

# CANTON, OHIO G.P. 1188

## MILL STREET SE SANITARY SEWER AND WATERLINE REPLACEMENT 2013

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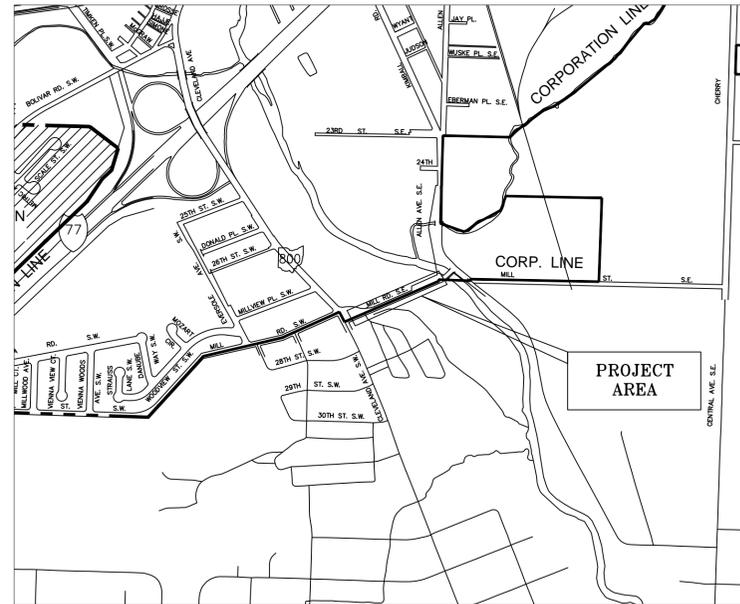
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JOHN MARIOL II .....	WARD SEVEN
EDMOND MACK .....	WARD EIGHT
FRANK MORRIS .....	WARD NINE



**CANTON, OHIO**  
LOCATION MAP  
NOT TO SCALE

### APPROVALS

APPROVED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

\_\_\_\_\_  
CANTON CITY ENGINEER

\_\_\_\_\_  
CANTON WATER DEPARTMENT SUPERINTENDENT

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DAN MOEGLIN, P.E.,S.I. ....	CITY ENGINEER
RICHARD A. MALLONN II .....	AUDITOR
JOSEPH MARTUCCIO .....	LAW DIRECTOR

ODOT SPECIFICATIONS PER 2010 C.M.S.

AREA OF DISTURBED LAND DUE TO CONSTRUCTION: 0.49 ACRES

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

CALL  
**1-800-362-2764**  
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OFFICE OF THE CITY ENGINEER  
CANTON, OHIO  
DANIEL J. MOEGLIN, P.E. CITY ENGINEER  
2436 30th STREET N.E. 44705 (330)489-3381

TITLE SHEET  
MILL ST SE SANITARY SEWER  
AND WATERLINE REPLACEMENT

DATE:	DESCRIPTION	REVISIONS	DATE	BY

DRAWN BY: P.W.W.  
APPROVED BY: P.W.W.  
FIELD BOOK:  
FILE NAME ie\_ce\_std\_22x36

H. SCALE: N.T.S.  
V. SCALE: N.T.S.  
SHEET 1 OF 11



**II. CONSTRUCTION INCIDENTALS (continued)**

**(J) PRESERVATION AND RESTORATION OF DISTURBED FEATURES:**

EXISTING DRIVES, BERMS, LAWNS, PAVEMENTS, CURBS, SIDEWALKS, SIGNS, MAILBOXES, FENCES, RETAINING WALLS, LANDSCAPING ITEMS, OR OTHER APPURTENANCES DISTURBED DURING CONSTRUCTION BUT NOT SPECIFICALLY DESIGNATED FOR REMOVAL/REPLACEMENT SHALL BE RESTORED BY THE DEVELOPER/CONTRACTOR AT HIS EXPENSE TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO DISTURBANCE AND TO THE COMPLETE SATISFACTION OF THE CITY ENGINEER.

RESTORATION OF EXISTING ROADWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY, TOWNSHIP, COUNTY, AND/OR OTHER AGENCIES HAVING AUTHORITY. COST FOR THE RESTORATION OF THESE ITEMS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR, UNLESS OTHERWISE SPECIFIED IN THE PLANS OR SPECIFICATIONS. NO PUBLIC ROADWAY SHALL BE DISTURBED WITHOUT PRIOR WRITTEN APPROVAL FROM THE GOVERNING AGENCY AND ACQUISITION OF NECESSARY PERMITS.

**(K) SALVAGED CASTINGS:**

ALL METAL CASTINGS SHALL BE CAREFULLY REMOVED AND DELIVERED TO THE CANTON COLLECTIONS SYSTEMS DEPARTMENT AT 2901 REGENT AVE. N.E..

**(L) PLUG EXISTING CONDUIT:**

THIS ITEM SHALL CONSIST OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING CONDUIT TO BE ABANDONED.

BULKHEADS SHALL CONSIST OF BRICK AND/OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

PAYMENT FOR PLUGGING OF EXISTING CONDUIT FOR ABANDONMENT SHALL BE INCLUDED IN THE UNIT BID OF THE VARIOUS ITEMS OF THE PROJECT.

**(M) CONSTRUCTION LAYOUT:**

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT UTILIZING PERTINENT PLAN DATA. THE CITY ENGINEER WILL NOT BE RESPONSIBLE FOR STAKING HORIZONTAL OR VERTICAL CONTROL. CONSTRUCTION LAYOUT SHALL BE IN ACCORDANCE WITH ODOT 623 CONSTRUCTION LAYOUT STAKES.

AT THE CITY ENGINEER'S REQUEST, THE CONTRACTOR SHALL MAKE AVAILABLE ALL SURVEY FIELD NOTES FOR REVIEW.

**(N) EXISTING MONUMENTATION:**

THE CONTRACTOR SHALL PRESERVE ALL CORNERSTONES, IRON PINS, CONCRETE MONUMENTS AND/OR ANY TYPE OF LAND MONUMENT. THE CONTRACTOR SHALL HAVE ALL MONUMENTS IN THE PROXIMITY OF THE WORK REFERENCED. THE CONTRACTOR SHALL REPLACE/RESET ANY DISTURBED OR DAMAGED MONUMENTS AND SHALL FURNISH A CERTIFICATION BY A REGISTERED SURVEYOR THAT THE MONUMENTS HAVE BEEN RESTORED.

**(O) ELEVATION DATUM:**

ALL ELEVATIONS ARE BASED ON THE NAVD 1988 DATUM.

**(P) DEWATERING OPERATIONS:**

WHEN DEEMED NECESSARY, THE DEVELOPER/CONTRACTOR MAY INSTALL DEWATERING EQUIPMENT PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

THE PROPOSED LOCATION OF WELL POINTS, HEADER PIPE, ELECTRICAL DISTRIBUTION, GENERATORS AND DISCHARGE PIPES, ETC. SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.

THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS FOR THE INSTALLATION AND SUBSEQUENT REMOVAL OF DEWATERING EQUIPMENT AS WELL AS PROPER WATER DISCHARGE PROCEDURES AS MAY BE REQUIRED PER STATE AND LOCAL GOVERNING AGENCIES.

INSTALLATION OF ALL ELECTRICAL EQUIPMENT, INCLUDING GROUNDING AND PROTECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR.

DEVELOPER/CONTRACTOR SHALL PROVIDE ALL COMBUSTIBLE ENGINE DRIVEN GENERATORS WITH "HOSPITAL GRADE" MUFFLERS. MUFFLERS SHALL BE RATED, AT A MAXIMUM OF 67 dB AT 23 FEET AWAY RUNNING FULL LOAD.

**(Q) INSPECTION:**

FOLLOWING THE PRE-CONSTRUCTION MEETING(S) AND ESTABLISHMENT OF AN APPROVED SCHEDULE, THE CONTRACTOR SHALL GIVE A MINIMUM 48 HOUR NOTICE BEFORE STARTING ANY WORK ON THIS PROJECT AND SHALL KEEP THE CITY INFORMED OF HIS/HER CONSTRUCTION SCHEDULE. ALL WORK REQUIRED FOR THIS IMPROVEMENT SHALL BE SUBJECT TO INSPECTION BY THE CITY OF CANTON OR THEIR DESIGNATED REPRESENTATIVE. NO WORK SHALL BE PERFORMED WITHOUT AN AUTHORIZED INSPECTOR PRESENT, UNLESS OTHERWISE APPROVED.

**(R) FIELD OFFICE:**

IF A PAY ITEM IS PROVIDED, THE DEVELOPER/CONTRACTOR SHALL PROVIDE A FIELD OFFICE IN ACCORDANCE WITH ODOT 619. THE FIELD OFFICE SHALL BE TYPE 'A', UNLESS OTHERWISE SPECIFIED.

**III. EARTHWORK / SITE WORK**

**(A) EASEMENTS AND RIGHT-OF-WAY:**

THE DEVELOPER/CONTRACTOR SHALL STAY WITHIN THE DESIGNATED PROPERTIES, EASEMENTS, AND/OR RIGHT-OF-WAY PROVIDED FOR THE PROJECT AT ALL TIMES. NO MATERIAL SHALL BE STORED NOR ANY WORK PERFORMED ON PRIVATE PROPERTY UNLESS OTHERWISE APPROVED. DISTURBANCE OF EXISTING FEATURES AND/OR IMPROVEMENTS SHALL BE KEPT TO AN ABSOLUTE MINIMUM AND AS APPROVED BY THE CITY ENGINEER/PROPERTY OWNER.

**(B) SUITABILITY OF SITE:**

THE CITY OF CANTON SHALL NOT BE RESPONSIBLE FOR THE TYPE AND/OR SUITABILITY OF THE MATERIAL UNDERLYING THE PROJECT SITE. THE DEVELOPER/CONTRACTOR MUST APPRAISE THEMSELVES OF ANY EXISTING SITE CONDITIONS WHICH MAY AFFECT THEIR BID OR THE PERFORMANCE OF THE REQUIRED WORK. THE DEVELOPER/CONTRACTOR SHALL PERFORM ANY INVESTIGATIONS AND/OR TESTING NECESSARY TO ADEQUATELY DETERMINE/ESTIMATE TO THEIR SATISFACTION ALL SITE CONDITIONS WHICH COULD AFFECT THE PERFORMANCE OF THE PROPOSED IMPROVEMENTS. THIS COULD INCLUDE, BUT NOT BE LIMITED TO, UNSUITABLE AND/OR UNSTABLE SOIL/SUBSURFACE CONDITIONS, ROCK, WATER (PERCHED OR FREE), SPRINGS, ETC.

REFER TO CITY STANDARD DRAWING NO. 19 FOR ADDITIONAL DETAILS.

**(C) REMOVAL/REPLACEMENT OF UNSUITABLE MATERIAL:**

THE DEVELOPER/CONTRACTOR SHALL UNDERCUT AND REPLACE UNSUITABLE MATERIAL ENCOUNTERED DURING INSTALLATION OF THE PROPOSED UTILITIES AND ROADWAY IN ACCORDANCE WITH CITY STANDARD DRAWING NO. 19.

**IV. ROADWAY / DRIVE APPROACHES / WALK / CURB**

**(A) PAVEMENT STANDARDS:**

PAVEMENTS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH APPLICABLE CITY STANDARD DRAWINGS AND SPECIFICATIONS (LISTED BELOW) AND ODOT SPECIFICATIONS, UNLESS SPECIFIED OTHERWISE ON THE PLANS.

**CITY STANDARD DRAWING NO.:**

- 27 "DRIVE APPROACH WITH LAWNSTRIP BETWEEN SIDEWALK & CURB"
- 28 "DRIVE APPROACH WITH SIDEWALK AGAINST CURB"
- 29 "COMBINED CURB & WALK"
- 30 "CONCRETE CURB AND COMBINED CURB & GUTTER"
- 31 "BRICK PAVEMENT REPAIR & REPLACEMENT OVER TRENCHES/ALONG CURB"
- 32 "TYPICAL SECTION - LOCAL STREET"
- 33 "WHEELCHAIR RAMP"
- 34 "PAVEMENT TRANSITION, BRICK-ASPHALT"

**CITY STREETScape**

- 40 "TYPICAL STREETScape CORRIDOR"
- 41 "ROADWAY BRICK & CROSSWALK PAVEMENT DETAILS"
- 42 "STREETScape CONCRETE WALK PAVEMENT DETAILS"
- 44 "CONCRETE WALK OVER VAULT CONSTRUCTION DETAILS"
- 45 "BRICK WALK OVER VAULT CONSTRUCTION DETAILS"

**CITY SPECIFICATIONS:**

"CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS"

**(B) RESTRICTED WORK SCHEDULE:**

NO CONCRETE FINISH WORK OR PERMANENT ASPHALT SHALL BE PLACED FROM NOVEMBER 15TH TO APRIL 15TH UNLESS WRITTEN APPROVAL IS GRANTED BY THE CITY ENGINEER.

**(C) ASPHALT/CONCRETE:**

IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/CONTRACTOR TO NOTIFY THE ENGINEER 48 HOURS IN ADVANCE OF BEGINNING WORK WHICH REQUIRES COMPACTION TESTING AND/OR PRE-POUR INSPECTION PRIOR TO PLACEMENT OF ASPHALT OR CONCRETE. WORK SHALL NOT PROCEED UNTIL TESTING AND/OR INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE CITY ENGINEER.

**V. SANITARY SEWERS / STORM SEWERS**

**(A) SEWER STANDARDS:**

ALL SANITARY/STORM SEWER CONDUITS AND APPURTENANCES SHALL BE CONSTRUCTED ACCORDING TO APPLICABLE CITY STANDARD DRAWINGS AND SPECIFICATIONS (LISTED BELOW) AND ODOT SPECIFICATIONS EFFECTIVE AT THE TIME OF CONSTRUCTION, UNLESS SPECIFIED OTHERWISE ON THE PLANS.

**CITY STANDARD DRAWING NO.:**

**CATCH BASINS**

- 1 "CURB INLET CATCH BASIN"
- 2 "CURB INLET WATER QUALITY CATCH BASIN"
- 3 "HILLSIDE CURB INLET CATCH BASIN"
- 4 "SQUARE-TOP CATCH BASIN"
- 5 "SQUARE-TOP WATER QUALITY CATCH BASIN"

**MANHOLES**

- 10 "PRECAST STORM OR SANITARY MANHOLE"
- 11 "OUTSIDE DROP CONNECTION FOR SANITARY MANHOLE"
- 12 "MANHOLE COVER"

**CONDUITS AND TRENCHES**

- 18 "HOUSE CONNECTION STACK"
- 19 "UTILITY TRENCH REQUIREMENTS"
- 20 "SANITARY SEWERS AND LATERALS"
- 21 "CONCRETE ENCASMENT DETAIL"
- 22 "DOWNSPOUT OUTLET (NON-CURBED STREET)"
- 23 "DOWNSPOUT OUTLET (CURBED STREET)"
- 24 "GROUNDWATER DRAIN LINE CONNECTION"

**DRIVEWAYS, CURBS, AND PAVEMENT**

- 32 "TYPICAL SECTION - LOCAL STREET"

**(A) SANITARY LATERAL CONNECTIONS:**

ALL CONNECTIONS TO THE MAIN SEWER SHALL BE INSTALLED WITH A MANUFACTURED WYE.

THE MINIMUM SLOPE OF THE LATERALS SHALL BE 1/8" PER FT. (1%) AND THE MAXIMUM SHALL BE 1/4" PER FT. (2%) UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

ALL NEW SANITARY LATERAL SHALL EXTEND 10 L.F. BEYOND THE ROAD RIGHT-OF-WAY AND SHALL HAVE A MINIMUM/MAXIMUM OF 8' OF COVER AT THE RIGHT-OF-WAY, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

WHEN THE DEPTH OF THE MAIN WOULD CAUSE A LATERAL TO EXCEED A 2% RATE OF GRADE, A LATERAL CONNECTION STACK SHALL BE INSTALLED AT THE MAIN. SAID STACK SHALL CONFORM TO CITY STANDARD DRAWING NO. 18.

ALL END OF LATERAL RUNS SHALL BE CAPPED W/SUITABLE AIR TIGHT PLUG AND MARKED UP TO 2' MINIMUM ABOVE GRADE WITH SUITABLE POSTS.

DEVELOPER/CONTRACTOR SHALL SUBMIT THE FOLLOWING DOCUMENTATION TO THE CITY ENGINEER FOR ALL LATERAL CONNECTIONS:

- a) DISTANCE OF WYE FROM THE DOWNSTREAM MANHOLE.
- b) DISTANCE ALONG THE SEWER MAIN, FROM THE DOWNSTREAM MANHOLE TO THE LATERAL CONNECTION END.
- c) PERPENDICULAR DISTANCE FROM SEWER MAIN TO LATERAL CONNECTION END.
- d) DEPTH OF LATERAL CONNECTION END, FROM TOP OF PROPOSED/EXISTING CURB ORIGINAL GROUND TO FLOW LINE.

**VI. STORM WATER POLLUTION PREVENTION:**

**(A) FOR PROJECTS ONE (1) ACRE OR MORE OF TOTAL LAND-DISTURBANCE:**

THE OWNER/DEVELOPER SHALL APPLY FOR AND OBTAIN AN OHIO EPA NPDES PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY. SAID PERMIT REQUIRES THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWP3) TO ADDRESS CONSTRUCTION SITE STORM WATER RUNOFF AS WELL AS POST-CONSTRUCTION STORM WATER MANAGEMENT. THE SWP3 MUST BE REVIEWED AND APPROVED BY THE STARK COUNTY SOIL & WATER CONSERVATION DISTRICT (SWCD).

THE OWNER/DEVELOPER AND HIS REPRESENTATIVES SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE PERMIT AS WELL AS THE SWP3. ALL ACTIVITIES AND PRACTICES SHALL ALSO COMPLY WITH THE CURRENT EDITIONS OF THE CITY OF CANTON STORM WATER MANAGEMENT MANUAL AND THE OHIO DEPARTMENT OF NATURAL RESOURCES' RAINWATER AND LAND DEVELOPMENT MANUAL, AS APPLICABLE. SUCH PROJECTS ARE ALSO SUBJECT TO INSPECTION BY THE CITY OF CANTON AND/OR ITS AUTHORIZED REPRESENTATIVES (I.E. STARK SWCD) TO ENSURE COMPLIANCE WITH PERMIT AND SWP3 REQUIREMENTS AND LOCAL STORM WATER QUALITY REGULATIONS.

A PRE-CONSTRUCTION MEETING INITIATED BY THE DEVELOPER/CONTRACTOR IS REQUIRED ON-SITE WITH THE STARK SWCD PRIOR TO ANY LAND-DISTURBING ACTIVITIES. THE DEVELOPER/CONTRACTOR SHALL ABIDE BY ALL ORDERS ISSUED BY THE CITY AND/OR STARK SWCD PURSUANT TO INSPECTION OF THE PROJECT SITE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT CO-PERMITTEE APPLICATION TO OHIO EPA PRIOR TO BEGINNING WORK ON THE PROJECT. AS APPLICABLE, THE CONTRACTOR SHALL OBTAIN A COPY OF THE SWP3 AND FAMILIARIZE HIMSELF WITH IT, IMPLEMENTING ALL ITEMS AND ABIDING BY ALL PERMIT REQUIREMENTS AND REGULATIONS.

**(B) FOR PROJECTS LESS THAN ONE (1) ACRE OF TOTAL LAND-DISTURBANCE:**

AN EPA NPDES CONSTRUCTION STORM WATER PERMIT AND SWP3 IS NOT REQUIRED. HOWEVER, THE DEVELOPER/CONTRACTOR SHALL STILL ENSURE THAT APPROPRIATE PRACTICES ARE IN PLACE TO PROVIDE CONSTRUCTION RUNOFF AND EROSION AND SEDIMENT CONTROLS WITHIN THE PROJECT LIMITS. SUCH PRACTICES MAY INCLUDE THE USE OF SILT FENCE, STORM DRAIN INLET PROTECTION, JUTE MATTING, TEMPORARY SEEDING, MULCHING, CHECK DAMS, CONSTRUCTION ENTRANCES, CONCRETE WASHOUT AREAS, ETC. ALL PRACTICES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT EDITION OF THE OHIO DEPARTMENT OF NATURAL RESOURCES' RAINWATER AND LAND DEVELOPMENT MANUAL, AS APPLICABLE.

EROSION AND SEDIMENT CONTROL PRACTICES MUST BE INSTALLED PRIOR TO BEGINNING CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUED INSPECTION AND MAINTENANCE OF ALL PRACTICES AND WILL BE HELD RESPONSIBLE FOR ADDRESSING ANY ON- OR OFF-SITE EROSION/SEDIMENT ISSUES RELATED TO THE PROJECT. THE OWNER/DEVELOPER/CONTRACTOR SHALL ABIDE BY ALL ORDERS ISSUED BY THE CITY PURSUANT TO INSPECTION OF THE PROJECT SITE.

ITEM 832 - TEMPORARY SEDIMENT AND EROSION CONTROL

CONTRACTOR/S MUST FAMILIARIZE THEMSELVES WITH THE PROJECT SITE PRIOR TO SUBMITTING A PROPOSAL TO THE CITY FOR SEDIMENT & EROSION CONTROL. THE CONTRACTORS PROPOSAL MUST PROVIDE ADEQUATE PROTECTION OF THE SITE BY INCLUDING, BUT NOT LIMITED TO, INLET PROTECTION, SILT FENCE, CHECK DAMS, AND STREET SWEEPING, AS NEEDED.

OFFICE OF THE CITY ENGINEER  
CANTON, OHIO  
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GENERAL NOTES  
MILL ST SE SANITARY SEWER  
AND WATERLINE REPLACEMENT

DATE:	H. SCALE:	V. SCALE:	SHEET	OF	DESCRIPTION	REVISIONS	DATE	BY
	N.T.S.	N.T.S.	3	11				

**VII. TRAFFIC:**

**(A) MAINTAINING TRAFFIC:**

THE CONTRACTOR SHALL MAINTAIN TRAFFIC ADJACENT TO AND THROUGH THE PROJECT AS DESCRIBED BELOW AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE OHIO DEPARTMENT OF TRANSPORTATION MANUAL OF CONSTRUCTION AND MATERIALS SPECIFICATIONS ITEM 614 MAINTAINING TRAFFIC. THE CONTRACTOR SHALL FURNISH, MAINTAIN, AND REMOVE ALL SIGNS, FLAGS, FLAGMEN, WATCHMEN, BARRICADES, SIGN SUPPORTS, CONES, BARRELS, AND INCIDENTALS IN CONFORMANCE WITH THE MOST RECENT REVISIONS OF THE CURRENT EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. INTERFERENCE WITH VEHICULAR TRAFFIC SHALL BE KEPT TO A MINIMUM AT ALL TIMES. ALL OPEN TRENCHES AND EXCAVATIONS SHALL BE PROTECTED WITH DRUMS, BARRICADES, OR BARRIERS. ACCESS SHALL BE MAINTAINED AT ALL TIMES FOR EMERGENCY AND FIRE DEPARTMENT VEHICLES.

**ANY TEMPORARY ROADWAY CLOSING MUST BE APPROVED IN WRITING BY THE CITY TRAFFIC ENGINEER AND ANY OTHER PUBLIC AGENCY HAVING JURISDICTION. THE CONTRACTOR SHALL NOTIFY THE TRAFFIC ENGINEER AT LEAST 72 HOURS IN ADVANCE OF ANY SUCH CLOSINGS FOR PUBLICATION AND EMERGENCY AGENCY NOTIFICATION.**

**(B) RESIDENTIAL AND BUSINESS AREAS:**

THE CONTRACTOR SHALL MAINTAIN ACCESS TO LOCAL RESIDENCES AND BUSINESSES DURING CONSTRUCTION. IN THE EVENT A DRIVE ACCESS NEEDS TO BE CLOSED, THE CONTRACTOR SHALL GIVE NOTICE OF CLOSURE AND DURATION TO THE PROPERTY OWNER 24 HOURS IN ADVANCE. CONTRACTOR SHALL ARRANGE FOR ALTERNATE PARKING AND REASONABLE ACCESS FOR THOSE PROPERTY OWNERS AFFECTED BY DRIVE CLOSURES.

**(C) EXISTING STREET NAME AND TRAFFIC CONTROL SIGNS:**

WHERE WORK REQUIRES THE MOVEMENT OF EXISTING SIGNS (STOP SIGNS, SPEED LIMIT SIGNS, NO PARKING SIGNS, ETC.). THE CONTRACTOR IS REQUIRED TO MAINTAIN THE FUNCTION OF ALL TRAFFIC CONTROL SIGNS. ALL SIGNS REMOVED BY THE CONTRACTOR SHALL BE STORED ON SITE AND REINSTALLED BY THE CONTRACTOR.

**(D) NEW STREET NAME & TRAFFIC CONTROL SIGNS:**

ALL STREET NAME AND TRAFFIC CONTROL SIGNS SHALL COME COMPLETE AND BE MADE IN ACCORDANCE WITH THE CITY OF CANTON SIGN AND PAINT DEPARTMENT SPECIFICATIONS. GENERALLY, ALL SIGNS SHALL HAVE HI-INTENSITY SHEETING AND BE MADE WITH .080 50/52 ALUMINUM. STREET NAME SIGNS SHALL BE MADE WITH WHITE UPPER AND LOWER CASE LETTERING ON GREEN BACKGROUND USING 9" BLANKS, BE DOUBLED SIDED W/ RADIUS CORNERS AND HAVE 6" NAME AND 3" SUFFIXES. ALL SIGN RELATED HARDWARE IS TO BE INCLUDED, SUCH AS 6" HEAVY DUTY U-CHANNEL CAPS AND STREET NAME CROSSES.

FOR SUBDIVISION DEVELOPMENTS, ALL PERMANENT STREET NAME SIGNS AND TRAFFIC CONTROL SIGNS SHALL BE FURNISHED AND INSTALLED BY THE DEVELOPER/CONTRACTOR.

**(E) EXISTING TRAFFIC SIGNALS:**

WHERE WORK REQUIRES INTERFERENCE WITH EXISTING SIGNALIZATION IN THE INTERSECTIONS, ALL WORK SHALL BE COORDINATED THROUGH THE CITY ENGINEER. THE CONTRACTOR SHALL NOT ALTER ANY SIGNALIZATION WITHOUT THE CITY ENGINEER'S AUTHORIZATION.

**(F) NEW TRAFFIC SIGNALIZATION:**

ALL NEW OR MODIFIED TRAFFIC SIGNALIZATION AT INTERSECTIONS SHALL BE IN ACCORDANCE WITH CITY TRAFFIC ENGINEERING TRAFFIC CONTROL GENERAL NOTES AND ODOT SPECIFICATIONS, WITH SPECIAL EMPHASIS ON ODOT ITEMS 625, 632, 633, 732, AND 733 WHICH DEALS WITH TRAFFIC CONTROL.

**(G) TRAFFIC CONTROL PLAN:**

THE DEVELOPER/CONTRACTOR SHALL SUBMIT TO THE CITY ENGINEER A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH CITY SUPPLEMENTAL SPECIFICATION 01-00. DETOURS, IF NECESSARY, SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO PLAN SUBMISSION. **THE CONTRACTOR MAY CLOSE MILL STREET FOR THE PURPOSE OF THE WATER AND SEWER CONSTRUCTION. ALL LOCAL AND EMERGENCY TRAFFIC MUST BE MAINTAINED AT ALL TIMES.**

**VIII. WATER MAIN / SERVICES:**

1. ALL WATER MAINS, SERVICES AND APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED ACCORDING TO THE CITY OF CANTON WATER DEPARTMENT REQUIREMENTS AND SPECIFICATIONS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. **ALL WATER MAIN PIPE MATERIALS, FITTINGS, BENDS, VALVES, VALVE BOXES, MEGALUGS, GASKETS AND HYDRANTS WILL BE SUPPLIED BY THE CITY OF CANTON. THE CONTRACTOR WILL BE RESPONSIBLE FOR TRANSPORTING MATERIALS TO THE PROJECT SITE. BACKFILL, BEDDING, THRUST BLOCKING, ETC. AND ASSOCIATED LABOR IS THE RESPONSIBILITY OF THE CONTRACTOR.**
3. WATER MAINS SHALL BE CLASS 53 (12" AND UNDER) OR CLASS 54 (OVER 12") DUCTILE IRON, MEETING AWWA C151 WITH PUSH JOINTS. THE MINIMUM COVER OVER WATER MAINS SHALL BE 4'-6" FROM GROUND SURFACE TO THE BARREL OF THE PIPE. THE OUTSIDE SURFACE OF ALL DUCTILE IRON PIPE, FITTINGS AND APPURTENANCES SHALL BE SHOP COATED WITH EITHER A COAL TAR OR ASPHALT BASE BITUMINOUS MATERIAL. IF THE COATING MATERIAL IS FOUND TO BE DAMAGED PRIOR TO THE PIPE TRENCH BEING BACKFILLED, THE CONTRACTOR SHALL PROVIDE AN ADDITIONAL APPROVED MATERIAL AS REQUIRED TO REPAIR THE DAMAGES. THE CONTRACTOR SHALL HAVE SUFFICIENT COATING MATERIALS AVAILABLE AT THE JOB SITE PRIOR TO LAYING THE PIPE. THE INTERIOR OF ALL PIPES AND FITTINGS SHALL BE LINED WITH DOUBLE CEMENT MORTAR AND SEAL COATED IN COMPLETE CONFORMANCE WITH AWWA C104, OR THE LATEST REVISION. FITTINGS SHALL BE RATED FOR 250 PSI WORKING PRESSURE IN ACCORDANCE WITH AWWA C110. PIPE LENGTHS MAY BE DEFLECTED AT THE JOINT IF REQUIRED, AT ONE-HALF THE DEGREE RECOMMENDED BY THE MANUFACTURER.
4. ALL DUCTILE IRON PIPE, INCLUDING FITTINGS AND APPURTENANCES BURIED UNDERGROUND, SHALL BE ENCASED WITH 8 MIL. POLYETHYLENE FILM CONFORMING TO AWWA C105.
5. VALVES - THE ITEMS COVERED BY THIS SPECIFICATION SHALL MEET ALL APPLICABLE AWWA C905 STANDARDS AND THE FOLLOWING: ALL VALVES SHALL BE NON-RISING STEM, IRON BODY, RESILIENT WEDGE DISC. THE DESIGN OF THE THRUST COLLAR SHALL BE SUCH THAT THE THRUST COLLAR IS SEALED FROM LINE PRESSURE BY MEANS OF AN "O" RING SEAL. ALL VALVES SHALL BE FURNISHED WITH A TWO (2) INCH SQUARE OPERATING NUT, OPEN RIGHT. ALL VALVES SHALL BE FURNISHED WITH MECHANICAL JOINT END CONNECTIONS. THE STEM SHALL BE PROTECTED FROM EXTERNAL GRIT BY A WEATHER SHIELD AND AN UPPER "O" RING. STEM SHALL BE LUBRICATED. GATE COATING SHALL HAVE A MINIMUM THICKNESS OF 10 MILS. VALVE SHALL BE TESTED AT THE RATED WORKING PRESSURE OF 250 PSI WITH NO LEAKAGE. SHELL TEST OF 500 PSI SHALL BE APPLIED TO BODY WITH VALVE IN THE OPEN POSITION WITH NO LEAKAGE THROUGH THE METAL, STEM SEALS OR JOINTS. VALVE MUST HAVE TRADITIONAL STUFFING BOX. ALL BOLTING MATERIAL IN THE THRUST COLLAR AND BONNET SHALL BE #316 SS BOLTS. ALL VALVES WITH ACCESSORIES PACK (FLANGES, RUBBERS, NUTS, BOLTS)
6. ALL VALVE BOXES WILL BE ADJUSTED TO FINAL GRADE OF SURROUNDING PAVEMENT OR FINISHED SURFACE TREATMENTS WHEN THE PROJECT IS COMPLETED.
7. PLASTIC PIPE SHALL BE AWWA C909 PVC PRESSURE PIPE, CL200.
8. WHEN PLASTIC PIPE IS USED, A TRACER WIRE SHALL BE INSTALLED ON TOP OF THE PIPE.
  - A. THE TRACER WIRE SHALL BE #14 AWG COPPER CLAD STEEL WIRE WITH 30 MILS OF HIGH-DENSITY POLYETHYLENE (HDPE) INSULATION.
  - B. THE TRACER WIRE SHALL BE INSTALLED IN A CONTINUOUS FASHION WITH THE WIRE ON TOP OF THE WATER MAIN AND SECURE TO THE MAIN EVERY FIVE (5) FEET WITH TAPE.
  - C. THE TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT EVERY VALVE BOX AND/OR AS CALLED OUT IN THE DRAWINGS. TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT LEAST EVERY ONE THOUSAND (1,000) FEET.
  - D. IF THE WIRE COATING GETS DAMAGED, REPAIR DAMAGED COATING WITH ELECTRICAL TAPE.
9. DISINFECTION OF WATER MAINS SHALL BE IN ACCORDANCE WITH AWWA C651.
10. ALL WATER LINE PRESSURE TESTING SHALL CONFORM TO AWWA C600.
11. WATER MAINS SHALL BE INSTALLED AND BACKFILLED PER O.D.O.T. ITEM 638.
12. WATER LINES LOCATED WITHIN THE LIMITS OF OR WITHIN A 1/2 TO 1 SLOPE OF EXISTING AND/OR PROPOSED ROADWAYS, PARKING AREAS, BUILDINGS, SIDEWALKS, AND/OR DRIVES SHALL BE INSTALLED AS TYPE B CONDUITS. ALL OTHER WATER MAINS SHALL BE INSTALLED AS TYPE C CONDUITS. BEDDING SHALL BE AS SPECIFIED, EXCEPT THAT SLAG WILL NOT BE PERMITTED.
13. ALL BENDS, FITTINGS, TEES, VALVES, DEAD ENDS, ETC. SHALL BE SECURED EQUAL. POURED-IN-PLACE CONCRETE THRUST BLOCKS SHALL ALSO BE PROVIDED AT/FOR EACH BENDS, FITTING, TEE, DEAD END, ETC. THIS BLOCKING SHALL BE CAREFULLY PLACED TO ENSURE IT IS POSITIONED PROPERLY TO WITHSTAND THE RESULTANT FORCES AT EACH BEND, FITTING, ETC. AND SHALL BEAR ON STABLE UNDISTURBED GROUND CAPABLE OF WITHSTANDING THE POTENTIAL LOADING. TIE RODS ARE TO BE 3/4 INCH DIAMETER. TWO TIE RODS ARE REQUIRED FOR AN 8 INCH PIPE, AND FOUR TIE RODS ARE REQUIRED FOR 12 INCH AND GREATER PIPE.

14. IN ADDITION TO THE RESTRAINT OF ALL BENDS, FITTINGS, TEES, VALVES, DEAD ENDS, ETC. THE CONTRACTOR SHALL ALSO SECURE/RESTRAIN ALL JOINTS FOR AT LEAST THREE (3) PIPE JOINTS (50 LF MIN.) BEYOND EACH DEAD END, BEND, FITTING, VALVE, TEE, ETC. UTILIZING MEGALUGS, FIELD LOK GASKETS, OR APPROVED EQUALS.
15. THE CONTRACTOR SHALL PROVIDE 18" VERTICAL CLEARANCE BETWEEN PROPOSED WATERLINES AND ANY SANITARY SEWERS. WHEN 18" CLEARANCE BETWEEN A WATERLINE AND A SANITARY SEWER CANNOT BE OBTAINED, THE CONTRACTOR SHALL PROVIDE CONCRETE ENCASMENT AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE 12" MINIMUM CLEARANCE BETWEEN WATERLINES AND STORM SEWERS. THE CONTRACTOR SHALL MAINTAIN TEN (10) FOOT HORIZONTAL CLEARANCE BETWEEN WATERLINES/SERVICES AND SANITARY SEWERS AND FOUR (4) FOOT HORIZONTAL CLEARANCE BETWEEN WATERLINES/SERVICES AND STORM SEWERS.
16. THE FIRE HYDRANT SETTING SHALL INCLUDE THE HYDRANT, ANCHOR TEE, VALVE, VALVE BOX, 6 INCH PIPING AND ALL FITTINGS NEEDED FOR PROPER INSTALLATION TO FINAL GRADE. FIRE HYDRANTS SHALL BE MUELLER A423 MEETING THE CITY OF CANTON WATER DEPARTMENT STANDARDS AND REQUIREMENTS. ALL COSTS FOR THE 6" PIPING ASSOCIATED WITH THE INSTALLATION OF FIRE HYDRANTS SHALL BE INCLUDED WITH THE FIRE HYDRANT PAY ITEM. ALL HYDRANTS SHALL BE INSTALLED WITH THE PUMPER NOZZLE FACING THE STREET. ALL FIRE HYDRANT THREADS SHALL BE LUBRICATED WITH A FOOD GRADE LUBRICANT AND OPERATED UPON INSTALLATION.
17. THE PROPOSED FACILITIES SHALL MAINTAIN A MINIMUM 35 PSI PRESSURE DELIVERED TO THE CURB STOP DURING NORMAL OPERATING CONDITIONS.
18. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.
19. THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY PRECAUTIONS TO PROTECT AND MAINTAIN IN SERVICE, ANY EXISTING WATER MAINS EXPOSED DURING CONSTRUCTION.
20. ALL WATER TAPS AND SERVICES MUST BE INSTALLED BEFORE ANY PAVEMENT FOR THE PROPOSED ROADWAY HAS BEEN PLACED.
21. THE CONTRACTOR SHALL NOT MAKE ANY SERVICE TAPS ON THE WATER MAIN. THE CANTON WATER DEPARTMENT WILL MAKE ALL SERVICE TAPS.
22. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, EXCAVATION, BEDDING, BACKFILL AND OTHER ITEMS NECESSARY FOR THE INSTALLATION OF THE WATER SERVICES. MATERIAL SHALL INCLUDE, BUT NOT LIMITED TO, SERVICE SADDLE, CORP STOP, SERVICE LINE, AND CURB BOX. THE CANTON WATER DEPARTMENT WILL PROVIDE ASSISTANCE AND OVERSIGHT FOR THE INSTALLATION AND CONNECTION OF THE WATER SERVICES.
23. POLYETHYLENE WATER MAIN AND SERVICE TUBING 2" AND UNDER SHALL BE COPPER TUBE SIZE AND MEET STANDARDS ASTM-D2737 PE3408 AND AWWA C906. THE ONLY ACCEPTABLE TUBING IS CP CHEM PERFORMANCE PIPE DRISCOPLEX 5100-ULTRA-LINE.
24. ANY WATER SERVICE LINE THAT IS BROKEN, CUT OR OTHERWISE DAMAGED, SHALL BE REPLACED FROM THE CORPORATION STOP TO THE CURB STOP WITH A SINGLE PIECE OF PLASTIC SERVICE LINE (DRISCOPLEX). NO SPLICING OF THE SERVICE LINE WILL BE PERMITTED.
25. SERVICE BRANCHES WILL BE INSTALLED AS PER O.D.O.T ITEM 638.16, WITH THE FOLLOWING EXCEPTIONS:
  - a. WHEN A SERVICE BRANCH IS DISTURBED FOR LOWERING, RAISING, EXTENDING OR SHORTENING, REGARDLESS OF ITS LOCATION, IT SHALL BE REPLACED WITH NEW MATERIALS FROM THE CORPORATION STOP TO THE SERVICE STOP.
26. REGARDLESS OF THE SERVICE LINE SIZE, THE WATER SERVICE FROM THE CURB BOX TO THE FACILITY, MUST BE INSTALLED BY A CITY OF CANTON LICENSED PLUMBER. A CITY OF CANTON PLUMBING PERMIT MUST BE ISSUED TO THE PLUMBER INSTALLING THE SERVICE LINE BEFORE THE WATER SERVICE CAN BE INSTALLED.
27. THE CONTRACTOR SHALL NOTIFY THE CITY 48 HOURS IN ADVANCE OF ANY SHUT DOWN OF AN EXISTING MAIN. THE CONTRACTOR WILL NOT OPERATE ANY VALVES. VALVES WILL BE OPERATED BY CANTON WATER DEPARTMENT PERSONNEL ONLY. VALVES DAMAGED BY THE CONTRACTOR'S OPERATION WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
28. WHEN AN EXISTING WATER MAIN MUST BE SHUT DOWN TO PERFORM REQUIRED WORK, THE PROPERTIES TO BE EFFECTED SHALL BE GIVEN A MINIMUM 24 HOUR NOTICE OF SAID SHUT DOWN. THE WORK WILL BE SCHEDULED AND COORDINATED TO MINIMIZE THE TIME THE MAIN IS OUT OF SERVICE.
29. THE CANTON WATER DEPARTMENT WILL PROVIDE ASSISTANCE AND OVERSIGHT FOR THE TIE-IN WORK FOR CONNECTIONS TO EXISTING WATER MAINS. THE CONTRACTOR WILL PROVIDE ALL LABOR, MATERIALS, EXCAVATION, BEDDING AND BACKFILL REQUIRED FOR ALL TIE-INS.
30. ANY DIGGING WITHIN THE RIGHT-OF-WAY OF ANY STREET REQUIRES A ROAD OPENING PERMIT. PLEASE CONTACT THE APPROPRIATE GOVERNMENTAL ENTITY FOR INFORMATION REGARDING THE PERMITTING PROCESS AND/OR FEES DUE.

31. THE CONTRACTOR SHALL REPLACE ANY TRAFFIC SIGNAL LOOP DETECTOR WIRE THAT IS DAMAGED DURING THIS PROJECT. THE REPAIR SHALL BE PER THE GOVERNING AUTHORITY'S SPECIFICATIONS. THIS COST SHALL BE INCLUDED IN THE UNIT PRICES BID FOR ALL ITEMS IN THE PROPOSAL.
32. THE CONTRACTOR SHALL REPLACE ANY ROADWAY PAVEMENT MARKINGS DAMAGED OR REMOVED DURING THIS PROJECT. THE PAVEMENT MARKINGS SHALL BE PER THE GOVERNING AUTHORITY'S SPECIFICATIONS. THIS COST SHALL BE INCLUDED IN THE UNIT PRICES BID FOR ALL ITEMS IN THE PROPOSAL.

**IX. POST CONSTRUCTION INCIDENTALS**

**(A) AS-BUILT DRAWINGS:**

AS-BUILT INFORMATION SHALL BE PROVIDED TO THE CITY OF CANTON BY THE CONTRACTOR AT THE COMPLETION OF THE PROJECT. AS-BUILT INFORMATION CONSISTS OF POST-CONSTRUCTION FIELD SURVEY DATA OF THE LOCATION, FLOWLINE ELEVATIONS, AND TOP-OF-GRATE/RIM ELEVATIONS FOR ALL STORM AND SANITARY STRUCTURES CONSTRUCTED AND/OR IMPACTED BY THE PROJECT.

FOR PRIVATE PROJECTS, THE CONSTRUCTION BOND WILL NOT BE RELEASED UNTIL THE AS-BUILT DRAWINGS HAVE BEEN ACCEPTED.

**(B) PROPOSED MONUMENTATION:**

THE DEVELOPER'S/CONTRACTOR'S SURVEYOR SHALL NOTIFY THE CITY ENGINEER IN WRITING UPON THE COMPLETION OF MONUMENTS BEING SET AS PER PLAN OR RECORD PLAT.

**(C) RELEASE OF RETAINER/BONDS:**

PRIOR TO THE RELEASE OF RETAINER/CONSTRUCTION BOND BY THE CITY OF CANTON, THE CONTRACTOR SHALL HAVE COMPLETED THE ENGINEER'S PROJECT PUNCHLIST AND SUBMIT FINAL WAIVER OF LIEN, IN ACCORDANCE WITH CITY SS 01-00.

OFFICE OF THE CITY ENGINEER CANTON, OHIO DANIEL J. MOEGLIN, P.E., CITY ENGINEER 2436 30th STREET N.E. 44705 (330)489-3381	
GENERAL NOTES MILL ST SE SANITARY SEWER AND WATERLINE REPLACEMENT	
DATE:	
H. SCALE:	N.T.S.
V. SCALE:	N.T.S.
SHEET	4 OF 11
DRAWN BY:	P.W.W.
APPROVED BY:	P.W.W.
FIELD BOOK:	
DWG#	
REVISIONS	
DESCRIPTION	
DATE	BY



**NOTES:**

1. **BEDDING:**  
MATERIALS SHALL BE AASHTO M 43 NO. 56, 57, OR 67 CRUSHED STONE. NO ALTERNATES UNLESS APPROVED BY THE CITY ENGINEER. PRIVATE UTILITIES MAY TYPICALLY PROVIDE ALTERNATIVE BEDDING MATERIAL AS APPROVED BY THE CITY ENGINEER.

**BEDDING WIDTH TABLE**

PIPE TYPE	MIN. WIDTH, TYP.	MAX. WIDTH
NON-RIGID PIPE (PVC, HDPE, CMP, ALUMINUM)	PIPE I.D. x 1.25 + 1'-0"	PIPE O.D. + 2'-0"
RIGID PIPE (CONC., VIT. CLAY, DUCTILE IRON)	PIPE I.D. x 1.33	PIPE O.D. + 2'-0"

CENTER PIPE HORIZONTALLY WITHIN BEDDING AREA. ANY DEVIATION TO TYPICAL BEDDING REQUIREMENTS ARE SUBJECT TO THE DISCRETION OF THE CITY ENGINEER.  
THE BEDDING LIMITS SHOWN APPLY IN ALL CASES EXCEPT FOR WHEN PIPE MANUFACTURER SPECIFIES A BEDDING WIDTH DIFFERENT FROM THAT SHOWN AND THE CITY ENGINEER PERMITS SAME.

2. **BACKFILL:**  
**BACKFILL WITHIN THE PUBLIC STREET RW:**

MATERIALS SHALL BE ODOT 703.11, TYPE 1 GRANULAR MATERIAL (304, 411, or 617 AGGREGATE GRADATION) OR TYPE 2 GRANULAR MATERIAL, OR ODOT 613, LOW STRENGTH MORTAR; DEVIATIONS FROM THIS ARE AS FOLLOWS:

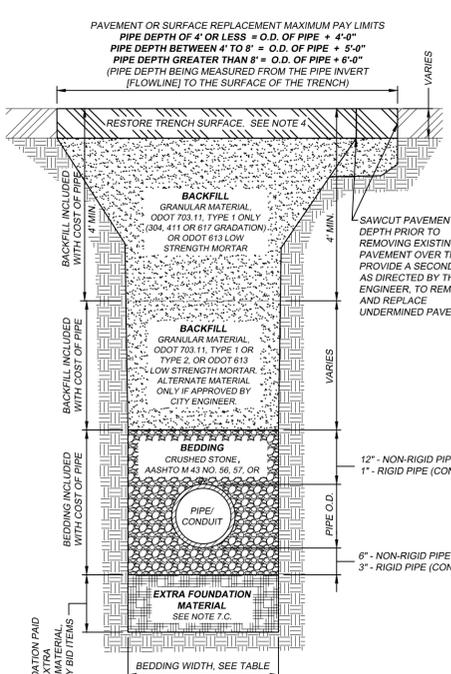
- A) NO FOUNDRY SAND OR SLAG IS PERMITTED.
- B) ALTERNATE GRANULAR MATERIAL SHALL BE PERMITTED ONLY WITH THE SUPPLEMENTAL APPROVAL OF THE CITY ENGINEER. TO PETITION FOR SUCH SUPPLEMENTAL APPROVAL, THE DEVELOPER/CONTRACTOR SHALL SUBMIT IN WRITING THE FOLLOWING:  
- SOURCE OF THE ALTERNATE BACKFILL MATERIAL  
- GRADATION REPORT IN ACCORDANCE WITH AASHTO T 11 AND T 27  
- PROCTOR CURVE ANALYSIS IN ACCORDANCE WITH ASTM D 698  
- PROPOSED COMPACTION METHOD.

THE CITY ENGINEER RESERVES THE RIGHT TO REFUSE ANY ALTERNATE BACKFILL MATERIAL THE CITY FINDS NOT CONSISTENT WITH THE APPROVED SOURCE, GRADATION REPORT, PROCTOR REPORT, OR COMPACTION METHOD.

THE CITY ENGINEER FURTHER RESERVES THE RIGHT TO REFUSE ANY ALTERNATE BACKFILL MATERIAL THE CITY FINDS NOT CONSISTENT WITH THE APPROVED SOURCE, GRADATION REPORT, PROCTOR REPORT, OR COMPACTION METHOD.

C) ODOT 703.11, TYPE 2, OR ALTERNATE MATERIALS ARE NOT PERMITTED WITHIN 4 FEET OF THE TRENCH SURFACE, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

**BACKFILL OUTSIDE OF THE PUBLIC STREET RW:**  
FOLLOW MATERIAL AND METHODS FOR BACKFILL IN ACCORDANCE WITH ODOT 603.



**NOTES: (CONTINUED)**

3. **COMPACTION:**  
ALL BACKFILL SHALL BE PLACED IN LAYERS NOT TO EXCEED 12-INCHES LOOSE DEPTH AND COMPACTED BY APPROVED MECHANICAL MEANS. JETTING IS NOT APPROVED WITHOUT THE CITY ENGINEER'S APPROVAL. BUCKET COMPACTION MUST BE SUPPLEMENTED WITH VIBRATION OR TAMPING EQUIPMENT AS DIRECTED. ANY MODIFICATIONS TO THESE REQUIREMENTS MUST BE APPROVED BY THE CITY ENGINEER.

4. **SURFACE:**  
TRENCHES SHALL BE TOPPED WITH 4" OF ODOT 304 LIMESTONE OR ASPHALT GRINDINGS WITHIN EXISTING STREET PAVEMENTS WHEN THE STREET WILL BE OPENED TO VEHICULAR TRAFFIC PRIOR TO PAVEMENT REPLACEMENT. THE TRENCH TOPPING MATERIAL SHALL BE ROLLED OR OTHERWISE COMPLETED FLUSH WITH THE ADJOINING PAVEMENT.  
**STREET RESTORATION:**  
CONCRETE OR ASPHALT TRENCH PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH CITY STD. DWG. NO. 32. BRICK OR ASPHALT BRICK COMPOSITE STREET PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH CITY STD. DWG. NO. 31.

**SIDEWALK, CURB, AND DRIVEWAY RESTORATION:**  
DRIVEWAY SURFACES SHALL BE REPLACED IN ACCORDANCE WITH THE CURRENT EDITION OF THE CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS; AND CITY STD. DWG. NOS. 29 THRU 33.

**LAWN RESTORATION:**  
LAWN SURFACES SHALL BE REPLACED WITH A MINIMUM OF 4" TOPSOIL, SEED, AND MULCHED. SEED MIX SHALL CONFORM TO ADJOINING LAWN GRASS.

- 12" - NON-RIGID PIPE (PVC, HDPE, CMP, ALUMINUM)
- 1" - RIGID PIPE (CONCRETE, VITRIFIED CLAY, OR DUCTILE IRON)
- 6" - NON-RIGID PIPE (PVC, HDPE, CMP, ALUMINUM)
- 3" - RIGID PIPE (CONCRETE, VITRIFIED CLAY, OR DUCTILE IRON)

5. **CONSTRUCTION METHODS FOR BEDDING AND BACKFILL** SHALL CONFORM WITH ODOT 603, UNLESS STATED OTHERWISE HEREIN.

6. **ODOT REFERENCES** ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS; ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.

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DESCRIPTION	DATE	BY	
REVISIONS TO NOTES 7 & 8	6/4/2012	CDB	

**STANDARD DRAWING NO. 19**  
**UTILITY TRENCH REQUIREMENTS**  
SHEET 1 OF 2

**NOTES: (CONTINUED)**

7. **PAY LIMITS**  
A) **BEDDING AND BACKFILL** IS INCLUDED IN WITH THE COST OF PIPE UNLESS BID OTHERWISE.  
B) **PAVEMENT RESTORATION:** THE WIDTH MEASUREMENT OVER THE TRENCH FOR PAVEMENT RESTORATION SHALL NOT EXCEED THE OUTSIDE DIAMETER (O.D.) OF PIPE PLUS A SET MEASUREMENT DEPENDENT ON DEPTH OF PIPE. AREA MEASUREMENTS AT MANHOLE AND CATCH BASIN STRUCTURES SHALL NOT EXCEED THE AREA OF THE BASE OF THE STRUCTURE + 3'-0" OFFSET AREA AROUND THE STRUCTURE'S BASE.  
C) **EXTRA FOUNDATION MATERIAL:**

WHEN IN THE OPINION OF THE CITY ENGINEER, SOFT/UNSTABLE MATERIALS ARE ENCOUNTERED WHICH ARE UNSUITABLE FOR BEDDING FOUNDATION, SAID MATERIAL SHALL BE REMOVED BY THE CONTRACTOR TO THE DEPTH DIRECTED BY THE ENGINEER AND REPLACED WITH SUITABLE MATERIAL.  
FOR CITY PROJECTS, THE PAYABLE WIDTH OF THE EXTRA FOUNDATION MATERIAL SHALL NOT EXCEED THE LESSER OF THE APPLICABLE MINIMUM OR MAXIMUM TYPICAL BEDDING WIDTH, AS NOTED ON SHEET 1 OF STD. DWG. NO. 19. THE CONTRACTOR SHALL BE PAID FOR OVER-EXCAVATION AND BEDDING FOUNDATION MATERIAL UNDER THE CONTINGENCY BID ITEMS FOR EXTRA FOUNDATION MATERIAL.

FOR PRIVATE WORK, ALL COSTS ARE AT THE OWNER'S EXPENSE.  
EXTRA FOUNDATION MATERIAL, OPTION A, B, C, & D, MAY BE USED IN ANY COMBINATION AS DIRECTED BY THE CITY ENGINEER.

- OPTION A: CRUSHED STONE, AASHTO M 43 NO. 1 AND/OR 2
- OPTION B: CRUSHED STONE, AASHTO M 43 NO. 56, 57, OR 67
- OPTION C: ODOT 703.11, TYPE 1 (304, 411 OR 617 GRADATION)
- OPTION D: TENSAR GEOGRID T1100, OR APPROVED EQUAL

EXTRA FOUNDATION MATERIAL, CONTINGENCY BID ITEMS

ITEM	QTY.	UNIT	DESCRIPTION
603	C.Y.		EXTRA FOUNDATION, OPTION A (#1, #2 STONE)
603	C.Y.		EXTRA FOUNDATION, OPTION B (#56,57,67 STONE)
603	C.Y.		EXTRA FOUNDATION, OPTION C (304,411,617)
603	S.F.		EXTRA FOUNDATION, OPTION D (GEOGRID)

**NOTES: (CONTINUED)**

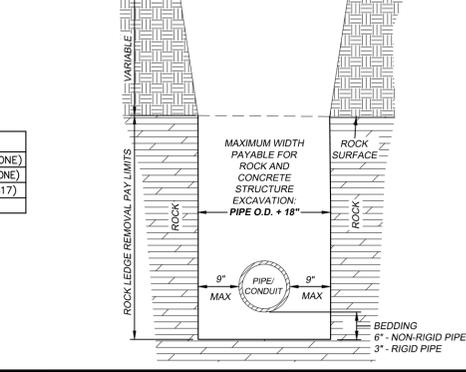
8. **EXCAVATION OF ROCK OR BURIED/ABANDONED CONCRETE STRUCTURE REMOVAL**  
EXCAVATION FOR NEW MANHOLES AND CATCH BASINS, UNLESS OTHERWISE SPECIFIED OR SHOWN ON CONSTRUCTION PLANS, SHALL BE MEASURED BETWEEN VERTICAL PLANES ONE (1) FOOT BEYOND THE OUTSIDE EDGE OF THE FOUNDATION OF THE STRUCTURES ON ALL SIDES, AND PARALLEL THERETO, AND FROM THE SURFACE OF THE ROCK TO THE BOTTOM OF THE ROCK OR THE NEAT LINES OF THE BOTTOM OF THE STRUCTURES PLUS THE DEPTH OF THE BASE MATERIAL. USE THE MEASUREMENT WHICH IS LESSER.  
EXCAVATION FOR NEW PIPES, UNLESS OTHERWISE SPECIFIED OR SHOWN ON CONSTRUCTION PLANS, SHALL BE MEASURED BETWEEN TRENCH WALLS (NOT TO EXCEED PIPE O.D. + 18", AND FROM THE SURFACE OF THE ROCK TO THE BOTTOM OF THE ROCK OR THE BOTTOM OF THE PIPE BEDDING, USE THE MEASUREMENT WHICH IS LESSER.  
EXCAVATION OF BURIED AND ABANDONED CONCRETE STRUCTURES SHALL BE MEASURED IN THE SAME MANNER AS ROCK REMOVAL.  
FOR CITY PROJECTS, THE CONTRACTOR SHALL BE PAID FOR ROCK REMOVAL AND CONCRETE STRUCTURE REMOVAL UNDER THE CONTINGENCY BID ITEMS FOR ROCK OR CONCRETE STRUCTURE REMOVAL. IF A CONTINGENCY BID ITEM IS NOT INCLUDED IN THE BID PROPOSAL, THE CONTRACTOR MAY SUBMIT A PROPOSAL (PRIOR TO WORK BEING STARTED) TO THE CITY ENGINEER FOR REVIEW AND APPROVAL.  
FOR PRIVATE WORK, ALL COSTS ARE AT THE OWNER'S EXPENSE.

EXTRA FOUNDATION MATERIAL, CONTINGENCY BID ITEMS

EXCAVATION OF BURIED AND ABANDONED CONCRETE STRUCTURES SHALL BE MEASURED IN THE SAME MANNER AS ROCK REMOVAL.

FOR CITY PROJECTS, THE CONTRACTOR SHALL BE PAID FOR ROCK REMOVAL AND CONCRETE STRUCTURE REMOVAL UNDER THE CONTINGENCY BID ITEMS FOR ROCK OR CONCRETE STRUCTURE REMOVAL. IF A CONTINGENCY BID ITEM IS NOT INCLUDED IN THE BID PROPOSAL, THE CONTRACTOR MAY SUBMIT A PROPOSAL (PRIOR TO WORK BEING STARTED) TO THE CITY ENGINEER FOR REVIEW AND APPROVAL.

FOR PRIVATE WORK, ALL COSTS ARE AT THE OWNER'S EXPENSE.

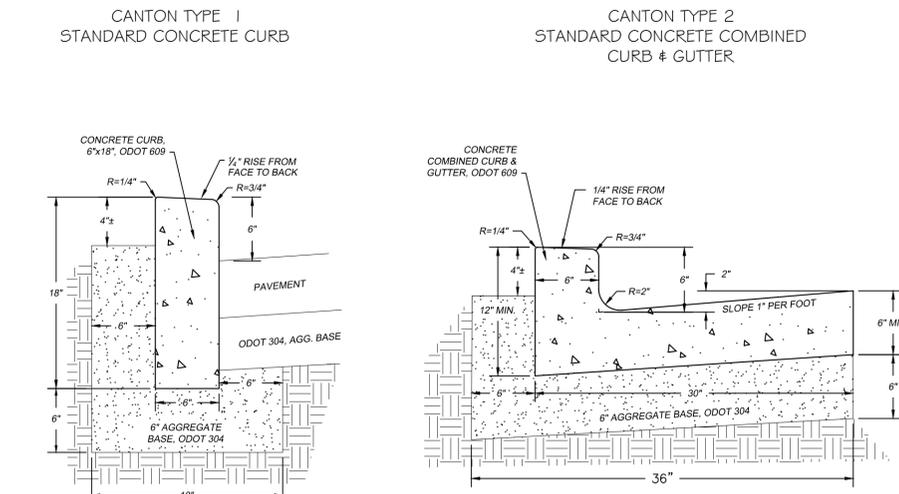


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REVISIONS TO NOTES 7 & 8	6/4/2012	CDB	

**STANDARD DRAWING NO. 19**  
**UTILITY TRENCH REQUIREMENTS**  
SHEET 2 OF 2

**CANTON TYPE 1 STANDARD CONCRETE CURB**  
**CANTON TYPE 2 STANDARD CONCRETE COMBINED CURB & GUTTER**



**NOTES:**

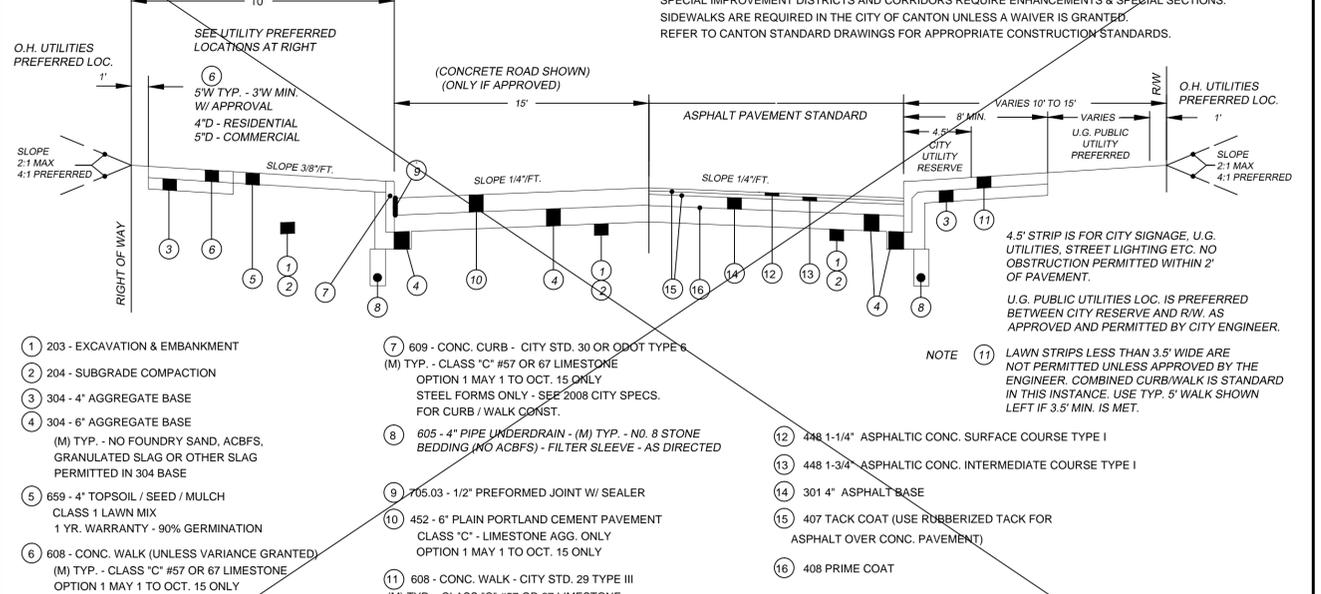
- CURB CONSTRUCTION MUST CONFORM TO ODOT 609 AND THE CURRENT CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS.
- CONCRETE MATERIAL FOR CURB AND WALK MUST BE ODOT 489 CLASS 'C' CONCRETE WITH LIMESTONE AGGREGATE.
- NO FOUNDRY SAND OR SLAG PERMITTED IN AGGREGATE BASE, ODOT 304.
- CURB CONTRACTION JOINT MUST BE SPACED 10 FEET TYPICALLY; WALK CONTRACTION JOINTS MUST BE SPACED 5 FEET TYPICALLY, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. CURB EXPANSION JOINTS MUST BE INSTALLED AT CURB INLET CATCH BASIN AND AT ANY OTHER RIGID STRUCTURES. CURB EXPANSION AND CONTRACTION JOINTS MUST BE DOWELED WITH TWO (2) #5 THRU #8 SMOOTH BARS, 18" LONG, EXTENDING 9" INTO EACH CURB.
- CONCRETE WALK REPLACED OR INSTALLED ADJACENT TO EXISTING CONCRETE CURB MUST BE DOWELED TO THE EXISTING CURB, UNLESS DETERMINED OTHERWISE BY THE CITY ENGINEER (SEE CITY STD. DWG. 29).
- ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS; ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.
- ODOT CURB TYPE 6 AND TYPE 2 (ODOT STD CONST. DWG. BP-5.1) ARE ACCEPTABLE OPTIONS RESPECTIVELY TO CITY STANDARD CURB TYPE 1 AND 2 FOR NEW ROADWAY OR CITY PROJECTS, AS APPROVED BY THE CITY ENGINEER. WHEN A CANTON CURB TYPE ABUTS AN ODOT CURB TYPE, THE CONTRACTOR MUST TRANSITION THE CURB FACE AND TOP TO MATCH THE EXISTING CURB FACE AND TOP WITHIN A 4' LENGTH, BUT NOT LESS THAN 1' LENGTH.

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DESCRIPTION	DATE	BY	

**STANDARD DRAWING NO. 30**  
**CONCRETE CURB AND COMBINED CURB & GUTTER**  
SHEET 1 OF 1

**GENERAL CRITERIA**



ODOT REFERENCES ARE 2008 CMS - CROSS-REFERENCE TO CURRENT CMS AT TIME OF CONSTRUCTION. (M) DENOTES CANTON MODIFICATION TO CMS AS NOTED.  
ALL CURB AND WALK CONSTRUCTION TO CONFORM TO CITY OF CANTON 2008 SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR AND REPLACING OF SIDEWALKS, CURBS AND DRIVEWAYS.

PAVEMENT WIDTHS ARE TRADITIONALLY AND TYPICALLY 3/5THS THE RIGHT OF WAY WIDTH. LANE WIDTHS ARE 12 FT. TYP. AND PARKING WIDTHS ARE 8 FT. TYPICAL (2' - 3' APRON EA. SIDE) BY ORD. - MIN. 28 FT. PAVEMENT REQUIRED FOR PARKING I-SIDE - 32 FT. PREFERRED. BUSINESS/COMMERCIAL DISTRICTS AND MAJOR STREET CORRIDORS REQUIRE SPECIAL SECTIONS. SPECIAL IMPROVEMENT DISTRICTS AND CORRIDORS REQUIRE ENHANCEMENTS & SPECIAL SECTIONS. SIDEWALKS ARE REQUIRED IN THE CITY OF CANTON UNLESS A WAIVER IS GRANTED. REFER TO CANTON STANDARD DRAWINGS FOR APPROPRIATE CONSTRUCTION STANDARDS.

4.5' STRIP IS FOR CITY SIGNAGE, U.G. UTILITIES, STREET LIGHTING ETC. NO OBSTRUCTION PERMITTED WITHIN 2' OF PAVEMENT.  
U.G. PUBLIC UTILITIES LOC. IS PREFERRED BETWEEN CITY RESERVE AND R.W. AS APPROVED AND PERMITTED BY CITY ENGINEER.  
**NOTE 11** LAWN STRIPS LESS THAN 3.5' WIDE ARE NOT PERMITTED UNLESS APPROVED BY THE ENGINEER. COMBINED CURB/WALK IS STANDARD IN THIS INSTANCE. USE TYP. 5' WALK SHOWN LEFT IF 3.5' MIN. IS MET.

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**STANDARD DRAWING NO. 32**  
**MINIMUM PAVEMENT STANDARDS FOR LOCAL STREET**

REVISIONS				DRAWN BY: OWG		DATE: APR 2009	
DESCRIPTION	DATE	BY		APP'D BY: RMB	H. SCALE: 1" = 5'		
GENERAL REVISIONS	11/09	RC					
GENERAL REVISIONS	06/10	MM					
GENERAL REVISIONS	10/12/11	CDB					

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**STANDARD DRAWING NO. 30**  
**CONCRETE CURB AND COMBINED CURB & GUTTER**  
SHEET 1 OF 1

**CANTON CONSTRUCTION STANDARDS NOTES FOR MODIFIED ODOT MANHOLE 3 (SCD MH-1.2)**

- NOTE 1. LIFT HOLES INSIDE THE MANHOLES MUST BE SEALED WITH GROUT.
- NOTE 2. TOP AND TRANSITION SECTIONS MUST BE ECCENTRIC CONE ONLY. USE FLAT SLAB FOR SHALLOW MANHOLE APPLICATIONS OR SPECIAL CIRCUMSTANCES AS DIRECTED BY THE CITY.
- NOTE 3. 6" EXTENDED BASE IS STANDARD FOR ALL SANITARY AND STORM MANHOLES. SET MANHOLE BASE ON 6" OF AASHTO M 43 NO. 56, 57, OR 62 CRUSHED STONE SET ON UNDISTURBED EARTH.
- NOTE 4. PIPE CONNECTIONS INTO THE MANHOLES MUST NOT EXTEND INTO THE MANHOLE MORE THAN 2" AT THE SIDES OF THE PIPE AT THE SPRING-LINE OF SAID PIPE.
- SANITARY CONNECTIONS**  
SANITARY SEWER PIPE INLETS, WITH FLOWLINES MORE THAN 2" HIGHER THAN THE CHANNEL BENCH MUST BE OUTSIDE DROP CONNECTIONS. DROP CONNECTIONS MUST BE FABRICATED AND CAST INTEGRALLY WITH THE MANHOLE SECTIONS OR INSTALLED PER CITY STANDARD DWG. 11. OUTSIDE DROP CONNECTION FOR SANITARY MANHOLES. NO INSIDE DROPS PERMITTED FOR PRIVATE SEWER CONNECTIONS. INSIDE DROP FOR CITY-OWNED SEWERS ARE SUBJECT TO THE CITY ENGINEER'S APPROVAL.
- SANITARY PIPE INLETS** MUST BE FLUMED OVER THE BENCH, DIRECTING FLOW INTO THE CHANNEL, USING CONCRETE AND/OR CLAY SEWER BRICK AND MORTAR.
- CAST OPENINGS** MUST BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 2 INCHES WITH A BUTYL RUBBER A-LOK, X-CEL GASKET, OR APPROVED EQUAL.
- CORED OPENINGS** MUST BE MACHINE CORED. THE OPENING SHALL BE PER PIPE-TO-MANHOLE CONNECTOR SPECS. USE "KOR-N-SEAL" FLEXIBLE PIPE-TO-MANHOLE CONNECTOR WITH STAINLESS WEDGE ASSEMBLY OR APPROVED EQUAL CONFORMING TO ASTM C-930 OR ASTM C-923.
- STORM CONNECTION**  
OPENINGS FOR STORM PIPE INLETS MAY BE CAST OR MACHINE CORED. OPENINGS SHALL NOT EXCEED THE O.D. OF PIPE + 2". MAKE WATER-TIGHT JOINTS WITH NON-SHRINK CEMENT OR CLASS C CONCRETE APPLIED FROM INSIDE AND OUTSIDE OF MANHOLE.
- NOTE 5. STEPS SHALL BE 1/2" STEEL REINFORCED POLYPROPYLENE STEPS 12" W X 5-3/4" BY AMERICAN STEP CO., INC. OR APPROVED EQUAL, MEETING ASTM 478.
- FRAMES AND COVER** SHALL CONFORM WITH CITY OF CANTON STD. DWG. NO. 12.
- NOTE 6. GRADE RINGS FOR NEW MANHOLES MAY BE PRECAST CONCRETE, RUBBER COMPOSITE, OR CLAY BRICK AND MORTAR. CONCRETE BRICK IS NOT PERMITTED.
- 12". HEIGHT OF GRADE RINGS COLLECTIVELY SHALL NOT EXCEED
- PRECAST CONCRETE GRADE RINGS MUST BE REINFORCED CLASS "C" CONCRETE AND CONNECTED USING TWO CONCENTRIC RINGS OF 1/2" TO 1" BEADS OF BUTYL RUBBER SEALANT CON-SEAL OR APPROVED EQUAL. SEAL OUTSIDE JOINTS WITH 1/2" NON SHRINK CEMENT PLASTER.
- RUBBER COMPOSITE GRADE RINGS MUST BE "INFRA-RISER" BY EJIW OR APPROVED EQUAL AND CONNECTED USING TWO PARALLEL BEADS OF POLY-SEALANT ADHESIVE PER MANUFACTURER'S RECOMMENDATION. RUBBER COMPOSITE GRADE RINGS HEIGHT MUST NOT EXCEED 3" AND MUST BE PLACED DIRECTLY UNDER MANHOLE FRAME.
- BRICK AND MORTAR RINGS MUST BE BELDEN BRICK, FINE GRIND, ASTM C32-90, OR APPROVED EQUAL WITH HIGH STRENGTH, AIR ENTRAINED, MORTAR. SEAL OUTSIDE JOINTS WITH 1/2" NON SHRINK CEMENT PLASTER.
- USE TWO PARALLEL 3/4" BEADS OF BUTYL RUBBER SEALANT CON-SEAL OR APPROVED EQUAL BETWEEN GRADE RINGS AND MANHOLE FRAME.
- NOTE 7. FOR BACKFILL MATERIAL AND COMPACTION, AND ROCK EXCAVATION, IF APPLICABLE, REFER TO CITY STD DWG. NO. 19.
- NOTE 8. SANITARY MANHOLES TO BE TESTED ACCORDING TO CITY ENGINEER'S SPECIFICATION 04-01 (NEGATIVE AIR PRESSURE TEST).

**OPTIONAL MANHOLE BID ITEMS**

ITEM	QTY.	UNIT	DESCRIPTION OPTION "A"
604	V.F.	MH WATERPROOFING, COAL TAR, A.P.P.	

IF REQUESTED BY THE CITY ENGINEER, OR SPECIFIED IN THE PLAN, THE CONTRACTOR SHALL PROVIDE UNIT PRICE FOR WATERPROOFING THE EXTERIOR OF DESIGNATED MANHOLES. THIS ITEM IS "CITY OPTIONAL" AND THE PRICE IS PAID PER VERTICAL FOOT OF EACH MANHOLE WATERPROOFED AS DIRECTED BY THE ENGINEER. THIS OPTION IS A CONTINGENCY BID ITEM UNLESS SPECIFIED OTHERWISE.

ITEM	QTY.	UNIT	DESCRIPTION OPTION "B"
604	EACH	NEW MH, POLYMER LINING, A.P.P.	
604	V.F.	EXISTING MH, POLYMER LINING, A.P.P.	

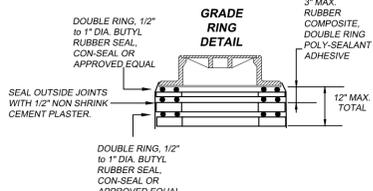
APPLY IN THE FIELD A COAL TAR EPOXY TO THE OUTSIDE OF THE MANHOLE PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS FROM THE TOP OF THE EXTENDED BASE TO THE BOTTOM OF THE MANHOLE COVER CASTING.

IF REQUESTED BY THE CITY ENGINEER, OR SPECIFIED IN THE PLAN, THE CONTRACTOR SHALL PROVIDE UNIT PRICE FOR CORROSION RESISTANT POLYMER LININGS AS DESIGNATED. THIS ITEM IS "CITY OPTIONAL" AND THE PRICE IS PAID PER VERTICAL FOOT OR PER EACH MANHOLE LINED AS DIRECTED BY THE ENGINEER. THE UNIT COST FOR THIS ITEM INCLUDES ALL COSTS FOR LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED FOR SUPPLYING AND INSTALLING THE LININGS INCLUDING THE COST FOR BYPASSING EXISTING SEWER FLOWS FOR THE DURATION OF THE INSTALLATION AND CURING TIME AS SPECIFIED. THIS OPTION IS INCLUDED AS A CONTINGENCY BID ITEM, UNLESS SPECIFIED OTHERWISE.

APPLY IN THE FIELD A CORROSION RESISTANT POLYMER LINING (PLASITE S371 BY CARBOLINE OR APPROVED EQUAL) TO THE INSIDE OF THE NEW OR EXISTING MANHOLE PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS. APPLY FROM THE TOP OF THE BENCH TO THE BOTTOM OF THE MANHOLE COVER CASTING.

FOR EXISTING MANHOLES, PRIOR TO POLYMER LINING APPLICATION, RESTORE INSIDE WALLS AS PER LINING MANUFACTURER'S RECOMMENDATIONS OR AS DIRECTED BY THE CITY ENGINEER.

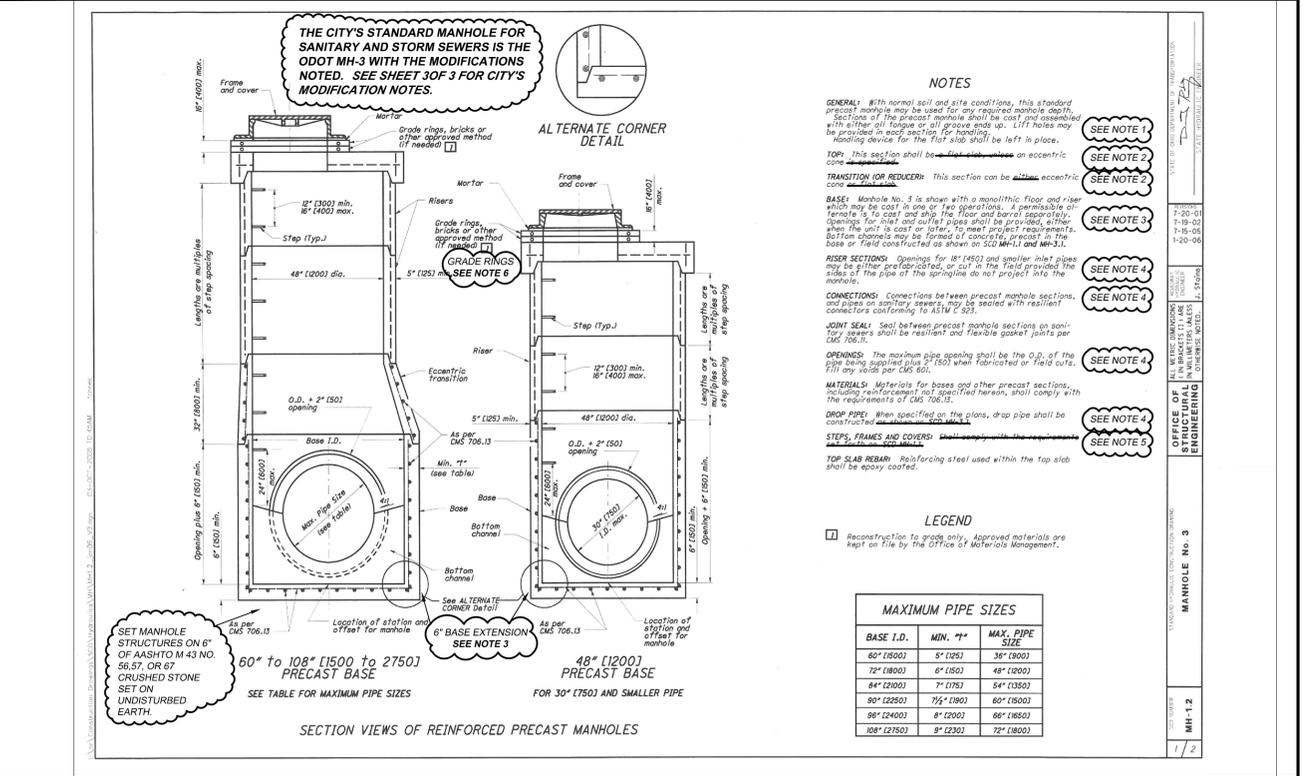
**THE CITY'S STANDARD MANHOLE FOR SANITARY AND STORM SEWERS IS THE ODOT MH-3 WITH THE MODIFICATIONS NOTED.**



**OFFICE OF THE CITY ENGINEER  
CANTON, OHIO**  
DANIEL J. MOEGLIN, P.E., CITY ENGINEER  
2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering

APPROVED DATE:	REVISIONS
JAN 2012	DESCRIPTION DATE BY
APPROVED BY: CDB, RMB, SLH	
DRAWING FILE NAME: ce_10.dwg	

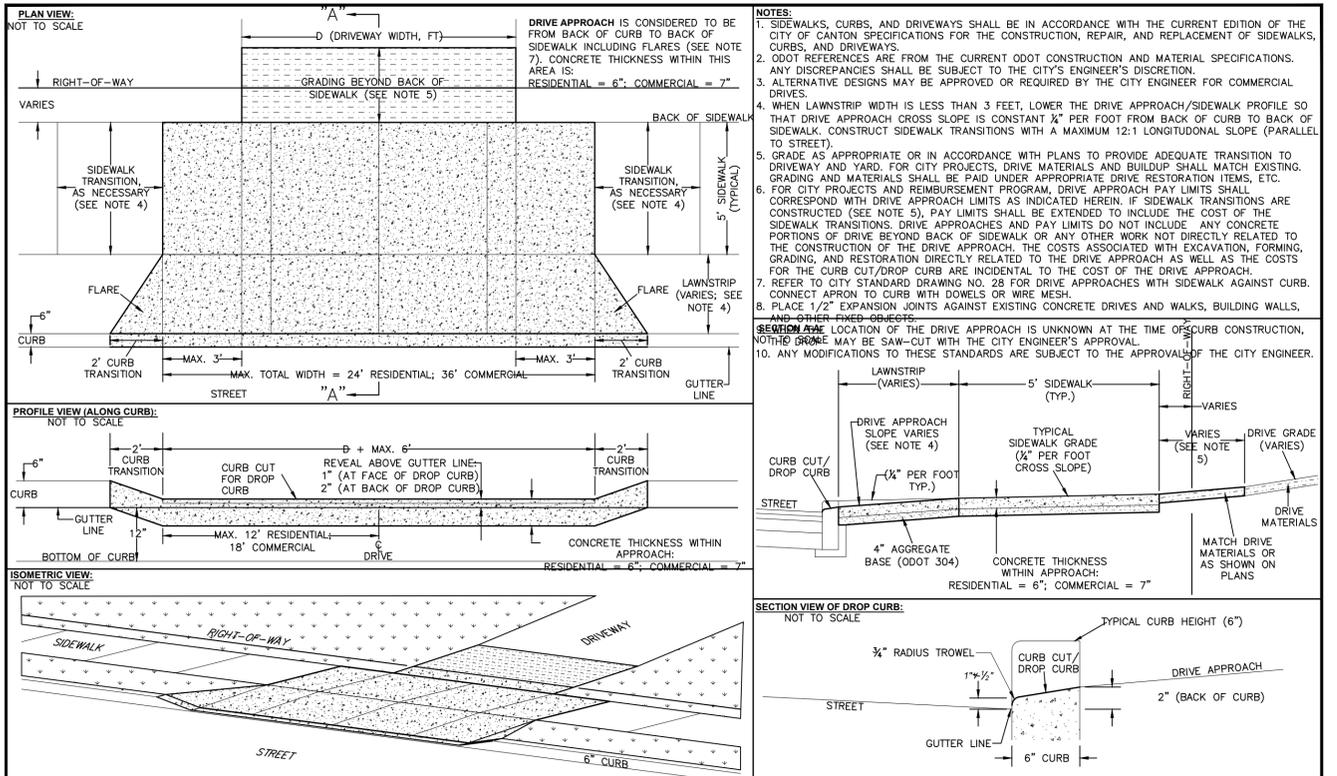
**STANDARD DRAWING NO. 10  
PRECAST STORM OR  
SANITARY MANHOLE**  
SHEET 3 OF 3



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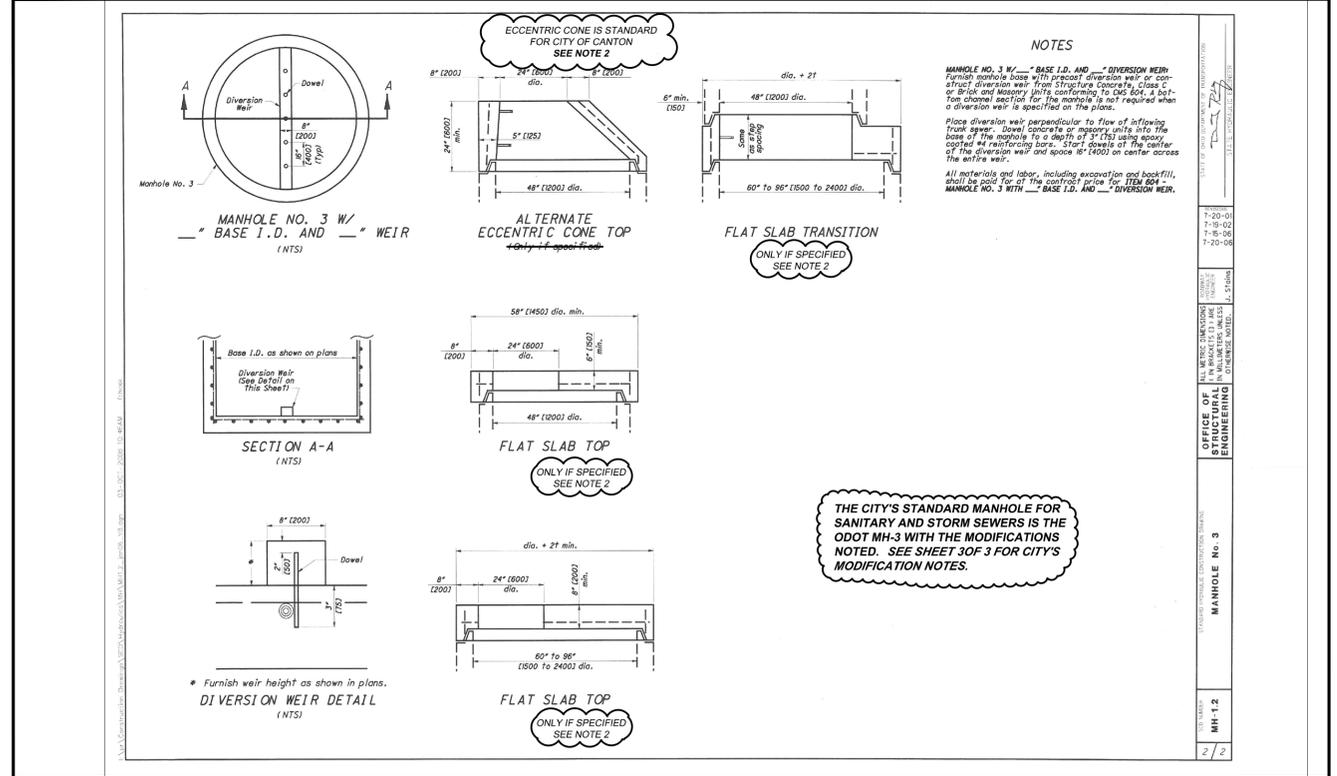
**STANDARD DRAWING NO. 10  
PRECAST STORM OR  
SANITARY MANHOLE**  
SHEET 1 OF 3



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APPROVED DATE:	REVISIONS
MAR 2012	DESCRIPTION DATE BY
APPROVED BY: CDB, RMB	
DRAWING FILE NAME: ce_28.dwg	

**STANDARD DRAWING NO. 27  
DRIVE APPROACH  
WITH LAWNSTRIP BETWEEN SIDEWALK &  
CURB**  
SHEET 1 OF 1



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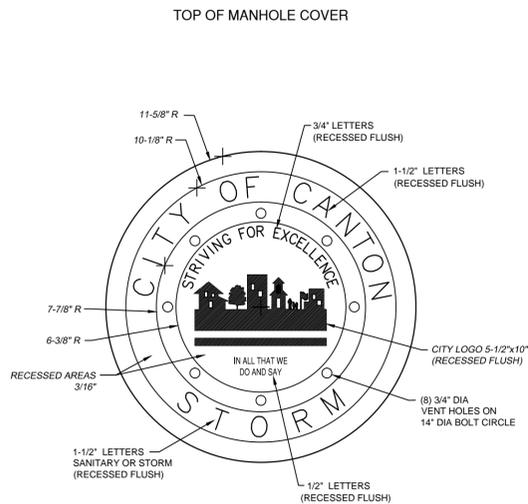
APPROVED DATE:	REVISIONS
JAN 2012	DESCRIPTION DATE BY
APPROVED BY: CDB, RMB, SLH	
DRAWING FILE NAME: ce_10.dwg	

**STANDARD DRAWING NO. 10  
PRECAST STORM OR  
SANITARY MANHOLE**  
SHEET 2 OF 3

**OFFICE OF THE CITY ENGINEER  
CANTON, OHIO**  
DANIEL J. MOEGLIN, P.E., CITY ENGINEER  
2436 30th Street N.E. 44705 (330)489-3381

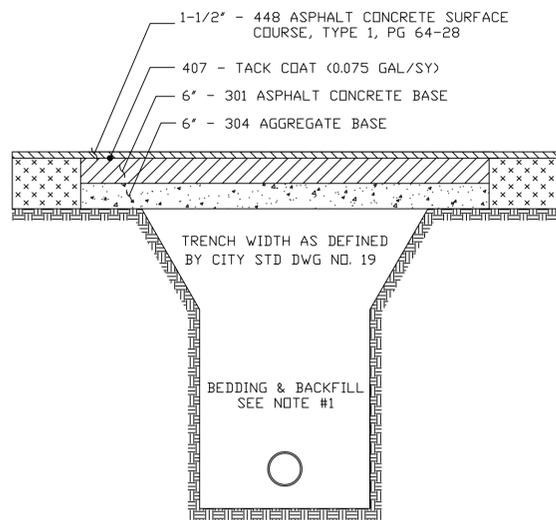
**DETAILS  
MILL ST SE SANITARY SEWER  
AND WATERLINE REPLACEMENT**

DATE:	BY:	REVISIONS	DESCRIPTION
H. SCALE: N.T.S.	APPROVED BY: P.W.W.		
V. SCALE: N.T.S.	FIELD BOOK:		
SHEET 7 OF 11	DWG#		



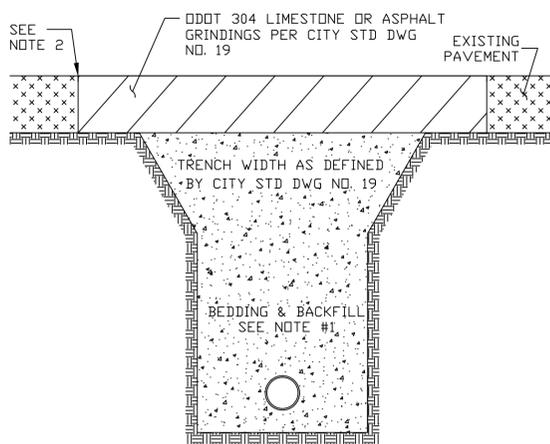
- NOTES:
- COVER AND FRAME TO BE CAST OF GRAY IRON IN COMPLIANCE WITH ASTM SPEC. ASTM A-48 CLASS 35. CASTINGS SHALL BE OF THE HEAVY DUTY RATING.
  - EAST JORDAN 1850 B COVER (PRODUCT NO. 185026) AND 1850 FRAME, OR NEENAH R-1854 FRAME AND LID, OR EQUAL APPROVED BY CITY ENGINEER.
  - MACHINE BEARING SURFACES BETWEEN LID AND FRAME.
  - CONTACT CITY ENGINEER FOR CAD DRAWING OF CITY LOGO.

<b>OFFICE OF THE CITY ENGINEER</b> <b>CANTON, OHIO</b> DANIEL J. MOEGLIN, P.E., CITY ENGINEER 2436 30th St. NE 44705 330-489-3381 www.cantonohio.gov/engineering	APPROVED DATE: JAN 2012	<b>REVISIONS</b>			<b>STANDARD DRAWING NO. 12</b>  <b>MANHOLE COVER</b>  SHEET 1 OF 1
	APPROVED BY: CDB, RMB, SLH	DESCRIPTION	DATE	BY	
	DRAWING FILE NAME: ce_12.dwg				



- NOTES:
- FOR SANITARY SEWER TRENCH BEDDING & BACKFILL SEE CITY STD DWG NO. 19 ON SHEET 6, FOR WATER TRENCH BEDDING & BACKFILL SEE TRENCH DETAIL ON SHEET 5.
  - SAW CUT EXISTING PAVEMENT, SEAL JOINT PER ODOT ITEM 423 - CRACK SEALING, TYPE IV. INCLUDE COST IN BID PRICE FOR THE PAVEMENT REPAIR.

**PAVEMENT REPLACEMENT DETAIL -**  
**STA 0+76 TO STA 3+91**  
 N.T.S.



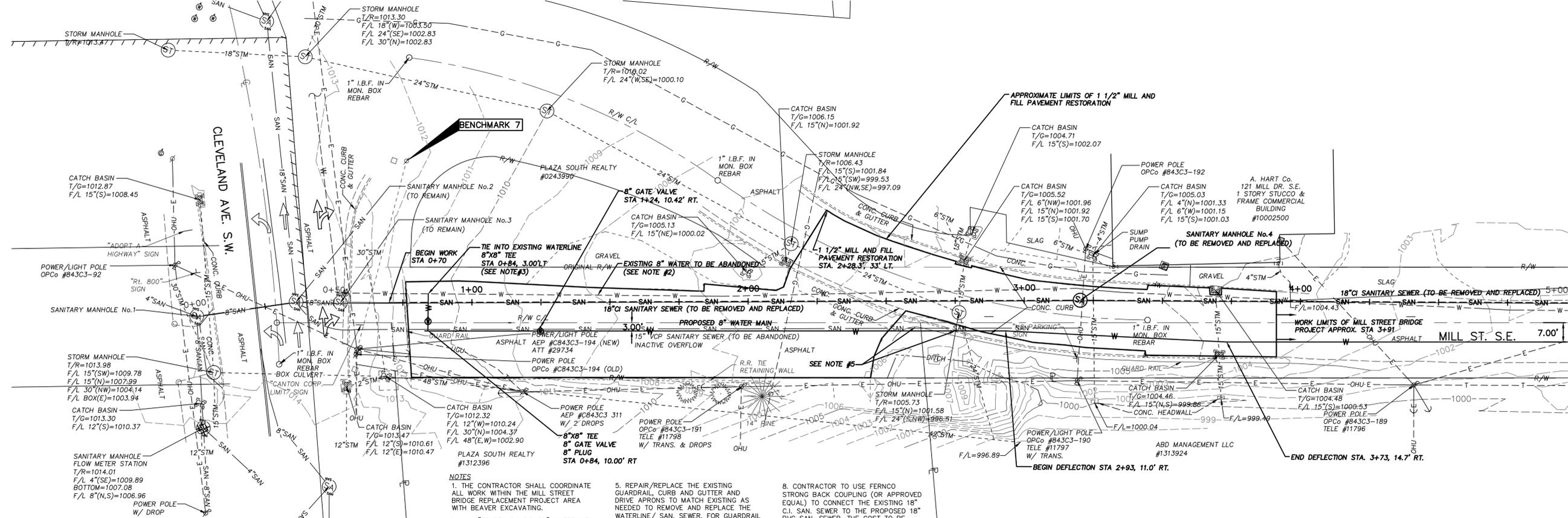
- NOTES:
- CHECK WITH LOCAL AUTHORITY HAVING JURISDICTION WITHIN THE RIGHT-OF-WAY REGARDING BACKFILL REQUIREMENTS.
  - SAW CUT EXISTING PAVEMENT, SEAL JOINT PER ODOT ITEM 423 - CRACK SEALING, TYPE IV. INCLUDE COST IN BID PRICE FOR THE PROPOSED PAVEMENT.

**PAVEMENT REPLACEMENT DETAIL -**  
**STA 3+91 TO STA 10+00**  
 N.T.S.

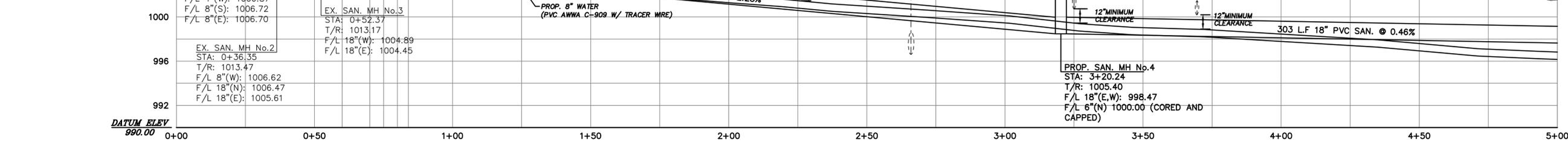
ESTIMATED QUANTITIES			
MISCELLANEOUS			
ITEM	QTY	UNIT	DESCRIPTION
624	1	L.S.	MOBILIZATION
623	1	L.S.	CONSTRUCTION LAYOUT
614	1	L.S.	MAINTENANCE OF TRAFFIC
690	1	L.S.	PRECONSTRUCTION VIDEO
659	500	S.Y.	SEEDING AND MULCHING, CONTINGENCY
SANITARY WORK			
ITEM	QTY	UNIT	DESCRIPTION
SPEC	860	L.F.	18" PVC SANITARY SEWER AS PER PLAN (ASTM F-679), AS PER PLAN
604	3	EACH	48" DIA. PRECAST MANHOLE AS PER PLAN (CITY STD. 10 & 12)
SPEC.	1	L.S.	BYPASS PUMPING, SANITARY SEWER, AS PER PLAN
202	4	EACH	EXISTING SANITARY MANHOLE REMOVED, AS PER PLAN
202	2,200	L.F.	PIPE REMOVED, UNDER 24', AS PER PLAN
WATERLINE WORK (SEE SHEET 4, SECTION VIII, NOTE 2)			
ITEM	QTY	UNIT	DESCRIPTION
638	926	L.F.	8" PVC C 909 CL 200 WATERLINE, AS PER PLAN
638	2	EACH	8" X 8" TEE, AS PER PLAN
638	4	EACH	8" PLUG, AS PER PLAN
638	3	EACH	8" GATE VALVE, AS PER PLAN
638	1	EACH	8" 45 DEGREE BEND, AS PER PLAN
638	1	EACH	HYDRANT ASSEMBLY (COMPLETE), AS PER PLAN
PAVEMENT REPLACEMENT			
ITEM	QTY	UNIT	DESCRIPTION
252	1	L.S.	PAVEMENT SAWCUTTING
254	1073	S.Y.	1 1/2" PAVEMENT PLANING, AS PER PLAN
448	135	C.Y.	1 1/2" ASPH. CONC. SURFACE COURSE, TYPE 1, PG 64-28, STA 0+76 TO STA 3+91
448	68	C.Y.	1 1/2" ASPH. CONC. SURFACE COURSE, TYPE 1, PG 64-28, CONTINGENCY, STA 3+91 TO STA 10+00
301	77	C.Y.	6" ASPHALT CONCRETE BASE
642	180	L.F.	CENTER LINE, TYPE 1
832	1	L.S.	TEMPORARY SEDIMENT & EROSION CONTROL, AS PER PLAN

- NOTES:
- ITEM 659 - TOPSOIL, SEEDING AND MULCHING (CONTINGENCY ITEM)  
 CONTRACTOR SHALL RESTORE DISTURBED LAWN AREAS DUE TO CONSTRUCTION OF SANITARY SEWER AND WATER LINE, AS DIRECTED BY THE CITY ENGINEER.
- ITEM 448 - 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-28, CONTINGENCY, STA 3+91 TO STA. 10+00  
 CONTRACTOR SHALL INSTALL A SURFACE COURSE OF 1 1/2" OF ASPHALT PAVEMENT OVER THE EXISTING ROAD AND TRENCH SURFACE ON MILL STREET SE FROM STA 3+91 TO STA 10+00, ONLY IF DIRECTED BY THE CITY ENGINEER. NO PAVEMENT PLANING.
- ITEM 202 - PIPE REMOVED, 24" AND UNDER  
 CONTRACTOR MUST REMOVE EXISTING WATER MAINS AND SANITARY SEWERS AS NEEDED TO INSTALL THE PROPOSED WATER MAIN AND SANITARY SEWER.

OFFICE OF THE CITY ENGINEER <b>CANTON, OHIO</b> DANIEL J. MOEGLIN, P.E., CITY ENGINEER 2436 30th STREET N.E. 44705 (330)489-3381		<b>DETAILS</b> <b>MILL ST SE SANITARY SEWER</b> <b>AND WATERLINE REPLACEMENT</b>	
DRAWN BY: P.W.W.	APPROVED BY: P.W.W.	REVISIONS	BY
H. SCALE: N.T.S.	V. SCALE: N.T.S.	DESCRIPTION	DATE
SHEET 8	OF 11	DWG#	



- BENCHMARK #1:**  
DISK FOUND IN CONC. WING WALL OF BRIDGE ABUTMENT OF ALLEN AVE. BRIDGE  
(NOT SHOWN ON PLANS)  
ELEV. = 1003.69
- BENCHMARK #3:**  
NAIL FOUND 1.15' UP NORTH SIDE OF TWIN 15" MAPLE TREE LOCATED ON SOUTH SIDE OF MILL RD.  
ELEV. = 1000.67
- BENCHMARK #4:**  
DISK FOUND IN CONC. STATION NAME CAN-2101 GPS #21  
(NOT SHOWN ON PLANS)  
ELEV. = 1009.59
- BENCHMARK #5:**  
DISK FOUND IN CONC. WING WALL OF BRIDGE ABUTMENT OF MILL RD. BRIDGE  
(NOT SHOWN ON PLANS)  
ELEV. = 1004.22
- BENCHMARK #6:**  
GEAR SPIKE SET 1' UP SOUTH SIDE OF NEW AEP POLE #843C3-312 LOCATED ON NORTH SIDE MILL RD. ACROSS FROM ESMONT PARK  
ELEV. = 1002.37
- BENCHMARK #7:**  
"X" CUT IN N.E. ANCHOR BOLT OF S.E. TRAFFIC LIGHT SIGNAL POLE LOCATED @ S.E. CORNER OF CLEVELAND AVE. & MILL RD.  
ELEV. = 1012.97



DATE:	REVISIONS	DESCRIPTION	BY
H. SCALE: 1" = 20'			
V. SCALE: 1" = 5'			
SHEET 9 OF 11			

DATE: \_\_\_\_\_ DRAWN BY: P.W.W. APPROVED BY: P.W.W. FIELD BOOK: \_\_\_\_\_  
 H. SCALE: 1" = 20' SHEET 9 OF 11 DWG# \_\_\_\_\_  
 V. SCALE: 1" = 5'

**LEGEND**

- - IRON BAR/PIPE FOUND
- M.N.F. - MAG NAIL FOUND
- SANITARY MANHOLE
- STORM MANHOLE
- CATCH BASIN
- DOWNSPOUT HEADER
- GAS VALVE
- W- WATER LINE MARKER
- WATER MANHOLE
- WATER VALVE
- POWER POLE
- POWER/LIGHT POLE
- GUY WIRE ANCHOR
- ELECTRIC BOX
- ELECTRIC METER
- TELEPHONE BOX
- SIGNAL SUPPORT POLE
- TRAFFIC PULL-BOX
- ★ CONIFEROUS TREE
- BUSH/SHRUB
- POST/BOLLARD
- ↑ SIGN
- MAILBOX
- SOIL BORE LOCATION
- OHU - OVERHEAD UTILITIES
- UGU - UNDERGROUND UTILITIES

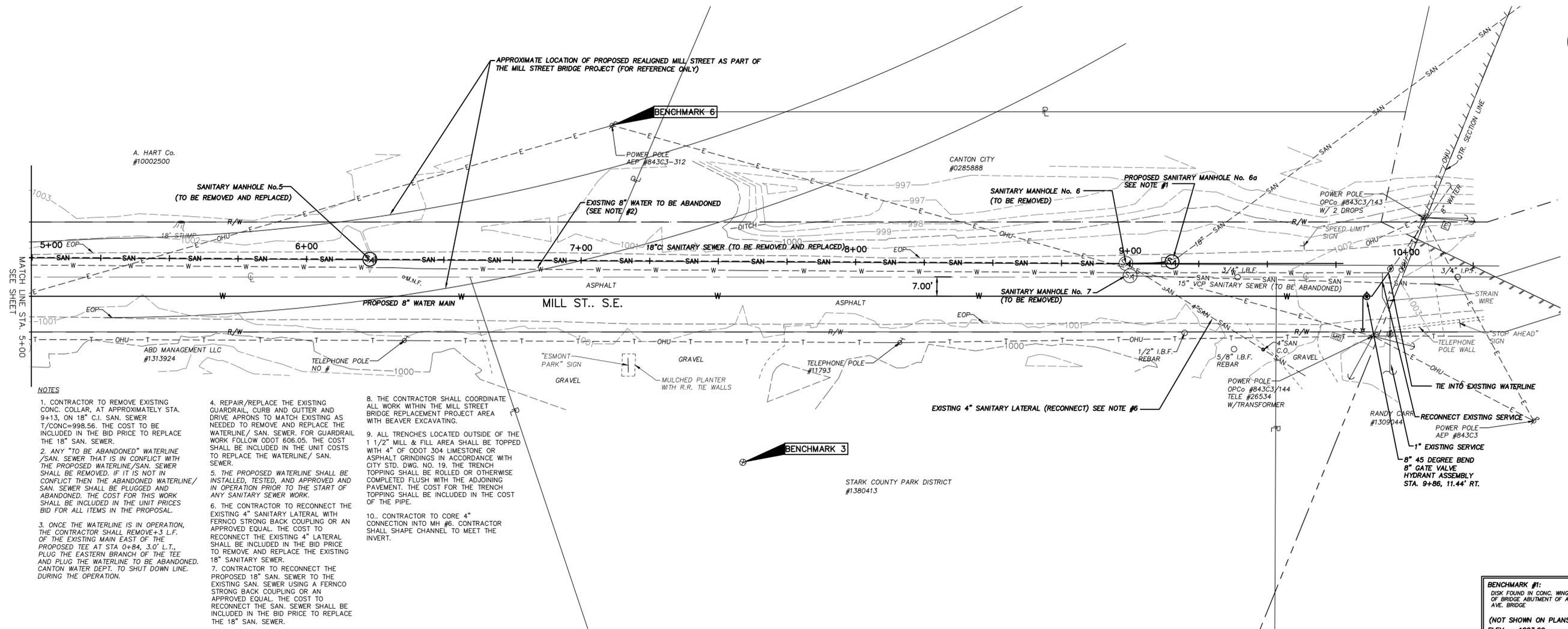
**NOTES**

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITHIN THE MILL STREET BRIDGE REPLACEMENT PROJECT AREA WITH BEAVER EXCAVATING.
2. ANY "TO BE ABANDONED" WATERLINE/SAN. SEWER THAT IS IN CONFLICT WITH THE PROPOSED WATERLINE/SAN. SEWER SHALL BE REMOVED. IF IT IS NOT IN CONFLICT THEN THE ABANDONED WATERLINE/SAN. SEWER SHALL BE PLUGGED AND ABANDONED. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT COSTS BID FOR ALL ITEMS IN THE PROPOSAL.
3. ONCE THE WATERLINE IS IN OPERATION, THE CONTRACTOR SHALL REMOVE 3' L.F. OF THE EXISTING MAIN EAST OF THE PROPOSED TEE AT STA 0+84, 3.0' L.T., PLUG THE EASTERN BRANCH OF THE TEE AND PLUG THE WATERLINE TO BE ABANDONED. CANTON WATER DEPT. TO SHUT DOWN LINE DURING THE OPERATION.
4. THE PROPOSED WATERLINE SHALL BE INSTALLED, TESTED, AND APPROVED AND IN OPERATION PRIOR TO THE START OF ANY SANITARY SEWER WORK.
5. REPAIR/REPLACE THE EXISTING GUARDRAIL, CURB AND GUTTER AND DRIVE APRONS TO MATCH EXISTING AS NEEDED TO REMOVE AND REPLACE THE WATERLINE/SAN. SEWER. FOR GUARDRAIL WORK FOLLOW ODOT 606.05. THE COST SHALL BE INCLUDED IN THE UNIT COSTS TO REPLACE THE WATERLINE/SAN. SEWER.
6. ANY PAVEMENT REPLACEMENT FOR THE INSTALLATION OF THE BYPASS PUMPING SYSTEM AT SANITARY MANHOLE No. 3 SHALL BE INCLUDED IN THE UNIT COSTS FOR BYPASS PUMPING.
7. CONTRACTOR SHALL REMOVE AND REPLACE ANY CONFLICTING STORM SEWERS NECESSARY TO REPLACE THE WATERLINE/SAN. SEWER. THE COST TO REMOVE AND REPLACE STORM SEWER SHALL BE INCLUDED IN THE UNIT COSTS TO REPLACE THE WATERLINE/SAN. SEWER.
8. CONTRACTOR TO USE FERNCO STRONG BACK COUPLING (OR APPROVED EQUAL) TO CONNECT THE EXISTING 18" C.I. SAN. SEWER TO THE PROPOSED 18" PVC SAN. SEWER. THE COST TO BE INCLUDED IN THE BID PRICE FOR THE 18" SAN. SEWER.
9. THE CONSTRUCTION BASELINE FOLLOWS THE SANITARY SEWER ALIGNMENT FROM MH #1 TO MH#6 AND AN EASTERLY EXTENSION FROM MH #6.
9. THE CONTRACTOR MUST VERIFY PIPE SLOPES BETWEEN SANITARY MANHOLES BY CUTTING OPEN C.I. PIPE AT MANHOLES AND VERIFY FLOW LINE ELEVATIONS OF THE EXISTING C.I. PIPE. ANY CHANGE IN SLOPE OF THE PROPOSED SANITARY SEWER IF NECESSARY, TO BE APPROVED BY THE CITY ENGINEER.
10. CONTRACTOR TO ASSIST THE CANTON WATER DEPT. IN INSTALLING THE 8"X8" TEE AND VALVE AT STA. 0+84, 3.0' L.T. THE CANTON WATER DEPT. TO SHUT THE WATER LINE DURING THE OPERATION.

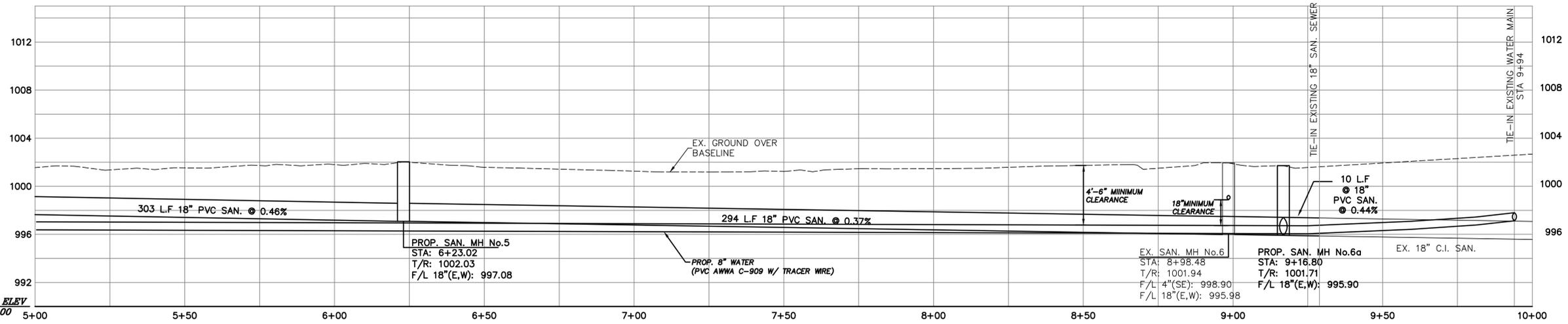
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**CANTON, OHIO**  
 DANIEL J. MOEGLIN, P.E., CITY ENGINEER  
 2456 30th STREET N.E. 44705 (330)489-3381

**PLAN AND PROFILE - MILL STREET**  
**MILL ST SE SANITARY SEWER**  
**AND WATERLINE REPLACEMENT**

PLAN AND PROFILE - MILL STREET  
 MILL ST SE SANITARY SEWER  
 AND WATERLINE REPLACEMENT



- NOTES**
- CONTRACTOR TO REMOVE EXISTING CONC. COLLAR, AT APPROXIMATELY STA. 9+13, ON 18" C.I. SAN. SEWER T/CONC=998.56. THE COST TO BE INCLUDED IN THE BID PRICE TO REPLACE THE 18" SAN. SEWER.
  - ANY "TO BE ABANDONED" WATERLINE/SAN. SEWER THAT IS IN CONFLICT WITH THE PROPOSED WATERLINE/SAN. SEWER SHALL BE REMOVED. IF IT IS NOT IN CONFLICT THEN THE ABANDONED WATERLINE/SAN. SEWER SHALL BE PLUGGED AND ABANDONED. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICES BID FOR ALL ITEMS IN THE PROPOSAL.
  - ONCE THE WATERLINE IS IN OPERATION, THE CONTRACTOR SHALL REMOVE +3 L.F. OF THE EXISTING MAIN EAST OF THE PROPOSED TEE AT STA 0+84, 3.0' L.T., PLUG THE EASTERN BRANCH OF THE TEE AND PLUG THE WATERLINE TO BE ABANDONED. CANTON WATER DEPT. TO SHUT DOWN LINE DURING THE OPERATION.
  - REPAIR/REPLACE THE EXISTING GUARDRAIL, CURB AND GUTTER AND DRIVE APRONS TO MATCH EXISTING AS NEEDED TO REMOVE AND REPLACE THE WATERLINE/SAN. SEWER. FOR GUARDRAIL WORK FOLLOW ODOT 606.05. THE COST SHALL BE INCLUDED IN THE UNIT COSTS TO REPLACE THE WATERLINE/SAN. SEWER.
  - THE PROPOSED WATERLINE SHALL BE INSTALLED, TESTED, AND APPROVED AND IN OPERATION PRIOR TO THE START OF ANY SANITARY SEWER WORK.
  - THE CONTRACTOR TO RECONNECT THE EXISTING 4" SANITARY LATERAL WITH FERROCEMENT STRONG BACK COUPLING OR AN APPROVED EQUAL. THE COST TO RECONNECT THE EXISTING 4" LATERAL SHALL BE INCLUDED IN THE BID PRICE TO REMOVE AND REPLACE THE EXISTING 18" SANITARY SEWER.
  - CONTRACTOR TO RECONNECT THE PROPOSED 18" SAN. SEWER TO THE EXISTING SAN. SEWER USING A FERROCEMENT STRONG BACK COUPLING OR AN APPROVED EQUAL. THE COST TO RECONNECT THE SAN. SEWER SHALL BE INCLUDED IN THE BID PRICE TO REPLACE THE 18" SAN. SEWER.
  - THE CONTRACTOR SHALL COORDINATE ALL WORK WITHIN THE MILL STREET BRIDGE REPLACEMENT PROJECT AREA WITH BEAVER EXCAVATING.
  - ALL TRENCHES LOCATED OUTSIDE OF THE 1 1/2" MILL & FILL AREA SHALL BE TOPPED WITH 4" OF ODOT 304 LIMESTONE OR ASPHALT GRINDINGS IN ACCORDANCE WITH CITY STD. DWG. NO. 19. THE TRENCH TOPPING SHALL BE ROLLED OR OTHERWISE COMPLETED FLUSH WITH THE ADJOINING PAVEMENT. THE COST FOR THE TRENCH TOPPING SHALL BE INCLUDED IN THE COST OF THE PIPE.
  - CONTRACTOR TO CORE 4" CONNECTION INTO MH #6. CONTRACTOR SHALL SHAPE CHANNEL TO MEET THE INVERT.



<b>BENCHMARK #1:</b> DISK FOUND IN CONC. WING WALL OF BRIDGE ABUTMENT OF ALLEN AVE. BRIDGE  (NOT SHOWN ON PLANS) ELEV. = 1003.69
<b>BENCHMARK #3:</b> NAIL FOUND 1.15' UP NORTH SIDE OF TWO 15" MAPLE TREE LOCATED ON SOUTH SIDE OF MILL RD.  ELEV. = 1000.67
<b>BENCHMARK #4:</b> DISK FOUND IN CONC. STATION NAME CAN-2101 GPS #21  (NOT SHOWN ON PLANS) ELEV. = 1009.59
<b>BENCHMARK #5:</b> DISK FOUND IN CONC. WING WALL OF BRIDGE ABUTMENT OF MILL RD. BRIDGE  (NOT SHOWN ON PLANS) ELEV. = 1004.22
<b>BENCHMARK #6:</b> GEAR SPIKE SET 1' UP SOUTH SIDE OF NEW ASP. POLE #843C3-312 LOCATED ON NORTH SIDE MILL RD. ACROSS FROM ESMONT PARK  ELEV. = 1002.37
<b>BENCHMARK #7:</b> "X" OUT IN N.E. ANCHOR BOLT OF S.E. TRAFFIC LIGHT SIGNAL POLE LOCATED @ S.E. CORNER OF CLEVELAND AVE. & MILL RD.  ELEV. = 1012.97

DATUM ELEV 990.00

DATE:	REVISIONS	DESCRIPTION	DRAWN BY: P.W.W.
H. SCALE: 1" = 20'	DATE	BY	APPROVED BY: P.W.W.
V. SCALE: 1" = 5'			FIELD BOOK:
SHEET 10 OF 11			DWG#



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 2456 30th STREET N.E. 44705 (330)489-3381

BYPASS PLAN  
 MILL ST SE SANITARY SEWER  
 AND WATERLINE REPLACEMENT



DATE:	REVISIONS	DESCRIPTION	DATE	BY
H. SCALE: N.T.S.				
V. SCALE: N.T.S.				
SHEET 11 OF 11				
DRAWN BY: P.W.W.				
APPROVED BY: P.W.W.				
FIELD BOOK:				
DWG#				