



# CITY OF ANN ARBOR ENGINEERING

## RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT

### NOTES:

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE APPROXIMATE. THE CITY OF ANN ARBOR ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. MISS DIG MUST BE CONTACTED PRIOR TO CONSTRUCTION TO LOCATE THESE UTILITIES.

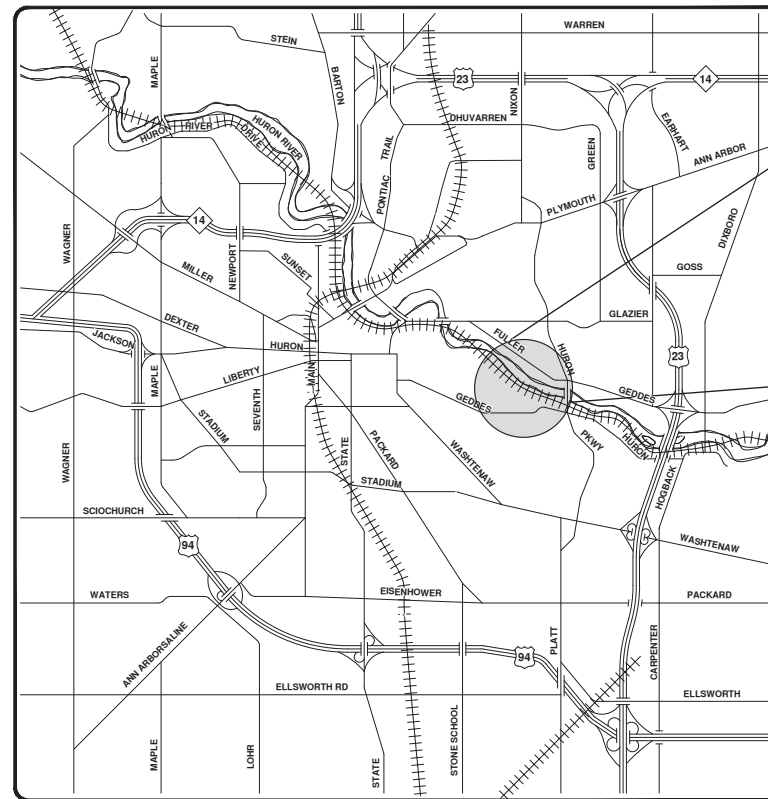
THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE 1994 EDITION OF THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, ITS DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THESE REQUIREMENTS.



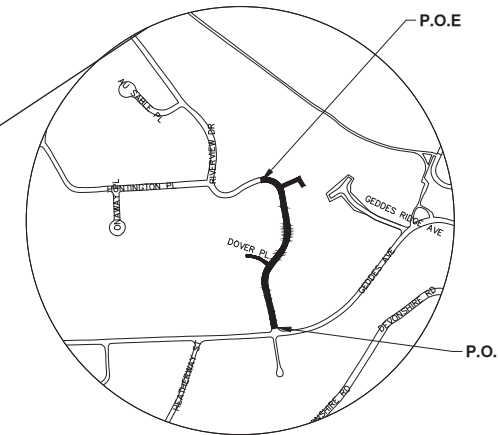
REV.	DESCRIPTION	DATE	CHECKED	DRAWN
06	FINAL PLANS - CITY OF ANN ARBOR	2/28/2018	MF	VCN
05	FINAL REVIEW TO CITY OF ANN ARBOR	2/23/2018	MF	VCN
04	SANITARY SEWER AND WATER MAIN PERMITS	2/12/2018	MF	VCN
03	95% REVIEW TO CITY OF ANN ARBOR	2/9/2018	MF	VCN
02	SANITARY AND WATER MAIN PERMIT	1/22/2018	MF	VCN

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2	LEGEND, WITNESSES AND BENCHMARKS
3	NOTES
4	OVERALL SITE UTILITY PLAN
5	SOIL EROSION AND SEDIMENTATION CONTROL PLAN
6	SOIL EROSION DETAILS
7	PROPOSED SANITARY PLAN & PROFILE STA 6+00 TO STA 8+00
8	PROPOSED SANITARY PLAN & PROFILE STA 3+00 TO STA 6+00
9	PROPOSED SANITARY PLAN & PROFILE STA 0+00 TO STA 3+00
10	PROPOSED WATER MAIN PLAN & PROFILE STA 0+00 TO STA 3+00
11	PROPOSED WATER MAIN PLAN & PROFILE STA 3+00 TO STA 6+00
12	PROPOSED WATER MAIN PLAN & PROFILE STA 6+00 TO STA 9+00
13	PROPOSED WATER MAIN PLAN & PROFILE WM EXTENSION 505
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15	DETAILS
16	EXISTING TYPICAL CROSS SECTION
17	PROPOSED TYPICAL CROSS SECTION
18	ALIGNMENT PLAN STA 0+00 TO STA 5+00
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ITB No. 4527, FILE No. 2017-031



VICINITY MAP



REQUIRED ON THIS PROJECT	ITEM OF WORK	DETAIL
X	STANDARD MANHOLE (TYPE I)	SD-S-1
X	DROP MANHOLE CONNECTION	SD-S-5
X	SEWER CONNECTION	SD-S-6
X	SANITARY SEWER CONNECTION WITH RISER	SD-S-7
X	THRUST BLOCK	SD-W-2
X	FIRE HYDRANT ASSEMBLY	SD-W-1
X	GATE WELL FOR MAIN 12" AND SMALLER	SD-W-3
X	TEMPORARY TESTING BLOW-OFF	SD-W-7
X	MANHOLE CASTING ADJUSTMENT	SD-GU-6
X	VALVE/MONUMENT BOX ADJUSTMENT	SD-GU-7
X	STRUCTURE PLATE	SD-GU-8
X	MH; VALVE/MONUMENT BOX LOWERING	SD-GU-9

PREPARED UNDER THE SUPERVISION OF

VAUGHN C. MARTIN, P.E. - MI LICENSE No. 52002  
PROJECT MANAGER

DATE: 02/28/2018

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT

SCALE: \_\_\_\_\_

DRAWING No. 2017-031-1

SHEET No. 1 OF 25



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GENERAL NOTES:

- DRIVEWAYS AND ENTRANCES TO BUILDINGS, REAL PROPERTY, AND THE LIKE SHALL NOT BE BLOCKED EXCEPT FOR SHORT DURATIONS AND ONLY WHEN APPROVED BY THE ENGINEER. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES TO ALL PROPERTIES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ALL NECESSARY DRIVEWAY CLOSURES WITH THE PROPERTY OWNER(S) AND RESIDENT(S) IN THE AREAS OF CONSTRUCTION.
- THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND SERVICE LEADS ARE TO BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- DURING NON-WORKING HOURS NO MORE THAN TEN (10) FEET OF TRENCH SHALL REMAIN OPEN. ANY OPEN TRENCH SHALL BE PROPERLY SECURED WITH PROTECTIVE FENCING. THIS WORK SHALL BE INCLUDED IN THE ITEMS OF WORK BEING UNDERTAKEN AND WILL NOT BE PAID FOR SEPARATELY.
- TRENCHES FOR NEW WATER SERVICES SHALL BE EXCAVATED TO MISHA AND CITY OF ANN ARBOR PUBLIC WORKS REQUIREMENTS.
- FOR THE INSTALLATION OF CORPORATIONS, OR ANY OTHER ACTIVITIES RELATED TO THE INSTALLATION OF WATER SERVICES, WATER MAIN SHUTDOWN, OR SIMILAR WORK, THE CONTRACTOR SHALL NOT RECEIVE ADDITIONAL COMPENSATION FOR DELAYS DUE TO THE SCHEDULING OF, OR COORDINATION WITH, CITY OF ANN ARBOR PUBLIC WORKS.
- THE CONTRACTOR SHALL BACKFILL TRENCHES IN ACCORDANCE WITH TRENCH DETAIL(S) SPECIFIED ON PLANS. THIS WORK SHALL BE INCLUDED IN THE ITEM OF WORK BEING PERFORMED.
- ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE POLYETHYLENE WRAPPED PER ANSI/AWWA C105/A21.5.
- ALL FITTINGS, HYDRANTS, VALVES AND CASTINGS REMOVED DURING CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL COORDINATE PICKUP BY THE CITY OF ANN ARBOR FIELD OPERATIONS UNIT.
- FLOUROPOLYMER COATED BOLTS ARE TO BE USED AT ALL MECHANICAL WATER MAIN JOINTS (HYDRANTS AND MEGALUG FITTINGS). SEE DETAILED SPECIFICATION ENTITLED "WATER MAIN AND APPURTENANCES" FOR ADDITIONAL INFORMATION.
- THE CONTRACTOR SHALL CONSTRUCT, FLUSH, AND BACTERIOLOGICALLY TEST THE WATER MAIN PER DETAILED SPECIFICATION "WATER MAIN AND APPURTENANCES" AND AS APPROVED BY THE ENGINEER. ALL CHLORINATED WATER SHALL BE DISCHARGED DIRECTLY INTO AN APPROVED SANITARY SEWER. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY HOSES, FITTINGS AND THE LIKE TO ACCOMPLISH THIS WORK.
- WATER MAIN FITTINGS, OTHER THAN THOSE SPECIFICALLY LISTED AS SEPARATE PAY ITEMS, WHICH ARE REQUIRED TO COMPLETE THE WORK, SUCH AS BLOW-OFF ASSEMBLIES, CONCRETE THRUST BLOCKS, SOLID SLEEVES AND MECHANICAL PLUGS, SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ASSOCIATED ITEMS OF WORK.
- THE CONTRACTOR SHALL PERFORM THE CONSTRUCTION OPERATIONS SUCH THAT POSTAL DELIVERY AND REFUSE PICKUP SERVICE SHALL BE MAINTAINED AT ALL TIMES.
- WHERE CURB AND GUTTER, CURB, PAVEMENT OR SIMILAR ITEMS BECOME UNDERMINED DUE TO THE CONTRACTOR'S OPERATIONS, THEY SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S SOLE EXPENSE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY ROAD SURFACE AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA UNTIL THE COMPLETION OF THE PROJECT. THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX. ....".
- THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS SHALL BE APPROVED BY THE ENGINEER. ALL MATERIAL STOCKPILES SHALL BE MAINTAINED SUCH THAT DRAINAGE AND SIGHT DISTANCES ARE NOT ADVERSELY IMPACTED. SOIL EROSION REQUIREMENTS SHALL APPLY TO ALL MATERIAL STOCKPILES.
- FOR MAINLINE PAVING, THE WIDTH OF THE MAT FOR EACH PASS OF THE PAVER SHALL BE NOT LESS THAN 10.5' OR GREATER THAN 15', AS DIRECTED BY THE ENGINEER. THE ENGINEER WILL DIRECT THE LAYOUT OF THE LONGITUDINAL JOINTS DURING CONSTRUCTION.
- WHERE SEWER PIPES OF DIFFERENT SIZES OR MATERIALS ARE JOINED, FERNCO FLEXIBLE COUPLINGS WITH STAINLESS STEEL SHEAR RINGS SHALL BE USED. THE CONTRACTOR'S PURCHASE PRICE FOR THESE DEVICES, INCLUDING SHIPPING, SHALL BE PAID AS AN EXTRA, PRIOR TO PAYMENT FOR THIS ITEM. THE CONTRACTOR SHALL SUBMIT RECEIPTS FOR THE ENGINEER'S REVIEW AND APPROVAL. ALL OTHER COSTS ASSOCIATED WITH THE INSTALLATION OF THESE DEVICES SHALL BE INCLUDED IN THE PAYMENT FOR THE SEWER.
- WHERE SEWER AND WATER MAIN ARE TO BE REMOVED & REPLACED OR ADDED, ALL PIPE SHALL BE INSTALLED USING TRENCH DETAIL DETAILED IN THE SPECIFICATIONS OR SHOWN ON PLANS. BACKFILL FOR SEWER AND WATER CONSTRUCTION SHALL BE MDT GRANULAR MATERIAL, CLASS II, MODIFIED.
- SOME STORM SEWER MAY UNAVOIDABLY BECOME DAMAGED DURING CONSTRUCTION OR IT MAY BE DETERMINED BY THE ENGINEER THAT EXISTING STORM SEWER NEEDS TO BE REPLACED. IN EITHER CASE, THE ENGINEER MAY DIRECT THE SEWER TO BE REMOVED AND REPLACED. THE REMOVAL OF THE EXISTING SEWER AND/OR DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE CONTRACT WORK ITEMS "SEWER, ANY SIZE OR DEPTH, REM" OR "DR STRUCTURE, ANY SIZE OR DEPTH, REM", AND THE REPLACEMENT SEWER SHALL BE INSTALLED AND PAID FOR AT THE CORRESPONDING CONTRACT UNIT PRICE, IF CONTAINED WITHIN THE CONTRACT, FOR THE VARIOUS TYPES AND SIZES OF SEWER TO BE REPLACED.
- WHERE EXISTING SEWER AND/OR DRAINAGE STRUCTURES ARE TO BE REMOVED, THEY SHALL BE PROPERLY DISPOSED OF OFF-SITE AND THE EXCAVATION SHALL BE BACKFILLED WITH MDT CLASS II GRANULAR MATERIAL, COMPACTED TO 95% OF ITS MAX. DRY DENSITY. THIS WORK SHALL BE INCLUDED IN THE CONTRACT ITEMS "SEWER, ANY SIZE OR DEPTH, REM" AND/OR "DR STRUCTURE, ANY SIZE OR DEPTH, REM".
- IF THE CONTRACTOR ENCOUNTERS EXISTING EDGE DRAIN(S) DURING CONSTRUCTION OF THE PROPOSED EDGE DRAINS, INLET LEADS, OR CATCH BASINS, IT SHALL BE CAPPED AT EACH END TO PREVENT MATERIAL FROM ENTERING THE PIPE. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE PARTICULAR ITEM OF WORK BEING PERFORMED WHEN EXISTING EDGE DRAIN(S) ARE ENCOUNTERED.
- EXISTING STREET NAME, GUIDE AND REGULATORY SIGNS, AND MAILBOXES WHICH CONFLICT WITH THE PROPOSED CONSTRUCTION SHALL BE REMOVED PRIOR TO CONSTRUCTION, STORED IN A MANNER WHICH WILL PREVENT DAMAGE, AND RE-SET IN LOCATIONS AS DIRECTED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN "GENERAL CONDITIONS, MAX. ....".
- ALL STRUCTURES SHALL RECEIVE NEW CASTINGS, EITHER TYPE B, TYPE K, TYPE Q, OR TYPE R AS SPECIFIED ON THE STANDARD CASTING SCHEDULE. THE EXISTING CASTINGS SHALL BE NEATLY STACKED ON-SITE IN A SINGLE LOCATION SO THAT THE CITY OF ANN ARBOR FORCES CAN RETRIEVE THEM AT A LATER DATE. THE CONTRACTOR SHALL ASSIST CITY FORCES BY LOADING THEM INTO CITY TRUCKS. ALL COSTS ASSOCIATED WITH STORING, STOCKPILING AND LOADING CASTINGS SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX. ...." AND WILL NOT BE PAID FOR SEPARATELY.
- ALL EXCAVATION REQUIRED FOR PROJECT GRADING WITHIN THE PROJECT LIMITS, INCLUDING PROPOSED PAVEMENT, DRIVE APPROACHES, SIDEWALK, AND SIDEWALK RAMPS SHALL BE INCLUDED IN "MACHINE GRADING, MODIFIED, ....."
- ALL CURB, SIDEWALK, AND DRIVEWAY APPROACH REMOVALS SHALL BE APPROVED BY THE ENGINEER BEFORE THE WORK IS PERFORMED. ALL CONCRETE AND BITUMINOUS MATERIALS SHALL BE SAW-CUT FULL-DEPTH AT THEIR REMOVAL LIMITS PRIOR TO REMOVAL. SAW-CUTTING WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "MACHINE GRADING, MODIFIED, ....."
- PLACE 8" (MINIMUM) 21AA LIMESTONE AGGREGATE COMPACTED TO 98% OF ITS MAX. DRY DENSITY UNDER DRIVE APPROACHES. THIS WORK SHALL BE INCLUDED IN THE CONTRACT ITEM "AGGREGATE BASE, 8 INCH, 21AA MODIFIED".

WATER MAIN AND SANITARY SEWER QUANTITIES

893	LFT	PC	350 D.I.	WATER MAIN, 12-INCH
167	LFT	PC	350 D.I.	WATER MAIN, 8-INCH
4	LFT	PC	350 D.I.	WATER MAIN, 6-INCH
361	LFT	WATER MAIN, HDPE,	10-INCH,	DIRECTIONAL DRILL
4	EA	FIRE	HYDRANT	
3	EA	GATE	VALVE AND BOX, 12-INCH	
1	EA	GATE	VALVE AND WELL, 8-INCH	
594	LF	SEWER	SDR 35 PVC PIPE, 8-INCH	
208	LF	SEWER	SDR 26 PVC PIPE, 8-INCH	
15	VF	SANITARY	SEWER, DROP CONNECTION, 8-INCH	
8	EA	DR	STRUCTURE, MANHOLE, TYPE I, 48 INCH DIA, SANITARY	

Basis of Design For Riverview Drive

Single Family Units =	11
11 Units * 3.5 People/Unit * 100 GPD/ Person=	3,850 or 0.00596 CFS
Population =	39
Peaking Factor = (18*(P)^0.5)/(4+(P)^.5) Where P is in Thousands	
Peaking Factor =	4.45
Peak Flow = 4.45 * 0.00596 CFS=	0.0281 CFS

**PERMITS REQUIRED TO BE OBTAINED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF CONSTRUCTION.**

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR ENGINEERING
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
* NO COST TO CONTRACTOR	

**PERMITS REQUIRED TO BE OBTAINED BY THE CITY OF ANN ARBOR PRIOR TO THE BEGINNING OF CONSTRUCTION.**

PERMIT	ISSUING AUTHORITY
M.D.E.Q. WATER MAIN CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
M.D.E.Q. SANITARY SEWER CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

**CONTACT INFORMATION**

PUBLIC UTILITIES	OWNER	CONTACT
WATER		DAN WOODEN (734) 794-6350
SANITARY		RYAN FERRELL (734) 794-6350
STORM	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	PAT MAINO (734) 794-6350
FORESTRY		CHUCK GOEBEL (734) 794-6350
SIGNS SIGNALS STREET LIGHTS		CHUCK FOJTIK (734) 794-6361
PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	LAURIE FORRESTER (734) 389-7261
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	JULIE GOTTARDI (734) 397-4303
CABLE	COMCAST 25626 TELEGRAPH ROAD SOUTHFIELD, MI 48034	JON LABEAU (248) 809-2704
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	SHAWN BURNSIDE (734) 996-5350
FIBER OPTIC	ANN ARBOR PUBLIC SCHOOLS FIBER LINK 3529 W. GENSEE, SUITE 6 LAPEER, MI 48446	TINA SNOBLEN (810) 667-2891
FIBER OPTIC	MCI/VERIZON 730 W. HENRY STREET INDIANAPOLIS, IN 46225	CHRIS FOWLER (317) 685-8050
FIBER OPTIC	ZAYO GROUP 1060 HARDEES DRIVE, SUITE H ABERDEEN, MD 21001	GEORGE HUSS (443) 403-2023



Know what's below.  
Call before you dig.

2/28/2018	2/23/2018	2/12/2018	2/9/2018	1/22/2018	
FINAL PLANS - CITY OF ANN ARBOR	FINAL REVIEW TO CITY OF ANN ARBOR	SANITARY SEWER AND WATER MAIN PERMITS	95% REVIEW TO CITY OF ANN ARBOR	SANITARY AND WATER MAIN PERMIT	
06	05	04	03	02	REV.

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
P.O. BOX 864  
ANN ARBOR MI 48106-0867  
734-794-4410  
www.a3gov.org



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

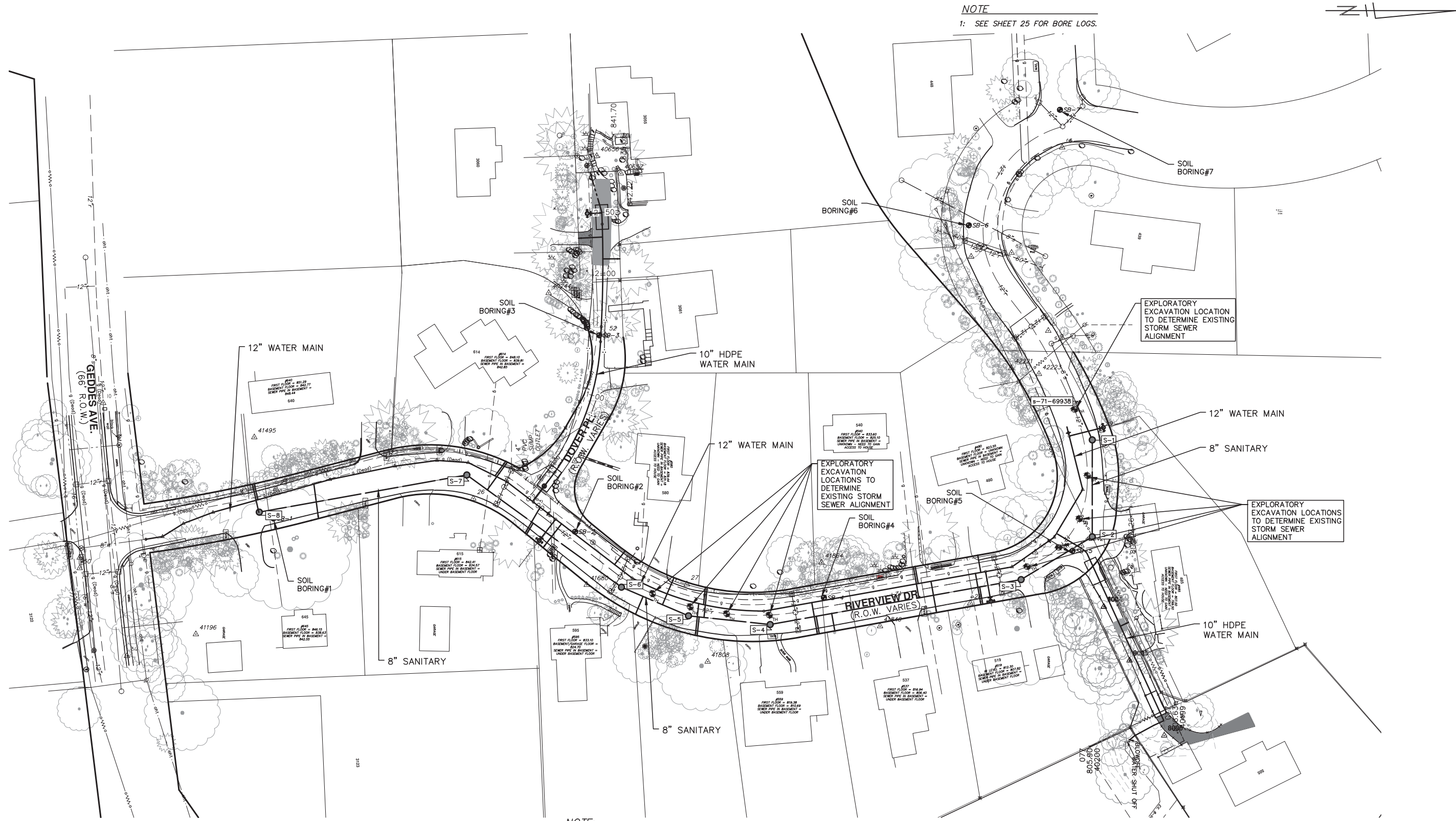
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

SCALE: NTS

DRAWING No. 2017-031-3

SHEET No. 3 OF 25





**NOTE**  
1: SEE SHEET 25 FOR BORE LOGS.



**NOTE:**  
THE CONTRACTOR SHALL PERFORM THE REQUIRED EXPLORATORY EXCAVATIONS AS SOON AS PRACTICABLE UPON AWARD OF CONTRACT IN ORDER TO ALLOW THE ENGINEER TO REVIEW THE ACQUIRED DATA AND PROVIDE A REVISED PLAN, IF NEEDED, TO RESOLVE THE CONFLICT. THE CONTRACTOR SHALL PROVIDE THE NEEDED TRAFFIC CONTROL AND BACKFILL AND RESTORE THE RESULTANT HOLES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**


**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

OVERALL SITE UTILITY PLAN

SCALE: 1" = 80'

DRAWING No. 2017-031-4

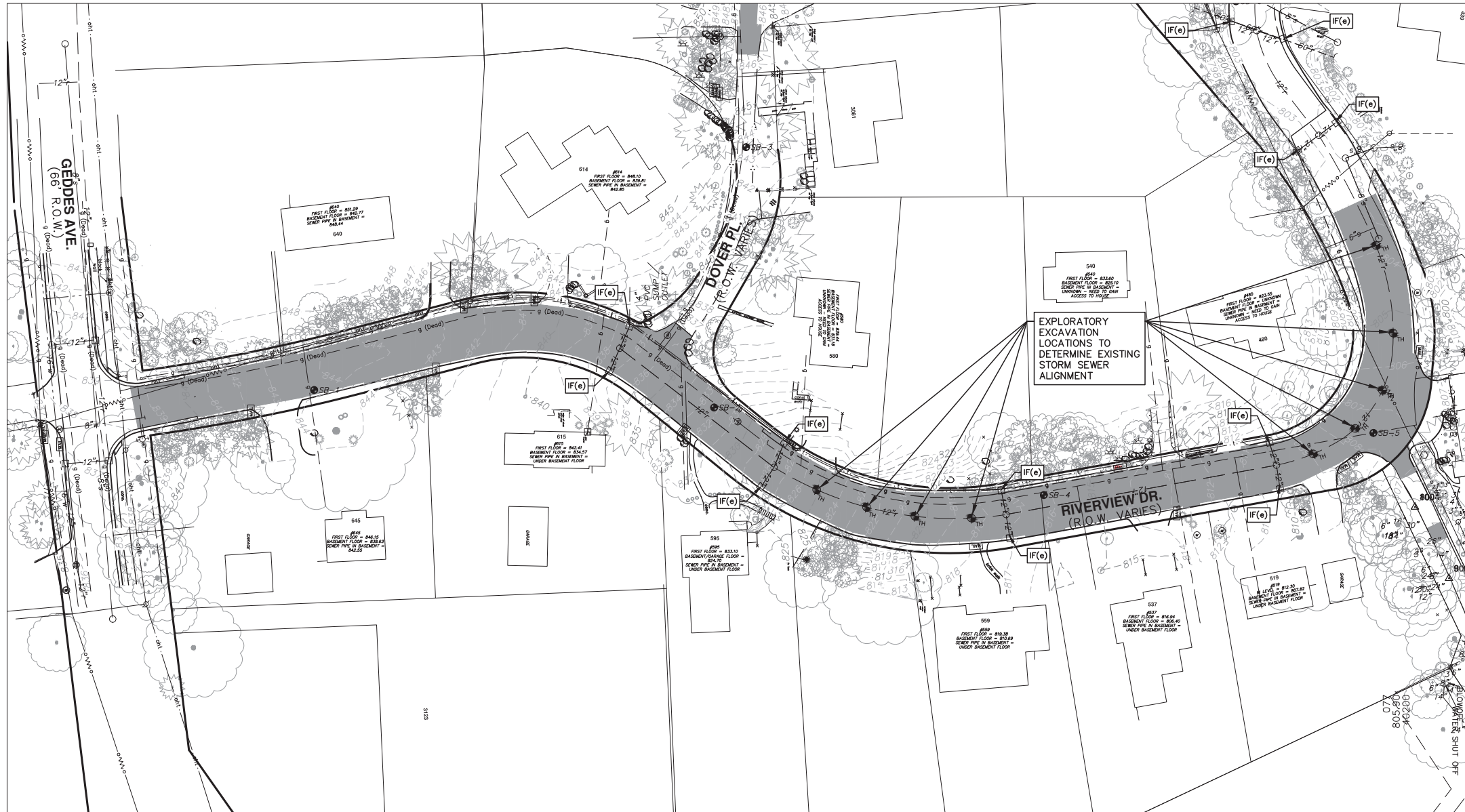
SHEET No. 4 OF 25



CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
ANN ARBOR MI 48106-8647  
www.a3gov.org

REV.	DATE	DESCRIPTION	DRAWN	CHECKED
06	2/28/2018	FINAL PLANS - CITY OF ANN ARBOR	MF	VCM
05	2/23/2018	FINAL REVIEW TO CITY OF ANN ARBOR	MF	VCM
04	2/12/2018	SANITARY SEWER AND WATER MAIN PERMITS	MF	VCM
03	2/9/2018	95% REVIEW TO CITY OF ANN ARBOR	MF	VCM
02	1/22/2018	SANITARY AND WATER MAIN PERMIT	MF	VCM





**LEGEND**

- IF(e) INLET FILE (FOR EXISTING STRUCTURE)
- PAVEMENT TO BE REMOVED

**SOIL EROSION NOTES**

- 1: ALL AREAS TO BE PERMANENTLY RESTORED WITH GRASS SHALL RECEIVE TOPSOIL, HYDROSEED, AND STAKED EROSION CONTROL BLANKETS (MULCH BLANKETS).
- 2: STREETS EXTERNAL TO THE PROJECT AREA SHALL BE MONITORED FOR TRACKED MUD AND/OR CONSTRUCTION DEBRIS AND SHALL BE IMMEDIATELY CLEANED FOLLOWING ANY SUCH OCCURRENCE.

**SOIL EROSION SEQUENCE OF CONSTRUCTION\***

- 1: PLACE INLET FILTERS ON EXISTING DRAINAGE FEATURES THAT WILL REMAIN IN PLACE AFTER CONSTRUCTION BEGINS.
- 2: INSTALL SEWERS, WATER MAIN AND PAVEMENT IMPROVEMENTS.
- 3: RESTORE ALL DISTURBED AREAS TO A CONDITION THAT IS BETTER THAN, OR EQUAL TO, THAT WHICH EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
- 4: INSPECT & REPAIR OR REPLACE ALL TEMPORARY SESC MEASURES WEEKLY AND WITHIN 24 HOURS OF A STORM EVENT.
- 5: ESTABLISH VEGETATION FOR ALL DISTURBED AREAS WITHIN CONSTRUCTION LIMITS.
- 6: CLEAN OUT STORM SEWER SYSTEMS.
- 7: REMOVE TEMPORARY SESC FEATURES (CALL FOR FINAL INSPECTION).
- 8: REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY'S SESC OFFICIAL.

\*NOTE: THIS SEQUENCE IS FOR INFORMATION ONLY. IT IS INTENDED TO SHOW THE SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THEIR OWN DETAILED CONSTRUCTION SEQUENCE AND SCHEDULE TO THE ENGINEER FOR REVIEW, COMMENT AND ACCEPTANCE.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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**GENERAL**  
 NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

- THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER AT ALL TIMES DURING CONSTRUCTION. ANY MODIFICATIONS OR ADDITIONS TO THE SOIL EROSION CONTROL MEASURES DUE TO CONSTRUCTION OR CHANGED CONDITIONS SHALL BE AS DIRECTED AND APPROVED BY THE ENGINEER.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CITY ORDINANCE CHAPTER 63, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- DAILY, OR AFTER ANY STORM EVENT, INSPECTIONS OF EROSION CONTROL MEASURES SHALL BE MADE BY THE CONTRACTOR. PERIODIC INSPECTIONS MAY BE MADE BY THE ENGINEER TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY CORRECTIONS SHALL BE MADE WITHOUT DELAY, AND WITHOUT ADDITIONAL COST TO THE CITY OF ANN ARBOR.
- EROSION AND SEDIMENTATION FROM WORK ON THE SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, ROADWAYS OR WATERWAYS.
- ALL MUD/SOIL TRACKED ONTO ROADWAYS FROM THE SITE DUE TO CONSTRUCTION, SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR. IF SO ORDERED, THE CONTRACTOR SHALL PROVIDE AND OPERATE A VACUUM-TYPE STREET SWEEPER, AT NO ADDITIONAL COST TO THE CITY OF ANN ARBOR, WITHIN FOUR (4) HOURS OF BEING SO ORDERED.
- RESTORATION OF ALL DISTURBED AREAS, INCLUDING PLACEMENT OF TOPSOIL, SEED, FERTILIZER AND MULCH AND/OR SOD SHALL BE PERFORMED WITHIN FIVE (5) DAYS OF THE COMPLETION OF FINAL GRADE.
- CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE SOIL EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO

EXCAVATION IN CRITICAL AREAS AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING OPERATIONS.

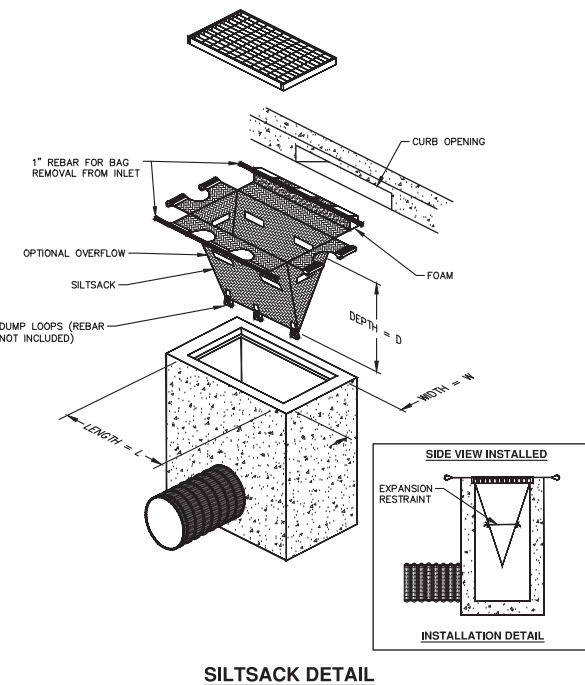
- SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
- PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLATIVE AS REQUIRED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF SOME MEASURES UPON AUTHORIZED COMPLETION OF THE PROJECT. FINAL COMPLETION OF PROJECT WILL NOT BE AUTHORIZED UNTIL ALL SITE WORK AND UTILITY CONSTRUCTION IS COMPLETE AND ALL SOILS ARE STABILIZED.
- THE CONTRACTOR SHALL NOT GRADE INTO ADJACENT PROPERTIES. SILT AND PROTECTIVE FENCE SHALL BE INSTALLED AND MAINTAINED TO PREVENT GRADING, EROSION AND SEDIMENTATION INTO THE ADJACENT PROPERTIES.
- TREE PROTECTION FENCING MUST REMAIN INTACT UNTIL RESTORATION OF THE SITE IS COMPLETE.

**SEQUENCE OF EROSION CONTROL MEASURES:**

- THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER, A SEQUENCE OF CONSTRUCTION WITH RESPECT TO THE SOIL EROSION CONTROL MEASURES FOR REVIEW, COMMENT AND APPROVAL. THIS SCHEDULE IS TO INCLUDE INSPECTION AND REPAIR OF ALL TEMPORARY EROSION CONTROL MEASURES DAILY AND WITHIN 24 HOURS OF A STORM EVENT.

ON SITE SOILS PER THE USDA SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN:  
 • MmD - MIAMI LOAM - 12 TO 18 PERCENT SLOPES.  
 IN BROAD AREAS AND ALONG DRAINAGEWAYS OF TILL PLAINS AND MORAINES. SLOPES IN BROAD AREAS ARE SHORT AND COMPLEX.

TOTAL AREA OF PROPOSED DISTURBANCE = 0.74 AC  
 0.71 AC - RIVERVIEW DRIVE  
 0.03 AC - DOVER PLACE



NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.

**REGULAR FLOW SILTSACK**

(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80%
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC-1

**HI-FLOW SILTSACK**

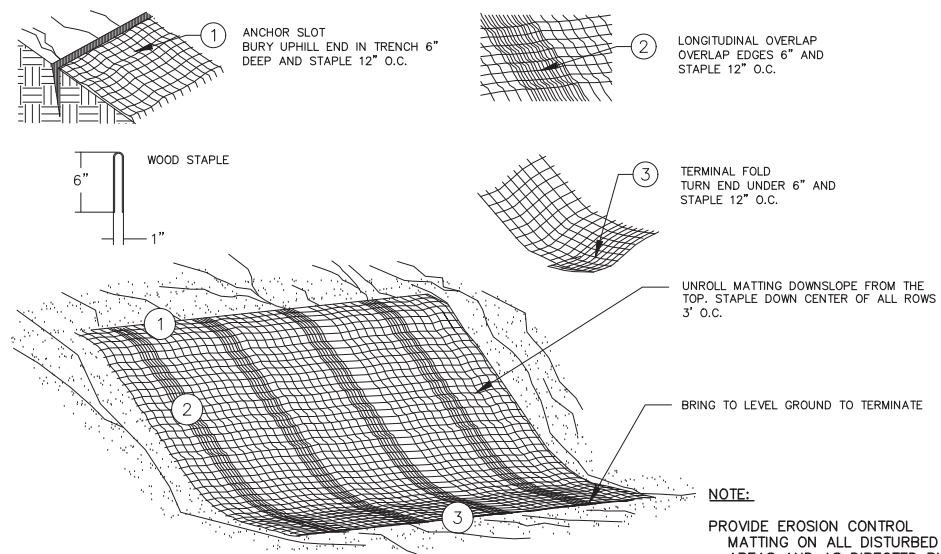
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	REQUIRED VALUE	TEST METHOD
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20%
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90%
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC-1

**OIL-ABSORBANT SILTSACK**

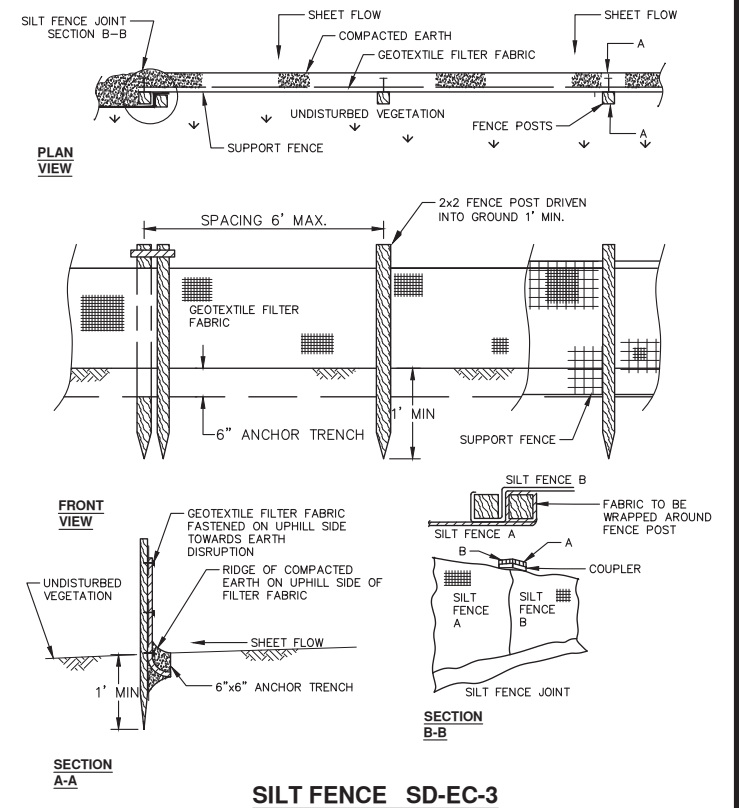
(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS THAT THE CONTRACTOR INSTALL THE REBAR AS SHOWN IN THIS DETAIL TO PROVIDE A FULLY FUNCTIONING UNIT. ALL COSTS ASSOCIATED WITH FURNISHING, CLEANING AS MANY TIMES AS REQUIRED, DISPOSAL OF SEDIMENT, AND REMOVING THE INLET FILTER WHEN NO LONGER NEEDED IS INCLUDED IN THE ITEM OF WORK AND WILL NOT BE PAID FOR SEPARATELY.



**MULCH BLANKET DETAIL**

APPLIES TO ALL AREAS TO BE PERMANENTLY RESTORED WITH GRASS.



**SILT FENCE SD-EC-3**

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

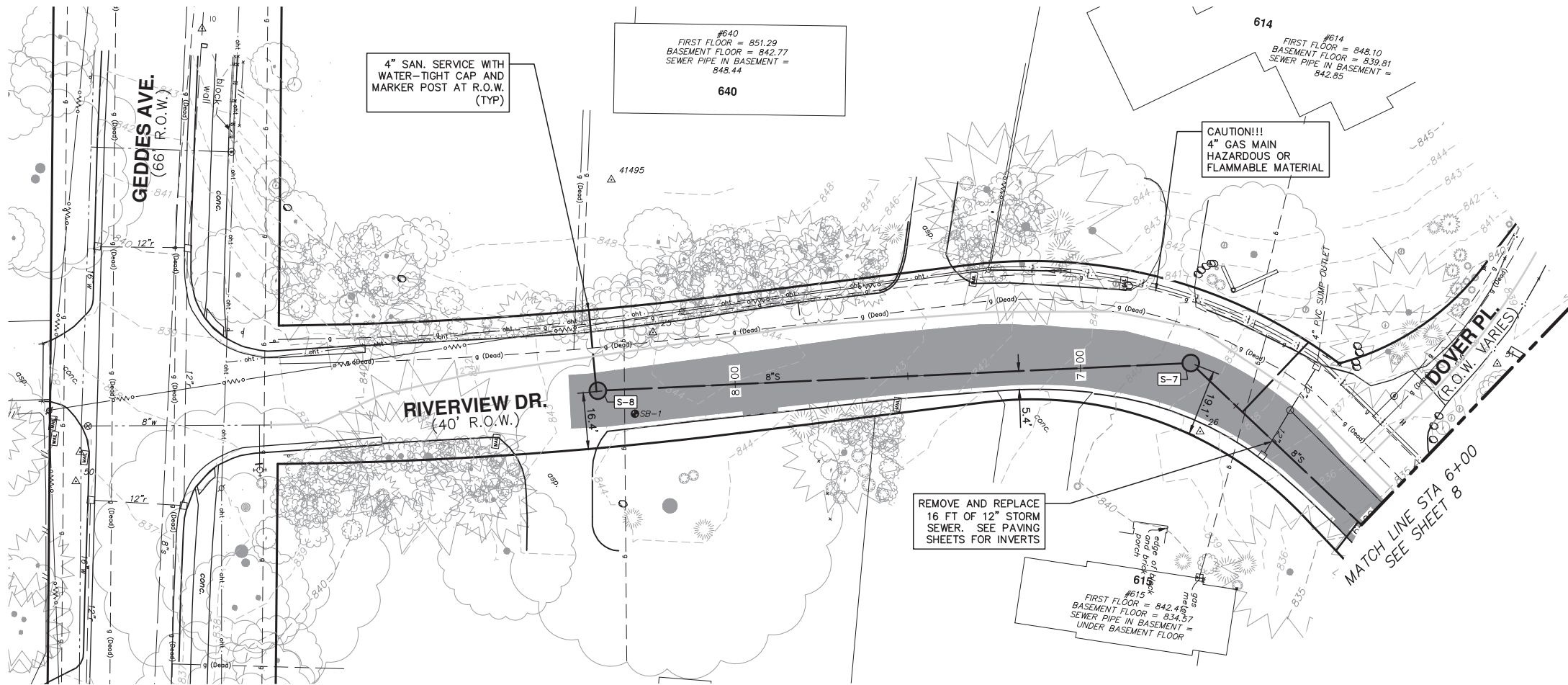
NO.	DATE	DESCRIPTION	DRAWN	CHECKED
06	2/28/2018	FINAL PLANS - CITY OF ANN ARBOR	MF	VCN
05	2/23/2018	FINAL REVIEW TO CITY OF ANN ARBOR	MF	VCN
04	2/12/2018	SANITARY SEWER AND WATER MAIN PERMITS	MF	VCN
03	2/9/2018	95% REVIEW TO CITY OF ANN ARBOR	MF	VCN
02	1/22/2018	SANITARY AND WATER MAIN PERMIT	MF	VCN

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
 RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT  
 SOIL EROSION DETAILS

CITY OF ANN ARBOR  
 PUBLIC SERVICES  
 301 EAST HURON STREET  
 P.O. BOX 8647  
 ANN ARBOR MI 48106-8647  
 734-794-4410  
 www.a3gov.org

SCALE: NTS  
 DRAWING No. 2017-031-6  
 SHEET No. 6 OF 25





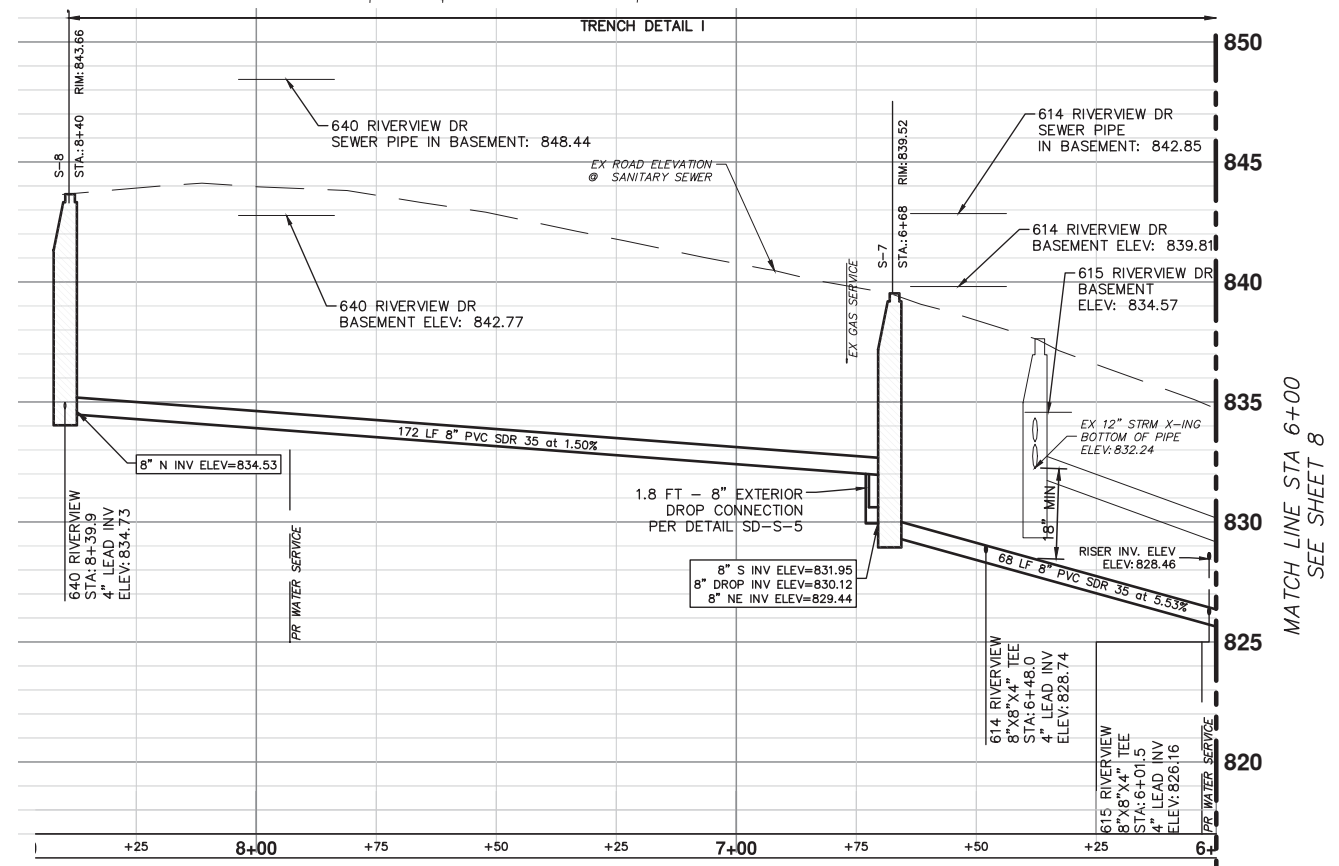
- SANITARY SEWER NOTES**
- 1: SEE SOIL EROSION CONTROL SHEETS FOR DETAILS ON PLACEMENT, MAINTENANCE, AND REMOVAL OF EROSION CONTROL ITEMS.
  - 2: NEW SANITARY SEWER SHALL CONSIST OF ASTM D3034 SOLID WALL PVC SDR35 PIPE AND SDR 26 PIPE WITH WATER-TIGHT GASKETED JOINTS, CLASS B STONE BEDDING (UP TO 12 INCHES ABOVE TOP OF PIPE) AND COMPACTED SAND BACKFILL. DEFLECTION OF PVC PIPE AFTER INSTALLATION AND BACKFILL SHALL NOT EXCEED 5.0% OF THE PIPE DIAMETER.
  - 3: MANUFACTURED TEES SHALL BE USED AT ALL SERVICE CONNECTIONS.
  - 4: NEW SANITARY SERVICES SHALL CONSIST OF PVC SDR26 OR SDR35 PIPE WITH WATER-TIGHT GASKETED JOINTS, STONE BEDDING AND BACKFILLED WITH COMPACTED SAND BACKFILL.
  - 5: TERMINATE NEW SANITARY SERVICES WITH A WATER-TIGHT PLUG AND 2" X 2" PRESSURE TREATED HARDWOOD MARKER OR PK NAIL IF IN DRIVEWAY, AS REQUIRED BY SPECIFICATIONS.
  - 6: PROVIDE EARTH RESTRAINT AND TRENCH SUPPORT AS NEEDED TO PROTECT ADJOINING UTILITIES, STRUCTURES, ASPHALT CURB AND PAVEMENT AND LANDSCAPING FROM SETTLEMENT OR DAMAGE DURING CONSTRUCTION.
  - 7: THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORT TO PRESERVE AND PROTECT UTILITIES CROSSING THE TRENCH DURING CONSTRUCTION. METHODS OF SUPPORT SHALL BE APPROVED BY UTILITY OWNER. THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "SEWER, SDR 35 PVC PIPE, 8-INCH, TR DET 1".
  - 8: THE CONTRACTOR SHALL PROVIDE DEWATERING AS NEEDED TO MAINTAIN A DRY, SAFE AND STABLE TRENCH BOTTOM DURING CONSTRUCTION. THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "SEWER, SDR 35 PVC PIPE, 8-INCH, TR DET 1".
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  - 10: FINAL LOCATION OF SANITARY SERVICE LEAD WILL BE COORDINATED AT THE TIME OF CONSTRUCTION WITH PROPERTY OWNER BY THE ENGINEER. NO ADJUSTMENT IN ANY UNIT PRICE WILL BE ALLOWED AS A RESULT OF ANY ADJUSTMENT IN LOCATION OF PROPOSED SANITARY SEWER LEAD.
  - 11: ALL LEAD INVERT ELEVATIONS ARE CALCULATED BASED ON AN 8"x4" TEE ROTATED 45° VERTICALLY. SEE DETAIL ON THIS SHEET.

**LEGEND**

PROPOSED STAGE 1 PAVEMENT REMOVAL LIMITS-18" SECTION OF ASPHALT CURB AND PAVEMENT TO REMAIN IN PLACE AS SHOWN ON THE PLANS. SEE PAVING SHEETS FOR ADDITIONAL REMOVAL DETAILS

NOTE: A PROVISIONAL QUANTITY OF 200 LINEAL FEET HAS BEEN ADDED TO THE PAY ITEMS "SEWER, ANY SIZE OR DEPTH, REM" AND "SEWER, CL C76 IV, 12 INCH, TR DET 1, MODIFIED" TO ACCOUNT FOR POTENTIAL CONFLICTS THAT MAY ARISE DURING THE INSTALLATION OF THE PROPOSED UTILITIES WITH THE EXISTING STORM SEWER SYSTEM. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.

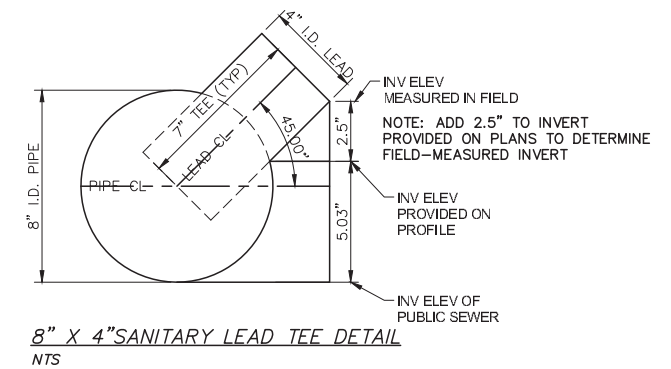
NOTE: A PROVISIONAL QUANTITY OF 400 LINEAL FEET HAS BEEN ADDED TO THE PAY ITEMS "CURB, ANY TYPE OR SIZE, REM" AND "CURB SLOPED, HMA, SPECIAL" TO BE USED IN THE EVENT THAT THE EXISTING CURB NOT IDENTIFIED FOR REMOVAL IN THE PLANS IS DAMAGED BY UNAVOIDABLE CIRCUMSTANCES ENCOUNTERED DURING CONSTRUCTION. THIS PROVISIONAL QUANTITY IS NOT INTENDED TO EXPEDITE THE CONTRACTOR'S OPERATION OR TO DIMINISH TRENCH WIDTH AND/OR SAFETY REQUIREMENTS. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.



STA	ADDRESS	RISER HEIGHT (FT)	LENGTH TO ROW (FT)	LEAD SLOPE	INV @ ROW	DIRECTION	SIZE	MATERIAL
8+40	640 RIVERVIEW	0.0	23.5	2%	835.19	West	4"	PVC SDR 35
6+48	614 RIVERVIEW	0.0	27.8	2%	829.29	West	4"	PVC SDR 35
6+01.5	615 RIVERVIEW	2.3	10.5	2%	828.67	East	4"	PVC SDR 35

**SANITARY SEWER STRUCTURE TABLE**

STRUCTURE	STATION	RIM	DIA.	INVERTS	APPLICATION /CONSTRUCTION/DETAIL
S-7	6+68.02	839.52	48"	8" S 831.95 8" NE 829.44	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER
S-8	8+39.79	843.66	48"	8" N 834.53	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER



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

NO.	DATE	DESCRIPTION	REV.

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
ANN ARBOR MI 48106-0667  
www.a3gov.org

CITY OF ANN ARBOR  
ENGINEERING

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

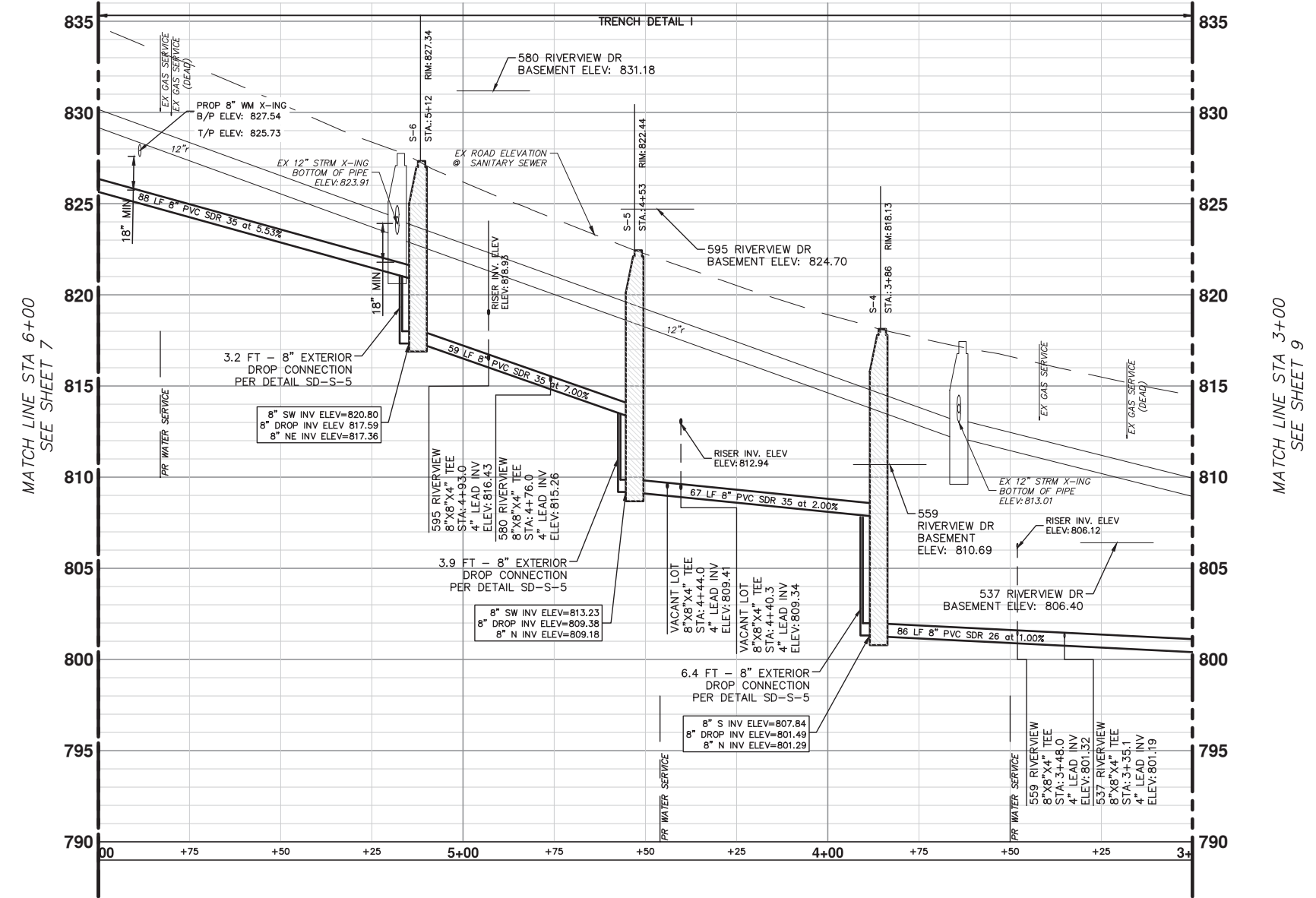
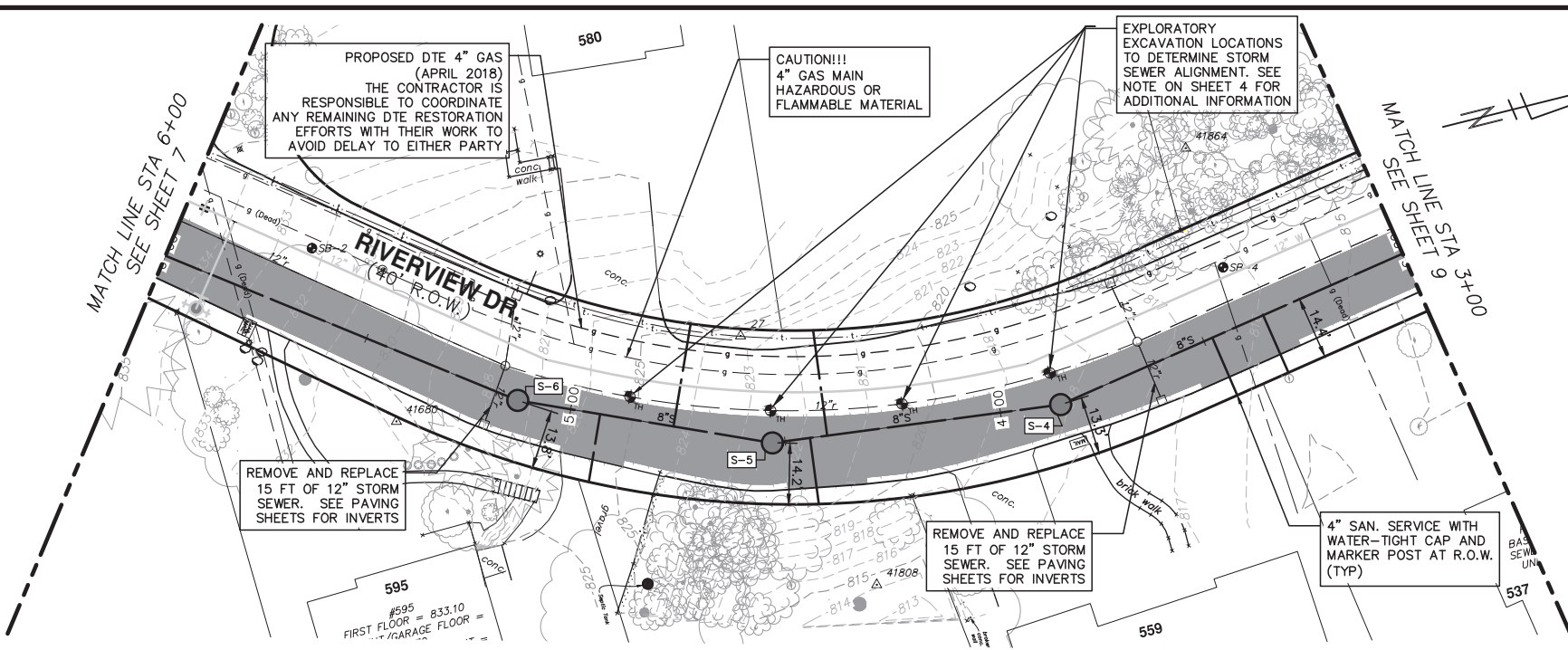
PROPOSED SANITARY PLAN & PROFILE STA 6+00 TO STA 8+00

SCALE PLAN: 1"=20'  
PROFILE: 1"=4'

DRAWING NO. 2017-031-7

SHEET NO. 7 OF 25





NOTE: A PROVISIONAL QUANTITY OF 200 LINEAL FEET HAS BEEN ADDED TO THE PAY ITEMS "SEWER, ANY SIZE OR DEPTH, REM" AND "SEWER, CL C76 IV, 12 INCH, TR DET 1, MODIFIED" TO ACCOUNT FOR POTENTIAL CONFLICTS THAT MAY ARISE DURING THE INSTALLATION OF THE PROPOSED UTILITIES WITH THE EXISTING STORM SEWER SYSTEM. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.

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- 11: ALL LEAD INVERT ELEVATIONS ARE CALCULATED BASED ON AN 8"X4" TEE ROTATED 45° VERTICALLY. SEE DETAIL ON SHEET 7.

**LEGEND**

PROPOSED STAGE 1 PAVEMENT REMOVAL LIMITS-18" SECTION OF ASPHALT CURB AND PAVEMENT TO REMAIN IN PLACE AS SHOWN ON THE PLANS. SEE PAVING SHEETS FOR ADDITIONAL REMOVAL DETAILS

**SANITARY LEAD TABLE**

STA	ADDRESS	RISER HEIGHT (FT)	LENGTH TO ROW (FT)	LEAD SLOPE	INV @ ROW	DIRECTION	SIZE	MATERIAL
4+93	595 RIVERVIEW	2.5	15.8	2%	819.25	East	4"	PVC SDR 35
4+76	580 RIVERVIEW	0.0	24.0	2%	815.74	West	4"	PVC SDR 35
4+44	595 VACANT LOT	0.0	15.4	2%	809.72	East	4"	PVC SDR 35
4+40	580 VACANT LOT	3.6	24.5	2%	813.43	West	4"	PVC SDR 35
3+48	559 RIVERVIEW	4.8	14.4	2%	806.40	East	4"	PVC SDR 26
3+35	537 RIVERVIEW	0.0	14.6	2%	801.48	East	4"	PVC SDR 26

**SANITARY SEWER STRUCTURE TABLE**

STRUCTURE	STATION	RIM	DIA.	INVERTS	APPLICATION/CONSTRUCTION/DETAIL
S-4	3+86.04	818.13	48"	8" S 807.84 8" N 801.49 8" N 801.29	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER
S-5	4+52.96	822.44	48"	8" SW 813.23 8" N 809.18	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER
S-6	5+12.36	827.34	48"	8" SW 820.80 8" SW 817.85 8" NE 817.36	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER

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

REV.	DATE	DESCRIPTION	CHECKED	DRAWN
06	2/28/2018	FINAL PLANS - CITY OF ANN ARBOR	MF	VCN
05	2/23/2018	FINAL REVIEW TO CITY OF ANN ARBOR	MF	VCN
04	2/12/2018	SANITARY SEWER AND WATER MAIN PERMITS	MF	VCN
03	2/9/2018	95% REVIEW TO CITY OF ANN ARBOR	MF	VCN
02	1/22/2018	SANITARY AND WATER MAIN PERMIT	MF	VCN

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
PO BOX 864  
ANN ARBOR MI 48106-0864  
www.a3gov.org

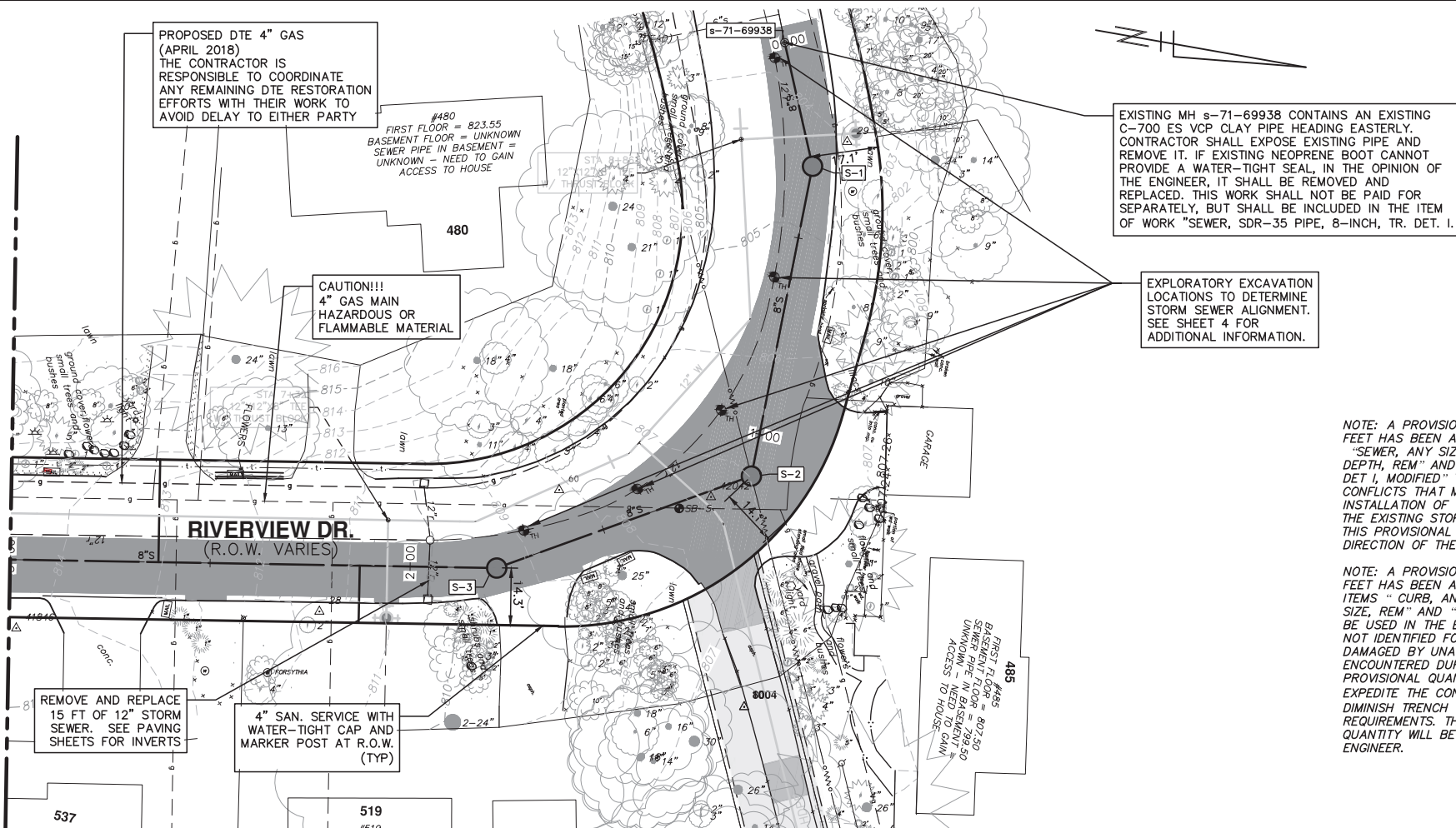
**CITY OF ANN ARBOR - ENGINEERING**  
RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT  
PROPOSED SANITARY PLAN & PROFILE STA 3+00 TO STA 6+00

SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'

DRAWING NO. 2017-031-B  
SHEET NO. 8 OF 25



MATCH LINE STA 3+00  
SEE SHEET 8



PROPOSED DTE 4" GAS (APRIL 2018)  
THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ANY REMAINING DTE RESTORATION EFFORTS WITH THEIR WORK TO AVOID DELAY TO EITHER PARTY

CAUTION!!!  
4" GAS MAIN  
HAZARDOUS OR  
FLAMMABLE MATERIAL

EXISTING MH s-71-69938 CONTAINS AN EXISTING C-700 ES VCP CLAY PIPE HEADING EASTERLY. CONTRACTOR SHALL EXPOSE EXISTING PIPE AND REMOVE IT, IF EXISTING NEOPRENE BOOT CANNOT PROVIDE A WATER-TIGHT SEAL, IN THE OPINION OF THE ENGINEER, IT SHALL BE REMOVED AND REPLACED. THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "SEWER, SDR-35 PIPE, 8-INCH, TR. DET. I.

EXPLORATORY EXCAVATION LOCATIONS TO DETERMINE STORM SEWER ALIGNMENT. SEE SHEET 4 FOR ADDITIONAL INFORMATION.

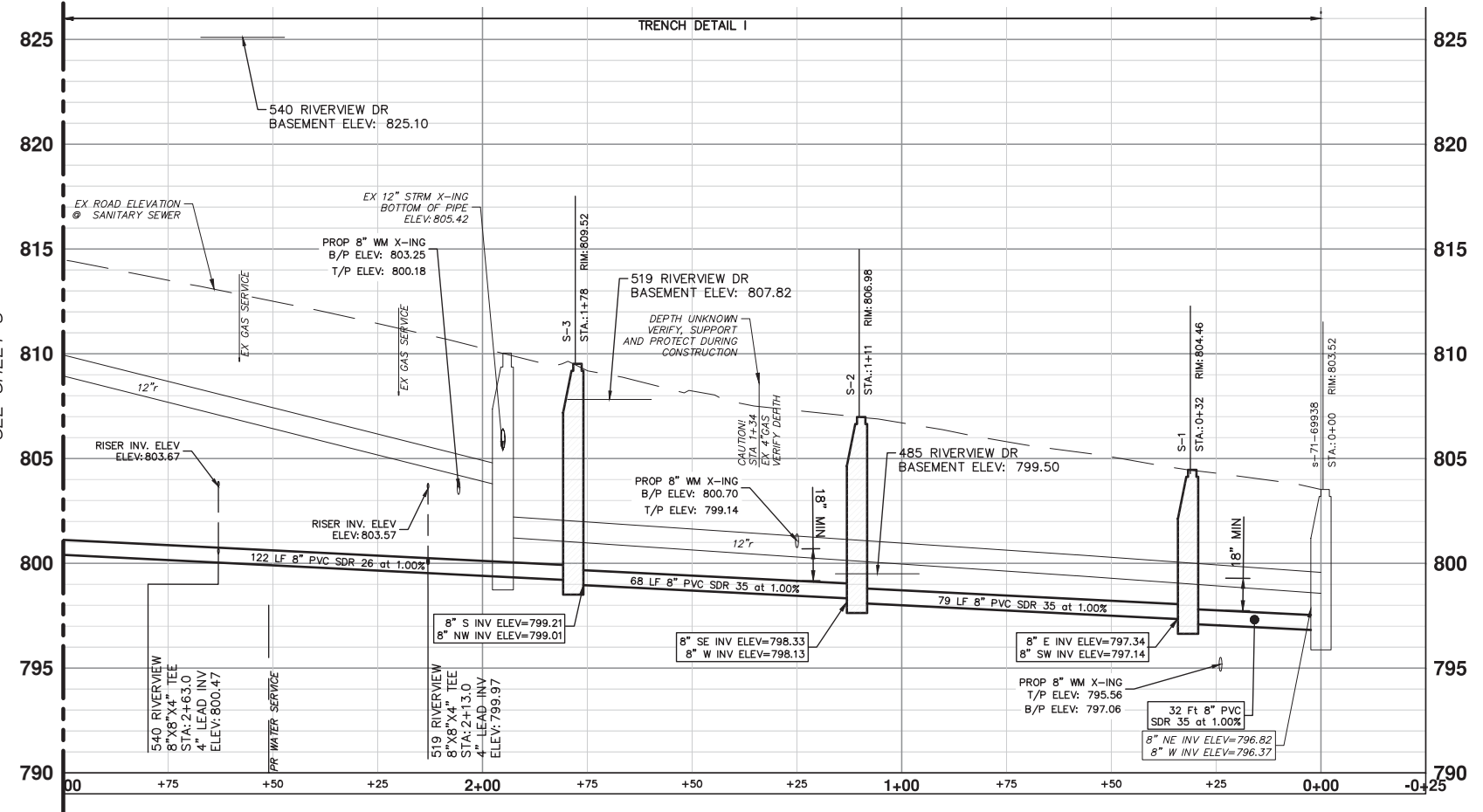
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- 11: ALL LEAD INVERT ELEVATIONS ARE CALCULATED BASED ON AN 8"x4" TEE ROTATED 45° VERTICALLY. SEE DETAIL ON SHEET 7.

MATCH LINE STA 3+00  
SEE SHEET 8




**LEGEND**

PROPOSED STAGE 1 PAVEMENT REMOVAL LIMITS-18" SECTION OF ASPHALT CURB AND PAVEMENT TO REMAIN IN PLACE AS SHOWN ON THE PLANS. SEE PAVING SHEETS FOR ADDITIONAL REMOVAL DETAILS

STA	ADDRESS	RISER HEIGHT (FT)	LENGTH TO ROW (FT)	LEAD SLOPE	INV @ ROW	DIRECTION	SIZE	MATERIAL
2+63	540 RIVERVIEW	3.2	25.7	2%	804.18	West	4"	PVC SDR 35
2+13	519 RIVERVIEW	3.6	14.3	2%	803.87	East	4"	PVC SDR 35

STRUCTURE	STATION	RIM	DIA.	INVERTS	APPLICATION/CONSTRUCTION/DETAIL
S-1	0+31.70	804.46	48"	8" E 797.34 8" SW 797.14	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER
S-2	1+10.67	806.98	48"	8" SE 798.33 8" W 798.13	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER
S-3	1+78.35	809.52	48"	8" S 799.21 8" NW 799.01	SANITARY MANHOLE; SD-S-1; EJIW 1040 TYPE Q COVER
Ex MH	0+00	803.52	48"	8" NE 796.82 8" W 796.37(EX)	EXISTING SANITARY MANHOLE



Know what's below.  
Call Before you dig.

06	FINAL PLANS - CITY OF ANN ARBOR	2/28/2018	VCM
05	FINAL REVIEW TO CITY OF ANN ARBOR	2/23/2018	MF
04	SANITARY SEWER AND WATER MAIN PERMITS	2/12/2018	MF
03	95% REVIEW TO CITY OF ANN ARBOR	2/9/2018	MF
02	SANITARY AND WATER MAIN PERMIT	1/22/2018	MF
	DESCRIPTION	DATE	CHECKED
			DRAWN

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
PO BOX 866  
ANN ARBOR MI 48106-0867  
734-794-4410  
www.a3gov.org

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

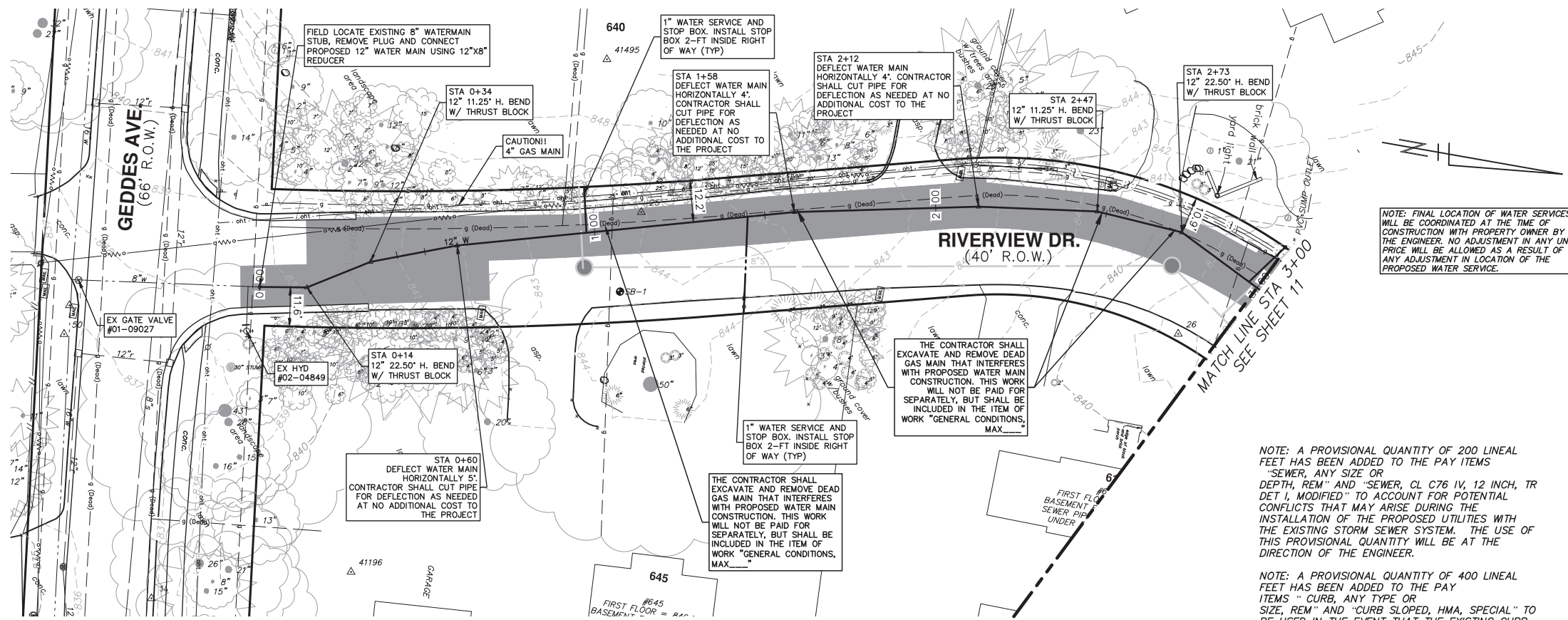
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

PROPOSED SANITARY PLAN & PROFILE STA 0+00 TO STA 3+00

SHEET No. 9 OF 25



C:\pwork\mfanogon\0820002\10 PROPOSED WATER MAIN PLAN & PROFILE STA 0+00 TO STA 3+00.dwg Dwg Created: 28-Feb-18 --\_02 standard bw.stb -- Plot Date: 1-Mar-18



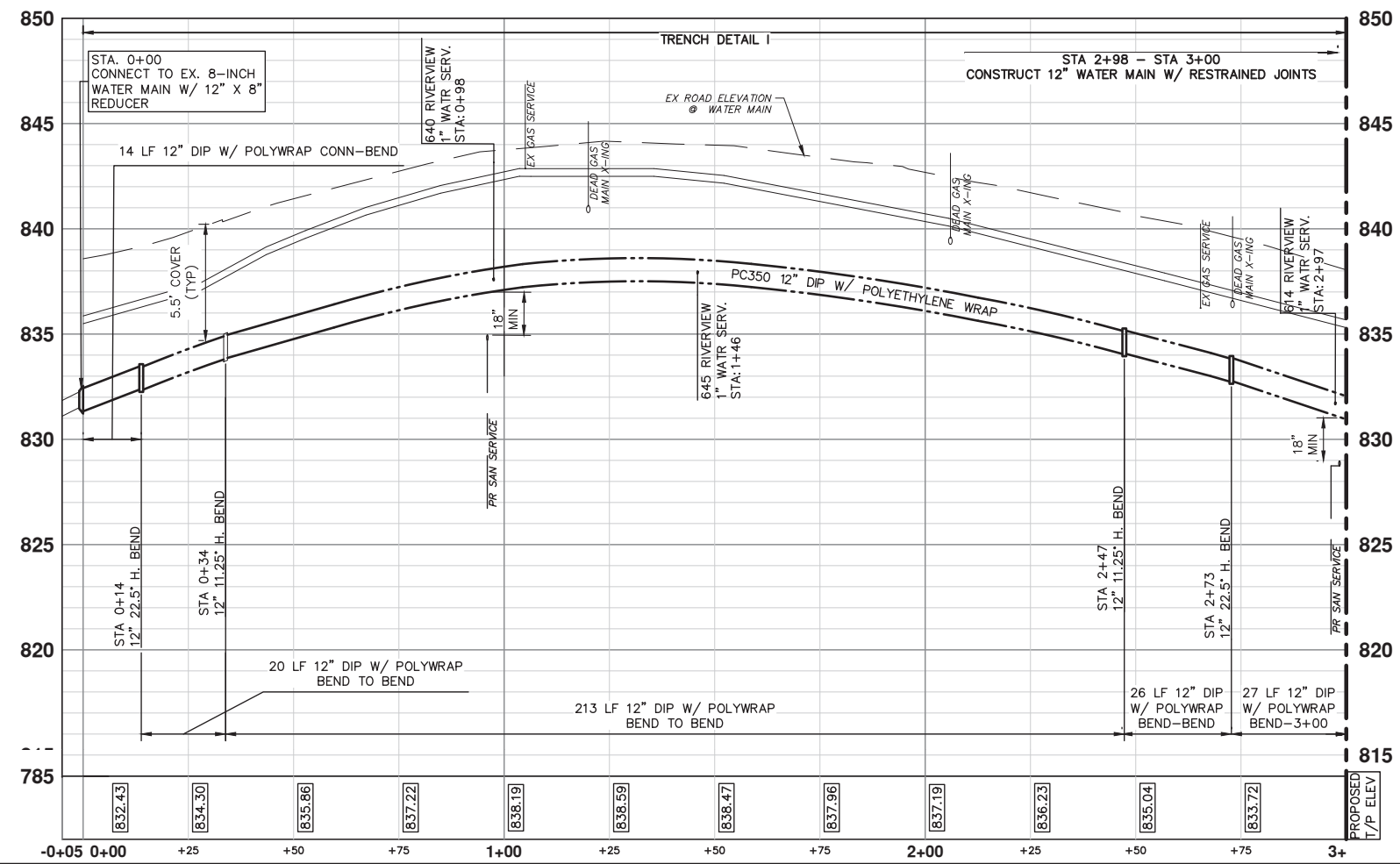
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**WATER MAIN CONSTRUCTION NOTES**


- SEE EROSION CONTROL SHEETS FOR DETAILS ON PLACEMENT, MAINTENANCE, AND REMOVAL OF EROSION CONTROL ITEMS.
- THE CONTRACTOR SHALL CAREFULLY PROTECT FROM DAMAGE OR INJURY DURING CONSTRUCTION OPERATIONS ALL UTILITIES, SITE FEATURES, LANDSCAPING, AND OTHER ITEMS NOT DESIGNATED FOR REMOVAL OR ABANDONMENT. PAYMENT FOR PROTECTION OF UTILITIES INCLUDED IN "GENERAL CONDITIONS, MAX...". EXISTING FACILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT, BUT WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS SOLE EXPENSE, AS DETERMINED BY THE ENGINEER.
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- THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS WHICH ARE INCLUDED BY REFERENCE. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THE REQUIREMENT. THE WORK SHALL BE PERFORMED IN COMPLETE CONFORMANCE WITH CURRENT PUBLIC SERVICE DEPARTMENT STANDARD SPECIFICATIONS AND DETAILS.
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- THE CONTRACTOR SHALL PERFORM ALL WATER SYSTEM SHUT DOWNS AFTER APPROPRIATE NOTIFICATION TO THOSE AFFECTED AND APPROVAL HAS BEEN GRANTED BY THE ENGINEER.
- THE DRILLING MACHINE IS TO BE PLACED AT THE EAST BORE PIT AND PULL PIPE FROM THE WEST BORE PIT. PIPE TO BE STAGED ALONG RIVERVIEW DRIVE.



MATCH LINE STA 3+00  
SEE SHEET 11

**LEGEND**

PROPOSED STAGE 2 PAVEMENT REMOVAL LIMITS-18" SECTION OF ASPHALT CURB AND PAVEMENT TO REMAIN IN PLACE AS SHOWN ON THE PLANS. SEE PAVING SHEETS FOR ADDITIONAL REMOVAL DETAILS



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**  
 PROPOSED WATER MAIN PLAN & PROFILE STA 0+00 TO STA 3+00

VCM	MF	2/28/2018	CITY OF ANN ARBOR	06	05	FINAL PLANS - CITY OF ANN ARBOR	2/28/2018	VCM	CHECKED
VCM	MF	2/23/2018	CITY OF ANN ARBOR	05	04	FINAL REVIEW TO CITY OF ANN ARBOR	2/23/2018	VCM	DRAWN
VCM	MF	2/19/2018	CITY OF ANN ARBOR	04	03	SANITARY SEWER AND WATER MAIN PERMITS	2/19/2018	VCM	
VCM	MF	2/9/2018	CITY OF ANN ARBOR	03	02	95% REVIEW TO CITY OF ANN ARBOR	2/9/2018	VCM	
VCM	MF	1/22/2018	CITY OF ANN ARBOR	02		SANITARY AND WATER MAIN PERMIT	1/22/2018	VCM	
									DATE
									DESCRIPTION
									REV.

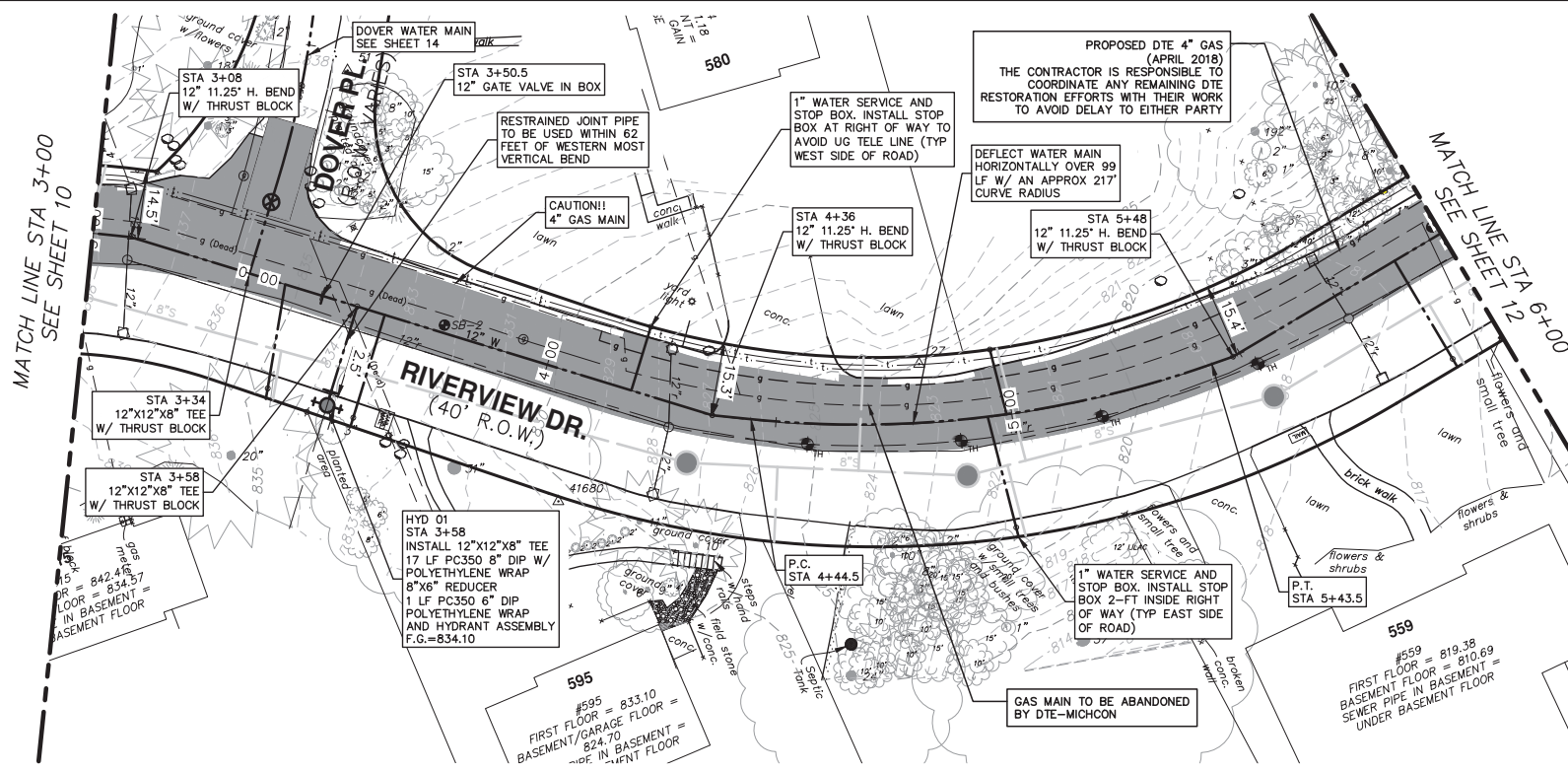
CITY OF ANN ARBOR  
 PUBLIC SERVICES  
 301 EAST HURON STREET  
 P.O. BOX 860  
 ANN ARBOR, MI 48106-0867  
 WWW.A2gov.org

SCALE PLAN: 1" = 20'  
 PROFILE: 1" = 4'

DRAWING NO. 2017-031-10

SHEET NO. 10 OF 25





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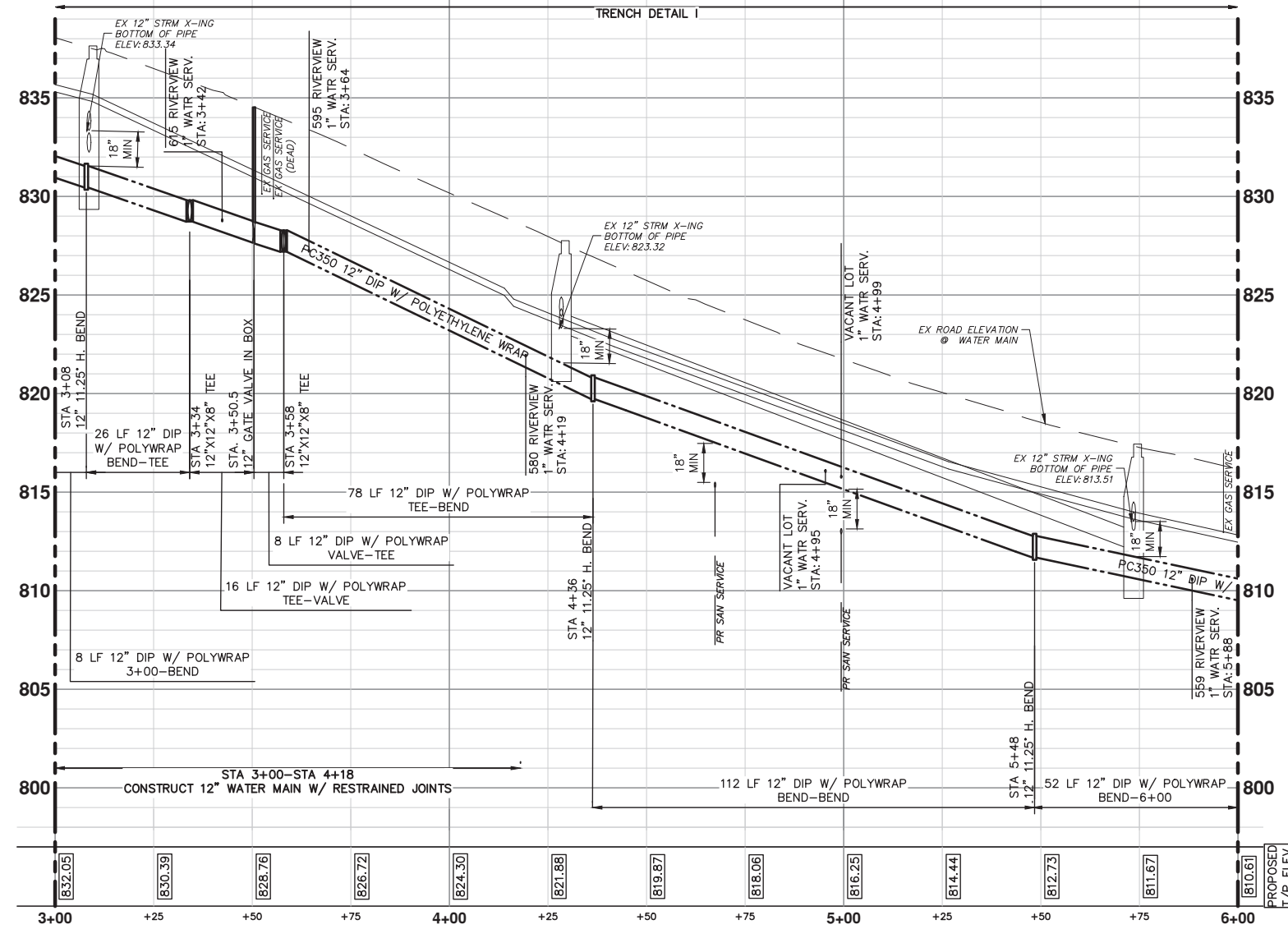


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		DRAWN
		CHECKED

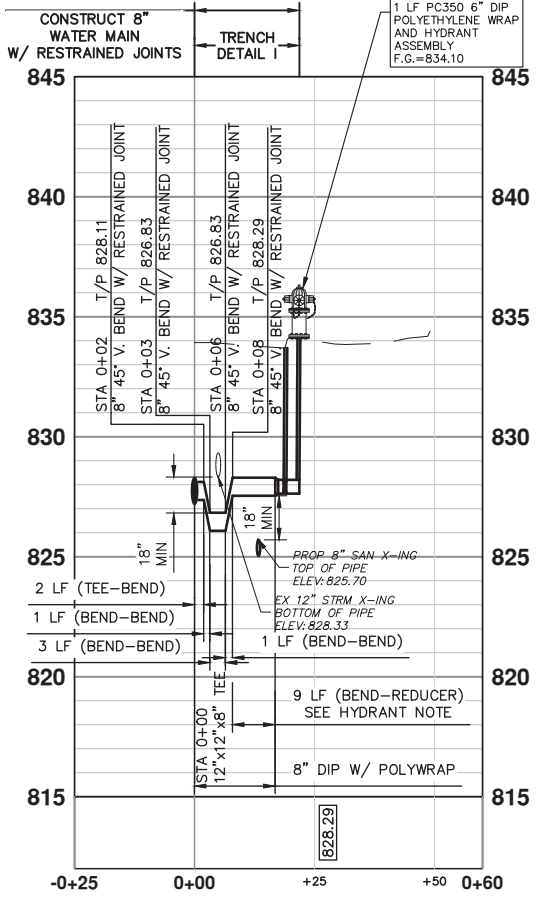
CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
ANN ARBOR, MI 48106-8647  
www.a3gov.org

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**  
PROPOSED WATER MAIN PLAN & PROFILE STA 3+00 TO STA 6+00

MATCH LINE STA 3+00  
SEE SHEET 10



MATCH LINE STA 6+00  
SEE SHEET 12



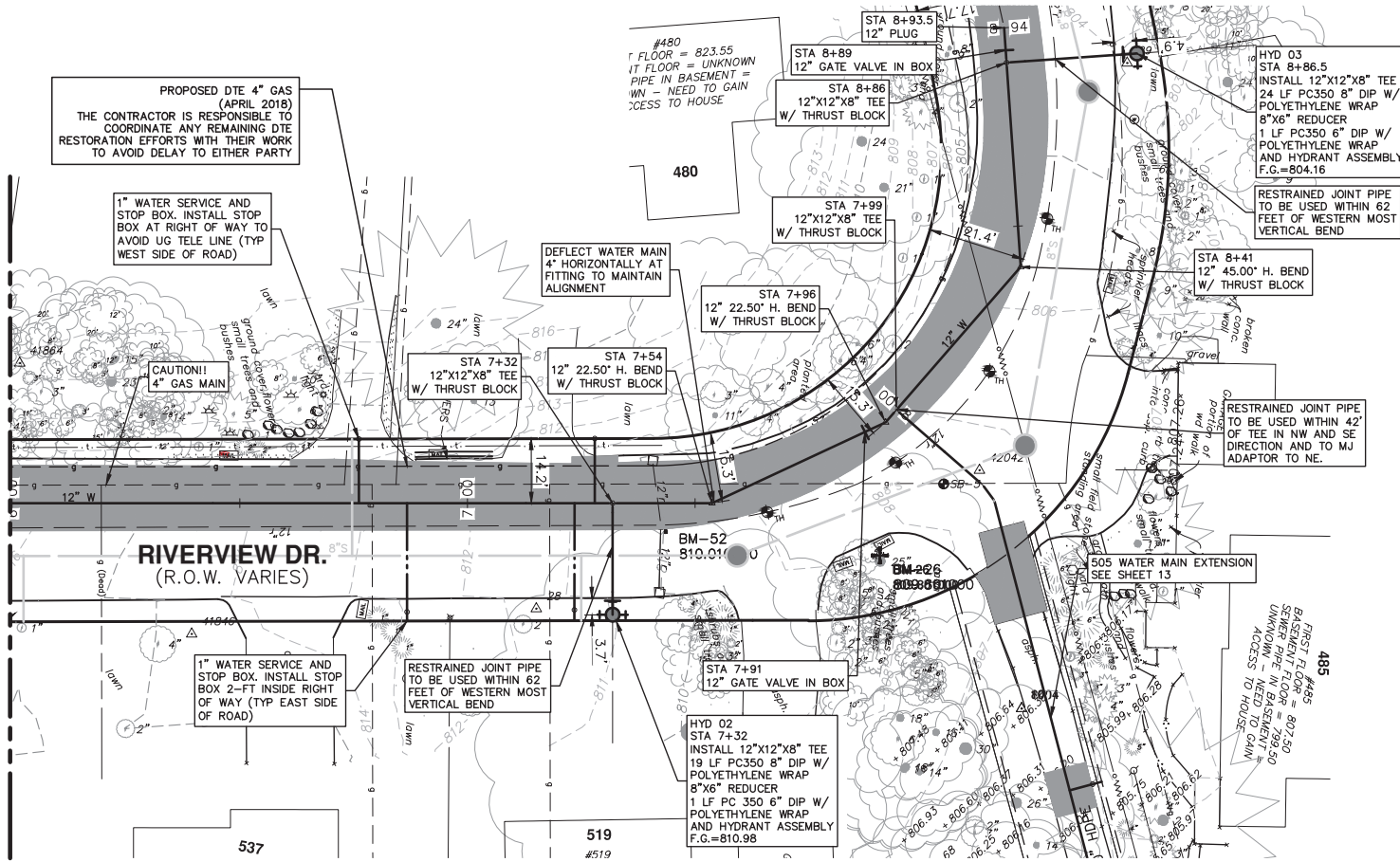
**LEGEND**

PROPOSED STAGE 2 PAVEMENT REMOVAL LIMITS-18" SECTION OF ASPHALT CURB AND PAVEMENT TO REMAIN IN PLACE AS SHOWN ON THE PLANS. SEE PAVING SHEETS FOR ADDITIONAL REMOVAL DETAILS

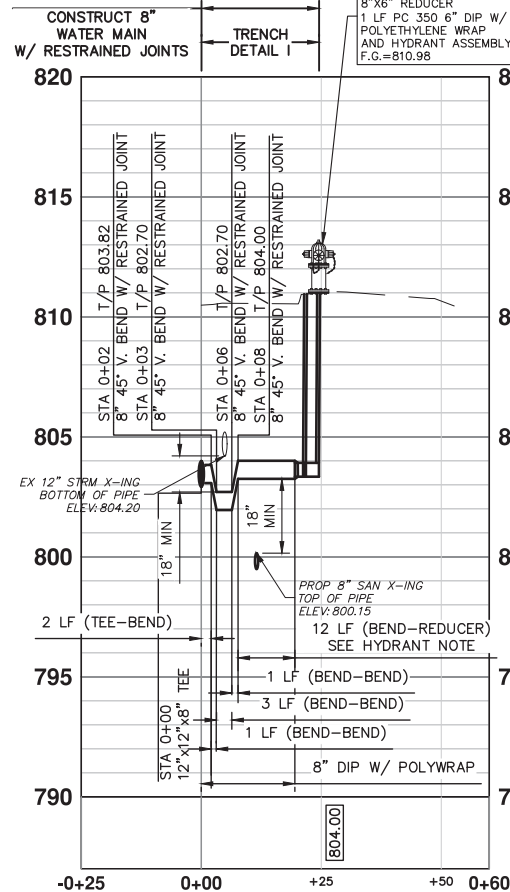
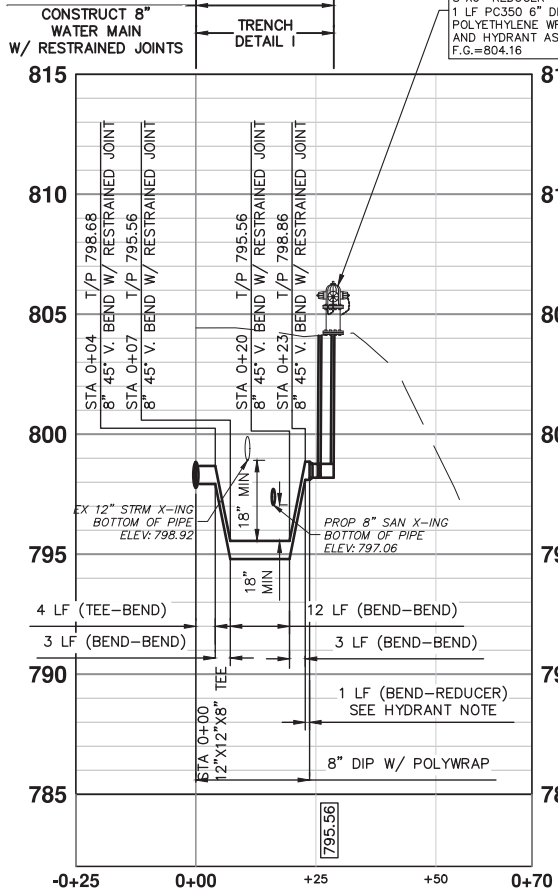


MATCH LINE STA 6+00  
SEE SHEET 11

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SEE SHEET 11



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**LEGEND**

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CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
ANN ARBOR, MI 48106-8647  
ANN ARBOR WATER MAIN PERMIT  
734-784-4410  
www.a3gov.org

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

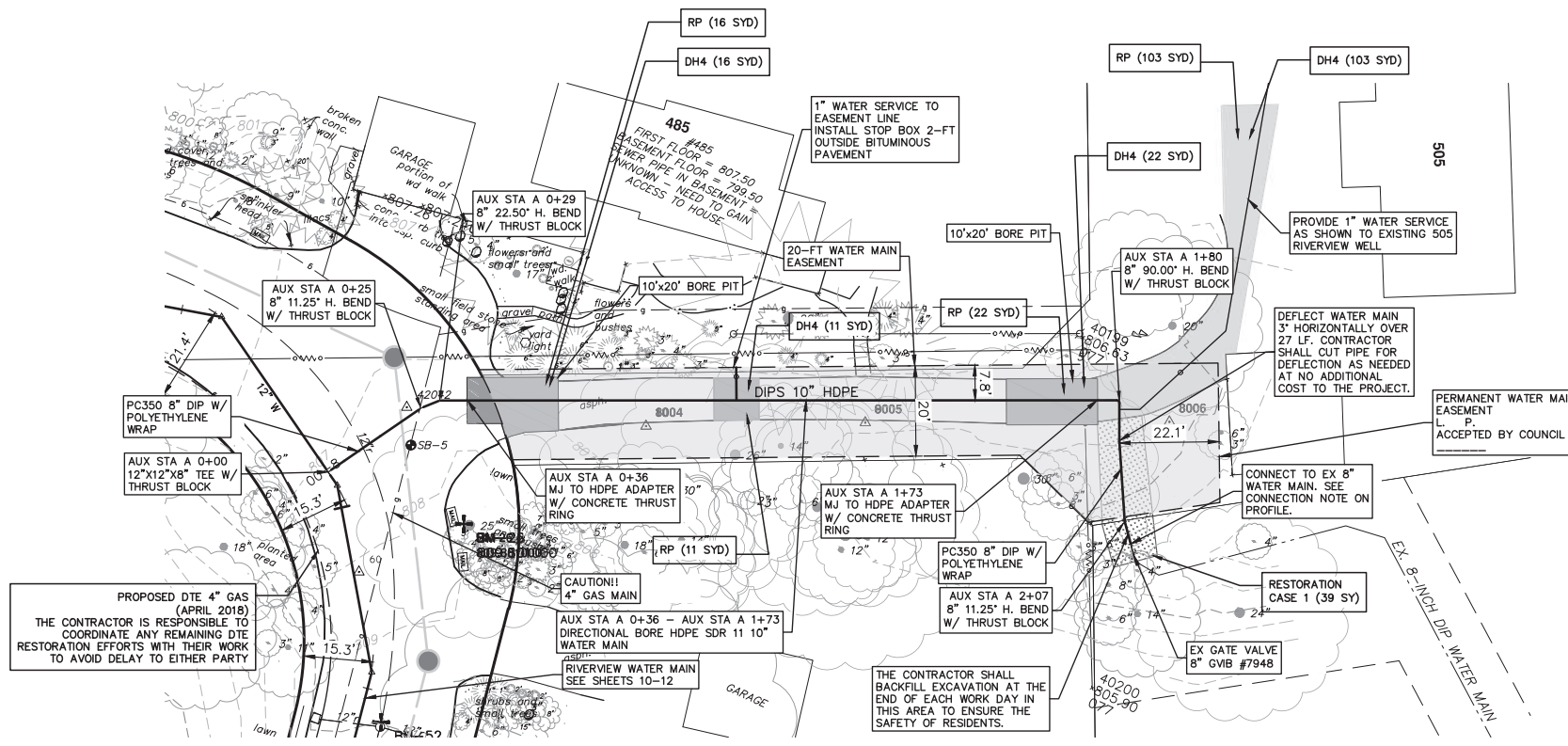
PROPOSED WATER MAIN PLAN & PROFILE STA 6+00 TO STA 9+00

SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'

DRAWING NO. 2017-031-12

SHEET NO. 12 OF 25





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**LEGEND**



**RESTORATION**

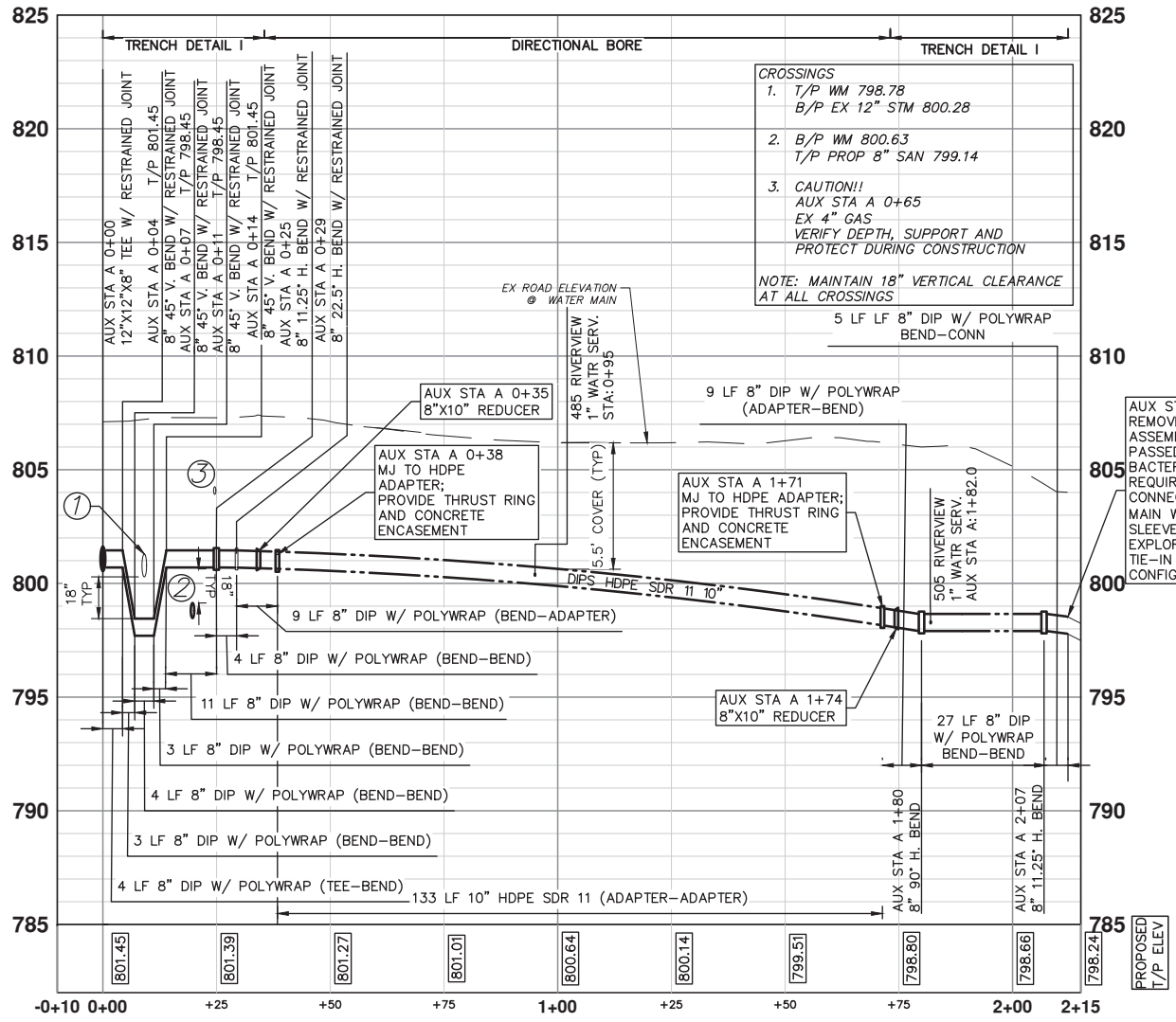
CASE 1 - AREA TO BE RESTORED WITH 4-INCHES OF TOPSOIL, SEED AND MULCH.

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- RESTRAINED JOINT SYSTEMS FOR WATER MAIN SHALL BE UTILIZED WHERE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. RESTRAINED JOINT GASKET SYSTEMS ARE TO BE USED. (FIELD-LOK 350 BY U.S. PIPE, FAST-GRIP BY AMERICAN DUCTILE IRON PIPE, OR APPROVED EQUAL)
- ALL WATER MAIN TO HAVE 5.5 FEET OF COVER. MAINTAIN A MINIMUM OF 18-INCH VERTICAL CLEARANCE FOR STORM AND SANITARY CROSSINGS AND A MINIMUM OF 12-INCH VERTICAL CLEARANCE WITH ALL OTHER UTILITIES.
- UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL UTILIZE STANDARD PIPE DEFLECTIONS FOR FOLLOWING THE PROPOSED ALIGNMENT.
- NEW FIRE HYDRANTS SHALL BE EJIW 5BR-250 WITH 4-INCH STORZ QUICK CONNEX AND 2-2 1/2 HYDRANT OUTLETS.
- FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL NECESSARY HYDRANT EXTENSIONS, THRUST BLOCKS, PIPE AND FITTINGS, INCLUDING ADJUSTMENT OF THE COMPANION VALVE. FIRE HYDRANT ASSEMBLY INCLUDES 6-INCH COMPANION VALVE LOCATED THREE FEET FROM THE HYDRANT.
- ALL WATER MAIN TRENCH BACKFILL SHALL BE MDOT CLASS II GRANULAR MATERIAL (SEE UTILITY TRENCH TYPE I DETAIL).
- CONNECTIONS TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE NEW MAIN HAS BEEN SUCCESSFULLY TESTED AND HAS PASSED ALL HYDROSTATIC AND BACTERIOLOGICAL TESTING. FINAL CONNECTIONS SHALL BE COORDINATED WITH THE ENGINEER.
- THE CONTRACTOR SHALL PERFORM ALL WATER SYSTEM SHUT DOWNS AFTER APPROPRIATE NOTIFICATION TO THOSE AFFECTED AND APPROVAL HAS BEEN GRANTED BY THE ENGINEER.
- THE DRILLING MACHINE IS TO BE PLACED AT THE EAST BORE PIT TO PULL PIPE FROM THE WEST BORE PIT. PIPE TO BE STAGED ALONG RIVERVIEW DRIVE.
- THE CONTRACTOR SHALL MAINTAIN REASONABLE ACCESS FOR RESIDENTS TO ACCESS THEIR HOMES AT ALL TIMES. A SAFE ACCESS PATH SHALL BE IDENTIFIED ALONG WITH VEHICLE PARKING IN THE EVENT THAT CONSTRUCTION ACTIVITIES INHIBIT VEHICULAR ACCESS TO THE HOMES.
- EQUIPMENT USED TO INSTALL THE PROPOSED WATER MAIN ON LOT 505 SHALL BE SIZED APPROPRIATELY SUCH THAT THERE IS MINIMUM DISTURBANCE TO EXISTING SITE FEATURES. THE CONTRACTOR SHALL ENSURE THE PROTECTION OF THE EXISTING HMA DRIVEWAY WHEN USING TRACKED EQUIPMENT OR USE RUBBER Tired EQUIPMENT.

NOTE: A PROVISIONAL QUANTITY OF 200 LINEAL FEET HAS BEEN ADDED TO THE PAY ITEMS "SEWER, ANY SIZE OR DEPTH, REM" AND "CURB SLOPED, HMA, SPECIAL" TO BE USED IN THE EVENT THAT THE EXISTING CURB NOT IDENTIFIED FOR REMOVAL IN THE PLANS IS DAMAGED BY UNAVOIDABLE CIRCUMSTANCES ENCOUNTERED DURING CONSTRUCTION. THIS PROVISIONAL QUANTITY IS NOT INTENDED TO EXPEDITE THE CONTRACTOR'S OPERATION OR TO DIMINISH TRENCH WIDTH AND/OR SAFETY REQUIREMENTS. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.


NOTE: A PROVISIONAL QUANTITY OF 400 LINEAL FEET HAS BEEN ADDED TO THE PAY ITEMS "CURB, ANY TYPE OR SIZE, REM" AND "CURB SLOPED, HMA, SPECIAL" TO BE USED IN THE EVENT THAT THE EXISTING CURB NOT IDENTIFIED FOR REMOVAL IN THE PLANS IS DAMAGED BY UNAVOIDABLE CIRCUMSTANCES ENCOUNTERED DURING CONSTRUCTION. THIS PROVISIONAL QUANTITY IS NOT INTENDED TO EXPEDITE THE CONTRACTOR'S OPERATION OR TO DIMINISH TRENCH WIDTH AND/OR SAFETY REQUIREMENTS. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.



AUX STA A 2+12 REMOVE EXISTING BLOW-OFF ASSEMBLY WHEN WATER MAIN HAS PASSED ALL HYDROSTATIC AND BACTERIOLOGICAL TESTING REQUIREMENTS. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.

**CONSTRUCTION KEY**

DH4	PLACE 4" HMA DRIVE
DC6	PLACE 6" CONCRETE DRIVE APPROACH
RCG-PM	REMOVE EXISTING ASPHALT CURB AND PAVEMENT, CONCRETE GUTTER OR CONCRETE CURB - ANY TYPE
RP	REMOVE EXISTING PAVEMENT - ANY THICKNESS SAWCUT AT REMOVAL LIMITS (INCLUDE IN WORK ITEM "HMA SURFACE, REM")
RLBO	RELOCATE BY OWNER
RRST	REMOVE & REPLACE EXISTING STORM SEWER - SIZE AS SHOWN ON PLAN
PP	PLACE ASPHALT PAVEMENT - MATERIAL AND THICKNESS PER TYPICAL CROSS SECTION



Know what's below. Call Before you dig.

VCN	2/28/2018	DATE	CHECKED
MF	2/23/2018	DATE	DRAWN
VCN	2/12/2018	DATE	
VCN	2/9/2018	DATE	
VCN	1/22/2018	DATE	
VCN		DATE	
06	FINAL PLANS - CITY OF ANN ARBOR	DESCRIPTION	
05	FINAL REVIEW TO CITY OF ANN ARBOR	DESCRIPTION	
04	SANITARY SEWER AND WATER MAIN PERMITS	DESCRIPTION	
03	95% REVIEW TO CITY OF ANN ARBOR	DESCRIPTION	
02	SANITARY AND WATER MAIN PERMIT	DESCRIPTION	
REV.		DESCRIPTION	

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

PROPOSED WATER MAIN PLAN & PROFILE WM EXTENSION 505

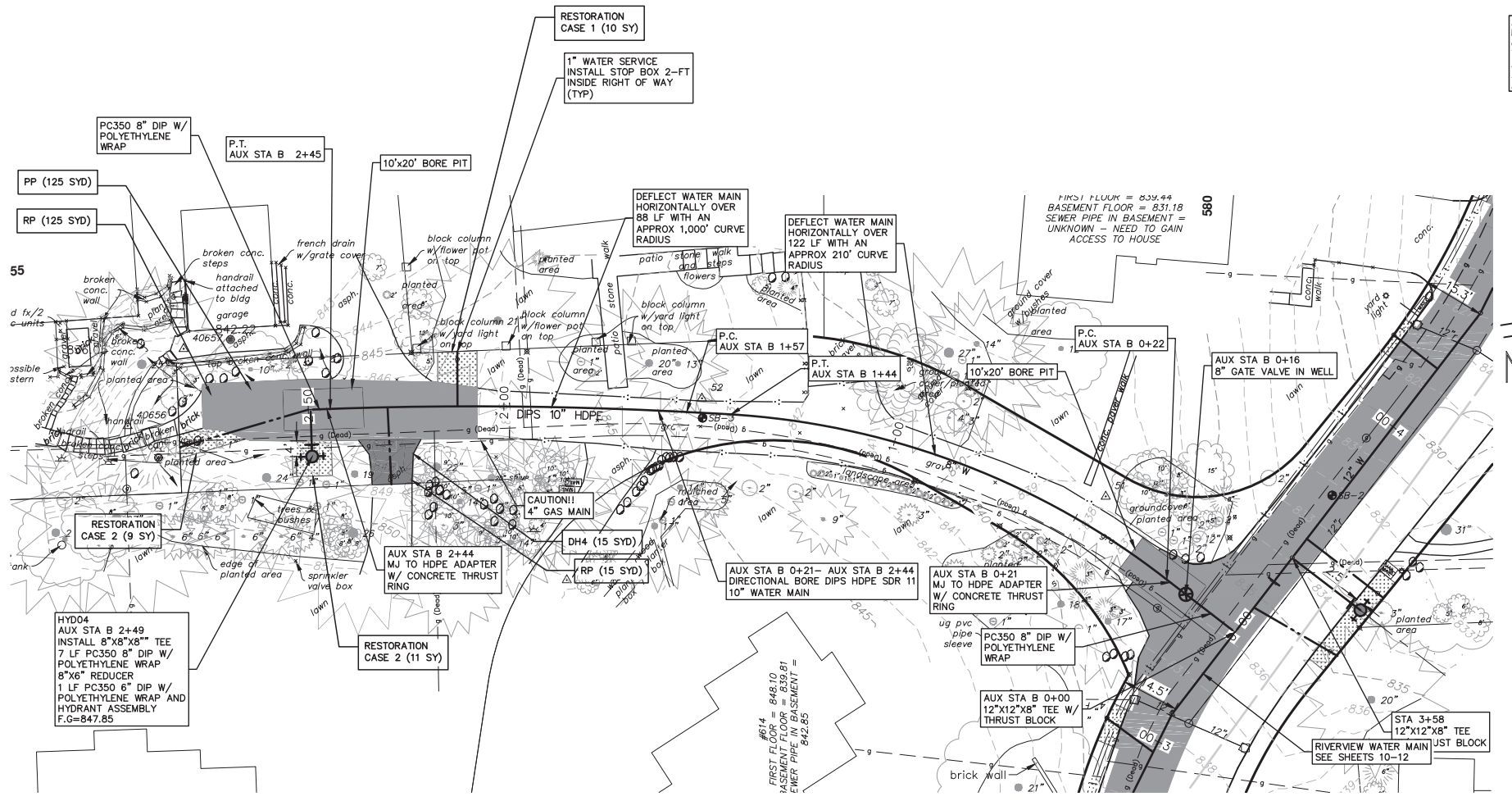
SCALE PLAN: 1"=20'

PROFILE: 1"=4'

DRAWING NO. 2017-031-13

SHEET NO. 13 OF 25





NOTE: FINAL LOCATION OF WATER SERVICES WILL BE COORDINATED AT THE TIME OF CONSTRUCTION WITH PROPERTY OWNER BY THE ENGINEER. NO ADJUSTMENT IN ANY UNIT PRICE WILL BE ALLOWED AS A RESULT OF ANY ADJUSTMENT IN LOCATION OF THE PROPOSED WATER SERVICE.

**WATER MAIN CONSTRUCTION NOTES**

- SEE EROSION CONTROL SHEETS FOR DETAILS ON PLACEMENT, MAINTENANCE, AND REMOVAL OF EROSION CONTROL ITEMS.
- THE CONTRACTOR SHALL CAREFULLY PROTECT FROM DAMAGE OR INJURY DURING CONSTRUCTION OPERATIONS ALL UTILITIES, SITE FEATURES, LANDSCAPING, AND OTHER ITEMS NOT DESIGNATED FOR REMOVAL OR ABANDONMENT. PAYMENT FOR PROTECTION OF UTILITIES INCLUDED IN "GENERAL CONDITIONS, MAX...". EXISTING FACILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT, BUT WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS SOLE EXPENSE, AS DETERMINED BY THE ENGINEER.
- THE EXISTING UTILITIES SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED THROUGH SURVEYS AND/OR EXISTING PLANS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES. IF STORM, SANITARY, OR WATERMAINS CROSS OTHER UTILITIES, CONTACT THEIR RESPECTIVE OWNERS FOR INFORMATION ON HOW TO PROCEED. PAYMENT FOR THE COORDINATION EFFORTS AND ASSOCIATED ITEMS SHALL BE INCLUDED IN ASSOCIATED PROPOSED STORM, SANITARY, OR WATERMAIN ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.
- THE EXISTING 8" WATER MAIN FROM GEDDES MAY BE EXPOSED DURING CONSTRUCTION IN THE VICINITY SHOWN. THE CONTRACTOR SHALL CAREFULLY PROTECT FROM DAMAGE OR INJURY THE EXISTING WATER MAIN DURING CONSTRUCTION OPERATIONS. ANY DAMAGE TO THIS FACILITY BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS EXPENSE, AS DETERMINED BY THE ENGINEER. PAYMENT FOR PROTECTION OF THE EXISTING WATER MAIN WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX...".
- THE CONTRACTOR SHALL NOT REMOVE OR DAMAGE EXISTING SANITARY SEWER OR WATER MAIN LEADS FOR EASE OF CONSTRUCTING OTHER ASPECTS OF WORK. THE CONTRACTOR SHALL CAREFULLY PROTECT ALL LEADS FROM DAMAGE OR INJURY.
- THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE CITY OF ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS WHICH ARE INCLUDED BY REFERENCE. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THE REQUIREMENT. THE WORK SHALL BE PERFORMED IN COMPLETE CONFORMANCE WITH CURRENT PUBLIC SERVICE DEPARTMENT STANDARD SPECIFICATIONS AND DETAILS.
- ALL WATER MAIN SHALL BE PRESSURE CLASS 350 DUCTILE IRON WATER MAIN, CEMENT-LINED (DOUBLE THICKNESS), WITH POLYWRAP UNLESS NOTED OTHERWISE.
- RESTRAINED JOINT SYSTEMS FOR WATER MAIN SHALL BE UTILIZED WHERE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. RESTRAINED JOINT GASKET SYSTEMS ARE TO BE USED. (FIELD-LOK 350 BY U.S. PIPE, FAST-GRIP BY AMERICAN DUCTILE IRON PIPE, OR APPROVED EQUAL)
- ALL WATER MAIN TO HAVE 5.5 FEET OF COVER. MAINTAIN A MINIMUM OF 18-INCH VERTICAL CLEARANCE FOR STORM AND SANITARY CROSSINGS AND A MINIMUM OF 12-INCH VERTICAL CLEARANCE WITH ALL OTHER UTILITIES.
- UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL UTILIZE STANDARD PIPE DEFLECTIONS FOR FOLLOWING THE PROPOSED ALIGNMENT.
- NEW FIRE HYDRANTS SHALL BE EJIW 5BR-250 WITH 4-INCH STORZ QUICK CONNEX AND 2-2 1/2 HYDRANT OUTLETS.
- FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL NECESSARY HYDRANT EXTENSIONS, THRUST BLOCKS, PIPE AND FITTINGS, INCLUDING ADJUSTMENT OF THE COMPANION VALVE. FIRE HYDRANT ASSEMBLY INCLUDES 6-INCH COMPANION VALVE LOCATED THREE FEET FROM THE HYDRANT.
- ALL WATER MAIN TRENCH BACKFILL SHALL BE MDOT CLASS II GRANULAR MATERIAL (SEE UTILITY TRENCH TYPE I DETAIL).
- CONNECTIONS TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE NEW MAIN HAS BEEN SUCCESSFULLY TESTED AND HAS PASSED ALL HYDROSTATIC AND BACTERIOLOGICAL TESTING. FINAL CONNECTIONS SHALL BE COORDINATED WITH THE ENGINEER.
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- THE DRILLING MACHINE IS TO BE PLACED AT THE WEST BORE PIT AND PULL PIPE FROM THE EAST BORE PIT. PIPE TO BE STAGED ALONG RIVERVIEW DRIVE.
- THE CONTRACTOR SHALL MAINTAIN REASONABLE ACCESS FOR RESIDENTS TO ACCESS THEIR HOMES AT ALL TIMES. A SAFE ACCESS PATH SHALL BE IDENTIFIED ALONG WITH VEHICLE PARKING IN THE EVENT THAT CONSTRUCTION ACTIVITIES INHIBIT VEHICULAR ACCESS TO THE HOMES.
- AFTER WATER MAIN INSTALLATION HAS BEEN COMPLETED, SUCCESSFULLY TESTED, CONNECTED TO EXISTING MAIN AND ALL LEADS INSTALLED, THE CONTRACTOR SHALL PLACE, GRADE AND COMPACT 4 INCHES OF 23A AGGREGATE ALONG THE ENTIRE UNPAVED SECTION OF DOVER PLACE.

**LEGEND**



**RESTORATION**

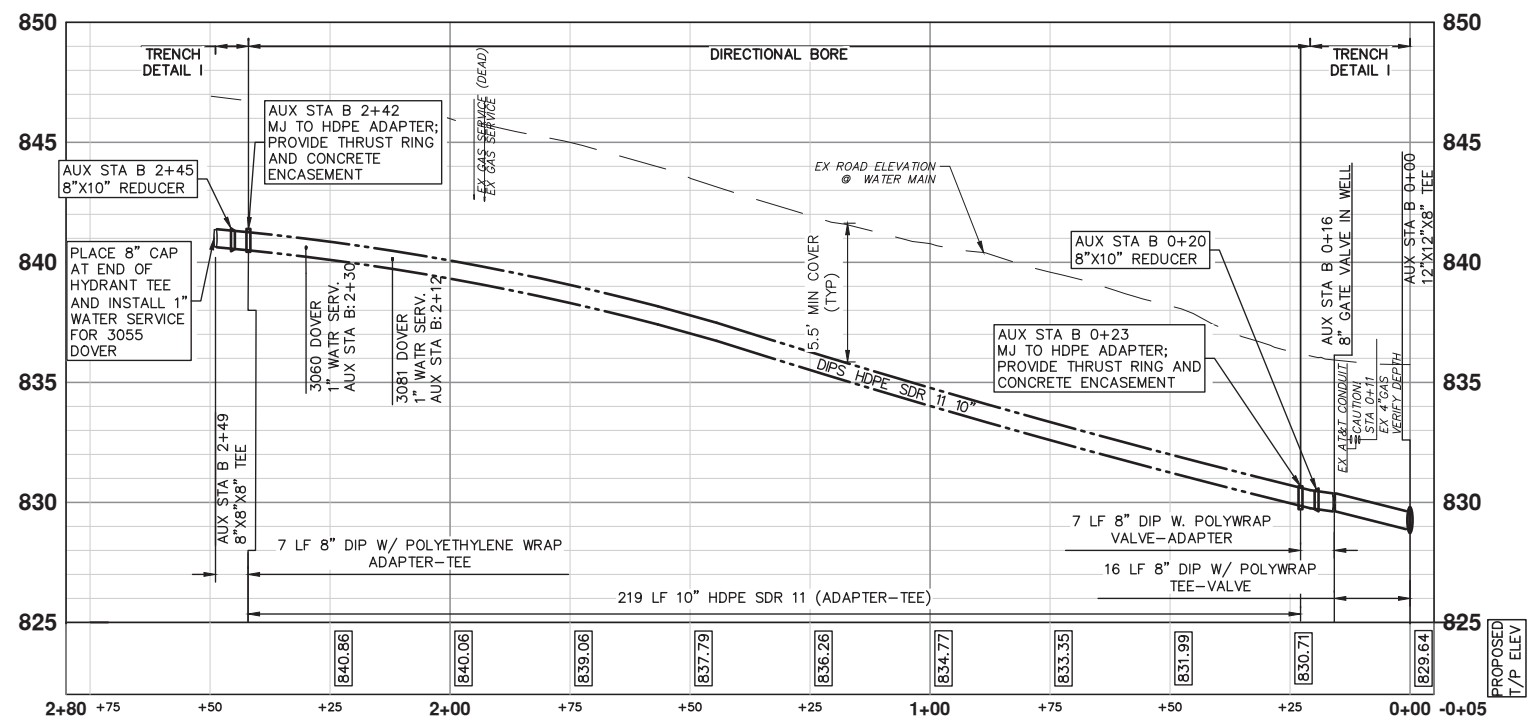
- CASE 1 - AREA TO BE RESTORED WITH 4-INCHES OF TOPSOIL, SEED AND MULCH.
- CASE 2 - RESTORE AREA WITH 6-INCHES OF TOPSOIL AND 3-INCHES OF SHREDDED HARDWOOD BARK MULCH.


NOTE: A PROVISIONAL QUANTITY OF 200 LINEAL FEET HAS BEEN ADDED TO THE PAY ITEMS "SEWER, ANY SIZE OR DEPTH, REM" AND "SEWER, CL C76 IV, 12 INCH, TR DET I, MODIFIED" TO ACCOUNT FOR POTENTIAL CONFLICTS THAT MAY ARISE DURING THE INSTALLATION OF THE PROPOSED UTILITIES WITH THE EXISTING STORM SEWER SYSTEM. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.

NOTE: A PROVISIONAL QUANTITY OF 400 LINEAL FEET HAS BEEN ADDED TO THE PAY ITEMS "CURB, ANY TYPE OR SIZE, REM" AND "CURB SLOPED, HMA, SPECIAL" TO BE USED IN THE EVENT THAT THE EXISTING CURB NOT IDENTIFIED FOR REMOVAL IN THE PLANS IS DAMAGED BY UNAVOIDABLE CIRCUMSTANCES ENCOUNTERED DURING CONSTRUCTION. THIS PROVISIONAL QUANTITY IS NOT INTENDED TO EXPEDITE THE CONTRACTOR'S OPERATION OR TO DIMINISH TRENCH WIDTH AND/OR SAFETY REQUIREMENTS. THE USE OF THIS PROVISIONAL QUANTITY WILL BE AT THE DIRECTION OF THE ENGINEER.

**CONSTRUCTION KEY**

DH4	PLACE 4" HMA DRIVE
DC6	PLACE 6" CONCRETE DRIVE APPROACH
RCG-PM	REMOVE EXISTING ASPHALT CURB AND PAVEMENT, CONCRETE GUTTER OR CONCRETE CURB - ANY TYPE
RP	REMOVE EXISTING PAVEMENT - ANY THICKNESS SAWCUT AT REMOVAL LIMITS (INCLUDE IN WORK ITEM "HMA SURFACE, REM")
RLBO	RELOCATE BY OWNER
RRST	REMOVE & REPLACE EXISTING STORM SEWER-SIZE AS SHOWN ON PLAN
PP	PLACE ASPHALT PAVEMENT-MATERIAL AND THICKNESS PER TYPICAL CROSS SECTION





City of Ann Arbor  
Public Services  
301 East Huron Street  
Ann Arbor, MI 48106-0667  
www.a3gov.org

06	FINAL PLANS - CITY OF ANN ARBOR	2/28/2018	DATE	CHECKED
05	FINAL REVIEW TO CITY OF ANN ARBOR	2/23/2018	DATE	DRAWN
04	SANITARY SEWER AND WATER MAIN PERMITS	2/19/2018	DATE	
03	95% REVIEW TO CITY OF ANN ARBOR	2/9/2018	DATE	
02	SANITARY AND WATER MAIN PERMIT	1/22/2018	DATE	
			REV.	

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

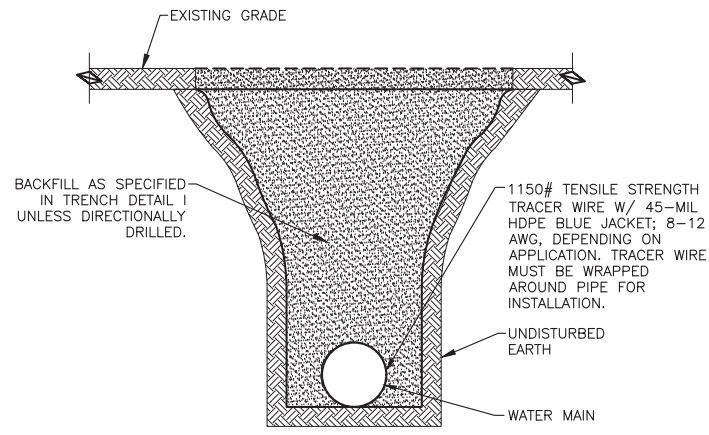
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

PROPOSED WATER MAIN PLAN & PROFILE DOVER PL

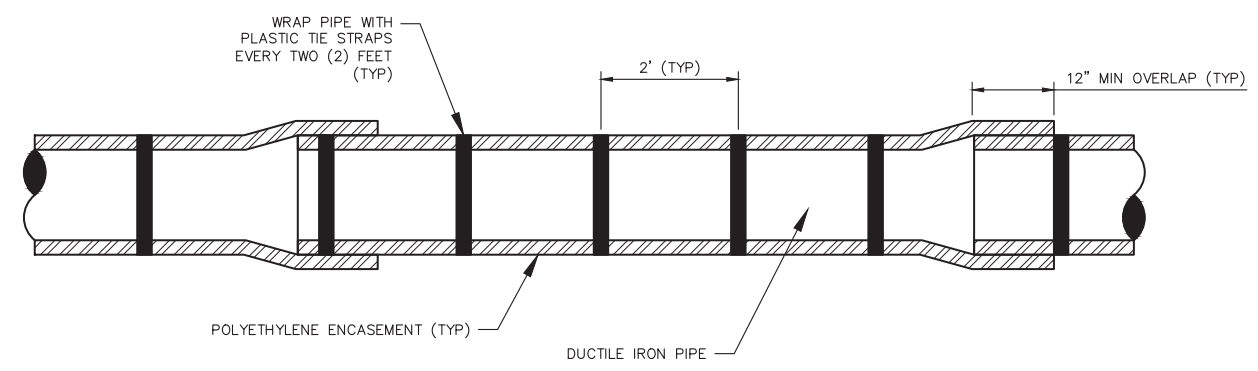
SCALE PLAN: 1"=20'  
PROFILE: 1"=4'

DRAWING NO: 2017-031-14  
SHEET NO: 14 OF 25

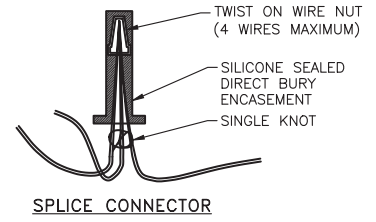




**TRACER WIRE TRENCH PLACEMENT**



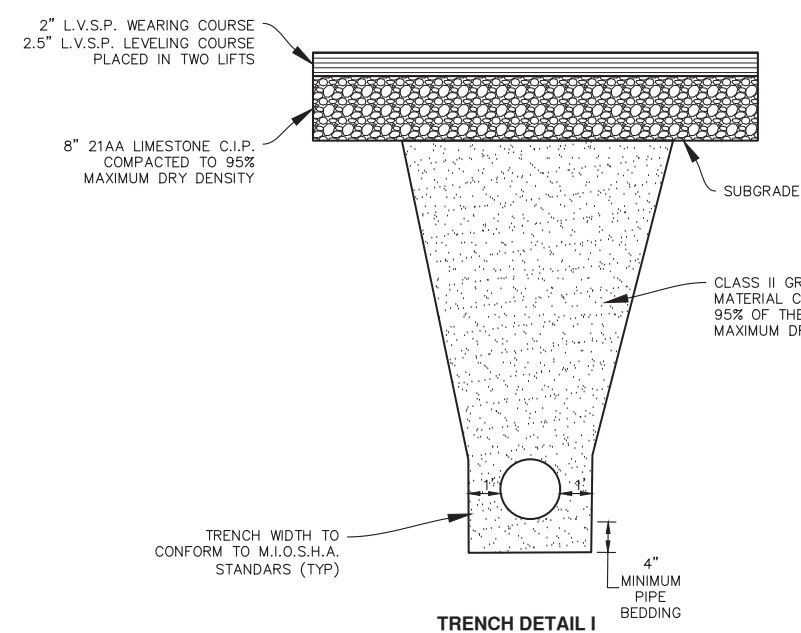
**WATER MAIN W/ POLYWRAP DETAIL**  
 APPLIES TO: POLYETHYLENE WRAPPED DIP  
 SEE PLANS FOR LOCATIONS



**SPLICE CONNECTOR**

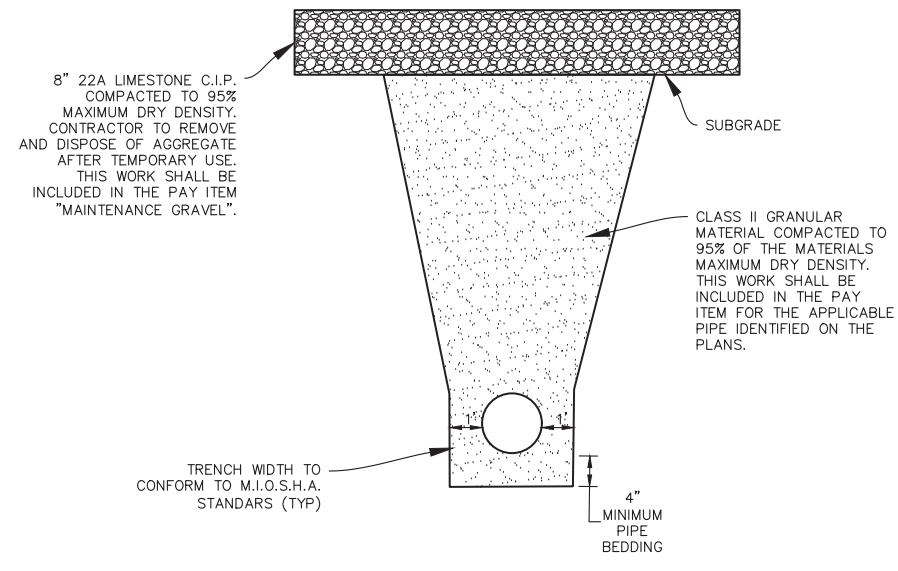
- NOTES:
1. TRACER WIRE TO BE CONTINUOUS FROM END TO END AND TO BE BROUGHT TO THE TOP OF EACH VALVE BOX ON EACH SECTION OF WATER MAIN WITH A 3-FOOT COIL OF WIRE LOOPED IN THE TOP OF THE VALVE BOX.
  2. WIRE SHALL BE CONTINUITY TESTED AFTER INSTALLATION. ANY WIRE WHICH FAILS THE CONTINUITY TEST SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

**TRACER WIRE DETAIL**  
 NTS



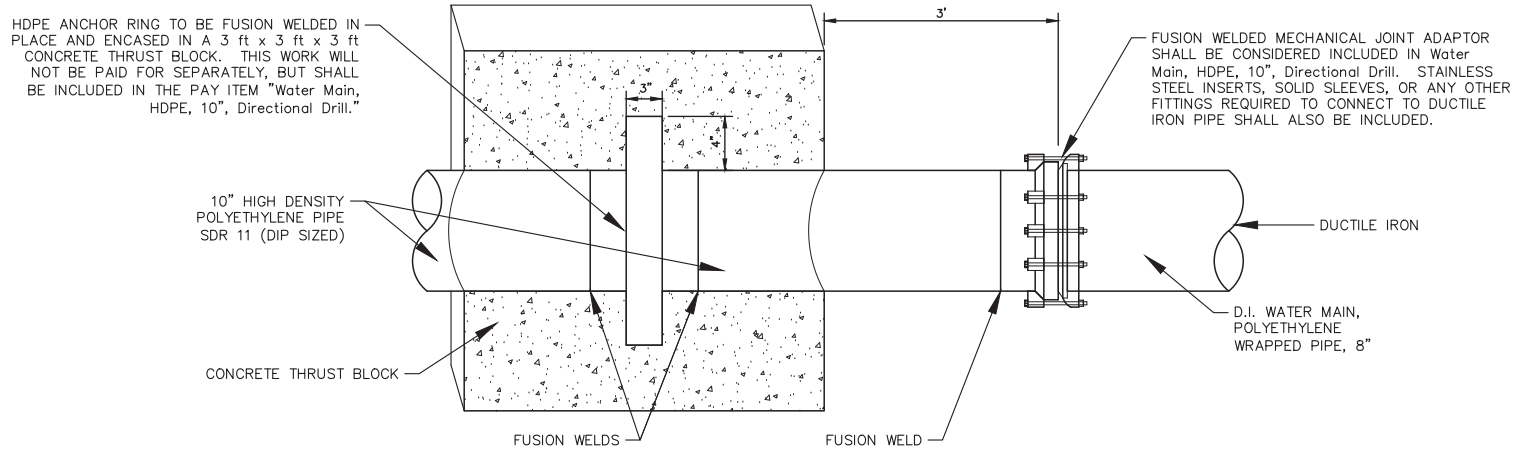
**TRENCH DETAIL I**

APPLIES TO SEWER OR WATERMAIN UNDER ROADBED OR WITHIN INFLUENCE OF ROADBED - SEE PLANS FOR LOCATIONS



**TEMPORARY TRENCH RESTORATION DETAIL**

(THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT IS INCLUDED IN OTHER CONTRACT PAY ITEMS.)



**HDPE/DI WATER MAIN CONNECTION WITH THRUST RING AND RESTRAINT**

C:\pw\_work\mfanagon\0820002\15 DETAILS.dwg Dwg Created: 1-Mar-18 - \_a2\_standard bw.stb - Plot Date: 1-Mar-18



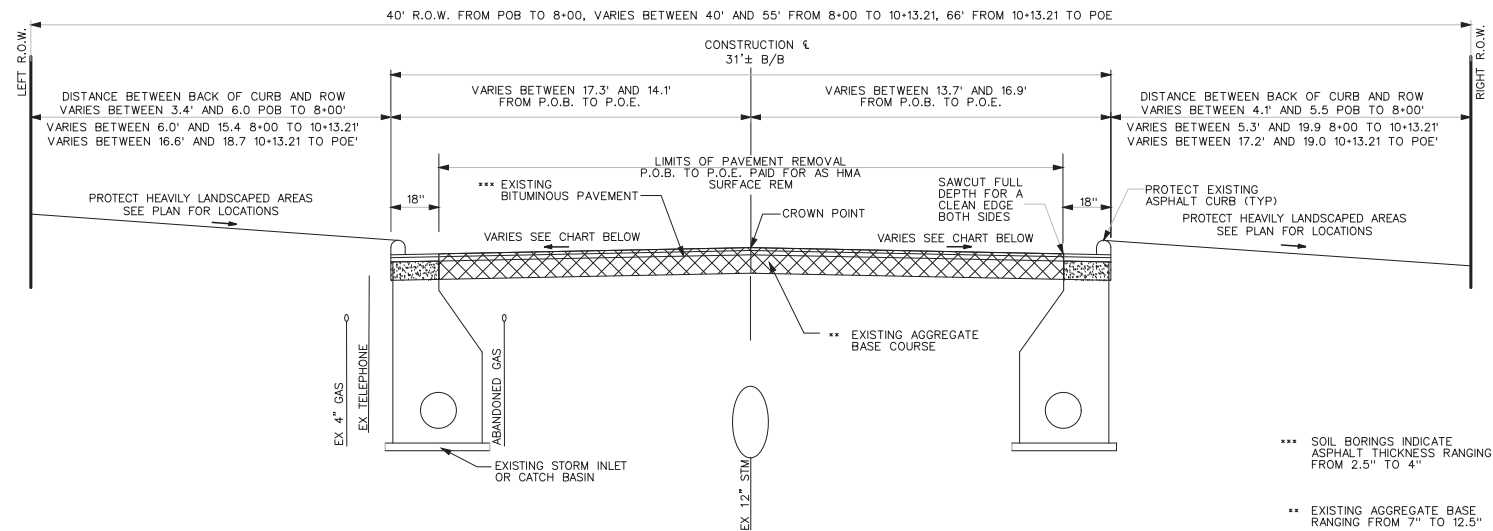
REV.	DATE	DRAWN	CHECKED
06	2/28/2018	MF	VCN
05	2/23/2018	MF	VCN
04	2/12/2018	MF	VCN
03	2/9/2018	MF	VCN
02	1/22/2018	MF	VCN

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 301 EAST HURON STREET  
 ANN ARBOR, MI 48106-8647  
 ANN ARBOR: 734-784-4410  
 WWW.A9GOV.ORG



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**  
 DETAILS

SCALE: NTS  
 DRAWING No. 2017-031-15  
 SHEET No.



**EXISTING TYPICAL CROSS SECTION  
RIVERVIEW DRIVE**

P.O.B. STA 0+58.00 TO P.O.E. STA 10+00.00  
NOT TO SCALE

LEFT GRADE	STATION	RIGHT GRADE
3.1%	0+53	-3.6%
-1.2%	1+00	-3.7%
0.2%	1+50	-1.3%
-1.0%	2+00	-2.7%
-1.0%	2+50	-4.2%
-0.1%	3+00	-3.7%
0%	3+50	-2.5%
1.3%	4+00	-1%
-1.6%	4+50	-0.8%
-1.6%	5+00	-1.3%
-1.2%	5+50	-1.9%
-0.4%	6+00	-3.4%
-1.7%	6+50	-3.6%
0.7%	7+00	-1.2%
-0.7%	7+50	-0.6%
-1.7%	8+00	-0.4%
-1.3%	8+50	2%
-1.8%	9+00	1.6%
-0.2%	9+50	-2.5%
0.2%	10+00	-10.1%

\* EXISTING GRADES ARE RELATIVE TO CROWN ELEVATION

\*\*\* SOIL BORINGS INDICATE ASPHALT THICKNESS RANGING FROM 2.5" TO 4"  
\*\* EXISTING AGGREGATE BASE RANGING FROM 7" TO 12.5"



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
06	FINAL PLANS - CITY OF ANN ARBOR	2/28/2018	MF	VCM
05	FINAL REVIEW TO CITY OF ANN ARBOR	2/23/2018	MF	VCM
04	SANITARY SEWER AND WATER MAIN PERMITS	2/12/2018	MF	VCM
03	95% REVIEW TO CITY OF ANN ARBOR	2/9/2018	MF	VCM
02	SANITARY AND WATER MAIN PERMIT	1/22/2018	MF	VCM

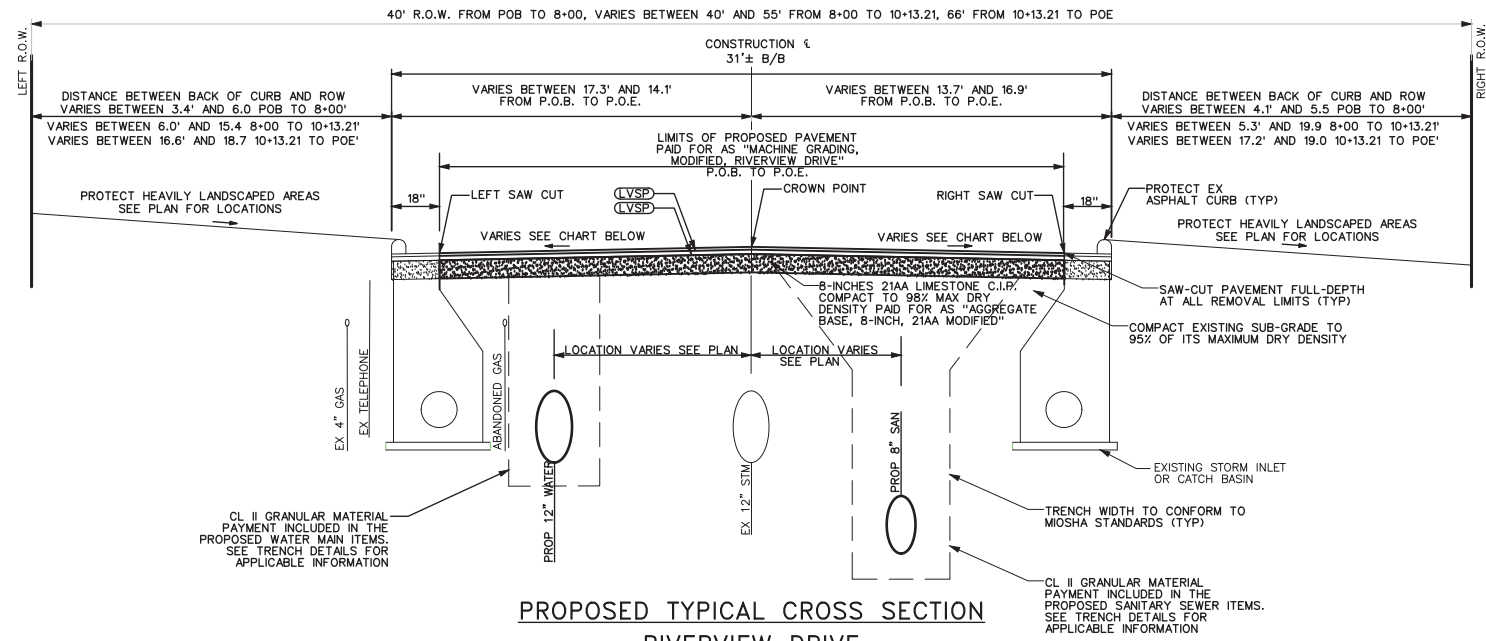
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ANN ARBOR MI 48106-8647  
734-794-4410  
www.a3gov.org



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**RIVERVIEW DRIVE SANITARY SEWER  
AND WATER MAIN EXTENSION PROJECT**  
EXISTING TYPICAL CROSS SECTION

SCALE: NTS  
DRAWING No. 2017-031-16





**PROPOSED TYPICAL CROSS SECTION  
RIVERVIEW DRIVE**

P.O.B. STA 0+58.00 TO P.O.E. STA 10+00.00

NOT TO SCALE

LEFT GRADE	STATION	RIGHT GRADE
3.1%	0+53	-3.6%
-1.2%	1+00	-3.7%
0.2%	1+50	-1.3%
-1.0%	2+00	-2.7%
-1.0%	2+50	-4.2%
-0.1%	3+00	-3.7%
0%	3+50	-2.5%
1.3%	4+00	-1%
-1.6%	4+50	-0.8%
-1.6%	5+00	-1.3%
-1.2%	5+50	-1.9%
-0.4%	6+00	-3.4%
-1.7%	6+50	-3.6%
0.7%	7+00	-1.2%
-0.7%	7+50	-0.6%
-1.7%	8+00	-0.4%
-1.3%	8+50	2%
-1.8%	9+00	1.6%
-0.2%	9+50	-2.5%
0.2%	10+00	-10.1%

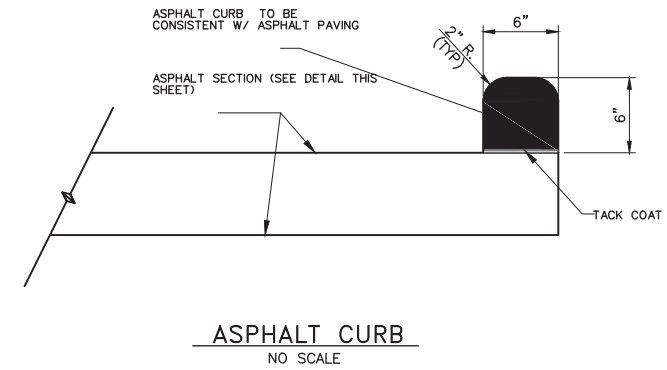
\* PROPOSED GRADES ARE RELATIVE TO CROWN ELEVATION

**HMA APPLICATION ESTIMATE**

STREET NAME	PAY ITEM	HMA MIX	APPLICATION RATE	EST. THICKNESS	PERF GRADE	AWI (MIN)
RIVERVIEW DRIVE	HMA, LVSP	LVSP (TOP)	226 LB/SYD	2.0"	PG 58-28	260
	HMA, LVSP	LVSP (BASE)	282.5 LB/SYD	2.5"	PG 58-28	260
HMA DRIVEWAYS: 485 AND 505 RIVERVIEW DRIVEWAY AREAS	HMA APPROACH	HMA, LVSP (TOP)	452 LB/SYD (2 LIFTS)	4.0"	PG 58-28	260
DOVER PLACE	HMA APPROACH	HMA, LVSP (TOP)	452 LB/SYD (2 LIFTS)	4.0"	PG 58-28	260

LVSP - LOW VOLUME SUPER PAVE

NOTE:  
AREAS OF HMA PLACEMENT AS DESIGNATED ON THE PLANS AS "DH4" SHALL BE PAID FOR AS THE ITEM OF WORK "HMA APPROACH."  
AREAS OF HMA PLACEMENT AS DESIGNATED ON THE PLANS AS "PP" ALONG DOVER PLACE SHALL BE PAID FOR AS THE ITEM OF WORK "HMA APPROACH."



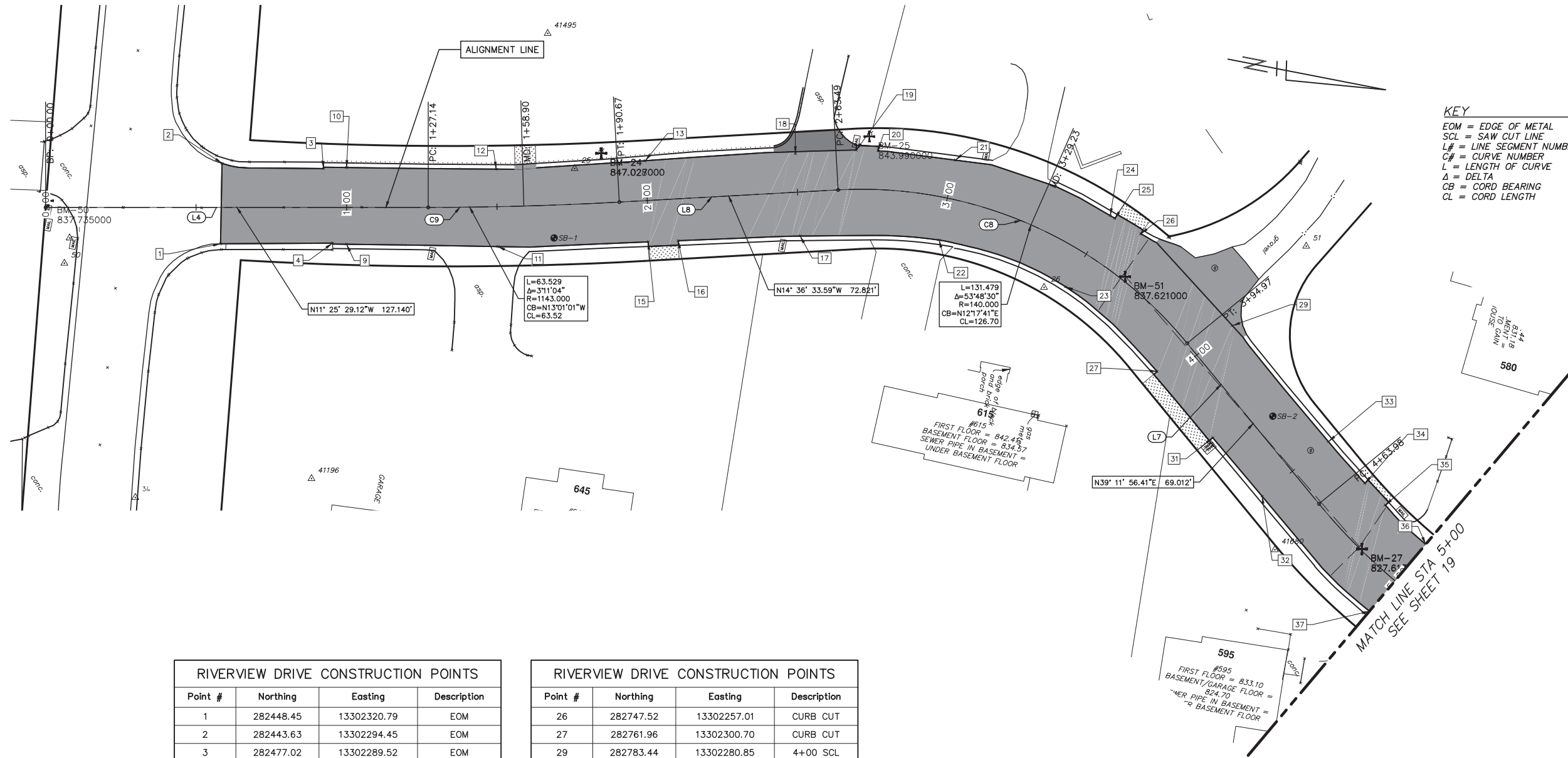
REV.	DATE	DRAWN	CHECKED	DESCRIPTION
06	2/28/2018	MF	VCN	FINAL PLANS - CITY OF ANN ARBOR
05	2/23/2018	MF	VCN	FINAL REVIEW TO CITY OF ANN ARBOR
04	2/12/2018	MF	VCN	SANITARY SEWER AND WATER MAIN PERMITS
03	2/9/2018	MF	VCN	95% REVIEW TO CITY OF ANN ARBOR
02	1/22/2018	MF	VCN	SANITARY AND WATER MAIN PERMIT

CITY OF ANN ARBOR  
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**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**  
PROPOSED TYPICAL CROSS SECTION

SCALE: NTS  
DRAWING No. 2017-031-17



RIVERVIEW DRIVE CONSTRUCTION POINTS			
Point #	Northing	Easting	Description
1	282448.45	13302320.79	EOM
2	282443.63	13302294.45	EOM
3	282477.02	13302289.52	EOM
4	282484.88	13302313.18	EOM
9	282489.52	13302312.63	1+00 SCL
10	282484.47	13302287.64	1+00 SCL
11	282538.94	13302303.44	1+50 SCL
12	282533.34	13302278.31	1+50 SCL
13	282581.28	13302265.82	2+00 SCL
15	282587.61	13302292.02	CURB CUT
16	282597.32	13302289.65	CURB CUT
17	282636.66	13302280.05	2+50 SCL
18	282629.77	13302253.59	2+50 SCL
19	282649.36	13302248.37	CURB CUT
20	282656.51	13302247.23	CURB CUT
21	282682.25	13302245.17	3+00 SCL
22	282682.25	13302272.28	3+00 SCL
23	282726.51	13302279.17	3+50 SCL
24	282736.39	13302253.07	3+50 SCL
25	282738.11	13302253.65	CURB CUT

RIVERVIEW DRIVE CONSTRUCTION POINTS			
Point #	Northing	Easting	Description
26	282747.52	13302257.01	CURB CUT
27	282761.96	13302300.70	CURB CUT
29	282783.44	13302280.85	4+00 SCL
31	282784.38	13302318.63	CURB CUT
32	282804.28	13302334.41	4+50 SCL
33	282822.32	13302312.30	4+50 SCL
34	282836.96	13302323.44	CURB CUT
35	282844.99	13302329.31	CURB CUT
36	282860.77	13302339.35	5+00 SCL
37	282846.85	13302364.83	5+00 SCL

LINE SEGMENT AND CURVE INFORMATION		
Line #	Start Point	End Point
L4	N = 282389.08 E = 13302320.44,	N = 282513.70 E = 13302295.26
C9	N = 282513.70 E = 13302295.26,	N = 282575.59 E = 13302280.95
L8	N = 282575.59 E = 13302280.95,	N = 282646.05 E = 13302262.59
C8	N = 282646.05 E = 13302262.59,	N = 282769.85 E = 13302289.57
L7	N = 282769.85 E = 13302289.57,	N = 282823.33 E = 13302333.18
C7	N = 282823.33 E = 13302333.18,	N = 282981.65 E = 13302374.10

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

ALIGNMENT PLAN STA 0+00 TO STA 5+00

SCALE PLAN: 1" = 20'

DRAWING No. 2017-031-18

SHEET No. 18 OF 25

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

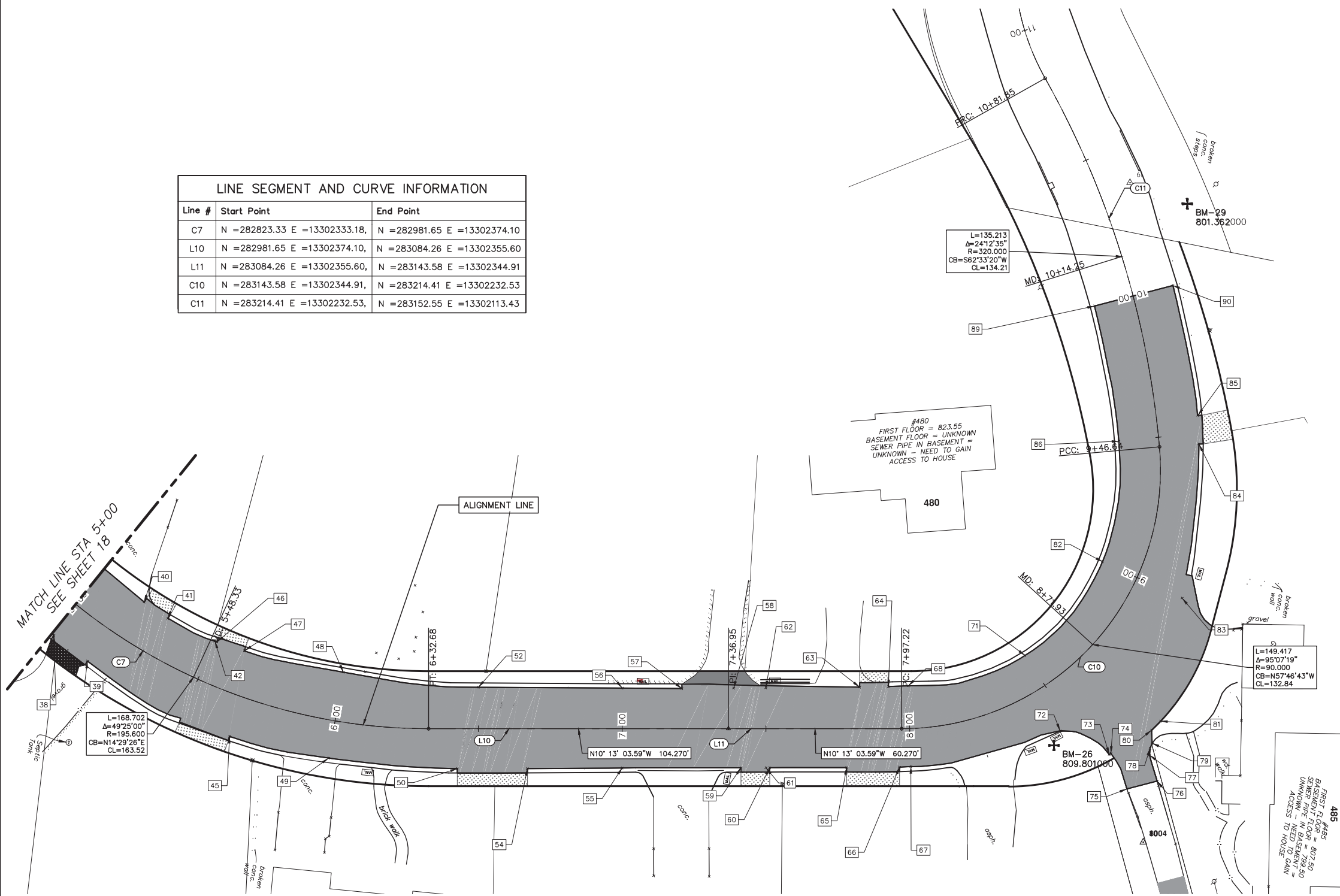
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
06	FINAL PLANS - CITY OF ANN ARBOR	2/28/2018	MF	VCM
05	FINAL REVIEW TO CITY OF ANN ARBOR	2/23/2018	MF	VCM
04	SANITARY SEWER AND WATER MAIN PERMITS	2/12/2018	MF	VCM
03	95% REVIEW TO CITY OF ANN ARBOR	2/9/2018	MF	VCM
02	SANITARY AND WATER MAIN PERMIT	1/22/2018	MF	VCM

**CITY OF ANN ARBOR PUBLIC SERVICES**  
 301 EAST HURON STREET  
 ANN ARBOR, MI 48106-8647  
 WWW.A2gov.org



C:\pwork\mflanagan\0820002\19 ALIGNMENT PLAN.dwg Dwg Created: 9-Feb-18 - a2 standard bw.stb - Plot Date: 1-Mar-18

LINE SEGMENT AND CURVE INFORMATION		
Line #	Start Point	End Point
C7	N = 282823.33 E = 13302333.18, N = 282981.65 E = 13302374.10	
L10	N = 282981.65 E = 13302374.10, N = 283084.26 E = 13302355.60	
L11	N = 283084.26 E = 13302355.60, N = 283143.58 E = 13302344.91	
C10	N = 283143.58 E = 13302344.91, N = 283214.41 E = 13302232.53	
C11	N = 283214.41 E = 13302232.53, N = 283152.55 E = 13302113.43	



**KEY**  
 EOM = EDGE OF METAL  
 SCL = SAW CUT LINE  
 L# = LINE SEGMENT NUMBER  
 C# = CURVE NUMBER  
 L = LENGTH OF CURVE  
 Δ = DELTA  
 CB = CORD BEARING  
 CL = CORD LENGTH

RIVERVIEW DRIVE CONSTRUCTION POINTS			
Point #	Northing	Easting	Description
38	282847.61	13302365.24	CURB CUT
39	282860.72	13302372.02	CURB CUT
40	282876.49	13302348.29	CURB CUT
41	282885.58	13302352.46	CURB CUT
42	282903.13	13302357.33	5+50 SCL
45	282913.99	13302389.01	CURB CUT
46	282903.86	13302357.44	CURB CUT
47	282913.77	13302358.83	CURB CUT
48	282948.96	13302360.01	6+00 SCL

RIVERVIEW DRIVE CONSTRUCTION POINTS			
Point #	Northing	Easting	Description
49	282949.30	13302390.31	6+00 SCL
50	282993.93	13302386.00	CURB CUT
52	282996.13	13302356.85	6+50 EOM
54	283017.94	13302381.65	CURB CUT
55	283050.32	13302375.61	7+00 SCL
56	283045.39	13302348.25	7+00 SCL
57	283065.88	13302344.74	CURB CUT
58	283083.56	13302341.38	CURB CUT
59	283090.96	13302368.23	CURB CUT
60	283100.80	13302366.42	CURB CUT
61	283099.51	13302366.66	7+50 SCL

RIVERVIEW DRIVE CONSTRUCTION POINTS			
Point #	Northing	Easting	Description
62	283094.58	13302339.31	7+50 SCL
63	283126.63	13302333.27	CURB CUT
64	283136.44	13302331.35	CURB CUT
65	283127.12	13302361.63	CURB CUT
66	283145.19	13302358.21	CURB CUT
67	283149.04	13302357.29	8+00 SCL
68	283143.22	13302329.84	8+00 SCL
71	283181.24	13302312.23	8+50 SCL
72	283197.91	13302335.86	EOP
73	283216.22	13302340.95	EOP
74	283216.70	13302340.47	EOP

RIVERVIEW DRIVE CONSTRUCTION POINTS			
Point #	Northing	Easting	Description
75	283224.37	13302351.64	EOP
76	283234.24	13302347.07	EOP
77	283230.03	13302338.65	EOP
78	283229.80	13302336.34	EOP
79	283230.20	13302334.42	EOP
80	283229.18	13302329.99	EOP
81	283231.72	13302326.36	EOP
82	283201.99	13302275.37	9+00 SCL
83	283231.50	13302282.92	EOP
84	283227.74	13302229.15	CURB CUT
85	283225.59	13302219.40	CURB CUT

RIVERVIEW DRIVE CONSTRUCTION POINTS			
Point #	Northing	Easting	Description
86	283200.14	13302233.11	9+50 SCL
89	283183.47	13302188.33	10+00 SCL
90	283209.04	13302176.47	10+00 SCL

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

ALIGNMENT PLAN STA 5+00 TO STA 10+00

SCALE PLAN: 1"=20'

DRAWING No. 2017-031-19

SHEET No. 19 OF 25

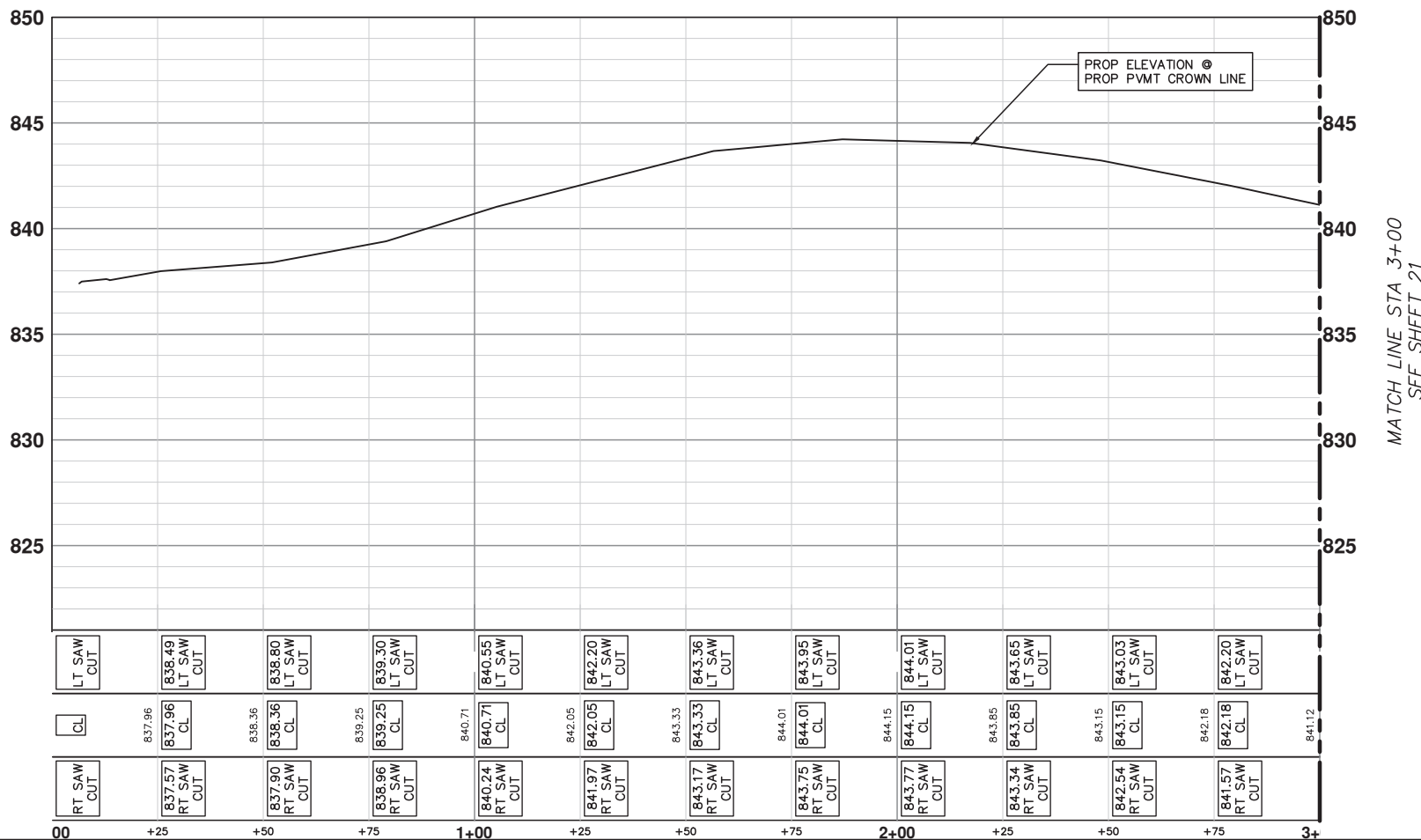
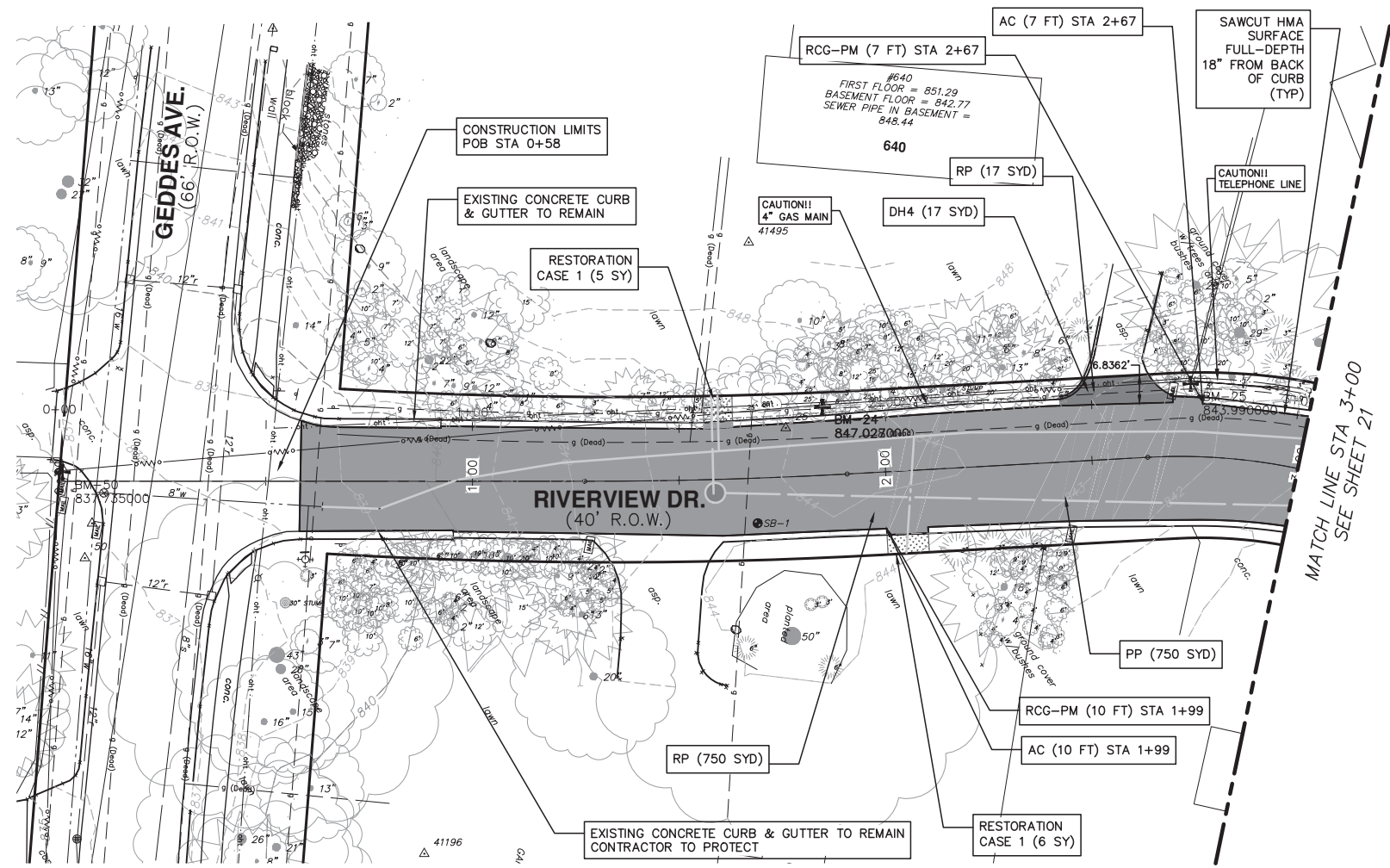
CITY OF ANN ARBOR  
 PUBLIC SERVICES  
 301 EAST HURON STREET  
 ANN ARBOR, MI 48106-8647  
 ANN ARBOR: 734-794-4410  
 WWW.A2GOV.ORG

DATE: 2/28/2018  
 DRAWN: MF  
 CHECKED: VCM

2/28/2018 MF VCM  
 2/23/2018 MF VCM  
 2/12/2018 MF VCM  
 2/9/2018 MF VCM  
 1/22/2018 MF VCM

REV. DESCRIPTION

06 FINAL PLANS - CITY OF ANN ARBOR  
 05 FINAL REVIEW TO CITY OF ANN ARBOR  
 04 SANITARY SEWER AND WATER MAIN PERMITS  
 03 95% REVIEW TO CITY OF ANN ARBOR  
 02 SANITARY AND WATER MAIN PERMIT



**LEGEND**

- PROPOSED ROAD SURFACE
- PROPOSED HMA DRIVE
- PROPOSED RESTORATION

- NOTES**
- SEE SOIL EROSION CONTROL SHEETS FOR DETAILS ON PLACEMENT, MAINTENANCE, AND REMOVAL OF EROSION CONTROL ITEMS.
  - SEE UTILITY SHEETS FOR WATER MAIN AND SANITARY STRUCTURE AND PIPE PLACEMENTS.
  - THE CONTRACTOR SHALL CAREFULLY PROTECT FROM DAMAGE OR INJURY DURING CONSTRUCTION OPERATIONS ALL UTILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT. PAYMENT FOR PROTECTION OF UTILITIES INCLUDED IN "GENERAL CONDITIONS, MAX. \_\_\_\_\_". EXISTING FACILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT BUT WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS SOLE EXPENSE, AS DETERMINED BY THE ENGINEER.
  - THE EXISTING UTILITIES SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED THROUGH SURVEYS AND/OR EXISTING PLANS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES. IF STORM, SANITARY, OR WATER CROSS OTHER UTILITIES CONTACT THEIR RESPECTIVE OWNERS FOR INFORMATION ON HOW TO PROCEED. PAYMENT FOR COORDINATION EFFORTS, AND ASSOCIATED OTHER TASKS SHALL BE INCLUDED IN ASSOCIATED PROPOSED STORM, SANITARY, OR WATER MAIN ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.
  - LANDSCAPING SHALL BE PROTECTED AT ALL TIMES. ANY DAMAGE TO LANDSCAPING OUTSIDE THE WORK ZONE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND NOT PAID FOR SEPARATELY.
  - THE EXISTING ASPHALT CURB AND IMMEDIATELY ADJACENT PAVEMENT IS TO REMAIN IN PLACE. SEE PLAN FOR LOCATIONS WHERE PORTIONS OF THE CURB AND PAVEMENT ARE BEING REMOVED AND REPLACED. ANY DAMAGE TO THE CURB AND PAVEMENT OTHER THAN WHAT IS CALLED FOR ON THE PLANS AND AS DIRECTED BY THE ENGINEER TO BE REMOVED SHALL BE REPLACED AT THE CONTRACTOR'S SOLE EXPENSE AND NOT PAID FOR SEPARATELY.
  - CONTRACTOR SHALL SAWCUT 18" FROM BACK OF EXISTING ASPHALT CURB FULL DEPTH FOR A CLEAN EDGE. PAVEMENT REMOVAL SHALL BE ACCORDING TO AREAS SHOWN ON PLANS. IF SAWED EDGE IS DAMAGED DURING CONSTRUCTION ACTIVITIES A CLEAN EDGE WILL BE RE-ESTABLISHED AND ALL ADDITIONAL HMA REQUIRED TO ACCOUNT FOR EDGE CHANGE SHALL BE THE CONTRACTOR'S EXPENSE AND NOT PAID FOR SEPARATELY.
  - CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION. THIS SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX. \_\_\_\_\_" AND NOT PAID FOR SEPARATELY.
  - PAVEMENT REMOVAL SHALL OCCUR IN STAGES AS PART OF SANITARY AND WATER MAIN INSTALLATION. ALL COSTS NECESSARY TO PERFORM THE PAVEMENT REMOVAL IN A PART-WIDTH MANNER SHALL BE DEEMED TO BE INCLUDED IN THE ITEM OF WORK "HMA SURFACE, REM" AND SHALL NOT BE PAID FOR SEPARATELY.
  - AT THE CONCLUSION OF UNDERGROUND UTILITY CONSTRUCTION, AND IN ACCORDANCE WITH THE DIRECTION OF THE ENGINEER, THE CONTRACTOR SHALL REMOVE THE UPPERMOST 2" LAYER OF MAINTENANCE GRAVEL THAT HAS BEEN PLACED WITHIN THE ROADWAY FOR MAINTENANCE OF TRAFFIC PURPOSES IN ORDER TO REMOVE ALL CONSTRUCTION DEBRIS, TRENCH SPOILS, OR ANY OTHER DELETERIOUS MATERIALS THAT MAY EXIST IN ORDER TO PROVIDE A PROPER SURFACE FOR THE FINE GRADING OF THE AGGREGATE BASE COURSE. THE CONTRACTOR SHALL THEN AUGMENT THE REMAINING MAINTENANCE AGGREGATE WITH ADDITIONAL MAINTENANCE AGGREGATE MATERIAL IN ORDER TO BRING THE AGGREGATE BASE COURSE TO ITS FINAL GRADE. IF IT IS DETERMINED BY THE ENGINEER THAT THE ENTIRE MAINTENANCE AGGREGATE CROSS SECTION HAS BECOME EXCESSIVELY CONTAMINATED BY THE CONTRACTOR'S OPERATION, EXHIBITS SIGNS OF IMPROPER SUBGRADE SUPPORT, OR IS NOT USABLE FOR ANY OTHER REASON, IN THE SOLE OPINION OF THE ENGINEER, IT SHALL BE COMPLETELY REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT. THE CONTRACTOR SHALL THEN PROVIDE THE REQUIRED CROSS-SECTION OF AGGREGATE BASE COURSE MATERIAL AND PLACE, COMPACT, AND FINE GRADE IT IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT. CONTRACT TIME SHALL CONTINUE THROUGHOUT THE ENTIRE AGGREGATE REMOVAL AND REPLACEMENT OPERATION IF IT IS DETERMINED BY THE ENGINEER TO BE NECESSARY. IT IS THE INTENT OF THE CITY THAT THE MAINTENANCE AGGREGATE MATERIAL BE RE-USED TO THE EXTENT PRACTICABLE AND ALLOWED BY THE CONTRACTOR'S OPERATIONS.

LEFT GRADE	STATION	RIGHT GRADE
3.1%	0+53	-3.6%
-1.2%	1+00	-3.7%
0.2%	1+50	-1.3%
-1.0%	2+00	-2.7%
-1.0%	2+50	-4.2%
-0.1%	3+00	-3.7%

\* PROPOSED CROSS-SLOPES ARE RELATIVE TO CROWN ELEVATION

**CONSTRUCTION KEY**

- DH4 PLACE 4" HMA DRIVE
- DC6 PLACE 6" CONCRETE DRIVE APPROACH
- RCG-PM REMOVE EXISTING ASPHALT CURB AND PAVEMENT, CONCRETE GUTTER OR CONCRETE CURB - ANY TYPE
- RP REMOVE EXISTING PAVEMENT - ANY THICKNESS SAWCUT AT REMOVAL LIMITS (INCLUDE IN WORK ITEM "HMA SURFACE, REM")
- RLBO RELOCATE BY OWNER
- RRST REMOVE & REPLACE EXISTING STORM SEWER-SIZE AS SHOWN ON PLAN
- PP PLACE ASPHALT PAVEMENT-MATERIAL AND THICKNESS PER TYPICAL CROSS SECTION
- AC PLACE ASPHALT CURB

**RESTORATION**  
CASE 1 - AREA TO BE RESTORED WITH 4-INCHES OF TOPSOIL, SEED AND MULCH.

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

PROPOSED PAVING STA 0+00 TO STA 3+00

VCM	MF	2/28/2018	2/23/2018	2/19/2018	2/9/2018	1/22/2018	DATE	DRAWN	CHECKED
FINAL PLANS - CITY OF ANN ARBOR	FINAL REVIEW TO CITY OF ANN ARBOR	FINAL REVIEW TO CITY OF ANN ARBOR	95% REVIEW TO CITY OF ANN ARBOR	SANITARY AND WATER MAIN PERMIT	SANITARY AND WATER MAIN PERMIT	SANITARY AND WATER MAIN PERMIT	DESCRIPTION	REV.	

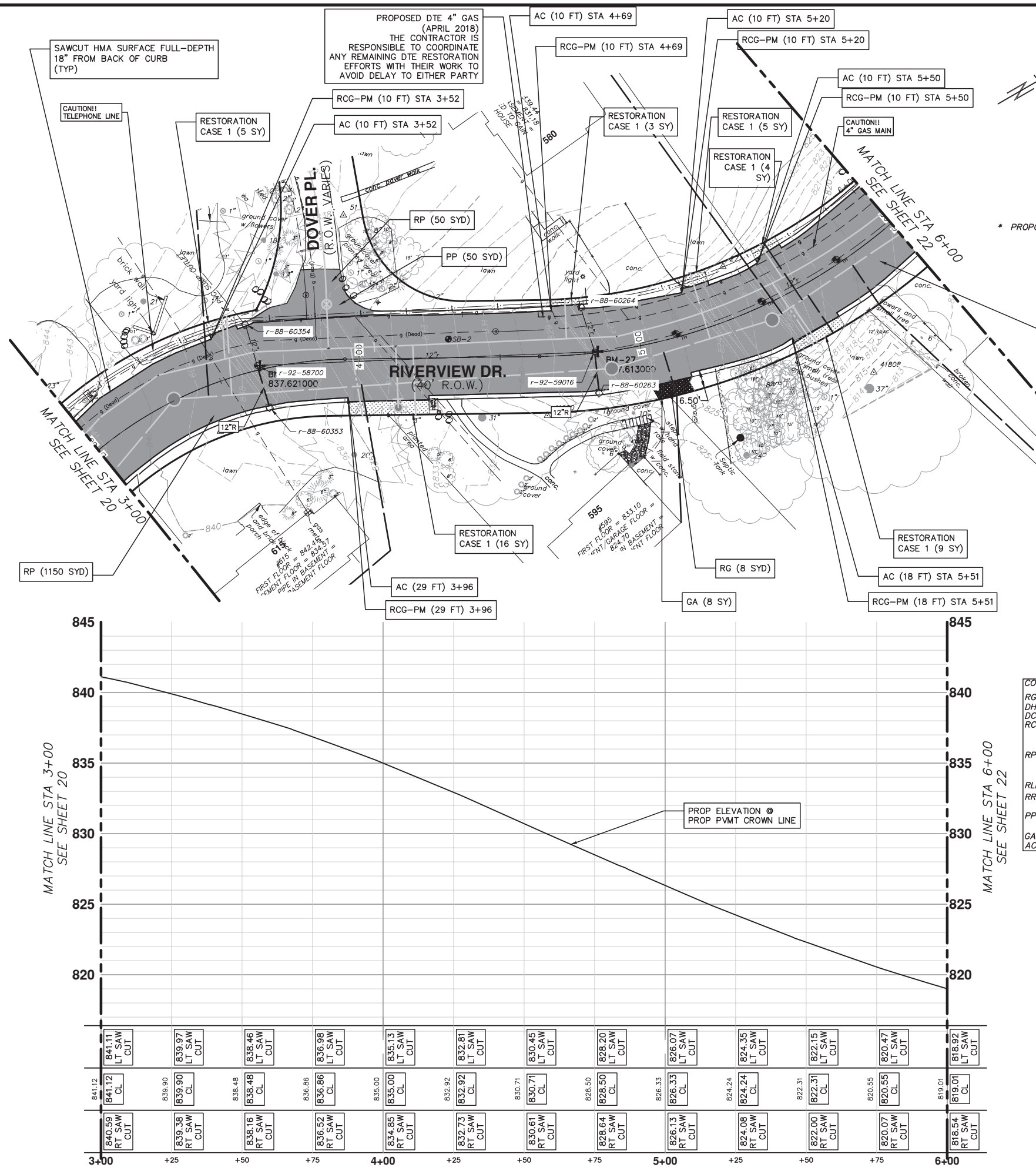
SCALE PLAN: 1" = 20'

PROFILE: 1" = 4'

DRAWING NO. 2017-031-20

SHEET NO. 20 OF 25





LEFT GRADE	STATION	RIGHT GRADE
-0.1%	3+00	-3.7%
0%	3+50	-2.5%
1.3%	4+00	-1%
-1.6%	4+50	-0.8%
-1.6%	5+00	-1.3%
-1.2%	5+50	-1.9%
-0.4%	6+00	-3.4%

\* PROPOSED CROSS-SLOPES ARE RELATIVE TO CROWN ELEVATION

**LEGEND**

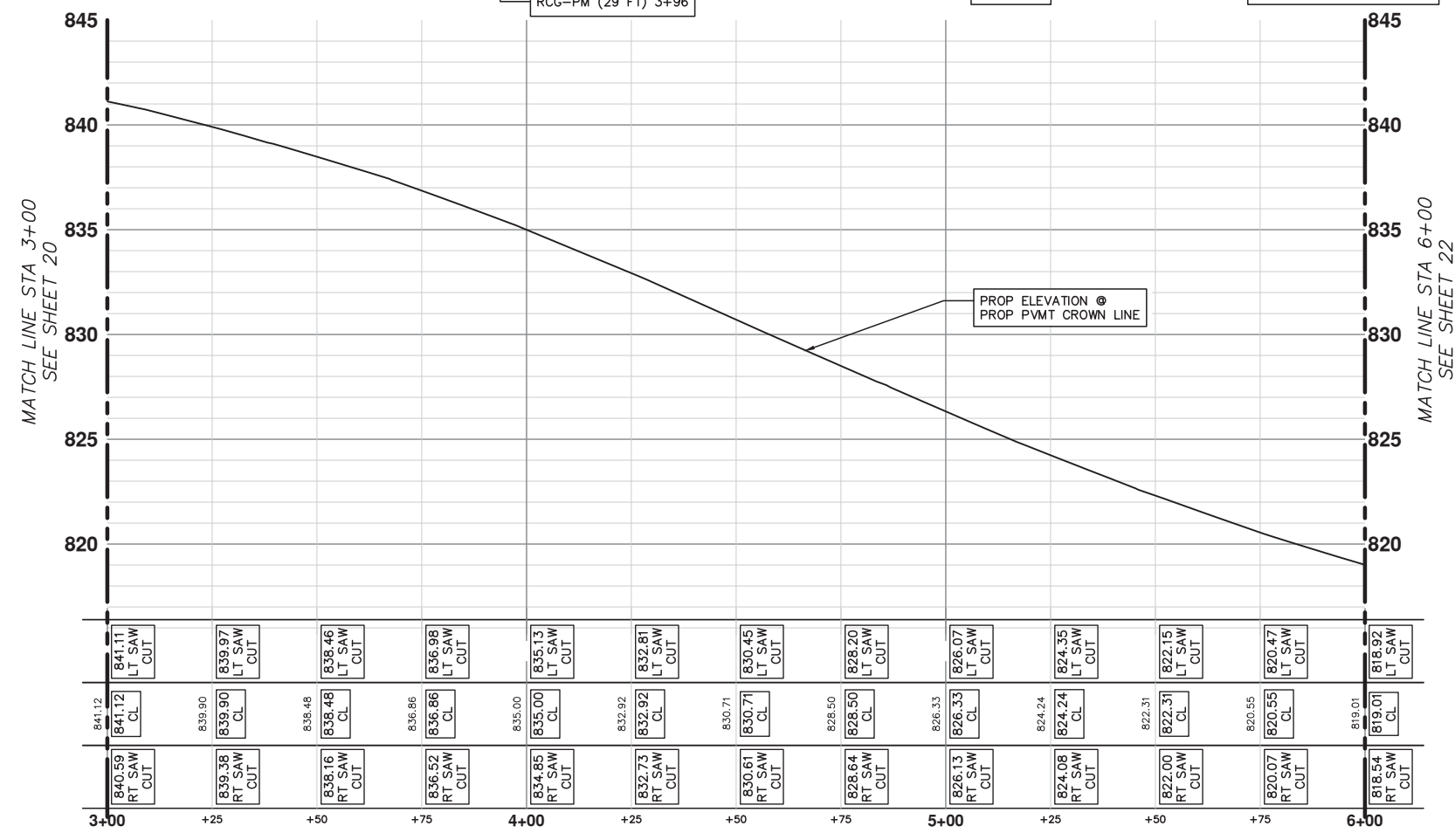
- PROPOSED ROAD SURFACE
- PROPOSED GRAVEL
- PROPOSED RESTORATION

**RESTORATION**  
 CASE 1 - AREA TO BE RESTORED WITH 4-INCHES OF TOPSOIL, SEED AND MULCH.

**CONSTRUCTION KEY**

- RG REMOVE EXISTING GRAVEL ANY THICKNESS
- DH4 PLACE 4" HMA DRIVE
- DC6 PLACE 6" CONCRETE DRIVE APPROACH
- RCG-PM REMOVE EXISTING ASPHALT CURB AND PAVEMENT, CONCRETE GUTTER OR CONCRETE CURB - ANY TYPE
- RP REMOVE EXISTING PAVEMENT - ANY THICKNESS SAWCUT AT REMOVAL LIMITS (INCLUDE IN WORK ITEM "HMA SURFACE, REM")
- RLBO RELOCATE BY OWNER
- RRST REMOVE & REPLACE EXISTING STORM SEWER - SIZE AS SHOWN ON PLAN
- PP PLACE ASPHALT PAVEMENT - MATERIAL AND THICKNESS PER TYPICAL CROSS SECTION
- GA PLACE GRAVEL APPROACH
- AC PLACE ASPHALT CURB

- NOTES**
- SEE SOIL EROSION CONTROL SHEETS FOR DETAILS ON PLACEMENT, MAINTENANCE, AND REMOVAL OF EROSION CONTROL ITEMS.
  - SEE UTILITY SHEETS FOR WATER MAIN AND SANITARY STRUCTURE AND PIPE PLACEMENTS.
  - THE CONTRACTOR SHALL CAREFULLY PROTECT FROM DAMAGE OR INJURY DURING CONSTRUCTION OPERATIONS ALL UTILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT. PAYMENT FOR PROTECTION OF UTILITIES INCLUDED IN "GENERAL CONDITIONS, MAX. \_\_\_\_". EXISTING FACILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT BUT WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS SOLE EXPENSE, AS DETERMINED BY THE ENGINEER.
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  - LANDSCAPING SHALL BE PROTECTED AT ALL TIMES. ANY DAMAGE TO LANDSCAPING OUTSIDE THE WORK ZONE SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND NOT PAID FOR SEPARATELY.
  - THE EXISTING ASPHALT CURB AND IMMEDIATELY ADJACENT PAVEMENT IS TO REMAIN IN PLACE. SEE PLAN FOR LOCATIONS WHERE PORTIONS OF THE CURB AND PAVEMENT ARE BEING REMOVED AND REPLACED. ANY DAMAGE TO THE CURB AND PAVEMENT OTHER THAN WHAT IS CALLED FOR ON THE PLANS AND AS DIRECTED BY THE ENGINEER TO BE REMOVED SHALL BE REPLACED AT THE CONTRACTORS SOLE EXPENSE AND NOT PAID FOR SEPARATELY.
  - CONTRACTOR SHALL SAWCUT 18" FROM BACK OF EXISTING ASPHALT CURB FULL DEPTH FOR A CLEAN EDGE. PAVEMENT REMOVAL SHALL BE ACCORDING TO AREAS SHOWN ON PLANS. IF SAWED EDGE IS DAMAGED DURING CONSTRUCTION ACTIVITIES A CLEAN EDGE WILL BE RE-ESTABLISHED AND ALL ADDITIONAL HMA REQUIRED TO ACCOUNT FOR EDGE CHANGE SHALL BE THE CONTRACTORS EXPENSE AND NOT PAID FOR SEPARATELY.
  - CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION. THIS SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX. \_\_\_\_" AND NOT PAID FOR SEPARATELY.
  - PAVEMENT REMOVAL SHALL OCCUR IN STAGES AS PART OF SANITARY AND WATER MAIN INSTALLATION. ALL COSTS NECESSARY TO PERFORM THE PAVEMENT REMOVAL IN A PART-WIDTH MANNER SHALL BE DEEMED TO BE INCLUDED IN THE ITEM OF WORK "HMA SURFACE, REM" AND SHALL NOT BE PAID FOR SEPARATELY.
  - AT THE CONCLUSION OF UNDERGROUND UTILITY CONSTRUCTION, AND IN ACCORDANCE WITH THE DIRECTION OF THE ENGINEER, THE CONTRACTOR SHALL REMOVE THE UPPERMOST 2" LAYER OF MAINTENANCE GRAVEL THAT HAS BEEN PLACED WITHIN THE ROADWAY FOR MAINTENANCE OF TRAFFIC PURPOSES IN ORDER TO REMOVE ALL CONSTRUCTION DEBRIS, TRENCH SPOILS, OR ANY OTHER DELETERIOUS MATERIALS THAT MAY EXIST IN ORDER TO PROVIDE A PROPER SURFACE FOR THE FINE GRADING OF THE AGGREGATE BASE COURSE. THE CONTRACTOR SHALL THEN AUGMENT THE REMAINING MAINTENANCE AGGREGATE WITH ADDITIONAL MAINTENANCE AGGREGATE MATERIAL IN ORDER TO BRING THE AGGREGATE BASE COURSE TO ITS FINAL GRADE. IF IT IS DETERMINED BY THE ENGINEER THAT THE ENTIRE MAINTENANCE AGGREGATE CROSS SECTION HAS BECOME EXCESSIVELY CONTAMINATED BY THE CONTRACTOR'S OPERATION, EXHIBITS SIGNS OF IMPROPER SUBGRADE SUPPORT, OR IS NOT USABLE FOR ANY OTHER REASON, IN THE SOLE OPINION OF THE ENGINEER, IT SHALL BE COMPLETELY REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT. THE CONTRACTOR SHALL THEN PROVIDE THE REQUIRED CROSS-SECTION OF AGGREGATE BASE COURSE MATERIAL AND PLACE, COMPACT, AND FINE GRADE IT IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT. CONTRACT TIME SHALL CONTINUE THROUGHOUT THE ENTIRE AGGREGATE REMOVAL AND REPLACEMENT OPERATION IF IT IS DETERMINED BY THE ENGINEER TO BE NECESSARY. IT IS THE INTENT OF THE CITY THAT THE MAINTENANCE AGGREGATE MATERIAL BE RE-USED TO THE EXTENT PRACTICABLE AND ALLOWED BY THE CONTRACTOR'S OPERATIONS.



STRUCTURE	ROAD STATION	INVERT ELEVATION, SIZE & DIRECTION	TOP OF CASTING ELEVATION	DEPTH (Feet)	SIZE	APPLICATION/ CONSTRUCTION/ DETAIL
88-603541	3+63-16.87' LT	12" SE 834.38	837.57	5.19	48" Dia.	
92-58700	3+64 -1.68' LT	12" NW 833.34 12" SE 832.24 (P) 12" NE 831.84	837.63 (e) 837.63 (P)	7.79	48" Dia.	STORM MANHOLE/ ADJUST COVER
88-60353	3+65 13.83' RT	12" NW 832.65 (P)	837.21	6.56	48" Dia.	
88-60263	4+84 14.38' RT	12" NW 825.05 (P)	828.01	4.96	48" Dia.	
92-59016	4+84 -0.39' LT	12" SW 823.21 12" NW 823.31 12" SE 823.91 (P) 12" NE 823.11	827.75 (e) 827.75 (P)	6.64	48" Dia.	STORM MANHOLE/ ADJUST COVER
88-60264	4+80 -16.61' LT	12" SE 823.93	827.73	5.80	48" Dia.	

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

PROPOSED PAVING STA 3+00 TO STA 6+00

SCALE PLAN: 1" = 20'  
 PROFILE: 1" = 4'

DRAWING NO. 2017-031-21

SHEET NO. 21 OF 25

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

**ANN ARBOR MICHIGAN**

CITY OF ANN ARBOR  
 PUBLIC SERVICES  
 301 EAST HURON STREET  
 ANN ARBOR, MI 48106-0667  
 WWW.A3GOV.ORG

DATE: 2/28/2018  
 DRAWN: MF  
 CHECKED: VCM

REV. 06  
 DESCRIPTION: SANITARY AND WATER MAIN PERMIT

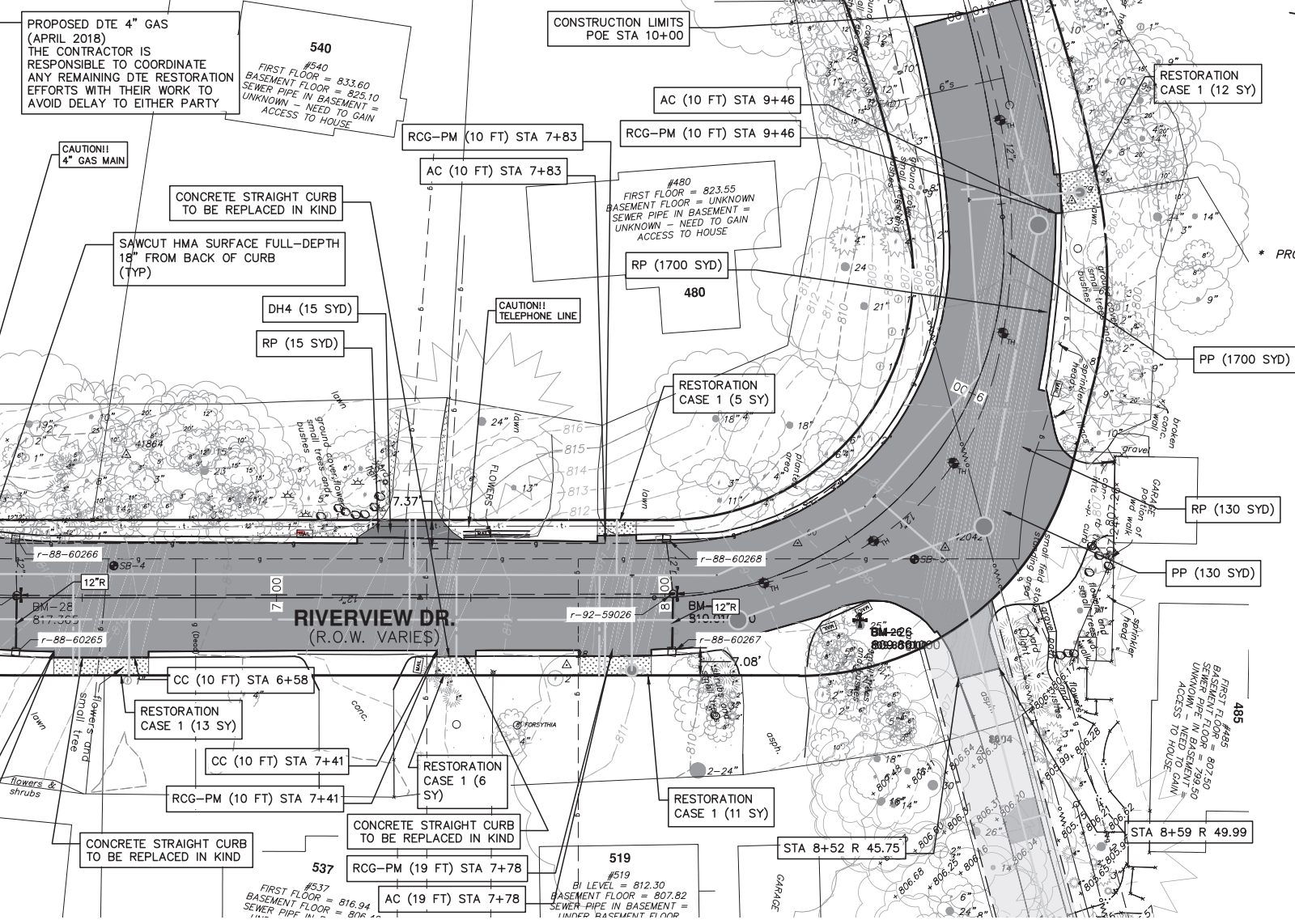


C:\pwwork\mflnagon\0820002\22 PROPOSED PAVING STA 6+00 TO STA 10+00.dwg Dwg Created: 28-Feb-18 - a2 standard bw.stb - Plot Date: 1-Mar-18

**LEGEND**

- PROPOSED ROAD SURFACE
- PROPOSED HMA DRIVE
- PROPOSED RESTORATION

**RESTORATION**  
 CASE 1 - AREA TO BE RESTORED WITH 4-INCHES OF TOPSOIL, SEED AND MULCH



LEFT GRADE	STATION	RIGHT GRADE
-0.4%	6+00	-3.4%
-1.7%	6+50	-3.6%
0.7%	7+00	-1.2%
-0.7%	7+50	-0.6%
-1.7%	8+00	-0.4%
-1.3%	8+50	2%
-1.8%	9+00	1.6%
-0.2%	9+50	-2.5%
0.2%	10+00	-10.1%

**CONSTRUCTION KEY**

- DH4 PLACE 4" HMA DRIVE
- DC6 PLACE 6" CONCRETE DRIVE APPROACH
- RCG-PM REMOVE EXISTING ASPHALT CURB AND PAVEMENT, CONCRETE GUTTER OR CONCRETE CURB - ANY TYPE
- RP REMOVE EXISTING PAVEMENT - ANY THICKNESS SAWCUT AT REMOVAL LIMITS (INCLUDE IN WORK ITEM "HMA SURFACE, REM")
- RLBO RELOCATE BY OWNER
- RRST REMOVE & REPLACE EXISTING STORM SEWER - SIZE AS SHOWN ON PLAN
- PP PLACE ASPHALT PAVEMENT - MATERIAL AND THICKNESS PER TYPICAL CROSS SECTION
- AC PLACE ASPHALT CURB
- CC PLACE CONCRETE CURB

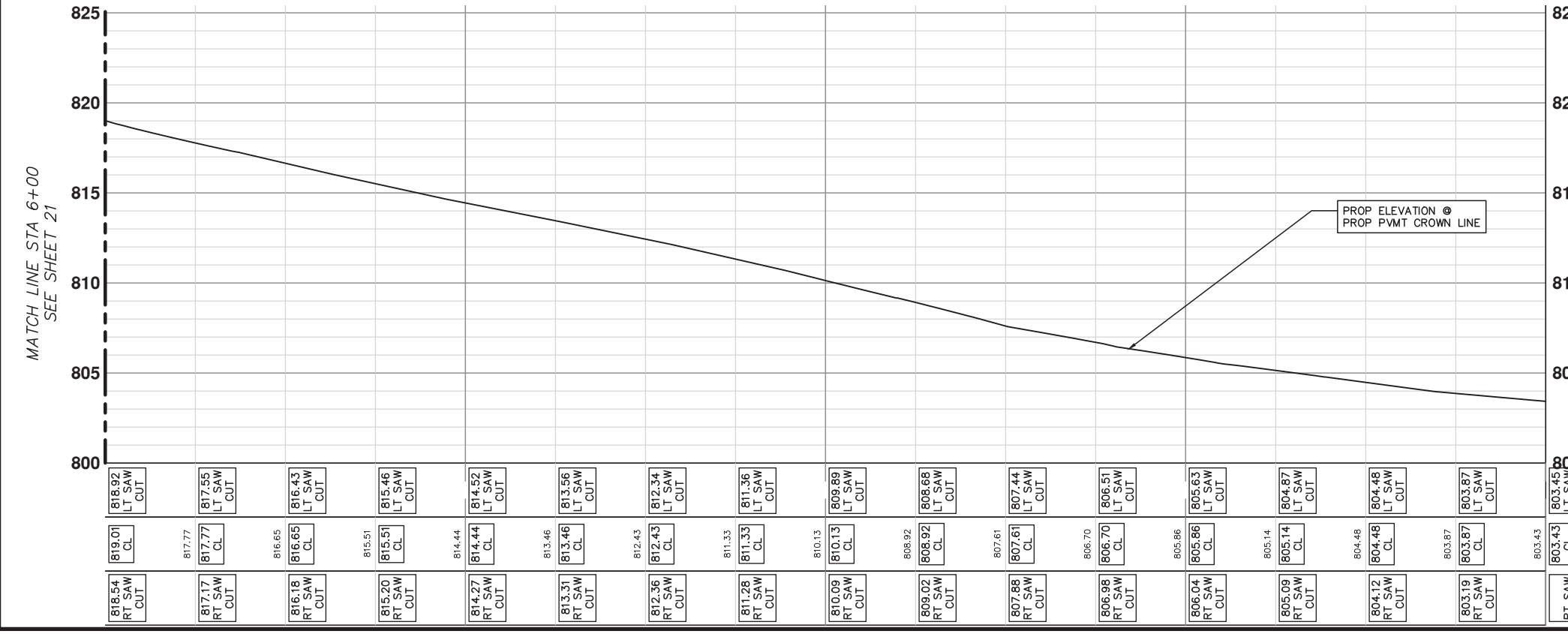
\* PROPOSED CROSS-SLOPES ARE RELATIVE TO CROWN ELEVATION

**STORM SEWER STRUCTURE TABLE**

STRUCTURE	ROAD STATION	INVERT ELEVATION, SIZE & DIRECTION	TOP OF CASTING ELEVATION	DEPTH (Feet)	SIZE	APPLICATION/ CONSTRUCTION/ DETAIL
r-88-60266	6+33-15.01' LT	12" E 814.13	817.12	4.99	48" Dia.	
r-92-59015	6+33-0.57' LT	12" S 812.11 12" W 813.51 12" E 813.01 (P) 12" N 812.11	817.44 (e) 817.44 (P)	7.33	48" Dia.	STORM MANHOLE/ ADJUST COVER
r-88-60265	6+33 13.90' RT	12" W 813.22 (P)	816.79	5.57	48" Dia.	
r-88-60267	8+01 14.09' RT	12" W 806.06 (P)	810.01	5.95	48" Dia.	
r-92-59026	8+02-0.82' LT	12" S 803.73 12" W 805.43 12" E 805.43 (P) 12" N 801.23	810.03 (e) 810.03 (P)	10.80	48" Dia.	STORM MANHOLE/ ADJUST COVER
r-88-60268	8+01-15.04' LT	12" E 805.91	809.84	5.93	48" Dia.	
r-88-60270	10+46-14.61' LT	12" NW 798.52	802.79	6.27	48" Dia.	
r-92-59085	10+47 1.41' RT	12" NE 797.47 12" NW 798.07 12" SE 798.07 12" SW 796.97	803.10	8.13	48" Dia.	
r-88-60269	10+48 14.70' RT	12" SE 798.71	802.78	6.07	48" Dia.	

**NOTES**

- SEE SOIL EROSION CONTROL SHEETS FOR DETAILS ON PLACEMENT, MAINTENANCE, AND REMOVAL OF EROSION CONTROL ITEMS.
- SEE UTILITY SHEETS FOR WATER MAIN AND SANITARY STRUCTURE AND PIPE PLACEMENTS.
- THE CONTRACTOR SHALL CAREFULLY PROTECT FROM DAMAGE OR INJURY DURING CONSTRUCTION OPERATIONS ALL UTILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT. PAYMENT FOR PROTECTION OF UTILITIES INCLUDED IN "GENERAL CONDITIONS, MAX. \_\_\_\_\_". EXISTING FACILITIES NOT DESIGNATED FOR REMOVAL OR ABANDONMENT WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS SOLE EXPENSE, AS DETERMINED BY THE ENGINEER.
- THE EXISTING UTILITIES SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED THROUGH SURVEYS AND/OR EXISTING PLANS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES. IF STORM, SANITARY, OR WATER CROSS OTHER UTILITIES CONTACT THEIR RESPECTIVE OWNERS FOR INFORMATION ON HOW TO PROCEED. PAYMENT FOR COORDINATION EFFORTS, AND ASSOCIATED OTHER TASKS SHALL BE INCLUDED IN ASSOCIATED PROPOSED STORM, SANITARY, OR WATER MAIN ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.
- LANDSCAPING SHALL BE PROTECTED AT ALL TIMES. ANY DAMAGE TO LANDSCAPING OUTSIDE THE WORK ZONE SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE AND NOT PAID FOR SEPARATELY.
- THE EXISTING ASPHALT CURB AND IMMEDIATELY ADJACENT PAVEMENT IS TO REMAIN IN PLACE. SEE PLAN FOR LOCATIONS WHERE PORTIONS OF THE CURB AND PAVEMENT ARE BEING REMOVED AND REPLACED. ANY DAMAGE TO THE CURB AND PAVEMENT OTHER THAN WHAT IS CALLED FOR ON THE PLANS AND AS DIRECTED BY THE ENGINEER TO BE REMOVED SHALL BE REPLACED AT THE CONTRACTORS SOLE EXPENSE AND NOT PAID FOR SEPARATELY.
- CONTRACTOR SHALL SAWCUT 18" FROM BACK OF EXISTING ASPHALT CURB FULL DEPTH FOR A CLEAN EDGE. PAVEMENT REMOVAL SHALL BE ACCORDING TO AREAS SHOWN ON PLANS. IF SAWED EDGE IS DAMAGED DURING CONSTRUCTION ACTIVITIES A CLEAN EDGE WILL BE RE-ESTABLISHED AND ALL ADDITIONAL HMA REQUIRED TO ACCOUNT FOR EDGE CHANGE SHALL BE THE CONTRACTORS EXPENSE AND NOT PAID FOR SEPARATELY.
- CONTRACTOR MUST MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION. THIS SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX. \_\_\_\_\_" AND NOT PAID FOR SEPARATELY.
- PAVEMENT REMOVAL SHALL OCCUR IN STAGES AS PART OF SANITARY AND WATER MAIN INSTALLATION. ALL COSTS NECESSARY TO PERFORM THE PAVEMENT REMOVAL IN A PART-WIDTH MANNER SHALL BE DEEMED TO BE INCLUDED IN THE ITEM OF WORK "HMA SURFACE, REM" AND SHALL NOT BE PAID FOR SEPARATELY.
- AT THE CONCLUSION OF UNDERGROUND UTILITY CONSTRUCTION, AND IN ACCORDANCE WITH THE DIRECTION OF THE ENGINEER, THE CONTRACTOR SHALL REMOVE THE UPPERMOST 2" LAYER OF MAINTENANCE GRAVEL THAT HAS BEEN PLACED WITHIN THE ROADWAY FOR MAINTENANCE OF TRAFFIC PURPOSES IN ORDER TO REMOVE ALL CONSTRUCTION DEBRIS, TRENCH SOILS, OR ANY OTHER DELETERIOUS MATERIALS THAT MAY EXIST IN ORDER TO PROVIDE A PROPER SURFACE FOR THE FINE GRADING OF THE AGGREGATE BASE COURSE. THE CONTRACTOR SHALL THEN AUGMENT THE REMAINING MAINTENANCE AGGREGATE WITH ADDITIONAL MAINTENANCE AGGREGATE MATERIAL IN ORDER TO BRING THE AGGREGATE BASE COURSE TO ITS FINAL GRADE. IF IT IS DETERMINED BY THE ENGINEER THAT THE ENTIRE MAINTENANCE AGGREGATE CROSS SECTION HAS BECOME EXCESSIVELY CONTAMINATED BY THE CONTRACTOR'S OPERATION, EXHIBITS SIGNS OF IMPROPER SUBGRADE SUPPORT, OR IS NOT USABLE FOR ANY OTHER REASON, IN THE SOLE OPINION OF THE ENGINEER, IT SHALL BE COMPLETELY REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE PROJECT. THE CONTRACTOR SHALL THEN PROVIDE THE REQUIRED CROSS-SECTION OF AGGREGATE BASE COURSE MATERIAL AND PLACE, COMPACT, AND FINE GRADE IT IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT. CONTRACT TIME SHALL CONTINUE THROUGHOUT THE ENTIRE AGGREGATE REMOVAL AND REPLACEMENT OPERATION IF IT IS DETERMINED BY THE ENGINEER TO BE NECESSARY. IT IS THE INTENT OF THE CITY THAT THE MAINTENANCE AGGREGATE MATERIAL BE RE-USED TO THE EXTENT PRACTICABLE AND ALLOWED BY THE CONTRACTOR'S OPERATIONS.



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**

PROPOSED PAVING STA 6+00 TO STA 10+00

SCALE PLAN: 1"=20'  
 PROFILE: 1"=4'

DRAWING NO: 2017-031-22

SHEET NO: 22 OF 25

DATE: 2/28/2018  
 2/23/2018  
 2/12/2018  
 2/9/2018  
 1/22/2018

REV. DATE DESCRIPTION

06 FINAL PLANS - CITY OF ANN ARBOR  
 05 FINAL REVIEW TO CITY OF ANN ARBOR  
 04 SANITARY SEWER AND WATER MAIN PERMITS  
 03 95% REVIEW TO CITY OF ANN ARBOR  
 02 SANITARY AND WATER MAIN PERMIT

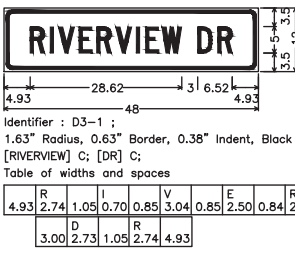
CITY OF ANN ARBOR PUBLIC SERVICES  
 301 EAST HURON STREET  
 ANN ARBOR MI 48106-0647  
 www.a3gov.org



C:\pwork\mflanagon\0820002\23 MAINTENANCE OF TRAFFIC PLAN.dwg Created: 22-Feb-18 -- \_a2 standard bw.stb -- Plot Date: 1-Mar-18

TRAFFIC CONTROL SIGN		
SIGN	NUMBER	QUANTITY
1	ROAD WORK AHEAD W20-1 48x48	4
	RIVERVIEW DR D3-1	4
2	PEDESTRIAN W20-7a 48x48	2
3	ONE LANE ROAD AHEAD W20-4 48x48	2
4	BARRICADE, TYPE III, HIGH INTENSITY, LIGHTED	2
5	END ROAD WORK G20-2 48x24	2

- CHANNELIZING DEVICE
- T TEMPORARY SIGN
- TRAFFIC REGULATOR
- ← LIGHTED ARROW (CAUTION MODE)
- ▨ WORK ZONE
- - - CONSTRUCTION LIMITS



- GENERAL NOTES:
- 1: ALL TRAFFIC CONTROL DEVICES SHALL MEET CURRENT MDOT, MMUTCD AND CITY OF ANN ARBOR STANDARDS.
  - 2: CONTRACTOR IS RESPONSIBLE FOR ALL CITY OF ANN ARBOR PERMITS. SEE SHEET NO.3 FOR ADDITIONAL INFORMATION.
  - 3: CONTRACTOR IS TO CONTINUOUSLY MAINTAIN ALL TRAFFIC CONTROL DEVICES.
  - 4: CONTRACTOR TO MAINTAIN 2-WAY TRAFFIC AT ALL TIMES USING FLAGGER OPERATIONS AND AS DETAILED IN THE SPECIFICATIONS AND PLAN SHEETS.
  - 5: CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES AND PROVIDE ACCESS FOR EMERGENCY VEHICLES, MAIL DELIVERY, GARBAGE PICKUP AND RELATED SERVICES THROUGHOUT THE ENTIRE PROJECT TIMELINE.
  - 6: CONTRACTOR SHALL PROTECT ALL WORK ZONES AT ALL TIMES.

STAGING NOTES:

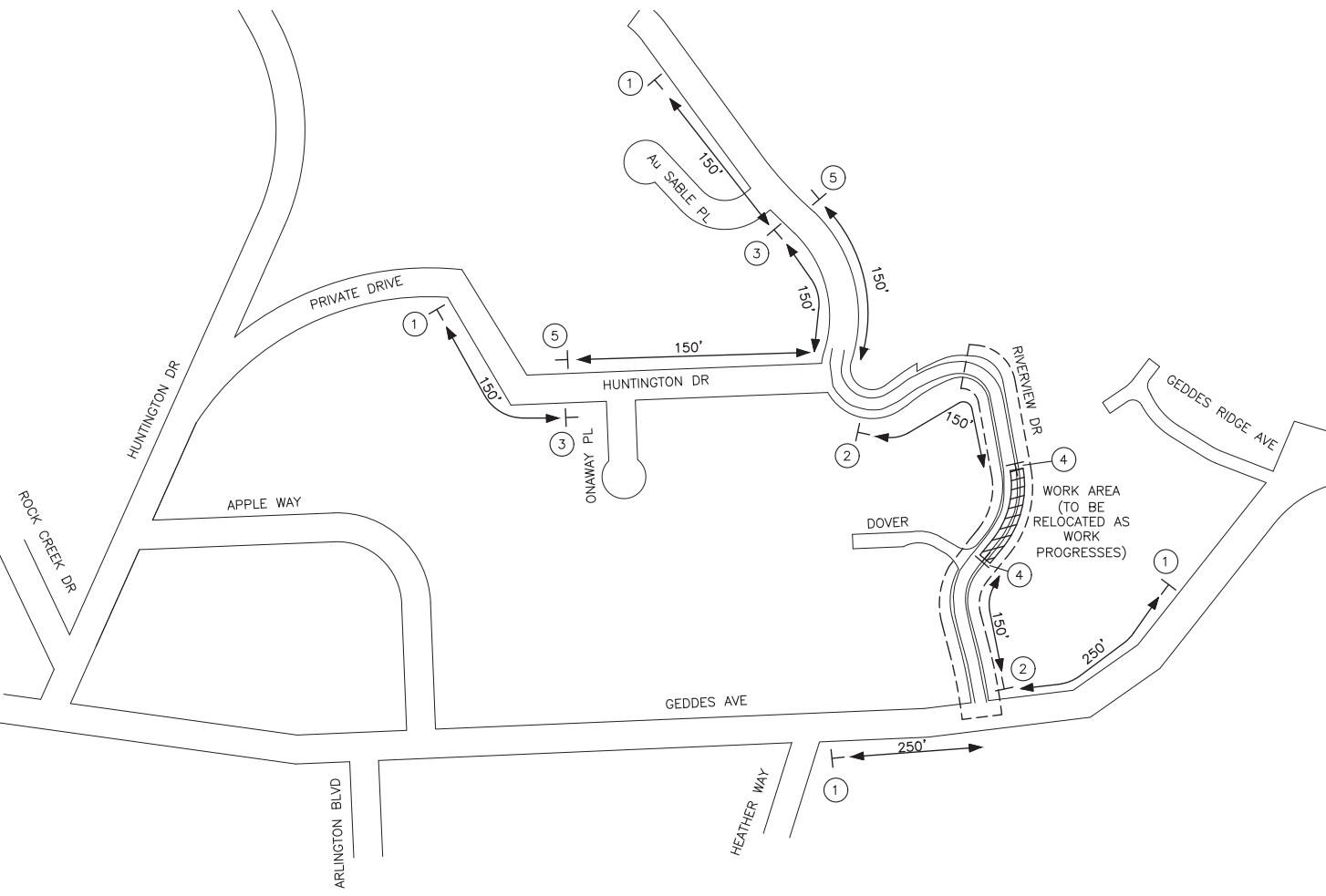
STAGE 1  
CONSTRUCTION OF THE SANITARY SEWER WILL BEGIN AT MH S-71-69938 AND PROGRESS TO THE SOUTH. MAINTAIN TWO-WAY VEHICULAR AND PEDESTRIAN TRAFFIC USING ROLLING LANE CLOSURES AS DETAILED HEREIN. CONSTRUCTION OF THE SEWER WILL BE COMPLETED IN INCREMENTS WITH 50 FOOT BUFFER ZONES.

STAGE 2  
CONSTRUCTION OF THE WATER MAIN WILL BEGIN AT THE SOUTH END OF THE PROJECT AND PROGRESS TO THE NORTH. MAINTAIN TWO-WAY VEHICULAR AND PEDESTRIAN TRAFFIC USING ROLLING LANE CLOSURES AS DETAILED HEREIN. CONSTRUCTION OF THE SEWER WILL BE COMPLETED IN INCREMENTS WITH 50 FOOT BUFFER ZONES.

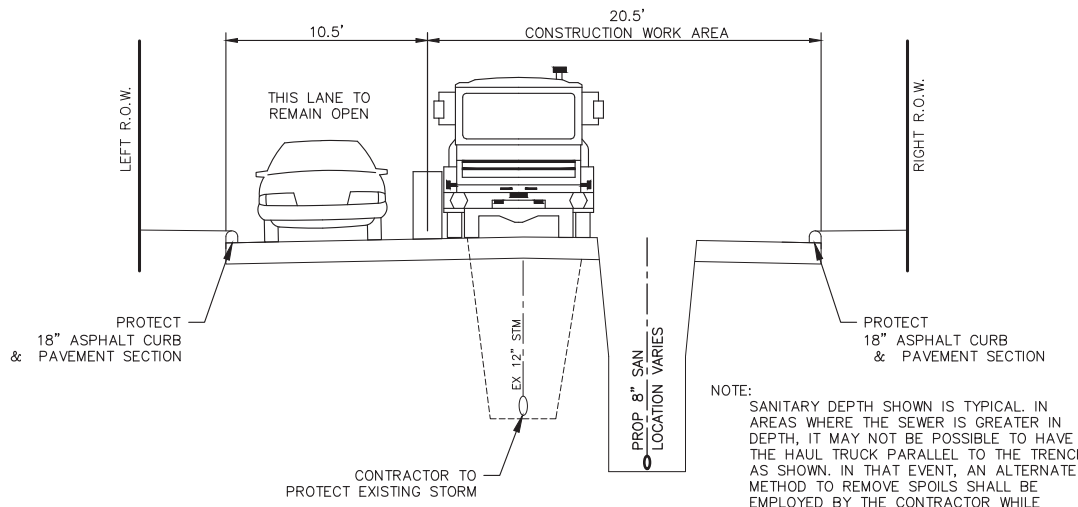
CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS.

PRIOR TO BEGINNING CONSTRUCTION IN EACH PHASE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE, STORE AND PROTECT THE EXISTING ROADWAY GUIDE AND REGULATORY SIGNS THAT ARE WITHIN THE PROJECT CONSTRUCTION LIMITS. THE SIGNS WILL BE REINSTALLED BY THE CITY FORCES AT THE CONCLUSION OF THE PROJECT. THIS WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE ITEM OF WORK "GENERAL CONDITIONS, MAX. ....".

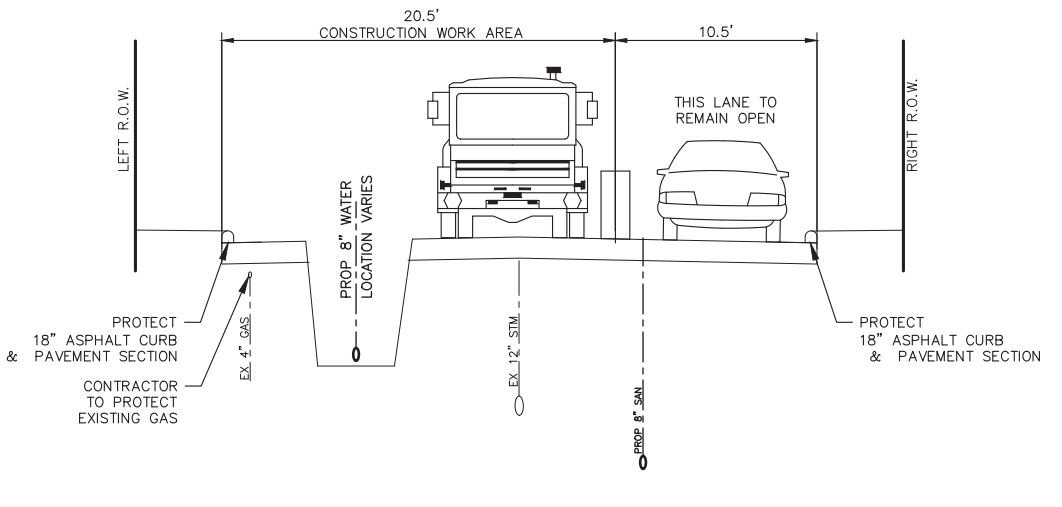
REFERENCE THE "DETAILED SPECIFICATION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR ADDITIONAL PROJECT REQUIREMENTS. THE CONTRACTOR'S ATTENTION IS SPECIFICALLY DIRECTED TO THE SECTION OF THE SAME DETAILED SPECIFICATION REGARDING COORDINATING WITH THE CITY PUBLIC WORKS SIGNS AND SIGNALS UNIT.



**RIVERVIEW DRIVE ROLLING CLOSURE**  
NOT TO SCALE



**STAGE 1**  
SCALE: 1"=5'



**STAGE 2**  
SCALE: 1"=5'

REFERENCE THE CONTRACT DOCUMENTS REGARDING THE APPLICABLE PROVISIONS FOR TRENCH SHEETING & SHORING AND PROTECTING THE EXISTING FEATURES, THE WORK, AND ALL EMPLOYED IN THE CONSTRUCTION AND INSPECTION OF THE WORK.

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

REV.	DATE	DESCRIPTION
06	2/28/2018	FINAL PLANS - CITY OF ANN ARBOR
05	2/23/2018	FINAL REVIEW TO CITY OF ANN ARBOR
04	2/12/2018	SANITARY SEWER AND WATER MAIN PERMITS
03	2/9/2018	95% REVIEW TO CITY OF ANN ARBOR
02	1/22/2018	SANITARY AND WATER MAIN PERMIT

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT  
MAINTENANCE OF TRAFFIC PLAN

CITY OF ANN ARBOR PUBLIC SERVICES  
301 EAST HURON STREET  
ANN ARBOR MI 48106-8647  
734-794-4410  
www.a3gov.org

SCALE PLAN: 1"=500'  
DRAWING No. 2017-031-23  
SHEET No. 23 OF 25

LINE	PAY ITEM #	DESCRIPTION	QUANTITY	UNIT	CATEGORY
1	1047051	Audiovisual Recording	1	LSUM	General
2	1047051	Certified Payroll Compliance and Reporting	1	LSUM	General
3	1047051	General Conditions, Max xxxx	1	LSUM	General
4	2037001	Sewer, Any Size or Depth, Rem	259	Ft	Road Work
5	2047001	Curb, Any Type or Size, Rem	578	Ft	Road Work
6	2050041	Subgrade Undercutting, Type II	120	Cyd	Road Work
7	2057002	Machine Grading, Modified, Riverview Drive	10	Sta	Road Work
8	2080036	Erosion Control, Silt Fence	200	Ft	Road Work
9	2087050	Erosion Control, Inlet Filter	12	Ea	Road Work
10	3027011	Aggregate Base, 8 inch, 21AA Modified	4200	Syd	Road Work
11	3060021	Maintenance Gravel, LM	1104	Cyd	Road Work
12	3067031	Aggregate Surface Course, 23A	64	Ton	Road Work
13	3070021	Approach, CI II	3	Ton	Road Work
14	4027001	Sewer, CI C76 IV, 12 inch, Tr Det I, Modified	259	Ft	Road Work
15	4027050	Exploratory Excavation (0 - 10' deep), Special	9	Ea	Water
16	4037001	Additional Depth Structure Adjust/Repair	4	Ft	Road Work
17	4037050	Adjust Structure Cover	4	Ea	Road Work
18	4037050	Dr Structure Cover, Type B, Special	1	Ea	Water
19	4037050	Dr Structure Cover, Type Q, Special	8	Ea	Sanitary Sewer
20	5010005	HMA Surface, Rem	3900	Syd	Road Work
21	5010703	HMA, LVSP	960	Ton	Road Work
22	5017031	HMA Approach, LVSP, Special	50	Ton	Road Work
23	8027001	Curb, Conc, E4	20	Ft	Road Work
24	8057001	Curb Sloped, HMA, Special	558	Ft	Road Work
25	8087001	Protective Fence, Orange, Plastic, 4 Foot Ht.	200	Ft	General
26	8120022	Barricade, Type III, High Intensity, Lighted, Furn	4	Ea	General
27	8120023	Barricade, Type III, High Intensity, Lighted, Oper	4	Ea	General
28	8120250	Plastic Drum, High Intensity, Furn	50	Ea	General
29	8120251	Plastic Drum, High Intensity, Oper	50	Ea	General
30	8120350	Sign, Type B, Temp, Prismatic, Furn	160	Sft	General
31	8120351	Sign, Type B, Temp, Prismatic, Oper	160	Sft	General
32	8120370	Traf Regulator Control	1	LSUM	General
33	8127051	Minor Traffic Devices, Max _____	1	LSUM	General
34	8167011	Double Shredded Hardwood Bark Mulch, 6 inch	35	Syd	Road Work
35	8167011	Hydroseeding	350	Syd	Road Work
36	8167011	Topsoil Surface, 4 inch	350	Syd	Road Work
37	8167011	Topsoil Surface, 6 inch	35	Syd	Road Work
38	8167051	Project Clean-Up and Restoration, Special	1	LSUM	General
39	8237001	Excavate & Backfill for Water Service Tap and Lead	349	Ft	Water
40	8237001	PC 350, D.I. Water Main, w/Polyethylene Wrap, 12 inch, Tr Det I, Mod	893	Ft	Water
41	8237001	PC 350, D.I. Water Main, w/Polyethylene Wrap, 6 inch, Tr Det I, Mod	4	Ft	Water
42	8237001	PC 350, D.I. Water Main, w/Polyethylene Wrap, 8 inch, Tr Det I, Mod	167	Ft	Water
43	8237001	Water Main, HDPE, 10 inch, Directional Drill	361	Ft	Water
44	8237050	11.25 deg Bend, 12 inch	6	Ea	Water
45	8237050	11.25 deg Bend, 8 inch	1	Ea	Water
46	8237050	22.5 deg Bend, 12 inch	5	Ea	Water
47	8237050	22.5 deg Bend, 8 inch	1	Ea	Water
48	8237050	45 deg Bend, 12 inch	1	Ea	Water
49	8237050	45 deg Bend, 8 inch	16	Ea	Water
50	8237050	90 deg Bend, 8 inch	1	Ea	Water
51	8237050	Cap, 12 inch	1	Ea	Water
52	8237050	Cap, 8 inch	1	Ea	Water
53	8237050	Fire Hydrant Assembly, with Extensions, Complete	4	Ea	Water
54	8237050	Gate Valve-in-Box, 12 inch	3	Ea	Water
55	8237050	Gate Valve-in-Well, 8 inch	1	Ea	Water
56	8237050	Reducer, 10 inch x 8 inch	4	Ea	Water
57	8237050	Reducer, 12 inch x 8 inch	1	Ea	Water
58	8237050	Reducer, 8 inch x 6 inch	4	Ea	Water
59	8237050	Tee, 12 inch x 12 inch x 8 inch	5	Ea	Water
60	8237050	Tee, 8 inch x 8 inch x 8 inch	1	Ea	Water
61	8237050	Water Service Connection to HDPE Water Main	3	Ea	Water
62	8507001	Dr Structure, Manhole, Type I, 48 inch dia, Sanitary, Add Depth	13	Ft	Sanitary Sewer
63	8507001	Sewer, SDR 26 PVC Pipe, 8 inch, Tr Det I	208	Ft	Sanitary Sewer
64	8507001	Sewer, SDR 26 PVC Pipe, Riser, 4 inch	5	Ft	Sanitary Sewer
65	8507001	Sewer, SDR 26 PVC, Service Lead, 4 inch, TR Det I	29	Ft	Sanitary Sewer
66	8507001	Sewer, SDR 35 PVC Pipe, 8 inch, Tr Det I	633	Ft	Sanitary Sewer
67	8507001	Sewer, SDR 35 PVC Pipe, Riser, 4 inch	26	Ft	Sanitary Sewer
68	8507001	Sewer, SDR 35 PVC, Drop Connection, 8 inch	15	Ft	Sanitary Sewer
69	8507001	Sewer, SDR 35 PVC, Service Lead, 4 inch, Tr Det I	186	Ft	Sanitary Sewer
70	8507021	Pipe Undercut & Refill (6A Limestone)	23	Cyd	Sanitary Sewer
71	8507050	Dr Structure, Manhole, Type I, 48 inch dia, Sanitary	8	Ea	Sanitary Sewer
72	8507050	Sewer Tap, 8 inch	1	Ea	Sanitary Sewer
73	8507050	Sewer, 8 inch x 8 inch x 4 inch Tee, SDR 26 PVC	2	Ea	Sanitary Sewer
74	8507050	Sewer, 8 inch x 8 inch x 4 inch Tee, SDR 35 PVC	9	Ea	Sanitary Sewer



Know what's below.  
Call Before you dig.

REV.	DATE	DESCRIPTION	CHECKED	DRAWN	DATE	MF	VCM
06	2/28/2018	FINAL PLANS - CITY OF ANN ARBOR				MF	VCM
05	2/23/2018	FINAL REVIEW TO CITY OF ANN ARBOR				MF	VCM
04	2/12/2018	SANITARY SEWER AND WATER MAIN PERMITS				MF	VCM
03	2/9/2018	95% REVIEW TO CITY OF ANN ARBOR				MF	VCM
02	1/22/2018	SANITARY AND WATER MAIN PERMIT				MF	VCM

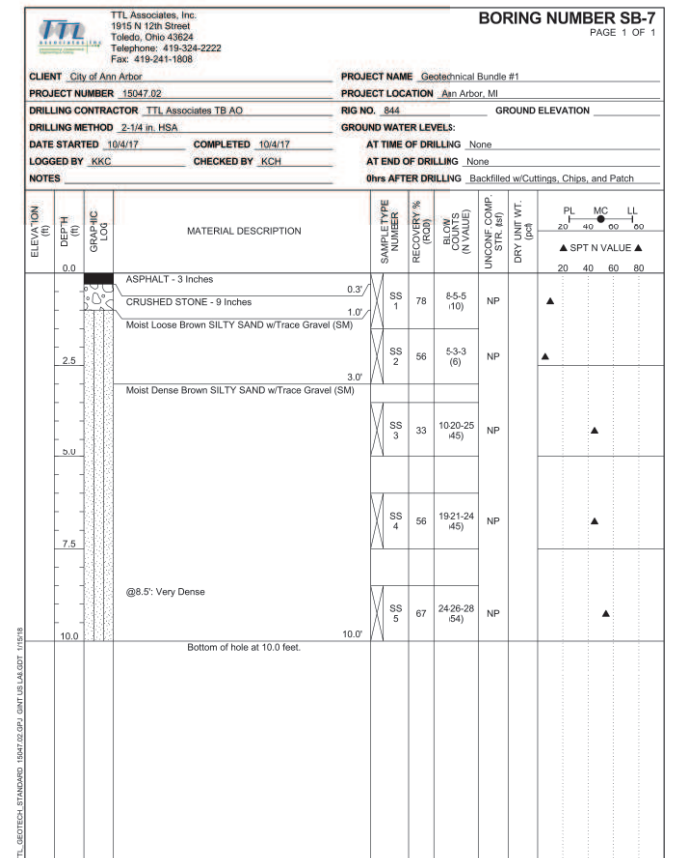
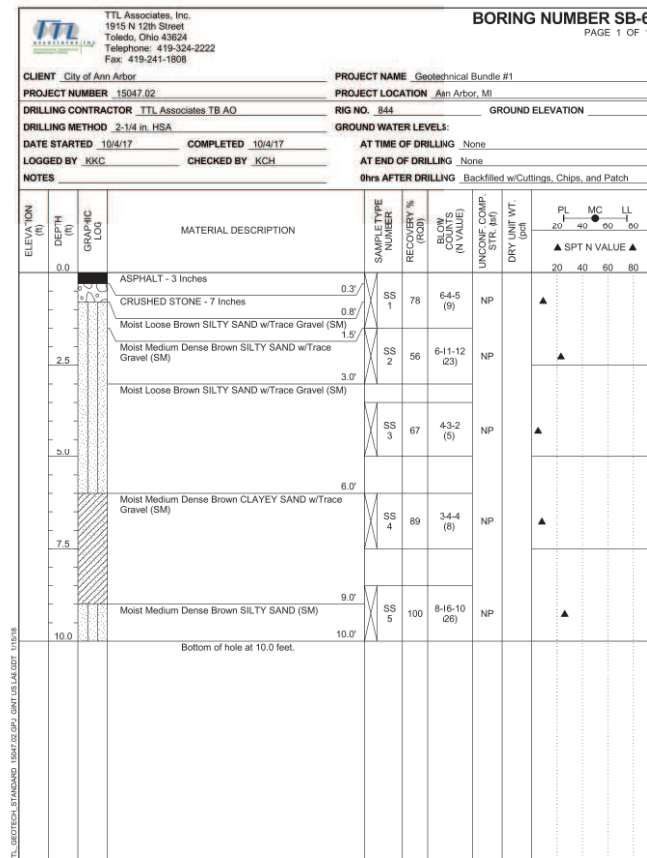
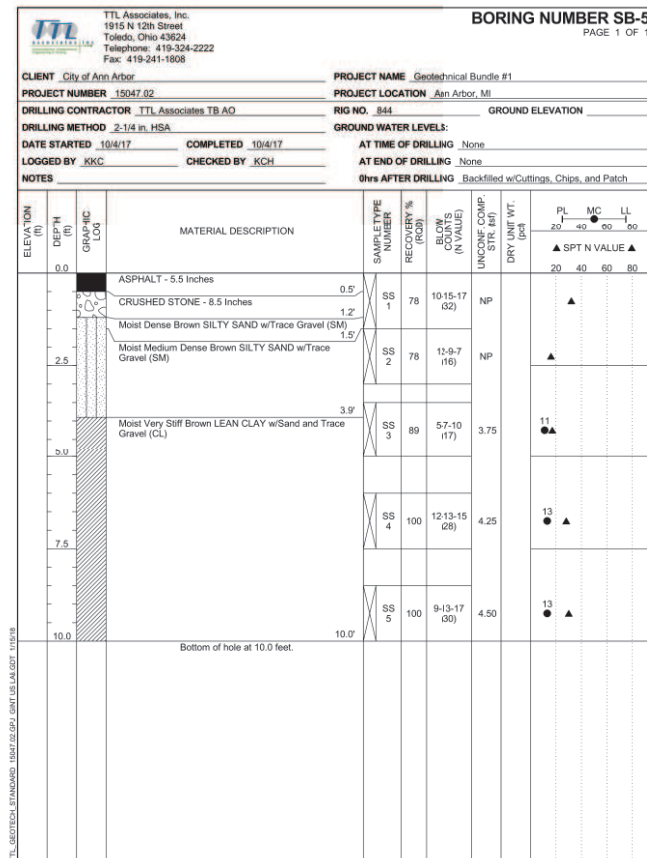
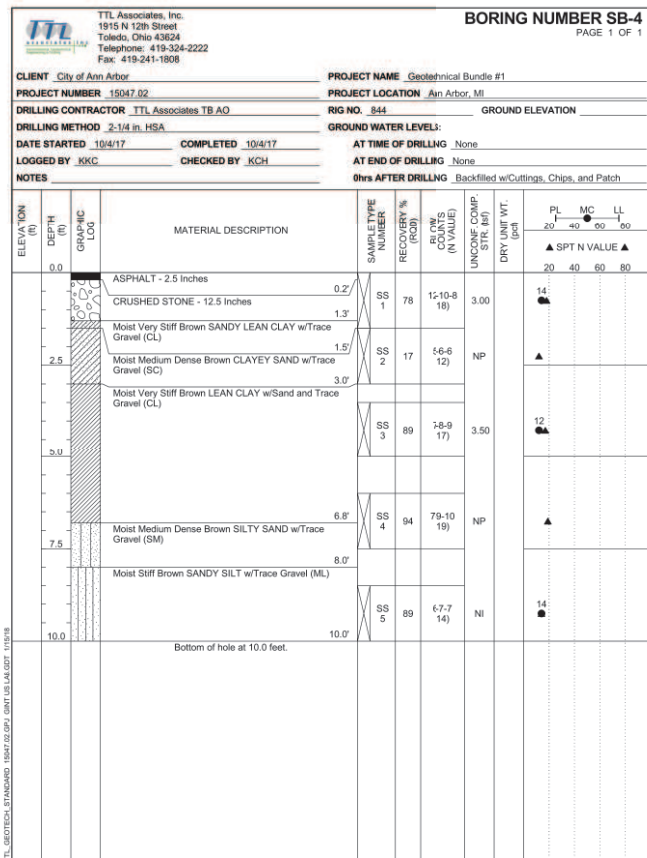
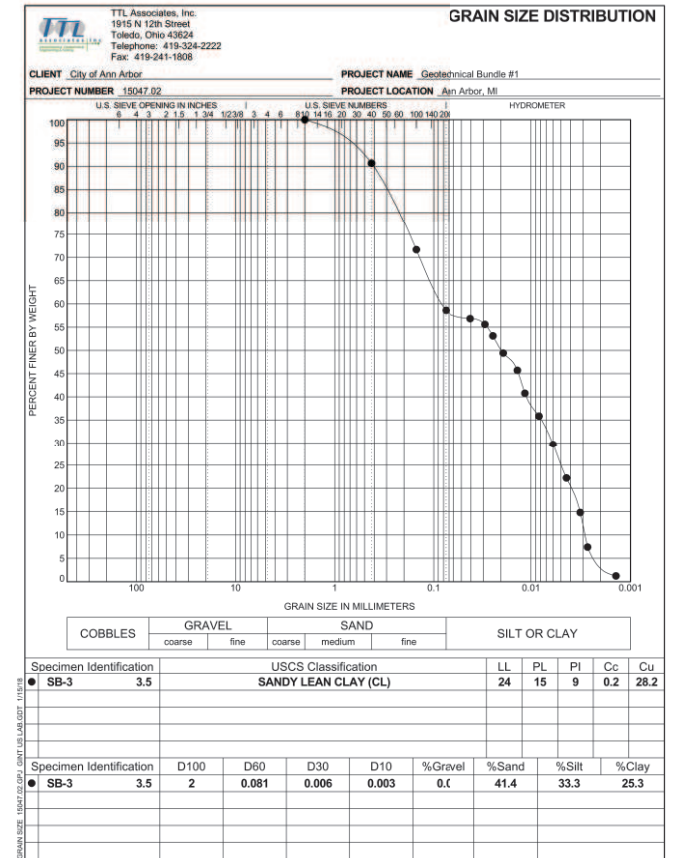
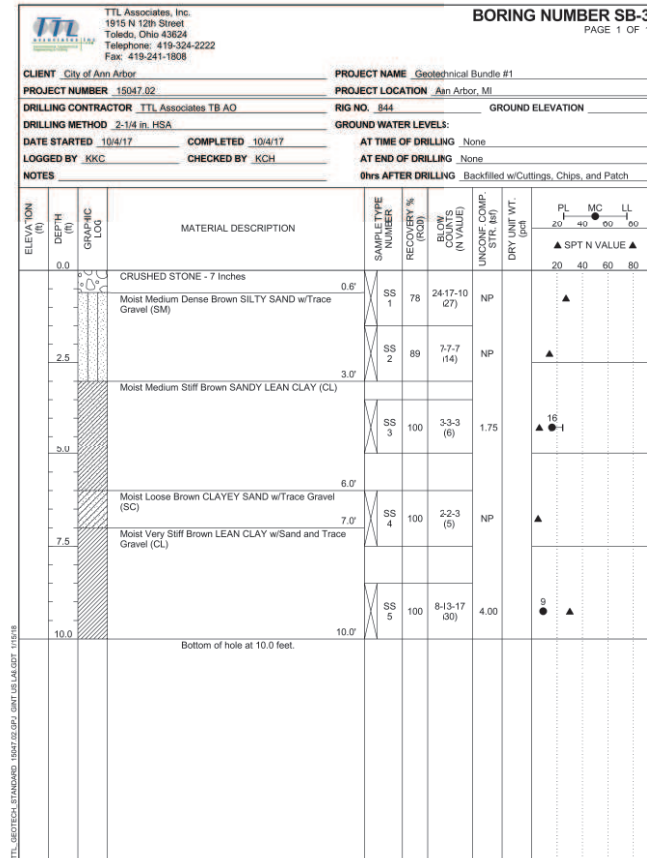
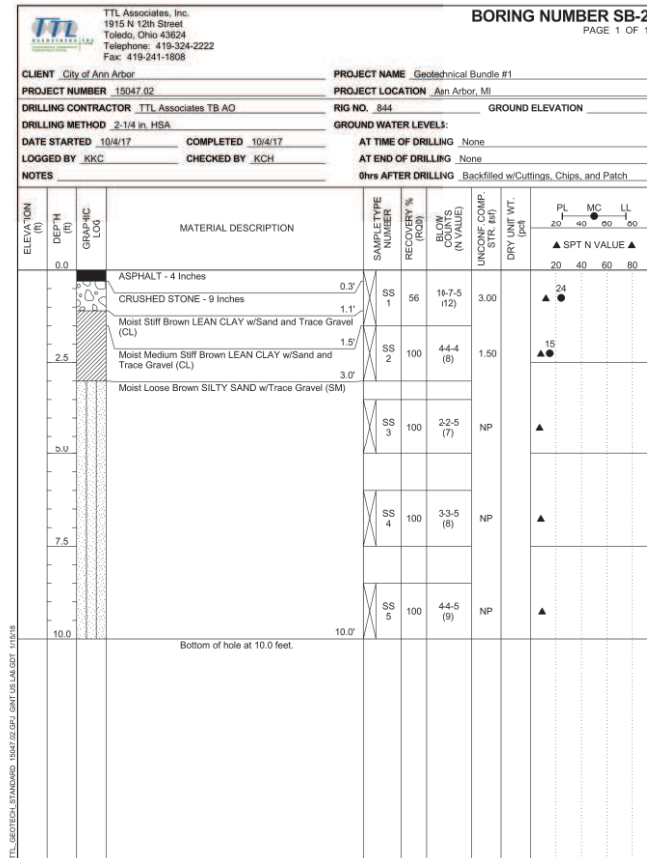
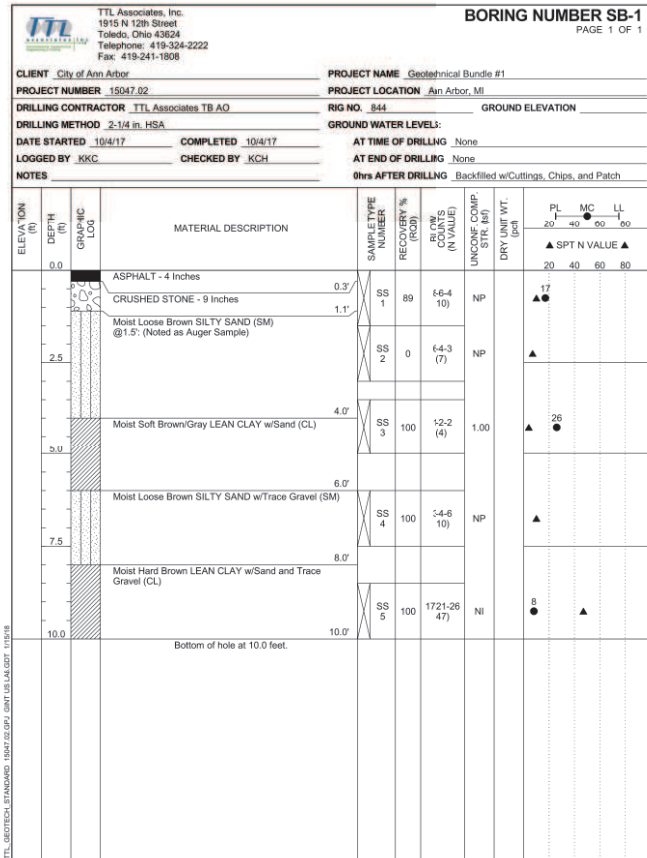
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301 EAST HURON STREET  
ANN ARBOR MI 48106-8647  
734-784-4410  
www.a3gov.org



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT**  
SUMMARY OF QUANTITIES

SCALE: NONE  
DRAWING No. 2017-031-24





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

VCM  
2/28/2018  
2/23/2018  
2/12/2018  
2/9/2018  
1/22/2018

DATE  
REV.

DESCRIPTION

06 FINAL PLANS - CITY OF ANN ARBOR  
05 FINAL REVIEW TO CITY OF ANN ARBOR  
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03 95% REVIEW TO CITY OF ANN ARBOR  
02 SANITARY AND WATER MAIN PERMIT

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ANN ARBOR, MI 48106-0667  
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CITY OF ANN ARBOR - ENGINEERING  
RIVERVIEW DRIVE SANITARY SEWER AND WATER MAIN EXTENSION PROJECT  
SOIL BORING LOG INFORMATION

SHEET No. 25 OF 25

DRAWING No. 2017-031-25

SCALE PLAN: NONE