SōL Harris/Day architecture

Christ Community Chapel
Site Information
City of Hudson Planning Commission Application

Total Area of Site	28.596 acres (1,245,642 square feet)
Total Impervious Cover	78,307 square feet buildings
	364,749 square feet pavement and walkways
	44,500 square feet turf field
	487,556 square feet total impervious cover
Percentage of Site Covered by Impervious Cover	39%
Total Building Coverage	78,307 square feet
Floor Area to Lot Area Ratio	0.0628
Gross Floor Area	78.307 square feet
% Total of Undisturbed Land with a Breakdown by Use	657,107 square feet of open space and woods
Proposed Use and Square Footage for Each Use within Each Structure on Site	Restroom Building - 398 square feet
Number of Stories	One
Actual Height	Restroom Building - 12'-8'"
Finished Floor Elevation	1016.22
Foundation Type	CMU Foundations
Total Square Footage for Building and for Each Floor	See Above - Single Story Building Proposed

CITY OF HUDSON, SUMMIT COUNTY, OHIO
SITE IMPROVEMENT PLANS
FOR
CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OHIO 44236

OWNER/DEVELOPER:
CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OH 44236
PHONE: (330) 650-9533
CONTACT: JIMMY KOZY

ARCHITECT:
SOL HARRIS DAY
6677 FRANK AVE NW NORTH
CANTON, OH 44720
PHONE: (330) 493-3722
CONTACT: JULIE ZIGA
EMAIL: JZIGA@SOLHARRISDAY.COM

ENGINEER:
CESO, INC.
175 MONTROSE WEST AVE, SUITE 400
AKRON, OH 44321
PHONE: (234) 349-2514
CONTACT: HANNAH OKES, PE
EMAIL: HANNAH.OKES@CESOINC.COM

GOVERNING AGENCIES AND UTILITY COMPANIES:

SEWER:
SUMMIT COUNTY DEPARTMENT OF
SANITARY SEWER SERVICES
RUSSELL M. PRY BUILDING
1180 SOUTH MAIN STREET, SUITE 201
AKRON, OH 44301
PHONE: (330) 926-2405

GAS SERVICE:
ENBRIDGE GAS
PHONE:1-800-362-7557

WATER:
CITY OF HUDSON PUBLIC WORKS
1769 GEORGETOWN ROAD
HUDSON, OH 44236
PHONE: (330) 342-1750

ELECTRIC:
CITY OF HUDSON PUBLIC WORKS
HUDSON PUBLIC POWER
1769 GEORGETOWN ROAD
HUDSON, OH 44236
PHONE:(330) 342-1750

STORMWATER:
HUDSON PUBLIC WORKS DEPARTMENT
1769 GEORGETOWN ROAD
HUDSON, OH 44236
PHONE: (330) 342-1750

ZONING:
CITY OF HUDSON
1140 TEREX ROAD
HUDSON, OH 44236
PHONE: (330) 342-1790

VICINITY MAP
NOT TO SCALE

PROPERTY DATA:

PARCEL OWNER: HUDSON COMMUNITY CHAPEL

PARCEL INFO - LOTS 31 &41 PER SUMMIT COUNTY		AREA OUTSIDE OF ROW
3009095	10.86 AC	9.9690 AC
3009094	4.76 AC	4.9441AC
3007723	14.45 AC	13.6829 AC

ADDRESS: 750 W. STREETSBORO STREET
HUDSON, OH 44236

LOT COVERAGE:
TOTAL AREA OF SITE: 28.596 ACRES

	EXISTING-BUILDING	PROPOSED-BUILDING
TOTAL BUILDING COVERAGE:	66,464 SF (CHURCH) 960 SF (GARAGE)	398 SF (RESTROOM)

FLOOR AREA TO LOT AREA RATIO: 67,822 / (28.596*43,560)=0.0544=5.44%
GROSS FLOOR AREA: 66,464+960+398=67,822 SF

IMPERVIOUS COVERAGE: TOTAL BUILDING (67,822 SF) + TURF SOCCER FIELD (44,500 SF) + SIDEWALKS/PAVEMENT (364,749 SF) = 477,071 SF

IMPERVIOUS TO LOT AREA RATIO: 477,071 / (28.596*43,560)=0.3829=38.29%

UNDISTURBED LAND BY USE:
EX. BUILDINGS 66,464 SF (CHURCH) +960 SF (GARAGE) = 67,424 SF
EX. PAVEMENT & WALKS 349,920 SF
OPEN SPACE & WOODS 657,107 SF

ZONING: DISTRICT 1: SUBURBAN RESIDENTIAL NEIGHBORHOOD
ADJACENT ZONING NORTH & WEST: 6. WESTERN HUDSON GATEWAY
ADJACENT ZONING EAST: 1. SUBURBAN RESIDENTIAL DISTRICT

EXISTING USE: CHURCH CAMPUS / PLACE OF WORSHIP

PROPOSED USE: PROPOSED TURF FIELD & RESTROOM BUILDING

BUILDING SETBACKS	REQUIRED	EXISTING	PROPOSED
FRONTAGE ALONG STREET:	100'	N/A	349' OFF STREETSBORO RD
SIDE:	50'	N/A	362'
REAR:	50'	N/A	776'

PARKING:
TOTAL EXISTING PARKING SPACES: 898 TOTAL PROPOSED PARKING SPACES: 897
ADA PARKING SPACES: 43

FLOODPLAIN DESIGNATION: PARCEL IS LOCATED WITHIN "ZONE X" (AREA OF MINIMAL FLOOD HAZARD) AS INDICATED BY THE FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NUMBER 39153C0126E, EFFECTIVE DATE: 7/20/2009; PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

SURVEY PROVIDED BY:
DEIBEL SURVEYING INC.
1850 KIMBALL RD. S.E.
CANTON, OHIO 44707
PHONE: 330.455.2999
DATED: 07/02/2024 (REV. 2)

CESO PROVIDES NO GUARANTEE TO THE ACCURACY OF THE SURVEY PROVIDED BY DEIBEL SURVEYING INC. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO BID AND CONSTRUCTION.

BENCHMARKS

Point	Elevation	Description
BM #50	1020.93	"X" ON SOUTH CORNER OF CURB INLET
BM #51	1025.06	"X" ON S.E. BONNET BOLT OF FIRE HYDRANT
BM #52	1029.11	"X" ON NORTH RIM OF SANITARY MANHOLE
BM #53	1013.20	"X" ON NORTH RIM OF SANITARY MANHOLE
BM #55	1017.27	"X" ON S.W. BONNET BOLT OF FIRE HYDRANT
BM #56	1016.71	"X" ON S.W. CORNER OF CURB INLET
BM #57	1013.49	EAST CORNER OF CONCRETE AROUND ELEC. BOX

REFER TO SURVEY FOR LOCATIONS - CONTACT SURVEYOR FOR ALL CONTROL POINTS
CESO TAKES NO RESPONSIBILITY FOR ACCURACY OF BENCHMARKS PROVIDED BY THE SURVEYOR OF RECORD. THESE SHOULD BE VERIFIED PRIOR TO USE.

OHIO811.org Before You Dig

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

Sheet List Table

Sheet Number	Sheet Title
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C2.0	GENERAL NOTES
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C4.1	FIELD SITE AND PAVEMENT PLAN
C5.0	OVERALL GRADING PLAN
C5.1	FIELD GRADING PLAN
C5.2	DETENTION DETAIL
C6.0	SWPPP NOTES & DETAILS
C6.1	SWPPP DETAILS
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C8.10	GRINDER PUMP DETAILS
C8.11	FIELD DETAILS
L1.0	LANDSCAPE PLAN - NORTH
L1.1	LANDSCAPE PLAN - SOUTH
L1.2	LANDSCAPE DETAILS & NOTES

SURVEY BY DIEBEL SURVEYING INC.		DATE
1 OF 2	ALTA/NSPS LAND TITLE SURVEY	7/19/2024
2 OF 2	ALTA/NSPS LAND TITLE SURVEY	7/19/2024
1 OF 1	EXISTING TREE SITE PLAN	1/23/2025

PROJECT NO. 240628

ODOT STANDARD CONSTRUCTION DRAWINGS
ODOT HW-2.1 - HALF HEIGHT HEADWALL
ODOT MH-1 - MANHOLE NO. 1

CESO
WWW.CESOINC.COM
175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

STATE OF OHIO
JONATHAN T KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	N/A
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
COVER SHEET

C1.0

C:\DC\ACCDocs\CESO\CCC - Hudson - Civil Master Plan Study\Project Files_CESO\03-CIVIL\PLAN\PLOT\Major Site Plans\765295_COVER SHEET.dwg - 5/21/2025 - Jake McDaniel

GENERAL NOTES

DEMOLITION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL. THE DEMOLITION, REMOVAL, AND DISPOSAL IS TO BE APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL FACILITIES SUCH AS: STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE, STRUCTURES, UTILITIES, WELLS, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL AS SPECIFIED BY A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER. IF UNDOCUMENTED FACILITIES ARE FOUND ON SITE, CONTRACTOR SHALL CONTACT THE OWNER AND UTILITY COMPANY PRIOR TO REMOVAL. ALL FACILITIES SHALL BE PLUGGED, ABANDONED, OR REMOVED PER STATE AND LOCAL REQUIREMENTS.
2. FEDERAL, STATE AND LOCAL CODE REQUIREMENTS SHALL GOVERN THE DISPOSAL OF DEBRIS INCLUDING ANY POTENTIALLY HAZARDOUS AND TOXIC MATERIALS. ALL MATERIALS AND STRUCTURES DESIGNATED AS "TO BE REMOVED" SHALL BE DISPOSED OF OFF SITE AND AT THE COST OF THE CONTRACTOR.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING JOB SITE SAFETY PER OSHA REQUIREMENTS AT ALL TIMES.
4. PRIOR TO DEMOLITION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CALL THE STATE 811 AND NOTIFY ALL UTILITY COMPANIES TO SCHEDULE UTILITY SERVICE REMOVAL AND/OR ABANDONMENT. ALL UTILITIES SHALL BE REMOVED/RELOCATED PER THE SPECIFICATIONS OF THE UTILITY COMPANIES. THE CONTRACTOR IS RESPONSIBLE TO PAY ALL FEES AND CHARGES ASSOCIATED WITH THIS WORK
5. CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICES TO INHABITED BUILDINGS ON SITE AND ADJACENT PROPERTIES AT ALL TIMES. INTERRUPTIONS SHALL BE APPROVED BY THE OWNERS OF THE BUILDINGS/PROPERTIES.
6. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES. IF THE LOCATION OR ELEVATION OF THE EXISTING UTILITIES ARE FOUND TO BE DIFFERENT FROM THE PLANS, CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
7. CONTRACTOR SHALL PROTECT EXISTING SITE FEATURES TO REMAIN INSIDE AND OUTSIDE CONSTRUCTION LIMITS. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGES AND NOTIFY THE CITY/COUNTY PRIOR TO CONSTRUCTION START. ANY EXISTING SITE FEATURE TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, CURB, ETC. SHALL BE REPAIRED TO A CONDITION THAT IS EQUAL TO, OR BETTER THAN, THE EXISTING CONDITIONS. PRIOR TO BEING DAMAGED, THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
8. CONTINUOUS ACCESS SHALL BE MAINTAINED TO THE SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.
9. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL. ALL TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND LOCAL REGULATIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR PLACING AND MAINTAINING CONSTRUCTION FENCE, SIGNS, ETC. TO WARN AND KEEP UNAUTHORIZED PEOPLE OFF SITE FOR THE DURATION OF THE PROJECT.
11. PRIOR TO DEMOLITION, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED PER THE GOVERNING AGENCIES GUIDELINES AND STANDARDS. DUST CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
12. SAWCUT LINE PROVIDED IS FOR REFERENCE ONLY. CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING THE EXTENT OF THE SAWCUT THAT WILL BE REQUIRED AS WELL AS PAVEMENT REPAIRS TO INSTALL UTILITY TRENCHING. IF ANY DAMAGE OCCURS ON ANY OF THE SURROUNDING PAVEMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THAT WHICH IS NECESSARY TO COMPLETE THE INTENT OF THE PROPOSED IMPROVEMENTS. SAWCUT EXISTING PAVEMENT TO FULL DEPTH, USING CARE TO CUT NEAT, STRAIGHT LINES. CUT AT EXISTING JOINTS WHERE POSSIBLE.
13. THE CONTRACTOR SHALL MAINTAIN A WELL-DRAINED SITE, FREE OF STANDING WATER DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY DRAINAGE MEASURES DURING CONSTRUCTION.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO STUDY THE PLANS AND VISIT THE SITE TO DETERMINE THE ITEMS THAT MUST BE REMOVED TO COMPLY WITH THE SITE DEVELOPMENT PLANS. NO EXTRA FEE WILL BE PAID FOR THE REMOVAL OF ANY ITEM NOT LISTED THAT IS VISIBLE UPON A SITE VISIT. THE DEMOLITION PLAN IS INTENDED TO PRESENT THE SCOPE OF THE DEMOLITION, AND DOES NOT GUARANTEE THAT ALL ITEMS ARE ADDRESSED.
15. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR ALL SITE DEVELOPMENT WORK, PAY ALL FEES FOR PERMITS AND CHECK ALL GOVERNING AUTHORITIES' SPECIFICATIONS FOR BUT NOT LIMITED TO, GUTTERS, SIDEWALKS, POLES, AND OTHER STRUCTURES, INCLUDING THE REMOVAL OR RELOCATION OF EXISTING UTILITIES OR OTHER PHYSICAL OBJECTS SHOWN ON PLANS OR NOTED OTHERWISE.
16. THE CONTRACTOR SHALL CREATE AND IMPLEMENT AN EROSION AND SEDIMENTATION CONTROL PLAN FOR ALL SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROJECT. THE PLAN MUST CONFORM TO THE EROSION AND SEDIMENTATION REQUIREMENTS OF THE CONSTRUCTION GENERAL PERMIT OR LOCAL STANDARDS AND CODES, WHICHEVER IS MORE STRINGENT.
17. ALL COSTS FOR INSPECTIONS AND/OR TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.

SITE NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. ALL MATERIAL NOTED ON DRAWINGS WILL BE SUPPLIED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS TO COORDINATE ACCESS POINTS AND ELEVATIONS. REFER TO ARCHITECTURAL PLANS. FOR EXACT LOCATIONS AND DIMENSIONS OF DOORS, ENTRY RAMP, AND CANOPY.
4. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR ALL SITE DEVELOPMENT WORK, PAY ALL FEES FOR PERMITS AND CHECK ALL GOVERNING AUTHORITIES' SPECIFICATIONS FOR BUT NOT LIMITED TO, GUTTERS, SIDEWALKS, POLES, AND OTHER STRUCTURES, INCLUDING THE REMOVAL OR RELOCATION OF EXISTING UTILITIES OR OTHER PHYSICAL OBJECTS SHOWN ON PLANS OR NOTED OTHERWISE.
5. THE CONTRACTOR SHALL CREATE AND IMPLEMENT AN EROSION AND SEDIMENTATION CONTROL PLAN FOR ALL SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE PROJECT. THE PLAN MUST CONFORM TO THE EROSION AND SEDIMENTATION REQUIREMENTS OF THE CONSTRUCTION GENERAL PERMIT OR LOCAL STANDARDS AND CODES, WHICHEVER IS MORE STRINGENT.
6. ALL COSTS FOR INSPECTIONS AND/OR TESTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.
7. ACCESSIBILITY STANDARDS SHALL BE IN ACCORDANCE WITH FEDERAL AND LOCAL REQUIREMENTS FOR HANDICAP ACCESSIBILITY, INCLUDING BUT NOT LIMITED TO THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES. ADA PARKING STALLS SHALL MEET ADA GRADE GUIDELINES. CONTRACTOR SHALL FIELD VERIFY EXISTING GRADES AT ACCESS POINTS, ACCESSIBLE ROUTES, AND EXISTING PARKING TO REMAIN TO DETERMINE COMPLIANCE WITH STANDARDS.
8. ALL DISTURBED AREAS ARE TO RECEIVE 6" OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
9. ALL DIMENSIONS AND RADII ARE TO THE FACE OF THE CURB OR EDGE OF PAVEMENT, AS APPLICABLE, UNLESS OTHERWISE NOTED.
10. ALL CURB RADII ARE 5 FEET UNLESS OTHERWISE NOTED.
11. PROVIDE SIGNAGE AND STRIPING AS SHOWN. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL COMPLY WITH THE GOVERNING MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.). PAVEMENT MARKINGS ON ASPHALT SHALL BE WHITE. PAVEMENT MARKINGS ON CONCRETE SHALL BE YELLOW.
12. REFER TO ARCHITECTURAL PLANS FOR PROPOSED BUILDING SIGNAGE.
13. REFER TO MECHANICAL PLANS FOR EQUIPMENT LAYOUT.
14. REFER TO ELECTRICAL PLANS FOR ELECTRICAL WORK.
15. PAVEMENT SECTION THICKNESS TO MATCH EXISTING SECTIONS FROM THE 2007-2008 PLANS BY BRAUN & STEIDL ARCHITECTS. REFER TO DETAILS.
16. REFER TO ORIGINAL SURVEY PROVIDED BY DEIBEL SURVEYING INC, DATED 07/02/2024.
17. ALL LIGHT POLES TO BE LOCATED 3' FROM THE BACK OF CURB, AS MEASURED FROM THE FACE OF POLE FOUNDATION, UNLESS OTHERWISE DENOTED ON PLANS.

GRADING NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. THE TOPOGRAPHIC SURVEY WAS PERFORMED BY A REGISTERED LAND SURVEYOR. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
3. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
4. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE EPA OR APPLICABLE STATE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
5. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS ARE SHOWN AT 1 FOOT INTERVALS.
6. ALL SPOT ELEVATIONS REFER TO FINISHED PAVEMENT ELEVATIONS UNLESS OTHERWISE NOTED.
7. ALL ADA ACCESSIBLE PARKING SPACES AND LOADING AREAS SHALL BE GRADED WITH A 2.0% MAXIMUM SLOPE IN ALL DIRECTIONS. ALL ADA ACCESSIBLE ROUTES SHALL BE GRADED WITH A 2.0% MAXIMUM CROSS SLOPE AND 5.0% MAXIMUM RUNNING SLOPE.
8. MAINTAIN EXISTING DRAINAGE PATTERN THROUGHOUT THE SITE, EXCEPT WITHIN THE LIMITS OF DISTURBANCE (LOD).
9. COORDINATE GRADES AT BUILDING ENTRIES WITH ARCHITECTURAL PLANS.
10. EXISTING DRAINAGE STRUCTURES SHALL BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES ARE TO BE CLEANED TO REMOVE ALL SILT AND DEBRIS AFTER CONSTRUCTION IS COMPLETE.
11. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO A CONDITION EQUAL TO OR BETTER THAN IT'S CONDITION PRIOR TO DAMAGE.
12. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDING AND WITHIN PAVED AREAS.
13. ALL TOPSOIL MUST BE REMOVED BEFORE FILL MATERIAL IS PLACED.
14. ALL WET, OR OTHERWISE UNSUITABLE SOILS MUST BE STABILIZED. THIS MAY BE ACCOMPLISHED BY DRYING, REMOVAL & REPLACEMENT, REMOVAL & DRYING & RECOMPACTION, OR SOIL TREATMENT (LIME/CEMENT) UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER.
15. ALL UNSURFACED AREAS, DISTURBED BY GRADING, OPERATION SHALL RECEIVE 6" OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER AND SEED WITH LOW MAINTENANCE GRASS SEED MIX. CONTRACTOR SHALL SEED DISTURBED AREAS IN ACCORDANCE WITH SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED. ALL EXPOSED SURFACE AREAS SHALL BE STABILIZED PER THE SWPPP AND LANDSCAPE REQUIREMENTS AS PART OF THIS PLAN SET.
16. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS SOIL TIGHT.
17. ALL STORM STRUCTURES SHALL HAVE A SMOOTH UNIFORM POURED MORTAR INVERT FROM INVERT IN TO INVERT OUT.
18. REFER TO STORM DETAILS FOR CITY OF HUDSON ALLOWED MATERIALS, INSTALLATION, AND TESTING. NOTE THAT PIPES LARGER THAN 15" WILL BE REQUIRED TO BE RCP PER CITY CODE.
19. ALL STORM SEWER STRUCTURE GRATES AND FRAMES WITHIN PAVEMENT SHALL BE HEAVY DUTY.
20. ALL STORM DRAINAGE SHALL BE PERFORMED IN ACCORDANCE WITH ALL CITY OF HUDSON AND ODOT STANDARDS.
21. ALL DOWNSPOUT DRAIN LINES OR ROOF LEADERS SHALL HAVE A 1.0% MINIMUM SLOPE, UNLESS OTHERWISE NOTED. CONNECT ALL DOWNSPOUTS AND ROOF LEADERS TO THE STORM SEWER SYSTEM. REFER TO ARCHITECTURAL PLANS FOR DOWNSPOUT AND ROOF LEADER LOCATIONS. PROVIDE POSITIVE DRAINAGE AND PAVEMENT REPAIR AS NEEDED.
22. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
23. THE STORM SEWER GRADE WILL BE SUCH THAT A MINIMUM COVER IS MAINTAINED TO WITHSTAND AASHTO HS-25 LOADING ON THE PIPE. PROVIDE MINIMUM 2.0 FEET OF COVER FOR ALL STORM SEWERS UNLESS OTHERWISE NOTED.
24. WHEN A SANITARY SEWER MAIN LIES ABOVE A STORM SEWER, OR WITHIN 18 INCHES BELOW, THE SANITARY SEWER WILL HAVE AN IMPERVIOUS ENCASEMENT OR BE CONSTRUCTED OF STRUCTURAL SEWER PIPE FOR A MINIMUM OF 10 FEET ON EACH SIDE OF WHERE THE STORM SEWER CROSSES.
25. IF EXISTING FIELD TILES ARE ENCOUNTERED DURING CONSTRUCTION THEY SHALL BE REPAIRED AND/OR TIED INTO A STORM SEWER SYSTEM AS NEEDED TO MAINTAIN POSITIVE DRAINAGE.

UTILITY NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE.
2. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
3. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST STANDARDS OF O.S.H.A. DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION. THIS TO INCLUDE BUT NOT LIMITED FOR ACCESS AND EGRESS FROM ALL EXCAVATION AND TRENCHING. CONTRACTOR IS RESPONSIBLE TO COMPLY WITH PERFORMANCE CRITERIA FOR O.S.H.A.
4. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING UTILITY DURING CONSTRUCTION AT NO COST TO THE OWNER.
5. ALL FILL MATERIAL IS TO BE IN PLACE AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
6. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL CONDUCT ALL REQUIRED TESTS TO THE SATISFACTION OF THE RESPECTIVE UTILITY REGULATIONS AND THE OWNER'S INSPECTION AUTHORITIES.
7. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITY'S INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.
8. WATER AND SANITARY UTILITIES SHALL HAVE TEN (10') FEET OF HORIZONTAL CLEARANCE WHEN PARALLEL OR 18" VERTICAL CLEARANCE WHEN CROSSING. ALL CLEARANCE DISTANCES SHALL BE MEASURE FROM OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE. THE CROSSING SHALL BE ARRANGED SO THAT THE SANITARY SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER LINE JOINTS.
9. IF A WATER LINE PASSES UNDER THE SANITARY SEWER LINE, THE SEWER LINE SHOULD BE CONSTRUCTED OF A WATERTIGHT MATERIAL APPROVED BY THE REGULATORY AGENCY FOR USE IN WATER MAIN CONSTRUCTION AND SHALL EXTEND TEN (10') FEET ON BOTH SIDES OF THE CROSSING, AS MEASURED PERPENDICULAR TO THE WATER LINES. ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE.
10. UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.
11. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL CONDUCT ALL REQUIRED TESTS TO THE SATISFACTION OF THE RESPECTIVE UTILITY REGULATIONS AND THE OWNER'S INSPECTION AUTHORITIES.
12. UTILITY TRENCHES WITHIN PAVED AREAS TO BE BACKFILLED PER UTILITY TRENCH DETAIL PROVIDED WITHIN THE CONSTRUCTION DETAILS SHEET.
13. ALL WATER LINE WORK SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF HUDSON WATERLINE STANDARDS, AND RECOMMENDED STANDARDS FOR WATER WORKS (10 STATES STANDARDS), LATEST EDITION AND STATE REGULATIONS.
14. INSTALL ALL WATER LINES WITH A MINIMUM COVER OF 4'.
15. ON-SITE WATER LINE MATERIAL SHALL BE PER CITY OF HUDSON STANDARDS, REFER TO WATER DETAILS. PRIOR TO CONSTRUCTION VERIFY ALL CITY OF HUDSON TESTING REQUIREMENTS THAT APPLY TO LATERAL INSTALLATION.
16. ON-SITE SANITARY SEWER LINE MATERIALS AND INSTALLATION SHALL FOLLOW SUMMIT COUNTY DSSS STANDARD CONSTRUCTION DRAWINGS AND PROCEDURES FOR SANITARY SEWERS. REFER TO THE PROCEDURES AND STANDARD DRAWINGS IN THE CONSTRUCTION DETAILS SHEETS.
17. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, SERVICE SIZES TO BE DETERMINED BY ARCHITECT.
18. CLEAN OUTS AND CURB BOXES WITHIN THE PAVED AREAS MUST HAVE TRAFFIC LOADING FRAMES AND COVERS.

EXHIBIT A
GENERAL CONSTRUCTION NOTES

1. CONSTRUCTION OF THE SITE WORK AND UTILITIES SHALL BE GOVERNED BY THE CITY OF HUDSON'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS REQUIRED FOR THE PROJECT.
3. THE CONTRACTOR MUST ALERT THE OHIO UTILITY PROTECTION SERVICES AT LEAST 48 HOURS BEFORE ANY EXCAVATION IS TO BEGIN.
4. ALL EXISTING APPURTENANCES (UTILITY POLES, VALVES, HYDRANTS, MANHOLES, ETC) ARE TO BE MAINTAINED BY THE CONTRACTOR UNLESS OTHERWISE SHOWN ON THE PLANS.
5. THE DESIGN ENGINEER CERTIFIES THAT ALL UTILITIES ARE SHOWN AS THEY APPEAR ON EXISTING RECORDS OR FIELD LOCATED.
6. ALL KNOWN ABOVE AND UNDERGROUND SERVICES HAVE BEEN NOTED ON THE DRAWINGS. THE CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR ANY SERVICES DAMAGED DURING THE CONSTRUCTION OF THE PROJECT WHETHER SHOWN OR NOT ON THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING THE SERVICE AS SOON AS POSSIBLE AT THE CONTRACTOR'S OWN EXPENSE.
7. VIDEO RECORDING OF PROJECT SHALL BE DELIVERED AND ACCEPTED BY THE CITY OF HUDSON ENGINEERING DEPARTMENT A MINIMUM OF 7 CALENDAR DAYS PRIOR TO START OF CONSTRUCTION ACTIVITIES.
8. NOTIFY THE CITY OF HUDSON ENGINEERING DEPARTMENT A MINIMUM OF FORTY-EIGHT HOURS (2 WORKING DAYS) PRIOR TO THE START OF CONSTRUCTION.
9. A PRECONSTRUCTION MEETING SHALL BE SCHEDULED A MINIMUM OF 48 HOURS (2 WORKING DAYS) AFTER SUBMISSION OF A MINIMUM OF 6 APPROVED SETS OF PLANS AND ALL SHOP DRAWINGS APPLICABLE TO THE PROPOSED IMPROVEMENTS. A PRECONSTRUCTION MEETING MUST BE HELD PRIOR TO START OF ANY CONSTRUCTION.
10. THE LIMITS OF CLEARING AND GRADING SHALL BE FIELD STAKED AND LINED WITH ORANGE CONSTRUCTION FENCING 48 HOURS (2 WORKING DAYS) PRIOR TO THE PRECONSTRUCTION MEETING. AREAS BEYOND THE LIMITS OF CLEARING AND GRADING SHALL NOT BE DISTURBED INCLUDING THE STOCKPILE OF ANY MATERIALS OR CONSTRUCTION TRAFFIC.
11. ALL ROAD SURFACES, EASEMENTS, OR RIGHT-OF-WAY DISTURBED BY THE CONSTRUCTION OF ANY PART OF THESE IMPROVEMENTS ARE TO BE RESTORED ACCORDING TO THE CITY OF HUDSON "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION" AS DIRECTED BY THE CITY OF HUDSON AND/OR ITS ENGINEER.
12. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CITY OF HUDSON OR ITS REPRESENTATIVE IF SUSPECTED HAZARDOUS MATERIAL OR ANY OTHER MATERIAL THAT MAY CREATE A HEALTH RISK IS DISCOVERED ON SITE.
13. ALL DISTURBED STORM SEWERS AND/OR APPURTENANCES, SIGNS, GUARD RAILING, MAIL AND/OR PAPER BOXES, DRIVE CULVERTS, FENCES, TREES, LANDSCAPING, OR OTHER ITEMS DISTURBED BY THE CONSTRUCTION SHALL BE RESTORED OR REPAIRED TO AT LEAST THE BEFORE-CONSTRUCTION CONDITION.
14. ANY DEFECTS DISCOVERED IN NEW CONSTRUCTION, WORKMANSHIP, EQUIPMENT OR MATERIALS SHALL BE REPAIRED, OR CORRECTED BY APPROVED METHODS AS DIRECTED BY THE CITY OF HUDSON.
15. NUCLEAR COMPACTION TESTING SHALL BE REQUIRED FOR ALL FILL AREAS OVER TWO FEET (2') IN DEPTH, AT 6" LIFTS PER ASTM A-1557, 95% MODIFIED.
16. APPROVAL BY THE CITY OF HUDSON ENGINEER CONSTITUTES NEITHER EXPRESSED NOR IMPLIED WARRANTIES AS TO THE FITNESS, ACCURACY, OR SUFFICIENCY OF PLANS, DESIGNS OR SPECIFICATIONS.
17. DURING TAPPING OF EXISTING UTILITIES, ANY TRAFFIC CONTROL REQUESTED OR REQUIRED BY THE CITY OF HUDSON WILL BE PROVIDED BY THE CONTRACTOR AT NO COST TO THE CITY.
18. COMPLIANCE WITH THE OCCUPATIONAL AND SAFETY ACT OF 1970 IS REQUIRED BY ALL CONTRACTORS ON THIS PROJECT.
19. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
20. ALL DISTURBED AREAS SHALL RECEIVE 4" OF TOPSOIL AND BE SEEDED AND MULCHED AS PER SECTION 9 - LANDSCAPING AND STREET TREES OF THE CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION.
21. IF MUD, SOIL, OR OTHER DEBRIS IS DEPOSITED ON ADJACENT STREETS, ROADS, OR OTHER PROPERTY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF SUCH AS DIRECTED BY THE CITY OF HUDSON OR ITS ENGINEER AT THE END OF EACH WORK DAY, OR AS REQUIRED DURING THE WORK DAY.
22. ALL PROPOSED SLOPES 3:1 OR STEEPER AND ALL EARTHEN DRAINAGE WAYS SHALL RECEIVE JUTE OR EXCELSIOR MATTING AS PER ODOT 671.
23. ALL STORM SEWERS WITHIN PUBLIC RIGHTS-OF-WAY AND CITY OF HUDSON EASEMENTS SHALL BE PER SECTION 4 - STORM COLLECTION OF THE CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION.
24. ALL PIPES SHALL BE PLACED OVER 4" OF BEDDING. BEDDING MATERIAL SHALL BE AS SPECIFIED IN CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION, FOR THE TYPE OF PIPE.
25. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND PROTECTING THE FLOW OF VEHICULAR AND PEDESTRIAN TRAFFIC AROUND THE JOB SITE. TRAFFIC CONTROL SHALL BE COORDINATED WITH THE CITY OF HUDSON POLICE DEPARTMENT.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PLANT TICKETS FOR ALL MATERIALS DELIVERED TO THE SITE. PLANT TICKETS MUST SHOW NET QUANTITY OF DELIVERED MATERIAL. MATERIAL DELIVERED OR PLACED WITHOUT PLANT TICKETS SHALL BE REMOVED AND PROPERLY DISPOSED AT THE EXPENSE OF THE CONTRACTOR.
27. ALL DELIVERED MATERIALS SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF HUDSON OR OTHER APPLICABLE AGENCIES. THE CITY OF HUDSON, OR ITS REPRESENTATIVE, RESERVES THE RIGHT TO REJECT ANY DELIVERED MATERIAL WHICH DOES NOT CONFORM TO THE APPLICABLE STANDARDS AND SPECIFICATIONS.
28. THE CITY OF HUDSON OR ITS REPRESENTATIVE, RESERVES, THE RIGHT TO HALT ALL CONSTRUCTION ACTIVITY FOR NONCONFORMANCE OF PLANS, SPECIFICATIONS AND OTHER APPLICABLE STANDARDS OR REGULATIONS.
29. ALL CHANGES TO APPROVED DRAWINGS AND/OR SPECIFICATIONS MUST BE REAPPROVED BY THE CITY OF HUDSON PRIOR TO CONSTRUCTION.
30. ALL PAVING MATERIAL MUST BE PROVIDED BY ODOT CERTIFIED SUPPLIER. WRITTEN PROOF SHALL BE REQUIRED UPON DELIVERY OF MATERIALS. THE CERTIFIED MIX DESIGN MUST BE SUBMITTED TO, AND APPROVED BY, THE CITY OF HUDSON PRIOR TO SCHEDULING A PRECONSTRUCTION MEETING.
31. CONTRACTOR/DEVELOPER SHALL PROVIDE ALL REQUIRED ROADWAY SIGNAGE AS PER ODOT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES INCLUDING STREET IDENTIFICATION SIGNAGE PER CITY STANDARDS FOR ALL ASPECTS OF THE IMPROVEMENT.
32. ALL BONDS AND OR LETTERS OF CREDIT SHALL NOT BE RELEASED OR REDUCED AND NO WATER OR SANITARY SEWER CUSTOMERS CAN BE CONNECTED UNTIL ALL RECORD DRAWINGS HAVE BEEN SUBMITTED, REVIEWED AND APPROVED BY THE CITY OF HUDSON.
33. ALL WORK, EXCEPT SIDEWALKS, STREET TREES AND STREET LIGHTS, AS PART OF THESE PLANS SHALL BE COMPLETED, INCLUDING PUNCH LIST ITEMS AND DEFICIENCY WORK WITHIN 1 YEAR OF THE DATE OF APPROVAL BY THE CITY ENGINEER. SIDEWALKS, STREET TREES AND STREET LIGHTS SHALL BE COMPLETED WITHIN TWO YEARS OF THE DATE OF APPROVAL BY THE CITY ENGINEER.
34. FAILURE TO COMPLETE THE PROJECT IN ITS ENTIRETY AS APPROVED BY THE PLANNING COMMISSION, INCLUDING PUNCH LIST ITEMS, WILL RESULT IN THE CITY OF HUDSON HOLDING ALL FUTURE ZONING CERTIFICATES UNTIL ALL WORK HAS BEEN COMPLETED AND APPROVED.
35. MANUFACTURERS OR SUPPLIERS AFFIDAVIT FOR ALL CONSTRUCTION MATERIALS SHALL BE PROVIDED AS PER THE CITY'S "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION PRIOR TO THE START OF CONSTRUCTION.
36. THE CONSTRUCTION OF SANITARY SEWERS, WATER MAINS, LIFT STATIONS AND APPURTENANCES IS PROHIBITED UNTIL ALL PLANS HAVE BEEN APPROVED BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY.
37. ALL SANITARY SEWERS SHALL COMPLY WITH THE SUMMIT COUNTY DEPARTMENT OF SANITARY SEWER SERVICES.
38. SHOP DRAWINGS FOR THE PROPOSED LIGHT FIXTURES SHALL BE ATTACHED TO THE APPROVED LIGHTING PLAN AND SUBMITTED WITH THE SIX SETS OF PLANS AS REQUIRED IN NOTE 8. THE LIGHT FIXTURES SHALL HAVE A RECESSED LAMP, FLAT LENSES AND OPTIONAL HOUSE SHIELDING AVAILABLE. THE CITY MAY REQUIRE HOUSE SHIELDS TO BE ADDED AND OTHER MODIFICATIONS AFTER CONSTRUCTION AT THE EXPENSE OF THE CONTRACTOR.
39. THE OWNER SHALL SUBMIT A NOTICE OF INTENT (N.O.I) APPLICATION TO THE OHIO ENVIRONMENTAL PROTECTION AGENCY (E.P.A) AND OBTAIN AUTHORIZATION FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (N.P.D.E.S) OR THE LATEST FEDERAL, STATE AND/OR LOCAL REGULATIONS. THE OWNER SHALL SUBMIT A COPY OF THE N.P.D.E.S. PERMIT TO THE CITY OF HUDSON 48 HOURS (2 WORKING DAYS) PRIOR TO SCHEDULING A PRECONSTRUCTION MEETING.
40. ALL EXCESS EXCAVATED MATERIAL WHICH HAS BEEN STOCKPILED AT THE WORK SITE, AND WHICH WILL NOT BE USED FOR BACKFILL OR OTHER FILL PURPOSES, SHALL BE REMOVED FROM THE PROJECT AREA WITHIN 48 HOURS OF THE EXCAVATION IN ACCORDANCE WITH SECTION 1.20 OF THE ENGINEERING STANDARDS.
41. ACTIVITIES AND LAND ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICE SHALL NOT BE OPERATED BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM WITHOUT PRIOR APPROVAL OF THE ENGINEER. IN ADDITION, ANY SUCH DEVICE SHALL NOT BE OPERATED AT ANY TIME IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.
42. THERE SHALL BE NO WORK ON PRIVATE PROPERTY WITHOUT WRITTEN CONSENT FROM THE CITY AND THE PRIVATE PROPERTY OWNER.

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STATE OF OHIO
JONATHAN T. KOCINSKI
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REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

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GENERAL NOTES

C2.0

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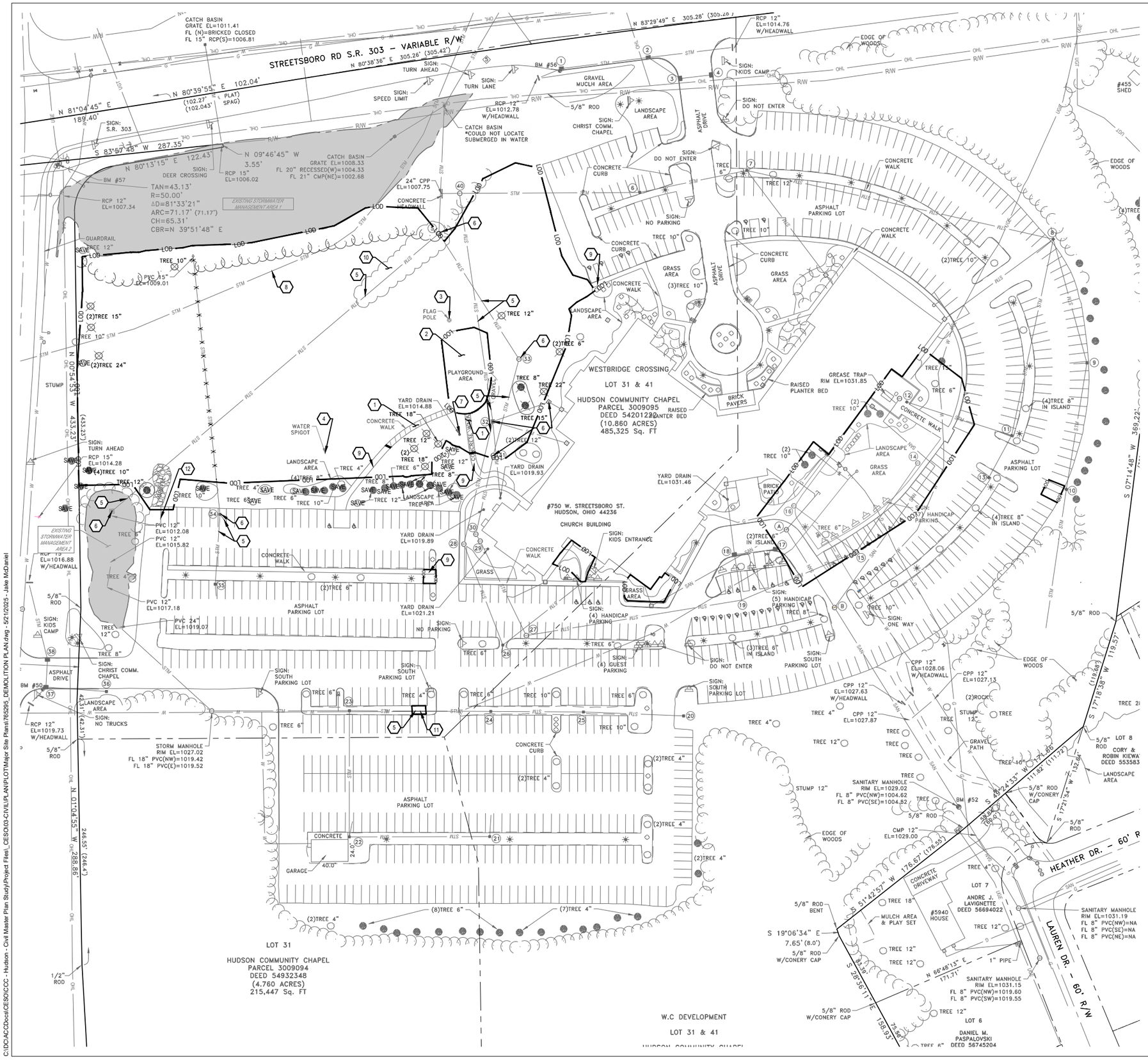

DEMOLITION LEGEND

EXISTING	
REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND	
PROPOSED	
	REMOVE EXISTING GRAVEL PAVEMENT
	REMOVE EXISTING PAVEMENT (OR AS NOTED ON THE PLANS)
	EXISTING STORM WATER MANAGEMENT
	SAWCUT LINE
	UTILITY LINE TO BE REMOVED / RELOCATED
	REMOVE AND DISPOSE OF EXISTING TREE
SAVE	PROTECT EXISTING TREE TO REMAIN. FOR TREE PROTECTION DETAIL, SEE SHEET C8.0.

CODED NOTES:

1. EXISTING SIDEWALK TO BE REMOVED.
2. EXISTING PLAYGROUND AREA TO REMAIN.
3. EXISTING TETHER BALL POLE TO BE RELOCATED. COORDINATE WITH OWNER FOR NEW LOCATION.
4. EXISTING UTILITY FIXTURE TO BE REMOVED / RELOCATED (COORDINATE WITH OWNER ON NEW HOSE BIB LOCATION FOLLOWING EXISTING WATER LINE).
5. EXISTING STORM SEWER TO REMAIN.
6. EXISTING STORM STRUCTURE TO REMAIN.
7. EXISTING YARD DRAIN TO REMAIN.
8. EXISTING STORM SEWER SHOWN PER RECORD DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER IF STORM SEWER IS ENCOUNTERED DURING CONSTRUCTION.
9. EXISTING SIDEWALK TO REMAIN.
10. EXISTING STORM SEWER TO BE POTHOLED IN THIS LOCATION TO FIELD VERIFY DEPTH AND LOCATION. REFER TO UTILITY PLAN FOR ADDITIONAL NOTES.
11. EXISTING WATER SERVICE LINE TO REMAIN.
12. EXISTING PAVEMENT MARKING TO BE REMOVED.

N

50 0 50 100

GRAPHIC SCALE (IN FEET)
1 in. = 50 ft.

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

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DEMOLITION PLAN

C3.0

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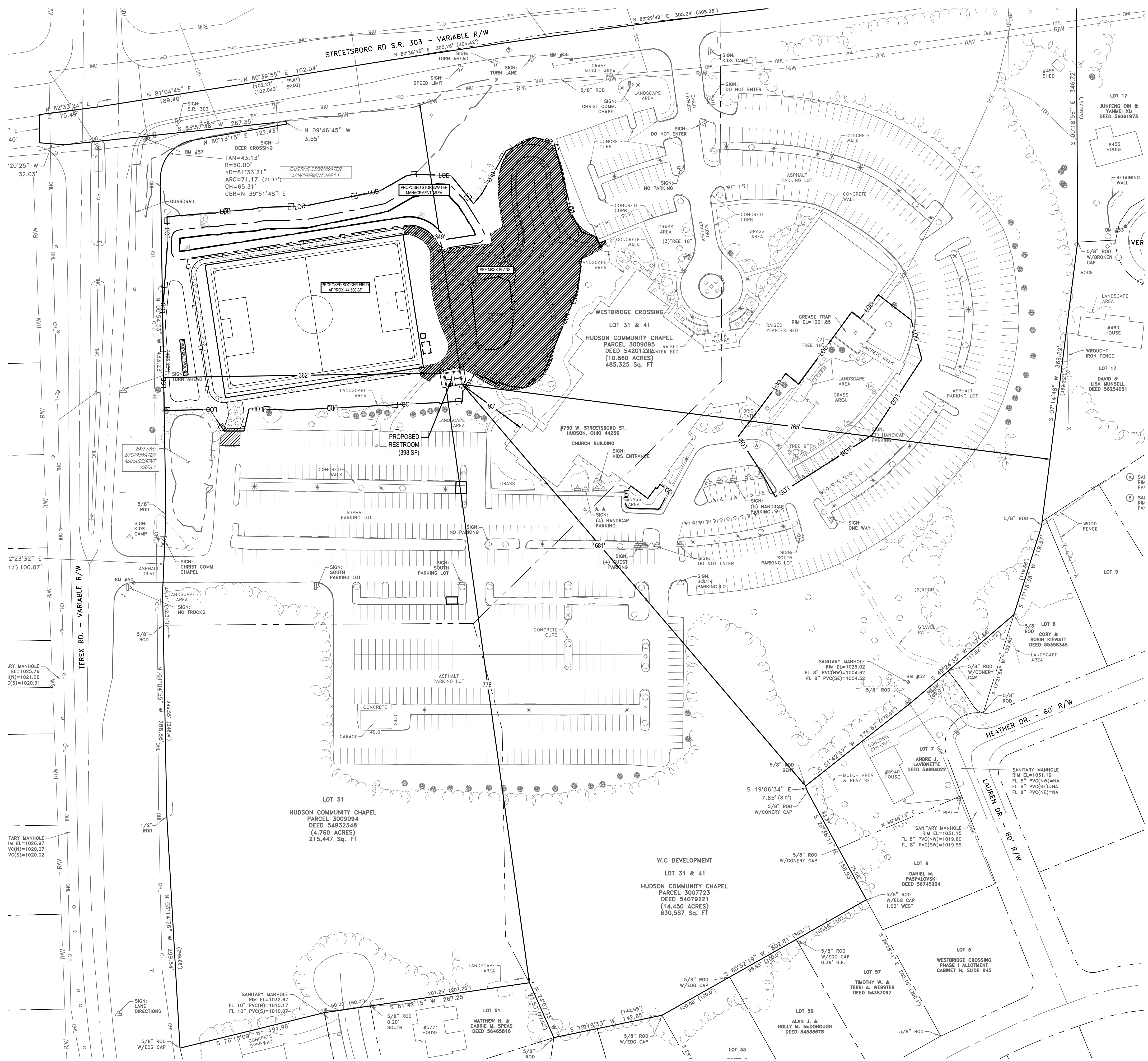


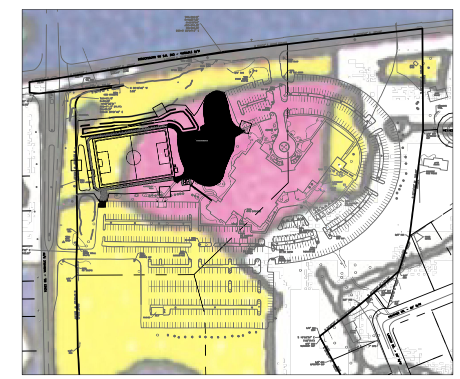
SITE LEGEND

EXISTING

REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND

PROPOSED

- PROPOSED BUILDING
- PROPOSED ASPHALT PAVEMENT
- PROPOSED MILL & OVERLAY
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED CONCRETE SIDEWALK
- PROPOSED TURF SOCCER FIELD
- R/W — RIGHT-OF-WAY
- PROPERTY LINE
- SETBACK
- EASEMENT
- CENTERLINE
- CONCRETE CURB
- PAVEMENT/WALK
- 7 — PARKING SPACE COUNT
- SIGN
- CATCH BASIN
- Ⓓ — STORM MANHOLE
- Ⓢ — SANITARY MANHOLE
- CURB INLET
- CO — CLEANOUT
- YD — YARD DRAIN
- DS — DOWN SPOUT
- LIGHT POLE



Undeveloped Composite

- -2 thru 1
- 2 thru 5
- 6 thru 9
- 10 thru 13
- 14 thru 18

INDEX OF ECOLOGICAL INTEGRITY

N

60 0 60 120

GRAPHIC SCALE (IN FEET)
1 in. = 60 ft.

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FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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5/22/2025

SOL HARRIS/DAY ARCHITECTURE

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Drawing Title:

OVERALL SITE

C4.0

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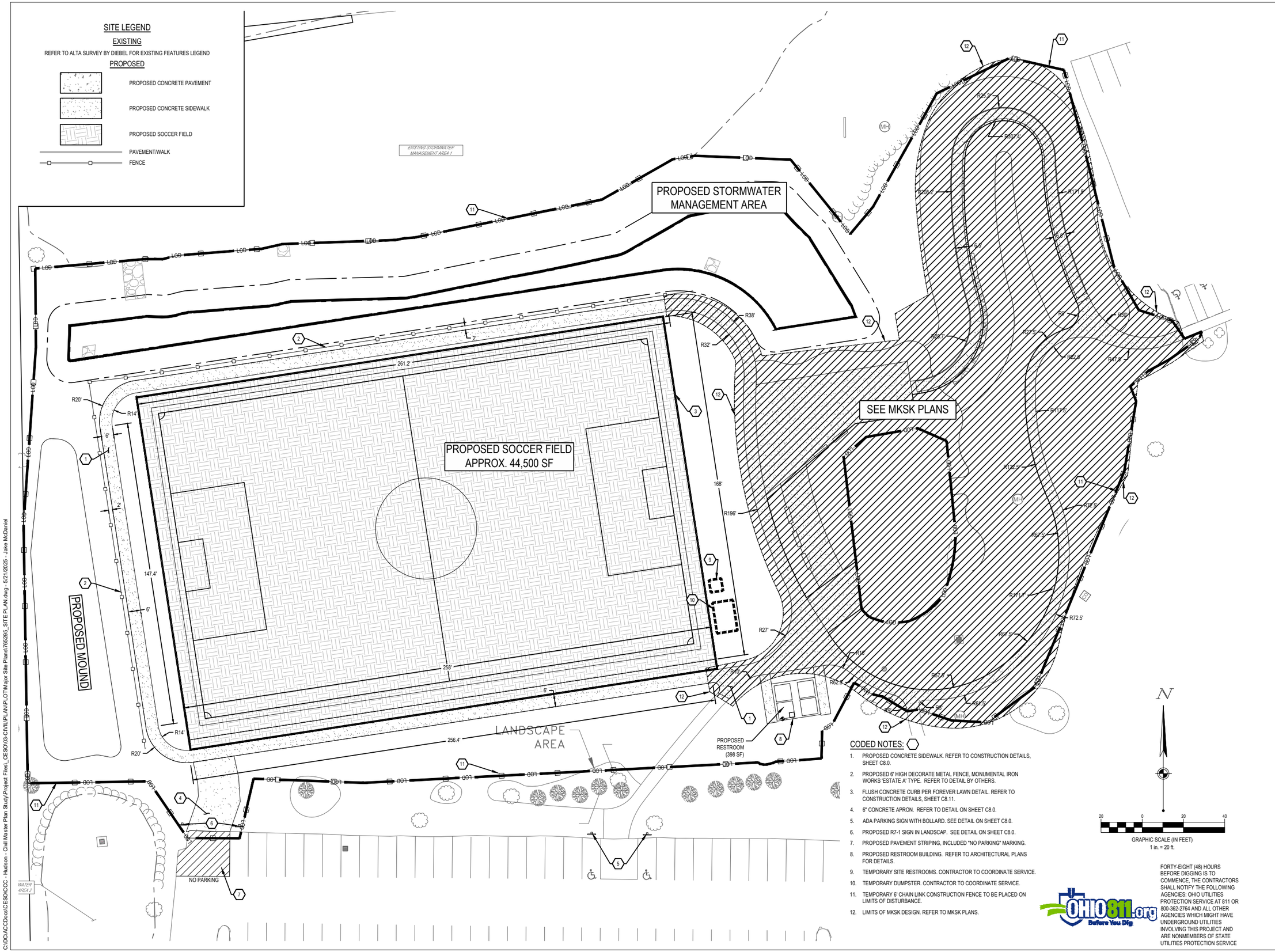

CODED NOTES:

1. PROPOSED CONCRETE SIDEWALK. REFER TO CONSTRUCTION DETAILS, SHEET C8.0.
2. PROPOSED 6' HIGH DECORATE METAL FENCE, MONUMENTAL IRON WORKS 'ESTATE A' TYPE. REFER TO DETAIL BY OTHERS.
3. FLUSH CONCRETE CURB PER FOREVER LAWN DETAIL. REFER TO CONSTRUCTION DETAILS, SHEET C8.11.
4. 6" CONCRETE APRON. REFER TO DETAIL ON SHEET C8.0.
5. ADA PARKING SIGN WITH BOLLARD. SEE DETAIL ON SHEET C8.0.
6. PROPOSED R7-1 SIGN IN LANDSCAP. SEE DETAIL ON SHEET C8.0.
7. PROPOSED PAVEMENT STRIPING, INCLUDED "NO PARKING" MARKING.
8. PROPOSED RESTROOM BUILDING. REFER TO ARCHITECTURAL PLANS FOR DETAILS.
9. TEMPORARY SITE RESTROOMS. CONTRACTOR TO COORDINATE SERVICE.
10. TEMPORARY DUMPSTER. CONTRACTOR TO COORDINATE SERVICE.
11. TEMPORARY 6' CHAIN LINK CONSTRUCTION FENCE TO BE PLACED ON LIMITS OF DISTURBANCE.
12. LIMITS OF MKSK DESIGN. REFER TO MKSK PLANS.

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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FIELD SITE AND PAVEMENT PLAN

C4.1

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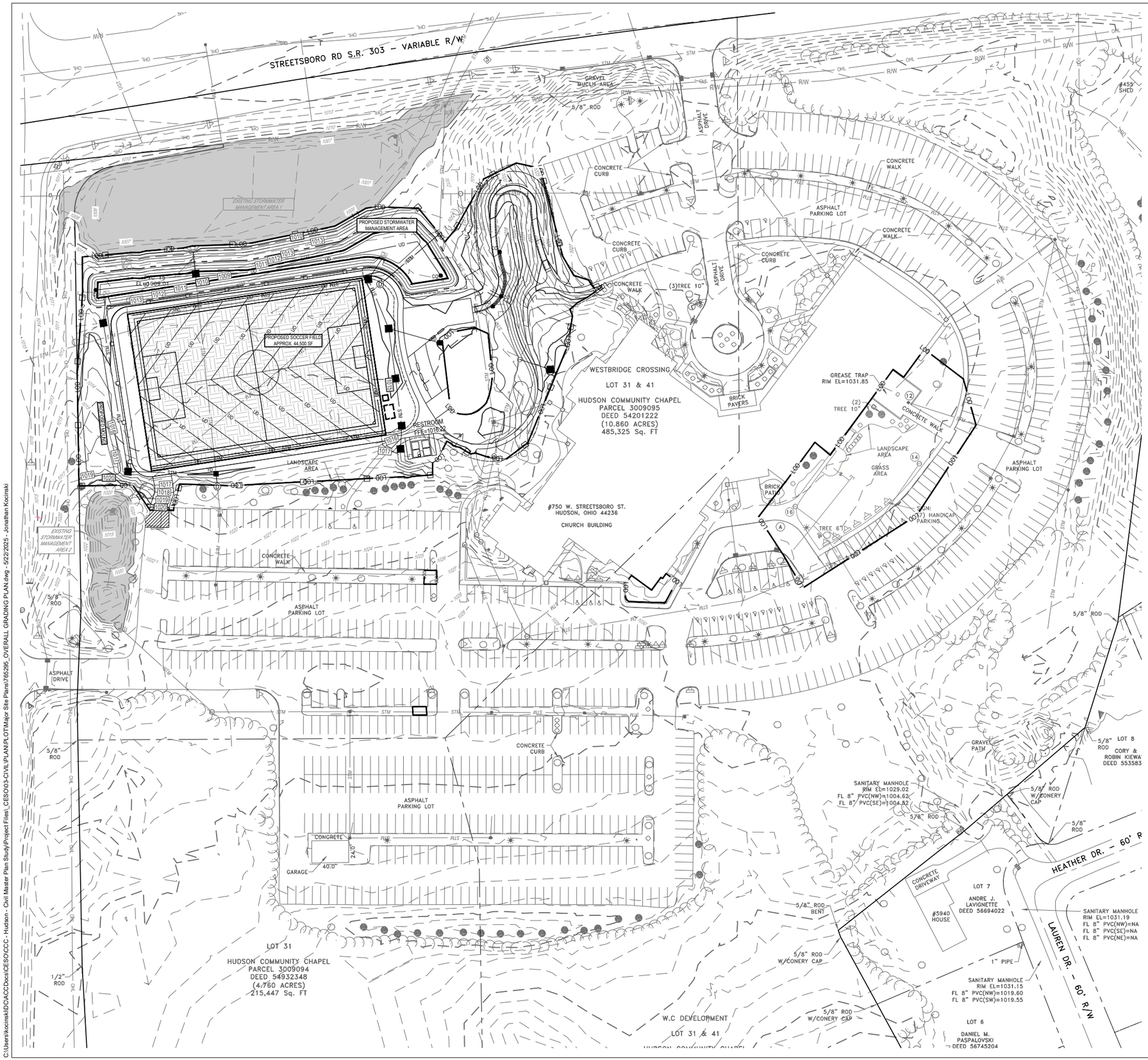

GRADING LEGEND

EXISTING

REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND

PROPOSED

- BUILDING
- 960 — MAJOR CONTOUR
- 962 — MINOR CONTOUR
- (1) — STRUCTURE NUMBER
- CATCH BASIN
- CO — CLEANOUT
- YD — YARD DRAIN

N

GRAPHIC SCALE (IN FEET)
1 in. = 50 ft.

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FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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OVERALL GRADING PLAN

C5.0

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GRADING LEGEND

EXISTING

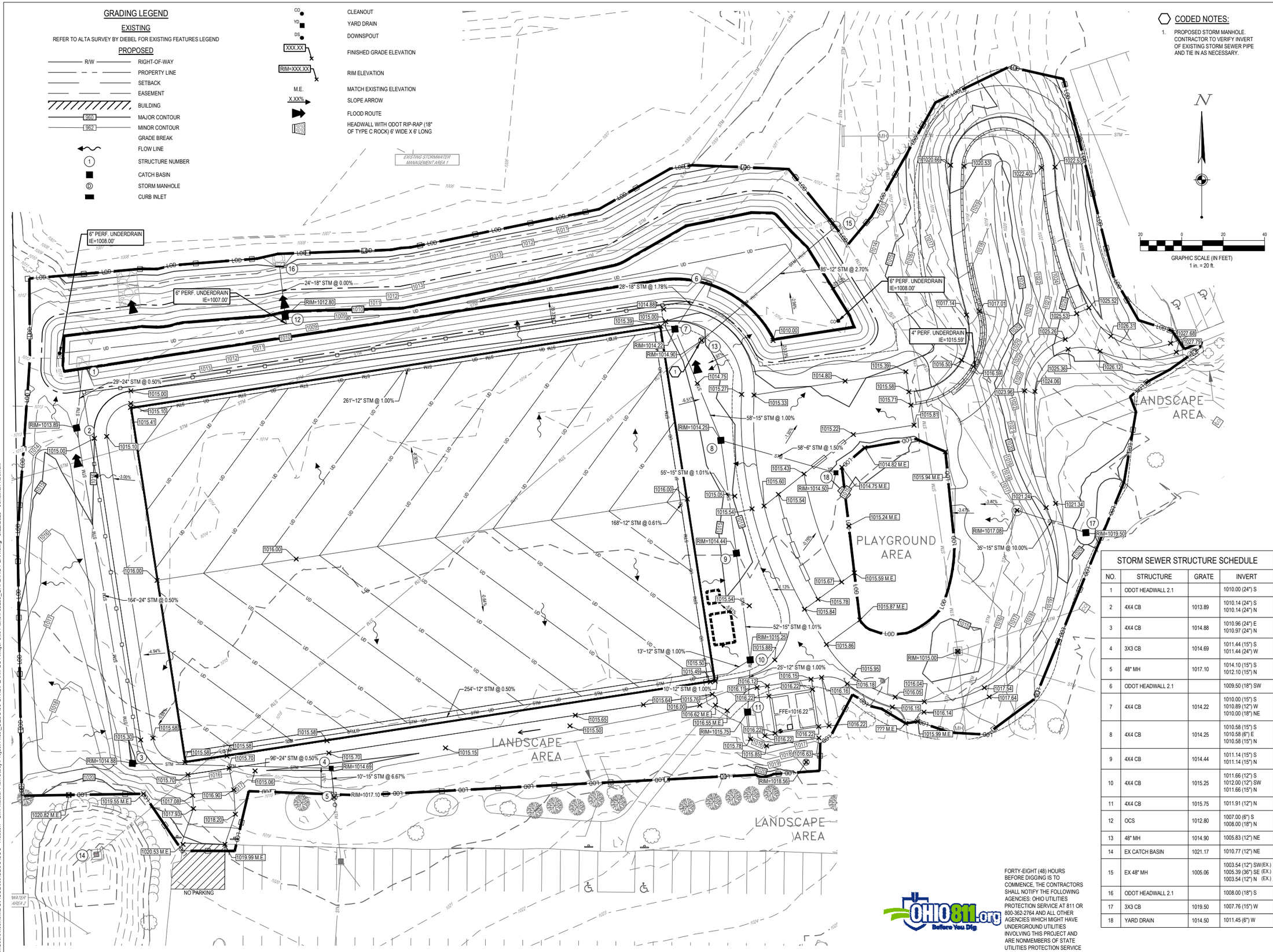
REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND

PROPOSED

- R/W — RIGHT-OF-WAY
- PROPERTY LINE
- SETBACK
- EASEMENT
- BUILDING
- 960 — MAJOR CONTOUR
- 962 — MINOR CONTOUR
- GRADE BREAK
- FLOW LINE
- 1 — STRUCTURE NUMBER
- CATCH BASIN
- D — STORM MANHOLE
- CURB INLET
- CO — CLEANOUT
- YD — YARD DRAIN
- DS — DOWNSPOUT
- XXX.XX — FINISHED GRADE ELEVATION
- RIM=XXX.XX — RIM ELEVATION
- M.E. — MATCH EXISTING ELEVATION
- X.XX% — SLOPE ARROW
- FLOOD ROUTE
- HEADWALL WITH ODOT RIP-RAP (18" OF TYPE C ROCK) 6' WIDE X 6' LONG

CODED NOTES:

1. PROPOSED STORM MANHOLE. CONTRACTOR TO VERIFY INVERT OF EXISTING STORM SEWER PIPE AND TIE IN AS NECESSARY.



STORM SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	GRATE	INVERT
1	ODOT HEADWALL 2.1		1010.00 (24") S
2	4X4 CB	1013.89	1010.14 (24") S 1010.14 (24") N
3	4X4 CB	1014.88	1010.96 (24") E 1010.97 (24") N
4	3X3 CB	1014.69	1011.44 (15") S 1011.44 (24") W
5	48" MH	1017.10	1014.10 (15") S 1012.10 (15") N
6	ODOT HEADWALL 2.1		1009.50 (18") SW
7	4X4 CB	1014.22	1010.00 (15") S 1010.89 (12") W 1010.00 (18") NE
8	4X4 CB	1014.25	1010.58 (15") S 1010.58 (6") E 1010.58 (15") N
9	4X4 CB	1014.44	1011.14 (15") S 1011.14 (15") N
10	4X4 CB	1015.25	1011.66 (12") S 1012.00 (12") SW 1011.66 (15") N
11	4X4 CB	1015.75	1011.91 (12") N
12	OCS	1012.80	1007.00 (6") S 1008.00 (18") N
13	48" MH	1014.90	1005.83 (12") NE
14	EX CATCH BASIN	1021.17	1010.77 (12") NE
15	EX 48" MH	1005.06	1003.54 (12") SW (EX.) 1005.39 (36") SE (EX.) 1003.54 (12") N (EX.)
16	ODOT HEADWALL 2.1		1008.00 (18") S
17	3X3 CB	1019.50	1007.76 (15") W
18	YARD DRAIN	1014.50	1011.45 (6") W

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

OHIO811.org Before You Dig.

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STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	1"=20'
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
FIELD GRADING PLAN

C5.1

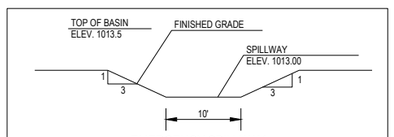
C:\Users\kocinski\ID\CACC\Docs\CESO\CCC - Hudson - Civil Master Plan Study\Project Files_CESO\03-CIVIL\PLAN\PLOT\Major Site Plans\765295_GRADING PLAN.dwg - 5/22/2025 - Jonathan Kocinski

BASIN ELEVATIONS
TOP OF BASIN = 1013.50
EMERGENCY SPILLWAY = 1013.00
POND OUTLET = 1008.00
WATER QUALITY ELEVATION = 1010.25
10-YR STORM EVENT = 1011.58
100-YR STORM EVENT = 1012.46
BASIN VOLUMES
WATER QUALITY VOLUME = 9,108 CF
BASIN VOLUME = 44,483 CF

BMP WATER QUALITY STRUCTURE NOTICE

THE OUTLET STRUCTURE IS AN INTEGRAL PART OF THE PRIVATE STORM SEWER SYSTEM DEPICTED IN THESE DRAWINGS. RESPONSIBILITY AND ASSURANCE OF PERIODIC MAINTENANCE AND THE CONTINUOUS FUNCTIONALITY OF THESE STORMWATER QUALITY DEVICES IS PERPETUAL: BEGINNING WITH THE OWNER AT THE TIME OF INSTALLATION AND CONTINUING TO ALL FUTURE OWNERS OF SAID PRIVATE STORM SEWER SYSTEM.

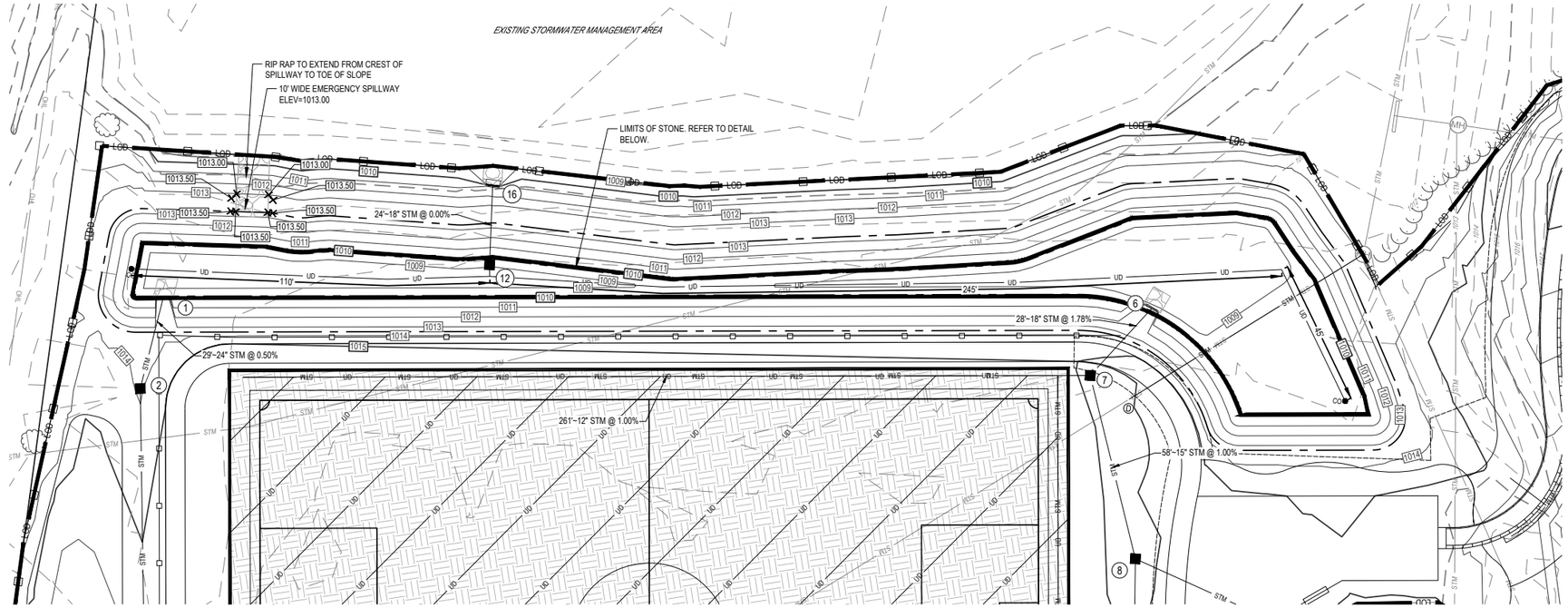
CONTRACTOR TO ENSURE THAT THE DETENTION SYSTEM (INCLUDING ALL DETENTION STRUCTURES AND WATER QUALITY STRUCTURES) IS CLEAN AND FUNCTIONS PROPERLY BEFORE SYSTEM IS TURNED OVER TO THE OWNER.



EMERGENCY SPILLWAY
NOT TO SCALE

FINAL INSPECTION REPORTS AND AS BUILT CERTIFICATION

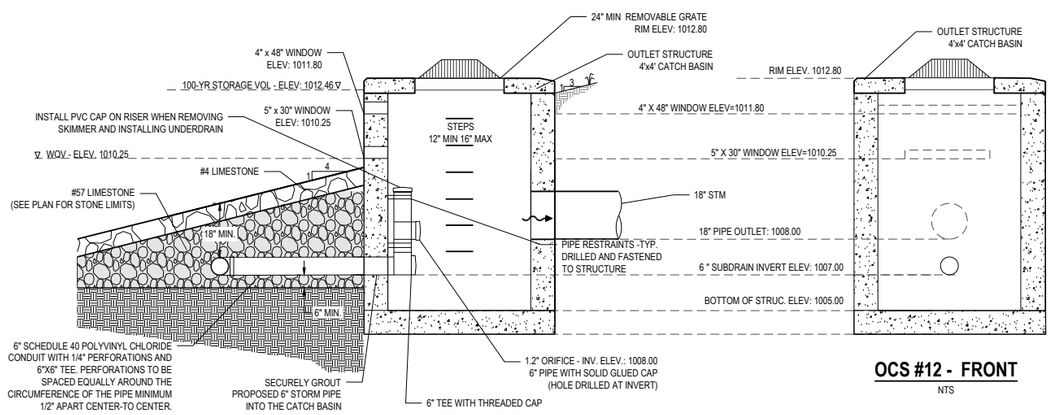
THE OWNER SHALL CERTIFY IN WRITING TO THE COMMUNITY WITHIN 30 DAYS OF COMPLETION OF THE STORM WATER MANAGEMENT PRACTICES ARE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND AND SPECIFICATIONS. THE OWNER SHALL FURTHER PROVIDE AS BUILT CERTIFICATIONS OF THE LOCATIONS OF ALL ACCESS AND MAINTENANCE EASEMENT AND EACH STORM WATER MANAGEMENT PRACTICE, INCLUDING THOSE PRACTICES PERMITTED TO BE LOCATED IN, OR WITHIN 50 FEET OF, WATER RESOURCES, AND THE DRAINAGE AREAS SERVED BY EACH STORM WASTE MANAGEMENT PRACTICE. A CURRENT REGISTERED PROFESSIONAL SURVEYOR IN THE STATE OF OHIO SHALL PERFORM THE AS BUILT PLAN.



TOTAL RELEASE RATES (CFS)		
	PRE-DEVELOPED	POST-DEVELOPED
1 YEAR	5.42 CFS	2.04 CFS
2 YEAR	7.38 CFS	3.23 CFS
5 YEAR	10.22 CFS	4.52 CFS
10 YEAR	12.67 CFS	5.39 CFS
25 YEAR	16.25 CFS	7.37 CFS
50 YEAR	19.29 CFS	9.90 CFS
100 YEAR	22.52 CFS	11.66 CFS

N

20 0 20 40
GRAPHIC SCALE (IN FEET)
1 in. = 20 ft.

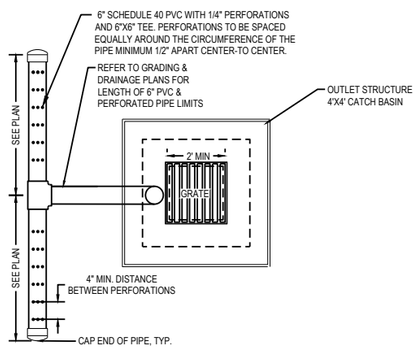


OCS #12 - OUTLET STRUCTURE PROFILE

NTS

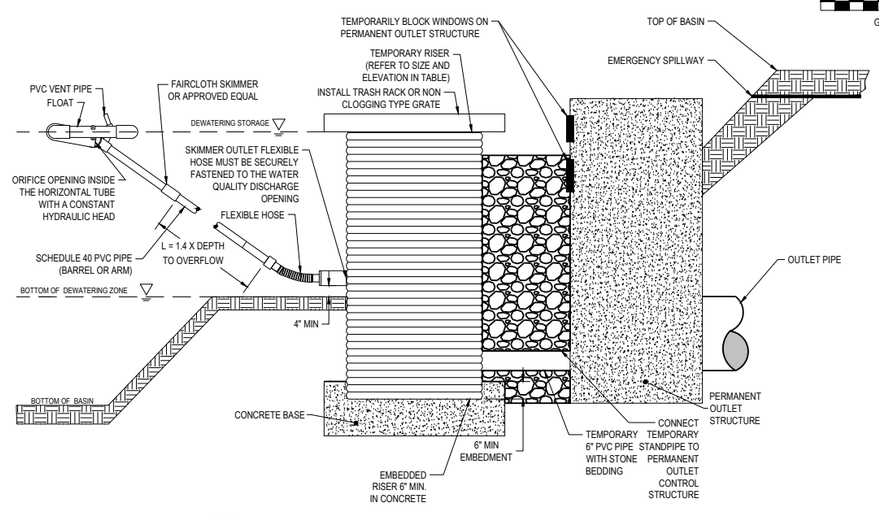
OCS #12 - FRONT

NTS



OCS #12 - OUTLET STRUCTURE PLAN

NTS



	BASIN #
DRAINAGE AREA (AC)	5.0
	ELEVATION
TOP OF BASIN	1013.5
EMERGENCY SPILLWAY	1013
SECONDARY OUTLET	1011
SKIMMER OUTLET	1009.5
BOTTOM OF BASIN	1009
	VOLUME (CF)
SEDIMENT STORAGE REQUIRED	3290
SEDIMENT STORAGE PROVIDED	4940
DEWATERING - REQUIRED	8892
DEWATERING - PROVIDED	10752
SKIMMER SIZING	
DAYS TO DRAIN - REQUIRED	2
DAYS TO DRAIN - PROVIDED	3
SKIMMER ARM DIAM. (IN)	2
SKIMMER ORIFICE DIAM. (IN)	1 3/4

NOTES:
1. DIMENSIONS - REFER TO LIMITS OF EXCAVATION, SLOPES, PIPE INFORMATION , AND ADDITIONAL EROSION CONTROL MEASURES ON THE CONSTRUCTION DRAWINGS.
2. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
3. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
4. USE FAIRCLOTH SKIMMER OR APPROVED EQUAL.
5. REMOVE SKIMMER UPON ACHIEVING FINAL STABILIZATION. INSTALL PERMANENT OUTLET PROTECTION / RIP RAP.
6. REFER TO OUTLET STRUCTURE DETAIL FOR PERMANENT WATER QUALITY OR RUNOFF CONTROL MEASURES.

SEDIMENT BASIN SKIMMER W/ RISER

NTS

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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STATE OF OHIO
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Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
DETENTION DETAIL

C5.2

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PROJECT NARRATIVE:

PLAN ENGINEERS: CESO, INC.
175 MONTROSE WEST AVE, SUITE 400
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PHONE: (234) 349-2514
CONTACT: HANNAH OKES

OWNER: CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OH 44236
PHONE: (330) 493-3722

THE PROPOSED PROJECT IS THE CONSTRUCTION OF TURF SOCCER FIELD AND RESTROOM AREA. THE SUBJECT PARCEL IS 28.596 ACRES. THE TOTAL DISTURBED AREA IS 3.93 ACRES.

THE SITE DRAINS TO THE EXISTING SITE EXITS THE SITE VIA THE EXISTING STORMWATER MANAGEMENT AREA, LEAVES THE SITE TO THE NORTH, AND EVENTUALLY OUTFALLS INTO MUD BROOK.

ON-SITE SOILS:	Ca	CANADICE SILTY CLAY LOAM	0% - 2% SLOPES	SOIL GROUP D 0.5% OF SITE AREA
	CcB	CANEADEA SILT LOAM	2% - 6% SLOPES	SOIL GROUP D 46.9% OF SITE AREA
	CcC2	CHILI GRAVELLY LOAM	6% - 12% SLOPES	SOIL GROUP A 6.9% OF SITE AREA
	EuC	ELLSWORTH-URBAN LAND COMPLEX	6% - 18% SLOPES	SOIL GROUP D 7.2% OF SITE AREA
	GbC2	GEEBURG SILT LOAM	6% - 12% SLOPES	SOIL GROUP D 19.3% OF SITE AREA
	GbD2	GEEBURG SILT LOAM	12% - 18% SLOPES	SOIL GROUP D 1.6% OF SITE AREA
	Mn	MAHONING-URBAN LAND COMPLEX	0% - 2% SLOPES	SOIL GROUP D 9.0% OF SITE AREA
	Sb	SEBRING SILT LOAM	0% - 2% SLOPES	SOIL GROUP C/D 1.9% OF SITE AREA
	WrB	WHEELING SILT LOAM	2% - 6% SLOPES	SOIL GROUP B 6.7% OF SITE AREA

THE PRE-EXISTING CONDITIONS ON-SITE IS EXISTING CHURCH BUILDING, PARKING LOT, AND SOCCER FIELD.

NOI #TBD

SWPPP GENERAL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL SHALL BE PERFORMED ACCORDING TO: SWPPP AND DETAIL PLANS; ACCORDING TO THE LATEST EPA AUTHORIZATION FOR CONSTRUCTION ACTIVITY UNDER THE "NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM" (NPDES); ANY AND ALL REQUIRED PERMITS, REPORTS, AND RELATED DOCUMENTS. ALL CONTRACTORS AND SUBCONTRACTORS MUST BECOME FAMILIAR WITH ALL OF THE ABOVE.
2. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMPS) AS REQUIRED BY THE SWPPP. ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AND GRADE CHANGES TO THE SITE AT NO ADDITIONAL COST TO OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
3. CONTRACTOR SHALL MINIMIZE CLEARING AND DISTURBANCE TO THE ENVIRONMENT TO THE MAXIMUM EXTENT POSSIBLE OR AS REQUIRED BY THE GENERAL PERMIT.
4. SEDIMENT STRUCTURES AND PERIMETER SEDIMENT BARRIERS SHALL BE IMPLEMENTED AS THE FIRST STEP OF GRADING WITHIN SEVEN (7) DAYS FROM THE START OF CLEARING AND GRUBBING, AND SHALL CONTINUE TO FUNCTION UNTIL THE DEVELOPMENT AREA IS STABILIZED.
5. PERMANENT SOIL STABILIZATION OF DISTURBED AREAS BY MEANS OF VEGETATION, LANDSCAPE TYPE MULCHING, MATTING, SOD, RIP RAP, AND OTHER APPROVED LANDSCAPING TECHNIQUES TO BE APPLIED AS FOLLOWS:
   - WITHIN SEVEN (7) DAYS OF ANY AREA THAT WILL BE DORMANT FOR ONE (1) YEAR OR MORE.
   - WITHIN TWO (2) DAYS OF ANY AREA WITHIN 50 FEET OF A STREAM AT FINAL GRADE.
   - WITHIN SEVEN (7) DAYS FOR ANY OTHER AREA AT FINAL GRADE.
6. TEMPORARY SOIL STABILIZATION OF DISTURBED AREAS BY MEANS OF TEMPORARY VEGETATION, MULCHING, GEOTEXTILES, SOD, PRESERVATION OF EXISTING VEGETATION, AND OTHER APPROVED TECHNIQUES TO BE APPLIED AS FOLLOWS:
   - WITHIN TWO (2) DAYS OF ANY AREA WITHIN 50 FEET OF A STREAM NOT AT FINAL GRADE.
   - WITHIN SEVEN (7) DAYS OF ANY AREA THAT WILL BE DORMANT FOR MORE THAN TWENTY ONE (21) DAYS, BUT LESS THAN ONE (1) YEAR.
   - PRIOR TO THE ONSET OF WINTER WEATHER FOR AREAS THAT WILL BE IDLE OVER WINTER.
7. TEMPORARY SEEDING, MULCHING, AND FERTILIZER SPECIFICATIONS:

   SEEDING: ANNUAL RYEGRASS AT 2.02 POUNDS PER 1,000 S.F.

   MULCHING: STRAW MATERIAL SHALL BE UNROTTED SMALL GRAIN STRAW APPLIED AT A RATE OF TWO (2) TON/ACRE, OR 80-100 POUNDS PER 1,000 S.F. MULCH MATERIALS SHALL BE RELATIVELY FREE OF ALL KINDS OF WEEDS AND SHALL BE FREE OF PROHIBITIVE NOXIOUS WEEDS. MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICAL MEANS. FROM NOVEMBER 01 THRU MARCH 15 INCREASE THE RATE OF STRAW MULCH TO THREE (3) TON/ACRE.

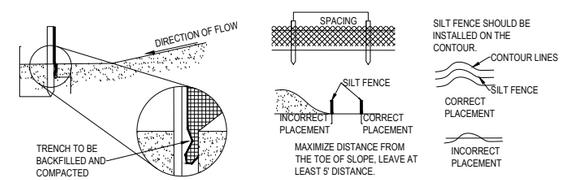
   FERTILIZER: APPLY FERTILIZER AT HALF THE RATE OF PERMANENT APPLICATION AND AS PER SPECIFICATIONS. IF PROJECT CONDITIONS PREVENT FERTILIZING THE SOIL, THEN THIS ITEM MAY BE WAIVED.
8. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION. ALL SLOPES 3:1 OR GREATER THAN 3:1 SHALL BE FERTILIZED, SEEDED, AND CURLEX BLANKETS BY AMERICAN EXCELSIOR COMPANY, NORTH AMERICAN GREEN, INC. OR AN APPROVED EQUAL AS SPECIFIED IN THE PLANS SHALL BE INSTALLED ON THE SLOPES.
9. NO SOLID (OTHER THAN SEDIMENT) OR LIQUID WASTE, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED IN STORM WATER RUNOFF. ALL NON-SEDIMENT POLLUTANTS MUST BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL GUIDELINES. WASH OUT OF CEMENT TRUCKS SHOULD OCCUR IN DESIGNATED PIT OR DIKED AREAS, WHERE WASHINGS CAN BE REMOVED AND PROPERLY DISPOSED OFF-SITE WHEN THEY HARDEN. STORAGE TANKS SHOULD ALSO BE LOCATED IN PIT OR DIKED AREAS. IN ADDITION, SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS TO CLEAN AND CONTAIN FUEL AND CHEMICAL SPILLS MUST BE KEPT ON SITE.
10. F THE ACTION OF VEHICLES TRAVELING OVER THE STABILIZED CONSTRUCTION EXIT DOES NOT SUFFICIENTLY REMOVE MOST OF THE DIRT AND MUD, THEN THE TIRES MUST BE WASHED BEFORE VEHICLES ENTER A PUBLIC ROAD. PROVISIONS MUST BE MADE TO INTERCEPT THE WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.
11. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DISPOSED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE SITE THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
12. DUST CONTROL USING APPROVED MATERIALS MUST BE PERFORMED AT ALL TIMES. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION IS PROHIBITED.
13. ON-SITE AND OFF-SITE STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION BY THE USE OF BEST MANAGEMENT PRACTICES. THESE AREAS MUST BE SHOWN IN THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS. AT A MINIMUM SILT FENCE TO BE PLACED AT PERIMETER OF STOCKPILE AREA TO PREVENT SOIL FROM LEAVING THE STOCKPILE AREA.
14. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED ONTO THE ROADWAYS OR INTO THE STORM SEWERS MUST BE REMOVED IMMEDIATELY.
15. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH DAY; THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR ASPHALT FOR ROAD CONSTRUCTION.
16. THE LAST LAYER OF SOIL, INCLUDING TOP SOIL SHOULD BE COMPACTED TO 80% - 85% OF THE MAXIMUM STANDARD PROCTOR DENSITY, IN AREAS OUTSIDE THE PARKING LOT THAT WILL RECEIVE VEGETATION. THIS IS PARTICULARLY IMPORTANT IN CUT SLOPE AND EMBANKMENT AREAS. IN PAVEMENT AND ISLAND AREAS, IT IS RECOMMENDED THAT THE SOIL BE COMPACTED TO 98% AND 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY RESPECTIVELY; THE LAST COMPACTED LAYER MAY BE SCARIFIED TO IMPROVE THE SOIL GROWTH CHARACTERISTICS.
17. ALL DEWATERING ACTIVITIES SUCH AS PUMPING DOWN OF FLOODED FOUNDATION AND UTILITY TRENCHES MUST PASS THROUGH THE RETROFITTED DETENTION BASIN OR A SEDIMENT CONTROL PRACTICE PRIOR TO WATER LEAVING THE SITE.
18. SILT FENCE AND OTHER PERIMETER EROSION CONTROL MEASURES SHOWN OFF LIMITS OF DISTURBANCE FOR CLARITY PURPOSES ONLY. CONTRACTOR TO ENSURE PERIMETER EROSION CONTROL MEASURES ARE PLACED AT THE LIMITS OF DISTURBANCE. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ENGINEER PRIOR TO PLACEMENT OF ANY EROSION CONTROL MEASURES.

SWPPP MAINTENANCE NOTES

1. ALL CONTROL MEASURES STATED IN THE SWPPP SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL TEMPORARY OR PERMANENT STABILIZATION OF THE SITE IS ACHIEVED. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED BY A QUALIFIED PERSON IN ACCORDANCE TO THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED ACCORDING TO THE FOLLOWING:
2. INLET PROTECTION DEVICES AND CONTROLS SHALL BE REPAIRED OR REPLACED WHEN THEY SHOW SIGNS OF UNDERMINING AND OR DETERIORATION. INLET PROTECTION DEVICES SHOULD BE ROUTINELY CLEANED AND MAINTAINED.
3. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STANDING OF GRASS IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
4. MINIMIZE OFF-SITE SEDIMENT TRACKING OF VEHICLES BY THE USE OF STONE MATERIAL IN ALL CONSTRUCTION ENTRANCES, ALONG WITH REGULARLY SCHEDULED SWEEPING/GOOD HOUSEKEEPING. STABILIZED CONSTRUCTION ENTRANCES TO BE PROPERLY MAINTAINED BY GENERAL CONTRACTOR AND IN GOOD WORKING ORDER AT ALL TIMES, THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE STONE AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE) BY GENERAL CONTRACTOR. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
6. CONTRACTORS AND SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING ALL SEDIMENT FROM THE SITE, AND STORM SEWER SYSTEMS. SEDIMENT DEPOSITION DURING SITE STABILIZATION MUST ALSO BE REMOVED.
7. STONE CONSTRUCTION EXIT TO BE MAINTAINED BY GENERAL CONTRACTOR UNTIL SITE HAS BEEN PAVED OR IS NO LONGER REQUIRED.
8. ALL CATCH BASIN GRATES ARE TO BE PROTECTED WITH INLET BAGS AFTER THEY ARE INSTALLED. THEY SHOULD BE ROUTINELY CLEANED AND MAINTAINED.
9. CONTAINERS SHALL BE AVAILABLE FOR DISPOSAL OF DEBRIS, TRASH, HAZARDOUS OR PETROLEUM WASTES. ALL CONTAINERS MUST BE COVERED AND LEAK-PROOF. ALL WASTE MATERIAL SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THE PERTINENT MATERIAL
10. BRICKS, HARDENING CONCRETE AND SOIL WASTE SHALL BE FREE FROM CONTAMINATION WHICH MAY LEACH CONSTITUENTS TO WATERS OF THE STATE.
11. CLEAN CONSTRUCTION WASTES THAT WILL BE DISPOSED INTO THE PROPERTY SHALL BE SUBJECT TO ANY LOCAL PROHIBITIONS FROM THIS TYPE OF DISPOSAL.
12. ALL CONSTRUCTION AND DEMOLITION DEBRIS (C&DD) WASTE SHALL BE DISPOSED OF IN A STATE APPROVED C&DD LANDFILL. CONSTRUCTION DEBRIS MAY BE DISPOSED OF ON-SITE, BUT DEMOLITION DEBRIS MUST BE DISPOSED IN A STATE APPROVED LANDFILL. ALSO, MATERIALS WHICH CONTAIN ASBESTOS MUST COMPLY WITH ALL LOCAL AND STATE REGULATIONS.
13. AREA SHALL BE DESIGNATED BY CONTRACTOR AND SHOWN ON SWPPP MAP FOR MIXING OR STORAGE OF COMPOUNDS SUCH AS FERTILIZERS, LIME ASPHALT, OR CONCRETE, THESE DESIGNATED AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS, OR OTHER STORMWATER DRAINAGE AREA.
14. EQUIPMENT FUELING & MAINTENANCE SHALL BE IN DESIGNATED AREAS ONLY.
15. A SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN MUST BE DEVELOPED FOR SITES WITH ONE ABOVE-GROUND STORAGE TANK OF 660 GALLONS OR MORE, TOTAL ABOVE-GROUND STORAGE OF 1,330 GALLONS OR BELOW-GROUND STORAGE OF 4,200 GALLONS OF FUEL.
16. ALL DESIGNATED CONCRETE WASHOUT AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS OR OTHER STORMWATER DRAINAGE AREAS.
17. ALL CONTAMINATED SOIL MUST BE TREATED AND/OR DISPOSED IN AN EPA APPROVED SOLID WASTE MANAGEMENT FACILITY OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITIES.
18. THE CONTRACTOR SHALL CONTACT THE STATE EPA, THE LOCAL FIRE DEPARTMENT AND THE LOCAL EMERGENCY PLANNING COMMITTEE IN THE EVENT OF A PETROLEUM SPILL (>25 GALLONS) OR THE PRESENCE OF SHEEN.
19. OPEN BURNING IS NOT PERMITTED ON THE SITE.
20. CONTRACTOR TO ENSURE STREETS SHALL BE CLEARED OF DEBRIS FROM SITE AND SWEPT CLEAN ON AN AS NEEDED BASIS.

Soil Map—Summit County, Ohio
(CCC Hudson, OH)

USDA Natural Resources Conservation Service — Web Soil Survey, National Cooperative Soil Survey — 10/23/2024 — Page 1 of 3



NOTES:

1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. TO PREVENT WATER PONDED BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION.
4. WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.
5. WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5 FT. (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE ESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.
6. THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16 IN. ABOVE THE ORIGINAL GROUND SURFACE.
7. THE SILT FENCE SHALL BE PLACED IN A TRENCH CUT A MINIMUM F 6 IN. DEEP. THE TRENCH SHALL BE CUT WITH A TRENCHER, CABLE LAYING MACHINE, OR OTHER SUITABLE DEVICES WHICH WILL ENSURE ADEQUATE UNIFORM TRENCH DEPTH.
8. THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE AND SO THAT THE 8 INCHES OF CLOTH ARE BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6 IN. DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED.
9. SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE OVERLAPPED WITH THE END STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND.
10. MAINTENANCE - SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONLY OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE:
    1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED,
    2) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR
    3) OTHER PRACTICES SHALL BE INSTALLED.

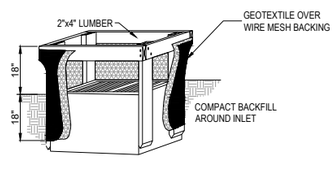
SPECIFICATIONS FOR SILT FENCE

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

CRITERIA FOR SILT FENCE MATERIALS

1. FENCE POSTS - THE LENGTH SHALL BE A MINIMUM OF 32 INCHES LONG. WOOD POSTS WILL BE 2 IN. X 2 IN. HARDWOOD OF SOUND QUALITY. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 10 FT.
2. SILT FENCE FABRIC (SEE CHART BELOW)

SILT FENCE
NTS

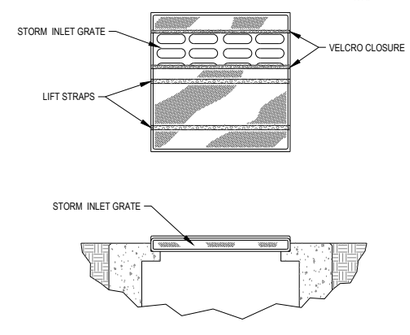


SECTION

NOTES:

1. INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPSLOPE LAND DISTURBANCE BEGINS OR BEFORE THE INLET BECOMES FUNCTIONAL.
2. THE EARTH AROUND THE INLET SHALL BE EXCAVATED COMPLETELY TO A DEPTH AT LEAST 18 INCHES.
3. THE WOODEN FRAME SHALL BE CONSTRUCTED OF 2-INCH BY 4-INCH CONSTRUCTION GRADE LUMBER. THE 2-INCH BY 4-INCH POSTS SHALL BE DRIVEN 18" INTO THE GROUND AT FOUR CORNERS OF THE INLET AND THE TOP PORTION OF 2-INCH BY 4-INCH FRAME ASSEMBLED USING THE OVERLAP JOINT SHOWN. THE TOP OF THE FRAME SHALL BE AT LEAST 6 INCHES BELOW ADJACENT ROADS IF PONDED WATER WILL POSE A SAFETY HAZARD TO TRAFFIC.
4. WIRE MESH SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT FABRIC WITH WATER FULLY IMPOUNDED AGAINST IT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY TO THE FRAME.
5. GEOTEXTILE MATERIAL SHALL HAVE AN EQUIVALENT OPENING SIZE OF 20-40 SIEVE AND BE RESISTANT TO SUNLIGHT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY. IT SHALL EXTEND FROM THE TOP OF THE FRAME TO 18 INCHES BELOW THE INLET NOTCH ELEVATION. THE GEOTEXTILE SHALL OVERLAP ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.
6. BACKFILL SHALL BE PLACED AROUND THE INLET IN COMPACTED 6 INCH LAYERS UNTIL THE EARTH IS EVEN WITH NOTCH ELEVATION ON ENDS AND TOP ELEVATION ON SIDES.
7. A COMPACTED EARTH DIKE OR CHECK DAM SHALL BE CONSTRUCTED IN THE DITCH LINE BELOW THE INLET IF THE INLET IS NOT IN A DEPRESSION. THE TOP OF THE DIKE SHALL BE AT LEAST 6 INCHES HIGHER THAN THE TOP OF THE FRAME.

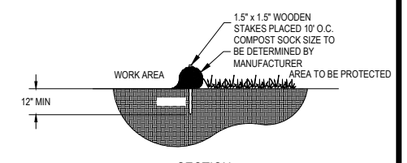
AREA INLET PROTECTION
NTS



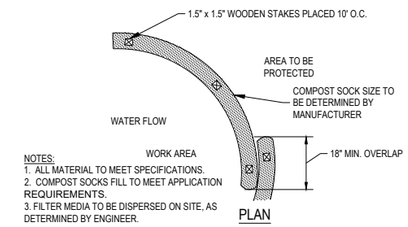
NOTE:

INLET PROTECTION SHALL BE DANDY BAG OR APPROVED OTHER.

INLET PROTECTION
NTS



SECTION
NTS



NOTES:
1. ALL MATERIAL TO MEET SPECIFICATIONS.
2. COMPOST SOCKS FILL TO MEET APPLICATION REQUIREMENTS.
3. FILTER MEDIA TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

PLAN
NTS

COMPOST SOCK ON LAND
NTS

CESO
WWW.CESOINC.COM
175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

STATE OF OHIO
JONATHAN T KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	N/A
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
SWPPP NOTES & DETAILS

C6.0

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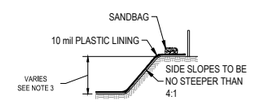

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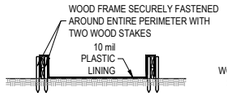

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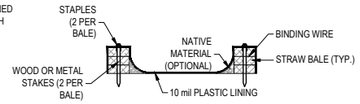

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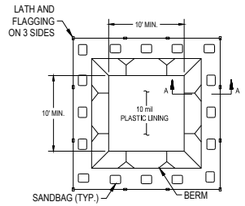
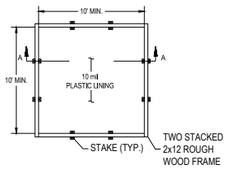
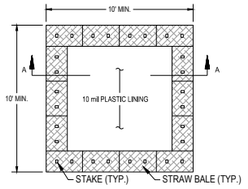


BELOW GRADE



ABOVE GRADE WITH WOOD PLANKS



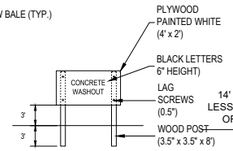
ABOVE GRADE W/ HAYBALES

NOTES:

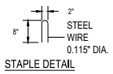
1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. THE WASHOUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS INCLUDING BUT NOT LIMITED TO OPERATIONS ASSOCIATED WITH GROUT AND MORTAR.

CONCRETE WASHOUT

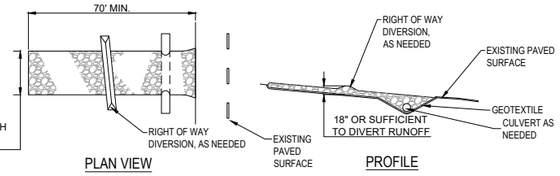
NTS



CONCRETE WASHOUT SIGN DETAIL



STAPLE DETAIL



PLAN VIEW

PROFILE

GEOTEXTILE SPECIFICATION FOR CONSTRUCTION ENTRANCE	
MINIMUM TENSILE STRENGTH	200 lbs.
MINIMUM PUNCTURE STRENGTH	80 psi.
MINIMUM TEAR STRENGTH	50 lbs.
MINIMUM BURST STRENGTH	320 psi.
MINIMUM ELONGATION	20%
EQUIVALENT OPENING SIZE	EOS < 0.6 mm.
PERMITTIVITY	1x10-3 cm/sec.

NOTES:

1. STONE SIZE - (1.5-2.5 INCH) STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 70 FT. (EXCEPTION: APPLY 30 FT. MINIMUM TO SINGLE RESIDENCE LOTS.
3. THICKNESS - THE STONE LAYER SHALL BE AT LEAST 6 INCHES THICK FOR LIGHT DUTY ENTRANCES OR AT LEAST 10 INCHES FOR HEAVY DUTY USE.
4. WIDTH - THE ENTRANCE SHALL E AT LEAST 14 FEET WIDE, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. GEOTEXTILE - A GEOTEXTILE SHALL BE LAID OVER THE ENTIRE AREA PRIOR TO PLACING STONE, IT SHALL BE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS AND MEET THE FOLLOWING SPECIFICATIONS:
6. TIMING - THE CONSTRUCTION ENTRANCE SHALL BE INSTALLED AS SOON AS IS PRACTICAL BEFORE MAJOR GRADING ACTIVITIES.
7. CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FROM FLOWING ACROSS THE ENTRANCE OR TO PREVENT RUNOFF FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
8. WATER BAR - A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.
9. MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, ORA ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY, REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
10. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION-SITE SHALL BE RESTRICTED FROM MUDDY AREAS.
11. REMOVAL - THE ENTRANCE SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY OR ENTRANCE.

STABILIZED CONSTRUCTION ENTRANCE

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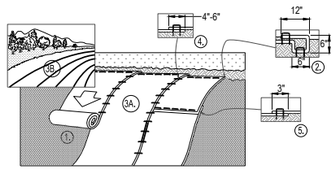

NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH AS SHOWN IN DETAIL 2. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURES RECOMMENDATION.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MINIMUM 6" OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
6. PLACE STAPLES/STAKES PER MANUFACTURER'S RECOMMENDATION FOR THE APPROPRIATE SLOPE BEING APPLIED.

EROSION CONTROL BLANKET

NTS

CESO
WWW.CESOINC.COM
175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
SWPPP DETAILS

C6.1

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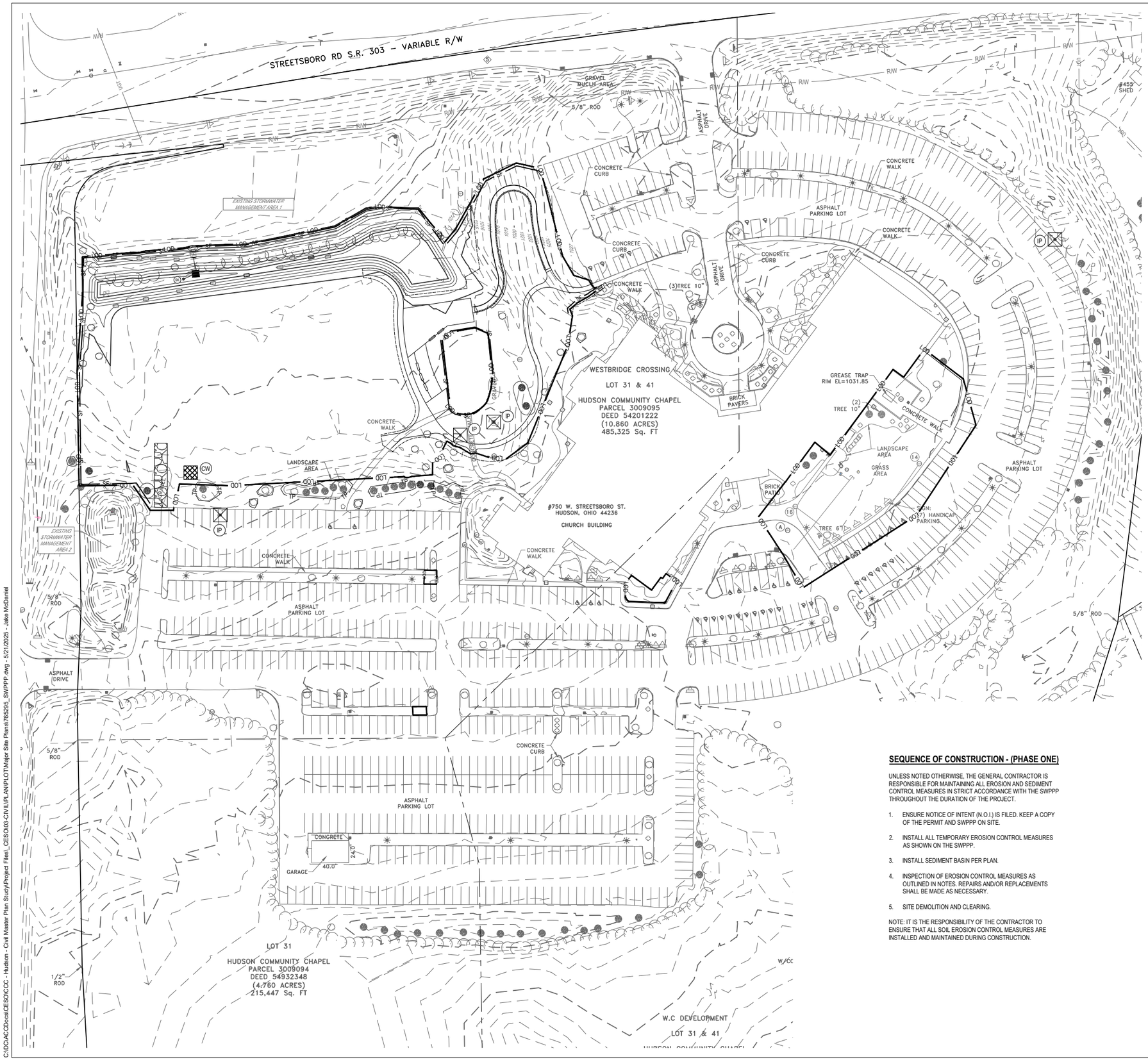

SWPPP LEGEND

EXISTING

REFER TO ###### FOR EXISTING FEATURES LEGEND

PROPOSED

960	MAJOR CONTOUR
962	MINOR CONTOUR
	PAVEMENT/WALK
	STORM SEWER
SF	SILT FENCE
	COMPOST SOCK
	GRADING/SEEDING LIMITS
LOD	LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE
	STORAGE AREA
	INLET PROTECTION
IP	STORM MANHOLE
	CATCH BASIN
	CURB INLET
CE	STABILIZED CONSTRUCTION ENTRANCE
TS	TEMPORARY SEEDING
PS	PERMANENT SOD
CW	CONCRETE WASHOUT AREA
SK	SKIMMER
SK	TREE PROTECTION FENCE

GENERAL NOTES

1. ADDITIONAL EROSION AND SEDIMENT CONTROLS MAY BE REQUIRED AS IDENTIFIED WITH OEPA AND LOCAL JURISDICTION INSPECTOR.
2. CONTRACTOR SHALL REVIEW THE COMPLETE DRAWING SET AND NOTIFY THE DESIGN PROFESSIONAL IN WRITING PRIOR TO CONSTRUCTION, IF ANY DISCREPANCIES ARE FOUND WITHIN THE DRAWINGS OR WITH ACTUAL FIELD CONDITIONS.
3. ALL STORMWATER POLLUTION PREVENTION PLANS, NOTES AND DETAILS SHALL COMPLY WITH THE OEPA RAINWATER AND LAND DEVELOPMENT MANUAL.
4. CONTRACTOR IS RESPONSIBLE TO MAINTAIN POST-CONSTRUCTION PERMANENT EROSION CONTROL MEASURES UNTIL ADEQUATE RE-VEGETATION AND STABILIZATION ARE ACHIEVED.
5. REMOVE ALL ON SITE FEATURES AS SHOWN ON THE PLAN AND LEGALLY DISPOSE OF OFF SITE.
6. PROTECT EXISTING SITE FEATURES TO REMAIN OUTSIDE CONSTRUCTION LIMITS. REPAIR ANY DAMAGE TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
7. USE ANY MEANS NECESSARY AND ACCEPTABLE TO THE JURISDICTION TO CONTROL DUST AT THE SITE. PROVIDE STREET CLEANING WHEN NECESSARY OR AS DIRECTED.
8. SILT FENCE SHOWN OFF OF LIMITS OF DISTURBANCE FOR CLARITY PURPOSES ONLY. CONTRACTOR TO ENSURE SILT FENCE IS PLACED AT LIMITS OF DISTURBANCE. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ENGINEER PRIOR TO PLACEMENT OF ANY EROSION CONTROL MEASURES.

SEQUENCE OF CONSTRUCTION - (PHASE ONE)

UNLESS NOTED OTHERWISE, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES IN STRICT ACCORDANCE WITH THE SWPPP THROUGHOUT THE DURATION OF THE PROJECT.

1. ENSURE NOTICE OF INTENT (N.O.I.) IS FILED. KEEP A COPY OF THE PERMIT AND SWPPP ON SITE.
2. INSTALL ALL TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THE SWPPP.
3. INSTALL SEDIMENT BASIN PER PLAN.
4. INSPECTION OF EROSION CONTROL MEASURES AS OUTLINED IN NOTES. REPAIRS AND/OR REPLACEMENTS SHALL BE MADE AS NECESSARY.
5. SITE DEMOLITION AND CLEARING.

NOTE: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED DURING CONSTRUCTION.

N

50 0 50 100

GRAPHIC SCALE (IN FEET)
1 in. = 50 ft.

OHIO811.org Before You Dig

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

CESO
WWW.CESOINC.COM
175 Montrose West Ave., Suite 400
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HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	1"=50'
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
SWPPP PHASE 1

C6.2

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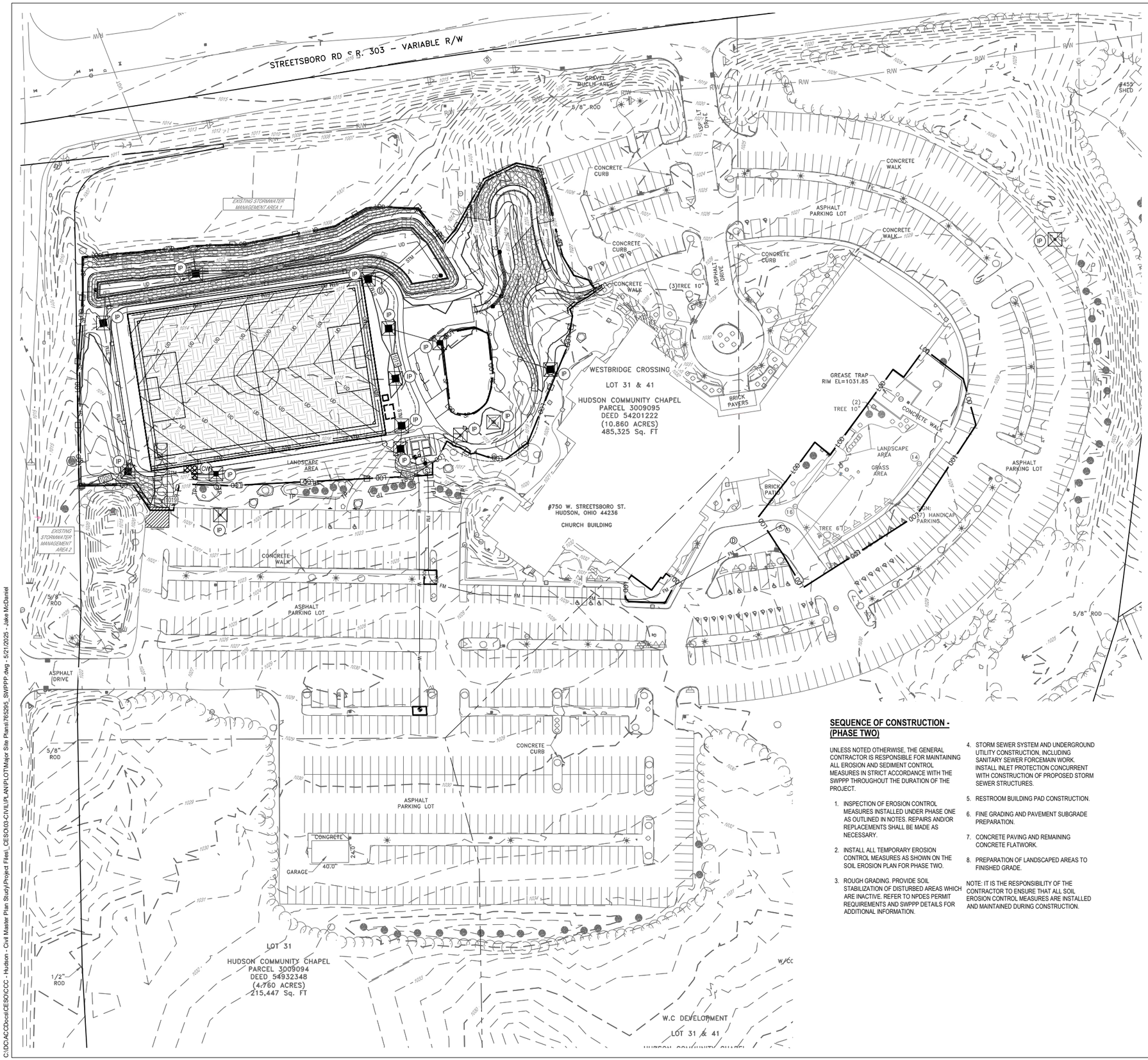

SWPPP LEGEND

EXISTING

REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND

PROPOSED

- 960 — MAJOR CONTOUR
- 962 — MINOR CONTOUR
- PAVEMENT/WALK
- STORM SEWER
- SF — SILT FENCE
- COMPOST SOCK
- GRADING/SEEDING LIMITS
- LOD — LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- INLET PROTECTION
- D — STORM MANHOLE
- CATCH BASIN
- CURB INLET
- CE — STABILIZED CONSTRUCTION ENTRANCE
- TS — TEMPORARY SEEDING
- PS — PERMANENT SOD
- CW — CONCRETE WASHOUT AREA
- IP — INLET PROTECTION

GENERAL NOTES

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SEQUENCE OF CONSTRUCTION - (PHASE TWO)

UNLESS NOTED OTHERWISE, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES IN STRICT ACCORDANCE WITH THE SWPPP THROUGHOUT THE DURATION OF THE PROJECT.

1. INSPECTION OF EROSION CONTROL MEASURES INSTALLED UNDER PHASE ONE AS OUTLINED IN NOTES. REPAIRS AND/OR REPLACEMENTS SHALL BE MADE AS NECESSARY.
2. INSTALL ALL TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THE SOIL EROSION PLAN FOR PHASE TWO.
3. ROUGH GRADING. PROVIDE SOIL STABILIZATION OF DISTURBED AREAS WHICH ARE INACTIVE. REFER TO NPDES PERMIT REQUIREMENTS AND SWPPP DETAILS FOR ADDITIONAL INFORMATION.
4. STORM SEWER SYSTEM AND UNDERGROUND UTILITY CONSTRUCTION, INCLUDING SANITARY SEWER FORCEMAIN WORK. INSTALL INLET PROTECTION CONCURRENT WITH CONSTRUCTION OF PROPOSED STORM SEWER STRUCTURES.
5. RESTROOM BUILDING PAD CONSTRUCTION.
6. FINE GRADING AND PAVEMENT SUBGRADE PREPARATION.
7. CONCRETE PAVING AND REMAINING CONCRETE FLATWORK.
8. PREPARATION OF LANDSCAPED AREAS TO FINISHED GRADE.

NOTE: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED DURING CONSTRUCTION.

N

50 0 50 100

GRAPHIC SCALE (IN FEET)
1 in. = 50 ft.

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FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

CESO
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STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
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Drawing Title:
SWPPP PHASE 2

C6.3

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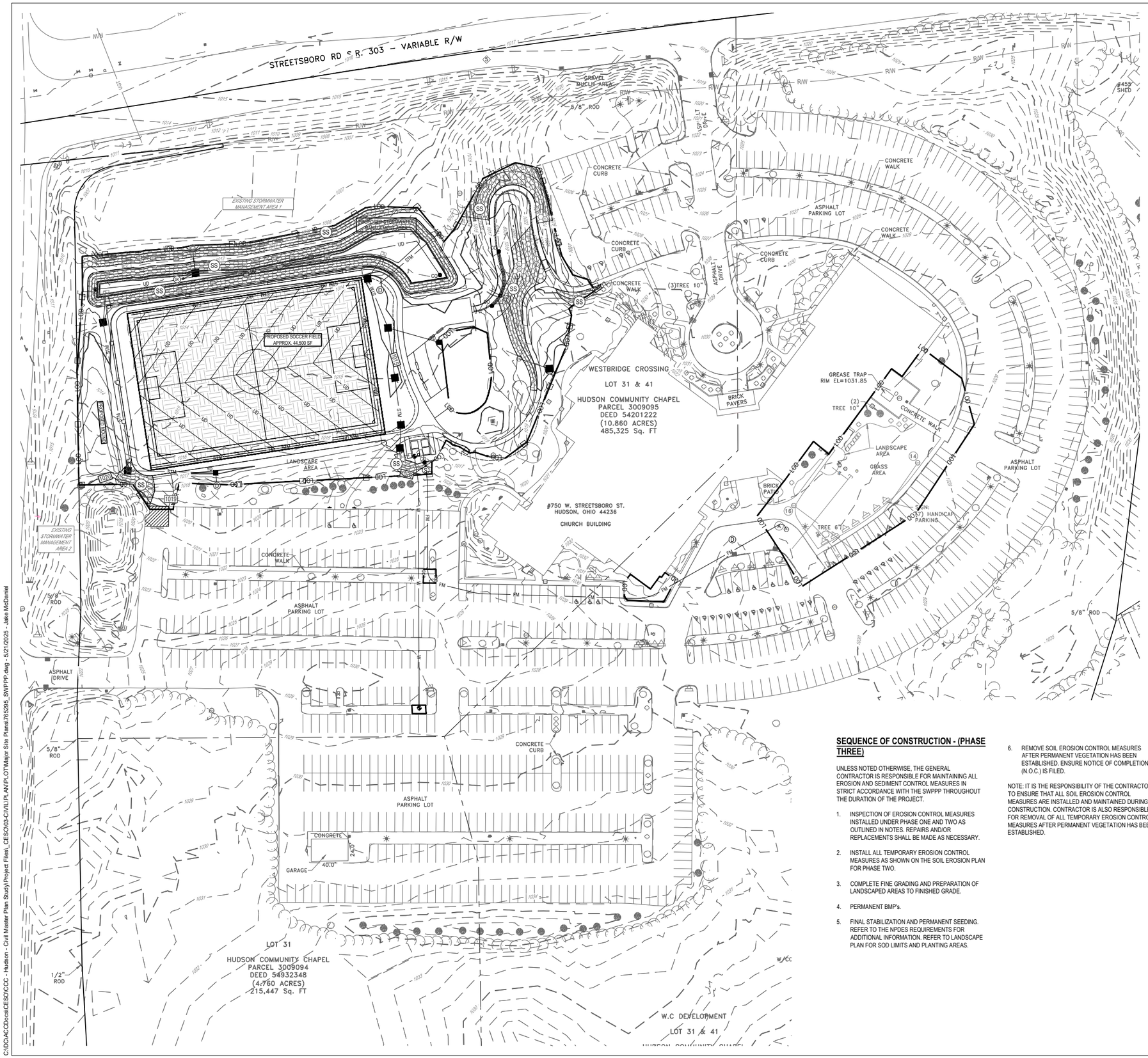

SWPPP LEGEND

EXISTING

REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND

PROPOSED

- 960 — MAJOR CONTOUR
- 962 — MINOR CONTOUR
- PAVEMENT/WALK
- STORM SEWER
- SF — SILT FENCE
- COMPOST SOCK
- GRADING/SEEDING LIMITS
- LOD — LIMIT OF DISTURBANCE
- EROSION CONTROL BLANKET ON ALL 3:1 SLOPES OR STEEPER
- STABILIZED CONSTRUCTION ENTRANCE
- CONCRETE WASHOUT
- INLET PROTECTION
- D — STORM MANHOLE
- CATCH BASIN
- CURB INLET
- CE — STABILIZED CONSTRUCTION ENTRANCE
- TS — TEMPORARY SEEDING
- SS — SOIL STABILIZATION
- CW — CONCRETE WASHOUT AREA
- IP — INLET PROTECTION

GENERAL NOTES

1. ADDITIONAL EROSION AND SEDIMENT CONTROLS MAY BE REQUIRED AS IDENTIFIED WITH OEPA AND LOCAL JURISDICTION INSPECTOR.
2. CONTRACTOR SHALL REVIEW THE COMPLETE DRAWING SET AND NOTIFY THE DESIGN PROFESSIONAL IN WRITING PRIOR TO CONSTRUCTION, IF ANY DISCREPANCIES ARE FOUND WITHIN THE DRAWINGS OR WITH ACTUAL FIELD CONDITIONS.
3. ALL STORMWATER POLLUTION PREVENTION PLANS, NOTES AND DETAILS SHALL COMPLY WITH THE OEPA RAINWATER AND LAND DEVELOPMENT MANUAL.
4. CONTRACTOR IS RESPONSIBLE TO MAINTAIN POST-CONSTRUCTION PERMANENT EROSION CONTROL MEASURES UNTIL ADEQUATE RE-VEGETATION AND STABILIZATION ARE ACHIEVED.
5. REMOVE ALL ON SITE FEATURES AS SHOWN ON THE PLAN AND LEGALLY DISPOSE OF OFF SITE.
6. PROTECT EXISTING SITE FEATURES TO REMAIN OUTSIDE CONSTRUCTION LIMITS. REPAIR ANY DAMAGE TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
7. USE ANY MEANS NECESSARY AND ACCEPTABLE TO THE JURISDICTION TO CONTROL DUST AT THE SITE. PROVIDE STREET CLEANING WHEN NECESSARY OR AS DIRECTED.
8. SILT FENCE SHOWN OFF OF LIMITS OF DISTURBANCE FOR CLARITY PURPOSES ONLY. CONTRACTOR TO ENSURE SILT FENCE IS PLACED AT LIMITS OF DISTURBANCE. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ENGINEER PRIOR TO PLACEMENT OF ANY EROSION CONTROL MEASURES.

SEQUENCE OF CONSTRUCTION - (PHASE THREE)

UNLESS NOTED OTHERWISE, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES IN STRICT ACCORDANCE WITH THE SWPPP THROUGHOUT THE DURATION OF THE PROJECT.

1. INSPECTION OF EROSION CONTROL MEASURES INSTALLED UNDER PHASE ONE AND TWO AS OUTLINED IN NOTES. REPAIRS AND/OR REPLACEMENTS SHALL BE MADE AS NECESSARY.
2. INSTALL ALL TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THE SOIL EROSION PLAN FOR PHASE TWO.
3. COMPLETE FINE GRADING AND PREPARATION OF LANDSCAPED AREAS TO FINISHED GRADE.
4. PERMANENT BMP's.
5. FINAL STABILIZATION AND PERMANENT SEEDING. REFER TO THE NPDES REQUIREMENTS FOR ADDITIONAL INFORMATION. REFER TO LANDSCAPE PLAN FOR SOD LIMITS AND PLANTING AREAS.
6. REMOVE SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED. ENSURE NOTICE OF COMPLETION (N.O.C.) IS FILED.

NOTE: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED DURING CONSTRUCTION. CONTRACTOR IS ALSO RESPONSIBLE FOR REMOVAL OF ALL TEMPORARY EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED.

N

50 0 50 100

GRAPHIC SCALE (IN FEET)
1 in. = 50 ft.

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SWPPP PHASE 3

C6.4

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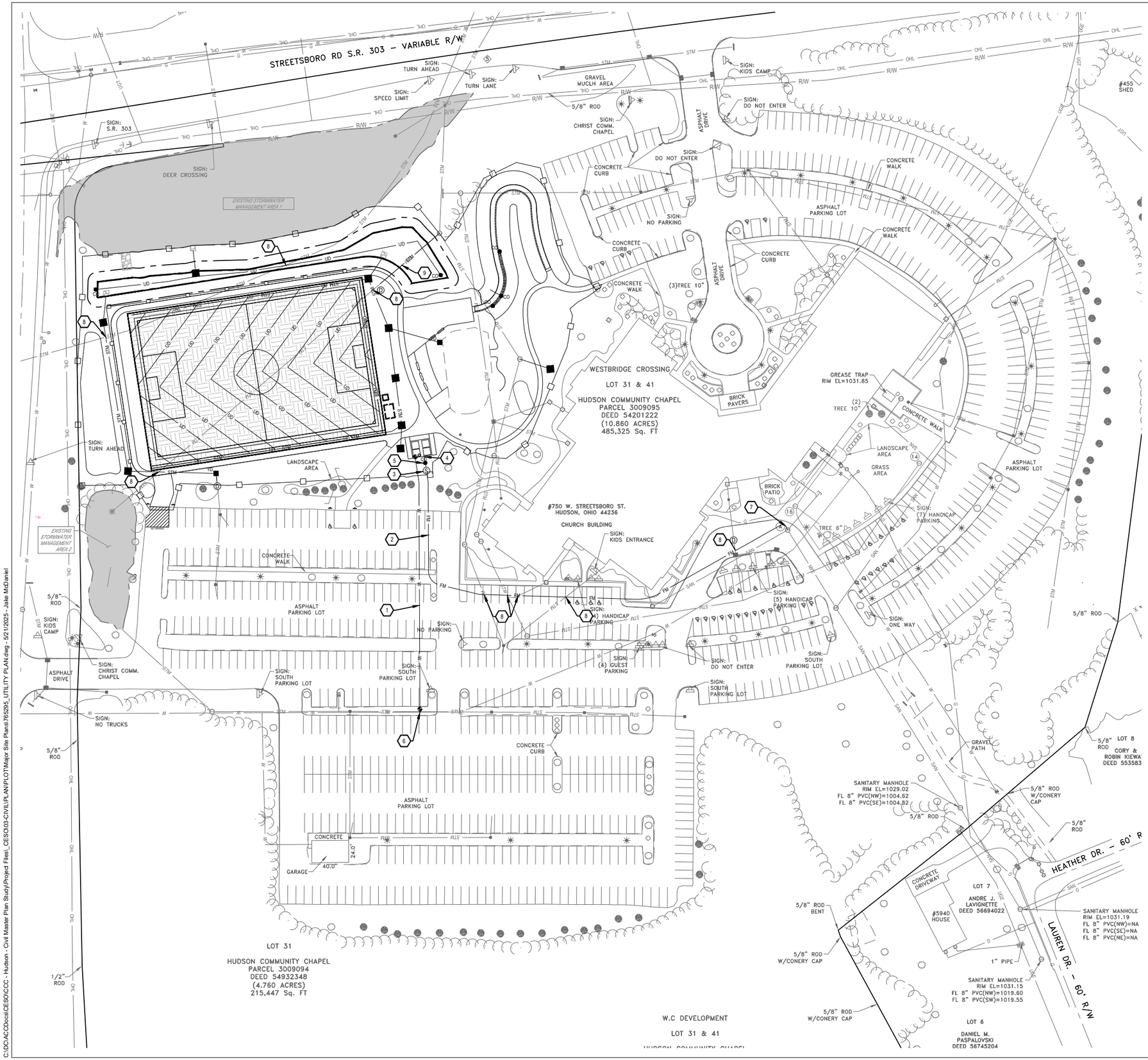

UTILITY LEGEND

EXISTING

REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND

PROPOSED

- PAVEMENT/WALK
- STM — STORM SEWER LINE
- SAN — SANITARY SEWER LINE
- W — DOMESTIC WATER SERVICE LINE
- FM — FORCEMAIN
- CATCH BASIN
- D — STORM SEWER
- S — SANITARY SEWER
- CO — CLEANOUT
- YD — YARD DRAIN
- WATER VALVE

CODED NOTES:

1. PROPOSED 2" DOMESTIC WATER SERVICE. DIRECTIONALLY BORED.
2. PROPOSED 1.25" SANITARY FORCEMAIN. DIRECTIONALLY BORED, 5' MIN. COVER, 18" CLEARANCE O/O BELOW ALL STORM AND WATER LINES.
3. PROPOSED E-ONE LIFT STATION. REFER TO SHEET C8.10 FOR DETAILS.
4. PROPOSED 6" SANITARY SEWER.
5. PROPOSED 6" CLEANOUT.
6. CONNECT TO EXISTING WATER MAIN. CONTRACTOR TO FIELD VERIFY SIZE OF MAIN AND COORDINATE CONNECTION WITH WATER COMPANY.
7. CONNECT PROPOSED 1.25" SANITARY FORCEMAIN.
8. POTHOLE TO VERIFY STORM INVERT.
9. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF EXISTING STORM SEWER IN THIS LOCATION PRIOR TO ORDERING STORM STRUCTURES OR PIPE. CONFIRM WITH ENGINEER IF REUSE OF EXISTING PIPE IS FEASIBLE.

N

GRAPHIC SCALE (IN FEET)
1 in. = 50 ft.

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OVERALL UTILITY PLAN

C7.0

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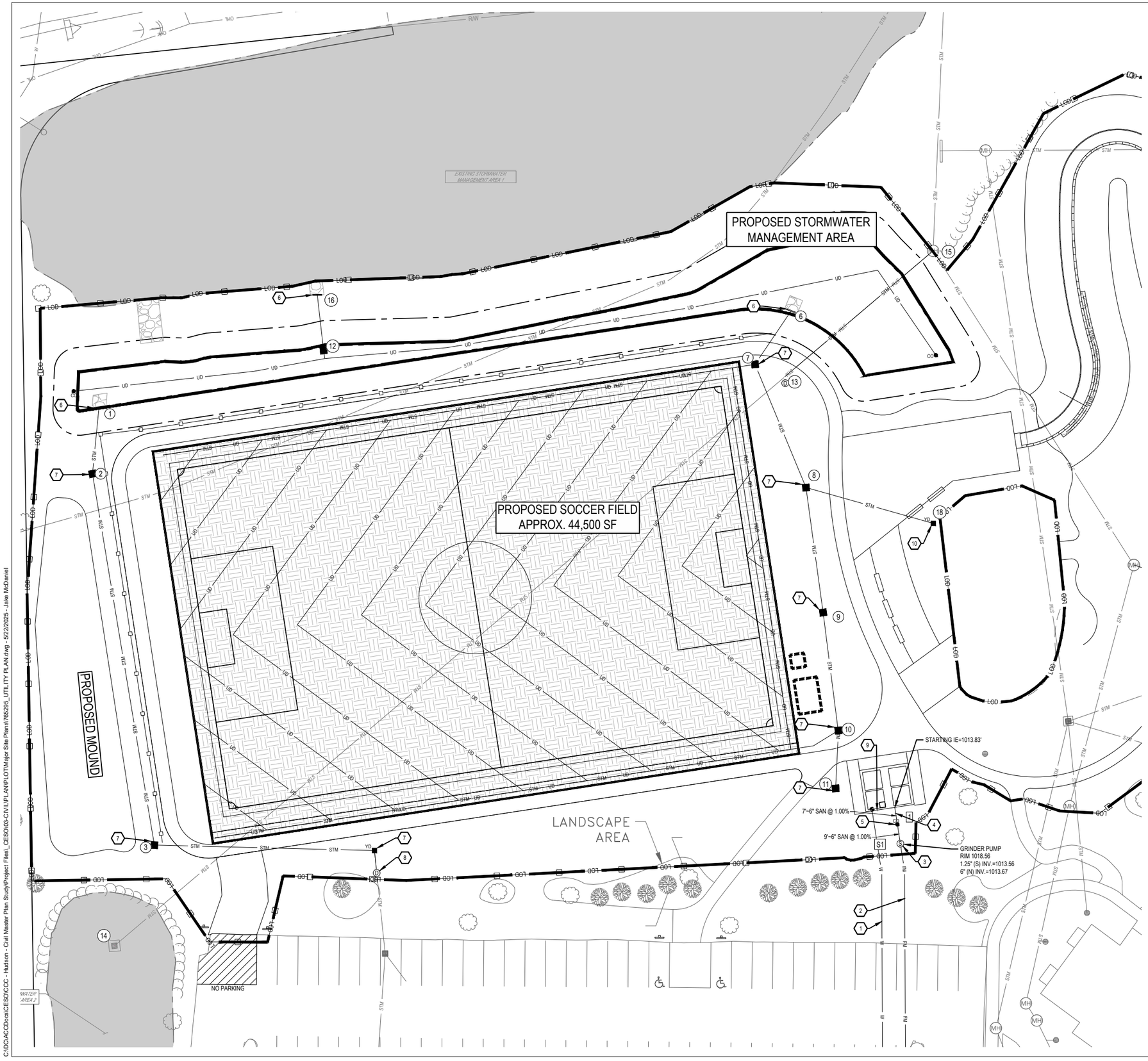

UTILITY LEGEND

EXISTING

REFER TO ALTA SURVEY BY DIEBEL FOR EXISTING FEATURES LEGEND

PROPOSED

- PAVEMENT/WALK
- STM — STORM SEWER LINE
- SAN — SANITARY SEWER LINE
- W — DOMESTIC WATER SERVICE LINE
- FM — FORCEMAIN
- CATCH BASIN
- STORM SEWER MANHOLE
- SANITARY SEWER MANHOLE
- CO — CLEANOUT
- YD — YARD DRAIN
- WATER VALVE

STORM SEWER STRUCTURE SCHEDULE			
NO.	STRUCTURE	GRATE	INVERT
S1	GRINDER PUMP	1018.56	1013.67 (6") N 1013.56 (4") S
1	6" CO	1017.09	1013.76 (6") N 1013.76 (1.25") S
18	YARD DRAIN	1014.50	1011.45 (6") W

CODED NOTES:

1. PROPOSED 2" DOMESTIC WATER SERVICE. DIRECTIONALLY BORED.
2. PROPOSED 1.25" SANITARY FORCEMAIN. DIRECTIONALLY BORED, 5' MIN. COVER, 18" CLEARANCE O/O BELOW ALL STORM AND WATER LINES.
3. PROPOSED E-ONE LIFT STATION. REFER TO SHEET C8.10 FOR DETAILS.
4. PROPOSED 6" SANITARY SEWER.
5. PROPOSED 6" CLEANOUT.
6. PROPOSED HEADWALL. REFER TO ODOT DETAIL HW-2.1.
7. PROPOSED CATCH BASIN. REFER TO DETAIL ON SHEET C8.6.
8. PROPOSED STORM MANHOLE. REFER TO ODOT DETAIL MH-1.
9. INSTALL KNOX BOX ON BUILDING. CONTRACTOR TO COORDINATE WITH FIRE DEPARTMENT TO DETERMINE FINAL LOCATION.
10. PROPOSED YARD DRAIN INLET. REFER TO DETAIL ON SHEET C8.6.

N

GRAPHIC SCALE (IN FEET)
1 in. = 20 ft.

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FIELD UTILITY PLAN

C7.1

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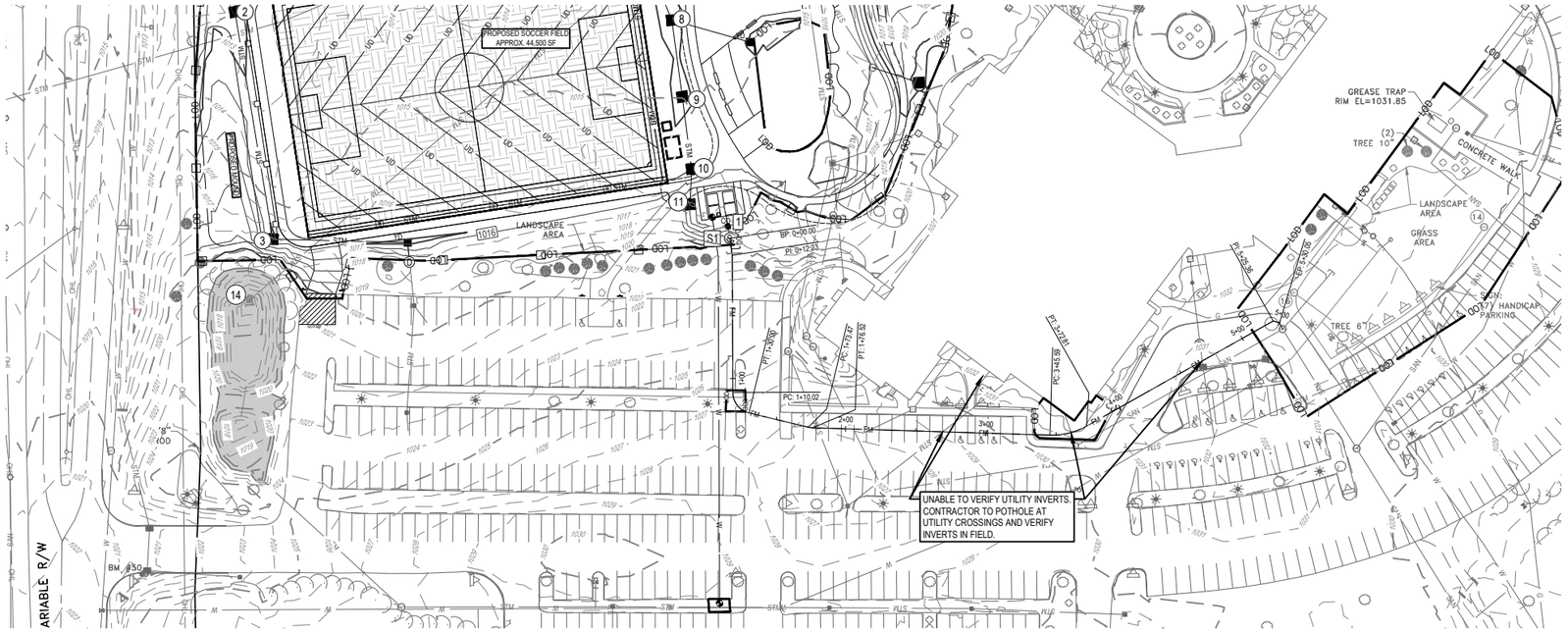

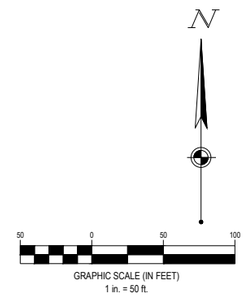

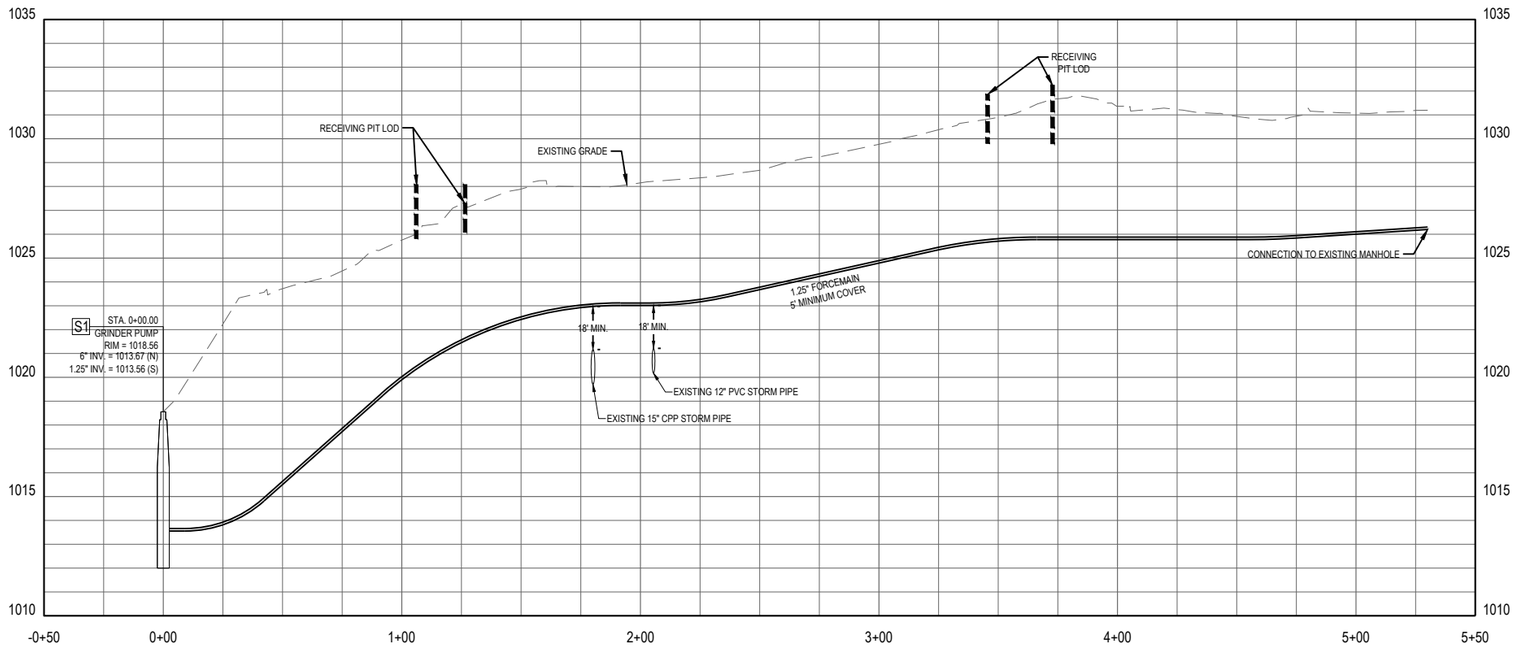

FORCEMAIN PROFILE
SCALE: 1" = 50' HORIZ.; 1" = 5' VERT.

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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FORCEMAIN PROFILE

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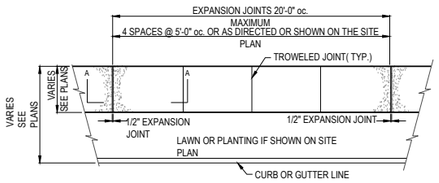
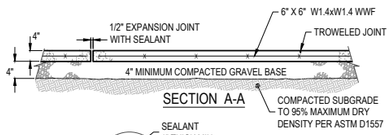
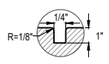


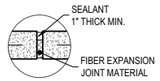
PLAN VIEW



SECTION A-A



TROWELED JOINT



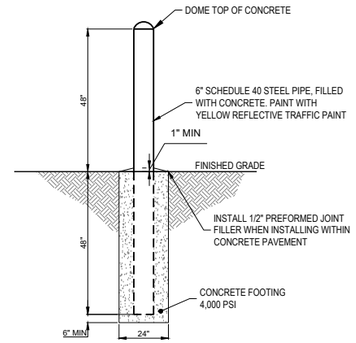
EXPANSION JOINT

NOTES:

1. ALL CONCRETE CURBS AND SIDEWALKS TO BE 4000 P.S.I. CONCRETE.
2. SIDEWALK TO BE SLOPED 2% MAX. AWAY FROM BUILDING.
3. ALL SIDEWALKS SHALL BE BROOM FINISHED.

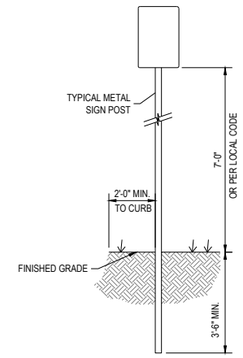
CONCRETE SIDEWALK

NTS



BOLLARD

NTS

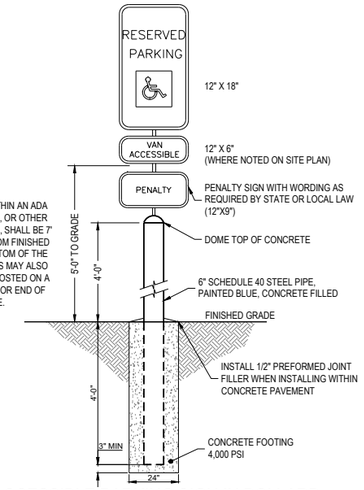


SIGN - LANDSCAPE

NTS

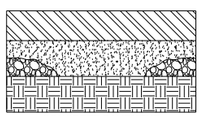
"NO PARKING ANY TIME" (R7-1) SIGN DETAIL

NOTE:
SIGNS LOCATED WITHIN AN ADA ACCESSIBLE ROUTE, OR OTHER PEDESTRIAN ROUTE, SHALL BE 7' MIN. MEASURED FROM FINISHED GRADE TO THE BOTTOM OF THE LOWEST SIGN. SIGNS MAY ALSO BE PERMANENTLY POSTED ON A WALL AT THE INTERIOR END OF THE PARKING SPACE.



ACCESSIBLE PARKING SIGN IN BOLLARD

NTS



CONCRETE PAVEMENT

REFERENCE CHART FOR DEPTHS

A. PORTLAND CEMENT CONCRETE PAVEMENT, 4000 P.S.I.

B. AGGREGATE BASE MATERIAL

C. SUBGRADE-COMPACT PER SECTION

PAVEMENT LAYER DEPTHS		
	CONCRETE	
	A	B
STANDARD DUTY	6"	6"

PAVEMENT SECTION

NTS

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CONSTRUCTION DETAILS

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CITY OF HUDSON WATERWORK NOTES & SECTION 2. WATER DISTRIBUTION REQUIREMENTS

EXHIBIT B
WATERWORK NOTES

CITY OF HUDSON WATER SERVICE AREA: NOTE THESE WATER WORK NOTES APPLY TO AREAS OF HUDSON THAT ARE TO BE SERVED WITH CITY OF HUDSON WATER.

1. ALL WATER MAINS AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HUDSON "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION", LATEST EDITION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY AND ALL AREAS ALONG THE ROUTE OF THE WATER MAIN. THIS WILL INCLUDE LAWNS, DRIVES, DITCHES, CULVERTS, LANDSCAPING, ETC, AND ANY OTHER AREAS DISTURBED DURING THE CONSTRUCTION PROCESS.
3. ALL TESTING SHALL BE IN ACCORDANCE WITH THE CITY OF HUDSON "ENGINEERING STANDARDS FOR INFRASTRUCTURE CONSTRUCTION" AND BE COORDINATED WITH THE CITY OF HUDSON. AWWA C-600 PRESSURE TESTING AND C-651 DISINFECTION BY CHLORINATION OF THE WATER MAIN WILL BE REQUIRED.
4. ALL PROPOSED TRENCHES LOCATED UNDER EXISTING OR PROPOSED PAVEMENT SHALL BE FILLED WITH LOW STRENGTH MORTAR. THE METHOD OF BACKFILLING AS DIRECTED BY THE ENGINEER, SHALL CONFORM TO ODOT 613 TYPE 1. SLAG OR FLY ASH IS NOT PERMITTED IN MIX. PAVEMENT INCLUDES, BUT IS NOT LIMITED TO, ROADWAY SURFACES, SIDEWALKS, BIKE WAYS, DRIVEWAYS, SHOULDERS, ETC. THE LIMITS OF THE LOW STRENGTH MORTAR SHALL INCLUDE 45° ANGLE OF REPOSE FROM ALL EDGES OF PAVEMENT.
5. FIELD STAKING AND RECORD DRAWINGS SHALL BE PROVIDED TO THE CITY BY THE CONTRACTOR, AS SUPERVISED AND STAMPED BY A LICENSED PROFESSIONAL SURVEYOR. RECORD DRAWINGS (AS-BUILTS) IN BOTH REPRODUCIBLE AND DIGITAL FORMAT COMPATIBLE WITH THE CITY OF HUDSON STANDARDS TO BE SUBMITTED TO AND APPROVED BY THE CITY OF HUDSON PRIOR TO UTILITY SERVICE CONNECTIONS BEING MADE.
6. A 4' MINIMUM HORIZONTAL CLEARANCE AND A 12" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED FROM THE EDGE OF THE WATER MAIN PIPE TO THE EDGE OF THE STORM SEWER PIPE.
7. A 10' MINIMUM HORIZONTAL CLEARANCE AND AN 18" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED FROM THE EDGE OF THE WATER MAIN PIPE TO THE EDGE OF ALL SANITARY SEWERS AND/OR FORCE MAIN PIPE.
8. ALL VALVES, FITTINGS, BENDS, TEES, ETC. SHALL HAVE MEGALUG JOINT RESTRAINTS BY EBBA IRON, INC.
9. ALL WATER MAINS WITHIN LOW STRENGTH MORTAR BACKFILL SHALL BE WRAPPED IN POLYETHYLENE AS PER AWWA C-105. OTHER AREAS TO BE WRAPPED IN POLYETHYLENE SHALL BE AS SHOWN ON THE DRAWINGS, AS DETERMINED FROM DIPRA REPORT OR AS REQUIRED BY THE CITY.
10. WHERE WATER MAINS CROSS SEWER TRENCHES, THE TRENCH IS TO BE BACKFILLED WITH ODOT 304 CRUSHED LIMESTONE.
11. TAPPING SLEEVES SHALL BE ROMAC TYPE, WRAP AROUND STAINLESS STEEL WITH # 316 STAINLESS STEEL BOLTS AND NUTS.
12. MANUFACTURER'S AFFIDAVIT: THE MANUFACTURER SHALL FURNISH AN AFFIDAVIT INDICATING THAT ALL PIPE, FITTINGS, VALVES, FIRE HYDRANTS, AND APPURTENANCES HAVE BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REFERENCED STANDARDS. A COPY OF EACH AFFIDAVIT, INDICATING THE PROJECT ON WHICH THE MATERIAL IS TO BE USED SHALL BE FORWARDED TO THE CITY OF HUDSON PRIOR TO THE PRECONSTRUCTION MEETING BEING SCHEDULED.
13. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS. THE CITY MAY GRANT SPECIAL PERMISSION FOR BUILDINGS FOUR STORIES AND HIGHER WITH A FIRE SUPPRESSION SYSTEM.
14. PROPOSED FACILITIES SHALL BE DESIGNED TO MAINTAIN A MINIMUM OF 35 PSI PRESSURE DELIVERED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.
15. ALL WATER MAINS GREATER THAN 12 INCH DIAMETER SHALL BE LAID TO GRADE WITH HIGH POINTS AND LOW POINTS HAVING ADEQUATE BLOW-OFFS VIA USE OF HYDRANTS.
16. FOR ALL NON-RESIDENTIAL WATER SERVICE, A BACKFLOW PREVENTION DEVICE SHALL BE INSTALLED PER CITY OF HUDSON AND OEPA STANDARDS AND REQUIREMENTS. FOR RESIDENTIAL WATER SERVICE A BACKFLOW PREVENTION DEVICE MAY BE REQUIRED FOR SWIMMING POOLS, IRRIGATION SYSTEMS, ETC. CONTACT THE CITY SERVICE/WATER DISTRIBUTION DEPARTMENT FOR THE REQUIREMENTS AND STANDARDS FOR BACKFLOW PREVENTION, THERMAL EXPANSION CONTROL, ETC.
17. ALL WATER METER SETTINGS MUST BE APPROVED BY THE CITY OF HUDSON. METERS SHALL BE MAGNETIC DRIVE, WITH A SCANCODE REMOTE READ, MUST READ IN CUBIC FEET, SET WITH VALVES BEFORE AND AFTER THE METER. IT IS THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO PROVIDE AND RUN A REMOTE WATER METER WIRE FROM THE PROPOSED WATER METER LOCATION TO THE VICINITY OF THE PROPOSED ELECTRIC METER LOCATION. CONTACT THE CITY SERVICE/WATER DISTRIBUTION DEPARTMENT FOR THE COMPLETE STANDARDS AND REQUIREMENTS FOR WATER METERS, PRESSURE REGULATORS, ETC.
18. FOR NEW WATER MAIN CONSTRUCTION THE DRAWINGS SHALL HAVE BEEN REVIEWED BY THE OHIO EPA AND WRITTEN APPROVAL RECEIVED PRIOR TO THE START OF CONSTRUCTION.
19. ALL WATER SHUT DOWNS SHALL BE PLANNED FOR MONDAY THROUGH WEDNESDAY ONLY.

SECTION 2. - WATER DISTRIBUTION

GENERAL REQUIREMENTS

THE DESIGN OF WATER FACILITIES SHALL COMPLY WITH THE "RECOMMENDED STANDARDS FOR WATER WORKS" (10 STATES STANDARDS), LATEST EDITION.

ALL MATERIALS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA WHEREVER AVAILABLE.

CONCRETE WORK SHALL BE AS SPECIFIED IN ODOT ITEM 499.

ALL WORK SHALL CONFORM WITH THE GENERAL REQUIREMENTS IN SECTION 1 FOR SEEDING, RESTORATION, LANDSCAPING, ETC.

I. - MATERIALS

2.1 - PIPE AND FITTINGS

A. REQUIREMENTS - PIPE, FITTINGS AND APPURTENANCES SHALL CONFORM TO THE LATEST EDITION OF THE REFERENCED STANDARDS.

THE MANUFACTURER SHALL FURNISH AN AFFIDAVIT INDICATING THAT ALL PIPE, FITTINGS AND APPURTENANCES HAVE BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REFERENCED STANDARDS. A COPY OF THE AFFIDAVIT, INDICATING THE PROJECT ON WHICH THE MATERIAL IS TO BE USED, SHALL BE FORWARDED TO THE CITY PRIOR TO CONSTRUCTION.
ALL PIPE, FITTINGS AND APPURTENANCES SHALL BE APPROPRIATELY MARKED FOR PURPOSES OF IDENTIFICATION. THE MATERIALS AND METHODS OF MANUFACTURE, AND THE COMPLETED PIPES, FITTINGS AND APPURTENANCES SHALL BE SUBJECT TO INSPECTION AND REJECTION AT ALL TIMES. THE CITY SHALL HAVE THE RIGHT TO MAKE INSPECTIONS.

B. DUCTILE IRON PIPE AND FITTINGS - DUCTILE IRON PIPE SHALL BE DESIGNED IN ACCORDANCE WITH AWWA C150 AND MANUFACTURED IN ACCORDANCE WITH AWWA C151 AND SHALL BE THICKNESS CLASS 52. IF CROSSING, OR WITHIN, RAILROAD RIGHT-OF-WAYS, THICKNESS CLASS 56 SHALL BE USED. THE PIPE SHALL BE OF THE PUSH-ON JOINT OR MECHANICAL JOINT TYPE, WITH JOINTS WITHIN THE LENGTHS NOTED ON THE DRAWINGS TO BE RESTRAINED TYPE JOINTS. FURNISH CITY WITH CALCULATIONS TO SUPPORT LENGTHS OF RESTRAINED JOINT PIPE TO BE USED AT ALL FITTINGS AND VALVES. RESTRAINED JOINT LENGTHS SHALL MEET DUCTILE IRON PIPE RESEARCH ASSOCIATION (DIPRA) MINIMUM LENGTHS RECOMMENDED. ALL PIPE SHALL BE COATED WITH A BITUMINOUS MATERIAL ON THE EXTERIOR AND SHALL BE CEMENT MORTAR LINED BY THE FACTORY IN ACCORDANCE WITH AWWA C104. PIPE SHALL BE FURNISHED IN MINIMUM 18-FOOT LENGTHS UNLESS OTHERWISE SPECIFIED.

FITTINGS SHALL BE OF DUCTILE IRON, SHALL CONFORM TO AWWA C153, AND SHALL BE COATED AND LINED AND HAVE JOINTS AS SPECIFIED FOR THE PIPE.

MECHANICAL JOINTS AND PUSH-ON JOINTS SHALL BE IN ACCORDANCE WITH AWWA C111, INCORPORATING RUBBER GASKETS.

RESTRAINED PUSH-ON JOINTS SHALL BE COMPLETELY BOLTLESS AND SHALL BE CLOW-MCWANE SUPER-LOCK, AMERICAN FLEX-RING, U.S. PIPE TR FLEX, OR AS APPROVED BY THE CITY. RESTRAINED MECHANICAL JOINTS SHALL BE OF THE PIPE MANUFACTURER'S STANDARD DESIGN, OR SHALL BE MEGALUG AS MANUFACTURED BY EBAA IRON, INC., OR EQUAL, OF DUCTILE IRON AND WITH A WORKING PRESSURE OF AT LEAST 250-PSI AND A MINIMUM SAFETY FACTOR OF 2:1. ALL FITTINGS AND VALVES SHALL HAVE RESTRAINED MECHANICAL JOINTS.

WHENEVER IT IS NECESSARY TO CUT THE PIPE AT FITTINGS, VALVES, SPECIALS OR ELSEWHERE, THE REMAINING PORTIONS MAY BE USED WHERE POSSIBLE TO MINIMIZE THE NUMBER OF SCRAP PIECES WHEN THE PROJECT IS COMPLETE; HOWEVER, PIECES LESS THAN 5 FEET IN LENGTH SHALL NOT BE USED. CUT PIECES OF PIPE SHALL BE BEVELED TO MANUFACTURERS SPECIFICATIONS.

C. DIRECTIONAL DRILLED WATER MAINS, POLYETHYLENE (HDPE) PIPE AND DUCTILE IRON FITTINGS - POLYETHYLENE (HDPE) PIPE SHALL COMPLY WITH AWWA C906, PE3408, DR11, PC 160; NSF APPROVED FOR POTABLE WATER. DUCTILE IRON FITTINGS SHALL BE AWWA C153 WITH EXTERIOR COATING OF BITUMINOUS MATERIAL. INTERIOR LINING PER AWWA C104 CEMENT MORTAR WITH SEAL COAT; AND THE USE OF STAINLESS STEEL RING STIFFENERS AT ALL FITTINGS SHALL BE EMPLOYED. BUTT FUSION WELD JOINTS BETWEEN PLAIN ENDS OF POLYETHYLENE PIPE, MECHANICAL FOR TRANSITION BETWEEN PIPE, VALVES, ETC. OF DIFFERING MATERIALS AS APPROVED BY CITY.

INSTALL 8-GAUGE TRACE WIRE CONTINUOUS OVER TOP OF POLYETHYLENE PIPE. PERMANENTLY AFFIX THIS TRACE WIRE TO THE HDPE PIPE AS IT IS BEING INSTALLED. ALLOW SUFFICIENT SLACK ON BOTH ENDS OF HDPE PIPE TO EXTEND TRACE WIRE INTO A VALVE BOX ON EACH END OF THE DIRECTIONALLY DRILLED WATER MAIN. BRING TRACE WIRE UP INTO AND LOOP AT THE TOP OF EACH VALVE BOX. SPLICING OF WIRE SHALL BE DONE USING SPLICE CAPS WITH WATERPROOF SEALS. TWISTING OF WIRE TOGETHER IS NOT PERMITTED. TEST WIRE FOR CONTINUITY BEFORE AND AFTER BACKFILLING. BROKEN WIRE TO BE REPLACED.

CONTRACTOR SHALL VERIFY THAT AREA FOR TRENCHLESS INSTALLATION IS READY TO RECEIVE WORK, AND EXCAVATIONS, DIMENSIONS, AND ELEVATIONS ARE AS INDICATED ON DRAWINGS. CONTRACTOR ACCEPTS FULL RESPONSIBILITY FOR CONTRACTOR'S CONCLUSIONS RELATIVE TO THE NATURE AND PROBABLE DIFFICULTIES OF THE WORK DUE TO UNDERGROUND STRUCTURES AND SOIL CONDITIONS. BEGINNING OF INSTALLATION MEANS ACCEPTANCE OF EXISTING CONDITIONS.

MAKE BUTT FUSION JOINTS IN ACCORDANCE WITH PIPE MANUFACTURER'S AND FUSION MACHINE MANUFACTURER'S INSTRUCTIONS. THE WALL THICKNESS OF THE ADJOINING PIPES SHALL HAVE THE SAME DR AT THE POINT OF FUSION.

DIRECTIONAL DRILLING SHALL BE ACCOMPLISHED VIA A DRILLING RIG MOUNTED ON A VARIABLE BUT SHALLOW SLOPED BED WHICH PUSHES THE DRILL HEAD THROUGH THE SOIL ALONG THE ROUTE OF THE PROPOSED WATER MAIN. STIFF ROD SECTIONS ARE ADDED TO EXTEND THE HOLE. THE ROUTE/DEPTH IS CONTROLLED BY LOCATING THE DRILL HEAD ELECTRONICALLY AND ROTATING THE DRILL HEAD TO A POSITION THAT FORCES REDIRECTION. THE HOLE IS KEPT FULL WITH BENTONITE TO PREVENT COLLAPSE AND FACILITATE DRAWING THE PIPE BACK THROUGH THE HOLE, CONNECTED TO THE RODS.

INSTALL HDPE PIPE IN THE FOLLOWING MANNER. PROVIDE SUCH MEANS AS NECESSARY TO FACILITATE THE INSTALLATION OF THE PIPE AND APPURTENANCES IN ACCORDANCE WITH LINES, GRADES, AND LOCATIONS AS SHOWN ON THE DRAWINGS. DRILL THE DRILLING RODS AND HEAD AT A DOWNWARD ANGLE TO A MINIMUM DEPTH OF 4 FEET OR AS APPROVED BY THE CITY AND CONTINUE TO DRILL HORIZONTALLY AT THE SPECIFIED DEPTH ALONG THE PROPER ALIGNMENT. WHEN CONNECTING TWO SEPARATE LENGTHS OF PIPE TOGETHER, MAINTAIN MINIMUM BURIAL DEPTH DRILLING IN A HORIZONTAL DIRECTION BEYOND THE POINT AT WHICH THE EXISTING PIPE BEGINS ITS UPWARD ASCENT BEFORE BRINGING THE DRILL HEAD TO THE SURFACE. ATTACH PIPING TO DRILL RODS PER MANUFACTURER'S INSTRUCTIONS AND THEN PULL THE RODS AND PIPE BACK THROUGH THE HOLE CREATED. AFTER PULLING THE PIPE COMPLETELY THROUGH THE CREATED HOLE WITH THE DRILLING UNIT, EXCAVATE THE LOCATION OF THE CONNECTION. BUTT FUSE THE TWO LENGTHS OF PIPE TOGETHER AT THE POINT WHERE BOTH PIPES ARE HORIZONTAL TO THE SURFACE. IF OBSTRUCTIONS ARE ENCOUNTERED, BACK UP DRILLING HEAD AND DEFLECT AROUND OBSTRUCTION. AT NO TIME SHALL A DEFLECTION AROUND AN OBJECT CAUSE THE PIPE TO LEAVE A ROAD RIGHT-OF-WAY OR EASEMENT LIMITS.

MAINTAIN A DATA SHEET FOR ALL DIRECTIONALLY DRILLED PIPE. THE DATA SHEETS SHALL AT A MINIMUM CONTAIN NAME OF DRILLER, DATE OF WORK, LOCATION OF WORK, FOOTAGE OF DRILLED PIPE, DEPTH OF BURIAL, SLOPE OF DRILL HEAD, ALL UPDATED AT 5 FOOT INTERVALS AND COMMENTS REGARDING INSTALLATION. PERFORM ALL REQUIRED BACKFILL AS SUBSEQUENTLY SPECIFIED. SURVEY AND RECORD ON THE RECORD DRAWINGS THE WATER MAIN ELEVATION AT INTERVALS OF 200 FEET OR LESS ALONG THE MAIN. DIRECTIONALLY DRILLED PVC PIPE WILL BE ACCEPTABLE ON A CASE-BY-CASE BASIS, AS PERMITTED BY THE CITY.

2.2 - POLYETHYLENE ENCASEMENT

CONTRACTOR AND/OR DEVELOPER IS RESPONSIBLE FOR COORDINATING WITH THE DUCTLE IRON PIPE RESEARCH ASSOCIATION (DIPRA) TO TEST THE PROJECT SITE TO DETERMINE THE CORROSIVENESS OF THE SOIL AND THE NEED FOR POLYETHYLENE ENCASEMENT. REPORT SHALL BE SUBMITTED TO THE CITY FOR DETERMINING THE NEED, IF ANY, TO WRAP THE PIPE.

PIPE, FITTINGS AND APPURTENANCES SHALL BE FIELD WRAPPED WITH A MINIMUM 8-MIL THICK POLYETHYLENE TUBE MEETING THE REQUIREMENTS OF AWWA C105, AS DIRECTED BY THE CITY. INSTALLATION SHALL BE IN ACCORDANCE WITH METHOD A AND THE INSTRUCTIONS OF THE MANUFACTURER. ALL OVERLAPS AND SEAMS SHALL BE COMPLETELY TAPED. ALL RIPS, PUNCTURES AND OTHER DAMAGE TO THE POLYETHYLENE SHALL BE ACCEPTABLY REPAIRED. TAPE SHALL BE 2-INCH WIDE PLASTIC BACKED ADHESIVE TAPE WHICH WILL BOND SECURELY TO BOTH METAL SURFACES AND THE POLYETHYLENE FILM.

2.3 - PIPE INSULATION

PROVIDE MINIMUM 1-INCH CELLULAR GLASS INSULATION WITH AN ALUMINUM JACKET; ADEQUATE TO PREVENT FREEZING AT 0 DEGREES F; SUITABLE FOR BURIAL. INSTALLATION SHALL BE FOAMGLAS BY PITTSBURGH CORNING CORPORATION OR AS APPROVED.

PROVIDE INSULATION IN ANY AREA WHERE THE DEPTH OF COVER, WETHER HORIZONTAL, AT SLOPES OR VERTICAL, IS LESS THAN OR EQUAL TO 3'-6". INSTALL PIPE INSULATION AND JACKETING PER MANUFACTURER'S RECOMMENDATIONS, AND TO PREVENT ENTRY OF WATER BETWEEN THE PIPE AND INSULATION.

2.4 - PIPELINE MARKERS-N/A **2.5 - STEEL ENCASEMENT PIPE-** N/A

2.6 - GATE VALVES

VALVES 12-INCHES IN DIAMETER AND SMALLER SHALL BE GATE VALVES. GATE VALVES SHALL BE IRON-BODY, RESILIENT-SEATED GATE VALVES MEETING THE REQUIREMENTS OF AWWA C-515. VALVES SHALL BE DESIGNED FOR A WORKING WATER PRESSURE OF 200 PSI, SHALL BE OF THE NON-RISING STEM TYPE WITH STANDARD AWWA NUT, AND SHALL OPEN BY TURNING TO THE LEFT (COUNTERCLOCKWISE). STEM SEALS SHALL CONSIST OF AT LEAST TWO O-RINGS. ENDS SHALL BE MECHANICAL JOINT. GATE VALVES SHALL BE AS MANUFACTURED BY AMERICAN-FLOW CONTROL OR MUELLER, AND SHALL MATCH THOSE EXISTING IN THE SYSTEM. THE MANUFACTURER SHALL FURNISH AN AFFIDAVIT INDICATING THAT ALL TESTS AND PROVISIONS OF THE APPLICABLE STANDARD HAVE BEEN MET. EACH GATE VALVE SHALL BE COMPLETE WITH A VALVE BOX AS SUBSEQUENTLY SPECIFIED IN ITEM 2.11. VALVES SHALL BE SET PLUMB WITH THE VALVE BOX ACCURATELY CENTERED OVER THE VALVE. IF REQUIRED, OPERATORS SHALL BE PROVIDED WITH EXTENSION STEMS SUCH THAT THE OPERATING NUT IS LOCATED APPROXIMATELY 4'-0" BELOW GRADE. EXTENSION STEMS SHALL BE CENTERED IN THE VALVE BOXES BY APPROVED STEM GUIDES.

2.7 - TAPPING SLEEVES AND VALVES

A. REQUIREMENTS - WHEN AN EXISTING MAIN INTO WHICH A CONNECTION IS TO BE MADE CANNOT BE SHUT DOWN OR TAKEN OUT OF SERVICE, THE CONNECTION SHALL BE MADE WITH A TAPPING SLEEVE AND VALVE. THE INSTALLATION SHALL BE MADE BY PERSONNEL SKILLED AND EXPERIENCED IN THE MAKING OF PRESSURE TAPS. THE CONTRACTOR SHALL EXERCISE CARE IN THE SELECTION AND ADJUSTMENT OF DRILLING EQUIPMENT AS WELL AS IN THE INSTALLATION, INSPECTION AND CUTTING PROCEDURES. PRIOR TO ORDERING THE TAPPING SLEEVE ASSEMBLY, THE CONTRACTOR SHALL EXPOSE A SECTION OF THE EXISTING MAIN AND VERIFY THE CIRCUMFERENCE OF THE PIPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION, PROPER ASSEMBLY, ALIGNMENT AND FITTING OF THE TAPPING SLEEVE AND TAPPING VALVE TO THE MAIN. IN THE EVENT OF ANY MISMATCH OF PURCHASED MATERIALS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REFIT THEM IN THE FIELD OR TO MAKE THE NECESSARY ARRANGEMENTS WITH THE MANUFACTURER FOR FACTORY REFIT.THE SEVERED SECTION OF WATER MAIN SHALL BE REMOVED THROUGH THE TAPPING VALVE AND GIVEN TO THE ENGINEERING DEPARTMENT AS PROOF OF SATISFACTORY EXECUTION OF THE OPERATION. THE CITY MAY RETAIN THE COUPON FOR SUCH ANALYSIS OR TESTS AS ARE NECESSARY TO EVALUATE THE CONDITION OF THE EXISTING WATER MAIN. OTHER REQUIREMENTS FOR INSTALLATION OF THE TAPPING SLEEVE AND VALVE SHALL BE AS SUBSEQUENTLY SPECIFIED IN ITEM 2.26 - CONNECTIONS TO MAINS.

B. TAPPING SLEEVES - TAPPING SLEEVES AND BOLTS SHALL BE OF STAINLESS STEEL. GASKETS SHALL EXTEND THE ENTIRE INTERIOR LENGTH OF THE SLEEVE TO FORM WATERTIGHT JOINTS WHEN THE SIDE BOLTS ARE TIGHTENED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. BRANCH FLANGE SHALL HAVE A FEMALE FACE TO ACCOMMODATE THE MALE FACE OF THE TAPPING VALVE. TAPPING SLEEVES SHALL BE AS MANUFACTURED BY ROMAC INDUSTRIES, OR EQUAL. TAPPING SLEEVES SHALL BE TESTED TO 200 PSI.

C. TAPPING VALVES - TAPPING VALVES SHALL BE GATE VALVES AS PREVIOUSLY SPECIFIED IN ITEM 2.6 EXCEPT AS MODIFIED BY THE FOLLOWING: THE WATERWAY SHALL ACCOMMODATE FULL SIZE CUTTERS. ONE END SHALL BE FLANGED TO MATCH THE TAPPING SLEEVE OUTLET. THE VALVE OUTLET SHALL BE MECHANICAL JOINT IN COMPLIANCE WITH AWWA C111. EACH TAPPING VALVE SHALL BE COMPLETE WITH A VALVE BOX AS SUBSEQUENTLY SPECIFIED IN ITEM 2.11. VALVES SHALL BE SET PLUMB WITH THE VALVE BOX ACCURATELY CENTERED OVER THE VALVE. IF REQUIRED, OPERATORS SHALL BE PROVIDED WITH EXTENSION STEMS SUCH THAT THE OPERATING NUT IS LOCATED APPROXIMATELY 4'-0" BELOW GRADE. EXTENSION STEMS SHALL BE CENTERED IN THE VALVE BOXES BY APPROVED STEM GUIDES.

2.8 - INSERTION VALVES

INSERTION VALVES SHALL BE USED AS DIRECTED BY THE ENGINEERING DEPARTMENT. INSERTION VALVES SHALL BE AS MANUFACTURED BY ROMAC INDUSTRIES, OR APPROVED EQUAL. THE VALVE INSERT SHALL BE A DUCTILE IRON CASTING COATED WITH SBR RUBBER, COMPOUNDED FOR WATER SERVICE, WITH A DUROMETER OF 55 SHORE A; AND WHICH SEATS ON THE INSIDE DIAMETER OF THE SLEEVE, NECK AND LOWER HALF OF THE WATER MAIN. THE NECK SHALL BE MANUFACTURED TO PRECISION TOLERANCES THAT ASSURE PROPER ALIGNMENT, SUPPORT AND SEATING OF THE VALVE INSERT. THE BOLTS AND NUTS SHALL BE TYPE 304 STAINLESS STEEL, INCLUDING WASHERS. GASKETS SHALL BE MANUFACTURED OF SBR RUBBER, COMPOUNDED FOR POTABLE WATER SERVICE PER ASTM D2000 WITH A DUROMETER OF 70 SHORE A; PROVIDING A POSITIVE 360 DEGREE SEAL. THE ARMORS SHALL BE HEAVY GAUGE, TYPE 304 STAINLESS STEEL, ARMOR PLATES TO BRIDGE THE GAP BETWEEN THE SLEEVE HALVES.

2.9 - BUTTERFLY VALVES -N/A **2.10 - AIR RELEASE VALVES -**N/A

2.11 - VALVE BOXES

VALVE BOXES SHALL BE CONSTRUCTED OF CAST IRON, SHALL BE COATED, SHALL BE OF THE THREE PIECE SCREW TYPE, SHALL HAVE A 5-1/4 INCH SHAFT, AND SHALL BE PROVIDED WITH A HEAVY, NEAT-FITTING COVER HAVING THE WORD "WATER" CAST ON THE TOP. THE BASE OF THE VALVE BOX SHALL COVER THE ENTIRE BONNET SECTION OF THE VALVE. THE THREE PIECE VALVE BOX SHALL HAVE SUFFICIENT LENGTH, SUCH THAT WHEN INSTALLED, THE TOP OF THE COVER SHALL BE FLUSH WITH THE SURROUNDING SURFACE WITH EACH SECTION PROPERLY ENGAGED. VALVE BOXES SHALL BE AS MANUFACTURED BY BIBBY ST. CROIX OR AN APPROVED EQUAL.

VALVE BOXES SHALL BE INSTALLED WITH A CLASS QC CONCRETE COLLAR, SEE FIGURE 2.11.1, OR AS DIRECTED BY THE CITY. VALVE BOXES IN CONCRETE PAVEMENTS OR SIDEWALKS SHALL HAVE EXPANSION JOINT MATERIAL AROUND THAT PORTION OF THE BOX IN THE CONCRETE. THE CONCRETE COLLAR SHALL TERMINATE THREE INCHES BELOW FINAL GRADE.

AFTER INSTALLATION, VALVE BOXES SHALL BE CHECKED TO ENSURE THE BOX IS NOT FILLED WITH STONES, DIRT, DEBRIS OR BACKFILL MATERIAL AND THAT THE OPERATING NUT IS CENTERED TO ALLOW OPERATION OF THE VALVE.

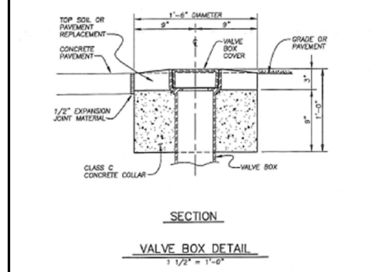

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FIG 2.11.1

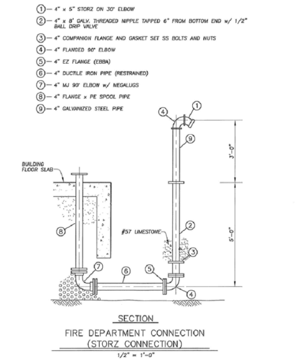

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FIG 2.15.6

2.12 - MANHOLES - N/A , 2.13 - BLOWOFF CHAMBER -N/A, 2.14- FLUSHING ASSEMBLIES -N/A

2.15 - FIRE HYDRANTS

A. ASSEMBLIES - FIRE HYDRANTS SHALL BE COMPLETE ASSEMBLIES OF THE TYPES SHOWN IN THE DETAILS ON THE DRAWINGS, EACH INCLUDING FIRE HYDRANT, WATCH VALVE AND VALVE BOX, PIPING (MAINLINE TEE, AND ANCHORING PIPE AND FITTINGS AS REQUIRED), AND APPURTENANCES. (SEE FIGURES 2.15.1, 2.15.2, 2.15.3 AND 2.15.4) INSTALLATION SHALL BE AS SPECIFIED IN ITEM 2.20.

FIGURE 2.15.1

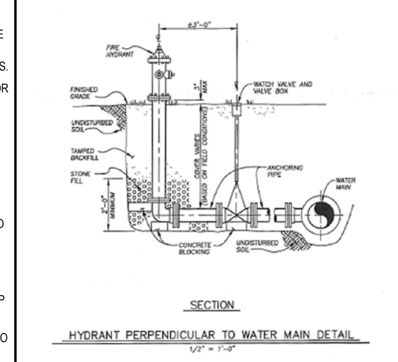

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FIG 2.15.1

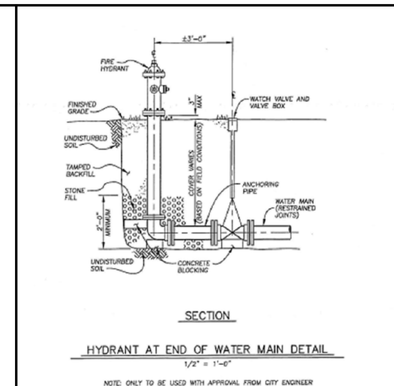

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FIG 2.15.3

B. FIRE HYDRANTS - FIRE HYDRANTS SHALL BE OF THE COMPRESSION TYPE, OPENING AGAINST AND CLOSING WITH THE WATER PRESSURE IN THE MAIN, AND SHALL MEET THE REQUIREMENTS OF AWWA C502. HYDRANTS SHALL HAVE A 5-1/4 INCH VALVE OPENING, TWO 2-1/2 INCH HOSE NOZZLES NST; AND ONE 4-1/2-INCH MACK NATIONAL THREADS PUMPER NOZZLE, AND SHALL OPEN BY TURNING TO THE LEFT (COUNTERCLOCKWISE). HYDRANTS SHALL BE TRAFFIC MODELS WITH FRANGIBLE BARREL SECTION AND STEM COUPLING, SHALL BE FURNISHED WITH A POSITIVE OPERATING DRAIN VALVE AND INSTALLED WITH THE VALVE OPEN, AND SHALL BE DESIGNED SO THAT WHEN PROPERLY OPERATED, WATER HAMMER WILL BE PREVENTED. HYDRANTS SHALL BE SUITABLE FOR SETTING IN TRENCHES OF THE DEPTHS AND IN THE LOCATIONS SHOWN, AND SHALL BE FURNISHED WITH A 6 INCH MECHANICAL JOINT BASE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING HYDRANT DEPTH OF BURY BASED ON THE LOCATIONS SHOWN. THE BREAKAWAY FLANGE SHALL BE SET AT 3-INCHES ABOVE TO 3-INCHES BELOW FINISHED GRADE. EACH HYDRANT IF NECESSITATED BY FIELD CONDITIONS, SHALL BE PROVIDED WITH AN OFFSET GRADE ADJUSTING FITTING, AS MANUFACTURED BY GRADE-LOK OR EQUAL. DISTANCE FROM ROAD TO HYDRANT SHALL BE 3 TO 8 FEET WITH CURB AND 5 TO 8 FEET WITH DITCH AND HYDRANT APPROACH. HYDRANTS SHALL BE LOCATED AT INTERSECTIONS AND AT 300 TO 350 FOOT INTERVALS, AND BE LOCATED SUCH THAT THE HYDRANT IS ON THE PROPERTY LINE OF ADJACENT PARCELS. HYDRANTS SHALL BE PAINTED COLOR AS DESIGNATED BY THE CITY, AND HYDRANT CAPS SHALL BE REMOVED AND NOZZLES GREASED (LUBRICATED) PRIOR TO ACCEPTANCE.

FIRE HYDRANTS SHALL BE MUELLER CENTURIAN A423 OR AMERICAN-FLOW CONTROL B84B. THE MANUFACTURER SHALL FURNISH AN AFFIDAVIT INDICATING THAT ALL TESTS AND PROVISIONS OF AWWA C502 HAVE BEEN MET. THE CONTRACTOR SHALL VERIFY THAT THE HYDRANT PUMPER NOZZLE, OPERATING NUT, OUTLET NOZZLE CAP NUTS AND HOSE THREADS CONFORM TO THOSE IN THE SYSTEM BEFORE THE NEW HYDRANTS ARE SHIPPED. HYDRANT EXTERIOR ABOVE GROUND LEVEL, IN ADDITION TO FINISHING AS REQUIRED BY AWWA C502, SHALL BE FIELD PAINTED WITH TWO COATS OF PAINT AS REQUIRED BY THE CITY AFTER BACKFILLING IS COMPLETE. BACKFILL AROUND BASE OF HYDRANT SHALL BE NO. 57, WASHED GRAVEL. NO LIMESTONE SHALL BE PERMITTED TO COME IN CONTACT WITH THE HYDRANT OR ASSEMBLY.

C. WATCH VALVES AND VALVE BOXES - WATCH VALVES AND VALVE BOXES SHALL BE GATE VALVES AND VALVE BOXES AS PREVIOUSLY SPECIFIED IN ITEMS 2.6 AND 2.11, WITH THE VALVES TO HAVE ENDS SUITABLE FOR RECEIVING THE SPIGOT END OF 6 INCH ANCHORING PIPE.

D. PIPING - PIPING SHALL BE CLASS 52 DUCTILE IRON ANCHOR PIPE AND FITTINGS DESIGNED IN ACCORDANCE WITH AWWA C150 AND MANUFACTURED IN ACCORDANCE WITH AWWA C151. ALL PIPE AND FITTING SHALL BE COATED WITH A BITUMINOUS MATERIAL ON THE OUTSIDE AND SHALL BE CEMENT MORTAR LINED IN ACCORDANCE WITH AWWA C104. MAINLINE TEES SHALL CONFORM TO THE REQUIREMENTS OF AWWA C153. THE BRANCH SHALL BE STANDARD MECHANICAL JOINT FOR CONNECTING TO ANCHORING PIPE AND FITTINGS, AND SHALL BE OF THE MECHANICAL JOINT ANCHORING TYPE WHEN CONNECTING TO A WATCH VALVE.

ANCHORING PIPE SHALL BE OF THE PLAIN END MECHANICAL JOINT TYPE INCORPORATING AN INTEGRAL CAST SHOULDER AND FOLLOWER GLAND, AND SHALL BE AS MANUFACTURED BY CLOW CORPORATION, AMERICAN CAST IRON PIPE COMPANY, UNITED STATES PIPE AND FOUNDRY COMPANY, OR EQUAL.

E. HYDRANT APPROACHES - N/A

F. FIRE DEPARTMENT CONNECTION - PRIVATE FIRE SUPPRESSION SYSTEMS SHALL BE PROVIDED WITH A FIRE DEPARTMENT CONNECTION ASSEMBLY AS SHOWN ON FIGURE 2.15.6. THIS ASSEMBLY SHALL BE TIED INTO THE FIRE SUPPRESSION SYSTEM FROM WITHIN THE BUILDING AND EXTEND TO OUTSIDE THE BUILDING TO THE LOCATION AS DETERMINED BY THE CITY FIRE DEPARTMENT.

FIGURE 2.15.6

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5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Drawn By:	KAN
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Drawing Title:
WATER DETAILS

C8.1

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2.16 - BACKFLOW PREVENTION DEVICES, ENCLOSURES AND THERMAL EXPANSION CONTROL

A. GENERAL - BACKFLOW PREVENTION DEVICES SHALL BE PROVIDED FOR, BUT NOT LIMITED TO, THE FOLLOWING CIRCUMSTANCES: ALL COMMERCIAL AND INDUSTRIAL BUILDINGS, FIRE LINES, IN-GROUND IRRIGATION SYSTEMS, SWIMMING POOLS, PROPERTIES WITH AUXILIARY WATER SUPPLY (WELLS), AND OTHER CIRCUMSTANCES AS DETERMINED BY THE CITY AND/OR CITY ORDINANCE AND ASSOCIATED RULES AND REGULATIONS FOR BACKFLOW PREVENTION, LATEST EDITION. THE CITY SHALL REVIEW AND APPROVE ALL DRAWINGS FOR BACKFLOW PREVENTION. BACKFLOW PREVENTION DEVICES, EXCEPT FOR FIRE SUPPRESSION SYSTEMS AND IN-GROUND IRRIGATION SYSTEMS, SHALL BE A MINIMUM OF A TESTABLE, REDUCED PRESSURE PRINCIPLE ASSEMBLY (ASSE 1013 OR ASSE 1047). FIRE SUPPRESSION SYSTEMS SHALL BE PROVIDED WITH A MINIMUM OF A TESTABLE, DOUBLE CHECK BACKFLOW ASSEMBLY (ASSE 1015 OR ASSE 1048) PROVIDED NO OTHER HAZARD OR CONDITION EXISTS REQUIRING THE USE OF A DIFFERENT BACKFLOW DEVICE. IN-GROUND IRRIGATION SYSTEMS SHALL BE PROVIDED WITH EITHER A TESTABLE REDUCED PRESSURE PRINCIPLE ASSEMBLY (ASSE 1013) OR A TESTABLE, PRESSURE VACUUM BREAKER (ASSE 1020). ALL BACKFLOW PREVENTION DEVICES MUST BE PROTECTED FROM FREEZING IF APPLICABLE IN THE FOLLOWING WAYS: INSTALLED IN A HEATED BUILDING OR APPROVED HEATED ENCLOSURE, ANY BACKFLOW DEVICE THAT IS NOT IN SERVICE DURING FREEZING WEATHER MAY BE PROTECTED BY COMPLETELY REMOVING ANY MOISTURE FROM THE DEVICE OR BY REMOVING THE DEVICE COMPLETELY FROM THE SYSTEM AND STORED IN A HEATED LOCATION. BACKFLOW PREVENTION DEVICES AND ENCLOSURES SHALL BE INSTALLED DOWNSTREAM OF THE METER AND SHALL REMAIN THE PROPERTY OF THE PROPERTY OWNER FOR MAINTENANCE AND OPERATION REQUIREMENTS.

B. APPROVED BACKFLOW PREVENTION ASSEMBLY - APPROVED BACKFLOW PREVENTION ASSEMBLIES SHALL BE INCLUDED ON THE OHIO EPA LIST OF APPROVED BACKFLOW PREVENTION DEVICES, LATEST EDITION, OR APPROVED BY THE CITY.

C. BACKFLOW PREVENTION DEVICE INSTALLATION - ALL BACKFLOW ASSEMBLIES SHALL BE INSTALLED IN SUCH A MANNER SO TO BE READILY ACCESSIBLE FOR INSPECTION, TESTING, AND MAINTENANCE. TEST COCKS CANNOT FACE TOWARDS A WALL OR OTHERWISE BE OBSTRUCTED. ALL BACKFLOW ASSEMBLIES SHALL BE INSTALLED "IN LINE" AND MUST NOT BE SMALLER THAN THE WATER METER SUPPLY LINE. ALL BACKFLOW ASSEMBLIES SHALL BE INSPECTED AND TESTED AT THE TIME OF INSTALLATION BY A STATE OF OHIO CERTIFIED BACKFLOW TESTER, WITH THE RESULTS BEING RECORDED ON A CITY-PROVIDED TEST FORM AND FORWARDED TO THE ADDRESS ON THE FORM.

1. PRESSURE VACUUM BREAKER INSTALLED AS FOLLOWS:

A. SHALL BE INSTALLED AT LEAST 12 INCHES ABOVE ALL DOWNSTREAM PIPING AND THE HIGHEST OUTLET OR FLOOD LEVEL RIM, OF THE FIXTURE(S) BEING SUPPLIED.

B. SHALL BE INSTALLED IN A VERTICAL POSITION WITH ADEQUATE SPACE TO FACILITATE MAINTENANCE AND TESTING.

C. SHALL BE INSTALLED IN AN AREA WHERE WATER SPILLAGE FROM THE AIR INLET VALVE IS NOT OBJECTIONABLE TO THE CONSUMER.

D. SHUT-OFF VALVES MAY BE INSTALLED ON THE DOWNSTREAM SIDE OF PRESSURE VACUUM BREAKERS.

2. DOUBLE CHECK VALVE ASSEMBLY INSTALLED AS FOLLOWS:

A. DOUBLE CHECK VALVE ASSEMBLIES SHALL BE INSTALLED IN A HORIZONTAL POSITION UNLESS SPECIFIED OTHERWISE BY THE MANUFACTURER AND APPROVED BY THE CITY.

B. INSTALLATION ABOVE GROUND LEVEL IS PREFERRED. WHERE ABOVE GROUND INSTALLATIONS ARE NOT REASONABLY PRACTICAL, A PIT OR VAULT MAY BE USED.

3. REDUCED PRESSURE PRINCIPLE ASSEMBLY INSTALLED AS FOLLOWS:

A. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED ABOVE GROUND LEVEL OR FLOOR LEVEL, WHICHEVER IS HIGHER, IF INSTALLED IN AN AREA PRONE TO FLOODING.

B. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION DEVICES SHALL BE INSTALLED IN A HORIZONTAL POSITION UNLESS SPECIFIED OTHERWISE BY THE MANUFACTURER AND APPROVED BY THE CITY.

C. INSTALLED SO THAT THERE IS NO VISIBLE DISCHARGE FROM THE RELIEF VALVE PORT.

D. INSTALLED WITH A DRAIN TO RECEIVE SPILLAGE FROM THE RELIEF VALVE PORT IF THE DEVICE IS LOCATED WITHIN A BUILDING. THE RELIEF VALVE PORT, IF PIPED TO A DRAIN, MUST INCLUDE AN APPROVED AIR GAP SEPARATION AT THE DISCHARGE OPENING OF THE RELIEF VALVE PORT.

E. THE INSTALLATION OF THIS DEVICE IN A VAULT OR PIT IS PROHIBITED.

D. THERMAL EXPANSION CONTROL - PER THE OHIO BASIC BUILDING CODE, WHERE A BACKFLOW PREVENTION DEVICE IS INSTALLED ON A WATER SUPPLY SYSTEM UTILIZING STORAGE WATER HEATING EQUIPMENT SUCH THAT THERMAL EXPANSION CAUSES AN INCREASE IN PRESSURE, A THERMAL EXPANSION TANK FOR CONTROLLING PRESSURE SHALL BE INSTALLED. THE EXPANSION TANK SHALL BE INSTALLED IN THE COLD WATER SERVICE PIPING ON THE SUPPLY SIDE OF THE HOT WATER HEATER PRIOR TO ANY CONTROL VALVES. THE SIZE OF THE EXPANSION TANK IS BASED UPON THE SIZE OF THE HOT WATER HEATER AND MAY BE DETERMINED BY REFERRING TO THE MANUFACTURER RECOMMENDATIONS.

E. BACKFLOW PREVENTION DEVICE ENCLOSURE - THE ENCLOSURE, DEPENDING ON LOCATION, MAY BE AN EXISTING OR NEW BUILDING WHICH IS HEATED; AND WHICH MEETS THE REQUIREMENTS OF THE ARCHITECTURAL REVIEW BOARD (IF NEW) AND OTHER BUILDING ORDINANCES. IF AN EXISTING BUILDING IS NOT APPROPRIATE, A HEATED ENCLOSURE SHALL BE PROVIDED INCLUDING ELECTRICAL POWER FOR HEAT, PER THE MANUFACTURER'S RECOMMENDATIONS, BASED ON SIZE OF BACKFLOW PREVENTION DEVICE. THE HEATED ENCLOSURE SHALL COMPLY WITH ASSE-1060 PERFORMANCE REQUIREMENTS FOR OUTDOOR ENCLOSURES FOR BACKFLOW PREVENTION ASSEMBLIES.

NEW HEATED ENCLOSURES SHALL BE EITHER A BOX STYLE, AS MANUFACTURED BY HYDROCOWL, INC. OR HOT-BOX OR A HOT-ROK STYLE AS MANUFACTURED BY HOT-BOX. BOTH STYLES SHALL FULLY ENCLOSE THE BACKFLOW PREVENTER ASSEMBLY, VALVES, HANDWHEELS AND STEMS, AND BE CONSTRUCTED ON AN ODOT CLASS QC CONCRETE PAD, AS RECOMMENDED BY THE MANUFACTURER. THE HEATING AND ELECTRICAL REQUIREMENTS SHALL COMPLY WITH MANUFACTURER'S RECOMMENDATIONS. SEE FIGURE 2.16.1.

2.17 - BACTERIA SAMPLING AND FLUSHING ASSEMBLIES

SAMPLING AND FLUSHING ASSEMBLIES WILL BE INSTALLED AS A MINIMUM EVERY 1,200 L.F. OF WATER MAIN OR AS DIRECTED BY THE CITY. A CORPORATION COCK WILL BE INSTALLED IN THE MAIN WITH A BACTERIA SAMPLING AND FLUSHING ASSEMBLY AT EACH SAMPLING LOCATION. A CURB STOP OR BALL VALVE CAN BE USED IN THE PORTION OF THE ASSEMBLY THAT IS ABOVE GROUND TO FACILITATE THE SAMPLING PROCEDURE. AT LEAST 18 INCHES OF SMOOTH COPPER TUBE MUST EXTEND BEYOND THE VALVE (LOCATED ABOVE GROUND) AND BE BENT IN A DOWNWARD ARC. ADDITIONAL LENGTH SHALL BE PROVIDED TO PREVENT FLOODING, TO GO INTO STORM CONVEYANCE SYSTEM, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING DIRECTION OF FLOW TO PROPER DRAINAGE LOCATION TO PREVENT FLOODING. ONCE INSTALLED, CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE OR OTHERWISE TAMPER WITH BACTERIA SAMPLING AND FLUSHING ASSEMBLIES WITHOUT APPROVAL FROM THE CITY. THE BACTERIA SAMPLING AND FLUSHING ASSEMBLY SHALL NOT BE REMOVED UNTIL THE CONTRACTOR HAS RECEIVED WRITTEN NOTICE THAT THE MAIN HAS PASSED ALL BACTERIOLOGICAL TESTS PER AWWA C651-92; SECTION 7.3 AND OHIO EPA REQUIREMENTS. SEE FIGURE 2.17.1.

MATERIALS FOR BACTERIA SAMPLING AND FLUSHING ASSEMBLIES SHALL BE AS SPECIFIED IN ITEM 2.18, WITH THE EXCEPTION THAT A BALL VALVE MAY BE SUBSTITUTED FOR THE CURB STOP. THE BALL VALVE SHALL BE BRONZE, TWO PIECE BODY, CHROME PLATED, BRASS BALL, TEFLON SEATS AND STUFFING BOX RING, WITH LEVER HANDLE AND BALANCING STOPS, SOLDER OR THREADED ENDS WITH UNION; AND SHALL BE MODEL MODEL #S-587-70 OR T-587-70 AS MANUFACTURED BY NIBCO.

SEE SECTION III - TESTING FOR ADDITIONAL TESTING REQUIREMENTS.

2.18 - SERVICE CONNECTIONS AND METERS

A. SERVICE CONNECTIONS - SERVICE CONNECTIONS SHALL BE 1 INCH FOR RESIDENTIAL SERVICES UP TO THE ROAD RIGHT-OF-WAY (SEE FIGURE 2.18.1) AND FROM THE RIGHT-OF-WAY TO THE METER SETTING. LOCATIONS OF SERVICE CONNECTIONS, WHEN SHOWN ON THE DRAWINGS, ARE APPROXIMATE ONLY. FINAL LOCATIONS WILL BE ESTABLISHED AT THE TIME OF CONSTRUCTION BY THE CITY OR A REPRESENTATIVE OF THE OWNER OF THE PROPERTY BEING SERVED. SERVICE CONNECTIONS SHALL BE INSTALLED PRIOR TO THE NEW MAINS BEING TESTED AND DISINFECTED AND PLACED IN SERVICE. FOR SERVICE CONNECTIONS GREATER THAN 2-INCH DIAMETER, SEE FIGURE 2.18.2.

SEE FIGURE 2.18.1 & FIGURE 2.18.2.

SERVICE CONNECTIONS SHALL INCLUDE THE FURNISHING AND INSTALLATION OF TAPPING SADDLE, CORPORATION STOP, CURB STOP AND BOX, AND SERVICE PIPE AND FITTINGS AS REQUIRED. MATERIALS SHALL MEET ALL APPLICABLE REQUIREMENTS OF AWWA C800. WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS PREVIOUSLY SPECIFIED IN THIS ITEM. TAPPING SADDLES SHALL BE USED ON SERVICES GREATER THAN 1-INCH AND SHALL BE OF BRONZE OR BRASS, WITH SILICON BRONZE SCREWS, SHALL BE DESIGNED FOR USE WITH THE TYPE OF PIPE ON WHICH THEY ARE INSTALLED, AND SHALL ACCEPT THE SUBSEQUENTLY SPECIFIED CORPORATION STOPS. MINIMUM QUALITY SHALL BE EPOXY COATED SADDLE WITH DOUBLE STAINLESS STEEL STRAPS AND BOLTS. TAPPING SADDLES SHALL INCORPORATE AN "O" RING SEAL OR GASKET WHICH SHALL EFFECT A POSITIVE HYDRAULIC SEAL. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

CORPORATION STOPS SHALL BE OF THE BEST QUALITY BRONZE OR BRASS, BALL VALVE, AND SHALL BE A TEFLON COATED BALL VALVE AND SHALL BE COMPLETE WITH REQUIRED COUPLING AND ACCESSORIES FOR CONNECTION TO TYPE OF SERVICE PIPE PROVIDED. CORPORATION STOPS SHALL BE SUBJECTED TO AN AIR TEST AT THE FACTORY, AND SHALL BE AS MANUFACTURED BY AY MCDONALD, MODEL NO. 4701-B; MUELLER, MODEL NO. B2500; FORD METER BOX CO., MODEL FB800-X-NL, OR AS APPROVED.

CURB STOPS SHALL BE OF THE BEST QUALITY BRASS OR BRONZE, AND SHALL BE A TEFLON COATED BALL VALVE COMPLETE WITH CONNECTIONS FOR THE TYPE OF SERVICE PIPE PROVIDED FROM THE MAIN AND FOR THE TYPE OF SERVICE PIPE REQUIRED TO THE BUILDING BEING SERVED. CURB BOXES SHALL BE OF STEEL AND CAST IRON AND SHALL BE BIBBY ST. CROIX MODEL 94E ARCH BASE, OR AS APPROVED. CONCRETE BLOCKING SHALL BE PROVIDED UNDER EACH CURB BOX.

SERVICE PIPE SHALL BE OF TYPE K COPPER TUBE MEETING THE REQUIREMENTS OF ASTM B88, AND SHALL BE SOFT TEMPERED WHEN INSTALLED IN OPEN TRENCHES AND HARD TEMPERED WHEN INSTALLED BY PUSHING. FLARE TYPE UNIONS SHALL BE USED WITH THE COPPER TUBE. EACH SERVICE CONNECTION TWO INCH DIAMETER AND SMALLER SHALL BE PROVIDED WITH A TAIL PIECE OF COPPER AS SHOWN IN FIGURE 2.18.1.

PIPE SHALL BE INSTALLED UNDER STREET AND HIGHWAY PAVEMENTS BY PUSHING OR BORING, WITH NO EXCAVATION CLOSER THAN 5 FEET TO THE EDGE OF THE PAVEMENT. IN ADDITION, NO JOINTS SHALL BE PERMITTED WITHIN THESE LIMITS. WHEN BORING UNDER PAVEMENT, IF THE OPENING EXCEEDS BY 2 INCHES THE OUTSIDE DIAMETER OF THE PIPE INSTALLED, THE OPENING AROUND THE PIPE SHALL BE FILLED WITH GROUT.

B. WATER METERS - WATER METERS SHALL BE MAGNETIC DRIVE, WITH A SCANCODE REMOTE READ, I.E. RESIDENTIAL, COMMERCIAL AND INDUSTRIAL. THEY SHALL READ IN CUBIC FEET, SET WITH VALVES BEFORE AND AFTER THE METER. WATER METER SETTING SHALL BE APPROVED BY THE CITY. ALL ¾" AND 1" DIAMETER WATER METER INSTALLATIONS REQUIRE COPPER HORNS OBTAINED FROM THE CITY. INSTALLATION OF WATER METERS, SETTINGS AND REMOTE METER WIRE IS THE RESPONSIBILITY OF THE CONTRACTOR.

WATER METERS GREATER THAN 1" DIAMETER SHALL BE RIGID PLUMBED. THESE METERS SHALL HAVE BY-PASS PIPING WITH A LOCKABLE VALVE INSTALLED ON THE BY-PASS. ONLY TEFLON TAPE SHALL BE USED ON FITTINGS AND THREADS LOCATED ON THE SUPPLY SIDE OF WATER METERS.

WATER METERS 2" DIAMETER AND SMALLER SHALL BE OBTAINED FROM THE CITY. WATER METERS GREATER THAN 2" DIAMETER SHALL BE COMPOUND METERS WITH STRAINER, UNLESS OTHERWISE APPROVED BY THE CITY. WATER METERS SHALL BE HORIZONTALLY MOUNTED APPROXIMATELY 30-42" ABOVE THE FLOOR AND MUST BE ACCESSIBLE AND PROTECTED FROM DAMAGE, ESPECIALLY FREEZING.

THE OWNER/CONTRACTOR SHALL INSTALL A REMOTE WATER METER WIRE FROM THE PROPOSED WATER METER LOCATION TO THE VICINITY OF THE PROPOSED ELECTRIC METER BASE LOCATION. THE REMOTE METER WIRE SHALL TERMINATE OUTSIDE THE STRUCTURE IN THE VICINITY OF THE PROPOSED ELECTRIC METER LOCATION AND ALLOW AT LEAST A TWO FEET PIGTAIL AT EACH END. THE REMOTE SHALL BE SET IN THE IMMEDIATE VICINITY OF WHERE THE REMOTE WIRE EXITS THE STRUCTURE. THE REMOTE METER WIRE SHALL BE SINGLE STRANDED, THERMO-COATED, 18 GAUGE WIRE WITH THREE CONDUCTORS. THE OWNER/CONTRACTOR SHALL CONTACT THE HUDSON PUBLIC POWER OR THE ELECTRIC UTILITY IN THAT AREA TO DETERMINE THE EXACT LOCATION OF THE ELECTRIC METER BASE LOCATION. THIS REQUIREMENT SHALL APPLY TO ALL RESIDENTIAL, COMMERCIAL AND INDUSTRIAL CONNECTIONS.

PER THE OHIO BASIC BUILDING CODE, WHERE THE WATER PRESSURE WITHIN ANY BUILDING EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE OR REGULATOR SHALL BE INSTALLED IMMEDIATELY AFTER THE WATER METER TO REDUCE THE PRESSURE TO A MAXIMUM OF 80 PSI WITHIN THE BUILDING.

2.19 - BEDDING AND BACKFILL

A. BEDDING - PIPE EMBEDMENT SHALL BE SAND MEETING THE REQUIREMENTS OF ODOT ITEM 703.06, FROM 4-INCHES BELOW THE PIPE BARREL TO 12-INCHES ABOVE THE PIPE BARREL.

CONCRETE ENCASEMENT SHALL BE ODOT CLASS QC CONCRETE.

B. GRANULAR BACKFILL - THE GRANULAR BACKFILL SHALL MEET THE REQUIREMENTS OF ODOT ITEM 304 CRUSHED LIMESTONE OR CONTROLLED DENSITY BACKFILL IN ACCORDANCE WITH FIG. 2.25.1.

TRENCHES WITHIN RAILROAD RIGHT-OF-WAY, EXCEPT FOR LONGITUDINAL OCCUPANCY, SHALL BE BACKFILLED WITH CRUSHED STONE WITH A TOP SIZE OF THE AGGREGATE TO BE A MAXIMUM OF TWO INCHES AND TO HAVE NO MORE THAN 5% PASSING THE NUMBER OF 200 SIEVE. THE GRADATION OF THE MATERIAL IS TO BE SUCH THAT A DENSE STABLE MASS IS PRODUCED.

C. CONTROL DENSITY FILL (CDF) - CONTROL DENSITY FILL (CDF) SHALL BE ODOT ITEM 613, TYPE 1 LOW STRENGTH MORTAR, EXCEPT NO FLY ASH PERMITTED. THE DESIGN MIX USED SHALL BE APPROVED BY THE CITY, AND SHALL HAVE A MAXIMUM DESIGN STRENGTH OF 50 PSF.

II. - INSTALLATION

2.20 - PIPE LAYING AND HYDRANT INSTALLATION

PIPE SECTIONS SHALL BE STRUNG ALONG THE ROUTE OF THE MAINS WITHIN THE RIGHT-OF-WAY OR EASEMENT SO AS TO INTERFERE LEAST WITH PEDESTRIAN AND VEHICULAR TRAFFIC AND TO PROTECT THE PIPE AS FULLY AS POSSIBLE. CARE SHALL BE TAKEN AT ALL TIMES IN HANDLING THE PIPE SO AS NOT TO DAMAGE IT IN ANY WAY AND AT NO TIME SHALL OTHER PIPES OR MATERIAL BE PLACED IN THE PIPES.

THE USE OF EQUIPMENT WITH METAL TRACKS OR TREADS WILL NOT BE PERMITTED ON PAVED SURFACES WHICH WILL NOT BE REMOVED DURING TRENCHING OPERATIONS WITHOUT SOME TYPE OF PAVEMENT PROTECTION SUCH AS MATTING OR RUBBER TRACKS. HEAVY EQUIPMENT SHALL NOT BE DRIVEN OVER STREETS, BUT SHALL BE MOVED BY TRAILER.

THE MAINS SHALL BE LAID IN THE LOCATIONS AND AT THE GRADES SHOWN ON THE DRAWINGS, EXCEPT AS SPECIFICALLY PERMITTED BY THE CITY IN ORDER TO AVOID EXISTING OR PROPOSED UTILITY LINES OR ANY OTHER OBSTRUCTIONS ENCOUNTERED IN THE PROGRESS OF THE WORK; TO SECURE A MORE READILY ACCESSIBLE POSITION FOR TRENCHING; OR TO FACILITATE THE LOCATION OF VARIOUS APPURTENANCES OF THE MAIN. DEFLECTION OF PIPE JOINTS SHALL BE IN STRICT ACCORDANCE WITH THE PIPE MANUFACTURER'S INSTRUCTIONS.

WHEN ABRUPT CHANGES IN THE GRADE OF THE MAIN ARE NECESSARY TO AVOID EXISTING UTILITIES OR OTHER OBSTRUCTIONS, SUITABLE FITTINGS, USUALLY 1/8 BENDS, SHALL BE USED SO AS TO SECURE AN EASY FLOW OF LIQUID AND TO PROVIDE SUFFICIENT COVER BELOW SAME UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS. PIPE SHALL BE SO LOCATED TO MAINTAIN A MINIMUM CLEARANCE OF 18 INCHES IN ALL DIRECTIONS WITH RESPECT TO OTHER UTILITIES TO ALLOW FOR TAPS TO BE INSERTED. CARE SHALL BE TAKEN TO AVOID HIGH AND LOW POINTS IN THE MAINS. DEAD-END STUB MAY BE TERMINATED WITH A RESTRAINED VALVE (FOR FURTHER USE) AS DETERMINED BY THE CITY.

PIPE SHALL BE LAID AT A MINIMUM 10-FOOT HORIZONTAL DISTANCE FROM SEWERS AND MANHOLES AND AT A MINIMUM 18 INCHES VERTICAL DISTANCE FROM SEWERS AT THEIR CROSSING, BOTH AS MEASURED BETWEEN THE OUTSIDE OF THE PIPE WALLS. AT CROSSINGS, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE INSTALLED CENTERED ON THE PIPE BEING CROSSED SO BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.

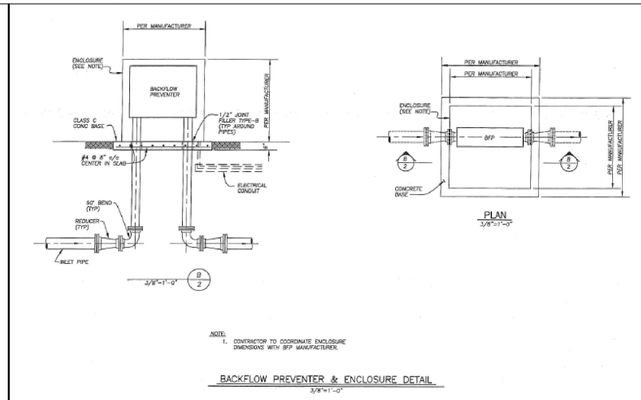
WITH PUSH-ON JOINTS, THE SURFACES TO BE IN CONTACT WITH THE RUBBER GASKET SHALL BE WIPED CLEAN AND DRY JUST PRIOR TO MAKING THE JOINT AND, WHEN MAKING THE JOINT, A LUBRICANT SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WITH MECHANICAL JOINTS, THE SURFACES TO BE IN CONTACT WITH THE RUBBER GASKET SHALL BE BRUSHED WITH SOAPY WATER TO REMOVE ALL SAND AND GRIT JUST PRIOR TO MAKING THE JOINT.

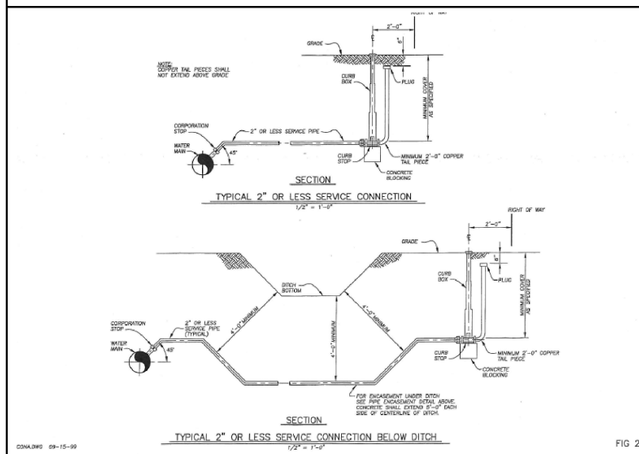
THE CONTRACTOR IS RESPONSIBLE FOR DISINFECTION OF THE WATER MAIN IN ACCORDANCE WITH AWWA C651-92, AS SUBSEQUENTLY SPECIFIED IN ITEM 2.28. THE CONTRACTOR SHALL FOLLOW AWWA C651-14 - PREVENTIVE AND CORRECTIVE MEASURES DURING CONSTRUCTION. ALL PIPES SHALL BE THOROUGHLY CLEANED INSIDE AND OUTSIDE BEFORE BEING LOWERED INTO THE TRENCH; SHALL BE KEPT CLEAN DURING AND AFTER LAYING; AND THE END OF THE PIPE SHALL BE SEALED WITH A WATERTIGHT PLUG WHEN PIPE LAYING IS STOPPED FOR ANY REASON. IF, IN THE OPINION OF THE ENGINEER, THE PIPE CONTAINS DIRT THAT WILL NOT BE REMOVED DURING SUBSEQUENT FLUSHING OPERATIONS, THE INTERIOR OF THE PIPE SHALL BE CLEANED AND SWABBED, AS NECESSARY, WITH A 1% CHLORINE SOLUTION (10,000 MG/L) PREPARED BY MIXING ONE POUND OF HIGH-TEST CALCIUM HYPOCHLORITE (65-70% CL) AND 8 GALLONS OF WATER.

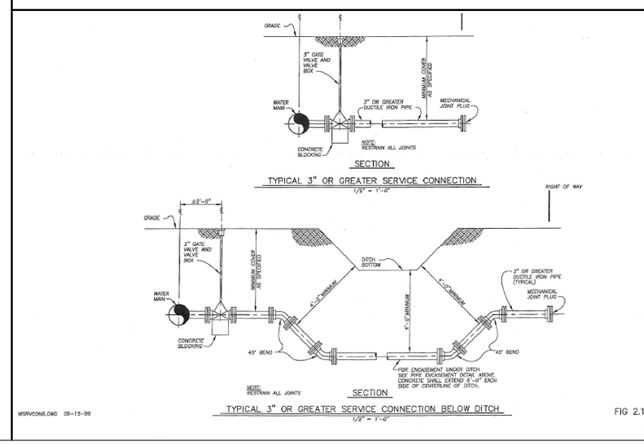
HYDRANTS SHALL BE SET PLUMB AND TO THE GRADE OF THE CURB, STREET, ALLEY, HIGHWAY OR RIGHT-OF-WAY AS APPROVED BY THE CITY. THE BREAKAWAY FLANGE SHALL BE WITHIN THREE INCHES OF FINISHED GRADE, EITHER EXISTING FOR DEVELOPED STREETS OR PROPOSED GRADE FOR PROPOSED STREETS. ANY READJUSTMENT OF THE GRADE WILL REQUIRE READJUSTMENT OF THE FIRE HYDRANT AS NOTED ABOVE. PUMPER NOZZLE SHALL ALWAYS BE SET TOWARD THE MIDDLE LINE OF THE STREET, HIGHWAY OR RIGHT-OF-WAY PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. PRIOR TO THE WATER MAIN BEING PLACED INTO SERVICE, THE CONTRACTOR SHALL EITHER TURN PUMPER NOZZLE AWAY FROM THE MIDDLE LINE OF THE STREET OR PROVIDE PLASTIC BAGS, AS APPROVED BY THE CITY, TO COVER EACH HYDRANT.

THE HYDRANT BASE AND WATCH VALVE SHALL EACH REST ON APPROVED CONCRETE BLOCKING. EXCAVATION FOR HYDRANTS SHALL FIRST BE BACKFILLED WITH ODOT #57 WASHED GRAVEL (NO LIMESTONE) FOR A MINIMUM DEPTH OF TWO FEET. REMAINDER OF EXCAVATION SHALL BE BACKFILLED AS SPECIFIED FOR TRENCHES.

SHOULD IT BE NECESSARY, AS DETERMINED BY THE CITY TO SET A FIRE HYDRANT AT A GREATER DEPTH OF BURY AS A RESULT OF CHANGING HYDRANT LOCATION FROM THAT SHOWN, ELEVATION ADJUSTMENT SHALL BE ACCOMPLISHED BY FURNISHING AND INSTALLING THE FIRE HYDRANT MANUFACTURER'S STANDARD BARREL AND STEM EXTENSIONS OR GRADE ADJUSTMENT OFFSET.







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Revisions / Submissions

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2.21 - TRENCHES EXCEPT WHERE OTHERWISE SPECIFICALLY REQUIRED OR PERMITTED BY THE CITY, THE MAINS SHALL BE LAID IN OPEN TRENCH EXCAVATED TO A DEPTH SUFFICIENT TO PROVIDE NOT LESS THAN 4 FEET OF VERTICAL COVER OVER THE TOP OF THE PIPE BARREL AND TO PROVIDE NOT LESS THAN 4 INCHES OF BEDDING BELOW THE OUTSIDE BOTTOM OF THE PIPE BARREL TO 12 INCHES ABOVE THE PIPE BARREL. NO BLOCKING SHALL BE PERMITTED UNDER THE WATER MAIN. HOWEVER, PIPES SHALL BE INSTALLED AT A GREATER DEPTH WHEN SHOWN ON THE DRAWINGS; WHEN NECESSARY TO PASS UNDER OTHER UTILITIES OR OBSTRUCTIONS; OR WHERE NECESSARY TO PREVENT HIGH POINTS IN THE MAIN. IN ADDITION TO THE MINIMUM VERTICAL COVER, WHERE ANY PIPES PARALLEL ROADSIDE DITCHES OR STREAMS, A LATERAL COVER SHALL BE PROVIDED AT LEAST EQUAL TO THE SPECIFIED VERTICAL COVER.

PRIOR TO TRENCHING, IN LAWN AREAS AND IN FIELDS USED FOR FARMING, BOTH AS DETERMINED BY THE CITY, ALL TOPSOIL SHALL BE REMOVED AND STOCKPILED FOR REPLACEMENT DURING BACKFILLING.

THE WIDTH OF THE TRENCH SHALL NOT BE MORE THAN 24 INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE PIPE, EXCEPT AT JOINTS, WHERE SUFFICIENT SPACE SHALL BE PROVIDED FOR PROPERLY MAKING THE JOINTS WITHOUT RAISING THE LENGTH OF PIPE ABOVE THE SOLID BOTTOM OF THE TRENCH. CARE SHALL BE TAKEN TO DETECT AND REMOVE STONES AND DEBRIS IN THE BOTTOM OF THE TRENCH WHICH WOULD DAMAGE THE PIPE OR BE DETRIMENTAL TO THE PROPER BEDDING OF THE PIPE, WITH REMOVAL TO BE FOR A DEPTH OF AT LEAST 6 INCHES BELOW THE BOTTOM OF THE PIPE AND REPLACED WITH BEDDING MATERIAL.

TRENCHES IN ROCK SHALL BE EXCAVATED TO A DEPTH OF 6 INCHES BELOW THE OUTSIDE BOTTOM OF THE PIPE BARREL AND BELL WHEN THE PIPE IS LAID ON ITS FINAL GRADE AND THE PIPE SHALL THEN BE LAID ON A CUSHIONING LAYER OF BEDDING MATERIAL AS SPECIFIED AND PROVIDED BY THE CONTRACTOR. ROCK EXCAVATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SUBSEQUENTLY SPECIFIED IN ITEM 2.27.

PRIOR TO OPEN TRENCHES ENTERING THE PAVED LIMITS OF A STREET, ALLEY, DRIVEWAY, SIDEWALKS, OR PARKING AREA, THE PAVEMENT SHALL BE NEATLY CUT FOR ITS FULL DEPTH, REMOVED, AND DISPOSED OF OFF THE PROJECT SITE. STREET AND ROAD CROSSINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN SECTION 7 - ROADWAY.

TRENCH EXCAVATION SHALL INCLUDE THE REMOVAL OF SUCH OTHER EXISTING FACILITIES NOTED TO BE REMOVED.

TRENCHES SHALL BE KEPT FREE OF WATER DURING PIPE LAYING AND JOINTING. WHEN WATER EXISTS IN THE TRENCHES AT THE TIME OF PIPE LAYING, THE CONTRACTOR SHALL DEWATER THE TRENCH AT HIS EXPENSE.

2.22 - PROTECTION OF EXISTING UTILITIES

EXISTING UNDERGROUND UTILITIES ALONG THE ROUTE OF CONSTRUCTION, AS SHOWN ON THE DRAWINGS OR MARKED AT THE TIME OF CONSTRUCTION BY THE UTILITY OWNER, SHALL BE UNCOVERED BY THE CONTRACTOR AND THEIR ELEVATIONS DETERMINED AT LEAST 200 FEET IN ADVANCE OF PIPE INSTALLATION. CONTRACTORS SHALL CONTACT OUPS 48 HOURS PRIOR TO ANY EXCAVATION WORK.

ALL UNDERGROUND UTILITIES, WHEN ENCOUNTERED, SHALL BE ADEQUATELY SUPPORTED, SHORED UP OR OTHERWISE PROTECTED WHENEVER EXPOSED IN THE EXCAVATION. TIMBER SUPPORTS SHALL BE A MINIMUM OF 6 INCHES SQUARE. SUPPORTS SHALL EXTEND INTO UNDISTURBED EARTH A MINIMUM OF 12 INCHES EACH SIDE OF THE TRENCH AND THE PIPE, CONDUIT, ETC., BANDED OR TIED TO THE BRIDGING FOR ITS FULL LENGTH. WHERE BRIDGING CANNOT BE SUPPORTED BY A FIRM FOUNDATION, THE CONTRACTOR SHALL PROVIDE VERTICAL SUPPORT FOR THE BRIDGING, INCLUDING ANY LATERAL BRACING NECESSARY TO PROVIDE A FIRM AND SUBSTANTIAL SUPPORT. SUPPORTS AND BRACING SHALL BE OF NATIVE HARDWOOD AND SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. (SEE FIGURE 2.22.1)

ABOVE GROUND (AERIAL) UTILITIES, INCLUDING POWER, TELEPHONE AND CABLE TELEVISION, SHALL REMAIN IN SERVICE AT ALL TIMES. ANY ANTICIPATED DISRUPTION OF SERVICE SHALL BE WITH THE FULL KNOWLEDGE OF THE UTILITY COMPANY AND REQUIRED ADVANCE NOTICE TO THE AFFECTED USERS BY THE CONTRACTOR. REMOVAL OF GUY WIRES AND HOLDING OF POLES SHALL BE DONE AS REQUIRED TO COMPLETE THE WORK, SHALL BE AS AGREED UPON BY THE UTILITY COMPANY AND THE CONTRACTOR WITH NO ADDITIONAL COST TO THE CITY.

ARBITRARY DISRUPTION OF UNDERGROUND AND AERIAL UTILITY SERVICES WILL NOT BE PERMITTED.

2.23 - TRENCH PROTECTION

WHERE NECESSARY TO PREVENT CAVING OF THE TRENCH AND OTHER EXCAVATION, AND FOR PROTECTION OF WORKMEN AND NEARBY STRUCTURES, TRENCH PROTECTION SHALL BE PROVIDED PER OSHA STANDARDS BY AND AT THE EXPENSE OF THE CONTRACTOR.

2.24 - PIPE EMBEDMENT

AFTER THE PIPE HAS BEEN LAID AND THE JOINTS MADE, THE FULL LENGTH OF EACH PIPE SHALL BE THOROUGHLY BEDDED. THE MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 6 INCHES IN THICKNESS, LOOSE MEASUREMENT, AND SECURELY COMPACTED BY HAND OR MECHANICAL TAMPING TO NOT LESS THAN 98% OF MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D1557 (MODIFIED PROCTOR) WHILE TAKING CARE NOT TO DISPLACE OR DAMAGE THE PIPE OR JOINTS.

AN EXCEPTION SHALL BE MADE WHERE CONCRETE ENCASEMENT IS NOTED ON THE DRAWINGS. CONCRETE ENCASEMENT SHALL BE SQUARE IN CROSS SECTION, SHALL HAVE A MINIMUM THICKNESS OF 6 INCHES AT PIPE BELLS, AND SHALL BE OF THE LENGTH NOTED. (SEE FIGURE 2.24.1)

2.25 - BACKFILLING

BACKFILL SHALL INCLUDE THE MATERIAL PLACED ABOVE THE PIPE EMBEDMENT MATERIAL PREVIOUSLY SPECIFIED. NO HEAVY OR LARGE QUANTITIES OF BACKFILL MATERIAL SHALL BE PLACED OVER THE PIPE UNTIL BACKFILLING HAS PROGRESSED TO A DEPTH OF AT LEAST 3 FEET OVER THE TOP OF THE PIPE BARREL. ALL BACKFILL MATERIAL SHALL BE CAREFULLY PLACED SO AS NOT TO DAMAGE THE JOINTS OR DISPLACE THE PIPE. BACKFILLING SHALL IMMEDIATELY FOLLOW TRENCHING AND PIPE LAYING OPERATIONS TO REDUCE THE POSSIBILITY OF DAMAGE TO PAVEMENTS AND UTILITIES.

TRENCHES WITHIN EXISTING AND PROPOSED STONED STREETS, ALLEYS, DRIVEWAYS, STONED PARKING AREAS AND CONCRETE OR BRICK SIDEWALKS SHALL BE BACKFILLED WITH GRANULAR MATERIAL. THE MATERIAL SHALL BE PLACED AND COMPACTED TO NOT LESS THAN 100% OF MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D1557 (MODIFIED PROCTOR). CONTRACTOR SHALL PROVIDE CERTIFIED PROCTOR TEST FROM LIMESTONE SUPPLIER WITH THE SHOP DRAWINGS, PRIOR TO STONE BEING DELIVERED TO THE PROJECT SITE.

WHERE MAINS ARE INSTALLED ALONG EXISTING AND PROPOSED PAVED OR STONED STREETS, ALLEYS, DRIVEWAYS AND PARKING AREAS, THE SPECIFIED COMPACTED GRANULAR MATERIAL SHALL ALSO BE PROVIDED FOR BACKFILLING ANY PORTION OF THE TRENCHES FALLING WITHIN THAT AREA BELOW A LINE DRAWN AT 45 DEGREES TO THE HORIZONTAL FROM THE SURFACE AT THE EDGE OF THE PAVEMENT OR BACK OF CURB AND ABOVE THE HORIZONTAL PLANE OF THE PIPE EMBEDMENT MATERIAL. (SEE FIGURE 2.25.1)

FOR TRENCHES WITHIN EXISTING OR PROPOSED PAVED STREETS, ALLEYS, DRIVEWAYS AND PAVED PARKING AREAS A CONTROLLED DENSITY FILL (CDF) SHALL BE PROVIDED OR BACKFILL AS APPROVED BY THE CITY. THE MIX SHALL BE PLACED IN A USABLE FLUID FORM AND IN UNIFORM VERTICAL LIFTS. DESIGN, FINISHING AND PROTECTION OF THE MATERIAL SHALL BE RECOMMENDED BY THE MANUFACTURER FOR THE APPLICATION. QUALITY CONTROL TEST PROCEDURES OF THE MANUFACTURER SHALL INCLUDE ASTM C138 - TEST FOR UNIT WEIGHT, AND ASTM C39 - TEST FOR COMPRESSIVE STRENGTH. NO COMPACTION IS REQUIRED FOR C.D.F.

TRENCHES WHERE WATER MAINS ARE INSTALLED LONGITUDINAL TO THE RAILROAD TRACKS SHALL BE BACKFILLED PER RAILROAD REQUIREMENTS, LATEST REVISIONS. THE BACKFILL MATERIAL SHALL BE PLACED IN LOOSE SIX INCH LIFTS AND COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DENSITY WITH A MOISTURE CONTENT THAT IS NOT MORE THAN 1% GREATER THAN OR 2% LESS THAN THE OPTIMUM MOISTURE AS DETERMINED IN ACCORDANCE WITH CURRENT ASTM DESIGNATION D - 1557 (MODIFIED PROCTOR). WHEN THE BACKFILL MATERIAL IS WITHIN THREE FEET OF THE SUBGRADE ELEVATION (THE INTERFACE OF THE BALLAST AND THE SUBSOIL), A COMPACTION OF AT LEAST 98% WILL BE REQUIRED. COMPACTION TEST RESULTS CONFIRMING COMPLIANCE MUST BE PROVIDED TO RAILROAD COMPANY'S ENGINEER BY THE CONTRACTOR.

THE CITY MAY REQUIRE CONTRACTOR TO CHECK COMPACTION OF THE BACKFILL AT NO COST TO CITY AT ANY TIME.

WHERE TRENCHES ARE BACKFILLED WITH GRANULAR MATERIAL, THE CONTRACTOR SHALL REMOVE EXCESS EXCAVATED MATERIAL. ANY EXCESS EXCAVATED SPOIL SHALL BE REMOVED TO AN APPROVED DUMP SITE.

IN ALL PAVED STREETS AND HIGHWAYS, IMMEDIATELY UPON COMPLETION OF OTHER BACKFILLING OPERATIONS AND PRIOR TO THE END OF WORK FOR THAT DAY, A TEMPORARY PAVEMENT AS SPECIFIED IN SECTION 7 - ROADWAY SHALL BE PROVIDED AND SHALL REMAIN IN PLACE AND BE PROPERLY MAINTAINED UNTIL SUCH TIME AS THE PERMANENT PAVEMENTS ARE PLACED. PERMANENT PAVEMENTS SHALL BE PLACED WITHIN TWO WEEKS AFTER COMPLETION OF TESTS AND ACCEPTANCE OF EACH SECTION OF THE WATER MAIN.

FOR BACKFILLING THE REMAINDER OF THE TRENCHES, AS MUCH OF THE EXCAVATED MATERIAL AS POSSIBLE SHALL BE REPLACED UNTIL BACKFILLING HAS PROGRESSED TO A DEPTH OF AT LEAST 3 FEET OVER THE TOP OF THE PIPE BARREL. THE MATERIAL SHALL BE FINELY DIVIDED FREE OF STONES 3 INCHES OR GREATER IN ANY DIMENSION, BOULDERS, ORGANIC MATERIAL OR OTHER HARMFUL DEBRIS, AND SHALL BE PLACED IN 6 INCH LAYERS, LOOSE MEASUREMENT, AND COMPACTED BY MECHANICAL TAMPING.

ALSO, IMMEDIATELY UPON COMPLETION OF OTHER BACKFILLING OPERATIONS AND PRIOR TO THE END OF WORK FOR THAT DAY, A TEMPORARY SIDEWALK SHALL BE PROVIDED, AND SHALL REMAIN IN PLACE AND BE PROPERLY MAINTAINED UNTIL SUCH TIME AS THE PERMANENT SIDEWALK IS PLACED. THE TEMPORARY SIDEWALK SHALL CONSIST OF A MINIMUM OF 1-1/2 INCHES OF THE SPECIFIED COMPACTED GRANULAR BACKFILL MATERIAL PLACED TO THE SAME WIDTH AS THE ORIGINAL SIDEWALK, AND SHALL BE FURNISHED, PLACED AND MAINTAINED BY AND AT THE EXPENSE OF THE CONTRACTOR. THE TEMPORARY SIDEWALK SHALL BE RESHAPED AND REGRADED PRIOR TO THE INSTALLATION OF PERMANENT SIDEWALK.

AFTER BACKFILLING, ALONG WEED OR UNSODDED AREAS THE MATERIAL SHALL BE GRADED TO CONFORM TO THE ORIGINAL GROUND PROFILE. IN LAWN AREAS AND IN FIELDS USED FOR FARMING, ALL TOPSOIL REMOVED AND STOCKPILED PRIOR TO TRENCHING SHALL BE REPLACED AND GRADED TO CONFORM TO THE ORIGINAL GROUND PROFILE. IN LAWNS AND OTHER AREAS WHERE GRASS EXISTS, AS DETERMINED BY THE OWNER OR THE CITY, THE AREA SHALL BE GRADED AND MADE READY FOR SEEDING AS SPECIFIED IN SECTION 1. IN LAWN AREAS, IF THE EXISTING REPLACED TOPSOIL DOES NOT PROVIDE THE REQUIRED 4-INCH MINIMUM DEPTH AS SPECIFIED IN SECTION 1, THE CONTRACTOR SHALL PROVIDE ADDITIONAL TOPSOIL AT HIS EXPENSE.

THE CONTRACTOR SHALL BE REQUIRED TO REGRADE AND RESHAPE ALL ROAD SHOULDERS AND ALL DITCHES OR SWALES FROM EXISTING HIGH POINTS TO EXISTING DRAINAGE STRUCTURES OR OTHER OUTLETS ALONG THE PROPOSED IMPROVEMENT. THE CONTRACTOR AND THE CITY SHALL MUTUALLY AGREE AND ESTABLISH ALL DITCH GRADES TO BE RESTORED PRIOR TO CONSTRUCTION. DITCHES, WHICH ARE RESHAPED, SHALL HAVE REASONABLE SIDE SLOPES. VERTICAL OR STEEP SLOPES WILL NOT BE PERMITTED.

2.26 - CONNECTIONS TO MAINS

NEW MAINS SHALL BE CONNECTED TO EXISTING MAINS USING PROPER FITTINGS. CONNECTIONS SHALL BE MADE IN A MANNER ACCEPTABLE TO THE CITY. ALL CONNECTIONS TO AC PIPE SHALL BE VIA PAD ADAPTORS. AC PIPE SHALL NOT BE CUT WITH A SAW. ALL CUTS SHALL BE ACCOMPLISHED BY SNAP CUT. NO CUT-INS OR CONNECTIONS TO EXISTING MAINS SHALL BE MADE UNLESS AT LEAST 48 HOURS' NOTICE OF SUCH CUT-INS OR CONNECTIONS IS GIVEN TO THE CITY. ALL SUCH WORK SHALL BE PLANNED SO AS TO REDUCE THE NUMBER OF SHUT-OFFS.

TWO DAYS PRIOR TO SHUTTING VALVES ON EXISTING LINES, THE CONTRACTOR SHALL NOTIFY IN WRITING ALL AFFECTED PROPERTY OWNERS AND THE CITY OF SUCH SHUT OFF. THE SHUT OFF TIME SHALL BE KEPT TO A MINIMUM AND SHALL BE MADE AT OFF-PEAK HOURS OR ON WEEKENDS.

THE OPERATION OF ALL EXISTING VALVES SHALL BE ACCOMPLISHED BY A REPRESENTATIVE OF THE WATER RESOURCES DEPARTMENT. THE CONTRACTOR SHALL NOT OPERATE EXISTING VALVES.

THE CITY ASSUMES NO RESPONSIBILITY FOR ANY DELAY OCCASIONED BY SPECIAL REQUIREMENTS OR CONDITIONS WHICH MUST BE MET IN MAKING CONNECTIONS.

EXTREME CARE SHALL BE TAKEN IN MAKING SUCH CONNECTIONS TO PREVENT CONTAMINATION OF THE EXISTING MAINS. BEFORE MAKING CUT-INS OR CONNECTIONS TO EXISTING MAINS, ALL FITTINGS, VALVES AND PIPE SHALL BE WASHED WITH CLEAN WATER AND THEN DISINFECTED BY WASHING WITH A CHLORINE SOLUTION HAVING A RESIDUAL CHLORINE STRENGTH OF NOT LESS THAN 50 PPM.

PLUGS REMOVED FROM EXISTING MAINS THAT ARE NOT DAMAGED MAY BE REUSED WITHIN THE PROJECT, AND THOSE REMAINING AFTER COMPLETION OF CONSTRUCTION SHALL REMAIN THE PROPERTY OF THE CITY.

2.27 - ROCK EXCAVATION

A. GENERAL - THE TERM "ROCK EXCAVATION" SHALL INCLUDE THE REMOVAL OF SUCH MATERIAL AS CANNOT BE BROKEN AND REMOVED BY ORDINARY EXCAVATING EQUIPMENT. THE DEFINITION OF ORDINARY EXCAVATING EQUIPMENT DOES NOT INCLUDE RIPPERS OR POWER OPERATED JACK HAMMERS. DISINTEGRATED, WEATHERED, ROTTEN AND LOOSE ROCK PARTICLES CAPABLE OF REMOVAL BY ORDINARY METHODS ARE NOT INCLUDED WITHIN THE SCOPE OF ROCK EXCAVATION.

B. EXCAVATION - EXCAVATION SHALL BE CARRIED TO A SUFFICIENT DEPTH TO PROVIDE FOR A CUSHIONING LAYER OF BEDDING MATERIAL AS PREVIOUSLY SPECIFIED IN ITEM 2.21. WIDTH OF TRENCH SHALL BE NOT MORE THAN PREVIOUSLY SPECIFIED FOR THE RESPECTIVE TYPE OF PIPE.

EXCAVATION FOR STRUCTURES SHALL EXTEND TO A PLANE 4 INCHES BELOW THE UNDERSIDE OF THE CONCRETE FOUNDATIONS AND BE CONFINED TO LIMITS TWO FEET BEYOND THE OUTSIDE OF SUCH FOUNDATIONS.

C. DISPOSAL OF ROCK - EXCEPT UNDER SPECIAL PERMISSION FROM THE ENGINEER, ROCK REMOVED BY EXCAVATION SHALL NOT BE USED FOR BACKFILL, BUT SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT SITE. NECESSARY BEDDING AND BACKFILL FOR TRENCHES AND OTHER EXCAVATIONS IN ROCK EXCAVATION SHALL BE APPROVED BY THE CITY.

D. METHOD - WHERE ROCK IS ENCOUNTERED WHICH CANNOT BE REMOVED BY ORDINARY EXCAVATING METHODS, ROCK EXCAVATION, UNLESS OTHERWISE SPECIFIED, MAY BE ACCOMPLISHED BY THE USE OF EXPLOSIVES, SUBJECT TO COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL LAWS AND THE FOLLOWING REQUIREMENTS:

1) ALL REQUIRED PERMITS SHALL BE SECURED BY THE CONTRACTOR WELL IN ADVANCE OF SUCH OPERATIONS.

2) THE TRANSPORTING, HANDLING AND FIRING OF EXPLOSIVES SHALL BE PERFORMED BY SOMEONE THOROUGHLY FAMILIAR, EXPERIENCED AND, IF APPLICABLE, LICENSED IN THIS TYPE OF WORK, PREFERABLY A REPRESENTATIVE OF THE MANUFACTURER OF THE EXPLOSIVES TO BE USED.

3) PRIOR TO REMOVING ROCK IN ANY AREA, THE TYPE OF EXPLOSIVES TO BE USED, THE NUMBER, DEPTH AND LOADING OF HOLES TO BE DETONATED AT ANY ONE TIME; AND ANY SPECIAL PRECAUTIONS TO BE OBSERVED SHALL BE DETERMINED AT A CONFERENCE BETWEEN REPRESENTATIVES OF THE OWNER, THE CITY, THE CONTRACTOR, THE CONTRACTORS INSURANCE COMPANY AND THE PERSON DIRECTLY RESPONSIBLE FOR DETONATION. THE PROCEDURE THEREAFTER FOLLOWED IN THAT AREA SHALL CONFORM TO THE DECISIONS REACHED; SUBJECT TO ANY MODIFICATIONS WHICH MAY BE REQUIRED BECAUSE OF UNSATISFACTORY OR UNSAFE RESULTS OR THE PROCEDURE AGREED UPON.

4) SUITABLE TIMBER MATS OR OTHER COVERINGS SHALL BE PROVIDED TO CONFINE ALL MATERIALS LIFTED BY BLASTING WITHIN THE LIMITS OF THE EXCAVATION.

5) ALL PUBLIC AND PRIVATE UTILITY COMPANIES HAVING FACILITIES IN THE VICINITY SHALL BE NOTIFIED BY THE CONTRACTOR OF THE LOCATION AND TIME OF CONTEMPLATED DETONATION IN SUFFICIENT TIME TO ALLOW THEM TO PROTECT THEIR FACILITIES. LIKEWISE, WHERE OPERATIONS ARE TO BE CARRIED ON IN ANY LOCATION WHERE TRAFFIC ON STREETS OR HIGHWAYS MAY BE AFFECTED, PROPER NOTICE SHALL BE GIVEN THE LOCAL POLICE DEPARTMENT.

6) FOR PURPOSE OF PROTECTING THE GENERAL PUBLIC, THE CONTRACTOR AND THE OWNER, THE UTMOST COOPERATION WILL BE REQUIRED BETWEEN THE CONTRACTOR AND ALL OTHER INTERESTED PARTIES. ALL SAFETY PRECAUTIONS SHALL BE STRICTLY ENFORCED.

7) SHOULD PERMIT LIMITATIONS OR THE NEARNESS OF EXISTING STRUCTURES AND UTILITIES PROHIBIT THE USE OF EXPLOSIVES, ROCK EXCAVATION SHALL BE PERFORMED BY AN APPROVED ALTERNATE METHOD.

8) SEISMOGRAPHIC MONITORING, PRE-BLASTING AND POST-BLASTING INSPECTIONS SHALL BE PERFORMED ON THOSE STRUCTURES NEARBY TO AVOID FRAUDULENT DAMAGE CLAIMS.

E. DAMAGE TO EXISTING FACILITIES - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING STRUCTURES, PIPING, SEWERS, DRAINS, CABLES, CONDUITS, EQUIPMENT AND APPURTENANCES RESULTING FROM HIS ROCK EXCAVATION OPERATIONS, AND SHALL REPAIR SAME TO THE SATISFACTION OF THE OWNER AND THE CITY.

III. - TESTING

***2.28 - DISINFECTION**

***2.29 - PRESSURE AND LEAKAGE TEST**

***2.30 - BACTERIOLOGICAL TESTS**

***2.31 - COMPLETION OF TESTS**

***VERIFY APPLICABILITY WITH CITY PRIOR TO OBTAINING PERMITS AND STARTING CONSTRUCTION FOR SERVICE AND FIRE LINES ONSITE.**

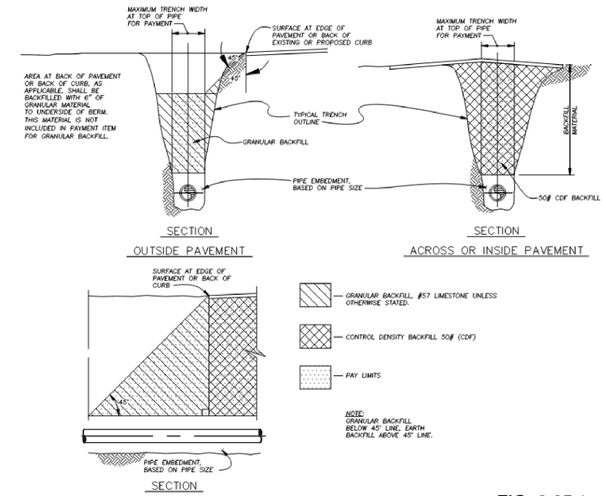
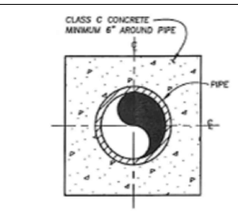


FIG. 2.25.1

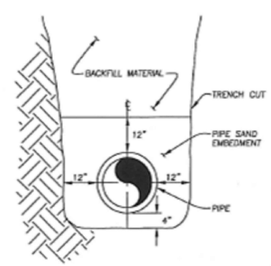
GRANULAR OR CONTROLLED DENSITY FILL BACKFILL

NOT TO SCALE



SECTION

CONCRETE PIPE ENCASEMENT



GRANULAR EMBEDMENT

BEDDING DETAILS

NO SCALE

CONCENCS.DWG 09-15-99

FIG 2.24.1

CESO
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STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
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Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
WATER DETAILS

C8.3

C:\DC\ACCDocs\CESO\CCC - Hudson - Civil Master Plan Study\Project Files_CESO\03-CIVIL\PLAN\PLOT\Major Site Plans\765305_CONSTRUCTION DETAILS.dwg - 5/21/2025 - Jake McDaniel

C:\DC\ACCDocs\CESO\CCC - Hudson - Civil Master Plan Study\Project Files_CESO\03-CIVIL\PLAN\PLOT\Major Site Plans\765295_CONSTRUCTION DETAILS.dwg - 5/21/2025 - Jake McDaniel

CITY OF HUDSON SECTION 4. STORM COLLECTION

I. MATERIALS

4.1 PIPE AND FITTINGS

A. REQUIREMENTS - PIPE, FITTINGS, AND APPURTENANCES SHALL CONFORM TO THE LATEST EDITION OF THE REFERENCED STANDARDS.

MAIN LINE SEWERS, PIPES, CULVERTS, ETC. SHALL BE A MINIMUM SIZE OF 12-INCH DIAMETER. ALL SEWERS AND PIPES 15-INCH AND SMALLER SHALL BE PVC SDR35, PER ASTM D3034 OR POLYPROPYLENE MEETING ASTM F2764 UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER. ALL SEWERS AND PIPES GREATER THAN 15-INCH SHALL BE CONCRETE MEETING ASTM C76 CLASS IV UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER. POLYPROPYLENE PIPE MAY ONLY BE USED OUTSIDE THE PUBLIC ROADWAY'S PAVEMENT, AND ABOVE THE ROADWAY'S ANGLE OF REPOSE (ABOVE A 45-DEGREE LINE EXTENDING FROM THE EDGE OF PAVEMENT OR CURB DOWNWARDS).

ALL DRIVE CULVERTS WITH TWO (2) FOOT OR LESS COVER ABOVE THE TOP OF THE CULVERT SHALL BE EITHER CONCRETE PIPE, MEETING ASTM C76 CLASS IV, OR CONCRETE ENCASED PVC SDR 35 OR POLYPROPYLENE PIPE. THE CONCRETE ENCASEMENT SHALL BE CLASS MS, POURED THE ENTIRE LENGTH OF THE CULVERT, FROM THE SPRING LINE OF THE PIPE TO THE BOTTOM OF THE PROPOSED DRIVEWAY APPROACH. A VISQUEEN BARRIER SHALL BE PROVIDED BETWEEN THE CONCRETE ENCASEMENT AND BOTTOM OF THE APPROACH. ALL DRIVE CULVERTS WITH GREATER THAN TWO (2) FEET OF COVER SHALL BE OF PIPE MATERIAL AS SPECIFIED FOR SEWERS AND PIPES.

ALL DRIVE CULVERTS GREATER THAN 15-INCH SHALL HAVE INSTALLED, AS A MINIMUM, HALF-HEIGHT HEAD WALLS. FULL HEADWALLS MAY BE REQUIRED UPON REVIEW BY THE CITY. ALL DRIVE CULVERTS 15-INCH OR SMALLER ARE NOT REQUIRED TO HAVE HEADWALLS.

THE MANUFACTURER SHALL FURNISH AN AFFIDAVIT INDICATING THAT THE PIPE, FITTINGS AND APPURTENANCES HAVE BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REFERENCED STANDARDS. A COPY OF THE AFFIDAVIT, INDICATING THE PROJECT ON WHICH THE MATERIAL IS TO BE USED, SHALL BE SUBMITTED AS A SHOP DRAWING TO THE CITY PRIOR TO CONSTRUCTION.

ALL PIPES, FITTINGS AND APPURTENANCES SHALL BE APPROPRIATELY MARKED FOR PURPOSES OF IDENTIFICATION. THE MATERIALS AND METHODS OF MANUFACTURE, AND THE COMPLETED PIPES, FITTINGS AND APPURTENANCES SHALL BE SUBJECT TO INSPECTION AND REJECTION AT ALL TIMES. THE CITY HAS THE RIGHT TO MAKE INSPECTIONS.

FOR NEW PUBLIC STORM SEWERS THAT TRANSITION FROM THE RIGHT-OF-WAY TO AN EASEMENT ON PRIVATE PROPERTY, THE STORM SEWER MATERIAL USED WITHIN THE RIGHT-OF-WAY WILL BE USED WITHIN THE DOWNSTREAM SECTION ON PRIVATE PROPERTY.

B. PVC PLASTIC PIPE AND FITTINGS - PVC PLASTIC PIPE AND FITTINGS SHALL HAVE A MINIMUM PIPE STIFFNESS OF 46 PSI AT 5% DEFLECTION WHEN TESTED IN ACCORDANCE WITH ASTM D2412, AND, AS APPLICABLE FOR THE SIZES INVOLVED, SHALL MEET THE REQUIREMENTS OF ASTM D3034, ASTM F679 OR ASTM D2729. THE PIPE SHALL BE OF THE ELASTOMERIC GASKET JOINT (INTEGRAL BELL) TYPE. JOINTS SHALL PROVIDE A WATERTIGHT SEAL AND SHALL BE MADE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S INSTRUCTIONS. JOINTS SHALL BE OF THE PUSH-ON TYPE MEETING THE REQUIREMENTS OF ASTM D3212, AND, IN ADDITION, THE BELL SHALL BE DESIGNED TO RETAIN THE GASKET TO PREVENT PULL-OUT DURING THE MAKING OF THE JOINT.

PVC PLASTIC FITTINGS FOR USE WITH ASTM D3034 PIPE EIGHT (8) INCH IN SIZE AND SMALLER SHALL MEET THE REQUIREMENTS OF ASTM D3034 WITH A MINIMUM WALL THICKNESS OF SDR 35 AS DEFINED IN SECTION 7.4.1, AND SHALL BE MOLDED IN ONE PIECE WITH ELASTOMERIC JOINTS AND MINIMUM SOCKET DEPTHS AS SPECIFIED IN SECTIONS 6.2 AND 7.3.2. PVC MATERIAL SHALL HAVE A CELL CLASSIFICATION OF 12454-B OR C AS DEFINED IN ASTM D1784. GASKETS SHALL HAVE MINIMUM CROSS SECTIONAL AREA OF 0.20 SQ. IN. AND SHALL MEET THE REQUIREMENTS OF ASTM F477.

PVC PLASTIC FITTINGS FOR USE WITH ASTM D3034 PIPE TEN (10) INCH IN SIZE AND LARGER, AND FOR USE WITH ALL SIZES OF PVC PLASTIC PIPES OTHER THAN ASTM D3034 SHALL BE MOLDED OR FABRICATED IN ACCORDANCE WITH, AND HAVE JOINTS MEETING THE REQUIREMENTS OF THE ASTM STANDARD AS SPECIFIED FOR THE PIPE.

AT THE END OF ALL FITTINGS, PREMANUFACTURED TEE'S, ETC., OF ALL PIPE INSTALLATIONS, THE FINAL FITTING AT THE "PLUG" SHALL BE SDR 35 COMPATIBLE. NON-COMPATIBLE JOINTS TO EXISTING SEWERS SHALL BE MADE USING BANDED NEOPRENE COUPLINGS AS MANUFACTURED BY FERNCO, INC., OR CITY-APPROVED EQUAL.

THE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, AND WITH THE REQUIREMENTS OF THESE SPECIFICATIONS. ANY REQUIREMENTS IN THESE SPECIFICATIONS WHICH MAY BE IN CONFLICT OR INCONSISTENT WITH THE REQUIREMENTS OF ASTM D2321 SHALL BE VOID TO THE EXTENT OF SUCH CONFLICT OR INCONSISTENCY, EXCEPT IN ALL CASES MATERIAL FOR PIPE EMBEDMENT SHALL BE AS SUBSEQUENTLY SPECIFIED IN ITEM 4.12. PVC PLASTIC PIPE SHALL BE TESTED FOR DEFLECTION AS SUBSEQUENTLY SPECIFIED IN DIVISION III.

C. CONCRETE PIPE AND FITTINGS - CONCRETE PIPE AND FITTINGS SHALL BE OF THE SPIGOT AND SOCKET OR TONGUE AND GROOVE PATTERN MEETING THE REQUIREMENTS OF ASTM C76 AND SHALL BE CLASS IV OR V. PIPES SHALL BE OF THE GREATEST LENGTHS COMMERCIALLY AVAILABLE. CIRCULAR PIPES HAVING ELLIPTICAL REINFORCING SHALL HAVE THE WORD "TOP" OR "BOTTOM" CLEARLY STENCILED ON THE INSIDE OF THE PIPE AT THE CORRECT PLACE TO INDICATE THE PROPER POSITION WHEN LAID. JOINTS SHALL BE OF THE RUBBER GASKET TYPE MEETING THE REQUIREMENTS OF ASTM C443. THE GASKET SHALL BE CONFINED IN A GROOVE AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

FOR CONCRETE PIPES INSTALLED IN OPEN TRENCH, THE MAXIMUM ALLOWABLE TRENCH WIDTH AT THE TOP OF THE PIPE FOR THE VARIOUS SIZES AND CLASSES OF PIPE SHALL BE AS FOLLOWS:

CONCRETE PIPE TRENCH WIDTH

(AS MEASURED AT TOP OF PIPE)PIPE DIAMETERASTM C76-CLASSCONCRETE PIPE TRENCH WIDTH

***(AS MEASURED AT TOP OF PIPE)PIPE DIAMETERASTM C76-CLASS*(INCHES)IVV**122'-9"3'-0"153'-0"3'-3"183'-3"3'-6"213'-6"3'-9"244'-0"4'-3"274'-6"4'-9"304'-9"5'-0"335'-3"5'-6"365'-9"6'-0"426'-3"6'-6"486'-9"7'-0"547'-6"8'-0"608'-0"8'-6"669'-0"9'-6"729'-6"10'-0"

D. POLYPROPYLENE PIPE AND FITTINGS - PIPE SHALL BE JOINED USING A BELL & SPIGOT JOINT MEETING THE REQUIREMENTS OF ASTM F2764. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL MEET THE REQUIREMENTS OF ASTM F477. GASKET SHALL BE INSTALLED BY THE PIPE MANUFACTURER AND COVERED WITH A REMOVABLE, PROTECTIVE WRAP TO ENSURE THE GASKET IS FREE FROM DEBRIS AND PROTECTED FROM THE ELEMENTS. A JOINT LUBRICANT AVAILABLE FROM THE MANUFACTURER, OR AS APPROVED BY THE CITY, SHALL BE USED ON THE GASKET AND BELL DURING ASSEMBLY. 12-INCH THROUGH 60-INCH (300 TO 1500 MM) DIAMETERS SHALL HAVE AN EXTERIOR BELL WRAP INSTALLED BY THE MANUFACTURER.

FITTINGS SHALL CONFORM TO ASTM F2764. BELL AND SPIGOT CONNECTIONS SHALL UTILIZE A WELDED OR INTEGRAL BELL AND VALLEY OR INLINE GASKETS MEETING THE WATERTIGHT JOINT PERFORMANCE REQUIREMENTS OF ASTM D3212.

THE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, AND WITH THE REQUIREMENTS OF THESE SPECIFICATIONS. ANY REQUIREMENTS IN THESE SPECIFICATIONS WHICH MAY BE IN CONFLICT OR INCONSISTENT WITH THE REQUIREMENTS OF ASTM D2321 SHALL BE VOID TO THE EXTENT OF SUCH CONFLICT OR INCONSISTENCY, EXCEPT IN ALL CASES MATERIAL FOR PIPE EMBEDMENT SHALL BE AS SUBSEQUENTLY SPECIFIED IN SECTION 4.15.

E. REPLACEMENT OF EXISTING SEWERS AND DRAINS - THE CONTRACTOR SHALL REPORT TO THE CITY ALL EXISTING SEWERS AND DRAINS EXPOSED DURING TRENCHING OR OTHER OPERATIONS. REPLACEMENTS SHALL BE MADE IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS OF THESE SPECIFICATIONS FOR NEW CONSTRUCTION AND IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS ODOT ITEM 611 USING PIPE WITH PREMIUM JOINTS UNLESS OTHERWISE SPECIFIED, AS APPROVED BY THE CITY. IN THE EVENT OF CONFLICT, THE REQUIREMENTS OF THESE SPECIFICATIONS SHALL TAKE PRECEDENCE.

PIPE FOR STORM SEWERS SHALL BE APPROVED FOR SUCH USE. REPLACEMENTS 12 FEET OR LESS IN LENGTH OF PERFORATED PIPE OR OPEN JOINT TILE (SUCH AS UNDERDRAINS) SHALL BE MADE BY USING PVC PLASTIC PIPE MEETING THE REQUIREMENTS OF ASTM D3034, SDR35, OR F679 BASED ON DIAMETER, AS SPECIFIED IN PARAGRAPH 4.1.A.. IN ANY EVENT, ALL SUCH REPLACEMENTS IN CULTIVATED FIELDS SHALL BE WITH THE SPECIFIED PERFORATED PIPE. DRAIN DISCHARGES REMOVED AT DITCHES OR OTHER WATERCOURSES SHALL BE REPLACED WITH ONE STANDARD LENGTH OF REINFORCED CONCRETE PIPE, OR AS OTHERWISE APPROVED BY THE CITY. JOINTS BETWEEN EXISTING AND REPLACEMENT PIPES, WHEN OF DIFFERING MATERIALS OR WITH OTHERWISE NON-COMPATIBLE JOINTS, SHALL BE MADE USING BANDED NEOPRENE COUPLINGS AS MANUFACTURED BY FERNCO, INC.

EXISTING SEWERS AND DRAINS SHALL BE REPLACED SO AS TO WITHSTAND FUTURE SETTLEMENT BY BRIDGING WITH TIMBER SUPPORTS A MINIMUM OF SIX (6) INCHES SQUARE. BRIDGING SHALL EXTEND INTO UNDISTURBED EARTH A MINIMUM OF 12 INCHES EACH SIDE OF THE TRENCH, AND THE PIPE, TILE, ETC., BANDED OR TIED USING STAINLESS STEEL BANDING TO THE BRIDGING FOR ITS FULL LENGTH. WHERE TIMBER BRIDGING CANNOT BE SUPPORTED BY A FIRM FOUNDATION, THE CONTRACTOR SHALL PROVIDE VERTICAL SUPPORT FOR THE TIMBER BRIDGING, INCLUDING ANY LATERAL BRACING NECESSARY TO PROVIDE A FIRM AND SUBSTANTIAL SUPPORT. SUPPORTS AND BRACING SHALL BE OF NATIVE HARDWOOD.

F. STORM SEWER LATERALS - ALL STRUCTURES, YARD DRAINS, AND DOWNSPOUT DRAINS THAT CONNECT TO THE PUBLIC STORM SEWER SYSTEM WITHIN THE PUBLIC RIGHT-OF-WAY OR IN A STORM/DRAINAGE EASEMENT SHALL BE A MINIMUM OF SIX (6) INCH DIAMETER, PVC SDR 35 OR AS SPECIFIED IN PARAGRAPH 4.1.A.

(ORD. 18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.2 PIPELINE MARKERS - N/A

4.3 STEEL ENCASEMENT PIPE -N/A

4.4 BRIDGES/BOX CULVERTS

A BRIDGE IS ANY STRUCTURE GREATER THAN OR EQUAL TO TEN (10) FEET IN LENGTH, INCLUDING SUPPORTS, ERECTED OVER A DEPRESSION OR AN OBSTRUCTION, AS WATER, HIGHWAY OR RAILWAY, AND HAVING A PASSAGEWAY FOR MOVING TRAFFIC, PEDESTRIANS OR OTHER MOVING LOADS. BRIDGE AND BOX CULVERTS SHALL BE SIZED ACCORDING TO THE ODOT LOCATION AND DESIIGN MANUAL AND BRIDGE DESIGN MANUAL, LATEST EDITION. BOX CULVERT MATERIAL AND CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE ODOT ITEM 706.05, LATEST EDITION. BRIDGES SHALL MEET AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION.

(ORD. 18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.5 CATCH BASINS

A. BASES AND WALLS - BASES AND WALLS FOR CATCH BASINS SHALL BE PRECAST AND SHALL EITHER BE 2'-0" X 2'-0" (ODOT 2-2-A OR B) OR 3'-0" X 3'-0" (ODOT 2-3) IN SIZE, AS DESIGNATED ON THE DRAWINGS OR AS REQUIRED TO PROPERLY ACCOMMODATE THE PIPE SIZES REQUIRED FOR THE INSTALLATION. THE STRUCTURES SHALL MEET H-20 LOADINGS IF LOCATED WITHIN ANY PAVEMENT. SPACING SHALL BE NO GREATER THAN 300 FEET APART. INVERTS SHALL BE POURED TO THE SPRING LINE OF PIPE. CATCH BASINS GREATER THAN FOUR (4) FEET DEEP SHOULD BE A MINIMUM OF 3' X 3' WITH POLYPROPYLENE STEPS.

B. FRAMES AND GRATES - FRAMES AND GRATES FOR CATCH BASINS SHALL BE EJ (FORMERLY EAST JORDAN IRON WORKS) 5250 FRAME WITH 5110, TYPE M3 SINUSOIDAL GRATE OR CITY-APPROVED EQUAL. FRAMES AND GRATES WITH A CURB SHALL BE EJ 7035 (SINGLE); 7036 (DOUBLE) WITH A TYPE M6 VANE GRATE AND TYPE T6 BACKS, OR EQUAL. GRATE OPENINGS SHALL ALLOW PASSAGE OF 25-YEAR STORM EVENT VOLUMES.

(ORD. 18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.6 MANHOLES

A. DESCRIPTION - MANHOLES SHALL BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE SECTIONS AND APPURTENANCES MEETING THE REQUIREMENTS OF ASTM C478, EXCEPT AS MODIFIED BY THESE SPECIFICATIONS AND THE DETAILS ON THE DRAWINGS, AND SHALL BE COMPLETE WITH REQUIRED PIPE SEWER STUBS. MANHOLES SHALL HAVE A MINIMUM 48-INCH I.D. OR LARGER AS RECOMMENDED BY THE MANUFACTURER. AN AFFIDAVIT FROM THE MANUFACTURER SHALL BE PROVIDED STATING THAT THE MANHOLE IS APPROPRIATELY SIZED FOR THE SIZES AND ANGLES OF INCOMING PIPES.

THE CITY MAY REQUIRE ANTI-FLOATATION PADS FOR MANHOLES, UPON REVIEW OF THE REQUIRED SOIL BORINGS.

B. BASES - BASES SHALL BE CONSTRUCTED IN TWO POURS OR MONOLITHICALLY WITH BOTTOM REINFORCEMENT TIED TO SIDE REINFORCEMENT TO FORM AN INTEGRAL STRUCTURE. WALLS SHALL HAVE A MINIMUM THICKNESS OF 1/12 THE BASE I.D. PLUS ONE (1) INCH. SEE FIGURE 4.6.1.

BASES SHALL INCORPORATE PROVISIONS FOR MAKING A FLEXIBLE JOINT BETWEEN THE PIPE AND THE MANHOLE FOR ALL PIPE CONNECTIONS. FLEXIBLE JOINTS SHALL BE KOR-N-SEAL AS MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC; A-LOK AS MANUFACTURED BY A-LOK PRODUCTS CORPORATION, OR CITY-APPROVED EQUAL. FLEXIBLE JOINTS SHALL BE SHOCK ABSORBENT AND SHEAR RESISTANT; SHALL BE DESIGNED TO PREVENT ANY DIRECT CONTACT BETWEEN THE PIPE AND MANHOLE; AND SHALL PROVIDE A TIGHT, INFILTRATION PROOF SEWER CONNECTION WITH THE PIPE DEFLECTED UP TO 10 DEGREES IN ANY DIRECTION. SHOULD INCORPORATION OF THE FLEXIBLE JOINTS REQUIRE A BASE I.D. GREATER THAN REQUIRED FOR THE WALL SECTIONS, THE CONTRACTOR SHALL FURNISH AND INSTALL THE LARGER BASE AND AN APPROVED PRECAST REINFORCED CONCRETE TRANSITION SECTION TO GO FROM THE LARGER BASE TO THE WALL SECTIONS.

JOINTS BETWEEN BASES AND WALL SECTIONS SHALL BE AS SUBSEQUENTLY SPECIFIED FOR THE WALLS.

IF NOT INTEGRALLY CAST WITH THE BASE, AFTER INSTALLATION OF THE PIPES PROVIDE AN ODOT CLASS F CONCRETE INVERT THROUGH THE MANHOLE. THE INVERT SHALL HAVE A DEPTH THROUGH THE MANHOLE EQUAL TO ONE HALF OF THE DIAMETER OF THE SEWER PIPE AND SHALL SLOPE UPWARD TOWARD THE MANHOLE WALLS APPROXIMATELY THREE (3) INCHES. CONCRETE SHALL BE TROWELLED SMOOTH, AND SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE FLEXIBILITY OF THE JOINT.

BASES SHALL BE SET PLUMB AND AT THE PROPER ELEVATION ON A CUSHION OF COMPACTED ODOT #57 CRUSHED LIMESTONE AS APPROVED BY THE CITY.

C. WALLS AND TOPS - WALLS SHALL BE VERTICAL RISER SECTIONS HAVING A MINIMUM WALL THICKNESS OF 1/12 THE BASE I.D. PLUS ONE (1) INCH. THE TOP SECTION SHALL BE AN ECCENTRIC CONE NARROWING DOWN TO AN I.D. OF NOT LESS THAN 24 INCHES AND AN O.D. OF NOT LESS THAN THAT OF THE SUBSEQUENTLY SPECIFIED GRADE RINGS. NO PIPES SHALL ENTER THE CONE SECTION. SEE FIGURE 4.6.2 FOR STANDARD AND SHALLOW MANHOLE DETAILS AND FIGURE 4.6.3 FOR TRANSITION MANHOLE DETAILS. MANHOLES TOO SHALLOW TO ACCOMMODATE A CONE SECTION SHALL HAVE A REINFORCED FLAT SLAB TOP. FLAT SLAB TOPS SHALL BE DESIGNED TO WITHSTAND H-20 TRAFFIC LOADING AND DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE CITY. SEE FIGURE 4.6.4.

FIGURE 4.6.2

FIGURE 4.6.4

ADJOINING RISER SECTIONS SHALL BE FIRMLY KEYED TOGETHER BY MEANS OF TONGUE AND GROOVE JOINTS WITH RUBBER GASKETS MEETING THE REQUIREMENTS OF ASTM C443. IN ADDITION, PREFORMED PLASTIC GASKET MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SHOULDER OF ALL JOINTS. INSTALLATION OF THE GASKET MATERIAL SHALL NOT INTERFERE WITH THE PROPER SEALING OF THE RUBBER GASKET. THE PREFORMED GASKET MATERIAL SHALL MEET THE REQUIREMENTS OF FEDERAL SPECIFICATION SS-S-210A AND SHALL BE AS MANUFACTURED BY HAMILTON-KENT MANUFACTURING COMPANY; K.T. SNYDER COMPANY, INC.; OR EQUAL.

EACH MANHOLE FRAME SHALL BE SET AT THE PROPER ELEVATION BY USE OF PRECAST CONCRETE GRADE RINGS. THE RINGS SHALL BE PROVIDED FOR A MINIMUM HEIGHT OF FOUR (4) INCHES AND SHALL NOT EXCEED 12 INCHES IN HEIGHT. RINGS, UNLESS OTHERWISE SUBSEQUENTLY SPECIFIED, SHALL HAVE AN I.D. EQUAL TO THE ACCESS OPENING IN THE MANHOLE TOP SECTION, AND AN O.D. NOT LESS THAN THE O.D. OF THE MANHOLE FRAME. THE RINGS SHALL EACH BE SET IN A FULL BED OF MORTAR COMPOSED OF 1 PART, BY VOLUME, PORTLAND CEMENT AND 2 PARTS CLEAN, HARD SAND. THE INTERIOR OF THE GRADE RINGS SHALL BE MORTARED TO PROVIDE A SMOOTH COMMON SURFACE FROM FRAME TO TOP. SEE FIGURE 4.6.5.

WHEN THE MANHOLE FRAME IS TO BE ANCHORED TO THE MANHOLE TOP, AS SUBSEQUENTLY SPECIFIED IN ITEM 4.7, THE TOP SECTION AND GRADE RINGS SHALL HAVE FOUR 1-INCH DIAMETER HOLES LOCATED TO MATCH THE HOLES IN THE CASTING AND SHALL BE OF SUCH DIMENSIONS AS TO PROVIDE A MINIMUM TWO (2) INCH CONCRETE COVER FOR THE ONE (1) INCH DIAMETER HOLES. HOLES IN THE TOP SECTION SHALL EXTEND AT LEAST SIX (6) INCHES INTO THE CONCRETE. HOLES SHALL NOT BE MADE IN THE FIELD.

D. STEPS - STEPS SHALL BE PROVIDED IN ALL MANHOLES. STEPS SHALL MEET THE REQUIREMENTS OF ASTM C478 AND SHALL BE OF REINFORCED POLYPROPYLENE. INSTALLATION OF MANHOLES, WHEN IN PAVEMENT, SHALL BE SUCH THAT STEPS ARE IN THE CENTER OF A TRAFFIC LANE OR BETWEEN LANES WHERE POSSIBLE, AND, WHEN OUTSIDE PAVEMENT, SHALL BE SUCH THAT STEPS ARE LOCATED AWAY FROM THE PAVEMENT EDGE UNLESS THE MANHOLE IS WITHIN A DITCH LINE, IN WHICH CASE THEY SHALL BE LOCATED AT THE HIGH SIDE OF THE DITCH SLOPE.

REINFORCED POLYPROPYLENE STEPS SHALL CONSIST OF A 1/2 INCH STEEL REINFORCING ROD ENCAPSULATED IN A COPOLYMER POLYPROPYLENE PLASTIC AND SHALL INCORPORATE A NOTCHED TREAD RIDGE AND RETAINER LUGS ON EACH SIDE OF THE TREAD RIDGE. THE STEEL ROD SHALL BE CONTINUOUS THROUGH THE ENTIRE LENGTH OF LEGS AND TREAD. STEPS OF THE PRESS FIT TYPE DRIVEN INTO THE CONCRETE WALL SHALL HAVE A PULLOUT RESISTANCE OF NOT LESS THAN 1,500 POUNDS PER LEG, AS EVIDENCED BY TEST DATA. STEPS MUST BE PROVIDED FOR ANY STRUCTURE GREATER THAN FOUR (4) FEET DEEP.

E. PIPE SEWER STUBS - WHERE NOTED, PIPE SEWER STUBS SHALL BE PROVIDED AT MANHOLES FOR FUTURE SEWER CONNECTIONS. THE STUBS SHALL BE OF THE SAME TYPE OF PIPE AS BEING PROVIDED ON THE PROJECT FOR THE RESPECTIVE SIZES OF PIPE, SHALL BE A MINIMUM OF TWO (2) FEET IN LENGTH OUTSIDE THE MANHOLE WALL, AND SHALL TERMINATE WITH A FULL PIPE BELL. INSTALLATION SHALL BE AS SPECIFIED IN DIVISION II. THE END OF EACH STUB SHALL BE PROVIDED WITH A PIPE STOPPER (PLUG) SPECIFICALLY DESIGNED FOR USE WITH THE PIPE. PLUGS SHALL BE FOR PERMANENT OR TEMPORARY USE, SHALL BE WATERTIGHT, AND SHALL BE REMOVABLE WITHOUT DAMAGING THE PIPE.

(ORD. 18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.7 FRAMES AND COVERS

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY GRAY IRON CASTINGS CONFORMING TO ASTM A48. BOTH THE UNDERSIDE OF THE COVER AND THE UPPER SURFACE OF THE LEDGE UPON WHICH IT RESTS SHALL BE MACHINED SO AS TO PREVENT ROCKING ON ITS SUPPORTING SURFACE. ALL CASTINGS SHALL BE CLEANED AND COATED WITH ASPHALT PAINT PRIOR TO INSTALLATION AND, AFTER INSTALLATION, THE TOPS OF FRAMES AND COVERS SHALL BE GIVEN AN ADDITIONAL COAT OF ASPHALT PAINT.

THE FRAMES SHALL HAVE A CLEAR OPENING OF NOT LESS THAN 24 INCHES IN DIAMETER AND A HEIGHT OF NOT LESS THAN 7 INCHES. COVERS SHALL HAVE STRENGTHENING RIBS ON THE UNDERSIDE, AND SHALL HAVE THE WORDS "CITY OF HUDSON STORM SEWER" CAST INTO THE TOP. NO FRAME AND COVER UNIT SHALL WEIGH LESS THAN 375 POUNDS. STANDARD FRAMES AND COVERS SHALL BE EAST JORDAN IRON WORKS 1040 WITH TYPE A SOLID COVER, OR EQUAL.

FRAMES SHALL HAVE FOUR EQUALLY SPACED ANCHOR BOLT HOLES IN THE BASE FLANGE AND SHALL BE ANCHORED TO THE MANHOLE TOP. ANCHORS SHALL BE FOUR 3/4-INCH DIAMETER ALL-THREAD RODS, AND EACH SHALL BE COMPLETE WITH WASHER AND NUT FOR HOLDING THE FRAME DOWN. ANCHORS SHALL BE OF A LENGTH TO EXTEND THROUGH THE GRADE RINGS AND TO THE BOTTOM OF THE HOLE IN THE MANHOLE TOP, AND ALLOW FOR AT LEAST THE LENGTH OF ONE NUT TO PROTRUDE THROUGH THE NUT WHEN TIGHTENED. THE ANCHORS SHALL BE SET WITH THE ENTIRE ANNULAR SPACE AROUND THE RODS FILLED WITH EPOXY FROM THE TOP OF THE RINGS TO THE BOTTOM OF THE HOLE IN THE MANHOLE TOP. THE EPOXY SHALL BE 100%, 2-PART, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI, AND SHALL BE RAWL/SIKA FOIL-FAST INJECTION GEL SYSTEM BY THE RAWL/PLUG COMPANY, INC., OR EQUAL. AFTER THE EPOXY HAS CURED, THE FRAME SHALL BE BOLTED IN PLACE.

THE MANHOLE FRAMES SHALL BE FIRMLY SET ON TOP OF THE ADJUSTING RINGS WITH A FULL LEVELING BED OF 1:1 CEMENT MORTAR. WHERE MANHOLES ARE LOCATED IN PAVED AREAS, THE SURFACE OF THE COVER SHALL BE MADE FLUSH WITH THE PAVEMENT SURFACE. IN UNPAVED STREETS AND ALLEY AREAS, THE COVER SHALL BE SET NOT TO EXCEED ONE (1) INCH ABOVE THE GROUND SURFACE. ON RIGHT-OF-WAY AND IN DITCHES COVER ELEVATION SHALL BE AS APPROVED BY THE CITY.

AFTER A MANHOLE FRAME IS INSTALLED IN ITS FINAL POSITION, IT SHALL BE ENCASED IN CLASS C CONCRETE. THE CONCRETE ENCASEMENT SHALL EXTEND FROM A HORIZONTAL PLANE FOUR (4) INCHES BELOW THE LOWEST ADJUSTING RING UP TO A HORIZONTAL PLANE THROUGH THE MID-POINT OF THE FRAME. THE CONCRETE ENCASEMENT SHALL BE MADE CIRCULAR IN PLAN, USING A MINIMUM 48-INCH DIAMETER STEEL CASING RING AS A FORM, AND SHALL BE CENTERED ON THE FRAME. (ORD18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.8 STORMWATER CONNECTIONS

STORMWATER CONNECTIONS FOR STORM SEWERS SHALL BE SIX (6) INCHES IN DIAMETER, UNLESS OTHERWISE SHOWN, AND SHALL BE FURNISHED AND INSTALLED FOR EXISTING AND FUTURE HOUSES AND BUSINESSES. LOCATIONS AND DEPTHS OF STORMWATER CONNECTIONS, WHERE SHOWN ON THE DRAWINGS, ARE APPROXIMATE ONLY. FINAL LOCATIONS AND DEPTHS WILL BE ESTABLISHED BY THE CITY AT THE TIME OF CONSTRUCTION. ALL DOWNSPOUTS, FOUNDATION DRAINS, AND YARD DRAINS SHALL BE CONNECTED TO THE STORM SEWER, AS APPROVED BY THE CITY. CONNECTIONS TO THE MAIN SEWER SHALL INCLUDE THE FURNISHING AND INSTALLATION OF AN APPROPRIATE WYE IN THE NEW SEWER.

NEW STORMWATER CONNECTIONS SHALL BE CONNECTED INTO EXISTING STORM SEWERS WHERE APPROVED BY MEANS OF POSITIVELY SEALING CONNECTIONS. CONNECTORS SHALL BE OF MATERIALS SUCH AS RUBBER GASKETS, SLEEVES, ETC. WITH OR WITHOUT STAINLESS STEEL CLAMPS, BOLTS, ETC. THAT WILL NOT ERODE OVER TIME. CONNECTORS SHALL BE DESIGNED SPECIFICALLY FOR THE APPLICATION INTENDED. SERVICE CONNECTIONS SHALL BE BY SEWER SADDLES, STYLE "CB" ALL STAINLESS STEEL, AS MANUFACTURED BY ROMAC INDUSTRIES, OR EQUAL; OR BY USE OF INSERTA TEES AS MANUFACTURED BY INSERTA FITTINGS COMPANY.

WHERE STORMWATER CONNECTIONS ARE TO BE INSTALLED TO THE PROPERTY LINE, THE PIPE SHALL BE INSTALLED TRUE TO LINE, AT A 90° ANGLE FROM THE MAINLINE, IF POSSIBLE, AND ON AT LEAST A 1% GRADE, BUT NO MORE THAN A 3% GRADE. EXCEPT WHERE OTHERWISE SPECIFICALLY REQUIRED OR PERMITTED BY THE CITY, STORMWATER CONNECTIONS SHALL BE INSTALLED BY OPEN CUT EXCAVATION, SHALL HAVE A MINIMUM DEPTH OF SIX (6) FEET AT THE PROPERTY LINE AND SHALL BE DEEP ENOUGH TO SERVE ALL BASEMENT FOUNDATION DRAINS, UNLESS OTHERWISE APPROVED BY THE CITY. THE REQUIREMENTS FOR CONSTRUCTION SHALL, IN ALL RESPECTS, COMPLY WITH THOSE SPECIFIED IN THIS SECTION FOR THE MAIN SEWERS.

IN GENERAL, RISER SECTIONS WILL BE REQUIRED BETWEEN THE MAIN LINE SEWER CONNECTION AND THAT PORTION OF THE SERVICE CONNECTION INSTALLED ON AT LEAST A 1% GRADE WHERE DEPTHS TO THE MAIN SEWER INVERT EXCEED 12 FEET. RISER PIPE SHALL BE DEFINED AS THE VERTICAL PIPE, PLUS ALL PIPE AND FITTINGS REQUIRED BETWEEN THE VERTICAL PIPE AND THE CONNECTION AT THE MAIN SEWER. THE RISER SHALL BE FIXED IN PLACE FOR ITS FULL HEIGHT BY PROVIDING THOROUGHLY TAMPED PIPE EMBEDMENT MATERIAL. CLEAN-OUTS SHALL BE ALLOWED AS REQUIRED AND/OR APPROVED BY CITY. SEE FIGURE 4.10.1.

WHERE REQUIRED, STORMWATER CONNECTIONS SHALL BE INSTALLED WITHIN STEEL ENCASEMENT PIPE. STEEL ENCASEMENT PIPE SHALL EXTEND FIVE (5) FEET EACH SIDE OF THE PAVEMENT. STEEL ENCASEMENT PIPE SHALL BE AS PREVIOUSLY SPECIFIED IN ITEM 4.3, WITH THE ENCASEMENT PIPE TO BE SIZED FOR AT LEAST 2 INCHES CLEARANCE AROUND THE PIPE BELL, BUT NOT TO EXCEED 14 INCHES IN SIZE, AND THE MINIMUM WALL THICKNESS SHALL BE 0.188 INCH.

STORMWATER CONNECTIONS NOT IMMEDIATELY CONNECTED TO AN EXISTING SEWER SHALL BE CLOSED WITH A STOPPER. STOPPERS SHALL BE SPECIFICALLY DESIGNED FOR USE WITH THE PIPE, SHALL BE FOR USE AS A PERMANENT OR TEMPORARY PLUG, SHALL BE WATERTIGHT, AND SHALL BE REMOVABLE WITHOUT DAMAGING THE PIPE. PIPE DAMAGED WHEN INSTALLING OR REMOVING STOPPERS SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.

THE ENDS OF STORMWATER CONNECTIONS SHALL NOT BE BACKFILLED UNTIL THE LOCATION IS REFERENCED IN ACCORDANCE WITH FIGURE 4.10.2. A TWO (2) INCH SQUARE OAK POLE SHALL BE ACCURATELY PLACED OVER THE TERMINI OF ALL SUCH STORMWATER CONNECTIONS AND SHALL EXTEND VERTICALLY TO FLUSH WITH THE SURFACE OF THE GROUND SO THAT IT CAN BE LOCATED.

NO STORMWATER CONNECTIONS SHALL BE TIED INTO THE STORM SEWERS PRIOR TO THE CITY RECEIVING AND APPROVING RECORD DRAWINGS FOR THE STORM SEWER INSTALLATION.

(ORD. 18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.9 BEDDING AND BACKFILL

A. BEDDING - PIPE EMBEDMENT SHALL BE CRUSHED LIMESTONE #57 FOR SEWERS, FROM FOUR (4) - INCHES BELOW THE PIPE BARREL TO 12-INCHES ABOVE THE PIPE BARREL FOR PVC PIPE AND TO THE SPRINGLINE FOR RCP PIPE. FOR POLYPROPYLENE PIPE, CRUSHED LIMESTONE #57 SHALL EXTEND FOUR (4) INCHES BELOW THE PIPE BARREL TO SIX (6) INCHES ABOVE THE PIPE BARREL FOR 12-INCH THROUGH 24 DIAMETER SEWER, AND SIX (6) BELOW THE PIPE BARREL TO SIX (6) INCHES ABOVE THE PIPE BARREL FOR 30- INCH THROUGH 60-INCH DIAMETER SEWER. SEE FIGURE 4.17.1.CONCRETE ENCASEMENT AND CONCRETE PIPE CRADLES SHALL BE ODOT CLASS C CONCRETE.

B. GRANULAR BACKFILL - THE GRANULAR BACKFILL SHALL MEET THE REQUIREMENTS OF ODOT ITEM 304 CRUSHED LIMESTONE.

TRENCHES WITHIN RAILROAD RIGHT-OF-WAY, EXCEPT FOR LONGITUDINAL OCCUPANCY, SHALL BE BACKFILLED WITH CRUSHED STONE WITH A TOP SIZE OF THE AGGREGATE TO BE A MAXIMUM OF TWO INCHES AND TO HAVE NO MORE THAN 5% PASSING THE NUMBER 200 SIEVE. THE GRADATION OF THE MATERIAL IS TO BE SUCH THAT A DENSE STABLE MASS IS PRODUCED.

C. CONTROL DENSITY FILL (CDF) - CONTROL DENSITY FILL (CDF) SHALL BE ODOT ITEM 613, TYPE 1 LOW STRENGTH MORTAR, EXCEPT NO SLAG PERMITTED. THE DESIGN MIX USED SHALL BE APPROVED BY THE CITY, AND SHALL HAVE A DESIGN STRENGTH OF 50 PSF. (ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

II. INSTALLATION

4.10 TRENCHES

EXCEPT WHERE OTHERWISE SPECIFICALLY REQUIRED OR PERMITTED BY THE CITY, SEWERS SHALL BE LAID IN OPEN TRENCH, SHALL BE STARTED AT THE LOWEST POINT, AND SHALL HAVE SPIGOT ENDS POINTING IN THE DIRECTION OF FLOW.

PRIOR TO TRENCHING, IN LAWN AREAS AND IN FIELDS USED FOR FARMING, BOTH AS DETERMINED BY THE CITY, ALL TOPSOIL SHALL BE REMOVED.

THE USE OF EQUIPMENT WITH METAL TRACKS OR TREADS WILL NOT BE PERMITTED ON PAVED SURFACES WHICH WILL NOT BE REMOVED DURING TRENCHING OPERATIONS WITHOUT SOME TYPE OF PAVEMENT PROTECTION, SUCH AS MATTING OR RUBBER TRACKS.

THE WIDTH OF TRENCHES BELOW THE LEVEL OF THE TOP OF THE PIPE SHALL NOT EXCEED THE DIMENSIONS PREVIOUSLY SPECIFIED FOR THE VARIOUS TYPES AND SIZES OF PIPE, AND SHALL NOT BE LESS THAN 12 INCHES GREATER IN WIDTH THAN THE OUTSIDE DIAMETER OF THE PIPE BARREL, UNLESS OTHERWISE DIRECTED BY THE CITY. WHENEVER THE MAXIMUM ALLOWABLE TRENCH WIDTH (BELOW THE LEVEL OF THE TOP OF THE PIPE) IS EXCEEDED FOR ANY REASON, THE CITY RESERVES THE RIGHT TO DIRECT THE CONTRACTOR TO UTILIZE PIPE OF GREATER STRENGTH, TO MODIFY THE TYPE OF BACKFILL, TO EMBED THE PIPE IN CONCRETE, OR TO UTILIZE A COMBINATION OF THESE PROCEDURES, ALL AT THE EXPENSE OF THE CONTRACTOR.

TRENCHES IN EARTH SHALL BE EXCAVATED TO A DEPTH OF NOT LESS THAN ONE-EIGHTH THE OUTSIDE DIAMETER OF THE PIPE BEING INSTALLED OR 4 INCHES, WHICHEVER IS GREATER, BELOW THE OUTSIDE BOTTOM OF THE PIPE BARREL AND BELL WHEN THE PIPE IS LAID ON ITS FINAL GRADE.

TRENCHES IN ROCK SHALL BE EXCAVATED TO A DEPTH OF ONE-THIRD THE INSIDE DIAMETER OF THE PIPE, BUT WITHIN THE LIMITS OF 4 INCHES TO 12 INCHES, BELOW THE OUTSIDE BOTTOM OF THE PIPE BARREL AND BELL WHEN THE PIPE IS LAID ON ITS FINAL GRADE AND THE PIPE SHALL THEN BE LAID ON A CUSHIONING LAYER OF BEDDING MATERIAL AS SPECIFIED OR AS APPROVED BY THE CITY AND PROVIDED BY AND AT THE EXPENSE OF THE CONTRACTOR. ROCK EXCAVATION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SUBSEQUENTLY SPECIFIED IN ITEM 4.17.

PRIOR TO OPEN TRENCHES ENTERING THE PAVED LIMITS OF A STREET, ALLEY, DRIVEWAY, SIDEWALKS OR PARKING AREA, THE PAVEMENT SHALL BE NEATLY CUT FOR ITS FULL DEPTH, REMOVED, AND DISPOSED OF OFF THE PROJECT SITE. STREET AND ROAD CROSSINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN SECTION 7 - ROADWAY.

TRENCHES SHALL BE KEPT SUFFICIENTLY FREE OF WATER DURING PIPE LAYING AND JOINTING. WHEN WATER EXISTS IN THE TRENCHES AT THE TIME OF PIPE LAYING, THE CONTRACTOR SHALL DEWATER THE TRENCH AT HIS EXPENSE.

(ORD. 18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.11 PROTECTION OF EXISTING UTILITIES

EXISTING UNDERGROUND UTILITIES ALONG THE ROUTE OF CONSTRUCTION, AS SHOWN ON THE DRAWINGS OR MARKED AT THE TIME OF CONSTRUCTION BY THE UTILITY OWNER, SHALL BE UNCOVERED BY THE CONTRACTOR AND THEIR ELEVATIONS DETERMINED AT LEAST 400 FEET IN ADVANCE OF PIPE INSTALLATION FOR SEWERS. CONTRACTOR SHALL CONTACT OUPS 48 HOURS PRIOR TO ANY EXCAVATION WORK.

ALL UNDERGROUND UTILITIES, WHEN ENCOUNTERED, SHALL BE ADEQUATELY SUPPORTED, SHORED UP OR OTHERWISE PROTECTED WHENEVER EXPOSED IN THE EXCAVATION. TIMBER SUPPORTS SHALL BE A MINIMUM OF 6 INCHES SQUARE. SUPPORTS SHALL EXTEND INTO UNDISTURBED EARTH A MINIMUM OF 12 INCHES EACH SIDE OF THE TRENCH AND THE PIPE, CONDUIT, ETC., BANDED OR TIED TO THE BRIDGING FOR ITS FULL LENGTH USING STAINLESS STEEL BANDING. WHERE BRIDGING CANNOT BE SUPPORTED BY A FIRM FOUNDATION, THE CONTRACTOR SHALL PROVIDE VERTICAL SUPPORT FOR THE BRIDGING, INCLUDING ANY LATERAL BRACING NECESSARY TO PROVIDE A FIRM AND SUBSTANTIAL SUPPORT. SUPPORTS AND BRACING SHALL BE OF NATIVE HARDWOOD AND SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE FIGURE 4.15.1.

THE DRAWINGS SHALL INDICATE THE LOCATION OF EXISTING UTILITIES, IN ACCORDANCE WITH THE BEST INFORMATION PRESENTLY AVAILABLE. THE CITY ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THEIR LOCATION OR THAT ALL UTILITIES ARE SHOWN. A LISTING OF UTILITY COMPANY CONTACTS SHALL BE INCLUDED ON THE DRAWINGS.

PRIOR TO PERFORMING ANY EXCAVATION, WRITTEN OR ORAL NOTIFICATION SHALL BE GIVEN TO ALL UTILITIES WITHIN THE AREA TO BE EXCAVATED NOT LESS THAN TWO WORKING DAYS NOR MORE THAN TEN WORKING DAYS IN ADVANCE OF THE WORK. FOR CITY UTILITIES, NOTIFICATION MUST BE IN WRITING. THE NOTICE SHALL INCLUDE:

A) THE NAME OF THE PROJECT, IF APPLICABLE;

B) THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE PERSON FILING THE NOTICE;

C) THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE PERSON DOING THE EXCAVATION;

D) THE ANTICIPATED STARTING DATE OF THE EXCAVATION;

E) THE ANTICIPATED DURATION OF THE EXCAVATION;

F) THE TYPES OF EXCAVATION TO BE CONDUCTED;

G) THE LOCATION OF THE PROPOSED EXCAVATION;

H) ANY ANTICIPATED INTERRUPTIONS TO SERVICE; AND

I) WHETHER OR NOT EXPLOSIVES WILL BE USED.

THE EXCAVATION WORK SHALL BE SO PLANNED AS TO AVOID DAMAGE TO AND MINIMIZE THE INTERFERENCE WITH EXISTING UNDERGROUND UTILITIES IN THE AREA. ADEQUATE CLEARANCE BETWEEN THE CUTTING EDGE OF THE EXCAVATION EQUIPMENT AND THE UNDERGROUND UTILITY SHALL BE MAINTAINED TO AVOID DAMAGE TO THE UTILITY. ABOVE GROUND (AERIAL) UTILITIES, INCLUDING POWER, TELEPHONE AND CABLE TELEVISION, SHALL REMAIN IN SERVICE AT ALL TIMES. ANY ANTICIPATED DISRUPTION OF SERVICE SHALL BE WITH THE FULL KNOWLEDGE OF THE UTILITY COMPANY AND REQUIRED ADVANCE NOTICE TO THE AFFECTED USERS BY THE CONTRACTOR. REMOVAL OF GUY WIRES AND HOLDING OF POLES SHALL BE DONE AS REQUIRED TO COMPLETE THE WORK, SHALL BE AS AGREED UPON BY THE UTILITY COMPANY AND THE CONTRACTOR, AND SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

ARBITRARY DISRUPTION OF UNDERGROUND AND AERIAL UTILITY SERVICES WILL NOT BE PERMITTED. (ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

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REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
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Date:	5/22/2025
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Drawing Title:

STORM DETAILS

C8.4

CITY OF HUDSON SECTION 4. STORM COLLECTION

4.12 TRENCH PROTECTION

WHERE NECESSARY TO PREVENT CAVING OF THE TRENCH AND OTHER EXCAVATION, AND FOR PROTECTION OF WORKMEN AND NEARBY STRUCTURES, TRENCH PROTECTION SHALL BE PROVIDED PER OSHA STANDARDS BY AND AT THE EXPENSE OF THE CONTRACTOR. TRENCH PROTECTION SHALL BE BY TRENCH BOX, WOOD SHEETING AND BRACING OR SUCH OTHER METHODS AS DETERMINED BY THE CONTRACTOR. IF WOOD SHEETING OR BRACING IS USED, THE DESIGN OF THE SHEETING OR BRACING SHALL BE SEALED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO THE CITY PRIOR TO INSTALLATION. CONTRACTOR SHALL HAVE A COMPETENT PERSON ON-SITE TO DETERMINE THE APPROPRIATE METHOD FOR THE CONDITIONS.

WOOD SHEETING AND BRACING SHALL BE OF SOUND LUMBER SUITABLE FOR THE PURPOSE INTENDED AND SHALL BE SO ARRANGED AS TO SUPPORT THE TRENCH WALLS AND EXISTING STRUCTURES AND UTILITIES. SHEETING LEFT IN PLACE SHALL BE CUT OFF NOT LESS THAN 18 INCHES BELOW GROUND SURFACE.

SHEETING AND BRACING NOT NOTED TO BE LEFT IN PLACE MAY BE REMOVED AT THE DISCRETION AND RESPONSIBILITY OF THE CONTRACTOR AFTER BACKFILL HAS BEEN PLACED AND COMPACTED TO A LEVEL AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE. IN NO CASE SHALL SHEETING BE PULLED IN INCREMENTS EXCEEDING THREE (3) TO FOUR (4) FEET IN ORDER TO AVOID THE DANGER OF BREAKING THE PIPE DUE TO THE WEIGHT OF THE BACKFILL. UPON REMOVAL OF SHEETING AND BRACING, VOIDS LEFT DUE TO SUCH REMOVAL SHALL IMMEDIATELY BE FILLED AND THE BACKFILL RECOMPACTED.

WHERE IT IS NECESSARY TO DRIVE SHEETING BELOW THE CENTERLINE OF THE PIPE, IT SHALL BE DRIVEN BELOW THE BOTTOM OF THE PIPE AS DETERMINED BY THE CITY, AND THAT SHEETING BELOW A POINT TWO FEET ABOVE THE TOP OF THE PIPE SHALL BE LEFT IN PLACE.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.13 PIPE EMBEDMENT

THE BEDDING MATERIAL SHALL BE SHAPED TO CONFORM TO THE BOTTOM QUADRANT OF THE PIPE BARREL. THE CITY RESERVES THE PRIVILEGE OF ALTERING THE TYPE OF BEDDING MATERIAL AND REGULATING THE EXACT GRADING OF THE BEDDING MATERIAL DEPENDING UPON THE WATER CHARACTERISTICS OF THE TRENCH. AT LEAST THE MINIMUM OF BEDDING SHALL BE PROVIDED UNDER PIPE BELLS.

AFTER THE PIPE IS LAID, THE BEDDING MATERIAL SHALL BE SHOVEL PLACED AND TAMPED TO FILL ALL VOIDS. THE BEDDING MATERIAL SHALL BE PLACED IN SIX (6) INCH LAYERS, LOOSE MEASUREMENT, AND COMPACTED BY HAND OR MECHANICAL TAMPING TO SECURE A GOOD COMPACTION. ALL EMBEDMENT MATERIAL SHALL BE CAREFULLY PLACED AND TAMPED SO AS NOT TO DAMAGE OR DISPLACE THE JOINTS OR PIPE, AND NO MATERIAL SHALL BE DROPPED DIRECTLY ON THE PIPE. THE MATERIAL SHALL BE COMPACTED TO NOT LESS THAN 98% OF MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D1557 (MODIFIED PROCTOR).

AN EXCEPTION SHALL BE MADE WHERE CONCRETE ENCASEMENT IS NOTED ON THE DRAWINGS. CONCRETE ENCASEMENT SHALL BE SQUARE IN CROSS SECTION, SHALL HAVE A MINIMUM THICKNESS OF SIX (6) INCHES AT PIPE BELLS, AND SHALL BE OF THE LENGTH AS SHOWN ON PLAN/PROFILE DRAWINGS OR AS REQUIRED. SEE FIGURE 4.17.1.

THIS SHALL INCLUDE THE MATERIALS AND CONSTRUCTION OF CONCRETE PIPE CRADLES TO SUPPORT THE NEW PIPES WHERE THEY CROSS OVER EXISTING PIPES IN THE LOCATIONS NOTED ON THE DRAWINGS. DAMAGE TO EXISTING PIPES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACEMENTS MADE TO THE SATISFACTION OF THE CITY BY AND AT THE EXPENSE OF THE CONTRACTOR. SEE FIGURE 4.17.2.

IF THE MATERIAL FOUND AT THE SPECIFIED DEPTHS OF EXCAVATION BELOW THE ELEVATION OF THE OUTSIDE BOTTOM OF THE PIPE BARREL IS NOT SUITABLE TO PROVIDE ADEQUATE FOUNDATION FOR THE PIPE, A FURTHER DEPTH SHALL BE EXCAVATED AND FILLED WITH GRANULAR BEDDING MATERIAL APPROVED BY THE CITY.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.14 PIPE LAYING

PIPES SHALL BE LAID WITH THEIR FULL LENGTHS TRUE TO LINE AND GRADE WITH THE AID OF BATTERBOARDS, GRADE POLE AND GRADE STRING, OR OTHER METHOD APPROVED BY THE CITY, AND SHALL REST ON THE BEDDING MATERIAL PROVIDED. PIPE SLOPE SHALL BE AS DESIGNED AND APPROVED BY THE CITY OF HUDSON.

WHEN BATTERBOARDS ARE USED, NOT LESS THAN THREE, SET AT 25-FOOT INTERVALS, SHALL BE INSTALLED AND MAINTAINED IN PROPER POSITION AT ALL TIMES AS A CHECK ON THE ACCURACY OF THE GRADE LINE.

WHEN LASER BEAM EQUIPMENT IS USED, IT SHALL BE CHECKED A MINIMUM OF TWICE DAILY, ONCE IN THE A.M. AND ONCE IN THE P.M., IN THE PRESENCE OF THE CITY TO VERIFY THAT THE EQUIPMENT IS MAINTAINING THE ESTABLISHED LINE AND GRADE. IN ADDITION, WHEN TEMPERATURE AND OTHER ATMOSPHERIC CONDITIONS PREVENT THE LASER BEAM FROM MAINTAINING GRADE, THE CONTRACTOR SHALL PROVIDE ADDITIONAL VENTILATION THROUGH THE PIPELINE BY THE USE OF BLOWERS AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER OR AS DIRECTED BY THE CITY.

REGARDLESS OF THE METHOD USED, THE CITY SHALL BE IMMEDIATELY NOTIFIED OF ANY MISALIGNMENT OF THE PIPE WHEN LAID IN ACCORDANCE WITH ESTABLISHED CUTS OR ELEVATIONS.

PIPES AND MANHOLES SHALL BE INSTALLED AT A MINIMUM TEN (10) FOOT HORIZONTAL DISTANCE FROM WATER MAINS, AND PIPES LAID AT A MINIMUM 18 INCHES VERTICAL DISTANCE FROM WATER MAINS AT THEIR CROSSING, BOTH AS MEASURED BETWEEN THE OUTSIDE OF THE PIPE WALLS. AT CROSSINGS, ONE FULL LENGTH OF PIPE SHALL BE INSTALLED SO BOTH JOINTS WILL BE AS FAR FROM THE MAIN AS POSSIBLE. IF NECESSARY, EXISTING WATER MAINS SHALL BE RELOCATED UNDER PROPOSED SEWERS. SEE FIGURE 4.18.1.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.15 BACKFILLING

BACKFILL SHALL INCLUDE THE MATERIAL PLACED ABOVE THE PIPE EMBEDMENT MATERIAL PREVIOUSLY SPECIFIED. NO HEAVY OR LARGE QUANTITIES OF BACKFILL MATERIAL SHALL BE PLACED OVER THE PIPE UNTIL BACKFILLING HAS PROGRESSED TO A DEPTH OF AT LEAST THREE (3) FEET OVER THE TOP OF THE PIPE BARREL. ALL BACKFILL MATERIAL SHALL BE CAREFULLY PLACED SO AS NOT TO DAMAGE THE JOINTS OR DISPLACE THE PIPE. BACKFILLING SHALL IMMEDIATELY FOLLOW TRENCHING AND PIPE LAYING OPERATIONS TO REDUCE THE POSSIBILITY OF DAMAGE TO PAVEMENTS AND UTILITIES.

TRENCHES WITHIN EXISTING AND PROPOSED STONED STREETS, ALLEYS, DRIVEWAYS, STONED PARKING AREAS AND CONCRETE OR BRICK SIDEWALKS SHALL BE BACKFILLED WITH GRANULAR MATERIAL. THE MATERIAL SHALL BE PLACED AND COMPACTED TO NOT LESS THAN 100% OF MAXIMUM DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D1557 (MODIFIED PROCTOR). CONTRACTOR SHALL PROVIDE A CERTIFIED PROCTOR TEST RESULT FROM LIMESTONE SUPPLIER WITH THE SHOP DRAWINGS, PRIOR TO STONE BEING DELIVERED TO THE PROJECT SITE.

WHERE SEWERS ARE INSTALLED ALONG AND ACROSS EXISTING AND PROPOSED PAVED OR STONED STREETS, ALLEYS, DRIVEWAYS AND PARKING AREAS, THE SPECIFIED COMPACTED GRANULAR MATERIAL SHALL ALSO BE PROVIDED FOR BACKFILLING ANY PORTION OF THE TRENCHES FALLING WITHIN THAT AREA BELOW A LINE DRAWN AT 45 DEGREES TO THE HORIZONTAL FROM THE SURFACE AT THE EDGE OF THE PAVEMENT OR BACK OF CURB AND ABOVE THE HORIZONTAL PLANE OF THE PIPE EMBEDMENT MATERIAL. SEE FIGURE 4.19.1.

FOR TRENCHES WITHIN EXISTING OR PROPOSED PAVED STREETS, ALLEYS, DRIVEWAYS AND PAVED PARKING AREAS A CONTROLLED DENSITY FILL (C.D.F.) SHALL BE PROVIDED OR BACKFILL AS APPROVED BY THE CITY. THE MIX SHALL BE PLACED IN A USABLE FLUID FORM AND IN UNIFORM VERTICAL LIFTS. DESIGN, FINISHING AND PROTECTION OF THE MATERIAL SHALL BE RECOMMENDED BY THE MANUFACTURER FOR THE APPLICATION. QUALITY CONTROL TEST PROCEDURES OF THE MANUFACTURER SHALL INCLUDE ASTM C138 - TEST FOR UNIT WEIGHT, AND ASTM C39 - TEST FOR COMPRESSIVE STRENGTH. NO COMPACTION IS REQUIRED FOR C.D.F.
TRENCHES WITHIN RAILROAD RIGHT-OF-WAY, EXCEPT FOR LONGITUDINAL OCCUPANCY, SHALL BE BACKFILLED WITH CRUSHED STONE. TRENCHES WHERE SEWERS ARE INSTALLED LONGITUDINAL TO THE RAILROAD TRACKS SHALL BE BACKFILLED PER RAILROAD REQUIREMENTS, LATEST REVISIONS. THE BACKFILL MATERIAL SHALL BE PLACED IN LOOSE SIX (6) INCH LIFTS AND COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DENSITY WITH A MOISTURE CONTENT THAT IS NOT MORE THAN 1% GREATER THAN OR 2% LESS THAN THE OPTIMUM MOISTURE AS DETERMINED IN ACCORDANCE WITH CURRENT ASTM DESIGNATION D - 1557 (MODIFIED PROCTOR). WHEN THE BACKFILL MATERIAL IS WITHIN THREE FEET OF THE SUBGRADE ELEVATION (THE INTERFACE OF THE BALLAST AND THE SUBSOIL), A COMPACTION OF AT LEAST 98% WILL BE REQUIRED. COMPACTION TEST RESULTS CONFIRMING COMPLIANCE MUST BE PROVIDED TO RAILROAD COMPANY'S ENGINEER BY THE CONTRACTOR.

THE CITY MAY REQUIRE CONTRACTOR TO CHECK COMPACTION OF THE BACKFILL AT A LOCATION AND DEPTH DETERMINED BY THE CITY, AT ANY TIME AT NO COST TO CITY. WHERE TRENCHES ARE BACKFILLED WITH GRANULAR MATERIAL, THE CONTRACTOR SHALL REMOVE EXCESS EXCAVATED MATERIAL. ANY EXCESS EXCAVATED SPOIL SHALL BE REMOVED TO AN APPROVED DUMP SITE.

IN ALL PAVED STREETS AND HIGHWAYS, IMMEDIATELY UPON COMPLETION OF OTHER BACKFILLING OPERATIONS AND PRIOR TO THE END OF WORK FOR THAT DAY, A TEMPORARY PAVEMENT AS SPECIFIED IN SECTION 7 - ROADWAY SHALL BE PROVIDED AND SHALL REMAIN IN PLACE AND BE PROPERLY MAINTAINED UNTIL SUCH TIME AS THE PERMANENT PAVEMENTS ARE PLACED. FOR A PROJECT WITH MORE THAN ONE ROAD CROSSING PERMANENT PAVEMENTS SHALL BE PLACED WITHIN TWO WEEKS AFTER COMPLETION OF TESTS AND ACCEPTANCE OF EACH SECTION OF THE STORM SEWER. FOR A SINGLE ROAD CROSSING OR UTILITY REPAIR, PERMANENT PAVEMENTS SHALL BE PLACED WITHIN 48 HOURS AFTER ACCEPTANCE OF THE CROSSING OR REPAIR.

FOR BACKFILLING THE REMAINDER OF THE TRENCHES, AS MUCH OF THE EXCAVATED MATERIAL AS POSSIBLE SHALL BE REPLACED UNTIL BACKFILLING HAS PROGRESSED TO A DEPTH OF AT LEAST 3 FEET OVER THE TOP OF THE PIPE BARREL. THE MATERIAL SHALL BE FINELY DIVIDED FREE OF STONES THREE (3) INCHES OR GREATER IN ANY DIMENSION, NO BOULDERS, ORGANIC MATERIALS OR OTHER HARMFUL DEBRIS SHALL BE USED. THE MATERIAL SHALL BE PLACED IN SIX (6) INCH LAYERS, LOOSE MEASUREMENT, AND COMPACTED BY MECHANICAL TAMPING.

ALSO, IMMEDIATELY UPON COMPLETION OF OTHER BACKFILLING OPERATIONS AND PRIOR TO THE END OF WORK FOR THAT DAY, A TEMPORARY SIDEWALK SHALL BE PROVIDED, AND SHALL REMAIN IN PLACE AND BE PROPERLY MAINTAINED UNTIL SUCH TIME AS THE PERMANENT SIDEWALK IS PLACED. THE TEMPORARY SIDEWALK SHALL CONSIST OF A MINIMUM OF 1-1/2 INCHES OF THE SPECIFIED COMPACTED GRANULAR BACKFILL MATERIAL PLACED TO THE SAME WIDTH AS THE ORIGINAL SIDEWALK, AND SHALL BE FURNISHED, PLACED AND MAINTAINED BY AND AT THE EXPENSE OF THE CONTRACTOR. THE TEMPORARY SIDEWALK SHALL BE RESHAPED AND REGRADED PRIOR TO THE INSTALLATION OF PERMANENT SIDEWALK.

AFTER BACKFILLING, ALONG WEED OR UNSODDED AREAS THE MATERIAL SHALL BE GRADED TO CONFORM TO THE ORIGINAL GROUND PROFILE. IN LAWN AREAS AND IN FIELDS USED FOR FARMING, ALL TOPSOIL REMOVED AND STOCKPILED PRIOR TO TRENCHING SHALL BE REPLACED AND GRADED TO CONFORM TO THE ORIGINAL GROUND PROFILE. IN LAWNS AND OTHER AREAS WHERE GRASS EXISTS, AS DETERMINED BY THE OWNER OR THE CITY, THE AREA SHALL BE GRADED AND MADE READY FOR SEEDING AS SPECIFIED IN SECTION 1. IN LAWN AREAS, IF THE EXISTING REPLACED TOPSOIL DOES NOT PROVIDE THE REQUIRED FOUR (4) INCH MINIMUM DEPTH AS SPECIFIED IN SECTION 1, THE CONTRACTOR SHALL PROVIDE ADDITIONAL TOPSOIL AT HIS EXPENSE.

THE CONTRACTOR SHALL BE REQUIRED TO REGRADE AND RESHAPE ALL ROAD SHOULDERS AND ALL DITCHES OR SWALES FROM EXISTING HIGH POINTS TO EXISTING DRAINAGE STRUCTURES OR OTHER OUTLETS ALONG THE PROPOSED IMPROVEMENT. THE CONTRACTOR AND THE CITY SHALL MUTUALLY AGREE AND ESTABLISH ALL DITCH GRADES TO BE RESTORED PRIOR TO CONSTRUCTION. DITCHES, WHICH ARE RESHAPED, SHALL HAVE REASONABLE SIDE SLOPES. VERTICAL OR STEEP SLOPES WILL NOT BE PERMITTED.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.16 CONNECTIONS TO STRUCTURES AND PIPES

WHEN REQUIRED, NEW AND EXISTING SEWERS SHALL BE CONNECTED TO STRUCTURES THROUGH STUBS, WALL CASTINGS, WALL SLEEVES, ETC. PROVIDED FOR SAME OR A CORED OPENING SHALL BE MADE AT THE PROPER ELEVATION IN THE WALL OF THE STRUCTURE, THE PIPE INSERTED AND THE OPENING AROUND THE PIPE NEATLY AND PERMANENTLY CLOSED WITH A NON-SHRINKING AND NON-CORROSIVE GROUT. NO STRAIGHT-LINE SAW CUTTING AND/OR HAMMERING OF OPENINGS WILL BE ALLOWED. GROUT SHALL BE, FIVE STAR GROUT AS MANUFACTURED BY FIVE STAR PRODUCTS, INC.; SEALTIGHT 588-10K GROUT AS MANUFACTURED BY W.R. MEADOWS, INC.; SET GROUT AS MANUFACTURED BY MASTER BUILDERS; OR EQUAL. ALL CONNECTIONS SHALL BE WATERTIGHT. WHERE NECESSARY, THE BOTTOMS OF EXISTING STRUCTURES SHALL BE RESHAPED TO GIVE A SMOOTH FLOW IN ALL DIRECTIONS.

CONNECTIONS TO UNLIKE TYPES AND SIZES OF PIPE SHALL BE ACCOMPLISHED USING THE PROPER ADAPTER AND/OR CONNECTOR AS MANUFACTURED BY FERNCO, INC.

(ORD.18-104. PASSED 8-21-18.)

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4.17 ROCK EXCAVATION

A. GENERAL - THE TERM "ROCK EXCAVATION" SHALL INCLUDE THE REMOVAL OF SUCH MATERIAL AS CANNOT BE BROKEN AND REMOVED BY ORDINARY EXCAVATING EQUIPMENT. THE DEFINITION OF ORDINARY EXCAVATING EQUIPMENT DOES NOT INCLUDE RIPPERS OR POWER OPERATED JACK HAMMERS. DISINTEGRATED, WEATHERED, ROTTEN AND LOOSE ROCK PARTICLES CAPABLE OF REMOVAL BY ORDINARY METHODS ARE NOT INCLUDED WITHIN THE SCOPE OF ROCK EXCAVATION.

B. EXCAVATION - EXCAVATION SHALL BE CARRIED TO A SUFFICIENT DEPTH TO PROVIDE FOR A CUSHIONING LAYER OF BEDDING MATERIAL AS PREVIOUSLY SPECIFIED IN ITEM 4.12. WIDTH OF TRENCH SHALL BE NOT MORE THAN PREVIOUSLY SPECIFIED FOR THE RESPECTIVE TYPE OF PIPE.

EXCAVATION FOR STRUCTURES SHALL EXTEND TO A PLANE FOUR (4) INCHES BELOW THE UNDERSIDE OF THE CONCRETE FOUNDATIONS AND BE CONFINED TO LIMITS TWO FEET BEYOND THE OUTSIDE OF SUCH FOUNDATIONS.

C. DISPOSAL OF ROCK - EXCEPT UNDER SPECIAL PERMISSION FROM THE ENGINEER, ROCK REMOVED BY EXCAVATION SHALL NOT BE USED FOR BACKFILL, BUT SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT SITE. NECESSARY BEDDING AND BACKFILL FOR TRENCHES AND OTHER EXCAVATIONS IN ROCK EXCAVATION SHALL BE APPROVED BY THE CITY.

D. METHOD - WHERE ROCK IS ENCOUNTERED WHICH CANNOT BE REMOVED BY ORDINARY EXCAVATING METHODS, ROCK EXCAVATION, UNLESS OTHERWISE SPECIFIED, MAY BE ACCOMPLISHED BY THE USE OF EXPLOSIVES, WITH THE APPROVAL OF THE CITY MANAGER AND SUBJECT TO COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL LAWS AND THE FOLLOWING REQUIREMENTS:

1) ALL REQUIRED PERMITS SHALL BE SECURED BY THE CONTRACTOR WELL IN ADVANCE OF SUCH OPERATIONS.

2) THE TRANSPORTING, HANDLING AND FIRING OF EXPLOSIVES SHALL BE PERFORMED BY SOMEONE THOROUGHLY FAMILIAR, EXPERIENCED AND, IF APPLICABLE, LICENSED IN THIS TYPE OF WORK, PREFERABLY A REPRESENTATIVE OF THE MANUFACTURER OF THE EXPLOSIVES TO BE USED.

3) PRIOR TO REMOVING ROCK IN ANY AREA, THE TYPE OF EXPLOSIVES TO BE USED, THE NUMBER, DEPTH AND LOADING OF HOLES TO BE DETONATED AT ANY ONE TIME; AND ANY SPECIAL PRECAUTIONS TO BE OBSERVED SHALL BE DETERMINED AT A CONFERENCE BETWEEN REPRESENTATIVES OF THE OWNER, THE CITY, THE CONTRACTOR, THE CONTRACTORS INSURANCE COMPANY AND THE PERSON DIRECTLY RESPONSIBLE FOR DETONATION. THE PROCEDURE THEREAFTER FOLLOWED IN THAT AREA SHALL CONFORM TO THE DECISIONS REACHED; SUBJECT TO ANY MODIFICATIONS WHICH MAY BE REQUIRED BECAUSE OF UNSATISFACTORY OR UNSAFE RESULTS OR THE PROCEDURE AGREED UPON.

4) SUITABLE TIMBER MATS OR OTHER COVERINGS SHALL BE PROVIDED TO CONFINE ALL MATERIALS LIFTED BY BLASTING WITHIN THE LIMITS OF THE EXCAVATION.

5) ALL PUBLIC AND PRIVATE UTILITY COMPANIES HAVING FACILITIES IN THE VICINITY SHALL BE NOTIFIED BY THE CONTRACTOR OF THE LOCATION AND TIME OF CONTEMPLATED DETONATION IN SUFFICIENT TIME TO ALLOW THEM TO PROTECT THEIR FACILITIES. LIKEWISE, WHERE OPERATIONS ARE TO BE CARRIED ON IN ANY LOCATION WHERE TRAFFIC ON STREETS OR HIGHWAYS MAY BE AFFECTED, PROPER NOTICE SHALL BE GIVEN THE LOCAL POLICE DEPARTMENT.

6) FOR PURPOSE OF PROTECTING THE GENERAL PUBLIC, THE CONTRACTOR AND THE OWNER, THE UTMOST COOPERATION WILL BE REQUIRED BETWEEN THE CONTRACTOR AND ALL OTHER INTERESTED PARTIES. ALL SAFETY PRECAUTIONS SHALL BE STRICTLY ENFORCED.

7) SHOULD PERMIT LIMITATIONS OR THE NEARNESS OF EXISTING STRUCTURES AND UTILITIES PROHIBIT THE USE OF EXPLOSIVES, ROCK EXCAVATION SHALL BE PERFORMED BY AN APPROVED ALTERNATE METHOD.

8) SEISMOGRAPHIC MONITORING, PRE-BLASTING AND POST-BLASTING INSPECTIONS SHALL BE PERFORMED ON THOSE STRUCTURES NEARBY TO AVOID FRAUDULENT DAMAGE CLAIMS.

E. DAMAGE TO EXISTING FACILITIES - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING STRUCTURES, PIPING, SEWERS, DRAINS, CABLES, CONDUITS, EQUIPMENT AND APPURTENANCES RESULTING FROM HIS ROCK EXCAVATION OPERATIONS, AND SHALL REPAIR SAME TO THE SATISFACTION OF THE OWNER AND THE CITY.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

III. TESTING

4.18 TESTING FOR DEFLECTION (STORM SEWERS)

ALL STORM SEWERS OF PVC PLASTIC PIPE OR POLYPROPYLENE PIPE SHALL BE TESTED FOR A MAXIMUM DEFLECTION OF 5% OF THE PIPE AVERAGE INSIDE DIAMETER NOT LESS THAN 30 DAYS AFTER FINAL FULL BACKFILL, HAS BEEN PLACED, AS DETERMINED BY THE CITY.

SUCH TESTS SHALL BE CONDUCTED WITH A REPRESENTATIVE OF THE ENGINEER PRESENT. ALL PIPES EXCEEDING A DEFLECTION OF 5% OF THE AVERAGE INSIDE DIAMETER SHALL BE REPAIRED OR REPLACED AND THEN RETESTED UNTIL SATISFACTORY TEST RESULTS ARE OBTAINED. THE CONTRACTOR SHALL PAY ALL COSTS FOR THE TESTS.

THE TESTS SHALL BE CONDUCTED USING ELECTRONIC EQUIPMENT SPECIFICALLY DESIGNED FOR MEASURING AND RECORDING DEFLECTION IN FLEXIBLE PIPE OR BY THE USE OF AN APPROVED DEFLECTION PROBE, HAVING A DIAMETER EQUAL TO 95% OF THE AVERAGE INSIDE DIAMETER OF THE PIPE BEING TESTED, PULLED THROUGH THE SEWER LINE. IF THE DEFLECTION PROBE IS USED, TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES, AND A PROVING RING, HAVING AN I.D. EQUAL TO THE O.D. OF THE PROBE, SHALL BE AVAILABLE AT THE TIME THE PROBE IS USED TO VERIFY THAT THE PROBE HAS THE PROPER DIAMETER BY INSERTING THE PROBE INTO THE RING.

THE DEFLECTION PROBE SHALL BE AS AVAILABLE FROM WORTCO, INC.; BURKE CONCRETE ACCESSORIES, INC.; OR EQUAL, AND SHALL BE DESIGNED SPECIFICALLY FOR TESTING THE DEFLECTION OF THE TYPE AND SIZE OF PIPE SUBJECT TO TEST. THE PROBE SHALL INCORPORATE AN ODD NUMBER (NO LESS THAN 9) OF 1/2" X 3/16" BAR STOCK RUNNERS EQUALLY SPACED ON EDGE AROUND AND WELDED TO THE CIRCUMFERENCE OF TWO MINIMUM 1/4 INCH THICK CIRCULAR STEEL PLATES. THE DIAMETER OF THE PROBE FOR THE TYPE AND NOMINAL SIZE OF THE PIPE TO BE TESTED SHALL BE EQUAL TO 95% OF THE AVERAGE INSIDE DIAMETER OF THE RESPECTIVE PIPE AS SPECIFICALLY GIVEN OR DETERMINED BY THE ENGINEER FROM INFORMATION GIVEN IN THE APPROPRIATE ASTM STANDARD FOR THE PIPE.

THE DISTANCE BETWEEN PLATES, OUT-TO-OUT, SHALL NOT BE LESS THAN TWO (2) INCHES SMALLER THAN THE NOMINAL DIAMETER OF THE PIPE TO BE TESTED. THE RUNNERS SHALL EXTEND APPROXIMATELY 1-1/2 INCHES BEYOND EACH PLATE, BEING BENT INWARD FOR THIS DISTANCE AT APPROXIMATELY 30°. A CONTINUOUS 3/4 INCH THREADED ROD SHALL BE PROVIDED THROUGH THE CENTER OF THE PLATES, HAVING A HEX NUT DRAWN TIGHT AGAINST THE INSIDE FACE OF EACH PLATE, AND EXTENDING EACH SIDE AS REQUIRED FOR PROVIDING A 3/4 INCH FERRULE LOOP INSERT OR SIMILAR PIECE FOR ATTACHING THE PULLING MEDIUM.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.19 TESTING FOR LEAKAGE (STORM SEWERS)

A. GENERAL - THE CONTRACTOR SHALL INCLUDE LABOR AND MATERIALS, INCLUDING ANY WATER AND ALL EQUIPMENT, NECESSARY TO COMPLETE THE LEAKAGE TESTS SPECIFIED HEREIN. SUCH TESTS SHALL BE CONDUCTED AFTER TESTING FOR DEFLECTION IS COMPLETE, WHERE APPLICABLE, AND WITH A REPRESENTATIVE OF THE CITY PRESENT, AND HIS JUDGMENT SHALL BE FINAL AS TO THE ACCEPTANCE OF ALL TESTS. LEAKAGE TESTS SHALL BE CONDUCTED ON EACH PIPE SECTION AND MANHOLE.

EACH SECTION OF PIPE SHALL BE TESTED FOR OBSTRUCTIONS PRIOR TO VISUAL TESTING FOR LEAKAGE. EITHER MANDRELS, SOLID CYLINDERS, OR BALLS WITH DIAMETERS OF 95% OF THE PIPE DIAMETER MAY BE USED TO TEST FOR OBSTRUCTIONS. ALL OBSTRUCTIONS SHALL BE REMOVED.

ALL VISIBLE LEAKAGE IN SEWERS AND MANHOLES SHALL BE REPAIRED.

ALL PLUGS USED DURING LEAKAGE TESTS SHALL BE OF A LENGTH AT LEAST EQUAL TO THE DIAMETER OF THE PIPE BEING TESTED TO ASSURE A WATERTIGHT SEAL. PNEUMATIC PLUGS FOR AIR TESTING SHALL BE ABLE TO RESIST INTERNAL TEST PRESSURES WITHOUT REQUIRING EXTERNAL BLOCKING.

B. MANHOLES - EACH MANHOLE SHALL BE TESTED AFTER ASSEMBLY AND AFTER ALL LIFT HOLES HAVE BEEN PLUGGED WITH AN APPROVED NON-SHRINK GROUT, AND, AT THE OPTION OF THE CONTRACTOR, BEFORE OR AFTER BACKFILLING IS COMPLETED.

TESTING SHALL BE BY DRAWING A VACUUM ON THE MANHOLE USING EQUIPMENT SPECIFICALLY DESIGNED FOR SUCH TESTING. ALL PIPES ENTERING THE MANHOLE SHALL BE PLUGGED AND BRACED TO PREVENT BEING DRAWN INTO THE MANHOLE. A TEST HEAD WITH NECESSARY GAUGES AND CONNECTIONS SHALL BE PLACED AT THE INSIDE OF THE TOP OF THE CONE SECTION AND SEALED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. A VACUUM OF TEN (10) INCHES OF MERCURY SHALL THEN BE DRAWN AND THE VACUUM PUMP SHUT OFF. WITH VALVES CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO NINE (9) INCHES. THE TEST SHALL BE SUCCESSFUL IF THE TIME MEASURED MEETS OR EXCEEDS THE VALUES INDICATED IN THE FOLLOWING TABLE:

MINIMUM TEST TIMES IN SECONDSMANHOLE DEPTHMANHOLE DIAMETER48"60"72"MINIMUM TEST TIMES IN SECONDSMANHOLE DEPTHMANHOLE DIAMETER48"60"72" 8'20263310'25334112'30394914'35465716'40526518'45597320'50658122'55728924'59789726'648510528'699111330'7498121

IF THE TEST IS UNSUCCESSFUL, NECESSARY REPAIRS SHALL BE MADE AND RETESTING SHALL PROCEED UNTIL A SATISFACTORY TEST IS OBTAINED.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.20 TELEVISION INSPECTION (STORM SEWERS)

UPON COMPLETION OF LEAKAGE TESTING, SEWERS SHALL BE TELEVISED IN THE PRESENCE OF THE CITY. CLOSED-CIRCUIT TELEVISION INSPECTION SHALL BE PERFORMED FOR ALL NEW MAIN LINE SEWERS. THE CITY SHALL HAVE ACCESS TO VIEW MONITOR AT ALL TIMES, AND SHALL APPROVE PICTURE QUALITY AND DEFINITION.

VIDEO EQUIPMENT FOR TESTING SHALL PRODUCE DVD FORMAT VIDEO DISCS COLOR VIDEO PICTURE AND INCLUDE TWO AUDIO TRACKS. A MOBILE STUDIO FOR ABOVE GROUND CONTROL AND ADJUSTMENT OF EQUIPMENT AND VIEWING THE MONITOR SHALL BE USED, AND SHALL ACCOMMODATE A MINIMUM OF FOUR PEOPLE. THE CAMERA SHALL BE DESIGNED SPECIFICALLY FOR SUCH INSPECTIONS; SHALL BE OPERATIVE IN 100% HUMIDITY CONDITIONS; SHALL HAVE LIGHTING SUITABLE TO ALLOW A CLEAR PICTURE FOR ENTIRE PIPE PERIPHERY AND, SHALL HAVE METERING DEVICE SO LOCATION OF CAMERA AT POINT OF OBSERVATION IS KNOWN AT ALL TIMES.

DURING CLOSED-CIRCUIT TELEVISION INSPECTION, LOCATION OF LEAKAGE, DAMAGE, OBSTRUCTIONS, OR OTHER FAULTS DISCOVERED AND SERVICE CONNECTIONS SHALL BE REFERENCED FROM A STRUCTURE OR TERMINUS AND APPEAR ON THE TAPE AND IN THE REPORT.

DURING VIDEO INSPECTION, ANY LEAKAGE, DAMAGES OR OTHER FAULTS DISCOVERED SHALL BE CORRECTED TO THE SATISFACTION OF THE CITY. AFTER COMPLETION OF REPAIR WORK OR SUBSEQUENT CLEANING OF THE SEWERS, THE SEWERS SHALL BE SUBJECT TO THE CLOSED-CIRCUIT TELEVISION INSPECTION AGAIN TO DOCUMENT THE REPAIRS AND/OR CORRECTIVE MEASURES TAKEN; AND THAT THESE CORRECTIVE MEASURES HAVE ACHIEVED THE RESULTS DESIRED. ALL SUBSEQUENT INSPECTIONS SHALL BE AT THE CONTRACTOR'S COST.

THE CONTRACTOR INSTALLING THE SEWERS SHALL PROVIDE ONE SET OF DVD FORMAT VIDEO FOR EACH INSPECTION ATTEMPT AND ONE COPY OF THE REPORT TO THE CITY. THE REPORT SHALL INCLUDE THE RESULTS OF THE VIDEO INSPECTION AND ACTIONS TAKEN TO CORRECT LEAKAGE, DAMAGE AND OTHER FAULTS DISCOVERED AND REMOVAL OF ANY OBSTRUCTIONS.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

4.21 COMPLETION OF TESTS

A. WHEN THE TESTS ON THE SEWER HAVE BEEN SUCCESSFULLY COMPLETED, THE LINE SHALL BE FLUSHED AND CLEANED BEFORE IT IS ACCEPTED.

(ORD.18-104. PASSED 8-21-18; ORD. 24-151. PASSED 1-7-25.)

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72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
STORM DETAILS

C8.5

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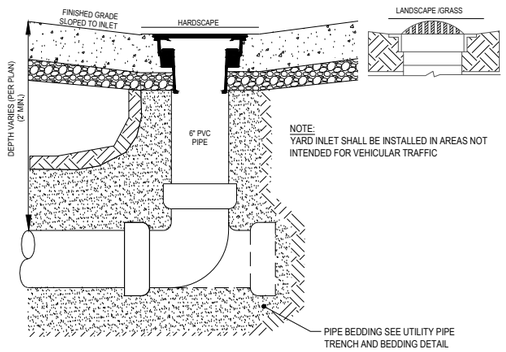
GRATE SPECIFICATION

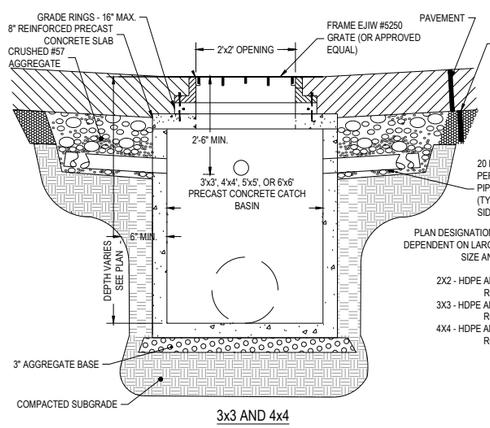
HARDSCAPE	LANDSCAPE/GRASS
ZURN 154-CAST IRON DECK DRAIN W/ HEEL PROOF GRATE (OR APPROVED EQUAL)	EAST JORDAN 6104 (OR APPROVED EQUAL)



NOTE:
YARD INLET SHALL BE INSTALLED IN AREAS NOT INTENDED FOR VEHICULAR TRAFFIC

YARD INLET

NTS

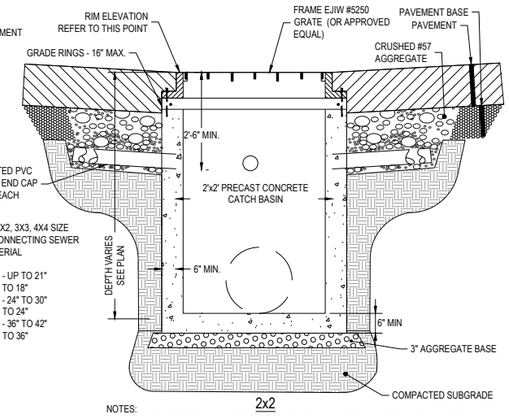


3x3 AND 4x4

20 L.F. 4" PERFORATED PVC PIPE WITH END CAP (TYPICAL EACH SIDE)

PLAN DESIGNATION - CB 2X2, 3X3, 4X4 SIZE DEPENDENT ON LARGEST CONNECTING SEWER SIZE AND MATERIAL

2X2 - HDPE AND PVC - UP TO 21" RCP - UP TO 18"
3X3 - HDPE AND PVC - 24" TO 30" RCP - 21" TO 24"
4X4 - HDPE AND PVC - 36" TO 42" RCP - 30" TO 36"

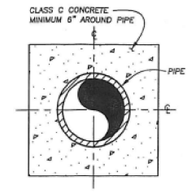


2x2

NOTES:
1. TOP OF GRATES SHALL BE CAST WITH "DUMP NO WASTE" AND "DRAINS TO WATERWAY". JOINTS BETWEEN SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-990 OR LATEST EDITION. PRECAST SECTIONS SHALL CONFORM TO THE REQUIREMENTS TO ASTM C-478. CONCRETE SHALL BE 4000 PSI.
2. ADJUSTMENT TO GRADES TO BE PRECAST GRADE RINGS. CASTINGS TO BE MORTARED WITH TYPE "M" MASONRY MORTAR.

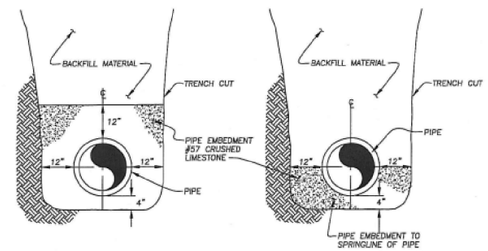
PRECAST CATCH BASIN

NTS



SECTION

CONCRETE PIPE ENCASEMENT



GRANULAR EMBEDMENT
PVC PIPE

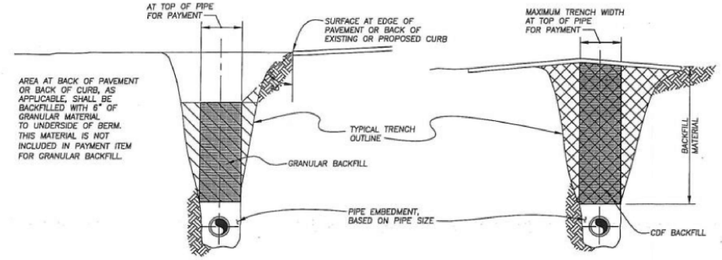
GRANULAR EMBEDMENT
REINFORCED CONCRETE PIPE

BEDDING DETAILS

NO SCALE

CONCENCS.DWG 09-15-99

FIG 4.17.1

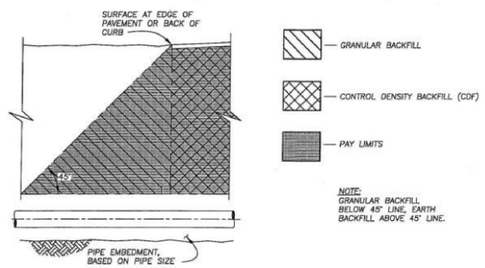


SECTION

OUTSIDE PAVEMENT

SECTION

ACROSS OR INSIDE PAVEMENT



SECTION

CROSSING PAVEMENT WITHIN MAXIMUM TRENCH WIDTH

GRANULAR OR CONTROLLED DENSITY FILL BACKFILL – PAY LIMITS

NO SCALE

CONDNBKFL.DWG 09-15-99

FIG 4.19.1

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DEPARTMENT OF SANITARY SEWER SERVICES - SUMMITY COUNTY
STANDARD CONSTRUCTION DRAWINGS AND PROCEDURES

GENERAL NOTES
PERMISSION TO CONSTRUCT SANITARY SEWERS IS GRANTED BY THE STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY (O.E.P.A.), THE COUNTY OF SUMMIT DEPARTMENT OF SANITARY SEWER SERVICES (D.S.S.S.) AND THE COUNCIL OF THE COUNTY OF SUMMIT WHEN APPROPRIATE. THE D.S.S.S. HAS AUTHORITY TO STOP ANY SANITARY SEWER CONSTRUCTION NOT IN COMPLIANCE WITH CURRENT REGULATIONS AND STANDARDS.
1. THE ATTACHED STANDARD CONSTRUCTION DRAWINGS ARE DERIVED FROM " RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES ", LATEST EDITION (KNOWN AS " THE TEN STATES STANDARDS ") AS ESTABLISHED BY THE GREAT LAKES UPPER MISSISSIPPI RIVER BOARD OF STATE AND PROVINCIAL PUBLIC HEALTH AND ENVIRONMENTAL MANAGERS (GLUMRB) AND AS AMENDED BY THE SUMMIT COUNTY COMMISSIONERS RESOLUTION NO. 294-75. IF NO APPLICABLE STANDARD IS ATTACHED, THE TEN STATES STANDARDS WILL APPLY.
2. ALL WORK SHALL BE DIRECTED BY A COMPETENT ENGINEER, LICENSED BY THE STATE OF OHIO.
3. ALL CONSTRUCTION SHALL BE INSPECTED BY THE D.S.S.S. AND THE COST OF THAT INSPECTION SHALL BE BORNE BY THE PROJECT.
4. NO SEWER CONSTRUCTION SHALL OCCUR PRIOR TO THE PROJECT PLAN AND SPECIFICATION APPROVAL BY THE D.S.S.S., THE O.E.P.A. AND LOCAL REGULATORY AGENCIES AS APPLICABLE.
5. ANY AND ALL PLAN REVISIONS SHALL BE APPROVED BY THE D.S.S.S. PRIOR TO IMPLEMENTATION.
6. ALL SEWERS 6 THROUGH 12 INCHES IN DIAMETER SHALL BE TESTED BY THE LOW PRESSURE AIR TEST METHOD AS OUTLINED IN THE APPLICABLE ASTM STANDARDS. ALL SEWERS 15 INCHES AND GREATER DIAMETER SHALL BE TESTED BY THE MOST PRACTICAL METHOD. ACCEPTABLE TEST METHODS ARE:
a. LOW PRESSURE AIR TEST
b. INFILTRATION TEST
c. EXFILTRATION TEST
THE TEST METHOD SELECTION SHALL BE BASED ON THE EXISTING GROUND WATER CONDITIONS AND OTHER FACTS PERTINENT TO THE PARTICULAR PROJECT AND SHALL BE APPROVED BY THE ENGINEER .
7. SEWERS SHALL BE INSPECTED IN ACCORDANCE WITH THE STANDARD FOR " INTERNAL VIDEO INSPECTION OF SANITARY SEWERS " AND THE COST OF THAT INSPECTION SHALL BE BORNE BY THE PROJECT.
8. NO " PERMIT TO CONNECT " TO THE PROJECT SHALL BE ISSUED PRIOR TO THE APPROVAL BY D.S.S.S. OF ALL PROJECT WORK, DOCUMENTATION, TESTING, INSPECTION AND MEASUREMENT.
9. NO FOOTER DRAINS, DOWN SPOUTS, SUMP PUMPS OR OTHER CLEAN WATER SOURCES SHALL BE CONNECTED TO THE SANITARY SEWER AS PROHIBITED BY SUMMIT COUNTY ORDINANCE NO. 85-656, AS APPROVED OCTOBER 08, 1985.
10. DEFLECTION TEST:
DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE PIPE, AND SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS TO PERMIT STABILIZATION OF THE SOIL-PIPE SYSTEM, AS DIRECTED BY THE SUMMIT COUNTY DEPARTMENT OF SANITARY SEWER SERVICES (DSSS). DEFLECTION TESTS SHALL BE PERFORMED IN THE PRESENCE OF AND APPROVED BY THE DSSS. DEFLECTION TESTS SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
NO PIPE SHALL EXCEED A DEFLECTION OF 5 PERCENT OF THE INSIDE DIAMETER. IF THE DEFLECTION EXCEEDS 5 PERCENT THE PIPE SHALL BE EXCAVATED, CORRECTED, AND/OR REPLACED AS NECESSARY. REPLACEMENT AND CORRECTION OF THE PIPE SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE COUNTY'S STANDARD SPECIFICATIONS AND DETAILS AT THE CONTRACTOR'S EXPENSE.
THE RIGID BALL OR MANDREL USED FOR THE DEFLECTION TEST SHALL HAVE A DIAMETER NOT LESS THAN 95 PERCENT OF THE BASE INSIDE DIAMETER OR AVERAGE INSIDE DIAMETER OF THE PIPE, DEPENDING UPON WHICH IS SPECIFIED IN THE ASTM SPECIFICATION (INCLUDING APPENDICES) TO WHICH THE PIPE IS MANUFACTURED. THE DEVICE USED FOR THE DEFLECTION TEST SHALL BE OF MATERIAL AND CONSTRUCTION APPROPRIATE FOR USE WITH THE PIPE BEING TESTED.

ACCEPTABLE MATERIALS AND SUPPLIERS
ASTM AND AWWA SPECIFICATION NUMBERS REFER TO THE LATEST VERSION THEREOF. OTHER STANDARDS SHALL APPLY BY REFERENCE ALTHOUGH NOT SPECIFICALLY STATED HEREIN.
1. CONCRETE PIPE - ASTM C-76, C-443, C-507, C-655
a. HANSON PIPE AND PRECAST COMPANY
b. INDEPENDENT CONCRETE PIPE COMPANY
c. SUPERIOR CONCRETE PIPE COMPANY

2. DUCTILE IRON PIPE AND FITTINGS - AWWA C-110, C-115, C-116, C-151; ASTM A-746
a. AMERICAN CAST IRON PIPE COMPANY
b. CLOW CORPORATION
c. U.S. PIPE COMPANY

3. PVC PIPE AND FITTINGS - ASTM D-3034, F-679, F-789, F-794, F-949
a. CERTAIN-TEED PRODUCTS CORPORATION
b. HARCO FITTINGS
c. HERITAGE PLASTICS PIPE
d. JM EAGLE
e. PLASTIC TRENDS

4. TRUSS PIPE - ASTM D-2680
a. CONTECH

5. VITRIFIED CLAY PIPE - ASTM C-301, C-425, C-700
a. LOGAN CLAY PIPE
b. UNITED PIPE SUPPLY
c. SUPERIOR CLAY PRODUCTS

6. PRECAST CONCRETE MANHOLES - ASTM C-478, C-497, C-923
a. USA PRECAST CONCRETE
b. MACK INDUSTRIES - VALLEY CITY, OHIO
c. MIGCHELBRINK PRECAST CONCRETE

7. MANHOLE FRAMES AND COVERS - ASTM A-48
a. EJ COMPANY FKA
b. NEENAH FOUNDRY

8. FLEXIBLE PIPE ENTRIES - ASTM C-923
a. KOR - N - SEAL
b. A - LOK CORP

9. INTERNAL VIDEO INSPECTION
a. DYNAMERICAN
b. GREAT LAKES
c. LAKE COUNTY SEWER
d. UNITED SURVEY, INCORPORATED

10. PRESSURE PIPE & FITTINGS - ASTM D-1785, D-2241, AWWA C-900, C-905, C-909
a. JM EAGLE
b. NATIONAL PIPE & PLASTIC

11. PE PIPE AND FITTINGS - ASTM D-1248, D-3350, F-714, F-2736, AWWA C-906
a. ADVANCED DRAINAGE SYSTEMS
b. ISCO INDUSTRIES
c. NATIONAL PIPE & PLASTIC

12. PUMPS
a. FLYGT
b. HYDROMATIC
c. MYERS
d. ESSCO

INTERNAL VISUAL INSPECTION POLICY AND PROCEDURES
I. GENERAL
A. ALL GRAVITY SANITARY SEWER EXTENSIONS, REPAIRS AND REPLACEMENTS, 8 INCHES AND LARGER IN DIAMETER, SHALL BE SUBJECT TO AN INTERNAL VISUAL INSPECTION AFTER THE COMPLETION OF CONSTRUCTION. THE INTERNAL VISUAL INSPECTION SHALL DOCUMENT THE SEWER CONDITION AND CONSIST OF AN AUDIO-VISUAL RECORDING AND WRITTEN REPORT. THE RECORDING AND REPORT SHALL BE SUBMITTED BY THE INTERNAL INSPECTION CONTRACTOR DIRECTLY TO THE DEPARTMENT OF SANITARY SEWER SERVICES FOR REVIEW, APPROVAL AND PERMANENT RECORD. SUBMITTALS FROM DEVELOPERS, ENGINEERS OR ANY OTHER CONTRACTOR ASSOCIATED WITH THE SEWER INSTALLATION SHALL BE REJECTED.
B. THE CONDITION OF A SEWER SYSTEM SHALL BE PROVEN SATISFACTORY BY THE INTERNAL INSPECTION, AS WELL AS OTHER TESTS REQUIRED BY DSSS AS STATED IN THE GENERAL NOTES, PRIOR TO ITS PLACEMENT INTO SERVICE.
C. IT IS SUGGESTED THAT THE ENTIRE NEW SEWER SYSTEM BE THOROUGHLY CLEANED BY JETTING OR OTHER APPROPRIATE METHOD IMMEDIATELY PRIOR TO THE INSPECTION. SHOULD ANY AMOUNT OF MUD, WATER, DEBRIS, FOREIGN MATERIAL, IDENTIFIABLE OR OTHERWISE, OR OTHER OBSTRUCTIONS TO OR THE VIEWING OF THE SEWER BE FOUND, THE SYSTEM MUST BE RE-CLEANED AND RE-INSPECTED. THE PROJECT INSPECTOR SUPERVISOR SHALL MAKE THE DETERMINATION OF THE SEWER CONDITION, THE NECESSITY OF REPAIR OR REPLACEMENT OF THE SEWER AND THE NECESSITY OF ADDITIONAL INTERNAL INSPECTIONS.
D. UNDER NORMAL CIRCUMSTANCES A DSSS PROJECT INSPECTOR NEED NOT BE PRESENT FOR SEWER CLEANING OR INTERNAL INSPECTION. HOWEVER, THE DSSS PROJECT INSPECTOR SUPERVISOR MUST BE NOTIFIED OF THE INTENT TO PERFORM THE INSPECTION PRIOR TO 9:00 A.M. ON THE DAY PRECEDING THE ANTICIPATED INSPECTION.
E. ALL LINES, STRINGS, ROPES, PLUGS AND PARAPHERNALIA NECESSARY FOR THE PERFORMANCE OF THE INTERNAL VISUAL INSPECTION SHALL BE REMOVED FROM THE SEWER SYSTEM. ANY DAMAGE TO THE NEW OR EXISTING SEWERS, ANY LOSS SUFFERED BY A COUNTY SEWER CUSTOMER AND ANY OTHER INCIDENTAL DAMAGES RESULTING FROM THE INTERNAL INSPECTION OR ITS PARAPHERNALIA SHALL BE REMEDIED BY THE INTERNAL INSPECTION CONTRACTOR.
F. ALL COSTS OF THE INTERNAL INSPECTION, RE-INSPECTION, REPAIRING, CLEANING, ETC. SHALL BE PAID BY THE SEWER INSTALLATION CONTRACTOR PRIOR TO THE SEWER SYSTEM ACCEPTANCE FOR OWNERSHIP BY SUMMIT COUNTY, INCLUDING ANY DAMAGE CLAIMS PER SECTION I-E.
G. ALL INTERNAL INSPECTION SHALL BE DONE BY PERSONS OR FIRMS QUALIFIED AND APPROVED BY DSSS. INFERIOR WORK WILL BE REJECTED. MULTIPLE REJECTIONS WILL BE CAUSE FOR THE SUSPENSION OF ACCEPTANCE BY DSSS OF THE FIRM'S WORK UNTIL THE CORRECTION OF THE DEFICIENCIES HAS BEEN PROVEN.
H. THE USE OF AIR, WHETHER PRESSURIZED OR VACUUM, TO REMOVE RESIDUAL WATER OR DEBRIS FROM THE SEWER CLEANING OPERATION IS NOT ACCEPTABLE.
II. VIDEO RECORDING
A. THE VISUAL RECORDING SHALL BE IN COLOR SHOWING CONTINUOUS COVERAGE OF THE SANITARY SEWER FROM ONE MANHOLE TO THE NEXT MANHOLE. THE COLOR SHALL BE A GOOD RENDITION OF THE SEWER INSTALLED IN THE OPINION OF DSSS.
B. THE RECORDING SHALL BE IN GOOD FOCUS AND HAVE ADEQUATE BUT NOT EXCESSIVE LIGHTING. THE LIGHT INTENSITY SHALL BE ADJUSTED TO ASSURE A QUALITY VIEWING OF THE PIPE SURFACE AND OBSERVATION OF CHANGES IN COLOR AND MATERIAL OF THE SURFACE. THIS SECTION DOES NOT REPRESENT APPROVAL OF THE USE OF DIFFERENT COLOR PIPE.
C. THE RECORDING SHALL BE FREE OF VIDEO "NOISE" IN THE FORM OF SNOW, STREAKS, MIGRATING COLOR OR FOCUS PATTERNS OR OTHER ELECTRONIC INTERFERENCE WHICH MAY HINDER OBSERVATION OF THE SANITARY SEWER.
D. THE RECORDING OF ANY SEWER INSPECTION SHALL BE CONTINUOUS WITH NO BREAKS IN THE RECORDING OPERATION.
E. THE RECORDING SHALL SHOW THE ACTUAL LENGTH OF THE SEWER AT THE TOP CENTER OF THE image. OBSTRUCTION OF THE VIEW OF THE PIPE INVERT SHALL RESULT IN THE REJECTION OF THE RECORDING.
F. THE CAMERA DRAG LINE SHALL NOT OBSTRUCT THE VIEW OF THE FLOW LINE OF THE PIPE.
G. THE VIEW SHALL BE CLEAR AND UNOBSTRUCTED BY DIRT, WATER, CONDENSATION OR VAPOR ON THE CAMERA LENS OR IN THE SEWER. SEE SECTION I-C FOR CLEANING AND RE-INSPECTION REQUIREMENTS.
H. THE VISUAL RECORDING SHALL BE AUGMENTED WITH AN AUDIO RECORDING OF THE INSPECTOR'S NARRATION CALLING OUT THE NOMENCLATURE OF THE SEWER SYSTEM, THE PIPE, MANHOLES, WYES, DEBRIS, MUD, WATER, BAD JOINTS, CRACK DAMAGE OR DEFORMED PIPE, JOINTS OR FITTINGS OR ANY OTHER OBSERVATION THAT MAY BE OF USE TO THE ASSESSMENT OF THE SEWER CONDITION. THE NARRATION SHALL BE CLEAR, CONCISE, AND LOUD ENOUGH TO OVERCOME ANY BACKGROUND NOISE FROM MACHINERY OR EQUIPMENT. THE NARRATION SHALL BEGIN WITH THE IDENTIFICATION OF THE PIPE, THE DISTANCE FROM THE DOWNSTREAM MANHOLE OF THE SEWER THEN THE IDENTIFICATION OF EACH AND EVERY OBSERVATION. THE CAMERA SHALL STOP AT EACH OBSERVATION AT THE DISCRETION OF THE RECORDING FIRM AS TO THE SIGNIFICANCE OF THE OBSERVATION AND ITS SEVERITY (OR THE INABILITY TO IDENTIFY) TO WARRANT REVERSING THE CAMERA ONE OR MORE TIMES TO PROVIDE A BETTER VIEW.
I. THE CAMERA VIEW SHALL BE LOOKING UPSTREAM SO THAT THE BUTT-ENDS OF THE PIPE SPIGOT WILL SHOW CLEARLY.
J. THE CAMERA DIRECTION OF TRAVEL SHALL BE UPSTREAM.
K. THE VIDEO INSPECTION SEQUENCE SHALL BE FROM THE LOWEST MANHOLE TO THE FARTHEST UPSTREAM "TERMINAL" MANHOLE. EACH SUBSEQUENT BRANCH SHALL BE RECORDED FROM A MANHOLE ALREADY RECORDED TO THE TERMINAL MANHOLE OF THE BRANCH.
L. AT EACH MANHOLE VIDEO ANNOTATION AND AUDIO NARRATION SHALL BE PRESENTED IDENTIFYING IN A UNIFORM MANNER THE FOLLOWING :
1) BEGINNING MANHOLE NUMBER FROM THE APPROVED CONSTRUCTION DRAWING SET
2) MANHOLE NUMBER TO WHICH THE CAMERA IS ABOUT TO APPROACH
3) PROJECT NAME AND NUMBER
4) STREET NAME
5) DATE OF RECORDING
6) SIZE AND MATERIAL OF PIPE.
M. EACH PROJECT OR PHASE SHALL BE RECORDED SEPARATELY AND SUPPLIED TO DSSS ON SEPARATE MEDIA. RECORDINGS OF THE SAME PHASE SUBMITTED ON MULTIPLE PIECES OF MEDIA SHALL BE REJECTED UNLESS THE SIZE OF THE PROJECT PREVENTS ITS SUBMITTAL ON ONE SINGLE PIECE OF MEDIA.
N. EACH RECORDING SHALL BE MARKED WITH THE FOLLOWING :
1) PROJECT NAME, PHASE AND NUMBER
2) TOWNSHIP OR CITY IN WHICH THE IMPROVEMENT IS LOCATED
3) DEVELOPER'S NAME
4) INSTALLATION CONTRACTOR'S NAME
5) INTERNAL INSPECTION COMPANY NAME, ADDRESS AND TELEPHONE NUMBER
6) DATE OF SUBMITTAL AND DATE OF INSPECTION
7) NUMBER OF PIECES OF MEDIA BEING SUBMITTED.
O. EACH RECORDING SUBMITTAL SHALL BE ACCOMPANIED WITH A REPORT DESCRIBING THE MEDIA AND ITS CONTENTS. SEE SECTION III REPORT FOR REQUIREMENTS.

6327)

III. REPORT
A. EACH RECORDING OF AN INTERNAL VISUAL INSPECTION SHALL BE SUBMITTED TO DSSS WITH AN ACCOMPANYING REPORT ON 8-1/2 BY 11 INCH PAPER WITH A COVER SHEET.
B. THE REPORT COVER SHEET FOR A RECORDING SUBMITTAL SHALL INCLUDE THE FOLLOWING :
1) PROJECT NAME, PHASE AND NUMBER
2) TOWNSHIP OR CITY IN WHICH THE IMPROVEMENT IS LOCATED
3) DEVELOPER'S NAME
4) INSTALLATION CONTRACTOR'S NAME
5) INTERNAL INSPECTION COMPANY NAME, ADDRESS AND TELEPHONE NUMBER
6) DATE OF SUBMITTAL AND DATE OF INSPECTION
7) NUMBER OF PIECES OF MEDIA SUBMITTED.
C. THE REPORT SHALL CONTAIN A MAP OF THE SUBDIVISION, STREETS OR EASEMENTS SHOWING THE GENERAL LAYOUT OF THE IMPROVEMENT. THE MAP SHALL INCLUDE NO LESS THAN :
1) PROJECT NAME, PHASE AND NUMBER
2) TOWNSHIP OR CITY IN WHICH THE IMPROVEMENT IS LOCATED
3) DEVELOPER'S NAME
4) STREET NAMES AND RIGHTS-OF-WAY IDENTIFICATIONS MATCHING THE NAMES ON THE APPROVED CONSTRUCTION DRAWING SET.
5) NORTH ARROW
6) SCALE
7) MANHOLE NUMBERS OR NAMES FROM THE APPROVED CONSTRUCTION DRAWING SET
8) INTENDED FLOW DIRECTIONAL ARROWS.
D. THE REPORT SHALL INCLUDE A SEPARATE SHEET FOR EACH SEWER (MANHOLE TO MANHOLE) CONTAINING DETAILED INFORMATION OF THAT SPECIFIC SEWER. EACH SHEET SHALL INCLUDE NO LESS THAN :
1) INSPECTION COMPANY NAME
2) PROJECT NAME, PHASE AND NUMBER
3) TOWNSHIP OR CITY IN WHICH THE IMPROVEMENT IS LOCATED
4) INTERNAL INSPECTION MEDIA
5) DATE OF THE INTERNAL INSPECTION
6) SIZE AND MATERIAL OF SEWER PIPE
7) INSPECTION BEGINNING AND ENDING CONSTRUCTION STATION NUMBERS
9) INSPECTION BEGINNING AND ENDING MANHOLE NAMES OR NUMBERS, FROM THE MAP AND THE APPROVED CONSTRUCTION DRAWING SET
10) TOTAL LENGTH OF THE SEWER PIPE, IN FEET.

E. THE SPECIFIC INFORMATION TO BE INCLUDED FOR EACH SEWER SHALL BE IN A COLUMNAR TABULAR FORM INDICATING THE DISTANCE FROM THE PREVIOUS MANHOLE AND A DESCRIPTION OF EACH AND EVERY OBSERVATION. THESE COLUMNS SHALL BE MARKED TO INDICATE EACH AND EVERY OBSERVATION OF THE FOLLOWING CONDITIONS AT A MINIMUM:
1) BEGINNING MANHOLE IDENTIFICATION NAME OR NUMBER
2) SERVICE CONNECTION CALLED AS EITHER LEFT OR RIGHT OR BY "O'CLOCK" ONLY
3) ABNORMAL PIPE JOINTS SUCH AS OPEN OR PARTIALLY OPEN, CRACKED, EXCESSIVE GLUE, GASKET EXPOSURE, LEAKING, DEFECTS
4) ABNORMAL PIPE SUCH AS CRACKED, LEAKING, DAMAGED, DEFLECTED
5) OBSTRUCTIONS SUCH AS MUD, STONES, LEAVES, PAPER, TOOLS
6) STANDING WATER STARTING POINT.
7) STANDING WATER ENDING POINT
8) SUBMERGENCE OF CAMERA
9) BLOCKED PIPE PREVENTING CAMERA TRAVEL
10) CHANGE OF PIPE MATERIAL OR COLOR
11) WATER VAPOR (SEE SECTION II-G)
12) OTHER EVENTS EITHER ORDINARY OR EXTRA-ORDINARY
13) ENDING MANHOLE IDENTIFICATION NAME OR NUMBER.

5A

INFILTRATION/EXFILTRATION TEST PROCEDURE

The Contractor shall conduct tests to determine the water tightness of the gravity sewer when completed. The tests shall be observed by the Engineer, but the Contractor shall furnish all labor, equipment and materials required in connection herewith.

It is agreed that the sewer shall be tested in sections, each section extending between two adjacent manholes or from the end of the sewer to nearest manhole. The Contractor may elect to use either an infiltration test, an exfiltraton test, or the low pressure air test (see Sheet 6), with the approval of the Summit County Department of Sanitary Sewer Services.

A. Infiltration Test

Each section under test shall be covered with not less than two (2) feet of water above the top of the pipe at the highest point. The infiltration will be measured by means of weir located in the downstream manhole. The above head of two (2) feet shall be maintained for a period of not less that twenty-four (24) hours before the weir measurements are made.

B. Exfiltration Test

The sewer at the upstream side of the lower manhole and the upstream side of the upper manhole in each section shall be closed with a watertight bulkhead and the sewer filled with water until the water elevation in the upstream manhole is not less than two (2) feet above the top of the sewer pipe or two (2) feet above ground water elevation in the trench, whichever is higher. The exfiltration will be determined by measuring the amount of water required to maintain the above stated water elevation for a period of one (1) hour from the start of the test. The entire length of section to be tested shall be filled and maintained full of water for a period of approximately twenty-four (24) hours prior to the start of the test.

STANDARD DETAIL DWG. NO. 5A
DEPARTMENT OF SANITARY SEWER SERVICES
INFILTRATION EXFILTRATION TEST PROCEDURE
APPROVED BY:
DEPUTY DIRECTOR
DATE 04/18/23
5A

5B

C. Allowable Infiltration or Exfiltration

The amount of infiltration or exfiltration shall not exceed 100 gallons per inch of pipe diameter per twenty-four (24) hours per mile of sewer in each and every section tested in accordance with the above.

D. Testing Requirements

In the event the allowable leakage rates are not met, the Contractor shall determine the location(s) where excess water is entering the sewer or leaving the sewer. The sewer and/or the manholes shall be repaired in manner satisfactory to the Summit County Department of Sanitary Sewer Services and retested until the leakage in the sewer is within the allowable limits.

The Contractor shall include in the price bid per lineal foot of sewer, the cost of all bulkheads, plugs, pipe stoppers, pumps, water, weirs, accessories, labor, delay and any other items of cost necessary for the performance and the completion of the required leakage tests and for the cost of the any repairs or adjustments which may be necessary to make the sewer conform to the required allowable leakage rates (for public projects only).

All leakage test shall be conducted under the supervision of the Summit County Department of Sanitary Sewer Services.

It is understood that each section, as above described, must be tested under the supervision of the Summit County Department of Sanitary Sewer Services for conformity to these requirements before such section or sections are included in any current or final estimate for payment to the Contractor, (for public projects only). It is further understood that, if the leakage does not come within the limits specified, the Contractor will be required to do such work as may be necessary in order to insure conformance even to the extent of reconstructing the defective section or sections.

STANDARD DETAIL DWG. NO. 5B
DEPARTMENT OF SANITARY SEWER SERVICES
INFILTRATION EXFILTRATION TEST PROCEDURE
APPROVED BY:
DEPUTY DIRECTOR
DATE 04/18/23
5B

6A

LOW PRESSURE AIR TEST PROCEDURE

In lieu of performing an infiltration or exfiltration test to determine the water tightness of the sewer, the Contractor may elect to perform a low pressure air test by the Ramseier procedure, as recommended by the National Clay Pipe Institute (NCPI).

Ramseier's method of conducting acceptance tests may be separated into two parts, one having to do with field procedure and the other having to do with the determination of pressure holding time.

Field Procedures

1. Clean pipe to be tested by propelling snug fitting inflated rubber ball through the pipe with water, by jetting, or by other method approved by the Summit County Department of Sanitary Sewer Services.

2. Plug all pipe outlets with suitable test plugs. Brace each plug securely.

3. If the pipe to be tested is submerged in ground water, insert a pipe probe, by boring or jetting, into the backfill material adjacent to the center of the pipe, and determine the pressure in the probe when air passes slowly through it. This is the back pressure due to ground water submergence over the end of the probe. All gauge pressures in the test should be increased by this amount.

In ground water conditions, the standard air test is not reliable if adjustments are not made. The following standard should be followed where applicable. For every foot of water over the top of the sanitary sewer 0.4333 PSI should be added to our standard 4.0 PSI.

Where heavy ground water conditions prevail, contractor should be notified that he may air test at 4.0 PSI immediately after a run is completed (M.H. to M.H.), while his pumps are still operating, (holding ground water below sanitary sewer), otherwise, 0.4333 PSI per foot of water above sanitary sewer will be added when air test is performed at a later date.

DATE 04/18/23
6A

6B

testing requirements before it is accepted by DSSS and/or, on public projects, is included in any current or final estimate for payment to the Contractor.

SANITARY FORCE MAIN TESTING AND PUMP STATIONS

Sanitary force mains shall be subject to post-construction leakage and pressure tests prior to acceptance by the DSSS. Tests shall conform to appropriate ASTM testing standards based upon system design pressures and operating conditions, and specific force main material type. Necessary repairs and replacements shall be the responsibility of the Contractor.

Site tests for emergency generators, where required, shall include a full rated load test of two (2) hours duration utilizing a resistive load bank furnished by the generator set manufacturer, and conducted by the generator set manufacturer's representative in accordance with the manufacturer's standard procedures and requirements.

STANDARD DETAIL DWG. NO. 6B
DEPARTMENT OF SANITARY SEWER SERVICES
LOW PRESSURE AIR TEST PROCEDURES AND FORCE MAIN TESTING
APPROVED BY:
DEPUTY DIRECTOR
DATE 04/18/23
6B

CESO
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175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
SANITARY - DSSS-STANDARDS

C8.7

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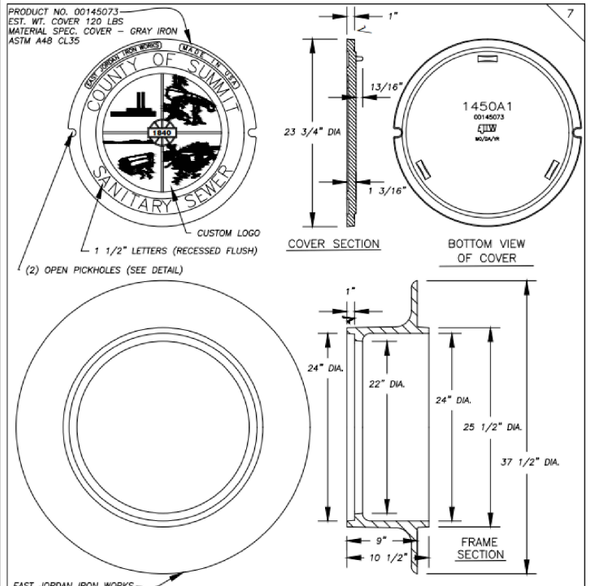
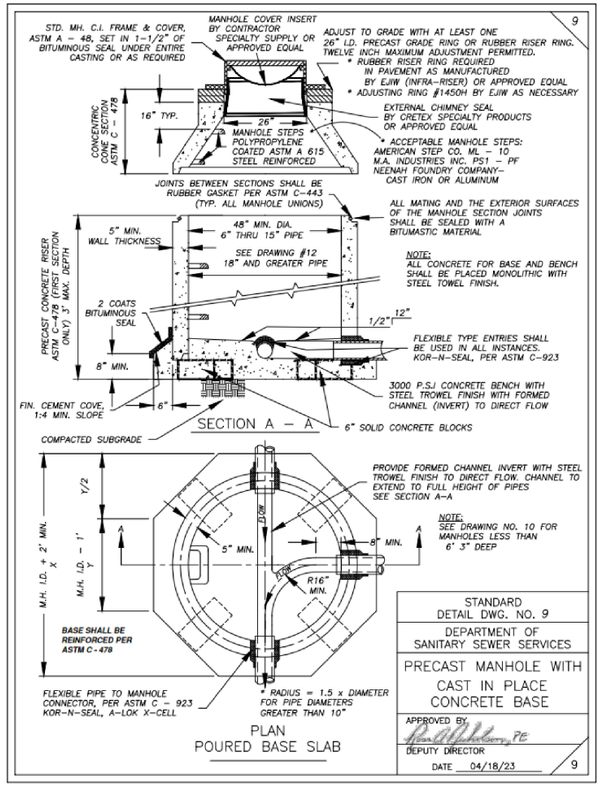
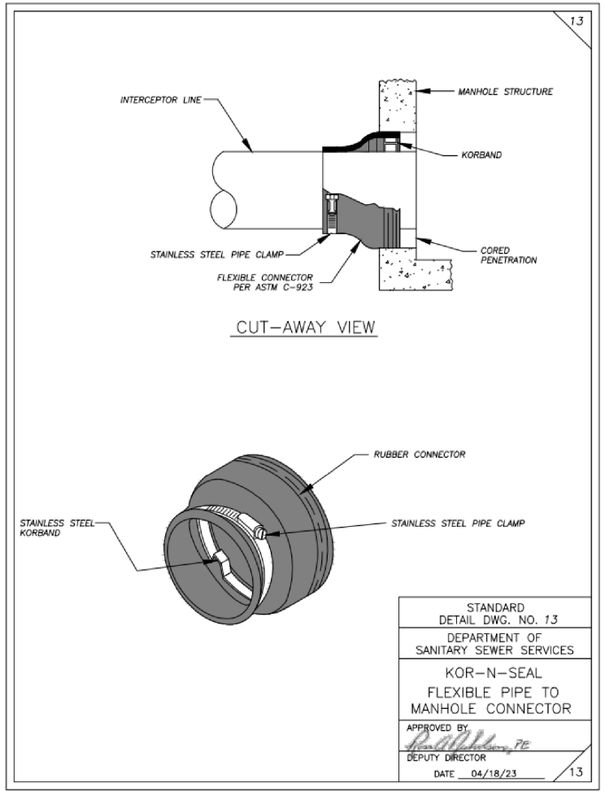


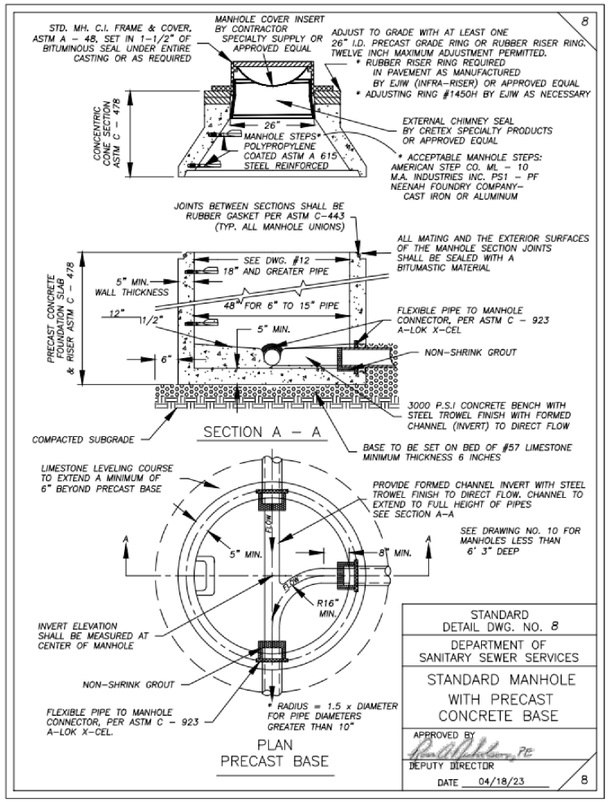
STANDARD DETAIL DWG. NO. 7
DEPARTMENT OF SANITARY SEWER SERVICES
MANHOLE FRAME AND COVER
APPROVED BY
DEPUTY DIRECTOR
DATE 04/18/23
7



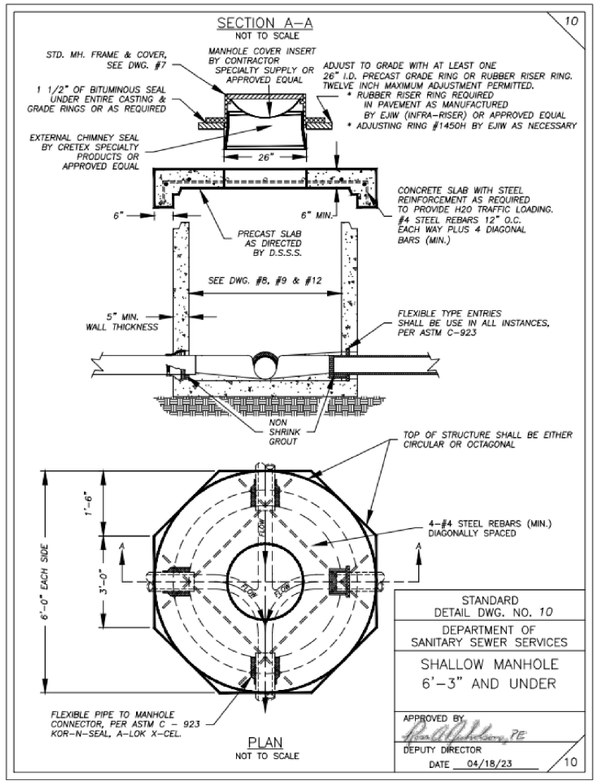
STANDARD DETAIL DWG. NO. 9
DEPARTMENT OF SANITARY SEWER SERVICES
PRECAST MANHOLE WITH CAST IN PLACE CONCRETE BASE
APPROVED BY
DEPUTY DIRECTOR
DATE 04/18/23
9



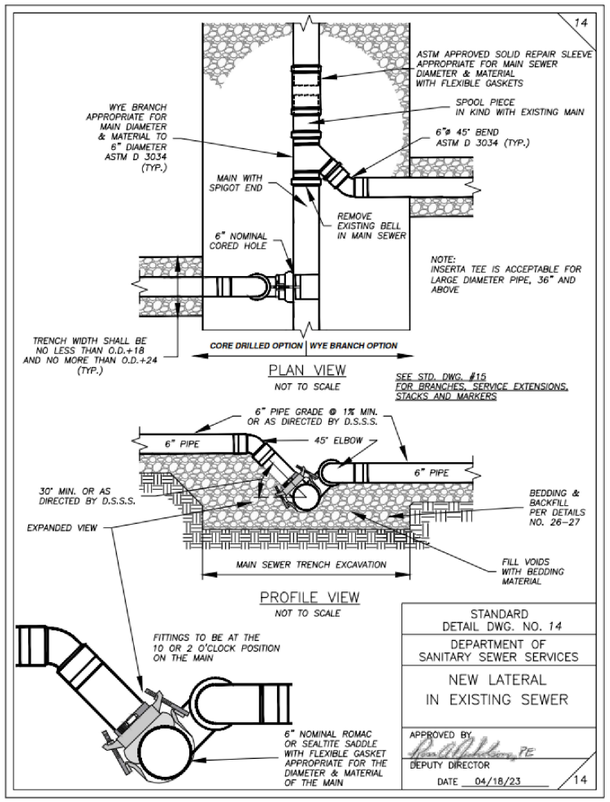
STANDARD DETAIL DWG. NO. 13
DEPARTMENT OF SANITARY SEWER SERVICES
KOR–N–SEAL FLEXIBLE PIPE TO MANHOLE CONNECTOR
APPROVED BY
DEPUTY DIRECTOR
DATE 04/18/23
13



STANDARD DETAIL DWG. NO. 8
DEPARTMENT OF SANITARY SEWER SERVICES
STANDARD MANHOLE WITH PRECAST CONCRETE BASE
APPROVED BY
DEPUTY DIRECTOR
DATE 04/18/23
8



STANDARD DETAIL DWG. NO. 10
DEPARTMENT OF SANITARY SEWER SERVICES
SHALLOW MANHOLE 6'–3" AND UNDER
APPROVED BY
DEPUTY DIRECTOR
DATE 04/18/23
10



STANDARD DETAIL DWG. NO. 14
DEPARTMENT OF SANITARY SEWER SERVICES
NEW LATERAL IN EXISTING SEWER
APPROVED BY
DEPUTY DIRECTOR
DATE 04/18/23
14

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STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

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Revisions / Submissions

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Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
SANITARY DETAILS

C8.8

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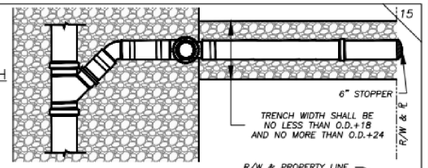
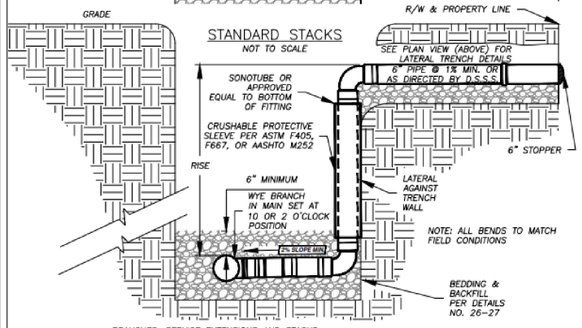
15

PLAN VIEW OF LATERAL TRENCH
NOT TO SCALE



STANDARD STACKS
NOT TO SCALE



BRANCHES, SERVICE EXTENSIONS AND STACKS

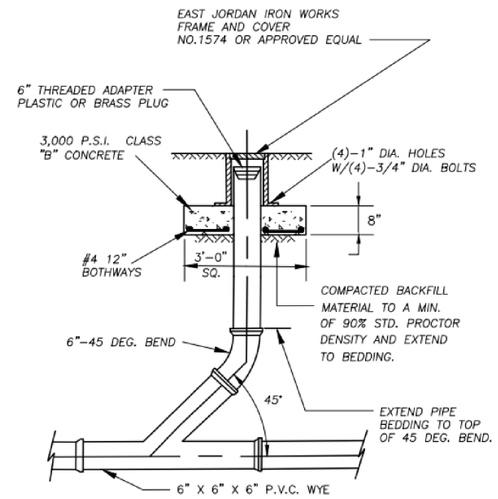
1. INSTALL AT LOCATIONS AND ELEVATIONS SHOWN ON DRAWINGS, OR AS DIRECTED BY ENGINEER.
2. LAY 6" SERVICE CONNECTIONS TO PROPERTY LINE IN DEVELOPED AREAS UNLESS OTHERWISE DIRECTED OR SPECIFIED.
3. GENERALLY PROVIDE STACKS WHERE SEWER IS MORE THAN 20 FEET BELOW GROUND SURFACE AND EXTEND STACK TO WITHIN 10 FEET OF SURFACE.
4. INSTALLER TO USE STACK SLEEVE AND FITTINGS.
5. ALL STACK PIPES AND STACK FITTINGS SHALL CONFORM TO D.S.S.S. STANDARDS.

MARKERS

1. PROVIDE 2"x2" POLES TO MARK END OF BRANCHES, STACKS AND SERVICE CONNECTIONS FOR FUTURE LOCATION.
2. EXTEND POLE FROM BELL TO 12" ABOVE GROUND SURFACE , DURING CONSTRUCTION.
3. REST POLES AGAINST BELL BUT NOT ON IT.
4. SUPPORT POLES IN VERTICAL POSITION DURING BACKFILL.
5. CUT 2"x2" POLES OFF 1'-0" BELOW GROUND LEVEL AFTER CONSTRUCTION. (POLES TO BE OF ROUGH CUT LUMBER.)

STANDARD DETAIL DWG. NO. 15
DEPARTMENT OF SANITARY SEWER SERVICES
STACKS FOR SANITARY SEWERS
APPROVED BY: Ryan M. Nicholson, PE
DEPUTY DIRECTOR
DATE 04/18/23
15

17

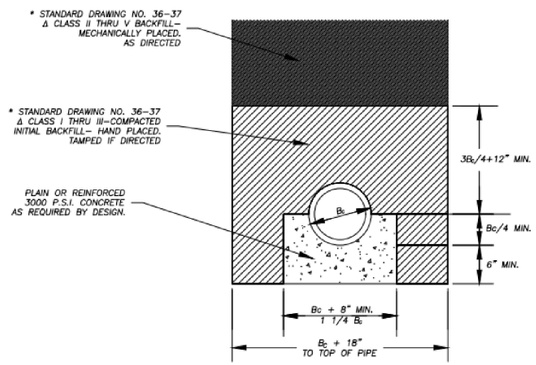


SEE STD. DWG. #15 FOR BRANCHES, SERVICE EXTENSIONS, STACKS AND MARKERS

STANDARD DETAIL DWG. NO. 17
DEPARTMENT OF SANITARY SEWER SERVICES
CLEAN OUT FOR LATERALS
APPROVED BY: Ryan M. Nicholson, PE
DEPUTY DIRECTOR
DATE 04/18/23
17

19

CONRETE CRADLE BEDDING AND BACKFILLING RIDGID PIPE TYPE III



* NOT APPLICABLE UNDER DRIVEWAYS, AND/OR TRAVELED ROADWAYS. SEE STANDARD DRAWING NO. 23

Δ CONTRACTOR HAS THE OPTION OF HAND BACKFILLING AND COMPACTING ADDITIONAL SPACE TO TOP OF CRADLE OR, IN LIEU OF HAND FORMING, MAY FILL ENTIRE TRENCH WITH CONCRETE TO TOP OF CRADLE AT NO COST TO THE COUNTY.

B_c DENOTES THE OUTSIDE DIAMETER OF THE BARREL OF THE PIPE.

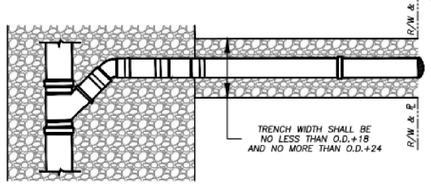
RIGID PIPE:

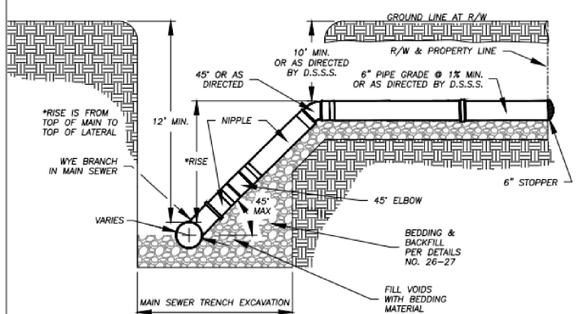
1) A.S.T.M. C-14, PLAIN CONCRETE PIPE
2) A.S.T.M. C-76, REINFORCED CONCRETE PIPE
3) A.S.T.M. C-428, ASBESTOS CEMENT PIPE
4) A.S.T.M. C-700, EXTRA STRENGTH CLAY PIPE
5) A.N.S.I. A-2151 DUCTILE IRON PIPE

STANDARD DETAIL DWG. NO. 19
DEPARTMENT OF SANITARY SEWER SERVICES
CONCRETE CRADLE BEDDING AND BACKFILLING RIDGID PIPE TYPE III
APPROVED BY: Ryan M. Nicholson, PE
DEPUTY DIRECTOR
DATE 07/24/23
19

16

PLAN VIEW
NOT TO SCALE

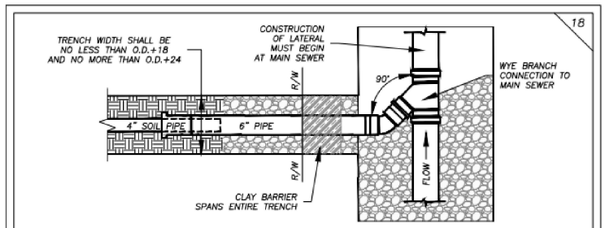




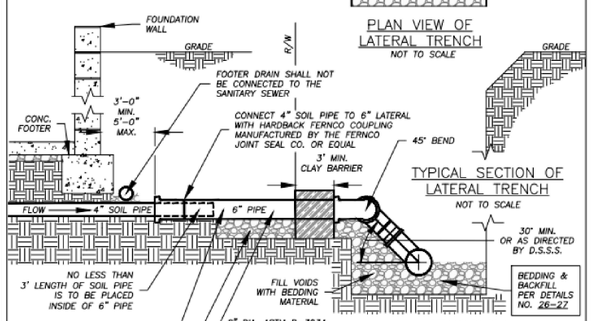
SEE STD. DWG. #15 FOR BRANCHES, SERVICE EXTENSIONS, STACKS AND MARKERS

STANDARD DETAIL DWG. NO. 16
DEPARTMENT OF SANITARY SEWER SERVICES
SLOPED LATERAL
APPROVED BY: Ryan M. Nicholson, PE
DEPUTY DIRECTOR
DATE 04/18/23
16

18



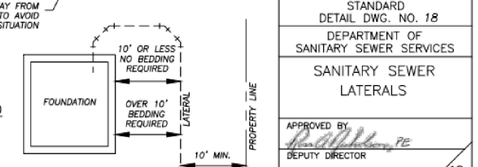
PLAN VIEW OF LATERAL TRENCH
NOT TO SCALE



TYPICAL SECTION OF LATERAL TRENCH
NOT TO SCALE

SEE STD. DWG. #15 FOR BRANCHES, SERVICE EXTENSIONS, STACKS AND MARKERS

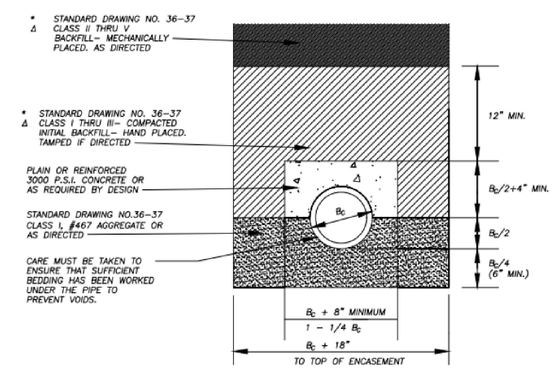
PLAN VIEW OF LATERAL PARALLEL TO FOUNDATION
NOT TO SCALE



STANDARD DETAIL DWG. NO. 18
DEPARTMENT OF SANITARY SEWER SERVICES
SANITARY SEWER LATERALS
APPROVED BY: Ryan M. Nicholson, PE
DEPUTY DIRECTOR
DATE 08/09/23
18

20

CONCRETE ARCH BEDDING AND BACKFILLING RIGID PIPE TYPE IV



CONTRACTOR HAS THE OPTION OF HAND BACKFILLING AND TAMPING ADDITIONAL SPACE TO TOP OF ARCH OR, IN LIEU OF HAND FORMING, MAY FILL ENTIRE TRENCH WITH CONCRETE TO TOP OF CAP AT NO COST TO THE COUNTY.

NOTE:

* NOT APPLICABLE UNDER DRIVEWAYS, AND/OR TRAVELED ROADWAYS. SEE STANDARD DRAWING NO. 23

Δ " AS DIRECTED " SHALL MEAN "AS DIRECTED BY THE DSSS OR HIS APPOINTED AGENT."
B_c DENOTES THE OUTSIDE DIAMETER OF THE BARREL OF THE PIPE.

STANDARD DETAIL DWG. NO. 20
DEPARTMENT OF SANITARY SEWER SERVICES
CONCRETE ARCH BEDDING AND BACKFILL RIGID PIPE TYPE IV
APPROVED BY: Ryan M. Nicholson, PE
DEPUTY DIRECTOR
DATE 07/24/23
20

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STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
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Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

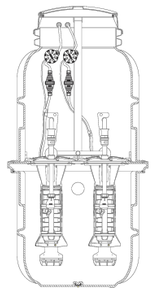
Drawing Title:
SANITARY DETAILS

C8.9

C:\DC\ACCDocs\CESO\CCC - Hudson - Civil Master Plan Study\Project Files_CESO\03-CIVIL\PLAN\PLOT\Major Site Plans\765295_CONSTRUCTION DETAILS.dwg - 5/21/2025 - Jake McDaniel

E/ONE EXTREME SERIES

DH152



General Features

The model DH152 grinder pump station is a complete unit that includes: two grinder pumps, check valve, polyethylene tank, controls, and alarm panel. A single DH152 or is ideal for up to four, average single-family homes and can also be used for up to 12 average single-family homes where codes allow and with consent of the factory.

- Rated for flows of 3000 gpd (11,356 lpd)
- 150 gallons (568 liters) of capacity
- Indoor or outdoor installation
- Standard outdoor heights range from 93 inches to 160 inches

The DH152 has a cable that connects the motor controls to the level controls through watertight penetrations.

Operational Information

Motor
1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase

Inlet Connections
4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.

Discharge Connections
Pump discharge terminates in 1.25-inch NPT female thread. Can easily be adapted to 1.25-inch PVC pipe or any other material required by local codes.

Discharge
15 gpm at 0 psig (0.95 lps at 0 m)
11 gpm at 40 psig (0.69 lps at 28 m)
7.8 gpm at 80 psig (0.49 lps at 56 m)

Accessories

E/One requires that the Uni-Lateral, E/One's own stainless steel check valve, be installed between the grinder pump station and the street main for added protection against backflow.

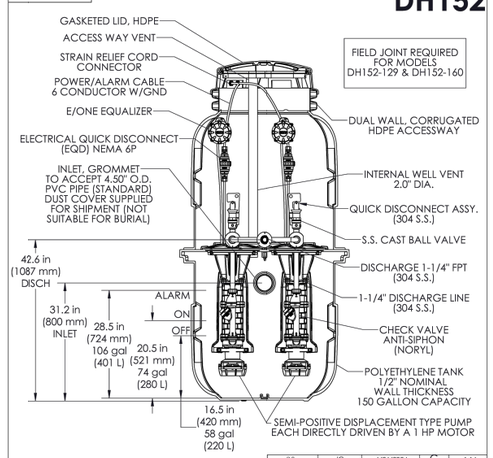
Alarm panels are available with a variety of options, from basic monitoring to advanced notice of service requirements.

The Remote Sentry is ideal for installations where the alarm panel may be hidden from view.

NA0052P01 Rev F

NA0052P02

DH152



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTIONS FOR DETAILS

NOTE: DIMENSIONS ARE FOR REFERENCE ONLY

JVL	JG	6/26/2024	G	1:16
DR BY	CHK'D	DATE	ISSUE	SCALE

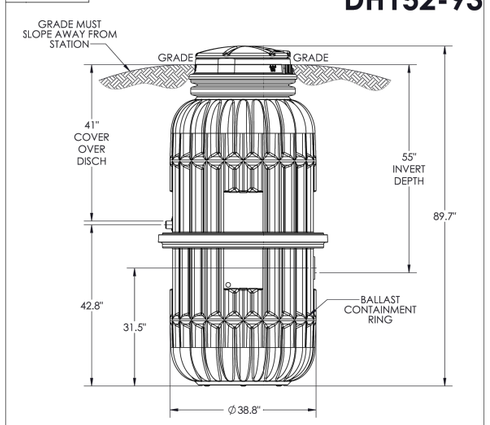
e one SEWER SYSTEMS

MODEL DH152
DETAIL SHEET

NA0052P02

NA0052P04

DH152-93



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTIONS FOR DETAILS

NOTE: DIMENSIONS ARE FOR REFERENCE ONLY

DISCHARGE: 1-1/4 in FEMALE PIPE THREAD

INLET: EPDM GROMMET FOR 4" DWV PIPE (STANDARD)

JVL	JG	6/26/2024	D	1:16
DR BY	CHK'D	DATE	ISSUE	SCALE

e one SEWER SYSTEMS

MODEL DH152-93

NA0052P04

E/ONE EXTREME SERIES

E/One Sentry™

Alarm Panel — Duplex Protect Plus Package

Description

The E/One Sentry Protect Plus panels are custom designed for use with Environment One Duplex grinder pump stations. They can be configured to meet the needs of your application, from basic alarm indication to advanced warning of pending service requirements.

E/One Sentry Protect Plus panels are supplied with audible and visual high level alarms. They are easily installed in accordance with relevant national and local codes. Standard panels are approved by UL, CSA, CE and NSF to ensure high quality and safety.

The panel features a corrosion-proof, NEMA 4X-rated, thermoplastic enclosure. A padlock is provided to prevent unauthorized entry (safety front).

Features

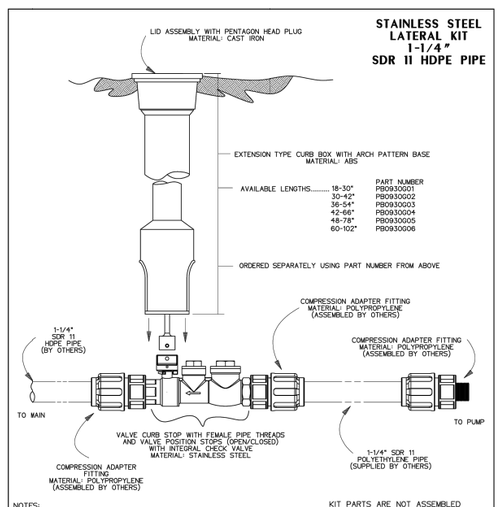
Includes all features of the basic configuration of the E/One Sentry Simplex panel, including circuit breakers, 240 or 120 VAC service, terminal blocks and ground lugs, audible alarm with manual silence, manual run feature and run indicator, safety front, conformal-coated board and overload protection.

Includes all features of the E/One Sentry Simplex Protect package, including a Trouble indication that shuts down the pumps temporarily in the event of an unacceptable operating condition (brownout, system over-pressure, run-dry), as well as:

Predictive status display module
Pre-alarm indication for major operating parameters
Alarm indications for major operating parameters
Hour meter, cycle counter and alarm delay
LCD display and user-friendly interface
Inner cover (dead front)
Contact group — dry contacts and Remote Sentry contacts
Programmable User Settings

Please consult factory for special applications.

NA0344P01 Rev. –



NOTES:

1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY, TO BE ASSEMBLED BY OTHERS
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
   *FOR SS FITTING INTO SS THREAD, USE PIPE DOPE OR TEFLON TAPE, NOT BOTH
3. ASSEMBLY IS TO BE PRESSURE TESTED (BY OTHERS)
4. ASSEMBLY IS TO BE USED WITH SDR11 HDPE PIPE
5. TO ORDER SS LATERAL KIT, USE PART NUMBER NC0193G01
6. CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

KIT PARTS ARE NOT ASSEMBLED

SGS	DN	11/02/11	B	3/16
DR BY	CHK'D	DATE	ISSUE	SCALE

e one SEWER SYSTEMS

STAINLESS STEEL LATERAL KIT
1-1/4" SDR 11 HDPE PIPE

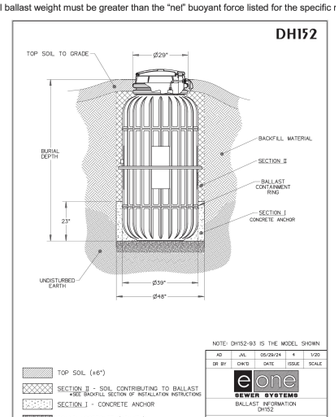
NA0330P02

E/One Grinder Pump Station Ballast Calculations

Chart 1

Station Height	Tank Buried Height (ft)	Tank External Volume (cu ft)	Tank Buoyant Force (lb)	Tank Weight Empty (lb)	"Net" Buoyant Force (lb)	Minimum Concrete Dimensions (dia x height) (in)	Minimum Concrete Volume (cu ft)	Submerged Concrete Ballast Weight (lb)	Saturated Soil Ballast Weight (lb)	Total Ballast Weight (lb) **
DH152-93	7.1	49.1	3,064	293	2,771	48 x 23	11.0	964	2,009	2,973
DH152-129	10.3	61.9	3,863	332	3,531	48 x 23	11.0	964	3,976	4,940
DH152-160	12.9	72.2	4,505	357	4,148	48 x 23	11.0	964	5,558	6,522

** Total ballast weight must be greater than the "net" buoyant force listed for the specific model.



NOTE: DH152-93 IS THE MODEL SHOWN

AD	JVL	05/29/24	4	1/20
DR BY	CHK'D	DATE	ISSUE	SCALE

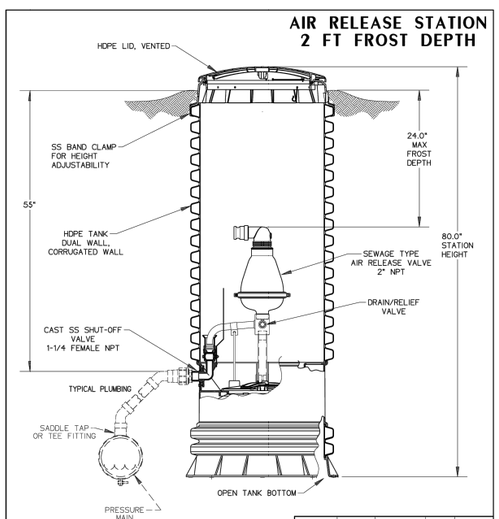
e one SEWER SYSTEMS

BALLAST INFORMATION DH152

ESD 24-0033

11

AIR RELEASE STATION 2 FT FROST DEPTH



NOTES:

1. ALL ITEMS SHOWN IN DASHED LINES ARE FOR REFERENCE ONLY, AND ARE SUPPLIED BY OTHERS

ORDER NUMBER: NC0078G01

SGS		10/20/10	A	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

e one SEWER SYSTEMS

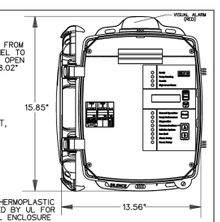
CUT SHEET, AIR RELEASE STATION FOR 2' FROST DEPTH

NA0183P01

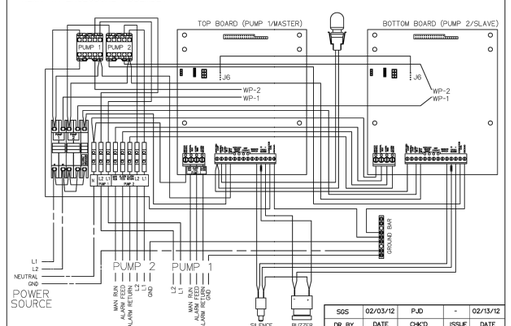
SENTRY PROTECT PLUS DUPLEX

EXTERNAL VISUAL & AUDIBLE ALARM
REMOTE SENTRY DRY CONTACTS FOR
  OPTIONAL POWER LOSS HIGH LEVEL
  ALARM (POWER LOSS ALARM FOR WIRELESS)
MANUAL ALARM SILENCE
MANUAL RUN
STATUS LED'S: NORMAL, PUMP RUNNING, HIGH LEVEL
TROUBLE INDICATIONS: RUN DRY, OVERPRESSURE, BROWNOUT, VOLTAGE, EXTENDED RUN TIME
DRY CONTACTS
CONFORMAL COATED CIRCUIT BOARD (BOTH SIDES)
PADLOCK
DEAD FRONT
PREDICTIVE ALARMS
REAL TIME PUMP PERFORMANCE
ADJUSTABLE ALARM DELAY
ADJUSTABLE RUN TIME DELAY
HOUR/CYCLE COUNTER
NEMA 4X ENCLOSURE ASSEMBLY

DIMENSION FROM BACK PANEL TO FRONT OF OPEN DOOR = 18.02"



ENCLOSURE:
CORROSION PROOF THERMOPLASTIC POLYESTER APPROVED BY UL FOR ELECTRICAL CONTROL ENCLOSURE



OLD / NEW WIRE COLOR MAP			
PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

LEGEND
FIGH CORE
SUPPLY CABLE
FACTORY INSTALLED

CONTROL CABLE:
TYPE TC: DIRECT BURIAL, SIX CONDUCTOR

SGS	02/03/12	PJD	-	02/13/12
DR BY	DATE	CHK'D	ISSUE	DATE

e one SEWER SYSTEMS

SENTRY PROTECT PLUS PANEL, DUPLEX 240V 60Hz DOUBLE POLE POWER

NA0344P03

EONE GRINDER PUMPS
CONTACT ZACH SMITH - ACCOUNT MANAGER, OH - COVALEN
614-753-3568 - ZSMITH@COVALEN.COM

DH 152-93 SUBMISSION, INSTALLATION PACKAGE AVAILABLE UPON REQUEST.

PUMP SUPPLIER WILL SUPPLY THE LIFT STATION INCLUDING PANEL, AND BUCK BOOST TRANSFORMER. CONTRACTOR TO COMPLETE INSTALLATION OF THE LIFT STATION, CONCRETE BALLAST, WIRING, FORCEMAIN, AND CONNECTION TO THE SEWER LATERAL.

CESO
WWW.CESOINC.COM
175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

STATE OF OHIO
JONATHAN T KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
GRINDER PUMP DETAILS

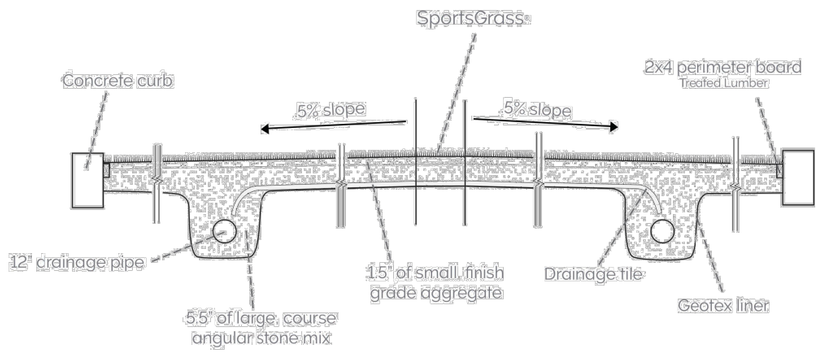
C8.10

C:\DC\ACCDocs\CESO\CCC - Hudson - Civil Master Plan Study\Project Files_CESO\03-CIVIL\PLANYPLOT\Major Site Plans\765295_CONSTRUCTION DETAILS.dwg - 5/21/2025 - Jake McDaniel

ForeverLawn Synthetic Grass System

Field over drainage tile with concrete curb

SportsGrass by ForeverLawn

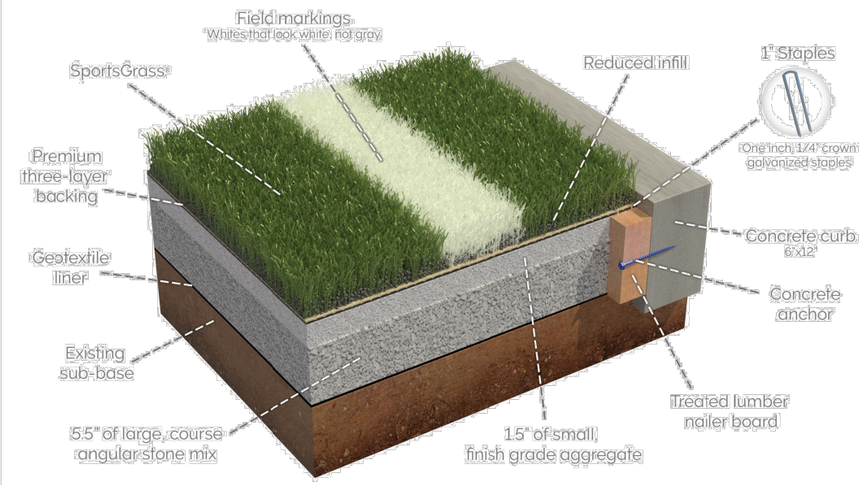


ForeverLawn	330.499.8873 • foreverlawn.com 8007 Beeson St., Louisville, OH 44641	CADdetails MICROSITE microsite.caddetails.com/1148	By	M. Kovac	04/24
			Scale	Not to scale	
			Drawing No.	M1361	

ForeverLawn Synthetic Grass System

Product-based system

SportsGrass by ForeverLawn

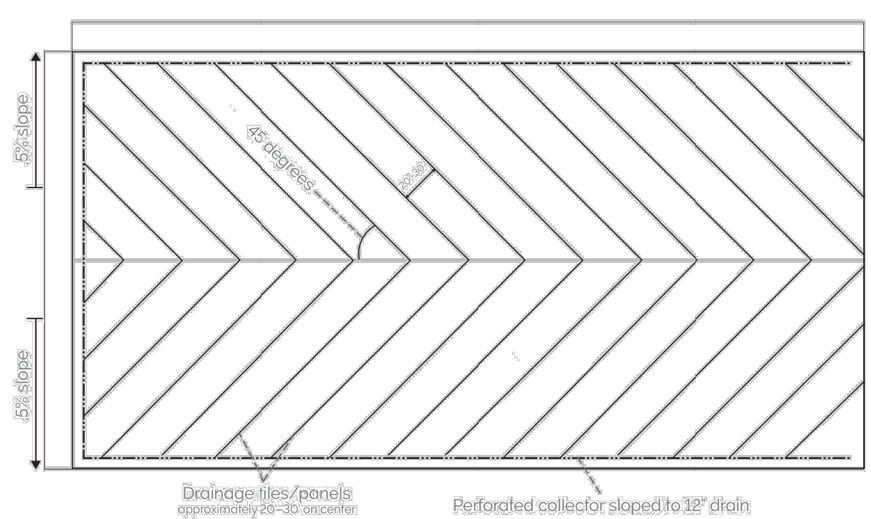


ForeverLawn	330.499.8873 • foreverlawn.com 8007 Beeson St., Louisville, OH 44641	CADdetails MICROSITE microsite.caddetails.com/1148	By	G. Swartz	04/24
			Scale	Not to scale	
			Drawing No.	M1556	

ForeverLawn Synthetic Grass System

Typical drainage plan

SportsGrass by ForeverLawn



ForeverLawn	330.499.8873 • foreverlawn.com 8007 Beeson St., Louisville, OH 44641	CADdetails MICROSITE microsite.caddetails.com/1148	By	M. Kovac	04/24
			Scale	Not to scale	
			Drawing No.	M1359	

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STATE OF OHIO
JONATHAN T. KOCINSKI
72354
REGISTERED PROFESSIONAL ENGINEER
5/22/2025

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	KAN
Checked By:	JMS
Date:	5/22/2025
Issue:	PERMIT SET

Drawing Title:
FIELD DETAILS

C8.11

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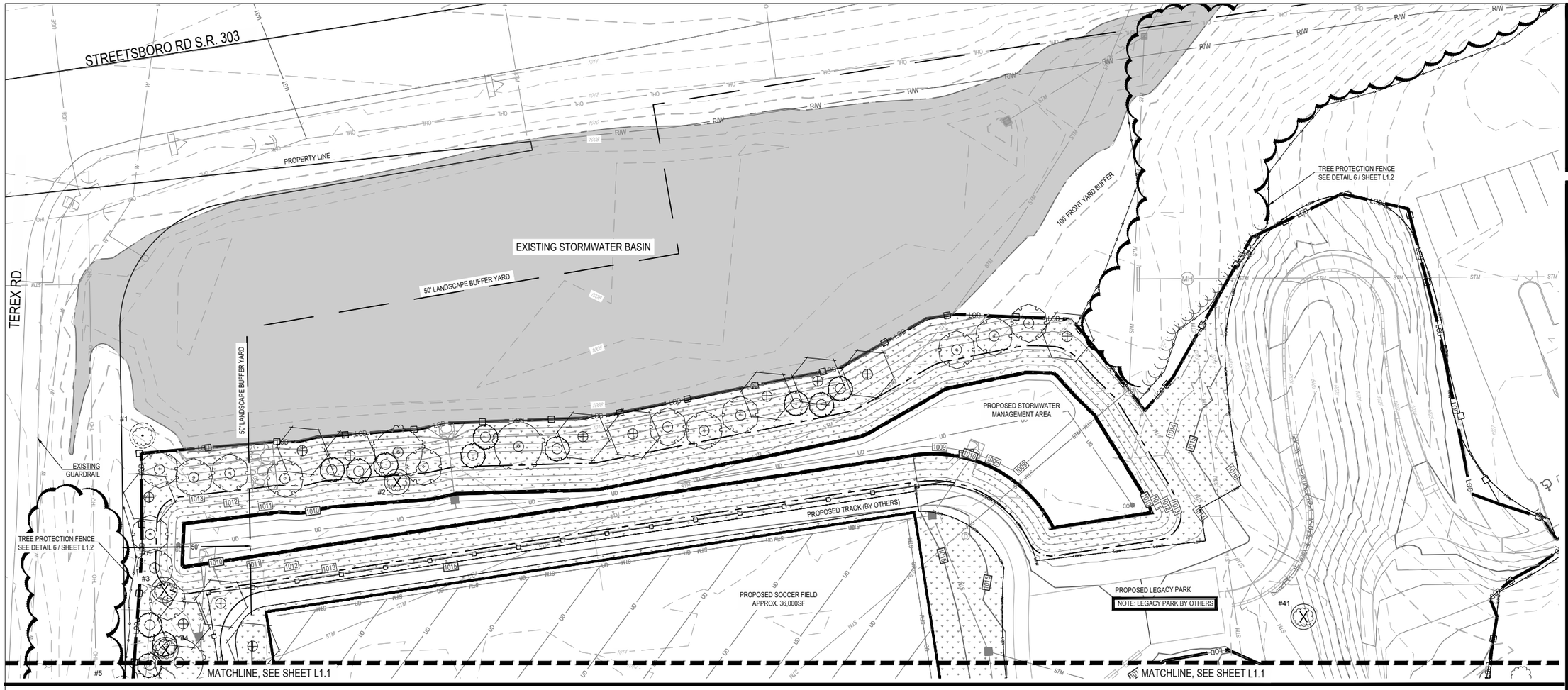

PLANT SCHEDULE

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	MIN HT / SPR	SPACING
TREES					
	15	BETULA NIGRA RIVER BIRCH	2" CAL	12' HT	AS SHOWN
	21	CHIONANTHUS VIRGINICUS WHITE FRINGETREE	1.5" CAL	8-10' HT	AS SHOWN
	23	MAGNOLIA LILIIFLORA X STELLATA 'JANE' JANE MAGNOLIA, MULTI-TRUNK	---	8-10' HT	AS SHOWN
	5	QUERCUS MACROCARPA BURR OAK	2" CAL	10'-12' HT	AS SHOWN
SHRUBS					
	4	PRUNUS LAUROCERASUS 'OTTO LUYKEN' OTTO LUYKEN ENGLISH LAUREL	---	24" HT	4'-0" OC
	6	THUJA OCCIDENTALIS 'HETZ MIDGET' HETZ MIDGET ARBORVITAE	---	18" HT	3'-0" OC
GROUND COVERS					
	36,666 SF	POA PRATENSIS KENTUCKY BLUEGRASS	SEED		
	11,110 SF	POA PRATENSIS KENTUCKY BLUEGRASS	SOD		

MULCH

ALL SEED/ SOIL SHALL BE PLACED ON 4" OF TOP SOIL.
CONTRACTOR TO PLACE A 4' DIAMETER MULCH RING AROUND ALL TREES IN LAWN.

LANDSCAPE REQUIREMENTS

FRONT YARD & SETBACK LANDSCAPING REQUIREMENTS-
50' WIDE BUFFER YARD. (4) SMALL TREES & (2) LARGE OR MEDIUM TREES PER 100 LF

STREETSBORO RD (NORTH)- 483 LF

TREES REQUIRED: 30 TREES (10 LARGE OR MEDIUM TREES & 20 SMALL TREES)
TREES PROPOSED: 30 (10 LARGE/ MEDIUM TREES & 20 SMALL TREES)

TEREX RD (WEST)- 283 LF

TREES REQUIRED: 18 TREES (6 LARGE OR MEDIUM TREES & 12 SMALL TREES)
TREES PROPOSED: 32 TREES (10 LARGE/ MEDIUM TREES & 22 SMALL TREES)

LEGEND

- R/W — RIGHT-OF-WAY
- PROPERTY LINE
- SETBACK
- EASEMENT
- BUILDING
- CONCRETE CURB
- PAVEMENT/WALK
- SURVEYED TREE LINE TO REMAIN
- TREE LINE FROM AERIAL IMAGERY
- SIGN
- CATCH BASIN
- STORM MANHOLE
- SANITARY MANHOLE
- FIRE HYDRANT
- LIGHT POLE
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED

N

20 0 20 40
GRAPHIC SCALE (IN FEET)
1 in. = 20 ft.

OHIO811.org Before You Dig.

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

STATE OF OHIO
ERIC LALONE
LA.2001534
REGISTERED
LANDSCAPE ARCHITECT
2025-05-22

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL

750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

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Project Number:	765295
Scale:	AS SHOWN
Drawn By:	JC
Checked By:	JL
Date:	5/16/2025
Issue:	PERMIT SET

Drawing Title:
LANDSCAPE PLAN-NORTH

L1.0

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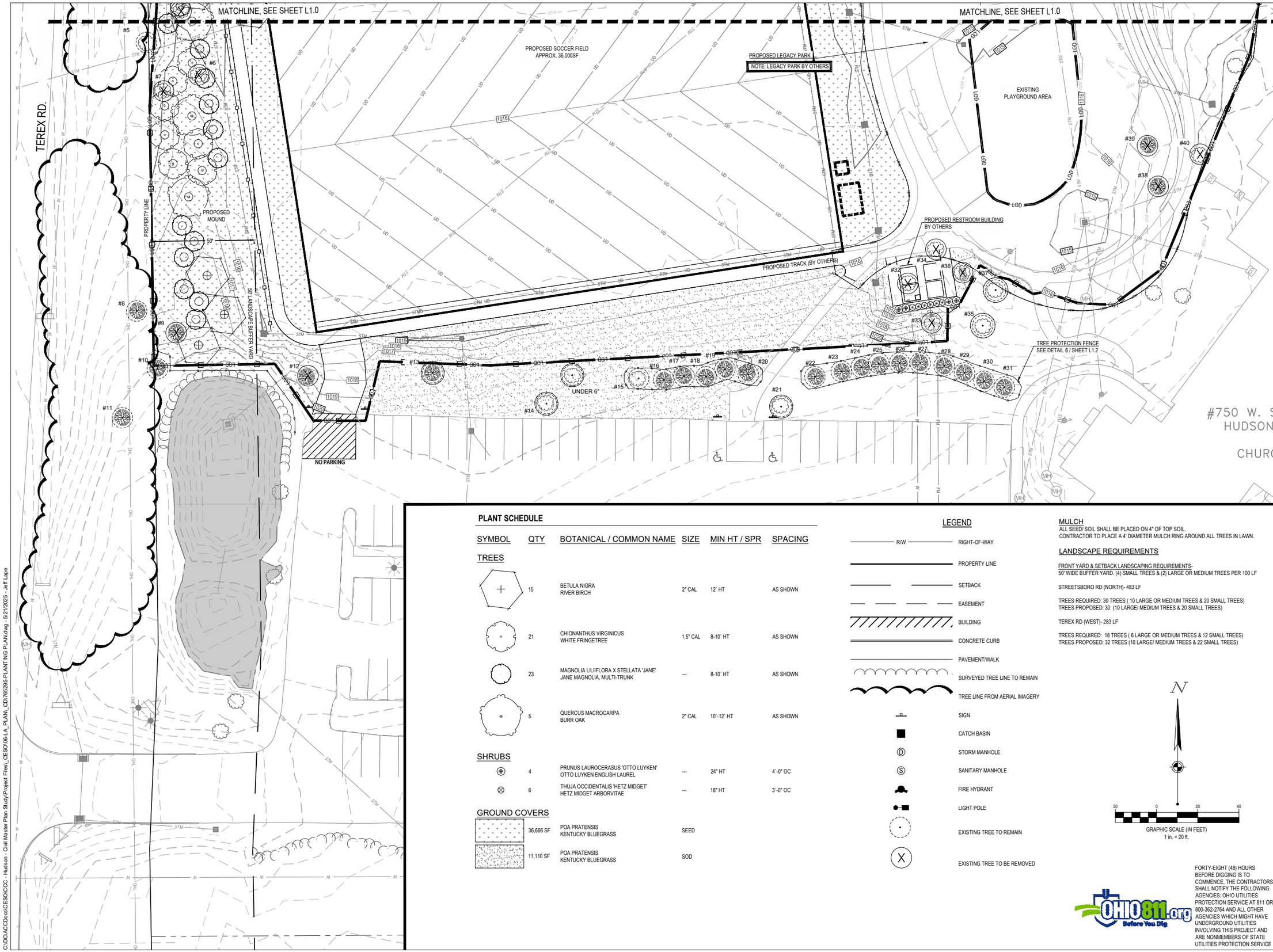

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- SETBACK
- EASEMENT
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- SURVEYED TREE LINE TO REMAIN
- TREE LINE FROM AERIAL IMAGERY
- SIGN
- CATCH BASIN
- STORM MANHOLE
- SANITARY MANHOLE
- FIRE HYDRANT
- LIGHT POLE
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED

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CONTRACTOR TO PLACE A 4' DIAMETER MULCH RING AROUND ALL TREES IN LAWN.

LANDSCAPE REQUIREMENTS

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TEREX RD (WEST)- 283 LF

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TREES PROPOSED: 32 TREES (10 LARGE/ MEDIUM TREES & 22 SMALL TREES)

N

GRAPHIC SCALE (IN FEET)
1 in. = 20 ft.

FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: OHIO UTILITIES PROTECTION SERVICE AT 811 OR 800-362-2764 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF STATE UTILITIES PROTECTION SERVICE

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Project Number:	765295
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Drawn By:	JC
Checked By:	JL
Date:	5/16/2025
Issue:	PERMIT SET

Drawing Title:
LANDSCAPE PLAN-SOUTH

L1.1

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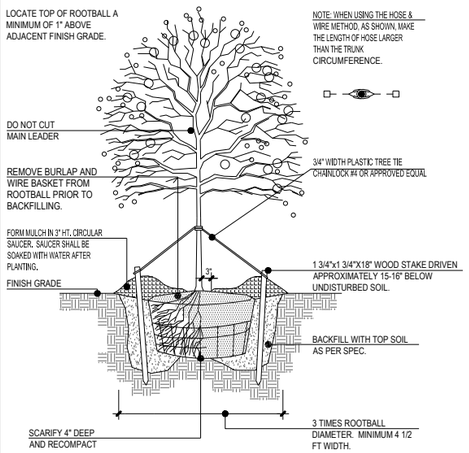
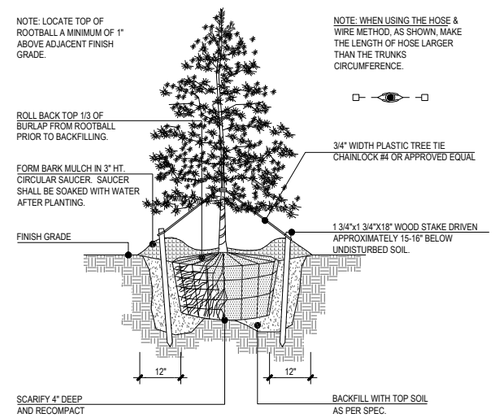
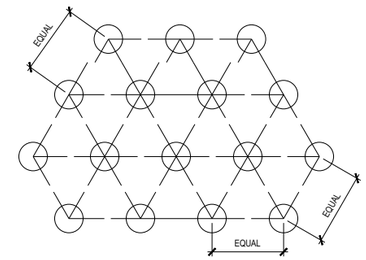


1 DECIDUOUS TREE STAKING N.T.S.



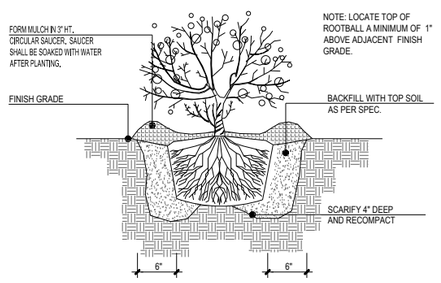
2 EVERGREEN TREE STAKING N.T.S.



ALL GROUND COVER SHALL BE PLANTED AT EQUAL TRIANGULAR SPACING PER ON CENTER SPACING AS SPECIFIED ON PLANTING PLAN.

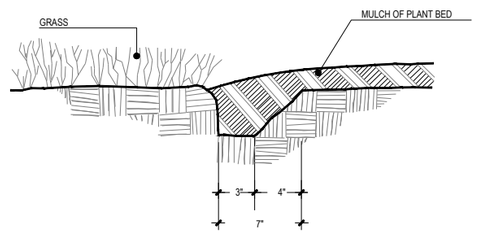
LOCATE GROUND COVER ONE HALF OF SPECIFIED SPACING DISTANCE FROM ANY CURB, SIDEWALK, OR OTHER HARD SURFACE, UNLESS OTHERWISE NOTED.

3 GROUND COVER SPACING N.T.S.

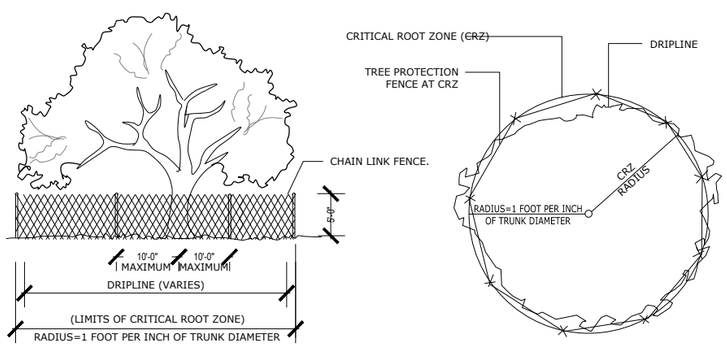


4 EVERGREEN / DECIDUOUS SHRUB N.T.S.

NOTE: USE TRENCH DETAIL ON ALL PLANTING BEDS TRANSITIONING TO TURF AREAS



5 TRENCH EDGING N.T.S.



NOTES:

1. NO TRUCKS OR HEAVY EQUIPMENT ALLOWED WITHIN BARRIERS, ONLY HAND LABOR ALLOWED.
2. NO CONSTRUCTION MATERIALS, SOILS DEPOSITS, OR SOLVENTS SHALL BE ALLOWED WITHIN BARRIERS.
3. BARRIERS ARE TO IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES WITH-IN TREE AREA.
4. BARRIERS ARE TO STAY IN PLACE UNTIL ALL PAVING, CONSTRUCTION, AND HEAVY EQUIPMENT IS REMOVED FROM THE AREA.
5. CRITICAL ROOT ZONE: 1 INCH OF TREE AT DIAMETER BREAST HEIGHT (DBH) IS EQUAL TO 1 FOOT OF CRITICAL ROOT ZONE (CRZ).
   IE. 30 INCH DBH = 30 FOOT CRZ

6 TYP. TREE PROTECTION

SOIL PLANTING MIXTURE (MIX ONSITE)

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH FROM THEIR SOURCE A GOOD CLEAN, NATIVE SOIL WHICH SHALL MEET THE APPROVAL OF THE OWNER'S REPRESENTATIVE. THIS SOIL SHALL BE USED FOR THE PLANTING MIXTURE AS FOLLOWS:
   1.A. ONE PART COMPOST/MANURE PLANTING MIX, TOPSOIL OR APPROVED EQUAL
   1.B. ONE PART NATIVE SOIL
2. SOILS WITHIN PLANTING AREAS MUST BE SUITABLE FOR PROPOSED PLANTED MATERIAL & SOD WITH REGARD TO: pH, SOIL TEXTURE, SOIL STRUCTURE, AND SEASONAL HIGH WATER TABLE. THE CONTRACTOR SHALL ANALYZE EXISTING SOILS LOCATED IN PROXIMITY TO PROPOSED PLANT MATERIAL AND BE RESPONSIBLE TO AMEND THE SOIL TO OBTAIN ESSENTIAL REQUIREMENTS NECESSARY FOR THE ESTABLISHMENT AND GROWTH OF PLANT LIFE. LANDSCAPE CONTRACTOR TO PROVIDE SOILS REPORT AND APPROPRIATE RECOMMENDATIONS PRIOR TO INSTALLATION TO OWNER'S REPRESENTATIVE FOR REVIEW. FAILURE TO PROVIDE REPORT MAY RESULT IN PLANT MATERIAL BEING REJECTED BY OWNER'S REPRESENTATIVE AND REPLACED AT NO COST TO OWNER.
3. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING PRIOR TO PLANTING, WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, POOR PLANTING SOIL, ADVERSE DRAINAGE CONDITIONS, OR OBSTRUCTIONS.

LANDSCAPE REQUIREMENTS

FRONT YARD & SETBACK LANDSCAPING REQUIREMENTS-
50' WIDE BUFFER YARD. (4) SMALL TREES & (2) LARGE OR MEDIUM TREES PER 100 LF

STREETSBORO RD (NORTH)- 483 LF

TREES REQUIRED: 30 TREES (10 LARGE OR MEDIUM TREES & 20 SMALL TREES)
TREES PROPOSED: 30 (10 LARGE/ MEDIUM TREES & 20 SMALL TREES)

TEREX RD (WEST)- 283 LF

TREES REQUIRED: 18 TREES (6 LARGE OR MEDIUM TREES & 12 SMALL TREES)
TREES PROPOSED: 32 TREES (10 LARGE/ MEDIUM TREES & 22 SMALL TREES)

TREE PROTECTION NOTES

1. DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, DO NOT PLACE SOIL DEPOSITS, DEBRIS SOLVENTS, MACHINERY CONSTRUCTION MATERIAL OF ANY KIND WITHIN THE DRIP LINE OF A TREE TO REMAIN.

2. BEFORE CONSTRUCTION STARTS ALL PROTECTED TREES SHALL BE PRUNED AS FOLLOWS UNLESS OTHERWISE DIRECTED BY THE OWNER OR HIS REPRESENTATIVE: REMOVE ANY DEAD OR DISEASED TRUNKS OR BRANCHES, AND REMOVE WEAK OR CROSSED BRANCHES. ALL CUTS SHALL BE MADE SUFFICIENTLY CLOSE TO THE TRUNK OR PARENT LIMB, WITHOUT CUTTING INTO THE BRANCH COLLAR OR LEAVING A PROTRUDING STUB, SO THAT CLOSURE CAN READILY START. ALL TRIMMING SHALL BE DONE BY A QUALIFIED TREE SURGEON. PRUNING SHALL BE IN ACCORDANCE WITH ANSI A-300 PRUNING STANDARDS.

3. ALL ROOTS TO BE REMOVED DURING THE SITE CLEARING SHALL BE SEVERED CLEAN AT THE PERIMETER OF THE DESIGNATED PROTECTED RADIUS. A 3" LAYER OF MULCH SHALL BE IMMEDIATELY APPLIED OVER THE SURFACE OF EXPOSED ROOTS OF PROTECTED TREES. A SOIL AUGER WILL BE USED TO BORE UNDER ROOT SYSTEMS UTILITIES ARE TO BE INSTALLED WITHIN 10' OF A PROTECTED TREE.

ROOT PRUNING NOTE:

WHEN THE CRITICAL ROOT ZONE WILL BE DISTURBED, AFFECTED ROOTS MUST BE SEVERED BY CLEAN PRUNING CUTS AT THE POINT WHERE CONSTRUCTION IMPACTS THE ROOTS. ROOTS CAN BE PRUNED BY UTILIZING TRENCHING EQUIPMENT DESIGNED FOR THIS PURPOSE OR BY HAND DIGGING A TRENCH AND PRUNING ROOTS WITH A PRUNING SAW, CHAIN SAW OR OTHER EQUIPMENT DESIGNED FOR TREE PRUNING. ROOTS LOCATED WITHIN A CRITICAL ROOT ZONE THAT WILL BE IMPACTED BY CONSTRUCTION MUST BE PRUNED TO A DEPTH OF 18 INCHES BELOW THE EXISTING GRADE OR TO THE DEPTH OF DISTURBANCE IF LESS THAN 18 INCHES FROM THE EXISTING GRADE. WHEN UNDERGROUND UTILITY LINES ARE TO BE INSTALLED WITHIN THE CRITICAL ROOT ZONE, THE ROOT PRUNING REQUIREMENTS MAY BE WAIVED IF THE LINES ARE INSTALLED VIA TUNNELING OR DIRECTIONAL BORING AS OPPOSED TO OPEN TRENCHING. A LICENSED CERTIFIED ARBORIST SHALL PROVIDE PRUNING.

GENERAL NOTES: LANDSCAPE PLAN

1. CONTRACTOR TO VERIFY WITH OWNER AND UTILITY COMPANIES THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION, TO DETERMINE IN THE FIELD THE ACTUAL LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL CALL UTILITY LOCATE SERVICE 72 HOURS PRIOR TO CONSTRUCTION.
2. SITE CONDITIONS BASED UPON SURVEY PROVIDED BY OWNER. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS BY DETAILED INSPECTION PRIOR TO SUBMITTING BID AND BEGINNING CONSTRUCTION.
3. REFER TO SITE CIVIL DRAWINGS FOR ADDITIONAL REQUIREMENTS AND COORDINATE WORK WITH OTHER SITE RELATED DEVELOPMENT DRAWING AS NEEDED.
4. REESTABLISH EXISTING TURF IN AREAS DISTURBED BY GRADING OR UTILITY TRENCHING, INCLUDING AREAS IN RIGHT-OF-WAY, TO MATCH EXISTING SPECIES.
5. CONTRACTOR SHALL EXAMINE FINISH SURFACE, GRADES, TOPSOIL QUALITY AND DEPTH. DO NOT START ANY WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. VERIFY LIMITS OF WORK BEFORE STARTING.
6. CONTRACTOR TO REPORT ALL DAMAGES TO EXISTING CONDITIONS AND INCONSISTENCIES WITH PLANS TO LANDSCAPE ARCHITECT.
7. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE IN ALL LANDSCAPE BEDS AND ALL LAWN AREAS.
8. CONTRACTOR TO FINE GRADE AND ROCK-HOUND ALL TURF AREAS PRIOR TO SEEDING, TO PROVIDE A SMOOTH AND CONTINUAL SURFACE, FREE OF IRREGULARITIES (BUMPS OR DEPRESSIONS) & EXTRANEOUS MATERIAL OR DEBRIS.
9. REMOVE EXISTING WEEDS FROM PROJECT SITE PRIOR TO THE ADDITION OF ORGANIC AMENDMENTS AND FERTILIZER. APPLY AMENDMENTS AND FERTILIZER AS NEEDED.
10. QUANTITIES SHOWN ARE INTENDED TO ASSIST CONTRACTOR IN EVALUATING THEIR OWN TAKE OFFS AND ARE NOT GUARANTEED AS ACCURATE REPRESENTATIONS OF REQUIRED MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS BID QUANTITIES AS REQUIRED BY THE PLANS AND SPECIFICATIONS. IF THERE IS A DISCREPANCY BETWEEN THE NUMBER LABELED ON THE PLANT LEGEND AND THE QUANTITY OF GRAPHIC SYMBOLS SHOWN, THE GREATER QUANTITY SHALL GOVERN.
11. COORDINATE LANDSCAPE INSTALLATION WITH INSTALLATION OF UNDERGROUND SPRINKLER AND DRAINAGE SYSTEMS.
12. ALL SIZES AND QUALITY OF PLANT MATERIAL SHALL MEET THE MINIMUM SPECIFICATIONS OF THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014). THE LANDSCAPE CONTRACTOR SHALL INSTALL ALL PLANT MATERIAL IN SIZE AS INDICATED IN THE PLANT SCHEDULE UNLESS OTHERWISE SPECIFIED ON THE PLAN SET. ALL PLANTS THAT DO NOT MEET THE SIZE AND SPECIFICATIONS SET FORTH BY THE AMERICAN STANDARD FOR NURSERY STOCK WILL BE REJECTED BY LANDSCAPE ARCHITECT AT NO COST TO OWNER.
13. ONCE PROJECT IS AWARDED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE TO SECURE ALL PLANT MATERIAL IN THE SIZE SPECIFIED ON PLAN PRIOR TO INSTALLATION. IN THE EVENT THE PLANT MATERIAL IS NOT AVAILABLE IN THE SIZE SPECIFIED, THE CONTRACTOR SHALL INSTALL LARGER AT NO COST TO OWNER.
14. THE LANDSCAPE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ALL PLANT MATERIAL SUBSTITUTIONS FROM THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. PLANT SUBSTITUTIONS WITHOUT PRIOR WRITTEN APPROVAL THAT DO NOT COMPLY WITH THE DRAWINGS AND SPECIFICATIONS MAY BE REJECTED BY THE LANDSCAPE ARCHITECT AND REPLACED BY CONTRACTOR AT NO COST TO THE OWNER.
15. PRIOR TO MOBILIZATION THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT, IN WRITING, IF HE/SHE BELIEVES ANY OF THE PLANT MATERIAL IDENTIFIED ON THE PLAN MAY NOT BE SUITABLE FOR THE SITE OR MAY DIE. SUBSTITUTION REQUESTS WILL BE GRANTED BY THE LANDSCAPE ARCHITECT PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. IF NOTIFICATION IS NOT GIVEN TO THE LANDSCAPE ARCHITECT ALL PLANTING WHICH FAILS TO GROW (EXCEPT FOR DEFECTS RESULTING FROM LACK OF ADEQUATE MAINTENANCE AS DETERMINED BY THE OWNER, NEGLECT, OR VANDALISM) SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
16. WHERE PROPOSED TREE LOCATIONS OCCUR UNDER EXISTING OVERHEAD UTILITIES OR CROWD EXISTING TREES, NOTIFY LANDSCAPE ARCHITECT TO ADJUST TREE LOCATIONS.
17. ALL PLANT MASSES TO BE TOP DRESSED WITH MULCH AS SPECIFIED IN PLANT SCHEDULE, SPREAD UNIFORMLY IN DEPTH OVER THE PLANTING BEDS AS DELINEATED ON THE PLANS UNLESS OTHERWISE NOTED.
18. BED EDGE TO BE NO LESS THAN 12" AND NO MORE THAN 18" FROM OUTER EDGE OF PLANT MATERIAL BRANCHING. WHERE GROUND-COVER OCCURS, PLANT TO LIMITS OF AREA AS SHOWN.
19. INITIAL LANDSCAPE MAINTENANCE IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY UNTIL THE DATE OF SUBSTANTIAL COMPLETENESS AND FINAL ACCEPTANCE BY THE OWNER. MAINTAIN TREES, SHRUBS, LAWNS, AND OTHER PLANTS AS PER THE PROJECT MANUAL AND/OR WRITTEN SPECIFICATIONS, IF APPLICABLE. EXTENDED LANDSCAPE MAINTENANCE PERIOD UNDER A SEPARATE APPROVED CONTRACT BEGINS IMMEDIATELY AFTER THE SUBSTANTIAL COMPLETION OF ALL PLANTING OPERATIONS AND WRITTEN ACCEPTANCE FROM THE OWNER AND/OR LANDSCAPE ARCHITECT.
20. ALL LANDSCAPE MAINTENANCE SHALL BE IN ACCORDANCE WITH LOCAL GOVERNING STANDARDS, IN ADDITION TO OWNER REQUIREMENTS.
21. ALL PLANTS SHALL COME WITH A 1 YEAR WARRANTY. PLANTS SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETENESS AND FINAL ACCEPTANCE BY OWNER. THE CONTRACTOR SHALL REPLACE ALL PLANTS, UNHEALTHY, DAMAGED, DYING OR DEAD. LAWNS THAT ARE NOT IN GOOD CONDITION AT THE END OF THE WARRANTY PERIOD SHALL BE REPAIRED UNTIL A GOOD LAWN RESULTS. UNLESS OTHERWISE COORDINATED WITH OWNER, IT IS UNDERSTOOD THE OWNER SHALL ASSUME RESPONSIBILITY FOR WATERING ALL PLANT MATERIAL AN LAWN ARE BEGINNING WITH THE DATE OF SUBSTANTIAL COMPLETENESS.
22. REFER TO PROJECT MANUAL OR WRITTEN SPECIFICATIONS, IF AVAILABLE, FOR ADDITIONAL REQUIREMENTS.

EXISTING TREE CHART

X TREE TO BE REMOVED - NUMBER IN SYMBOL CORRELATES WITH BELOW EXISTING TREE CHART

• TREE TO BE RETAINED - NUMBER IN SYMBOL CORRELATES WITH BELOW EXISTING TREE CHART. REFER TO DEMO PLAN FOR ALL TREES TO BE REMOVED

TREE CHART

NO.	DESCRIPTION		16	8"	EASTERN WHITE PINE	32	18"	PIN OAK	48	8"	RED OAK
1	12"	NORTHERN PINE OAK	17	8"	NORWAY SPRUCE	33	18"	PIN OAK	49	8"	BUR OAK
2	10"	RED MAPLE	18	8"	BLUE SPRUCE	34	12"	DAWN REDWOOD	50	15"	GREEN ASH
3	15"	EASTERN COTTONWOOD	19	10"	BLUE SPRUCE	35	8"	DAWN REDWOOD	51	8"	KATSURA
4	15"	WHITE ASH	20	8"	WHITE SPRUCE	36	18"	PIN OAK	52	10"	WHITE SPRUCE
5	10"	BALSAM POPLAR	21	12"	BRADFORD PEAR	37	12"	GREEN ASH	53	10"	WHITE SPRUCE
6	24"	COMMON BLACKTHORN BUSH	22	12"	BLUE SPRUCE	38	15"	BLUE SPRUCE	54	10"	WHITE SPRUCE
7	24"	COMMON BLACKTHORN BUSH	23	8"	WHITE SPRUCE	39	8"	WHITE SPRUCE	55	10"	WHITE SPRUCE
8	10"	WHITE SPRUCE	24	6"	NORWAY SPRUCE	40	22"	DAWN REDWOOD	56	6"	RIVER BIRCH
9	10"	WHITE SPRUCE	25	12"	EASTERN WHITE SPRUCE	41	10"	BLACK OAK			
10	10"	WHITE SPRUCE	26	8"	BLUE SPRUCE	42	8"	RED OAK			
11	10"	WHITE SPRUCE	27	8"	BLUE SPRUCE	43	10"	PIN OAK			
12	12"	BLUE SPRUCE	28	12"	WHITE SPRUCE	44	8"	BUR OAK			
13	10"	WHITE SPRUCE	29	6"	WHITE SPRUCE	45	8"	BUR OAK			
14	8"	HONEY LOCUST	30	8"	WHITE SPRUCE	46	8"	BUR OAK			
15	6"	RED MAPLE	31	6"	WHITE SPRUCE	47	8"	BLACK OAK			

TREES TO REMAIN: 36
TREES TO BE REMOVED: 20

NOTE:
1. CONTRACTOR IS TO PROVIDE MINOR CLEARING AND GRUBBING SERVICES. THIS INCLUDES BUT IS NOT LIMITED TO REMOVING DEAD OR DYING BRANCHES BOTH ON TREES OR ON GROUND, REMOVING VINES FROM EXISTING TREES, AND REMOVING ANY TRASH OR DEBRIS FROM SITE.
2. REFER TO DETAIL 6 ON THIS SHEET, FOR TREE PROTECTION DETAIL

CESO
WWW.CESOINC.COM
175 Montrose West Ave., Suite 400
Akron, OH 44321
Phone: 330.665.0660 Fax: 888.208.4826

STATE OF OHIO
ERIC LALONE
LA.2001634
REGISTERED
LANDSCAPE ARCHITECT
2025-05-22

SOL HARRIS/DAY ARCHITECTURE

CHRIST COMMUNITY CHAPEL
750 W. STREETSBORO STREET
HUDSON, OH 44236

Revisions / Submissions

ID	Description	Date

© 2025 CESO, INC.

Project Number:	765295
Scale:	AS SHOWN
Drawn By:	JC
Checked By:	JL
Date:	5/16/2025
Issue:	PERMIT SET

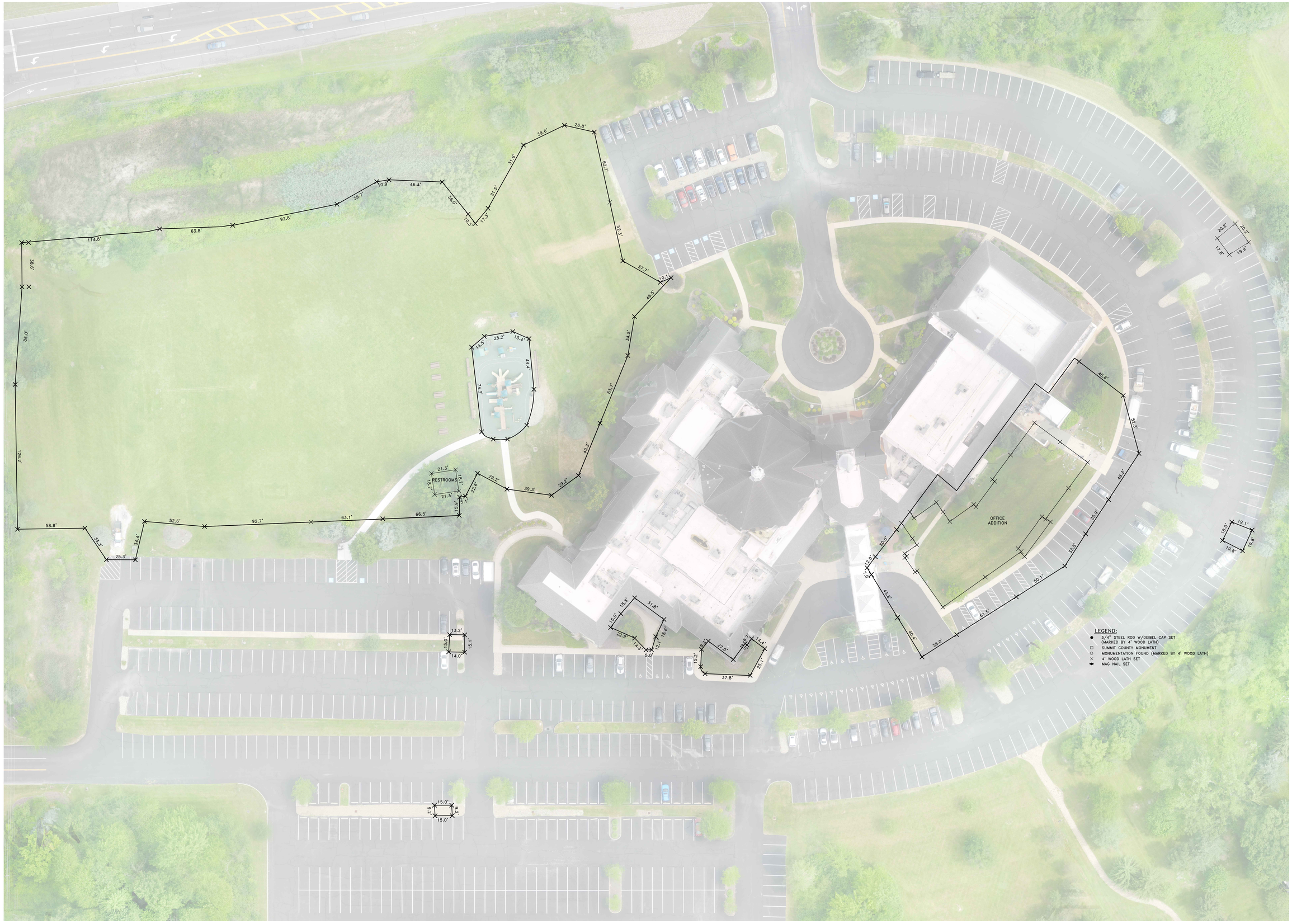
Drawing Title:
LANDSCAPE DETAILS & NOTES

L1.2

C:\DC\ACCDocs\CESO\CCC - Hudson - Civil Master Plan Study\Project Files_CESO\06-LA_PLAN_CD\765295-PLANTING PLAN.dwg - 5/21/2025 - Jeff Lape

LIMIT OF DISTURBANCE AND BUILDING STAKING

BEING PART OF ORIGINAL LOTS 31 AND 41
LOCATED IN HUDSON TOWNSHIP, SUMMIT COUNTY, OHIO



LEGEND:

- ● 3/4" STEEL ROD W/DEIBEL CAP SET (MARKED BY 4' WOOD LATH)
- □ SUMMIT COUNTY MONUMENT
- ○ MONUMENTATION FOUND (MARKED BY 4' WOOD LATH)
- × 4' WOOD LATH SET
- ◆ MAG NAIL SET

SCALES	
HORZ. 1" = 50'	
PROJECT NO.	
XXXXXX	
SHEET NO.	OF
1	2

LIMIT OF DISTURBANCE AND BUILDING STAKING

BEING PART OF ORIGINAL LOTS 31 AND 41
LOCATED IN HUDSON TOWNSHIP,
SUMMIT COUNTY, OHIO

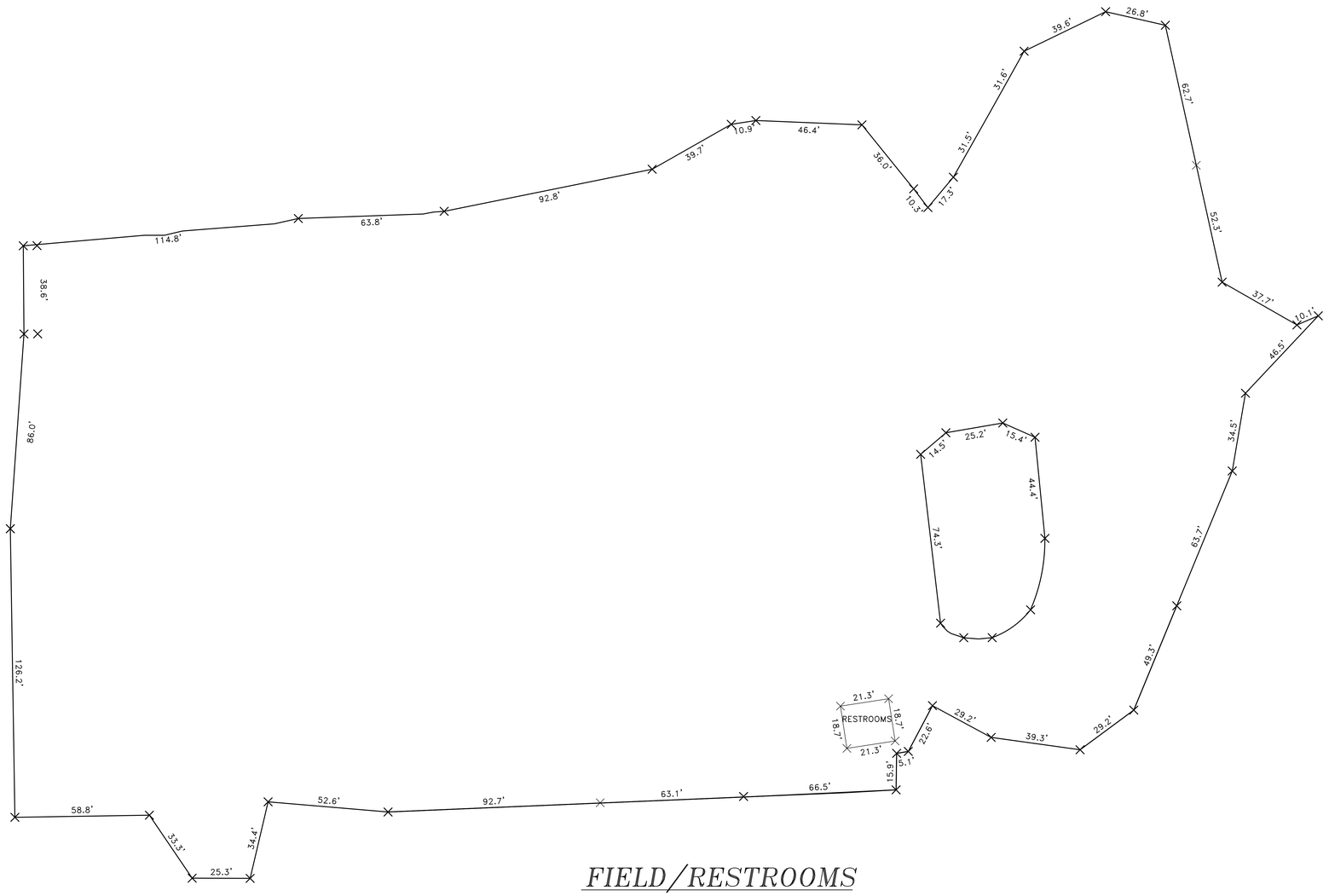
DATE	BY	APP'D	DATE 05/16/2025
			DRAWN BY AMT
			CHECKED BY
			APP'VD BY

DESCRIPTION

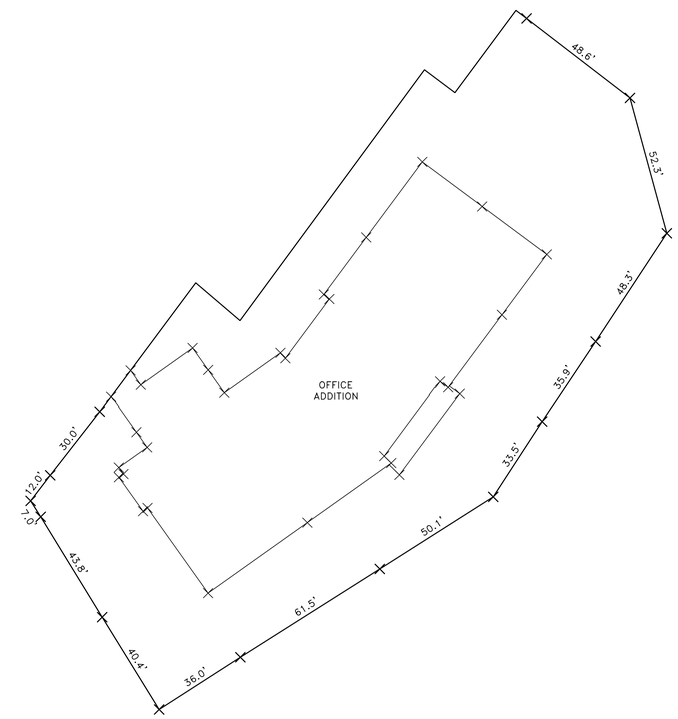
REV LTR

LIMIT OF DISTURBANCE STAKING

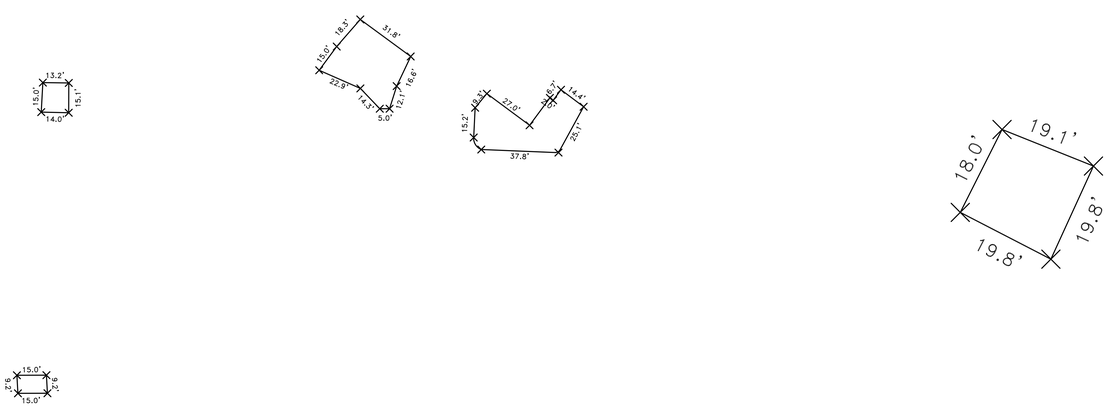
BEING PART OF ORIGINAL LOTS 31 AND 41
LOCATED IN HUDSON TOWNSHIP, SUMMIT COUNTY, OHIO



FIELD/RESTROOMS



OFFICE ADDITION



ADDITIONAL AREAS

DUMPSTER

LEGEND:

× 4' WOOD LATH OR PAINT MARK SET

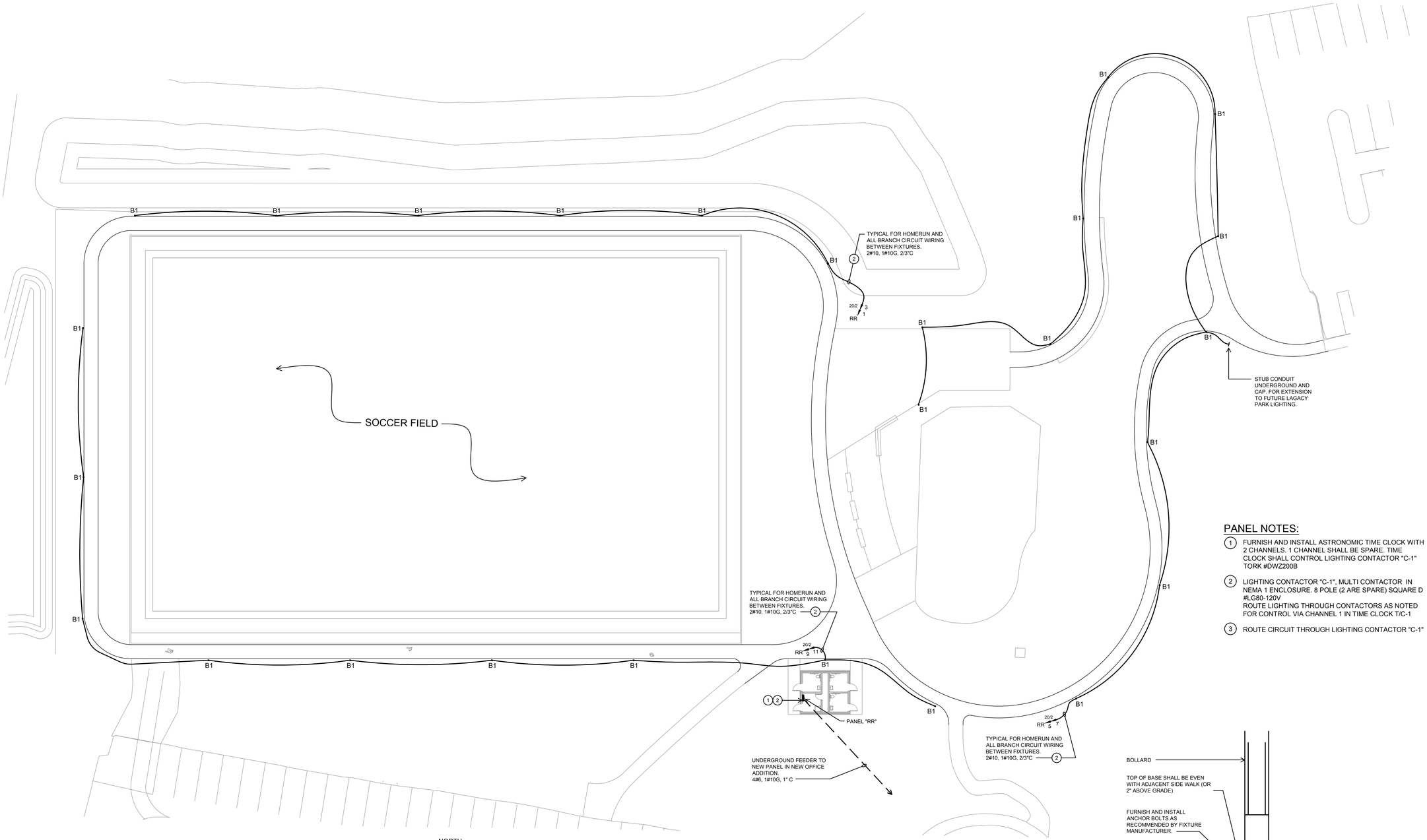
SCALES	
NTS	
PROJECT NO.	
XXXXXX	
SHEET NO.	OF
2	2

LIMIT OF DISTURBANCE

BEING PART OF ORIGINAL LOTS 31 AND 41
LOCATED IN HUDSON TOWNSHIP,
SUMMIT COUNTY, OHIO

DATE_05/16/2025
DRAWN BY__AMT
CHECKED BY____
APPVD BY____

DATE	BY	APP'D	DESCRIPTION	REV. LTR.



ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"

NORTH

GRAPHIC SCALE: 1" = 20' - 0"

5' 0 5' 10' 15' 20' 30' 40' 60' 80' 100'

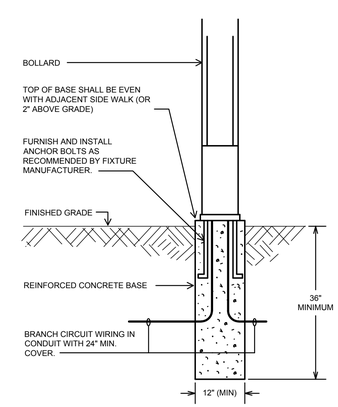
PANEL NOTES:

1. FURNISH AND INSTALL ASTRONOMIC TIME CLOCK WITH 2 CHANNELS. 1 CHANNEL SHALL BE SPARE. TIME CLOCK SHALL CONTROL LIGHTING CONTACTOR "C-1" TORK #DW2200B
2. LIGHTING CONTACTOR "C-1", MULTI CONTACTOR IN NEMA 1 ENCLOSURE. 8 POLE (2 ARE SPARE) SQUARE D #LG80-120V
   ROUTE LIGHTING THROUGH CONTACTORS AS NOTED FOR CONTROL VIA CHANNEL 1 IN TIME CLOCK T/C-1
3. ROUTE CIRCUIT THROUGH LIGHTING CONTACTOR "C-1"

LIGHTING FIXTURE SCHEDULE

TYPE AND SYMBOL	NO. OF LAMPS AND TYPE	FIXTURE WATTS	VOLTS	MANUFACTURER CATALOG NO.	MOUNTING	DESCRIPTION	ALTERNATE MANUFACTURERS
B1	LED 3500K 2075 LUMENS	31W	208	LUMINIS LUMIQUAD BOLLARD LQ427-L1L20-LD2-4000K-MVOLT-BLS1-BKT	CONCRETE BASE	4" X 4" BOLLARD, 42" HIGH. BLACK FINISH, TYPE 2 DISTRIBUTION, BLOCKOUT SHIELD ON BACK SIDE.	AS APPROVED BY ENGINEER

2 WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 800-362-2764
OHIO UTILITIES PROTECTION SERVICE



FIXTURE BASE DETAIL TYPICAL FOR FIXTURE TYPE B1

SCALE: NONE

S&L Harris/Day Architecture

STATE OF OHIO
CHARLES S. PARSONS
E-72649
REGISTERED PROFESSIONAL ENGINEER

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8614 HARTMAN ROAD
WADSWORTH, OH 44281
PH: 330-926-2600 FAX: 330-926-4531

CHRIST COMMUNITY CHAPEL WALKING PATH

750 W Streetsboro St
Hudson, OH, 44236

PROJECT No. 24.001

Planning Commission Submission 05/09/25

DRAWING UPDATES

KEY PLAN

N

ELECTRICAL SITE LIGHTING PLAN

26-300

S:\Shared\Active\24ch006-Christ Community Church in Hudson, OH - Reno & Addition\24ch006 26-300 Soccer field electrical plan -PH2.dwg [24x36] May 09, 2025 - 1:42pm

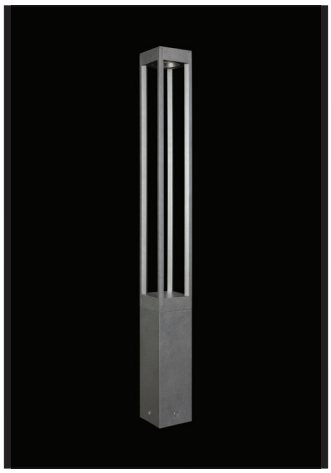
LUMINIS®

LQ427
LUMIQUAD
BOLLARD

PROJECT NAME: **QUANTITY:** **TYPE:**

ORDERING CODE:

① Heavy cast aluminum top cover.
② Optical system assembly.
③ 4x extruded aluminum struts.
④ Cast aluminum driver housing.
⑤ 4” (102mm) x 4” (102mm) extruded aluminum square body.
⑥ Cast aluminum mounting base.



LQ427

MATERIALS

Lumiquad bollard is made of corrosion resistant 356 aluminum alloy with a copper (CU) content of less than 0.1%.

ELECTRICAL DRIVER

Driver is 0-10V dimming-ready (dims to 10%) with:
120-277 multi-volt compatibility (50-60Hz), operating temperatures of -40°C/-40°F to 55°C/131°F, output over voltage protection, output over current protection, output short circuit protection with auto-recovery.

LED LIGHT ENGINE

Offered in 2700K/3000K/3500K/4000K CCT with 80 CRI.
70% LED lumen maintenance at 60,000 hours (L70/B50) based on IESNA LM-80-08 LED extrapolated life, calculated per IESNA TM-21-21.
Optional true amber LED for turtle sensitive areas.
Wavelengths: 585nm to 597nm.

FINISH

Five-stage preparation process includes preheating of cast aluminum parts for air extraction. Polyester powder coating is applied through an electrostatic process, and oven cured for long term finish.

CERTIFICATION

UL Certified to Canadian and U.S. safety standards. Certified for use in wet locations. Rated IP65. Photometric testing performed by an independent laboratory in accordance with IES LM-79-08 standards at 25°C. Actual performance may differ as a result of end-user environment and application.

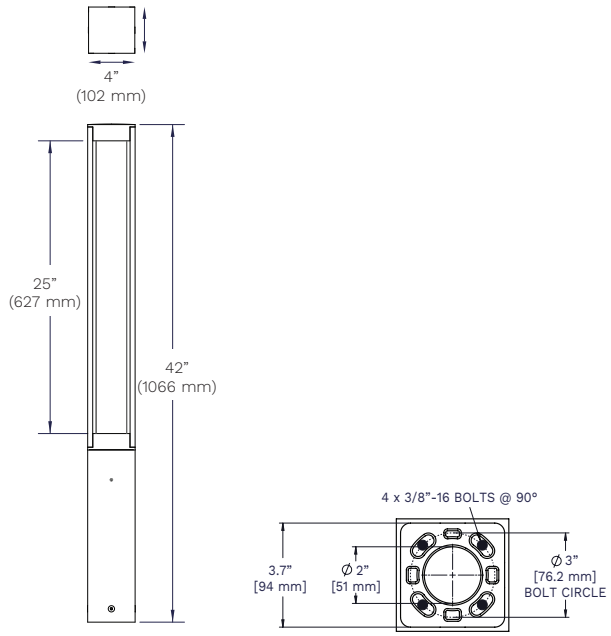
WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: https://www.acuitybrands.com/support/warranty/terms-and-conditions

MOUNTING

Mounts with a set of 4 x 3/8”-16 x 3 3/4” lg. galvanized anchor bolts.

MEASUREMENTS



Toll free: (866) 586-4647 | Fax: (514) 683-8872 | Email: info@luminis.com
260 Labrosse, Pointe-Claire (QC) Canada H9R 5L5

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ORDERING CODE

*SERIES	*LIGHT OUTPUT	DISTRIBUTION	*CCT[2]	*VOLTAGE	FUSE
LQ427	Static White **L1L10** 1039 lm/14w **L1L20** 2078 lm/31w True Amber **L1LK2A** 301 lm/12w[1] **Delivered lumens calculated at 4000K/80CRI except for amber. Type V distribution. Refer to reference table for outputs at other distribution types. Typical power consumption. Refer to LCF table for outputs at other CCTs.**	**LD2** Type II **LD5** Type V **Required field for except with LVR option.**	**27K** 2700K **30K** 3000K **35K** 3500K **40K** 4000K **AMB** Wavelengths: 585nm to 597nm	**120** 120V **277** 277V **347** 347V **480** 480V **MVOLT** 120V-277V **HVOLT** 347V-480V	**FS** Fuse

PHOTOCELL	SURGE PROTECTOR	EMERGENCY	SHIELDING ACCESSORIES	LOUVERS
PH Photocell	**SP** Surge protector	**REM7** Remote emergency battery, 90 min, 7W[3]	**BLS1** Blockout shield - one side[7] **BLS2** Blockout shield - two sides at 90°[4] **BLS3** Blockout shield - three sides[5]	**LVR** Glare control louvers with 90° optic lens[6]

*FINISH	WOOD FINISHES[9]	ENVIRONMENT	LESS ANCHOR BOLTS
BKT Jet black **BZT** Bronze **CHT** Champagne **DGT** Gun metal **GRT** Titanium gray **MST** Matte silver **SGT** Steel gray **WHT** Snow white **CMC** Custom matched color[7] **RAL** RAL color[8]	**ADG** American douglas **BRC** Birch **CHN** Chestnut **CRY** Cherry **KNP** Knotty pine **MPL** Maple **OFL** Oak **RSW** Rosewood **TEK** Teak **WLN** Walnut	**MG** Marine grade paint[10]	**L/AB** Less anchor bolts

NOTES

*- Denotes a required field
1- Available only with AMB.
2- For IDA certification compliance, luminaire must be ordered with 3000K or warmer.
3- Remote mount 50ft - 12" square enclosure with access cover. Not available with 347V, 480V, HVOLT or PH. Cable between fixture and remote box is provided by other.
4- Installed on back side when distribution LD2 is selected.
5- Not available with distribution LD2.
6- Not available with any BLS option. Not available with LD2 or LD5.
7- Contact factory to coordinate custom matching color.
8- Specify RAL number.
9- Faux wood finish not applied to the fixture head or accessories. Additional delay required. Not compatible with marine grade paint.
10- Marine grade paint for harsh, coastal environment and exposure to salt water. Additional delay required.

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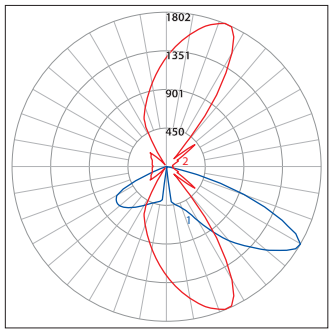
REFERENCE TABLE - LIGHT OUTPUT

SERIES	LIGHT OUTPUT - STATIC WHITE		LIGHT OUTPUT - AMBER	
LQ427	Type II		Type II	
	L1L10	1186 lm / 14w	**L1LK2A**	320 lm / 12w
	L1L20	2211 lm / 31w		

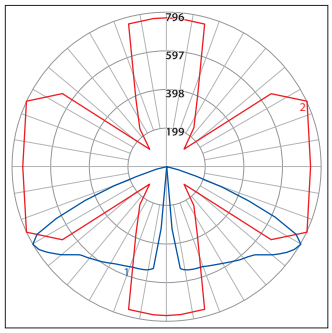
TYPICAL PHOTOMETRY SUMMARY

LQ427-L1L20-LD2



Total Lms: 2211 Lumens
Total Input Watts: 24,7 W
Efficacy: 89,3 Lumens/Watt
BUG: B1-U0-G1
CCT/CRI: 4000K/80
Maximum Candela: 1753 @ 55°H/29°V

LQ427-L1L20-LD5



Total Lms: 2078 Lumens
Total Input Watts: 31,3 W
Efficacy: 66,3 Lumens/Watt
BUG: B1-U0-G1
CCT/CRI: 4000K/80
Maximum Candela: 777 @ 19.5°H/55°V

LUMEN CONVERSION FACTOR (LCF)		
CCT	CRI	LCF
2700K	80	0.91
3000K	80	0.94
3500K	80	0.98
4000K	80	1.00

All Photometry shown use the 80CRI 4000K LEDs.
Please visit our web site www.luminis.com for complete I.E.S. file.

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OPTION DETAILS

BLS1-BLS2-BLS3
Blockout shield available on one side, two sides (at 90°) or three sides.

LVR
Glare control louvers with 90˚ optic lens.

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