

# HARTFORD ROAD WATERMAIN

## THE CITY OF WILLOUGHBY

### LAKE COUNTY, OHIO

# OPWC PROJECT No.: CG22AA/CG23AA

## PART A

FEBRUARY 2024

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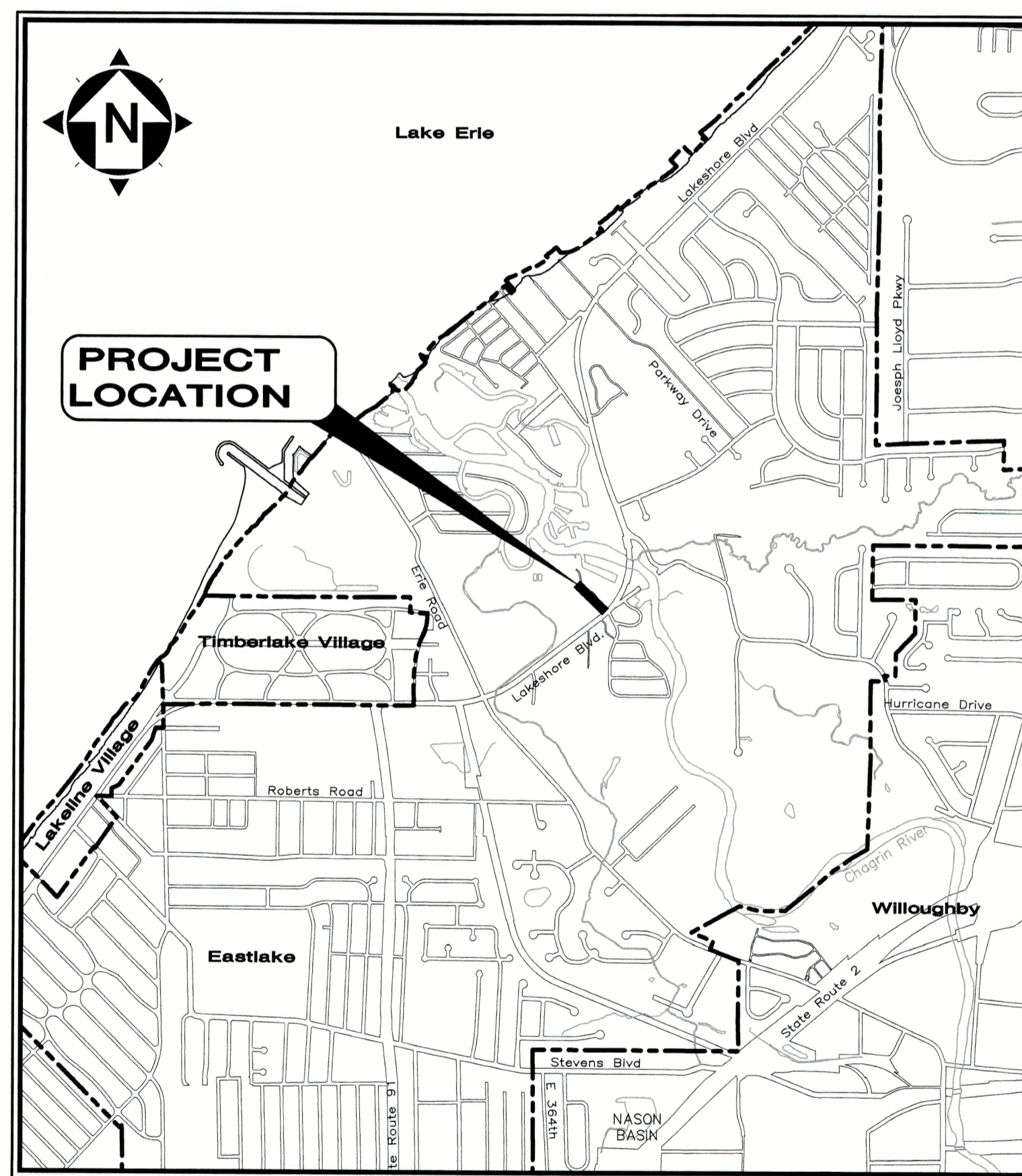
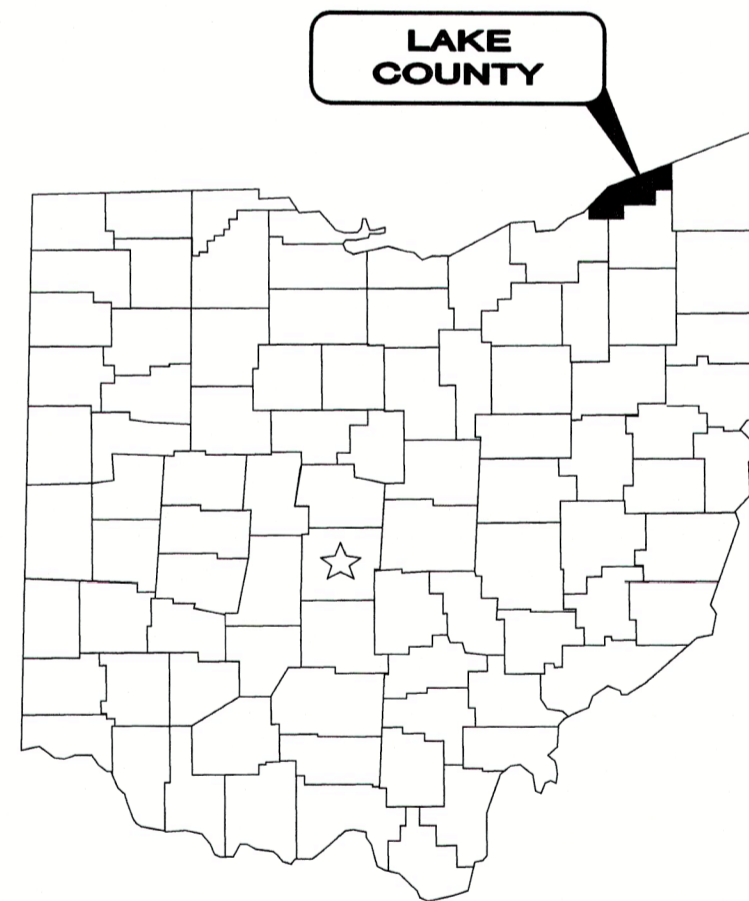


**UNDERGROUND UTILITIES**  
 CONTACT BOTH SERVICES  
 CALL TWO WORKING DAYS  
**BEFORE YOU DIG**

CALL  
 1-800-362-2764  
 (TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE  
 NON-MEMBERS  
 MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE  
 SERVICE CALL: 1-800-925-0988



LOCATION MAP  
NOT TO SCALE



ENGINEER'S PROJECT No. 23004301

LAKE COUNTY SANITARY ENGINEER

ENGINEER RANDALL J. ROTHLSBERGER, P.E. DATE

APPROVALS  
BOARD OF LAKE COUNTY COMMISSIONERS:

PRESIDENT JOHN PLECNIK DATE

COMMISSIONER JOHN R. HAMERCHECK DATE

COMMISSIONER RICHARD J. REGOVICH DATE

CITY OF EASTLAKE APPROVALS:

FIRE CHIEF TED WHITTINGTON DATE



Approved  
 Paul Moorehead  
 Fire Marshal  
 Eastlake Fire Department  
 3-6-2024

*Lenec Hill*  
 LENE C. HILL  
 P.E. No. 66017

3/20/24  
 DATE



NO	REVISION	DATE

THE CITY OF WILLOUGHBY  
 HARTFORD ROAD WATERMAIN  
 LAKE COUNTY, OHIO

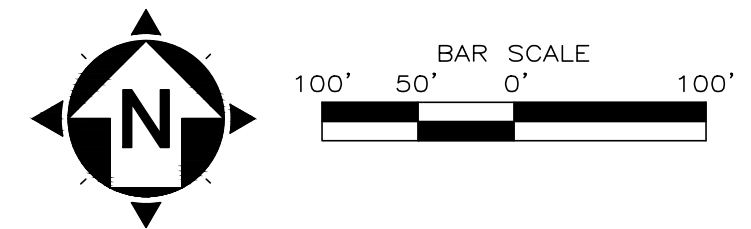
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 DATE: 02/21/2024  
 DESIGNED BY: BLM  
 DRAWN BY: BTZ  
 CHECKED BY: TJM

COVER SHEET

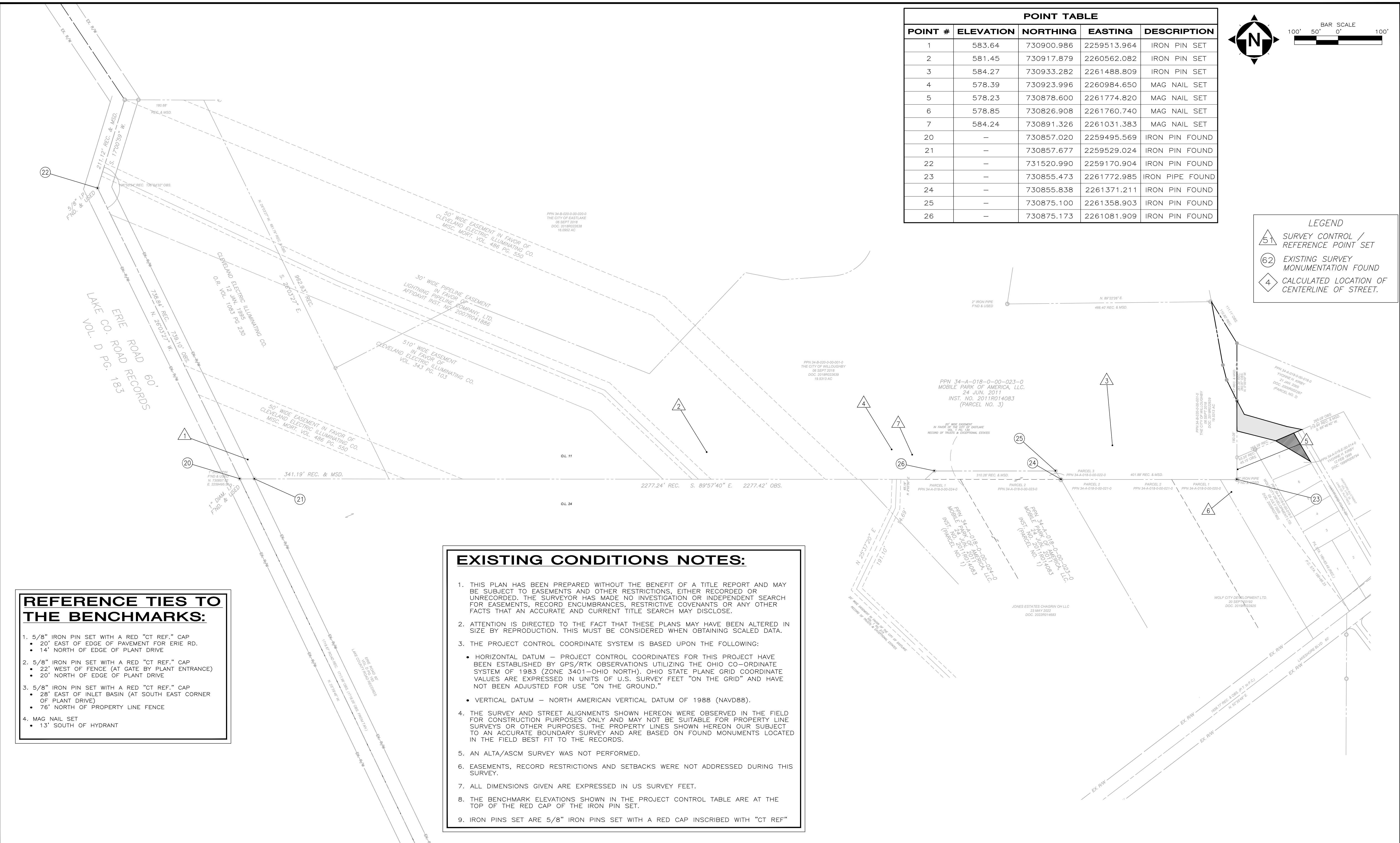
PROJECT NO: 23004301	
DRAWING NAME CS-01	
SHEET 1	OF 9

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POINT TABLE				
POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
1	583.64	730900.986	2259513.964	IRON PIN SET
2	581.45	730917.879	2260562.082	IRON PIN SET
3	584.27	730933.282	2261488.809	IRON PIN SET
4	578.39	730923.996	2260984.650	MAG NAIL SET
5	578.23	730878.600	2261774.820	MAG NAIL SET
6	578.85	730826.908	2261760.740	MAG NAIL SET
7	584.24	730891.326	2261031.383	MAG NAIL SET
20	-	730857.020	2259495.569	IRON PIN FOUND
21	-	730857.677	2259529.024	IRON PIN FOUND
22	-	731520.990	2259170.904	IRON PIN FOUND
23	-	730855.473	2261772.985	IRON PIPE FOUND
24	-	730855.838	2261371.211	IRON PIN FOUND
25	-	730875.100	2261358.903	IRON PIN FOUND
26	-	730875.173	2261081.909	IRON PIN FOUND

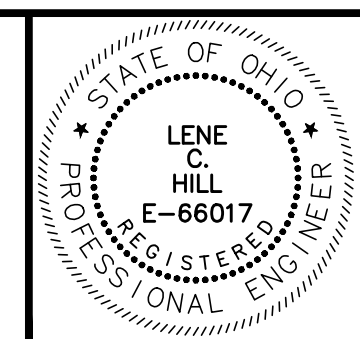


LEGEND	
	SURVEY CONTROL / REFERENCE POINT SET
	EXISTING SURVEY MONUMENTATION FOUND
	CALCULATED LOCATION OF CENTERLINE OF STREET.



REFERENCE TIES TO THE BENCHMARKS:	
1.	5/8" IRON PIN SET WITH A RED "CT REF." CAP • 20' EAST OF EDGE OF PAVEMENT FOR ERIE RD. • 14' NORTH OF EDGE OF PLANT DRIVE
2.	5/8" IRON PIN SET WITH A RED "CT REF." CAP • 22' WEST OF FENCE (AT GATE BY PLANT ENTRANCE) • 20' NORTH OF EDGE OF PLANT DRIVE
3.	5/8" IRON PIN SET WITH A RED "CT REF." CAP • 28' EAST OF INLET BASIN (AT SOUTH EAST CORNER OF PLANT DRIVE) • 76' NORTH OF PROPERTY LINE FENCE
4.	MAG NAIL SET • 13' SOUTH OF HYDRANT

EXISTING CONDITIONS NOTES:	
1.	THIS PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND MAY BE SUBJECT TO EASEMENTS AND OTHER RESTRICTIONS, EITHER RECORDED OR UNRECORDED. THE SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS, RECORD ENCUMBRANCES, RESTRICTIVE COVENANTS OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.
2.	ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN ALTERED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.
3.	THE PROJECT CONTROL COORDINATE SYSTEM IS BASED UPON THE FOLLOWING:  • HORIZONTAL DATUM – PROJECT CONTROL COORDINATES FOR THIS PROJECT HAVE BEEN ESTABLISHED BY GPS/RTK OBSERVATIONS UTILIZING THE OHIO CO-ORDINATE SYSTEM OF 1983 (ZONE 3401-OHIO NORTH). OHIO STATE PLANE GRID COORDINATE VALUES ARE EXPRESSED IN UNITS OF U.S. SURVEY FEET "ON THE GRID" AND HAVE NOT BEEN ADJUSTED FOR USE "ON THE GROUND."  • VERTICAL DATUM – NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4.	THE SURVEY AND STREET ALIGNMENTS SHOWN HEREON WERE OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR OTHER PURPOSES. THE PROPERTY LINES SHOWN HEREON OUR SUBJECT TO AN ACCURATE BOUNDARY SURVEY AND ARE BASED ON FOUND MONUMENTS LOCATED IN THE FIELD BEST FIT TO THE RECORDS.
5.	AN ALTA/ASCM SURVEY WAS NOT PERFORMED.
6.	EASEMENTS, RECORD RESTRICTIONS AND SETBACKS WERE NOT ADDRESSED DURING THIS SURVEY.
7.	ALL DIMENSIONS GIVEN ARE EXPRESSED IN US SURVEY FEET.
8.	THE BENCHMARK ELEVATIONS SHOWN IN THE PROJECT CONTROL TABLE ARE AT THE TOP OF THE RED CAP OF THE IRON PIN SET.
9.	IRON PINS SET ARE 5/8" IRON PINS SET WITH A RED CAP INSCRIBED WITH "CT REF"



NO	REVISION	DATE

**THE CITIES OF WILLOUGHBY & EASTLAKE**  
**HARTFORD ROAD WATERMAIN**  
**PART A**  
 LAKE COUNTY, OHIO

SCALE:	AS SHOWN
DATE:	04/22/2024
DESIGNED BY:	BLM
DRAWN BY:	BTZ
CHECKED BY:	TJM

<h1>SURVEY CONTROL</h1>		PROJECT NO:	
		23004301	
<h2>SC-01</h2>		DRAWING NAME	
		SC-01	
SHEET OF		2	9

**GENERAL**

THE CONTRACTOR SHALL PERFORM ALL OF THE WORK AND FURNISH ALL OF THE LABOR AND MATERIALS NECESSARY FOR THE FINAL COMPLETION OF THIS CONTRACT IN THE MANNER AND UNDER THE CONDITIONS HEREIN SPECIFIED AND PROVIDED AND IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED BY THE CITY OF WILLOUGHBY ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORK. IN ADDITION, THE CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE TO THE CITY OF WILLOUGHBY PRIOR TO THE COMMENCEMENT OF WORK.

ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES EXCEPT THE TIME WHEN WATERMAIN INSTALLATION AND PAVEMENT REPLACEMENT WILL NOT PERMIT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING A SITE FOR DISPOSAL OF ALL EXCAVATED MATERIAL THAT IS UNSUITABLE FOR USE AS BACKFILL AND ALL OTHER EXCESS EXCAVATED MATERIALS. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH THE LOCATION OF THE DISPOSAL SITE AND WRITTEN PERMISSION FOR USE OF THE SITE FROM THE PROPERTY OWNER.

ALL OVER-THE-ROAD VEHICLES USED ON THE PROJECT BY ALL CONTRACTORS AND SUB- CONTRACTORS WILL BE CLEARLY MARKED SHOWING ITS COMPANY SYMBOL.

BEFORE THE CITY OF WILLOUGHBY WILL APPROVE AND ACCEPT THE WORK AND RELEASE THE GUARANTY RETAINER, THE CONTRACTOR WILL FURNISH THE CITY OF WILLOUGHBY A WRITTEN REPORT INDICATING THE RESOLUTION OF ANY AND ALL PROPERTY DAMAGE CLAIMS FILED WITH THE CONTRACTOR BY ANY PARTY DURING THE CONSTRUCTION PERIOD. THE INFORMATION TO BE SUPPLIED SHALL INCLUDE, BUT NOT BE LIMITED TO, NAME OF CLAIMANT, DATE FILED WITH CONTRACTOR, NAME OF INSURANCE COMPANY AND/OR ADJUSTOR HANDLING CLAIM, HOW CLAIM WAS RESOLVED AND IF CLAIM WAS NOT RESOLVED FOR THE FULL AMOUNT, A STATEMENT INDICATING THE REASON FOR SUCH ACTION.

THE SURVEY SHOWN ON THESE PLANS WAS OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY, AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR ANY OTHER PURPOSE.

THE CONTRACTOR IS TO TAKE CARE DURING EXCAVATION, PIPE INSTALLATION AND BACKFILLING, IN AREAS IMMEDIATELY ADJACENT TO TREES, TO MINIMIZE THE DISTURBANCE OF ROOT SYSTEMS AND TREE LIMBS. THE COST OF ANY EXTRA EFFORT SUCH AS HAND EXCAVATION IS TO BE INCLUDED IN THE UNIT PRICE BID FOR PIPE INSTALLATION.

MATERIALS FOR "AS-DIRECTED" ITEMS SHALL NOT BE ORDERED OR DELIVERED TO THE PROJECT SITE OR WORK PERFORMED UNTIL AUTHORIZED BY THE ENGINEER.

ALL SHOP DRAWINGS WILL BE SUBMITTED TO THE ENGINEER FOR CHECKING.

**EXCAVATION, BACKFILL AND COMPACTION**

ALL WORK SHALL BE IN ACCORDANCE WITH TRENCH, EMBEDMENT, AND BACKFILL DETAIL.

ALL EXCAVATION WILL BE CONSIDERED UNCLASSIFIED. NO COMPENSATION WILL BE ALLOWED THE CONTRACTOR FOR ROCK OR SHALE EXCAVATION.

SLAG PRODUCTS WILL NOT BE PERMITTED FOR BEDDING, BACKFILL, OR TRAFFIC COMPACTED SURFACE.

ALL UTILITY LINES CROSSING THE SEWERS, i.e. STORM SEWERS, STORM LATERALS, SANITARY LATERALS, WATER MAINS, WATER SERVICE CONNECTIONS, GAS MAINS, GAS SERVICE CONNECTIONS, UNDERGROUND TELEPHONE AND ELECTRIC CONDUITS, CABLE T.V. LINES, WHETHER SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE PROTECTED AND SUPPORTED WITH HARDWOOD PLANKS OR REMOVED AND REPLACED, RECONNECTED AND SUPPORTED ACROSS THE ENTIRE WIDTH OF THE TRENCH. NO ADDITIONAL COMPENSATION WILL BE PAID FOR THE ABOVE WORK.

**EXCESS EXCAVATION**

ALL EXCESS EXCAVATION SHALL BE DISPOSED OF IN A LOCATION TO BE SELECTED BY THE CONTRACTOR. THE CONTRACTOR MUST OBTAIN A PERMIT FROM THE CITY IF THE MATERIAL IS TO BE DISPOSED OF WITHIN THE CITY LIMITS.

**MATERIAL SPECIFICATIONS**

MATERIAL SPECIFICATIONS CALLED FOR ON THE PLANS REPRESENT THE MINIMUM REQUIRED FOR EACH APPLICATION. THE OWNER MAY REQUEST OR THE CONTRACTOR MAY DESIRE TO SUBSTITUTE ALTERNATIVE MATERIALS. ANY SUCH SUBSTITUTIONS MUST BE EQUIVALENT IN QUALITY TO THE MATERIAL CALLED FOR AND MUST BE APPROVED IN WRITING BY THE APPROVING AGENCIES AND THE ENGINEER.

THE CONTRACTOR SHALL INCLUDE THE COST OF GRANULAR BACKFILL MATERIAL UNDER ALL EXISTING AND PROPOSED PAVEMENTS IN THE PRICE BID PER LINEAR FOOT OF PIPE.

THE CONTRACTOR SHALL INFORM THE ENGINEER WHEN ENCOUNTERING EXISTING STORM AND SANITARY CONNECTIONS NOT SHOWN ON THE PLANS OR CONNECTIONS THAT MAY PRESENT A CONFLICT WITH THE INTENT OF THE PROPOSED WATER LINES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE ENGINEER WITH INFORMATION ON ELEVATION AND NATURE OF CONNECTIONS IN QUESTION. ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

THE COST FOR FURNISHING ALL MATERIAL AND LABOR TO PERFORM ALL WORK STATED IN THE WATERMAIN INSTALLATION NOTES SHALL BE INCLUDED IN THE BID PRICES STIPULATED FOR VARIOUS ITEMS IN THE BID PROPOSAL.

**TRAFFIC CONTROL**

MAINTAINING TRAFFIC/TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH ODOT ITEM 614 AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). AS A MINIMUM THE CONTRACTOR SHALL SUBMIT A CONTROL PLAN FOR REVIEW AND ACCEPTANCE BY THE ENGINEER PRIOR TO BEGINNING WORK.

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN SAFE LOCAL ACCESS, VEHICULAR AND PEDESTRIAN, TO ALL PROPERTIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR WILL FURNISH, MAINTAIN AND SUBSEQUENTLY REMOVE ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, BARRIERS, TEMPORARY PAVEMENT, LIGHTING, FLAGGERS, SIGNING AND OTHER TRAFFIC CONTROLS TO INSURE THE SAFETY OF PERSONS AND VEHICLES DURING CONSTRUCTION WITHIN THE PROJECT LIMITS.

THE CONTRACTOR WILL FURNISH AND INSTALL TRAFFIC COMPACTED SURFACE WITH ODOT 304 INCLUDING NECESSARY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL.

THE CONTRACTOR SHALL POST 5 M.P.H. SPEED LIMIT SIGNS IN ALL WORK ZONES AND AS DIRECTED BY THE ENGINEER.

ACCESS MUST BE MAINTAINED FOR RESIDENCES, BUSINESSES, EMERGENCY VEHICLES AND PEDESTRIANS, INCLUDING PERSONS WITH DISABILITIES, AT ALL TIMES.

AT ALL EXCAVATION LOCATIONS THE CONTRACTOR SHALL PROVIDE SUITABLE FLASHERS, BARRICADES, AND TRAFFIC CONTROL DEVICES AS DEEMED NECESSARY BY THE ENGINEER AND IN ACCORDANCE WITH THE MUTCD. THE CONTRACTOR SHALL MAINTAIN FACILITIES ON A 24 HOUR BASIS UNTIL SUCH TIME AS THE AREA IS COMPLETELY BACKFILLED.

WHERE CONSTRUCTION ACTIVITIES MAY REQUIRE AN ALTERNATE CIRCULATION PATH, THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO SECURE A TEMPORARY PEDESTRIAN ACCESS ROUTE. THE TEMPORARY PEDESTRIAN ACCESS ROUTE SHALL ACCOMMODATE PERSONS WITH DISABILITIES IN ACCORDANCE WITH THE MUTCD, FEDERAL AND LOCAL GUIDELINES OR REGULATIONS. THE CONTRACTOR SHALL MAINTAIN FACILITIES ON A 24 HOUR BASIS UNTIL THE PROJECT IS COMPLETE AND ACCEPTED BY THE CITY.

**EXISTING GAS MAINS**

ONE FOOT MINIMUM VERTICAL AND HORIZONTAL CLEARANCE MUST BE MAINTAINED BETWEEN DOMINION EAST OHIO'S (DEO) EXISTING PIPELINE(S) AND ALL OTHER IMPROVEMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE LATERAL AND SUBJECT SUPPORT OF DEO'S PIPELINE(S), IN COMPLIANCE TO 29 CFR, PART 1926, SUBPART P, (SAFE EXCAVATION & SHORING). EXTREME CARE SHOULD BE TAKEN NOT TO HARM ANY DEO FACILITY OR APPURTENANCE. NOTIFY DEO IMMEDIATELY IF ANY HARM HAS BEEN INFLICTED UPON DEO'S FACILITIES (PIPELINES, ETC.) OR APPURTENANCES THERETO (PIPE COATING, TRACER WIRE, CATHODIC PROTECTION WIRES AND DEVICES, TEST SITES, VALVE BOXES, ETC.).

**EXISTING UTILITIES**

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE CITY OF WILLOUGHBY DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. PRIVATE UTILITY CONNECTIONS TO BUILDINGS MAY NOT BE SHOWN, I.E. GAS, WATER, STORM, ELECTRIC.

BEFORE ANY WORK IS STARTED THAT WILL INTERFERE WITH THE EXISTING UTILITIES, THE CONTRACTOR SHALL CALL THE "OHIO UTILITIES PROTECTION SERVICE" AT 1-800-362-2764, FORTY-EIGHT (48) HOURS IN ADVANCE OF WORK. NON-MEMBER UTILITIES MUST BE CONTACTED DIRECTLY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS, AT NO ADDITIONAL EXPENSE TO THE CITY OF WILLOUGHBY, TO AVOID DAMAGE TO EXISTING UNDERGROUND AND OVERHEAD UTILITY LINES DURING THE ENTIRE PROJECT. IN THE EVENT OF DAMAGE TO EXISTING PUBLIC AND/OR PRIVATE UTILITIES, THE AGENCY CONCERNED SHALL BE NOTIFIED IMMEDIATELY AND ALL REPAIR WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE RESPECTIVE AGENCY AT NO ADDITIONAL EXPENSE TO THE CITY OF WILLOUGHBY INCLUDING ANY INSPECTION FEES OR MAINTENANCE CREWS.

WHERE EXISTING POWER OR TELEPHONE POLES ARE IN CLOSE PROXIMITY TO WORK, THE CONTRACTOR SHALL COORDINATE HIS WORK EFFORTS WITH THOSE OF THE UTILITY COMPANIES SUCH THAT THEIR EXISTING FACILITIES CAN BE MAINTAINED AND PROTECTED DURING THE TIME WORK IS GOING ON ADJACENT TO THE POLE. THE COST FOR ANY REQUIRED PROTECTION OR RELOCATION OF EXISTING POWER OR TELEPHONE POLES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND NOT BE THE RESPONSIBILITY OF THE CITY.

DELAYS TO THE CONTRACTOR AS A RESULT OF TIMING OF POLE RELOCATION OR PROTECTION SHALL NOT BE CONSIDERED COMPENSABLE DELAYS, AS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS WORK IN CONFORMANCE TO THE UTILITY COMPANY'S SCHEDULE.

THE UTILITY OWNERSHIPS ARE AS FOLLOWS:

THE CITY OF WILLOUGHBY  
RICH PALMISANO, PUBLIC SERVICE DIR.  
ONE PUBLIC SQUARE  
WILLOUGHBY, OHIO 44094  
PHONE: (440) 953-4111

THE CITY OF EASTLAKE  
NICK RUBERTINO, PUBLIC SERVICE DIR.  
35150 LAKESHORE BLVD  
EASTLAKE, OHIO 44095  
PHONE: (440) 951-1416

THE ILLUMINATING COMPANY  
6896 MILLER ROAD, SUITE 110  
BRECKSVILLE, OHIO 44141  
PHONE: (440) 717-6845  
CELL: (440) 550-9001

LAKE COUNTY DEPARTMENT OF UTILITIES  
RANDY ROTHLSBERGER  
105 MAIN STREET  
PAINESVILLE, OHIO 44077  
PHONE: (440) 350-2645

AT&T  
13630 LORAIN STREET, 2ND FLOOR  
CLEVELAND, OHIO 44111  
PHONE: (216) 476-6142

DOMINION EAST OHIO  
320 SPRINGSIDE DRIVE, SUITE 320  
AKRON, OHIO 44333  
PHONE: (330) 664-2409

OHIO UTILITY PROTECTION SERVICE  
PHONE: 1(800) 362-2764

TIME WARNER CABLE  
7820 DIVISION DRIVE  
MENTOR, OHIO 44060  
PHONE: (440) 361-0023

**TREE/VEGETATION PROTECTION**

ANY LANDSCAPING AND LAWNS DISTURBED BY CONSTRUCTION WORK SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE CITY.

NO TREE REMOVAL WILL BE PERMITTED WITHOUT PERMISSION OF THE CITY.

TREES WHICH ARE NOT REMOVED WILL BE PROTECTED.

THE COST FOR REMOVAL AND/OR PROTECTION OF TREES THAT ARE IN CONFLICT WITH THE INSTALLATION OF THE WATERLINE AND SERVICE CONNECTIONS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE WATERLINE.

THE CONTRACTOR'S ARBORIST SHALL REPAIR ALL INJURIES TO BARK, LIMBS AND ROOTS OF REMAINING VEGETATION BY PROPERLY DRESSING, CUTTING BRACING AND PAINTING, USING ONLY APPROVED TREE SURGERY METHODS, TOOLS AND MATERIALS.

**AIR/NOISE CONTROL**

CONSTRUCTION ACTIVITIES WILL BE LIMITED TO WEEKDAY DAYTIME HOURS, UNLESS APPROVED IN ADVANCE BY THE CITY.

CONSTRUCTION EQUIPMENT WILL BE PROVIDED WITH INTAKE SILENCERS AND MUFFLERS, AS REQUIRED BY SAFETY STANDARDS.

ALL CONSTRUCTION VEHICLES SHOULD BE EQUIPPED WITH PROPER EMISSIONS CONTROL EQUIPMENT.

PERIODICALLY CHECK EQUIPMENT AND MACHINERY FOR PROPER TUNING TO MINIMIZE EXHAUST EMISSIONS AND NOISE.

**MONUMENT PROTECTION**

PROPERTY PINS AND MONUMENTS ALONG THE ROUTE OF THE IMPROVEMENT, WHICH MAY BE DISTURBED BY THE CONTRACTOR, SHALL BE REFERENCED BY A PROFESSIONAL SURVEYOR, SO THEY CAN BE REPLACED IN THE EVENT THAT THEY ARE DISTURBED DURING CONSTRUCTION. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT ALL PINS, MONUMENTS AND REFERENCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF LOCATING AND REFERENCING AND REPLACING THE PROPERTY PINS AND MONUMENTS DISTURBED AND/OR AS DIRECTED BY THE ENGINEER.

**RESTORATION**

THE CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND MATERIALS RESULTING FROM HIS OPERATION AND RESTORE ALL SURFACES, STRUCTURES, DITCHES AND PROPERTY TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER.

ALL EXISTING STORM AND SANITARY SEWER FACILITIES, INCLUDING TILE, DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED, REPLACED OR RECONNECTED TO THE EXISTING OR PROPOSED SYSTEM AS DIRECTED BY THE ENGINEER AT NO COST TO THE OWNER.

**ENVIRONMENTAL PROTECTION - 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.

INDISCRIMINATE, ARBITRARY OR CAPRICIOUS OPERATION OF EQUIPMENT IN ANY STREAM CORRIDORS, WETLANDS, SURFACE WATERS OR OUTSIDE THE EASEMENT LIMITS.

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

DISCHARGING 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 MAN-MADE CHANNELS LEADING THERETO.

PERMANENT OR UNSPECIFIED ALTERATION OF THE FLOW LINE OF ANY STREAM.

DAMAGING ANY VEGETATION OUTSIDE OF THE CONSTRUCTION AREA.

DISPOSAL OF TREES, BRUSH, AND OTHER DEBRIS IN ANY STREAM CORRIDORS, WETLANDS, 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 STOCKPILING 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 OR PUBLIC PROPERTY AND RIGHT-OF-WAY WITHOUT THE WRITTEN PERMISSION OF THE OWNER AND THE CONSENT OF THE ENGINEER.

OPERATIONS ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OF 8:00 A.M. AND 5:00 P.M. 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 CLOSING CLEAR ACCESS:

- 1. BY FIRE PROTECTION EQUIPMENT AND EMERGENCY VEHICLES.
- 2. BY THE PUBLIC TO ANY COMMERCIAL OR PROFESSIONAL PLACE OF BUSINESS, QUASI-PUBLIC OR PUBLIC ESTABLISHMENT, OR PLACE OF RESIDENCE.
- 3. BY VEHICLES TO DRIVEWAYS WITHOUT THE PROVISION OF ALTERNATIVE MEANS OF BUILDING INGRESS AND EGRESS.

**SOIL EROSION AND SEDIMENT CONTROLS**

THE CONTRACTOR SHALL FOLLOW POLLUTION CONTROL MEASURES IN ACCORDANCE WITH SECTION 01091 OF THE DETAILED SPECIFICATIONS.

THE CONTRACTOR SHALL PROVIDE TEMPORARY EROSION CONTROL IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND ODOT SUPPLEMENTAL SPECIFICATION 832.

THE COST TO PROVIDE THE POLLUTION CONTROL MEASURES SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS IN THE BID PROPOSAL.

STORMWATER POLLUTION PREVENTION PLANS AND DETAILS ARE PROVIDED AS MINIMUM REQUIREMENTS FOR ENVIRONMENTAL PROTECTION.

**WATER WORKS**

DEPTH OF EXISTING WATER MAINS AND SEWERS AT LOCATIONS WHERE NEW WATER MAIN IS PROPOSED TO CROSS. THE NEW WATER MAIN ELEVATION SHALL BE ADJUSTED BY VERTICAL JOINT DEFLECTION FROM THE SIX (6) FOOT TYPICAL BURY DEPTH ONE (1) FOOT EITHER WAY BUT IN NO CASE HIGHER THAN THE MINIMUM FIVE (5) FOOT BURY DEPTH TO AVOID CROSSING CONFLICTS WITH THE EXISTING WATER MAIN AND SEWERS AT NO ADDITIONAL COST TO THE CONTRACT. IF DEPTH ADJUSTMENT BY VERTICAL JOINT DEFLECTION IS NOT POSSIBLE TO AVOID CROSSING CONFLICTS THE PROPOSED WATER MAIN SHALL BE LOWERED IN ACCORDANCE WITH THE PIPE LOWERING DETAIL, AT NO ADDITIONAL COST TO THE CITY.

HYDRANTS DESIGNATED FOR REMOVAL SHALL BE REMOVED UNDER LAKE COUNTY WATER DEPARTMENT SUPERVISION. SPECIAL CARE IN REMOVAL AND HANDLING OF EXISTING HYDRANTS SHALL BE TAKEN AT ALL TIMES. REMOVAL OF EXISTING HYDRANTS IS TO BE DONE BY EXCAVATION AND DISASSEMBLY OF HYDRANT ASSEMBLIES.

ALL REMOVED HYDRANTS SHALL BECOME THE PROPERTY OF THE LAKE COUNTY WATER DEPARTMENT. REMOVED HYDRANTS ARE TO BE STORED ON JOB SITE FOR PICK-UP BY THE LAKE COUNTY WATER DEPARTMENT. CONTACT AQUARIUS SERVICE CENTER TO SCHEDULE PICK-UP.

ALL HYDRANTS PROVIDED SHALL BE 5'-6" BURY DEPTH (BURY LINE TO BOTTOM OF HYDRANT SHOE) WITH EXTENSIONS PROVIDED TO THE WATER MAIN DEPTH SHOWN IN THE PLANS.

5" STORZ FITTINGS ON HYDRANTS

THE EASTLAKE FIRE PREVENTION BUREAU IS TO BE NOTIFIED WHEN WATER WORK IS STARTED. (440-951-2287)

SERVICE RECONNECTIONS TO EXISTING METER VAULTS SHALL BE MADE BETWEEN THE NEW MAIN AND THE EXISTING VAULT. WHERE EXISTING VAULTS ARE EN-COUNTERED IN DRIVE APRONS, THEY SHALL BE EXPOSED AND A FIELD DECISION MADE AS TO WHETHER THE VAULT CAN BE RELOCATED TO THE TREETAWN.

ABANDONMENT OF THE EXISTING WATER MAIN SHALL BE MADE AS CLOSE TO THE LIVE MAIN AS POSSIBLE. THIS SHALL BE DETERMINED BY L.C.D.U.

AFTER SATISFACTORY TESTING, THE COMPLETED WATER WORK SHALL BE DISINFECTED IN ACCORDANCE WITH A.W.W.A. C651. THE NEW WATER MAIN CANNOT BE PLACED INTO SERVICE UNTIL ALL PROVISIONS OF A.W.W.A. ARE MET.

THE EXISTING HYDRANTS WILL NOT BE TAKEN OUT OF SERVICE UNTIL ALL NEW HYDRANTS FOR A GIVEN STREET ARE OPERATIONAL. ALL NEW HYDRANTS SHALL BE BAGGED UNTIL THEY ARE OPERATIONAL.

ALL CURB STOP BOXES, VALVE BOXES ETC. SHALL BE SET AS SHOWN ON THE PLANS. RIMS SHALL BE RAISED OR LOWERED AND BOXES PLUMBED BY THE CONTRACTOR AS REQUIRED PRIOR TO REPLACEMENT.

ALL VALVES SHALL BE OPERATED BY THE LAKE COUNTY UTILITY DEPARTMENT ONLY. THE CONTRACTOR SHALL SCHEDULE WITH THE LAKE COUNTY UTILITIES DEPARTMENT 24 HOURS IN ADVANCE.

NO CURB BOXES OR METER VAULTS SHALL FALL WITHIN ANY DRIVE OR APRON.

SHOULD ANY EXISTING METER REQUIRE REPLACEMENT, AS DETERMINED BY THE L.C.D.U., THE CONTRACTOR SHALL REPLACE THE METER AND THE NEW METER WILL BE SUPPLIED BY THE L.C.D.U.

**LAKE COUNTY DEPARTMENT OF UTILITIES WATER NOTES**

1. ONLY WATER/SEWER CONTRACTORS LICENSED BY THE LAKE COUNTY BOARD OF COMMISSIONERS MAY INSTALL WATER MAINS.
2. THIS APPROVAL BY THE LCDU SHALL EXPIRE IF THE WATERLINE CONSTRUCTION HAS NOT BEEN INITIATED BY A DEVELOPER WITHIN (12) MONTHS OF THE EFFECTIVE APPROVAL DATE AS SHOWN ON THE ORIGINALLY SUBMITTED FOR APPROVAL BLUEPRINT COPY. (THIS IS NOT TO BE CONSTRUED AS THE DATE THAT IS SHOWN ON THE ORIGINAL MYLAR TITLE SHEET.)
3. THE CONTRACTOR SHALL NOTIFY THE LCDU AT LEAST 48 HOURS IN ADVANCE OF ANY WORK IN THEIR SYSTEMS.
4. THE LCDU SHALL PERFORM INSPECTION SERVICES. THE COST OF INSPECTION SHALL BE INCLUDED AS PART OF THIS CONSTRUCTION PROJECT AT THE CURRENT BASE RATE AS ESTABLISHED BY THE LAKE COUNTY BOARD OF COMMISSIONERS. (SEE SECTION 7 FEE SCHEDULE) COST FOR LAKE COUNTY INSPECTION FEE AND OTHER FEES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR OTHER WATERLINE ITEMS.
5. WATERLINE WORK SHALL NOT BEGIN UNTIL THE AREAS OF CONSTRUCTION ARE ROUGH GRADED.
6. ALL WATERLINES ON THIS PROJECT SHALL BE LAID AT THE ELEVATIONS AND GRADES SHOWN ON THE DRAWINGS. HIGH POINTS IN THE WATERLINE MUST OCCUR AT THE STATIONED HYDRANT TEE LOCATIONS.
7. ALL HYDRANTS SHALL BE POSITIONED SO THAT THE STEAMER NOZZLES POINT IN THE DIRECTION SHOWN ON THE PLANS.
8. THE PROPOSED WATERLINE SHALL HAVE 5' MINIMUM COVER OVER THE TOP OF PIPE AT ALL PLACES, EXCEPT AT SPECIFIC HYDRANT TEE LOCATIONS AS SHOWN ON THE PLANS.
9. ALL BOLTS SHALL BE STAINLESS STEEL TYPE 304 OR 316 WITH ANTI-GALLING AGENT.
10. ALL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR PRELIMINARY CHECKING. THE ENGINEER SHALL FORWARD CHECKED SHOP DRAWINGS TO THE LCDU FOR FINAL CHECKING AND APPROVAL.
11. THE LCDU SHALL PROVIDE WATER FOR THE NEW WATER MAIN WITHOUT COST FOR THE INITIAL OPERATION. ALL WATER FOR FLUSHING OPERATIONS SHALL BE PAID FOR BY THE CONTRACTOR AT CURRENT RATES AS ESTABLISHED BY THE LAKE COUNTY BOARD OF COMMISSIONERS PER 100 CUBIC FEET OF WATER USED. (SEE SECTION 7 FEE SCHEDULE)
12. LOCATION OF STERILIZATION AND TESTING CONNECTIONS SHALL BE AS DIRECTED BY THE LCDU AND ALL COSTS ASSOCIATED WITH PLACING AND UTILIZING SAID STERILIZATION AND TESTING CONNECTIONS SHALL BE INCLUDED IN THE PRICE BID PER LINEAL FOOT OF THE WATER MAINS. NO BACTERIA SAMPLES ARE TO BE TAKEN FROM FIRE HYDRANTS.
13. LCDU WILL MAKE THE NECESSARY NEW SERVICE CONNECTION TAPS ON EXISTING LCDU MAINS FOR THE CONTRACTOR AT CURRENT RATES AS ESTABLISHED BY THE LAKE COUNTY BOARD OF COMMISSIONERS PER 8" AND GREATER TAPS WITHIN RIGHT OF WAY. (SEE SECTION 7 FEE SCHEDULE) SERVICE CONNECTIONS TO EXISTING BUILDINGS SHALL BE MADE BY THE CONTRACTOR.
14. NO WATER SERVICE CONNECTIONS TO ANY BUILDING SHALL BE PERMITTED PRIOR TO FINAL ACCEPTANCE BY THE LCDU INCLUDING RECTIFICATION OF ALL PUNCH LIST ITEMS.
15. ALL CURB STOP BOXES, VALVE BOXES, ETC. TO BE SET AS SHOWN ON THE PLANS. RIMS WILL BE RAISED OR LOWERED AND BOXES PLUMBED BY THE CONTRACTOR AT TIME OF HOUSE CONSTRUCTION WHEN FINAL YARD GRADING IS COMPLETED.
16. ALL PROJECT HYDRANTS SHALL HAVE A FIELD COAT OF APPROVED PAINT APPLIED BY THE CONTRACTOR WITH THE EXCEPTION OF HYDRANTS THAT ARE FACTORY PAINTED WITH A ONE COAT UV RESISTANT HIGH GLOSS 2-PART POLYURETHANE ENAMEL, COLOR AS SPECIFIED. IF THE COATING ON THE HYDRANT IS DAMAGED BEFORE INSTALLATION THE HYDRANT MUST BE PAINTED.
17. THE CONTRACTOR SHALL NOTIFY THE FIRE DEPARTMENT PRIOR TO ANY PRESSURE TESTING. FIRE DEPARTMENT SHALL WITNESS ANY PRESSURE TESTING.
18. ALL PROPOSED WATER LINES SHALL BE LAID OUT BY A REGISTERED SURVEYOR WITH GRADE STAKES AT A MINIMUM OF EVERY 50' AND AT ALL FITTINGS AND A CUT SHEET PROVIDED PRIOR TO CONSTRUCTION.
19. THE CONTRACTOR /DEVELOPER SHALL SUBMIT A THREE YEAR MAINTENANCE BOND TO THE COMMISSIONERS BY DEVELOPER IN THE AMOUNT OF TEN PERCENT OF THE FINAL CONSTRUCTION COSTS AS CERTIFIED BY THE DEVELOPER'S ENGINEER, FOR PUBLIC EXTENSION PROJECTS.



NO	REVISION	DATE

**THE CITIES OF WILLOUGHBY & EASTLAKE  
HARTFORD ROAD WATERMAIN  
PART A  
LAKE COUNTY, OHIO**

<b>SCALE:</b> AS SHOWN
<b>DATE:</b> 04/22/2024
<b>DESIGNED BY:</b> BLM
<b>DRAWN BY:</b> BTZ
<b>CHECKED BY:</b> TJM

**GENERAL NOTES - 1**

<b>PROJECT NO:</b> <b>23004301</b>	
<b>DRAWING NAME</b> <b>GN-01</b>	
<b>SHEET</b>	<b>OF</b>
<b>3</b>	<b>9</b>

**WATERMAIN NOTES**

WATER MAINS (3" THROUGH 36") SHALL BE PVCO AND MANUFACTURED IN ACCORDANCE WITH AWWA C909. ALL PIPES, UNLESS OTHERWISE SPECIFIED, SHALL BE FURNISHED WITH PUSH-ON TYPE JOINTS, PROVIDED WITHIN THE LENGTHS NOTED ON THE DRAWING, AND BE IN ACCORDANCE WITH ANSI/AWWA C111/A21.11.

RESTRAINED PUSH-ON JOINTS SHALL BE COMPLETELY BOLTLESS; RESTRAINED MECHANICAL JOINTS SHALL BE MEGALUGS OR RETAINERS WITH A MAGE BONDING COATING SYSTEM AS MANUFACTURED BY EBAA IRON, INC., OR AS APPROVED, OF DUCTILE IRON AND WITH A WORKING PRESSURE OF AT LEAST 250 PSI AND A MINIMUM SAFETY FACTOR OF 2.1. MINIMUM LENGTH OF CUT PIECES OF WATER MAIN THAT MAY BE REUSED IS 5 LF.

FITTINGS SHALL BE DUCTILE IRON AND MANUFACTURED IN ACCORDANCE WITH ANSI/AWWA C110/A21.10. ALL FITTINGS AND ACCESSORIES SHALL BE FURNISHED WITH MECHANICAL TYPE JOINTS IN ACCORDANCE WITH ANSI/AWWA C111/A21.11.

ALL FITTINGS, BENDS, TEES, PLUGS, ETC. SHALL BE TIED TO THE WATER MAIN WITH EITHER M.J. TYPE CONNECTIONS, TIE RODS OR MEGA-LUGS. TIE RODS SHALL BE 3/4" DIAMETER STAINLESS STEEL. FOR 24" DIAMETER PIPE USE FOUR RODS.

FIRE HYDRANTS SHALL BE POST TYPE WITH A BREAKABLE FLANGE DESIGN. THE MAIN VALVE SHALL BE 5 1/4", OPENING LEFT WITH ONE 4 1/2" STEAMER/PUMPER NOZZLE AND TWO 2 1/2" HOSE NOZZLES, ALL WITH NATIONAL STANDARD THREADS UNLESS OTHERWISE SPECIFIED. THE OPENING NUT SHALL BE PENTAGONAL IN SHAPE. HYDRANTS SHALL HAVE A 6" MECHANICAL JOINT TYPE SHOE WITH A 5'-0" BURY DEPTH. HYDRANTS SHALL BE SHIPPED AND PAINTED AS DIRECTED BY THE CITY. NOTE - FIRE HYDRANT ASSEMBLIES SHALL CONSIST OF:

- MECHANICAL JOINT ANCHOR TEE
- 6" M.J. X M.J. GATE VALVE AND BOX
- 6" DUCTILE IRON PIPE (LENGTH VARIES)
- FIRE HYDRANT (SEE ABOVE)
- ALL NECESSARY APPURTENANCES
- 5 1/4" EXTENSION KIT (IF REQUIRED)

GATE VALVES SHALL BE IRON-BODY, RESILIENT-WEDGE GATE VALVES MEETING THE REQUIREMENTS OF AWWA C509 OR DIP BODY MEETING THE REQUIREMENT OF C515. VALVES SHALL BE DESIGNED FOR A WORKING WATER PRESSURE OF 200 PSI, SHALL BE OF THE NON-RISING STEM TYPE WITH STANDARD AWWA NUT, AND SHALL OPEN IN THE DIRECTION CHOSEN BY THE MUNICIPALITY. STEM SEALS SHALL CONSIST OF AT LEAST TWO O-RINGS. ENDS SHALL BE MECHANICAL JOINT.

BUTTERFLY VALVES SHALL BE OF THE SIZE SHOWN ON THE PLANS AND MEET OR EXCEED ALL APPLICABLE REQUIREMENTS OF ANSI/AWWA C-504 WITH A MAXIMUM WORKING PRESSURE OF 250 PSIG. THE VALVE SHALL HAVE A DUCTILE IRON BODY CONFORMING TO ASTM A-536 WITH MECHANICAL JOINT ENDS. ALL EXTERIOR SURFACES SHALL HAVE AN EPOXY COATING WHICH COMPLIES WITH AWWA C-550. THE ACTUATOR SHALL BE MANUALLY OPERATED WITH A 2" SQUARE NUT, WHICH OPENS COUNTER CLOCKWISE (LEFT).

VALVE BOXES SHALL BE CAST IRON, SHALL BE COATED WITH A BITUMASTIC PAINT, SHALL BE OF THE THREE PIECE SCREW TYPE, SHALL HAVE A 5-1/4 INCH SHAFT, HEAVY DUTY TOP SECTION, AND SHALL BE PROVIDED WITH A SLOTTED HEAVY, NEAT-FITTING COVER HAVING THE WORD "WATER" CAST ON TOP. THE BASE OF THE VALVE BOX SHALL COVER THE ENTIRE BONNET SECTION OF THE VALVE. THE THREE PIECE VALVE BOX SHALL HAVE SUFFICIENT LENGTH, SUCH THAT WHEN INSTALLED, THE TOP OF THE COVER SHALL BE FLUSH WITH THE SURROUNDING SURFACE WITH EACH SECTION PROPERLY ENGAGED.

TAPPING SLEEVES SHALL HAVE A STAINLESS STEEL BODY WITH A DUCTILE IRON FLANGED OUTLET WHICH COMPLIES WITH ANSI B16.1, CLASS 125 AND WITH MSS SP-60. THE GASKET SHALL COMPLETELY SURROUND THE INSIDE OF THE STAINLESS STEEL BODY. THE SLEEVE SHALL COME EQUIPPED WITH A 3/4" NPT BRASS TEST PLUG. MAXIMUM WORKING PRESSURE FOR 4" - 12" SIZES (250 PSIG) AND FOR 14" - 24" SIZES (200 PSIG). TAPPING VALVES SHALL MEET OR EXCEED ALL APPLICABLE REQUIREMENTS OF ANSI/AWWA C509. THE INLET FLANGE SHALL COMPLY WITH ANSI B16.1, CLASS 125 DRILLING. THE MECHANICAL JOINT OUTLET SHALL COMPLY WITH ANSI/AWWA C111. THE VALVE SHALL HAVE A NON-RISING STEM (NRS). THE OPERATING NUT SHALL BE 2" SQUARE, WHICH OPENS TO THE LEFT. VALVES SHALL COME EQUIPPED WITH A DOUBLE O-RING SEAL STUFFING BOX AND HAVE AN EPOXY COATING ON ALL EXTERIOR SURFACES WHICH COMPLIES WITH AWWA C550.

BLOW-OFF HYDRANT ASSEMBLIES SHALL BE ECLIPSE MODEL NO. 85, AS MANUFACTURED BY THE KUPFERLE FOUNDRY COMPANY (1-800-231-3990), OR APPROVED EQUAL. ASSEMBLIES SHALL BE SELF-DRAINING, NON-FREEZING, COMPRESSION TYPE WITH 2-3/16" MAIN VALVE OPENING. THE INLET CONNECTION SHALL BE 2"IP. THE OUTLET SIZE SHALL BE 2-1/2" NST. HYDRANT SHALL HAVE A CAST IRON BOX, LOCKING LID, AND 3" DUCTILE IRON RISER PIPE. THE INTERIOR OPERATING PARTS SHALL BE BRASS AND BE REMOVABLE FROM THE HYDRANT FOR SERVICING WITHOUT EXCAVATING THE HYDRANT. THE ASSEMBLY SHALL BE SET IN A MINIMUM FOUR (4) CUBIC FEET OF #57 WASHED STONE. THE DEPTH OF BURY SHALL BE 5'-6". THE TOP OF THE ASSEMBLY SHALL BE FLUSH WITH THE FINAL GRADE OF THE ADJACENT GROUND.

WATER SERVICE PIPE, 2" OR LESS, SHALL BE AS NOTED ON PLANS AND SPECIFICATIONS. SIZE SHALL BE AS NOTED ON THE PLANS (1" MINIMUM). ALL PIPES SHALL HAVE FLARE ENDS IN THE ROW. MINIMUM COVER OVER THE PIPE SHALL BE FOUR (4) FEET - SIX (6) INCHES UNLESS OTHERWISE NOTED ON THE DRAWINGS.

CORPORATION STOPS SHALL BE A BALL VALVE DESIGN, CAST FROM BRASS ALLOY, CONFORMING TO ANSI/AWWA C800. INLET END SHALL HAVE AWWA TAPER THREADS; OUTLET END SHALL HAVE A COPPER FLARE QUARTER BEND CONNECTION. ALL WATER SERVICE TAPS, 2" OR LESS SHALL BE TAPPED ON TOP OF THE WATER MAIN. THE CORPORATION STOPS AND QUARTER BEND SHALL BE BLOCKED.

CURB VALVES (STOPS) SHALL BE A ONE PIECE DESIGN, CAST FROM A BRASS ALLOY, CONFORMING TO ANSI/AWWA C800, HAVE A MAXIMUM WORKING PRESSURE OF 175 PSIG, AND HAVE A QUARTER TURN CHECK. BOTH ENDS SHALL HAVE COPPER FLARE FITTINGS. CURB VALVES SHALL BE BURIED TO A MINIMUM DEPTH OF 4 FEET AND A MAXIMUM DEPTH OF 5 FEET.

CURB BOXES SHALL BE CAST IRON, TWO PIECE SCREW TYPE, ADJUSTABLE TO A TOTAL HEIGHT BETWEEN 48 INCHES TO 60 INCHES. LIDS SHALL BE CAST IRON WITH THE WORD "WATER" CAST INTO THE TOP. LIDS SHALL BE SECURED WITH ONE BRASS PENTAGONAL HEAD SCREW. ALL BOXES SHALL BE LOCATED WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE OWNER.

IF LEAD SERVICES ARE ENCOUNTERED PLEASE NOTIFY LCDU.

SERVICE FITTINGS TO CONNECT TO EXISTING WATER SERVICES WHICH ARE NOT 1" DIAMETER COPPER SHALL BE A MUELLER H-15425, SMITHBLAIR 525, OR EQUAL. BEFORE TESTING THE WATER MAIN, THE SYSTEM SHALL BE FLUSHED ACCORDING TO THE MOST CURRENT PROCEDURES SET FORTH BY THE OWNER WATER DEPT. CALL THE OWNER FOR THE MOST RECENT PROCEDURES. ALL LEAKS SHALL BE LOCATED AND REPAIRED BY THE CONTRACTOR. ALL WATER SAMPLES SHALL BE OBTAINED AND TESTED BY THE OWNER.

WATER MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA C600. ALL TEST RESULTS MUST BE APPROVED BY THE OWNER BEFORE INSTALLATION OF WATER SERVICES. COST SHALL BE SUBSIDIARY TO THE INSTALLATION OF WATER MAIN. TEST PRESSURE SHALL BE 150 PSI.

WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651. COST SHALL BE SUBSIDIARY TO THE INSTALLATION OF WATER MAIN.

THE PROPOSED WATER SYSTEM SHALL MAINTAIN A MINIMUM STATIC PRESSURE OF 35PSI DELIVERED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.

BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.

THE CONTRACTOR SHALL MAINTAIN A MINIMUM 10 FOOT HORIZONTAL SEPARATION AND 18 INCH VERTICAL SEPARATION BETWEEN THE PROPOSED WATER MAIN AND EXISTING STORM SEWERS, WHEN POSSIBLE, AS MEASURED FROM OUTSIDE EDGE TO OUTSIDE EDGE UNLESS NOTED ON THE PLAN AND PROFILE SHEETS.

THE CONTRACTOR SHALL MAINTAIN A MINIMUM 10 FOOT HORIZONTAL SEPARATION AND 18 INCH VERTICAL SEPARATION BETWEEN THE PROPOSED WATER MAIN AND EXISTING SANITARY SEWERS, WHEN POSSIBLE, FROM OUTSIDE EDGE TO OUTSIDE EDGE.

THE CONTRACTOR SHALL NOT OPERATE OR TURN ANY EXISTING WATER VALVE. IF VALVES NEED TO BE OPENED OR CLOSED HE SHALL NOTIFY THE OWNER.

ALL ROUGH GRADING TO WITHIN SIX (6) INCHES OF FINISH GRADE SHALL BE COMPLETED OVER THE PROPOSED WATER MAIN PRIOR TO IT'S INSTALLATION.

THE LOCATION OF EXISTING WATER UTILITIES AS SHOWN ON THESE PLANS WERE DETERMINED FROM AVAILABLE DATA AT THE TIME OF FIELD SURVEYING IN ACCORDANCE WITH SECTION 153.63 OF THE OHIO REVISED CODE.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS, PAYING ALL FEES, AND FOLLOWING ALL REQUIREMENTS ASSOCIATED WITH THE PERMITS. THE OWNER ASSUMES NO LIABILITY FOR NOT FOLLOWING THE ABOVE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OHIO UTILITY PROTECTION SERVICE (OUPS) AS REQUIRED BY LAW.

NO WATERLINE TIE-INS SHALL BE DONE ON FRIDAYS OR THE DAY BEFORE A CITY HOLIDAY.

DEFLECT WATER MAIN AS REQUIRED TO MAINTAIN ALIGNMENT AS SHOWN ON PLANS. MAXIMUM DEFLECTION IS 15 DEGREES PER JOINT.

TEMPORARY BLOW-OFF AND FLUSHING ASSEMBLY:

- PIPE SHALL BE TYPE K COPPER WITH COMPRESSION FITTINGS.
- CORPORATION STOPS SHALL BE GROUND KEY DESIGN, CAST FROM A BRASS ALLOY AND CONFORM TO AWWA C800. INLET END SHALL HAVE AWWA TAPER THREADS. OUTLET END SHALL HAVE COPPER FLARE QUARTER BEND CONNECTION. ALL TAPS SHALL BE MADE ON TOP OF THE WATER MAIN. CORPORATION STOPS AND QUARTER BENDS SHALL BE BLOCKED.
- CURB VALVES (STOPS) SHALL BE ONE PIECE DESIGN, CAST FROM A BRASS ALLOY, CONFORM TO AWWA C800, HAVE A MAXIMUM WORKING PRESSURE OF 175 PSIG AND HAVE A QUARTER TURN CHECK. BOTH ENDS SHALL HAVE COPPER FLARE FITTINGS.
- LOCATIONS SHALL BE AS SHOWN ON THE DRAWINGS, AT A MINIMUM. CONTRACTOR SHALL INSTALL ADDITIONAL ASSEMBLIES AS NEEDED TO EXHAUST AIR AND TO COMPLY WITH REGULATIONS REGARDING PRESSURE TESTING, BACTERIA SAMPLING AND FLUSHING.
- AT COMPLETION OF TESTING, CLOSE CORPORATION STOP, REMOVE COPPER PIPING AND INSERT PLUG ON CORPORATION STOP.
- NO SEPARATE PAYMENT SHALL BE MADE FOR TEMPORARY BLOW-OFFS AND FLUSHING ASSEMBLIES.

INSTALL COPPER CLAD STEEL (CCS) TRACE WIRE AND ACCESS/TERMINATION BOXES OVER WATER MAIN PER SPECIFICATIONS.

**GEOTECHNICAL INVESTIGATION**

THE CONTRACTOR SHALL REVIEW THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY CT CONSULTANTS, INC. DATED FEBRUARY 5, 2024, AND ANY SUBSEQUENT REVISIONS. A COPY OF THIS REPORT WILL BE MADE AVAILABLE TO THE CONTRACTOR IN THE BID DOCUMENTS. THE CONTRACTOR SHALL ADHERE TO ALL ASPECTS AND RECOMMENDATIONS OF THE REPORT.

**CONTACT INFORMATION**

TRAILER PARK CONTACT INFORMATION:

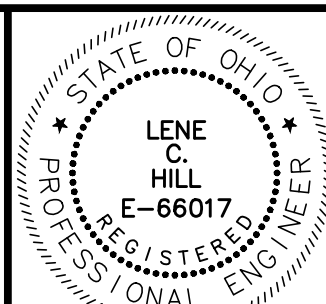
JONES ESTATES LLC  
2310 S MIAMI BLVD SUITE 238  
DURHAM, NC 27703  
919-666-7025

**CONTINGENCY ITEMS**

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER DISCRETION SHALL BE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED IN THE PROPOSAL FOR BOTH PART A AND PART B TO BE USED AS DIRECTED BY THE ENGINEER.

EXCAVATION OF SUBGRADE AND EMBANKMENT WITH GRANULAR MATERIAL, CCS, AS PER PLAN, CONTINGENCY, AS DIRECTED	80 CY
PAVEMENT REPAIR, AS PER PLAN	150 SY



NO	REVISION	DATE

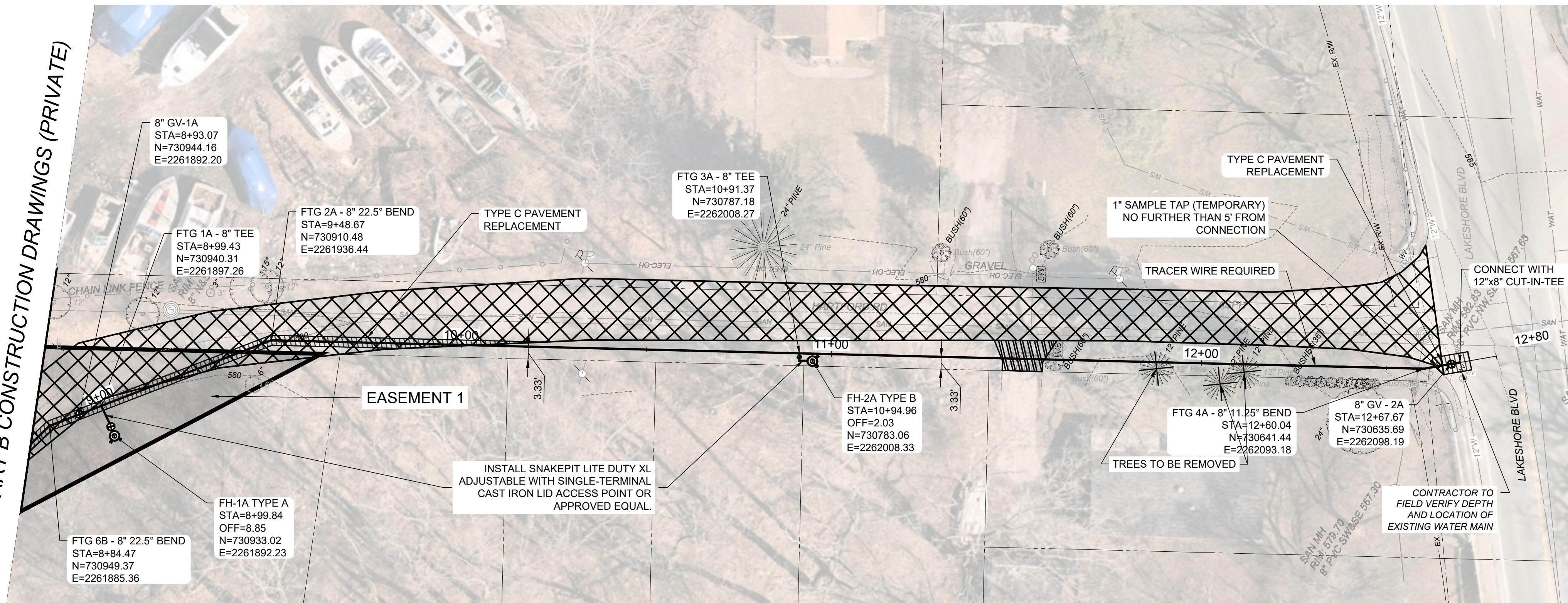
**THE CITIES OF WILLOUGHBY & EASTLAKE**  
**HARTFORD ROAD WATERMAIN**  
**PART A**  
**LAKE COUNTY, OHIO**

<b>SCALE:</b> AS SHOWN
<b>DATE:</b> 04/22/2024
<b>DESIGNED BY:</b> BLM
<b>DRAWN BY:</b> BTZ
<b>CHECKED BY:</b> TJM

**GENERAL NOTES - 2**

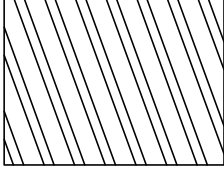
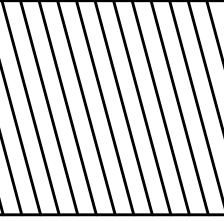
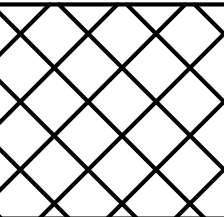
<b>PROJECT NO:</b>	
<b>23004301</b>	
<b>DRAWING NAME</b>	
<b>GN-02</b>	
<b>SHEET</b>	<b>OF</b>
<b>4</b>	<b>9</b>

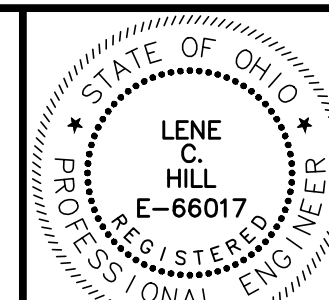
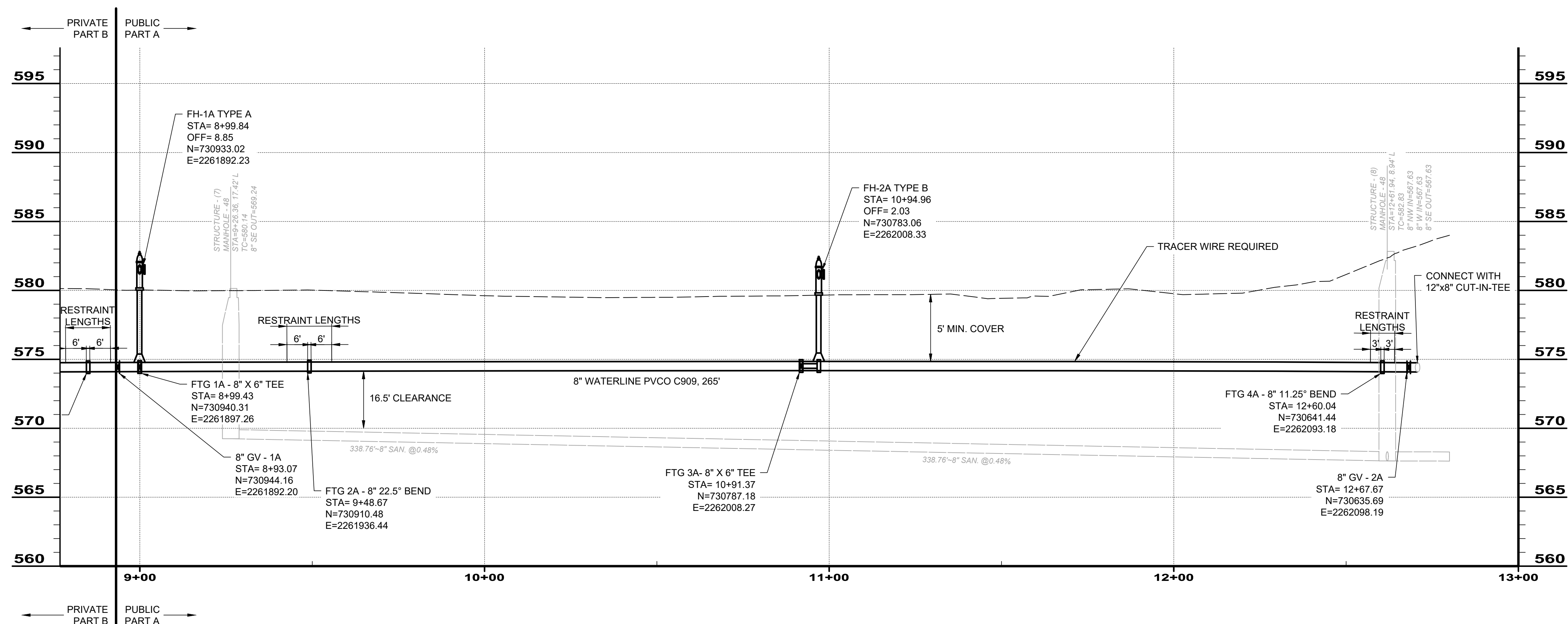
SEE PART B CONSTRUCTION DRAWINGS (PRIVATE)



NOTE:

CONTRACTOR SHALL CONSTRUCT, TEST, AND OBTAIN APPROVAL FROM LAKE COUNTY UTILITIES DEPARTMENT AND LAKE COUNTY COMMISSIONERS FOR THE PUBLIC WATERLINE IN PART A PRIOR TO BEGINNING CONSTRUCTION ON THE PRIVATE WATERLINE IN PART B. DOWNTIME AND DELAYS FOR TESTING AND APPROVALS OF THE PART A WATERLINE SHALL BE INCLUDED IN THE LINE ITEM COST FOR THE WATERLINE.

-  CONCRETE DRIVE REPLACEMENT
-  TYPE C PAVEMENT REPLACEMENT
-  ALTERNATE MILL & FILL:  
2.5" PAVEMENT PLANING  
1.5" INTERMEDIATE COURSE, TYPE 1  
1" SURFACE COURSE, TYPE 1



NO	REVISION	DATE

THE CITIES OF WILLOUGHBY & EASTLAKE  
**HARTFORD ROAD WATERMAIN  
 PART A**  
 LAKE COUNTY, OHIO

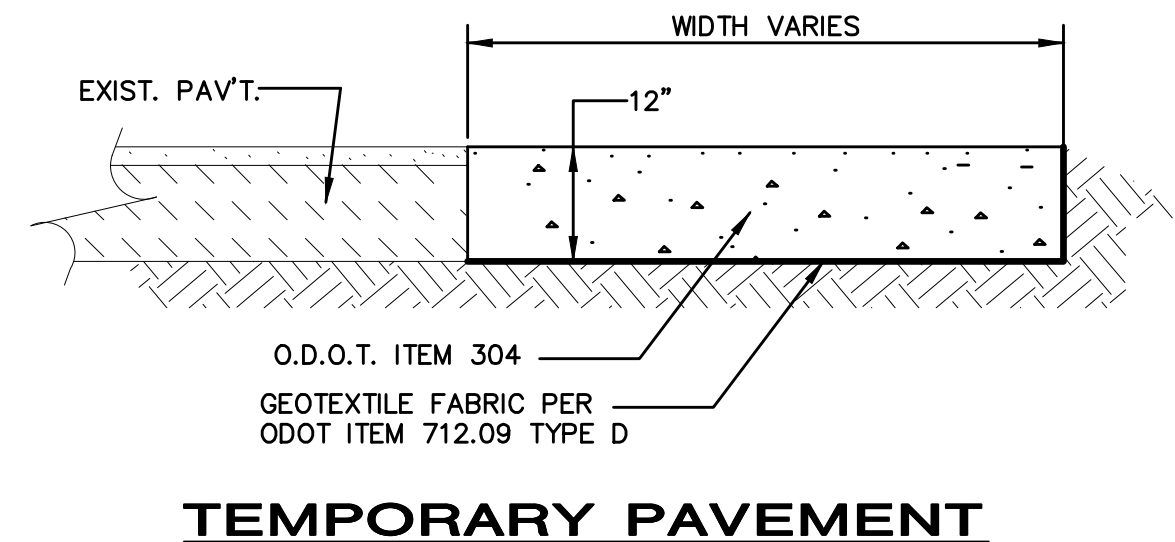
SCALE: AS SHOWN  
 DATE: 04/22/2024  
 DESIGNED BY: BLM  
 DRAWN BY: BTZ  
 CHECKED BY: TRL

**PLAN & PROFILE  
 STA 8+77 TO 13+00**

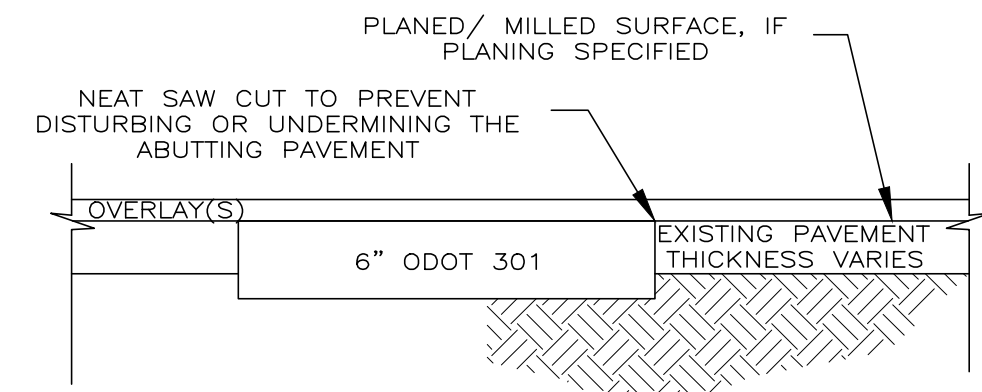
PROJECT NO: <b>23004301</b>	
DRAWING NAME <b>PP-01</b>	
SHEET <b>5</b>	OF <b>9</b>

WATERLINE FITTING TABLE				
No.	DESCRIPTION	STA.	NORTHING	EASTING
FTG-1A	8" X 6" TEE	8+99.43	730940.31	2261897.26
FTG-2A	8" 22.5' BEND	9+48.67	730910.48	2261936.44
FTG-3A	8" X 6" TEE	10+91.37	730787.18	2262008.27
FTG-4A	8" 11.25' BEND	12+60.04	730641.44	2262093.18

WATERLINE APPURTENANCE TABLE					
No.	DESCRIPTION	STA.	OFFSET	NORTHING	EASTING
FH-1A	TYPE A HYDRANT	8+99.84	8.85	730933.02	2261892.23
FH-2A	TYPE B HYDRANT	10+94.96	2.03	730783.06	2262008.33
GV-1A	8" GATE VALVE	8+93.07	NA	730944.16	2261892.20
GV-2A	8" GATE VALVE	12+67.67	NA	730635.69	2262098.19

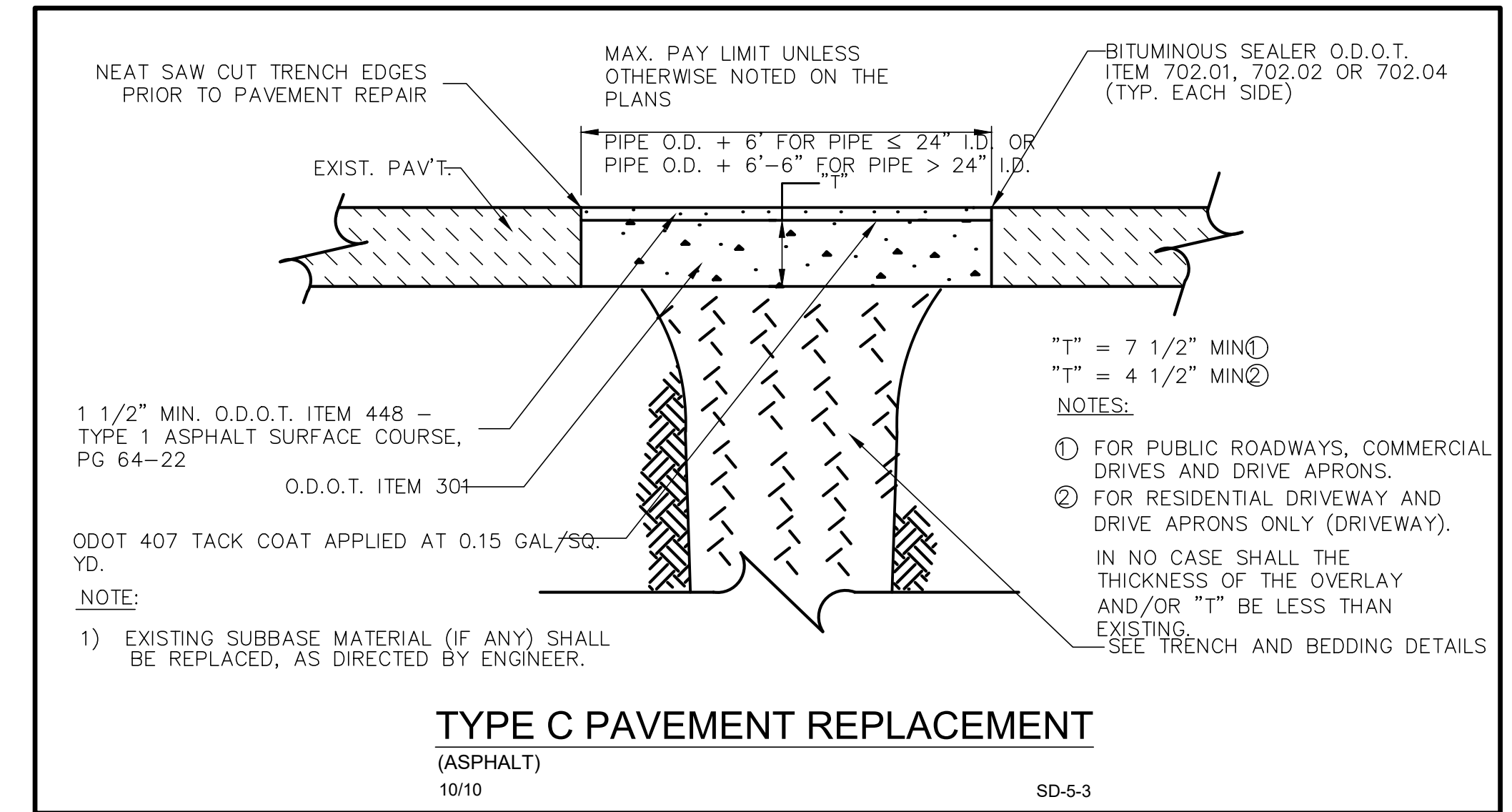


**TEMPORARY PAVEMENT**



**PAVEMENT REPAIR DETAIL (ITEM 253)**

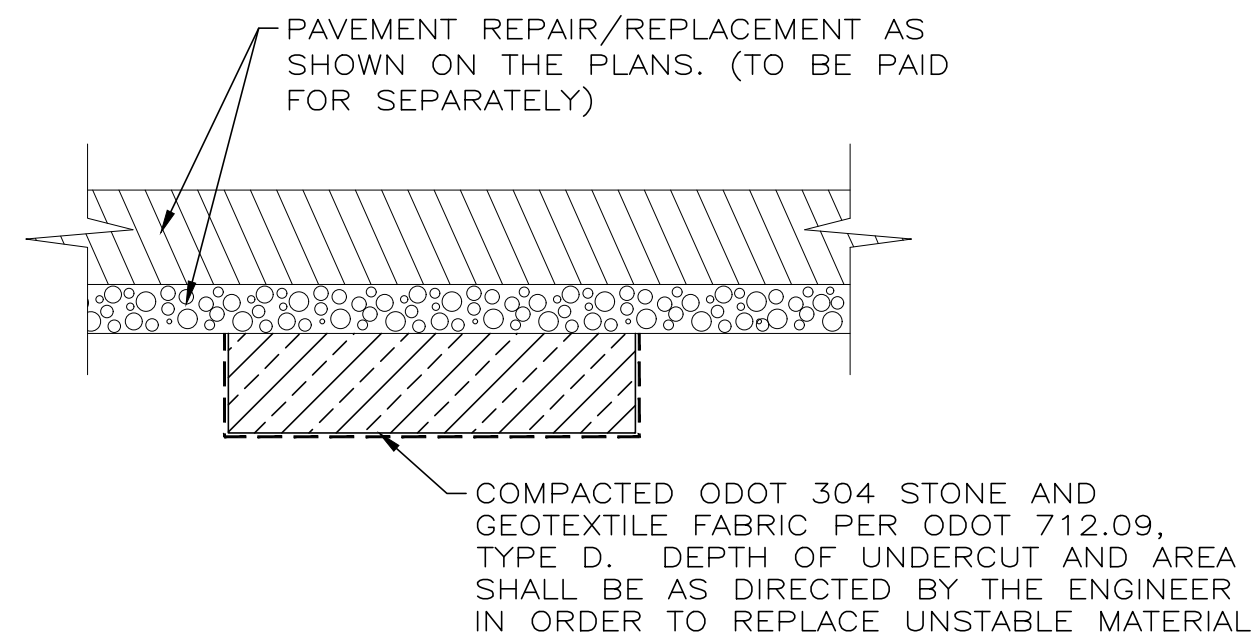
NOTE: ITEM SHALL BE USED AS DIRECTED



**TYPE C PAVEMENT REPLACEMENT (ASPHALT)**

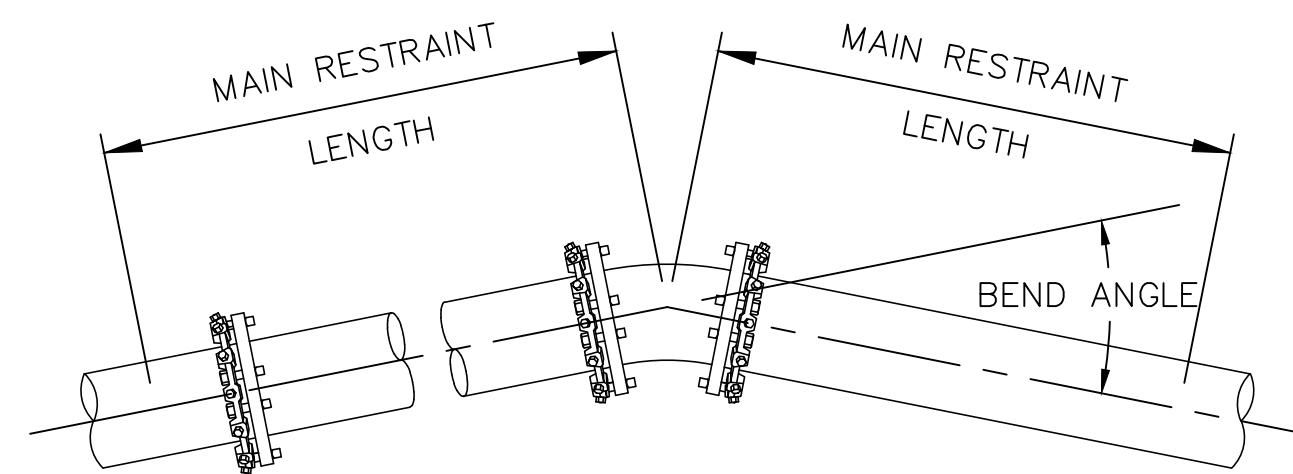
10/10

SD-5-3



**ADDITIONAL SUBGRADE REPLACEMENT DETAIL (ITEM 204)**

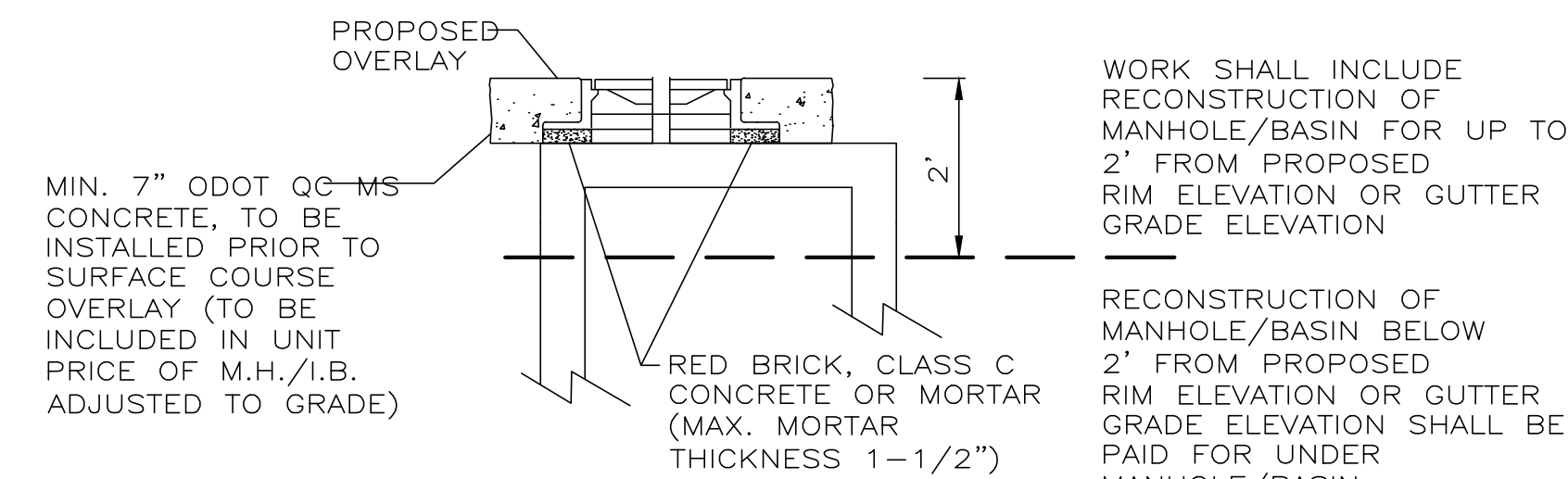
NOTE: ITEM SHALL BE USED AS DIRECTED



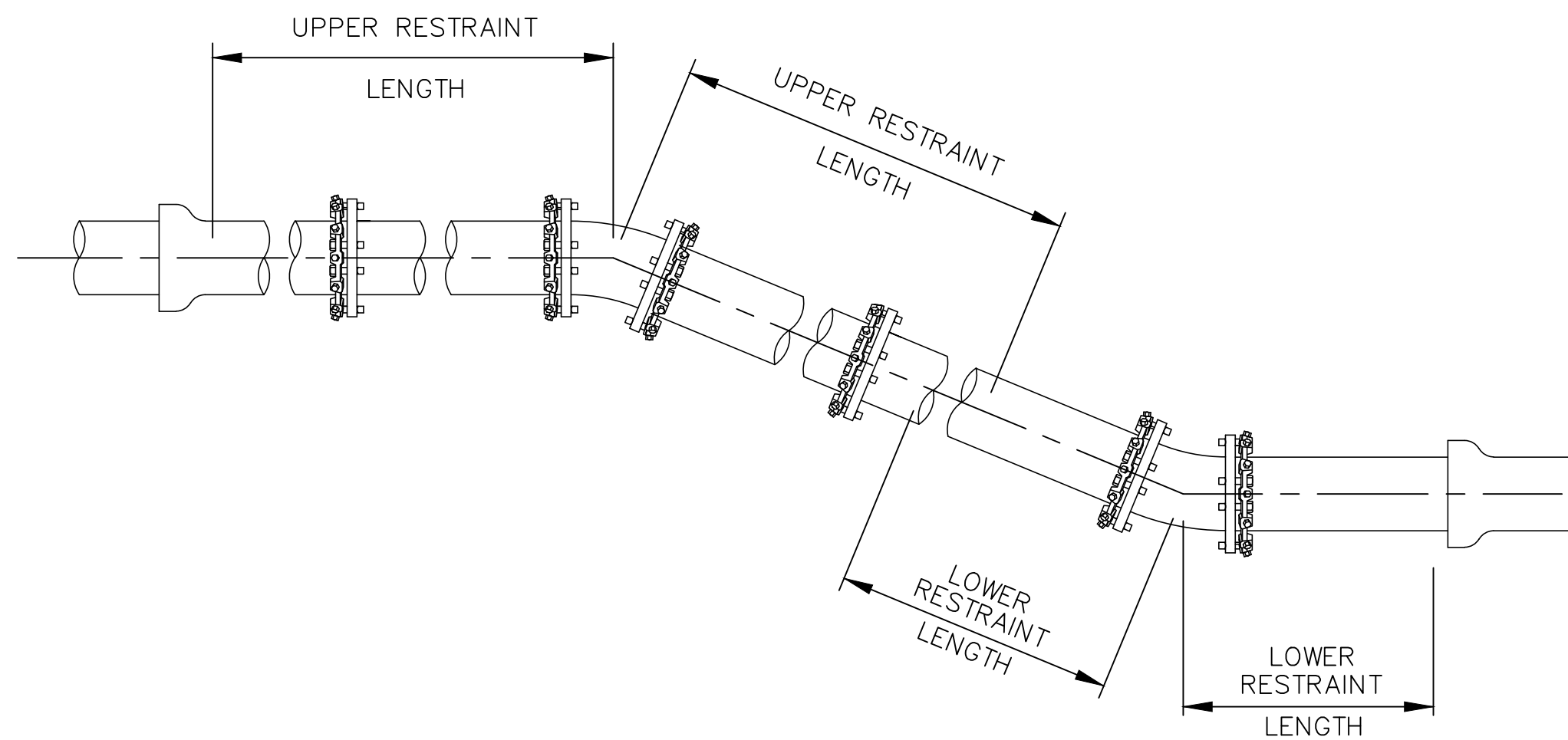
**TYPICAL HORIZONTAL BEND RESTRAINT**

NOT TO SCALE

THRUST RESTRAINT TABLE FOR STANDARD FITTINGS			
FITTING	SIZE	MINIMUM MAIN RESTRAINT LENGTH	MINIMUM BRANCH RESTRAINT LENGTH
HORIZONTAL FITTINGS			
45° BEND	8"	11'	---
11.25° & 22.5° BEND	8"	6'	---
TEE	12"x8"	---	62'
VERTICAL FITTINGS		UPPER	LOWER
45°	8"	26'	11'

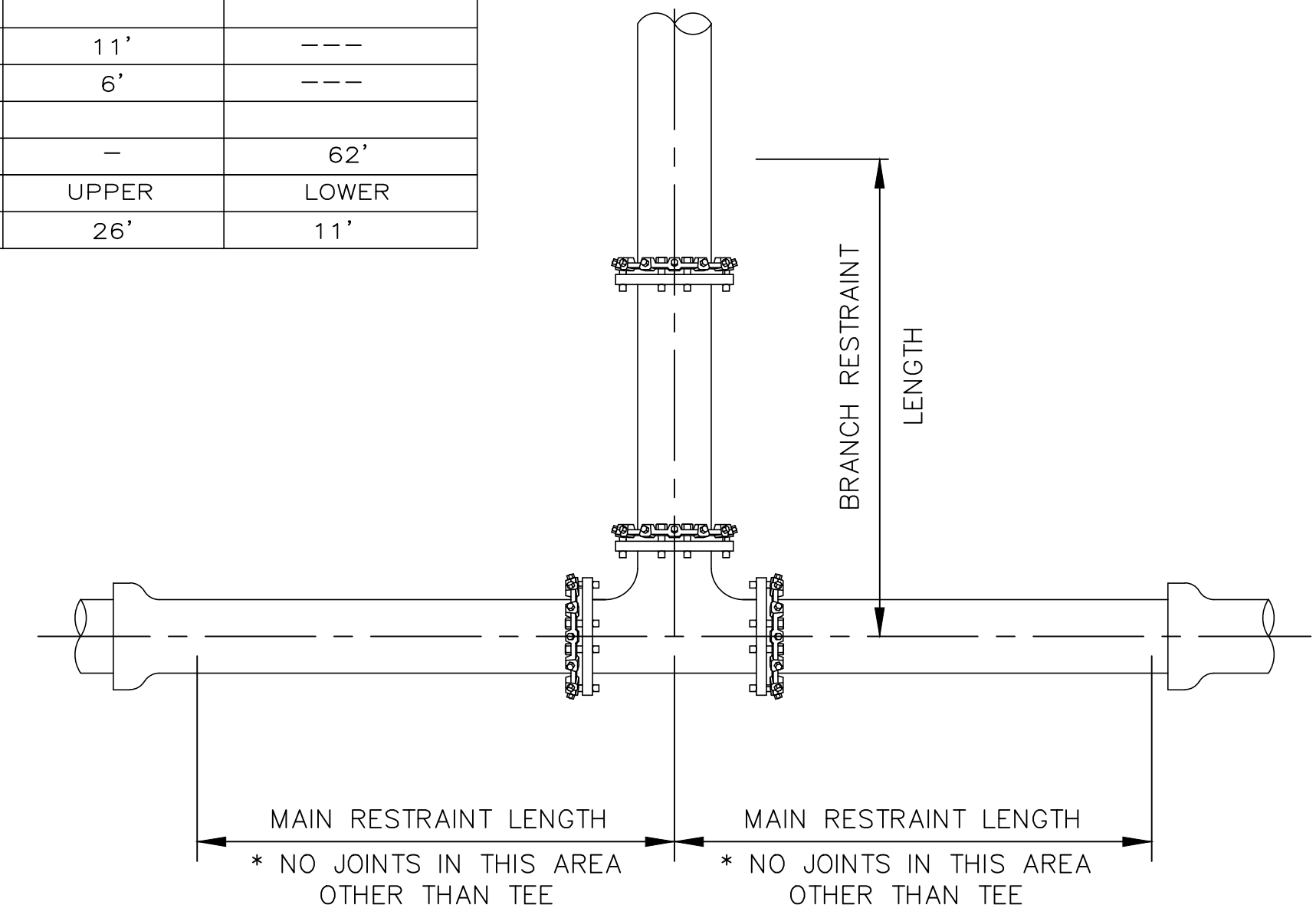


**M.H./I.B. ADJUSTED TO GRADE**



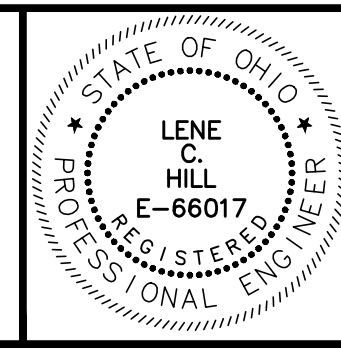
**TYPICAL VERTICAL BEND RESTRAINT**

NOT TO SCALE



**TYPICAL HORIZONTAL TEE RESTRAINT**

NOT TO SCALE



NO	REVISION	DATE

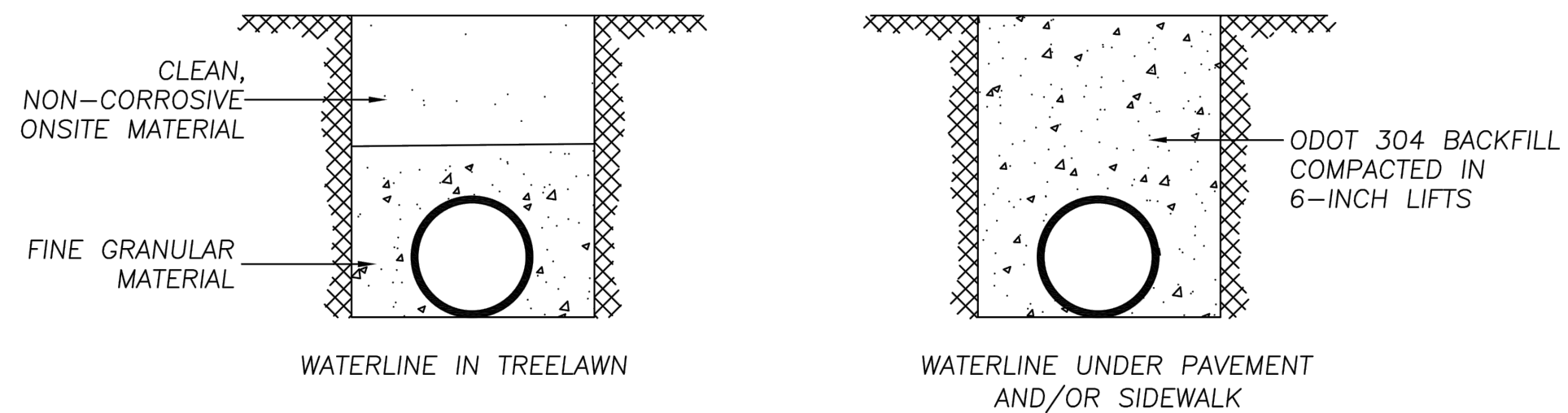
THE CITIES OF WILLOUGHBY & EASTLAKE  
**HARTFORD ROAD WATERMAIN PART A**  
 LAKE COUNTY, OHIO

SCALE: AS SHOWN  
 DATE: 04/22/2024  
 DESIGNED BY: BLM  
 DRAWN BY: BTZ  
 CHECKED BY: TJM

**DETAILS**

PROJECT NO: <b>23004301</b>	
DRAWING NAME <b>DT-01</b>	
SHEET <b>6</b>	OF <b>9</b>

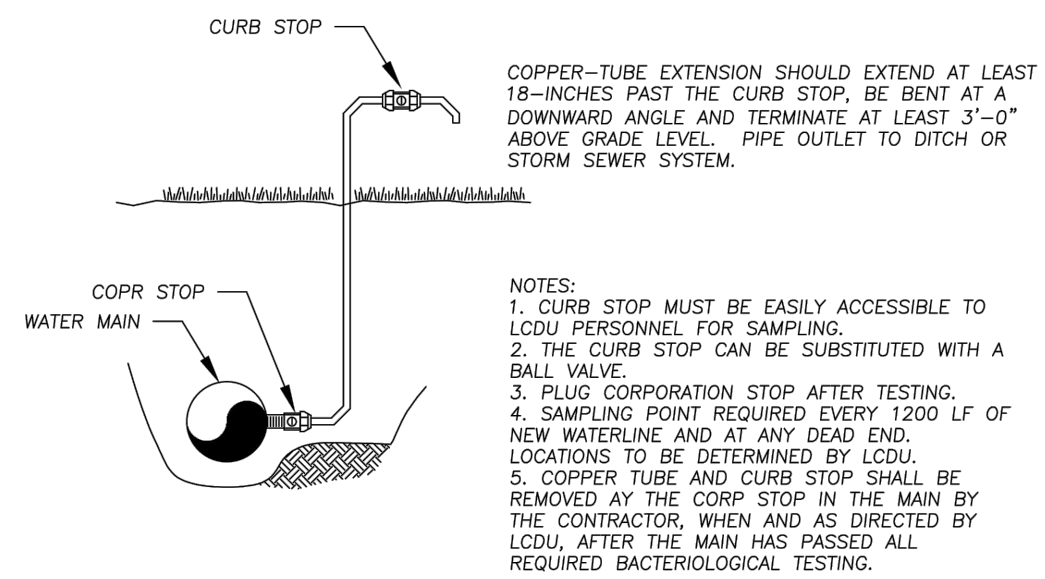
FOR C909 PVC WATERLINE ONLY



- NOTES:
1. RECYCLED MATERIAL SHALL NOT BE USED. ALL VALVES, HYDRANTS, HYDRANT VALVES SHALL BE BACKFILLED WITH 57 LIMESTONE.
  2. FINE GRANULAR MATERIAL SHALL HAVE NO ROUGHS BIGGER THAN 1-INCH TO 2-INCH IN DIAMETER.
  3. ON-SITE GRANULAR MATERIAL REQUIRED, OTHERWISE PROVIDE SAND (ODOT 703) OR ODOT 304.

FIG 2.22.2

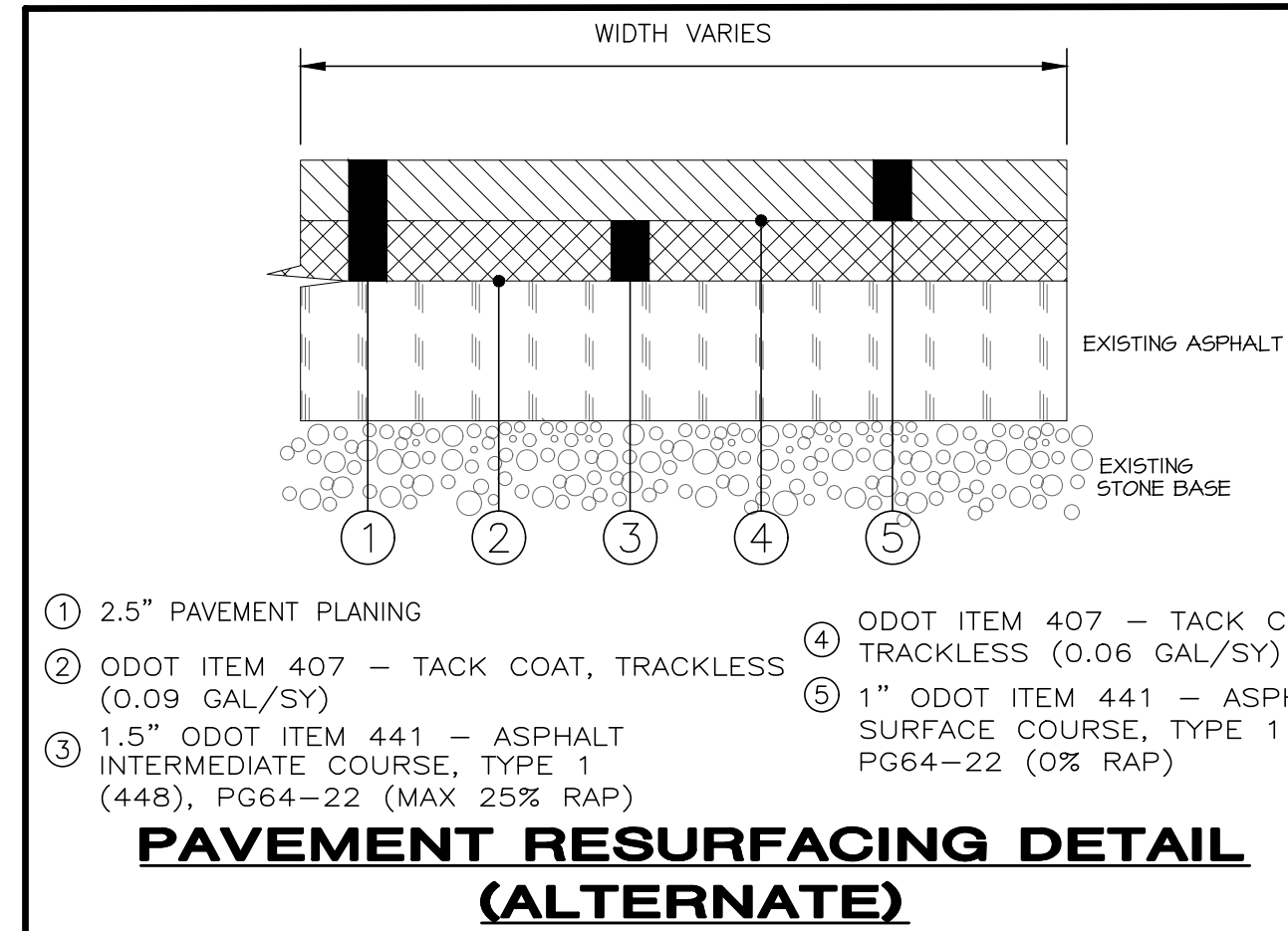
LAKE COUNTY  
DEPARTMENT OF UTILITIES  
FLEXIBLE TRENCH AND BEDDING  
DATE: 10-2020 DRAWN BY: SC SCALE: NONE



- NOTES:
1. CURB STOP MUST BE EASILY ACCESSIBLE TO LCU PERSONNEL FOR SAMPLING.
  2. THE CURB STOP CAN BE SUBSTITUTED WITH A BALL VALVE.
  3. PLUG CORPORATION STOP AFTER TESTING.
  4. SAMPLING POINT REQUIRED EVERY 1200 LF OF NEW WATERLINE AND AT ANY DEAD END. LOCATIONS TO BE DETERMINED BY LCU.
  5. COPPER TUBE AND CURB STOP SHALL BE REMOVED BY THE CORP STOP IN THE MAIN BY THE CONTRACTOR, WHEN AND AS DIRECTED BY LCU, AFTER THE MAIN HAS PASSED ALL REQUIRED BACTERIOLOGICAL TESTING.

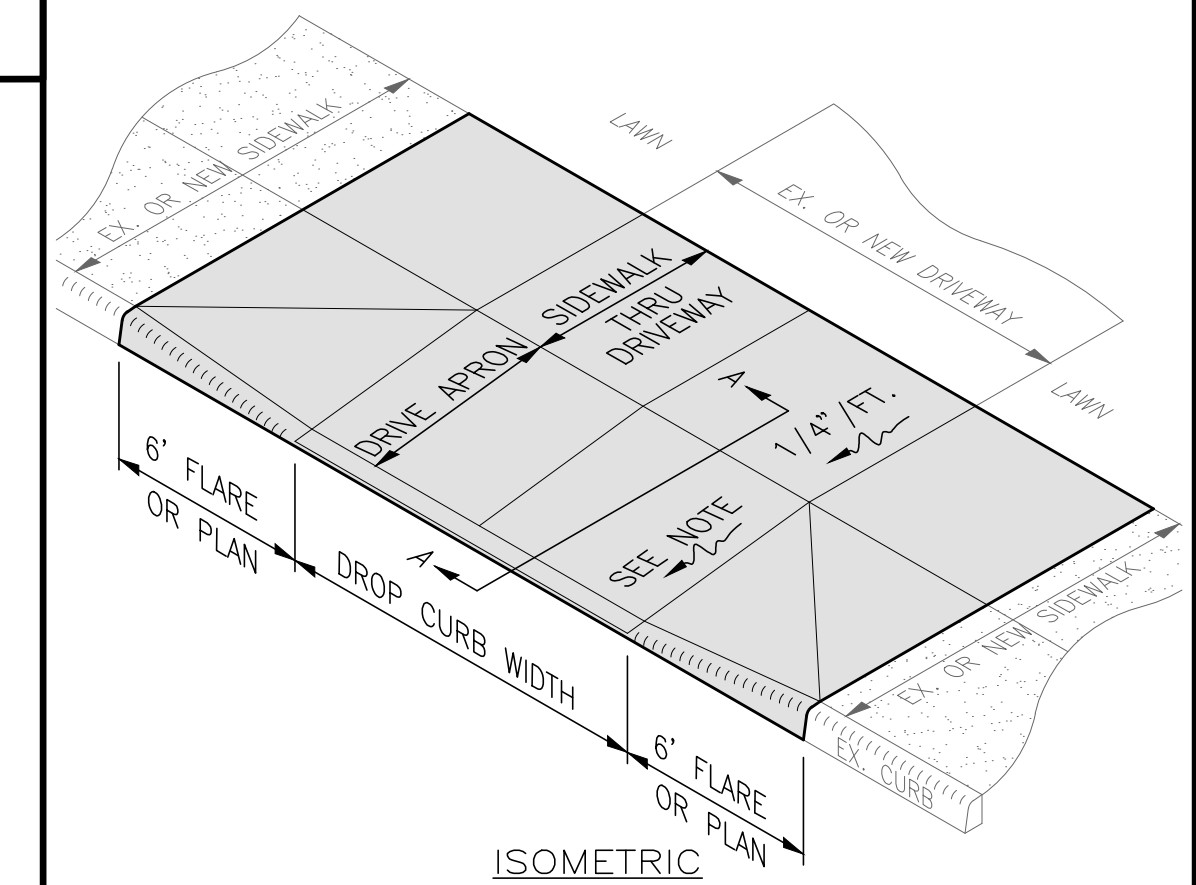
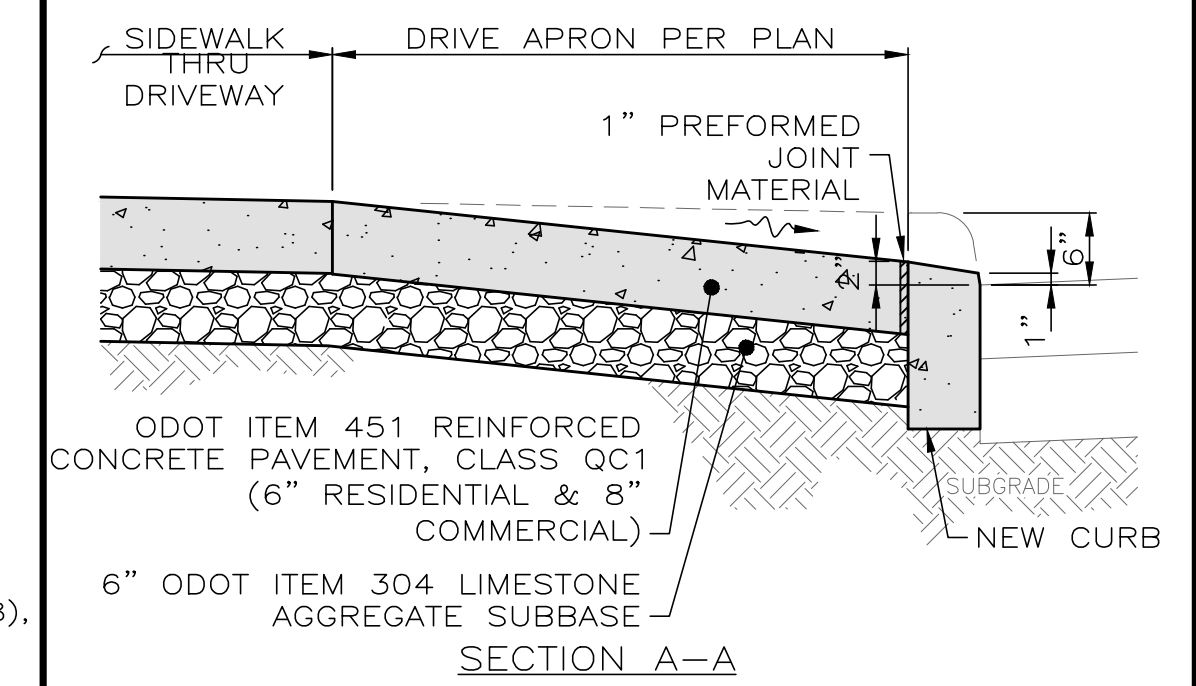
FIG 2.14.1

LAKE COUNTY  
DEPARTMENT OF UTILITIES  
BACTERIA SAMPLING DETAIL  
DATE: 6-16 DRAWN BY: DOB SCALE: NONE

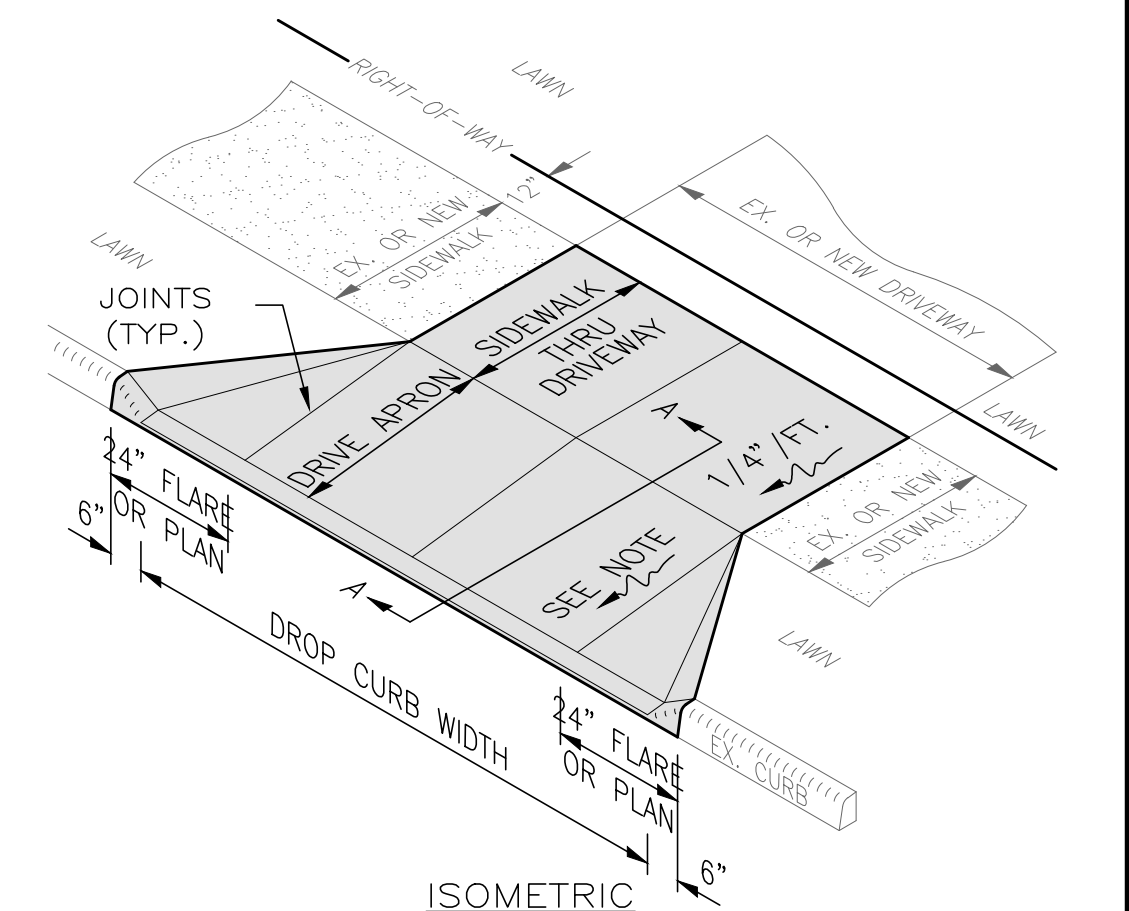


1. 2.5" PAVEMENT PLANNING
2. ODOT ITEM 407 - TACK COAT, TRACKLESS (0.09 GAL/SY)
3. 1.5" ODOT ITEM 441 - ASPHALT INTERMEDIATE COURSE, TYPE 1 (448), PG64-22 (MAX 25% RAP)
4. ODOT ITEM 407 - TACK COAT, TRACKLESS (0.06 GAL/SY)
5. 1" ODOT ITEM 441 - ASPHALT SURFACE COURSE, TYPE 1 (448), PG64-22 (0% RAP)

PAVEMENT RESURFACING DETAIL (ALTERNATE)

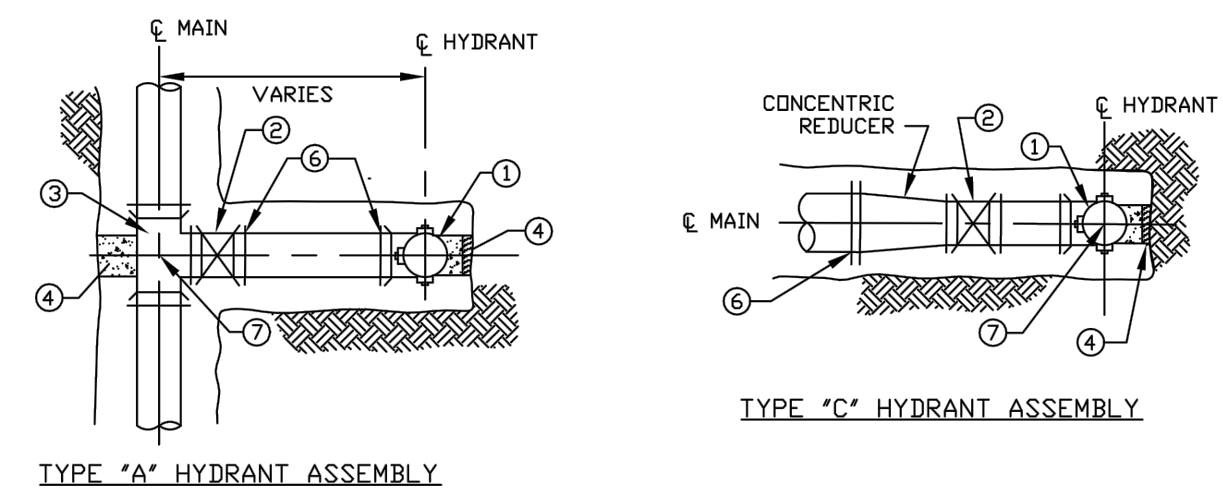


ISOMETRIC

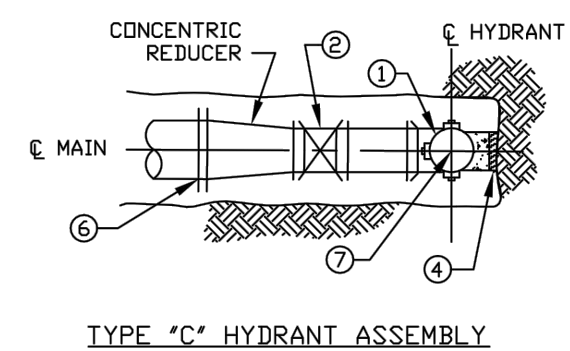


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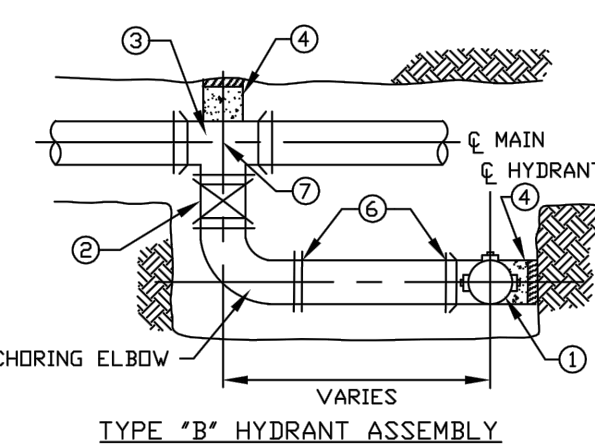
- NOTES:
1. CONCRETE AT ACTIVE DRIVE APRONS SHALL BE CLASS QC MS.
  2. THE DROP CURB SHALL BE HAND FORMED AT THE TIME THE CONCRETE CURB IS POURED.
  3. JOINTS SHALL BE PROVIDED AT THE NORMAL FACE AND BACK OF SIDEWALK LOCATION.
  4. MINIMUM DRIVE APRON SLOPE PERMITTED IS 1/8"/FT. (1.00%) AND MAXIMUM IS 1"/FT. (8.33%). SEE GRADING PLAN FOR ACTUAL SLOPES AND ELEVATIONS.
  5. THIS DETAIL SHOWS A DRIVE APRON WITH VARIOUS APRON FLARES FOR REFERENCE ONLY; SEE LAYOUT PLAN FOR ACTUAL APRON CONFIGURATION AND FLARE WIDTHS.
- CONCRETE DRIVE APRON DETAIL**  
SCALE: NONE



TYPE "A" HYDRANT ASSEMBLY



TYPE "C" HYDRANT ASSEMBLY



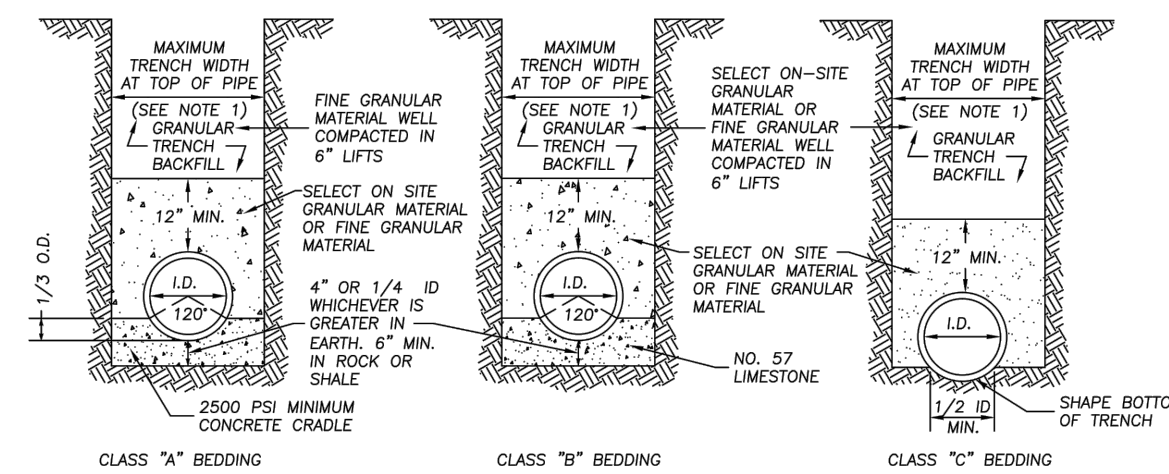
TYPE "B" HYDRANT ASSEMBLY

1. HYDRANT, PER SPECIFICATIONS
2. 6" GATE VALVE
3. SWIVEL ANCHORING TEE OR MJ X MJ X MJ TEE
4. CONCRETE BLOCKING WITH DAK WEDGES AGAINST UNDISTURBED EARTH
5. CONCRETE SUPPORT BLOCKING
6. JOINT RESTRAINT, (TYP. TEE TO HYDRANT)
7. PLAN STATION AND OFFSET
8. 5" STORZ FITTING ON HYDRANT

NOTE: ALL MATERIALS SHALL BE AS LISTED IN THE LCU APPROVED MATERIAL LIST

FIG 2.12.1

LAKE COUNTY  
DEPARTMENT OF UTILITIES  
HYDRANT DETAILS  
DATE: 5-16 DRAWN BY: D.D.B. SCALE: NONE

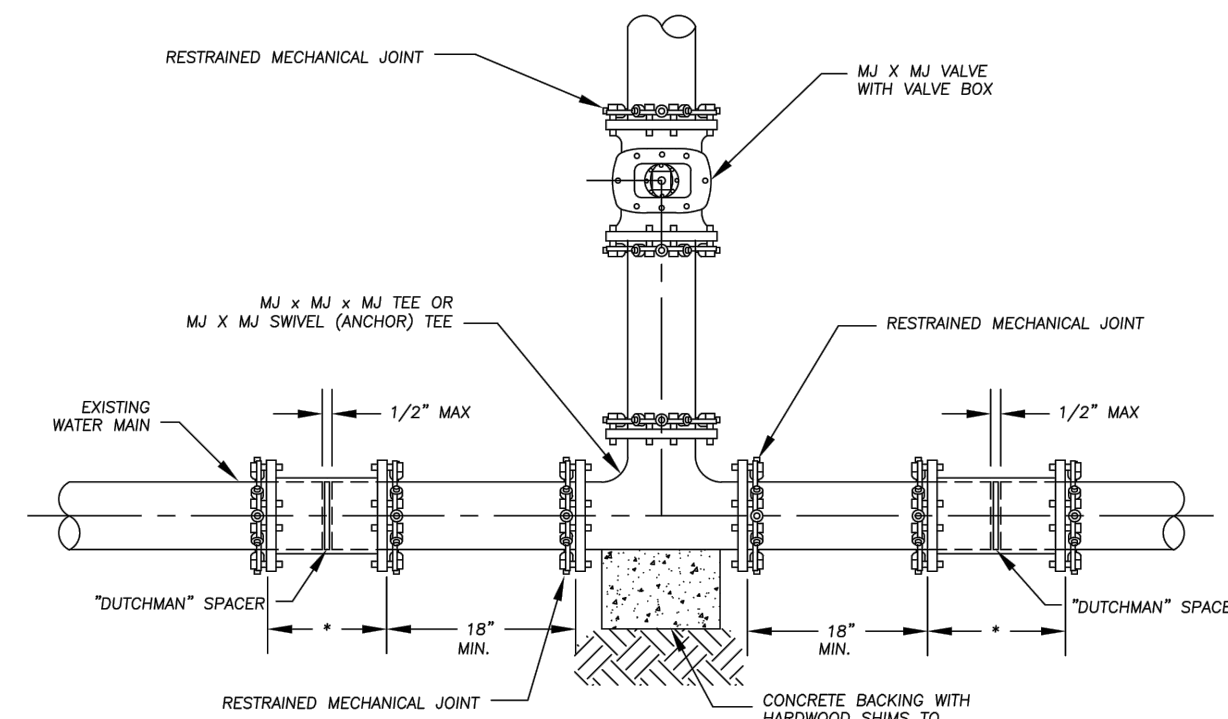


- NOTES:
1. MAXIMUM TRENCH WIDTH AT TOP OF PIPE SHALL BE O.D. +24" FOR ALL PIPE SIZES UP TO AND INCLUDING 24" I.D. AND O.D. +30" FOR PIPE LARGER THAN 24" I.D.
  2. GRANULAR TRENCH PIPE BACKFILL UNDER PAVEMENT AND STRUCTURES SHALL BE ODOT 304 LIMESTONE COMPACTED TO TOP OF TRENCH. SEE SECTION 1.24 FOR COMPACTION REQUIREMENTS. THE BACKFILL MATERIAL SHALL EXTEND A MINIMUM OF 3'-FEET BEYOND EACH EDGE OF PAVEMENT OR STRUCTURE. IN AREAS OUTSIDE OF PAVEMENT, SELECT ON-SITE GRANULAR MATERIAL APPROVED BY LAKE COUNTY SANITARY ENGINEERS MAY BE USED IN LIFTS NOT TO EXCEED 6-INCHES FOR PIPE BACKFILL ABOVE BEDDING.
  3. ALL BEDDING SHALL BE CLASS "C" UNLESS OTHERWISE NOTED ON THE PLANS OR REQUIRED BY THE SANITARY ENGINEER.
  4. SLAG SHALL NOT BE USED FOR BEDDING OR BACKFILL.
  5. RECYCLED CONCRETE SHALL NOT BE USED.
  6. CLAY DAMS SHALL BE REQUIRED WHEN AND WHERE NECESSARY PER THE SOLE DISCRETION OF THE LCU.
  7. THESE SPECIFICATIONS ARE TO BE CONSIDERED MINIMUM REQUIREMENTS AND ARE SUPERSEDED BY THE REQUIREMENTS OF THE LOCAL AUTHORITY WITH JURISDICTION OVER THE ROADWAY, WHEN APPLICABLE.

FIG 2.22.1

FOR WATER ONLY  
SEE FIG 3.17.1 FOR SANITARY

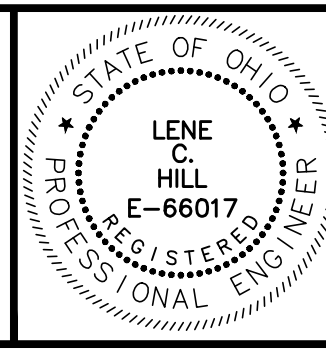
LAKE COUNTY  
DEPARTMENT OF UTILITIES  
TRENCH AND BEDDING DETAILS  
DATE: 6-16 DRAWN BY: DOB SCALE: NONE



- NOTES:
1. THE SIZE AND TYPE OF THE EXISTING WATER MAIN SHALL BE FIELD VERIFIED PRIOR TO CUTTING INTO THE EXISTING MAIN TO ENSURE CORRECT SLEEVE SIZE.
  2. NO CAST IRON FITTINGS SHALL BE PERMITTED.
  3. \* = CONNECTION SHALL BE MADE WITH RESTRAINED MECHANICAL JOINT SOLID SLEEVES (LONG PATENT) DUCTILE IRON CLASS 350
  4. ALL MATERIALS TO CONFORM TO THE LCU APPROVED MATERIAL LIST.
  5. FITTINGS TO BE SUPPORTED BY SOLID CONCRETE BLOTTING WITH HARD WOOD SHIMS AS NEEDED.
  6. IF THE SPACE BETWEEN THE JOINT IS GREATER THAN 1/2-INCH, THEN A FULL CIRCLE SPACER OR "DUTCHMAN" MUST BE CUT AND PLACED IN THE GAP BEFORE THE SLEEVE IS USED TO CLOSE THE JOINT.
  7. THE "DUTCHMAN" SPACER SHALL BE CUT TO A WIDTH NO LESS THAN 1/4-INCH LESS THAN THE NARROWEST WIDTH OF THE JOINT.
  8. EACH PIPE SPICOT SHALL BE MARKED TO INDICATE THE POINT WHERE THE SLEEVE WILL BE PROPERLY CENTERED OVER THE POINT.

FIG 2.6.2

LAKE COUNTY  
DEPARTMENT OF UTILITIES  
CUT-IN DETAIL WITH VALVE  
DATE: 3-17 DRAWN BY: DOB SCALE: NONE



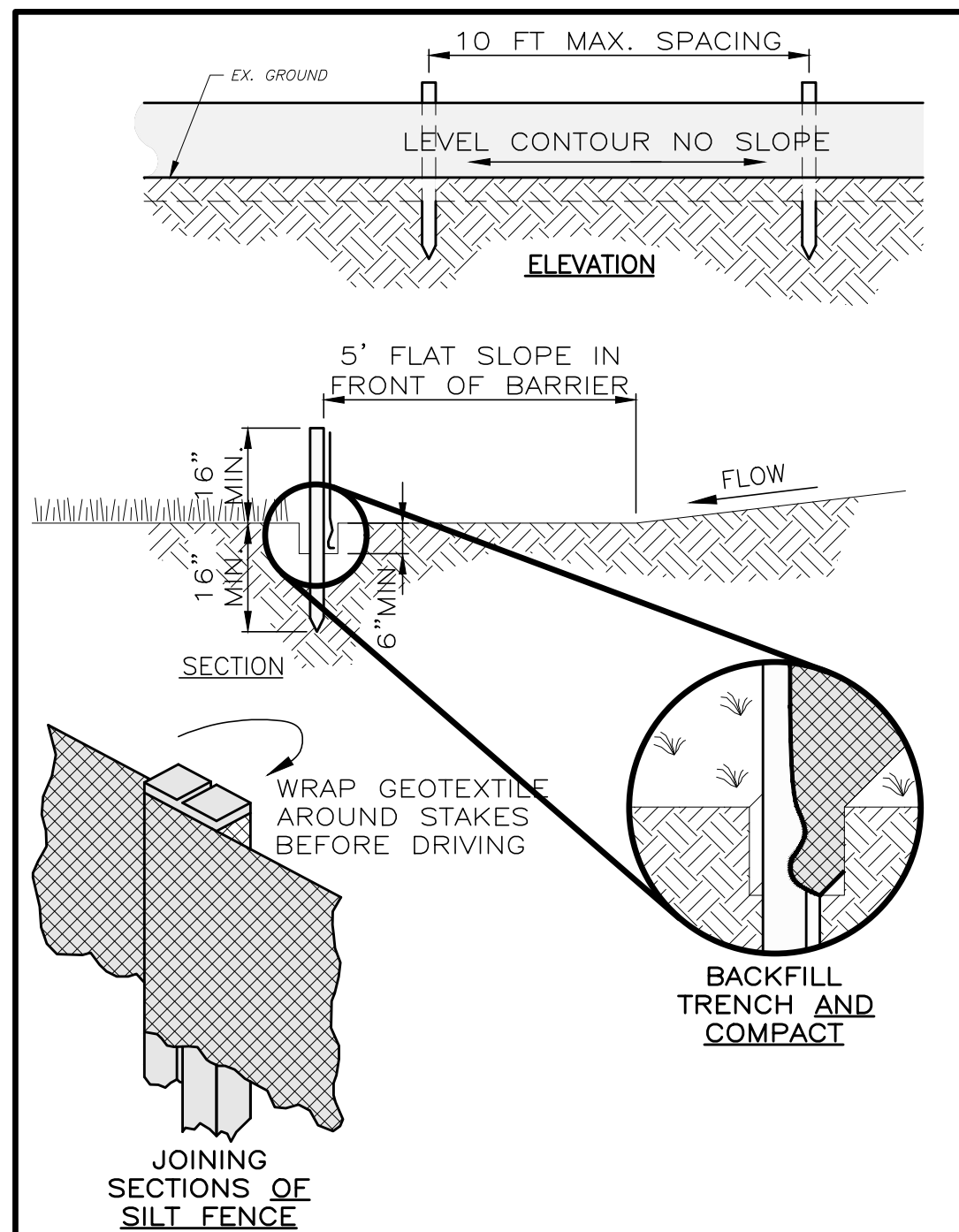
NO	REVISION	DATE

THE CITIES OF WILLOUGHBY & EASTLAKE  
HARTFORD ROAD WATERMAIN  
PART A  
LAKE COUNTY, OHIO

SCALE: AS SHOWN  
DATE: 04/22/2024  
DESIGNED BY: BLM  
DRAWN BY: BTZ  
CHECKED BY: TJM

DETAILS

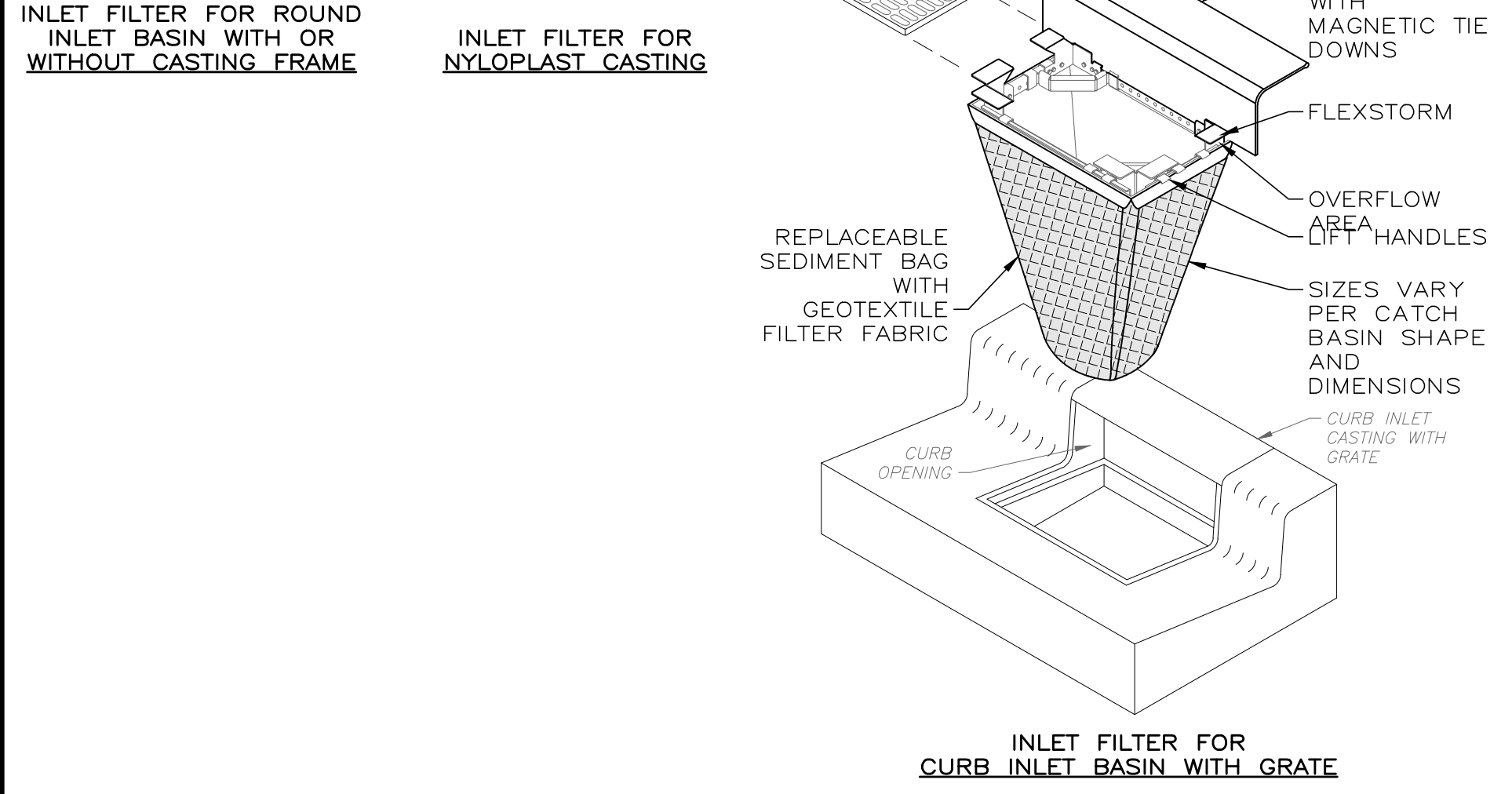
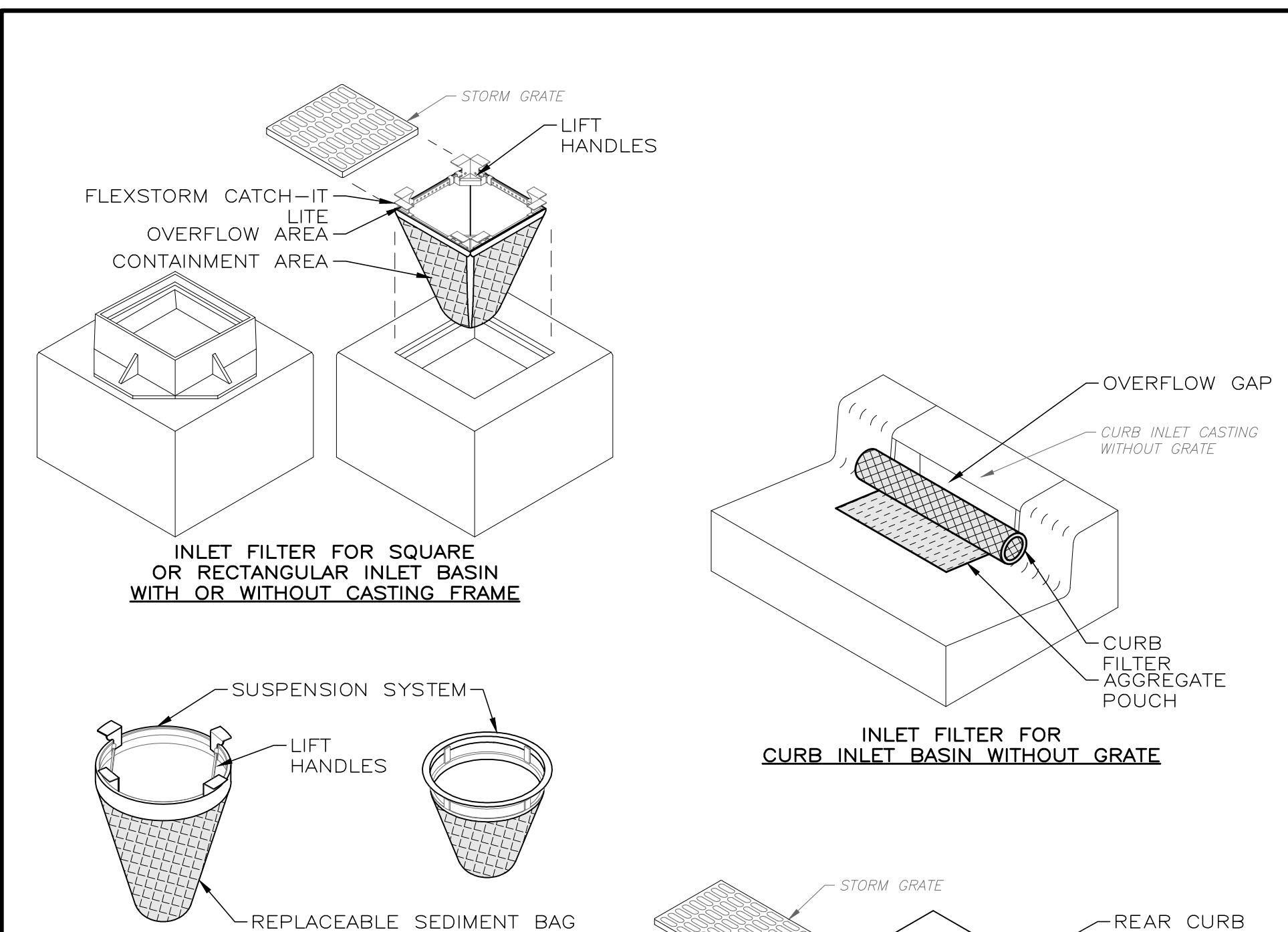
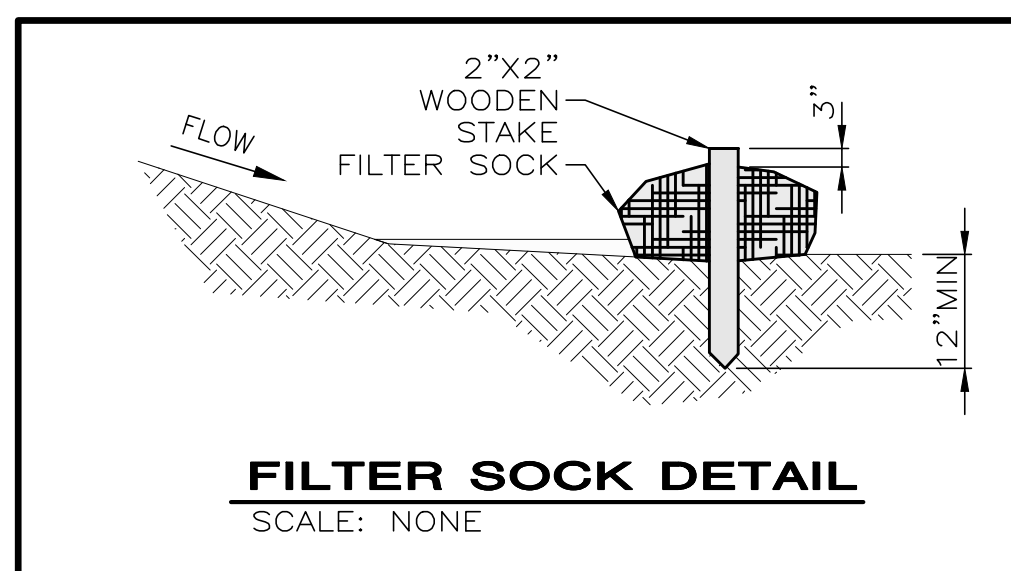
PROJECT NO: 23004301	
DRAWING NAME DT-02	
SHEET 7	OF 9



- NOTES:
- PRESERVE VEGETATION FOR 5 FEET, OR AS MUCH AS POSSIBLE, UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE RE-ESTABLISHED WITHIN 7 DAYS FROM SILT FENCE INSTALLATION.
  - SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. PERFORM ONE OF THE FOLLOWING IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW:
    - CHANGE THE LAYOUT OF THE SILT FENCE.
    - REMOVE ACCUMULATED SEDIMENT.
    - INSTALL OTHER PRACTICES.

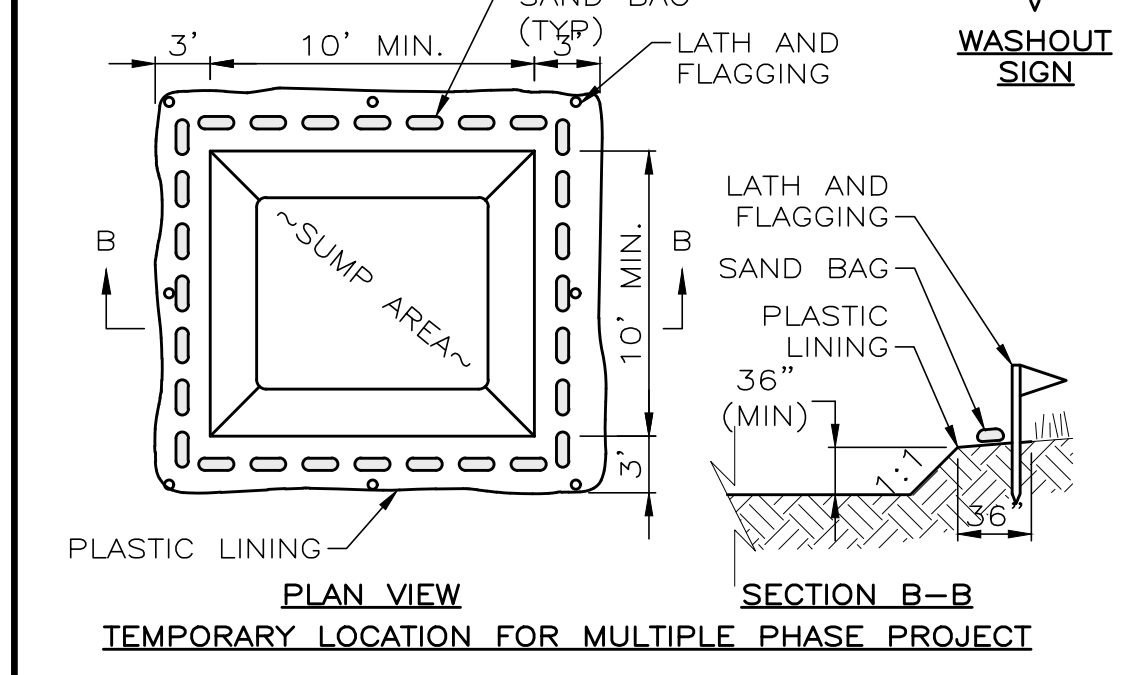
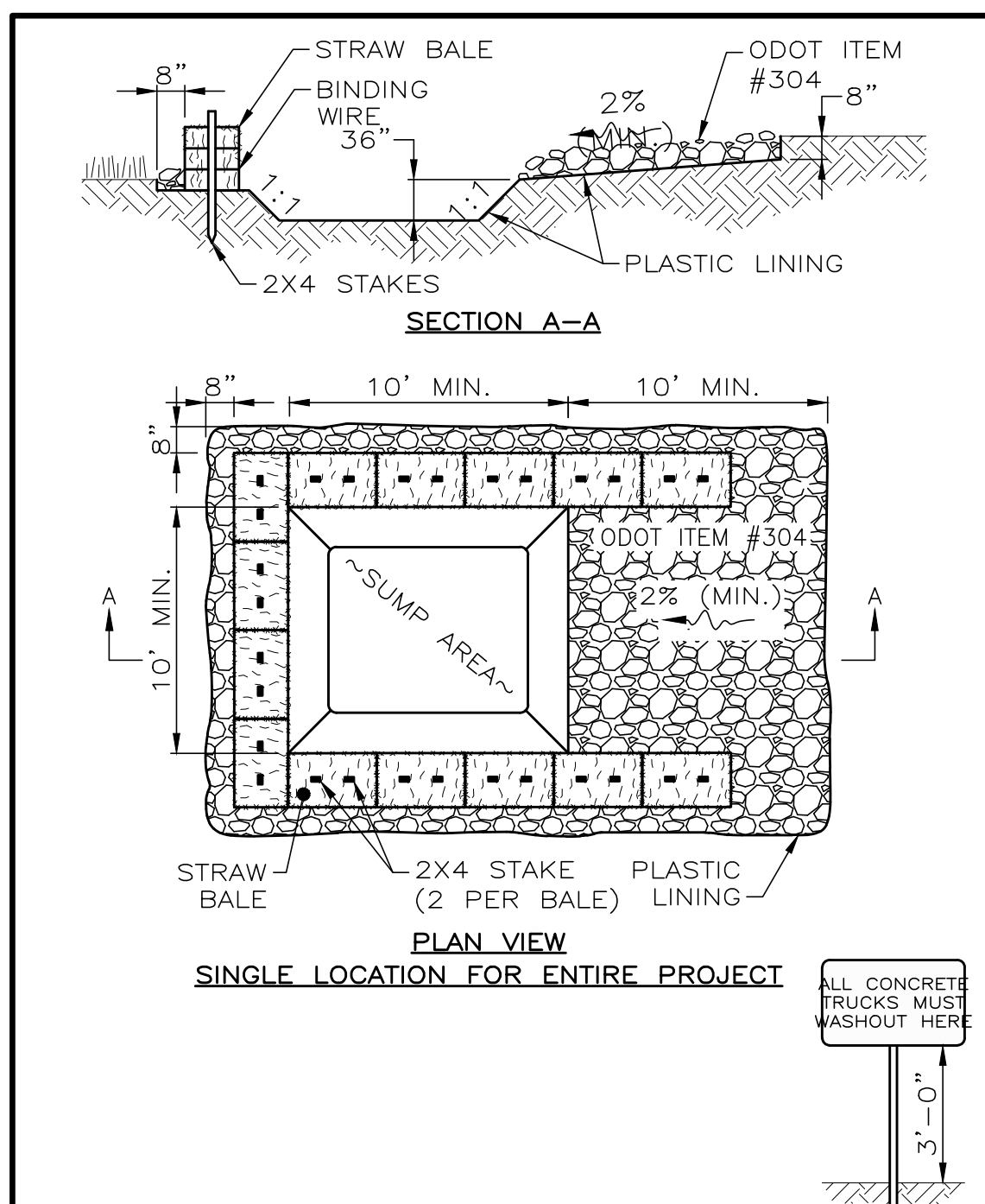
FABRIC PROPERTIES	VALUES	TEST METHOD
GRAB TENSILE STRENGTH	90 LB. MIN	ASTM D-1682
MULLEN BURST STRENGTH	190 PSI MIN	ASTM D-3786
SLURRY FLOW RATE	0.3 GAL./MIN./S.F. MAX.	
EQUIVALENT OPENING SIZE	40-80	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MIN	ASTM-G-26

**SILT FENCE**  
SCALE: NONE



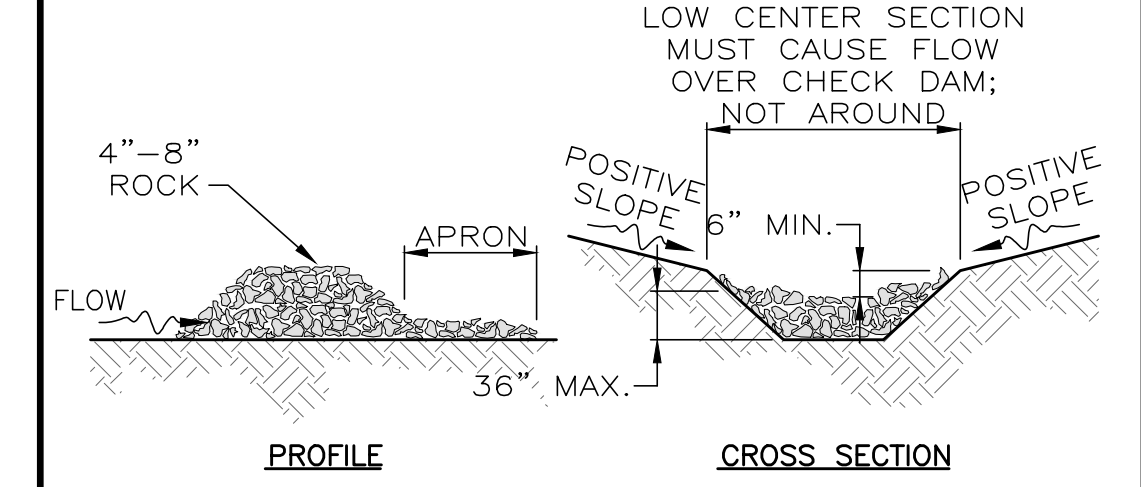
- NOTES:
- ALL FRAMING SHALL BE CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
  - CONTRACTOR SHALL PROVIDE EXISTING OR PROPOSED STRUCTURE DETAILED DIMENSIONS, CASTING CALLOUT, MAKE AND MODEL TO CONFIGURE AND ASSEMBLE CUSTOMIZED FLEXSTORM INLET FILTERS.

**STORM DRAIN INLET PROTECTION DETAIL**  
SCALE: NONE



- NOTES:
- WASHOUT PIT SHALL BE LOCATED 100' MINIMUM FROM INLETS, STREAMS, WETLANDS AND ANY OTHER SURFACE WATERS.
  - ALL EXCESS CONCRETE AND CONCRETE WASHOUT, INCLUDING FROM HAND MIXERS AND LIGHT EQUIPMENT, SHALL BE DISPOSED OF IN THE CONCRETE WASHOUT AREA. DISPOSAL OF EXCESS CONCRETE OR CONCRETE WASHOUT ON THE GROUND, OR IN STORM DRAINS, DITCHES OR WATER BODIES, IS PROHIBITED.
  - CONCRETE WASHOUT AREA SHALL BE SUFFICIENT SIZE TO CONTAIN CONCRETE WASTE GENERATED. FOR LARGER SITES, MULTIPLE CONCRETE WASHOUT AREAS MAY BE REQUIRED.
  - IF CONCRETE WASHOUT AREA IS LOCATED AWAY FROM A PAVED SURFACE, CONSTRUCT A GRAVEL ACCESS ROUTE EQUAL IN COMPOSITION TO THE CONSTRUCTION ENTRANCE.
  - PLASTIC LINING SHALL BE DOUBLE-LINED, CONTINUOUS 10-ML POLYETHYLENE SHEETING FREE OF HOLES, TEARS OR OTHER DEFECTS, AND INSTALLED ON A SMOOTH, LEVEL SURFACE, FREE OF ROCKS OR DEBRIS.
  - CONCRETE WASHOUT SIGNAGE SHALL BE CLEARLY VISIBLE AND LOCATED WITHIN 30 FEET OF EACH WASHOUT AREA.
  - CONCRETE WASHOUT AREAS SHALL BE COVERED DURING INCLEMENT WEATHER TO PREVENT OVERFLOWS.
  - PREFABRICATED, PORTABLE AND RE-USABLE CONCRETE WASHOUT CONTAINERS ARE ACCEPTABLE, BUT MUST BE SPECIFICALLY DESIGNED FOR CONCRETE WASHOUT USE.
  - CONCRETE WASHOUT AREA SHALL BE INSPECTED DAILY TO CHECK FOR DAMAGE AND TO DETERMINE IF IT NEEDS CLEANED OR REPLACED. ANY DAMAGE TO THE SIDEWALLS OR POLYETHYLENE SHEETING SHALL BE REPAIRED IMMEDIATELY. THE CONCRETE WASHOUT AREA SHALL BE CLEANED OR REPLACED WHEN IT IS 75% FULL. THE POLYETHYLENE SHEETING SHALL BE REPLACED AFTER EACH CLEANING.
  - SAW CUT CONCRETE, RESIDUE FROM SAW CUT, AND GRINDINGS SHALL BE DISPOSED OF IN THE WASHOUT PIT.

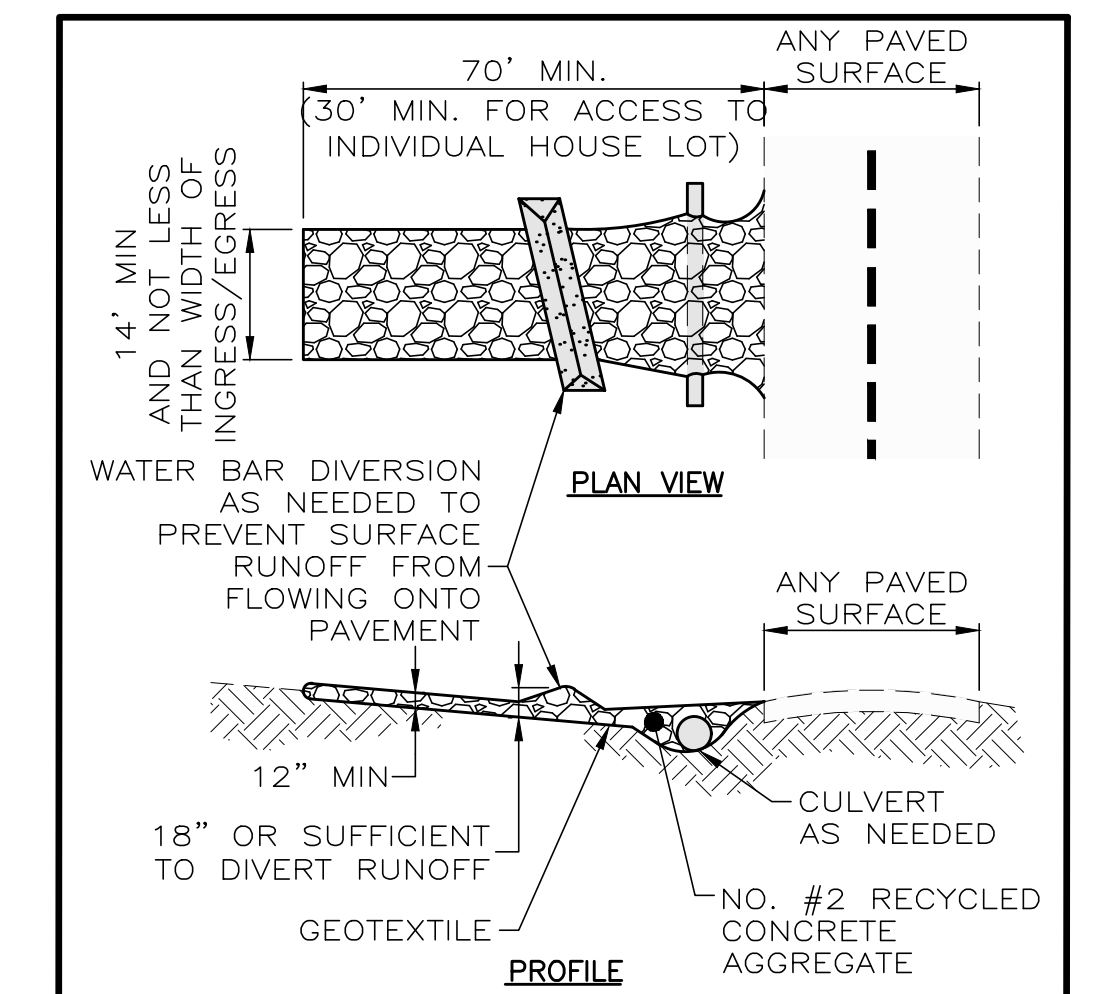
**CONCRETE WASHOUT DETAIL**  
SCALE: NONE



- NOTES:
- THE CHECK DAM SHALL BE CONSTRUCTED OF 4" TO 8" DIAMETER STONE, PLACED SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL.
  - THE TOP OF THE CHECK DAM SHALL BE CONSTRUCTED SO THE CENTER IS APPROXIMATELY 6" LOWER THAN THE OUTER EDGES; SO WATER WILL FLOW ACROSS THE CENTER AND NOT AROUND THE ENDS.
  - THE MAXIMUM HEIGHT OF THE CHECK DAM AT THE CENTER OF THE WEIR SHALL NOT EXCEED 36".
  - SPACING BETWEEN DAMS SHALL BE AS SHOWN IN THE CONSTRUCTION PLANS OR BY THE FOLLOWING TABLE:

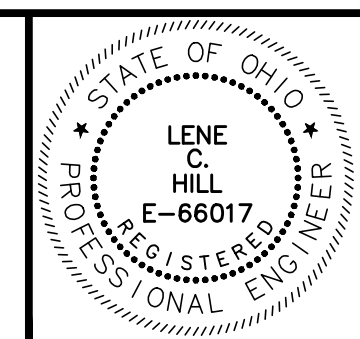
DAM HEIGHT	CHECK DAM SPACING			
	CHANNEL SLOPE			
	< 5%	5% - 10%	10% - 15%	15% - 20%
1 FT.	65 FT.	30 FT.	20 FT.	15 FT.
2 FT.	130 FT.	65 FT.	40 FT.	30 FT.
3 FT.	200 FT.	100 FT.	65 FT.	50 FT.

**CHECK DAM DETAIL**  
SCALE: NONE



- NOTES:
- PLACE GEOTEXTILE OVER THE ENTIRE AREA PRIOR TO PLACING STONE MEETING THE MIN. SPECIFICATIONS:
    - A. TENSILE STRENGTH = 200 LBS.
    - B. PUNCTURE STRENGTH = 80 PSI
    - C. TEAR STRENGTH = 50 LBS.
    - D. BURST STRENGTH = 320 PSI
    - E. ELONGATION = 20%
    - F. EQUIVALENT OPENING SIZE ≤ 0.6 MM
    - G. PERMITTIVITY = 0.001 CM/SEC
  - APPLY ADDITIONAL STONE AS CONDITIONS DEMAND AND REPLENISH STONE WHEN THE DEPTH IS LESS THAN 6". REMOVE AND REPLACE IF STONES BECOMES MUD-LADEN.
  - IMMEDIATELY REMOVE MUD DROPPED, WASHED OR TRACKED ONTO ROADS OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS BY SCRAPING OR SWEEPING.
  - CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES OR TO PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SITE SHALL BE RESTRICTED FROM MUDDY AREAS.

**CONSTRUCTION ENTRANCE**  
SCALE: NONE



NO	REVISION	DATE

THE CITIES OF WILLOUGHBY & EASTLAKE  
HARTFORD ROAD WATERMAIN  
PART A  
LAKE COUNTY, OHIO

SCALE: AS SHOWN
DATE: 04/22/2024
DESIGNED BY: BLM
DRAWN BY: BTZ
CHECKED BY: TJM

**EROSION AND SEDIMENT CONTROL**

PROJECT NO: <b>23004301</b>
DRAWING NAME <b>ESC-01</b>
SHEET OF <b>8 9</b>



# STORM WATER POLLUTION PREVENTION PLAN NOTES

- THE EROSION CONTROL MEASURES INCLUDED IN THIS PLAN SHALL BE INSTALLED PRIOR TO INITIAL LAND DISTURBANCE ACTIVITIES OR AS SOON AS PRACTICAL. SEDIMENT SHALL BE PREVENTED FROM DISCHARGING FROM THE PROJECT SITE BY INSTALLING AND MAINTAINING SILT FENCE, SEDIMENT BASINS, ETC. AS SHOWN ON THIS PLAN. STRUCTURAL PRACTICES SHALL BE USED TO CONTROL EROSION FROM ALL SITES REMAINING DISTURBED FOR MORE THAN 14 DAYS.
- THE CONTRACTOR SHALL CONTROL WASTES, GARBAGE, DEBRIS, WASTEWATER, AND OTHER SUBSTANCES ON THE SITE IN SUCH A WAY THAT THEY SHALL NOT BE TRANSPORTED FROM THE SITE BY THE ACTION OF WINDS, STORM WATER RUNOFF, OR OTHER FORCES. PROPER DISPOSAL OR MANAGEMENT OF ALL WASTES AND UNUSED BUILDING MATERIALS, APPROPRIATE TO THE NATURE OF THE WASTE OR MATERIAL, IS REQUIRED. COMPLIANCE IS REQUIRED WITH ALL STATE OR LOCAL REGULATIONS REGARDING WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEMS.
- PUBLIC OR PRIVATE ROADWAYS SHALL BE KEPT CLEARED OF ACCUMULATED SEDIMENT. OFF-SITE VEHICLE TRACKING SEDIMENT SHALL BE MINIMIZED. CONSTRUCTION VEHICLES ARE LIMITED TO THE CONSTRUCTION ACCESS ROAD NOTED ON PLAN. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING THE AREA WITH WATER. CLEARED SEDIMENT SHALL BE RETURNED TO THE POINT OF LIKELY ORIGIN OR OTHER SUITABLE LOCATION.
- EXCEPT AS PREVENTED BY INCLEMENT WEATHER CONDITIONS, ALL DISTURBED AREAS OVER 50 FEET AWAY FROM THE STREAM BED TO REMAIN INACTIVE FOR MORE THAN 14 DAYS SHALL BE STABILIZED BY SEEDING AND MULCHING, COVERING, OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES WITHIN SEVEN (7) DAYS OF THE MOST RECENT DISTURBANCE AND PRIOR TO THE ONSET OF WINTER WEATHER. PERMANENT SOIL STABILIZATION SHALL BE PROVIDED WITHIN 7 DAYS AFTER FINAL GRADE IS ESTABLISHED.
- EXCEPT AS PREVENTED BY INCLEMENT WEATHER CONDITIONS, ALL DISTURBED AREAS WITHIN 50 FEET OF THE STREAM BED TO REMAIN INACTIVE FOR MORE THAN 14 DAYS SHALL BE STABILIZED BY SEEDING AND MULCHING, COVERING, OR BY OTHER EQUIVALENT EROSION CONTROL MEASURES WITHIN TWO (2) DAYS OF THE MOST RECENT DISTURBANCE AND PRIOR TO THE ONSET OF WINTER WEATHER. PERMANENT SOIL STABILIZATION SHALL BE PROVIDED WITHIN 2 DAYS AFTER FINAL GRADE IS ESTABLISHED.
- DISTURBED AREAS WHICH WILL REMAIN IDLE DURING THE WINTER MONTHS SHALL BE STABILIZED USING SEEDING AND MULCHING. SUCH STABILIZATION MEASURES MUST BE INSTALLED NO LATER THAN NOVEMBER 1.
- THIS EROSION CONTROL PLAN SHALL BE IMPLEMENTED ON ALL DISTURBED AREAS WITHIN THE CONSTRUCTION SITE. ALL MEASURES INVOLVING EROSION CONTROL PRACTICES SHALL BE INSTALLED UNDER THE GUIDANCE OF QUALIFIED PERSONNEL EXPERIENCED IN EROSION CONTROL, AND FOLLOWING THE PLANS AND SPECIFICATION INCLUDED HEREIN. OTHER EROSION AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS.
- DURING THE PERIOD OF CONSTRUCTION ACTIVITY, ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR. AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE THE TRANSFER OF MAINTENANCE RESPONSIBILITIES, IF REQUIRED, WITH THE OWNER. MAINTENANCE SHALL BE IN ACCORDANCE WITH THE "OHIO RAINWATER AND LAND DEVELOPMENT HANDBOOK (2006)".
- ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH THE "OHIO RAINWATER AND LAND DEVELOPMENT HANDBOOK (2006)," AND THE THE OHIO DEPARTMENT OF TRANSPORTATION (O.D.O.T.) STANDARD CONSTRUCTION DRAWING MC-11.
- POST CONSTRUCTION STORM WATER MANAGEMENT: ALL DISTURBED AREAS SHALL HAVE ADEQUATE VEGETATION TO FILTER POLLUTANTS AS MUCH AS PRACTICAL. LOCAL LAWS REGARDING THE DISCHARGING OF OIL AND OTHER POLLUTANTS INTO DRAINAGE-WAYS SHALL APPLY.
- ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED IN ACCORDANCE WITH THE CONDITIONS OF APPLICABLE NPDES PERMITS.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE REMOVED AND DISPOSED OF WITHIN THIRTY DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY PRACTICES ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION.
- THIS EROSION CONTROL PLAN MUST BE RETAINED ON-SITE AT ALL TIMES DURING THE PERIOD OF CONSTRUCTION.
- FIELD ADJUSTMENTS FOR LOCATION AND DIMENSION OF SEDIMENT CONTROL DEVICES MAY BE MADE BY THE ENGINEER AS REQUIRED.
- EROSION CONTROL DEVICES REMOVED DURING GRADING OPERATIONS SHALL BE PUT BACK IN PLACE AT THE END OF THE DAY OR DURING INCLEMENT WEATHER.
- NO SOIL, ROCK, DEBRIS, OR OTHER MATERIAL SHALL BE DUMPED OR PLACED INTO A WATER RESOURCE OR INTO SUCH PROXIMITY THAT IT MAY READILY SLOUGH, SLIP, OR ERODE INTO A WATER RESOURCE UNLESS DUMPING OR PLACING IS AUTHORIZED BY THE ENGINEER AND, WHEN APPLICABLE, THE U.S. ARMY CORPS OF ENGINEERS, FOR SUCH PURPOSES AS, BUT NOT LIMITED TO, CONSTRUCTION BRIDGES, CULVERTS, AND EROSION CONTROL STRUCTURES.
- THE CONTRACTOR IS RESPONSIBLE TO CONFORM TO ALL REGULATORY REQUIREMENTS FOR DISCHARGING WATER RELATED TO DE-WATERING ACTIVITIES. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE COST OF ITEM 503 - COFFERDAMS, CRIBS AND SHEETING.
- SEDIMENT PONDS/TRAPS AND PERIMETER CONTROLS SHALL BE IMPLEMENTED AS A FIRST STEP OF GRADING AND WITHIN 7 DAYS FROM THE START OF GRUBBING AND SHALL CONTINUE TO FUNCTION UNTIL UPLAND AREAS ARE STABILIZED.
- EROSION CONTROL BLANKETS WITH MATTING WILL BE USED ON DITCHES GREATER THAN 1.5% AND ALL OTHER SLOPES GREATER THAN 6% GRADE.
- REGULAR INSPECTION AND MAINTENANCE WILL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD. PROVIDE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF INSPECTION AND CORRECTIVE MEASURES TAKEN.
- MARK LIMITS OF CLEARING AND GRUBBING FOR APPROVAL PRIOR TO CONSTRUCTION. AFTER CLEARING, BUT BEFORE GRUBBING, INSTALL ALL INITIAL EROSION CONTROL ITEMS. AFTER GRUBBING, BUT BEFORE TOPSOIL STRIPPING AND GRADING, INSTALL CONSTRUCTION FENCING AT THE CLEARING LIMIT LINE.
- PROTECT UNDISTURBED AREAS THROUGHOUT CONSTRUCTION. DO NOT STORE EQUIPMENT, VEHICLES OR MATERIALS IN THE PROTECTED AREA BEYOND THE CONSTRUCTION FENCE.
- OFF-SITE VEHICLES TRACKING SEDIMENT SHALL BE MINIMIZED. CONSTRUCTION VEHICLES ARE LIMITED TO THE CONSTRUCTION ACCESS ROAD(S) NOTED ON THE PLAN.
- OTHER EROSION AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS.
- THE CONTRACTOR SHALL MAINTAIN AN SWPPP INSPECTION LOG IN THE FIELD.

- ALL CONSTRUCTION AND DEMOLITION DEBRIS SHALL BE DISPOSED OF IN AN OHIO EPA APPROVED C&DD LANDFILL, AS REQUIRED BY OHIO REVISED CODE (ORC) 3714.
- NO TURBID STORM WATER MAY BE DISCHARGED OFF SITE.
- THE CONTRACTOR SHALL CREATE A SIGN THAT WILL BE DISPLAYED ON SITE LABELING THE STEPS FOR SMALL AND LARGE OIL SPILL PROCEDURES. A SPILL RESPONSE KIT SHALL BE MAINTAINED ON THE SITE. THE SIGNAGE SHALL IDENTIFY WHERE THE KIT IS LOCATED.
- (SMALL RELEASE) ANY DISCHARGE OF PETROLEUM OR PETROLEUM PRODUCTS OF LESS THAN 25 GALLONS ON TO A PERVIOUS SURFACE SHALL BE LEGALLY REMOVED AND PROPERLY TREATED OR PROPERLY DISPOSED OF, OR OTHERWISE REMEDIATED, SO THAT NO CONTAMINATIONS FROM THE DISCHARGE REMAINS ON-SITE. THE CONTRACTOR SHALL FOLLOW THE STEPS PROVIDED BELOW:
  - SPILLS LESS THAN 25 GALLONS THAT REMAINS ON SITE DOES NOT NEED TO BE REPORTED.
  - ALL SPILLS SHALL BE CONTAINED USING STRAW TO ABSORB THE LIQUID, A COMMERCIAL MATERIAL THAT IS CAPABLE OF ABSORBING OIL IN SOILS, MECHANICAL REMOVAL OR A VACUUM PUMP.
  - ONCE THE SPILL HAS BEEN CONTAINED, THE AFFECTED SOIL, MATERIAL AND/OR LIQUID SHALL BE LEGALLY DISPOSED OF IN A MUNICIPAL SOLID WASTE LANDFILL PERMITTED BY THE OHIO EPA.
- (LARGE RELEASE) IN THE EVENT OF A LARGE RELEASE (25 OR MORE GALLONS) OF PETROLEUM WASTE, THE CONTRACTOR MUST CONTACT THE OHIO EPA AT 1-800-282-9378, THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE (LEPC) WITHIN 30 MINUTES OF A SPILL OF 25 OR MORE GALLONS. THE CONTRACTOR SHALL FOLLOW THE STEPS PROVIDED BELOW:
  - ALL SPILLS GREATER THAN 25 GALLONS NEEDS TO BE REPORTED.
  - ALL SPILLS SHALL BE CONTAINED USING STRAW TO ABSORB THE LIQUID, A COMMERCIAL MATERIAL THAT IS CAPABLE OF ABSORBING OIL IN SOILS, MECHANICAL REMOVAL OR A VACUUM PUMP. IF THE SPILL IS HEADING TOWARD SURFACE OR GROUND WATER, THE CONTRACTOR SHALL SET BOOMS AS CLOSE TO THE WATER ENTRY POINT OF THE SPILL AS POSSIBLE.
  - ONCE THE SPILL HAS BEEN CONTAINED, THE AFFECTED SOIL, MATERIAL AND/OR LIQUID SHALL BE LEGALLY DISPOSED OF IN A MUNICIPAL SOLID WASTE LANDFILL PERMITTED BY THE OHIO EPA.

- APPLY MULCH OR OTHER APPROPRIATE VEGETATIVE PRACTICES TO DISTURBED AREAS WITHIN 7 DAYS OF GRADING IF THE AREA IS TO REMAIN DORMANT FOR MORE THAN 45 DAYS OR ON AREAS OF THE SITE WHICH CAN BE BROUGHT TO FINAL GRADE.
- MULCH SHALL CONSIST OF ONE OF THE FOLLOWING:
  - UNROTTED SMALL-GRAIN STRAW APPLIED AT A RATE OF 2 TONS/AC. OR 90 LB/1,000 S.F. (2 TO 3 BALES) AND SPREAD UNIFORMLY BY HAND OR MECHANICALLY.
  - WOOD-CELLULOSE FIBER APPLIED AT A RATE OF 2,000 LB/AC. OR 46 LB/1,000 S.F.
  - MULCH MATTING.
  - WOOD CHIPS APPLIED AT 6 TONS/AC.
- ANCHOR MULCH IMMEDIATELY TO MINIMIZE LOSS BY WIND OR RUNOFF. ACCEPTABLE ANCHORING METHODS ARE:
  - PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL USING A DISK, CRIMPER OR SIMILAR TOOL. DO NOT FINELY CHOP STRAW TO BE MECHANICALLY ANCHORED, BUT LEAVE LONGER THAN 6 INCHES.
  - USE NETTING PER THE MANUFACTURER RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF OR ON CRITICAL SLOPES.
  - SYNTHETIC BINDERS MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER.
  - WOOD-CELLULOSE FIBER BINDER AT A NET DRY WEIGHT OF 750 LB/AC. WOOD CELLULOSE FIBER IS TO BE MIXED WITH WATER AND THE MIXTURE IS TO CONTAIN 50 LB/100 GAL. MAX. OF WOOD CELLULOSE FIBER.

### MULCHING DETAIL

SCALE: NONE

- TEMPORARY SEED TO BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 21 DAYS OR MORE. THESE IDLE AREAS SHOULD BE SEEDED AS SOON AS POSSIBLE AFTER GRADING OR BE SEEDED WITHIN 7 DAYS. SEVERAL APPLICATIONS OF TEMPORARY SEEDING ARE NECESSARY ON TYPICAL CONSTRUCTION PROJECTS.
- THE SEED BED IS TO BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION.
- SOIL AMENDMENTS MAY BE REQUIRED TO ESTABLISH ADEQUATE STANDS OF VEGETATION. PERFORM SOIL TESTS ON THE SITE TO PREDICT THE NEED FOR LIME AND FERTILIZER.
- APPLY SEED UNIFORMLY WITH CYCLONE SEEDER, CULTIPACKER SEEDER OR HYDROSEEDER. COVER BROADCASTED SEED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPING INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, MIX THE SEED AND FERTILIZER ON SITE AND IMMEDIATELY USE.

#### MULCHING TEMPORARY SEEDING

- APPLY MULCH MATERIAL IMMEDIATELY AFTER SEEDING. SEEDING MADE DURING OPTIMUM SEEDING DATES ON FLAT AREAS WITH FAVORABLE SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE STABILIZATION. DORMANT SEEDING IS TO BE MULCHED.
- SEE MULCHING FOR MATERIALS AND ANCHORING METHODS.

#### TEMPORARY SEEDING SPECIES SELECTION

SEEDING DATES	SPECIES	LB/1,000 S.F.	PER AC.
March 1 to August 15	Oats	3	4 bushel
	Tall Fescue	1	40 lb.
	Perennial Ryegrass	1	40 lb.
August 16 to November 1	Perennial Ryegrass	2	40 lb.
	Tall Fescue	1	40 lb.
	Rye	3	2 bushel
November 1 to Spring Seeding	Tall Fescue	1	40 lb.
	Perennial Ryegrass	1	40 lb.
	Perennial Ryegrass	2	40 lb.
	Tall Fescue	1	40 lb.

### TEMPORARY SEEDING DETAIL

SCALE: NONE

#### SPECIFICATIONS FOR PERMANENT SEEDING SITE PREPARATION:

- A SUBSOILER, PLOW OR OTHER IMPLEMENT TO BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. SUBSOILING TO BE DONE WHEN SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING IS NOT TO BE DONE ON SLIP-PRONE AREAS.
- GRADE THE SITE AS NEEDED TO PERMIT USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.
- APPLY RESOIL WHERE NEEDED TO ESTABLISH VEGETATION.

#### SEEDBED PREPARATION:

- APPLY AGRICULTURAL GROUND LIMESTONE TO ACIDIC SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, APPLY AT RATE OF 100 LB/1,000 S.F. OR 2 TONS/AC.
- APPLY FERTILIZER AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, APPLY AT A RATE OF 12 LB/1,000 S.F. OR 500 LB/AC. OF 10-10-10 OR 12-12-12 ANALYSIS.
- LIME AND FERTILIZER TO BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3".

#### SEEDING DATES AND SOIL CONDITIONS:

- SEED MARCH 1 TO MAY 31 OR AUGUST 1 TO SEPTEMBER 30. THESE ARE IDEAL SEEDING DATES, BUT SEEDING MAY BE MADE ANY TIME THROUGHOUT THE GROWING SEASON WITH THE USE OF ADDITIONAL MULCH AND IRRIGATION. TILLAGE/SEED BED PREPARATION TO BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. SEE THE FOLLOWING SECTION ON DORMANT SEEDING FOR WINTER SEEDING.

#### DORMANT SEEDINGS:

- DO NOT PLANT SEEDINGS FROM OCTOBER 1 TO NOVEMBER 20. SEEDS ARE LIKELY TO GERMINATE DURING THIS PERIOD, BUT PROBABLY WILL NOT SURVIVE THE WINTER.
- THE FOLLOWING METHODS MAY BE USED:
  - FROM OCTOBER 1 TO NOVEMBER 20, PREPARE THE SEED BED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. AFTER NOVEMBER 20 AND BEFORE MARCH 15, INCREASE THE SEEDING RATES BY 50% AND BROADCAST THE SEED MIXTURE.
  - FROM NOVEMBER 20 THROUGH MARCH 15, WHEN SOIL CONDITIONS PERMIT, PREPARE THE SEED BED, LIME AND FERTILIZER, APPLY THE SEED MIXTURE, MULCH AND ANCHOR. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.
  - APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDRO-SEEDED (SLURRY MAY INCLUDE SEED AND FERTILIZER) ON FIRM, MOIST SEED BED.
  - WHERE FEASIBLE, EXCEPT WHEN A CULTIPACKER TYPE SEEDER IS USED, THE SEED BED IS TO BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CULTIPACKER, ROLLER, OR LIGHT DRAG.

#### IRRIGATION:

- PERMANENT SEEDING TO INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY OR HOT WEATHER OR ON ADVERSE SITE CONDITIONS AS NEEDED FOR ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH.
- EXCESSIVE IRRIGATION RATES TO BE AVOIDED AND IRRIGATION MONITORED TO PREVENT EROSION AND DAMAGE FROM RUNOFF.

#### MULCHING:

- APPLY MULCH MATERIAL IMMEDIATELY AFTER SEEDING. SEEDING MADE DURING OPTIMUM SEEDING DATES ON FLAT AREAS WITH FAVORABLE SOIL CONDITIONS MAY NOT NEED MULCH TO ACHIEVE STABILIZATION. DORMANT SEEDING IS TO BE MULCHED.

#### SPECIFICATIONS FOR MAINTENANCE OF PERMANENT SEEDING:

- PERMANENT SEEDING TO NOT BE CONSIDERED ESTABLISHED FOR AT LEAST 1 FULL YEAR FROM THE TIME OF PLANTING. SEEDED AREAS TO BE INSPECTED FOR FAILURE AND VEGETATION REESTABLISHED AS NEEDED. DEPENDING ON SITE CONDITIONS, IT MAY BE NECESSARY TO IRRIGATE, FERTILIZE, OVERSEED, OR REESTABLISH PLANTINGS IN ORDER TO PROVIDE PERMANENT VEGETATION FOR ADEQUATE EROSION CONTROL.
- ESTABLISH MAINTENANCE FERTILIZATION RATES BY SOIL TEST RECOMMENDATIONS OR USING THE FOLLOWING RATES:

### PERMANENT SEEDING DETAIL

SCALE: NONE

SEED MIX	SEEDING RATE		NOTES:
	LB./AC.	LB./1,000 S.F.	
GENERAL USE			
Creeping Red Fescue	20-40	1/2 TO 1	
Domestic Ryegrass	10-20	1/4 TO 1/2	
Kentucky Bluegrass	10-20	1/4 TO 1/2	
Tall Fescue	40	1	
Dwarf Fescue	40	1	

STEEP BANKS OR CUT SLOPES			
Tall Fescue	40	1	
Crown Vetch	10	1/4	Do not seed later than August
Tall Fescue	20	1/2	
Flat Pea	20	1/2	Do not seed later than August
Tall Fescue	20	1/2	

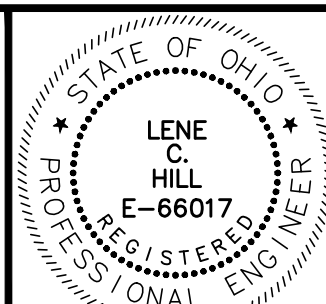
ROAD DITCHES AND SWALES			
Tall Fescue	40	1	
Dwarf Fescue	90	2-1/4	Do not seed later than August
Kentucky Bluegrass	5		

LAWN			
Kentucky Bluegrass	60	1-1/2	
Perennial Ryegrass	60	1-1/2	
Kentucky Bluegrass	60	1-1/2	For shaded areas
Creeping Red Fescue	60	1-1/2	

Note: Other approved seed species may be substituted.

MAINTENANCE FOR PERMANENT SEEDINGS FERTILIZATION AND MOWING				
MIXTURE	FORMULA	LB./AC.	TIME	MOWING
Creeping Red Fescue	10-10-10	500		≥3"
Domestic Ryegrass				
Kentucky Bluegrass				
Tall Fescue	10-10-10	500	Fall, yearly or as needed	≥4"
Dwarf Fescue	10-10-10	500		≥2"
Crown Vetch Fescue	0-20-20	400	Spring, yearly following establishment, then every 4-7 years	Do not mow
Flat Pea Fescue	0-20-20	400		

Note: Following soil test recommendations is preferred to the fertilizer rates above.



NO	REVISION	DATE

THE CITIES OF WILLOUGHBY & EASTLAKE  
**HARTFORD ROAD WATERMAIN  
 PART A**  
 LAKE COUNTY, OHIO

SCALE:	AS SHOWN
DATE:	04/22/2024
DESIGNED BY:	BLM
DRAWN BY:	BTZ
CHECKED BY:	TJM

# EROSION AND SEDIMENT CONTROL

PROJECT NO:	
23004301	
DRAWING NAME	
ESC-02	
SHEET	OF
9	9