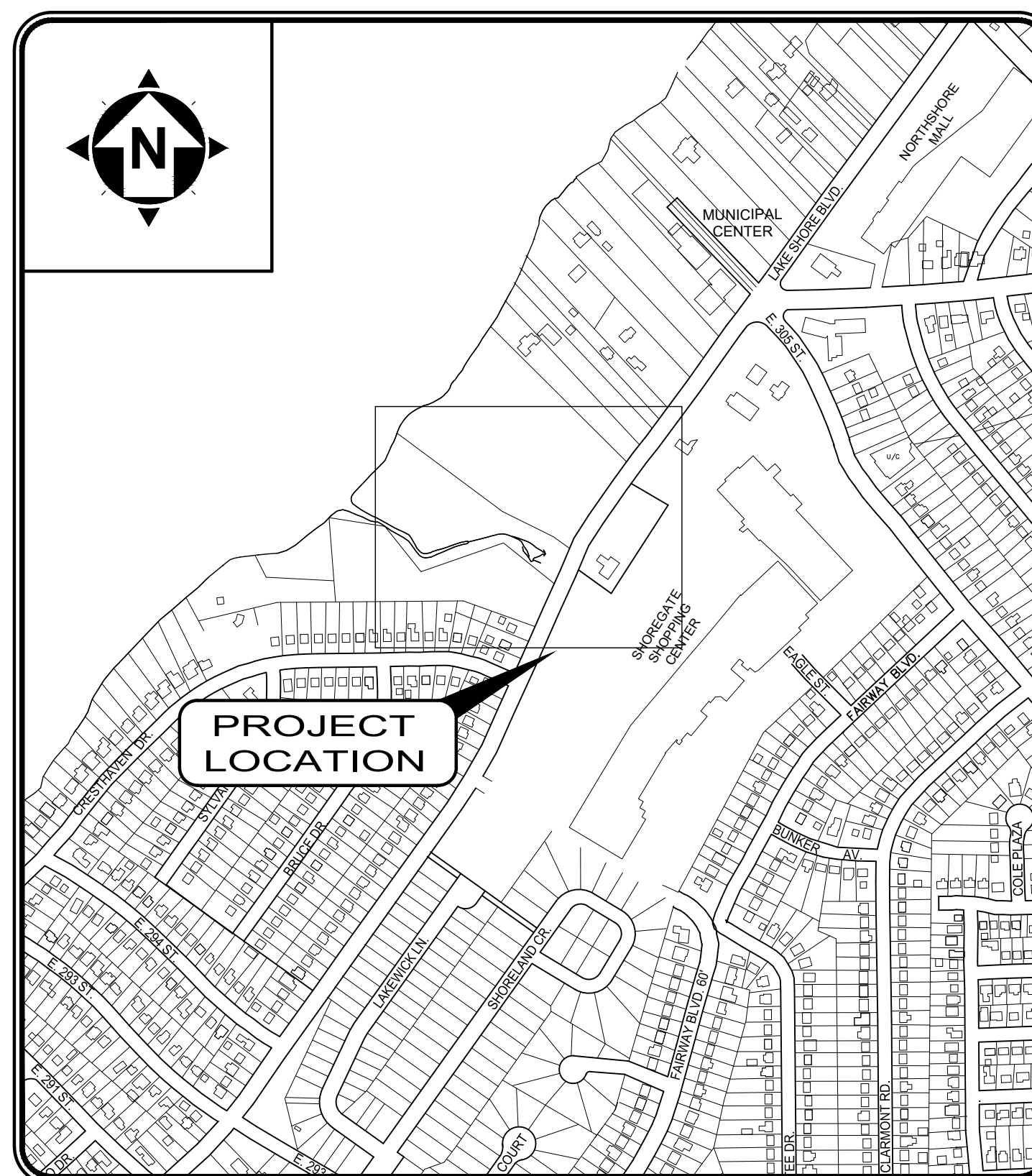


MS. MONICA KOUDELA	COUNCIL PRESIDENT
MR. PATRICK MOHORCIC	COUNCIL MEMBER, WARD 1
MR. DEVON MCFARLAND	COUNCIL MEMBER, WARD 1
MS. NATALIE ANTOSH	COUNCIL MEMBER, WARD 2
MS. THERESA BISBEE	COUNCIL MEMBER, WARD 2
MR. CHARLIE MALTA	COUNCIL MEMBER, WARD 3
MR. DAVID PHARES	COUNCIL MEMBER, WARD 3



1. UNDERGROUND BUILDING SERVICE UTILITY LINES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MAINTAINING AND REPLACING AS NECESSARY TO ENSURE CONTINUAL SERVICE TO BUILDINGS.
2. THE CONTRACTOR IS RESPONSIBLE TO CALL OHIO UTILITIES PROTECTION SERVICE @ 1-800-362-2764. THREE WORKING DAYS PRIOR TO CONSTRUCTION.

OCTOBER 2026



LOCATION MAP
N.T.S.

THE PROJECT IS LOCATED IN THE CITY OF WILLOWICK OHIO, ALONG LARIMAR DRIVE. THE PROJECT FOCUSES ON THE REHABILITATION OF THE EXISTING 84" AND 120" STORMWATER CULVERTS CROSSING UNDER LAKESHORE BOULEVARD.

MR. MICHAEL J. VANNI	CITY MAYOR/ SAFETY DIRECTOR
MR. TODD SHANNON	SERVICE DIRECTOR
MR. GORAN VRHOVAC	FINANCE DIRECTOR
MS. MANDY GWIRTZ	LAW DIRECTOR
MS. JULIE KLESS	DIRECTOR OF RECREATION
MR. ROB DAUBEMIRE	POLICE CHIEF
MR. BILL MALOVRH	FIRE CHIEF
MR. SEAN BRENNAN	CHIEF HOUSING AND ZONING INSPECTOR

TIMOTHY J. McLAUGHLIN



P.E. No. 83985

10/08/26
DATE



ENGINEER'S PROJECT No. 43427

CITY OF WILLOWICK, OHIO LARIMAR CULVERT IMPROVEMENTS LAKE COUNTY		SCALE	AS NOTED	NO	REVISION	DATE
		DATE:	10/08/2026			
		DESIGNED BY:	MMG & JPB			
		DRAWN BY:	JPB			
		CHECKED BY:	TJM			
OHIO GENERAL - 00 SERIES COVER SHEET						
PROJECT NO:						
43427						
DRAWING NAME						
00G-01						
SHEET		OF				
1		15				

	GAS		SANITARY MANHOLE
	GAS, SERVICE		STORM MANHOLE
	SANITARY SEWER		CURB INLET
	SANITARY SEWER, SERVICE		FIRE HYDRANT
	STORM SEWER		WATER VALVE
	WATER LINE		GAS VALVE
	WATER LINE, SERVICE		
	PROPERTY LINE		
	RIGHT-OF-WAY LINE		
	SURVEY STATIONING		
	PAVED ROADWAY		

STORM SEWER TO RECEIVE REHABILITATION AS NOTED ON PLANS

BR = BRASS
BS = BLACK STEEL
BZ = BRONZE
CI = GRAY CAST IRON
CU = COPPER
CS = CAST IRON
CT = CARBON STEEL TUBING
DIP = DUCTILE IRON PIPE
DR = DIAMETER RATIO
FRP = FIBERGLASS REINFORCED PLASTIC
GS = GALVANIZED STEEL
HDPE = HIGH-DENSITY POLYETHYLENE PIPE
PVC = POLYVINYL CHLORIDE PIPE
SS = STAINLESS STEEL
STL = STEEL PIPE
SDR = STANDARD DIAMETER RATIO
SCH = SCHEDULE

ADD'L	= ADDITIONAL	HP	= HIGH POINT
AGG	= AGGREGATE	LP	= LOW POINT
ALUM.	= ALUMINUM	MAX	= MAXIMUM
BTWN	= BETWEEN	MFR	= MANUFACTURER
C/L	= COUNTERLINE	MIN	= MINIMUM
CLR	= CLEAR	REF	= REFERENCE
CONC	= CONCRETE	REINF	= REINFORCING
CONT	= CONTINUOUS	STRC	= STRUCTURE
DWL	= DOWEL(S)	T/	= TOP OF
E	= EACH FACE	TYP	= TYPICAL
EL.	= ELEVATION	UNO	= UNLESS NOTED OTHERWISE
EMBED	= EMBEDMENT	VERT	= VERTICAL
EW	= EACH WAY		
FF	= FINISH FLOOR		
FG	= FINISH GRADE		
FND	= FOUNDATION		
HORIZ	= HORIZONTAL		

GENERAL - 00 SERIES
CIVIL - 10 SERIES
EROSION CONTROL - 20 SERIES

<u>IDENTIFIER:</u>	<u>DISCIPLINE:</u>
G	GENERAL
C	CIVIL

The diagram illustrates the structure of the INDEX OF SHEETS table. The table has three columns: Sheet Number, Sheet Title, and SheetName. The first row is a header row. The second row is a general series title row. The third, fourth, and fifth rows are specific sheet entries. Annotations point to various parts of the table:

- DISCIPLINE** points to the first column (Sheet Number).
- SERIES TITLE** points to the second column (Sheet Title).
- SEQUENTIAL SHEET NUMBER IN THE SET** points to the first column (Sheet Number).
- SHEET TITLE** points to the second column (Sheet Title).
- SERIES IDENTIFIER No.** points to the third column (SheetName).
- DISCIPLINE IDENTIFIER LETTER** points to the third column (SheetName).
- SEQUENTIAL SHEET NUMBER ORDER IN THE SET** points to the third column (SheetName).

Sheet Number	Sheet Title	SheetName
GENERAL - 00 SERIES: GENERAL		
1	TITLE	00G-01
2	SHEET INDEX	00G-02
3	GENERAL NOTES	00G-03

12'-4" (REF.)

REFERENCE DIMENSIONS ARE GIVEN FOR INFORMATION ONLY. THEY ARE CALCULATED DIMENSIONS NOT INTENDED TO BE USED WITHOUT FIELD VERIFICATION AND ARE USEFUL IN SHOWING INTENDED DESIGN.

REVISION	REVISION DESCRIPTION
A	REVISION DESCRIPTION
B	REVISION DESCRIPTION

Figure 1 illustrates three types of section markings used in technical drawings:

- Left Marking:** A circle containing the text "PS1". An arrow points from the text "SEE DETAIL" to this circle.
- Middle Marking:** A circle containing the fraction $\frac{6}{21}$. An arrow points from the text "SHEET LOCATION" to this circle. To the right, a dashed circle is shown with an arrow pointing from the text "SEE DETAIL" to it.
- Right Marking:** A circle containing the letter "A" over the number "23". An arrow points from the text "SECTION SHEET LOCATION" to this circle. To the right, a dashed circle is shown with an arrow pointing from the text "SCALE" to it. The dashed circle is labeled "SECTION" and "SCALE: 1/4" = 1'-0"

1. THIS IS A STANDARD SHEET SHOWING COMMONLY USED SYMBOLOGY.
2. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
3. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE NEW IMPROVEMENTS SO AS TO HIGHLIGHT SPECIFIC TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.
4. SYMBOLOGY OR DIAGRAMMATICAL LEGENDS MAY BE SHOWN ON INDIVIDUAL SHEETS FOR SCHEDULES, DIAGRAMS, DETAILS, SCHEMATICS OR EQUIPMENT.

1. CT CONTRACTUAL NOTES ARE DEPICTED WITH A HEXAGON, SQUARE, CIRCLE OR TRIANGLE. ALL OTHER EXISTING WRITTEN CALLOUTS SHOWN ON THE REUSED SCANNED PLANS, SECTIONS & DETAILS ARE FOR EXISTING CONDITIONS AND REFERENCE ONLY, MANY OF THOSE NOTES FROM THE SCANNED DRAWINGS PERTAIN TO PREVIOUS WORK DONE.

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	LEGENDS AND SYMBOLS
3	GENERAL NOTES
4	84-INCH EXISTING CONDITIONS
5	120-INCH EXISTING CONDITIONS
6	MAINTENANCE OF TRAFFIC
7	SITE EXISTING CONDITIONS
8	SITE ACCESS PLAN
9	84 INCH PLAN AND PROFILE
10	120 INCH PLAN AND PROFILE
11	120 INCH SPRAY LINING TYPICAL DETAILS
12	GRP SLIP LINER TYPICAL DETAILS
13	STANDARD DETAILS (1 OF 2)
14	STANDARD DETAILS (2 OF 2)
15	EROSION CONTROL DETAILS

A circular professional engineer seal for the State of Ohio. The outer ring contains the text "STATE OF OHIO" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The center of the seal contains the name "TIMOTHY MCLAUGHLIN" and the license number "E-83985". The word "REGISTERED" is written in a smaller arc below the license number.

verdantas

SCALE:	AS NOTED	NO	REVISION	DATE
DATE:	10/08/2026			
DESIGNED BY:	MWG & JPB			
DRAWN BY:	JPB			
CHECKED BY:	TJM			

CITY OF WILLOWICK, OHIO LARIMAR CULVERT IMPROVEMENTS LAKE COUNTY	GENERAL - 00 SERIES
	LEGENDS AND SYMBOLS

PROJECT NO:	
43427	
DRAWING NAME	
00G-02	
SHEET	OF
2	15

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 VIDEO TAPE OF THE PROJECT AREA WILL BE REQUIRED AND SUBMITTED TO THE ENGINEER BEFORE CONSTRUCTION BEGINS.
- THE CONTRACTOR SHALL NOT COMMENCE ANY FORM OF CONSTRUCTION WITHOUT CONTACTING THE ENGINEER, AS APPROPRIATE, A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION ACTIVITY TO ARRANGE FOR OBSERVATION. IF ANY CHANGE IN THE WORK SCHEDULE BECOMES NECESSARY, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE ENGINEER TO AVOID UNNECESSARY OBSERVATION COSTS. IF NO NOTIFICATION IS MADE IN REGARDS TO CANCELLATION OF WORK, THE CONTRACTOR WILL BE CHARGED FOR THE TIME INCURRED.
- IT SHALL 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.
- ACCESS TO ALL DRIVEWAYS WILL BE MAINTAINED AT ALL TIMES EXCEPT THE TIME WHEN SEWER INSTALLATION AND PAVEMENT REPLACEMENT WILL NOT PERMIT.
- ALL SHOP DRAWINGS WILL BE SUBMITTED TO THE ENGINEER FOR PRELIMINARY CHECKING. THE ENGINEER SHALL FORWARD THE CHECKED SHOP DRAWINGS TO THE OWNER FOR FINAL CHECKING AND APPROVAL. SHOP DRAWINGS MUST BE APPROVED PRIOR TO ORDERING ANY MATERIALS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ALL MATERIAL AND EQUIPMENT TESTING. THE OWNER MAY REQUIRE SUBGRADE COMPACTION TESTING, ASPHALT AND CONCRETE QUALITY CONTROL TESTING WHICH WILL BE PAID FOR BY THE OWNER.
- WHEN MAILBOXES, FENCES, NEWSPAPER BOXES OR STREET SIGNS AND SUPPORTS INTERFERE WITH CONSTRUCTION, THE CONTRACTOR SHALL REMOVE AND ERECT THEM IN A TEMPORARY LOCATION DURING CONSTRUCTION (EXCEPT FENCES). AFTER COMPLETION OF THE CONSTRUCTION AND BEFORE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL ERECT THE MAILBOXES, FENCES, NEWSPAPER BOXES OR STREET SIGNS AND SUPPORTS IN A PERMANENT LOCATION IN ACCORDANCE WITH THE PLANS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE WORK SHALL BE INCLUDED IN THE UNIT PRICES BID FOR OTHER ITEMS.
- 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.
- ALL CONSTRUCTION ACCESS, STORAGE, EQUIPMENT STAGING, SHAFT EXCAVATIONS, LINER ASSEMBLY AREAS, AND RESTORATION ACTIVITIES SHALL BE CONTAINED WITHIN THE LIMITS OF THE EASEMENTS AND PERMITTED PROJECT LIMIT AREAS AS SHOWN IN PLANS.

PROHIBITED CONSTRCUCTION ACTIVITIES

- THE USE OF EXPLOSIVES, UNLESS A PERMIT IS ISSUED BY THE OWNER.
- PUMPING OF SEDIMENT-LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS DIRECTLY INTO ANY SURFACE WATERS, STREAM CORRIDORS, 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, OR ANY OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS OR INTO NATURAL OR MAN-MADE CHANNELS LEADING THERETO.
- OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AN OEPA OPEN BUILDING AIR PERMIT OR DISPOSING OF THE TREES AND STUMPS
- 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 OR PUBLIC PROPERTY AND RIGHTS-OF-WAY WITHOUT PERMISSION OF THE PROPERTY OWNER AND THE CONSENT OF THE ENGINEER.
- OPERATION ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OF 8:00 AM AND 5:00 PM OR OUTSIDE THE HOURS ALLOWED 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:
 - BY FIRE PROTECTION EQUIPMENT AND EMERGENCY VEHICLES;
 - BY THE PUBLIC TO ANY COMMERCIAL OR PROFESSIONAL PLACE OF BUSINESS, QUASI-PUBLIC OR PUBLIC ESTABLISHMENT, OR PLACE OF RESIDENCE; OR
 - BY VEHICLES TO DRIVEWAYS WITHOUT THE PROVISION OF ALTERNATIVE MEANS OF BUILDING INGRESS AND EGRESS.
- DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL IN WETLANDS OR FLOODPLAINS, EVEN WITH THE PERMISSION OF THE PROPERTY OWNER.
- LOCATING STOCKPILE STORAGE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS.
- INDISCRIMINATE, ARBITRARY, OR CAPRICIOUS OPERATION OF EQUIPMENT IN AND STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR OUTSIDE THE EASEMENT LIMITS.
- PERMANENT OR UNSPECIFIED ALTERATION OF THE FLOW LINE OF ANY STREAM.
- DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA.
- DISPOSAL OF TREES, BRUSH, AND OTHER DEBRIS IN ANY STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR AT UNSPECIFIED LOCATIONS.
- DISCHARGING INJURIOUS SILICA DUST CONCENTRATIONS INTO THE ATMOSPHERE RESULTING FROM BREAKING, CUTTING, CHIPPING, RILLING, 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.
- NO USING ANY SUBSTANCE OTHER THAN WATER TO CONTROL DUST.
- THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY, SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE PERFORMED DAILY OR AS DIRECTED BY THE OWNER, TO MAINTAIN ALL PAVED AREAS AFFECTED BY THE CONSTRUCTION.

EXISTING UTILITIES:

- THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY A COMBINATION OF SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE OWNER DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND IDENTIFY ALL UTILITIES ILLUSTRATED ON THE PLANS OR NOT IDENTIFIED.
- BEFORE ANY WORK IS STARTED, THE CONTRACTOR SHALL CALL THE "OHIO UTILITIES PROTECTION SERVICE", OUPS, AT 1-800-362-2764, A MINIMUM OF SEVENTY-TWO (72) HOURS IN ADVANCE OF THE WORK. NON-MEMBER UTILITIES MUST BE CONTACTED DIRECTLY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS, AT NO ADDITIONAL EXPENSE TO THE OWNER, 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 BY THE CONTRACTOR AND ALL REPAIR WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE RESPECTIVE AGENCY AT NO ADDITIONAL EXPENSE TO THE OWNER, INCLUDING ANY INSPECTION FEES OR MAINTENANCE CREWS.
- 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 THEIR WORK IN CONFORMANCE TO THE UTILITY COMPANY'S SCHEDULE.
- CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL THE EXISTING GAS, WATER, ELECTRIC, CABLE, FIBER, TELEPHONE, SANITARY OR OTHER UNDERGROUND UTILITIES PRIOR TO THE INSTALLATION OF ANY PROPOSED IMPROVEMENT INDICATED ON THE PLANS. SHOULD A CONFLICT EXIST AT A UTILITY CROSSING, THE PROJECT ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION OF THE EXISTING UTILITY OWNERS AND THE UTILITY PROTECTION SERVICE IN THE LIST FEATURED ON THE COVER OF THE PLANS IN ACCORDANCE WITH SECTION 153.64 OF THE OHIO REVISED CODE.
- IN THE EVENT THAT ANY LEAD SERVICE CONNECTION IS ENCOUNTERED DURING THIS PROJECT BY THE CONTRACTOR, AQUA OHIO SHALL BE IMMEDIATELY NOTIFIED AND WORK AT THAT LOCATION SHALL CEASE UNTIL DIRECTION ON HOW TO PROCEED IS MADE BY LCDU. CONTRACTOR SHALL CONTINUE WITH WORK ONCE LCDU GIVES NOTICE TO PROCEED WITHOUT ADDITIONAL PAYMENT FOR REMOBILIZATION.

TRAFFIC CONTROL

- MAINTAINING TRAFFIC SHALL BE IN ACCORDANCE WITH ODOT ITEM 614 AND THE MOST RECENT VERSION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).
- A TRAFFIC CONTROL PLAN IS NOTED ON SHEET 6. ANY MODIFICATION TO THE TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO THE ENGINEER BY THE CONTRACTOR FOR REVIEW AND ACCEPTANCE BEFORE PROCEEDING.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN SAFE LOCAL ACCESS, VEHICULAR AND PEDESTRIAN INCLUDING PERSONS WITH DISABILITIES, 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, PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROLS TO ENSURE THE SAFETY OF PERSONS AND VEHICLES DURING CONSTRUCTION WITHIN THE PROJECT LIMITS.
- 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 OMUTCD FOR SUCH TIME UNTIL THE AREA IS COMPLETELY BACKFILLED.
- ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH ITEM 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN OR INCLUDED IN OTHER PAY ITEMS.
- ACCESS MUST BE MAINTAINED FOR EMERGENCY VEHICLES AT ALL TIMES.
- NO TRENCH WILL BE LEFT OPEN AT THE END OF A WORK DAY, WHERE PRACTICAL; ANY OPEN TRENCH WILL BE PROPERLY IDENTIFIED AND BARRICADED FOR SAFETY PURPOSES.
- PRIOR TO CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE, OR BOULEVARD, THE CONTRACTOR MUST HAVE CONSENT FROM LOCAL OFFICIALS AND THE ENGINEER.
- PRIOR TO CLOSING OFF ACCESS TO ANY PORTION OF PRIVATE PROPERTY WHERE SEWER WORK MAY BE LOCATED, THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM THE PROPERTY OWNER TO IMPLEMENT PROPOSED TRAFFIC CONTROL DEVICES WHICH SHALL ALSO REQUIRE FINAL APPROVAL BY THE ENGINEER.

TREE/VEGETATION PROTECTION

- TREE REMOVAL WILL NOT BE PERMITTED UNLESS APPROVED BY THE OWNER AND ENGINEER.
- TREE REMOVAL WILL BE LIMITED TO THE TIME PERIOD BETWEEN OCTOBER 1 AND MARCH 31.
- TREE REMOVAL WILL BE LIMITED TO THAT NECESSARY FOR CONSTRUCTION AND WILL BE LIMITED FURTHER TO THE PERMANENT EASEMENT WHEREVER POSSIBLE.
- NO TREE REMOVAL WILL BE PERMITTED OUTSIDE THE TEMPORARY OR PERMANENT EASEMENT WITHOUT PERMISSION OF THE ENGINEER.
- TREES WHICH ARE NOT REMOVED WILL BE PROTECTED BY ENSURING THAT TREES TO BE REMOVED ARE FELLED SO AS NOT TO INJURE THE REMAINING TREES.
- THE PROJECT IS WITHIN THE RANGE OF THE STATE AND FEDERALLY ENDANGERED INDIAN BAT (MYOTIS SODALIS) AND NORTHERN LONG-EARED BAT (MYOTIS SEPTENTRIONALIS), THE STATE ENDANGERED LITTLE BROWN BAT (MYOTIS LUCIFUGUS), AND THE STATE ENDANGERED TRICOLORED BAT (PERIMYOTIS SUBFLAVUS) AND MAY IMPACT SUMMER ROOSTING HABITAT FOR THESE SPECIES. PER U.S. FISH AND WILDLIFE RECOMMENDATIONS, THE REMOVAL OF TREES GREATER THAN OR EQUAL TO 3-INCHES IN DIAMETER SHOULD ONLY OCCUR BETWEEN OCTOBER 1 AND MARCH 31. IF THIS TIME FRAME CANNOT BE FOLLOWED, THE U.S. FISH AND WILDLIFE SERVICE AND OHIO DEPARTMENT OF NATURAL RESOURCES (CONTACT EILEEN WYZA AT EILEEN.WYZA@DNR.OHIO.GOV) MUST BE CONTACTED PRIOR TO CUTTING FOR GUIDANCE ON NECESSARY STEPS TO DOCUMENT THE ABSENCE OR PRESENCE OF THESE SPECIES.
- PRIOR TO CLEARING, THE CONTRACTOR AND ENGINEER, SHALL WALK THE ACQUIRED EASEMENTS IN AN EFFORT TO DESIGNATE THE TREES THAT ARE TO BE SAVED. TREES TO BE SAVED WILL BE CLEARLY MARKED BY PAINT WITH THE LETTER "S". TREES TO BE PROTECTED BY AN APPROPRIATE BARRIER SHALL BE MARKED WITH AN "S" ENCLOSED IN A CIRCLE. TREES MARKED FOR REMOVAL IN THE PLANS WILL BE INSPECTED BY THE OWNER AND THE ENGINEER BEFORE REMOVAL & WILL BE SAVED WHERE POSSIBLE.
- SOIL AND OTHER MATERIAL WILL NOT BE STORED NEXT TO OR WITHIN THE DRIP-LINE OF TREES.
- PRESERVATION OF LANDSCAPING SHOULD TAKE PRECEDENCE OVER REMOVAL. IF REMOVAL OR DAMAGE IS UNAVOIDABLE, EXISTING VEGETATION SHOULD BE REPAIRED OR REPLACED "IN-KIND" UNLESS THE PROPERTY OWNER SPECIFIES OTHERWISE.
- IF TREES/SHRUBS CANNOT BE REPLACED IN THE SAME LOCATION DUE TO INSTALLATION OF THE SEWER SYSTEM, RELOCATION SHOULD BE CONSIDERED.

ENVIRONMENTAL PROTECTION, MATERIAL DISPOSAL, AND TEMPORARY SURFACES

- ALL MATERIALS TO BE REMOVED FROM THE PROJECT SITE, INCLUDING SURPLUS EXCAVATED MATERIAL, DEMOLITION DEBRIS, CONSTRUCTION DEBRIS, AND OTHER WASTE MATERIALS, SHALL BE DISPOSED OF OFF-SITE IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS. AT A LOCATION APPROVED BY THE OWNER AND ENGINEER, NO MATERIALS SHALL BE DISPOSED OF IN WETLANDS, FLOODPLAINS, SURFACE WATERS, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. EROSION CONTROL MEASURES AT THE DISPOSAL SITE SHALL BE INSTALLED, MAINTAINED, AND REMOVED BY THE CONTRACTOR AS NECESSARY, AND ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPROVALS, PERMITS, LICENSES, AGREEMENTS, AND WRITTEN PERMISSIONS REQUIRED FOR DISPOSAL, INCLUDING APPROVAL FROM THE OWNER AND/OR PROPERTY OWNER OF THE DISPOSAL SITE. COPIES OF ALL APPROVALS AND PERMITS SHALL BE PROVIDED TO THE ENGINEER PRIOR TO DISPOSING OF ANY MATERIAL. GIVING AWAY, TRANSFERRING, OR OTHERWISE PROVIDING EXCAVATED SOIL OR MATERIAL TO OTHERS SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PROPER DISPOSAL OR COMPLIANCE WITH THIS NOTE. ANY TEMPORARY CONSTRUCTION SURFACES, ACCESS AREAS, OR STAGING AREAS USED BY THE CONTRACTOR SHALL BE REMOVED UPON COMPLETION OF THE WORK, AND THE AFFECTED AREAS SHALL BE RESTORED AND STABILIZED TO THE SATISFACTION OF THE OWNER AND ENGINEER.
- TEMPORARY SURFACES WHERE EXCAVATION ARE LOCATED IN STREETS, DRIVES AND PARKING AREAS FURNISHED AND PLACED BY THE CONTRACTOR AND SHALL BE FULLY MAINTAINED TO MINIMIZE INCONVENIENCE TO THE PUBLIC AT NO ADDITIONAL COST TO THE OWNER.
- THE ABOVE-DESCRIBED WORK SHALL BE CONSIDERED INCIDENTAL TO THE COMPLETION OF ALL WORK INCLUDED IN THE RESPECTIVE PAY ITEMS AND SHALL NOT BE A SEPARATE PAY ITEM.

GRASS RESTORATION

- GRASS AREAS TO BE RESTORED SHALL BE SEEDED UNLESS OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.
- SEEDING AND/OR SODDING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 329200.19 OF THE DETAILED SPECIFICATIONS.
- ALL GRASSED AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY SEEDING AND MULCHING RATHER THAN SODDING UNLESS OTHERWISE SHOWN ON PLANS, DETAILS, OR SPECIFICATIONS.
- SEEDING AND MULCHING OF ALL DISTURBED AREAS SHALL IMMEDIATELY FOLLOW EXCAVATION AND SEWER INSTALLATION OPERATIONS.

DEWATERING PROCEDURES

- ALL DEWATERING FLOWS FROM EXCAVATION AND TRENCHING OPERATIONS SHALL BE SETTLED INTO INSTALLATION BASINS OR DIRECTED THROUGH APPROVED FILTERING DEVICES PRIOR TO BEING DISCHARGED TO STABILIZED SITES, SUCH AS STREAMS OR STORM SEWER; NOT ONTO EXPOSED SOILS, STREAM BANKS, OR ANY EITHER SITE WHERE THE FLOW COULD CAUSE OR INCREASE THE RATE OF EROSION.
- SILT FROM CONSTRUCTION OPERATIONS SHALL NOT BE PERMITTED TO ENTER INTO THE STORM SEWER SYSTEM. FOR THE ENTIRE COURSE OF CONSTRUCTION, EROSION CONTROL (FILTERS OR OTHER APPROVED BMPS) MEASURES SHALL BE IMPLEMENTED AT ALL NEARBY INLETS TO PREVENT SILT FROM ENTERING INTO THE SYSTEM. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THESE DEVICES FOR THE ENTIRE DURATION OF CONSTRUCTION AND SHALL ONLY REMOVED BY ORDER OF THE ENGINEER.
- CONVEY WATER FROM THE CONSTRUCTION SITE IN A CLOSED CONDUIT. TRENCH EXCAVATIONS SHALL NOT BE PERMITTED AS TEMPORARY DRAINAGE DITCHES.

EROSION AND SEDIMENT CONTROL

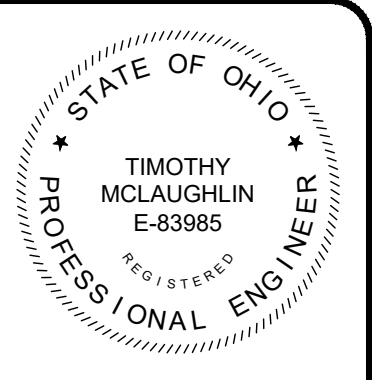
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH ODOT ITEM 207 AND AS REQUIRED BY THE LAKE COUNTY SOIL AND WATER CONSERVATION DISTRICT.
- SITE CLEARING AND GRUBBING SHALL NOT COMMENCE UNTIL SUCH TIME THAT THE CONTRACTOR IS PREPARED TO START CONSTRUCTION. REMOVE ONLY THOSE TREES, SHRUBS, AND GRASSES THAT MUST BE REMOVED FOR CONSTRUCTION OF ACTUAL FACILITIES; PROTECT THE REST TO PRESERVE THEIR AESTHETIC, HABITAT, AND EROSION CONTROL VALUES.
- IMMEDIATELY FOLLOWING SITE AND ACCESS CLEARING, TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED. THEY WILL BE MAINTAINED IN EFFECTIVE OPERATING CONDITION DURING CONSTRUCTION UNTIL FINAL SEEDING AND SITE RESTORATION OCCURS.
- IF WORK IS SUSPENDED FOR ANY REASON, THE CONTRACTOR SHALL MAINTAIN THE SOIL EROSION AND SEDIMENTATION CONTROLS IN GOOD OPERATING CONDITION DURING THE SUSPENSION OF THE WORK. ALSO, WHEN SEASONAL CONDITIONS PERMIT AND THE SUSPENSION OF WORK IS EXPECTED TO EXCEED A PERIOD OF ONE MONTH, THE CONTRACTOR SHALL SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS LEFT EXPOSED WHEN THE WORK IS STOPPED.

SEWER REHABILITATION NOTES

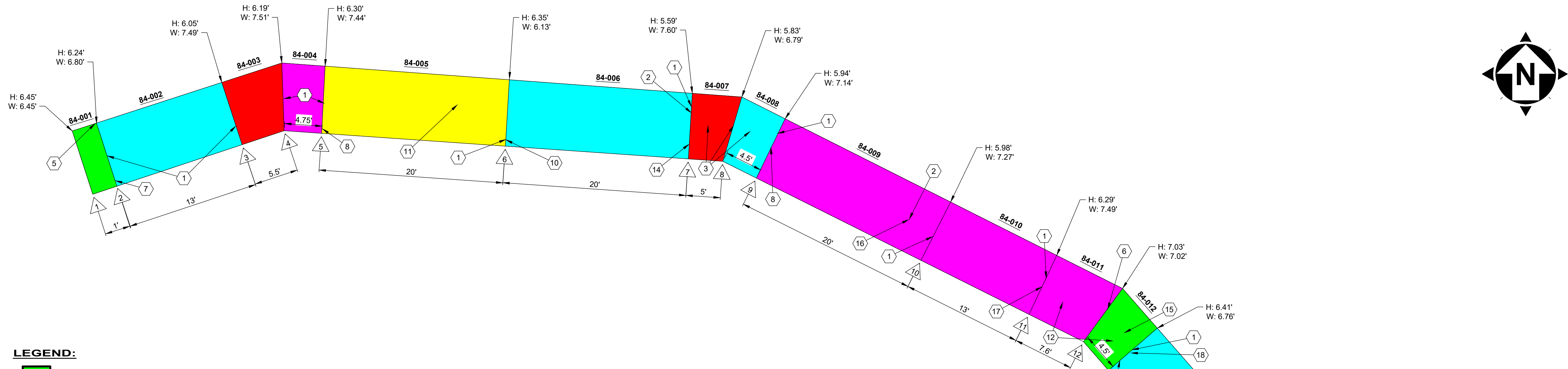
- ALL SECTIONS OF SEWER SHALL BE CLEANED AND TELEVIEWED PRIOR TO THE COMMENCEMENT OF ANY REHABILITATION WORK AS REQUIRED BY NASSCO GUIDELINES AND PARTS OF SPECIFICATION DIVISION 33.
- ALL REHAB SYSTEMS SHALL BE PREPPED, STORED, AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GUIDELINES.
- SEWER FLOWS SHALL BE MAINTAINED IN ACCORDANCE WITH SPECIFICATION SECTION 330130.03. ANY AND ALL FLOW MANAGEMENT SYSTEMS REQUIRED TO INSTALL THE REHABILITATION PRESCRIPTIONS SHALL BE INCLUDED IN THE REHABILITATION PAY ITEMS "84 INCH SLIP LINING, AS PER PLAN" AND "120 INCH SPRAY-IN-PLACE PIPE LINING, AS PER PLAN", RESPECTIVELY. ALL FLOW MUST BYPASS METHODS AND SETUPS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- ALL ACTIVE CONNECTIONS SHALL BE REINSTATED.

STORM SEWER SYSTEM NOTES:

- ALL STORM SEWER MATERIALS, METHODS AND PROCEDURES FOR INSTALLATION, BEDDING/BACKFILL/HAUNCHING REQUIREMENTS, AND ALL OTHER WORK DIRECTLY ASSOCIATED WITH STORM SEWER SHALL BE IN ACCORDANCE DIVISION 31 AND 33 SPECIFICATION SECTIONS OR AS OTHERWISE SPECIFIED WITHIN THE PLANS AND DETAILS. PROPOSED WORK SHALL FOLLOW ALL ASSOCIATED ASTM STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING THE PIPE SIZES IN THE AREAS TO RECEIVE REHABILITATION. DIAMETERS ARE BASED ON AVAILABLE SURVEY, BUT SIZES WILL VARY DUE TO DEFLECTION IN THE PIPES. THERE SHALL BE NO ADDITIONAL PAYMENT FOR VARIATION IN PIPE SIZES. OVALITY CALCULATIONS HAVE BEEN ATTACHED IN THE BID DOCUMENTS FOR REFERENCE.
- ALL MATERIAL SHALL BE INSPECTED, STORED, AND INSTALLED PER THE MANUFACTURES SPECIFICATIONS.
- CONTRACTOR SHALL RE-CONNECT ALL ENCOUNTERED DOWN SPOUT DRAINS AND OTHER STORM SEWER DRAIN LINES UNLESS DIRECTED OTHERWISE WITHIN.
- BEFORE FINAL ACCEPTANCE FOR THE WORK, THE CONTRACTOR SHALL CLEAR THE SEWERS OF ANY MORTAR, DIRT OR OTHER REFUSE THAT MAY HAVE BEEN LEFT OR ACCUMULATED IN THE SEWERS. ALL MANHOLES AND OTHER STRUCTURES SHALL BE CLEARED OF ALL FORMS, SCAFFOLDING, BULKHEADS, CENTERING, SURPLUS MORTAR, RUBBISH OR DIRT AND LEFT IN A CLEAN AND PROPER CONDITION.



DATE		REVISION		NO		SCALE		AS NOTED		DATE		DESIGNED BY:		DRAWN BY:		CHECKED BY:	
										10/08/2026		MMG & JPB		JPB		TJM	
CITY OF WILLOWICK, OHIO LARIMAR CULVERT IMPROVEMENTS										OHIO		GENERAL - 00 SERIES					
LAKE COUNTY												GENERAL NOTES					
PROJECT NO:																	
43427																	
DRAWING NAME																	
00G-03																	
SHEET										OF							
3										15							



LEGEND:

- OVALITY 0 - 5%
- OVALITY 5 - 10%
- OVALITY 10 - 15%
- OVALITY 15 - 20%
- OVALITY 20% OR GREATER
- JOINT MARKER

STRUCTURAL NASSCO CODED DEFECTS:

- DEFORMED (FLEXIBLE) - ELLIPTICAL (DFE)
- DEFORMED (FLEXIBLE) - BULGING ROUND (DFBR)
- DEFORMED (FLEXIBLE) - CREASING (DFC)
- FRACTURE - CIRCUMFERENTIAL (FC)
- HOLE - VOID VISIBLE (HVV)
- POINT REPAIR - PATCH DEFECTIVE (RPPD)
- JOINT (SEPARATED) - SEPARATION SMALL (JSS)
- JOINT (OFFSET) - OFFSET SMALL (JOS)
- JOINT (OFFSET) - OFFSET LARGE (JOL)
- JOINT (SEPARATED) - SEPARATION MEDIUM (JSM)
- SURFACE DAMAGE - SURFACE DAMAGE CORROSION (SCP)
- SURFACE DAMAGE - AGGREGATE VISIBLE (SAP)
- DEPOSITS (ATTACHED) - ENCRUSTATION (DAE)

O&M NASSCO CODED DEFECTS:

- INFILTRATION (WEEPER) - JOINT (IWJ)
- OBSTACLES/ OBSTRUCTIONS - BUILT INTO STRUCTURE (OBS)

OTHER NASSCO CODED DEFECTS:

- INTRUDING SEALING MATERIAL - SEALING RING (ISSR)
- MMC - MATERIAL CHANGE (MCC) *TRANSITION FROM CMP TO CONCRETE
- MMC - MATERIAL CHANGE (MCC) *TRANSITION FROM CONCRETE TO CMP

CONTINUOUS DEFECTS:

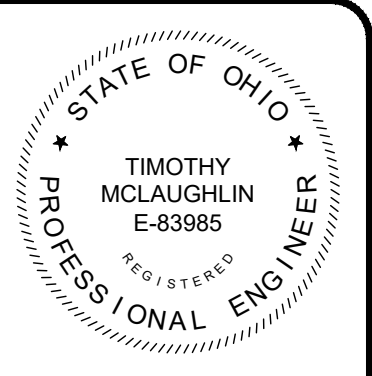
- SURFACE DAMAGE - SURFACE DAMAGE CORROSION (SCP): JOINT 1 TO JOINT 12 - 10 TO 15%
- DEPOSITS (SETTLED) - FINE: JOINT 1 TO JOINT 7 ~ 3"
- INFILTRATION (WEEPER) - BARREL: JOINT 1 TO JOINT 12 - 5 TO 7 O'CLOCK
- SURFACE DAMAGE - SURFACE DAMAGE CORROSION (SCP): JOINT 13 TO JOINT 18 - 20 TO 25%

LARIMAR CULVERT - 84" DEFECT INDEX

NOT TO SCALE



LARIMAR CULVERT - 84" EXISTING PHOTOS



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DESIGNED BY:	MMG & JPB
DRAWN BY:	JPB
CHECKED BY:	TJM

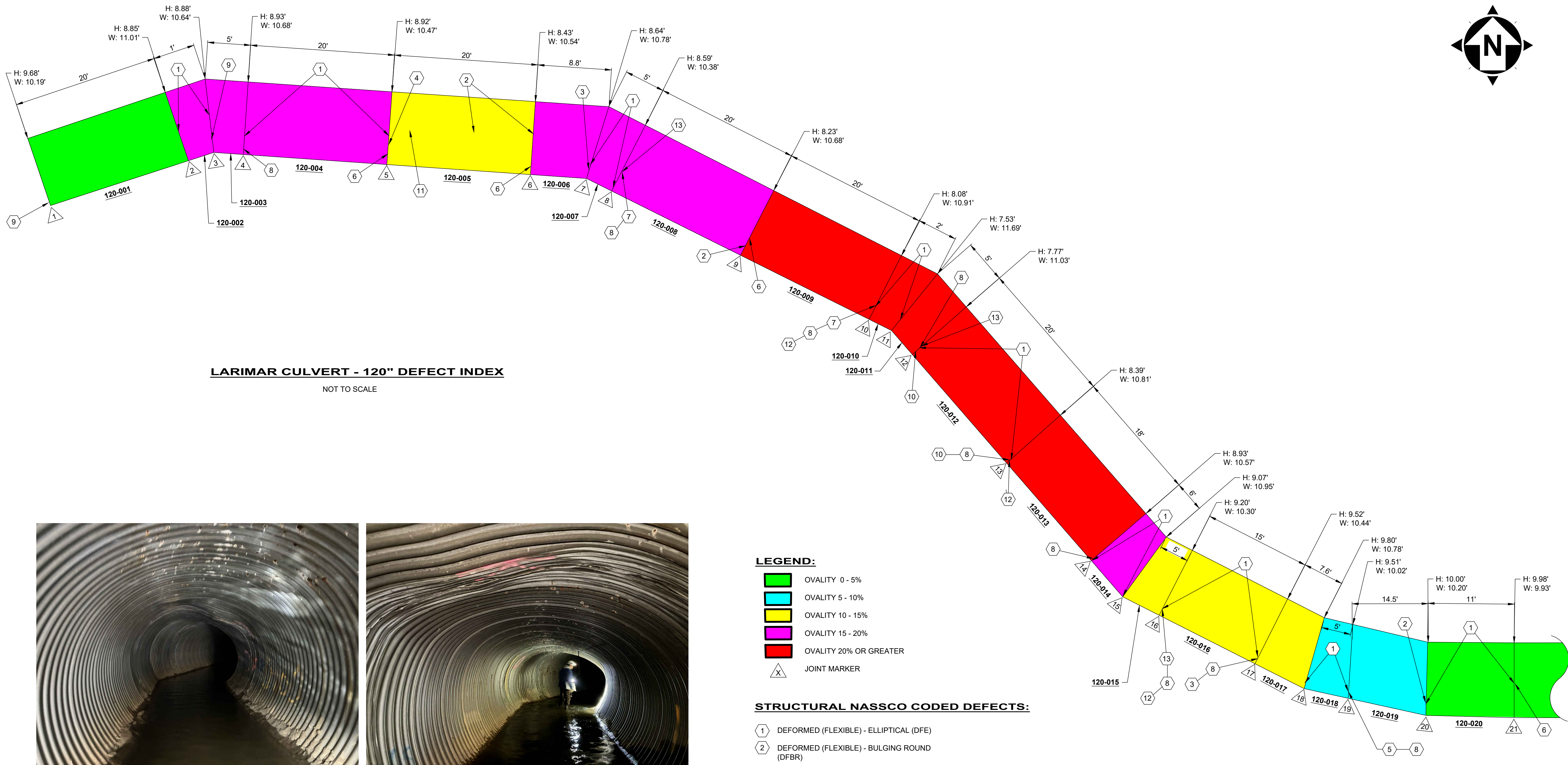
CITY OF WILLOWICK, OHIO
LARIMAR CULVERT IMPROVEMENTS
LAKE COUNTY

OHIO

CIVIL - 10 SERIES

84-INCH EXISTING CONDITIONS

PROJECT NO:	43427
DRAWING NAME	10C-01
SHEET	4
OF	15



LARIMAR CULVERT - 120" DEFECT INDEX

NOT TO SCALE



LARIMAR CULVERT - 120" EXISTING PHOTOS

LEGEND:

- OVALITY 0 - 5%
- OVALITY 5 - 10%
- OVALITY 10 - 15%
- OVALITY 15 - 20%
- OVALITY 20% OR GREATER
- JOINT MARKER

STRUCTURAL NASSCO CODED DEFECTS:

- DEFORMED (FLEXIBLE) - ELLIPTICAL (DFE)
- DEFORMED (FLEXIBLE) - BULGING ROUND (DFBR)
- SURFACE DAMAGE - SURFACE DAMAGE CORROSION (SCP)
- HOLE - SOIL VISIBLE (HSV)
- HOLE - VOID VISIBLE (HVV)
- JOINT (SEPARATED) - SEPARATION SMALL (JSS)
- JOINT (OFFSET) - OFFSET SMALL (JOS)
- JOINT (SEPARATED) - SEPARATION MEDIUM (JSM)

O&M NASSCO CODED DEFECTS:

- OBSTACLES/ OBSTRUCTIONS - CONSTRUCTION DEBRIS (OBN)
- INFILTRATION (WEEPER) - JOINT (IWJ)
- INFILTRATION (WEEPER) - BARREL (IWB)

OTHER NASSCO CODED DEFECTS:

- INTRUDING SEALING MATERIAL - SEALING RING BROKEN (ISSRB)
- INTRUDING SEALING MATERIAL - SEALING RING (ISSR)

CONTINUOUS DEFECTS:

- SURFACE DAMAGE - SURFACE DAMAGE CORROSION (SCP) : STARTING AT JOINT 10 - 5%
- SURFACE DAMAGE - SURFACE DAMAGE CORROSION (SCP) : FROM JOINT 14 TO 21 - 25%

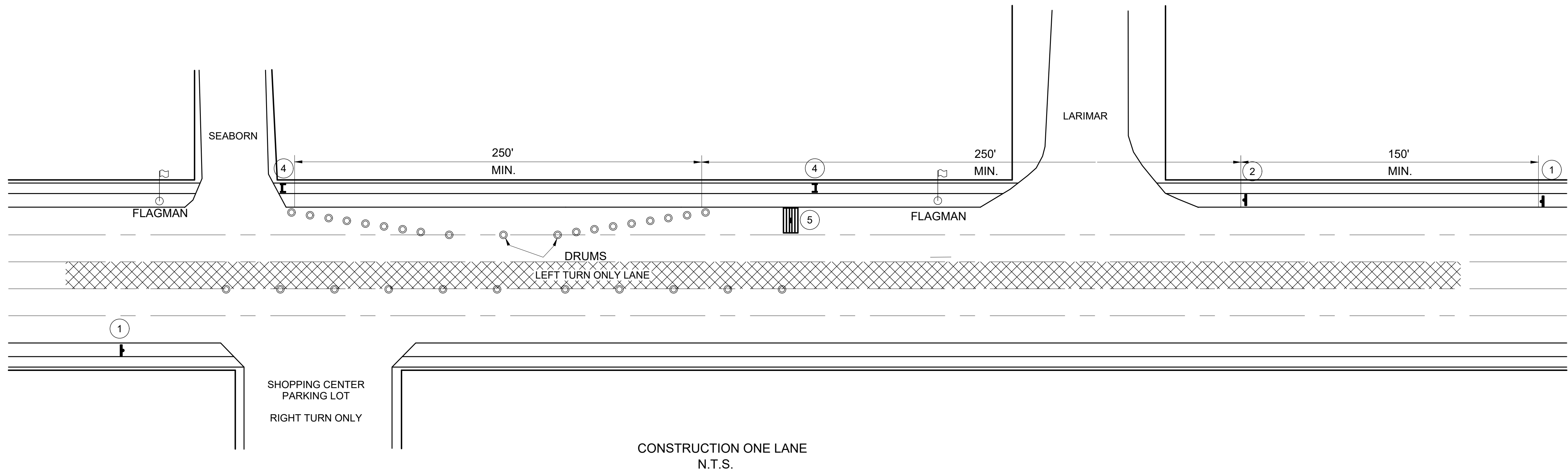


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SCALE	AS NOTED
DATE	10/08/2026
DESIGNED BY	MMG & JPB
DRAWN BY	JPB
CHECKED BY	TJM

CITY OF WILLOWICK, OHIO	OHIO
LARIMAR CULVERT IMPROVEMENTS	
LAKE COUNTY	
CIVIL - 10 SERIES	
120-INCH EXISTING CONDITIONS	

PROJECT NO:	43427
DRAWING NAME	10C-02
SHEET	OF
5	15



- A. BARRICADES: BARRICADES SHALL BE CONSTRUCTED ACCORDING TO DETAILS SHOWN. WHEN THE ROAD IS CLOSED TO TRAFFIC, BARRICADES SHALL BE USED TO EFFECTIVELY CLOSE THE ENTIRE ROADWAY. THE ENDS OF THE BARRICADE SHALL BE LOCATED BY THE ENGINEER TO EFFECT THE DESIRED CLOSING OF THE ROADWAY.
- B. PAINTING AND REFLECTORIZATION: ALL RAILS OF THE BARRICADES AND GATES SHALL BE REFLECTORIZED WITH ORANGE AND WHITE REFLECTORIZED TYPE "G" SHEETING IN 6" WIDE ALTERNATE STRIPES WHICH SLOPE DOWNWARD TOWARD THE CENTERLINE OF THE ROAD AT AN ANGLE OF 45°. ALL THREE RAILS OF THE ROAD CLOSED BARRICADE SHALL BE STRIPED ON THE SIDE FACING TRAFFIC. ALL GATE RAILS SHALL BE STRIPED ON BOTH SIDES. ALL POSTS, BRACES, GATE-LEGS, AND UNSTRIPED RAILS SHALL BE PAINTED WHITE.
- C. TYPE "C" STEADY BURNING BARRICADE WARNING LIGHTS: EACH GATE SHALL BE EQUIPPED WITH A TYPE "C" STEADY BURNING BARRICADE WARNING LIGHT, CONSPICUOUSLY VISIBLE AT ALL DISTANCES UP TO 1000' UNDER NORMAL CONDITIONS BETWEEN SUNSET AND SUNRISE DURING THE PERIOD THE ROAD IS CLOSED.
- D. SIGNS: WHERE THE ROAD IS CLOSED TO TRAFFIC BY THE ERECTION OF BARRICADES, "ROAD CLOSED" SIGNS (R-75) SHALL BE MOUNTED ON THE BARRICADES AS SHOWN. WHEN TRAFFIC IS MAINTAINED, A "ROAD CONSTRUCTION AHEAD" SIGN (OW-128) SHALL BE USED ON THE RIGHT SHOULDER ON THE APPROACHES AT THE INTERSECTING STREET IN ADVANCE OF THE PROJECT. WHERE THE SIDEWALK IS CLOSED TO PEDESTRIAN TRAFFIC "SIDEWALK CLOSED" SIGNS SHALL BE ERECTED ACROSS THE WALK AT THE LOCATION SHOWN.
- E. DETOURS: NO DETOUR ROUTE SHALL BE PERMITTED AS PART OF THIS PROJECT. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES AND SHALL COORDINATE ROAD CLOSURES WITH THE ENGINEER AND APPLICABLE AUTHORITIES.
- E. IF ANY NEED FOR INITIAL STAGING OR MOBILIZING REQUIRES SINGLE LANE CLOSURE ON LAKESHORE, THE CONTRACTOR SHALL ENSURE IT MEETS THE REQUIREMENTS OF THE MOT.



OW-128

1



OW-121

2



OW-125

3



R-175

4

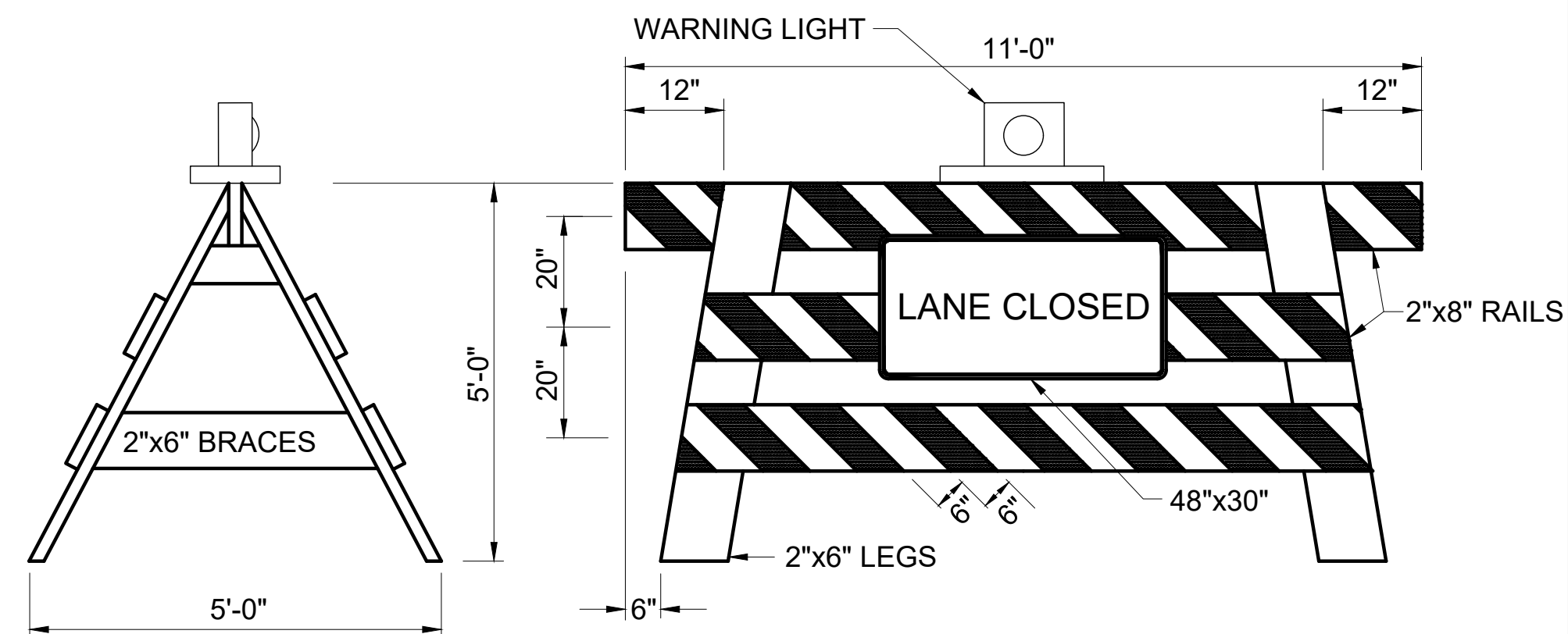


R-75

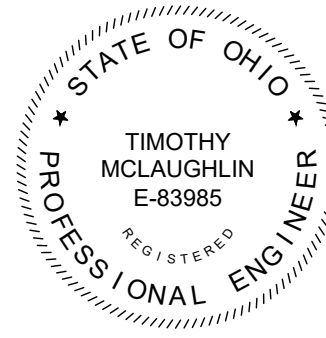
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NOTES:

- USE THE SAME WARNING SIGNS ON THE OPPOSITE APPROACH.
- SPACE THE DRUMS AT 50' MAX. ON TANGENT.



TYPE III DEMOUNTABLE CONSTRUCTION BARRICADE



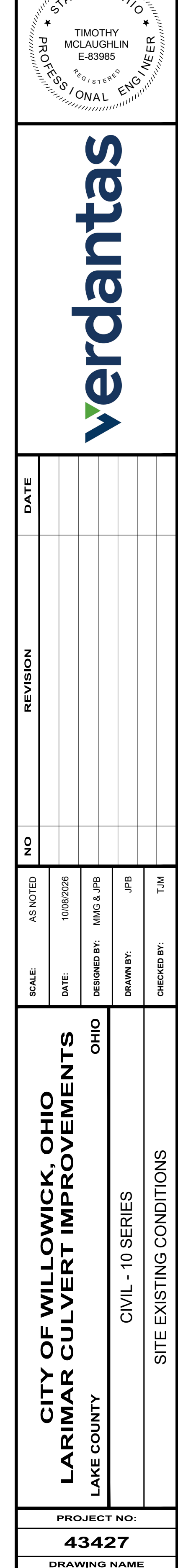
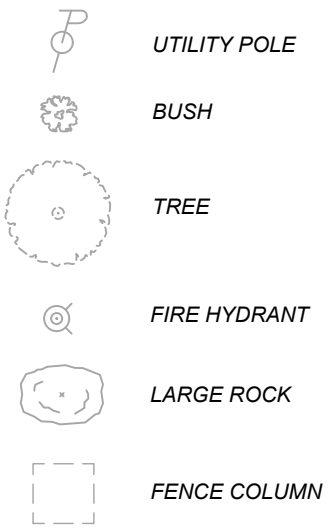
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CITY OF WILLOWICK, OHIO	OHIO
	LAKE COUNTY
LARIMAR CULVERT IMPROVEMENTS	CIVIL - 10 SERIES
MAINTENANCE OF TRAFFIC	

PROJECT NO:	43427
DRAWING NAME	10C-03
SHEET	OF
6	15

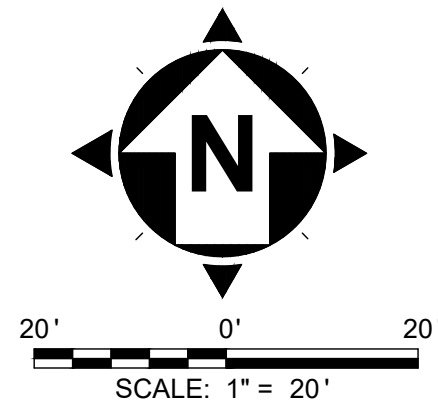
_____ EX. R/W _____	RIGHT OF WAY
_____ SAW _____	SANITARY SEWER
_____ STM _____	STORM SEWER
_____ WAT _____	WATER LINE
_____ - - - - - _____	PROPERTY LINE
_____ - - - - - _____	MAINTENANCE EASEMENT
_____ ROADWAY AND SIDEWALK _____	
_____ X _____ X _____ X _____ X _____	FENCE
	SANITARY MANHOLE
	STORM MANHOLE
	CATCH BASIN





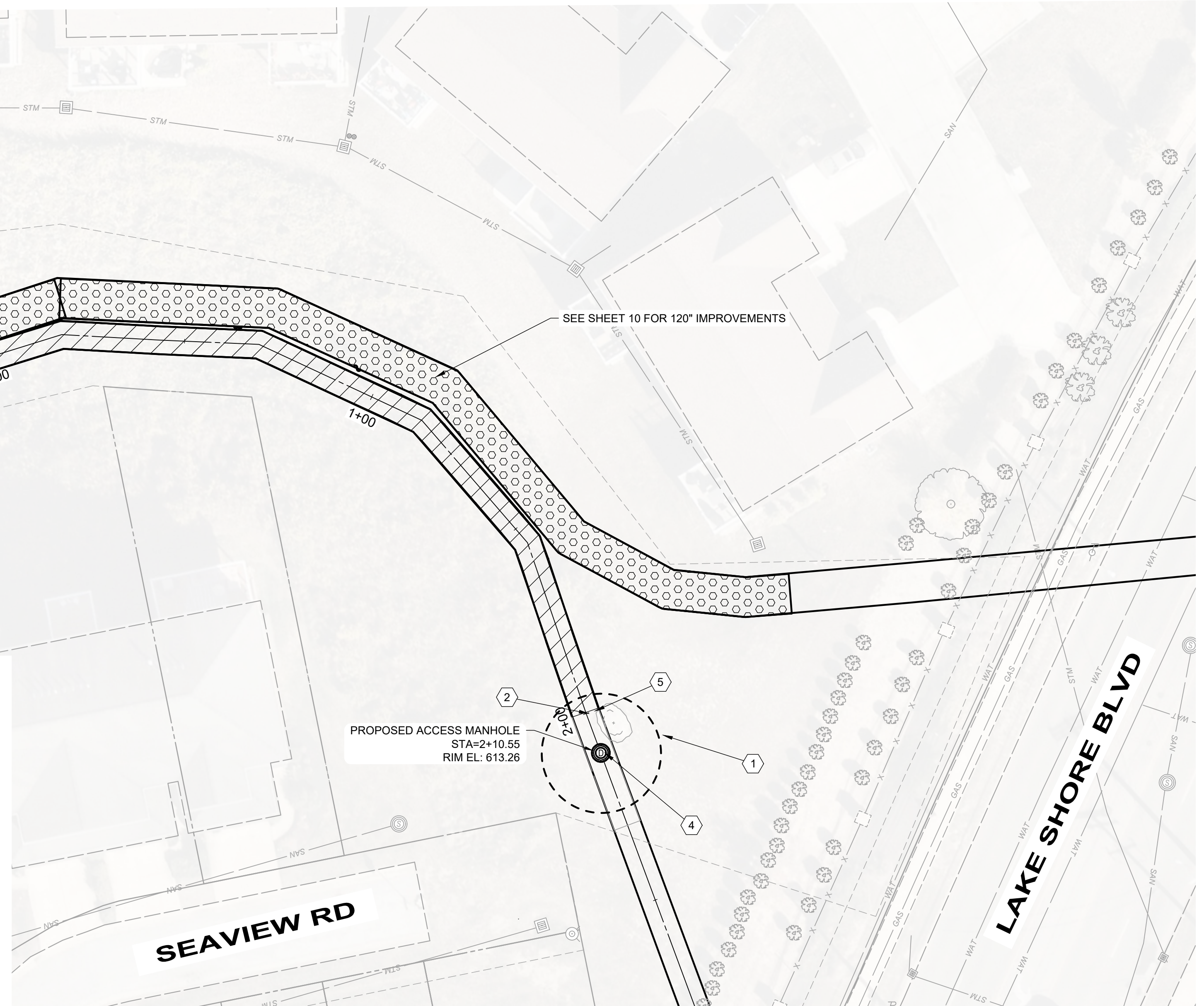
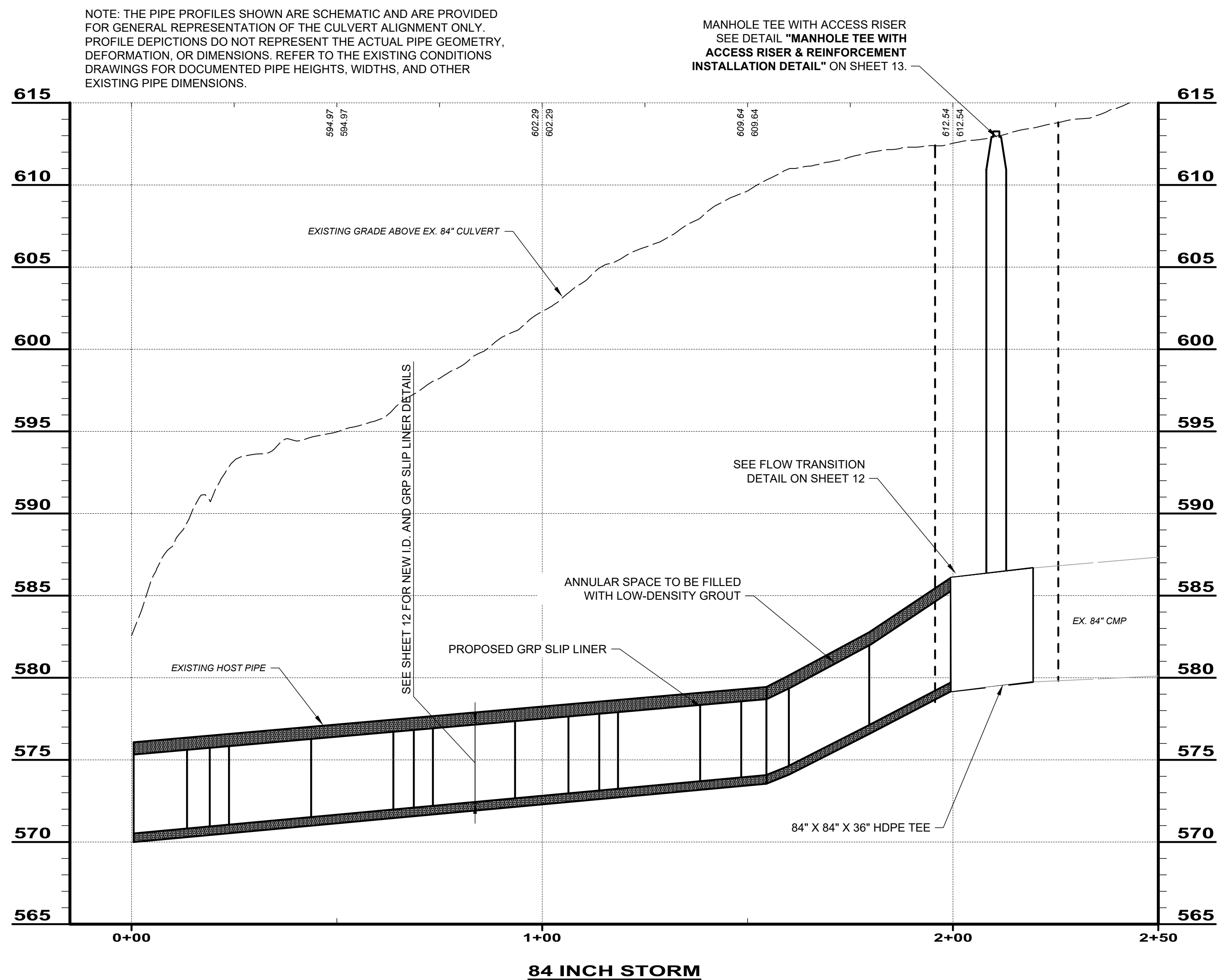
PROJECT NO:	
43427	
DRAWING NAME	
10C-05	
SHEET	OF
8	15

_____ SAN _____	SANITARY SEWER
_____ STM _____	STORM SEWER
_____ WAT _____	WATER LINE
_____	PROPERTY LINE
_____	MAINTENANCE EASEMENT
_____	ROADWAY AND SIDEWALK
_____	FENCE
_____ X _____ X _____ X _____ X _____	
	SANITARY MANHOLE
	STORM MANHOLE
	CATCH BASIN



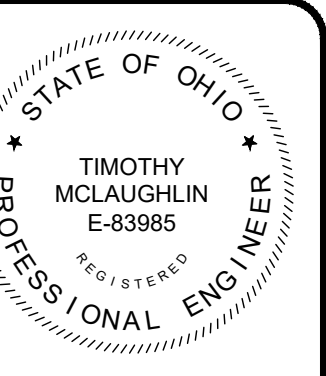
PROPOSED 120" REHABILITATION - SEE SHEET 10 FOR PLAN AND PROFILE

 PROPOSED 84" GRP SLIP LINING EXTENTS



- 1 CONTRACTOR SHALL CONSTRUCT A TEMPORARY ACCESS SHAFT AT THE LOCATION SHOWN IN THE PLANS. SHAFT DIMENSIONS AND LOCATION MAY BE MODIFIED BY THE CONTRACTOR, WITH WRITTEN APPROVAL FROM THE ENGINEER, AS NECESSARY.
- 2 BEGIN SLIP - LINING AT STA. 2+00.
- 3 END SLIP - LINING AT STA. 0+00.
- 4 INSTALL MANHOLE TEE WITH ACCESS RISER AND REINFORCEMENT PER DETAIL ON SHEET 13.
- 5 CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN THE LINED AND UNLINED PORTIONS OF THE CULVERT. THE TRANSITION MUST ALLOW FOR POSITIVE DRAINAGE.

1. INSTALL SLIP- LINED GRP LINER WITHIN THE EXISTING 84" CMP CULVERT BETWEEN STA. 0+00 AND STA. 2+00, AS SHOWN IN THE PLANS.
2. PRIOR TO LINER INSTALLATION, THE CULVERT SHALL BE CLEANED AND FREE OF ALL DEBRIS, SEDIMENT, AND OTHER FOREIGN MATERIAL. THE EXISTING PIPE SURFACE SHALL BE CLEANED IN ACCORDANCE WITH THE SLIP- LINER MANUFACTURER'S REQUIREMENTS. THE EXISTING CONCRETE PAVED INVERT SHALL REMAIN IN PLACE, AND THE CONTRACTOR SHALL ACCOUNT FOR ITS PRESENCE DURING SURFACE PREPARATION AND SLIP-LINER INSTALLATION.
3. CONTRACTOR SHALL FIELD VERIFY PIPE DIMENSIONS, ALIGNMENT, AND EXISTING CONDITIONS PRIOR TO INSTALLATION OF THE SLIP- LINER.
4. ANNULAR SPACE BETWEEN THE EXISTING CMP AND PROPOSED GRP LINER SHALL BE FILLED WITH GROUT PER SPECIFICATION SECTION 330130.76 **SEGMENTAL SLIPLINING WITH GRP COMPOSITES**.

[illegible]

SCALE:	AS NOTED
DATE:	10/08/2026
DESIGNED BY:	MMG & JPB
DRAWN BY:	JPB
CHECKED BY:	TJM

CITY OF WILLOWICK, OHIO

LARIMAR CULVERT IMPROVEMENTS

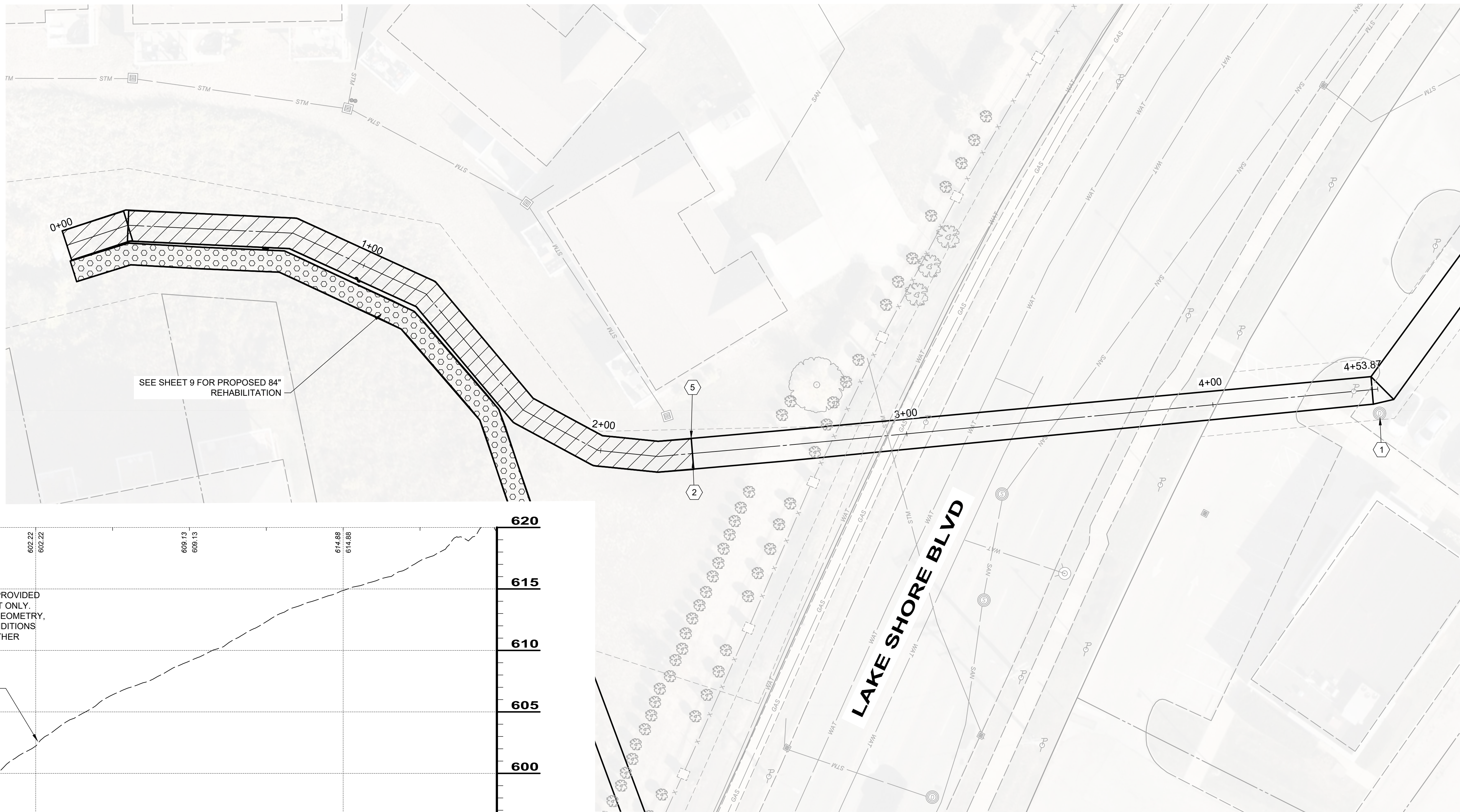
LAKE COUNTY

CIVIL - 10 SERIES

84 INCH PLAN AND PROFILE

OHIO

PROJECT NO:	
43427	
DRAWING NAME	
10C-06	
SHEET	OF
9	15



SITE PLAN CODED NOTES:

- SITE PLAN GENERAL NOTES:**

1. INSTALL SPRAY-APPLIED STRUCTURAL LINER (SAPL) WITHIN THE EXISTING 120" CMP CULVERT BETWEEN STA. 0+00 AND STA. 2+30, AS SHOWN IN THE PLANS. LINER THICKNESS SHALL BE 2" AND VERIFIED BY DESIGN CALCULATIONS.
2. PRIOR TO LINER INSTALLATION, THE CULVERT SHALL BE CLEANED AND FREE OF ALL DEBRIS, SEDIMENT, AND OTHER FOREIGN MATERIAL. THE EXISTING PIPE SURFACE, INCLUDING THE EXISTING CONCRETE-PAVED INVERT, SHALL BE CLEANED AND PREPARED IN ACCORDANCE WITH THE LINER MANUFACTURER'S REQUIREMENTS. THE EXISTING CONCRETE-PAVED INVERT SHALL REMAIN IN PLACE, AND THE CONTRACTOR SHALL ACCOUNT FOR ITS PRESENCE DURING SURFACE PREPARATION AND SPRAY-APPLIED STRUCTURAL LINER INSTALLATION.
3. CONTRACTOR SHALL UTILIZE EXISTING ACCESS POINTS AS SHOWN IN THE PLANS. ANY TEMPORARY STAGING AREAS OR DISTURBANCE LIMITS THAT DEFER FROM WHAT IS APPROVED WITHIN THESE PLANS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

STORM SEWER REHABILITATION CODED NOTES:

-
- A circular professional engineer seal for the State of Ohio. The outer ring contains the text "STATE OF OHIO" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The center of the seal contains the name "TIMOTHY MCLAUGHLIN" and the license number "E-83985". Below the license number, the word "REGISTERED" is written in a smaller, curved font.



SCALE:	AS NOTED	NO	REVISION	DATE
DATE:	10/08/2026			
DESIGNED BY:	MAG & JPB			
DRAWN BY:	JPB			
CHECKED BY:	TJM			

CITY OF WILLOWICK, OHIO
LARIMAR CULVERT IMPROVEMENTS
LAKE COUNTY
OHIO
CIVIL - 10 SERIES
120 INCH PLAN AND PROFILE

PROJECT NO:

43427

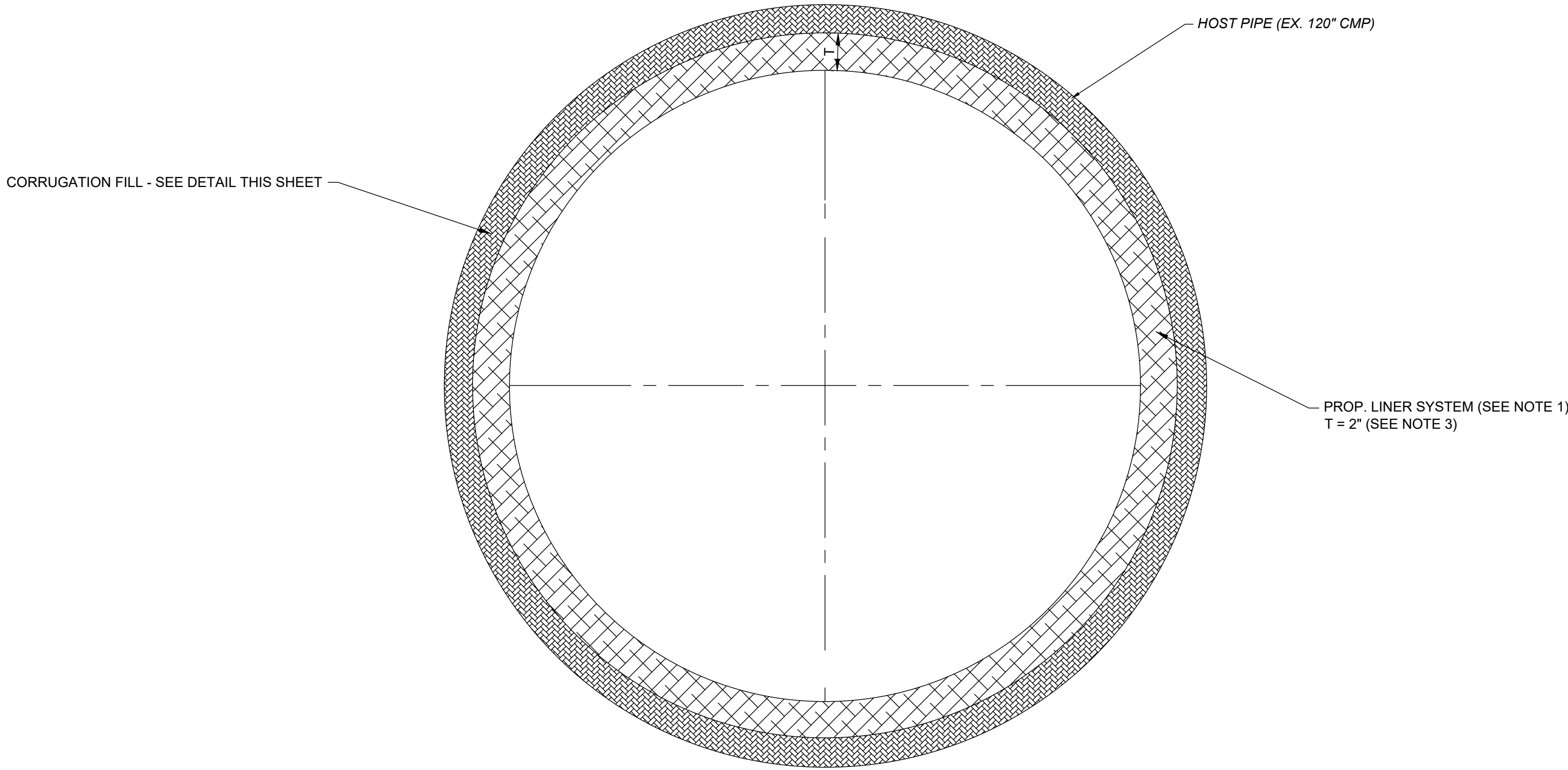
DRAWING NAME

10C-07

SHEET	OF
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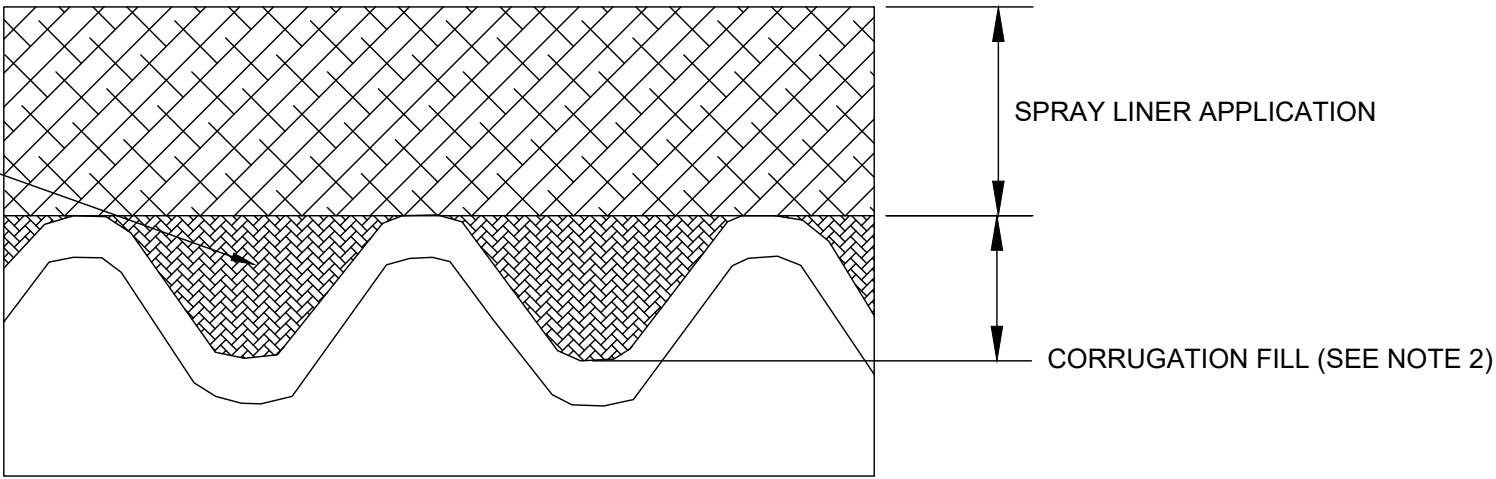
10

15



120" SPRAY LINER DETAIL
NOT TO SCALE

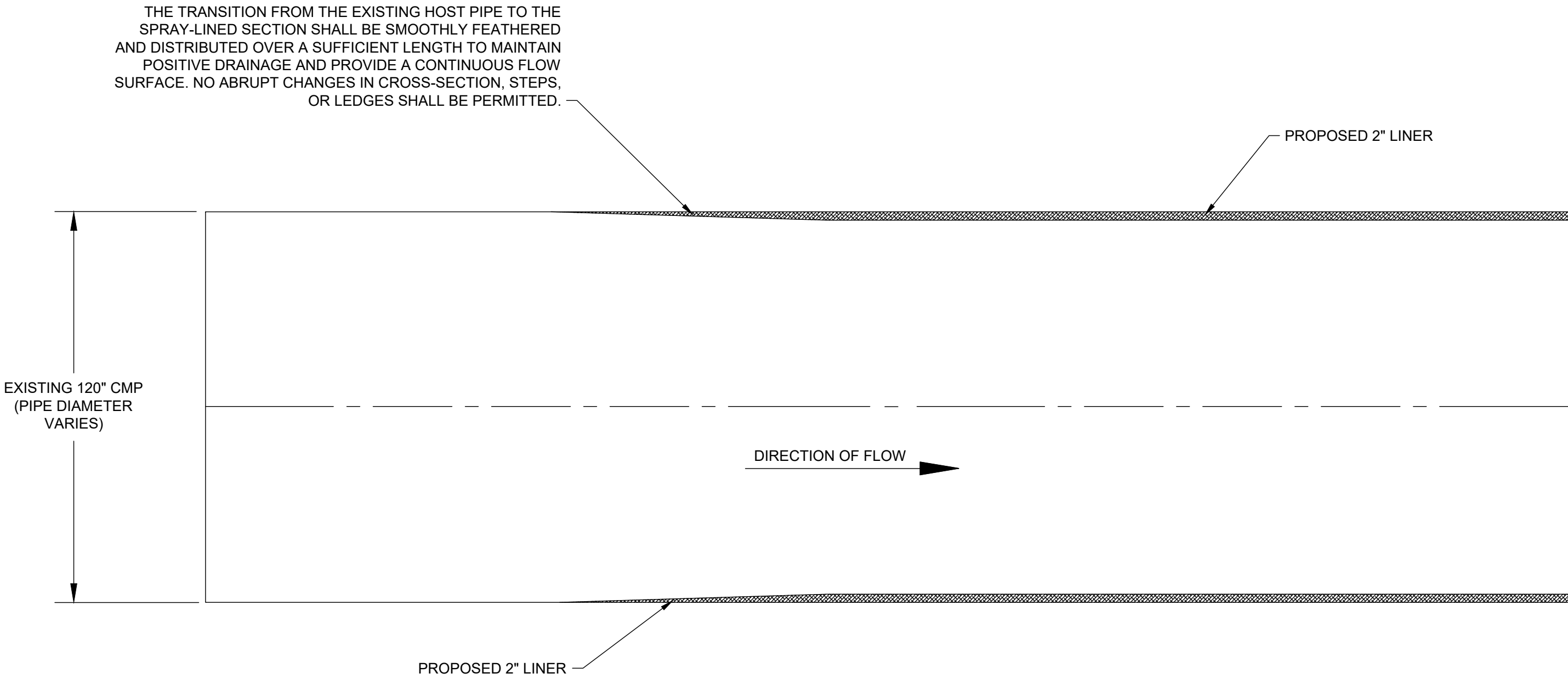
TYPICAL CORRUGATION FILL IS 2". THE CONTRACTOR SHALL CONFIRM THE CORRUGATION DEPTH. ANY DEVIATION FROM THE TYPICAL DEPTH SHALL HAVE NO ADDITIONAL PAYMENT FOR LABOR OR MATERIALS.



CORRUGATION FILL DETAIL
NOT TO SCALE

SPRAY SLIP LINER NOTES:

1. LINER SYSTEM SHALL BE A SPRAYED APPLIED GEOPOLYMER SYSTEM IN ACCORDANCE WITH SPECIFICATION 330130.73.
2. ALL CORRUGATIONS SHALL BE FILLED PRIOR TO APPLICATION OF THE LINER TO CREATE A FLUSH AND SMOOTH PIPE SURFACE. MATERIAL FOR FILLING CORRUGATIONS SHALL BE THE SAME MATERIAL AS THE LINER SYSTEM.
3. APPLICATION THICKNESS SHALL BE AS SPECIFIED IN THE SPRAY LINER DETAIL AND IS DETERMINED BASED ON ASCE MOP-145. THE CONTRACTOR IS REQUIRED TO SUBMIT LINER THICKNESS CALCULATIONS TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK. THICKNESSES SHALL BE PERFORMED IN ACCORDANCE WITH ASCE MOP-145 AND ASSUME DESIGN STATE III. IF CALCULATIONS ARE DETERMINED TO BE LESS THAN SPECIFIED THICKNESS, THE MINIMUM SPECIFIED THICKNESS SHALL GOVERN. IF CALCULATIONS FOR THE CONTRACTORS MATERIAL EXCEED THE SPECIFIED MINIMUM THICKNESS, THE CONTRACTORS THICKNESS WILL BE UTILIZED. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR THICKNESSES WITHIN 0.5" OR LESS OF WHAT IS SPECIFIED.
4. THE CONTRACTOR SHALL PREPARE THE SURFACE OF THE HOST PIPE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION TO ENSURE PROPER APPLICATION OF THE SPRAY LINING SYSTEM.
5. SUPPLEMENTAL REPAIRS HAVE BEEN NOTED ON SHEET 10. THEY SHALL BE PERFORMED PRIOR TO THE START OF ANY WORK RELATED TO THE LINER SYSTEM.



FLOW TRANSITION DETAIL



NO	REVISION	DATE							

SCALE:	AS NOTED	DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
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CITY OF WILLOWICK, OHIO LARIMAR CULVERT IMPROVEMENTS LAKE COUNTY	OHIO	CIVIL - 10 SERIES 120 INCH SPRAY LINING TYPICAL DETAILS

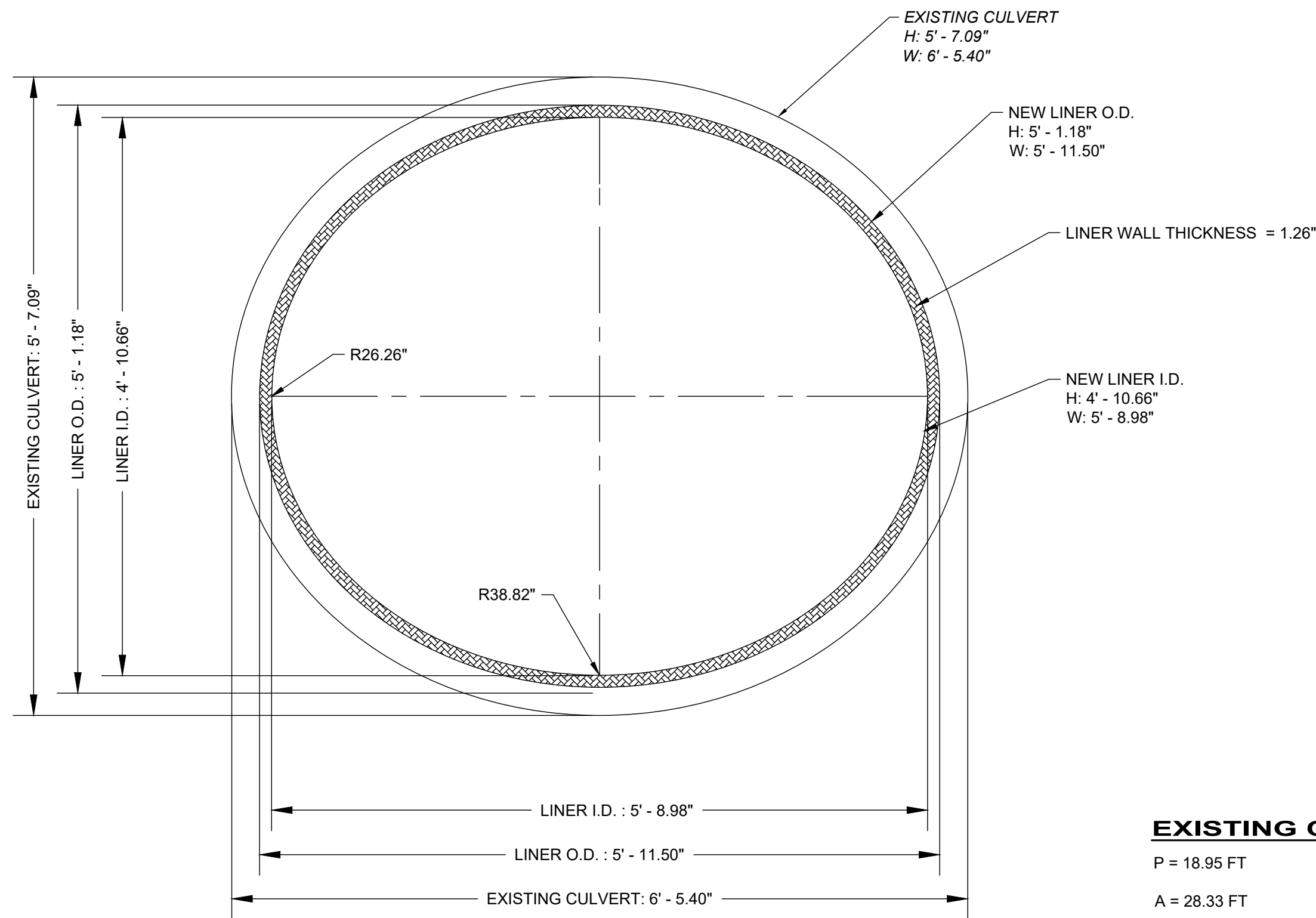
PROJECT NO:	
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SHEET	OF
11	15

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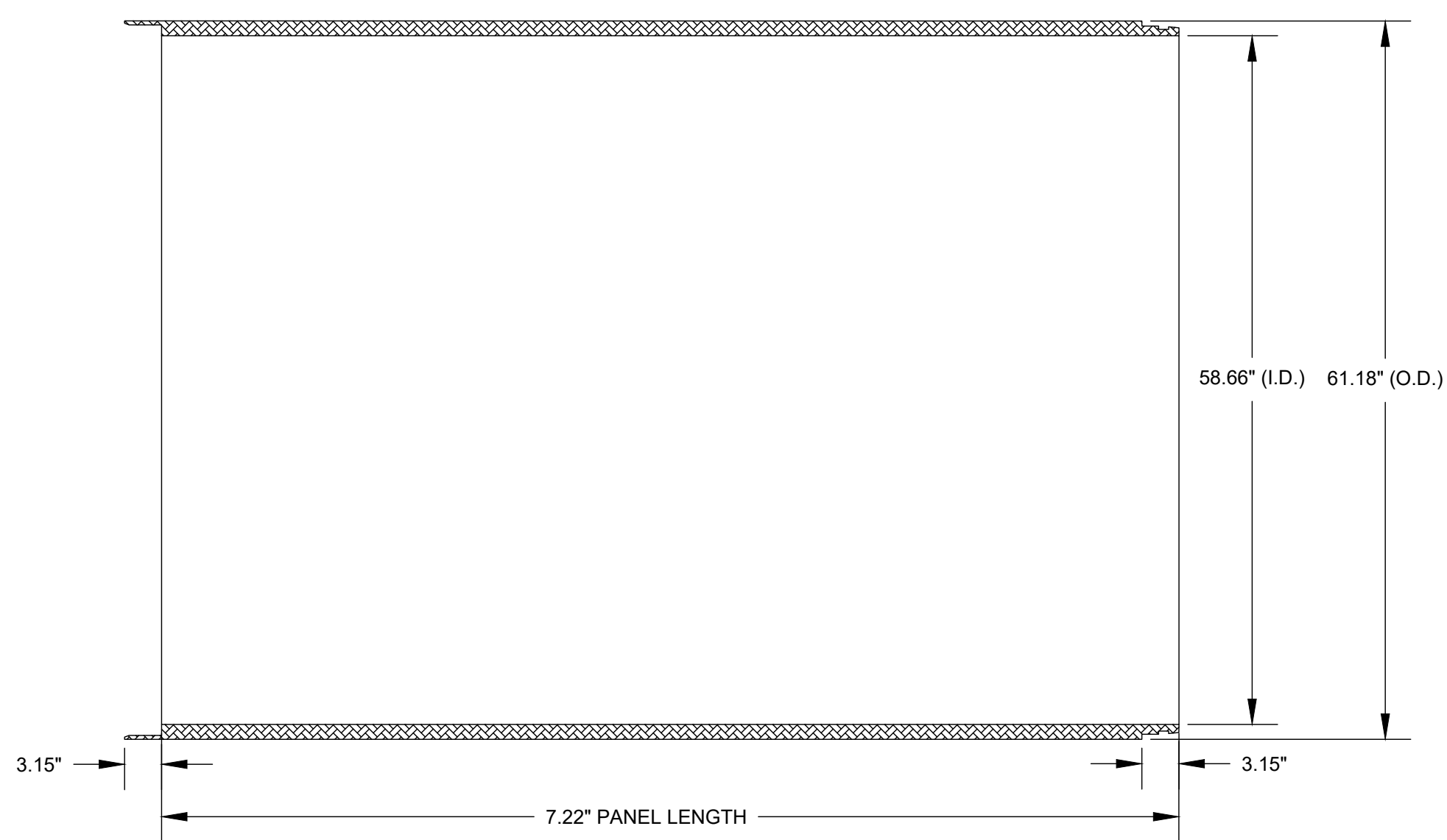
SCALE:	AS NOTED
DATE:	10/08/2026
DESIGNED BY:	MMG & JPB
DRAWN BY:	JPB
CHECKED BY:	TJM

CITY OF WILLOWICK, OHIO LARIMAR CULVERT IMPROVEMENTS LAKE COUNTY	CIVIL - 10 SERIES
	GRP SLIP LINER TYPICAL DETAILS

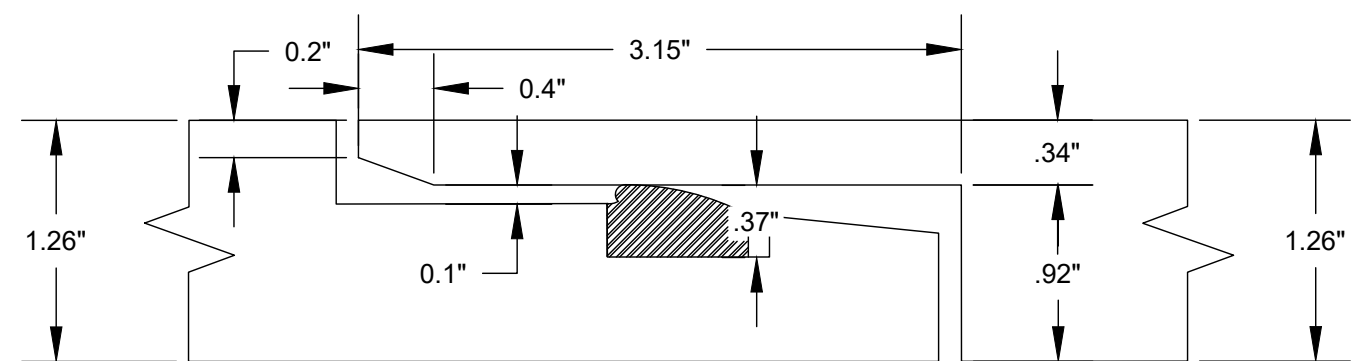
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10C-09	
SHEET	OF
12	15



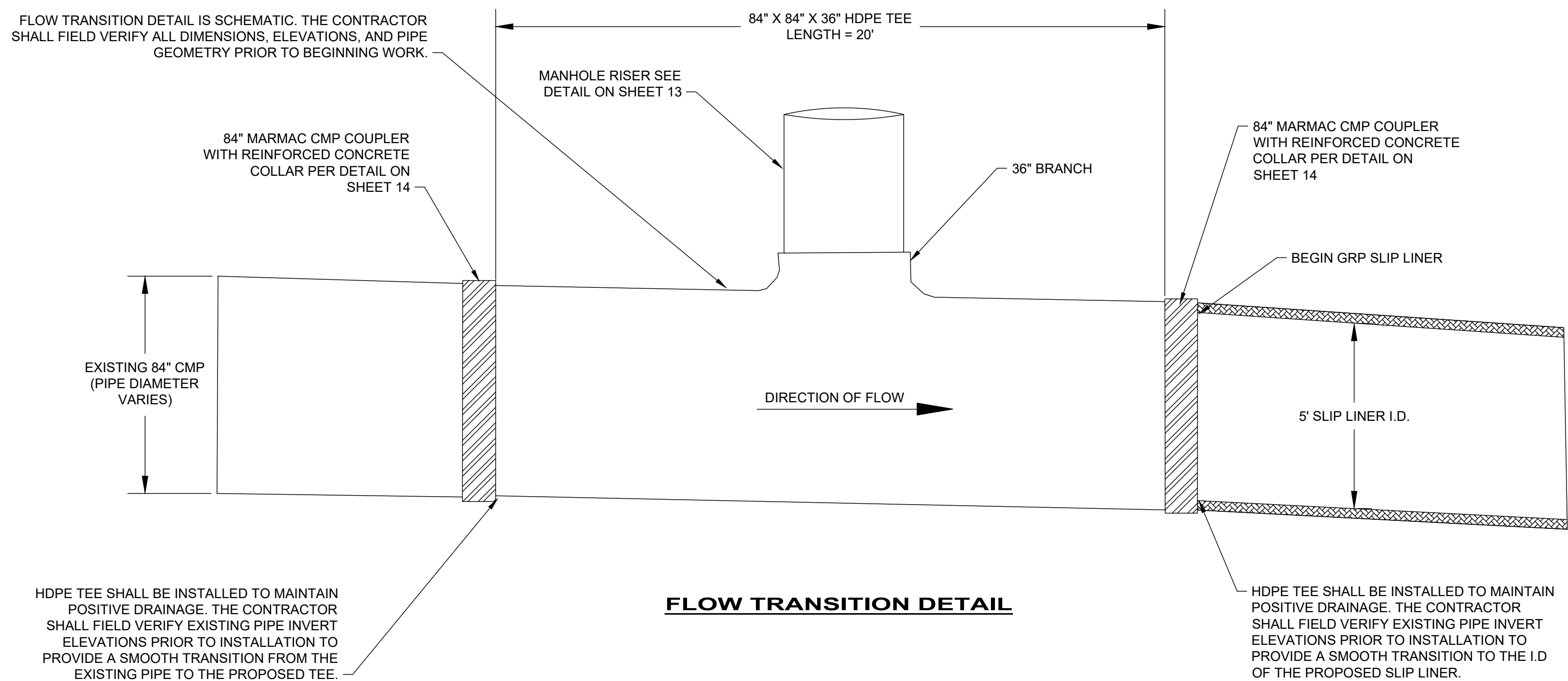
PROPOSED NEW LINER SECTION VIEW



PROPOSED NEW LINER SIDE VIEW



JOINT DETAIL



FLOW TRANSITION DETAIL

GRP SLIP LINER DETAILS

NOT TO SCALE

- GRP SLIP LINER NOTES:**

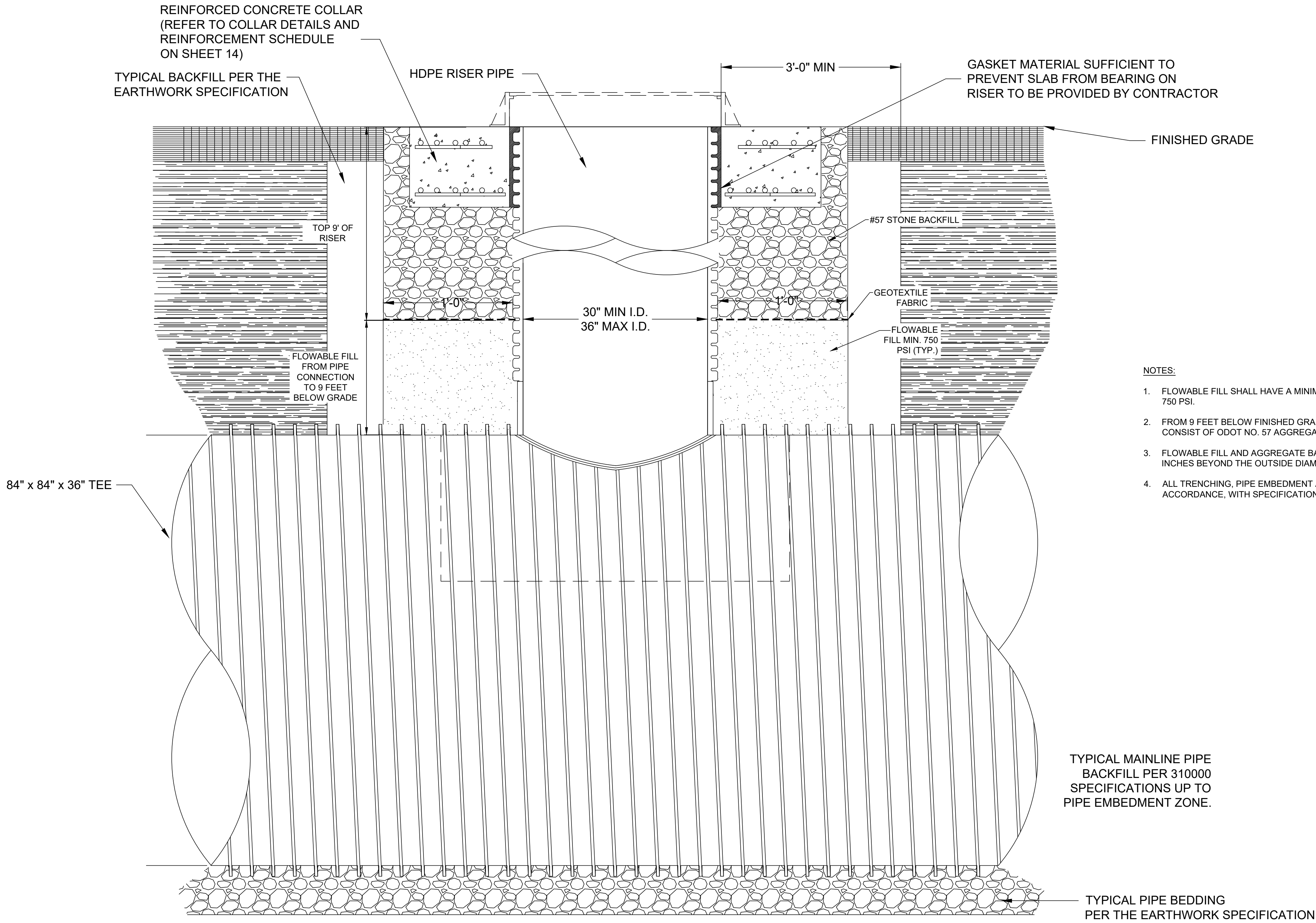
1. EXISTING CULVERT TO REMAIN IN PLACE.
2. ANNUAL SPACE BETWEEN HOST PIPE AND GRP LINER SHALL BE COMPLETELY FILLED WITH LOW-DENSITY CELLULAR GROUT IN ACCORDANCE WITH SPECIFICATION SECTION "330130.76 - SEGMENTAL SLIPLINING WITH GRP COMPOSITES". GROUT SHALL BE PLACED IN A MANNER THAT PREVENTS FLOATATION OR DEFORMATION OF THE LINER.
3. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS DURING INSTALLATION.
4. ALL COSTS ASSOCIATED WITH BYPASS PUMPING, TEMPORARY FLOW CONTROL, DEWATERING, AND GROUTING, SHALL BE INCIDENTAL TO THE PAY ITEM **"84 INCH SLIP LINING, AS PER PLAN"**.
5. THE EXISTING 84" CMP DIMENSIONS VARY THROUGHOUT THE PROJECT LIMITS DUE TO DEFORMATION AND OTHER EXISTING CONDITIONS. THE GRP SLIP LINER SYSTEM SHOWN IN THE PLANS WAS DESIGNED BASED ON THE MOST RESTRICTIVE (WORST-CASE) PIPE SECTION IDENTIFIED DURING THE EXISTING CONDITIONS ASSESSMENT. IN-PIPE LIDAR SCANNING AND CONDITION ASSESSMENT DATA WERE UTILIZED DURING DESIGN AND ARE PROVIDED FOR INFORMATIONAL PURPOSES TO ASSIST THE CONTRACTOR. EXISTING PIPE HEIGHTS, WIDTHS, AND OTHER GEOMETRIC DATA SHOWN IN THE EXISTING CONDITIONS DRAWINGS AND LIDAR DELIVERABLES MAY VARY FROM ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY ALL HOST PIPE DIMENSIONS AND CONDITIONS PRIOR TO FABRICATION AND INSTALLATION OF THE GRP SLIP LINER. ANY REQUIRED ADJUSTMENTS TO THE LINER PANEL DIMENSIONS OR THE INSTALLATION METHODS NECESSARY TO ACCOMMODATE VARIATIONS IN THE HOST PIPE SHALL BE APPROVED BY THE ENGINEER AND WILL BE INCIDENTAL TO THE PAY ITEM **"84 INCH SLIP LINING, AS PER PLAN"**.

NO	REVISION	DATE

SCALE:	AS NOTED
DATE:	10/08/2026
DESIGNED BY:	MMG & JPB
DRAWN BY:	JPB
CHECKED BY:	TJM

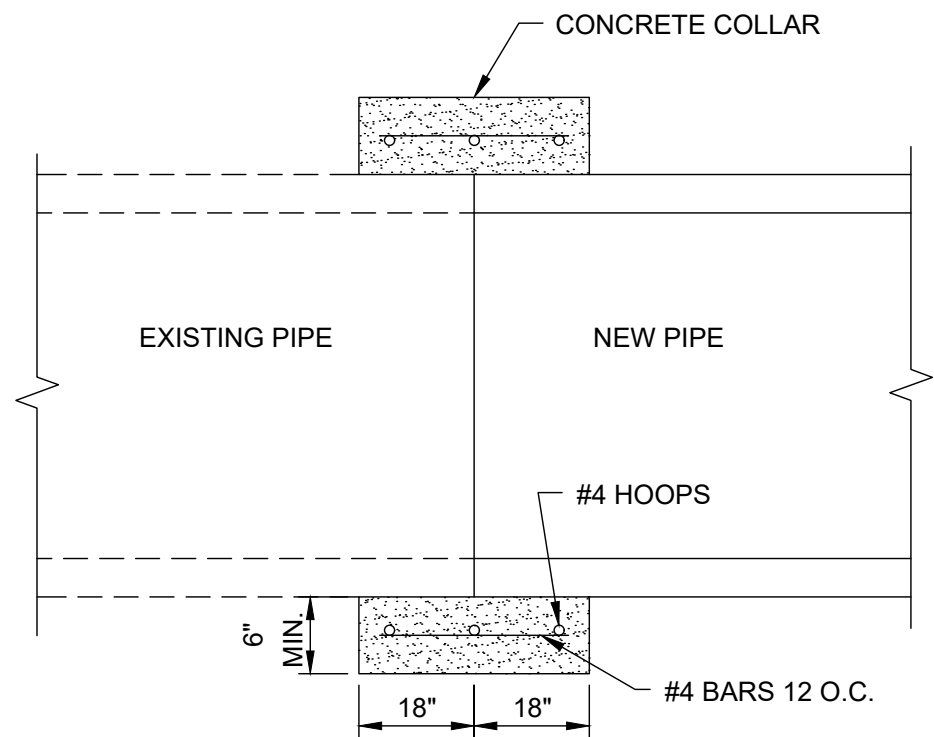
CITY OF WILLOWICK, OHIO LARIMAR CULVERT IMPROVEMENTS LAKE COUNTY	OHIO
	CIVIL - 10 SERIES
STANDARD DETAILS (1 OF 2)	

PROJECT NO: 43427	
DRAWING NAME 10C-10	
SHEET 13	OF 15



MANHOLE TEE WITH ACCESS RISER & REINFORCEMENT INSTALLATION DETAIL

NOT TO SCALE

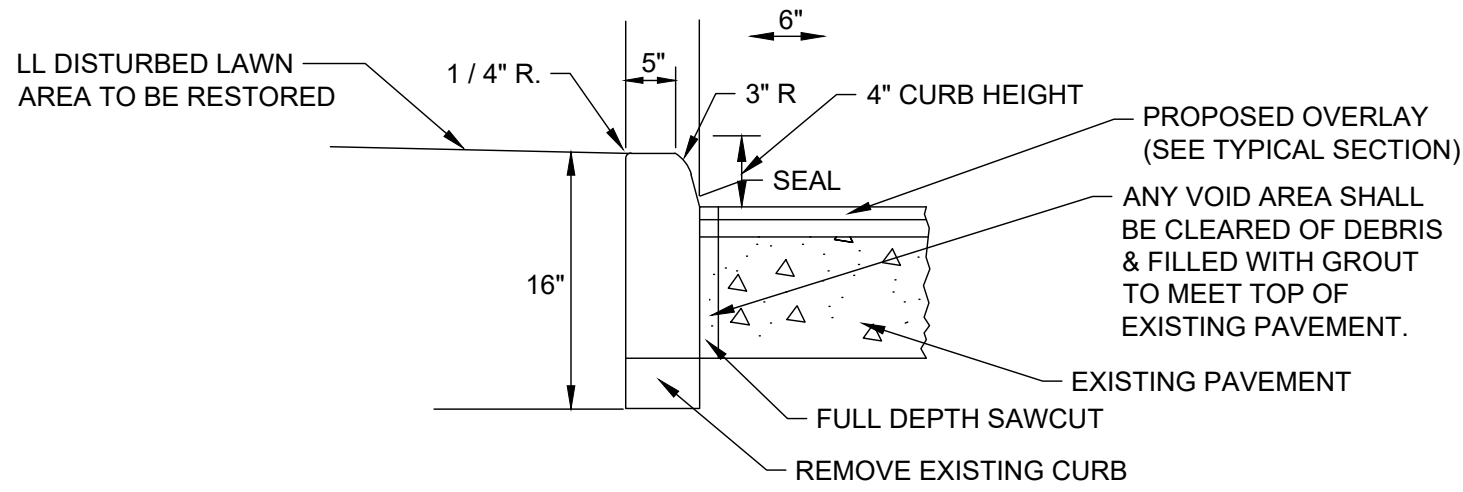


TYPICAL CONCRETE COLLAR DETAIL

NOT TO SCALE

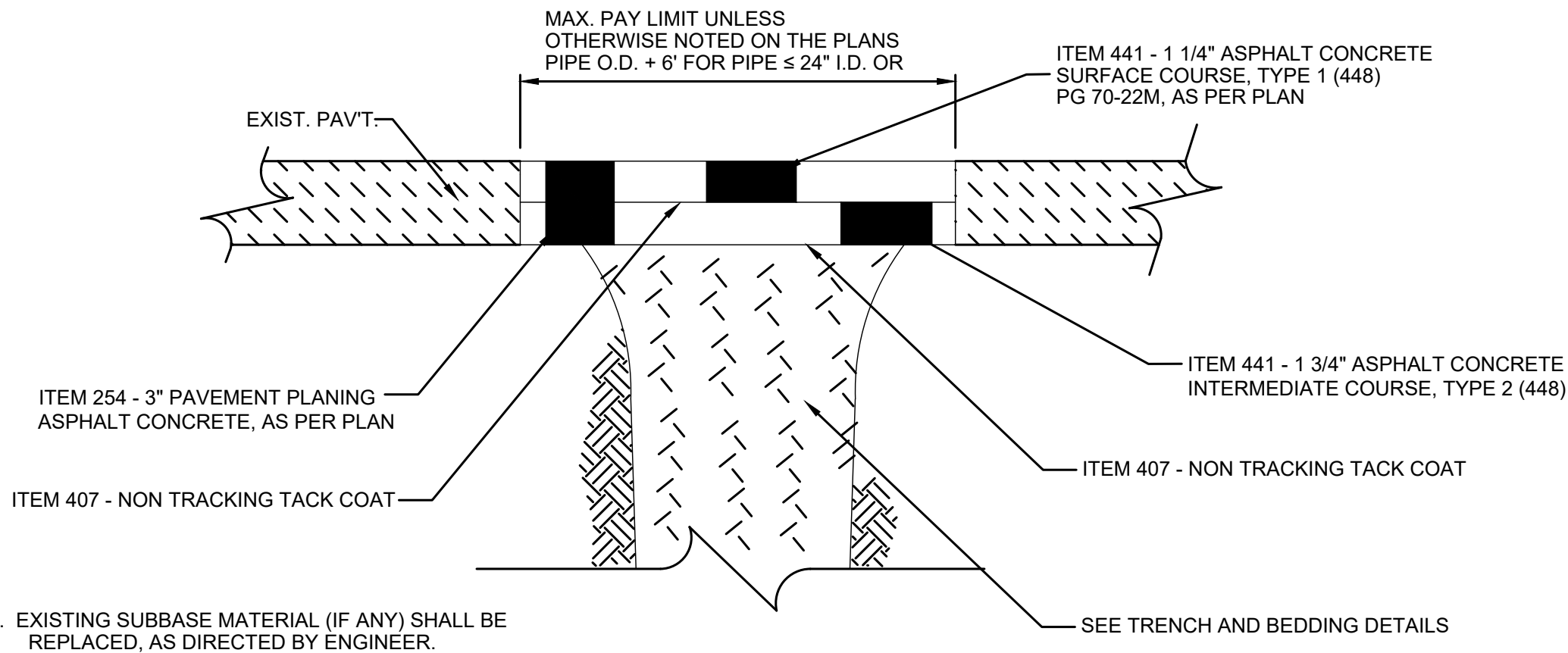
NOTES:

1. CONCRETE COLLAR SHALL ENCOMPASS COMPLETELY AROUND THE JOINT WHERE THE NEW PIPE AND EX. PIPE JOIN.
2. CONTRACTOR SHALL INSTALL A HYDRATITE JOINT SEAL AT THE COMPLETION IF A LINING SYSTEM IS NOT APPLIED OVER THE SECTION WHERE THE NEW PIPE AND EX. PIPE JOIN.



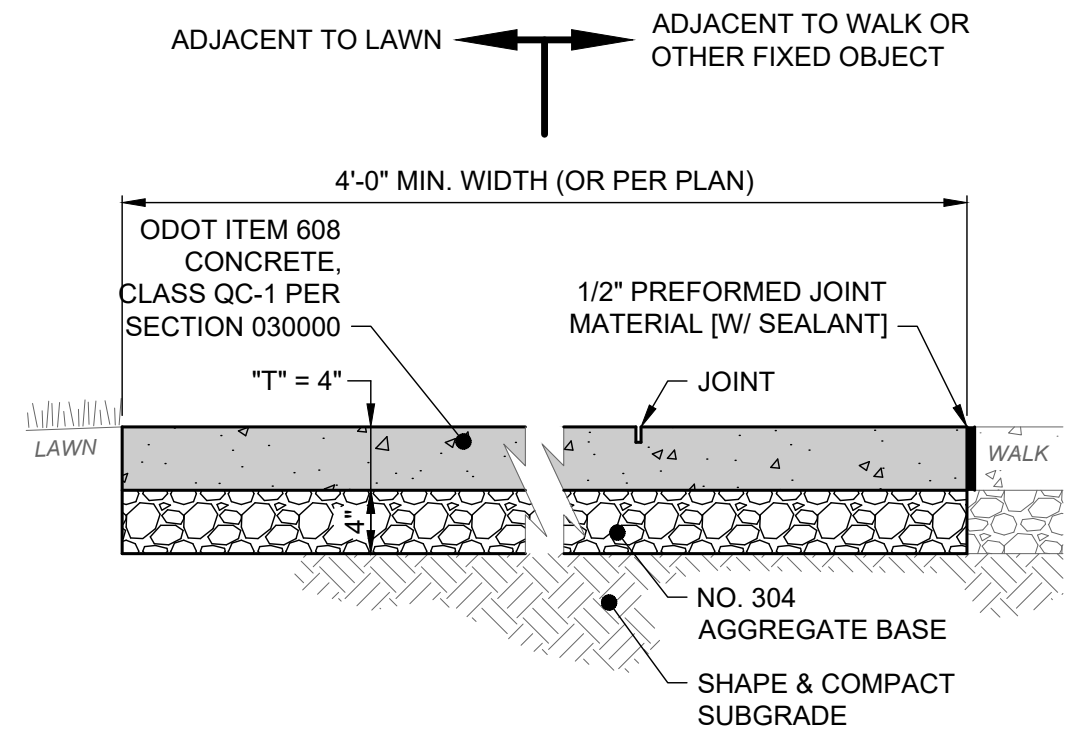
TYPE 4C CURB

NOT TO SCALE



TYPE C PAVEMENT REPLACEMENT (ASPHALT)

NOT TO SCALE

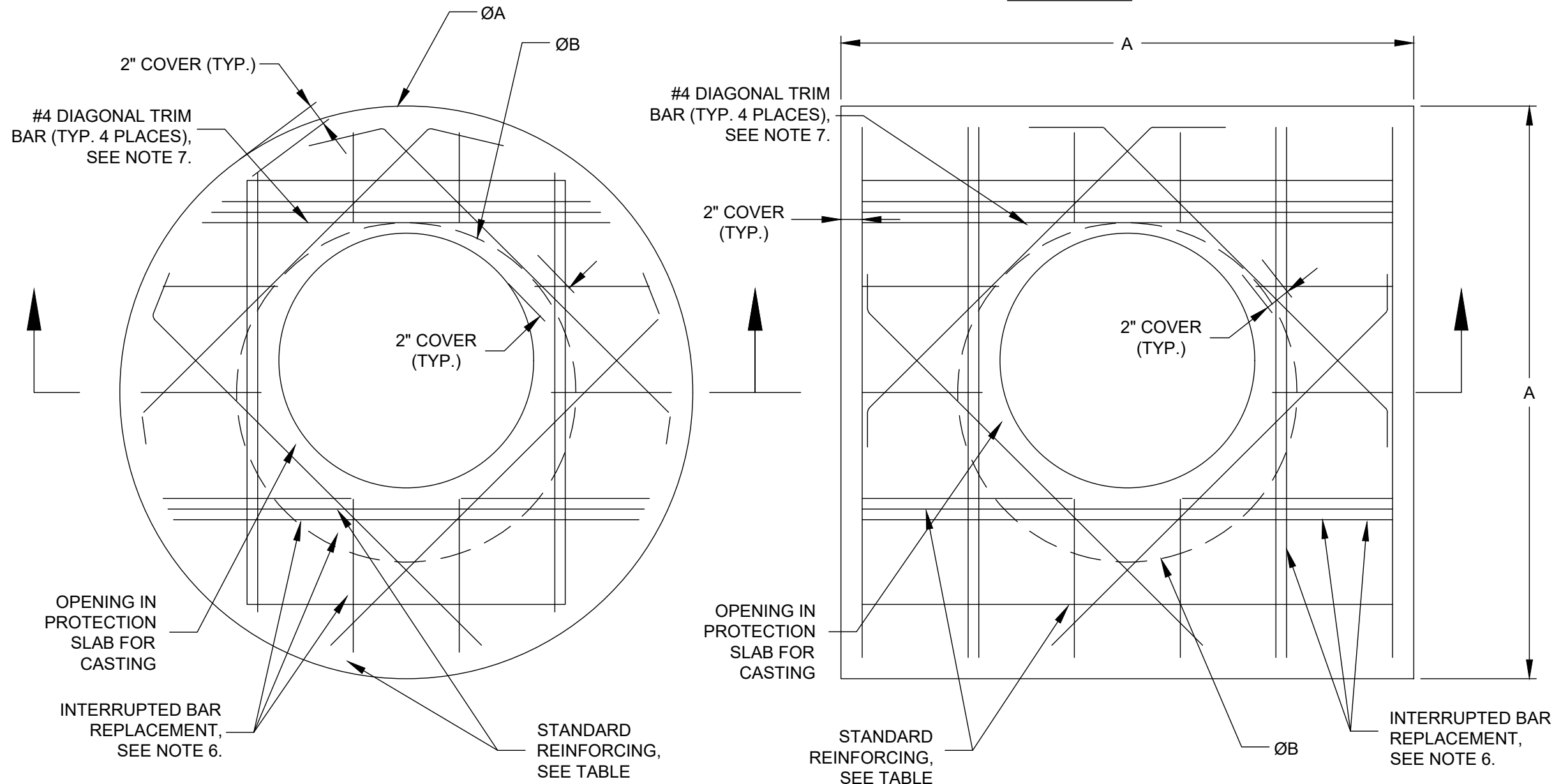


CONCRETE WALK DETAIL

NOT TO SCALE

NOTES:

1. SEE LAYOUT PLAN FOR JOINT LOCATIONS. IF JOINTS NOT SHOWN, CONTRACTOR SHALL DETERMINE LOCATION OF ALL JOINTS. DIVIDE JOINTS INTO EQUALLY SPACED RECTANGULAR BLOCKS (4' MIN.).
2. SAW CUT OR HAND TOOL JOINT 1/8" WIDE BY 1/4" OF "T" DEEP.
3. ROUND ALL EDGES AND JOINTS WITH A 1/4" RADIUS.
4. INSTALL PREFORMED JOINT MATERIAL EVERY 30', OR BETWEEN SIDEWALK AND FIXED OBJECT (I.E. MANHOLE, WALK, BUILDING).
5. LIGHTLY BROOM THE FINISH PERPENDICULAR TO THE WALKING PATH OR PER PLAN. IF HAND TOOLED JOINTS AND EDGES ARE SPECIFIED, FINISH AFTER PANEL INTERIOR TEXTURE HAS BEEN APPLIED (I.E. WINDOW PANE EFFECT).
6. APPLY LIQUID-MEMBRANE CURING COMPOUND (200 S.F./GAL.).

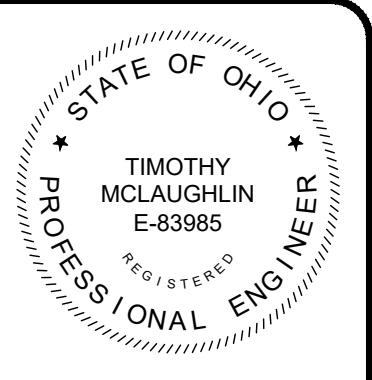


NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 3,500 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING. BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.

COLLAR DETAILS AND REINFORCING SCHEDULE

NOT TO SCALE



DATE									
REVISION									
NO									

SCALE:	AS NOTED	DATE:	10/08/2026	DESIGNED BY:	MMG & JPB	DRAWN BY:	JPB	CHECKED BY:	TJM
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CITY OF WILLOWICK, OHIO LARIMAR CULVERT IMPROVEMENTS LAKE COUNTY	OHIO	CIVIL - 10 SERIES STANDARD DETAILS (2 OF 2)

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