

# CANTON CHARTER TOWNSHIP

## CHERRY HILL VILLAGE PHASE 1

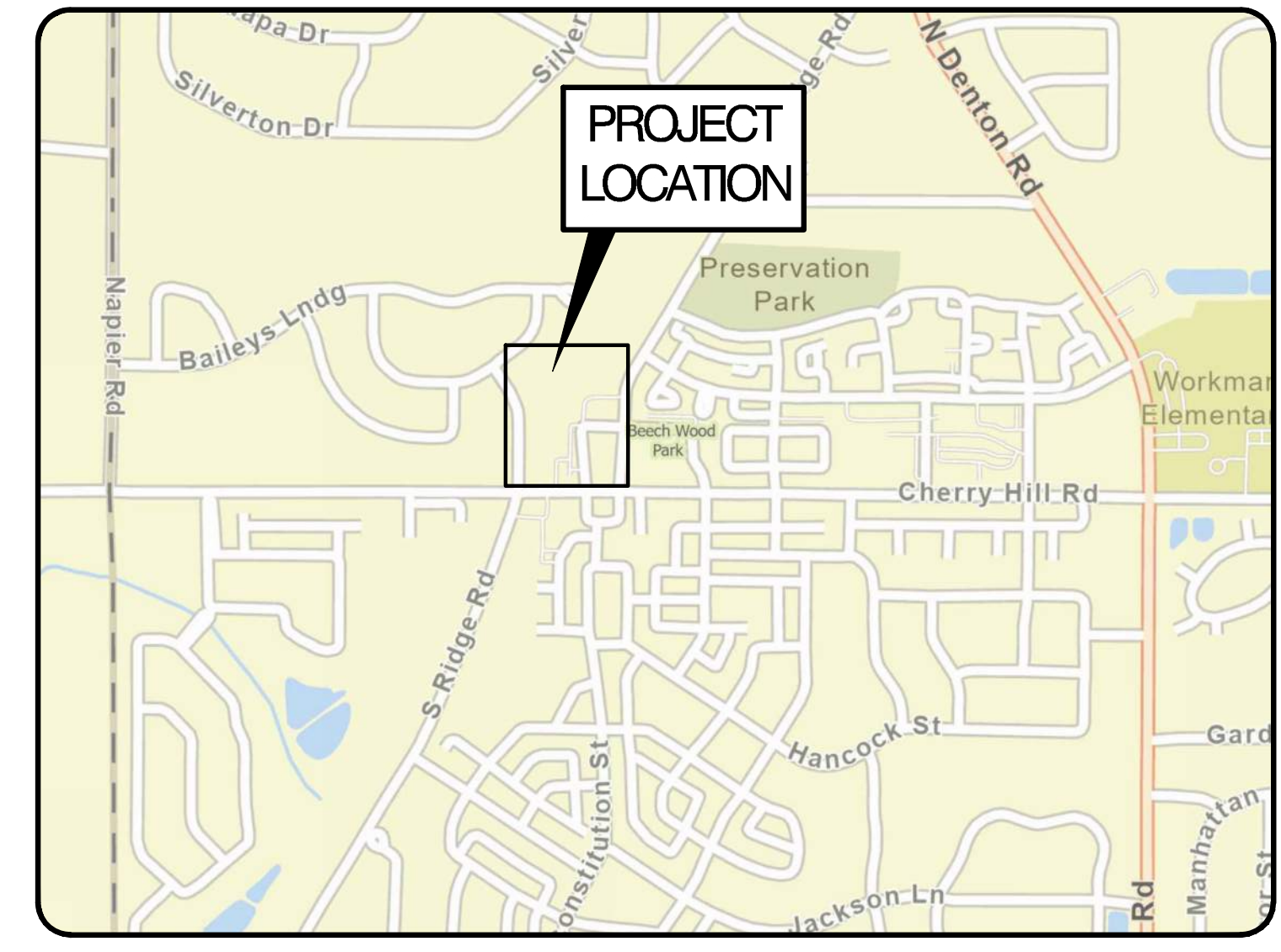
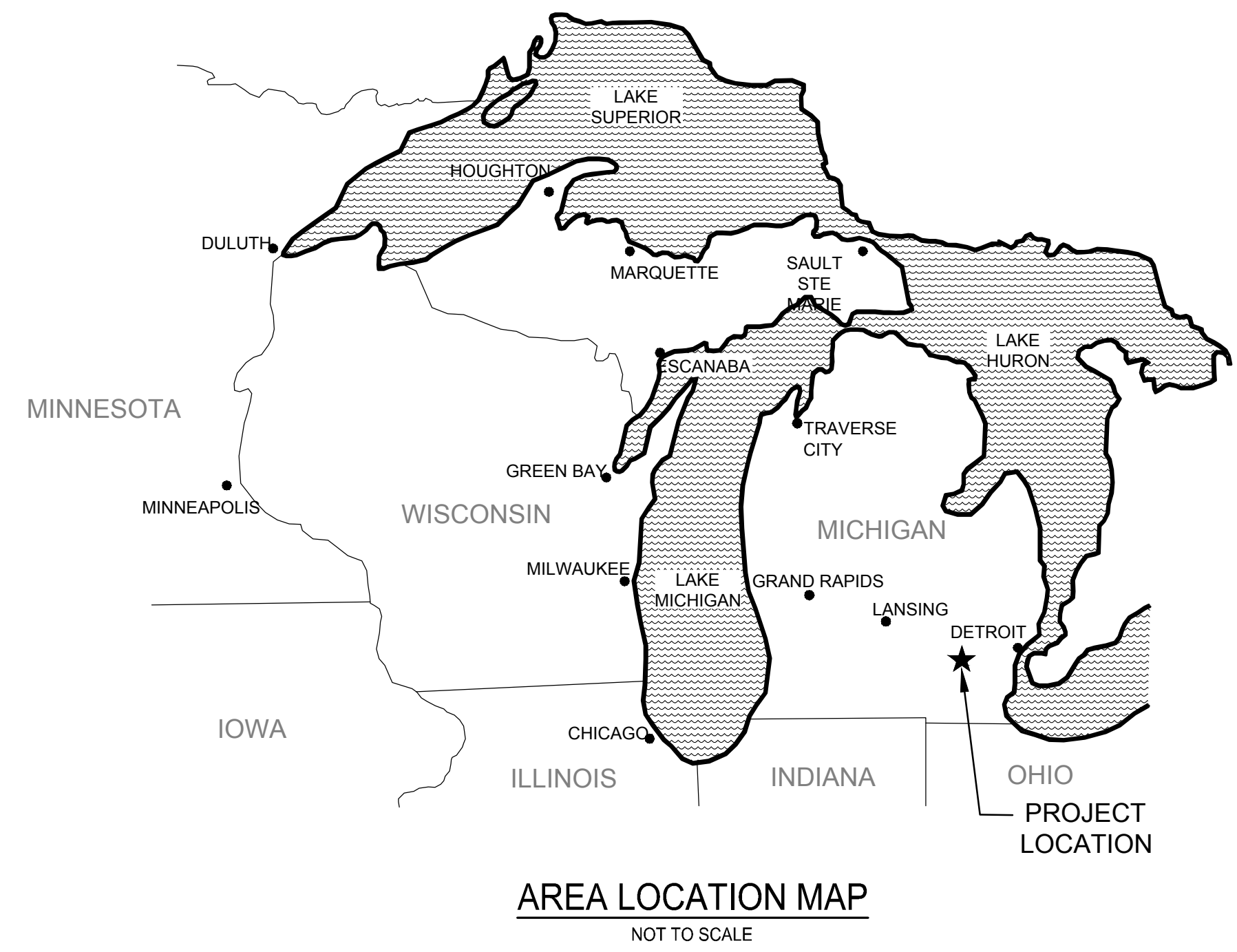
CANTON TOWNSHIP, WAYNE COUNTY, MICHIGAN  
 PARCEL ID: 71 071 99 0002 707  
 71 071 99 0007 702  
 71 071 99 0007 711

OWNER/DEVELOPER: CANTON CHARTER TOWNSHIP  
 1150 S. CANTON CENTER ROAD  
 CANTON, MICHIGAN 48188  
 CONTACT: JEANETTE AIELLO  
 734.394.5360  
 JEANETTE.AIELLO@CANTONMI.GOV

ARCHITECT/ENGINEER: OHM ADVISORS, INC.  
 34000 PLYMOUTH RD  
 LIVONIA, MICHIGAN 48150  
 734.522.6711  
 CONTACT:  
 CLAIRE MARTIN, P.E.  
 CLAIRE.MARTIN@OHM-ADVISORS.COM

SURVEYOR: OHM ADVISORS, INC.  
 34000 PLYMOUTH RD  
 LIVONIA, MICHIGAN 48150  
 734.522.6711  
 CONTACT:  
 ANDREW SCHRIPSEMA, P.S.  
 ANDREW.SCHRIPSEMA@OHM-ADVISORS.COM

SHEET	SHEET TITLE	DATE	DESCRIPTION	ISSUE	
				30% OWNER REVIEW	90% OWNER REVIEW
C-001	COVER SHEET	11/13/2024		▲	▲
C-002	CIVIL NOTES	09/14/2024		○	▲
C-110	CIVIL NOTES AND WAYNE COUNTY DPS GENERAL NOTES	09/14/2024		○	▲
C-111	EXISTING CONDITIONS	09/14/2024		○	▲
C-115	TRAFFIC PLAN - CHERRY HILL RD	09/14/2024		○	▲
C-116	TRAFFIC PLAN - CHERRY HILL RD	09/14/2024		○	▲
C-117	TRAFFIC PLAN - RIDGE RD	09/14/2024		○	▲
C-120	DEMOLITION AND REMOVAL PLAN	09/14/2024		○	▲
C-121	DEMOLITION AND REMOVAL PLAN - UTILITIES	09/14/2024		○	▲
C-125	DEMOLITION AND REMOVAL PLAN - R.O.W.	09/14/2024		○	▲
C-130	SITE PLAN	09/14/2024		○	▲
C-135	SITE PLAN - R.O.W IMPROVEMENTS	09/14/2024		○	▲
C-140	UTILITY PLAN	09/14/2024		○	▲
C-141	WATER MAIN PLAN	09/14/2024		○	▲
C-150	STORM WATER MANAGEMENT	09/14/2024		○	▲
C-151	STORM WATER MANAGEMENT - PLAN	09/14/2024		○	▲
C-160	STORM WATER MANAGEMENT - PROFILE	09/14/2024		○	▲
C-170	PAVING AND GRADING PLAN	09/14/2024		○	▲
C-171	GRADING DETAILS	09/14/2024		○	▲
C-172	GRADING DETAILS	09/14/2024		○	▲
C-173	GRADING DETAILS	09/14/2024		○	▲
C-501	CIVIL DETAILS	09/14/2024		○	▲
C-510	CANTON CHARTER TOWNSHIP STORM SEWER STANDARD DETAILS	09/14/2024		○	▲
C-511	CANTON CHARTER TOWNSHIP MISCELLANEOUS STANDARD DETAILS	09/14/2024		○	▲
C-512	CANTON CHARTER TOWNSHIP WATER MAIN STANDARD DETAILS	09/14/2024		○	▲
C-513	CANTON CHARTER TOWNSHIP WATER MAIN STANDARD DETAILS	09/14/2024		○	▲
C-514	CANTON CHARTER TOWNSHIP WATER MAIN STANDARD DETAILS	09/14/2024		○	▲
C-515	CANTON CHARTER TOWNSHIP SANITARY SEWER STANDARD DETAILS	09/14/2024		○	▲
C-701	SOIL EROSION AND SEDIMENTATION CONTROL (SESC)	09/14/2024		○	▲
C-702	SOIL EROSION AND SEDIMENTATION CONTROL (SESC) DETAILS	09/14/2024		○	▲
L-101	PLANTING PLAN	09/14/2024		○	▲
L-102	PLANTING PLAN	09/14/2024		○	▲
L-103	PLANTING PLAN	09/14/2024		○	▲
L-104	PLANTING PLAN	09/14/2024		○	▲
L-201	IRRIGATION PLAN	09/14/2024		○	▲
L-202	IRRIGATION PLAN	09/14/2024		○	▲
L-203	IRRIGATION DETAILS	09/14/2024		○	▲
L-204	IRRIGATION SCHEDULE	09/14/2024		○	▲
L-301	SITE DETAILS	09/14/2024		○	▲
L-302	SITE DETAILS	09/14/2024		○	▲
L-303	SITE DETAILS	09/14/2024		○	▲
L-304	SITE DETAILS	09/14/2024		○	▲
L-305	SITE DETAILS	09/14/2024		○	▲
L-306	SITE DETAILS	09/14/2024		○	▲
L-307	PLANTING DETAILS	09/14/2024		○	▲
S-001	STRUCTURAL NOTES	09/14/2024		○	▲
S-101	FOUNDATION AND ROOF FRAMING PLAN AND DETAILS	09/14/2024		○	▲
S-501	STRUCTURAL DETAILS	09/14/2024		○	▲
S-502	STRUCTURAL DETAILS	09/14/2024		○	▲
S-601	GENERAL PLAN OF STRUCTURE	09/14/2024		○	▲
S-602	BRIDGE DETAILS	09/14/2024		○	▲
S-603	BRIDGE DETAILS	09/14/2024		○	▲
A-001	ARCHITECTURAL NOTES & SYMBOLS	09/14/2024		○	▲
A-101	PLANS, SCHEDULES, DETAILS	09/14/2024		○	▲
A-201	EXTERIOR ELEVATIONS AND BUILDING SECTIONS	09/14/2024		○	▲
A-301	ASSEMBLIES AND PARTITIONS	09/14/2024		○	▲
A-302	WALL SECTION DETAILS	09/14/2024		○	▲
A-303	DUMPSTER ENCLOSURE	09/14/2024		○	▲
P-001	PLUMBING NOTES AND SYMBOLS	09/14/2024		○	▲
P-101	FIRST FLOOR PLUMBING PLAN	09/14/2024		○	▲
M-001	MECHANICAL NOTES AND SYMBOLS	09/14/2024		○	▲
M-101	FIRST FLOOR MECHANICAL PLAN	09/14/2024		○	▲
E-001	ELECTRICAL NOTES AND SYMBOLS	09/14/2024		○	▲
ED-101	ELECTRICAL DEMO PLAN	09/14/2024		○	▲
ES-101	ELECTRICAL SITE PLAN	09/14/2024		○	▲
ES-102	LIGHTING PHOTOMETRIC SITE PLAN NORTH	09/14/2024		○	▲
ES-103	LIGHTING PHOTOMETRIC PLAN SOUTH	09/14/2024		○	▲
EPT01	FIRST FLOOR POWER PLAN	09/14/2024		○	▲
ELT01	FIRST FLOOR LIGHTING PLAN	09/14/2024		○	▲
E-501	ELECTRICAL DETAILS	09/14/2024		○	▲
E-601	ELECTRICAL SCHEDULES	09/14/2024		○	▲



APPLICATION DATE	PERMITS	APPROVAL DATE
10/7/2024	WCDPS ROW PERMIT	11/14/2024
11/15/2024	WCDPS SESC PERMIT	
11/20/2024	EGL E ACT 399	



### CONSTRUCTION PLANS

OHM PROJECT NO. 0133-24-0020  
 DATE/ISSUE: 2024/11/22 BID SET

I Certify That The Civil Plans Were Prepared Under My Direct Supervision	I Certify That The Landscape Plans Were Prepared Under My Direct Supervision	I Certify That The Architectural Plans Were Prepared Under My Direct Supervision
I Certify That The Bridge Structural Plans Were Prepared Under My Direct Supervision	I Certify That The Building Structural Plans Were Prepared Under My Direct Supervision	I Certify That The Electrical Plans Were Prepared Under My Direct Supervision
		I Certify That The Mechanical Plans Were Prepared Under My Direct Supervision

**UTILITY PROVIDERS**

**WATER/SANITARY SEWER**  
 CANTON TOWNSHIP PUBLIC WORKS  
 4847 S. SHELDON ROAD  
 CANTON, MI 48188  
 734.397.1011

**TELEPHONE**  
 AT&T  
 54 N. MILL STREET  
 PONTIAC, MI 48342  
 248.456.8256 (OFFICE)

**NATURAL GAS**  
 DTE GAS COMPANY  
 ONE ENERGY PLAZA  
 DETROIT, MI 48226  
 800.477.4747

**CABLE**  
 COMCAST CABLE COMMUNICATIONS  
 25626 TELEGRAPH  
 SOUTHFIELD, MI 48033  
 248.809.2715  
 CONTACT: JEFF DOBIES  
 JEFF\_DOBIES@COMCAST.COM

**ELECTRICITY**  
 DTE ENERGY  
 8001 S. HAGGERTY ROAD  
 BELLEVILLE, MI 48111  
 734.397.4321



DRAWING PATH: P:\0126\_0185\0133240020\_Cantn\_Hill\_Village\_Phase\_1\Drawings\Site\Sheets\240020\_COV.dwg Nov 22, 2024 - 1:04pm



## 01 00 00: GENERAL REQUIREMENTS

1. THE CONTRACT DOCUMENTS, WHICH INCLUDE BUT ARE NOT LIMITED TO THE PLAN NOTES, SPECIFICATIONS, CONTRACT TERMS AND CONDITIONS, AND SUPPLEMENTAL CONDITIONS, LIST VARIOUS FIRMS AND AGENCIES HAVING VARYING LEVELS OF AUTHORITY OVER THE WORK. THE FOLLOWING ASSOCIATIONS OF AUTHORITY SHALL BE CONSIDERED PART OF THE CONTRACT AND SHALL BE HONORED BY THE CONTRACTOR UNLESS ALTERED IN WRITING BY THE OWNER.

- A. CONTRACTOR = TO BE DETERMINED (REQUIREMENTS OF CONTRACTOR SHALL EQUALLY APPLY TO ANY SURVEYOR, SUBCONTRACTOR, OR SERVICE PROVIDER RETAINED BY THE CONTRACTOR).
- B. SURVEYOR = SHALL BE RETAINED BY THE CONTRACTOR FOR STAKING, LAYOUT, MEASUREMENT, AND AS-BUILT RECORD AT NO ADDITIONAL EXPENSE TO THE OWNER.
- C. OWNER = CHARTER TOWNSHIP OF CANTON
- D. OWNER'S REPRESENTATIVE = ANY DELEGATE FROM ENGINEER, OWNER, OR TESTING AGENCY. OWNER MAY DESIGNATE OR CHANGE SPECIFIC REPRESENTATIVES FOR EACH PROJECT REQUIREMENT AT ANY TIME.
- E. ENGINEER = OHM ADVISORS (CONTACT: TAVIO PALAZZOLO, PE - (734) 466-4406).
- F. TESTING AGENCY = DESIGNATED AND RETAINED BY THE ENGINEER.
- G. UTILITY AUTHORITIES = SEE COVER SHEET.
- H. RIGHT-OF-WAY = WAYNE COUNTY ROADS - (734) 595-6504
- I. CONSTRUCTION PERMITTING = CHARTER TOWNSHIP OF CANTON
- J. TRAFFIC CONTROL REGULATION = MICHIGAN MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).

2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN THE NECESSARY FEDERAL, STATE, AND LOCAL PERMITS FOR THE PROPOSED WORK AT NO ADDITIONAL COST TO THE OWNER. KNOWN PERMITS ARE LISTED ON THE COVER SHEET.
3. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, PERSONNEL, AND EQUIPMENT NECESSARY TO COMPLY WITH ALL NOTES AND REQUIREMENTS CONTAINED WITHIN THE CONTRACT DOCUMENTS, INCLUDING THE PLAN DRAWINGS AND DETAILS FOR THE CONTRACT PRICE. COMPLIANCE WITH THE PROJECT REQUIREMENTS CONTAINED HEREIN SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND THE RESPECTIVE LUMP SUM OR UNIT PRICE COST(S).
4. DO NOT SCALE DRAWINGS. ANY DIMENSIONAL INFORMATION REQUIRED WHICH IS NOT INDICATED ON DRAWING DIMENSION STRINGS SHALL BE OBTAINED FROM THE ENGINEER.
5. MATERIALS, METHODOLOGIES, PROCEDURES THAT REFER TO "MDOT SHALL CONFORM TO MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND APPLICABLE SPECIAL PROVISIONS." REFERENCES TO PAYMENT WITHIN THE REFERENCED MDOT DOCUMENTS SHALL NOT APPLY TO THIS CONTRACT; ALL PAYMENT SHALL BE IN ACCORDANCE WITH THE METHOD OF PAYMENT AS DESCRIBED IN THE CONTRACT DOCUMENTS AND/OR OWNER'S PURCHASE ORDER LANGUAGE.
6. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO PERFORMING ACTIVITIES THAT WILL OR MAY REQUIRE ACCEPTANCE, INSPECTION, OR ANY TESTING DESCRIBED HEREIN.
7. SAFETY NOTICE: THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK; THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ON-SITE REVIEW OF THE CONTRACTOR'S PERFORMANCE DOES NOT ALLEVIATE THE CONTRACTOR'S SAFETY REQUIREMENTS.
8. EQUIPMENT, SOIL STOCKPILES, JOB TRAILERS, VEHICLES, AND OTHER MATERIALS SHALL ONLY BE STORED IN AN OWNER-APPROVED AREA THAT PREVENTS ENVIRONMENTAL DAMAGE, IS DEVOID OF MATURE TREES, AND IS ISOLATED FROM DRAINAGE FACILITIES, WETLANDS, STREAMS, AND TRAFFIC PATTERNS.
9. THE CONTRACTOR SHALL UNLOAD MATERIAL IN A SAFE AND CAREFUL MANNER WHICH PREVENTS DAMAGE TO THE MATERIAL AND EXISTING SITE FEATURES. DROPPING PIPE, STRUCTURES, FITTINGS, CASTINGS, OR OTHER BRITTLE OR FRAGILE MATERIAL OFF OF TRUCKS IS PROHIBITED.
10. WORK RESTRICTIONS: ALL DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE RESTRICTED TO NORMAL DAYLIGHT WORKING HOURS MONDAY THROUGH SATURDAY UNLESS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITIES TO THE SITE BOUNDARIES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE OR DISTURBANCE TO THE ADJACENT PROPERTIES OR RIGHT-OF-WAY OCCURRING DURING THIS CONTRACT, AT NO ADDITIONAL COST TO THE OWNER.
11. SCHEDULE WORK WITH OWNER TO FIT OWNER'S OPERATIONS, TO FACILITATE COMPLETION OF THIS WORK, TO COORDINATE WITH AND EXPEDITE NEW CONSTRUCTION WORK ON PROJECT.
12. PROJECT MEETINGS: ATTEND REGULAR MEETINGS WITH OWNER'S REPRESENTATIVE AND SUBCONTRACTORS AS DIRECTED BY OWNER'S REPRESENTATIVE.
13. COORDINATE SEQUENCING OF WORK TO OCCUR DURING CONDITIONS OF TEMPERATURE, HUMIDITY, EXPOSURE, FORECAST WEATHER, AND STATUS OF PROJECT COMPLETION, WHICH WILL ENSURE BEST POSSIBLE RESULTS FOR EACH UNIT OF WORK.
14. COORDINATE WORK BETWEEN TRADES FOR THE MOST EFFICIENT SEQUENCE OF INSTALLATION, TO PREVENT SPACE CONFLICTS, AND TO PROVIDE CLEARANCES REQUIRED BY CODE, DRAWINGS, AND THE MANUFACTURER.
15. PROVIDE COORDINATION DRAWINGS AND SKETCHES TO DEPICT MEANS AND METHODS AS NECESSARY FOR COORDINATION OF TRADES, TEMPORARY CONTROLS AND BARRIERS, SEQUENCING, MATERIALS LOADING AND UNLOADING, DISPOSAL, AND TO ENSURE PROTECTION OF FINISHED WORK.
16. SUBMIT CONSTRUCTION SCHEDULE TO THE OWNER'S REPRESENTATIVE WITHIN 30 DAYS OF CONTRACT AWARD AND AT LEAST WEEKLY WITH A TWO-WEEK LOOK AHEAD BREAKING DOWN TASKS AND DEPENDENCIES. SCHEDULE SHALL IN GANTT CHART OR CALENDAR FORMAT INCLUDE PROCUREMENT, SUBMITTAL REVIEW, MOBILIZATION, AND INSPECTION IN ADDITION TO FIELD WORK.
17. SUBMITTALS: TRANSMIT REQUIRED SUBMITTALS AND SHOP DRAWINGS VIA EMAIL OR OTHER ELECTRONIC METHOD AS DIRECTED BY THE ENGINEER. ALLOW 10 (TEN) BUSINESS DAYS FOR REVIEW OF INITIAL SUBMITTALS AND EACH RESUBMITTAL IN CONSTRUCTION SCHEDULE. TRANSMIT EACH SUBMITTAL SEPARATELY. INCLUDE COVER SHEET AND INDICATE SPECIFICATION, DRAWING, TYPE, AND VARIANCE (IF APPLICABLE) FOR EACH SUBMITTAL. MAINTAIN A SUBMITTAL LOG FOR OWNER REVIEW. THE CONTRACTOR IS RESPONSIBLE FOR FULL COMPLIANCE WITH THE CONTRACT DOCUMENTS; REVIEW BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THIS REQUIREMENT.
18. TEMPORARY FACILITIES AND CONTROLS SHALL BE KEPT IN NEAT AND WORKING ORDER AND OPERATED IN A SAFE AND EFFICIENT MANNER. CONTRACTOR SHALL NOT ALLOW HAZARDOUS, DANGEROUS OR UNSANITARY CONDITIONS, OR PUBLIC NUISANCES TO DEVELOP OR PERSIST ON THE SITE.
19. INSTALL TEMPORARY UTILITIES AS NECESSARY TO PREVENT OUTAGES DURING UTILITY WORK.
20. ALL UTILITY INSTALLATIONS AND MATERIALS SHALL BE IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION'S STANDARD DETAILS, SPECIFICATIONS, AND REQUIREMENTS, WHERE APPLICABLE.
21. NOTICE SHALL BE GIVEN BY THE CONTRACTOR, UNLESS WAIVED BY THE AUTHORITY HAVING JURISDICTION, TO ALL USERS AFFECTED BY A PROPOSED UTILITY OUTAGE, AT LEAST 48 HOURS IN ADVANCE OF THE PROPOSED OUTAGE.
22. AFTER CONSTRUCTION IS COMPLETED, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH AN AS-BUILT RECORD OF UTILITY CONSTRUCTION, THE AS-BUILTS SHALL INCLUDE LOCATION AND LENGTH DEVIATIONS OR CHANGES TO THE PLAN. CONTRACTOR SHALL VERIFY AND RECORD ELEVATIONS UNLESS DIRECTED OTHERWISE BY THE OWNER'S REPRESENTATIVE.

## 01 55 26: TRAFFIC CONTROL

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL AND PEDESTRIAN SAFETY DEVICES SUCH AS CONES, BARRICADES, SIGNS, FLAGS, TEMPORARY PAVEMENT MARKINGS, FENCES, AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY CONFORMING TO LOCAL TRAFFIC CONTROL STANDARDS. TRAFFIC AND PEDESTRIAN CONTROLS SHALL PROHIBIT TRAFFIC OVER NEW PAVEMENT, LANDSCAPING, RESTORATION, PAINT, OR ANY OTHER NEWLY INSTALLED FEATURE UNTIL THE OWNER'S REPRESENTATIVE AUTHORIZES OPENING TO TRAFFIC.
2. CONTRACTOR SHALL MAINTAIN AN ACCESSIBLE ROUTE FOR PEDESTRIANS AND EMERGENCY VEHICLES AND PERSONNEL TO ADJACENT BUILDINGS AT ALL TIMES.
3. THE CONTRACTOR SHALL PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN FOR ANY WORK ADJACENT TO OR WITHIN THE PUBLIC RIGHT-OF-WAY.

## 01 56 00: TEMPORARY BARRIERS AND ENCLOSURES

1. INSTALL TEMPORARY CONSTRUCTION FENCE TO SECURE THE SITE AND PROTECT THE PUBLIC. SITE SECURITY IS THE CONTRACTOR'S RESPONSIBILITY; THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
2. ANY EXISTING TREE THAT IS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR. TREE WILL BE CONSIDERED DAMAGED IF THE CRITICAL ROOT ZONE IN COHESIVE SOILS IS COMPACTED OR IF THERE ARE SIGNIFICANT WOUNDS THAT COULD CONTRIBUTE TO ROT OR DISTRESS.

## 01 71 00: EXAMINATION AND PREPARATION

1. PRIOR TO THE WORK, PREPARE AND SUBMIT PRE-CONSTRUCTION VIDEO OR PHOTOS, CONSTRUCTION AND TREE PROTECTION FENCE PLANS, SHOP DRAWINGS, AND PRODUCT INFORMATION.
2. CONTRACTOR SHALL FIELD VERIFY LOCATION AND ELEVATION OF BURIED UTILITIES AND TOPOGRAPHIC FEATURES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES ON THE SAME DAY THEY ARE DISCOVERED.
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND LIMITED MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION SHALL NOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE OWNER'S REPRESENTATIVE OF DISCREPANCIES IN THE PLANS.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. THE ENGINEER, ARCHITECT, AND OWNER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE LOCATION OR DEPTH OF ANY EXISTING UTILITY SHOWN OR NOT SHOWN ON THE PROJECT DRAWINGS.
5. PRE-CONSTRUCTION PHOTOGRAPHS OR VIDEO: SHOW EXISTING CONDITIONS OF ADJOINING CONSTRUCTION, INCLUDING FINISH SURFACES, THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY CONSTRUCTION OPERATIONS.

## 01 73 00: EXECUTION

1. CONTRACTOR SHALL MAINTAIN DETENTION POND FUNCTIONALITY THAT MEETS CURRENT WAYNE COUNTY STANDARDS DURING RAIN EVENTS. MEASURES SHALL BE TAKEN TO ENSURE COMPLIANCE WITH PART 91 SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS.
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL BUILDINGS WITHIN THE CHERRY HILL VILLAGE DEVELOPMENT. ALL BUILDINGS ARE TO REMAIN OPEN DURING THE ENTIRETY OF THE CONSTRUCTION.

## 02 41 13: SELECTIVE SITE DEMOLITION

1. TAKE MEASURES AS NECESSARY AND REASONABLE TO PROTECT EXISTING PROPERTY, UTILITIES, AND FEATURES FROM DAMAGE DURING DEMOLITION ACTIVITIES.
2. TEMPORARY SHORING: DESIGN, PROVIDE, AND MAINTAIN SHORING, BRACING, AND STRUCTURAL SUPPORTS AS REQUIRED TO PRESERVE STABILITY AND PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF CONSTRUCTION AND FINISHES TO REMAIN, AND TO PREVENT UNEXPECTED OR UNCONTROLLED MOVEMENT OR COLLAPSE OF CONSTRUCTION BEING DEMOLISHED.
3. TOPSOIL STRIPPING: STRIP THE FULL DEPTH OF TOPSOIL ONLY FROM THOSE AREAS THAT WILL BE DISTURBED BY EXCAVATION, FILLING, CONSTRUCTION, OR COMPACTION BY EQUIPMENT.
4. TEMPORARY STOCKPILES: PROTECTIVE MEASURES SHALL BE INCORPORATED BY THE CONTRACTOR TO ENSURE SAFETY AND CONTROL EROSION ASSOCIATED WITH THE TEMPORARY STOCKPILES. STOCKPILE STRIPPED TOPSOIL WITHOUT INTERMIXING WITH ANY OTHER MATERIAL - BORROW TOPSOIL TO REPLACE MATERIAL CONTAMINATED BY THE CONTRACTOR SHALL BE AT THE CONTRACTOR'S EXPENSE.
5. REMOVE: DETACH ITEMS FROM EXISTING CONSTRUCTION AND DISPOSE OF THEM OFF-SITE UNLESS INDICATED TO BE SALVAGED OR REINSTALLED.
6. REMOVE AND SALVAGE: DETACH ITEMS FROM EXISTING CONSTRUCTION, IN A MANNER TO PREVENT DAMAGE, AND DELIVER TO OWNER READY FOR REUSE. CLEAN SALVAGED ITEMS. TRANSPORT ITEMS TO OWNER'S STORAGE AREA DESIGNATED BY OWNER. PROTECT ITEMS FROM DAMAGE, LOSS, AND THEFT DURING TRANSPORT AND STORAGE.
7. REMOVE AND REINSTALL: DETACH ITEMS FROM EXISTING CONSTRUCTION, IN A MANNER TO PREVENT DAMAGE, PREPARE FOR REUSE, AND REINSTALL WHERE INDICATED.
8. EXCAVATED MATERIALS NOT NEEDED OR NOT SUITABLE FOR FILL SHALL BE DISPOSED OFFSITE.
9. DISPOSAL: ALL DEMOLITION AND REMOVED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL HAULING AND DISPOSAL REGULATIONS UNLESS DIRECTED OTHERWISE BY THE OWNER. DISPOSAL IN WETLANDS AND FLOODPLAINS IS PROHIBITED. BURNING ON-SITE IS PROHIBITED.
10. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY SELECTIVE DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE SELECTIVE DEMOLITION OPERATIONS BEGAN.

## 31 23 00: EXCAVATION AND FILL (EARTHWORK)

1. ONE-CALL UTILITY LOCATING: MISSDIG - 811 OR 800-482-7171. CONTRACTOR SHALL CALL AND OPEN AN EXCAVATION TICKET A MINIMUM OF 3 WORKING DAYS PRIOR TO ANY EXCAVATION. WHEN MARKINGS AND FLAGS ARE DISRUPTED OR DESTROYED CALL FOR REMARKING. WHEN MARKINGS CONFLICT WITH EXPOSED UTILITIES, STOP WORK AND NOTIFY THE ENGINEER, THE OWNER, AND THE UTILITY OWNER IMMEDIATELY.
2. SUBMITTALS: MATERIAL TEST REPORTS FOR EACH BORROW SOIL (ONE PER SOURCE) AND EACH TYPE OF JOB EXCAVATED FILL. REPORT SHALL INCLUDE CLASSIFICATION ACCORDING TO ASTM D 2487 (USCS), SIEVE ANALYSIS (ASTM C 136), LABORATORY COMPACTION CURVE ACCORDING TO ASTM D 1557 (MODIFIED PROCTOR), AND MATERIALS CERTIFICATION.
3. IMPERVIOUS FILL: CLAYEY GRAVEL AND SAND MIXTURE CAPABLE OF COMPACTING TO A DENSE STATE.
4. GRANULAR FILL: SHARP SAND, GRAVEL, OR CRUSHED STONE THAT IS FREE FROM LUMPS OF CLAY AND SOFT OR FLAKY MATERIAL AND SHALL CONFORM TO THE GRADATION OF MDOT SPECIFICATION TABLE 902-3 FOR MDOT CLASS 1 UNLESS OTHERWISE STATED ON THE PLANS OR PERMITTED BY THE OWNER'S REPRESENTATIVE. MAY BE IMPORTED OR JOB EXCAVATED IF IT MEETS THE REQUIREMENTS.
5. STONE FILL: CRUSHED LIMESTONE MEETING THE REQUIREMENTS OF MDOT SPECIFICATION TABLE 902-1 AND 902-2 FOR CLASS 6A, 6AA, OR 6AAA. CRUSHED CONCRETE SHALL NOT BE USED.
6. JOB EXCAVATED FILL: ACCEPTABLE ONLY IF CLASSIFIED AS GW, GP, GM, SW, SP, AND SM ACCORDING TO ASTM D 2487 OR A COMBINATION OF THESE GROUPS AND IS FREE FROM FROZEN EARTH, BOULDERS, ROCKS, STONES LARGER THAN 2 INCH IN SIZE, DEBRIS, VEGETATION, BLUE AND GRAY CLAY, AND ORGANIC MATERIAL.
7. BEDDING FOR UTILITY STRUCTURES AND PIPING: SHALL BE GRANULAR FILL OR STONE FILL, OWNER OR CONTRACT PLAN DETAIL SHALL GOVERN.
8. BACKFILL FOR UTILITY STRUCTURES AND PIPING: SHALL BE GRANULAR FILL BENEATH PAVEMENT, WALKS, PATHS, ROADS, AND WITHIN A 1H:1V ENVELOPE OF THE EDGE OF PAVEMENT OR BACK OF CURB. MAY BE COMPACTED JOB EXCAVATED FILL IN OTHER AREAS.
9. EMBANKMENT (FILL): SOILS PLACED AND COMPACTED ABOVE ORIGINAL OR NATURAL GROUND LINE SUCH THAT FUTURE SITE IMPROVEMENTS WILL BE CONSTRUCTED ABOVE OR NEAR THE PLACED SOILS. SHALL BE GRANULAR FILL WHEN PLACED BENEATH PAVEMENT, WALKS, PATHS, ROADS, AND WITHIN A 1H:1V ENVELOPE OF THE EDGE OF PAVEMENT OR BACK OF CURB.
10. EXCAVATION (CUT): REMOVAL OF MATERIAL ENCOUNTERED ABOVE DESIGN SUBGRADE ELEVATIONS AND TO LINES AND DIMENSIONS INDICATED.
11. UNSATISFACTORY OR UNSUITABLE SOIL MATERIALS: ASTM D 2487 SOIL CLASSIFICATION GROUPS GC, SC, ML, MH, CL, CH, OL, OH, AND PT.
12. PROVIDE APPROVED BORROW SOIL MATERIALS FROM OFF-SITE WHEN SUFFICIENT APPROVED SOIL MATERIALS ARE NOT AVAILABLE FOR EXCAVATIONS. CONTRACTOR SHALL CALCULATE CUT AND FILL QUANTITIES AND SHALL IMPORT AND EXPORT MATERIALS AS NEEDED TO COMPLY WITH THE PROJECT PLANS, DETAILS, AND SPECIFICATIONS AS INCIDENTAL TO EARTHWORK UNIT PRICES AND CONTRACT AMOUNT FOR EXCAVATION AND FILL, UTILITIES INSTALLATION, AND DEMOLITION/REMOVAL.
13. TOPSOIL STRIPPING: STRIP AND SALVAGE THE FULL DEPTH OF TOPSOIL FROM AREAS REQUIRING EXCAVATION OR EMBANKMENT.
14. SALVAGE EXCAVATED MATERIALS AS NEEDED FOR USE AS FILL OR BACKFILL. SEGREGATE SALVAGED MATERIALS AND PREVENT CONTAMINATION. BORROW SOILS NEEDED TO REPLACE REJECTED MATERIALS SHALL BE AT NO ADDITIONAL COST TO THE OWNER.
15. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A SAFE EXCAVATION AT ALL TIMES. USE SHORING, TRENCH BOXES, SLOPING, BENCHING, AND DEWATERING AS NEEDED TO ENSURE THE SAFETY OF WORKERS, INSPECTORS, TESTERS, AND OBSERVERS. UNATTENDED EXCAVATIONS SHALL BE BARRICADED AND/OR FENCED TO PREVENT ACCIDENTS - CONTRACTOR IS RESPONSIBLE FOR PUBLIC SAFETY AROUND ANY EXCAVATIONS THEY CREATE.
16. CONTRACTOR, OR THEIR SURVEYOR, SHALL CALCULATE THE SUBGRADE ELEVATION REQUIRED FOR EXCAVATION AND FILL WORK BY REFERENCING THE PROPOSED FINAL GRADE, COMPARING IT TO THE EXISTING GRADE, AND BACK-CALCULATING THE SUBGRADE ELEVATION BASED ON THE PROJECT PLANS, DETAILS, SPECIFICATIONS, AND/OR DIRECTION OF THE OWNER'S REPRESENTATIVE REGARDING THE FINISH SURFACE OR PAVEMENT CROSS SECTION.
17. SURVEYOR SHALL PROVIDE STAKING FOR GRADING, FILL THICKNESS, CUT AND FILL LIMITS, AND ANY OTHER FIELD CONTROL NEEDED TO COMPLETE THE WORK IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS.
18. CONTAMINATED SOILS ARE NOT ANTICIPATED TO BE ENCOUNTERED. IF CONTAMINATED SOILS ARE EXCAVATED, THEY SHALL BE ISOLATED FROM OTHER MATERIALS, PROTECTED FROM SPREADING CONTAMINANTS INTO STORM SEWERS AND WATERWAYS, AND SHALL BE DISPOSED OF ACCORDING TO LOCAL AND STATE

- REGULATIONS.
19. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS WITHIN A TOLERANCE OF PLUS OR MINUS 0.10- FEET.
  20. EXCAVATED MATERIALS SHALL BE PLACED ON THE UPHILL SIDES OF TRENCHES, WHERE POSSIBLE, AND SHALL BE SET BACK 10 FEET FROM THE TRENCH.
  21. TRENCH OR EXCAVATE TO ALLOW FOR PROPER PIPE LINE AND GRADE, UTILITY STRUCTURE INSTALLATION, BRACING AND SHORING (IF NEEDED), AND TO ALLOW FOR THE PROPOSED PAVEMENT OR RESTORATION CROSS-SECTION PER THE PLANS. EXCESS EXCAVATION, NOT DIRECTED BY THE OWNER'S REPRESENTATIVE AND NOT NEEDED TO INSTALL UTILITIES OR SITE IMPROVEMENTS SHALL BE BACKFILLED WITH COMPACTED GRANULAR FILL AT THE CONTRACTOR'S EXPENSE. SOFT OR WET TRENCH SUBGRADE SHALL BE REMOVED AND BACKFILLED WITH COMPACTED GRANULAR FILL.
  22. PROTECT BENCHMARKS, FENCES, STRUCTURES, UTILITIES, PAVEMENTS, PROTECTION ZONES, PLANTS/LANDSCAPING, AND OTHER FACILITIES FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY EARTH MOVING OPERATIONS.
  23. DRIED OR CRUSTED COHESIVE SOILS SHALL BE PLOWED, DISKED OR OTHERWISE BROKEN UP BEFORE COMPACTION. IF WATER IS ADDED TO FILLS, THE LAYER SHALL BE SPREAD IN EVEN LIFTS, MOISTENED AS NECESSARY, THOROUGHLY MIXED, AND COMPACTED.
  24. PRIOR TO PLACING ANY SOIL MATERIAL OR PAVEMENTS, THE UNDERLYING COURSE OR SUBGRADE SHALL BE CLEANED OF ALL FOREIGN/ORGANIC SUBSTANCES, ALL FROZEN MATERIALS REMOVED, AND THE SURFACE SHALL MEET COMPACTION AND SURFACE TOLERANCES. PLACEMENT OF SUBSEQUENT LAYERS OF SOIL MATERIAL SHALL NOT BE PERFORMED UNTIL THE UNDERLYING MATERIAL HAS BEEN VERIFIED AND ACCEPTED BY THE TESTING AGENCY TO HAVE MET THE CONDITION, GRADATION, WATER CONTENT, AND COMPACTION AS REQUIRED BY THE DESIGN.
  25. FILL AND BACKFILL MATERIALS SHALL BE PLACED UNIFORMLY ON AN ACCEPTABLE SOIL SURFACE AND COMPACTED IN 8-INCH LIFTS UNLESS THE CONTRACTOR CAN DEMONSTRATE TO THE OWNER'S REPRESENTATIVE THAT ACCEPTABLE COMPACTION CAN BE ACHIEVED IN THICKER LIFTS.
  26. COMPACTION EQUIPMENT: SHEEPSFOOT ROLLER FOR COHESIVE MATERIALS; VIBRATORY FOR GRANULAR MATERIALS (SAND, STONE, AND GRAVEL). WORK FROM OUTSIDE TO THE CENTER WITH ROLLERS, OVERLAPPING ON SUCCESSIVE TRIPS AT LEAST ONE-HALF THE WIDTH OF THE ROLLER. ALTERNATE TRIPS OF THE ROLLER SHALL BE SLIGHTLY DIFFERENT LENGTHS.
  27. PLACE EMBANKMENT AND BACKFILL AT OPTIMAL DENSITY TO ACHIEVE MINIMUM COMPACTION. WET OR SLOPPY BACKFILL SHALL NOT BE PERMITTED. FILL AND BACKFILL SHALL BE PLACED WITH A WATER CONTENT OF PLUS OR MINUS 2% OF THE OPTIMUM (ASTM D 1557).
  28. MAXIMUM UNIT WEIGHT SHALL BE DETERMINED BY ASTM D 1557 (MODIFIED PROCTOR), AASHTO DESIGNATION T-180, OR BY THE CONE DENSITY METHOD DEVELOPED BY MDOT, AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
  29. COMPACT FILL, BACKFILL, SUBGRADE AND EMBANKMENTS TO 95% UNLESS OTHERWISE INDICATED ON PLANS AND DETAILS. COMPACTION SHALL BE MEASURED RELATIVE TO THE MAXIMUM DRY DENSITY PER ASTM D 1557 (MODIFIED PROCTOR METHOD).
  30. TESTING AGENCY SHALL PERFORM IN-PLACE DENSITY CHECKS (ASTM D1556 - SAND CONE OR ASTM D6938 - NUCLEAR GAUGE) AT THE FOLLOWING INTERVALS: UNDER SIDEWALK: 1 PER 100 SFT; UNDER ROADS AND PARKING LOTS: 1 PER 500 SFT, UTILITY TRANCHES: 1 PER 100 FT OF PIPE. TESTING AGENCY HAS AUTHORITY TO STOP OR REJECT WORK FOR QUALITY ON BEHALF OF THE OWNER.
  31. GRADE AREAS TO A SMOOTH SURFACE. SLOPE GRADES TO DIRECT WATER AWAY FROM BUILDINGS AND STRUCTURES TO PREVENT PONDING. FINISH SUBGRADES TO REQUIRED ELEVATIONS WITHIN THE FOLLOWING TOLERANCES: UNPAVED AREAS: PLUS OR MINUS 1 INCH. WALKS: PLUS OR MINUS 1 INCH. PAVEMENTS: PLUS OR MINUS 1/2 INCH.
  32. SURPLUS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY BY THE CONTRACTOR.
  33. UNSATISFACTORY SOIL AND WASTE MATERIAL SHALL BE REMOVED, INCLUDING TRASH, AND DEBRIS, AND LEGALLY DISPOSED OF OFF THE OWNER'S PROPERTY.

## 31 25 00: EROSION AND SEDIMENTATION CONTROLS

1. SESS REGULATOR - WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES (CONTACT: LAND RESOURCE MANAGEMENT DIVISION - 734.326.3936)
2. SUBMITTALS: PRODUCT INFORMATION FOR EACH MATERIAL PROPOSED FOR USE, INCLUDING AGGREGATE / RIPRAP (INCLUDE GRADATION ANALYSIS), GEOSYNTHETICS, MULCH AND MULCH BLANKETS, TURF REINFORCEMENT MATS, SILT FENCE, DEWATERING FILTER BAGS, EROSION EELS, WATTLES, AND INLET FILTERS.
3. TEMPORARY CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR TO CONTROL EROSION OF EARTH AND TO MAINTAIN QUALITY OF DISCHARGED RUNOFF DURING THE ACTIVITIES DESCRIBED IN THIS CONTRACT AND SHOWN ON THE CONTRACT PLANS. REMOVE AND DISPOSE OF TEMPORARY MEASURES AFTER THE CONCLUSION OF ASSOCIATED WORK WHEN PERMANENT CONTROL MEASURES AND RESTORATION ARE FUNCTIONING FULLY. THE SITE IS STABILIZED (ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING OR COVERING OF SOIL TO ENSURE RESISTANCE TO SOIL EROSION, SLIDING OR OTHER EARTH MOVEMENT) AND ONLY UNDER THE DIRECTION OF THE OWNER'S REPRESENTATIVE.
4. PERMANENT CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR TO CONTROL EROSION OF EARTH AND MAINTAIN QUALITY OF DISCHARGED RUNOFF DURING AND AFTER EXECUTION OF THE CONTRACT. COMPLETE PERMANENT SOIL EROSION CONTROL MEASURES FOR THE EARTH CHANGE WITHIN FIVE (5) CALENDAR DAYS AFTER FINAL GRADING OR UPON COMPLETION OF FINAL EARTH CHANGE.
5. COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTION FOR EARTH CHANGES, STORMWATER QUALITY, AND RUNOFF DISCHARGE. INSPECT AND MAINTAIN ALL CONTROL MEASURES DAILY. INSPECTIONS BY THE OWNER OR A REGULATOR MAY OCCUR AND RESULT IN DIRECTION FOR MAINTENANCE OR EXPANSION OF INSTALLED MEASURES; CONTRACTOR SHALL COMPLY AT NO ADDITIONAL COST.
6. NO DEMOLITION, CUTTING, GRADING, EARTH CHANGE, EXCAVATION, OR CONSTRUCTION SHALL BE PERFORMED PRIOR TO FULL IMPLEMENTATION OF CONTROL MEASURES.
7. DESIGN, CONSTRUCT, AND COMPLETE THE EARTH CHANGE IN A MANNER THAT LIMITS THE EXPOSED AREA OF DISTURBED LAND FOR THE SHORTEST PERIOD OF TIME. CONTROL MEASURES SHALL BE INSTALLED TO CONVEY WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AT A NON-EROSIVE VELOCITY. REMOVE SEDIMENT CAUSED BY ACCELERATED SOIL EROSION FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE.
8. INSTALL TEMPORARY INLET FILTERS AT ALL ADJACENT AND DOWN-GRADIENT STORM WATER INLETS, CATCH BASINS, AND MANHOLES THAT MAY BE IMPACTED BY RUNOFF FROM THE CONSTRUCTION ACTIVITIES.
9. REPLACE INLET FILTERS THAT HAVE HOLES OR ARE INUNDATED WITH SEDIMENT. STORM DRAINS MUST BE PROTECTED FROM DUST, SEDIMENT, AND DEBRIS. CATCH BASIN INLET FILTERS SHALL BE MAINTAINED CLEAN AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD.
10. SILT FENCE SHALL BE INSTALLED AROUND ALL DISTURBED EARTH AND MAINTAINED AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. PERFORM SILT FENCE REPAIR OR REPLACEMENT AS NECESSARY ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MAINTENANCE INCLUDES THE REMOVING OF BUILT-UP SEDIMENT ACCUMULATES TO 1/2 THE HEIGHT OF THE FENCE. CONTRACTOR SHALL REMOVE, REPLACE, RETRENCH, OR RE-BACKFILL THE FENCE IF IT FAILS OR IS DAMAGED BY CONSTRUCTION ACTIVITY.
11. STOCKPILES AND OTHER SPOIL PILES SHALL BE MINIMIZED AND SHALL BE PLACED AWAY FROM THE DRAINAGE SYSTEM TO MINIMIZE SEDIMENT TRANSPORT. IF THE STOCKPILE AND/OR SPOIL PILE MUST REMAIN ON-SITE OVERNIGHT, OR IF THE WEATHER CONDITIONS INDICATE THE CHANCE FOR PRECIPITATION, (A) COVER THE PILE WITH WATER REPELLENT MATERIAL AND/OR (B) INSTALL SILT FENCING AROUND THE BASE OF THE PILE OR APPLY OTHER CONTROL METHODS APPROPRIATE TO THE SITE. WET OR COVER STOCKPILES TO PREVENT WIND EROSION
12. DITCHES AND SWALES SHALL HAVE CHECK DAMS INSTALLED AT REGULAR INTERVALS; CULVERT INLETS AND/OR SPILLWAYS SHALL BE PROTECTED WITH STONE BERMS OR STRAW BALES
13. CONSTRUCTION ENTRANCE(S) (RIP RAP OR OPEN-GRADED STONE AGGREGATE OVER GEOTEXTILE) SHALL BE INSTALLED AND MAINTAINED TO PREVENT TRACKING OF SOILS OFF SITE.
14. THROUGHOUT THE CONSTRUCTION PERIOD, ALL MUD/SILT TRACKED ONTO EXISTING ROADS FROM THE SITE DUE TO CONSTRUCTION SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR BY SWEEPING.
15. SEEDING OR OTHER STABILIZATION SHALL BE REQUIRED IMMEDIATELY TO AREAS DAMAGED BY RUNOFF.
16. DUST CONTROL: USE WATER AND WETTING TO PREVENT THE SPREAD OF DUST AND DEBRIS AND AVOID THE CREATION OF A NUISANCE IN THE SURROUNDING AREA. DO NOT USE WATER IF IT RESULTS IN HAZARDOUS OR OBJECTIONABLE CONDITIONS SUCH AS, BUT NOT LIMITED TO, ICE, FLOODING, OR POLLUTION.
17. POLLUTION PREVENTION NOTES  
DURING WORK ACTIVITIES IF SUSPECT CONTAMINATED SOIL (CHEMICAL OR UNUSUAL ODORS, STAINING, UNUSUAL COLORING, AND/OR CONTAIN MAN-MADE DEBRIS), GROUNDWATER (CHEMICAL OR UNUSUAL ODORS, UNUSUAL COLORING, AND/OR SHEEN), OR OTHER UNKNOWN MATERIAL IS ENCOUNTERED CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY. IMMEDIATELY CEASE ALL EXCAVATION, DEWATERING, TRANSPORT, OR DISTURBANCE OF THE SUSPECT MATERIAL UNTIL GIVEN DIRECTION BY THE OWNER'S REPRESENTATIVE.
- A. DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE, AND OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS OR INTO NATURAL OR MAN-MADE CHANNELS LEADING THERETO IS STRICTLY PROHIBITED. ANY SPILLS OR DISCHARGES AS DESCRIBED ABOVE SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE

- IMMEDIATELY.
- B. THE FOLLOWING REQUIREMENTS APPLY:
- i. ANY WATER USED DURING CONCRETE AND ASPHALT WORK (INCLUDING SWEEPING AND SAW-CUTTING) MUST BE CONTAINED AND COLLECTED FOR PROPER DISPOSAL. SUGGESTED CONTROLS INCLUDE WET VACUUM, OR ABSORBENTS.
  - ii. GOOD HOUSEKEEPING PRACTICES MUST BE EMPLOYED AT THE JOBSITE. MINIMIZE DUST.
18. DEWATERING: UNCONTAMINATED GROUNDWATER AND SEDIMENT-FREE SURFACE WATER MAY BE DISCHARGED TO AN INLET-PROTECTED STORM DRAIN. CONTRACTOR SHALL USE A FILTER (DEWATERING) BAG CONNECTED TO THE END OF THE DEWATERING DISCHARGE PIPE. THE FINAL DISCHARGE MUST BE CLEAR (NO TURBIDITY) AND ON A CLEAN SURFACE (NOT ON EXPOSED SOILS). INSPECT AND MAINTAIN THE PUMP HOSES AND FILTER BAGS DAILY, REPLACE COMPROMISED OR DETERIORATED EQUIPMENT IMMEDIATELY. IF THERE ARE INDICATIONS OF POSSIBLE CONTAMINATION, OR IF THE WATER IS TURBID, IMMEDIATELY CEASE DISCHARGE.

## 32 12 16: ASPHALT PAVING

1. THIS SECTION INCLUDES BITUMINOUS CONCRETE (ASPHALT) ROADS, PARKING LOTS, DRIVEWAYS, OVERLAYS, AND SHARED USE PATHS.
2. HOT-MIX ASPHALT SHALL MEET MATERIALS, WORKMANSHIP, AND APPLICABLE REQUIREMENTS OF MDOT SPECIFICATIONS, EXCEPT AS MODIFIED BELOW.
3. SUBMITTALS: PRODUCT DATA FOR EACH TYPE OF PRODUCT. JOB MIX DESIGN INCLUDING CERTIFICATIONS AND SOURCES SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. SUBMIT AN ASPHALT QUALITY CONTROL PLAN FOR APPROVAL PRIOR TO PAVING. SUBMIT COPIES OF ALL TEST RESULTS FOR EMULSIFIED ASPHALT, BITUMINOUS MATERIALS, AND CERTIFIED COPIES OF THE MANUFACTURER'S TEST REPORTS INDICATING TEMPERATURE VISCOSITY RELATIONSHIP FOR CUTBACK ASPHALT AND COMPLIANCE WITH APPLICABLE SPECIFIED REQUIREMENTS.
4. AGGREGATES, COARSE AND FINE, SHALL COMPLY WITH MDOT SECTION 902.09. MINERAL FILLER SHALL COMPLY WITH MDOT SPECIFICATION 902.11.
5. BINDER SHALL BE PG 64-218. TACK COAT SHALL BE SS-1H IN ACCORDANCE WITH MDOT SPECIFICATION TABLE 904-5
6. MDOT MARSHALL MIX DESIGNS SHALL COMPLY WITH THE DESIGN CRITERIA AND VOLUMETRIC PROPERTIES OF MDOT SPECIAL PROVISION 12AP-501F-01, AVAILABLE UPON REQUEST.
7. MDOT SUPERPAVE MIX DESIGNS AND AGGREGATES SHALL COMPLY WITH MDOT SECTIONS 501 AND 902.
8. ENVIRONMENTAL FACTORS FOR MATERIAL PLACEMENT. DO NOT PLACE THE HOT-MIX ASPHALT ON A WET SURFACE OR WHEN THE SURFACE TEMPERATURE OF THE UNDERLYING COURSE IS LESS THAN 45°F. THE TEMPERATURE REQUIREMENTS MAY BE WAIVED BY THE OWNER, IF REQUESTED; HOWEVER, ALL OTHER REQUIREMENTS, INCLUDING COMPACTION, SHALL BE MET. APPLY BITUMINOUS COAT ONLY WHEN THE SURFACE TO RECEIVE THE COAT IS DRY. APPLY COAT ONLY WHEN THE ATMOSPHERIC TEMPERATURE IN THE SHADE IS 50 DEGREES OR ABOVE WHEN THE TEMPERATURE HAS NOT BEEN BELOW 35 DEGREES F FOR THE 12 HOURS PRIOR TO APPLICATION.
9. ASPHALT PATCHING. SAWCUT PERIMETER OF PATCH EXTENDING 12 INCHES INTO SOUND MATERIAL. APPLY TACK COAT TO VERTICAL SURFACES. FILL WITH HOT MIX ASPHALT BASE COURSE MIX FOR FULL DEPTH AND COMPACT FLUSH WITH ADJACENT SURFACE WITH SILENT BOT.
10. SURFACE PREPARATION. PROOFROLL AGGREGATES PRIOR TO PAVING; PERFORM SUBGRADE UNDERCUT AND/OR AGGREGATE REPLACEMENT AND COMPACTION AS NEEDED FOR A STABLE PAVING SURFACE. APPLY TACK COAT UNIFORM RATE OF 0.05 TO 0.15 GALLONS PER SQUARE YARD TO EXISTING PAVEMENTS AND ALLOW TO CURE. IMMEDIATELY BEFORE APPLYING THE BITUMINOUS COAT, REMOVE ALL LOOSE MATERIAL, DIRT, CLAY, OR OTHER OBJECTIONABLE MATERIAL FROM THE SURFACE.
11. PRIME COAT APPLICATION: PRIME COAT SHALL BE APPLIED IN A UNIFORM, CONTINUOUS SPREAD AT THE RATE OF NOT LESS THAN 0.2 GALLONS, AND NOT MORE THAN 0.3 GALLONS, PER SQUARE YARD APPLIED IN TWO APPLICATIONS.
12. ASPHALT PLACEMENT. PLACE AND COMPACT THE MIX AT A TEMPERATURE SUITABLE FOR OBTAINING DENSITY, SURFACE SMOOTHNESS, AND OTHER SPECIFIED REQUIREMENTS. UPON ARRIVAL, PLACE THE MIXTURE TO THE FULL WIDTH BY AN ASPHALT PAVER; IT SHALL BE STRUCK OFF IN A UNIFORM LAYER OF SUCH DEPTH THAT, WHEN THE WORK IS COMPLETED, IT WILL HAVE THE REQUIRED THICKNESS AND CONFORM TO THE GRADE AND CONTOUR INDICATED. REGULATE THE SPEED OF THE PAVER TO ELIMINATE PULLING AND TEARING OF THE ASPHALT MAT. PROMPTLY CORRECT SURFACE IRREGULARITIES IN PAVING COURSE BEHIND PAVER. UNLESS OTHERWISE PERMITTED, PLACEMENT OF THE MIXTURE SHALL BEGIN ALONG THE CENTERLINE OF A CROWNED SECTION OR ON THE HIGH SIDE OF AREAS WITH A ONE-WAY SLOPE.
13. APPLICATION RATES. PLACE IN ACCORDANCE WITH MDOT RECOMMENDED RATES BASED ON THE MIXTURE. ADDITIONAL SPECIFICATION MAY BE REQUESTED FROM THE ENGINEER.
14. JOINTS. PLACE THE MIXTURE IN CONSECUTIVE ADJACENT STRIPS HAVING A MINIMUM WIDTH OF 10 FEET. THE LONGITUDINAL JOINT IN ONE COURSE SHALL OFFSET THE LONGITUDINAL JOINT IN THE COURSE IMMEDIATELY BELOW BY AT LEAST 1 FOOT; HOWEVER, THE JOINT IN THE SURFACE COURSE SHALL BE AT THE CENTERLINE OF THE PAVEMENT. TRANSVERSE JOINT IN ADJACENT LANES SHALL BE OFFSET A MINIMUM OF 10 FEET. ON ISOLATED AREAS WHERE IRREGULARITIES OR UNAVOIDABLE OBSTACLES MAKE THE USE OF MECHANICAL SPREADING AND FINISHING EQUIPMENT IMPRACTICAL, THE MIXTURE MAY BE SPREAD AND LUTED BY HAND TOOLS.
15. COMPACTION. COMPACT TO 97.0% OF MAXIMUM. AFTER PLACING, THE MIXTURE SHALL BE THOROUGHLY AND UNIFORMLY COMPACTED BY ROLLING. COMPACT THE SURFACE AS SOON AS POSSIBLE WITHOUT CAUSING DISPLACEMENT, CRACKING OR SHOving, BEFORE THE MIXTURE COOLS BELOW 185°F. THE SEQUENCE OF ROLLING OPERATIONS AND THE TYPE OF ROLLERS USED SHALL BE AT THE DISCRETION OF THE CONTRACTOR. THE SPEED OF THE ROLLER SHALL, AT ALL TIMES, BE SUFFICIENTLY SLOW TO AVOID DISPLACEMENT OF THE HOT MIXTURE AND BE EFFECTIVE IN COMPACTION. PERFORM BREAKDOWN ROLLING, THEN INTERMEDIATE ROLLING, AND FINISH ROLLING WHILE THE MIXTURE IS STILL HOT TO ACHIEVE REQUIRED DENSITY AND REMOVE ROLLER MARKS. PERFORM COMPACTION OF THE MAT AND SHAPE/BEVEL EDGES WHILE THE MIXTURE IS STILL HOT. PROTECT THE MAT AFTER FINAL ROLLING WITH BARRICADES TO PREVENT VEHICULAR TRAFFIC UNTIL COOLED AND HARDENED.
16. ANY DISPLACEMENT OCCURRING AS A RESULT OF REVERSING THE DIRECTION OF THE ROLLER, OR FROM ANY OTHER CAUSE, SHALL BE CORRECTED AT ONCE. FURNISH SUFFICIENT ROLLERS TO HANDLE THE OUTPUT OF THE PLANT. CONTINUE ROLLING UNTIL THE SURFACE IS OF UNIFORM TEXTURE, TRUE TO GRADE AND CROSS SECTION, AND THE REQUIRED FIELD DENSITY IS OBTAINED. TO PREVENT ADHESION OF THE MIXTURE TO THE ROLLER, KEEP THE WHEELS PROPERLY MOISTENED BUT WITHOUT EXCESSIVE WATER. IN AREAS NOT ACCESSIBLE TO THE ROLLER, THE MIXTURE SHALL BE THOROUGHLY COMPACTED WITH HAND TAMPERS.
17. CORRECTIONS. ANY MIXTURE THAT BECOMES LOOSE AND BROKEN, MIXED WITH DIRT, CONTAINS CHECK-CRACKING, OR IS IN ANY WAY DEFECTIVE SHALL BE REMOVED FULL DEPTH, REPLACED WITH FRESH HOT MIXTURE AND IMMEDIATELY COMPACTED TO CONFORM TO THE SURROUNDING AREA. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. SKIN PATCHING WILL NOT BE ALLOWED.
18. PAVEMENT THICKNESS TOLERANCE. BASE AND LEVELING COURSES SHALL BE PLACED AND COMPACTED WITHIN 1/2 INCH OF THE DESIGN COURSE THICKNESS. WEARING COURSES SHALL BE PLACED AND COMPACTED WITHIN 1/4 INCH OF THE DESIGN COURSE THICKNESS. TOTAL VARIATION SHALL BE LESS THAN 1/4-INCH. CORE FOR THICKNESS TWICE PER DAY, FILL CORE HOLES WITH HMA AND COMPACT.
19. PAVEMENT SURFACE SMOOTHNESS. COMPACT EACH COURSE TO PRODUCE A SURFACE SMOOTHNESS WITHIN THE FOLLOWING TOLERANCES AS DETERMINED BY USING A 10-FOOT STRAIGHTEDGE APPLIED TRANSVERSELY OR LONGITUDINALLY TO PAVED AREAS. BASE COURSE AND LEVELING COURSE SHALL BE PLUS OR MINUS 0.25-INCH. WEARING COURSE SHALL BE PLUS OR MINUS 0.125-INCH. CROWNED SURFACES: TEST WITH CROWNED TEMPLATE CENTERED AND AT RIGHT ANGLE TO ROLLING. MAXIMUM ALLOWABLE VARIANCE FROM TEMPLATE IS 1/4 INCH.
20. DENSITY TESTING. DETERMINE MAXIMUM DENSITY BY THE ROLLING METHOD. TEST AT LEAST ONCE PER 6,000 SQUARE FEET OF PLACEMENT AT LEAST 4 TIMES PER DAY. TESTING SHALL BE BY NUCLEAR GAUGE PER ASTM D2950.
21. ROLLING METHOD. MEASURE AND DOCUMENT EACH PASS OF THE FINISH ROLLER UNTIL THE IN-PLACE DENSITY, MEASURED WITH THE NUCLEAR GAUGE, INDICATES A DECREASE IN VALUE. THE PREVIOUS RECORDED DENSITY SHALL BE DEEMED OPTIMAL AND USED AS THE MAXIMUM DENSITY FOR THE DAY.
22. PRICE ADJUSTMENT/REJECTION FOR COMPACTION. OWNER MAY ADJUST PRICE BY AT A RATE OF 5% OF PRICE PER 1% OF DENSITY VARIANCE BELOW REQUIRED FOR BETWEEN .1% AND 4.0% OF DEFICIENCY. 4.1% TO 5.0% VARIANCE SHALL BE PAID AT HALF PRICE. MORE THAN 5.0% VARIANCE IS REJECTED AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
23. SAMPLE AND TEST FOR % BITUMEN AND SIEVE PER ASTM D2172 ONCE PER 250 TONS OF PLACED MATERIAL.
24. OWNER MAY ADJUST FINAL PAYMENT FOR PARAMETERS OUT OF SPECIFICATION IN ACCORDANCE WITH MDOT SPECIAL PROVISION 12SP-501J-05, AVAILABLE UPON REQUEST.
25. BITUMINOUS TACK AND PRIME COATS SHALL MEET REQUIREMENTS OF MDOT DIVISION 9.



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C-001



**32 13 13: CONCRETE PAVING**

- THIS SECTION SHALL SPECIFY CONCRETE PARKING LOT AND ROAD PAVEMENT, CONCRETE WALKS AND APPROACHES, AND CONCRETE CURB AND GUTTER.
- CONCRETE WORK SHALL MEET THE REQUIREMENTS OF MDOT, ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE," AND THE REQUIREMENTS BELOW.
- SUBMIT EACH PRODUCT FOR APPROVAL PRIOR TO PLACEMENT. SUBMITTALS SHALL INCLUDE STRENGTH TESTS WITHIN 6 MONTHS, AIR CONTENT, SLUMP, WATER TO CEMENT RATIO, AND CEMENTITIOUS MATERIAL CERTIFICATES.
- MIX DESIGNS SHALL MEET MINIMUM COMPRESSIVE STRENGTH AS NOTED IN THE PLANS AND DETAILS. AIR CONTENT – BETWEEN 5.5 TO 8.0 PERCENT, BASED ON MEASUREMENTS MADE IMMEDIATELY AFTER DISCHARGE FROM THE MIXER. SLUMP SHALL BE 3 INCHES PLUS OR MINUS 1 INCH PER ASTM C143/C143M UNLESS A WATER REDUCING ADMIXTURE IS USED. WATER TO CEMENT RATIO SHALL BE 0.45 SUBMIT A PRODUCT COMPLIANT WITH MDOT THAT WILL PREVENT ALKALI-SILICA REACTION (ASR) BY INCLUDING SLAG OR A LOW ALKALI CEMENT
- WHITE CURING COMPOUND SHALL BE ASTM C 309, TYPE 2
- TRANSPARENT CURING COMPOUND SHALL BE ASTM C 309, TYPE 1–D, CLASS B WITH FUGITIVE DYE.
- REINFORCEMENT BARS AND STEEL SHALL CONFORM TO MDOT SECTIONS 905 AND 914.
- REMOVAL OF EXISTING CONCRETE CURB AND GUTTER, CONCRETE SLAB AND CONCRETE SIDEWALK SHALL BE TO THE NEXT CLOSEST JOINT OUTSIDE OF THE PLANNED REMOVAL AREA.
- CONCRETE CURB AND GUTTER REPLACED DURING CONSTRUCTION SHALL MATCH THE CROSS SECTION OF THE REMAINING CONCRETE CURB AND GUTTER.
- REPLACEMENT PAVEMENT SECTIONS TO MATCH OR EXCEED EXISTING CROSS SECTION.
- FINAL PAVEMENT ELEVATIONS SHALL COINCIDE WITH PRE-EXISTING ADJOINING SURFACE ELEVATIONS AND PRE-EXISTING SURFACE DRAINAGE SLOPES SHALL BE MAINTAINED UNLESS ALTERATIONS ARE CALLED OUT ON THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE.
- UNDER OWNER'S REPRESENTATIVE OBSERVANCE, PROOF-ROLL SUBGRADE. SOFT POCKETS AND RUTTING AREAS SHALL BE REPAIRED BY FOLLOWING "SUBGRADE UNDERCUT"
- PLACE AND COMPACT BASE COURSE(S) PER THE PLAN DETAIL. FACILITATE DENSITY TESTING DURING BASE COURSE PLACEMENT.
- WEATHER RESTRICTIONS: DO NOT PLACE CONCRETE WHEN THE AIR TEMPERATURE REACHES 40 DEGREES F AND IS FALLING, OR IS ALREADY BELOW THAT POINT. MAKE PROVISIONS TO PROTECT THE CONCRETE FROM FREEZING DURING THE SPECIFIED CURING PERIOD. THE TEMPERATURE OF THE CONCRETE AS PLACED SHALL NOT EXCEED 90 DEGREES F. THE MIXING WATER AND/OR AGGREGATES SHALL BE COOLED, IF NECESSARY, TO MAINTAIN A SATISFACTORY PLACING TEMPERATURE. FOLLOW PROCEDURES RECOMMENDED IN ACI 305R "HOT WEATHER CONCRETING." CONCRETE SHALL NOT BE PLACED DURING RAIN EVENTS THAT WOULD SATURATE THE CONCRETE. UNLESS OWNER-APPROVED ADEQUATE MEASURES ARE TAKEN BY THE CONTRACTOR TO ENSURE THE QUALITY OF THE PRODUCT.
- CURING AND PROTECTION – FOLLOW ACI 308R "GUIDE TO CURING CONCRETE." PROTECT CONCRETE AGAINST LOSS OF MOISTURE AND RAPID TEMPERATURE CHANGES FOR AT LEAST 7 DAYS FROM THE BEGINNING OF THE CURING OPERATION. PROTECT UNHARDENED CONCRETE FROM RAIN AND FLOWING WATER. ALL EQUIPMENT NEEDED FOR ADEQUATE CURING AND PROTECTION OF THE CONCRETE SHALL BE ON HAND AND READY FOR USE BEFORE ACTUAL CONCRETE PLACEMENT BEGINS. PROTECTION SHALL BE PROVIDED AS NECESSARY TO PREVENT CRACKING OF THE PAVEMENT DUE TO TEMPERATURE CHANGES AND MOISTURE DURING THE CURING PERIOD. INADEQUATE CURING SHALL BE GROUNDS FOR REJECTION OF THE WORK AND REMOVAL AND REPLACEMENT BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- TESTING AGENCY SHALL PERFORM ALL TESTS AND MAY STOP OR REJECT WORK OR PRODUCTS NOT MEETING PROJECT REQUIREMENTS.
- TESTING AGENCY SHALL CREATE 1 SET OF 4 COMPRESSIVE STRENGTH CYLINDERS EVERY 50 CY, AT LEAST TWICE PER DAY PER ASTM C 172 AND ASTM C 31. CONTRACTOR SHALL CREATE ADDITIONAL TEST CYLINDERS FOR VERIFICATION OF THE TESTING AGENCY'S RESULTS.
- STRENGTH TESTING:** – EACH RESULT SHALL BE THE AVERAGE OF 2 TEST CYLINDERS FROM THE SAME SAMPLE TESTED AT 28 DAYS, UNLESS OTHERWISE SPECIFIED OR APPROVED. CONCRETE SPECIFIED ON THE BASIS OF COMPRESSIVE STRENGTH WILL BE CONSIDERED SATISFACTORY IF THE AVERAGES OF ALL SETS OF THREE CONSECUTIVE STRENGTH TEST RESULTS EQUAL OR EXCEED THE SPECIFIED STRENGTH, AND NO INDIVIDUAL STRENGTH TEST RESULT FALLS BELOW THE SPECIFIED STRENGTH BY MORE THAN 500 PSI.
- AIR CONTENT:** TWO (2) ASTM C173/C173M TESTS PER CLASS OF CONCRETE DURING EACH SHIFT WITH ADDITIONAL TESTS WHEN WORKABILITY IS VARIABLE, IF RESULTS ARE OUT OF TOLERANCE. THE CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO HAVE THE AIR CONTENT CORRECTED AT THE PLANT. ADDITIONAL TESTS FOR AIR CONTENT WILL BE PERFORMED ON EACH TRUCKLOAD OF MATERIAL UNTIL SUCH TIME AS THE AIR CONTENT IS WITHIN THE TOLERANCE SPECIFIED.
- SLUMP TEST – TWO (2) SLUMP TESTS SHALL BE MADE OF EACH CLASS OF CONCRETE FOR EVERY 250 CUBIC YARDS, OR FRACTION THEREOF, OF CONCRETE PLACED DURING EACH SHIFT. ADDITIONAL TESTS SHALL BE PERFORMED WHEN EXCESSIVE VARIATION IN THE WORKABILITY OF THE CONCRETE IS NOTED OR WHEN EXCESSIVE CRUMBLING OR SLUMPING IS NOTED ALONG THE EDGES OF SLIP-FORMED CONCRETE.
- THICKNESS EVALUATION – THE ANTICIPATED THICKNESS OF THE CONCRETE SHALL BE DETERMINED PRIOR TO PLACEMENT BY PASSING A TEMPLATE THROUGH THE FORMED SECTION OR BY MEASURING THE DEPTH OF OPENING OF THE EXTRUSION TEMPLATE OF THE CURB FORMING MACHINE. IF A SLIP FORM PAVER IS USED FOR PLACEMENT, THE SUBGRADE SHALL BE TRUE TO GRADE PRIOR TO CONCRETE PLACEMENT AND THE THICKNESS WILL BE DETERMINED BY MEASURING EACH EDGE OF THE COMPLETED SLAB.
- CONCRETE REJECTED PRIOR TO PLACEMENT SHALL BE REMOVED FROM THE SITE. CONCRETE REJECTED AFTER PLACEMENT SHALL BE SAWCUT (FULL DEPTH) AND REMOVED FROM THE SITE AND REPLACED IN KIND WITH ACCEPTABLE MATERIALS WHICH MEET THE CONTRACT REQUIREMENTS, UNLESS A PRICE ADJUSTMENT IS ACCEPTED BY THE OWNER.
- DO NOT DISCHARGE CONCRETE/GROUT WASHOUT INTO STORM DRAINS OR SEWERS. PERFORM WASHING OF CONCRETE TRUCKS IN DESIGNATED AREAS OR AT AN APPROVED OFFSITE LOCATION.
- CONCRETE DISCHARGE AREAS SHALL BE 50 FEET FROM STORM DRAINS, BODIES OF WATER AND DITCHES, SHALL BE LINED TO PREVENT SEEPAGE, AND SHALL BE IN A PIT TO PREVENT RUN-OFF OF WASTE WATER.
- ONCE CONCRETE WASHOUT HAS HARDENED, BREAK UP AND DISPOSE OF PROPERLY. DISPOSAL OF HARDENED CONCRETE/GROUT SHOULD OCCUR ON A REGULAR BASIS. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES PROVIDED ONCE THE WASHOUT AREA IS 75% FULL.
- CONCRETE JOINTS AND SEALANT: ALL JOINTS SHALL BE SAWCUT NO LATER THAN 12 HOURS AFTER POURING. JOINT SPACING AND PATTERN SHALL COMPLY WITH ACI 301.
- CONCRETE JOINT FILLER SEALANT SHALL BE ASTM D 6690 TYPE II COMPLIANT WITH MDOT SECTION 914.04.
- JOINTS SHALL BE CONSTRUCTED, SAWS, AND SEALED IN ACCORDANCE WITH MDOT SECTION 602, INCIDENTAL TO THE CONCRETE WORK.
- CURING PERIOD – FOLLOWING APPLICATION OF THE MATERIAL MAINTAIN PROTECTIVE MEASURES TO PROVIDE SUFFICIENT TIME TO ALLOW THE SEALANT TO BE TACK FREE.
- TRAFFIC CONTROLS – KEEP TRAFFIC OFF SURFACES FRESHLY TREATED WITH SEALANT. PROVIDE SUFFICIENT WARNING SIGNS AND BARRICADES SO THAT TRAFFIC WILL NOT TRAVEL OVER FRESHLY TREATED SURFACES.
- SPECIAL FINISHES  
BUFF-WASH FINISH: EXPOSE AGGREGATE IN PAVEMENT SURFACES AS FOLLOWS:  
A. IMMEDIATELY AFTER FLOAT FINISHING, SPRAY-APPLY CHEMICAL SURFACE RETARDER TO PAVEMENT ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.  
B. IF NECESSARY, COVER PAVEMENT SURFACE WITH PLASTIC SHEETING, SEALING LAPS WITH TAPE, AND REMOVE WHEN READY TO CONTINUE FINISHING OPERATIONS.  
C. WITHOUT DISLODGING AGGREGATE, REMOVE EXCESS MORTAR BY LIGHTLY BRUSHING SURFACE WITH A STIFF, NYLON-BRISTLE BROOM.  
D. FINE-SPRAY SURFACE WITH WATER AND BRUSH. REPEAT WATER FLUSHING AND BRUSHING CYCLE UNTIL CEMENT FILM IS REMOVED FROM AGGREGATE SURFACES TO DEPTH REQUIRED.  
E. FINISH SHALL MATCH APPROVED MOCKUP. FINISHES THAT DO NOT MATCH THE APPROVED MOCKUP SHALL BE REMOVED AND REPLACED.

**33 10 00: WATER UTILITIES**

- CONTRACTOR SHALL NOT OPERATE, INTERFERE WITH, CONNECT ANY PIPE OR HOSE TO, OR TAP ANY WATER UTILITY UNLESS DULY AUTHORIZED TO DO SO, IN WRITING, BY THE AUTHORITY HAVING JURISDICTION AND THE OWNER. ANY ADVERSE CONSEQUENCES OF SCHEDULED OR UNSCHEDULED DISRUPTIONS OF SERVICE TO THE PUBLIC ARE TO BE THE LIABILITY OF THE CONTRACTOR.
- A MINIMUM VERTICAL SEPARATION OF 18 INCHES IS REQUIRED AT ALL WATER MAIN CROSSINGS WITH SANITARY SEWER OR STORM SEWER.
- WHERE A VERTICAL SEPARATION BETWEEN PROPOSED UTILITIES AND EXISTING FRANCHISE UTILITIES IS NOT FEASIBLE, CONTRACTOR SHALL PROVIDE A CONCRETE CRADLE (MDOT S3 OR EQUIVALENT; 6" MIN. THICKNESS) TO PROTECT BOTH UTILITIES.
- WATER UTILITY INSTALLATION SHALL FULLY COMPLY WITH THE REQUIREMENTS, APPROVAL PROCESS, SPECIFICATIONS, AND STANDARD DETAILS OF THE AUTHORITY HAVING JURISDICTION OVER THE WATER UTILITY.

**33 40 00: STORM DRAINAGE UTILITIES**

- SUBMITTALS: FOR EACH PRODUCT: PIPE – PRODUCT DATA, STRUCTURES, CASTINGS, COVERS, AND GRATES – SHOP DRAWINGS. CERTIFICATES FOR ALL MATERIALS. PIPE TELEVISION VIDEOS.
- UNDERDRAIN AND SEWER PIPE SHALL BE OF THE TYPE AND CLASS AS SPECIFIED IN THE PLANS AND SHALL BE INSTALLED TO THE LINE, INVERT, AND GRADE NOTED. STRUCTURES SHALL BE CONSTRUCTED AT THE LOCATION SHOWN AND SHALL BE OF THE SIZE AND TYPE CALLED OUT. FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
- PLACE PIPE AND STRUCTURES ON SUITABLE, COMPACTED BEDDING MATERIAL. BELL HOLES SHALL EXCAVATED SO THE FULL LENGTH OF THE PIPE BARREL WILL BEAR UNIFORMLY. PIPE SHALL BE CLEANED OF DEBRIS AND PUSHED TIGHT TO FORM A SMOOTH, CONTINUOUS INVERT.
- WHEN STRUCTURES AND/OR PIPE ARE FIELD FITTED TO ACCOMMODATE A CONFLICT, PIPE SLOPE SHALL BE HELD TO PLAN TO ENSURE DRAINAGE.
- PRECAST REINFORCED CONCRETE MANHOLES, INLETS, AND CATCH BASINS SHALL CONFORM TO ASTM C 478 AND THE PLAN DETAILS.
- PROTECT THE PIPE FROM DAMAGE, ABRASION, DISTORTION, BOWING, OR WARPING. 12-6" PIPE LENGTHS WITH DEVIATE MORE THAN 1" FROM STRAIGHT, AS JUDGED BY THE OWNER'S REPRESENTATIVE, SHALL NOT BE USED.
- ADJUSTMENT: USE METAL ADJUSTMENT RINGS, A CONCRETE COLLAR, MASONRY ON A FULL MORTAR BED OR OTHER OWNER REPRESENTATIVE APPROVED METHOD. MAXIMUM ADJUSTMENT WITH RINGS IS 15". SET ALL COVERS AND CASTINGS AT THE FINISH GRADE OR "RIM" ELEVATION UNLESS OTHERWISE APPROVED BY THE OWNER'S REPRESENTATIVE.
- TAPPING: TAKE CARE NOT TO DAMAGE THE STRUCTURE – REPAIR ALL DAMAGE AT CONTRACTOR'S EXPENSE. FILL VOIDS WITH MORTAR AND STRIKE SMOOTH WITH THE INVERT WALL.
- ALL STRUCTURES AND PIPES SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE ACCEPTED.
- TELEVISE PIPES AND PROVIDE VIDEOS FOR OWNER REVIEW AFTER BACKFILL AND COMPACTION, BUT PRIOR TO PAVING ATOP BURIED STORM SEWER. TELEVISION IN ACCORDANCE WITH PACP PROCEDURES.

**WAYNE COUNTY DPS GENERAL NOTES:**

- ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY (ROW) AND DRAIN EASEMENT SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES, AND MDOT 2012 SPECIFICATIONS FOR CONSTRUCTION.
- THESE PLANS ARE NOT VALID WITHOUT ATTACHMENT OF THE WAYNE COUNTY PERMIT SPECIFICATIONS FOR CONSTRUCTION WITHIN THE ROAD ROW, PARKS, DRAIN EASEMENT OR SANITARY SEWER UNDER JURISDICTION OF THE WAYNE COUNTY (07/01/93) REVISED 12/15/2004
- CONTRACTOR SHALL CONTACT MISS DIG AT 811 TO IDENTIFY AND FLAG / MARK THE LOCATIONS OF ALL UNDERGROUND UTILITIES AT THE PROPOSED CONSTRUCTION AREAS PRIOR TO START OF CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES, AND RESOLVE ANY CONFLICT BETWEEN THE PROPOSED WORK AND THE EXISTING UNDERGROUND OR ABOVEGROUND UTILITIES.
- CONTRACTOR SHALL MAINTAIN 18" MIN. VERTICAL CLEARANCE AND 3 FT MIN. HORIZONTAL CLEARANCE BETWEEN THE PROPOSED AND EXISTING UTILITIES. ANY PROPOSED UTILITY PERMITTED TO CROSS UNDER THE ROAD OR DRAIN, MUST BE PLACED A MINIMUM OF 7 FT BELOW THE LOWEST POINT OF THE ROAD, OR 6 FT BELOW THE DRAIN BOTTOM. OVERHEAD WIRES/CABLES MUST BE INSTALLED 18 FT MIN. ABOVE THE ROAD CENTERLINE. TO RELOCATE ANY UTILITY WITHIN THE ROAD ROW, THE CONTRACTOR SHALL COORDINATE THE RELOCATION WITH THE UTILITY COMPANY AND AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- ALL SURVEY MONUMENTS / CORNERS AND BENCH MARKS LOCATED WITHIN THE CONSTRUCTION AREA MUST BE PRESERVED IN ACCORDANCE WITH PUBLIC ACT 74 AS AMENDED (INCLUDING ACT 34, P.A. 2000) AND AS PER WAYNE COUNTY PERMIT RULE 1.5. THE PERMIT HOLDER AND CONTRACTOR SHALL COORDINATE THE WORK WITH A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF MICHIGAN DURING CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF WITNESSING, PRESERVING OR REPLACING SURVEY MONUMENTS AND MONUMENT BOXES.
- EXPOSURE OF ANY UTILITIES UNDER THE PAVEMENT WILL NOT BE PERMITTED, UNLESS APPROVED BY THE WAYNE COUNTY ENGINEER. PAVEMENT REMOVAL AND REPLACEMENT SHALL BE PERFORMED PER APPLICABLE WAYNE COUNTY STANDARD DETAILS AN AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITHIN THE WAYNE COUNTY ROAD ROW AND DRAIN EASEMENT WITH 3" TOPSOIL, THM SEED MIX AND MULCH. SLOPES STEEPER THAN 1 ON 3 SHALL BE RESTORED BY PLACING SOD ON 2" TOPSOIL.
- ALL BACKFILLS UNDER OR WITHIN 3 FT OF THE PROPOSED OR EXISTING PAVEMENT, CURB OR SIDEWALK SHALL CONFORM TO THE WAYNE COUNTY TRENCH 'B' BACKFILL REQUIREMENTS. TRENCH 'A' BACKFILL MAY BE USED WITHIN THE ROAD ROW AREAS UNDER CONDITIONS OTHER THAN THOSE SPECIFIED FOR TRENCH 'B'.
- CONTRACTOR IS RESPONSIBLE FOR RESTORING OR REPLACING ALL DISTURBED LANDSCAPED AREAS, SPRINKLER SYSTEMS, FENCES, SIGNS, MAIL BOXES, ETC. WITHIN THE WAYNE COUNTY ROAD ROW AND/OR AS DIRECTED BY THE COUNTY ENGINEER.
- CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES. OTHERWISE, DETOURING TRAFFIC MUST BE PER APPROVED PLANS. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF M.M.U.T.C.D.
- MAINTAIN A SAFE AND ADEQUATE TRAVEL ROUTE FOR PEDESTRIANS AT ALL TIMES THROUGHOUT THE PROJECT DURATION.
- TUNNELING, BORING AND JACKING OPERATIONS SHALL BE IN ACCORDANCE WITH THE WAYNE COUNTY SPECIFICATIONS AND DETAILS. BORE PITS SHALL BE PLACED AT MIN 10 FT FROM THE BACK OF CURB OR EDGE OF PAVEMENT.
- REMOVE ALL ABANDONED CONDUITS FROM THE COUNTY ROADS ROW OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- CONTRACTOR SHALL PROVIDE COLD WEATHER PROTECTION FOR ALL PROPOSED CONCRETE WORK (PAVEMENTS, SIDEWALKS, DRIVE APPROACHES, ETC.) AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- OVERNIGHT VEHICLE PARKING AND STORAGE OF CONSTRUCTION MATERIALS AND EQUIPMENT'S ARE NOT PERMITTED WITHIN THE WAYNE COUNTY ROADS RIGHTS-OF-WAY.
- CONTRACTOR SHOULD OBTAIN SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE WAYNE COUNTY DPS. CONTACT THE WAYNE COUNTY SOIL EROSION OFFICE AT (734) 326-5565, OR THE COMMUNITY HAVING JURISDICTION OVER THE SOIL EROSION PERMIT.
- CONTRACTOR SHALL NOTIFY THE WAYNE COUNTY TRAFFIC SIGNAL SHOP AT (734) 955-2161 AT LEAST 72 HOURS PRIOR TO START OF WORK AT OR NEAR ANY SIGNALIZED INTERSECTIONS.
- CONTRACTOR SHALL NOTIFY WAYNE COUNTY 72 HOURS PRIOR TO START OF CONSTRUCTION. CONTACT THE PERMIT OFFICE AT (734) 858-2768.

**WAYNE COUNTY DPS CONSTRUCTION NOTES:**

- PRIOR TO PAVEMENT REMOVAL THE CONTRACTOR SHALL CONTACT WAYNE COUNTY ENGINEER/INSPECTOR TO VERIFY IF THE EXISTING GRADES OF THE GUTTER LINES AND THE TOP OF CURBS ARE NEEDED AND TO BE PROVIDED AS REQUESTED.
- SAW-CUT FULL DEPTH THE EXISTING PAVEMENT TO THE NEAREST JOINT WITHIN WAYNE COUNTY ROAD RIGHT-OF-WAY AND REMOVE THE EXISTING PAVEMENT AND CURB OR AS DIRECTED BY WAYNE COUNTY ENGINEER.
- CONSTRUCT THE PRIMARY ROADS AS FOLLOWS:
  - CONSTRUCTION WAYNE COUNTY PRIMARY ROAD PAVEMENT PER WAYNE COUNTY STANDARDS DETAIL "PR-1" OR "PR-2" AS APPLICABLE, OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
  - PLACE 9" OF 21AA AGGREGATE COMPACTED TO MINIMUM 95% DENSITY OF MAXIMUM UNIT WEIGHT OR AS DIRECTED BY WAYNE COUNTY ENGINEER.
  - CONSTRUCT WAYNE COUNTY ROAD PAVEMENT REPAIR WITH MINIMUM 2" HMA TOP (F) ON MINIMUM 10" NON-REINFORCED CONCRETE WC 35 P MIX (3500 PSI AT 28 DAYS) AND INTEGRAL STRAIGHT CURB TYPE "14" AS PER WAYNE COUNTY STANDARDS DETAIL "RS-3" OR AS DIRECTED BY WAYNE COUNTY ENGINEER.
  - TIE THE NEW PAVEMENT TO THE EXISTING PAVEMENT WITH #5 EPOXY COATED TIE BARS AT MAXIMUM 43-INCH ON CENTER LONGITUDINALLY AND AT 18-INCH ON CENTER TRANSVERSELY AS PER WAYNE COUNTY STANDARDS DETAIL "RS-2" OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
  - PLACE THE CONSTRUCTION JOINTS OF THE NEW PAVEMENT TO MATCH THE EXISTING PAVEMENT JOINTS OR AS DIRECTED BY WAYNE COUNTY ENGINEER.
- ANY DAMAGED UNDERDRAIN AS A RESULT OF THIS PROJECT ACTIVITY SHALL BE RECONSTRUCTED AS PER WAYNE COUNTY DETAILS "S-14" OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- ANY DAMAGED SIDEWALKS AS A RESULT OF THIS PROJECT ACTIVITY SHALL BE RECONSTRUCTED AS PER WAYNE COUNTY DETAILS "RS-5" OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER. MAINTAIN 2% MAXIMUM TRANSVERSE SLOPE ON THE SIDEWALK.
- ANY DAMAGED SIDEWALK RAMP AS A RESULT OF THIS PROJECT ACTIVITY SHALL BE RECONSTRUCTED PER MDOT STANDARDS DETAIL "R-28-J" OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- STRUCTURE ADJUSTMENT SHALL BE DETERMINED ON SITE BY THE WAYNE COUNTY ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE TO RESOLVE ANY WATER PONDING ISSUES AND MAINTAIN A POSITIVE FLOW ALONG THE GUTTER LINE WITHIN THE LIMIT OF THE PROJECT.
- RELOCATE, RESTORE, OR REPLACE ANY TRAFFIC SIGNS THAT ARE AFFECTED BY THE CONSTRUCTION AS DIRECTED BY THE WAYNE COUNTY ENGINEER.

DRAWING PATH: P:\0126 01650113\340020\_Cherry Hill Village Phase 1\Drawings\Site\Sheet\340020\_NOT.dwg, Nov 22, 2024, 2:53pm



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ISSUED FOR:	20241122
REVISION:	DATE
DESCRIPTION:	

PROJECT NUMBER: 0133-24-0020

PM: CR

CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN

CIVIL NOTES AND WAYNE COUNTY DPS GENERAL NOTES



Know what's below.  
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C-002



**NOTES:**

- EXISTING CONDITIONS ARE PRESENTED BASED ON TOPOGRAPHIC SURVEY BY OHM ADVISORS. ALL EXISTING INFORMATION PRESENTED IN THESE PLANS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR, ANY DISCREPANCIES IN THE PLAN SHALL BE MADE AWARE TO THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
- ONE-CALL UTILITY LOCATING: MISSDIG - 811 OR 800-482-7171. CONTRACTOR SHALL OPEN AN EXCAVATION TICKET A MINIMUM OF 3 WORKING DAYS PRIOR TO ANY EXCAVATION. WHEN MARKINGS AND FLAGS ARE DISRUPTED OR DESTROYED - CALL FOR REMARKING.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND LIMITED MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION SHALL NOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE OWNER OR CONTRACTOR OF DISCREPANCIES IN THE PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE LOCATION OR DEPTH OF ANY EXISTING UTILITY SHOWN OR NOT SHOWN ON THE PROJECT DRAWINGS.

**UTILITY NOTES:**

- ALL UTILITIES SHOWN ARE DEPICTED AS SUBSURFACE UTILITIES ENGINEERING (SUE) QUALITY LEVEL D: PER ASCE STANDARD 38-22. UTILITY LOCATIONS ARE ESTIMATED BASED ON UTILITY RECORDS, VERBAL INFORMATION FROM OTHERS, AND/OR VISUAL CLUES SUCH AS PAVEMENT PATCHES, OBVIOUS TRENCHES, OR EXISTENCE OF SERVICE.
- UTILITIES WHICH ARE SPECIFICALLY IDENTIFIED AS "OLC" HAVE A RELIABILITY OF QUALITY LEVEL C: INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO UTILITY RECORDS OR SIMILAR EVIDENCE.

JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE.	
ELEV 734.69	#442 SQ CB T/CAST 731.39 12" CONC INV N 725.33 12" CONC INV N 727.59
JOB BENCHMARK #206 ARROW ON FIRE HYDRANT, LOCATED ON EAST SIDE OF N. RIDGE ROAD, NEAREST TO APT ADDRESS #144-156 N. RIDGE RD.	
ELEV 734.48	#498 STORM MH T/CAST 731.44 12" CONC INV S 727.33 12" CONC INV N 725.18 12" CONC INV N 725.62
JOB BENCHMARK #207 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD. APPROX. 85' NE OF NE CORNER OF "CANTON HUMAN SERVICE CENTER".	
ELEV 737.38	#815 BEEHIVE CB T/CAST 730.71 12" CONC INV W 726.50 #3266 STORM MH T/CAST 736.50 15" CONC INV N 729.15 15" CONC INV S 729.80 #3303 SQ CB T/CAST 732.67 12" CONC INV W 728.80
JOB BENCHMARK #208 CHISELED 'BOX' ON EAST FACE OF COVERED LIGHT POLE BASE. 5' EAST OF DUMPSTER PAD BRICK WALL.	
ELEV 735.69	#3562 SQ CB T/CAST 733.39 12" CONC INV E 728.75 15" CONC INV N 728.94 15" CONC INV SW 728.94 #3597 STORM MH T/CAST 733.76 24" CONC INV S 726.13 15" CONC INV NE 728.80
JOB BENCHMARK #209 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD, NEAREST TO INT OF N. RIDGE RD./UPTOWN AVE.	
ELEV 738.57	#3885 BEEHIVE CB T/CAST 727.57 8" PVC INV 723.99 #4016 BEEHIVE CB T/CAST 727.35 8" PVC INV SW 724.95 24" CONC INV NW 724.25 #4028 END SECTION 24" RCP INV S 724.13
TRAVERSE POINT #105 N 295220.35 E 13347830.09	
ELEV 733.12	#5379 SQ CB T/CAST 730.27 18" CONC INV NE 723.29 18" CONC INV SW 723.09 #5426 STORM MH T/CAST 732.35 18" CONC INV E 723.56 12" CONC INV S 724.51 12" CONC INV W 724.57
TRAVERSE POINT #106 N 295229.29 E 13348023.46	
ELEV 733.13	#6045 STORM MH T/CAST 736.16 12" CONC INV NE 727.47 12" CONC INV E 727.25 12" CONC INV S 727.38
TRAVERSE POINT #107 N 295367.12 E 13348018.17	
ELEV 735.89	#6295 RD CB T/CAST 738.51 8" PVC INV W 736.95 #6513 RD CB T/CAST 734.86 12" CONC INV SE 729.84
TRAVERSE POINT #108 N 295367.14 E 13347879.49	
ELEV 733.73	#6704 END SECTION 8" PVC INV E 737.14
TRAVERSE POINT #109 N 295585.26 E 13348107.60	
ELEV 737.39	#7095 RD CB T/CAST 732.68 18" CONC INV W 726.89 18" CONC INV W 726.67 12" PVC INV N 726.90 #7148 SQ CB T/CAST 732.45 12" CONC INV S 726.97 8" PVC INV NE 728.24 15" CONC INV W 726.78
TRAVERSE POINT #3841 N 295460.08 E 13348008.18	
ELEV 737.16	#7206 STORM MH T/CAST 732.20 12" CONC INV S 727.77 18" CONC INV E 725.49 18" CONC INV NW 725.21 #7435 SQ CB T/CAST 733.59 12" CONC INV S 729.69 #7436 SQ CB T/CAST 733.59 12" CONC INV W 729.57 12" CONC INV W 729.57 12" CONC INV S 728.42 12" CONC INV SW 728.54 #7437 SQ CB T/CAST 733.77 12" CONC INV W 727.20 #7551 SQ CB T/CAST 732.60 12" CONC INV SE 727.50 12" CONC INV N 727.05 #7633 RD CB T/CAST 733.06 12" CONC INV NE 726.61 12" CONC INV NW 726.61 #7890 RD CB T/CAST 731.70 12" PVC INV S 727.51 6" CONC INV E 728.20 #8154 SQ CB T/CAST 731.51 12" CONC INV N 724.81 12" CONC INV S 724.80 #8566 SQ CB T/CAST 733.01 12" CONC INV S 728.15 6" PVC INV NE 729.36 #10042 SQ CB T/CAST 732.87 12" CONC INV N 727.69 12" CONC INV SW 727.73 #15179 SQ CB T/CAST 732.44 12" CONC INV NW 728.94

**BENCHMARK ELEVATIONS NOTE:**  
BENCHMARK ELEVATIONS SHOWN ON THESE PLANS ARE BASED ON NAVD83 DATUM.

**FLOODPLAIN NOTE:**  
FLOODPLAIN NOT ON SITE PER FEMA PANEL 2616300195E DATED 02/02/2012 (ZONE X)

**WETLAND NOTE:**  
FOUND ON SITE ADJACENT TO DRAIN. NOT INCLUDED INSIDE THE DISTURBED AREA

**ZONING:**  
RA - RURAL AGRICULTURAL CHERRY HILL VILLAGE OVERLAY DISTRICT

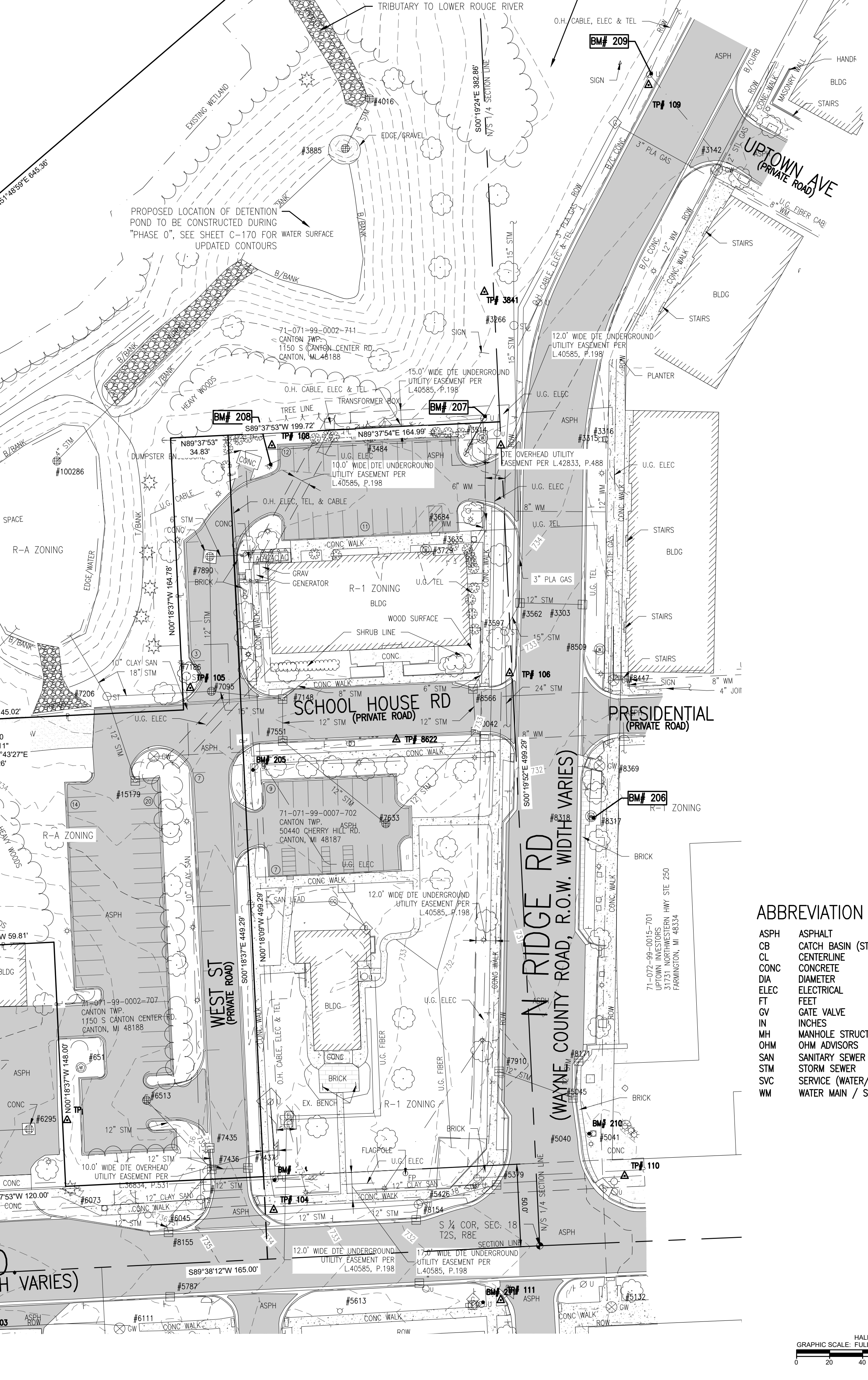
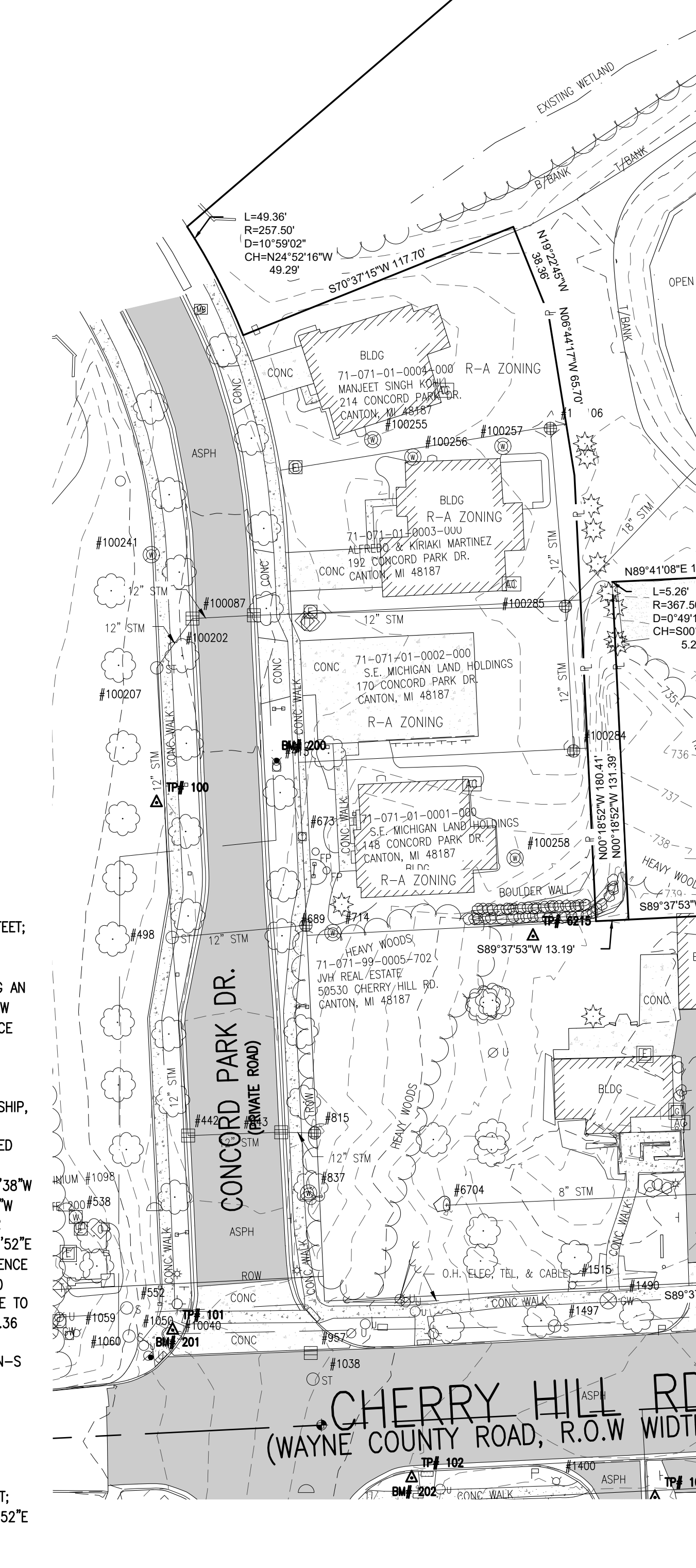
**LEGAL DESCRIPTION**

**PARCEL ID #71-071-99-0002-707**  
A PARCEL OF LAND BEING A PART OF THE SW 1/4 OF SECTION 18, TOWN 2 SOUTH, RANGE 8 EAST, CANTON TOWNSHIP, WAYNE COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:  
COMMENCING AT THE S 1/4 CORNER OF SAID SECTION; THENCE N00°19'24"W 499.29 FEET; THENCE S89°37'53"W 164.89 FEET TO THE POINT OF BEGINNING; THENCE S00°18'37"E 449.29 FEET; THENCE S89°37'53"W 120 FEET; THENCE N00°18'37"W 148 FEET; THENCE S89°37'53"W 59.81 FEET; THENCE N00°18'52"W 131.39 FEET; THENCE 5.26 FEET ALONG AN ARC OF 367.50 FEET, RADIUS CURVE TO THE LEFT WITH A CHORD BEARING N00°43'27"W 5.26 FEET; THENCE N89°41'08"E 145.02 FEET; THENCE N00°18'37"W 14.78 FEET; THENCE N89°37'53"E 34.83 FEET TO THE POINT OF BEGINNING.

**PARCEL ID #71-071-99-0002-711**  
PART OF THE SW 1/4 OF SECTION 18, TOWN 2 SOUTH, RANGE 8 EAST, CANTON TOWNSHIP, WAYNE COUNTY, MICHIGAN, DESCRIBED AS:  
COMMENCING AT THE S 1/4 CORNER OF SAID SECTION; THENCE N00°19'24"W (RECORDED AS N00°18'52"W AND N00°18'09"W) 499.29 FEET ALONG THE N-S 1/4 LINE OF SAID SECTION 18 TO THE POINT OF BEGINNING; THENCE S89°37'53"W (RECORDED AS S89°37'38"W AND S89°38'12"W) 199.72 FEET; THENCE S00°18'37"E 164.78 FEET; THENCE N89°41'08"W 145.02 FEET; THENCE 5.26 FEET ALONG THE ARC OF A 367.50 FOOT RADIUS CIRCULAR CURVE TO THE RIGHT, WITH A CHORD BEARING S00°43'27"E 5.26 FEET; THENCE S00°18'52"E 131.39 FEET; THENCE S89°37'53"W 13.19 FEET; THENCE N00°18'52"W 180.41 FEET; THENCE N06°44'17"W 65.70 FEET; THENCE N19°22'45" 38.36 FEET; THENCE S70°37'15"W 117.70 FEET; THENCE 49.36 FEET ALONG THE ARC OF A 257.50 FOOT RADIUS CIRCULAR CURVE TO THE LEFT, WITH A CHORD BEARING N24°52'16"W 49.29 FEET; THENCE N51°48'59"E 645.36 FEET ALONG THE CENTERLINE OF A TRIBUTARY TO THE LOWER ROUGE RIVER; THENCE S00°19'24"E (RECORDED AS N00°18'52"W AND N00°18'09"W) 382.86 FEET ALONG THE N-S 1/4 LINE OF SAID SECTION 18 TO THE POINT OF BEGINNING.

**PARCEL ID #71-071-99-0007-702**  
A PARCEL OF LAND BEING A PART OF THE SW 1/4 OF SECTION 18, TOWN 2 SOUTH, RANGE 8 EAST, CANTON TOWNSHIP, WAYNE COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:  
BEGINNING AT THE S 1/4 CORNER OF SAID SECTION; THENCE S89°38'12"W 165.00 FEET; THENCE N00°18'09"W 499.29 FEET; THENCE N89°37'54"E 164.99 FEET; THENCE S00°19'52"E 499.29 FEET TO THE POINT OF BEGINNING.  
EXCLUDING THE SOUTH 50 FEET.

EXISTING STORM STRUCTURES		EXISTING WATER STRUCTURES	
#100087 SQ CB T/CAST 729.11	12" CONC INV E 724.87	#3142 GW&V T/CAST 736.67	12" D.I.P T/P N 728.39
#100106 BEEHIVE CB T/CAST 729.33	12" CONC INV S 724.89	#7346 GW&V T/CAST 732.76	8" D.I.P T/P E 726.79
#100202 SQ CB T/CAST 729.22	8" PVC INV SW 724.77	#8447 GW&V T/CAST 732.09	12" D.I.P T/P N 720.95
#100205 BEEHIVE CB T/CAST 729.45	12" CONC INV W 724.37	#100207 STORM MH T/CAST 730.47	12" D.I.P T/P S 720.95
#100284 BEEHIVE CB T/CAST 729.77	12" CONC INV NE 725.21	#6011 SAN. MH T/CAST 734.65	12" CONC INV N 724.66
#5379 SQ CB T/CAST 730.27	18" CONC INV NE 723.29	#7186 SAN. MH T/CAST 733.52	10" CLAY INV S 716.01
#5426 STORM MH T/CAST 732.35	18" CONC INV W 724.57		
#6045 STORM MH T/CAST 736.16	12" CONC INV NE 727.47		
#6295 RD CB T/CAST 738.51	8" PVC INV W 736.95		
#6513 RD CB T/CAST 734.86	12" CONC INV SE 729.84		
#6704 END SECTION	8" PVC INV E 737.14		
#7095 RD CB T/CAST 732.68	18" CONC INV W 726.89		
#7148 SQ CB T/CAST 732.45	12" CONC INV S 726.97		
#7206 STORM MH T/CAST 732.20	12" CONC INV S 727.77		
#7435 SQ CB T/CAST 733.59	12" CONC INV S 729.69		
#7436 SQ CB T/CAST 733.59	12" CONC INV W 729.57		
#7437 SQ CB T/CAST 733.77	12" CONC INV W 727.20		
#7551 SQ CB T/CAST 732.60	12" CONC INV SE 727.50		
#7633 RD CB T/CAST 733.06	12" CONC INV NE 726.61		
#7890 RD CB T/CAST 731.70	12" PVC INV S 727.51		
#8154 SQ CB T/CAST 731.51	12" CONC INV N 724.81		
#8566 SQ CB T/CAST 733.01	12" CONC INV S 728.15		
#10042 SQ CB T/CAST 732.87	12" CONC INV N 727.69		
#15179 SQ CB T/CAST 732.44	12" CONC INV SW 727.73		



**LEGEND**

- EX ASPHALT
- EX CONCRETE PAVEMENT
- EX CONCRETE SIDEWALK
- EX BRICK PAVERS
- EX GRAVEL
- EX TRUNCATED DOME
- EX RIPRAP
- EX. PROPERTY LINE
- EX. WETLAND/EDGE OF WATER
- EX. SECTION LINE
- PROP. DETENTION POND
- PROP. RIPRAP

**EXISTING UTILITIES**

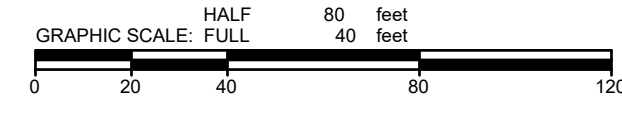
- ELEC - ELECTRICAL
- GAS/OIL - GAS/OIL
- CABLE/TEL - CABLE/TELEPHONE
- 12" WM - WATER MAIN
- 12" SAN - SANITARY SEWER
- 12" STM - STORM SEWER

**UTILITY SYMBOLS**

- ST - STORM MANHOLE
- CB - CATCH BASIN
- CL - CENTERLINE
- CONC - CONCRETE
- DIA - DIAMETER
- ELEC - ELECTRICAL
- FT - FEET
- GV - GATE VALVE
- IN - INCHES
- MH - MANHOLE STRUCTURE
- OHM - OHM ADVISORS
- SAN - SANITARY SEWER / SERVICE
- STM - STORM SEWER
- SVC - SERVICE (WATER/SANITARY)
- WM - WATER MAIN / SERVICE

**ABBREVIATION KEY**

- ASPH - ASPHALT
- CB - CATCH BASIN (STORM)
- CL - CENTERLINE
- CONC - CONCRETE
- DIA - DIAMETER
- ELEC - ELECTRICAL
- FT - FEET
- GV - GATE VALVE
- IN - INCHES
- MH - MANHOLE STRUCTURE
- OHM - OHM ADVISORS
- SAN - SANITARY SEWER / SERVICE
- STM - STORM SEWER
- SVC - SERVICE (WATER/SANITARY)
- WM - WATER MAIN / SERVICE



ISSUED FOR:	BID SET	DESCRIPTION	DATE
			2024.12.22

PROJECT NUMBER: 0133-24-020  
 PM: [blank]  
 CR: [blank]  
 CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN  
 EXISTING CONDITIONS PLAN

DRAWING PATH: P:\0126\01650133\0020\Cherry Hill Village\_Phase 1D\Drawings\Site\Sheet\24020\_SUB.dwg, Nov 22, 2024, 2:53pm

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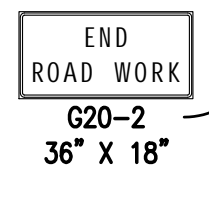
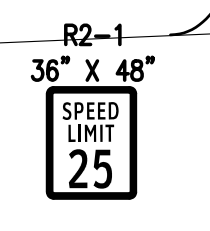
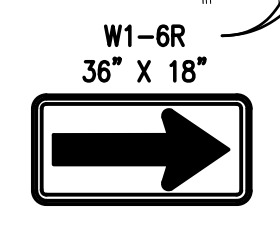
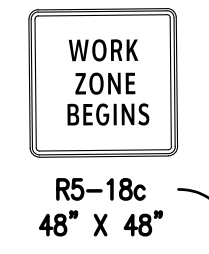
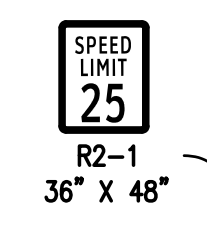
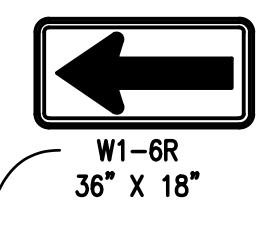
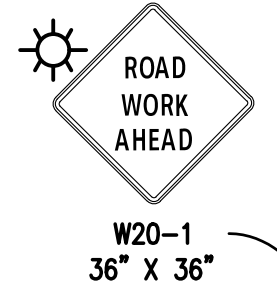
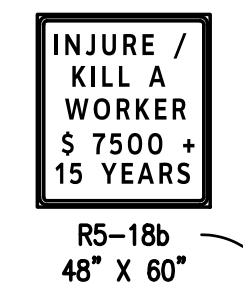
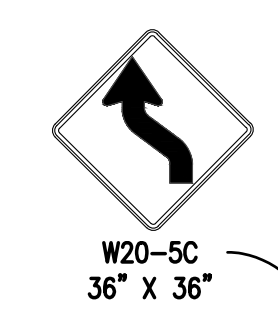


MATCH LINE - BELOW

MATCH LINE - SHEET C-116

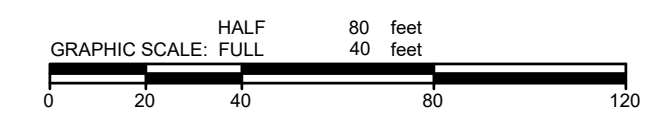
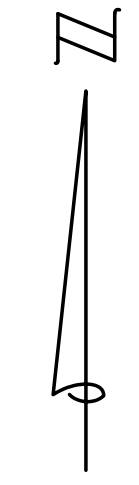
MATCH LINE - ABOVE

MATCH LINE - SEE SHEET C-117



**STAGING PLAN LEGEND**

- TYPE III BARRICADE
- SIGN, TEMPORARY
- SIGN, TEMPORARY WITH TYPE A WARNING FLASHER
- CHANNELIZING DEVICE - SPACED AT 50' MAX ON CLOSURES
- TRAFFIC FLOW
- LIGHTED ARROW, TYPE C



**811**  
Know what's below.  
Call before you dig.

**KEY MAP**  
NOT TO SCALE

ISSUED FOR:	BID SET	2024.11.22	DATE
REVISION	DESCRIPTION		

PROJECT NUMBER	0133-24-020
PROJECT NAME	CANTON CHARTER TOWNSHIP CHERRY HILL VILLAGE PHASE 1 CANTON TOWNSHIP, MICHIGAN
PROJECT LOCATION	TRAFFIC PLAN - CHERRY HILL RD

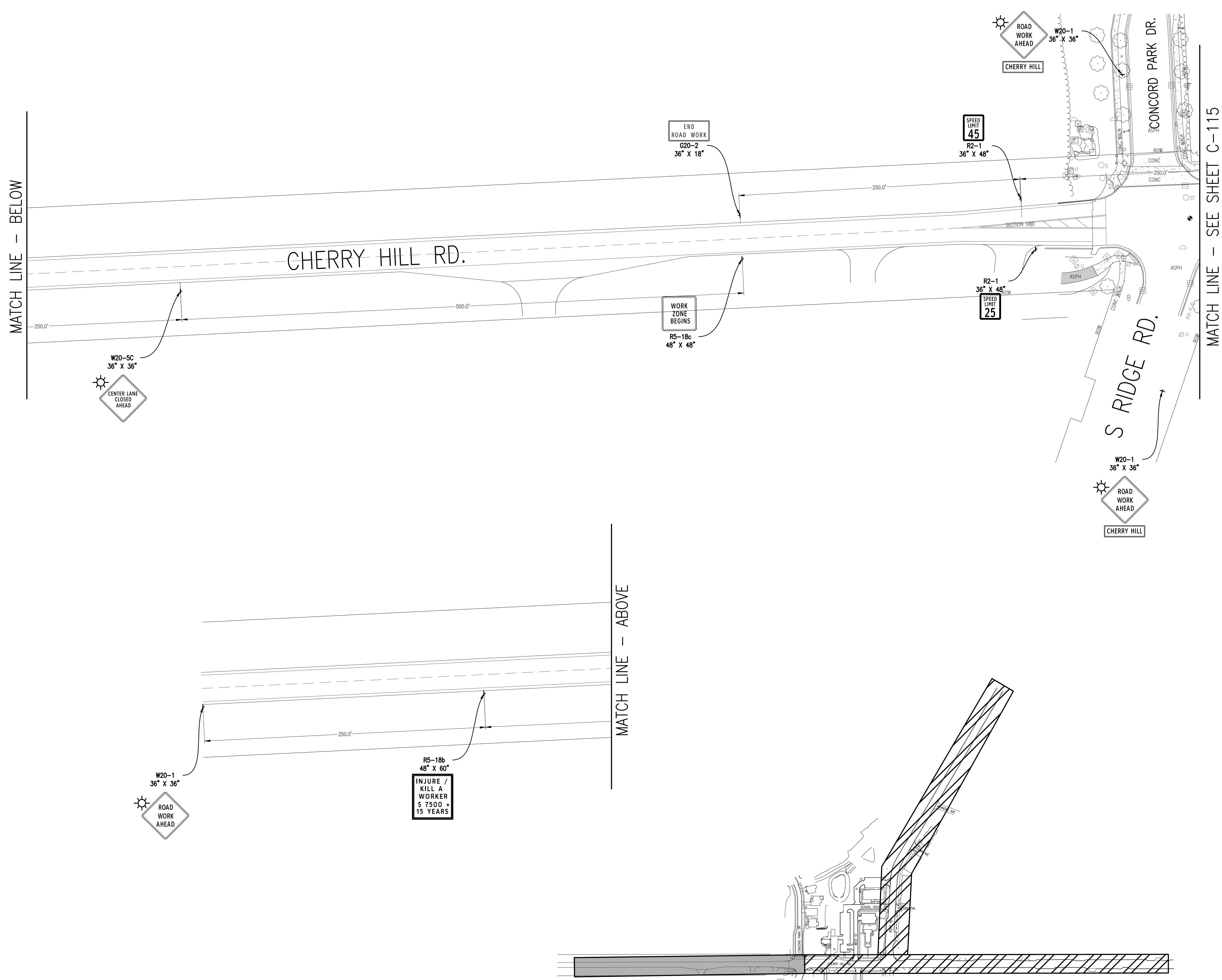


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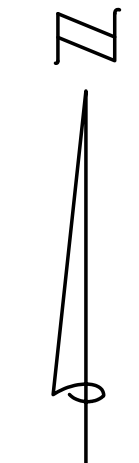
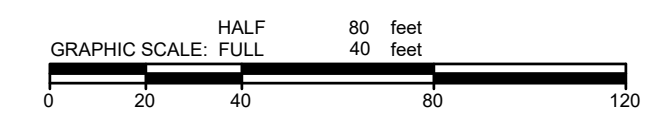
MATCH LINE - BELOW

MATCH LINE - ABOVE

MATCH LINE - SEE SHEET C-115



- STAGING PLAN LEGEND**
- TYPE III BARRICADE
  - SIGN, TEMPORARY
  - SIGN, TEMPORARY WITH TYPE A WARNING FLASHER
  - CHANNELIZING DEVICE - SPACED AT 50' MAX ON CLOSURES
  - TRAFFIC FLOW
  - LIGHTED ARROW, TYPE C



Know what's below.  
Call before you dig.

KEY MAP  
NOT TO SCALE

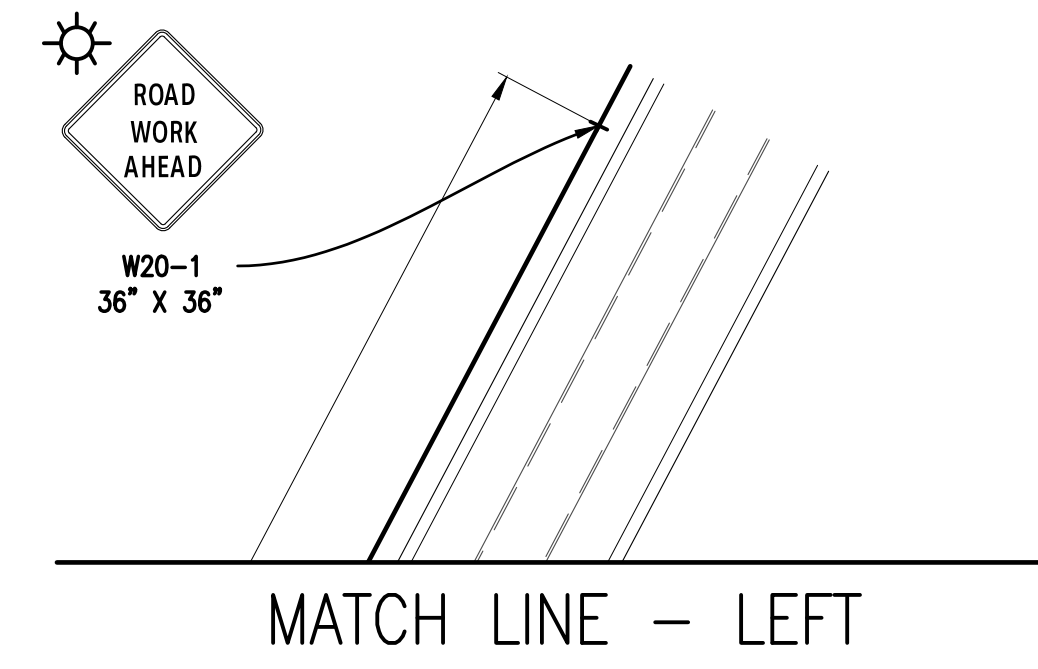
ISSUED FOR:	BID SET	2024.11.22
REVISION	DESCRIPTION	DATE

PROJECT NUMBER: 0133-24-020  
 CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN  
 TRAFFIC PLAN - CHERRY HILL RD

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MATCH LINE - RIGHT



INJURE / KILL A WORKER \$ 7500 + 15 YEARS  
R5-18b  
48" X 60"

MATCH LINE - RIGHT

R2-1  
36" X 48"  
SPEED LIMIT 25

W1-4R  
36" X 36"

WORK ZONE BEGINS  
R5-18c  
48" X 48"

ROAD WORK AHEAD  
RIDGE ROAD  
W20-1  
36" X 36"

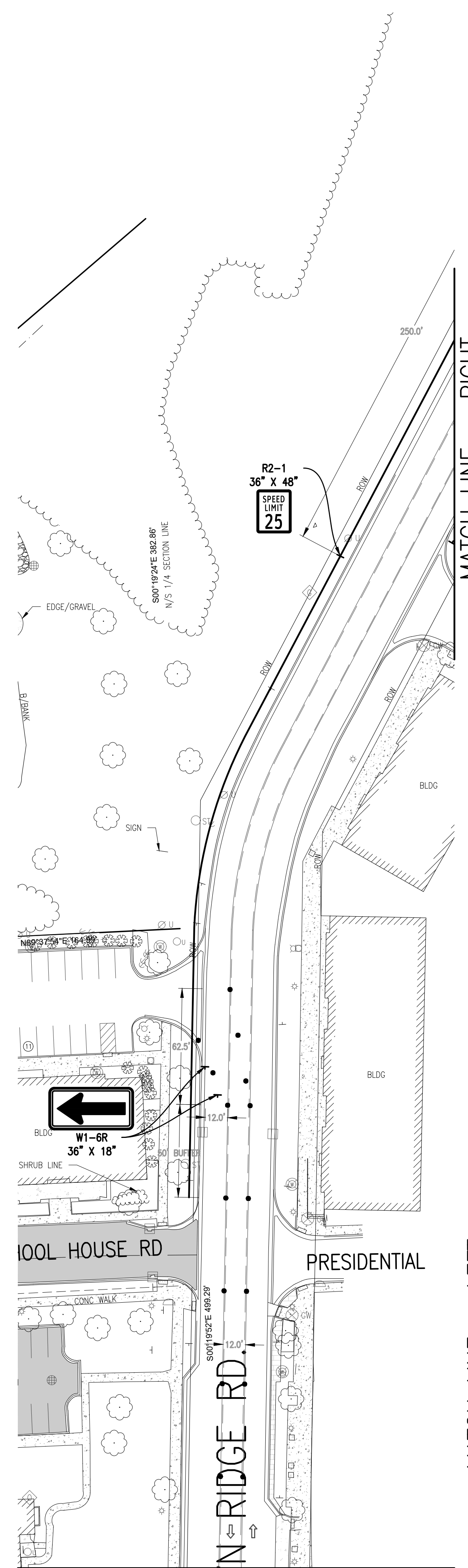
G20-2  
36" X 18"  
END ROAD WORK

MATCH LINE - LEFT

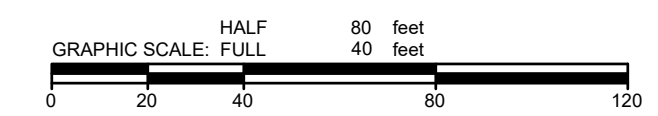
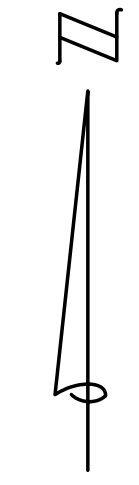
ROAD WORK AHEAD  
RIDGE ROAD  
W20-1  
36" X 36"

MATCH LINE - SEE SHEET C-115

DRAWING PATH: P:\0126\_0165\01324020\_Cherry Hill Village Phase 1\Drawings\Site\Sheets\24020\_MOT.dwg, November 22, 2024, 2:44 PM



- STAGING PLAN LEGEND**
- TYPE III BARRICADE
  - ⊥ SIGN, TEMPORARY
  - ⊥ SIGN, TEMPORARY WITH TYPE A WARNING FLASHER
  - CHANNELIZING DEVICE - SPACED AT 50' MAX ON CLOSURES
  - TRAFFIC FLOW
  - ⊥ LIGHTED ARROW, TYPE C



**811**  
Know what's below.  
Call before you dig.

KEY MAP  
NOT TO SCALE

ISSUED FOR:	BID SET	2024.11.22	DATE
REVISION	DESCRIPTION		

PROJECT NUMBER	0133-24-020
PROJECT NAME	CANTON CHARTER TOWNSHIP CHERRY HILL VILLAGE PHASE 1 CANTON TOWNSHIP, MICHIGAN
PROJECT TYPE	TRAFFIC PLAN - RIDGE RD

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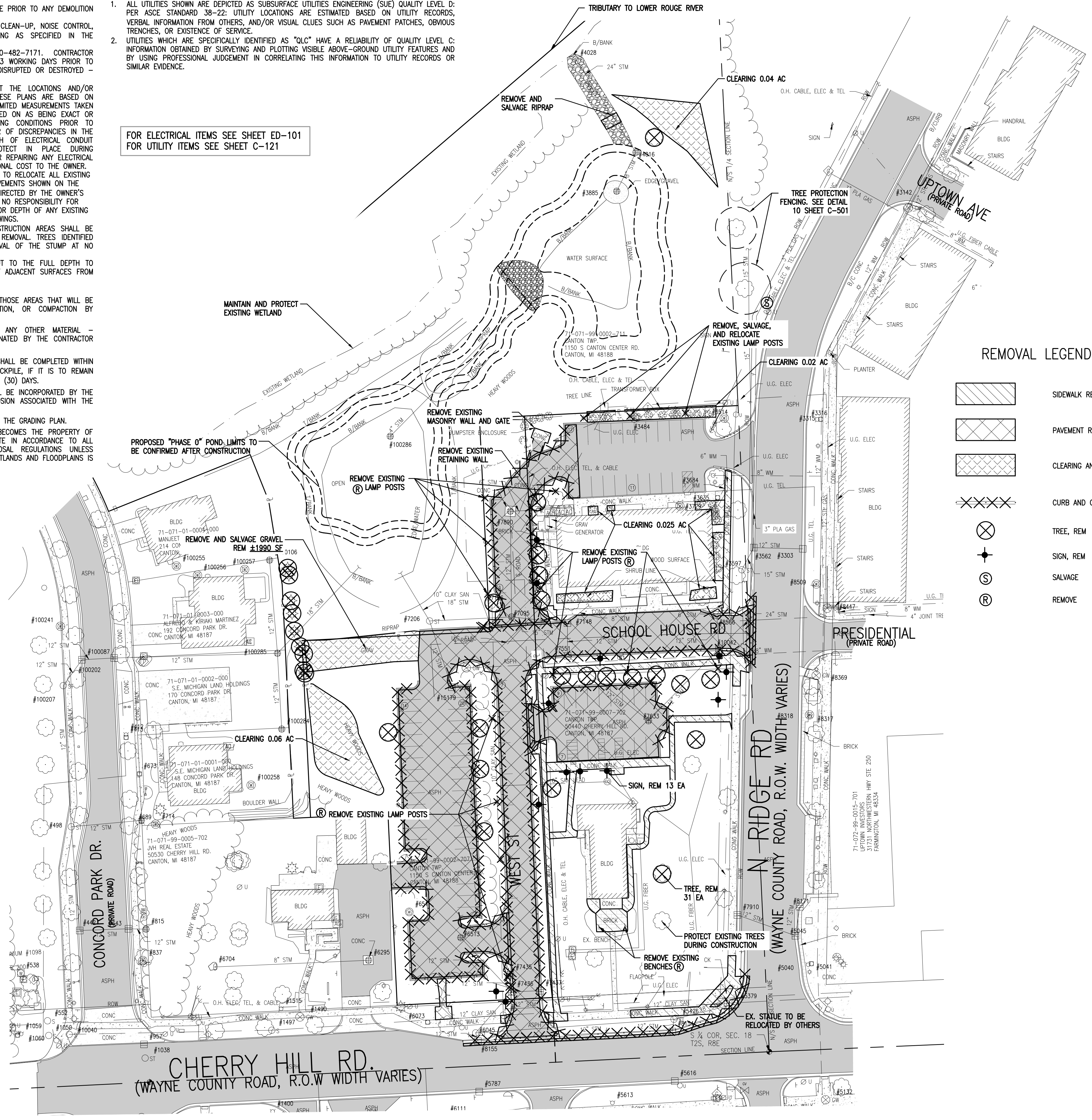
JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE. ELEV 734.69
JOB BENCHMARK #206 ARROW ON FIRE HYDRANT, LOCATED ON EAST SIDE OF N. RIDGE ROAD, NEAREST TO APT ADDRESS #144-156 N. RIDGE RD. ELEV 735.48
JOB BENCHMARK #207 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD, APPROX 85' NE OF NE CORNER OF "CANTON HUMAN SERVICE CENTER" ELEV 737.38
JOB BENCHMARK #208 CHISELED "BOX" ON EAST FACE OF COVERED LIGHT POLE BASE, 5' EAST OF DUMPSTER PAD BRICK WALL. ELEV 735.69
JOB BENCHMARK #209 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD, NEAREST TO INT OF N. RIDGE RD./UPTOWN AVE. ELEV 738.57
TRAVERSE POINT #105 N 295220.35 E 13347830.09 ELEV 733.12
TRAVERSE POINT #107 N 295367.12 E 13348018.17 ELEV 735.89
TRAVERSE POINT #108 N 295367.14 E 13347879.49 ELEV 733.73
TRAVERSE POINT #109 N 295585.26 E 13348107.60 ELEV 737.39
TRAVERSE POINT #3841 N 295460.08 E 13348008.18 ELEV 737.16

- ALL DEMOLITION SHALL CONFORM TO LOCAL CODES AND ORDINANCES.
- STAGING AND PHASING OF DEMOLITION AND CONSTRUCTION SHALL BE COORDINATED WITH OWNER PRIOR TO WORK BEGINNING.
- SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY DEMOLITION WORK COMMENCING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE CLEAN-UP, NOISE CONTROL, DUST CONTROL, AND STREET/PARKING LOT SWEEPING AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- ONE-CALL UTILITY LOCATING: MISSDC - 811 OR 800-482-7171. CONTRACTOR SHALL OPEN AN EXCAVATION TICKET A MINIMUM OF 3 WORKING DAYS PRIOR TO ANY EXCAVATION. WHEN MARKINGS AND FLAGS ARE DISRUPTED OR DESTROYED - CALL FOR REMARKING.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND LIMITED MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION SHALL NOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE OWNER OR ENGINEER OF DISCREPANCIES IN THE PLANS. THE CONTRACTOR SHALL VERIFY THE DEPTH OF ELECTRICAL CONDUIT BEFORE SCAFFOLDING GRAVEL SURFACE AND PROTECT IN PLACE DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY ELECTRICAL CONDUIT DAMAGED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE LOCATION OR DEPTH OF ANY EXISTING UTILITY SHOWN OR NOT SHOWN ON THE PROJECT DRAWINGS.
- ALL TREES LARGER THAN 6" DIA. WITHIN THE CONSTRUCTION AREAS SHALL BE PROTECTED FROM DAMAGE, UNLESS IDENTIFIED FOR REMOVAL. TREES IDENTIFIED FOR REMOVAL SHALL INCLUDE THE COMPLETE REMOVAL OF THE STUMP AT NO ADDITIONAL COST TO THE OWNER.
- ALL PAVEMENT TO BE REMOVED SHALL BE SAW CUT TO THE FULL DEPTH TO PROVIDE A SMOOTH VERTICAL EDGE AND TO PROTECT ADJACENT SURFACES FROM DAMAGE.
- TOPSOIL STRIPPING
  - STRIP THE FULL DEPTH OF TOPSOIL ONLY FROM THOSE AREAS THAT WILL BE DISTURBED BY EXCAVATION, FILLING, CONSTRUCTION, OR COMPACTION BY EQUIPMENT.
  - STOCKPILE TOPSOIL WITHOUT INTERMIXING WITH ANY OTHER MATERIAL - BORROW TOPSOIL TO REPLACE MATERIAL CONTAMINATED BY THE CONTRACTOR SHALL BE AT THE CONTRACTOR'S EXPENSE.
  - TEMPORARY STABILIZATION OF THE STOCKPILE(S) SHALL BE COMPLETED WITHIN SEVEN (7) DAYS OF THE FORMATION OF THE STOCKPILE, IF IT IS TO REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN THIRTY (30) DAYS.
- TEMPORARY STOCKPILES: PROTECTIVE MEASURES SHALL BE INCORPORATED BY THE CONTRACTOR TO ENSURE SAFETY AND CONTROL EROSION ASSOCIATED WITH THE TEMPORARY STOCKPILES.
- EXCAVATED SOILS SHALL BE DISTRIBUTED ON SITE PER THE GRADING PLAN.
- DISPOSAL: ALL DEMOLITION AND REMOVED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OFF-SITE IN ACCORDANCE TO ALL FEDERAL, STATE, AND LOCAL HAULING AND DISPOSAL REGULATIONS UNLESS DIRECTED OTHERWISE BY THE OWNER. DISPOSAL IN WETLANDS AND FLOODPLAINS IS PROHIBITED. BURNING ON-SITE IS PROHIBITED.

**UTILITY NOTES:**

- ALL UTILITIES SHOWN ARE DEPICTED AS SUBSURFACE UTILITIES ENGINEERING (SUE) QUALITY LEVEL D: PER ASCE STANDARD 38-22. UTILITY LOCATIONS ARE ESTIMATED BASED ON UTILITY RECORDS, VERBAL INFORMATION FROM OTHERS, AND/OR VISUAL CLUES SUCH AS PAVEMENT PATCHES, OBVIOUS TRENCHES, OR EXISTENCE OF SERVICE.
- UTILITIES WHICH ARE SPECIFICALLY IDENTIFIED AS "QLC" HAVE A RELIABILITY OF QUALITY LEVEL C: INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO UTILITY RECORDS OR SIMILAR EVIDENCE.

FOR ELECTRICAL ITEMS SEE SHEET ED-101  
FOR UTILITY ITEMS SEE SHEET C-121



**MISCELLANEOUS SYMBOLS**

- RIPRAP
- SIGN
- CONIFEROUS TREE
  - CL 1 1" TO 5"
  - CL 2 6" TO 17"
  - CL 3 18" TO 35"
  - CL 4 36" AND UP
- DECIDUOUS TREE
- CONIFEROUS SHRUB
- DECIDUOUS SHRUB
- SECTION CORNER
- CONCRETE
- GRAVEL

**MISCELLANEOUS UTILITY SYMBOLS**

- GUY WIRE
- GUY POLE
- UTILITY POLE
- UTILITY POLE W/LIGHT
- LIGHT/DECOR LAMP POLE
- GAS METER
- GAS RISER
- TRANSFORMER PAD
- PRIVATE UTILITY MANHOLE
- ELECTRIC METER
- HAND HOLE
- STORM MANHOLE
- SQUARE CATCH BASIN
- SANITARY MANHOLE
- GATE VALVE & WELL
- GATE VALVE & BOX
- FIRE HYDRANT
- IRRIGATION VALVE

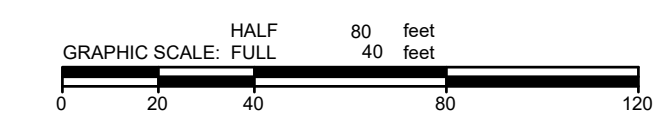
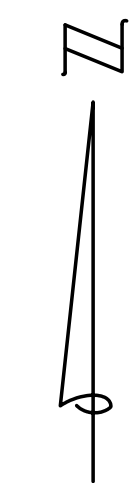
**REMOVAL LEGEND**

- SIDEWALK REMOVAL
- PAVEMENT REMOVAL
- CLEARING AND GRUBBING
- CURB AND GUTTER, REM
- TREE, REM
- SIGN, REM
- SALVAGE
- REMOVE

**UTILITY PATTERN**

- ELECTRICAL \*
- GAS/OIL
- CABLE/TELEPHONE \*
- WATER MAIN/SERVICE
- SANITARY SEWER
- STORM SEWER

\*OH = OVERHEAD, UG = UNDERGROUND



Know what's below.  
Call before you dig.



ISSUED FOR: BID SET	20241122
REVISION	DATE
DESCRIPTION	

PROJECT NUMBER	0133-24-020
PM	CR

CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN  
DEMOLITION AND REMOVAL PLAN

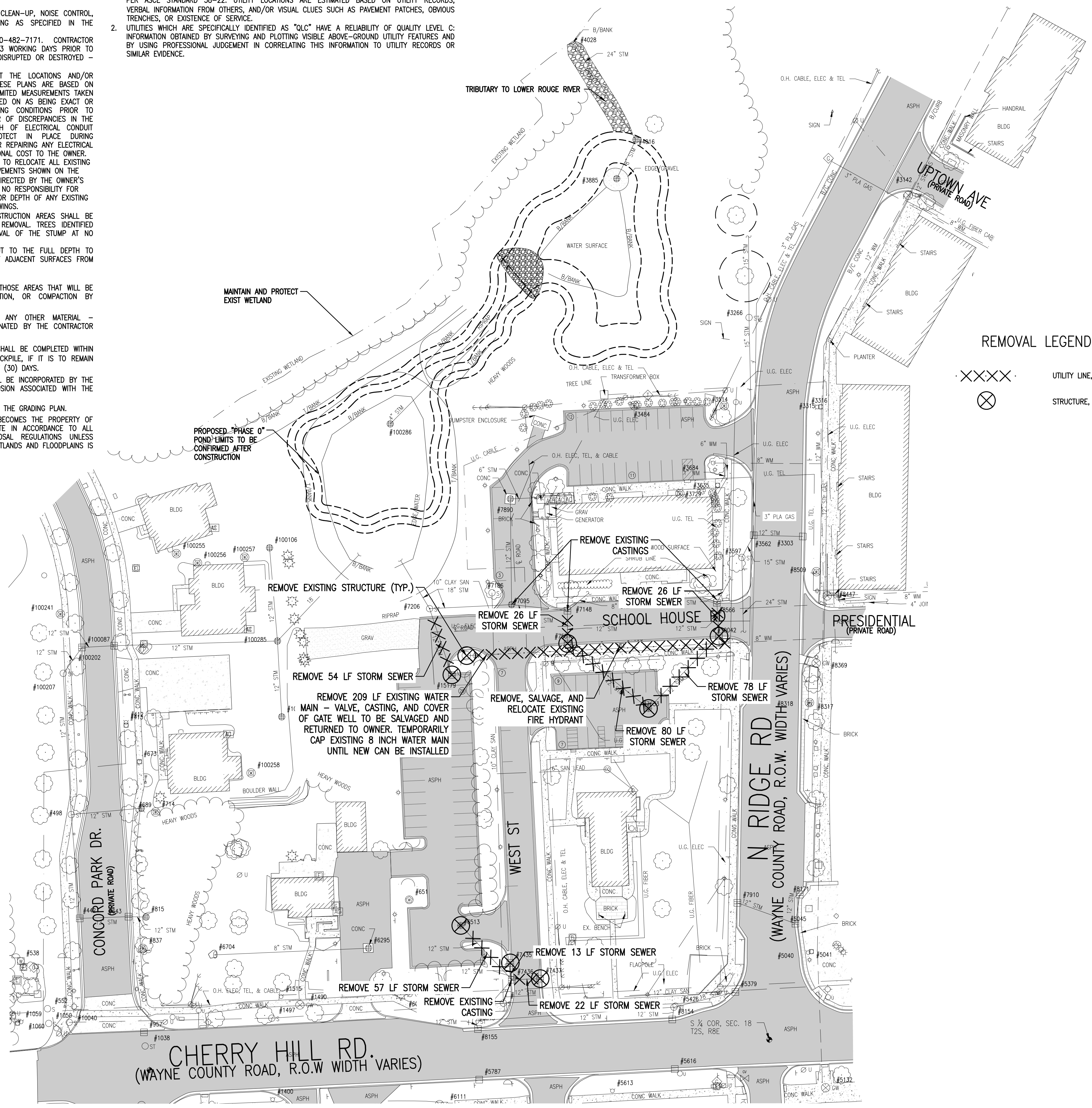


JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE. ELEV 734.69
JOB BENCHMARK #206 ARROW ON FIRE HYDRANT, LOCATED ON EAST SIDE OF N. RIDGE ROAD, NEAREST TO APT ADDRESS #144-156 N. RIDGE RD. ELEV 734.48
JOB BENCHMARK #207 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD, APPROX 85' NE OF NE CORNER OF "CANTON HUMAN SERVICE CENTER" ELEV 737.38
JOB BENCHMARK #208 CHISELED "BOX" ON EAST FACE OF COVERED LIGHT POLE BASE, 5' EAST OF DUMPSTER PAD BRICK WALL. ELEV 735.69
JOB BENCHMARK #209 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE RD./UPTOWN AVE. ELEV 738.57
TRAVERSE POINT #105 N 295220.35 E 13347830.09 ELEV 733.12
TRAVERSE POINT #107 N 295367.12 E 13348018.17 ELEV 735.89
TRAVERSE POINT #108 N 295367.14 E 13347879.49 ELEV 733.73
TRAVERSE POINT #109 N 295585.26 E 13348107.60 ELEV 737.39
TRAVERSE POINT #3841 N 295460.08 E 13348008.18 ELEV 737.16

- ALL DEMOLITION SHALL CONFORM TO LOCAL CODES AND ORDINANCES.
- STAGING AND PHASING OF DEMOLITION AND CONSTRUCTION SHALL BE COORDINATED WITH OWNER PRIOR TO WORK BEGINNING.
- SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY DEMOLITION WORK COMMENCING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE CLEAN-UP, NOISE CONTROL, DUST CONTROL, AND STREET/PARKING LOT SWEEPING AS SPECIFIED IN THE CONTRACT DOCUMENTS.
- ONE-CALL UTILITY LOCATING: MISSDC - 811 OR 800-482-7171. CONTRACTOR SHALL OPEN AN EXCAVATION TICKET A MINIMUM OF 3 WORKING DAYS PRIOR TO ANY EXCAVATION. WHEN MARKINGS AND FLAGS ARE DISRUPTED OR DESTROYED - CALL FOR REMARKING.
- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND LIMITED MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION SHALL NOT BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE OWNER OR ENGINEER OF DISCREPANCIES IN THE PLANS. THE CONTRACTOR SHALL VERIFY THE DEPTH OF ELECTRICAL CONDUIT BEFORE SCAFFOLDING GRAVEL SURFACE AND PROTECT IN PLACE DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY ELECTRICAL CONDUIT DAMAGED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED IN THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE LOCATION OR DEPTH OF ANY EXISTING UTILITY SHOWN OR NOT SHOWN ON THE PROJECT DRAWINGS.
- ALL TREES LARGER THAN 6" DIA. WITHIN THE CONSTRUCTION AREAS SHALL BE PROTECTED FROM DAMAGE, UNLESS IDENTIFIED FOR REMOVAL. TREES IDENTIFIED FOR REMOVAL SHALL INCLUDE THE COMPLETE REMOVAL OF THE STUMP AT NO ADDITIONAL COST TO THE OWNER.
- ALL PAVEMENT TO BE REMOVED SHALL BE SAW CUT TO THE FULL DEPTH TO PROVIDE A SMOOTH VERTICAL EDGE AND TO PROTECT ADJACENT SURFACES FROM DAMAGE.
- TOPSOIL STRIPPING
  - STRIP THE FULL DEPTH OF TOPSOIL ONLY FROM THOSE AREAS THAT WILL BE DISTURBED BY EXCAVATION, FILLING, CONSTRUCTION, OR COMPACTION BY EQUIPMENT.
  - STOCKPILE TOPSOIL WITHOUT INTERMIXING WITH ANY OTHER MATERIAL - BORROW TOPSOIL TO REPLACE MATERIAL CONTAMINATED BY THE CONTRACTOR SHALL BE AT THE CONTRACTOR'S EXPENSE.
  - TEMPORARY STABILIZATION OF THE STOCKPILE(S) SHALL BE COMPLETED WITHIN SEVEN (7) DAYS OF THE FORMATION OF THE STOCKPILE, IF IT IS TO REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN THIRTY (30) DAYS.
- TEMPORARY STOCKPILES: PROTECTIVE MEASURES SHALL BE INCORPORATED BY THE CONTRACTOR TO ENSURE SAFETY AND CONTROL EROSION ASSOCIATED WITH THE TEMPORARY STOCKPILES.
- EXCAVATED SOILS SHALL BE DISTRIBUTED ON SITE PER THE GRADING PLAN.
- DISPOSAL: ALL DEMOLITION AND REMOVED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OFF-SITE IN ACCORDANCE TO ALL FEDERAL, STATE, AND LOCAL HAULING AND DISPOSAL REGULATIONS UNLESS DIRECTED OTHERWISE BY THE OWNER. DISPOSAL IN WETLANDS AND FLOODPLAINS IS PROHIBITED. BURNING ON-SITE IS PROHIBITED.

**UTILITY NOTES:**

- ALL UTILITIES SHOWN ARE DEPICTED AS SUBSURFACE UTILITIES ENGINEERING (SUE) QUALITY LEVEL D: PER ASCE STANDARD 38-22. UTILITY LOCATIONS ARE ESTIMATED BASED ON UTILITY RECORDS, VERBAL INFORMATION FROM OTHERS, AND/OR VISUAL CLUES SUCH AS PAVEMENT PATCHES, OBVIOUS TRENCHES, OR EXISTENCE OF SERVICE.
- UTILITIES WHICH ARE SPECIFICALLY IDENTIFIED AS "QLC" HAVE A RELIABILITY OF QUALITY LEVEL C: INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO UTILITY RECORDS OR SIMILAR EVIDENCE.



**MISCELLANEOUS SYMBOLS**

	RIPRAP
	SIGN
	CONIFEROUS TREE
	DECIDUOUS TREE
	CONIFEROUS SHRUB
	DECIDUOUS SHRUB
	SECTION CORNER
	CONCRETE
	GRAVEL

**MISCELLANEOUS UTILITY SYMBOLS**

	GUY WIRE
	GUY POLE
	UTILITY POLE
	UTILITY POLE W/LIGHT
	LIGHT/DECOR LAMP POLE
	GAS METER
	GAS RISER
	TRANSFORMER PAD
	PRIVATE UTILITY MANHOLE
	ELECTRIC METER
	HAND HOLE
	STORM MANHOLE
	SQUARE CATCH BASIN
	SANITARY MANHOLE
	GATE VALVE & WELL
	GATE VALVE & BOX
	FIRE HYDRANT
	IRRIGATION VALVE

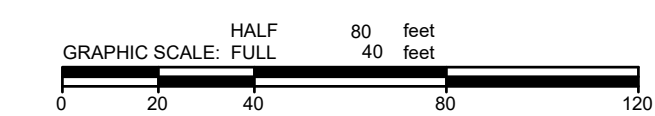
**UTILITY PATTERN**

	ELECTRICAL *
	GAS/OIL
	CABLE/TELEPHONE *
	WATER MAIN/SERVICE
	SANITARY SEWER
	STORM SEWER

\*OH = OVERHEAD, UG = UNDERGROUND

**REMOVAL LEGEND**

	UTILITY LINE, REM
	STRUCTURE, REM



Know what's below.  
Call before you dig.

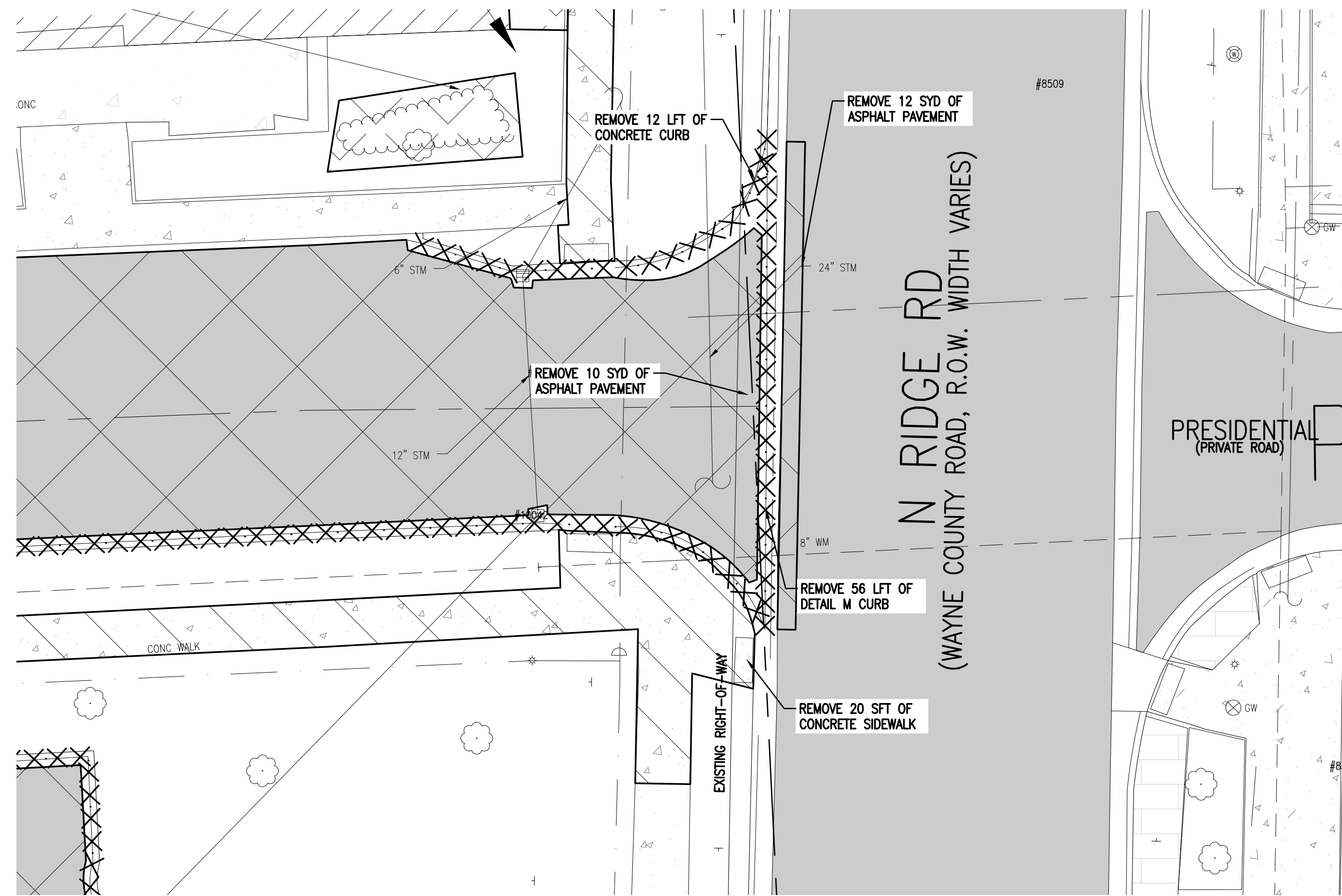


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REVISION:	DESCRIPTION		

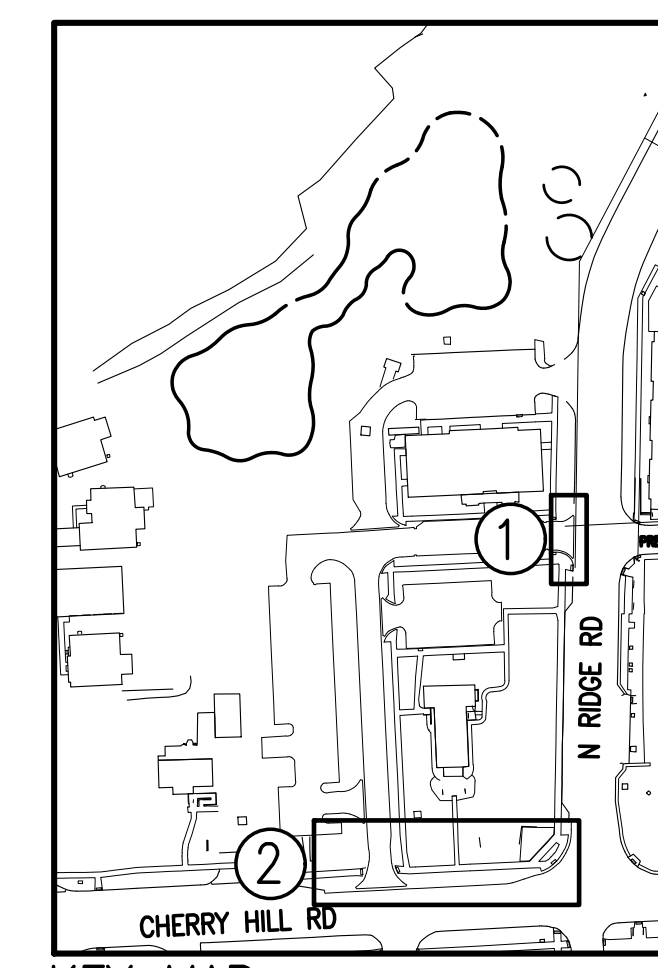
PROJECT NUMBER: 0133-24-020  
 CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN  
 DEMOLITION AND REMOVAL PLAN - UTILITIES



JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE. ELEV. 734.69
JOB BENCHMARK #206 ARROW ON FIRE HYDRANT, LOCATED ON EAST SIDE OF N. RIDGE ROAD, NEAREST TO APT ADDRESS #144-156 N. RIDGE RD. ELEV. 734.48
JOB BENCHMARK #207 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD, APPROX 85' NE OF NE CORNER OF "CANTON HUMAN SERVICE CENTER" ELEV. 737.38
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TRAVERSE POINT #3841 N 295460.08 E 13348008.18 ELEV. 737.16



1 R.O.W. IMPROVEMENTS DETAIL PLAN  
1" = 10'



KEY MAP  
NOT TO SCALE

**REMOVAL LEGEND**

	SIDEWALK REMOVAL
	PAVEMENT REMOVAL
	CLEARING AND GRUBBING
	CURB AND GUTTER, REM
	TREE, REM
	SIGN, REM
	SALVAGE
	REMOVE

**MISCELLANEOUS SYMBOLS**

	RIPRAP
	SIGN
	CONIFEROUS TREE
	DECIDUOUS TREE
	CONIFEROUS SHRUB
	DECIDUOUS SHRUB
	SECTION CORNER
	CONCRETE
	GRAVEL

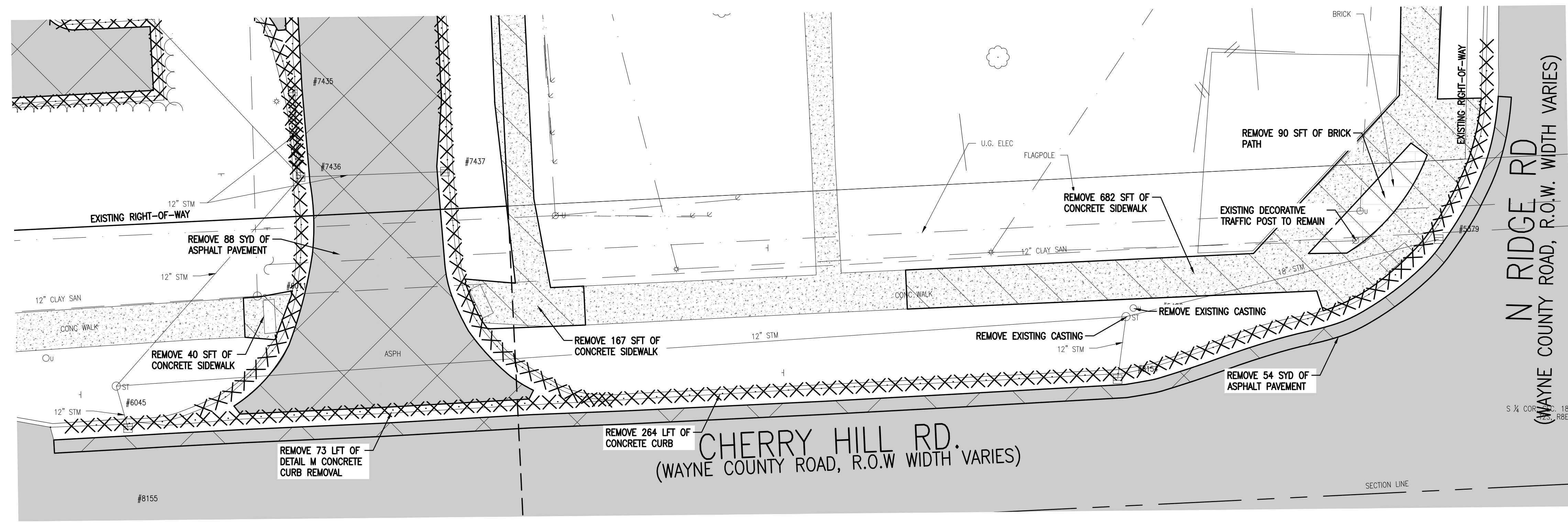
**MISCELLANEOUS UTILITY SYMBOLS**

	GUY WIRE
	GUY POLE
	UTILITY POLE
	UTILITY POLE W/LIGHT
	LIGHT/DECOR LAMP POLE
	GAS METER
	GAS RISER
	TRANSFORMER PAD
	PRIVATE UTILITY MANHOLE
	ELECTRIC METER
	HAND HOLE
	STORM MANHOLE
	SQUARE CATCH BASIN
	SANITARY MANHOLE
	GATE VALVE & WELL
	GATE VALVE & BOX
	FIRE HYDRANT
	IRRIGATION VALVE

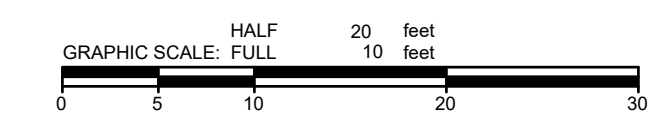
**UTILITY PATTERN**

	ELECTRICAL *
	GAS/OIL
	CABLE/TELEPHONE *
	12" WM WATER MAIN/SERVICE
	12" SAN SANITARY SEWER
	12" STM STORM SEWER

\*OH = OVERHEAD, UG = UNDERGROUND



2 R.O.W. IMPROVEMENTS DETAIL PLAN  
1" = 10'



ISSUED FOR:	BID SET	2024.12.22	DATE
REVISION:	DESCRIPTION		

PROJECT NUMBER: 0133-24-020  
 CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN  
 DEMOLITION AND REMOVAL PLAN - R.O.W.

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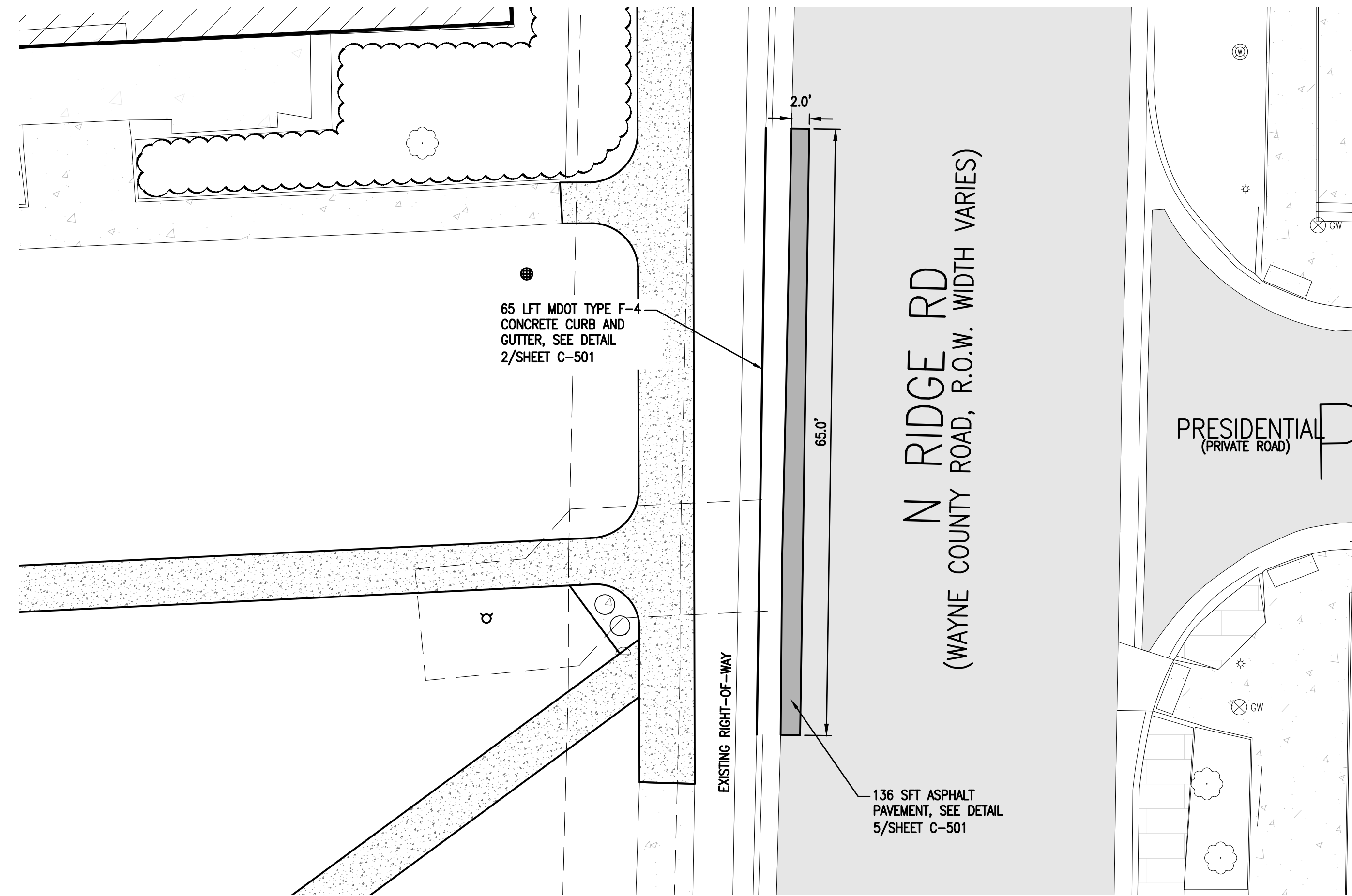
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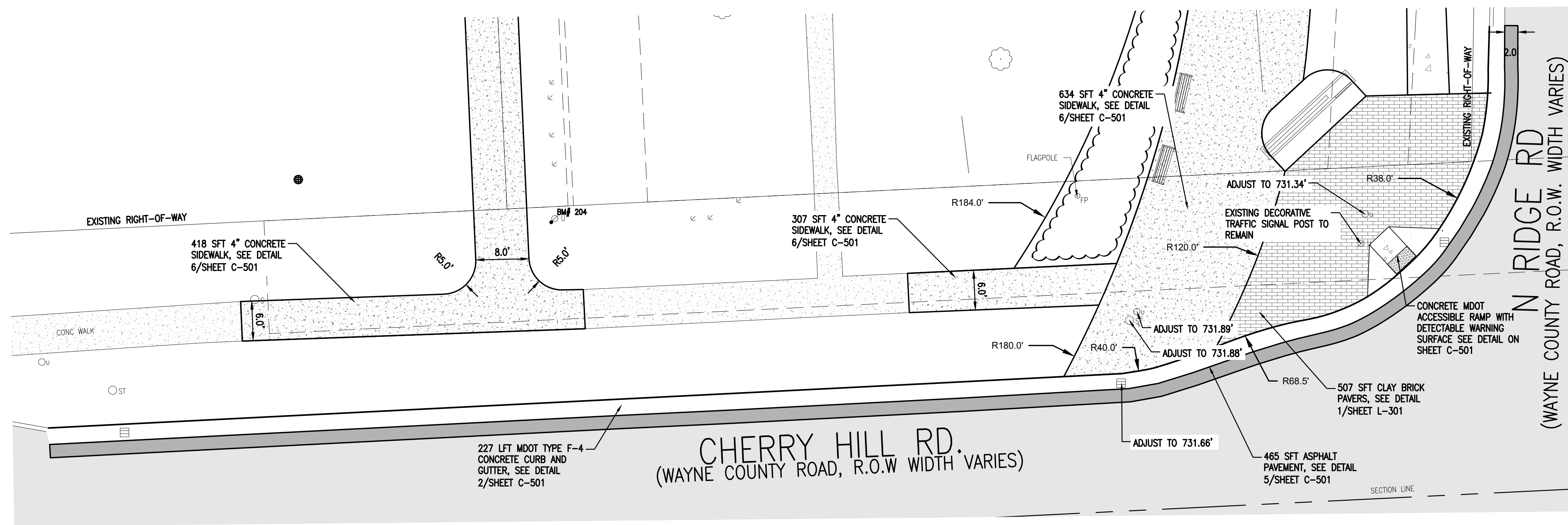




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1 R. O. W. IMPROVEMENTS DETAIL PLAN  
1" = 10'



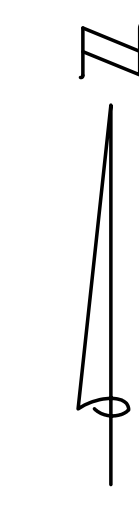
2 R. O. W. IMPROVEMENTS DETAIL PLAN  
1" = 10'

EXISTING

- ST STORM MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- CULVERT
- ) CULVERT W/END SECTION
- S SANITARY MANHOLE
- ⊗ GW GATE VALVE & WELL
- GATE VALVE & BOX
- ⊠ WATER STOP BOX
- ⊙ FIRE HYDRANT
- ⋈ GUY WIRE
- ⊙ U UTILITY POLE
- ⊙ LIGHT/DECOR LAMP POLE
- ⊠ GAS METER
- ⊠ GAS RISER
- U PRIVATE UTILITY MANHOLE
- ⊠ ELECTRIC METER
- ⊠ HAND HOLE
- ⊙ CONIFEROUS TREE
- ⊙ DECIDUOUS TREE
- ⊙ CONIFEROUS SHRUB
- ⊙ DECIDUOUS SHRUB
- ⊙ SECTION CORNER
- ⊙ BM #xxx SURVEY BENCHMARK
- ⊙ TP # SURVEY TRAVERSE POINT
- CONCRETE
- ASPHALT

PROPOSED

- RIPRAP
- 1 SIGN
- CURB AND GUTTER, STD
- ASPHALT
- CONCRETE
- CLAY BRICK PAVERS
- GRAVEL



ISSUED FOR: BID SET	2024/11/22	DATE
REVISION	DESCRIPTION	

PROJECT NUMBER: 0133-24-020  
 PM: CM  
 CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN  
 SITE PLAN - R.O.W. IMPROVEMENTS



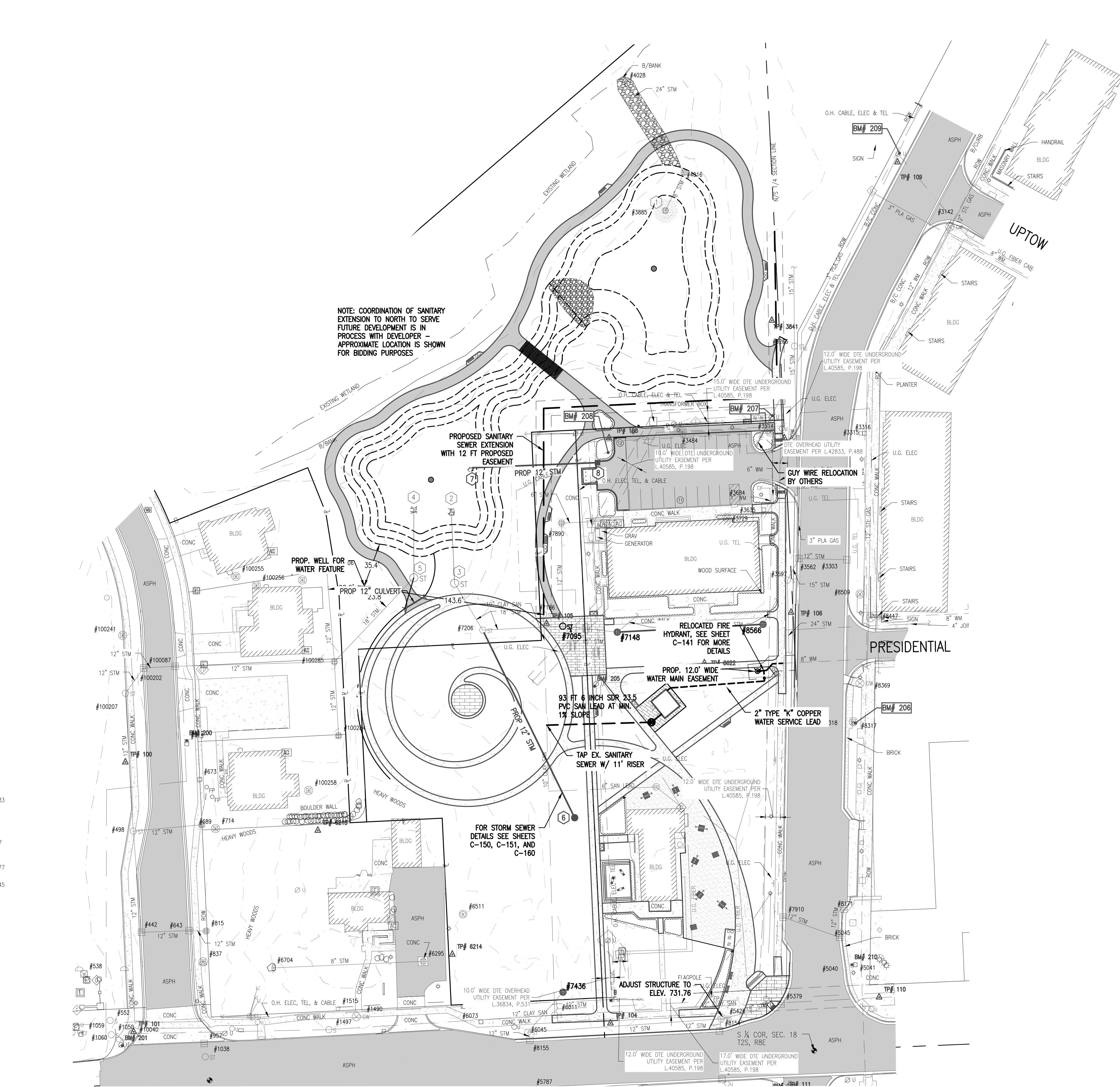
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JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE. ELEV 734.69	#442 SQ CB T/CAST 731.39 12" CONC INV E 725.33 12" CONC INV N 727.59
JOB BENCHMARK #206 ARROW ON FIRE HYDRANT, LOCATED ON EAST SIDE OF N. RIDGE ROAD, NEAREST TO APT ADDRESS #144-156 N. RIDGE RD. ELEV 734.48	#498 STORM MH T/CAST 731.44 12" CONC INV S 727.33 12" CONC INV E 725.18 12" CONC INV N 726.62
JOB BENCHMARK #207 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD. APPROX. 85' NE OF NE CORNER OF "CANTON HUMAN SERVICE CENTER". ELEV 737.38	#643 SQ CB T/CAST 731.17 15" CONC INV S 729.00 12" CONC INV W 726.19
JOB BENCHMARK #208 CHISELED 'BOX' ON EAST FACE OF COVERED LIGHT POLE BASE. 5' EAST OF DUMPSTER PAD BRICK WALL. ELEV 735.69	#689 BEEHIVE CB T/CAST 731.20 12" CONC INV W 726.15
JOB BENCHMARK #209 COTTON SPINDLE IN EAST FOAGE OF WOOD UTILITY POLE. LOCATED ON WEST SIDE OF N. RIDGE ROAD, NEAREST TO INT OF N. RIDGE RD./UPTOWN AVE. ELEV 738.57	#815 BEEHIVE CB T/CAST 730.71 12" CONC INV W 726.50
TRAVERSE POINT #105 N 295220.35 E 13347830.09 ELEV 733.12	#3266 STORM MH T/CAST 736.50 15" CONC INV N 729.15 15" CONC INV S 729.00
TRAVERSE POINT #106 N 295229.29 E 13348023.46 ELEV 733.13	#3303 SQ CB T/CAST 732.67 12" CONC INV W 728.80
TRAVERSE POINT #107 N 295367.12 E 13348018.17 ELEV 735.89	#3562 SQ CB T/CAST 733.39 12" CONC INV E 728.75 15" CONC INV N 728.94 15" CONC INV SW 728.94
TRAVERSE POINT #108 N 295367.14 E 13347879.49 ELEV 733.73	#3597 STORM MH T/CAST 733.76 24" CONC INV S 726.13 15" CONC INV NE 728.80
TRAVERSE POINT #109 N 295585.26 E 13348107.60 ELEV 737.39	#3885 BEEHIVE CB T/CAST 727.57 8" PVC INV 723.99
TRAVERSE POINT #3841 N 295460.08 E 13348008.18 ELEV 737.16	#4016 BEEHIVE CB T/CAST 727.35 8" PVC INV SW 724.95 24" CONC INV NW 724.25

#442 SQ CB T/CAST 731.39 12" CONC INV E 725.33 12" CONC INV N 727.59	#498 STORM MH T/CAST 731.44 12" CONC INV S 727.33 12" CONC INV E 725.18 12" CONC INV N 726.62
#643 SQ CB T/CAST 731.17 15" CONC INV S 729.00 12" CONC INV W 726.19	#689 BEEHIVE CB T/CAST 731.20 12" CONC INV W 726.15
#815 BEEHIVE CB T/CAST 730.71 12" CONC INV W 726.50	#3266 STORM MH T/CAST 736.50 15" CONC INV N 729.15 15" CONC INV S 729.00
#3303 SQ CB T/CAST 732.67 12" CONC INV W 728.80	#3562 SQ CB T/CAST 733.39 12" CONC INV E 728.75 15" CONC INV N 728.94 15" CONC INV SW 728.94
#3597 STORM MH T/CAST 733.76 24" CONC INV S 726.13 15" CONC INV NE 728.80	#3885 BEEHIVE CB T/CAST 727.57 8" PVC INV 723.99
#4016 BEEHIVE CB T/CAST 727.35 8" PVC INV SW 724.95 24" CONC INV NW 724.25	#4028 END SECTION 24" RCP INV S 724.13
#5379 SQ CB T/CAST 730.27 18" CONC INV N 723.29 18" CONC INV SW 723.09	#5426 STORM MH T/CAST 732.35 18" CONC INV E 723.56 12" CONC INV S 724.51 12" CONC INV W 724.57
#6045 STORM MH T/CAST 736.16 12" CONC INV NE 727.47 12" CONC INV E 727.25 12" CONC INV S 727.38	#6295 RD CB T/CAST 738.51 8" PVC INV W 736.95
#6513 RD CB T/CAST 734.86 12" CONC INV SE 729.94	#6704 END SECTION 8" PVC INV E 737.14
#7095 RD CB T/CAST 732.68 12" CONC INV NE 728.80 18" CONC INV W 726.67 12" PVC INV N 726.90	#7148 SQ CB T/CAST 732.45 12" CONC INV S 726.97 8" PVC INV NE 728.24 15" CONC INV W 726.78
#7206 STORM MH T/CAST 732.20 12" CONC INV S 727.77 18" CONC INV E 725.49 18" CONC INV NW 725.21	#7335 SQ CB T/CAST 733.59 12" CONC INV S 729.69
#7436 SQ CB T/CAST 733.59 12" CONC INV N 729.58 12" CONC INV NW 729.57 12" CONC INV E 728.42 12" CONC INV SW 728.54	#7437 SQ CB T/CAST 733.77 12" CONC INV W 727.20
#7511 SQ CB T/CAST 732.60 12" CONC INV SE 727.30 12" CONC INV N 727.05	#7633 RD CB T/CAST 733.06 12" CONC INV NE 726.61 12" CONC INV NW 726.61
#7890 RD CB T/CAST 731.70 12" PVC INV S 727.51 6" CONC INV E 728.20	#8154 SQ CB T/CAST 731.51 12" CONC INV N 724.81 12" CONC INV S 724.80
#8566 SQ CB T/CAST 733.01 12" CONC INV S 728.15 6" PVC INV NE 729.36	#10042 SQ CB T/CAST 732.87 12" CONC INV N 727.69 12" CONC INV SW 727.73
#10042 SQ CB T/CAST 732.87 12" CONC INV N 727.69 12" CONC INV SW 727.73	#15179 SQ CB T/CAST 732.44 12" CONC INV NW 728.94
#100087 SQ CB T/CAST 729.11 12" CONC INV W 724.87 12" CONC INV E 724.77	#100106 BEEHIVE CB T/CAST 729.33 12" CONC INV S 724.89
#100106 BEEHIVE CB T/CAST 729.33 12" CONC INV S 724.89	#100202 SQ CB T/CAST 729.22 12" CONC INV SW 724.77 12" CONC INV E 724.92
#100202 SQ CB T/CAST 729.22 12" CONC INV SW 724.77 12" CONC INV E 724.92	#100207 STORM MH T/CAST 730.47 12" CONC INV S 725.27 12" CONC INV NE 725.21
#100207 STORM MH T/CAST 730.47 12" CONC INV S 725.27 12" CONC INV NE 725.21	#100284 BEEHIVE CB T/CAST 729.77 12" CONC INV N 725.31
#100284 BEEHIVE CB T/CAST 729.77 12" CONC INV N 725.31	#100285 BEEHIVE CB T/CAST 729.45 12" CONC INV W 724.37 12" CONC INV S 725.11 12" CONC INV N 724.66 18" CONC INV NF 724.37
#100285 BEEHIVE CB T/CAST 729.45 12" CONC INV W 724.37 12" CONC INV S 725.11 12" CONC INV N 724.66 18" CONC INV NF 724.37	EXISTING WATER STRUCTURES #3142 GWAV T/CAST 736.67 12" D.I.P T/P N 728.39 12" D.I.P T/P S 728.39 12" D.I.P T/P E 728.39
EXISTING WATER STRUCTURES #3142 GWAV T/CAST 736.67 12" D.I.P T/P N 728.39 12" D.I.P T/P S 728.39 12" D.I.P T/P E 728.39	#7346 GWAV T/CAST 732.76 8" D.I.P T/P E 726.79
#7346 GWAV T/CAST 732.76 8" D.I.P T/P E 726.79	#8447 GWAV T/CAST 732.09 12" D.I.P T/P N 720.95
#8447 GWAV T/CAST 732.09 12" D.I.P T/P N 720.95	EXISTING SANITARY STRUCTURES #6011 SAN. MH T/CAST 734.65 12" PVC INV E 715.70 12" PVC INV W 715.70 12" PVC INV N 715.75
EXISTING SANITARY STRUCTURES #6011 SAN. MH T/CAST 734.65 12" PVC INV E 715.70 12" PVC INV W 715.70 12" PVC INV N 715.75	#7186 SAN. MH T/CAST 733.52 10" CLAY INV S 716.01
#7186 SAN. MH T/CAST 733.52 10" CLAY INV S 716.01	#10040 SAN. MH T/CAST 732.23 10" PVC INV N 716.43
#10040 SAN. MH T/CAST 732.23 10" PVC INV N 716.43	



NOTE: COORDINATION OF SANITARY EXTENSION TO NORTH TO SERVE FUTURE DEVELOPMENT IS IN PROCESS WITH DEVELOPER - APPROXIMATE LOCATION IS SHOWN FOR BIDDING PURPOSES

FOR STORM SEWER DETAILS SEE SHEETS C-150, C-151, AND C-160

ADJUST STRUCTURE TO ELEV. 731.76

UTILITY PATTERN

EXISTING		
---	ELEC	ELECTRICAL *
---	GAS	GAS/OIL
---	CABLE/TEL	CABLE/TELEPHONE *
---	12" WM	WATER MAIN/SERVICE
---	12" SAN	SANITARY SEWER
---	12" STM	STORM SEWER

\*OH = OVERHEAD, UG = UNDERGROUND

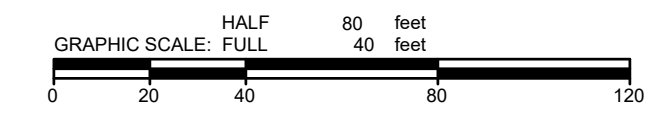
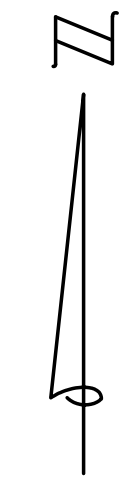
EXISTING

○	ST	STORM MANHOLE
■		SQUARE CATCH BASIN
⊕		ROUND CATCH BASIN
)		CULVERT W/END SECTION
○	S	SANITARY MANHOLE
⊙		CLEAN OUT
⊗	GW	GATE VALVE & WELL
⊠		GATE VALVE & BOX
⊞		WATER STOP BOX
⊕		FIRE HYDRANT

PROPOSED

⊕		ROUND INLET/CATCH BASIN
)		CULVERT END SECTION
⊕		FIRE HYDRANT

---	12" WM	WATER MAIN/SERVICE
---	12" SAN	SANITARY SEWER
---	12" STM	STORM SEWER
---	4" UD	UNDERDRAIN



Know what's below.  
Call before you dig.



ISSUED FOR:	BID SET	DESCRIPTION	2024.12.22	DATE
REVISION				

PROJECT NUMBER: 0133-24-020  
CLIENT PROJECT ONLY  
CLIENT PROJECT

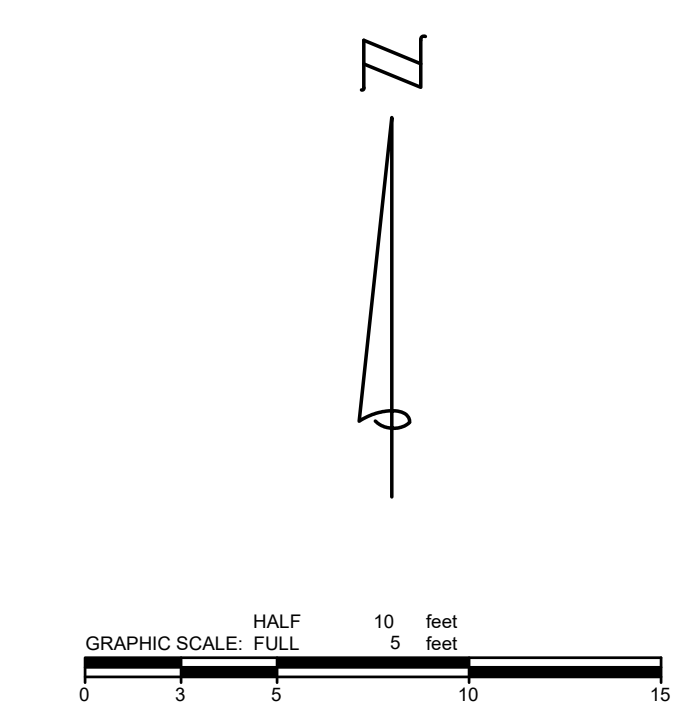
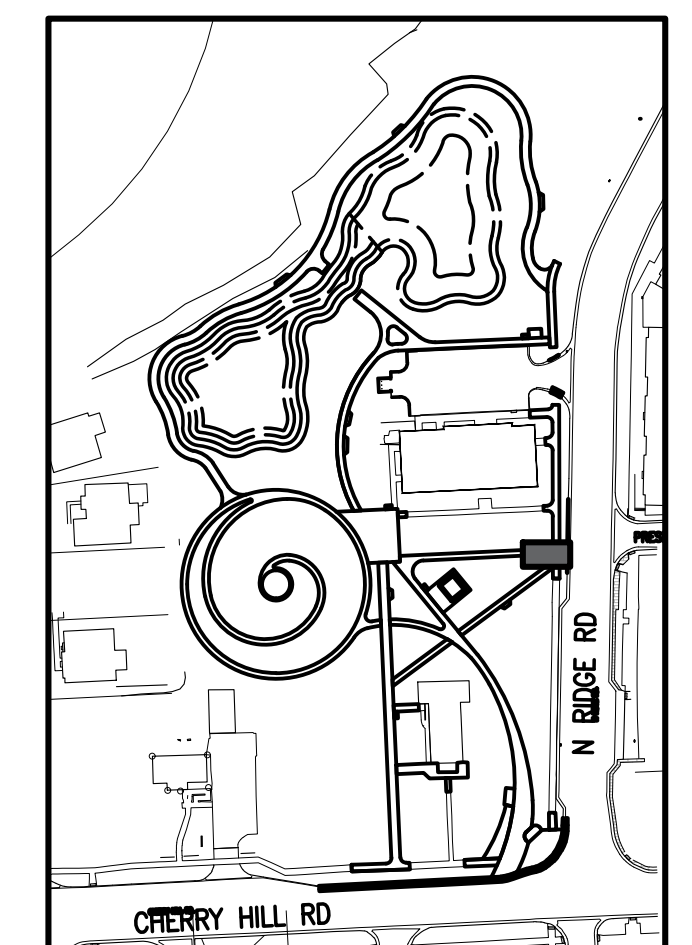
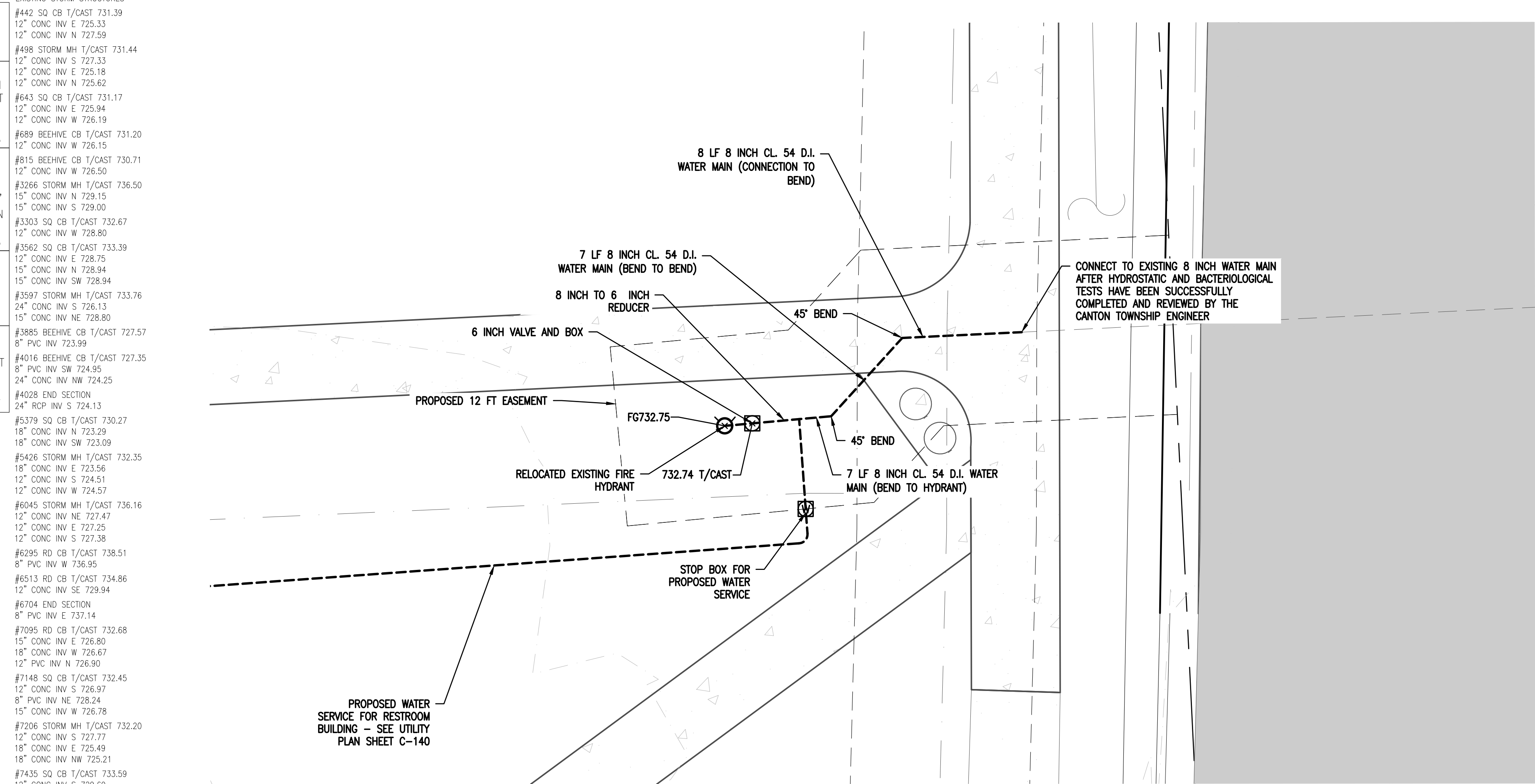
CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN  
UTILITY PLAN

C-140



DRAWING PATH: P:\0126\_0165013\240020\_Cherry Hill\_Village\_Phase 1\Drawings\Site\Sheet\240020\_LUTP.dwg Nov 22, 2024, 2:55pm

JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE. ELEV 734.69	EXISTING STORM STRUCTURES #442 SQ CB T/CAST 731.39 12" CONC INV E 725.33 12" CONC INV N 727.59 #498 STORM MH T/CAST 731.44 12" CONC INV S 727.33 12" CONC INV E 725.18 12" CONC INV N 725.62 #645 SQ CB T/CAST 731.17 12" CONC INV S 729.94 12" CONC INV W 726.19 #689 BEEHIVE CB T/CAST 731.20 12" CONC INV W 726.15
JOB BENCHMARK #206 ARROW ON FIRE HYDRANT, LOCATED ON EAST SIDE OF N. RIDGE ROAD, NEAREST TO APT ADDRESS #144-156 N. RIDGE RD. ELEV 734.48	#815 BEEHIVE CB T/CAST 730.71 12" CONC INV W 726.50 #3266 STORM MH T/CAST 736.50 15" CONC INV N 729.15 15" CONC INV S 729.00 #3303 SQ CB T/CAST 732.67 12" CONC INV W 728.80 #3562 SQ CB T/CAST 733.39 12" CONC INV E 728.75 15" CONC INV N 728.94 15" CONC INV SW 728.94 #3597 STORM MH T/CAST 733.76 24" CONC INV S 726.13 15" CONC INV NE 728.80 #3885 BEEHIVE CB T/CAST 727.57 8" PVC INV 723.99
JOB BENCHMARK #207 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD. APPROX. 85' NE OF NE CORNER OF "CANTON HUMAN SERVICE CENTER". ELEV 737.38	#4016 BEEHIVE CB T/CAST 727.35 8" PVC INV SW 724.95 24" CONC INV NW 724.25 #4028 END SECTION 24" RCP INV S 724.13 #5379 SQ CB T/CAST 730.27 18" CONC INV NE 723.29 18" CONC INV SW 723.09 #5426 STORM MH T/CAST 732.35 18" CONC INV E 723.56 12" CONC INV S 724.51 12" CONC INV W 724.57
JOB BENCHMARK #208 CHISELED 'BOX' ON EAST FACE OF COVERED LIGHT POLE BASE. 5' EAST OF DUMPSTER PAD BRICK WALL. ELEV 735.69	#6045 STORM MH T/CAST 736.16 12" CONC INV NE 727.47 12" CONC INV E 727.25 12" CONC INV S 727.38 #6295 RD CB T/CAST 738.51 8" PVC INV W 736.95 #6513 RD CB T/CAST 734.86 12" CONC INV SE 729.94 #6704 END SECTION 8" PVC INV E 737.14 #7095 RD CB T/CAST 732.68 12" CONC INV NE 729.58 12" CONC INV NW 729.57 12" CONC INV E 728.42 12" CONC INV SW 728.54 #7435 SQ CB T/CAST 733.59 12" CONC INV S 729.69 #7436 SQ CB T/CAST 733.59 12" CONC INV N 729.58 12" CONC INV NW 729.57 12" CONC INV E 728.42 12" CONC INV SW 728.54 #7437 SQ CB T/CAST 733.77 12" CONC INV W 727.20 #7551 SQ CB T/CAST 732.60 12" CONC INV SE 727.30 12" CONC INV N 727.05 #7633 RD CB T/CAST 733.06 12" CONC INV NE 726.61 12" CONC INV NW 726.61 #7890 RD CB T/CAST 731.70 12" PVC INV S 727.51 6" CONC INV E 728.20 #8154 SQ CB T/CAST 731.51 12" CONC INV N 724.81 12" CONC INV S 724.80 #8566 SQ CB T/CAST 733.01 12" CONC INV S 728.15 6" PVC INV NE 729.36 #10042 SQ CB T/CAST 732.87 12" CONC INV N 727.69 12" CONC INV SW 727.73 #15179 SQ CB T/CAST 732.44 12" CONC INV NW 728.94 #100087 SQ CB T/CAST 729.11 12" CONC INV W 724.87 12" CONC INV E 724.77 #100106 BEEHIVE CB T/CAST 729.33 12" CONC INV S 724.89 #100202 SQ CB T/CAST 729.22 12" CONC INV SW 724.77 12" CONC INV E 724.92 #100207 STORM MH T/CAST 730.47 12" CONC INV S 725.27 12" CONC INV NE 725.21 #100284 BEEHIVE CB T/CAST 729.77 12" CONC INV N 725.31 #100285 BEEHIVE CB T/CAST 729.45 12" CONC INV W 724.37 12" CONC INV S 725.11 12" CONC INV N 724.66 18" CONC INV NE 724.37
JOB BENCHMARK #209 COTTON SPINDLE IN EAST FOAGE OF WOOD UTILITY POLE. LOCATED ON WEST SIDE OF N. RIDGE ROAD, NEAREST TO INT OF N. RIDGE RD./UPTOWN AVE. ELEV 738.57	EXISTING WATER STRUCTURES #3142 GWAV T/CAST 736.67 12" D.I.P T/P N 728.39 12" D.I.P T/P S 728.39 12" D.I.P T/P E 728.39 #7346 GWAV T/CAST 732.76 8" D.I.P T/P E 726.79 #8447 GWAV T/CAST 732.09 12" D.I.P T/P N 720.95
TRAVERSE POINT #105 N 295220.35 E 13347830.09 ELEV 733.12	EXISTING SANITARY STRUCTURES #6011 SAN. MH T/CAST 734.65 12" PVC INV E 715.70 12" PVC INV W 715.70 12" PVC INV N 715.75 #7186 SAN. MH T/CAST 733.52 10" CLAY INV S 716.01 #10040 SAN. MH T/CAST 732.23 10" PVC INV N 716.43
TRAVERSE POINT #106 N 295229.29 E 13348023.46 ELEV 733.13	
TRAVERSE POINT #107 N 295367.12 E 13348018.17 ELEV 735.89	
TRAVERSE POINT #108 N 295367.14 E 13347879.49 ELEV 733.73	
TRAVERSE POINT #109 N 295585.26 E 13348107.60 ELEV 737.39	
TRAVERSE POINT #3841 N 295460.08 E 13348008.18 ELEV 737.16	



UTILITY PATTERN

EXISTING

— ELEC —	ELECTRICAL *
— GAS —	GAS/OIL
— CABLE/TEL —	CABLE/TELEPHONE *
— 12" WM —	WATER MAIN/SERVICE
— 12" SAN —	SANITARY SEWER
— 12" STM —	STORM SEWER

\*OH = OVERHEAD, UG = UNDERGROUND

EXISTING

○ ST	STORM MANHOLE
□	SQUARE CATCH BASIN
⊕	ROUND CATCH BASIN
)	CULVERT W/END SECTION
○ S	SANITARY MANHOLE
⊙	CLEAN OUT
⊗ GW	GATE VALVE & WELL
⊞	GATE VALVE & BOX
⊞	WATER STOP BOX
⊙	FIRE HYDRANT

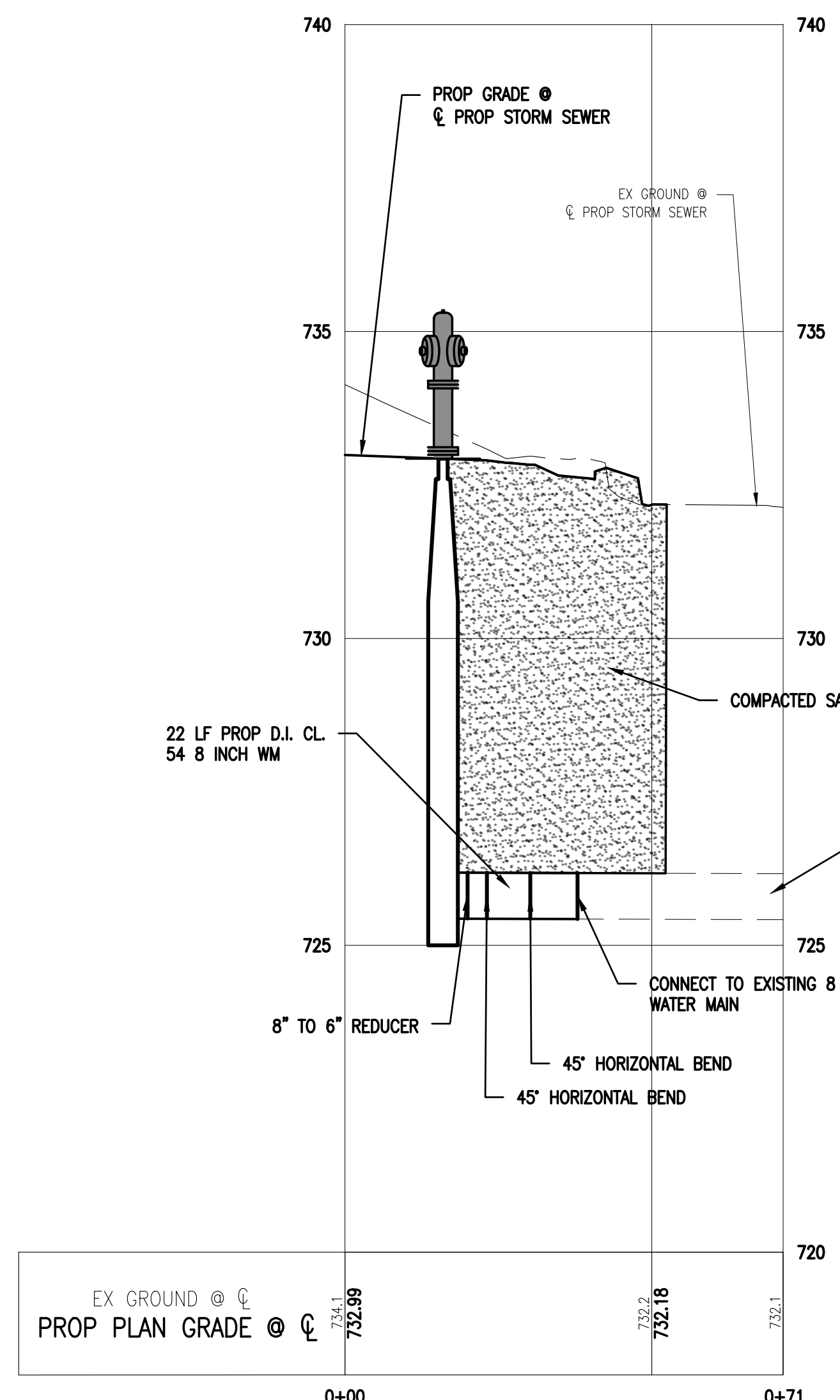
PROPOSED

⊕	ROUND INLET/CATCH BASIN
)	CULVERT END SECTION
⊙	FIRE HYDRANT

— 12" WM —	WATER MAIN/SERVICE
— 12" SAN —	SANITARY SEWER
— 12" STM —	STORM SEWER
— 4" UD —	UNDERDRAIN

NOTES:

1. ALL WATER MAIN PIPE AND FITTINGS SHALL MEET ANSI/NSF STANDARD 61.
2. REPLACEMENT OR RELOCATION OF EXISTING HYDRANTS AND VALVES MUST MEET CURRENT CANTON TOWNSHIP STANDARDS.
3. ANY FIRE HYDRANTS OR GATE VALVES PROPOSED FOR REMOVAL SHALL BE RETURNED TO CANTON TOWNSHIP PUBLIC WORKS.
4. PROVIDE A PIPE COVER OF 6.0 FT ABOVE WATER MAIN MEASURING FROM TOP OF PIPE.
5. THE WATER MAIN BEDDING MUST BE MICHIGAN DEPARTMENT OF TRANSPORTATION CLASS II SAND.
6. TRENCH "B" SAND BACKFILL IS REQUIRED FOR WATER MAIN TRENCH LOCATED UNDER OR WITHIN THREE FEET OF PAVEMENT.
7. TRENCH "A" BACKFILL MATERIAL USED MUST BE FREE OF LARGE LUMPS OF CLAY, DEBRIS, AND ROCKS.
8. ALL BOLTS FOR UNDERGROUND MECHANICAL CONNECTIONS MUST BE COR-BLUE T-BOLT TYPE.
9. THRUST BLOCKS AND "MEGA-LUGS" ARE REQUIRED AT ALL BENDS, TEES, CROSSES, HYDRANTS, PLUGS AT THE END OF THE LINE, AND VERTICAL OR HORIZONTAL BENDS.



WATER MAIN PROFILE

SCALE: 1IN - 20FT H  
1IN - 2FT V



ISSUED FOR: BID SET  
REVISION DESCRIPTION  
DATE

PROJECT NUMBER: 0133-24-020  
CLIENT PROJECT: CLIENT PROJECT

CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN  
WATER MAIN PLAN



Know what's below.  
Call before you dig.

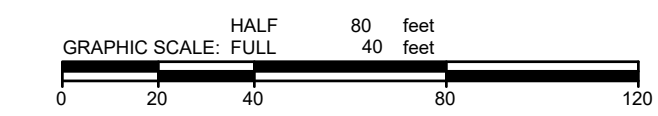
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- LEGEND**
- EX ASPHALT
  - EX CONCRETE PAVEMENT
  - EX CONCRETE SIDEWALK
  - EX BRICK PAVERS
  - EX GRAVEL
  - EX TRUNCATED DOME
  - EX RIPRAP
  - EX. PROPERTY LINE
  - EX. WETLAND/EDGE OF WATER
  - EX. SECTION LINE
  - PROP. DETENTION POND
  - PROP. RIPRAP
- EXISTING UTILITIES**
- ELECTRICAL
  - GAS/OIL
  - CABLE/TELEPHONE
  - WATER MAIN
  - SANITARY SEWER
  - STORM SEWER
- UTILITY SYMBOLS**
- STORM MANHOLE
  - SQUARE CATCH BASIN
  - ROUND CATCH BASIN
  - SANITARY MANHOLE
  - CLEAN OUT
  - GATE VALVE & BOX
  - FIRE HYDRANT
  - IRRIGATION VALVE
  - TRANSFORMER PAD
  - LIGHT/DECOR LAMP POLE
  - ELECTRIC HAND HOLE
  - GAS RISER
- PROPOSED UTILITIES**
- 12" STM STORM SEWER
  - ROUND CATCH BASIN
  - SQUARE CATCH BASIN
  - STORM MANHOLE
  - END SECTION
  - DRAINAGE AREA BOUNDARY

DRAINAGE MANAGEMENT AREA SUMMARY					
DRAINAGE AREA	STRUCTURE NUMBER	SURFACE	SF	ACRES	C
1	10042	Impervious (Pavement)	3101	0.07	0.95
		Pervious (Hydrologic Soil Group D)	8241	0.19	0.3
		<b>TOTAL:</b>	<b>11342</b>	<b>0.26</b>	<b>0.48</b>
2	7148	Impervious (Pavement)	3843	0.09	0.95
		Pervious (Hydrologic Soil Group D)	2121	0.05	0.3
		<b>TOTAL:</b>	<b>5963</b>	<b>0.14</b>	<b>0.72</b>
3	7890	Impervious (Pavement)	4599	0.11	0.95
		Pervious (Hydrologic Soil Group D)	4617	0.11	0.3
		<b>TOTAL:</b>	<b>9216</b>	<b>0.21</b>	<b>0.62</b>
4	6	Impervious (Pavement)	1861	0.04	0.95
		Pervious (Hydrologic Soil Group D)	13006	0.30	0.3
		<b>TOTAL:</b>	<b>14868</b>	<b>0.34</b>	<b>0.38</b>
5	8	Impervious (Pavement)	8473	0.19	0.95
		Pervious (Hydrologic Soil Group D)	1672	0.04	0.3
		<b>TOTAL:</b>	<b>10146</b>	<b>0.23</b>	<b>0.84</b>
6	Pond	Impervious (Pavement)	15029	0.35	0.95
		Pervious (Hydrologic Soil Group D)	94076	2.16	0.3
		<b>TOTAL:</b>	<b>109104</b>	<b>2.50</b>	<b>0.39</b>
<b>NORTHEAST PARCEL TOTAL</b>			<b>155074</b>	<b>3.56</b>	<b>0.35</b>
<b>TOTAL</b>			<b>315713</b>	<b>7.25</b>	<b>0.54</b>



PROJECT NUMBER: 0133-24-020  
ISSUED FOR: BID SET  
REVISION: DESCRIPTION  
DATE: 2024.12.22

CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN  
STORM WATER MANAGEMENT

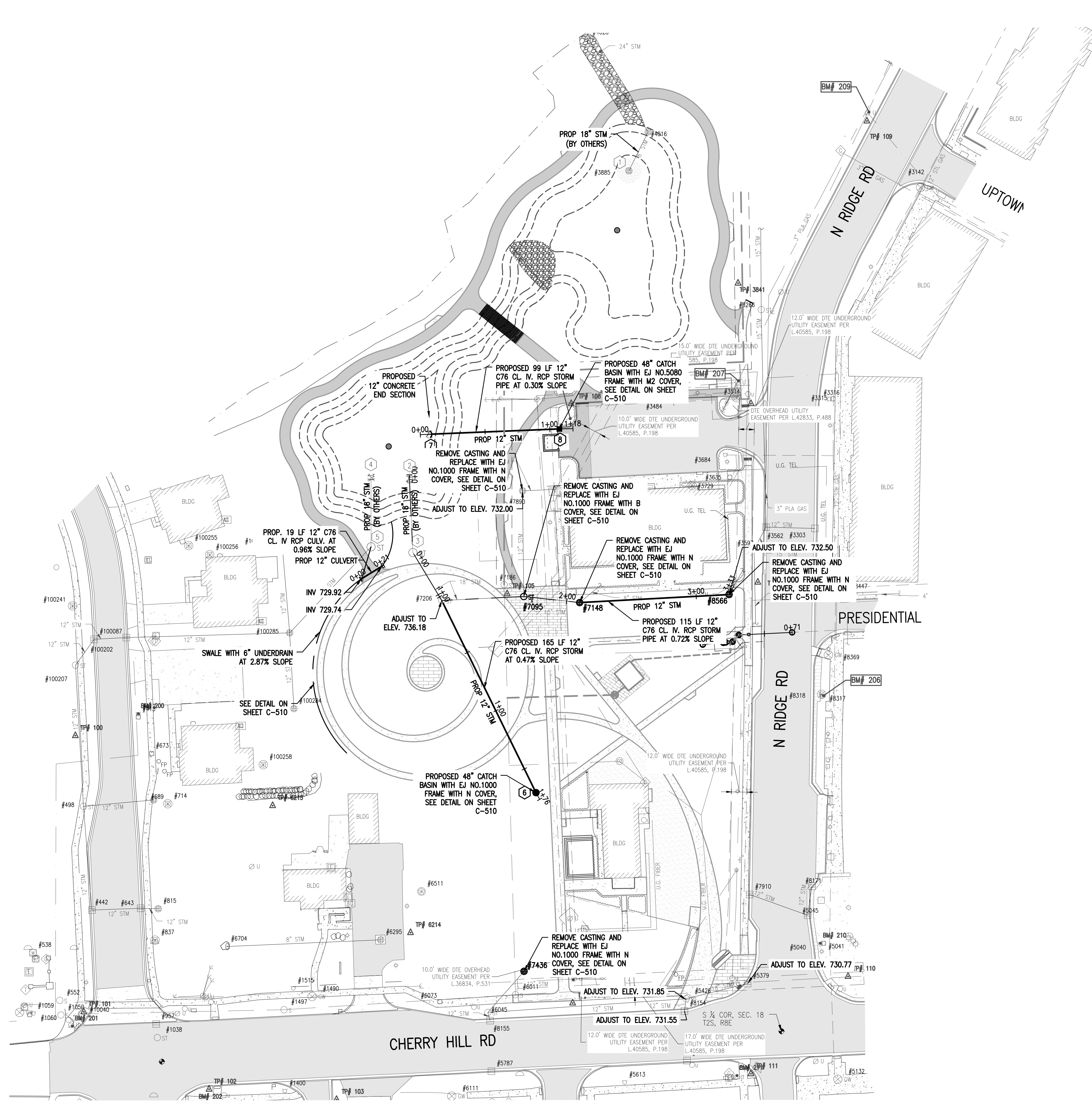
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JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE. ELEV 734.69	#442 SO CB T/CAST 731.39 12" CONC INV E 725.33 12" CONC INV N 727.59 #498 STORM MH T/CAST 731.44 12" CONC INV S 727.33 12" CONC INV E 725.18 12" CONC INV N 725.62 #643 SO CB T/CAST 731.17 12" CONC INV E 725.94 12" CONC INV W 726.19 #689 BEEHIVE CB T/CAST 731.20 12" CONC INV W 726.15
JOB BENCHMARK #206 ARROW ON FIRE HYDRANT, LOCATED ON EAST SIDE OF N. RIDGE ROAD, NEAREST TO APT ADDRESS #144-156 N. RIDGE RD. ELEV 734.48	#815 BEEHIVE CB T/CAST 730.71 12" CONC INV W 726.50 #3266 STORM MH T/CAST 736.50 15" CONC INV N 729.15 15" CONC INV S 729.00 #3303 SO CB T/CAST 732.67 12" CONC INV W 728.80 #3562 SO CB T/CAST 733.39 12" CONC INV E 728.75 15" CONC INV N 728.94 15" CONC INV SW 728.94 #3597 STORM MH T/CAST 733.76 24" CONC INV S 726.13 15" CONC INV NE 728.80
JOB BENCHMARK #207 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE, LOCATED ON WEST SIDE OF N. RIDGE ROAD, APPROX. 85' NE OF NE CORNER OF "CANTON HUMAN SERVICE CENTER". ELEV 737.38	#3885 BEEHIVE CB T/CAST 727.57 6" PVC INV W 723.99 (BY OTHERS) #4016 BEEHIVE CB T/CAST 727.35 6" PVC INV SW 724.95 24" CONC INV NW 724.25 18" CONC INV SW 724.75 (BY OTHERS) #4028 END SECTION 24" RCP INV S 724.13
JOB BENCHMARK #208 CHISELED "BOX" ON EAST FACE OF COVERED LIGHT POLE BASE. 5' EAST OF DUMPSTER PAD BRICK WALL. ELEV 735.69	#5379 SQ CB T/CAST 736.27 PR. 730.77 18" CONC INV N 723.29 18" CONC INV SW 723.09 #5426 STORM MH T/CAST 732.35 18" CONC INV E 723.56 12" CONC INV S 724.51 12" CONC INV W 724.57 #6045 STORM MH T/CAST 736.16 12" CONC INV NE 727.47 12" CONC INV E 727.25 12" CONC INV S 727.38 #6295 RD CB T/CAST 738.51 8" PVC INV W 736.95 #6513 RD-CB T/CAST 734.86 12" CONC INV SE 729.94 #6704 END SECTION 8" PVC INV E 737.14 #7095 RD CB T/CAST 732.68 PR. 732.90 15" CONC INV E 726.80 18" CONC INV W 726.67 12" PVC INV N 726.90 #7148 SQ CB T/CAST 732.45 8" PVC INV NE 728.24 15" CONC INV W 726.76 12" CONC INV E 727.67
JOB BENCHMARK #209 COTTON SPINDLE IN EAST FACE OF WOOD UTILITY POLE. LOCATED ON WEST SIDE OF N. RIDGE ROAD, NEAREST TO INT OF N. RIDGE RD./UPTOWN AVE. ELEV 738.57	#7206 STORM MH T/CAST 732.20 PR. 736.18 12" CONC INV S 727.77 18" CONC INV E 725.49 18" CONC INV N 725.21 #7436 SQ CB T/CAST 733.59 12" CONC INV N 729.58 12" CONC INV W 729.57 12" CONC INV E 728.42 12" CONC INV SW 728.54 #7437 SQ CB T/CAST 733.77 12" CONC INV W 728.20 #7551 SQ CB T/CAST 732.60 12" CONC INV SE 727.50 12" CONC INV N 727.05 #7633 RD-CB T/CAST 733.06 12" CONC INV NE 726.61 12" CONC INV NW 726.61 #7890 RD CB T/CAST 731.70 PR. 732.00 12" PVC INV S 727.51 6" CONC INV E 728.20 #8154 SQ CB T/CAST 731.51 PR. 731.55 12" CONC INV N 724.81 12" CONC INV S 724.80 #8566 SQ CB T/CAST 733.01 PR. 732.50 12" CONC INV S 728.15 6" PVC INV NE 728.26 12" CONC INV W 728.50 #10042 SQ CB T/CAST 732.87 12" CONC INV N 727.69 12" CONC INV SW 727.73 #15179 SQ CB T/CAST 732.44 12" CONC INV NW 728.94 #100087 SQ CB T/CAST 729.11 12" CONC INV W 724.87 12" CONC INV E 724.77 #100105 BEEHIVE CB T/CAST 729.33 12" CONC INV S 724.89 #100202 SQ CB T/CAST 729.22 12" CONC INV SW 724.77 12" CONC INV E 724.92 #100207 STORM MH T/CAST 730.47 12" CONC INV S 725.27 12" CONC INV NE 725.21 #100284 BEEHIVE CB T/CAST 729.77 12" CONC INV N 725.31 #100285 BEEHIVE CB T/CAST 729.45 12" CONC INV S 725.11 12" CONC INV S 725.11 12" CONC INV N 724.66 18" CONC INV NE 724.37
TRAVERSE POINT #105 N 295220.35 E 13347830.09 ELEV 733.12	
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TRAVERSE POINT #107 N 295367.12 E 13348018.17 ELEV 735.89	
TRAVERSE POINT #108 N 295367.14 E 13347879.49 ELEV 733.73	
TRAVERSE POINT #109 N 295585.26 E 13348107.60 ELEV 737.39	
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	#3885 BEEHIVE CB T/CAST 727.57 6" PVC INV W 723.99 (BY OTHERS) #4016 BEEHIVE CB T/CAST 727.35 6" PVC INV SW 724.95 24" CONC INV NW 724.25 18" CONC INV SW 724.75 (BY OTHERS) #4028 END SECTION 24" RCP INV S 724.13
	#5379 SQ CB T/CAST 736.27 PR. 730.77 18" CONC INV N 723.29 18" CONC INV SW 723.09 #5426 STORM MH T/CAST 732.35 18" CONC INV E 723.56 12" CONC INV S 724.51 12" CONC INV W 724.57 #6045 STORM MH T/CAST 736.16 12" CONC INV NE 727.47 12" CONC INV E 727.25 12" CONC INV S 727.38 #6295 RD CB T/CAST 738.51 8" PVC INV W 736.95 #6513 RD-CB T/CAST 734.86 12" CONC INV SE 729.94 #6704 END SECTION 8" PVC INV E 737.14 #7095 RD CB T/CAST 732.68 PR. 732.90 15" CONC INV E 726.80 18" CONC INV W 726.67 12" PVC INV N 726.90 #7148 SQ CB T/CAST 732.45 8" PVC INV NE 728.24 15" CONC INV W 726.76 12" CONC INV E 727.67
	#7206 STORM MH T/CAST 732.20 PR. 736.18 12" CONC INV S 727.77 18" CONC INV E 725.49 18" CONC INV N 725.21 #7436 SQ CB T/CAST 733.59 12" CONC INV N 729.58 12" CONC INV W 729.57 12" CONC INV E 728.42 12" CONC INV SW 728.54 #7437 SQ CB T/CAST 733.77 12" CONC INV W 728.20 #7551 SQ CB T/CAST 732.60 12" CONC INV SE 727.50 12" CONC INV N 727.05 #7633 RD-CB T/CAST 733.06 12" CONC INV NE 726.61 12" CONC INV NW 726.61 #7890 RD CB T/CAST 731.70 PR. 732.00 12" PVC INV S 727.51 6" CONC INV E 728.20 #8154 SQ CB T/CAST 731.51 PR. 731.55 12" CONC INV N 724.81 12" CONC INV S 724.80 #8566 SQ CB T/CAST 733.01 PR. 732.50 12" CONC INV S 728.15 6" PVC INV NE 728.26 12" CONC INV W 728.50 #10042 SQ CB T/CAST 732.87 12" CONC INV N 727.69 12" CONC INV SW 727.73 #15179 SQ CB T/CAST 732.44 12" CONC INV NW 728.94 #100087 SQ CB T/CAST 729.11 12" CONC INV W 724.87 12" CONC INV E 724.77 #100105 BEEHIVE CB T/CAST 729.33 12" CONC INV S 724.89 #100202 SQ CB T/CAST 729.22 12" CONC INV SW 724.77 12" CONC INV E 724.92 #100207 STORM MH T/CAST 730.47 12" CONC INV S 725.27 12" CONC INV NE 725.21 #100284 BEEHIVE CB T/CAST 729.77 12" CONC INV N 725.31 #100285 BEEHIVE CB T/CAST 729.45 12" CONC INV S 725.11 12" CONC INV S 725.11 12" CONC INV N 724.66 18" CONC INV NE 724.37
	<b>CULVERT</b> 12" CONC INV SW 729.92 12" CONC INV NE 729.74
	<b>#1 48" DIA STANDPIPE T/CAST 727.99 (BY OTHERS)</b> 18" CONC INV NE 724.75 <b>#2 18" END SECTION (BY OTHERS)</b> 18" CONC INV N ±725.12 18" CONC INV SE ±725.12 <b>#3 STORM MH T/CAST 730.30 (BY OTHERS)</b> 18" CONC INV N ±725.12 18" CONC INV SE ±725.12 <b>#4 18" END SECTION (BY OTHERS)</b> 18" CONC INV S 724.11 <b>#5 STORM MH T/CAST 730.01 (BY OTHERS)</b> 18" CONC INV N ±724.20 18" CONC INV SE ±724.20



### LEGEND

- EX ASPHALT
- EX CONCRETE PAVEMENT
- EX CONCRETE SIDEWALK
- EX BRICK PAVERS
- EX GRAVEL
- EX TRUNCATED DOME
- EX RIPRAP
- EX. PROPERTY LINE
- EX. WETLAND/EDGE OF WATER
- EX. SECTION LINE
- PROP. DETENTION POND
- PROP. RIPRAP

### EXISTING UTILITIES

- ELEC ELECTRICAL
- GAS/OIL GAS/OIL
- CABLE/TELEPHONE CABLE/TELEPHONE
- 12" WM WATER MAIN
- 12" SAN SANITARY SEWER
- 12" STM STORM SEWER

### UTILITY SYMBOLS

- ST STORM MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- SANITARY MANHOLE
- CLEAN OUT
- GATE VALVE & BOX
- FIRE HYDRANT
- IRRIGATION VALVE
- TRANSFORMER PAD
- LIGHT/DECOR LAMP POLE
- ELECTRIC HAND HOLE
- GAS RISER

### PROPOSED UTILITIES

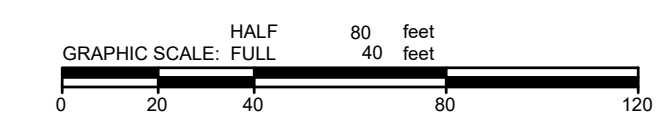
- 12" STM STORM SEWER
- ROUND CATCH BASIN
- SQUARE CATCH BASIN
- STORM MANHOLE
- END SECTION
- DRAINAGE AREA BOUNDARY

- ⑥ STA 1+70.37  
48" DIA BEEHIVE CATCH BASIN W/ 2' SUMP  
T/CAST 733.25  
12" INV NW 726.78
- ⑦ STA 0+08.66  
18" End Section  
12" INV E 728.20
- ⑧ STA 1+07.38  
48" DIA SQ CATCH BASIN W/ 2' SUMP  
T/CAST 732.50  
12" INV W 728.50

DRAWING PATH: P:\0126\_01650113\240020\_Cherry Hill\_Village\_Phase\_1\Drawings\Site\Sheet\240020\_STM.dwg, Nov 22, 2024, 2:55pm

ISSUED FOR:	BID SET	20241122	DATE
REVISION:	DESCRIPTION		

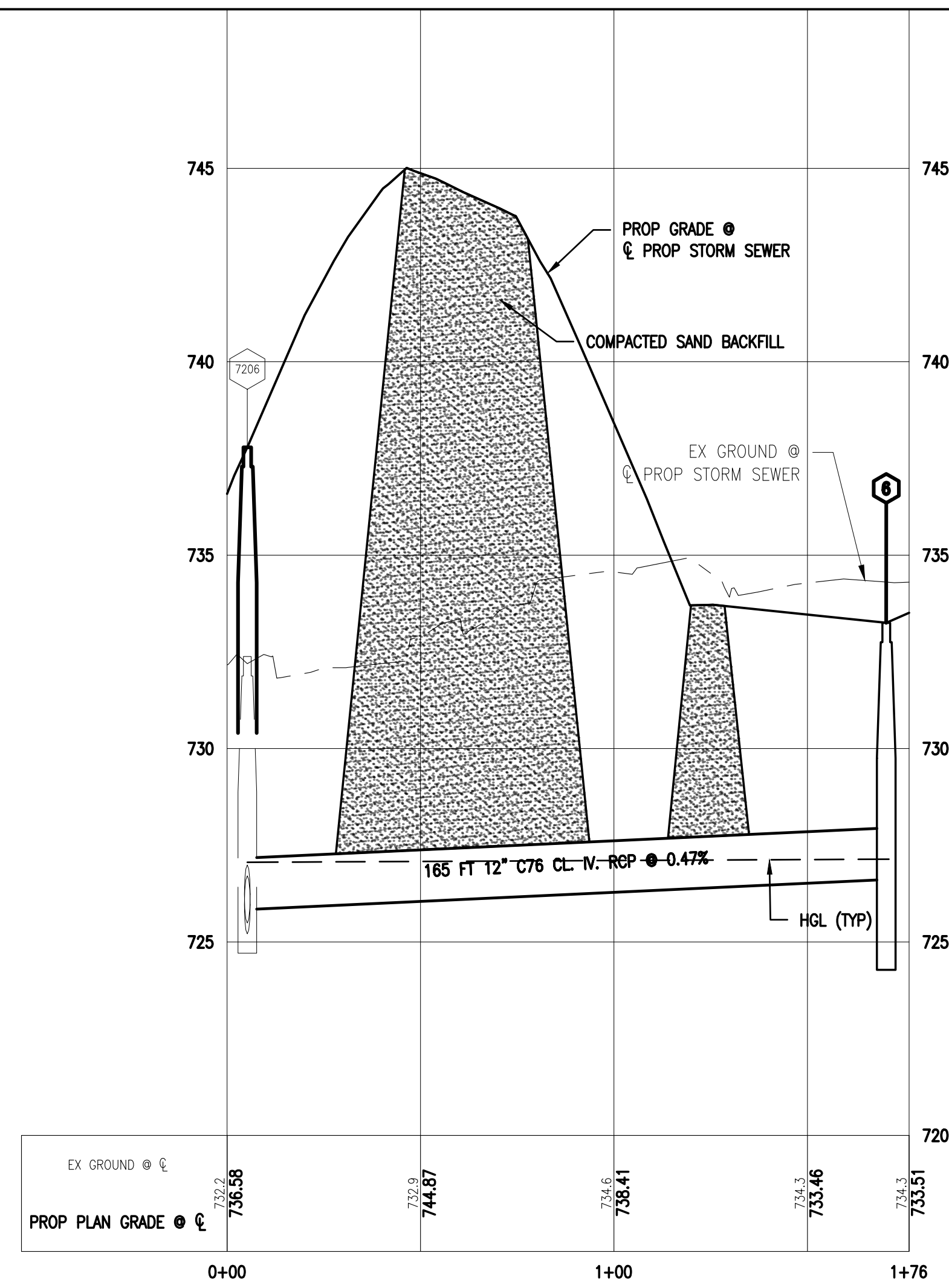
PROJECT NUMBER: 0133-24-020  
CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN  
STORM WATER MANAGEMENT - PLAN



Know what's below.  
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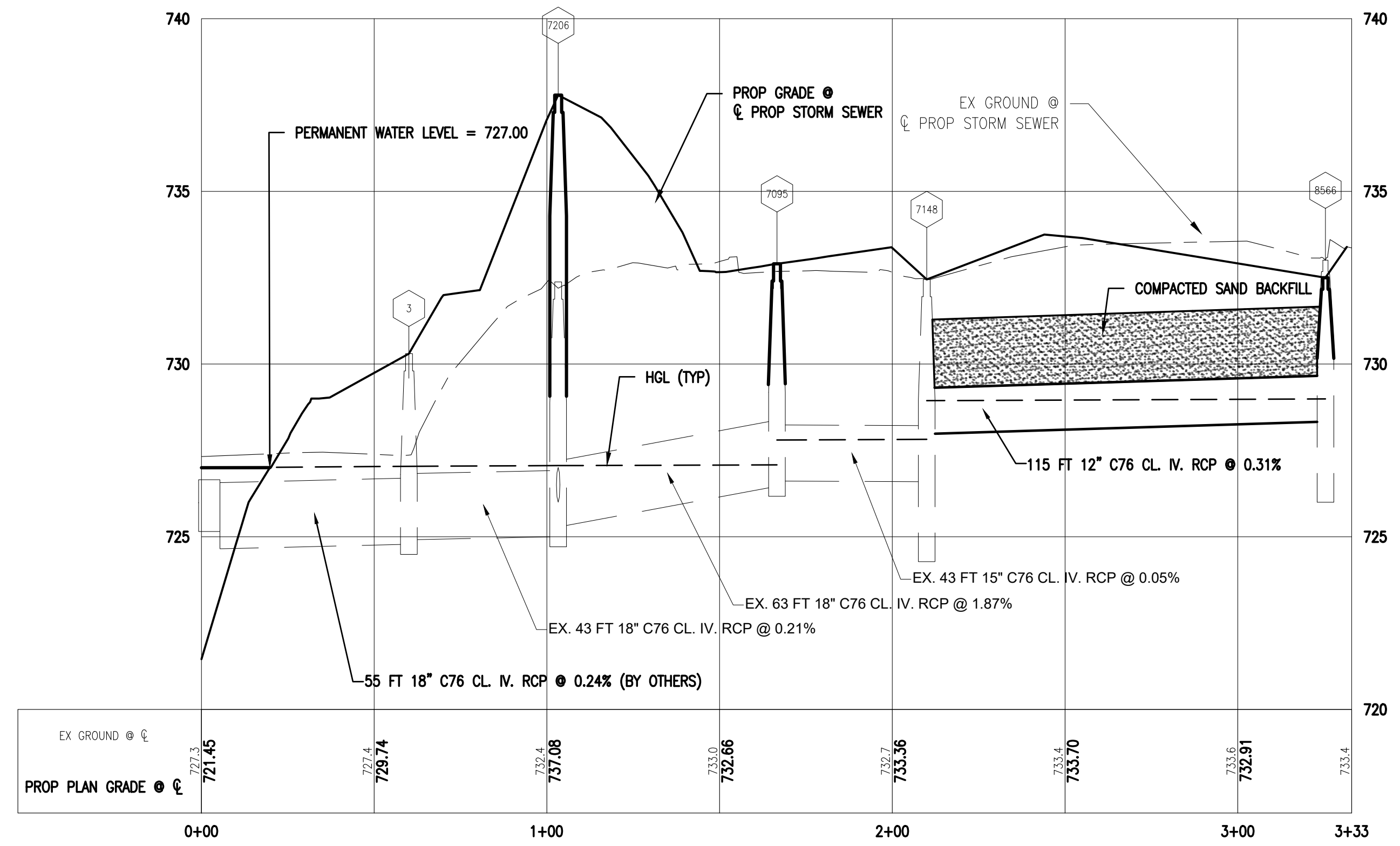






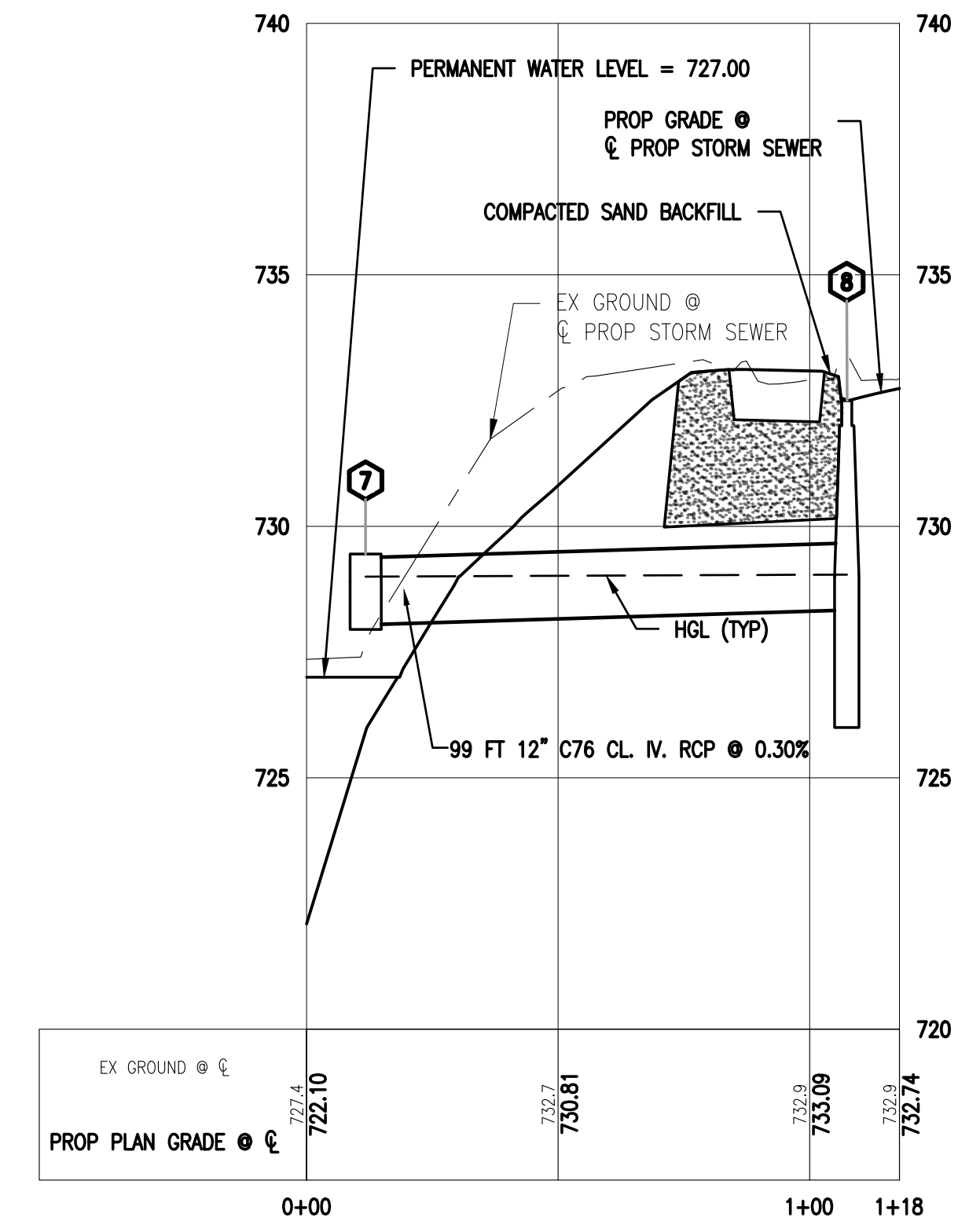
**CB 6 - MH 7206 PROFILE**

SCALE: 1IN - 30FT H  
1IN - 3FT V



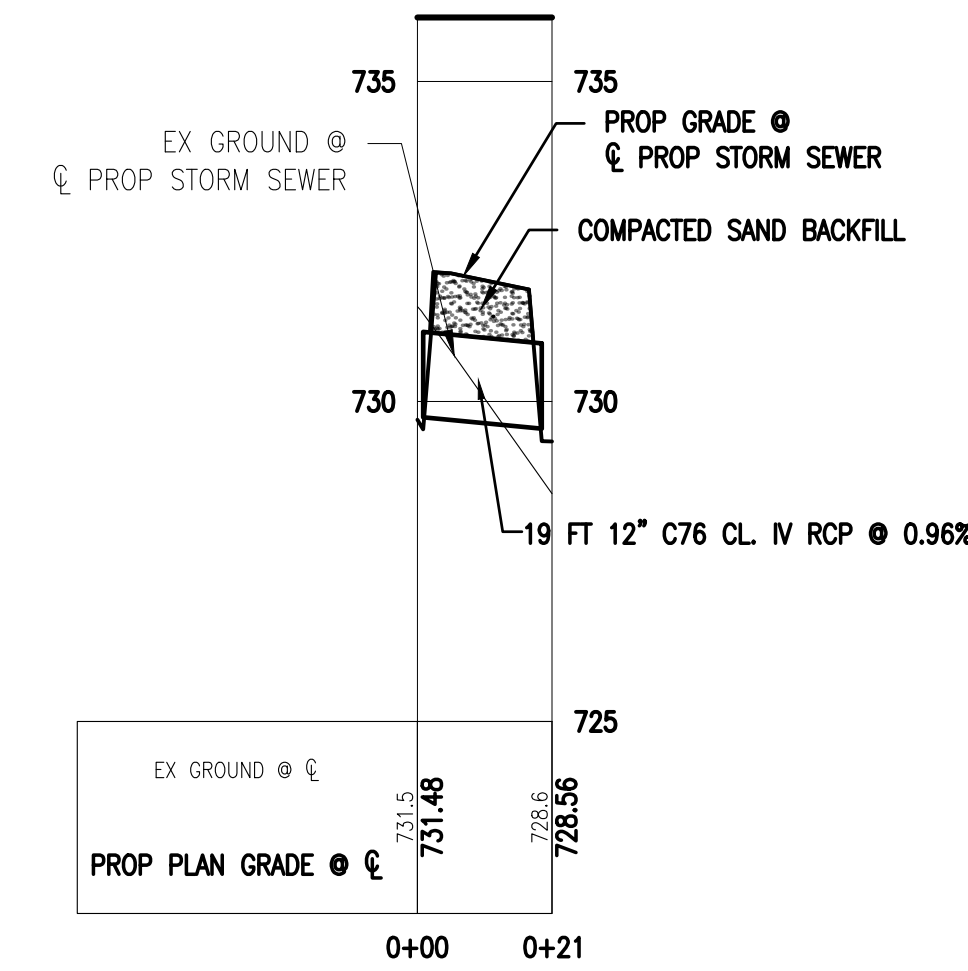
**CB 8566 - ES 2 PROFILE**

SCALE: 1IN - 30FT H  
1IN - 3FT V



**CB 8 - ES 7 PROFILE**

SCALE: 1IN - 30FT H  
1IN - 3FT V



**CULVERT PROFILE**

SCALE: 1IN - 30FT H  
1IN - 3FT V

**CONVEYANCE CALCULATIONS**

RUNOFF FROM DSN PT	RUNOFF TO DSN PT	INCRE AREA (ACRES)	IMPERVIOUS FACTOR "C"	EQUIV. AREA (d x e)	CUMULATIVE AREA	INITIAL LENGTH (feet)	INITIAL SLOPE (%)	TIME OF CONCENT. (minutes)	RAINFALL RATE (in/hr)	QUANTITY OF RUNOFF (c.f./s)	PIPE LENGTH (feet)	PIPE DIA. (inches)	PIPE ROUGHNESS	PIPE SLOPE (%)	PIPE SLOPE CHECK	SLOPE OF H.G. (%)	TIME TO NEXT M.H. (minutes)	TOTAL RUNOFF (c.f./s)	DISCHARGE Q (FULL) (c.f./s)	VELOCITY V (FULL) (ft/sec)	UPPER INVERT (feet)	LOWER INVERT (feet)	8/10 MARK (feet)	UPPER H.G.L. (feet)	UPPER GROUND (feet)	LOWER H.G.L. (feet)	LOWER GROUND (feet)	DISTANCE FROM HGL TO RIM (feet)	COVER OVER PIPE (feet)
8566	7148	0.26	0.48	0.12	0.12	131	1.07%	5.0	5.74	0.72	115	12	0.013	0.31%	0.31%	0.04%	0.76	0.72	1.98	2.53	728.5	728.14	728.94	728.99	732.5	728.94	732.45	3.51	3
7148	7095	0.14	0.72	0.10	0.23	5.8	5.53	1.25	43	1.25	43	15	0.013	-0.05%	-0.05%	0.04%	0.06	1.25	14.38	11.71	726.78	726.80	727.80	727.82	732.45	727.80	732.68	4.63	4.42
7095	7206	0.00	0.00	0.00	0.26	5.8	5.52	1.44	63	1.44	63	18	0.013	1.87%	1.87%	0.02%	0.13	1.44	14.38	8.14	726.67	725.49	726.69	727.06	732.68	727.06	736.18	5.60	4.51
7206	3	0.00	0.00	0.00	0.49	6.0	5.49	2.69	43	2.69	43	18	0.013	0.21%	0.21%	0.07%	0.26	2.69	4.81	2.72	725.21	725.12	726.32	727.06	736.18	730.3	9.12	9.47	
3	2	0.00	0.00	0.00	0.49	6.2	5.42	2.66	55	2.66	55	18	0.013	0.24%	0.24%	0.06%	0.32	2.66	5.11	2.89	725.12	724.99	726.19	727.04	730.3	727.00	724.99	3.26	3.68
7880	7095	0.21	0.62	0.13	0.13	90	1.76%	5.0	5.74	0.75	82	12	0.013	0.75%	0.75%	0.04%	0.35	0.75	3.08	3.92	727.51	726.90	727.70	727.74	732	727.70	732.68	4.26	3.49
6	7206	0.34	0.38	0.13	0.13	126	8.30%	5.0	5.74	0.75	165	12	0.013	0.47%	0.47%	0.04%	0.88	0.75	2.45	3.12	726.78	726.00	726.80	727.14	733.25	727.06	736.18	6.11	5.47
8	7	0.23	0.85	0.20	0.20	132	1.82%	5.0	5.74	1.12	99	12	0.013	0.30%	0.30%	0.10%	0.66	1.12	1.96	2.50	728.50	728.20	728.00	728.10	732.50	729.00	725	3.40	3

- #2 18" END SECTION (BY OTHERS)  
18" CONC INV S 724.99
- #3 STORM MH 1/CAST 730.30 (BY OTHERS)  
18" CONC INV N ±725.12  
18" CONC INV SE ±725.12
- #7095 RD CB 1/CAST #32-68 PR. 732.90  
15" CONC INV E 726.80  
18" CONC INV W 726.67  
12" PVC INV N 726.90
- #7148 SQ CB 1/CAST 732.45  
12" CONC INV S-726.97  
8" PVC INV NE 728.24  
15" CONC INV W 726.78  
12" CONC INV E 727.67
- #7206 STORM MH 1/CAST #32-20 PR. 736.18  
12" CONC INV E-727.77  
18" CONC INV E 725.49  
18" CONC INV NW 725.21  
12" CONC INV SE 725.94
- #8566 SQ CB 1/CAST #33-04 PR. 732.50  
12" CONC INV S-726.15  
6" PVC INV NE 729.36  
12" CONC INV W 728.50
- 6 STA 1+70.37  
48" DIA BEEHIVE CATCH BASIN W/ 2' SUMP  
1/CAST 733.25  
12" INV NW 726.78
- 7 STA 0+08.66  
18" End Section  
12" INV E 728.20
- 8 STA 1+07.38  
48" DIA SQ CATCH BASIN W/ 2' SUMP  
1/CAST 732.50  
12" INV W 728.50

ISSUED FOR:	DATE
BID SET	2024/1/22
REVISION	
DESCRIPTION	

PROJECT NUMBER	DATE
0133-24-020 <td></td>	

CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN  
STORM WATER MANAGEMENT - PROFILES



Know what's below.  
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DRAWING PATH: P:\0133-24-020\Cherry Hill Village Phase 1\Drawings\Storm\24020\_STM.dwg, Nov 22, 2024, 2:56pm

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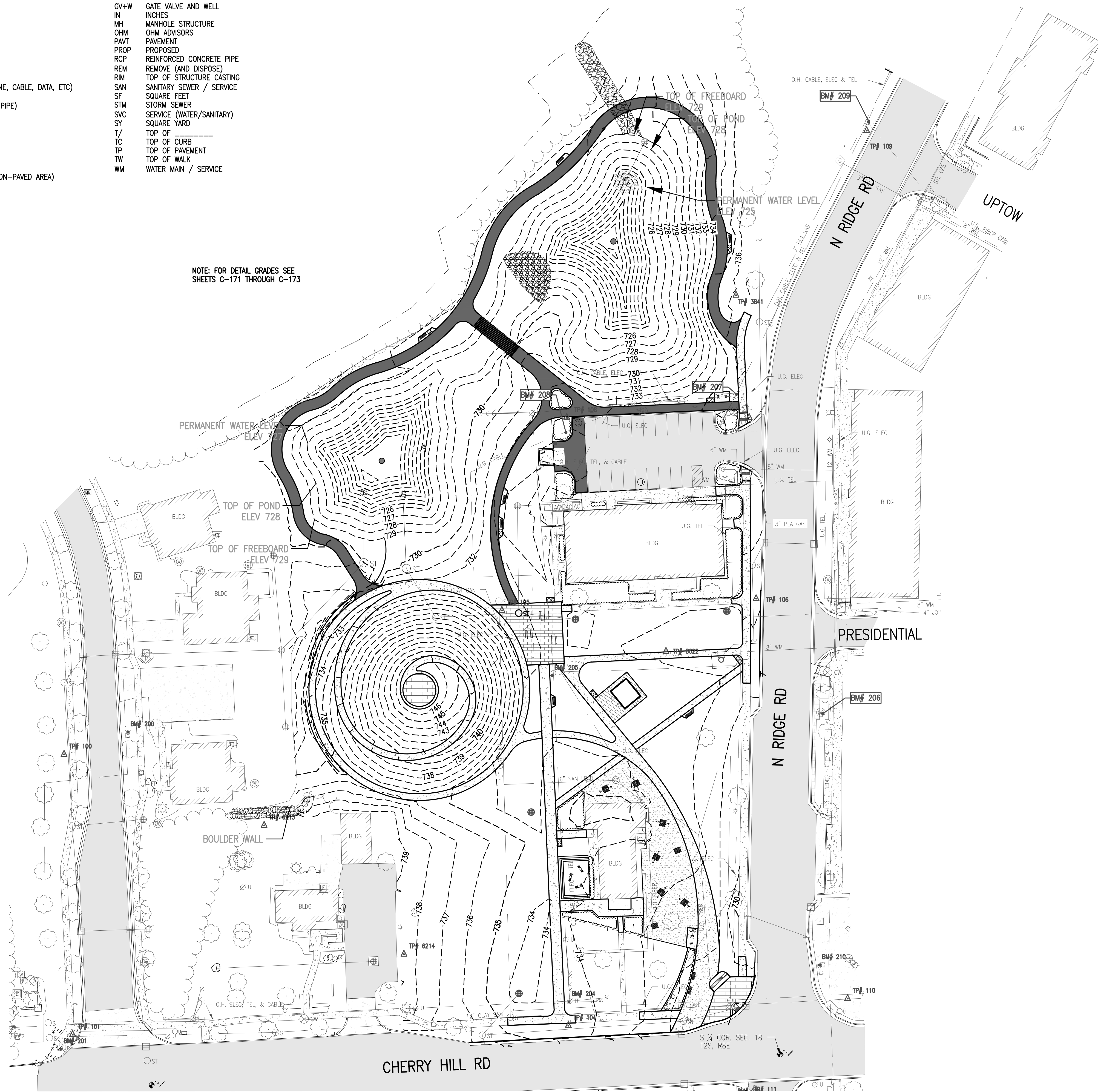


ABBREVIATION KEY

JOB BENCHMARK #205 COTTON SPINDLE ON WEST FACE OF WOOD UTILITY POLE. ELEV 734.69	AC ACRE ADJ ADJUST ASPH ASPHALT BC BACK OF CURB BF BARRIER FREE C+G CURB AND GUTTER PROP PROPOSED CB CATCH BASIN (STORM) CF CUBIC FEET CL CENTERLINE COMM COMMUNICATION UTILITY (PHONE, CABLE, DATA, ETC) CONC CONCRETE CPE CORRUGATED POLYETHYLENE (PIPE) CY CUBIC YARD DI DUCTILE IRON DIA DIAMETER ELEC ELECTRICAL EX EXISTING FC FACE OF CURB FL FLOWLINE FG FINISH GRADE / SURFACE (NON-PAVED AREA) FM FORCEMAIN FT FEET GV GATE VALVE GV+B GATE VALVE AND BOX	GV+W GATE VALVE AND WELL IN INCHES MH MANHOLE STRUCTURE OHM OHM ADVISORS PAVT PAVEMENT PROP PROPOSED RCP REINFORCED CONCRETE PIPE REM REMOVE (AND DISPOSE) RIM TOP OF STRUCTURE CASTING SAN SANITARY SEWER / SERVICE SF SQUARE FEET STM STORM SEWER SVC SERVICE (WATER/SANITARY) SY SQUARE YARD T/ TOP OF TC TOP OF CURB TP TOP OF PAVEMENT TW TOP OF WALK WM WATER MAIN / SERVICE
----------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

TRAVERSE POINT #105 N 295220.35 E 13347830.09 ELEV 733.12	TRAVERSE POINT #106 N 295229.29 E 13348023.46 ELEV 733.13	TRAVERSE POINT #107 N 295367.12 E 13348018.17 ELEV 735.89	TRAVERSE POINT #108 N 295367.14 E 13347879.49 ELEV 733.73	TRAVERSE POINT #109 N 295585.26 E 13348107.60 ELEV 737.39	TRAVERSE POINT #3841 N 295460.08 E 13348008.18 ELEV 737.16
-----------------------------------------------------------------	-----------------------------------------------------------------	-----------------------------------------------------------------	-----------------------------------------------------------------	-----------------------------------------------------------------	------------------------------------------------------------------

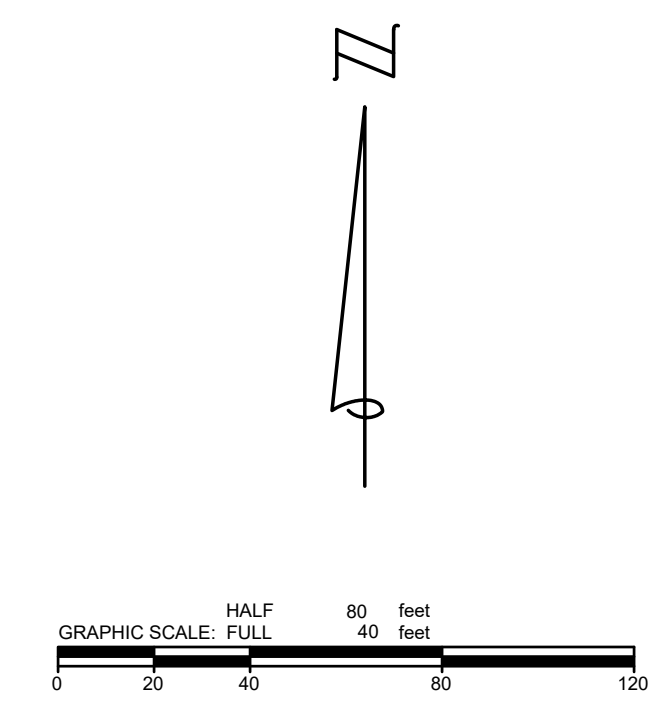
NOTE: FOR DETAIL GRADES SEE SHEETS C-171 THROUGH C-173



- PROPOSED**
- RIPRAP
  - SIGN
  - CURB AND GUTTER, STD
  - ASPHALT
  - CONCRETE
  - CLAY BRICK PAVERS
  - GRAVEL

- GRADING LEGEND**
- FLOW DIRECTION
  - EXISTING SPOT GRADE
  - 749.25 FG PROPOSED SPOT GRADE
  - 665 -664- EXISTING CONTOUR
  - 840 -839- PROPOSED CONTOUR

**BENCHMARK ELEVATIONS NOTE:**  
BENCHMARK ELEVATIONS SHOWN ON THESE PLANS ARE BASED ON NAVD88 DATUM.



ISSUED FOR: BID SET	2024.11.22	DATE
REVISION		DESCRIPTION

PROJECT NUMBER: 0133-24-020  
 CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN  
 PAVING AND GRADING PLAN

DRAWING PATH: P:\0126\_01650133\04020\_Cherry Hill\_Village\_Phase\_1\Drawings\Site\Sheet\24020\_GRD.dwg Nov 22, 2024, 2:56pm

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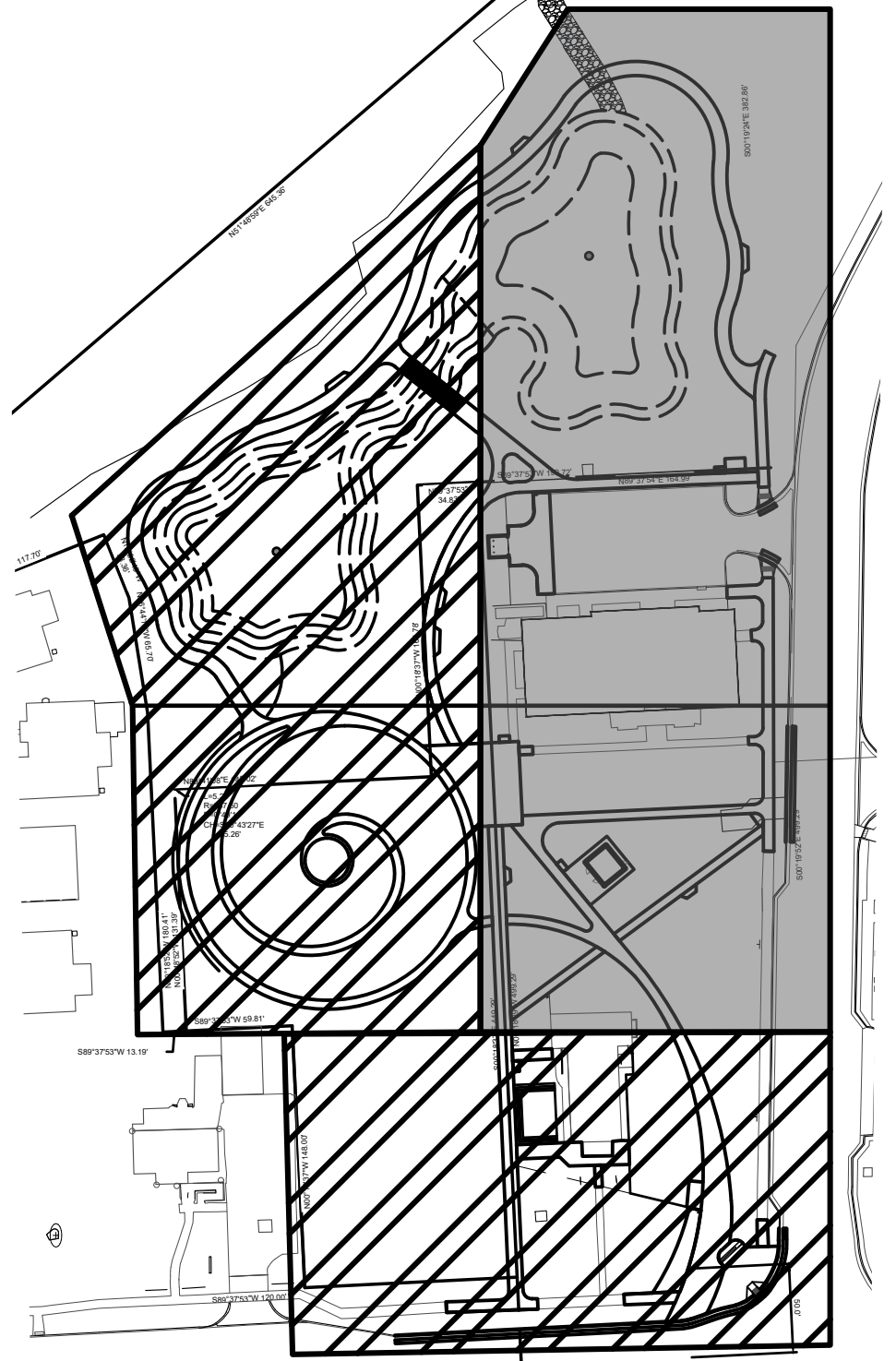






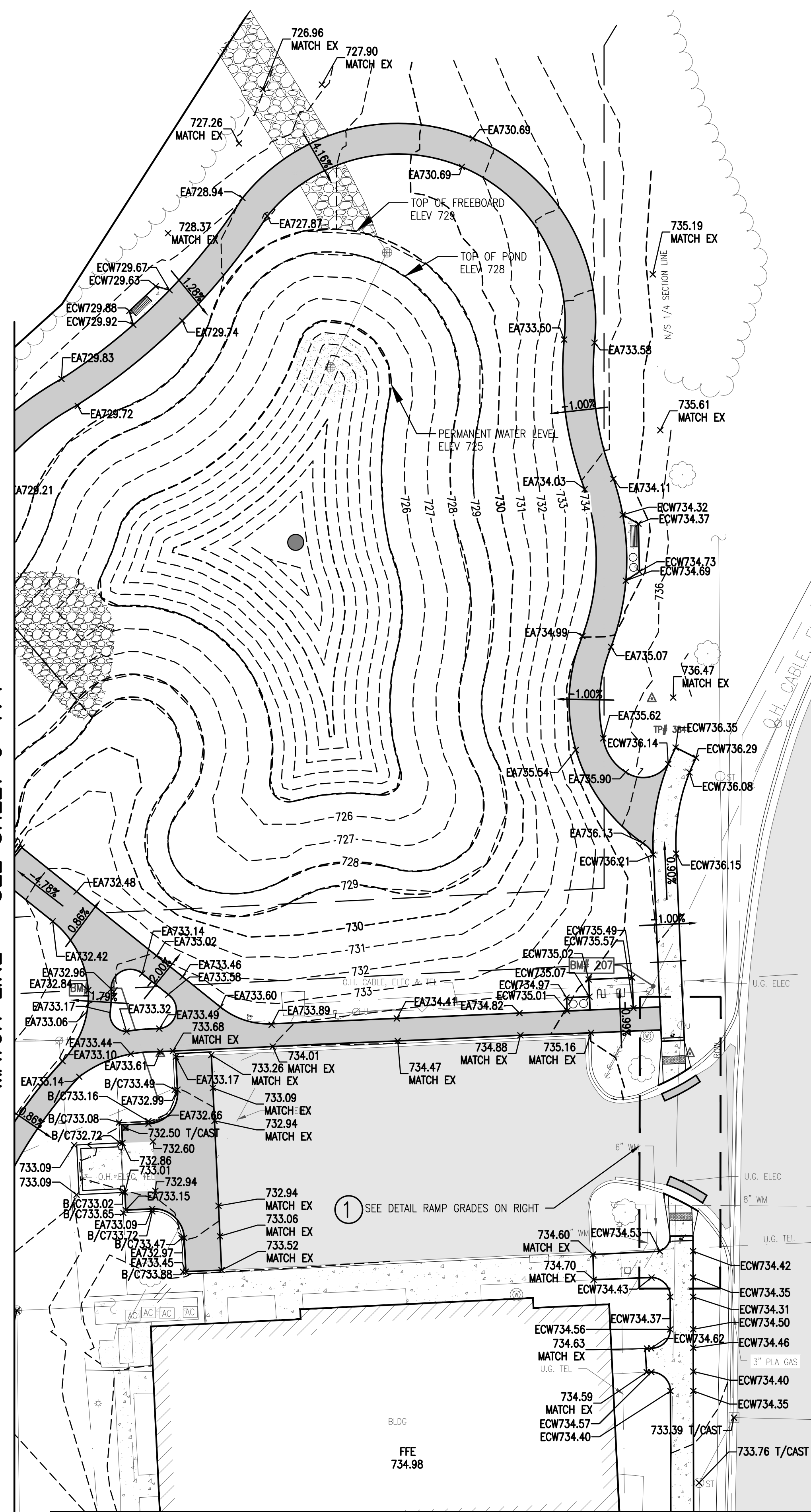
ABBREVIATION KEY

AC	ACRE	GV+W	GATE VALVE AND WELL
ADJ	ADJUST	IN	INCHES
ASPH	ASPHALT	MH	MANHOLE STRUCTURE
BC	BACK OF CURB	OHM	OHM ADVISORS
BF	BARRIER FREE	PAVT	PAVEMENT
C+G	CURB AND GUTTER	PROP	PROPOSED
CB	CATCH BASIN (STORM)	RCP	REINFORCED CONCRETE PIPE
CF	CUBIC FEET	REM	REMOVE (AND DISPOSE)
CL	CENTERLINE	RIM	TOP OF STRUCTURE CASTING
COMM	COMMUNICATION UTILITY (PHONE, CABLE, DATA, ETC)	SAN	SANITARY SEWER / SERVICE
CONC	CONCRETE	SF	SQUARE FEET
CPE	CORRUGATED POLYETHYLENE (PIPE)	STM	STORM SEWER
CY	CUBIC YARD	SVC	SERVICE (WATER/SANITARY)
DI	DUCTILE IRON	SY	SQUARE YARD
DIA	DIAMETER	T/	TOP OF
ELEC	ELECTRICAL	TC	TOP OF CURB
EX	EXISTING	TP	TOP OF PAVEMENT
FC	FACE OF CURB	TW	TOP OF WALK
FL	FLOWLINE	WM	WATER MAIN / SERVICE
FG	FINISH GRADE / SURFACE (NON-PAVED AREA)		
FM	FORCEMAIN		
FT	FEET		
GV	GATE VALVE		
GV+B	GATE VALVE AND BOX		

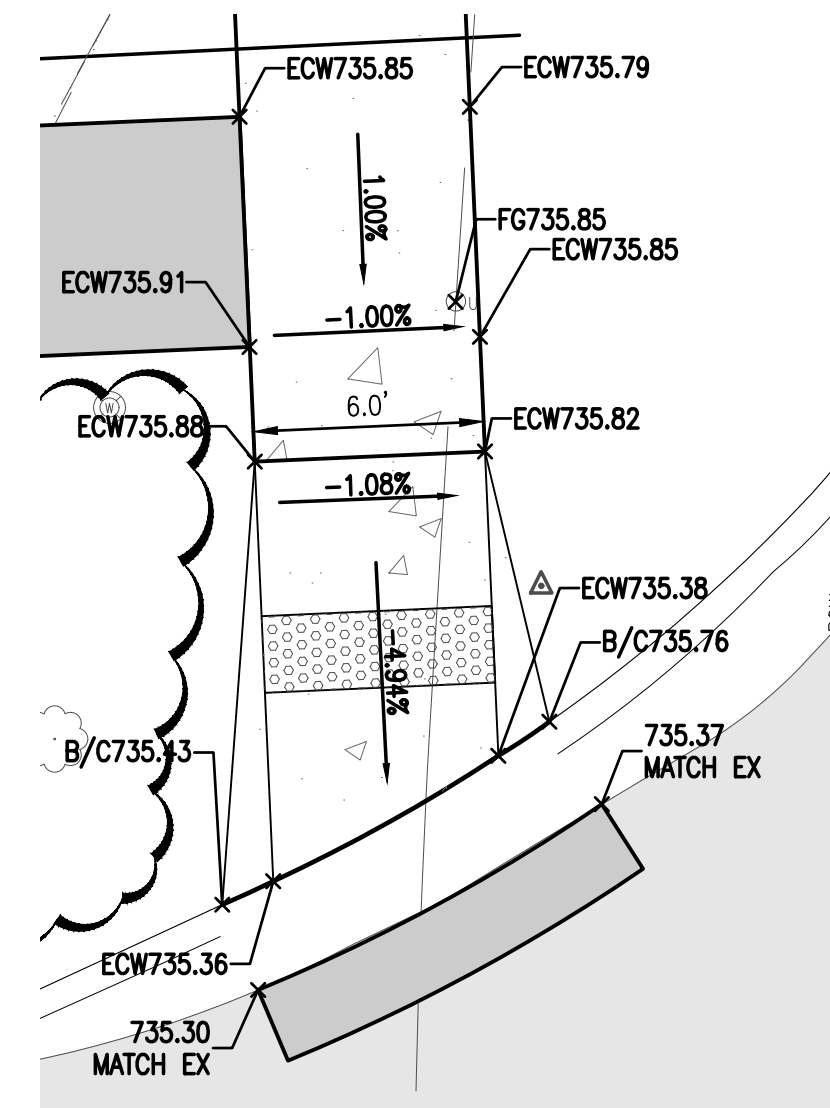


KEY MAP  
NOT TO SCALE

MATCH LINE - SEE SHEET C-171

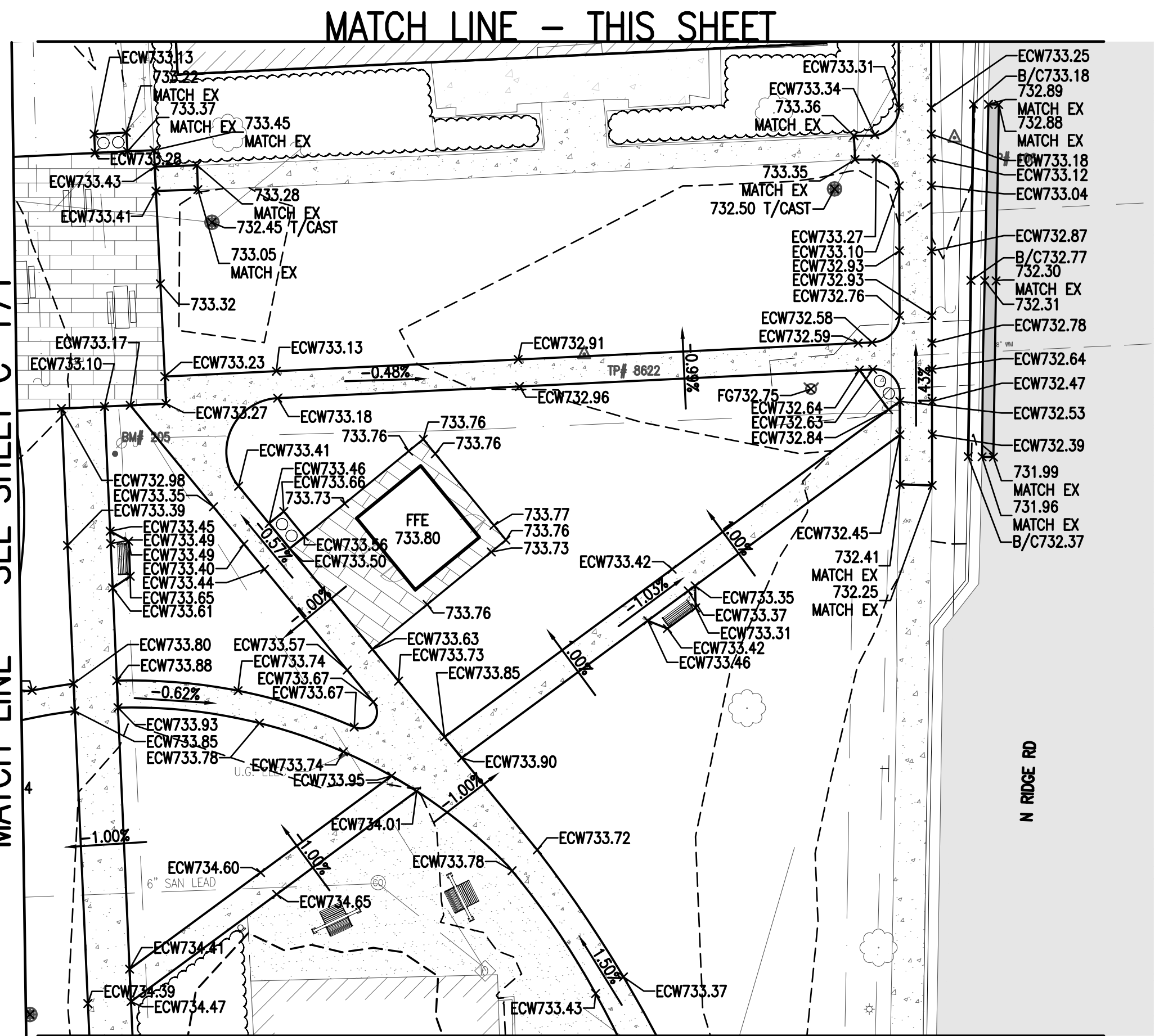


MATCH LINE - THIS SHEET




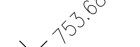

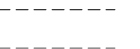

1 RAMP DETAILS  
1' - 5'

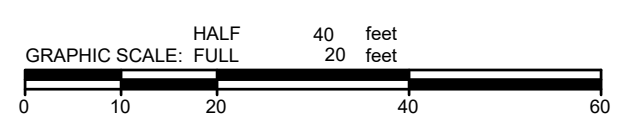
MATCH LINE - SEE SHEET C-171



MATCH LINE - SEE SHEET C-173

GRADING LEGEND

-  FLOW DIRECTION
-  EXISTING SPOT GRADE
-  PROPOSED SPOT GRADE
-  EXISTING CONTOUR
-  PROPOSED CONTOUR



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ISSUED FOR:	BID SET	2024.12.22
REVISION:	DESCRIPTION	DATE

PROJECT NUMBER  
0133-24-020

PM  
CR

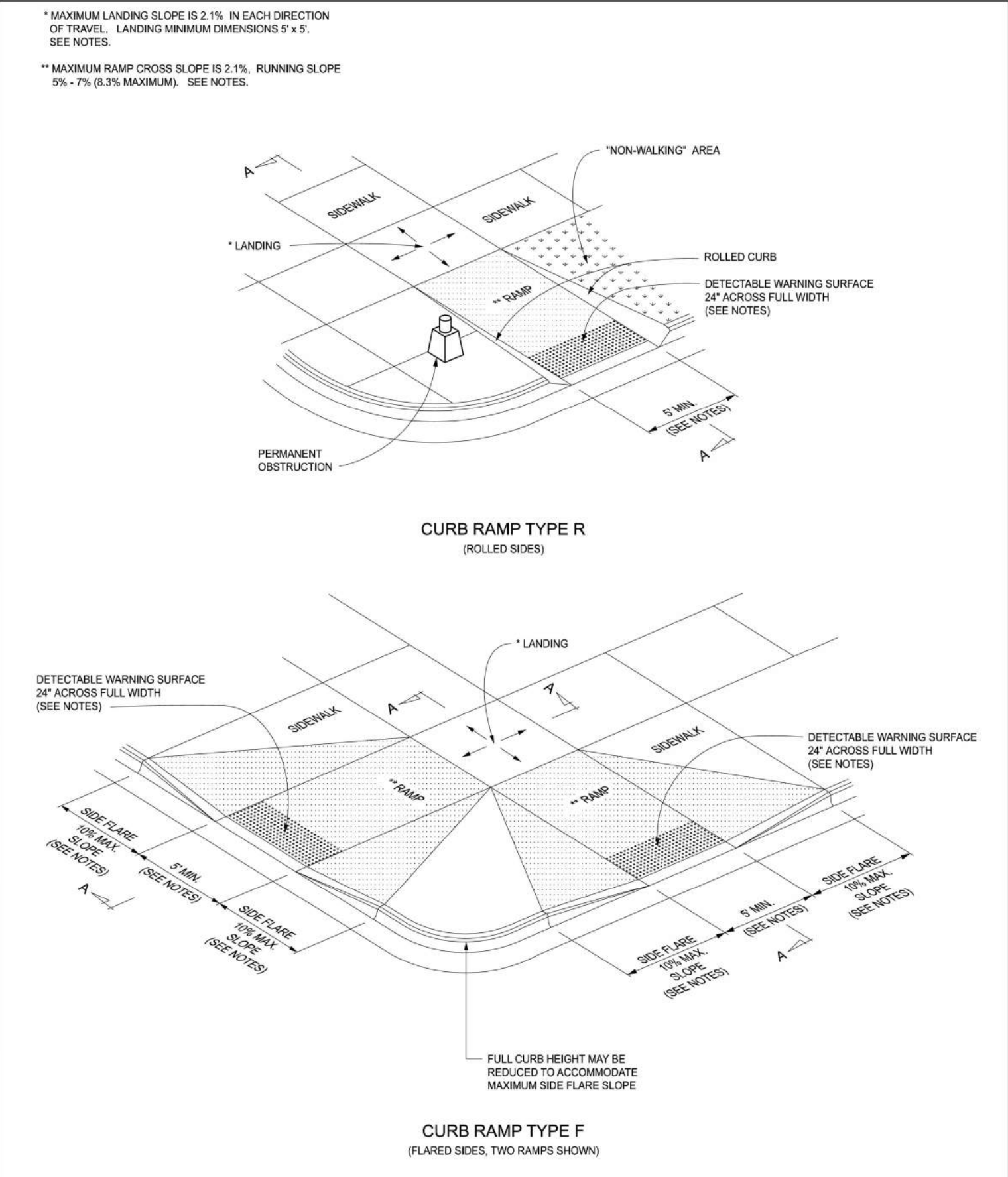
CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN

GRADING DETAILS

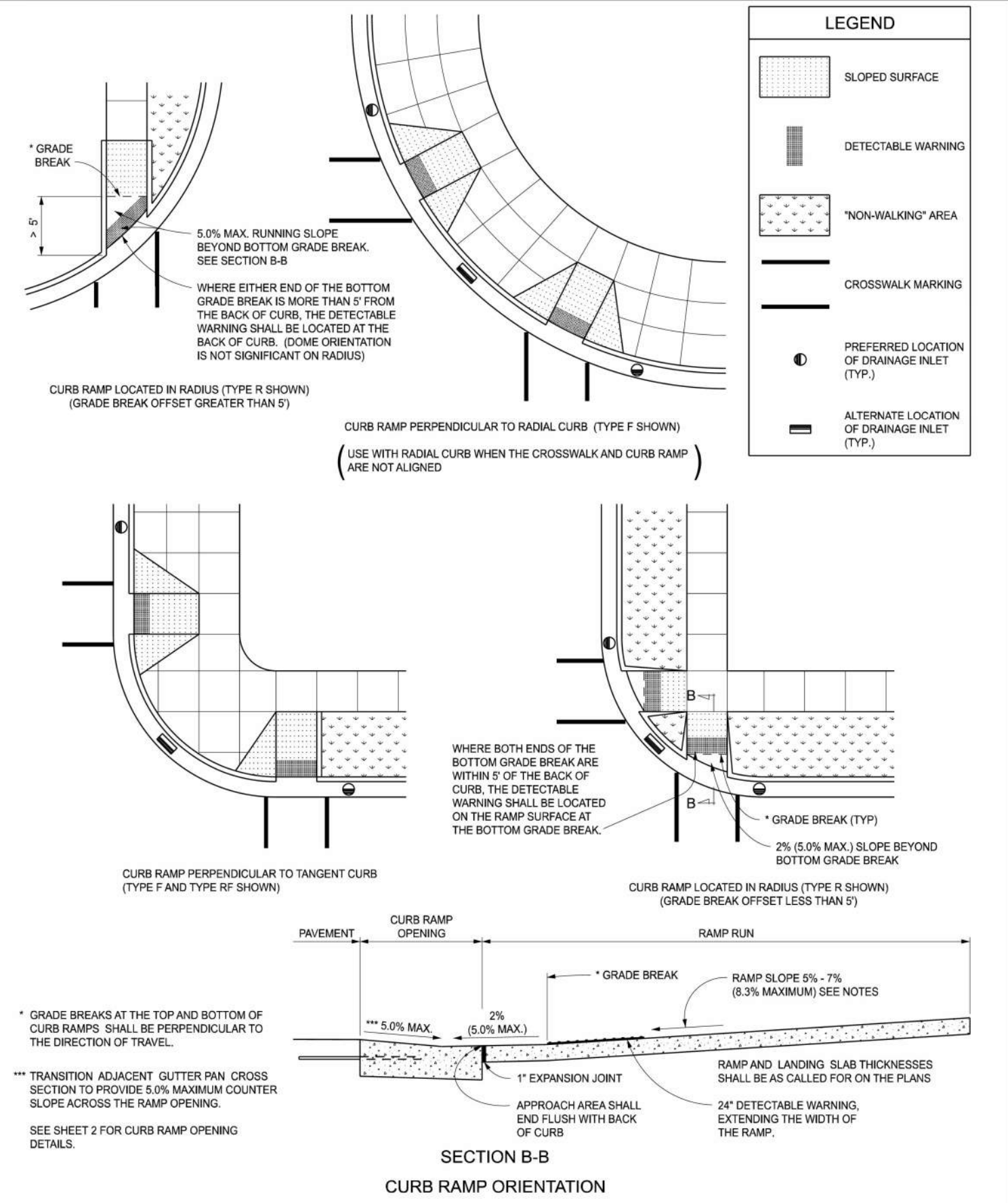




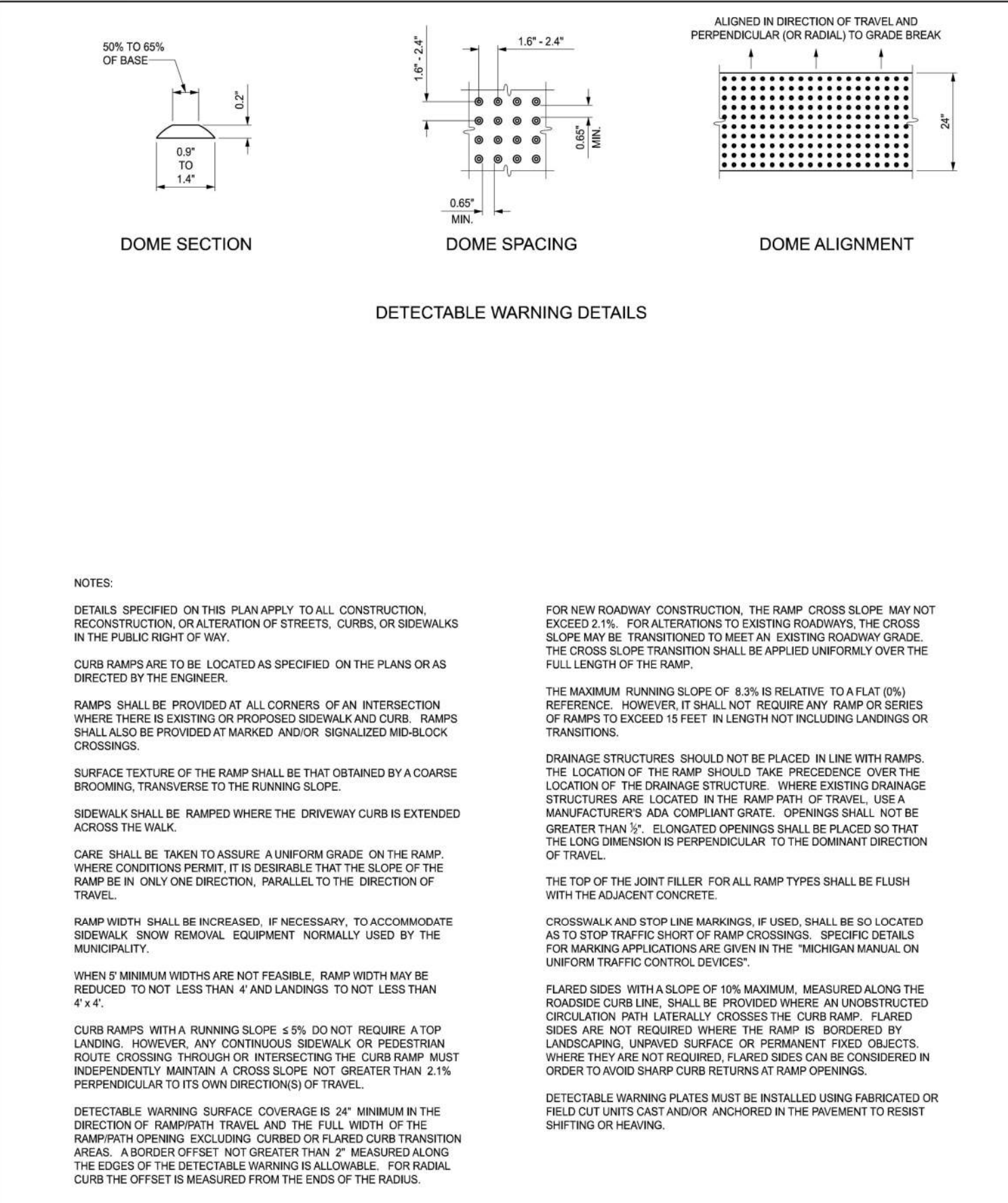




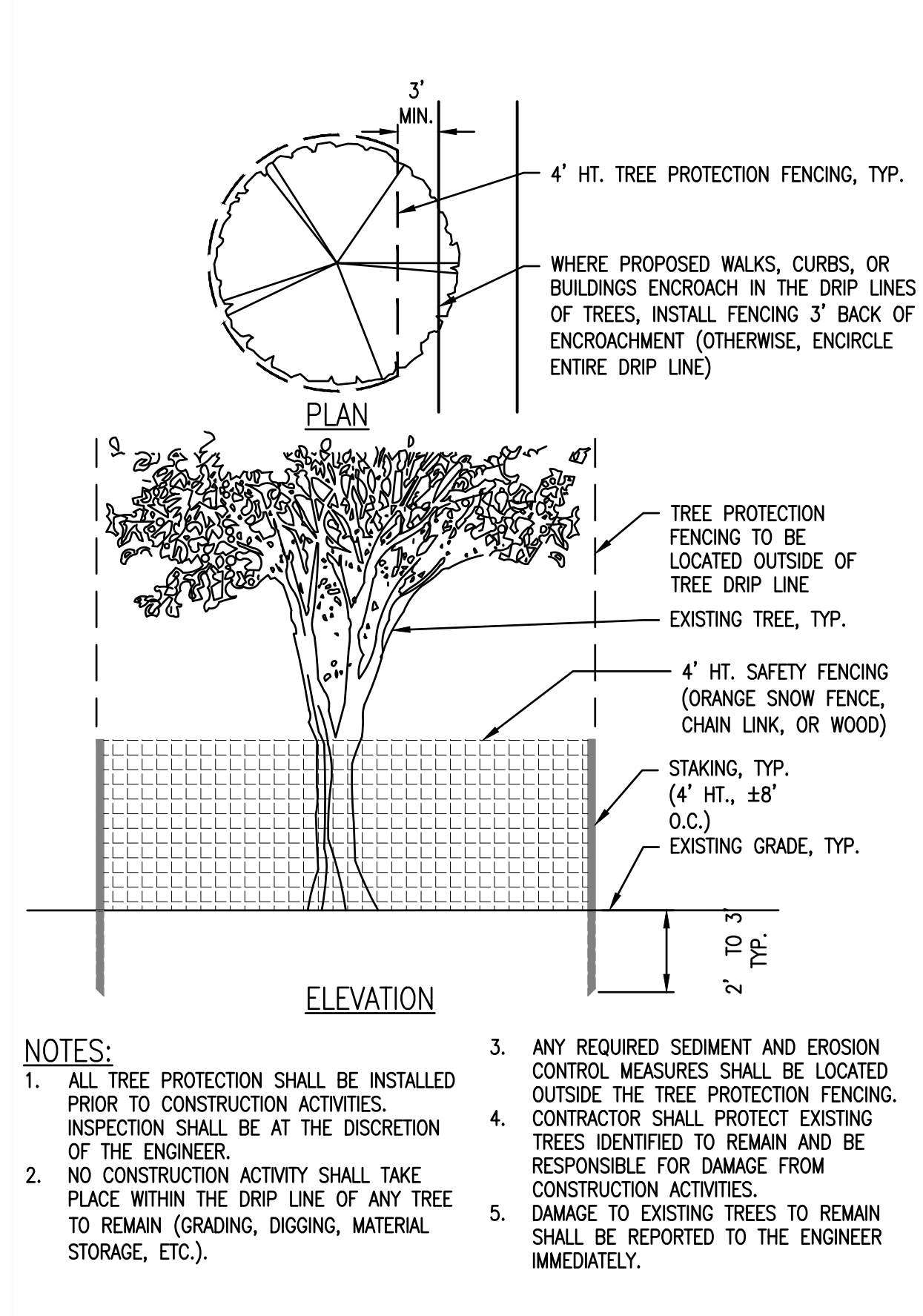
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APPROVED BY: _____	DIRECTOR, BUREAU OF DEVELOPMENT	DEPARTMENT DIRECTOR BRADLEY C. WIEFERSCH, PE		FHWA APPROVAL	PLAN DATE		



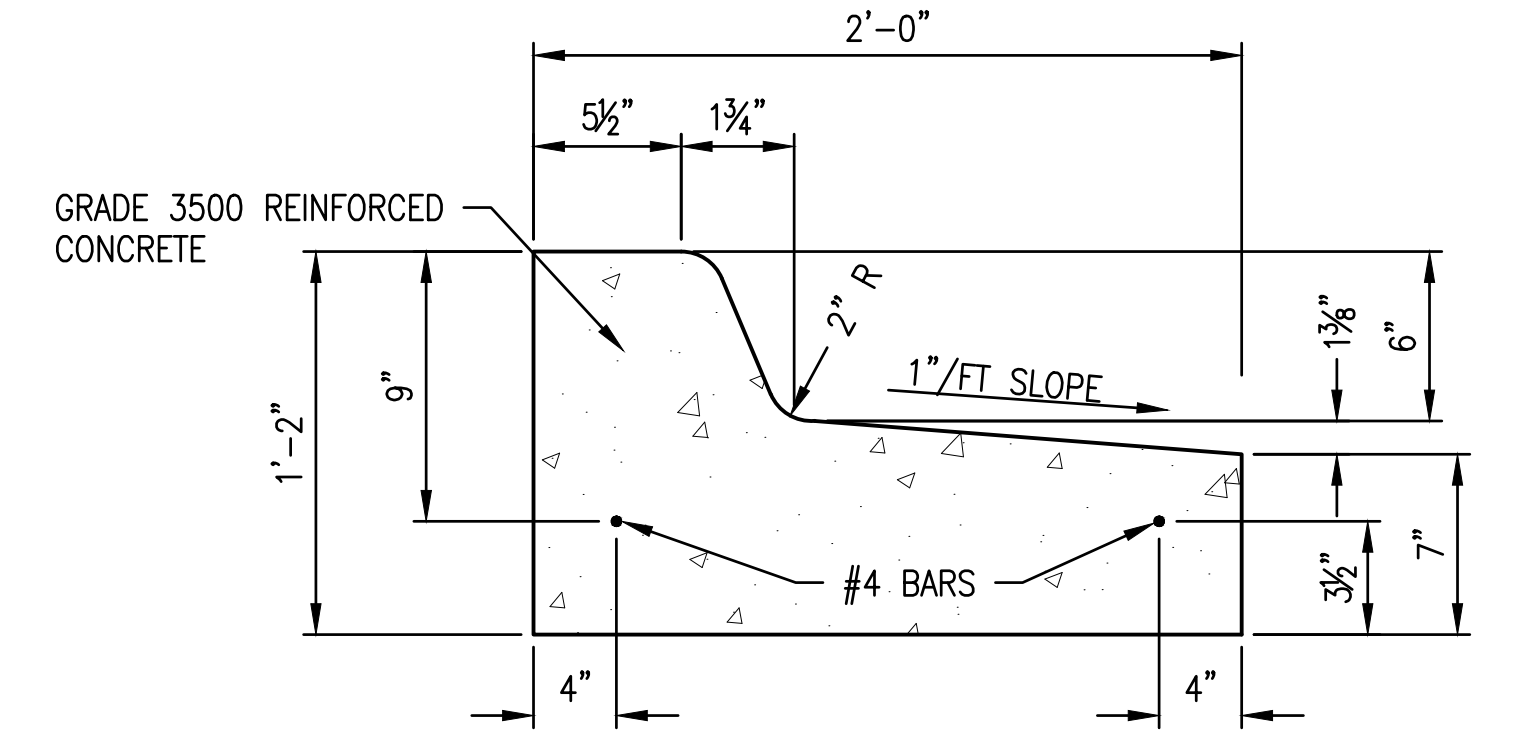
APPROVED BY: _____	DIRECTOR, BUREAU OF FIELD SERVICES	<b>MDOT</b> Michigan Department of Transportation	STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS	(SPECIAL DETAIL)	11/09/2023	R-28-K	SHEET 6 OF 7
APPROVED BY: _____	DIRECTOR, BUREAU OF DEVELOPMENT	DEPARTMENT DIRECTOR BRADLEY C. WIEFERSCH, PE		FHWA APPROVAL	PLAN DATE		



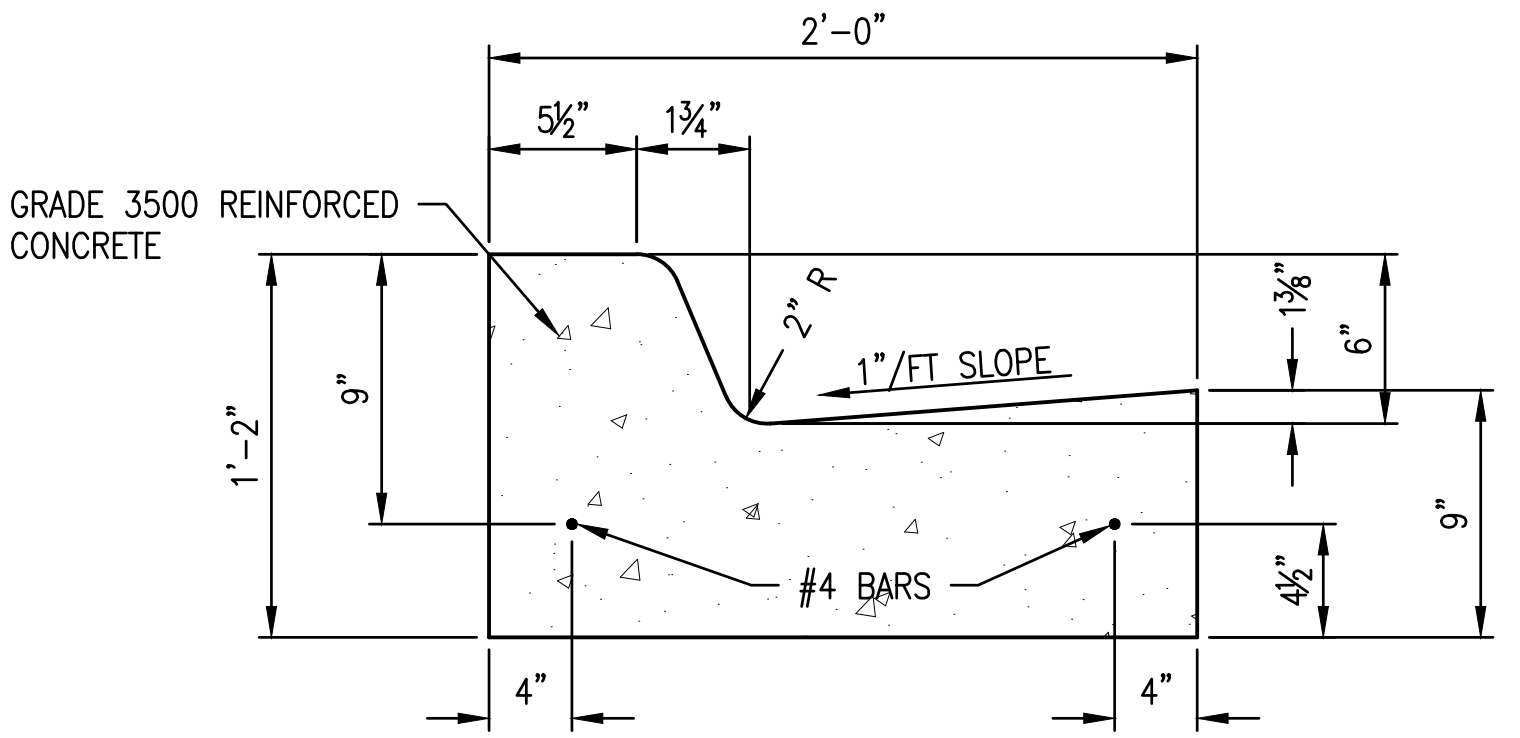
APPROVED BY: _____	DIRECTOR, BUREAU OF FIELD SERVICES	<b>MDOT</b> Michigan Department of Transportation	STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS	(SPECIAL DETAIL)	11/09/2023	R-28-K	SHEET 7 OF 7
APPROVED BY: _____	DIRECTOR, BUREAU OF DEVELOPMENT	DEPARTMENT DIRECTOR BRADLEY C. WIEFERSCH, PE		FHWA APPROVAL	PLAN DATE		



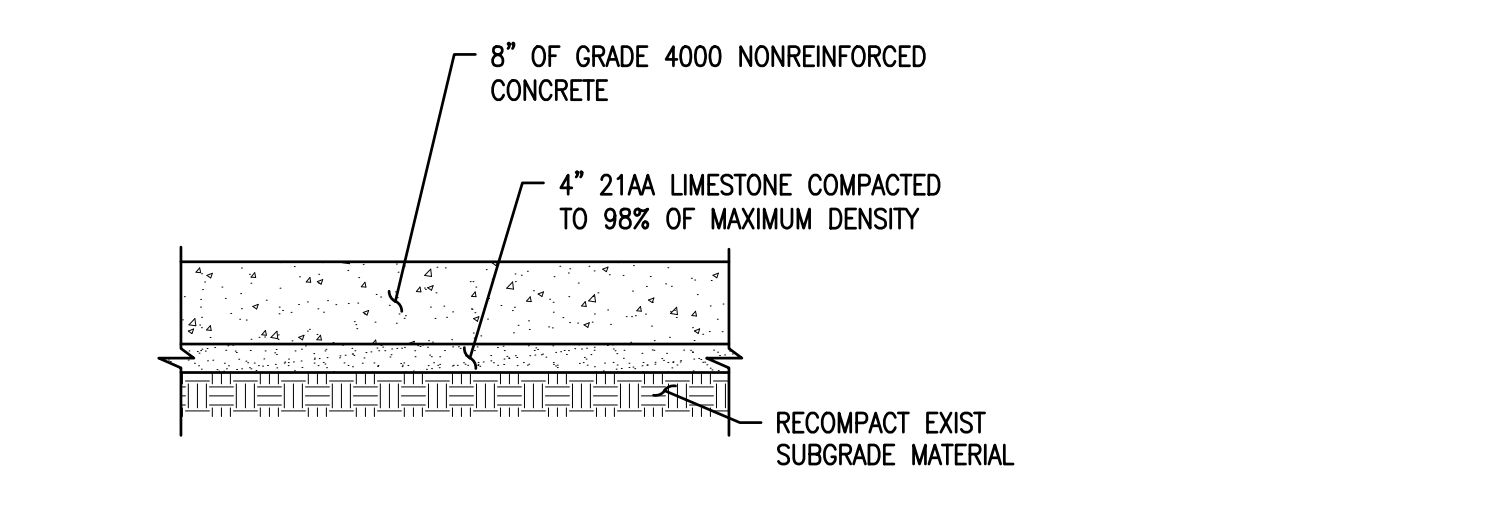
APPROVED BY: _____	DIRECTOR, BUREAU OF FIELD SERVICES	<b>MDOT</b> Michigan Department of Transportation	STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS	(SPECIAL DETAIL)	11/09/2023	R-28-K	SHEET 7 OF 7
APPROVED BY: _____	DIRECTOR, BUREAU OF DEVELOPMENT	DEPARTMENT DIRECTOR BRADLEY C. WIEFERSCH, PE		FHWA APPROVAL	PLAN DATE		



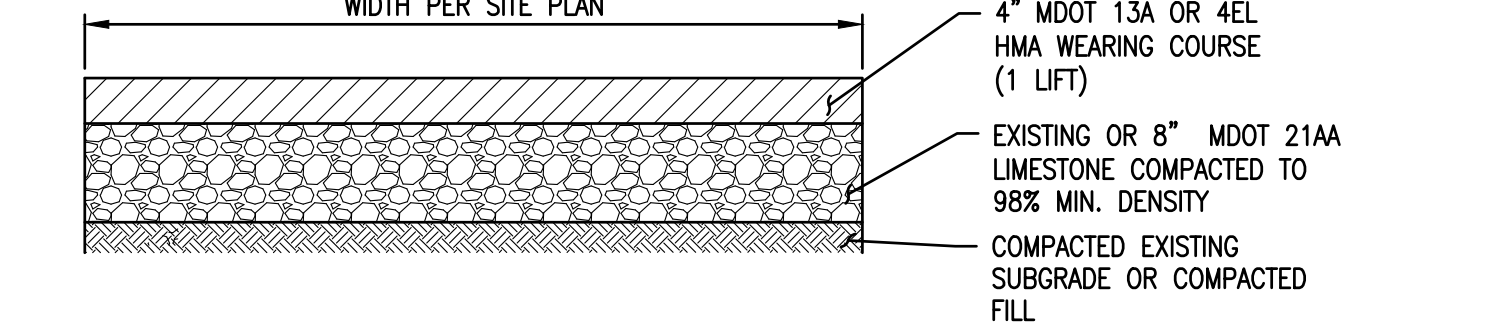
1 MDOT TYPE F-4 (REVERSE) CONCRETE CURB AND GUTTER DETAIL NOT TO SCALE



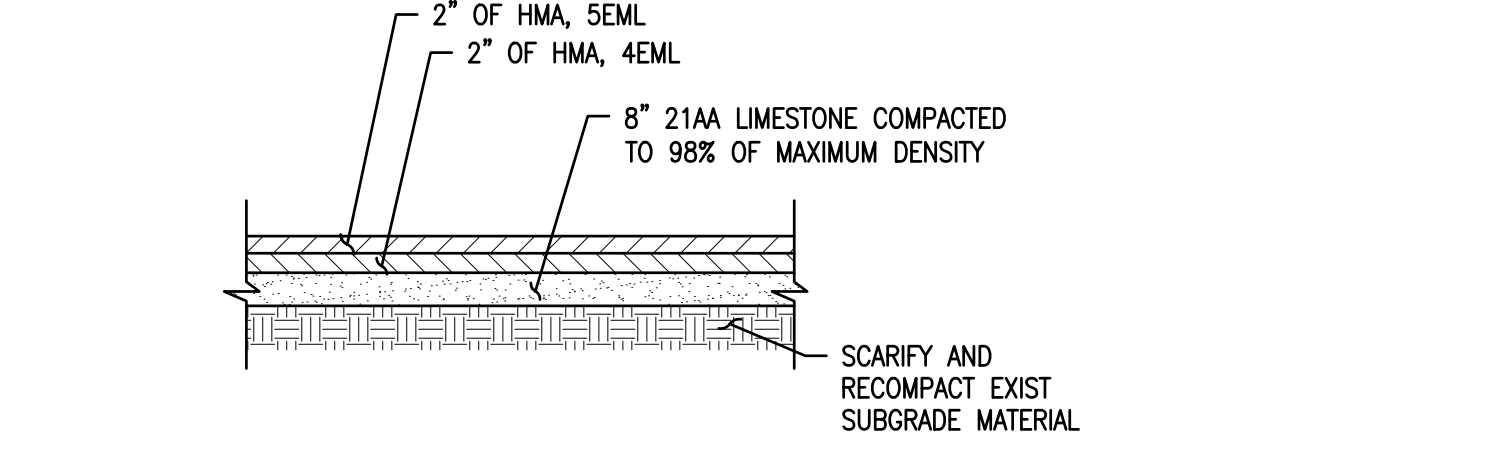
2 MDOT TYPE F-4 CONCRETE CURB AND GUTTER DETAIL NOT TO SCALE



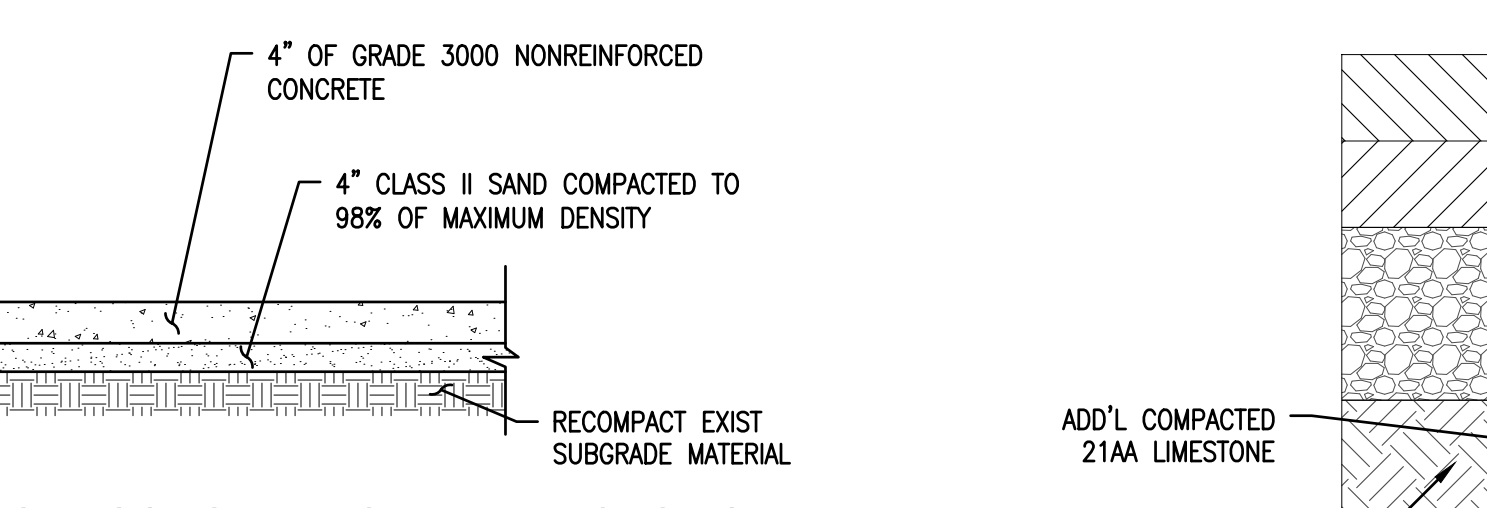
3 CONCRETE PAD SECTION NOT TO SCALE



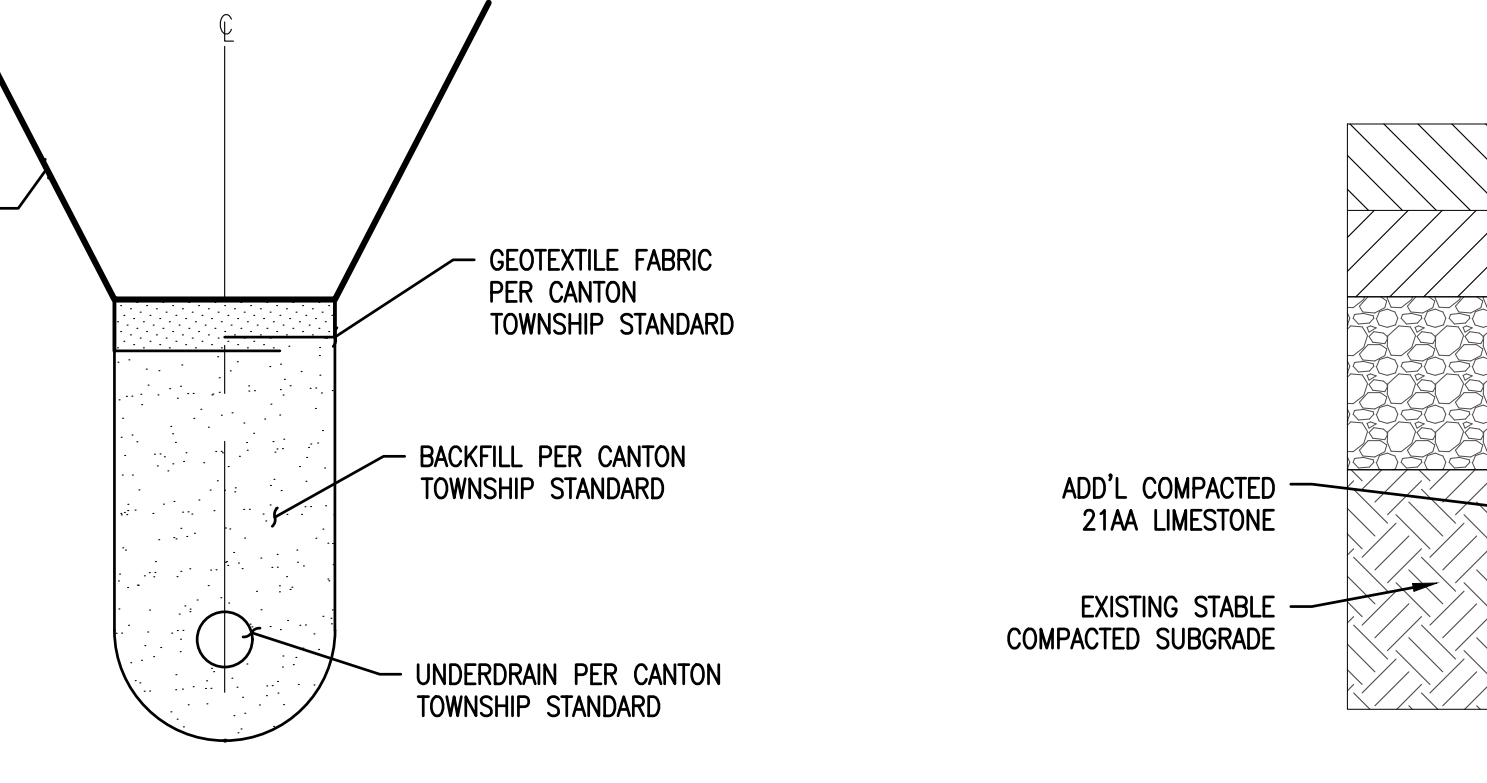
4 HMA PATHWAY SECTION NOT TO SCALE



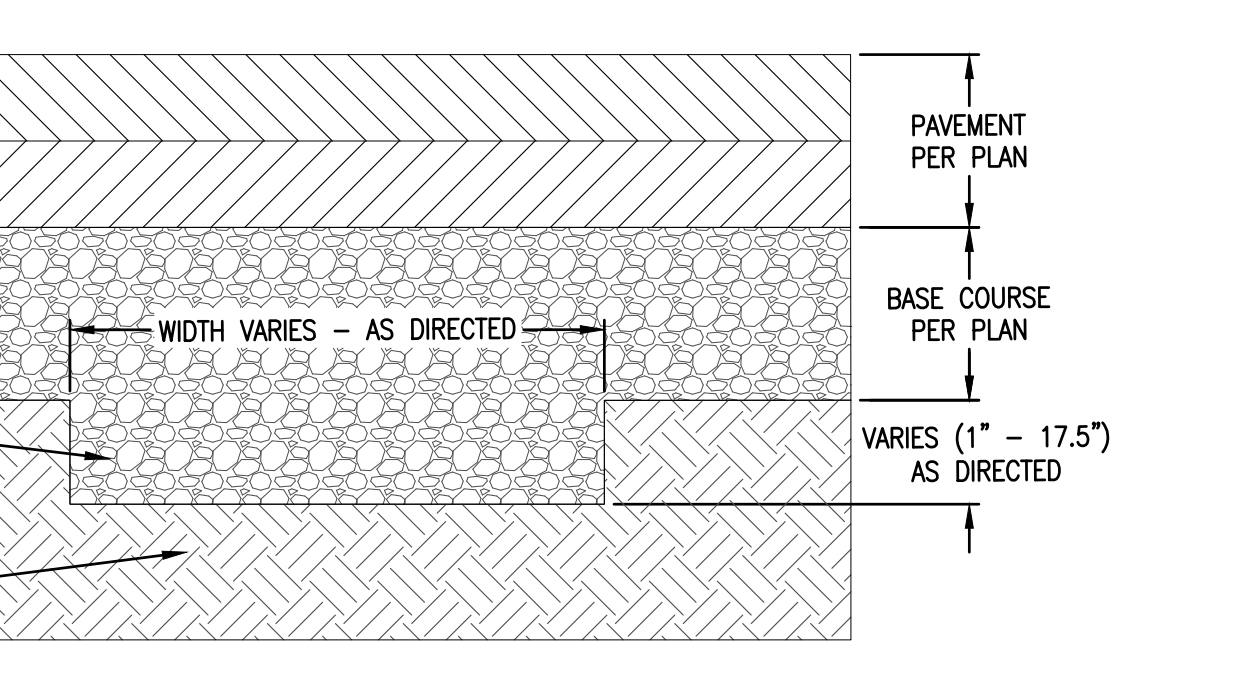
5 TYPICAL HMA PAVEMENT NOT TO SCALE



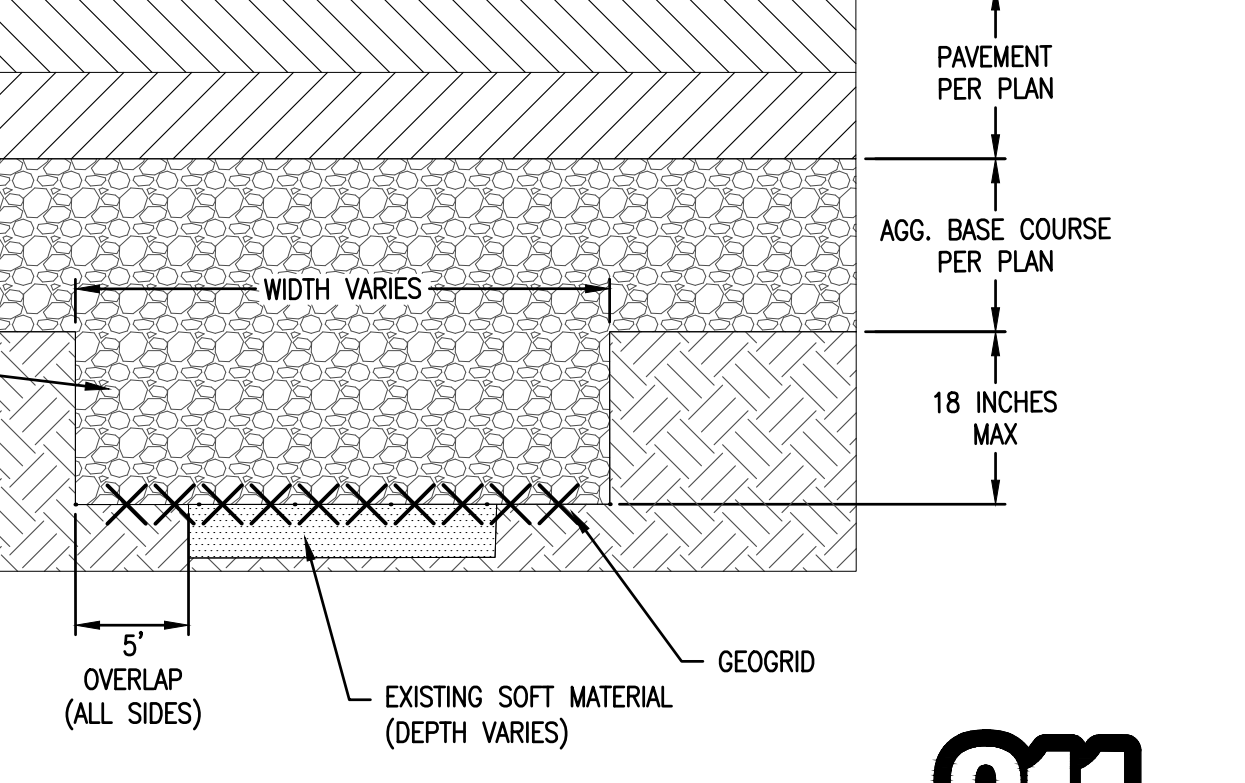
6 TYPICAL CONCRETE SIDEWALK SECTION NOT TO SCALE



7 SUBGRADE UNDERDRAIN NOT TO SCALE



8 SUBGRADE UNDERCUT DETAIL (<18") NOT TO SCALE



9 SUBGRADE UNDERCUT DETAIL (MAX DEPTH) NOT TO SCALE

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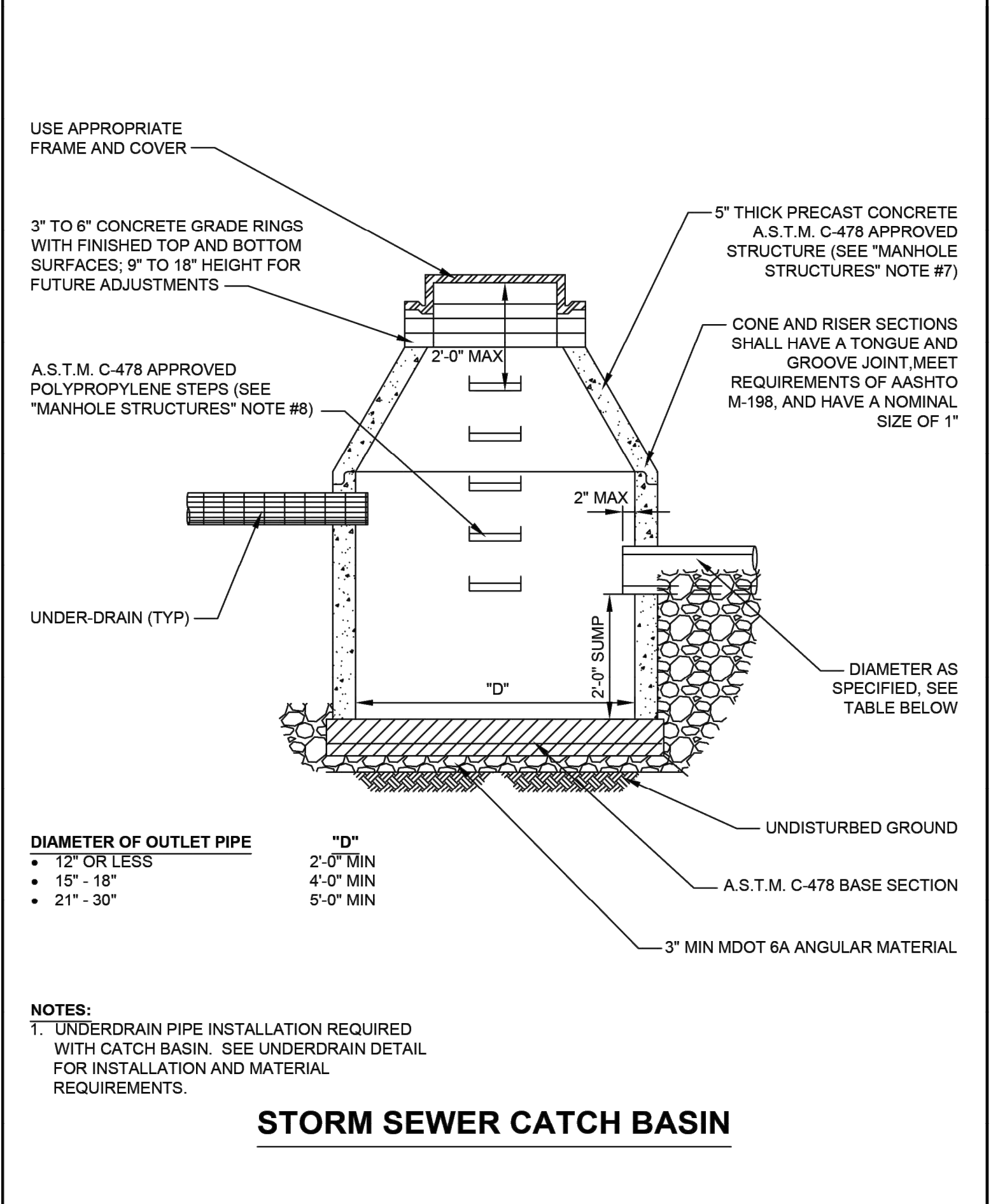
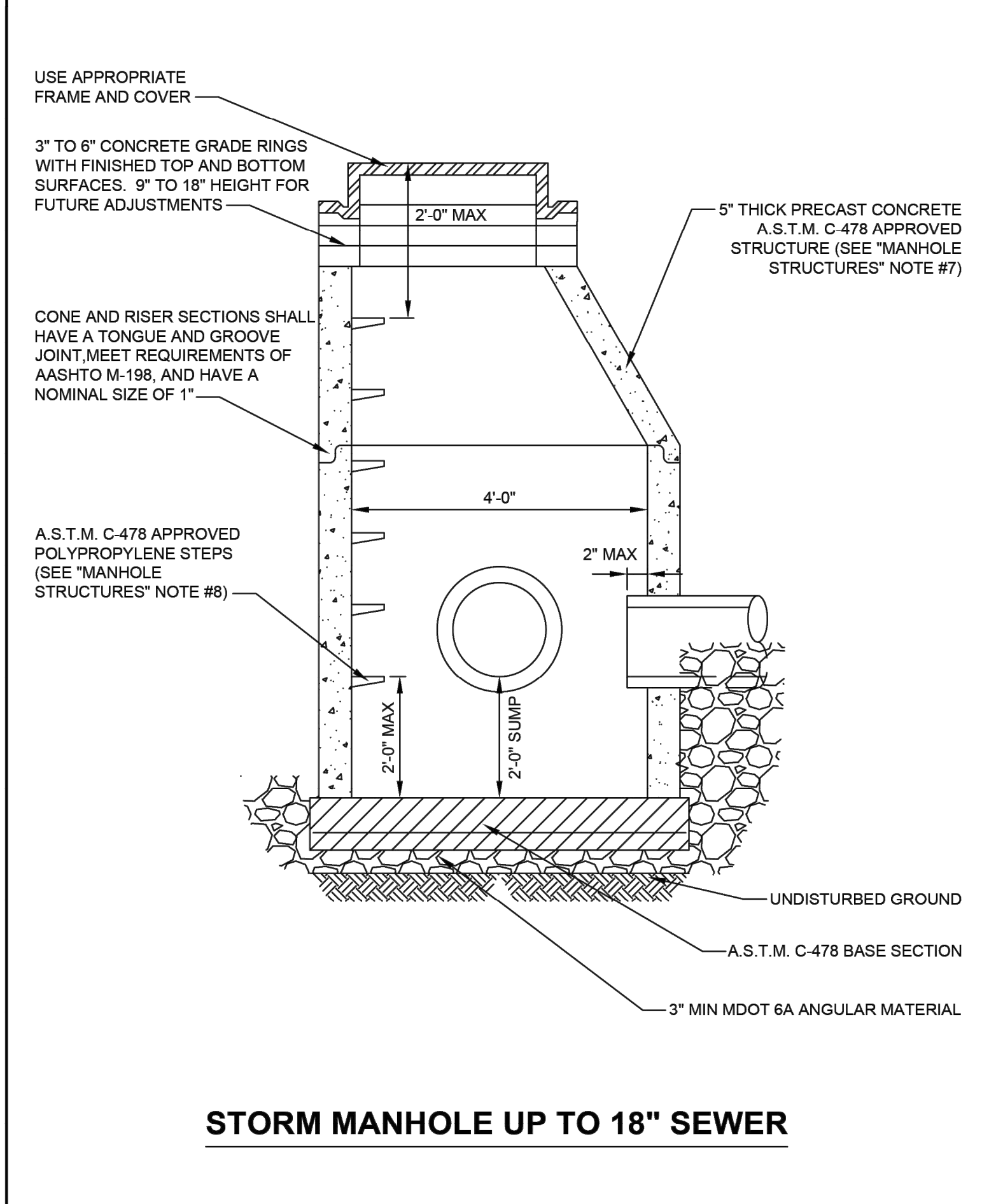
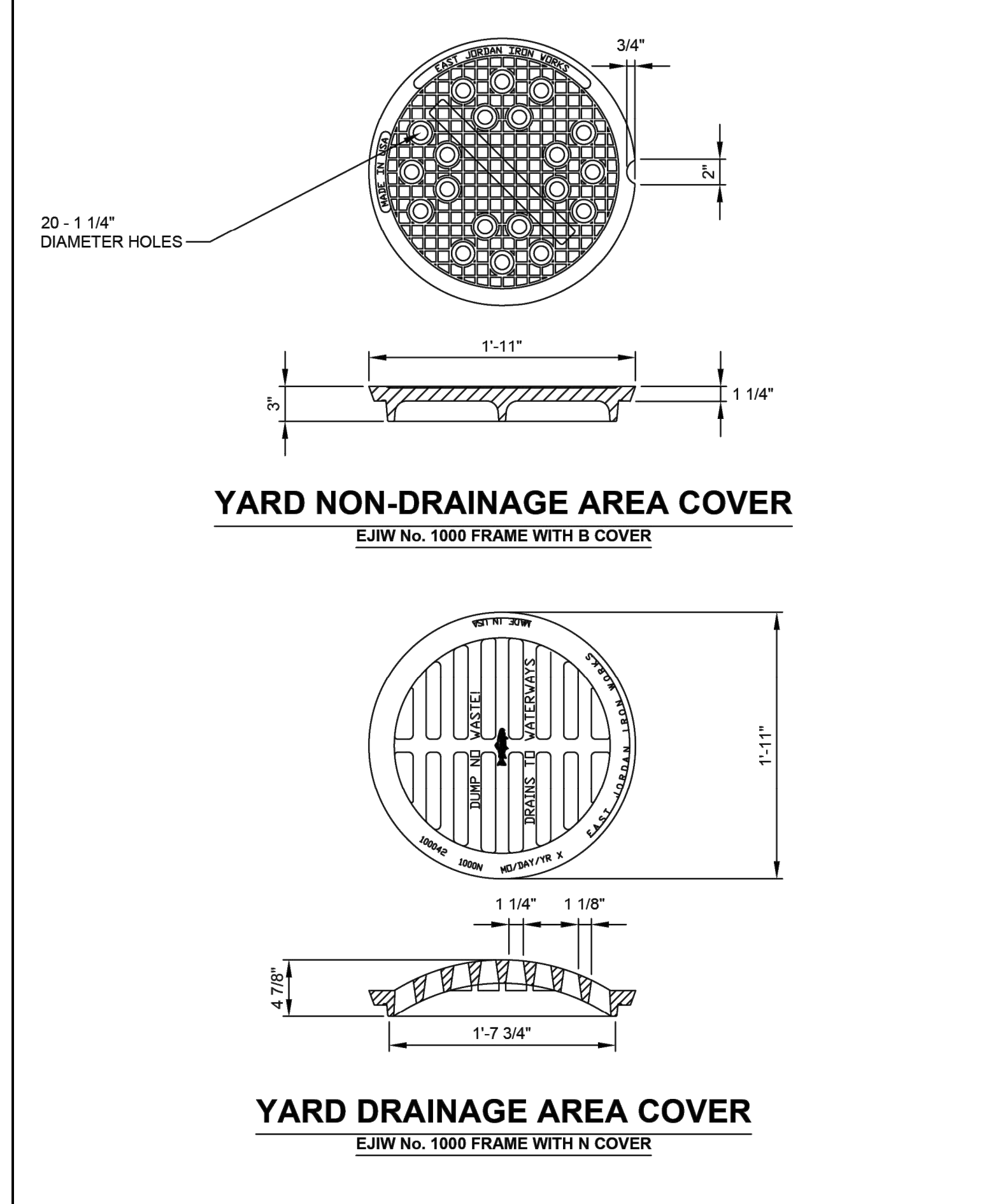
ISSUED FOR: BID SET	2024/11/22	DATE
REVISION		DESCRIPTION

PROJECT NUMBER: 0133-24-020  
 PM: \_\_\_\_\_  
 CR: \_\_\_\_\_  
 CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN  
 CIVIL DETAILS



Know what's below.  
Call before you dig.





**STORM SEWER NOTES:**

**GENERAL**

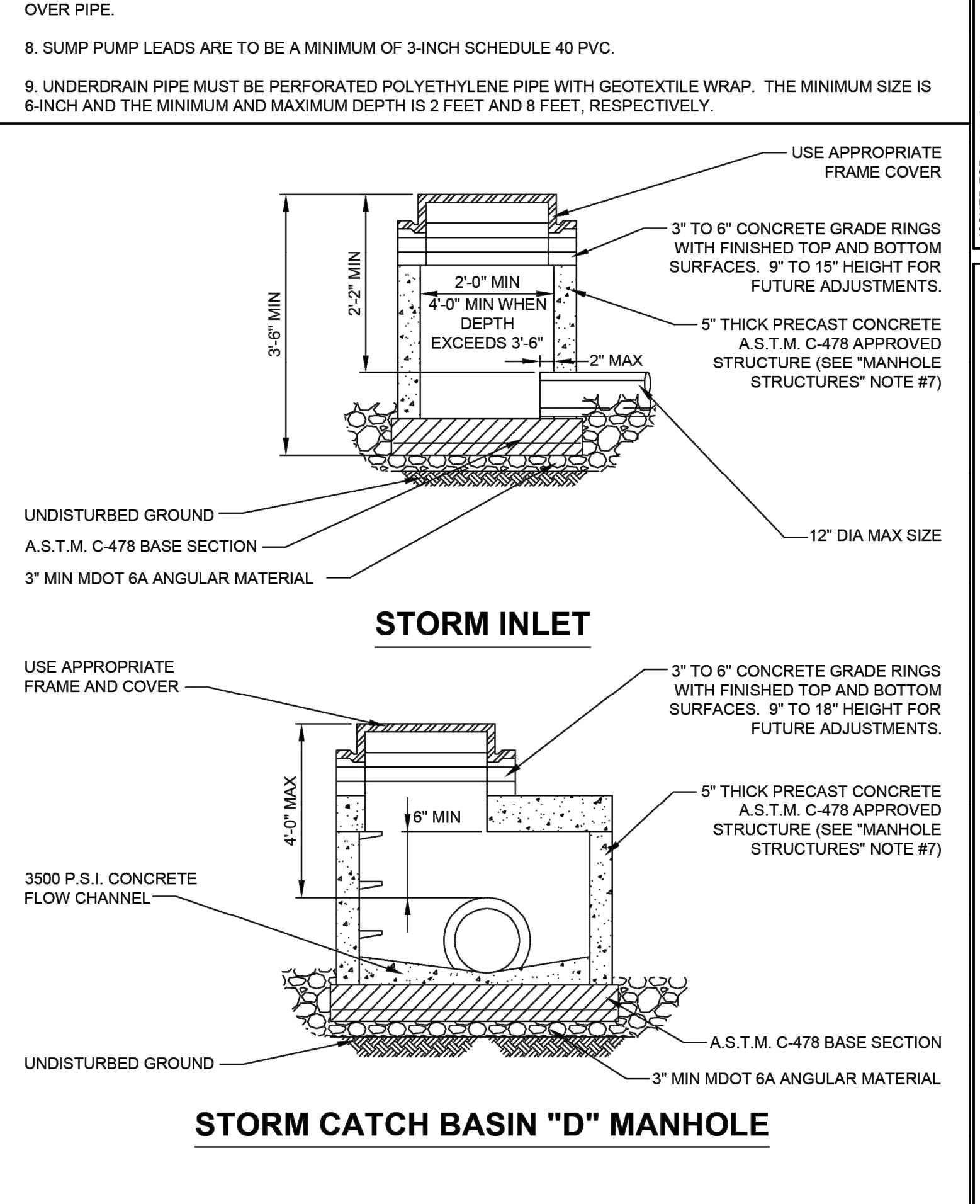
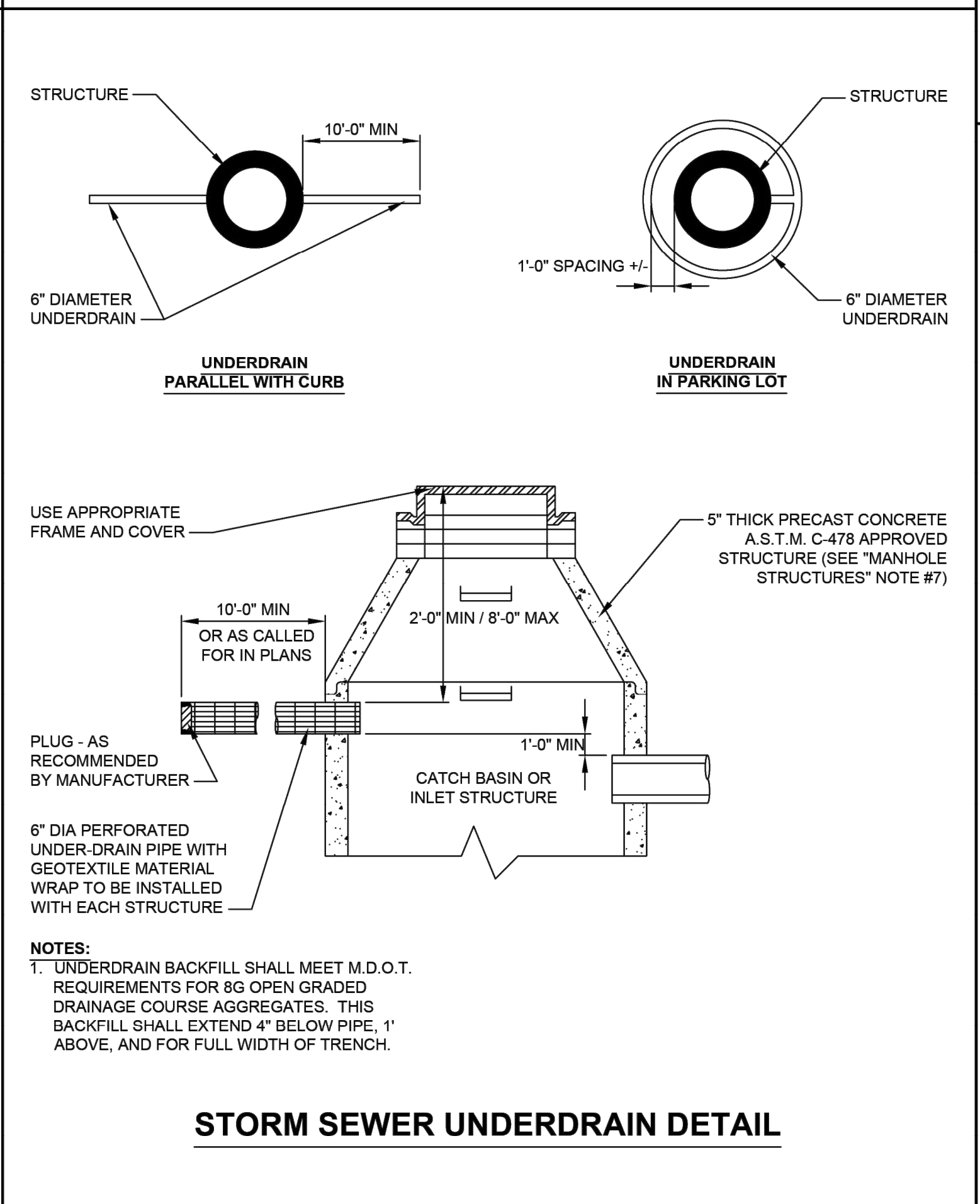
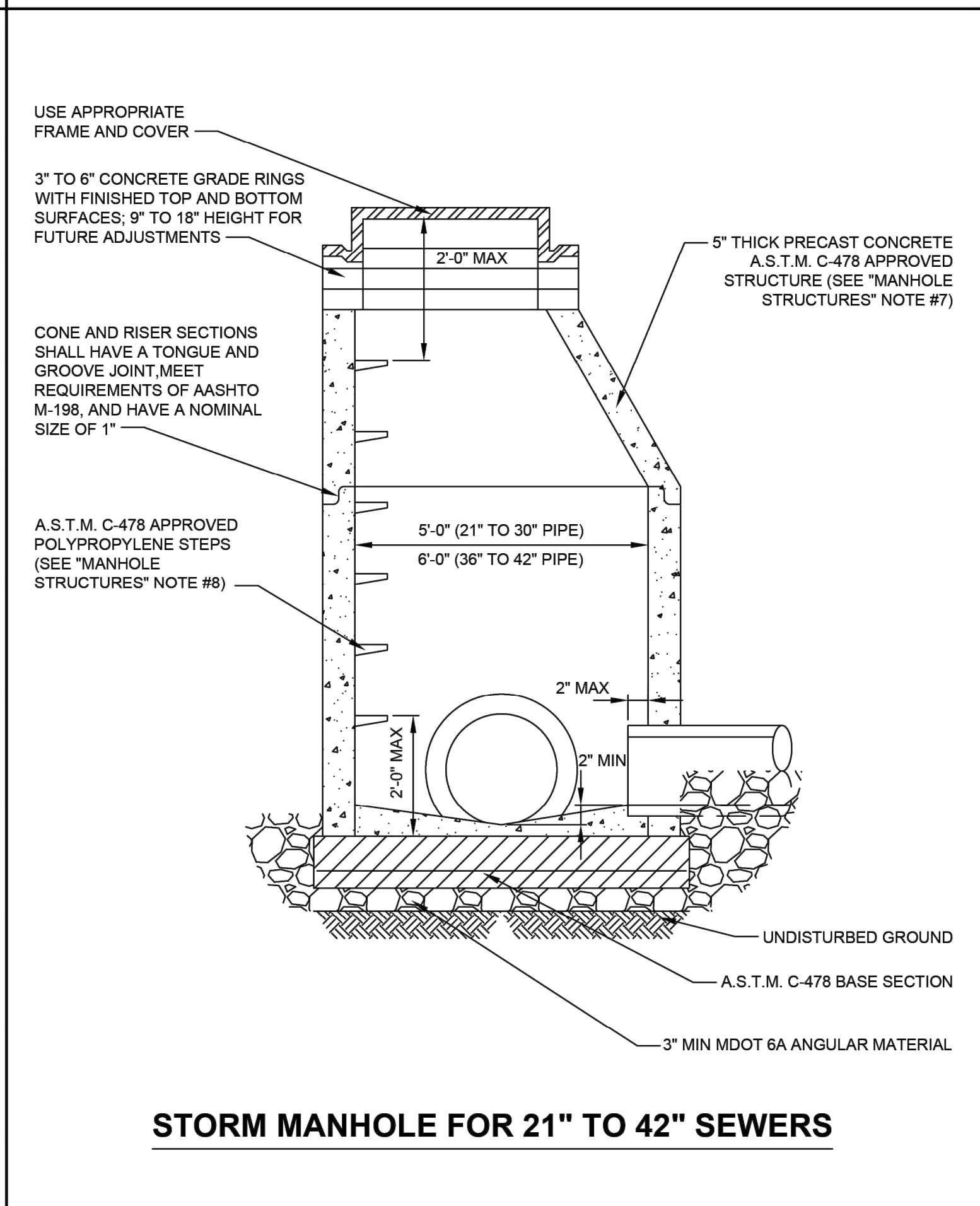
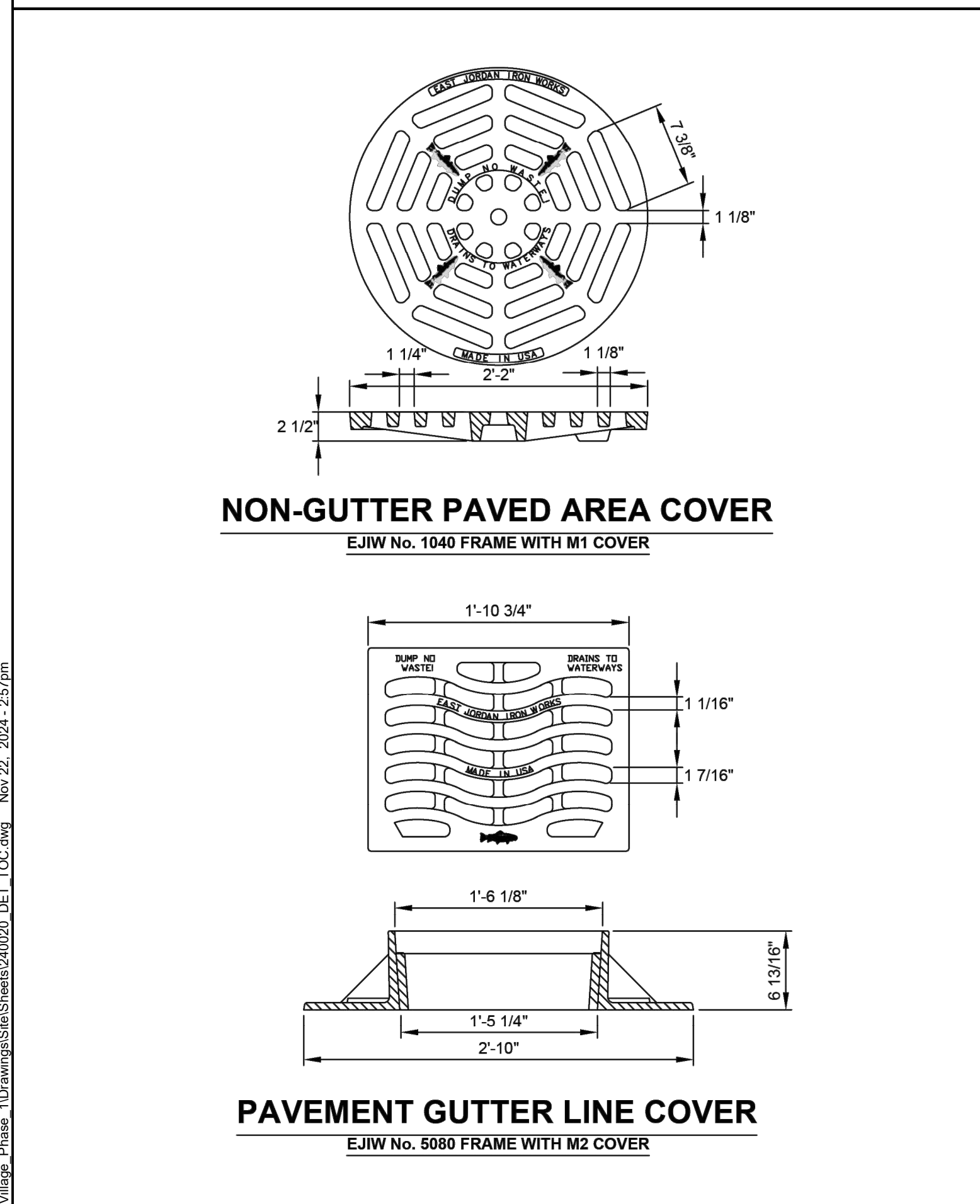
1. ALL STORM SEWER CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF THE AGENCY OR AGENCIES HAVING JURISDICTION OF THE STORM SEWER SYSTEM AND CONSTRUCTION AREA.
2. ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL CONFORM TO WAYNE COUNTY GENERAL NOTES GN-1.
3. SEE MISCELLANEOUS DETAILS SHEET (MD-1) FOR ALL BEDDING AND TRENCH DETAILS.
4. EVERY LOT/UNIT IS TO HAVE DIRECT ACCESS TO A DRAINAGE STRUCTURE.
5. THE STORM SEWER SYSTEM WILL NOT BE CONSIDERED SUBSTANTIALLY COMPLETE UNTIL THE DETENTION POND HAS BEEN COMPLETED. THIS INCLUDES FINAL GRADING OF THE POND AND STABILIZATION OF THE SIDE SLOPES. THE SIDE SLOPES OF THE POND MUST BE STABILIZED BY PLACING A MINIMUM OF 4-INCHES OF TOP SOIL PRIOR TO SEEDING WITH PRAIRIE, WET MEADOW OR OTHER NON-TURF SEED MIXTURE. ENTIRE SIDE SLOPE OF DETENTION POND SHALL BE PEGGED WITH MULCH BLANKET AND WOODEN STAKES.

**MANHOLE STRUCTURES**

1. MANHOLE STRUCTURES REQUIRE A MINIMUM OF 8 INCHES OF CONCRETE WALL BETWEEN PIPE OPENINGS. LARGER DIAMETER STRUCTURES MAY BE REQUIRED WHERE PIPES ENTERING THE STRUCTURE ARE LESS THAN 90 DEGREES APART IN ANY DIRECTION.
2. ALL CASTING RIMS SHALL BE SET TO GRADE OR AS SHOWN ON THE PLANS.
3. NO MANHOLES OR OTHER STRUCTURES MAY BE INSTALLED WITHIN DRIVEWAYS, DRIVE APPROACHES, OR SIDEWALKS.
4. DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED 6 FEET.
5. SAND BACKFILL MUST BE PLACED WITHIN 3 FEET OF ALL STRUCTURES IN 12-INCH LIFTS AND COMPACTED TO 95% COMPACTION.
6. ALL DRAINAGE STRUCTURES LOCATED WITHIN PAVEMENT MUST HAVE UNDERDRAIN AS SHOWN ON THIS SHEET.
7. ALL STRUCTURES MUST BE 5-INCH THICK PRE-CAST CONCRETE, A.S.T.M. C-478 APPROVED, WITH 1/2-INCH CEMENT PLASTER ON JOINTS INSIDE AND OUT. UNDER CANTON TOWNSHIP ENGINEER APPROVAL, STRUCTURES MAY BE 5-INCH THICK CONCRETE BLOCK STRUCTURE CONSTRUCTED IN THE FIELD WITH 1/2-INCH CEMENT PLASTER COAT INSIDE AND OUT.
8. MANHOLE STEPS ARE TO BE INSTALLED AT THE PLANT BY THE MANUFACTURER OF THE STRUCTURE. THE STEPS ARE TO BE 16 INCHES ON CENTER, MADE OF POLYPROPYLENE, AND A.S.T.M. C-478 APPROVED. STEPS ARE TO BE LOCATED AT 90 DEGREES TO THE CENTERLINE OF THE MAIN SEWER LINE. THE BOTTOM STEP SHOULD BE LOCATED A MAXIMUM OF 24 INCHES ABOVE THE FLOOR.

**PIPES & LEADS**

1. ALL STORM SEWER PIPES SHALL BE MINIMUM 12-INCH DIAMETER C76, CLASS IV R.C.P. WITH PREMIUM JOINTS, UNLESS OTHERWISE APPROVED BY THE APPROPRIATE ENTITY.
2. ALL STORM SEWER PIPES SHALL HAVE MDOT 6A BEDDING UNLESS OTHERWISE NOTED ON THE PLANS.
3. ALL PIPES 36-INCH AND LARGER MUST HAVE THE INSIDE JOINTS POINTED.
4. ALL PIPE OUTLETS 36-INCH AND LARGER MUST HAVE A HEADWALL WITH FOOTINGS.
5. ALL PIPE END SECTIONS 12-INCH AND LARGER MUST HAVE AN ANIMAL GRATE.
7. BACKFILL FOR ALL REAR YARD STORM SEWERS IS TO BE 1/4-INCH CRUSHED STONE TO A MINIMUM OF 12 INCHES OVER PIPE.
8. SUMP PUMP LEADS ARE TO BE A MINIMUM OF 3-INCH SCHEDULE 40 PVC.
9. UNDERDRAIN PIPE MUST BE PERFORATED POLYETHYLENE PIPE WITH GEOTEXTILE WRAP. THE MINIMUM SIZE IS 6-INCH AND THE MINIMUM AND MAXIMUM DEPTH IS 2 FEET AND 8 FEET, RESPECTIVELY.

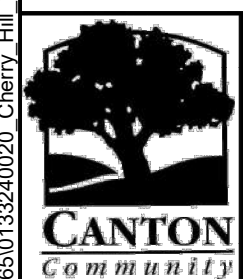


**CHARTER TOWNSHIP OF CANTON**  
1150 CANTON CENTER S.  
CANTON, MI 48188-1699  
PH: 734-394-5150 / FAX: 734-394-5183

<b>DATE:</b>	<b>REVISIONS:</b>	<b>BY:</b>
5/31/2007	PUBLIC RELEASE	CJL

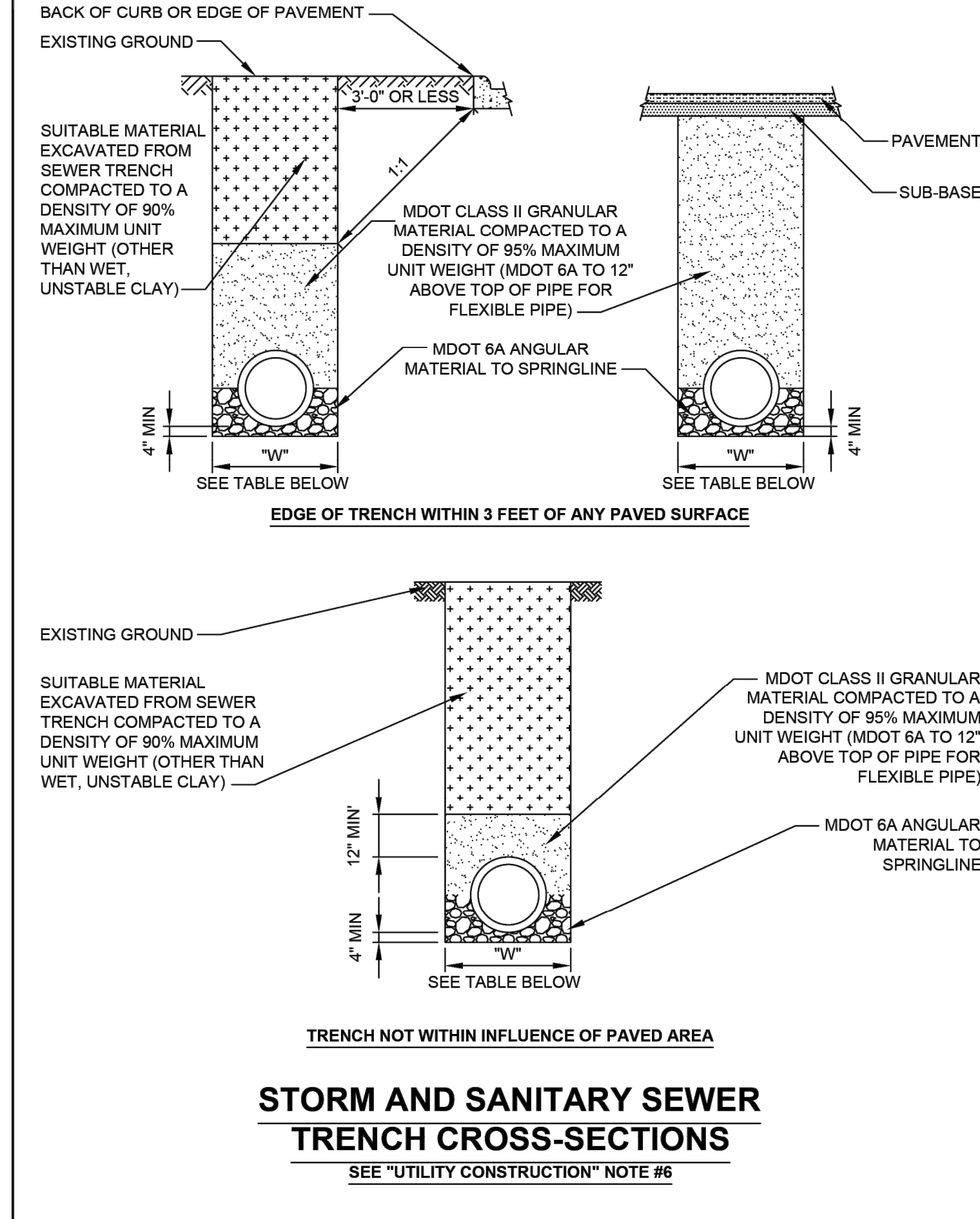
**STORM SEWER STANDARD DETAILS**

<b>DATE:</b>	<b>SHEET:</b>
5/31/2007	ST-1
<b>SCALE:</b>	
NONE	



PROJECT NUMBER 0133-24-020	ISSUED FOR: BID SET	2024/1/22
CANTON CHARTER TOWNSHIP CHERRY HILL VILLAGE PHASE 1 CANTON TOWNSHIP, MICHIGAN	REVISION DESCRIPTION	DATE
CANTON CHARTER TOWNSHIP STORM SEWER STANDARD DETAILS		





I.D. PIPE SIZE (IN)	<18	21	24	30	36
"W" TRENCH WIDTH (FT)	3.0	3.5	4.0	5.0	6.0

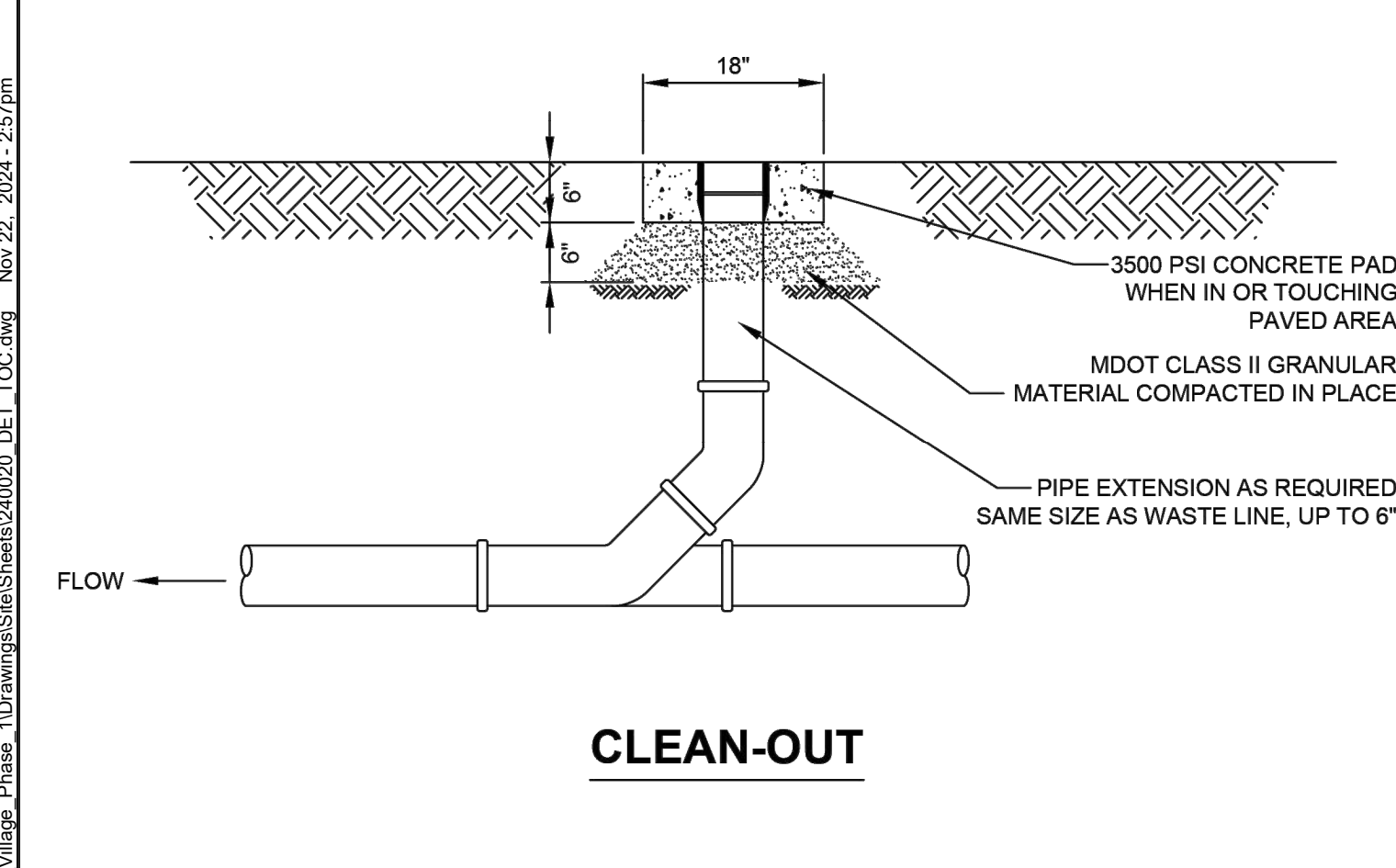
  

I.D. PIPE SIZE (IN)	42	48	54	60	-	-
"W" TRENCH WIDTH (FT)	7.0	8.0	9.5	10.0	-	-

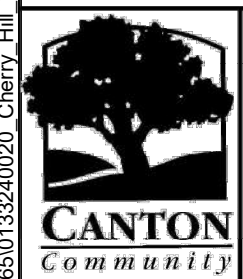
• ESTIMATED PAVEMENT REMOVAL WIDTH IS TO BE TRENCH WIDTH "W" PLUS 12" EACH SIDE OF THE TRENCH

**MINIMUM UTILITY TRENCH WIDTHS**

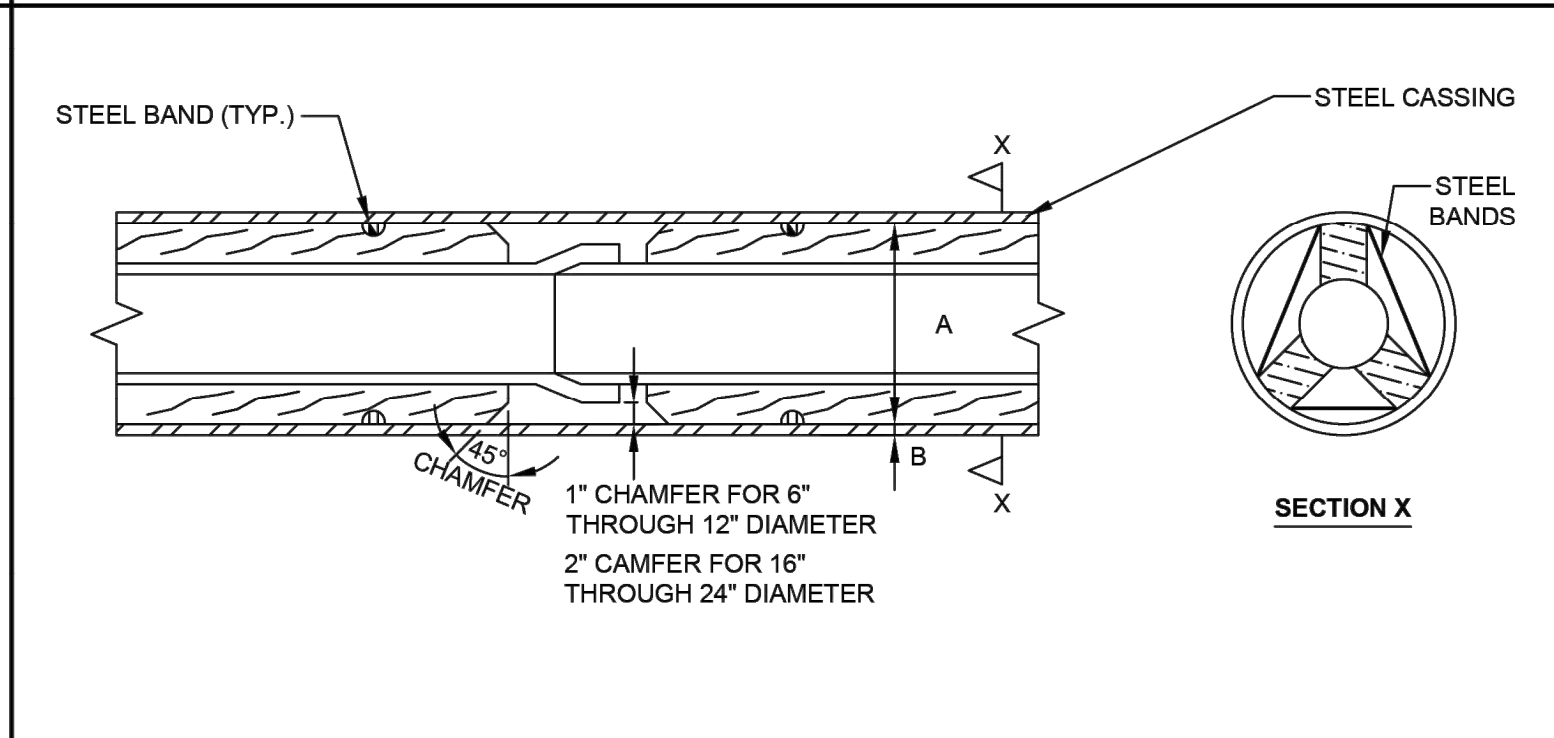
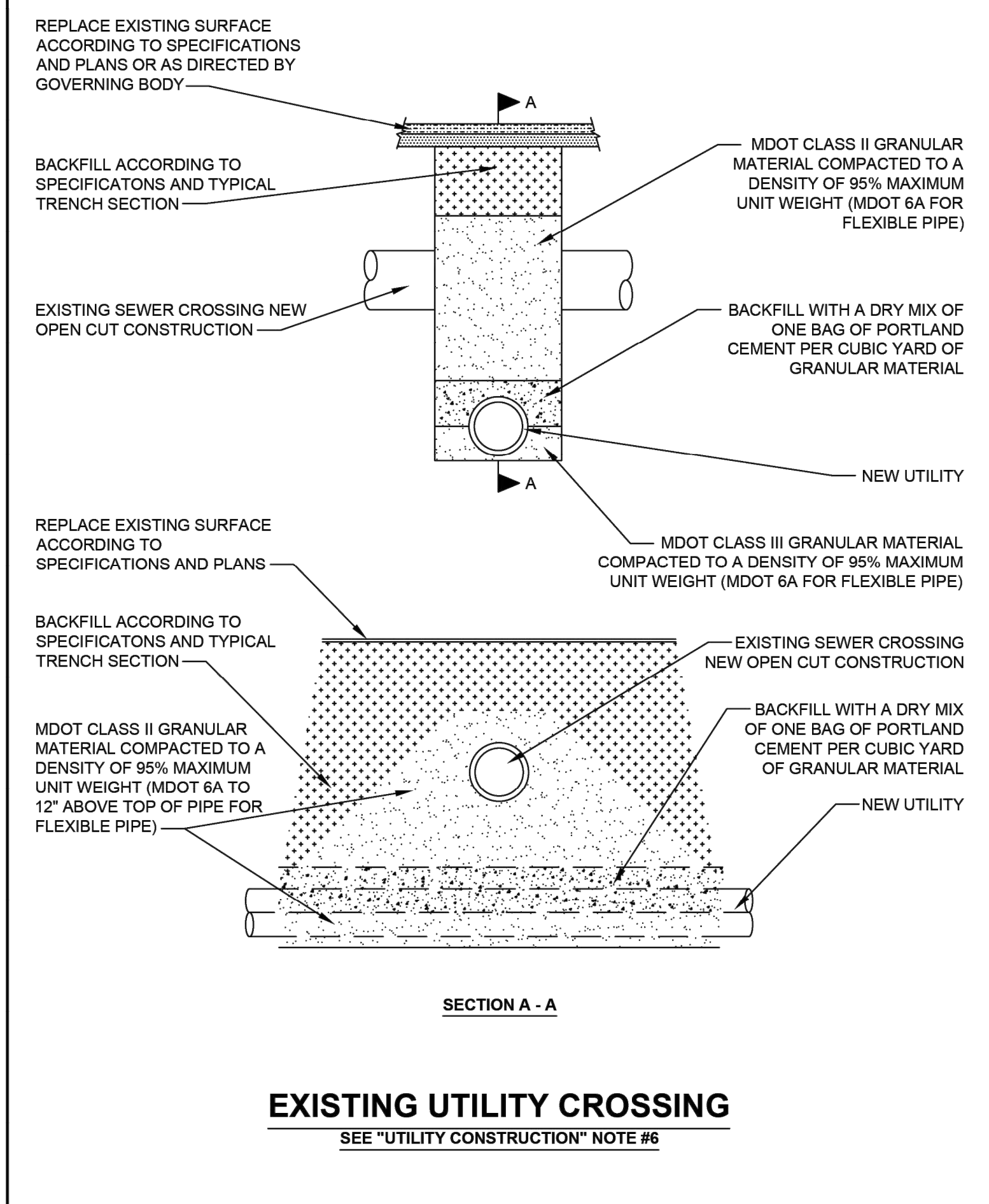
DIA OF SANITARY SEWER (IN)	DIA OF WATER MAIN (IN)	MIN "A" (IN)	ROAD CROSSING MIN "B" (IN)	RAILROAD CROSSING MIN "B" (IN)
8	12	16	0.375	0.375
10	16	24	0.375	0.500
12 - 15	20	30	0.375	0.500
18	24	36	0.375	0.500



**CHARTER TOWNSHIP OF CANTON**  
1150 CANTON CENTER S.  
CANTON, MI 48188-1699  
PH: 734-394-5150 / FAX: 734-394-5183



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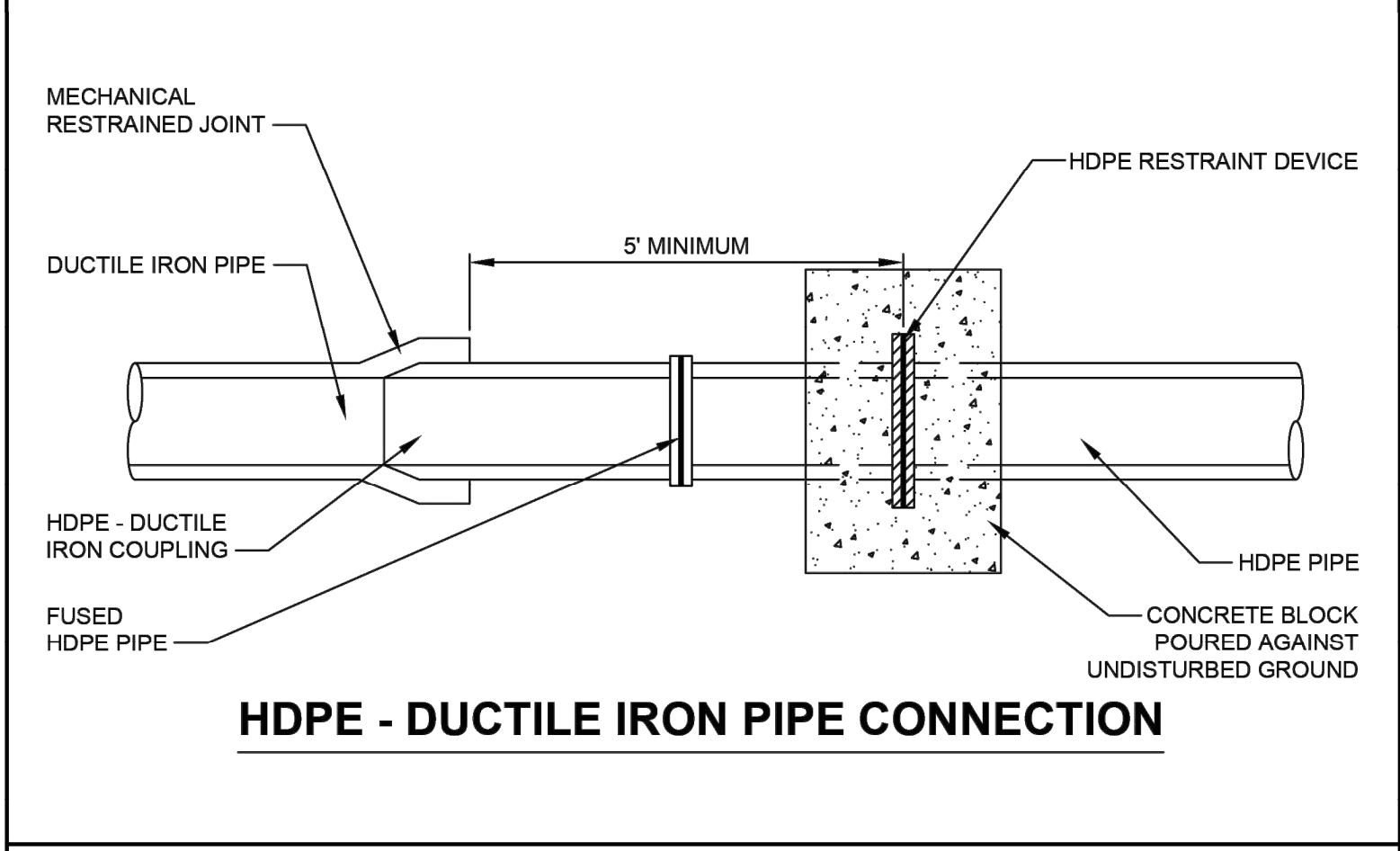
DIA OF SANITARY SEWER (IN)	DIA OF WATER MAIN (IN)	MIN "A" (IN)	ROAD CROSSING MIN "B" (IN)	RAILROAD CROSSING MIN "B" (IN)
8	12	16	0.375	0.375
10	16	24	0.375	0.500
12 - 15	20	30	0.375	0.500
18	24	36	0.375	0.500

**NOTES:**

- WHITE OAK SKIDS BANDED TO MAIN SKIDS WILL BE NOTCHED TO PREVENT WIRE FROM RIDING AGAINST CASING PIPE.
- NO WATER SHALL BE USED IN BORING UNDER RAILROADS.
- MAINTAIN A MINIMUM OF 5'-6" OF COVER BETWEEN BASE OF RAIL AND TOP OF CASING.
- THE ENDS OF THE CASING SHALL BE SUITABLY PROTECTED AGAINST THE ENTRANCE OF FOREIGN MATERIAL AND SEALED WITH NON-SHRINKING GROUT.
- BORING SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE THE EDGES OF THE PAVEMENT.
- SKIDS ARE REQUIRED TO EXTEND THE FULL LENGTH OF THE CASING.
- CASING PIPE SHALL BE WELDED STEEL PIPE A.S.T.M. A-252 GR 2 UNLESS OTHERWISE SPECIFIED.

**CASING SECTION**

<b>DATE:</b>	<b>REVISIONS:</b>	<b>BY:</b>
5/17/2007	SUBMITTED FOR DEQ REVIEW	C.J.L
5/31/2007	PUBLIC RELEASE	C.J.L



**UTILITY CONSTRUCTION**

- CONTRACTOR MUST PROVIDE ALL NECESSARY SHEETING, SHORING, DEWATERING, BRACING, TRENCH BOXES, ETC. TO PERFORM WORK SAFELY AND PROTECT EXISTING UTILITIES AND IMPROVEMENTS IN ACCORDANCE TO MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (MIOSHA).
- THE FLOW IN THE EXISTING SEWERS MUST BE MAINTAINED AT ALL TIMES.
- CULVERTS, DITCHES, DRAIN TILES, TILE FIELD, DRAINAGE STRUCTURES, ETC. DISTURBED BY THE CONTRACTOR: S OPERATIONS SHALL BE IMMEDIATELY RESTORED.
- AFTER ALL PIPES AND STRUCTURES HAVE BEEN LAID, CONSTRUCTED, AND BACKFILLED, THE SYSTEM MUST BE TESTED AND THE FIRST FINAL UTILITIES INSPECTION PERFORMED.
- WHEN USING FLEXIBLE PIPE, FILL MUST BE MDOT 6A TO 12 INCHES ABOVE THE UTILITY, FOLLOWED BY ACCEPTABLE FILL.
- TRENCH CROSS-SECTIONS SHOWN ON MD-1 APPLY TO THOSE UTILITIES OUTSIDE MDOT AND WAYNE COUNTY RIGHTS-OF WAY. THOSE UTILITIES THAT FALL WITHIN MDOT AND WAYNE COUNTY RIGHTS-OF WAY MUST MEET THEIR BEDDING AND BACKFILL REQUIREMENTS.
- HDPE PIPE SHALL MEET AWWA C906 WITH AN SDR OF 11. THE PIPE WILL BE BLUE SHELLLED ON THE EXTERIOR AND BLACK ON THE INSIDE.

**SITE INFORMATION**

- ALL PROPERTY IRONS AND MONUMENTS, IF DISTURBED OR DESTROYED BY THE CONTRACTOR: S OPERATION, SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AT THE CONTRACTOR: S EXPENSE.
- NO EXCESS SOILS OR CONSTRUCTION MATERIALS SHALL BE PLACED ON PRIVATE PROPERTY WITHOUT AN APPROVED PERMIT FROM CANTON TOWNSHIP, REGARDLESS IF THE PROPERTY OWNER GIVES PERMISSION.
- THE CONTRACTOR OR DEVELOPER IS RESPONSIBLE FOR RESOLVING ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES THAT ARE A RESULT OF CONSTRUCTION ACTIVITY WITHIN 7 CALENDAR DAYS OF THE COMPLAINT.

**MISCELANEOUS STANDARD DETAILS**

**MISCELLANEOUS DETAIL NOTES:**

**PRECONSTRUCTION & NOTIFICATION**

- THE CONTRACTOR MUST ATTEND A PRECONSTRUCTION MEETING, AS ARRANGED BY CANTON TOWNSHIP BEFORE ANY WORK SHALL COMMENCE.
- THE CONTRACTOR MUST HAVE IN HIS POSSESSION A COPY OF ALL PERMITS AND APPROVALS NECESSARY TO CONSTRUCT PROPOSED IMPROVEMENTS.
- THE CONTRACTOR MUST NOTIFY ALL UTILITY COMPANIES AND THE CANTON TOWNSHIP ENGINEER A MINIMUM OF 48 HOURS PRIOR TO UNCOVERING ANY EXISTING UTILITIES.
- THE CONTRACTOR MUST NOTIFY - MISS DIG - (800-482-7171) A MINIMUM OF THREE (3) WORKING DAYS (NOT INCLUDING HOLIDAYS OR WEEKENDS) BEFORE STARTING CONSTRUCTION.
- ANY WORK WITHIN THE WAYNE COUNTY RIGHT-OF-WAY REQUIRES THAT THE CONTRACTOR NOTIFY THE CANTON TOWNSHIP ENGINEER AND WAYNE COUNTY ROAD DEPARTMENT OF PUBLIC SERVICES (WCODPS) 72-HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
- THE CONTRACTOR SHALL BE AWARE OF THE NEAREST EMERGENCY MEDICAL FACILITY.

**ROADS & TRAFFIC**

- THE CONTRACTOR MUST MAINTAIN ALL TRAFFIC AT ALL TIMES AS REQUIRED BY THE CURRENT MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTC), WAYNE COUNTY, AND/OR MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT).
- THE CONTRACTOR SHALL AT ALL TIMES PROVIDE EMERGENCY ACCESS TO PROPERTY FOR THE POLICE, FIRE DEPARTMENT, AMBULANCES OR OTHER EMERGENCY VEHICLES TO PROTECT LIFE, HEALTH AND PROPERTY.
- THE CONTRACTOR MUST MAINTAIN PUBLIC ROADS AFFECTED BY THE CONSTRUCTION OPERATIONS IN A PASSABLE CONDITION AT ALL TIMES.
- IF THE PUBLIC SAFETY IS IN DANGER OR THE NECESSITY EXISTS FOR MAINTAINING TRAFFIC, BACKFILLING MUST BE COMPLETED IMMEDIATELY FOLLOWING CONSTRUCTION. IN THE EVENT THAT THE NECESSARY BACKFILL MATERIAL AND EQUIPMENT ARE NOT AVAILABLE WHEN DIRECTION IS GIVEN FOR IMMEDIATE BACKFILL, THE TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL TO PROVIDE FOR THE NECESSARY MAINTENANCE OF TRAFFIC AND SAFETY.
- NO ROADS SHALL BE CLOSED TO THROUGH TRAFFIC UNLESS AUTHORIZED BY THE AGENCY WITH JURISDICTION OVER THAT ROAD. PRIOR TO CLOSING ANY ROAD THE CONTRACTOR SHALL PROVIDE THE CANTON TOWNSHIP ENGINEER WITH A COPY OF A DETOUR PLAN APPROVED BY THE AGENCY HAVING JURISDICTION OVER THOSE ROADS.
- IN THE EVENT ROADS ARE TO BE CLOSED, THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE DEPARTMENT, POLICE DEPARTMENT AND LOCAL ROAD AUTHORITY, AMBULANCE AND EMERGENCY SERVICES, DEPARTMENT OF PUBLIC WORKS, PUBLIC SCHOOL SYSTEM, LOCAL TRASH PICK-UP AUTHORITY, AND PUBLIC AND PRIVATE UTILITIES AS TO WHAT STREETS WILL BE BLOCKED OR CLOSED AND WHEN THE STREETS WILL BE REOPENED TO TRAFFIC.
- PAVED STREETS AND DRIVEWAYS MUST BE MAINTAINED IN A REASONABLE STATE OF CLEANLINESS AND THE CONTRACTOR SHALL REMOVE ACCUMULATIONS OF DEBRIS CAUSED BY CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL HAVE AN OPERATING SWEEPER BROOM AND CLEAN THE PAVEMENT AT THE CLOSE OF EACH DAYS OPERATION AND AS OFTEN AS NECESSARY. FAILURE TO COMPLY SHALL BE CAUSE TO STOP CONSTRUCTION. CONTRACTOR SHALL COMPLY WITH THE STATE AIR POLLUTION CONTROL REGULATIONS AND WAYNE COUNTY SOIL EROSION AND SEDIMENTATION CONTROL (SESC).
- ALL GRAVEL ROADS, STREETS, OR DRIVEWAYS USED SHALL BE MAINTAINED BY GRADING, PLACING DUST PALLIATIVES AND/OR MAINTAINING GRAVEL IN SUFFICIENT QUANTITIES TO ELIMINATE DUST AND MAINTAIN TRAFFIC AS DIRECTED BY MDOT, WAYNE COUNTY OR CANTON TOWNSHIP.

**UTILITY CONSTRUCTION**

- CONTRACTOR MUST PROVIDE ALL NECESSARY SHEETING, SHORING, DEWATERING, BRACING, TRENCH BOXES, ETC. TO PERFORM WORK SAFELY AND PROTECT EXISTING UTILITIES AND IMPROVEMENTS IN ACCORDANCE TO MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (MIOSHA).
- THE FLOW IN THE EXISTING SEWERS MUST BE MAINTAINED AT ALL TIMES.
- CULVERTS, DITCHES, DRAIN TILES, TILE FIELD, DRAINAGE STRUCTURES, ETC. DISTURBED BY THE CONTRACTOR: S OPERATIONS SHALL BE IMMEDIATELY RESTORED.
- AFTER ALL PIPES AND STRUCTURES HAVE BEEN LAID, CONSTRUCTED, AND BACKFILLED, THE SYSTEM MUST BE TESTED AND THE FIRST FINAL UTILITIES INSPECTION PERFORMED.
- WHEN USING FLEXIBLE PIPE, FILL MUST BE MDOT 6A TO 12 INCHES ABOVE THE UTILITY, FOLLOWED BY ACCEPTABLE FILL.
- TRENCH CROSS-SECTIONS SHOWN ON MD-1 APPLY TO THOSE UTILITIES OUTSIDE MDOT AND WAYNE COUNTY RIGHTS-OF WAY. THOSE UTILITIES THAT FALL WITHIN MDOT AND WAYNE COUNTY RIGHTS-OF WAY MUST MEET THEIR BEDDING AND BACKFILL REQUIREMENTS.
- HDPE PIPE SHALL MEET AWWA C906 WITH AN SDR OF 11. THE PIPE WILL BE BLUE SHELLLED ON THE EXTERIOR AND BLACK ON THE INSIDE.

**SITE INFORMATION**

- ALL PROPERTY IRONS AND MONUMENTS, IF DISTURBED OR DESTROYED BY THE CONTRACTOR: S OPERATION, SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AT THE CONTRACTOR: S EXPENSE.
- NO EXCESS SOILS OR CONSTRUCTION MATERIALS SHALL BE PLACED ON PRIVATE PROPERTY WITHOUT AN APPROVED PERMIT FROM CANTON TOWNSHIP, REGARDLESS IF THE PROPERTY OWNER GIVES PERMISSION.
- THE CONTRACTOR OR DEVELOPER IS RESPONSIBLE FOR RESOLVING ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES THAT ARE A RESULT OF CONSTRUCTION ACTIVITY WITHIN 7 CALENDAR DAYS OF THE COMPLAINT.

**DATE:**  
9/5/2007

**SCALE:**  
NONE

**SHEET:**  
MD-1

**811**  
Know what's below.  
Call before you dig.



ISSUED FOR:	BID SET	DESCRIPTION	20241122	DATE
REVISION				

PROJECT NUMBER	0133-24-020
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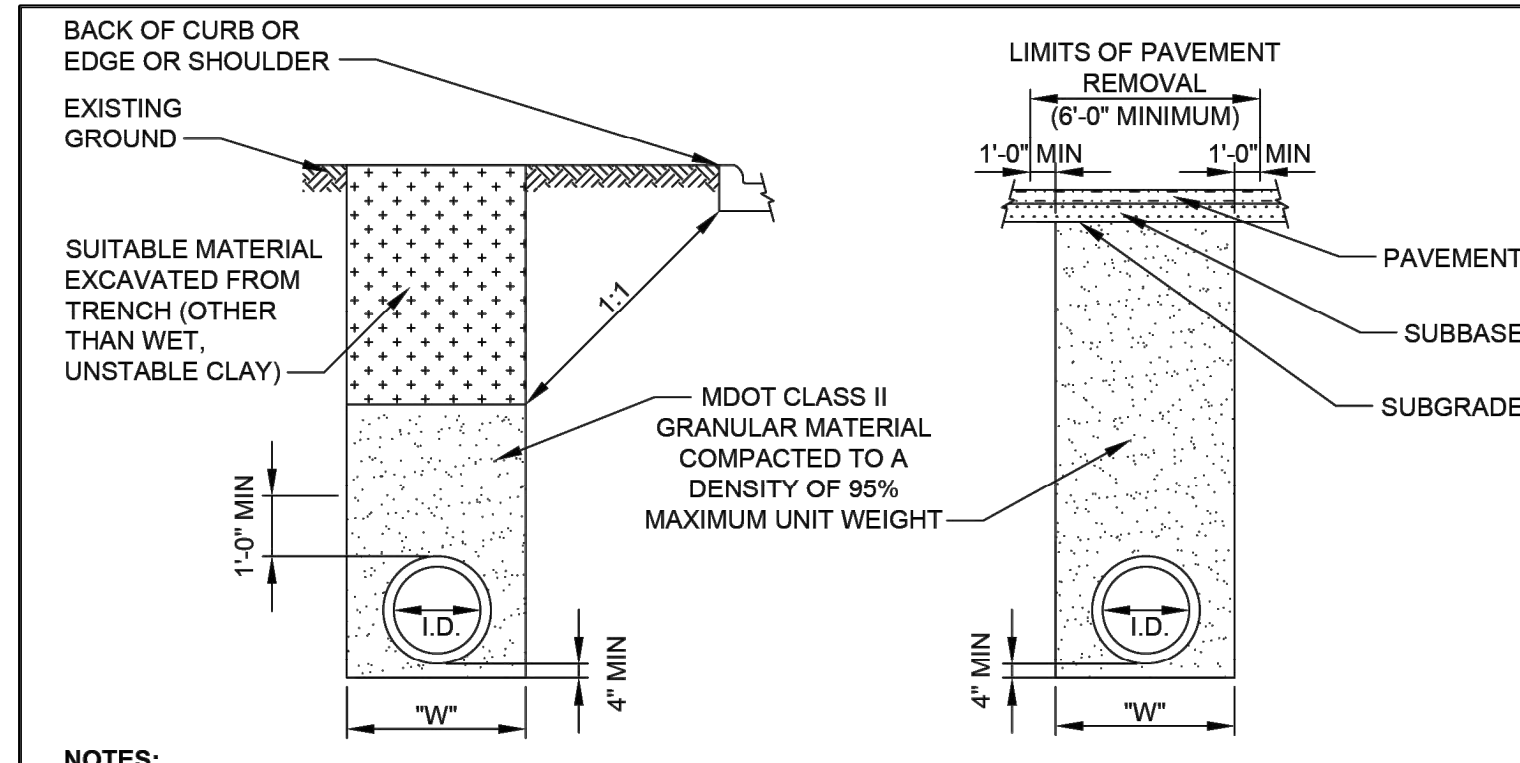
CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN

CANTON CHARTER TOWNSHIP MISCELLANEOUS STANDARD DETAILS

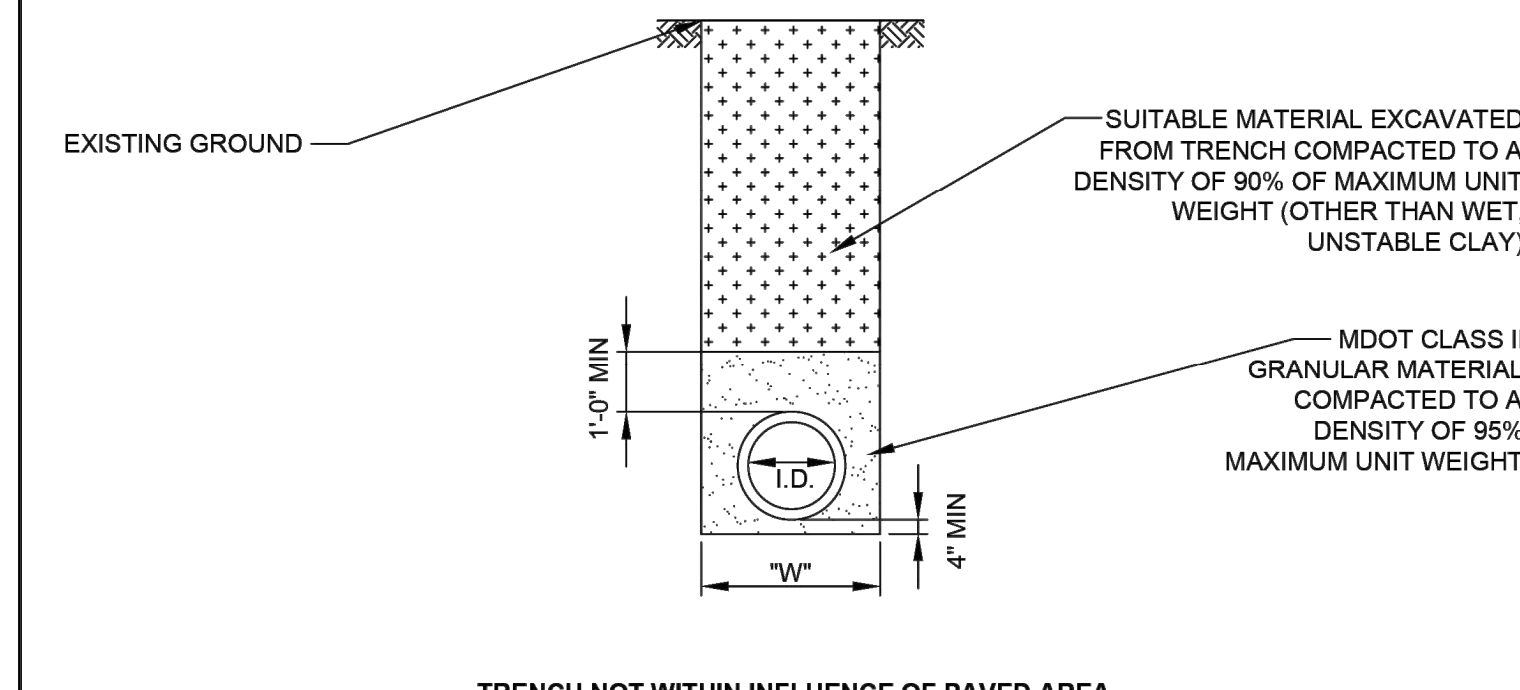
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**C-511**

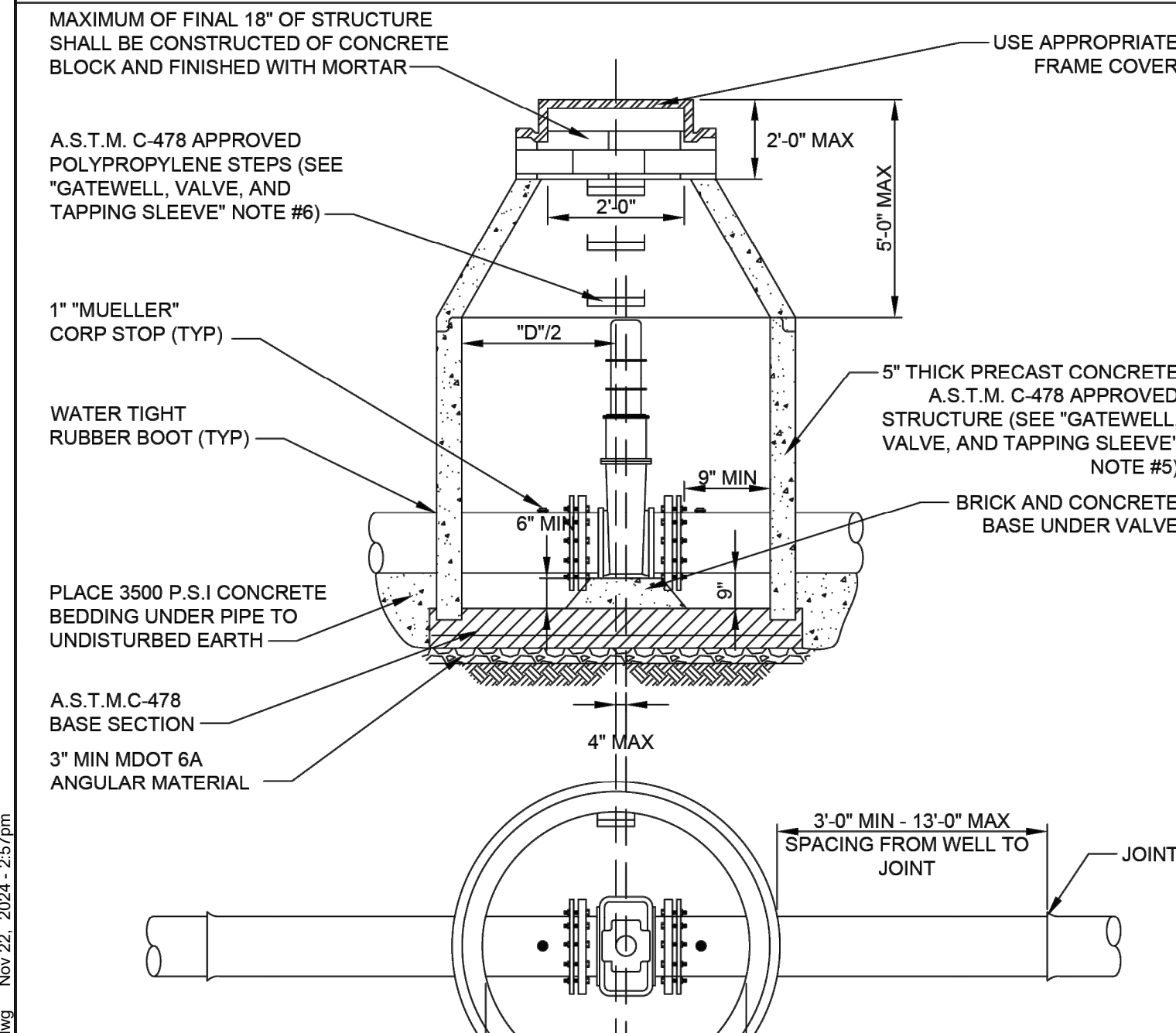




**NOTES:**  
 1. WHEN WATER MAIN IS PLACED IN PROPOSED ROADBED AREA, IT SHALL BE BACKFILLED WITH SELECTED EXCAVATION MATERIAL ABOVE FUTURE SUBGRADE TO EXISTING GROUND LINE.



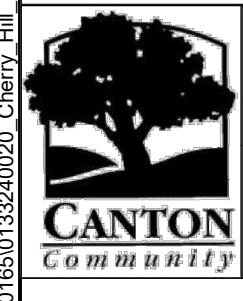
**WATER MAIN TRENCH CROSS-SECTIONS**  
 SEE "PIPE CONSTRUCTION" NOTE #10



**NOTE:**  
 1. PRECAST CONCRETE WELL SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.T.M. C-478 UNLESS OTHERWISE SPECIFIED  
 2. "D" = 6'-0" FOR 8" & 12" WATER MAIN  
 3. "D" = 7'-0" FOR 16" & GREATER  
 4. ALL LIFTING HOLES SHALL BE SEALED WITH NON-SHRINK GROUT

**PRECAST GATE WELL**

**CHARTER TOWNSHIP OF CANTON**  
 1150 CANTON CENTER S.  
 CANTON, MI 48188-1699  
 PH: 734-394-5150 / FAX: 734-394-5183

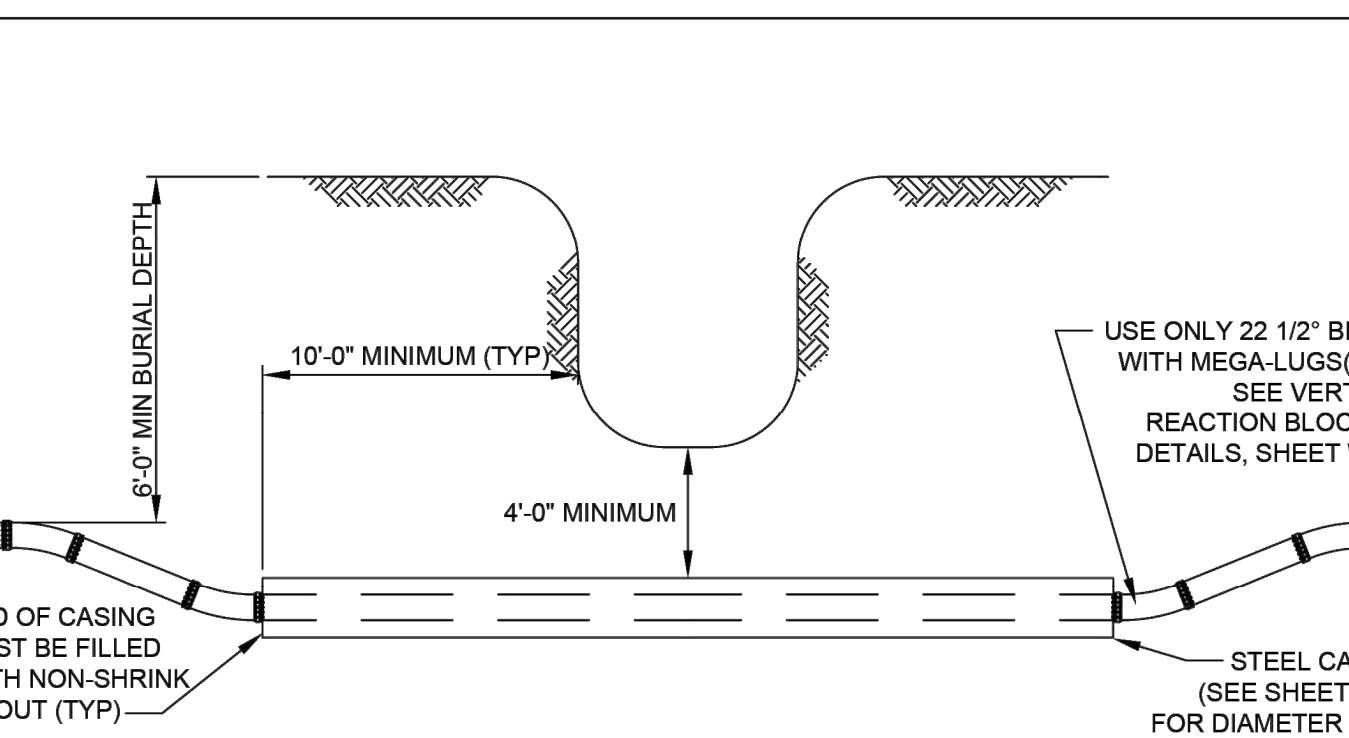


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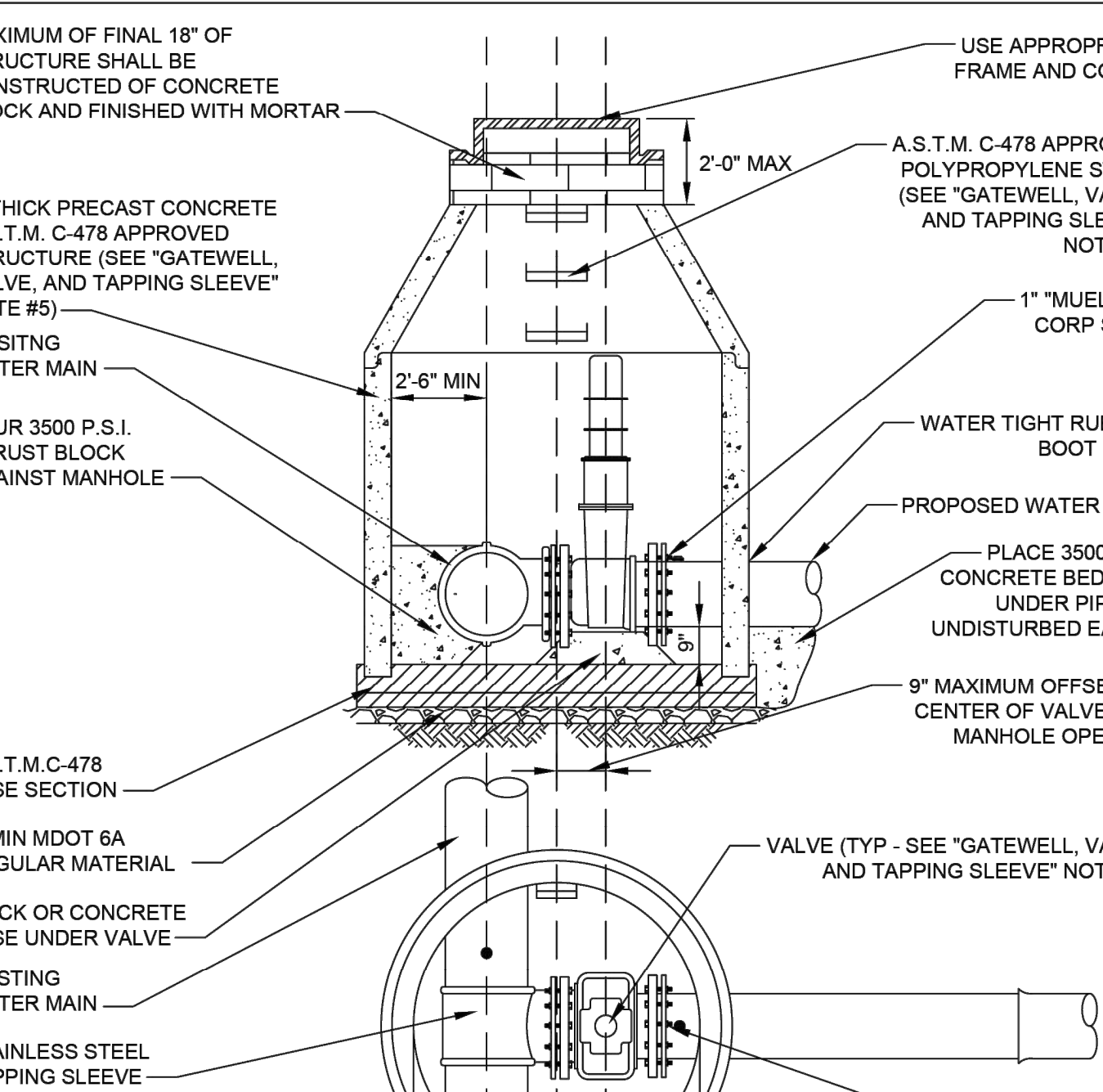
I.D. PIPE SIZE (IN)	<18	21	24	30	36	
"W" TRENCH WIDTH (FT)	3.0	3.5	4.0	5.0	6.0	
I.D. PIPE SIZE (IN)	42	48	54	60	66	72
"W" TRENCH WIDTH (FT)	7.0	8.0	9.5	10.0	10.5	11.0
I.D. PIPE SIZE (IN)	78	84	90	96	102	108
"W" TRENCH WIDTH (FT)	11.5	12.0	12.5	13.0	13.5	14.0

**NOTE:**  
 1. ESTIMATED PAVEMENT REMOVAL WIDTH IS TO BE TRENCH WIDTH "W" PLUS 1'-0" EACH SIDE OF THE TRENCH (6'-0" MINIMUM).

**MINIMUM UTILITY TRENCH WIDTHS**

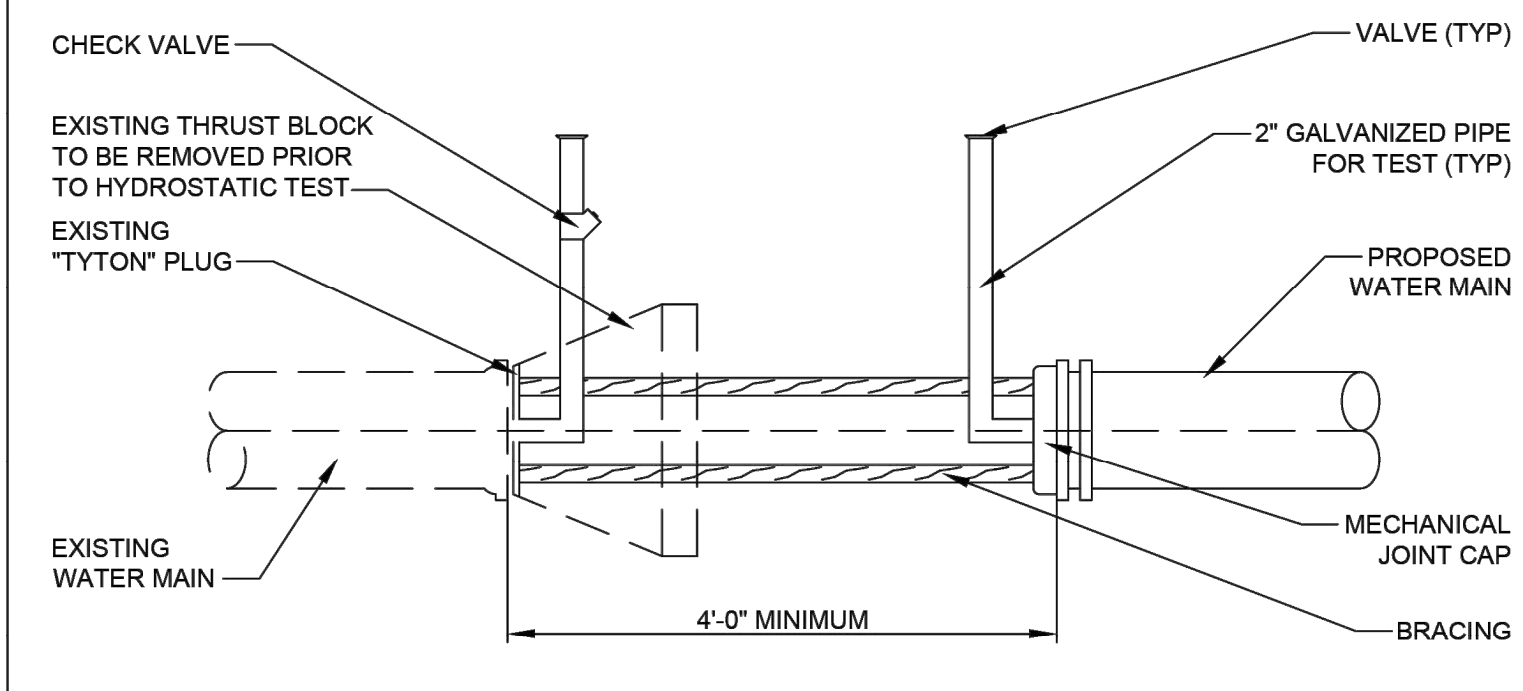


**DITCH OR STREAM CROSSING**

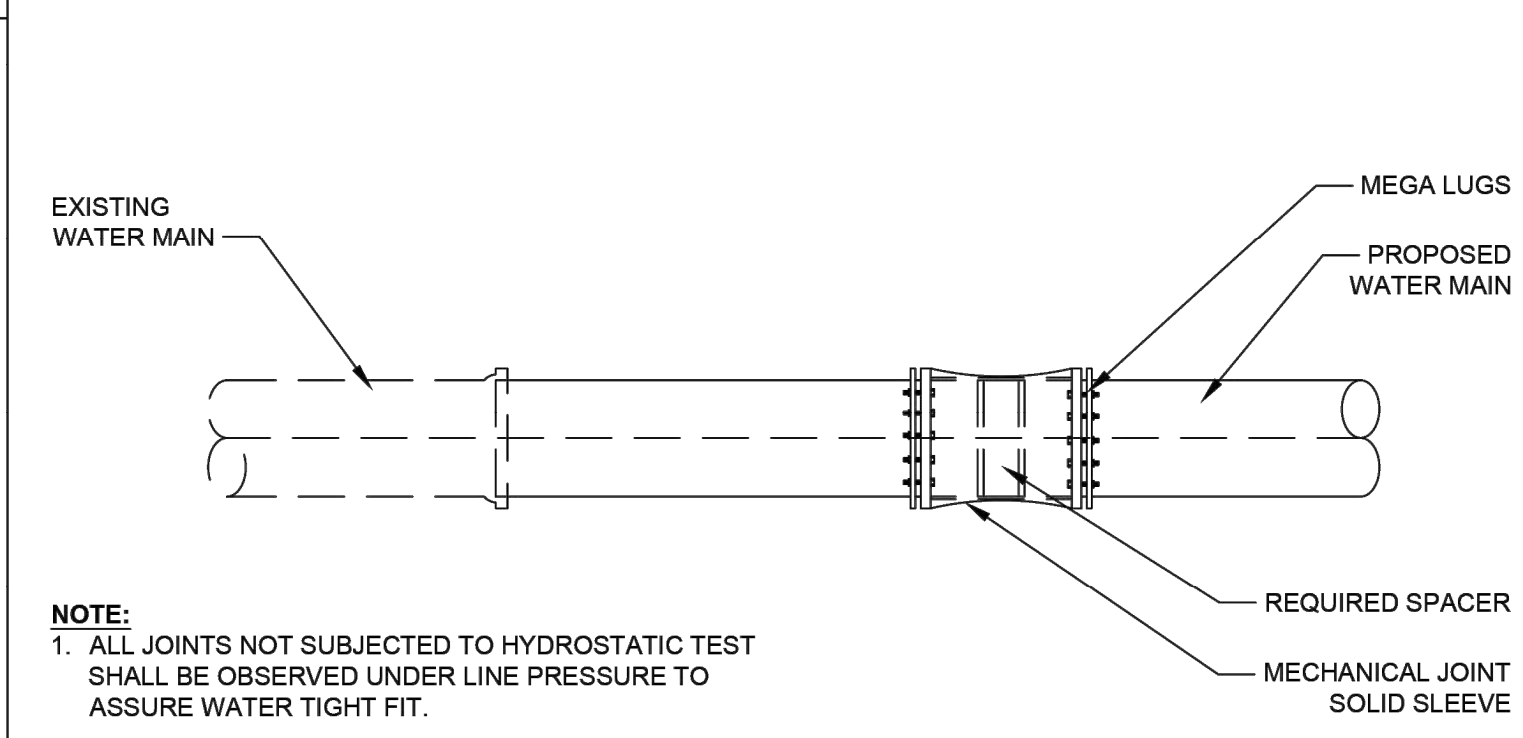


**NOTE:**  
 1. PRECAST CONCRETE WELL SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.T.M. C-478 UNLESS OTHERWISE SPECIFIED  
 2. "D" = 6'-0" FOR 8" & 12" WATER MAIN  
 3. "D" = 7'-0" FOR 16" & GREATER  
 4. ALL LIFTING HOLES SHALL BE SEALED WITH NON-SHRINK GROUT

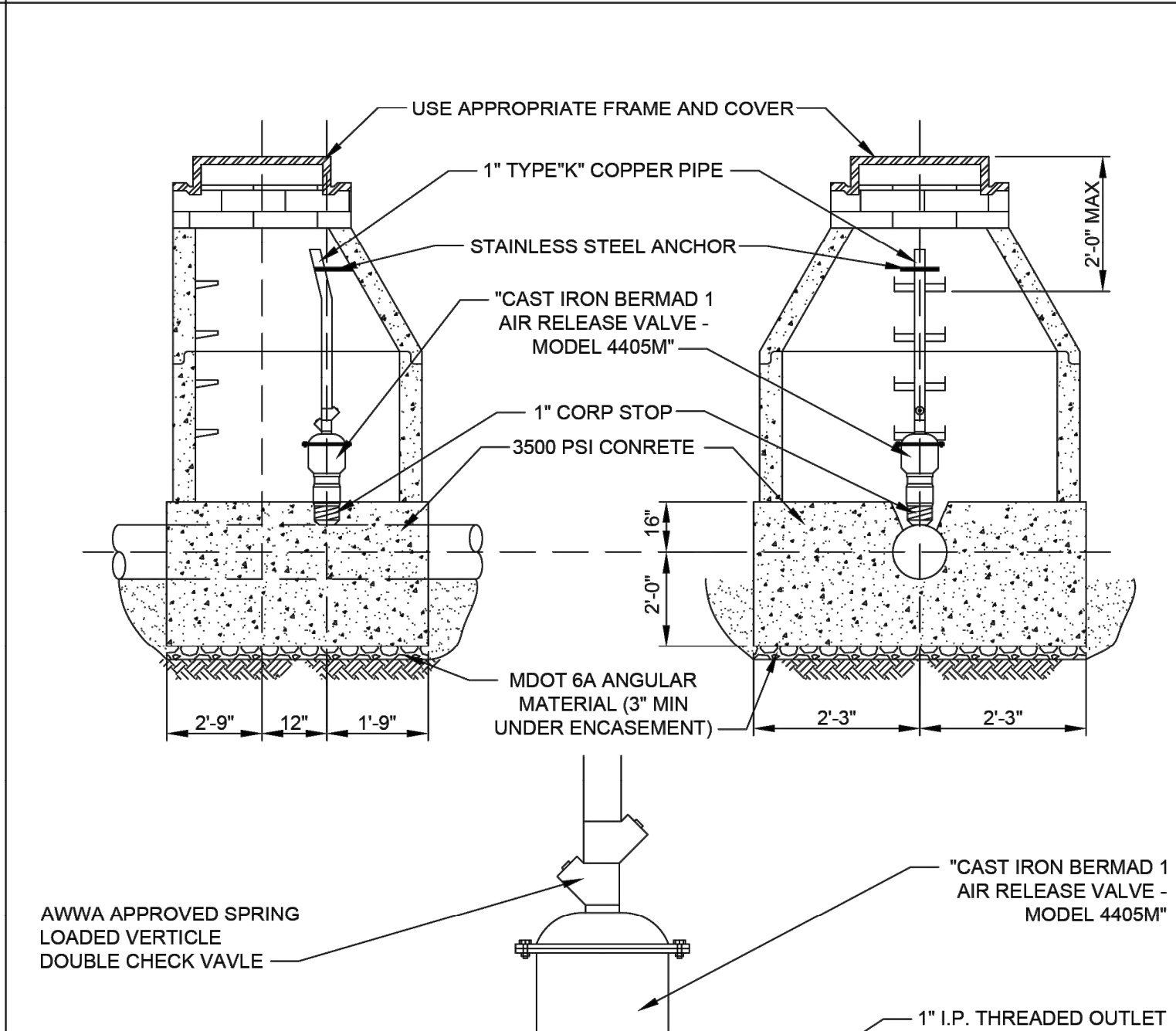
**CONNECTION TO EXISTING MAIN**



**TEMPORARY ARRANGEMENT FOR HYDROSTATIC PRESSURE TEST**



**COMPLETED CONNECTION TO EXISTING WATER MAIN**



**AIR RELEASE VALVES:**  
 BERMAD Control Valves  
 4070 East Leaverton Court  
 Anaheim, CA 92807  
 Phone: 1-800-821-6825

**LOCAL SUPPLIER -**  
 Jet Pump  
 4770 Pontiac Lake Road  
 Waterford, MI 48328  
 Phone: (248) 673-2530

**AIR RELEASE VALVE & WELL FOR 12" OR GREATER WATER MAIN**

DATE: 11/30/22  
 SCALE: NONE

SHEET: WM-1

**WATER MAIN STANDARD DETAILS**

ISSUED FOR: BID SET	2024/11/22
REVISION	DATE
DESCRIPTION	

PROJECT NUMBER	0133-24-020
PH	CR

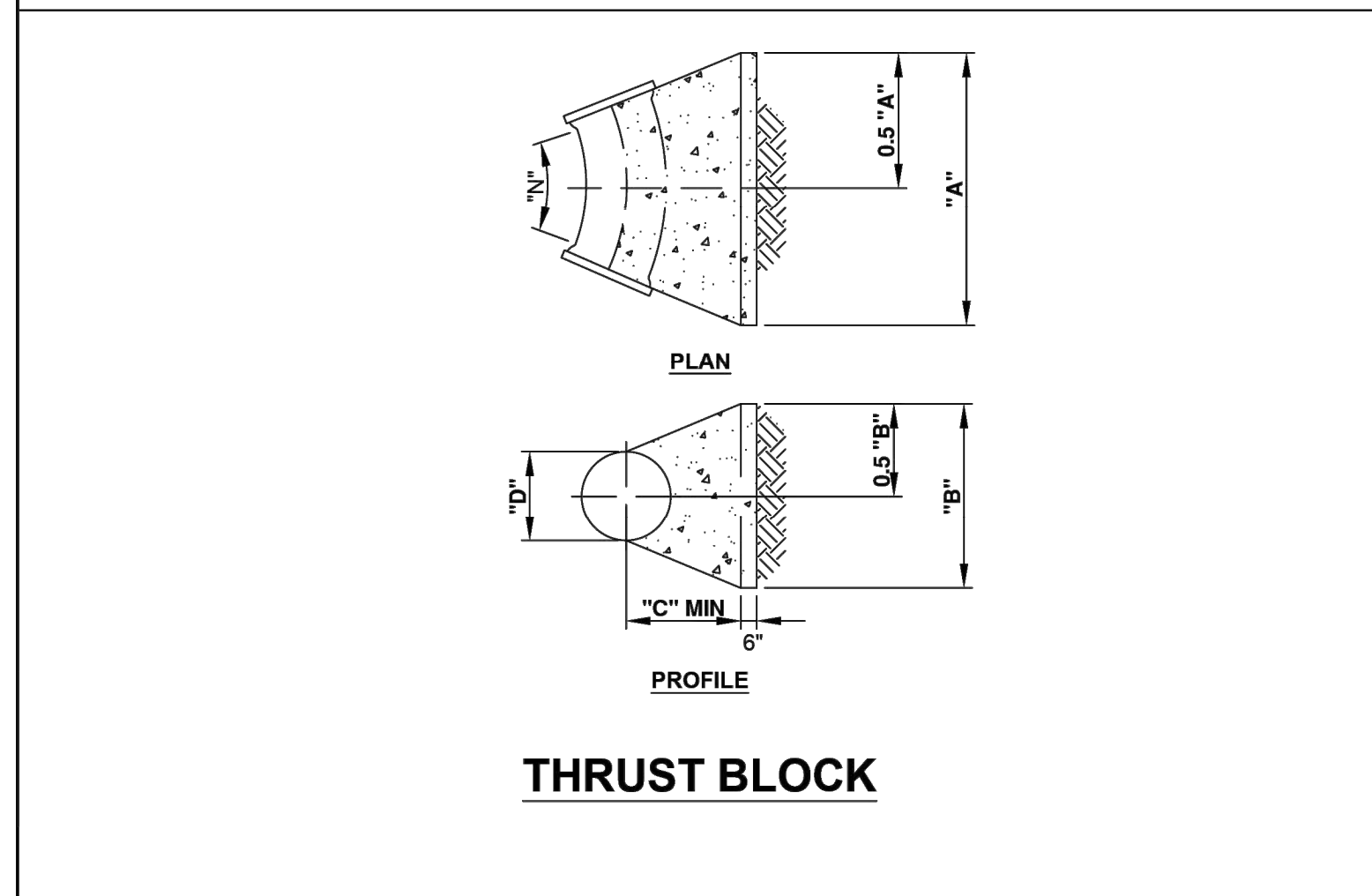
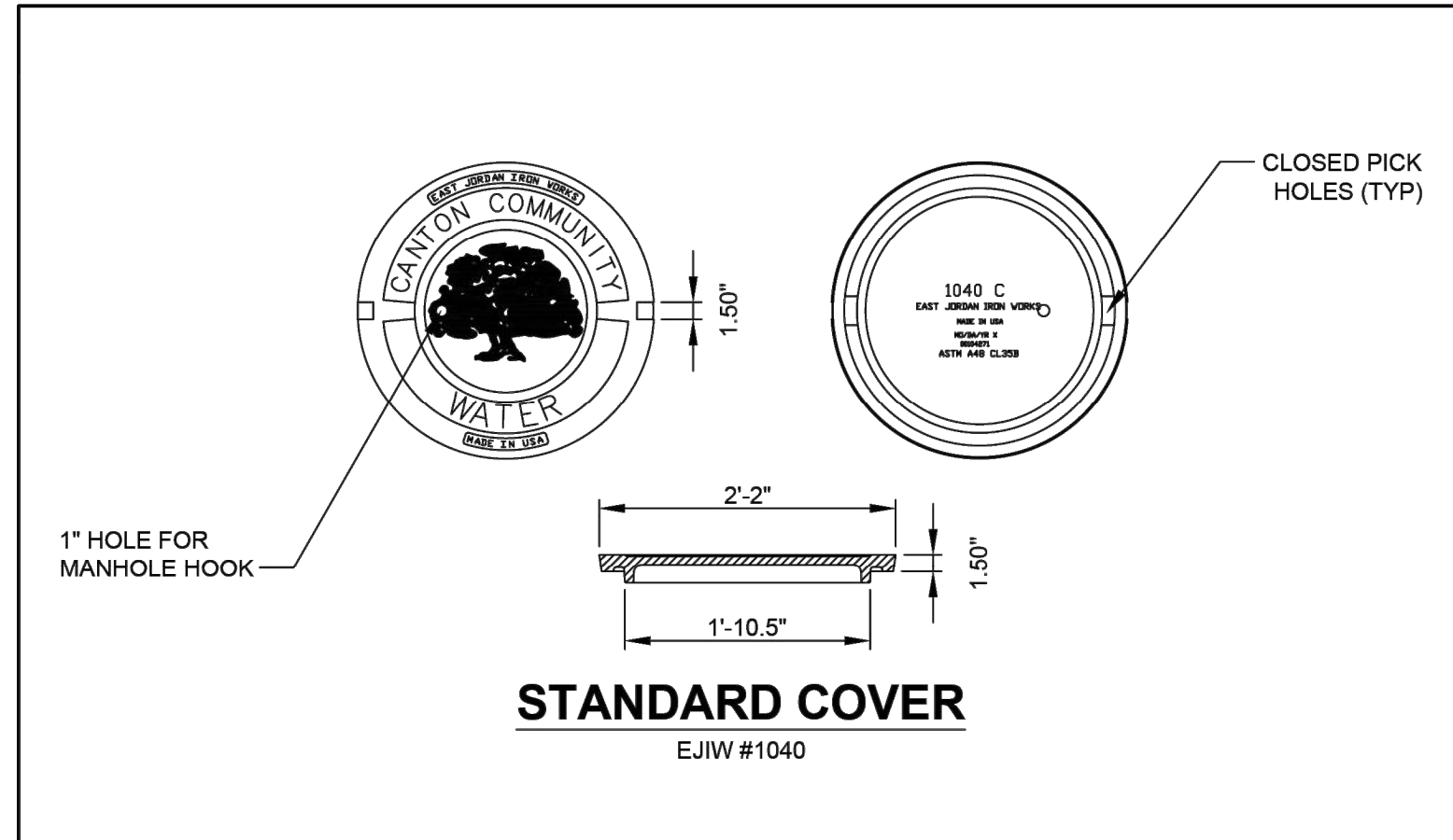
CANTON CHARTER TOWNSHIP  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN

CANTON CHARTER TOWNSHIP WATER MAIN STANDARD DETAILS



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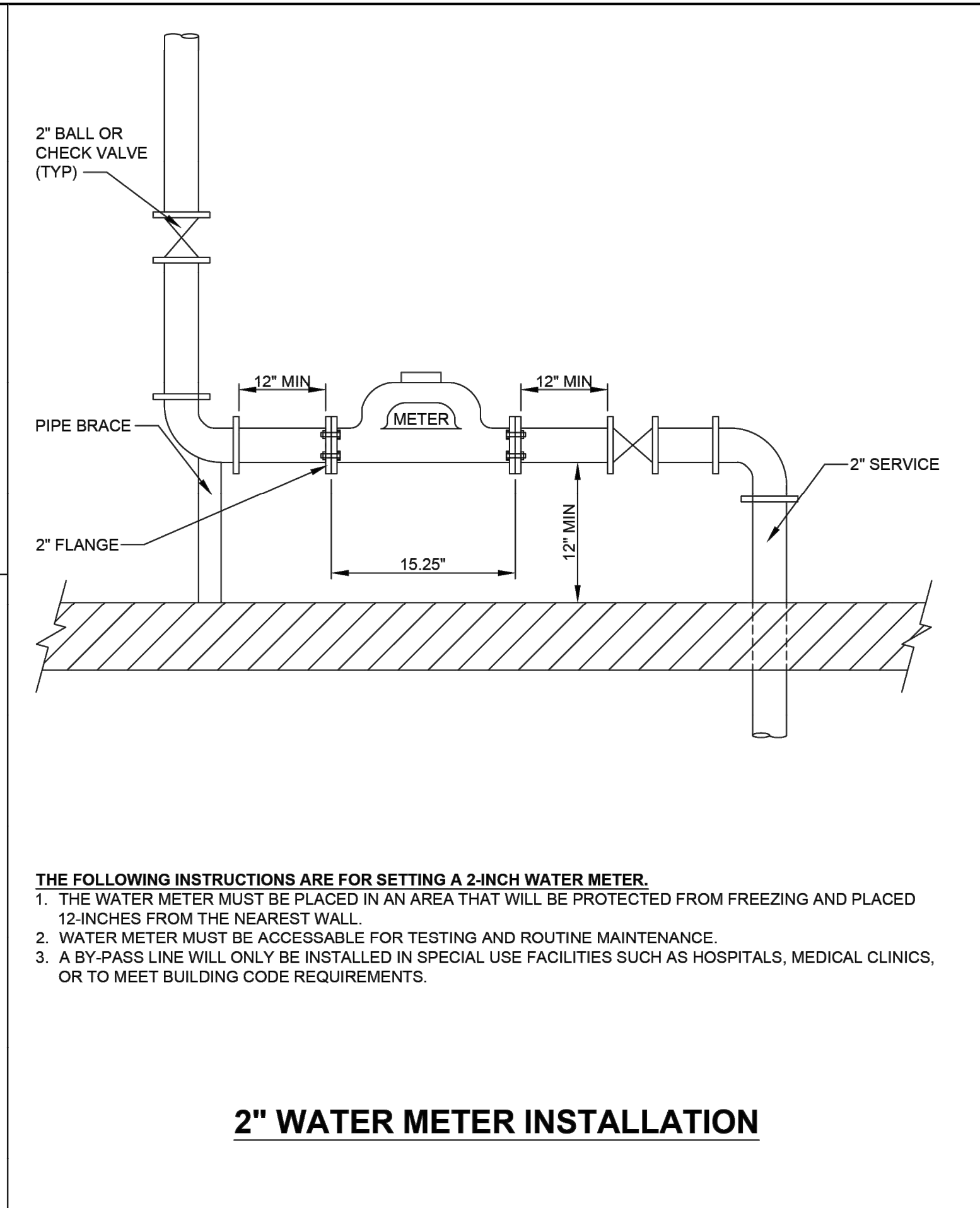


BEND	THRUST BLOCK DIMENSION	DIMENSION OF WATER MAIN					
		6"	8"	10" & 12"	14" & 16"	18" & 20"	24" +
90°	A	2'-9"	3'-0"	5'-6"	6'-0"	9'-0"	11'-0"
	B	1'-6"	2'-6"	3'-0"	5'-0"	5'-0"	6'-0"
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"
45°	A	2'-0"	2'-0"	3'-6"	5'-6"	6'-6"	7'-0"
	B	1'-6"	2'-0"	2'-6"	3'-0"	4'-0"	5'-0"
	C	1'-0"	1'-3"	1'-6"	1'-9"	1'-9"	2'-0"
22 1/2°	A	1'-6"	1'-9"	3'-0"	3'-6"	4'-0"	4'-0"
	B	1'-0"	1'-3"	1'-6"	2'-0"	3'-0"	4'-6"
	C	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"
11 1/4°	A	1'-0"	1'-3"	1'-6"	2'-0"	3'-1"	3'-0"
	B	1'-0"	1'-3"	1'-6"	2'-0"	2'-0"	3'-0"
	C	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"
TEE	A	2'-0"	2'-6"	4'-0"	5'-0"	8'-0"	9'-0"
	B	1'-6"	2'-0"	3'-0"	4'-0"	4'-0"	5'-0"
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"
PLUG	A	2'-0"	2'-6"	4'-0"	5'-0"	8'-0"	9'-0"
	B	1'-6"	2'-0"	3'-0"	4'-0"	4'-0"	5'-0"
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"

**THRUST BLOCK NOTES:**

- 3500 P.S.I. CONCRETE POURED AGAINST UNDISTURBED EARTH.
- WHEN "A" DIMENSION IS 6 FEET OR GREATER, USE #4 RE-BAR AT 12-INCH CENTERS EACH WAY.
- THE TABLE IS BASED ON SOIL BEARING OF 1500 P.S.F. THEREFORE, WHEN PLACED IN MUCK, PEET, OF OTHER UNSUITABLE SOILS HAVING A SOIL BEARING LESS THAN 1500 P.S.F., THE CONTRACTOR SHALL PROVIDE SUITABLE ADDITIONAL BLOCKING, ENCASMENT, OR RESTRAINTS.
- BLOCKING IN BORE PIT EXCAVATIONS SHALL BE AGAINST UNDISTURBED SOIL.

**THRUST BLOCK DIMENSIONS**



**SPECIFICATIONS FOR 2" WATER SERVICE**

THE BUILDER OR OWNER WILL BE REQUIRED TO PURCHASE SPECIFIED MATERIALS SHOWN BELOW:

- FOR AN 8-INCH MAIN A 8" X 2" DOUBLE-STRAP CLAMP (#H-16130)
- FOR AN 6-INCH MAIN A 6" X 2" DOUBLE-STRAP CLAMP (#H-16126)
- 2" CORP STOP (#H-15000)
- 2" CORP STOP (#H-15204 IF OUT - #H15201)
- 2" CURB BOX (#H-10386) WITH PART NUMBER 580562 - 4" ROD
- 3 PART UNION (#H-15400)
- TYPE "K" COPPER PIPE

THE WATER TAP MUST BE MADE UNDER TOWNSHIP SUPERVISION.

CANTON TOWNSHIP REQUIRES 48 HOURS NOTIFICATION PRIOR TO ALL TAP INSTALLATIONS. CALL THE PUBLIC WORKS ENGINEERING DIVISION DURING NORMAL BUSINESS HOURS AT (734) 394-5150 TO SCHEDULE INSPECTION.

A MINIMUM OF 48 HOUR NOTIFICATION IS REQUIRED FOR METER PICK UP. WATER TEMPLATES AND WATER METERS MAY BE PICKED UP AT THE TOWNSHIP DPW BUILDING.

LIQUID TEFLON OR PIPE DOPE IS ONLY TO BE USED ON THE CORPORATION STOP AND DOUBLE-STRAP CLAMP CONNECTION.

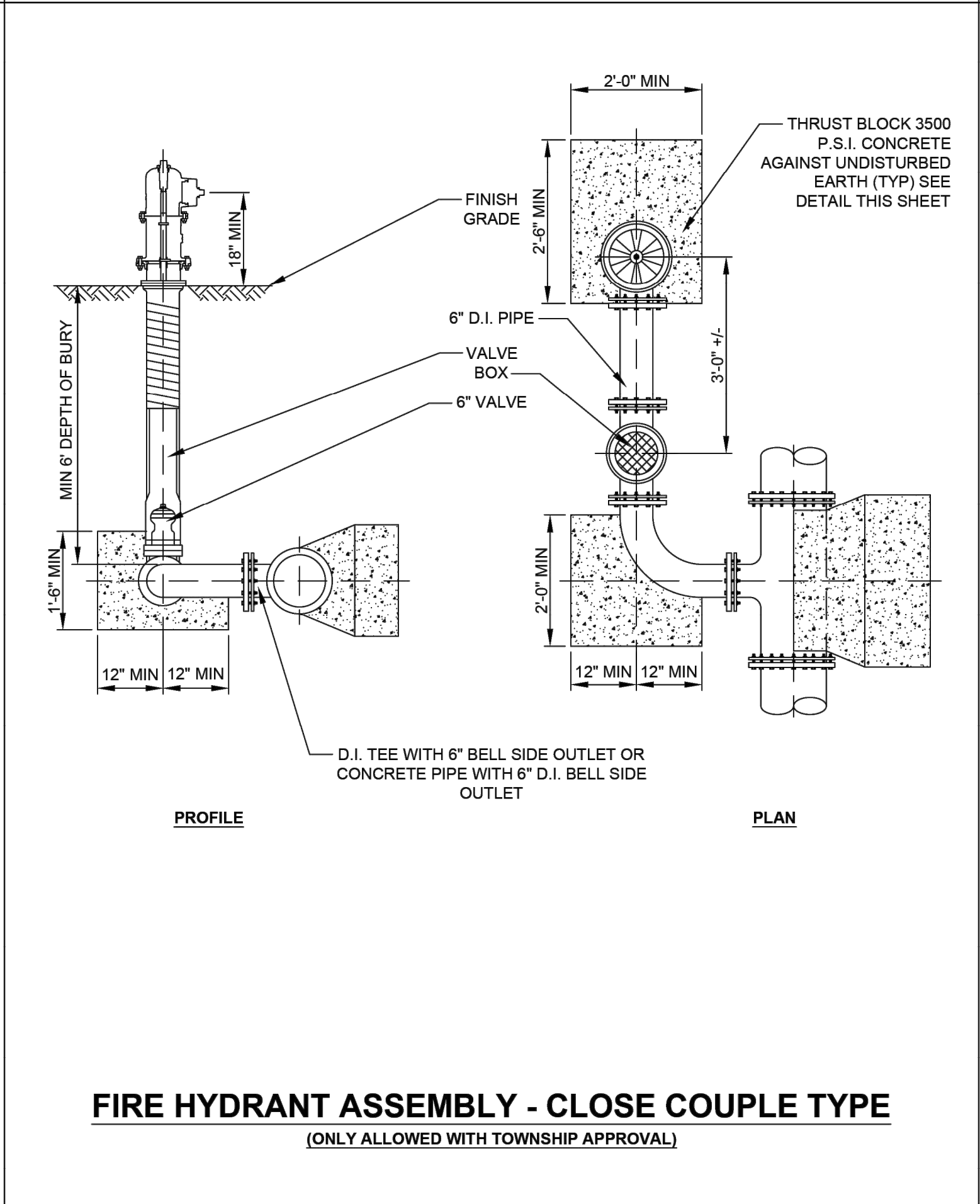
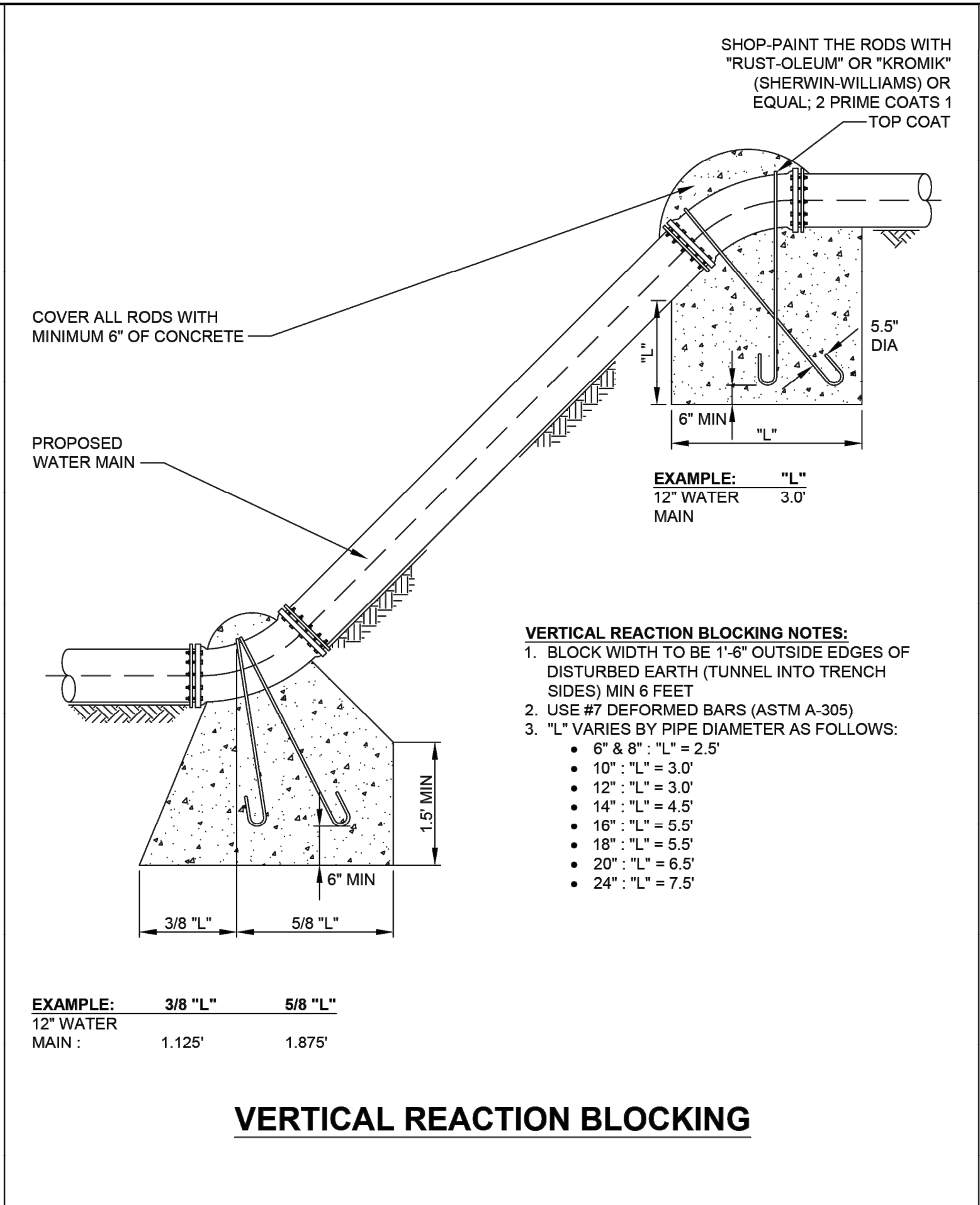
MUELLER PRODUCTS MAY BE OBTAINED FROM:  
National WaterWorks 1-(734) 480-2211  
2820 East Michigan Ave. 1-(734) 480-2233 - Fax  
Ypsilanti, MI 48198 www.natllww.com

EAST JORDAN PRODUCTS MAY BE OBTAINED FROM:  
East Jordan Iron Works, Inc. 1-(800) 231-3549  
13000 North End Ave. 1-(248) 546-4612 - Fax  
Oak Park, MI 48237 www.ejw.com

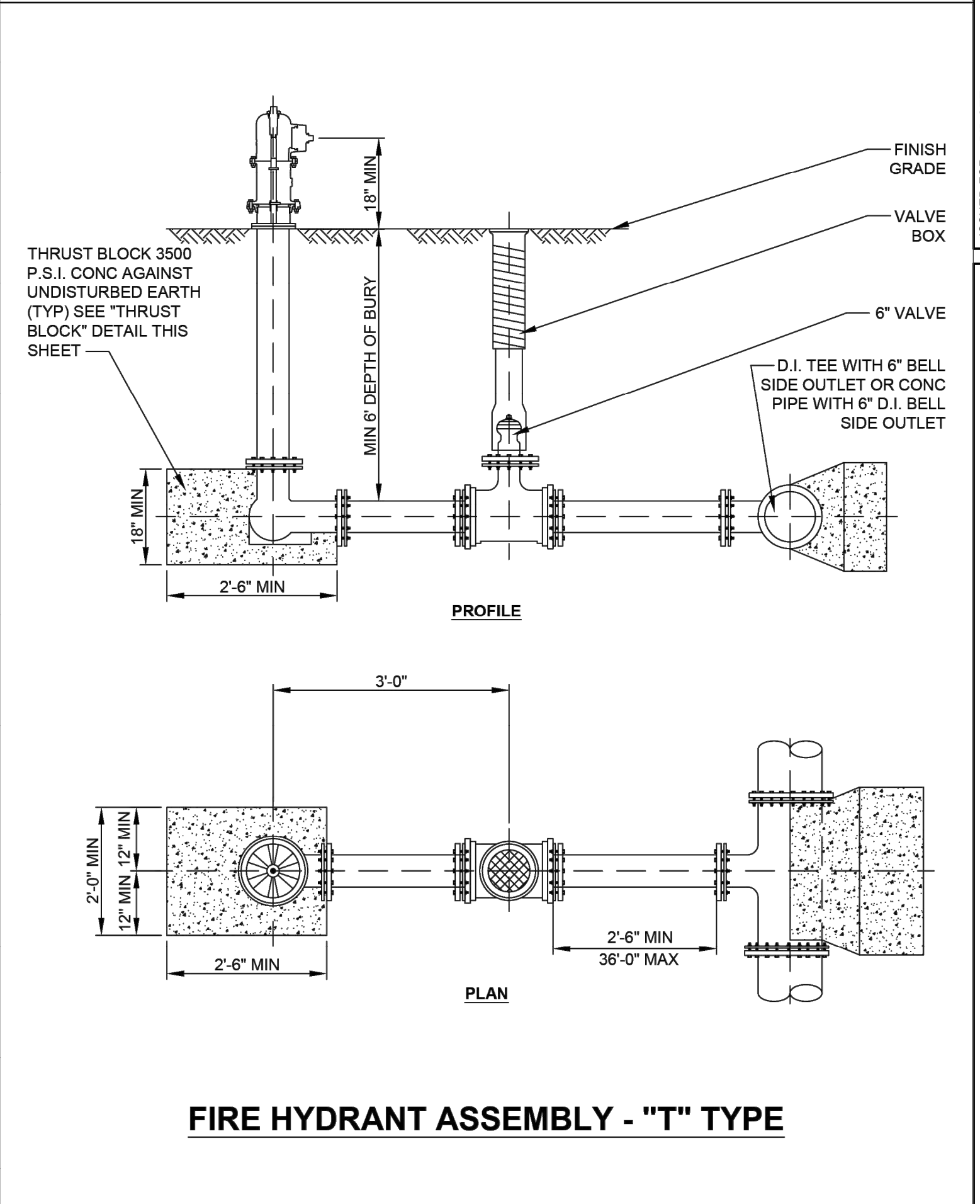
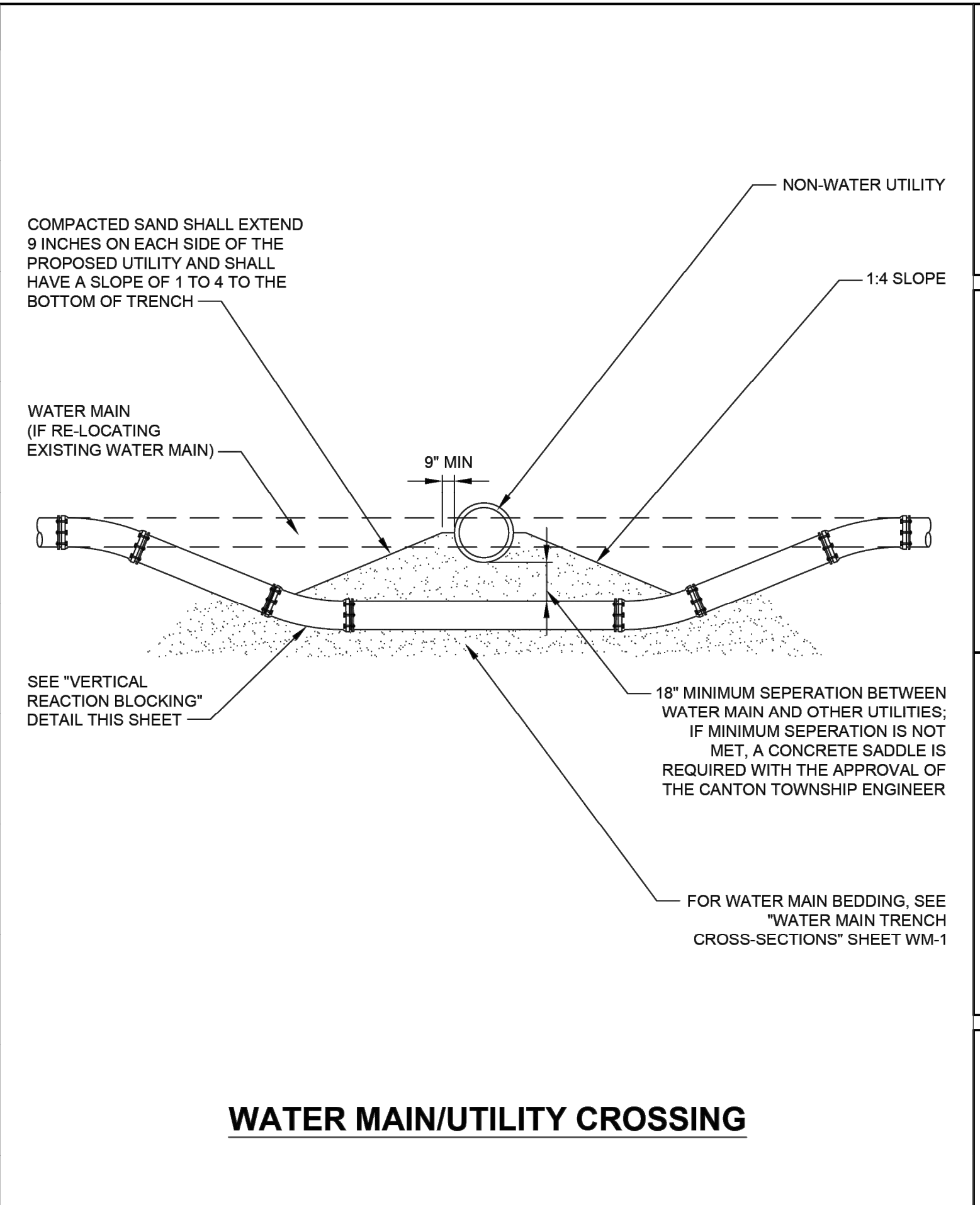
**FIRE HYDRANT SPECIFICATIONS**

- INSTALL ADDITIONAL FITTINGS AND SPIGOT PIPE AS NECESSARY BETWEEN WATER MAIN & VALVE BOX TO ADJUST FOR PROPER LOCATION AND GRADE OF HYDRANT.
- VERTICAL REACTION BLOCKING WILL BE REQUIRED ON ALL VERTICAL HYDRANT BENDS IN EXCESS OF 11 1/2 DEGREES.
- WHERE HYDRANTS ARE INSTALLED ON EXISTING MAINS, PLACE CONCRETE BRICK OR BLOCK TO UNDISTURBED EARTH AND ENCASE WITH CONCRETE AND/OR USE RESTRAINING GLANDS.
- ALL BOLTS TO BE "COR-BLUE T-TYPE".
- FIRE HYDRANTS ARE TO BE RED EAST JORDAN IRON WORKS 5BR-250 TRAFFIC MODEL BREAKAWAY HYDRANTS WITH MECHANICAL FITTINGS.
- HYDRANTS ARE TO BE PLACED AT THE FOLLOWING LOCATIONS UNLESS OTHERWISE NOTED ON THE PLANS:  
A. 40- FEET OFF OF THE SECTION LINE ON SECTION LINE ROADS  
B. 33- FEET OFF OF 1/4 LINES ON 1/4 LINE ROADS  
C. 22- FEET OFF OF CENTER LINE ON RESIDENTIAL STREETS
- HYDRANTS ARE TO BE INSTALLED PLUMB AND HAVE THEIR PUMP NOZZLES FACING THE ROAD OR AS DIRECTED BY THE CANTON TOWNSHIP ENGINEER.
- HYDRANT LEADS GREATER THAN 10- FEET IN LENGTH FROM THE TRANSMISSION LINE SHALL BE CONSTRUCTED WITH CLASS S4 8- INCH DUCTILE IRON PIPE.
- NO HYDRANT SHALL BE PLACED WITHIN 10- FEET OF ANY ROADWAY INTERSECTION OR DRIVEWAY.

**SPECIFICATIONS FOR 2" WATER SERVICE AND FIRE HYDRANTS**



**FIRE HYDRANT ASSEMBLY - "T" TYPE**



**FIRE HYDRANT ASSEMBLY - "T" TYPE**

**CHARTER TOWNSHIP OF CANTON**  
1150 CANTON CENTER S.  
CANTON, MI 48188-1699  
PH: 734-394-5150 / FAX: 734-394-5183

**WATER MAIN STANDARD DETAILS**

DATE: 11/30/22  
SCALE: NONE

SHEET: WM-2



DRAWING PATH: P:\0126\_0165013\240020\_Cherry Hill\_Village\_Phase\_1\Drawings\Std\Sheet\240020\_DET\_TOC.dwg Nov 22, 2024 - 2:57pm



**CHARTER TOWNSHIP OF CANTON**  
1150 CANTON CENTER S.  
CANTON, MI 48188-1699  
PH: 734-394-5150 / FAX: 734-394-5183

**WATER MAIN NOTES**

GENERAL

- ALL CONSTRUCTION PROCEDURES AND MATERIALS USED ON ALL WATERMAIN PROJECTS SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS OF THE TOWNSHIP ENGINEER, GREAT LAKES WATER AUTHORITY (GLWA), AND THE AMERICAN WATER WORKS ASSOCIATION (AWWA).
- WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL CONFORM TO WAYNE COUNTY GENERAL NOTES GN-1.
- THE TOWNSHIP'S WATER DEPARTMENT WILL BE THE ONLY AUTHORIZED PERSONNEL TO OPERATE THE VALVES ON THE MAIN LINE.
- A 6-FOOT MINIMUM COVER WILL BE REQUIRED AT ALL LOCATIONS UNLESS APPROVED BY THE TOWNSHIP ENGINEER.
- SPECIAL CARE MUST BE TAKEN WHEN EXPOSING EXISTING WATER MAINS. WHEN EXCAVATING UNDER EXISTING WATER MAIN, THE EXISTING MAIN MUST BE SUPPORTED AS DIRECTED BY THE TOWNSHIP ENGINEER. SPECIAL SUPPORT OR SHORING WILL BE REQUIRED FOR TRANSITE AND A.C. PIPE (SEE MD-1 STANDARD PIPE SUPPORT).
- ALL PROPOSED 8-INCH OR LARGER DIAMETER MAINS THAT EXCEED 50 LINEAL FEET MUST BE CLEANED BY INSERTING A FOAM CLEANING SWAB DEVICE (ACCS AQUA SWAB CRISS-CROSS OR APPROVED EQUAL). A PLAN INDICATING THE PIGGING LAYOUT PLAN AND A SCHEDULE TO PIG MUST BE PROVIDED PRIOR TO COMPLETION OF WATER MAIN INSTALLATION. ALLOW 48-HOURS TO REVIEW AND APPROVE THE LAYOUT PLAN.
- RESTRAINED JOINTS ARE REQUIRED IN LIEU OF THRUST BLOCKS. RESTRAINED JOINTS FOR PIPE SIZES UP TO 16" SHALL BE DOMESTIC MEGA LUG WITH COR-BLUE BOLTS. RESTRAINED JOINTS FOR PIPE SIZES OVER 16" SHALL BE AMERICAN DUCTILE IRON FLEX-RING JOINT OR APPROVED EQUAL.
- DUCTILE IRON PIPE SHALL BE PROVIDED WITH A RUBBER-GASKET JOINT IN ACCORDANCE WITH AWWA C111 AND/OR C 115.
- ALL FITTINGS SHALL BE DOMESTIC DUCTILE IRON CONFORMING TO AWWA C110 OR C153.
- PIPE TO BE INSTALLED IN AREAS POTENTIALLY CONTAMINATED MUST HAVE RUBBER GASKETS IN ACCORDANCE WITH AWWA C111 AND/ OR C115 AND SHALL COMPLY WITH AWWA C600. PLASTIC PIPE MATERIALS ARE NOT ALLOWED.
- TRACING WIRE SHALL BE PROVIDED FOR ALL NON-METALLIC WATERMAIN. WIRE SHALL BE COPPER CLAD, 12 GAUGE SOLID OR WOVEN BLUE COATED, INSULATED PER TOWNSHIP REQUIREMENTS.
- BEDDING AND BACKFILL INSTALLATION MUST COMPLY WITH AWWA C600 OR C605.

GATEWELL, VALVE, AND TAPPING SLEEVE

- ALL NEW AND EXISTING WATER MAIN STRUCTURES MUST BE WATER TIGHT. IF WORK IS TO BE DONE ON AN EXISTING STRUCTURE, THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE STRUCTURE IS WATER TIGHT UPON COMPLETION OF THE WORK.
- GATE WELLS AND OTHER WATER MAIN STRUCTURES SHALL NOT BE CONSTRUCTED UNDER DRIVEWAYS, PAVEMENT, DRIVE APPROACHES OR SIDEWALKS.
- ALL SURFACE STRUCTURES, SUCH AS HYDRANTS, GATE WELLS, AND VALVE BOXES MUST BE SET TO GRADE.
- PLACE SAND BACKFILL WITHIN THREE FEET OF ALL STRUCTURES INCLUDING VALVE WELLS, D-BOXES AND FIRE HYDRANTS.
- ALL STRUCTURES MUST BE 5-INCH THICK PRECAST CONCRETE. A.S.T.M. C-478 APPROVED, WITH 1/2-INCH CEMENT PLASTER ON JOINTS INSIDE AND OUT. UNDER TOWNSHIP ENGINEER APPROVAL, STRUCTURES MAY BE 5-INCH THICK CONCRETE BLOCK STRUCTURE CONSTRUCTED IN THE FIELD WITH 1/2-INCH CEMENT PLASTER COAT INSIDE AND OUT.
- ALL 8-INCH VALVES OR GREATER MUST BE LOCATED IN A GATE WELL. THE TOWNSHIP MAY REQUIRE VALVES LESS THAN 8-INCH TO BE LOCATED IN A GATE WELL.
- ALL VALVES ARE TO ROTATE CLOCKWISE TO OPEN AND HAVE A RED OPERATING NUT. 6-INCH THROUGH TWELVE 12-INCH DIAMETER GATE VALVES SHALL BE MUELLER A-2360, E.J.I.W. FLOW-MASTER 27031 OR CLOW F6104 SLIP SEAL, OPEN RIGHT RESILIENT WEDGE TYPE VALVES.
- ALL VALVE ASSEMBLY BOLTS MUST BE STAINLESS STEEL.
- ALL VALVES SHALL COMPLY WITH AWWA C515 SPECIFICATIONS.
- ANY NEW WATER MAIN TAPPING AN EXISTING LINE SHALL BE DONE BY USING A STAINLESS STEEL TAPPING SLEEVE AND A CUTTER THAT IS ONE COMMONLY PRODUCED DIAMETER SMALLER THAN THE NEW MAIN. THESE CONNECTIONS MUST COMPLY WITH AWWA C223-19.

PIPE

- THE TYPE OF PIPE FOR WATER MAIN 3 INCHES IN DIAMETER AND LARGER IS TO BE CLASS 54 DUCTILE IRON, HDPE, C900 OR C909. 1-INCH AND TWO 2-INCH SERVICE LEADS SHALL BE TYPE "K" COPPER.
- ALL HORIZONTAL FITTINGS SHALL BE PUSH-ON TYPE O-RING JOINTS; SELF LOCKING JOINTS ARE NOT ACCEPTABLE.
- VERTICAL FITTINGS ARE TO BE MECHANICALLY FASTENED WITH STAINLESS THREADED ROD.
- ALL PIPES MUST BE CLEAN INSIDE PRIOR TO INSTALLATION.
- ALL BOLTS MUST BE COR-BLUE T-BOLT TYPE.
- ALL FITTINGS SHALL BE DOMESTIC DUCTILE IRON, PRESSURE RATING 250 PSI CONFORMING TO ANSI A21.10 (AWWA C110).
- ALL DUCTILE IRON WATERMAIN SHALL MEET THE FOLLOWING SPECIFICATION. DUCTILE IRON PIPE SHALL BE ANSI 1-A21.51 (AWWA-C151) STD. WALL THICKNESS, CEMENT LINED WITH BITUMINOUS SEALCOAT CLASS 54 FOR SIZES 6" THRU 16" CLASS 55 FOR 20" AND CLASS 55 FOR 24" PIPE. PRESTRESSED CONCRETE CYLINDER PIPE (P.C.C.P.) SHALL BE AWWA C-301 SPECIFICATION FOR SIZES LARGER THAN 24".
- WATER MAINS ARE TO BE PLACED LEVEL THROUGH ALL STRUCTURES AND VALVES.
- ALL WATER MAIN PIPES SHALL HAVE M.D.O.T. CLASS III OR WAYNE COUNTY TRENCH "B" BEDDING UNLESS OTHERWISE NOTED ON THE PLANS.
- FOR WATER SERVICE LEADS, NO JOINTS OR UNIONS WILL BE PERMITTED UNDER EXISTING OR PROPOSED PAVEMENT.
- DURING CONSTRUCTION, ANGLES OR BENDS ARE TO BE MARKED AT GRADE LEVEL WITH 2-INCH X 2-INCH BOARD FOR LOCATION PURPOSES.
- WHEN BORING AND JACKING THE CONTRACTOR MUST EXPOSE THE EXISTING LINES TO VERIFY ELEVATIONS FOR TAPPING.
- WHEN BORING AND JACKING, THE CASING PIPE ENDS MUST BE SEALED WITH NON-SHRINK GROUT. BORING AND JACKING SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE THE EDGES OF THE TRENCH.
- BORE AND JACK MUST MEET MDOT AND/OR RAILROAD STANDARD SPECIFICATIONS AWWA C600.
- DIRECTIONAL DRILLING MUST COMPLY WITH AWWA C600 OR AWWA C605 STANDARD SPECIFICATION.
- APPROVED BACKFLOW PREVENTION MUST BE USED WHEN MAKING TEMPORARY CONNECTIONS TO THE EXISTING SYSTEM. BACKFLOW PREVENTORS WILL BE PROVIDED BY CONTRACTOR AND INSTALLED AND TESTED BY TOWNSHIP PERSONNEL.

FIRE HYDRANTS

- ALL HYDRANTS SHALL BE E.J. #5BR-250 MODEL AND SHALL CONFORM TO AWWA SPECIFICATIONS C-502 AS AMENDED, AND SHALL HAVE A MINIMUM 6" VALVE OPENING WHICH CLOSES WITH THE WATER PRESSURE.
- AUXILIARY VALVES MUST BE INSTALLED ON ALL FIRE HYDRANT LEADS.
- THE FIRE HYDRANT LEAD MUST BE A MINIMUM OF SIX INCHES IN DIAMETER. ANY FIRE HYDRANT LEAD LONGER THAN 10-FEET MUST BE A MINIMUM OF 8-INCHES IN DIAMETER.
- ALL FIRE HYDRANTS MUST BE RESTRAINED USING DOMESTIC MEGA LUGS WITH COR-BLUE BOLTS AND THRUST BLOCKED.
- FLUSHING HYDRANTS MUST BE SIZED TO PROVIDE FLOWS THAT WILL GIVE A VELOCITY OF AT LEAST 2.5 FEET PER SECOND IN THE WATER MAIN BEING FLUSHED AND MUST COMPLY WITH AWWA C600 OR C605 STANDARD SPECIFICATIONS.
- FIRE HYDRANTS SHALL BE FURNISHED WITH THE DRAINAGE HOLE FACTORY PLUGGED AND CONFIRMING TO THE APPLICABLE AWWA STANDARDS.
- THE TOWNSHIP'S WATER DEPARTMENT WILL BE THE ONLY AUTHORIZED PERSONNEL TO APPROVE THE AUXILIARY VALVES AND FIRE HYDRANTS.

TESTING

- PRIOR TO CHLORINATING THE WATER MAIN, THE MAIN SHALL BE FILLED WITH POTABLE WATER TO ELIMINATE AIR POCKETS AND FLUSHED TO REMOVE PARTICULATES. THE FLUSHING VELOCITY IN THE MAIN SHALL NOT BE LESS THAN 3.0 FT/SEC PER AWWA C600-17. THE MAIN SHALL BE DISINFECTED PER AWWA C651-14 AND THEN FLUSHED FOLLOWING THE CHLORINATION.
- BACTERIOLOGICAL ANALYSIS SHALL BE CONDUCTED PER AWWA C651-14. ALL WATER MAIN MUST BE MINIMUM 8 INCHES. NO BACTERIAL TEST WILL BE PERFORMED UNTIL PRESSURE TEST HAVE BEEN PASSED.
- PRESSURE TEST AND LEAKAGE TEST INSTALLATION STANDARDS AWWA C600 OR C605.



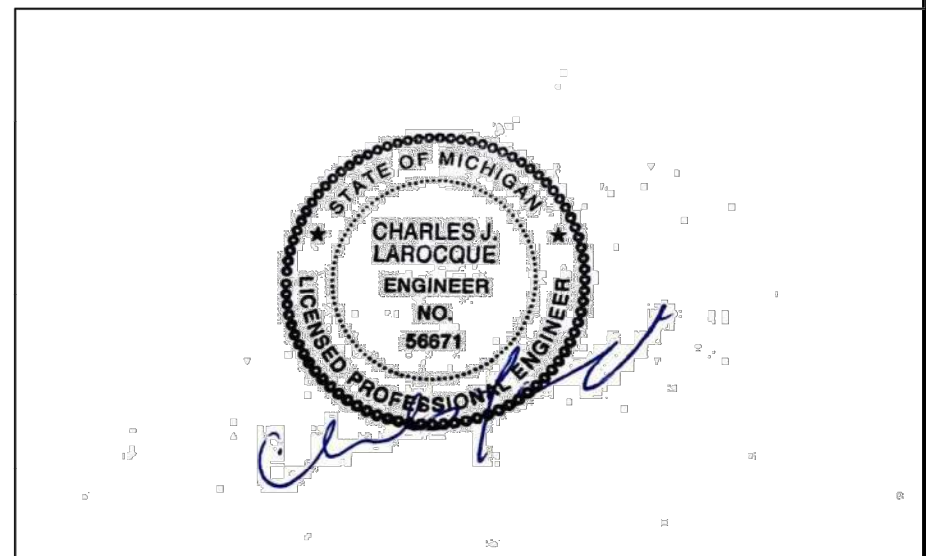
ISSUED FOR:	BID SET	2024/1/22
REVISION:	DESCRIPTION	DATE

PROJECT NUMBER: 0133-24-020

CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN

CANTON CHARTER TOWNSHIP WATER MAIN STANDARD DETAILS

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DATE: 11/30/22  
SCALE: NONE

SHEET: WM-3

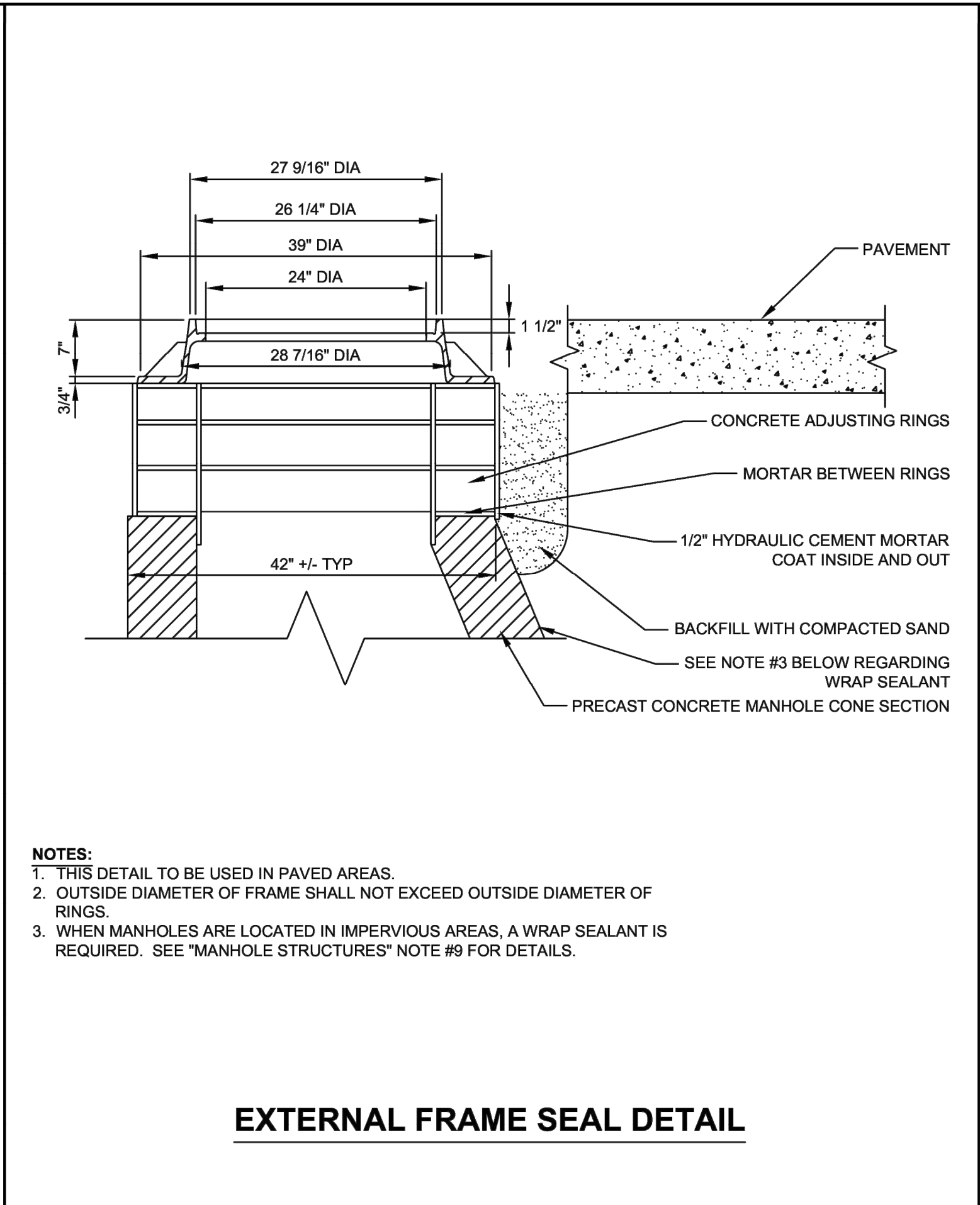
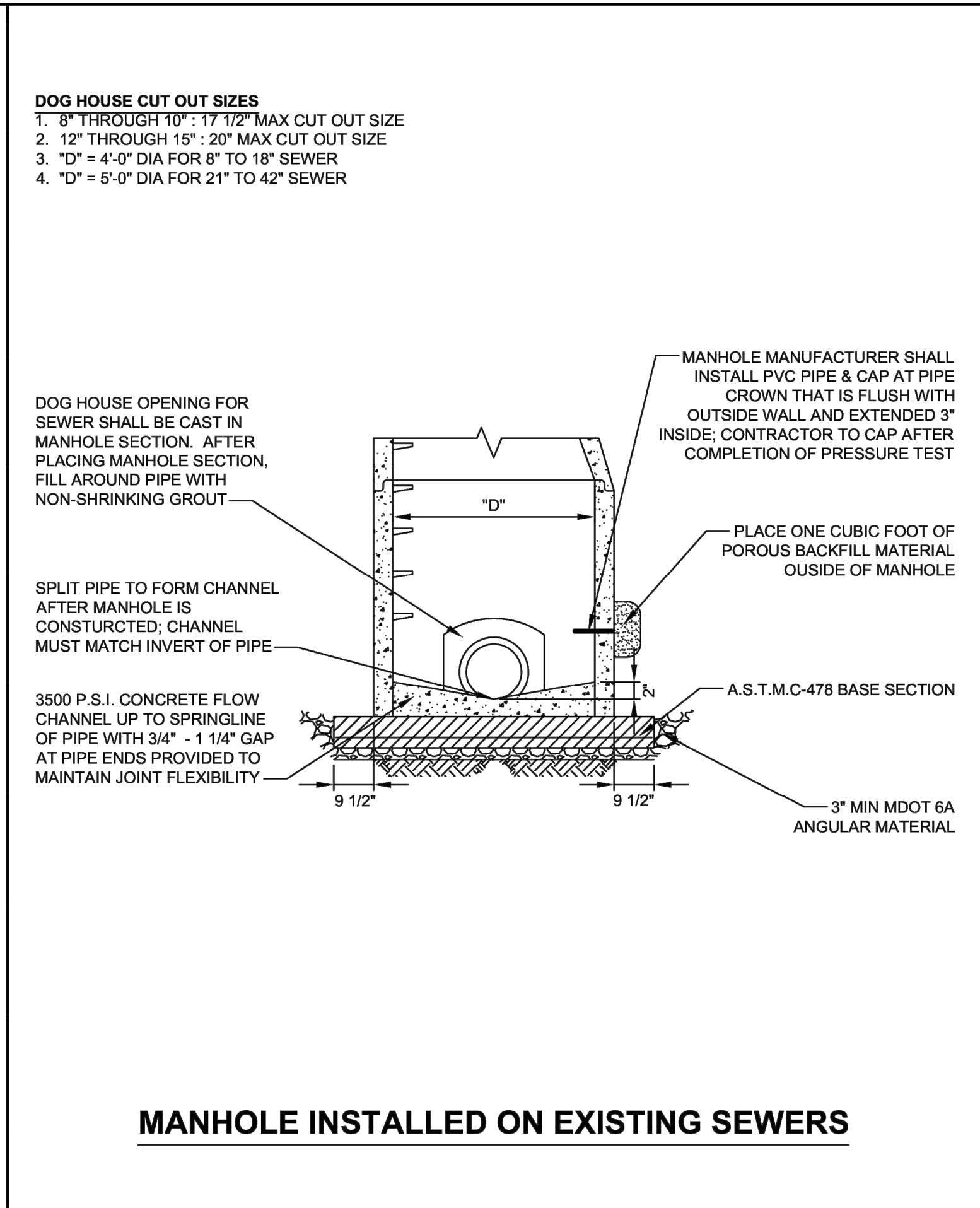
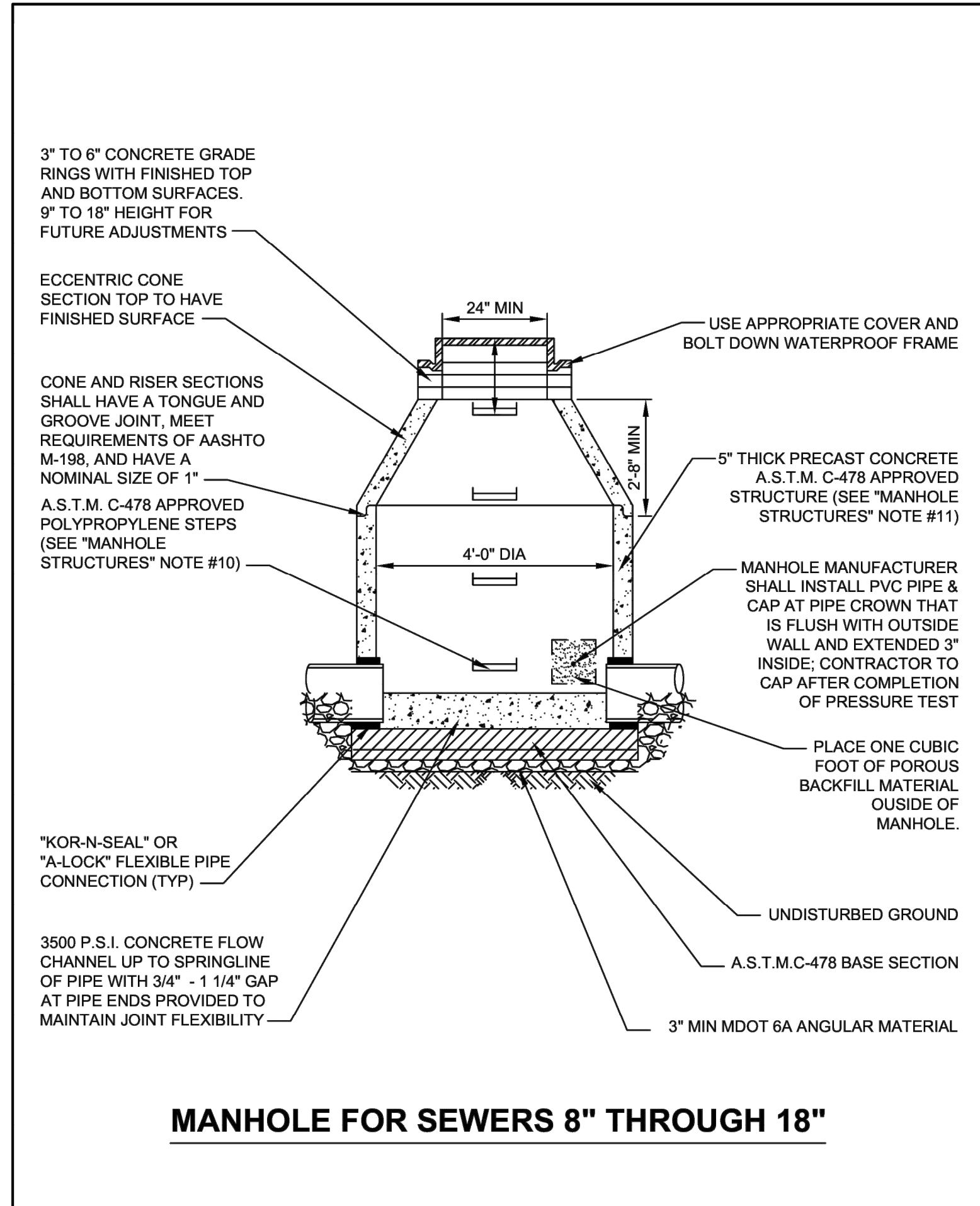
# WATER MAIN STANDARD DETAILS



Know what's below. Call before you dig.

C-514





**SANITARY SEWER NOTES CONTINUED:**

**MANHOLE STRUCTURES CONTINUED**

3. ALL MANHOLE RIMS SHALL BE SET TO GRADE OR AS INDICATED ON THE PLANS.
4. DIFFERENTIAL OF EXCAVATION AROUND EXISTING MANHOLES SHALL NOT EXCEED 6 FEET.
5. ALL STRUCTURES SHALL HAVE 95% CRUSHED ANGULAR STONE BEDDING (MDOOT 6A).
6. FINISH GRADE FOR MANHOLES SHALL BE 3/4 OF AN INCH PER FOOT ABOVE THE TOP OF THE SIDEWALK.
7. EXTERIOR DROP CONNECTIONS ARE REQUIRED WHENEVER A SEWER INVERT IS 18 INCHES OR GREATER ABOVE THE MANHOLE FLOW CHANNEL INVERT. REQUIRED DROP CONNECTIONS MUST BE APPROVED BY THE CANTON TOWNSHIP ENGINEER.
8. ALL PRE-CAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
9. "WRAP SEAL" (OR APPROVED EQUAL) MUST BE USED WHEN A MANHOLE IS WITHIN, OR A PORTION IS TOUCHING A PAVED AREA (INCLUDING SIDEWALKS AND DRIVEWAYS) TO A DEPTH OF 18 INCHES FROM THE TOP OF THE MANHOLE.
10. MANHOLE STEPS ARE TO BE INSTALLED AT THE PLANT BY THE MANUFACTURER OF THE STRUCTURE. THE STEPS ARE TO BE 16 INCHES ON CENTER, MADE OF POLYPROPYLENE AND A.S.T.M. C-478 APPROVED. STEPS ARE TO BE LOCATED AT 90 DEGREES TO THE CENTERLINE OF THE MAIN SEWER LINE, FACING AWAY FROM THE ROAD WHERE POSSIBLE. THE BOTTOM STEP SHOULD BE LOCATED A MAXIMUM OF 24 INCHES ABOVE THE FLOOR.
11. ALL STRUCTURES MUST BE 5-INCH THICK PRE-CAST CONCRETE. A.S.T.M. C-478 APPROVED, WITH 1/2-INCH CEMENT PLASTER ON JOINTS INSIDE AND OUT. UNDER CANTON TOWNSHIP ENGINEER APPROVAL, STRUCTURES MAY BE 5-INCH THICK CONCRETE BLOCK STRUCTURE CONSTRUCTED IN THE FIELD WITH 1/2-INCH CEMENT PLASTER COAT INSIDE AND OUT.
12. MANHOLE SPACING SHALL NOT BE MORE THAN 400 FEET.
13. MANHOLE SECTION JOINTS SHALL HAVE O-RING SEALS OR PREMIUM RUBBER GASKETS.
14. PIPE TO MANHOLE CONNECTIONS SHALL BE FLEXIBLE AND WATERTIGHT.
15. MANHOLES ARE REQUIRED AT ALL DEAD ENDS, PIPE INTERSECTIONS, AND CHANGES IN PIPE ALIGNMENT, SLOPE, AND SIZE.

**PIPES & LEADS**

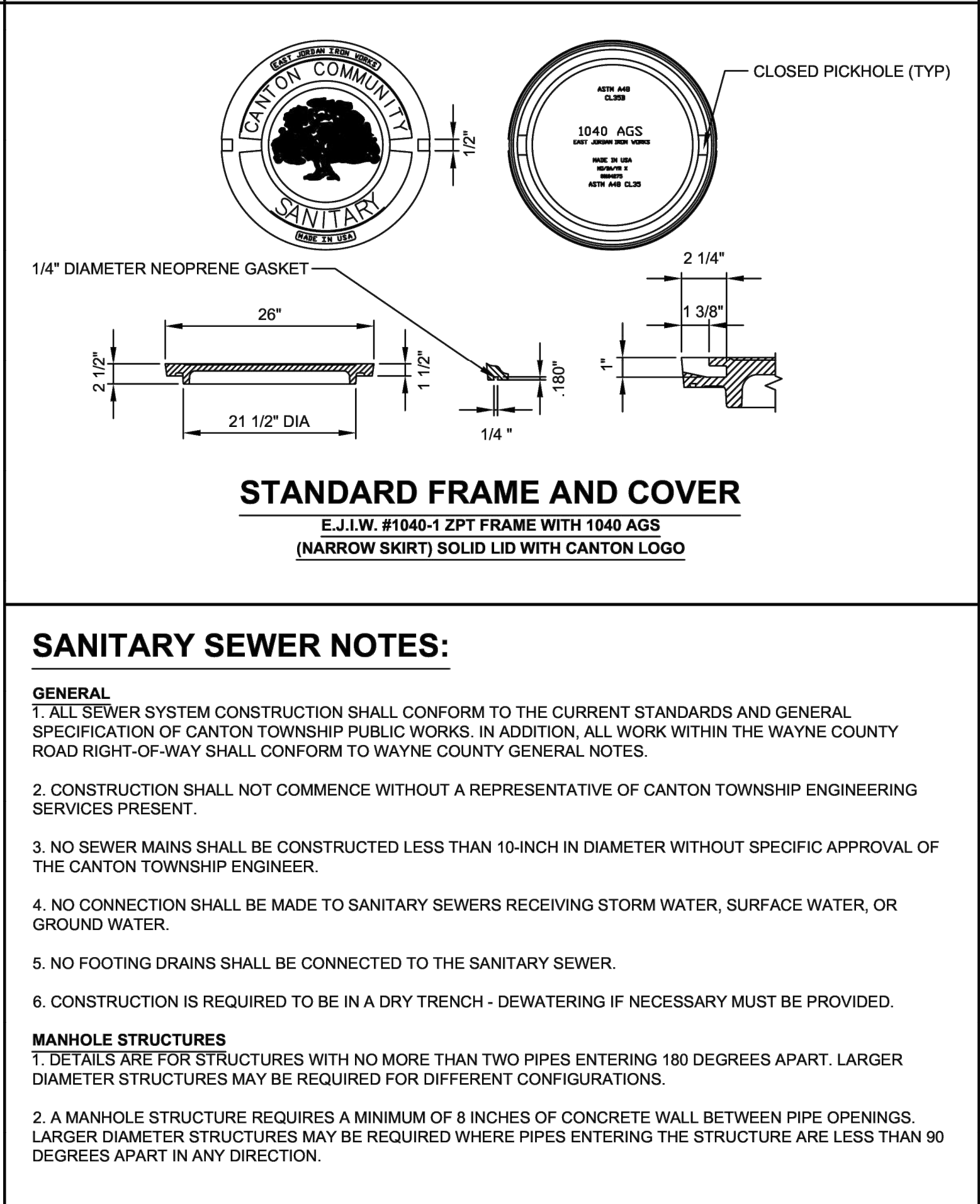
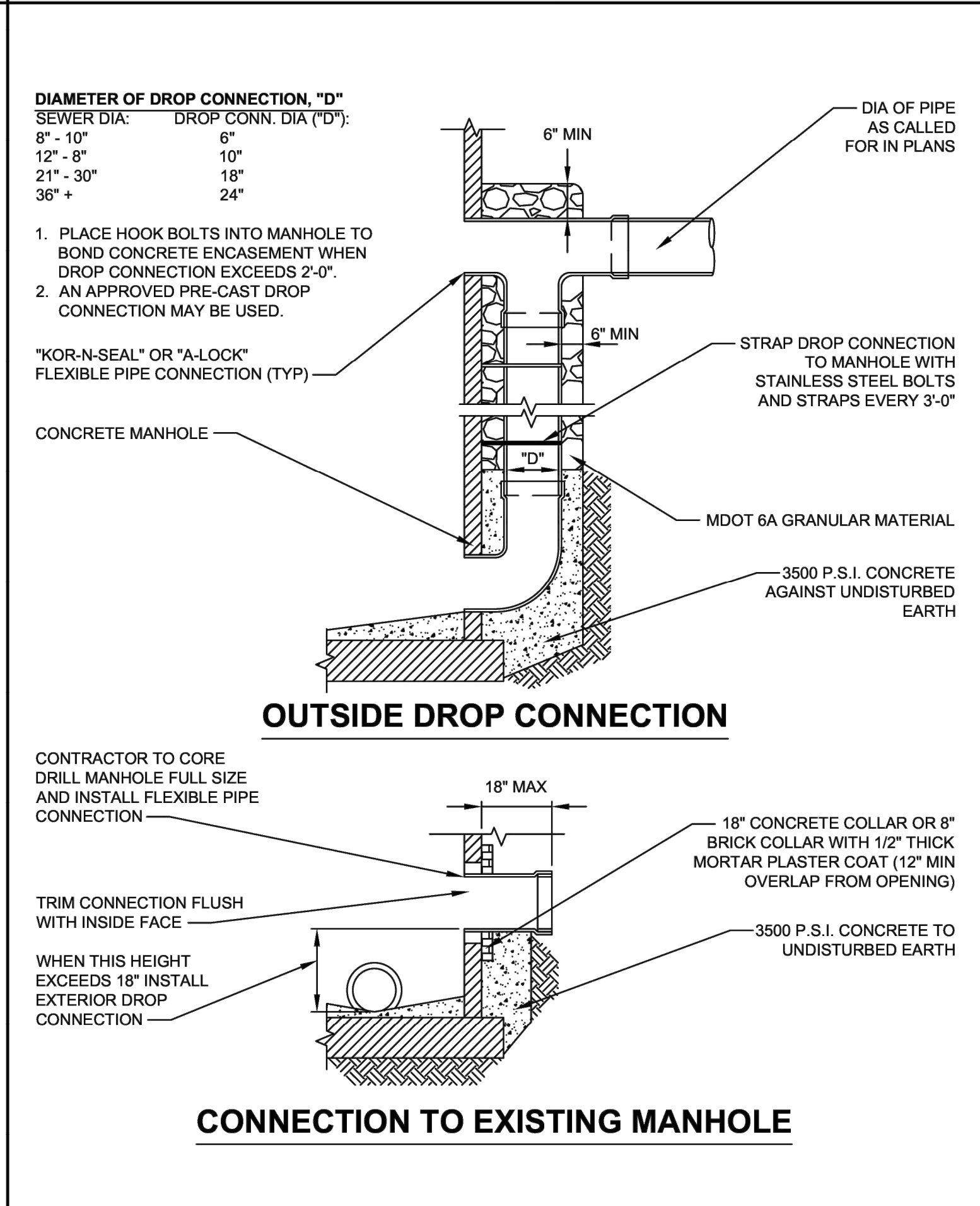
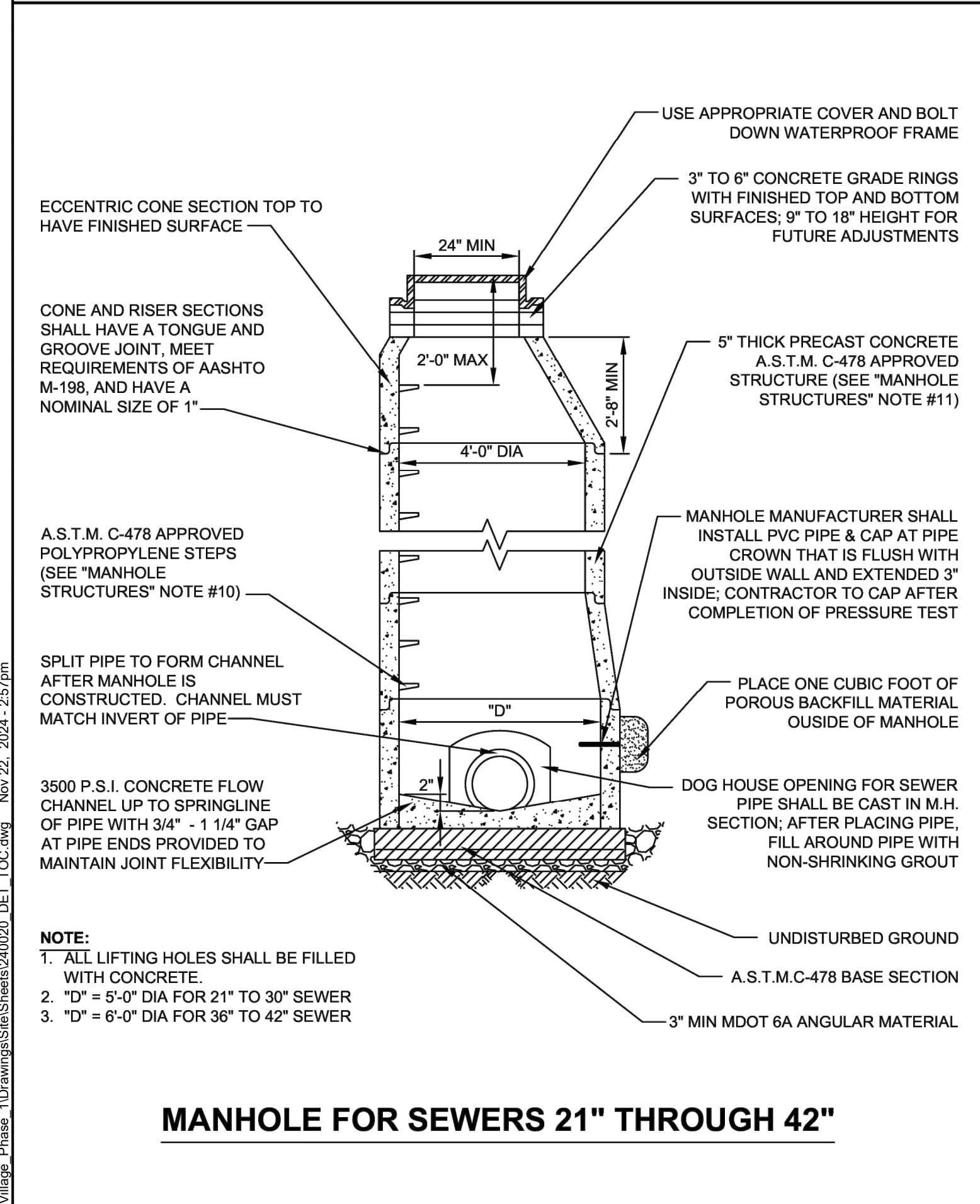
1. THE SANITARY SEWER PIPE FOR INDUSTRIAL USE SHALL BE ASTM C-76 CL-IV R.C.P. OR C-700 E.S. V.C.P.
2. THE SANITARY SEWER PIPE FOR RESIDENTIAL/COMMERCIAL USE SHALL USE PVC TRUSS OR ABS TRUSS MEETING ASTM D-2680.
3. THE 6-INCH SANITARY LEAD WILL BE C-700 E.S. V.C.P. FOR INDUSTRIAL USE. FOR RESIDENTIAL/COMMERCIAL USE SDR 23.5 PLASTIC PIPE FOR THE SERVICE LEAD.
4. CLEANOUTS ARE REQUIRED AT ALL SANITARY LEAD BENDS, CHANGES IN DIRECTION, AND AT 100-FOOT INCREMENTS.
5. PLACE A 6-INCH SERVICE LEAD FOR EACH LOT OR PARCEL AS SHOWN ON PLAN. FOR PARCELS IN EXCESS OF 100 FEET A WYE MUST BE PLACED EVERY 100 FEET UNLESS OTHERWISE NOTED.
6. LEADS ARE NOT PERMITTED TO CONNECT INTO A MANHOLE; THEY MUST BE CONNECTED ON THE MAIN LINE WITH A WYE OR WITH AN APPROVED SADDLE TAP.
7. PRIOR TO THE BACKFILLING OF A SERVICE LEAD, A 4-FOOT LENGTH OF 1/4-INCH DIAMETER STEEL BAR SHALL BE PLACED FROM A POINT IMMEDIATELY IN FRONT OF THE SERVICE CONNECTION TO 2 FEET BELOW THE FINISH GROUND SURFACE. DO NOT REST THE MARKER ON ANY PORTION OF THE SERVICE CONNECTION OR STOPPER.
8. RISERS ON SANITARY SEWERS SHALL BE INSTALLED TO A DEPTH OF 9 FEET BELOW PROPERTY LINE ELEVATION.
9. BULKHEADS SHALL BE PLACED WHERE THE EXISTING AND PROPOSED SEWERS CONNECT. THE BULKHEADS ARE NOT TO BE REMOVED UNTIL THE SEWERS HAVE BEEN TESTED AND ACCEPTED FOR USE BY THE CANTON TOWNSHIP ENGINEER.
10. ALL STUBS SHALL HAVE A WATER TIGHT BULKHEAD.
11. PIPE ALIGNMENT MUST BE SET WITH A LASER.

**TESTING**

1. ALL SEWERS SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURES OUTLINED BELOW NOT LESS THAN 30 DAYS AFTER THE TRENCH BACKFILL AND COMPACTION HAS BEEN COMPLETED.
2. ALL EXISTING SANITARY LEADS THAT ARE REUSED MUST BE AIR TESTED OR VIDEO TAPED.
3. ALL SEWERS SHALL BE TESTED AS OUTLINED BELOW WITH RESULTS APPROVED BY THE CANTON TOWNSHIP ENGINEER PRIOR TO ACCEPTANCE. THE CONTRACTOR SHALL PROVIDE THE CANTON TOWNSHIP ENGINEER WITH VERIFICATION OF THE TEST (IN THE CASE OF TELEVISION, A COPY MUST BE PROVIDED). THE TESTING MUST BE WITNESSED BY A CANTON TOWNSHIP REPRESENTATIVE.
4. TESTING PROCEDURES:  
 TELEVISION OF PIPES  
 A. VIDEO INSPECTION SHALL BE CONSIDERED COMPLETE WHEN ALL NECESSARY CONSTRUCTION REPAIRS HAVE BEEN MADE AND RE-TELEVIEWED TO VERIFY THAT THE REPAIR IS ACCEPTABLE.  
 AIR  
 A. THE PROCEDURE FOR AIR TESTING OF VCP PIPE SHALL BE IN ACCORDANCE WITH THE C826-90 STANDARD/  
 B. THE PROCEDURE FOR PVC / ABS TRUSS PIPE SHALL BE IN ACCORDANCE WITH THE ASTM F-1417 STANDARD.

**MANDREL**

- A. SANITARY SEWERS CONSTRUCTED OF PVC OR ABS TRUSS PIPE SHALL BE DEFLECTION TESTED. THE TEST SHALL BE COMPLETED BY PULLING AN APPROVED SOLID POINTED MANDREL THROUGH THE COMPLETED PIPELINE. THE DIAMETER OF THE MANDREL SHALL BE 95 PERCENT OF THE INSIDE DIAMETER OF THE PIPE. THE MANDREL SHALL BE A RIGID, NONADJUSTABLE, ODD-NUMBERED-LEG (9 LEGS MINIMUM) MANDREL HAVING AN EFFECTIVE LENGTH OF NOT LESS THAN ITS NOMINAL DIAMETER.
- B. TESTING SHALL BE CONDUCTED ON A MANHOLE TO MANHOLE BASIS AND SHALL BE DONE AFTER THE LINE HAS BEEN COMPLETELY CLEANED AND FLUSHED. ANY PORTION OF THE SEWER WHICH FAILS TO PASS THE TEST SHALL BE EXCAVATED, REPAIRED OR REALIGNED, AND RETESTED WITH BOTH TV, AIR, AND DEFLECTION TESTS.
4. IF A SEWER FAILS TO PASS ANY OF THE PREVIOUSLY DESCRIBED TESTS, THE CONTRACTOR SHALL DETERMINE THE LOCATION OF THE LEAK, REPAIR AND RETEST THE SEWER. THE TEST SHALL BE REPEATED UNTIL SATISFACTORY RESULTS ARE OBTAINED.



**SANITARY SEWER NOTES:**

**GENERAL**

1. ALL SEWER SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF CANTON TOWNSHIP PUBLIC WORKS. IN ADDITION, ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY SHALL CONFORM TO WAYNE COUNTY GENERAL NOTES.
2. CONSTRUCTION SHALL NOT COMMENCE WITHOUT A REPRESENTATIVE OF CANTON TOWNSHIP ENGINEERING SERVICES PRESENT.
3. NO SEWER MAINS SHALL BE CONSTRUCTED LESS THAN 10-INCH IN DIAMETER WITHOUT SPECIFIC APPROVAL OF THE CANTON TOWNSHIP ENGINEER.
4. NO CONNECTION SHALL BE MADE TO SANITARY SEWERS RECEIVING STORM WATER, SURFACE WATER, OR GROUND WATER.
5. NO FOOTING DRAINS SHALL BE CONNECTED TO THE SANITARY SEWER.
6. CONSTRUCTION IS REQUIRED TO BE IN A DRY TRENCH - DEWATERING IF NECESSARY MUST BE PROVIDED.

**MANHOLE STRUCTURES**

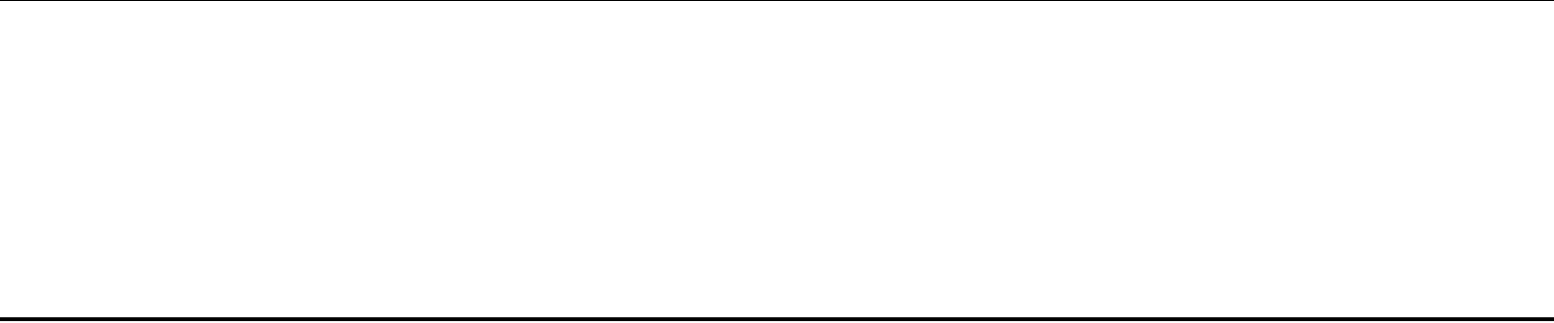
1. DETAILS ARE FOR STRUCTURES WITH NO MORE THAN TWO PIPES ENTERING 180 DEGREES APART. LARGER DIAMETER STRUCTURES MAY BE REQUIRED FOR DIFFERENT CONFIGURATIONS.
2. A MANHOLE STRUCTURE REQUIRES A MINIMUM OF 8 INCHES OF CONCRETE WALL BETWEEN PIPE OPENINGS. LARGER DIAMETER STRUCTURES MAY BE REQUIRED WHERE PIPES ENTERING THE STRUCTURE ARE LESS THAN 90 DEGREES APART IN ANY DIRECTION.

**CHARTER TOWNSHIP OF CANTON**  
 1150 CANTON CENTER S.  
 CANTON, MI 48188-1699  
 PH: 734-394-5150 / FAX: 734-394-5183

DATE:	REVISIONS:	BY:
5/17/2007	SUBMITTED FOR DEQ REVIEW	C.J.L.
5/31/2007	PUBLIC RELEASE	C.J.L.

**SANITARY SEWER STANDARD DETAILS**

DATE: 9/5/2007  
 SCALE: NONE  
 SHEET: SS-1



**C-515**

**CANTON CHARTER TOWNSHIP**  
 CHERRY HILL VILLAGE PHASE 1  
 CANTON TOWNSHIP, MICHIGAN

PROJECT NUMBER: 0133-24-020  
 PM: CM  
 ISSUED FOR: BID SET  
 REVISION: DESCRIPTION  
 2024.11.22  
 DATE  
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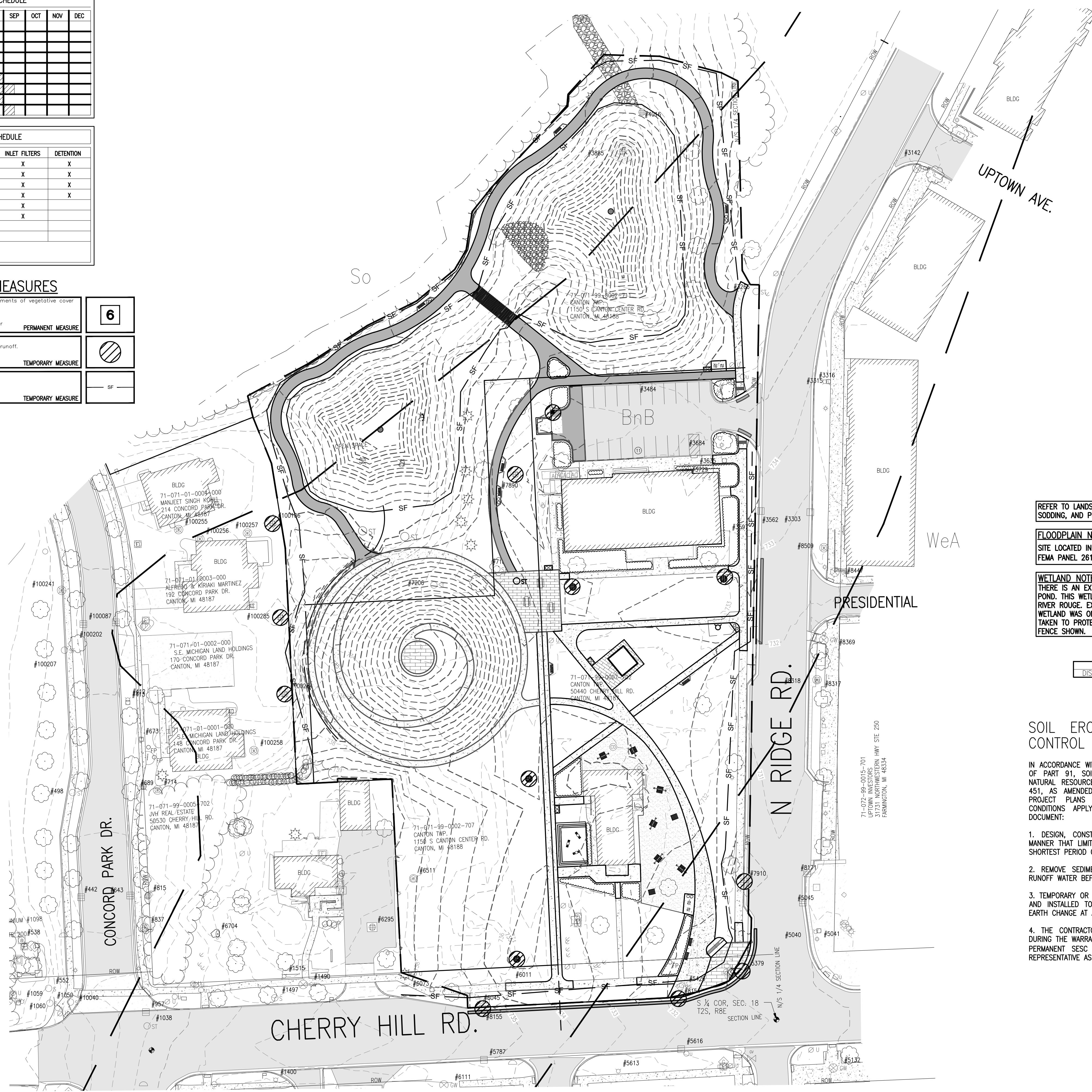
SOIL EROSION AND SEDIMENTATION CONTROL OPERATION TIME SCHEDULE												
CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY EROSION CONTROL MEASURES												
CLEARING & TREE REMOVAL												
STRIP & STOCKPILE TOPSOIL / GRADING												
SITE UTILITY CONSTRUCTION												
BUILDING CONSTRUCTION												
AGGREGATE BASE, CURB & PAVEMENT												
PERMANENT EROSION CONTROL MEASURES												
FINISH GRADING, LANDSCAPING & RESTORATION												
SOIL STABILIZATION AND CLEAN UP												

SOIL EROSION AND SEDIMENTATION CONTROL MAINTENANCE SCHEDULE						
TASK	FREQUENCY	TRACKING MAT	SILT FENCE	VEGETATION	INLET FILTERS	DETENTION
INSPECT FOR SEDIMENT ACCUMULATION	WEEKLY	X	X		X	X
REMOVE ACCUMULATED SEDIMENT	AS NEEDED		X		X	X
INSPECT FOR FLOATABLES AND DEBRIS	WEEKLY				X	X
REMOVE FLOATABLES AND DEBRIS	AS NEEDED				X	X
INSPECT FOR PERMIT CONFORMANCE	AFTER RAIN	X	X		X	
RESTORE TO PERMIT CONFORMANCE	AS NEEDED	X	X		X	
INSPECT FOR SOIL EROSION	AFTER RAIN			X		
RESTORE TO PREVENT EROSION	AS NEEDED			X		
SCRAPE STREET/DRIVES	DAILY					
SWEEP STREET/DRIVES	WEEKLY					

**SOIL EROSION AND SEDIMENTATION CONTROL MEASURES**

<b>6</b>	Seeding with Mulch and/or Matting	Erosion control blanket and turf mat - Facilitates establishments of vegetative cover. Effective for drainage ways with low velocity. Easily placed in small quantities by inexperienced personnel. Shall include prepared topsoil bed and straw mulch. Shall use a Mulch Blanket when slopes are 6H:1V or steeper. (SEE DETAIL 1/C-702)	<b>6</b>
<b>36</b>	Low Point Inlet Filter	Low Point Inlet Filter - Collects high velocity concentrated runoff. Use filter cloth over inlet. (Alt. Silt-Sok tm.) (SEE DETAIL 2/C-702)	<b>36</b>
<b>54</b>	Silt Fence	Silt Fence - Filters and detains runoff. (SEE DETAIL 1/C-702)	<b>54</b>

USGS SOIL ABBREVIATION	SOIL DESCRIPTION
So	SLOAN SILT LOAM, WE
BnB	BOYER LOAMY SAND, 0 TO 6 PERCENT SLOPES
WeA	WASEPI LOAMY SAND, LOAMY SUBSTRATUM, 0 TO 2 PERCENT SLOPES



**LEGEND**

- 665 --- EXISTING CONTOUR
- 664 --- EXISTING CONTOUR
- 840 --- PROPOSED CONTOUR
- 839 --- PROPOSED CONTOUR
- - - - - PROPOSED LIMITS OF EARTH DISTURBANCE
- — — — — SOIL TYPE BORDER
- SF — SF — SILT FENCE
- FLOW DIRECTION
- ⊗ INLET FILTER
- 13B USGS SOIL ABBREVIATION

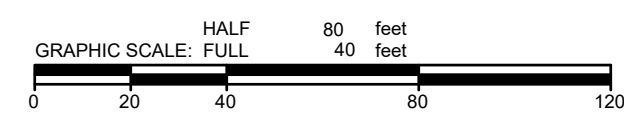
REFER TO LANDSCAPE DRAWINGS FOR ALL SEEDING, MULCHING, SODDING, AND PLANTING LOCATIONS.

**FLOODPLAIN NOTE:**  
SITE LOCATED IN AREA OF MINIMAL FLOOD HAZARD (ZONE X) PER FEMA PANEL 26163C0195E DATED 02/02/2012

**WETLAND NOTE:**  
THERE IS AN EXISTING WETLAND NORTHWEST OF THE EXISTING POND. THIS WETLAND DRAINS INTO A TRIBUTARY OF THE LOWER RIVER ROUGE. EXACT LIMITS OF THIS WETLAND ARE UNKNOWN AS WETLAND WAS ONLY PARTIALLY DELINEATED. PRECAUTIONS SHALL BE TAKEN TO PROTECT THIS WETLAND, WHICH INCLUDES THE SILT FENCE SHOWN.

**SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE**

1. DESIGN, CONSTRUCT, AND COMPLETE THE EARTH CHANGE IN A MANNER THAT LIMITS THE EXPOSED AREA OF DISTURBED LAND FOR THE SHORTEST PERIOD OF TIME.
2. REMOVE SEDIMENT CAUSED BY ACCELERATED SOIL EROSION FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE.
3. TEMPORARY OR PERMANENT CONTROL MEASURES SHALL BE DESIGNED AND INSTALLED TO CONVEY WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AT A NON-EROSIVE VELOCITY.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING LANDSCAPING DURING THE WARRANTY PERIOD. AFTER THE WARRANTY HAS EXPIRED, THE PERMANENT SECC MEASURES WILL BE MAINTAINED BY THE OWNER'S REPRESENTATIVE AS APPROPRIATE.



**811**  
Know what's below.  
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ISSUED FOR: BID SET  
REVISION: DESCRIPTION  
DATE: 2024/11/22

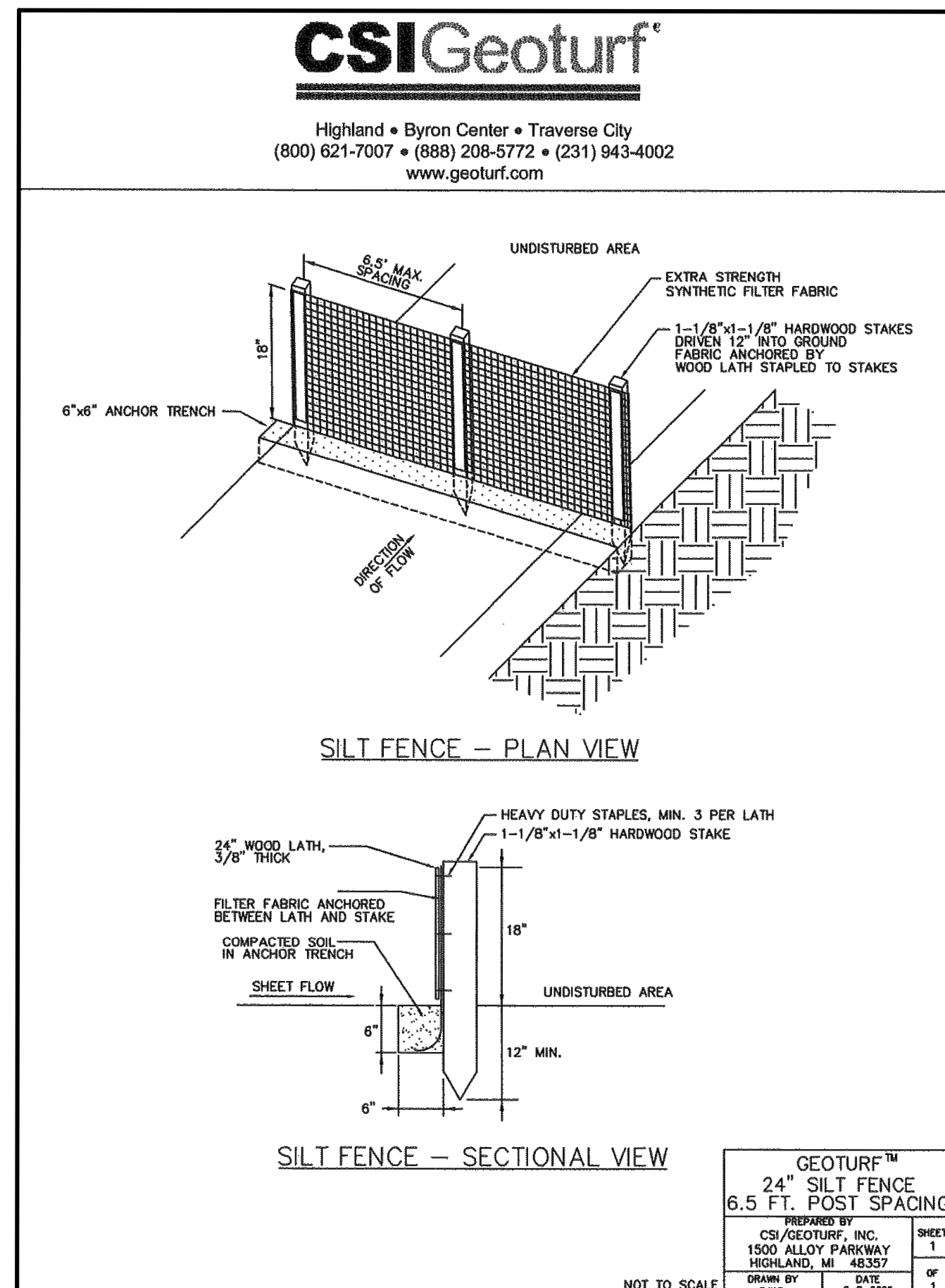
PROJECT NUMBER: 0133-24-020  
CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN

**C-701**

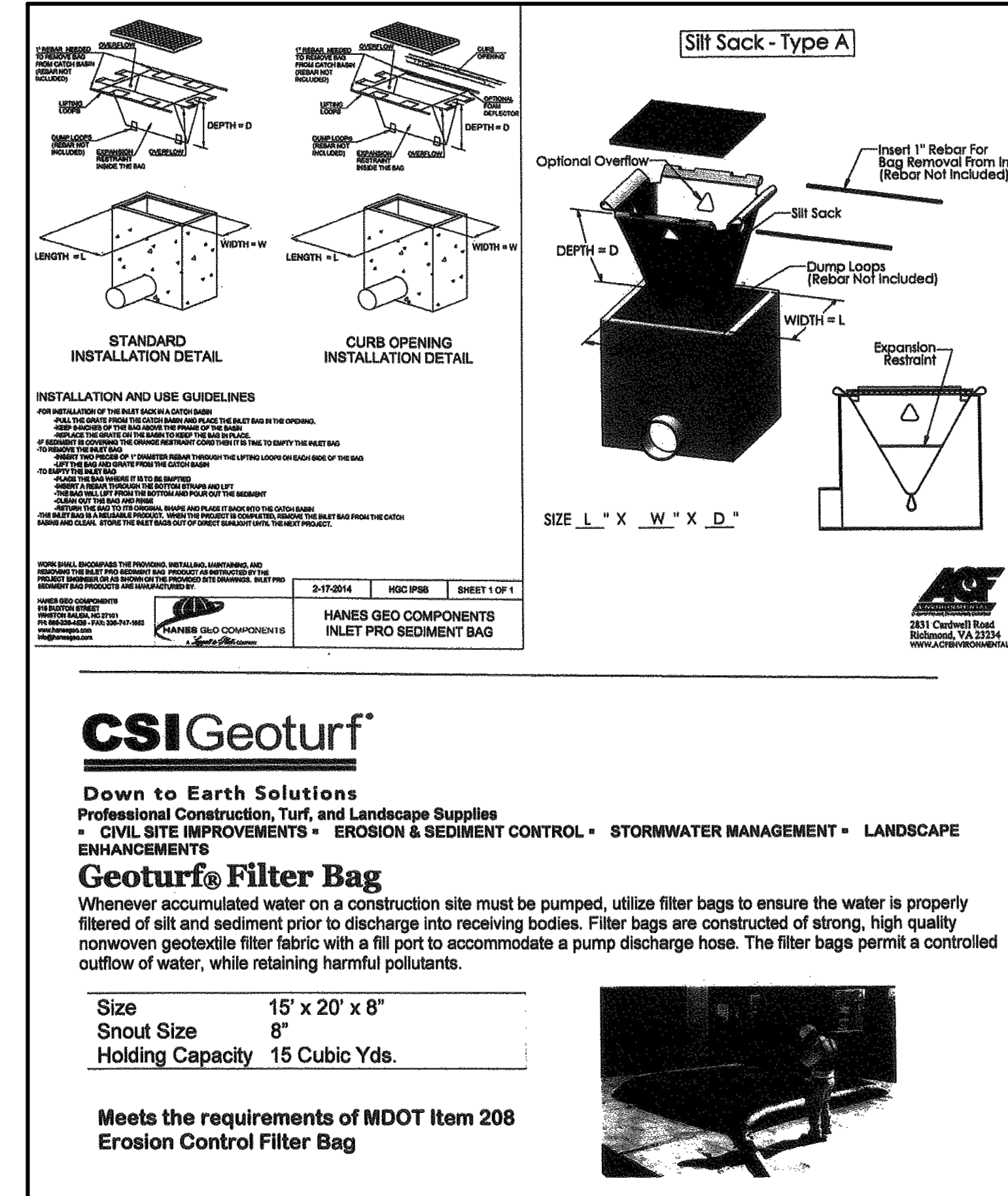


**31 25 00: EROSION AND SEDIMENTAL CONTROLS**

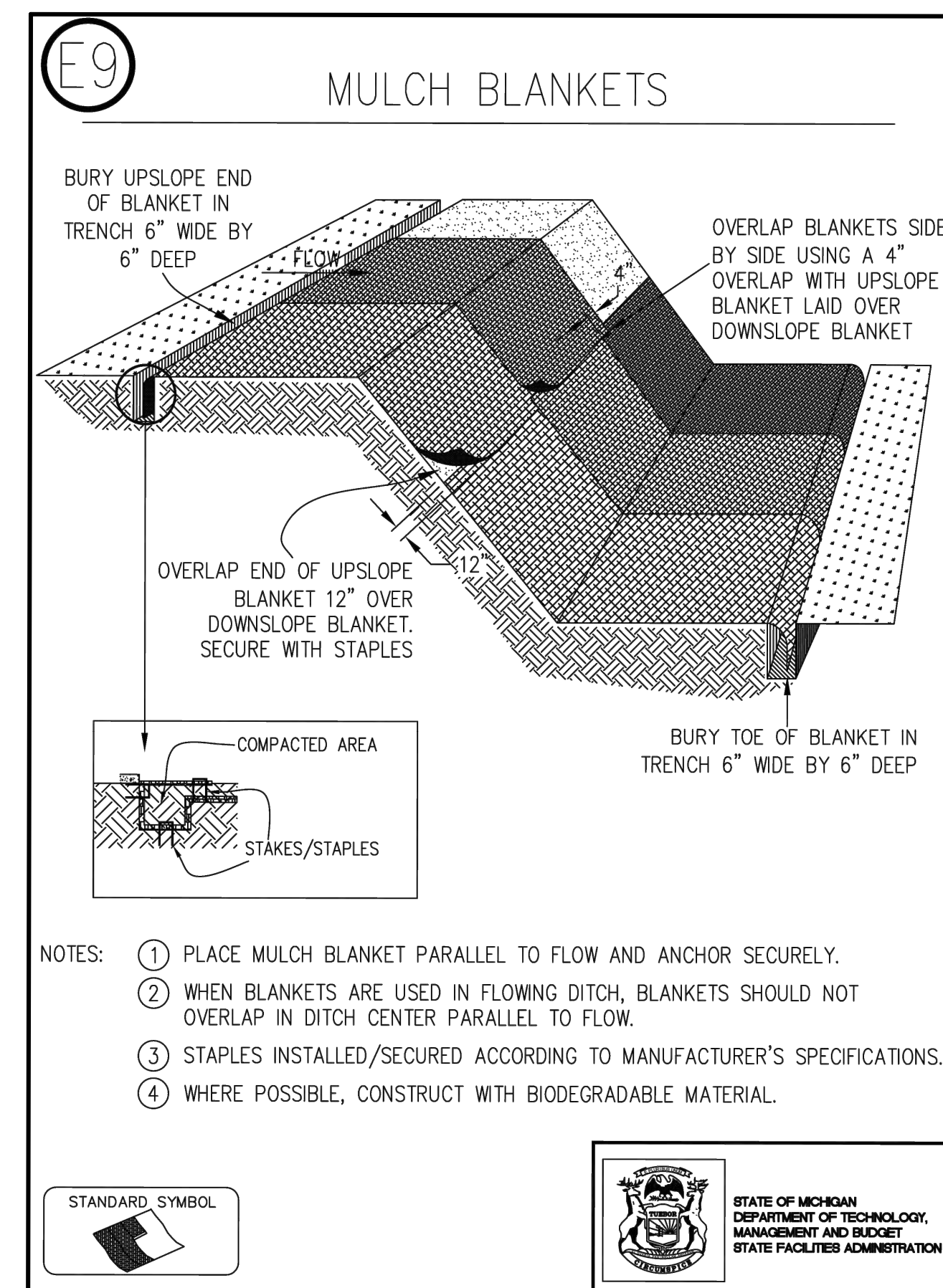
1. SESC REGULATOR - WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES, LAND RESOURCE MANAGEMENT DIVISION
2. SUBMITTALS: PRODUCT INFORMATION FOR EACH MATERIAL PROPOSED FOR USE, INCLUDING AGGREGATE / RIPRAP (INCLUDE GRADATION ANALYSIS), GEOSYNTHETICS, MULCH AND MULCH BLANKETS, TURF REINFORCEMENT MATS, SILT FENCE, DEWATERING FILTER BAGS, EROSION EELS, WATTLES, AND INLET FILTERS.
3. TEMPORARY CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR TO CONTROL EROSION OF EARTH AND TO MAINTAIN QUALITY OF DISCHARGED RUNOFF DURING THE ACTIVITIES DESCRIBED IN THIS CONTRACT AND SHOWN ON THE CONTRACT PLANS. REMOVE AND DISPOSE OF TEMPORARY MEASURES AFTER THE CONCLUSION OF ASSOCIATED WORK WHEN PERMANENT CONTROL MEASURES AND RESTORATION ARE FUNCTIONING FULLY, THE SITE IS STABILIZED (ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING OR COVERING OF SOIL TO ENSURE RESISTANCE TO SOIL EROSION, SLIDING OR OTHER EARTH MOVEMENT) AND ONLY UNDER THE DIRECTION OF THE OWNER'S REPRESENTATIVE.
4. PERMANENT CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR TO CONTROL EROSION OF EARTH AND MAINTAIN QUALITY OF DISCHARGED RUNOFF DURING AND AFTER EXECUTION OF THE CONTRACT. COMPLETE PERMANENT SOIL EROSION CONTROL MEASURES FOR THE EARTH CHANGE WITHIN FIVE (5) CALENDAR DAYS AFTER FINAL GRADING OR UPON COMPLETION OF FINAL EARTH CHANGE.
5. COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTION FOR EARTH CHANGES, STORMWATER QUALITY, AND RUNOFF DISCHARGE. INSPECT AND MAINTAIN ALL CONTROL MEASURES DAILY. INSPECTIONS BY THE OWNER OR A REGULATOR MAY OCCUR AND RESULT IN DIRECTION FOR MAINTENANCE OR EXPANSION OF INSTALLED MEASURES; CONTRACTOR SHALL COMPLY AT NO ADDITIONAL COST.
6. NO DEMOLITION, CUTTING, GRADING, EARTH CHANGE, EXCAVATION, FILLING, OR CONSTRUCTION SHALL BE PERFORMED PRIOR TO FULL IMPLEMENTATION OF CONTROL MEASURES.
7. DESIGN, CONSTRUCT, AND COMPLETE THE EARTH CHANGE IN A MANNER THAT LIMITS THE EXPOSED AREA OF DISTURBED LAND FOR THE SHORTEST PERIOD OF TIME. CONTROL MEASURES SHALL BE INSTALLED TO CONVEY WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AT A NON-EROSIVE VELOCITY. REMOVE SEDIMENT CAUSED BY ACCELERATED SOIL EROSION FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE.
8. INSTALL TEMPORARY INLET FILTERS AT ALL ADJACENT AND DOWN-GRADIENT STORM WATER INLETS, CATCH BASINS, AND MANHOLES THAT MAY BE IMPACTED BY DRAINAGE FROM THE CONSTRUCTION ACTIVITIES.
9. REPLACE INLET FILTERS THAT HAVE HOLES OR ARE INUNDATED WITH SEDIMENT. STORM DRAINS MUST BE PROTECTED FROM DUST, SEDIMENT, AND DEBRIS. CATCH BASIN INLET FILTERS SHALL BE MAINTAINED CLEAN AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD.
10. SILT FENCE SHALL BE INSTALLED AROUND ALL DISTURBED EARTH AND MAINTAINED AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. PERFORM SILT FENCE REPAIR OR REPLACEMENT AS NECESSARY ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MAINTENANCE INCLUDES THE REMOVING OF BUILT-UP SEDIMENT ACCUMULATES TO 1/2 THE HEIGHT OF THE FENCE. CONTRACTOR SHALL REMOVE, REPLACE, RETRENCH, OR RE-BACKFILL THE FENCE IF IT FAILS OR IS DAMAGED BY CONSTRUCTION ACTIVITY.
11. STOCKPILES AND OTHER SPOIL PILES SHALL BE MINIMIZED AND SHALL BE PLACED AWAY FROM THE DRAINAGE SYSTEM TO MINIMIZE SEDIMENT TRANSPORT. IF THE STOCKPILE AND/OR SPOIL PILE MUST REMAIN ON-SITE OVERNIGHT, OR IF THE WEATHER CONDITIONS INDICATE THE CHANCE FOR PRECIPITATION, A) COVER THE PILE WITH WATER REPELLENT MATERIAL AND/OR B) INSTALL SILT FENCING AROUND THE BASE OF THE PILE OR APPLY OTHER CONTROL METHODS APPROPRIATE TO THE SITE. WET OR COVER STOCKPILES TO PREVENT WIND EROSION.
12. DITCHES AND SWALES SHALL HAVE CHECK DAMS INSTALLED AT REGULAR INTERVALS; CULVERT INLETS AND/OR SPILLWAYS SHALL BE PROTECTED WITH STONE BERMS OR STRAW BALES.
13. CONSTRUCTION ENTRANCE(S) CONSISTING OF RIP RAP OR OPEN-GRADED STONE AGGREGATE OVER STABILIZATION GEOTEXTILE SHALL BE INSTALLED AND MAINTAINED TO PREVENT TRACKING OF SOILS OFF SITE.
14. THROUGHOUT THE CONSTRUCTION PERIOD, ALL MUD/SILT TRACKED ONTO EXISTING ROADS FROM THE SITE DUE TO CONSTRUCTION SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR BY SWEEPING.
15. SEEDING OR OTHER STABILIZATION SHALL BE REQUIRED IMMEDIATELY TO AREAS DAMAGED BY RUNOFF.
16. DUST CONTROL: USE WATER AND WETTING TO PREVENT THE SPREAD OF DUST AND DEBRIS AND AVOID THE CREATION OF A NUISANCE IN THE SURROUNDING AREA. DO NOT USE WATER IF IT RESULTS IN HAZARDOUS OR OBJECTIONABLE CONDITIONS SUCH AS, BUT NOT LIMITED TO, ICE, MUD, FLOODING, OR POLLUTION. GOOD HOUSEKEEPING PRACTICES MUST BE EMPLOYED AT THE JOBSITE. MINIMIZE DUST.
17. POLLUTION PREVENTION: DURING WORK ACTIVITIES IF SUSPECT CONTAMINATED SOIL (CHEMICAL OR UNUSUAL ODORS, STAINING, UNUSUAL COLORING, AND/OR MAN-MADE DEBRIS), GROUNDWATER (CHEMICAL OR UNUSUAL ODORS, UNUSUAL COLORING, AND/OR SHEEN), OR OTHER UNKNOWN MATERIAL IS ENCOUNTERED CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY. IMMEDIATELY CEASE ALL EXCAVATION, DEWATERING, TRANSPORT, OR DISTURBANCE OF THE SUSPECT MATERIAL UNTIL GIVEN DIRECTION BY THE OWNER'S REPRESENTATIVE.
18. DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE, AND OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS, STORM SEWERS, OR INTO NATURAL OR MAN-MADE CHANNELS LEADING THERETO IS STRICTLY PROHIBITED. ANY SPILLS OR DISCHARGES AS DESCRIBED ABOVE SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
19. ANY WATER USED DURING CONCRETE AND ASPHALT WORK (INCLUDING SWEEPING AND SAW-CUTTING) MUST BE CONTAINED AND COLLECTED FOR PROPER DISPOSAL. SUGGESTED CONTROLS INCLUDE WET VACUUM OR ABSORBENTS.
20. DEWATERING: UNCONTAMINATED GROUNDWATER AND SEDIMENT-FREE SURFACE WATER MAY BE DISCHARGED TO AN INLET FILTER-PROTECTED STORM DRAIN. CONTRACTOR SHALL USE A FILTER (DEWATERING) BAG CONNECTED TO THE END OF THE DEWATERING DISCHARGE PIPE. THE FINAL DISCHARGE MUST BE CLEAR (NO TURBIDITY) AND ON A CLEAN SURFACE (NOT ON EXPOSED SOILS). INSPECT AND MAINTAIN THE PUMP HOSES AND FILTER BAGS DAILY, REPLACE COMPROMISED OR DETERIORATED EQUIPMENT IMMEDIATELY. IF THERE ARE INDICATIONS OF POSSIBLE CONTAMINATION, OR IF THE WATER IS TURBID, IMMEDIATELY CEASE DISCHARGE.



**1 SILT FENCE DETAIL**  
NOT TO SCALE



**2 CATCH BASIN SILT SACK DETAIL**  
NOT TO SCALE



**3 MULCH BLANKET DETAIL**  
NOT TO SCALE

DRAWING PATH: P:\0126\_016501\31240020\_Cherry Hill Village\_Phase 1\Drawings\Site\Sheet\31240020\_SECC.dwg Nov 22, 2024, 2:57pm

ISSUED FOR: BID SET  
REVISION DESCRIPTION  
DATE

PROJECT NUMBER: 0133-24-0020  
CANTON CHARTER TOWNSHIP  
CHERRY HILL VILLAGE PHASE 1  
CANTON TOWNSHIP, MICHIGAN

SOIL EROSION AND SEDIMENTATION CONTROL (SECC) DETAILS



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