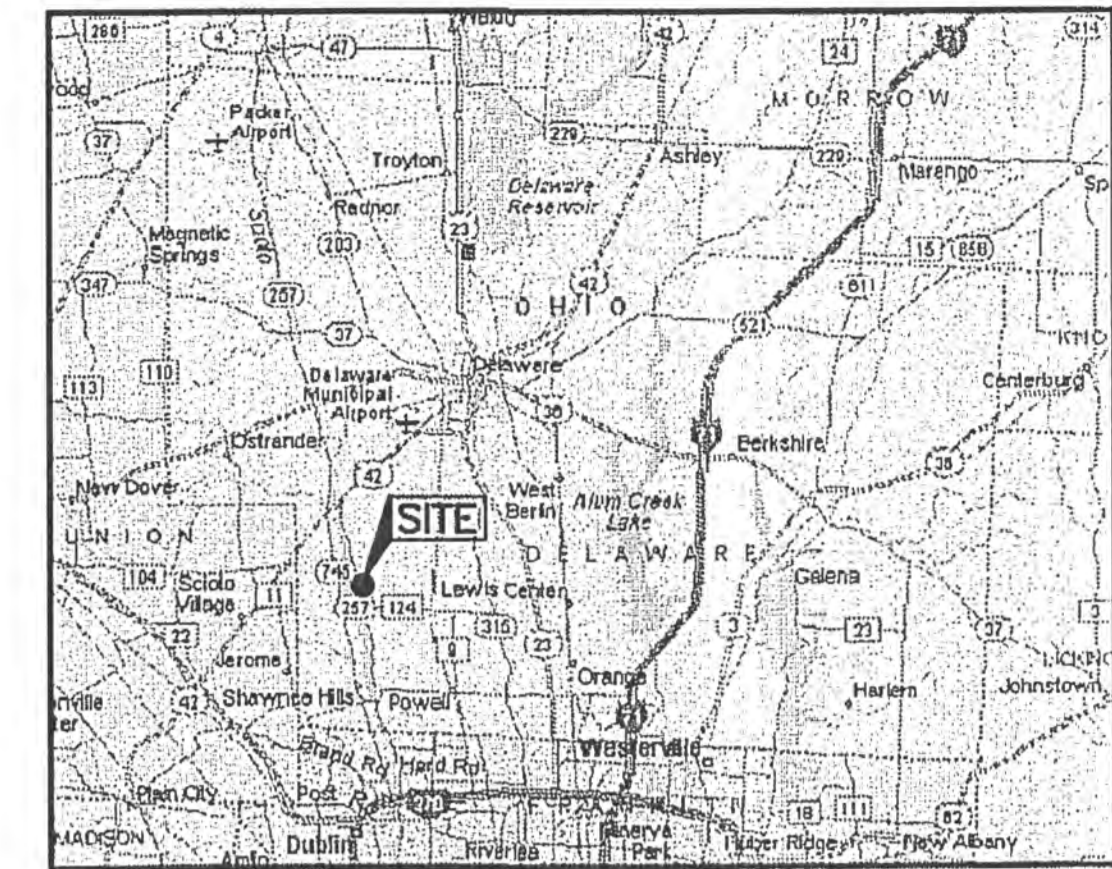


2010 DELAWARE COUNTY, OHIO SANITARY FORCE MAIN IMPROVEMENT FOR LOWER SCIOTO WATER RECLAMATION FACILITY

**CONCORD TOWNSHIP,
VMS 1441 IN LOTS NO. 1 & NO. 2 OF SUBDIVISION OF LOT NO. 5,
FARM LOT 1, SECTION 1 TOWNSHIP 3, RANGE 20,
FARM LOT 17, SECTION 2, TOWNSHIP 3 RANGE 19**



LOCATION MAP
Not to Scale

INDEX OF SHEETS

TITLE SHEET	1
GENERAL NOTES, QUANTITIES & DETAILS	2-6
SANITARY IMPROVEMENTS	7-18

BENCH MARKS
NAVD 88 DATUM

REF B.M. "97-001" THE STATION IS A BRASS TABLET SET IN CONCRETE, STAMPED "97-001". STATION IS LOCATED ON HOME ROAD OPPOSITE RESIDENT #7540, 5.5 FEET SOUTH OF THE EDGE OF PAVEMENT AND 155 FEET EAST OF THE DELEWARE/UNION COUNTY LINE.

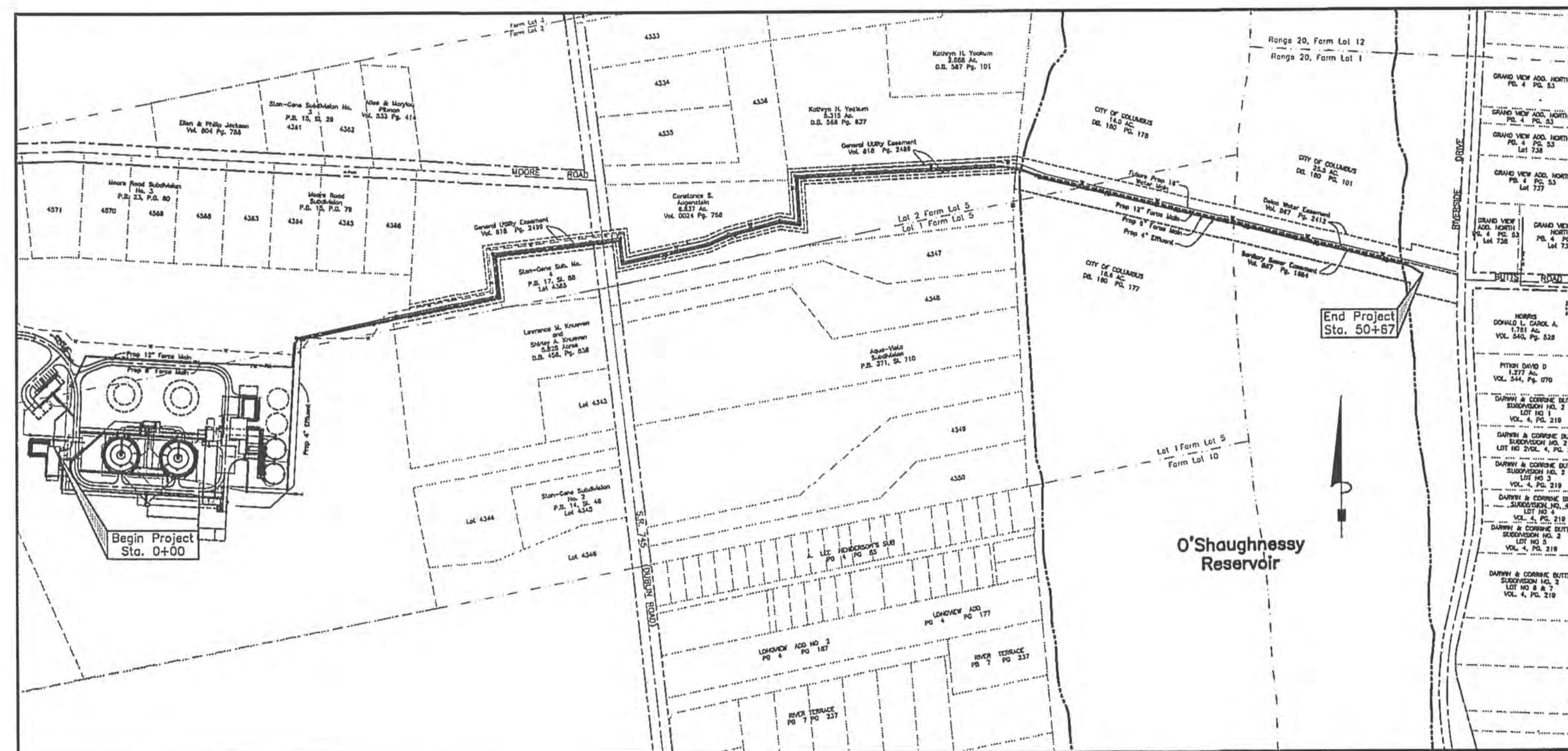
ELEVATION ~ 937.59

REF B.M. "97-002" THE STATION IS A BRASS TABLET SET IN CONCRETE AND STAMPED "97-002". STATION IS LOCATED ON HOME ROAD APPROXIMATELY 1600' WEST OF THE INTERSECTION OF HOME ROAD AND STATE ROUTE 745 ON THE SOUTH SIDE OF THE ROAD AT THE CONCORD COMMUNITY PARK.

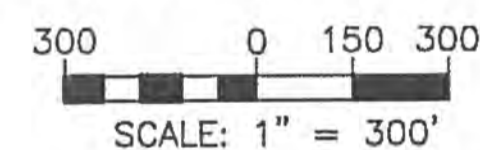
ELEVATION ~ 926.06

REF B.M. "97-143" THE STATION IS A BRASS TABLET SET IN CONCRETE AND STAMPED "97-143". STATION IS LOCATED ON HOME ROAD 300 FEET WEST OF THE INTERSECTION OF CONCORD ROAD AND 8.4' NORTH OF THE EDGE OF PAVEMENT.

ELEVATION ~ 930.66



TRIBUTARY AREA & INDEX MAP



DELAWARE COUNTY STANDARD DRAWINGS

DWG NO 1 DWG NO 23
DWG NO 20 DCED-R100

THE STANDARD DRAWINGS LISTED ON THIS PLAN ARE TO BE CONSIDERED A PART THEREOF.

THIS IS TO STATE THAT GOOD ENGINEERING PRACTICES HAVE BEEN UTILIZED IN THE DESIGN OF THIS PROJECT AND THAT ALL OF THE MINIMUM STANDARDS AS DELINEATED IN THE DELAWARE COUNTY ENGINEERING AND SURVEYING STANDARDS FOR SUBDIVISION DEVELOPMENT HAVE BEEN MET INCLUDING THOSE STANDARDS GREATER THAN MINIMUM WHERE, IN MY OPINION, THEY ARE NEEDED TO PROTECT THE SAFETY OF THE PUBLIC. ANY VARIANCES TO THE ABOVE STANDARDS ARE CONSISTENT WITH SOUND ENGINEERING PRACTICE AND ARE NOT DETRIMENTAL TO THE PUBLIC SAFETY AND CONVENIENCES. THESE VARIANCES HAVE BEEN LISTED HEREIN AND HAVE BEEN APPROVED BY THE DELAWARE COUNTY ENGINEER.

PLANS PREPARED BY:



Anthony W. Golden 5-20-10
REGISTERED ENGINEER DATE

THE DELAWARE COUNTY SIGNATURES ON THIS PLAN SIGNIFY ONLY CONCURRENCE WITH THE GENERAL PURPOSE AND LOCATION OF THE PROPOSED IMPROVEMENT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHO PREPARED AND CERTIFIED THESE PLANS.

APPROVED
DELAWARE COUNTY

Chris E. Bauserman 11-2-10
DELAWARE COUNTY ENGINEER DATE

Sibbany A. Conkors 6/14/10
DELAWARE COUNTY SANITARY ENGINEER DATE

Lawrence Thompson 12-20-10
COUNTY COMMISSIONER DATE

Ken D. Binn 12-20-10
COUNTY COMMISSIONER DATE

Robert A. ... 12-20-10
COUNTY COMMISSIONER DATE

DEVELOPER:
CONCORD-SCIOTO DEVELOPMENT, LLC
470 OLDE WORTHINGTON ROAD
WESTERVILLE, OHIO 43082
CONTACT: CHARLIE VINCE
PHONE: 614-540-2400
FAX: 614-540-3458

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

DATE OF REQUEST	DESCRIPTION OF VARIANCE	SHEET	APPROVED	DATE

NO.	DATE	DESCRIPTION	BY	APPROVED	DATE



ESTIMATE OF QUANTITIES			
ITEM	QUANTITY	UNIT	DESCRIPTION
202	11	S.Y.	PAVEMENT REMOVE
250	11	S.Y.	PAVEMENT REPAIR
748	80	L.F.	12" DIA. STEEL PIPE ENCASEMENT
748	80	L.F.	18" DIA. STEEL PIPE ENCASEMENT
748	80	L.F.	24" DIA. STEEL PIPE ENCASEMENT
748	3	EA.	2" DIA. AIR RELEASE VALVES (A.R.I. MODEL D-020)
748	1	EA.	3" DIA. AIR RELEASE VALVES (A.R.I. MODEL D-020)
802	1	EA.	6" VALVE AND STANDARD VALVE BOX
802	1	EA.	12" VALVE AND STANDARD VALVE BOX
901	3265	L.F.	4" C900, DR21 EFFLUENT FORCE MAIN W/ TYPE 1 BEDDING
901	1391	L.F.	4" CL. 53 DIP EFFLUENT FORCE MAIN (FLEX-LOK BOLTLESS BALL JOINT)
901	3621	L.F.	6" C900, DR21 SANITARY FORCE MAIN W/ TYPE 1 BEDDING
901	1395	L.F.	6" CL. 53 DIP SANITARY FORCE MAIN (FLEX-LOK BOLTLESS BALL JOINT)
901	3671	L.F.	12" C900, DR21 SANITARY FORCE MAIN W/ TYPE 1 BEDDING
901	1395	L.F.	12" CL. 53 DIP SANITARY FORCE MAIN (FLEX-LOK BOLTLESS BALL JOINT)

QUANTITIES SHOWN ARE APPROXIMATE. ITEMS LISTED ARE FOR INFORMATION AND ARE ESTIMATES ONLY. THE CONTRACTOR SHALL CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND SHALL NOT RELY ON QUANTITIES LISTED OR NOT LISTED HEREON.

GENERAL NOTES

THE COUNTY OF DELAWARE REQUIREMENTS, TOGETHER WITH THE SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN. THE CONTRACTOR SHALL REFER TO THE "STANDARD PLANS AND SPECIFICATIONS FOR CONSTRUCTION OF SANITARY FACILITIES IN DELAWARE COUNTY, OHIO" FOR ALL NECESSARY CONSTRUCTION DETAILS. THE CONTRACTOR SHALL NOTIFY THE COUNTY SANITARY ENGINEER (740) 833-2240, 72 HOURS PRIOR TO CONSTRUCTION.

ALL FIELD TILES DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AS DIRECTED BY THE COUNTY WITH PVC PIPE SPANNING THE TRENCH, AND FILLED WITH COMPACTED GRANULAR BACKFILL.

THE CONTRACTOR AND SUB-CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS ALSO THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUB-CONTRACTOR TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.

BACKFILL SHALL BE AS PER DELAWARE COUNTY ENGINEERS STANDARD DRAWING DCED-R100.

THE LOCATIONS OF EXISTING UTILITIES AND STRUCTURES ARE SHOWN ON THE PLANS BASED ON AVAILABLE RECORDS AT THE TIME OF SURVEY. THEY ARE SHOWN AS ACCURATELY AS POSSIBLE AND THE DELAWARE COUNTY SANITARY ENGINEER AND/OR DESIGN ENGINEER ASSUMES NO RESPONSIBILITY TO THE ACCURACY OF THE UNDERGROUND FACILITIES SHOWN ON THE PLANS.

THE CONTRACTOR SHALL INVESTIGATE AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

SEWER TRENCHES SHALL BE DE-WATERED TO 2" BELOW BELL OF PIPE PRIOR TO INSTALLATION OF PIPE.

ALL PVC FORCE MAINS SHALL CONFORM TO AWWA C900, WITH A MINIMUM OF DR21.

SANITARY SEWER FORCE MAINS SHALL BE HYDROSTATICALLY TESTED AS PER AWWA C600 TESTING REQUIREMENTS WITH A HYDROSTATIC PRESSURE OF 125 PSI AT THE LOWEST ELEVATION. THE TEST DURATION SHALL BE A MINIMUM OF 2 HOURS. THE ALLOWABLE LEAKAGE PER 1,000 FEET OF PIPELINE SHALL NOT EXCEED

TEST PRESSURE	PIPE SIZE	ALLOWABLE LEAKAGE PER 1000 FEET OF PIPE
125	4"	0.30 GPH
125	6"	0.45 GPH
125	12"	0.91 GPH

ALL LATERAL TRENCHES UNDER PAVEMENT SHALL BE BACKFILLED WITH COMPACTED GRANULAR BACKFILL MATERIAL OR CONTROLLED DENSITY BACKFILL.

ALL ITEMS OF WORK FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED, INCLUDING THE RESTORATION OF DISTURBED OR DAMAGED PROPERTY TO ITS ORIGINAL STATE, SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST OF SAME SHALL BE INCLUDED IN THE BID PRICE FOR THE RELATED BID ITEMS.

THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS.

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

PROHIBITED CONSTRUCTION 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.

PUMPING OF SEDIMENT-LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS DIRECTLY INTO ANY SURFACE WATERS, STREAM CORRIDORS, WETLANDS, OR STORM SEWERS. ALL SUCH WATER SHALL BE PROPERLY FILTERED OR SETTLED TO REMOVE SILT PRIOR TO DISCHARGE.

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.

PERMANENT OR UNSPECIFIED ALTERATIONS OF THE FLOW LINE OF ANY STREAM OR RIVER.

DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA.

DISPOSAL OF TREES, BRUSH AND OTHER DEBRIS IN ANY STREAM CORRIDORS, WETLANDS, SURFACE WATERS, OR UNSPECIFIED LOCATIONS.

OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT.

CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE, OR BOULEVARD WITHOUT PRIOR CONSENT OF MUNICIPAL OFFICIALS AND THE ENGINEER.

WATERSHED PROTECTION

THIS WORK IS BEING PERFORMED WITHIN THE DIRECT DRAINAGE AREA OF A MAJOR DRINKING WATER SUPPLY FOR THE GREATER COLUMBUS METROPOLITAN AREA. IT IS ESSENTIAL THAT ALL ACTIVITIES ASSOCIATED WITH THIS WORK BE PERFORMED IN A MANNER CONSISTENT WITH BEST WATERSHED MANAGEMENT PRACTICES, INCLUDING BUT NOT LIMITED TO: APPROPRIATE EROSION CONTROL/CONTAINMENT OF DISTURBED AREAS; HAZARDOUS/TOXIC MATERIALS SHALL ONLY BE STORED ON-SITE AS NECESSARY TO PERFORM THIS WORK, AND IF STORED ON-SITE (WITHIN THE WATERSHED), SHALL BE DOUBLE CONTAINED; ALL EQUIPMENT REPAIRS, MAINTENANCE AND MECHANICAL WORK THAT COULD RESULT IN THE RELEASE OF HAZARDOUS/TOXIC MATERIALS SHALL BE PERFORMED OUTSIDE THE SCIOTO RIVER/O'SHAUGHNESSY RESERVOIR WATERSHED. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR INFORMING ALL SUBCONTRACTORS AND OTHER AGENTS OF THESE RESPONSIBILITIES, PRECAUTIONS AND PROHIBITIONS.

EXISTING UTILITIES

SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS.

THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES AND STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE HORIZONTAL AND VERTICAL EFFECT ON PROPOSED CONSTRUCTION. THE REVISED CODE. THE ABOVE MENTIONED NOTICE SHALL BE GIVEN AT LEAST TWO WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

THE CONTRACTOR SHALL CAUSE NOTICE TO BE GIVEN TO THE REGISTERED UNDERGROUND UTILITY PROTECTION SERVICE (TELEPHONE 800-362-2764 TOLL FREE) AND THE OWNERS OF UNDERGROUND UTILITY FACILITIES SHOWN ON THE PLANS WHO ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE IN ACCORDANCE WITH SECTION 153.64 OF THE OHIO REVISED CODE.

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT AND DO NOT SUBSCRIBE TO A REGISTERED UNDERGROUND UTILITY PROTECTION SERVICE:

UTILITY	OWNER	TELEPHONE
WATER MAINS	DELCO WATER CO. 6773 OLENTANGY RIVER ROAD DELAWARE, OHIO 43015	(740) 548-7746
TELEPHONE	VERIZON 550 LEADER STREET MARION, OHIO 43302	(740) 369-0147
STORM SEWERS	DELAWARE COUNTY 50 CHANNING STREET DELAWARE, OHIO 43015 (CONTACTING AGENT ONLY)	(740) 833-2400
SANITARY SEWERS	DELAWARE COUNTY 50 CHANNING STREET DELAWARE, OHIO 43015	(740) 833-2240
ELECTRIC	AEP 850 TECH CENTER DRIVE GAHANNA, OHIO 43230	(614) 883-6962
CABLE T.V.	TIME WARNER 1266 DUBLIN ROAD COLUMBUS, OHIO 43215	(614) 481-5263

ODOT RIGHT-OF-WAY AND WORK ZONE NOTES

1. ALL MATERIALS AND EQUIPMENT SHALL BE REMOVED FULLY FROM THE ODOT R/W ANYTIME IT IS NOT BEING USED. MATERIAL STORAGE, EQUIPMENT AND VEHICLE PARKING WILL NOT BE PERMITTED ON THE ODOT R/W.

2. ALL BORE PITS AND EXCAVATIONS SHALL BE LOCATED ENTIRELY OUTSIDE OF THE ODOT RIGHT-OF-WAY.

3. BORE PITS AND TRENCHES MUST BE PROTECTED IN ACCORDANCE WITH ODOT PLAN INSERT SHEETS (PIS) 2010190 "DROP OFFS IN WORK ZONES", SEE SHEET 9A. A PIT/TRENCH 12 TO 30 FEET FROM THE EDGE OF TRAVELEDLANE AND GREATER THAN 24 INCHES DEEP MUST HAVE DRUMS DURING THE DAY AND PCB AT NIGHT UNLESS SECURELY PLATED OR BACKFILLED TO WITHIN 24 INCHES.

4. THE LAY LENGTH OF THE TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

STREAM CROSSINGS

CONTRACTOR SHALL GIVE SPECIAL ATTENTION TO PROPER SEWER CONSTRUCTION, AND PROTECTION OF THE STREAM AND RIPARIAN AREAS, AND THE MITIGATING MEASURES AS NOTED IN THIS PLAN AND STATED IN THE SPECIFICATIONS.

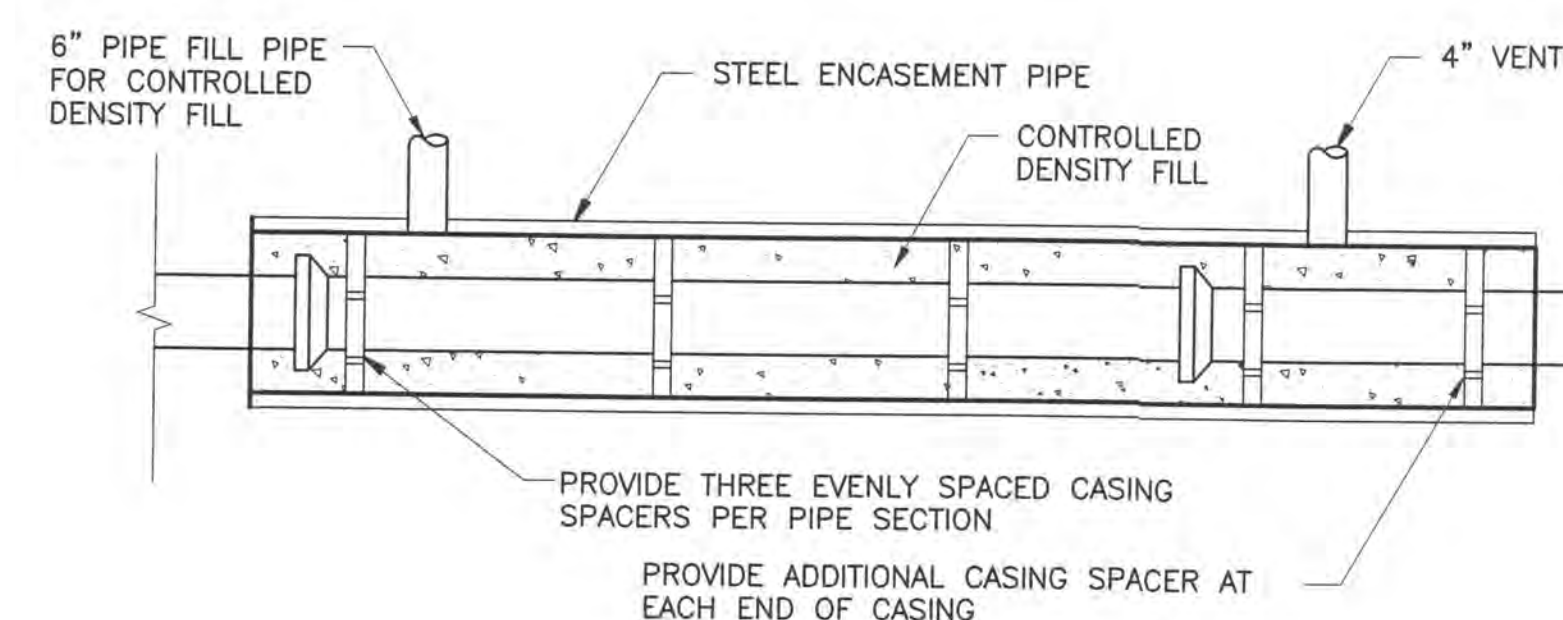
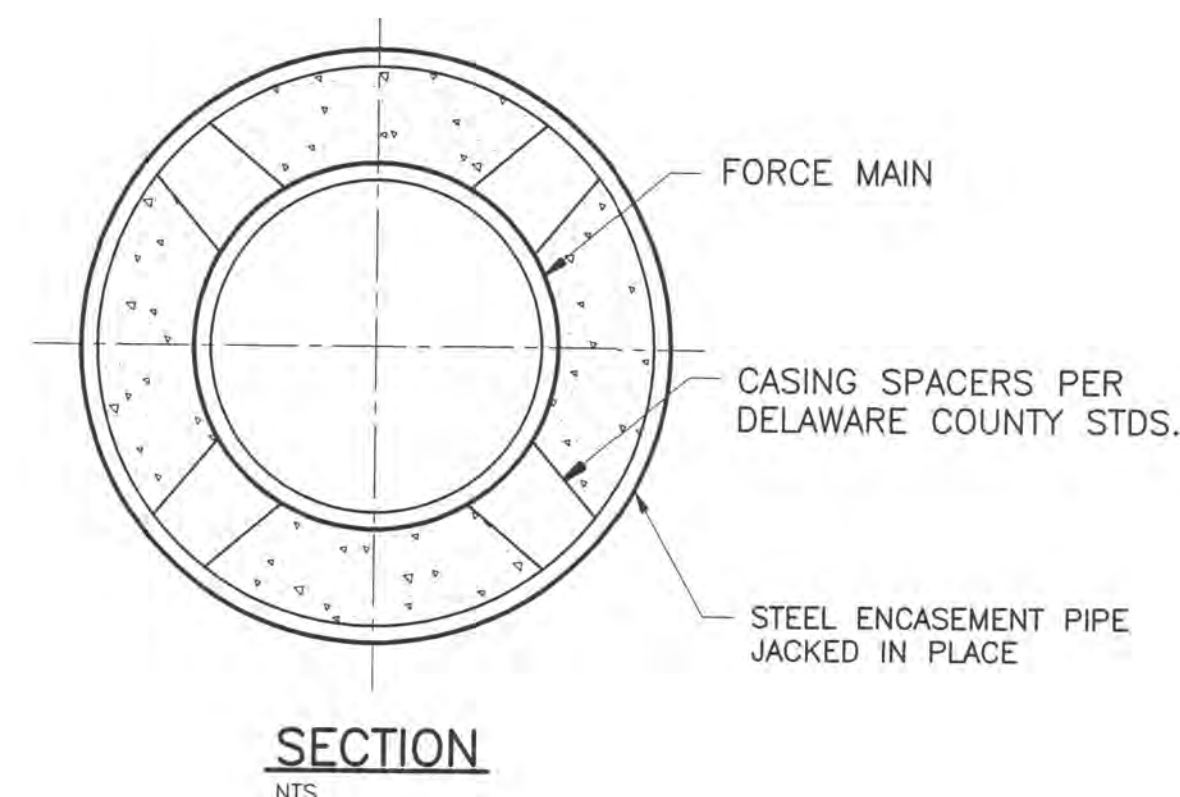
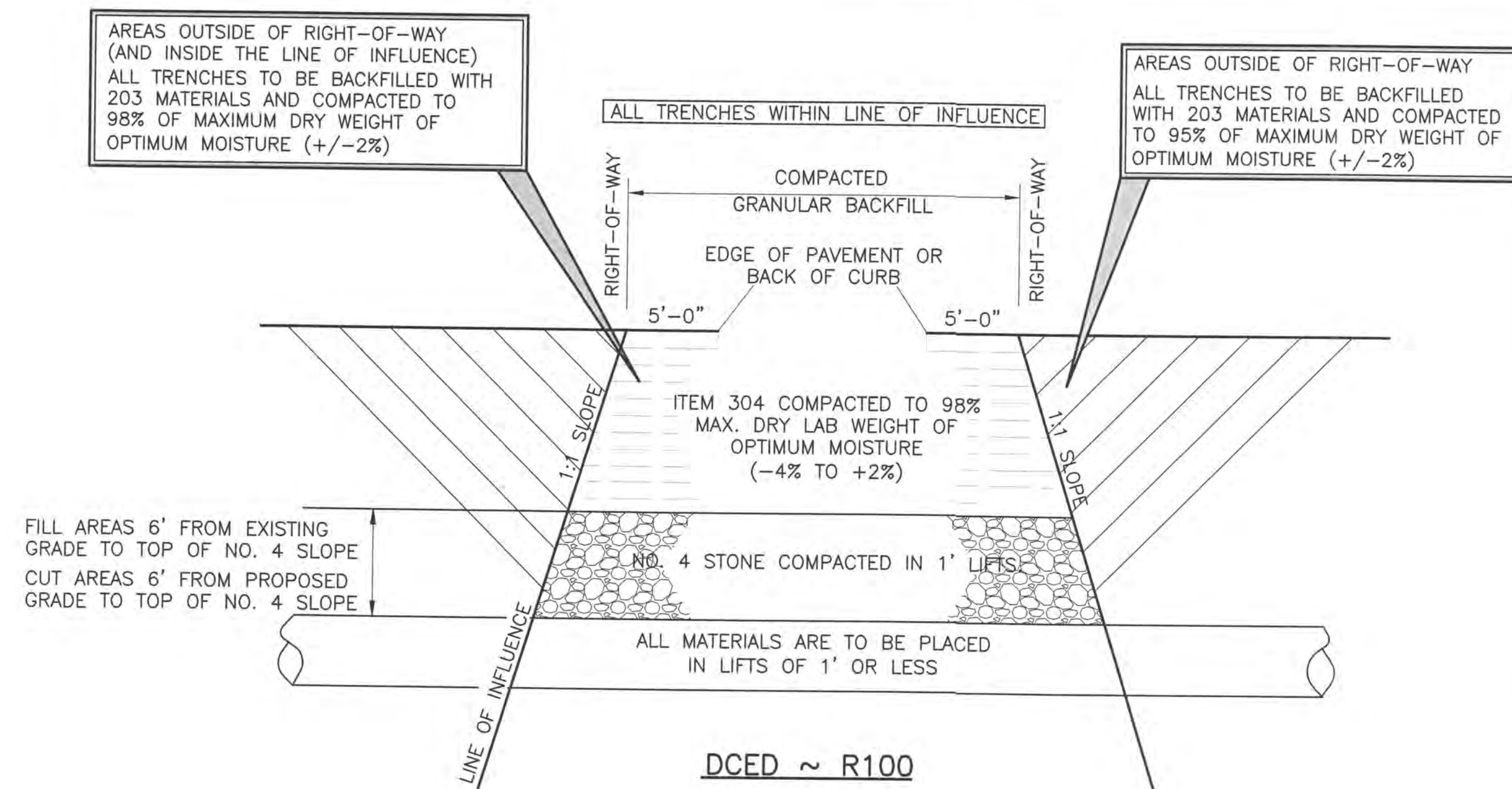
THE CONSTRUCTION OF THE STREAM CROSSING SHALL BE COMPLETED AS QUICKLY AS POSSIBLE.

TREES WITHIN RIPARIAN AREAS SHOULD BE AVOIDED AS MUCH AS POSSIBLE. OLDER TREES ALONG THE STREAM SHALL BE GIVEN THE GREATEST LEVEL OF PROTECTION POSSIBLE. IN THE EVENT THAT A TREE MUST BE REMOVED SO THE PROJECT CAN BE CONSTRUCTED, IT MUST EITHER BE CUT AT THE GROUND OR 1 TO 2 FEET ABOVE THE GROUND SO THE THAT ROOT MASS IS MAINTAINED AND THAT THE TREE MAY RE-GROW AFTER THE PROJECT. ALL OTHER VEGETATION WITHIN THE RIPARIAN AREA SHOULD BE CUT AT THE GROUND SURFACE.

IMMEDIATELY FOLLOWING INSTALLATION OF SEWER, REPLACE STREAM BOTTOM MATERIAL IN A REASONABLY SIMILAR MANNER AS THAT OF PRE-CONSTRUCTION. CONSTRUCT AND MAINTAIN PRE-CONSTRUCTION STREAM BED SLOPE. RESTORE STREAM BANK TO MATCH EXISTING STREAM BANK SLOPES.

AT STREAM CROSSING, DO NOT DISTURB THE VEGETATION WITHIN THE CONSTRUCTION EASEMENT EXCEPT FOR THE AREA REQUIRED FOR EXCAVATION AND EQUIPMENT PASSAGE.

NO CHEMICALS, FUELS LUBRICANTS, BRUSH, ETC. SHALL BE DISCARDED OR DISPOSED OF INTO OR ALONGSIDE ANY STREAM, WATERCOURSE, FLOOD PLAIN OR WETLAND UNDER ANY CIRCUMSTANCES. ALL FUELING OPERATIONS, LUBRICATION, HYDRAULIC TOPPING OFF, FUEL TANK PURGING AND EQUIPMENT REPAIR AND MAINTENANCE SHALL BE PERFORMED AT AN UPLAND SITE OUTSIDE THE 100-YEAR FLOOD PLAIN. ALL CONSTRUCTION EQUIPMENT SHALL BE INSPECTED DAILY FOR HYDRAULIC AND FUEL LEAKS AND REPAIRED AS NECESSARY. WHEN NOT IN USE, FUEL AND HYDRAULIC FLUIDS SHALL BE STORED AT AN UPLAND SITE OUTSIDE OF THE 100-YEAR FLOOD PLAIN.



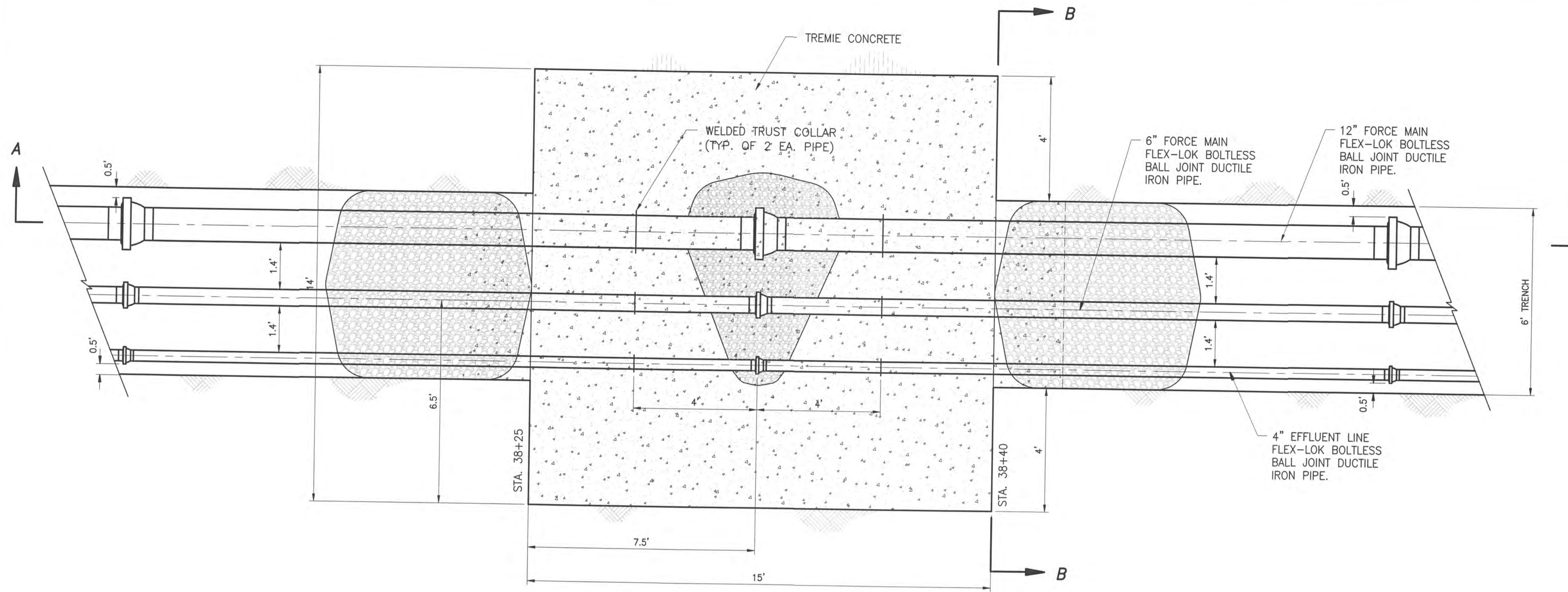
BORING AND JACKING DETAIL

- ALL ENCASEMENT PIPE JOINTS SHALL BE WELDED.
- 6" FORCE MAIN SHALL HAVE A 18" STEEL CASING PIPE AND MEET ODOT 748.06 SPECIFICATIONS.
- 12" FORCE MAIN SHALL HAVE A 24" STEEL CASING PIPE AND MEET ODOT 748.06 SPECIFICATIONS.
- 4" FORCE MAIN SHALL HAVE A 12" STEEL CASING PIPE AND MEET ODOT 748.06 SPECIFICATIONS.

UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		6-14-10
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG/OL				
FRACTIONS ± FRACTOL				
USE CLIENT DWG NO.				
SIZE	CAGE CODE	DWG NO.		REV
D				
SCALE	NONE	PROJECT NO.	14147	SHEET 2 OF 18



REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPR



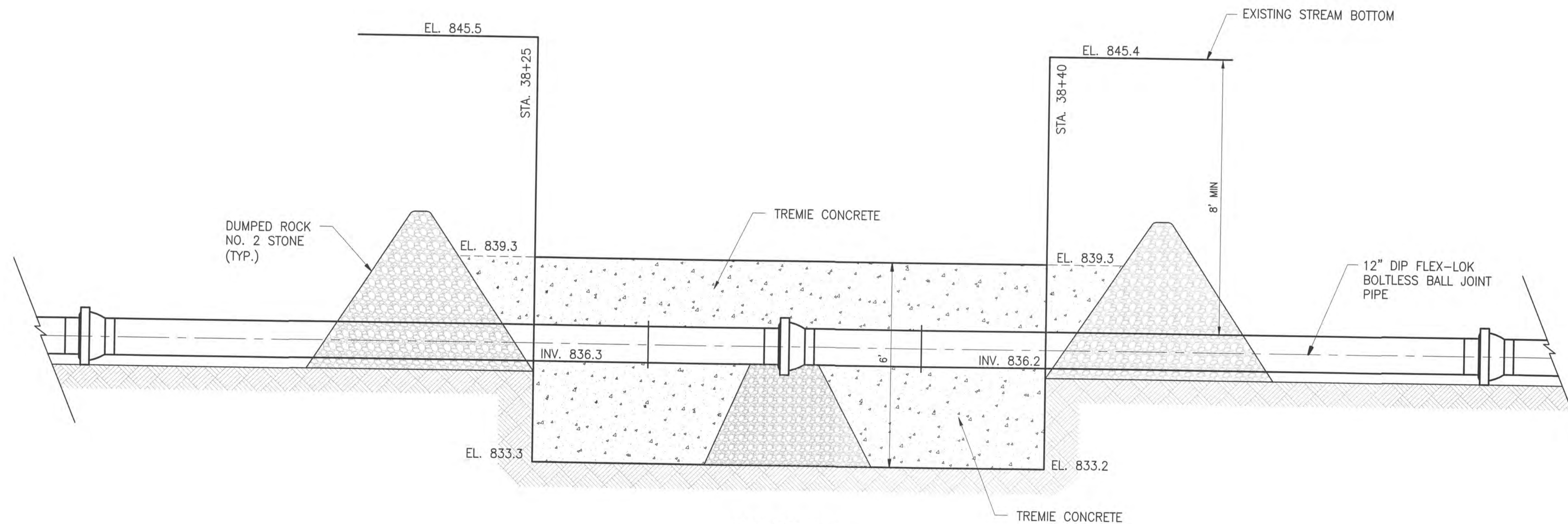
WESTSIDE RESERVOIR PIPE RESTRAINT PLAN
NTS

NOTES:

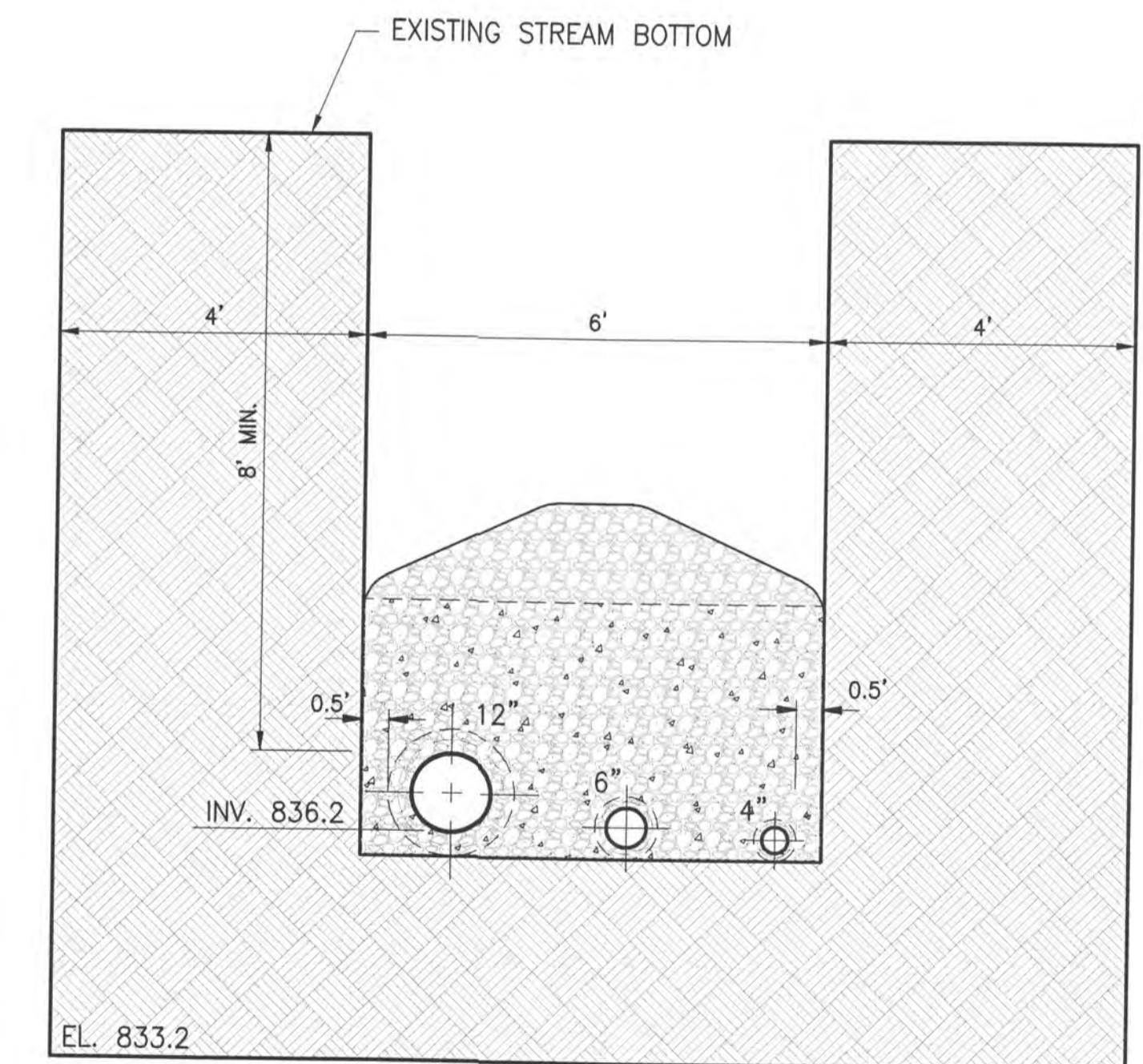
PIPES SHALL BE INSTALLED ACROSS ENTIRE RESERVOIR, FIRMLY BEDDED IN THE TRENCH, FILLED WITH WATER TO ACHIEVE MAXIMUM WEIGHT. PIPE MOVEMENT SHALL BE MONITORED AND CONCRETE PIPE RESTRAINTS SHALL NOT BE CONSTRUCTED UNTIL THE PIPE MOVEMENT DUE TO SETTLEMENT HAS STOPPED.

ESTIMATE OF QUANTITIES			
ITEM	QUANTITY	UNIT	DESCRIPTION
524	64	C.Y.	TREMIE CONCRETE
601	17	C.Y.	DUMPED ROCK (NO. 2 STONE)
SPECIAL	6	EA.	WELDED THRUST COLLAR

QUANTITIES SHOWN ARE APPROXIMATE. ITEMS LISTED ARE FOR INFORMATION AND ARE ESTIMATES ONLY. THE CONTRACTOR SHALL CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND SHALL NOT RELY ON QUANTITIES LISTED OR NOT LISTED HEREON.



SECTION A-A
NTS



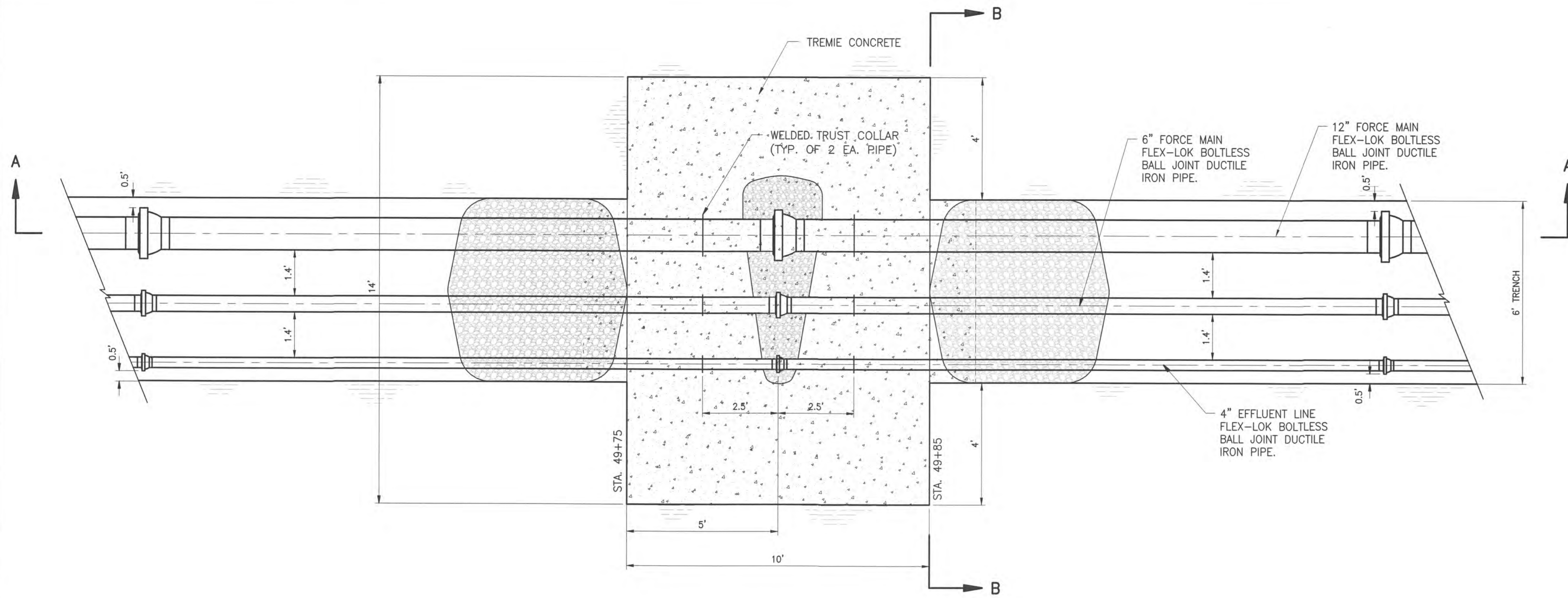
SECTION B-B
NTS



UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		6-14-10
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG/TOL				
FRACTIONS ± FRACTOL				
USE CLIENT DWG NO.	SIZE	CAGE CODE	DWG NO.	REV
	D			
SCALE NONE	PROJECT NO.	14147	SHEET 3	OF 18

COUNTY OF DELAWARE, OHIO
SANITARY SEWER IMPROVEMENT PLAN
FOR
LOWER SCIOTO WATER
RECLAMATION FACILITY
PROPOSED 6" & 12" FORCE MAIN
AND 4" EFFLUENT LINE

REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPR

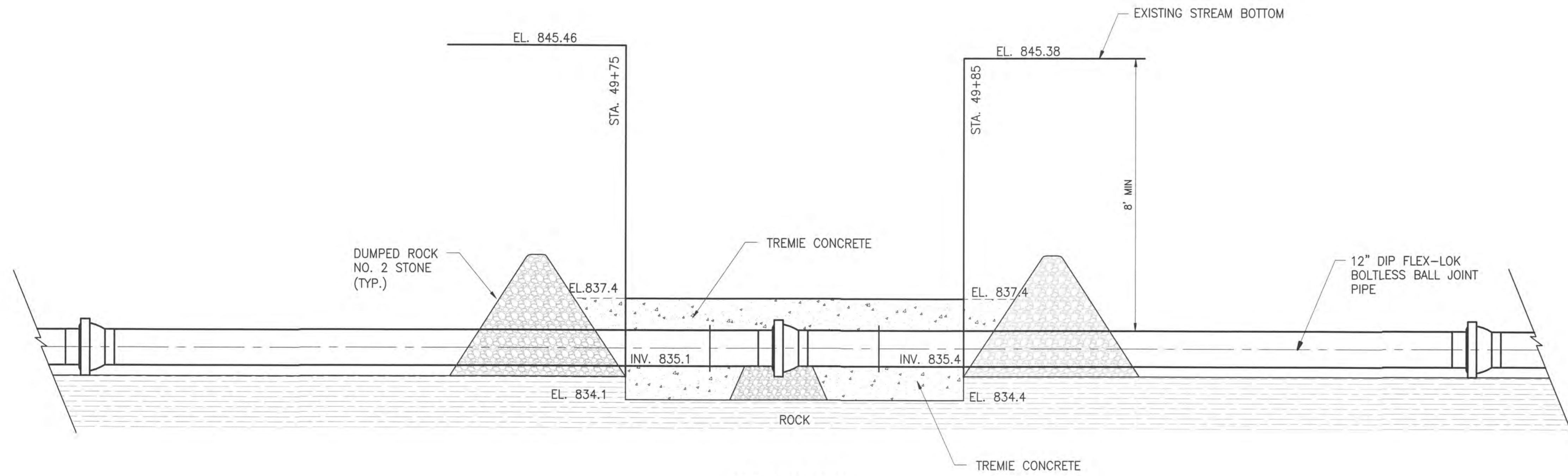


EASTSIDE RESERVOIR PIPE RESTRAINT PLAN
NTS

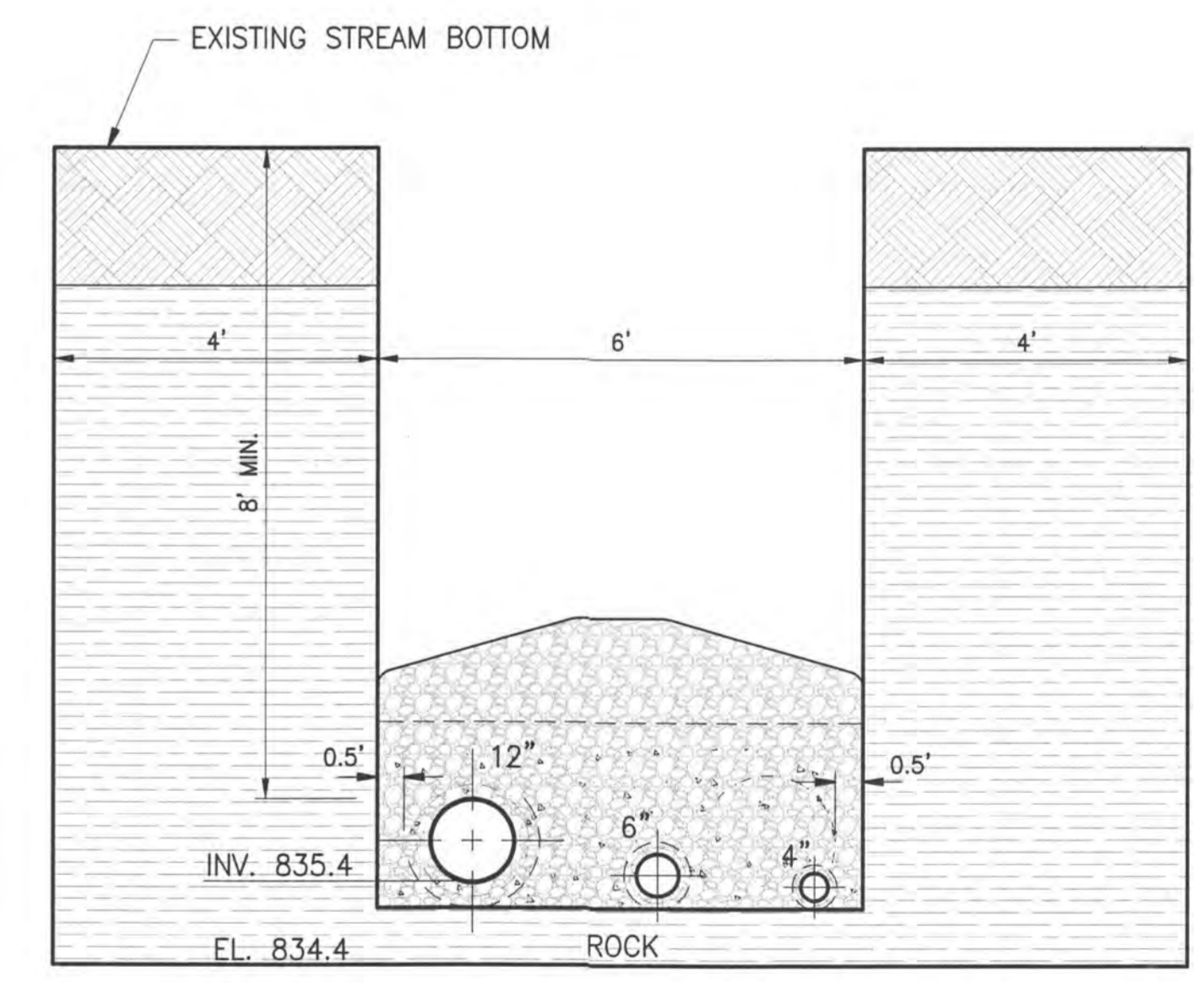
INSTALLATION
WHERE RIVER BOTTOMS ARE OF UNSTABLE SOILS, THE FLEXIBILITY OF FLEX-LOK PIPE WILL ALLOW SUBSTANTIAL LINE MOVEMENT OR SETTLEMENT, AND REMAIN LEAK-FREE. MOVEMENT OF THE INSTALLED LINE, HOWEVER, SHOULD BE MINIMIZED AS FAR AS PRACTICAL AND CONFINED TO THE UNDERWATER SECTION OF THE LINE. IT IS SUGGESTED THAT THE RIVER BOTTOM BE TRENCHED OR DRAGGED TO STABLE SOILS WHERE PRACTICAL. ALSO, THE ENDS OF THE LINES EXTENDING ABOVE THE WATER SHOULD BE STABILIZED FOR CONNECTION TO OTHER LINES. IT IS GENERALLY SUGGESTED THAT THE ENDS OF THE CROSSINGS BE INSTALLED IN FIRM EARTH, ABOVE THE HIGH-WATER MARK, TO PROVIDE FIRM ANCHORAGE. WHERE THE CONNECTING ENDS OF THE CROSSINGS CANNOT BE LOCATED IN FIRM SOILS, OTHER SUITABLE MEANS OF ANCHORING SHOULD BE PROVIDED. AFTER A RIVER CROSSING IS INSTALLED, IT IS NORMALLY SUGGESTED THAT THE LINE BE BACK-FILLED AND ALLOWED TO SETTLE UNTIL MOVEMENT HAS STOPPED BEFORE END CONNECTIONS ARE MADE. THIS IS DUE TO UNCERTAIN BEDDING CONDITIONS THAT MAY BE PRESENT IN MANY INSTALLATIONS. SUBMERGED LINES SHOULD BE FILLED WITH WATER TO AID THEIR SETTLEMENT. THE LIBERAL DEFLECTION PROVIDED BY AMERICAN BALL JOINTS PRACTICALLY ELIMINATES THE NEED FOR LINE FITTINGS; HOWEVER, WHERE STEEP APPROACHES OR HORIZONTAL BENDS ARE ENCOUNTERED REQUIRING GREATER THAN NORMAL LINE DEFLECTION, THE USE OF SHORT AMERICAN BALL JOINT CONNECTING PIECES WILL PROVIDE ADDITIONAL DEFLECTION WITHIN A SHORT DISTANCE.

TESTING
UPON COMPLETION OF A RIVER CROSSING, THE ENDS OF THE LINE MAY BE CLOSED FOR TESTING BY THE USE OF CLOSURE PIECES WHICH ARE AVAILABLE ON LOAN FROM AMERICAN.

CONNECTIONS
WHEN CONNECTING BALL JOINT RIVER CROSSING LINES TO LAND LINES, THE RIVER CROSSING PIPE SHOULD NORMALLY BE INSTALLED FIRST. SLEEVES ARE OFTEN USED FOR CONNECTING BALL JOINT PIPE TO OTHER PIPELINES. SUCH CONNECTIONS FACILITATE THE JOINING OF A FIELD-CUT PIECE, ALLOW MODERATE MOVEMENT OF THE RIVER CROSSING ENDS, REDUCE STRESSES, AND PROVIDE FOR EASY LINE MAINTENANCE. LONG PATTERN MECHANICAL JOINT SLEEVES ARE RECOMMENDED FOR MAKING CONNECTION TO MECHANICAL JOINT OR FASTITE JOINT DUCTILE IRON PIPE, BOTH OF WHICH HAVE THE SAME OUTSIDE DIAMETERS AS BALL JOINT PIPE. CONNECTIONS TO PIPE OF OTHER DIAMETERS REQUIRE SPECIAL CONNECTING PIECES, DESIGNED TO FIT SPECIFIC INSTALLATION REQUIREMENTS. THE JUDICIOUS USE OF BALL JOINTS WITH OR WITHOUT SPECIAL RESTRAINED EXPANSION SLEEVES MAY BE ADVANTAGEOUS IN SEISMIC ENVIRONMENTS.



SECTION A-A
NTS

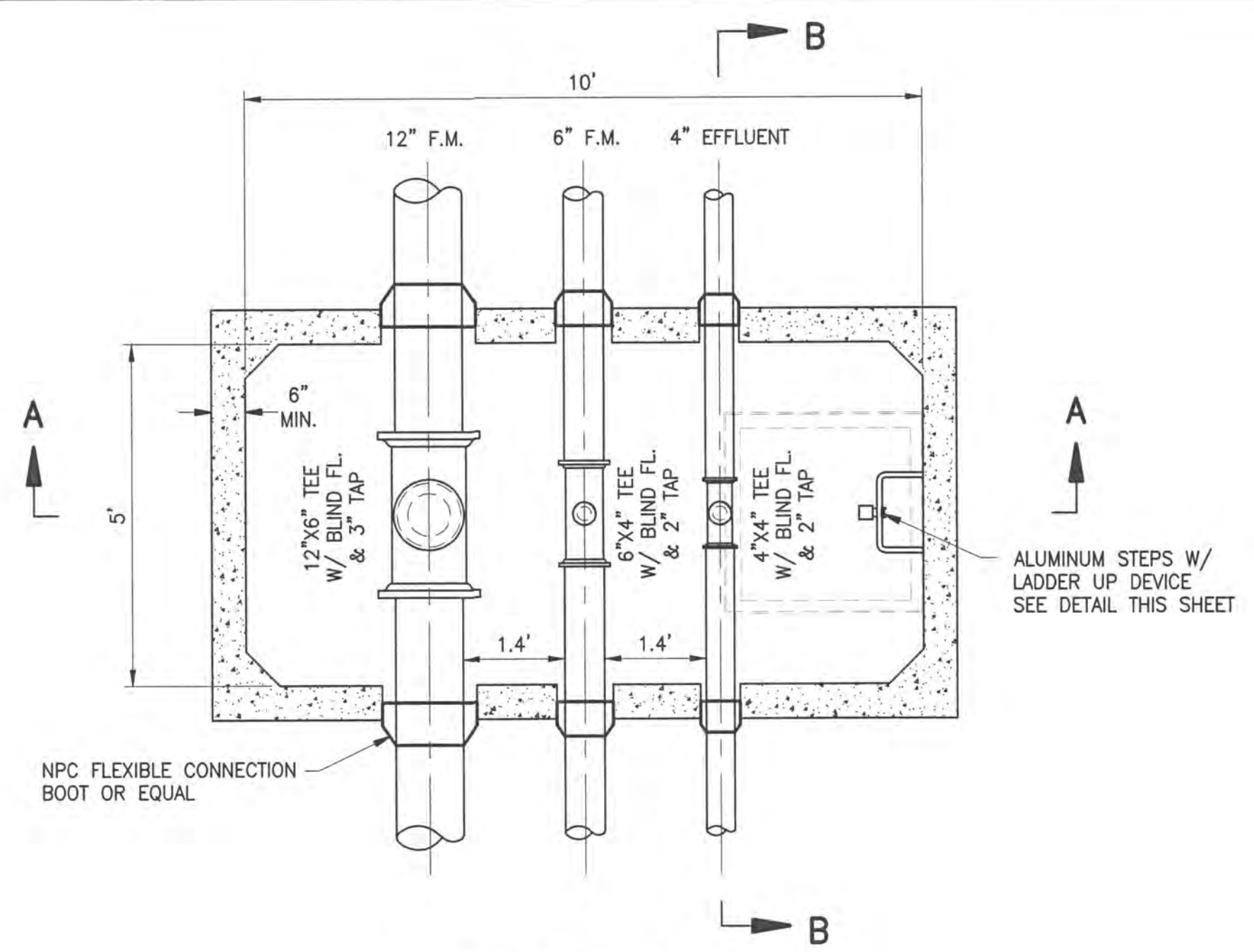


SECTION B-B
NTS

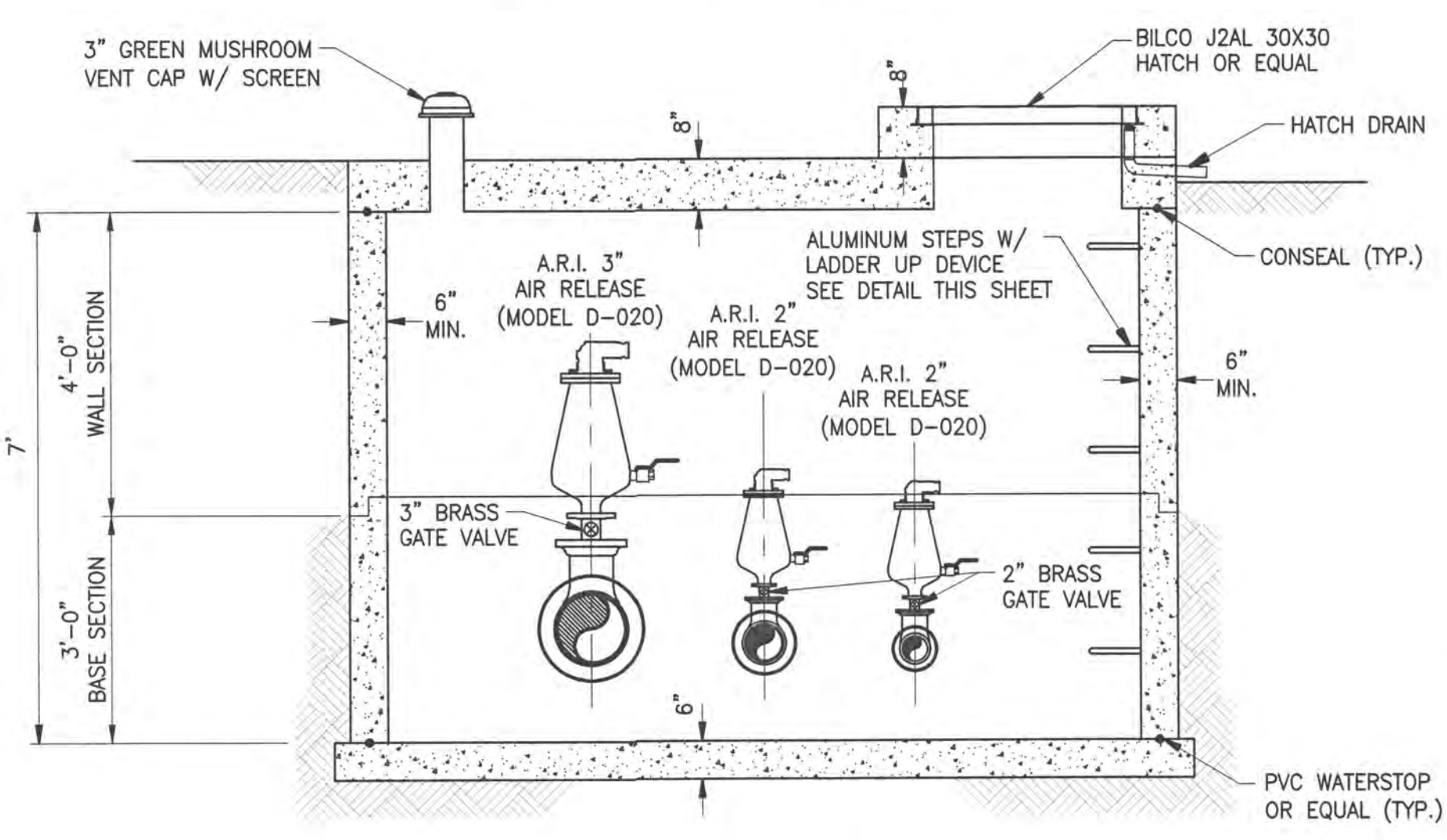
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN UNITS TOLERANCES ON: 2 PL. DECIMALS ± 2PTOL 3 PL. DECIMALS ± 3PTOL ANGLES ± ANGDTOL FRACTIONS ± FRACTOL	SIGNATURES	DATE	COUNTY OF DELAWARE, OHIO SANITARY SEWER IMPROVEMENT PLAN FOR LOWER SCIOTO WATER RECLAMATION FACILITY PROPOSED 6" & 12" FORCE MAIN AND 4" EFFLUENT LINE
	DRAWN		
	CHECKED		
	APPROVED	6-14-10	
USE CLIENT DWG NO.			SIZE: CAGE CODE: DWG NO.: REV: D: : : : : SCALE: NONE PROJECT NO. 14147 SHEET 4 OF 18



REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPR

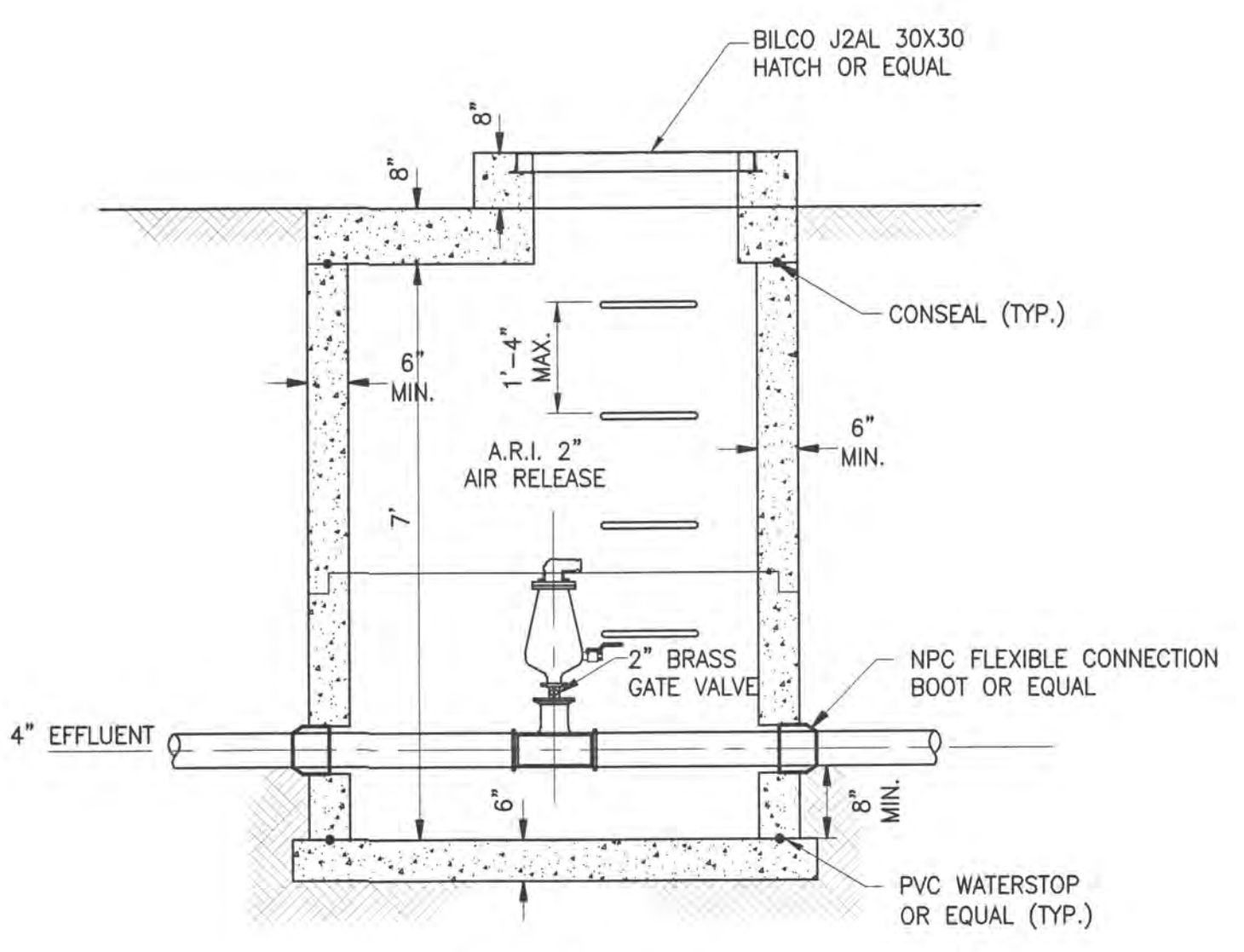


AIR RELEASE VAULT #1
NTS

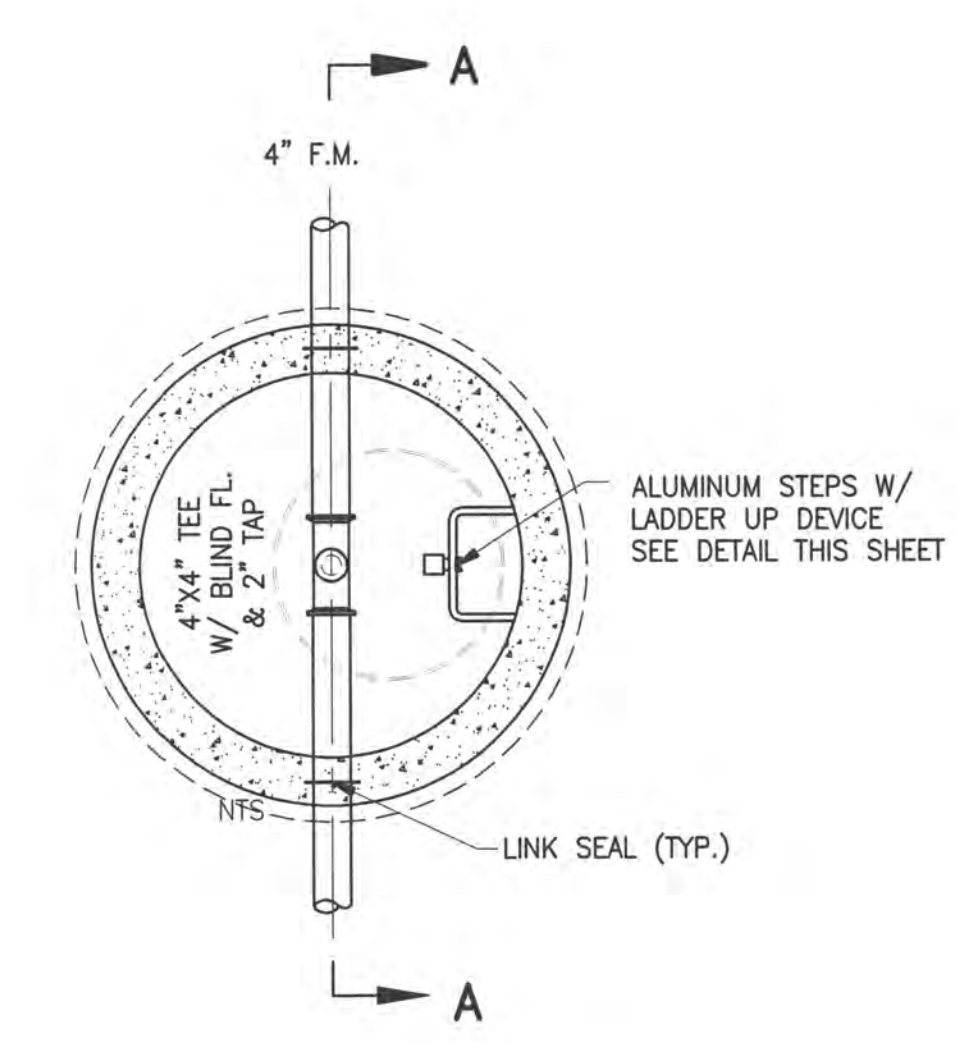


SECTION A-A
NTS

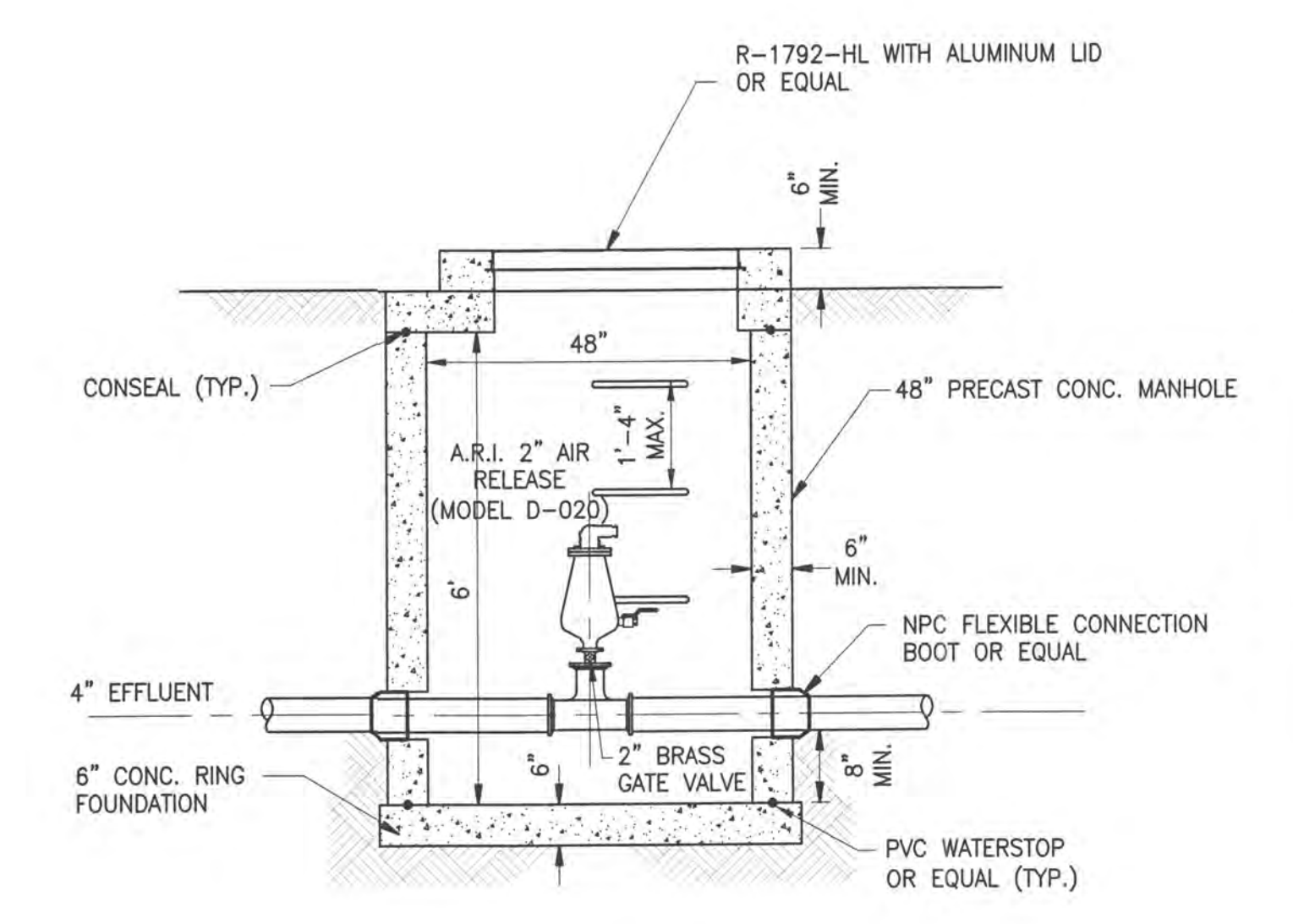
NOTE:
ALL AIR RELEASE VALVES SHALL HAVE A BYPASS VALVE INCLUDED.



SECTION B-B
NTS

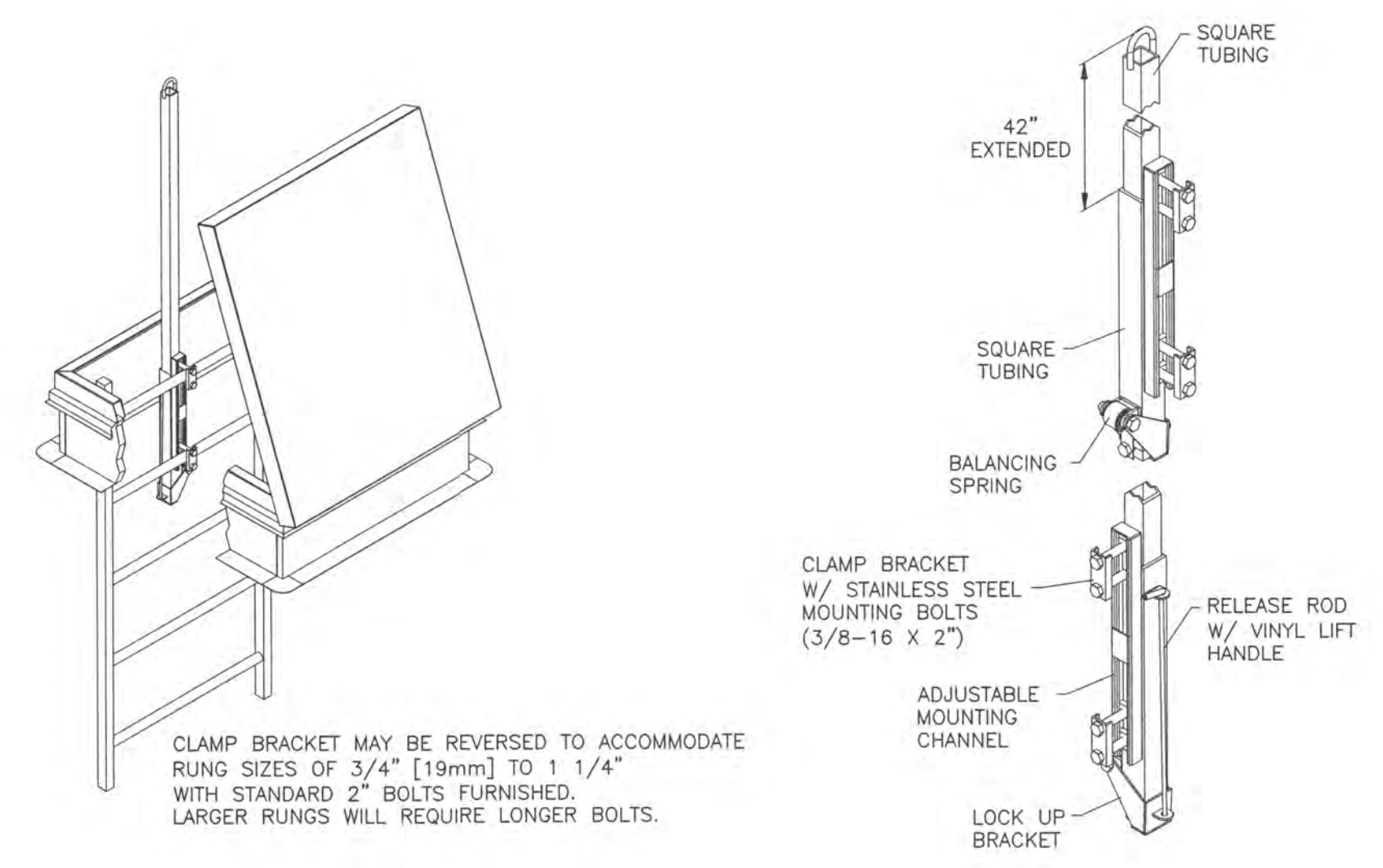


AIR RELEASE VAULT #2
NTS

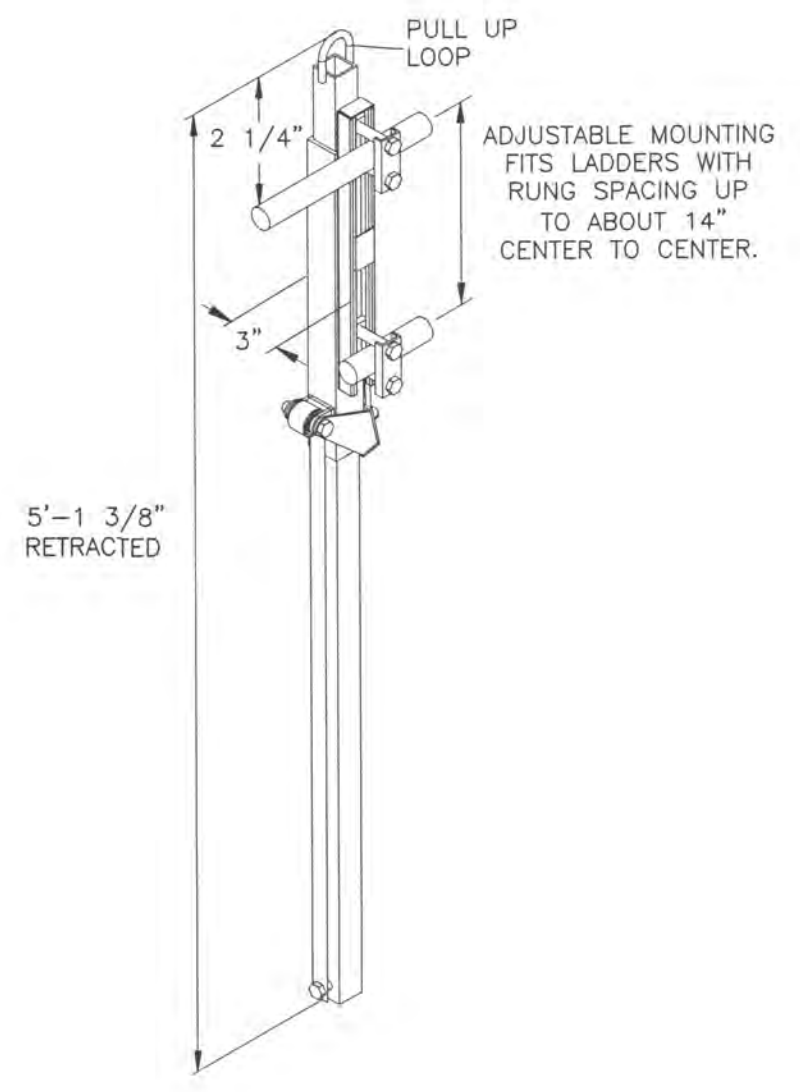


SECTION A-A
NTS

NOTE:
ALL AIR RELEASE VALVES SHALL HAVE BYPASS VALVE INCLUDED.



CLAMP BRACKET MAY BE REVERSED TO ACCOMMODATE RUNG SIZES OF 3/4" [19mm] TO 1 1/4" WITH STANDARD 2" BOLTS FURNISHED. LARGER RUNGS WILL REQUIRE LONGER BOLTS.



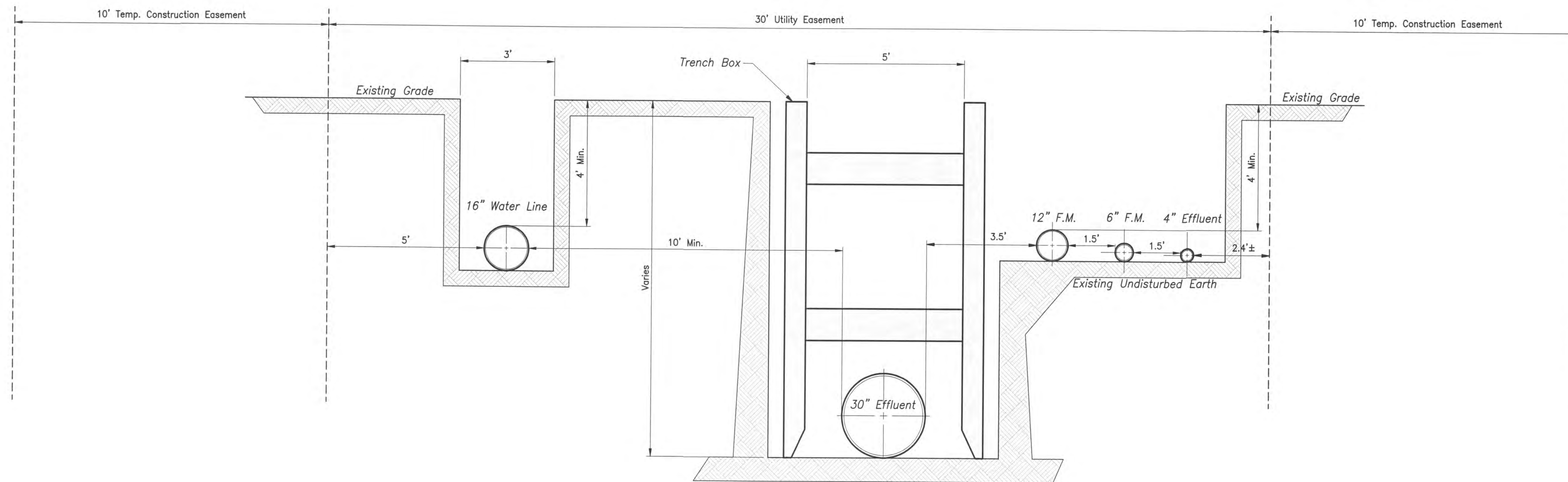
BILCO LADDER UP SAFETY POST (MODEL LU4 OR EQUAL)
NTS



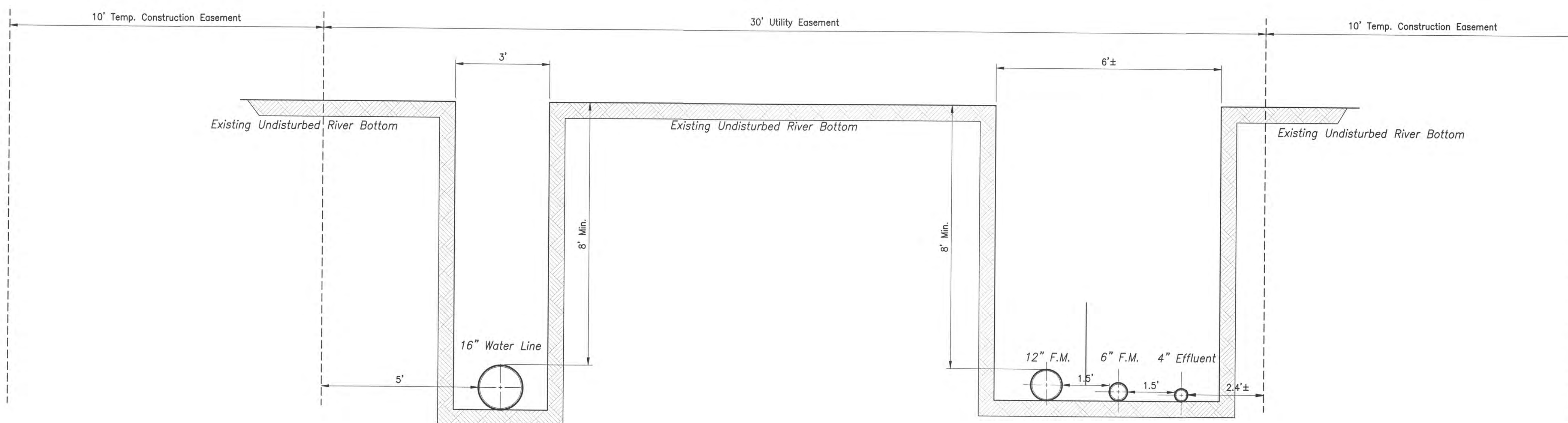
UNLESS OTHERWISE SPECIFIED:		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ARE:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		6-14-10
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG.TOL				
FRACTIONS ± FRACTOL				
USE CLIENT DWG NO.		SIZE		CAGE CODE
		D		DWG NO.
		SCALE		PROJECT NO.
		NONE		14147
		SHEET		5 OF 18

COUNTY OF DELAWARE, OHIO
SANITARY SEWER IMPROVEMENT PLAN
FOR
LOWER SCIOTO WATER
RECLAMATION FACILITY
PROPOSED 6" & 12" FORCE MAIN
AND 4" EFFLUENT LINE

REVISIONS			
REV	DESCRIPTION	DATE	APPR



WESTSIDE TYPICAL TRENCH DETAIL

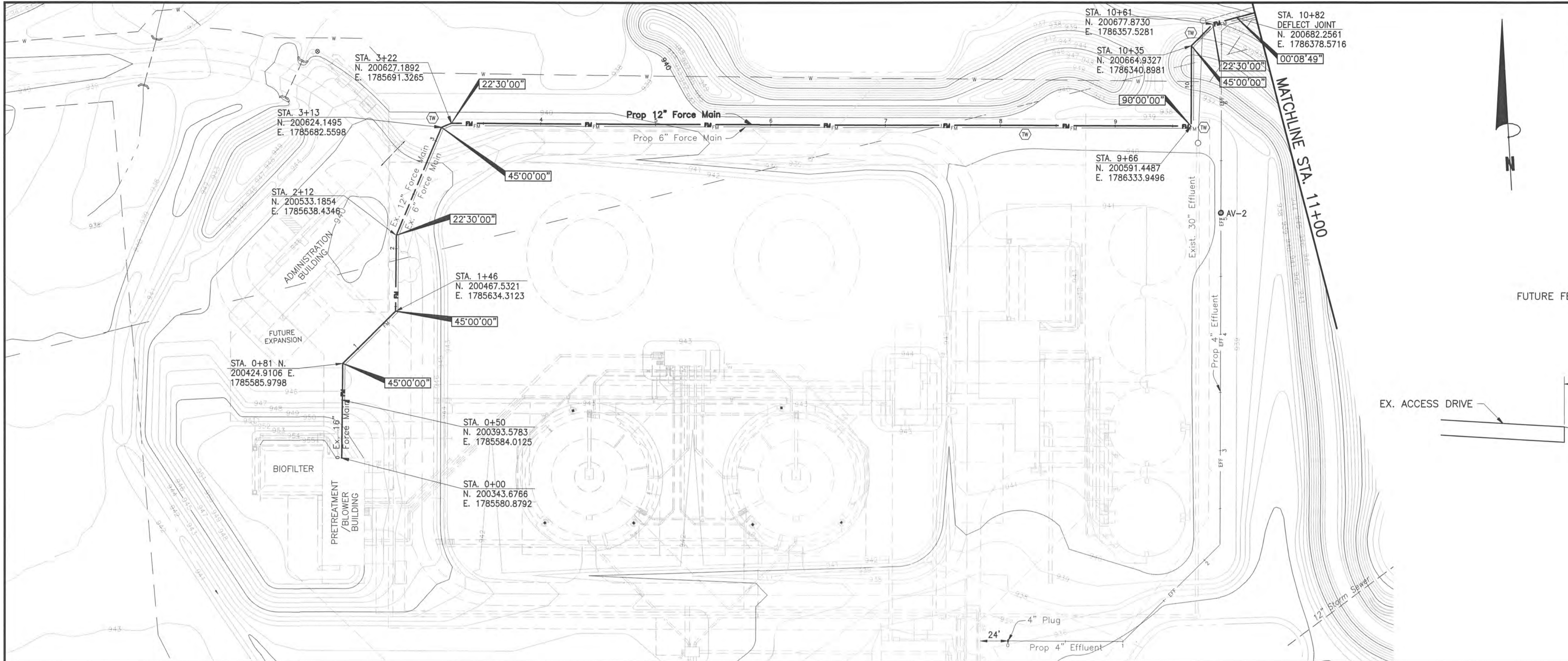


RIVER CROSSING TYPICAL TRENCH DETAIL

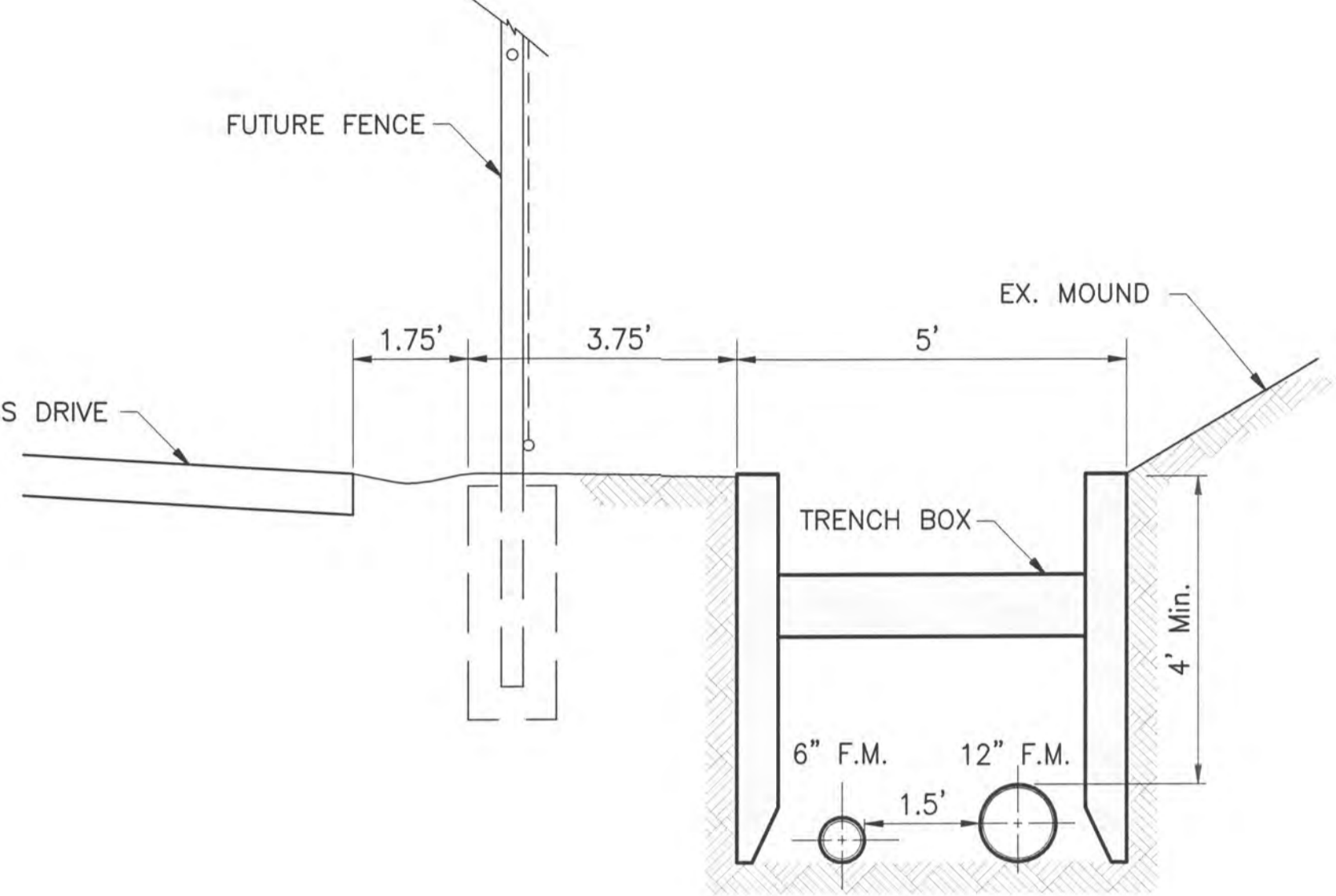
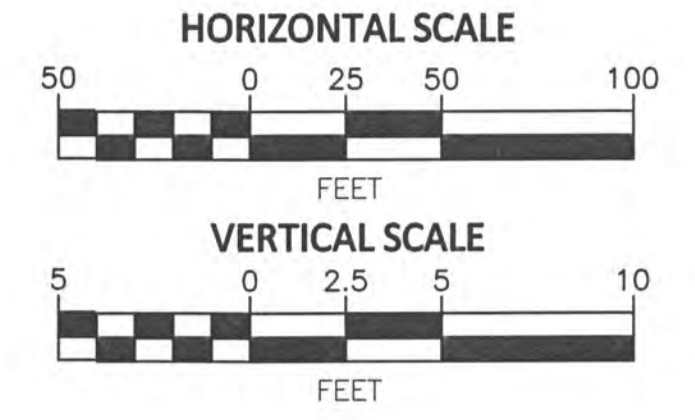
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DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		6-14-10
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG.TOL				
FRACTIONS ± FRACTOL				
		USE CLIENT DWG. NO.		
		SIZE	CAGE CODE	DWG. NO.
		D		
		SCALE	PROJECT NO.	14147
				SHEET 6 OF 18



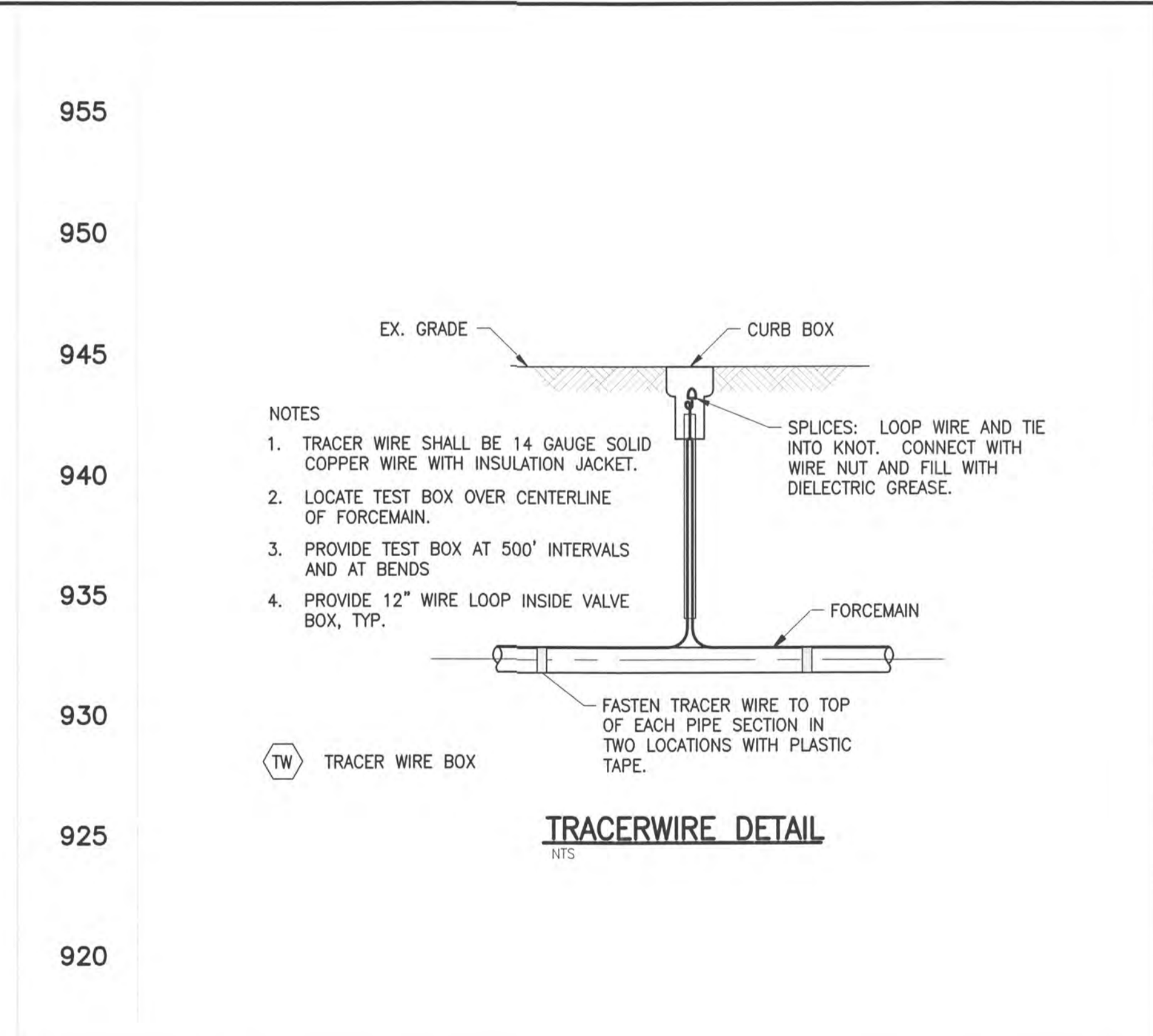
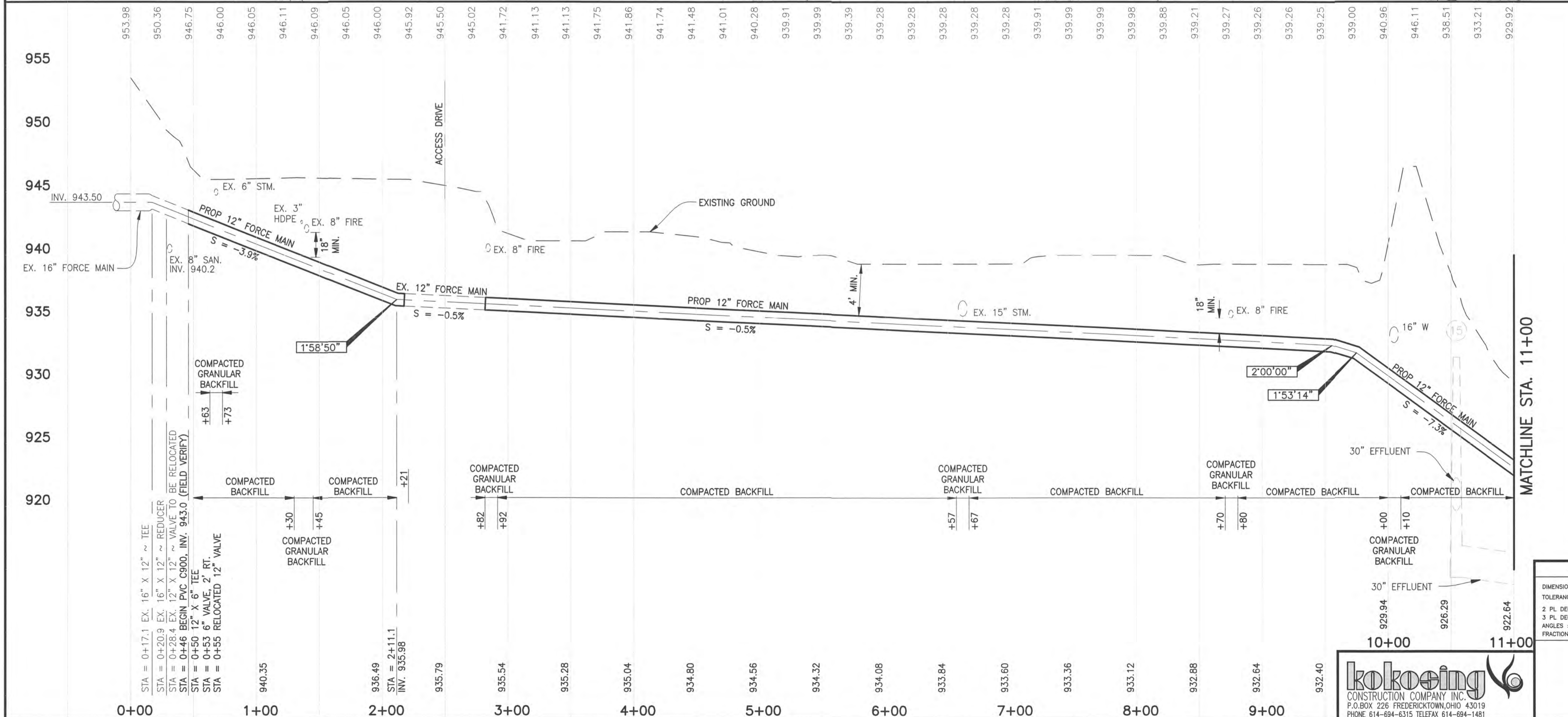
COUNTY OF DELAWARE, OHIO
SANITARY SEWER IMPROVEMENT PLAN
FOR
LOWER SCIOTO WATER
RECLAMATION FACILITY
PROPOSED 6" & 12" FORCE MAIN
AND 4" EFFLUENT LINE



REVISIONS			
REV	DESCRIPTION	DATE	APPR



ACCESS DRIVE TRENCH DETAIL
NTS



- NOTES**
1. TRACER WIRE SHALL BE 14 GAUGE SOLID COPPER WIRE WITH INSULATION JACKET.
 2. LOCATE TEST BOX OVER CENTERLINE OF FORCE MAIN.
 3. PROVIDE TEST BOX AT 500' INTERVALS AND AT BENDS.
 4. PROVIDE 12" WIRE LOOP INSIDE VALVE BOX, TYP.

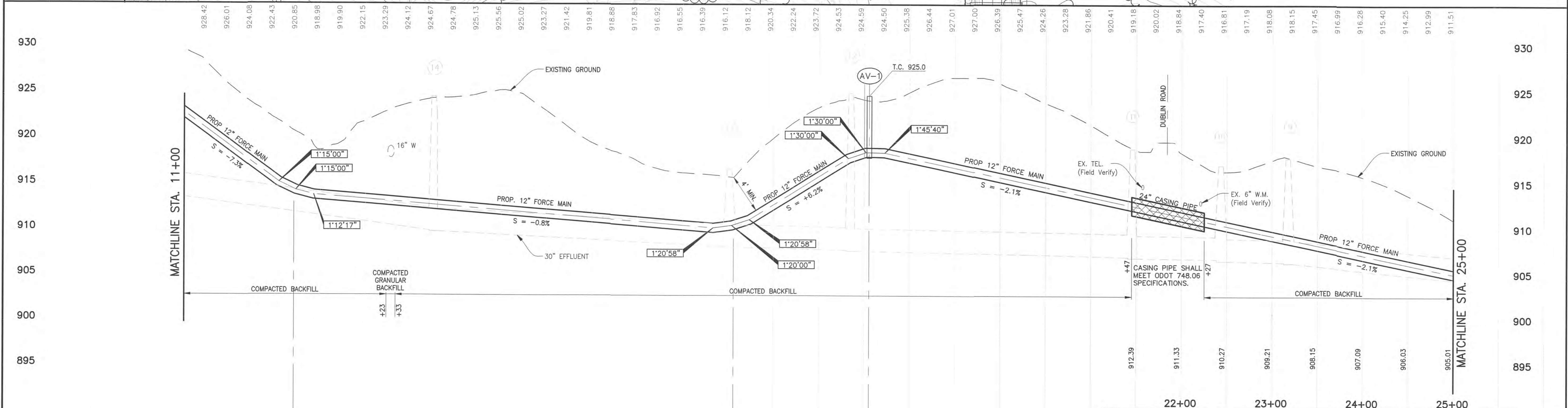
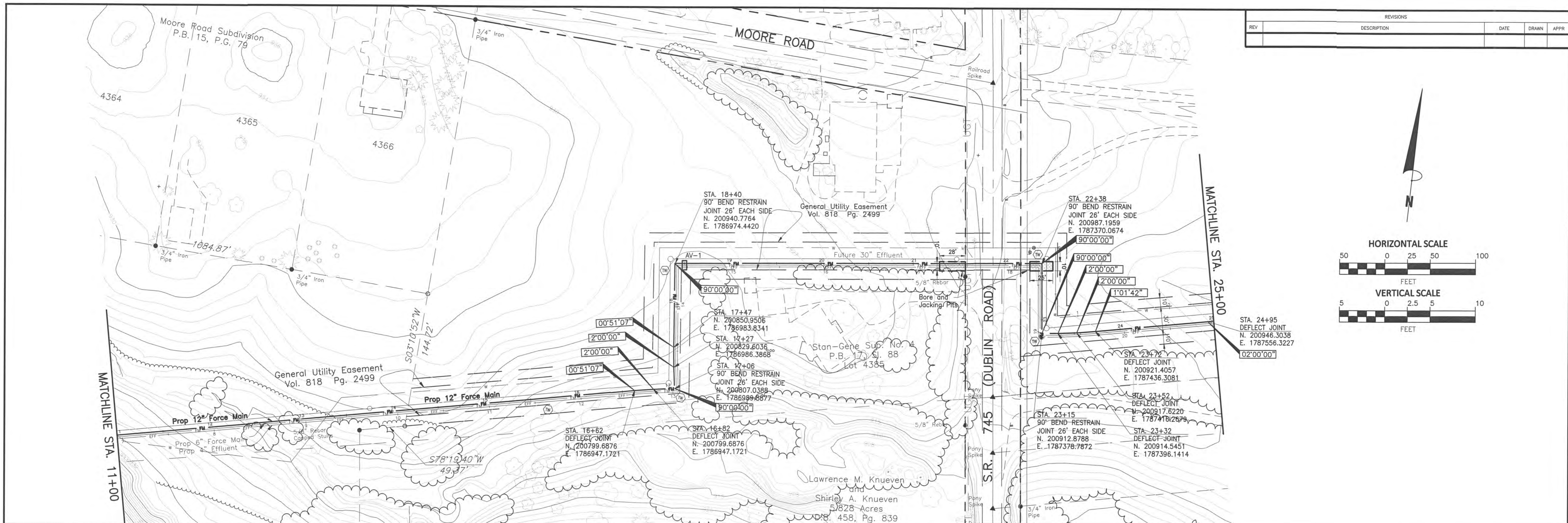
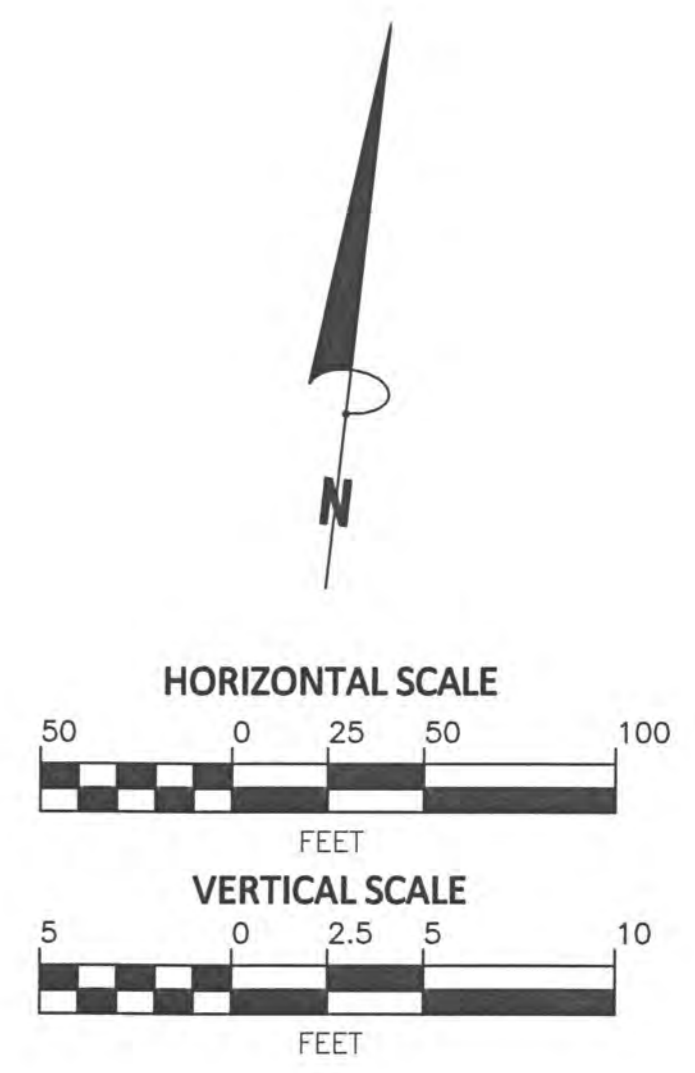
TRACERWIRE DETAIL
NTS

UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ARE:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED	6-14-10	
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANGPTOL				
FRACTIONS ± FRACTOL				
USE CLIENT DWG NO.	SIZE	CAGE CODE	DWG NO.	REV
	D			
SCALE SHOWN		PROJECT NO.	14147	SHEET 7 OF 18



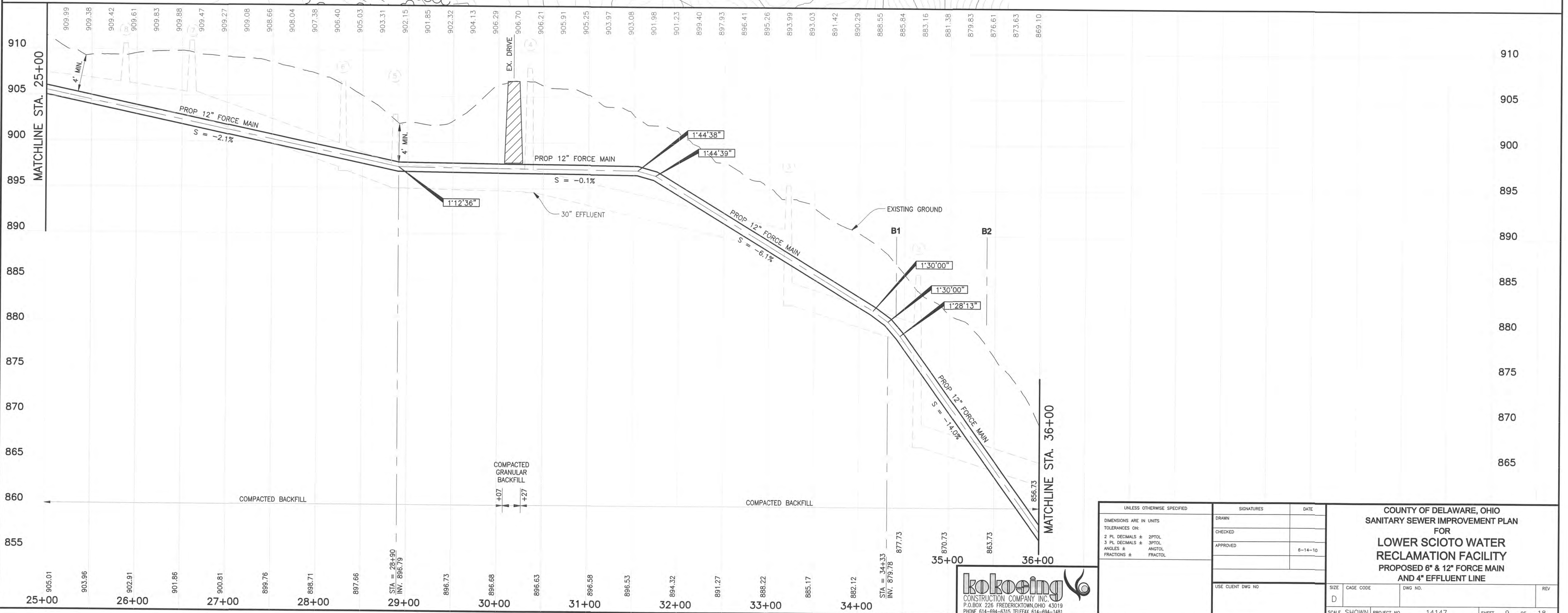
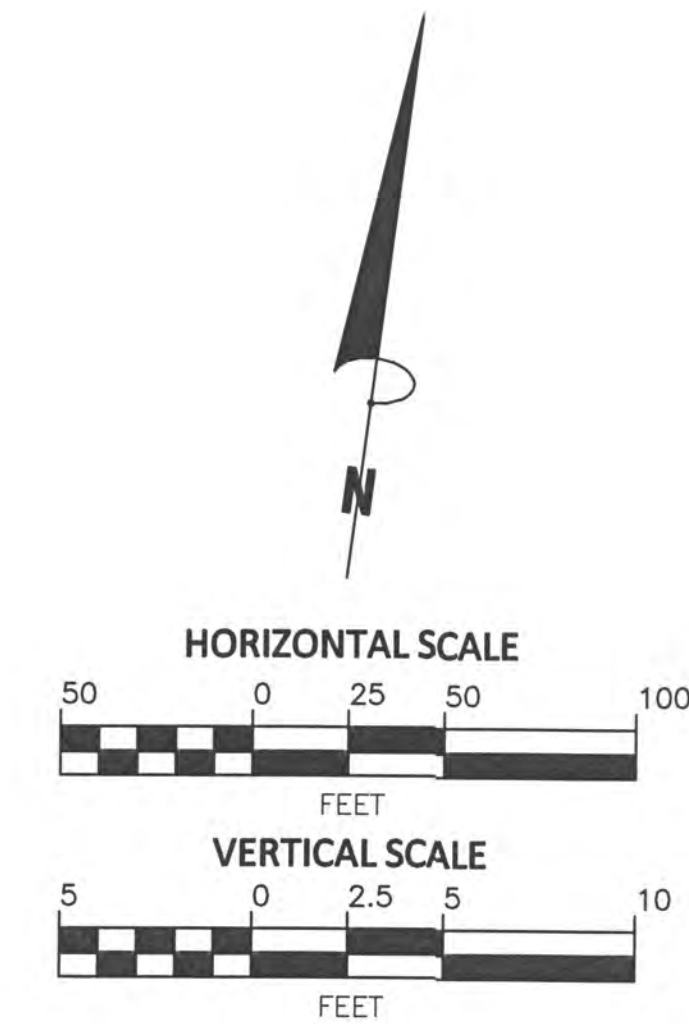
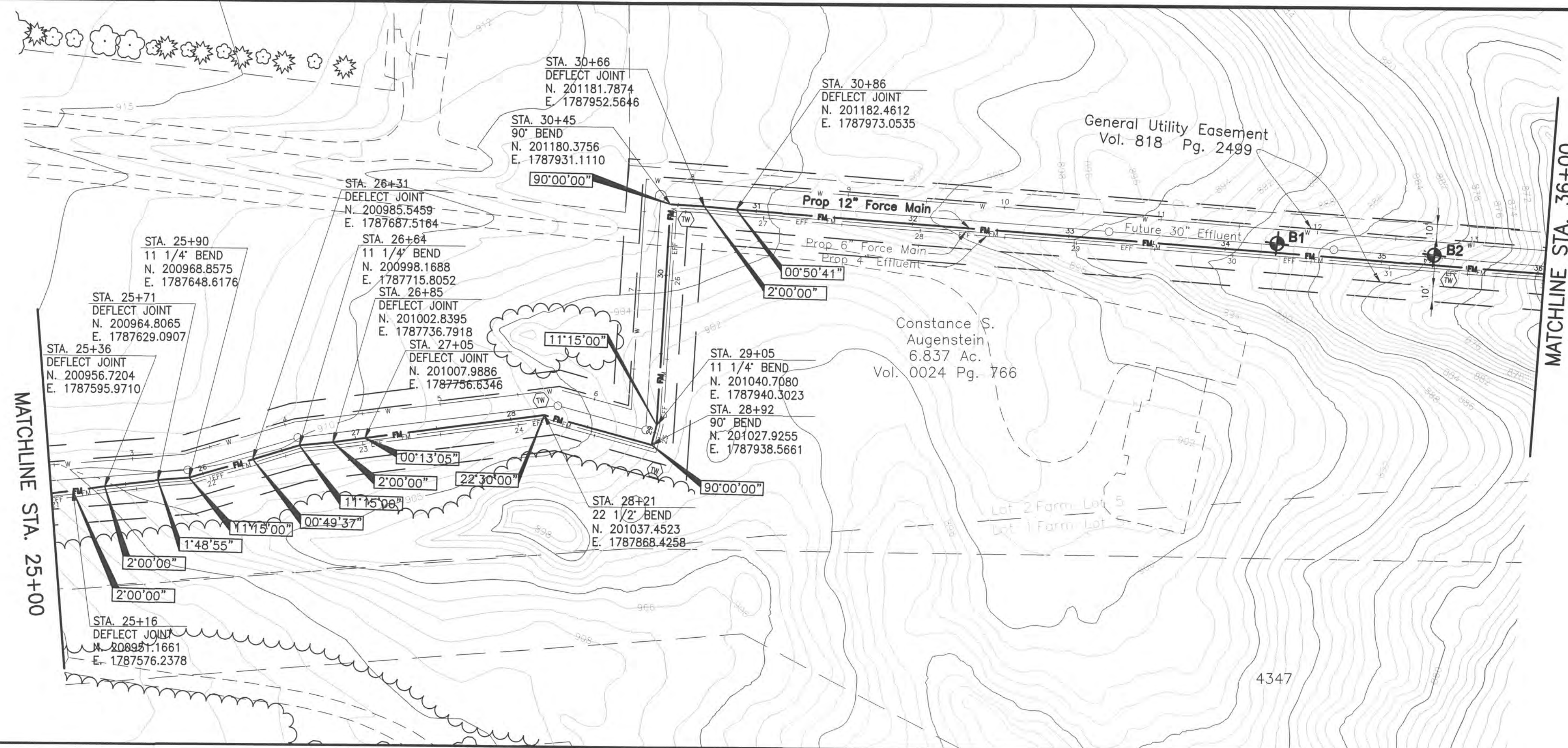
COUNTY OF DELAWARE, OHIO
SANITARY SEWER IMPROVEMENT PLAN
FOR
LOWER SCIOTO WATER RECLAMATION FACILITY
PROPOSED 6" & 12" FORCE MAIN
AND 4" EFFLUENT LINE

REV	DESCRIPTION	DATE	DRAWN	APPR



11+00 922.64 918.99 915.34 STA = 12+21 INV. 913.80 913.52 913.12 912.72 912.32 911.92 911.52 911.12 910.72 910.32 912.55 915.82 917.69 916.63	12+00 928.42 926.01 924.08 922.43 920.85 918.98 919.90 922.15 923.29 924.12 924.67 924.78 925.13 925.56 925.02 923.27 921.42 919.81 918.88 917.83 916.92 916.55 916.39 916.12 918.12 920.34 922.24 923.72 924.53 924.59 924.50 925.38 926.44 927.01 927.00 926.39 925.47 924.26 923.28 921.86 920.41 919.18 920.02 918.84 917.40 916.81 917.19 918.08 918.15 917.45 916.99 916.28 915.40 914.25 912.99 911.51	20+00 915.57 914.51 913.45 21+00	22+00 912.39 911.33 910.27 909.21 908.15 907.09 906.03 905.01	23+00 905.01	24+00 905.01	25+00 905.01
MATCHLINE STA. 11+00			MATCHLINE STA. 25+00			
COUNTY OF DELAWARE, OHIO SANITARY SEWER IMPROVEMENT PLAN FOR LOWER SCIOTO WATER RECLAMATION FACILITY PROPOSED 6" & 12" FORCE MAIN AND 4" EFFLUENT LINE						
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN UNITS TOLERANCES ON: 2 PL DECIMALS ± 2PTOL 3 PL DECIMALS ± 3PTOL ANGLES ± ANGUL FRACTIONS ± FRACTOL			SIGNATURES DRAWN CHECKED APPROVED		DATE 6-14-10	
USE CLIENT DWG NO.			SIZE D		CAGE CODE DWG NO. REV	
			SCALE SHOWN		PROJECT NO. 14147 SHEET 8 OF 18	

REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPR

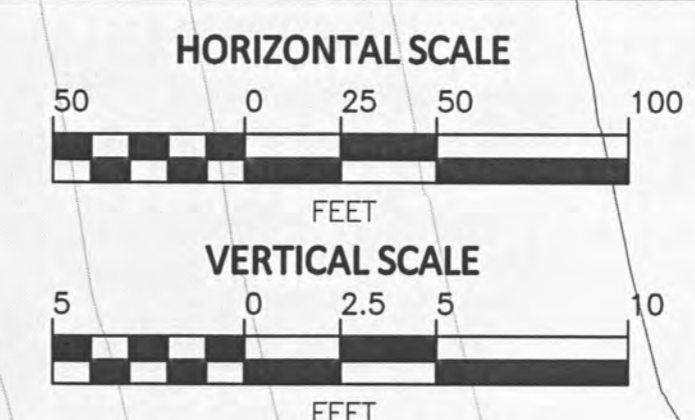
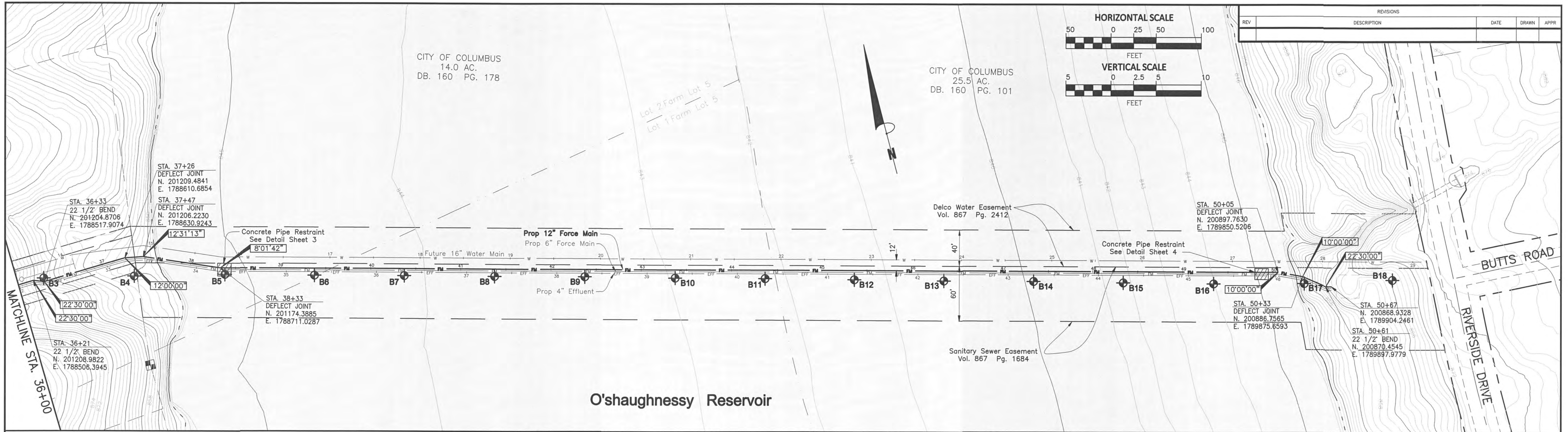


UNLESS OTHERWISE SPECIFIED	SIGNATURES	DATE
DIMENSIONS ARE IN UNITS	DRAWN	
TOLERANCES ON	CHECKED	
2 PL. DECIMALS ± 2PTOL	APPROVED	6-14-10
3 PL. DECIMALS ± 3PTOL		
ANGLES ± ANG/TOL		
FRACTIONS ± FRACTOL		

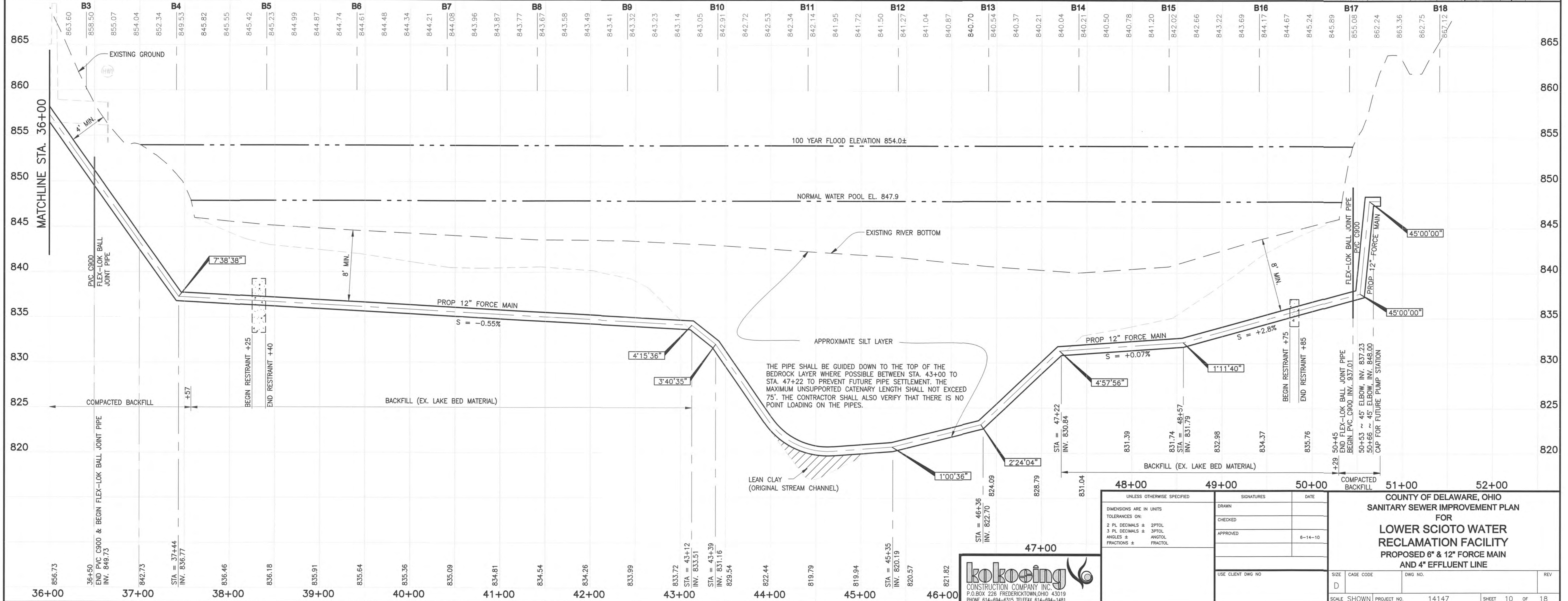
USE CLIENT DWG NO.	SIZE	CAGE CODE	DWG NO.	REV
	D			

COUNTY OF DELAWARE, OHIO SANITARY SEWER IMPROVEMENT PLAN FOR LOWER SCIOTO WATER RECLAMATION FACILITY PROPOSED 6" & 12" FORCE MAIN AND 4" EFFLUENT LINE			
SCALE SHOWN	PROJECT NO.	14147	SHEET 9 OF 18





REVISIONS			
REV	DESCRIPTION	DATE	APPR



UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ±	2PTOL	APPROVED		6-14-10
3 PL. DECIMALS ±	3PTOL			
ANGLES ±	ANGTOL			
FRACTIONS ±	FRACTOL			
USE CLIENT DWG NO.				

COUNTY OF DELAWARE, OHIO
 SANITARY SEWER IMPROVEMENT PLAN
 FOR
LOWER SCIOTO WATER RECLAMATION FACILITY
 PROPOSED 6" & 12" FORCE MAIN
 AND 4" EFFLUENT LINE

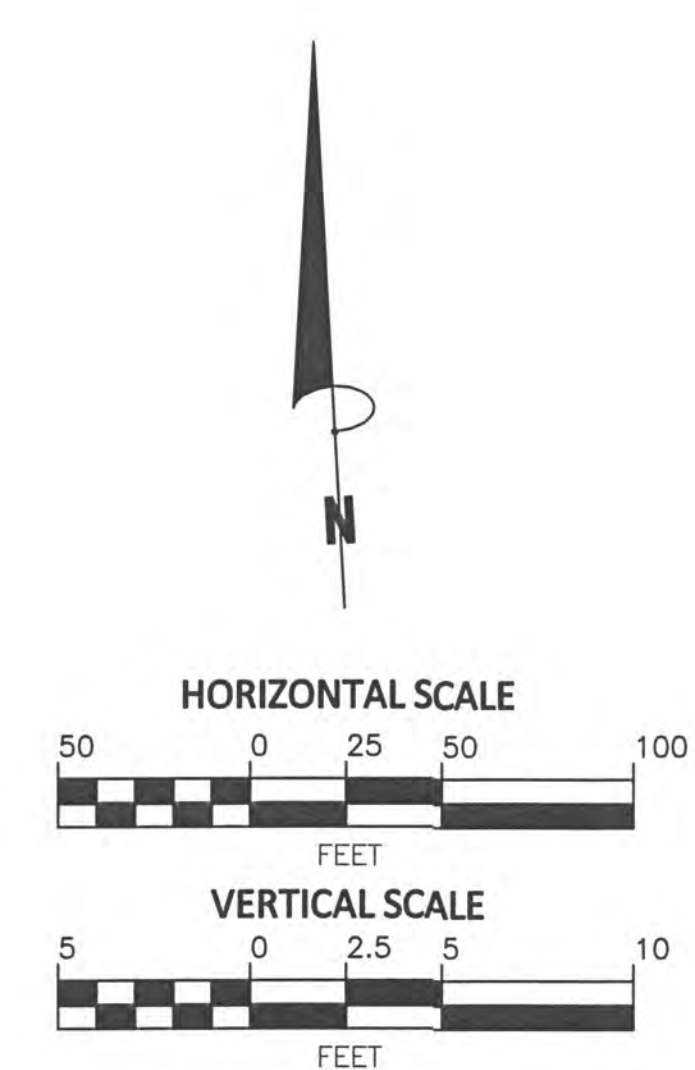
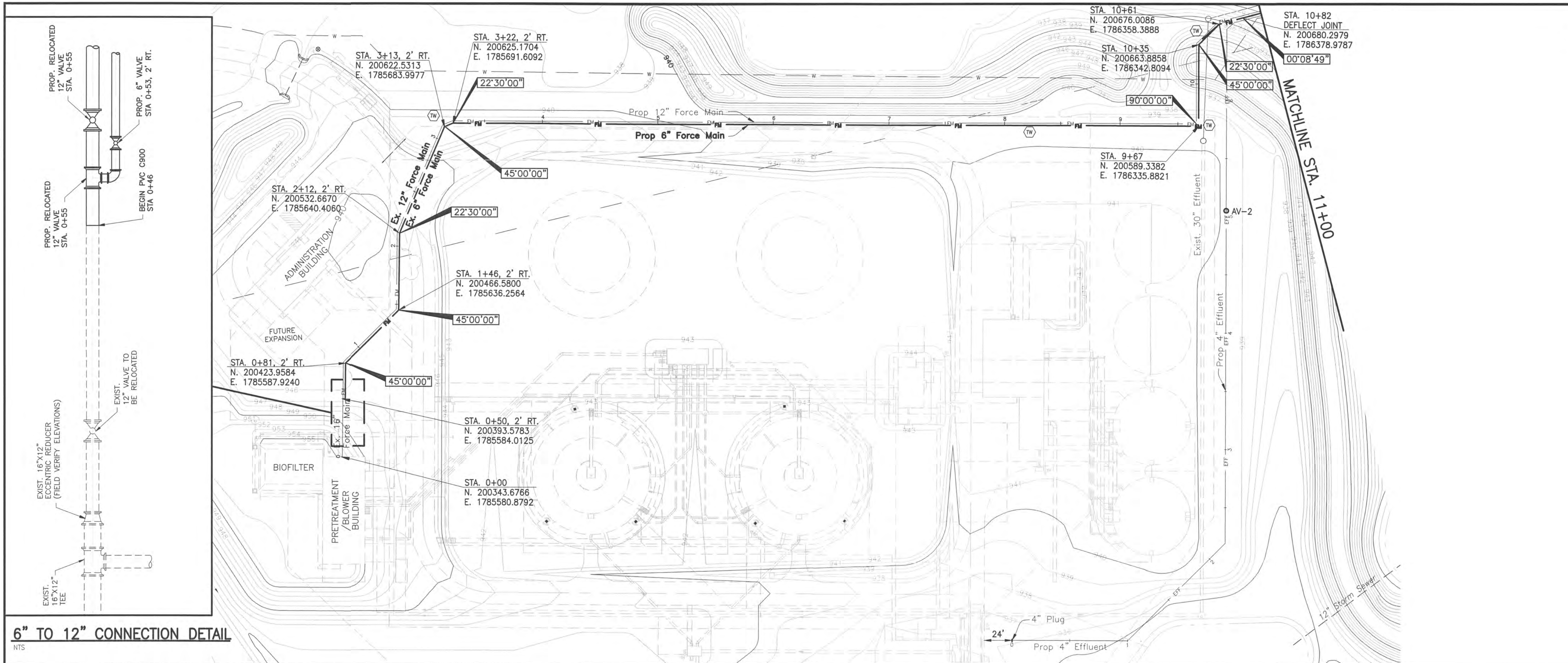
SCALE	CAGE CODE	DWG NO.	REV
SHOWN			

PROJECT NO. 14147 SHEET 10 OF 18

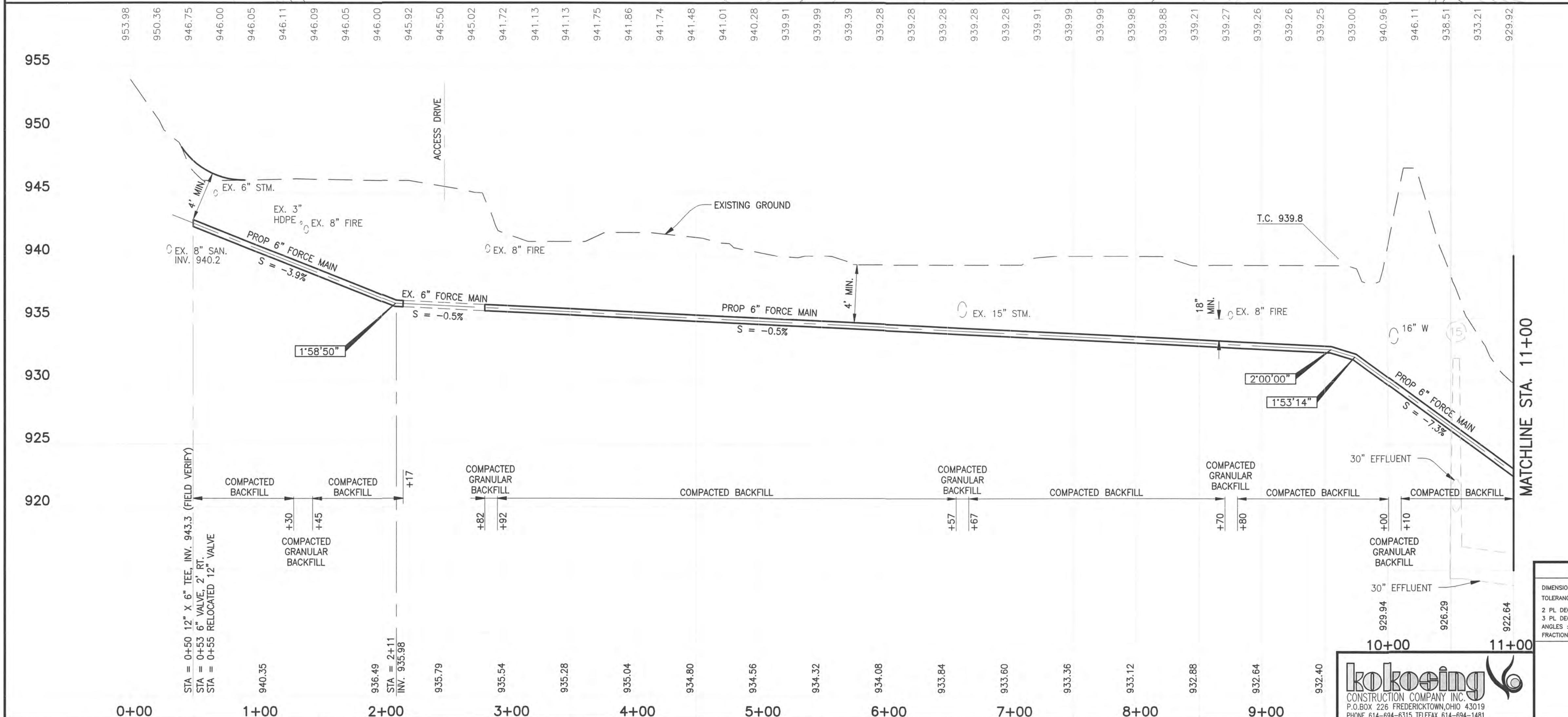


THE PIPE SHALL BE GUIDED DOWN TO THE TOP OF THE BEDROCK LAYER WHERE POSSIBLE BETWEEN STA. 43+00 TO STA. 47+22 TO PREVENT FUTURE PIPE SETTLEMENT. THE MAXIMUM UNSUPPORTED CATENARY LENGTH SHALL NOT EXCEED 75'. THE CONTRACTOR SHALL ALSO VERIFY THAT THERE IS NO POINT LOADING ON THE PIPES.

REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPR



6" TO 12" CONNECTION DETAIL

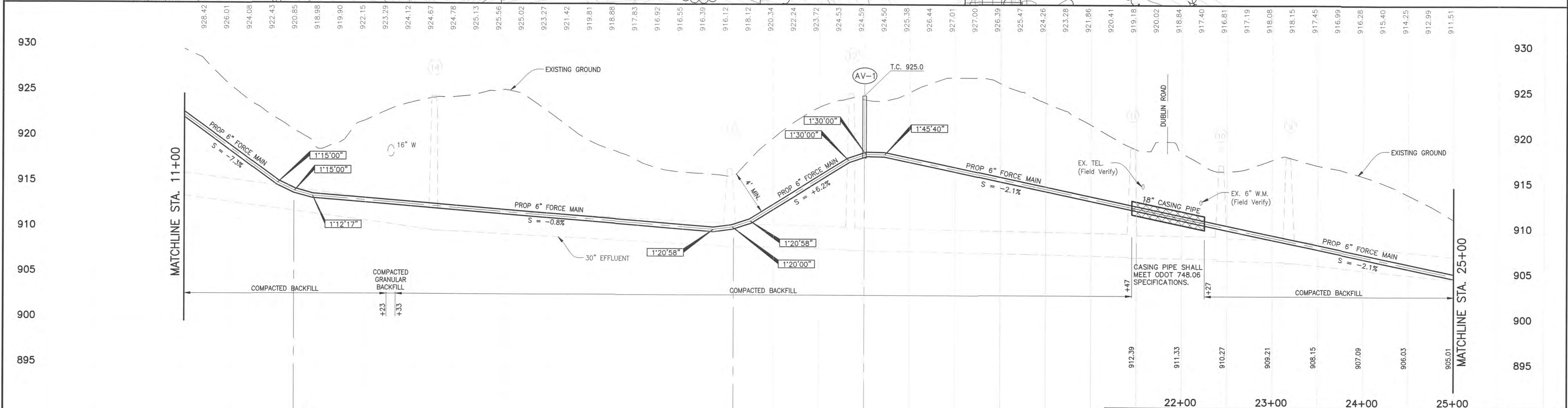
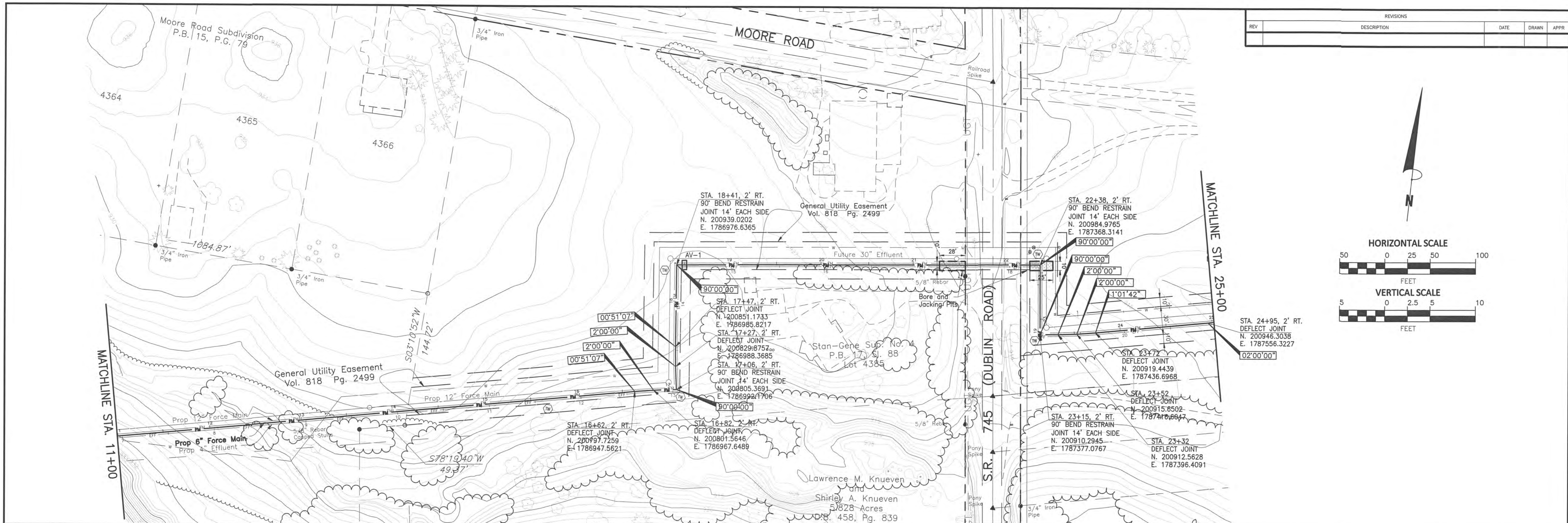
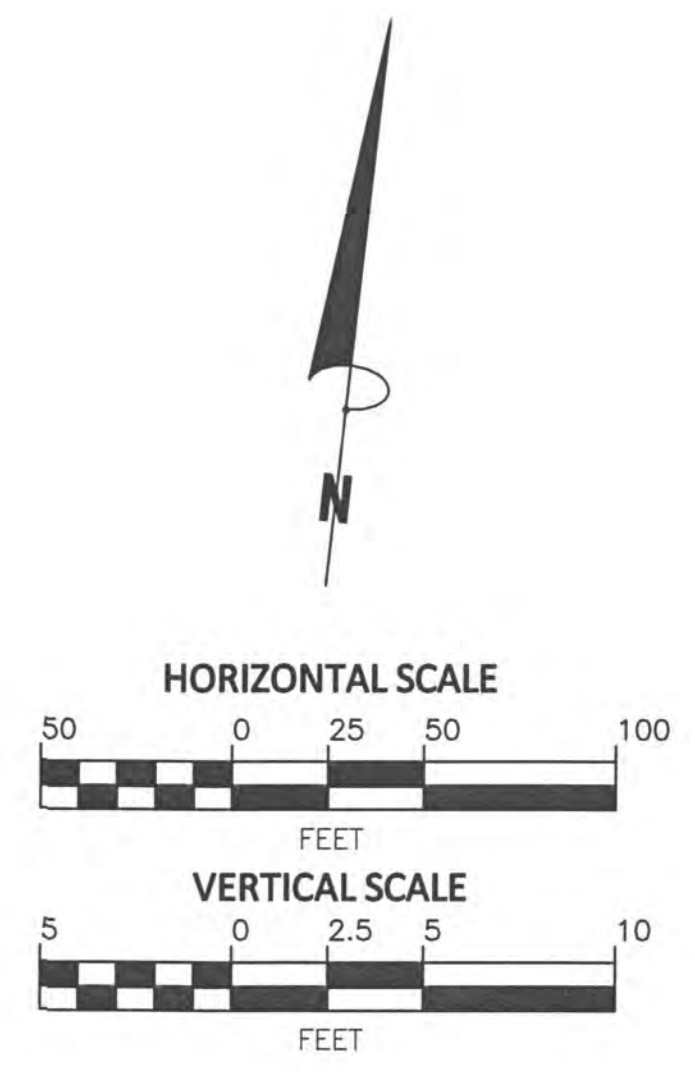


UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		6-14-10
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG/TOL				
FRACTIONS ± FRACTOL				
USE CLIENT DWG NO.	SIZE	CAGE CODE	DWG NO.	REV
	D			
SCALE SHOWN		PROJECT NO.	14147	SHEET 11 OF 18



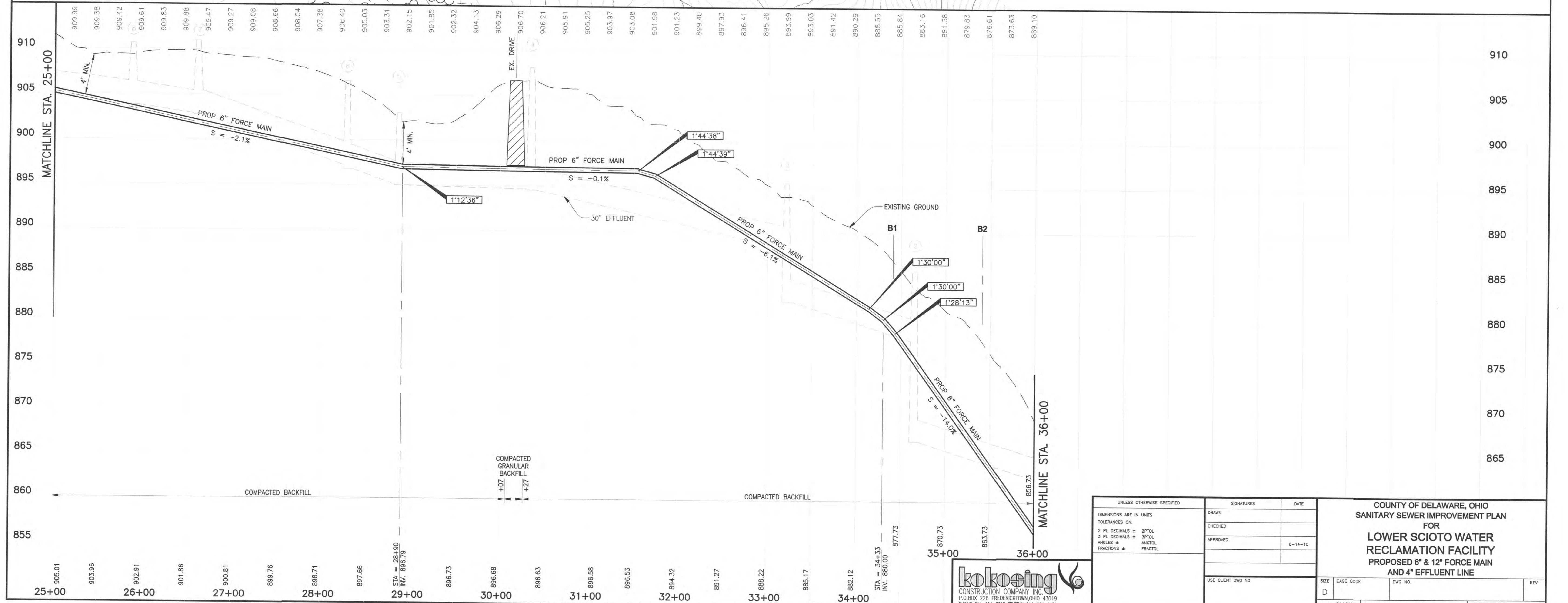
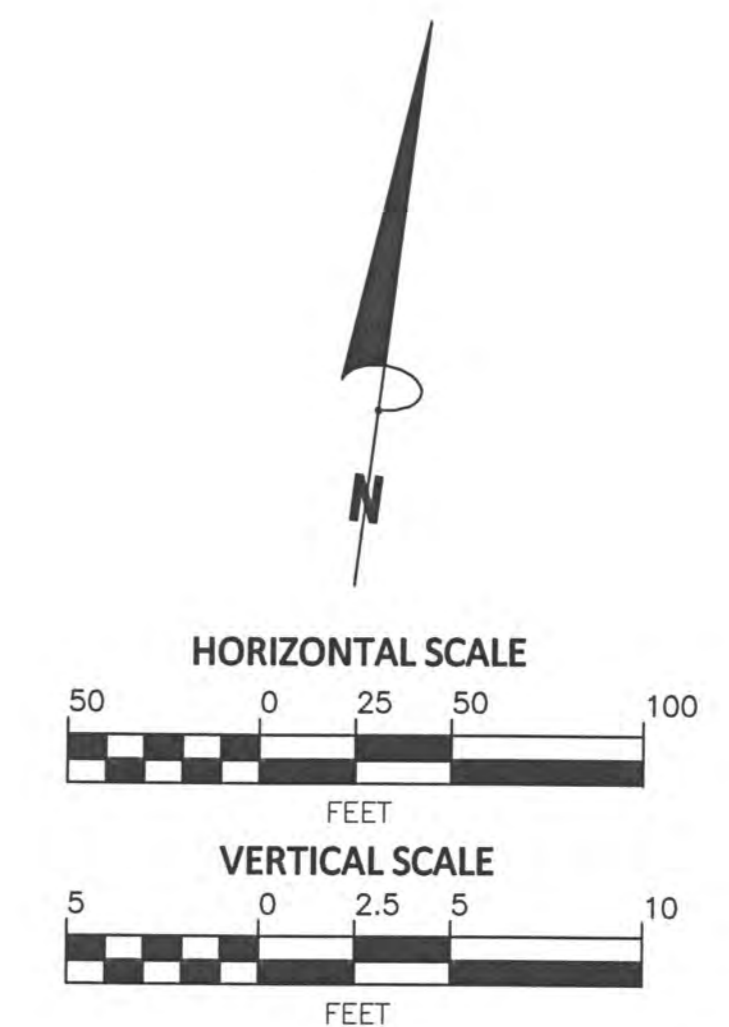
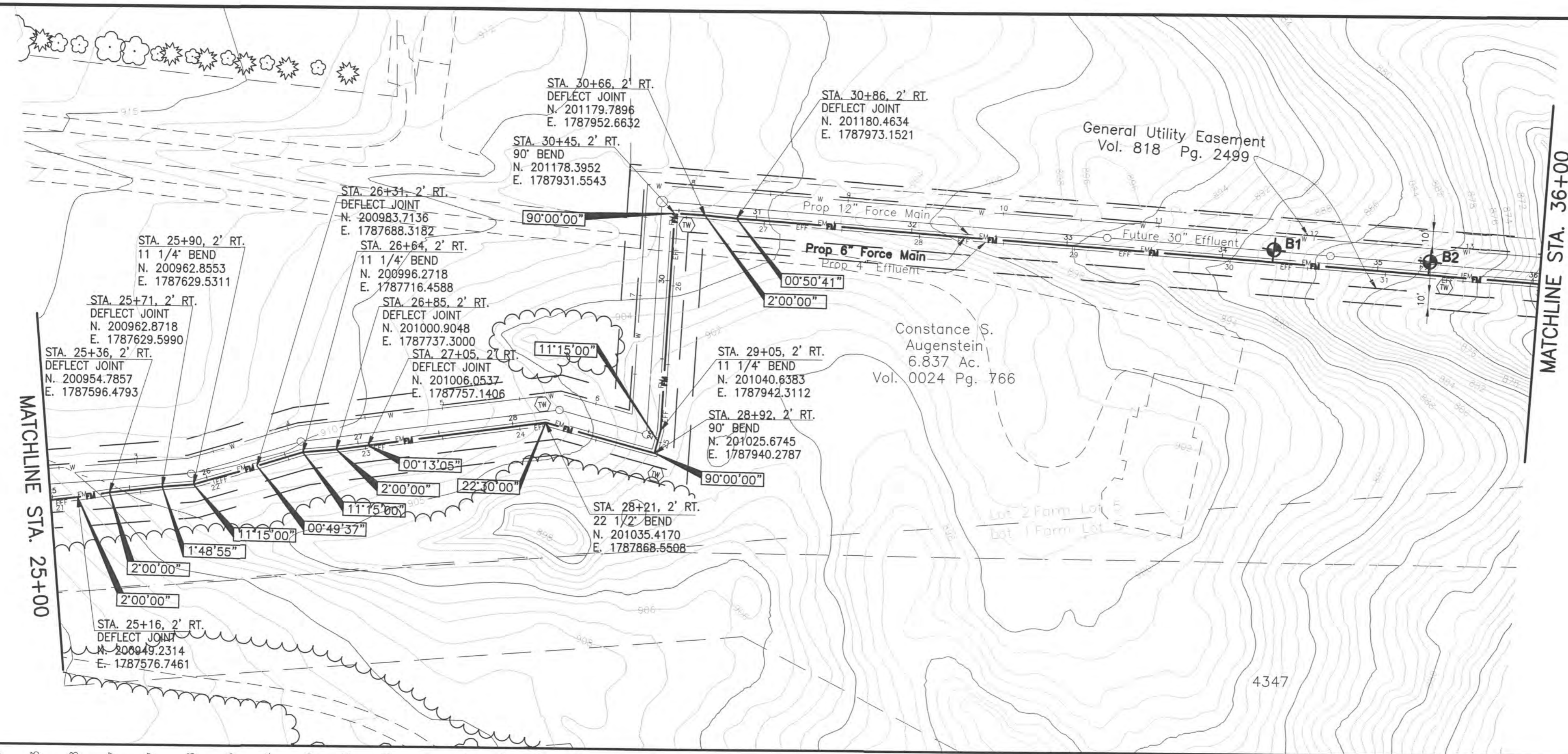
COUNTY OF DELAWARE, OHIO
 SANITARY SEWER IMPROVEMENT PLAN
 FOR
 LOWER SCIOTO WATER
 RECLAMATION FACILITY
 PROPOSED 6" & 12" FORCE MAIN
 AND 4" EFFLUENT LINE

REV	DESCRIPTION	DATE	DRAWN	APPR



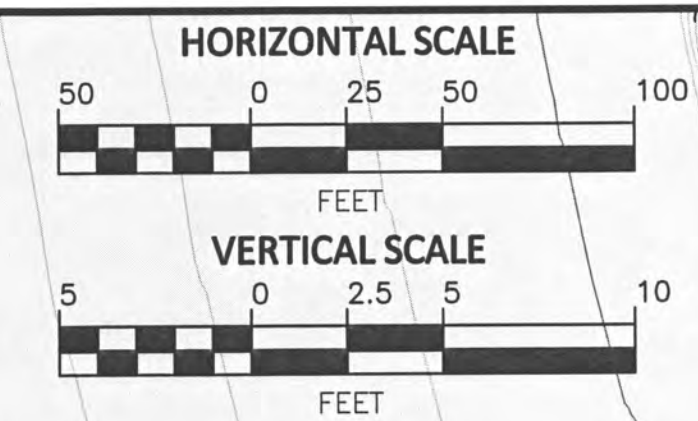
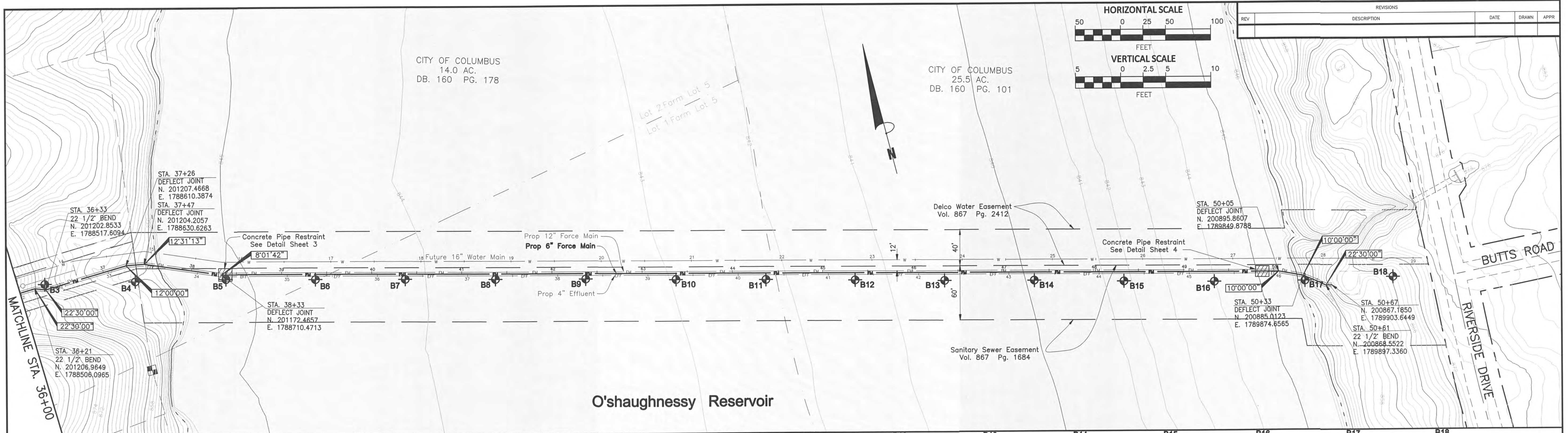
922.64 918.99 915.34 STA = 12+21 INV. 913.80 DEFLECT PIPES AS REQUIRED 913.52 913.12 912.72 912.32 911.92 911.52 911.12 910.72 910.32 912.55 915.82 STA = 18+40 AIR RELEASE VALVE INV. 916.74 917.69 916.63 915.57 914.51 913.45 20+00 21+00 KOKOSING CONSTRUCTION COMPANY INC. P.O. BOX 226 FREDERICKTOWN, OHIO 43019 PHONE 614-694-6315 TELEFAX 614-694-1481	912.39 911.33 910.27 908.21 908.15 907.09 906.03 905.01 22+00 23+00 24+00 25+00	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN UNITS TOLERANCES ON: 2 PL. DECIMALS ± 2PTOL 3 PL. DECIMALS ± 3PTOL ANGLES ± ANGLOT FRACTIONS ± FRACTOL SIGNATURES DATE 6-14-10 USE CLIENT DWG NO.	COUNTY OF DELAWARE, OHIO SANITARY SEWER IMPROVEMENT PLAN FOR LOWER SCIOTO WATER RECLAMATION FACILITY PROPOSED 6" & 12" FORCE MAIN AND 4" EFFLUENT LINE SCALE SHOWN PROJECT NO. 14147 SHEET 12 OF 18
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REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPR

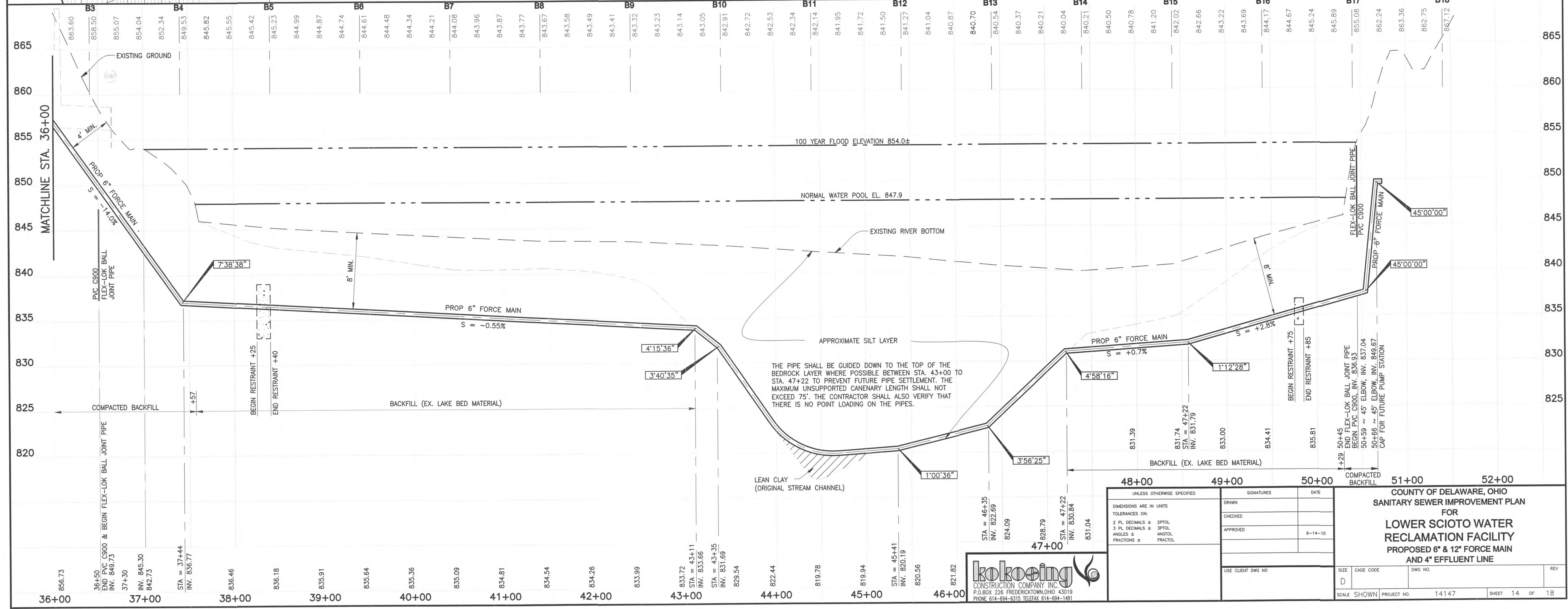


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN UNITS TOLERANCES ON: 2 PL DECIMALS ± 3PTOL 3 PL DECIMALS ± 3PTOL ANGLES ± ANG/OL FRACTIONS ± FRACTOL	SIGNATURES DRAWN: _____ CHECKED: _____ APPROVED: _____	DATE 6-14-10	COUNTY OF DELAWARE, OHIO SANITARY SEWER IMPROVEMENT PLAN FOR LOWER SCIOTO WATER RECLAMATION FACILITY PROPOSED 6" & 12" FORCE MAIN AND 4" EFFLUENT LINE	
	USE CLIENT DWG NO. _____	SCALE SHOWN PROJECT NO. 14-147		SHEET 13 OF 18
	SIZE CAGE CODE D	DWG NO. _____		REV _____
	PROJECT NO. 14-147			SHEET 13 OF 18





REV	DESCRIPTION	DATE	DRAWN	APPR

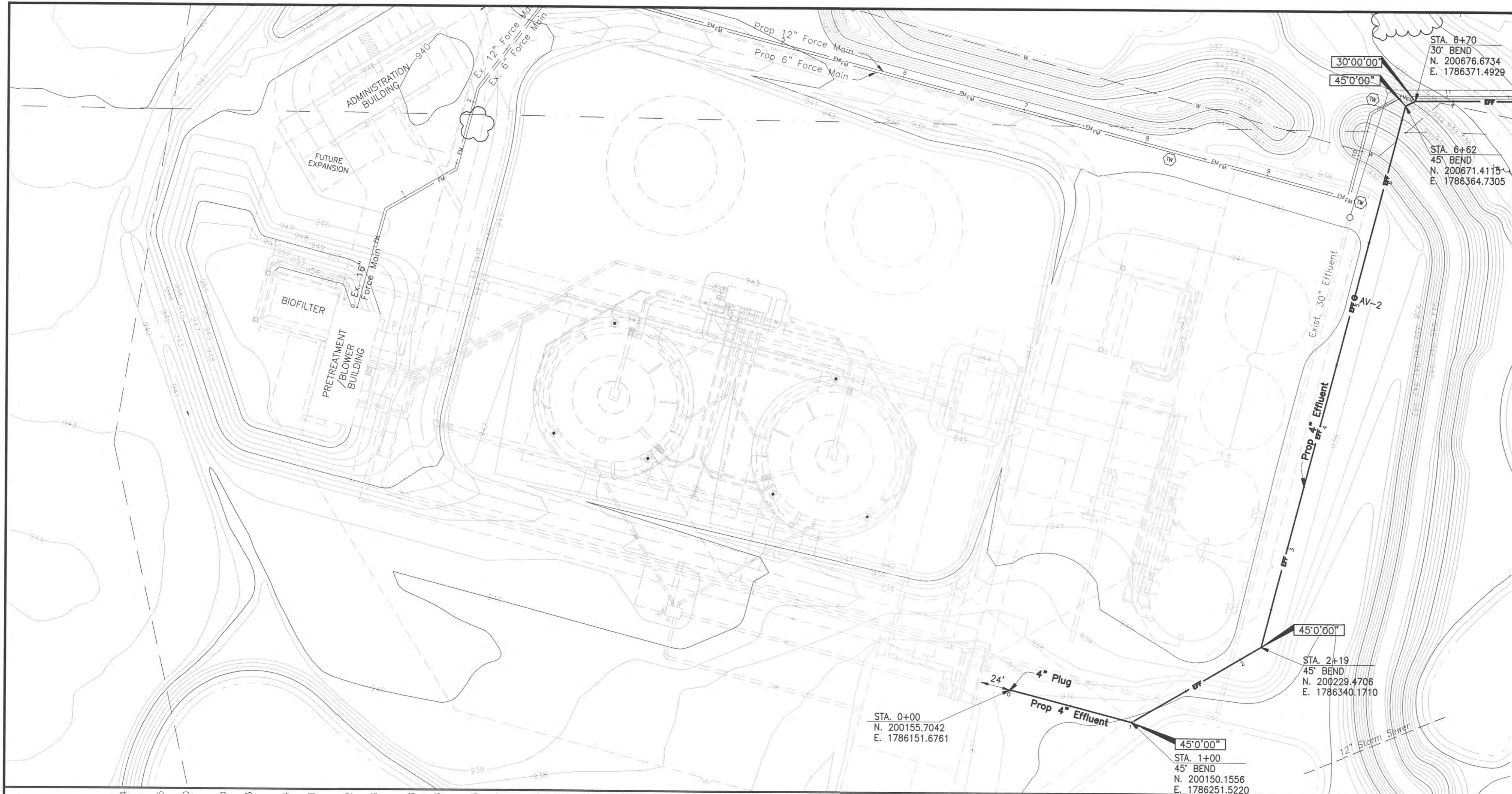


THE PIPE SHALL BE GUIDED DOWN TO THE TOP OF THE BEDROCK LAYER WHERE POSSIBLE BETWEEN STA. 43+00 TO STA. 47+22 TO PREVENT FUTURE PIPE SETTLEMENT. THE MAXIMUM UNSUPPORTED CANARY LENGTH SHALL NOT EXCEED 75'. THE CONTRACTOR SHALL ALSO VERIFY THAT THERE IS NO POINT LOADING ON THE PIPES.



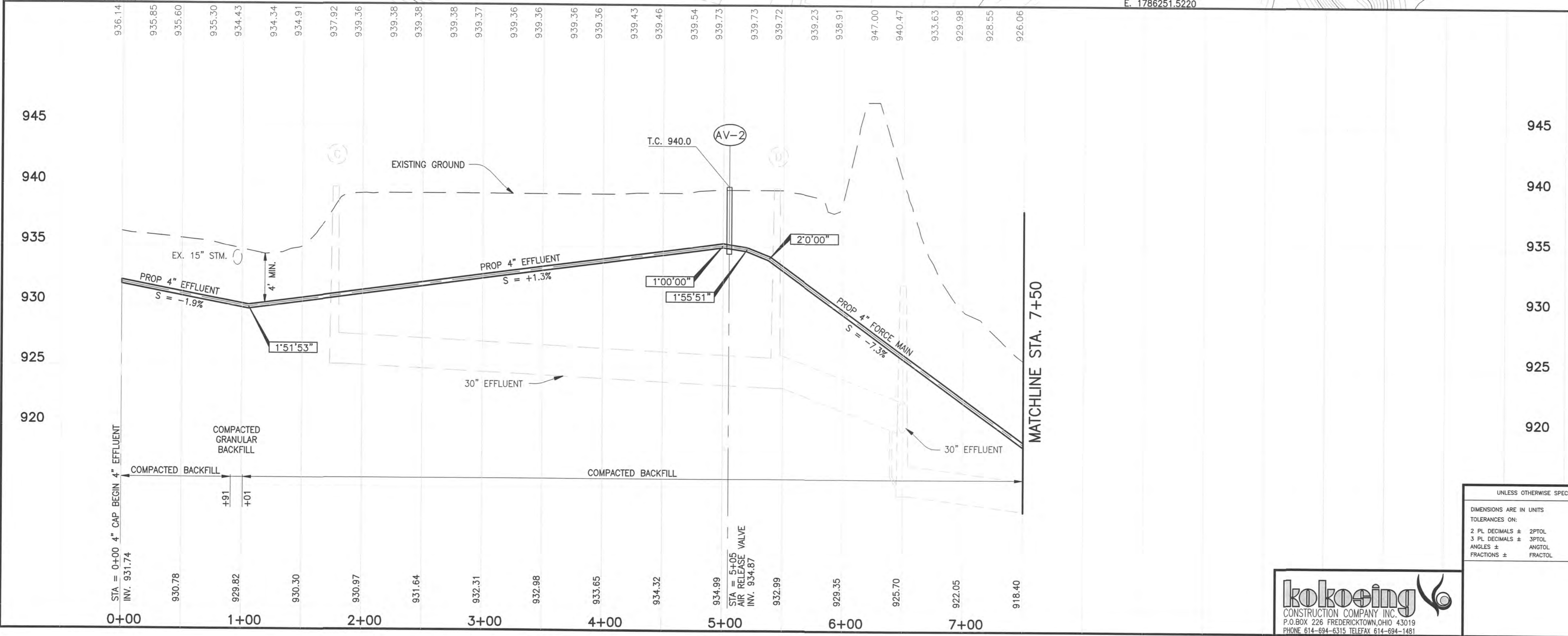
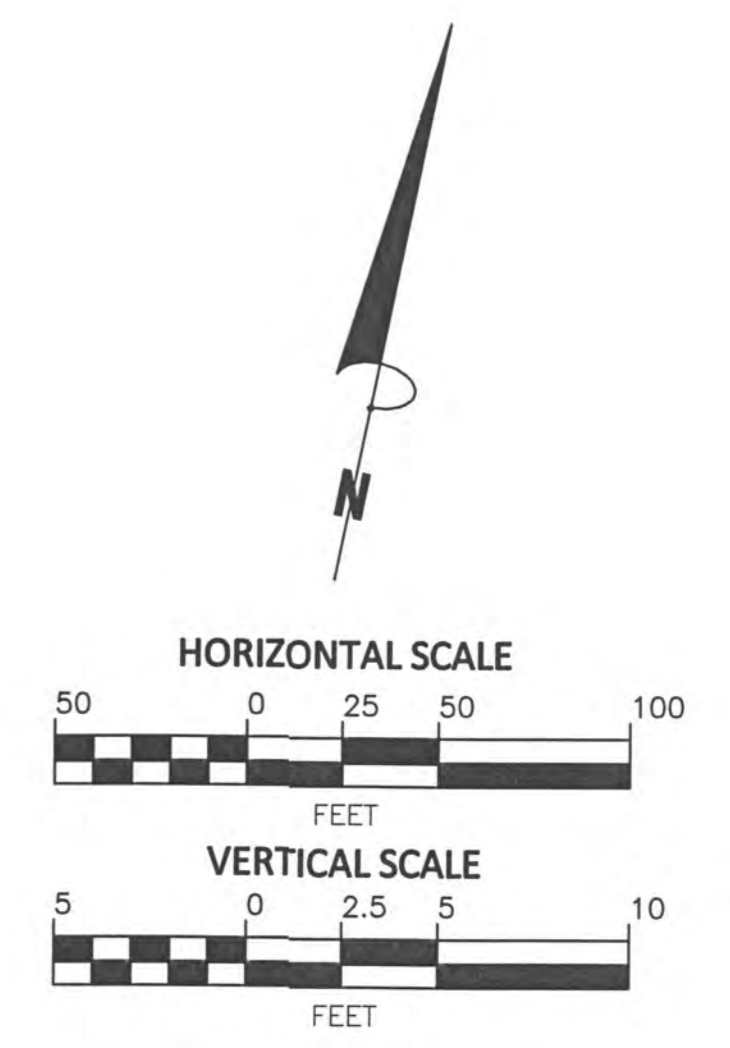
UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS				
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		8-14-10
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG/OL				
FRACTIONS ± FRACT/OL				
		USE CLIENT DWG NO.		

COUNTY OF DELAWARE, OHIO			
SANITARY SEWER IMPROVEMENT PLAN			
FOR			
LOWER SCIOTO WATER RECLAMATION FACILITY			
PROPOSED 6" & 12" FORCE MAIN AND 4" EFFLUENT LINE			
SIZE	CAGE CODE	DWG NO.	REV
D			
SCALE SHOWN	PROJECT NO.	14147	SHEET 14 OF 18



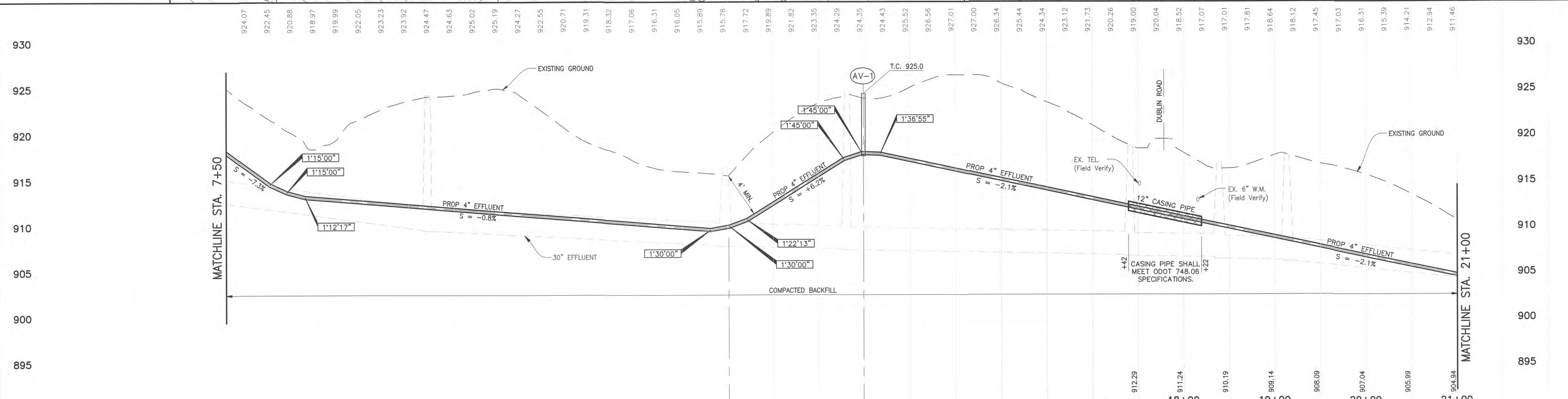
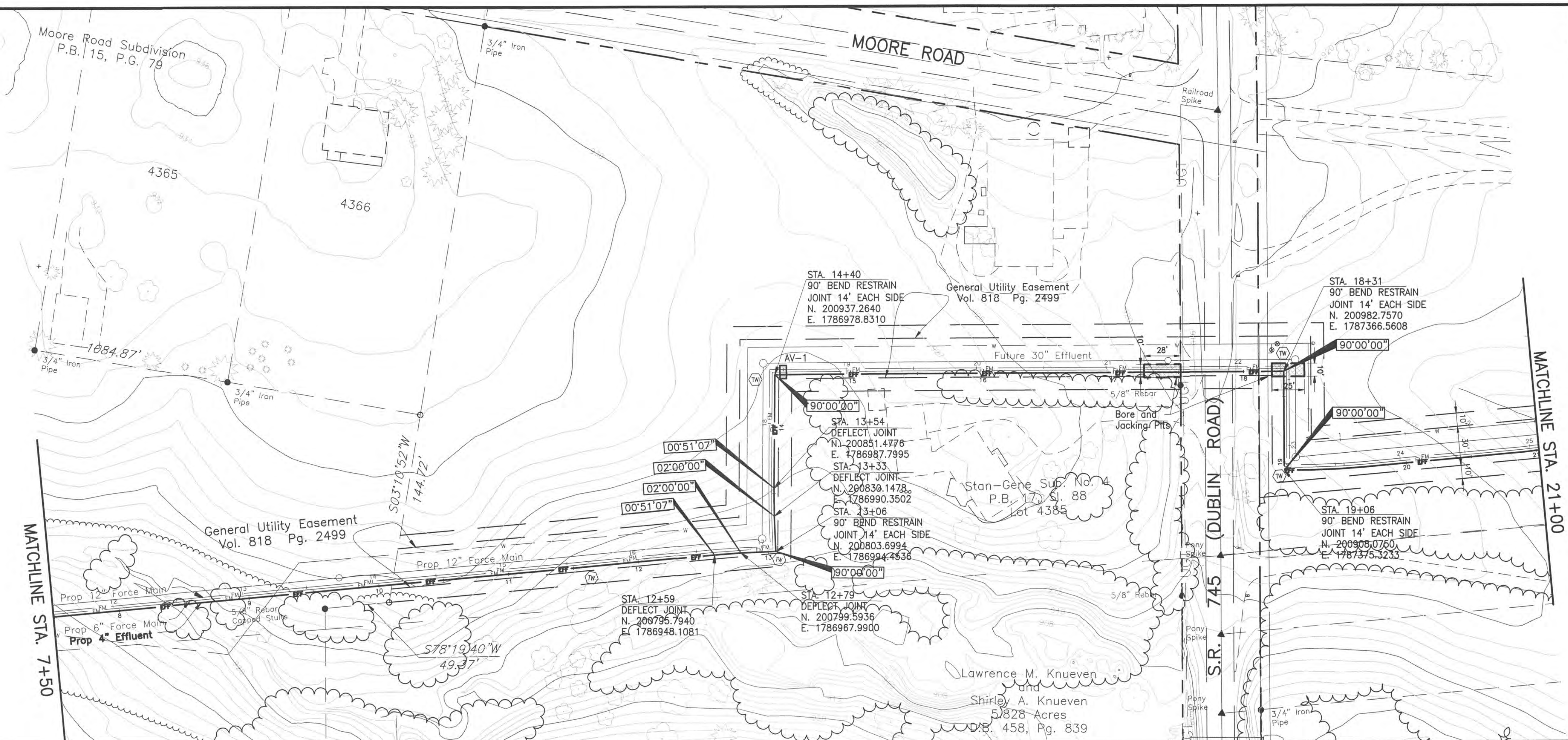
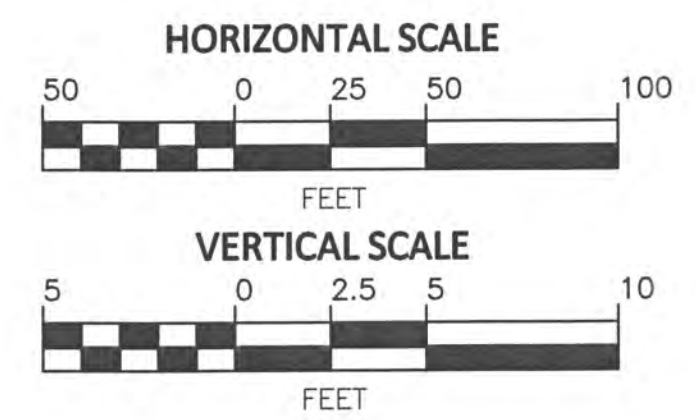
MATCHLINE STA. 7+50

REVISIONS			
REV	DESCRIPTION	DATE	APPR



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN UNITS TOLERANCES ON: 2 PL DECIMALS ± 2PTOL 3 PL DECIMALS ± 3PTOL ANGLES ± ANG/10L FRACTIONS ± FRACTOL	SIGNATURES		DATE	COUNTY OF DELAWARE, OHIO SANITARY SEWER IMPROVEMENT PLAN FOR LOWER SCIOTO WATER RECLAMATION FACILITY PROPOSED 6" & 12" FORCE MAIN AND 4" EFFLUENT LINE
	DRAWN			
	CHECKED			
	APPROVED		6-14-10	
USE CLIENT DWG NO.	SIZE	CAGE CODE	DWG NO.	REV
	D			
SCALE SHOWN		PROJECT NO.	14147	SHEET 15 OF 18

REVISIONS			
REV	DESCRIPTION	DATE	APPR



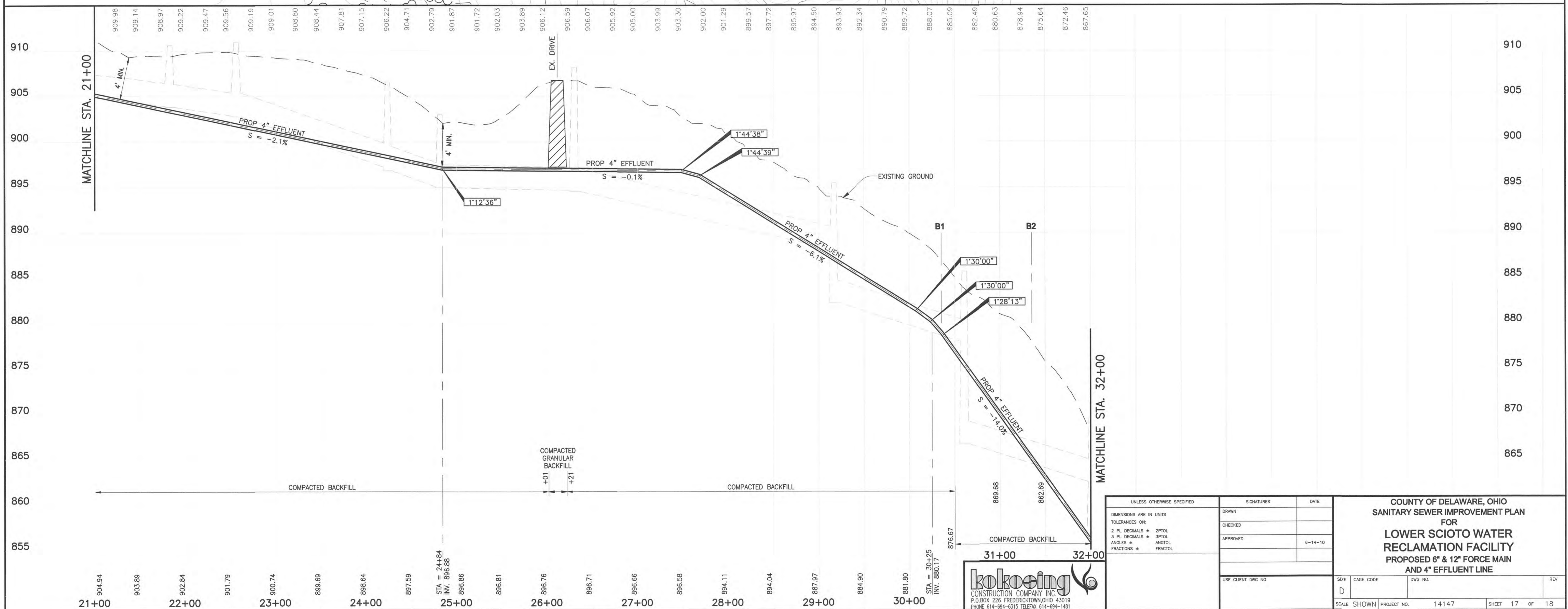
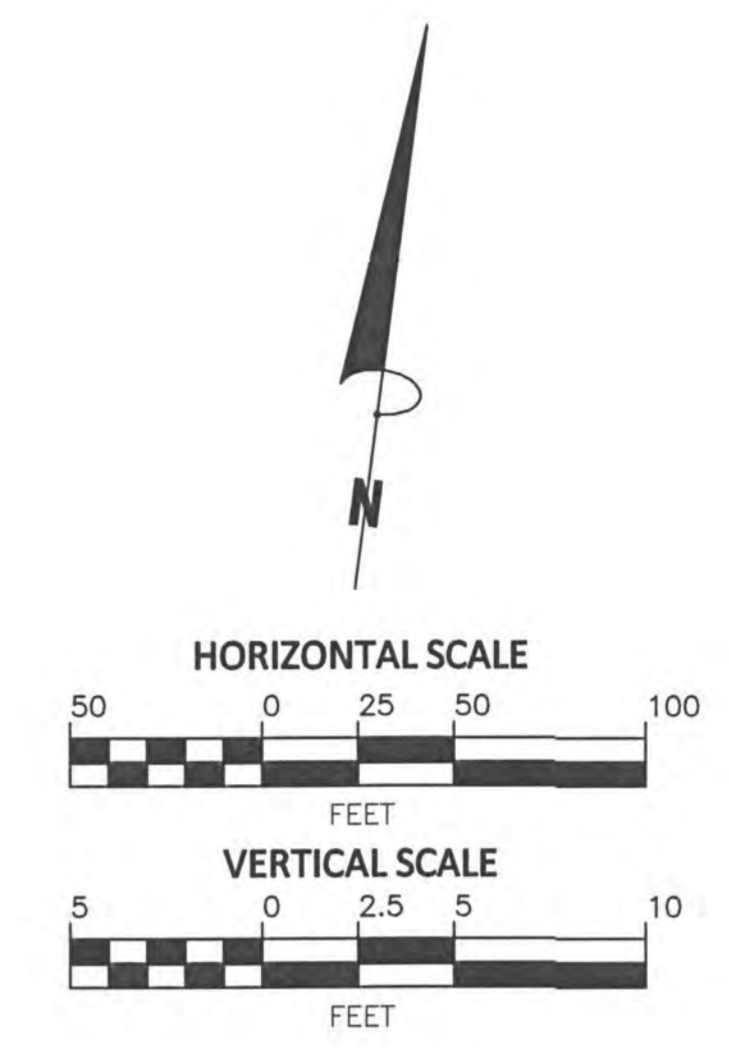
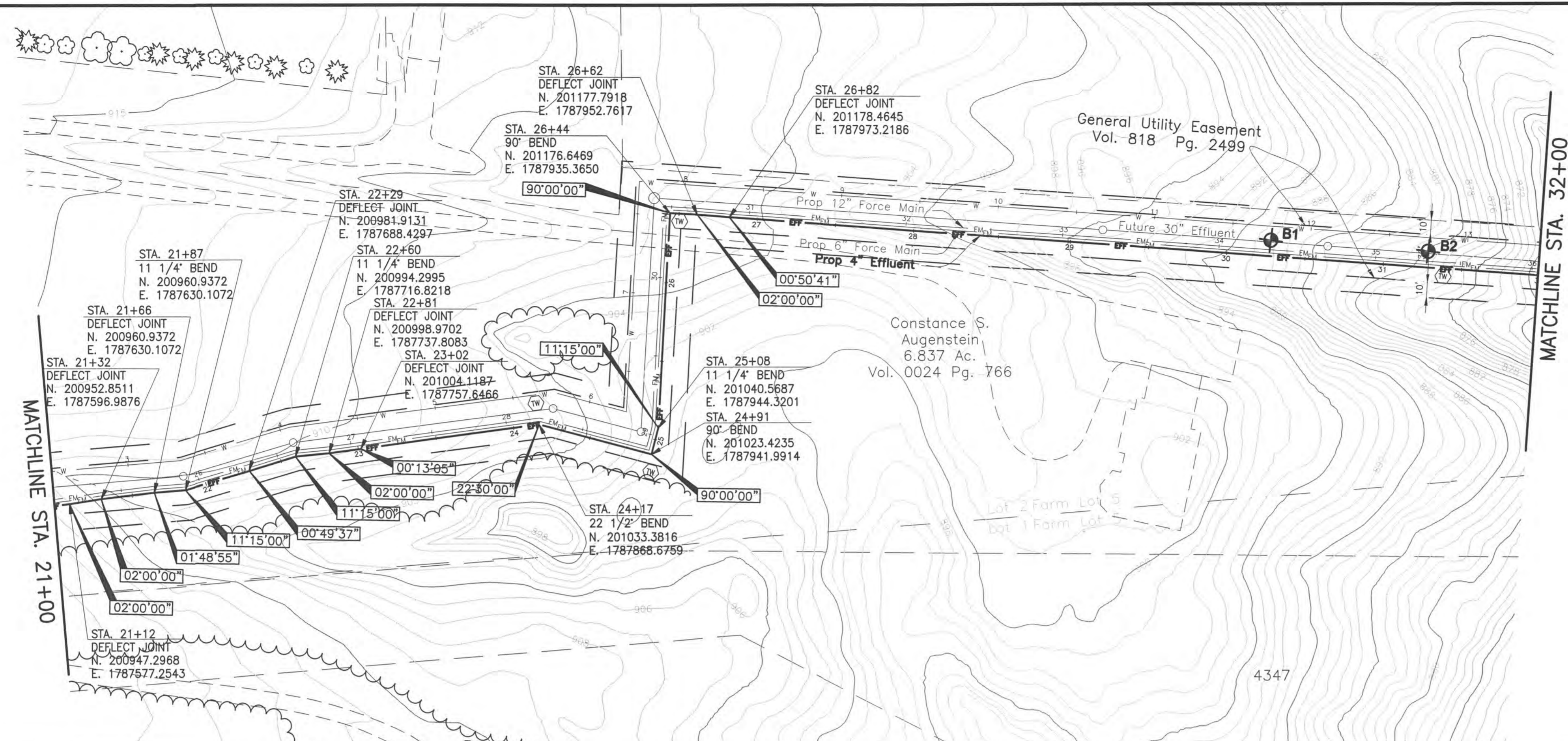
UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		6-14-10
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG/OL				
FRACTIONS ± FRACTOL				
		USE CLIENT DWG NO.		



COUNTY OF DELAWARE, OHIO
SANITARY SEWER IMPROVEMENT PLAN
FOR
LOWER SCIOTO WATER RECLAMATION FACILITY
PROPOSED 6" & 12" FORCE MAIN
AND 4" EFFLUENT LINE

SCALE: SHOWN PROJECT NO. 14147 SHEET 16 OF 18

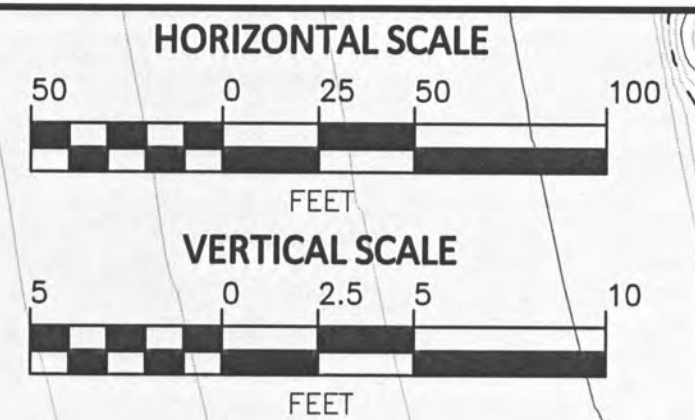
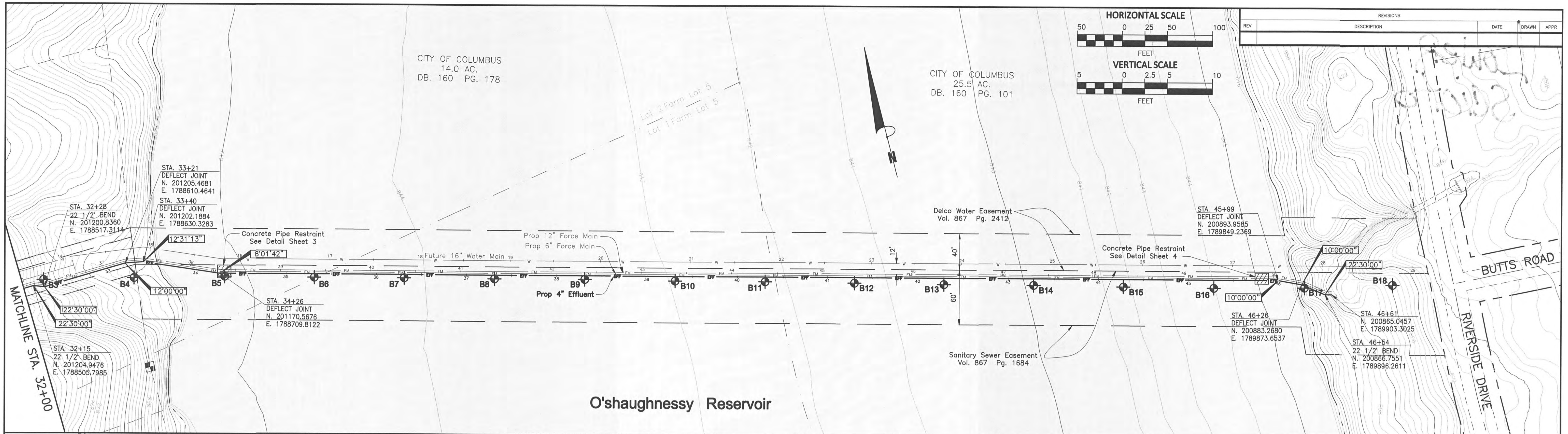
REVISIONS				
REV	DESCRIPTION	DATE	DRAWN	APPR



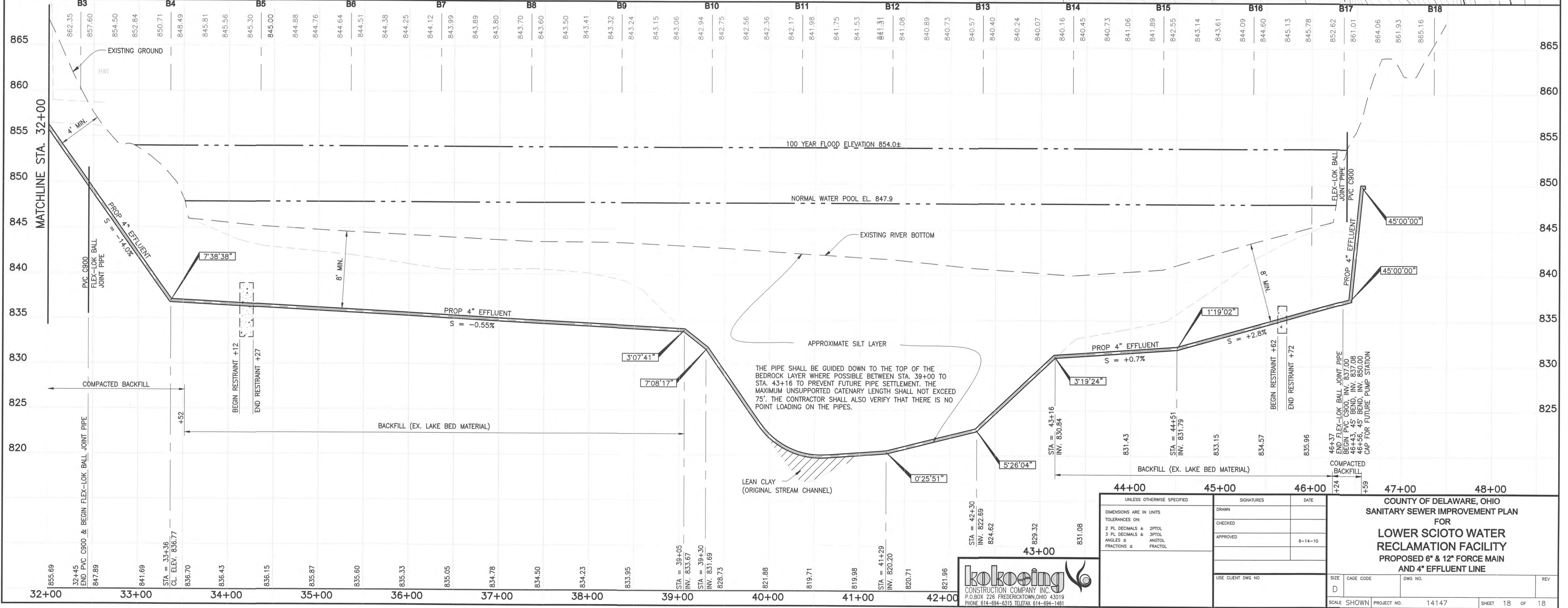
UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2P/100		APPROVED		6-14-10
3 PL. DECIMALS ± 3P/1000				
ANGLES ± ANG/100				
FRACTIONS ± FRACT/100				
USE CLIENT DWG NO.		SIZE	CAGE CODE	DWG. NO.
		D		
		SCALE SHOWN	PROJECT NO.	14-147
		SHEET 17 OF 18		



COUNTY OF DELAWARE, OHIO
 SANITARY SEWER IMPROVEMENT PLAN
 FOR
 LOWER SCIOTO WATER
 RECLAMATION FACILITY
 PROPOSED 6" & 12" FORCE MAIN
 AND 4" EFFLUENT LINE



REV	DESCRIPTION	DATE	DRAWN	APPR



THE PIPE SHALL BE GUIDED DOWN TO THE TOP OF THE BEDROCK LAYER WHERE POSSIBLE BETWEEN STA. 39+00 TO STA. 43+16 TO PREVENT FUTURE PIPE SETTLEMENT. THE MAXIMUM UNSUPPORTED CATENARY LENGTH SHALL NOT EXCEED 75'. THE CONTRACTOR SHALL ALSO VERIFY THAT THERE IS NO POINT LOADING ON THE PIPES.

kokoening
 CONSTRUCTION COMPANY, INC.
 P.O. BOX 228, FREDERICKTOWN, OHIO 43019
 PHONE 614-694-6315 TELEFAX 614-694-1481

UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE
DIMENSIONS ARE IN UNITS		DRAWN		6-14-10
TOLERANCES ON:		CHECKED		
2 PL. DECIMALS ± 2PTOL		APPROVED		
3 PL. DECIMALS ± 3PTOL				
ANGLES ± ANG/TOL				
FRACTIONS ± FRACTOL				
		USE CLIENT DWG NO.		

COUNTY OF DELAWARE, OHIO
 SANITARY SEWER IMPROVEMENT PLAN
 FOR
 LOWER SCIOTO WATER
 RECLAMATION FACILITY
 PROPOSED 6" & 12" FORCE MAIN
 AND 4" EFFLUENT LINE

SCALE SHOWN PROJECT NO. 14147 SHEET 18 OF 18