

CITY OF RICHMOND HEIGHTS, OHIO

IIJA - RICHMOND HEIGHTS

SANITARY SEWER IMPROVEMENTS

CUYAHOGA COUNTY, OHIO



MAY 2025

RICHMOND HEIGHTS OFFICERS

KIM A. THOMAS	MAYOR
RYAN TIEDMAN	SERVICE DIRECTOR
TOM DILELLIO	INTERIM FINANCE DIRECTOR
CALVIN D. WILLIAMS	POLICE CHIEF
MARC NEUMANN	FIRE CHIEF
R. TODD HUNT	LAW DIRECTOR
JUSTIN HASELTON	CITY ENGINEER

RICHMOND HEIGHTS CITY COUNCIL

BOBBY JORDAN	PRESIDENT OF COUNCIL
TRACY JUSTICE	COUNCILPERSON WARD 1
ASU MOOK ROBINSON	COUNCILPERSON WARD 2
CASSANDRA A. NELSON	COUNCILPERSON WARD 3
BRIAN SILVER	COUNCILPERSON WARD 4
DANIEL J. URSU	COUNCIL-AT-LARGE
JUANITA LEWIS	COUNCIL-AT-LARGE
TRACEY BLAIR	CLERK OF COUNCIL

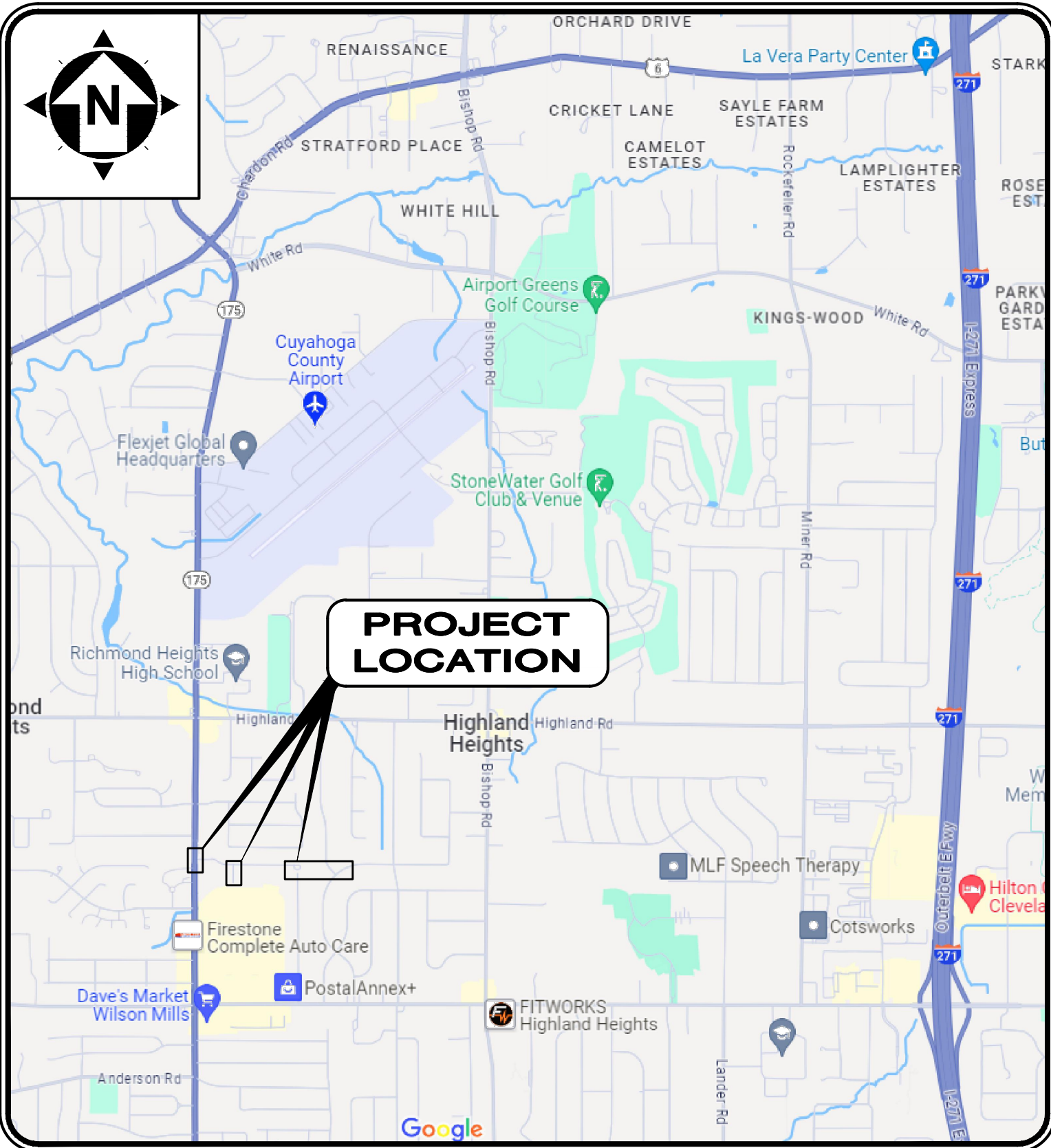
APPROVALS

CITY OF RICHMOND HEIGHTS

MAYOR	KIM A. THOMAS	DATE
CITY ENGINEER	JUSTIN HASELTON	DATE

CUYAHOGA COUNTY PUBLIC WORKS

CHIEF SECTION ENGINEER - SANITARY DESIGN	LAURA WEBER, P.E	DATE
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LOCATION MAP
NOT TO SCALE

APPROVED

Justin Haselton
RICHMOND HEIGHTS
ENGINEERING DEPT. 05/13/2025

ENGINEER:

CT CONSULTANTS, INC.
8150 STERLING COURT
MENTOR, OH 44060
(440) 951-9000 PHONE
(440) 951-7487 FAX

Timothy McLaughlin
TIMOTHY MCLAUGHLIN



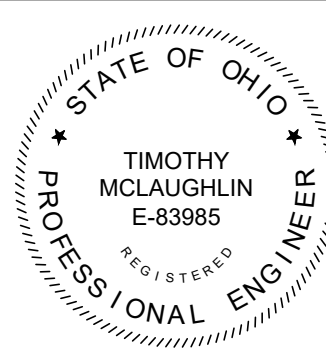
P.E. No. E-83985

5/9/2025
DATE



ENGINEER'S PROJECT No. 231100

- 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.
- THE CONTRACTOR IS RESPONSIBLE TO CALL OHIO UTILITIES PROTECTION SERVICE @ 1-800-362-2764, THREE WORKING DAYS PRIOR TO CONSTRUCTION.



DATE	REVISION	NO

SCALE: AS NOTED	DATE: 5/5/2025	DESIGNED BY: TJM	RLM	TJM

CITY OF RICHMOND HEIGHTS IIJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY	OHIO GENERAL - 00 SERIES COVER SHEET
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PROJECT NO:	231100
DRAWING NAME	00G-01
SHEET	OF
1	31

EXISTING PLAN LINE SYMBOLOGY: **EXISTING PLAN SYMBOLOGY:**

	FENCE, GENERAL		SANITARY MANHOLE		ELECTRIC RISER BOX
	FENCE, BARBED WIRE		SANITARY CLEANOUT		ELECTRIC TRANSFORMER
	FENCE, CHAIN LINK		SANITARY LINE CAP		ELECTRIC HVAC UNIT
	FENCE, DECORATIVE		SANITARY LINE PAINT MARKING		ELECTRIC GROUND LIGHT
	FENCE, ELECTRIC		SANITARY STRUCTURE NUMBER		ELECTRIC LINE PAINT MARKING
	FENCE, VINYL		SANITARY VENT PIPE		CABLE TV MANHOLE
	FENCE, WOOD		STORM MANHOLE (SOLID LID)		CABLE TV PEDESTAL
	FENCE, WOVEN WIRE		STORM MANHOLE (OPEN GRATE)		CABLE TV PAINT MARKING
	CABLE RAIL		CURB INLET		TELEPHONE MANHOLE
	GUARDRAIL		CURB INLET (DOUBLE)		TELEPHONE PULL BOX
	HANDRAIL		CATCH BASIN		TELEPHONE PEDESTAL
	TELEPHONE, ABANDONED		CATCH BASIN (ROUND LID)		TELEPHONE RISER BOX
	TELEPHONE		CATCH BASIN (DOME)		TELEPHONE LINE PAINT MARKING
	TELEPHONE, OH		CATCH BASIN (SIDE INLET)		TELEPHONE PAY PHONE
	TELEPHONE, UG		DRAIN		FIBER OPTIC CABLE MANHOLE
	TELEPHONE, SERVICE		DOWNSPOUT		FIBER OPTIC CABLE PAINT MARKING
	TELEPHONE, SERVICE OH		STORM CLEANOUT		TRAFFIC CONTROL MANHOLE
	TELEPHONE, SERVICE, UG		STORM LINE CAP		TRAFFIC CONTROL BOX
	ELECTRIC, ABANDONED		STORM ENDWALL		TRAFFIC CONTROL, PAINT MARKING
	ELECTRIC, DUCT BANK		STORM HEADWALL		TRAFFIC PULL BOX
	ELECTRIC		STORM LINE PAINT MARKING		TRAFFIC SIGNAL PEDESTAL
	ELECTRIC, OH		STORM STRUCTURE NUMBER		UNKNOWN, PULL BOX
	ELECTRIC, UG		ROCK CHANNEL PROTECTION		UNKNOWN, CLEANOUT
	ELECTRIC, SERVICE		SURFACE DRAINAGE FLOW		UNKNOWN, MANHOLE
	ELECTRIC, SERVICE OH		STORM FLOOD ROUTING ARROW		UNKNOWN, VALVE
	ELECTRIC, SERVICE, UG		FIRE HYDRANT		MONITORING WELL
	GAS, ABANDONED		WATER SIAMESE CONNECTION		TEST WELL
	GAS		WATER VALVE		WATER WELL
	GAS, SERVICE		WATER VALVE BOX		SOIL BORING
	SANITARY, ABANDONED		WATER METER		SWAMP
	SANITARY FORCE MAIN		WATER METER PIT		POLE, ELECTRIC
	SANITARY SEWER		WATER LINE REDUCER		POLE, TELEPHONE
	SANITARY LEACH LINE		WATER LINE CAP		POLE, LIGHT
	SANITARY SEWER, DOUBLE		WATER LINE PLUG		POLE, LIGHT, DECORATIVE
	SANITARY SEWER, SERVICE		WATER LINE PAINT MARKING		POLE, LIGHT-OVERHEAD
	STORM CULVERT		POST INDICATOR VALVE		POLE, CABLE TV
	TELEPHONE, ABANDONED		WATER MANHOLE		POLE, UTILITY
	TELEPHONE		WATER FLUSHING ASSEMBLY		POLE, GENERAL
	TELEPHONE, OH		WATER FIXTURE		POLE, TRAFFIC CONTROL

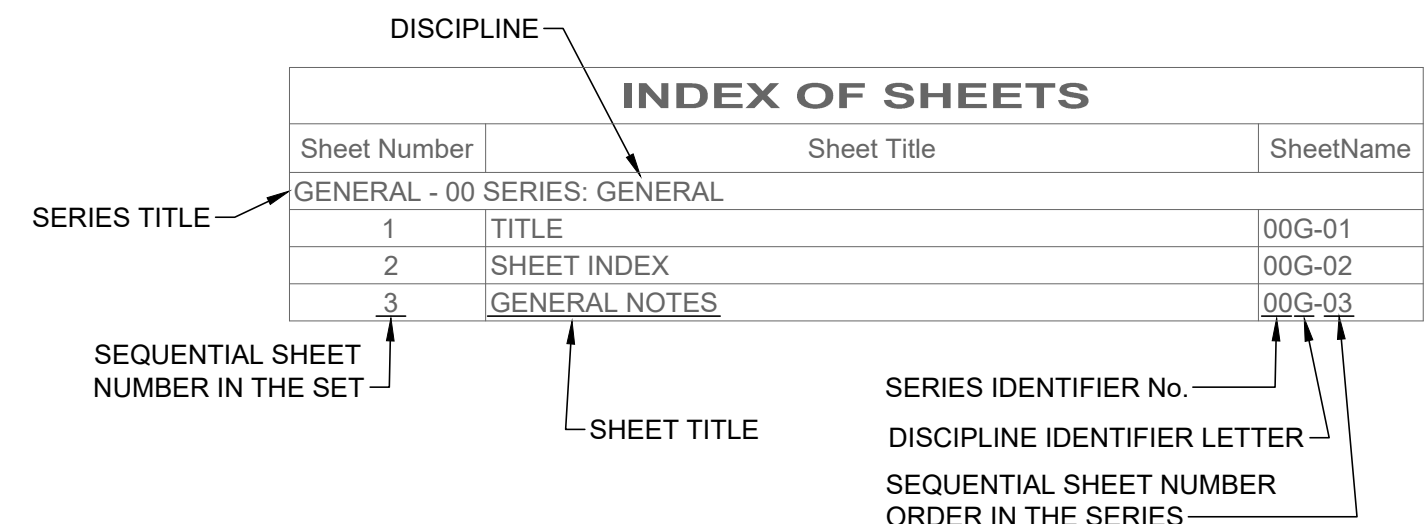
SERIES INFORMATION:

GENERAL - 00 SERIES
CIVIL - 10 SERIES
DROP SHAFT CONNECTION - 20 SERIES
EROSION CONTROL - 30 SERIES

DISCIPLINE INFORMATION:

IDENTIFIER:	DISCIPLINE:
G	GENERAL
C	CIVIL
S	STRUCTURAL
A	ARCHITECTURAL
D	PROCESS
M	MECHANICAL (PLUMBING & HVAC)
E	ELECTRICAL
Y	INSTRUMENTATION

INDEX EXPLANATION:



GENERAL SYMBOLOGY NOTES:

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.

DRAWING CODED NOTE TYPES:

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.

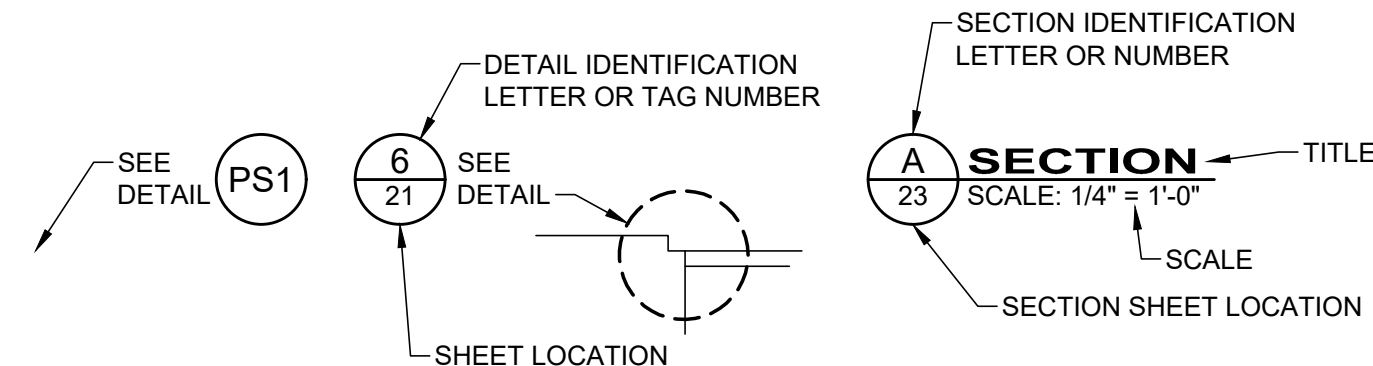
PLAN REVISIONS:

REVISION	REVISION DESCRIPTION
A	REVISION DESCRIPTION
B	REVISION DESCRIPTION

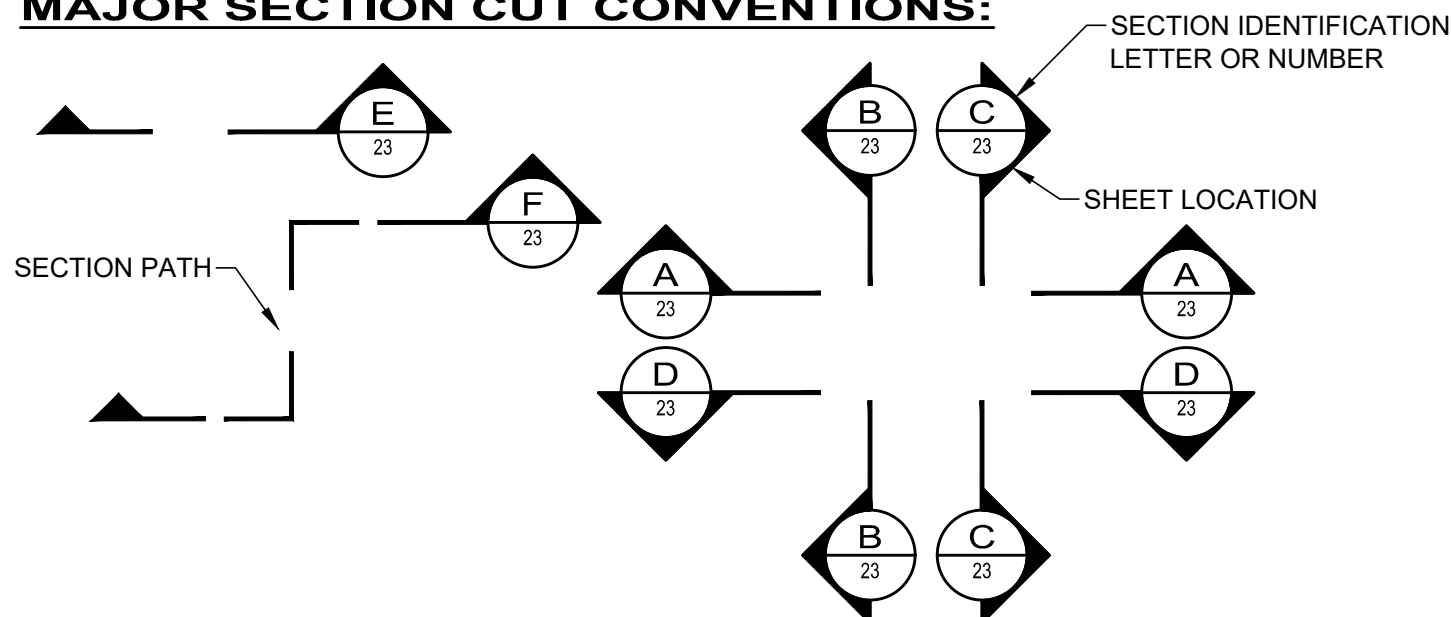
DEMOLITION CODED NOTES:

1	DEMOLITION DESCRIPTION
2	DEMOLITION DESCRIPTION

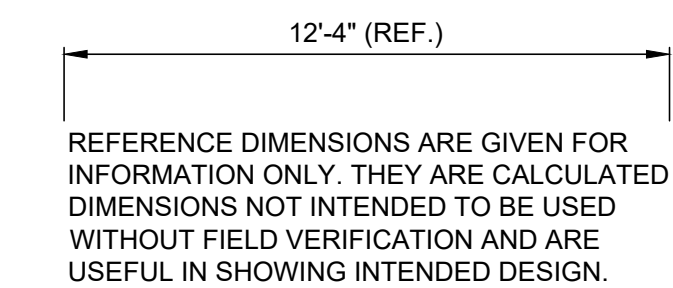
DETAIL REFERENCES:








MAJOR SECTION CUT CONVENTIONS:



REFERENCE DIMENSION:



HATCH LEGEND (PIPES):

-  CURED-IN-PLACE-PIPE (CIPP) LINE
 POINT REPAIR
 ABANDON IN PLACE
 REMOVE AND REPLACE
 TO BE REMOVED

HATCH LEGEND (PAVEMENT):

- TYPE 'A' PAVEMENT REPLACEMENT
 TYPE 'C' PAVEMENT REPLACEMENT
 CONCRETE WALK REPLACEMENT

ABBREVIATIONS

PIPE MATERIAL ID:

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
GALV = GALVANIZED STEEL
HDPE = HIGH-DENSITY POLYETHYLENE PIPE
PVC = POLYVINYL CHLORIDE PIPE
SS = STAINLESS STEEL
STL = STEEL PIPE
SDR = STANDARD DIAMETER RATIO
SCH = SCHEDULE

OTHER:

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

SHEET NUMBER	SHEET TITLE	SHEET NAME
GENERAL - 00 SERIES		
1	COVER SHEET	00G-01
2	SHEET INDEX, ABBREVIATIONS AND LEGENDS	00G-02
3	OHIO EPA GENERAL NOTES	00G-03
4	CUYAHOGA COUNTY PUBLIC WORKS GENERAL NOTES	00G-04
5	SURVEY CONTROL	00G-05
6	MAINTENANCE OF TRAFFIC	00G-06
CIVIL - 10 SERIES		
7	RICHMOND RD. DROP SHAFT CONNECTION	10C-01
8	MARRUS LN. TO EDGEWOOD RD. PLAN & PROFILE	10C-02
9	RADFORD DR. & MEADOWLANE DR PLAN & PROFILE	10C-03
10	EDGEWOOD & RADFORD ALTERNATIVE A PLAN & PROFILE	10C-04
11	EDGEWOOD & RADFORD ALTERNATIVE B PLAN & PROFILE	10C-05
12	CONSTRUCTION DETAILS - SANITARY	10C-06
13	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-07
14	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-08
15	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-09
16	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-10
17	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-11
18	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-12
19	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-13
20	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-14
21	CONSTRUCTION DETAILS - SANITARY CCDPW	10C-15
22	CONSTRUCTION DETAILS - PAVEMENT	10C-16
DROP SHAFT CONNECTION - 20 SERIES: STRUCTURAL		
23	DROP SHAFT PLAN AND SECTIONS	20S-01
24	PIPE SUPPORTS	20S-02
25	STRUCTURAL DETAILS	20S-03
26	STRUCTURAL DETAILS	20S-04
27	STRUCTURAL DETAILS	20S-05
28	STRUCTURAL DETAILS	20S-06
29	STRUCTURAL NOTES	20S-07
30	STRUCTURAL NOTES	20S-08
EROSION CONTROL - 30 SERIES		
31	EROSION CONTROL DETAILS	30EC-01

CITY OF RICHMOND HEIGHTS											
I/IJA - RICHMOND HEIGHTS											
SANITARY SEWER IMPROVEMENTS											
CUYAHOGA COUNTY OHIO											
GENERAL - 00 SERIES											
SHEET INDEX, ABBREVIATIONS AND LEGENDS											
PROJECT NO:											
231100											
DRAWING NAME											
00G-02											
SHEET						OF					
2						31					

GENERAL PROJECT CONDITIONS

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RICHMOND HEIGHTS CODIFIED ORDINANCES & CONSTRUCTION STANDARDS, AND REGULATIONS OF CUYAHOGA COUNTY PUBLIC WORKS (CCPW) AND THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS. WHEN IN CONFLICT THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

2. THE PROJECT SHALL CONFORM TO THE REQUIREMENTS OF: COUNTY OF CUYAHOGA SANITARY ENGINEERING DIVISION RULES AND REGULATIONS (LATEST EDITION), UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS (LATEST EDITION), UNIFORM STANDARD SEWER DETAILS (LATEST EDITION), GENERAL COUNTY SEWER NOTES (LATEST EDITION). THE REFERENCES LISTED ABOVE CAN BE FOUND HERE:
<https://www.cuyahogacounty.us/publicworks/services/design-and-construction/sanitary-design>

3. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS SHALL BE NEW AND BOTH WORKMANSHIP AND MATERIALS SHALL BE OF PREMIUM QUALITY, PROPER AND SUFFICIENT FOR THE PURPOSE CONTEMPLATED. THE CONTRACTOR SHALL FURNISH, IF SO REQUIRED, SATISFACTORY EVIDENCE AS TO TYPE AND QUALITY OF MATERIALS AND WORKMANSHIP.

4. ALL ITEMS OF EQUIPMENT AND/OR MATERIAL PROPOSED BY THE CONTRACTOR FOR SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER IN WRITING AND SHALL BE EQUAL OR SUPERIOR TO THE ITEMS SPECIFIED IN THE CONTRACT DOCUMENTS. IF SAID SUBSTITUTION PROPOSED BY THE CONTRACTOR FOR A SPECIFIED ITEM REQUIRES ENGINEERING REVISIONS, THE TOTAL EXPENSE OF SAID REVISIONS SHALL BE PAID BY THE CONTRACTOR.

5. THE SEWER CONTRACTOR SHALL BE LICENSED WITH THE CCPDW. A CCPDW PERMIT AND CCPDW INSPECTION IS REQUIRED AND SHALL BE OBTAINED BY THE SEWER CONTRACTOR PRIOR TO STARTING SEWER WORK. IF THERE ARE MULTIPLE BUILDINGS ON A SITE, EACH BUILDING SHALL REQUIRE ITS OWN SEWER CONNECTION PERMIT FROM THE CCPDW.

6. THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL CHARGES AND FEES AS MAY BE NECESSARY AND REQUIRED BY THE CITY OR STATE.

7. OBSERVATION OF THE WORK BY THE CCPDW IN ACCORDANCE WITH THE REQUIREMENTS OF THE CCPDW RULES AND REGULATIONS IS REQUIRED.

8. ALL SEWERS AND MANHOLES ARE TO BE TESTED IN ACCORDANCE WITH THE CCPDW REQUIREMENTS PER THE CCPDW GENERAL NOTES. ALL SANITARY SEWER VIDEOS AND REPORTS SHALL BE SUBMITTED TO THE CCPDW FOR REVIEW. WHERE DEFLECTION TESTING OF FLEXIBLE PIPE IS REQUIRED: IF MANDRELS CANNOT BE USED, LASER PROFILING, PER THE UNIFORM STANDARDS, SHALL BE REQUIRED.

9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THEIR WORK IN SUCH A MANNER AS NOT TO DAMAGE OR DESTROY ANY EXISTING FEATURE, (I.E. EXISTING INLETS, CONDUITS, ETC.) WHICH IS NOT MARKED FOR REPLACEMENT OR REMOVAL. IF ANY SUCH DAMAGE DOES OCCUR DUE TO THE OPERATIONS OF THE CONTRACTOR, THEY SHALL REPLACE THE DAMAGED PORTION AT THEIR EXPENSE.

10. THE CONTRACTOR SHALL EXERCISE DUE CARE DURING CONSTRUCTION SO AS NOT TO DESTROY ANY TREES, PLANTS, SHRUBS OR STRUCTURES OUTSIDE OF THE INDICATED WORK LIMITS AND THOSE NOT SPECIFICALLY MARKED FOR REMOVAL OR RELOCATION WITHIN THE WORK LIMITS.

11. IN SOME INSTANCES, THE CONTRACTOR WILL BE REQUIRED TO EXCAVATE UNDER AND AROUND THE EXISTING UTILITIES. EXTREME CARE SHOULD BE USED NOT TO DAMAGE THE UTILITY DURING THIS OPERATION.

12. DIMENSIONS ARE TO THE EDGE OF PAVEMENT OR SIDEWALK UNLESS OTHERWISE INDICATED.

13. 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 RICHMOND HEIGHTS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS AND THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO CONFIRM THE PRESENCE AND LOCATION OF ANY AND ALL EXISTING UTILITIES.

AT&T
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CLEVELAND OHIO 44111
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Pj8191@att.com

CHARTER
ROB ZELKO
7820 DIVISION DR.
MENTOR OHIO 44060
330-633-9203
Rob.Zelko@charter.com

CLEVELAND WATER
FRED ROBERTS
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CLEVELAND OHIO 44114
216-664-2444 ext 75590
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DOMINION
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AKRON OHIO 44333
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EVERSTREAM
GIO REILLO
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CLEVELAND OHIO 44115
216-905-0780
greillo@everstream.net

NORTHEAST OHIO REGIONAL SEWER
ROB STOERKEL
3900 EUCLID AVE
CLEVELAND OHIO 44115
216-881-8247

CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS
CUYAHOGA COUNTY ADMINISTRATIVE HEADQUARTERS
2079 E. 9TH STREET, 5TH FLOOR
CLEVELAND OHIO 44115
ATTN: LAURA WEBER (216-443-8205)
laweber@cuyahogacounty.us

CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS
CUYAHOGA COUNTY PERMITS AND INSPECTION DEPARTMENT
2501 HARVARD AVENUE
NEWBURGH HEIGHTS OHIO 44105
ATTN: JUSTIN PATRONITE (216-443-8209)
jpatronite@cuyahogacounty.us

14. WHERE EXISTING POWER OR TELEPHONE POLES ARE IN CLOSE PROXIMITY TO WORK, THE CONTRACTOR SHALL COORDINATE THEIR 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 OF THE CITY OF RICHMOND HEIGHTS.

15. 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 WITH THE UTILITY COMPANY'S SCHEDULE.
16. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL THE EXISTING GAS, WATER, ELECTRIC, CABLE, TELEPHONE, 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.

17. 48 HOURS PRIOR TO ANY EXCAVATION NOTIFY OHIO ONE CALL @ 811.

18. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA); IT SHALL BE THE FULL AND COMPLETE RESPONSIBILITY OF THE CONTRACTOR TO MEET AND COMPLY WITH SAFETY REQUIREMENTS AND REGULATIONS AS ESTABLISHED BY OSHA OR ANY OTHER REGULATORY BODY.

19. ALL MATERIALS TO BE REMOVED FROM THE SITE SHALL BE DISPOSED AT A LICENSED FACILITY PER ALL APPLICABLE STATE, FEDERAL AND LOCAL REGULATIONS.

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH ODOT ITEM 207 AND AS REQUIRED BY THE CUYAHOGA COUNTY SOIL AND WATER CONSERVATION DISTRICT.

21. THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY, SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE, AS DIRECTED BY THE ENGINEER, TO MAINTAIN ALL ROADWAYS BEING USED ALONG THE CONSTRUCTION SITE. PAYMENT FOR ALL SOIL EROSION, SEDIMENT AND DUST CONTROL MEASURES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER VARIOUS ITEMS.

22. PROPERTY PINS AND MONUMENTS NEAR 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 AS DIRECTED BY THE ENGINEERS.

23. THE CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND MATERIALS RESULTING FROM THEIR OPERATION AND RESTORE ALL SURFACES, STRUCTURES, DITCHES AND PROPERTY TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER. ANY DITCHES DISTURBED DURING CONSTRUCTION SHALL BE REGRADED BY THE END OF THE SAME WORK DAY. THE COST FOR THIS WORK SHALL BE COVERED UNDER THE COST PER LINEAL FOOT OF SEWER. 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.

24. RESTORATION SHALL INCLUDE SEEDING AND MULCHING OF DISTURBED AREAS, RESTORATION OF EXISTING DRIVES AND FINAL CLEAN UP.

25. THE CONTRACTOR SHALL CAREFULLY PRESERVE ALL BENCH MARKS, PROPERTY LINE REFERENCES (E.G., PINS, PIPES, MONUMENTS), REFERENCE POINTS, STAKES AND ANY OTHER SURVEY REFERENCE. IN CASE OF DISTURBANCE, THE CONTRACTOR SHALL ENGAGE A REGISTERED SURVEYOR TO REPLACE THEM AT THE CONTRACTOR'S EXPENSE AND SHALL BE RESPONSIBLE FOR ANY ERRORS THAT MAY BE CAUSED BY THEIR LOSS OR DISTURBANCE. ALL NOTES AND CALCULATIONS USED IN RESETTling OR REPLACEMENT OF PROPERTY PINS, MONUMENTS, REFERENCE POINTS, AND ANY OTHER SURVEY REFERENCE SHALL BE STAMPED, SIGNED AND DATED BY THE REGISTERED SURVEYOR AND COPIES PROVIDED TO THE OWNER.

26. SURVEY AND STREET ALIGNMENTS SHOWN ON THESE PLANS WERE OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR OTHER PURPOSES.

27. A 72-HOUR NOTICE SHALL BE PROVIDED TO THE ASSISTANT MANAGER OF SEWER SYSTEMS MAINTENANCE AND OPERATIONS AT 216-641-8600 FOR ACCESS TO THE NEORS D ACCESS SHAFT, AND TO ENGINEERING & CONSTRUCTION; CALL JEFF LAZAR AT 216-402-4080 (LAZARJ@NEORS D.ORG) TO SCHEDULE AN NEORS D INSPECTOR FOR THE DURATION OF THE CONNECTION.
- PROHIBITED CONSTRUCTION ACTIVITIES
1. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

2. DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL IN WETLANDS OR FLOODPLAINS, EVEN WITH THE PERMISSION OF THE PROPERTY OWNER;

3. LOCATING STOCKPILE STORAGE AREAS IN ENVIRONMENTALLY SENSITIVE AREAS;

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

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

6. 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;

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

8. DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA;

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

10. OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT;

11. 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;

12. 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;

13. RUNNING WELL POINT OR PUMP DISCHARGE LINES THROUGH PRIVATE PROPERTY OR PUBLIC PROPERTY AND RIGHTS-OF-WAY WITHOUT THE WRITTEN PERMISSION OF THE PROPERTY OWNER AND THE CONSENT OF THE ENGINEER;
14. OPERATIONS ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OR 8:00 AM AND 5:00 P.M. OR OUTSIDE THE HOURS ALLOWED FOR CONSTRUCTION BY LOCAL ORDINANCES OR REGULATIONS; AND

15. 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.
- EROSION/SEDIMENT CONTROL:
1. 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.

2. 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.

3. AT THE LIFT STATION CONSTRUCTION SITES INSTALL SEDIMENT BASINS AND DIVERSION DIKES BEFORE DISTURBING THE LAND THAT DRAINS INTO THEM.

4. DIVERSION CHANNELS WILL BE CONSTRUCTED AROUND THE LIFT STATION SITE TO COLLECT RUNOFF AND PREVENT SILT AND OTHER ERODIBLE MATERIALS FROM ENTERING LOCAL DRAINAGE COURSES. DIVERSION CHANNELS WILL FLOW TO TEMPORARY SEDIMENT BASINS, AND ARE TO BE STABILIZED THROUGH SEEDING, RIP-RAPPING, OR LINING THEM WITH PLASTIC.

5. EXISTING TOPSOIL WILL BE STOCKPILED AND REPLACED UPON FINAL GRADING OF THE CONSTRUCTION SITE.

6. EXTENSIVE AREAS OF STOCKPILED TOPSOIL AT THE CONSTRUCTION SITE ARE TO BE PROTECTED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING OR COVERING SUCH AS WITH ANCHORED STRAW MULCH. SILT BARRIERS WILL BE INSTALLED DOWN GRADIENT OF THESE AREAS ON CONTOUR AND WITH THEIR ENDS UP SLOPE OF THE CONTOUR TO PREVENT SILT LADEN RUNOFF FROM ENTERING WATERWAYS OR STORM SEWERS. WITHIN 15 DAYS OF COMPLETION OF CONSTRUCTION, ANY REMAINING SOIL MUST EITHER BE REMOVED OR PERMANENTLY STABILIZED.

7. SILT FENCES SHOULD BE TRENCHED SIX TO TWELVE INCHES DEEP, THE FABRIC LAID IN THE TRENCH, AND THE SOIL PROPERLY BACKFILLED INTO THE TRENCH TO PREVENT UNDERCUTTING.

8. WHERE TRENCH EXCAVATION OCCURS PARALLEL TO ANY WATERWAY, A VEGETATED BARRIER SHOULD BE MAINTAINED BETWEEN THE STREAM AND THE CONSTRUCTION SITE. ALL TRENCH SPOILS WILL BE STOCKPILED ON THE SIDE OF THE TRENCH AWAY FROM THE WATERWAY, AND A LINE OF SILT BARRIERS WILL BE ESTABLISHED ALONG THE EDGE OF CONSTRUCTION ON THE CONTOUR BETWEEN THE TRENCH AND THE WATERWAY.

9. NO MORE THAN 200 FEET OF TRENCH SHALL BE OPEN AT ANY GIVEN TIME. TRENCH OPENING AND LAYING OF PIPE SHOULD OCCUR SO AS TO MINIMIZE THE AMOUNT OF DISTURBED AREA. ALL TRENCHES ARE TO BE BACKFILLED AND COMPACTED IMMEDIATELY AFTER PIPE INSTALLATION. IMMEDIATELY FOLLOWING THE BACKFILLING OF THE TRENCH, THE GROUND SURFACE WILL BE ROUGH GRADED TO THE EXISTING CONTOURS TO ALLOW FOR PROPER DRAINAGE, AND WILL BE SEEDED AND/OR MULCHED IN STAGES TO PREVENT EROSION.

10. ANY DISTURBED AREA THAT WILL NOT BE ACTIVELY UNDER CONSTRUCTION FOR A PERIOD OF 15 DAYS OR MORE WILL BE TEMPORARILY STABILIZED IMMEDIATELY BY SEEDING AND MULCHING OR BY ANCHORED STRAW MULCH.

11. AS CONSTRUCTION IS COMPLETED, PERMANENTLY STABILIZE EACH DISTURBED AREA IN STAGES WITH PERENNIAL VEGETATION INSTALLED ACCORDING TO OHIO EPA (OR EQUIVALENT) STANDARDS AND SPECIFICATIONS. AFTER FINAL SOIL SETTLING OVER THE SANITARY SEWER, OUTFALL SEWER, AND FORCE MAIN ALIGNMENTS, THE CONTRACTOR SHALL BRING THE TRENCH BACK TO GRADE IF NECESSARY, PLACE TOPSOIL, AND FINE GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF THAT SECTION OF PIPE. FINAL GRADING WILL BE CONSISTENT WITH PRE-CONSTRUCTION TOPOGRAPHY FOR DRAINAGE AND AESTHETIC REASONS.

12. BORING PITS (FOR JACK AND BORE LOCATIONS) SHALL BE SURROUNDED WITH SILT BARRIERS TO PREVENT EROSION OF THE EXCAVATED PIT MATERIAL. STORM SEWER INLETS WILL BE SURROUNDED WITH SILT BARRIERS TO PREVENT SILTATION.

13. SLOPES EXCEEDING 15 PERCENT OR THAT TEND TO BE UNSTABLE REQUIRE SPECIAL TREATMENT SUCH AS WATER DIVERSION BERMS, SODDING, OR THE USE OF JUTE OR EXCELSIOR BLANKETS.

14. WHEN BORROW MATERIAL IS OBTAINED FROM OTHER THAN COMMERCIALLY OPERATED SOURCES, EROSION OF THE BORROW SITE WILL BE SO CONTROLLED BOTH DURING AND AFTER COMPLETION OF THE WORK THAT EROSION WILL BE MINIMIZED AND SEDIMENT WILL NOT ENTER STREAMS OR OTHER BODIES OF WATER. WASTE OR DISPOSAL AREAS AND CONSTRUCTION ROADS SHALL BE LOCATED AND CONSTRUCTED IN A MANNER THAT WILL KEEP SEDIMENT FROM ENTERING STREAMS. TEMPORARY EROSION CONTROL BARRIERS AND LIMITED SITE CLEARING WILL BE USED AS NEEDED.

15. 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.

16. INSTALL THE ABOVE EROSION AND SEDIMENT CONTROL MEASURES, AS APPROPRIATE, REFERRING TO OHIO EPA, STORM WATER TECHNICAL ASSISTANCE, RAINWATER AND LAND DEVELOPMENT MANUAL STANDARDS AND SPECIFICATIONS (FORMERLY ODNR) OR EQUIVALENT FOR PARTICULAR TECHNIQUES. THESE MEASURES ARE TO BE MAINTAINED IN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

LINK:
<http://epa.ohio.gov/portals/35/storm/technicalassistance/rld11-6-14all.pdf>

TRAFFIC CONTROL:

1. AT LEAST ONE LANE OF TRAFFIC MUST BE MAINTAINED ALONG THE TRAVEL ROUTE TO THE CONSTRUCTION SITE.

2. ACCESS MUST BE MAINTAINED FOR EMERGENCY VEHICLES AT ALL TIMES.

3. 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.

4. ANY CONSTRUCTION EQUIPMENT OR EXCAVATIONS NEAR ROADS MUST BE MARKED WITH LIGHTS, REFLECTORS, OIL LANTERNS, OR SMUDGE POTS.

5. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN ALL NECESSARY BARRICADES, WARNING SIGNS, DANGER SIGNALS, FLAG PERSON(S), WATCHERS, AND ALL OTHER APPROPRIATE PRECAUTIONS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR SAFETY.

6. 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.

AIR POLLUTION / NOISE CONTROL:

7. CONSTRUCTION ACTIVITIES WILL BE LIMITED TO DAYTIME HOURS.

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

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

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

11. UNPAVED AREAS WILL BE WET DOWN (AS NECESSARY) DURING CONSTRUCTION TO MINIMIZE DUST GENERATION.

TREE / VEGETATION PROTECTION:

1. TREE REMOVAL WILL BE LIMITED TO THE TIME PERIOD BETWEEN OCTOBER 1 AND MARCH 31.

2. TREE REMOVAL WILL BE LIMITED TO THAT NECESSARY FOR CONSTRUCTION AND WILL BE LIMITED FURTHER TO THE PERMANENT EASEMENT WHEREVER POSSIBLE.

3. NO TREE REMOVAL WILL BE PERMITTED OUTSIDE THE TEMPORARY EASEMENT WITHOUT PERMISSION OF THE ENGINEER.

4. 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.

5. 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 COUNTY & THE ENGINEER BEFORE REMOVAL & WILL BE SAVED WHERE POSSIBLE.

6. SOIL AND OTHER MATERIAL WILL NOT BE STORED NEXT TO OR WITHIN THE DRIP-LINE OF TREES.

7. 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 HOMEOWNER SPECIFIES OTHERWISE.

8. IF TREES/SHRUBS CANNOT BE REPLACED IN THE SAME LOCATION DUE TO INSTALLATION OF THE SEWER SYSTEM, RELOCATION SHOULD BE CONSIDERED.

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

10. SELECTIVE PRUNING OF TREE LIMBS PRIOR TO INITIATION OF CONSTRUCTION SHOULD ONLY BE USED WITHIN ESTABLISHED EASEMENTS WHERE REMOVAL IS NECESSARY FOR OPERATION OF EQUIPMENT.

11. LIMIT THE USE OF RIP-RAP TO AREAS WHERE STREAM FLOW CONDITIONS PREEMPT VEGETATIVE STABILIZATION.

ENVIRONMENTAL PROTECTION:

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

2. TREE REMOVAL WILL BE LIMITED TO THAT NECESSARY FOR CONSTRUCTION AND WILL BE LIMITED FURTHER TO THE PERMANENT EASEMENT WHENEVER POSSIBLE. IF THE PROJECT IS LOCATED WITHIN THE RANGE OF THE FEDERALLY-ENDANGERED INDIANA BAT (MYOTIS SODALIS) AND TREES MUST BE CUT, THIS MUST OCCUR BETWEEN SEPTEMBER 30 AND APRIL 1. INDIANA BATS ARE HIGHLY-DEPENDENT UPON TREES INCLUDING DEAD AND DYING TREES OF SPECIES WITH EXFOLIATING BARK, CREVICES, OR CAVITIES IN UPLAND AREAS OR RIPARIAN CORRIDORS AND LIVING TREES OF THE SPECIES LISTED ABOVE WITH EXFOLIATING BARK, CAVITIES, OR HOLLOW AREAS FORMED FROM BROKEN BRANCHES OR TOPS. IF SUITABLE TREES MUST BE CUT DURING THE PROHIBITED TIME PERIOD, A NET SURVEY MUST BE CONDUCTED TO DETERMINE THE PRESENCE OR ABSENCE OF INDIANA BATS PRIOR TO CUTTING.

DEWATERING:

1. ALL DEWATERING FLOWS ARE TO BE SETTLED INSTALLATION BASINS OR DIRECTED THROUGH FILTERING DEVICES BEFORE DISCHARGE TO STABILIZED SITES, SUCH AS STREAMS OR STORM SEWERS; NOT ONTO EXPOSED SOILS, STREAM BANKS, OR ANY OTHER SITE WHERE THE FLOW COULD CAUSE EROSION.

2. SILT FROM CONSTRUCTION OPERATIONS SHALL NOT BE PERMITTED TO ENTER THE STORM SEWER SYSTEM. WHEN CONSTRUCTION OCCURS NEAR STORM SEWER INLETS, EROSION CONTROL MEASURES SUCH AS INLET FILTERS AND HAY BALES SHALL BE USED TO PREVENT SILT FROM ENTERING THE STORM SEWERS.

3. CONVEY WATER FROM THE CONSTRUCTION SITE IN A CLOSED CONDUIT. DO NOT USE TRENCH EXCAVATIONS AS TEMPORARY DRAINAGE DITCHES.

verdantas

8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

DATE		REVISION		NO		AS NOTED	
						SCALE:	DATE:
						DESIGNED BY:	5/5/2025
						DRAWN BY:	TJM
						CHECKED BY:	RLM
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CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

GENERAL - 00 SERIES

OHIO EPA GENERAL NOTES

PROJECT NO:
231100

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STANDARD SPECIFICATIONS - SEWER MAINS AND APPURTENANCE

DEVELOPER/ENGINEER PROCEDURES

ALL DEVELOPER/ENGINEERING PROCEDURES AS ESTABLISHED BY CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS (CCDPW) SHALL BE FOLLOWED, WHICH INCLUDE: LATEST ODOT SPECIFICATIONS, MUNICIPALITY STANDARDS, UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS AND UNIFORM STANDARDS SEWER DETAILS, CUYAHOGA COUNTY SANITARY ENGINEERING DIVISION RULES AND REGULATIONS, AND CONTRACTOR PERMIT INFORMATION. IN THE CASE OF CONFLICTS BETWEEN WRITTEN SPECIFICATIONS AND DRAWINGS, THE WRITTEN SPECIFICATION SHALL APPLY. ONE (1) ELECTRONIC COPY IN PDF FORMAT, AND SIX (6) PAPER SET OF DETAIL DRAWINGS ON 22" X 34" SHEETS SIGNED BY THE CITY ENGINEER AND DESIGN ENGINEER (INCLUDING PLAN AND PROFILE, APPLICABLE SEWER DETAILS, PROPOSED AND EXISTING TOPOGRAPHY AND ALL BURIED UTILITIES) AND SPECIFICATIONS OF ALL PROPOSED SEWERS AND SHALL BE SUBMITTED FOR REVIEW AND APPROVAL TO: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS, C/O PERMIT DEPARTMENT, 2501 HARVARD AVE., NEWBURGH HEIGHTS, OH 44105. UPON THE SANITARY ENGINEER'S APPROVAL OF THE DETAIL DRAWINGS AND SPECIFICATIONS FOR CONSTRUCTION, THE DEVELOPER/ENGINEER WILL HAVE EIGHTEEN (18) MONTHS FROM THE DATE OF THE APPROVAL OF PLANS TO BEGIN CONSTRUCTION OR PLANS MUST BE RESUBMITTED TO THE CCDPW FOR APPROVAL. THE COST TO RECORD ANY AND ALL EASEMENTS AND/OR PLATS FOR DEVELOPER'S PROJECTS FOR SEWER LINES, WATER LINES, OR PUMP STATIONS TO BE DEDICATED TO CUYAHOGA COUNTY OR A GIVEN COMMUNITY FOR OWNERSHIP, OPERATION AND MAINTENANCE SHALL BE AT THE COST OF THE DEVELOPER/ENGINEER.

COLLECTION SYSTEM IMPROVEMENTS

THE CCDPW AND/OR MUNICIPALITY SHALL DETERMINE WHETHER OR NOT THE COUNTY SEWER COLLECTION AND TRIBUTARY SYSTEM HAS AVAILABLE CAPACITY TO ALLOW FOR A DEVELOPMENT TO PROCEED. GRAVITY SEWERS SHALL CONSIST OF A MINIMUM SIZE OF EIGHT (8) INCH DIAMETER FOR MAINLINE SEWERS AND SIX (6) INCH DIAMETER FOR SERVICE LATERALS AT MINIMUM SLOPE OF 1% (FOR LATERALS) AND FULL FLOW MINIMUM VELOCITIES OF TWO (2) FPS. THE CCDPW SHALL REQUIRE SEWERS AND PUMP STATIONS TO BE SIZED AND TO BE INSTALLED AT DEPTHS FOR THE ULTIMATE DEVELOPMENT OF THE ENTIRE TRIBUTARY SERVICE AREA. GRAVITY SEWERS AND SERVICE LATERALS SHALL BE REQUIRED IN PLACE OF FORCE MAINS/PRESSURE SEWERS WHEN THE CCDPW DETERMINES IT IS IN THE PUBLIC INTEREST TO DO SO. THE REQUIREMENTS HEREIN SHALL GENERALLY SUPERSEDE ANY OTHER REQUIREMENTS AND ANY CONFLICT IN REQUIREMENTS SHALL BE ULTIMATELY DETERMINED BY CCDPW.

GENERALLY, DESIGN SHALL BE IN ACCORDANCE WITH OHIO E.P.A REGULATIONS, THE LATEST VERSION OF "TEN STATE STANDARDS" AND SHALL CONFORM TO THE LATEST UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS, UNIFORM STANDARDS SEWER DETAILS, AND ODOT SPECIFICATIONS.

THE DEVELOPER AND/OR ENGINEER SHALL NOT ALLOW OTHER NEW UTILITIES TO BE INSTALLED WITHIN SIX (6) FEET HORIZONTALLY OF AN INSTALLED NEW SANITARY SEWER OR IN THE SAME TRENCH AS THE SEWER EXCEPT AT CROSSINGS. SHOULD THIS OCCUR, THE DEVELOPER WILL BE RESPONSIBLE FOR MAINTAINING THE SANITARY SEWER MAINS AND THE CCDPW WILL NOT PERMIT TAPS TO SAID LINE UNTIL THE OTHER UTILITY LINES ARE RELOCATED SIX (6) FEET AWAY FROM THE SANITARY SEWER. SEWER LINES SHALL BE LOCATED WITHIN THE PUBLIC ROAD RIGHT-OF-WAY, OR WITHIN AN APPROVED EASEMENT. WATER MAINS SHALL BE INSTALLED WITH AT LEAST A TEN (10) FEET HORIZONTAL AND EIGHTEEN (18) INCH VERTICAL SEPARATION FROM ANY SANITARY SEWERS PER UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS. THE COUNTY ALSO REQUIRES EIGHTEEN (18) INCH VERTICAL SEPARATION FROM ANY SANITARY OR STORM SEWERS, MEASURED FROM OUT- TO-OUT.

COLLECTION MATERIAL MINIMUM REQUIRED SPECIFICATIONS AND INSTALLATION STANDARDS

LINE CONSTRUCTION STAKING

GRAVITY SANITARY SEWERS AND FORCE MAINS SHALL BE STAKED PRIOR TO THE INSTALLATION OF NEW PIPE. A STATE OF OHIO REGISTERED PROFESSIONAL SURVEYOR SHALL BE REQUIRED FOR THE MAINLINE STAKING AND OFFSETS. STAKING SHALL BE FOR BOTH LINE AND GRADE NO GREATER SPACING THAN EVERY FIFTY (50) FEET PLUS AT ALL FITTINGS AND OFF-SET AT TEN (10) FEET. ALL PUBLIC GRAVITY SEWERS SHALL BE INSTALLED WITH THE USE OF A LASER TO INSURE THAT THEY ARE INSTALLED PROPERLY TO GRADE.

MAIN LINE AND SERVICE LATERAL SEWER PIPE

ALL SEWER PIPE AND LATERALS SHALL BE BURIED BELOW THE FROST LINE CONSISTING OF A MINIMUM OF AT LEAST THREE (3) FEET OF COVER OVER THE TOP OF THE PIPE; FOR THIS REQUIREMENT, THE DESIGNER SHALL CONSIDER BOTH THE EXISTING GRADE AND ANY ANTICIPATED FUTURE GRADE. ALL SEWERS (STORM AND SANITARY) CROSSING A CREEK SHALL HAVE SIX (6) INCHES OF CONCRETE (3000 PSI) ENCASEMENT. DEPTHS FOR SEWERS MAINS, LATERALS AND FORCE MAINS WITH LESS THAN THREE (3) FEET OF COVER SHALL BE APPROVED IN WRITING BY THE CCDPW PRIOR TO THE CONSTRUCTION PHASE; ADDITIONAL REQUIREMENTS FOR SUCH SITUATIONS MAY BE MANDATED BY THE CCDPW.

FLEXIBLE PVC SEWER PIPE BURIED WITH LESS THAN THIRTEEN (13) FEET OF COVER SHALL BE SOLID WALL PIPE: PVC COMPOUNDS SHALL MEET THE REQUIREMENTS OF ASTM F-789, SDR 35, SIX (6) INCH THROUGH FIFTEEN (15) INCH DIAMETER AND ASTM F-679 (EIGHTEEN (18) INCH THROUGH THIRTY (30) INCH DIAMETER PIPE), CONFORMING TO ASTM D-3034, WITH JOINTS CONFORMING TO ASTM D-3212. FITTINGS SHALL CONFORM TO ASTM D-3034. GASKETS SHALL CONFORM TO ASTM F-477. PIPE BEDDING SHALL CONFORM TO THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS.

FLEXIBLE PVC SEWER PIPE BURIED WITH MORE THAN THIRTEEN (13) FEET OF COVER SHALL BE SOLID WALL PIPE; PVC COMPOUNDS SHALL MEET THE REQUIREMENTS OF ASTM F-949. PIPE SHALL MEET MINIMUM PIPE STIFFNESS RATING OF PS-115 AND SHALL CONSIST OF SDR 26 OR THICKER WALLED PIPE AS NEEDED, AS RECOMMENDED BY THE MANUFACTURER FOR THE ACTUAL BURIED DEPTH, CONFORM TO ASTM D-3034 THROUGH FIFTEEN (15) INCH DIAMETER AND ASTM F-679 FOR LARGER SIZES. FITTINGS SHALL CONFORM TO ASTM D-3034. PIPE BEDDING SHALL CONFORM TO THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS.

HDPE SEWER PIPE SHALL MEET THE REQUIREMENTS: N-12 MEETING AASHTO M294 WITH WATER-TIGHT JOINT MEETING ASTM D3212, GASKET MEETING ASTM F477 AND ASTM D2321, OR HP PIPE MEETING ASTM F2764 WITH WATER-TIGHT JOINT MEETING ASTM D3212, GASKET MEETING ASTM F477 AND ASTM D2321 AND SANITITE HP PIPE MEETING ASTM F2764 (DUAL WALL 12-24" AND TRIPLE WALL 30"-60") WITH WATER-TIGHT JOINT MEETING ASTM D3212, GASKET MEETING ASTM F477 (DOUBLE GASKET) AND ASTM D2321

ALTERNATE PIPE DIFFERENT THAN THOSE SPECIFIED ABOVE FOR GRAVITY SEWER INSTALLATIONS MAY BE USED, BUT PIPING MATERIAL SHALL CONFORM TO THE LATEST UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS AND UNIFORM STANDARDS SEWER DETAILS.

ALL SEWERS AND LATERALS IN THE NEAR VICINITY OF BORINGS, DRILLING, AND/OR JACKING OF ANY PIPING SHALL ALSO BE CCTV INSPECTED BY THE CONTRACTOR AT HIS COST TO ASSURE THAT NO DAMAGE HAS BEEN DONE TO THE PIPING. A COPY OF THE VIDEO(S) AND ACCOMPANYING REPORT(S) SHALL BE SUBMITTED TO THE CCDPW.

ALL EXISTING SEWERS, EXISTING SEWER LATERALS, AND/OR OTHER EXISTING FACILITIES TO BE RE-USED SHALL BE LOCATED BY THE CONTRACTOR AND CCTV INSPECTED PRIOR TO BEGINNING OF CONSTRUCTION AT THE CONTRACTOR'S EXPENSE. THE CCTV INSPECTION SHALL BE SUBMITTED TO THE CCDPW AND APPROVED BEFORE THE RE-USE OF ANY EXISTING FACILITIES MAY BE INCORPORATED INTO THE PROJECT.

SERVICE LATERAL PIPE SHALL BE SIX (6) INCH DIAMETER CONSISTING OF PVC (SOLID WALL PIPE) AND SHALL CONFORM TO THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS. IF THE DESIGN NECESSITATES A LARGER SERVICE LATERAL PIPE FOR LARGER USAGE CUSTOMERS, THE INCREASED SIZE SHALL BE SUBJECT TO CCDPW APPROVAL. SERVICE LATERAL PIPES SHALL NOT BE INSTALLED WITHOUT A PERMIT FROM THE COUNTY AND WITHOUT CALLING AT LEAST 24 HOURS IN ADVANCE FOR INSPECTION AT (216) 443-8209. COUNTY SERVICE LATERAL INSPECTIONS WILL ONLY BE PERFORMED DURING NORMAL COUNTY WORK HOURS. SERVICE LATERALS SHALL ONLY SERVE GRAVITY DRAINS IN THE CUSTOMER'S STRUCTURE, INCLUDING IF POSSIBLE BASEMENT OR LOWER LEVEL. SUCH AS FICOR DRAINS, TOILET, SINK, SHOWERS, SLOP SINKS, CLOTHES WASHER DRAINS, ETC. SERVICE LATERALS WHICH CANNOT BE GRAVITY SHALL UTILIZE AN APPROVED GRINDER PUMP SYSTEM. SERVICE LATERALS FOR RESIDENTIAL CUSTOMERS SHALL HAVE A TEST-TEE INSTALLED WITHIN THREE (3) FEET OF THE RIGHT-OF-WAY LINE. SERVICE LATERALS FOR COMMERCIAL CUSTOMERS SHALL HAVE A TEST-TEE INSTALLED WITHIN FIVE FEET (5) OF THE BUILDING FOUNDATION EXTERIOR, AND AT THE RIGHT-OF-WAY LINE. SERVICE LATERALS SHALL NOT HAVE ANY BENDS OTHER THAN 45-DEGREE OR 22.5-DEGREE BENDS. NINETY (90) DEGREE BENDS (HORIZONTAL OR VERTICAL) ARE NOT ACCEPTABLE. TEST TEES ARE TO BE INSTALLED BEHIND BENDS (UPSTREAM OF) GREATER THAN 22.5- DEGREE. ONE TEST TEE SHOULD BE INSTALLED FOR EVERY ONE HUNDRED (100) FEET OF PIPE INSTALLED AND SPACED AND LOCATED TO ALLOW ACCESS FOR EASY CLEANING. ALL CLEANOUTS SHALL BE STRAIGHT CLEANOUTS OR TEST TEES, NO SWIPING CLEANOUTS. CLEAN WATER CONNECTIONS OF THE SANITARY SEWER ARE PROHIBITED, INCLUDING, BUT NOT LIMITED TO, STORM WATER DRAINS, YARD DRAINS, DRIVEWAY DRAINS, ROOF WATER DRAINS, EXTERIOR FOOTER OR FOUNDATION BY GRAVITY OR WITH INTERIOR SUMP PUMP, ETC. IN DEVELOPMENTS WHERE CONNECTION TO A SERVICE LATERAL WILL NOT OCCUR FOR MORE THAN THIRTY (30) DAYS, THE DEVELOPER'S CONTRACTOR SHALL INSTALL A WATERTIGHT CAP AND LATERAL 2X2 MARKERS INCLUDING A METAL ROD SO THE ENDS CAN BE LOCATED OR UNLESS APPROVED BY THE ENGINEER. WHEN A BUILDING(S) IS ABANDONED, EXISTING SERVICE LATERALS SHALL BE CUT AND CAPPED WITH A WATERTIGHT CAP ADJACENT TO THE SEWER MAIN. ALL NEW LATERAL RISER SHALL CONFORM TO UNIFORM STANDARDS DETAIL NO. 10 (WITH TWO 45 DEG BENDS INSTEAD OF ONE 90 DEG BEND AS SHOWN) AND THE LATERAL SHOULD BE INSTALLED VERTICAL TO THE SURFACE. ALL TEST TEES SHALL CONFORM TO THE UNIFORM STANDARDS SEWER DETAIL. ALL LATERAL CONNECTIONS TO EXISTING CLEANOUTS AND/OR TEST TEES SHALL BE MADE AT THE LOWEST POINT IN THE CLEANOUT OR TEST TEE; CONNECTIONS ABOVE THIS POINT ARE PROHIBITED. SOLVENT CEMENT TYPE JOINTS OR GLUED JOINTS ARE PROHIBITED OR UNLESS APPROVED BY THE ENGINEER.

IN ALL COMMUNITIES WHERE THE CCDPW ISSUES PERMITS, THE INSTALLATION OF BENOTNITE CLAY DAMS (PER THE UNIFORM STANDARD DETAIL) ON SANITARY SEWERS, STORM SEWERS, AND SANITARY AND STORM LATERALS MAY BE REQUIRED BY THE CCDPW. WHERE SEWERS AND LATERALS CROSS CREEKS AND/OR DITCHES, TWO ADDITIONAL DAMS MAY BE REQUIRED ON THE PIPE. ONE ON EITHER SIDE OF THE CROSSING. **IN ADDITION, IN OLMSTED TOWNSHIP, THE INSTALLATION OF BENOTNITE CLAY DAMS SHALL BE REQUIRED ON ALL SANITARY AND STORM LATERALS; PLUS, WHERE SEWER LATERALS CROSS CREEKS AND/OR DITCHES, A MINIMUM OF TWO DAMS SHALL BE REQUIRED ON EVERY PIPE, ONE DAM ON EITHER SIDE OF THE CROSSING.**

CONNECTIONS OF SERVICE LATERALS AND/OR SEWERS TO EXISTING AND/OR PROPOSED SEWER PIPE MAINS SHALL BE AS FOLLOWS:

- A. TO PVC SEWER MAINS - CUT OUT A SECTION OF THE EXISTING SEWER MAIN, INSTALL A MANUFACTURED PVC WYE (WITH SIX (6) INCH OR APPROPRIATE SIZE BRANCH) WITH WATER TIGHT PVC NO-HUB COUPLINGS, OR APPROVED EQUAL, PIPE ADAPTORS FOR CONNECTIONS ON SEWER MAINS 16-INCH AND SMALLER. WHERE SEWER MAINS ARE LARGER THAN 18-INCH, INSERTA-TEES MAYBE USED, MANUFACTURED BY INSERTA FITTINGS COMPANY, OR APPROVED EQUAL. PVC TO PVC PIPING CONNECTIONS SHOULD BE COMPLETED USING A MANUFACTURED PVC NO-HUB COUPLING OR UNLESS APPROVED BY THE ENGINEER. PIPE BEDDING AND INSTALLATION SHALL CONFORM TO THE UNIFORM STANDARDS OR SEWERAGE IMPROVEMENTS.
- B. TO CONCRETE SEWER MAINS - CUT OUT A SECTION OF THE EXISTING SEWER MAIN, INSTALL A MANUFACTURED RCP WYE (WITH SIX (6) INCH OR APPROPRIATE SIZE BRANCH) WITH WATER-TIGHT STRONGBACK FERNCO TYPE, OR APPROVED EQUAL, PIPE ADAPTORS. WHERE SEWER MAINS ARE LARGER THEN 10-INCH, CORE PIPE AND INSTALL A MANUFACTURED FLEXIBLE WATERTIGHT SIX (6) INCH RUBBER BOOT WITH STAINLESS STEEL BAND(S), MODEL NFC KOR-N-TEE (AS MANUFACTURED BY NPC) OR APPROVED EQUAL. PIPE BEDDING AND INSTALLATION SHALL CONFORM TO THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS. RCP TO PVC PIPING CONNECTIONS SHOULD BE COMPLETED USING A STRONGBACK FERNCO CONNECTION OR EQUAL.
- C. TO VITRIFIED CLAY PIPE SEWER MAINS - REMOVE ONE (1) SECTION OF EXISTING PIPE (JOINT-TO-JOINT), INSTALL A MANUFACTURED WATERTIGHT PVC WYE (WITH SIX (6) INCH OR APPROPRIATE SIZE BRANCH) WITH WATER-TIGHT STRONGBACK FERNCO TYPE, OR APPROVED EQUAL, PIPE ADAPTORS ON SEWER MAINS 18-INCH AND SMALLER, WHERE SEWER MAINS ARE LARGER THEN 18-INCH, INSERTA-TEES MAYBE USED, MANUFACTURED BY INSERTA FITTINGS COMPANY, OR APPROVED EQUAL. PIPE BEDDING AND INSTALLATION SHALL CONFORM TO THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS.

SERVICE LATERAL CONNECTIONS TO MANHOLES SHALL USE A KOR-N-SEAL OR APPROVED EQUAL (CONNECTIONS ARE ONLY ALLOWED IN SPECIAL CASES AND ONLY ONE (1) INSIDE DROP PER MANHOLE ALLOWED). SERVICE LATERALS FROM THE PUBLIC SEWER MAIN TO THE BUILDING FOUNDATION SHALL NOT BE INSTALLED UNTIL THE BUILDING FOUNDATION AND BASEMENT CONSTRUCTION HAS BEEN COMPLETED.

EXTERNAL GREASE INTERCEPTORS SHALL BE INSTALLED IN SERVICES FOR ALL FOOD SERVICE BUSINESSES AND OIL/GRIT INTERCEPTORS ON ALL SERVICES FOR CUSTOMERS WITH FLOOR DRAINS IN GARAGE/WAREHOUSE TYPE BUILDINGS. INTERCEPTORS ARE TO BE SIZED AS REQUIRED BY CCDPW RULES AND REGULATIONS WITH A MINIMUM EFFECTIVE GREASE INTERCEPTOR SIZE OF 750 GALLONS. THE CUSTOMER SHALL BE RESPONSIBLE FOR MAINTENANCE BY CLEANING/PUMPING THEIR INTERCEPTOR ON A REGULAR SCHEDULE. INTERCEPTORS SHALL BE CONSTRUCTED WATER-TIGHT AND SHALL MEET THE REQUIREMENTS OF CCDPW STANDARDS. THE INLET AND OUTLET PIPES SHALL BE SIZED FROM THE BUILDING FOUNDATION TO THE GREASE TRAP SHALL BE SIX INCH (6") DIAMETER MINIMUM WITH A SIX (6) INCH MINIMUM DIAMETER OUTLET TO THREE (3) FEET OUTSIDE THE TANK. THERE SHALL BE CLEANOUTS INSTALLED IN THE INLET PIPE AND OUTLET PIPES OUTSIDE THE GREASE INTERCEPTOR.

PRESSURE SEWER/FORCE MAIN PIPE

PRESSURE SEWER/FORCE MAIN PIPE SHALL BE DESIGNED FOR A MINIMUM PRESSURE OF 150 P.S.I. AND SHALL CONSIST OF.

- A. PVC, CONFORMING TO AWWA C900, DR 18 (SOLID WALL PIPE WITH PVC COMPOUNDS MEETING THE REQUIREMENTS OF SDR-26 ASTM D-2241), PIPE SHALL INCLUDE RUBBER GASKETS OR O-RINGS CONFIRMING TO THE REQUIREMENTS OF ASTM D-3139.
- B. DUCTILE IRON PIPE (DIP) SHALL HAVE A MINIMUM WALL THICKNESS OF CLASS 52, WITH PUSH-ON TYPE JOINTS, CEMENT LINED (AWWA C104), AND SHALL MEET THE REQUIREMENTS OF AWWA C150 AND C151.
- C. HDPE, CONFORMING TO SDR 11 (ASTM F714 AND D3035). PIPE JOINTS SHALL BE JOINED BY USE OF THE HEAT FUSION TECHNIQUE OF BUTT FUSION RESULTING IN A MONOLITHIC PIPE. ALL JOINTS SHALL BE FULLY RESTRAINED AND AS STRONG AS THE PIPE IN BOTH TENSION AND HYDROSTATIC LOADING.
- D. PRESSURE SEWER PIPE SHALL BE PRESSURE TESTED PER MANUFACTURER'S RECOMMENDATIONS.
- E. RESTRAINED JOINTS SHALL BE USED AT A MINIMUM AT ALL JOINT FITTINGS AND AT THE NEXT PIPE JOINT FROM EACH FITTING IN ALL DIRECTIONS. RESTRAINED JOINTS SHALL CONSIST OF MEG-A-LUGS, MODEL EBBA SERIES 100 OR EQUAL AS APPROVED BY CCDPW.
- F. THRUST BLOCKS SHALL BE USED AT ALL CHANGE OF DIRECTION FITTINGS IN ADDITION TO THE RESTRAINED JOINTS, AND SHALL BE 4,000 PSI CONCRETE.
- G. COMMERCIAL AND NON-RESIDENTIAL FORCE MAINS SHALL HAVE MINIMUM COVER OF SIX (6) FEET.
- H. GRINDER PUMP PRESSURE SEWERS/FORCE MAINS SHALL BE FLEXIBLE HDPE SDR 11, JOINTLESS. THE SEWER SHALL BE INSTALLED WITH A MINIMUM OF SIX (6) FEET OF COVER.
- I. ALL HIGH POINTS IN FORCE MAIN SHALL HAVE AN AIR RELEASE VALVE INSTALLED IN A STANDARD MANHOLE CONFORMING TO THE UNIFORM STANDARDS SEWER DETAILS.
- J. TWO (2) NO. 8 STRANDED WIRES SHALL BE BURIED WITH ALL PVC AND HDPE PRESSURE SEWER PIPES LOCATED AT THE 10:00 AND 2:00 POSITIONS AND TERMINATED IN VALVE BOXES, ALONG WITH FOUR (4) INCH WIDE TAPE NOTING "SEWER FORCE MAIN BURIED BELOW BURIED OVER PIPE TWELVE (12) INCH BELOW FINISH GRADE.

GENERAL PIPE REQUIREMENTS & TESTING

ALL MANUFACTURER'S RECOMMENDATIONS FOR UNLOADING, INSTALLATION, TRENCH PREPARATION, ASSEMBLY, BACKFILL, PRESSURE OR INFILTRATION TEST, DEFLECTION TESTS, ETC. SHALL BE FOLLOWED UNLESS IN CONFLICT WITH THESE SPECIFICATIONS, THE LATEST VERSION OF TEN STATE STANDARDS, OHIO EPA, OR THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS STANDARDS. IF THERE IS A CONFLICT, THE MORE RESTRICTIVE REQUIREMENTS SHALL GOVERN, UNLESS APPROVED IN WRITING BY THE CCDPW. THE USE OF RECYCLED CONCRETE OR SLAG FOR BEDDING AND BACKFILL IS NOT APPROVED BY THE CCDPW.

INSTALLED SANITARY SEWER PIPE EIGHT (8) INCH TO TWENTY FOUR (24) INCH SHALL REQUIRE AN AIR TESTING CONFORMING WITH ASTM F-1417; CONCRETE PIPE SHALL BE TESTED PER ASTM C-969, ASTM C-1103 OR ASTM C-1214; CLAY PIPE SHALL BE TESTED PER ASTM C-828 OR ASTM C-1091. INSTALLED SANITARY SEWER PIPE TWENTY SEVEN (27) INCH TO FORTY EIGHT (48) INCH SHALL REQUIRE WEIR TESTING PER THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS.

ALL FLEXIBLE PIPE 8-INCH AND LARGER (SANITARY, COMBINED & STORM) SHALL MEET MAXIMUM FIVE (5) PERCENT DEFLECTION (MANDREL) TESTING AT 60-DAYS FROM THE TIME OF BACKFILLING THE SEWER TRENCH. THE MANDREL SHALL BE AS SPECIFIED IN THE UNIFORM STANDARDS. WHEN THE USE OF THE SPECIFIED MANDREL IS NOT POSSIBLE, LASER PROFILING PER ODOT 611.12 AND 611.13 IS REQUIRED AND SHALL BE USED IN LIEU OF THE MANDREL TESTING. ALL TESTING ABOVE SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT AGENCY PAID BY THE CONTRACTOR AND WITNESSED BY A REPRESENTATIVE (INSPECTOR) OF THE CCDPW.

ALL NEW GRAVITY SEWERS 8-INCH AND LARGER SHALL BE CCTV INSPECTED BY A CCDPW APPROVED COMPANY REGULARLY ENGAGED IN THIS TYPE OF WORK UPON COMPLETION OF INSTALLATION. COSTS SHALL BE PAID FOR BY THE CONTRACTOR UNLESS OTHERWISE NOTED IN THE SPECIFICATIONS. A COPY OF THE VIDEO(S) AND ACCOMPANYING REPORT(S) SHALL BE SUBMITTED TO THE CCDPW.

SEWER PIPEBACKFILL

MATERIAL USED FOR BEDDING AND BACKFILLING ALONG THE SIDES OF THE SEWER AND COVER TO A HEIGHT OF 12 INCHES OVER THE TOP OF THE SEWER SHALL CONSIST OF COARSE INTERLOCKING AGGREGATE NO. 57, 6, 67, 68, 7, 78, OR 8 AND AS PER UNIFORM STANDARD SEWER DETAILS. SLAG OR RECYCLED CONCRETE IS NOT PERMITTED. BACKFILL ABOVE THE PIPE SHALL BE PREMIUM BACKFILL USING LOW STRENGTH MORTAR (LSM) WHEN WITHIN FIVE (5) FEET OF PAVEMENT OR WITHIN CITY RIGHT-OF-WAY OR UNLESS INDICATED DIFFERENTLY IN THE SPECIFICATIONS. ALL MATERIAL SHALL BE COMPACTED TO 95% PROCTOR IN MAXIMUM 12-INCH LIFTS.

MANHOLES/STRUCTURES

ALL MANHOLES/STRUCTURES SHALL BE WATERTIGHT STRUCTURES MADE OF PRECAST CONCRETE SECTIONS WITH FULL DEPTH CHANNELS AND SHALL MEET THE REQUIREMENTS OF ASTM C-478 AND UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS AND DETAILS. CHIMNEY SEALS SHALL BE INSTALLED ON ALL NEW SANITARY MANHOLES. ALL MANHOLE/STRUCTURE FRAMES AND CASTINGS SHALL CONFORM TO THE UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS AND DETAILS. OPENINGS IN ALL STRUCTURE SECTION FOR ALL PIPES (SANITARY, COMBINED & STORM) SHALL BE PREFABRICATED. FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR SANITARY, STORM AND COMBINED SEWERS. PREMIUM SEALS SHALL MEET ASTM C-923.

ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH THE PROCEDURES OF ASTM C-1244. NO BRICKS SHALL BE USED AS GRADE RINGS. THE TESTING SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT AGENCY PAID BY THE CONTRACTOR AND WITNESSED BY A REPRESENTATIVE (INSPECTOR) OF THE CCDPW.

THE PROJECT SHALL CONFORM TO THE REQUIREMENTS OF:

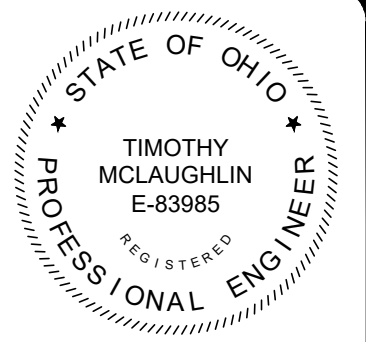
- COUNTY OF CUYAHOGA SANITARY ENGINEERING DIVISION RULES AND REGULATIONS (LATEST EDITION)
- UNIFORM STANDARDS FOR SEWERAGE IMPROVEMENTS (LATEST EDITION),
- UNIFORM STANDARD SEWER DETAILS (LATEST EDITION),
- GENERAL COUNTY SEWER NOTES (LATEST EDITION)

THE REFERENCES LISTED ABOVE CAN BE FOUND AT:
<https://www.cuyahogacounty.us/publicworks/services/design-and-construction/sanitary-design>

OBSERVATION OF THE WORK BY THE CCDPW IN ACCORDANCE WITH THE REQUIREMENTS OF THE CCDPW RULES AND REGULATIONS IS REQUIRED.

ALL SEWERS AND MANHOLES ARE TO BE TESTED IN ACCORDANCE WITH THE CCDPW REQUIREMENTS PER THE CCDPW GENERAL NOTES. ALL SANITARY SEWER VIDEOS AND REPORTS SHALL BE SUBMITTED TO THE CCDPW FOR REVIEW. WHERE DEFLECTION TESTING OF FLEXIBLE PIPE IS REQUIRED: IF MANDRELS CANNOT BE USED, LASER PROFILING, PER THE UNIFORM STANDARDS, SHALL BE REQUIRED.

THE SEWER CONTRACTOR SHALL BE LICENSED WITH THE CCDPW. A CCDPW PERMIT AND CCDPW INSPECTION IS REQUIRED AND SHALL BE OBTAINED BY THE SEWER CONTRACTOR PRIOR TO STARTING SEWER WORK. IF THERE ARE MULTIPLE BUILDINGS ON A SITE, EACH BUILDING SHALL REQUIRE ITS OWN SEWER CONNECTION PERMIT FROM THE CCDPW.



8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE				
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					5/5/2025	TJM
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						TJM

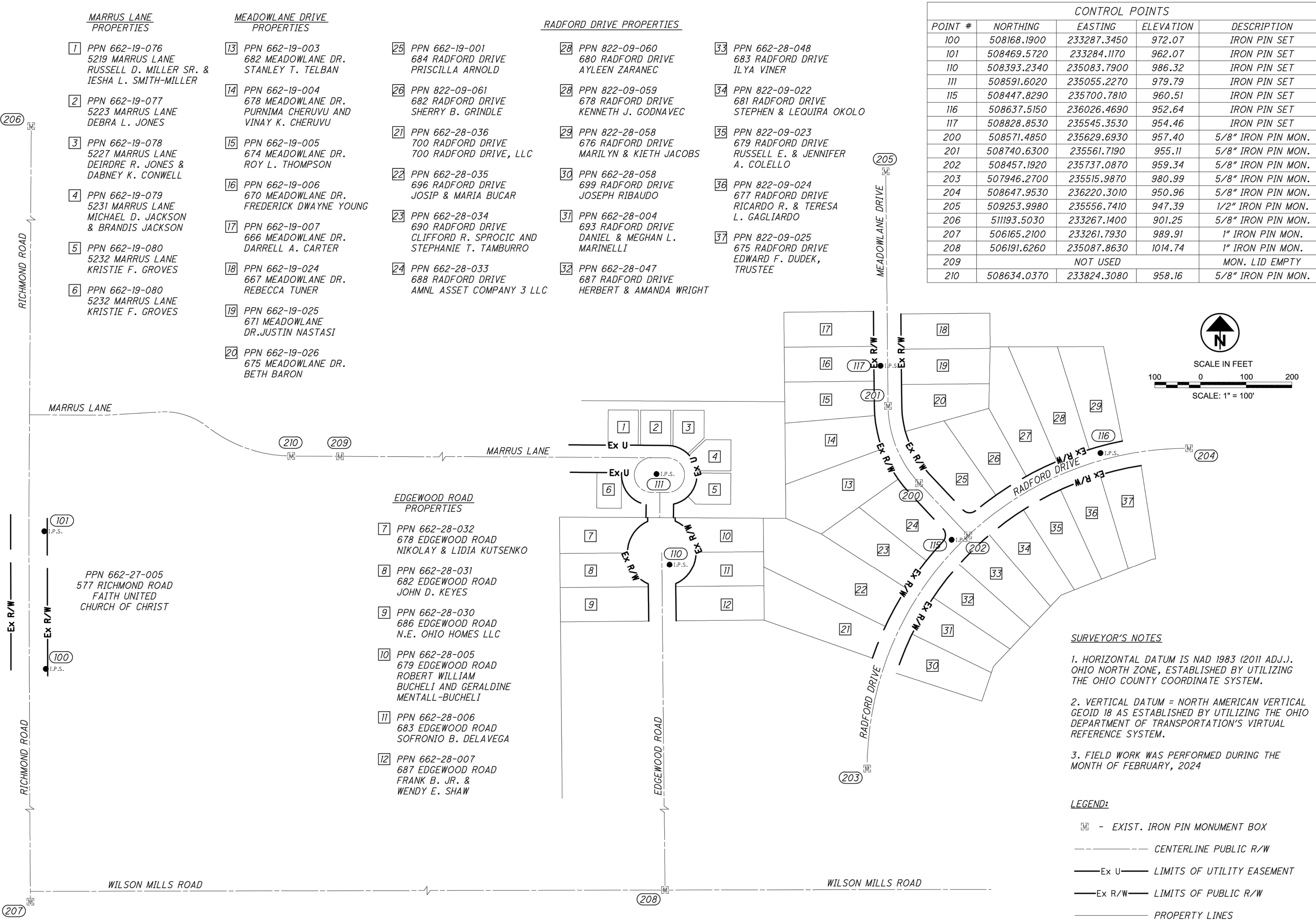
CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

GENERAL - 00 SERIES

CUYAHOGA COUNTY PUBLIC WORKS GENERAL NOTES

PROJECT NO:	
231100	
DRAWING NAME	
00G-04	
SHEET	OF
4	31



STATE OF OHIO

TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas

8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

DATE	REVISION	NO	SCALE: AS NOTED	DATE: 5/5/2025	DESIGNED BY: JNZ	DRAWN BY: JNZ	CHECKED BY: JNZ

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO

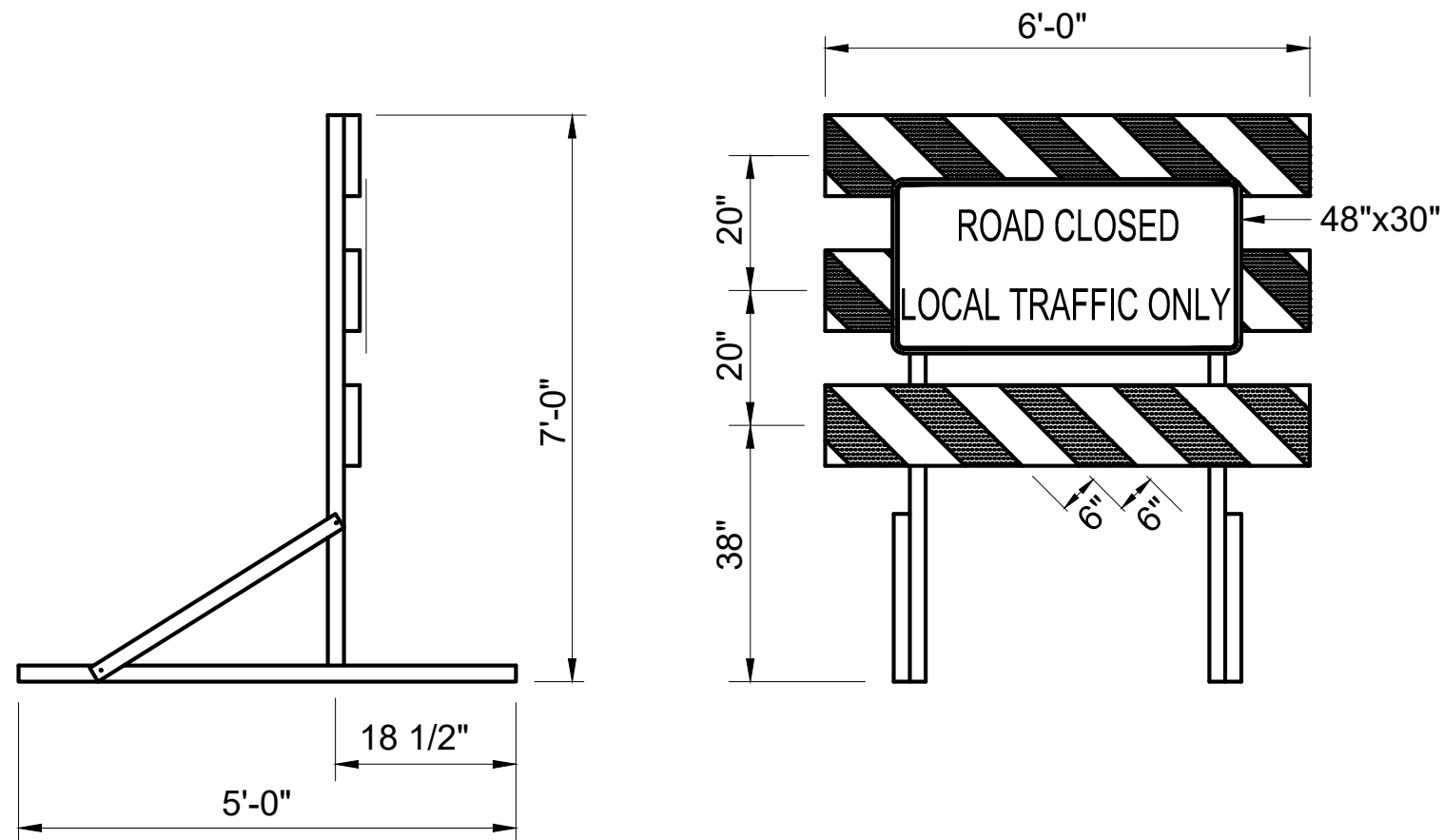
GENERAL - 00 SERIES

SURVEY CONTROL

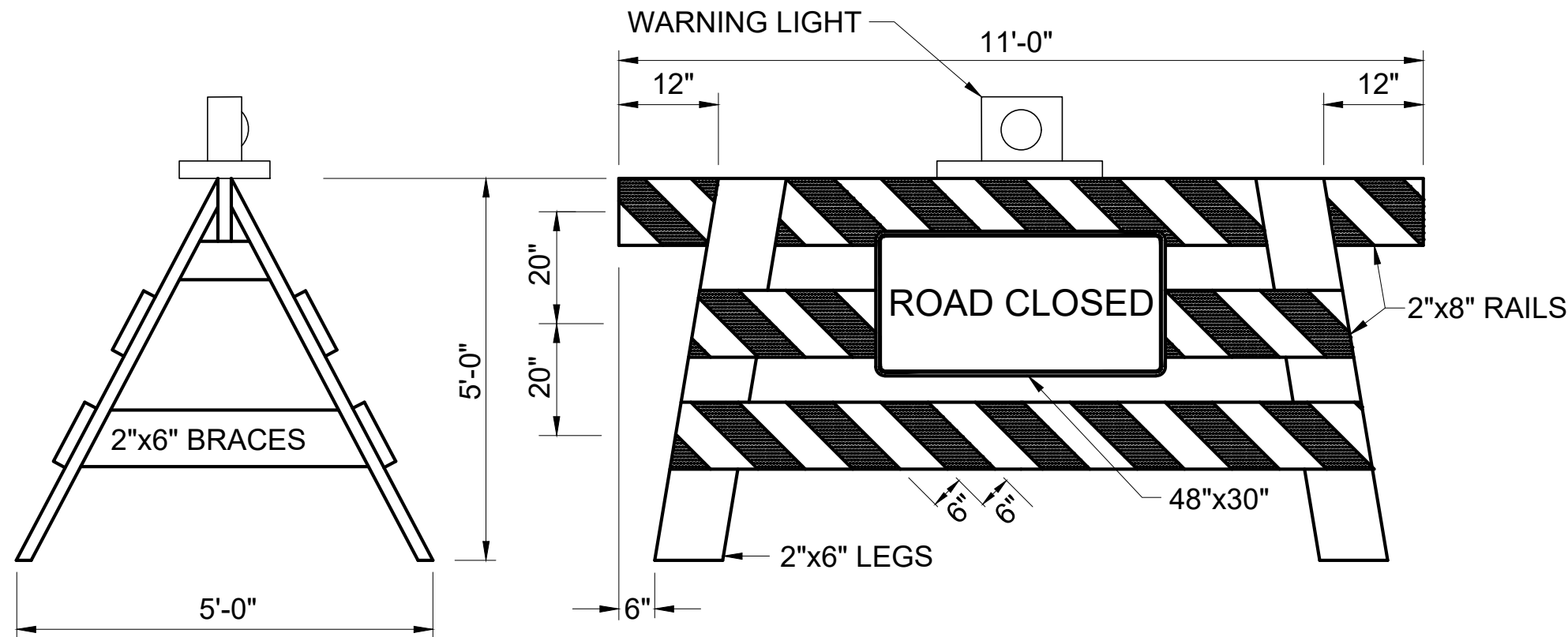
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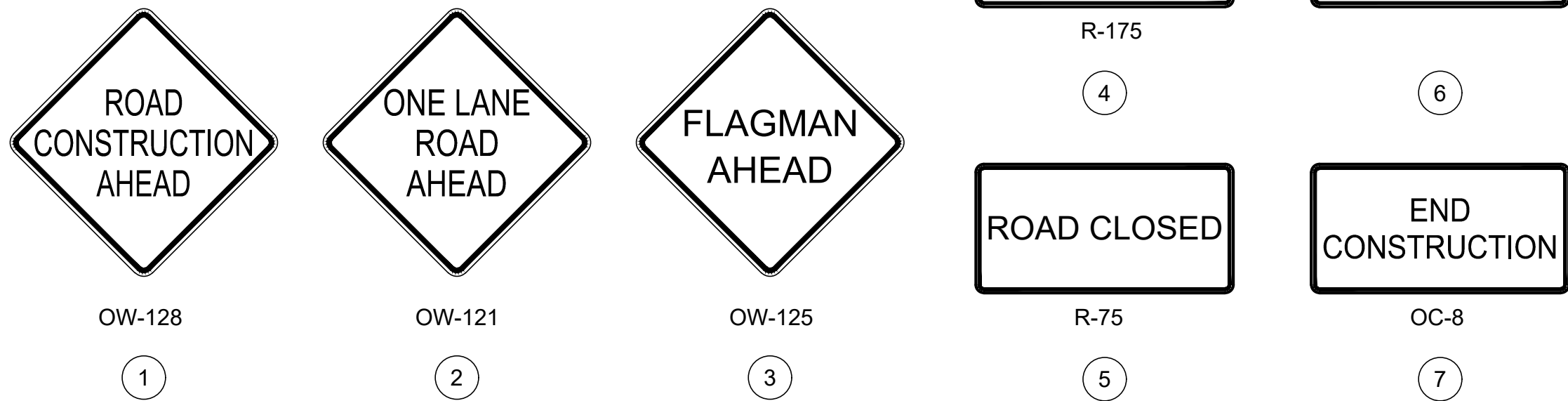
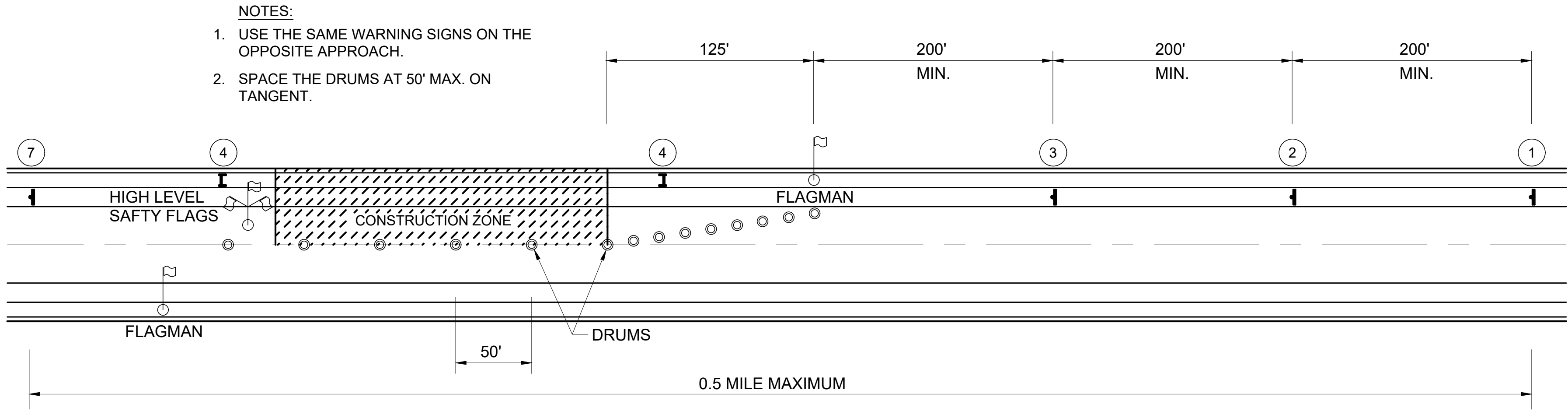
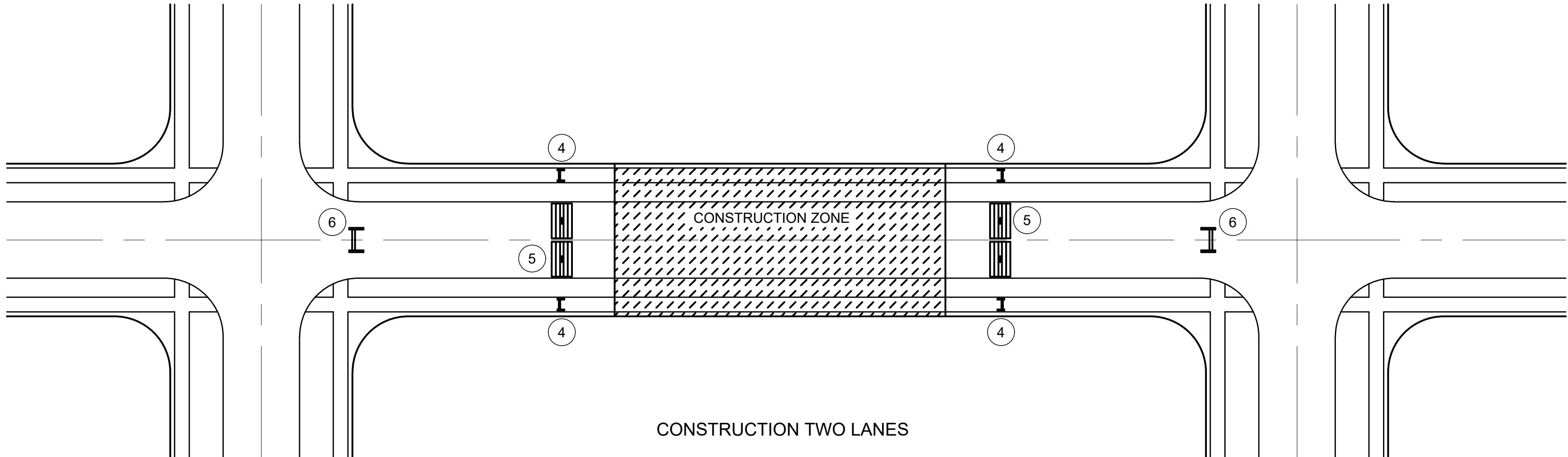


TYPE III PORTABLE CONSTRUCTION BARRICADE



TYPE III DEMOUNTABLE CONSTRUCTION BARRICADE

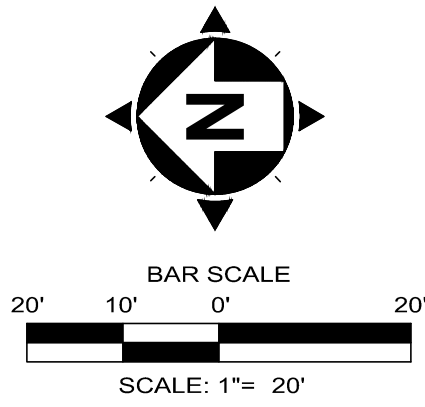
- A. BARRICADES: BARRICADES SHALL BE CONSTRUCTED ACCORDING TO DETAILS SHOWN. WHEN THE ROAD IS CLOSED TO TRAFFIC, BARRICADES SHALL BE USED TO EFFECTIVELY CLOSE THE ENTIRE ROADWAY. THE ENDS OF THE BARRICADE SHALL BE LOCATED BY THE ENGINEER TO EFFECT THE DESIRED CLOSING OF THE ROADWAY.
- B. PAINTING AND 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.



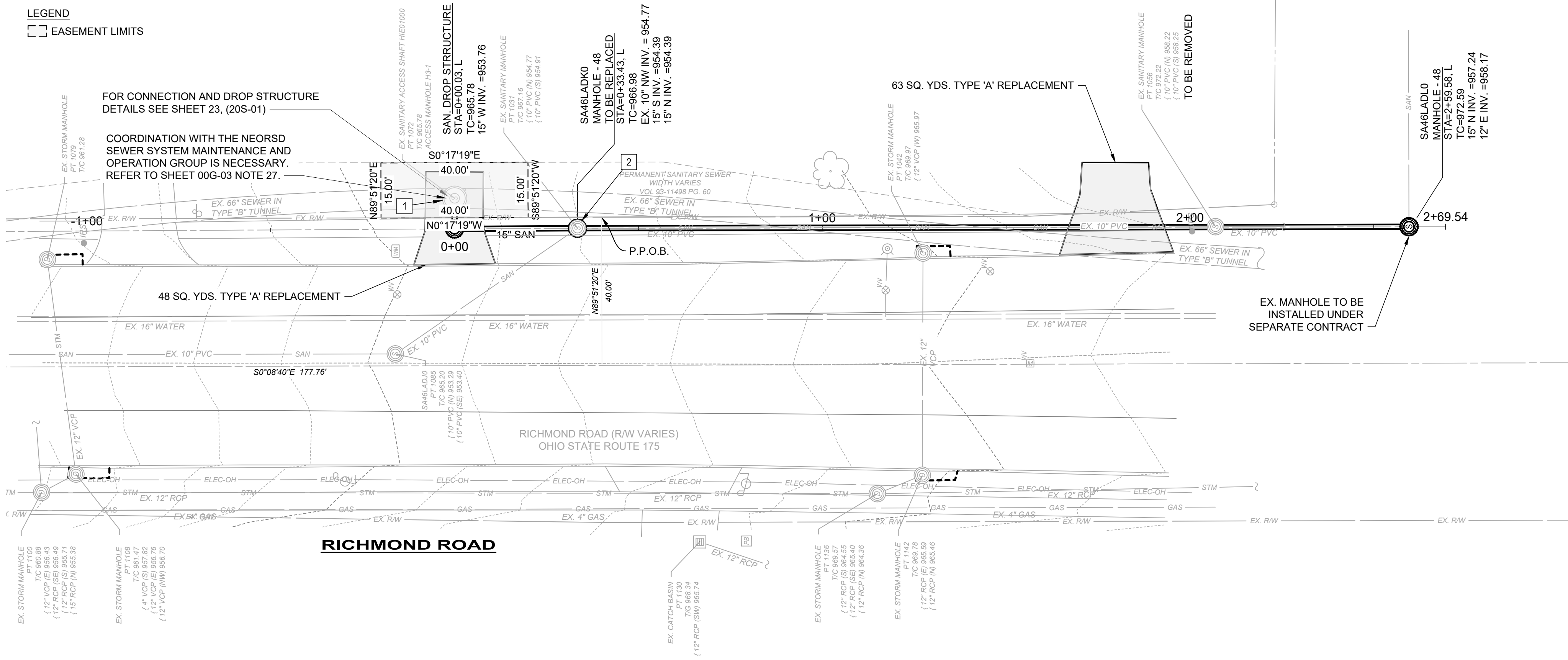
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					5/5/2025	TJM	RLM	TJM

CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY OHIO	GENERAL - 00 SERIES MAINTENANCE OF TRAFFIC
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PROJECT NO:	231100
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LEGEND
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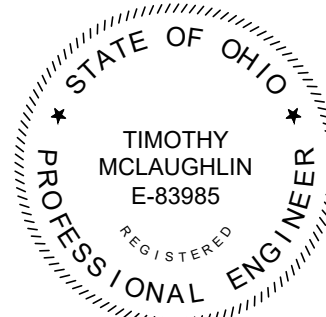
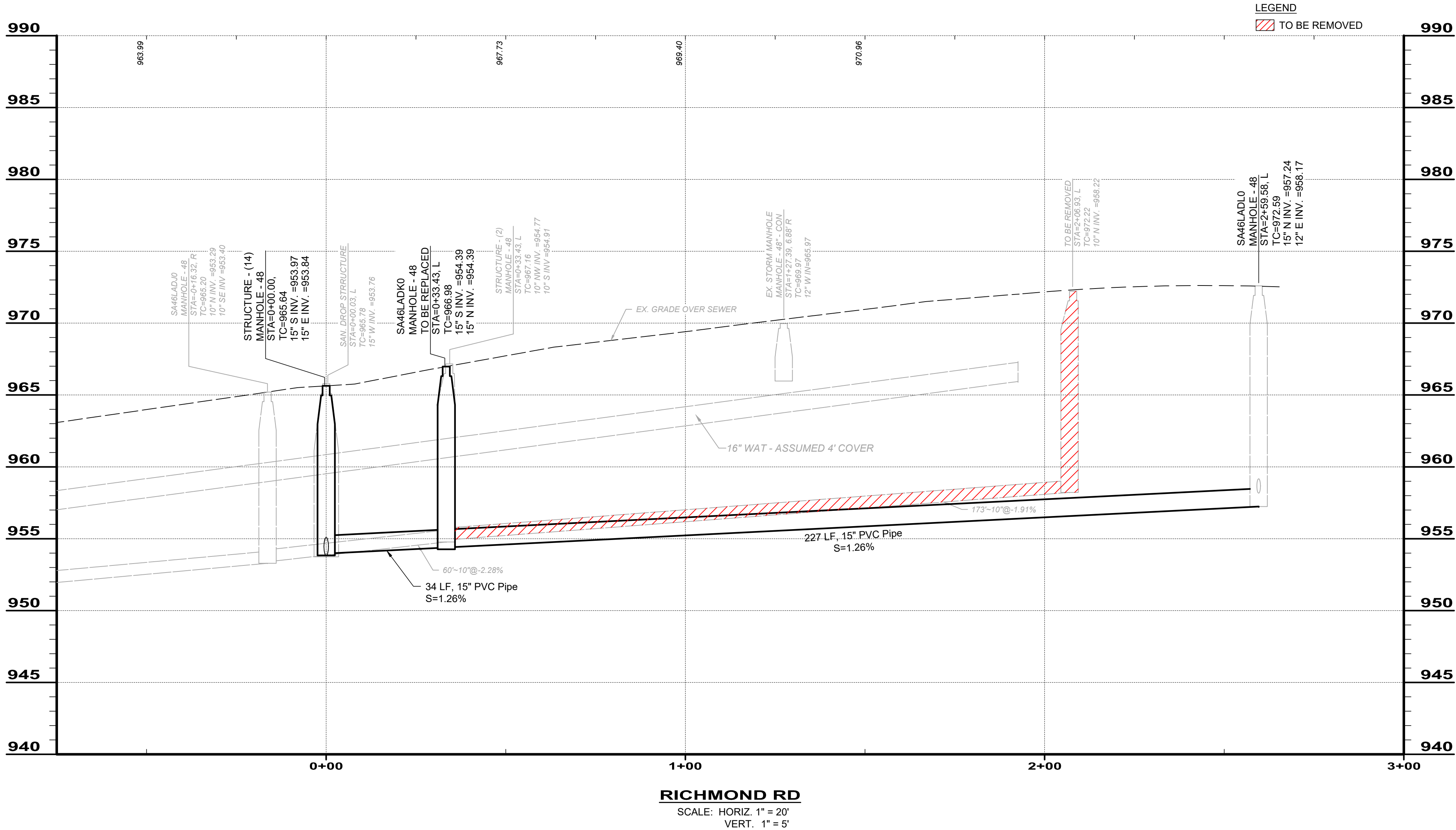


GENERAL NOTES:

- EX. SURFACE GRADES IN PROFILE VIEW ARE SHOWN BASED ON THE ALIGNMENT OF THE PROPOSED SEWER.
- EX. WATERLINE AND GAS LINE DEPTHS ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY OWNERS. GAS LINES ARE ASSUMED TO BE INSTALLED WITH 3' OF COVER TO TOP OF PIPE AND WATER UTILITIES ARE ASSUMED TO BE INSTALLED WITH 6' OF COVER OVER TOP OF PIPE. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY ALIGNMENTS, WHETHER SHOWN OR NOT SHOWN IN THESE PLANS, PRIOR TO CONSTRUCTION.
- DISTANCE BETWEEN PROPOSED 15" SANITARY SEWER AND EX. 16" WATER MAIN IS 10' AS SHOWN IN PLANS. CONTRACTOR SHALL MAINTAIN AT A MINIMUM 10' FEET OF HORIZONTAL DISTANCE BETWEEN ANY EXISTING WATER MAIN AND NEW SEWER.
- CONNECTION OF EX. SEWER AT THE PROPOSED SEWER SHALL BE MADE BY INSTALLING A TRI-BAND MISSION COUPLING, OR APPROVED EQUIVALENT. CONTRACTOR SHALL MATCH EX. MATERIAL, SLOPE, AND DIAMETER.
- CONTRACTOR SHALL SETUP BYPASS PUMPING FROM MANHOLE SA46LADL0 INTO PROPOSED ACCESS SHAFT HIE01000. CONSTRUCTION SEQUENCE, INCLUDING BYPASS PUMPING, SHALL BE IN GENERAL ACCORDANCE OF SPEC SECTION 013216.
- EXISTING TOPOGRAPHICAL SURVEY DATA SHOWN HERE WAS PROVIDED BY EUTHENICS DATED 1/6/2024.

CODED NOTES:

- CONTRACTOR MUST WORK WITHIN THE DESIGNATED EXISTING EASEMENT. ANY WORK PERFORMED OUTSIDE THESE BOUNDARIES WILL BE THE CONTRACTOR'S RESPONSIBILITY. EASEMENT DOCUMENTS SHALL BE PROVIDED AFTER CONTRACT IS AWARDED. CONTRACTOR IS RESPONSIBLE TO STAKE EASEMENT LIMITS FOR ANY WORK PERFORMED.
- RECONNECT EXISTING 10" SEWER TO MANHOLE SA46LADK0 AND PROVIDE A PERMANENT BUT REMOVABLE WATERTIGHT PLUG.



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8150 STERLING COURT
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(440) 951-9000

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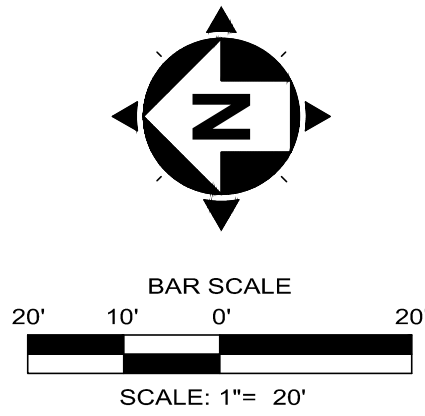
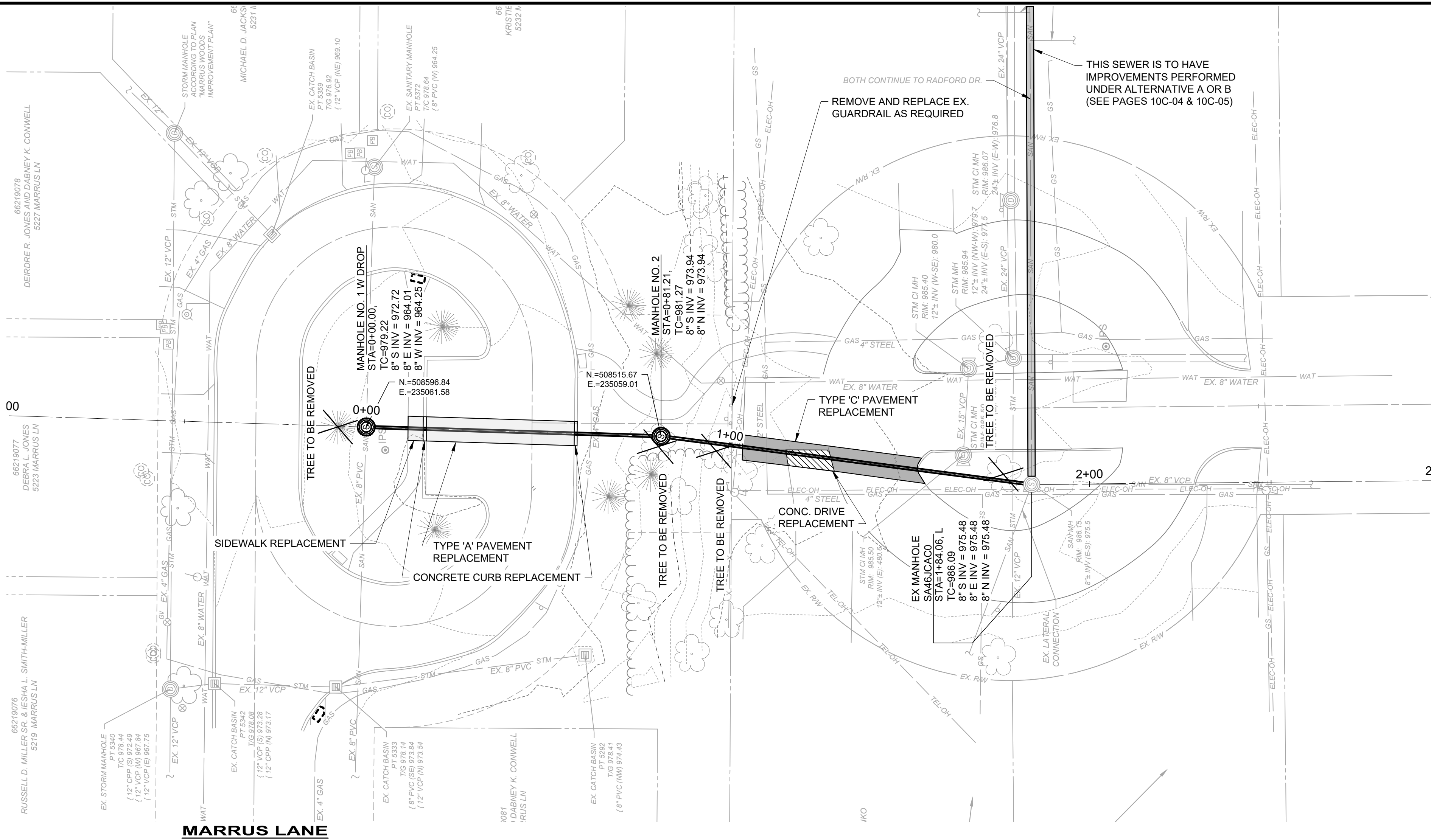
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CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO
CIVIL - 10 SERIES
RICHMOND RD. DROP SHAFT CONNECTION

PROJECT NO: 231100	
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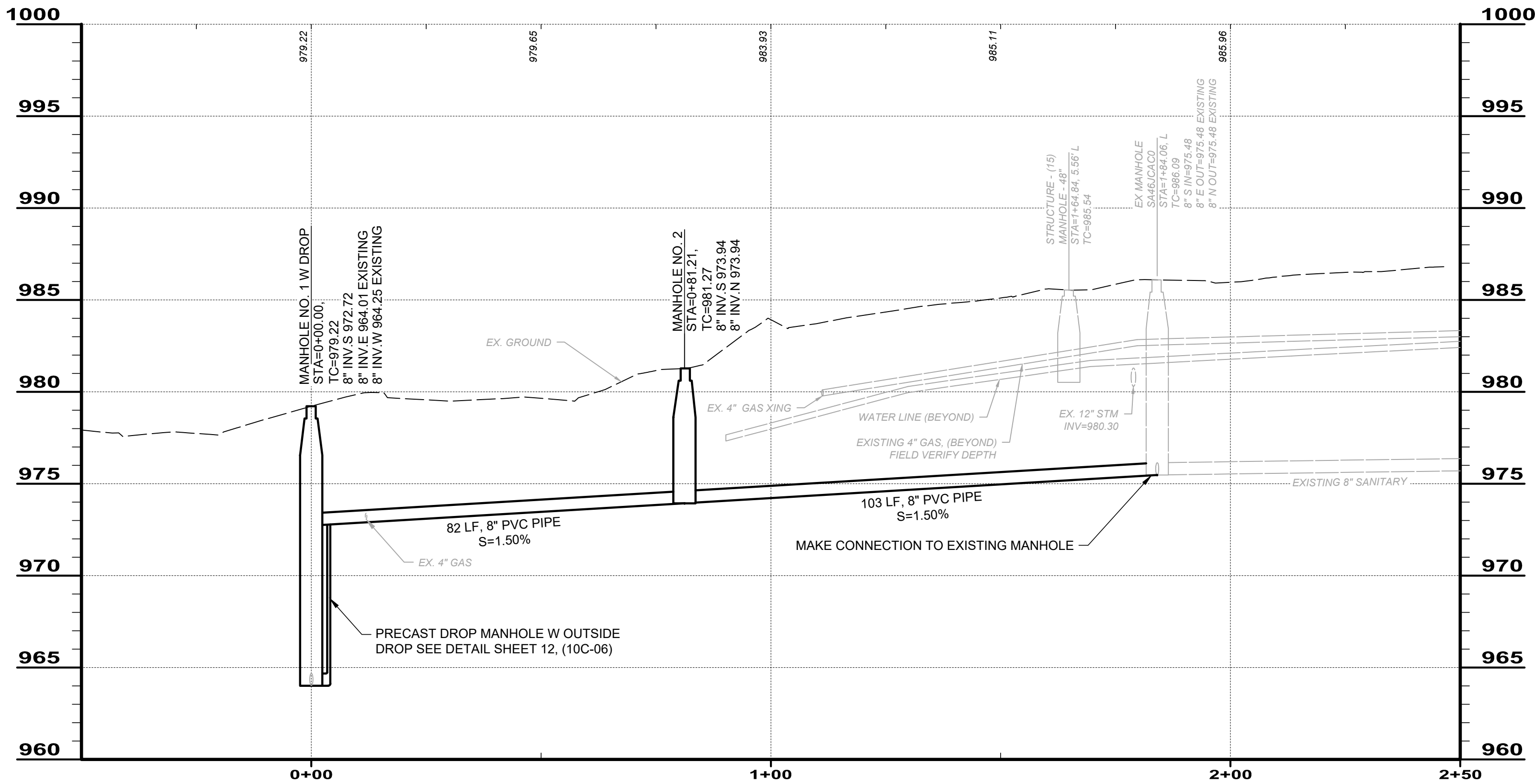
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- DISTANCE BETWEEN PROPOSED 8" SANITARY SEWER AND EX. 8" WATER MAIN IS 10' AS SHOWN IN PLANS. CONTRACTOR SHALL MAINTAIN AT A MINIMUM 10' FEET OF HORIZONTAL DISTANCE BETWEEN ANY EXISTING WATER MAIN AND NEW SEWER.
- CONNECTION OF EX. SEWER AT NEW MH SHALL BE MADE BY INSTALLING 5 LF OF NEW SEWER LINES AND A TRI-BAND MISSION COUPLING, OR APPROVED EQUIVALENT. CONTRACTOR SHALL MATCH EX. MATERIAL, SLOPE, AND DIAMETER.
- EXISTING TOPOGRAPHICAL SURVEY DATA SHOWN HERE WAS PROVIDED BY EUTHENICS DATED 1/6/2024.
- SERVICE LATERALS SHALL NOT HAVE ANY BENDS OTHER THAN 45° OR 22.5° BENDS. 90° BENDS ARE NOT ACCEPTABLE. TEST TEES ARE TO BE INSTALLED BEHIND (I.E., UPSTREAM OF) ALL BENDS GREATER THAN 22.5°, AND BETWEEN TWO CLOSELY SPACED 45° BENDS. ON LONG RUNS OF SEWER LATERALS, TEST TEES SHALL BE PROVIDED EVERY 100 LINEAR FEET.



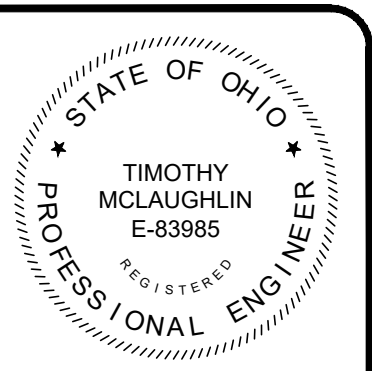
EDGEWOOD ROAD

MARRUS LANE



MARRUS TO EDGEWOOD

SCALE: HORIZ. 1"= 20'
VERT. 1"= 5'



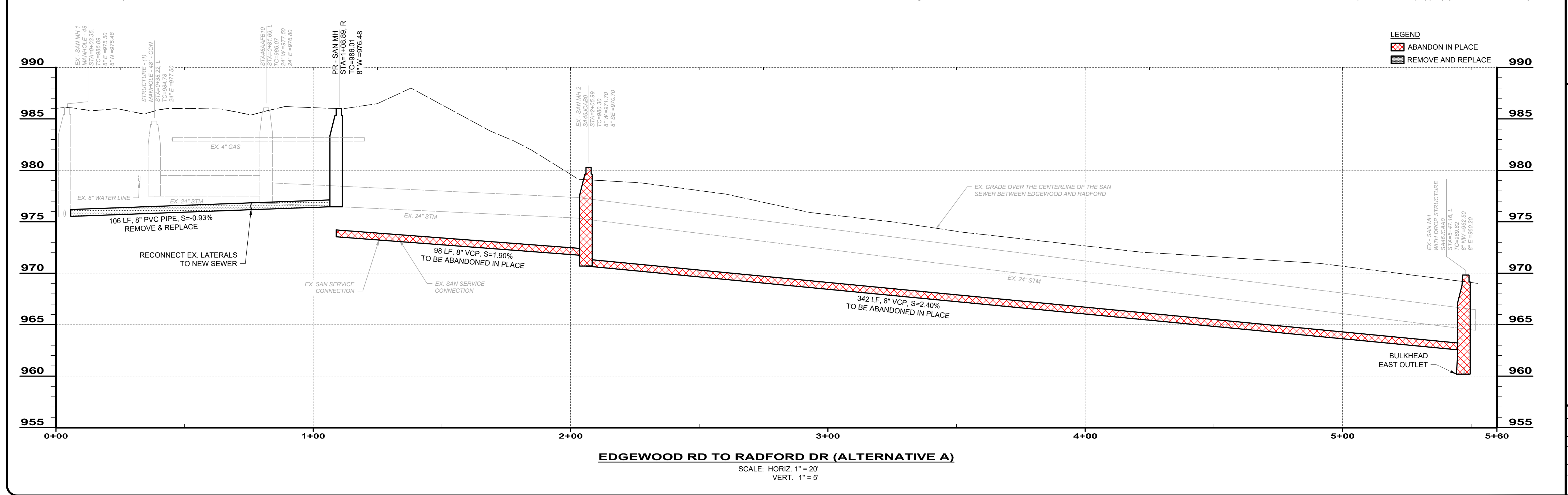
verdantas
TIMOTHY MCLAUGHLIN
E-83985
PROFESSIONAL ENGINEER
8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

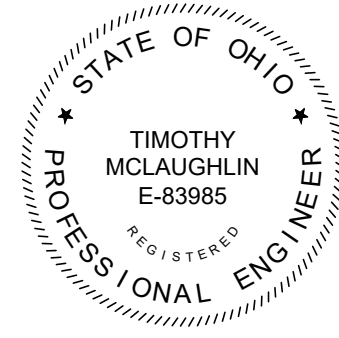
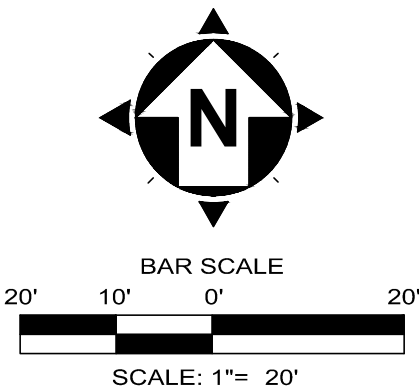
NO	REVISION	DATE

SCALE: AS NOTED	DATE: 5/5/2025	DESIGNED BY: TJM	DRAWN BY: RLM	CHECKED BY: TJM
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CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY OHIO	CIVIL - 10 SERIES	MARRUS LN. TO EDGEWOOD RD. PLAN & PROFILE
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PROJECT NO: 231100	SHEET 8
DRAWING NAME 10C-02	OF 31





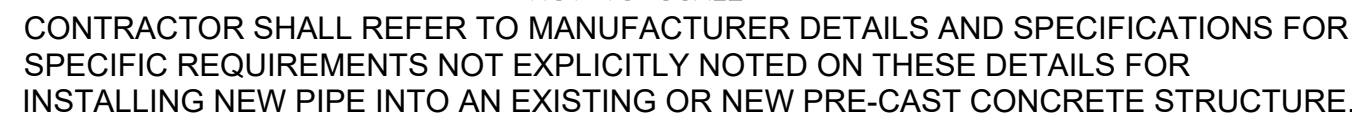
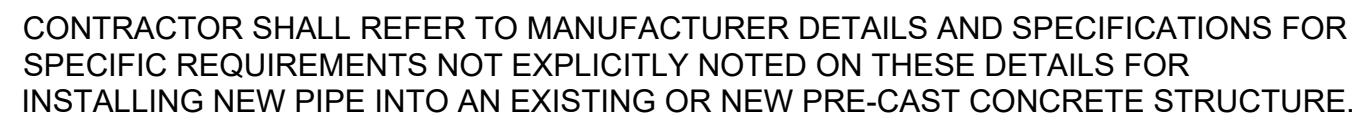
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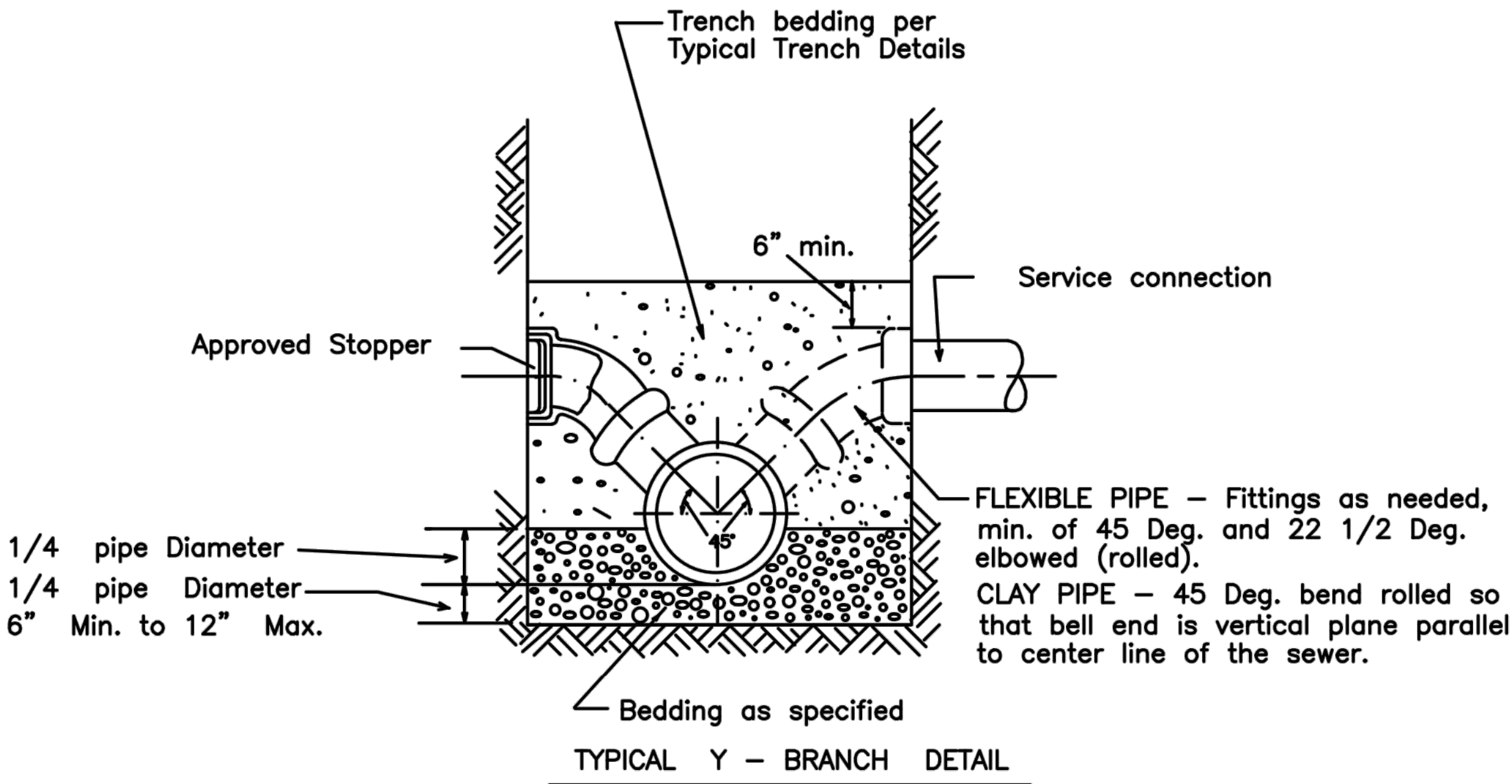
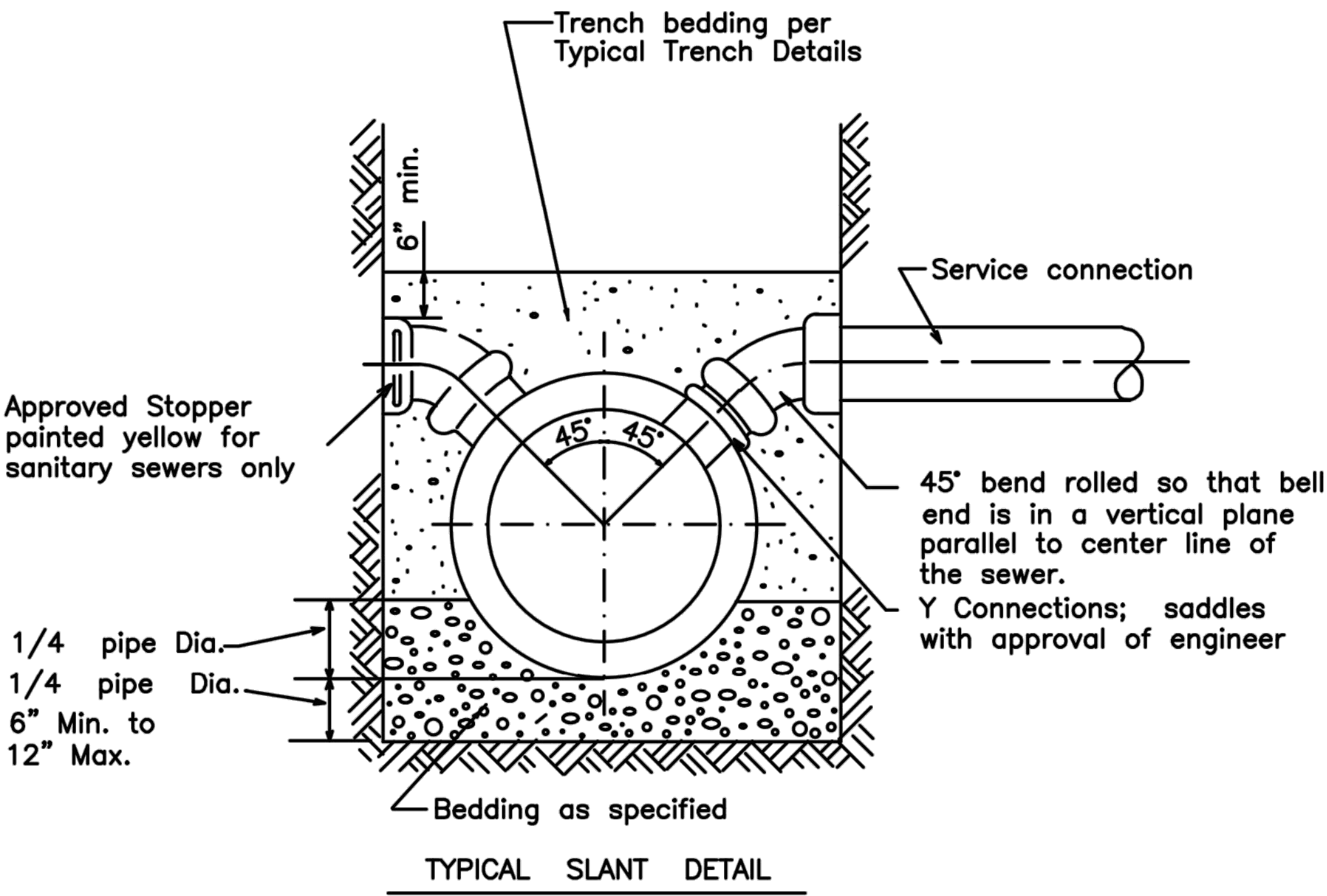
SCALE:	AS NOTED
DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS
IIJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
OHIO
CUYAHOGA COUNTY
CIVIL - 10 SERIES
EDGEWOOD & RANDOLPH ALTERNATIVE B PIPE AND PROFILES

PROJECT NO:	
231100	
DRAWING NAME	
10C-05	
SHEET	OF
11	31



PROJECT NO:	
231100	
DRAWING NAME	
10C-06	
SHEET	OF
12	31



Notes

Connections of service laterals and/or sewers to existing and/or proposed sewer pipe mains shall be as follows:

- a. To PVC Sewer Mains - cut out a section of the existing sewer main, install a manufactured PVC wye (with six (6) inch or appropriate size branch) with water tight PVC no-hub couplings, or approved equal, pipe adaptors for connections on sewer mains 18-inch and smaller. Where sewer mains are larger then 18-inch, Inserta-tees maybe used, manufactured by Inserta Fittings Company, or approved equal. In no case shall the connections for other than six (6) inch lateral connections exceed 2/5 the diameter of the main sewer. PVC to PVC piping connections should be completed using a manufactured PVC No-Hub coupling or unless approved by the Engineer. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements.
- b. To Concrete Sewer Mains - cut out a section of the existing sewer main, install a manufactured RCP wye (with six (6) inch or appropriate size branch) with water- tight Strongback Fernco type, or approved equal, pipe adaptors. Where sewer mains are larger then 10-inch, core pipe and install a manufactured flexible watertight six (6) inch rubber boot with stainless steel band(s), Model NPC Kor-N-Tee (as manufactured by NPC) or approved equal. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements. RCP to PVC piping connections should be completed using a Strongback Fernco connection or equal.
- c. To Vitrified Clay Pipe Sewer Mains - remove one (1) section of existing pipe (joint-to-joint), install a manufactured watertight PVC wye (with six (6) inch or appropriate size branch) with water-tight Strongback Fernco type, or approved equal, pipe adaptors on sewer mains 18-inch and smaller. Where sewer mains are larger then 18-inch, Inserta-tees maybe used, manufactured by Inserta Fittings Company, or approved equal. In no case shall the connections (for other than six (6) inch lateral) connections exceed 2/5 the diameter of the main sewer. Pipe bedding and installation shall conform to the Uniform Standards For Sewerage Improvements.
- d. Encasement in concrete is required if ground cover is less than 3 feet for all pipes.
- e. Core bore seal shall meet ASTM C-923 and ASTM C-167.
- f. New construction of Clay Wyes, encasement of wye with 3000# concrete and extend concrete 24" on each site of the wye, min. 6" above pipe.

SLANT AND Y - BRANCH
DETAILS

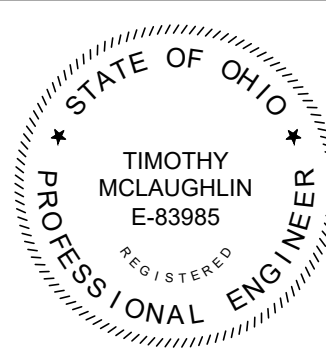
REVISIONS:

SCALE
NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 11



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DATE:	5/5/2025
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DRAWN BY:	RLM
CHECKED BY:	TJM

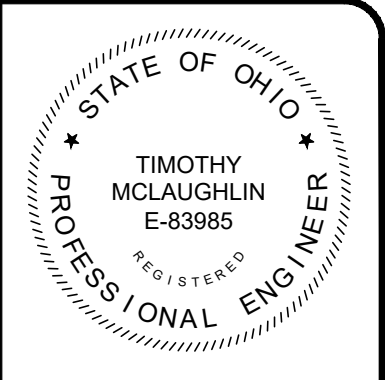
CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

CIVIL - 10 SERIES

CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	
231100	
DRAWING NAME	
10C-07	
SHEET	OF
13	31





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MENTOR, OHIO 44060
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NO		
AS NOTED		
DATE:	5/5/2025	
DESIGNED BY:	TJM	
DRAWN BY:	RLM	
CHECKED BY:	TJM	

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

CIVIL - 10 SERIES

CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:
231100

DRAWING NAME
10C-08

SHEET
14

OF
31



REVISIONS:

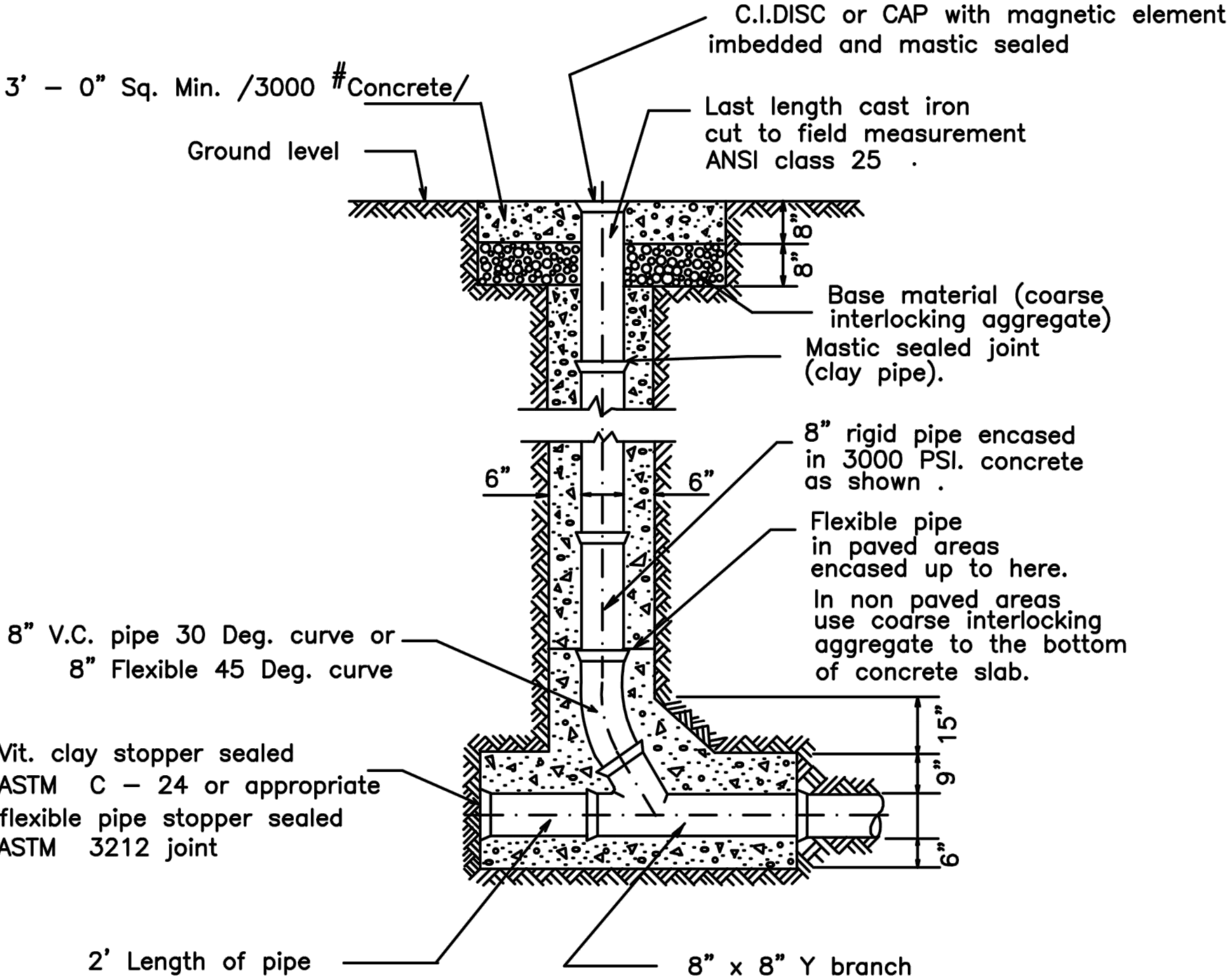
SCALE
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DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 19

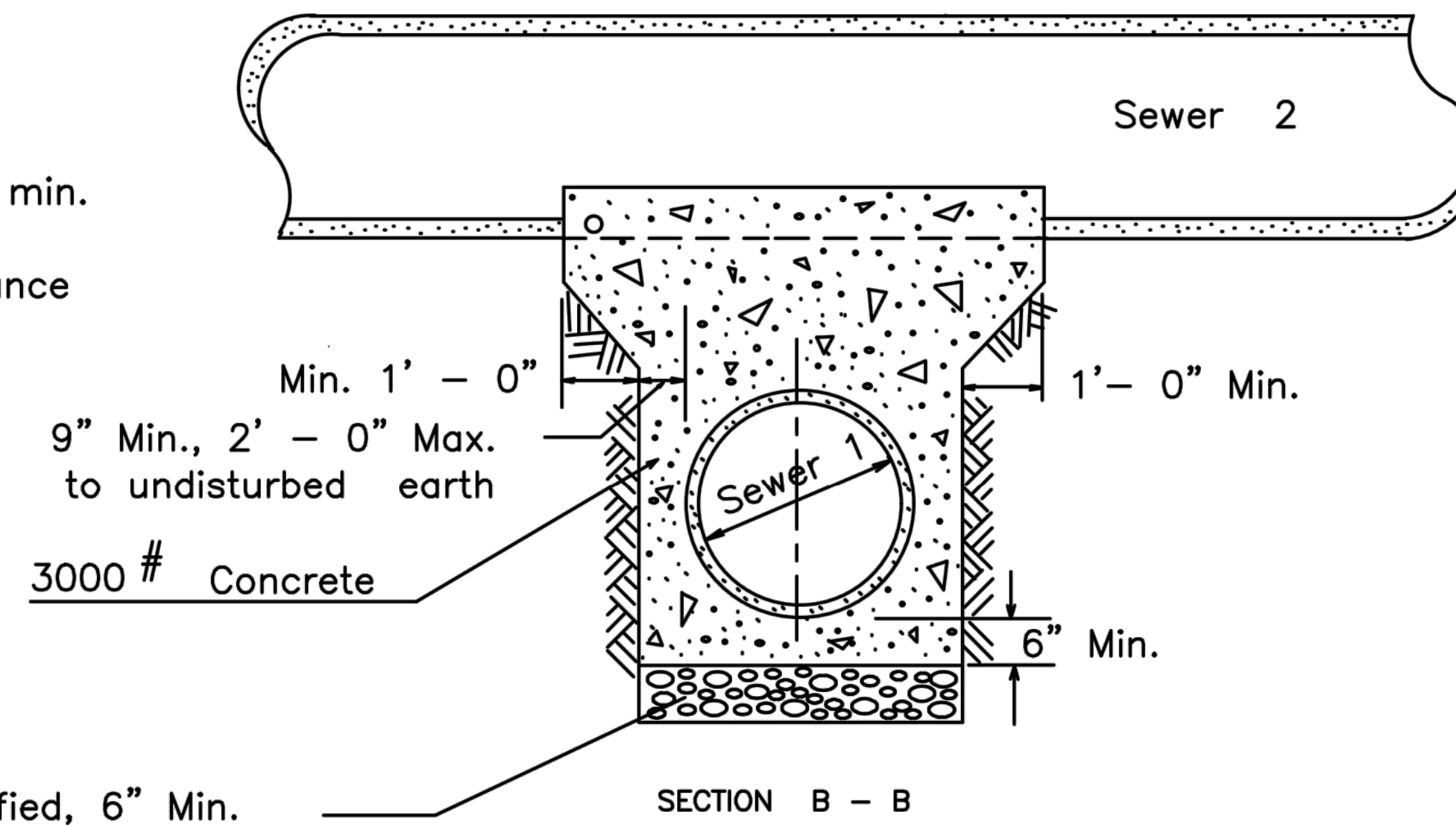
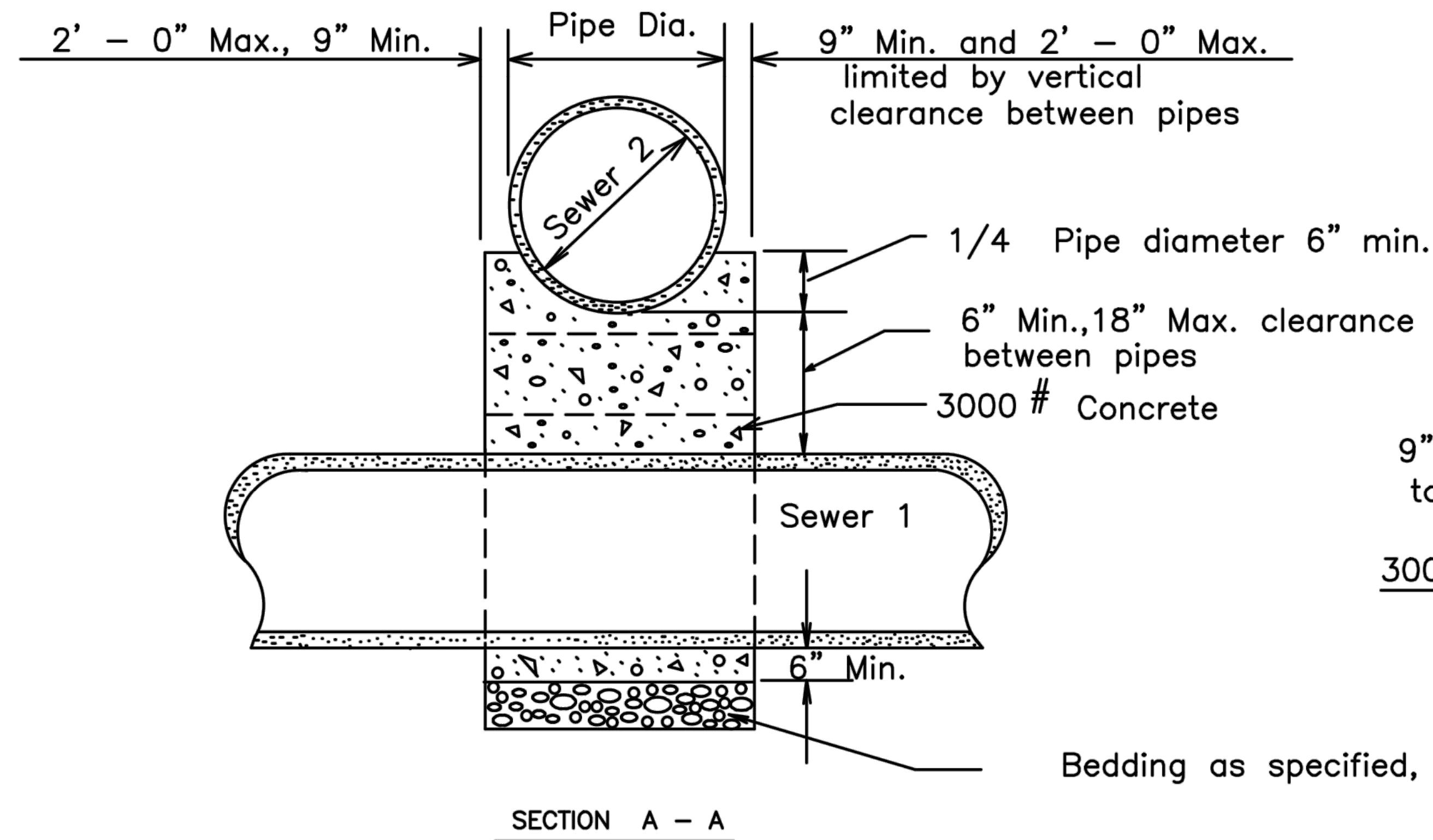
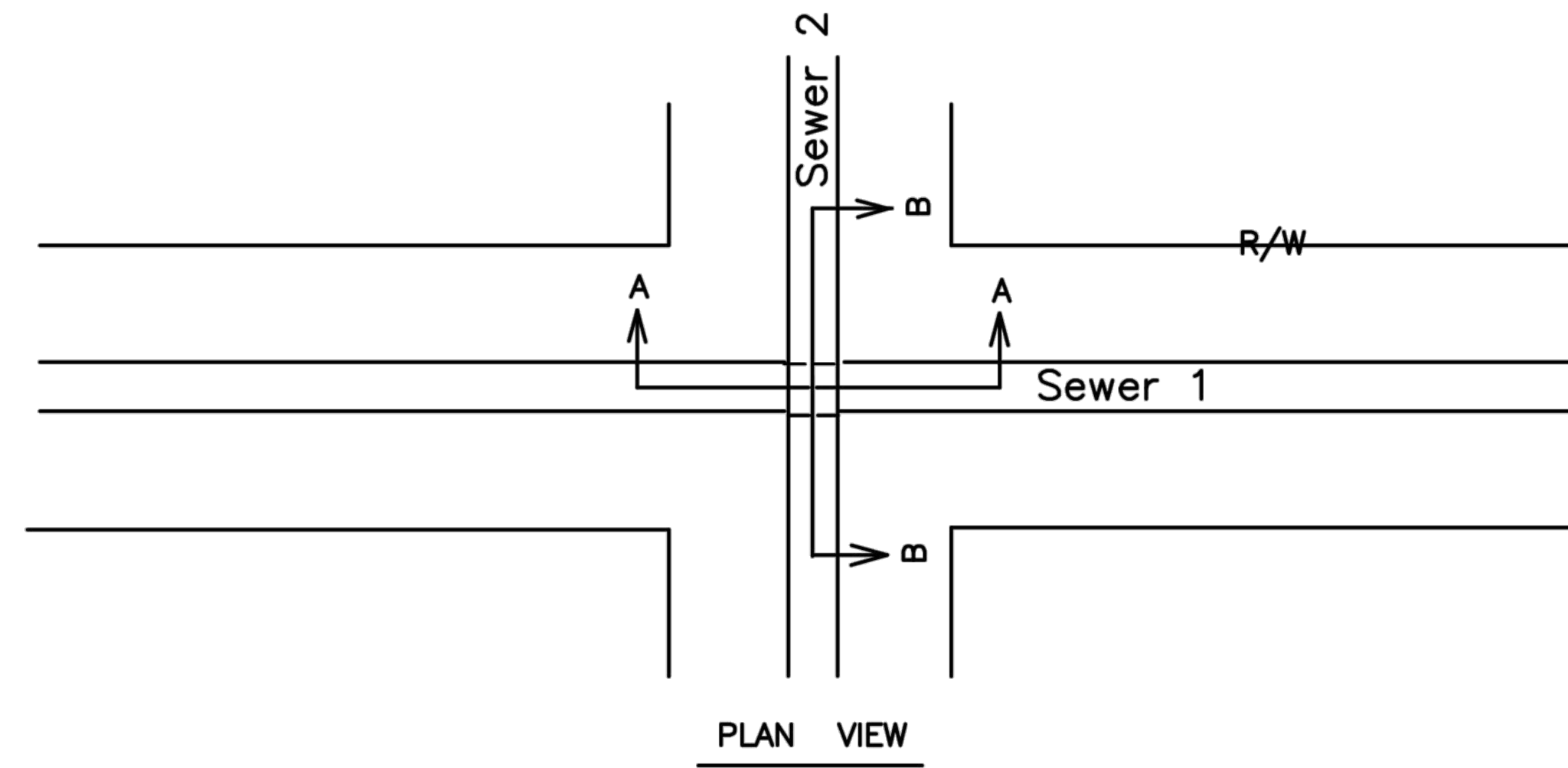
NOTE:
8" Clean out shall be used for
8" sewer and larger
Smaller size sewers and lamp
holes shall have same size pipe.



CLEANOUT

NOTE :

Encasement required when pipe clearance is less than 18"



CONCRETE ENCASEMENT
MONOLITHIC CRADLING OF UPPER PIPE

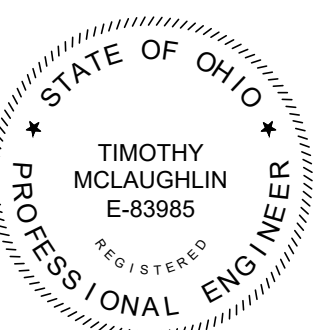
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UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO.14



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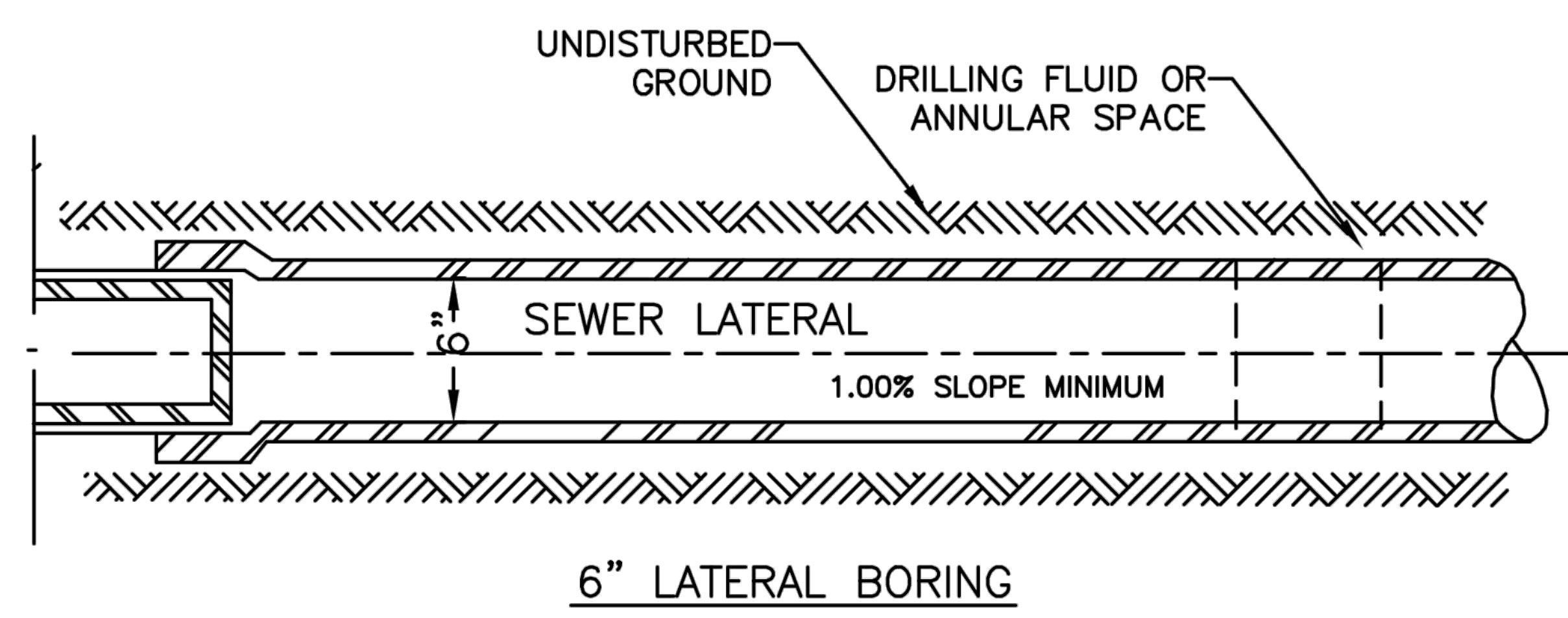
8150 STERLING COURT
MENTOR, OHIO 44060
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NO	REVISION	DATE

SCALE:	AS NOTED
DATE:	5/5/2025
DESIGNED BY:	TJM
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CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO
CIVIL - 10 SERIES
CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO:	
231100	
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10C-09	
SHEET	OF
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- NOTE:**
DRILLING FLUID TO REMAIN OR ANNULAR SPACE TO BE GROUTED.
- TYPES OF ACCEPTABLE PIPE:**
- 1. FUSIBLE PVC CONFORMING TO AWWA C900 OR C905; MINIMUM SDR 21 PRESSURE CLASS 200 PSI.
 - 2. RESTRAINED JOINT PVC WITH PIPE AND COUPLING CONFORMING TO SDR 21 PRESSURE CLASS 200 PSI.
 - 3. FUSIBLE HDPE CONFORMING TO ASTM F-714 AND AWWA C906; MINIMUM DR17.
 - 4. ALL PIPE SHALL BE IRON PIPE SIZE (IPS).

REVISIONS:	SCALE NO SCALE	DATE: OCTOBER 2021
UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO		

SHEET NO. 29





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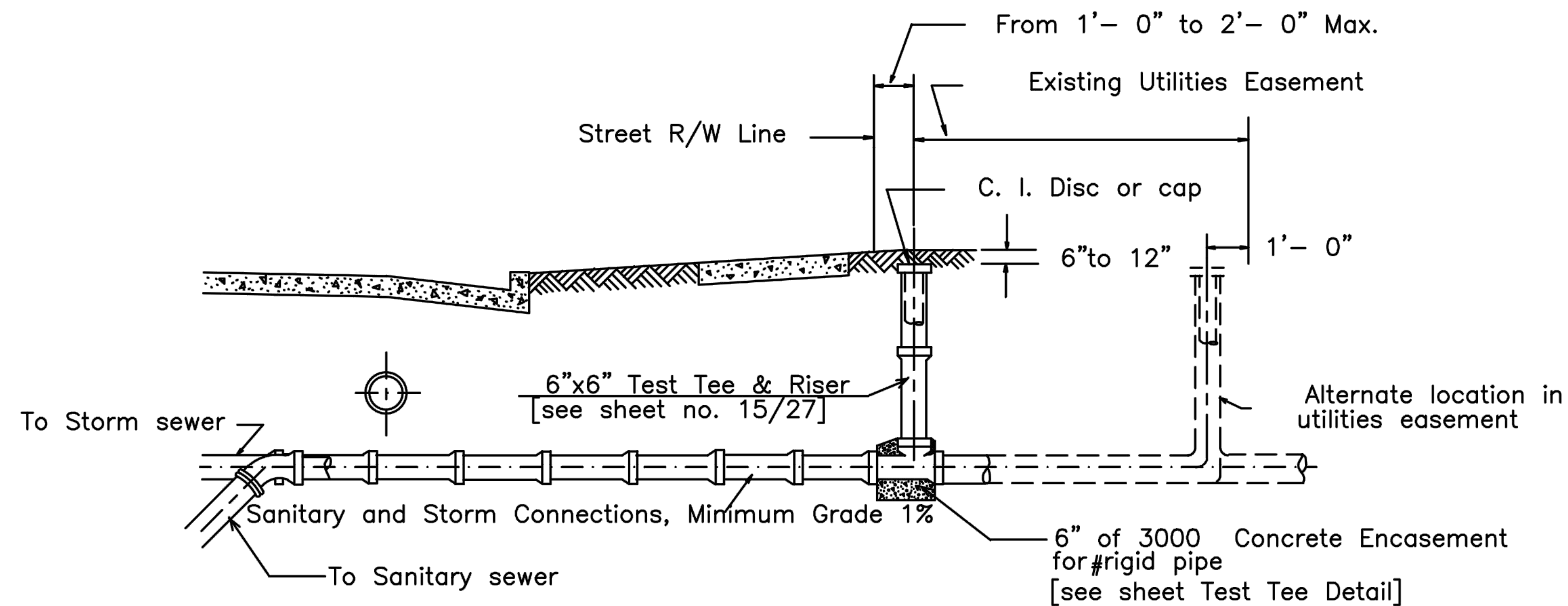
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DATE:	5/5/2025
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DRAWN BY:	RLM
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ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO

CIVIL - 10 SERIES

CONSTRUCTION DETAILS - SANITARY CCDPW

PROJECT NO: 231100	
DRAWING NAME 10C-10	
SHEET 16	OF 31



NOTE:

House connections shall be connected into the top half of the sewer pipe.
six inch, class 200, cast iron pipe is required for all bored sewer service connections
including slip on rubber joints with an ANSI thickness classification No.25, also
6 inch, ductile iron cement lined pipe may be used including slip on rubber joints
with an ANSI thickness classification No. 53.

LATERAL
CONNECTIONS

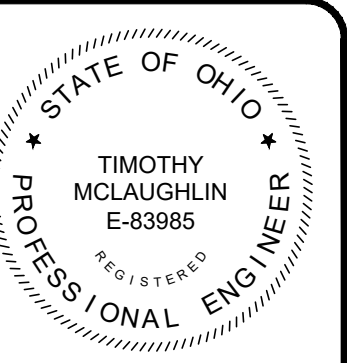
REVISIONS:

SCALE
NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 15

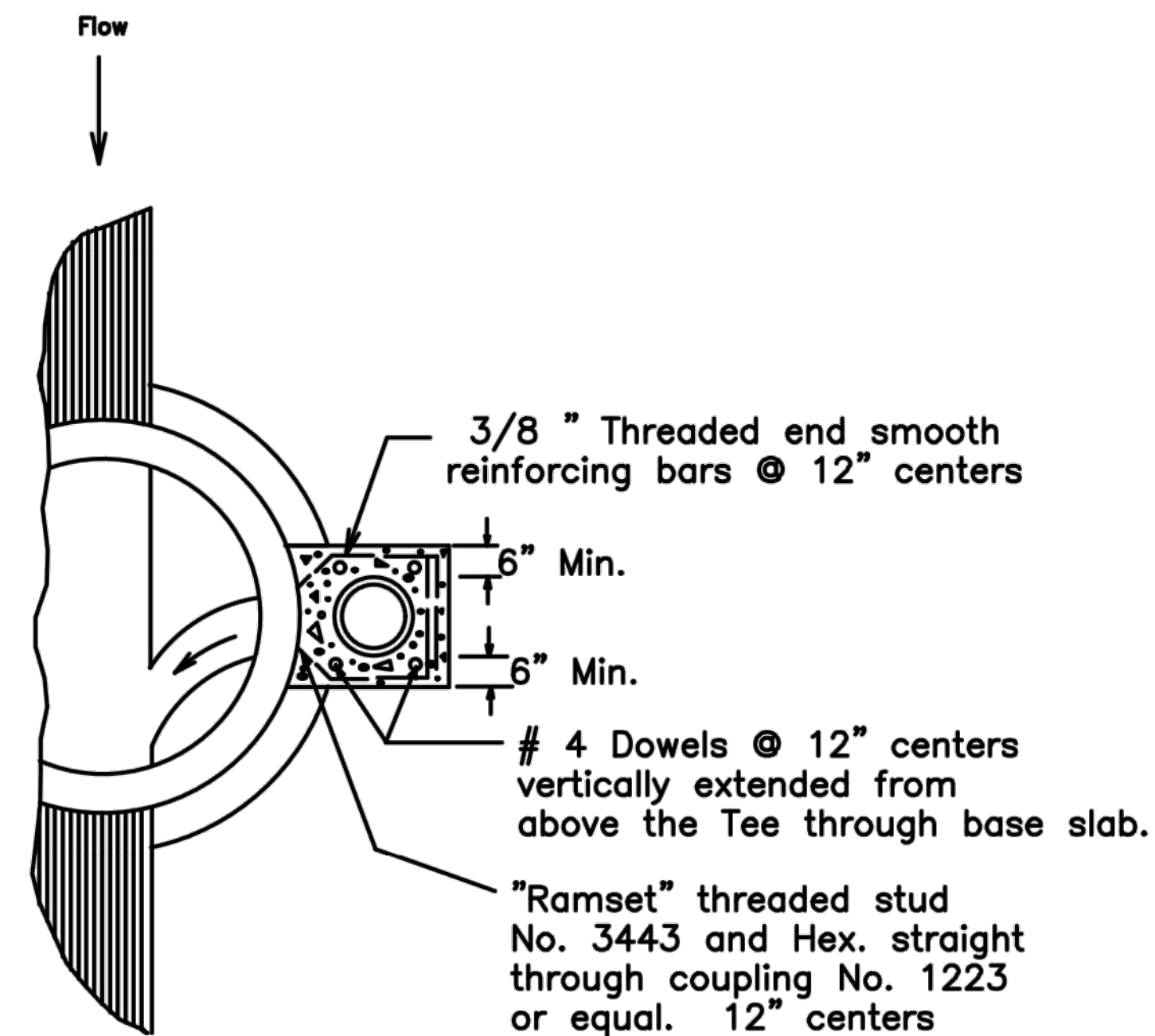
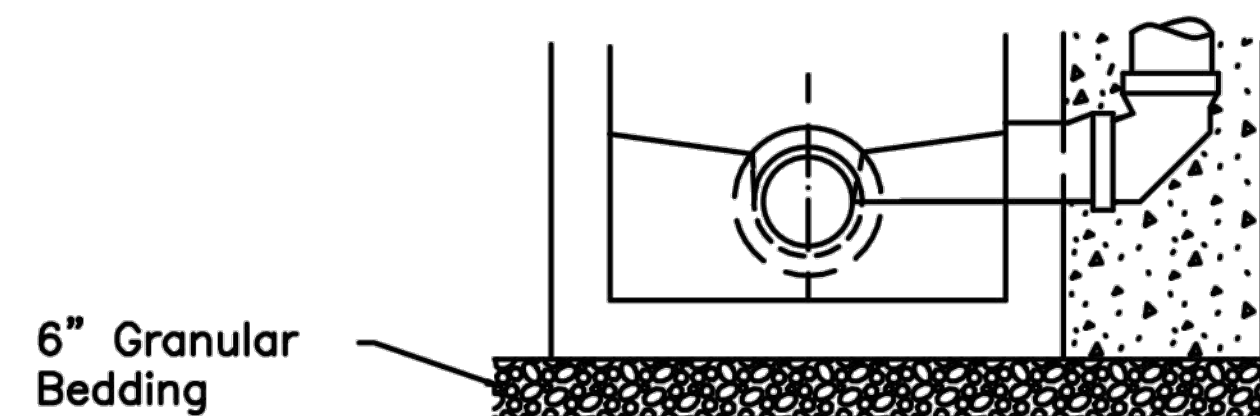
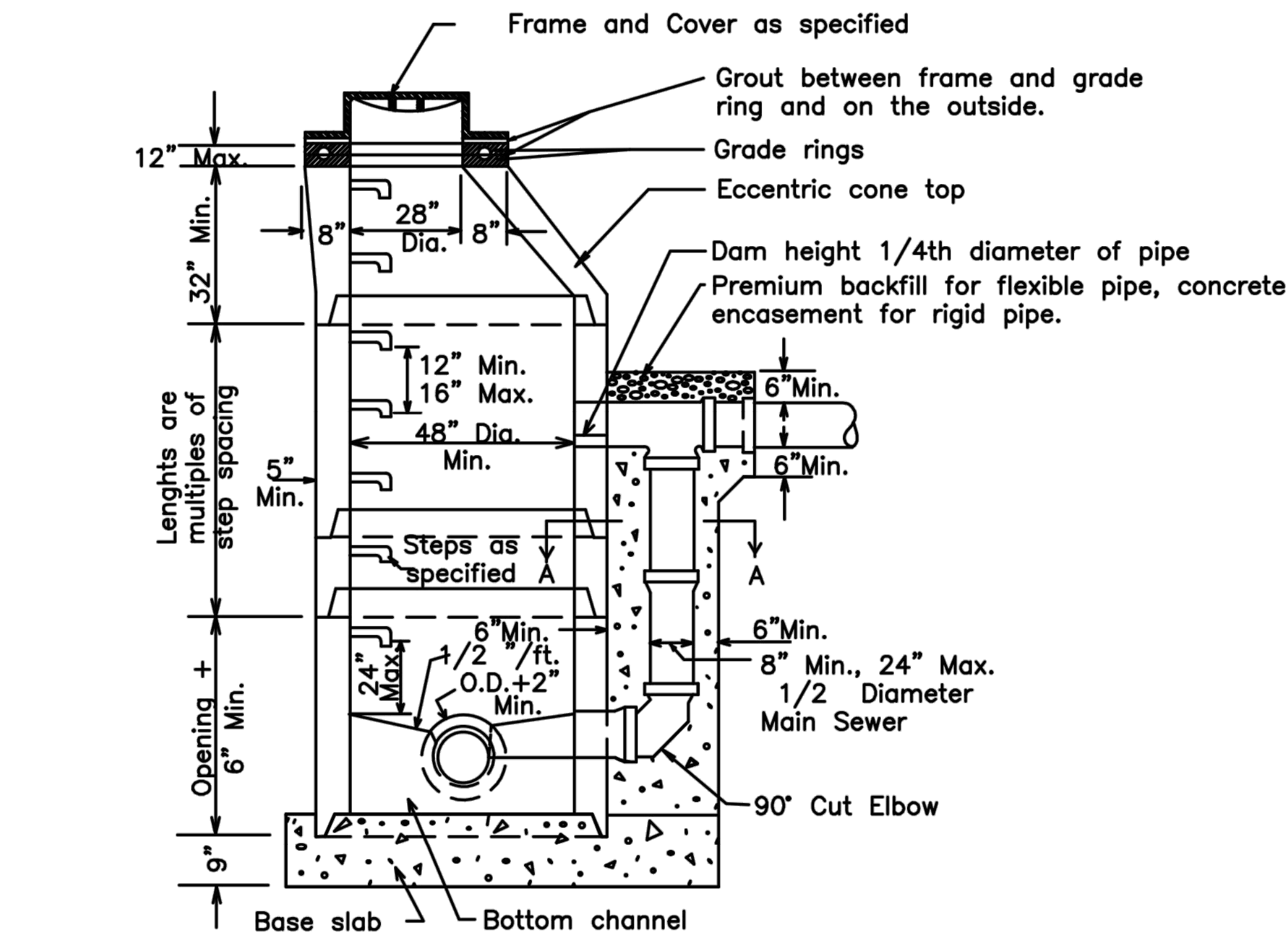


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SCALE:	AS NOTED
DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY OHIO	CIVIL - 10 SERIES CONSTRUCTION DETAILS - SANITARY CCDPW
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PROJECT NO: 231100	
DRAWING NAME 10C-11	
SHEET 17	OF 31



SECTION A - A.

NOTES: A drop manhole shall be constructed in sanitary sewers wherever the distance between the inverts is 2.0 ft. or greater.

A drop manhole shall be constructed in storm sewers whenever the distance between the inverts is 10.0 ft. or greater, a 2 ft sump shall be installed.

The following notes on the Precast Concrete manholes shall pertain to the Drop Manhole: Top or Transition openings in riser sections. Joint Seal, Materials and Landing Platforms.

Poured in place concrete shall be 3000# Concrete.
Core bore seals shall meet ASTM C-923 and C-167.

GENERAL MANHOLE DETAILS refer to Precast Manhole Detail on sheet 5.

PRECAST CONCRETE
DROP MANHOLE

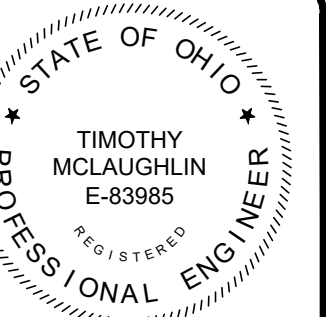
REVISIONS:

SCALE
NO SCALE

DATE: OCTOBER 2021

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SHEET NO. 7



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DATE:	5/5/2025
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DRAWN BY:	RLM
CHECKED BY:	TJM

CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY	OHIO	CIVIL - 10 SERIES	CONSTRUCTION DETAILS - SANITARY CCDPW
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PROJECT NO:	231100
DRAWING NAME	10C-13
SHEET	19
OF	31

SCALE:	AS NOTED
DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM

CIVIL - 10 SERIES

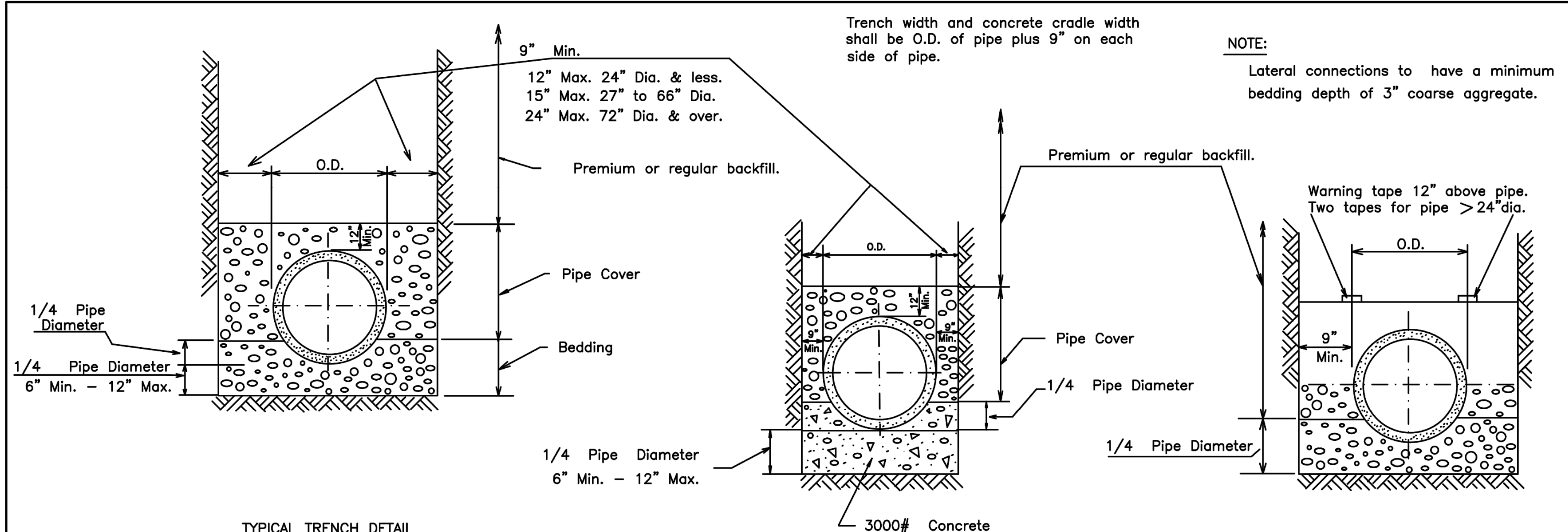
PROJECT NO:	
231100	
DRAWING NAME	
10C-14	
SHEET	OF
20	31



PRECAST CONCRETE
MANHOLE
42" PIPE OR SMALLER

DATE: OCTOBER 2021

SHEET NO. 5



TYPICAL TRENCH DETAIL
(FLEXIBLE PIPE)

TYPICAL TRENCH DETAIL
WITH CONCRETE CRADLE

TYPICAL TRENCH DETAIL
FOR CONCRETE OR DUCTILE IRON PIPE

Pipe Cover shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,or8.

Bedding shall consist of coarse interlocking aggregate no.57,6,67, 68, 7, 78, or 8 for 60" or smaller diameter pipe. For 66" or larger diameter pipe no. 4 aggregate may also be used.

Premium Backfill shall consist of coarse interlocking aggregate no. 57,6,67,68,7,78,8,304, also limestone screenings.

For concrete and ductile iron pipe, pipe cover is to the springline or greater.

In paved areas coarse interlocking aggregate to the top of the trench on all types of pipe.

TYPICAL TRENCH
DETAILS

REVISIONS:

SCALE
NO SCALE

DATE: OCTOBER 2021

UNIFORM STANDARDS: CUYAHOGA COUNTY DEPARTMENT OF PUBLIC WORKS --- MUNICIPAL ENGINEERS ASSOCIATION OF NE OHIO

SHEET NO. 12

STATE OF OHIO

TIMOTHY MCLAUGHLIN
E-83985
REGISTERED PROFESSIONAL ENGINEER

verdantas

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MENTOR, OHIO 44060
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NO	REVISION	DATE

SCALE:	AS NOTED	DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
		5/5/2025	TJM	RLM	TJM

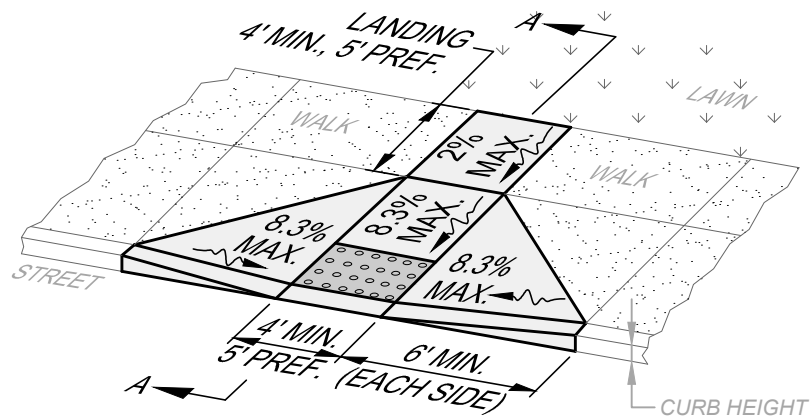
CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

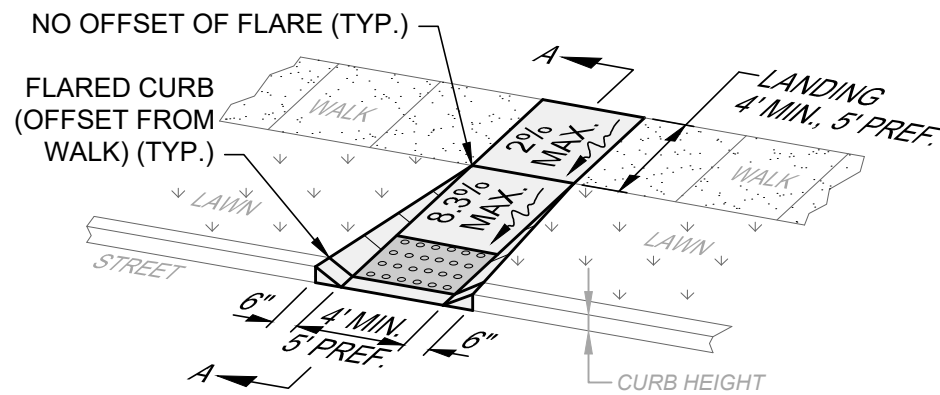
CIVIL - 10 SERIES

CONSTRUCTION DETAILS - SANITARY CCDPW

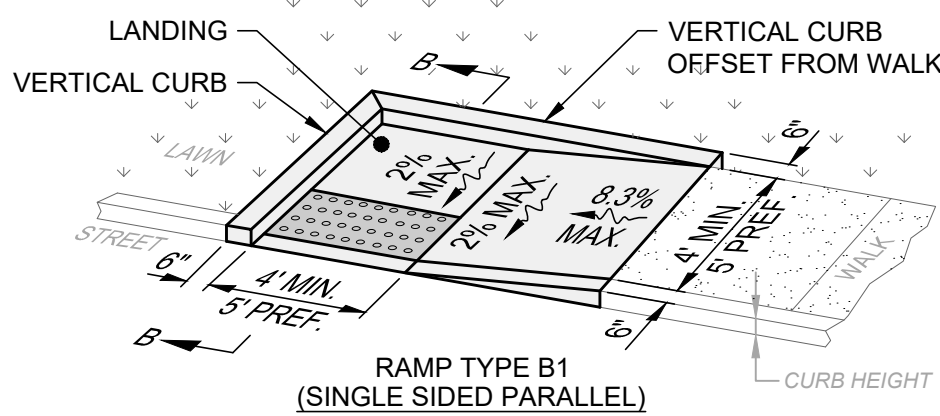
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231100	10C-15
SHEET	OF
21	31



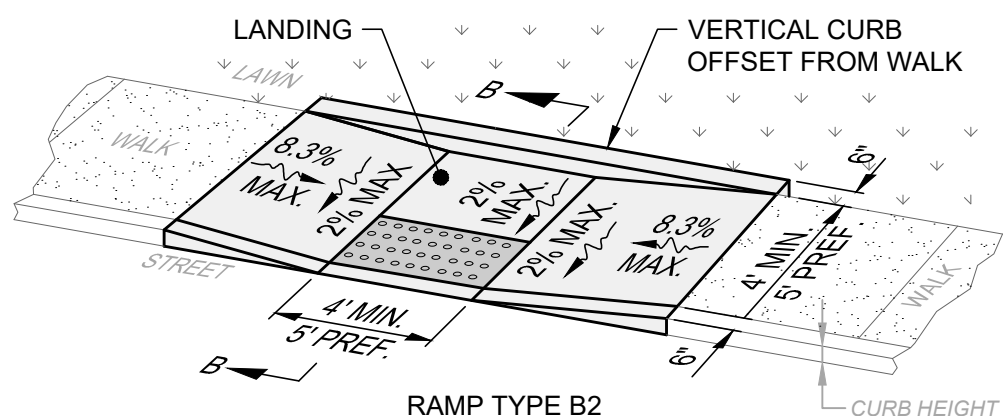
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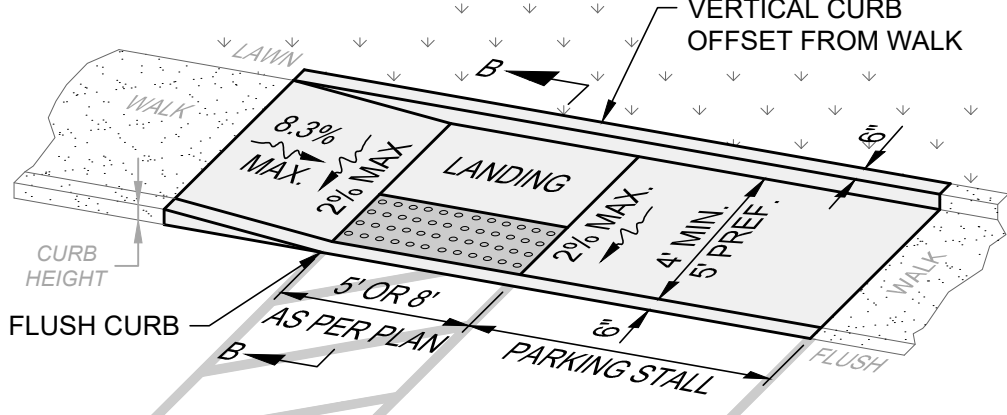
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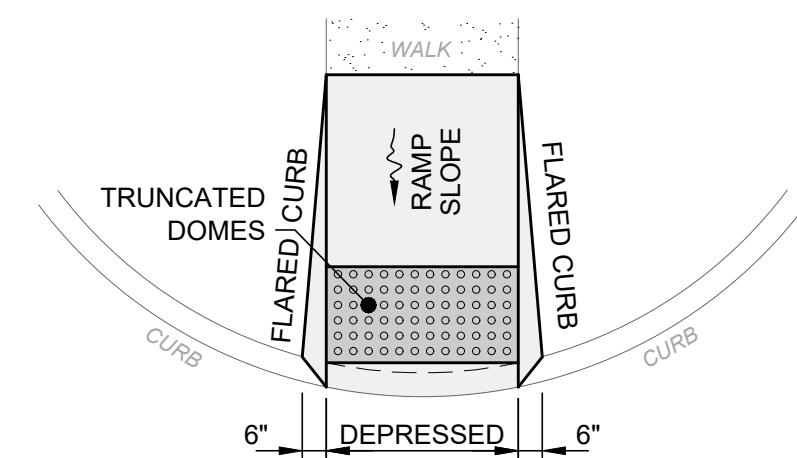
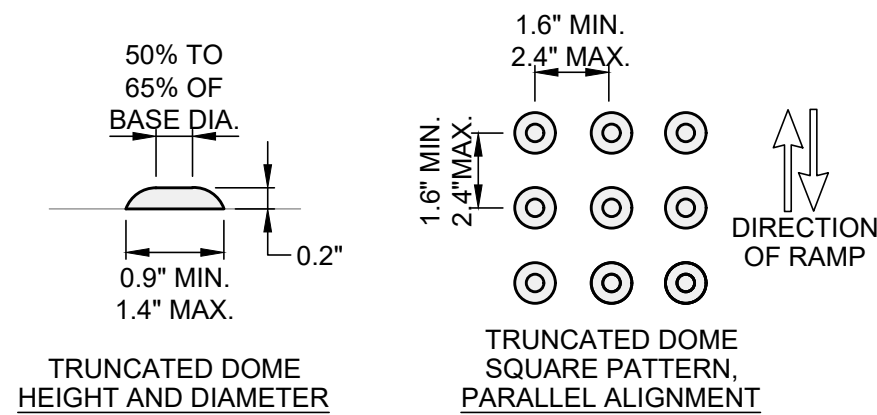
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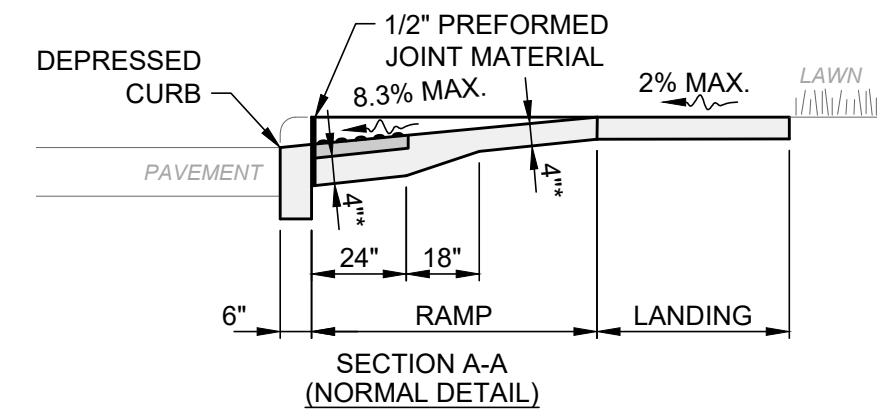
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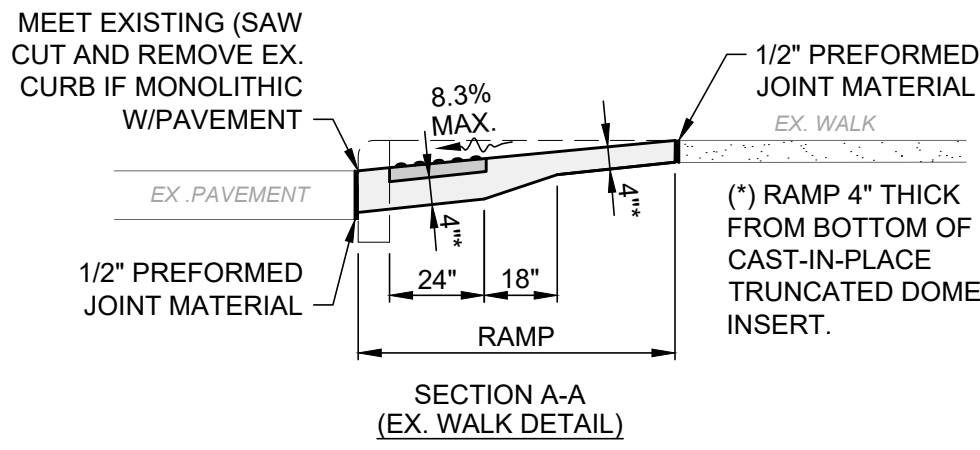
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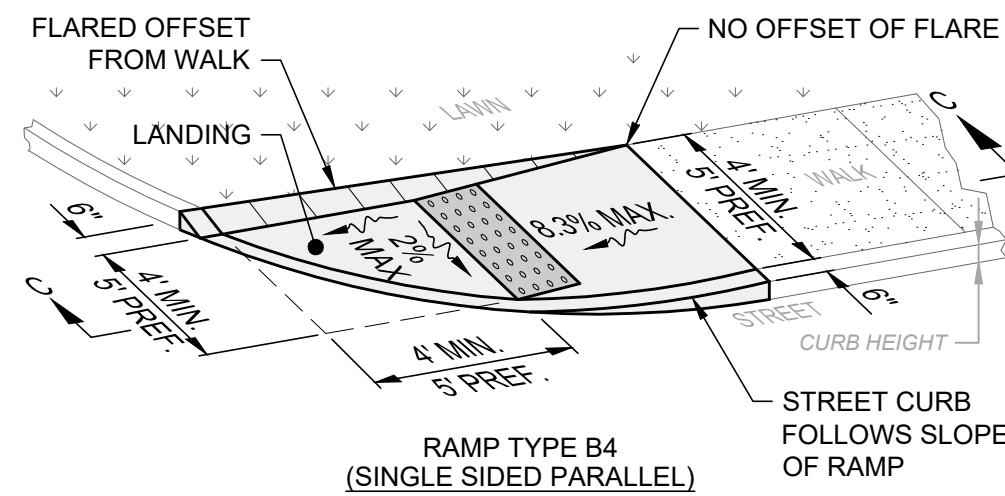
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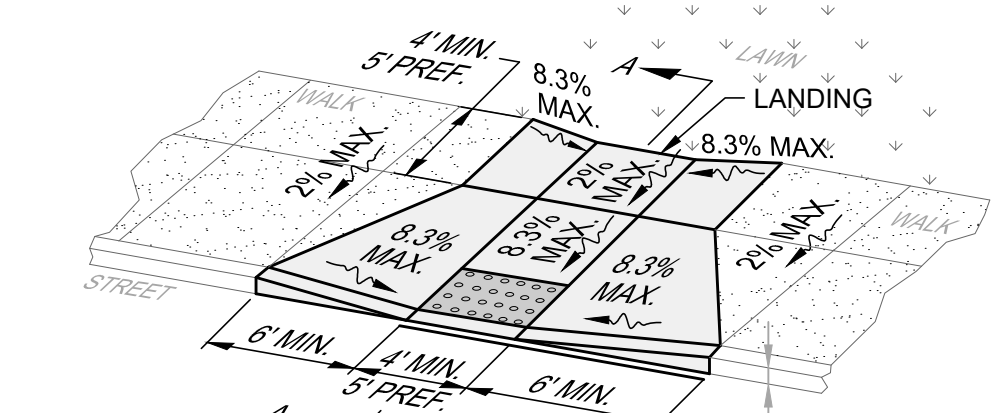
SECTION A-A
(NORMAL DETAIL)



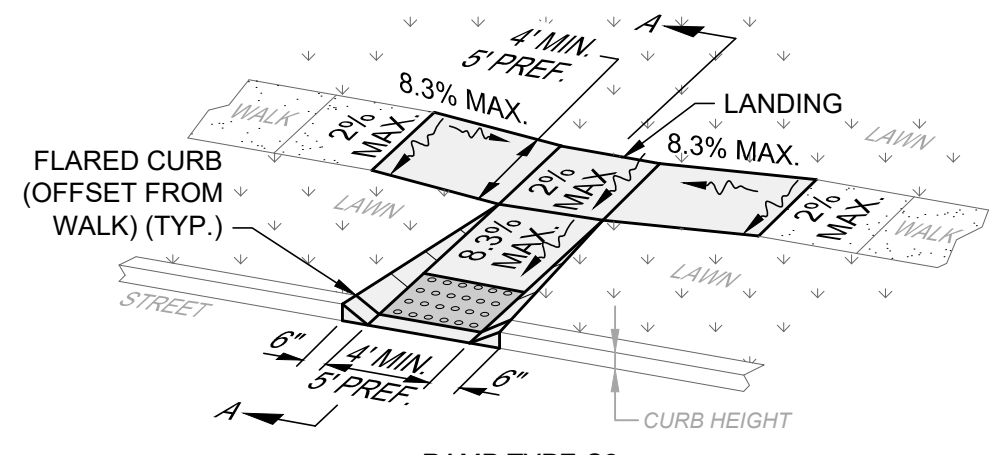
SECTION A-A
(EX. WALK DETAIL)



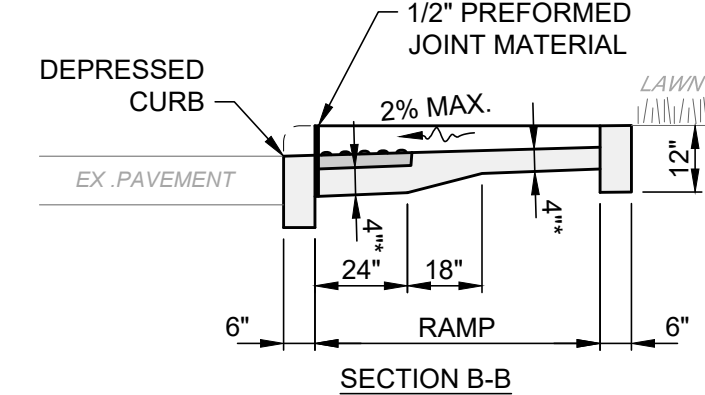
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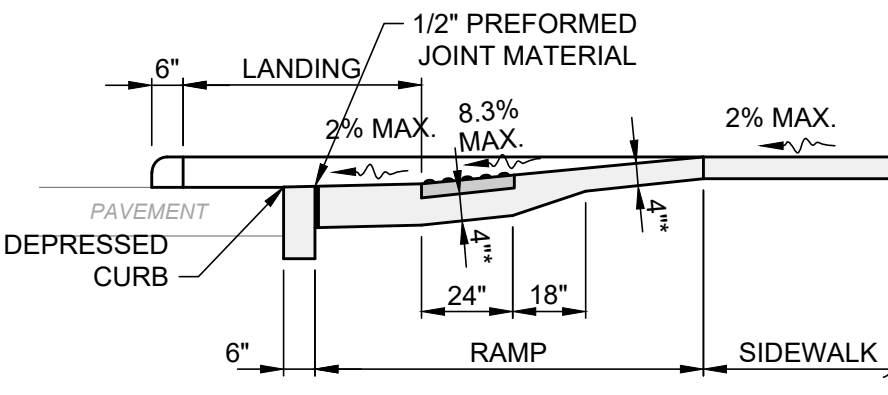
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RAMP TYPE C2
(COMBINED W/ RETURNED CURB)



SECTION B-B



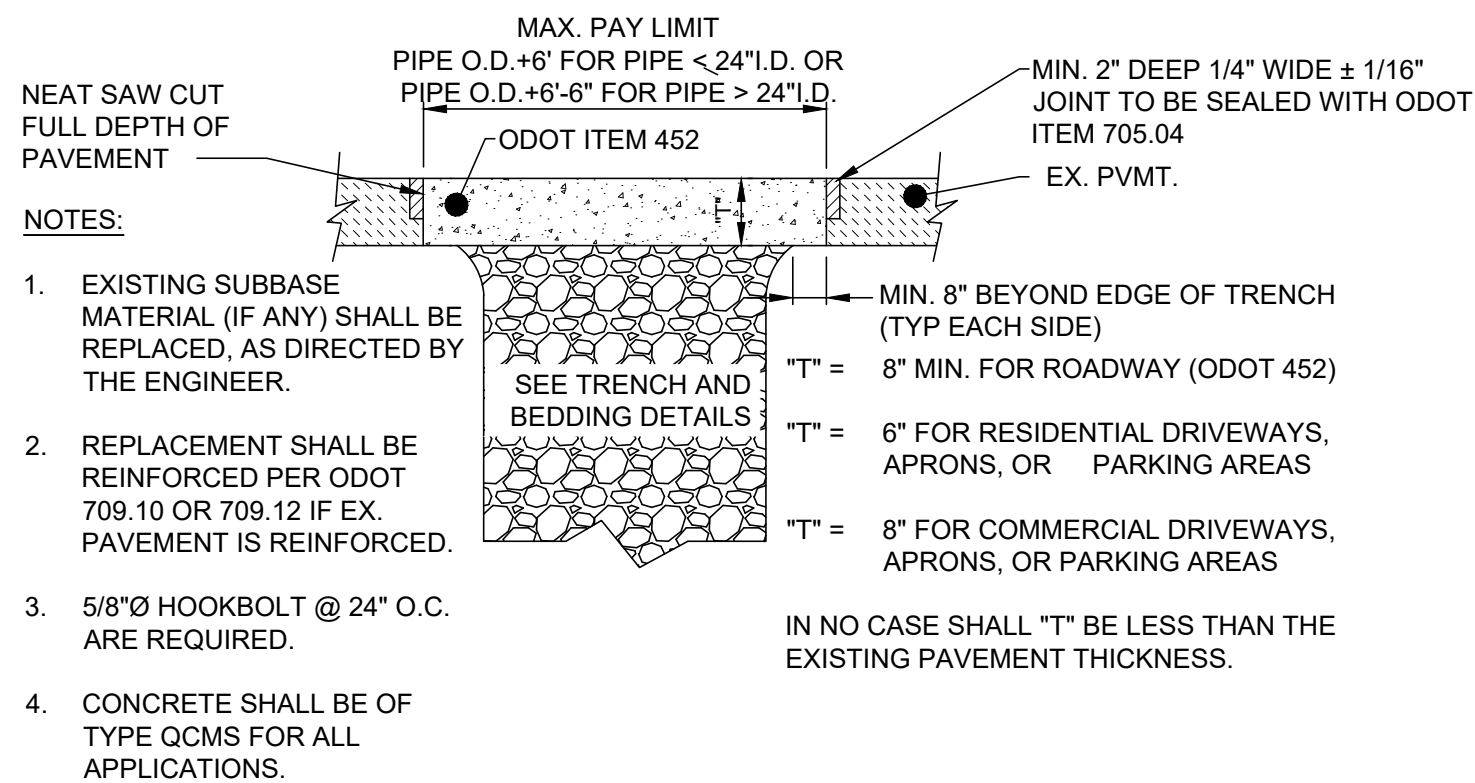
SECTION C-C

NOTES:

1. THIS DETAIL IS FOR REFERENCE ONLY; NOT ALL ITEMS MAY APPLY OR DIFFERENT CONFIGURATIONS MAY BE REQUIRED. SEE LAYOUT PLAN FOR RAMP TYPE, CONFIGURATION, DIMENSIONS AND DEPRESSED CURB LOCATION; GRADING PLAN FOR ELEVATIONS AND SLOPES; AND DETAIL SHEETS FOR APPLICABLE WALK AND CURB DETAILS.
2. LINES SHOWN IN THIS DETAIL INDICATE RAMP EDGES AND CHANGES IN SLOPE, AND NOT NECESSARILY JOINT LINES.
3. TEXTURE CONCRETE SURFACE BY COARSE BROOMING TRANSVERSE TO RAMP SLOPE.
4. ALL RAMPS SHALL BE POURED INTEGRAL WITH NEW CURBS WITH CURB EDGE FLUSH TO PAVEMENT.
5. TRUNCATED DOMES SHALL BE ALONG THE FULL RAMP WIDTH AND ALIGNED WITH THE PRIMARY RAMP DIRECTION.
6. TRUNCATED DOMES SHALL BE INSTALLED FLUSH WITH BACK OF CURB. IN SKEWED CONDITION, ONE CORNER OF THE STRIP MUST BE ADJACENT TO BACK OF CURB. TRUNCATED DOME MATERIALS SHALL BE MITERED AND PLACED SEGMENTALLY FOR NON-STANDARD LAYOUTS.
7. ONLY CAST-IN-PLACE TRUNCATED DOMES ARE ALLOWED.
8. TRUNCATED DOME COLOR SHALL BE BRIGHT RED, ORANGE RED OR FEDERAL YELLOW AND CONTRAST WITH CONCRETE.

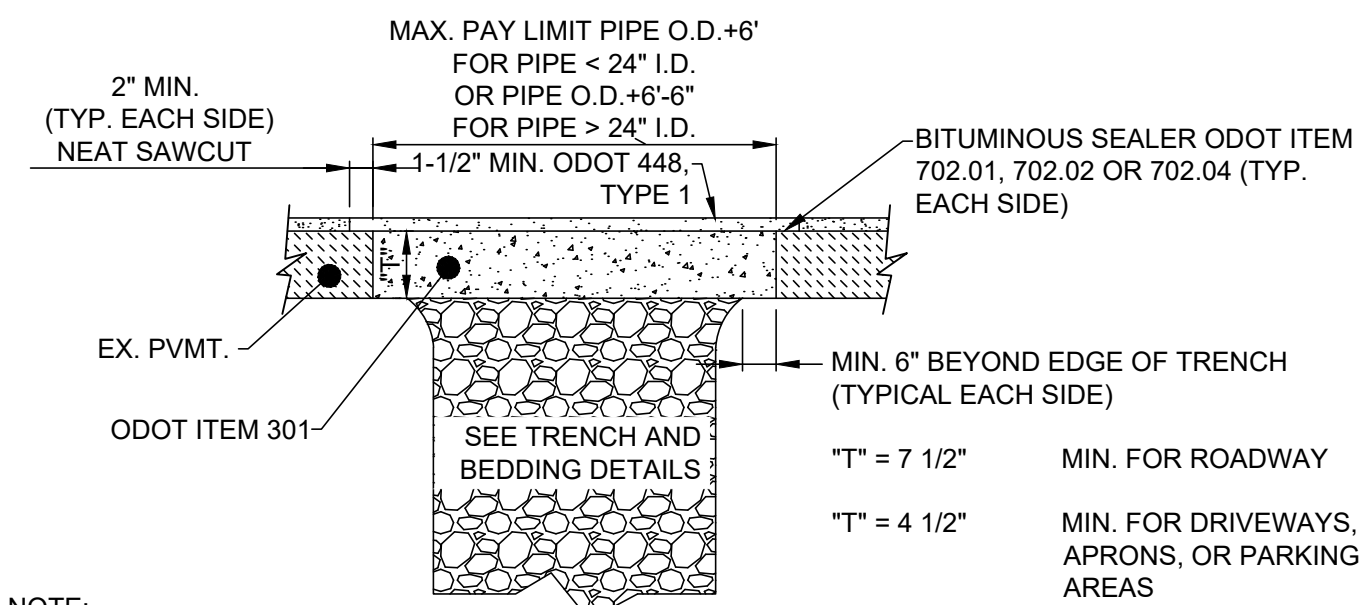
ACCESSIBLE CURB RAMPS DETAIL

SCALE: NONE



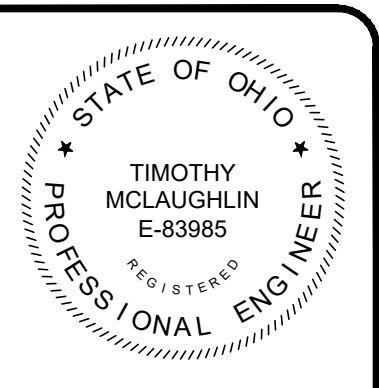
TYPE 'A' PAVEMENT (CONCRETE)
REPLACEMENT

NOT TO SCALE



TYPE 'C' PAVEMENT (ASPHALT)
REPLACEMENT

NOT TO SCALE



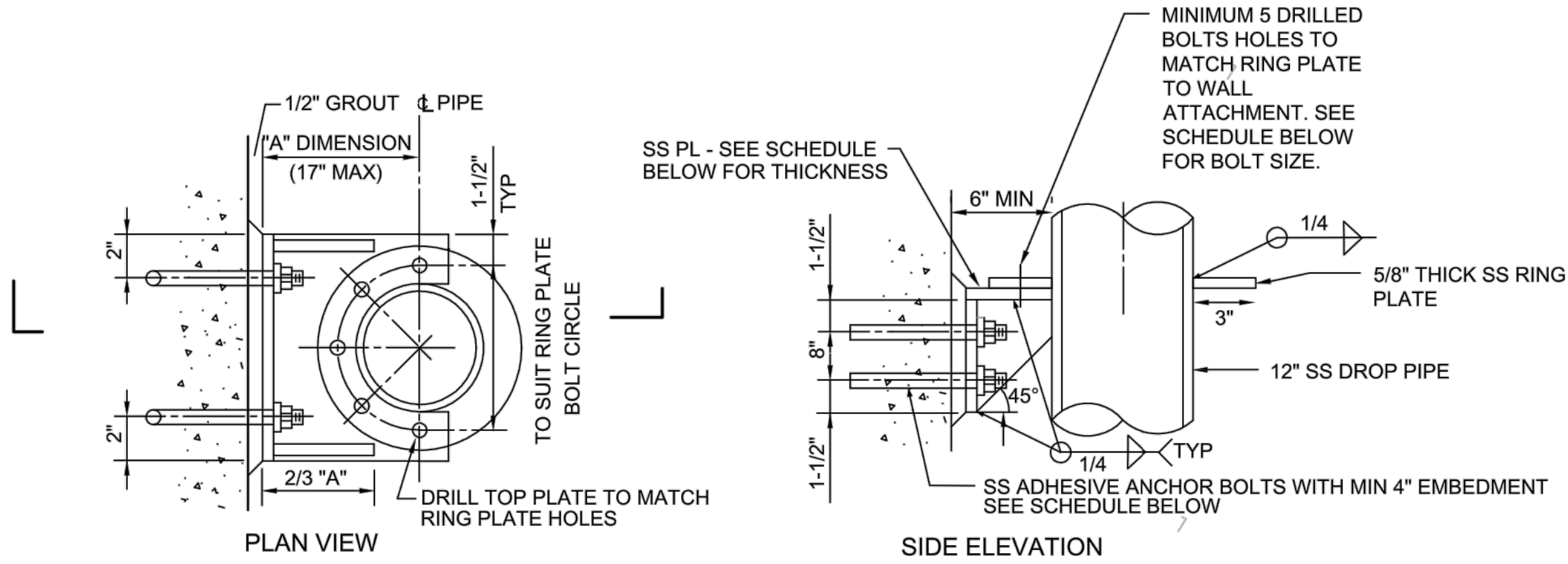
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MENTOR, OHIO 44060
(440) 951-9000

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NO	
SCALE	AS NOTED
DATE	5/5/2025
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CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY OHIO	CIVIL - 10 SERIES	CONSTRUCTION DETAILS - PAVEMENT
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PROJECT NO:	231100
DRAWING NAME	10C-16
SHEET	22
OF	31

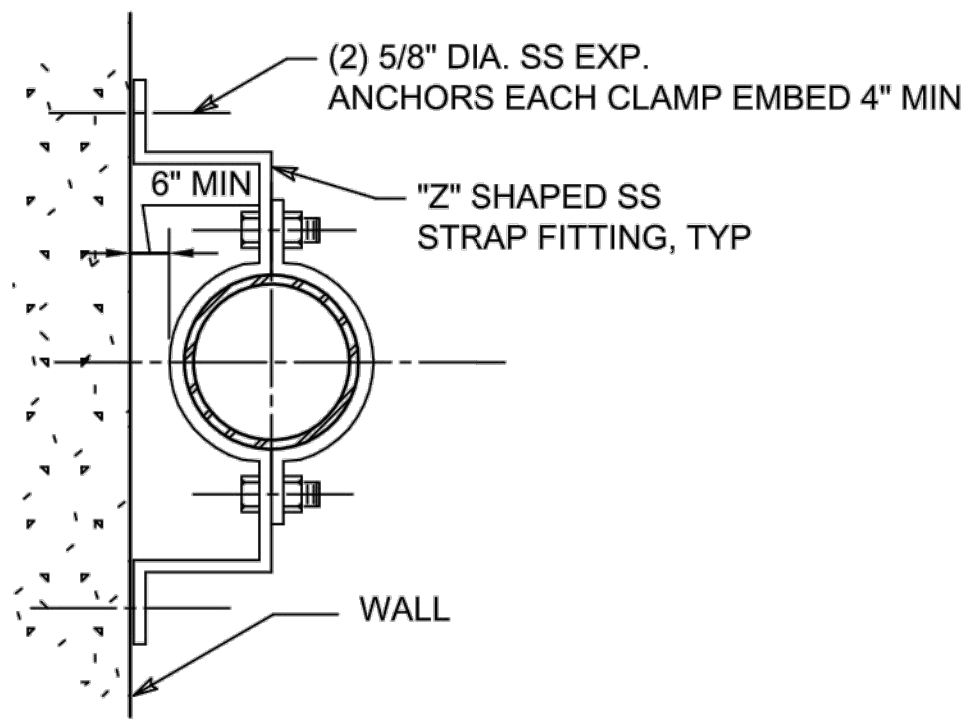


USE TYPE T ONLY WHERE SPECIFIED
ON THE DRAWINGS

TYPE T STRUCTURAL ATTACHMENT
NO SCALE

NOTES

- PLATES, ANGLE, ALL HARDWARE INCLUDING NUTS, BOLTS AND WASHERS SHALL BE STAINLESS STEEL.
- APPLY ANTI-GALLING COMPOUND AND TIGHTEN BOLTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- PRIOR TO FABRICATION, CONTRACTOR SHALL CONFIRM THAT THERE IS ADEQUATE PIPE TO WALL CLEARANCE SO PIPE CAN PASS BY EXISTING FEATURES OR OBSTRUCTIONS WITHOUT CHANGE IN LINE.

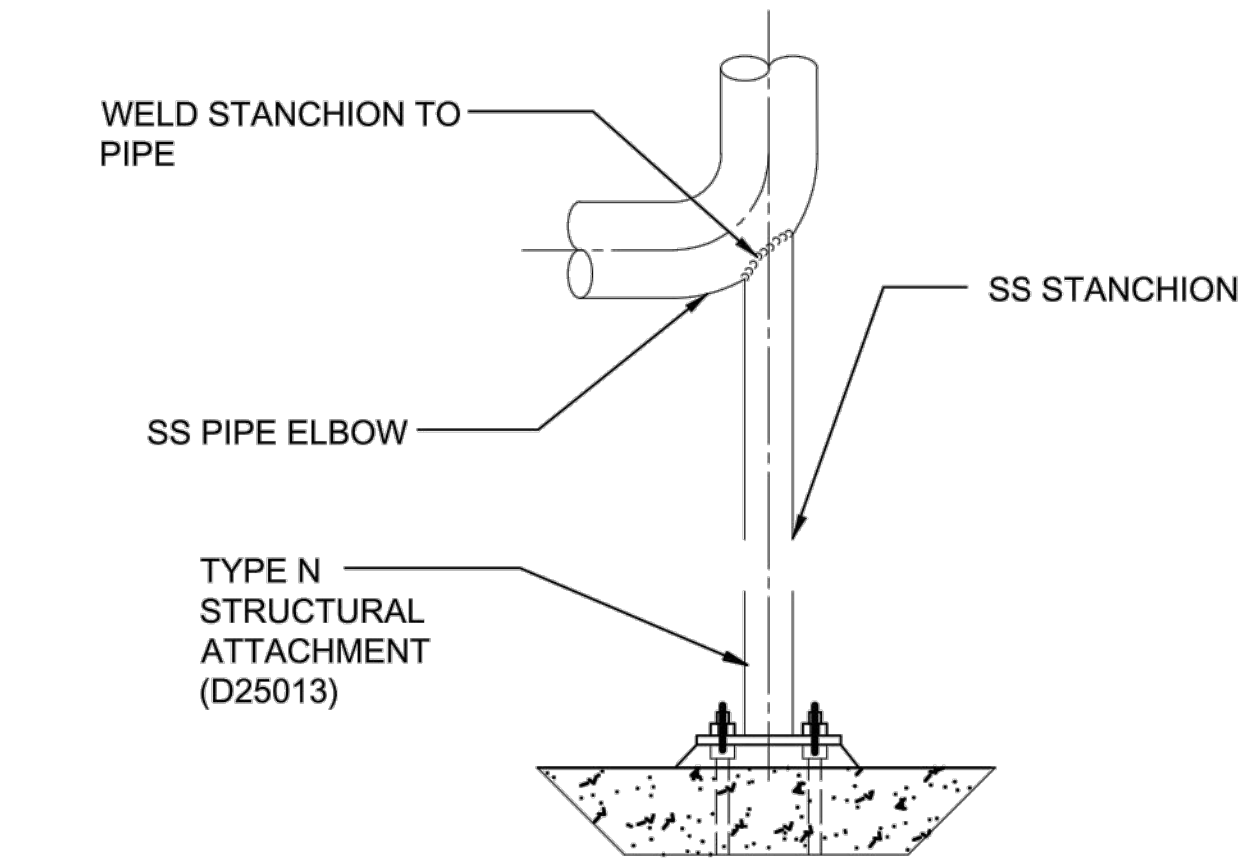


FOR VERTICAL PIPE ONLY 3/4" THROUGH 12" PIPE

TYPE 11 OFFSET PIPE CLAMP
NO SCALE

NOTES

- PIPE CLAMP SHALL BE CARBON STEEL WITH CONFIGURATION AND COMPONENTS AS SPECIFIED.
- PIPE CLAMP SHALL BE B-line B3148, GRINNELL FIG. 103, OR APPROVED EQUAL.
- TYPE 11 PIPE CLAMPS ARE RATED FOR LATERAL LOADS ONLY.
- PRIOR TO PROCUREMENT, CONTRACTOR SHALL CONFIRM THAT THERE IS ADEQUATE PIPE TO WALL CLEARANCE SO PIPE CAN PASS BY EXISTING FEATURES OR OBSTRUCTIONS WITHOUT CHANGE IN LINE.

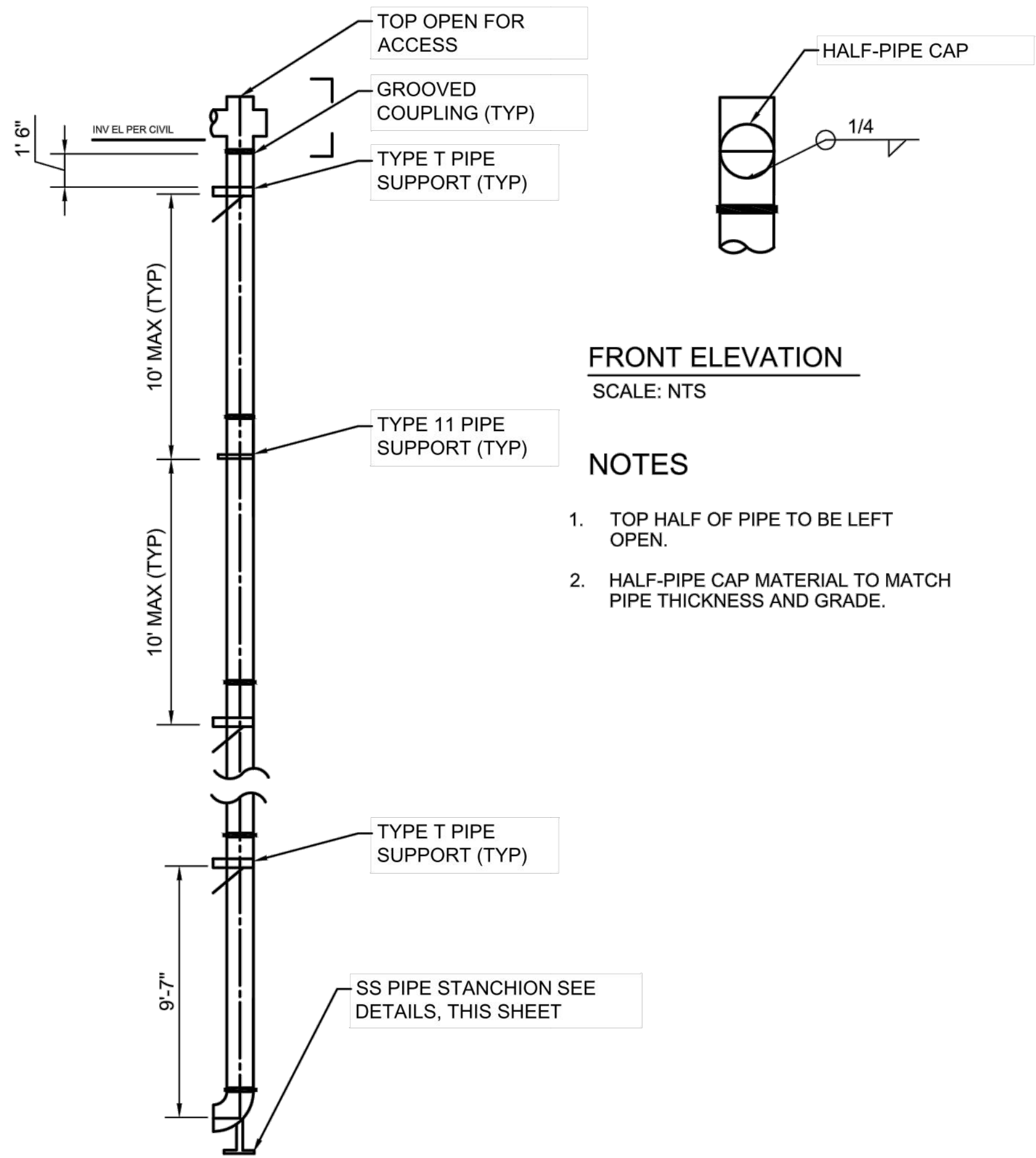


APPROXIMATE SIZES FOR STANCHION									
NPS OF PIPING (INCHES)	2-1/2	3	4	6	8	10	12	14	
NPS OF PIPE FORMING LEG (INCHES)	1-1/2	2	3	4	6	8	8	10	

NOTE: ABOVE SIZES ARE NOMINAL PIPE DIA IN INCHES

2 1/2" THROUGH 14" PIPE

TYPE 9 WELDED PIPE STANCHION
NO SCALE



FRONT ELEVATION

SCALE: NTS

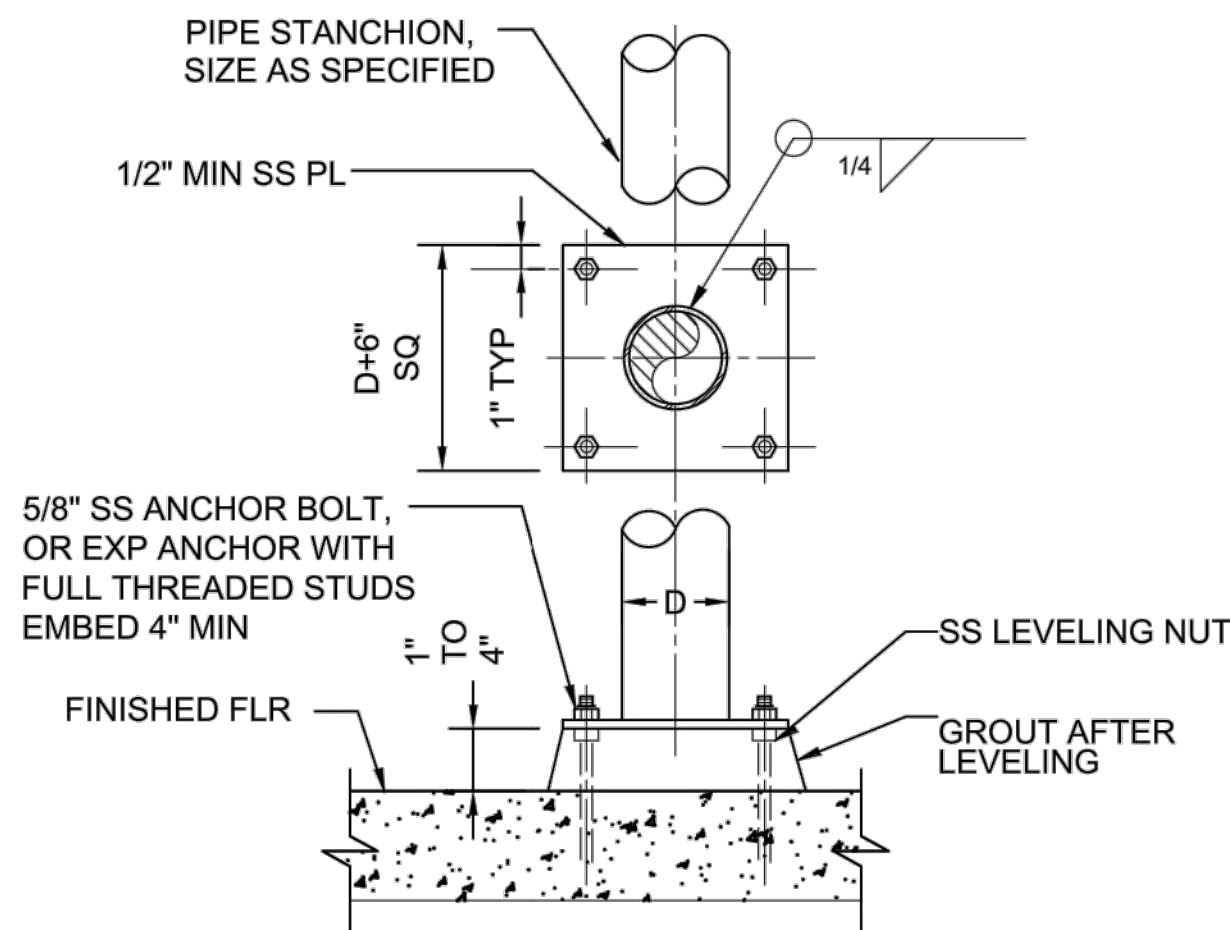
NOTES

- TOP HALF OF PIPE TO BE LEFT OPEN.
- HALF-PIPE CAP MATERIAL TO MATCH PIPE THICKNESS AND GRADE.

1
PIPE JOINT AND SUPPORT LAYOUT
SCALE: NTS

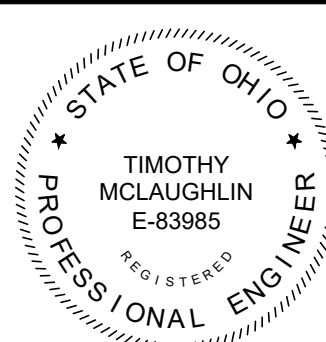
NOTES

- TYPE T AND TYPE 11 PIPE SUPPORTS ALTERNATE EVERY 10-FT MAX, ENDING IN A TYPE T PIPE SUPPORT.
- FIELD VERIFY DIMENSIONS AND CONDITIONS PRIOR TO WORK.
- GROOVED COUPLINGS SPECIFIED ELSEWHERE.



TYPE N PIPE STANCHION FLOOR ATTACHMENT

NO SCALE



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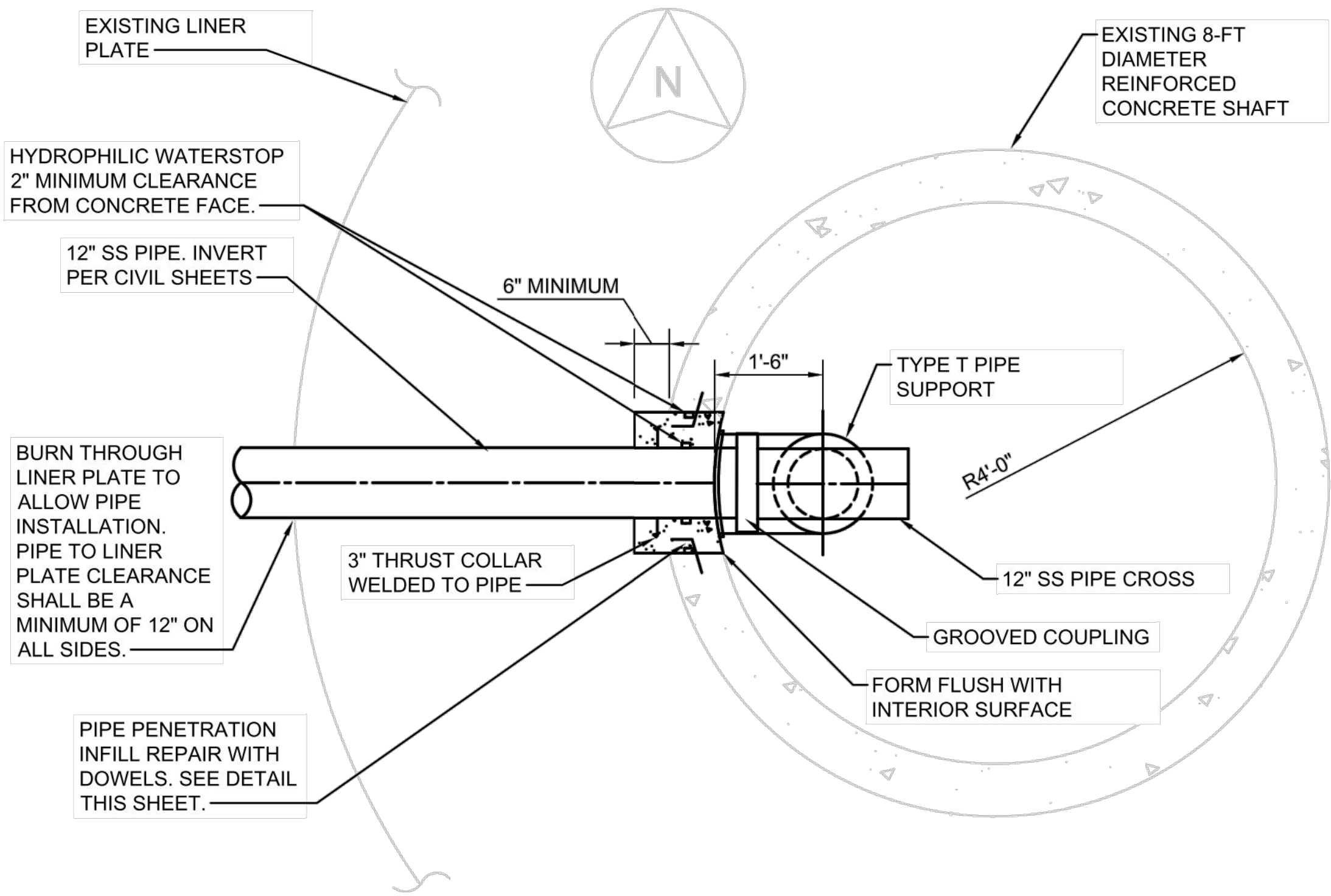
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CITY OF RICHMOND HEIGHTS	OHIO
ILJA - RICHMOND HEIGHTS	
SANITARY SEWER IMPROVEMENTS	
CUYAHOGA COUNTY	
DROP SHAFT CONNECTION - 20 SERIES	
PIPE SUPPORTS	

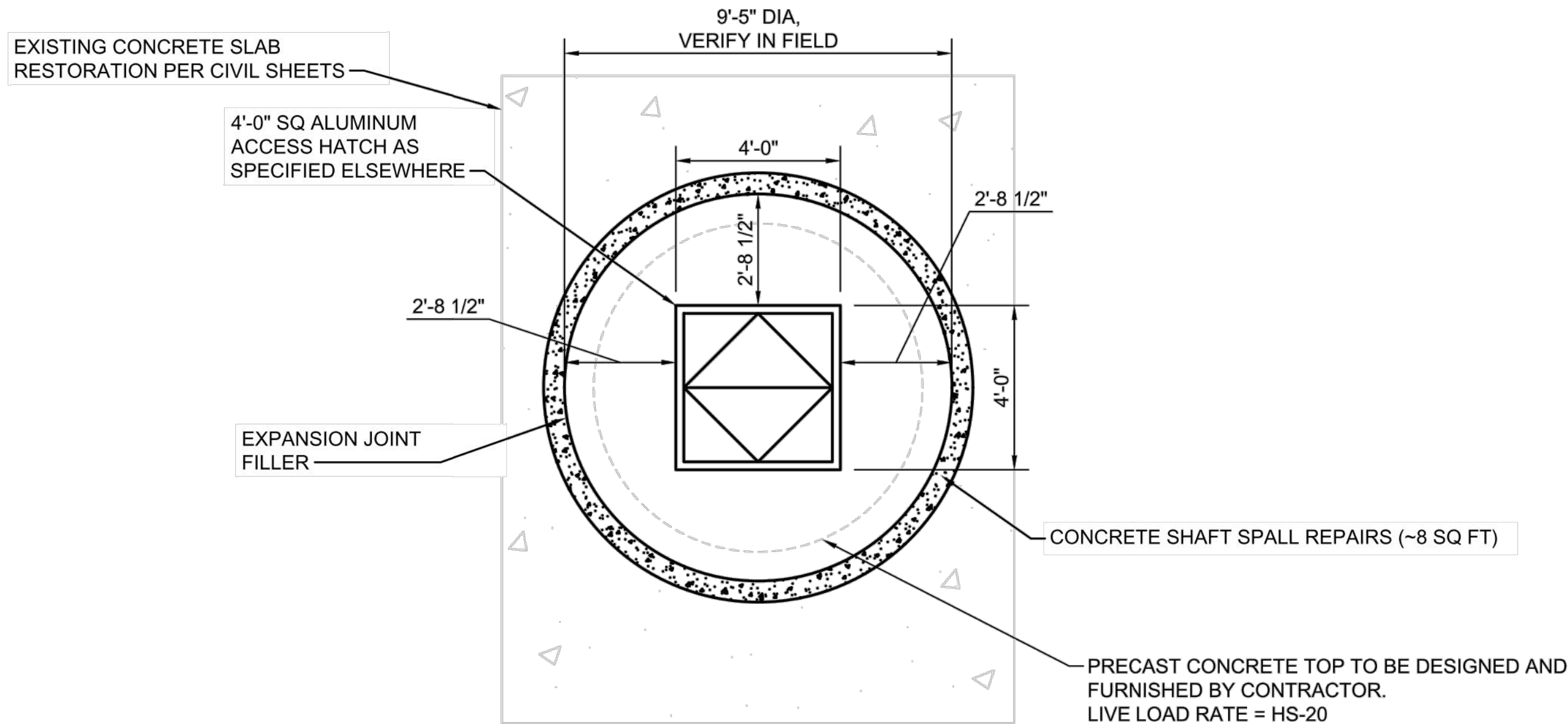
PROJECT NO:	231100
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PIPE PENETRATION DETAIL PLAN AT EL. 957.5'
SCALE: NTS

NOTES

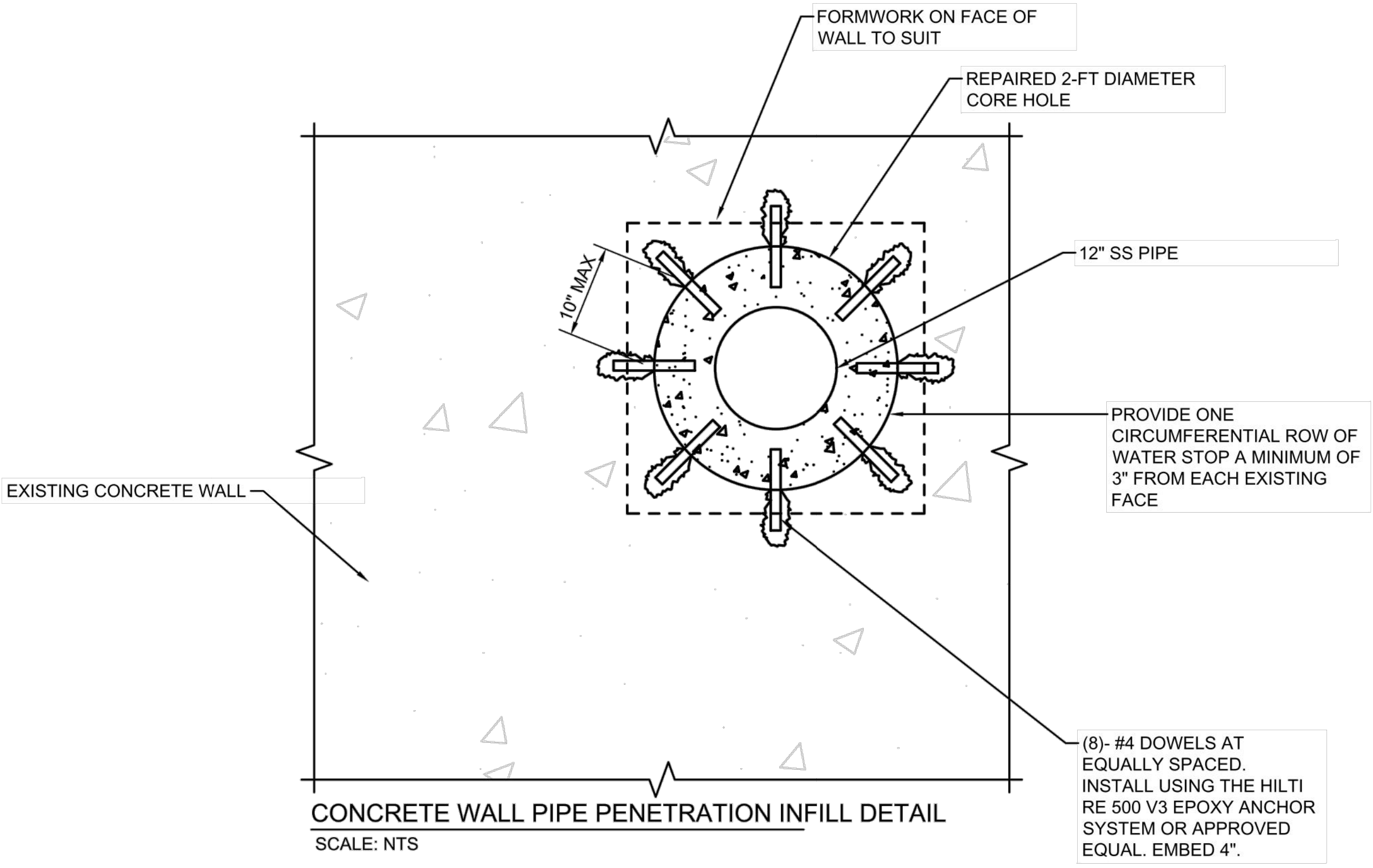
- 3-INCH MINIMUM CLEARANCE BETWEEN THRUST COLLAR AND DOWELS.
- 4-INCH MINIMUM COVER FOR THRUST COLLAR.
- THRUST COLLAR SHALL BE FIELD WELDED USING CONTINUOUS FILLET WELD EACH SIDE. THE THRUST COLLAR MATERIAL SHALL MEET OR EXCEED THE MATERIAL REQUIREMENTS OF THE PIPE. MINIMUM THRUST COLLAR THICKNESS SHALL BE 5/8". THRUST COLLAR SHALL ALSO FUNCTION AS WATER STOP ALONG PIPE.



TOP PLAN EL. 967
SCALE: NTS

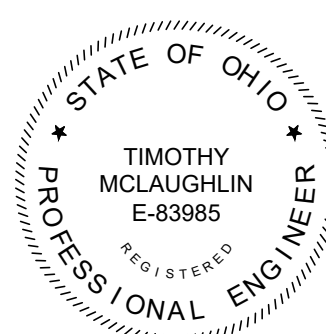


CONCRETE SHAFT DEMOLITION



NOTES

- SEE STRUCTURAL GENERAL NOTES FOR CONCRETE AND REBAR REQUIREMENTS.
- THRUST COLLAR (NOT SHOWN) SHALL BE PER DETAIL PLAN THIS SHEET.



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DATE	5/5/2025
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CITY OF RICHMOND HEIGHTS	
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ILJA - RICHMOND HEIGHTS	
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SANITARY SEWER IMPROVEMENTS	
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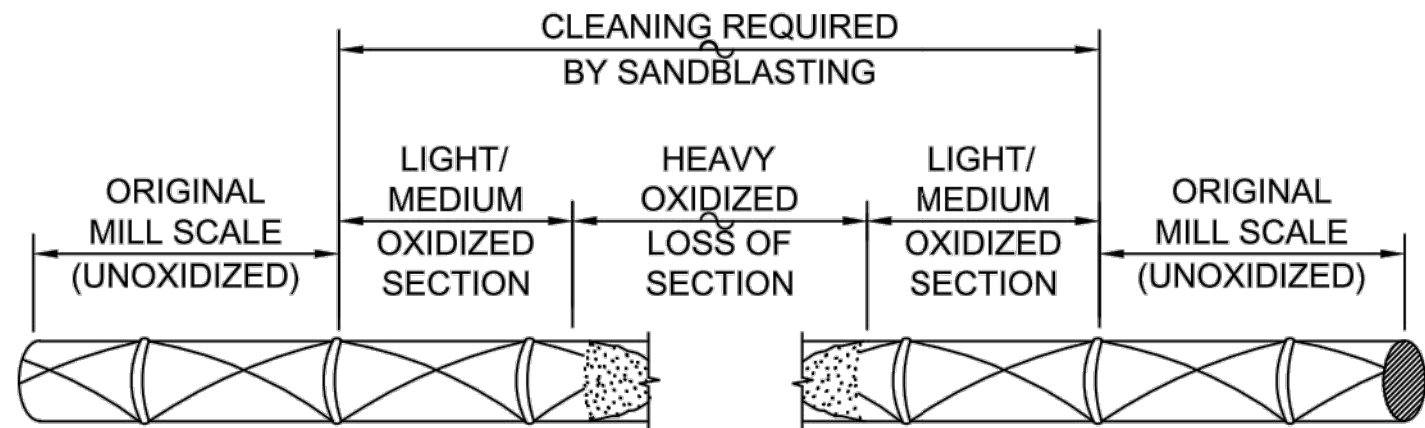
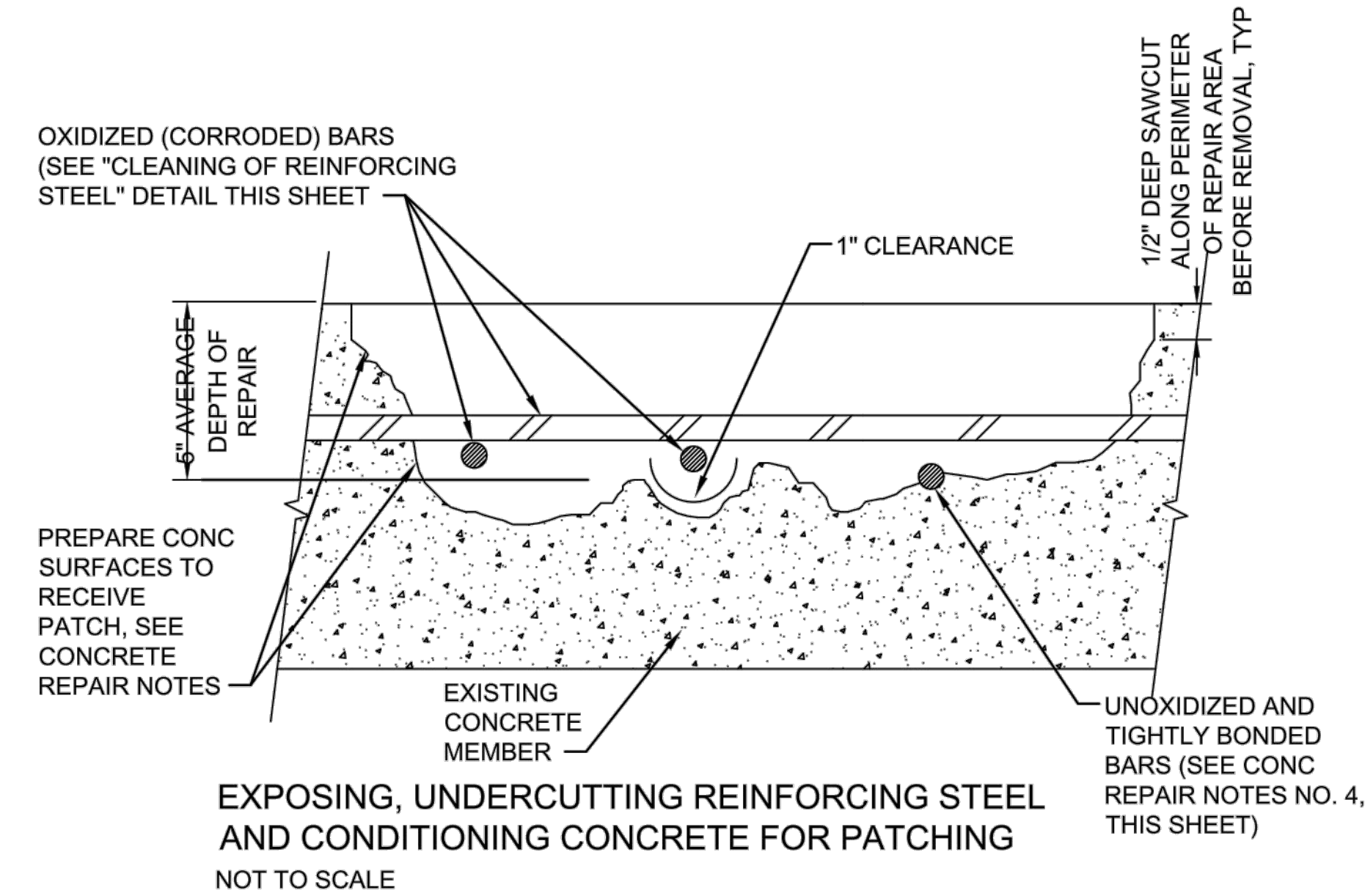
CUYAHOGA COUNTY	
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OHIO	
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PROJECT NO:	231100
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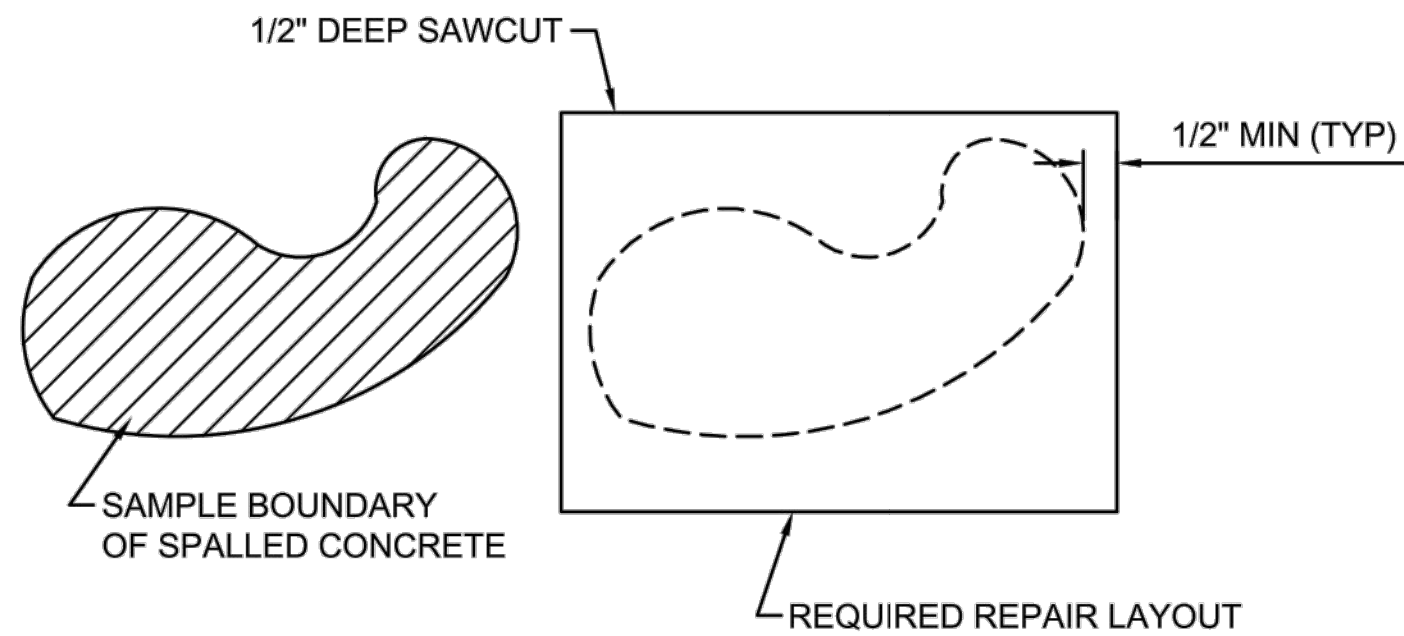
DRAWING NAME	20S-03
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SHEET	25
OF	31



CLEANING OF REINFORCING STEEL

NOT TO SCALE

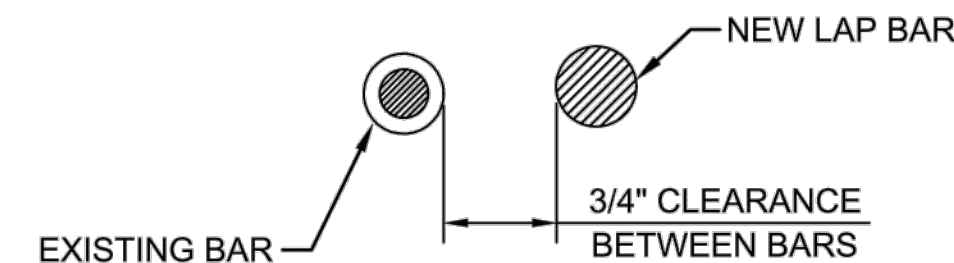
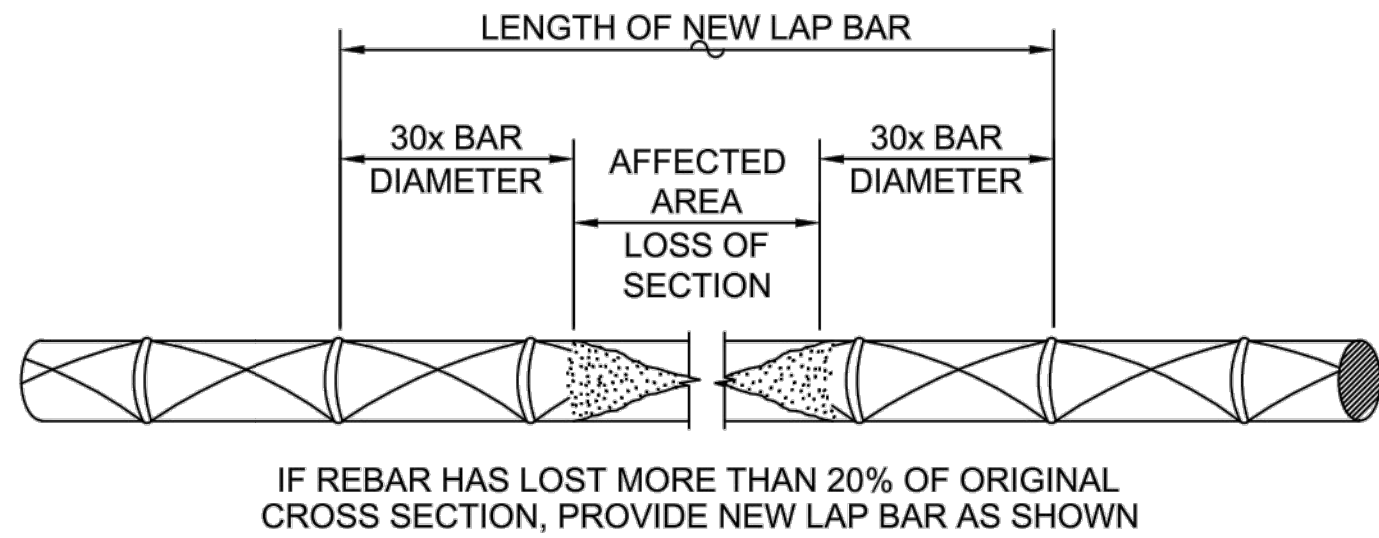


CONCRETE SPALL REPAIR PREPARATION DETAIL

NTS

CONCRETE REPAIR NOTES

- LOCATE AREAS OF CONCRETE WITH DELAMINATIONS, SPALLS, SCALING, AND UNSOUND CONCRETE. MARK ON SURFACE OF CONCRETE THE AREA TO BE REPAIRED AS SPECIFIED. PRIOR TO THE REMOVAL OF ANY CONCRETE, PROVIDE 24 HOURS NOTICE TO THE ENGINEER IN ORDER FOR THE ENGINEER AND CONTRACTOR TO VERIFY REPAIR LIMITS. SEE ALSO SECTION 03 01 00 CONCRETE REPAIR.
- SAWCUT PERIMETER OF AREA TO BE REPAIRED TO DEPTH OF 1/2" AS SHOWN. THE REPAIRED AREAS SHALL BE IN A RECTANGULAR SHAPE, WITH SAW CUTS AT RIGHT ANGLES.
- REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE OXIDIZED REINFORCING STEEL. ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED OXIDIZED (CORRODED) BARS. PROVIDE A MINIMUM OF 1" CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE
- IF UNOXIDIZED REINFORCING BARS ARE EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BARS BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR SHALL BE REQUIRED.
- INSTALL NEW REINFORCING BARS TO SUPPLEMENT EXISTING BARS WHICH HAVE LOST MORE THAN 20% OF THEIR CROSS SECTIONAL AREA. THE NEW REINFORCING BARS SHALL BE THE SAME DIAMETER AS THE EXISTING BAR, AND SHALL EXTEND A DISTANCE OF 30 TIMES THE BAR DIAMETER BEYOND BOTH SIDES OF THE AFFECTED AREA (SEE "REPAIR OF REINFORCING STEEL" DETAIL THIS SHEET).
- REMOVE ALL RUST AND LAITANCE FROM EXPOSED REINFORCING STEEL TO EXPOSED BARE METAL BY SANDBLASTING AS SPECIFIED. (SEE "CLEANING OF REINFORCING STEEL" DETAIL FOR EXTENT OF CLEANING REQUIRED). COAT REINFORCING WITH CORROSION INHIBITOR PER DETAIL S22003.
- REMOVE ALL BOND INHIBITING MATERIALS FROM CONCRETE INCLUDING, BUT NOT LIMITED TO, DIRT, CONCRETE SLURRY, AND LOOSELY BONDED AGGREGATE, BY ABRASIVE BLASTING OR HIGH PRESSURE WATERBLASTING. CHECK THE SURFACE AFTER CLEANING TO ENSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE AND THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
- PRIOR TO ANY PATCHING OF CONCRETE, PROVIDE 24 HOUR NOTICE TO THE MANUFACTURER AND ENGINEER FOR INSPECTION OF THE REPAIRED LIMITS AND TO QUANTIFY REPAIR AREAS WITH THE CONTRACTOR FOR PAYMENT.
- CONCRETE REPAIR MORTAR SHALL BE AS SPECIFIED IN SPECIFICATION SECTION 03 01 30.
- THESE DETAILS APPLY TO THE CONCRETE REPAIRS THROUGHOUT THE FACILITY. THESE MISCELLANEOUS AREAS SHALL BE ASSUMED TO BE IN SPACES THAT MAY OFTEN REQUIRE CONFINED SPACE ENTRY.

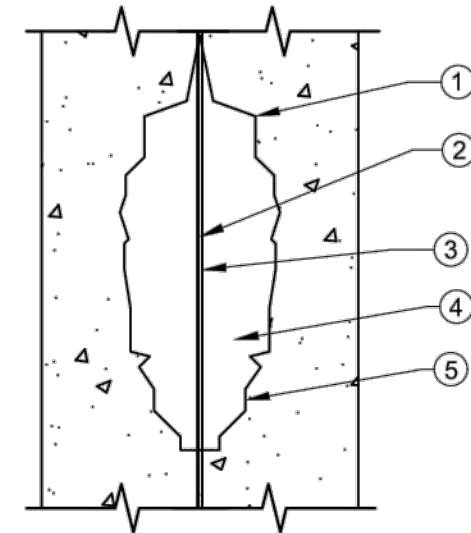


REPAIR OF REINFORCING STEEL DUE TO LOSS OF SECTION

NOT TO SCALE

SUPPLEMENTAL REINFORCING STEEL DETAIL

NTS



NOTES:

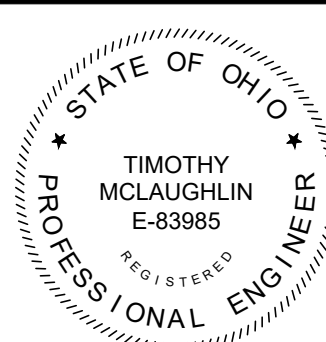
- REMOVE ALL CORROSION, FOREIGN MATERIALS, AND UNSOUND CONCRETE FROM AREA BEING REPAIRED BY MEANS OF ABRASIVE BLASTING OR HYDRO BLASTING.
- APPLY CORROSION INHIBITOR USING ROLLERS, BRUSHES OR HAND PRESSURE SPRAY EQUIPMENT TO ACHIEVE COVERAGE OF 100 SQUARE FEET PER GALLON. APPLY MINIMUM OF TWO COATS, ALLOWING CORROSION INHIBITOR TO SOAK INTO SUBSTRATE BETWEEN APPLICATIONS. ALLOW 24 HOURS OF CURING OF FINAL COAT OF CORROSION INHIBITOR.
- PROVIDE A HIGH PRESSURE WASH TO SURFACE TO BE REPAIRED TO REMOVE FILMY RESIDUE FROM CORROSION INHIBITOR.
- SURFACE SHALL BE PREPARED PER ANTI-CORROSION COATING MANUFACTURER'S RECOMMENDATIONS.
- INSTALL ANTI-CORROSION COATING PER THE MANUFACTURER'S REQUIREMENTS.

ANTI-CORROSION REBAR DETAIL

NTS

SUPPLEMENTAL REINFORCING		
BAR SIZE	ORIGINAL DIA (IN)	MIN CROSS-SECTIONAL DIMENSION (IN)
#3	0.375	0.335
#4	0.500	0.447
#5	0.625	0.559
#6	0.750	0.671
#7	0.875	0.783
#8	1.000	0.894
#9	1.128	1.009
#10	1.270	1.136

SUPPLEMENTAL REINFORCING SHALL BE PROVIDED WHEN EXISTING REINFORCING STEEL HAS CORRODED SO THAT THE SMALLEST CROSS-SECTIONAL DIMENSION IS LESS THAN THAT SHOWN IN THIS TABLE. VALUES SHOW CORRELATE TO A CROSS-SECTIONAL AREA LOSS OF 20%.



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CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

DROP SHAFT CONNECTION - 20 SERIES

STRUCTURAL DETAILS

PROJECT NO:

231100

DRAWING NAME

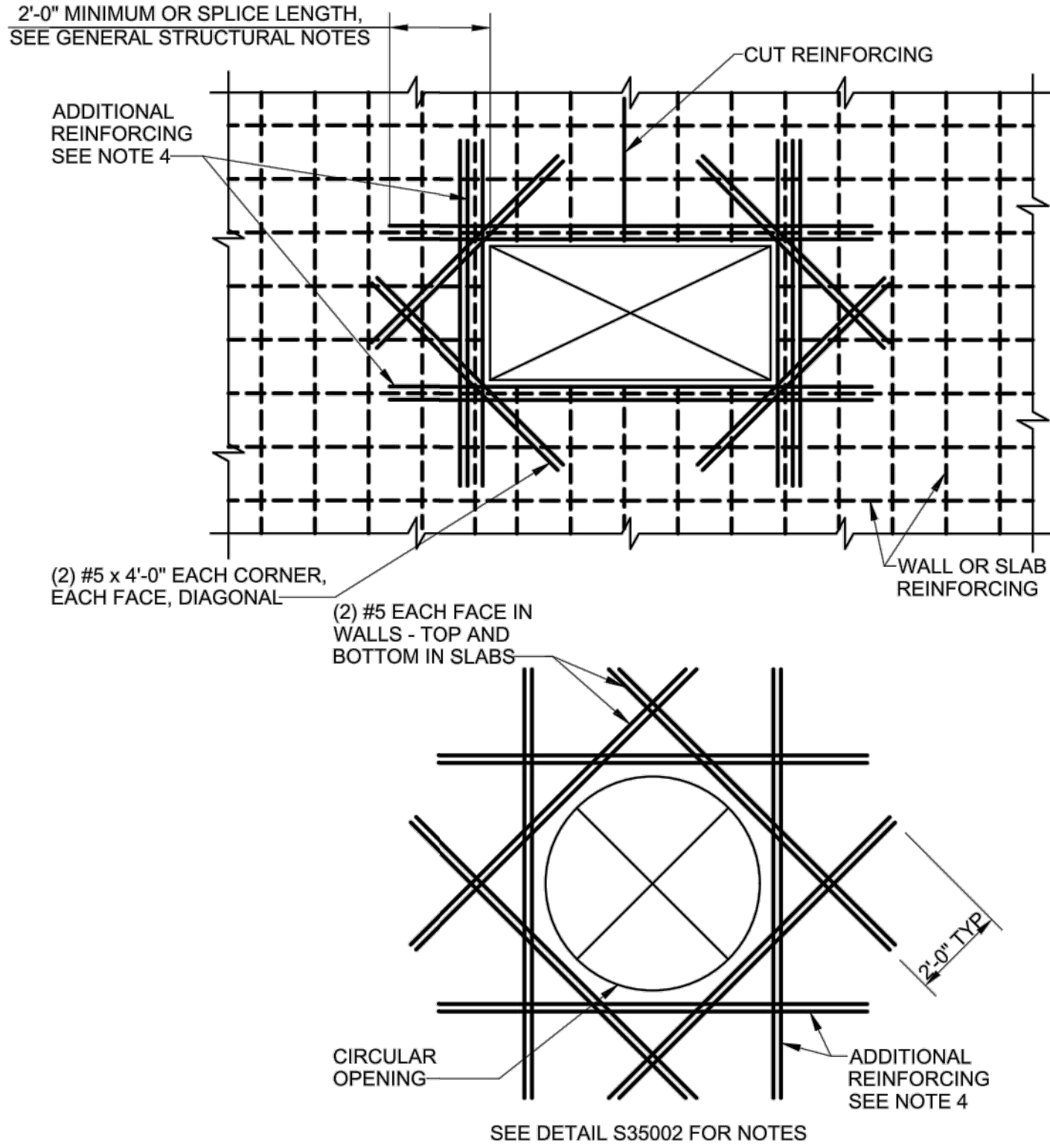
20S-04

SHEET

OF

26

31

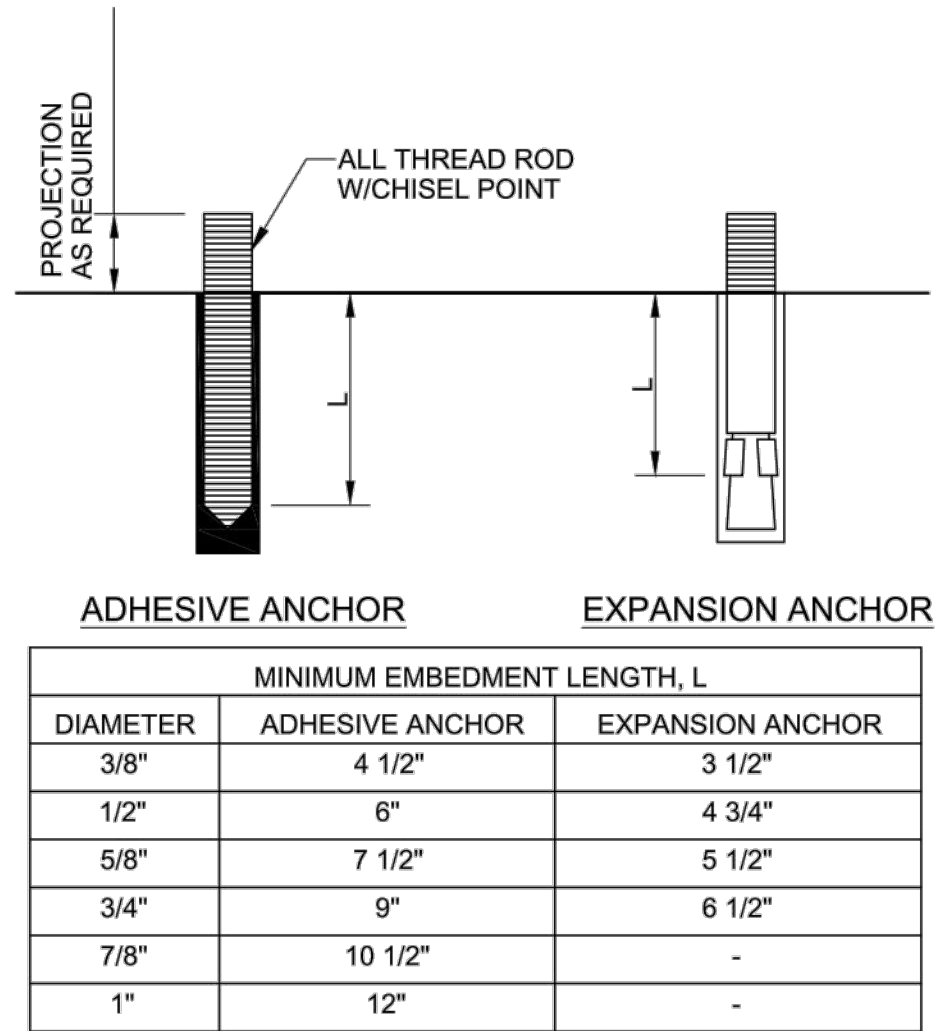


ADDITIONAL REINFORCING AT OPENINGS
NTS

ADDITIONAL REINFORCING NOTES:

- THIS DETAIL APPLIES TO OPENINGS UP TO 3'-0" MAXIMUM DIMENSION, UNLESS OTHERWISE SHOWN ON THE DRAWINGS. AT OPENINGS 12" OR LESS, NO ADDITIONAL #5 DIAGONAL REINFORCING IS REQUIRED UNLESS NOTED OTHERWISE. REINFORCING SHALL BE OFFSET, STILL MAINTAINING REQUIRED SPACING, TO ALLOW FOR OPENING WHERE PRACTICAL, OR CUT AT THE OPENING AND ADDITIONAL REINFORCING ADDED PER NOTE 4.
- OPENINGS ARE NOT ALL SHOWN ON STRUCTURAL DRAWINGS. PROVIDE OPENINGS IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL, AND OTHER CONTRACT DRAWINGS.
- ADDITIONAL REINFORCEMENT MAY BE OMITTED WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
- ADDITIONAL REINFORCING (4) SIDES OF OPENING, EACH FACE, EQUAL TO NUMBER AND SIZE OF CUT REINFORCING. WHERE AN ODD NUMBER OF REBAR ARE CUT, PROVIDE (ODD NO. +1)/2 EACH SIDE OF OPENING (MIN 2 ADDITIONAL BARS EACH SIDE).
- MINIMUM SPACING BETWEEN OPENINGS TO BE 2X MAXIMUM OPENING SIZE.
- OPENINGS SPACED CLOSER THAN THE MINIMUM SPACING SHALL BE REINFORCED AS A SINGLE OPENING.
- OPENINGS LARGER THAN ALLOWED ON THIS DETAIL REQUIRE CONSULTATION WITH THE STRUCTURAL ENGINEER.

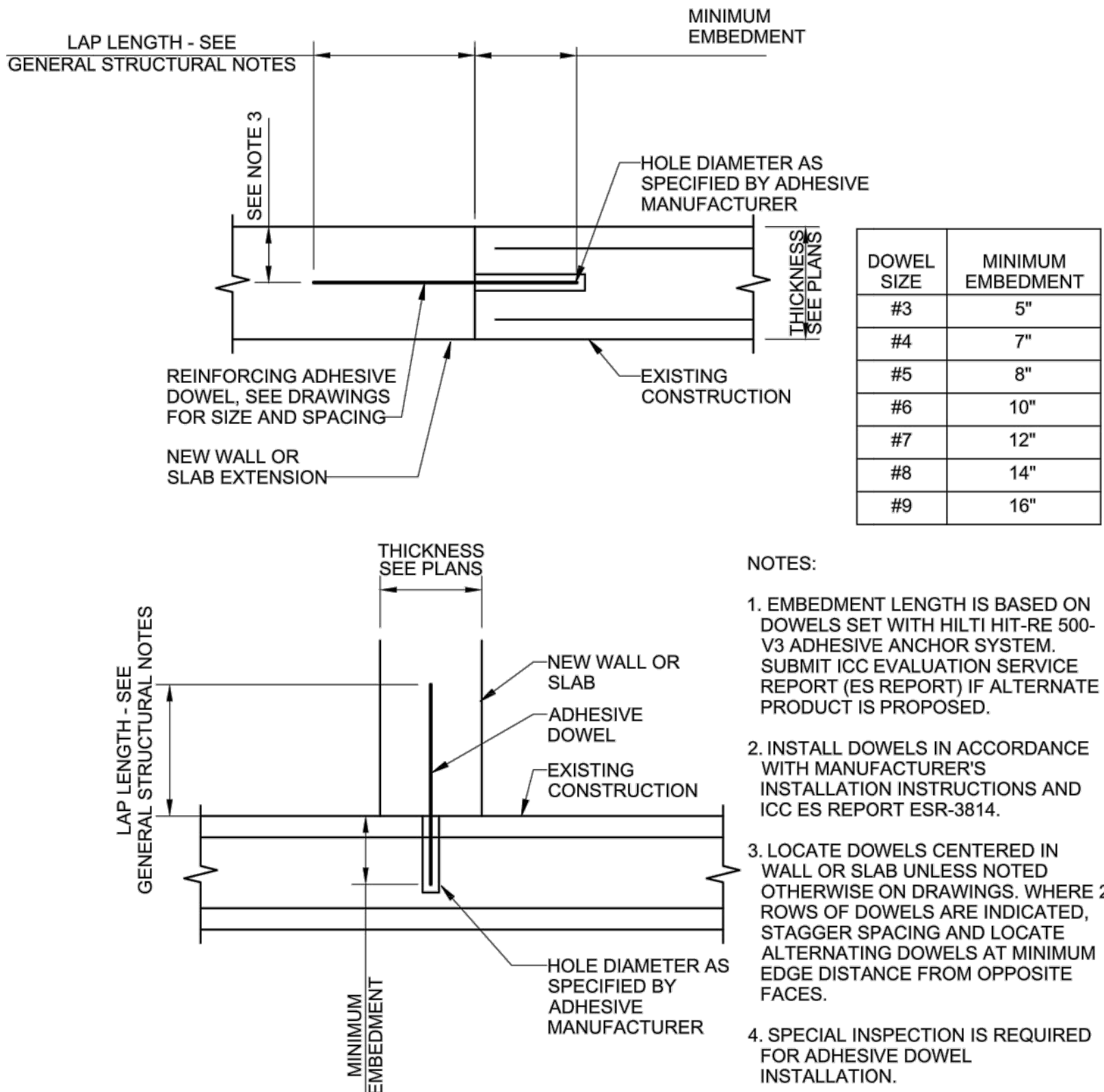
ADDITIONAL REINFORCING AT OPENINGS NOTES
NTS



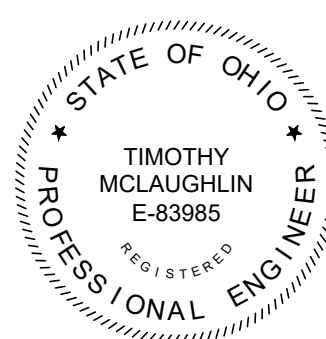
NOTES:

- CONFORM TO ICC EVALUATION SERVICE REPORT (ES REPORT) REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
- PROVIDE TYPE 316 STAINLESS STEEL ALL-THREAD ROD MATERIAL.
- PROVIDE HOLE DIAMETER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
- EXPANSION ANCHOR EMBEDMENT LENGTHS ARE BASED ON HILTI KWIK BOLT TZ STAINLESS STEEL ANCHORS. SUBMIT ICC EVALUATION SERVICE REPORT (ES REPORT) FOR ALTERNATE PRODUCTS.
- ADHESIVE ANCHOR EMBEDMENT LENGTHS ARE BASED ON HILTI HIT-RE 500-V3 ADHESIVE. SUBMIT ICC ES REPORT FOR ALTERNATE PRODUCTS.

S38501 - CONCRETE ANCHORS
NTS



S38001 - REBAR DOWELS SET WITH ADHESIVE
NTS



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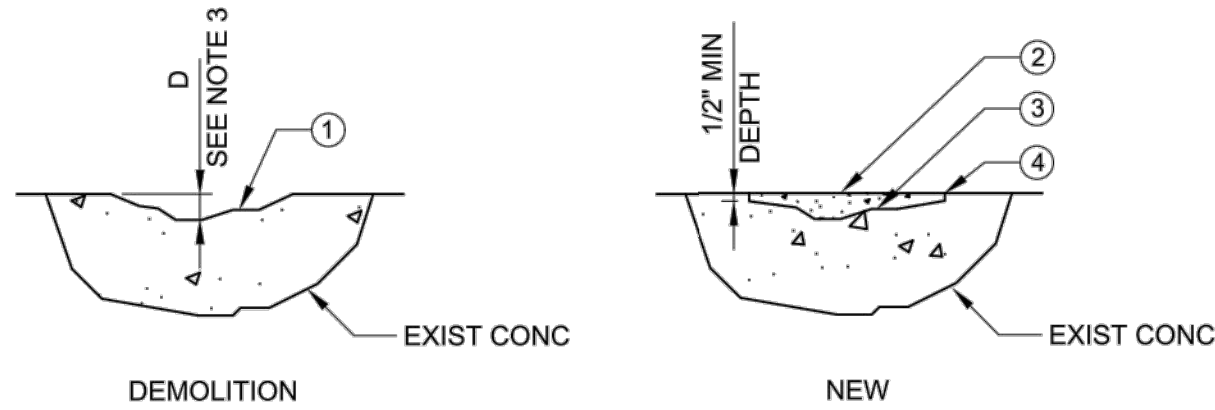
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CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY OHIO

DROP SHAFT CONNECTION - 20 SERIES

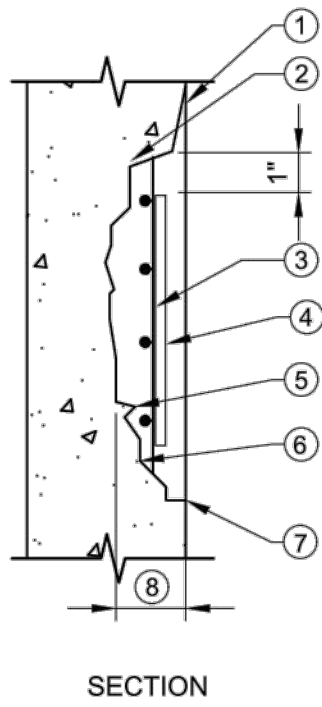
STRUCTURAL DETAILS

PROJECT NO:	
231100	
DRAWING NAME	
20S-05	
SHEET	OF
27	31



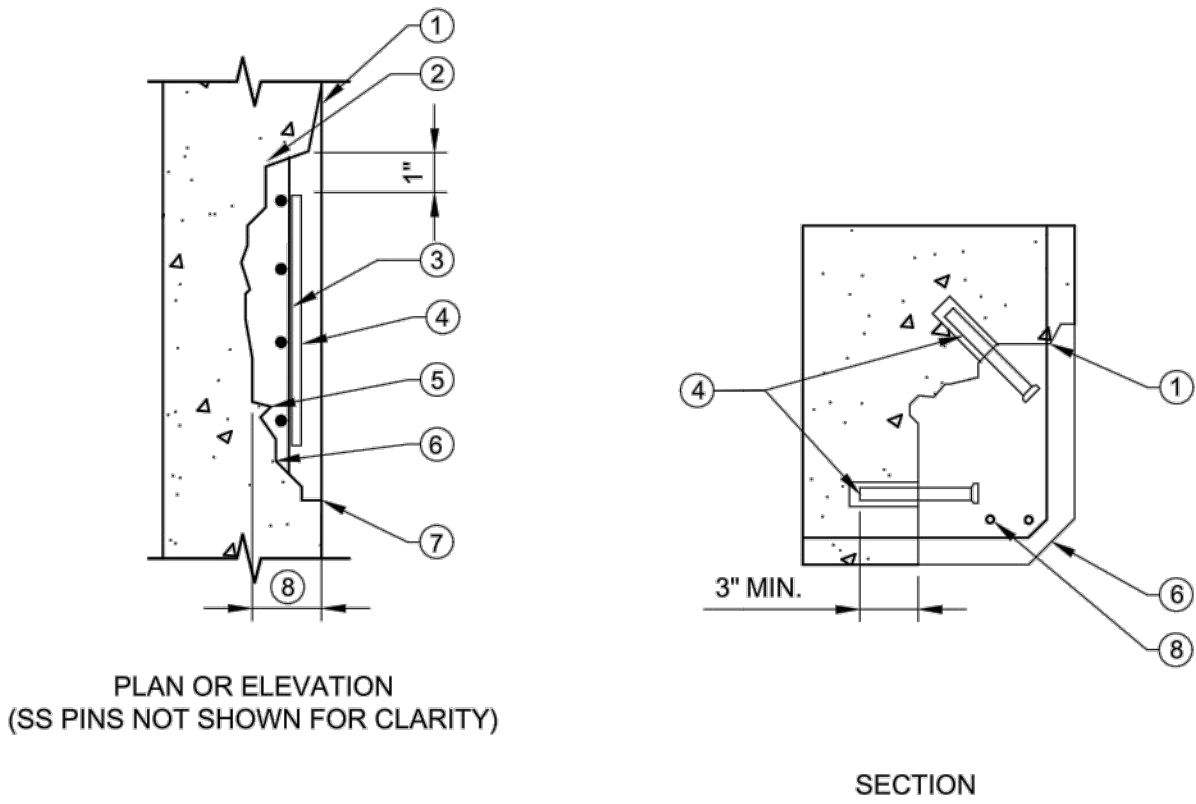
- NOTES:
1. REMOVE UNSOUND MATERIALS BY APPROVED MEANS TO OBTAIN A SURFACE PROFILE OF 1/8" IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE AND CLEAN SUBSTRATE. REBAR EXPOSED DURING REMOVAL OPERATIONS SHALL BE CLEANED AND PROTECTED WITH A ANTI-CORROSION COATING. SEE SPECIFICATIONS.
 2. POLYMER MODIFIED REPAIR MORTAR, SEE SPECIFICATIONS. SURFACE SHALL BE FINISHED TO MATCH ADJACENT CONCRETE SURFACE.
 3. EPOXY BONDING AGENT.
 4. SAWCUT AROUND PERIMETER TO PROVIDE 1/2" MIN MATERIAL DEPTH.

**TYPICAL CONCRETE SURFACE
(D ≤ 2") SPALL REPAIR DETAIL**
NTS



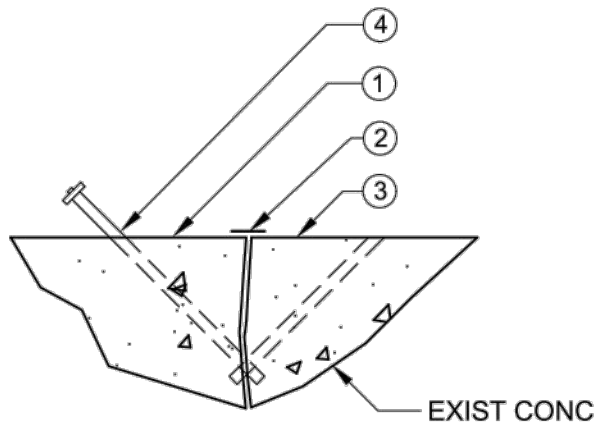
- NOTES:
1. DO NOT CUT REINFORCING UNLESS NECESSARY TO REMOVE ALL DETERIORATED CONCRETE.
 2. REMOVE ALL DETERIORATED CONCRETE TO SOUND CONCRETE. CHIP CONCRETE SUBSTRATE TO OBTAIN A SURFACE PROFILE OF 1/8" IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE.
 3. WHERE REINFORCING STEEL WITH ACTIVE CORROSION IS ENCOUNTERED, CONTRACTOR SHALL PREPARE REINFORCING PER DETAILS S22002, S22003, AND S22004 ON SHEET [S-003].
 4. SUPPLEMENTAL REINFORCING AS REQUIRED. FOR BID PURPOSES, ONLY ASSUME 4 LBS OF REINFORCEMENT PER SF OF REPAIR AREA.
 5. SURFACE SHALL BE DAMP BUT FREE OF STANDING WATER.
 6. INSTALL CONCRETE SPALL REPAIR MATERIAL PER THE MANUFACTURER'S REQUIREMENTS.
 7. REFER TO SHEET [S-003] FOR ADDITIONAL CONCRETE NOTES, SPECIFIED PRODUCTS AND REQUIREMENTS FOR COORDINATION OF WORK.
 8. FOR BID PURPOSES, ASSUME AVERAGE DEPTH OF REPAIR IS 6 INCHES.

**TYPICAL CONCRETE FORMED (2" < D ≤ 6")
SPALL REPAIR DETAIL**
NTS

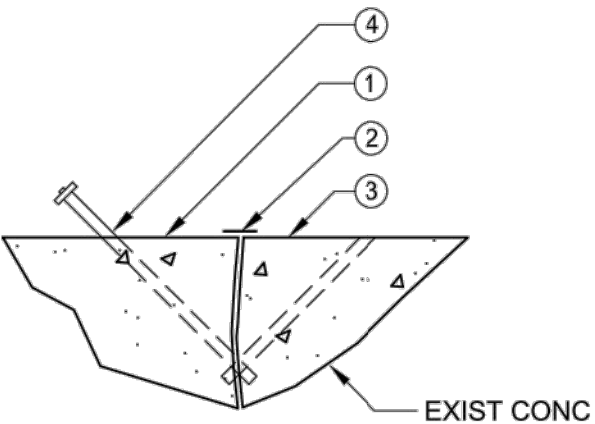


- NOTES:
1. SCORE-CUT PERIMETER OF REPAIR AREA AS GENERAL SHOWN. DO NOT CUT REINFORCING UNLESS NECESSARY TO REMOVE ALL DETERIORATED CONCRETE.
 2. REMOVE ALL DETERIORATED CONCRETE TO SOUND CONCRETE. CHIP CONCRETE SUBSTRATE TO OBTAIN A SURFACE PROFILE OF 1/8" IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE.
 3. WHERE REINFORCING STEEL WITH ACTIVE CORROSION IS ENCOUNTERED, CONTRACTOR SHALL PREPARE REINFORCING PER DETAILS S22002, S22003, AND S22004 ON SHEET [S-003].
 4. 1/4" DIAMETER STAINLESS STEEL PINS AT 12" SPACING STAGGERED, WITH MINIMUM EMBEDMENT MATERIALS AS SPECIFIED FOR ADHESIVE MATERIALS.
 5. SURFACE SHALL BE DAMP BUT FREE OF STANDING WATER.
 6. FORMED SURFACE WITH CHAMFER TO MATCH EXISTING CONCRETE SURFACE.
 7. INSTALL CONCRETE SPALL REPAIR MATERIAL PER THE MANUFACTURER'S REQUIREMENTS.
 8. SUPPLEMENTAL REINFORCING AS REQUIRED. FOR BID PURPOSES, ONLY ASSUME 4 LBS OF REINFORCEMENT PER SF OF REPAIR AREA.
 9. FOR BID PURPOSES, ASSUME AVERAGE DEPTH OF REPAIR IS 6 INCHES.

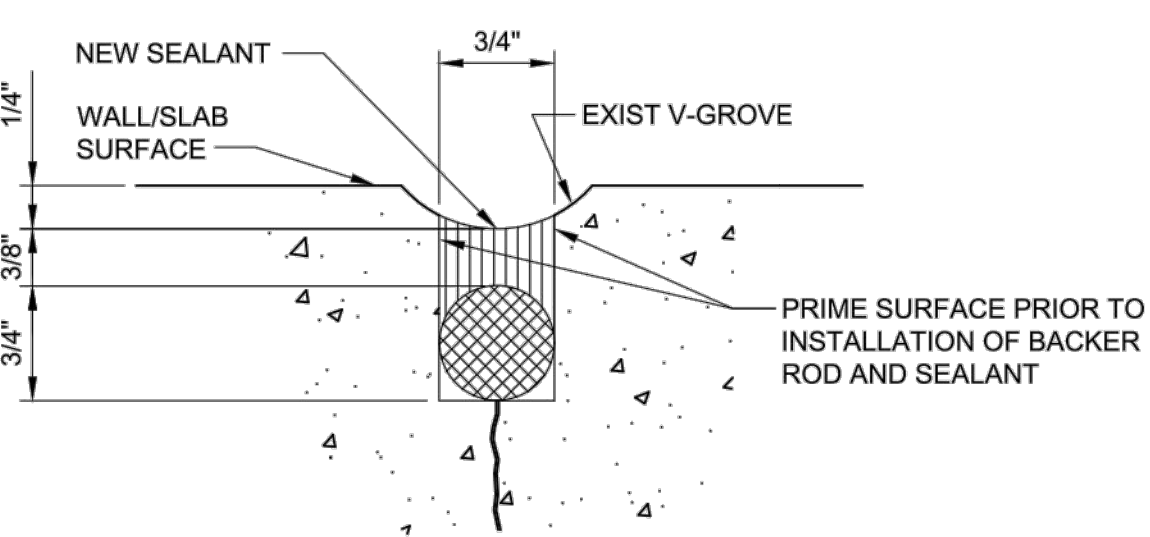
**TYPICAL CONCRETE CORNER
SPALL REPAIR DETAIL**
NTS



- NOTES:
1. DRILL AND INSTALL INJECTION POINTS PER MFR RECOMMENDATIONS, TYP.
 2. SEAL CRACK SURFACE PER MFR RECOMMENDATIONS.
 3. FACE OF EXISTING CONCRETE.
 4. REMOVE INJECTION PORT AND PATCH CONCRETE SURFACE PER MFR RECOMMENDATION, TYP.



- NOTES:
1. DRILL AND INSTALL INJECTION POINTS PER MFR RECOMMENDATIONS, TYP.
 2. SEAL CRACK SURFACE PER MFR RECOMMENDATIONS.
 3. FACE OF EXISTING CONCRETE.
 4. REMOVE INJECTION PORT AND PATCH CONCRETE SURFACE PER MFR RECOMMENDATION, TYP.



- NOTES:
1. SEAL AND CAULK ALL CONTROL/ CONSTRUCTION JOINTS IN THE WALLS.
 2. REMOVE EXISTING SEALANT FROM CONTROL/ CONSTRUCTION JOINTS WHERE CAULK HAS FAILED AS DIRECTED. CLEAN JOINT AND REPLACE CAULK AS SHOWN.

CRACK REPAIRS
NTS



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CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY
OHIO
DROP SHAFT CONNECTION - 20 SERIES
STRUCTURAL DETAILS

- GENERAL NOTES:
1. TYPES OF DEFECTS IDENTIFIED FOR REPAIR UNDER THIS PROJECT INCLUDE:
A. SPALLED CONCRETE WITH AND WITHOUT EXPOSED REINFORCING AT TOP SLAB.
B. INTERIOR CONCRETE WAS NOT INSPECTED.
 2. REPAIR DEFECTS MUST BE REVIEWED WITH ENGINEER PRIOR TO ACTUAL REPAIR TO VERIFY QUANTITIES AND ASSIGN TO CORRECT BID ITEM.
 3. DEFECTS IDENTIFIED IN THESE DOCUMENTS ARE APPROXIMATE BASED ON PREVIOUS FIELD OBSERVATIONS. ACTUAL LOCATION, LENGTH, QUANTITIES, AND EXTENT OF REPAIR MUST BE COORDINATED WITH ENGINEER AT TIME OF CONSTRUCTION.

- SEQUENCE OF CONSTRUCTION
1. COORDINATE WITH ENGINEER TO VERIFY REPAIRS TO BE COMPLETED.
 2. PREPARE SURFACE FOR REPAIR INCLUDING CONCRETE CRACKS AND SPALL AREAS. VERIFY REPAIR QUANTITIES WITH ENGINEER PRIOR TO STARTING RECONSTRUCTION.
 3. INJECT CRACKS PRIOR TO REPAIR MORTAR.
 4. INSTALL NEW REINFORCING AND REPAIR MORTAR.
 5. CURE AS RECOMMENDED BY PRODUCT MANUFACTURERS.
 6. REMOVE EXCESS MATERIAL AND FINISH TO MATCH SURROUNDING SURFACES.
 7. RESTORE INTERIOR AND EXTERIOR OF STRUCTURE TO A BROOM CLEAN CONDITION.

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TABLE 1				
REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS				
SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
SOIL	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X	SEE TABLE 2
	SHORING SYSTEM WELDING	X		
CONCRETE	INSPECT FORMWORK FOR LOCATION AND DIMENSIONS OF MEMBER BEING FORMED		X	
	VERIFY MATERIAL FOR REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	REINFORCING STEEL PLACEMENT		X	
	INSPECT ANCHORS TO BE CAST IN CONCRETE	X		PRIOR TO AND DURING CONCRETE PLACEMENT
	INSPECT POST-INSTALLED CONCRETE ANCHORS	X		INSPECTION TO CONFORM TO IBC AND TO ANCHOR MANUFACTURER'S RECOMMENDATIONS AND ICC REPORTS
	VERIFY USE OF REQUIRED CONCRETE MIX DESIGN(S)		X	
	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND TEMPERATURE OF CONCRETE	X		CONTINUOUS DURING PREPARATION OF SAMPLES
	CONCRETE PLACEMENT	X		
	INSPECTION FOR MAINTENANCE OF CURING PROCEDURES AND TEMPERATURE		X	VERIFY APPROPRIATE CURING METHOD HAS BEEN IMPLEMENTED AFTER EACH POUR
	VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM STRUCTURAL SLABS AND BEAMS		X	
STRUCTURAL STEEL AND ALUMINUM	FABRICATION OF STRUCTURAL ELEMENTS			FABRICATOR SHALL BE APPROVED IN ACCORDANCE WITH IBC, CHAPTER 17 TO PERFORM WORK WITHOUT SPECIAL INSPECTION
	VERIFY MATERIAL OF ANCHOR BOLTS AND THREADED RODS		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS
FRP	VERIFY TYPE AND DEPTH OF FRP GRATING		X	
	INSPECT ATTACHMENT OF FRP GRATING TO SUPPORTS		X	

QUALITY ASSURANCE NOTES

1. THE QUALITY OF THE WORKMANSHIP AND THE QUALITY OF THE MATERIALS OF CONSTRUCTION ARE GOVERNED BY THE OHIO BUILDING CODE.
2. ALL NEW STRUCTURES AND MODIFICATIONS TO EXISTING STRUCTURES TO BE CONSTRUCTED AS A PART OF THIS PROJECT ARE CLASSIFIED AS OCCUPANT CATEGORY III, WASTE WATER TREATMENT FACILITY, IN ACCORDANCE WITH THE OBC. THE STRUCTURES ARE CLASSIFIED AS SEISMIC DESIGN CATEGORY D.
3. TO ASSURE THE QUALITY OF THE CONSTRUCTION OF THIS PROJECT, STRUCTURAL TESTS, SPECIAL INSPECTION AND STRUCTURAL OBSERVATION WILL BE PERFORMED IN ACCORDANCE WITH OBC, CHAPTER 17.
4. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE CONTINUOUS, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED AND PROVIDING FULL-TIME OBSERVATION OF THE WORK REQUIRING SPECIAL INSPECTION.
5. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE PERIODIC, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK (PRIOR TO THE NEXT CONSTRUCTION TASK).
6. SPECIAL INSPECTIONS ARE IN ADDITION TO INSPECTIONS BY THE BUILDING OFFICIALS. CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL. COORDINATE WITH BUILDING DEPARTMENT TO DETERMINE REQUIRED INSPECTIONS.
7. CONTRACTOR SHALL PROVIDE ACCESS TO THE WORK FOR REQUIRED INSPECTIONS. CONTRACTOR SHALL PROVIDE NOTIFICATION IN ADVANCE OF REQUIRED INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS.

TABLE 2			
REQUIRED TESTING FOR SPECIAL INSPECTIONS			
SYSTEM OR MATERIAL	TESTING		REMARKS
	CODE OR STANDARD REFERENCE	FREQUENCY	
GEOTECHNICAL			
PREPARED SUBGRADE DENSITY	ASTM D6939	EACH 300 SF OF PREPARED SUBGRADE	PER GEOTECHNICAL REPORT
FILL IN-PLACE DENSITY	ASTM D6938	EACH 300 SF OF EACH LIFT PLACED EACH DAY	PER GEOTECHNICAL REPORT
CONCRETE			
CONCRETE COMPRESSIVE STRENGTH	ASTM C31,ASTM C39,ASTM C172	SEE SPECIFICATION 03300	
CONCRETE SLUMP	ASTM C143	WHENEVER CYLINDERS ARE CAST	
CONCRETE AIR CONTENT	ASTM C231	WHENEVER CYLINDERS ARE CAST	
CONCRETE TEMPERATURE	ASTM C1064	WHENEVER CYLINDERS ARE CAST	
CEMETITIOUS AND EPOXY GROUT COMPRESSIVE STRENGTH	ASTM C942 (CEMENTITIOUS) ASTM C579 (EPOXY)		TEST 2" CUBES FOR EACH GROUT SHIPMENT TO THE FIELD

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES)

BAR SIZE	APPLICATION	CONCRETE COVER = 2.00 IN.		CONCRETE COVER = 3.00 IN.		
		TOP	OTHER	MIN C/C SPACING	TOP	MIN C/C SPACING
#3	DEVELOPMENT LAP SPLICE	12	12	4.50	12	6.50
		16	16	4.75	16	6.75
#4	DEVELOPMENT LAP SPLICE	15	12	4.50	15	6.50
		20	16	5.00	20	7.00
#5	DEVELOPMENT LAP SPLICE	19	15	4.75	19	6.75
		24	19	5.25	24	7.25
#6	DEVELOPMENT LAP SPLICE	22	17	4.75	22	6.75
		29	22	5.50	29	7.50
#7	DEVELOPMENT LAP SPLICE	33	25	5.00	33	7.00
		42	33	5.75	42	7.75
#8	DEVELOPMENT LAP SPLICE	37	29	5.00	37	7.00
		48	37	6.00	48	8.00
#9	DEVELOPMENT LAP SPLICE	46	36	5.25	42	7.25
		60	46	6.25	55	8.25
#10	DEVELOPMENT LAP SPLICE	57	44	5.25	47	7.25
		74	57	6.50	61	8.50
#11	DEVELOPMENT LAP SPLICE	68	53	5.50	52	7.50
		90	69	6.75	68	8.75

NOTES:

1. TABULATED VALUES ARE BASED ON UNCOATED GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE MINIMUM f_c = 4,000 PSI.
2. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS.
3. LAP SPLICE LENGTHS ARE LAP CLASS B = 1.3 l_d.
4. TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318, SECTIONS 12.2.3 AND 12.15, RESPECTIVELY.
5. LENGTHS ABOVE THE HEAVY LINE DO NOT CHANGE BASE ON COVER THICKNESS. LENGTHS BELOW THE HEAVY LINE AREA DIFFERENT AT EACH COVER THICKNESS.



8150 STERLING COURT
MENTOR, OHIO 44060
(440) 951-9000

NO	REVISION	DATE

SCALE:	AS NOTED
DATE:	5/5/2025
DESIGNED BY:	TJM
DRAWN BY:	RLM
CHECKED BY:	TJM

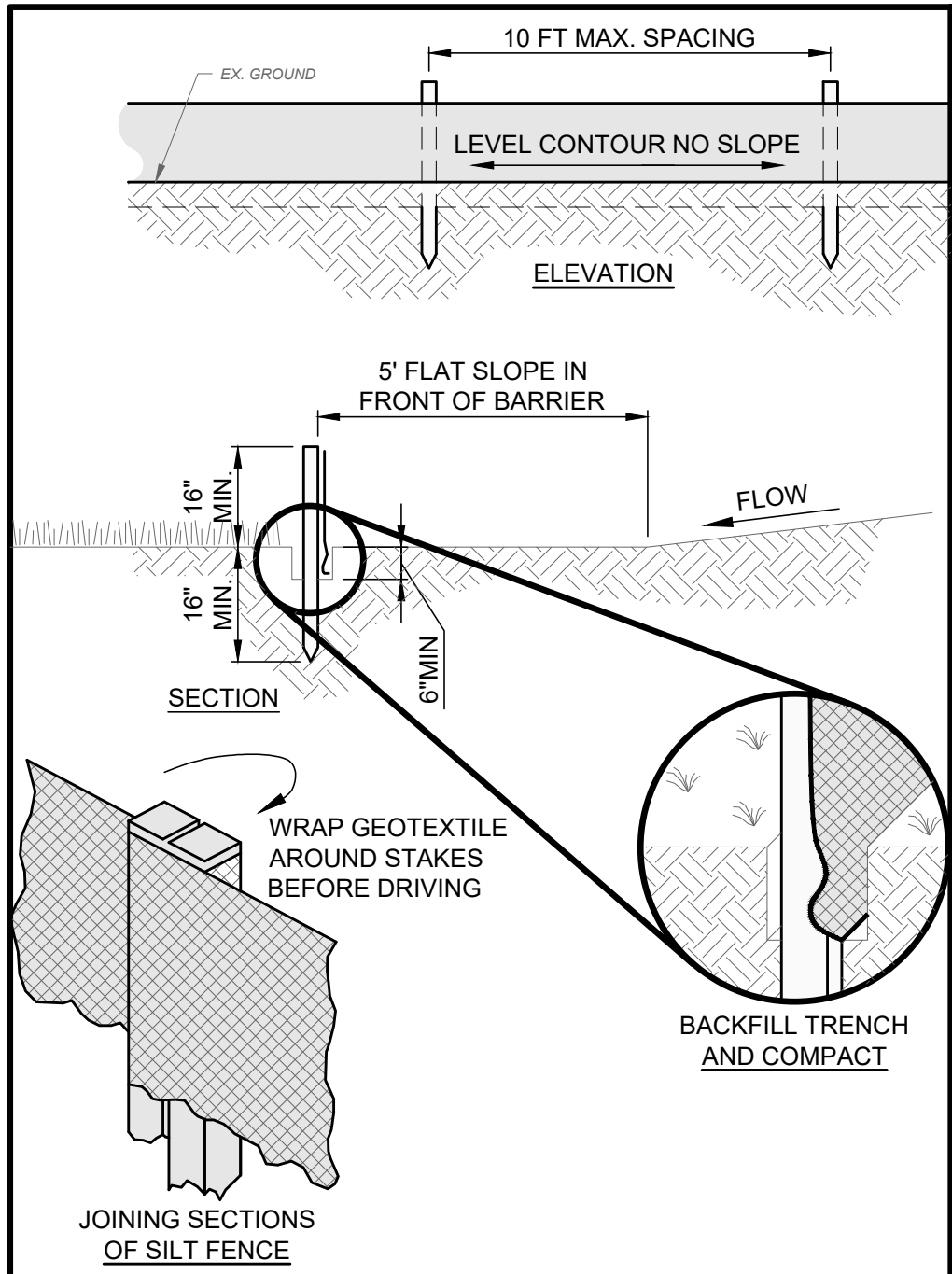
CITY OF RICHMOND HEIGHTS
ILJA - RICHMOND HEIGHTS
SANITARY SEWER IMPROVEMENTS
CUYAHOGA COUNTY

OHIO

DROP SHAFT CONNECTION - 20 SERIES

STRUCTURAL NOTES

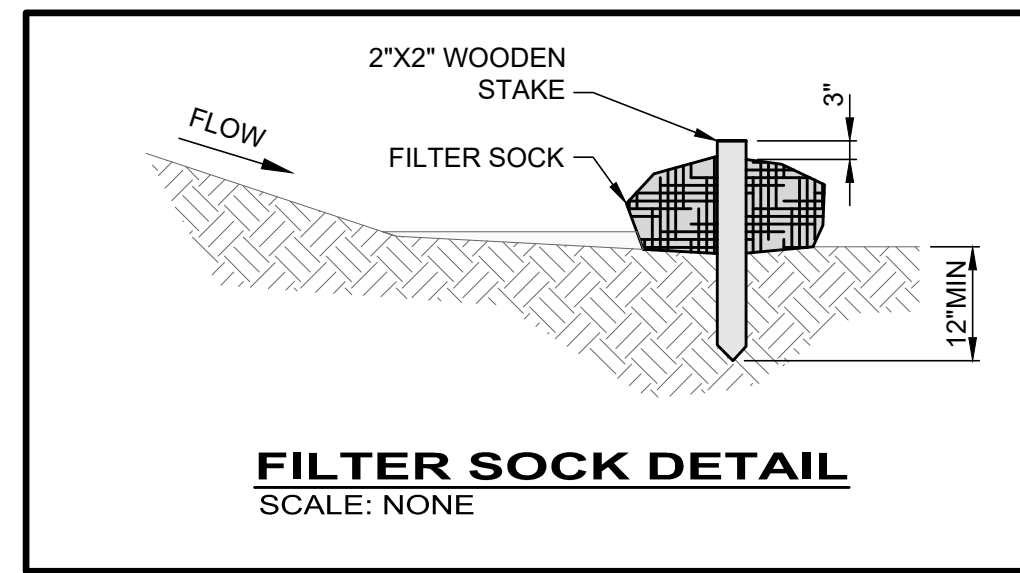
PROJECT NO:	
231100	
DRAWING NAME	
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SHEET	OF
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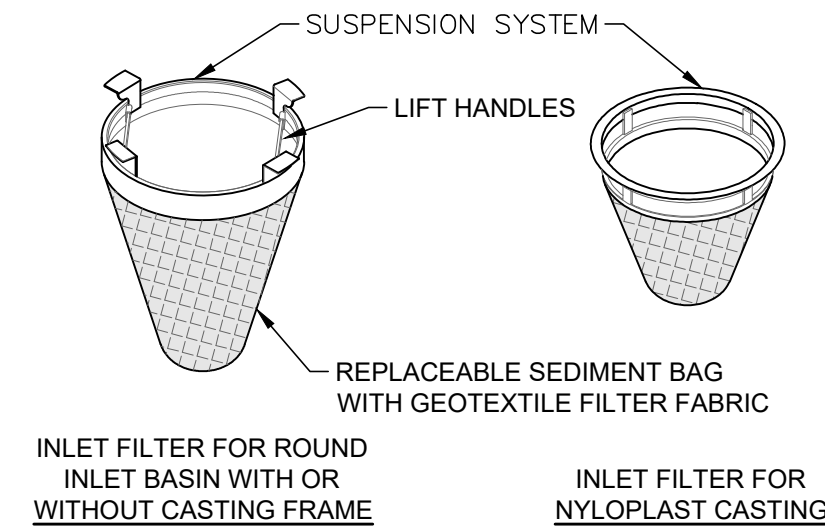
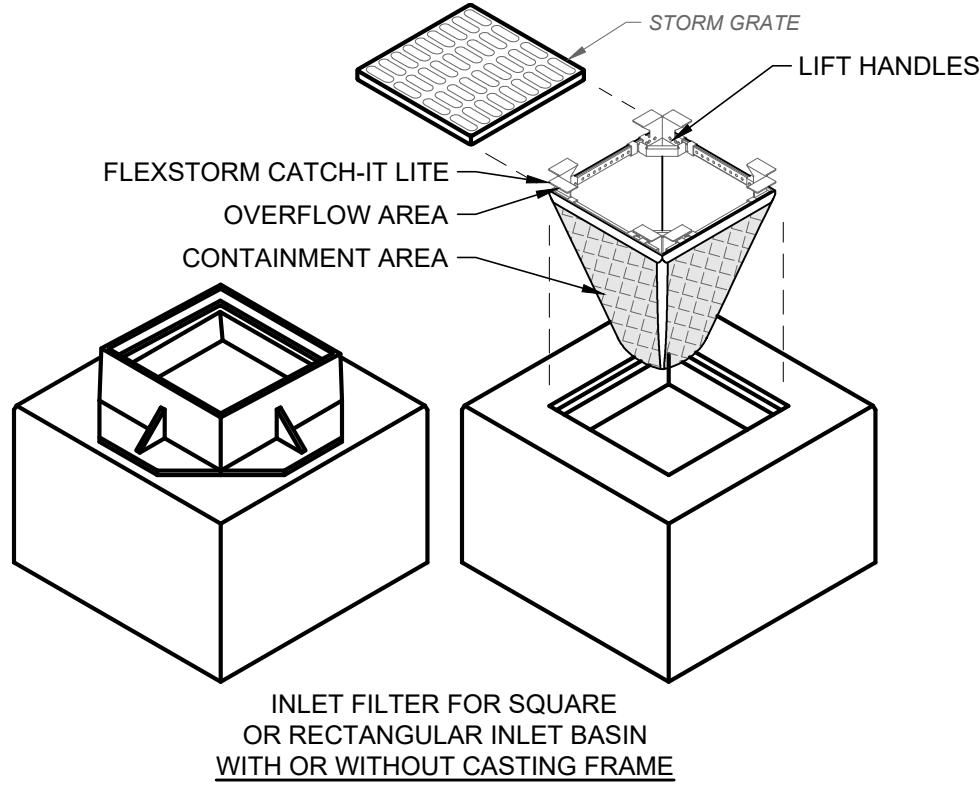
- NOTES:
- PRESERVE VEGETATION FOR 5 FEET, OR AS MUCH AS POSSIBLE, UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE RE-ESTABLISHED WITHIN 7 DAYS FROM SILT FENCE INSTALLATION.
 - SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. PERFORM ONE OF THE FOLLOWING 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

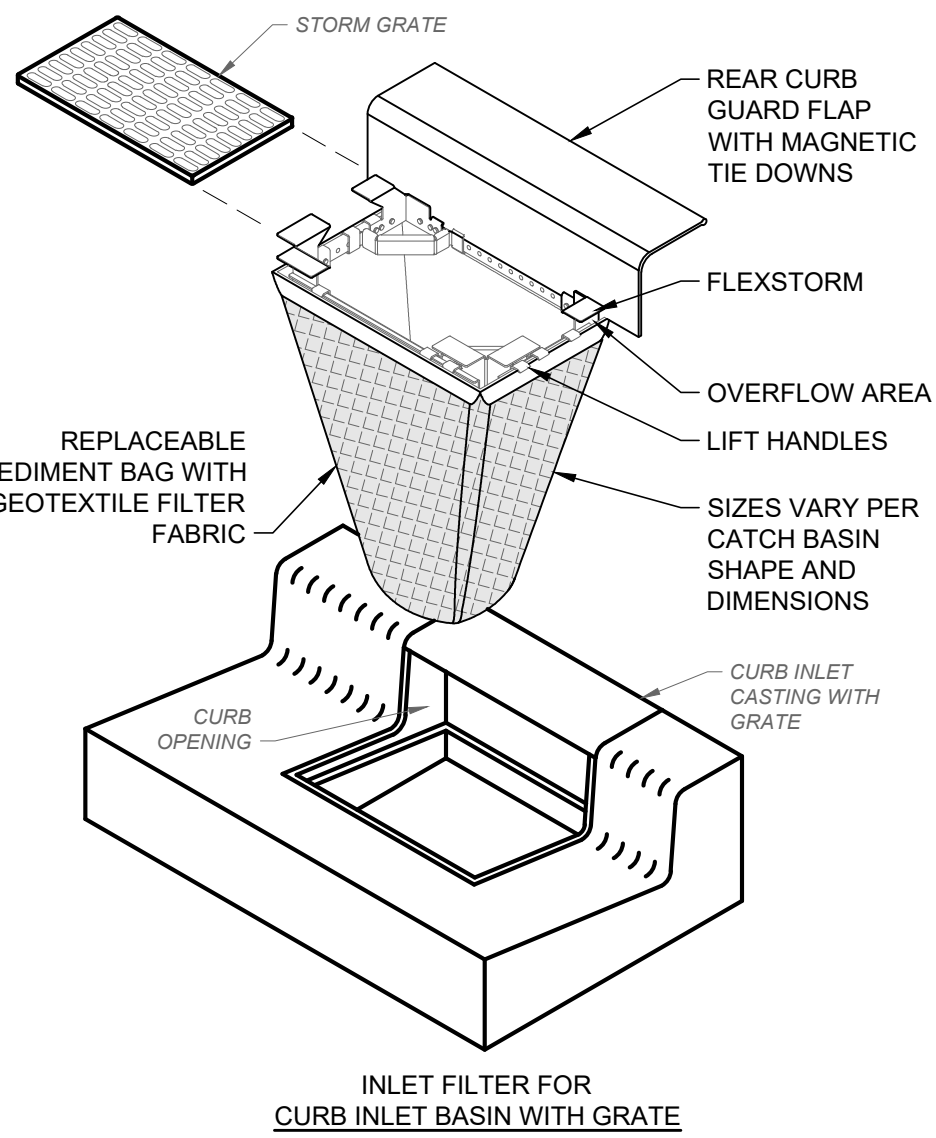
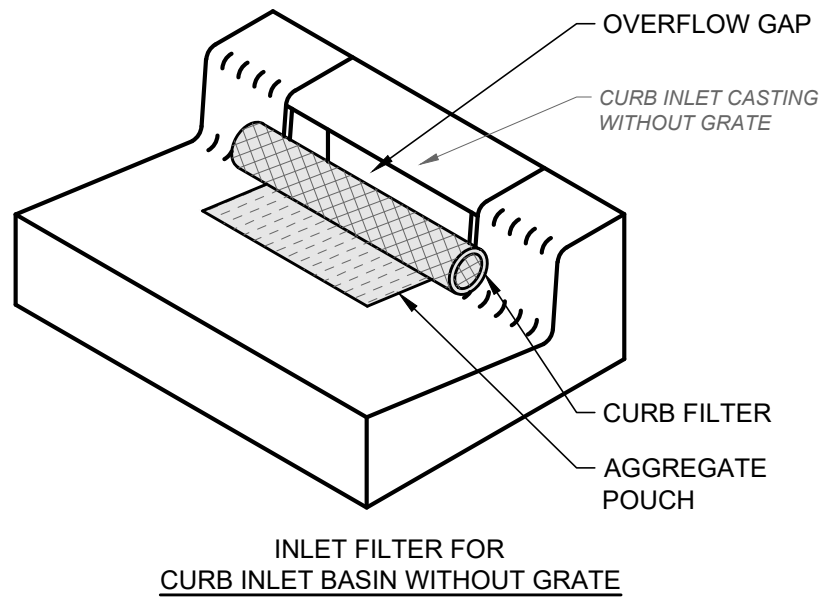


FILTER SOCK DETAIL
SCALE: NONE



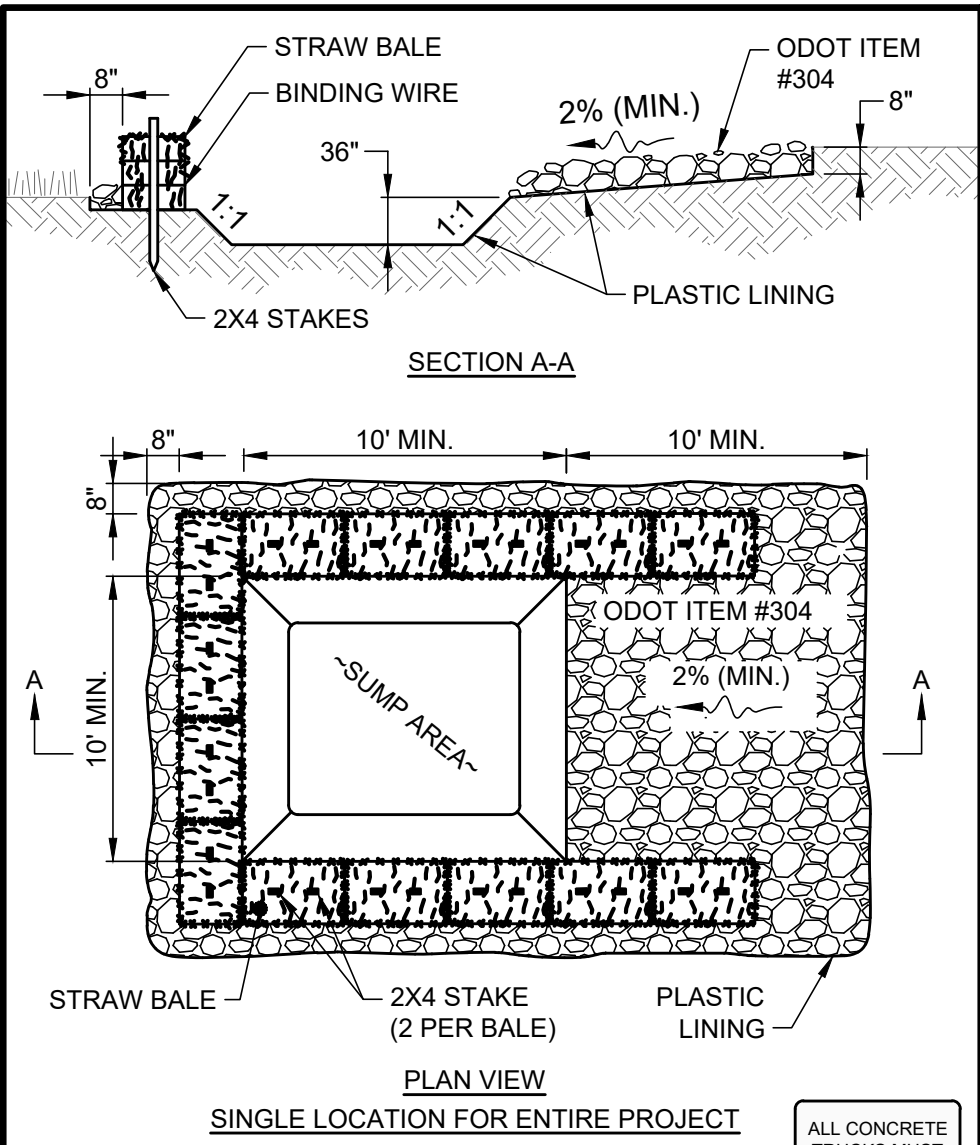
INLET FILTER FOR ROUND INLET BASIN WITH OR WITHOUT CASTING FRAME

INLET FILTER FOR NYLOPLAST CASTING

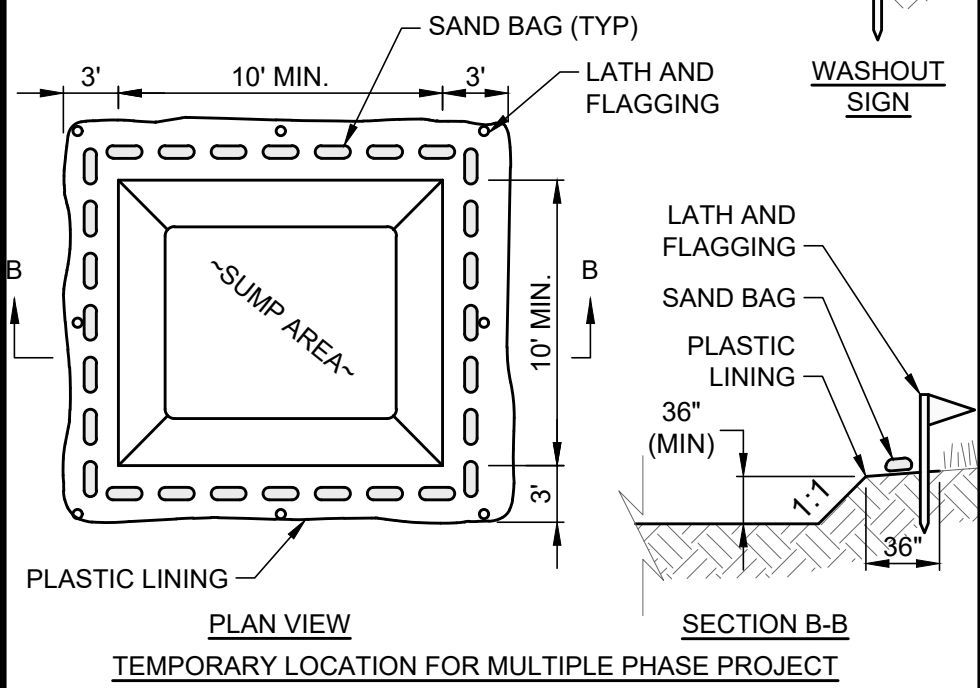


- NOTES:
- ALL FRAMING SHALL BE CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
 - CONTRACTOR SHALL PROVIDE EXISTING OR PROPOSED STRUCTURE DETAILED DIMENSIONS, CASTING CALLOUT, MAKE AND MODEL TO CONFIGURE AND ASSEMBLE CUSTOMIZED FLEXSTORM INLET FILTERS.

STORM DRAIN INLET PROTECTION DETAIL
SCALE: NONE

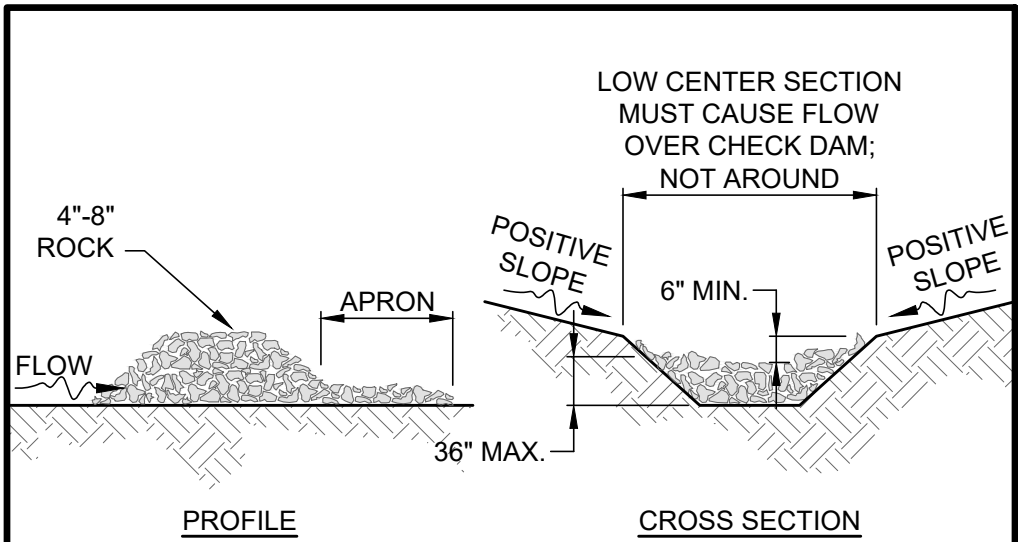


PLAN VIEW
SINGLE LOCATION FOR ENTIRE PROJECT



- 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.

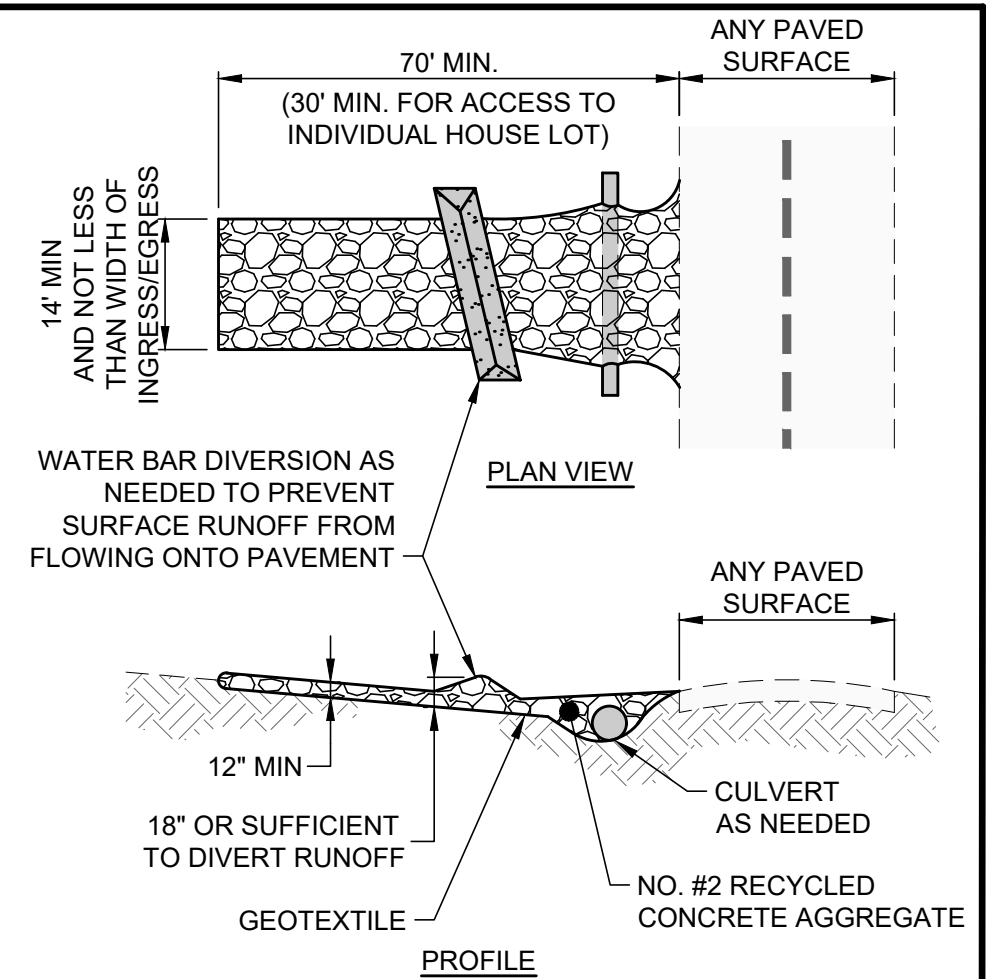
CONCRETE WASHOUT DETAIL
SCALE: NONE



- 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:
 - TENSILE STRENGTH = 200 LBS.
 - PUNCTURE STRENGTH = 80 PSI
 - TEAR STRENGTH = 50 LBS.
 - BURST STRENGTH = 320 PSI
 - ELONGATION = 20%
 - EQUIVALENT OPENING SIZE ≤ 0.6 MM
 - 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

DATE	REVISION	NO

SCALE:	AS NOTED	DATE:	DESIGNED BY:	RLM	CHECKED BY:	TJM
		5/5/2025	TJM			

CITY OF RICHMOND HEIGHTS ILJA - RICHMOND HEIGHTS SANITARY SEWER IMPROVEMENTS CUYAHOGA COUNTY	OHIO	
	EROSION CONTROL - 30 SERIES	
	EROSION CONTROL DETAILS	

PROJECT NO:	
231100	
DRAWING NAME	
30EC-01	
SHEET	OF
31	31