER THE VARIOUS BID ITEMS. SEPARATE PAYMENT WILL NOT BE MADE.

ENCOUNTERING HAZARDOUS OR TOXIC MATERIALS:
IF CONTRACTOR ENCOUNTERS ANY ABNORMAL MATERIAL SUCH AS, BUT NOT LIMITED TO, DRUMS, TANKS, OR STAINED EARTH OF ANY UNUSUAL ODOR DURING CONSTRUCTION OPERATIONS, THE WORK IN THIS AREA SHALL BE TEMPORARILY DISCONTINUED. EQUIPMENT LEFT IN PLACE, THE AREA RIBBONED OFF AND THE ENGINEER NOTIFIED. IF THE AREA IS CONSIDERED TO CONTAIN HAZARDOUS OR TOXIC MATERIALS IT MUST BE HANDLED CORRECTLY IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.

SHEETING AND SHORING:
ALL SHEETING AND SHORING REQUIRED TO SUPPORT ALL TRENCHES AND EXCAVATIONS SHALL COMPLY WITH THE REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION PUBLICATION 4121.1-2 AND SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN THE VARIOUS BID ITEMS. SEPARATE PAYMENT WILL NOT BE MADE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF SHEETING AND SHORING NECESSARY FOR PROTECTION OF STRUCTURES AND/OR UTILITIES ADJACENT TO TRENCHES AND EXCAVATIONS.

BENCHMARKS AND ELEVATIONS:
ALL ELEVATIONS SHOWN ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND THE GEOID12 GEOID. HORIZONTAL POSITIONS ARE BASED ON THE OHIO STATE PLANE NORTH ZONE, A LAMBERT CONFORMAL CONIC MAP PROJECTION, THE NORTH

AMERICAN DATUM OF 1983 (NAD 83 (2011)), AND THE GRS80 ELLIPSOID. BENCHMARKS HAVE BEEN SET AND REFERENCED ON THE DRAWINGS. CONTRACTOR SHALL VERIFY ELEVATION OF EACH WITH PERMANENT BENCHMARKS PRIOR TO COMMENCING THE WORK. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND RESOLVED BEFORE PROCEEDING WITH THE WORK. BENCHMARKS SHALL BE MAINTAINED AS REQUIRED TO COMPLETE THE WORK AT THE CONTRACTOR'S COST.

VIDEO RECORDING:
THE CONTRACTOR SHALL PROVIDE A PRE AND POST CONSTRUCTION VIDEO RECORDING SURVEY OF THE PROJECT AREA PRIOR TO COMMENCING ANY WORK. THE COST OF THIS RECORDING SHALL BE INCLUDED IN THE UNIT BID PRICE OF THE VARIOUS WORK ITEMS. SEPARATE PAYMENT WILL NOT BE MADE.

CONSTRUCTION NOISE:
CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED BETWEEN THE HOURS OF 7 P.M. AND 7 A.M. MONDAY THROUGH SATURDAY, AND ALL DAY SUNDAYS AND HOLIDAYS.

SAFETY REQUIREMENTS:
THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS.

LAY-DOWN, STAGING AND STOCKPILE:
THE OWNER IS NOT PROVIDING ADDITIONAL ACCESS, STAGING, LAY-DOWN OR STOCKPILE AREAS OUTSIDE OF THE CONSTRUCTION LIMITS. THE CONTRACTOR MAY OBTAIN ADDITIONAL AREAS, IF AVAILABLE, AND AS SPECIFIED IN PROJECT MANUAL.

SURFACE DRAINAGE:
CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SURFACE DRAINAGE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING ITEMS:

- PROVISION, INSTALLATION, MAINTENANCE, AND REMOVAL OF TEMPORARY CULVERTS AT ACCESS DRIVE AND BARRIER LOCATIONS.
- MAINTAIN OR IMPROVE EXISTING ROADSIDE DITCHES TO CARRY STORMWATER FLOWS THROUGHOUT THE DURATION OF THE PROJECT.
- ROADSIDE DRAINAGE SHALL BE MAINTAINED SUCH THAT THE WATER SURFACE SHALL BE A MINIMUM OF 9 INCHES BELOW THE ADJACENT ROADSIDE SURFACE.

EASEMENT ACCESS:
ANY ACCESS REQUIRED BY THE CONTRACTOR OUTSIDE OF THE EASEMENTS SHALL BE OBTAINED BY THE CONTRACTOR THROUGH A RIGHT OF ACCESS AGREEMENT. COSTS ASSOCIATED WITH OBTAINING ADDITIONAL ACCESS DEEMED NECESSARY BY THE CONTRACTOR SHALL BE INCLUDED IN THE UNIT COSTS FOR THE VARIOUS BID ITEMS. SEPARATE PAYMENT WILL NOT BE MADE. ACCESS ON OWNER PROPERTY IS ALLOWED. PROPERTY MUST BE RETURNED TO ORIGINAL OR BETTER CONDITION FOR ALL PROPERTIES.

CONTINGENCY
CONTINGENCY QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER FOR SERVICES OUTSIDE OF THE SCOPE OF SERVICES INCLUDED AS PART OF THIS PROJECT. CONTRACTOR SHALL SUBMIT IN WRITING FOR APPROVAL BY THE ENGINEER THE COSTS ASSOCIATED WITH THE REQUESTED SERVICES PRIOR TO COMMENCEMENT OF SAID SERVICES.

RESTORING EXISTING PAVEMENT MARKINGS:
CONTRACTOR SHALL REPLACE PAVEMENT MARKINGS DISTURBED OR DESTROYED DURING CONSTRUCTION. PAVEMENT MARKINGS RESTORED BY THE CONTRACTOR PER O.D.O.T. ITEM 644. PAYMENT SHALL BE INCLUDED IN UNIT PRICE FOR ITEM 638, WATER MAINS. SEPARATE PAYMENT WILL NOT BE MADE.

ALLOWANCE – CONTINGENCY:
CONTINGENCY QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER FOR SERVICES OUTSIDE OF THE SCOPE OF SERVICES INCLUDED AS PART OF THIS PROJECT. CONTRACTOR SHALL SUBMIT IN WRITING FOR APPROVAL BY THE ENGINEER THE COSTS ASSOCIATED WITH THE REQUESTED SERVICES PRIOR TO COMMENCEMENT OF SAID SERVICES.

UTILITY CLEARANCE:
A MINIMUM OF 10- FEET HORIZONTAL AND 18- INCHES VERTICAL (MEASURED FROM OUTSIDE-TO-OUTSIDE CLEAR) BETWEEN THE PROPOSED SANITARY SEWER AND EXISTING WATER LINES SHALL BE MAINTAINED.

LEVEL SENSORS
A LOOP POWERED SUBMERSIBLE LEVEL TRANSMITTER SHALL BE PROVIDED TO SENSE THE TANK WATER LEVEL. THE LEVEL TRANSDUCER SHALL SENSE LEVEL BY MEASURING THE HYDROSTATIC HEAD PRESSURE ASSOCIATED WITH WATER LEVELS ABOVE THE BASE OF THE DIAPHRAGM. A LINEAR AND PROPORTIONAL (TO HYDROSTATIC HEAD PRESSURE) 4-20 MA SIGNAL SHALL BE PRODUCED AND INPUT TO THE MAIN CONTROLLER. THE TRANSDUCER SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

- MEASURING RANGES: 5 PSI (11.55 FT WC) TO 15 PSI (34.65 FT WC)
- ACCURACY: <1% FULL SCALE
- OPERATING TEMPERATURE: 32-122° F (0-50° C)
- OUTPUT: 4-20 mA, LOOP POWERED
- EXCITATION VOLTAGE: 10-28 VDC REVERSE POLARITY PROTECTION
- OVERPRESSURE PROTECTION: 2X RANGE
- BURST PRESSURE: 5X RANGE
- IP RATING: IP 68 FOR PERMANENT SUBMERSION
- WETTED MATERIALS:
 - SENSOR HOUSING: PVC
 - CABLE SEAL: EPDM
 - DIAPHRAGM: VITON, 1.25" DIAMETER (32mm)
 - CABLE: TPE, 18 AWG – 2 WIRE SHIELDED WITH VENT TUBE, 0.3" DIAMETER (8mm)
- TRANSDUCER SHALL BE A PRIMEX MODEL PSLT-IS OR ENGINEER-APPROVED EQUIVALENT.

PUMP STATION REHABILITATION
CONTRACTOR SHALL PROVIDE PUMP STATION EQUIPMENT AND MATERIALS AND SHALL CONFORM TO THE GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENTS AND AS SPECIFIED HEREIN. SUBMITTALS OF ALL EQUIPMENT AND MATERIALS FOR THE PUMP STATION REHABILITATION SHALL BE SUBMITTED PER SECTION 01 33 00. THE FOLLOWING SPECIFICATIONS APPLY TO ALL ITEMS SHOWN ON THE CONTRACT DRAWINGS:

- A. SUBMERSIBLE GRINDER PUMPS
- GENERAL DESIGN CONDITIONS

PUMP TYPE	SUBMERSIBLE
NUMBER OF PUMPS	2
EQUIPMENT TAG	P-01/P-02
DRIVE TYPE	CONSTANT SPEED
OPERATION (ALTERNATING, SERIES, PARALLEL)	ALTERNATING
DISCHARGE PIPE DIA. (IN)	3
MAXIMUM MOTOR SIZE (HP)	5
VOLTS	460
HERTZ	60
MOTOR SPEED (RPM)	3450
PUMP ON FLOW RATE (GPM)/TDH (FT)	125 / 71
MINIMUM SOLID DIAMETER (IN)	GRINDER

- SYSTEM TESTING AND PERFORMANCE TEST:
 - EACH PUMP SHALL BE TESTED TO HYDRAULIC INSTITUTE STANDARDS AT THE SET POINTS AND MAXIMUM DESIGN DUTY POINTS IN ADDITION TO SHUT-OFF POINT. TEST DATA SHALL INCLUDE CAPACITY, HEAD, LINE TO LINE VOLTAGE, CURRENT ON EACH PHASE, FREQUENCY, POWER FACTOR, KVA, KW, KVAR, KW DEMAND, AND KVA DEMAND. SCALED TESTING IS NOT CONSIDERED ACCEPTABLE OR ACCURATE FOR THIS APPLICATION.
- MAJOR PUMP COMPONENTS AND PUMP BASE SHALL BE OF GREY CAST IRON, ASTM A-48, CLASS 30, WITH SMOOTH SURFACES DEVOID OF BLOW HOLES OR OTHER IRREGULARITIES. THE LIFTING HANDLE SHALL BE OF STAINLESS STEEL. ALL EXPOSED NUTS OR BOLTS SHALL BE AISI TYPE 303/304 STAINLESS STEEL CONSTRUCTION. ALL METAL SURFACES ENCOUNTERING THE PUMP, OTHER THAN STAINLESS STEEL OR BRASS, SHALL BE PROTECTED BY A FACTORY APPLIED SPRAY COATING OF ACRYLIC DISPERSION ZINC PHOSPHATE PRIMER WITH A POLYESTER RESIN PAINT FINISH ON THE EXTERIOR OF THE PUMP.
- SERVICEABILITY: NO SPECIAL TOOLS SHALL BE REQUIRED FOR THE REPLACEMENT OF ANY COMPONENTS WITHIN THE PUMP.
- DRIVE UNIT: PUMP MOTOR SHALL BE OF THE SUBMERSIBLE TYPE RATED FOR MAXIMUM 5 HORSEPOWER. MOTOR SHALL BE PREMIUM EFFICIENCY FOR THREE PHASE, 460 VOLTS, 60 HERTZ, WITH A 1.0 SERVICE FACTOR RATED FOR CONSTANT SPEED DUTY.
- IMPELLER: THE IMPELLER SHALL BE OF THE RECESSED TYPE TO PROVIDE AN OPEN, UNOBSTRUCTED PASSAGE THROUGH THE VOLUTE FOR THE GROUND SOLIDS. IMPELLER SHALL BE OF 316 SST/CF8M AND SHALL BE THREADED ONTO STAINLESS STEEL SHAFT.
- CABLE ENTRY SEAL: THE CABLE ENTRY SEAL DESIGN SHALL PRECLUDE SPECIFIC TORQUE REQUIREMENTS TO INSURE A WATERTIGHT AND SUBMERSIBLE SEAL. THE CABLE ENTRY SHALL CONSIST OF A SINGLE CYLINDRICAL ELASTOMER GROMMET, FLANKED BY WASHERS, ALL HAVING A CLOSE TOLERANCE FIT AGAINST THE CABLE OUTSIDE DIAMETER AND THE ENTRY INSIDE DIAMETER AND COMPRESSED BY THE BODY CONTAINING A STRAIN RELIEF FUNCTION, SEPARATE FROM THE FUNCTION OF SEALING THE CABLE. THE ASSEMBLY SHALL PROVIDE EASE OF CHANGING THE CABLE WHEN NECESSARY USING THE SAME ENTRY SEAL. INSULATION OF POWER AND CONTROL CORDS SHALL BE TYPE SOOW/SOOW-W. BOTH CONTROL AND POWER CORDS SHALL HAVE A GROUND CONDUCTOR THAT ATTACHES TO MOTOR FRAME. CABLE SHALL BE 35 FEET MINIMUM IN LENGTH.
- THE POWER CABLE SHALL BE SIZED ACCORDING TO THE NEC AND ICEA STANDARDS AND SHALL BE OF SUFFICIENT LENGTH TO REACH THE JUNCTION BOX WITHOUT THE NEED OF ANY SPLICES. THE POWER CABLE SHALL BE OF A SHIELDED DESIGN IN WHICH AN OVERALL TINNED COPPER SHIELD INCLUDED, AND EACH INDIVIDUAL PHASE CONDUCTOR IS SHIELDED WITH AN ALUMINUM COATED FOIL WRAP. THE OUTER JACKET OF THE CABLE SHALL BE OIL RESISTANT CHLORINATED POLYETHYLENE RUBBER. THE CABLE SHALL BE CAPABLE OF CONTINUOUS SUBMERGENCE UNDERWATER WITHOUT LOSS OF WATERTIGHT INTEGRITY TO A DEPTH OF 65 FEET OR GREATER.
- WARRANTY: THE PUMP MANUFACTURER SHALL WARRANT THE PUMPS AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PRO-RATED PERIOD OF THREE (3) YEARS UNDER NORMAL USE AND OPERATION FROM THE DATE OF BENEFICIAL USE BY THE OWNER. COST OF ANY REPAIRS OR MODIFICATIONS REQUIRED TO ANY COMPONENT OF THE PUMP STATION THAT IS SPECIFIED WITHIN THIS SECTION AND WITHIN THE WARRANTY PERIOD SHALL BE INCURRED BY THE PUMP MANUFACTURER AT NO COST TO THE OWNER. THE WARRANTY SHALL BE SUPPLIED IN A PRINTED FORM TO THE OWNER.
- MANUFACTURER AND MODEL SHALL BE:
 - MYERS MODEL #: WGX50 OR APPROVED EQUAL
- GUIDE RAILS: CONTRACTOR SHALL INSTALL STAINLESS STEEL PUMP GUIDE RAILS MOUNTED TO PUMP BASE AS PROVIDED BY PUMP MANUFACTURER. INSTALLATION SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS.

- C. DISCHARGE PIPING
- ALL SCH 80 PVC PIPING WILL BE MADE TO COMPLY WITH THE FOLLOWING ANSI SPECIFICATIONS: ASTM D1785-21A.
 - ALL PIPE SHALL BE PRESSURE CLASS 370 UNLESS SHOWN DIFFERENTLY IN THE DRAWINGS AND COMPLY WITH THE FOLLOWING ANSI SPECIFICATIONS: ASTM D1785-21A.
 - ALL PVC FITTINGS SHALL BE FURNISHED WITH THE SAME TYPE OF JOINT SYSTEM AND COMPLY WITH THE FOLLOWING ANSI SPECIFICATIONS: ASTM D1785-21A.
 - JOINTS SHALL BE SOCKET SOLVENT WELD JOINTS ASTM 2467. SOLVENT SHALL BE COMPATIBLE WITH FLUID SERVICE.
- D. CONTRACTOR TO INSTALL 2" DRAIN WITH DUCKBILL CHECK VALVE ON VAULT DRAIN RETURN.
- E. SUPPORTS, BRACKETS & HARDWARE: ALL SUPPORTS, BRACKETS, AND HARDWARE FOR EQUIPMENT AND MATERIALS SHALL BE SUITABLE FOR SUBMERGED WASTEWATER ENVIRONMENTS. MATERIALS SHALL BE 304 STAINLESS STEEL WHERE APPLICABLE AND SHALL BE SUBMITTED FOR APPROVAL.

KEM

K.E. McCARTNEY & ASSOCIATES

ENGINEERS PLANNERS SURVEYORS

NOT FOR CONSTRUCTION

STATE OF OHIO

PHILIP A. LEWIS

E-829493

REGISTERED PROFESSIONAL ENGINEER

MARION COUNTY
S.R. 95/98 PUMP STATION
REHAB

REVISIONS

NO.	DESCRIPTION	DATE

PROJECT DESIGNED DRAWN CHECKED

SW0392	PB	PB	PL
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SHEET NAME

GENERAL NOTES

II

SHEET NUMBER

5 / 8

DRAFTED BY K.E. McCARTNEY & ASSOCIATES, INC., V:\Shared\Projects\SW\S\W0392.00.0000 MARC SR 95-98 PS Rehab\Plan Sheets\SW0392_GN.dwg 6 GENERAL NOTES III.plectrez

WET WELL AND MANHOLE LINING

EXISTING WET WELL SHALL HAVE THE EXISTING LINER REMOVED. EXISTING WET WELL AND PROPOSED MANHOLE SHALL HAVE A FLEXIBLE LINER INSTALLED PER THE FOLLOWING SPECIFICATIONS:

A. GENERAL

1. SUMMARY

- a. IT IS THE INTENT OF THIS SECTION TO PROVIDE FOR THE WATERPROOFING, SEALING, AND CORROSION PROTECTION OF EXISTING MANHOLES, WET WELLS, AND SIMILAR UNDERGROUND STRUCTURES FROM THE COVER (ACCESS OPENING) TO THE BENCH OR FLOOR, INCLUDING THE ENTIRE FLOOR, OF THE STRUCTURE BY INSTALLING A MULTI-LAYER/COMPONENT LINING SYSTEM TO PROVIDE INFILTRATION AND CORROSION PROTECTION OF THE EXISTING STRUCTURE.
- b. THIS SECTION OF THESE SPECIFICATIONS ESTABLISHES THE MINIMUM STANDARDS FOR SURFACE PREPARATION, CLEANING, LINER MATERIAL APPLICATION, AND TESTING OF THE PROPOSED LINER SYSTEM.

2. SUBMITTALS

- a. THE CONTRACTOR SHALL SUBMIT TECHNICAL DATA SHEETS ON EACH OF THE COMPONENT PARTS OF THE LINING SYSTEM BEING USED, INCLUDING APPLICABLE ASTM TEST RESULTS INDICATING SUCH PARTS OF THE PRODUCT CONFORMS TO THE MINIMUM VALUES GIVEN IN SECTIONS B.3 AND B.4 LATER HEREIN.
- b. MATERIAL SAFETY DATA SHEETS (MSDS) FOR EACH OF THE COMPONENT PARTS.
- c. THE CONTRACTOR SHALL SUBMIT ANY TECHNICAL DATA SHEETS AND PROJECT SPECIFIC DATA FOR REPAIR MATERIALS ANTICIPATED TO BE USED IN THE PREPARATION OF THE EXISTING WALL STRUCTURE PRIOR TO APPLICATION OF THE LINING SYSTEM. AT A MINIMUM WILL BE INCLUDED THE PROPER SURFACE PREPARATION, APPLICATION, AND CURE TIME REQUIRED PRIOR TO APPLICATION OF THE SPECIFIED LINING SYSTEM.
- d. PROVIDE SAMPLES OF THE CURED LINING SYSTEM INCLUDING STEPPED SAMPLES THAT ILLUSTRATE THE STAGES OF THE MULTI-LAYER/COMPONENT AS APPLIED FOR THE CONSTRUCTION OBSERVER.
- e. INSTALLATION QUALIFICATIONS

- i. MANUFACTURER AND CONTRACTOR SPECIALIZING IN THE PERFORMANCE OF THE WORK SPECIFIED IN THIS SECTION WITH A MINIMUM OF THREE (3) YEARS OF DOCUMENTED EXPERIENCE AND 3,000 VERTICAL FEET OF APPLICATION.
- ii. FIVE (5) REFERENCES OF MUNICIPAL SANITARY SEWER PROJECTS SUCCESSFULLY PERFORMED WITHIN THE PAST THREE (3) YEARS FOR PROJECTS OF SIMILAR SIZE AND SCOPE.

3. QUALITY ASSURANCE

- a. COATING MATERIAL COMPONENTS SHALL BE PRODUCED IN AN ISO 9001 CERTIFIED FACILITY.
- b. FURNISH MATERIALS MANUFACTURED TO THE QUALITY REQUIRED BY THE APPLICABLE ASTM STANDARDS OR OTHER APPROVED STANDARDS LISTED HEREIN.
- c. COATING PRODUCTS SHALL BE CAPABLE OF BEING INSTALLED AND SUBSEQUENTLY CURED PROPERLY WITHIN THE ENVIRONMENTAL CONDITIONS ON THE SUBJECT PROJECT SITE. THIS INCLUDES ADHERING TO THE PREPARED SUBSTRATES AND ANY REPAIRS PRODUCTS USED.
- d. COATING PRODUCTS SHALL BE RESISTANT TO ALL FORMS OF CHEMICAL OF BACTERIOLOGICAL ATTACK FOUND IN MUNICIPAL SANITARY SEWER SYSTEMS. THIS INCLUDES HAVING BEEN TESTED AND PASSING ASTM G210-13, SEVERE WASTEWATER ANALYSIS TESTING (OR SWAT).
- e. REPAIR PRODUCT(S) SHALL BE FULLY COMPATIBLE WITH THE SPECIFIED COATING PRODUCT(S) FORMING THE SPECIFIED COMPOSITE SYSTEM.
- f. CONTRACTOR SHALL UTILIZE EQUIPMENT FOR THE SPRAY APPLICATION OF THE COATING PRODUCT(S) WHICH HAS BEEN APPROVED BY THE COATING PRODUCT MANUFACTURER; AND CONTRACTOR SHALL HAVE RECEIVED TRAINING ON THE OPERATION AND MAINTENANCE OF SAID EQUIPMENT FROM THE COATING PRODUCT MANUFACTURER.
- g. CONTRACTOR'S INSTALLATION PERSONNEL SHALL BE TRAINED BY, OR HAVE THEIR TRAINING APPROVED AND CERTIFIED BY, THE COATING PRODUCT MANUFACTURER FOR THE HANDLING, MIXING, APPLICATION, AND INSPECTION OF THE COATING PRODUCT(S) TO BE USED AS SPECIFIED HEREIN.
- h. CONTRACTOR SHALL BE TRAINED IN THE USE OF TESTING OR INSPECTION INSTRUMENTATION AND KNOWLEDGEABLE OF THE PROPER USE, PREPARATION, AND INSTALLATION OF THE COATING PRODUCTS TO BE USED AS SPECIFIED HEREIN.
- i. PROVIDE GUARANTEE AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE REQUIREMENTS OF THESE SPECIFICATIONS.

4. DELIVERY, STORAGE, AND HANDLING

- a. MOISTURE DAMAGE AND/OR CONTAMINATION OF THE MATERIALS SHALL BE PREVENTED DURING THEIR DELIVERY AND HANDLING.
- b. MATERIALS SHALL BE STORED IN AN UNDAMAGED CONDITION WITH SEALS AND LABELS KEPT INTACT AS PACKAGED BY THE MANUFACTURER. ADDITIONALLY, THE LIQUID PRODUCTS SHALL BE PROTECTED FROM FREEZING WHILE BEING STORED.

5. DEFINITIONS

- a. CLEANING: REMOVAL OF SAND, DIRT, ROOTS, GREASE, AND ALL OTHER SOLID OR SEMI-SOLID MATERIAL FROM THE STRUCTURE(S) AS REQUIRED FOR PROPER APPLICATION OF PATCHING AND COATING PRODUCTS.
- b. FAULTS: LEAKING JOINTS, CRACKS, BREAKS, OR OTHER IMPERFECTIONS IN THE STRUCTURE.

6. JOBSITE CONDITIONS

a. ENVIRONMENTAL REQUIREMENTS

- i. DO NOT APPLY REPAIR OR LINING MATERIALS WHEN SURFACE AND AMBIENT TEMPERATURES ARE OUTSIDE THE TEMPERATURE RANGES REQUIRED BY THE MANUFACTURER. DO NOT APPLY THE PRODUCTS OF THIS SECTION TO FROZEN SURFACES.
- ii. DO NOT APPLY COATINGS DURING RAIN OR SNOW, OR WHEN RELATIVE HUMIDITY IS OUTSIDE THE HUMIDITY RANGES REQUIRED BY THE MATERIAL'S MANUFACTURER.

b. PROTECTION

- i. IF THERE IS A POTENTIAL FOR ENDANGERMENT TO THE PUBLIC DURING THE PROGRESS OF THE REHABILITATION WORK, CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTIVE MEASURES TO ENSURE THE SAFETY OF ANY PEDESTRIAN AND VEHICULAR TRAFFIC ON THE NEARBY STREETS AND WALKWAYS.
- ii. CONTRACTOR SHALL PROTECT ANY EXISTING STRUCTURES FROM DAMAGE DUE TO OPERATIONS ASSOCIATED WITH THE WORK OF THIS SECTION.
- iii. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE APPROPRIATE PROTECTIVE MEASURES TO ENSURE THAT THE CHEMICALS ARE ALWAYS UNDER THE CONTROLS OF THE CONTRACTOR AND ARE NOT AVAILABLE TO ANY UNAUTHORIZED PERSONNEL OR ANIMALS.

7. WARRANTY

- a. MANUFACTURER AND CONTRACTOR SHALL WARRANT THE LINER SYSTEM AGAINST FAILURE FOR A PERIOD OF TEN (10) YEARS. "FAILURE" WILL BE DEEMED TO HAVE OCCURRED IF THE PROTECTIVE LINING FAILS TO PREVENT THE INTERNAL DETERIORATION OR CORROSION OF THE STRUCTURE OR PREVENT GROUNDWATER INFILTRATION. IF ANY SUCH FAILURE OCCURS WITHIN TEN (10) YEARS OF INITIAL COMPLETION OF WORK ON A STRUCTURE, THE DAMAGE WILL BE REPAIRED AT NO COST TO THE OWNER. "FAILURE" DOES NOT INCLUDE DAMAGE RESULTING FROM MECHANICAL OR CHEMICAL ABUSE OR ACT OF GOD. MECHANICAL OR CHEMICAL ABUSE MEANS EXPOSING THE LINED SURFACES OF THE STRUCTURE TO ANY MECHANICAL FORCE OR CHEMICAL SUBSTANCE NOT CUSTOMARILY PRESENT OR USED IN THE MANHOLE ENVIRONMENT.

B. PRODUCTS

1. MANUFACTURERS

- a. SUBJECT TO COMPLIANCE WITH THE REQUIREMENTS STATED HEREIN, THE MANUFACTURER OF THE MULTI-LAYER/COMPONENT LINING SYSTEM SHALL BE OBIC, LLC, OR AN ENGINEER-APPROVED EQUAL.

2. PROTECTIVE LINING SYSTEM MATERIALS

- a. THE PROTECTIVE LINING SYSTEM SHALL BE A MULTI-LAYER/COMPONENT PROTECTIVE LINING SYSTEM BY OBIC, OR ENGINEER-APPROVED EQUAL, INCLUDING:
 - i. POLYUREA ADHESION COATING LAYER (OBIC 1000)
 - ii. POLYMER SURFACE LAYER (OBIC 1306)
 - iii. FINAL POLYUREA ARMOR LAYER (OBIC 1000)

3. LINER SYSTEM ARMOR LAYER

- a. 100% SOLIDS, NO VOLATILE ORGANIC COMPOUND (VOC), MOISTURE TOLERANT, ELASTOMERIC POLYUREA COATING TO PROVIDE INFILTRATION AND CORROSION PROTECTION. MATERIAL SHALL BE CAPABLE OF CURING PROPERLY GIVEN THE PROJECT SITE SPECIFIC CONDITIONS AND TEMPERATURES CONFORMING TO THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:

HARDNESS, D-2240	D 48
TENSILE STRENGTH, D-412	3315 PSI
100% MODULUS, D-412	1668 PSI
200% MODULUS, D-412	1960 PSI
300% MODULUS, D-412	2650 PSI
TEAR RESISTANCE/DIE-C, D-624	417 PLI
ULTIMATE ELONGATION, D-412	395%
TABER ABRASION, MG LOSS CS17	15 MG LOSS
FLEXIBILITY, 1/8" MANDREL	PASS
ASTM G210-13 SWAT	PASS

4. LINER SYSTEM SURFACE LAYER

- a. 100% SOLIDS, NO VOLATILE ORGANIC COMPOUND (VOC), MOISTURE TOLERANT, ELASTOMERIC POLYUREA COATING TO PROVIDE INFILTRATION AND CORROSION PROTECTION. MATERIAL SHALL BE CAPABLE OF CURING PROPERLY GIVEN THE PROJECT SITE SPECIFIC CONDITIONS AND TEMPERATURES CONFORMING TO THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:

DENSITY (ASTM D-1622)	6-8 PCF
COMPRESSIVE STRENGTH (1")	130-180 PSI
CLOSED CELL CONTENT	> 94%
WATER ABSORPTION	< 0.03 LBS/SF
MAXIMUM SERVICE TEMPERATURE	180 DEGREES F
VISCOSITY (A SIDE) @ 72 DEG F	672 CPS
VISCOSITY (B SIDE) @ 72 DEG F	200 CPS

C. EXECUTION OF THE WORK

1. SURFACE PREPARATION

- a. CONDUCT A SURFACE PREPARATION PROGRAM TO INCLUDE MONITORING OF THE SEWER ATMOSPHERE FOR HYDROGEN SULFIDE, METHANE, LOW OXYGEN OR OTHER GASES, APPROVED FLOW CONTROL EQUIPMENT, AND SURFACE PREPARATION EQUIPMENT.
- b. SURFACE PREPARATION METHODS MAY INCLUDE HIGH PRESSURE WATER CLEANING, HYDRO BLASTING, ABRASIVE BLASTING, GRINDING, DETERGENT WATER CLEANING AND SHALL BE SUITED TO PROVIDE A SURFACE COMPATIBLE FOR INSTALLATION OF THE LINER SYSTEM.
- c. SURFACE PREPARATION METHOD SHALL PRODUCE A CLEANED, ABRADED, AND SOUND SURFACE WITH NO EVIDENCE OF LAITANCE, LOOSE CONCRETE, BRICK OR MORTAR, CONTAMINANTS, OR DEBRIS, AND SHALL DISPLAY A SURFACE PROFILE SUITABLE FOR APPLICATION OF THE LINER SYSTEM.
- d. AFTER THE DEFECTS IN THE STRUCTURE ARE IDENTIFIED, REPAIR ALL LEAKS WITH A CHEMICAL OR HYDRAULIC SEALANT DESIGNED FOR USE IN FIELD SEALING OF GROUND WATER. SEVERE CRACKS SHALL BE REPAIRED WITH A URETHANE-BASED CHEMICAL SEALANT. PRODUCT TO BE UTILIZED SHALL BE AS APPROVED BY OWNER/ENGINEER PRIOR TO INSTALLATION. REPAIRS TO EXPOSED REBAR, DEFECTIVE PIPE PENETRATIONS OR INVERTS, ETC. SHALL BE REPAIRED UTILIZING NON-SHRINK GROUT OR APPROVED ALTERNATIVE METHOD.

2. REPAIR MATERIALS

- a. REPAIR MATERIALS SHALL BE USED TO FILL VOIDS, STRUCTURALLY REINFORCE, AND/OR REBUILD SURFACES. REPAIR MATERIALS SHALL BE COMPATIBLE WITH THE POLYUREA COATING AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- b. SUBJECT TO COMPLIANCE WITH THE POLYUREA COATING MANUFACTURER'S REQUIREMENTS, THE FOLLOWING PRODUCTS SHALL BE ACCEPTABLE AS COMPATIBLE REPAIR BASE COAT MATERIALS FOR POLYUREA TOP COATING:
 - i. A HYDRAULIC CEMENT AND/OR PLUG SHALL BE USED TO STOP INFILTRATION. THE HYDRAULIC CEMENT AND PLUG SHALL BE SUITABLE FOR THE POLYUREA TOP COATING AND SHALL BE APPROVED BY THE POLYUREA COATING MANUFACTURER.
 - ii. HYDROPHOBIC AND/OR HYDROPHILIC POLYURETHANE CHEMICAL GROUTS USED TO STOP ACTIVE INFILTRATION. THE CHEMICAL GROUTS SHALL BE SUITABLE FOR THE POLYUREA TOP COATING AND SHALL BE APPROVED BY THE POLYUREA COATING MANUFACTURER.

3. LINING MATERIAL INSTALLATION

- a. APPLICATION PROCEDURES SHALL CONFORM TO RECOMMENDATIONS OF THE MANUFACTURER, INCLUDING MATERIALS HANDLING, MIXING, ENVIRONMENTAL CONTROLS DURING APPLICATION, SAFETY, AND SPRAY EQUIPMENT.
- b. SPRAY EQUIPMENT SHALL BE SPECIFICALLY DESIGNED TO ACCURATELY RATIO AND APPLY THE LINER SYSTEM.
- c. APPLICATION OF THE MULTI-LAYER/COMPONENT LINER SYSTEM SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. FINAL INSTALLATION SHALL BE A MINIMUM OF 0.50" (500 MILS) OF THE COMPOSITE LINING.
 - i. ADHESION LAYER - THE POLYUREA ADHESION LAYER, OBIC 1000, SHALL BE APPLIED TO THE PREPARED WALL SURFACE AREA AS GIVEN IN SECTION C.1 ABOVE. ITS MINIMUM THICKNESS SHALL BE 0.05" (50 MILS).
 - ii. SURFACE LAYER - THE POLYURETHANE LINER SYSTEM SURFACE LAYER OF SECTION B.4 ABOVE SHALL BE APPLIED TO A THICKNESS OF NO LESS THAN 0.40" (400 MILS). THIS MATERIAL SHALL ALSO BE USED TO PRODUCE A UNIFORM INTERIOR WALL SURFACE PRIOR TO THE INSTALLATION OF THE FINAL ARMOR SURFACE LAYER.
 - iii. ARMOR SURFACE LAYER - THE ARMOR SURFACE LAYER, OBIC 1000, SHALL BE APPLIED TO THE SURFACE LAYER TO COMPLETE THE LINER SYSTEM COMPOSITE. ITS THICKNESS SHALL BE A MINIMUM OF 0.05" (50 MILS)

4. QUALITY ASSURANCE AND ACCEPTANCE

- a. FINAL LINER SYSTEM SHALL BE COMPLETELY FREE OF PINHOLES OR VOIDS. LINER THICKNESS SHALL BE THE MINIMUM VALUE AS DESCRIBED HEREIN (0.50").
- b. DUE TO THE FAST GEL AND SET TIME OF THE MATERIAL, THICKNESS OF THE APPLICATION, WHEN REQUIRED, SHALL BE VERIFIED BY AWL POINT DEPTH CHECKS INTO THE SURFACE COMPONENT AND PHYSICAL REMOVAL OF A SMALL AREA OF THE POLYURETHANE MATERIAL. REPAIR OF ANY TEST AREAS SHALL BE DONE IMMEDIATELY AFTER THE TEST.
- c. HIGH VOLTAGE HOLIDAY DETECTION MAY BE REQUIRED TO BE USED PER THE ENGINEER'S JUDGEMENT TO INSPECT FOR PINHOLES OR BREACHES IN THE LINER SYSTEM INSTALLATION USING ASTM D4787.
- d. VISUAL INSPECTION SHALL BE MADE BY THE OWNER/ENGINEER. ANY DEFICIENCIES IN THE FINISHED LINER SYSTEM SHALL BE MARKED AND REPAIRED ACCORDING TO THE WRITTEN PROCEDURES SET FORTH BY THE MANUFACTURER.

SEQUENCE OF CONSTRUCTION

CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION LISTED BELOW:

1. INSTALL NEW MANHOLE (SEE SHEET NO. 8 FOR DETAILS)
2. INSTALL MANHOLE LINER IN NEW MANHOLE
3. REROUTE FORCE MAINS TO NEW MANHOLE (SEE SHEET NO. 7 FOR DETAILS)
4. INSTALL WET WELL LINER WHILE BYPASS PUMPING FROM NEW MANHOLE TO VALVE VAULT DISCHARGE BYPASS OF EXISTING PUMP STATION

MAINTENANCE OF SEWER FLOWS

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO MAINTAIN AT ALL TIMES SEWER FLOWS THROUGH EXISTING FACILITIES. CONTRACTOR SHALL SUBMIT A DETAILED BYPASS PUMPING PLAN FOR APPROVAL BY ENGINEER INCLUDING DETAILED DESIGN PLANS AND DESCRIPTIONS OUTLINING ALL PROVISIONS AND PRECAUTIONS TO BE TAKEN BY THE CONTRACTOR TO HANDLE THE EXISTING WASTEWATER FLOWS.

KEM
K.E. McCARTNEY & ASSOCIATES
ENGINEERS PLANNERS SURVEYORS

NOT FOR
CONSTRUCTION

STATE OF FLORIDA
PHILIP A. LEWIS
E-82943
REGISTERED
PROFESSIONAL ENGINEER

MARION COUNTY
S.R. 95/98 PUMP STATION
REHAB

REVISIONS

PROJECT DESIGNED DRAWN CHECKED
SW0392 PB PB PL

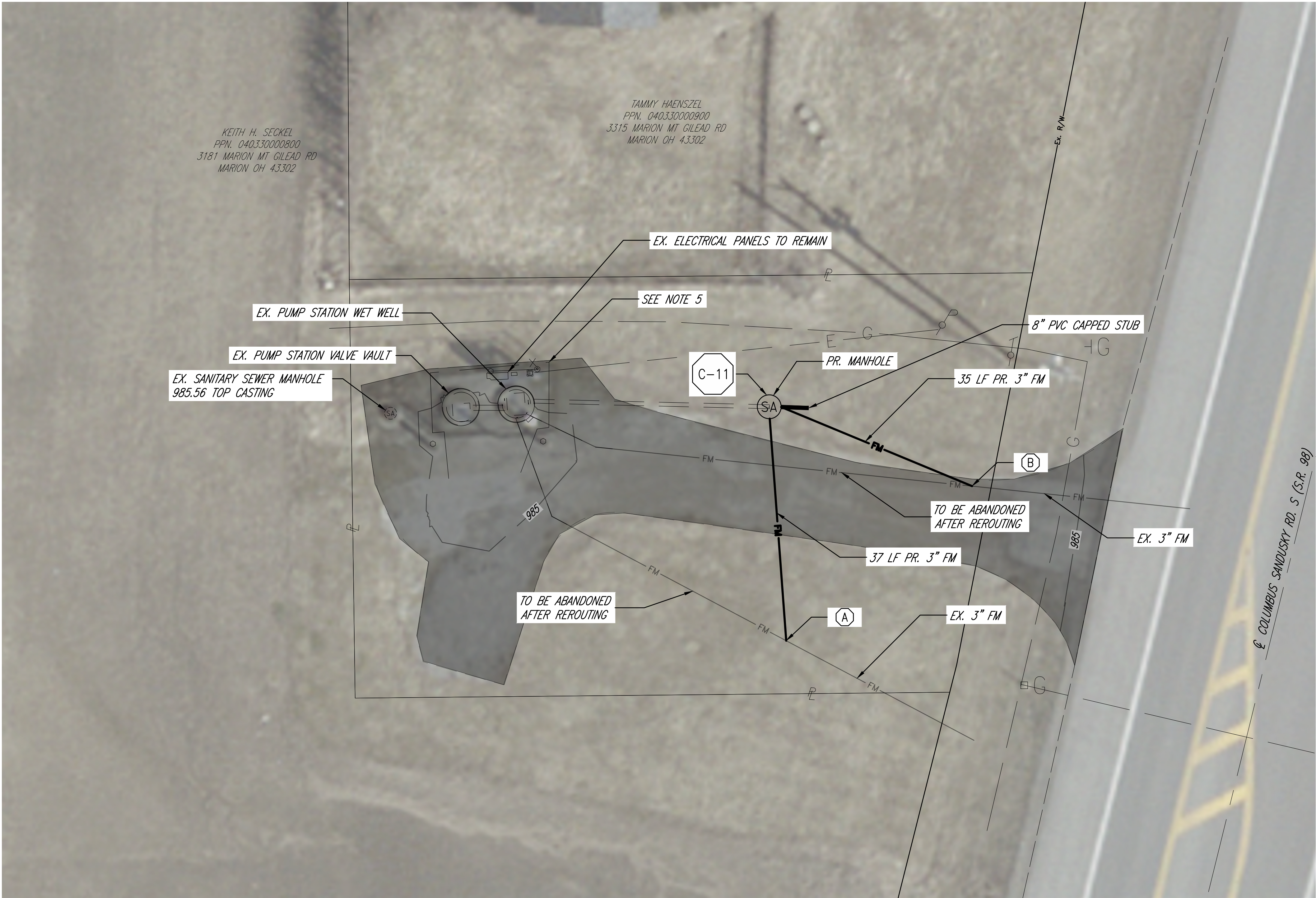
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GENERAL NOTES
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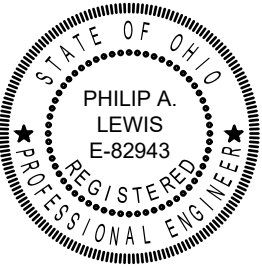
1. SEE SHEET NO. 8 FOR DETAILS OF PROPOSED SANITARY MANHOLE.
2. CONTRACTOR SHALL GRADE MANHOLE SITE TO MEET EXISTING GRADES. MANHOLE SHALL BE PER DETAIL C-11.
3. CONTRACTOR SHALL VERIFY EXISTING GRAVITY SEWER AND FORCE MAIN LOCATIONS AND DEPTH PRIOR TO ANY INSTALLATION.
4. EXCAVATION WITHIN EXISTING DRIVEWAY SHALL BE REPLACED WITH STRUCTURAL BACKFILL.
5. CONTRACTOR TO REMOVE FENCE AS NECESSARY TO PERFORM CONSTRUCTION ACTIVITIES AND SHALL REINSTALL UPON COMPLETION. ALL COSTS SHALL BE INCLUDED IN VARIOUS LINE ITEMS.
6. SEE SHEET 8 FOR DETAILS ON FORCE MAIN ABANDONMENT AT WET WELL.
7. ALL HATCHED AREA SHOWN TO HAVE VEGETATION REMOVED BY MECHANICAL MEANS AND TOP DRESSED WITH A MINIMUM 6" CRUSHED 304, PER DETAIL.

○ SHEET KEYNOTES

- A. 3" x 45 DEGREE BEND.
B. 3" x 22.5 DEGREE BEND.



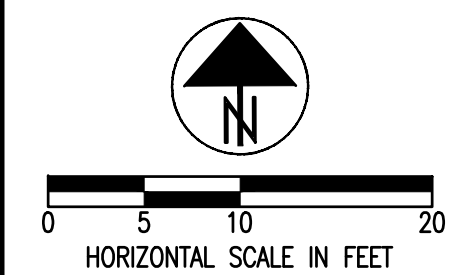
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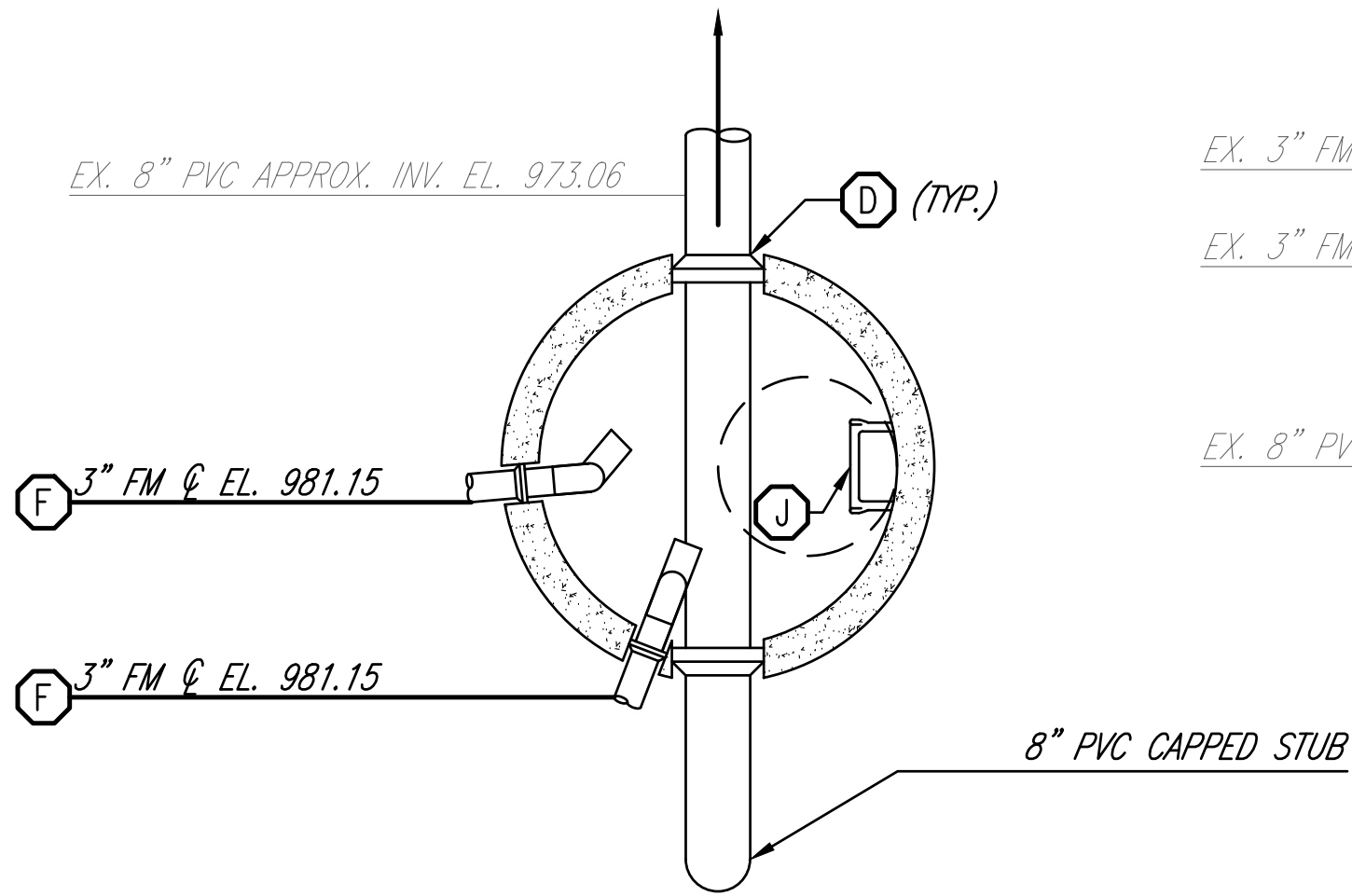
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SITE PLAN

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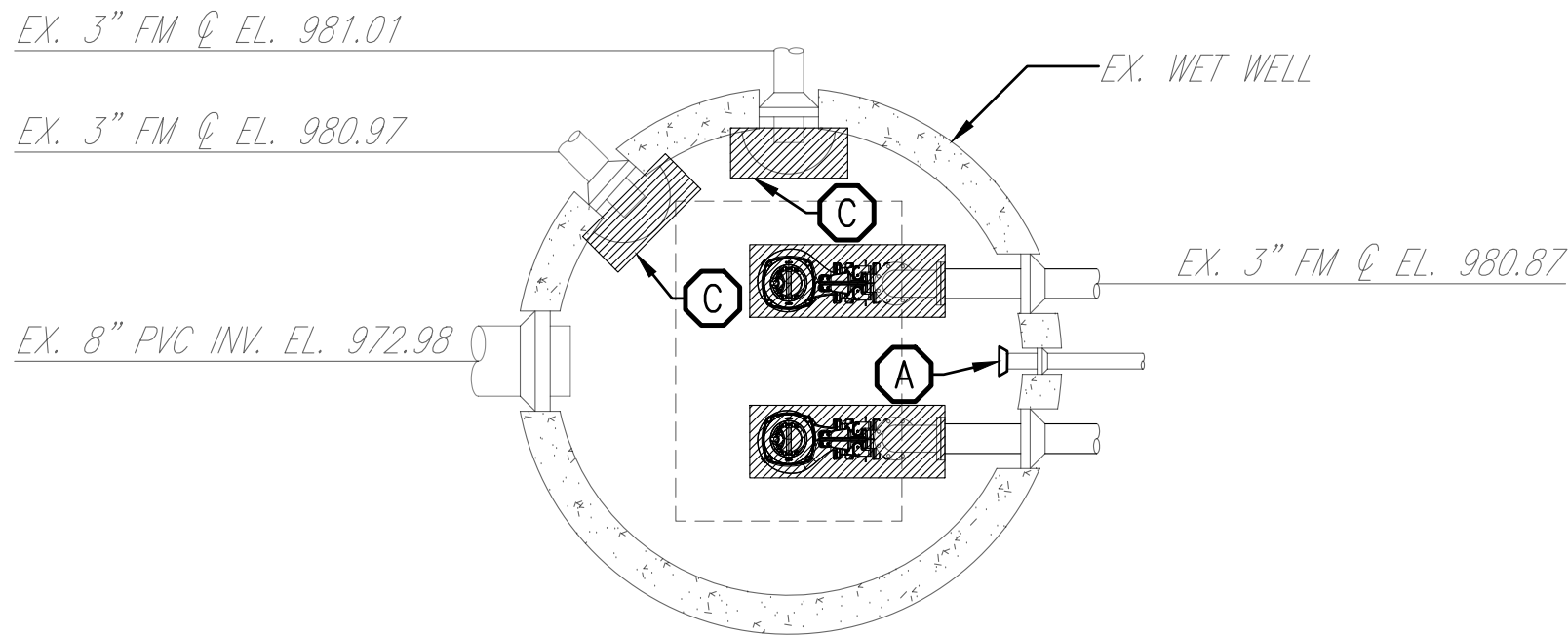
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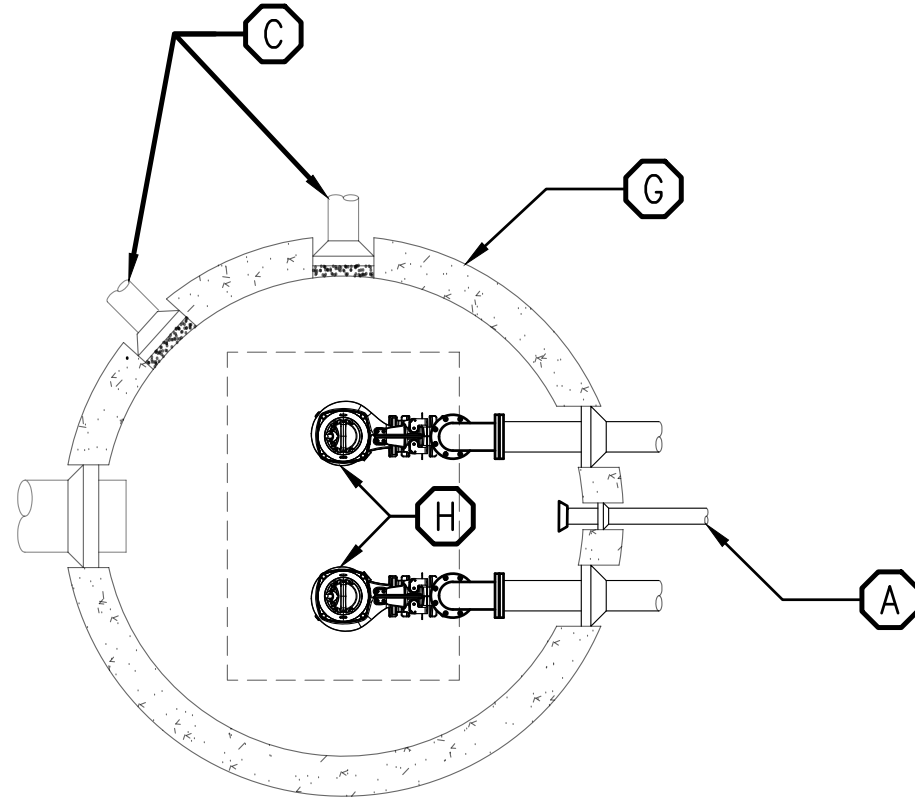
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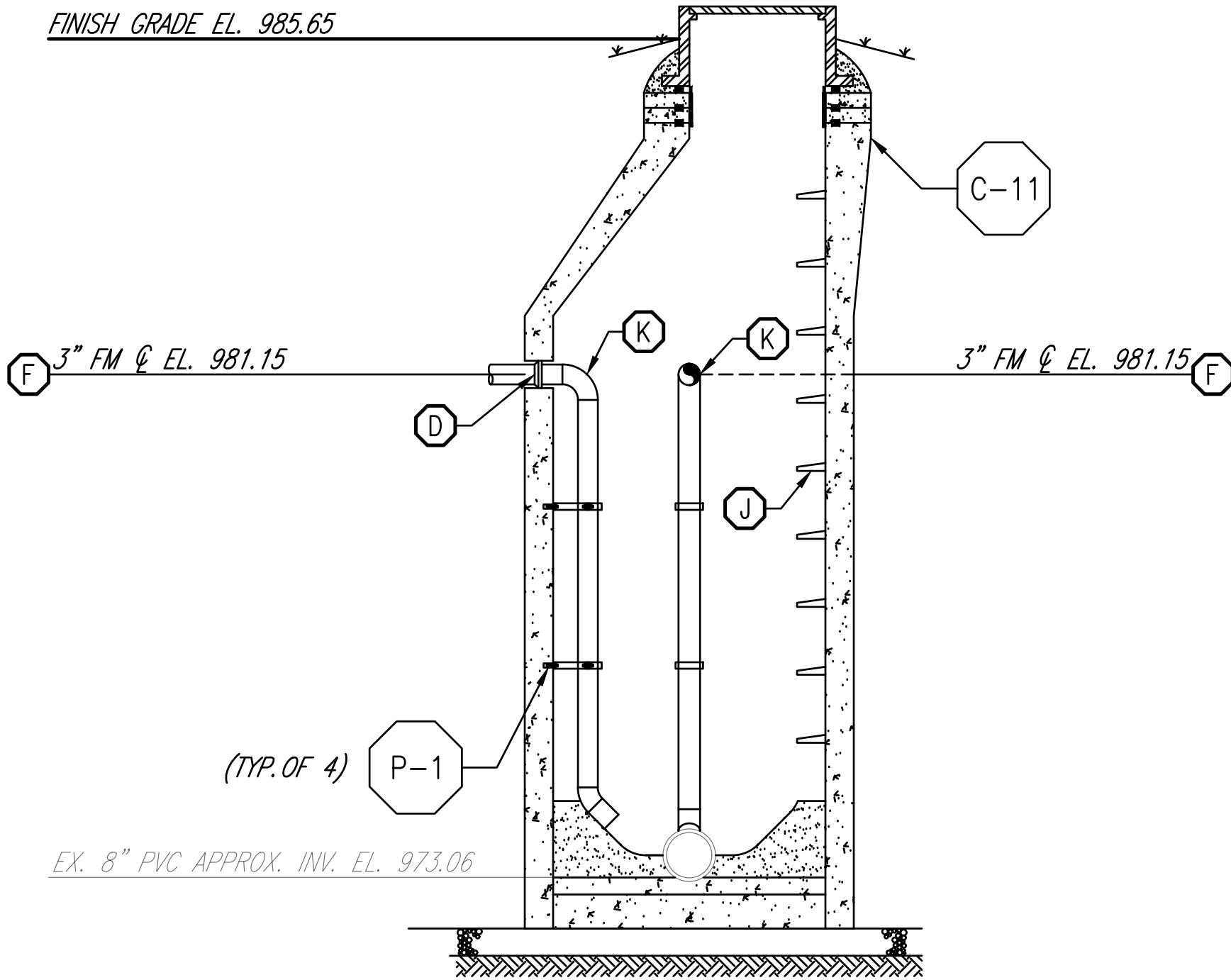
SANITARY MANHOLE PLAN VIEW
SCALE: 1/2" = 1'-0"



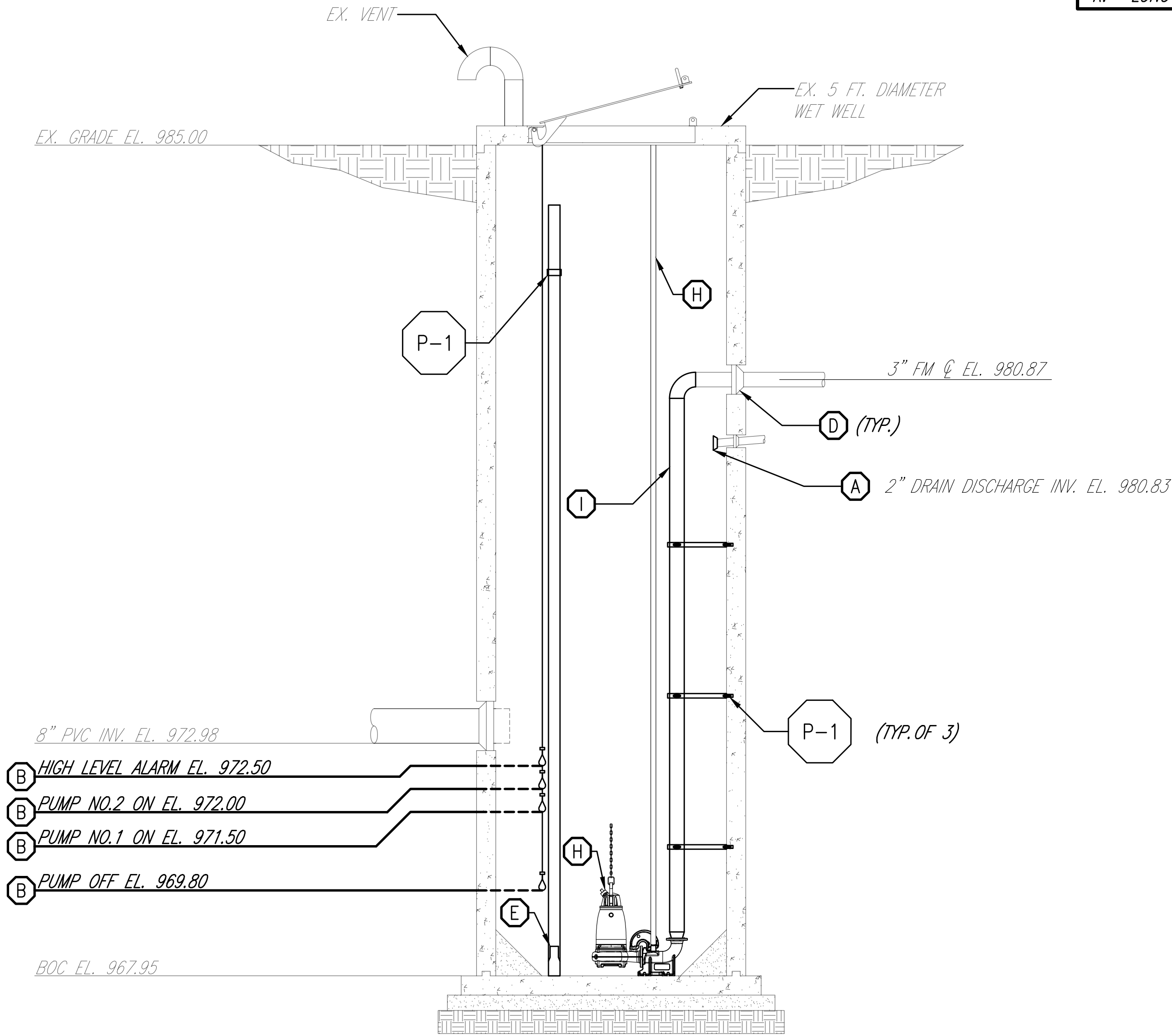
WET WELL DEMO PLAN
SCALE: 1/2" = 1'-0"



WET WELL PLAN VIEW
SCALE: 1/2" = 1'-0"



A
8 8
SANITARY MANHOLE SECTION
SCALE: 1/2" = 1'-0"



A
8 8
WET WELL SECTION
SCALE: 1/2" = 1'-0"

GENERAL NOTES

- SEE SHEET NO. 7 FOR DETAILS ABOUT PROPOSED FORCE MAINS.
- FORCE MAIN SHALL BE INSTALLED 4.5 FT. BELOW GRADE.
- REMOVE ALL EQUIPMENT, PIPING, AND APPURTENANCES UP TO THE PIPING FLANGES AT WALL.
- EXISTING WET WELL LINING SHALL BE REMOVED BY LINING APPLICATOR.
- CONTRACTOR SHALL INSTALL LINING IN MANHOLE AND WET WELL. SEE SPEC NOTES.
- CONTRACTOR SHALL VERIFY EXISTING GRAVITY SEWER AND FORCE MAIN LOCATIONS AND DEPTHS PRIOR TO ANY INSTALLATION.

SHEET KEYNOTES

- CONTRACTOR TO INSTALL 2" DRAIN WITH DUCKBILL CHECK VALVE ON VAULT DRAIN RETURN.
- INSTALL 4 NEW FLOATS FOR BACKUP. SEE SPEC NOTES.
- WET WELL FORCE MAIN PENETRATIONS SHALL BE PERMANENTLY PLUGGED WITH NON-SHRINK GROUT PRIOR TO LINER INSTALL.
- WATERTIGHT FLEXIBLE BOOT GASKET. (TYP.)
- TRANSDUCER LEVEL SENSOR FOR PRIMARY LEVEL CONTROL WITH STILLING TUBE SECURE TO WET WELL WALL PER DETAIL P-1. CONTRACTOR TO VERIFY SUITABILITY WITH EXISTING PANEL CONTROLS.
- FORCE MAINS SHALL ELBOW DOWN AND EXTEND TO MANHOLE FLOWLINE WITH 45 DEGREE ELBOW DISCHARGING TOWARD MANHOLE OUTLET.
- EX. 5 FT. DIAMETER CONCRETE WETWELL.
- NEW PUMPS, BASE, GUIDE RAILS, AND ALL APPURTENANCES PER SPECIFICATION NOTES.
- 3" PVC DISCHARGE PIPE.
- MANHOLE STEPS.
- LONG SWEEP 90 DEGREE ELBOW.



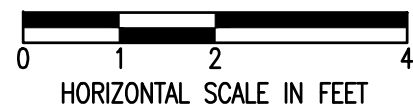
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SHEET NAME

SECTION AND
DETAILS

SHEET NUMBER

8

8