

## ADDENDUM No. 1

### ITB No. 4669 - 2021 MISCELLANEOUS UTILITIES PROJECT

#### Updated Bid Due Date and Time: APRIL 15, 2021 at 10:00 AM (Local Time)

The information contained herein shall take precedence over the original documents and all previous addenda (if any) and is appended thereto. **This Addendum includes one hundred forty-four (144) pages.**

**Bidder is to acknowledge receipt of this Addendum No. 1, including all attachments (if any) in its Bid by so indicating on page ITB-1 of the Invitation to Bid Form. Bids submitted without acknowledgment of receipt of this addendum may be considered nonconforming.**

The following forms provided within the ITB document must be included in submitted bids:

- City of Ann Arbor Prevailing Wage Declaration of Compliance
- City of Ann Arbor Living Wage Ordinance Declaration of Compliance
- Vendor Conflict of Interest Disclosure Form
- City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance

**Bids that fail to provide these forms listed above upon bid opening may be rejected as non-responsive and may not be considered for award.**

#### I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the Bid document which are outlined below are referenced to a page or Section in which they appear conspicuously. The Bidder is to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

<b><u>Section/Page(s)</u></b>	<b><u>Change</u></b>
As provided in ITB No. 4669 Bid Document:	As updated/replaced herein Addendum 1:
All mentions	Bid Due Date and Time in ITB Document: Friday, April 9, 2021 at 2:00pm (local time)  As updated herein: Thursday, April 15, 2021 at 10:00am (local time)
Notice of Pre-Bid Conference	Pre-Bid Conference Summary added: Pages Addendum1-NP-2 to Addendum1-NP-3.
Bid Forms/ BF-1 to BF-6	Bid Form – Schedule of Prices, Pages Addendum1-BF-1 to Addendum1-BF-5. Pay Items revised: <ul style="list-style-type: none"><li>• New 210 “Remove and Salvage Modular Block Wall”</li><li>• 213 renamed “HMA Pavement Removal” and units revised</li></ul>

<b><u>Section/Page(s)</u></b> As provided in ITB No. 4669 Bid Document:	<b><u>Change</u></b> As updated/replaced herein Addendum 1:
Bid Forms/ BF-1 thru BF-6	Pay Items revised (continued): <ul style="list-style-type: none"> <li>• New 214 “Concrete Base Course Removal”</li> <li>• 215 quantity revised per revised Detailed Specification (DS)</li> <li>• 223-226 renumbered to 225-228</li> <li>• 227-228 renumbered to 223-224</li> <li>• New 229 “Reinstall Modular Block Wall”</li> <li>• Duplicate 234 renumbered to 236</li> <li>• 235-239 renumbered to 238-242</li> <li>• New 235 “HMA Pavement Leveling/Top 4E3”</li> <li>• New 237 “HMA Pavement Base 3E3”</li> <li>• New 243 “Concrete Base Course, Nonrein”</li> <li>• New 244 “HMA Temporary Pavement”</li> <li>• 240 renumbered 245</li> <li>• 241 “Conc. Curb (HE)” eliminated per revised DS 250 (formerly DS 246)</li> <li>• 242 renumbered to 246; revised quantity per new 250</li> <li>• 243-244 renumbered to 247-248</li> <li>• 245 renumbered to 249; revised quantity and units</li> <li>• New 250 “Integral Sidewalk Rolled Curb”</li> <li>• 246-247 renumbered to 251-252</li> <li>• 250-251 renumbered to 253-254</li> <li>• 252 renumbered to 256</li> <li>• 253 renumbered to 255</li> <li>• 254 renumbered to 258</li> <li>• 255 renumbered to 257; Duplicate 255 renumbered to 259</li> <li>• 256-258 renumbered to 260-262</li> <li>• 260-273 renumbered to 263-276</li> <li>• 284 renumbered to 430</li> <li>• 295 renumbered to 315</li> <li>• 322 revised quantity per new 323 and 324</li> <li>• New 323 “24-inch Storm, Trench II (2)”</li> <li>• New 324 “24-inch Storm, Trench VII (7)”</li> <li>• 323 renumbered to 325</li> <li>• 330 and 566 combined and renumbered to 290</li> <li>• 340 renamed “Dr Inlet Structure, 24-inch dia”</li> <li>• 341 “Dr Structure, 36-inch dia” eliminated per 0 quantity</li> <li>• 342 renumbered to 341 and renamed “Dr Inlet Junction Structure, 48-inch dia” and revised quantity</li> <li>• 343 renumbered to 342 “Dr Inlet Junction Structure, 60-inch dia” and 343 “Dr Manhole Structure, 60-inch dia”</li> <li>• 344 renamed “Dr Manhole Structure, 72-inch dia”</li> <li>• 345 renumbered to 345 “Dr Manhole Structure, 84-inch dia” and 346 “Dr Manhole Structure over Existing, 84-inch dia”</li> <li>• 346 “Dr Structure, 96-inch dia” eliminated per 0 quantity</li> <li>• 360 “Type I Manhole, 60-inch dia” eliminated per 0 quantity</li> <li>• 366 “Inlet-Junction Chamber” eliminated per 0 quantity</li> <li>• 367 “Single Inlet” eliminated per 0 quantity</li> </ul>

<b>Section/Page(s)</b> As provided in ITB No. 4669 Bid Document:	<b>Change</b> As updated/replaced herein Addendum 1:
Bid Forms/ BF-1 to BF-6	Pay Items revised (continued): <ul style="list-style-type: none"> <li>• 401 revised quantity per new 402 and 403</li> <li>• New 402 "8-inch Class 50 DIP w/ poly, Trench IV (4)"New 403 "8-inch Class 50 DIP w/ poly, Trench VI (6)"</li> <li>• 402-403 renumbered to 404-405New 406 "16-inch Class 50 DIP w/ poly, Trench VI (6)"</li> <li>• New 418 "12"x12"x12" Tee"</li> <li>• 420 added quantity</li> <li>• New 422 "12"x12"x8" Tee"</li> <li>• 440 revised quantity</li> <li>• 442 revised quantity</li> <li>• New 443 "16inch Gate Valve in Box"</li> <li>• New 445 "Pressure Reducing Valve"</li> <li>• 450 renamed "60" x 120" Conc Vault (PRV)</li> <li>• 563 renumbered 292</li> <li>• 566 renumbered to 290 (as mentioned above in combination with 330)</li> <li>• 567 renumbered to 291</li> <li>• New 701 "Erosion Control, Trench Drain Inlet Filter"</li> <li>• New 702 "Erosion Control, Inlet Protection"</li> <li>• New 703 "Erosion Control, Silt Fence"</li> </ul>
Detailed Specifications/ Pages DS-1 to DS-3	Pages Addendum1-DS-1 to Addendum1-DS-3; to reflect updated scheduling at Crest at W. Huron and Newport/Bird Roads locations.
Detailed Specifications/ Pages DS-50 to DS-51	Pages Addendum1-DS-4 to Addendum1-DS-6; to specify new Pay Item #210.
Detailed Specifications/ Pages DS-52 to DS-53	Pages Addendum1-DS-7 to Addendum1-DS-8; to reflect revised Pay Item #213 and new Pay Item #214.
Detailed Specifications/ Pages DS-54 to DS-55	Pages Addendum1-DS-9 to Addendum1-DS-10; to reflect eliminated Pay Item #214 Sidewalk Grading and revised Pay Item #215.
Detailed Specifications	Pages Addendum1-DS-11; Pay Item #220 specification.
Detailed Specifications/ Pages DS-58 to DS-59	Pages Addendum1-DS-12 to Addendum1-DS-13; to reflect revised Pay Items #221 and #222, and to specify renumbered Pay Items #223 and #224.
Detailed Specifications/ Page DS-60	Page Addendum1-DS-14; to reflect renumbered Water Main Line Stop Pay Items #225 to #228.
Detailed Specifications/ Pages DS-61 to DS-63	Pages Addendum1-DS-15 to Addendum1-DS-17; to specify new Pay Item #229 and reflect revised Pay Item #230.

<b><u>Section/Page(s)</u></b>	<b><u>Change</u></b>
As provided in ITB No. 4669 Bid Document:	As updated/replaced herein Addendum 1:
Detailed Specifications/ Pages DS-67 to DS-69	Pages Addendum1-DS-18 to Addendum1-DS-21; to specify new Pay Items #235, #237, and #243; and to reflect renumbered HMA Pay Items #234 to #243.
Detailed Specifications/ Pages DS-70 to DS-73	Pages Addendum1-DS-22 to Addendum1-DS-25; to specify new Pay Items #244 and #250; to reflect renumbered and revised concrete Pay Items #244 to #251.
Detailed Specifications/ Pages DS-74 to DS-75	Pages Addendum1-DS-26 to Addendum1-DS-27; to reflect renumbering.
Detailed Specifications/ Page DS-76	Page Addendum1-DS-28; to reflect renumbered Pavement Marking Pay Items #253 to #262.
Detailed Specifications/ Pages DS-77 to DS-79	Pages Addendum1-DS-29 to Addendum1-DS-31; to reflect renumbered Temporary Traffic Control Pay Items #263 to #276.
Detailed Specifications/ Pages DS-77 to DS-79	Pages Addendum1-DS-32 to Addendum1-DS-33; to specify, and reflect renumbering of, Structure Adjustment Pay Items #290 to #291, and Structure Cover Pay Item #292.
Detailed Specifications/ Pages DS-91 to DS-92	Pages Addendum1-DS-34 to Addendum1-DS-35; to reflect renumbering.
Detailed Specifications/ Page DS-88	Page Addendum1-DS-36; to reflect renumbering.
Detailed Specifications	Pages Addendum1-DS-37 to DS-38; Pay Item #445 specification.
Detailed Specifications	Page Addendum1-DS-39; Pay Item #450 specification.
Detailed Specifications	Page Addendum1-DS-40; to specify new Pay Items #701, #702, and #703.
Appendix	Pages Addendum1-Apdx-66 to Addendum1-Apdx-68 Geotechnical Boring Logs from Crest with location map
Appendix	Pages Addendum1-Apdx-69 to Addendum1-Apdx-70 Huron Street Design Sheets provided by MDOT
Appendix	Pages Addendum1-Apdx-71 to Addendum1-Apdx-78 Wage Decision MI20210074
Appendix	Pages Addendum1-Apdx-79 to Addendum1-Apdx-84 W. Liberty St. Sanitary Sewer Televising Reports
Appendix	Pages Addendum1-Apdx-85 to Addendum1-Apdx-91 MDOT ADA Compliant Sidewalk Ramp Details R-28-J



<b><u>Section/Page(s)</u></b>	<b><u>Change</u></b>
As provided in ITB No. 4669 Bid Document:	As updated/replaced herein Addendum 1:
Appendix	Pages Addendum1-Apdx-92 to Addendum1-Apdx-95 Standard Casting Schedule and Structure Cover Details
Drawings/1	Revised Sheet List Table
Drawings/4, 6, 7	Added limits of machine grading
Drawings/9	Sheet 9 added trench details 2, 4, and 6
Drawings	New sheet 10 – Pressure Reducing Vault plan and section views New sheet 11 – Pressure Reducing Vault details
Drawings/24	(Renumbered Sheet 26) – Added trench detail call-outs, TD-II & VI, to profile
Drawings/27	(Renumbered Sheet 29) – Size of PRV vault changed to 10x5
Drawings	New sheets 37 and 38 – Flipped MOT for Liberty <ol style="list-style-type: none"> <li>1. Sheets 44 &amp; 45 - Added GVIW's and removed GVIB's</li> <li>2. Sheet 46 – work zone quantities</li> <li>3. Sheet 54 – Added GVIW, removed GVIB and changed trench detail call-out</li> </ol>
Drawings/40, 41	(Renumbered Sheets 44, 45) - Added GVIW's and removed GVIB's
Drawings/42	(Renumbered Sheet 46) - Work zone quantities
Drawings/50	(Renumbered Sheet 54) Sheet 54 – Added GVIW, removed GVIB and changed trench detail call-out

## II. QUESTIONS AND ANSWERS

The following Questions have been received by the City. Responses are being provided in accordance with the terms of the ITB. Bidders are directed to take note in their review of the documents of the following questions and City responses as they affect work or details in other areas not specifically referenced here.

Question 1: What is the Engineer's Estimate for this project?

Answer 1: \$2,175,000.

Question 2: Is testing by the Owner?

Answer 2: Yes, testing to be performed by City's consultant.

Question 3: Is layout by the Owner?

Answer 3: Yes, staking to be provided by City's Surveyor.

- Question 4: Do you know if the City will be performing inspection, or will inspection be by a third-party engineering firm?  
Answer 4: Inspection is expected to be provided by City staff.
- Question 5: Can you please provide the wage decision that will be used for the project?  
Answer 5: The wage decision information, General Decision Number: MI20210074 01/01/2021, is included in Addendum No. 1.
- Question 6: It appears that there are missing quantities for Pay Item 341, 346, 360, 366, 367 and 420.  
Answer 6: Quantities and Pay Items have been clarified on the Bid Form.
- Question 7: It appears that Pay Items 414 and 418 are duplicates.  
Answer 7: Duplicate Pay Items have been eliminated.
- Question 8: No soil erosion control pay items are included. In lieu of lumping this into "General Conditions", can these items be added to the bid form.  
Answer 8: Pay Items 701 thru 703 have been added for soil erosion control pay items.
- Question 9: Please detail how the AREA for "Machine Grading" will be calculated. The specifications are silent as to how the transverse / longitudinal limits are to be determined.  
Answer 9: Machine grading limits are calculated to the edge of the 1:1 slope outside of road grading as indicated in the street proposed typical sections on Sheets 4 thru 7. Additional clarification has been added to the Machine Grading specification section.
- Question 10: Will the required removals associated with the "Temporary Water Main Line Stop" pay item(s) be paid for separately, or are they incidental to the Line Stop pay item?  
Answer 10: Pavement removal and/or machine grading will be paid for separately.
- Question 11: There is no SP for pay items 228 [Abandon Vault (PRV)] and 450 [72" x 96" Conc Vault (PRV)]. In addition, plan details are very limited and the scope of work for these items is not well defined. Please provide additional information as necessary.  
Answer 11: An "Abandon Vault (PRV)" detailed specification has been added and renumbered 224. A "60" x 120" Concrete Vault (PRV)" detailed specification has been added.
- Question 12: The proposed duration for the Newport Road/Bird Road section of work is not possible with the specified water main testing requirements and requested scope of work. Please revise the required duration for this area.  
Answer 12: The proposed duration has been revised.
- Question 13: The proposed duration for the Crest Avenue/West Huron Street section of work is not possible with the specified water main testing requirements and requested scope of work. Please revise the required duration for this area.  
Answer 13: The proposed duration has been revised.
- Question 14: I do not see a MOT plan for the north side (westbound) West Liberty Street construction. I assume that the provided MOT plan will be flip flopped to maintain eastbound traffic when this work is taking place, correct?  
Are the long side water services and transverse water main items that cross West Liberty Street to be performed under traffic, or built part width to the construction limits during a "phase"? Please advise.

Answer 14: West Liberty Street MOT plans have been added for maintaining eastbound traffic on the south side of West Liberty Street.

Question 15: Although the specifications state that the aggregate materials must meet City Specifications, will the City consider a waiver for the uniformity coefficient (CLII sand) and loss by wash requirement (21AA LS) for these materials (assuming that they would still meet the MDOT specifications)?

Answer 15: The CLII sand and 21AA limestone will need to meet MDOT specifications, but the City's uniformity coefficient and loss by wash requirements, respectively will be waived.

Question 16: Are any lead or galvanized water services anticipated to be encountered on this project?

If so, what procedure(s) will be followed to remedy the deficient material?

Who is responsible for replacing the services past the curb stop (if required)?

Answer 16: It is anticipated that Public Works will have replaced any lead or galvanized water services on record by the time this project begins. However, should any lead or galvanized water services be encountered during construction, the Public Works Department should be notified immediately to remedy deficient material. The contractor could be requested to provide additional services paid for as "Excavate & Backfill for Water Service Tap and Lead". Services past the curb stop, as necessary, will be installed separate from this contract.

Question 17: Has the existing sanitary sewer been televised?

If so, please provide the inspection results with the locations of the lead connections for evaluation.

Answer 17: The existing sanitary sewer on West Liberty Street have been televised. The reports have been included in this addendum.

Question 18: What is the approximate age of the existing water main?

Answer 18: The City's records indicate the following installation years:

6-inch W. Liberty St. 1910

12-inch W. Liberty St. (Crest to Eberwhite) 1970

12-inch W. Liberty St. (Eberwhite to S. Seveth) 1950

6-inch Crest 1940

12-inch Crest Uncertain and 1970

Question 19: There are 2 bid items as number 255.

Answer 19: The bid items have been renumbered for clarification.

Question 20: There are 2 bid items called 8x6 Reducer (414 and 418)

Answer 20: Duplicate bid items have been eliminated.

Question 21: There are no bid items for 16" GVIB and 12x12x12 Tee.

Answer 21: Additional bid items have been added.

Bidders are responsible for any conclusions that they may draw from the information contained in the Addendum.

**Pre-Bid Meeting Summary for the  
2021 Miscellaneous Utilities Project**  
**March 24, 2021 @ 1:30 p.m. via Microsoft Teams**

I. Introductions & Recording

*The City's meeting facilitator and project manager on this project, Theresa Bridges, (herein "the City") called the Pre-Bid Conference to order at 1:40 p.m. and asked for introductions of all in attendance:*

- *Theresa Bridges, City of Ann Arbor Project Manager*
- *Chris Carson, City of Ann Arbor Project Civil Engineer*
- *Dave Fiegel, City of Ann Arbor Civil Engineering Specialist*
- *John Niemiec, E.T. Mackenzie*

*Due to technical difficulties, virtual meeting could not be recorded.*

II. Project Overview

a. N. Main Street Storm Sewer

*Objective is to reroute storm sewer. Currently storm sewer alignment is under buildings at 1251 N. Main and 1254 N. Main.*

i. Accessibility

- *Contractor's responsibility to maintain accessibility to Bandemer Park.*
- *Accessibility to 1250 N. Main Street has not been addressed with owner. Currently employees are generally working from home. Temporary parking for employees could be provided at Bandemer Park if owner is amenable.*

ii. Lake Shore Drive (Private)

- *Lake Shore Drive is not R.O.W.*
- *South half of Drive has easement for storm sewer work (and access). North half of drive has access easement and shall to be restored as necessary from damage incidental to project construction/access.*

iii. MDOT – Parks – 1251 N. Main, 1254 N. Main, 1250 N. Main, Railroad

- *Stake holders in the area.*
  - a. *MDOT for N. Main Street.*
  - b. *Parks for land north of 1251 N. Main and west of N. Main Street.*
  - c. *1251 N. Main Street. Potential redevelopment site. Blanket easement for storm sewer.*
  - d. *1254 N. Main Street, owned by First Martin. Do not have construction easement.*
  - e. *1250 N. Main Street, owned by Peter Allen. Blanket easement for storm sewer.*
  - f. *Railroad. Do not have Permit to Enter!*

iv. Utility Conflicts

- *Pole in Lake Shore Drive currently being relocated.*
- *Water service to 1254 N. Main Street in conflict and contractor to relocate.*

v. Storm sewers (including manholes) shall be cleaned and televised before final acceptance

b. Newport / Bird Pressure Reducing Valve Installation

*Objective is to install new pressure reducing valve and abandon existing.*

i. Detour and Accessibility

- *Detour plan provided. Option for contractor to keep one lane open on the north side of Bird with flagging.*

ii. Valve and Vault Purchase

- *Valve and Vault to be provided by contractor. Specifications to be provided in Addendum.*

- c. W. Liberty and Crest
  - i. Detour and Accessibility
  - ii. Water Main – Installation and Testing
    - HMA removal for trench / storm replacements
    - Crest milling HMA prior to HMA placement
    - Water laterals tap by DPW and galvanized/lead replaced by DPW
  - iii. Sanitary leads when conflicts exist.
  - iv. Storm and sanitary sewers (including manholes) shall be cleaned (and televised if new) before final acceptance
  - v. Sidewalk and ADA Ramps – ADA compliance MUST be achieved at all locations.
- d. Standard Specifications and Detailed Specifications
  - i. Project Schedule
    - Starting Date – May 17 insurance /contracts/bonds. City Council Award date will be May 3, 2021.
    - N. Main - June-July OR Sept-Oct
    - Newport / Bird – Complete by September 3 (Schedule being reviewed)
    - W. Liberty & Crest – Complete by Nov. 1
    - Huron / Crest – Complete by August 14 (Schedule being reviewed)
    - Hours of work: 7:00 a.m. to 8:00 p.m. Monday thru Saturday (Saturdays require notification; Sundays only with permission)
    - Holidays
  - ii. Engineer’s estimate - \$2.2M
  - iii. General Conditions
    - Street sweeping & dust control
    - Maintenance gravel
    - Maintaining drainage
  - iv. Access to driveways - Contractor responsible for maintaining access to driveways during construction, and notifying residents when access will be unavailable (i.e. during water main installation, during paving, concrete work)
- e. Certified Payroll Compliance – using Davis Bacon Wage Decision. Submit payroll weekly, see form at back of ITB.
  - *Wage Decision to be provided in Addendum.*

III. Addendum #1 – will include the following

- a. Pre-Bid minutes, including Sign-in Sheet
- b. Updated Plan Sheets
- c. Updated Bid Form: Pay Items and Quantities
- d. Additional and Updated Specifications
- e. Required Wage Decision
- f. Question and Answers
  - i. Question Deadline is Monday, March 29, 2021 5:00pm in writing to [tbridges@a2gov.org](mailto:tbridges@a2gov.org) and [cspencer@a2gov.org](mailto:cspencer@a2gov.org)

Contact Information:

**Theresa Bridges, Project Manager**

**Phone: (734) 794-6410 ext. 43672**

**E-mail: [tbridges@a2gov.org](mailto:tbridges@a2gov.org)**

## BID FORM

### SCHEDULE OF PRICES

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
130	Protective Fencing	FT	300	\$	\$
140	Exploratory Excavation (0-10' deep)	EA	8	\$	\$
201	Project Supervision, Max \$40,000.00	LS	1	\$	\$
202	General Conditions, Max. \$60,000.00	LS	1	\$	\$
203	Digital Audio Visual Coverage	LS	1	\$	\$
204	Minor Traffic Devices, Max \$50,000.00	LS	1	\$	\$
205	Clean-Up & Restoration, Special, Max \$15,000	LS	1	\$	\$
206	"No Parking" Signs	EA	50	\$	\$
207	Certified Payroll Compliance and Reporting	LS	1	\$	\$
208	Allowance for Unforeseen Site Conditions	DLR	50000	\$	\$ 50,000
210	Remove and Salvage Modular Block Wall	SFT	15	\$	\$
211	Remove Concrete Curb or Curb and Gutter - Any Type	FT	1380	\$	\$
212	Remove Concrete Sidewalk and Drive - Any Thickness	SFT	3800	\$	\$
212	Cold Milling HMA Surfce	SYD	150	\$	\$
213	HMA Pavement Removal, Any Depth	SYD	6900	\$	\$
214	Concrete Subsurface Pavement Removal, Any Depth	SYD	5500	\$	\$
215	Sidewalk Ramp Grading	EA	4	\$	\$
216	Sewer, Any Size or Depth, Remove	FT	303	\$	\$
217	Drainage Structure, Any Size or Depth, Remove	EA	8	\$	\$
218	Additional Depth Structure Adjust/Repair	FT	20	\$	\$
220	Remove Sanitary Sewer Lead	FT	200	\$	\$
221	Water Main Pipe Abandonment, Modified	LS	1	\$	\$
222	Fire Hydrant Assembly Abandonment	EA	2	\$	\$
223	Abandon Gate Well	EA	12	\$	\$
224	Abandon Vault (PRV)	EA	1	\$	\$
225	Temporary Water Main Line Stop, Additional Rental Day	EA	2	\$	\$
226	Temporary Water Main Line Stop, Less than 8 inch	EA	6	\$	\$
227	Temporary 8 inch or 12 inch Water Main Line Stop	EA	4	\$	\$
228	Temporary 16 inch Water Main Line Stop	EA	4	\$	\$
TOTAL THIS PAGE (BF-1) (Also to be entered on BF-5)				\$	

## BID FORM

### SCHEDULE OF PRICES

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
229	Reinstall Modular Block Wall	SFT	15	\$	\$
230	Machine Grading, Modified	SYD	6300	\$	\$
231	Subgrade Undercutting - Type II	CYD	250	\$	\$
232	Sand Subbase Course, Class II - C.I.P.	CYD	2045	\$	\$
233	21AA Limestone, C.I.P.	CYD	100	\$	\$
234	Aggregate Base Course, 21AA - C.I.P.	TON	3400	\$	\$
235	HMA Pavement Leveling/Top Course 4E3	TON	30	\$	\$
236	HMA Pavement Leveling/Top Course 4E1	TON	1500	\$	\$
237	HMA Pavement Base 3E3	TON	30	\$	\$
238	HMA Pavement Base 2C	TON	145	\$	\$
239	HMA Pavement Base 3C	TON	580	\$	\$
240	HMA Pavement Leveling/Top – LVSP	TON	1725	\$	\$
241	HMA Approach	TON	170	\$	\$
242	HMA Hand Patching	TON	20	\$	\$
243	HMA Temporary Pavement	TON	50	\$	\$
244	Concrete Base Course, Nonreinf	CYD	20	\$	\$
245	Concrete Curb or Curb and Gutter - All Types	FT	1400	\$	\$
246	4 Inch Concrete Sidewalk	SFT	2800	\$	\$
247	6 Inch Concrete Sidewalk Ramp	SFT	140	\$	\$
248	6 Inch Concrete Drive or Sidewalk - High Early	SFT	103	\$	\$
249	4-inch integral sidewalk/curb	SFT	985	\$	\$
250	4-inch integral sidewalk/rolled curb	SFT	193	\$	\$
251	Driveway Opening, Conc, Detail M - High Early	FT	140	\$	\$
252	Detectable Warning, Cast In Place	SFT	160	\$	\$
253	Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	FT	780	\$	\$
254	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	FT	100	\$	\$
255	Pavt Mrkg, Polyurea, Lt Turn Arrow Sym	EA	1	\$	\$
256	Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Bike	EA	4	\$	\$
257	Pavt Mrkg, Ovly Cold Plastic, Bike, Small Sym	EA	4	\$	\$
258	Pavt Mrkg, Ovly Cold Plastic, Sharrow Symbol	EA	3	\$	\$
TOTAL THIS PAGE (BF-2) (Also to be entered on BF-5)				\$	

## BID FORM

### SCHEDULE OF PRICES

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
259	Pavt Mrkg, Polyurea, 4 inch, White	FT	250	\$	\$
260	Pavt Mrkg, Polyurea, 4 inch, Yellow	FT	2420	\$	\$
261	Pavt Mrkg, Polyurea, 6 inch, White	FT	1830	\$	\$
262	Recessing Pavt Mrkg, Longit	FT	4500	\$	\$
263	Pavt Mrg Cover, Type R, Black	FT	2260	\$	\$
264	Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp	FT	4655	\$	\$
265	Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp	FT	6190	\$	\$
266	Pavt Mrkg, Wet Reflective, Type R, Tape, 6 inch Crosswalk	FT	80	\$	\$
267	Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch Stop Bar	FT	10	\$	\$
268	Lighted Arrow Board, Furnish and Operate	EA	6	\$	\$
269	Sign, Portable Changeable Message, Furnish and Operate	EA	8	\$	\$
270	Plastic Drum - Lighted, Furnish and Operate	EA	478	\$	\$
271	Barricade Type III - Lighted, Furnish and Operate	EA	36	\$	\$
272	Temporary Sign, Type B, Furnish and Operate	SFT	1865.5	\$	\$
273	Temporary Sign, Type B, Furnish and Operate, Special	SFT	200	\$	\$
274	Channelizing Device, 42 Inch, Furnish and Operate	EA	200	\$	\$
275	Pedestrian Type II Barricade, Temp	EA	200	\$	\$
276	Sign Cover	EA	25	\$	\$
277	Temporary Pedestrian Ramp	EA	20	\$	\$
278	Temporary Pedestrian Mat	EA	20	\$	\$
279	Audible Message Device	EA	10	\$	\$
280	Fertilizer, Chemical Nutrient, CI A	LBS	9	\$	\$
281	Mulch Blanket, High Velocity	SYD	1233	\$	\$
282	Seeding, Mixture THM	LBS	11	\$	\$
283	Topsoil Surface, Furn, 4 inch	SYD	1233	\$	\$ 10,000
285	Underground Sprinkling Systems, Restore	DLR	10000	\$	\$
290	Adjust Structure Cover	EA	24	\$	\$
291	Adjust Monument Box or Gate Valve Box	EA	4	\$	\$
292	Structure Covers	LBS	11800	\$	\$
TOTAL THIS PAGE (BF-3) (Also to be entered on BF-5)				\$	



## BID FORM

### SCHEDULE OF PRICES

Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
315	6-Inch Wrapped Underdrain	FT	500	\$	\$
320	12" CL IV RCP Storm Sewer Pipe, Trench Detail I	FT	135	\$	\$
321	18" CL IV RCP Storm Sewer Pipe, Trench Detail I	FT	17	\$	\$
322	24" CL IV RCP Storm Sewer Pipe, Trench Detail I	FT	15	\$	\$
323	24" CL IV RCP Storm Sewer Pipe, Trench Detail II (2)	FT	85	\$	\$
324	24" CL IV RCP Storm Sewer Pipe, Trench Detail VII (7)	FT	148	\$	\$
325	36" CL IV RCP Storm Sewer Pipe, Trench Detail I	FT	425	\$	\$
326	Sewer Tap, 12 inch	EA	5	\$	\$
327	Sewer Tap, 24 inch	EA	2	\$	\$
331	Dr Structure Cover, Type K	EA	14	\$	\$
340	Dr Inlet Structure, 24 inch dia	EA	5	\$	\$
341	Dr Inlet Junction Structure, 48 inch dia	EA	1	\$	\$
342	Dr Inlet Junction Structure, 60 inch dia	EA	1	\$	\$
343	Dr Manhole Structure, 60 inch dia	EA	1	\$	\$
344	Dr Manhole Structure, 72 inch dia	EA	1	\$	\$
345	Dr Manhole Structure, 84 inch dia	EA	2	\$	\$
346	Dr Manhole Structure Over Existing, 84 inch dia	EA	1	\$	\$
347	Dr Structure, Adj, Add Depth	FT	10	\$	\$
353	4 inch SDR 35 PVC Sanitary Lead, Trench Detail I	FT	100	\$	\$
354	6 inch SDR 35 PVC Sanitary Lead, Trench Detail I	FT	100	\$	\$
400	6 inch Class 50 DIP w/polywrap, Trench Detail I	FT	20	\$	\$
401	8 inch Class 50 DIP w/polywrap, Trench Detail I	FT	2070	\$	\$
402	8 inch Class 50 DIP w/polywrap, Trench Detail IV (4)	FT	70	\$	\$
403	8 inch Class 50 DIP w/polywrap, Trench Detail VI (6)	FT	33	\$	\$
404	12 inch Class 50 DIP w/polywrap, Trench Detail I	FT	1505	\$	\$
405	16 inch Class 50 DIP w/polywrap, Trench Detail I	FT	20	\$	\$
406	16 inch Class 50 DIP w/polywrap, Trench Detail VI (6)	FT	15	\$	\$
410	8" 11.25° Bend	EA	12	\$	\$
411	8" 22.5° Bend	EA	22	\$	\$
412	8" 45° Bend	EA	17	\$	\$
TOTAL THIS PAGE (BF-4) (Also to be entered on BF-5)				\$	\$

**BID FORM**

**SCHEDULE OF PRICES**

<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Estimated Quantity</b>	<b>Unit Price</b>	<b>Total Price</b>
413	8" 90° Bend	EA	4	\$	\$
414	8" x 6" Reducer	EA	7	\$	\$
415	12" 11.25° Bend	EA	3	\$	\$
416	12" 22.5° Bend	EA	16	\$	\$
417	12" 90° Bend	EA	2	\$	\$
418	12" x 12" x 12" Tee	EA	1	\$	\$
419	8" x 8" x 8" Tee	EA	4	\$	\$
420	16" x 16" x 8" Tee	EA	4	\$	\$
421	16" x 8" Reducer	EA	12	\$	\$
422	12" x 12" x 8" Tee	EA	1	\$	\$
430	Fire Hydrant Assembly	EA	3	\$	\$
440	8" Gate Valve-in-Box	EA	8	\$	\$
441	12" Gate Valve-in Box	EA	1	\$	\$
442	8" Gate Valve-in Well	EA	5	\$	\$
442	12" Gate Valve-in Well	EA	2	\$	\$
443	16" Gate Valve-in Box	EA	1	\$	\$
445	Pressre Reducing Valve	EA	1	\$	\$
450	60" x 120" Conc Vault (PRV)	EA	1	\$	\$
460	Excavate & Backfill for Water Service Tap and Lead	FT	1030	\$	\$
701	Erosion Control, Trench Drain Inlet Filter	EA	1	\$	\$
702	Erosion Control, Inlet Protection	EA	20	\$	\$
703	Erosion Control, Silt Fence	FT	250	\$	\$
	TOTAL THIS PAGE (BF-5) (Also to be entered below)			\$	
	TOTAL FROM PAGE BF-1			\$	
	TOTAL FROM PAGE BF-2			\$	
	TOTAL FROM PAGE BF-3			\$	
	TOTAL FROM PAGE BF-4			\$	
	TOTAL FROM PAGE BF-5			\$	
	<b>TOTAL BASE BID</b>			<b>\$</b>	

**DETAILED SPECIFICATION  
FOR  
PROJECT SCHEDULE AND PAYMENT**

Page 1 of 3

The entire work under this Contract shall be completed in accordance with, and subject to, the scheduling requirements as outlined below, and all other requirements of the Contract Documents.

1. By no later than the **Pre-Construction Meeting** the Contractor shall submit a detailed schedule of work for the Engineer's review and approval. The proposed schedule must fully comply with the scheduling requirements contained in this Detailed Specification. The Contractor shall update the approved work schedule each week and present it to the Engineer at the weekly progress meeting.
2. It is anticipated the Contractor will be authorized by City Council on May, 3, 2021. The contract will be sent to the contractor at least two weeks prior to the council Award, by April 19, 2021. The Contractor shall properly execute the Contract and return, with the required Bonds and Insurance Certificate, to the City **on or before May 4, 2021**.
3. The Contractor shall begin the work of this project upon receipt of the fully executed Contract and Notice to Proceed, anticipated by **May 17, 2021**. Appropriate time extensions shall be granted if the Notice to Proceed is delayed beyond this date. The Pre-Construction Meeting will be held the week of May 3, 2021.
4. This contract requires sewer or water main work at four separate locations, and shall be completed within timeframes listed below:
  - 1) W. Liberty Street and Crest Avenue – Work at this location consists of the installation of new water main, pavement resurfacing, and associated work. The work at this location shall commence upon Notice to Proceed, anticipated to be **May 17, 2021** and shall be completed by **November 1, 2021**, or within **one hundred ten (168) consecutive calendar days**. The entire work at this location as required by this Contract, includes, but is not limited to water main installation, chlorinating, pressure testing, and flushing; transfer of the water service leads; installation of storm water structures and sewer; pavement cold milling, the installation of new sidewalk and sidewalk ramps, permanent placement of hot mix asphalt and/or concrete, the restoration of all disturbed areas; and the removal of any and all traffic control devices.
  - 2) N. Main Street – Work at this location consists of the installation of new storm sewer and associated work. The utility work at this location, including all appurtenances, shall be completed within **thirty (30) consecutive calendar days** from commencing at this location. The entire work at this location as required by this Contract, including the stabilization of all disturbed areas and the removal of any and all traffic control devices shall be completed within **forty-five (45) consecutive calendar days** after commencing with the utility work at this location. The contractor shall choose one of the two following timeframes:
    - Commence **June 1, 2021** and complete by **July 14, 2021**; Or
    - Commence **September 7, 2021** and complete by **October 22, 2021**.
  - 3) Crest Avenue at W. Huron Street - Work at this location consists of the installation of new water main and associated work.
    - The work at this location shall commence no earlier than **July 19, 2021**.
    - Within twenty (20) calendar days from the time of commencing, the Contractor must complete the following tasks: install, swab, chlorinate, pressure test, and flush the new water main pipe. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor \$500 in “Liquidated Damages”, and not as a penalty, for each and every calendar

**DETAILED SPECIFICATION  
FOR  
PROJECT SCHEDULE AND PAYMENT**

Page 2 of 3

day beyond the allowed number of calendar days to complete the above specified work.

- After completion of all work outlined above (install, swab, chlorinate, pressure test, and flush the new water main pipe), the Contractor must successfully complete all the required bacteriological testing and place the new water main into service.
- All remaining work at this location shall be completed **by September 1, 2021** including, but not limited to the restoration of all disturbed areas, permanent placement of hot mix asphalt and concrete, and the removal of any and all traffic control devices. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor \$500 in “Liquidated Damages”, and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work

4) Newport/Bird Roads – Work at this consists of the installation of a new water pressure reducing valve and associated work.

- The work at this location shall commence no earlier than **July 6, 2021**.
- Within thirty (30) calendar days from the time of commencing, the Contractor must complete the following tasks: install, swab, chlorinate, pressure test, and flush the new water main pipe. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor \$500 in “Liquidated Damages”, and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work.
- After completion of all work outlined above (install, swab, chlorinate, pressure test, and flush the new water main pipe), the Contractor must successfully complete all the required bacteriological testing and place the new water main into service.
- All remaining work at this location shall be completed **by August 14, 2021** including, but not limited to the restoration of all disturbed areas, permanent placement of hot mix asphalt, and the removal of any and all traffic control devices. Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor \$500 in “Liquidated Damages”, and not as a penalty, for each and every calendar day beyond the allowed number of calendar days to complete the above specified work
- Should extensions be granted, the area shall be passable for the Dexter-Ann Arbor Run the River event at no additional cost to the City.

5. **Work day, hour, and other work restrictions imposed by the City of Ann Arbor.**

Contractor operations shall be limited by local municipality work time, noise, and dust ordinance:

- Monday – Friday: 7am-8pm
- Saturday: 7am-8pm; Notice given to City of Ann Arbor no less than 48 hours and no more than 5 days
- Sunday: only with approval from the City of Ann Arbor
- No work shall be performed during Holiday weekends as follows, unless approved by the Engineer:
  - Memorial Day, from 3:00 pm Friday, May 28 through 7:00 am Tuesday, June 1, 2021
  - Fourth of July, from 3:00 pm Friday, July 2 through 7:00 am Tuesday, July 6, 2021
  - Labor Day, from 8:00 pm Friday, September 3 through 7:00 am Tuesday, September 7, 2021

**DETAILED SPECIFICATION  
FOR  
PROJECT SCHEDULE AND PAYMENT**

Page 3 of 3

- No work shall be performed during University of Michigan home football games:
  - September 4, 2021
  - September 11, 2021
  - September 18, 2021
  - September 25, 2021
  - October 16, 2021
  - November 6, 2021

Time is of the essence in the performance of the work of this contract. The Contractor is expected to mobilize sufficient personnel and equipment and work throughout all authorized hours to complete the project by the final completion date. Should the Contractor demonstrate that they must work on some Sundays in order to maintain the project schedule, they may do so between the hours of 9:00 a.m. and 5:00 p.m. with prior approval from the City. There will be no additional compensation due to the Contractor for work performed on Sundays.

The Engineer may delay or stop the work due to threatening weather conditions. The Contractor shall not be compensated for unused materials or downtime due to rain, or the threat of rain. The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the rain.

The Contractor shall not work in the dark except as approved by the Engineer and only when lighting for night work is provided as detailed elsewhere in this contract. The Engineer may stop the work or may require the Contractor to defer certain work to another day, if, in the Engineer's opinion, the work cannot be completed within the remaining daylight hours, or if inadequate daylight is present to either properly perform or inspect the work. The Contractor will not be compensated for unused materials or downtime, when delays or work stoppages are directed by the Engineer for darkness and/or inadequate remaining daylight reasons. The Contractor is solely responsible for repairing all damages to the work and to the site, including road infrastructures, road subgrades, and any adjacent properties, which are caused as a result of working in the dark.

Costs for the Contractor to organize, coordinate, and schedule all of the work of the project, will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions, Max \$\_\_\_\_"

Failure to complete all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **\$500.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the times for each sub-phase, as required by this Detailed Specification.

Liquidated Damages will be assessed until the required work is completed in the current construction season. If, with the Engineer's approval, work is extended beyond seasonal limitations, the assessment of Liquidated Damages will be discontinued until the work is resumed in the following construction season.

**DETAILED SPECIFICATION  
FOR  
ITEM #210 – REMOVE AND SALVAGE MODULAR BLOCK WALL  
ITEM #211 - REMOVE CONCRETE CURB OR CURB & GUTTER – ANY TYPE  
ITEM #212 – REMOVE CONCRETE SIDEWALK AND DRIVE – ANY THICKNESS**

Page 1 of 3

**DESCRIPTION**

This work shall consist of removing and salvaging modular block wall; removing concrete curb, gutter, curb and gutter, integral curb, sidewalk, sidewalk ramps, drive openings, and drives as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, in accordance with Section 204 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

**CONSTRUCTION METHOD**

**The Contractor shall remove concrete curb, gutter, curb & gutter, integral curb, sidewalk, sidewalk ramps, drive openings, and drives, all regardless of the type and thickness, and all as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.**

The Contractor shall remove and salvage the modular retaining wall for reinstallation upon final grading and restoration. Neatly stack and protect the blocks until such time.

Prior to the start of removals, the Engineer and Contractor together shall field measure all removals.

The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide City of Ann Arbor Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches as shown on the Plans, as directed by the Engineer, and as marked for removal. The Contractor shall cut steel reinforcement bars as directed by the Engineer at all areas of removal.

The Contractor shall remove, salvage, deliver to W. R. Wheeler Service Center (4251 Stone School Road, Ann Arbor, MI 48108), and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall excavate, cut, remove stumps, remove brush, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact granular material as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

**The Contractor shall coordinate with the Urban Forestry and Natural Resources Planning Coordinator prior to the removal of any tree roots 2 inches or larger in size.**

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

The Contractor shall re-shape, re-grade, and re-compact the existing roadbed materials to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer. The use of each specific piece of equipment is subject to the approval of the Engineer.

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as either the Item of Work: "21AA Limestone - C.I.P.", "Aggregate Base Course, 21AA - C.I.P." or

**DETAILED SPECIFICATION  
FOR  
ITEM #210 – REMOVE AND SALVAGE MODULAR BLOCK WALL  
ITEM #211 - REMOVE CONCRETE CURB OR CURB & GUTTER – ANY TYPE  
ITEM #212 – REMOVE CONCRETE SIDEWALK AND DRIVE – ANY THICKNESS**

Page 2 of 3

"Sand Subbase Course, CL II - C.I.P.". Where the Engineer directs such materials to be removed, they will not be paid for separately, but shall be included in the appropriate concrete removal item.

Where existing concrete curb & gutter is to be replaced on a street with a concrete (or brick) base, the Engineer may direct the Contractor to remove a 1-to-2-foot wide, full-depth section of pavement and pavement base from immediately in front of the curb & gutter. As part of this pavement/base removal, the Contractor shall perform additional (double) full-depth saw-cutting along the entire removal limits, and shall take sufficient care so as not to damage and/or disturb any adjacent pavement, pavement base, and/or any other site feature, all as directed by the Engineer. The removals shall be to a sufficient width and depth to allow for the placement and removal of the curb & gutter formwork. After the removal of the formwork, the Contractor shall replace the concrete base to its original thickness and elevation(s).

Excavated/removal areas shall be adequately protected with barricades or fencing at all times.

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

Subbase or subgrade removed without authorization by the Engineer shall be replaced and compacted by the Contractor at the Contractor's expense, with materials specified by the Engineer.

The Contractor shall restore all disturbed areas to better than or equal to their original condition. This includes the placement and compaction of 4 inches of topsoil, followed by placement of grass seed, followed by the placement fertilizer and mulch blanket at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. All restoration work and materials shall be in accordance with the Detailed Specifications "Clean-up & Restoration, Special", "Fertilizer, Chemical Nutrient, Cl A", "Mulch Blanket, High Velocity", "Seeding Mixture THM", and "Topsoil Surface, Furn, 4 inch."

**MEASUREMENT AND PAYMENT**

Payment for "Remove and Salvage Modular Block Wall" shall be measured and paid for face area square foot.

Sidewalk ramp removal shall be measured and paid for as "Remove Concrete Sidewalk and Drive - Any Thickness".

Payment for saw cutting to create or modify Type M openings, and to allow for the partial removal of existing drives shall be included in the price of the item of work, "Remove Concrete Curb - Any Type", and will not be paid for separately.

All saw-cutting required for removals shall be included in the appropriate item of work, and will not be paid for separately.

Restoration work, including backfilling and compacting will not be paid for separately, but shall be included in the appropriate associated items of work.

**DETAILED SPECIFICATION  
FOR  
ITEM #210 – REMOVE AND SALVAGE MODULAR BLOCK WALL  
ITEM #211 - REMOVE CONCRETE CURB OR CURB & GUTTER – ANY TYPE  
ITEM #212 – REMOVE CONCRETE SIDEWALK AND DRIVE – ANY THICKNESS**

Page 3 of 3

Concrete removal items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<u><b>PAY ITEM</b></u>	<u><b>PAY UNIT</b></u>
Remove and Salvage Modular Block Wall	Square Feet
Remove Concrete Curb or Curb and Gutter - Any Type	Foot
Remove Concrete Sidewalk and Drive - Any Thickness	Square Feet

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.



**DETAILED SPECIFICATION  
FOR  
ITEM #213 HMA PAVEMENT SURFACE REMOVAL, ANY DEPTH  
ITEM #214 CONCRETE BASE COURSE REMOVAL, ANY DEPTH**

Page 1 of 2

**DESCRIPTION**

This work includes removal of pavement in accordance with as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, in accordance with Section 204 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, and as directed by the Engineer.

**CONSTRUCTION METHOD**

**The Contractor shall remove HMA pavement and concrete base course, all regardless of the thickness, and all as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.**

Prior to the start of removals, the Engineer and Contractor together shall field measure all removals.

The Contractor shall perform full-depth saw cutting at removal limits, as shown on the Plans, as directed by the Engineer, and as marked for removal.

Butt joints are included in the pay item "HMA Pavement Surface Removal".

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

The Contractor shall re-shape, re-grade, and re-compact the existing driveway base materials to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as directed by the Engineer. The use of each specific piece of equipment is subject to the approval of the Engineer.

The Engineer may direct aggregate base materials to be either removed from or added to the job-site, to properly complete the work. Where the Engineer directs the addition of such materials, they shall be paid for as either the Item of Work: "21AA Limestone - C.I.P.", "Aggregate Base Course, 21AA - C.I.P." or "Sand Subbase Course, CL II - C.I.P.". Where the Engineer directs such materials to be removed, it will be paid with "Subgrade Undercutting = Type II."

Excavated/removal areas shall be adequately protected with barricades or fencing at all times.

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

Subbase or subgrade removed without authorization by the Engineer shall be replaced and compacted by the Contractor at the Contractor's expense, with materials specified by the Engineer.

The Contractor shall restore all disturbed areas to better than or equal to their original condition. This includes the placement and compaction of 4 inches of topsoil, followed by placement of grass seed, followed by the placement fertilizer and mulch blanket at all turf restoration locations. All restoration work and materials shall be in accordance with the Detailed Specifications "Clean-up & Restoration, Special", "Fertilizer, Chemical Nutrient, Cl A", "Mulch Blanket, High Velocity", "Seeding Mixture THM", and "Topsoil Surface, Furn, 4 inch."

**DETAILED SPECIFICATION  
FOR  
ITEM #213 HMA PAVEMENT SURFACE REMOVAL, ANY DEPTH  
ITEM #214 CONCRETE BASE COURSE REMOVAL, ANY DEPTH**

Page 2 of 2

**MEASUREMENT AND PAYMENT**

All saw-cutting to establish a neat line required for removals shall be included in the appropriate item of work, and will not be paid for separately.

Finish work, including backfilling and compacting will not be paid for separately, but shall be included in the appropriate associated items of work.

HMA Pavement Surface Removal and Concrete Base Course Removal items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<b><u>PAY ITEM</u></b>	<b><u>PAY UNIT</u></b>
HMA Pavement Surface Removal, Any Depth	Square Yard
Concrete Base Course Removal, Any Depth	Square Yard

The unit prices for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification and disposal of the HMA and concrete materials.

**DETAILED SPECIFICATION  
FOR  
ITEM #215 – SIDEWALK RAMP GRADING**

Page 1 of 2

**DESCRIPTION**

Remove miscellaneous structures and materials and complete all earthwork required to construct ADA compliant sidewalk ramps within the construction limits shown on the plans or stated in this detailed specification. All lines and grades will be as shown on the plans and as directed by the Engineer to comply with ADA requirements. Complete this work according to the MDOT 2012 Standard Specifications for Construction and this detailed specification.

**MATERIALS**

Furnish and place required subbase and embankment material conforming to the MDOT 2012 Standard Specifications for Construction as necessary to achieve the required typical cross sections. Excavated material, if suitable, may be used as embankment material as approved by the Engineer.

**CONSTRUCTION METHOD**

Complete this work according to applicable sections of the Standard Specifications for Construction. Sidewalk Ramp Grading includes, but is not limited to, the following work:

1. Strip and stockpile topsoil for use in turf establishment.
2. Furnish, place and compact additional material.
3. Clearing, including trees less than 8 inches in diameter.
4. Remove rocks or boulders less than 0.5 cubic yards in volume.
5. Remove and relocate mailbox posts and mailboxes.
6. Sawcut existing pavement.
7. Match drive and approach grades to new pavement grades.
8. Remove miscellaneous structures and materials.
9. Dispose of excess and unsuitable material according to Section 205.
10. Place embankment and reshape to proposed grades.
11. Excavate material to a depth necessary for construction.
12. Place embankment to a thickness necessary for construction.
13. Excavate for subbase material.

**MEASUREMENT AND PAYMENT**

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

<b>Pay Item</b>	<b>Pay Unit</b>
Sidewalk Ramp Grading .....	Each

**Sidewalk Ramp Grading** applies to the ramps that are currently not ADA compliant and trench work is not causing reconstruction of the sidewalk ramp. Sidewalk Ramp Grading applies separately to each quadrant of an intersection where sidewalk is to be removed and graded for ADA compliance. The limits are specified on the plans or as directed by the Engineer.

**DETAILED SPECIFICATION  
FOR  
ITEM #220 – REMOVE SANITARY SEWER LEAD**

Page 1 of 1

**DESCRIPTION**

This work shall consist of removing and replacing existing sanitary lead pipe in new utility trenches as directed by engineer when conflicts with new utilities are identified or when the condition of the existing pipe prevents proper utility protection. Work includes cutting lead, carefully removing, replacing with SDR 35 PVC pipe and fittings along with Fernco connections. All materials need to accomplish this work is included in this pay item. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

**CONSTRUCTION METHODS**

The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications.

Sewer leads are private and no official City records are kept. Approximate locations of leads have been placed on plans per survey data when available. Contractor to carefully excavate leads, not dig through lead but to saw cut out of way. Lead to be kept clean, have positive fall, and replaced as soon as possible. Contractor to coordinate with homeowner as needed to complete work. Trench must be carefully backfilled to prevent damage. Prior to placement of HMA contractor will have entire lead televised to verify condition of repaired sections and to verify sufficient slope has been provided. Any defects in the repaired sections shall be exposed and repaired at contractor's expense.

**MEASUREMENT AND PAYMENT**

The unit price for the pay item "Remove Sanitary Sewer Lead" includes all labor, material and equipment costs associated with the complete installation of the sewer lead, as specified herein, including but not limited to, excavation MDOT CL II backfill, compaction.

Payment shall include all labor, equipment, and materials necessary to remove and store the existing sewer lead as directed by the Engineer.

The unit prices for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**PAY ITEM**

Remove Sanitary Sewer Lead

**PAY UNIT**

Foot

**DETAILED SPECIFICATION  
FOR  
ITEM #221 – WATER MAIN PIPE ABANDONMENT, MODIFIED  
ITEM #222 – FIRE HYDRANT ASSEMBLY ABANDONMENT  
ITEM #223 – ABANDON GATE WELL  
ITEM #224 – ABANDON VAULT (PRV)**

Page 1 of 2

**DESCRIPTION**

This work shall include abandoning existing water mains, valves, valve wells, valve boxes, pressure regulating valve vault, and fire hydrant assemblies of various sizes as required by the Plans. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

**MATERIALS**

All materials shall meet the requirements specified in Division 7 and 9 of the MDOT 2003 Standard Specifications for Construction as follows:

Mortar Type II Section 702

MDOT Class II Sand Section 902

Masonry Units Section 913

Push-on joint plugs, caps, air relief assemblies (for grouting purposes), and thrust blocks shall conform to the City of Ann Arbor Standard Specifications.

**METHODS OF CONSTRUCTION**

The Construction Methods shall meet all requirements of the City of Ann Arbor Standard Specifications.

In locations as shown on the Plans or where abandoned water main, valves or valve wells are within 2.5 feet of the proposed subgrade, the pipe, valves or valve wells shall be removed completely. The resulting hole or trench shall be backfilled with Class II Sand, in maximum lifts of 12 inches, and be compacted to 95% of its maximum unit weight, if located within the influence paved surfaces or structures. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its maximum unit weight, in lifts of 12 inches or less, unless otherwise noted on the plans. Caps or plugs shall be installed in accordance with plans or as specified by Engineer.

Abandoned (salvaged) valve operating nuts, fire hydrant assemblies, structure covers, and pressure regulating valve shall be delivered to the City of Ann Arbor Field Services Unit located at the W.R. Wheeler Service Center at 4251 Stone School Road, Ann Arbor, MI 48108 within two days of their removal. Valve boxes should be disposed of at the contractor's sole expense.

**MEASUREMENT AND PAYMENT**

The unit price for the Pay Item "Water Main Pipe Abandonment, Modified" shall be paid for on a lump sum (LS) basis and includes all labor, material and equipment costs necessary to abandon or remove the pipe including, but not limited to, excavation, cutting of pipe, push-on joint plugs, caps and thrust blocks, brick and mortar bulkheads, the furnishing, placement, and compaction of approved granular backfill material,

**DETAILED SPECIFICATION  
FOR  
ITEM #221 – WATER MAIN PIPE ABANDONMENT, MODIFIED  
ITEM #222 – FIRE HYDRANT ASSEMBLY ABANDONMENT  
ITEM #223 – ABANDON GATE WELL  
ITEM #224 – ABANDON VAULT (PRV)**

Page 2 of 2

as required, and the removal and proper disposal off-site of excess materials. In addition, this pay item includes the removal and salvage of valves and covers, and disposal of valve boxes.

The unit price for the pay item "Fire Hydrant Assembly Abandonment," includes all labor, material and equipment costs associated with the complete removal of the existing fire hydrant assembly, as specified herein, including but not limited to, excavation, MDOT CL II Backfill and compaction; pipe cutting; thrust block removal; pipe plug; thrust block; salvaging of fire hydrant, valve and valve box and delivery of fire hydrant, valve and valve box to the City of Ann Arbor Field Services Unit.

The unit price for the Pay Item “Abandon Gate Well” includes all labor, material and equipment costs necessary to remove and salvage the valve and cover, and deliver to the City of Ann Arbor Field Services Unit; the removal of the top 4 feet of valve wells; breaking out the valve well base; the furnishing, placement, and compaction of approved granular backfill material, as required; and the removal and proper disposal off-site of excess materials.

The unit price for the Pay Item “Abandon Vault (PRV)” includes all labor, material and equipment costs necessary to remove the concrete well, piping, fittings and accessories as necessary to construct water main in accordance with City of Ann Arbor Specifications. The pay item includes, but is not limited to, excavation and cutting of pipe; removal and salvaging the pressure regulating valve and the manhole cover, and deliver to the City of Ann Arbor Field Services Unit; the removal of the top 4 feet of the vault and the portion of the vertical walls as necessary to install the replacement piping indicated on the plans; breaking out the valve well base; the furnishing, placement, and compaction of approved granular backfill material, as required; and the removal and proper disposal off-site of excess materials.

Installation of piping shall be paid for separately as “\_\_ inch Class 50 DIP w/ polywrap, Trench Detail \_\_”.

**PAY ITEM**

**PAY UNIT**

Water Main Pipe Abandonment, Modified

Lump Sum

Fire Hydrant Assembly Abandonment

Each

Abandon Gate Well

Each

Abandon Vault (PRV)

Each

The Item of work “Water Main Pipe Abandonment, Modified” will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum, minus any deductions incurred for inadequate performance as described herein. This amount will not be increased for any reason, including extensions of time, extras, and/or additional work.

**DETAILED SPECIFICATION  
FOR  
ITEM #225 – TEMPORARY WATER MAIN LINE STOP, ADDITIONAL RENTAL DAY  
ITEM #226 – TEMPORARY WATER MAIN LINE STOP, LESS THAN 8 INCH  
ITEM #227 – TEMPORARY WATER MAIN LINE STOP, 8 OR 12 INCH  
ITEM #228 – TEMPORARY WATER MAIN LINE STOP, 16 INCH**

Page 1 of 1

**DESCRIPTION**

This work shall include all excavations, line stop contractor labor, materials, and backfill required to install a line stop on an existing water main. All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, and as directed by the Engineer.

**CONSTRUCTION METHODS**

Construction shall meet all requirements of the City of Ann Arbor Standard Specifications. All excavation shall be of sufficient size that work can be performed safely. Line stop work shall be coordinated with proposed water main shut down. The line stop Contractor must be on site at all times during the line stop operation.

**MEASUREMENT AND PAYMENT**

The unit prices for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification. “Temporary Water Main Line stop, Additional Rental Day” will be paid for each day after the first installation and use day of a temporary water main line stop, regardless of size, until the line stop is no longer needed.

**PAY ITEM**

**PAY UNIT**

Temporary Water Main Line Stop, Additional Rental Day	Each
Temporary Water Main Line Stop, Less than 8 inch	Each
Temporary 8 inch or 12 inch Water Main Line Stop	Each
Temporary 16 inch Water Main Line Stop	Each

Removal items associated with installation of line stops, such as HMA Pavement Removal and Machine Grading, will be paid for separately.

Backfill items associated with patching the excavation created by installing the line stop, such as Aggregate Base Course, 21AA- C.I.P. and Handpatching or HMA Pavement Leveling/Top - LVSP, will be paid for separately.



**DETAILED SPECIFICATION  
FOR  
ITEM #229 – REINSTALL MODULAR BLOCK WALL  
ITEM #230 – MACHINE GRADING, MODIFIED**

Page 1 of 3

**DESCRIPTION**

This work shall consist of constructing earth grades by excavating, cutting, filling, trimming, and grading; general restoration, and sign removals in accordance with the Detailed Specifications elsewhere herein; and maintaining the work in a finished condition until such time that it is accepted by the Engineer. This work shall be done as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer, and in accordance with Section 205 of the 2012 edition of the MDOT Standard Specification for Construction, except as specified herein.

**CONSTRUCTION METHOD**

The Contractor shall construct earth grades as required to develop the typical and/or detailed cross-section(s) as shown on the Plans, as detailed in the Specifications, and as directed by the Engineer. This shall include, but not be limited to, the excavation of concrete and HMA pavement, soil, rocks of any size, stumps, trees less than 8 inches, logs, and bricks; the removal and proper disposal off-site of surplus excavated material; the scarifying, plowing, disking, moving and shaping of earth; the trimming, grading, compaction and proof-rolling of the prepared subgrade; the importing, furnishing, placement and compaction of embankment and/or fill materials; the full depth saw-cutting of pavement at the removal limits; the grading of sideslopes; general restoration in accordance with the Detailed Specifications elsewhere herein and the general items of the work as specified herein. Road subbase and base materials shall be paid for separately.

The Contractor shall remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials, and shall construct the roadway to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer. The Contractor shall use blade graders, maintainers, vibratory rollers, and/or other equipment as necessary, and as detailed in the Specifications and as directed by the Engineer, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

The Contractor shall remove, salvage, deliver to any location within the City limits, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall remove other surface features, including signs, located within the grading limits and not otherwise identified, as directed by the Engineer. Signs shall be salvaged and provided to City as directed by the Engineer.

The Contractor shall move excavated and/or imported materials longitudinally and/or transversely where necessary, and as directed by Engineer.

The Contractor shall keep the work well graded and drained at all times.

The Contractor shall not use rubber-tired equipment on the subgrade, when its use causes or may cause, in the opinion of the Engineer, damage to the subgrade. The Contractor shall conduct its operation(s), and provide all necessary equipment, to insure the satisfactory completion of the work without damaging the subgrade. This includes the transporting, stockpiling, rehandling, and movement of materials over additional distances, in lieu of driving on an unprotected, or partially unprotected, subgrade.

The Contractor is solely responsible for the maintenance and protection of the subgrade. Further, any

**DETAILED SPECIFICATION  
FOR  
ITEM #229 – REINSTALL MODULAR BLOCK WALL  
ITEM #230 – MACHINE GRADING, MODIFIED**

Page 2 of 3

damage to the subgrade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or its subcontractors' or suppliers' operation(s), shall be repaired by the Contractor at the Contractor's expense. This includes any additional earthwork and/or maintenance materials as directed by the Engineer, for the purposes of the Contractor's maintenance and protection of the subgrade. The Contractor shall not be entitled to any additional compensation for the implementation of these procedures.

The Contractor shall perform all rough and/or finish grading and compaction to the grades shown on the Plans, as detailed in the Specifications, and as directed by the Engineer.

The Contractor shall proofroll all graded and compacted surfaces in the presence of the Engineer as detailed in the Specifications. The Engineer will monitor the proofrolling operation to locate deleterious and/or uncompacted materials, and will direct undercuts as necessary.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

The Contractor shall take any and all steps necessary to avoid interruption in the mail delivery, and solid waste, recycling, and compostable pick-up within the project limits. This shall include the temporary relocation of mailboxes, where required by the Engineer, as well as moving of all solid waste/recycling/compost containers to the nearest cross street.

The Contractor shall coordinate with the Urban Forestry and Natural Resources Planning Coordinator prior to the removal of any tree roots 2 inches or larger in size.

The Contractor shall install the salvaged modular retaining/landscape bricks per approved manufacturer's specifications, including but not limited to installation of underdrain or geogrid.

The Contractor shall restore all disturbed areas to better than or equal to their original condition. This includes the placement and compaction of 4 inches of topsoil, followed by placement of grass seed, followed by the placement fertilizer and mulch blanket at all turf restoration locations. All restoration work and materials shall be in accordance with the Detailed Specifications "Clean-up & Restoration, Special", "Fertilizer, Chemical Nutrient, Cl A", "Mulch Blanket, High Velocity", "Seeding Mixture THM", and "Topsoil Surface, Furn, 4 inch."

**MEASUREMENT AND PAYMENT**

Measurement for payment for the item "Reinstall Modular Block Wall" shall be measured along the surface area of the wall constructed.

Measurement for payment for the item "Machine Grading" shall be computed as the area of excavated material (pavement, soil, rock, brick, etc.) within the footprint of the proposed road section including to the edge of the 1:1 slope outside of road grading. Embankment, fill, subgrade protection/maintenance, drainage maintenance quantities will not be paid for separately, and are included in this item of work.

**DETAILED SPECIFICATION  
FOR  
ITEM #229 – REINSTALL MODULAR BLOCK WALL  
ITEM #230 – MACHINE GRADING, MODIFIED**

Page 3 of 3

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

<b><u>PAY ITEM</u></b>	<b><u>PAY UNIT</u></b>
Reinstall Modular Block Wall	Square Foot
Machine Grading, Modified	Square Yard

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION  
FOR  
ITEM #235 –HMA PAVEMENT LEVELING/TOP – 4E3  
ITEM #236 –HMA PAVEMENT LEVELING/TOP – 4E1  
ITEM #237 –HMA PAVEMENT BASE – 3E3  
ITEM #238 –HMA PAVEMENT BASE – 2C  
ITEM #239 –HMA PAVEMENT BASE – 3C  
ITEM #240 –HMA PAVEMENT LEVELING/TOP - LVSP  
ITEM #241 – HMA APPROACH  
ITEM #242 – HANDPATCHING  
ITEM #243 – HMA TEMPORARY PAVEMENT**

Page 1 of 4

**DESCRIPTION**

This work shall consist of constructing HMA pavement leveling and top courses in accordance with Division 5 and Section 904 of the 2012 edition of the MDOT Standard Specifications, current supplemental MDOT specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer.

**MATERIALS AND EQUIPMENT**

**General**

The HMA mixtures to be used for this work shall be as follows:

<u>WORK ITEM</u>	<u>MDOT HMA MIXTURE #</u>
HMA Pavement Leveling/Top	4E1 and 4E3 and LVSP (Superpave)
HMA Pavement Base	2C and 3C and 3E3
HMA Approach	LVSP (Superpave)
Handpatching	LVSP (Superpave)
HMA Temporary Pavement	LVSP (Superpave)

Binders for LVSP Superpave mixes shall be PG 58-28; PG 64-28 or PG 70-28 for 4E1, as directed by Engineer. These shall meet the requirements specified in Section 904 of the 2012 edition of the MDOT Standard Specifications, and any current supplemental MDOT specifications.

The Aggregate Wear Index (AWI) number is 260 for 4E1 and 220 for LVSP. This AWI number applies to all aggregates used in all top course mixtures. Blending aggregates to achieve this AWI requirement is permitted in accordance with current MDOT Standards, and Supplemental Specifications.

**Reclaimed Asphalt Pavement (RAP) in HMA Mixtures**

The use of Reclaimed Asphalt Pavement (RAP) in HMA mixtures shall be in accordance with Section 501.02.A.2 of the 2012 edition of the MDOT Standard Specifications, and the City of Ann Arbor Standard Specifications.

**CONSTRUCTION METHODS**

All concrete work shall be completed prior to placing HMA mixtures.

The Contractor shall have a 10-foot long straight-edge, backhoe, air-compressor and jackhammer available during all paving operations.

Prior to placing the bond coat, the Contractor shall remove all vegetation (within the area to be paved), shall thoroughly clean all joints & cracks in the existing pavement (and any gutter to be overlaid) with compressed air and/or vacuum-type street cleaning equipment to remove all dirt and debris to a depth of at least 1-inch, and shall thoroughly clean the entire surface to be paved, with a Vac-All or similar vacuum-type street cleaning equipment.

MDOT SS-1h bond coat shall be applied at a uniform rate of 0.10 gallons/square yard, on all exposed, existing HMA and concrete surfaces which will come in contact with the new HMA material. The Contractor shall take extra care

**DETAILED SPECIFICATION  
FOR  
ITEM #235 –HMA PAVEMENT LEVELING/TOP – 4E3  
ITEM #236 –HMA PAVEMENT LEVELING/TOP – 4E1  
ITEM #237 –HMA PAVEMENT BASE – 3E3  
ITEM #238 –HMA PAVEMENT BASE – 2C  
ITEM #239 –HMA PAVEMENT BASE – 3C  
ITEM #240 –HMA PAVEMENT LEVELING/TOP - LVSP  
ITEM #241 – HMA APPROACH  
ITEM #242 – HANDPATCHING  
ITEM #243 – HMA TEMPORARY PAVEMENT**

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to avoid covering surfaces which are not to be paved. If work after October 15, 2021 is allowed by the Engineer, the SS-1h bond coat shall not be diluted by more than 25%.

The Contractor shall place HMA wedges using the leveling or base mixture specified herein, as directed by the Engineer, prior to placing the top course. Such wedging shall be measured and paid for at the respective unit price of the appropriate HMA Pavement item.

Construction of butt joints, where directed by the Engineer, shall be measured and paid for as "HMA Surface Remove".

The Contractor shall schedule the paving operation to avoid longitudinal cold joints.

HMA Pavement Leveling/Top – 4E3 top and leveling courses shall be placed in 2-inch lifts.

HMA Pavement Leveling/Top – 4E1 top and leveling courses shall be placed in 1-½-, 2-, or 2-½-inch lifts.

HMA Pavement Base – 3E3 base course shall be placed in a 3-½-inch lift.

HMA Pavement Base – 2C base course shall be placed in a 3-½-inch lift.

HMA Pavement Base – 3C base course shall be placed in a 2-inch lift.

HMA Pavement Leveling/Top - LVSP top and leveling courses shall be placed in a 2-inch lift.

HMA Approach top and leveling courses shall be placed in a 2-inch lift.

Handpatching shall be placed in 0-inch to 4-inch lifts.

Temporary HMA LVSP shall be placed in 2-inch lifts.

All specified HMA thickness dimensions are compacted-in-place.

The Contractor shall construct the pavement courses to provide the final cross-slopes (crowns) specified by the Engineer.

The Contractor shall construct feather joints, and shall feather the top course at structures, in drive approaches, and at intersection joints, as directed by the Engineer. Feather joints shall vary the thickness of the asphalt from 0.0-inches to the required full paving thickness (approximately 2 inches) over a 5-foot to 15-foot distance, or as directed by the Engineer. The Contractor shall rake all large aggregates out of the HMA mixture in feather joints, prior to compaction.

The Contractor shall provide a minimum of two rakers during the placement of all top courses. Further, the Contractor shall provide, when directed by the Engineer, a second "Break-Down" roller in order to achieve the specified asphalt densities.

The Contractor shall provide a minimum of 24-hour notice to the Engineer prior to paving, and shall obtain a "Permit To Pave" from the Engineer in advance of scheduling paving.

The Contractor and Engineer shall carefully observe the paving operation for signs of faulty mixtures. Points of weakness in the surface shall be removed or corrected by the Contractor, at his/her expense, prior to paving subsequent lifts of HMA material. Such corrective action may include the removal and replacement of thin or

**DETAILED SPECIFICATION  
FOR  
ITEM #235 –HMA PAVEMENT LEVELING/TOP – 4E3  
ITEM #236 –HMA PAVEMENT LEVELING/TOP – 4E1  
ITEM #237 –HMA PAVEMENT BASE – 3E3  
ITEM #238 –HMA PAVEMENT BASE – 2C  
ITEM #239 –HMA PAVEMENT BASE – 3C  
ITEM #240 –HMA PAVEMENT LEVELING/TOP - LVSP  
ITEM #241 – HMA APPROACH  
ITEM #242 – HANDPATCHING  
ITEM #243 – HMA TEMPORARY PAVEMENT**

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contaminated sections of pavement, including sections that are weak or unstable. Once the Contractor or his representative is notified by the Engineer that the material being placed is out of allowable tolerances, or there is a problem with the paving operation, the Contractor shall stop the paving operation at once, and shall not be permitted to continue placing HMA material until again authorized by the Engineer.

During the placement of all courses, the speed of the paving machine(s) shall not exceed 50-feet per minute.

The Contractor shall furnish and operate enough materials and equipment so as to keep the paving machine(s) moving continuously at all times. Failure to do so shall be cause for the suspension of the paving operation until the Contractor can demonstrate to the satisfaction of the Engineer, that sufficient resources have been dedicated to perform the work in accordance with the specifications.

Each layer of HMA mixture shall be compacted to between 92 to 96 percent (or as determined acceptable by the engineer) of the theoretical maximum density, as listed on the approved Job Mix Formula.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

**MEASUREMENT AND PAYMENT**

Measurement of this HMA paving item shall be by the ton, in place. Unused portions of material loads shall be returned to the plant and re-weighed, and the corrected weight slip shall be provided to the Engineer. All weight slips must include the type of mixture (codes are not acceptable), as well as vehicle number, gross weight, tare weight and net weight.

Corrective action shall be enforced as described in the “Acceptance of HMA Mixtures” Detailed Specification and will be based on the City's testing reports.

All costs for furnishing and operating vacuum-type street cleaning equipment, backhoes, jackhammers, and air compressors shall be included in the bid prices for these items of work or in the item of work “General Conditions, Max \$\_\_\_\_.”

The completed work as measured for these items of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Items:

<b><u>PAY ITEM</u></b>	<b><u>PAY UNIT</u></b>
HMA Pavement Leveling/Top – 4E3	Ton
HMA Pavement Leveling/Top – 4E1	Ton
HMA Pavement Base – 3E3	Ton
HMA Pavement Base – 2C	Ton
HMA Pavement Base – 3C	Ton
HMA Pavement Leveling/Top – LVSP	Ton

**DETAILED SPECIFICATION  
FOR  
ITEM #235 –HMA PAVEMENT LEVELING/TOP – 4E3  
ITEM #236 –HMA PAVEMENT LEVELING/TOP – 4E1  
ITEM #237 –HMA PAVEMENT BASE – 3E3  
ITEM #238 –HMA PAVEMENT BASE – 2C  
ITEM #239 –HMA PAVEMENT BASE – 3C  
ITEM #240 –HMA PAVEMENT LEVELING/TOP - LVSP  
ITEM #241 – HMA APPROACH  
ITEM #242 – HANDPATCHING  
ITEM #243 – HMA TEMPORARY PAVEMENT**

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**PAY ITEM**

**PAY UNIT**

HMA Approach

Ton

Handpatching

Ton

HMA Temporary Pavement

Ton

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION  
FOR  
ITEM #244 – CONCRETE BASE COURSE, NONREINFORCED  
ITEM #245 – CONCRETE CURB OR CURB AND GUTTER – ALL TYPES  
ITEM #246 – 4-INCH CONCRETE SIDEWALK  
ITEM #247 – 6-INCH CONCRETE SIDEWALK RAMP  
ITEM #248 – 6-INCH CONCRETE DRIVE OR SIDEWALK (HIGH EARLY)  
ITEM #249 – 4-INCH CONCRETE INTEGRAL SIDEWALK/CURB  
ITEM #250 – 4-INCH CONCRETE INTEGRAL SIDEWALK/ROLLED CURB  
ITEM #251 – DRIVEWAY OPENING, CONC, DETAIL M (HIGH EARLY)**

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**DESCRIPTION**

This work shall consist of constructing concrete items including curb, gutter, curb and gutter, sidewalks, integral sidewalk curb, drive approaches, City of Ann Arbor Type M drive openings, all of any type and/or dimensions, all of either regular, fibermesh reinforced, and/or high-early concrete, in accordance with Sections 601, 602, 603, 801, 802, and 803 of the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein, as shown on the Plans, as shown in this Detailed Specification, and as directed by the Engineer.

**The Contractor is responsible to construct all sidewalks, sidewalk ramps, curbs, and all other concrete items within ADAAG compliance.** All sidewalks and curb ramps must be constructed in accordance with MDOT Standard Detail R-28 Series (version in place at time of the bid letting).

**MATERIALS**

Concrete mixtures shall be as follows (or as directed by the Engineer), and concrete materials shall meet the requirements specified in the referenced sections of the MDOT Standard Specifications:

<u>Concrete Item</u>	<u>Concrete Mixture</u>	<u>MDOT Section</u>
Concrete Base Course	P1, 6-sack	601
Curb or Curb & Gutter	P1, 6-sack	601
4" or 6" Sidewalk or Ramp	P1, 6-sack	601
6" Drive or Sidewalk - High-Early	P-NC, 7-sack	601
Integral Sidewalk/Curb or Sidewalk/Rolled Curb	P1, 6-sack	601
Driveway Opening, Detail M – High Early	P-NC, 7-sack	601

**CONSTRUCTION METHODS**

**General**

Concrete items, including sidewalk, non-integral curb/gutter, drives, and structure adjustments shall be completed prior to the placement of pavement.

All subgrade work shall be completed prior to placing concrete items, unless directed or approved by the Engineer.

The subbase shall be trimmed to final elevation before placing curb. Curb shall not be placed on a pedestal or mound.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact Class II granular material and 21AA Aggregate material as needed to: construct new concrete items; to repair or replace existing concrete items; to relocate existing concrete items to their new specified/directed elevations/locations, including all necessary grading at elevation changes of curb and gutter, sidewalks and ramps; and at locations where existing concrete items are to be removed and turf is to be established in its place.

At locations where the constructed subbase becomes either disturbed, saturated or otherwise damaged, and where directed by the Engineer, the Contractor shall remove a minimum 6-inch thick layer of the subbase and replace it with "Sand Subbase Course, CL II - C.I.P.". If additional subgrade requires removal as directed by the Engineer refer to specification for "Subgrade Undercutting – Type II".



**DETAILED SPECIFICATION  
FOR  
ITEM #244 – CONCRETE BASE COURSE, NONREINFORCED  
ITEM #245 – CONCRETE CURB OR CURB AND GUTTER – ALL TYPES  
ITEM #246 – 4-INCH CONCRETE SIDEWALK  
ITEM #247 – 6-INCH CONCRETE SIDEWALK RAMP  
ITEM #248 – 6-INCH CONCRETE DRIVE OR SIDEWALK (HIGH EARLY)  
ITEM #249 – 4-INCH CONCRETE INTEGRAL SIDEWALK/CURB  
ITEM #250 – 4-INCH CONCRETE INTEGRAL SIDEWALK/ROLLED CURB  
ITEM #251 – DRIVEWAY OPENING, CONC, DETAIL M (HIGH EARLY)**

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**The Contractor shall coordinate with the Urban Forestry and Natural Resources Planning Coordinator prior to the removal of any tree roots with diameters 2” or greater.**

The Contractor is responsible for any damage to concrete items, including but not limited to vandalism; vehicular, pedestrian and/or miscellaneous structural damage; surface texture damage; and rain damage.

The Contractor shall maintain on-site at all times, a sufficient quantity of adequate materials to protect concrete items. The Engineer may suspend or defer concrete placement if rain protection is not available. The Contractor shall not be entitled to any additional compensation due to work suspension or deferral resulting from a lack of adequate rain protection.

The Contractor shall perform full-depth saw cutting at removal limits, including those necessary to construct 2-foot wide Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches, as shown on the Plans, as directed by the Engineer, and as marked for removal.

The subbase and adjacent concrete shall be sufficiently wet-down with water prior to placing concrete, to prevent water loss from the new concrete, and to form a better bond between old and new concrete. If a cold-joint becomes necessary, (the) existing concrete surface(s) shall be cleaned with compressed air to expose the aggregate in the concrete.

Where it is necessary to remove existing pavement to provide space for concrete formwork, a sufficient amount of the existing pavement shall be removed to allow for the use of a vibratory plate compactor in front of the curb.

Where concrete items are placed in areas adjacent to existing pavement that is beyond the general resurfacing (pavement removal and/or milling) limits, the adjacent pavement area shall be backfilled and permanently patched within 48-hours of the removal of concrete formwork. The backfill material shall be MDOT 21AA aggregate compacted in place to 95% of its maximum unit weight, up to the elevation of the proposed bottom of pavement. The pavement patching material(s) shall be as specified and as directed by the Engineer.

Where concrete items are placed adjacent to existing pavement that is within areas scheduled for subsequent pavement removal and/or milling, the adjacent pavement area shall, within 48-hours of the removal of concrete formwork, be backfilled with MDOT 21AA aggregate, as modified, compacted in place to 98% of its maximum unit weight, up to the elevation of the bottom of the adjacent pavement.

Prior to compacting backfill in front of curb and gutter, the back of curb shall be backfilled with approved material and compacted by mechanical means to 95% of the material's maximum unit weight.

At various times throughout the work, the Engineer may direct the Contractor to use smaller and/or lighter equipment, and to defer certain work tasks, in order to protect the grade and/or adjacent areas. The Contractor shall not be entitled to any additional compensation for the use of smaller equipment, lighter equipment, or work task deferral.

Contraction Joints in Sidewalk

Contraction joints shall be placed at 5-foot intervals and may be tooled or sawed. The method of forming joints and spacing shall be approved by the Engineer prior to construction.

Expansion Joints in Sidewalks

¾-inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property

**DETAILED SPECIFICATION  
FOR  
ITEM #244 – CONCRETE BASE COURSE, NONREINFORCED  
ITEM #245 –CONCRETE CURB OR CURB AND GUTTER – ALL TYPES  
ITEM #246 – 4-INCH CONCRETE SIDEWALK  
ITEM #247 – 6-INCH CONCRETE SIDEWALK RAMP  
ITEM #248 – 6-INCH CONCRETE DRIVE OR SIDEWALK (HIGH EARLY)  
ITEM #249 – 4-INCH CONCRETE INTEGRAL SIDEWALK/CURB  
ITEM #250 – 4-INCH CONCRETE INTEGRAL SIDEWALK/ROLLED CURB  
ITEM #251 – DRIVEWAY OPENING, CONC, DETAIL M (HIGH EARLY)**

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lines, at all expansion joints in the abutting curb, gutter, and combination curb and gutter, and as directed by the Engineer. Transverse expansion joints shall be placed through the sidewalks at uniform intervals of not more than 300-feet.

½-inch wide expansion joints shall be placed between the sidewalk and back of abutting curb or gutter, at the juncture of two sidewalks, between the sidewalk and buildings and other rigid structures, and as directed by the Engineer.

Expansion Joints in Curb and Gutter

¾-inch wide expansion joints shall be placed at all street returns, at all expansion joints in an abutting pavement, at each side of all driveways (at radius points), elsewhere at 300-foot maximum intervals, and as directed by the Engineer.

Expansion joint material shall extend to the full depth of the joint. After installation, the top shall not be above the concrete nor be more than ½-inch below it. No reinforcing steel shall extend through expansion joints.

Plane of Weakness Joints in Curb and Gutter

Intermediate plane of weakness joints shall be placed to divide the structure into uniform sections, normally 10-feet in length, with a minimum being 8-feet in length, and shall be placed opposite all plane of weakness joints in the abutting concrete base course.

Plane of weakness joints shall be formed by narrow divider plates, which shall extend 3-inches into the exposed surfaces of the curb or curb and gutter. Plates shall be notched, if necessary, to permit the steel reinforcement to be continuous through the joint.

**MEASUREMENT AND PAYMENT**

No additional compensation will be paid for the construction of concrete items adjacent to existing concrete curb, gutter, pavement, or any other pavement or surface feature(s) which requires modified construction to smoothly blend the proposed to existing.

The removal of existing subgrade, or the installation of subbase or base necessary to construct item per City of Ann Arbor standards will be paid as "Machine Grading, Modified", "Sand Subbase Course, Class II – C.I.P", and "Aggregate Base Course, 21AA – C.I.P". Removal of a greater depth, as directed by the Engineer, shall be paid for as "Subgrade Undercutting – Type II". Replacement with approved "21AA Limestone, C.I.P." will be paid for separately. Removal of existing earth where new sidewalk is installed will be paid for as "Sidewalk Ramp Grading."

A deduction in length for catch basins and inlet castings will be made to measurements of Curb and Gutter.

Curb, gutter, curb and gutter, shall be paid as "Concrete Curb and Gutter – All Type", with the exception of Detail M Driveway Opening, which shall be paid as "Driveway Opening, Conc, Detail M".

Payment for "4 Inch Concrete Integral Sidewalk/Curb" and "4 Inch Concrete Integral Sidewalk/Rolled Curb" shall be measured by the area of the sidewalk in square feet.

Payment for saw cutting for Type M openings and for partial removal of existing drives shall be included in the price for the item of work, "Remove Concrete Sidewalk and Drives - Any Thickness", and will not be paid for separately.

**DETAILED SPECIFICATION  
FOR  
ITEM #244 – CONCRETE BASE COURSE, NONREINFORCED  
ITEM #245 –CONCRETE CURB OR CURB AND GUTTER – ALL TYPES  
ITEM #246 – 4-INCH CONCRETE SIDEWALK  
ITEM #247 – 6-INCH CONCRETE SIDEWALK RAMP  
ITEM #248 – 6-INCH CONCRETE DRIVE OR SIDEWALK (HIGH EARLY)  
ITEM #249 – 4-INCH CONCRETE INTEGRAL SIDEWALK/CURB  
ITEM #250 – 4-INCH CONCRETE INTEGRAL SIDEWALK/ROLLED CURB  
ITEM #251 – DRIVEWAY OPENING, CONC, DETAIL M (HIGH EARLY)**

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Payment for the removal of HMA pavement and aggregate base to provide space for concrete formwork and vibratory plate compactor shall be included in the price for the item of work, “Remove Concrete Curb or Curb and Gutter - Any Type”, and will not be paid for separately.

The Item, “Detectable Warning, Cast In Place” will be measured and paid for by the square foot of area stamped, typically 2' x 5'. This measurement/payment is in addition to the measurement/payment for the concrete ramp placement.

Completed work as measured for these items of work will be paid for at Contract Unit Price for the following Contract (Pay) Items:

<u>PAY ITEMS</u>	<u>PAY UNIT</u>
Concrete Base Course, Nonreinforced	Cubic Yard
Concrete Curb or Curb and Gutter – All Types	Feet
4 Inch Concrete Sidewalk	Square Feet
6 Inch Concrete Sidewalk Ramp	Square Feet
6 Inch Concrete Drive or Sidewalk - High Early	Square Feet
4 Inch Concrete Integral Sidewalk/Curb	Square Feet
4 Inch Concrete Integral Sidewalk/Rolled Curb	Square Feet

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION  
FOR  
ITEM #252 –DETECTABLE WARNING, CAST IN PLACE**

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**DESCRIPTION**

This work shall consist of furnishing and installing cast in place detectable warning units in compliance to the Americans with Disability Act (ADA). All work shall be in accordance with MDOT Standard Detail R-28 Series (version in place at time of the bid letting).

**MATERIALS AND CONSTRUCTION METHODS**

The detectable warning tiles shall be ceramic cement or composite polymer concrete (CRC), colored as Federal Number 22144 (frequently referred to as “Colonial Red” or “Brick Red”). The detectable warning tiles shall meet the following dimensions and tolerances:

1. Dimensions: Cast In Place Detectable/tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:

Length: 24”

Width: The full width of the approaching walk (60” for typical sidewalk)

Depth: 1.375” (1-3/8”) (+/-) 5% max.

Face Thickness: 0.1875” (3/16”) (+/-) 5% max. Warpage of Edge: 0.5% max.

Embedment Flange Spacing: shall be no greater than 3.1”

2. Water Absorption of Tile when tested by ASTM D 570-98 not to exceed 0.05%.
3. Slip Resistance of Tile when tested by ASTM C 1028-96 the combined Wet and Dry Static Co-Efficient of Friction not to be less than 0.80 on top of domes and field area.
4. Compressive Strength of Tile when tested by ASTM D 695-02a not to be less than 28,000 psi.
5. Tensile Strength of Tile when tested by ASTM D 638-03 not to be less than 19,000 psi.
6. Flexural Strength of Tile when tested by ASTM D 790-03 not to be less than 25,000 psi.
7. Chemical Stain Resistance of Tile when tested by ASTM D 543-95 (re approved 2001) to withstand without discoloration or staining - 10% hydrochloric acid, urine, saturated calcium chloride, black stamp pad ink, chewing gum, red aerosol paint, 10% ammonium hydroxide, 1% soap solution, turpentine, Urea 5%, diesel fuel and motor oil.
8. Abrasive Wear of Tile when tested by BYK - Gardner Tester ASTM D 2486-00 with reciprocating linear motion of 37± cycles per minute over a 10” travel. The abrasive medium, a 40 grit Norton Metallite sand paper, to be fixed and leveled to a holder. The combined mass of the sled, weight and wood block is to be 3.2 lb. Average wear depth shall not exceed 0.060 after 1000 abrasion cycles when measured on the top surface of the dome representing the average of three measurement locations per sample.
9. Resistance to Wear of Unglazed Ceramic Tile by Taber Abrasion per ASTM C501-84 (re approved 2002) shall not be less than 500.
10. Fire Resistance of Tile when tested to ASTM E 84-05 flame spread shall be less than 15.
11. Gardner Impact to Geometry "GE" of the standard when tested by ASTM D 5420-04 to have a mean failure energy expressed as a function of specimen thickness of not less than 550 in. Ibf/in. A failure is noted when a crack is visible on either surface or when any brittle splitting is observed on the bottom plaque in the specimen.

**DETAILED SPECIFICATION  
FOR  
ITEM #252 –DETECTABLE WARNING, CAST IN PLACE**

Page 2 of 2

12. Accelerated Weathering of Tile when tested by ASTM G 155-05a for 3000 hours shall exhibit the following result -□E <4.5, as well as no deterioration, fading or chalking of surface.
13. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM D 1037-99 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other detrimental defects.
14. Salt and Spray Performance of Tile when tested to ASTM B 117-03 not to show any deterioration or other defects after 200 hours of exposure.
15. AASHTO HB-17 single wheel HS20-44 loading "Standard Specifications for Highways and Bridges". The Cast In Place Tile shall be mounted on a concrete platform with a ½" airspace at the underside of the tile top plate then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs.
16. Embedment flange spacing shall be no greater than 3.1" center to center spacing as illustrated on the product Cast In Place drawing.

**CONSTRUCTION METHODS**

The contractor shall follow manufacturer specifications for installation, except where they conflict with MDOT Standard Detail R-28 Series (included in Appendix).

**MEASUREMENT AND PAYMENT**

The completed work as measured for this item of work will be paid for at the Contract Unit Prices for the following Contract (Pay) Item:

<b><u>PAY ITEM</u></b>	<b><u>PAY UNIT</u></b>
Detectable Warning, Cast In Place	Square Feet

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION**

**FOR**

**ITEM #253 - PAVT MRKG, OVLY COLD PLASTIC, 12 INCH, CROSSWALK**

**ITEM #254 - PAVT MRKG, OVLY COLD PLASTIC, 24 INCH, STOP BAR**

**ITEM #255 - PAVT MRKG, OVLY COLD PLASTIC, DIRECTION ARROW SYM, LEFT TURN**

**ITEM #256 - PAVT MRKG, OVLY COLD PLASTIC, DIRECTION ARROW SYM, BIKE**

**ITEM #257 - PAVT MRKG, OVLY COLD PLASTIC, BIKE SYM**

**ITEM #258 - PAVT MRKG, OVLY COLD PLASTIC, SHARROW SYMBOL**

**ITEM #259 PAVT MRKG, POLYUREA, 4 INCH, WHITE**

**ITEM #260 PAVT MRKG, POLYUREA, 4 INCH, YELLOW**

**ITEM #261 PAVT MRKG, POLYUREA, 6 INCH, WHITE**

**ITEM #262 RECESSING PAVT MRKG, LONGIT**

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**DESCRIPTION**

This work consists of providing and placing permanent pavement markings in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMTUTCD), lasted version published at time of advertisement. Provide pavement markings that conform to the Plans, the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, MDOT Pavement Marking Standard Plans, City of Ann Arbor Special Details, and as specified herein.

**MATERIALS**

Provide materials in accordance with section 811 and 920 of the MDOT 2012 Standard Specifications for Construction. Provide the Material Safety Data Sheets to the Engineer for required materials and supplies. Dispose of unused material and containers in accordance with the Federal Resource Conservation Recovery Act (RCRA) of 1976 as amended, and 1994 PA 451, Part 111 Hazardous Waste Management. Provide samples of permanent marking materials upon request.

**CONSTRUCTION METHODS**

The preparation and placement of permanent markings shall conform to section 811 of the MDOT 2012 Standard Specifications, the Plans, and as specified herein.

**MEASUREMENT AND PAYMENT**

Completed work, as described, will be measured and paid for at Contract Unit Prices for the following Contract (Pay) Items:

<b><u>PAY ITEMS</u></b>	<b><u>PAY UNIT</u></b>
Pavt Mrkg, Ovly Cold Plastic, 12 inch, Crosswalk	Foot
Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	Foot
Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Left Turn	Each
Pavt Mrkg, Ovly Cold Plastic, Direction Arrow Sym, Bike	Each
Pavt Mrkg, Ovly Cold Plastic, Bike Symbol	Each
Pavt Mrkg, Ovly Cold Plastic, Sharrow Symbol	Each
Pavt Mrkg, Polyurea, 4 inch, White	Foot
Pavt Mrkg, Polyurea, 4 inch, Yellow	Foot
Pavt Mrkg, Polyurea, 6 inch, White	Foot
Recessing Pavt Mrkg, Longit	Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the MDOT 2012 Standard Specifications for Construction and as modified by this Detailed Specification.

**DETAILED SPECIFICATION  
FOR  
ITEM #263 PAVT MRKG COVER, TYPE R, BLACK  
ITEM #264 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, WHITE, TEMP  
ITEM #265 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, YELLOW, TEMP  
ITEM #266 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 6 INCH CROSSWALK  
ITEM #267 PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 24 INCH STOP BAR  
ITEM #268 – LIGHTED ARROW BOARD, FURNISH AND OPERATE  
ITEM #269 – SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE  
ITEM #270 – PLASTIC DRUM – LIGHTED, FURNISH & OPERATE  
ITEM #271 – BARRICADE TYPE III – LIGHTED, FURNISH AND OPERATE  
ITEM #272 – TEMPORARY SIGN - TYPE B, FURNISH AND OPERATE  
ITEM #273 – TEMPORARY SIGN - TYPE B, FURNISH AND OPERATE, SPECIAL  
ITEM #274 – CHANNELIZING DEVICE, 42 INCH, FURNISH AND OPERATE  
ITEM #275 – PEDESTRIAN TYPE II BARRICADE, TEMP  
ITEM #276 – SIGN COVER**

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**DESCRIPTION**

This work shall consist of protecting and maintaining vehicular and pedestrian traffic, in accordance with Sections 812 and 922 of the 2012 MDOT Standard Specifications for Construction; Part 6 of the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD); and the City Standard Specifications, except as modified herein.

**MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS**

**General**

Materials and equipment shall meet the requirements specified in the above-designated sections of the MDOT Standard Specifications.

The Contractor shall maintain traffic such that no vehicle shall be required to drive into active work areas. Patch areas which extend more than halfway across the roadway shall always be removed and replaced to provide a minimum of half the pavement width for maintaining traffic.

The Contractor shall maintain pedestrian traffic at all times. For maintaining normal pedestrian traffic while performing sidewalk and driveway repair, **Pedestrian Type II Barricade, Temp** shall be placed by the Contractor, as directed by the Engineer. "Sidewalk Closed" and/or "Cross Here" signs shall be placed, by the Contractor, when directed by the Engineer.

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor, EXCEPT Temporary Curb for Bump-out. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

All existing signs, and signs erected by the City of Ann Arbor on this project shall be preserved, protected, and maintained by the Contractor. Existing City owned signs which are damaged by the Contractor during the work will be repaired by the City at the Contractor's expense.

Parking violation citations issued to the Contractor, subcontractor and material suppliers, including their employees, shall be enforced under appropriate City Code.

The Contractor shall replace missing or damaged traffic control devices, as directed by the Engineer. When traffic control devices have been damaged by, or due to, the negligence of the Contractor, his subcontractors or material suppliers, the traffic control devices shall be replaced at the Contractor's expense.

The Contractor shall furnish and operate these items as directed by the Engineer.

Installation shall follow the manufacturer's installation requirements.

**Plastic Drum –Lighted, Furnish and Operate; Barricade Type III – Lighted, Furnish and Operate; Temporary Sign, Type B, Furnish and Operate, Temporary Sign, Type B, Furnish and Operate, Special; Channelizing Device, 42 Inch, Furnish and Operate; Pedestrian Type II Barricade, Temp**

The Contractor shall furnish and operate these items as directed by the Engineer.

Temporary Signs, Type B, Special are specially made for this project and are not in the MMUTCD. See Sheet W. Liberty St. Traffic Control Sheets POE-Sta.6+00 (35 and 37).

Type II pedestrian barricades and type III barricades shall have standard orange-and-white stripes on both sides of the barricade.

Enough signs shall be provided by the Contractor to insure the safety of the workers and the general public in accordance with the current MMUTCD.

"Construction Ahead" warning signs shall be placed, as indicated on the Plans, or as directed by the Engineer, prior to the start of work, regardless of the nature, magnitude or duration of the work.

## **MEASUREMENT AND PAYMENT**

### **General**

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City shall not be responsible for stolen or damaged signs, barricades, barricade lights or other traffic maintenance items. The Contractor shall replace missing traffic control devices immediately, at no additional cost to the City.

Costs for transporting barricades and other traffic control devices shall be included in the bid prices for the individual items of work.

### **Pavt Mrkg Cover, Type R, Black**

Payment for Type R Black Pavt Mrkg shall be for the maximum quantity used on each street.

### **Pavt Mrkg, Type R, Tape**

Payment for Type R Tape shall be for the maximum quantity used on each street.

### **Plastic Drum – Lighted, Furnish and Operate**

There will be a one-time payment for each street for the maximum number of lighted drums in-place (operated) at any one time, as directed by the Engineer.

### **Barricade Type III – Lighted, Furnish and Operate**

Payment for furnishing and operating lighted type III barricades shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).



**Temporary Sign - Type B, Furnish and Operate**

Payment for Type B signs shall be for the maximum quantity used on each street.

**Temporary Sign - Type B, Furnish and Operate, Special**

Payment for Type B signs shall be for the maximum quantity used on each street.

**Channelizing Device, 42 Inch, Furnish and Operate**

There will be a one-time payment for each street for the maximum number of channelizing devices in-place (operated) at any one time, as directed by the Engineer.

**Pedestrian Type II Barricade, Temp**

Payment for furnishing and operating type II pedestrian barricades shall be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Lighted Arrow Board, Furnish and Operate**

Measurement for furnishing and operating lighted arrow board will be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Sign, Portable Changeable Message, Furnish and Operate**

Measurement for furnishing and operating portable changeable message signs will be for the maximum quantity in-place at any one time during the work of the entire project (all streets).

**Sign Cover**

There will be a one-time payment for each street for the maximum number of sign covers in-place (operated) at any one time, as directed by the Engineer.

The completed work as measured for these items of work will be paid for at the Contract Unit Price for the following Contract (Pay) Items:

<b><u>PAY ITEM</u></b>	<b><u>PAY UNIT</u></b>
Pavt Mrkg Cover, Type R, Black	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 6 inch Crosswalk	Foot
Pavt Mrkg, Wet Reflective, Type R, Tape, 24 inch Stop Bar	Foot
Lighted Arrow Board	Each
Sign, Portable Changeable Message, Furnish and Operate	Each
Plastic Drum - Lighted - Furnish& Operate	Each
Barricade Type III - Lighted - Furnish and Operate	Each
Temporary Sign, Type B - Furnish and Operate	Square Foot
Temporary Sign, Type B - Furnish and Operate, Special	Square Foot
Channelizing Device, 42 inch, Furnish and Operate	Each
Pedestrian Type II Barricade, Temp	Each
Sign Cover	Each

**DETAILED SPECIFICATION  
FOR  
ITEM #290 – ADJUST STRUCTURE COVER  
ITEM #291 – ADJUST MONUMENT BOX, VALVE BOX, OR GAS BOX  
ITEM #292 – STRUCTURE COVERS**

Page 1 of 2

**DESCRIPTION**

This work shall consist of adjusting, replacing, and pointing structures, handholes, valve wells or boxes, and monument boxes of concrete and concrete block masonry; the replacing, salvaging and transporting of new and existing metal covers, and/or castings; including all excavation, backfilling, patching and the removal and proper disposal off-site of all excavated material and debris, all in accordance with Division 4 of the 2012 edition of the MDOT Standard Specifications for Construction, and the City Standard Specifications, except as specified herein, and except as directed by the Engineer.

**MATERIALS**

Materials shall meet the requirements of sections 403 and 601 of the 2012 edition of the MDOT Standard Specifications, except that concrete shall be MDOT P-NC per Section 601 of the 2012 MDOT Standard Specifications.

**CONSTRUCTION METHODS**

**General**

Materials shall be stored by the Contractor at locations arranged by the Contractor, subject to the approval of the Engineer. The Contractor shall not store materials or equipment, including metal castings and steel plates, on any lawn area.

Hidden, or unknown utility structures may be encountered during the work. It is the Contractor's responsibility to inform the respective utility owner(s) of such findings. In such instances, the City may direct the Contractor to adjust the structure(s) to grade. This work will be paid as "Adjust Structure Cover".

The pointing of structures is included in all adjustments.

**Adjust Structure Cover**

This item includes the final adjustment of castings of any type (including drop inlets) to their respective finished elevations, up or down. All materials required to make the adjustments shall be included in this item of work.

All underground structure covers shall be adjusted such that their finished surface elevation is within ¼-inch of the finished surface sections, grades, slopes, and elevations, as shown on the Plans, and as directed by the Engineer. The work shall be verified by the use of a 10-foot straight-edge placed parallel with the pavement centerline. Structures not meeting the ¼-inch tolerance shall be readjusted and finish patched, as directed by the Engineer, at the Contractor's expense.

The Contractor is responsible to coordinate and arrange for the adjustment of all non-City utility manholes and valves (Edison, Gas, Cable, Ameritech, etc.) during this project. The Contractor will not be given any additional compensation for delays due to other utilities work. The work of coordinating with other utilities shall be paid for under the Contract Item "General Conditions."

All structure covers, utility covers, valve boxes or monument boxes shall be backfilled with MDOT P-NC concrete from the depth of excavation necessary for adjustment, up to an elevation 2-inches below the top flange of the adjusted

**DETAILED SPECIFICATION  
FOR  
ITEM #290 – ADJUST STRUCTURE COVER  
ITEM #291 – ADJUST MONUMENT BOX, VALVE BOX, OR GAS BOX  
ITEM #292 – STRUCTURE COVERS**

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casting. This work shall be included in the respective items of work, and will not be paid for separately.

Adjust Monument Box or Valve Box, and Traffic Signal Handhole

This item includes the final adjustment of existing or new covers/castings and traffic signal handholes (traffic signal handhole adjustments will be paid for as “Adjust Structure Cover”) up or down, to their finished elevations. This also includes the replacement of the top half of the water boxes and monument boxes (furnished by the City) where required, and shall be included in this item of work.

Castings and covers for monument and water-valve boxes will be provided by the City. The Contractor shall transport these new castings and covers to the site from the City Utilities Department yard at 4251 Stone School Road (Wheeler Center).

Structure Covers

This item shall consist of replacing covers and/or castings for manhole structures and inlet structures as directed by the Engineer. All covers and/or castings shall conform to the model(s) specified in appendix.

The Contractor shall deliver all salvaged covers and castings to the Wheeler Center within two days of their removal.

**MEASUREMENT AND PAYMENT**

Payment for transporting new and salvaged castings and covers to and from the Wheeler Center is included in the appropriate items of work.

Furnishing and placing concrete as backfill for these items will not be paid separately, but shall be included in the bid prices for these items of work.

Completed work as measured for these items of work will be paid for at Contract Unit Price for the following Contract (Pay) Items:

**PAY ITEM**

**PAY UNIT**

Adjust Structure Cover	Each
Adjust Monument Box, Valve Box, or Gas Box	Each
Structure Cover	Pounds

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION  
FOR  
#315 – 6-INCH WRAPPED EDGE DRAIN**

Page 1 of 2

**DESCRIPTION**

This work shall consist of furnishing and installing 6-inch diameter geotextile-wrapped, perforated or slotted underdrain pipe, using MDOT 2NS, as directed by the Engineer, for all backfill material.

**MATERIALS**

The materials shall meet the requirements referenced in Section 404 of the 2012 edition of the MDOT Standard Specifications, except as specified herein.

The Geotextile Filter Fabric for encasing the underdrain pipe shall be an approved material such as nylon, polypropylene, fiberglass, or polyester, and shall be either woven, heat bonded, knitted, or of continuous fibers. The geotextile shall completely cover and be secured to the pipe. In an un-stretched condition, knitted polyester fabrics shall weigh at least 3.0 ounces per square yard, and all other geotextiles shall weigh at least 3.5 ounces per square yard. The fabric shall be strong and tough and have a porosity such that the fabric will retain soil particles larger than 0.106 mm (no. 140 sieve) and shall pass aggregate particles finer than 0.025 mm. Geotextiles shall be stored and handled carefully and in accordance with the both the manufacturer's recommendations and the Engineer's direction, and shall not be exposed to heat or direct sunlight. Torn or punctured geotextiles shall not be used.

**CONSTRUCTION METHODS**

Geotextile wrapped underdrain shall be installed as shown on the Plans or as directed by the Engineer and in accordance with Section 404 of the 2012 edition of the MDOT Standard Specifications, except as specified herein.

The installation of underdrain shall precede all other construction activities including but not limited to pavement milling, pavement pulverization, pavement removal, pavement patching, and curb repair.

The Contractor shall excavate, cut, remove stumps, remove brush, remove pavement, grade, and trim as needed and as directed, and shall import, furnish, fill, place, grade, and compact MDOT 2NS fine aggregate to construct underdrain as specified on the Plans, and as directed by the Engineer.

The trench shall be constructed to have a minimum width of 18-inches, and shall be typically excavated to the depth specified in the Plans or directed by the Engineer.

The underdrain shall be installed at the line, grade, and depth specified on the Plans or as directed by the Engineer. The minimum percent grade shall be 0.5%, and the minimum cover from top-of-pipe to finished top-of-curb grade shall be 4-feet. The Contractor shall maintain line and grade by means of a laser. The Engineer will not provide line, grade or staking.

Upgrade ends of the pipe shall be closed with suitable plugs to prevent entrance of trench backfill material. All couplings, tees, plugs, and other fittings shall be manufactured and installed so as to prevent any infiltration of trench backfill material.

The Contractor shall tap at least one end of the underdrain into a storm sewer structure, as directed by the Engineer.

During the construction of underdrain runs, the Engineer may direct the Contractor to terminate or modify underdrain construction due to conflicts with buried obstructions or if the minimum 4-foot cover cannot be maintained. There will be no adjustment to the Contract Unit Price due to changes in quantity.

The first lift (bedding) of backfill shall be MDOT 2NS material to a maximum thickness of 3-inches. Subsequent lifts shall be MDOT 2NS material to a maximum thickness of 12 inches.

**DETAILED SPECIFICATION  
FOR  
#315 – 6-INCH WRAPPED EDGE DRAIN**

Page 2 of 2

Removed or excavated materials which are not incorporated into the work shall become the property of the Contractor and shall be immediately removed and properly disposed of off-site. Removed or excavated materials may not be stockpiled overnight on, or adjacent to, the site.

All structures, inlets and manholes shall be maintained free of accumulations of silt, debris, and other foreign matter throughout construction, until the time of final acceptance.

**MEASUREMENT AND PAYMENT**

Connecting (tapping) underdrain(s) into drainage structure(s) will not be paid for separately, but shall be included in the bid price for this item of work.

Underdrain will be measured in-place by length in lineal feet.

The completed work as measured for this item of work will be paid for at the Contract Unit Price for the following Contract (Pay) Item:

**PAY ITEM**

6-Inch Wrapped Underdrain

**PAY UNIT**

Foot

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**DETAILED SPECIFICATION  
FOR  
#430 – FIRE HYDRANT ASSEMBLY**

Page 1 of 1

**DESCRIPTION**

This Detailed Specification is intended to supplement the current City of Ann Arbor Standard Specifications for Construction with regard to Fire Hydrant Assembly.

**MATERIALS**

Fire hydrants shall be either the East Jordan Model Watermaster 5BR250 with traffic flange, or the Waterous Pacer Model WB67-250 with traffic flange. All fire hydrants shall have the following features: a 6 inch push-on tyton joint connection, ANSI/AWWA C111/A21.11; one 5 inch storz connection; one 3-3/8 inch threaded Ann Arbor Standard pumper connection with 7-1/2 threads per inch and 4.05 in. O.D.; 1-3/8 inch pentagon operating and cap nuts (1-3/8 in. point-to-flat at top; 1-7/16 in. point-to-flat at base); open left; breakable flange construction; no barrel drain; and a painted red finish. Depth of bury (bottom of pipe to ground surface) is generally 6 feet but may vary depending on specific site conditions. The pumper nozzles must be 21 in. ± 3 in. above finished grade, and the breakable traffic flange must be between finished grade and 8 in. above finished grade. Fire hydrant extensions for Waterous hydrants shall be Waterous Part # K562. Extensions for East Jordan hydrants shall be hydrant model 5BR250 extension kits. All fire hydrants must be certified by Underwriters Laboratory (UL) or the National Sanitation Foundation (NSF) for use in a potable water system.

**MEASUREMENT AND PAYMENT**

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**PAY ITEM**

**PAY UNIT**

Fire Hydrant Assembly

Each

Fire hydrant assemblies shall be measured per unit constructed and paid for on the basis of unit price each. The unit price for fire hydrant assemblies shall include a 6-inch gate valve in box, 3 lineal feet of 6 inch pipe, an approved hydrant with traffic flange, and a thrust block. Any required extension will be paid for separately, on a per each installed basis.

**DETAILED SPECIFICATION  
FOR  
ITEM #445 –PRESSURE REDUCING VALVE**

Page 1 of 2

1.01 PRESSURE REDUCING VALVE

- A. Supply a 10 inch Singer Model 106– PR Pressure Reducing Control Valve. To ensure compliance with city standards and consistency of equipment throughout the water distribution system, alternate manufacturers will not be considered.
  - a. The valve shall be equipped with the following available options:
    - i. *X107 position indicator with bleed/vent cock*
    - ii. *(3) stainless steel pilot system isolation valves*
    - iii. *Stainless steel 40 mesh strainer*
    - iv. *Stainless steel open/close speed control valves*
    - v. *Braided stainless steel pilot tubing*
- B. Function: The valve shall be a pilot operated pressure reducing valve which will reduce a high inlet pressure to a low outlet pressure. The valve shall maintain a relatively constant downstream pressure regardless of fluctuations in supply pressure or flow rate.
- C. Operation: The pilot shall be a normally open Singer Model 160 Pressure Reducing Pilot that reacts to small changes in downstream pressure which acts to modulate the main valve bonnet pressure to hydraulically adjust the inner valve assembly position to maintain a constant downstream pressure.

1.02 Quality Assurance

- A. The control valve shall be tested prior to shipment. The standard test shall include a functional stroke, pressure and leak test of valve body, seat, fitted pilots and accessories.
- B. The control valve shall be covered by a minimum three (3) year warranty against defects in materials and workmanship. The AISI 316 stainless steel seat ring shall be covered by a lifetime guarantee.
- C. All control valve maintenance and repairs shall be possible without removing the main valve body from the line, when installed in accordance with manufacturer's recommendations.

1.03 Main Valve

- A. The main valve shall be a Singer 106-PG single chamber, diaphragm actuated full port model.
- B. Main valves, 6" (150mm) and larger, shall provide smooth frictionless motion to ensure a low flow stability to 1 USGPM, achieved using SRD-Single Rolling Diaphragm technology.
- C. The main valve, bonnet and removable stem cap shall be constructed of ASTM A536 (Grade 65/45/12) ductile iron.
- D. Main valves of 2.5" (65mm) and larger shall have a removable stem cap for access to the main valve stem for alignment check, spring installation and ease of service and assembly.
- E. The main valve bonnet shall be located using two or more locating guide pins to maintain the inner valve assembly alignment and for ease of maintenance.
- F. The main valve trim, consisting of seat ring and stem shall be constructed of AISI 316 stainless steel. The valve stem shall have wrench flats for ease of maintenance.
- G. The main valve shall provide a drip-tight seal using a mechanically retained resilient disc, having a rectangular cross section, against the stationary AISI 316 stainless steel seat ring.
- H. The stationary AISI 316 stainless steel seat ring of main valves 2.5" (65mm) and larger shall be held in place using Spiralock® self locking screws and seat ring retainers.
- I. All internal and external ferrous components, including all mating surfaces, shall be coated with an NSF-61 approved fusion bonded epoxy to a minimum of 10 mils DFT-Dry Film Thickness.
- J. The main valve elastomers: diaphragm, resilient disc and seals, shall be of EPDM or Buna-N.
- K. All main valve fasteners (bolts, nuts, studs, cap screws) shall be supplied as AISI 18-8 or 304 stainless steel. All bonnet bolts shall be fitted with stainless steel washers to prevent damage to the bonnet coating.

**DETAILED SPECIFICATION  
FOR  
ITEM #445 –PRESSURE REDUCING VALVE**

Page 2 of 2

- L. Valve shall have flanged end connections. Flanged connections shall be ANSI/ASME B16.42 Class 150# flange drilled, faced and rated. Threaded connections shall be specify NPT.
  - M. Due to the potential for noise, vibration and erosion damage from cavitation, the valve manufacturer shall provide, upon request, a computerized sizing and cavitation analysis, using independent third party software. Cavitation analysis shall provide the status of cavitation based on customer supplied parameters as to valve size, flow rate requirements and pressure conditions. The cavitation analysis shall also provide information as to Cv factor, percent of valve lift, cavitation index and noise level.
  - N. The valve manufacturer shall be able to supply cavitation control trim which shall be engineered to be optimized to the actual operating parameters of the control valve application and warranted to perform correctly and prevent main valve cavitation damage under the stated conditions. Orifice plates or other non-engineered cavitation control devices shall not be used to prevent or minimize valve cavitation.
  - O. Valve body shall have additional 1" body tap to accommodate installation of a single point insertion (SPI) meter.
- 1.04 Pilot Controls
- A. The pressure reducing pilot shall be a Singer Model 160 normally open pilot with a spring to adjust the pressure setting. The pilot shall be self-cleaning and self-flushing with the outlet of the pilot located at the bottom of the pilot flow with the pilot stem out of the waterway and guide free from any debris build-up.
  - B. The pilot trim, consisting of a seat ring, stem and yoke shall be constructed of AISI 316 stainless steel.
  - C. The pilot elastomers: diaphragm, inner valve and seals, shall be of EPDM or Buna-N.
  - D. The adjustable pilot spring range shall be supplied with a spring range of 20 to 200psi. The pilot shall be factory preset at specify setpoint psi.
  - E. The pilot body and spring casing shall be constructed of ASTM A351 CF8M stainless steel.
  - F. A fixed restriction shall be supplied as AISI 303 stainless steel with an orifice bore selected by the manufacturer based on the valve size and operation.
  - G. The adjustable flow stabilizer shall be a Singer Model 26 self-cleaning opening speed control, supplied as a stainless steel assembly. Optional for main valve sizes 10" (250mm) and larger.
  - H. The pilot fittings shall be supplied as AISI 316 stainless steel.
  - I. The pilot tubing shall be supplied as PTFE lined flexible braided stainless steel.
  - J. For valves 4" (100mm) and larger, (3) pilot isolation ball valves shall be supplied as standard. Pilot isolation ball valve(s) shall be constructed of 316 stainless steel with stainless steel handle operator.
  - K. For valves 4" (100mm) and larger, a pilot strainer shall be supplied as standard. Strainer material to be ASTM A351 CF8M stainless steel with a 40-mesh or 80-mesh 316 stainless steel screen. The external pilot strainer shall have a removable plug for easy maintenance access to the pilot screen and have provision for installation of a ball valve for pilot screen flushing.



**DETAILED SPECIFICATION  
FOR  
ITEM #450 – 60” x 120” CONCRETE VAULT (PRV)**

Page 1 of 1

**DESCRIPTION**

This work shall consist of furnishing, transporting, and installing a precast concrete vault for water main pressure reducing valve in accordance with the City of Ann Arbor Standard Specifications, as shown on the plans, and as specified herein.

**MATERIALS**

All concrete shall have a 28 day compressive strength of 4500 psi. Reinforcing steel shall comply with ASTM A615 Grade 60 rebar. Bar bending and placement shall comply with the latest ACI standards. Standard structural design based on AASHTO HS20 wheel loading. One-inch butyl rubber rope mastic is required for placement between top and bottom sections of vault.

Structure covers shall be paid for separately.

**MEASUREMENT AND PAYMENT**

The unit price for this item of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.

**PAY ITEM**

**PAY UNIT**

60” x 120” Concrete Vault (PRV)

Each

**DETAILED SPECIFICATION  
FOR  
ITEM #701 – EROSION CONTROL, TRENCH DRAIN INLET FILTER  
ITEM #702 – EROSION CONTROL, INLET PROTECTION  
ITEM #703 – EROSION CONTROL, SILT FENCE**

Page 1 of 1

**DESCRIPTION**

The Contractor shall furnish, place, maintain, and remove soil erosion and sedimentation control measures, including but not limited to, silt fence and fabric filter protection at all drainage structures, all in accordance with all applicable City (and other governmental agencies) codes and standards, as directed by the Engineer, as detailed in the Standard Specifications, and as shown on the Plans.

This work consists of installing and maintaining inlet filters and silt fence in accordance with Section 208 of the 2012 Michigan Department of Transportation Standard Specifications for Construction and as shown on the plans. Filters in existing and proposed inlets, as well as silt fence downstream of construction area, shall be installed in order to minimize the erosion of soil and the sedimentation of water courses. The related work includes the installation, maintenance, and removal of the filters and fence, cleaning as required during the performance of the project work, removing and disposing of accumulated sediment, and replacement of filters if required by the Engineer so as to provide a properly working inlet filter and a well-drained site.

**MATERIALS**

The inlet protection filters shall be in accordance with the REGULAR FLOW SILTSACK® manufactured by ACF Environmental (800) 448-3636; FLEXSTORM® Style FX manufactured by Advanced Drainage Systems, Inc. (800) 821-6710; CATCH-ALL® manufactured by Price & Company (866) 960-4300, SLOT GUARD® manufactured by Ertec Environmental Systems (866) 521-0724, or Engineer approved equal.

The Contractor shall submit product data sheets and a sample of the filter material for inlet filters and silt fence for Engineer approval prior to ordering materials.

**METHODS OF CONSTRUCTION**

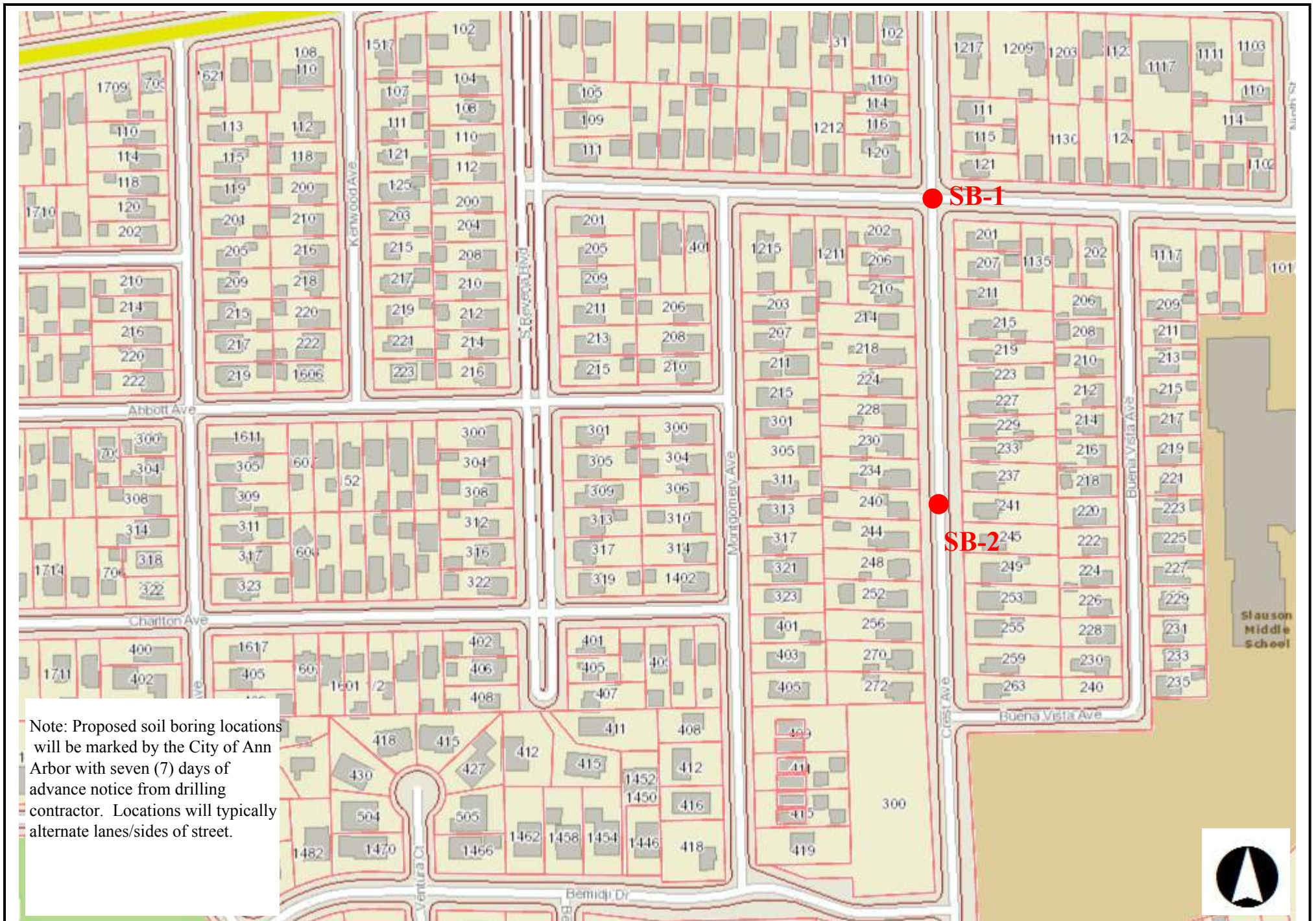
The Contractor shall install, maintain, clean, and re-install and/or replace inlet filters and silt fence in accordance with the manufacturer's specifications and as directed by the Engineer. The Contractor shall dispose of debris off-site.

**MEASUREMENT AND PAYMENT**

Soil erosion and sedimentation control items shall be field measured and paid for at the Contract Unit Prices for their respective Contract (Pay) Items as follows:

<b><u>PAY ITEM</u></b>	<b><u>PAY UNIT</u></b>
Erosion Control, Trench Drain Inlet Filter	Each
Erosion Control, Inlet Protection	Each
Erosion Control, Silt Fence	Foot

The unit prices for these items of work shall include all labor, material, and equipment costs to perform all the work specified in the Standard Specifications and as modified by this Detailed Specification.



Note: Proposed soil boring locations will be marked by the City of Ann Arbor with seven (7) days of advance notice from drilling contractor. Locations will typically alternate lanes/sides of street.

SOIL BORING LOCATION MAP  
Crest Ave/W Huron St/Buena Vista Ave

Scale is 12,400





Project Number: 1178070011  
 Project Name: 2017 Misc. Geotech  
 Project Location: Ann Arbor, MI  
 Client Name: City of Ann Arbor

Boring No: Crest SB-1  
 Offset: 15' NE of SW Washgtn. intersection  
 Street Name: Crest Ave.  
 Drilling Firm: Stearns Drilling  
 Driller Name: M. Hefferan  
 Drilling Method: HSA  
 Drill Rig Model: CME 55/300  
 Auger Size: 2.25" HSA  
 Weather:

Date Started: 9/8/17 Completed: 9/8/17  
 Time Started: Completed:  
 Logged By: M.Partenio Checked By:

DEPTH (ft)	DESCRIPTION OF STRATA	LEGEND	SAMPLE	RECOVERY (in)	UCS (tsf) *hand penetrometer	MOISTURE (%)	PL MC LL												
							10	20	30	40									
							: ( 7												
							& Fines Content (%) &												
							, SPT N Value ,												
							-10	-20	-30	-40									
0	5.25" ASPHALT PAVEMENT																		
	SAND (SW) - brown, fine to coarse, some gravel, dry																		
	SAND (SW) - brown, fine to coarse, some silt, trace gravel, occasional clay pockets, medium dense, moist		SS-1	14															
	SAND (SW) - brown, fine to coarse, some gravel and silt, occasional clay pockets, medium dense, moist		SS-2	18															
5	End of Boring																		
10																			

Groundwater During Drilling: N/A  
 Groundwater After Drilling: N/A  
 Cave-in Depth: N/A  
 End of Boring: 5 ft

Notes: Filled with auger cuttings and patched





Project Number: 1178070011  
 Project Name: 2017 Misc. Geotech  
 Project Location: Ann Arbor, MI  
 Client Name: City of Ann Arbor

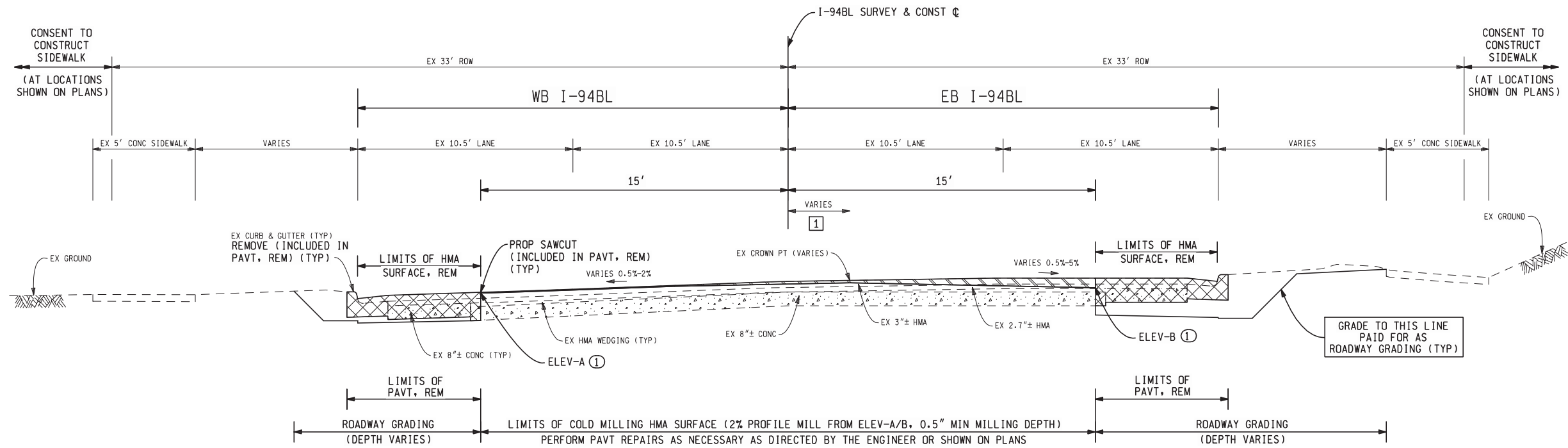
Boring No: Crest SB-2  
 Offset: 18' E of curb, across f/ 240  
 Street Name: Crest Ave.  
 Drilling Firm: Stearns Drilling  
 Driller Name: M. Hefferan  
 Drilling Method: HSA  
 Drill Rig Model: CME 55/300  
 Auger Size: 2.25" HSA  
 Weather:

Date Started: 9/8/17 Completed: 9/8/17  
 Time Started: Completed:  
 Logged By: M.Partenio Checked By:

DEPTH (ft)	DESCRIPTION OF STRATA	LEGEND	SAMPLE	RECOVERY (in)	UCS (tsf) <small>*hand penetrometer</small>	MOISTURE (%)	PL MC LL												
							10	20	30	40									
							: ( 7												
							& Fines Content (%) &												
							, SPT N Value ,												
							-10	-20	-30	-40									
0	4.5" ASPHALT PAVEMENT																		
	SAND (SW) - brown, fine to coarse, some gravel, dry																		
	SAND (SW) - brown, fine to coarse, some silt, trace gravel, occasional clay pockets, medium dense, moist		SS-1	18		8.5													
	Boring Terminated on Obstruction																		
5																			
10																			

Groundwater During Drilling: N/A  
 Groundwater After Drilling: N/A  
 Cave-in Depth: N/A  
 End of Boring: 5 ft

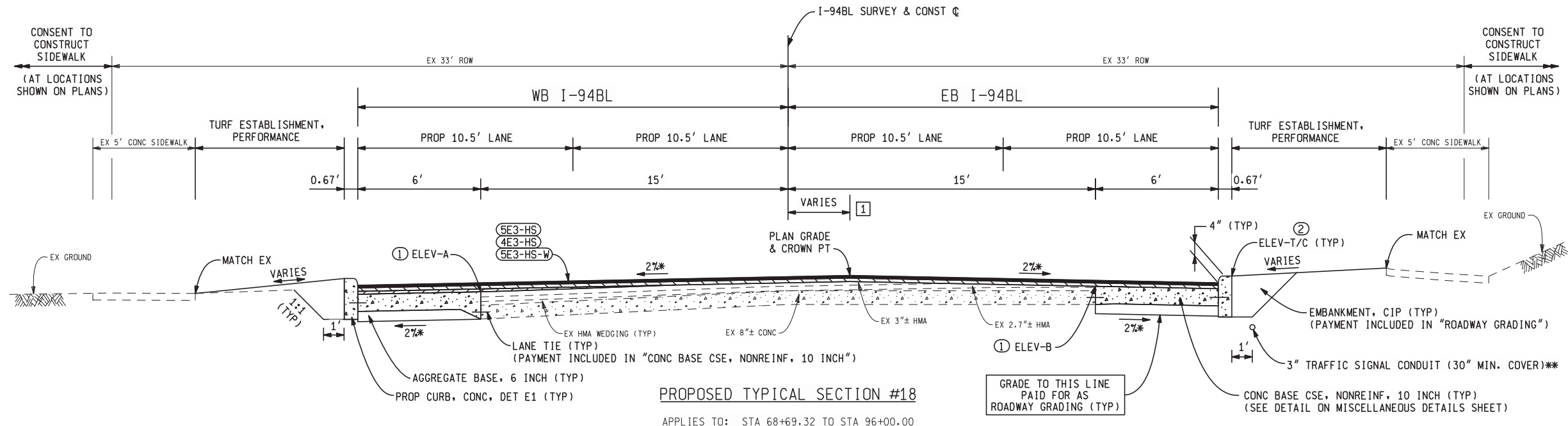
Notes: Filled with auger cuttings and patched



**EX AND PROP CROWN POINT**

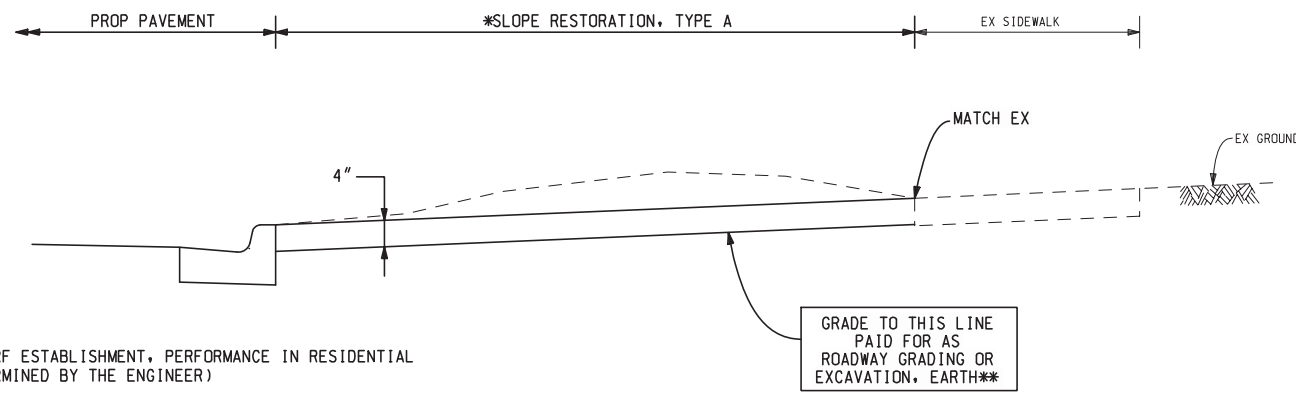
1	STA 68+69.32 TO STA 76+00	DISTANCE = 0'
	STA 76+00 TO STA 77+00	DISTANCE VARIES 0' TO 10.5'
	STA 77+00 TO STA 92+50	DISTANCE = 10.5'
	STA 92+50 TO STA 93+50	DISTANCE VARIES 10.5' TO 0'
	STA 93+50 TO STA 96+00	DISTANCE = 0'

- ① ELEV-A AND ELEV-B ARE COLD MILLED SURFACE ELEVATIONS AT SAW CUT LINE, SEE PROFILE.
- ② ELEV-T/C IS TOP OF CURB ELEVATIONS, SEE PROFILE.



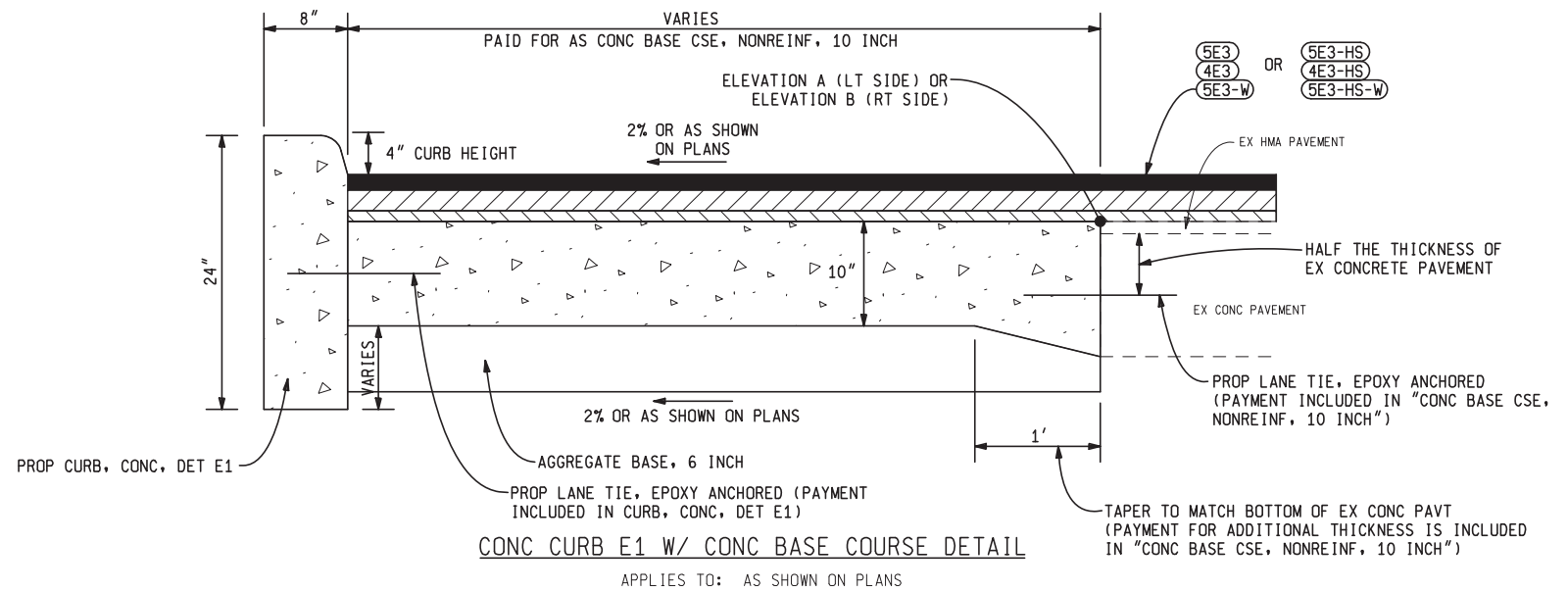
\* PROPOSED CROSS SLOPE VARIES FROM 2% TO MATCH EXISTING FROM STA 95+50 TO STA 96+00  
 \*\* SEE TRAFFIC SIGNAL SHEETS FOR DETAILS. COORDINATE ALL SIGNAL WORK WITH ROAD WORK.

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE: )								VERT. (FT) VARIES 0 0 HORZ. (FT) 6		DATE: 08/01/13 DESIGN UNIT: KIRBY TSC: BRIGHTON	CS: 81101 JN: 87521A	<b>TYPICAL CROSS SECTIONS</b> I-94BL		DRAWING I-94BL TYPXS 019	SHEET SECT 1
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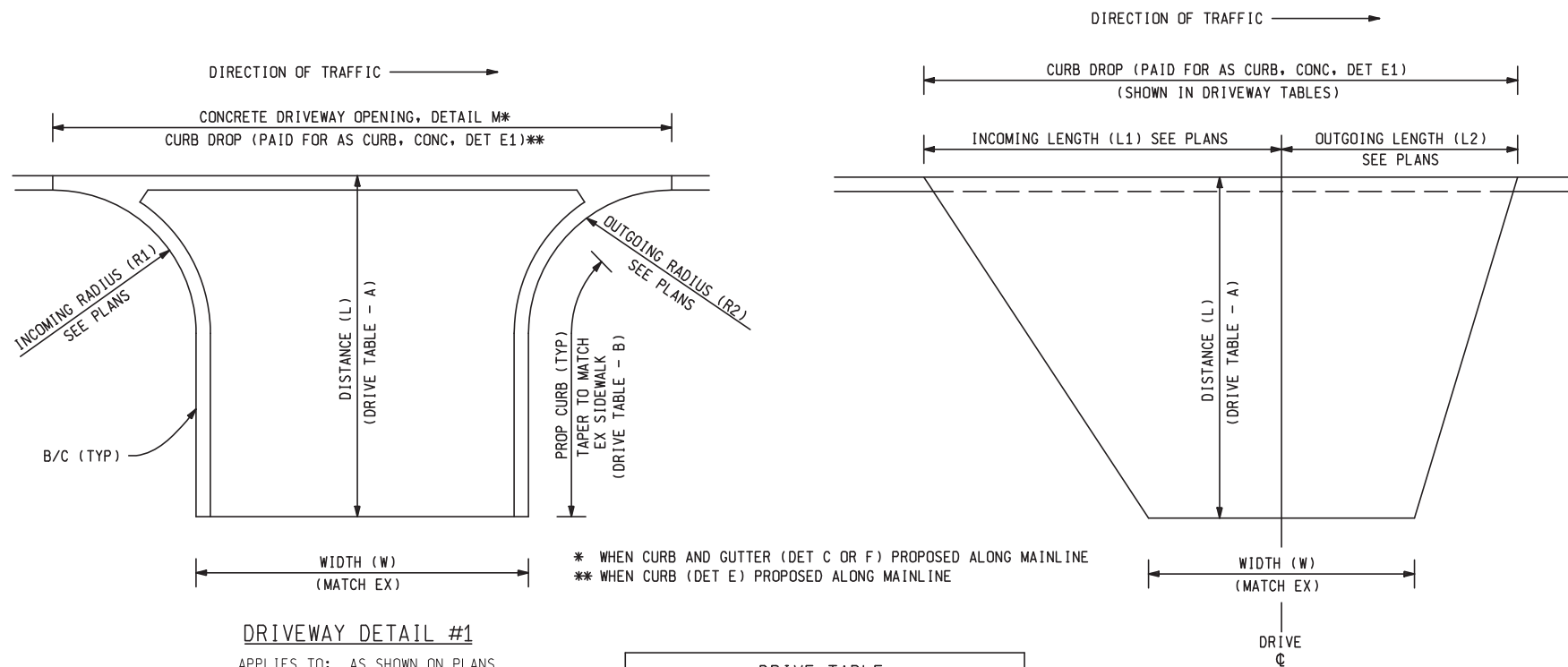


\* PAID FOR AS TURF ESTABLISHMENT, PERFORMANCE IN RESIDENTIAL AREAS (AS DETERMINED BY THE ENGINEER)  
 \*\* PAID FOR AS ROADWAY GRADING FROM POB TO STA 100+00.00  
 PAID FOR AS EXCAVATION, EARTH FROM STA 100+00.00 TO POE

**OVERBURDEN REMOVAL DETAIL**  
 TO APPLY: AS DIRECTED BY THE ENGINEER



**CONC CURB E1 W/ CONC BASE COURSE DETAIL**  
 APPLIES TO: AS SHOWN ON PLANS

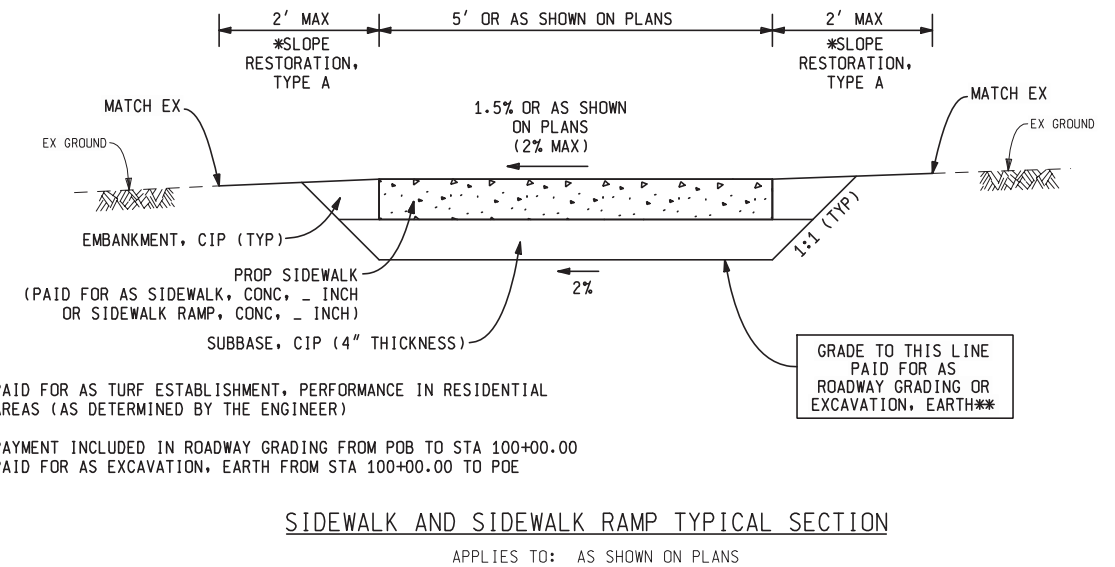


**DRIVEWAY DETAIL #1**  
 APPLIES TO: AS SHOWN ON PLANS

**DRIVEWAY DETAIL #2**  
 APPLIES TO: AS SHOWN ON PLANS

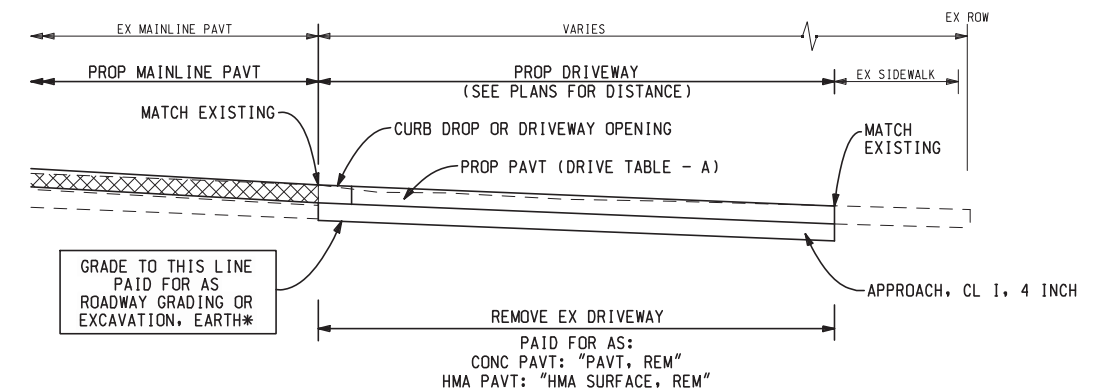
DRIVE TABLE			
DRIVEWAY TYPE	SURFACE MATERIAL	A	B
RESIDENTIAL	HMA	(HA-1)	AS SHOWN ON PLANS
	CONC	DRIVEWAY, NONREINF CONC, 6 INCH	
COMMERCIAL*	HMA	(HA-2)	
	CONC	DRIVEWAY, NONREINF CONC, 7 INCH	

\* FIRE STATION CONCRETE DRIVE SHALL BE 9 INCHES THICK



**SIDEWALK AND SIDEWALK RAMP TYPICAL SECTION**  
 APPLIES TO: AS SHOWN ON PLANS

\* PAID FOR AS TURF ESTABLISHMENT, PERFORMANCE IN RESIDENTIAL AREAS (AS DETERMINED BY THE ENGINEER)  
 \*\* PAYMENT INCLUDED IN ROADWAY GRADING FROM POB TO STA 100+00.00  
 PAID FOR AS EXCAVATION, EARTH FROM STA 100+00.00 TO POE



**DRIVEWAY DETAIL #3**  
 APPLIES TO: AS SHOWN ON PLANS

\* PAID FOR AS ROADWAY GRADING FROM POB TO STA 100+00.00  
 PAID FOR AS EXCAVATION, EARTH FROM STA 100+00.00 TO POE

FINAL ROW PLAN REVISIONS (SUBMITTAL DATE: )						NO SCALE		DATE: 08/01/13		CS: 81101/81062/81072/81073/81104		MISCELLANEOUS DETAILS		DRAWING		SHEET	
NO.	DATE	AUTH	DESCRIPTION	NO.	DATE	AUTH	DESCRIPTION	FILE: 87521_I94BL_MISDET_002.dgn	DESIGN UNIT: KIRBY	JN: 87521A	I-94BL		I-94BL	MISDET	002	002	
									TSC: BRIGHTON								

"General Decision Number: MI20210074 01/01/2021

Superseded General Decision Number: MI20200074

State: Michigan

Construction Type: Heavy

County: Washtenaw County in Michigan.

Heavy, Includes Water, Sewer Lines and Excavation (Excludes Hazardous Waste Removal; Coal, Oil, Gas, Duct and other similar Pipeline Construction)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/01/2021

CARP0687-006 06/01/2020

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 34.20	28.82



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ELEC0252-009 06/01/2020

	Rates	Fringes
ELECTRICIAN.....	\$ 47.46	23.16

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\* ENGI0325-019 09/01/2020

POWER EQUIPMENT OPERATORS: Underground Construction (Including Sewer)

	Rates	Fringes
POWER EQUIPMENT OPERATOR		
GROUP 1.....	\$ 35.88	24.85
GROUP 2.....	\$ 31.15	24.85
GROUP 3.....	\$ 30.42	24.85
GROUP 4.....	\$ 29.85	24.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backhoe/ Excavator, Boring Machine, Bulldozer, Crane, Grader/ Blade, Loader, Roller, Scraper, Trencher (over 8 ft. digging capacity)

GROUP 2: Trencher (8-ft digging capacity and smaller)

GROUP 3: Boom Truck (non-swinging, non- powered type boom)

GROUP 4: Broom/ Sweeper, Fork Truck, Tractor, Bobcat/ Skid Steer /Skid Loader

-----  
ENGI0326-008 06/01/2020

EXCLUDES UNDERGROUND CONSTRUCTION

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1.....	\$ 42.69	24.95
GROUP 2.....	\$ 41.19	24.95
GROUP 3.....	\$ 39.69	24.95
GROUP 4.....	\$ 39.39	24.95
GROUP 5.....	\$ 38.57	24.95
GROUP 6.....	\$ 37.71	24.95
GROUP 7.....	\$ 36.74	24.95
GROUP 8.....	\$ 35.03	24.95

GROUP 9.....\$ 26.69 24.95

FOOTNOTES: Tower cranes: to be paid the crane operator rate determined by the combined length of the mast and the boom.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Crane with boom & jib or leads 400' or longer

GROUP 2: Crane with boom & jib or leads 300' or longer

GROUP 3: Crane with boom & jib or leads 220' or longer

GROUP 4: Crane with boom & jib or leads 140' or longer

GROUP 5: Crane with boom & jib or leads 120' or longer

GROUP 6: Regular crane operator

GROUP 7: Backhoe/Excavator, Bobcat/Skid Loader, Boring Machine, Broom/Sweeper, Bulldozer, Grader/Blade, Loader, Roller, Scraper, Tractor, Trencher

GROUP 8: Forklift

GROUP 9: Oiler

-----  
IRON0025-006 06/01/2019

	Rates	Fringes
IRONWORKER		
Reinforcing.....	\$ 30.98	27.99
Structural.....	\$ 36.77	29.03

-----  
LAB00334-009 06/01/2019

EXCLUDES OPEN CUT CONSTRUCTION

	Rates	Fringes
Landscape Laborer		
GROUP 1.....	\$ 20.75	7.10
GROUP 2.....	\$ 18.75	7.10

LANDSCAPE LABORER CLASSIFICATIONS

GROUP 1: Landscape specialist, including air, gas and diesel equipment operator, lawn sprinkler installer and skidsteer

(or equivalent)

GROUP 2: Landscape laborer: small power tool operator, material mover, truck driver and lawn sprinkler installer tender

-----  
LAB00334-018 09/01/2018

SCOPE OF WORK:

OPEN CUT CONSTRUCTION: Excavation of earth and sewer, utilities, and improvements, including underground piping/conduit (including inspection, cleaning, restoration, and relining)

	Rates	Fringes
LABORER		
(1) Common or General.....	\$ 23.75	12.85
(2) Mason Tender- Cement/Concrete.....	\$ 23.86	12.85
(4) Grade Checker.....	\$ 24.05	12.85
(5) Pipelayer.....	\$ 22.90	12.75
(524.20) Pipelayer.....	\$ 22.90	12.85
(7) Landscape.....	\$ 18.14	12.85

-----  
LAB00499-020 08/01/2019

EXCLUDES OPEN CUT CONSTRUCTION

	Rates	Fringes
LABORER		
GROUP 1.....	\$ 29.37	40.40
GROUP 2.....	\$ 29.58	40.40
GROUP 3.....	\$ 29.71	40.40

LABORER CLASSIFICATIONS

GROUP 1: Common or General; Grade Checker

GROUP 2: Mason Tender - Cement/Concrete

GROUP 3: Pipelayer

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PAIN0022-005 07/01/2008

	Rates	Fringes
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PAINTER

Brush & Roller.....	\$ 25.06	14.75
Spray.....	\$ 25.86	14.75

-----  
PLAS0514-002 06/01/2018

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 31.47	13.81

-----  
PLUM0190-010 06/01/2020

	Rates	Fringes
PLUMBER.....	\$ 42.26	23.70

-----  
TEAM0007-006 06/01/2020

	Rates	Fringes
TRUCK DRIVER		
Dump Truck under 8 cu. yds.; Tractor Haul Truck....	\$ 27.90	.50 + a+b
Dump Truck, 8 cu. yds. and over.....	\$ 28.00	.50 + a+b
Lowboy/Semi-Trailer Truck...	\$ 28.15	.50 + a+b

FOOTNOTE:

- a. \$470.70 per week.
- b. \$68.70 daily.

-----  
SUMI2010-072 11/09/2010

	Rates	Fringes
TRUCK DRIVER: Off the Road Truck.....	\$ 20.82	3.69

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WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====  
Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide

employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

## Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

## Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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## WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on

- a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations  
Wage and Hour Division  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board  
U.S. Department of Labor  
200 Constitution Avenue, N.W.  
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION



## Defect Listing

Pipe Segment Reference 74-71212	City Ann Arbor	Street W Liberty St	Material Vitrified Clay Pipe		Location Code	Sewer Use Sanitary
Upstream MH 71-71026	Total Length	Year Laid	Shape Circular		Location Details	
DS Manhole 71-71025	Length surveyed 25.9	Year Renewed	Height 8	Width	Pipe Joint Length	

SPR	2	MPR	0	PO Number		Customer	
SPRI	2	MPRI	0	Work Order		Purpose	
QSR	2100	QMR	0000				
OPR 2	Surveyed By JBELL		Direction Downstream		Date 03/25/2021		Media label
OPRI 2	Certificate Number U-1117-07009559		Pre-Cleaning No Pre-cleaning		Time 09:23		Weather Dry
Date Cleaned				End Time 09:26		Additional Info	

Distance	Condition	Cont. Dfct.	Values			Joint	Clock Position		Grade
			1st	2nd	%		At/From	To	
0	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71026									
0	Water Level				5	<input type="checkbox"/>			
4.5	Surface Spalling					<input type="checkbox"/>	12		2
11.3	Tap Factory Made		4			<input type="checkbox"/>	3		
25.9	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71025									





## Defect Listing

Pipe Segment Reference 74-71211	City Ann Arbor	Street W Liberty St	Material Vitrified Clay Pipe	Location Code	Sewer Use Sanitary
Upstream MH 71-71025	Total Length	Year Laid	Shape Circular	Location Details	
DS Manhole 71-71024	Length surveyed 320.9	Year Renewed	Height 8	Width	Pipe Joint Length

SPR 3	MPR 12	PO Number		Customer	
SPRI 3	MPRI 1.2	Work Order		Purpose	
QSR 3100	QMR 2218				
OPR 15	Surveyed By JBELL	Direction Downstream	Date 03/25/2021	Media label	
OPRI 1.4	Certificate Number U-1117-07009559	Pre-Cleaning No Pre-cleaning	Time 09:27	Weather Dry	
Date Cleaned			End Time 09:39	Additional Info	

Distance	Condition	Cont. Dfct.	Values			Joint	Clock Position		Grade
			1st	2nd	%		At/From	To	
0	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71025									
0	Water Level				5	<input type="checkbox"/>			
32	Tap Factory Made Active		4			<input type="checkbox"/>	10		
54.3	Tap Factory Made		4			<input type="checkbox"/>	2		
65.3	Fracture Longitudinal					<input type="checkbox"/>	10		3
96.2	Tap Factory Made		4			<input type="checkbox"/>	10		
99.1	Tap Factory Made Capped		4			<input type="checkbox"/>	10		
105.3	Tap Factory Made		4			<input type="checkbox"/>	2		
116.5	Infiltration Weeper					<input type="checkbox"/>	12		2
142.7	Deposits Attached Grease				5	<input type="checkbox"/>	6		2
158.4	Tap Factory Made		4			<input type="checkbox"/>	10		
170.7	Tap Factory Made		4			<input type="checkbox"/>	2		
224	Tap Factory Made		4			<input type="checkbox"/>	10		
228	Tap Break-In		4			<input type="checkbox"/>	10		
236.1	Tap Factory Made		4			<input type="checkbox"/>	2		
281.1	Roots Fine Joint	S01				<input checked="" type="checkbox"/>	12		1
295.2	Tap Factory Made		4			<input type="checkbox"/>	2		
297.4	Tap Factory Made		4			<input type="checkbox"/>	10		
319.2	Roots Fine Joint	F01				<input checked="" type="checkbox"/>	12		1
320.9	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71024									



## Defect Listing

Pipe Segment Reference 74-71210	City Ann Arbor	Street W Liberty St	Material Vitrified Clay Pipe	Location Code	Sewer Use Sanitary
Upstream MH 71-71024	Total Length	Year Laid	Shape Circular	Location Details	
DS Manhole 71-71023	Length surveyed 67.7	Year Renewed	Height 8	Width	Pipe Joint Length

SPR 0	MPR 3	PO Number		Customer	
SPRI 0	MPRI 1	Work Order		Purpose	
QSR 0000	QMR 1300				
OPR 3	Surveyed By JBELL	Direction Upstream	Date 03/25/2021	Media label	
OPRI 1	Certificate Number U-1117-07009559	Pre-Cleaning No Pre-cleaning	Time 12:36	Weather Dry	
Date Cleaned			End Time 12:40	Additional Info	

Distance	Condition	Cont. Dfct.	Values			Joint	Clock Position		Grade
			1st	2nd	%		At/From	To	
0	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71046									
0	Water Level				5	<input type="checkbox"/>			
11.9	Roots Fine Joint					<input checked="" type="checkbox"/>	12		1
43.8	Tap Factory Made		4			<input type="checkbox"/>	10		
52.5	Roots Fine Joint					<input checked="" type="checkbox"/>	12		1
56	Tap Factory Made		4			<input type="checkbox"/>	2		
56.7	Roots Fine Joint					<input checked="" type="checkbox"/>	12		1
67.7	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71024									



## Defect Listing

Pipe Segment Reference 74-71209	City Ann Arbor	Street W Liberty St	Material Vitrified Clay Pipe	Location Code	Sewer Use Sanitary
Upstream MH 71-71023	Total Length	Year Laid	Shape Circular	Location Details	
DS Manhole 71-71046	Length surveyed 214.1	Year Renewed	Height 8	Width	Pipe Joint Length

SPR 21	MPR 24	PO Number		Customer	
SPRI 3.5	MPRI 2	Work Order		Purpose	
QSR 5142	QMR 3616				
OPR 45	Surveyed By JBELL	Direction Downstream	Date 03/25/2021	Media label	
OPRI 2.5	Certificate Number U-1117-07009559	Pre-Cleaning No Pre-cleaning	Time 11:50	Weather Dry	
Date Cleaned			End Time 12:04	Additional Info	

Distance	Condition	Cont. Dfct.	Values			Joint	Clock Position		Grade
			1st	2nd	%		At/From	To	
0	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71023									
0	Water Level				5	<input type="checkbox"/>			
27.4	Tap Break-In		4			<input type="checkbox"/>	10		
32.7	Tap Factory Made		4			<input type="checkbox"/>	2		
69.4	Tap Factory Made		4			<input type="checkbox"/>	10		
85.7	Tap Break-In		4			<input type="checkbox"/>	10		
88	Tap Factory Made		4			<input type="checkbox"/>	2		
105.6	Tap Break-In Defective		4			<input type="checkbox"/>	9		3
105.6	Hole Soil Visible					<input type="checkbox"/>	10		5
Remarks: Mortar around hammer tap has failed and has created a hole									
131.5	Crack Spiral					<input type="checkbox"/>	9	3	2
133.6	Crack Multiple					<input type="checkbox"/>	12	3	3
144	Roots Fine Joint	S01				<input checked="" type="checkbox"/>	12		1
145.7	Crack Multiple					<input type="checkbox"/>	12	4	3
154.8	Tap Factory Made		4			<input type="checkbox"/>	2		
170.2	Fracture Multiple					<input type="checkbox"/>	12	3	4
173.5	Tap Factory Made		4			<input type="checkbox"/>	10		
173.5	Roots Fine Joint	F01				<input checked="" type="checkbox"/>	12		1
174.6	Roots Medium Joint	S02			15	<input checked="" type="checkbox"/>	9		3
189.2	Roots Medium Joint	F02			15	<input checked="" type="checkbox"/>	9		3
198.9	Roots Medium Joint	S03			15	<input checked="" type="checkbox"/>	3		3
200.9	Fracture Multiple					<input type="checkbox"/>	7	3	4
208.4	Roots Medium Joint	F03			15	<input checked="" type="checkbox"/>	3		3
214.1	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71046									



## Defect Listing

Pipe Segment Reference 74-70321	City Ann Arbor	Street W Liberty St	Material Vitrified Clay Pipe	Location Code	Sewer Use Sanitary
Upstream MH 71-71046	Total Length	Year Laid	Shape Circular	Location Details	
DS Manhole 71-70794	Length surveyed 274.5	Year Renewed	Height 8	Width	Pipe Joint Length

SPR 162	MPR 6	PO Number		Customer	
SPRI 3	MPRI 1.5	Work Order		Purpose	
QSR 3100	QMR 2212				
OPR 168	Surveyed By JBELL	Direction Downstream	Date 03/26/2021	Media label	
OPRI 2.9	Certificate Number U-1117-07009559	Pre-Cleaning Heavy Cleaning	Time 09:32	Weather Heavy Rain	
Date Cleaned			End Time 09:42	Additional Info	

Distance	Condition	Cont. Dfct.	Values			Joint	Clock Position		Grade
			1st	2nd	%		At/From	To	
0	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-71046									
0	Water Level				5	<input type="checkbox"/>			
2	Tap Factory Made		4			<input type="checkbox"/>	2		
5.1	Fracture Spiral	S01				<input checked="" type="checkbox"/>	9	3	3
14	Tap Factory Made		4			<input type="checkbox"/>	10		
63.2	Tap Factory Made		4			<input type="checkbox"/>	2		
67	Tap Factory Made		4			<input type="checkbox"/>	10		
104.1	Tap Factory Made		4			<input type="checkbox"/>	10		
140.5	Tap Factory Made		4			<input type="checkbox"/>	2		
147.8	Roots Fine Joint					<input checked="" type="checkbox"/>	12		1
168.9	Tap Factory Made		4			<input type="checkbox"/>	10		
178.2	Roots Fine Joint					<input checked="" type="checkbox"/>	12		1
190.2	Tap Break-In		4			<input type="checkbox"/>	2		
209.9	Tap Factory Made		4			<input type="checkbox"/>	10		
211.7	Tap Factory Made Defective		4			<input type="checkbox"/>	2		2
Remarks: Packed with roots									
218.5	Tap Break-In Intruding		4	1		<input type="checkbox"/>	2		2
274.5	Fracture Spiral	F01				<input type="checkbox"/>	9	3	3
274.5	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-70794									



### Defect Listing

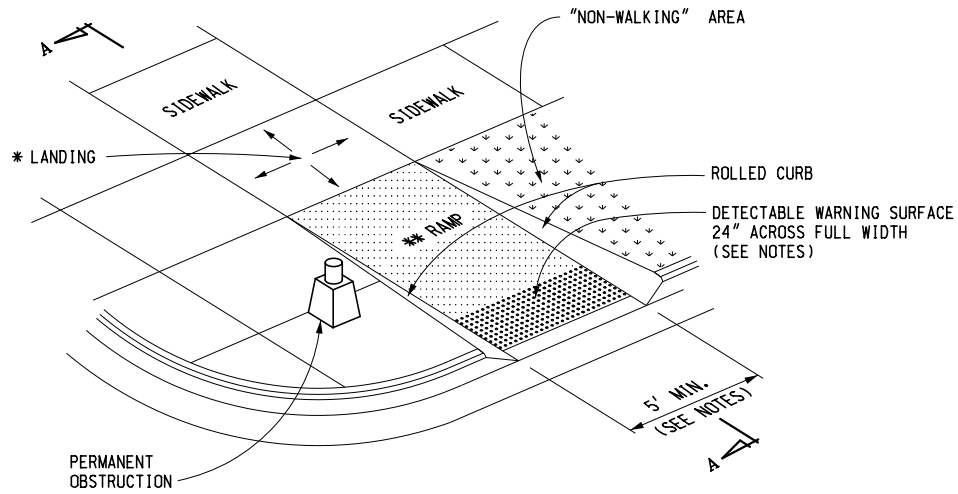
Pipe Segment Reference 74-70980	City Ann Arbor	Street W Liberty St	Material Vitrified Clay Pipe	Location Code	Sewer Use Sanitary
Upstream MH 71-70794	Total Length	Year Laid	Shape Circular	Location Details	
DS Manhole 71-70507	Length surveyed 344.7	Year Renewed	Height 8	Width	Pipe Joint Length

SPR 18	MPR 1	PO Number		Customer	
SPRI 2.6	MPRI 1	Work Order		Purpose	
QSR 4132	QMR 1100				
OPR 19	Surveyed By JBELL	Direction Downstream	Date 03/26/2021	Media label	
OPRI 2.4	Certificate Number U-1117-07009559	Pre-Cleaning No Pre-cleaning	Time 09:45	Weather Dry	
Date Cleaned			End Time 09:58	Additional Info	

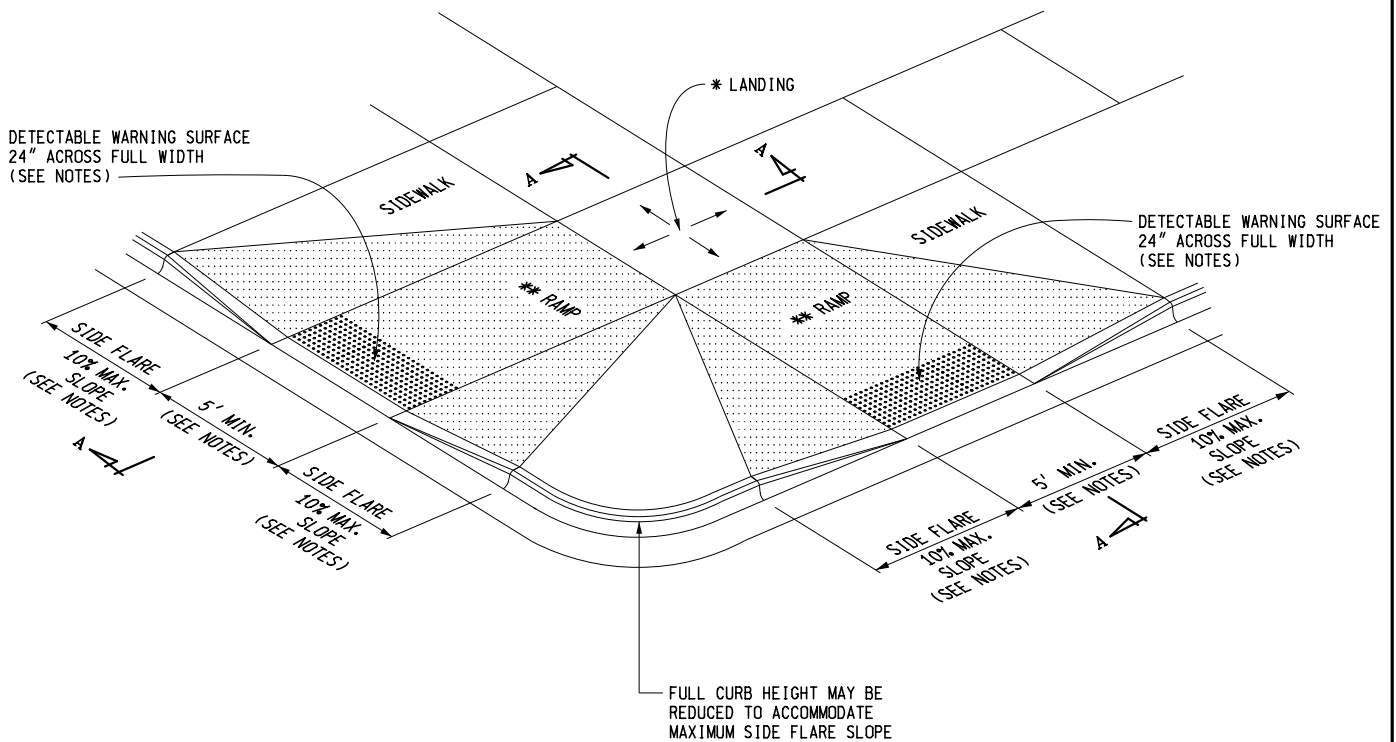
Distance	Condition	Cont. Dfct.	Values			Joint	Clock Position		Grade
			1st	2nd	%		At/From	To	
0	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-70794									
0	Water Level				5	<input type="checkbox"/>			
9.5	Roots Fine Joint					<input checked="" type="checkbox"/>	12		1
27.3	Crack Spiral					<input type="checkbox"/>	8	4	2
94	Tap Factory Made		4			<input type="checkbox"/>	10		
104.2	Tap Factory Made		4			<input type="checkbox"/>	2		
124.8	Tap Factory Made		4			<input type="checkbox"/>	10		
130.3	Fracture Circumferential					<input type="checkbox"/>	12	6	2
130.9	Surface Spalling					<input type="checkbox"/>	9		2
132.4	Fracture Spiral					<input type="checkbox"/>	10	2	3
167.6	Tap Factory Made		4			<input type="checkbox"/>	2		
174.9	Tap Factory Made		4			<input type="checkbox"/>	2		
212	Tap Break-In		4			<input type="checkbox"/>	10		
215.8	Tap Factory Made		4			<input type="checkbox"/>	3		
236.2	Tap Factory Made		4			<input type="checkbox"/>	10		
260.6	Tap Factory Made		4			<input type="checkbox"/>	2		
273.2	Tap Factory Made		4			<input type="checkbox"/>	10		
276.3	Crack Spiral					<input type="checkbox"/>	11	1	2
313.7	Broken Pipe					<input type="checkbox"/>	12		3
332.7	Fracture Multiple					<input type="checkbox"/>	9	12	4
344.7	Access Point Manhole					<input type="checkbox"/>			
Remarks: 71-70507									

\* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

\*\* MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



**CURB RAMP TYPE R**  
(ROLLED SIDES)



**CURB RAMP TYPE F**  
(FLARED SIDES, TWO RAMPS SHOWN)



PREPARED BY  
DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR  
Paul C. Ajegba

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**CURB RAMP AND  
DETECTABLE WARNING DETAILS**

\_\_\_\_\_  
F.H.W.A. APPROVAL

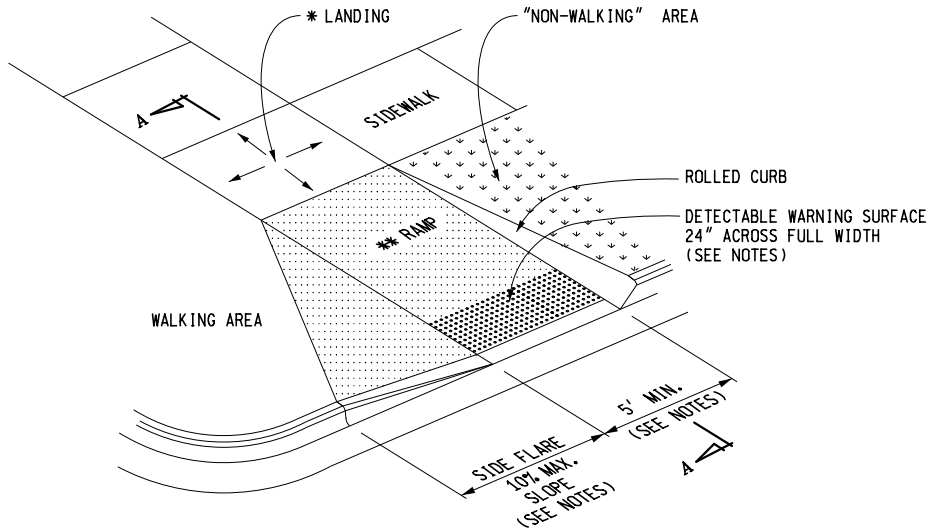
5-8-2020  
PLAN DATE

**R-28-J**

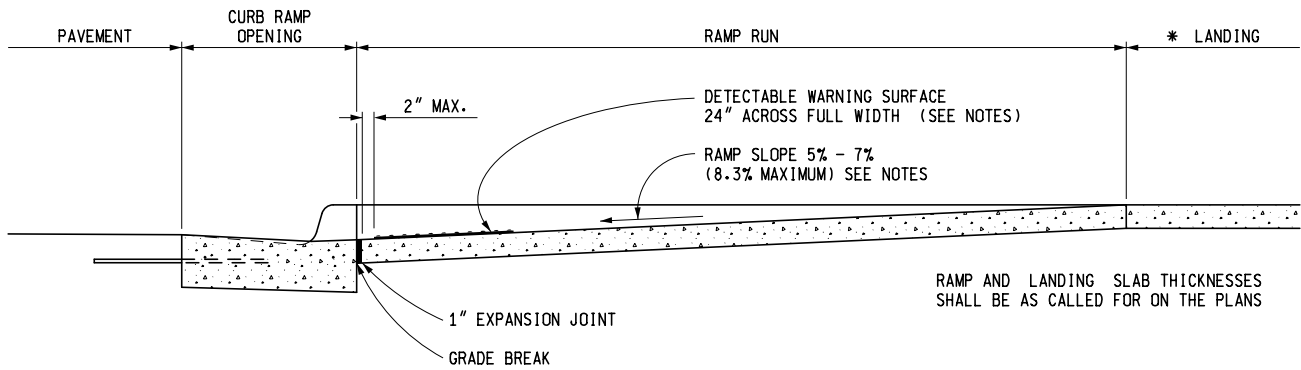
SHEET  
1 OF 7

\* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

\*\* MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



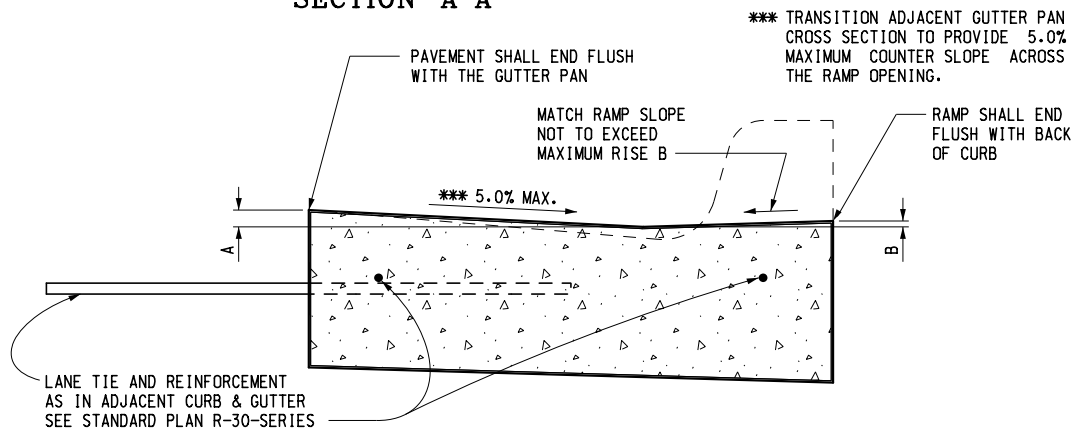
**CURB RAMP TYPE RF**  
(ROLLED / FLARED SIDES)



**SECTION A-A**

CURB TYPE	MAXIMUM RISE (INCHES)	
	A	B
B1	3/4	1
B2	3/4	1
B3	3/4	1
D1	3/4	1
D2	3/4	1
D3	3/4	1
C1	1/2	1/2
C2	1/2	1/2
C3	3/4	1/2
C4	3/4	1/2
C5	1	1/2
C6	1	1/2
F1	1/2	1/2
F2	1/2	1/2
F3	3/4	1/2
F4	3/4	1/2
F5	1	1/2
F6	1	1/2

FOR CURB TYPES SEE STANDARD PLAN R-30-SERIES



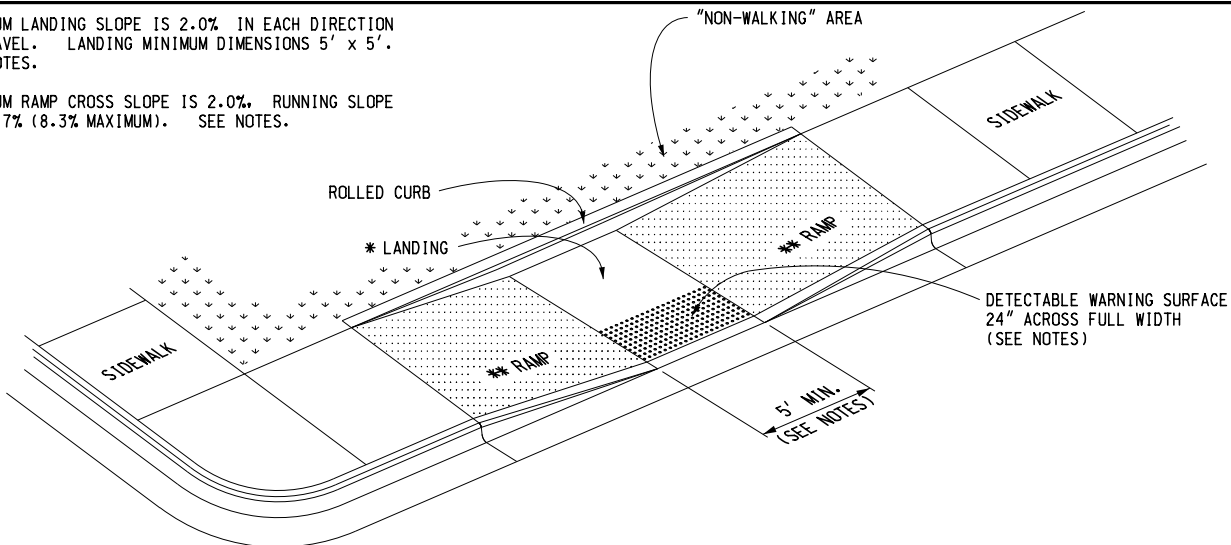
**SECTION THROUGH CURB RAMP OPENING**  
(TYPICAL ALL RAMP TYPES)

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR  
**CURB RAMP AND  
DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 2 OF 7
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\* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

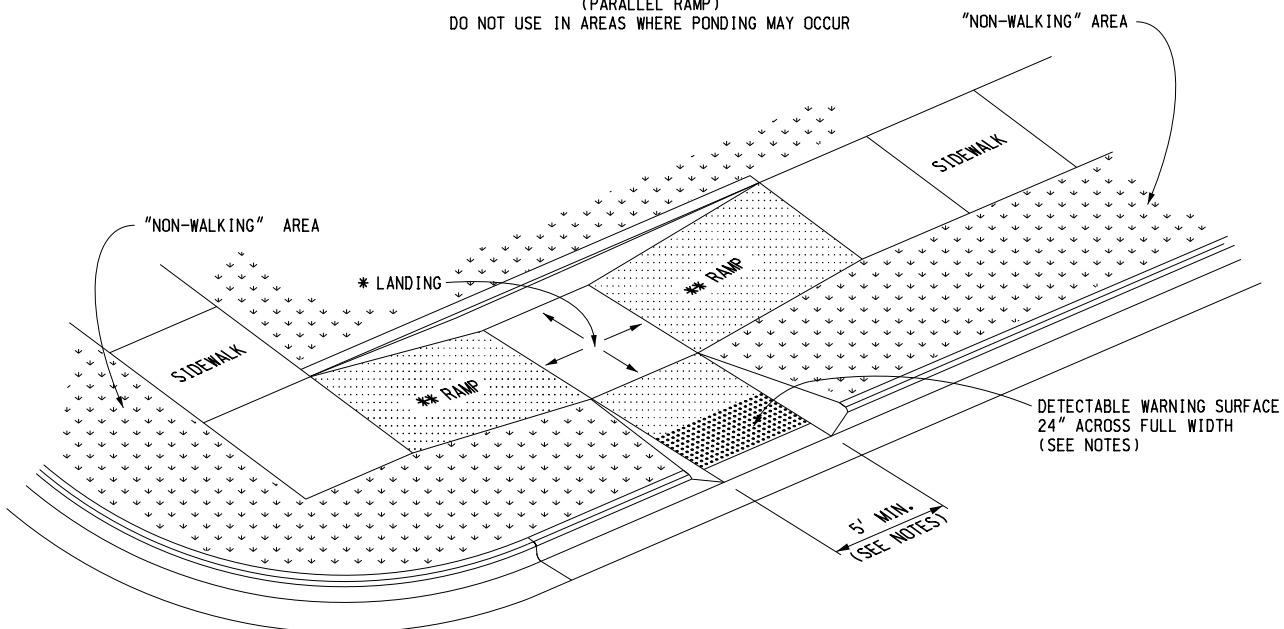
\*\* MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



**CURB RAMP TYPE P**

(PARALLEL RAMP)

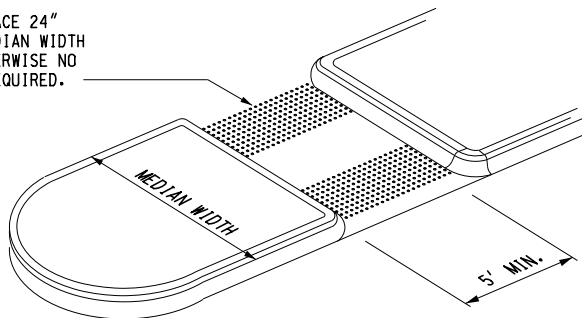
DO NOT USE IN AREAS WHERE PONDING MAY OCCUR



**CURB RAMP TYPE C**

(COMBINATION RAMP)

DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH IF MEDIAN WIDTH IS AT LEAST 6'-0". OTHERWISE NO DETECTABLE WARNING IS REQUIRED.



**CURB RAMP TYPE M**

(MEDIAN ISLAND)

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**CURB RAMP AND  
DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL

5-8-2020  
PLAN DATE

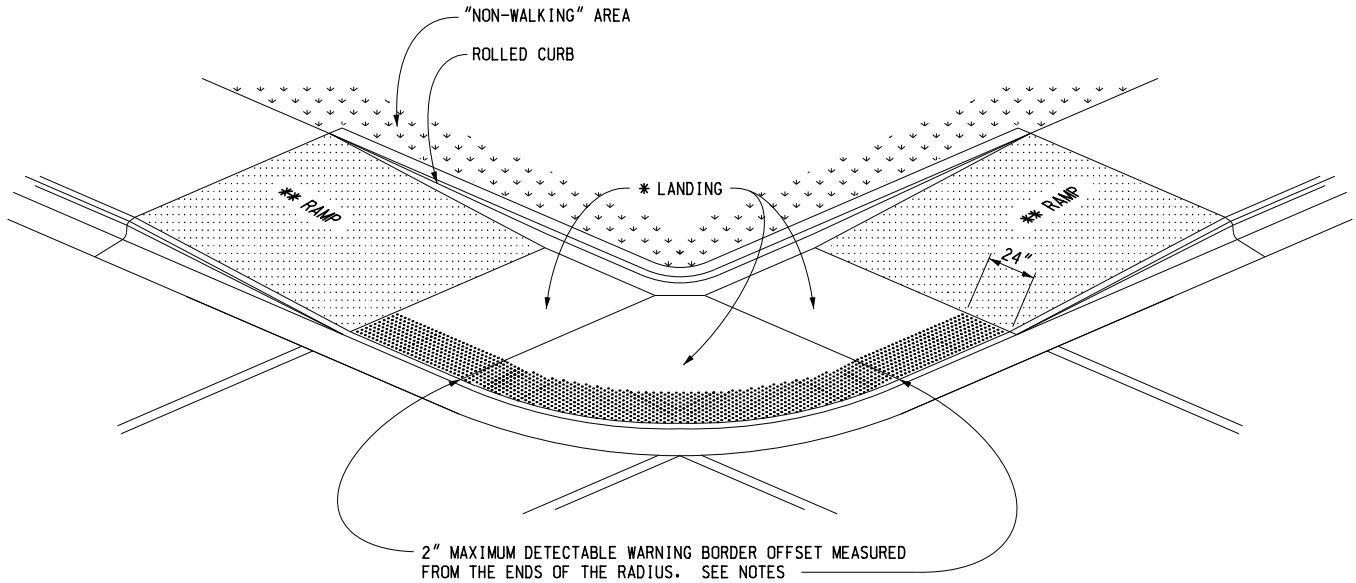
R-28-J

SHEET  
3 OF 7

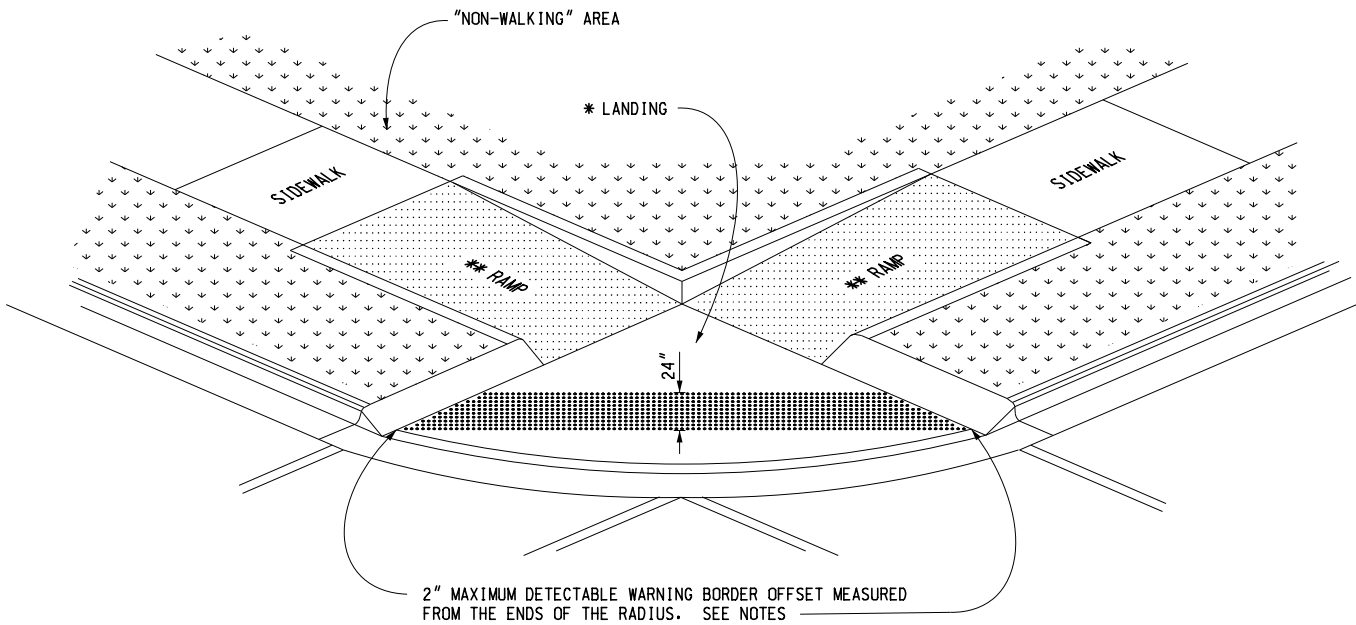


\* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

\*\* MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



( RADIAL DETECTABLE WARNING SHOWN )



( TANGENT DETECTABLE WARNING SHOWN )

**CURB RAMP TYPE D**

( DEPRESSED CORNER )

USE ONLY WHEN INDEPENDENT DIRECTIONAL RAMPS CAN NOT BE CONSTRUCTED FOR EACH CROSSING DIRECTION

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**CURB RAMP AND  
DETECTABLE WARNING DETAILS**

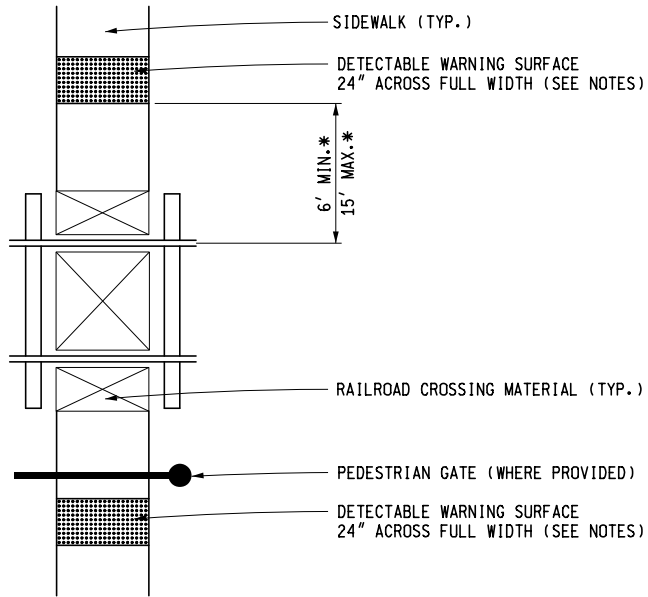
F.H.W.A. APPROVAL

5-8-2020  
PLAN DATE

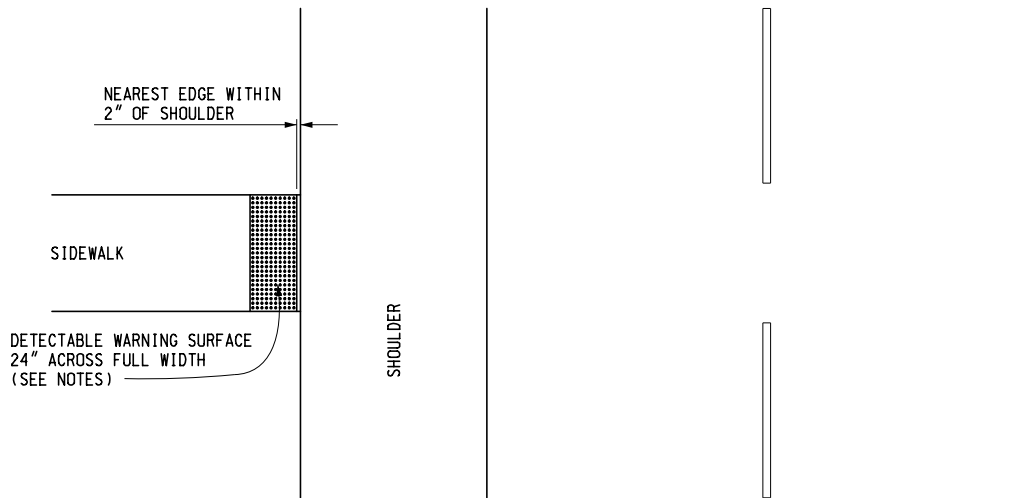
**R-28-J**

SHEET  
4 OF 7

\* THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE RAIL CROSSING IS 6' MINIMUM AND 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. DO NOT PLACE DETECTABLE WARNING ON RAILROAD CROSSING MATERIAL.

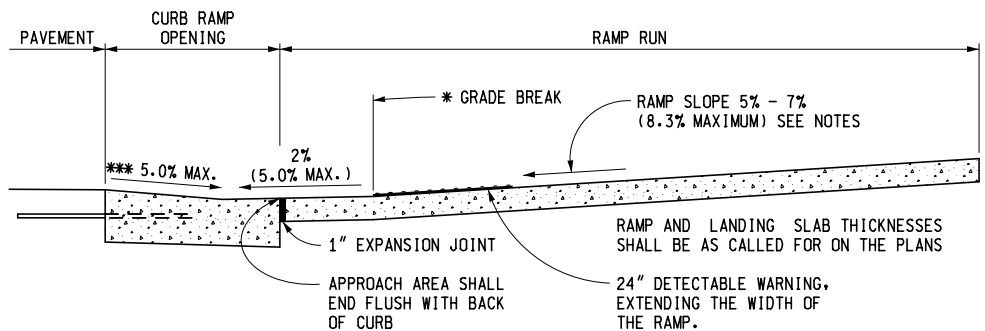
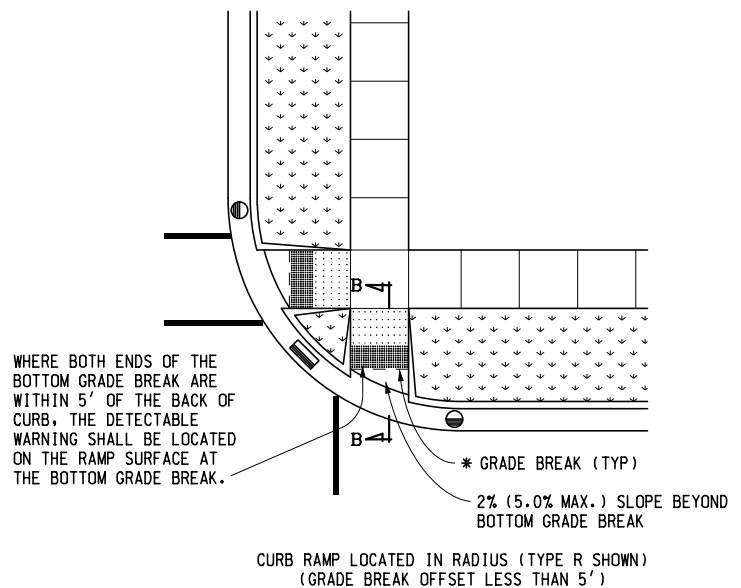
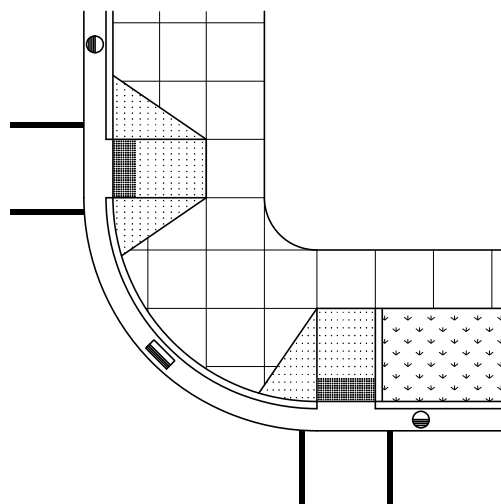
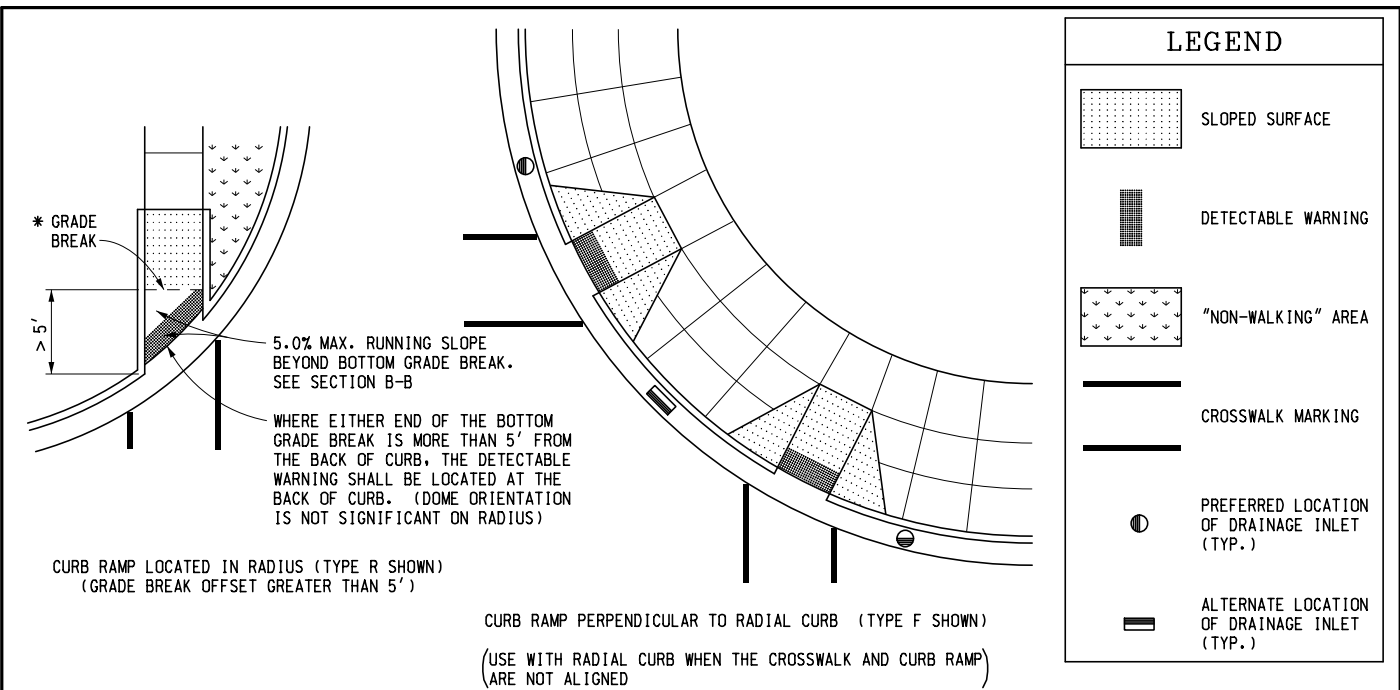


**DETECTABLE WARNING AT RAILROAD CROSSING**



**DETECTABLE WARNING AT FLUSH SHOULDER OR ROADWAY**

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR		
<b>CURB RAMP AND          DETECTABLE WARNING DETAILS</b>		
F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	<b>R-28-J</b>
		SHEET 5 OF 7

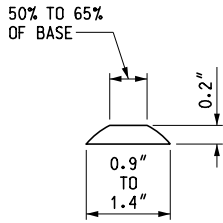


**SECTION B-B**  
**CURB RAMP ORIENTATION**

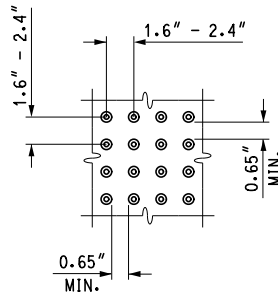
MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**CURB RAMP AND  
DETECTABLE WARNING DETAILS**

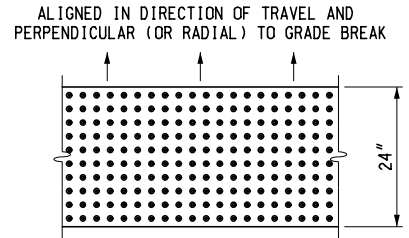
F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	R-28-J	SHEET 6 OF 7
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**DOMES SECTION**



**DOMES SPACING**



**DOMES ALIGNMENT**

**DETECTABLE WARNING DETAILS**

**NOTES:**

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

CURB RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

WHEN 5' MINIMUM WIDTHS ARE NOT PRACTICABLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDINGS TO NOT LESS THAN 4' x 4'.

CURB RAMPS WITH A RUNNING SLOPE ≤5% DO NOT REQUIRE A TOP LANDING. HOWEVER, ANY CONTINUOUS SIDEWALK OR PEDESTRIAN ROUTE CROSSING THROUGH OR INTERSECTING THE CURB RAMP MUST INDEPENDENTLY MAINTAIN A CROSS SLOPE NOT GREATER THAN 2% PERPENDICULAR TO ITS OWN DIRECTION(S) OF TRAVEL.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURBED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.0%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH NOT INCLUDING LANDINGS OR TRANSITIONS.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN 1/2". ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE CURB RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS BORDERED BY LANDSCAPING, UNPAVED SURFACE OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING OR HEAVING.

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR			
<b>CURB RAMP AND          DETECTABLE WARNING DETAILS</b>			
F.H.W.A. APPROVAL	5-8-2020 PLAN DATE	<b>R-28-J</b>	SHEET 7 OF 7

TYPE OF CASTING	NEEHAH FOUNDRY	EAST JORDAN IRON WORKS
BARRIER CURB INLET	R-3013B, TYPES GRATE (500 POUNDS)	7045, TYPE M1 GRATE (490 POUNDS)
BARRIER CURB DOUBLE INLET	R- 3249F, TYPE S GRATE (410 POUNDS)	N/A
MOUNTABLE CURB INLET	R-3034B, TYPE S GRATE (500 POUNDS)	7065, TYPE M1 GRATE (470 POUNDS)
GUTTER INLET	R-3448C, TYPE S GRATE (285 POUNDS)	5080, TYPE M2 GRATE (490 POUNDS)
GUTTER DOUBLE INLET	R-3448B, TYPE S GRATE (265 POUNDS)	5000, TYPE M2 GRATE (490 POUNDS)
YARD DRAIN	R-2560-E1 (285 POUNDS)	1040, TYPE O2 GRATE (355 POUNDS)
YARD DRAIN IN CITY PARK	N/A	1040, TYPE M1 GRATE (400 POUNDS)
*MANHOLE FRAME & COVER (WATER & STORM)		1040, TYPE A COVER (400 POUNDS)
**WATERTIGHT MANHOLE FRAME & COVER (SANITARY)		1040, TYPE AGS COVER (400 POUNDS)
MONUMENT BOX	N/A	8360 (100 POUNDS)

**NOTES:**

\*FRAMES AND COVERS MUST HAVE MACHINED BEARING SURFACES.

\*\*MANHOLE COVERS SHALL BE LABELED WITH "CITY OF ANN ARBOR" AND "WATER", "STORM" OR "SANITARY", WHICHEVER IS APPLICABLE. ALL COVERS SHALL INCLUDE THE CITY'S CUSTOM LOGO IN USE AT THE TIME OF THE PROJECT.

\*\*\*SANITARY MANHOLE COVERS SHALL BE 1040AGS WITH A 1/4" NEOPRENE GASKET TO SEAL AGAINST THE FRAME.

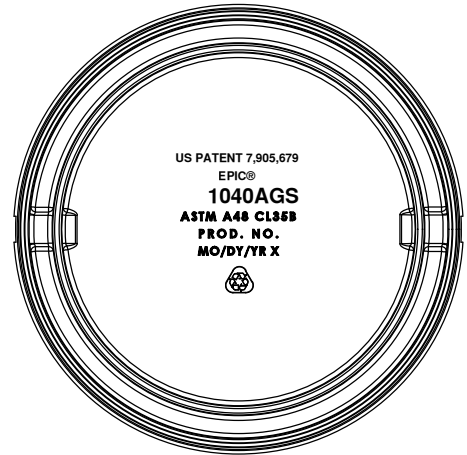
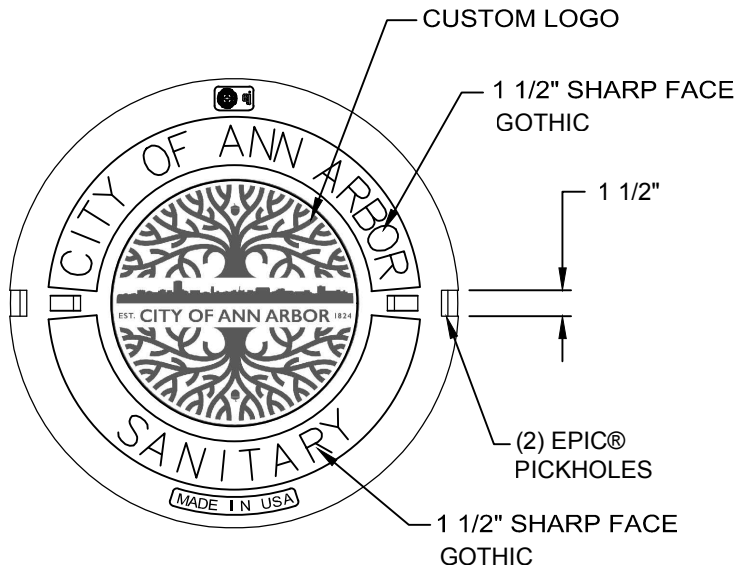
## STANDARD CASTING SCHEDULE SD-GU-5

REVISED  
1-24-19

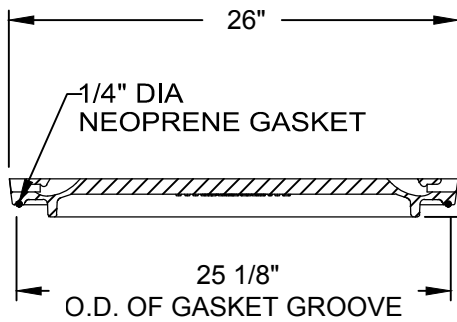


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PUBLIC SERVICE**  
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P.O. BOX 8647  
ANN ARBOR, MI 48107-8647  
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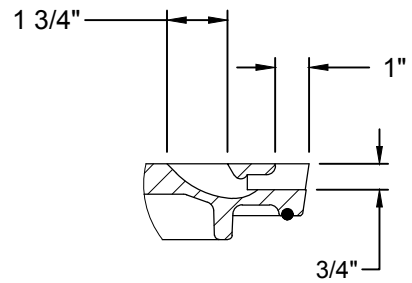
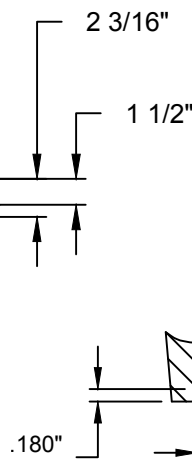
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<b>STANDARD CASTING SCHEDULE</b>			
DR. ARG	CH. CEC	DRAWING NO.	
SCALE N.T.S.	DATE 1/24/19	<b>SD-GU-5</b>	



**BOTTOM VIEW**



**SECTION**



**EPIC ® DETAIL**

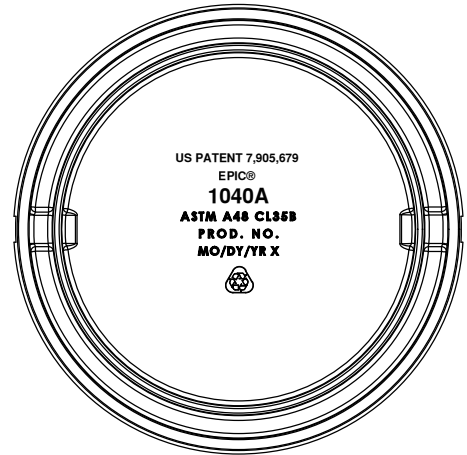
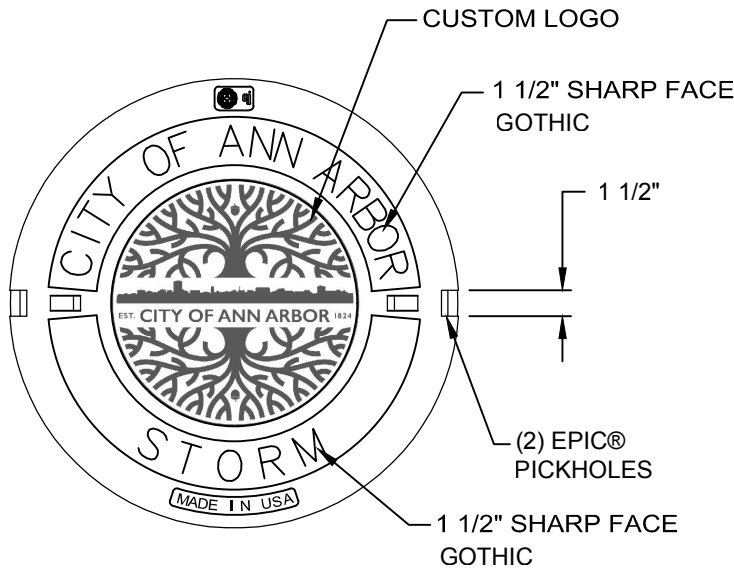
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1-24-19

**EJ PRODUCT #001040326**

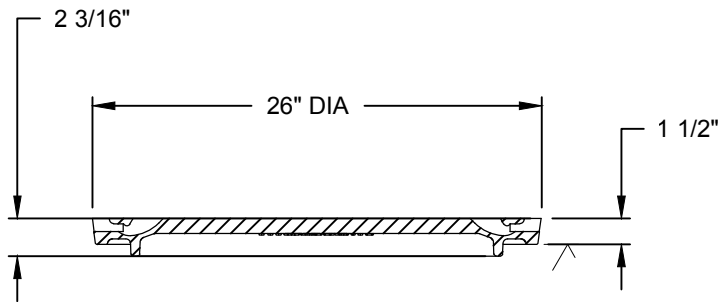


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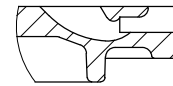
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<b>SANITARY MANHOLE COVER 1040A</b>			
DR. ARG	CH. CEC	DRAWING NO.	
SCALE N.T.S.	DATE 1/24/19	<b>SAN-MH</b>	



BOTTOM VIEW



SECTION



EPIC® DETAIL

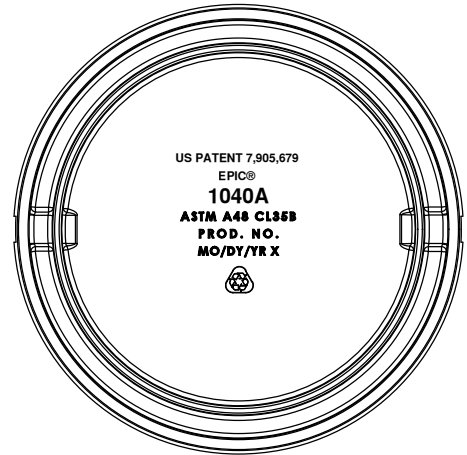
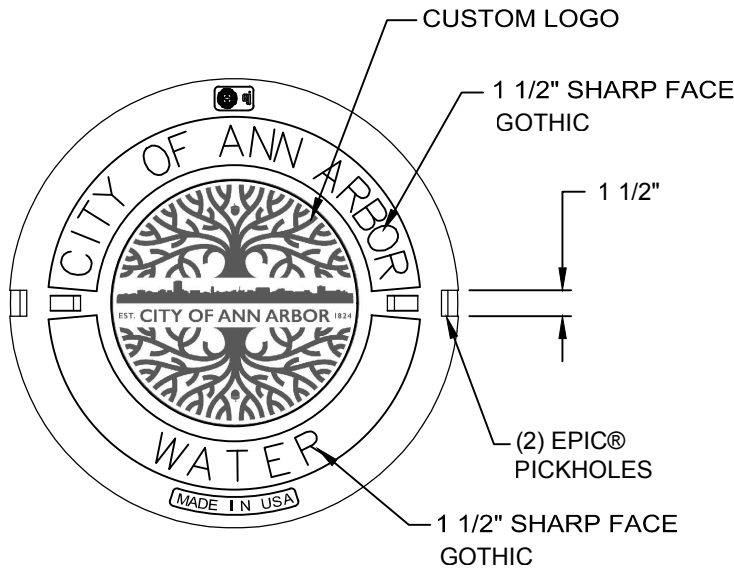
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1-24-19

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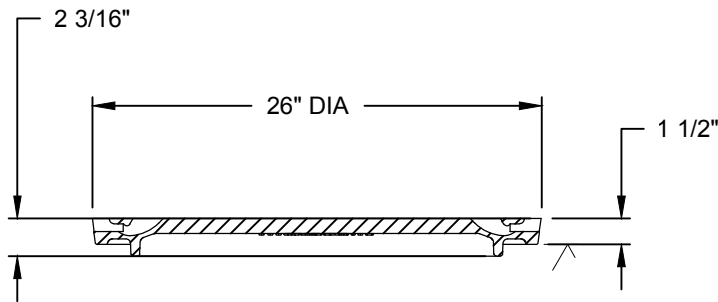


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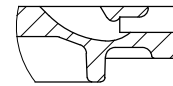
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DR. ARG	CH. CEC	DRAWING NO.	
SCALE N.T.S.	DATE 1/24/19	<b>STM-MH</b>	



BOTTOM VIEW



SECTION



EPIC® DETAIL

**REVISED**  
1-24-19

EJ PRODUCT #001040324



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REV. NO.	DATE	DRAWN BY	CHECKED BY
<b>WATER MANHOLE COVER 1040A</b>			
DR. ARG	CH. CEC	DRAWING NO.	
SCALE N.T.S.	DATE 1/24/19	<b>W-MH</b>	





# CITY OF ANN ARBOR ENGINEERING

## 2021 MISC. UTILITIES PROJECT

BID No. 4669, FILE No. 2021005

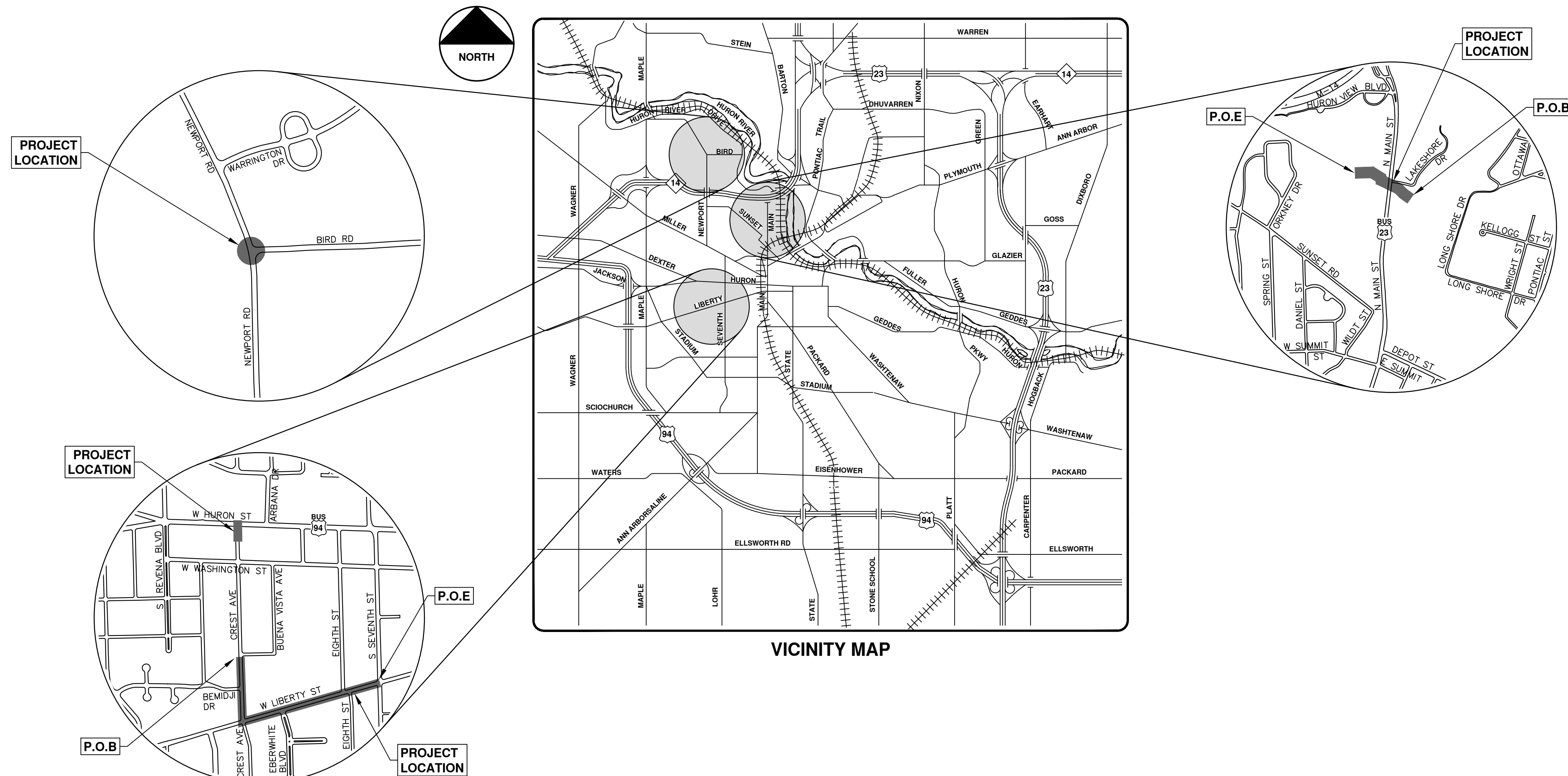
### NOTES

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 THIS REQUIREMENT.

SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
1	COVER SHEET
2	STANDARD NOTES
3	LEGEND
4	N MAIN STREET TYPICAL SECTIONS
5	NEWPORT ROAD - BIRD ROAD TYPICAL SECTIONS
6	LIBERTY STREET TYPICAL SECTIONS
7	CREST AVE TYPICAL SECTIONS
8	WATER MAIN DETAILS
9	STORM SEWER AND TRENCH DETAILS
10	PRESSURE REDUCING VAULT DETAIL
11	PRESSURE REDUCING VALVE DETAILS
12	MISC. DETAILS
13-16	TEMPORARY PEDESTRIAN ACCESS DETAILS
17-22	N MAIN ST TRAFFIC CONTROL - PH I & PH II
23	N MAIN ST REMOVALS & SITE PREP
24-26	N MAIN ST PROPOSED STORM SEWER
27	N MAIN ST PROPOSED ROAD AND PAVEMENT MARKINGS
28	NEWPORT RD - BIRD RD DETOUR
29	NEWPORT RD PRESSURE REDUCING VALVE
30	W LIBERTY ST DETOUR
31-34	HURON ST TRAFFIC CONTROL - PH I & PH II
35-38	W LIBERTY ST TRAFFIC CONTROL - PH I & PH II
39	CREST AVE TRAFFIC CONTROL
40-42	W LIBERTY ST - CREST AVE REMOVALS
43-46	LIBERTY 8 IN WATER MAIN
47-50	LIBERTY ST 12 IN WATER MAIN
51-52	CREST AVE 8 IN WATER MAIN
53	CREST AVE 12 IN WATER MAIN
54	CREST AVE - HURON ST 8 IN WATER MAIN CONNECTION
55	LIBERTY STORM SEWER
56-58	W LIBERTY ST - CREST AVE PROPOSED ROAD
59-60	W LIBERTY ST - CREST AVE PROPOSED PAVEMENT MARKINGS



PREPARED UNDER THE SUPERVISION OF

*(Signature)*

THERESA BRIDGES, P.E. - MI LICENSE No. 6201052180  
PROJECT MANAGER

03 / 17 / 2021  
DATE



REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC
		DRAWN
		CHECKED

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING

SHEET No. 1 OF 60

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**CONSTRUCTION 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. 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.
- Location and depth of utilities as depicted on the plans is approximate and shown according to the best information available. It is the Contractor's responsibility to excavate ahead and adjust depth of conflict utilities accordingly. Any damage to utilities is the Contractor's responsibility to avoid and/or repair as necessary.
- The Contractor is to take special care to protect the existing water main and be responsible for maintaining consistent water service.
- During non-working hours no trench shall remain open; any open trench shall be properly secured with protective fencing. This work shall be included in the item of work "General Conditions".
- Trenches for new water services shall be excavated to MIOSHA and City of Ann Arbor Public Works requirements.
- City of Ann Arbor Public Works will install the corporation and copper service lead(s) to transfer the connection(s). If an existing water service is found to be failing or is not copper, the lead will be replaced to the curb box by Public Works.
- For the installation of corporations, or any other related activities, the Contractor shall not receive additional compensation for delays due to the scheduling of or coordination with the City of Ann Arbor Public Works.
- The Contractor shall backfill trenches in accordance with Trench Detail specified on plans. This work shall be included in the item of work "Excavate and Backfill for Water Service Tap and Lead". All concrete removals and replacements required for this work will be paid for separately.
- All ductile iron pipe and fittings shall be polyethylene wrapped per ANSI/AWWA C105/A21.5.
- Cor-blw bolts to be used at all mechanical water main joints at hydrants and Megalug fittings.
- The Contractor shall construct, flush, and bacteriologically test the water main per Detailed Specification "Water Main Installation and Testing" 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 pipe pay items.
- "No Parking" signs shall be installed by the Contractor at locations as approved or directed by the Engineer. All signs shall be installed in accordance with the detailed specifications.
- Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.
- All fittings, hydrants, valves and castings removed during construction are the property of the City of Ann Arbor. The Contractor within 48 hours shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
- Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.
- 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 full completion of the project. This work shall be included in the item of work "General Conditions".
- All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.
- Sawed sewer pipe connections shall be coupled with a Fernco flexible coupling and a stainless steel shear ring.
- The location of material stock piles and on-site staging areas to be approved by the Engineer.
- 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.
- All structures shall receive new castings as directed by the Engineer, as specified on the standard casting schedule. The existing castings are the property of the City of Ann Arbor. The Contractor shall deliver to City of Ann Arbor Public Works Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
- Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.
- 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 MDOT Granular Material, Class II, Modified.
- 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 "Machine Grading, Modified"
- In areas where edge drain cannot be installed in accordance with City of Ann Arbor Detail SD-TD-11, the edge drain shall be installed at the depth as indicated on the plans, or as directed by Engineer. In no case shall the edge drain be installed at a grade less than 0.50% or at a depth of less than 2' below top of proposed pavement.

**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, CHAPTER 55 ANN ARBOR UNIFIED DEVELOPMENT CODE, 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.
- 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 PALLIATIVE 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.

**SAMPLE SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:**

- INSTALL SILT FENCE, TREE PROTECTION FENCING, MUD MATS, INLET FILTERS ON EXISTING DRAINAGE FEATURES, AND ALL OTHER TEMPORARY SOIL EROSION CONTROLS, PRIOR TO ANY CLEARING OR EARTH MOVING OPERATION.
- STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE AS REQUIRED.
- INSTALL WATER MAINS, STORM AND SANITARY SEWERS, AND OTHER ENCLOSED DRAINAGE FEATURES. NEW INLET FILTERS SHALL BE INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF NEW DRAINAGE INLETS.
- PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.).
- CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.
- COMPLETE ALL FINE GRADING.
- TEMPORARY SEED AND INSTALL EROSION CONTROL BLANKET IN ALL DISTURBED AREAS.
- REFER TO LANDSCAPE PLANTING PLANS FOR PERMANENT SITE STABILIZATION.
- CLEAN OUT STORM SEWER SYSTEMS.
- REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.
- ALL TEMP. SOIL EROSION CONTROL MEASURES MUST BE REMOVED, WITH ENGINEERS APPROVAL, PRIOR TO FINAL INSPECTION

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

**TEMPORARY SEEDING:**

- SEED IN ACCORDANCE WITH PROJECT DRAWINGS AND SPECIFICATIONS.
- ANY DISTURBED AREA NOT PAVED, SEEDED, MULCHED, SODDED OR BUILT UPON BY NOVEMBER 15TH OR JUNE 30TH IS TO BE TEMPORARILY STABILIZED PER SPECIFICATIONS.

THE ESTIMATED COST OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES, TOPSOIL, SEEDING, AND MULCH = \$50,000

ON SITE SOILS PER THE USDA SOIL SURVEY OF WASHTENAW COUNTY, MICHIGAN:

W. LIBERTY ST./CREST AVE.

- FoB - FOX SANDY LOAM, TILL PLAIN, 2 TO 6 PERCENT SLOPES
- FoC - FOX SANDY LOAM, HURON LOBE, 6 TO 12 PERCENT SLOPES

NEWPORT RD./BIRD RD.

- WawoBB - WAWASEE LOAM, 2 TO 6 PERCENT SLOPES

N. MAIN ST.

- MmF - MIAMI LOAM, 25 TO 35 PERCENT SLOPES
- WaA - WASEPI SANDY LOAM, 0 TO 4 PERCENT SLOPES

**AREA OF PROPOSED DISTURBANCE**  
NORTH MAIN STREET = 0.42 ACRES  
NEWPORT ROAD = 0.06 ACRES  
WEST LIBERTY STREET = 1.67 ACRES

NEWPORT RD - BIRD RD BENCHMARKS		
BM #	ELEV	DESCRIPTION
1	795.52	EASTERLY FLANGE BOLT ON HYDRANT @ NE CORNER OF NEWPORT AND BIRD RD

**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
*NO PARKING* SIGNS 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
M.D.O.T. RIGHT-OF-WAY PERMIT*	MICHIGAN DEPARTMENT OF TRANSPORTATION
* NO COST TO CONTRACTOR	

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

PERMIT	ISSUING AUTHORITY
EGLE WATER MAIN CONSTRUCTION PERMIT	MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

**CONTACT INFORMATION**

PUBLIC UTILITIES	OWNER	CONTACT
WATER	CITY OF ANN ARBOR PUBLIC WORKS W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	DAN WOODEN (734) 794-6350 DCWOODEN@A2GOV.ORG
SANITARY		TRAVIS CONLEY (734) 794-6350 TCOONLEY@A2GOV.ORG
STORM		KEVIN SCHNEIDER (734) 794-6350 KSCHNEIDER@A2GOV.ORG
FORESTRY		MATT WALDSMITH (734) 794-6350 MWALDSMITH@A2GOV.ORG
SIGNS SIGNALS STREET LIGHTS		CHUCK FOJTIK (734) 794-6361 CFOJTIK@A2GOV.ORG
PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	ANTHONY IGNASIAK (734) 397-4447
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	SHAWN BURNSIDE (734) 996-5322 (313) 683-7349(MOBILE)
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016
FIBER OPTIC	WINDSTREAM 1295 S LINDEN ROAD, SUITE B FLINT, MI 48532	GREG SERICH (810) 244-3500
STREET LIGHTING	DTE ENERGY 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	LANCE ALLEY (734) 397-4188

WEST LIBERTY STREET BENCHMARKS		
BM #	ELEV	DESCRIPTION
1	870.21	N.W. BOLT ON CROSS WALK STAIN POLE. LOCATED AT S.W. CORNER OF W. LIBERTY AND CREST BLVD.
2	863.02	R.R. SPIKE IN NORTH FACE OF POWER POLE. LOCATED AT S.E. CORNER OF W. LIBERTY AND EBERWHITE BLVD.
3	860.83	R.R. SPIKE IN NORTH FACE OF POWER POLE. LOCATED IN FRONT OF 1017 W. LIBERTY ST.
4	857.99	R.R. SPIKE IN NORTH FACE OF POWER POLE. LOCATED IN FRONT OF 929 W. LIBERTY ST.
5	854.47	R.R. SPIKE IN SOUTH FACE OF POWER POLE. LOCATED IN FRONT OF 906-908 W. LIBERTY ST.
6	852.25	N.W. CORNER OF TOP OF CONC. BASE TO PEDESTRIAN SIGNAL LOCATED AT N.W. CORNER OF W. LIBERTY AND S. SEVENTH ST.

NORTH MAIN STREET BENCHMARKS		
BM #	ELEV	DESCRIPTION
41	795.65	PK NAIL IN SOUTH SIDE OF POWER POLE ON WEST SIDE OF N. MAIN ST. NEAR THE NORTH PROPERTY LINE OF 1251 N. MAIN ST.
1110	782.95	SPIKE IN SOUTH SIDE OF POWER POLE AT N.W. CORNER OF ENTRANCE TO BANDEMERE PARK. EAST SIDE OF RAILROAD TRACKS, LAKE SHORE DRIVE.



Know what's below. Call before you dig.

			DF/CC	DF/CC	TB	CHECKED
		4-6-21	3-17-21			DRAWN
01	00	ADDENDUM #1	OUT FOR BID			REV.

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
P.O. BOX 8647  
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT

SCALE: NTS  
DRAWING NO.: 2021005-2

SHEET No.



**EXISTING LEGEND**

- FIRE HYDRANT
- GATE VALVE IN BOX
- GATE VALVE IN WELL
- STOP BOX
- WATER VAULT
- WELL
- CATCH BASIN (SQ)
- CATCH BASIN (RD)
- STORM MANHOLE
- NON-CURB CATCH BASIN (SQ)
- END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- POST
- PEDESTRIAN SIGNAL
- SIGN
- HAND HOLE
- ORNAMENTAL LIGHT
- FLOOD LIGHT
- UNKNOWN MANHOLE
- TELEPHONE MANHOLE
- TELEPHONE RISER
- GAS VALVE
- GAS VENT
- GAS BOX
- ELECTRICAL RISER
- TRANSFORMER
- UTILITY POLE
- LAMP POLE
- GUY ANCHOR
- GUY POLE
- MONITORING WELL
- MAILBOX
- SOIL BORING
- TRAVERSE POINT
- BENCH MARK
- IRON PIPE
- MON BOX


- WATER MAIN
- WATER MAIN ABANDONED
- STORM SEWER
- STORM SEWER ABANDONED
- SANITARY SEWER
- SANITARY SEWER ABANDONED
- GAS MAIN
- GAS MAIN (DEAD)
- ELECTRICAL OVER HEAD
- ELECTRICAL UNDER GROUND
- ELECTRICAL DUCT BANK
- TELEPHONE OVER HEAD
- TELEPHONE UNDER GROUND
- TELEPHONE DUCT BANK
- CABLE TV OVER HEAD
- CABLE TV UNDER GROUND
- FIBER OPTIC
- FIBER OPTIC DUCT BANK
- BOUNDARY
- BUILDING
- CENTERLINE OF DITCH
- CENTERLINE/CROWN OF ROAD
- CONTOUR MAJOR
- CONTOUR MINOR
- EDGE OF WATER
- FLOODPLAIN
- FENCE
- GRAVEL
- GUARDRAIL
- STONE WALL
- R.O.W.
- TREELINE
- WETLAND
- EDGE OF BRUSH
- HEDGE

- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- SHRUB (DECIDUOUS)
- STUMP
- TREE TO REMAIN & PROTECT (DECIDUOUS)  
CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREST HEIGHT (INCHES) X 10
- TREE TO REMAIN & PROTECT (CONIFEROUS)  
CRITICAL ROOT ZONE (C.R.Z.) = DIAMETER BREST HEIGHT (INCHES) X 10

**PROPOSED LEGEND**

- HYDRANT (PLAN)
- WATER GATE WELL
- REDUCER
- WATER GATE VALVE
- WATER STOP BOX
- WATER VAULT
- INLET
- DOUBLE INLET
- INLET JUNCTION CHAMBER
- ROUND CATCH BASIN
- STORM MANHOLE
- DRAIN ARROW
- FLARED END SECTION
- SANITARY MANHOLE
- CLEAN-OUT
- SIGN
- PUSH BUTTON
- HAND HOLE
- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- FIBER OPTIC
- ELECTRICAL
- CENTERLINE OF DITCH
- CENTERLINE OF ROAD
- FENCE
- GRAVEL
- SILT FENCE
- PROTECTIVE FENCE
- GUARDRAIL
- LOT/UNIT
- CURB
- TEMPORARY GRADING PERMIT
- CONTOUR MAJOR
- CONTOUR MINOR
- WATER EASEMENT
- STORM EASEMENT
- SANITARY EASEMENT
- R.O.W.
- LIMITS OF CONSTRUCTION
- LIMIT OF GRADING
- STONE WALL

- DETECTABLE WARNING
- ASPHALT
- CONCRETE
- SIDEWALK
- TREE (DECIDUOUS)
- TREE (CONIFEROUS)
- TREE TO BE REMOVED (DECIDUOUS)
- TREE TO BE REMOVED (CONIFEROUS)
- STUMP TO BE REMOVED



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
2021 MISC. UTILITIES PROJECT

LEGEND

REV.	DATE	DESCRIPTION
01	4-6-21	ADDENDUM #1
00	3-17-21	OUT FOR BID
		DRAWN
		CHECKED

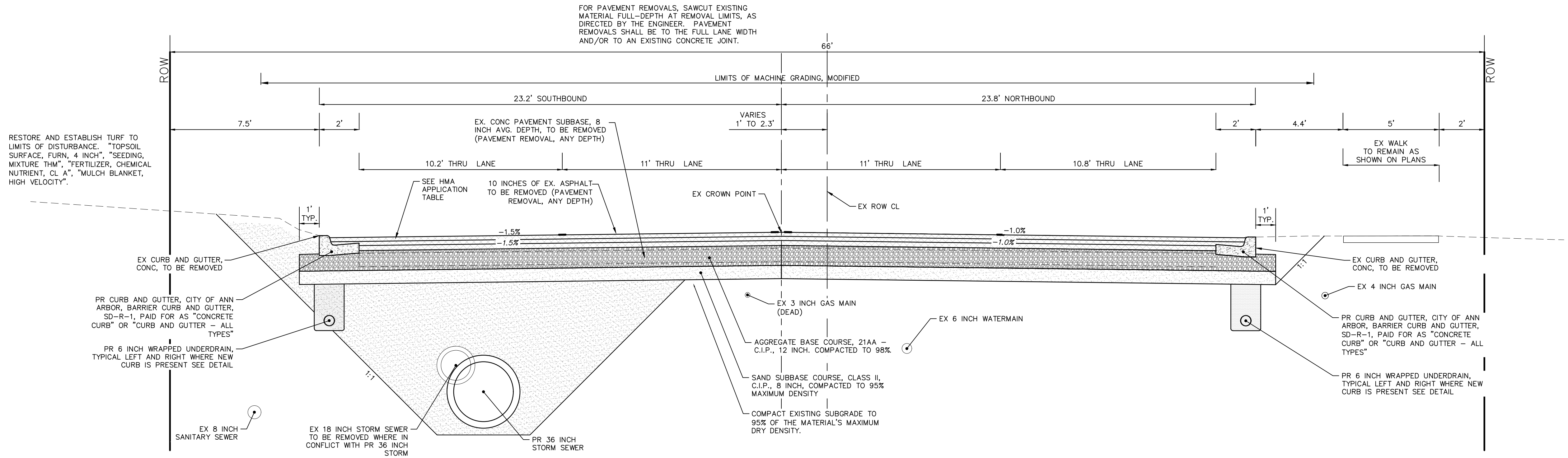
SCALE: NTS

DRAWING No. 2021005-3

SHEET No. 3 OF 60

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**NORTH MAIN STREET  
PROPOSED TYPICAL SECTION**  
LOOKING NORTH  
N.T.S.

HMA APPLICATION ESTIMATE						
HMA PAVEMENT	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)	AWI (MIN.)	BINDER	LOCATION/NOTES
HMA PAVEMENT TOP	5E1 HS	220 LB/SYD	2	260 (TOP)	PG 70-28P*	TOP COURSE
HMA PAVEMENT LEVELING	4E1 HS	275 LB/SYD	2.5	-	PG 70-28P*	LEVELING COURSE
HMA PAVEMENT BASE	2C	385 LB/SYD	3.5	-	PG 64-28P	BASE COURSE
HMA APPROACH TOP	LVSP	220 LB/SYD	2	220 (TOP)	PG 58-28	TOP COURSE
HMA APPROACH LEVELING	LVSP	220 LB/SYD	2	-	PG 58-28	LEVELING COURSE
HAND PATCHING	4E1	0 - 440 LB/SYD			PG 58-28	HAND PATCHING
ASPHALT EMULSION	SS-1h	0.05 - 0.15 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM

NOTE:  
LAKE SHORE DRIVE AND THE PARKING AREA FOR 1250 N. MAIN, ARE TO BE RESTORED AND PAID FOR AS HMA APPROACH.  
N MAIN STREET ASPHALT MIXTURE TO BE HIGH STRESS HOT MIX



Know what's below.  
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REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC
		DRAWN
		CHECKED

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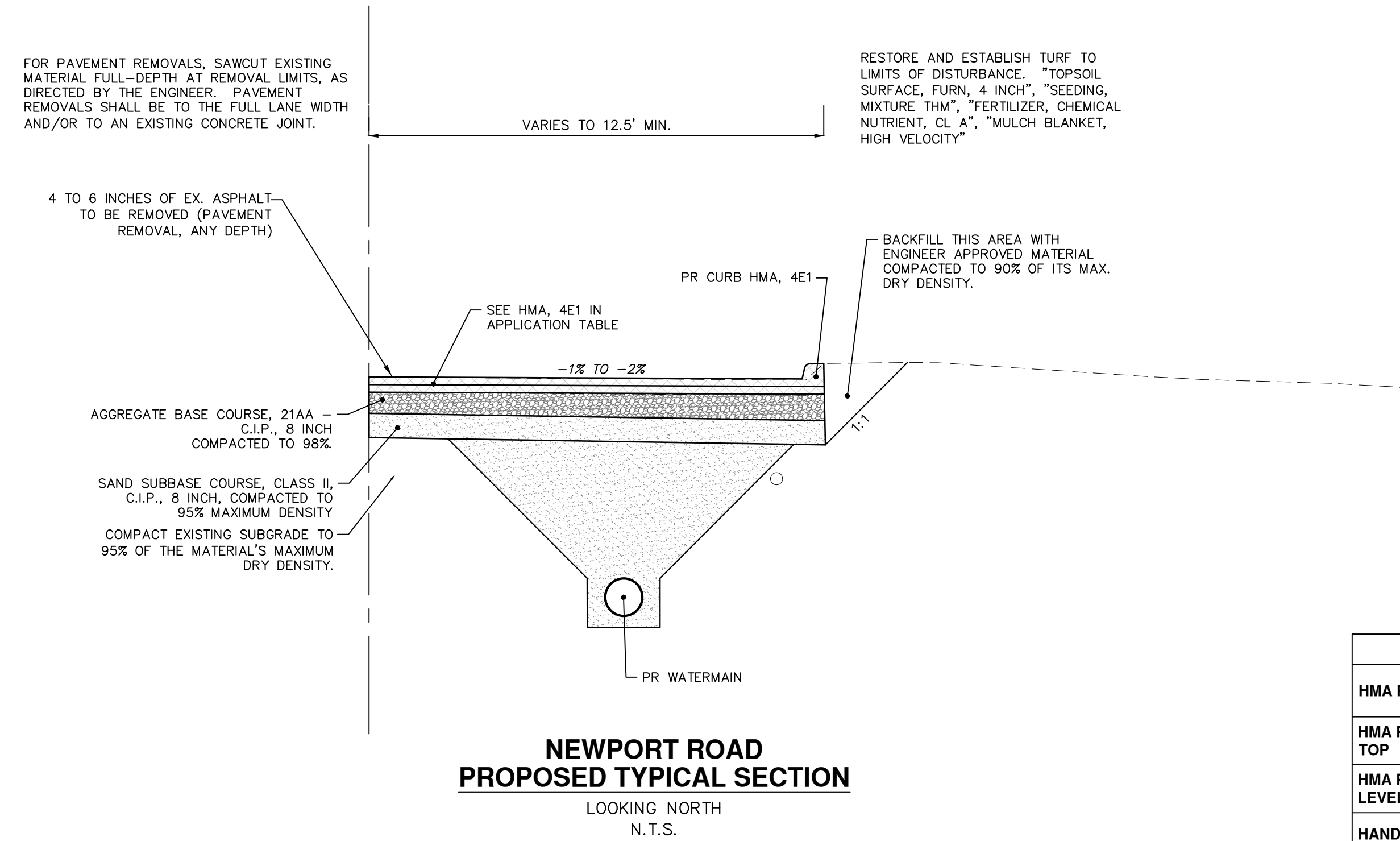


**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**2021 MISC. UTILITIES PROJECT**  
N MAIN STREET TYPICAL SECTIONS

SCALE PLAN: NTS  
DRAWING No. 2021005-4

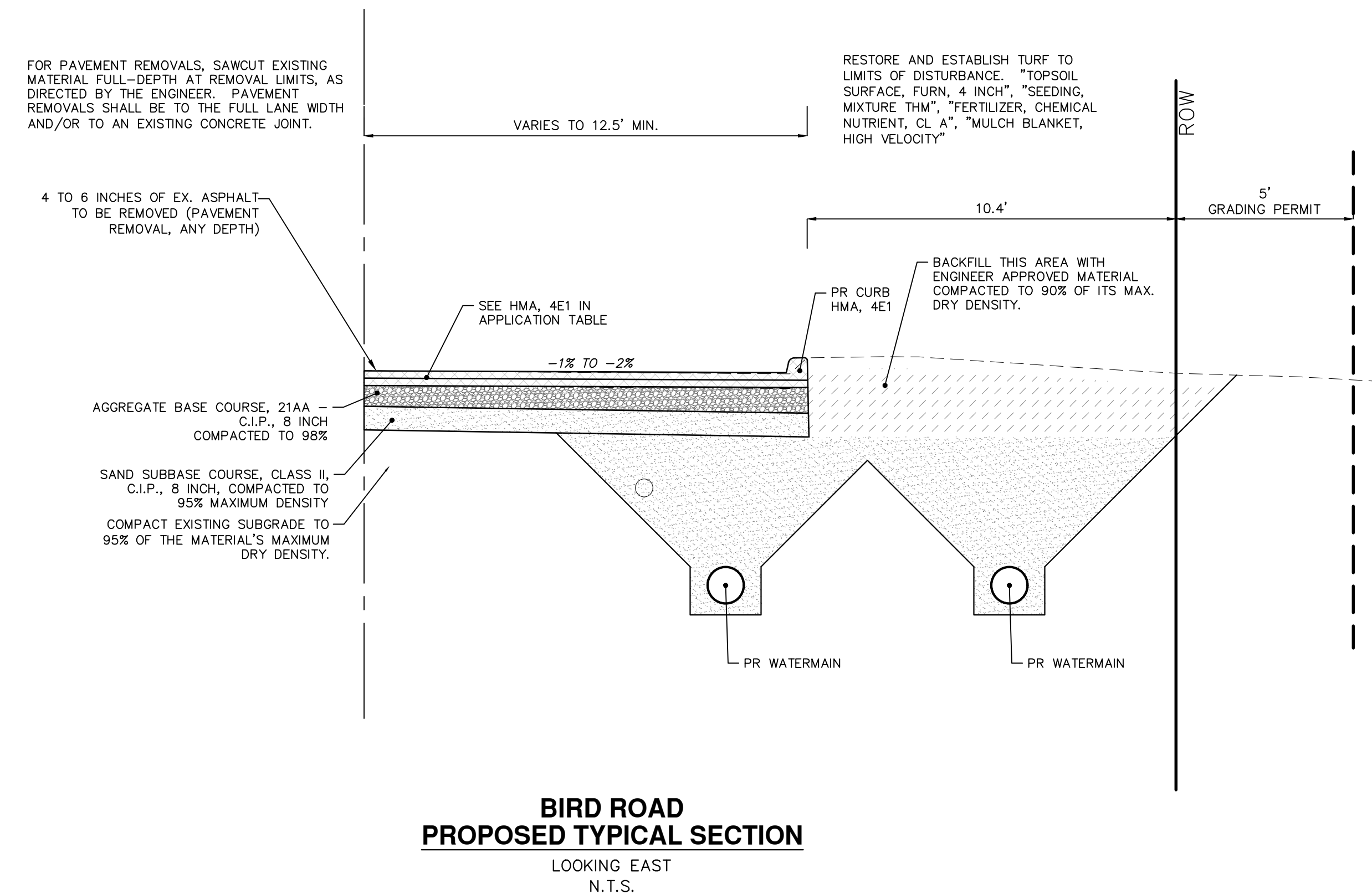


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**NEWPORT ROAD  
PROPOSED TYPICAL SECTION**  
LOOKING NORTH  
N.T.S.

HMA APPLICATION ESTIMATE						
HMA PAVEMENT	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)	AWI (MIN.)	BINDER	LOCATION/NOTES
HMA PAVEMENT TOP	4E1	275 LB/SYD	2.5	220 (TOP)	PG 64-28	TOP COURSE
HMA PAVEMENT LEVELING	4E1	275 LB/SYD	2.5	-	PG 64-28	LEVELING COURSE
HAND PATCHING	4E1	0 - 440 LB/SYD			PG 64-28	HAND PATCHING
ASPHALT EMULSION	SS-1h	0.05 - 0.15 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM



**BIRD ROAD  
PROPOSED TYPICAL SECTION**  
LOOKING EAST  
N.T.S.



Know what's below.  
Call Before you dig.

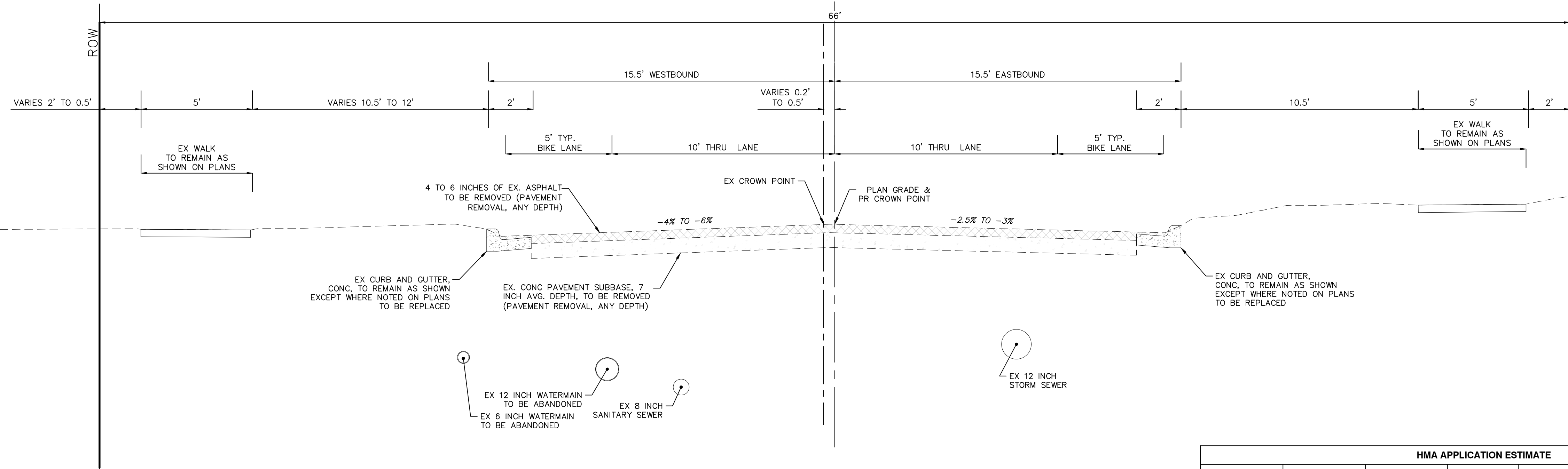
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00	3-17-21	DF/CC
		DRAWN
		CHECKED

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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
NEWPORT ROAD - BIRD ROAD TYPICAL SECTIONS  
SCALE PLAN: NTS  
DRAWING No. 2021005-5

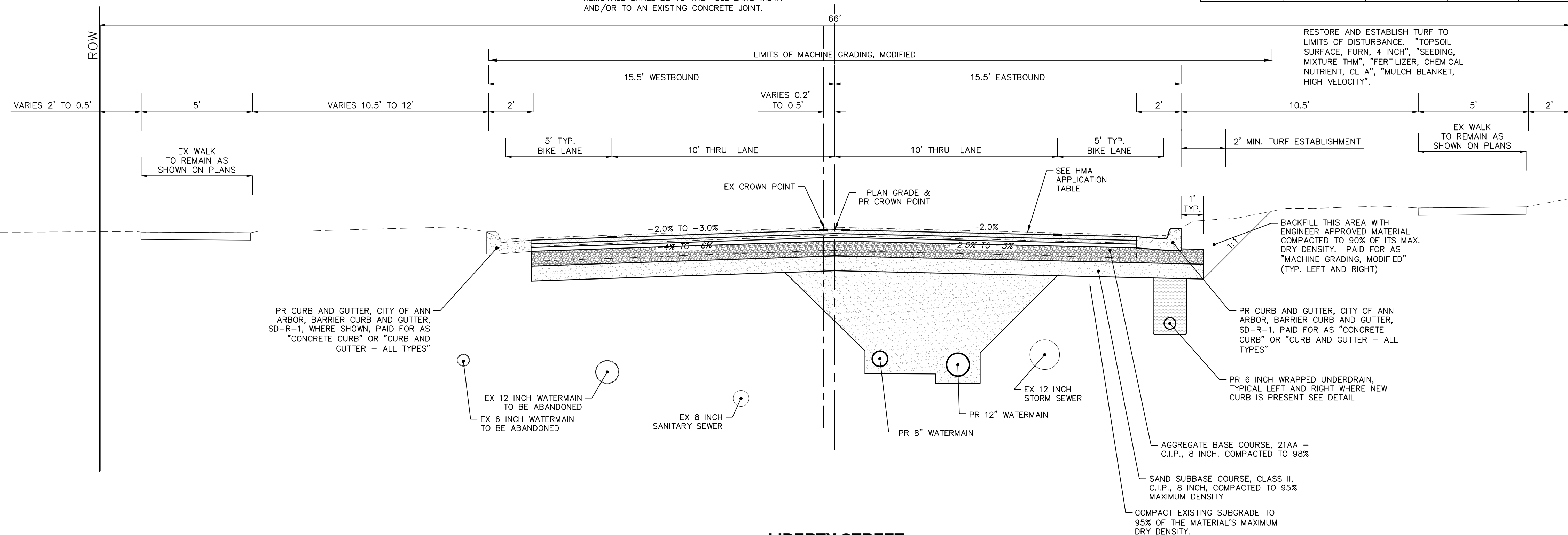
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**LIBERTY STREET  
EXISTING TYPICAL SECTION**  
STA. 4+80 TO STA. 16+90  
N.T.S.

FOR PAVEMENT REMOVALS, SAWCUT EXISTING MATERIAL FULL-DEPTH AT REMOVAL LIMITS, AS DIRECTED BY THE ENGINEER. PAVEMENT REMOVALS SHALL BE TO THE FULL LANE WIDTH AND/OR TO AN EXISTING CONCRETE JOINT.

HMA APPLICATION ESTIMATE						
HMA PAVEMENT	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)	AWI (MIN.)	BINDER	LOCATION/NOTES
HMA PAVEMENT TOP	4E1	160 LB/SYD	1.5	260 (TOP)	PG 64-28	TOP COURSE
HMA PAVEMENT LEVELING	4E1	220 LB/SYD	2	-	PG 64-28	LEVELING COURSE
HMA PAVEMENT BASE	3C	220 LB/SYD	2	-	PG 64-28	BASE COURSE
HMA APPROACH TOP	4E1	220 LB/SYD	2	220 (TOP)	PG 58-28	TOP COURSE
HMA APPROACH LEVELING	4E1	220 LB/SYD	2	-	PG 58-28	LEVELING COURSE
HAND PATCHING	4E1	0 - 440 LB/SYD			PG 58-28	HAND PATCHING
ASPHALT EMULSION	SS-1h	0.05 - 0.15 GAL/SYD				INCLUDE IN COST OF HMA ITEM



**LIBERTY STREET  
PROPOSED TYPICAL SECTION**  
STA. 4+80 TO STA. 16+90  
N.T.S.



Know what's below.  
Call Before you dig.

REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC

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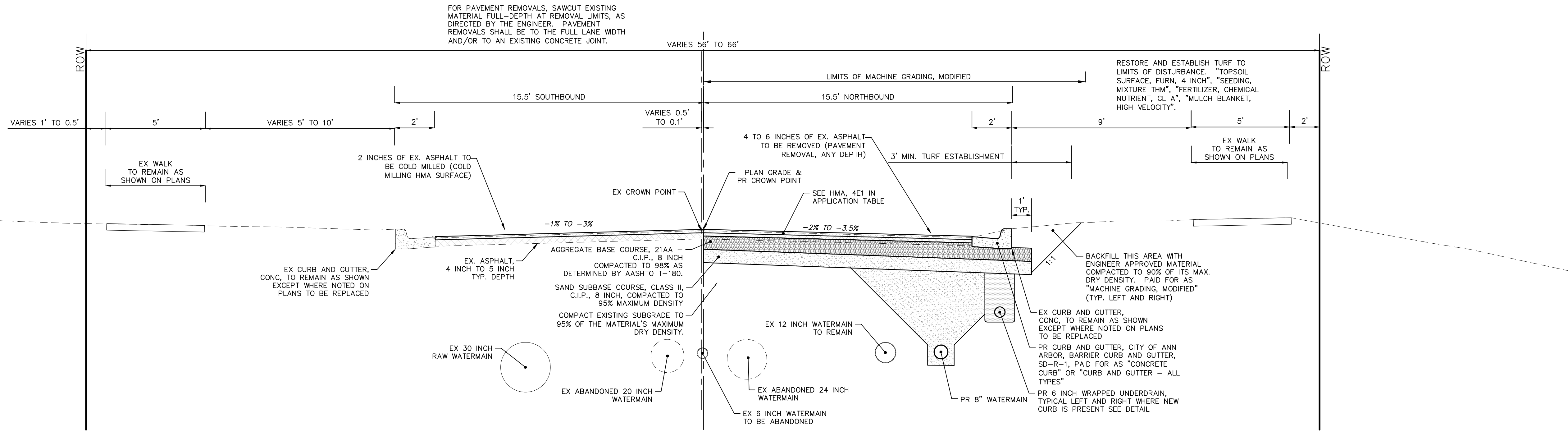


CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
LIBERTY STREET TYPICAL SECTIONS

SCALE PLAN: NTS  
DRAWING No. 2021005-6  
SHEET No.

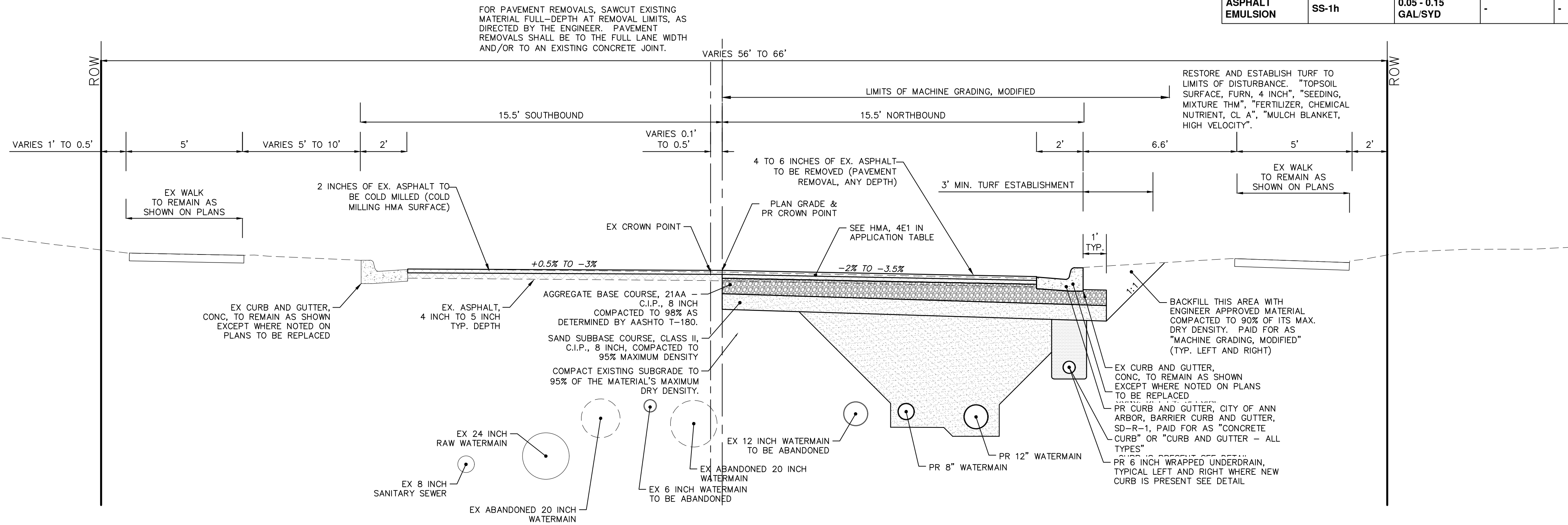


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**CREST AVENUE  
PROPOSED TYPICAL SECTION**  
STA. 4+00 TO STA. 7+30  
N.T.S.

HMA APPLICATION ESTIMATE						
HMA PAVEMENT	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)	AWI (MIN.)	BINDER	LOCATION/NOTES
HMA PAVEMENT TOP	LVSP	220 LB/SYD	2	220 (TOP)	PG 58-28	TOP COURSE
HMA PAVEMENT LEVELING	LVSP	220 LB/SYD	2	-	PG 58-28	LEVELING COURSE
HMA APPROACH TOP	LVSP	220 LB/SYD	2	220 (TOP)	PG 58-28	TOP COURSE
HMA APPROACH LEVELING	LVSP	220 LB/SYD	2	-	PG 58-28	LEVELING COURSE
HAND PATCHING	LVSP	0 - 440 LB/SYD			PG 58-28	HAND PATCHING
ASPHALT EMULSION	SS-1h	0.05 - 0.15 GAL/SYD				INCLUDE IN COST OF HMA ITEM



**CREST AVENUE  
PROPOSED TYPICAL SECTION**  
STA. 1+80 TO STA. 4+00  
N.T.S.



REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC

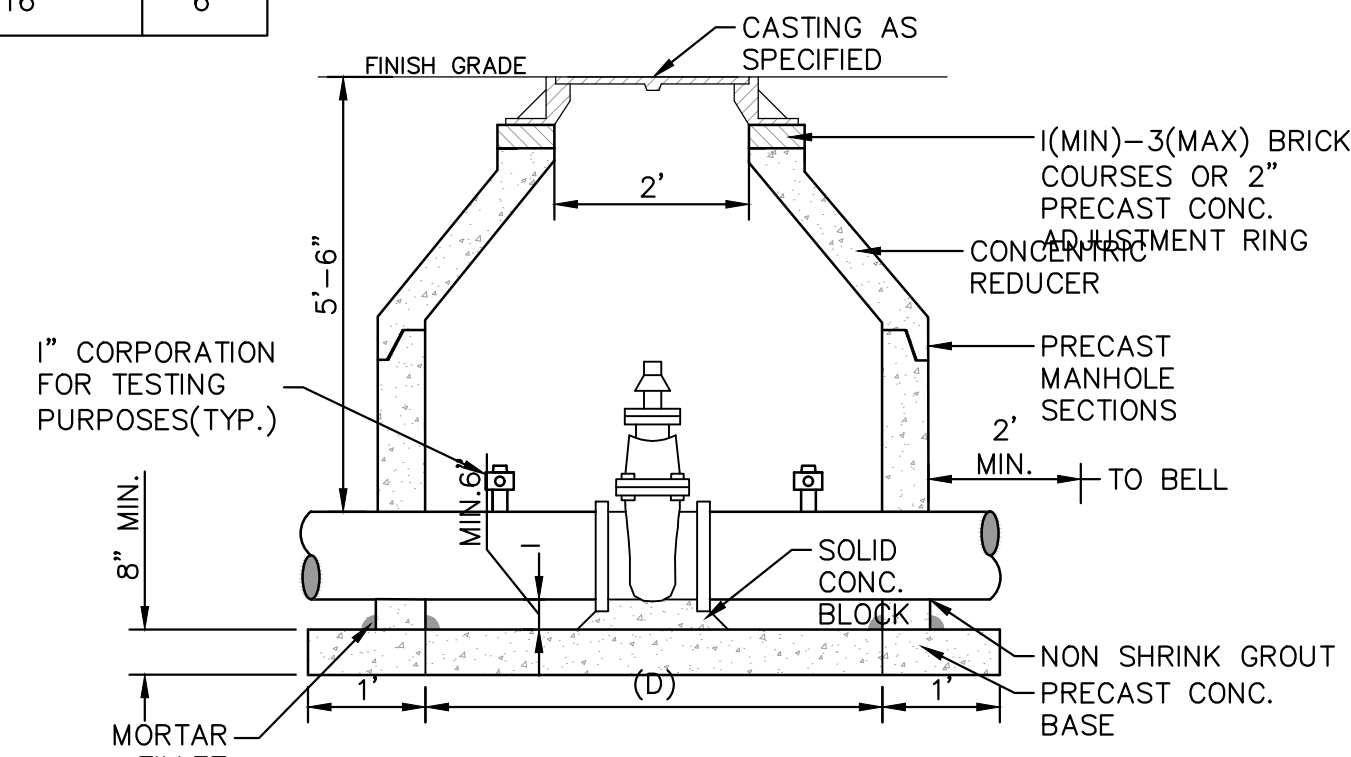
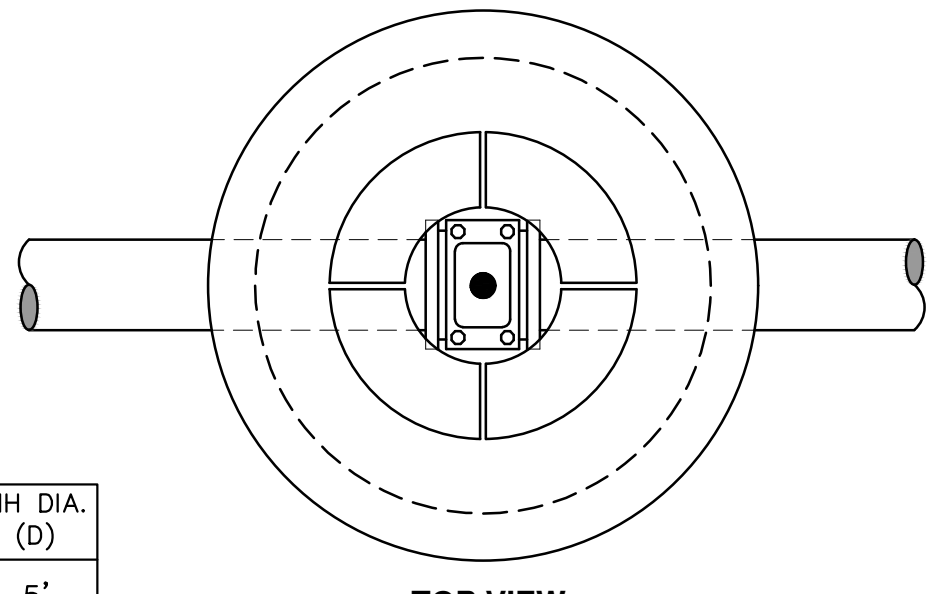
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
CREST AVE TYPICAL SECTIONS

SCALE PLAN: NTS  
DRAWING No. 2021005-7

PIPE SIZE	MH DIA. (D)
12" OR LESS	5'
16"	6'



- NOTES:
- ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE
  - ALL JOINTS SHALL BE MADE WATER TIGHT WITH RUBBER GASKET JOINTS
  - NO STEPS ARE PERMITTED
  - MANHOLE SECTIONS SHALL MEET ASTM C-478

### GATE WELL FOR MAIN 16" & SMALLER SD-W-3

**MINIMUM STANDARDS**  
 THE MOOT GRADE PI OR P-NC 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.

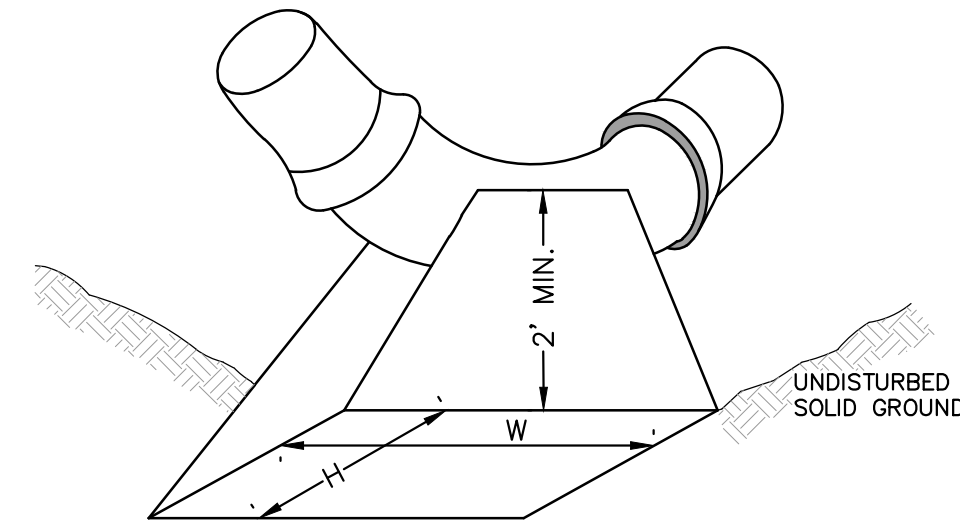
THE DIMENSIONS OF THE THRUST BLOCK AT THE FACE OF THE UNDISTURBED SOLID GROUND SHALL BE AS SHOWN IN THE TABLE BELOW.

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.

FITTINGS I.D.	PLUG TEE CROSS		BENDS				HYDRANT	
	W	H	90°	45°	22½°	11¼°	W	H
4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0
6	2.0	1.5	2.0	2.0	2.0	1.0	1.0	2.5
8	2.5	2.0	3.5	2.0	2.0	2.0	1.0	2.0
12	3.5	3.0	5.5	3.0	3.5	2.5	2.0	2.0
16	6.0	3.5	6.0	4.0	5.0	3.0	3.5	2.0

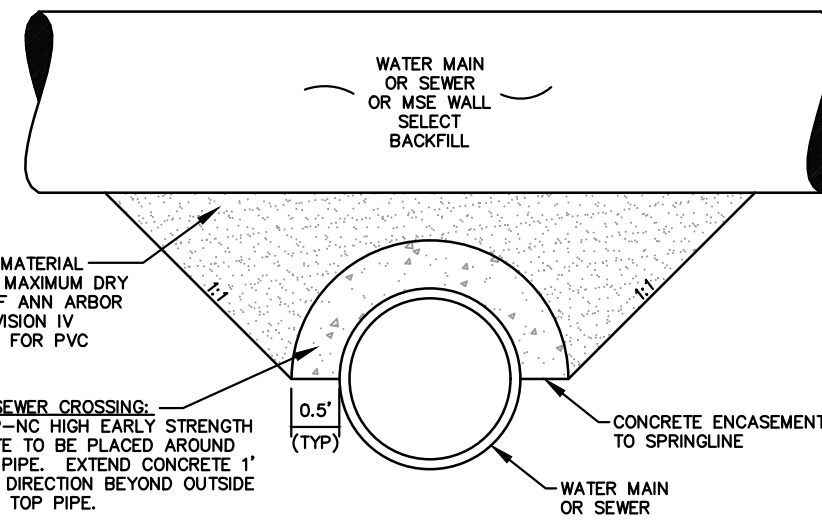
FOR FITTING SIZES LARGER THAN 16", THRUST BLOCK DIMENSIONS SHALL BE AS SPECIFIED BY ENGINEER.

W = WIDTH IN FEET  
 H = HEIGHT IN FEET



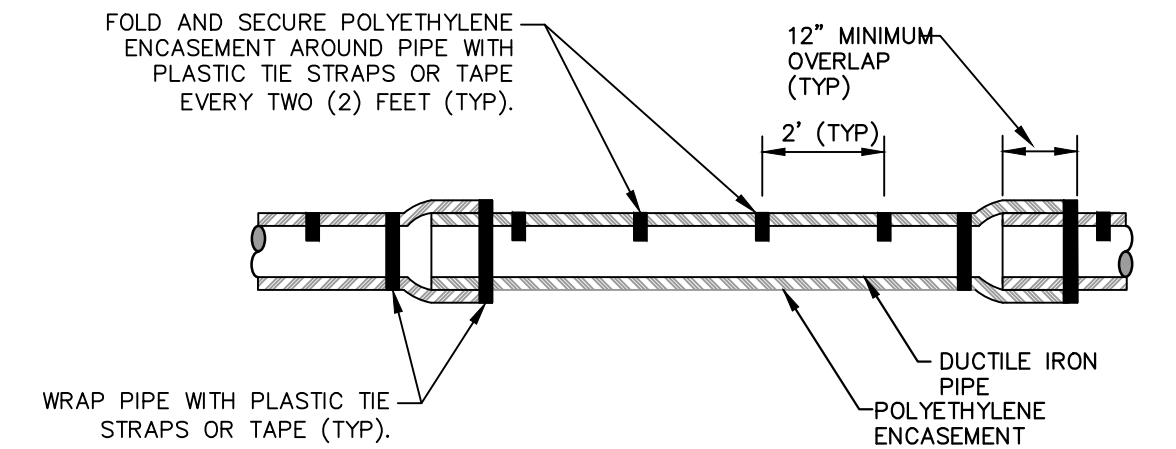
- NOTE:
- THESE ARE MINIMUM STANDARDS. WHERE SOIL CONDITIONS DICTATE, ADJUSTMENTS IN SIZE SHALL BE MADE AS DIRECTED BY THE PUBLIC SERVICES AREA ADMINISTRATOR.

### THRUST BLOCK SD-W-2



APPLIES TO: WATER AND/OR SEWER CROSSINGS WITH LESS THAN 1.5' OF VERTICAL CLEARANCE

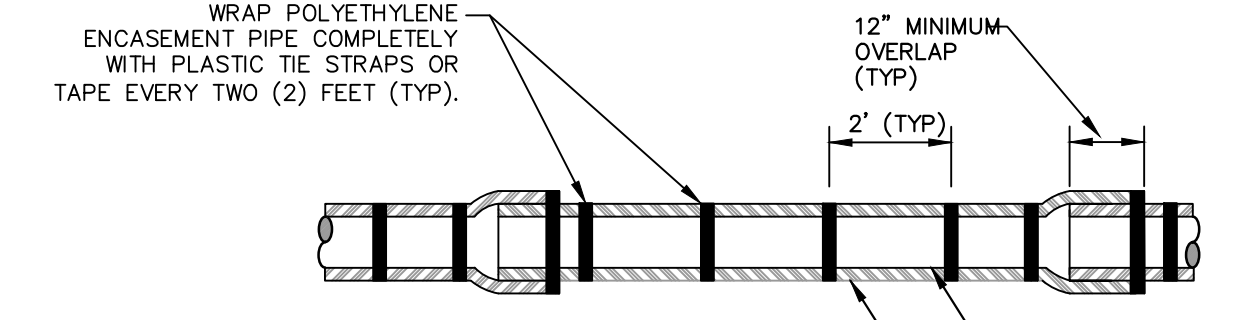
### CONCRETE UTILITY SADDLE



NOTE: FOLLOW ANSI/AWWA C105/A21.5-05 REVISION OF ANSI/AWWA C105/A21.5-99 FOR CONSTRUCTION AND INSTALLATION METHODS. USE MODIFIED METHOD A

APPLIES TO: POLYETHYLENE WRAPPED D.I. WATERMAIN SEE PLANS FOR LOCATIONS

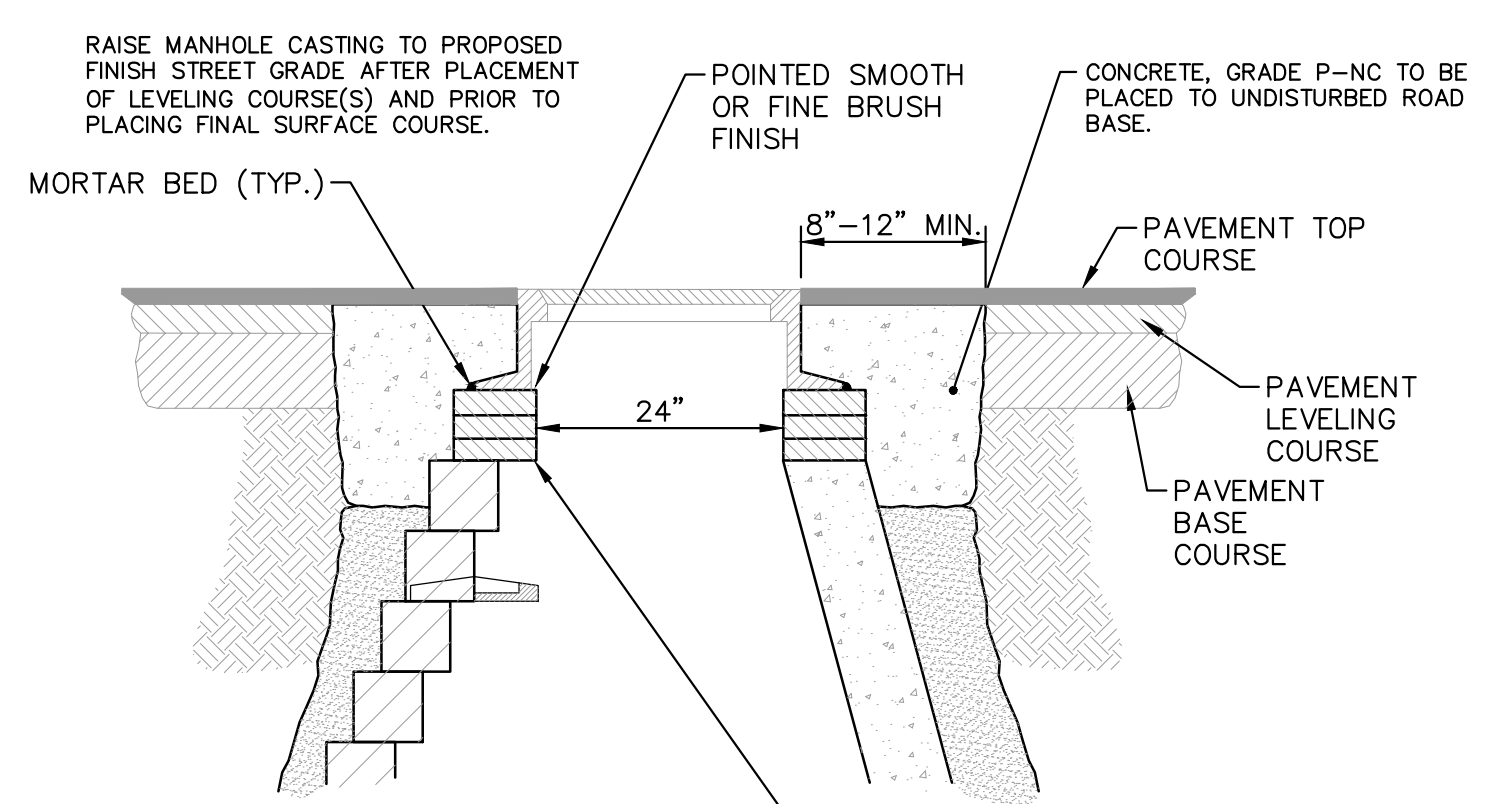
### POLYETHYLENE ENCASUREMENT (DRY INSTALLATION)



NOTE: FOLLOW ANSI/AWWA C105/A21.5-05 REVISION OF ANSI/AWWA C105/A21.5-99 FOR CONSTRUCTION AND INSTALLATION METHODS. USE MODIFIED METHOD A

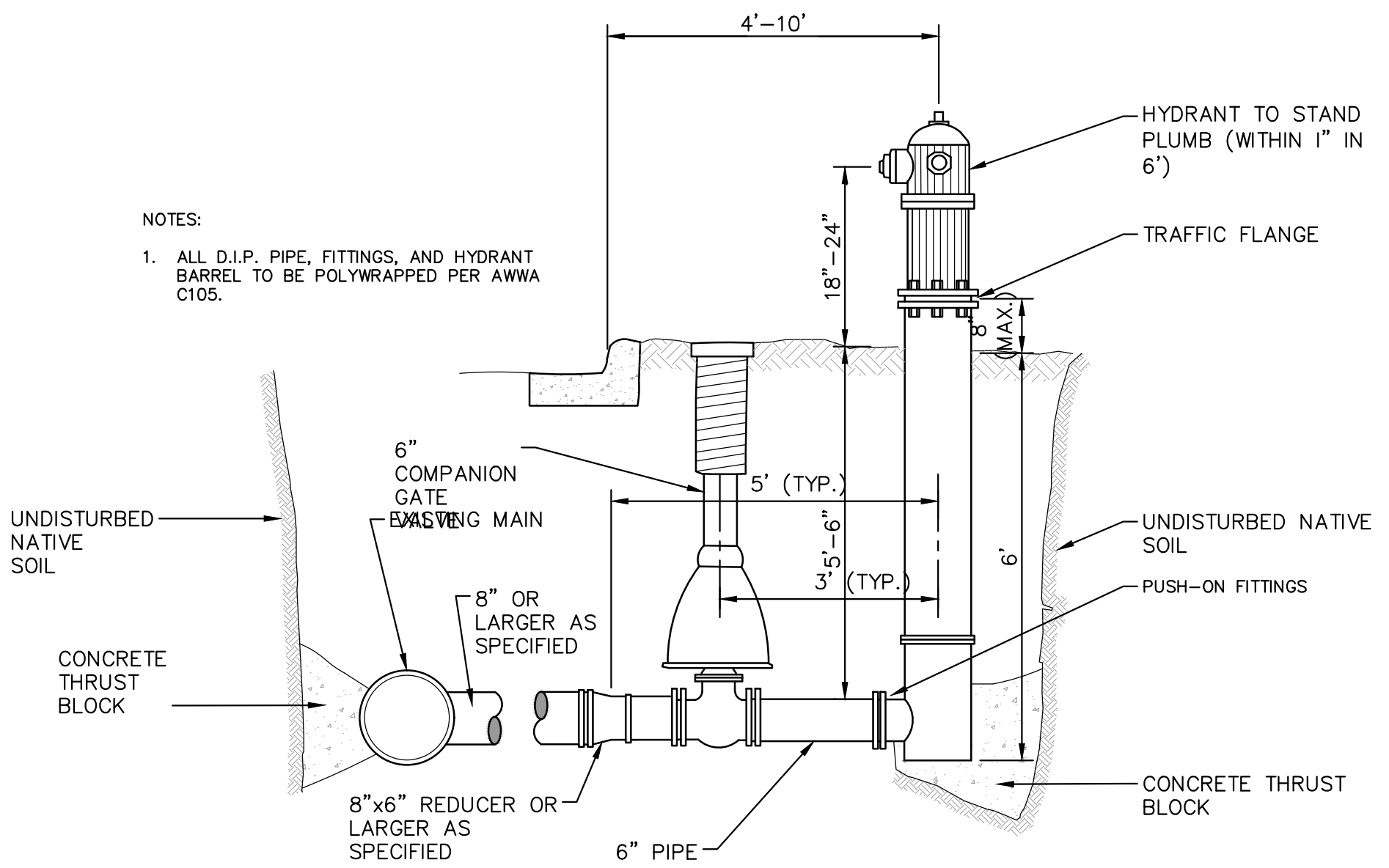
APPLIES TO: POLYETHYLENE WRAPPED D.I. WATERMAIN SEE PLANS FOR LOCATIONS

### POLYETHYLENE ENCASUREMENT (WET INSTALLATION)



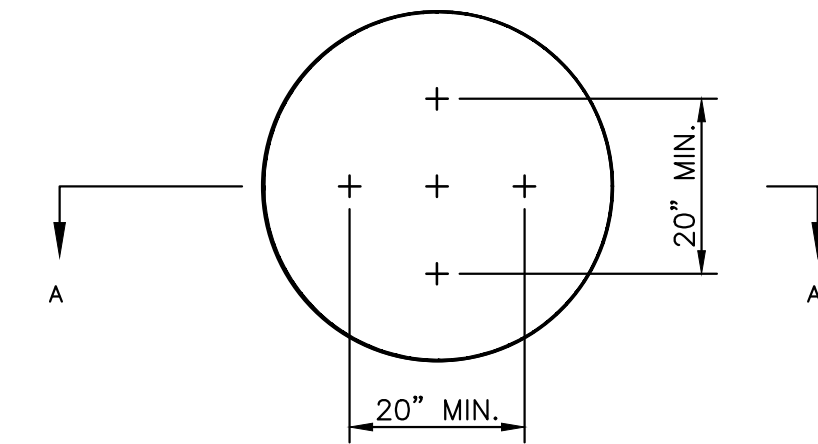
- NOTE:
- IF MANHOLE WILL BE PLACED IN GRAVEL ROAD, CASTING TO BE SET 6" TO 8" BELOW ROADWAY GRADE. ALL CONSTRUCTION METHODS SHALL REMAIN AS SHOWN ABOVE.
- ADDITIONAL REPAIRS NECESSARY BEYOND 15" BELOW GRADE TO BE PAID FOR AS "ADDITIONAL DEPTH STRUCTURE ADJUST/REPAIR"

### MANHOLE CASTING ADJUSTMENT SD-GU-6

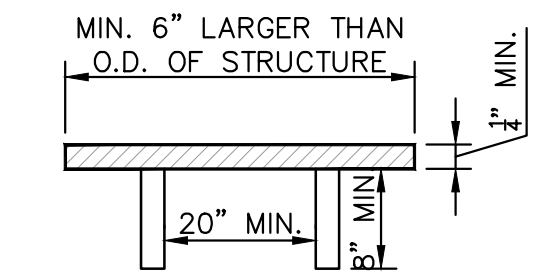


- NOTES:
- ALL D.I.P. PIPE, FITTINGS, AND HYDRANT BARREL TO BE POLYWRAPPED PER AWWA C105.

### FIRE HYDRANT ASSEMBLY

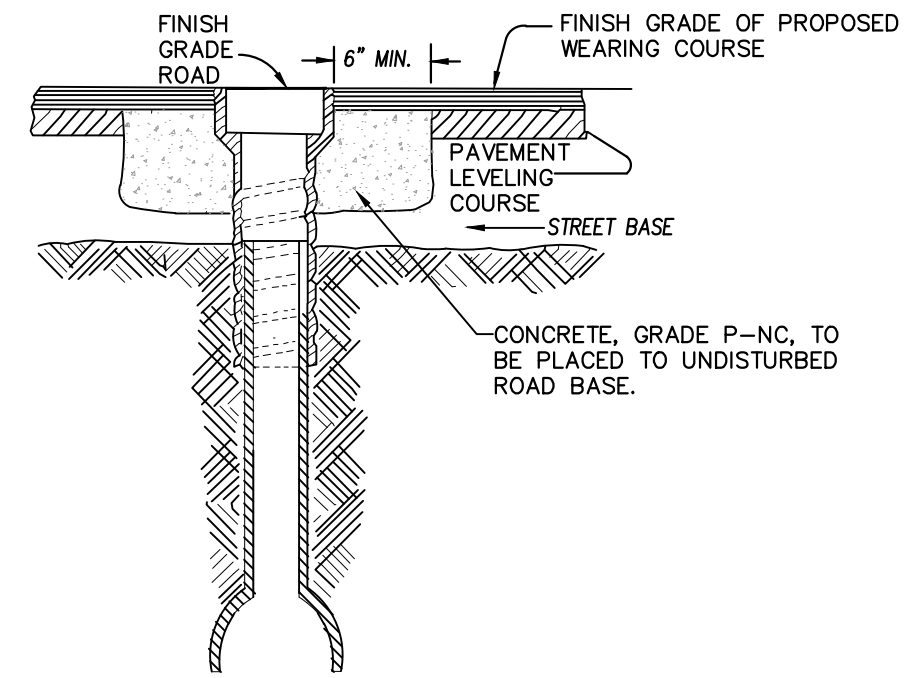


NOTE: PLATE MAY BE CIRCULAR, SQUARE OR RECTANGULAR



1/4" MIN. THICKNESS AND SUFFICIENT TO CARRY THE CONSTRUCTION LOAD.

### STRUCTURE PLATE SD-GU-8



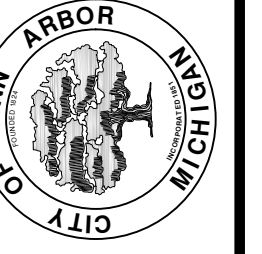
- NOTE:
- RAISE CASTING TO PROPOSED FINISH STREET GRADE AFTER PLACEMENT OF LEVELING COURSE(S) AND PRIOR TO PLACING FINAL SURFACE COURSE

### WATER VALVE BOX ADJUSTMENT



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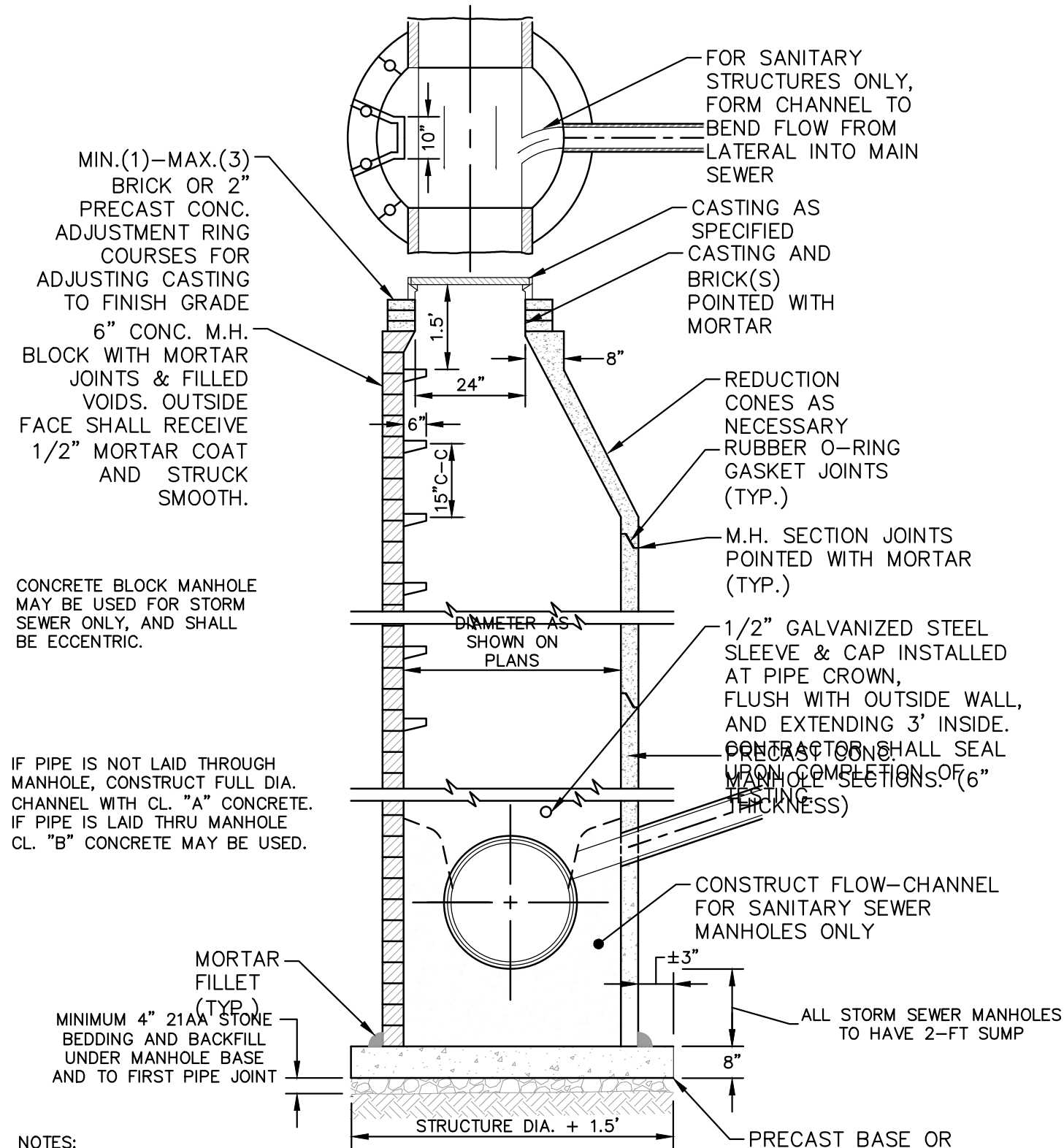
APPENDIX #1  
 OUT FOR BID  
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 WATER MAIN DETAILS  
 SCALE: NTS  
 DRAWING No. 2021005-8  
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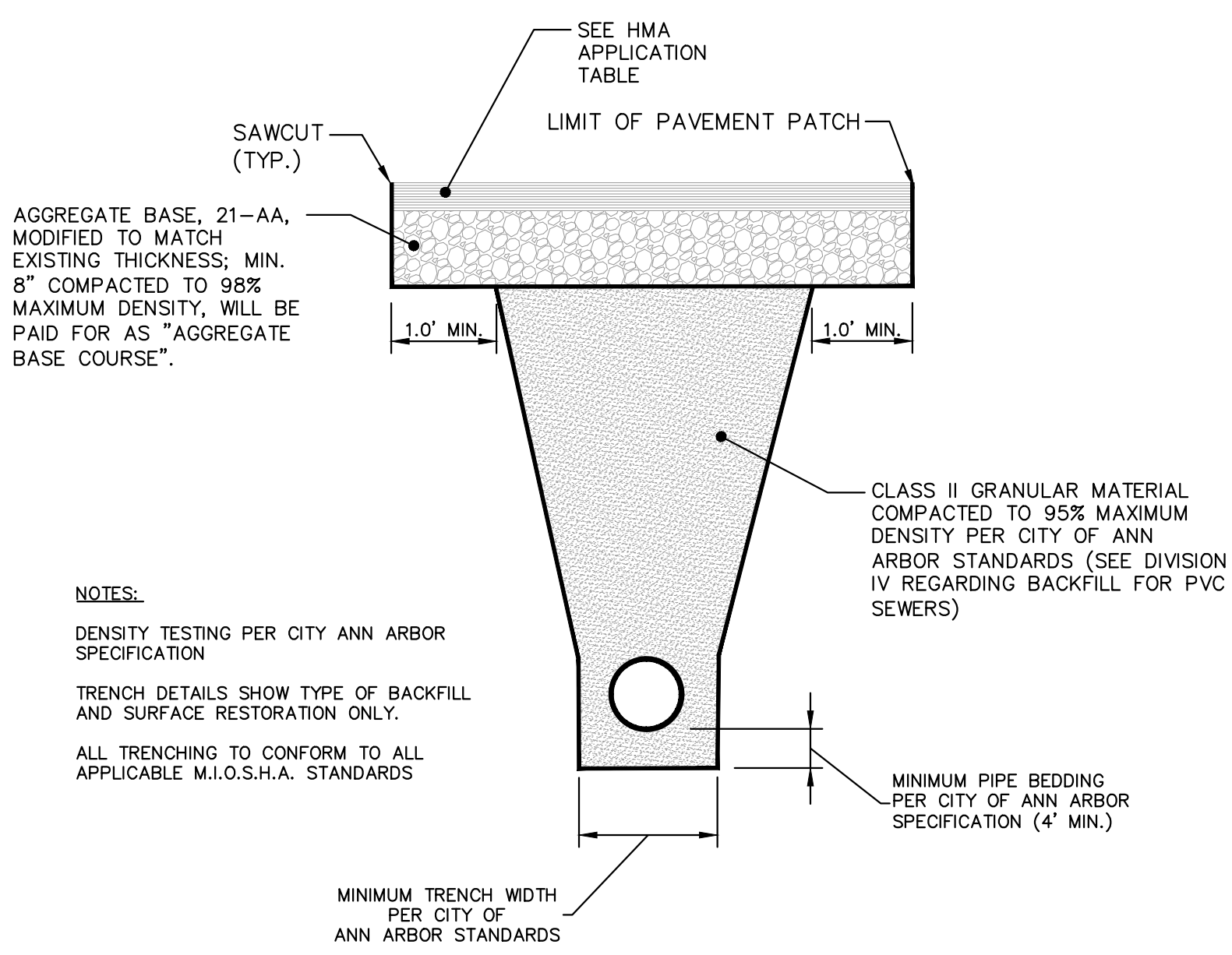


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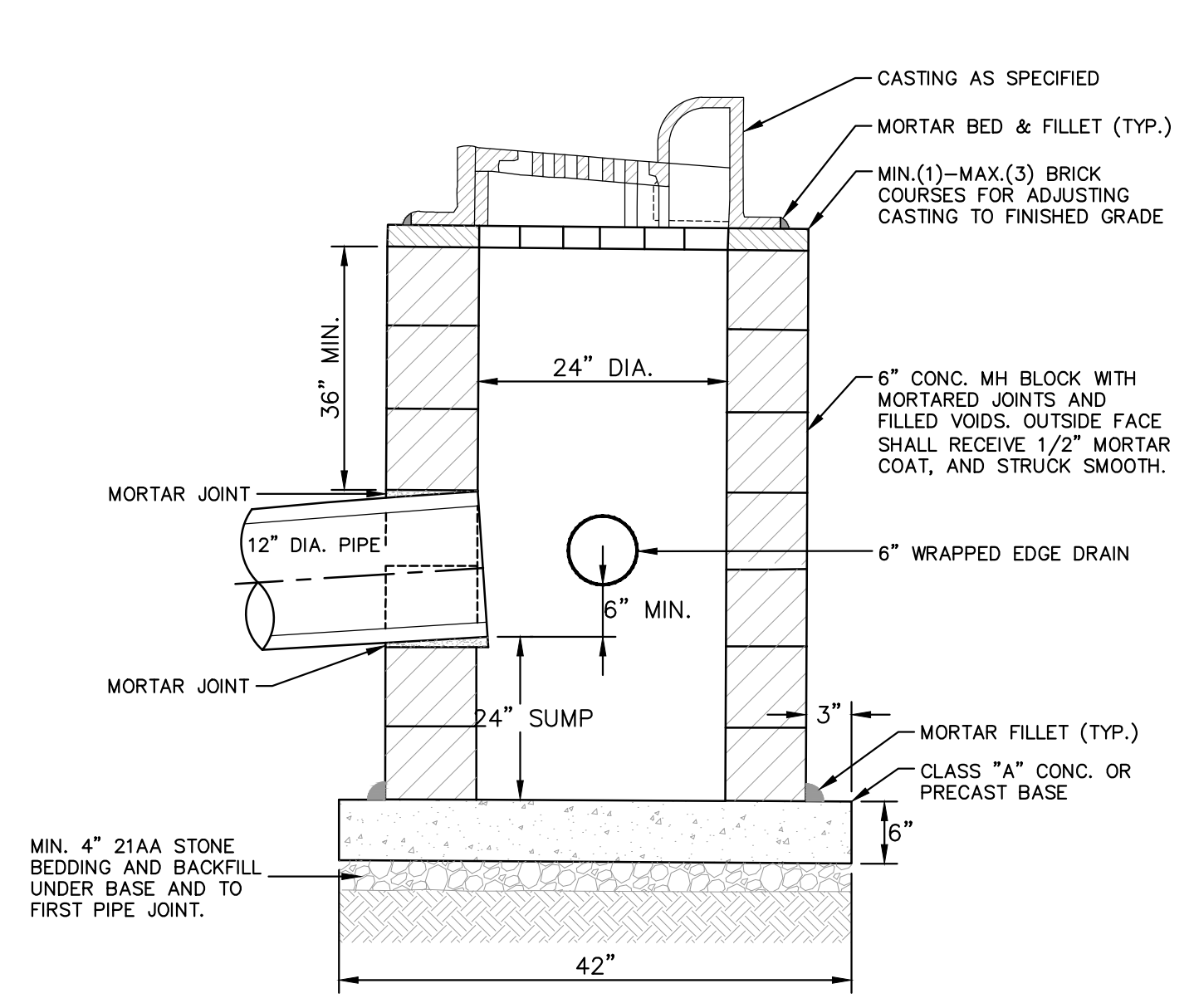


**STANDARD MANHOLE (TYPE I)**

- NOTES:
1. ALL SANITARY MANHOLES SHALL BE PRECAST CONCRETE.
  2. ALL MANHOLES MUST HAVE ECCENTRIC CONES - BOTH STORM AND SANITARY
  3. ALL SANITARY SEWER OPENINGS SHALL BE PRECAST WITH RUBBER BOOT CONNECTIONS.
  4. 2' SUMP REQUIRED ON ALL DRAINAGE STRUCTURES.

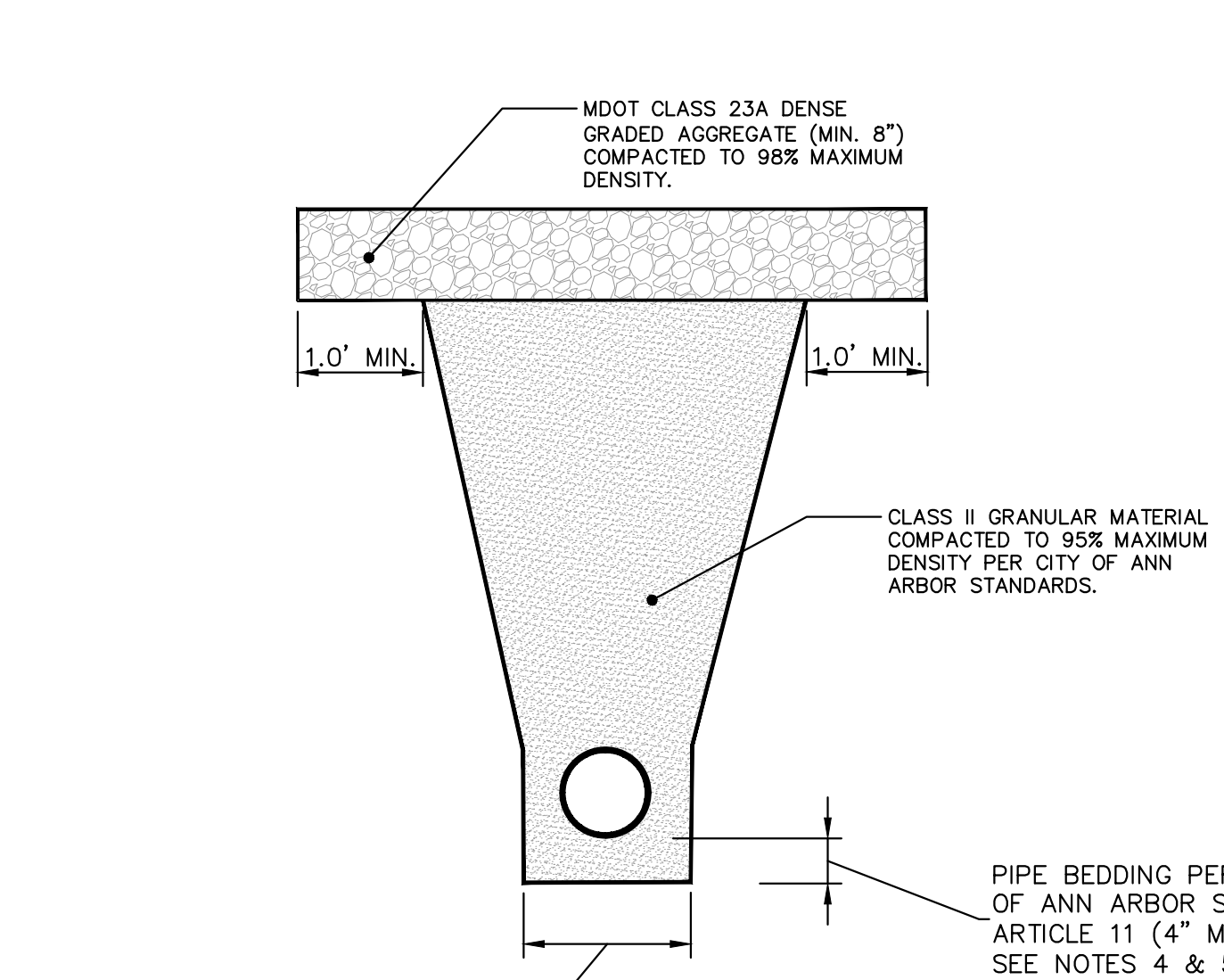


**UTILITY TRENCH-TYPE I SD-TD-1 (MODIFIED)**  
(UNDER HMA PAVEMENT)



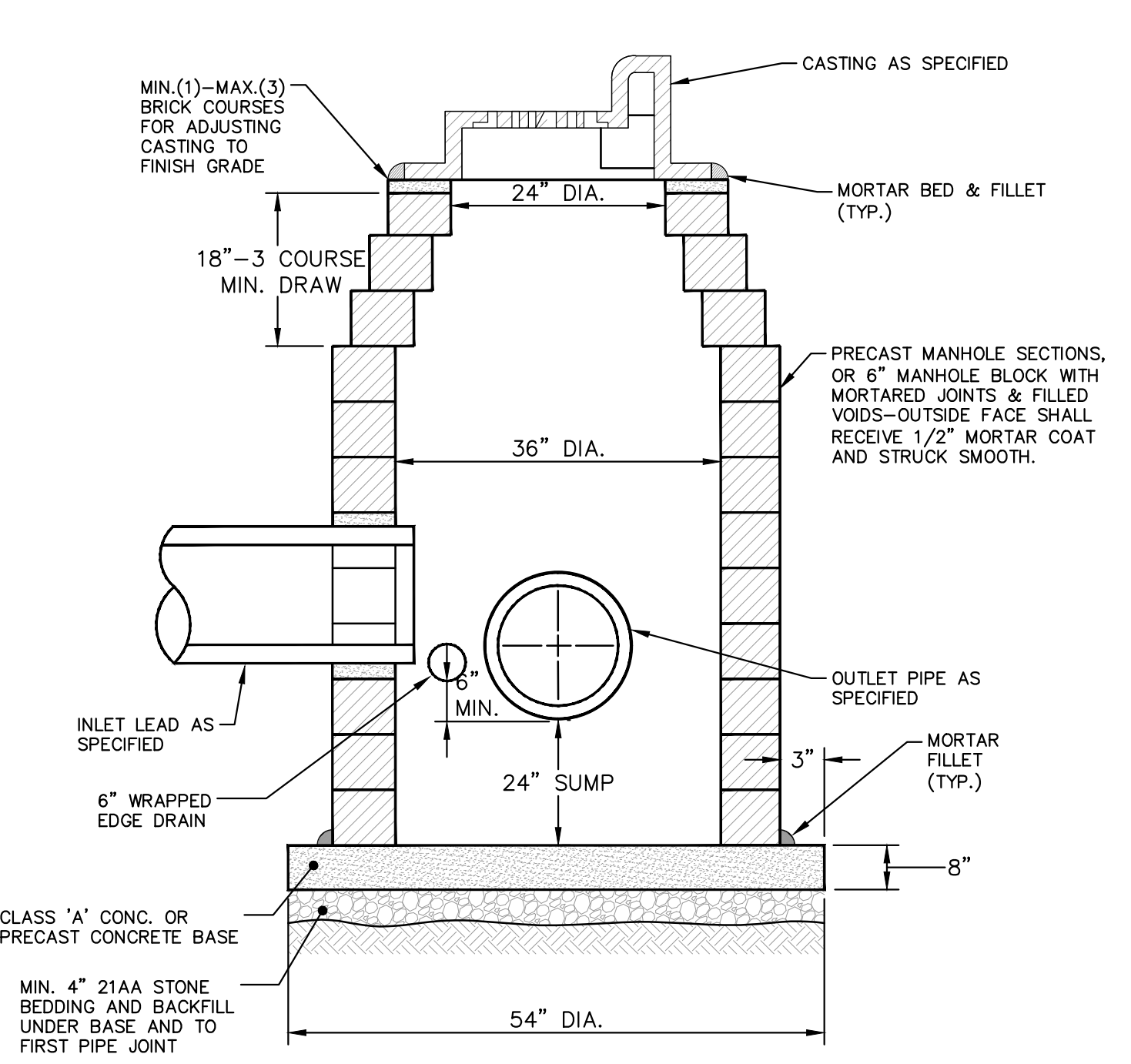
- NOTES:
1. MAY BE USED WITH ONLY SINGLE OUTLET PIPE, AND NO INLET PIPE
  2. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)

**SINGLE INLET STRUCTURE SD-S-10**



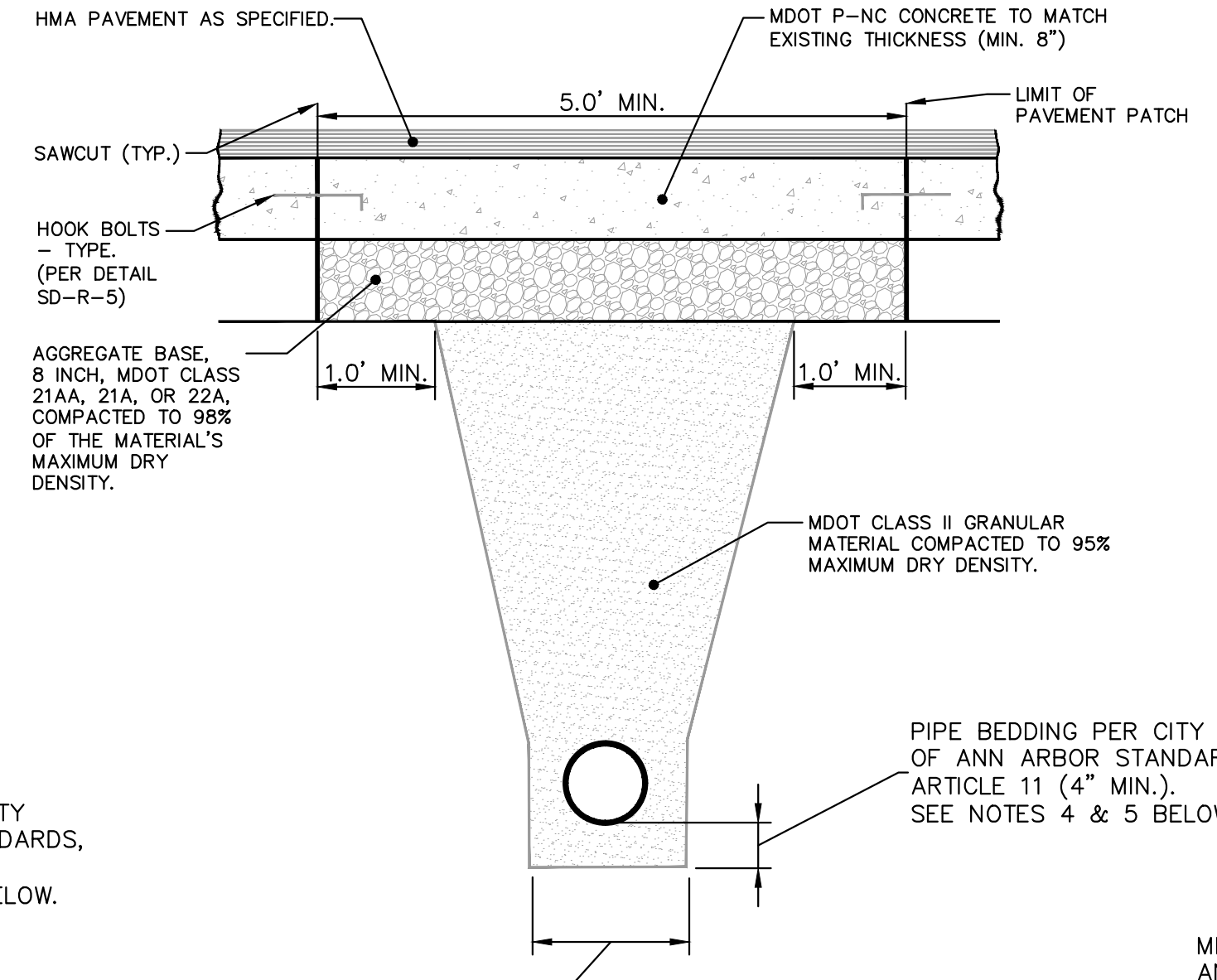
**UTILITY TRENCH-TYPE II SD-TD-2**  
(UNDER GRAVEL ROAD)

- NOTES:
1. ALL TRENCH EXCAVATION, BEDDING, BACKFILLING, AND SURFACE RESTORATION SHALL COMPLY WITH CITY OF ANN ARBOR STANDARDS, ARTICLE 11.
  2. TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY.
  3. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. AND CITY STANDARDS
  4. PIPE BEDDING THICKNESS UNDER CONCRETE PIPE 66" OR LARGER SHALL BE INCREASED TO 6".
  5. SEE SD-TD-1B FOR SANITARY PIPE BEDDING AREA DETAIL. SEE SD-TD-11 FOR EDGE DRAIN BEDDING AND BACKFILL DETAILS.



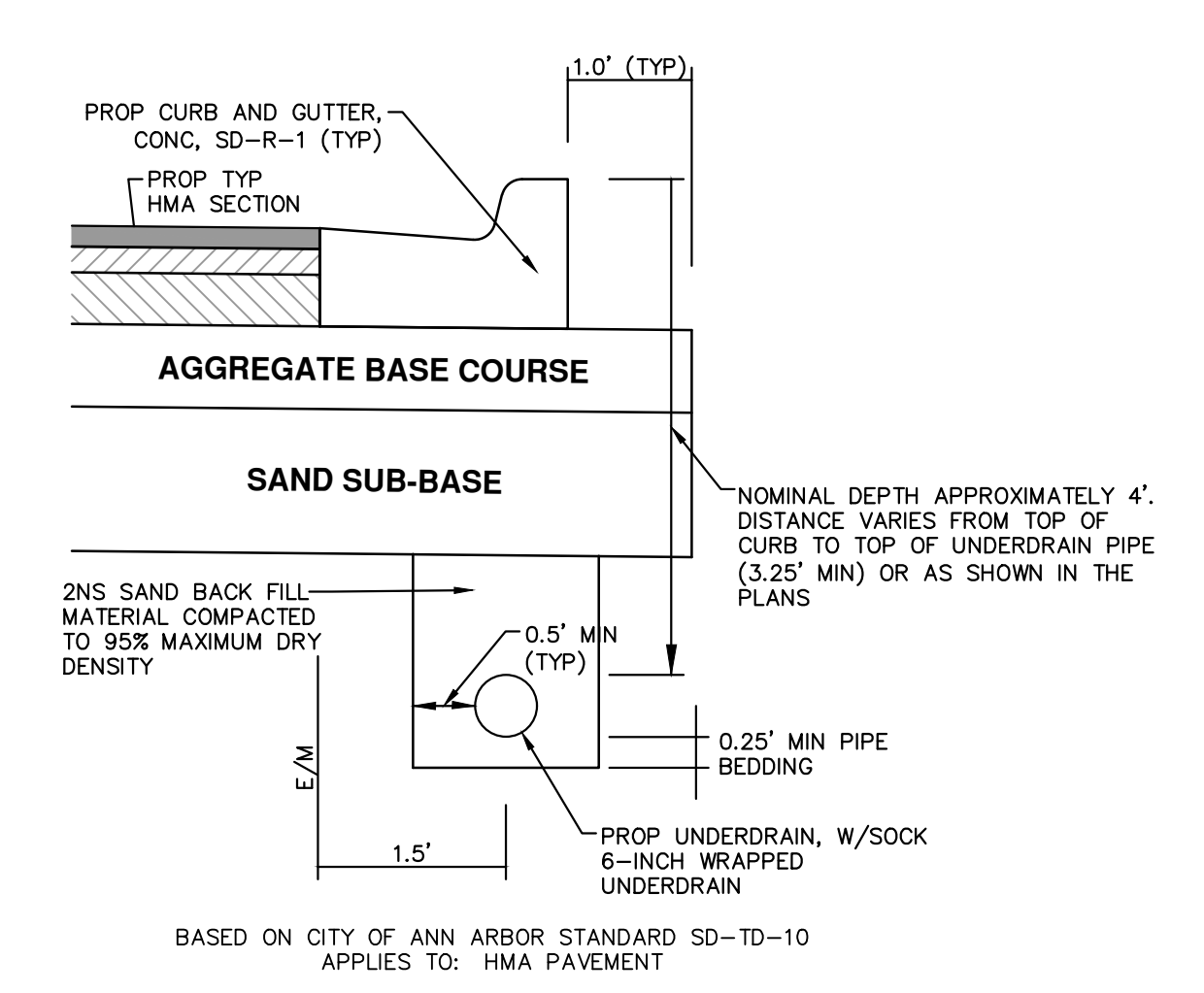
- NOTES:
1. SHALL BE USED IF SINGLE OUTLET PIPE AND SINGLE INLET PIPE.
  2. FRONT EDGE OF INLET CASTING SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)

**INLET-JUNCTION CHAMBER SD-S-9**



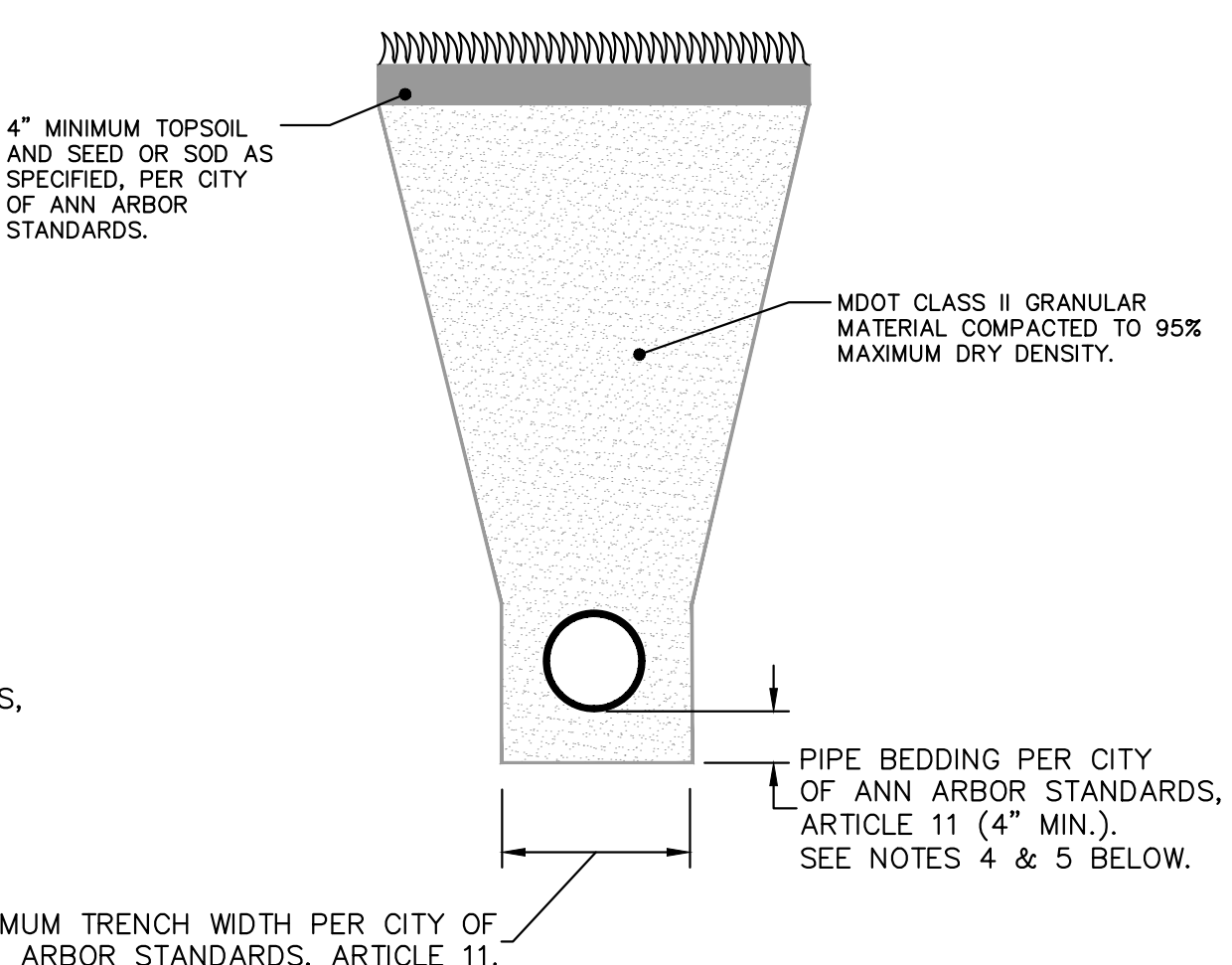
**UTILITY TRENCH-TYPE IV SD-TD-4**  
(UNDER CONCRETE PAVEMENT WITH BITUMINOUS OVERLAY)

- NOTES:
1. ALL TRENCH EXCAVATION, BEDDING, BACKFILLING, AND SURFACE RESTORATION SHALL COMPLY WITH CITY OF ANN ARBOR STANDARDS, ARTICLE 11.
  2. TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY.
  3. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. AND CITY STANDARDS
  4. PIPE BEDDING THICKNESS UNDER CONCRETE PIPE 66" OR LARGER SHALL BE INCREASED TO 6".
  5. SEE SD-TD-1B FOR SANITARY PIPE BEDDING AREA DETAIL. SEE SD-TD-11 FOR EDGE DRAIN BEDDING AND BACKFILL DETAILS.



**TRENCH DETAIL FOR UNDER DRAIN**  
(UNDER HMA PAVEMENT)

- NOTES:
- IN AREAS WHERE EDGE DRAIN CANNOT BE INSTALLED IN ACCORDANCE WITH THE DETAIL, THE EDGE DRAIN SHALL BE INSTALLED AT THE DEPTH AS INDICATED ON THE PLANS, OR AS DIRECTED BY ENGINEER. IN NO CASE SHALL THE EDGE DRAIN BE INSTALLED AT A GRADE LESS THAN 0.50% OR AT A DEPTH OF LESS THAN 2' BELOW TOP OF PROPOSED PAVEMENT.
- FOR PAVEMENT BASE AND SUBBASE THICKNESS, SEE TYPICAL PAVEMENT CROSS-SECTION(S)
- TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY
- ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. STANDARDS
- EDGE DRAINS SHALL BE CONNECTED TO A DRAINAGE STRUCTURE AND WILL EXTEND A MINIMUM OF 100 FEET UPSLOPE FROM THE STRUCTURE.
- ADDITIONAL LENGTHS OF EDGE DRAIN MAY BE REQUIRED BY THE ENGINEER BASED ON EXISTING SITE CONDITIONS, INCLUDING CONDITION OF THE SUBGRADE.



**UTILITY TRENCH-TYPE VI SD-TD-6**  
(IN GREENBELT AREA REQUIRING CLASS II BACKFILL)

- NOTES:
1. ALL TRENCH EXCAVATION, BEDDING, BACKFILLING, AND SURFACE RESTORATION SHALL COMPLY WITH CITY OF ANN ARBOR STANDARDS, ARTICLE 11.
  2. TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY.
  3. ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. AND CITY STANDARDS
  4. PIPE BEDDING THICKNESS UNDER CONCRETE PIPE 66" OR LARGER SHALL BE INCREASED TO 6".
  5. SEE SD-TD-1B FOR SANITARY PIPE BEDDING AREA DETAIL.

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

01	ADDENDUM #1	4-6-21	DF/CC	TB	TB	TB	TB
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				DESCRIPTION	REV.		

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**2021 MISC. UTILITIES PROJECT**  
STORM SEWER AND TRENCH DETAILS

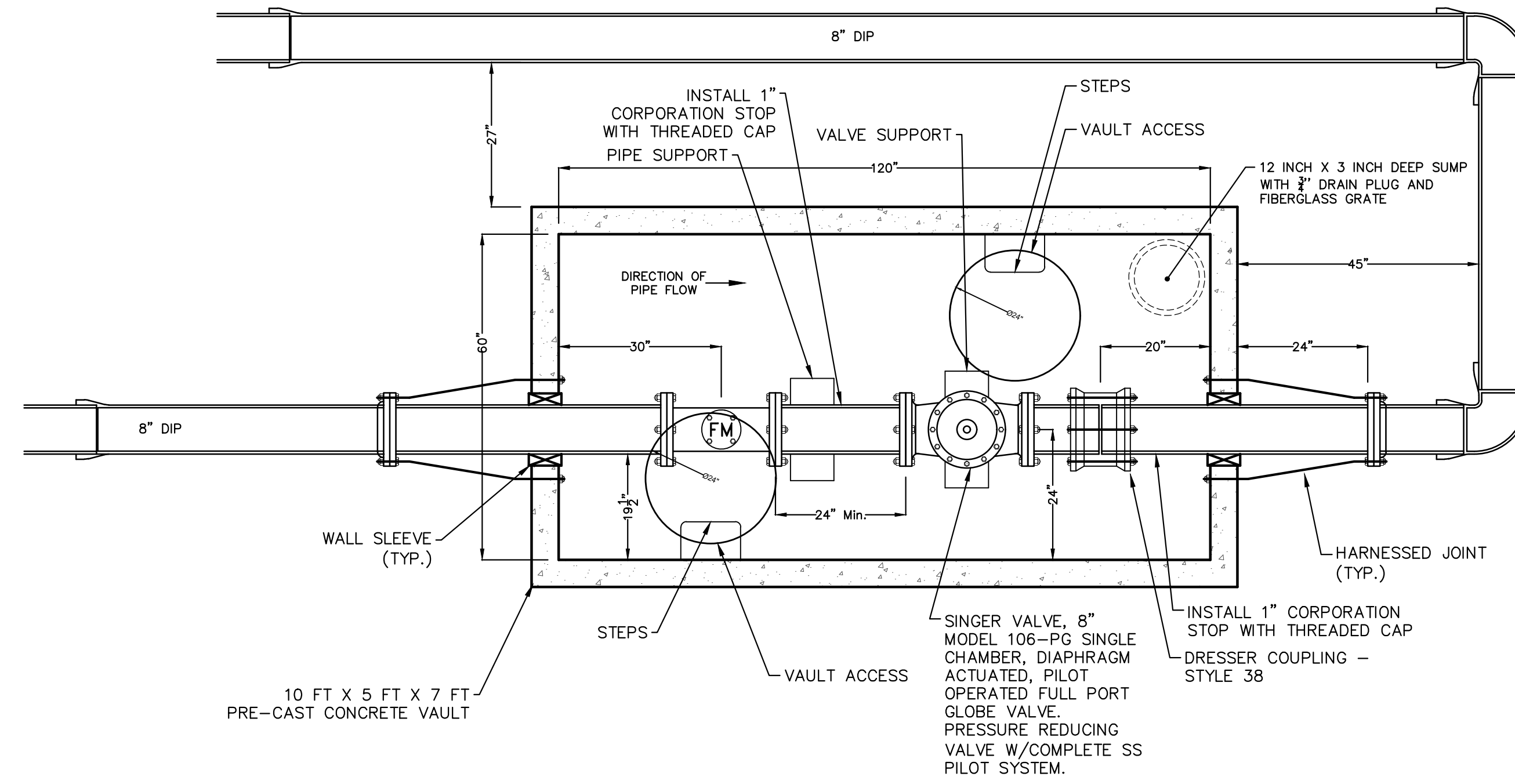
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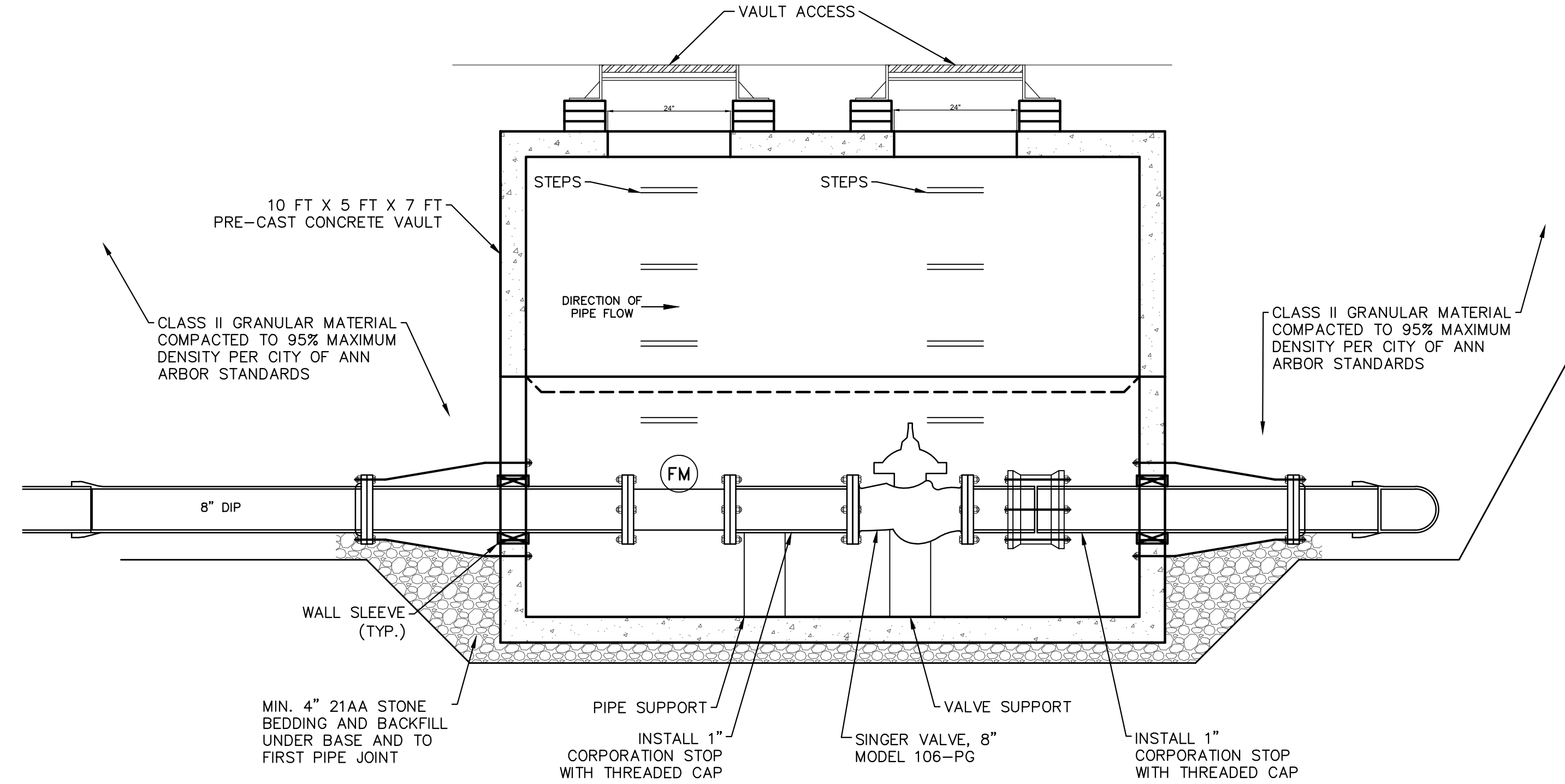
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**PRESSURE REDUCING VAULT**  
PLAN VIEW - NOT TO SCALE



**PRESSURE REDUCING VAULT**  
SECTION VIEW - NOT TO SCALE

- NOTES:
1. ALL CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4500 PSI
  2. REINFORCING STEEL SHALL COMPLY WITH ASTM A 615 GRADE 60 REBAR
  3. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS
  4. STRUCTURAL DESIGN SHALL BE BASED ON HS-20 WHEEL LOADING



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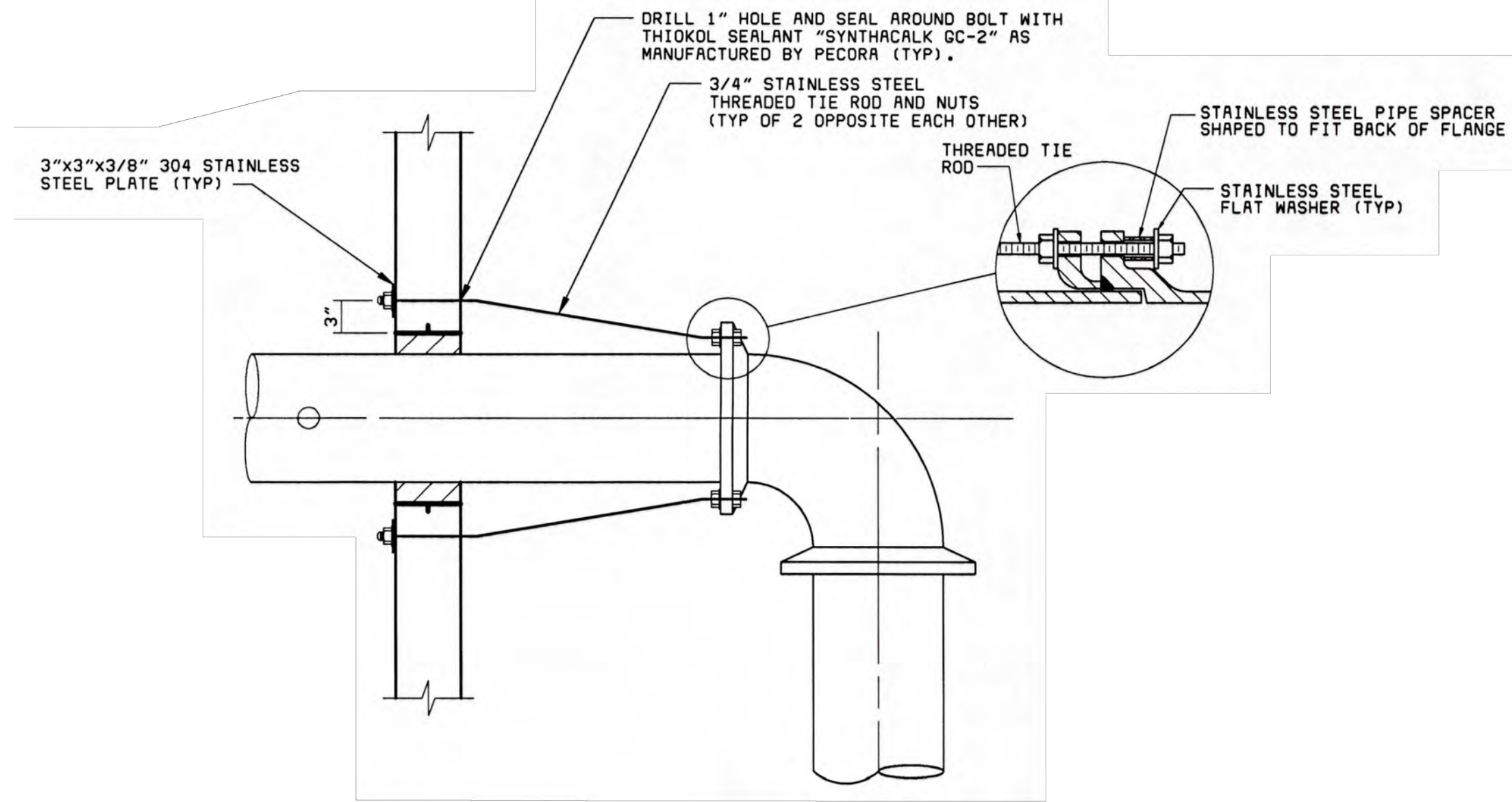


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2021 MISC. UTILITIES PROJECT  
PRESSURE REDUCING VAULT DETAIL

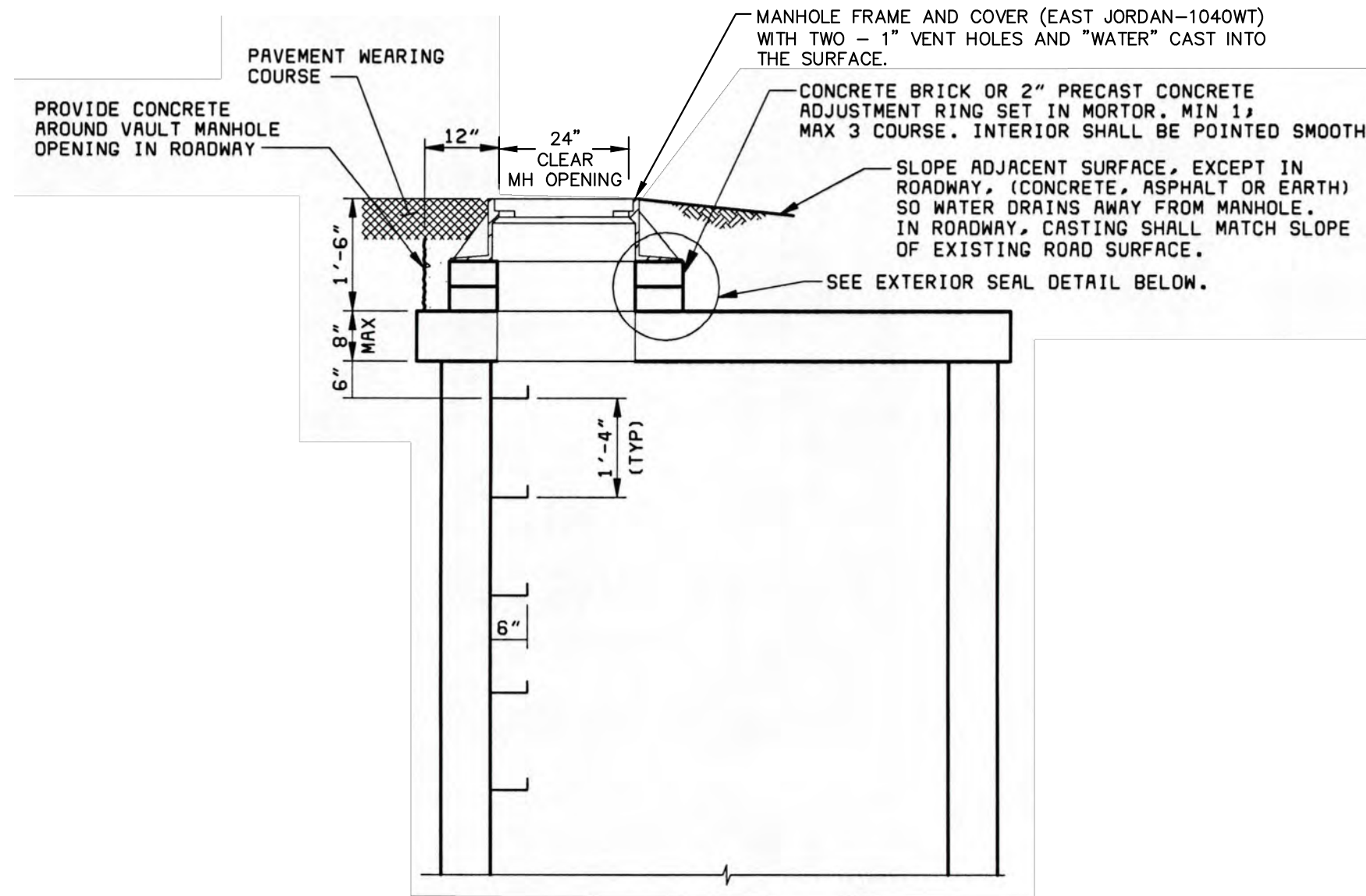
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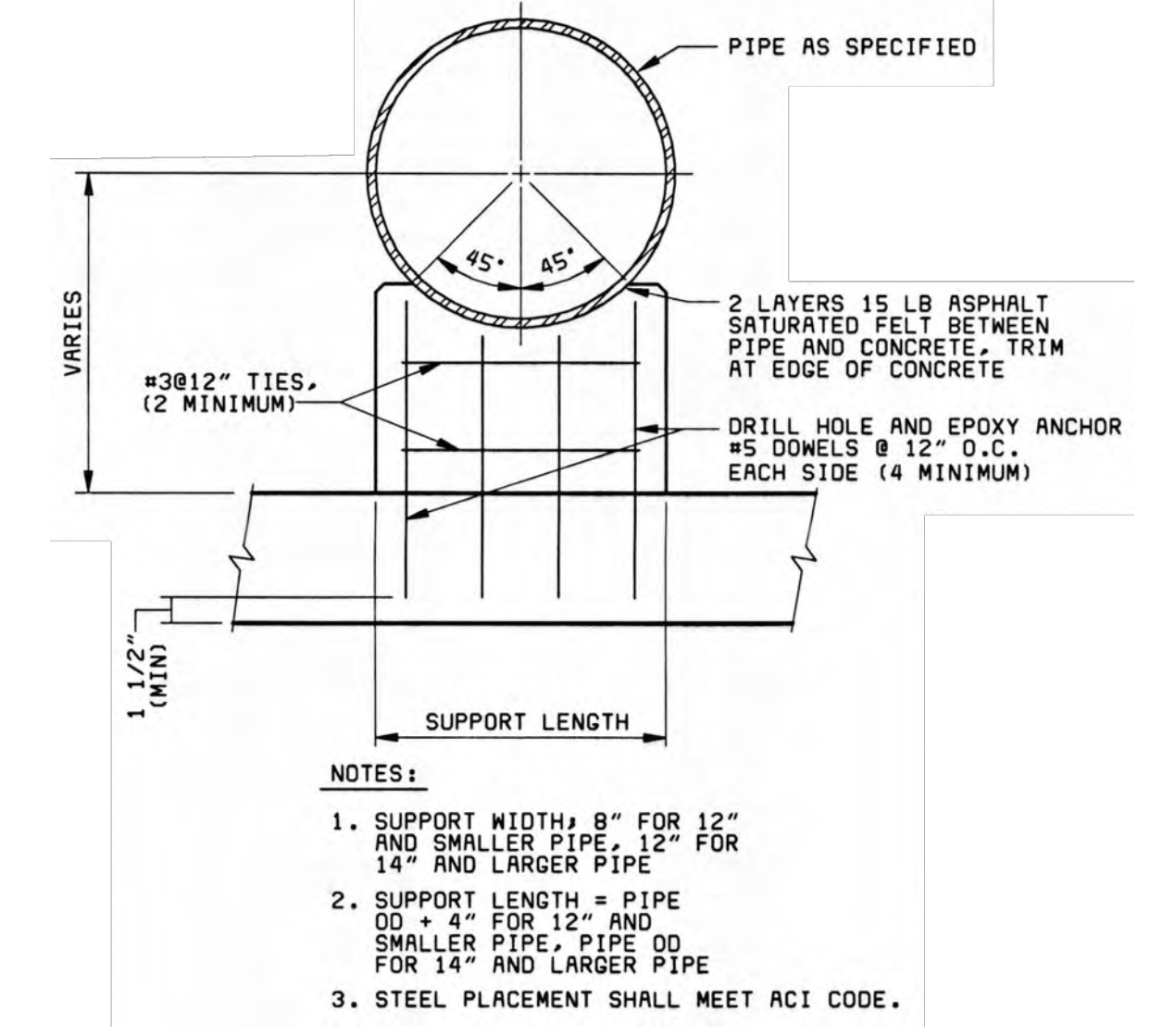
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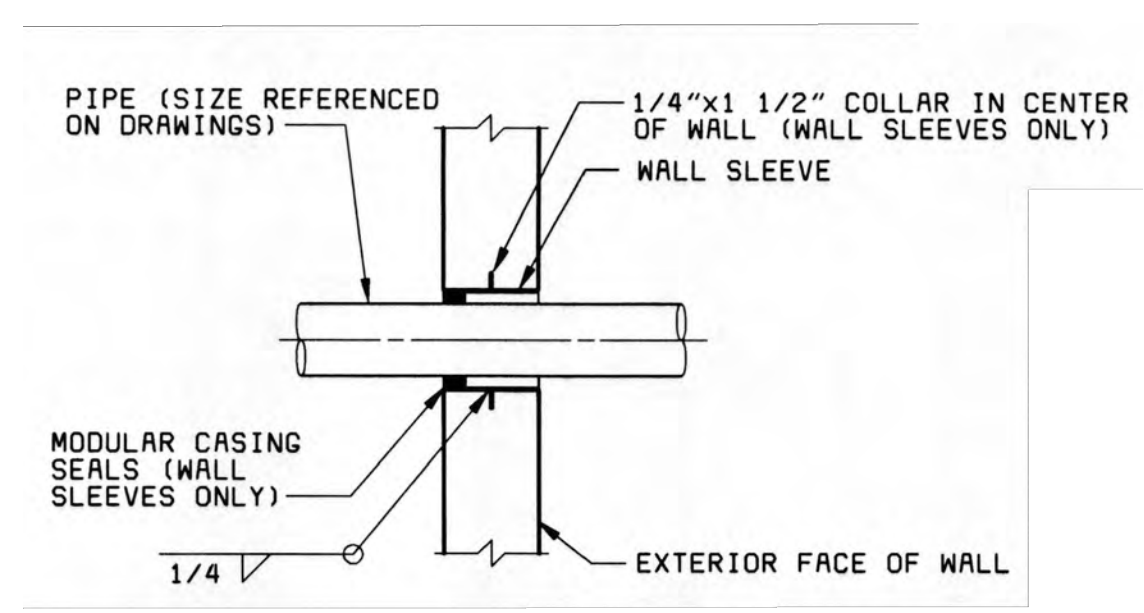
**HARNESSED JOINT**



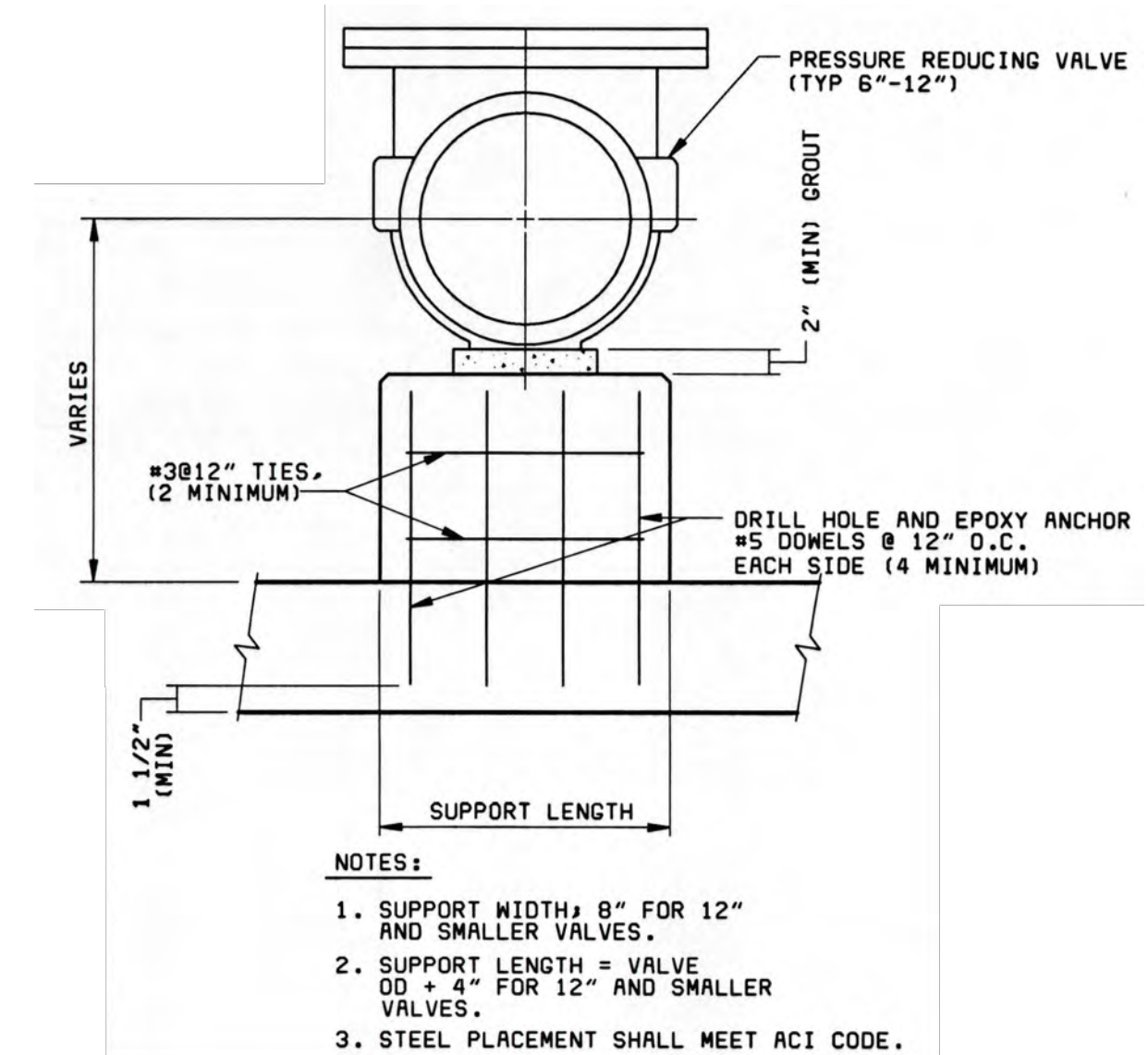
**VAULT ACCESS SECTION**



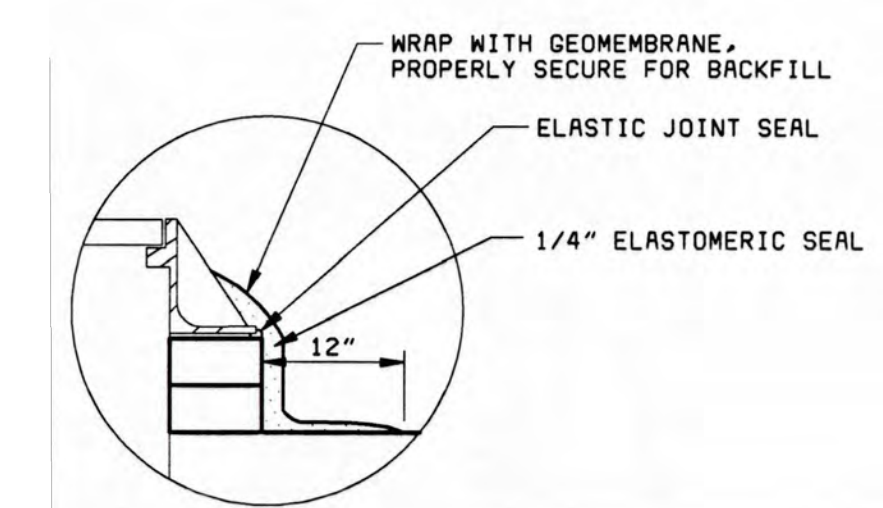
**CONCRETE PIPE SUPPORT**



**CONCRETE WALL SLEEVE**



**CONCRETE VALVE SUPPORT**



**EXTERIOR SEAL**



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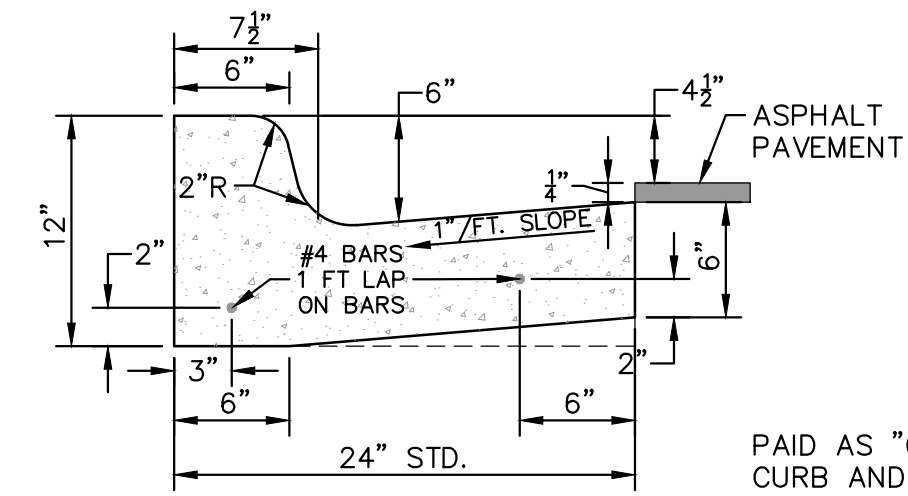
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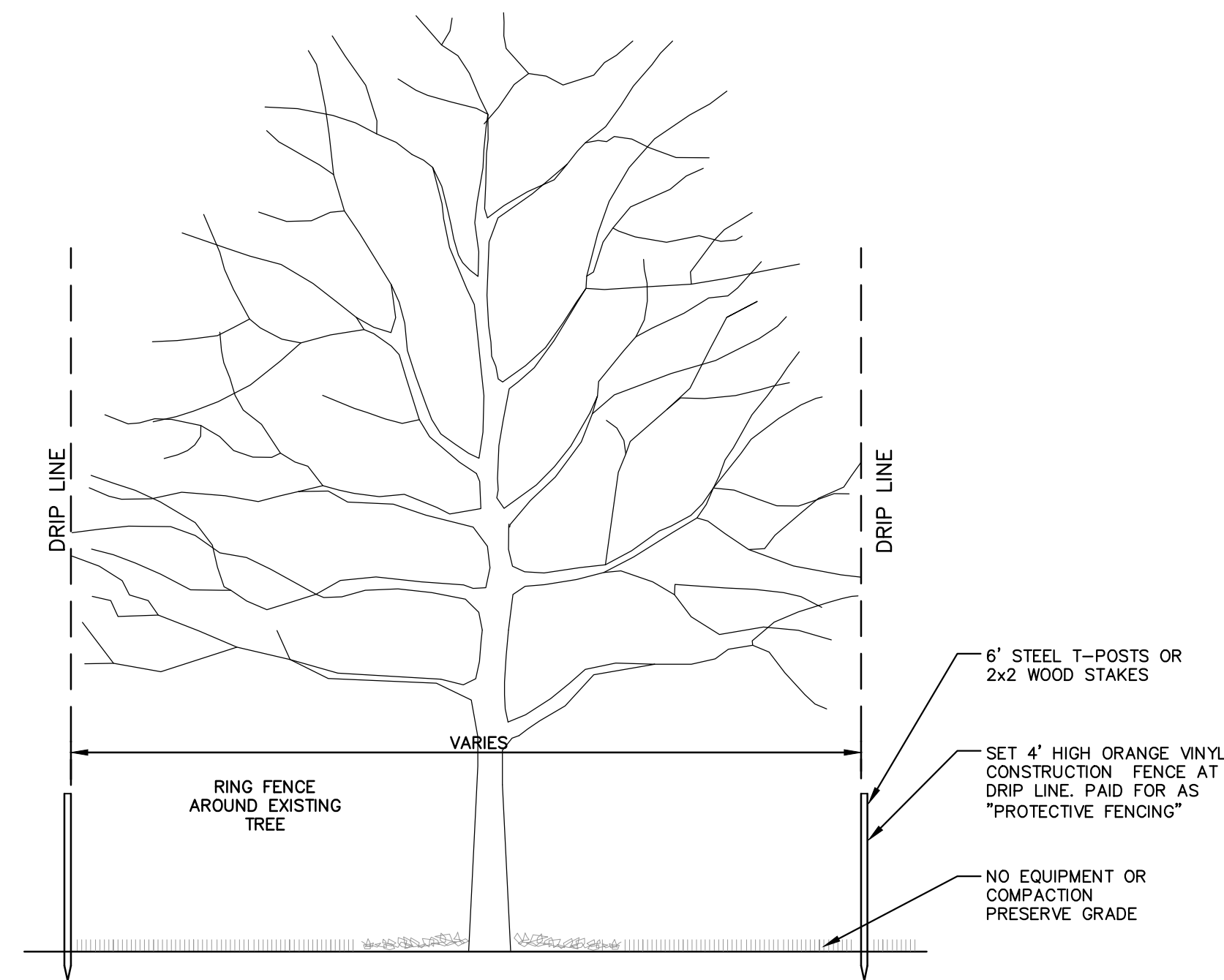
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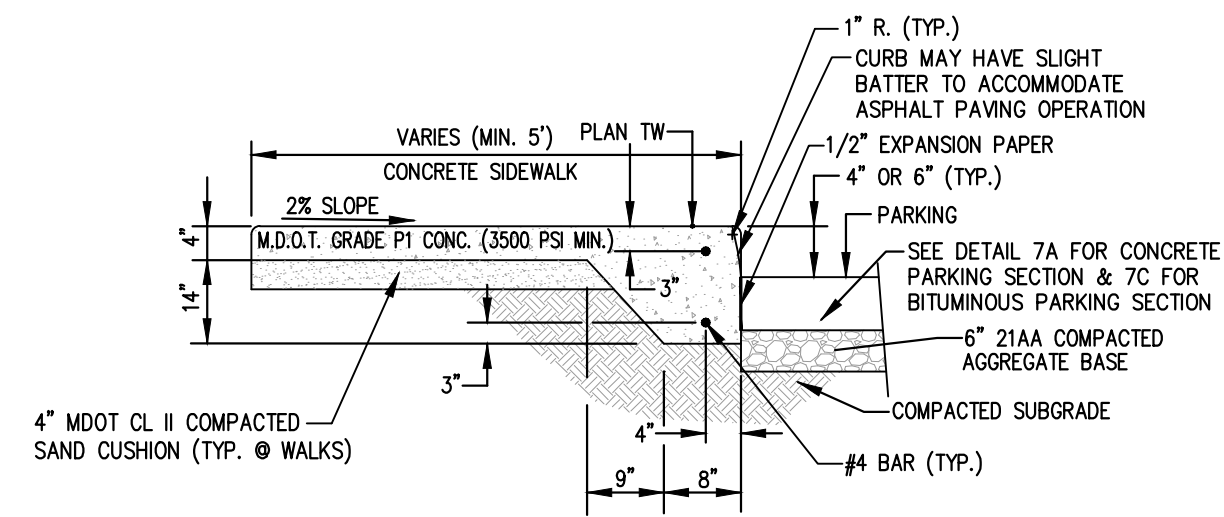


PAID AS "CONCRETE CURB OR CURB AND GUTTER - ALL TYPES" OR "CONCRETE CURB" OR "CURB AND GUTTER - ALL TYPES (HIGH EARLY)"

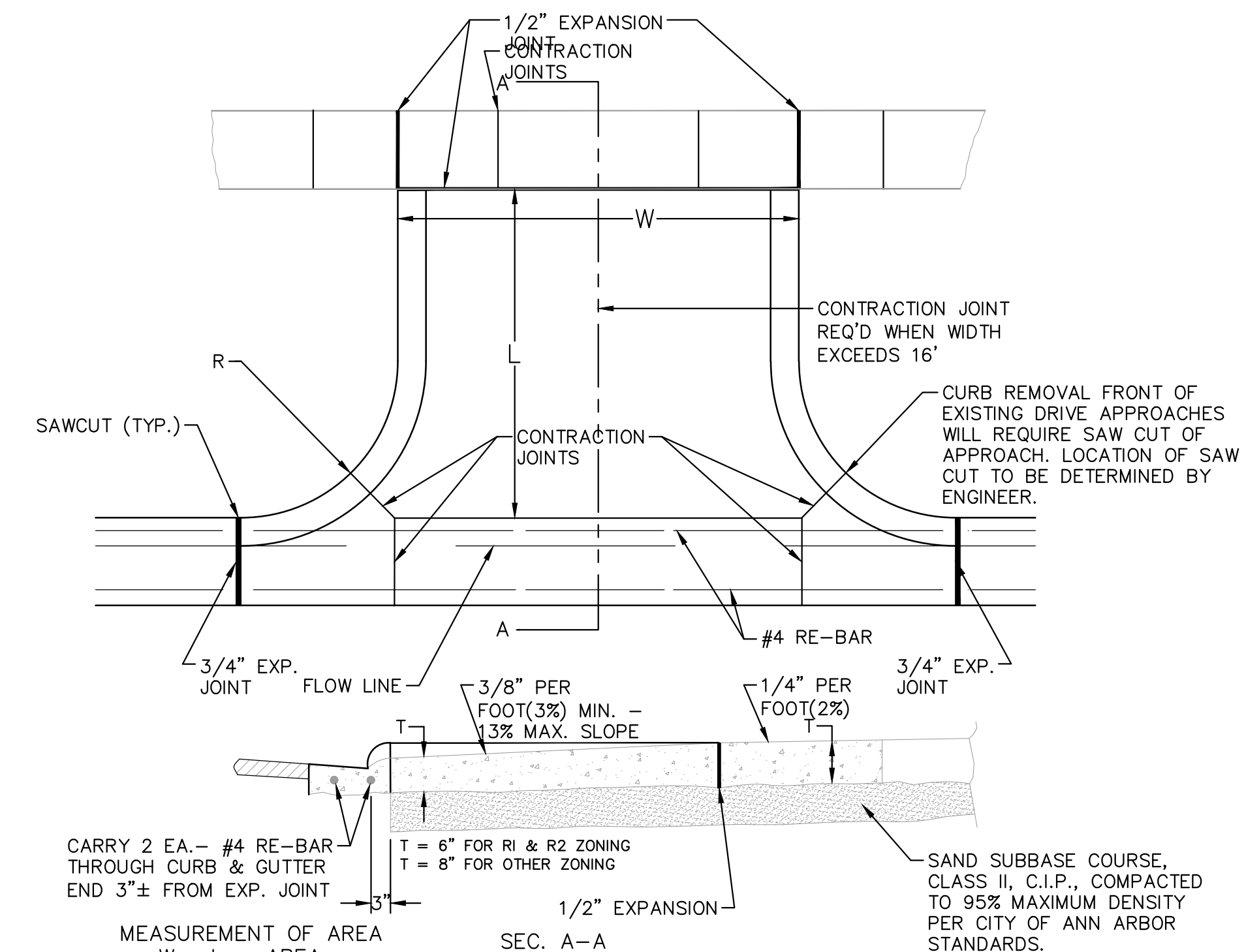
**CURB AND GUTTER, CONC, DET F4, SPECIAL**



**TREE PROTECTION DETAIL**



**TYPICAL CONCRETE PAVEMENT INTEGRAL WALK/CURB**



CARRY 2 EA. - #4 RE-BAR THROUGH CURB & GUTTER END 3"± FROM EXP. JOINT

MEASUREMENT OF AREA  
 $W \times L = \text{AREA}$

- NOTE:
1. DRIVE APPROACH TO BE CLASS 'A' CONCRETE.
  2. R(RADIUS) AND W(DRIVE WIDTH) AS REQUIRED FOR ZONING BY CITY CODE
  3. IF GUTTER IS OVERLAYED, GUTTER OF THE APPROACH SHALL BE AT SAME ELEVATION AS EXISTING GUTTER AND ASPHALT WEDGE SHALL BE PLACED IN THE APPROACH.

**TYPE 'M' DRIVE APPROACH SD-R-6**



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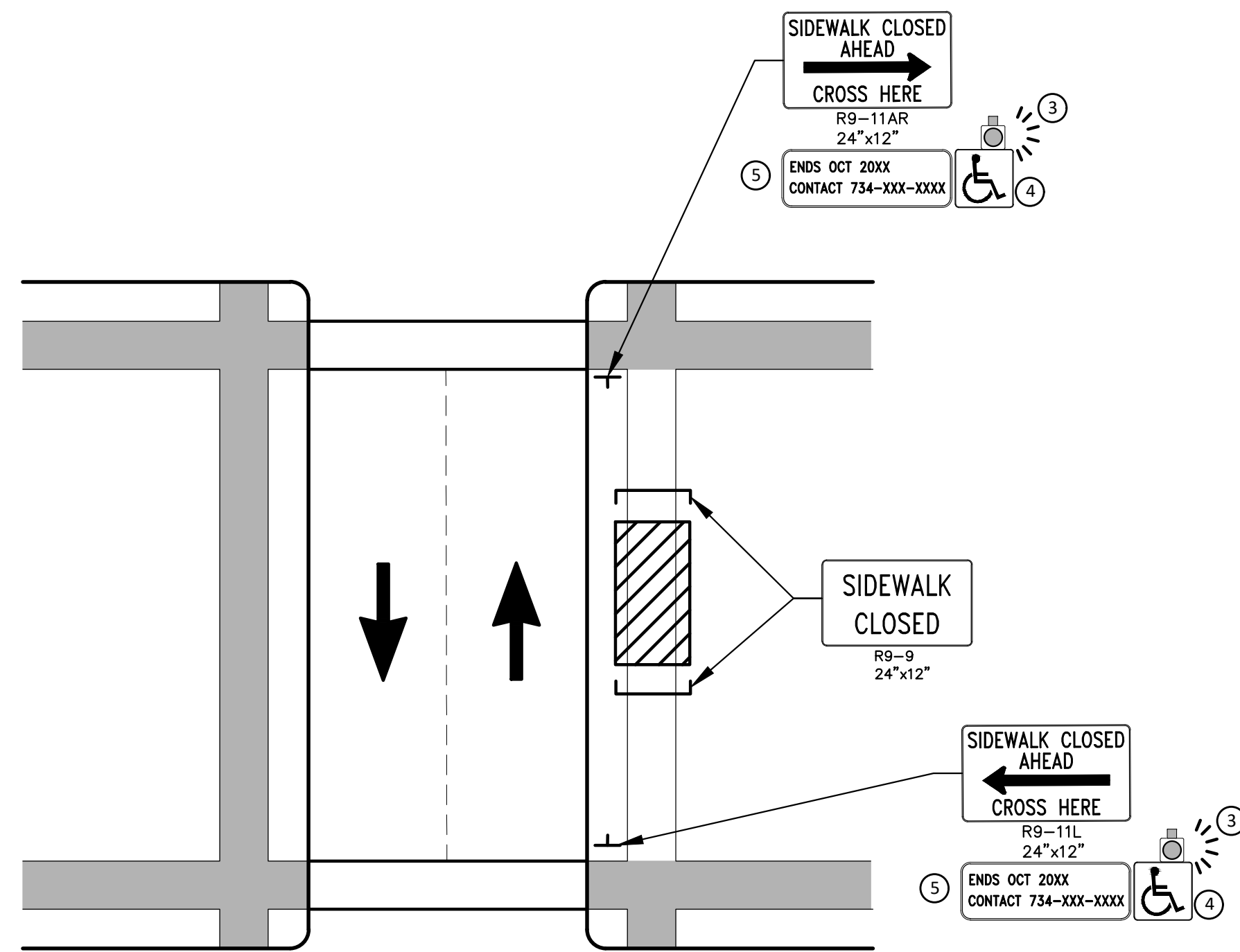


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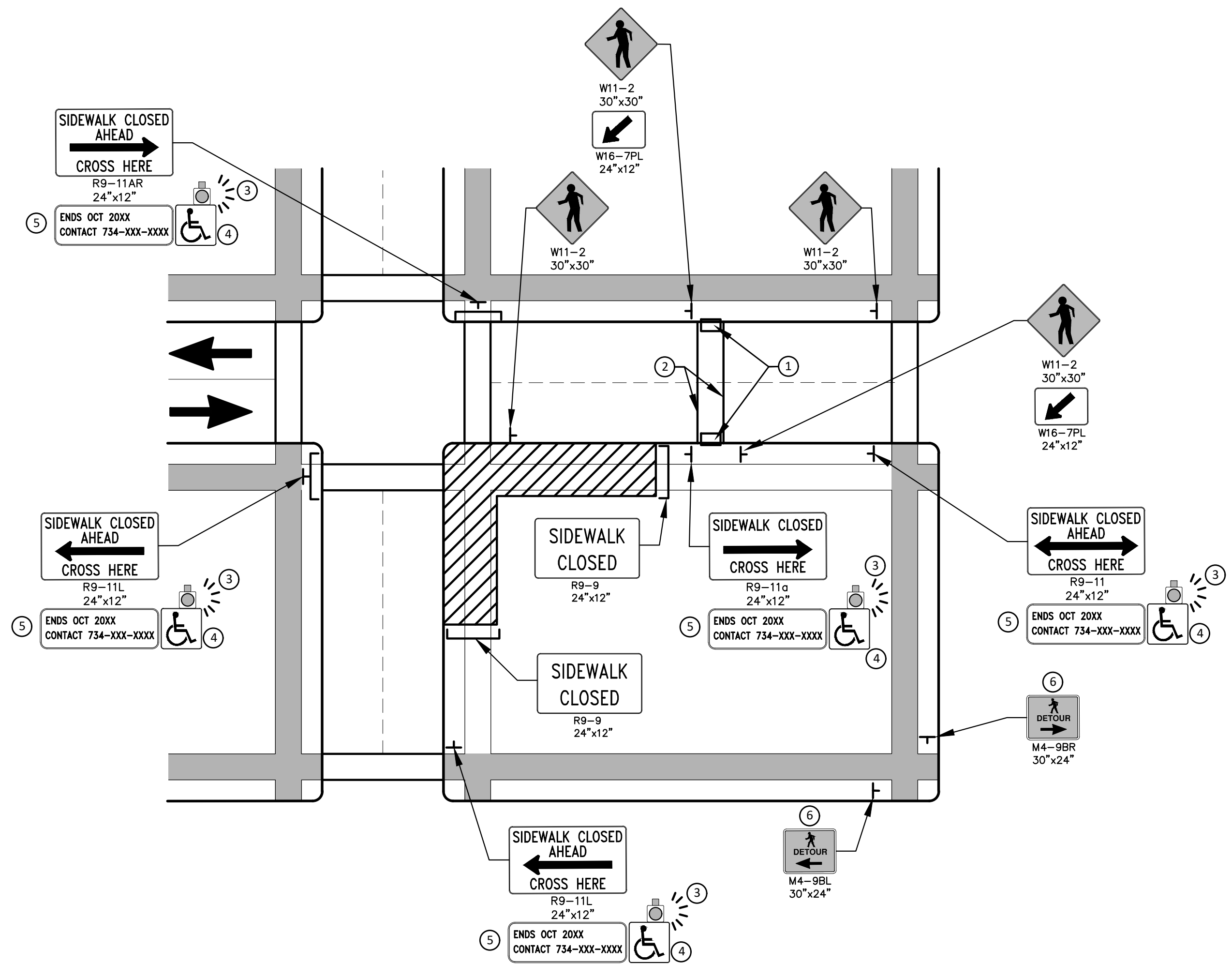
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PEDESTRIAN DETOUR USING OPPOSITE SIDE OF STREET



OTHER SIDE OF STREET DETOUR OR DETOUR WITH TRAILBLAZING SIGNS  
(FOR CORNER SIDEWALK CLOSURE WITH OPTIONAL TEMPORARY CROSSWALK)

**GENERAL NOTES**

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, THE CONTRACTOR SHALL PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE AN ALTERNATE PEDESTRIAN ROUTE (APR) AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

PROVIDE A SMOOTH, CONTINUOUS, HARD SURFACE THROUGH THE LENGTH OF THE APR. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED. PROVIDE A FIRM, STABLE, AND SLIP RESISTANT TEMPORARY WALKWAY SURFACE TO COVER SHORT SEGMENTS OF ROUGH, SOFT, OR UNEVEN GROUND.

THE PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS SHALL BE COVERED OR DEACTIVATED BY THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE THIS WORK WITH THE ENGINEER A MINIMUM OF 72 HOURS (NOT INCLUDING WEEKENDS & HOLIDAYS) PRIOR TO THE BEGINNING OF WORK THAT REQUIRES A SIDEWALK CLOSURE.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

WHEN THE ENGINEER DETERMINES THAT THE CONTRACTOR'S OPERATIONS OR PLACEMENT OF TRAFFIC CONTROL DEVICES HAS CAUSED A SITUATION THAT THE VISIBILITY OF IS REDUCED ENOUGH TO CREATE A HAZARD, THE TRAFFIC CONTROL DEVICES SHALL BE DELINEATED WITH FLAGS OR OTHER ENGINEER-APPROVED DEVICES AT NO ADDITIONAL COST TO THE PROJECT.

MINIMIZE DISRUPTION TO PEDESTRIANS TO THE MAXIMUM EXTENT FEASIBLE BY PROVIDING AN APR IN THE FOLLOWING ORDER OF PREFERENCE:

1. PROVIDE THE APR ON THE SAME SIDE OF THE STREET AS THE DISRUPTED ROUTE UTILIZING BYPASSES.
2. WHERE IT IS NOT FEASIBLE TO PROVIDE A SAME SIDE APR, PROVIDE A DETOUR ON THE OTHER SIDE OF THE STREET.
3. WHERE IT IS NOT FEASIBLE TO PROVIDE AN APR ON THE OTHER SIDE OF THE ROADWAY, PROVIDE AN APR DETOUR WITH TRAILBLAZING SIGNS AS SHOWN ON THE PROJECT PLANS.

**SPECIFIC NOTES**

1. TEMPORARY CURB RAMPS WITH DETECTABLE WARNINGS.
2. TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.
3. AN APPROVED AUDIBLE MESSAGE DEVICE OR TACTILE MESSAGE SHALL BE PROVIDED FOR SIGHT-IMPAIRED PEDESTRIANS.
4. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHOULD BE DISPLAYED WHEN ANY WALKWAY THROUGH A WORK ZONE HAS BEEN DETERMINED TO BE TPAR COMPLIANT. THE SYMBOL OF ACCESSIBILITY SHALL NOT BE DISPLAYED IF PERSONS WITH DISABILITIES SHOULD NOT USE THE PRIMARY TEMPORARY PEDESTRIAN DETOUR. THE REASON FOR THE NON-COMPLIANCE SHALL BE POSTED AND AN ALTERNATE ROUTE SHALL BE POSTED WHEN THE PRIMARY TEMPORARY PEDESTRIAN DETOUR IS NON-COMPLIANT TO TPAR STANDARDS.
5. TYPICAL SIGN MESSAGE FOR A TEMPORARY PEDESTRIAN DETOUR SHALL INCLUDE INFORMATION SUCH AS THE DURATION OF THE WALKWAY RESTRICTIONS (BEGINNING AND/OR END DATES) AND A PROJECT CONTACT NUMBER FOR 24 / 7 QUESTIONS OR REPORTING HAZARDS.
6. PEDESTRIAN DETOUR TRAILBLAZING SIGNS SHALL BE USED IF THE PEDESTRIAN DETOUR IS IN A LOCATION OTHER THAN ACROSS THE STREET FROM THE SIDEWALK CLOSURE.

**PEDESTRIAN TEMPORARY TRAFFIC CONTROL NOTES**

1. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN THROUGH MOVEMENTS FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER, ON AT LEAST ONE SIDE OF THE STREET DURING CONSTRUCTION. ANY SIDEWALK CLOSURES SHALL MEET THE REQUIREMENTS OF THE MMUTCD, PART 6.
2. PEDESTRIAN ACCESS SHALL BE PROVIDED TO ALL ADJACENT PROPERTIES, BUILDINGS, RESIDENCES AND COMMERCIAL PROPERTIES AT ALL TIMES. THIS MAY INCLUDE TEMPORARY WALKWAYS SPANNING THE CONSTRUCTION AREA.
3. IF SIDEWALKS ARE CLOSED, A TEMPORARY PEDESTRIAN ACCESS ROUTE (TPAR) SHALL BE PROVIDED ON THE SAME SIDE OF THE ROAD AS THE CLOSED SIDEWALK, IF POSSIBLE. SIGNS AND BARRICADES SHALL BE USED TO PROVIDE ADVANCE NOTICE OF THE CLOSURE AND THE ROUTE OF ANY PEDESTRIAN DETOURS. THE TPAR SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 4 FEET. IF THE TPAR IS LESS THAN 5 FEET IN WIDTH, A 5 FOOT BY 5 FOOT PASSING SPACE SHALL BE PROVIDED AT LEAST EVERY 200 FEET. THE SURFACE OF THE TPAR SHALL BE SMOOTH AND CONTINUOUS FOR THE LENGTH OF THE TPAR. THE TPAR SHALL MAINTAIN THE SAME LEVEL OF ACCESSIBILITY AND DETECTABILITY AS THE FACILITY THAT IS BEING CLOSED. THE TPAR SHALL NOT LEAD PEDESTRIANS INTO CONFLICTS WITH VEHICLES, EQUIPMENT, OR CONSTRUCTION OPERATIONS.
4. IF THE TPAR IS ADJACENT TO MOVING TRAFFIC, CONSTRUCTION OPERATIONS/EQUIPMENT, OR DROP-OFFS, THEN CRASH WORTHY CHANNELIZING DEVICES THAT MEET THE REQUIREMENTS OF NCHRP 350 AND THE MMUTCD SHALL BE USED.
5. THE CONTRACTOR SHALL NOT STORE OR PLACE ANY CONSTRUCTION MATERIALS, EQUIPMENT OR SIGNS IN THE PEDESTRIAN PATH OF TRAVEL.
6. THE CONTRACTOR'S OPERATIONS SHALL NOT OCCUPY SIDEWALKS EXCEPT WHERE PROPER PROTECTION AND A TPAR HAVE BEEN PROVIDED.
7. WHEN DIRECTED BY THE ENGINEER, OR STATED ON THE PLANS, THE CONTRACTOR SHALL PROVIDE A TEMPORARY PEDESTRIAN TRAFFIC CONTROL PLAN FOR REVIEW AND WRITTEN APPROVAL BY THE ENGINEER A MINIMUM OF THREE WEEKS BEFORE SUCH PLAN IS IMPLEMENTED. THIS PLAN SHALL DETAIL THE CONSTRUCTION PHASING AND SCHEDULE AND THE SPECIFIC METHODS OF MAINTAINING SAFE PEDESTRIAN ACCESS THROUGHOUT THE CONSTRUCTION AREA. THIS PLAN SHALL PROVIDE THE LOCATION AND DETAILS OF TEMPORARY CONSTRUCTION SIGNING, MARKINGS, BARRICADES, CHANNELIZING DEVICES, TPARS AND METHODS TO MAINTAIN ACCESS TO ADJACENT PROPERTIES, BUSINESSES, RESIDENCES, ETC. NO WORK SHALL BE ALLOWED TO BEGIN UNTIL THIS PLAN IS APPROVED BY THE ENGINEER IN WRITING.
8. PROVISION OF THE TPAR AND ALL OF ITS ELEMENTS, INCLUDING BUT NOT LIMITED TO, CREATION OF THE TEMPORARY PEDESTRIAN CONTROL PLAN, SIGNS, CHANNELIZING DEVICES, BARRICADES, TEMPORARY PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "MINOR TRAF DEVICES."

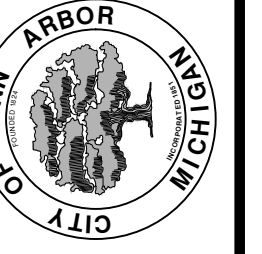
**LEGEND**

- SIGN
- EXISTING PEDESTRIAN SURFACE
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- BARRIER
- SIDEWALK BARRICADE
- DIRECTION OF TRAFFIC
- TRAFFIC CONTROL DEVICE



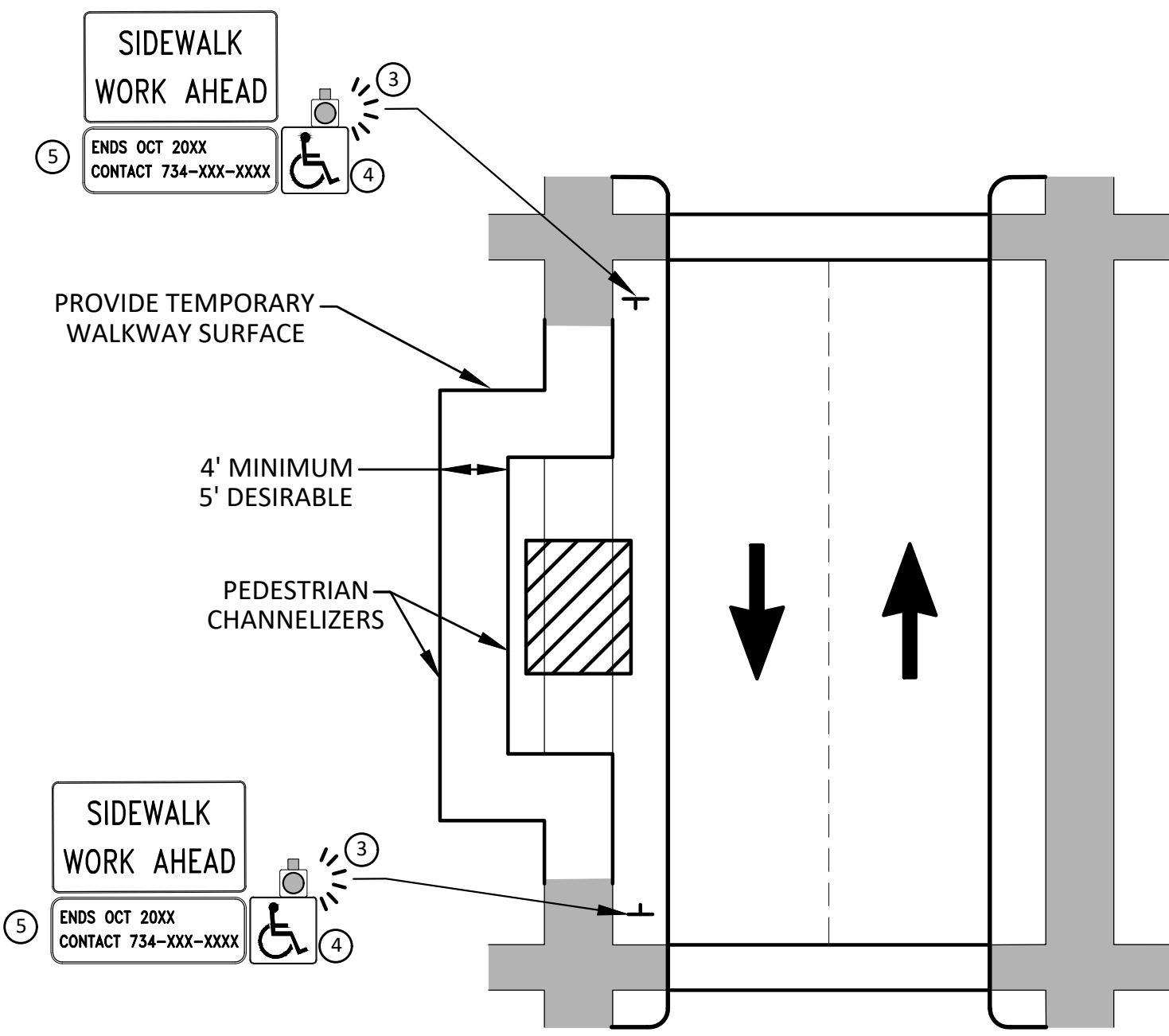
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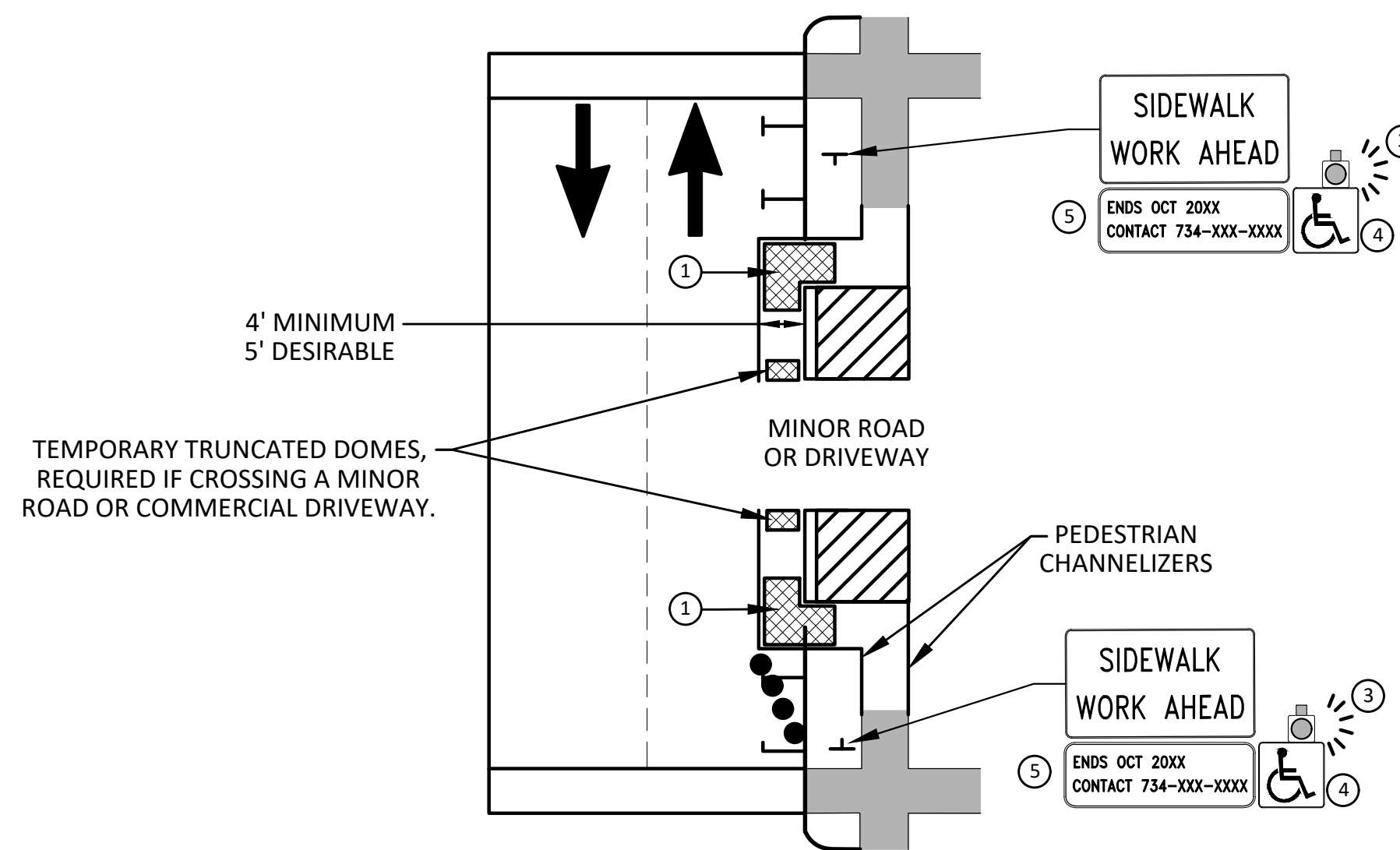
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
ALTERNATE PEDESTRIAN ROUTE (APR) DETOUR  
SCALE: N.T.S.  
DRAWING No. 2021005-13

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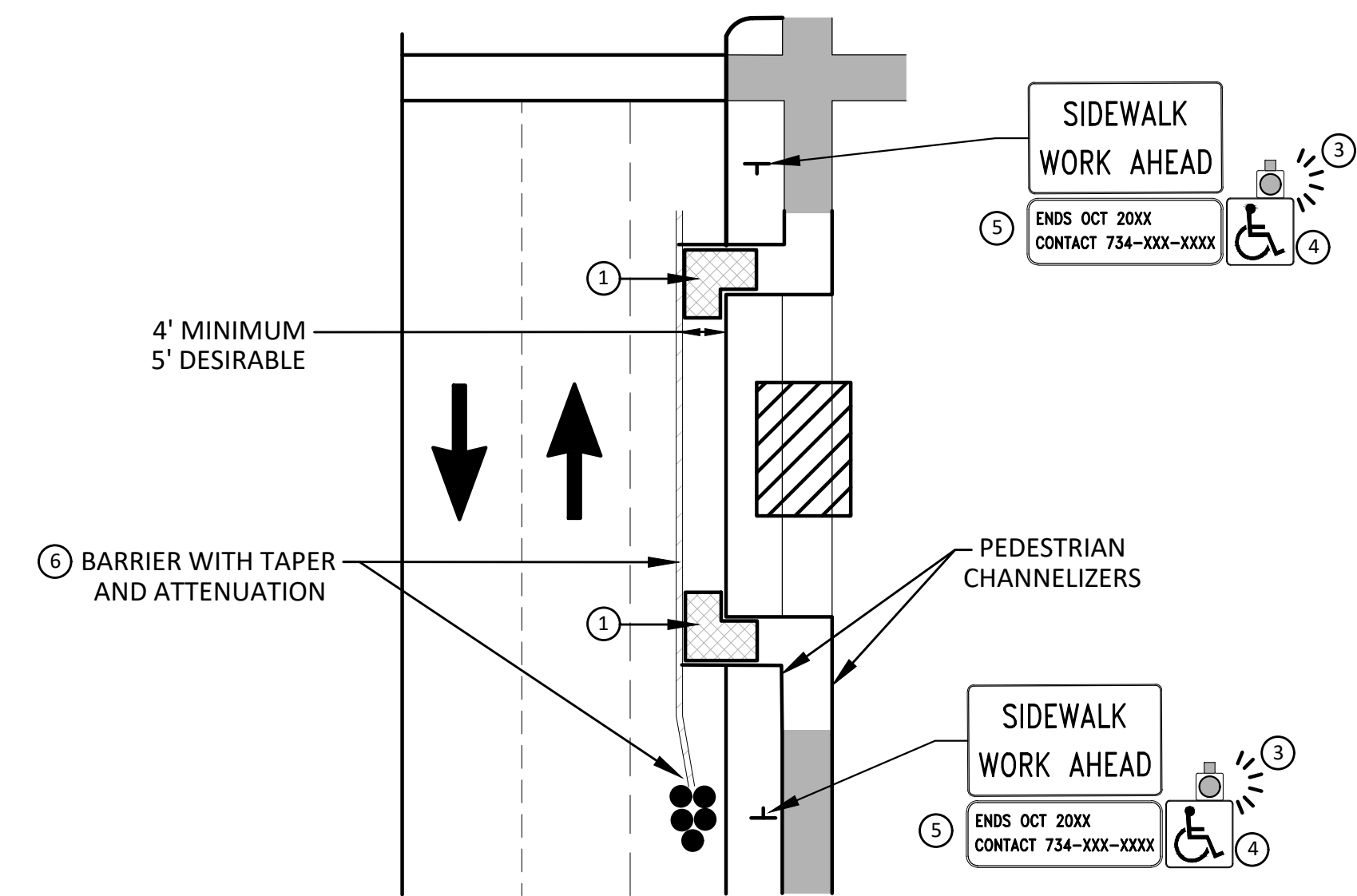


**BYPASS ON ADJACENT AVAILABLE  
RIGHT OF WAY**  
**BYPASS TYPE A**

NOTE: MAY ONLY BE USED ON ROADWAY WITH POSTED  
SPEED OF 45 MPH OR LESS.



**SIDEWALK BYPASS USING PARKING OR  
SHOULDER ON LOW SPEED ROADWAY**  
**BYPASS TYPE B**



**SIDEWALK BYPASS USING  
SHOULDER OR PARKING LANE ON  
HIGH SPEED ROADWAY**  
**BYPASS TYPE C**

**GENERAL NOTES**

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, THE CONTRACTOR SHALL PROVIDE DETECTABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE AN ALTERNATE PEDESTRIAN ROUTE (APR) AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

PROVIDE A SMOOTH, CONTINUOUS, HARD SURFACE THROUGH THE LENGTH OF THE APR. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED. PROVIDE A FIRM, STABLE, AND SLIP RESISTANT TEMPORARY WALKWAY SURFACE TO COVER SHORT SEGMENTS OF ROUGH, SOFT, OR UNEVEN GROUND.

THE PEDESTRIAN TRAFFIC SIGNALS CONTROLLING CLOSED CROSSWALKS SHALL BE COVERED OR DEACTIVATED BY THE CITY OF ANN ARBOR. THE CONTRACTOR SHALL SCHEDULE AND COORDINATE THIS WORK WITH THE ENGINEER A MINIMUM OF 72 HOURS (NOT INCLUDING WEEKENDS & HOLIDAYS) PRIOR TO THE BEGINNING OF WORK THAT REQUIRES A SIDEWALK CLOSURE.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

WHEN THE ENGINEER DETERMINES THAT THE CONTRACTOR'S OPERATIONS OR PLACEMENT OF TRAFFIC CONTROL DEVICES HAS CAUSED A SITUATION THAT THE VISIBILITY OF A TRAFFIC CONTROL DEVICE IS REDUCED ENOUGH TO CREATE A HAZARD, THE TRAFFIC CONTROL DEVICES SHALL BE DELINEATED WITH FLAGS OR OTHER ENGINEER-APPROVED DEVICES AT NO ADDITIONAL COST TO THE PROJECT.

MINIMIZE DISRUPTION TO PEDESTRIANS TO THE MAXIMUM EXTENT FEASIBLE BY PROVIDING AN APR IN THE FOLLOWING ORDER OF PREFERENCE:

1. PROVIDE THE APR ON THE SAME SIDE OF THE STREET AS THE DISRUPTED ROUTE UTILIZING BYPASSES.
2. WHERE IT IS NOT FEASIBLE TO PROVIDE A SAME SIDE APR, PROVIDE A DETOUR ON THE OTHER SIDE OF THE STREET.
3. WHERE IT IS NOT FEASIBLE TO PROVIDE AN APR ON THE OTHER SIDE OF THE ROADWAY, PROVIDE AN APR DETOUR WITH TRAILBLAZING SIGNS AS SHOWN ON THE PROJECT PLANS.

**SPECIFIC NOTES**

1. TEMPORARY CURB RAMPS WITH DETECTABLE WARNINGS.
2. S DEVICE TAPER 25 FEET LONG, RECOMMENDED WHEN THE CLOSED AREA WAS USED AS AN INTERMITTENT TRAFFIC LANE OR BYPASS LANE. STREET PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF THE MID-BLOCK CROSSWALK.
3. AN APPROVED AUDIBLE MESSAGE DEVICE OR TACTILE MESSAGE SHOULD BE PROVIDED FOR SIGHT-IMPAIRED PEDESTRIANS.
4. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE DISPLAYED WHEN ANY WALKWAY THROUGH A WORK ZONE HAS BEEN DETERMINED TO BE TPAR COMPLIANT. THE SYMBOL OF ACCESSIBILITY SHALL NOT BE DISPLAYED IF PERSONS WITH DISABILITIES SHOULD NOT USE THE PRIMARY TEMPORARY PEDESTRIAN DETOUR. THE REASON FOR THE NON-COMPLIANCE SHALL BE POSTED AND AN ALTERNATE ROUTE SHALL BE POSTED WHEN THE PRIMARY TEMPORARY PEDESTRIAN DETOUR IS NON-COMPLIANT TO TPAR STANDARDS.
5. TYPICAL SIGN MESSAGE FOR A TEMPORARY PEDESTRIAN DETOUR SHALL INCLUDE INFORMATION SUCH AS THE DURATION OF THE WALKWAY RESTRICTIONS (BEGINNING AND/OR END DATES) AND A PROJECT CONTACT NUMBER FOR 24 / 7 QUESTIONS OR REPORTING HAZARDS.
6. SEE MMUTCD FOR GUIDANCE ON PLACEMENT AND USAGE OF BARRIER.

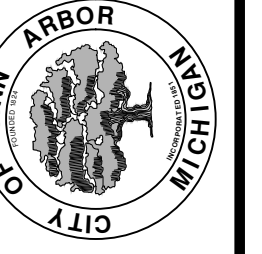
**LEGEND**

- SIGN
- EXISTING PEDESTRIAN SURFACE
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- BARRIER
- SIDEWALK BARRICADE
- DIRECTION OF TRAFFIC
- TRAFFIC CONTROL DEVICE



REV.	DESCRIPTION	DATE	DF/CC	TB	CHECKED
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00	OUT FOR BID	3-17-21	DF/CC	TB	

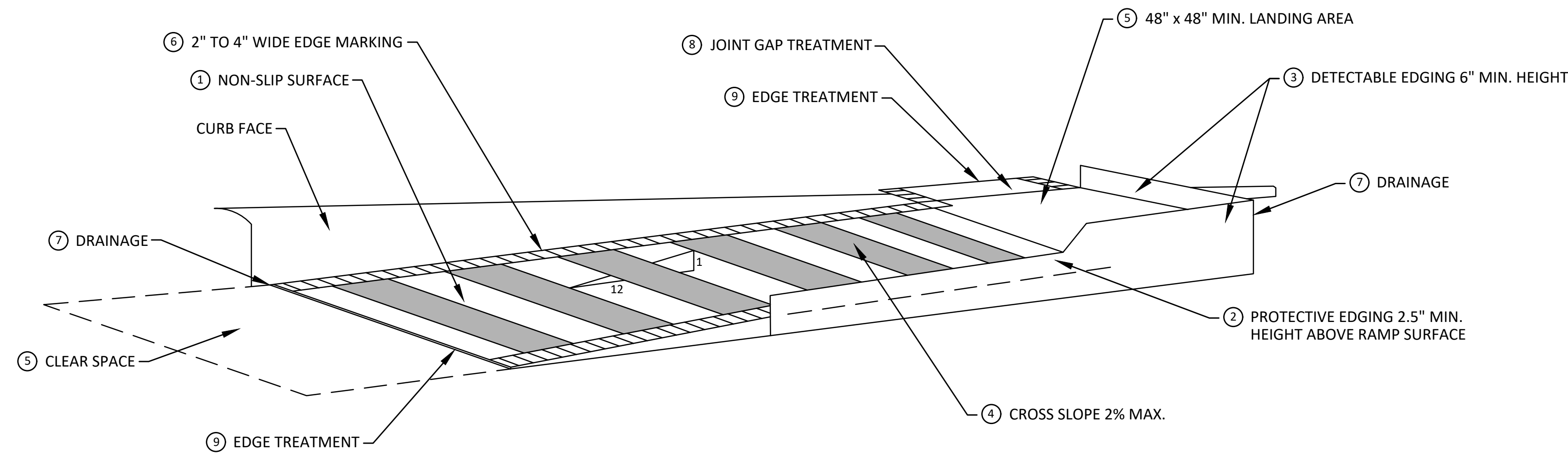
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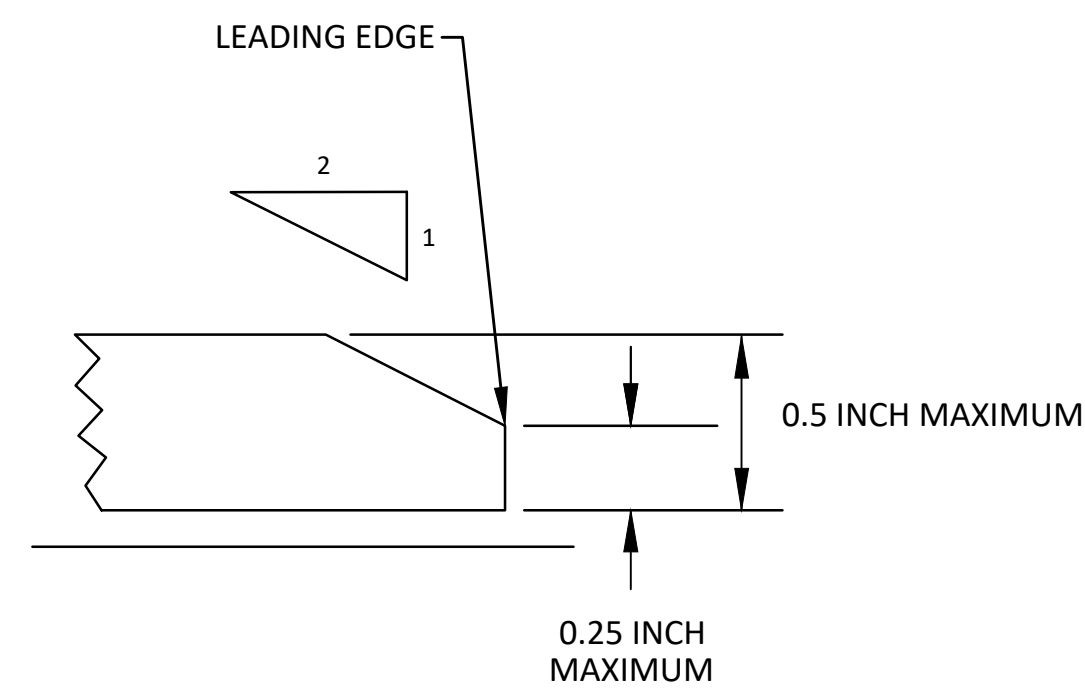
**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**2021 MISC. UTILITIES PROJECT**  
**ALTERNATE PEDESTRIAN ROUTE (APR) BYPASS**

SCALE: N.T.S.  
DRAWING No. 2021005-14

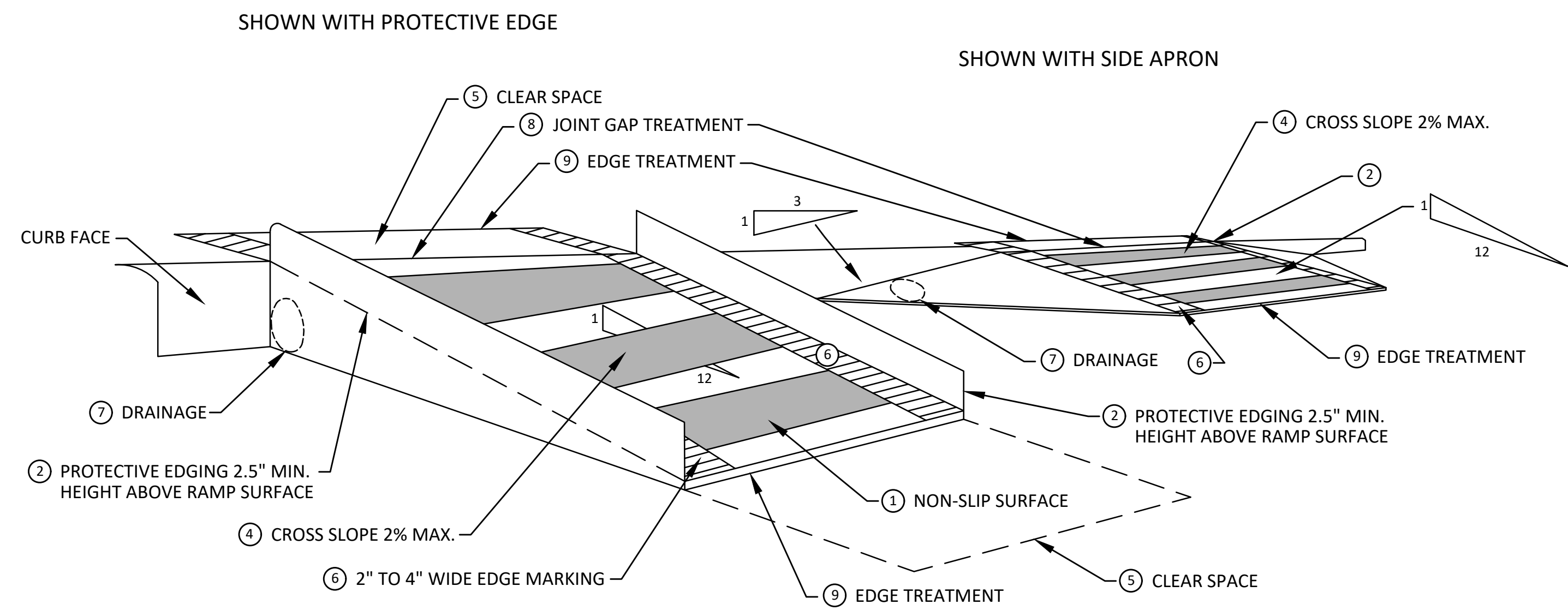
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**TEMPORARY CURB RAMP  
PARALLEL TO CURB**



**EDGE TREATMENT**



**TEMPORARY CURB RAMP  
PERPENDICULAR TO CURB**

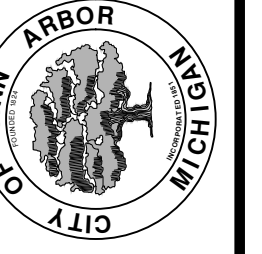
**SPECIFIC NOTES**

- 1 CURB RAMP SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE. PROTECTIVE EDGING WITH A 2.5" MIN. HEIGHT ABOVE THE RAMP SHALL BE PLACED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3. PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMP OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- 2 DETECTABLE EDGING ANYTIME A HANDRAIL IS REQUIRED, AND ANYTIME THE PATH CHANGES DIRECTION. THIS INCLUDES A TURN ONTO THE RAMP FROM THE PATH. DETECTABLE EDGING MUST BEGIN A MAXIMUM OF 2.5' ABOVE THE RAMP SURFACE, AND EXTEND AT LEAST 6' ABOVE THE RAMP SURFACE. CONTRASTING COLOR SHALL BE PLACED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- 3 CURB RAMP AND LANDINGS SHALL HAVE A 2% MAX. CROSS SLOPE.
- 4 CLEAR SPACE OF 48" x 48" MIN. SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
- 5 THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A CONTRASTING COLOR, 2" TO 4" WIDE MARKING. THE MARKING IS OPTIONAL WHERE COLOR CONTRASTING EDGING IS USED.
- 6 WATER FLOW IN THE GUTTER SYSTEM SHALL NOT BE IMPEDED.
- 7 LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.
- 8 CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES SHOULD BE VERTICAL UP TO 1/4" HIGH, AND BEVELED AT 1:2 BETWEEN 1/4" AND 1/2" HEIGHT.



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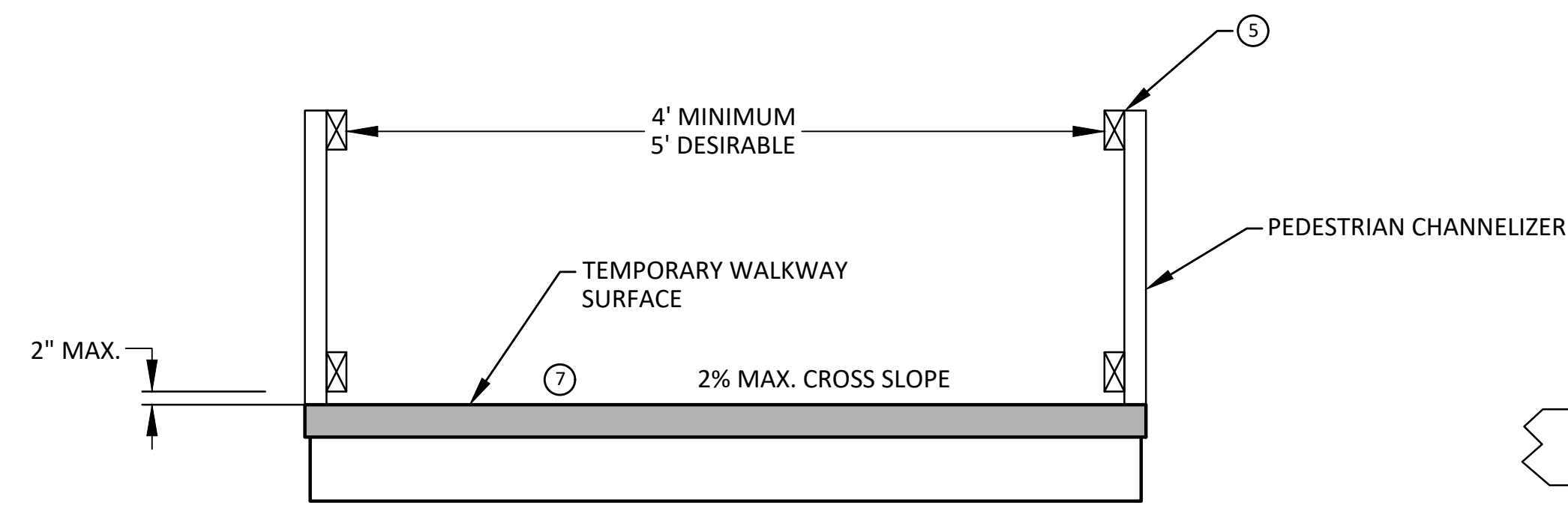
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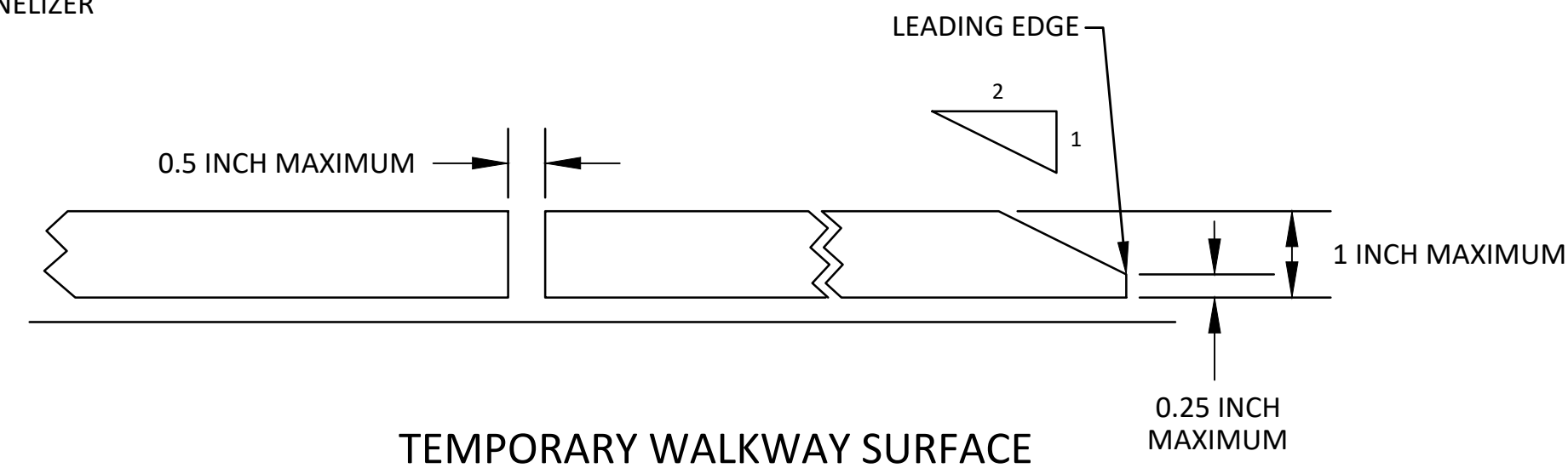
**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**2021 MISC. UTILITIES PROJECT**  
TPAR RAMPS

SCALE: N.T.S.  
DRAWING No. 2021005-15

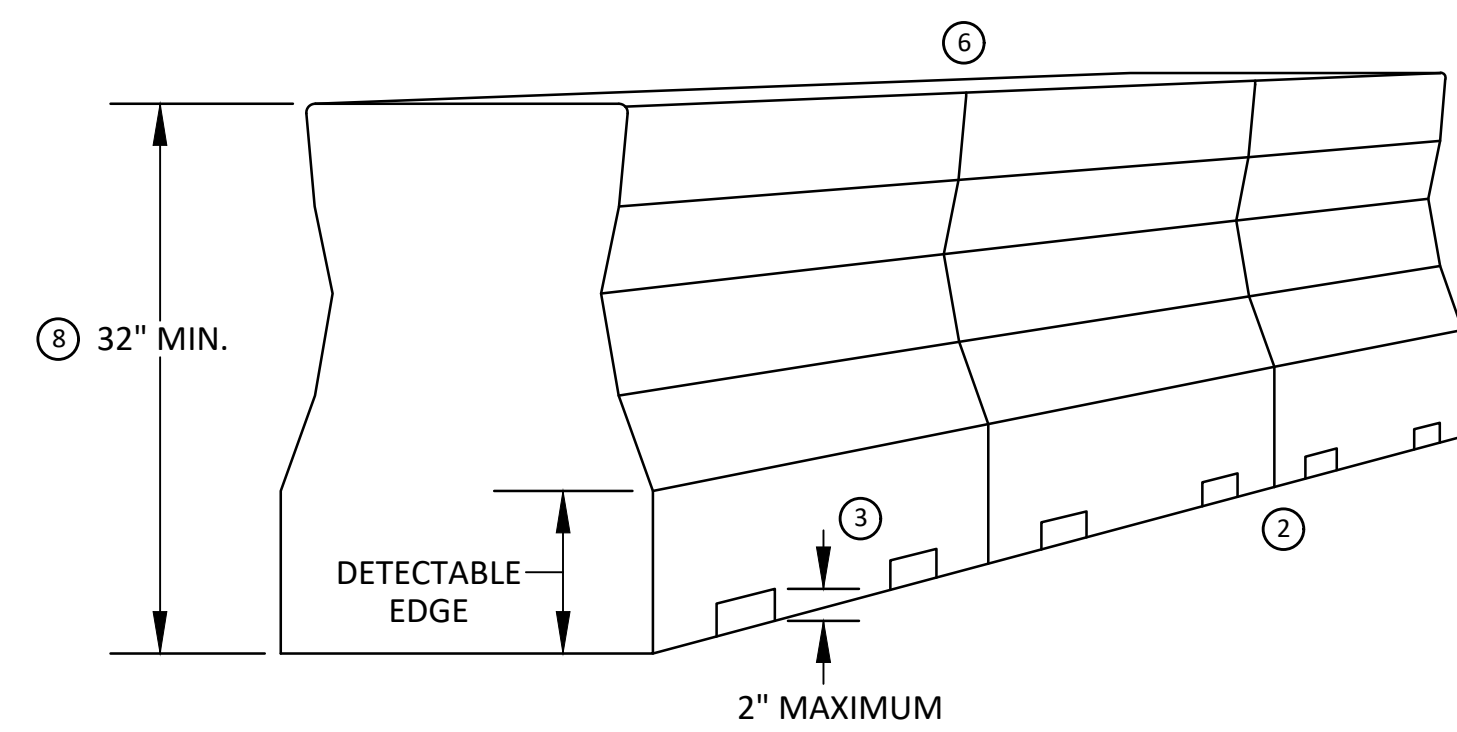
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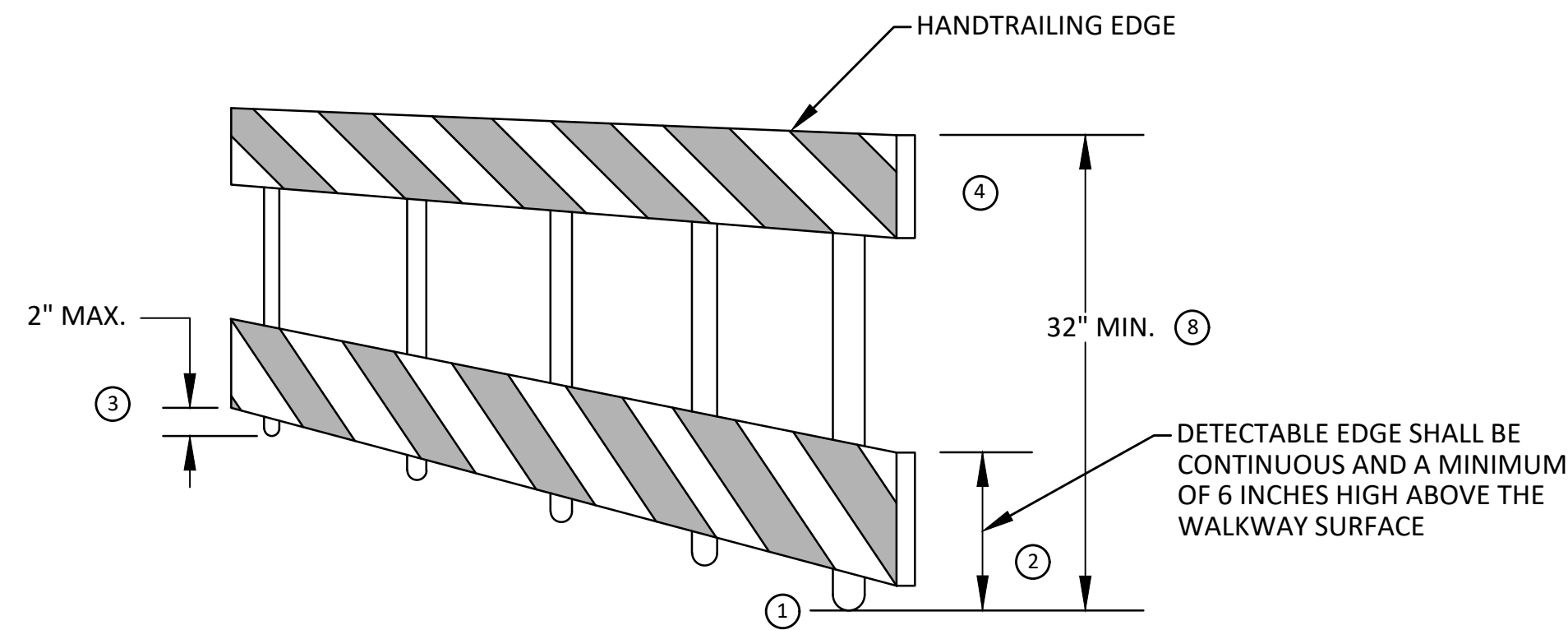
TEMPORARY PEDESTRIAN ACCESS



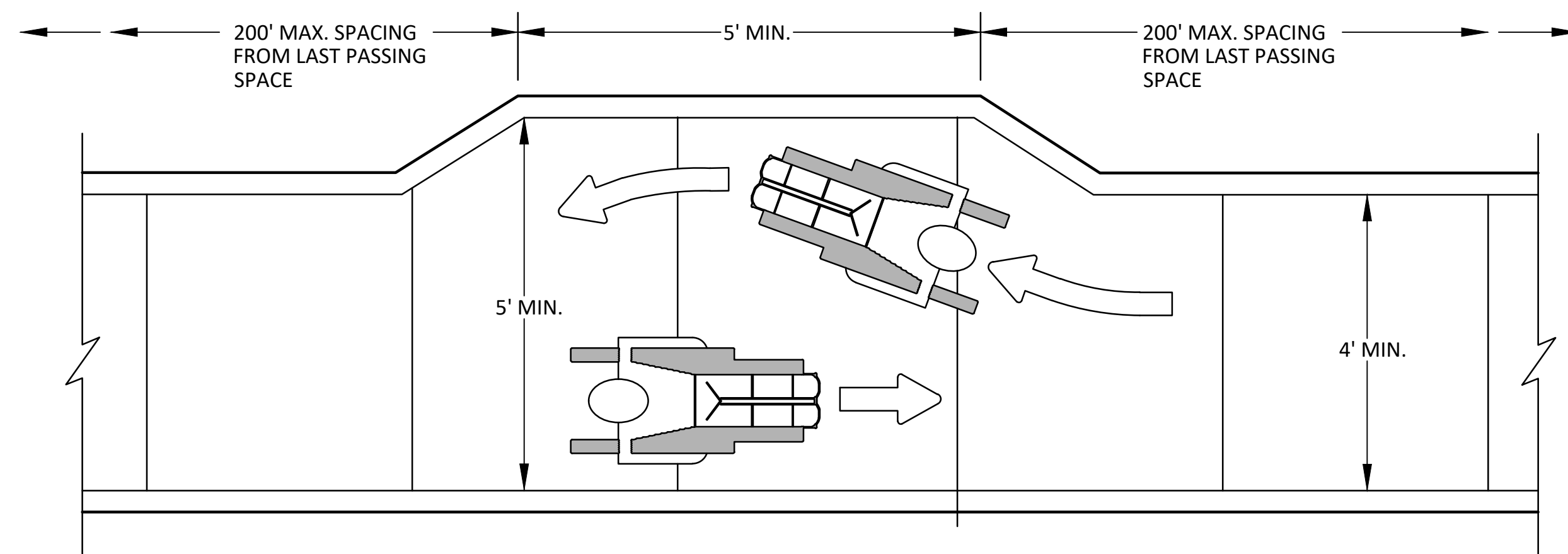
TEMPORARY WALKWAY SURFACE



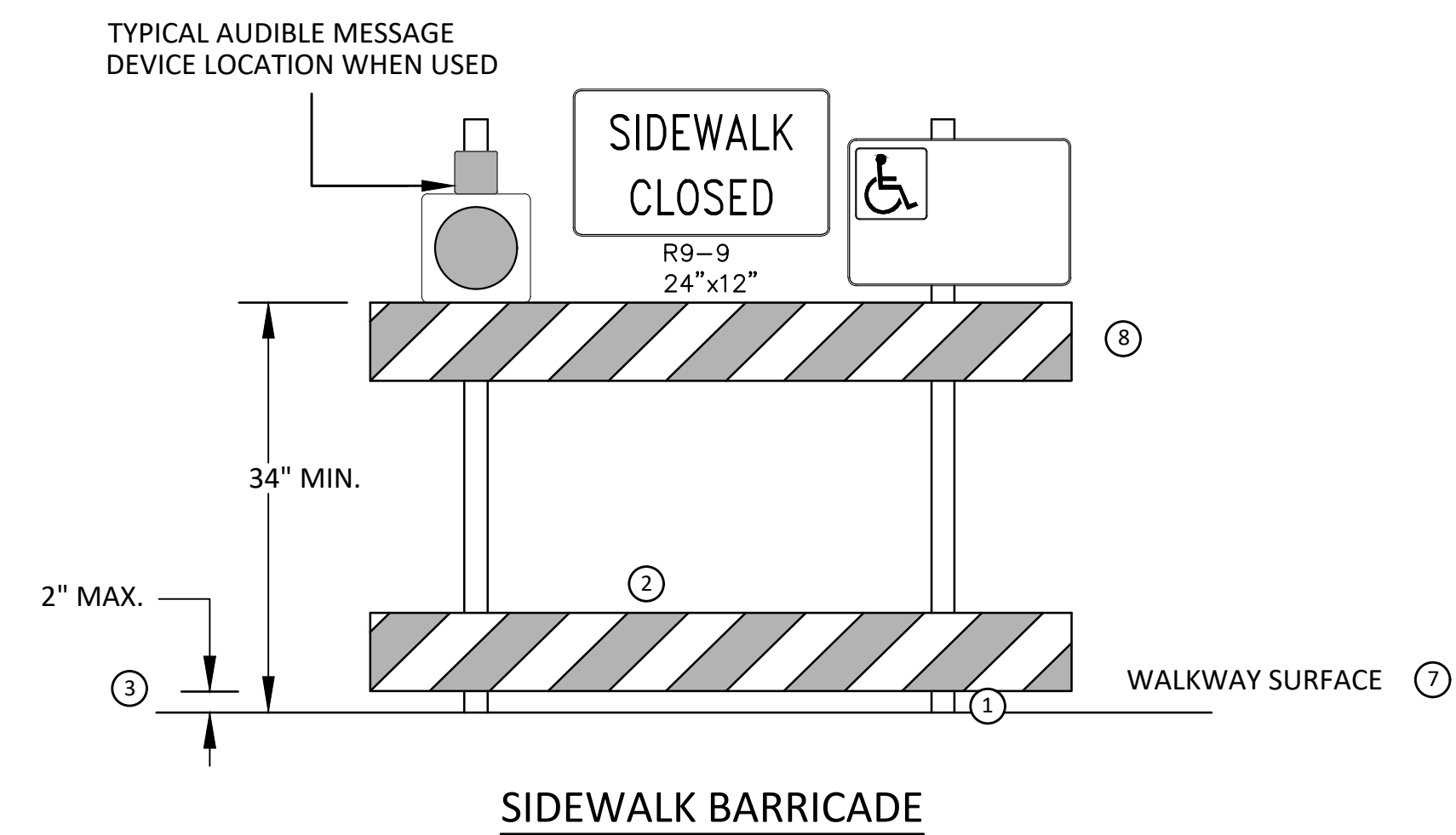
PEDESTRIAN CHANNELIZER USING A BARRIER  
(MINIMUM REQUIREMENTS)



PEDESTRIAN CHANNELIZER  
(MINIMUM REQUIREMENTS)



NARROW TEMPORARY PEDESTRIAN ACCESS ROUTE PASSING DETAIL



**GENERAL NOTES**

RAILINGS OR OTHER OBJECTS MAY PROTRUDE A MAXIMUM OF 4 INCHES INTO THE WALKWAY CLEAR SPACE WHEN LOCATED A MINIMUM OF 27 INCHES ABOVE THE WALKWAY SURFACE.

ANY PEDESTRIAN DEVICES USED TO PROVIDE POSITIVE PROTECTION FOR PEDESTRIANS OR WORKERS SHALL MEET NCHRP 350 CRASHWORTHY REQUIREMENTS APPROPRIATE FOR THE BARRIER'S APPLICATION.

BARRICADES SHALL BE PLACED CONTINUOUSLY ACROSS THE ENTIRE WIDTH OF THE WALKWAY SURFACE BEING CLOSED.

**SPECIFIC NOTES**

- 1 ANY TRIPPING HAZARD IN THE WALKWAY NEEDS A DETECTABLE EDGE. BALLAST SHALL BE LOCATED BEHIND OR INTERNAL TO THE DEVICE. ANY SUPPORT ON THE FRONT OF THE DEVICE SHALL NOT EXTEND INTO THE 48 INCH MINIMUM WALKWAY CLEAR SPACE AND SHALL NOT EXCEED 0.5 INCHES IN HEIGHT ABOVE THE WALKWAY SURFACE.
- 2 DETECTABLE EDGES SHALL BE CONTINUOUS AND A MINIMUM OF 6 INCHES IN HEIGHT ABOVE WALKWAY SURFACE AND HAVE COLOR MARKINGS CONTRASTING WITH THE WALKWAY SURFACE.
- 3 DEVICES SHALL NOT BLOCK WATER DRAINAGE FROM THE WALKWAY. A GAP HEIGHT OR OPENING FROM THE WALKWAY SURFACE UP TO A MAXIMUM OF 2 INCHES IS ALLOWED FOR DRAINAGE PURPOSES.
- 4 PROVIDE A HANDRAIL ON BOTH SIDES OF THE RAMP IF THE RAMP IS NOT EXPOSED TO VEHICLE TRAFFIC AND HAS A TOTAL RISE GREATER THAN 6 INCHES, AND A LENGTH GREATER THAN 72 INCHES.  
- ENSURE THE HANDRAIL IS 1.25 AND 1.5 INCHES WIDE AND CONFIGURED TO BE A "GRASPABLE" CROSS-SECTION.  
SEE CONSTRUCTION SUBSECTION 2.A FOR ADDITIONAL DETAILS.  
WHEN THE RAMP IS EXPOSED TO TRAFFIC, IN LIEU OF HANDRAILS, USE A PROTECTIVE EDGE 2.5 INCHES MINIMUM HEIGHT ABOVE THE RAMP SURFACE OR 1:10 FLARE ON BOTH SIDES OF THE RAMP.
- 5 ALL DEVICES SHALL BE FREE OF SHARP OR ROUGH EDGES, AND FASTENERS (BOLTS) SHALL BE ROUNDED TO PREVENT HARM TO HANDS, ARMS OR CLOTHING OF PEDESTRIANS.
- 6 ALL DEVICES USED TO CHANNELIZE PEDESTRIAN FLOW SHOULD INTERLOCK SUCH THAT GAPS DO NOT ALLOW PEDESTRIANS TO STRAY FROM THE INTENDED CHANNELIZED PATH.
- 7 A WALKWAY SURFACE SHALL BE FIRM, STABLE, AND SLIP RESISTANT. COMPACTED GRAVEL, AGGREGATE, OR SLAG MATERIALS ARE NOT ALLOWED.
- 8 LONGITUDINAL CHANNELIZING DEVICES FOR PEDESTRIANS SHALL BE 32 INCHES IN HEIGHT OR GREATER.



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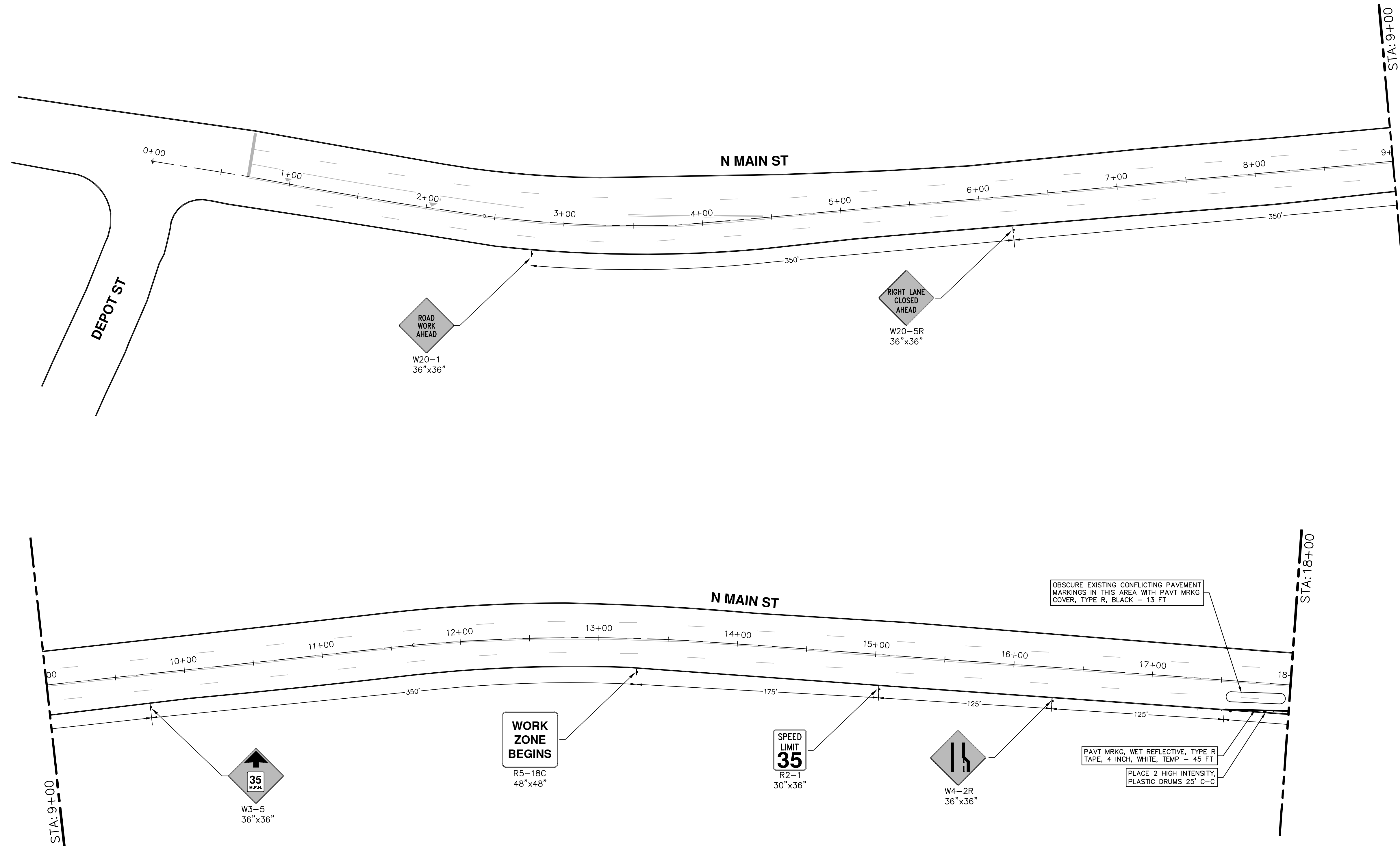


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2021 MISC. UTILITIES PROJECT  
TPAR WALKWAY DEVICES

SCALE: N.T.S.  
DRAWING No. 2021005-16



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- NOTES:**
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  2. UTILIZE PLASTIC DRUMS AND PROTECTIVE FENCING WITHIN WORK ZONE TO DELINEATE OPEN TRENCHES AS DIRECTED BY ENGINEER.
  3. MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION.
  4. COVER CONFLICTING SIGNS AS NEEDED OR AS DIRECTED BY ENGINEER.
  5. REMOVE CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
  6. CONTRACTOR SHALL PLACE PORTABLE, CHANGEABLE MESSAGE SIGNS A MINIMUM OF ONE (1) WEEK PRIOR TO THE START OF CONSTRUCTION IN LOCATIONS INDICATED BY ENGINEER. MESSAGE TO BE PROVIDED BY THE ENGINEER.

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

2021 MISC. UTILITIES PROJECT


N MAIN ST TRAFFIC CONTROL - PH I

STA. 0+00 - STA. 18+00

SCALE: 1" = 40'

DRAWING No. 2021005-17

SHEET No. 17 OF 60

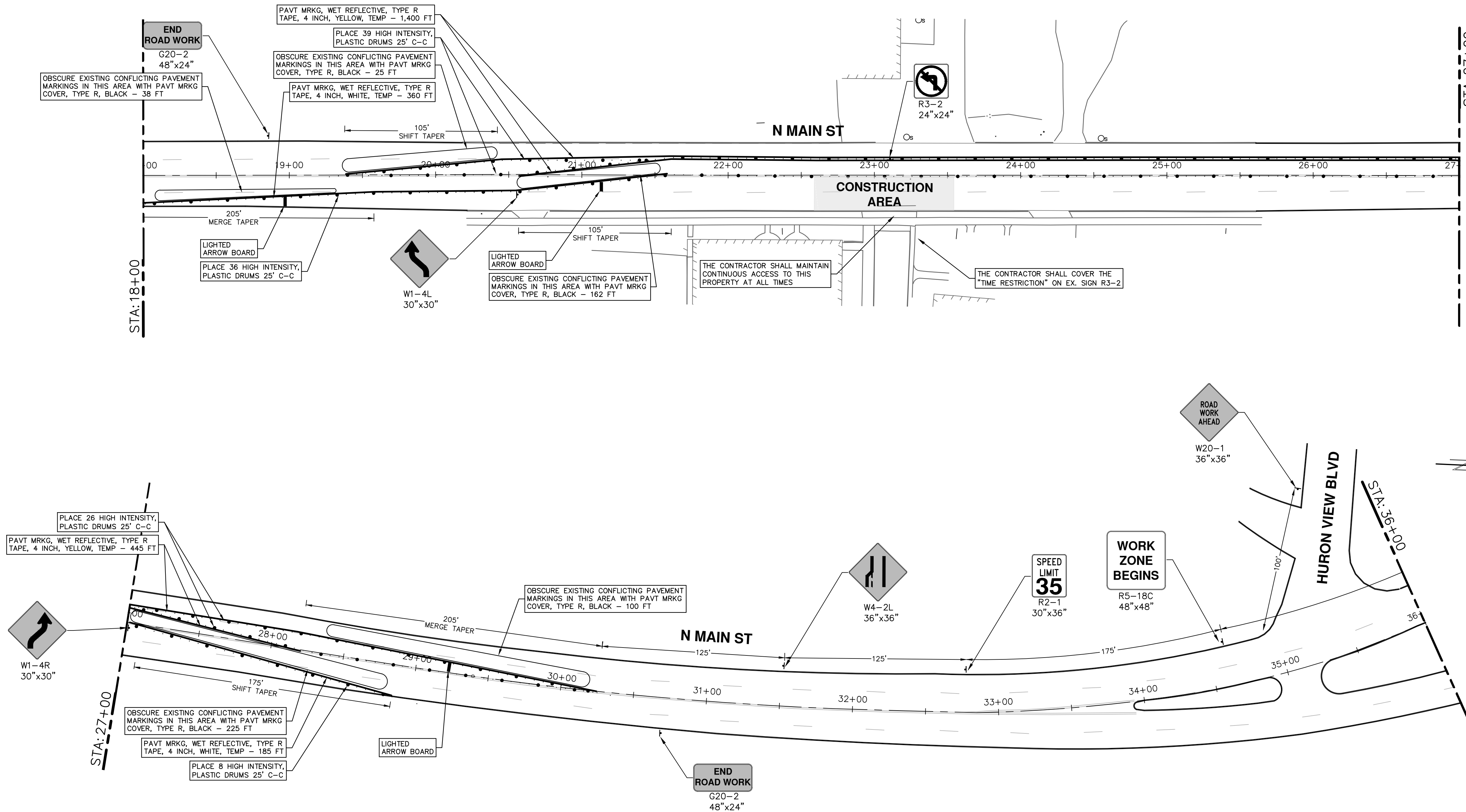


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**2021 MISC. UTILITIES PROJECT**

N MAIN ST TRAFFIC CONTROL - PH I

STA. 18+00 - STA. 36+00

SCALE: 1" = 40'

DRAWING No. 2021005-18

SHEET No. 18 OF 60

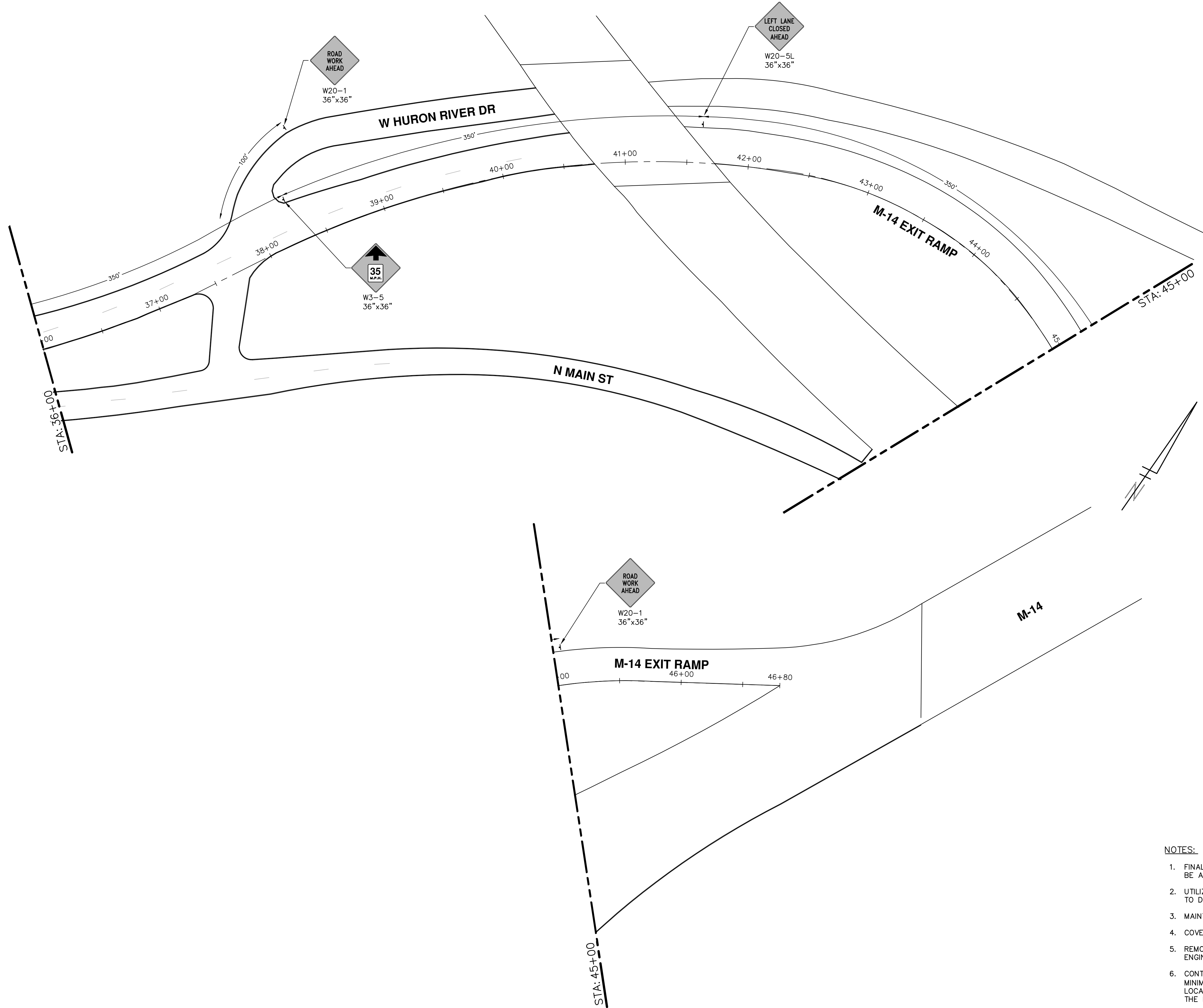
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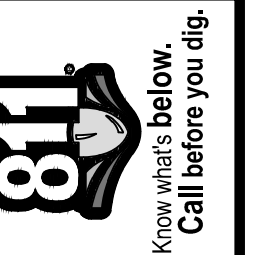
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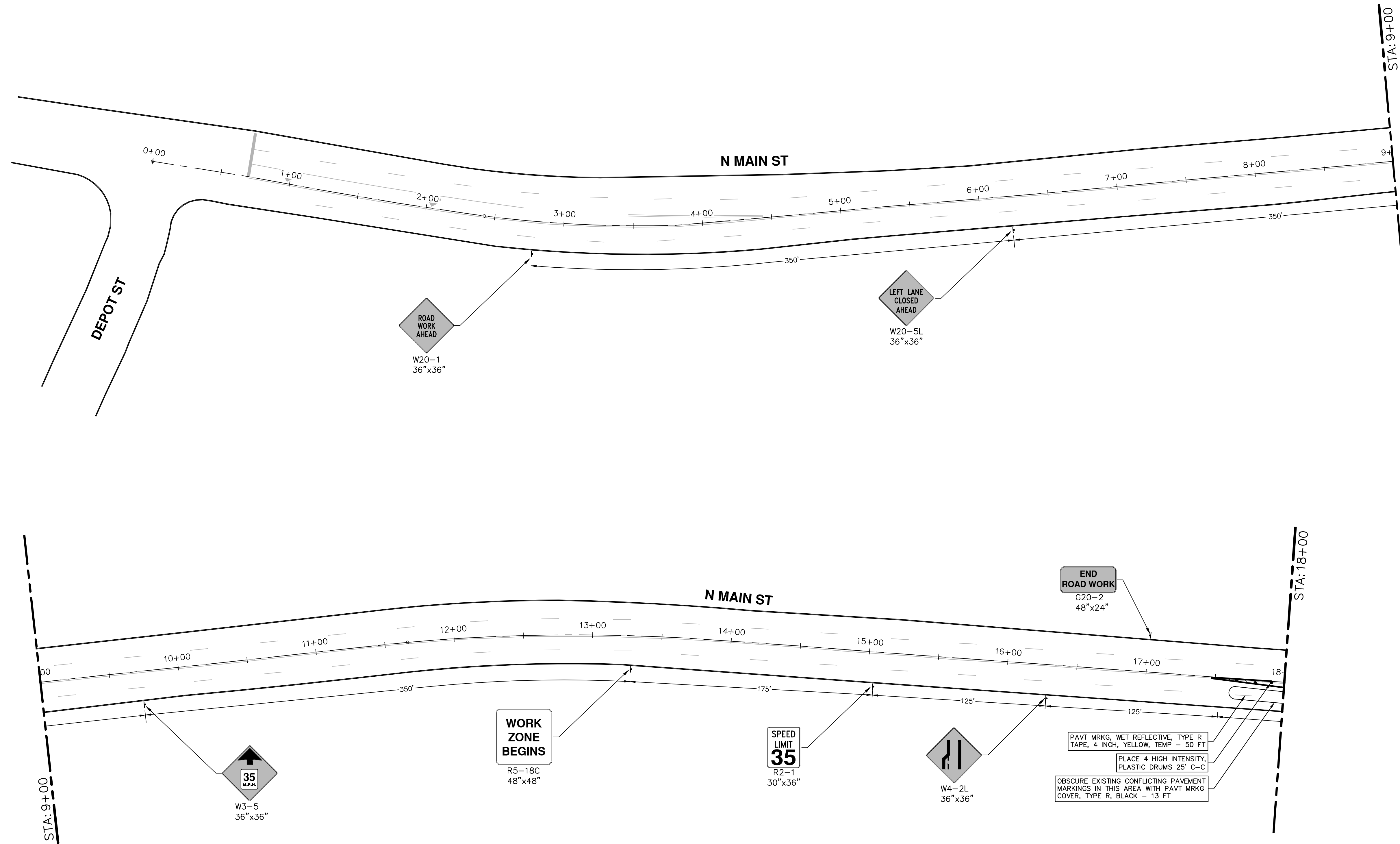
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REV.	DATE	DRAWN	CHECKED										
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**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**

2021 MISC. UTILITIES PROJECT


N MAIN ST TRAFFIC CONTROL - PH II

STA. 0+00 - STA. 18+00

SCALE: 1" = 40'

DRAWING No. 2021005-20

SHEET No. 20 OF 60



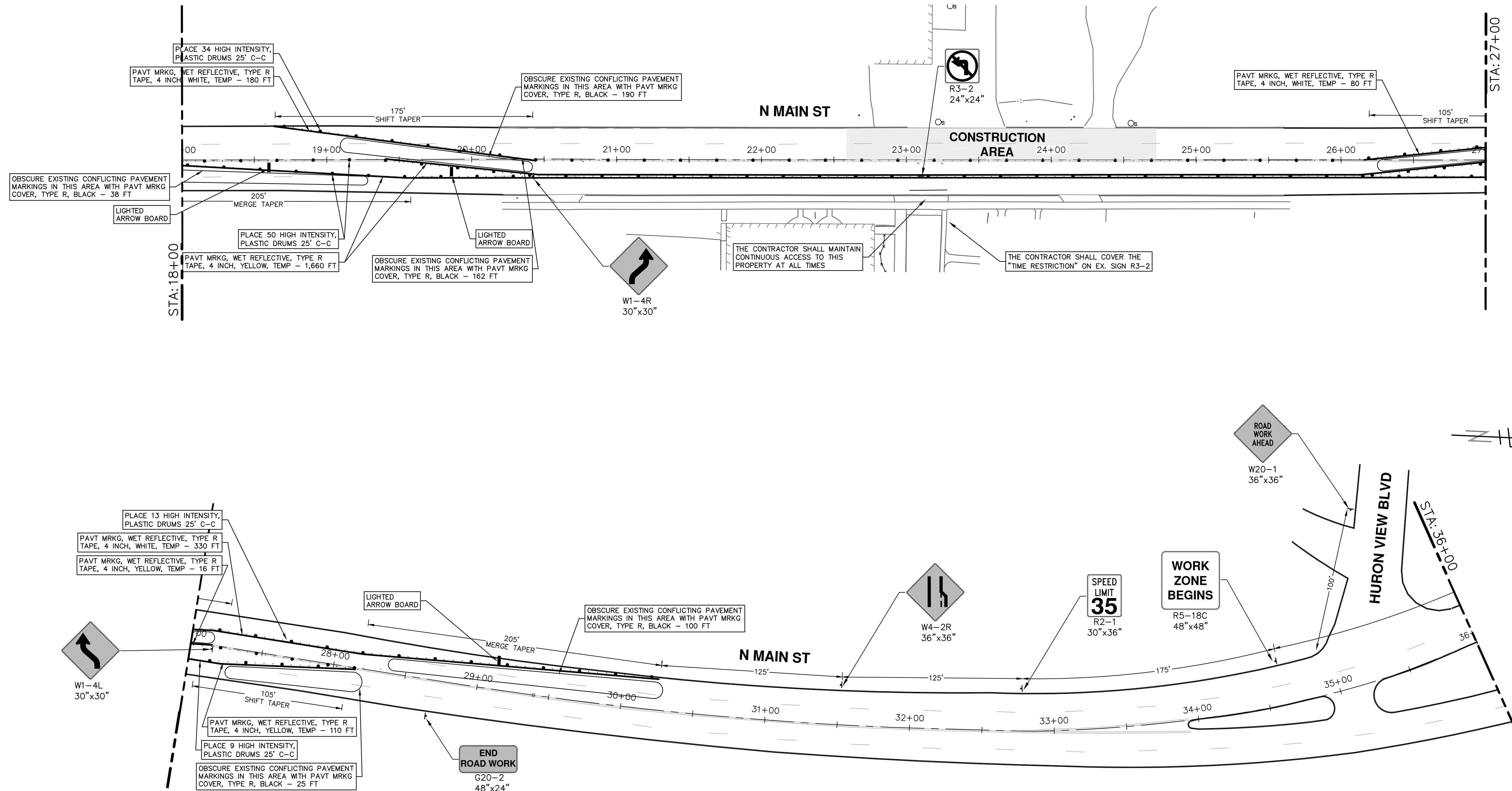
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2021 MISC. UTILITIES PROJECT

N MAIN ST TRAFFIC CONTROL - PH II

SCALE: 1" = 40'

DRAWING No. 2021005-21

SHEET No. 21 OF 60

STA. 18+00 - 36+00

STA. 27+00

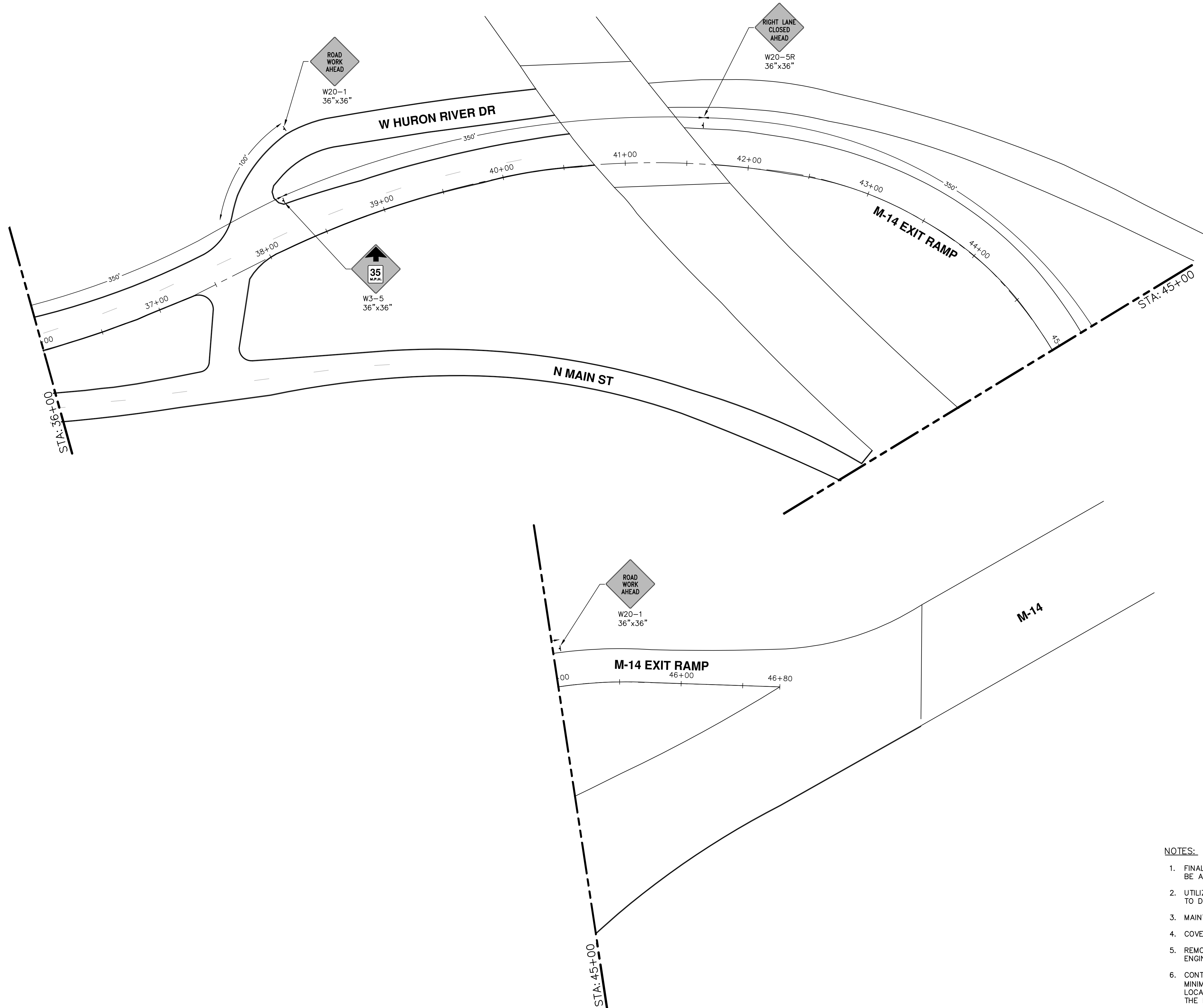
STA. 36+00

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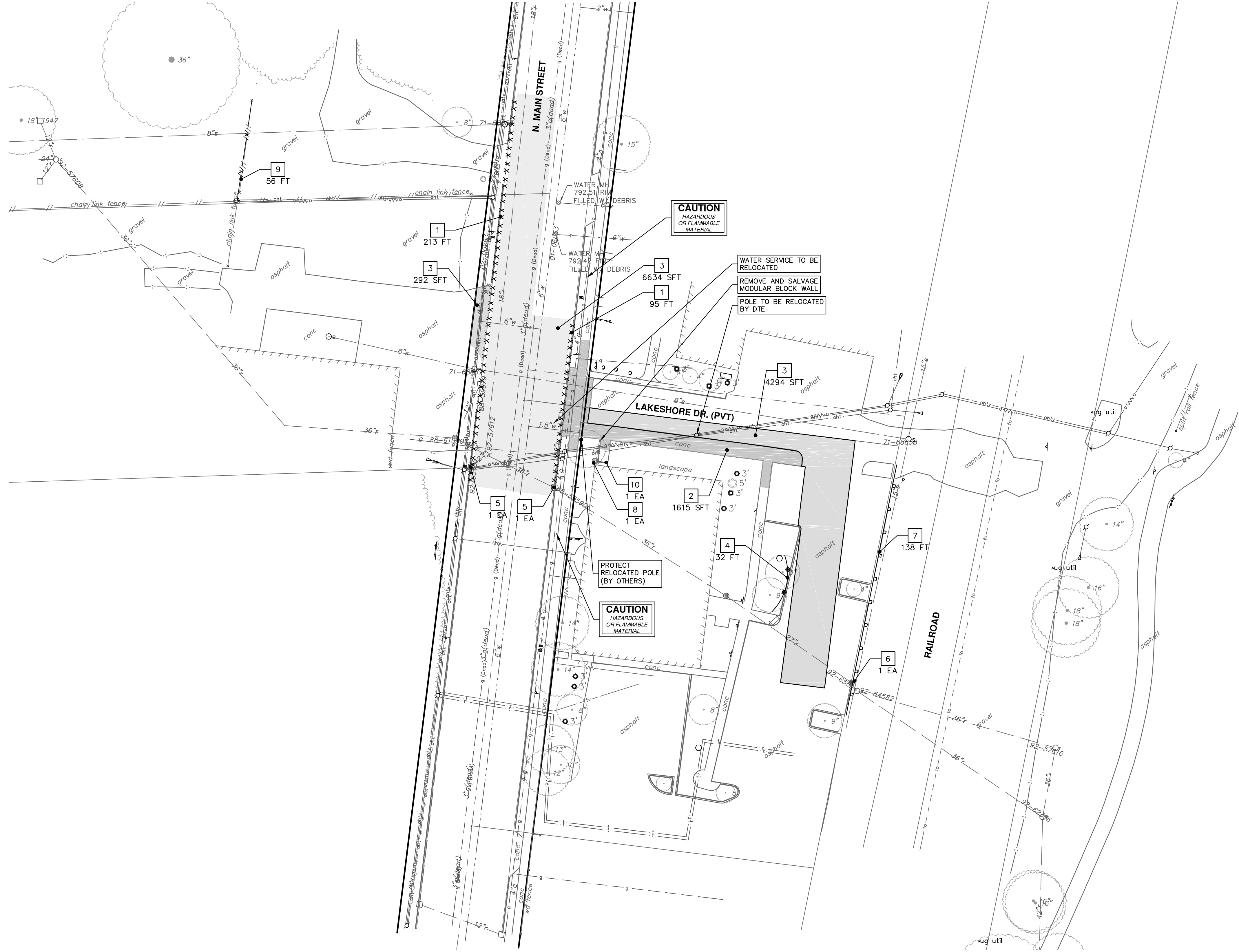
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 <p><b>CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING</b></p>										
<p><b>2021 MISC. UTILITIES PROJECT</b> N MAIN ST TRAFFIC CONTROL - PH II</p>										
<p>STA. 36+00 - STA. 46+80</p>										
<p>SCALE: 1" = 40'</p> 	<p>DRAWING No. 2021005-22</p>									
<p>SHEET No. 22 OF 60</p>										
<p>CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106-8647 www.a2gov.org</p>	<table border="1"> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td>01</td> <td>4-6-21</td> <td>DF/CC</td> </tr> <tr> <td>00</td> <td>3-17-21</td> <td>DF/CC</td> </tr> </table>	REV.	DATE	DESCRIPTION	01	4-6-21	DF/CC	00	3-17-21	DF/CC
REV.	DATE	DESCRIPTION								
01	4-6-21	DF/CC								
00	3-17-21	DF/CC								



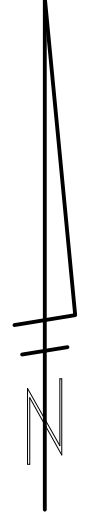




HURON RIVER

REMOVAL KEY	
KEY	DESCRIPTION
1	REMOVE CONCRETE CURB OR CURB AND GUTTER, - ANY TYPE
2	REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
3	PAVEMENT REMOVAL, ANY DEPTH
4	PROTECTIVE FENCING
5	INLET FILTER
6	SILT SACK
7	SILT FENCE
8	STONE FILTER
9	REMOVE FENCE
10	TRENCH DRAIN INLET FILTER
11	COLD MILLING HMA SURFACE

\* SAWCUT FULL DEPTH AT REMOVAL LIMITS



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

**2021 MISC. UTILITIES PROJECT**

SCALE PLAN: 1" = 30'

DRAWING No. **2021005-23**

SHEET No. **23 OF 60**

**N MAIN ST REMOVALS & SITE PREP**

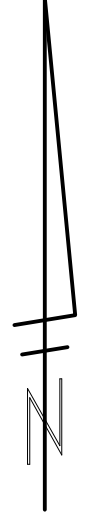
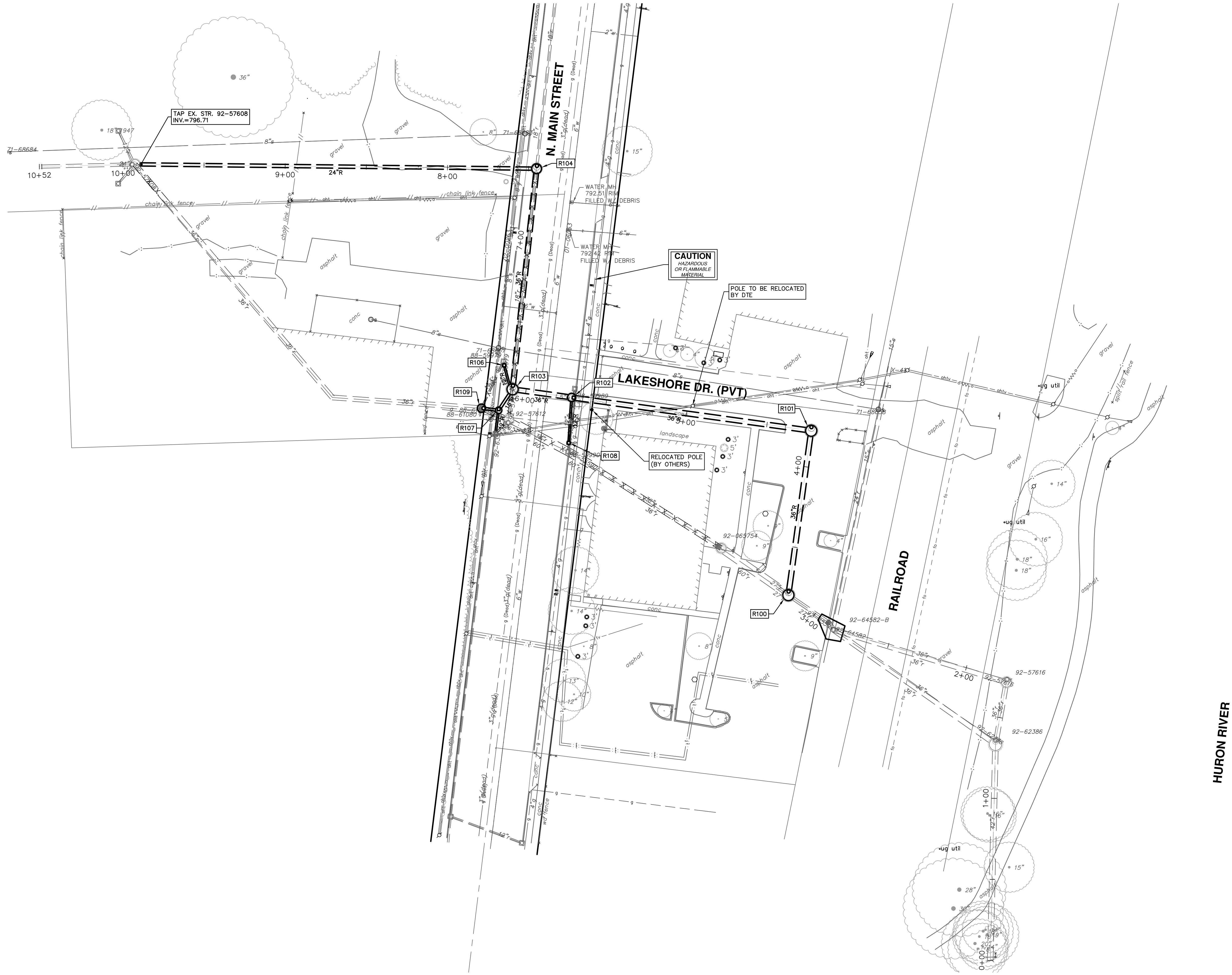
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01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
ANN ARBOR, MI 48106-8647  
ANN ARBOR 734.794.4110  
WWW.A2GOV.ORG

Know what's below.  
Call Before you dig.



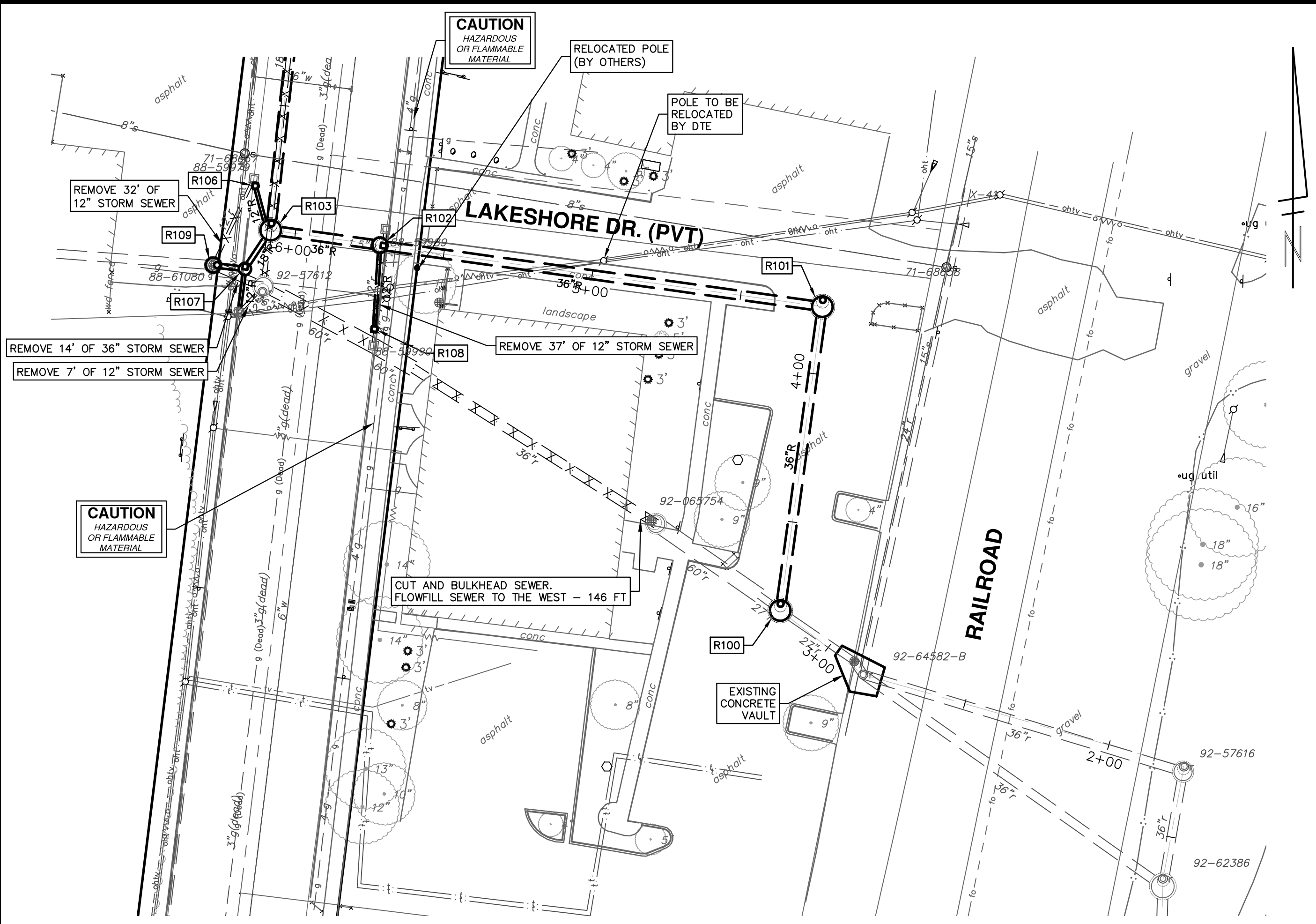


REV.	DESCRIPTION
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01	ADDENDUM #1

DATE	DRAWN	CHECKED
3-17-21	DF/CC	TB
4-6-21	DF/CC	TB

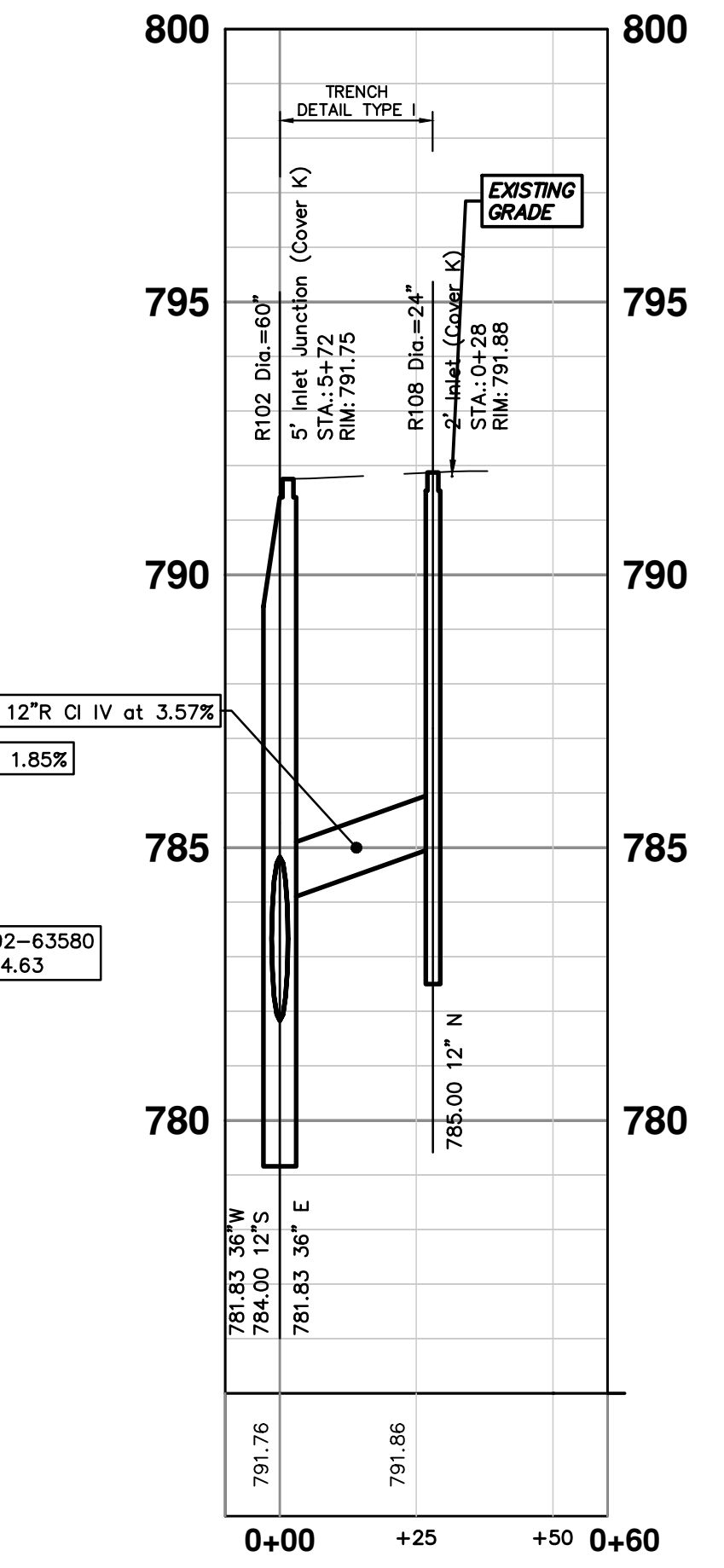
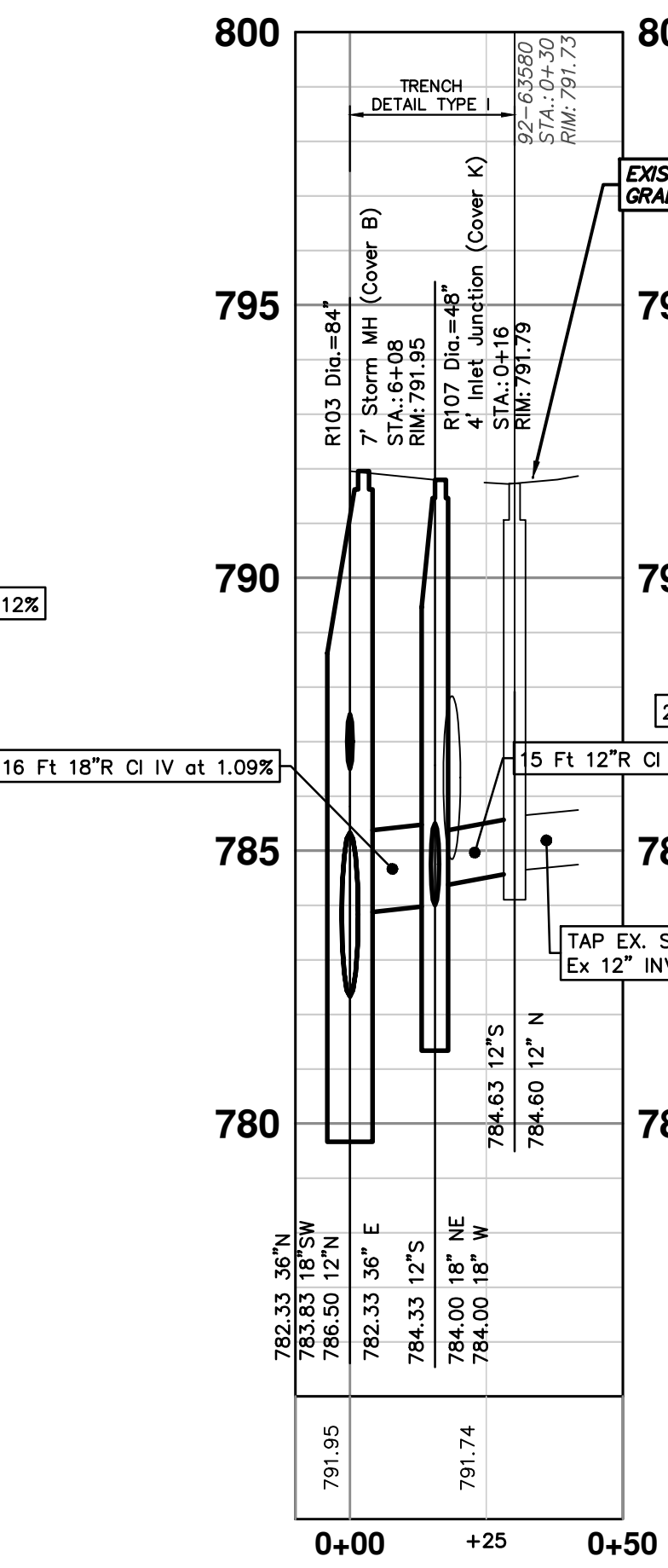
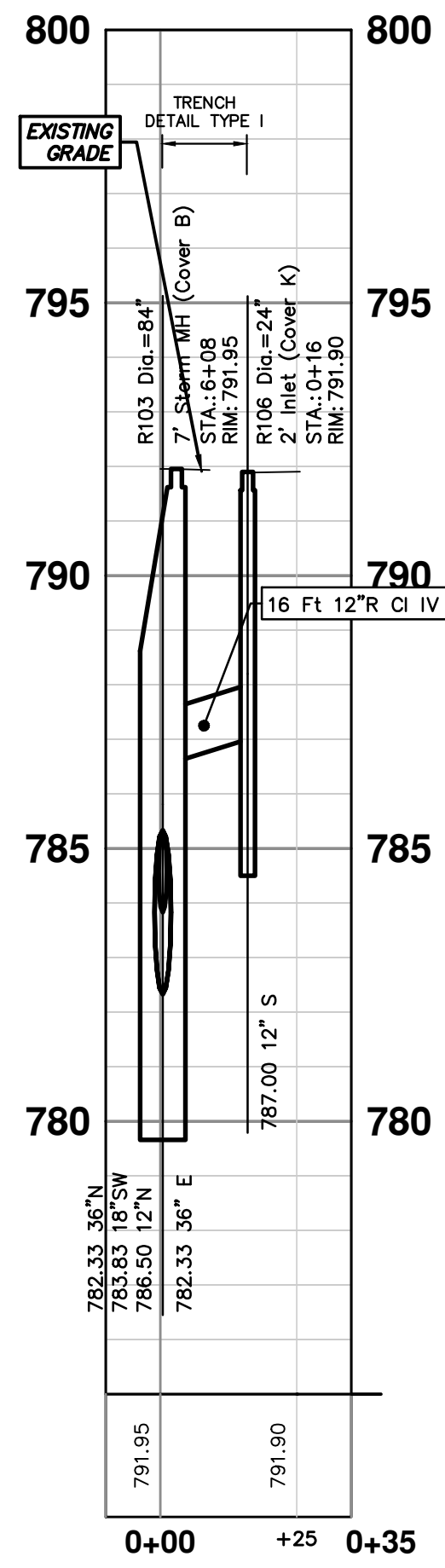
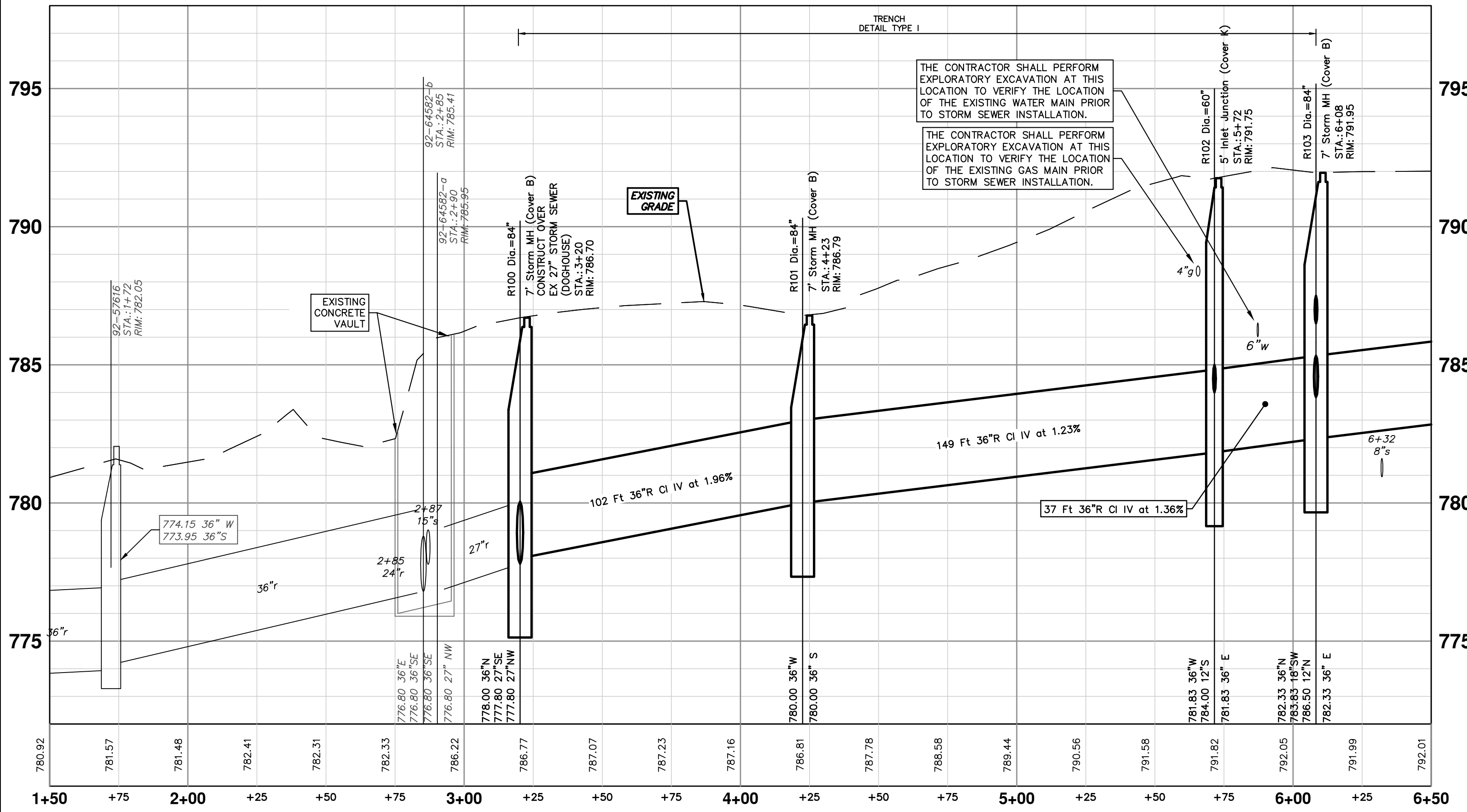
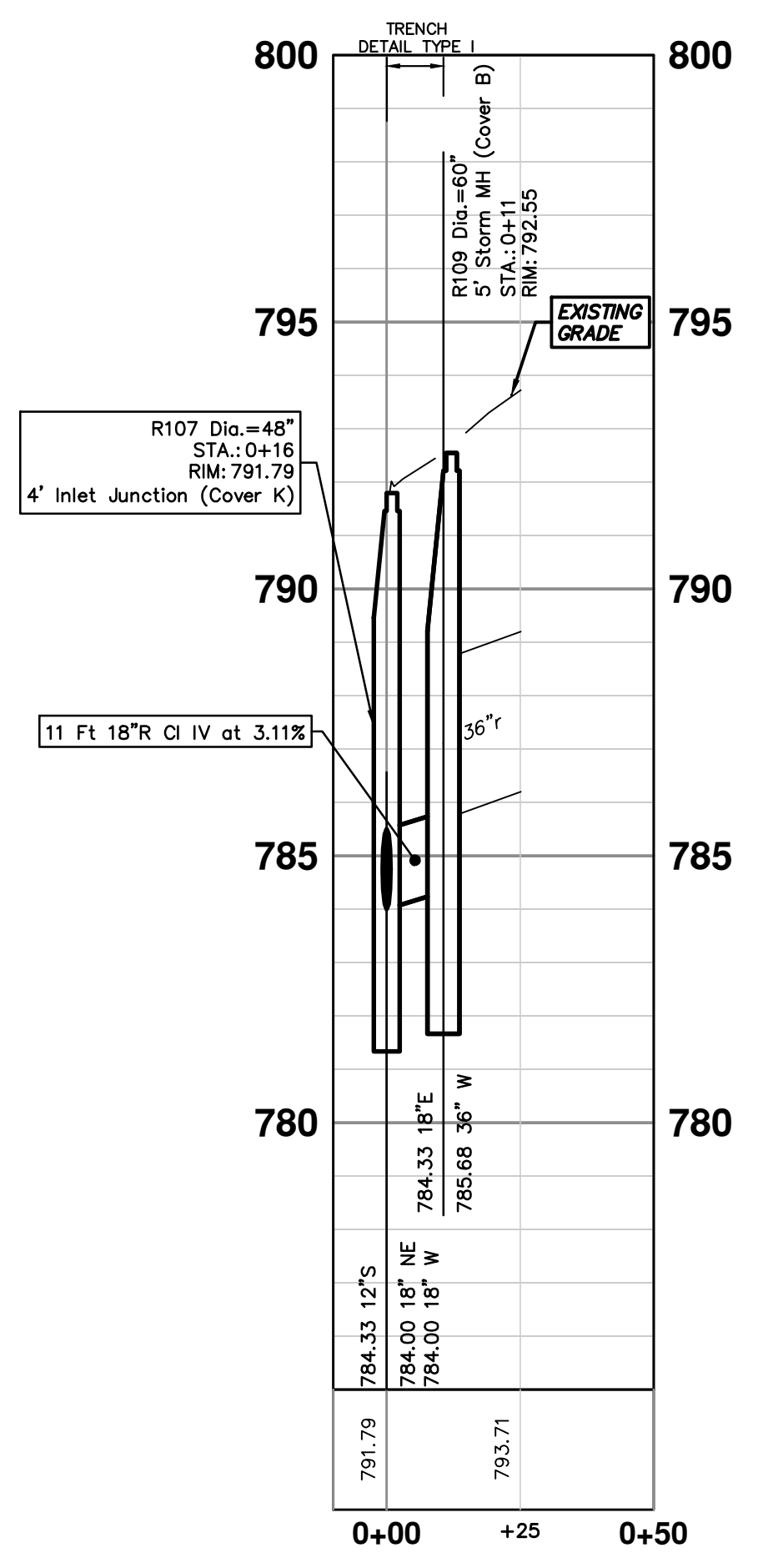







STORM SEWER STRUCTURE TABLE						
STRUCTURE	UTILITY STATION	INVERT ELEVATION, SIZE & DIRECTION	TOP OF CASTING ELEVATION	DEPTH (Feet)	SIZE	APPLICATION/CONSTRUCTION/ SUMP
R100	3+20	36" N 778.00 27" SE 777.80(EX) 27" NW 777.80(EX)	786.70	10.90	84" Dia.	7" Storm MH (Cover B) CONSTRUCT OVER EX 27" STORM SEWER (DOGHOUSE) 2 Ft
R101	4+23	36" S 780.00 36" W 780.00	786.79	8.79	84" Dia.	7" Storm MH (Cover B) 2 Ft
R102	5+72	36" E 781.83 36" W 781.83 12" S 784.00	791.75	11.92	60" Dia.	5' Inlet Junction (Cover K) 2 Ft
R103	6+08	36" E 782.33 36" N 782.33 18" SW 783.83 12" N 786.50	791.95	11.62	84" Dia.	7" Storm MH (Cover B) 2 Ft
R106	0+16	12" S 787.00	791.90	6.90	24" Dia.	2' Inlet (Cover K) 2 Ft
R107	0+16	18" NE 784.00 18" W 784.00 12" S 784.33	791.79	9.79	48" Dia.	4' Inlet Junction (Cover K) 2 Ft
R108	0+28	12" N 785.00	791.88	8.88	24" Dia.	2' Inlet (Cover K) 2 Ft
R109	0+11	36" W 785.68(EX) 18" E 784.33	792.55	10.22	60" Dia.	5' Storm MH (Cover B) 2 Ft

EXISTING STORM SEWER STRUCTURE REMOVAL TABLE		
STRUCTURE	DEPTH (Feet)	REMOVE
88-59989	2.19	2' INLET Cover K
88-59979	2.46	12" Drop Structure
88-61080	7.39	3' JUNCTION Cover K
88-59990	10.22	12" Drop Structure
92-57612	7.55	6' MH Cover B





Know what's below.  
Call before you dig.

01	APPENDIX #1	4-6-21	DF/CC	TB	TB	TB	TB	TB	TB
00	OUT FOR BID	3-17-21	DF/CC	TB	TB	TB	TB	TB	TB
REV.	DESCRIPTION	DATE	DRAWN	CHECKED					

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

**2021 MISC. UTILITIES PROJECT**

**N MAIN ST PROPOSED STORM SEWER**

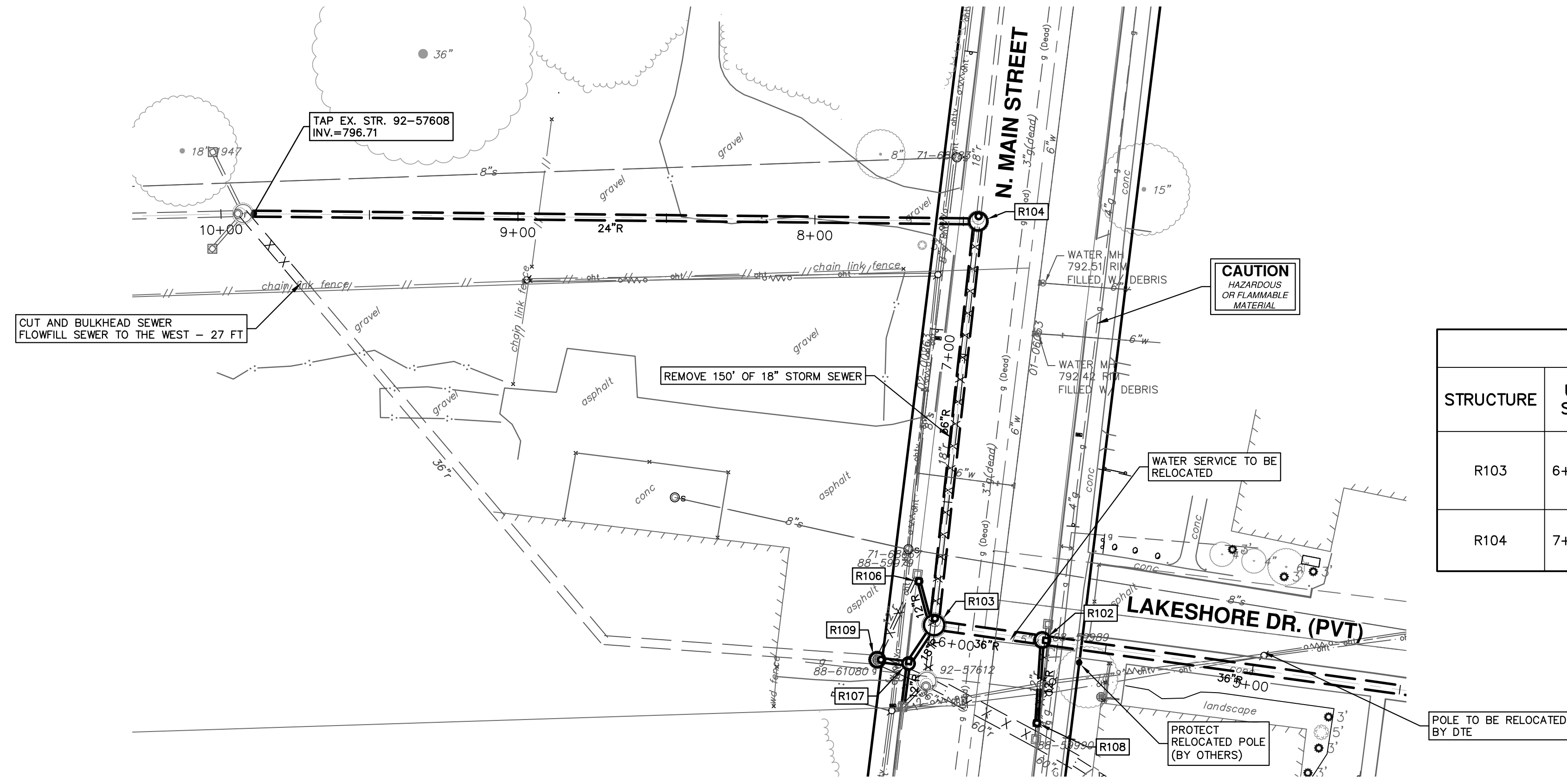
R100 - R103

SCALE PLAN: 1" = 30'  
PROFILE: 1" = 3'

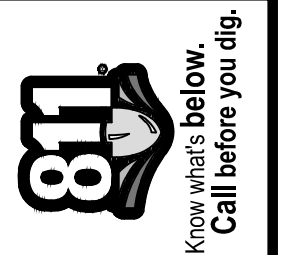
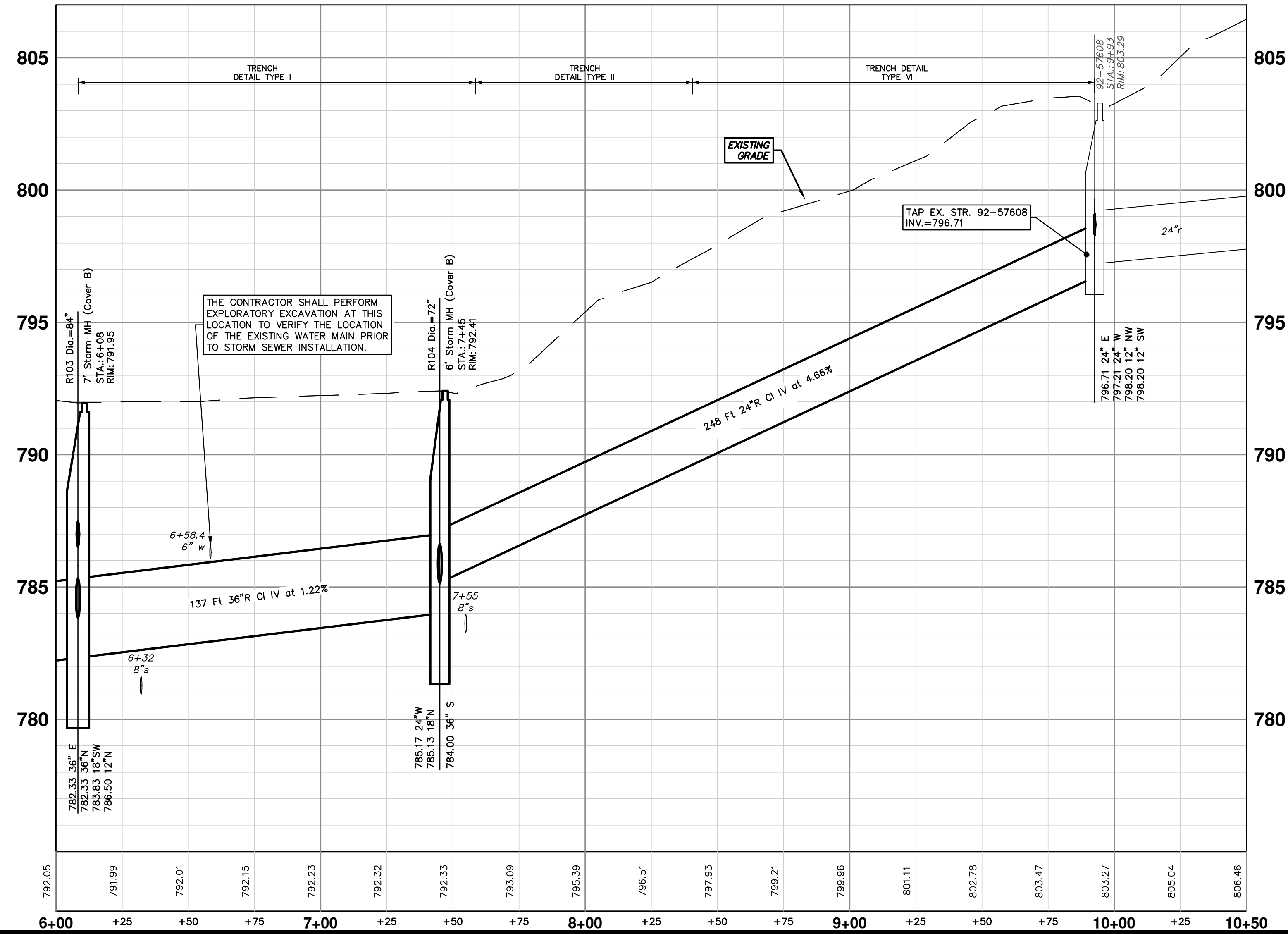
DRAWING NO. **2021005-25**

SHEET NO. **25 OF 60**



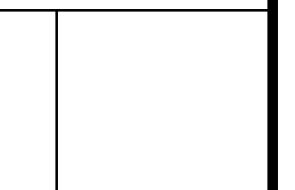


STORM SEWER STRUCTURE TABLE							
STRUCTURE	UTILITY STATION	INVERT ELEVATION, SIZE & DIRECTION	TOP OF CASTING ELEVATION	DEPTH (Feet)	SIZE	APPLICATION / CONSTRUCTION	SUMP
R103	6+08	36" E 782.33 36" N 782.33 18" SW 783.83 12" N 786.50	791.95	11.62	84" Dia.	7' Storm MH (Cover B)	2 Ft
R104	7+45	36" S 784.00 24" W 785.17 18" N 785.13 (EX)	792.41	10.41	72" Dia.	6' Storm MH (Cover B)	2 Ft



01	ADDENDUM #1	DATE	DESCRIPTION
00	OUT FOR BID	3-17-21	DRAWN
00	REV.		CHECKED

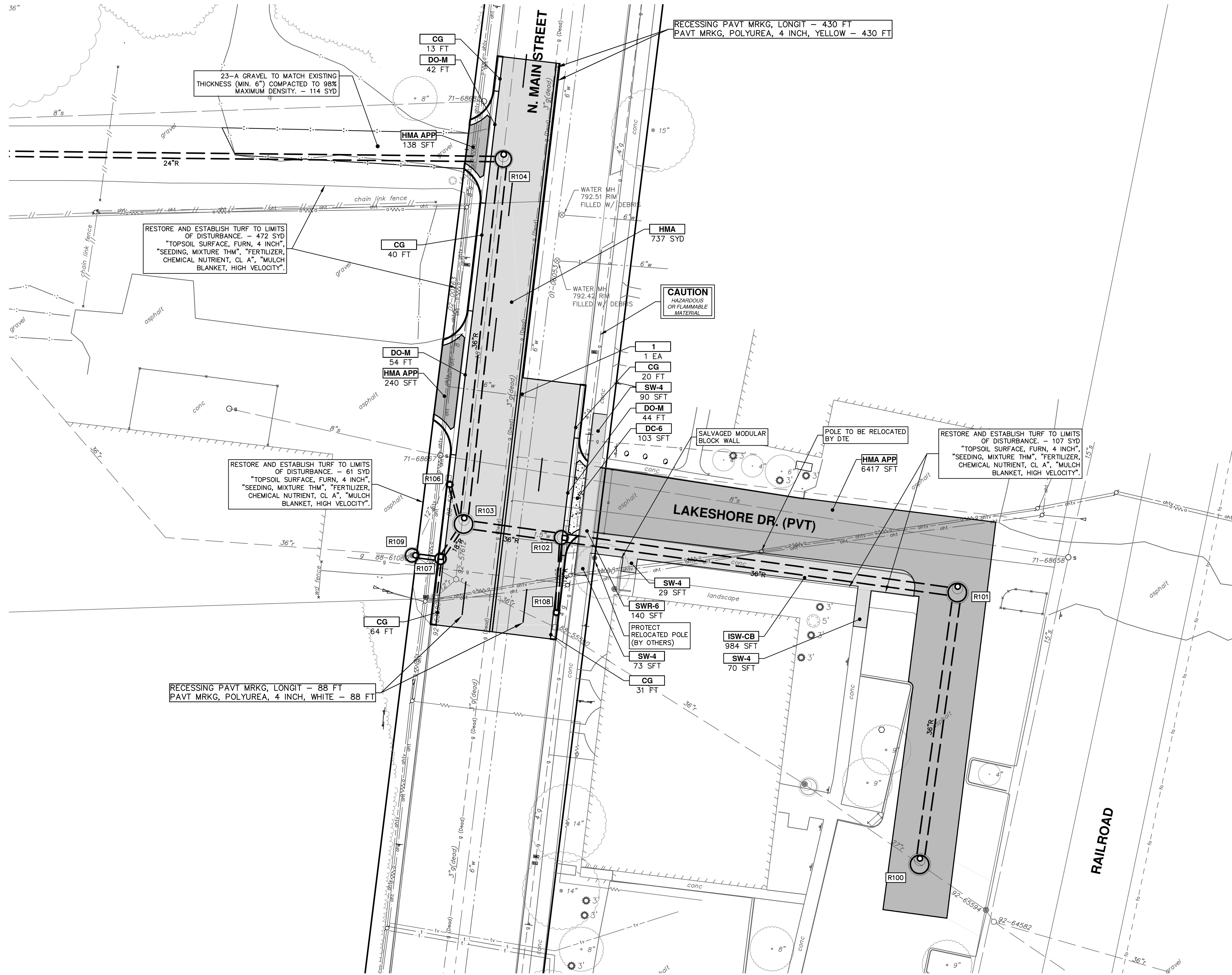
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ANN ARBOR, MI 48106-8647  
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CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
N MAIN ST PROPOSED STORM SEWER

DRAWING No. 2021005-26  
SHEET No. 26 OF 60





CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA	PLACE HMA, LVSP. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	PLACE HMA APPROACH
HP	HAND PATCHING
CG	PLACE CURB AND GUTTER, CONC, F4, SPECIAL
DO-M	PLACE DRIVEWAY OPENING, CONC, DETAIL M, P-NC
DC-6	PLACE CONC. DRIVE APPROACH, NON-REINFORCED, P-NC, 6 INCH. PLACE AND COMPACT 6 INCH SUBBASE, CIP, CLASS II GRANULAR MATERIAL, MODIFIED.
SW-4	PLACE SIDEWALK, CONC, 4 INCH, MODIFIED
SWR-6	PLACE SIDEWALK, SIDEWALK RAMP, CONC, 6 INCH, MODIFIED
DWS	DETECTABLE WARNING, CAST IN PLACE
ISW-CB	INTEGRAL SIDEWALK/CURB
ABO	ADJUST BY OTHERS
1	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
2	ADJUST STRUCTURE COVER



Know what's below. Call before you dig.

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
P.O. BOX 8647  
ANN ARBOR MI 48107-8647  
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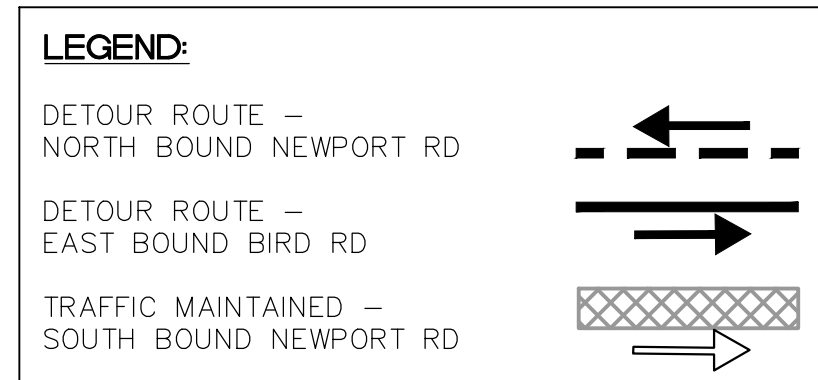
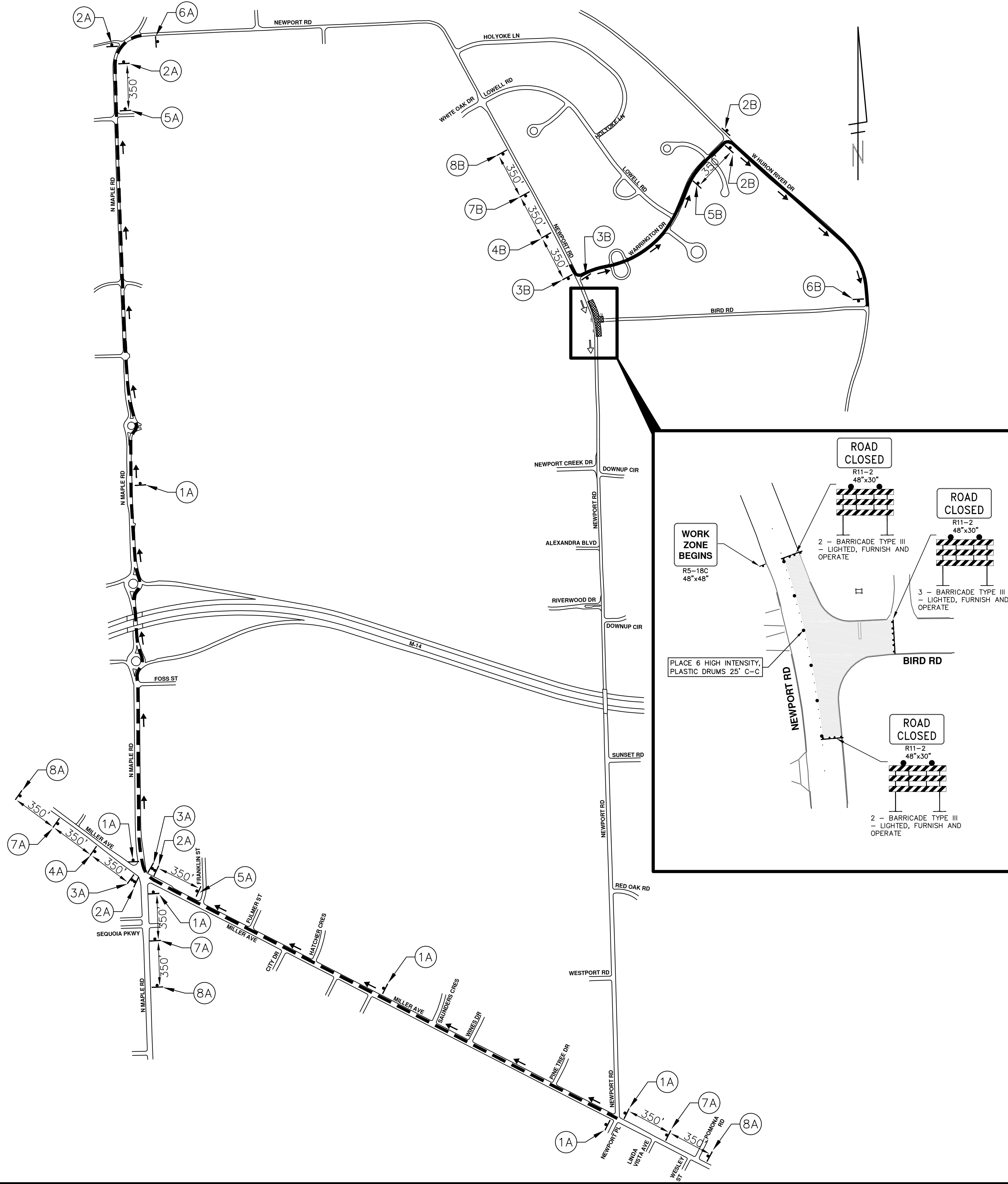
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
N MAIN ST PROPOSED ROAD AND PAVEMENT MARKINGS

SCALE PLAN: 1" = 20'  
DRAWING No. 2021005-27

REV.	DATE	DRAWN	CHECKED	DESCRIPTION
01	4-6-21	DF/CC	TB	ADDENDUM #1
00	3-17-21	DF/CC	TB	OUT FOR BID



R:\2021005 Misc Utility 2021\Plan Production\2021005 Newport Dtr.dwg Dwg Created: 5-Apr-21 - \_a2\_standard bw.stb - Plot Date: 6-Apr-21

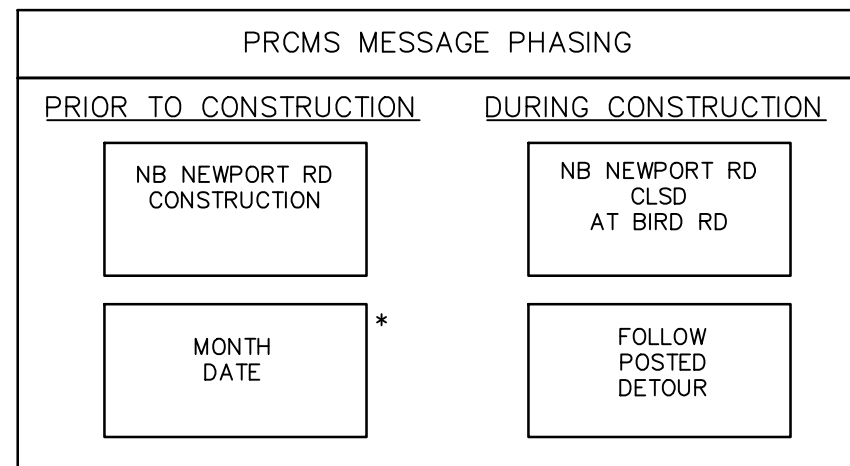


NORTH BOUND NEWPORT ROAD		
CALLOUT	SIGN	NUMBER QUANTITY
1A	NB NEWPORT RD	D3-1 6
	DETOUR	M4-9S 30"x24" 6
2A	NB NEWPORT RD	D3-1 4
	DETOUR	M4-9R 30"x24" 4
3A	NB NEWPORT RD	D3-1 2
	DETOUR	M4-9L 30"x24" 2
4A	NB NEWPORT RD	D3-1 1
	DETOUR	M4-9L (MOD) 30"x24" 1
5A	NB NEWPORT RD	D3-1 2
	DETOUR	M4-9R (MOD) 30"x24" 2
6A	NB NEWPORT RD	D3-1 1
	END DETOUR	M4-8A 24"x18" 1
7A	NB NEWPORT RD	D3-1 3
	DETOUR AHEAD	W20-2 36"x36" 3
8A	NB NEWPORT RD	D3-1 3
	ROAD WORK AHEAD	W20-1 36"x36" 3

BARRICADE, TYPE III, LIGHTED, FURNISH AND OPERATE - 2 EACH  
SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE - 2 EACH  
VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING

EAST BOUND BIRD ROAD		
CALLOUT	SIGN	NUMBER QUANTITY
1B	EB BIRD RD	D3-1 0
	DETOUR	M4-9S 30"x24" 0
2B	EB BIRD RD	D3-1 2
	DETOUR	M4-9R 30"x24" 2
3B	EB BIRD RD	D3-1 2
	DETOUR	M4-9L 30"x24" 2
4B	EB BIRD RD	D3-1 1
	DETOUR	M4-9L (MOD) 30"x24" 1
5B	EB BIRD RD	D3-1 1
	DETOUR	M4-9R (MOD) 30"x24" 1
6B	EB BIRD RD	D3-1 1
	END DETOUR	M4-8A 24"x18" 1
7B	EB BIRD RD	D3-1 1
	DETOUR AHEAD	W20-2 36"x36" 1
8B	EB BIRD RD	D3-1 1
	ROAD WORK AHEAD	W20-1 36"x36" 1

BARRICADE, TYPE III, LIGHTED, FURNISH AND OPERATE - 2 EACH  
SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE - 2 EACH  
VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING



NOTE: PRCMS LOCATIONS AND MESSAGES WILL BE AS DIRECTED BY THE ENGINEER. TO BE PLACED ONE WEEK PRIOR TO CONSTRUCTION.  
\*THE CONTRACTOR SHALL PLACE THE APPROPRIATE DATE AS APPROVED BY THE ENGINEER.

- DETOUR CONSTRUCTION NOTES:**
- DEPENDING ON THE DETOUR ROUTE THAT IS PUT IN PLACE, CONFLICTING SIGNS MAY BE PRESENT. PRIOR TO THE ORDERING OR PLACEMENT OF ANY SIGNS, MEET WITH THE ENGINEER TO VERIFY THE EXACT NUMBER AND LOCATION OF THE SIGNS TO BE PLACED. THE ENGINEER AND THE CONTRACTOR SHALL WORK TOGETHER TO ELIMINATE ALL CONFLICTS.
  - THE CITY RESERVES THE RIGHT TO ORDER ADDITIONAL SIGNS AND PLACE THEM INTO SERVICE IN ORDER TO SAFELY MAINTAIN TRAFFIC. ADJUSTMENTS IN THE UNIT PRICE FOR THESE ITEMS OF WORK SHALL NOT BE ALLOWED FOR THESE OCCURRENCES.
  - THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THOSE OF THE CITY OF ANN ARBOR'S SIGNS AND SIGNALS UNIT DURING THE COURSE OF THE DETOUR ROUTE ESTABLISHMENT TO EFFECTIVELY AND SAFELY MAINTAIN TRAFFIC. DO NOT ERECT ANY SIGNS UNTIL ITS LOCATION AND PROPOSED DATE OF INSTALLATION IS APPROVED BY THE ENGINEER.
  - THE DETOUR IS TO BE IN PLACE DURING NEWPORT-BIRD WATER MAIN PROJECT AS DIRECTED BY THE ENGINEER. THE CONTRACTOR WILL CLOSE AND DETOUR NORTH BOUND NEWPORT RD TRAFFIC. SEE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR DETAILS ON CONSTRUCTION STAGING, SEQUENCING, CLOSURE AND DETOUR LIMITATIONS, AND OTHER DETAILS.
  - REFERENCE THE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR ADDITIONAL PROJECT REQUIREMENTS. THE CONTRACTOR'S ATTENTION IS SPECIFICALLY DIRECTED TO THE SECTION OF SAME SPECIAL PROVISION REGARDING COORDINATION WITH THE CITY SIGNS AND SIGNALS UNIT FOR MODIFICATIONS TO TRAFFIC SIGNALS FOR THE DETOUR.
  - THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN SIGNS AS SHOWN ON THE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.
  - CONSTRUCTION WARNING SIGNS SHALL HAVE AN ORANGE, HIGH-INTENSITY, REFLECTORIZED BACKGROUND.
  - SIGNS SHALL CONFORM TO THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
  - THE CONTRACTOR SHALL DRIVE ALL SIGNS INTO EXPOSED GROUND OR INSERT INTO A BORED HOLE IN PAVEMENT AS NECESSARY TO PERMANENTLY SECURE. ALL HOLES IN PAVEMENT SHALL BE FILLED WITH ENGINEER-APPROVED MORTAR WHEN THE SIGN IS REMOVED AND NO LONGER NEEDED. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE PAY ITEM "TEMPORARY SIGN, TYPE B, FURNISH AND OPERATE"
  - ADVANCE WARNING SIGNS SHALL BE PROVIDED WITH TWO (2) TYPE A FLASHING LIGHTS AND ONE (1) DAY-GLOW ORANGE FLAG.
  - CITY TO BE NOTIFIED A MINIMUM OF 7 DAYS PRIOR TO IMPLEMENTING NORTH BOUND NEWPORT RD DETOUR. MESSAGE BOARDS TO BE PLACED 7 DAYS PRIOR TO IMPLEMENTATION OF DETOUR.

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

DATE	DESCRIPTION	CHECKED
4-6-21	DF/CC	TB
3-17-21	DF/CC	TB
	DRAWN	

CITY OF ANN ARBOR  
PUBLIC SERVICES  
301 EAST HURON STREET  
ANN ARBOR, MI 48107-0647  
www.a3gov.org

**2021 MISC. UTILITIES PROJECT**

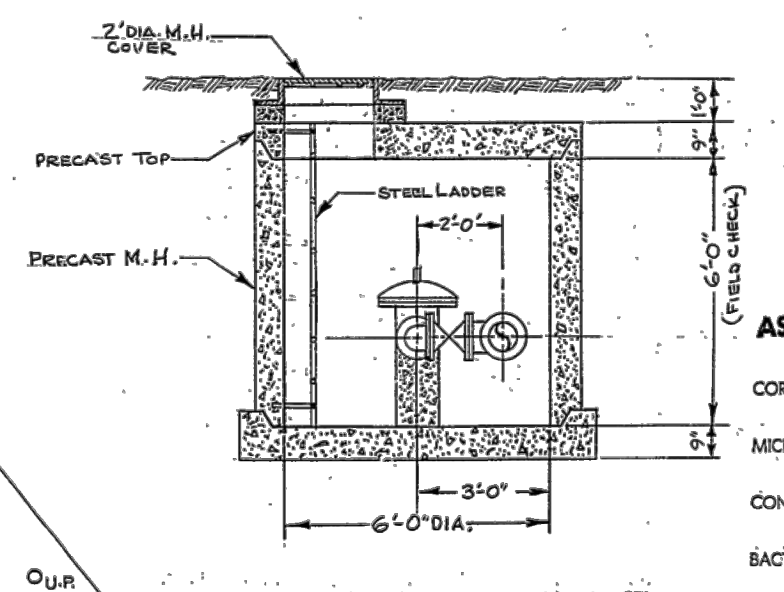
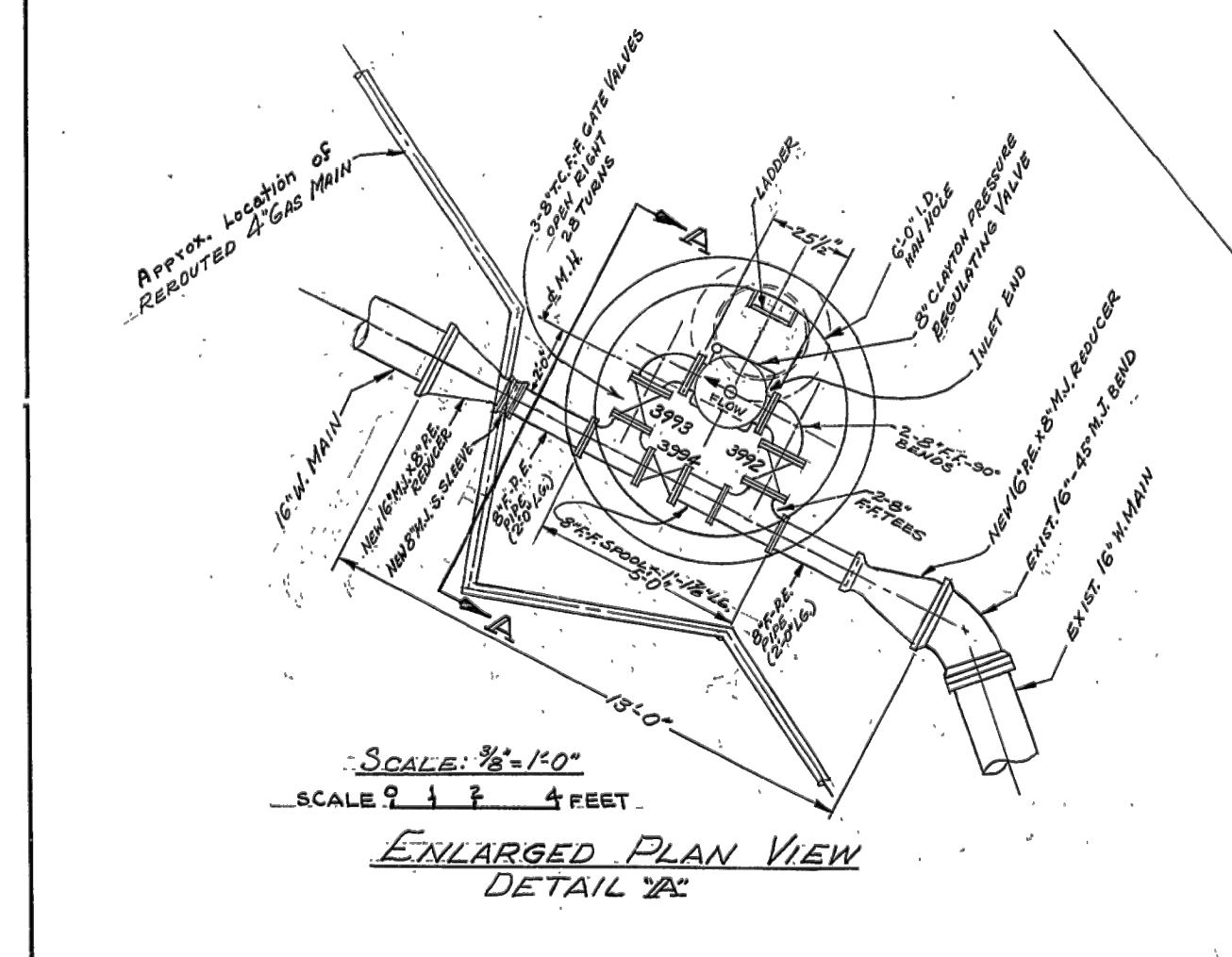
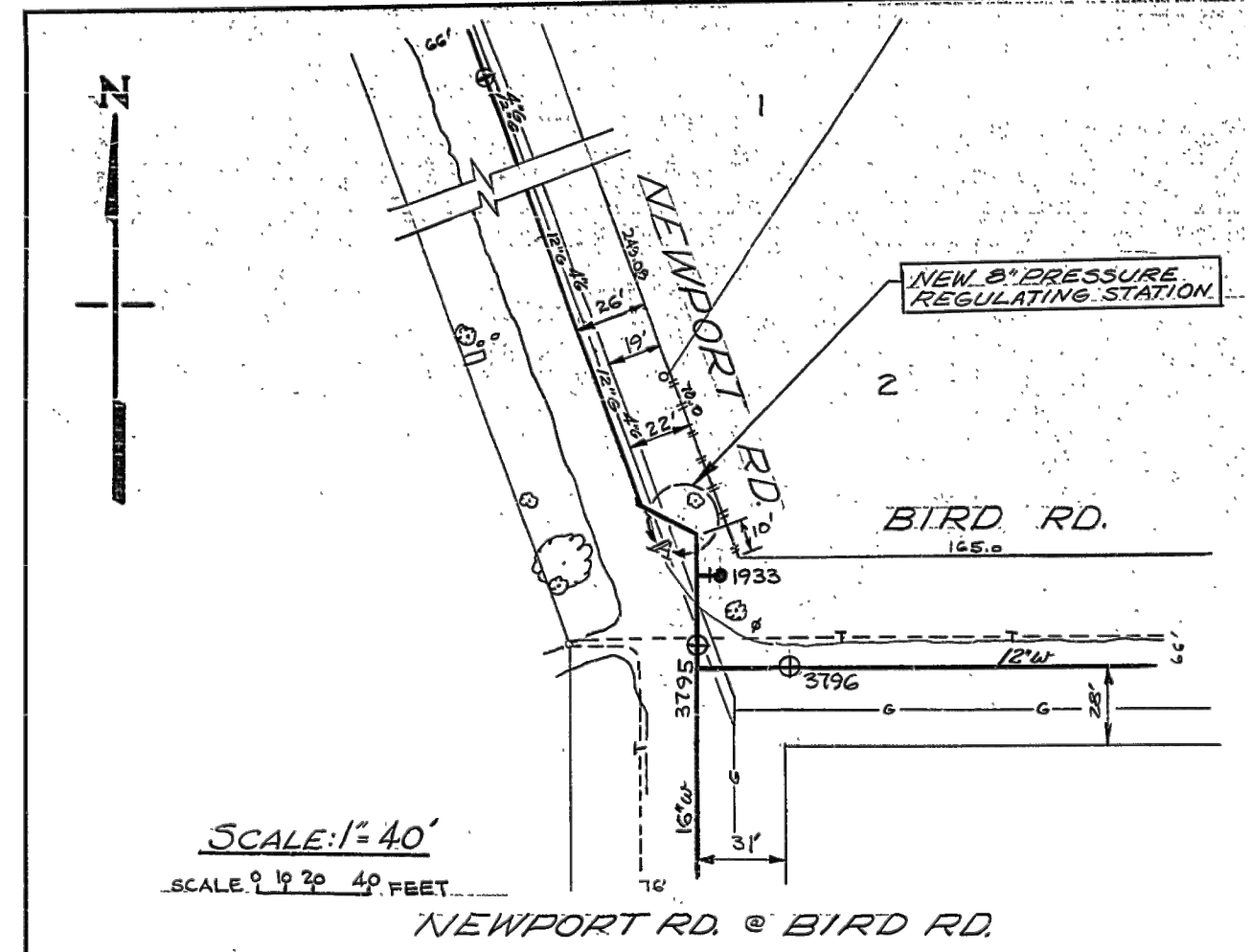
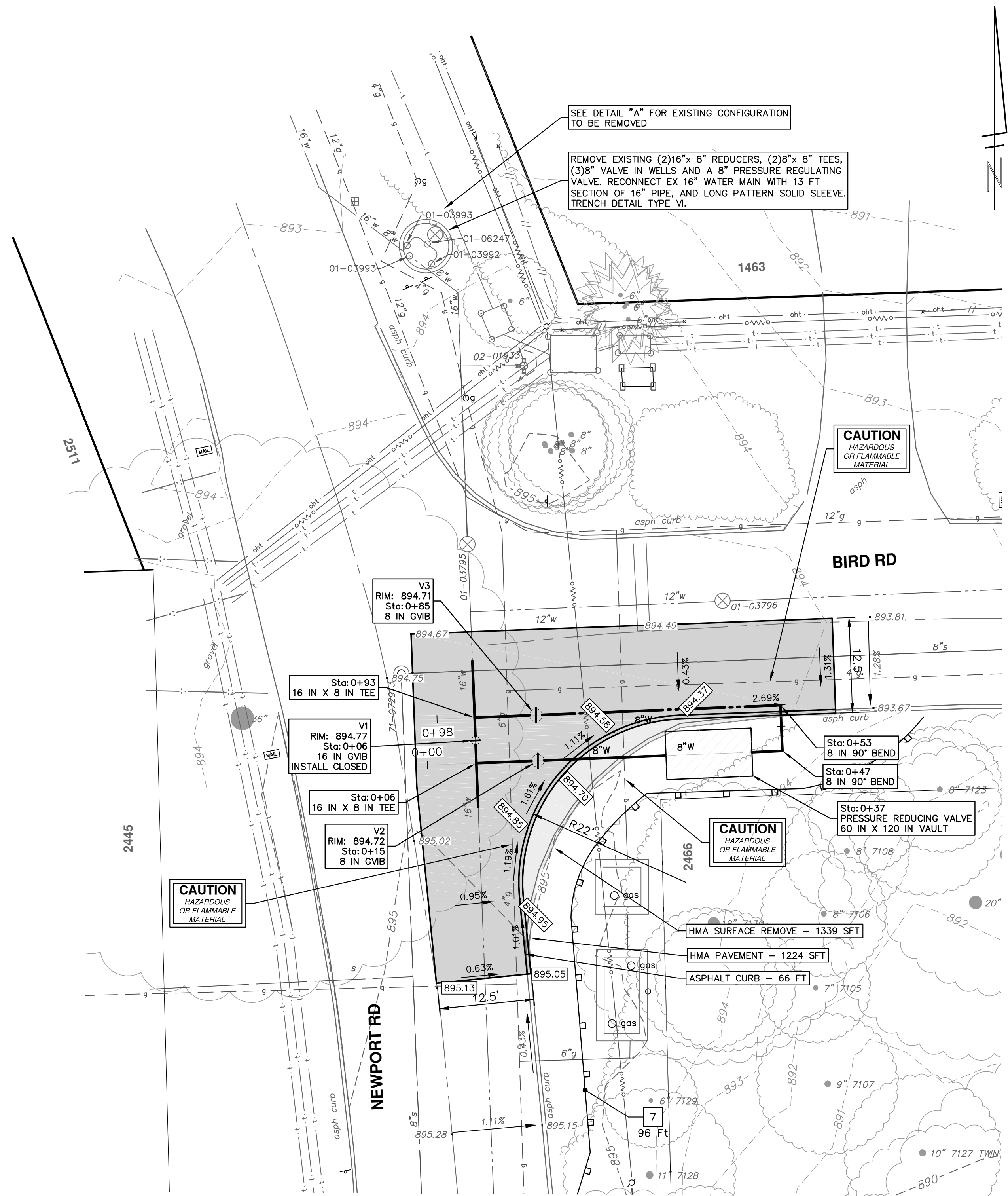
NEWPORT RD - BIRD RD DETOUR

SCALE: 1" = 500'

DRAWING No. 2021005-28

SHEET No. 28 OF 60



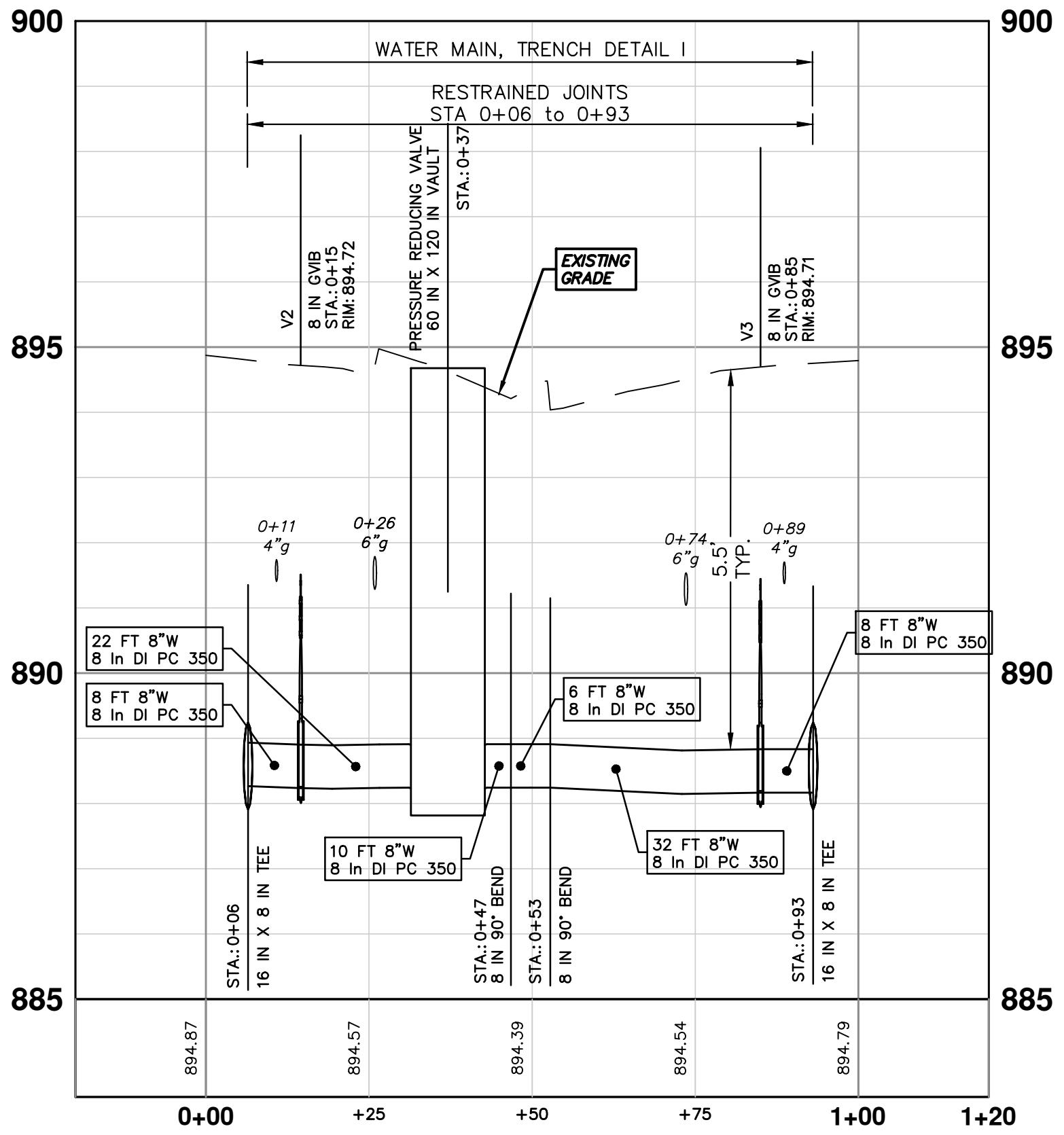


**AS BUILT DRAWING**

CORRECTED: 11-22-76  
 MICH. DEPT. OF HEALTH PERMIT No.:  
 CONSTRUCTION COMPLETED: 9-7-76  
 BACTERIOLOGICAL TEST: None  
 PRESSURE TEST: None

**CITY OF ANN ARBOR UTILITIES DEPARTMENT**

PROJECT #333 SITE DETAILS II  
 SCALE: 1" = 10' DATE: 11/26/21 REV: AUTHORITY NUMBER: A-556W-3  
 DR-BY: J.S. DATE: 11/26/21 DR-CHECKED: J.S.



**WATER MAIN STRUCTURE TABLE**

STRUCTURE	TYPE	STATION	RIM	DEPTH
V1	16 in GVB INSTALL CLOSED	0+06	894.77	6.86
V2	8 in GVB	0+15	894.72	6.62
V3	8 in GVB	0+85	894.71	6.68

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

REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC
		DRAWN
		CHECKED

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
 2021 MISC. UTILITIES PROJECT  
 NEWPORT RD PRESSURE REDUCING VALVE

CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
 301 EAST HURON STREET  
 P.O. BOX 86470  
 ANN ARBOR, MI 48108-8647  
 www.aagov.org

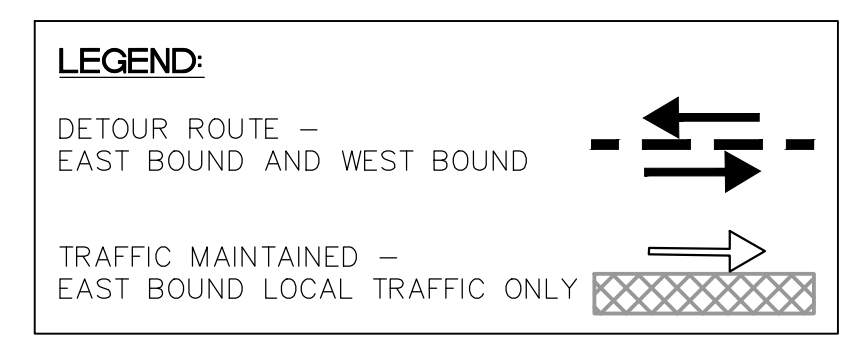
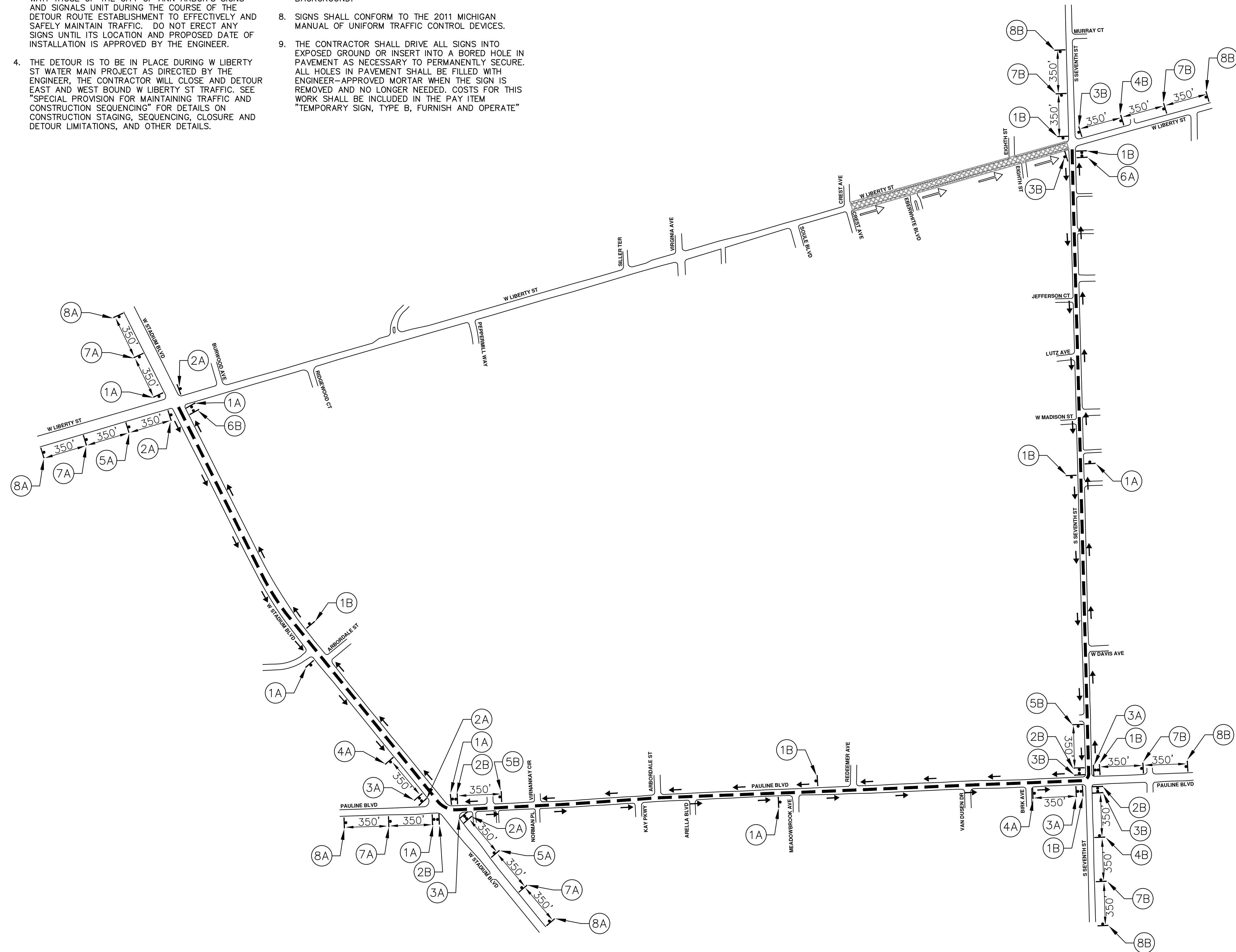
CITY OF ANN ARBOR UTILITIES DEPARTMENT  
 PROJECT #333 SITE DETAILS II  
 SCALE: 1" = 10' DATE: 11/26/21 REV: AUTHORITY NUMBER: A-556W-3  
 DR-BY: J.S. DATE: 11/26/21 DR-CHECKED: J.S.

SHEET No. 29 OF 60



**DETOUR CONSTRUCTION NOTES:**

1. DEPENDING ON THE DETOUR ROUTE THAT IS PUT IN PLACE, CONFLICTING SIGNS MAY BE PRESENT. PRIOR TO THE ORDERING OR PLACEMENT OF ANY SIGNS, MEET WITH THE ENGINEER TO VERIFY THE EXACT NUMBER AND LOCATION OF THE SIGNS TO BE PLACED. THE ENGINEER AND THE CONTRACTOR SHALL WORK TOGETHER TO ELIMINATE ALL CONFLICTS.
2. THE CITY RESERVES THE RIGHT TO ORDER ADDITIONAL SIGNS AND PLACE THEM INTO SERVICE IN ORDER TO SAFELY MAINTAIN TRAFFIC. ADJUSTMENTS IN THE UNIT PRICE FOR THESE ITEMS OF WORK SHALL NOT BE ALLOWED FOR THESE OCCURRENCES.
3. THE CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THOSE OF THE CITY OF ANN ARBOR'S SIGNS AND SIGNALS UNIT DURING THE COURSE OF THE DETOUR ROUTE ESTABLISHMENT TO EFFECTIVELY AND SAFELY MAINTAIN TRAFFIC. DO NOT ERECT ANY SIGNS UNTIL ITS LOCATION AND PROPOSED DATE OF INSTALLATION IS APPROVED BY THE ENGINEER.
4. THE DETOUR IS TO BE IN PLACE DURING W LIBERTY ST WATER MAIN PROJECT AS DIRECTED BY THE ENGINEER. THE CONTRACTOR WILL CLOSE AND DETOUR EAST AND WEST BOUND W LIBERTY ST TRAFFIC. SEE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR DETAILS ON CONSTRUCTION STAGING, SEQUENCING, CLOSURE AND DETOUR LIMITATIONS, AND OTHER DETAILS.
5. REFERENCE THE "SPECIAL PROVISION FOR MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING" FOR ADDITIONAL PROJECT REQUIREMENTS. THE CONTRACTOR'S ATTENTION IS SPECIFICALLY DIRECTED TO THE SECTION OF SAME SPECIAL PROVISION REGARDING COORDINATION WITH THE CITY SIGNS AND SIGNALS UNIT FOR MODIFICATIONS TO TRAFFIC SIGNALS FOR THE DETOUR.
6. THE CONTRACTOR SHALL FURNISH, ERECT, AND MAINTAIN SIGNS AS SHOWN ON THE PLANS OR OTHERWISE DIRECTED BY THE ENGINEER.
7. CONSTRUCTION WARNING SIGNS SHALL HAVE AN ORANGE, HIGH-INTENSITY, REFLECTORIZED BACKGROUND.
8. SIGNS SHALL CONFORM TO THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
9. THE CONTRACTOR SHALL DRIVE ALL SIGNS INTO EXPOSED GROUND OR INSERT INTO A BORED HOLE IN PAVEMENT AS NECESSARY TO PERMANENTLY SECURE. ALL HOLES IN PAVEMENT SHALL BE FILLED WITH ENGINEER-APPROVED MORTAR WHEN THE SIGN IS REMOVED AND NO LONGER NEEDED. COSTS FOR THIS WORK SHALL BE INCLUDED IN THE PAY ITEM "TEMPORARY SIGN, TYPE B, FURNISH AND OPERATE"
10. ADVANCE WARNING SIGNS SHALL BE PROVIDED WITH TWO (2) TYPE A FLASHING LIGHTS AND ONE (1) DAY-GLOW ORANGE FLAG.
11. CITY TO BE NOTIFIED A MINIMUM OF 7 DAYS PRIOR TO IMPLEMENTING W LIBERTY ST DETOUR. MESSAGE BOARDS TO BE PLACED 7 DAYS PRIOR TO IMPLEMENTATION OF DETOUR.



EAST BOUND W LIBERTY ST			WEST BOUND W LIBERTY ST		
SIGN	NUMBER	QUANTITY	SIGN	NUMBER	QUANTITY
1A	EB W LIBERTY ST DETOUR ↑	D3-1: 7 M4-9S 30"x24": 7	1B	WB W LIBERTY ST DETOUR ↑	D3-1: 7 M4-9S 30"x24": 7
2A	EB W LIBERTY ST DETOUR →	D3-1: 4 M4-9R 30"x24": 4	2B	WB W LIBERTY ST DETOUR →	D3-1: 4 M4-9R 30"x24": 4
3A	EB W LIBERTY ST DETOUR ←	D3-1: 4 M4-9L 30"x24": 4	3B	WB W LIBERTY ST DETOUR ←	D3-1: 4 M4-9L 30"x24": 4
4A	EB W LIBERTY ST DETOUR ↶	D3-1: 2 M4-9L (MOD) 30"x24": 2	4B	WB W LIBERTY ST DETOUR ↷	D3-1: 2 M4-9L (MOD) 30"x24": 2
5A	EB W LIBERTY ST DETOUR ↷	D3-1: 2 M4-9R (MOD) 30"x24": 2	5B	WB W LIBERTY ST DETOUR ↶	D3-1: 2 M4-9R (MOD) 30"x24": 2
6A	EB W LIBERTY ST END DETOUR	D3-1: 1 M4-8A 24"x18": 1	6B	WB W LIBERTY ST END DETOUR	D3-1: 1 M4-8A 24"x18": 1
7A	EAST BOUND W LIBERTY ST CLOSED AT CREST AVE FOLLOW DETOUR	SPECIAL 48x66: 4	7B	WEST BOUND W LIBERTY ST CLOSED AT S SEVENTH ST FOLLOW DETOUR	SPECIAL 48x66: 4
8A	DETOUR AHEAD	W20-2 36"x36": 4	8B	DETOUR AHEAD	W20-2 36"x36": 4

SIGN, PORTABLE, CHANGEABLE MESSAGE - 2 EACH  
VERIFY EXACT QUANTITY AND LOCATION WITH ENGINEER PRIOR TO ORDERING

PRMS MESSAGE PHASING		
PRIOR TO CONSTRUCTION	DURING CONSTRUCTION	DURING CONSTRUCTION
W LIBERTY ST CONSTRUCTION	W LIBERTY ST CLSD AT CREST AVE	W LIBERTY ST CLSD AT S SEVENTH ST
MONTH DATE *	FOLLOW POSTED DETOUR	FOLLOW POSTED DETOUR

NOTE: PRMS LOCATIONS AND MESSAGES WILL BE AS DIRECTED BY THE ENGINEER. TO BE PLACED ONE WEEK PRIOR TO CONSTRUCTION.  
\* THE CONTRACTOR SHALL PLACE THE APPROPRIATE DATE AS APPROVED BY THE ENGINEER.

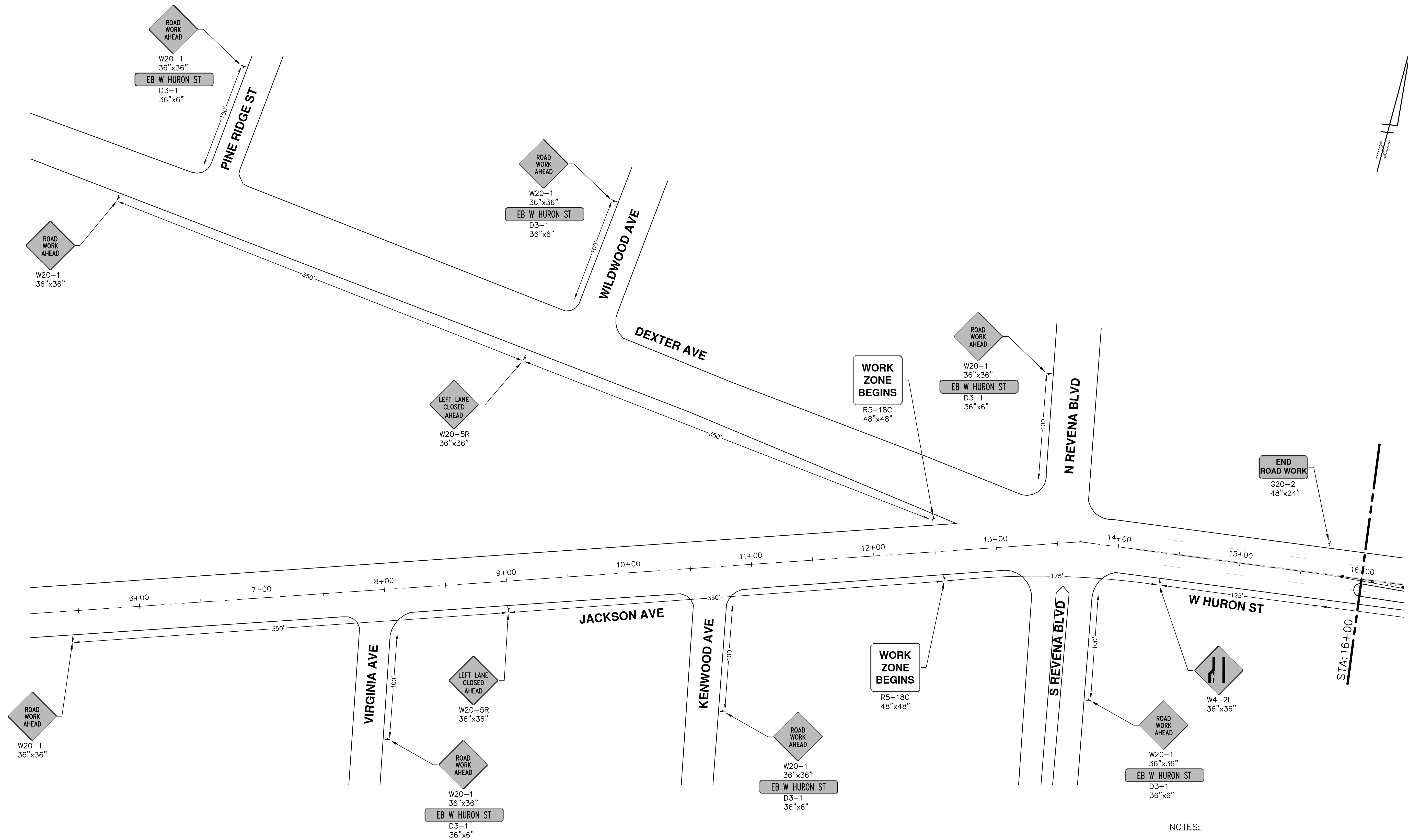
R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Dtr.dwg Dwg Created: 5-Apr-21 - Plot Date: 6-Apr-21

			DF/CC	DF/CC	DATE	DRAWN	CHECKED		
01	ADDENDUM #1	4-6-21		3-17-21					
00	OUT FOR BID								

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**2021 MISC. UTILITIES PROJECT**  
**W LIBERTY ST DETOUR**

SHEET No. **30 OF 60**  
 SCALE PLAN: 1" = 300'  
 DRAWING No. **2021005-30**

R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Mtrf2.dwg Dwg Created: 5-Apr-21 - a2 standard bw.stb - Plot Date: 6-Apr-21



- NOTES:**
1. FINAL LIMITS OF PAVEMENT REMOVAL FOR UTILITY INSTALLATION WILL BE AS DIRECTED BY ENGINEER.
  2. UTILIZE PLASTIC DRUMS AND PROTECTIVE FENCING WITHIN WORK ZONE TO DELINEATE OPEN TRENCHES AS DIRECTED BY ENGINEER.
  3. MAINTAIN PEDESTRIAN ACCESS DURING CONSTRUCTION.
  4. COVER CONFLICTING SIGNS AS NEEDED OR AS DIRECTED BY ENGINEER.
  5. REMOVE CONFLICTING PAVEMENT MARKINGS AS DIRECTED BY THE ENGINEER.
  6. CONTRACTOR SHALL PLACE PORTABLE, CHANGEABLE MESSAGE SIGNS A MINIMUM OF ONE (1) WEEK PRIOR TO THE START OF CONSTRUCTION IN LOCATIONS INDICATED BY ENGINEER. MESSAGE TO BE PROVIDED BY THE ENGINEER.

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

**2021 MISC. UTILITIES PROJECT**

W HURON ST TRAFFIC CONTROL - PH I

SCALE: 1" = 40'

DRAWING No. 2021005-31

SHEET No. 31 OF 60

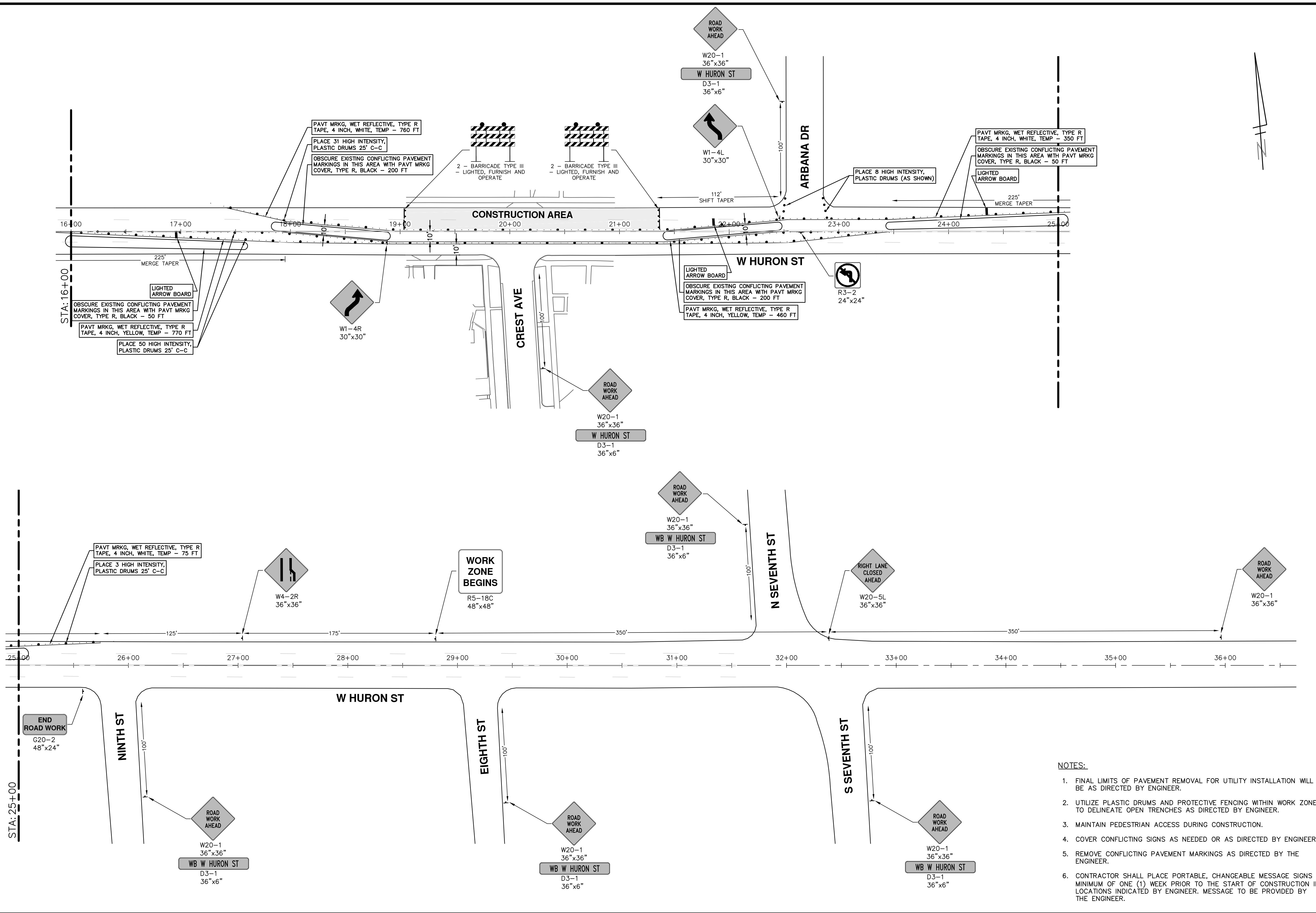
STA. 5+50 - STA. 16+00

City of Ann Arbor Public Services  
301 East Huron Street  
Ann Arbor, MI 48106-8647  
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REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC

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R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Mtrf2.dwg Dwg Created: 5-Apr-21 - Plot Date: 6-Apr-21



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

**2021 MISC. UTILITIES PROJECT**

W HURON ST TRAFFIC CONTROL - PH I

STA. 16+00 - STA. 36+00

SCALE: 1" = 40'

DRAWING NO. 2021005-32

SHEET NO. 32 OF 60

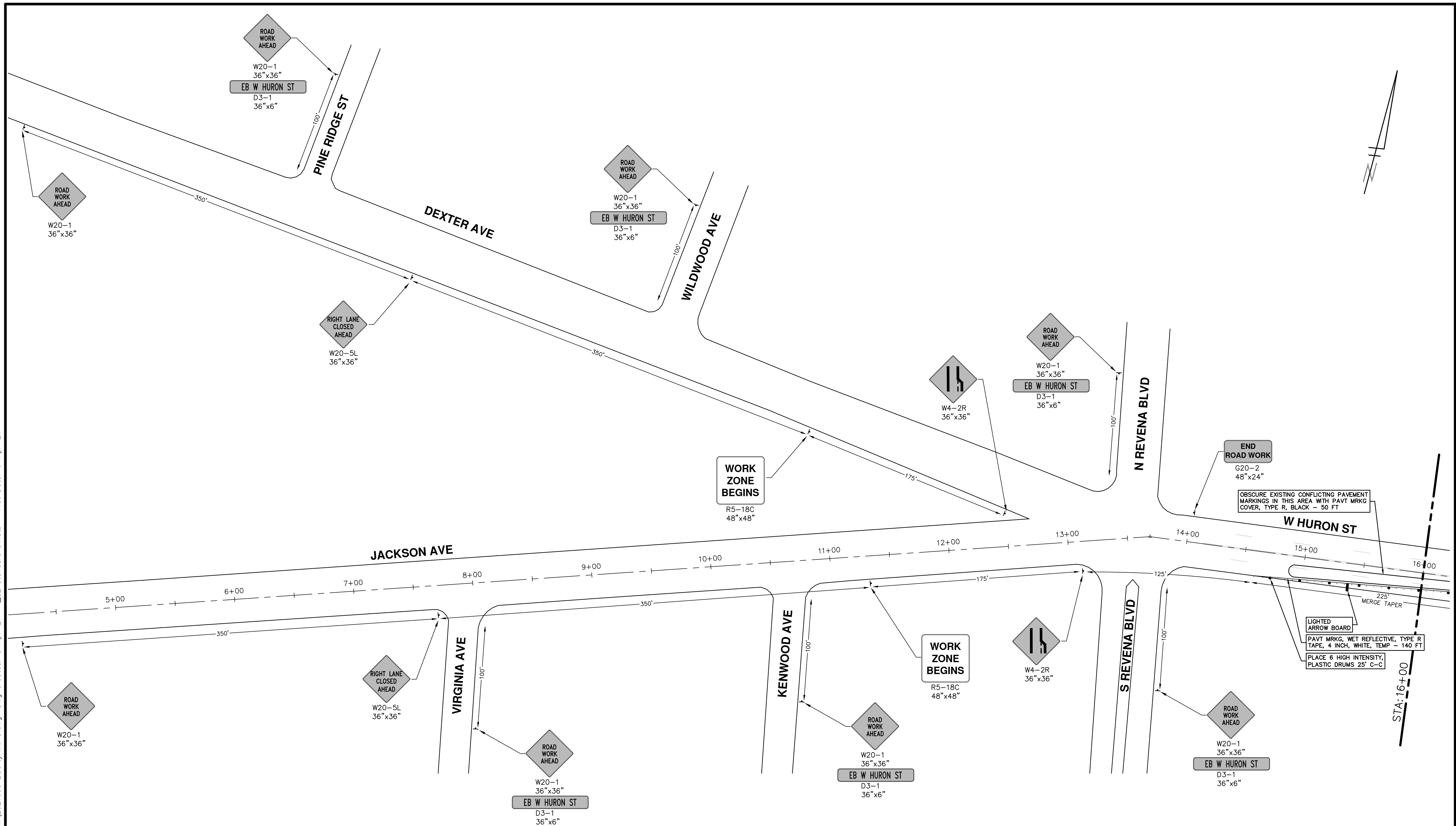
**811**  
Know what's below.  
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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB

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R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Mtrf3.dwg Dwg Created: 5-Apr-21 - a2 standard bw.stb - Plot Date: 6-Apr-21



- NOTES:**
1. FINAL LIMITS OF PAVEMENT REMOVAL FOR UTILITY INSTALLATION WILL BE AS DIRECTED BY ENGINEER.
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**811**  
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REV.	DATE	DRAWN	CHECKED
01	4-6-21	DF/CC	TB
00	3-17-21	DF/CC	TB

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
2021 MISC. UTILITIES PROJECT  
W HURON ST TRAFFIC CONTROL - PH II

STA. 5+50 - STA. 16+00

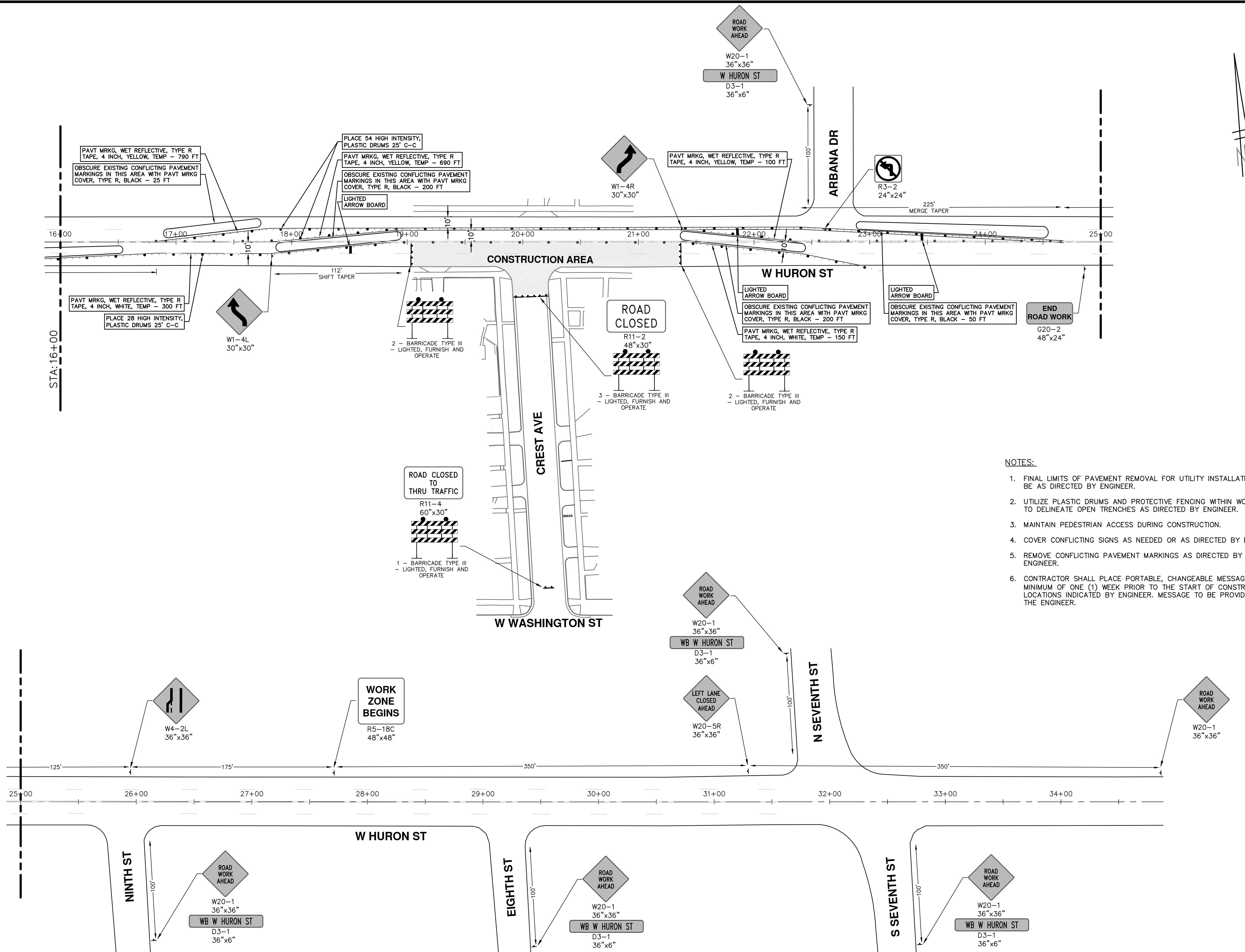
SCALE: 1" = 40'

DRAWING No. 2021005-33

SHEET No. 33 OF 60

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R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Mtrf3.dwg Dwg Created: 5-Apr-21 - Plot Date: 6-Apr-21



**NOTES:**

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

**2021 MISC. UTILITIES PROJECT**

W HURON ST TRAFFIC CONTROL - PH II

SCALE: 1" = 40'

DRAWING No. 2021005-34

SHEET No. 34 OF 60

STA. 16+00 - STA. 36+00

REV. DESCRIPTION DATE DRAWN CHECKED

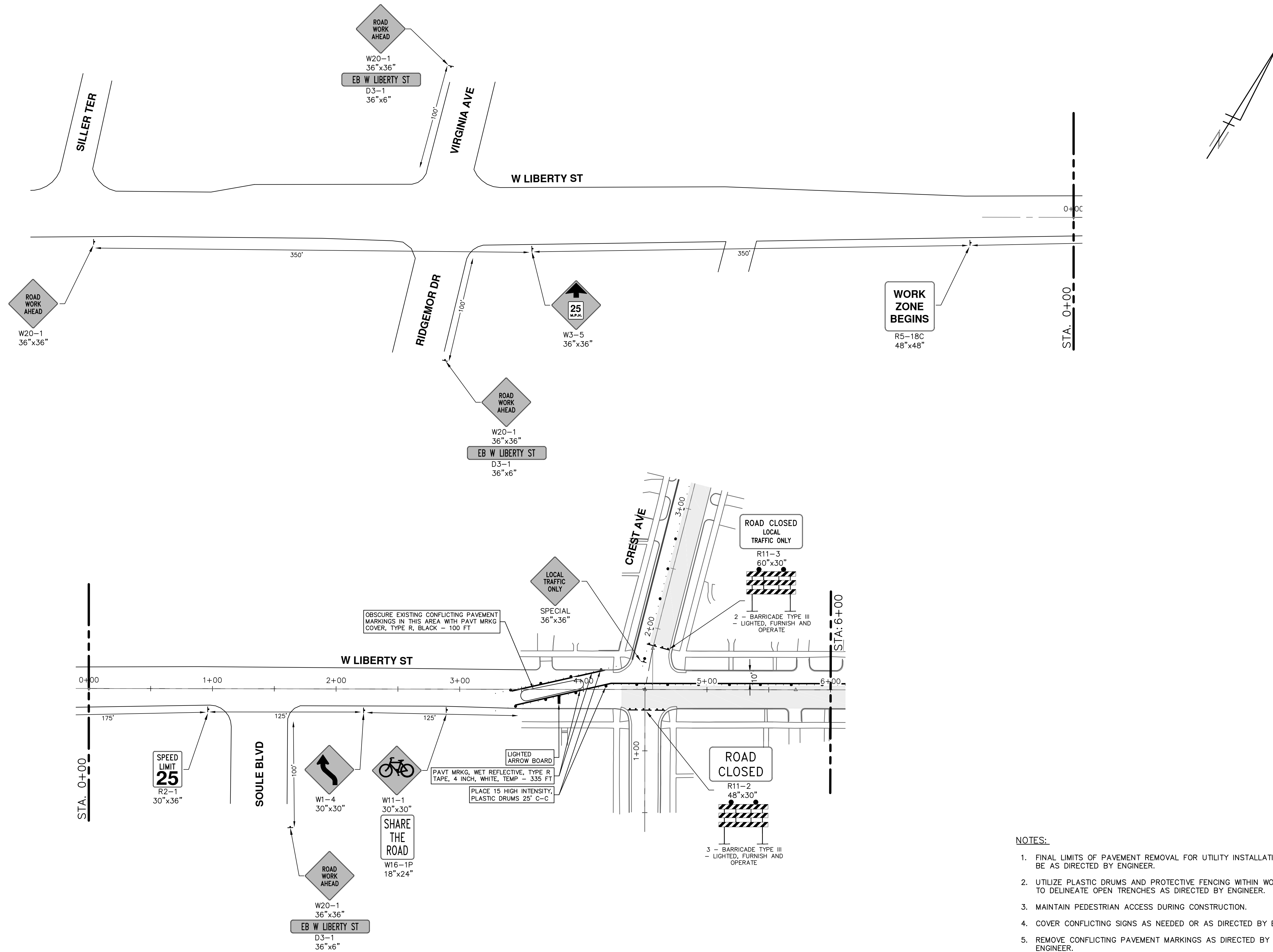
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB

01 00

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

**2021 MISC. UTILITIES PROJECT**

W LIBERTY ST TRAFFIC CONTROL - PH I

P.O.E. - STA. 6+00

**811**  
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REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC

REV. DATE DESCRIPTION

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ANN ARBOR, MI 48106-8647  
ANN ARBOR: 734.794.4410  
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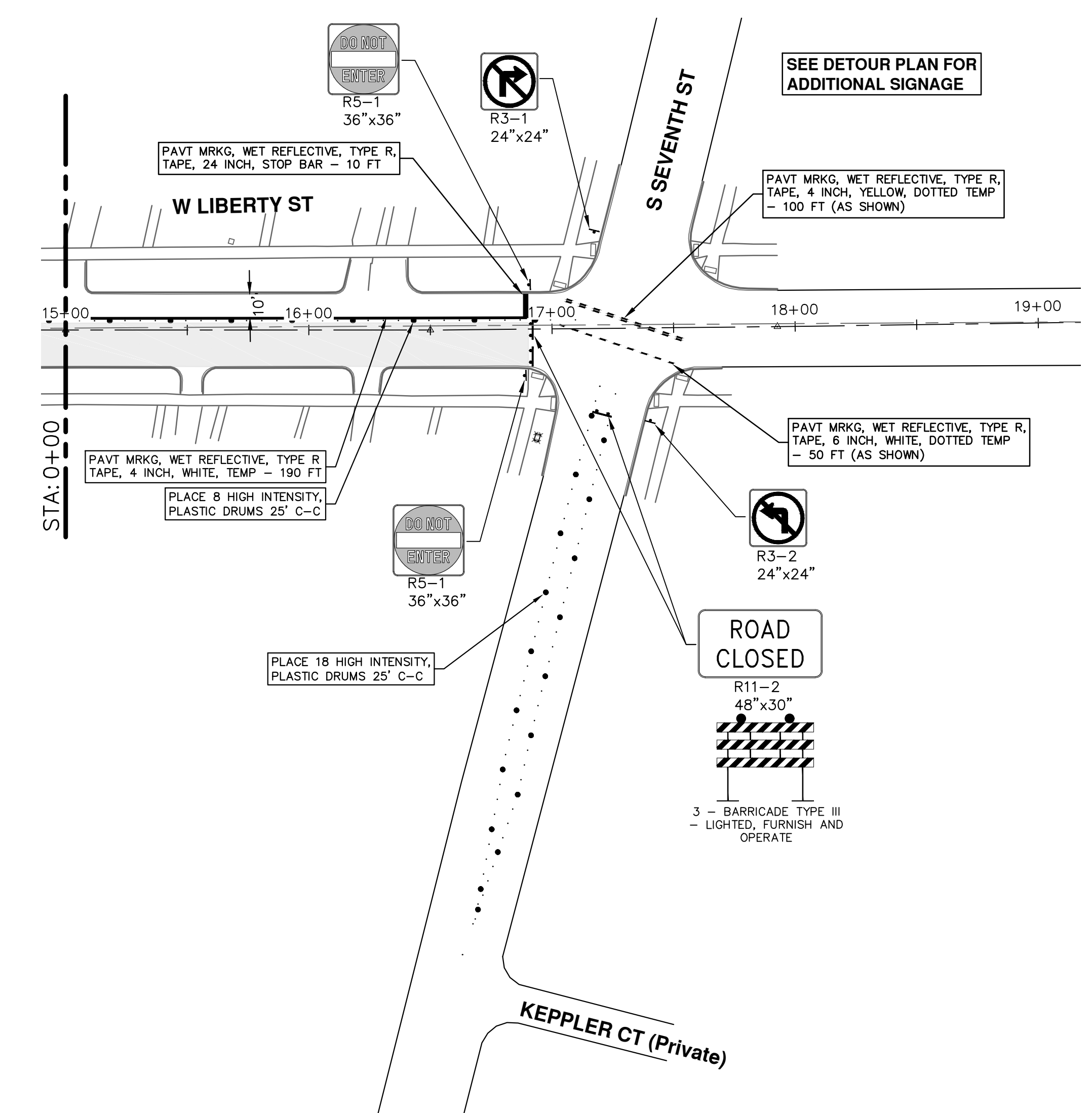
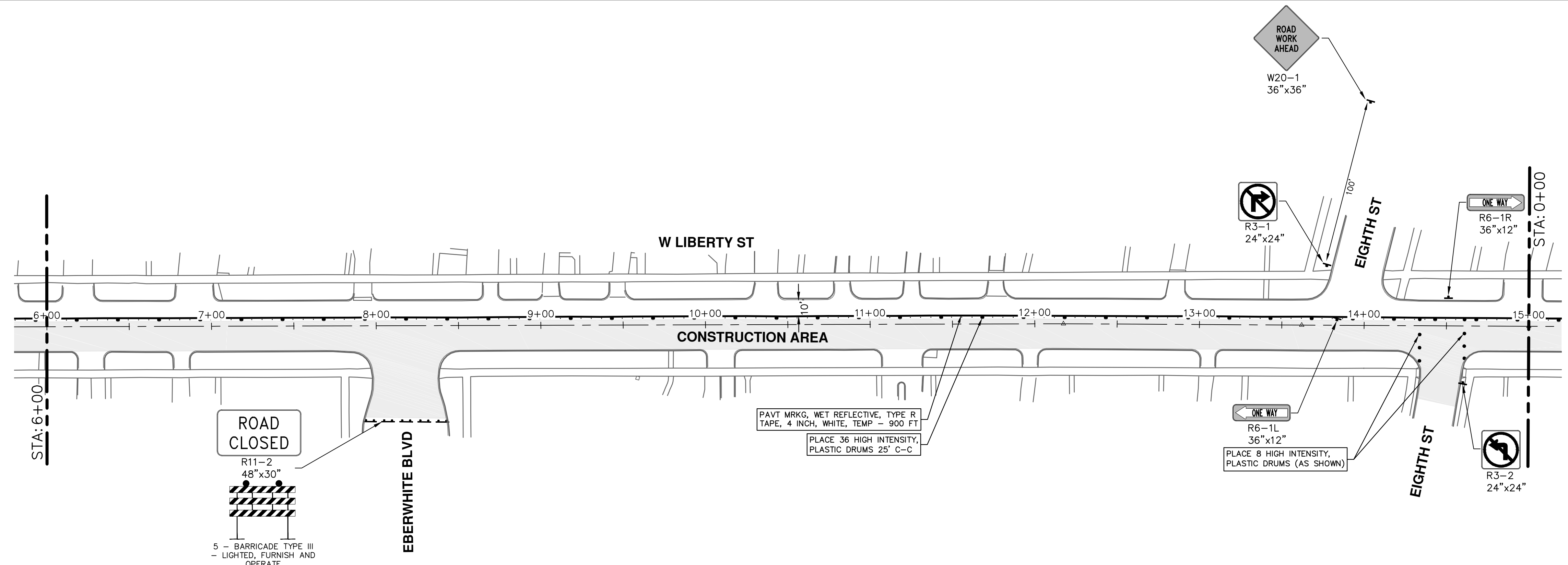
SCALE: 1" = 40'

DRAWING No. **2021005-35**

SHEET No. **35 OF 60**



R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Mtrf.dwg Dwg Created: 5-Apr-21 -- Plot Date: 6-Apr-21



**NOTES:**

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

**2021 MISC. UTILITIES PROJECT**

W LIBERTY ST TRAFFIC CONTROL - PH I

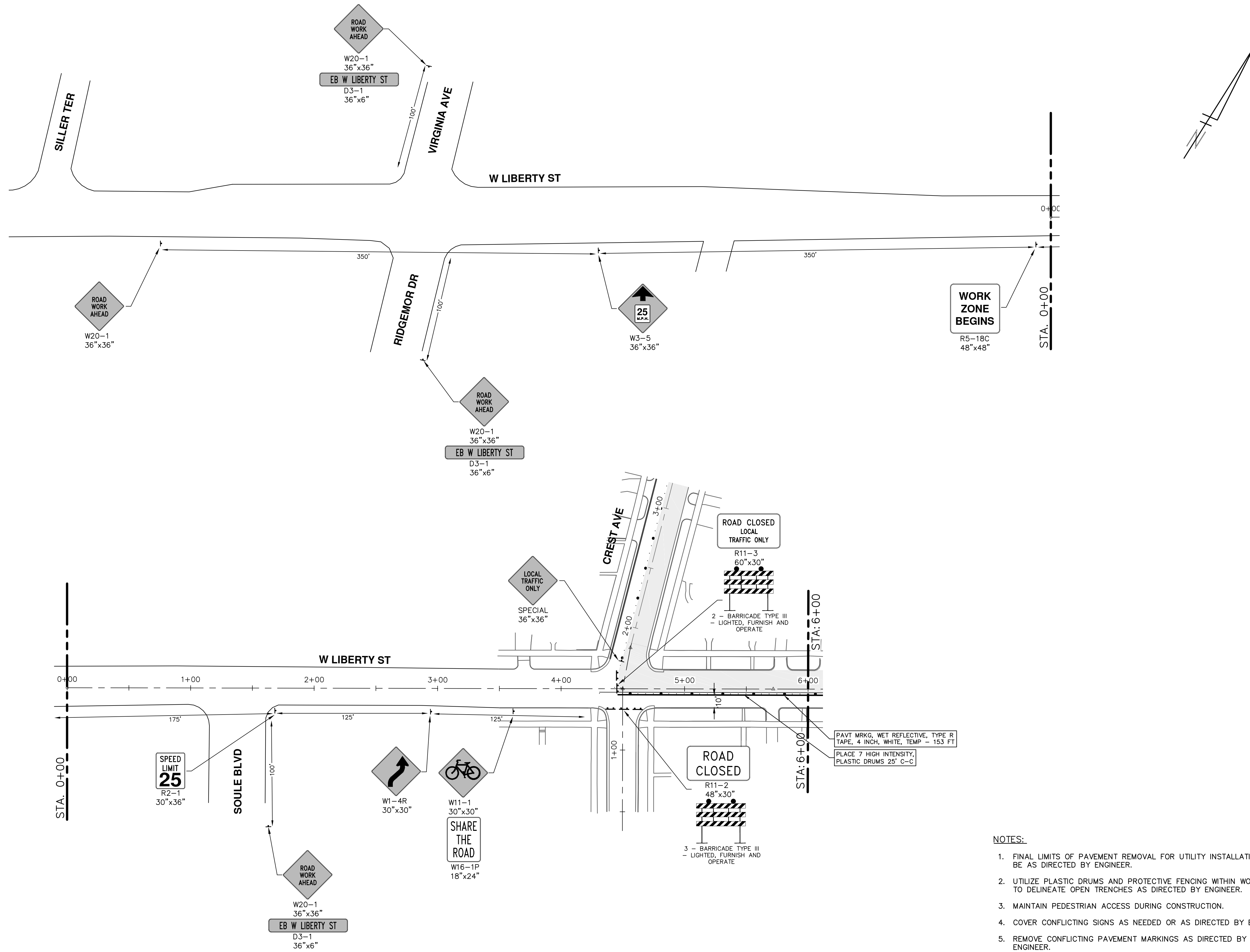
STA. 6+00 - STA. 19+00

36 OF 60

01	ADDENDUM #1	4-6-21	DF/CC	TB					
00	OUT FOR BID	3-17-21	DF/CC	TB					
	REV.		DATE	DRAWN	CHECKED				

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

**2021 MISC. UTILITIES PROJECT**

W LIBERTY ST TRAFFIC CONTROL - PH II

P.O.E. - STA. 6+00

**811**  
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REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC

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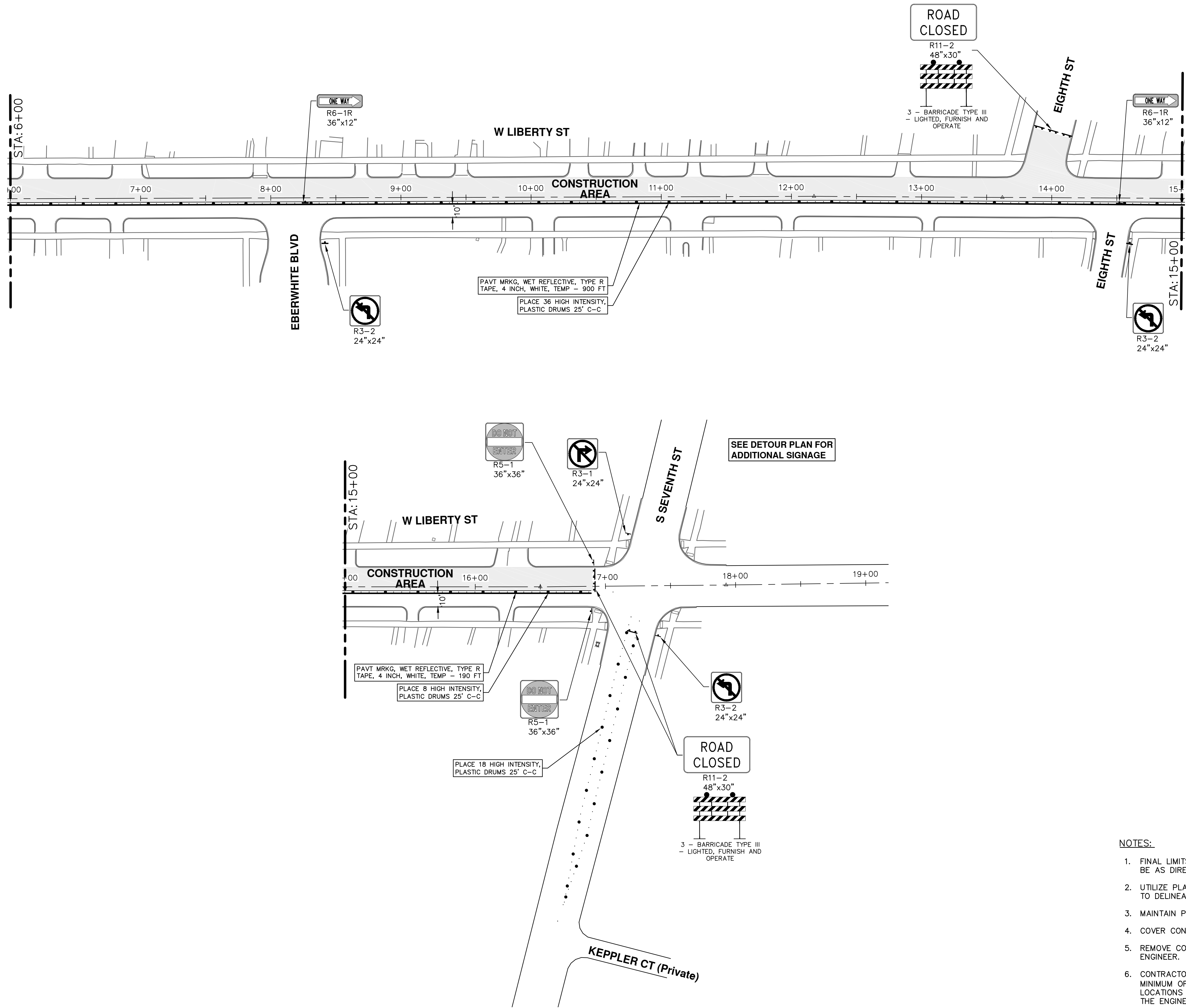
SCALE: 1" = 40'

DRAWING No. 2021005-37

SHEET No. 37 OF 60



R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Mtrf4.dwg Dwg Created: 5-Apr-21 - \_a2\_standard bw.stb - Plot Date: 6-Apr-21



**NOTES:**

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

**2021 MISC. UTILITIES PROJECT**

W LIBERTY ST TRAFFIC CONTROL - PH II

SCALE: 1" = 40'

DRAWING No. 2021005-38

SHEET No. 38 OF 60

STA. 6+00 - STA. 19+00

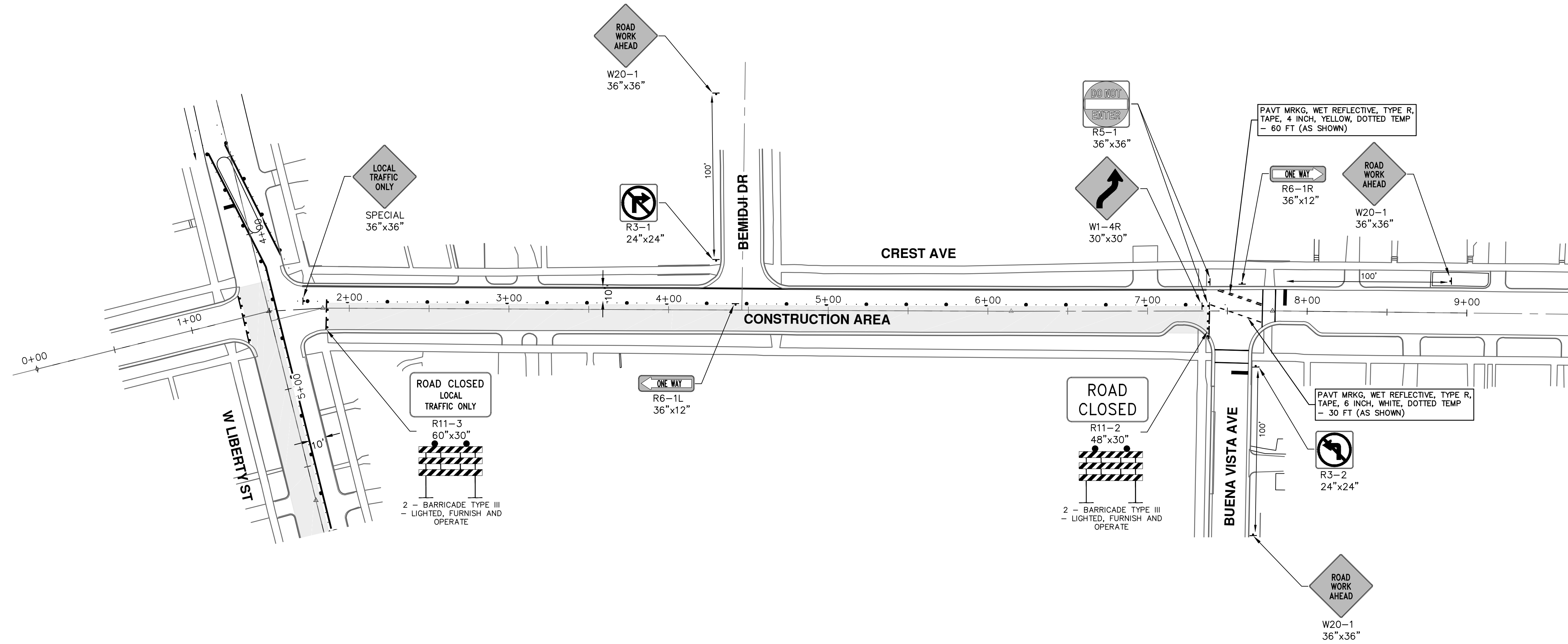
2021005-38

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REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC
		DRAWN
		CHECKED


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R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Mtrf.dwg Dwg Created: 5-Apr-21 - \_o2\_standard\_bw.stb - Plot Date: 6-Apr-21



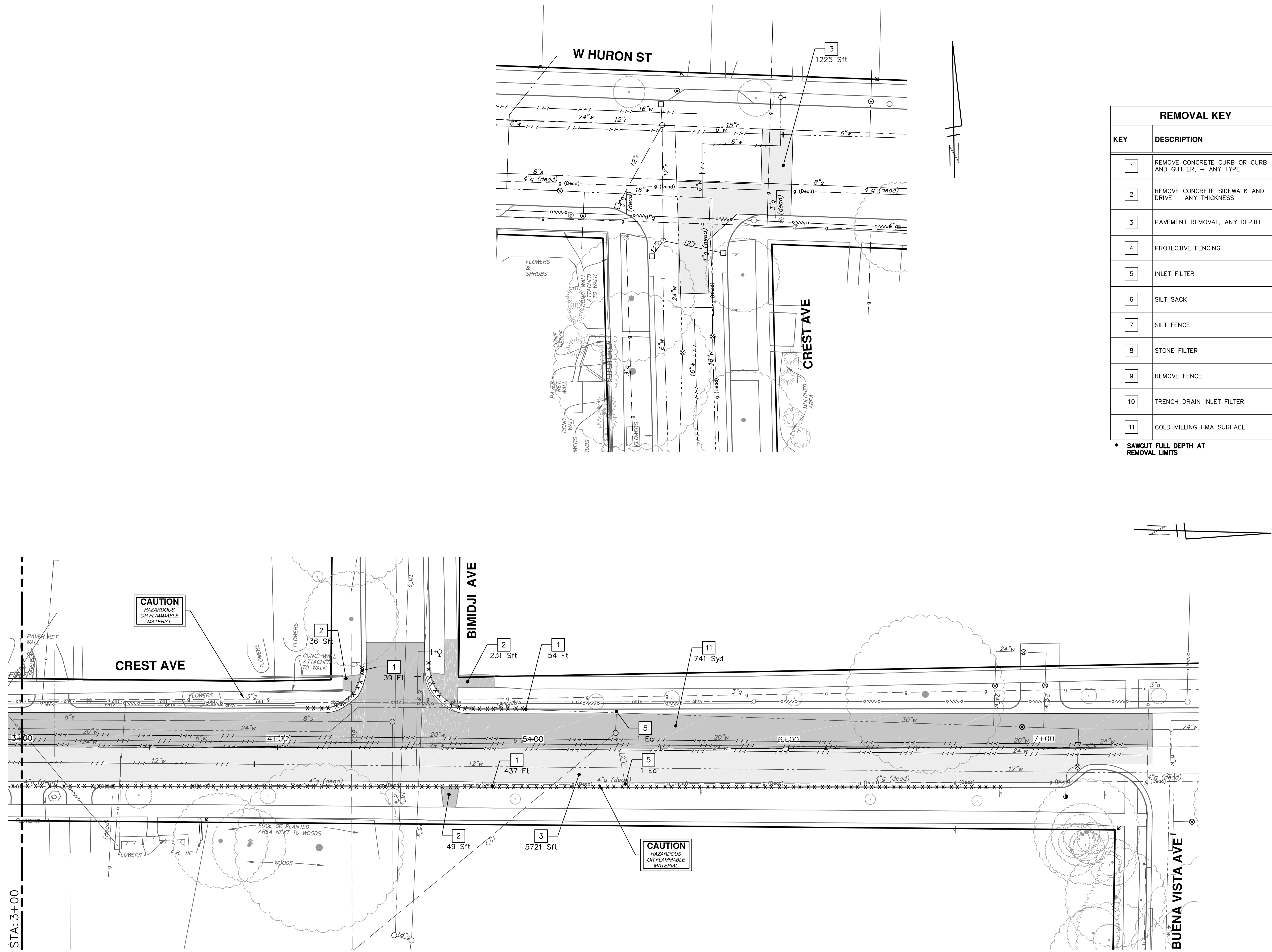
**NOTES:**

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 <p>CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING 2021 MISC. UTILITIES PROJECT CREST AVE TRAFFIC CONTROL</p>		<p>SCALE: 1" = 40'</p>
<p>DRAWING No. 2021005-39</p>		<p>SHEET No. 39 OF 60</p>
<p>CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106-8647 www.a2gov.org</p>	<p>ADDENDUM #1</p>	<p>REV. 00</p>
<p>OUT FOR BID</p>	<p>DATE 3-17-21</p>	<p>CHECKED TB</p>
<p>DESCRIPTION</p>	<p>DATE 4-6-21</p>	<p>DF/CC TB</p>
<p>REV.</p>	<p>DATE 3-17-21</p>	<p>DF/CC TB</p>







REMOVAL KEY	
KEY	DESCRIPTION
1	REMOVE CONCRETE CURB OR CURB AND GUTTER, - ANY TYPE
2	REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
3	PAVEMENT REMOVAL, ANY DEPTH
4	PROTECTIVE FENCING
5	INLET FILTER
6	SILT SACK
7	SILT FENCE
8	STONE FILTER
9	REMOVE FENCE
10	TRENCH DRAIN INLET FILTER
11	COLD MILLING HMA SURFACE

\* SAWCUT FULL DEPTH AT REMOVAL LIMITS

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

2021 MISC. UTILITIES PROJECT

W LIBERTY ST - CREST AVE REMOVALS

CREST AVE STA. 3+00 - P.O.E. & CREST - W HURON INTERSECTION

**811**  
Know what's below.  
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REV.	DATE	DESCRIPTION
01	4-6-21	ADDENDUM #1
00	3-17-21	OUT FOR BID
		REV.
		DRAWN
		CHECKED
		TB
		TB
		DF/CC
		DF/CC

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SHEET No.

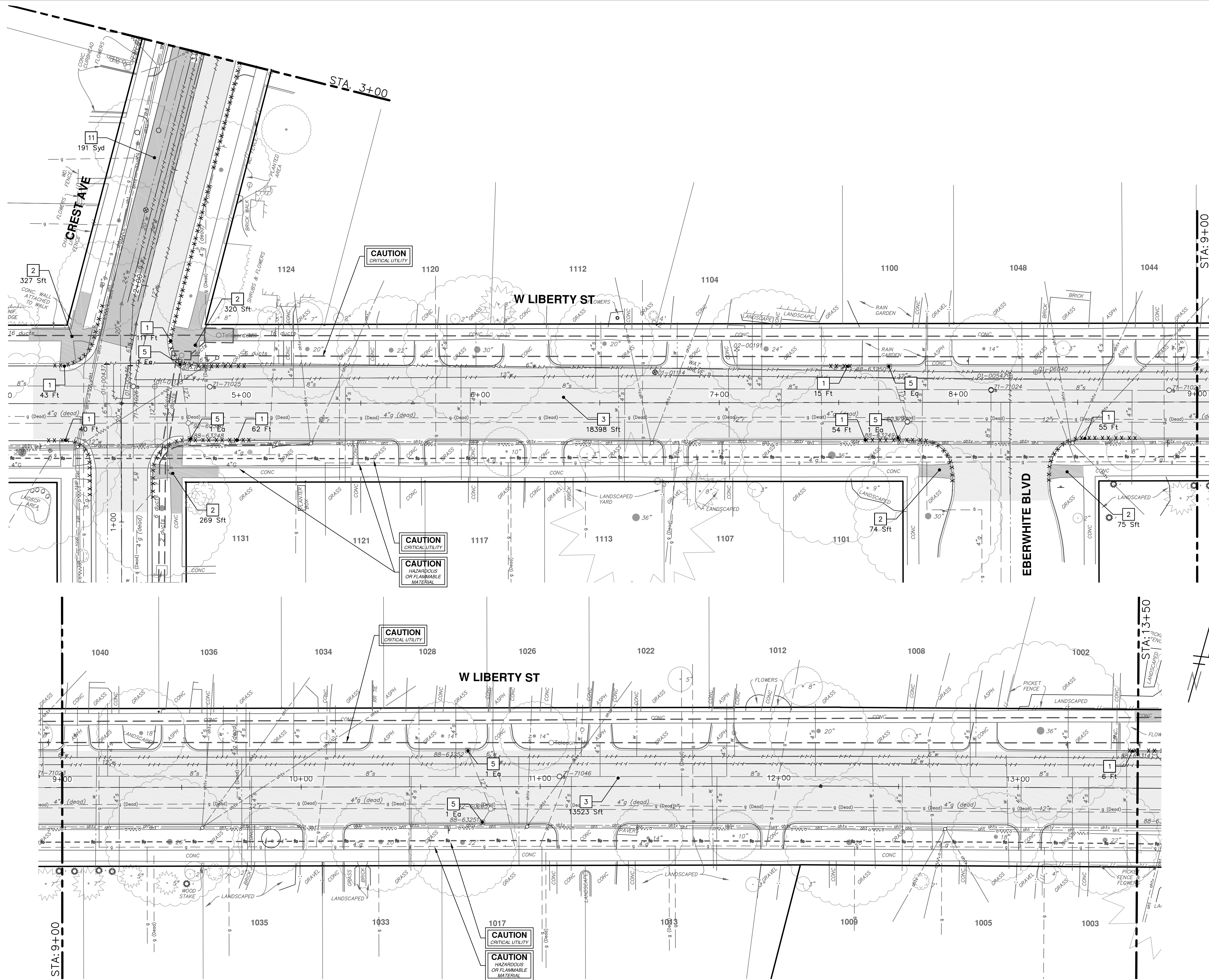
40 OF 60

SCALE: 1" = 20'

DRAWING No.

2021005-40





REMOVAL KEY	
KEY	DESCRIPTION
1	REMOVE CONCRETE CURB OR CURB AND GUTTER, - ANY TYPE
2	REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
3	PAVEMENT REMOVAL, ANY DEPTH
4	PROTECTIVE FENCING
5	INLET FILTER
6	SILT SACK
7	SILT FENCE
8	STONE FILTER
9	REMOVE FENCE
10	TRENCH DRAIN INLET FILTER
11	COLD MILLING HMA SURFACE

\* SAWCUT FULL DEPTH AT REMOVAL LIMITS

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

01	ADDENDUM #1	DATE	DESCRIPTION
00	OUT FOR BID	3-17-21	DRAWN
00	DF/CC	4-6-21	DF/CC
00	TB		TB

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

**2021 MISC. UTILITIES PROJECT**

W LIBERTY ST - CREST AVE REMOVALS

W LIBERTY ST STA. 4+00 - STA. 13+50

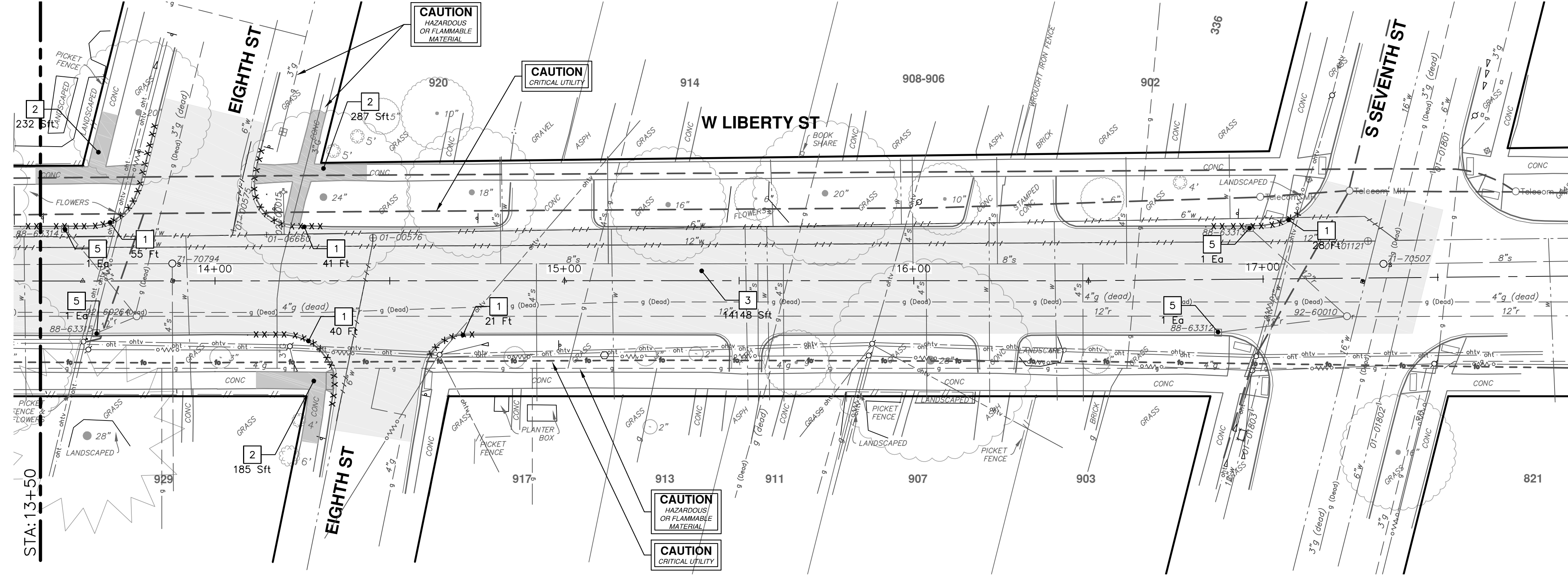
SCALE: 1" = 20'

DRAWING NO. 2021005-41

SHEET NO. 41 OF 60

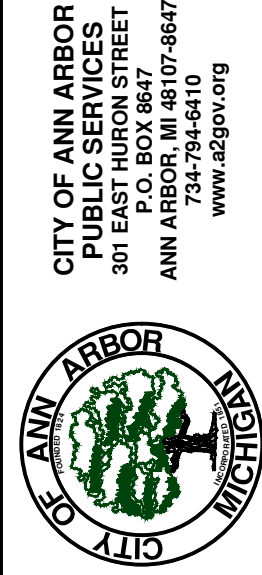
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ANN ARBOR 734.794.4110  
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REMOVAL KEY	
KEY	DESCRIPTION
1	REMOVE CONCRETE CURB OR CURB AND GUTTER, - ANY TYPE
2	REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
3	PAVEMENT REMOVAL, ANY DEPTH
4	PROTECTIVE FENCING
5	INLET FILTER
6	SILT SACK
7	SILT FENCE
8	STONE FILTER
9	REMOVE FENCE
10	TRENCH DRAIN INLET FILTER
11	COLD MILLING HMA SURFACE

\* SAWCUT FULL DEPTH AT REMOVAL LIMITS



**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**2021 MISC. UTILITIES PROJECT**  
 W LIBERTY ST - CREST AVE REMOVALS  
 W LIBERTY ST STA. 13+50 - P.O.E.

SCALE: 1" = 20'  
 DRAWING No. 2021005-42

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB



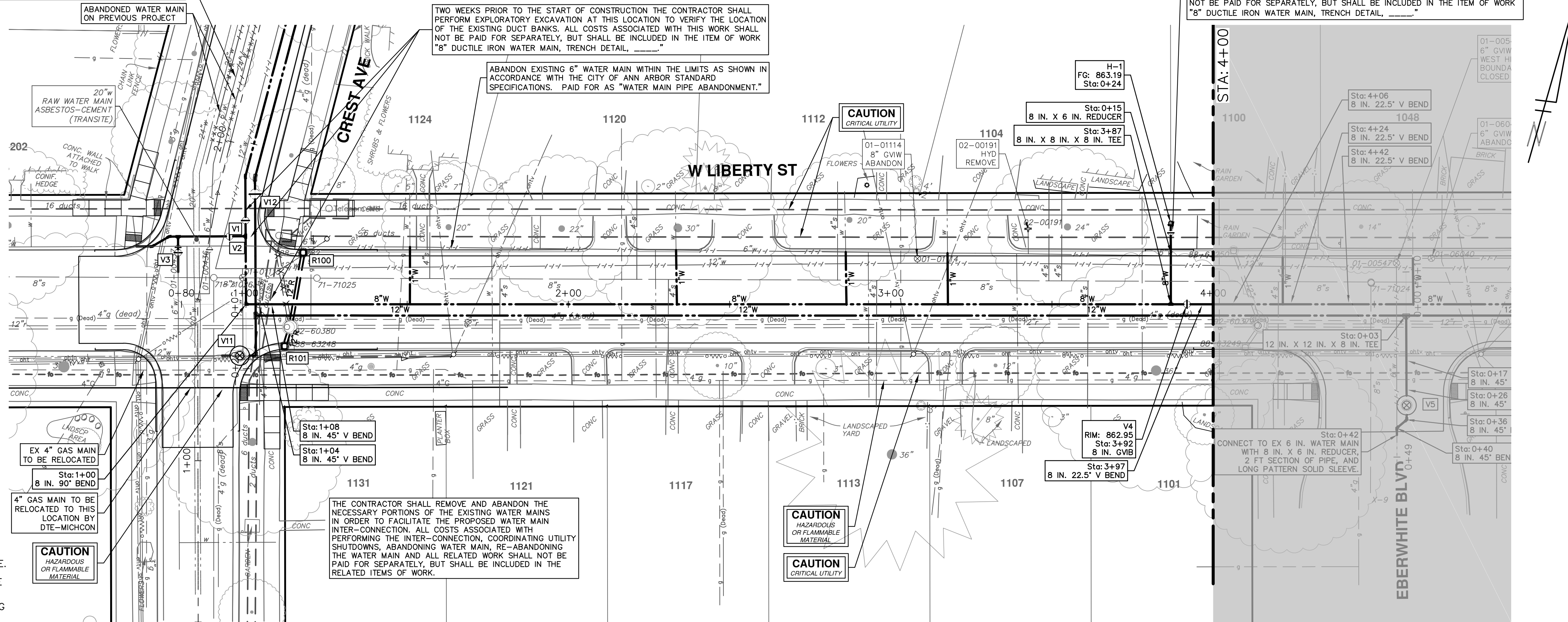
ABANDON EXISTING 6" WATER MAIN WITHIN THE LIMITS AS SHOWN IN ACCORDANCE WITH THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS. PAID FOR AS "WATER MAIN PIPE ABANDONMENT."

ABANDONED WATER MAIN ON PREVIOUS PROJECT

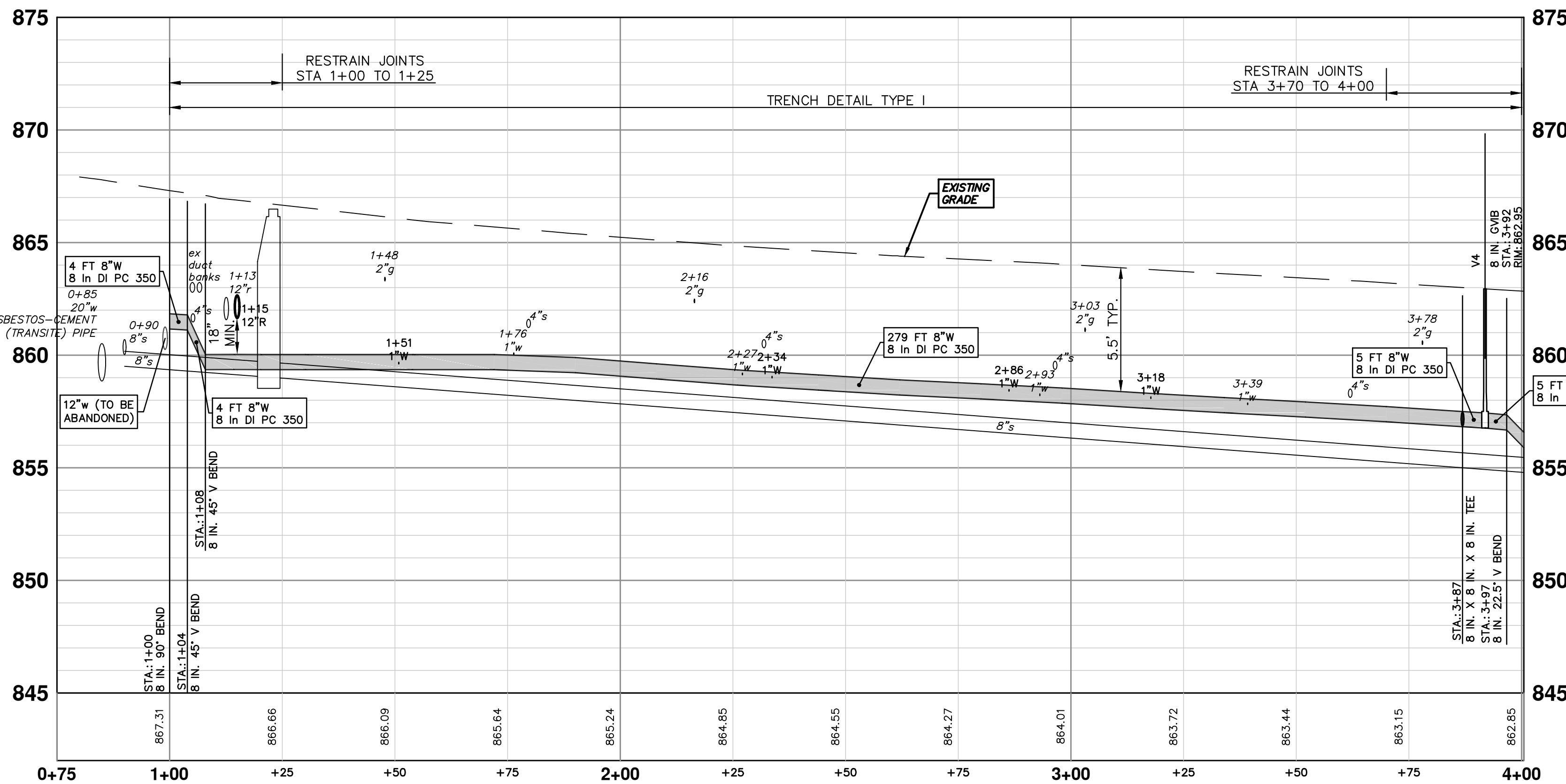
TWO WEEKS PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION AT THIS LOCATION TO VERIFY THE LOCATION OF THE EXISTING DUCT BANKS. ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "8" DUCTILE IRON WATER MAIN, TRENCH DETAIL, \_\_\_\_\_"

ABANDON EXISTING 6" WATER MAIN WITHIN THE LIMITS AS SHOWN IN ACCORDANCE WITH THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS. PAID FOR AS "WATER MAIN PIPE ABANDONMENT."

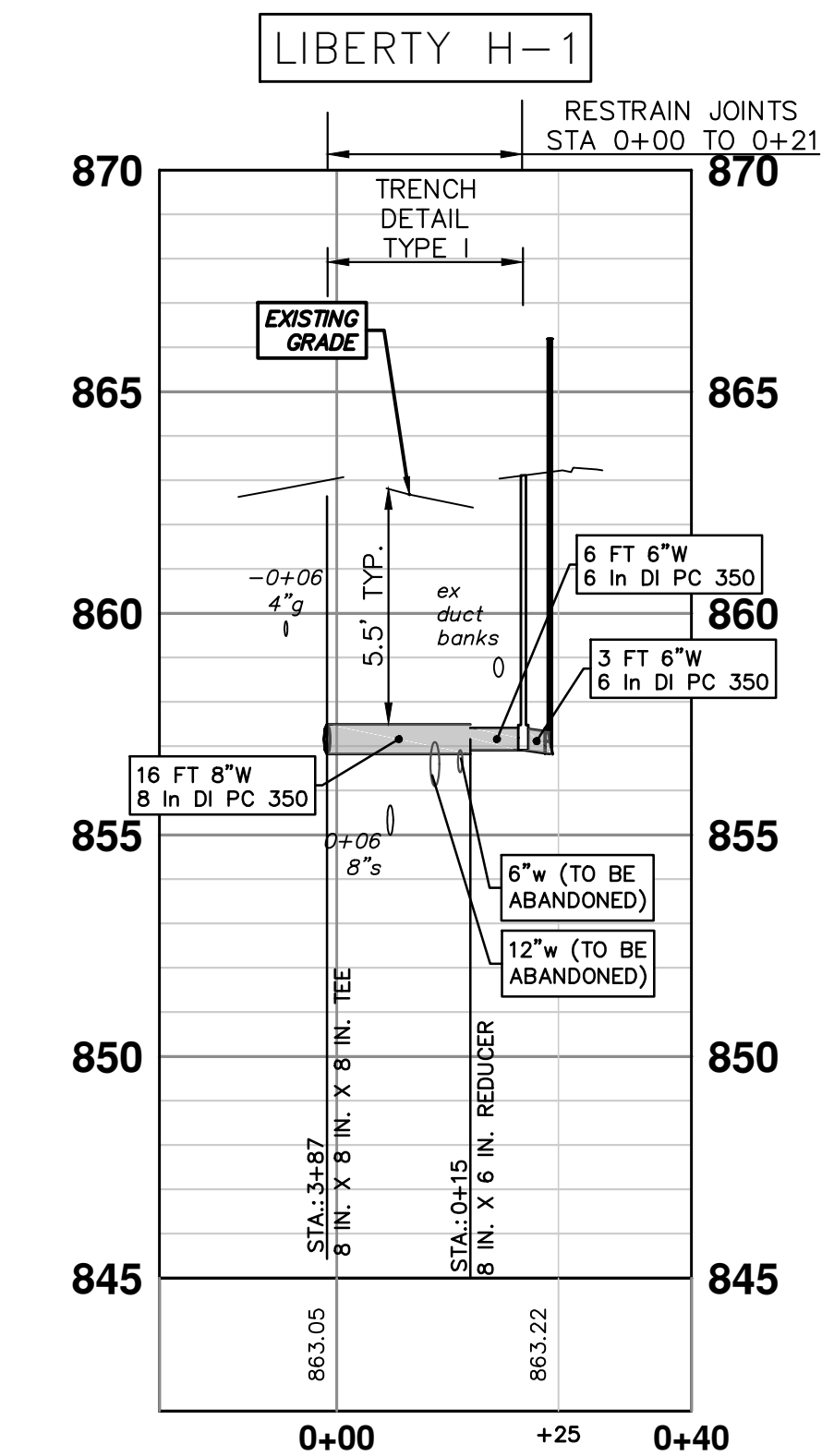
TWO WEEKS PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION AT THIS LOCATION TO VERIFY THE LOCATION OF THE EXISTING FIBER. ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "8" DUCTILE IRON WATER MAIN, TRENCH DETAIL, \_\_\_\_\_"



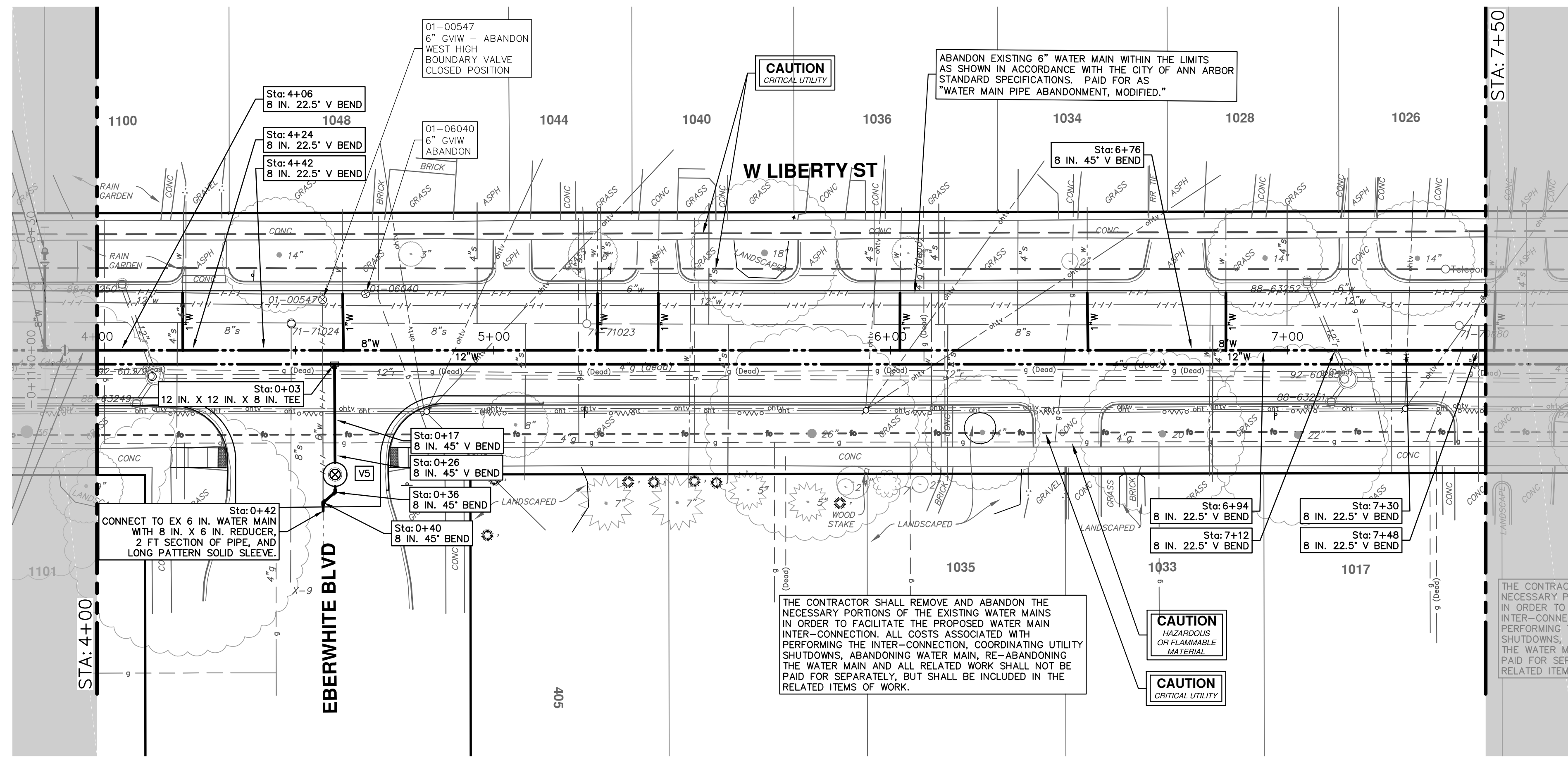
- NOTE:
- THE 20-INCH RAW WATER MAIN AT THE INTERSECTION OF LIBERTY STREET AND CREST AVENUE IS ASBESTOS-CEMENT (TRANSITE) PIPE. THE CONTRACTOR, PRIOR TO THE START OF CONSTRUCTION OF THE WATER MAIN IN INTERSECTION, SHALL PERFORM EXPLORATORY EXCAVATION TO VERIFY THE LOCATION AND DEPTH OF THE EXISTING 20-INCH RAW WATER MAIN.
  - ASBESTOS-CEMENT (TRANSITE) PIPE SHALL BE HANDLED IN A MANNER THAT WILL MINIMIZE THE RISK OF MAKING IT FRIABLE ACM OR RELEASING ASBESTOS DUST INTO THE ENVIRONMENT.
  - AT THE START OF WORK INVOLVING ASBESTOS-CEMENT PIPE, THE CONTRACTOR SHALL ENSURE THAT:
    - THE ASBESTOS-CEMENT PIPE SHALL BE EXPOSED WITH MINIMAL DISTURBANCE.
    - MECHANICAL EXCAVATION SHALL NOT BE USED WITHIN SIX INCHES OF THE ASBESTOS CEMENT PIPE.
    - THE SOIL WITHIN SIX INCHES OF THE ASBESTOS-CEMENT PIPE SHALL BE UNCOVERED BY HAND OR WITH A SHOVEL.
    - ONCE THE PIPE HAS BEEN EXPOSED, AN ASSESSMENT BY THE ENGINEER AND CONTRACTOR SHALL BE MADE BEFORE PROCEEDING TO DETERMINE WHETHER THE ASBESTOS-CEMENT PIPE IS DAMAGED, CRACKED OR BROKEN.
  - ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "8" DUCTILE IRON WATER MAIN, TRENCH DETAIL, \_\_\_\_\_"



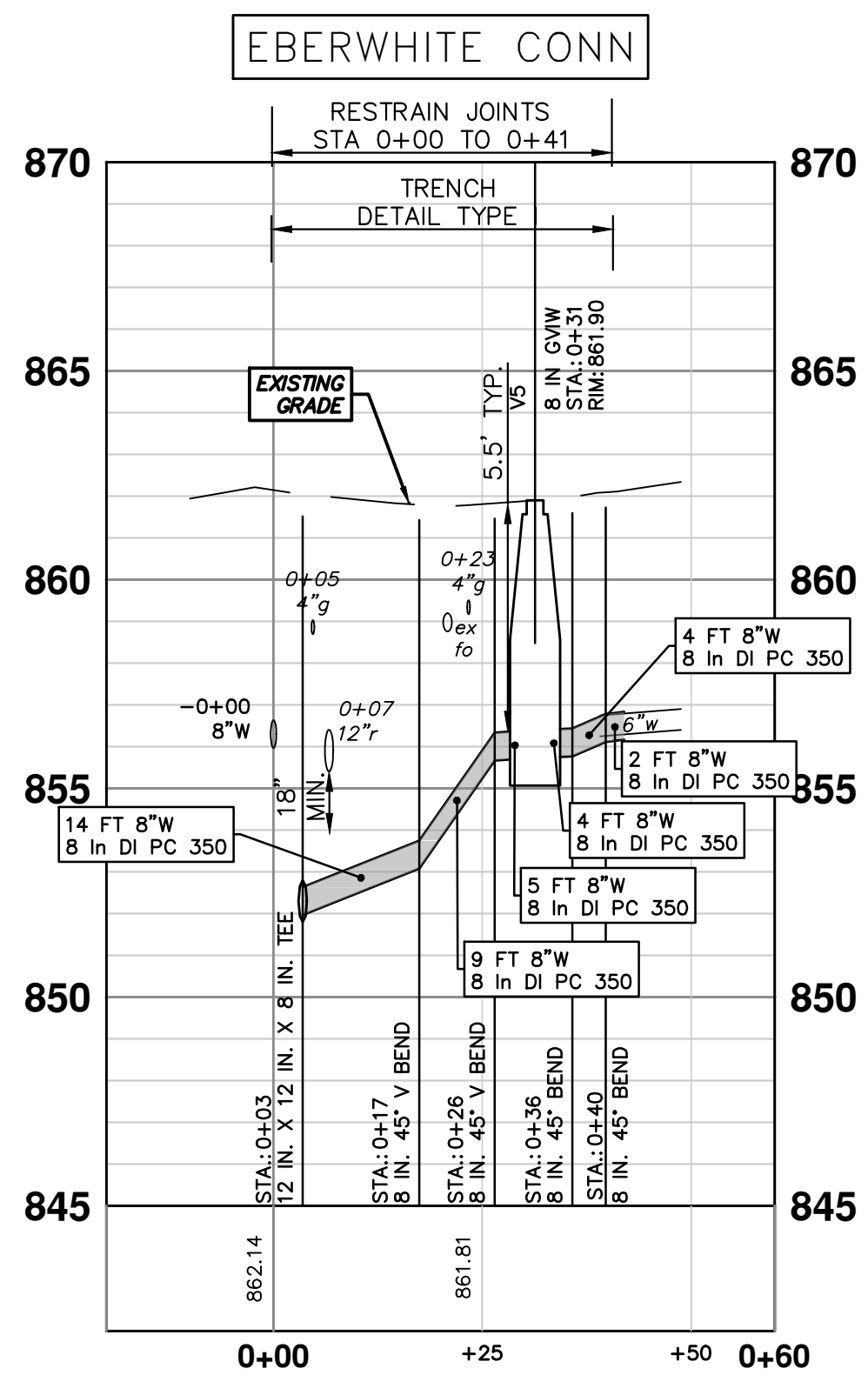
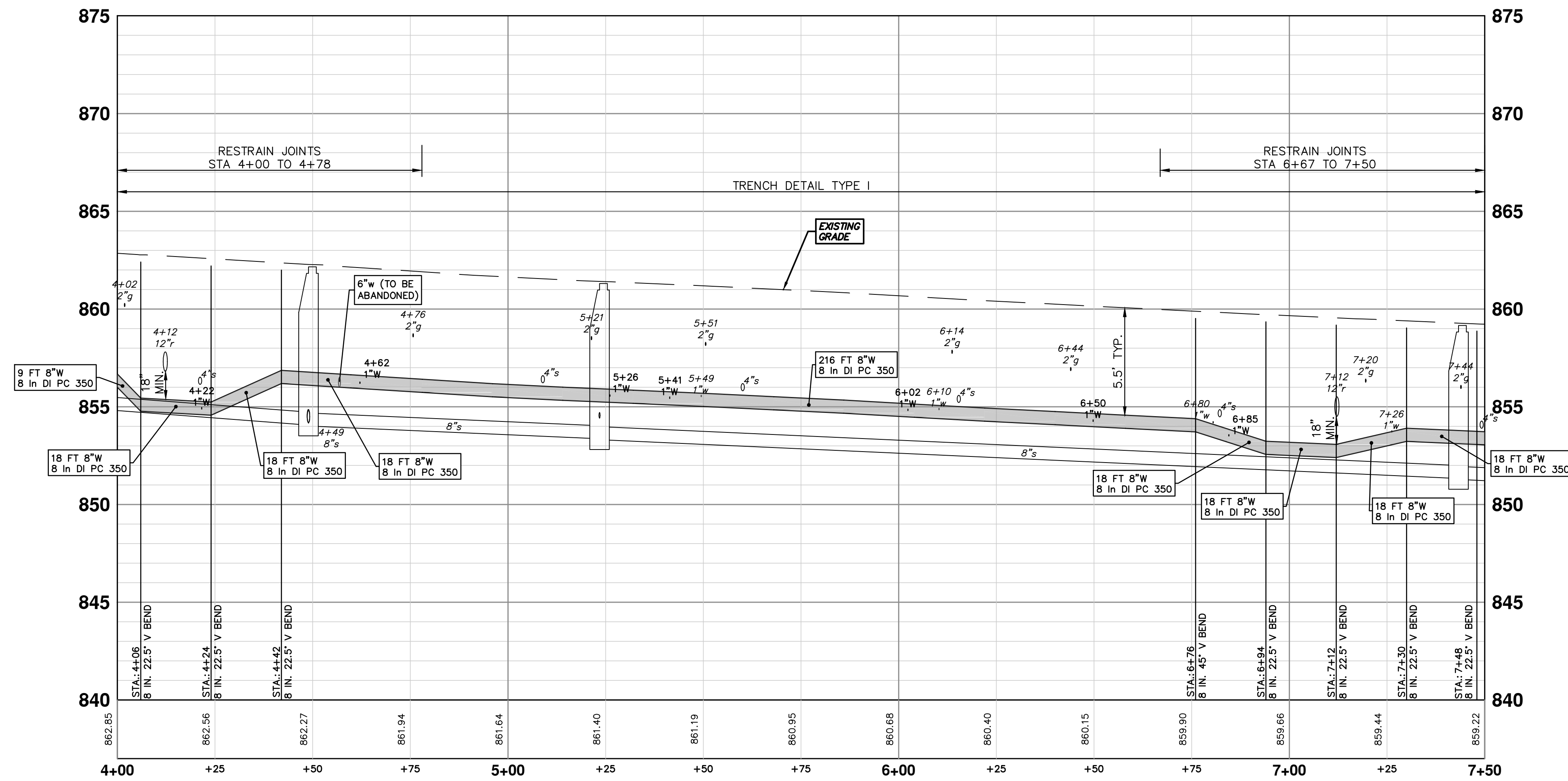
WATER MAIN STRUCTURE TABLE				
STRUCTURE	TYPE	STATION	RIM	DEPTH
H-1	HYDRANT	0+24	863.19	6.37
V4	8 in. GVB	3+92	862.95	6.18



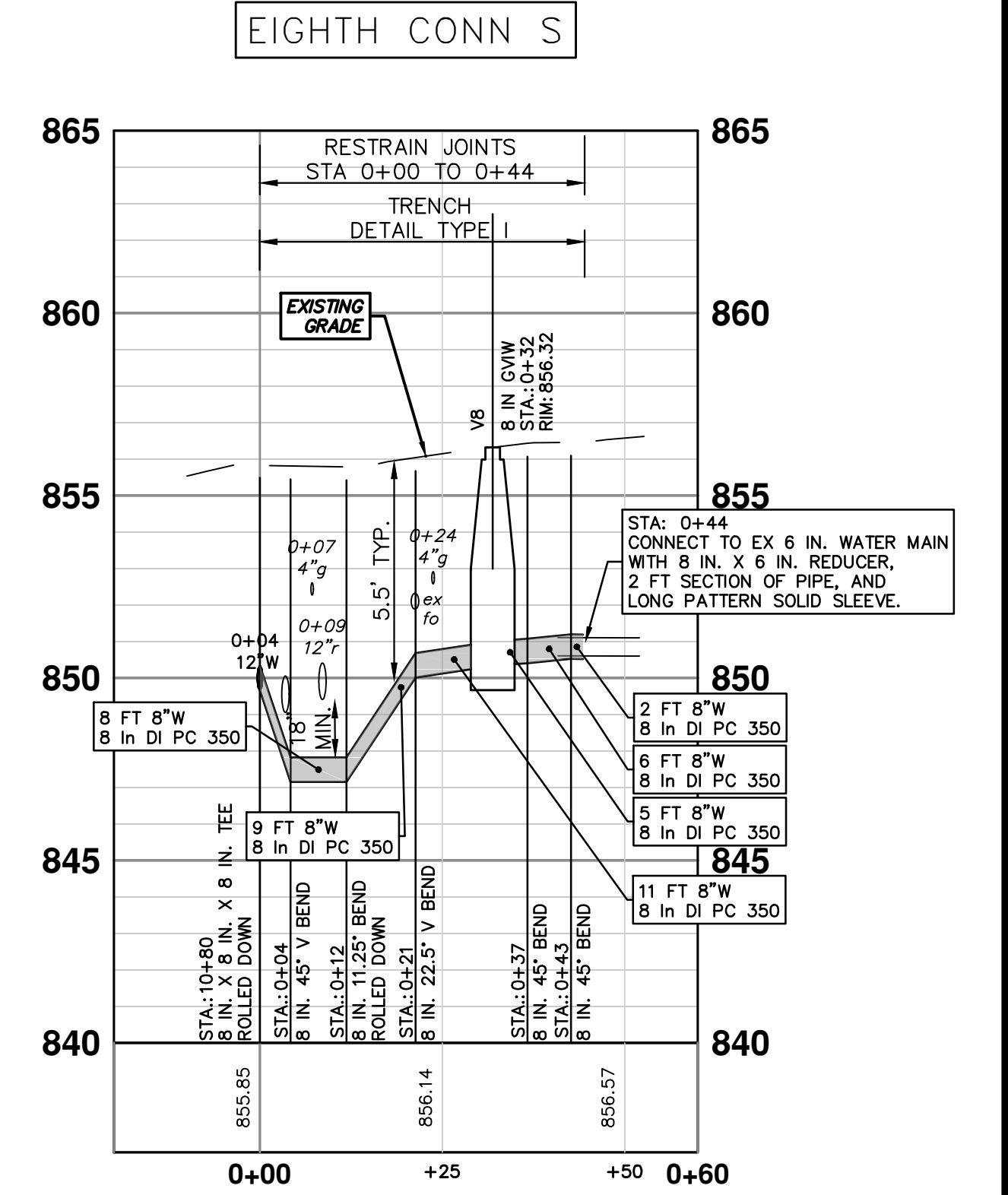
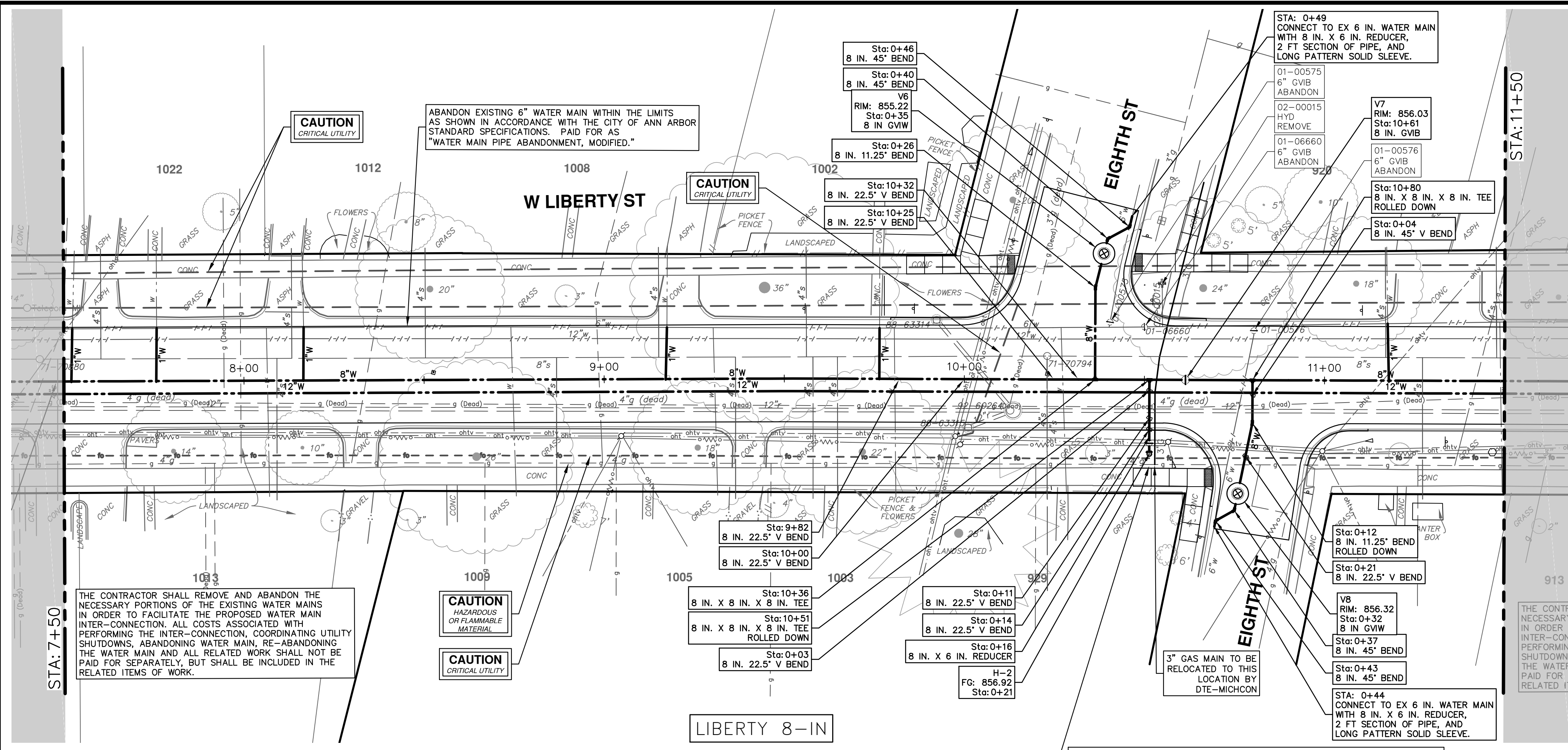




STRUCTURE	TYPE	STATION	RIM	DEPTH
V5	8 IN GWV	0+31	861.90	6.16







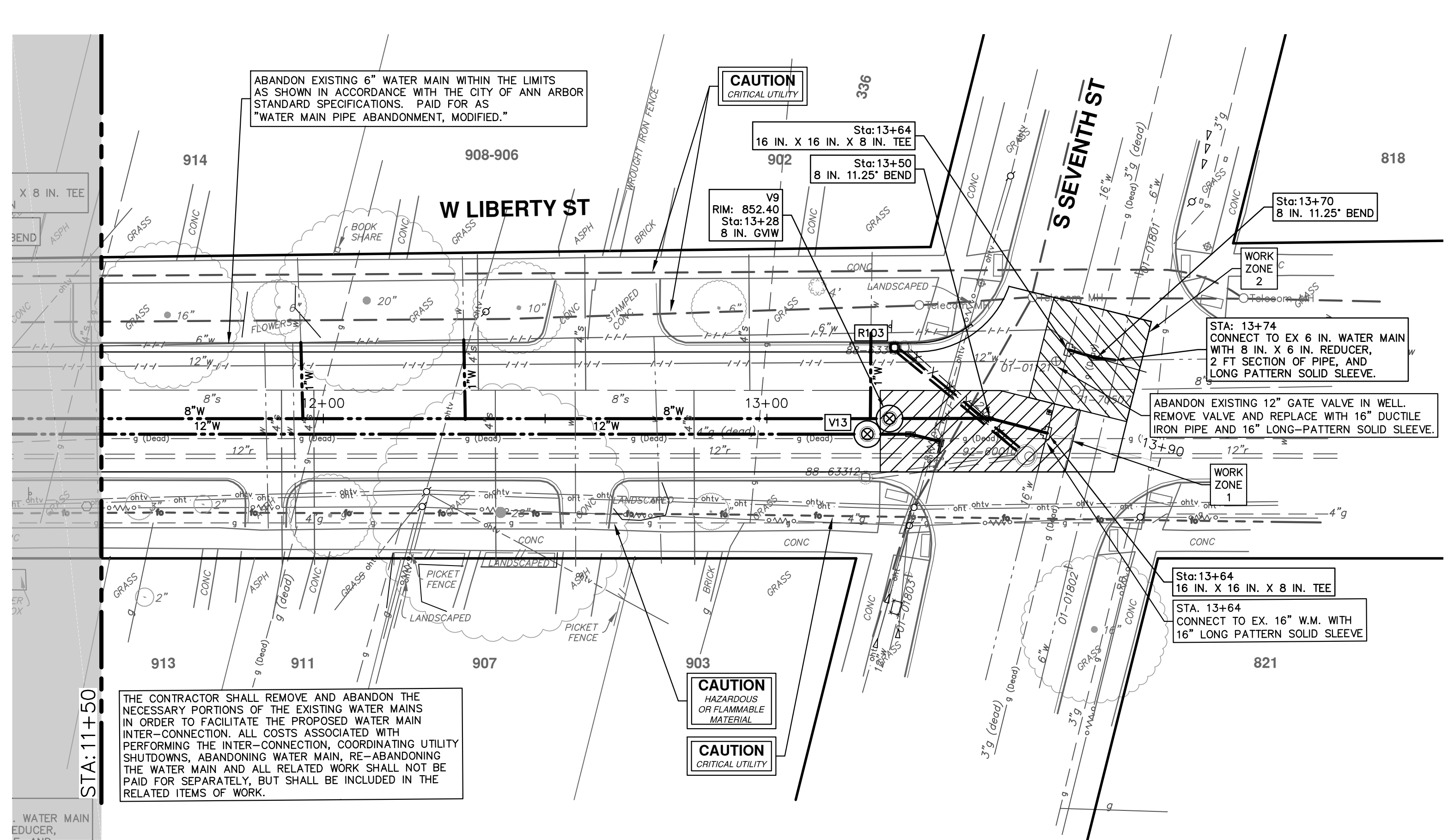
REV.	DATE	DESCRIPTION
00	4-6-21	OUT FOR BID
01	3-17-21	ADDENDUM #1

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CITY OF ANN ARBOR - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
W LIBERTY ST 8-IN WATER MAIN  
STA. 7+50 - STA. 11+50





**NOTE:**

THE CONTRACTOR WILL ONLY BE ALLOWED TO SHUT DOWN THE EXISTING 16" WATER MAIN FOR A MAXIMUM DURATION OF EIGHT (8) HOURS IN ANY ONE SHUTDOWN, IN ANY GIVEN 24-HOUR PERIOD. SHUTDOWN OF THE EXISTING WATER MAIN MUST BE SCHEDULED WITH THE ENGINEER A MINIMUM OF THREE (3) WORKING DAYS IN ADVANCE OF THE INTENDED SHUTDOWN. THE SHUTDOWN OF THE WATER MAIN WILL NOT BE ALLOWED TO TAKE PLACE ON A SATURDAY OR A SUNDAY.

THE CONTRACTOR SHALL COORDINATE ALL WORK WITHIN THE S. SEVENTH/LIBERTY STREET INTERSECTION WITH THE ENGINEER AND THE CITY OF ANN ARBOR SIGNS AND SIGNAL UNIT.

THE TRAFFIC SIGNAL AT S. SEVENTH/LIBERTY STREET SHALL BE SET TO FLASH RED ON ALL FOUR LEGS DURING THE WORK OF THIS CLOSURE.

TRAFFIC REGULATORS SHALL BE PLACED ON BOTH LEGS OF S. SEVENTH STREET AND ON LIBERTY STREET SOUTH OF S. SEVENTH. ADDITIONAL TRAFFIC REGULATORS IN ADDITION TO THOSE MENTIONED ABOVE MAY BE REQUIRED DUE TO IMPACTS/INTERACTION WITH THE LOCAL TRAFFIC.

TRAFFIC REGULATORS SHALL BE EQUIPPED WITH TWO-WAY RADIOS. THE CONTRACTOR SHALL DEMONSTRATE THE FUNCTIONALITY OF THE RADIOS AND HAVE AT LEAST ONE, FUNCTIONING, BACK-UP RADIO, PRIOR TO THE COMMENCEMENT OF ANY WORK WITHIN THE INTERSECTION.

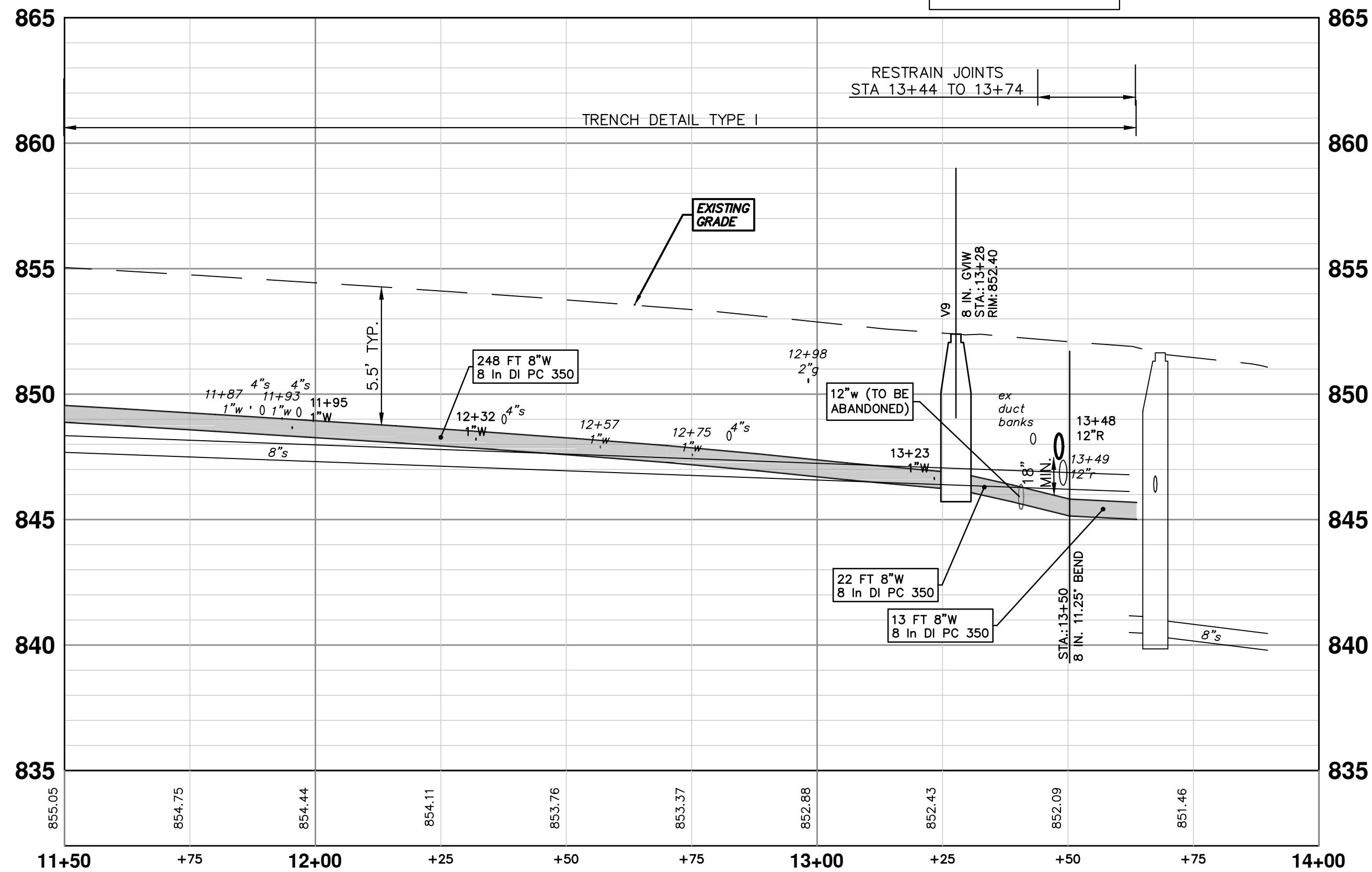
ALL DISTURBED PAVEMENT SHALL BE TEMPORARILY REPAIRED USING A MINIMUM THICKNESS OF 8" 21-AA LIMESTONE COMPACTED TO 98% OF ITS MAX. DRY DENSITY AND 4" OF ENGINEER APPROVED LVSP HMA COMPACTED TO 92 TO 96% OF THE Gmm. THE PLACEMENT OF HMA SHALL BE PAID FOR AS "TEMPORARY PAVEMENT". ALL TEMPORARY PAVEMENT SHALL BE PLACED WITHIN FIVE (5) CALENDAR DAYS OF COMPLETING A WATER MAIN TIE-IN OR ABANDONMENT.

THE CONTRACTOR SHALL SCHEDULE AND COORDINATE THE CONSTRUCTION TO BE PERFORMED IN "WORK ZONE 1" AND "WORK ZONE 2" SO THAT ALL APPROPRIATE SIGNS ARE IN PLACE, THAT TRAFFIC IS MAINTAINED IN AN ORDERLY MANNER, AND THAT TRAFFIC IS NOT FORCED TO DRIVE UPON GRAVEL OR "UNFINISHED" SURFACES. THE ENGINEER SHALL APPROVE ALL WORK SCHEDULES, DURATIONS AND OTHER RELEVANT ASPECTS OF THE WORK PRIOR TO ITS COMMENCEMENT.

**TEMPORARY PAVEMENT ESTIMATED QUANTITIES**  
 WORK ZONE 1 ~ 85 SYD  
 WORK ZONE 2 ~ 59 SYD  
 AGGREGATE BASE COURSE, 8 INCH, 21-AA, MODIFIED ~ 144 SYD

**LIBERTY 8-IN**

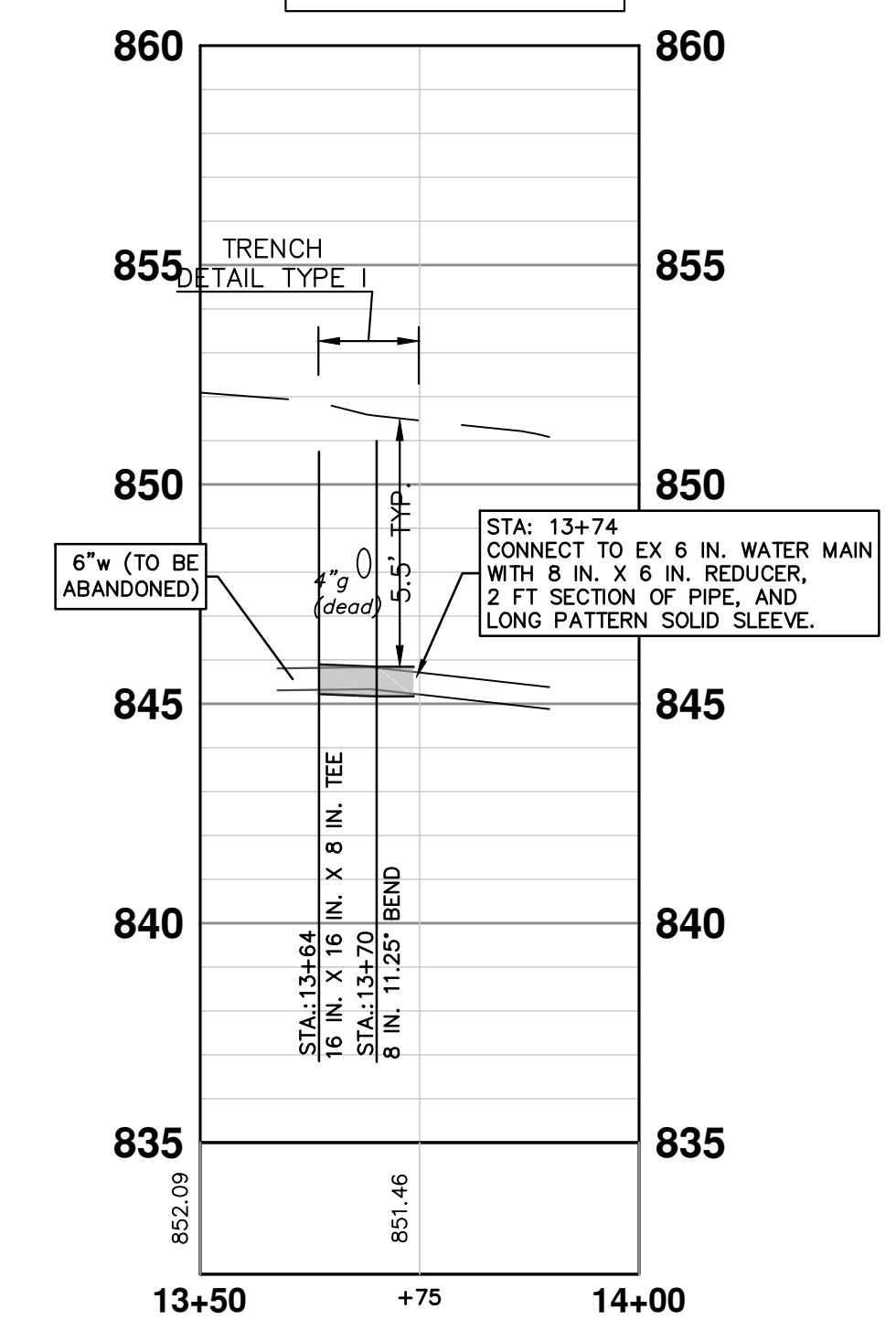
**WORK ZONE 1**



**WATER MAIN STRUCTURE TABLE**

STRUCTURE	TYPE	STATION	RIM	DEPTH
V9	8 in. GVW	13+28	852.40	6.18

**WORK ZONE 2**



**811**  
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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB

**CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING**  
**2021 MISC. UTILITIES PROJECT**  
 W LIBERTY ST 8-IN WATER MAIN  
 STA. 11+50 - STA. 13+97

**CITY OF ANN ARBOR PUBLIC SERVICES**  
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**CITY OF ANN ARBOR MICHIGAN**

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

DRAWING No. 2021005-46  
 SHEET No. 46 OF 60



ABANDON EXISTING 6" WATER MAIN WITHIN THE LIMITS AS SHOWN IN ACCORDANCE WITH THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS. PAID FOR AS "WATER MAIN PIPE ABANDONMENT."

ABANDONED WATER MAIN ON PREVIOUS PROJECT

ABANDON EXISTING 12" WATER MAIN WITHIN THE LIMITS AS SHOWN IN ACCORDANCE WITH THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS. PAID FOR AS "WATER MAIN PIPE ABANDONMENT."

NOTE:

THE 20-INCH RAW WATER MAIN AT THE INTERSECTION OF LIBERTY STREET AND CREST AVENUE IS ASBESTOS-CEMENT (TRANSITE) PIPE. THE CONTRACTOR, PRIOR TO THE START OF CONSTRUCTION OF THE WATER MAIN IN INTERSECTION, SHALL PERFORM EXPLORATORY EXCAVATION TO VERIFY THE LOCATION AND DEPTH OF THE EXISTING 20-INCH RAW WATER MAIN.

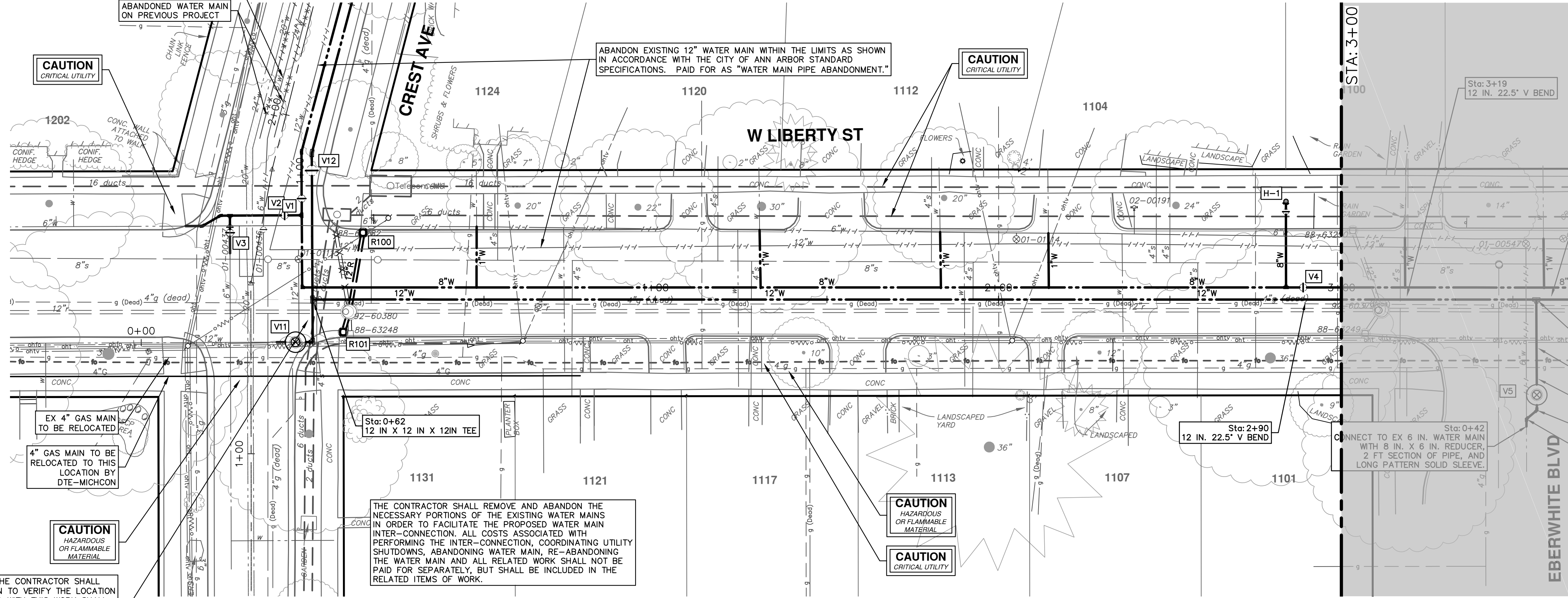
ASBESTOS-CEMENT (TRANSITE) PIPE SHALL BE HANDLED IN A MANNER THAT WILL MINIMIZE THE RISK OF MAKING IT FRIABLE ACM OR RELEASING ASBESTOS DUST INTO THE ENVIRONMENT.

AT THE START OF WORK INVOLVING ASBESTOS-CEMENT PIPE, THE CONTRACTOR SHALL ENSURE THAT:

1. THE ASBESTOS-CEMENT PIPE SHALL BE EXPOSED WITH MINIMAL DISTURBANCE.
2. MECHANICAL EXCAVATION SHALL NOT BE USED WITHIN SIX INCHES OF THE ASBESTOS CEMENT PIPE.
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ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "8" DUCTILE IRON WATER MAIN, TRENCH DETAIL, \_\_\_\_\_"

TWO WEEKS PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION AT THIS LOCATION TO VERIFY THE LOCATION OF THE EXISTING DUCT BANKS. ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "12" DUCTILE IRON WATER MAIN, TRENCH DETAIL, \_\_\_\_\_"



CAUTION  
CRITICAL UTILITY

CAUTION  
CRITICAL UTILITY

EX 4" GAS MAIN TO BE RELOCATED TO THIS LOCATION BY DTE-MICHCON

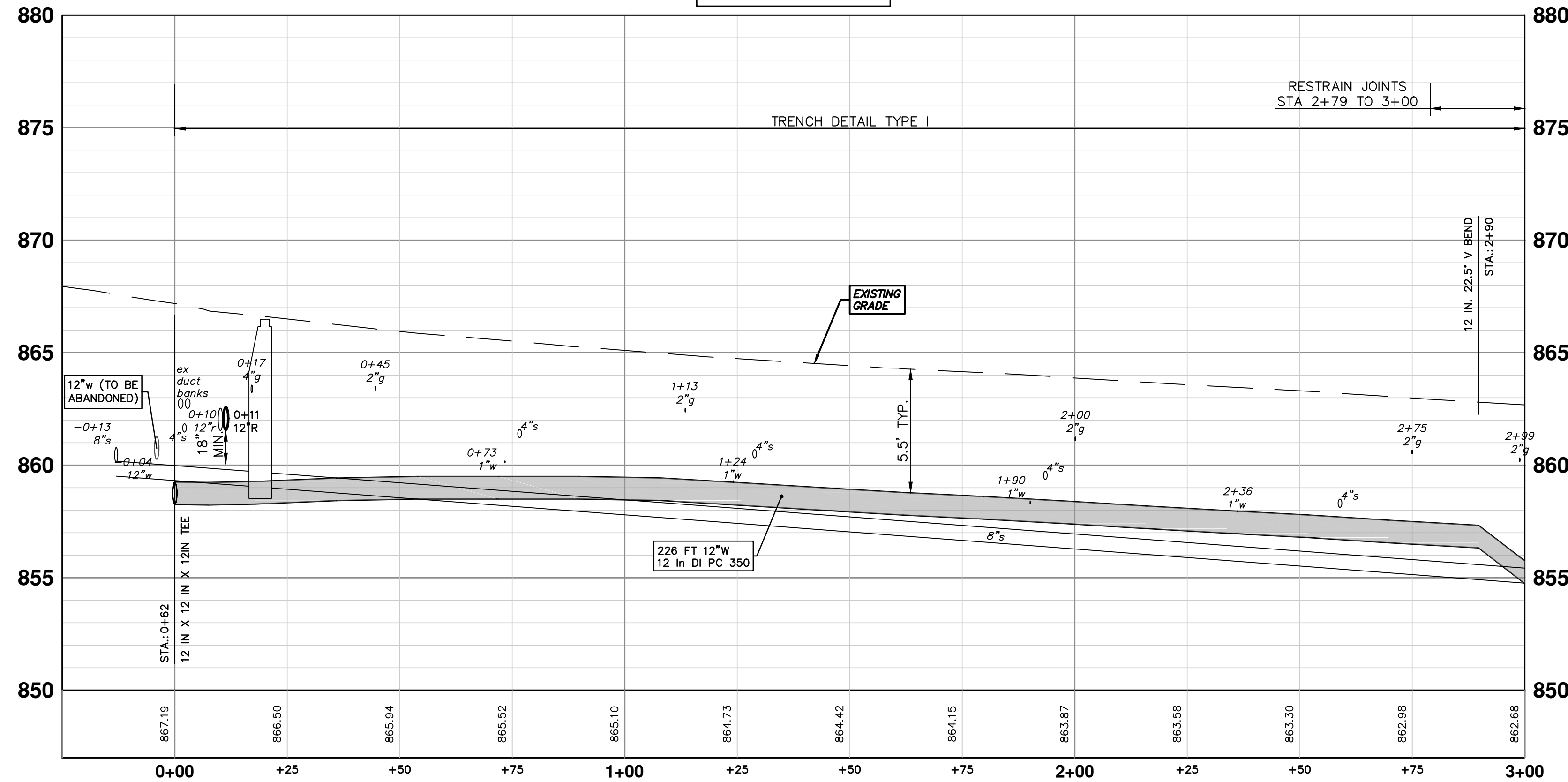
CAUTION  
HAZARDOUS OR FLAMMABLE MATERIAL

CAUTION  
HAZARDOUS OR FLAMMABLE MATERIAL

CAUTION  
CRITICAL UTILITY

THE CONTRACTOR SHALL REMOVE AND ABANDON THE NECESSARY PORTIONS OF THE EXISTING WATER MAINS IN ORDER TO FACILITATE THE PROPOSED WATER MAIN INTER-CONNECTION. ALL COSTS ASSOCIATED WITH PERFORMING THE INTER-CONNECTION, COORDINATING UTILITY SHUTDOWNS, ABANDONING WATER MAIN, RE-ABANDONING THE WATER MAIN AND ALL RELATED WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

LIBERTY 12-IN



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB

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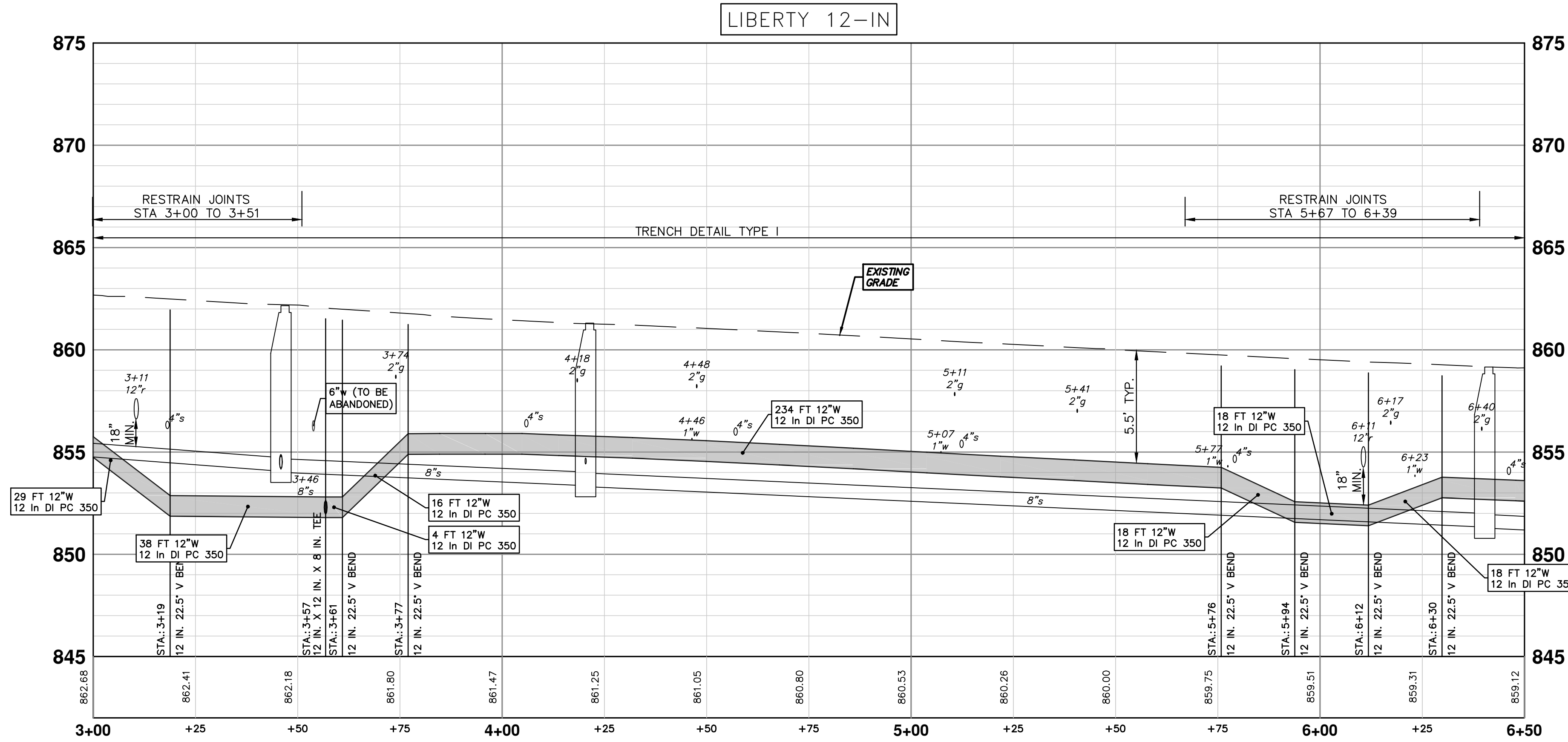
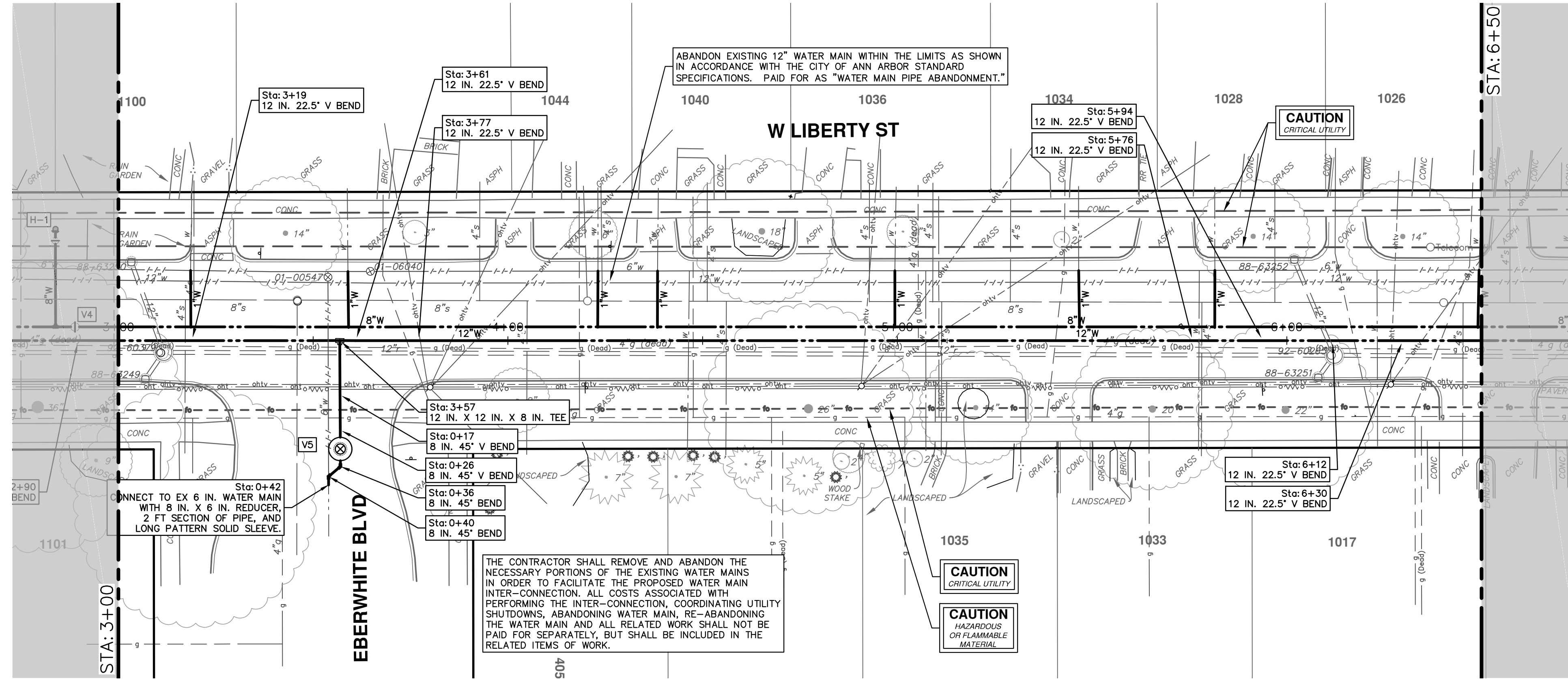


CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
W LIBERTY ST 12-IN WATER MAIN  
STA. -0+12.50 - STA. 3+00

SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'  
DRAWING No. 2021005-47



R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Watr.dwg Dwg Created: 6-Apr-21 - \_a2 standard bw.stb - Plot Date: 6-Apr-21



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REV.	DATE	DESCRIPTION
01	4-6-21	ADDENDUM #1
00	3-17-21	OUT FOR BID

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

**2021 MISC. UTILITIES PROJECT**

W LIBERTY ST 12-IN WATER MAIN

STA. 3+00 - STA. 6+50

SHEET No. 48 OF 60

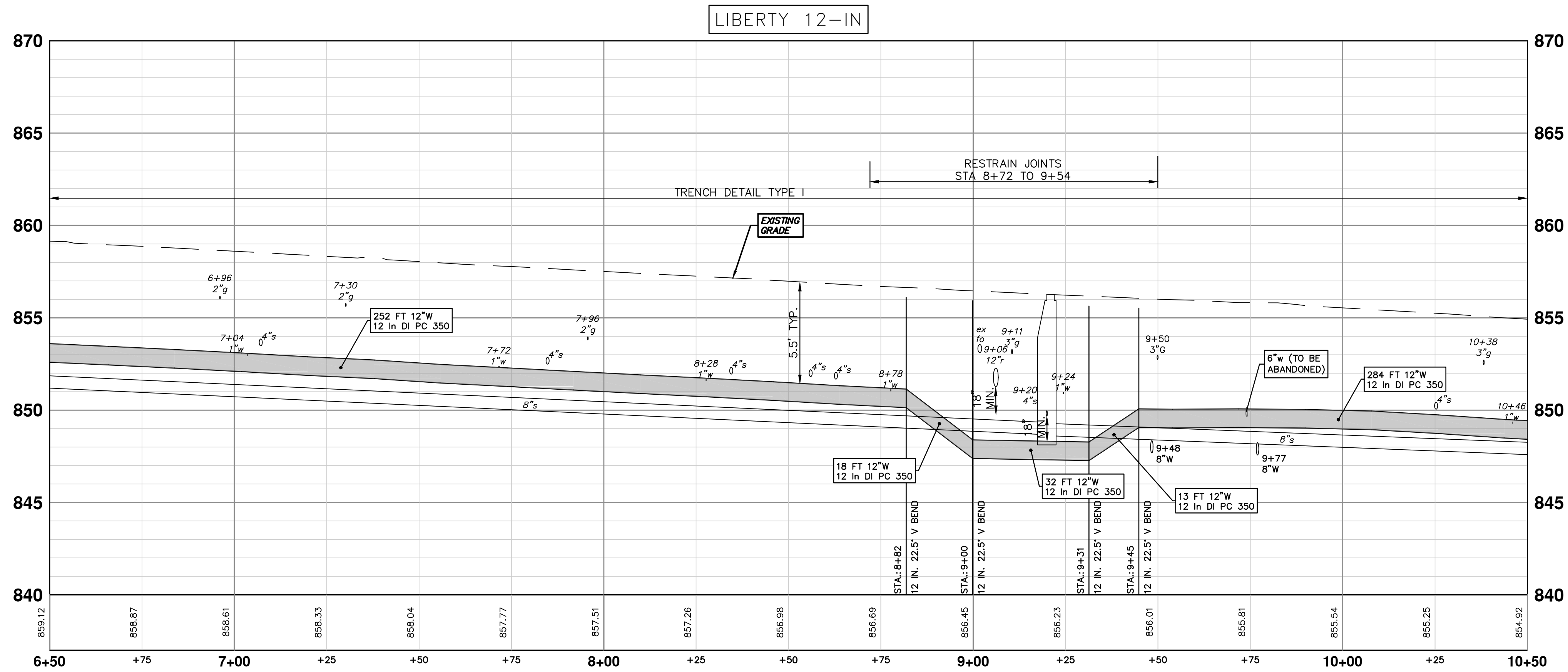
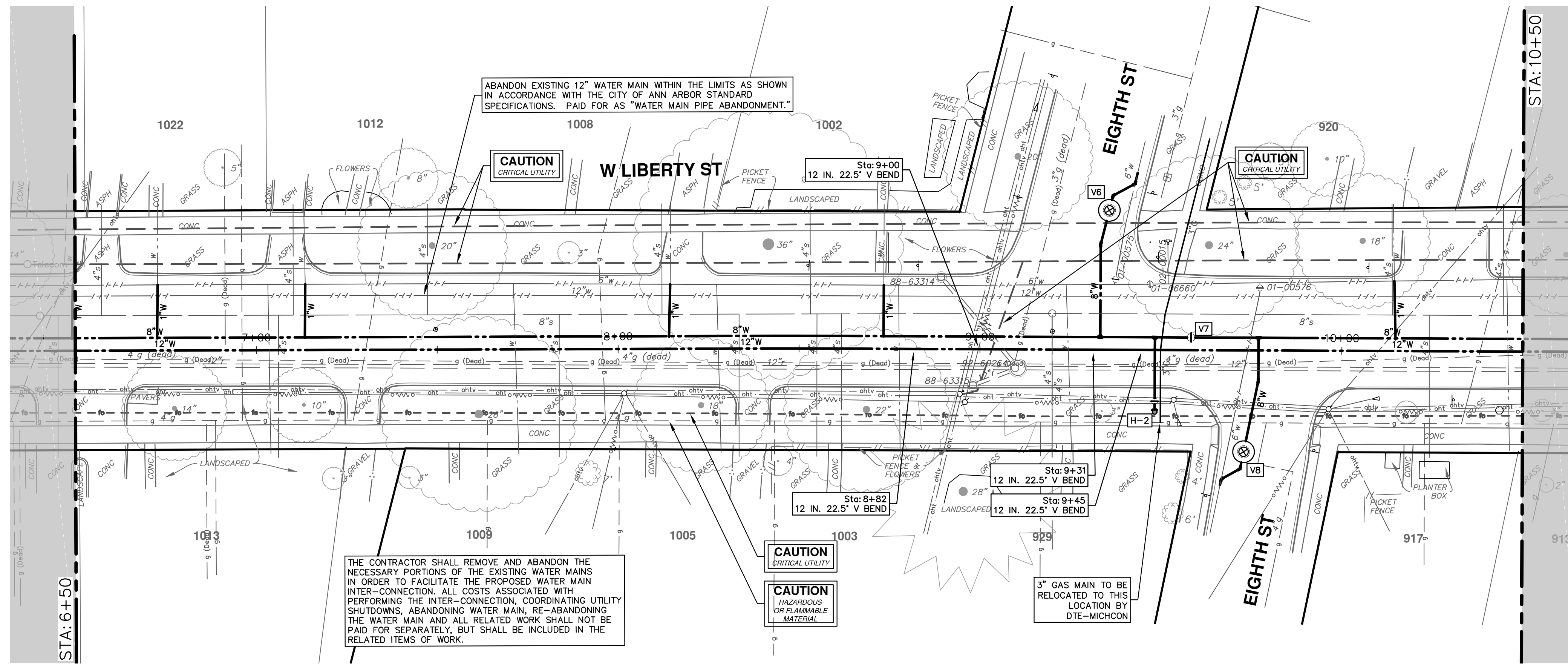
DRAWING No. 2021005-48

SCALE PLAN: 1" = 20'

PROFILE: 1" = 4'

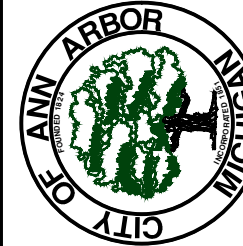


R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Watr.dwg Dwg Created: 6-Apr-21 - \_a2 standard bw.stb - Plot Date: 6-Apr-21



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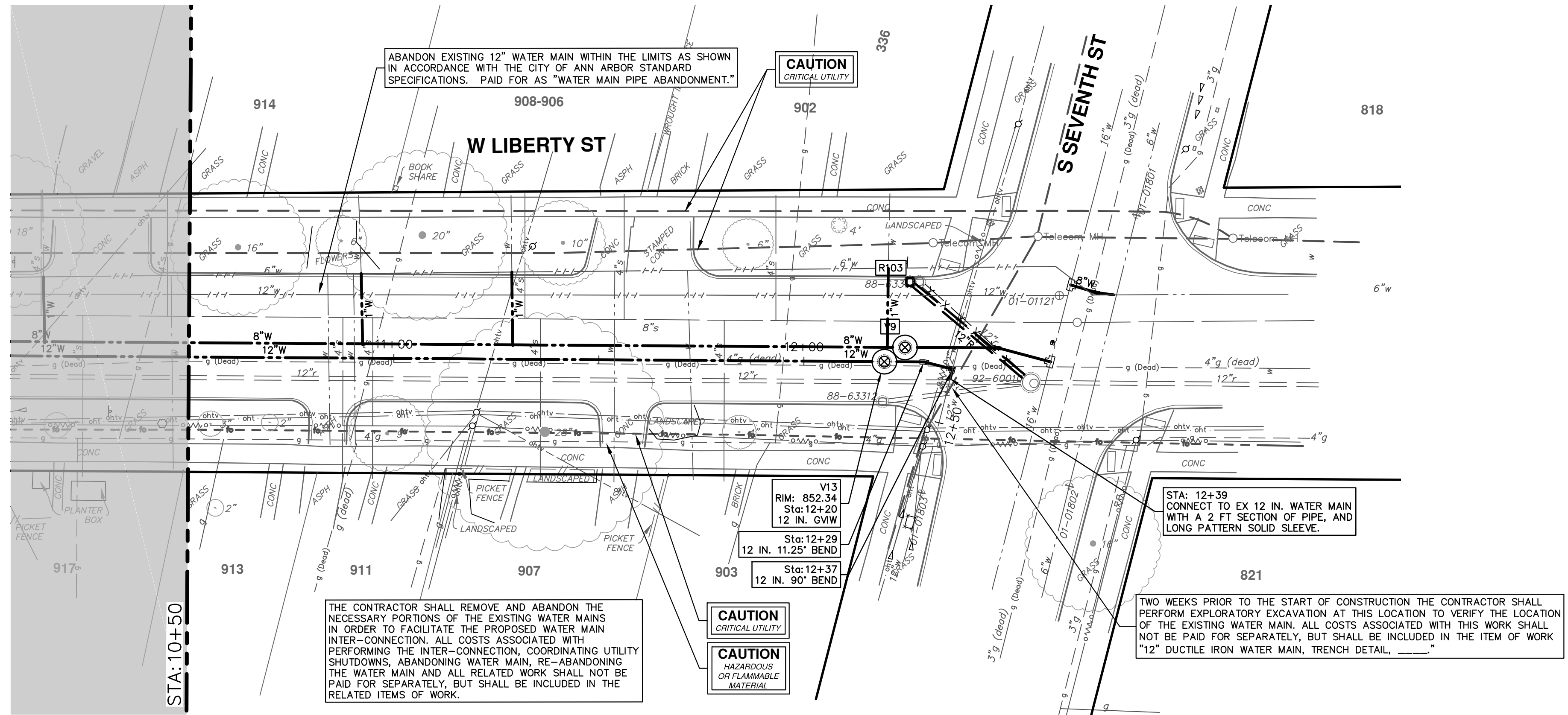
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
W LIBERTY ST 12-IN WATER MAIN  
STA. 6+50 - STA. 10+50

SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'  
DRAWING NO. 2021005-49

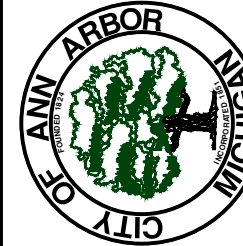
SHEET No. 49 OF 60

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB





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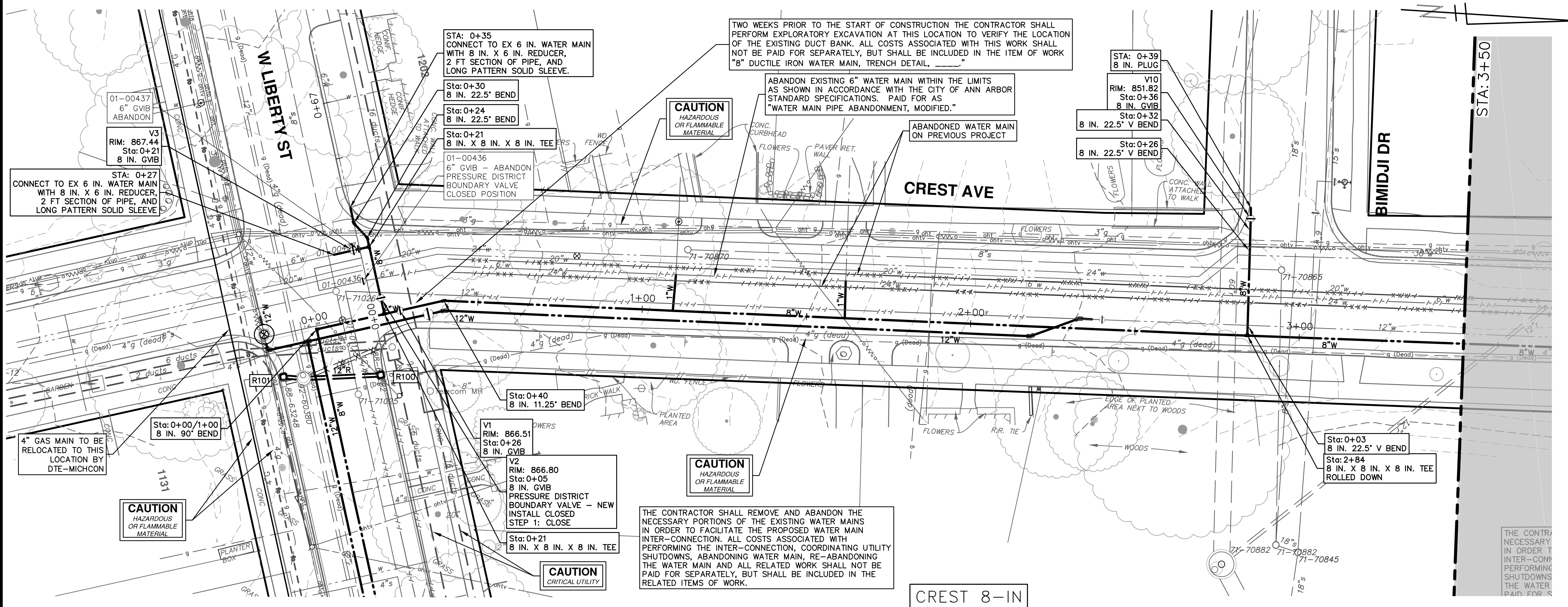


CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
W LIBERTY ST 12-IN WATER MAIN  
STA. 10+50 - STA. 12+50

SHEET No. 50 OF 60  
SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'  
DRAWING No. 2021005-50

REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC
		DRAWN
		CHECKED





WATER MAIN STRUCTURE TABLE				
STRUCTURE	TYPE	STATION	RIM	DEPTH
V1	8 in. GVB	0+26	866.51	6.08
V2	8 in. GVB PRESSURE DISTRICT BOUNDARY VALVE - NEW INSTALL CLOSED STEP 1: CLOSE	0+05	866.80	5.63
V3	8 in. GVB	0+21	867.44	6.28
V10	8 in. GVB	0+36	851.82	6.35

**NOTE:**

THE 20-INCH RAW WATER MAIN AT THE INTERSECTION OF LIBERTY STREET AND CREST AVENUE IS ASBESTOS-CEMENT (TRANSITE) PIPE.

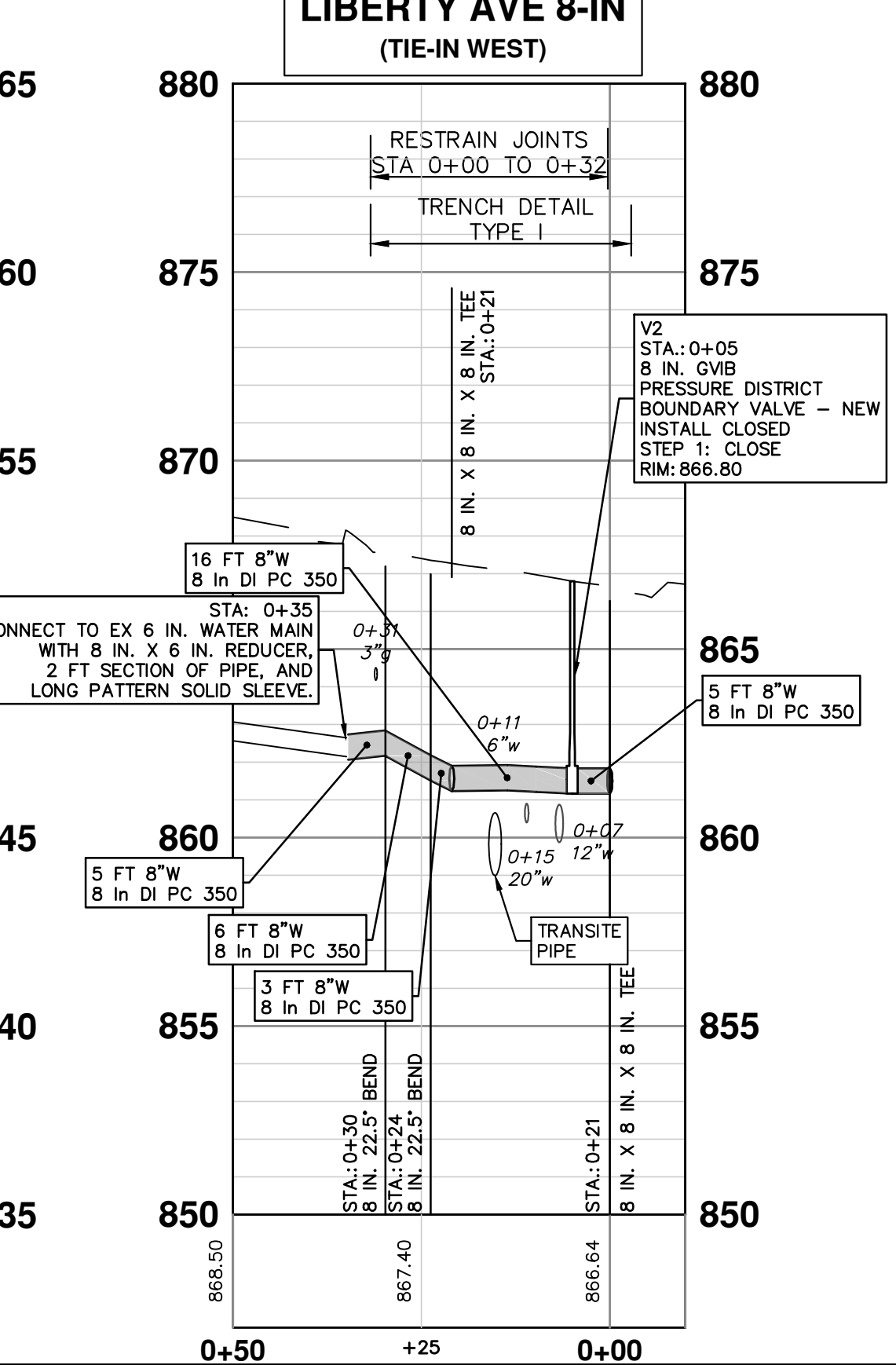
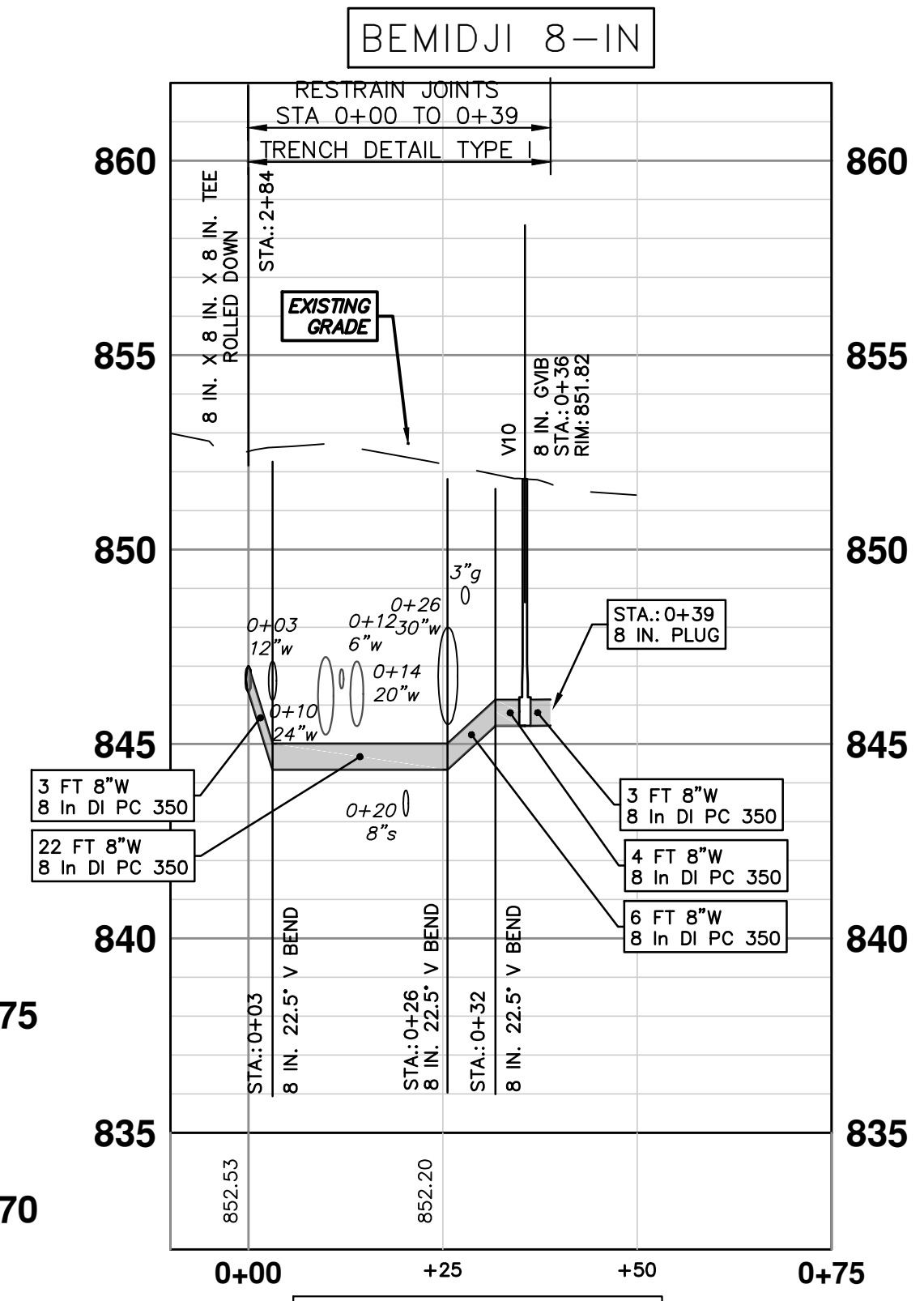
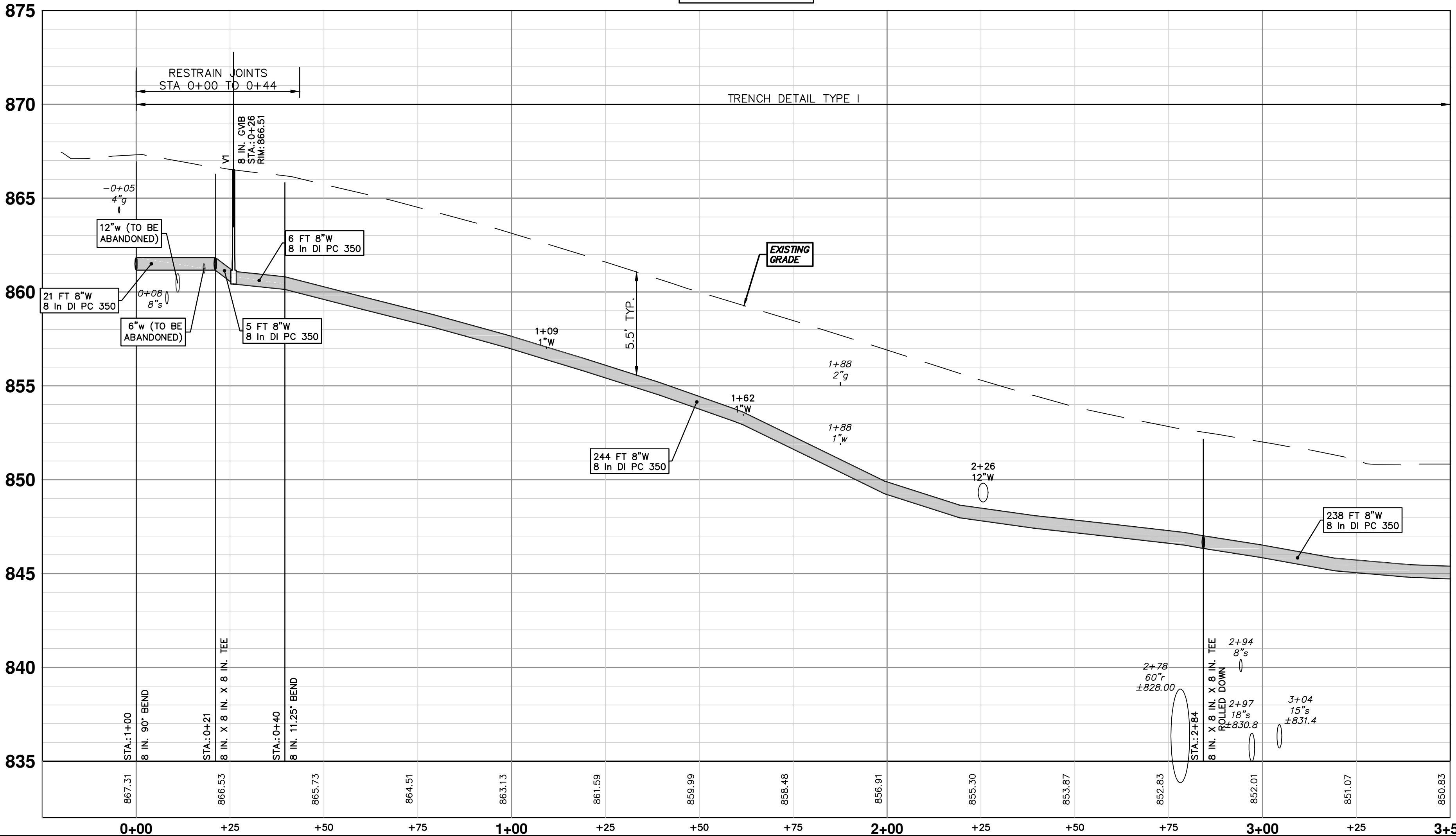
THE CONTRACTOR, PRIOR TO THE START OF CONSTRUCTION OF THE WATER MAIN IN INTERSECTION, SHALL PERFORM EXPLORATORY EXCAVATION TO VERIFY THE LOCATION AND DEPTH OF THE EXISTING 20-INCH RAW WATER MAIN.

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**811**  
Know what's below.  
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2021 MISC. UTILITIES PROJECT  
CREST AVE 8-IN WATER MAIN

STA. 0+20 - STA. 3+50

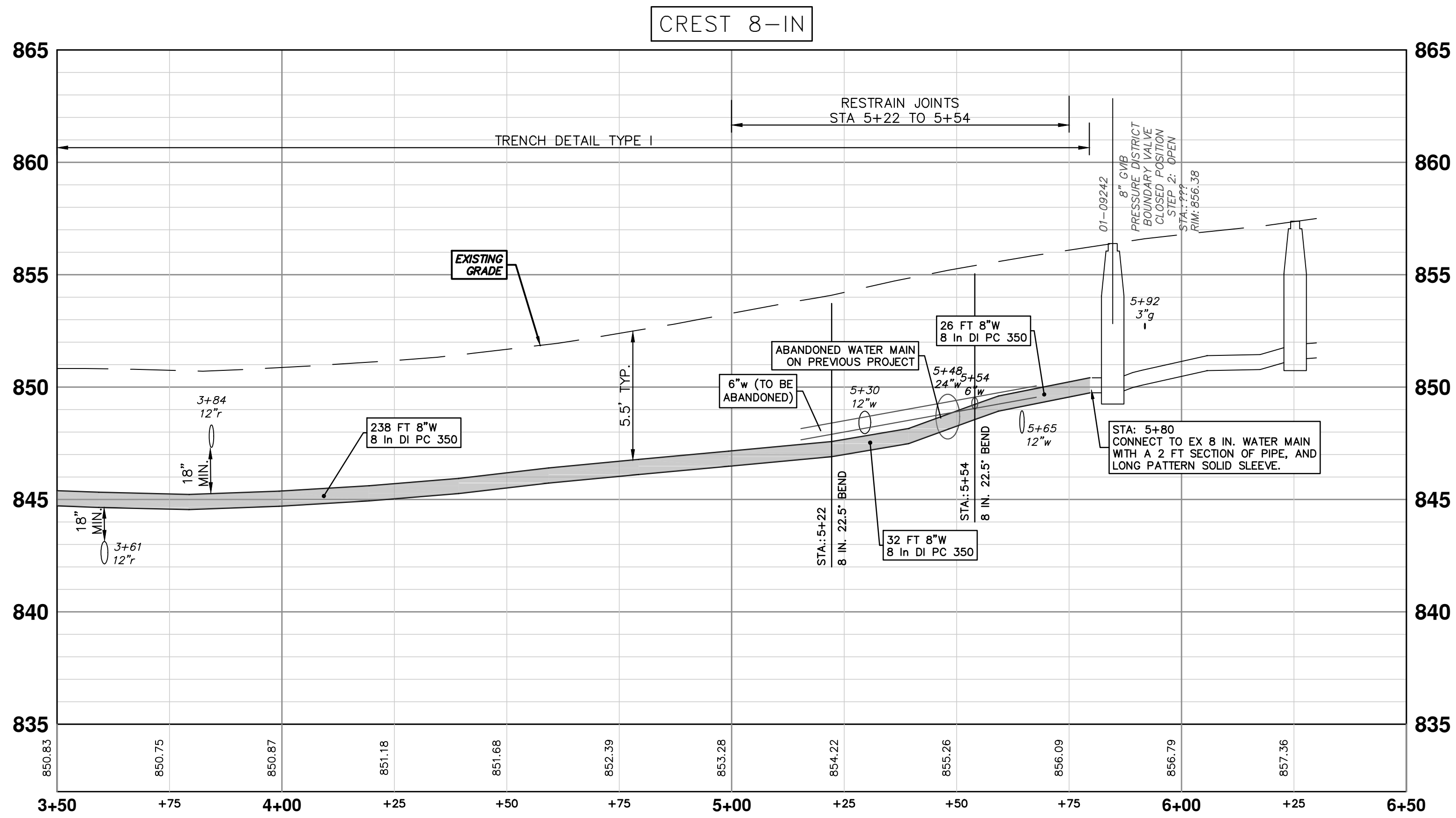
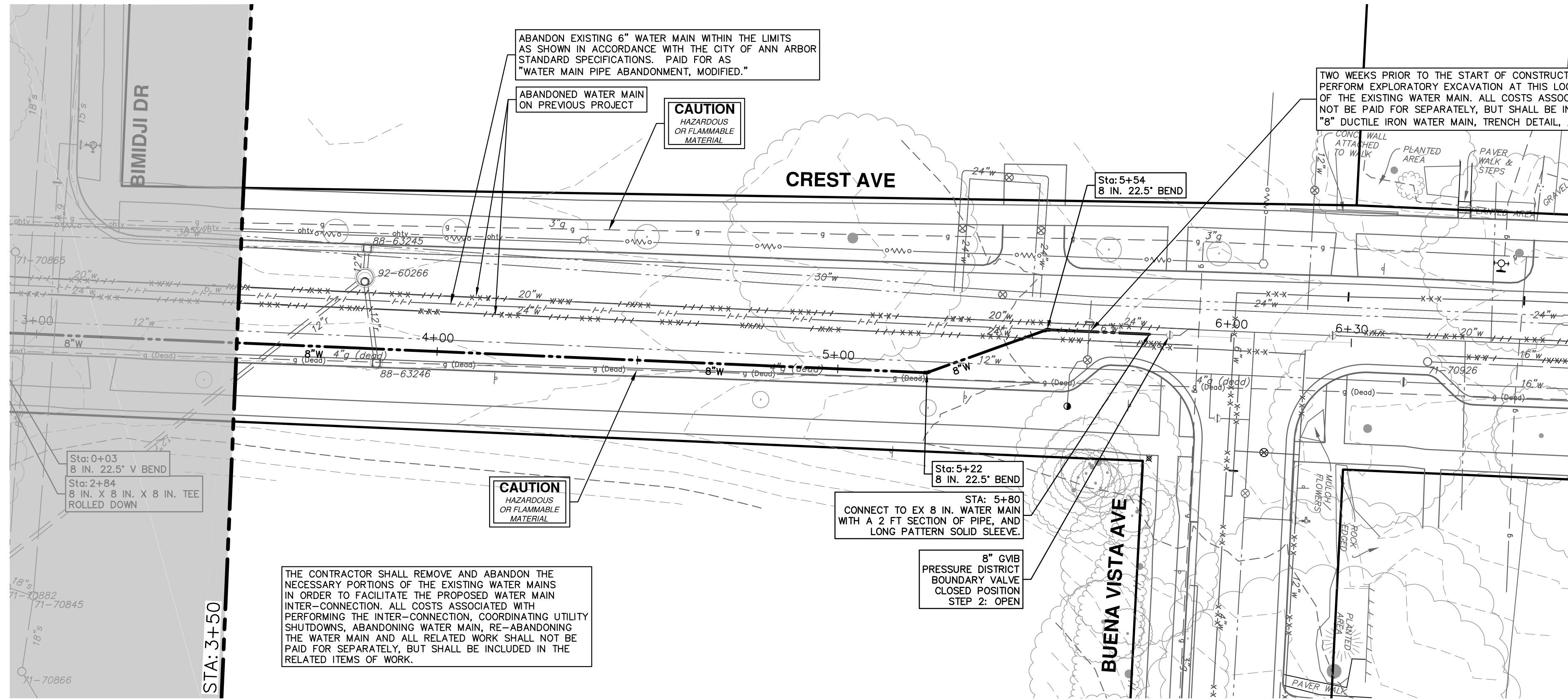
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PUBLIC SERVICES  
301 EAST HURON STREET  
P.O. BOX 8647  
ANN ARBOR MI 48106-8647  
www.a3gov.org

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

DRAWING NO. 2021005-51

SHEET NO. 51 OF 60





REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB

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ANN ARBOR 734.794.4110  
WWW.A2GOV.ORG

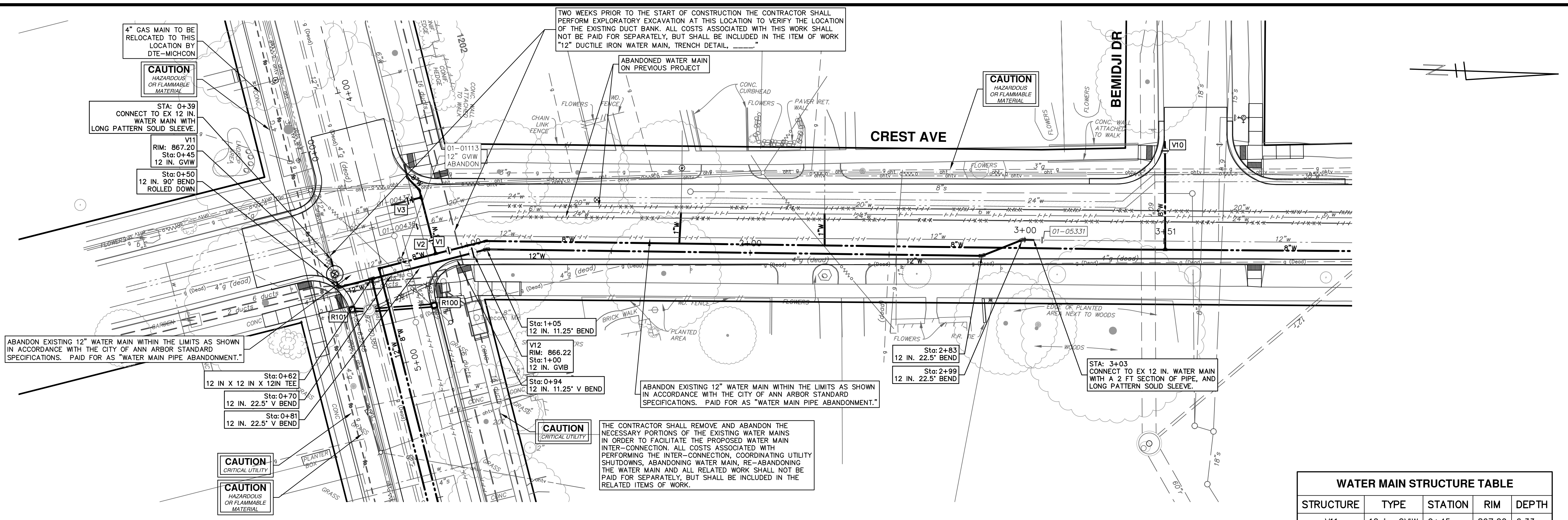


CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
CREST AVE 8-IN WATER MAIN  
STA. 3+50 - STA. 6+30

SHEET No. 52 OF 60  
SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'  
DRAWING No. 2021005-52



R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty Water3.dwg Dwg Created: 5-Apr-21 - \_a2 standard bw.stb - Plot Date: 6-Apr-21



TWO WEEKS PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION AT THIS LOCATION TO VERIFY THE LOCATION OF THE EXISTING DUCT BANK. ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "12" DUCTILE IRON WATER MAIN, TRENCH DETAIL, \_\_\_\_\_"

ABANDONED WATER MAIN ON PREVIOUS PROJECT

CAUTION HAZARDOUS OR FLAMMABLE MATERIAL

CAUTION HAZARDOUS OR FLAMMABLE MATERIAL

STA: 0+39 CONNECT TO EX 12 IN. WATER MAIN WITH LONG PATTERN SOLID SLEEVE.

V11 RIM: 867.20 STA: 0+45 12 IN. GVW

STA: 0+50 12 IN. 90° BEND ROLLED DOWN

ABANDON EXISTING 12" WATER MAIN WITHIN THE LIMITS AS SHOWN IN ACCORDANCE WITH THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS. PAID FOR AS "WATER MAIN PIPE ABANDONMENT."

Sta: 0+62 12 IN X 12 IN X 12 IN TEE

Sta: 0+70 12 IN. 22.5° V BEND

Sta: 0+81 12 IN. 22.5° V BEND

Sta: 1+05 12 IN. 11.25° BEND

V12 RIM: 866.22 STA: 1+00 12 IN. GVW

Sta: 0+94 12 IN. 11.25° V BEND

ABANDON EXISTING 12" WATER MAIN WITHIN THE LIMITS AS SHOWN IN ACCORDANCE WITH THE CITY OF ANN ARBOR STANDARD SPECIFICATIONS. PAID FOR AS "WATER MAIN PIPE ABANDONMENT."

CAUTION CRITICAL UTILITY

THE CONTRACTOR SHALL REMOVE AND ABANDON THE NECESSARY PORTIONS OF THE EXISTING WATER MAINS IN ORDER TO FACILITATE THE PROPOSED WATER MAIN INTER-CONNECTION. ALL COSTS ASSOCIATED WITH PERFORMING THE INTER-CONNECTION, COORDINATING UTILITY SHUTDOWNS, ABANDONING WATER MAIN, RE-ABANDONING THE WATER MAIN AND ALL RELATED WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

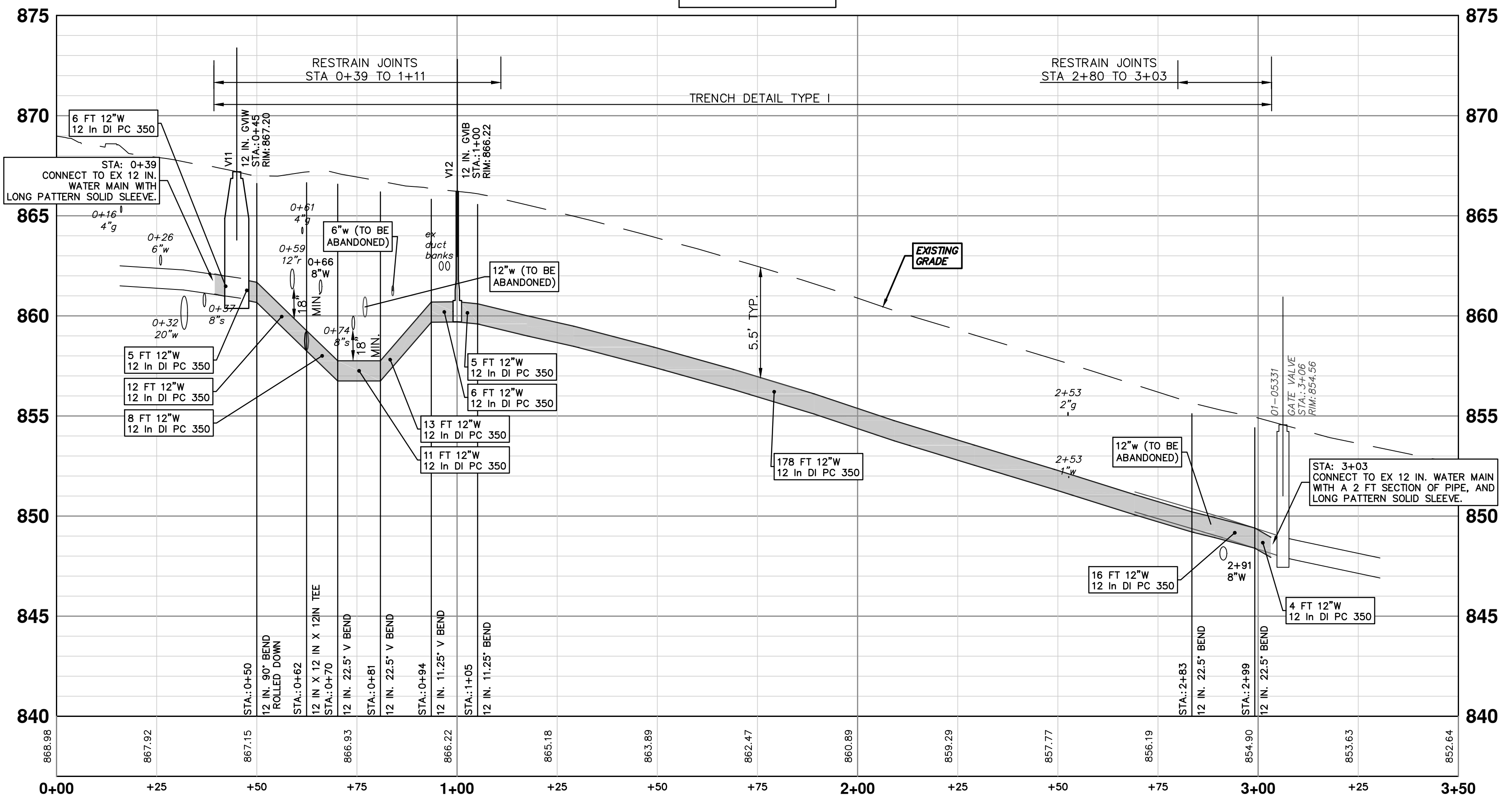
CAUTION CRITICAL UTILITY

CAUTION HAZARDOUS OR FLAMMABLE MATERIAL

WATER MAIN STRUCTURE TABLE				
STRUCTURE	TYPE	STATION	RIM	DEPTH
V11	12 in. GVW	0+45	867.20	6.33
V12	12 in. GVW	1+00	866.22	6.52

- NOTE:
- THE 20-INCH RAW WATER MAIN AT THE INTERSECTION OF LIBERTY STREET AND CREST AVENUE IS ASBESTOS-CEMENT (TRANSITE) PIPE. THE CONTRACTOR, PRIOR TO THE START OF CONSTRUCTION OF THE WATER MAIN IN INTERSECTION, SHALL PERFORM EXPLORATORY EXCAVATION TO VERIFY THE LOCATION AND DEPTH OF THE EXISTING 20-INCH RAW WATER MAIN.
  - ASBESTOS-CEMENT (TRANSITE) PIPE SHALL BE HANDLED IN A MANNER THAT WILL MINIMIZE THE RISK OF MAKING IT FRIABLE ACM OR RELEASING ASBESTOS DUST INTO THE ENVIRONMENT.
  - AT THE START OF WORK INVOLVING ASBESTOS-CEMENT PIPE, THE CONTRACTOR SHALL ENSURE THAT:
    - THE ASBESTOS-CEMENT PIPE SHALL BE EXPOSED WITH MINIMAL DISTURBANCE.
    - MECHANICAL EXCAVATION SHALL NOT BE USED WITHIN SIX INCHES OF THE ASBESTOS CEMENT PIPE.
    - THE SOIL WITHIN SIX INCHES OF THE ASBESTOS-CEMENT PIPE SHALL BE UNCOVERED BY HAND OR WITH A SHOVEL.
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  - ALL COSTS ASSOCIATED WITH THIS WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ITEM OF WORK "8" DUCTILE IRON WATER MAIN, TRENCH DETAIL, \_\_\_\_\_"

CREST 12-IN



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

01 ADDENDUM #1 4-6-21  
00 OUT FOR BID 3-17-21

REV. DATE DRAWN CHECKED

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

**2021 MISC. UTILITIES PROJECT**

CREST AVE 12-IN WATER MAIN

STA. 0+00 - STA. 3+50

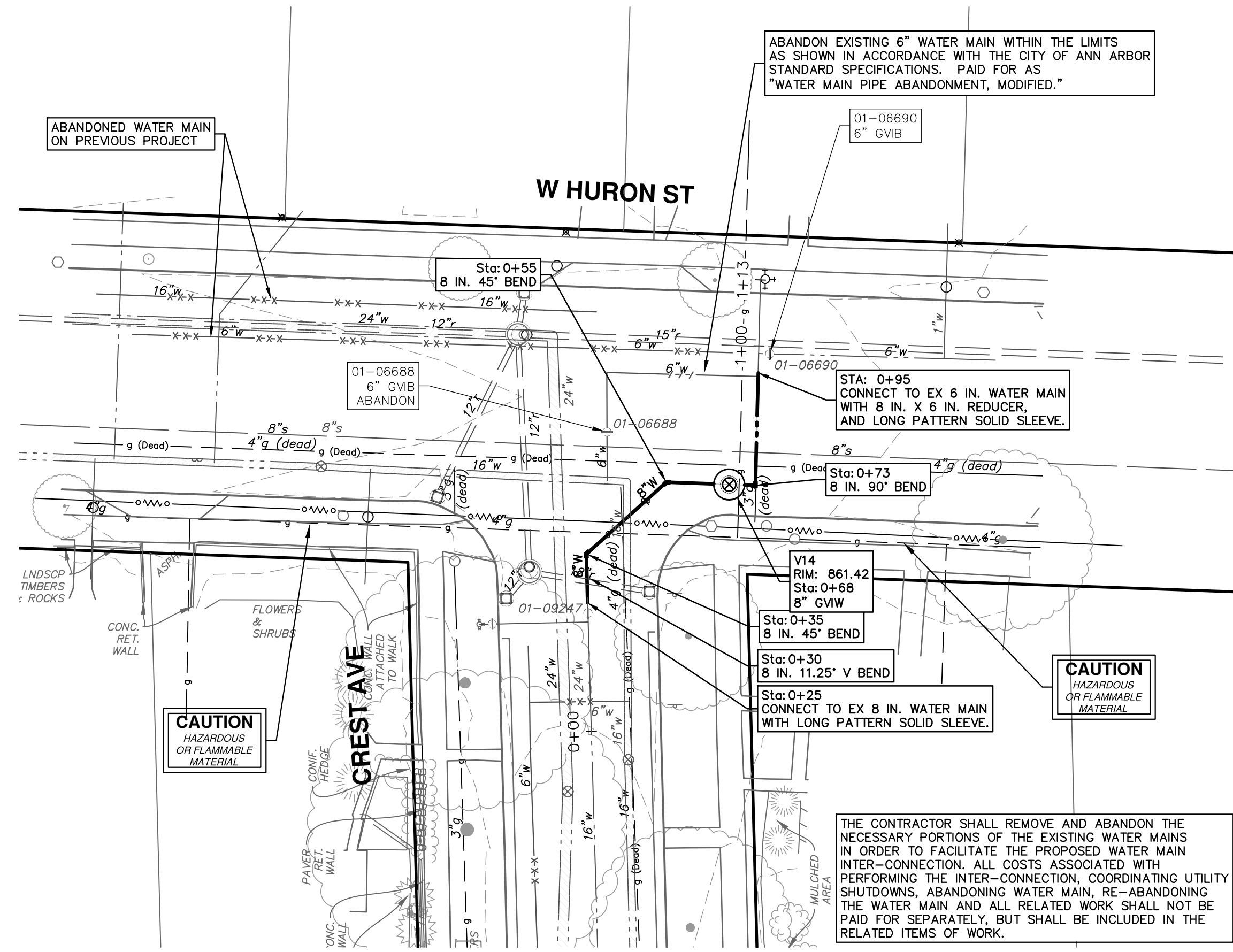
SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'

DRAWING No. 2021005-53

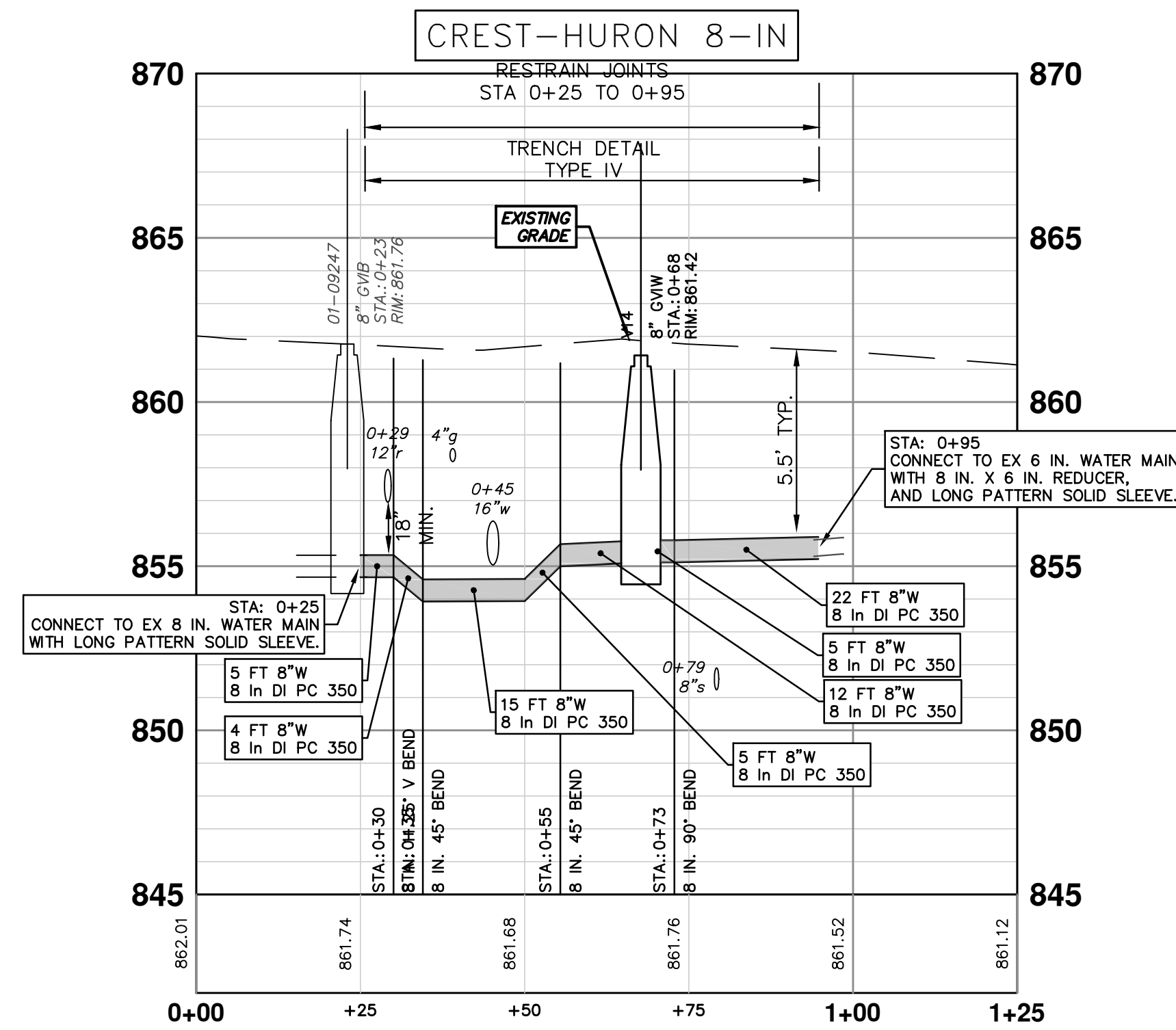
SHEET No. 53 OF 60

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STRUCTURE	TYPE	STATION	RIM	DEPTH
V14	8" GVW	0+68	861.42	6.30



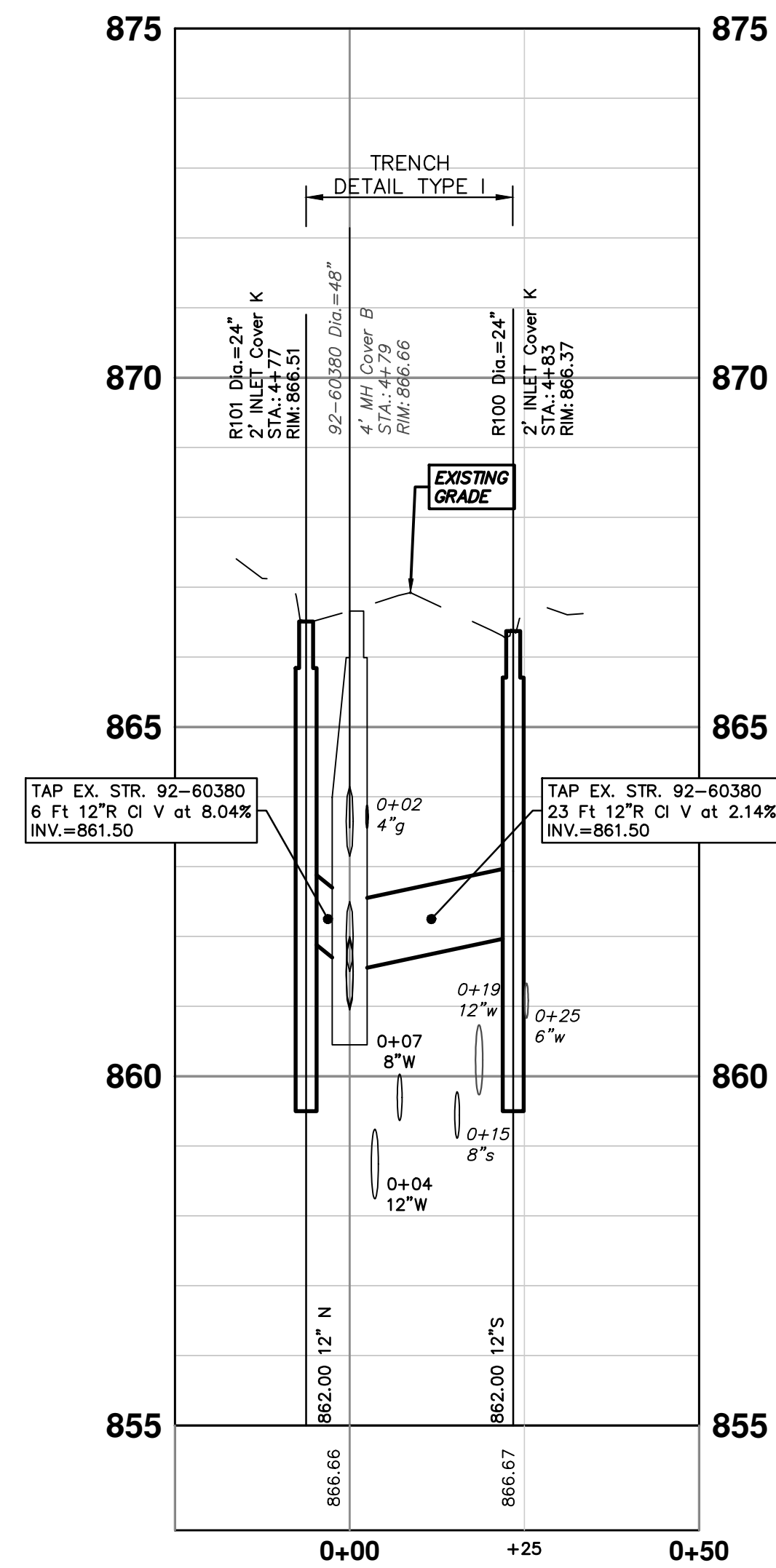
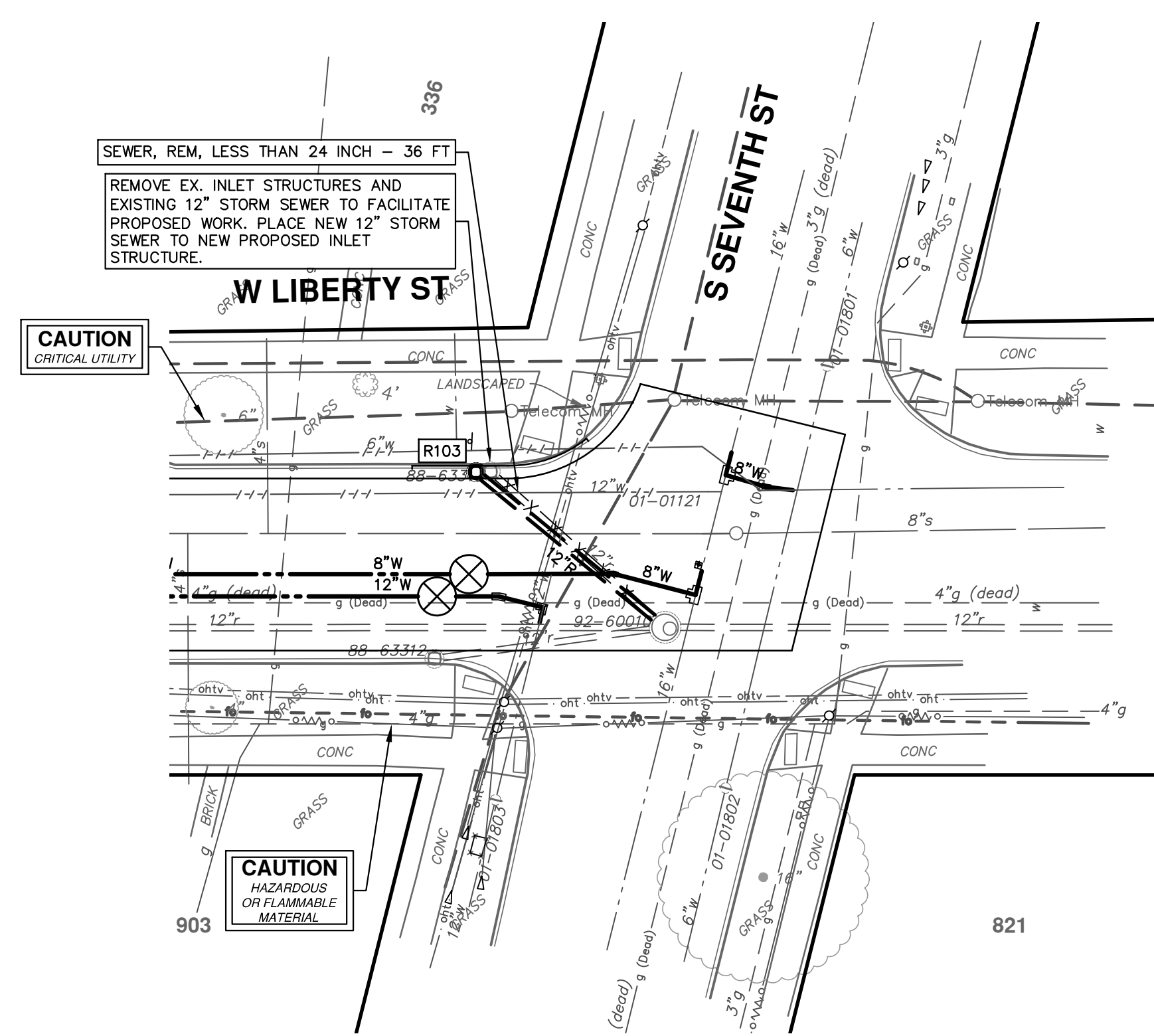
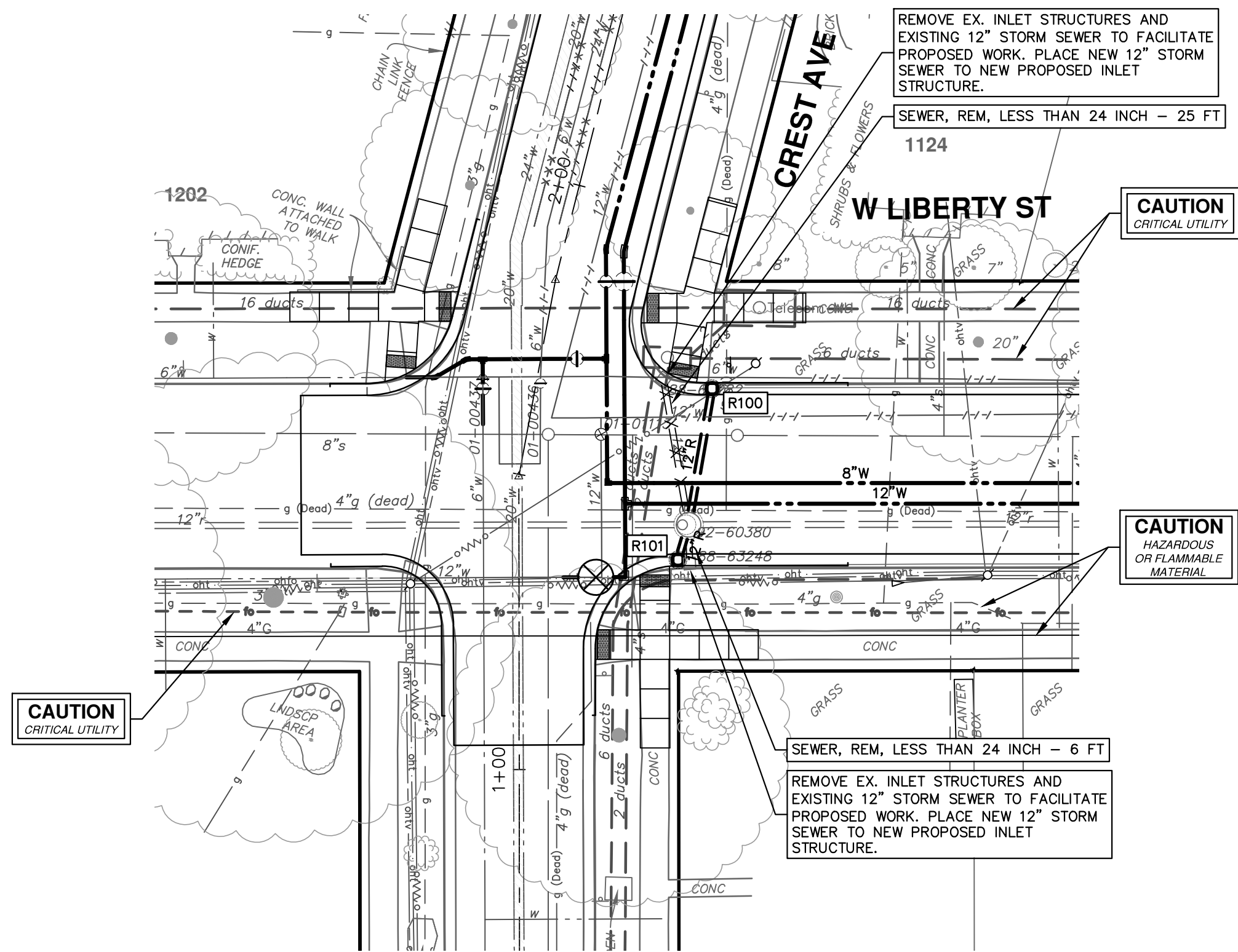
REV.	DESCRIPTION	DATE	DRAWN	CHECKED
01	ADDENDUM #1	4-6-21	DF/CC	TB
00	OUT FOR BID	3-17-21	DF/CC	TB

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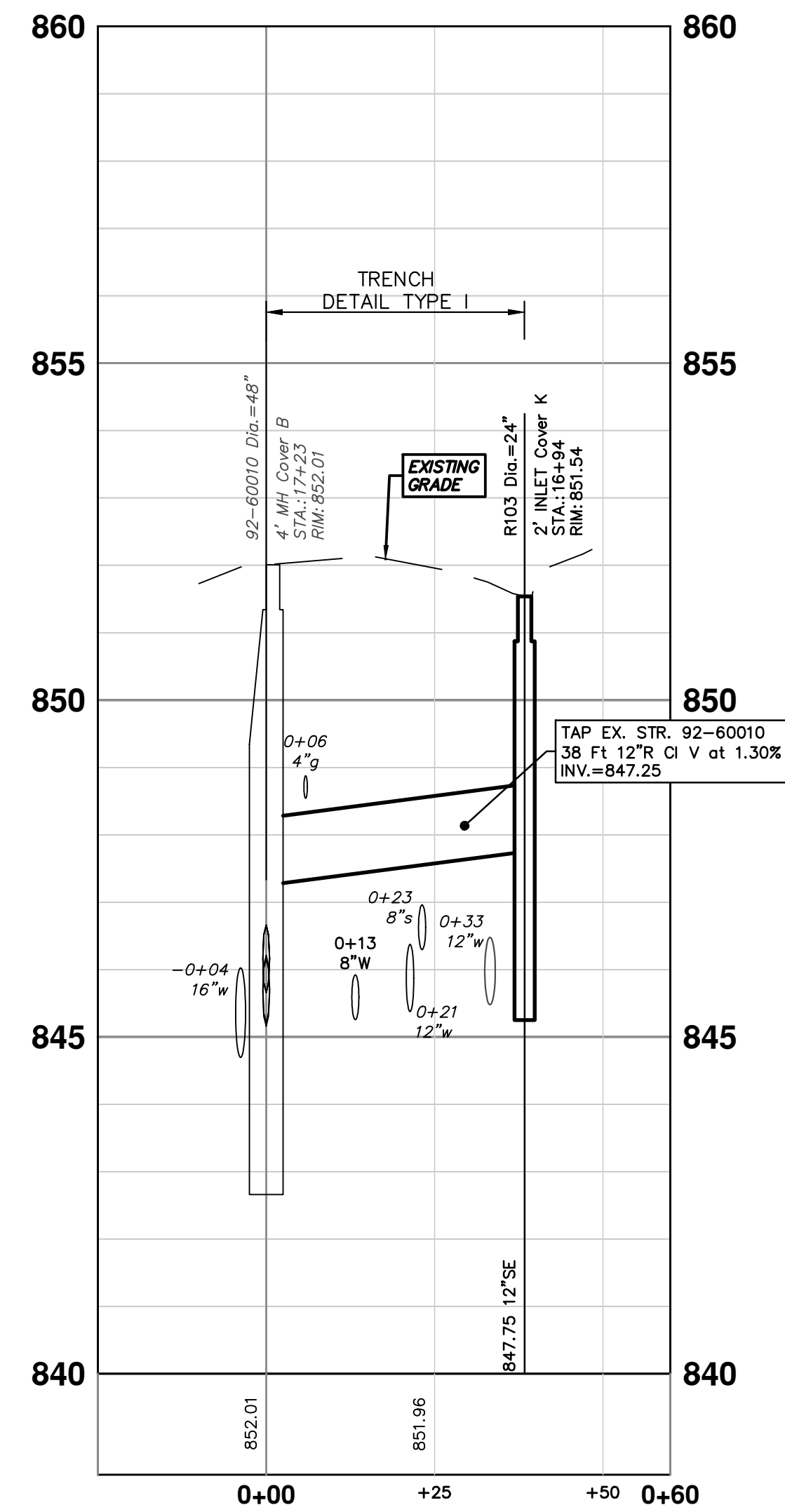
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
CREST AVE - W HURON ST 8-IN WATER MAIN CONNECTION  
STA. 0+26 - STA. 1+14

SCALE PLAN: 1" = 20'  
PROFILE: 1" = 4'  
DRAWING No. 2021005-54



PROPOSED STORM STRUCTURE TABLE						
STRUCTURE	STATION	TYPE	RIM	INVERTS	PIPE	SUMP
R100	4+83	2' INLET Cover K	866.37	12"S 862.00	23 LF OF 12" @ 2.14%	2'
R101	4+77	2' INLET Cover K	866.51	12"N 862.00	6 LF OF 12" @ 8.04%	2'
R103	16+94	2' INLET Cover K	851.54	12"SE 847.75	38 LF OF 12" @ 1.30%	2'

EXISTING STORM SEWER STRUCTURE REMOVAL TABLE		
STRUCTURE	DEPTH (Feet)	REMOVE
88-63313	5.79	2' INLET Cover K
88-63248	3.31	12" Drop Structure
88-63282	4.77	12" Drop Structure



Know what's below. Call before you dig.

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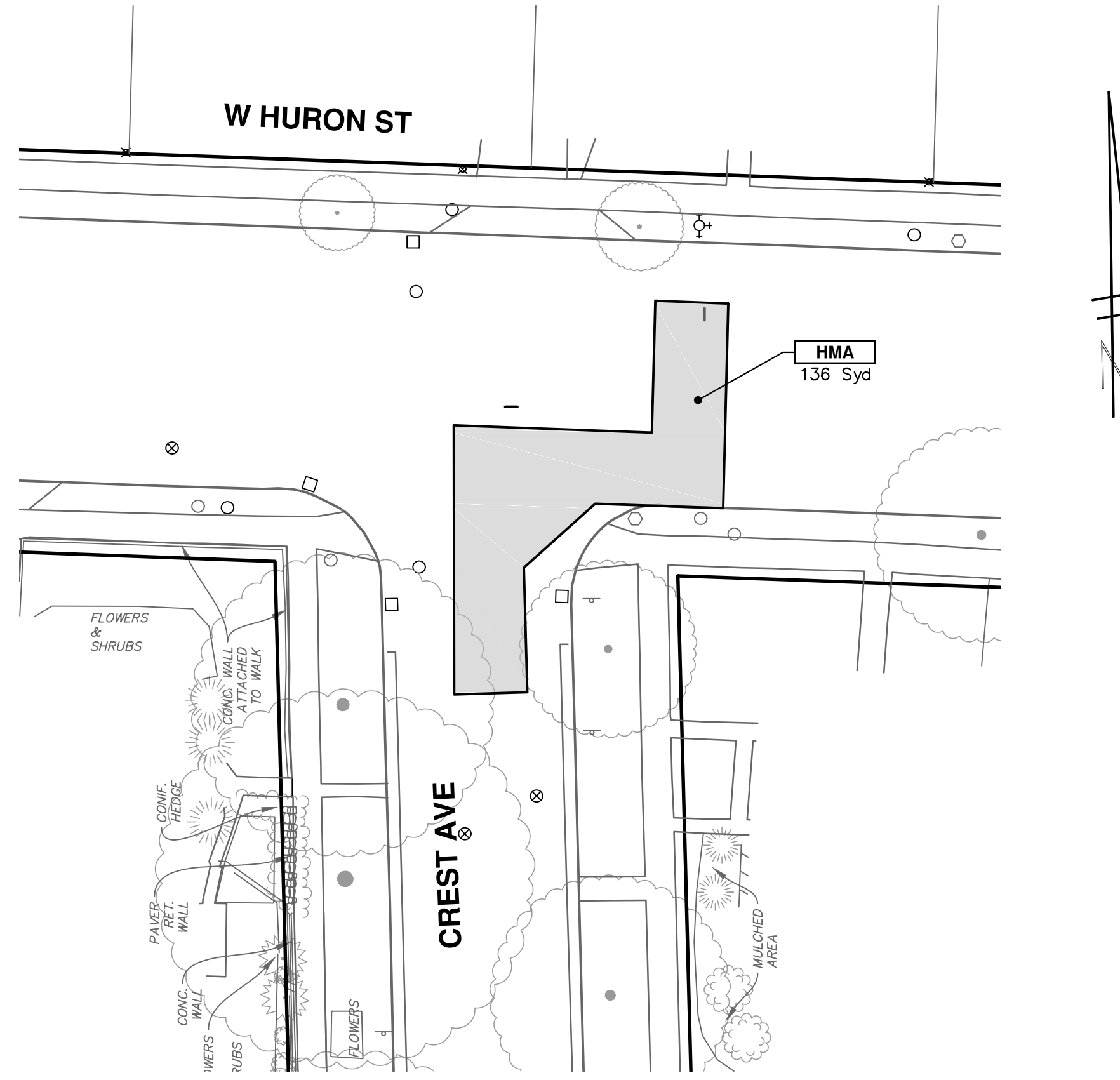
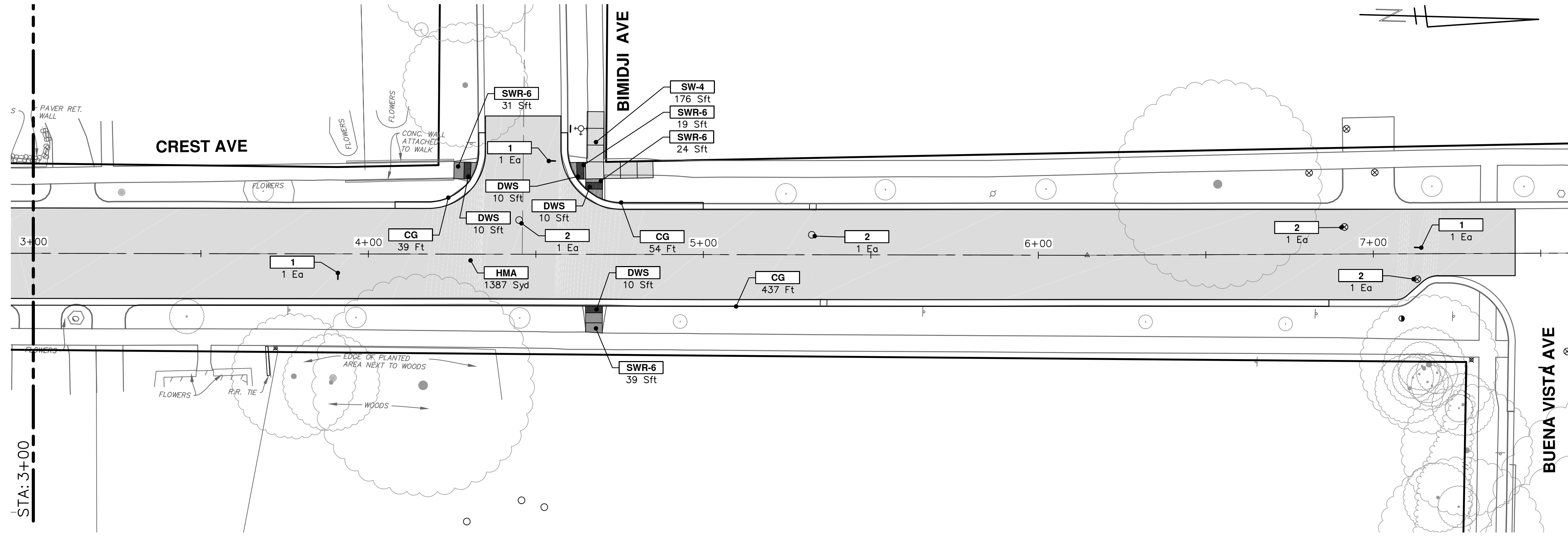


CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
W LIBERTY ST STORM SEWER  
SCALE PLAN: 1" = 20'  
PROFILE: 1" = 2'  
DRAWING No. 2021005-55

REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC



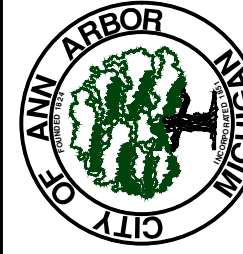
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CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA	PLACE HMA, LVSP. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	PLACE HMA APPROACH
HP	HAND PATCHING
CG	PLACE CURB AND GUTTER, CONC, F4, SPECIAL
DO-M	PLACE DRIVEWAY OPENING, CONC, DETAIL M, P-NC
DC-6	PLACE CONC, DRIVE APPROACH, NON-REINFORCED, P-NC, 6 INCH. PLACE AND COMPACT 6 INCH SUBBASE, CIP, CLASS II GRANULAR MATERIAL, MODIFIED.
SW-4	PLACE SIDEWALK, CONC, 4 INCH, MODIFIED
SWR-6	PLACE SIDEWALK, SIDEWALK RAMP, CONC, 6 INCH, MODIFIED
DWS	DETECTABLE WARNING, CAST IN PLACE
ISW-CB	INTEGRAL SIDEWALK/CURB
ABO	ADJUST BY OTHERS
1	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
2	ADJUST STRUCTURE COVER



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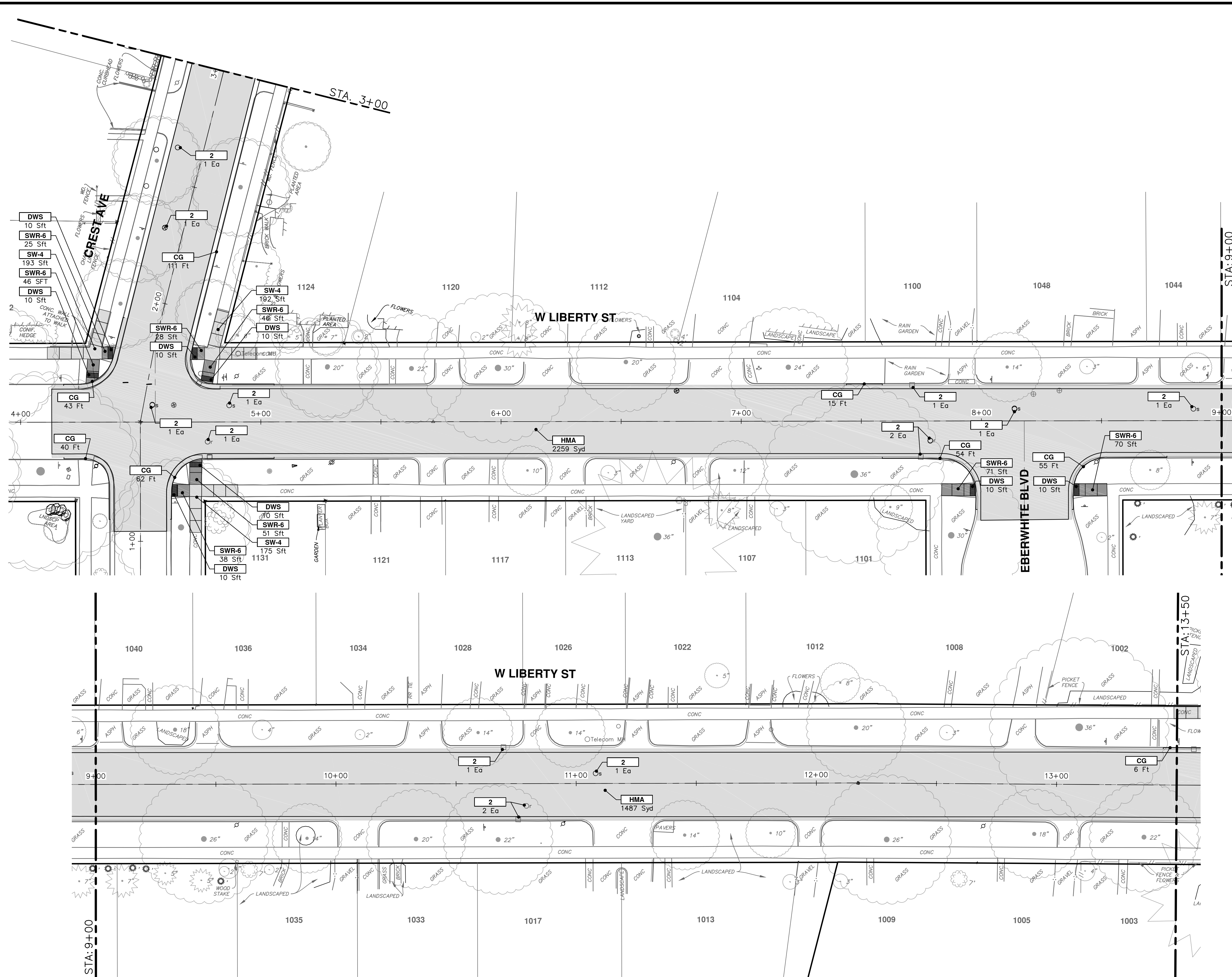
CITY OF ANN ARBOR - PUBLIC SERVICES - ENGINEERING  
2021 MISC. UTILITIES PROJECT  
W LIBERTY ST - CREST AVE PROPOSED ROAD  
CREST AVE STA. 3+00 - P.O.E. & CREST - W. HURON INTERSECTION

SCALE: 1" = 20'  
DRAWING No. 2021005-56

REV.	DATE	DESCRIPTION
01	4-6-21	DF/CC
00	3-17-21	DF/CC



R:\2021005 Misc Utility 2021\Plan Production\2021005 Liberty\_Prd.dwg Dwg Created: 5-Apr-21 - \_a2 standard bw.stb - Plot Date: 6-Apr-21



CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA	PLACE HMA, LVSP, PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	PLACE HMA APPROACH
HP	HAND PATCHING
CG	PLACE CURB AND GUTTER, CONC, F4, SPECIAL
DO-M	PLACE DRIVEWAY OPENING, CONC, DETAIL M, P-NC
DC-6	PLACE CONC, DRIVE APPROACH, NON-REINFORCED, P-NC, 6 INCH. PLACE AND COMPACT 6 INCH. SUBBASE, CIP, CLASS II GRANULAR MATERIAL, MODIFIED.
SW-4	PLACE SIDEWALK, CONC, 4 INCH, MODIFIED
SWR-6	PLACE SIDEWALK, SIDEWALK RAMP, CONC, 6 INCH, MODIFIED
DWS	DETECTABLE WARNING, CAST IN PLACE
ISW-CB	INTEGRAL SIDEWALK/CURB
ABO	ADJUST BY OTHERS
1	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
2	ADJUST STRUCTURE COVER

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

**2021 MISC. UTILITIES PROJECT**


W LIBERTY ST - CREST AVE PROPOSED ROAD

W LIBERTY ST STA. 4+00 - STA. 13+50

SCALE: 1" = 20'

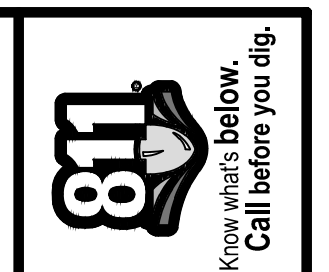
DRAWING No. 2021005-57

SHEET No. 57 OF 60

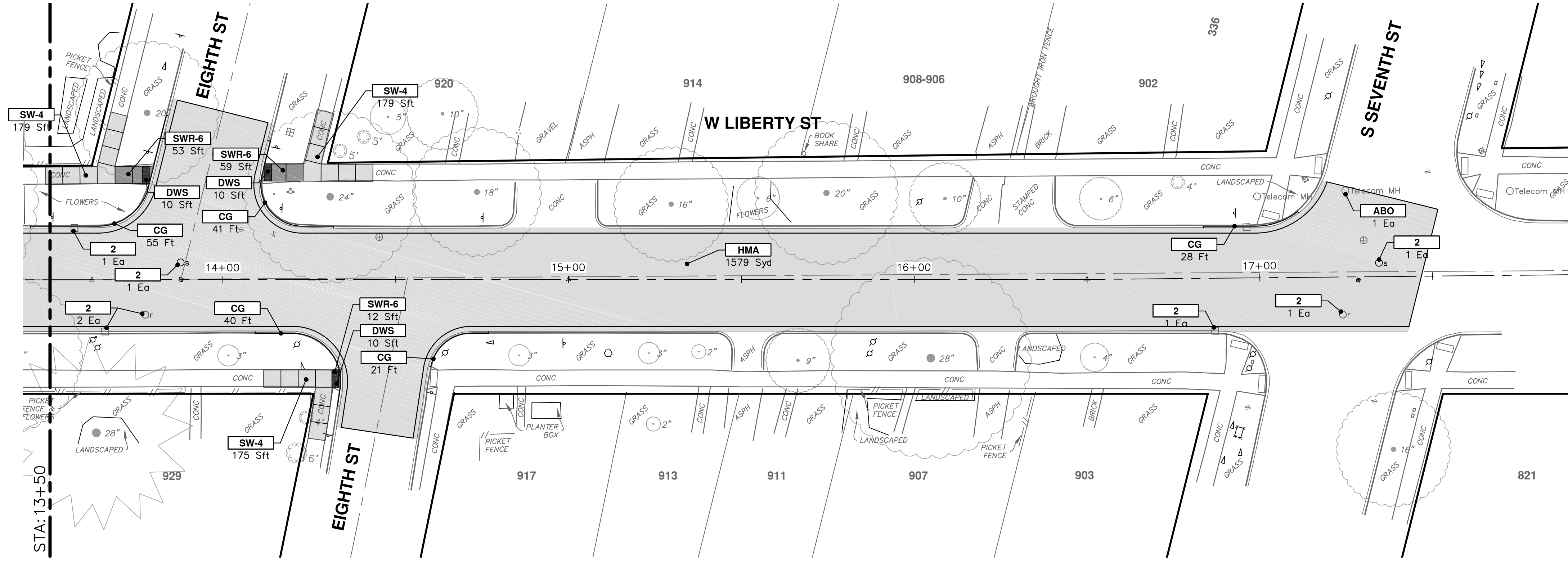


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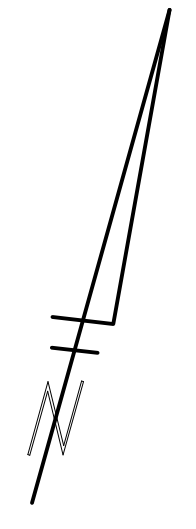
DATE	DESCRIPTION	REV.
4-6-21	DF/CC	TB
3-17-21	DF/CC	TB
	DRAWN	CHECKED







CONSTRUCTION KEY	
KEY	DESCRIPTION
HMA	PLACE HMA, LVSP. PLACE MATERIAL IN LIFTS ACCORDING TO THE TYPICAL SECTION AND AS DIRECTED BY THE ENGINEER.
HMA APP	PLACE HMA APPROACH
HP	HAND PATCHING
CG	PLACE CURB AND GUTTER, CONC, F4, SPECIAL
DO-M	PLACE DRIVEWAY OPENING, CONC, DETAIL M, P-NC
DC-6	PLACE CONC. DRIVE APPROACH, NON-REINFORCED, P-NC, 6 INCH. PLACE AND COMPACT 6 INCH SUBBASE, GIP, CLASS II GRANULAR MATERIAL, MODIFIED.
SW-4	PLACE SIDEWALK, CONC, 4 INCH, MODIFIED
SWR-6	PLACE SIDEWALK, SIDEWALK RAMP, CONC, 6 INCH, MODIFIED
DWS	DETECTABLE WARNING, CAST IN PLACE
ISW-CB	INTEGRAL SIDEWALK/CURB
ABO	ADJUST BY OTHERS
1	ADJUST GATE VALVE BOX, MONUMENT BOX, OR GAS BOX.
2	ADJUST STRUCTURE COVER



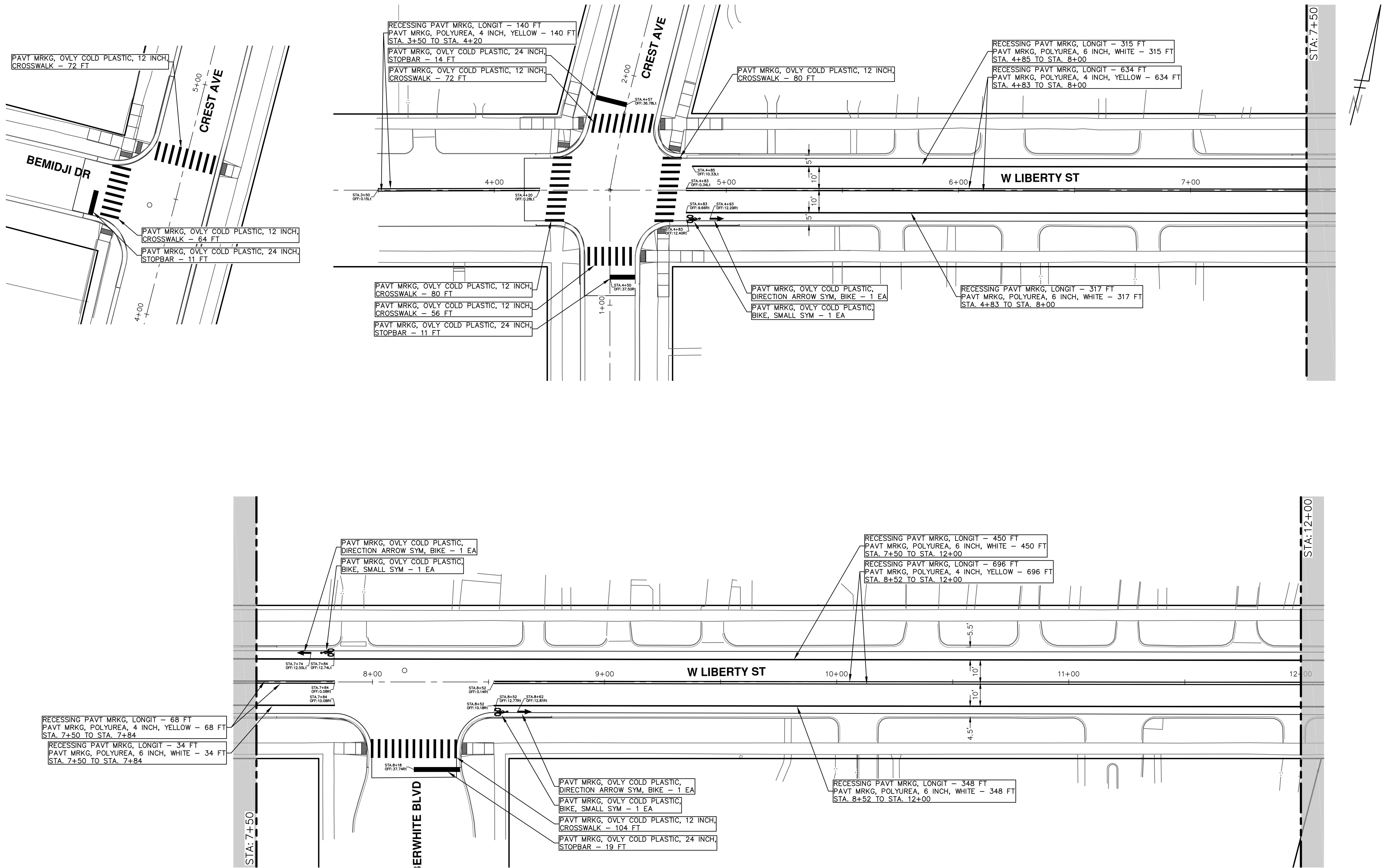
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2021 MISC. UTILITIES PROJECT  
W LIBERTY ST - CREST AVE PROPOSED ROAD  
W LIBERTY ST STA. 13+50 - P.O.E.

SCALE: 1" = 20'  
DRAWING No. 2021005-58

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
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00	OUT FOR BID	3-17-21	DF/CC	TB



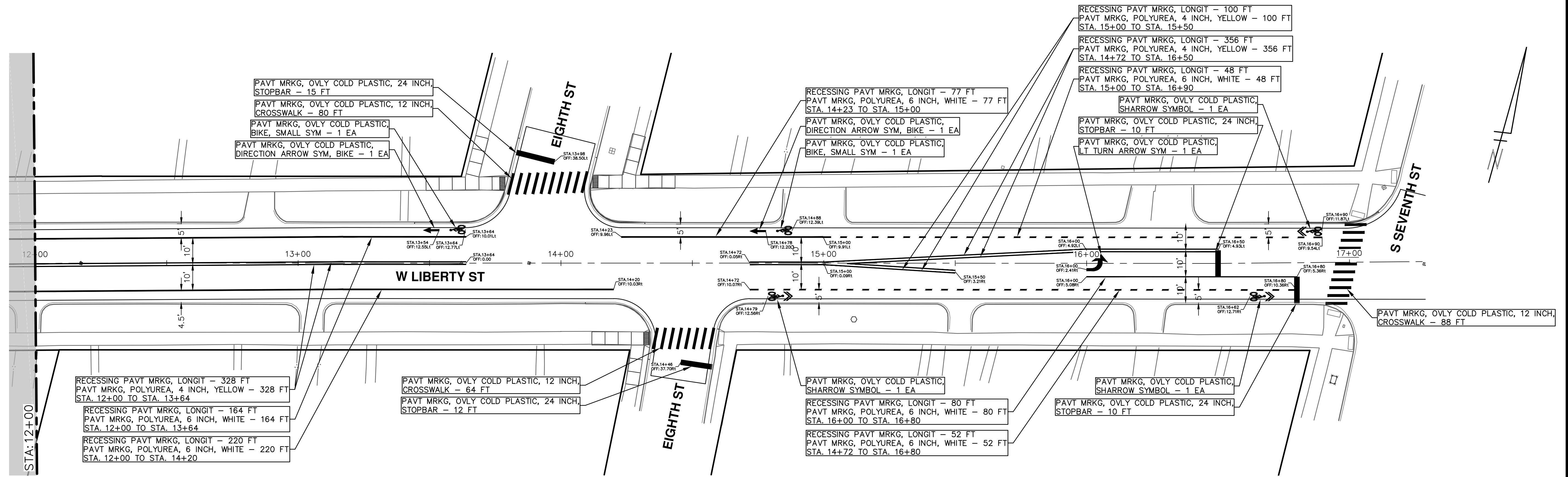
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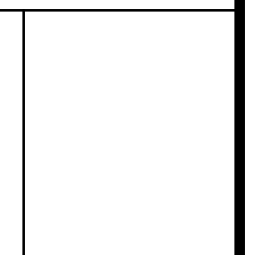


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REV	DESCRIPTION	DATE	DRAWN	CHECKED
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00	OUT FOR BID	3-17-21	DF/CC	TB

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 2021 MISC. UTILITIES PROJECT  
 W LIBERTY ST PAVEMENT MARKINGS  
 STA. 12+00 - STA. 17+00

SCALE: 1" = 20'  
 DRAWING No. 2021005-60