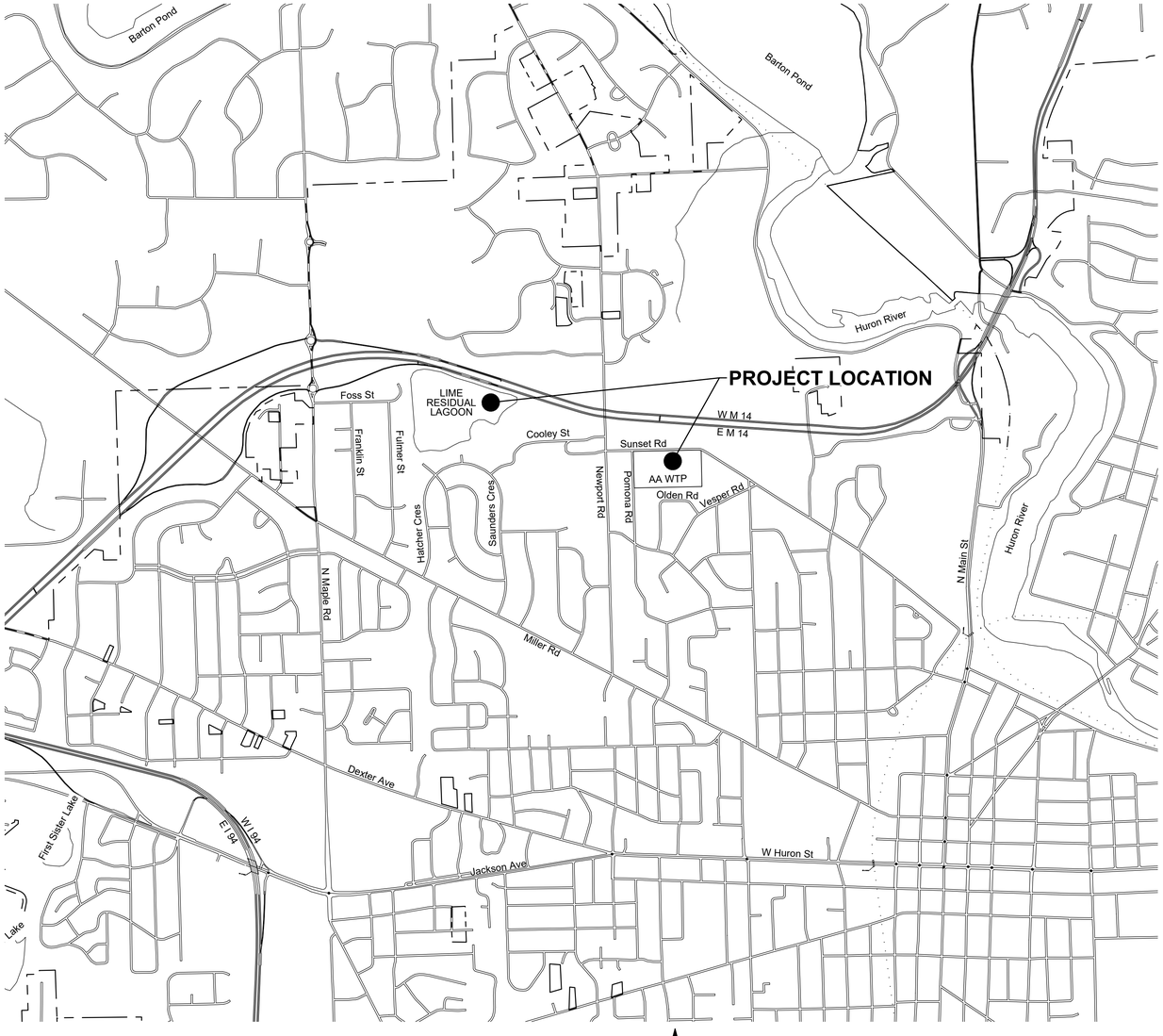
CITY OF ANN ARBOR, MICHIGAN
WTP LIME RESIDUAL REMOVAL
CONTRACT NO.1 - SITE MODIFICATIONS

710 AVIS DRIVE, SUITE 100
ANN ARBOR, MI 48108
Tel. 734.665.6000 Fax. 734.213.3003
www.tetratech.com

TETRA TECH



LOCATION MAP
SCALE: 1" = 1000'

PROJECT LOCATION:
919 SUNSET RD
ANN ARBOR, MI 48103

CLIENT INFORMATION:
CITY OF ANN ARBOR
WATER TREATMENT SERVICES UNIT

Tt PROJECT No.:
200-31537-17002

CLIENT PROJECT No.:
CONTRACT NO. 1 OF 3 - ITB #: 4560, FILE #: 19004

PROJECT DESCRIPTION / NOTES:
PROJECT SITE PREPARATIONS INCLUDING PARKING LOT MODIFICATIONS, MANHOLE MODIFICATIONS, AND FORCE MAIN TESTING/CLEANING/PREPARATION.

ISSUED:

SHEET INDEX	
NUMBER	TITLE
C-000	COVER SHEET
C-011	LEGEND, OVERALL SITE PLAN & NOTES
C-111	LIME RESIDUAL LAGOON SITE PLAN
C-112	WATER TREATMENT PLANT SITE PLAN
C-113	WATER TREATMENT PLANT TEMP DRIVEWAY & FM P&P
C-114	LAGOON FORCE MAIN PLAN AND PROFILE
C-115	SESC & STANDARD DETAILS
C-116	STANDARD DETAILS
C-117	MISC. DETAILS
C-118	8 IN FM PLAN & PROFILE - FOR INFO ONLY
C-119	8 IN FM PLAN & PROFILE - FOR INFO ONLY

811
MISS DIG System, Inc.
1-800-482-7171

Please allow for 3 full working days before you dig - call the MISS DIG System at 811 or 800-482-7171.

STATE OF MICHIGAN
JOSEPH CHRISTIAN SIWEK
ENGINEER NO. 55740
LICENSED PROFESSIONAL ENGINEER
12-14-2018

VICINITY MAP:

SITE LEGEND

SITE SYMBOLS

FEATURES

- EXISTING SIGN
- PROPOSED SIGN
- TRASH RECEPTACLE
- PICNIC TABLE
- POST
- MAIL BOX
- POWER METER
- FLAG POLE
- ROCK
- GUY WIRE
- UTILITY POLE
- DECIDUOUS TREE
- EVERGREEN TREE
- SHRUB
- STUMP

STORM / DRAINAGE

- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING CULVERT
- PROPOSED CULVERT
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN

MISCELLANEOUS

- MONITORING WELL
- SOIL BORING
- MANHOLE W/ ID
- SPOT ELEVATION
- SLOPE ARROW
- SLOPE ARROW
- ADA MARKING
- FUTURE IMPROVEMENTS

SURVEY

- FOUND PROPERTY CORNER
- SET PROPERTY CORNER
- FOUND MONUMENT
- SET MONUMENT
- OWNERSHIP TIE
- SECTION CORNER
- BENCHMARK
- KEY NOTE
- SOIL EROSION AND SEDIMENTATION CONTROL NOTE

UTILITY SYMBOLS

WATER

- DRINKING FOUNTAIN
- EXISTING VALVE IN BOX
- PROPOSED VALVE IN BOX
- EXISTING CURB STOP
- PROPOSED CURB STOP
- METER
- EXISTING VALVE MANHOLE
- PROPOSED VALVE MANHOLE
- EXISTING WELL
- PROPOSED WELL
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- SPRINKLER HEAD
- IRRIGATION BOX
- SPIGOT
- LOCATION FLAG

SANITARY SEWER

- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING AIR RELEASE STRUCTURE
- PROPOSED AIR RELEASE STRUCTURE
- EXISTING IN-LINE FLUSH CONNECTION
- PROPOSED IN-LINE FLUSH CONNECTION
- EXISTING IN-LINE FLUSH CONNECTION
- PROPOSED IN-LINE FLUSH CONNECTION
- EXISTING CLEAN OUT
- PROPOSED CLEAN OUT
- EXISTING SEWER VALVE
- PROPOSED SEWER VALVE
- EXISTING CURB STOP
- PROPOSED CURB STOP
- PUMP STATION (SIMPLEX)
- PUMP STATION (DUPLEX)
- SEWER LATERAL
- LOCATION FLAG

NATURAL GAS

- MARKER
- LOCATION FLAG
- VALVE

CABLE TV

- RISER
- LOCATION FLAG
- JUNCTION BOX

COMMUNICATIONS

- TELEPHONE
- BOX OR RISER
- JUNCTION BOX
- FIBER OPTIC BOX
- LOCATION FLAG
- FIBER OPTIC FLAG
- MANHOLE
- VAULT
- SATELLITE DISH

UTILITY SYMBOLS (CONT.)

ELECTRICAL

- METER
- TRANSFORMER
- BOX OR RISER
- LOCATION FLAG
- LIGHT POLE
- EXTERIOR BUILDING LIGHT
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL CONTROL (BOX)
- RAIL ROAD SIGNAL
- MANHOLE
- JUNCTION BOX

FEATURE HATCHING

- EXISTING ASPHALT TO BE DEMOLISHED
- EXISTING CONCRETE TO BE DEMOLISHED
- PROPOSED PAVEMENT AS NOTED ON DRAWINGS
- PROPOSED CONCRETE PAVEMENT
- PROPOSED LIGHT DUTY HOT MIX ASPHALT (HMA) PAVEMENT
- PROPOSED HEAVY DUTY HOT MIX ASPHALT (HMA) PAVEMENT
- PROPOSED GRAVEL
- WETLAND AREA
- PROPOSED SOD

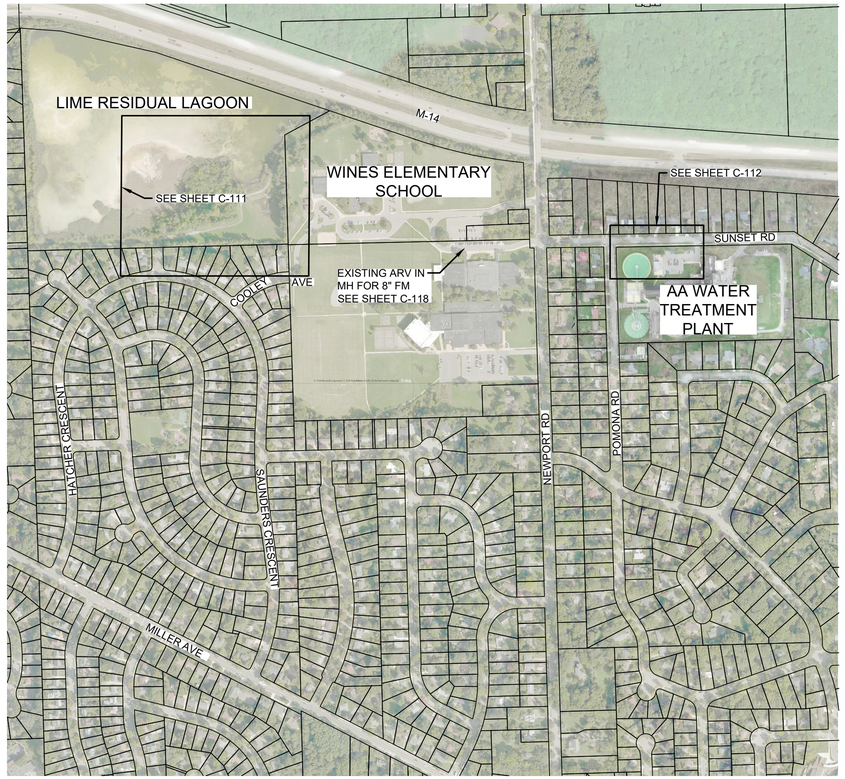
FEATURES & FEATURE LINES

- LIMITS OF CONSTRUCTION
- RIGHT OF WAY LINE
- SECTION LINE
- UTILITY EASEMENTS
- EXISTING CONTOUR - MAJOR (900)
- EXISTING CONTOUR - MINOR (899)
- PROPOSED CONTOUR - MAJOR (899)
- PROPOSED CONTOUR - MINOR (899)
- EROSION SILT FENCE (SF)
- EROSION SUPER SILT FENCE (SSF)
- FENCE (WOOD)
- FENCE (STEEL)
- FLOOD HAZARD AREA
- FLOW ARROW
- GUARD RAILING
- GRAVEL ROAD OR DRIVE
- RAIL ROAD TRACKS
- ROCK RETAINING WALL
- TREE / BRUSH LINES
- CLEARING & GRUBBING LIMITS
- WATER EDGES
- DITCH CENTER LINE
- WETLAND BOUNDARY
- PROPOSED STRUCTURE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- EXISTING UNDERGROUND STRUCTURE
- FUTURE STRUCTURE

UTILITY LINES

- CABLE TV OVERHEAD (OTV)
- CABLE TV UNDERGROUND (UTV)
- COMMUNICATION FIBER OPTIC (FO)
- COMMUNICATION OVERHEAD (OT)
- COMMUNICATION UNDERGROUND (UT)
- ELECTRIC OVERHEAD (OE)
- ELECTRIC UNDERGROUND (UE)
- NATURAL GAS (G)
- NATURAL GAS HIGH PRESSURE (HPG)
- SANITARY FORCEMAIN (FM)
- SANITARY SEWER (SS)
- COMBINED SANITARY SEWER (CSS)
- STORM DRAIN (SD)
- STORM ROOF DRAIN (RD)
- STEAM (SM)
- FIRE PROTECTION (F)
- WATER MAIN (W)
- UTILITY LINE 36" AND LARGER (36"SS)

NOTE: HEAVIER LINE WEIGHTS INDICATE PROPOSED WORK.



OVERALL SITE PLAN

8' - 0"

CITY OF ANN ARBOR
WTP LIME RESIDUAL REMOVAL PROJECT

4' - 0"

OWNER:
CITY OF ANN ARBOR
PUBLIC SERVICES DEPARTMENT
WATER TREATMENT SERVICES UNIT

CONTRACTORS:

ENGINEER:
TETRA TECH
ANN ARBOR, MI

PROPOSED CONSTRUCTION SCHEDULE:

FOR MORE INFORMATION, PLEASE CONTACT _____, CITY OF ANN ARBOR
AT (734) _____ EXT. ____ OR _____@a2gov.org

PROJECT SIGN DETAIL

SCALE: NONE

NOTES:
1. CONSTRUCTION SIGN SHALL BE BAKED ENAMEL ALUMINUM SHEET LAMINATED ONTO 2 SIDES OF A TRUSS TYPE CORRUGATED SHEET OF POLYMER CORE.
2. CONSTRUCTION SIGN SHALL BE STANDARD WHITE.
3. LETTERING SHALL BE DIE CUT VINYL (BLACK) LAMINATED ONTO THE PANEL. VINYL SHALL BE SUITABLE FOR EXTERIOR APPLICATIONS.
4. 1 EACH OF SIGN, LOCATION TO BE DETERMINED IN FIELD.
5. SECURE WITH TWO (2) 4X4 SET INTO CONCRETE.

N

0 200' 400' 800'

SCALE: 1" = 400'

GENERAL NOTES

1. THREE FULL WORKING DAYS PRIOR TO ANY EXCAVATION; THE CONTRACTOR SHALL CONTACT MISS DIG (1-800-482-7171) FOR LOCATION OF UNDERGROUND UTILITIES LOCATED IN THE VICINITY OF THE WORK. THE CONTRACTOR SHALL MAKE ANY NECESSARY ARRANGEMENTS WITH UTILITY COMPANIES FOR RELOCATION OF EXISTING UTILITIES, IF REQUIRED.
2. UNDERGROUND UTILITIES AS SHOWN HEREON WERE TAKEN FROM EXISTING PLANS AND ARE APPROXIMATE LOCATIONS ONLY. UNDERGROUND UTILITY LOCATIONS HAVE NOT BEEN FIELD VERIFIED.
3. UNLESS SPECIFICALLY NOTED FOR REMOVAL ON THE CONSTRUCTION PLANS, ALL SIDEWALK, DRIVES, CULVERTS, GUARDRAILS AND ABOVE GROUND UTILITIES DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED, INCIDENTAL TO THE COST OF CONSTRUCTION, AT NO EXPENSE TO THE OWNER.
4. EXISTING WATER MAINS, GAS MAINS AND UNDERGROUND TELEPHONE, ELECTRIC AND CABLE TELEVISION CONDUITS AND/OR LINES ARE SHOWN ONLY IN THE PLAN VIEW OF THE CONSTRUCTION DRAWINGS. THE EXACT DEPTH OF THESE UTILITIES IS NOT KNOWN AND THEREFORE, NO ATTEMPT HAS BEEN MADE TO SHOW SUCH UTILITIES IN THE PROFILE OF THE CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THESE UTILITIES WHICH ARE NOT WITHIN THE SPACE OCCUPIED BY COMPLETED PIPES OR STRUCTURES THAT ARE A PART OF THIS CONTRACT. DURING CONSTRUCTION, IF DAMAGED OR DESTROYED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COSTS TO REPAIR OR REPLACE THEM AT NO ADDITIONAL EXPENSE TO THE OWNER.
5. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES IN A MANNER ACCEPTABLE TO THE ENGINEER DURING THE PROPOSED CONSTRUCTION. ANY UTILITY, WHICH IS TO REMAIN IN SERVICE, THAT IS DAMAGED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACE BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
6. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AT POINTS OF POSSIBLE CONFLICT SO THAT THESE CONFLICTS CAN BE RESOLVED.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH ALL OTHER UTILITIES THAT MAY HAVE EQUIPMENT AND OR INSTALLATIONS ON SITE.
8. PROTECT TREES IN ACCORDANCE WITH ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, DIVISION I - GENERAL SPECIFICATIONS "PROTECTION OF TREES" AND STANDARD DETAIL. SEE SHEET C-115.
9. ACCESS TO THE FORCE MAIN AIR RELEASE VALVE LOCATED WITHIN THE SCHOOL PARKING AREA SHALL ONLY BE ACCESSED WITH ADVANCE APPROVAL. REQUESTS SHALL BE MADE A MINIMUM OF 3 DAYS IN ADVANCE. ALL OTHER CONTRACTOR ACCESS TO THE ANN ARBOR PUBLIC SCHOOL PROPERTY IS PROHIBITED.

SESC NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR APPLYING AND PAYING FOR THE SESC PERMIT. CONTRACTOR MAY USE THE EXISTING SITE PLAN AS A BASE AND IS RESPONSIBLE FOR ADDING OR MODIFYING TO SUIT THE NEEDS OF THEIR OPERATION.
2. CONTRACTOR SHALL INSTALL SILT FENCING ALONG THE DOWN SLOPE SIDE OF ALL EXCAVATIONS.
3. CONTRACTOR RESPONSIBLE FOR INSTALLATION AND MAINTENANCE OF ALL TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES DURING CONSTRUCTION. CONTRACTOR SHALL MAINTAIN AND KEEP IN PLACE SESC MEASURES UP TO PROJECT COMPLETION FOR USE UNDER CONTRACT NO.2. CONTRACTOR RESPONSIBLE FOR OBTAINING, EXERCISING AND PERFORMING ALL WORK IN ACCORDANCE WITH THE CONDITIONS PROVIDED BY THE ISSUER OF THE SOIL EROSION AND SEDIMENTATION CONTROL PERMIT.
4. ALL TEMPORARY SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AND VERIFIED BY THE ENGINEER PRIOR TO EARTH DISTURBANCE ACTIVITY AND CHECKED DAILY FOR EFFECTIVENESS AND REPAIRED AS NEEDED.

TRAFFIC NOTES:

1. CONTRACTOR RESPONSIBLE FOR ANY TRAFFIC CONTROL REQUIRED TO COMPLETE THE WORK IN A SAFE AND EFFICIENT MANNER. WORK INCLUDES IDENTIFYING, APPLYING FOR AND OBTAINING ROW PERMITS AND APPROVAL FOR ALL TEMPORARY LANE CLOSURES OR PARKING SPACE RESTRICTIONS THROUGH THE CITY OF ANN ARBOR.
2. CONSTRUCTION TRAFFIC TO THE WATER TREATMENT PLANT IS EXPECTED TO UTILIZE MILLER AVE TO NEWPORT RD TO SUNSET RD. CONTRACTOR MUST SUBMIT FOR APPROVAL ANY ALTERNATIVE ACCESS ROUTES.

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO.1 - SITE MODIFICATIONS

LEGEND, OVERALL SITE PLAN & NOTES

PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

C-011

Bar Measures 1 inch, otherwise drawing not to scale

SITE PLAN

SCALE: 1" = 40'

NOTES:

1. ALL LOCATIONS AND DIMENSIONS OF EXISTING FEATURES SHOWN ON THE DRAWINGS ARE APPROXIMATE. FIELD VERIFY SITE CONDITIONS AND EXISTING FEATURES PRIOR TO COMMENCING WORK.
2. PROTECT TREES AND UTILITY POLES NOT NOTED FOR REMOVAL IN ACCORDANCE WITH ANN ARBOR PUBLIC SERVICES DEPARTMENT STANDARD SPECIFICATIONS, DIVISION 1 - GENERAL SPECIFICATIONS "PROTECTION OF TREES" AND STANDARD. SEE SHEET C-115.
3. CONTRACTOR TO PRESSURE TEST THE EXISTING FORCE MAIN AFTER COMPLETION OF PIPE MODIFICATIONS IN ACCORDANCE WITH THE SPECIFICATIONS.
4. CONTRACTOR TO FLUSH AND PIG THE EXISTING FORCE MAIN AFTER COMPLETION OF PIPE PRESSURE TESTING. CONTRACTOR SHALL UTILIZE THE EXISTING STORMWATER BASIN FOR COLLECTING WATER FROM FLUSHING. THE PIG AND ALL DEBRIS FLUSHED FROM THE LINE SHALL BE CLEANED FROM THE BASIN UPON COMPLETION.
5. CONTRACTOR RESPONSIBLE FOR ALL SITE SECURITY AT THE LAGOON SITE DURING CONSTRUCTION. THE ACCESS GATE SHOULD REMAIN LOCKED AT ALL TIMES WHEN NOT BEING ACTIVELY UTILIZED. CONTRACTOR TO COORDINATE WITH CITY AND "DAISY CHAIN" THEIR LOCK WITH CITY'S LOCK FOR ACCESS DURING CONSTRUCTION.
6. CONTRACTOR SHALL PERFORM STREET SWEEPING IN HATCHER AND SAUNDERS CRESCENT AS NEEDED DURING THE PROJECT.
7. CONTRACTOR SHALL RESTORE THE SITE ONCE ALL PIPE MODIFICATIONS AND TESTING / FLUSHING IS COMPLETE.
8. UPON COMPLETION OF DREDGING OPERATION, CONTRACTOR TO FLUSH AND "PIG" FORCE MAIN WITH POLY-PIG SWAB TO CLEAN SETTLED LIME TO THE SATISFACTION OF THE OWNER.
9. PROVIDE 8 CU YD. MDOT PLAN RIP RAP TO BE FIELD LOCATED TO PROTECT BASIN SLOPE FROM EROSION DURING PIGGING AND FLUSHING OPERATIONS.

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO:1 - SITE MODIFICATIONS

LIME RESIDUAL LAGOON SITE PLAN

PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

C-111

Bar Measures 1 inch, otherwise drawing not to scale

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NOTES:

1. CONTRACTOR TO FURNISH PARTS, LABOR & EQUIPMENT TO FLUSH PIPE AND PRESSURE TEST THE EXISTING FORCE MAIN PER THE SPECIFICATIONS.
2. CONTRACTOR RESPONSIBLE FOR COORDINATING WITH WTP STAFF TO SECURE THE SITE DURING CONSTRUCTION AND MUST CONFORM TO ALL SITE SECURITY PROTOCOLS DURING CONSTRUCTION.
3. CONTRACTOR TO IDENTIFY ANY PARKING SPACES ALONG SUNSET RD THAT WILL NEED TO BE TAKEN OUT OF SERVICE IN ORDER FOR THEM TO COMPLETE THE WORK AND COORDINATE WITH THE CITY OF ANN ARBOR TO TEMPORARILY ADJUST PARKING LIMITS, INCLUDING INSTALLATION OF NO PARKING SIGNS.
4. CONTRACTOR TO SET UP PEDESTRIAN DETOUR DURING CLOSURE OF THE SIDEWALK FOR CONSTRUCTION OF THE ACCESS DRIVEWAY. POMONA, RED OAK AND VESPER ROADS SHALL BE UTILIZED. CONTRACTOR SHALL FOLLOW CITY STANDARDS FOR SIGNAGE AND PLACEMENT. ADDITIONAL SIGNAGE MAY BE NECESSARY AT SUNSET RD AND BROOKS ST. CONTRACTOR SHALL SUBMIT BOTH TRAFFIC CONTROL AND PEDESTRIAN DETOUR PLANS TO THE CITY FOR APPROVAL.
5. PLANT WATER SUPPLY AVAILABLE FROM YARD HYDRANT. COORDINATE ALL CONNECTIONS AND USAGE WITH WTP STAFF.
6. REMOVE AND SALVAGE EXISTING LIGHT POLE TO WTP STAFF FOR STORAGE. TERMINAL WIRING AT BASE OF POLE TO BE PROTECTED FOR FUTURE RE-CONNECTION.

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO:1 - SITE MODIFICATIONS
WATER TREATMENT PLANT SITE PLAN

PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

C-112

Bar Measures 1 inch, otherwise drawing not to scale

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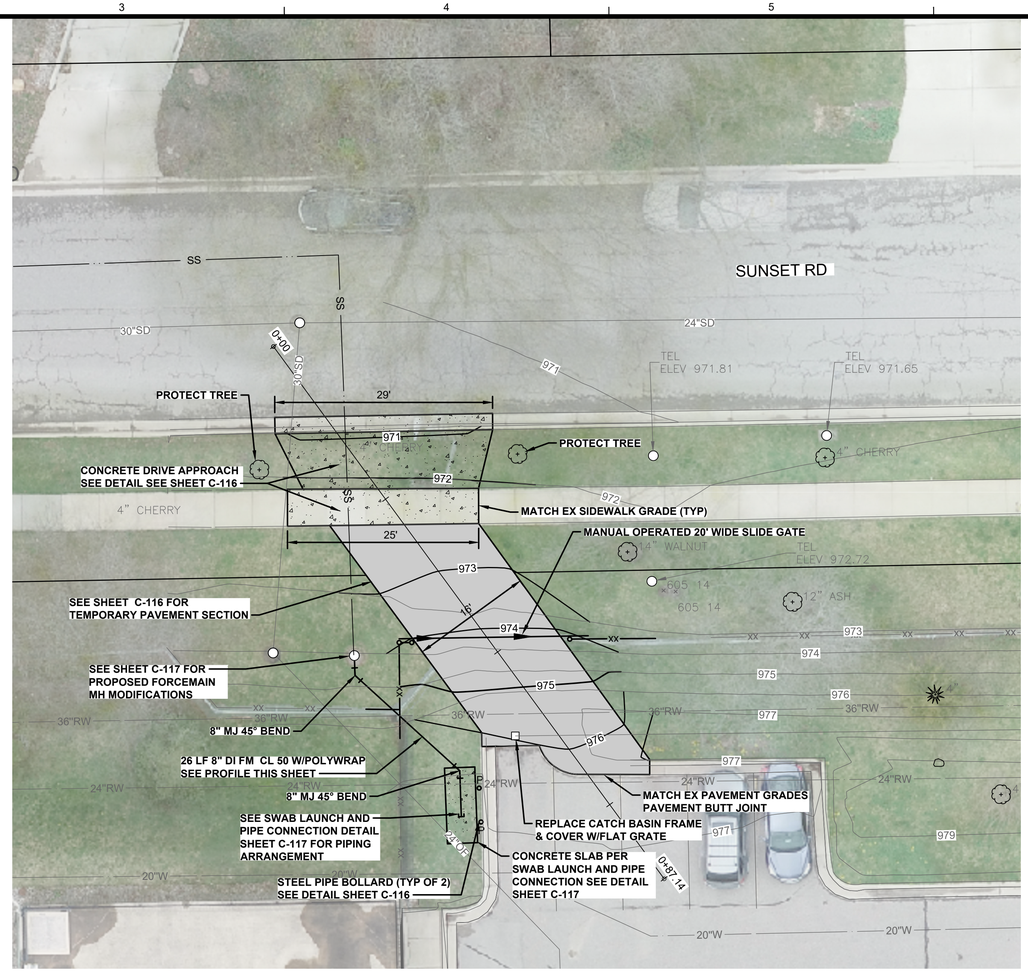
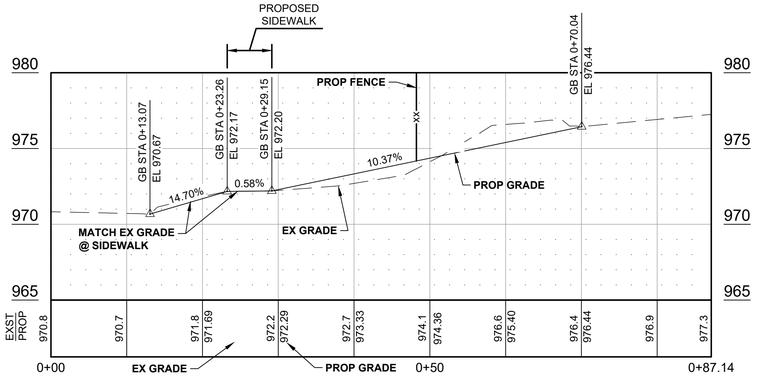


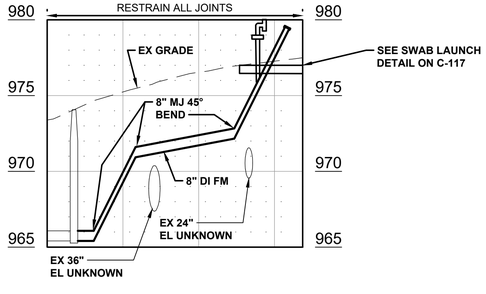
PLAN - DRIVEWAY

SCALE: 1"=10'



PROFILE - DRIVEWAY

SCALE: 1"=10'H, 1" = 5' V



PROFILE - FORCEMAIN

SCALE: 1"=10'H, 1" = 5' V

NOTE:

1. PROFILE IS ASSUMED BASED ON EXISTING UTILITY INFORMATION. CONTRACTOR TO EXPOSE ALL EXISTING PIPES TO BE CROSSED BY THE PROPOSED FORCE MAIN PRIOR TO PIPE INSTALLATION. ADDITIONAL FITTINGS MAY BE REQUIRED TO CONSTRUCT WITH PROPER CLEARANCES, AND ARE TO BE PAID FOR PER CONTRACT ALLOWANCE FOR UTILITY CONFLICTS. CONTRACT TO PROVIDE AS NEEDED.
2. UPON COMPLETION OF DREDGING OPERATION, CONTRACTOR TO FLUSH AND "PIG" FORCE MAIN WITH POLY-PIG SWAB TO CLEAN SETTLED LIME TO THE SATISFACTION OF THE OWNER.
3. ABOVE GROUND DUCTILE IRON PIPE SHALL BE POLYURETHANE COATED: APPLY 2 COATS OF A POLYAMIDE-CURED EPOXY RESIN FINISH AT 2.5 TO 3.5 DRY MILS, AND 1 FINAL COAT OF AN ALIPHATIC POLYURETHANE ENAMEL AT 2.0 TO 3.0 DRY MILS. BLACK IN COLOR.

0 5' 10' 20'
SCALE: 1" = 10'

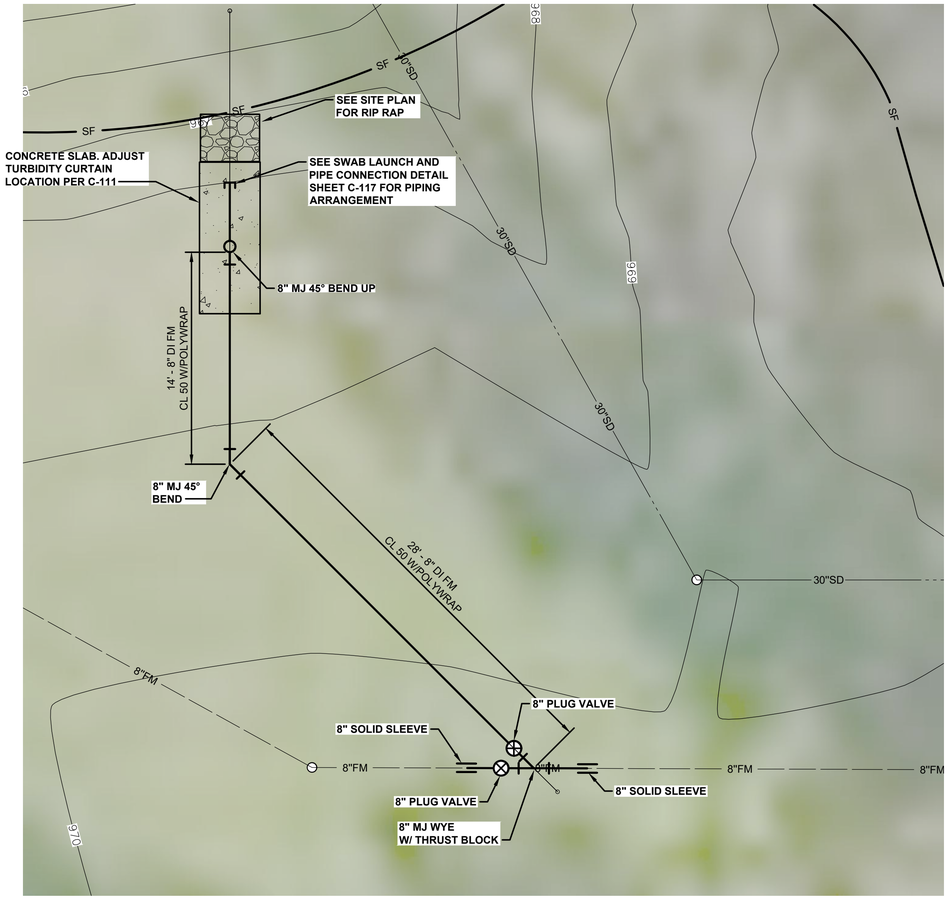
TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO:1 - SITE MODIFICATIONS
WATER TREATMENT PLANT
TEMP DRIVEWAY

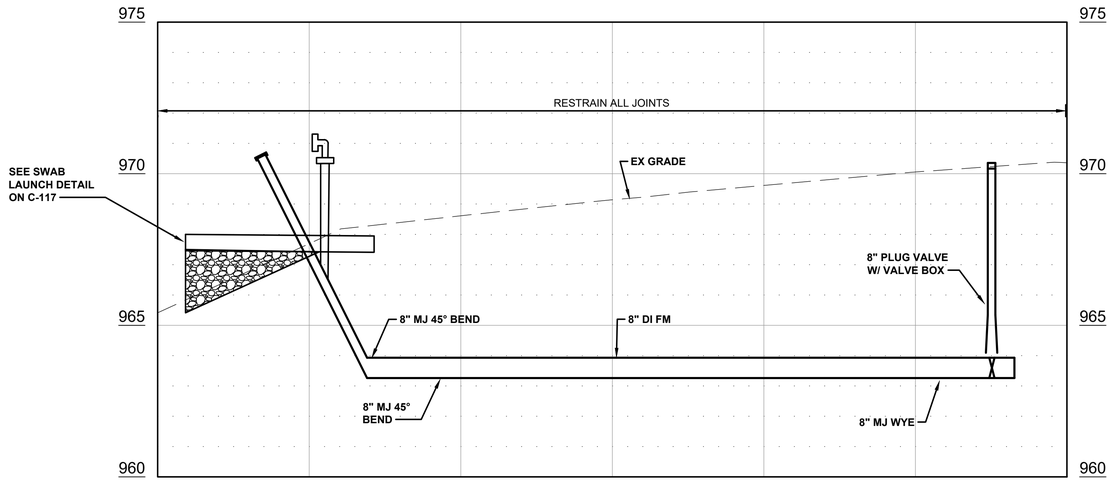
PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

C-113



1 C-114 **8" FM - PLAN**

SCALE: 1"=5'



8" FM - PROFILE

SCALE: 1" = 5' H 1" = 2.5' V

NOTES:

1. ABOVE GROUND DUCTILE IRON PIPE SHALL BE POLYURETHANE COATED: APPLY 2 COATS OF A POLYAMIDE-CURED EPOXY RESIN FINISH AT 2.5 TO 3.5 DRY MILS, AND 1 FINAL COAT OF AN ALIPHATIC POLYURETHANE ENAMEL AT 2.0 TO 3.0 DRY MILS. BLACK IN COLOR.
2. CONTRACTOR TO GRADE LOCATION FOR CONCRETE SLAB AND BACKFILL TRENCH TO NECESSARY GRADE PER THE SPECIFICATIONS.

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION

CITY OF ANN ARBOR, MI

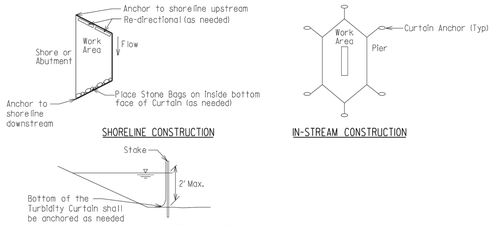
LIME RESIDUAL REMOVAL
CONTRACT NO:1 - SITE MODIFICATIONS

LAGOON FORCEMAIN PLAN AND PROFILE

PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

C-114

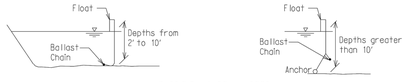
Bar Measures 1 inch, otherwise drawing not to scale



SHORELINE CONSTRUCTION

IN-STREAM CONSTRUCTION

TURBIDITY CURTAIN (SHALLOW)



TURBIDITY CURTAIN (DEEP)

Use:
A Turbidity Curtain is used when slack water area is necessary to isolate construction activities from the watercourse.

The Turbidity Curtain system shall be designed to handle site specific drainage or flow patterns.

When water is less than 2 feet deep and has low flow, Turbidity Curtain (Shallow) may be used. Curtain shall be securely fastened to stakes. Water greater than 2 feet deep or where high flow exists requires the use of Turbidity Curtain (Deep).

Installation and Maintenance:
The Turbidity Curtain shall be installed at the location shown on the plans and according to the special provision.

The Turbidity Curtain shall be placed parallel to the direction of flow and anchored upstream, downstream, and to the stream bed to maximize protection to the watercourse.

The Contractor shall maintain the Turbidity Curtain until the construction activity within the watercourse is complete or as approved by the Engineer. Retained sediment shall be removed to the maximum extent practicable prior to removing the curtain.

Optional Measures:
The Turbidity Curtain may include a re-directional barrier on the upstream end of the work area.

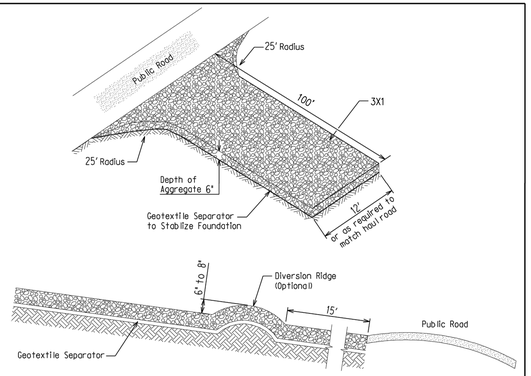
Related SESC Measures:
E & S-18 Dewatering with Filter Bag
E & S-24 Sand and Stone Bags
E & S-34 Cofferdam

Measurement and Payment:
Turbidity Curtain requires inclusion of the appropriate special provision in the contract documents. Payment includes furnishing and installing sufficient anchors, tie-downs, or other mechanisms to ensure proper position and performance of the Turbidity Curtain. Optional work shown, when installed and maintained as directed by the Engineer, will be paid using the associated contract item listed here.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Turbidity Curtain

MDOT	09-30-2005 PLAN DATE	E&S-1-A	SHEET 1 OF 1



Use:
Providing a stable Gravel Access Approach, minimizes the tracking of loose materials from the construction site onto public roadways. Coarser aggregate is more effective in reducing tracking. Any materials tracked onto public roadways shall be removed as specified in the Standard Specifications for Construction, or as directed by the Engineer.

Installation and maintenance of Gravel Access Approach is effective in reducing sediment loading to inlet protection devices.

Installation and Maintenance:
The Gravel Access Approach should be located in accordance with the plans or as directed by the Engineer.
All vegetation and other objectionable material shall be removed from the foundation area. Geotextile Separator must be placed beneath the aggregate to stabilize the foundation.

Replace or replenish aggregate if it is no longer preventing tracking.

Optional Measures:
A Gravel Access with Diversion Ridge is recommended where access grade exceeds 2%. This will also aid in dislodging soil or debris from tires.

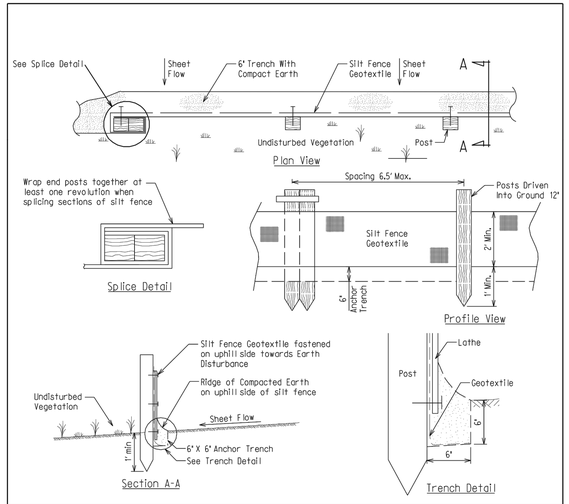
Related SESC Measures:

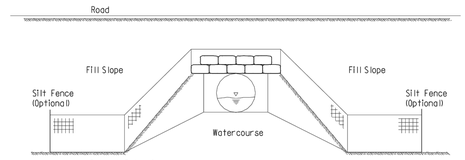
Measurement and Payment:
Optional work shown, when installed and maintained as directed by the Engineer, will be included in the item Gravel Access Approach

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Gravel Access Approach

MDOT	04-07-2006 PLAN DATE	E&S-14-A	SHEET 1 OF 1

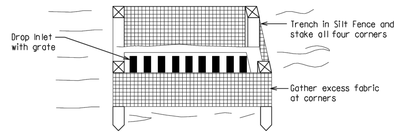




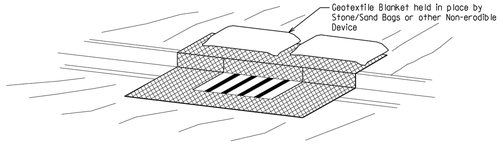
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Silt Fence

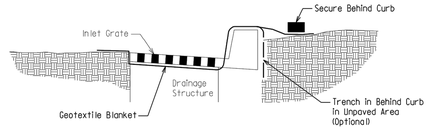
MDOT	09-30-2005 PLAN DATE	E&S-26-A	SHEET 1 OF 2



Inlet Protection in Unpaved Area



Plan View Inlet in Curb - Paved Area Behind Curb

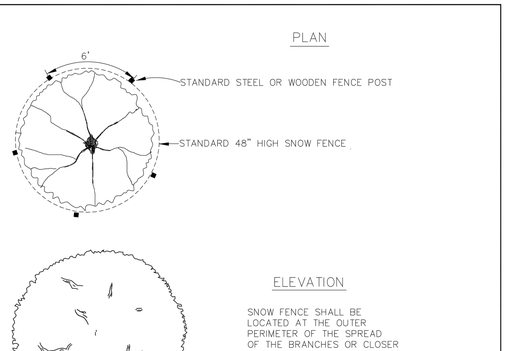


Cross Section Inlet in Curb - Paved or Unpaved Area Behind Curb

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Inlet Protection Fabric Drop

MDOT	04-07-2006 PLAN DATE	E&S-29-A	SHEET 1 OF 2



REVISIONS	REV. NO.	DR.BY	CH. BY	DATE

PUBLIC SERVICES DEPARTMENT
CITY OF ANN ARBOR

TREE PROTECTION

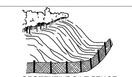
DR. BY	DF/SMJ	CH. BY	CSS	DRAWING NO.
SCALE	NONE	DATE	11-6-92	SD-M-1
INCH	0 — 1			SHEET NO. ____ OF ____

NOTES:
1. CONTRACTOR TO LEAVE SESC BMP'S IN PLACE FOR USE IN CONTRACT NO. 2.

SOIL EROSION & SEDIMENTATION CONTROL MEASURES KEY

• APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
(COMPREHENSIVE DETAILS ARE LOCATED IN SECTION 7 OF THE SOIL EROSION & SEDIMENTATION CONTROL MANUAL)

A = SLOPES
B = STREAMS AND WATERWAYS
C = SURFACE DRAINAGEWAYS
D = ENCLOSED DRAINAGE (INLET & OUTFALL CONTROL)
E = LARGE FLAT SURFACE AREAS
F = BORROW AND STOCKPILE AREAS
G = MDEQ PERMIT MAY BE REQUIRED

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
1	 TURBIDITY CURTAIN	A Turbidity Curtain is used when slack water area is necessary to isolate construction activities from the watercourse. The still water area contains the sediments within the construction limits.		•					
14	 GRAVEL ACCESS APPROACH	Provides a stable access to roadways minimizing fugitive dust and tracking of materials onto public streets and highways.					•	•	
26	 GEOTEXTILE SILT FENCE	A permeable barrier erected below disturbed areas to capture sediments from sheet flow. Can be used to divert small volumes of water to stable outlets. Ineffective as a filter and should never be placed across streams or ditches where flow is concentrated.	•				•	•	
29	 INLET PROTECTION FABRIC DROP	Provides settling and filtering of silt ladened water prior to its entry into the drainage system. Can be used in median and side ditches where vegetation will be disturbed. Allows for early use of drainage systems prior to project completion.			•		•		

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

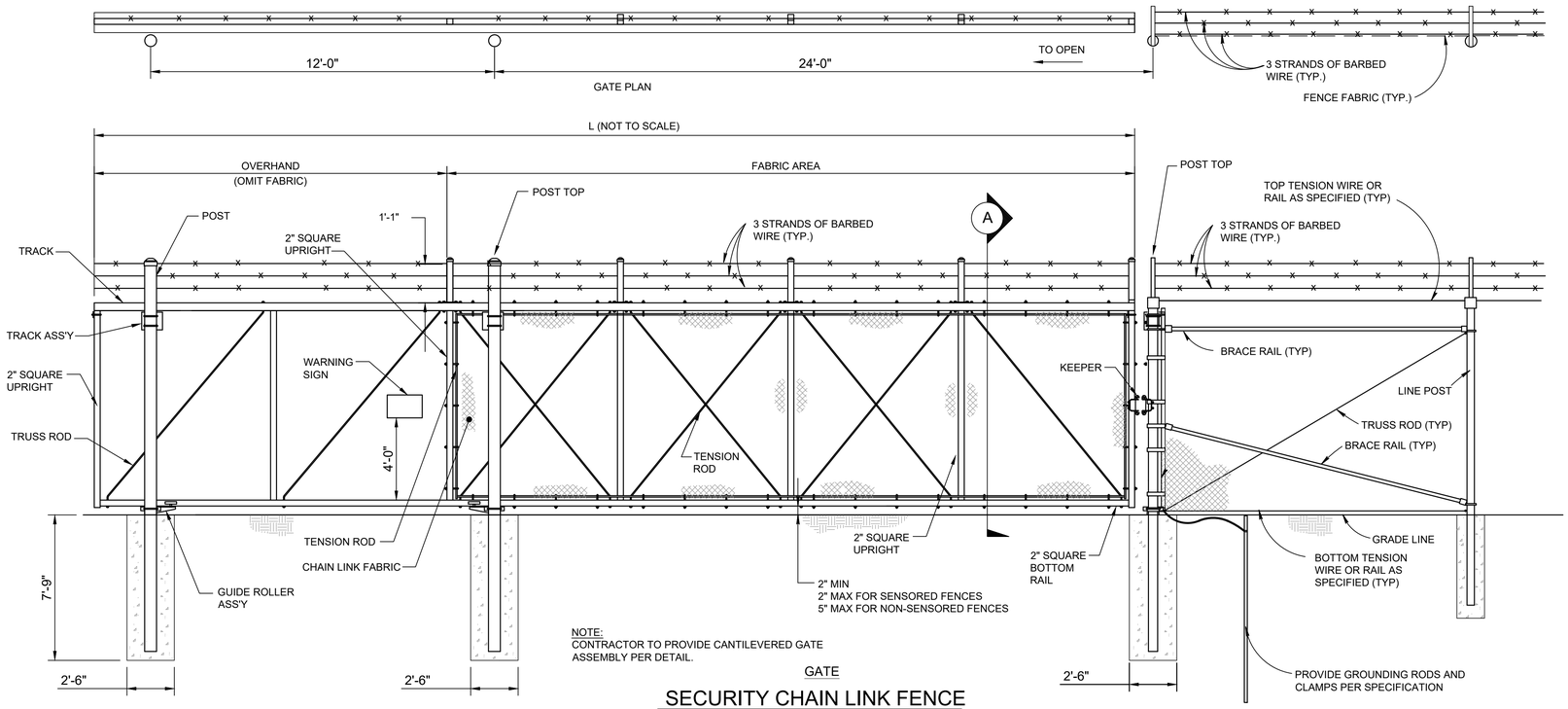
CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO:1 - SITE MODIFICATIONS

SESC & STANDARD DETAILS

PROJ: 200-31537-17002
DESN: J. SIWEK
DRWN: S. GOTHA
CHKD: B. RUBEL

C-115
Sheet

Bar Measures 1 inch, otherwise drawing not to scale

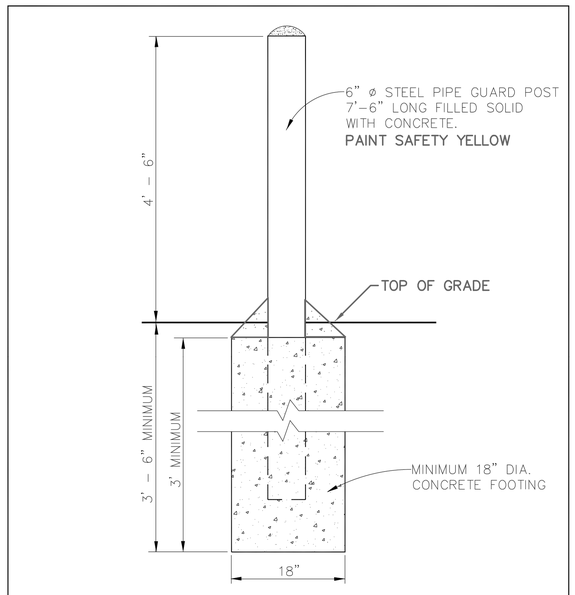


NOTE:
CONTRACTOR TO PROVIDE CANTILEVERED GATE ASSEMBLY PER DETAIL.

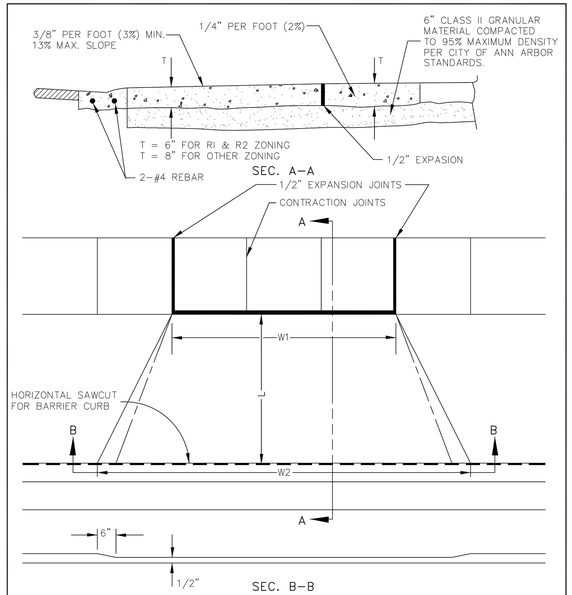
GATE

SECURITY CHAIN LINK FENCE

NO SCALE



REVISIONS	REV. NO.	DR.BY	CH. BY	DATE
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
STEEL PIPE BOLLARD				
DR. BY D.F.	CH. BY C.S.S.	DRAWING NO. SD-M-4		
SCALE NONE	DATE 9-1-93			
INCH	SHEET NO. ____ OF ____			



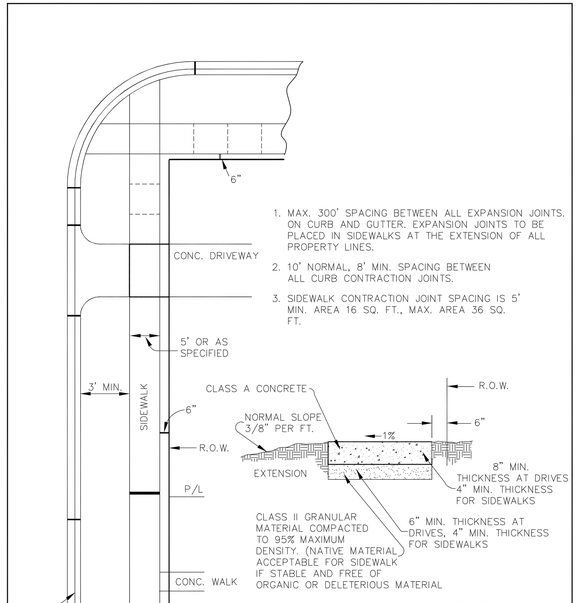
NOTE: W1 (DRIVE OPENING WIDTH) AND W2 (CURB CUT WIDTH) AS REQUIRED FOR ZONING BY CITY CODE.

MEASUREMENT OF AREA:

1/2 (W1+W2) X L = AREA

NOTE: DRIVE APPROACH TO BE CLASS 'A' CONCRETE

REVISIONS	REV. NO.	DR.BY	CH. BY	DATE
SEC. B-B; S/W GRADE	1	DPF	CSS	1-31-94
PUBLIC SERVICES DEPARTMENT CITY OF ANN ARBOR				
TYPE 'L' DRIVE APPROACH (FOR USE ON STREETS WITH BARRIER OR MOUNTABLE CURB)				
DR. BY DF/DCO	CH. BY CSS/DF	DRAWING NO. SD-R-7		
SCALE NONE	DATE 11-6-92			
INCH 0 1	SHEET NO. ____ OF ____			



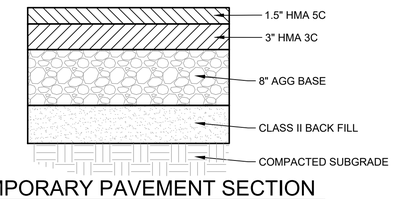
LEGEND:

CONTRACTION JOINTS ------

1/2" EXPANSION JOINTS ——

3/4" EXPANSION JOINTS ——

REVISIONS	REV. NO.	DR.BY	CH. BY	DATE
ADA COMPLIANCE REVS.	2	DPF	TB/DC/MGN	
TRANSVERSE GRADE REV.	1	NCF	CSS	1-31-94
PUBLIC SERVICES AREA CITY OF ANN ARBOR				
SIDEWALK & CURB & GUTTER JOINTS				
DR. BY DPF	CH. BY CSS	DRAWING NO. SD-R-9		
SCALE NONE	DATE 11-6-92			
INCH 0 1	SHEET NO. 1 OF 1			



TEMPORARY PAVEMENT SECTION

NO SCALE

1. THICKNESS OF CLASS II BACKFILL VARIES PER DRIVEWAY DETAIL ON SHEET C-113. MATERIAL TO BE COMPACTED TO 95% MAXIMUM DENSITY.

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

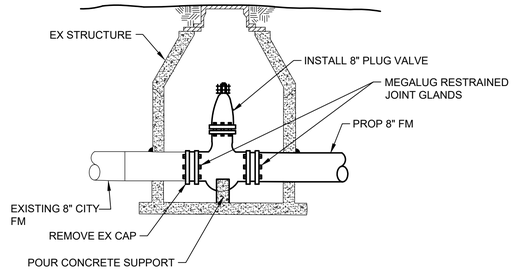
CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO.1 - SITE MODIFICATIONS

STANDARD DETAILS

PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

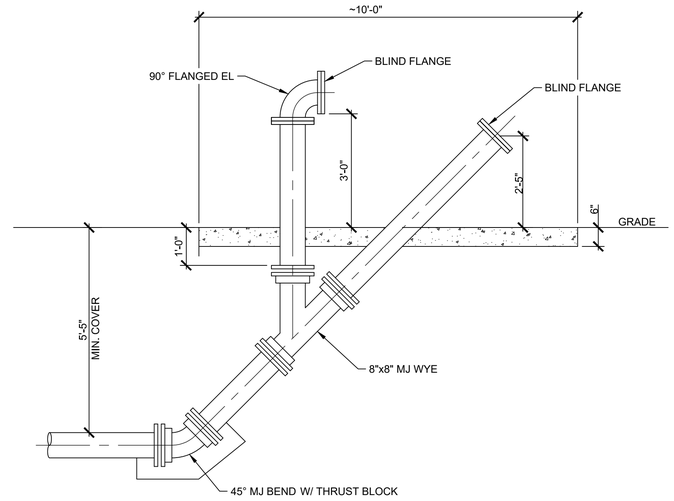
C-116
Sheet

Bar Measures 1 inch, otherwise drawing not to scale



MANHOLE MODIFICATIONS - WTP SITE

NO SCALE

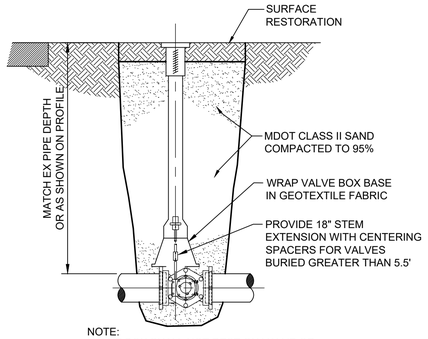


SWAB LAUNCH AND PIPE CONNECTION DETAIL

SCALE: NONE

PIGGING NOTES:

1. REMOVE CAP AND INSERT POLY-PIG SWAB.
2. REPLACE CAP AND APPROPRIATE FITTINGS FOR FLUSHING AND/OR TESTING.
3. USING PRESSURE PUMP, INSERT POLY-PIG SWAB INTO FORCE MAIN TO BE SWABBED. WHEN SWAB IS IN MAIN, STOP PUMP, MOMENTARILY, THEN BEGIN FLUSHING MAIN.
4. CONTRACTOR TO ADJUST THE ORIENTATION OF THE DISCHARGE BY REALIGNING THE 90 DEGREE BEND TO SUIT THEIR OPERATIONS. CONTRACTOR TO FURNISH ALL FITTINGS TO WORK WITH THEIR PUMPING AND TESTING EQUIPMENT. UPON COMPLETION OF THE WORK, AND ALL FLUSHING OF THE FORCE MAIN IS COMPLETE THE CONTRACTOR SHALL PUMP WATER OUT OF THE STAND PIPES TO A MINIMUM 5 FEET BELOW GRADE AND REINSTALL THE BLIND FLANGES.



PLUG VALVE AND BOX

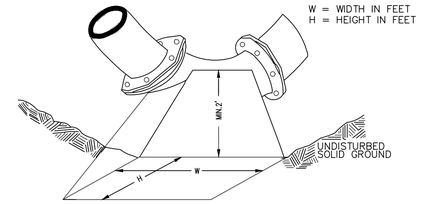
NO SCALE

MINIMUM STANDARDS

REACTION BACKING: The Class "A" concrete at the Fitting face shall extend to within (2) inches of the bell and shall extend from the fitting face a minimum of (2) feet to the UNDISTURBED SOLID GROUND. The dimensions of the reaction backing (thrust block) at the face of the undisturbed solid ground shall be as shown in the Table below. If there isn't sufficient space for the installation of the "thrust block" without interference with other services, another arrangement satisfactory to the engineer shall be used, i.e. encasement.

Fittings I.D. Inches	Plug Tee Cross		Bends								Hydrant	
			90°		45°		22 1/2°		11 1/4°			
	W	H	W	H	W	H	W	H	W	H	W	H
2.5	1	1	1	1	1	1						
4	1	1	1	1	1	1						
6	2	1.5	2	2	2	1	1	1	1	1	2	1.5
8	2.5	2	3.5	2	2	2	2	1	1	1	2.5	2
12	3.5	3	5.5	3	3.5	2.5	2	2	2	1		
16	6	3.5	6	4	5	3	3.5	2.5	2	2		
20	8	4	12	4	6	4	4	3	3	2		
24	11	4	17	4	9	4	6	4	3.5	2		
30	11	4	17	4	9	4	6	4	3.5	2		

W = WIDTH IN FEET
H = HEIGHT IN FEET



NOTE: THESE ARE MINIMUM STANDARDS. WHERE SOIL CONDITIONS DICTATE, ADJUSTMENTS IN SIZE SHALL BE MADE BY THE PUBLIC SERVICES DIRECTOR.

THRUST BLOCK

NO SCALE

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MARK	DATE	DESCRIPTION	BY

CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO:1 - SITE MODIFICATIONS

MISC DETAILS

PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

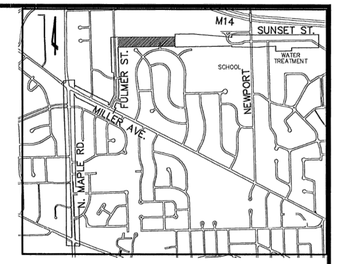
C-117
Sheet

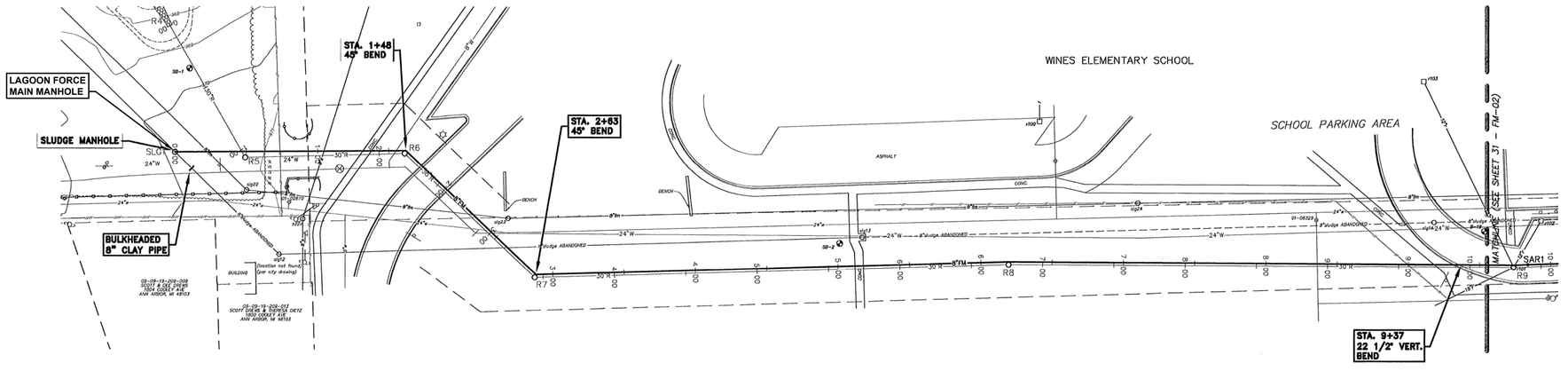
Bar Measures 1 inch, otherwise drawing not to scale

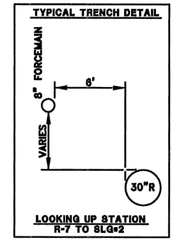
AS-BUILT WATER DRAWING
CONST. COMP. DATE 11-2008
MDEQ PERMIT No. W073126
IN SERVICE DATE (MO/YR) 12/08
CONTRACTOR E.T. MACKENZIE

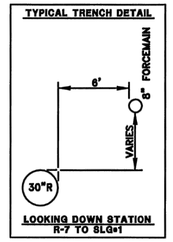
NOTE:
Data contained on this page was drawn from City records. No guarantee is made as to its accuracy or completeness.

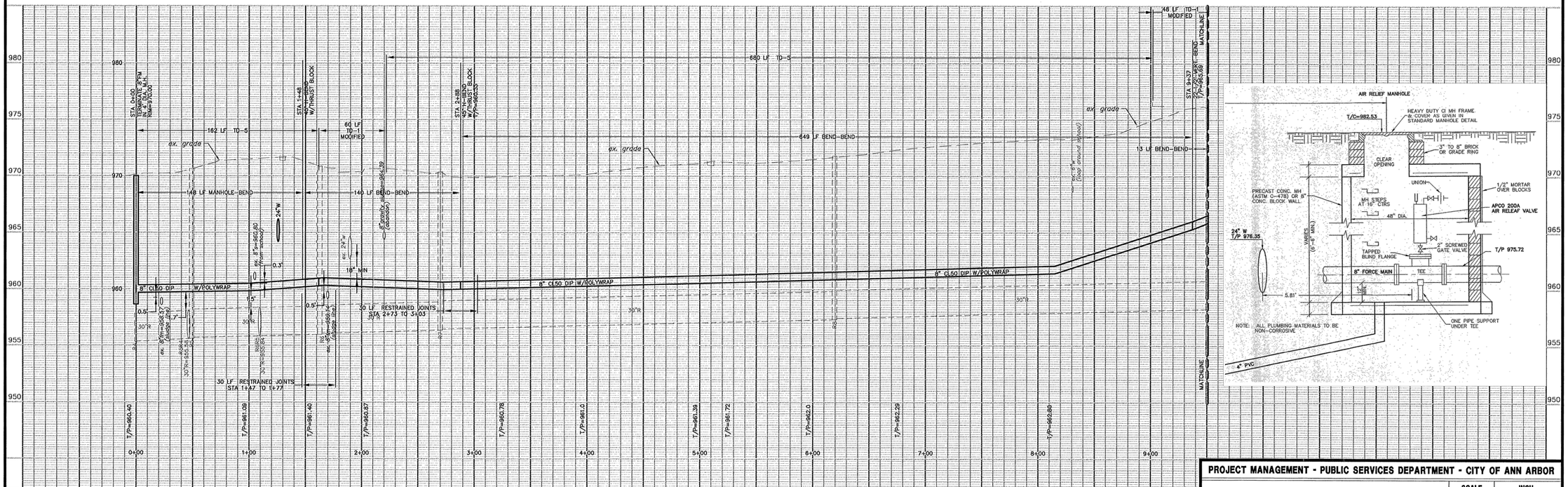
DIGITAL STATUS
SCANNED ON: 1/10
BY: BKG











LEGEND

EXISTING FENCE: CONTOUR, STORM SEWER & CAT. BAS., WATER MAIN & VALVE-IN-WELL, WATER MAIN & VALVE-IN-BOX	EXISTING SANITARY SEWER & MANHOLE: UTILITY POLE & GUY, FIRE HYDRANT ASSEMBLY, LIGHT POLE, END SECTION	EXISTING TELEPHONE: GAS LINE, CABLE T.V., ELECTRIC	EXISTING RD. & GRADE: LEFT EDGE/RD. GRADE, RIGHT EDGE/RD. GRADE, CURB & GUTTER	NEW: SANITARY SEWER & MANHOLE, STORM SEWER & CAT. BAS., WATER MAIN W/F.H. ASSEM., CONTOUR, ROAD & GRADE	NEW CURB & GUTTER; LANDMARK TREE & LABEL (BOLDER LINE THEN OTHERS)

SEE ABOVE	BOOK
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
	AS-BUILT	7-30-09	DPF	JTZ
3	CITY OF ANN ARBOR	06-24-08	JFR	SRG
1	CITY OF ANN ARBOR	12-16-07	JFR	SRG
REV	ORIGINAL ISSUE	11-30-07	RKY	SRG

PROJECT MANAGEMENT - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

MILLER/MAPLE WATER MAIN

FORCEMAIN PLAN & PROFILE OFF-ROAD STA 00+00 TO 9+00

CONSULTANT: WASHTENAW ENGINEERING COMPANY
DWG FILE: 2004041-W13
JOB NO. 30791
FILE NO. 9521

SCALE NTS
INCH 0 40'
DRAWING NO. 2004041-W13
FILE NO. 2004-041
SHEET NO. 31 OF 41

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO.1 - SITE MODIFICATIONS
8 IN FM PLAN & PROFILE
FOR INFO ONLY

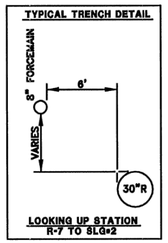
PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

C-118
Sheet

Bar Measures 1 inch, otherwise drawing not to scale

12/13/2018 11:57:00 AM - O:\PROJECTS\ANN ARBOR\IER\31537\200-31537-17002\CAD\SHEETFILES\PJ1-C-502.DWG - MELLING, VICKIE

TYPICAL TRENCH DETAIL

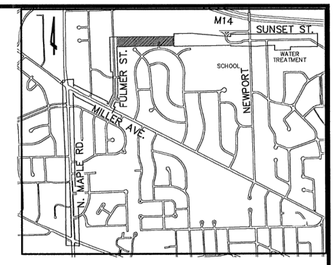


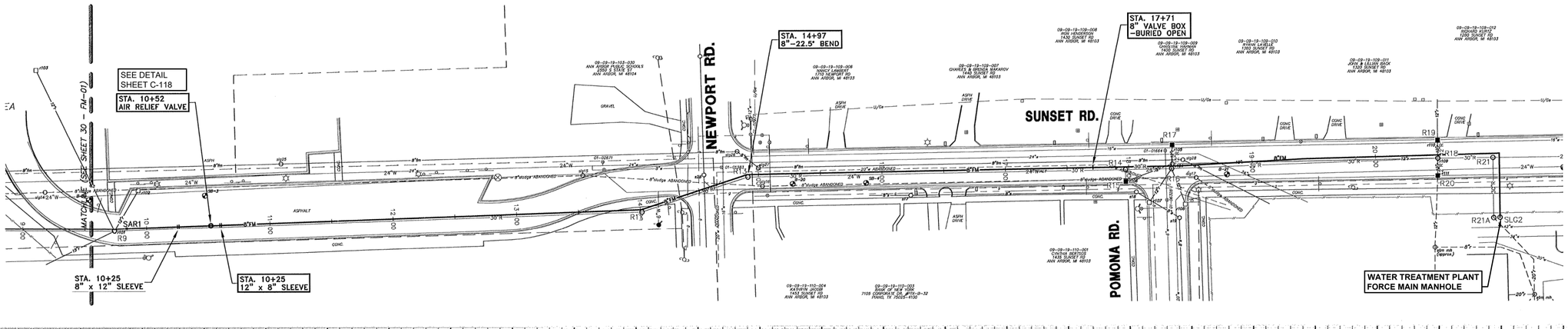
LOOKING UP STATION R-7 TO SLG#2

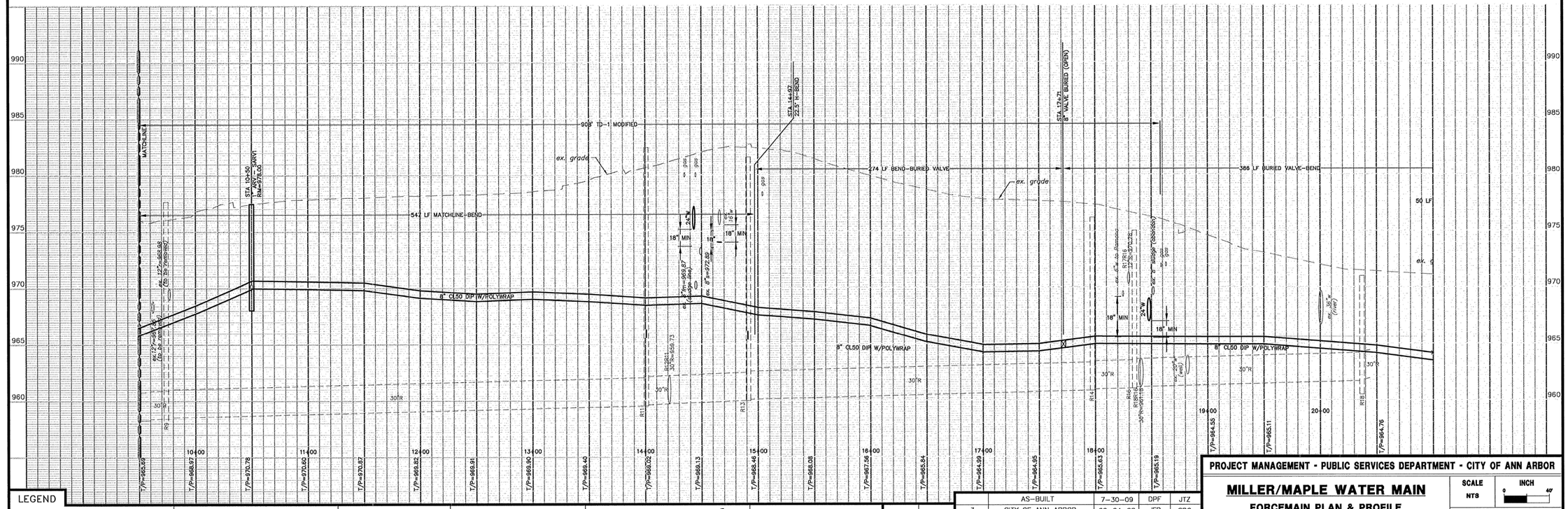
AS-BUILT WATER DRAWING
CONST. COMP. DATE 11-2008
MDEQ PERMIT No. W073126
IN SERVICE DATE (MO/YR) 12/08
CONTRACTOR E.T. MACKENZIE

NOTE:
Data contained on this page was drawn from City records. No guarantee is made as to its accuracy or completeness.

DIGITAL STATUS
SCANNED ON: 1/10
BY:







LEGEND

EXISTING FENCE		EXISTING SANITARY SEWER & MANHOLE		EXISTING TELEPHONE		EXISTING RD. & GRADE	
" CONTOUR	847	" UTILITY POLE & GUY		" GAS LINE	g	" LEFT EDGE/RD. GRADE	
" STORM SEWER & CAT. BAS.		" FIRE HYDRANT ASSEMBLY		" CABLE T.V.	tv	" RIGHT EDGE/RD. GRADE	
" WATER MAIN & VALVE-IN-WELL		" LIGHT POLE		" ELECTRIC	e	" CURB & GUTTER	
" WATER MAIN & VALVE-IN-BOX		" END SECTION					

NEW	SANITARY SEWER & MANHOLE		NEW	CURB & GUTTER	
"	STORM SEWER & CAT. BAS.			LANDMARK TREE & LABEL (BOLDER LINE THEN OTHERS)	
"	WATER MAIN W/F.H. ASSEM.				
"	CONTOUR	847			
"	ROAD ℄ GRADE				

SEE ABOVE	BOOK
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
	AS-BUILT	7-30-09	DPF	JTZ
3	CITY OF ANN ARBOR	06-24-08	JFR	SRG
1	CITY OF ANN ARBOR	12-16-07	JFR	SRG
REV	ORIGINAL ISSUE	11-30-07	RKY	SRG

PROJECT MANAGEMENT - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

MILLER/MAPLE WATER MAIN

FORCEMAIN PLAN & PROFILE
SCHOOL DRIVEWAY & SUNSET ROAD
STA 09+50 TO 20+34

CONSULTANT: WASHTENAW ENGINEERING COMPANY
DWG FILE: 2004041-W14
JOB NO. 30791
FILE NO. 9521

SCALE NTS
INCH 0 40'
DRAWING NO. 2004041-W14
FILE NO. 2004-041
SHEET NO. 32 OF 41

TETRA TECH
www.tetratech.com

MARK	DATE	DESCRIPTION	BY

CITY OF ANN ARBOR, MI
LIME RESIDUAL REMOVAL
CONTRACT NO:1 - SITE MODIFICATIONS
8 IN FM PLAN & PROFILE
FOR INFO ONLY

PROJ:	200-31537-17002
DESN:	J. SIWEK
DRWN:	S. GOTHA
CHKD:	B. RUBEL

C-119
Sheet

Copyright: Tetra Tech

12/13/2018 11:58:33 AM - O:\PROJECTS\ANN ARBOR\VER31537\200-31537-17002\CAD\SHEETFILES\PJ1-C-502.DWG - MELLING, VICKIE

Bar Measures 1 inch, otherwise drawing not to scale