ANN ARBOR DDA
INVITATION TO BID

South University Streetscape Improvements

ITB No. 4466

1:00 p.m., Wednesday, January 11, 2017

Ann Arbor Downtown Development Authority

Issued By:

Ann Arbor Downtown Development Authority
150 S. Fifth Ave, Ste #301
Ann Arbor, MI 48104

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NOTICE OF PRE-BID CONFERENCE

A pre-bid conference for this project will be held **10:00 a.m., Tuesday, December 13, 2016 at Ann Arbor DDA, 150 S. Fifth Ave, Ste #301, Ann Arbor, MI 48104**

Attendance at this conference is highly recommended. Administrative and technical questions regarding this project will be answered at this time. The pre-bid conference is for information only. Any answers furnished will not be official until verified in writing by the DDA Project Manager. Answers that change or substantially clarify the bid will be affirmed in an addendum.

INSTRUCTIONS TO BIDDERS

General

Work to be done under this Contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents. All work to be done under this Contract is located in the City of Ann Arbor.

Any Bid which does not conform fully to these instructions may be rejected.

Substitutions of materials, products or equipment will not be considered during the bidding phase. Bids shall be based on products listed in the Specification.

Preparation of Bids

Bids should be prepared providing a straight-forward, concise description of the Bidder's ability to meet the requirements of the ITB. Bids shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed and dated in ink by the person signing the Bid.

Bids must be submitted on the "Bid Forms" provided with each blank properly filled in. If forms are not fully completed it may disqualify the bid. No alternative bid will be considered unless alternative bids are specifically requested. If alternatives are requested, any deviation from the specification must be fully described, in detail on the "Alternate" section of Bid form.

Each person signing the Bid certifies that he/she is the person in the Bidder's firm/organization responsible for the decision as to the fees being offered in the Bid and has not and will not participated in any action contrary to the terms of this provision.

Questions or Clarification on ITB Specifications

All questions regarding this ITB shall be submitted via email. Emailed questions and inquires will be accepted from any and all prospective Bidders in accordance with the terms and conditions of the ITB.

All questions shall be due on or before **1:00 p.m., Tuesday, December 20, 2016** and should be addressed to **erolla@a2dda.org**

Any error, omissions or discrepancies in the specification discovered by a prospective contractor and/or service provider shall be brought to the attention of Elizabeth Rolla, P.E. at **erolla@a2dda.org** after discovery as possible. Further, the contractor and/or service provider shall not be allowed to take advantage of errors, omissions or discrepancies in the specifications.

Addenda

If it becomes necessary to revise any part of the ITB, notice of the Addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or Ann Arbor Downtown Development Authority website www.a2dda.org for all parties to download.

Each Bidder must in its Bid, to avoid any miscommunications, acknowledge all addenda which it has received, but the failure of a Bidder to receive, or acknowledge receipt of; any addenda shall not relieve the Bidder of the responsibility for complying with the terms thereof.

The DDA will not be bound by oral responses to inquiries or written responses other than written addenda.

Bid Submission

All Bids are due and must be delivered to the **Ann Arbor DDA** on or before **Wednesday, January 11, 2017, at 1:00 p.m. EST.** Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and **one (1)** Bid copies in a sealed envelope clearly marked: **ITB No. 4466 S. University Streetscape Improvements**

Bids must be addressed and delivered to:

Ann Arbor DDA
150 S. Fifth Ave, Ste #301
Ann Arbor, MI 48104

All Bids received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

The Contractor will enter into a contract with the Ann Arbor DDA. However, this project also includes work for the City of Ann Arbor. Therefore, the following forms provided within this 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**
- **City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance**

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

Hand delivered bids will be date/time stamped/signed by the DDA at the address above in order to be considered. Normal business hours are 9:00 a.m. to 4:00 p.m. Monday through Friday, excluding Holidays. The DDA will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time for submission of bids past the stated due date and time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the DDA determines in its sole discretion that circumstances warrant it.

Post-Bid Submittals

In considering one or more Bids, the DDA will request evidence of the Contractor's experience with similar type projects. Within 2 working days of request, submit a list of at least 3 similar type projects constructed in the last five years including cost of the project, date of construction, and contact information of references.

Award

The DDA intends to award a Contract(s) to the lowest responsible Bidder(s). On multi-divisional contracts, separate divisions may be awarded to separate Bidders. The DDA may also utilize alternatives offered in the Bid Forms, if any, to determine the lowest responsible Bidder on each division, and award multiple divisions to a single Bidder, so that the lowest total cost is achieved for the DDA. For unit price bids, the Contract will be awarded based upon the unit prices and the lump sum prices stated by the bidder for the work items specified in the bid documents, with consideration given to any alternates selected by the DDA. If the DDA determines that the unit

price for any item is materially different for the work item bid than either other bidders or the general market, the DDA, in its sole discretion, in addition to any other right it may have, may reject the bid as not responsible or non-conforming.

The acceptability of major subcontractors will be considered in determining if a Bidder is responsible. In comparing Bids, the DDA will give consideration to alternate Bids for items listed in the bid forms. All key staff and subcontractors are subject to the approval by the DDA.

Official Documents

These bid documents are being distributed through the Downtown Development Authority and the Michigan Intergovernmental Trade Network (MITN). Copies of the bid documents obtained from any other source are not Official copies. Addenda and other bid information will only be posted to these official distribution sites. If you obtained documents from other sources, it is recommended that you register on www.MITN.info and obtain an official Bid.

Bid Security

Each bid must be accompanied by a certified check, or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of sixty (60) days

Contract Time

Time is of the essence in the performance of the work under this Contract. The available time for work under this Contract is indicated on page C-2, Article III of the Contract. If these time requirements cannot be met, the Bidder must stipulate on Bid Form Section 3 - Time Alternate its schedule for performance of the work. Consideration will be given to time in evaluating bids.

Liquidated Damages

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the DDA as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the DDA shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

Human Rights Information

This project includes work for the City of Ann Arbor. All contractors proposing to do work on this project shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the Section 9:158 of the Ann Arbor City Code. Breach of the obligation not to discriminate as outlined in Section 5, beginning at page GC-3 shall be a material breach of the contract. Contractors are required to post a copy of Ann Arbor's Non-Discrimination Ordinance attached at all work locations where its employees provide services under this contract.

Wage Requirements

This project includes work for the City of Ann Arbor. Section 4, beginning at page GC-2, outlines the requirements for payment of prevailing wages and for payment of a "living wage" to employees providing service under this contract. The successful bidder and its subcontractors must comply with all applicable requirements and provide documentary proof of compliance when requested.

For laborers whose wage level are subject to federal, state and/or local prevailing wage law the appropriate Davis-Bacon wage rate classification is identified based upon the work including within this contract. **The wage determination(s) current on the date 10 days before bids are due shall apply to this contract.** The U.S. Department of Labor (DOL) has provided explanations to assist with classification in the following resource link: www.wdol.gov

Major Subcontractors

The Bidder shall identify on Bid Form Section 4 each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over $50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor. The Bidder shall not change or replace a subcontractor without approval by the DDA.

Debarment

Submission of a Bid in response to this ITB is certification that the Bidder is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

Disclosures

After bids are opened, all information in a submitter's bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) known as the "Freedom of Information Act." The Freedom of Information Act also provides for the complete disclosure of contracts and attachments thereto except where specifically exempted.

Bid Protest

All bid protests must be in writing and filed with Elizabeth Rolla, P.E. within five business days of the award. The bidder must clearly state the reasons for the protest. The protest will be reviewed by the DDA, whose decision will be final.

Cost Liability

The DDA assumes no responsibility or liability for costs incurred by the Bidder prior to the execution of a contract with the DDA. By submitting a bid, a bidder agrees to bear all costs incurred or related to the preparation, submission and selection process for the bid.

Reservation of Rights

The Ann Arbor DDA reserves the right to accept any bid or alternative bid proposed in whole or in part, to reject any or all bids or alternatives bids in whole or in part and to waive irregularity and/or informalities in any bid and to make the award in any manner deemed in the best interest of the DDA.

INVITATION TO BID

Ann Arbor DDA
150 S. Fifth Ave, Ste #301
Ann Arbor, MI 48104

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including City Nondiscrimination requirements and Declaration of Compliance Form, Living Wage requirements and Declaration of Compliance Form, Prevailing Wage requirements and Declaration of Compliance Form, Vendor Conflict of Interest Form, Notice of Pre-Bid Conference, Instructions to Bidders, Bid, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans (if applicable) and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the DDA, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this Bid is one part.

In accordance with these bid documents, and Addenda numbered _____, the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

This project includes work for the City of Ann Arbor. The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

This project includes work for the City of Ann Arbor. The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:320 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services under this Contract. Bidder certifies that the statements contained in the City Prevailing Wage and Living Wage Declaration of Compliance Forms are true and correct.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price. The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the DDA and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Bid shall become due and payable to the DDA.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the DDA to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the DDA believes to be in its best interest.

SIGNED THIS _____ DAY OF _____, 201_.

_____	_____
Bidder's Name	Authorized Signature of Bidder
_____	_____
Official Address	(Print Name of Signer Above)
_____	_____
Telephone Number	Email Address for Award Notice

LEGAL STATUS OF BIDDER

(The Bidder shall fill out the appropriate form and strike out the other three.)

Bidder declares that it is:

* A corporation organized and doing business under the laws of the State of _____, for whom _____, bearing the office title of_____, whose signature is affixed to this Bid, is authorized to execute contracts.

NOTE: If not incorporated in Michigan, please attach the corporation's Certificate of Authority

• A limited liability company doing business under the laws of the State of _____, whom _____ bearing the title of _____ whose signature is affixed to this proposal, is authorized to execute contract on behalf of the LLC.

* A partnership, organized under the laws of the state of _____ and filed in the county of _____, whose members are (list all members and the street and mailing address of each) (attach separate sheet if necessary):

_____

_____

_____

_____

_____

* An individual, whose signature with address, is affixed to this Bid: __ _____
(initial here)

Authorized Official

_____ **Date** _____**,** 201_

(Print) Name _____ Title _____

Company: _____

Address: _____

Contact Phone ( ) _____ Fax ( ) _____

Email _____

BID FORM

Section 1 - Schedule of Prices

Company:_____

Project: **South University Streetscape Improvements**

Pay Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
101	General Conditions, Max $40,000	LS	1	$ _____	$ _____
102	Audio Visual Tape Coverage	LS	1	$ _____	$ _____
120	Project Supervision, Max ___	LS	1	$ _____	$ _____
135	Tree Removal (8" and Larger)	Ea	30	$ _____	$ _____
203	Minor Traffic Devices, Max $10,000	LS	1	$ _____	$ _____
205	Machine Grading, Modified	Sta	2,100	$ _____	$ _____
206	Remove Concrete Planter	Ea	27	$ _____	$ _____
208	Geotextile	Syd	575	$ _____	$ _____
209	Geogrid	Syd	70	$ _____	$ _____
210	Stone Reservoir	Cyd	130	$ _____	$ _____
215	Infiltration Inlet	Ea	7	$ _____	$ _____
221	HMA Leveling	Ton	225	$ _____	$ _____
222	HMA Wearing	Ton	160	$ _____	$ _____
223	Temporary Aggegrate Walk	Syd	185	$ _____	$ _____
225	Recessing Pavement Markings, Longit	Ft	866	$ _____	$ _____
226	Recessing Pavement Markings, Transv	Sft	144	$ _____	$ _____
230	Remove Concrete Curb or Curb & Gutter - Any Type	Lf	1,775	$ _____	$ _____
232	Remove Concrete Sidewalk and Drive - Any Thickness	Sft	22,340	$ _____	$ _____
234	Concrete Curb or Curb & Gutter - Any Type	Lf	2,185	$ _____	$ _____
235	4-Inch Concrete Sidewalk, Rmap, or Drive	Sft	4,665	$ _____	$ _____
236	6-Inch Concrete Sidewalk, Ramp, or Drive	Sft	16,480	$ _____	$ _____
237	8-Inch Concrete Sidewalk, Ramp, or Drive	Sft	3,652	$ _____	$ _____
239	Sidewalk Unit Pavers	Sft	4,665	$ _____	$ _____

TOTAL THIS PAGE $_____

BID FORM

Section 1 - Schedule of Prices

Company:_____

Project: **South University Streetscape Improvements**

Pay Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
239A	Furnish Unit Paver	Sft	1,020	$ _____	$ _____
240	Detectable Warning, Cast in Place	Sft	144	$ _____	$ _____
249	Hydrant Assembly Abandonment	Ea	1	$ _____	$ _____
250	Trench Drain	Lf	65	$ _____	$ _____
251	6" PVC	Lf	25	$ _____	$ _____
252	Sewer Bulkhead, 4-inch through 18-inch Diameter	Ea	10	$ _____	$ _____
254	Temporary 4 Inch Water Main Line Stop	Ea	1	$ _____	$ _____
255	Temporary 6 Inch Water Main Line Stop	Ea	1	$ _____	$ _____
256	12 Inch Insertion Valve in Box	Ea	2	$ _____	$ _____
257	Remove Light Std Shaft	Ea	16	$ _____	$ _____
258	Luminaire Installation	Ea	55	$ _____	$ _____
259	Light Std Shaft, Install Salv	Ea	12	$ _____	$ _____
260	Sand Subbase Course, Class II - C.I.P.	Cyd	410	$ _____	$ _____
262	Composite Planting Mix	Syd	360	$ _____	$ _____
263	Riprap, Fieldstone	Syd	3	$ _____	$ _____
264	Landscape Maintenance	Month	14	$ _____	$ _____
266	Tree Grate	Ea	14	$ _____	$ _____
266A	Furnish Tree Grate	Ea	2	$ _____	$ _____
267A	Furnish Sidewalk Grate	Ea	1	$ _____	$ _____
268	Electrical Wiring	Lf	2,965	$ _____	$ _____
270	No Parking Sign	Ea	40	$ _____	$ _____

TOTAL THIS PAGE $_____

BID FORM

Section 1 - Schedule of Prices

Company:_____

Project: **South University Streetscape Improvements**

Pay Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
271	Sign, Portable Changeable Message, Furnish and Operate	Ea	2	$ _____	$ _____
272	Channelizing Device, 42 Inch - Furnish & Operate	Ea	120	$ _____	$ _____
273	Barricade Type III - Lighted - Furnish and Operate	Ea	20	$ _____	$ _____
274	Barricade Type II - Furnish and Operate	Ea	30	$ _____	$ _____
275	Temporary Sign - Type B	Sf	1,276	$ _____	$ _____
276	Temporary Sign - Type A	Sf	45	$ _____	$ _____
277	Portable Water Filled Barriers	Lf	100	$ _____	$ _____
278	Lighted Arrow, Type C, Furnish & Operate	Ea	1	$ _____	$ _____
280	Planter Curb	Lf	1,055	$ _____	$ _____
280A	Furnish Planter Curb	Lf	175	$ _____	$ _____
281	Bench, Metal	Ea	4	$ _____	$ _____
282	Bench, Precast Concrete	Ea	16	$ _____	$ _____
282A	Furnish Bench, Precast Concrete	Ea	4	$ _____	$ _____
283	Bike Hoop	Ea	16	$ _____	$ _____
283A	Furnish Bike Hoop	Ea	2	$ _____	$ _____
284	Remove Parking Meter	Ea	25	$ _____	$ _____
285	Install Parking Meter	Ea	22	$ _____	$ _____
287	Remove Structure	Cyd	17	$ _____	$ _____
320	RCP, CLASS IV, 12" SEWER, TD-1, MODIFIED	Lf	210	$ _____	$ _____
368	Double Inlet	Ea	1	$ _____	$ _____
385	Sewer Pipe Abandonment	Lf	163	$ _____	$ _____

TOTAL THIS PAGE $_____

BID FORM

Section 1 - Schedule of Prices

Company:_____

Project: **South University Streetscape Improvements**

Pay Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
386	Sewer Structure Abandonment	Ea	10	$ _____	$ _____
400	Class 50 DIP w/ Polyethylene Wrap, 4 inch, TR DET 1	Lf	16	$ _____	$ _____
401	Class 50 DIP w/ Polyethylene Wrap, 6 inch, TR DET 1	Lf	14	$ _____	$ _____
402	Class 50 DIP w/ Polyethylene Wrap, 8 inch, TR DET 1	Lf	30	$ _____	$ _____
403	Class 50 DIP w/ Polyethylene Wrap, 12 inch, TR DET 1	Lf	22	$ _____	$ _____
410	Bends & Reducers, 4 inch	Ea	2	$ _____	$ _____
411	Bends & Reducers, 6 inch	Ea	1	$ _____	$ _____
412	Bends & Reducers, 8 inch	Ea	4	$ _____	$ _____
430	Tees & Crosses, 12 inch	Ea	4	$ _____	$ _____
440	Fire Hydrant Assembly	Ea	1	$ _____	$ _____
441	Gate Valve-in-Box, 4 inch	Ea	1	$ _____	$ _____
442	Gate Valve-in-Box, 6 inch	Ea	1	$ _____	$ _____
446	Gate/Butterfly Valve-in-Well, 12 inch	Ea	1	$ _____	$ _____
453	Tapping Sleeve & Valve-in-Box. 12 inch	Ea	1	$ _____	$ _____
460	Excavate & Backfill for Water Service Tap and Lead	Lf	146	$ _____	$ _____
481	Water Main Pipe Abandonment	Lf	734	$ _____	$ _____
482	Gate Valve-in-Box Abandonment	Ea	2	$ _____	$ _____
483	Gate/Butterfly Valve-in-Well Abandonment	Ea	1	$ _____	$ _____
500	Remove Bituminous Pavement	Syd	1,375	$ _____	$ _____
501	Remove Concrete Pavement - Any Thickness	Syd	1,375	$ _____	$ _____
510	Cold Milling Bituminous Pavement	Ton	9	$ _____	$ _____

TOTAL THIS PAGE $_____

BID FORM

Section 1 - Schedule of Prices

Company:_____

Project: **South University Streetscape Improvements**

Pay Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
522	Subgrade Undercutting - Type II	Cyd	150	$ _____	$ _____
527	Aggregate Base Course - 21AA - C.I.P.	Cyd	405	$ _____	$ _____
529	Sand Subbase Course, 2NS - C.I.P.	Cyd	505	$ _____	$ _____
563	Structure Covers	Lbs	4,800	$ _____	$ _____
564	Reconstruct Structure	Ea	6	$ _____	$ _____
565	Reconstruct Gate Valve Box	Ea	6	$ _____	$ _____
566	Adjust Structure Cover	Ea	9	$ _____	$ _____
567	Adjust Monument Box or Gate Valve Box	Ea	46	$ _____	$ _____
569	Point Existing Structure	Ea	6	$ _____	$ _____
580	Remove Pavement Markings	Lf	100	$ _____	$ _____
581	Remove Pavement Markings-Symbol or Legend	Ea	2	$ _____	$ _____
582	Temporary Pavement Marking (Type R)-In Place	Lf	1,000	$ _____	$ _____
592	Cold Plastic Pvmt Mark, Symbol White	Ea	4	$ _____	$ _____
595	Thermo Pavmt Mark, 4" White	Lf	94	$ _____	$ _____
596	Thermo Pavmt Mark, 6" White	Lf	306	$ _____	$ _____
597	Thermo Pavmt Mark, 24" White	Lf	460	$ _____	$ _____
611	2" Schedule 40 PVC Electrical Conduit	Lf	1,050	$ _____	$ _____
620	Electrical Handhole	Ea	13	$ _____	$ _____
702	Inlet Filter	Ea	15	$ _____	$ _____
703	Silt Fence	Lf	200	$ _____	$ _____
810	Ginko biloba 'Autumn Gold'	Ea	4	$ _____	$ _____

TOTAL THIS PAGE $_____

BID FORM

Section 1 - Schedule of Prices

Company:_____

Project: **South University Streetscape Improvements**

Pay Item	Description	Unit	Estimated Quantity	Unit Price	Total Price
811	Gleditsia triacanthos f. inermis 'Skyline'	Ea	2	$ _____	$ _____
812	Platanus x acerifolia 'Morton Circle'	Ea	1	$ _____	$ _____
813	Nyssa sylvatica	Ea	2	$ _____	$ _____
814	Quercus bicolor	Ea	3	$ _____	$ _____
815	Ulmus x 'Homestead'	Ea	16	$ _____	$ _____
816	Ulmus x 'Frontier'	Ea	5	$ _____	$ _____
817	Calamagrostis a. 'Karl Foerster'	Ea	51	$ _____	$ _____
818	Chelone ly onii 'Hot Lips'	Ea	257	$ _____	$ _____
819	Hemerocallis 'Stella d'Oro'	Ea	232	$ _____	$ _____
820	Iris siberica 'Baby Sister'	Ea	352	$ _____	$ _____
821	Liriope spicata 'Gin-Ryu' Silver Dragon	Ea	494	$ _____	$ _____
822	Panicum virgatum 'Shenandoah'	Ea	54	$ _____	$ _____
882	Seeding and Mulching	Syd	500	$ _____	$ _____
891	Clean-Up and Restoration	LS	1	$ _____	$ _____

TOTAL THIS PAGE $_____

BID FORM

Section 1 - Schedule of Prices

Company:_____

Project: **South University Streetscape Improvements**

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	$	_____
Total From Page BF-6	$	_____
TOTAL BASE BID	**$**	**_____**

BID FORM

Section 2 - Material and Equipment Alternates

The Base Bid proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the DDA, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

Item Number	Description	Add/Deduct Amount

If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the Contract.

Signature of Authorized Representative of Bidder _____ Date _____

BID FORM

Section 3 - Time Alternate

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-2, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the Contract.

Signature of Authorized Representative of Bidder _____Date _____

BID FORM

Section 4 - Major Subcontractors

For purposes of this Contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of Contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision to Section 4 of the General Conditions covering subcontractor's employees who perform work on this contract.

For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified:

Subcontractor (Name and Address)	Work	Amount

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the Contract.

Signature of Authorized Representative of Bidder_____ Date _____

SAMPLE STANDARD CONTRACT

If a contract is awarded, the selected contractor will be required to adhere to a set of general contract provisions which will become a part of any formal agreement such as the following:

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 2015, between the ANN ARBOR DOWNTOWN DEVELOPMENT AUTHORITY, a Michigan Municipal Corporation, 150 S. Fifth Ave., Ann Arbor, Michigan 48104 ("DDA") and _____ _____("Contractor")

_____

(An individual/partnership/corporation, include state of incorporation) (Address)

Based upon the mutual promises below, the Contractor and the DDA agree as follows:

ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled South University Streetscape Improvements in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, which are incorporated as part of this Contract:

Non-discrimination and Living Wage Declaration of Compliance Forms (if applicable)*
Prevailing Wage Declaration of Compliance Form (if applicable)*
Bid Forms
Contract and Exhibits
Bonds
General Conditions
Standard Specifications
Detailed Specifications
Plans
Addenda

* This project includes work for the City of Ann Arbor

ARTICLE II - Definitions

Administering Service Area/Unit means **Ann Arbor DDA**

Project means **South University Streetscape Improvements ITB 4466**

Supervising Professional/Engineer means **the DDA Project Manager, Elizabeth Rolla, P.E.,** or her designee

ARTICLE III - Time of Completion

(A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the DDA.

(B) The entire work for this Contract shall be completed in accordance with the Detailed Specification for Progress Clause.

(C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the DDA, as liquidated damages and not as a penalty, an

amount equal to $500 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the DDA shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

ARTICLE IV - The Contract Sum

(A) The DDA shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Form for the estimated bid total of:

_____Dollars ($_____)

(B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the Contract Documents. Increases or decreases shall be determined only by written agreement between the DDA and Contractor.

ARTICLE V - Assignment

This Contract may not be assigned or subcontracted any portion of any right or obligation under this contract without the written consent of the DDA. Notwithstanding any consent by the DDA to any assignment, Contractor shall at all times remain bound to all warranties, certifications, indemnifications, promises and performances, however described, as are required of it under this contract unless specifically released from the requirement, in writing, by the DDA.

ARTICLE VI - Choice of Law

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this agreement, the Contractor and the DDA agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract. The parties stipulate that the venue referenced in this Contract is for convenience and waive any claim of non-convenience.

Whenever possible, each provision of the Contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the Contract.

ARTICLE VII - Relationship of the Parties

The parties of the Contract agree that it is not a Contract of employment but is a Contract to accomplish a specific result. Contractor is an independent Contractor performing services for the DDA. Nothing contained in this Contract shall be deemed to constitute any other relationship between the DDA and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the DDA for any Contract, debt, or any other obligation to the DDA. The DDA shall have the right to set off any such debt against compensation awarded for services under this agreement.

ARTICLE VIII - Notice

All notices given under this Contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the Contract Documents or other address the Contractor may specify in writing. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; or (2) three days after mailing certified U.S. mail.

ARTICLE IX - Indemnification

This project includes work for the City of Ann Arbor and within the City's right-of-way. To the fullest extent permitted by law, Contractor shall indemnify, defend and hold harmless the City and DDA, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this Contract, by the Contractor or anyone acting on the Contractor's behalf under this Contract. Contractor shall not be responsible to indemnify the City and DDA for losses or damages caused by or resulting from the City or DDA's sole negligence. The provisions of this Article shall survive the expiration or earlier termination of this contract for any reason.

ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the DDA and the Contractor and it supersedes all prior representations, negotiations, agreements, or understandings whether written or oral. Neither party has relied on any prior representations in entering into this Contract. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Contract, regardless of the other party's failure to object to such form. This Contract shall be binding on and shall inure to the benefit of the parties to this Contract and their permitted successors and permitted assigns and nothing in this Contract, express or implied, is intended to or shall confer on any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Contract. This Contract may be altered, amended or modified only by written amendment signed by the DDA and the Contractor.

FOR CONTRACTOR

By_____

Its:_____

FOR THE ANN ARBOR DDA

By_____
John Mouat DDA, CIC Chair

By_____
Susan Pollay, Executive Director

Approved as to form and content

_____
Jerry Lax, DDA Attorney

PERFORMANCE BOND

(1) _____ of _____(referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the Ann Arbor Downtown Development Authority (referred to as "DDA"), for

$ _____, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.

(2) The Principal has entered a written Contract with the DDA dated _____, 201_, for: South University Streetscape Improvements and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.

(3) Whenever the Principal is declared by the DDA to be in default under the Contract, the Surety may promptly remedy the default or shall promptly:

(a) complete the Contract in accordance with its terms and conditions; or

(b) obtain a bid or bids for submission to the DDA for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a Contract between such bidder and the DDA, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the Contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.

(4) Surety shall have no obligation to the DDA if the Principal fully and promptly performs under the Contract.

(5) Surety agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work, or to the specifications.

SIGNED AND SEALED this _____ day of _____, 201_.

_____	_____
(Name of Surety Company)	(Name of Principal)
By _____	By _____
(Signature)	(Signature)
Its _____	Its _____
(Title of Office)	(Title of Office)
Approved as to form:	Name and address of agent:
_____	_____
Jerry Lax, DDA Attorney	_____
	_____

LABOR AND MATERIAL BOND

(1) _____

of _____(referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the Ann Arbor Downtown Development Authority (referred to as "DDA"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of

$ _____, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.

(2) The Principal has entered a written Contract with the DDA, dated _____, 201_, for South University Streetscape Improvements; and this bond is given for that Contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;

(3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the Contract, the Surety shall pay those claimants.

(4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.

SIGNED AND SEALED this _____ day of _____, 201_

_____	_____
(Name of Surety Company)	(Name of Principal)
By _____	By _____
(Signature)	(Signature)
Its _____	Its _____
(Title of Office)	(Title of Office)
Approved as to form:	Name and address of agent:
_____	_____
Jerry Lax, DDA Attorney	_____
	_____

GENERAL CONDITIONS

Section 1 - Execution, Correlation and Intent of Documents

The contract documents shall be signed in 2 copies by the DDA and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Bid.

Section 2 - Order of Completion

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

Section 3 - Familiarity with Work

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the DDA upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

Section 4 - Wage Requirements

This project includes work for the City of Ann Arbor. Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers
employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen,

mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the DDA, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section."

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

If the Contractor is a “covered employer” as defined in Chapter 23 of the Ann Arbor City Code, the Contractor agrees to comply with the living wage provisions of Chapter 23 of the Ann Arbor City Code. The Contractor agrees to pay those employees providing Services to the DDA under this Agreement a “living wage,” as defined in Section 1:815 of the Ann Arbor City Code, as adjusted in accordance with Section 1:815(3); to post a notice approved by the DDA of the applicability of Chapter 23 in every location in which regular or contract employees providing services under this Agreement are working; to maintain records of compliance; if requested by the DDA, to provide documentation to verify compliance; to take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee or person contracted for employment in order to pay the living wage required by Section 1:815; and otherwise to comply with the requirements of Chapter 23.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor’s employees who perform work on this contract.

Section 5 - Non-Discrimination

This project includes work for the City of Ann Arbor. The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of MCL 37.2209. The Contractor further agrees to comply with the provisions of Section 9:158 of Chapter 112 of Title IX of the Ann Arbor City Code, and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity.

Section 6 - Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

The Contractor shall employ competent employees, including supervisors, operators, and laborers for the work under this Contract. .

Section 8 - Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the DDA harmless from loss on account of infringement except that the DDA shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the DDA has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

Section 9 - Permits and Regulations

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City of Ann Arbor and MDOT building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The DDA shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

Section 10 - Protection of the Public and of Work and Property

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or employees of the DDA. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City/DDA property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

Section 11 - Inspection of Work

The DDA shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for

inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the DDA shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

Section 12 - Superintendence

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

Section 13 - Changes in the Work

The DDA may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

Section 14 - Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

(1) When work under an extra work order is added to the work under this Contract;

(2) When the work is suspended as provided in Section 20;

(3) When the work of the Contractor is delayed on account of conditions which could not

have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;

(4) Delays in the progress of the work caused by any act or neglect of the DDA or of its employees or by other Contractors employed by the DDA;

(5) Delay due to an act of Government;

(6) Delay by the Supervising Professional in the furnishing of plans and necessary information;

(7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section I3. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

(1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;

(2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;

(3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an

additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;

(4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;

(5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

Section 16 - Progress Payments

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the Ann Arbor DDA. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the DDA will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The DDA will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 30 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than l80 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

Section 17 - Deductions for Uncorrected Work

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made.

Section 18 - Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the DDA and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within l0 days after written notice, the DDA may remove them and, if the removed material has value, may store the material at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the DDA may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the DDA the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

Section 19 - Acceptance and Final Payment

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the DDA under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the DDA within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the DDA:

(1) The consent of the surety to payment of the final estimate;
(2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the DDA may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the DDA except those arising from:

(1) unsettled liens;
(2) faulty work appearing within 12 months after final payment;
(3) hidden defects in meeting the requirements of the plans and specifications;
(4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

Section 20 - Suspension of Work

The DDA may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the written notice from the DDA to the Contractor to do so. The DDA shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the DDA does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

Section 21 - Delays and the DDA's Right to Terminate Contract

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the DDA may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the DDA may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the DDA for any excess cost to the DDA. If the Contractor's right to proceed is terminated, the DDA may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the DDA, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The DDA may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the DDA for any excess cost incurred. The expense incurred by the DDA, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

Section 22 - Contractor's Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the DDA, terminate this Contract and recover from the DDA payment for all acceptable work executed plus reasonable profit.

Section 23 - DDA's Right To Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the DDA, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the DDA may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

Section 24 - Removal of Equipment and Supplies

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the DDA, shall promptly remove any part or all of its equipment and supplies from the property of the City/DDA, failing which the DDA shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the DDA and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the DDA upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the DDA for damages to materials and equipment from any cause except negligence or willful act of the DDA. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year or longer if stipulated in the Detailed Specifications. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days.
The Contractor shall assign all manufacturer or material supplier warranties to the DDA prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

Section 26 - Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the DDA, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the DDA may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

Section 27 - Payments Withheld Prior to Final Acceptance of Work

The DDA may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the DDA from loss on account of:

(1) Defective work not remedied;

(2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;

(3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;

(4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the DDA which will protect the DDA in the amount withheld, payment shall be made for amounts withheld under this section.

Section 28 - Contractor's Insurance

(1) This project includes work for the City of Ann Arbor and within the City’s right-of-way. The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself, the City of Ann Arbor, and the DDA from all claims for bodily injuries, death or property damage which may arise under this Contract; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. In the case of all contracts involving on-site work, the Contractor shall provide to the DDA, before the commencement of any work under this contract, certificates of insurance and other documentation satisfactory to the DDA demonstrating it has obtained the policies and endorsements required on behalf of itself, and when requested, any subcontractor(s). The certificates of insurance endorsements and/or copies of policy language shall document that the Contractor satisfies the following minimum requirements.

(a) Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - $500,000 each accident
Bodily Injury by Disease - $500,000 each employee
Bodily Injury by Disease - $500,000 each policy limit

(b) Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98 or current equivalent. The City of Ann Arbor and Ann Arbor DDA shall be named as an additional insured. There shall be no added exclusions or limiting endorsements specifically for the following coverages: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further there shall be no added exclusions or limiting endorsements which diminish the City and DDA's protections as an additional insured under the policy. The following minimum limits of liability are required:

$1,000,000	Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.
$2,000,000	Per Job General Aggregate
$1,000,000	Personal and Advertising Injury
$2,000,000	Products and Completed Operations Aggregate

(c) Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor and Ann Arbor DDA shall be named as an additional insured. There shall be no added exclusions or limiting endorsements which diminish the City and DDA's protections as an additional insured under the policy. Further, the limits of liability shall be $1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

(d) Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of $1,000,000.

(2) Insurance required under subsection (1)(b) and (1)(c) above shall be considered primary as respects any other valid or collectible insurance that the City/DDA may possess, including any self-insured retentions the City/DDA may have; and any other insurance the City/DDA does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City and DDA.

(3) Insurance companies and policy forms are subject to approval of the DDA Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the Ann Arbor DDA. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the DDA, in its sole discretion; (c) that the policy conforms to the requirements specified Contractor shall furnish the DDA with satisfactory certificates of insurance and endorsements prior to commencement of any work. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the DDA. If any of the above coverages expire by their terms during the term of this Contract, the Contractor

shall deliver proof of renewal and/or new policies and endorsements to the DDA at least ten days prior to the expiration date.

(4) Any Insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company's Key Rating Guide of "A-" Overall and a minimum Financial Size Category of "V". Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the DDA.

(5) DDA reserves the right to require additional coverage and/or coverage amounts as may be included from time to time in the Detailed Specifications for the Project.

(6) The provisions of General Condition 28 shall survive the expiration or earlier termination of this contract for any reason.

Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

(1) A Performance Bond to the Ann Arbor DDA for the amount of the bid(s) accepted;
(2) A Labor and Material Bond to the Ann Arbor DDA for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the DDA in a manner and by a Surety Company authorized to transact business in Michigan and satisfactory to the DDA Attorney.

Section 30 - Damage Claims

The Contractor shall be held responsible for all damages to property of the City of Ann Arbor, Ann Arbor DDA,or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

Section 31 - Refusal to Obey Instructions

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

Section 32 - Assignment

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the DDA.

Section 33 - Rights of Various Interests

Whenever work being done by the DDA's forces, the City of Ann Arbor's forces, or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

Section 34 - Subcontracts

The Contractor shall not award any work to any subcontractor without prior written approval of the DDA. The approval will not be given until the Contractor submits to the DDA a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the DDA may require.

The Contractor shall be as fully responsible to the DDA for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the DDA may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the DDA.

Section 35 - Supervising Professional's Status

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

Section 36 - Supervising Professional's Decisions

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the DDA or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.

Section 37 - Storing Materials and Supplies

Materials and supplies may be stored at the site of the work at locations agreeable to the DDA unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

Section 38 - Lands for Work

The Contractor shall provide, at its own expense and without liability to the DDA, any additional land and access that may be required for temporary construction facilities or for storage of

materials.

Section 39 - Cleaning Up

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City of Ann Arbor's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

Section 40 - Salvage

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain DDA property and shall be transported or stored at a location as the Supervising Professional may direct.

Section 41 - Night, Saturday or Sunday Work

No night or Sunday work (without prior written City of Ann Arbor approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City of Ann Arbor may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

Section 42 - Sales Taxes

Under State law the DDA is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in DDA projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

Section 43

CONTRACTOR'S DECLARATION

I hereby declare that I have not, during the period _____, 20___, to _____, 20____, performed any work, furnished any materials, sustained any loss, damage or delay, or otherwise done anything in addition to the regular items (or executed change orders) set forth in the Contract titled _____, for which I shall ask, demand, sue for, or claim compensation or extension of time from the DDA, except as I hereby make claim for additional compensation or extension of time as set forth on the attached itemized statement. I further declare that I have paid all payroll obligations related to this Contract that have become due during the above period and that all invoices related to this Contract received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement attached regarding a request for additional compensation or extension of time.

_____ _____

Contractor Date

By _____
(Signature)

Its _____
(Title of Office)

Past due invoices, if any, are listed below.

Section 44

CONTRACTOR'S AFFIDAVIT

The undersigned Contractor,_____, represents that on , 20___, it was awarded a contract by the Ann Arbor DDA to_____ under the terms and conditions of a Contract titled _____. The Contractor represents that all work has now been accomplished and the Contract is complete.

The Contractor warrants and certifies that all of its indebtedness arising by reason of the Contract has been fully paid or satisfactorily secured; and that all claims from subcontractors and others for labor and material used in accomplishing the project, as well as all other claims arising from the performance of the Contract, have been fully paid or satisfactorily settled. The Contractor agrees that, if any claim should hereafter arise, it shall assume responsibility for it immediately upon request to do so by the Ann Arbor DDA.

The Contractor, for valuable consideration received, does further waive, release and relinquish any and all claims or right of lien which the Contractor now has or may acquire upon the subject premises for labor and material used in the project owned by the Ann Arbor DDA.

This affidavit is freely and voluntarily given with full knowledge of the facts.

_____ _____
Contractor Date

By _____
(Signature)

Its _____
(Title of Office)

Subscribed and sworn to before me, on this _____ day of _____, 20__
_____ , _____ County, Michigan
Notary Public
_____ County, MI
My commission expires on:

STANDARD SPECIFICATIONS

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Bid. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

Standard Specifications are available online:
http://www.a2gov.org/departments/engineering/Pages/Engineering-and-Contractor-Resources.aspx

DETAILED SPECIFICATION
FOR
COORDINATION AND COOPERATION WITH OTHERS
AND
WORK BY OTHERS

The Contractor is reminded as to the requirements of article 104.07 of the 2012 edition of the MDOT Standard Specifications, "Cooperation by the Contractor."

The Contractor shall directly coordinate his/her work with the DDA

The Contractor is hereby notified that the City of Ann Arbor Field Services Unit may be installing traffic control conduits, traffic signal sensors, and the like, at various locations.

The Contractor is hereby notified that Private Developers may be staging their construction within the S. University right-of-way. No additional compensation will be paid to the Contractor for coordinating his/her work with the Developer.

No additional compensation will be paid to the Contractor, and no adjustments to contract unit prices will be made, due to delays and/or the failure of others in the performance of their work, nor for delays due to the encountering of existing utilities that are, or are not, shown on the Plans.

The following Utility Owners may have overhead and/or underground facilities located within the Right-of-Way:

The City of Ann Arbor
DTE - MichCon (Michigan Consolidated Gas Company)
DTE - Edison (Detroit Edison Company)
SBC - (Ameritech)
Comcast
MCI Communications
Sprint Communications
The University of Michigan

On all projects:

"3 Working Days before you Dig - Call MISS DIG - Toll Free" Phone No. 1-800-482-7171.

The Owners of public or private utilities which will not interfere with the completed project and which do not present a hazard to the public or an extraordinary hazard to the Contractor's operations will not be required to move their facilities on or from the street right-of-way.

Stoppages created solely by the operations of the utility companies which delay utility revisions on any portion of this project may be considered as a basis of claim for an extension of time for project completion.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
DISPOSING OF EXCAVATED MATERIAL

The Contractor shall dispose of, at the Contractor's expense, all excavated material. Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
PROTECTION OF UTILITIES

Damages to utilities by the Contractor's operations shall be repaired by the utility owner at the Contractor's expense.

Delays to the work due to utility repairs are the sole responsibility of the Contractor.

The Contractor shall keep construction debris out of utilities at all times. The Contractor shall be back charged an amount of $50.00 per day for each manhole/inlet/utility pipe that contains construction debris caused as a result of the Contractor's (including subcontractors and suppliers) work.

The Contractor is solely responsible for any damages to the utilities or abutting properties due to construction debris.

Certain sanitary and storm sewers within the influence of construction may have been cleaned and videotaped prior to construction. The City may also choose to videotape utility line(s) during or after the work of this Contract to inspect them for damages and/or construction debris. If such inspection shows damage and/or debris, then all costs of such inspection, cleaning, repairs, etc, shall be the Contractor's sole responsibility. If such inspection is negative, the City will be responsible for the costs of such inspection.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
SOIL EROSION CONTROL

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

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
VACUUM TYPE STREET AND UTILITY STRUCTURE CLEANING EQUIPMENT

The Contractor shall furnish and operate throughout the construction period, vacuum type street cleaning and utility structure cleaning equipment (Vac-All, Vactor, etc.) approved by the Engineer, as and when directed by the Engineer for dust control, for dirt/debris control, and for street cleaning immediately prior to, and for street and utility structure cleaning after any and all paving. The cleaning equipment shall be of sufficient power to remove dust, dirt, and debris from the pavement and from utility structures in and adjacent to the construction area.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
SITE CLEAN-UP

Immediately after completion of construction on each block, the Contractor shall clean the entire area within the influence of construction, including but not limited to all pavement, sidewalks, lawn areas, and underground utility structures, of all materials which may have accumulated prior to or during the construction.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
MATERIALS AND SUPPLIES CERTIFICATIONS

The following materials and supplies shall be certified by the manufacturer or supplier as having been tested for compliance with the Specifications:

HMA materials
Hot-poured Joint Sealants
Cements, coatings, admixtures and curing materials
Sands and Aggregates
Steel and Fabricated metal
Portland Cement Concrete Mixtures
Reinforcing Steel for Concrete
Reinforcing Fibers for Concrete
Pre-cast Concrete products
Sanitary Sewer Pipe
Storm Sewer Pipe
Water Main Pipe
Corrugated Metal Pipe
High Density Polyethylene Pipe
Timber for retaining walls
Modular Concrete Block for retaining walls
Edge Drain and Underdrain Pipe
Geotextile Filter Fabric and Stabilization Fabric/Grids

The Contractor shall submit all certifications to the Engineer for review and approval a minimum of three business days prior to any scheduled delivery, installation, and/or construction of same.

Costs for this work will not be paid for separately, but shall be included in the bid price of the Contract Item "General Conditions."

DETAILED SPECIFICATION
FOR
CONTRACT DRAWINGS/PLANS

The Contractor shall carefully check and review all Drawings/Plans and advise the Engineer of any errors or omissions discovered. The Drawings/Plans may be supplemented by such additional Drawings/Plans and sketches as may be necessary or desirable as the work progresses. The Contractor shall perform all work shown on any additional or supplemental Drawings/Plans issued by the Engineer.

DETAILED SPECIFICATION
FOR EXISTING
SOIL BORING AND PAVEMENT SECTION DATA

Data pertaining to existing soil borings and pavement sections which may be included in these Contract Documents are provided to help the Engineer and Contractor determine the soil conditions existing within the construction area. The City in no way guarantees existing conditions to be the same as shown in the data. The Contractor is solely responsible for any and all conclusions he/she may draw from the data.

DETAILED SPECIFICATION
FOR
WORKING IN THE RAIN

The Contractor shall not work in the rain unless authorized in writing by the Engineer.

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.

DETAILED SPECIFICATION
FOR
WORKING IN THE DARK

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.

DETAILED SPECIFICATION
FOR
QUANTITIES AND UNIT PRICES

Quantities as given are approximate and are estimated for bidding purposes. Quantities are not guaranteed and may vary by any amount. While it is the DDA's intent to complete the project substantially as drawn and specified herein, quantities may be changed or reduced to zero for cost savings or other reasons. **The DDA reserves the right to change the quantities and no adjustment in unit price will be made for any change in any quantity.**

DETAILED SPECIFICATION
FOR
GENERAL CONSTRUCTION NOTES

The following notes pertain to all Plan sheets issued as part of this Contract, and these notes shall be considered part of each Plan sheet or Detailed Information Sheet.

1. All work shall conform to latest revision of the City Standard Specifications.

2. The Contractor shall maintain access to all drives throughout the course of construction. Drives shall never be closed during non-working hours, unless otherwise authorized in writing by the Engineer.

3. The Contractor shall completely restore all existing site features to better than, or equal to, their existing condition.

4. The Contractor shall be aware that there are above-ground and below-ground utilities existing in and on these streets which include, but are not limited to: gas mains and service leads; water mains and service leads; storm sewer mains and service leads; sanitary sewer mains and service leads; telephone poles, wires, cables and conduits; electrical poles, wires, cables and conduits; cable television wires, cables and conduits, and other various utilities. The Contractor shall conduct all of its work so as not to damage or alter in any way, any existing utility, except where specified on the Plans or where directed by the Engineer. The City has videotaped and cleaned all sanitary and storm sewers, including storm sewer inlet leads, and has found all of these facilities to be in good condition, with the exception of those shown on the Plans for repairs or replacement.

5. The Contractor is solely responsible for any delays, damages, costs and/or charges incurred due to and/or by reason of any utility, structure, feature and/or site condition, whether shown on the Plans or not, and the Contractor shall repair and/or replace, at its sole expense, to as good or better condition, any and all utilities, structures, features and/or site conditions which are impacted by reason of the work, or injured by its operations, or injured during the operations of its subcontractors or suppliers.

6. No extra payments or adjustments to unit prices will be made for damages, delays, costs and/or charges due to existing utilities, structures, features and/or site conditions not shown or being incorrectly shown or represented on the Plans.

7. The Contractor is solely responsible for furnishing the appropriate equipment and qualified personnel for the size and condition of the site and the requirements of the proposed work. Damage to buildings, amenities, utilities, paving, and facilities within and adjacent to the work area, and to work already performed by the Contractor shall be the responsibility of the Contractor to repair as needed, at no cost to the project.

DETAILED SPECIFICATION
FOR
WATER MAIN INSTALLATION AND TESTING

DESCRIPTION

This Detailed Specification is intended to supplement the current City of Ann Arbor Standard Specifications for Construction with regard to water main installation and hydrologic and bacteriologic testing. It is also intended to establish minimum requirements for the work that the Contractor is responsible to follow.

CONSTRUCTION METHODS

During the delivery, handling, installation, and testing of the water main, the Contractor shall comply with the following requirements:

1. Keep all pipe clean and neatly stacked a minimum of six-inches off of the ground at all times. Ends of pipe shall be covered to prevent entry of dust, dirt, small animals, and any other objectionable matter at all times. During installation of the water main and all appurtenances no dirt, soil, or non-potable water shall be allowed to enter the pipe. If dirt, soil, or non-potable water does enter the pipe, the Contractor shall completely remove it prior to installing the next segment of pipe. Segments of pipe that are have visible signs of contamination including, but not limited to; soil, dirt, mud, oil, grease, solvents, animal droppings, etc. shall have all visible traces of the offending substance completely removed by the Contractor in a manner acceptable to the Engineer. Sections of pipe or fittings that have been marked by the Engineer for cleaning shall not be approved for installation until such time as the Engineer has again approved them for use on the project. Acceptable methods of cleaning include flushing and/or power washing, compressed air, or other methods that the Engineer may approve. Approval by the Engineer of a cleaning method shall not be construed by the Contractor to include acceptance of the water main for the purposes of placing it into service. Water main pipe and fittings that have been placed shall remain covered on the advancing end until the next segment of pipe is connected. The Contractor may uncover no more than three segments of pipe in advance of placement. Water main pipe and fittings that have been laid out further in advance of the installation operation must remain covered.

2. Gasket lubricant shall only be applied immediately before connection to the next segment of pipe. Pipe with lubricant applied shall not come in contact with the ground. If the lubricated portion of the pipe end contacts the ground, it shall be thoroughly cleaned to the satisfaction of the Engineer, prior to its installation.

3. All water main shall be swabbed in accordance with the requirements of Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standards. During swabbing of the water main, the swab shall be flushed through the pipe in accordance with the manufacturer's recommendations and in a manner that is acceptable to the Engineer. The Contractor shall submit the product data of the swab from the manufacturer, for review and approval by the Engineer, at or before the pre-construction meeting.

4. Swabbing of the water main shall be followed immediately by flushing of the pipe so that any disturbed particles are washed out before they can resettle. The pipe shall be flushed in accordance with Section 3H, Flushing and Swabbing, of the current edition of the City of Ann Arbor Public Services Department Standard Specifications. The pipe shall be flushed until the

water runs clear for a minimum of fifteen minutes or until two full pipe volumes have been flushed (whichever is longer.) Flushing from the existing water main that is to be replaced shall not be allowed.

5. During the chlorination process, the proper level of chlorination must be achieved throughout the entire length pipe. Chlorine levels shall be checked at intermediate locations as directed by the Engineer and the Contractor shall add chlorine until such time as the required levels are achieved at all points. The "plug method" of chlorinating the pipe shall not be allowed. The Contractor shall chlorinate the proposed water main to a minimum residual concentration of 100 parts per million with commercial liquid chlorine solution. The chlorine concentrate shall be a minimum of 10% chlorine (sodium hypochlorite) by volume. Solid chlorine "pellets" or powder shall not be allowed. Any chlorine containing compound used on the project shall be approved by the Engineer. The minimum recommended dosage of chlorine (sodium hypochlorite) is as follows (based on 10% available chlorine):

   Recommended Minimum Chlorine Dosage to Disinfect 100 L.F. of Pipe

Pipe Diameter	10% Chlorine Solution (gallons)
6	0.306
8	0.544
10	0.852
12	1.226
16	2.180
20	3.406
24	4.904

6. Bacteriological testing shall be performed by the City with the Contractor present. The Engineer shall determine the number, location, and type of testing points for each section of water main being tested. Bacteriological samples shall only be drawn from copper or brass sampling points. The use of galvanized steel blow-offs or sampling points are strictly prohibited. Obtaining bacteriological samples from fire hydrants will not be allowed.

7. If a new water main fails two consecutive sets of bacteriological tests, the Engineer may require the Contractor to re-swab the water main in accordance with Section 3H, Flushing and Swabbing, as described above. Additional flushing, prior to subsequent bacteriological sampling will also be required. The required additional swabbing and flushing of the water main by the Contractor shall be performed at no additional cost to the City of Ann Arbor.

MEASUREMENT AND PAYMENT

Payment for all labor, materials, and equipment that is required to comply with this Detailed Specification shall be considered as part of the unit price as bid for each respective water main pipe and fitting and will not be paid for separately.

Payment for all water main pipe shall be as follows:

The Contractor shall be paid for 50% of the water main pipe installed upon satisfactory completion of the installation and backfilling of the water main pipe. The remaining 50% shall be paid upon successful completion of all required bacteriological testing, the water main has been placed into service, and all water service leads have been connected and are in service.

DETAILED SPECIFICATION
FOR
ASPHALTIC SEAL COATINGS
DUCTILE IRON PIPE FITTINGS

DESCRIPTION

The Contractor may not operate City water main valves. For valve operation, contact the City of Ann Arbor Public Services Area. It is recommended that the Contractor request that the existing valves, which will need to be operated in order to perform the water main work, are checked in advance of the work to ensure that they operate properly.

Several items of work on this project require coordination with the City of Ann Arbor Public Services Area (The City). The Contractor shall notify the City three (3) full working days in advance of any items requiring coordination with the City.

The Contractor shall complete the water main work in a manner which minimizes the disruption of water service. Water quality issues arise and treatment costs increase when the well field system is taken off line. No shut downs at the well field shall occur on Saturdays or Sundays. Shut downs shall not be for longer than 8.0 hours for any given shutdown event. Liquidated damages as detailed and described on page C-2 of these documents shall apply to any shut downs that occur on Saturday or Sunday or for a period of time longer than 8.0 hours in any given 24 hour period.

The Contractor shall be responsible for coordination with the City of Ann Arbor Public Services Area for the installation of 1-inch corporations in the gate wells to be used for testing and filling of new main. The Contractor shall pay the City of Ann Arbor's Field Operations Unit all costs associated with installing the corporations.

The Contractor must have all materials, fittings, pumps and other miscellaneous equipment, and personnel on site before the City of Ann Arbor Public Services Area personnel will prepare and shutdown an existing main.

The Contractor shall dig-up and expose utility crossings 60-feet in advance of laying any water main pipe in their vicinity. This will allow the Engineer to adjust the grade of the water main, if possible, to avoid the existing utilities. The costs of the advance excavations, and related costs, shall be included in the respective items of work listed in the Bid Form. Some dig-ups may need to occur out of Phase.

All ductile iron pipe and fittings shall have an asphaltic seal coat on their cement-mortar linings. The coatings shall meet the requirements of ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, and be approved for contact with drinking water.

MEASUREMENT AND PAYMENT

Asphaltic seal coat for ductile iron pipe and fittings shall not be measured or paid for separately. This work shall include all labor, materials and equipment costs necessary to provide asphaltic seal coat of ductile iron pipe and fittings. Payment for this work shall be considered as part of the unit price for each respective ductile iron pipe and fitting unit price.

DETAILED SPECIFICATION
FOR
CONCRETE DURABILITY

DESCRIPTION

The Contractor shall furnish a Portland cement concrete mixture for this project that has been tested under this specification and shown to be resistant to excessive expansion caused by alkali-silica reactivity (ASR) and provides adequate air entrainment for freeze thaw durability. The Contractor shall construct the project with practices outlined in this specification.

MATERIALS

The materials provided for use on this project shall conform to the following requirements:

Portland cement	ASTM C 150
Fine Aggregate	ASTM C 33*
Coarse Aggregate	ASTM C 33*
Fly Ash, Class F	ASTM C 618
Slag Cement, Grade 100, 120	ASTM C 989
Silica Fume	ASTM C 1240
Blended Cements	ASTM C-595
Air Entraining Admixtures	ASTM C-260
Chemical Admixtures	ASTM C-494
White Membrane Cure	ASTM C-309 Type 2

* Fine and coarse aggregates shall consist of natural aggregates as defined in the 2012 MDOT Standard Specifications Section 902.02.A.1.

The Contractor shall provide documentation that all materials to be incorporated into proposed mixed designs meet the requirements of this section.

Alkali-Silica Reactivity

The Contractor shall supply to the Engineer preliminary concrete mix designs including a list and location of all suppliers of concrete materials. The Contractor shall evaluate the mixtures for the potential for excessive expansion caused by ASR and provide documentation to the Engineer. The Contractor's evaluation shall include a review of any previous testing of the material sources intended to be used for both the fine and coarse aggregates for the concrete mixtures. The previous testing may be from other projects or records provided by the material suppliers.

Aggregates shall be tested under ASTM C-1260. If the expansion of the mortar bars is less than 0.10%, at 14 days, the aggregates shall be considered innocuous and there are no restrictions for ASR mitigation required with this material.

Previous aggregate test data may be used. If no previous test data is available, for the concrete mix, that shows that it is resistant to ASR, a concrete mixture that will mitigate the potential for ASR must be designed using either method 1 or 2 as described below.

Method 1. Substitution of a portion of the cement with Class F Fly Ash, Slag Cement Grade 100 or

120 or a ternary mix (blended cement) containing a blend of Portland cement and slag cement, or Class F fly ash, or silica fume.

The maximum substitution of cement with the fly ash permitted shall be 25% by weight of total cementitious material (cement plus fly ash). Additional requirements for the Fly Ash, Class F are that the Calcium Oxide (CaO) percent shall be less than 10 % and the available alkalis shall not exceed a maximum of 1.5%. A copy of the most recent mill test report shall be submitted to verify. Note: a Class C fly ash with a minimum total oxides ($SiO_2 + Al_2O_3 + Fe_2O_3$) of 66% and a minimum SiO_2 of 38% may be used in lieu of Type F fly ash.

The maximum substitution of cement with the Slag Cement permitted shall be 40% by weight of total cementitious material (cement plus Slag Cement). The minimum replacement rate with Slag Cement shall be 25%.

For a ternary blend the total replacement of supplementary cementitious materials is 40% with a blend consisting of a maximum of 15% type F fly ash, and/or 8% silica fume and/or slag cement.

For method 1, the effectiveness of the proposed mix combination to resist the potential for excessive expansion caused by ASR shall be demonstrated using current or historic data. To demonstrate the effectiveness of the proposed mix the Contractor shall construct and test mortar bars per ASTM C1567 (14 day test) using both the fine and coarse aggregate along with the proposed cementitious material for the concrete mixture. If a mortar bar constructed of these materials produces an expansion of less than 0.10%, concrete mixture will be considered to be resistant to excessive expansion due to ASR.

If a mortar bar constructed produces an expansion of 0.10% or greater, concrete mixtures containing these materials shall not be considered resistant to the potential for excessive expansion due to ASR and shall be rejected. Additional testing, including alternate proportions or different materials will be required.

Method 2. Use low alkali cement and maintain the total alkali content from the cementitious at no more than 3.0 lbs/cyd (Na_2O_{eq}). The total alkali contribution is calculated by the quantity contained in the Portland cement only.

Requirements for Low Alkali Cement are that the alkali content does not exceed 0.60% expressed as Na_2O equivalent. Equivalent sodium oxide is calculated as: (percent Na_2O + 0.658 x percent K_2O).

For either method 1 or 2, if the Contractor intends to change any component material supplied after the mix design has been approved all concrete work will be suspended with no cost to the project or extensions of time, unless approved, until evaluation of the new mixtures and testing of the new materials demonstrates that it is resistant to excessive expansion due to ASR.

The Engineer and Contractor shall monitor the concrete that is delivered to the project site so as to insure that the approved mix design is being followed. The supplier shall include on the delivery ticket for each batch of concrete delivered to the job, the identification and proportions of each material batched.

When concrete is placed during cold weather, defined for the purposes of this Detailed Specification to be, air temperatures below 40º F, the use of accelerators, heated aggregates, silica fume and/or additional forms of cold weather protection will be required. Cold weather will not eliminate the requirement for furnishing and placing a concrete mix that is considered resistant to ASR attack.

Prior to cool weather placement, defined for the purposes of this detailed specification to be, air temperatures between 40º and 60º F, the set time of the proposed mix shall be verified under anticipated field conditions. This information shall be used when scheduling pours and saw crews.

Air Entrainment

Air entrainment shall be accomplished by addition of an approved air entraining agent. Air content as determined by ASTM C 231 or ASTM C 173, shall be determined on each day of production as early and as frequently as necessary until the air content is consistently acceptable. If during the period of time while adjustments are being made to the concrete to create a mixture that is consistently acceptable, concrete is produced that does not meet the requirements of this Detailed Specification, the Engineer may reject the material and direct it to be removed from the jobsite. Any rejected material shall be removed from the jobsite at the Contractor's sole expense. Quality Control testing performed by the Contractor to ensure compliance with the project specifications shall be performed on the grade ahead of the placement operation.

Paver placement: During production, the plastic concrete material shall be tested for acceptance at a point ahead of the paver. The air content of the concrete mixture that the Contractor shall provide shall be known as the Acceptance Air Content (AAC). The Contractor shall also provide additional entrained air in the concrete mixture to account for the air loss which occurs in the concrete mixture experienced during transportation, consolidation and placement of the concrete. The "air loss" shall be added to the air content of the concrete mixture as established on the approved concrete mix design. The AAC for the project will be 6.0% plus an amount equal to the air loss.

For up to the first four loads, the air content measured on-site prior to placement shall be at least 8.0% and no more than 12.0%. To establish the initial AAC on the first day of paving, the air content of the first load shall be tested at the plant. After initial testing at the plant the Contractor shall provide at least two sample sets to determine the actual air loss during placement. A sample set shall consist of two samples of concrete from the same batch, one taken at the point of discharge and the other from the in-place concrete behind the paver. The air loss from the two sample sets shall be averaged and added to 6.0% to establish the AAC (rounded to the next higher 0.5%). After the testing and adjustment procedure(s) have been completed, the project acceptance air tests shall be taken prior to placement. The Contractor shall provide concrete to the jobsite that has an air content of plus 2.0%, or minus 1.0%, of the AAC.

After the AAC has been established, it shall be verified and/or adjusted through daily checks of the air loss through the paver. The Contractor shall check the air loss through the paver a minimum of two times a day. A Revised AAC shall be required to be established by the Contractor if the average air loss from two consecutive tests deviates by more than 0.5% from the current accepted air loss. The testing operations performed by the Contractor to establish a revised AAC shall be performed to the satisfaction of the Engineer. The Contractor shall be solely responsible for any delays and/or costs that occur to the project while establishing revised AACs.

Hand placed concrete: The air content for non-slip-form paving shall be 7.0% plus 1.5%, or minus 1.0%, at the point of placement.

CONSTRUCTION METHODS

Aggregate Control

Gradation control – The supplier shall provide a detailed stockpile management plan, describing

their process control procedure for shipping, handling, and stockpiling of each aggregate including workforce training.

Moisture control – All aggregate materials must be conditioned to a moisture content of not less than saturated surface dry (SSD) prior to batching. A watering process using an effective sprinkler system designed and operated by the Contractor shall be required on all coarse aggregate material stockpiles.

The Contractor shall provide verification that these processes have been performed by the supplier. The Engineer reserves the right to independently verify that the supplier has complied with these standards.

Mixing

Central mix plants - The total volume of the batch shall not exceed the designated size of the mixer or the rated capacity as shown on the manufacturer's rating plate.

Drum Mix Plants: After all solid materials are assembled in the mixer drum; the mixing time shall be a minimum of 60 seconds and a maximum of 5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall start after the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer through out the charging cycle. Any additional slump water required shall be added to the mixing chamber by the end of the first 25% of the specified mixing time. Mixers shall not be used if the drum is not clean or if the mixing blades are damaged or badly worn

Ribbon mixers: After all solid materials are assembled in the mixer; the mixing time shall be a minimum of 30 seconds and a maximum of 2.5 minutes. The mixing time may be decreased if the ASTM C-94 11.3.3 mixer efficiency tests show that the concrete mixing is satisfactory. The Engineer may require an increase in the minimum mix time if the mixer efficiency test determines that the concrete is not being mixed satisfactorily. The minimum mixing time shall be indicated by an accurate timing device which is automatically started when the mixer is fully charged. Mixers shall be operated at the speed recommended by the manufacturer as mixing speed. The mixer shall be charged so that a uniform blend of materials reached the mixer through out the charging cycle. After any additional slump water is added to the mixing chamber the mixing shall continue for a minimum of 10 seconds. Mixers shall not be used if the mixer is not clean or if the mixing blades are damaged or badly worn.

Truck Mixers -The capacities and mixing capabilities shall be as defined in ASTM C 94, and each unit shall have an attached plate containing the information described therein. The plate may be issued by the Truck Mixer Manufacturer. The mixer capacity shall not be exceeded, and the mixing speeds shall be within the designated limits. Truck mixers shall be equipped with a reliable reset revolution counter. If truck mixers are used for mixing while in transit, the revolution counter shall register the number of revolutions at mixing speed.

An authorized representative of the concrete producer shall certify that the interior of the mixer drum is clean and reasonably free of hardened concrete, that the fins or paddles are not broken or worn excessively, that the other parts are in proper working order, and that the unit has been checked by the representative within the previous 30 calendar day period to substantiate this certification. The current, signed certification shall be with the unit at all times.

The required mixing shall be between 70 and 90 revolutions. The mixing shall be at the rate designated by the manufacturer and shall produce uniform, thoroughly mixed concrete.

The Engineer may inspect mixer units at any time to assure compliance with certification requirements, and removal of inspection ports may be required. Should the Engineer question the quality of mixing, the Engineer may check the slump variation within the batch. Should the slump variation between two samples taken, one after approximately 20% discharge and one after approximately 90% discharge of the batch, show a variation greater than 3/4 inch (20 mm) or 25% of the average of the two, whichever is greater, the Engineer may require the mixing to be increased, the batch size reduced, the charging procedure be modified or the unit removed from the work.

The practice of adding water on the site shall be discouraged. After the slump of the concrete in the first round of trucks has been adjusted on-site, the amount of water added at the plant shall be adjusted accordingly for that day's work. All additions of water on site shall be approved by the Engineer.

Curing

Apply liquid curing compound in a fine atomized spray to form a continuous, uniform film on the horizontal surface, vertical edges, curbs and back of curbs immediately after the surface moisture has disappeared, but no later than 30 minutes after concrete placement. With approval of the Engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties.

The cure system shall be on site and tested prior to concrete placement.

Apply a curing compound at a rate of application not less than 2 gallons per 25 square yards. The Contractor shall keep the material thoroughly mixed per the Manufacturer's recommendations. The curing compound shall not be diluted.

The finished product shall appear as a uniformly painted solid white surface. Areas exhibiting a blotchy or spotty appearance shall be recoated immediately.

COMPLIANCE WITH STANDARDS

The Engineer will review and approve all material test reports and mix designs supplied by the Contractor before any placement of concrete. The Engineer will visually inspect the placed concrete and review the concrete test reports prior to final acceptance.
Acceptance sampling and testing will be performed using the sampling method and testing option selected by the Engineer. Acceptance testing will be performed at the frequency specified by the Engineer. Quality control measures to insure job control are the responsibility of the Contractor. The Engineer's testing and/or test results will not relieve the Contractor from his/her responsibilities to produce, deliver, and place concrete that meets all project requirements. The Engineer's test results are for acceptance purposes only.

If the results of the testing are not in compliance with the project specifications, the Engineer shall determine appropriate corrective action(s). Time extensions will not be granted to the Contractor during the time that the Engineer is determining the necessary corrective actions.

If, in the Engineer's judgment, the rejected material must be replaced, the material in question will be removed and replaced at the Contractor's sole expense. The removal costs will be deemed to include all relevant and associated costs including, but not limited to; re-mobilization, traffic control, re-grading the aggregate base course, if required, placement of material meeting the project specifications, and all other

expenses. Time extensions will not be granted to the Contractor for any required repair work to meet the requirements of this specification.

If the Engineer decides that the material in question can remain in place, an adjustment to the contract unit price(s) may be made of up to 100% of the bid price(s) for the affected items of work.

MEASUREMENT AND PAYMENT

The cost associated with complying with the requirements as described herein, including any required remedial action(s), shall be included in the cost of other items of work and shall not be paid for separately.

PROGRESS CLAUSE

PROGRESS CLAUSE: The Notice to Proceed is expected on February 13, 2107. In no case shall any work be commenced prior to receipt of formal notice of award by the DDA.

All hardscape construction work in this contract shall be completed on or before July 15, 2017. All landscape work shall be completed on or before August 19, 2017.

The work shall be completed in a methodical sequence of activity (or "stages") moving through the project site,, as indicated on the Traffic Maintenance Plans; and within the Phases noted herein.

Phase 1, Underground utility work within the roadway: This work must be completed within 21 consecutive calendar days. Work may take place anytime between the Notice to Proceed and March 31, 2017. During this phase, no work is permitted which obstructs pedestrian access to the local businesses or impacts the local businesses' use of the r.o.w. (e.g, for cafe seating).

Phase 2, All remaining work exclusive of landscaping and landscape maintenance: This work must be completed between UM Graduation activities (May 1, 2017) and the Ann Arbor Art Fair setup (July 15, 2017). During this phase, work must be sequenced such that ADA-compliant thru pedestrian access on each side of each block is restricted no longer than 14 consecutive calendar days. Within those 14 days, temporary ADA-compliant pedestrian access into each business must be maintained during the business' hours. Pedestrian access must be maintained on at least one side of each block at all times.

Phase 3, Landscape planting: July 24 - August 19, 2017

Landscape maintenance: September 2018 – November 2019.

The Contractor may propose to adjust the limits or sequencing of construction in order to complete the work more efficiently. Changes to the recommended construction sequence must be approved in writing by the Engineer prior to construction and must assure all required coordination with other projects and time lines.

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 in order to complete the project by the final completion date. 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."

Liquidated damages will be charged for delays within each phase, in the amount of $500 per calendar day. This includes delays to pedestrian access as specified above.

The approved low bidder(s) for the work covered by this proposal will be required to meet with the Engineer to work out a detailed Progress Schedule. The schedule for this meeting will be set within two weeks after the approved low bidder is determined. The low bidder will also submit for review and approval a sequence of operation/staging plan to complete the work by the specified completion date.

The named subcontractor(s) for Specialty and/or Designed Items (if such items are designated in the proposal) which materially affect the work schedule shall also be present at the scheduled meeting, and they will be required to sign the Progress Schedule to indicate their approval of the scheduled dates of work set forth in the Progress Schedule.

The Engineer will arrange the time and place for the meeting.

The Plans and Special Provisions describe further logistics, coordination and scheduling requirements of the Project, which shall be included in the Progress Schedule and otherwise conformed to. Work will be allowed from 7am – 8pm, Monday – Saturday.
Work beyond these hours is subject to the approval of the Engineer, and subject to approval of an extended hours work permit application by the City of Ann Arbor.

No work may be performed on Memorial Day, Independence Day, Labor Day or on the event dates shown below.

During the below dates, S. University must be completely open to vehicular and pedestrian traffic. All temporary traffic control devices must be removed from the site. All sidewalk surfaces must be ADA compliant. During the Art Fair dates, the roadway surface must be even and smooth to allow for staging of artists' booths and pedestrian traffic.

UM Graduation: April 24 - 30, 2017
Art Fair: July 15 - 23, 2017
UM Student Move-In: August 26 - September 4, 2017

Any costs associated with down time, demobilizing/remobilizing, temporary paving or restoration, temporary pavement markings, and removal/replacement of traffic control devices required due to these events and downtimes shall be included in contract pay item "Item No 101, General Conditions," and it will not be paid for separately.

DETAILED SPECIFICATION
FOR
FURNISHING MATERIALS, INCLUDING-
#239A - FURNISH UNIT PAVER
#266A - FURNISH TREE GRATE
#267A - FURNISH SIDEWALK GRATE
#280A - FURNISH PLANTER CURB
#282A - FURNISH BENCH, PRECAST CONCRETE
#283A - FURNISH BIKE HOOP

DESCRIPTION

As noted on the plans, some of the project area has been designed by the Engineer, but will be installed by others under contract with a local property developer who is building a new facility on the north side of South University. For purposes of design continuity, the materials described in this Detailed Specification will be furnished by the Contractor and installed by others.

This work consists of furnishing and storing the site development materials that will be installed by others on the north side of South University Street between East University and Church Street. Furnished materials include unit pavers, tree grates, a sidewalk grate, planter curb, precast concrete benches, and bike hoops. This effort includes purchase and delivery of materials, unloading of materials at the selected storage site, and protection of materials from weather and damage. All materials must be furnished in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

MATERIALS

All ancillary materials, including instructions, shipping information, hardware and related items provided by the manufacturer of the assembly and installation of the specified products are to be furnished to the DDA.

Materials are to be furnished that meet the specifications provided in other relevant Detailed Specifications and match the materials being installed by the Contractor. For instance, the materials furnished under Unit # 239A- Furnish Unit Paver shall match the specifications and requirements established for Unit #239 Unit Paver.

Shop Drawing, product information, and certifications required for these materials in the other relevant Detailed Specifications shall be adequate for compliance with the pay units described in this section.

The materials will be stored at the city owned facility at 415 W. Washington Street, Ann Arbor Michigan, or at another facility designated by the Engineer.

The Contractor will place, cover, and otherwise protect the stored materials to prevent damage from moisture, staining from soils, and other potential damage to the finish and quality of the materials.

MEASUREMENT AND PAYMENT

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

PAY ITEM	PAY UNIT
#239A- Furnish Unit Paver	Square Foot
#266A- Furnish Tree Grate	Each
#267A- Furnish Sidewalk Grate	Each
#280A- Furnish Planter Curb	Linear Foot
#282A- Furnish Bench, Precast Concrete	Each
#283A-Furnish Bike Hoop	Each

Furnish Unit Paver, Furnish Tree Grate, Furnish Sidewalk Grate, Furnish Planter Curb, Furnish Bench, Precast Concrete, and Furnish Bike Hoop includes all shipping and storage costs, labor, materials, and equipment necessary to furnish the materials as described.

The measurement of **Furnish Unit Paver and Furnish Planter Curb** is based on the total amount of materials to be ordered, delivered and stored, and not the actual installed quantity.

DETAILED SPECIFICATION
FOR
ITEM #101 - GENERAL CONDITIONS, MAX $40,000

DESCRIPTION

This item shall include all work described and required by the Plans and Specifications for which no item of work is listed in the Bid Form, including but not limited to:

- Scheduling and organization of all work, subcontractors, suppliers, testing, inspection, surveying, and staking
- Coordination of, and cooperation with, other contractors, agencies, departments, and utilities
- Protection of Utilities
- Placing, maintaining, and removing all soil erosion and sedimentation controls
- Maintaining drainage
- Maintaining drives, drive openings, sidewalks, pedestrian building access, mail deliveries, and solid waste/recycle pick-ups
- Storing all materials and equipment off lawn areas
- Coordination efforts to furnish various HMA mixtures as directed by the Engineer
- Furnishing and operating vacuum-type street cleaning equipment
- Furnishing and operating vacuum-type utility structure cleaning equipment
- Furnishing and operating both vibratory plate and pneumatic-type ("pogo-stick") compactors
- Furnishing and operating all equipment required to completed the proposed work activities as specified
- Noise and dust control
- Furnish and install temporary barricades and fencing at excavation areas to protect workers and people in the work area.
- Mobilization(s) and demobilization(s)
- Furnishing submittals and certifications for materials and supplies
- Disposing of excavated materials and debris
- All miscellaneous and incidental items such as overhead, insurance, and permits.

MEASUREMENT AND PAYMENT

This item of work 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.

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	PAY UNIT
General Conditions, Max $40,000	Lump Sum

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

DETAILED SPECIFICATION
FOR
ITEM #102 – AUDIO VISUAL TAPE COVERAGE

DESCRIPTION

This work shall include digital audiovisual record of the physical, structural, and aesthetic conditions of the construction site and adjacent areas as provided herein. This work will be performed for the entire project limits prior to the start of construction.

The audio-visual filming shall be:

1. Of professional quality, providing a clear and accurate audio and visual record of existing conditions.
2. Prepared within the four (4) week period immediately prior to the start of construction.
3. Furnished to the Engineer a minimum of one (1) week prior to bringing any materials or equipment within the areas described in this Detailed Specification.
4. Carried-out under the supervision of the Engineer.

The Contractor shall furnish one (1) copy of the completed audiovisual record to the Engineer. An index of the footage shall be included, which will enable any particular area of the project to be easily found. This includes indexing the files according to street. The Contractor shall retain a second copy of the audiovisual record for his/her own use.

Any portion of the film determined by the Engineer to be unacceptable for the documentation of existing conditions shall be filmed again at the Contractor's sole expense prior to mobilizing onto the site.

PRODUCTION

The audio-visual filming shall be completed in accordance with the following minimum requirements:

1. DVD Format, No Editing - The filming shall be done in color using equipment that allows audio and visual information to be recorded. Splicing or editing of the tape shall not be allowed and the speed and electronics of the videotaping equipment and DVD shall be equal to that which is standard to the video taping industry.

2. Perspective/Speed/Pan/ Zoom - To ensure proper perspective, the distance from the ground to the camera lens shall not be less than 10 feet and the filming must proceed in the general direction of travel at a speed not to exceed 48 feet per minute. Pan and zoom rates shall be controlled sufficiently so that playback will ensure quality of the object viewed.

3. Display - The recording equipment shall have transparent time, date stamp and digital annotation capabilities. The final copies of the tape shall continuously and simultaneously display the time (hours:minutes:seconds) and the date (month/date/year) in the upper left-hand corner of the frame. Accurate project stationing, where applicable, shall be included in the lower half of the frame in standard format (i.e. 1+00). Below the stationing periodic information is to be shown, including project name, name of area shown, street address, direction of travel, viewing direction, etc.

   If in the event, the stationing has not been established on-site, refer to the plans and approximate the proposed stationing. Audio Commentary/Visual Features. Locations relative to project limits

and landmarks must be identified by both audio and video means at intervals no longer than 100 feet along the filming route. Additional audio commentary shall be provided as necessary during filming to describe streets, buildings, landmarks, and other details, which will enhance the record of existing conditions.

4. Visibility/Ground Cover - The filming shall be performed during a time of good visibility. Filming shall not be performed during periods of precipitation or when snow, leaves, or other natural debris obstruct the area being filmed. The Contractor shall notify the Engineer in writing in the event that the weather or snow cover is anticipated to cause a delay in filming.

COVERAGE

The audio-visual film coverage shall include the following:

1. General Criteria - This general criteria shall apply to all filming and shall include all areas where construction activities will take place or where construction vehicles or equipment will be operated or parked and or where materials will be stored. The filming shall extend an additional 50 feet outside of all areas. The filming shall include all significant, existing man-made and natural features such as driveways, sidewalks, utility covers, utility markers, utility poles, other utility features, traffic signal structures and features, pubic signs, private signs, fences, landscaping, trees, shrubs, other vegetation, and other similar or significant features.

2. Other Areas - The Contractor shall film at his sole expense other areas where, in his/her opinion, the establishment of a record of existing conditions is warranted. The Contractor shall notify the Engineer in writing of such areas.

3. Street List – This item shall include the filming all of the streets as listed in the Detailed Specification for Progress Schedule and Construction Limits.

The Engineer may direct the filming of other minor areas not specified herein at the Contractor's sole expense.

AUDIOVISUAL FILMING SERVICES

The following companies are known to be capable of providing the filming services required by this Detailed Specification and shall be utilized, unless the Contractor receives prior written approval from the Engineer to utilize another company of comparable or superior qualifications.

Construction Video Media Midwest Company
Topo Video, Inc. Video Media Corp.

MEASUREMENT AND PAYMENT

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:

PAY ITEM	PAY UNIT
Audiovisual Tape Coverage	Lump Sum

Audiovisual Tape Coverage shall include all labor, equipment, and materials required to perform the

filming and to provide the finished videotape the Engineer. The unit price includes filming the entire project limits, for each and every street, as described above.

DETAILED SPECIFICATION
FOR
ITEM #120 - PROJECT SUPERVISION, MAX $40,000

DESCRIPTION

The Contractor shall designate a full-time Project Supervisor to act as the Contractor's agent/representative, and to be responsible for scheduling and coordination of all subcontractors, suppliers, other governmental agencies, and all public and private utility companies. The Project Supervisor shall also be responsible for communicating the work schedule with all impacted businesses.

The Project Supervisor shall not be an active crew member of the Contractor, shall not be an active member or employee of any subcontractor's work force, and shall not perform general or specialized labor tasks.

Prior to the pre-construction meeting, the Contractor shall designate a proposed Project Supervisor by name, and shall furnish the DDA with a current, thorough, detailed summary of the proposed Project Supervisor's work history, outlining all previous supervisory experience on projects of a similar size and nature. The detailed work history shall include personal and professional references (names and phone numbers) of persons (previous owners or agents) who can attest to the qualifications and work history of the proposed Project Supervisor. Proposed candidates for Project Supervisor shall have a demonstrated ability to work harmoniously with the City, DDA, the public, subcontractors, and all other parties typically involved with work of this nature. The Project Supervisor shall be able to demonstrate that they have filled a supervisory role on at least three projects of similar scope and size within the last 5 years. The Supervising Professional, Engineer, and DDA will have the authority to reject a proposed Project Supervisor whom he/she considers unqualified.

The Project Supervisor shall be available 24 hours-per-day to provide proper supervision, coordination and scheduling of the project for the duration of the Contract. The Contractor shall furnish the DDA with telephone numbers of the Project Supervisor in order to provide 24 hour-per-day access during business and non-business hours, including weekends and holidays.

The Project Supervisor shall be equipped by the Contractor with a mobile telephone to provide the DDA with 24 hour- per-day access to him/her during daily construction activities, during transit to and from the construction site, and during all non-business hours including weekends and holidays.

The Project Supervisor shall be equipped with assistants as necessary to provide project supervision as specified herein, and in accordance with the Contract.

DUTIES AND RESPONSIBILITIES

The Project Supervisor work harmoniously with the City, DDA, the public, subcontractors, and all other parties typically involved with work of this nature.

The Project Supervisor shall have a thorough, detailed understanding and working knowledge of all construction practices and methods specified elsewhere herein, as well as the handling, placement, testing and inspection of aggregates, aggregate products, landscape materials, electrical equipment, pre-cast unit pavers, HMA concrete, and Portland cement concrete materials.

The Project Supervisor shall be responsible for all of the work of all of the Contractor's, subcontractors' and suppliers' work forces.
The Project Supervisor shall be responsible for proper and adequate maintenance (emissions, safety, and general operation) of all of the Contractor's, subcontractors' and suppliers' equipment and vehicles.

The Project Supervisor is responsible to assure that mail delivery, solid waste, and recycling pick-ups are uninterrupted by the construction.

The Project Supervisor is responsible to coordinate deliveries to the local businesses.

The Project Supervisor shall be responsible for the legal, proper and safe parking/storage of all of the Contractor's, subcontractors' and suppliers' equipment, work vehicles, and employee's vehicles.

The Project Supervisor shall schedule and coordinate the work of all parties involved in the project, including utility companies, testing agencies, governmental agencies, all City departments (such as Utilities and Transportation), the DDA and/or City inspectors, and the impacted businesses.

The Project Supervisor shall coordinate and schedule the work of any independent survey crews that may be retained by the City or DDA to witness and reset existing and new geographic/benchmark monuments. Failure to have existing monuments witnessed and reset may result in delays to the Contractor's work. Costs for such delays will be the Contractor's sole responsibility.

The Project Supervisor shall coordinate and schedule both testing inspectors and City and DDA inspectors in a timely manner, to assure proper and timely testing and inspection of the work.

The Project Supervisor shall review the Inspector's Daily Reports (IDRs) for accuracy, and shall sign all IDRs on a daily basis as the representative of the Contractor. Items to be reviewed include descriptions, locations and measurements of quantities of work performed, workforce, equipment, and weather. The Project Supervisor shall also be responsible for its subcontractors' review and initialing of IDRs containing work items performed by each respective subcontractors.

The Project Supervisor shall submit to the Engineer, an updated, detailed schedule of the proposed work on a weekly basis, and an update of all proposed changes on a daily basis, all in accordance with the Detailed Specification for Project Schedule contained elsewhere herein.

The Project Supervisor shall schedule and chair a weekly progress meeting with the Engineer and all subcontractors to discuss the work. Upon the completion of each meeting, the Project Supervisor shall prepare and distribute, to all present, a written summary of the meeting's minutes. Those in attendance shall review the minutes and, if necessary, comment on any deficiencies or errors prior to or at the next scheduled progress meeting.

The Project Supervisor shall engage with the affected businesses to communicate expectations for the work and to adjust the construction methods and/or times to best accommodate the local businesses.

ADDITIONAL PERFORMANCE REQUIREMENTS

If, in the sole opinion of the Supervising Professional, the Project Supervisor is not adequately performing the duties as outlined in this Detailed Specification, the following system of notices will be given to the contractor with the associated penalties:

First Notice – A warning will be issued in writing to the contractor detailing the deficiencies

in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a second notice.

Second Notice – A second warning will be issued in writing to the contractor further detailing the deficiencies in the Project Supervision. The contractor must respond within 7 calendar days in writing with a plan to correct the stated deficiencies. Failure to respond within 7 calendar days will result in the issuing of a third notice. A deduction of 10% will be made from the original Project Supervision contract amount. At this time, the DDA reserves the right to meet with personnel with the necessary authority within the Contractor's organization to discuss the deficiencies in the Project Supervision.

Third Notice – An additional deduction of 25% will be made from the original Project Supervision contract amount, and the Project Supervisor shall be removed from the project, and replaced immediately with another individual to be approved by the Supervising Professional.

Should, in the sole opinion of the Supervising Professional, the Project Supervisor fail to perform his/her duties and responsibilities as described herein to such a degree that the successful completion of the project is put in jeopardy, the above system of notices may be foregone, and the Contractor shall immediately replace the Project Supervisor upon receipt of written notice. Failure to provide adequate project supervision, as determined by the Engineer, shall be considered basis for the Supervising Professional to suspend work without extension of contract time or additional compensation.

MEASUREMENT AND PAYMENT

This item of work 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.

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	PAY UNIT
Project Supervision, Max $40,000	Lump Sum

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

DETAILED SPECIFICATION
FOR
ITEM #203 - MINOR TRAFFIC DEVICES, MAX $10,000

DESCRIPTION

The work of Minor Traffic Devices shall include, but not be limited to:

- The furnishing and operating of miscellaneous signs, warning devices, flag-persons, and cones;
- The operation of additional signs furnished by the DDA;
- Maintaining pedestrian traffic;
- Temporarily covering traffic controls;
- Temporarily covering existing signs as directed;
- Any and all other miscellaneous and/or incidental items which are necessary to properly perform the work.

The Contractor shall maintain vehicular and pedestrian traffic during the work by the use of flag-persons, channelizing devices, and signs as necessary, as directed by the Engineer, and in accordance with MMUTCD. Typical applications for maintaining pedestrian traffic in accordance with the MMUTCD are included in this detailed specification.

MEASUREMENT AND PAYMENT

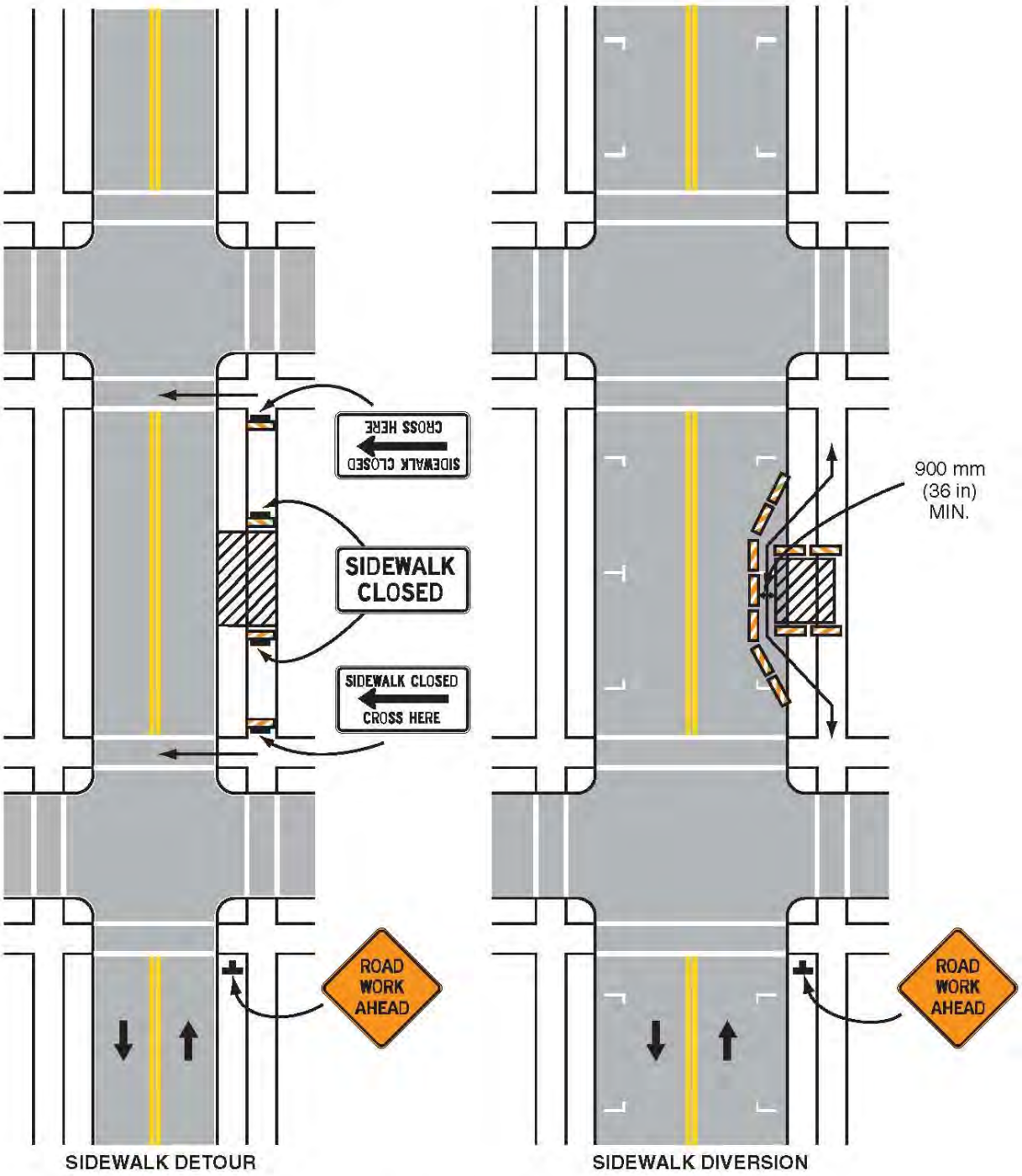
This item of work will be paid for on a pro rata basis at the time of each progress payment. Measurement will be based on the ratio between work completed during the payment period and the total contract amount. When all of the work of this Contract has been completed, the measurement of this item shall be 1.0 Lump Sum.

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	PAY UNIT
Minor Traffic Devices, Max $10,000	Lump Sum

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.

Figure 6H-28. Sidewalk Detour or Diversion (MI) (TA-28)



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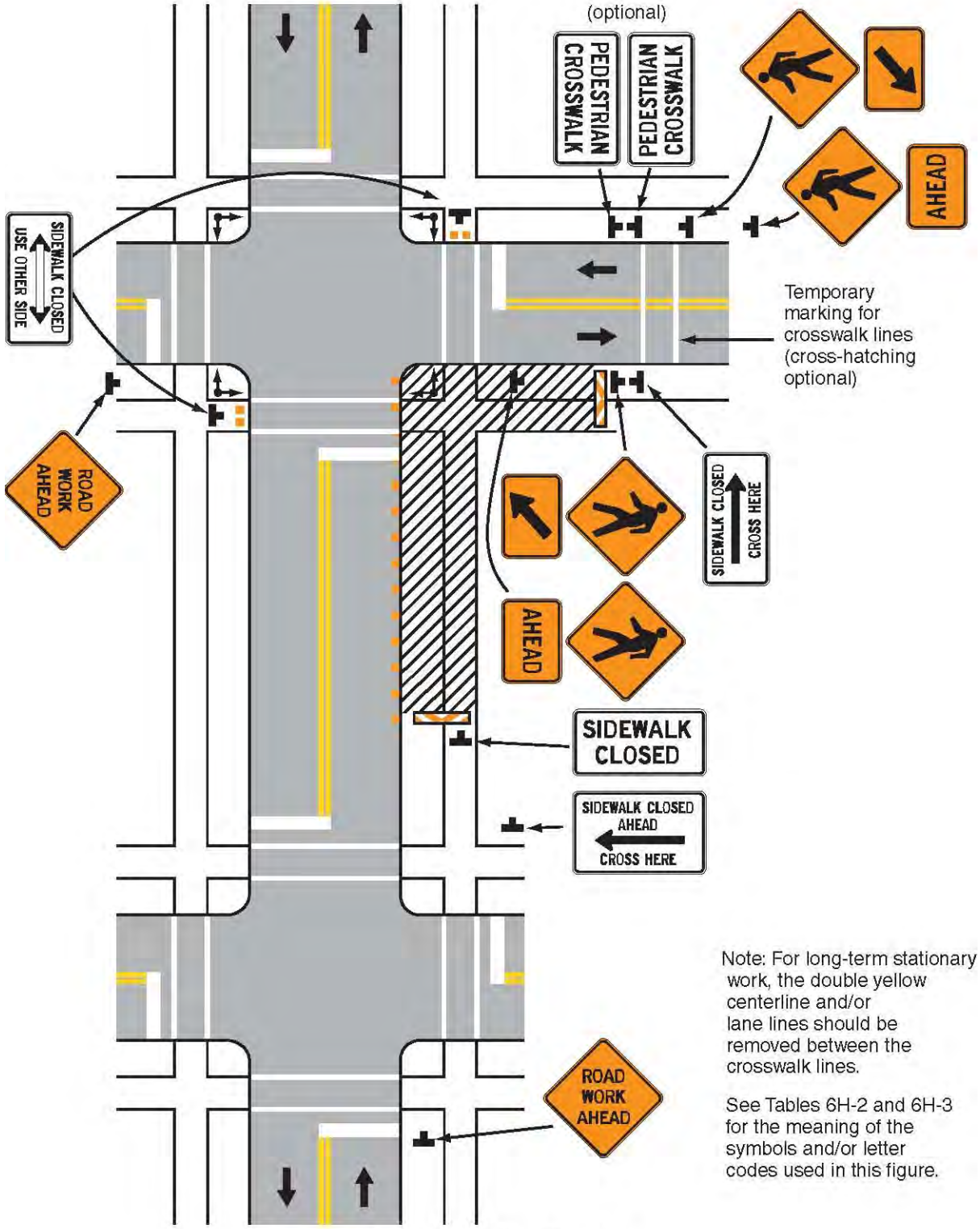
Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

Figure 6H-29. Cross walk Closures and Pedestrian Detours (MI) (TA-29)



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DETAILED SPECIFICATION
FOR
ITEM #205 – MACHINE GRADING, MODIFIED
ITEM #206 – REMOVE CONCRETE PLANTER
ITEM #207 REMOVE BENCH

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 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 soil, rocks of any size, stumps, 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 and sidewalk area to the cross-section(s) as indicated on the Plans, as detailed in the Specifications, and as directed by the Engineer.

The existing site includes irrigation system that is to be abandoned. As part of Machine Grading the Contractor is to insure that the system is no longer active with water pressure, then remove any remaining irrigation equipment uncovered during the work, and properly dispose of all materials off site.

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

As part of Machine Grading the Contractor shall remove other surface features, including signs, and bicycle parking hoops 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 project site 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 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.

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 City Forester prior to the removal of any tree roots 2 inches or larger in size.

Butt joints are included in this pay item.

Topsoil, seeding and mulch shall be paid for as part of the item “Seeding & Mulching” and “Clean-Up & Restoration”.

For Remove Concrete Planter, Contractor is to remove the existing pre-cast concrete planters and dispose of properly off-site, including any remaining root ball, soil mass and irrigation equipment. The City and DDA do not wish to salvage the concrete planters. All removals shall be accomplished without damage to buildings, light pole, site amenities, curb to remain, and related site features.

For Remove Bench Contractor is to remove the existing benches flush with pavement, grout repair any holes or gaps in paving, and dispose of the bench and related hardware properly off-site. The City and DDA do not wish to salvage the bench. All removals shall be accomplished without damage to buildings, light pole, site amenities, pavement to remain, and related site features.

MEASUREMENT AND PAYMENT

Measurement for payment for the item “Machine Grading Modified” shall be the computed by road station, including the entire right-of-way (as further described below) and the quantity of excavated material (soil, rock, brick, etc.) to the bottom of the excavation. Embankment, fill, subgrade protection/maintenance, and drainage maintenance will not be paid for separately, and are included in this item of work.

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	PAY UNIT
Machine Grading, Modified	Station
Remove Concrete Planter	Each
Remove Bench	Each

The unit prices for **Machine Grade Modified, Remove Concrete Planter, and Remove Bench** 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.

"Station" in the **Machine Grading, Modified** pay unit is defined as a one hundred foot length of street as stationed on the plans; each "Station" pay unit is measure longitudinally for every 100 feet or fraction thereof, and is measure from the center line of the right of way to the edge of the right of way (that being one half of the right of way).

DETAILED SPECIFICATION
FOR
ITEM #208 - GEOTEXTILE
ITEM #209 - GEOGRID
ITEM #210 - STONE RESERVOIR

DESCRIPTION AND MATERIALS

This work includes subgrade preparation, furnishing and installation of aggregate base, stone reservoir trench, and geosynthetic materials, as specified herein, as shown on the Plans, and as directed by the Engineer.

RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, City Standard Specification, and MDOT 2012 Standard Specifications for Construction (as well as applicable Special Provisions as referenced herein) apply to this Section.

PERFORMANCE REQUIREMENTS

A. Subgrade Stabilization: The Contractor shall be responsible for providing materials and labor to stabilize subgrade to support paving and construction equipment and limit rutting to meet minimum requirements specified herein.

SUBMITTALS

A. Aggregates/Sand:
   1. Source: Must be MDOT approved.
   2. Aggregate gradation and percent voids (porosity).

B. Admixtures: Certification from MDOT approved supplier.

C. Geotextile and Geogrid: Product Certifications and specifications from manufacturer.

QUALITY CONTROL/QUALITY ASSURANCE

A. Installation Personnel Qualifications:
   1. Trained and experienced in the fabrication and installation of the materials and equipment.
   2. Knowledgeable of the design.

B. Testing: The DDA's representative shall perform testing to ensure compliance with the materials specifications as required by the Engineer.

C. Weight Slips:
   1. Furnish weight slips for material incorporated in the Project.
   2. Verify that the required tonnage has been applied by calculating and submitting yield for each day of work.

DELIVERY, STORAGE AND HANDLING

A. Handle and store materials in a manner which will prevent deterioration, damage, contamination with foreign matter, and damage by weather or elements, and according to Manufacturer's directions.

B. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation.
C. Reject damaged, deteriorated or contaminated material and immediately remove from the Site. Replace rejected materials with new materials at no additional cost to Owner.

MATERIALS

A. Aggregate/Sand Materials:
    1. Aggregate Base Course:
        a. MDOT 21AA, Modified
            1) Crushed limestone.
            2) Thickness in accordance with Drawing for cross section.
            3) Paid for as item #527 Aggregate Base Course, 21AA – C. I. P.
    2. Stone Reservoir:
        a. MDOT 6AA
            1) Washed.
            2) Thickness and width: as shown on Plans.

B. Geotextile
    1. Nonwoven.
    2. Minimum Properties:
        a. Weight - 6 oz.
        b. Marafi 160N, TerraTex N06, US Fabric 165 NW, or approved equal.

C. Geogrid
    1. Polypropylene triaxial grid.
    2. Minimum Properties:
        a. Minimum Rib Thickness: 0.03 inches (0.76 mm)
        b. Tensile Strength @2% Strain (ASTM D6637): 280 lbs/ft
        c. Tensile Strength @5% Strain (ASTM D6637): 580 lbs/ft
        d. Ultimate Tensile Strength (ASTM D6637): 850 lbs/ft
        e. Flexural Stiffness (ASTM D5732): 250,000 mg-cm
        f. Resistance to Installation Damage (ASTM D5818 & D6637): 93%
        g. Tensar TX 5 or approved equal.

CONSTRUCTION METHODS

PREPARATION

A. Subgrade Preparation:
    1. Avoid compaction of subgrade soil unless directed or approved by Engineer.
    2. Scarify compacted or disturbed subgrade soils to a minimum depth of 6 inches with York rake; or equivalent method and light tractor.
    3. Remove accumulation of fine materials due to ponding or surface erosion with light equipment.

4. Conform to line, grade, and elevations indicated.
    a. Excavate, fill, re-grade, and scarify areas damaged by erosion, ponding or traffic compaction.
    b. Use light equipment.
5. Proof Roll:
    a. To identify soft or unstable areas.
    b. Use light equipment, avoid over compacting subgrade.
6. Do not place geotextile or geogrid until subgrade surface has been inspected and approved by Engineer.

B. Stone Reservoir Trench & Geotextile
1. Begin installation of stone reservoir immediately after approval of subgrade preparation.
2. Do not place sand or aggregate materials on a frozen base, subbase, or subgrade.
3. Remove any accumulation of debris or sediment which has taken place after approval of subgrade and installation of stone reservoir and prior to installation of the geotextile, at the contractor's expense.
4. Place geotextile in accordance with Manufacturer's standards and recommendations.
a. Overlap Adjacent Strips: Minimum 16 inches.
b. Prevent runoff or sediment from entering the stone reservoir.
5. Place backfill for stone reservoir in uniform layers such that when compacted, they have the thicknesses shown on the Plans, or as directed by the Engineer.
6. The loose measure of any layer -- not more than 9-inches or less than 4-inches.
7. Compact backfill to a minimum of 95% of the maximum density per City Standard Specifications.

C. Geogrid Installation:
1. Place geogrid and aggregate base course immediately after installation of stone reservoir.
2. Remove any accumulation of debris or sediment which has taken place after approval of subgrade and installation of stone reservoir prior to installation of the geogrid, at the contractor's expense.
3. Place geogrid in accordance with Manufacturer's standards and recommendations.
    a. Overlap Adjacent Strips: Minimum 16 inches.
    b. Prevent runoff or sediment from entering the storage bed.
4. Place aggregate base course to grades indicated on Drawings.
    a. Maximum Lift Thickness: 10 inches.
    b. Minimum Lift Thickness: 6 inches.
    c. Compact each layer to a minimum of 95% of the maximum density per City Standard Specifications.
    d. Fine grade as necessary to conform to elevations and cross section indicated on the Drawings.
    e. Roll aggregate layer with paving roller until smooth, as directed by Engineer.

D. Do not place bituminous material until the aggregate surface has been inspected, proof rolled and approved by Engineer.

MEASUREMENT AND PAYMENT

The items of work included in this Detailed Specification shall be paid for at the Contract Unit Price, which shall be payment in full for all labor, material and equipment needed to accomplish all the work described in this detailed specification, which includes, but is not limited to: furnishing, placement, and compaction of all aggregate materials and furnishing and placement of geotextile or geogrid.

The Contractor is responsible to perform his/her own computations of the quantities required to complete all of the work described in this Detailed Specification and on the Plans, and include all of his/her costs to complete ALL of the work for this pay item. Plan quantity will be paid for the work, and will only be adjusted due to changes in the station limits of the project, as directed by the Engineer, in writing.

Price adjustments shall be enforced by the DDA if materials are not in accordance with specifications.

All costs for furnishing and operating vacuum-type street cleaning equipment, backhoes, jackhammers, air compressors, and other equipment necessary to complete the work shall be included in the bid prices for these items of work or in the item of work "General Conditions."

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:

PAY ITEM	**PAY UNIT**
Geotextile	Square Yard
Geogrid	Square Yard
Stone Reservoir	Cubic Yard

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 #215 – INFILTRATION BASIN – 48-INCH DIAMETER

DESCRIPTION

This work shall consist of installing storm water leaching basin structure. The Contractor shall furnish all labor, equipment and materials necessary to install the structure and appurtenances specified in the Plans and these specifications.

These units shall be installed as detailed on the plans or as configured according to reviewed and approved shop drawings submitted by the Contractor.

MATERIALS

All materials shall conform to City standards and specifications. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

1. Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
2. The precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
3. Cement shall be Type III Portland Cement conforming to ASTM C 150;
4. Aggregates shall conform to ASTM C 33;
5. Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185 or A 497, respectively;
6. Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990 and
7. Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

A. Internal Components and Appurtenances

Internal Components and appurtenances shall conform to the following:

1. Screen and support structure shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
2. Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
3. Access system(s) conform to the following:
   a. Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.
   b. Casting and rim per plans and City Standard Specifications.

Submittals

The Contractor shall prepare and submit shop drawings in accordance with the contract documents at least two weeks prior to installation. The shop drawings shall detail horizontal and vertical dimensioning, reinforcement and joint type and locations.

The Contractor shall submit four (4) sets of shop drawings sealed by a Professional Engineer in the State of Michigan certifying the above requirements to the City and the DDA, and showing details and an Operation & Maintenance plan for the storm water treatment units. The submittal should also include

laboratory test results for the proposed units and references for local projects where the units have been installed. These documents must be reviewed and approved prior to the start of construction.

CONSTRUCTION METHODS

Handling and Storage

1. The Contractor shall exercise care in the storage and handling of the structure prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the Contractor.
2. The work shall be completed by a Contractor approved by the City and DDA.
3. The structure shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the Contractor installation instructions and offer on- site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours' notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
4. The Contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The Contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner which leaves no sharp points or edges.

MEASUREMENT AND PAYMENT

The completed work will be paid for at the contract unit price for the following contract item (pay item).

PAY ITEM	PAY UNIT
Infiltration Basin – 48-inch Diameter	Each

The unit price includes all labor, equipment, materials, and documents necessary to install the structure.

DETAILED SPECIFICATION
FOR
ITEM #220 - HMA PAVEMENT LEVELING PATCHING
ITEM #221 - HMA PAVEMENT WEARING PATCHING

DESCRIPTION

This work shall consist of constructing HMA pavement base, leveling, and surface courses in accordance with Division 5 and Section 806 of the 2012 MDOT Standard Specifications, current supplemental MDOT specifications, and the City 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:

WORK ITEM	MDOT HMA MIXTURE #
HMA Pavement Leveling (for full depth)	3C
HMA Pavement Wearing (full depth and partial depth)	LVSP

Binders for the bituminous mixes shall be PG 58-28 or as directed by the Engineer, and shall meet the requirements specified in Section 904 of the 2012 MDOT Standard Specifications, and any current supplemental MDOT specifications.

Bond coat shall be an emulsified asphalt Type SS-1h and shall meet the requirements specified in Section 904 of the 2012 MDOT Standard Specifications, and any current supplemental MDOT specifications.

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

The Aggregate Wear Index (AWI) number for this project is 260. 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.

3C HMA Mixture shall meet the requirements for Design Mix and Aggregate properties as indicated in the tables below:

Table 1: Mix Design Criteria and Volumetric Properties

	Mixture No.				
	2C	3C	4C	13A	36A
Target Air Void, % (a)	3.00	4.00	4.00	4.00	4.00
VMA (min) (b)	11.00	13.00	14.00	14.00	15.00
VFA	65-78	65-78	65-78	65-78	65-78
Fines to Binder Ratio (max) (c)	1.2	1.2	1.2	1.2	1.2
Flow (0.01 inch)	8 -16	8 -16	8 -16	8 -16	8 -16
Stability (min), lbs	1200	1200	1200	900	900

a. Lower target air voids by 1.00% if used in a separate shoulder paving operation. Consider reducing air void targets to 3.00% for lower traffic volume roadways when designing 13A and 36A mixtures for local agency use.
b. VMA calculated using Gsb of the combined aggregates.
c. Ratio of the weight of aggregate passing the No. 200 sieve to total asphalt binder content by weight; including fines and binder contributed by RAP.

Table 2: Aggregate Properties

	Mixture No.				
	2C	3C	4C	13A	36A
	Percent Passing Indicated Sieve or Property Limit				
1½ inch	100				
1 inch	91-100	100			
3/4 inch	90 max.	91-100	100	100	
1/2 inch	78 max.	90 max.	91-100	75-95	100
3/8 inch	70 max.	77 max.	90 max.	60-90	92-100
No. 4	52 max.	57 max.	67 max.	45-80	65-90
No. 8	15-40	15-45	15-52	30-65	55-75
No. 16	30 max.	33 max.	37 max.	20-50	
No. 30	22 max.	25 max.	27 max.	15-40	25-45
No. 50	17 max.	19 max.	20 max.	10-25	
No. 100	15 max.	15 max.	15 max.	5-15	
No. 200	3-6	3-6	3-6	3-6	3-10
Crushed (min), % (MTM 117)	90	90	90	25	60
Soft Particle (max), % (a)	12.0	12.0	8.0	8.0	8.0
Angularity Index (min) (b)	4.0	4.0	4.0	2.5	3.0
L.A. Abrasion (max), % loss (c)	40	40	40	40	40
Sand Ratio (max) (d)	-	-	-	50	50

a. The sum of the shale, siltstone, structurally weak, and clay-ironstone particles must not exceed 8.0 percent for aggregates used in top course. The sum of the shale, siltstone, structurally weak, and clay-ironstone particles must not exceed 12.0 percent for aggregates used in base and leveling courses.
b. The fine aggregate angularity of blended aggregates, determined by MTM 118, must meet the minimum requirement. In mixtures containing RAP, the required minimum fine aggregate angularity must be met by the virgin material. NAA fine aggregate angularity must be reported for information only and must include the fine material contributed by RAP if present in the mixture.
c. Los Angeles abrasion maximum loss must be met for the composite mixture, however, each individual aggregate must be less than 50
d. Sand ratio for 13A and 36A no more than 50% of the material passing the No. 4 sieve is allowed to pass the No. 30 Sieve.

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 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 kill all vegetation (within the area to be paved) by applying an approved weed killer ("Round-Up" by Monsanto, or equal), 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 0.05 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 to avoid covering surfaces which are not to be paved. After September 15, SS-1h bond coat shall not be diluted by more than 25%.

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

Spot Wedging, Spot Leveling, and Finish Patching shall be performed in accordance with this Detailed Specification and as directed by the Engineer, using the HMA mixture(s) directed by the Engineer. Removal of spot paving, if requested by the Engineer, shall be completed at no cost to the project.

Construction of butt joints, where directed by the Engineer, shall be measured and paid for as "Machine Grading Modified."

HMA wearing and leveling courses shall be placed in lifts of 2-inches or less; base courses shall be placed in lifts of 3- inches or less.

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 leveling and wearing courses 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 1½-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 wearing and leveling 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-hours' 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 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.

Substandard work that, in the Enginerr's opnion, requires removal and replacement, shall be completed as follows:

1. Remove and replace leveling and/or wearing course areas mixed with foreign materials and defective areas.
2. Sawcut full depth of existing pavement in perpendicular and parallel directions to adjoining surfaces to ensure a quality and aesthetically pleasing repair.
3. Replacement may need to extend beyond the area of repair. Cut out such areas and fill with fresh, hot mix asphalt.
4. Compact by rolling to specified density and smoothness.
5. Sawcut or route new joint and fill with specified Hot Poured Rubber Joint Sealer product.

During the placement of leveling and wearing 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.

MEASUREMENT AND PAYMENT

Measurement of these HMA paving items 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.

The bond coat is included in the cost of the HMA Pavement Item.

Corrective action shall be enforced as described at Division 5 of the 2012 MDOT Standard Specifications and will be based on the City's or DDA'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."

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:

PAY ITEM	PAY UNIT
All HMA Pavement Items	Ton

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.

Payment Adjustment In Lieu Of Repair/Replacement

In the case that the work that is installed does not meet the specified quality of materials or installation, the DDA may opt to require the full removal and replacement of the substandard work, or, at their discretion, use the formulas listed below to reduce payment for the work.

A. Pavement Compaction:
    1. Pavement
        a. If the daily average in place density is less than 94%, but greater than 93% of the mixture theoretical maximum density (TMD) the paving will be evaluated by the Engineer and Owner and at Owner's discretion, the unit price of that days paving will be reduced to 90% of full payment.
        b. If the daily average in place density is less than 93% but greater than 92% of the mixture TMD the paving will be evaluated by the Engineer and Owner and at Owner's discretion may either be removed or the unit price of that days paving will be reduced to 75% of full payment.
        c. If the daily average in place density is less than 92% of the mixture TMD the paving will be removed and replaced at no cost to Owner.

B. Mix Design Tolerances:
    1. If the percent of crushed stone is less than specified, but not more than 10% less, the paving will be evaluated by the Engineer and Owner and at Owner's discretion the unit price of that days paving will be reduced to 90% of full payment.
    2. If the percent of crushed stone is more than 10% less than specified, the paving will be evaluated by the Engineer and Owner and at Owner's discretion may be removed or the unit price of that days paving will be reduced to 75% of full payment.
    3. If the percent of asphalt binder is 0.30% less than specified, but not more than 0.45% less, the paving will be evaluated by the Engineer and Owner and may either be removed or the unit price of that days paving will be reduced to 90% of full payment.
    4. If the percent of asphalt binder is more than 0.45% less, the paving will be evaluated by the Engineer and Owner and may either be removed or the unit price of that days paving will be reduced to 75% of full payment.
    5. If the percent of air voids in the mixture is more than specified, but more than 0.5% greater and less than 0.75% greater, the paving will be evaluated by the Engineer and Owner and at Owner's discretion may either be removed or the unit price of that days paving will be reduced to 90% of full payment.
    6. If the percent of air voids in the mixture is more than specified, but more than 0.75% more, the paving will be evaluated by the Engineer and Owner and at Owner's discretion may either be removed or the unit price of that days paving will be reduced to 75% of full payment.

DETAILED SPECIFICATION
FOR
ITEM #223 - TEMPORARY AGGREGATE WALK

DESCRIPTION

This work shall consist of installing Temporary Aggregate Paving as necessary to insure access to entrances to active businesses in the project area. All work shall conform to the 2012 edition of the MDOT Standard Specifications, and the City of Ann Arbor Standard Specifications, except as modified herein, and as directed by the Engineer. All Temporary Aggregate Pavement shall conform to the most recent applicable guidelines and requirements of the Americans with Disability Act (ADA).

MATERIALS

The Temporary Aggregate Pavement shall be constructed of 21AA Limestone Aggregate mix as specified in the 2012 edition of the MDOT Standard Specifications.

CONSTRUCTION METHODS

All areas excavated on any given day which restrict barrier free access to businesses shall be graded, compacted and a temporary walk installed that is opened to pedestrian traffic, that same day, immediately following the excavation. Install the Temporary Aggregate Walk as necessary to insure barrier free access, and as directed by the Engineer.

Construction of the pavement shall meet the following conditions:

1. The temporary walks to each business entrance shall connect to existing paved areas suitable for pedestrian access.
2. Compact the subgrade under the location of the temporary walks prior to placement of aggregates.
3. The temporary walks are to be a minimum of 5 feet wide, and shall be a minimum of 4 inches thick of the specified aggregate.
4. The aggregate of each walk area shall be evenly graded and trimmed, and shall be compacted by the use of a vibratory plate compactor or other approved method(s).
5. Compact all temporary walk areas to not less than 98% of its maximum unit weight.
6. In no case shall the longitudinal slope of the temporary walk exceed 5%; cross slope on the walk shall not exceed 2%.
7. Should the temporary walks create areas of ponded water, the Contractor will remove the water with pumps and/or temporary pipes to completely drain the area.
8. The completed work of temporary walk construction shall provide a smooth walking surface, to the satisfaction of the Engineer.
9. Remove the aggregate from the temporary walk areas immediately prior to the installation of the permanent concrete sidewalk. Maintain segregation of the temporary walk aggregate during removal for use in future work. Aggregates used in temporary walk construction may be re-used on the site for other temporary walks or permanent constructed, at the discretion of the Engineer.

MEASUREMENT AND PAYMENT

Measurement shall be by the square yard, in place, for each temporary walk section or area installed.

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:

PAY ITEM	**PAY UNIT**
Temporary Aggregate Walk	Square Yard

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 #225 - RECESSING PAVT MRKG, LONGIT
ITEM #226 - RECESSING PAVT MRKG, TRANSV

DESCRIPTION

This work consists of providing all equipment and labor required to prepare (grooving) the pavement surface for recessed longitudinal, transverse, and turning guide line pavement markings in accordance with the City of Ann Arbor Permanent Pavement Markings Detailed Specification, the plans, and this detailed specification.

MATERIALS

None specified.

CONSTRUCTION

Install a recess (groove) in accordance with the recessed pavement marking material manufacturer's installation instructions. Ensure all recessing configurations are in accordance with the Michigan Manual of Uniform Traffic Control Devices and the Michigan Department of Transportation Pavement Marking Standards.

1. Grooving Concrete and Hot Mix Asphalt Pavement. If there are no markings on the pavement, paint a temporary tracer line (with no beads) exactly where the permanent markings will be placed. Use these lines as a template for the grooving operation.

   Use equipment and methods approved by the manufacturer of the recessed pavement marking material to be recessed for forming grooves in pavement surfaces. Dry-cut the grooves in a single pass using stacked diamond cutting heads on self-vacuuming equipment capable of producing a finished groove ready for pavement marking material installation.

   Ensure that the bottom of the groove has a fine corduroy finish. If a coarse tooth pattern results, increase the number of blades and decrease the spaces on the cutting head until the required finish is achieved.

2. Groove Dimensions. Ensure grooves for recessed pavement markings are in accordance with the following:

   Longitudinal Markings

Groove Width:	Material width +1 inch, (±1/8 inch)
Groove Depth:	As recommended by the manufacturer, (±5 mils)
Groove Position:	Center/Lane Lines: 2 inches from joint line, (±1/8 inch) Edge Lines: On lane, 2-4 inches in from the joint line, (±1/8 inch) Edge Lines for 14 foot paved lanes: as directed by the Engineer

   Transverse Markings

Groove Width:	Material width +1 inch, (±1/8 inch)
Groove Depth:	As recommended by the manufacturer, (±5 mils)
Groove Position:	In the exact location where the transverse marking (crosswalk or stop

bar) will be placed.

Turning Guide Line Markings

Groove Width:	Material width +1 inch, (±1/8 inch)
Groove Depth:	As recommended by the manufacturer, (±5 mils)
Groove Position:	In the exact location where the turning guide line markings will be placed.

Placing Recessed Pavement Markings. Place the pavement marking material in the grooves within 24 hours of the grooves being made. Ensure the grooves are clean and dry prior to placing pavement marking material. Locate the groove so the entire marking can be placed within the groove.

MEASUREMENT AND PAYMENT

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

PAY ITEM	PAY UNIT
Recessing Pavt Mrkg, Longit	Foot
Recessing Pavt Mrkg, Transv	Square Foot

Recessing Pavt Mrkg, Longit; and **Recessing Pavt Mrkg, Transv**; include placing the temporary tracer line (with no beads), when required, and all work as described in this special provision.

Pavement marking materials, including retroreflective pavement marking required for traffic control, will be paid for separately using the appropriate pay items.

DETAILED SPECIFICATION
FOR
ITEM #230 - REMOVE CONCRETE CURB OR CURB & GUTTER - ANY TYPE
ITEM #231 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS

DESCRIPTION

This work shall consist of removing concrete curb, gutter, curb and gutter, integral curb, sidewalk (concrete and brick), 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 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, pavement, trench drain and related materials, sidewalk (concrete and brick), 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.

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 MDOT Type M drive openings, and including those necessary to provide for the partial removal of existing drive approaches, sidewalks, and curbs 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 any location within the City limits, and neatly stack/stockpile all bricks, if present, as directed by the Engineer.

The Contractor shall excavate, cut, remove stumps, remove brush, remove trench drain and clean out, grade, and trim as needed and as directed.

The Contractor shall coordinate with the City Forester prior to the removal of any tree roots.

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: "AGGREGATE BASE COURSE-21AA-C.I.P." or "SAND SUBBASE COURSE, 2NS - C. I. P." as directed by the Engineer. Where the Engineer directs such materials to be removed, they will not be paid for separately, but shall be included in "Machine Grading, Modified".

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. Such removals will be paid for as "Remove Concrete Pavement-Any Thickness" 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; paid for as part of "General Conditions".

The Engineer may require, the cutting of existing curb in certain locations to create a notch in the curb to facilitate storm drain overflow from landscape beds. Such cutting will be performed in a precise and workman like manner.

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 2. 5 inches of topsoil, followed by the placement of grass seed, followed by the placement of 0.5 inches of topsoil 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 City Standard Specifications. Restoration work must be performed within one week of the placement of the wearing course for each street.

MEASUREMENT AND PAYMENT

Sidewalk ramp, pre-cast concrete pavers and subgrade, and related removals shall be measured and paid for as "Remove Concrete Sidewalk and Driveways - Any Thickness".

Trench drain removal will be paid for as "Remove Concrete Curb or Curb & Gutter - Any Type".

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

The notching of curbs as directed by the Engineer will be paid for as the equivalent of five (5) linear foot of "Remove Concrete Curb or Curb & Gutter - Any Type" for every linear foot of saw cut.

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

PAY ITEM	PAY UNIT
Remove Concrete Curb or Curb & Gutter - Any Type	Lineal Foot
Remove Concrete Sidewalk & Driveways - Any Thickness	Square 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.

DETAILED SPECIFICATION
FOR
ITEM #234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE
ITEM #235 - 4 -INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
ITEM #236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
ITEM #237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE

DESCRIPTION

This work shall consist of constructing concrete items including curb, gutter, curb and gutter, sidewalks, drive approaches, MDOT Type M drive openings, steel reinforcement, mechanical anchors and hook bolts, 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 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-J (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:

Concrete Item	Concrete Mixture	MDOT Section
Curb or Curb & Gutter	P1, 6-sack	601
4" or 6" Sidewalk, Ramp, Or Drive	P1, 6-sack	601
8” Sidewalk, Ramp, Or Drive	P1, 6-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 bituminous asphalt pavement and precast unit pavers.

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 fine grade and trim subgrade as needed and as directed, and shall import, furnish, fill, place, grade, and compact MDOT Class II granular material and MDOT 21AA, Modified 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 subgrade, subbase or base 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 subgrade, subbase or base, and replace it with approved MDOT 21AA, Modified Aggregate material, compacted in place. Such work will not be paid for separately.

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. Such damaged work will be removed and replaced at no additional cost.

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 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 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, Modified aggregate compacted in place to 95% up to the elevation of the bottom of the adjacent pavement and paid for as "Aggregate Base Course - 21AA - C.I.P."

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%.

Restoration

The Contractor shall restore all disturbed areas to better than or equal to their original condition within two calendar days from the date of concrete placement. This includes the placement and compaction of 2.5 inches of topsoil, followed by the placement of grass seed, followed by the placement of 0.5 inches of topsoil, at all turf restoration locations, and at locations where concrete items are removed and turf is to be established. **Restoration shall also include the replacement of any brickwork, decorative stone, or other adjacent materials**. All restoration work and materials shall be in accordance with the City Standard Specifications.

Reinforcement

All steel reinforcement, mechanical anchors and hook bolts, all of any type and/or dimensions shall be provided and installed per the Engineer and plans. All costs associated with reinforcement, anchors, and hook bolts is considered incidental to the concrete work.

Sidewalk pavements shall utilize fiber mesh reinforcing, made of 100 percent virgin homopolymer polypropylene graded multifilament fiber. Blend with concreate mix at the rate specified by the manufacturer for the depth of pavements and concrete mix specified.

Contraction Joints in Sidewalk

Contraction joints shall be as located and detailed on the plans. The method of forming joints and spacing

shall be approved by the Engineer prior to construction. Joints shall be evenly spaced, forming the pattern indicated on plans, and shall be perpendicular to the building face or curb line unless otherwise directed by the engineer.

Expansion Joints in Sidewalks

¾-inch wide expansion joints shall be placed through concrete sidewalks in line with the extension of all property lines or at the longitudinal ends of each block as directed by Engineer; 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, or at a minimum, the center of each block.

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

The work of furnishing and installing mechanical anchors and hook bolts will be considered incidental to the work item.

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).

No additional compensation will be paid for the removal of a 6-inch thick layer of the subgrade, subbase or base, and replacement with approved aggregate material, compacted in place.

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

Curb, gutter, curb and gutter, and MDOT type M openings, shall be paid as "Concrete Curb or Curb & Gutter - ALL TYPES."

All miscellaneous hand work is considered included in the pay items of work and shall not be paid for separately.

Restoration work, including backfilling, compacting, HMA patching adjacent to concrete items, topsoiling and seeding will not be paid for separately, but shall be included in the appropriate associated items of work.

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 & Driveways - Any Thickness", and will not be paid for separately.

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

PAY ITEMS	**PAY UNIT**
Concrete Curb or Curb & Gutter - Any Type	Lineal Foot
4-Inch Concrete Sidewalk, Ramp, or Drive	Square Foot
6-Inch Concrete Sidewalk, Ramp, or Drive	Square Foot
8-Inch Concrete Sidewalk, Ramp, or Drive	Square 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.

DETAILED SPECIFICATION
FOR
ITEM # 239 - SIDEWALK UNIT PAVERS
ITEM # 280 - PLANTER CURB

DESCRIPTION AND MATERIALS

This work includes supplying and installing pre-cast concrete pavers laid with hand-tight joints over a fine aggregate bedding, to be placed on a separately paid for concrete slab. All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, City Standard Specification, and MDOT 2012 Standard Specifications for Construction (as well as applicable Special Provisions as referenced herein) apply to this Section

Submittals

A. Samples: Submit one sample of each shape and color of paver for approval. Where necessary submit additional pavers showing extreme range of color and texture for specified items.

B. Certification Reports: Submit product certification materials for each type of precast concrete units, demonstrating compliance for the following:
   1. Compressive Strength
   2. Flexural Strength
   3. Absorption
   4. Freeze/Thaw Resistance

Quality Control/Quality Assurance

A. Employ one installing entity to be responsible for the finished pavement surface, including installation of the paver containment, setting bed, joint filler and setting of unit pavers, who has, in the past three years, installed at least three projects of this size or larger.

B. Job Mock-Up
   1. Install a preliminary mock-up, 20 square feet minimum, prior to placement of concrete sidewalk to determine if minor adjustments to the width of the paver band may be prudent to avoid excessive cutting of pavers during installation. Such modifications to dimensions are to be approved by the Engineer.

   2. Construct a second mock-up sample, 40 square feet minimum, of the paving system indicating the pattern and joints required in actual construction. Make all mock-up samples as required until accepted by the Owner. Consider the selected mock-up a minimum standard of workmanship when accepted, to be matched or bettered throughout the Project. The mock-up may be constructed as part of the Project and, if approved, will be accepted as part of the Work. However, should the Mock-up fail to meet the Owner's approval, remove and reconstruct it until approved.

C. Protect the Work completed under this section, adjacent work and materials against damage during progress of the Work until complete.

Delivery, Storage and Handling

A. Deliver materials to the job site in a timely manner so as not to delay progress of the Work.

B. Deliver materials to the job site in their original unopened containers bearing labels clearly identifying the manufacturer's name.

C. Suitably store materials, if necessary, in a location agreeable to the Owner and Contractor.

D. Store the materials under cover, clear of the ground, and protected from the weather and damage during storage.

Materials

A. Source Limitations: Obtain each type of unit paver, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

B. Fine Aggregate Bed. Sand shall be well graded, washed sharp sand conforming to ASTM c33, and meeting the following sieve analysis gradations:

Sieve	Percent Passing
3/8 inch	100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	20-30
No. 200	0-5

Use of masonry sand will not be permitted.

C. Jointing Sand. Clean, fine, sharp sand, in compliance with ASTM C144 (gradation for 1/8 inch joints). The jointing sand shall be free of organics and soluble salts or other contaminants likely to cause efflorescence. The jointing sand shall be in compliance with the following grading limits:

Sieve	Percent Passing
No. 8	95-100
No. 16	70-100
No. 30	40-75
No. 50	10-35

D. Precast Unit Pavers: Solid paving units made from normal-weight concrete with a compressive strength not less than 5000 psi, water absorption not more than 5 percent according to ASTM C 140, and no breakage and not more than 1 percent mass loss when tested for freeze-thaw resistance according to ASTM C 67.
   1. Manufacturers: Subject to compliance with requirements, provide precast unit paver products by Unilock, 12591 Emerson Drive, Brighton MI, 48116

2. Paver type is Artline, as manufactured by Unilock.
3. Paver laying pattern is to be "Artline A"
4. Thickness: 2.75 inches (7cm)
5. Face Size and Shape: Meeting the full range of length and width sizes available from the manufacturer, including Units A, B, C, D, E, F, and G.
6. Color: Granite (grey mix), Enduro color face mix, standard finish

Contractor is to provide the specified precast concrete unit paver, or an equal product approved by the Engineer.

E. Precast Concrete Curbs: Made from normal-weight concrete with a compressive strength not less than 5000 psi and water absorption not more than 5 percent, in shapes and sizes indicated.
1. The precast concrete curb is to be Rockcurb as manufactured by Hanover Architectural Products.
2. Color and Texture: Limestone Gray, standard finish
3. Size and Shape: Straight and Radius sections shall be constructed of 18 inch deep by 36 inch long segments. Profile of curb is to be "Battered".
4. Pins and bars to be deformed reinforcement steel bars, epoxy coated.

Contractor is to provide the specified precast concrete curb, or an equal product approved by the Engineer.

F. Paving Jointing Mortar: Two component epoxy resin paving jointing mortar for light to medium traffic loads
1. Manufacturers: Subject to compliance with requirements, provide paving jointing mortar by Romex® Materials LCC, 10650 Culebra Rd, Suite#104-553, San Antonio, TX 78251-4806. www.romexusa.com. 1-844-880-5065.
2. Paving jointing mortar to be Rompox®-D1 by Romex®
3. Color: stone grey

Contractor is to provide the specified paving jointing mortar, or an equal product approved by the Engineer.

CONSTRUCTION METHODS

A. Sand Setting Bed
1. The sand shall be of uniform moisture content when screeded and shall be **protected against rain when stockpiled on site prior to screeding.** For installation, the moisture content shall be in the range of 4 to 8 percent.
2. Spreading: The bedding sand shall be spread loose in a uniform layer to give a depth after compaction of the paving units of a maximum 3/4 inch thickness and as required to achieve designed grades.

B. Screeding of Paver Setting Bed:
1. The spread sand shall be carefully maintained in a loose condition and protected against pre-compaction by traffic or rain both prior to and following screeding. Sand shall be lightly screeded in a loose condition to predetermined depth. Under no circumstances shall the sand be screeded in advance of the laying face to an extent to which paving will not be completed on that day. Any screeded sand which is pre-compacted prior to laying of paving unit shall be brought back to profile in a loose condition. Neither pedestrian nor vehicular traffic shall be permitted on the screeded sand.

2. The Contractor shall screed the bedding sand using either an approved mechanical spreader or by the use of screed guides and boards.

C. Precast Curb Base and Placement
   1. Compact the aggregate base under the curb areas to 95 % dry weight density. Adjust height of curb by installing additional aggregate under the curb line and re-compacting prior to placement of curb.
   2. Curbs shall have a 1/8 inch joint between each segment of curbing.
   3. Set curb in place with steel dowels and concrete cradles as indicated on plans.

D. Utility Collars
   1. All water and gas valves, curb boxes and related at grade obstructions located in the sidewalk unit pavers are to have a cast in place concrete collar installed integral to the slab of concrete below the pavers, which is square or rectangular in shape, at least 4 inches wider than the perimeter of the utility cover in all directions. Where feasible, the utility collar should be dimensioned to minimize the cutting of pavers and the use of cut slivers of pavers. Review color and utility conditions with Engineer before completion of sidewalk formwork.
   2. Utility collars shall be poured with the concrete walk supporting the pavers, and will be paid for as part of this pay item.

E. Placing Brick Pavers
   1. Pavers chips, cracks, voids, discolorations or other defects shall not be installed.
   2. Pattern: The pavers shall be laid in the pattern as shown on drawings
   3. Color Blending: Paving units shall be installed from a minimum of three bundles simultaneously drawing the paver vertically rather than horizontally.
   4. Joints: Joint spacing shall be consistent and of approximately 1/8 inch unless noted otherwise. The spacing must be a minimum of 1/8 inch to accept the paving jointing mortar. This spacing must also be provided for the first row abutting the edge restraint and/or concrete sidewalk.
   5. Alignment: String lines or chalk lines on bedding sand should be used to hold all pattern lines true.

F. Cutting of Pavers and Curb Sections
   1. Contractor shall make all efforts to use full bricks or curb sections to the maximum extent possible. Where cutting of brick or curb is required to achieve the desired pattern, brick and curb shall be cut to leave a clean edge to the traffic surface using a mechanical hydraulic, or guillotine cutter or masonry saw.
   2. Discontinuities in patterns will not be permitted. Lay out pavers and curbs in all areas so as to eliminate slivers at edges.
   3. Carefully place the pavers by hand in straight courses with hand-tight joints and uniform top surface. Maintain good alignment and provide the pattern indicated.
   4. Utilize radius section curb segments as supplied by manufacturer that most closely match the existing road curb radii. Where the manufacturer does not provide radius sections to match the existing road curb radii, contractor may cut curb segments in half or thirds (as directed by Engineer) to more closely follow the existing curb line.
   5. Protect newly laid pavers at all times by panels of plywood, on which the installer stands, which can be advanced as work progresses. However, keep the plywood protection in areas which will be subjected to continued movement of materials and equipment. Take these precautions to avoid depressions and protect paver alignment.
   6. If additional leveling of the pavers is required, and before sweeping in joint filler, roll with a power roller after sufficient heat has built up in the surface from several days of hot weather.

7. Inspection of Installed Pavers: After sweeping and prior to compaction, the paved area shall be inspected by the Owner and the Engineer to ensure satisfactory color blending. Areas deemed poorly blended shall be removed and re-installed in order to achieve satisfactory color distribution.

G. Compaction of Pavers
   1. After inspection of the pavers, they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than three passes of a suitable plate compactor.
   2. Compaction shall be accomplished by the use of a plate compactor capable of a minimum of 5,000 pound compaction force.
   3. Initial compaction should proceed as closely as possible following installation of the paving units and prior to acceptance of any traffic or application of jointing sand.
   4. Care shall be taken not to damage pavers or surface finish during compaction.

H. Initial Joint Treatment for Pavers
   1. Jointing sand shall be spread over the pavement after initial compaction has been completed. The jointing sand shall be spread as soon as is practical after initial compaction and prior to the termination of work on that day. The Contractor shall not use wet sand.
   2. The jointing sand shall be broomed to fill the joints. Excess sand shall then be removed from the pavement surface and the pavers shall be compacted again to settle the jointing sand.
   3. Repeat this operation a minimum of two times.

I. Final Compaction for Pavers
   1. After jointing sand has been installed and the pavement surface swept clean, final compaction shall be accomplished by not less than two passes of the plate compactor.
   2. Final compaction should proceed as closely as possible following installation of jointing sand and prior to the acceptance of any traffic.

J. Proof Rolling
   1. Proof roll the completed installation with pneumatic tire equipment which replicates anticipated service traffic. Subject each individual paver to at least one passage of load.
   2. Equipment and procedures are subject to approval by the Owner and Engineer and proof rolling will be observed and recorded by the Engineer.
   3. Remove and replace units cracked or otherwise damaged by proof rolling, including inspection and repair of setting bed.

K. Paving jointing mortar
   1. Preparation: Clean out joints to a depth of at least 1 3/16" (3 cm). The surface to be joint-fixed should be cleaned of all impurities before work commences. Adjoining surfaces that are not to be joint-fixed are taped off.
   2. Pre-wet: Pre-wet the surface. Porous surfaces as well as higher surface temperatures, require more intense pre-wetting.
   3. Mix: Pour the 55.1 lbs (25 kg) filler components into a powered mixing tub and start the mixing process. While mixing, slowly add the separately packaged components completely into the mixture. After mixing for 3 minutes add water according to the product package and continue mixing well for at least 3 minutes.
   4. Application: Apply the mixed paving jointing mortar onto the well moistened surface and work it carefully into the joints using a squeegee/rubber slider. The mortar is poured out at three or four spots within the jointing area in order to make best use of the fluidity of the paving jointing mortar. Application time at 68 °F (20 °C) is approx. 20 – 30 minutes.

5. Final cleaning: After approx. 10 – 15 minutes the excess mortar on the surface of the stones can be swept off carefully with a large, coarse broom. Then use a soft, hair broom to do a final cleaning until all residual mortar has been removed from the surface. The correct moment for sweeping, is when white smears no longer form on the stone surface during sweeping. Sweeping should be done diagonally to the joint. Do not re-use swept off material.
6. Protection: The freshly jointed surface needs to be protected against rain for the next 12 – 24 hours. The rain protection layer must not be laid directly onto the paved surface this is to ensure sufficient air circulation. Safe rain protection is afforded by the specially developed ROMEX® protective surface mats that can be simply laid on the surface.

L. Allowable Tolerance
1. Finished surface of pavement and curb: smooth, even, and true to the lines, grades and cross section indicated. Maximum deviation when tested with a 10-foot straight-edge parallel to the centerline of the surfaced area: 1/4 inch in 10 feet.
2. Maximum offset from flush from paver/curb surface to paver/curb surface or from paver surface to a fixed flush edge: 1/16 inch.
3. Slope finished walk for drainage without any ponded water on the finished surface.

M. Repair, Cleaning and Protection.
1. Clean paver and curb surface of all debris, dirt, and sand.
2. Remove and replace pavers which are chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in the same manner as original units, with same joint treatment to eliminate evidence of replacement.
3. Provide final protection of paver and curb areas in a manner acceptable to the installer, which ensures paver work being without damage or deterioration at the time of substantial completion.
4. Warranty. Finished area shall be free of bumps or depressions, evenly graded to levels shown, and shall be guaranteed against defects of materials and workmanship for a period of two years after substantial completion.

MEASUREMENT AND PAYMENT

This work will be measured and paid using the following contract item (pay item):

PAY ITEM	PAY UNIT
Sidewalk Unit Pavers	Square Foot
Planter Curb	Linear Foot

Sidewalk Unit Pavers will be measured and paid by the area of unit paver pavement in place. The work includes the sand setting bed, jointing sand, and all incidental measures required to complete the work, including the utility collars described herein. The concrete base slab will be paid for separately.

Planter Curb will be measured and paid for on a linear foot basis for the curb installed in place. The Work includes all base material, concrete grouted base, pinning and dowelling, and all incidental measures required to complete the work.

DETAILED SPECIFICATION
FOR
ITEM #240 - DETECTABLE WARNING, CAST IN PLACE

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-J (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), or as indicated on plans.
   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-Efficients 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.
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-J (version in place at time of the bid letting).

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:

PAY ITEM	PAY UNIT
Detectable Warnings, Cast In Place	Square 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
ITEM #249 - HYDRANT ASSEMBLY ABANDONMENT

DESCRIPTION

This work shall include abandoning and removing fire hydrant assemblies, valves, and water pipe 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.

CONSTRUCTION METHODS

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

Contractor is to fully remove fire hydrant, related valves, thrust blocks, and water line (to the extents indicated on the plans). Cap old connection to water main as directed by Engineer.

In locations as shown on the Plans or where abandoned fire hydrants are within 2.5 feet of the proposed subgrade 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 modified proctor value, if located within the influence paved surfaces or structures. Otherwise, backfill shall be Engineer approved native material, compacted to 90% of its modified proctor value, in lifts of 12 inches or less, unless otherwise noted on the plans.

Abandoned (salvaged) fire hydrant assemblies shall be delivered to the City of Ann Arbor Field Services Unit at the Wheeler Service Center located at 4251 Stone School Road. As directed by the Engineer and within two days of their removal, the Contractor shall either deliver the existing structure covers and valve boxes to the City's yard at 4251 Stone School Road or dispose of them at his/her sole expense.

MEASUREMENT AND PAYMENT

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 and removal; 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's yard, located at 4251 Stone School Road.

PAY ITEM	PAY UNIT
Fire Hydrant Assembly Abandonment	Each

DETAILED SPECIFICATION
FOR
ITEM #250 – TRENCH DRAIN
ITEM #251 6-INCH PVC STORM SEWER

DESCRIPTION

This work shall consist of constructing Sewer, Trench Detail I, Modified storm sewers, and constructing sewer bulkheads, including the removal of existing storm sewers, as specified herein, as shown on the Plans, and as directed by the Engineer.

Materials shall meet the requirements of the City of Ann Arbor Standard Specifications. The sewer pipe may be either C-76 CL.IV R.C.P. or HDPE as specified in Division III.2B of the City Standard Specifications.

MATERIALS

6 inch storm sewer shall be SDR 35 PVC Pipe, with bell and spigot fittings (with gaskets), meeting the requirements of ASTM-3034.

Trench Drain materials shall be as follows:

1. Trench Drain shall be a Polymer-Concrete sloping channel drain, Series K100 KlassikDrain as manufactured by ACO Drain.
2. Provide sloping drain sections as required to extend the length illustrated on plans.
3. Grate will be model 447D, set in a stainless steel channel, made of stainless steel, suitable for pedestrian traffic, capable of carrying 28,000 loads, meeting current ADA requirements and guidelines, and anchored in place with tamper resistant fasteners per the manufacturer's recommendation.
4. Provide the necessary fasteners, end panels and connections. For the outlet end of the trench drain utilize a K100 6 inch PVC schedule 40 outlet cap.

Shop drawings from the manufacturer are to be submitted to the Engineer for approval prior to fabrication.

Contractor is to provide the specified trench drain system, or an equal product approved by the Engineer.

CONSTRUCTION METHODS

General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of trench drain and underground storm drainage piping. Location and arrangement of piping layout take into account design considerations.

The Contractor shall install trench drain and storm sewer as shown on the Plans, as detailed in the City Standard Specifications, and as directed by the Engineer. Specific trench drain considerations include:

1. Embed trench drain sections in 4-inch minimum concrete around bottom and sides.
2. Fasten grates to drains.
3. Set drain frames and covers with tops flush with pavement surface.
4. Connect trench drain sections together pursuant to manufacturer's recommendation.

The Contractor shall maintain line and grade of the trench drain and storm sewer by means of a laser. The Engineer will establish line and grade for the sewer construction and will provide cut sheets for the Contractor's use.

Bed sewer pipe on 6 inch layer of pea stone aggregate; when pipe is in place backfill to top of pipe with pea stone, and backfill remaining trench with 2NS Sand, compacted in 8 inch lifts to 95% dry weight density.

The Contractor shall remove and properly dispose of all excavated materials, removed storm sewer and debris, and shall make connections between new and existing pipe and/or structures by means of appropriate "Fernco" type joint fasteners/couplings (or other methods approved by the Engineer), and bulkhead or abandon existing pipe and structures, all as directed by the Engineer. Clean interior of trench drain and piping of dirt and superfluous materials.

MEASUREMENT AND PAYMENT

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:

PAY ITEM	PAY UNIT
Trench Drain	Linear Foot
6-inch PVC Storm Drain	Lineal 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. This work includes, but is not limited to, setting the trench drain, tapping the storm drain into manhole, pipe bedding, backfill, cleanup and installation of grate.

DETAILED SPECIFICATION
FOR
ITEM #252 - SEWER BULKHEAD, 4-INCH THROUGH 18-INCH DIAMETER

DESCRIPTION AND MATERIALS

This work shall consist of constructing Sewer, Trench Detail I, Modified storm sewers, and constructing sewer bulkheads, including the removal of existing storm sewers, as specified herein, as shown on the Plans, and as directed by the Engineer.

Materials shall meet the requirements of the City of Ann Arbor Standard Specifications. The sewer pipe may be either C-76 CL.IV R.C.P. or HDPE as specified in Division III.2B of the City Standard Specifications.

CONSTRUCTION METHODS

The Contractor shall install Storm Sewer, and Sewer Bulkheads, as shown on the Plans, as detailed in the City Standard Specifications, and as directed by the Engineer.

The Contractor shall remove and properly dispose of all excavated materials, removed storm sewer and debris, and shall make connections between new and existing pipe and/or structures by means of appropriate "Fernco" type joint fasteners/couplings (or other methods approved by the Engineer), and bulkhead or abandon existing pipe and structures, all as directed by the Engineer.

The Contractor shall maintain line and grade of the sewer by means of a laser. The Engineer will establish line and grade for the sewer construction and will provide cut sheets for the Contractor's use.

The Contractor may elect to perform sewer work prior to the removal of pavement and subgrade preparation. In such cases, the work associated with pavement removal, excavation, backfill, and the temporary patching of the trench as necessary for traffic maintenance, will be paid for separately based on the appropriate unit prices. The street paving must be restored as needed to allow for traffic to use the street immediately following the completion of the underground work. The Contractor shall place and compact Class II sand backfill in the trench up to the elevation where the prepared base or subbase is to begin, and utilize an 8 inch thick layer of compacted 21AA Limestone Aggregate as a temporary road surface, or as directed by the Engineer.

MEASUREMENT AND PAYMENT

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

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:

PAY ITEM	PAY UNIT
Sewer Bulkhead, 4-Inch Through 18-Inch Diameter	Each

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 #254 - TEMPORARY 4-INCH WATER MAIN LINE STOP
ITEM #255 - TEMPORARY 6-INCH WATER MAIN LINE STOP

DESCRIPTION

The Contractor shall furnish all materials, labor and equipment to properly install and set water main line stops into the existing Ductile Iron Main(s) at the locations as shown on the plans and as directed by the Engineer. All work shall be performed in accordance with the requirements as detailed herein.

The existing mains, upstream and downstream of the proposed line stop(s) cannot be shut down or taken out of service. To ensure that the entire operation shall be accomplished without interruption of service or flow, the installation shall be accomplished by Contractor personnel skilled and experienced in the procedures specific to line stops of the required size(s).

MATERIALS

Bedding and trench backfill materials and compaction requirements shall be in accordance with the detailed specifications, or the details shown on the plans. Granular Material Class II shall meet the requirements of section 902 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The Engineer shall approve any native materials to be placed as trench backfill.

The Contractor shall submit to the Engineer two (2) sets of drawings, furnished by manufacturers, fully and distinctly illustrated and describing the Line Stop fittings proposed to be furnished. Work shall not commence until such time as the drawings have been reviewed and accepted by the Engineer.

Line Stop Fittings shall be full encirclement, pressure retention type split tee. It shall consist of two steel weldments; an upper line stop flange saddle plate and a lower saddle plate. These two saddle plates shall be contiguous.

1. Line Stop Flange: The outlet of each fitting shall be machined from a 150 lb. forged steel flange (ASTM A181 or A105) or from pressure vessel quality steel plate (ASTM A285, Grade C); flat faced and drilled per ANSI B16.5). Suitable independently operated locking devices shall be provided in the periphery of the flange to secure the completion plug.

2. Line stop Nozzle: The nozzle, which lies between the saddle and the flange shall be fabricated from steel pipe (ASTM A234). After welding and stress relief, the nozzle shall be accurately bored as follows to accommodate the Line stop plugging head:

3. Machine an internal circular shoulder to seal against the circumferential gasket carried on the plugging head.

4. Completion Plug: The completion plug shall be machined from a stress relieved carbon steel weldment. It shall contain two (2) circumferential grooves: one to receive the locking devices from the Line stop flange, and the second to contain a compressible "O" ring to seal pressure tight against the bore of the flange.

5. Blind Flange: Each Line stop fitting shall be closed with a blind flange. Facing and drilling of the

blind flange shall be compatible with that of the Line stop flange. Minimum blind flange thickness shall be that of AWWA Spec. 207, Class D.

6. Saddle Alignment Marking: Each saddle-half shall be matched and marked with serial numbers, to insure proper alignment in the field.

7. Fasteners: All bolts, studs, and nuts used on Line stop, drain/equalization fittings, blind flange, and other elements that shall remain upon completion of the work shall be stainless steel and meet the requirements of ASTM F 593.

8. General: Manufacturer will exercise extreme care to insure that weldments are of adequate strength, properly shaped, securely reinforced, and free from distortion that could stress the ductile iron main during installation, pressure tapping, or Line stopping operations. All steel shall meet the requirements of ASTM A36, as a minimum. All weldments shall be braced and stress relieved.

9. Gaskets: Shall be molded from elastomer compounds that resist compression setting and are compatible with water in the 32 to 140 deg. F temperature range.

10. Upper Line stop Flange Saddle: Shall consist of a saddle plate, a Line stop flange, and a Line Stop nozzle. The interior of the saddle plate, adjacent to and concentric with the O.D. of the nozzle, shall be grooved to retain a gasket which shall seal the saddle plate to the exterior of the ductile iron main. This gasket shall constitute the only seal between the main and the fitting. The flange saddle shall also meet the following requirements:

    A. Saddle plate shall be of a minimum of 0.375" in thickness. It shall be shaped to be concentric to the outside of the ductile iron main. The smallest I.D. of the saddle and its interior rings shall exceed the O.D. of the main by a minimum of 0.250" to allow for ovality of the main.

    B. Line stop nozzle of 0.375" min. wall thickness shall be securely welded to the saddle plate.

    C. The Line Stop flange shall be securely welded to the nozzle. After welding, the assembly shall be braced, stress relieved, and bored to receive the completion plug and the circumferential gasket of the Line Stop machine plugging head.

    D. Bolt, nut of stud, nut, and washer assemblies shall be furnished to draw the upper and lower saddles together for sealing. Bolting brackets shall be gusseted.

11. Lower Saddle Plate: Saddle plate shall be of a minimum 0.375" thickness and shall be shaped to be concentric to the outside brackets shall match upper half.

CONSTRUCTION METHODS

Installation of proposed line stops mains will require work in close proximity to existing utilities. This must be taken into consideration when the contractor determines the required trench safety requirements. All excavation shall conform to MIOSHA Standards; the Contractor is solely responsible for determining all excavation and trench safety requirements.

If necessary, The City will reduce the pressure to 100 psig or less for the duration of the installations. The entire operation of installing the line stop shall be accomplished without reduction of water pressure in the main(s) below 100 psig. It shall be the responsibility of the Contractor to verify pressure prior to

commencing the installation.

1. Equipment. The equipment shall consist of a cylindrical plugging head that contains a flat, expandable elastomer sealing element. The plugging head shall be advanced into and retracted from the main by means of a linear actuator. When retracted, the plugging head and carrier are housed in an adapter, bolted pressure tight between the tapping valve and the actuator.

    A. Sealing Element: The element shall be monolithically molded from a suitable polyurethane compound. The element shall be flat in a plane perpendicular to the flow in the main. Minimum thickness of the element shall be 4". The bottom of the element shall be semi-circular to conform to the bore of the main.

    B. Drilling equipment: Shall be in good working condition,equipped with power drive to insure smooth cutting, and to minimize shock and vibration. Cutting equipment shall be carbide tipped and capable of being replaced without removal from the jobsite.

    C. Plugging Head: The diameter of the cylindrical plugging head shall be slightly smaller than the bore of the Line Stop nozzle. The plugging head shall have a suitable circumferential gasket to seal against the shoulder in the Line stop nozzle. This gasket shall also seal against the sealing element to prevent bypass flow around the Line stop.

    D. Deposits in Bore of Main: The semi-cylindrical bottom of the plugging head shall be designed to break and dislodge tuberculation and other deposits in the bore of the main which might interfere with a satisfactory Line stop.

2. Preliminary Field Inspection of Water Main:

    A. Dimensional, specification, and other data regarding the existing mains have been taken from existing records. This information may be inaccurate, out of date, and/or inadequate. The data have not been verified by field inspections. Further, the water main consists of ductile iron pipe which may contain dimensional and structural flaws. In addition, the Contractor shall anticipate that exterior main conditions, bells, service connections, or presence of adjoining utilities may require relocation of proposed line stop. Prior to proceeding with the installation of any line stop, it is necessary to know the exact main outside diameter of the water main, if it has any ovality, and the internal diameter of the pipe before line stop fittings and plugging head sealing elements can be manufactured and/or ordered.

    B. Prior to ordering material, Contractor shall excavate at each proposed location and carefully measure the outside diameter of the water main with calipers along at least four (4) locations to determine ovality and the critical outside diameter of the water main. The Contractor shall determine main wall thickness, uniformity, and structural integrity by means of ultrasonic testing. Data shall be taken to determine extent of internal deposits, tuberculation, etc.

    C. If the Engineer determines that Contractor's data are not adequate, the Engineer may direct Contractor to make one or more pressure taps on main to obtain test pipe coupons for the Engineer's evaluation. The minimum size of the test coupon shall be 5" diameter, drilled through a nominal 6" valve. Pressure tapping saddles and other materials used for inspection taps shall conform to the requirements of this Special Provision. The Contractor shall anticipate that heavy interior corrosion and/or tuberculation exists within the water

main.

D. If, in Engineer's opinion, the proposed location is unsatisfactory based on measurements of the existing pipe at the locations of the proposed line stops, the Engineer will direct excavation at another site. Excavating, de-watering, inspections, backfill, and restoration will be paid for separately in accordance with the applicable contract unit prices or Section 109.05.C and 109.05.D whichever the Engineer deems most appropriate.

Because of possible internal corrosion and deposits in existing water mains, a "bottle-tight" shut down may not occur. A satisfactory shutdown which allows the work to be accomplished (i.e. valve replacement, water main tie-in, etc.) using drainage pumps to de-water excavations, with workmen wearing boots and raingear, if necessary, must be obtained. The Contractor will not be allowed to proceed with further work until an acceptable shutdown is achieved. The Contractor shall be aware that this may require the halting of work and re-scheduling of all work operations.

Contractor shall power wire brush and grind the exterior of the water main to remove any debris, corrosion deposits, or other surface irregularities that might interfere with proper seating and sealing of each line stop fitting against each main. Any structural defects in the water main, service connections, appurtenances, adjacent utilities, etc., that could interfere with the line stop installation shall be immediately reported to Engineer.

All line stop fittings and appurtenances shall be cleaned and disinfected in accordance with the current City of Ann Arbor Public Services Area Standard Specifications prior to bolting any of the line stop fittings in place or commencing any pipe cutting.

Contractor shall fit upper and lower saddle plate assemblies to main, thoroughly checking for proper fit to main. Under no circumstances shall Contractor attempt to force, reshape, or bend saddle plates by excessive tightening of saddle studs while the line stop fitting is assembled around the main. Any required retrofitting shall be accomplished with the fitting removed from the main. Any damage to fitting, accessories, or main shall be repaired at Contractor's expense to the satisfaction of Engineer.

Upper and Lower saddle halves shall be drawn together by bolt assemblies and the Saddle plates shall be bolted together in the horizontal position.

All line stop work shall be performed in accordance with the equipment manufacturers approved work procedures and installation guidelines.

Final closure of the water main shall be accomplished by insertion of a manufacturer-approved completion plug. The Contractor shall test the completion plug sealing through the use of a bleed off assembly in the machine housing.

The Contractor shall remove the temporary valve and the installation of a blind flange shall be completed.

The Contractor shall backfill water mains within the limits of the roadbed with granular material Class II. Place backfill in layers no greater than 10 inches thick and compact each layer to at least 95 % of the maximum unit weight. Backfill water main outside the limits of the roadbed with Engineer approved granular or suitable material, compacted to 90% of the maximum unit weight, in lifts of 12 inches or less, unless otherwise noted on the plans.

The Contractor shall place polyethylene encasement meeting the requirements of the City of Ann Arbor Standard Specifications for Construction around the upper and lower saddle halves, the blind flange, and to

a point at least 1 foot on either side of the saddle halves. All polyethylene encasement shall be securely taped to the water main such that water entry is minimized to the greatest extent possible.

MEASUREMENT AND PAYMENT

The work shall include, but not be limited to; pavement saw-cutting; excavation and disposal of excavated material; the furnishing, installation, and removal of sheeting and/or shoring where needed; the furnishing, placement and compaction of approved bedding and backfill materials; furnishing and placing suitable, clean, gravel to create a stable working surface at the bottom of the excavation; de-watering; pipe cleaning, measuring, and performing all advance work necessary to prepare for the performance of the line stop; nighttime lighting as required; the removal of all materials and equipment associated with the work when no longer needed; and, any other items needed to complete the work as detailed on the plans and as specified herein.

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

PAY ITEM	PAY UNIT
Temporary 4-inch Water Main Line Stop	Each
Temporary 6-inch Water Main Line Stop	Each

DETAILED SPECIFICATION
FOR
ITEM #256 - 12 INCH INSERTION VALVE IN BOX

DESCRIPTION

The Contractor shall furnish all materials, labor and equipment to properly install valves into the existing Ductile Iron Main(s) at the locations as shown on the plans and as directed by the Engineer. All work shall be performed in accordance with the requirements as detailed herein.

The existing mains, upstream and downstream of the proposed valve(s) cannot be shut down or taken out of service. To ensure that the entire operation shall be accomplished without interruption of service or flow, the installation shall be accomplished by Contractor personnel skilled and experienced in the procedures specific to installing valve(s) of the required size(s).

MATERIALS

Bedding and trench backfill materials and compaction requirements shall be in accordance with the detailed specifications, or the details shown on the plans. Granular Material Class II shall meet the requirements of section 902 of the Michigan Department of Transportation 2012 Standard Specifications for Construction. The Engineer shall approve any native materials to be placed as trench backfill.

The Contractor shall submit to the Engineer two (2) sets of drawings, furnished by manufacturers, fully and distinctly illustrated and describing the valve fittings proposed to be furnished. Work shall not commence until such time as the drawings have been reviewed and accepted by the Engineer.

The Ductile Iron 250 p.s.i.g. Team Insert Valve shall be a Resilient Wedge Gate Valve designed for use in potable water, raw water, reclaimed water, sewage, irrigation and backflow control systems. The design will allow the valve to be installed into an existing pressurized pipeline while maintaining constant pressure and service as usual.

Ductile Iron Construction:

- The ductile iron body, bonnet and wedge provide strength and a pressure rating that meets or exceeds the requirements of AWWA C515. Insert Valve shall be ductile iron construction meeting ASTM A536 Grade 65-45-12. Heavy-duty ductile iron construction for maximum toughness and strength.

- Chemical and modularity tests shall be performed as recommended by the Ductile iron Society, on a per ladle basis. Testing for tensile, yield and elongation shall be done in accordance with ASTM E8.

- Sizes 12" and smaller must be capable of working on Cast/Grey Iron or Ductile Iron Class A, B, C and D, IPS PVC, C900 and C909 PVC, Steel, AC pipe diameters without changing either top or bottom portion of split valve body.

- 250 psig maximum working pressure. The pressure rating markings must be cast into the body of the insert valve.

- After the installation of the insert valve body on to the existing pipe a pressure test of 1.1 times that of the contents shall sustained for 15 minutes. Once the pressure test is affectively achieved the insert valve body must not be moved in accordance with AWWA Standards. If the insert valve is moved the pressure test must be completed again. The insert valve must not be moved or repositioned once the pressure test is achieved.

Resilient Wedge Gate Assembly

- The construction of the Resilient Wedge shall comply with AWWA C509 requirements.

- The ductile iron wedge shall be fully encapsulated with EPDM rubber by a high pressure and high temperature compression or injection mold process. This will assure the ductile gate is fully coated with molded rubber –no exposed iron.

- The resilient wedge shall seat on the valve body and not the pipe to obtain the optimum seating and flow control results. The resilient wedge shall be totally independent of the carrier pipe.

- The resilient wedge shall not come into contact with the carrier pipe or depend on the carrier pipe to create a seal. Abrasion results thus shorting the life and quality of the shut down if the wedge contacts the pipe.

- Pressure equalization on the down or upstream side of the closed wedge shall not be necessary to open the valve.

- The wedge shall be symmetrical and seal equally well with flow in either direction.

- The Resilient wedge must ride inside the body channels to maintain wedge alignment throughout its travel to achieve maximum fluid control regardless of high or low flow pressure or velocity. The resilient wedge must have more support than the operating stem as the resilient wedge enters and exits the water (fluid) way.

- Oversized flow way. Unobstructed to provide optimum flow.

Fusion-Bonded Epoxy

- The insert valve is fully epoxy coated on the interior and the exterior. The fusion-bonded coating is applied prior to assembly so that even the bolt holes and body -to-bonnet flange surfaces are fully epoxy coated.

- Valve shall be coated with a minimum of 8 mils epoxy in compliance with AWWA C550 and certified to ANSI/NSF -61.

Gaskets and Triple O -Ring Stem Seals:

- This insert valve features triple O-Ring stem seals. Two O-Rings are located above, and one O-Ring is located below the thrust collar.

- The lower two O-Rings provide a permanently sealed lubrication chamber that will make the valve easier to operate over a longer period of time. The upper O-Ring ensures that sand, dirt or grit cannot enter the valve to cause damage to the lower O-Rings. This is especially important for buried

and sewage service applications.

- Side flange seals shall be of the O-Ring type of either round, oval, or rectangular cross-sectional shape.

Valve Stem & Thrust Washers:

- The gate valve stem and wedge nut shall be copper alloy in accordance with Section 4.4.5.1 of the AWWA C515 Standard.

- The NRS stem must have an integral thrust collar in accordance with Section 4.4.5.3 of AWWA C515 Standard. Two-piece stem collars are not acceptable. The wedge nut shall be independent of the wedge and held in place on three sides by the wedge to prevent possible misalignment.

- Two thrust washers are used. One is located above, and one is located below the stem thrust collar. Two thrust washers ensure easy operation at all times.

- NRS with AWWA standard turns.

- Operated by 2" square wrench nut according to ASTM A126 CL.B – open left or open right

Hardware:

- Bolting materials shall develop the physical strength requirements of ASTM A307 with dimensions conforming to ANSI B18.2.1.

Extended Life Value:

- The stuffing box, operating stem and resilient wedge (complete bonnet and all moving parts) shall be removable, repairable and or replaceable under pressure. In other words, even while the valve is fully pressurized in the system all moving components can be removed under pressure. In the event the valve stem is broken or damaged the bonnet can be removed under pressure.

- Internal pressure equalization system assures the safe entry and removal of the valve bonnet during initial installation as well as future maintenance. This alleviates the need for additional pipe penetration taps or foreign methods (i.e. compressed air or auxiliary water source) to equalize pressure.

Split Restraint Devices:

- Shall consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10.

- The devices shall have a working pressure rating of 350 psi for 4-12 inch. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes.

- Chemical and modularity tests shall be performed as recommended by the Ductile iron Society, on a per ladle basis. Three test bars shall be incrementally poured per production shift as per U.L. specifications and ASTM A536. Testing for tensile, yield and elongation shall be done in

accordance with ASTM E8.

- Gland body wedges and wedge actuating components shall be cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.

- Mechanical joint restraint shall require conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection during assembly as well as allowing joint deflection after assembly.

- Proper actuation of the gripping wedges shall be ensured with torque limiting twist off nuts. Set screw pressure point type hardware shall not be used.

- Restraint devices shall be listed by Underwriters Laboratories and Approved by Factory Mutual (3" through 12" inch size).

The insert valve shall be a Team InsertValve Patent number 6,776,187 and 7,225,827 or written approved equal.

CONSTRUCTION METHODS

Installation of proposed valve(s) will require work in close proximity to existing utilities. This must be taken into consideration when the contractor determines the required trench safety requirements. All excavation shall conform to MIOSHA Standards; the Contractor is solely responsible for determining all excavation and trench safety requirements.

If necessary, The City will reduce the pressure to 100 psig or less for the duration of the installations. The entire operation of installing the line stop shall be accomplished without reduction of water pressure in the main(s) below 100 psig. It shall be the responsibility of the Contractor to verify pressure prior to commencing the installation.

Dimensional, specification, and other data regarding the existing mains have been taken from existing records. This information may be inaccurate, out of date, and/or inadequate. The data have not been verified by field inspections. Further, the water main consists of ductile iron pipe which may contain dimensional and structural flaws. In addition, the Contractor shall anticipate that exterior main conditions, bells, service connections, or presence of adjoining utilities may require relocation of proposed valve.

If, in Engineer's opinion, the proposed location is unsatisfactory based on measurements of the existing pipe at the locations of the proposed valve(s), the Engineer will direct excavation at another site. Excavating, de-watering, inspections, backfill, and restoration will be paid for separately in accordance with the applicable contract unit prices or Section 109.05.C and 109.05.D whichever the Engineer deems most appropriate.

Contractor shall power wire brush and grind the exterior of the water main to remove any debris, corrosion deposits, or other surface irregularities that might interfere with proper seating and sealing of each valve fitting against each main. Any structural defects in the water main, service connections, appurtenances, adjacent utilities, etc., that could interfere with the valve installation shall be immediately reported to Engineer.

All valve fittings and appurtenances shall be cleaned and disinfected in accordance with the current City of Ann Arbor Public Services Area Standard Specifications prior to bolting any of the line stop fittings in place

or commencing any pipe cutting.

Contractor shall fit upper and lower saddle plate assemblies to main, thoroughly checking for proper fit to main. Under no circumstances shall Contractor attempt to force, reshape, or bend saddle plates by excessive tightening of saddle studs while the valve fitting is assembled around the main. Any required retrofitting shall be accomplished with the fitting removed from the main. Any damage to fitting, accessories, or main shall be repaired at Contractor's expense to the satisfaction of Engineer.

Upper and Lower saddle halves shall be drawn together by bolt assemblies and the Saddle plates shall be bolted together in the horizontal position.

All valve work shall be performed in accordance with the equipment manufacturers approved work procedures and installation guidelines.

The Contractor shall backfill water mains within the limits of the roadbed with granular material Class II. Place backfill in layers no greater than 10 inches thick and compact each layer to at least 95 % of the maximum unit weight. Backfill water main outside the limits of the roadbed with Engineer approved granular or suitable material, compacted to 90% of the maximum unit weight, in lifts of 12 inches or less, unless otherwise noted on the plans.

The Contractor shall place polyethylene encasement meeting the requirements of the City of Ann Arbor Standard Specifications for Construction around the upper and lower saddle halves, the blind flange, and to a point at least 1 foot on either side of the saddle halves. All polyethylene encasement shall be securely taped to the water main such that water entry is minimized to the greatest extent possible.

MEASUREMENT AND PAYMENT

The work shall include, but not be limited to; pavement saw-cutting; excavation and disposal of excavated material; the furnishing, installation, and removal of sheeting and/or shoring where needed; the furnishing, placement and compaction of approved bedding and backfill materials; furnishing and placing suitable, clean, gravel to create a stable working surface at the bottom of the excavation; de-watering; pipe cleaning, measuring, and performing all advance work necessary to prepare for the installation of the valve(s); nighttime lighting as required; the removal of all materials and equipment associated with the work when no longer needed; and, any other items needed to complete the work as detailed on the plans and as specified herein.

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

PAY ITEM	PAY UNIT
12-inch Insertion Valve in Box	Each

DETAILED SPECIFICATION
FOR
ITEM #257 - REMOVE LIGHT STD SHAFT
ITEM #258 - LUMINAIRE INSTALLATION
ITEM #259 - LIGHT STD SHAFT, INSTALL SALV
ITEM #268 - ELECTRICAL WIRING

DESCRIPTION

This work shall include the furnishing, installation and testing of the street lighting fixtures at the locations shown in the plans, and as directed by the Engineer to provide a complete working system ready for use. All work shall be completed in accordance with the National Electric Code (NEC), Section 819 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, the City of Ann Arbor Standard Specifications, and as specified herein.

Any costs associated with the obtaining a permit for the electrical work will be paid for by the Contractor, at no additional expense to the DDA or City.

MATERIALS

The Contractor shall furnish all materials and equipment required to install and place in operation Street Light Fixtures, except as clarified below. All materials shall meet the requirements of the current IEEE, NEMA, ANSI Standards as applicable, MDOT 2012 Standard Specifications for Construction, the City of Ann Arbor Standard Specifications, and as specified herein. All electrical components shall be furnished new and be listed by, and bear the label of Underwriter's Laboratories, Inc.

1. Street light fixtures shall be pre-purchased and provided to the Contractor by the DDA for use in this project. The light fixtures shall be complete, fitted with LED assembly and driver, fuses, support brackets, etc. The Contractor will arrange with the manufacturer for the delivery and storage of all items required for the complete installation.
2. The existing light poles in the project area will be reused, some in their current location, others will be removed, salvaged and reinstalled, and some poles will be removed and salvage to the City. Records indicate that the existing precast concrete poles have an integral foundation, so that the pole and foundation are a single piece of precast concrete.

Street light fixtures shall be installed complete with wiring from the base to the luminaires including pole base fuse holders. Wiring installed in lighting standard poles between luminaires and taps in base shall be type "XHHW" No. 10 AWG minimum.

Cable and wire shall be manufactured by:

Alcan	Collyer	Hatfield	Reynolds
Alcoa	Esses	Kaiser	Rome
Anaconda	General Cable	Okonite	Southwire
Cerro	General Electric	Phelps Dodge	Triangle

Wire conductors are to match the sizes of the wires being replaced, unless otherwise specified to be larger herein, or directed by the Engineer.

The connection of conductors from size #12 AWG and larger to terminal parts or other conductors shall be

made with heavy-duty cast alloy solderless connectors of the pressure double indent type. Tap connectors at light standards shall be multiple aluminum connector with four positions for #2 AWG copper and a 5th position for #12 AWG or larger fixture wire. Connectors shall be Utilco Catalog No. SLC-4-0-1-L with cover for tap block.

Ground rods shall be copper clad steel, and shall be either two 1/2-inch diameter round by 6-feet long rods, or one 5/8-inch diameter round by 8-feet long rod, as shown on the plans.

Fuse holders shall be watertight, in-line, break-away type, 30A, 600V with insulating boots. Install one fast-acting fuse per phase conductor. Fuses shall be five ampere and/or sized for the fixtures being protected.

Provide 20A, 125VAC NEMA type 5-20R ground fault circuit interrupter (GFCI) receptacle with solid-state ground fault sensing and circuit interrupter Class A, Group 1. Per UL standard 943-2003, manufacturer after January 1, 2003 and five milliamperes ground fault trip level. Receptacles must be rated for outdoor use and meet current code requirements for the intended application.

All fasteners shall consist of stainless steel tamperproof screws, bolts, nuts, washers, etc. All anchor bolts and associated washers, nuts, studs, and couplings shall conform to the requirements of the Michigan Department of Transportation 2012 Standard Specifications for Construction, Section 908.14, and shall be galvanized in accordance with ASTM A-153 or as noted on the Drawings.

Prior to beginning construction, the Contractor shall submit to the Engineer product data sheets and Manufacturer's certifications of all wiring, splices, lamps, rods, base plates, anchor bolts, and other parts used in the construction of the light and pole assembly. Certifications shall indicate that all materials meet the minimum requirements of these specifications.

For each submittal or resubmittal, the Contractor shall allow at least 14 calendar days from the date of the submittal to receive the Engineer's acceptance or request for revisions. The Engineer's comments shall be incorporated into the submitted plans, calculations and descriptions. The Engineer's acceptance is required before beginning the work. Resubmittals shall be reviewed and returned to the General Contractor within 14 calendar days. Required revisions will not be a basis of payment for additional compensation, extra work, or an extension of contract time. The Contractor shall include time for this entire review process in his/her schedule.

CONSTRUCTION METHODS

Removed poles that will not be reinstalled will be delivered to the City in good condition at a location as directed by the Engineer. Any materials provided by the DDA which are unused in this project will be returned to the DDA or City as directed by the Engineer.

All work to remove poles shall be done with due care, utilizing the appropriate means and equipment so as to not damage the poles. If the poles become damaged or disfigured during the removal and salvage process, as solely determined by the Engineer, the Contractor will forfeit compensation for "Remove Light Std. Shaft".

The Contractor shall provide all labor, materials, tools, equipment, and supervision required for the furnishing and installing of the street lighting fixtures and new GFCI outlets. Connections to equipment, lighting standards, contactors, etc., shall be made in accordance with applicable building and electrical codes and the recommendations from manufacturers of the particular equipment furnished. Any and all additional connections called for by the equipment manufacturer's or otherwise required for the successful

operation of the particular equipment furnished shall be installed by the Contractor as part of his Contract with no additional compensation.

The Contractor shall examine all fixtures delivered to jobsite prior to installation to ensure all specification requirements and shop drawing notes & comments have been incorporated by manufacturer. Installation of fixtures signifies Contractor's acceptance and approval of fixtures from manufacturer.

Contractor must provide adequate storage space for all electrical equipment, conduit, and materials delivered to the job site under a weather-protected enclosure. Location of the space must be approved by the Engineer. Equipment set in place in unprotected areas must be provided with temporary protection.

The Contractor shall be responsible for maintenance of, and repair of damage as a result of accident or vandalism to, the light fixtures, bases, luminaries, and all other materials installed, or to be installed, related to, or necessary for the light fixture and pole installation on the project. This shall remain the Contractor's responsibility until the installation is complete, tested, and accepted by the Engineer.

All connections shall be per the manufacturer's recommendation. Where Utilco connections are not used, all joints in outlet or junction boxes shall be taped in such manner that the insulating value of the joint or splice will be at least equal to the insulating value of the conductor to which it is applied.

Wire brush and apply approved corrosion inhibiting compound all connections.

Ground cables shall be #6 AWG, soft drawn, bare, stranded copper wire. Pressure-type connectors shall be used to connect the ground cable to poles and electrical equipment. The cable shall be properly attached to the ground rods.

All fixtures and poles shall be thoroughly and permanently grounded at each location. Grounding shall be in accordance with the latest National Electric Code and as shown on the Drawings, as a minimum. At the disconnect cabinet, the Detroit Edison neutral, the disconnect cabinet, and the ground mat system shall all be permanently grounded together. The resistance of the ground rod to ground shall not exceed 25 ohms when tested with a megger. In case the resistance is more than 25 ohms, additional or longer ground rods shall be installed.

Install precast concrete poles where indicated on the drawings. Base of the precast pole is to rest on undisturbed subgrade or on 21AA Limestone Aggregate compacted to not less than 98% of its maximum unit weight. Backfill pole base with 21AA Limestone Aggregate in 6 to 8 inch lifts, compacting each lift as the hole is filled. Precast concrete pole shall be set plumb and in-line with existing poles, with no more than one-half inch deviation from plumb in any direction.

All excavation for main conduit runs shall be of a depth to leave at least 30 inches from the top of the conduit encasement or top of direct buried rigid conduit to grade of top of curb or surrounding terrain. For lateral flexible conduit, the corresponding dimensions shall be 30 inches. The trench shall be graded to handhole and pole location so that the finished conduit run will contain no pockets where water might accumulate or drain into a handhole or pole.

Conduit shall be cut with a hacksaw or other approved tool. The ends shall be square after cutting and the conduit shall be reamed. All conduits must be securely fastened to boxes with locknuts and bushings of an approved make, care being taken that the full number of threads project into the bushings. Rigid galvanized conduit shall be assembled by means of approved threaded galvanized coupling, unions, and fittings. PVC conduit shall be assembled by means of approved threaded or solvent-welded fittings.

Conduits which are installed underground or concealed in concrete, foundations, or other structures, shall be cleared of foreign material and obstructions, after installation and before conductors or pull wire are drawn in, by wire brushing, swabbing and employing an iron or hardwood mandrel which is 1/4" smaller in diameter than the internal diameter of the duct or conduit.

Conduits shall be cut a minimum of 1 inch above the light pole base and not more than 2 inches above the base.

Cable shall be pulled into conduits using a proper cable grip for the purpose. The cable shall be so handled that it is not subjected to excessive strain or kinked when pulled through the conduit. Damaged or kinked cable shall not be used. Where more than one cable is to be installed in a conduit, all cables shall be pulled through simultaneously. Splices in ducts and conduit will not be permitted.

Cables shall be neatly racked and identified on cable racks in all handholes after being formed to their final position. Cables shall be racked slightly higher than the duct entrances so that they will not rest on the edges of the duct. Cables shall be properly tagged in all handholes and poles. All splices and connections shall be made as described herein and as shown on the details. Where cable is installed but not immediately spliced, the cable ends shall be thoroughly sealed and racked out of the way of possible danger.

Conductors shall not be installed in conduit until all work which might cause damage to the conduits or cables has been completed. Street light conductors shall be installed in continuous lengths from light to light with connections in the base of lights or street light pull boxes. All splices shall be accessible through the handhole and shall extend 4”-6” outside the handhole. No splices will be allowed which are inaccessible inside the pole. Street lighting splices required in ground handholes shall be terminated using splice kits that insulate, seal, and protect the splices.

Printed color code phase identification shall be repeated at all connections. The printing of the conductor coding shall be repeated at all connections. The printing of the conductor coding shall adhere to covering and not be readily removed by rubbing.

Where Utilco connections are not used, all joints in outlet or junction boxes shall be taped in such manner that the insulating value of the joint or splice will be at least equal to the insulating value of the conductor to which it is applied.

All trenching and backfilling to install electrical work shall be by the Electrical Contractor. When backfilling the trenches under areas to be paved and around street light foundations, the earth must be compacted in place (in 6-8" layers) to 95% of the material’s maximum dry density.

Any excess excavated native material that cannot be placed back into the trench from which it came is to be disposed of as detailed in the special provision entitled “Non Hazardous Contaminated Material”. Any excess excavated fill material placed as part of this project is to be used or “wasted” on site as directed by the Engineer. If it is unable to be incorporated into the final work, at the sole discretion of the Engineer, the excess excavation shall be disposed of offsite at no additional cost.

The use of equipment, or any part thereof, for purposes other than testing, even with the Engineer’s consent, shall not be construed to be an acceptance of the work on the part of the Engineer, nor shall it be construed to obligate the Engineer in any way to accept improper work or defective materials.

Upon completion of the underground work, the Contractor shall grade the work area smooth, filling any trench settlements, eliminating any large piles of earth and cleaning up any debris, or left over

construction materials and disposing of it offsite at an approved manner and location.

All factory finished equipment shall be cleaned at the completion of the work by the Contractor. Equipment showing mars or rust shall be refinished by the Contractor in a manner acceptable to the Engineer.

MEASUREMENT AND PAYMENT

The completed work shall be paid for at the contract unit price for the following contract items (pay items):

PAY ITEM	PAY UNIT
Remove Light Std. Shaft	Each
Luminaire Installation	Each
Light Std Shaft, Install Salv	Each
Electrical Wiring	Linear Foot

"Luminaire Installation" shall be paid for at the Contract unit price each and shall include all labor, equipment, and materials, including, but not limited to; wiring, cable splicing, fittings, supports, hangers, connectors, tape, fuses, grounding equipment; anchor bolts, weather proof GFCI outlets; and, any other materials required for complete installation of the light fixture and outlet onto the light pole and its foundation; all required testing; and, placing light fixtures and pole assemblies into service.

"Light Std Shaft, Install Salv" shall be paid for at the Contract unit price each and shall include all labor, equipment, and materials (excluding the poles), including, but not limited to excavation, preparation of soils, setting pole and backfilling.

"Electrical Wiring" shall be paid for at the Contract unit price based on the linear foot of each single conductor wire installed, as measure from connection point to connection point. Electrical Wiring shall include all labor, equipment, and materials, including, but not limited to wiring, splicing, connections, tape and related materials and labor necessary to make the electrical system operational. Current electrical conductors being replaced range in size from No. 6 to No. 12. All wire sizes required will be paid for at the same Unit Price.

DETAILED SPECIFICATION
FOR
ITEM #260 - SAND SUBBASE COURSE, CLASS II - C. I. P.

DESCRIPTION

This work shall consist of constructing an aggregate subbase on an existing aggregate surface, or on a prepared subgrade in accordance with Sections 301, 302 and 307 of the 2012 MDOT Standard Specifications for Construction, except as specified herein.

MATERIAL

The materials used for this work shall be MDOT Class II granular material meeting the requirements of the City Standard Specifications.

CONSTRUCTION METHOD

Sand or aggregate courses shall not be placed if, in the opinion of the Engineer, there are any indications that they may become frozen before their specified densities are obtained.

Sand or aggregate courses shall not be placed on a frozen base, subbase or subgrade.

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

The Contractor is solely responsible for the maintenance and protection of the grade. Further, any damage to the grade which, in the opinion of the Engineer, is caused as a result of the Contractor's operation(s), or his/her 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 grade.

The Contractor shall shape the base, subbase and subgrade to the elevations, crowns, and grades as specified on the Plans and as directed by the Engineer. This may include re-grading the subbase to provide different crown grades than those existing prior to the construction.

The Contractor shall remove, add to, re-shape, re-grade, and re-compact the existing roadbed materials (including the base bed under sidewalks), and shall construct the roadway and sidewalks 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, for this work. Use of each specific piece of equipment is subject to the approval of the Engineer.

The Contractor shall maintain the base, subbase and subgrade in a smooth, well drained condition at all times.

Sand and aggregate courses shall be placed in uniform layers such that when compacted, they have the thicknesses shown on the Plans, or as directed by the Engineer. The loose measure of any layer shall not

be more than 9-inches nor less than 4-inches.

Sand subbase and aggregate base courses shall be compacted to not less than 98% of their respective maximum unit weights, as determined by the AASHTO T-180 test.

All granular materials shall be deposited from trucks or through a spreader in a manner that will minimize segregation of material.

Manholes, valve boxes, inlet structures and curbs shall be protected from damage. Manholes & inlet structures shall be continuously cleaned of construction debris and properly covered at all times during the construction. Upon completion of each day's work, manholes, water valve boxes, inlets and catch basins shall be thoroughly cleaned of all extraneous material.

MEASUREMENT AND PAYMENT

Where granular materials are used as base, as subbase, or as fill for excavations in Machine Grading areas, item of work "Sand Subbase Course CL II - C. I. P. " shall be measured and paid accordingly.

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:

PAY ITEM	PAY UNIT
Sand Subbase Course Class II - C. I. P.	Cubic Yard

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 # 262 - COMPOSITE PLANTING MIX

DESCRIPTION

The work consists of providing and placing rain garden soils as shown on the plans, as detailed herein or as directed by the Engineer. All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

The rain garden cell consists of a layer containing the composite planting mix. Underneath the rain garden soil planting mix lies an underdrain storage trench comprised of an aggregate storage area and an underdrain system to achieve positive drainage. The underdrain flows to an overflow structure at the low point of the of the cell bed.

MATERIAL

Provide materials as described below.

Table 1: Planting Mix Composition

Item	Composition by Volume
Compost	20%
Sand	80%

The rain garden composite planting mix must be a uniform mix, free of plant residue, stones, stumps, roots or other similar objects larger than 2 inches. No other materials or substances are permitted to be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting operations.

CONSTRUCTION METHOD

All earth disturbing activities within the vicinity of the rain garden cell must be substantially complete, and curb and paving work completed prior to the excavation of the rain gardens to minimize siltation. The Contractor must verify that installation can be completed in accordance with the original design and the referenced standards prior to beginning rain garden construction.

Conduct excavation work with the equipment within the footprint of the rain garden as detailed on the plans. No equipment is permitted in the rain garden area unless approved in advance by the Engineer. In those instances where equipment is allowed within the cell bed it must consist of low ground pressure, lightweight equipment. In these instances, ensure the underlying bed soil is restored to a friable condition to a minimum depth of 12 inches.

Excavate to the depth detailed on the plans and miscellaneous details to accommodate the rain garden soil planting mix and mulch. Final grades shown on the plans are to the top of the soil, or as directed by the Engineer.

Place the the aggregate storage area in accordance with the dimensions shown on the plans.

Place the rain garden soil planting mix in horizontal layers not to exceed 12 inches in depth for the entire area of the rain garden facility. Saturate the rain garden soil planting mix over the entire area after each lift until water flows from the underdrain to lightly consolidate the mix. Apply water by spraying or sprinkling in a manner to avoid separation of the mix components. Ensure the Engineer is present during the saturation of each lift. If the rain garden soil planting mix becomes contaminated during construction, remove the contaminated material and replace with suitable material at no cost to the Department. Perform the final grading of the rain garden soil planting mix after a 24 hour settling period. Upon final grading of the surface of the rain garden soil planting mix rototill to a depth of 6 inches.

MEASUREMENT AND PAYMENT

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

PAY ITEM	PAY UNIT
Composite Planting Mix	Square Yard

The adjacent stone reservoir and related geotextile fabric is paid for separately.

DETAILED SPECIFICATION
FOR
ITEM # 263 - RIPRAP, FIELDSTONE

DESCRIPTION

This work consists of providing all labor, equipment and materials necessary to furnish and place fieldstone riprap in the rain gardens as shown on the plans. All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

MATERIALS

Use washed, uncrushed, rounded fieldstone for riprap. The diameter of each stone must be between 4 to 8 inches. When placed in the final location the in-place thickness must be a minimum of 8 inches. Acceptance will be based on visual inspection of riprap in-place by the Engineer.

Geotextile separation fabric shall be a non-woven fabric, minimum 6 Oz. weight.

Grout shall be MDOT standard grout mix R-3, as specified in Section 702 of the 2012 MDOT Standard Specification for Construction.

CONSTRUCTION METHODS

Place riprap over geotextile separation fabric in accordance with subsection 813.03 of the 2012 MDOT Standard Specifications for Construction, on prepared grades to the elevations, thickness and lateral limits as shown on the plans. Shape and compact all grades to the required cross section. The riprap installation must not damage the geotextile fabric below.

Rock to be grouted shall be kept wet for a least 2 hours immediately prior to grouting. Place riprap such that each stone will be firmly embedded into the grout and against adjoining stones. Construct the riprap in a manner which produces a uniform mat free of voids.

Grout and stone should be installed within 1.5 hours of the completion of the initial mixing of the grout

MEASUREMENT AND PAYMENT

The completed work, as described and including geotextile fabric, stone rip rap and grouting, will be measured and paid for at the contract unit price using the following pay item:

PAY ITEM	PAY UNIT
Riprap, Fieldstone	Square Yard

DETAILED SPECIFICATION
FOR
ITEM# 264 - LANDSCAPE MAINTENANCE

DESCRIPTION

For this pay item, the work includes two full years of maintenance of planting areas following the one year of maintenance which is part of the standard Landscape Pay Items. Item #264 Landscape Maintenance shall include but not be limited to; pruning; cultivating; weeding; removal or trash, leaves and debris, watering; fertilizing; and furnishing and applying such sprays and other treatments as necessary to keep all plantings free of insects and diseases.

Debris and Leaf Cleanup, as described in this Detailed Specification, shall also be performed during the initial maintenance and warrantee period that is included in the standard Landscape Pay Items (i.e., during the first year after plant installation).

All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

The Maintenance Contractor shall be a company specializing in native landscape installation and maintenance, native restoration, native seed mix installation and maintenance, including thorough knowledge of native vs. non-native species, and having a minimum 3 years of experience in projects of the scope and scale being specified.

MATERIALS

A. Maintenance Plans and Schedules:
   1. Maintenance Plan and Schedule: Maintenance Contractor must submit detailed typewritten methodology and schedules for maintenance of all landscape areas as outlined in Part 3 of this section. The schedule shall be comprehensive and shall be the basis for monthly payments for the duration of the maintenance contract. Maintenance Contractor shall submit Maintenance Plan and Schedule to Owner within 1 week following the issuance of the Notice to Proceed.
      a. Schedule must identify activities, number of personnel to be involved, tentative calendar schedule, and expected work hours.
   2. Maintenance Report Forms: Maintenance Contractor to submit a Maintenance Report Form template to Owner for prior approval.
      a. Every maintenance visit must be thoroughly and completely recorded on an approved Maintenance Report Form, which will include the date, the maintenance crew's names, weather conditions, maintenance provided, areas that received maintenance, number of hours onsite, chemical rates of application and equipment used, notes on future maintenance/problem, etc.
      b. Submit Maintenance Report Forms following completion of each maintenance visit. The forms shall cross-reference the Maintenance Plan and Schedule. Payment for this work will only be made by the Owner when proof of completed work has been provided.

B. Product Data Submittals required:
   1. Fertilizer.
   2. Pesticides and Herbicides: Include product label and manufacturer's application instructions specific to the project site.

C. Delivery, Storage and Handling
   1. General:
      a. Packaged Materials: Deliver packaged materials in original unopened containers showing weight, analysis and name of manufacturer. During shipment and storage on site, protect materials from breakage, moisture, heat or other damage.
      b. No packaged materials may be stored onsite unless Maintenance Contractor receives prior approval from Owner.

   2. Pesticides/Herbicides/Chemical Control Agents:
      a. Storage, handling, application, clean-up, and disposal of all pesticides, herbicides, and other controlled use materials shall be in strict conformance with all government and industry standards.
      b. Maintain and operate all pesticide/herbicide application equipment according to manufacturer's standards and instructions. Equipment shall be clean, free of leaks, calibrated, and deliver spray patterns as specified by the manufacturer.
      c. Utilize pesticides/herbicides only for their labeled use and in accordance with precautions, instructions, rates, and timing as specified by manufacturer.
      d. Pesticides/herbicides shall be applied only by Michigan certified applicators, excluding over the counter types. Notify Owner prior to application of any pesticide, herbicide, or other chemical control agent. Clearly label areas that have received application of these materials.
      e. Mixing of pesticides, herbicides, and other chemical control materials shall not occur onsite unless Owner has given prior approval.

CONSTRUCTION METHODS

A. Weeding
   1. Weeding under this section involves plant beds and tree planters and tree grates.
   2. The beds, planters, and grates shall be weeded on a monthly basis through the growing season (typically March through November).
   3. Use Integrated Pest Management to control weeds to the extent reasonably possible.
   4. Notify the DDA prior to the use of pesticides and herbicides.
   5. No pre-emergent pesticide may be used because native species are encouraged to spread via seed.
   6. Manual removal of weeds with a trowel or small shovel is recommended to ensure complete removal of weedy root mass. Do not damage or displace adjacent desirable plant species.
   7. Legally dispose of weedy plants offsite. Do not allow any seedheads to remain in the project site.
B. Pruning and Deadheading:
   1. Most plants at this site are native species and should not require substantial pruning. The natural habit of the plant should be preserved. Shrub beds should be allowed to grow out naturally and become a continuous mass to shade out weeds.
   2. All pruning shall conform to standards established by the International Society of Arboriculture.
   3. In general:
      a. Do not shear plants; remove individual limbs back to main trunk or leader (thinning).
      b. Do not leave stubs longer than ¼".
      c. Use the proper tools for the cut being made.
      d. Keep cutting tools sharp and clean, and disinfect tools between cuts and plants.
      e. Avoid pruning during rainy weather as this may increase the chance of spreading fungal spores.

f. Do not prune any oak between April 1 and October 31.
g. Prune at the proper time of year for the plant species to be pruned in order to avoid removing next year's flowering buds.
h. Do not prune trees or shrubs during the growing season after July 15 because new growth may not harden off before winter.
i. Do not deadhead stands of native grasses in order to allow the seeds to further establish the native grass areas. Stands of native grasses may be cut to the ground in early March each year for a cleaner appearance, but the cut grass and seedheads should be left on the ground.

4. Utilize the following procedures when pruning canopy trees, ornamental trees, and shrubs:
   a. Remove dead, damaged, or dangerous branches; branches that interfere with pedestrians; water sprouts, suckers, and crossing branches.
   b. Assume one pruning each year of each plant species. Review the site with the DDA each spring to review pruning needs.
   c. Major Storm Damage is not part of this contract.

C. Watering
1. Watering shall be conducted on an as-needed basis as defined herein. Native plants at the site are generally drought tolerant and should not be watered regularly or for short durations in order to encourage deeper growth of rootmass. During periods of drought plants should receive 1" of water per week, especially the arrowwood viburnums (*Viburnum dentatum*) and gray dogwoods (*Cornus racemosa*). Plants on slopes will require more water than those on flatter terrain.
2. To determine soil moisture within the planting root zone, a hand-held soil moisture meter is recommended.
3. Water should not be applied at a rate to disturb or erode soil.
4. The use of TreeGator ® bags is encouraged for canopy and ornamental trees during periods of drought, but should be removed before winter and during periods of normal precipitation.

D. Fertilizing
1. Generally the plants used at the site are native species that should not require long-term fertilization, but fertilization is recommended during the first 3 years following installation.
2. Fertilize trees and shrubs in the fall after the first hard freeze but before the ground freezes. Trees less than 6" diameter at breast height (DBH) should receive 0.25 lbs of nitrogen per inch of DBH. Shrubs should receive 1 lb. of nitrogen per 100 square feet of shrub mass per year.
3. Do not fertilize after July 15 because new growth may not harden off before winter.
4. Perform soil tests once per year to determine nutrient excesses/deficiencies in the soil. Send soil samples to an accredited agricultural soil testing laboratory to test for N, P, K, macro- and micronutrients, as well as pH and organic matter, and obtain a fertilizer recommendation from the testing laboratory.
5. Perform additional fertilizer applications as the soil tests indicate.

E. Debris and Leaf Clean-up
1. Collect all trash, litter, etc. from the sidewalks, plant beds, planters and grates on a monthly basis through the growing season (typically March through November) and dispose of off-site in a legal manner. Collect leaves from sidewalks and curblines and remove off-site.

F. Guarantee
1. The Maintenance Contractor shall repair or replace all defects to plant material and seeded areas arising from poor workmanship, improper use of materials, or through improper care

of any plant or plantings growing within the area covered in this Contract. The total cost of replacements, labor, material, etc. is to be at the expense of the Maintenance Contractor. This does not cover damage or losses caused by acts of nature beyond the control of the Maintenance Contractor. However, it does include any loss resulting from disease or insects where the prudent and timely use of cultural or chemical controls would avoid such loss, and disease or insect brought to the site through replacement plant or landscape material, and any loss resulting from the lack of watering or overwatering.

MEASUREMENT AND PAYMENT

Debris and Leaf Cleanup, as described in this Detailed Specification, shall also be performed during the initial maintenance and warrantee period that is included in the standard Landscape Pay Items (i.e., during the first year after plant installation), and the costs of such work is to be included in individual pay Landscape Pay Items (#810 through #822).

This work will be measured and paid using the following contract item (pay item):

PAY ITEM	PAY UNIT
Landscape Maintenance	Month

Landscape Maintenance will be measured and paid on a unit basis for each month or fraction of month worked through the growing season. The Contractor shall submit copies of the Maintenance Reports with each pay application to demonstrate that the required work has been completed. The work includes all labor, materials, equipment costs, disposal fees and related work for providing these services.

DETAILED SPECIFICATION
FOR
ITEM # 266 - TREE GRATE

DESCRIPTION

This work consists of furnishing and installing cast iron tree grates and their frames. All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

MATERIALS

Provide iron castings conforming to section 908 of the Standard Specification for Construction that come with a 10-year warranty against breakage. Tree grates and frames are to be 48 inches by 96 inches with an 18-inch square tree opening, black asphaltic coated finish, with openings slots in a pattern that conforms to ADA guidelines.

Tree Grate Casting and frame to be model #8679 "Boardwalk", as manufactured by East Jordan Iron Works (EJ) of East Jordan, Michigan (phone is 800-874-4100). Contractor is to provide the specified tree grate casting and frame, or an equal product approved by the Engineer.

Ensure all anchoring bolts, nuts, washers, and all other hardware for installation meet the manufacturer's recommendation.

Furnish certification regarding the compliance of materials incorporated in the work, for approval by Engineer prior to installation.

CONSTRUCTION METHODS

A. Fabrication
   1. Ensure all tree grate castings are manufactured true to pattern and component parts must fit together in a uniform manner.

   2. Ensure castings are free of all defects and cleaned by shot blasting.

   3. Furnish tree grates and frames without paint or primer.

B. Installation
   1. Square up the frame sections and bolt them together. Install the tree grate frame flush and on a plane with the proposed surrounding slope, prior to casting the concrete around it.

   2. Set the grates flush with the top of the frame and ensure that the grate does not rock in the frame. Securely bolt grate halves together on the underside. Clean any foreign matter from the grates prior to setting.

   3. If the engineer believes that the product or the installation has resulted in either a poorly fitted grate and frame, an unsafe walking surface, or an unacceptable amount of rocking, they may reject the installed product, and require a new installation and/or a new tree grate.

MEASUREMENT AND PAYMENT

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

PAY ITEM	PAY UNIT
Tree Grate	Each

DETAILED SPECIFICATION
FOR
ITEM #270 - NO PARKING SIGN
ITEM #271 - SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE
ITEM #272 - –CHANNELIZING DEVICE, 42 INCH – FURNISH & OPERATE
ITEM #273 - BARRICADE TYPE III - LIGHTED - FURNISH AND OPERATE
ITEM #274 - BARRICADE TYPE II - FURNISH AND OPERATE
ITEM #275 - TEMPORARY SIGN - TYPE B
ITEM #276 - TEMPORARY SIGN - TYPE A
ITEM #277 - PORTABLE WATER FILLED BARRIERS
ITEM #278 - LIGHTED ARROW, TYPE C, FURNISH & OPERATE

DESCRIPTION

Traffic shall be maintained in accordance with the City of Ann Arbor Public Services Department Standard Specifications except as specified in Sections 810, 812, 919, and 920 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, Part 6 of the latest edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), and the City Standard Specifications, and as amended herein.

MATERIALS, EQUIPMENT, AND CONSTRUCTION METHODS

General

Materials and equipment shall meet the requirements specified in the above-designated sections of the 2012 MDOT Standard Specifications.

The Contractor shall maintain two-way traffic on major streets (unless staging specifically requires one-way operation), maintain access for local traffic on local streets, and keep all intersections open to traffic at all times, unless specifically authorized in writing by the Engineer.

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 be removed and replaced so as to provide a minimum of half the pavement width at all times for maintaining traffic.

The Contractor shall keep all driveways open at all times, unless specifically authorized in writing by the Engineer.

The Contractor shall maintain pedestrian traffic at all times. For maintaining normal pedestrian traffic while performing sidewalk and driveway repair, Type II barricades 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. The City and DDA 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 or DDA 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.

A lane-closure permit shall be obtained by the Contractor from the City Transportation Division, at least 48 hours in advance of any proposed lane or street closing.

The hours of work on all Local streets are 7:00 a.m. to 8:00 p.m., Monday through Saturday, or as specified on the lane-closure permit. No equipment will be allowed in the street before or after these hours. Local streets may only be closed to through traffic (local access only) with written authorization of the Engineer. Work must be completed each day such that all streets are re-opened to through traffic by 8:00 p.m. unless otherwise specified, directed, or authorized in writing by the Engineer. All major changes in traffic control shall be made either between 9:30 a.m. and 3:30 p.m. or between 7:00 p.m. and 6:30 a.m. in order to minimize interference with rush-hour traffic. All traffic controls must be in-place and ready for traffic each day by 6:30 a.m. and 3:30 p.m.

The Contractor shall temporarily cover conflicting traffic and/or parking signs when directed by the Engineer, and such efforts will be considered incidental to the work.

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.

Channelizing Devices; II & III Barricades; Type A and B Temporary Signs

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

Channelizing Devices and Barricades shall comply with MDOT specifications.

Type III Barricades shall have standard orange-and-white stripes on both sides of the barricade.

Sufficient 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.

No-Parking Signs and Posts

Prior to the commencement of any construction activity, the Contractor shall place No-Parking signs as directed by the Engineer. The Contractor shall obtain a permit for “Temporary Permission of Reserve Parking Lane for Work Related Purposes” from the City Project Management Services Unit. This permit shall be obtained a minimum of 5 days prior to the posting of No-Parking signs.

The City will furnish No-Parking signs to the Contractor at no cost. The Contractor shall furnish the signposts and shall securely bolt the signs to the signposts as directed by the Engineer. The Contractor shall install the signposts at least 2-feet deep into the ground, and there shall be a minimum 6-feet and maximum 7-feet clearance maintained between the bottom of the sign and the ground. The signs shall be placed at 75-foot intervals (or as necessary) to eliminate parking in the construction area.

The installation of No-Parking signs shall be in accordance with the permit. No-Parking signs shall be installed by the Contractor, as directed by the Engineer, **at least 48 hours prior to the proposed start-of-work/enforcement date.**

No-Parking signs shall be returned to the City at the completion of the work. The cost of unreturned signs will be back charged to the Contractor.

No-Parking signs shall be covered by the Contractor, thereby allowing on-street parking, until between 48 and 36 hours prior to the start of the work. No-Parking signs shall be covered by the Contractor whenever there is no work being performed for a period of time longer than 72 hours.

Portable Water Filled Barriers

Contractor shall submit specifications for all portable water filled barriers to the Engineer for approval prior to the installation of the barriers. Barriers shall comply with TL-2 criteria and as approved by the Engineer. Barrier shall be Triton water filled barrier or approved equal. Barrier to be anchorless, unless directed otherwise by the Engineer. Location and installation shall comply with MDOT Standard Specifications for Construction and as approved by Engineer. The intended use for the barriers is to protect traffic that is within 3 feet of work zones with a surface differential of 12 inches or greater and as specified by the Engineer.

Lighted Arrow, Type C, Furnish & Operate

The contractor shall supply lighted arrow boards as shown on the plans and as directed by the Engineer at an Engineer approved locations. The lighted arrow boards shall comply with MDOT Standard Specifications for Construction. The contractor shall furnish and operate the lighted arrow throughout the duration of the project as directed by the Engineer. The contractor will maintain continuous operation of the lighted arrow when in use.

MEASUREMENT AND PAYMENT

General

All temporary traffic/pedestrian control devices furnished by the Contractor shall remain the property of the Contractor. The City or DDA 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 or DDA.

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

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).

Barricade Type II - Furnish and Operate

Payment for furnishing and operating Type II barricades shall be for the maximum quantity in-place at any one time during the work of the entire project.

Temporary Sign - Type B

Payment for Type B signs shall be for the maximum quantity used on each street. Includes all special signs that are custom-made for the project.

Temporary Sign - Type A

Payment for Type A signs shall be for the maximum quantity used on each street. Includes all special signs that are custom-made for the project.

–Channelizing Device, 42 Inch – Furnish & Operate

There will be a one-time payment for each street for the maximum number of 42 inch channelizing devices in-place (operated) at any one time, as directed by the Engineer.

No-Parking Signs

No-Parking Signs will be measured as the maximum number installed on each street at any one time. The unit price includes the removal and return of No-Parking signs to the City upon completion of the project. The Contractor shall be backcharged for the replacement costs for damaged or unreturned signs.

Portable Changeable Message Signs

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).

Portable Water Filled Barriers

Measurement for furnishing and operating Portable Water Filled Barriers will be for the maximum quantity in-place at any one time during the work of the entire project (all streets). Installing, adjusting, moving, placing, repairing, maintaining, and all related work shall be included in the pay item for "Portable Water Filled Barriers".

Lighted Arrow, Type C, Furnish & Operate

Measurement for furnishing and operating the lighted arrow boards will be for the maximum quantity in-place at any one time during the work of the entire project (all streets). Installing, adjusting, moving, placing, repairing, maintaining, and all related work shall be included in the pay item for "Lighted Arrow, Type C, Furnish & Operate"

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:

PAY ITEM	**PAY UNIT**
–Channelizing Device, 42 Inch – Furnish & Operate	Each
Barricade Type III - Lighted - Furnish and Operate	Each
Barricade Type II - Furnish and Operate	Each
Temporary Sign, Type B	Square Foot
Temporary Sign, Type A	Square Foot
No-Parking Sign	Each

Sign, Portable Changeable Message, Furnish and Operate	Each
Portable Water Filled Barriers	Linear Foot
Lighted Arrow, Type C, Furnish & Operate	Each

DETAILED SPECIFICATION
FOR
ITEM #281 - BENCH, METAL

DESCRIPTION

This work consists of furnishing and installing a metal bench in accordance with the details and at the location on the plans. This includes any necessary excavation, drilling into pavement, assembly, and disposal of unsuitable materials and packaging required for a complete installation. All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

MATERIALS

Provide bench materials selected and approved by the DDA. The materials will include the anchor bolts, nuts, washers, and all other hardware required for installation in accordance with the specifications herein, details included on the plans and per the manufacturer's recommendations.

Shop drawings from the manufacturer are to be submitted to the Engineer for approval prior to fabrication.

Furnish and install metal bench Model #FBF-58 from the Streetsides Collection of Victor Stanley, with the following specifications:

1. Benches shall be four (4) foot in length.

2. The bench shall be hot dipped galvanized, full emersion, prior to finishing.

3. The bench shall be electrostatically powder-coated with TGIC polyester powder coatings. Color to be "Titanium". The final color will be selected by the Engineer from manufacturer's samples.

4. Bench must be surface mounted and installed per the manufacturer's recommendations.

5. All anchoring bolts, nuts, washers, and all other hardware for installation to be stainless steel.

6. The benches shall be supplied with the option skateboard guards.

When requested by the Engineer, the Contractor must furnish certification regarding the compliance of materials incorporated in the work.

Contractor is to provide the specified metal bench, or an equal product approved by the Engineer.

CONSTRUCTION METHODS

Install and anchor the bench in the concrete sidewalk in accordance with the details as shown on the plans. The bench must be level and square in a true, flat plane to prevent rocking. Seat height must be 17 inches.

MEASUREMENT AND PAYMENT

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

PAY ITEM	PAY UNIT
Bench, Metal	Each

Bench, Metal includes all labor, materials, and equipment necessary to complete the work as described.

DETAILED SPECIFICATION
FOR
ITEM #281 - BENCH, PRECAST CONCRETE

DESCRIPTION

This work consists of furnishing and installing a precast concrete bench in accordance with the details and at the location on the plans. This includes any necessary excavation, drilling into pavement, assembly, and disposal of unsuitable materials and packaging required for a complete installation. The precast concrete benches are intended for use in a harsh urban environment, and the manufacturer will be responsible for the structural design of the bench to withstand this difficult use environment.

All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

MATERIALS

Provide bench materials selected and approved by the DDA. The materials will include the anchor hardware, and all other hardware required for installation in accordance with the specifications herein, details included on the plans and per the manufacturer's recommendations.

Shop drawings from the manufacturer are to be submitted to the Engineer for approval prior to fabrication. Submit shop drawings of all precast concrete items must show detail sections and profile for all precast items. Details shall show all reinforcing and special hardware required for fastening, mounting and installation. The manufacturer is responsible for all concrete reinforcement design, and shop drawings shall be sealed by a professional engineer.

Furnish and install the custom precast concrete bench as manufactured by Tectura Designs (Wausau Tile Inc., 9001 Business Highway 51, Rothschild, WI 54474; phone 1-800-388-8728), conforming to the following specifications:

1. The bench shall be constructed of reinforced pre-cast concrete, and manufactured in a climate controlled environment suitable for such work.

2. Concrete shall have a compressive strength of 5,000 psi, air content between 6 and 8%, and a water cement ratio of 45:1.

3. Color to be selected by Engineer from standard color pallet. Use integral inorganic color admixtures to achieve the selected color. Submit 1 sample, 6" x 6" size for the selected color. Color and finish of concrete to be consistent across all surfaces.

4. Bench must be surface mounted and installed per the manufacturer's recommendations.

5. All anchoring pins, bolts, nuts, washers, and all other hardware for installation to be stainless steel.

6. All units to conform to shop drawings, with a 1/8" tolerance in dimension. All exposed edges to have minimum 1/8" chamfer to prevent chipping and be true in line and detail over the length of the bench. All precast concrete finished surfaces to be sealed with a sealer approved by manufacturer.

Precast Concrete Manufacturer and Trade Contractor must have a minimum of 5 years of successful experience on projects of similar magnitude and complexity to that indicated project.

When requested by the Engineer, the Contractor must furnish certification regarding the compliance of materials incorporated in the work.

Contractor is to provide the specified pre-cast concrete bench, or an equal product approved by the Engineer.

Precast concrete to be delivered properly packaged and undamaged, and will be stored in secure area in original packaging. Protect from damage by other trades.

CONSTRUCTION METHODS

Install and anchor the bench on the concrete sidewalk in accordance with the details as shown on the plans. The bench must be level and square in a true, flat plane to prevent rocking.

Contractor shall protect the finished work from the time the installing contractor completes the work.

Manufacturer/Installer shall warrant installed system for a period of 2years from date of substantial completion against failure of workmanship and materials.

MEASUREMENT AND PAYMENT

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

PAY ITEM	PAY UNIT
Bench, Precast Concrete	Each

Bench, Precast Concrete includes all labor, materials, and equipment necessary to complete the work as described. Each Bench, Precast Concrete include all three (3) bench segments necessary to form the "L" shaped configuration illustrated on the plans

DETAILED SPECIFICATION
FOR
ITEM # 283 - BIKE HOOP

DESCRIPTION

This work consists of furnishing all labor, equipment, materials, required to place bike loops in the areas shown on the plans. All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

MATERIALS

Provide bike hoop materials selected and approved by the DDA. The materials will include the anchor bolts, nuts, washers, and all other hardware required for installation in accordance with the specifications herein, details included on the plans and per the manufacturer's recommendations.

Shop drawings from the manufacturer are to be submitted to the Engineer for approval prior to fabrication.

Furnish and install bike hoops with the following specifications:

1. All pipe and anchoring hardware materials are to be made of stainless steel.

2. Fabricate bike hoops as dimensioned on the plans

3. The bike hoop pipe is to be Schedule 40.

4. Bike hoops must be surface mounted, and embedded where shown and as noted on plans; install per the manufacturer's recommendations.

5. All anchoring bolts, nuts, washers, and all other hardware for installation to be stainless steel.

CONSTRUCTION METHODS

Embedded installation is required in locations with concrete unit pavers as a pavement; surface mounting is required in areas with poured concrete pavement. Identify each part prior to assembly, only after final adjustment and leveling permanently tighten all bolt, nuts, and fasteners.

Evenly space bike hoops at the dimensions noted on plans. Bike hoops must be installed plumb and in line with each other, and shall be firmly connected to the foundation or pavement so as to prevent rocking.

Perform the construction methods in accordance with section 803 of the 2012 MDOT Standard Specification for Construction unless otherwise stated in this special provision.

MEASUREMENT AND PAYMENT

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

PAY ITEM	PAY UNIT
Bike Hoop	Each

Both embedded and surface mounted bike hoops will be paid for as a single pay item.

DETAILED SPECIFICATION
FOR
ITEM # 284 - REMOVE PARKING METERS
ITEM # 285 - INSTALL PARKING METERS

DESCRIPTION

This work shall consist of removing parking meter standards and installing new meter standards where directed. All work must be conducted in accordance with the plans and specifications, the 2012 MDOT Standard Specification for Construction, and the City Standard Specifications.

MATERIALS

Republic Parking will supply all standards. Standards are steel tubes 60" to 63" in length and 2" square.

All sand shall meet the gradation of MDOT Class II granular material in accordance with Section 902 of the 2012 MDOT Standard Specifications for Construction.

Concrete shall be Grade P2 in accordance with Section 601 of the MDOT 2012 Standard Specifications for Construction.

CONSTRUCTION METHODS

1. Removal. Meter standards requiring removal will be marked by the City. Prior to removal, contact Republic Parking at (734) 761-7235 for the removal of the parking meter heads. The Contractor is not permitted to remove the meter heads, nor remove the standard with the meter head still in place.

The Contractor shall removal the standard and concrete foundation. The void is to be backfilled with Class II Granular Material or Engineer approved backfill. The standards and concrete will then become of the property of the Contractor and shall be properly disposed of offsite.

2. Installation. The City will stake the location for the new meter locations. The location is approximately 18" to 24" from curb line, and 48" from front end of stall for parallel parking.

a. Installation in sidewalk/concrete. Core an 8" diameter hole through the concrete sidewalk at the meter location points. When working in close proximity of underground lines, use caution to avoid drilling beyond the thickness of the sidewalk in order to prevent damage to lines. For installation in new sidewalk, the standard may be installed prior to placing walk, or the walk may be placed around a form in the location of the proposed standard.

After drilling through the sidewalk, excavate approximately 30" deep, with an 8" diameter opening, and tapering outward to 10" at the bottom.

Set the standards into the concrete filled holes with the REAMED END to the TOP and WEEP HOLE on LOWER END FACING THE STREET. The meter standard is to project 37" above the sidewalk level.

Check the vertical plumb with the surface level, first in one direction and then in the other and then hold the standard securely in position with forms until the concrete has set.

After the standards have been plumbed, check the vertical alignment down the street and the height uniformity, making such corrections and adjustments as necessary.

b. Installation in soil. Excavate holes approximately 30" deep, with an 8" diameter opening, and tapering outward to 10" at the bottom.

Set the standards into the concrete filled holes with the REAMED END to the TOP and WEEP HOLE on LOWER END FACING THE STREET. The meter standard is to project 37" above the finished grade.

Check the vertical plumb with the surface level, first in one direction and then in the other and then hold the standard securely in position with forms until the concrete has set.

After the standards have been plumbed, check the vertical alignment down the street and the height uniformity, making such corrections and adjustments as necessary.

The Contractor is responsible for the protection of the standard until the concrete foundation has set. If the standard is not plumb upon curing of the foundation, then the standard will be removed and reset at the contractor's expense. The Contractor shall use plastic drums and caution tape, "Wet Paint" signs, or other methods to protect the standards.

Meter heads will be installed by Republic Parking upon installation of the standards.

MEASUREMENT AND PAYMENT

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	PAY UNIT
Remove Parking Meter	Each
Install Parking Meter	Each

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

Disposal of standards, concrete foundations, and all excavated material is included in the unit prices for the above items.

Material to backfill voids after removing the standards is included in the pay item "Remove Parking Meter".

DETAILED SPECIFICATION
FOR
ITEM #287 - REMOVE STRUCTURE

DESCRIPTION

This work shall consist of removal of underground vault perimeter wall to a depth of 36-inches below existing grade as required by the Plans.

All work shall be done in accordance with the City of Ann Arbor Public Services Department Standard Specifications, 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 METHODS

The Construction Methods shall meet all requirements of the "Masonry and Conc Structure, Rem" item of Section 204 of the 2012 edition of the MDOT Standard Specifications for Construction, except as modified herein.

Excavated materials are the responsibility of the Contractor and shall be removed and properly disposed of off-site within the same day of the removal.

Backfilling is not included in this item and shall be paid for separately.

MEASUREMENT AND PAYMENT

The unit price for the pay item "Remove Structure" includes all labor, material and equipment costs associated with the complete removal of the existing vault perimeter wall, as specified herein, including but not limited to, excavation and proper disposal off site.

Completed work as measured for this item of work will be paid for at Contract Unit Price for the following Contract Pay Item:

PAY ITEM	PAY UNIT
Remove Structure	CY

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.

CITY OF ANN ARBOR
PREVAILING WAGE DECLARATION OF COMPLIANCE

The "wage and employment requirements" of Section 1:320 of Chapter 14 of Title I of the Ann Arbor City Code mandates that the city not enter any contract, understanding or other arrangement for a public improvement for or on behalf of the city unless the contract provides that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. Where the contract and the Ann Arbor City Code are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used. Further, to the extent that any employees of the contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with section 1:320 of Chapter 14 of Title I of the Code of the City of Ann Arbor, employees shall be paid a prescribed minimum level of compensation (i.e. Living Wage) for the time those employees perform work on the contract in conformance with section 1:815 of Chapter 23 of Title I of the Code of the City of Ann Arbor.

At the request of the city, any contractor or subcontractor shall provide satisfactory proof of compliance with this provision.

The Contractor agrees:

(a) To pay each of its employees whose wage level is required to comply with federal, state or local prevailing wage law, for work covered or funded by this contract with the City,

(b) To require each subcontractor performing work covered or funded by this contract with the City to pay each of its employees the applicable prescribed wage level under the conditions stated in subsection (a) or (b) above.

(c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.

(d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the wage and employment provisions of the Chapter 14 of the Ann Arbor City Code. The undersigned certifies that he/she has read and is familiar with the terms of Section 1:320 of Chapter 14 of the Ann Arbor City Code and by executing this Declaration of Compliance obligates his/her employer and any subcontractor employed by it to perform work on the contract to the wage and employment requirements stated herein. The undersigned further acknowledges and agrees that if it is found to be in violation of the wage and employment requirements of Section 1:320 of the Chapter 14 of the Ann Arbor City Code it shall has be deemed a material breach of the terms of the contract and grounds for termination of same by the City or the DDA..

_____
Company Name

_____
Signature of Authorized Representative Date

_____
Print Name and Title

_____
Address, City, State, Zip

_____
Phone/Email address

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500

CITY OF ANN ARBOR
LIVING WAGE ORDINANCE DECLARATION OF COMPLIANCE

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that an employer who is (a) a contractor providing services to or for the City for a value greater than $10,000 for any twelve-month contract term, or (b) a recipient of federal, state, or local grant funding administered by the City for a value greater than $10,000, or (c) a recipient of financial assistance awarded by the City for a value greater than $10,000, shall pay its employees a prescribed minimum level of compensation (i.e., Living Wage) for the time those employees perform work on the contract or in connection with the grant or financial assistance. The Living Wage must be paid to these employees for the length of the contract/program.

Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from compliance with the Living Wage Ordinance. If this exemption applies to your company/non-profit agency please check here [ ] *No. of employees* ___

The Contractor or Grantee agrees:

(a) To pay each of its employees whose wage level is not required to comply with federal, state or local prevailing wage law, for work covered or funded by a contract with or grant from the City, no less than the Living Wage. The current Living Wage is defined as $12.93/hour for those employers that provide employee health care (as defined in the Ordinance at Section 1:815 Sec. 1 (a)), or no less than $14.43/hour for those employers that do not provide health care. The Contractor or Grantor understands that the Living Wage is adjusted and established annually on April 30 in accordance with the Ordinance and covered employers shall be required to pay the adjusted amount thereafter to be in compliance (Section 1:815(3).

Check the applicable box below which applies to your workforce

[ ] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage without health benefits

[ ] Employees who are assigned to any covered City contract/grant will be paid at or above the applicable living wage with health benefits

(b) To post a notice approved by the City regarding the applicability of the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.

(c) To provide to the City payroll records or other documentation within ten (10) business days from the receipt of a request by the City.

(d) To permit access to work sites to City representatives for the purposes of monitoring compliance, and investigating complaints or non-compliance.

(e) To take no action that would reduce the compensation, wages, fringe benefits, or leave available to any employee covered by the Living Wage Ordinance or any person contracted for employment and covered by the Living Wage Ordinance in order to pay the living wage required by the Living Wage Ordinance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services or agrees to accept financial assistance in accordance with the terms of the Living Wage Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Living Wage Ordinance, obligates the Employer/Grantee to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract or grant of financial assistance.

_____
Company Name

_____
Signature of Authorized Representative Date

_____
Print Name and Title

_____
Address, City, State, Zip

_____
Phone/Email address

Questions about this form? Contact Procurement Office City of Ann Arbor Phone: 734/794-6500

CITY OF ANN ARBOR
LIVING WAGE ORDINANCE

RATE EFFECTIVE APRIL 30, 2016 - ENDING APRIL 29, 2017

$12.93 per hour
If the employer provides health care benefits*****

$14.43 per hour
If the employer does **NOT** provide health care benefits*****

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than $10,000 in a twelve-month period of time must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.

ENFORCEMENT

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violation of this Ordinance is punishable by fines of not more than $500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

***** Health Care benefits include those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed $.50 an hour for an average work week; and the employer cost or contribution must equal no less than $1/hr for the average work week.

The Law Requires Employers to Display This Poster Where Employees Can Readily See It.

For Additional Information or to File a Complaint Contact:
Colin Spencer at 734/794-6500 or cspencer@a2gov.org

CITY OF ANN ARBOR
DECLARATION OF COMPLIANCE

Non-Discrimination Ordinance

The "non discrimination by city contractors" provision of the City of Ann Arbor Non-Discrimination Ordinance (Ann Arbor City Code Chapter 112, Section 9:158) requires all contractors proposing to do business with the City to treat employees in a manner which provides equal employment opportunity and does not discriminate against any of their employees, any City employee working with them, or any applicant for employment on the basis of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight. It also requires that the contractors include a similar provision in all subcontracts that they execute for City work or programs.

In addition the City Non-Discrimination Ordinance requires that all contractors proposing to do business with the City of Ann Arbor must satisfy the contract compliance administrative policy adopted by the City Administrator. A copy of that policy may be obtained from the Purchasing Manager

The Contractor agrees:

(a) To comply with the terms of the City of Ann Arbor's Non-Discrimination Ordinance and contract compliance administrative policy.

(b) To post the City of Ann Arbor's Non-Discrimination Ordinance Notice in every work place or other location in which employees or other persons are contracted to provide services under a contract with the City.

(c) To provide documentation within the specified time frame in connection with any workforce verification, compliance review or complaint investigation.

(d) To permit access to employees and work sites to City representatives for the purposes of monitoring compliance, or investigating complaints of non-compliance.

The undersigned states that he/she has the requisite authority to act on behalf of his/her employer in these matters and has offered to provide the services in accordance with the terms of the Ann Arbor Non-Discrimination Ordinance. The undersigned certifies that he/she has read and is familiar with the terms of the Non-Discrimination Ordinance, obligates the Contractor to those terms and acknowledges that if his/her employer is found to be in violation of Ordinance it may be subject to civil penalties and termination of the awarded contract.

_____
Company Name

_____
Signature of Authorized Representative Date

_____
Print Name and Title

_____
Address, City, State, Zip

_____
Phone/Email address

Questions about the Notice or the City Administrative Policy, Please contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

CITY OF ANN ARBOR NON-DISCRIMINATION ORDINANCE

Relevant provisions of Chapter 112, Nondiscrimination, of the Ann Arbor City Code are included below. You can review the entire ordinance at www. a2gov.org/departments/city-clerk

Intent: It is the intent of the city that no individual be denied equal protection of the laws; nor shall any individual be denied the enjoyment of his or her civil or political rights or be discriminated against because of actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight.

Discriminatory Employment Practices: No person shall discriminate in the hire, employment, compensation, work classifications, conditions or terms, promotion or demotion, or termination of employment of any individual. No person shall discriminate in limiting membership, conditions of membership or termination of membership in any labor union or apprenticeship program.

Discriminatory Effects: No person shall adopt, enforce or employ any policy or requirement which has the effect of creating unequal opportunities according to actual or perceived age, arrest record, color, disability, educational association, familial status, family responsibilities, gender expression, gender identity, genetic information, height, HIV status, marital status, national origin, political beliefs, race, religion, sex, sexual orientation, source of income, veteran status, victim of domestic violence or stalking, or weight for an individual to obtain housing, employment or public accommodation, except for a bona fide business necessity. Such a necessity does not arise due to a mere inconvenience or because of suspected objection to such a person by neighbors, customers or other persons.

Nondiscrimination by City Contractors: All contractors proposing to do business with the City of Ann Arbor shall satisfy the contract compliance administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All city contractors shall ensure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon any classification protected by this chapter. All contractors shall agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of any applicable protected classification. All contractors shall be required to post a copy of Ann Arbor's Non-Discrimination Ordinance at all work locations where its employees provide services under a contract with the city.

Complaint Procedure: If any individual has a grievance alleging a violation of this chapter, he/she has 180 calendar days from the date of the individual's knowledge of the allegedly discriminatory action or 180 calendar days from the date when the individual should have known of the alleged discriminatory action to file a complaint with the city's Human Rights Commission. If an individual fails to file a complaint alleging a violation of this chapter within the specified time frame, the complaint will not be considered by the Human Rights Commission. The complaint should be made in writing to the Human Rights Commission. The complaint may be filed in person with the City Clerk, by e-mail at aahumanrightscommission@gmail.com, or by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107). The complaint must contain information about the alleged discrimination, such as name, address, phone number of the complainant and location, date and description of the alleged violation of this chapter.

Private Actions For Damages or Injunctive Relief: To the extent allowed by law, an individual who is the victim of discriminatory action in violation of this chapter may bring a civil action for appropriate injunctive relief or damages or both against the person(s) who acted in violation of this chapter

CITY OF ANN ARBOR
DOWNTOWN DEVELOPMENT AUTHORITY
South University Streetscape Improvements

DECEMBER 5, 2016

NOTES:

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

BID NO. 4466

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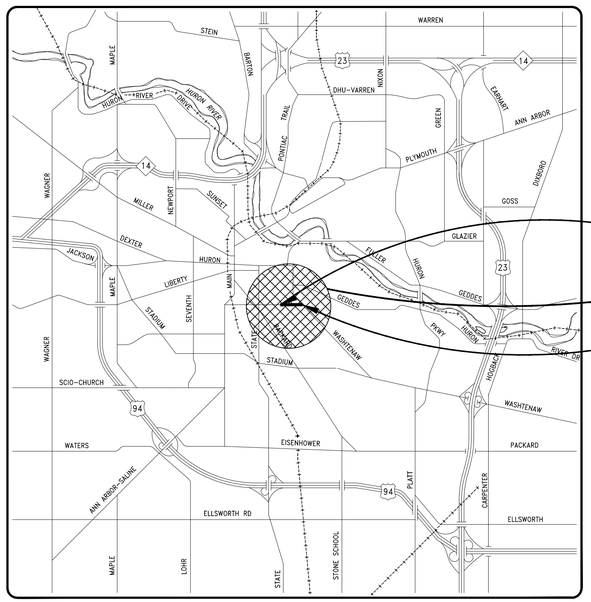
C143	SIGNAGE AND STRIPING PLAN - EAST CENTRAL		
C144	SIGNAGE AND STRIPING PLAN - EAST		



PROJECT LENGTH
0.230 MILES

P.O.B.
STA. 0+00

PROJECT LOCATION

P.O.E.
STA. 12+12

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

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL DIAL 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.

SMITHGROUP JJR

PREPARED UNDER THE SUPERVISION OF THE ANN ARBOR DOWNTOWN DEVELOPMENT AUTHORITY

EMILY S. MCKINNON, P.E., MICHIGAN NO. 51422 — DATE

SEAL

NOT FOR CONSTRUCTION

DRAWING NO. G100

SHEET 1 OF 59

S. Univ Streetscape; BID NO. 4466

ABBREVIATIONS

A	
ABD	ABANDONED
AC	ACRES
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B	
B.M.	BENCHMARK
BIT	BITUMINOUS
BLDG	BUILDING
B/F	BOTTOM OF FOOTING
B/S	BOTTOM OF SWALE
B/W	BOTTOM OF WALL (FINISH GRADE)
C	
CB	CATCH BASIN
CI	CURB INLET
CIP	CAST IRON PIPE
CL	CLASS
CMP	CORRUGATED METAL PIPE
CON	CONDENSATE
CO	CLEANOUT
CONC	CONCRETE
CONTR	CONTRACTOR
CU FT	CUBIC FOOT
CURV	CURVATURE
CU YD	CUBIC YARD
D	
DEMO	DEMOLISH
DEPT	DEPARTMENT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
E	
E	EAST, EASTING COORDINATE
EA	EACH
EG	EXISTING GRADE
ELEV	ELEVATION
E/M	EDGE OF METAL (EDGE OF GUTTER)
EQ	EQUAL
EX	EXISTING
F	
FF:	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FLASH	FLASHING
FM	FORCE MAIN
FT	FOOT, FEET
FURN	FURNISHING
G	
GALV	GALVANIZED
GAS	NATURAL GAS
G/C:	GUTTER OF CURB (FLOWLINE)
GVL	GRAVEL
H	
H	HIGH
HB	HOSE BIBB
HCAP	ADA HANDICAP
HDPE	HIGH-DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HORZ	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
I	
I.D.	INNER DIAMETER
IN	INCH, INCHES
INCL	INCLUDE, INCLUDING
INL	INLET
INV:	PIPE INVERT ELEVATION
IRR	IRRIGATION
J	
JT	JOINT
L	
L	LENGTH
LF	LINEAR FEET
LPT	LOW POINT
LN	LANE
LT	LIGHT
LTG	LIGHTING
M	
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
M.E.	MATCH EXISTING
MED	MEDIUM
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOD	MODIFIED
N	
N	NORTH, NORTHING COORDINATE
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O	
O.C.	ON CENTER
O.D.	OUTER DIAMETER
OFF	OFFSET
OPT	OPTIONAL
P	
PC	POINT OF CURVATURE (POC)
PED	PEDESTRIAN
PERF	PERFORATED
PERP	PERPENDICULAR
PLMB	PLUMBING
PREFAB	PREFABRICATED
PREP	PREPARATION
PROJ	PROJECTED
PROP	PROPOSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT, POINT OF TANGENCY (POT)
PVC	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PWR	POWER
Q	
QTY	QUANTITY
R	
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCPT	RECEPTACLE
RD	ROAD
REF	REFERENCE
REINF	REINFORCED, REINFORCEMENT
REM	REMOVE
REQD	REQUIRED
RIM:	RIM ELEVATION
ROW	RIGHT OF WAY
S	
S	SOUTH
SAN	SANITARY SEWER
SCH	SCHEDULE
SECT	SECTION
SESC	SOIL EROSION AND SEDIMENTATION CONTROL
SIM	SIMILAR
SP	SPACE, SPACED, SPACING
SQ FT	SQUARE FEET
SQ YD	SQUARE YARD
ST	STREET
ST LT	STREET LIGHT
STA	STATION
STAG	STAGGER, STAGGERED
STD	STANDARD
STL	STEEL
SSL	STAINLESS STEEL
STM	STORM SEWER
STRUCT	STRUCTURAL
SUBCONTR	SUBCONTRACTOR
T	
T	TELECOM
T/C	TOP OF CURB
TEMP	TEMPORARY
T/F	TOP OF FOOTING
T/S	TOP OF SWALE
T/W	TOP OF WALL
TYP.	TYPICAL
U	
UD	UNDERDRAIN
UTIL	UTILITY
V	
V/B:	VALVE BOX
VERT	VERTICAL
W	
W	WEST
WM	WATER MAIN
W/O	WITHOUT
WWF	WELDED WIRE FABRIC
Y	
YD	YARD DRAIN
SYMBOL	
ø	DIAMETER
±	PLUS/MINUS
Δ	DELTA

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SURVEY SYMBOLS

- 12" STM. — EXISTING STORM
- W — EXISTING WATER
- 8" SAN. S — EXISTING SANITARY
- G — EXISTING GAS
- EXISTING CURB INLET
- 872.34 STORM MH — EXISTING STORM MANHOLE
- WV 876.46 — EXISTING WATER VALVE
- 872.99 HYDRANT — EXISTING HYDRANT
- 876.63 SANITARY MH — EXISTING SANITARY MANHOLE
- GV 878.68 — EXISTING GAS VALVE
- EXISTING GUY WIRE
- UE — EXISTING UNDERGROUND CONDUIT
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- EXISTING RIGHT-OF-WAY
- EXISTING LOT LINE
- COM — EXISTING TELEPHONE LINE
- 865 — EXISTING MAJOR CONTOUR
- 864 — EXISTING MINOR CONTOUR
- 861.50 — EXISTING SPOT ELEVATION
- OE — EXISTING ELECTRIC LINE
- EXISTING PARKING METER
- EXISTING BENCHMARK
- EXISTING SHRUBS
- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- FFE — FINISH FLOOR
- EXISTING UTILITY POLE
- EXISTING CURB BOX
- 871.52 TELE MH — EXISTING TELEPHONE MANHOLE
- EXISTING POST
- EXISTING TREE STUMP

SESC & DEMOLITION SYMBOLS

- 135 - TREE REMOVAL (8" AND LARGER TREES)
- TREE PROTECTION FENCE
- REMOVE OR SALVAGE ITEM
- PROTECT ITEM
- RELOCATE ITEM
- 386 - SEWER STRUCTURE ABANDONMENT
- UTILITY REMOVAL
- 230 - REMOVE CONCRETE CURB & GUTTER - ANY TYPE
- SAWCUT PAVEMENT
- 232 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
- 500 - REMOVE BITUMINOUS PAVEMENT
  501 - REMOVE CONCRETE PAVEMENT - ANY THICKNESS
- 510 - COLD MILLING BITUMINOUS PAVEMENT
- TOPSOIL STRIPPING
- SF — 703 - SILT FENCE
- 702 - INLET FILTER
- LIMITS OF WORK

LAYOUT & MATERIALS SYMBOLS

- 236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
  CONTRACTION JOINT
  EXPANSION JOINT
- 237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- 239 - SIDEWALK UNIT PAVERS
- 220 - HMA PAVEMENT LEVELING
  221 - HMA PAVEMENT WEARING
- 234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (BARRIER CURB AND GUTTER)
- 234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (SPILLOUT BARRIER CURB AND GUTTER)
- 234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE(VALLEY CURB AND GUTTER)
- 234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE(FLUSH CURB AND GUTTER)
- 280 - PLANTER CURB
- 240 - DETECTABLE WARNING, CAST IN PLACE
- 258 - LUMINAIRE INSTALLATION
  259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION
- 266 - TREE GRATE
- LIMITS OF WORK

SIGNAGE & STRIPING SYMBOLS

- SINGLE POST SIGN
- DOUBLE POST SIGN
- POLE MOUNTED SIGN
- PARKING ID
- P — PARKING PAY STATION
- SOLID PAVEMENT MARKING
- STOP BAR PAVEMENT MARKING
- CROSSWALK PAVEMENT MARKING
- HANDICAP PAVEMENT MARKING
- BIKE LANE PAVEMENT MARKING
- SHARROW PAVEMENT MARKING

GRADING SYMBOLS

- 865 — PROPOSED MAJOR CONTOUR
- 864 — PROPOSED MINOR CONTOUR
- GRADING LIMITS
- GRADE BREAK LINE
- 2.5% — DRAINAGE SLOPE
- 861.50 — PROPOSED SPOT ELEVATION
- 861.50 M.E.± — APPROX. SPOT ELEVATION: MATCH EXISTING GRADE
- RIM 861.50 — STRUCTURE RIM ELEVATION
- T/C 861.50 — TOP OF CURB ELEVATION
- G/C 861.50 — GUTTER OF CURB ELEVATION
- E/M 861.50 — EDGE OF METAL ELEVATION
- T/S 861.50 — TOP OF SWALE ELEVATION
- B/S 861.50 — BOTTOM OF SWALE ELEVATION
- T/W 861.50 — TOP OF WALL ELEVATION
- B/W 861.50 — BOTTOM OF WALL ELEVATION
- SECTION EXISTING GRADE
- SECTION PROPOSED GRADE

UTILITY SYMBOLS

- STORM PIPE
- CURB INLET
- D — STORM MANHOLE
- TRENCH DRAIN
- D — OFFSET CURB INLET
- W — WATER LINE
- HYDRANT

LANDSCAPE SYMBOLS

- DECIDUOUS SHADE TREE
- PERENNIAL / GROUNDCOVER PLANT BED
- INDIVIDUAL ORNAMENTAL GRASS / PERENNIAL

LIGHTING SYMBOLS

- E — 611 - 2" SCHEDULE 40 PVC ELECTRICAL CONDUIT
- EHH — 620 - ELECTRICAL HANDHOLE
- 258 - LUMINAIRE INSTALLATION
- 258 - LUMINAIRE INSTALLATION
  259 - LIGHT STD SHAFT, INSTALL SALV

CONSTRUCTION NOTES

1. The Construction covered by these plans shall conform to the 1994 edition of the City of Ann Arbor Public Services Department Standard Specifications and its details which are included by reference.
2. The omission of any current Standard Detail does not relieve the Contractor from this requirement. The work shall be performed in complete conformance with the current Public Services Standard Specifications and Details.
3. 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.
4. The location and depth of all existing utilities and service leads are to be field verified by the Contractor prior to construction.
5. 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.
6. The Contractor is to take special care to protect the existing water main and be responsible for maintaining consistent water service.
7. 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".
8. Trenches for new water services shall be excavated to MIOSHA and City of Ann Arbor Field Services requirements.
9. City of Ann Arbor Field Services 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 Field Services.
10. 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 Field Services.
11. 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.
12. All ductile iron pipe and fittings shall be polyethylene wrapped per ANSI/AWWA C105/A21.5.
13. Cor-blu bolts to be used at all mechanical water main joints at hydrants and Megalug fittings
14. 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.
15. 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.
16. "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.
17. Postal delivery and refuse pickup service shall be maintained at all times by the Contractor.
18. All light poles, luminaires, signs, 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 Field Operations and Maintenance Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
19. Where street curbs are undermined due to construction activities, they shall be removed and replaced as directed by the Engineer.
20. 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".
21. All new and existing storm inlets within the project shall have inlet filter protection for the duration construction.
22. All curb, sidewalk, driveway approach removals shall be approved by Engineer before the work is done.
23. Sawed sewer pipe connections shall be coupled with a Fernco flexible coupling and a stainless steel shear ring.
24. The location of material stock piles and on-site staging areas to be approved by the Engineer.
25. 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.
26. 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 Field Operations and Maintenance Facility at the W.R. Wheeler Service Center located at 4251 Stone School Road.
27. Payment for drainage structure sumps, where specified, shall be included in the payment for the various drainage structure sizes and or types.
28. 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.
29. 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.
30. 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"

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

PERMIT	ISSUING AUTHORITY
LANE CLOSURE PERMIT*	CITY OF ANN ARBOR PROJECT MANAGEMENT UNIT
"NO PARKING" SIGNS PERMIT*	CITY OF ANN ARBOR PROJECT MANAGEMENT UNIT
GRADING/SOIL EROSION & SEDIMENTATION CONTROL PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE
RIGHT-OF-WAY PERMIT*	CITY OF ANN ARBOR CUSTOMER SERVICE

*** NO COST TO CONTRACTOR**

CONTACT INFORMATION

PUBLIC UTILITIES	OWNER	CONTACT
WATER		DAN WOODEN (734) 794-6350
SANITARY		MARK COZART (734) 794-6350
STORM	CITY OF ANN ARBOR FIELD OPERATIONS SERVICE UNIT W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	STEVEN GOEBEL (734) 794-6350
FORESTRY		MATT WALDSMITH (734) 794-6350
SIGNS SIGNALS STREET LIGHTS		CHUCK FOJTIK (734) 794-6361

PRIVATE UTILITIES	OWNER	CONTACT
GAS	DTE ENERGY 3150 E. MICHIGAN AVE, YPSILANTI TOWNSHIP, MI 48198	ROBERT CZAPIEWSKI (734) 544-7818
ELECTRIC	DTE ENERGY WESTERN WAYNE SERVICE CENTER 8001 HAGGERTY ROAD BELLEVILLE, MI 48111	CLAY COMBEE (734) 397-4112
CABLE	COMCAST 27800 FRANKLIN ROAD SOUTHFIELD, MI 48034	RON SUTHERLAND (313) 999-8300
PHONE	AT&T 550 S. MAPLE ROAD ANN ARBOR, MI 48103	BRIAN BERRY (734) 996-2135
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016

THE FOLLOWING UTILITIES ARE LOCATED IN OR NEAR THE RIGHT-OF-WAY FOR THIS PROJECT.

PUBLIC UTILITIES

CITY OF ANN ARBOR FIELD OPERATIONS SERVICES UNIT

WATER, SEWER AND STORM	W.R. WHEELER SVC. CTR 4251 STONE SCHOOL RD. ANN ARBOR, MI 48108	DAN WOODEN 734-194-6350
SIGNS/SIGNALS/STREETLIGHTS	W.R. WHEELER SVC. CTR 4251 STONE SCHOOL RD. ANN ARBOR, MI 48108	CHUCK FOJTIK 734-794-6361

PRIVATE UTILITIES

AT&T-PHONE	550 S. MAPLE ANN ARBOR, MI 48103	BRIAN BERRY 734-996-2135
DTE ENERGY-ELECTRIC	WESTERN WAYNE SERVICE CTR 8001 HAGGERTY RD. BELVILLE, MI 48111	CLAY COMBEE 734-397-4112
COMCAST-CABLE	27800 FRANKLIN RD. SOUTHFIELD, MI 48034	RON SUTHERLAND 313-999-8300
DTE ENERGY-GAS	17150 ALLEN RD. MELVINDALE, MI 48122	JACK WHYATT 313-701-1355
MCI-PHONE	2400 NORTH GLENFILLE RICHARDSON, TX 75082	DEAN BOYERS 972-729-6016

BENCH MARK INFORMATION

BENCH MARK A - ELEVATION: 878.04
LOCATION: UPPER WEST FLANGE BOLT ON HYDRANT, NW CORNER OF WASHTENAW AND S UNIVERSITY AVENUES

BENCH MARK B - ELEVATION: 881.53
LOCATION: ARROW ON HYDRANT, SE CORNER OF S UNIVERSITY AVENUE AND S FOREST AVENUE

BENCH MARK C- ELEVATION: 878.91
LOCATION: ARROW ON HYDRANT, NORTH SIDE OF ROAD, IN FRONT OF BUILDING 1207 S UNIVERSITY AVENUE

BENCH MARK D- ELEVATION: 875.50
LOCATION: ARROW ON HYDRANT AT NE CORNER, S UNIVERSITY AND E UNIVERSITY AVENUES

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

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SEE ABOVE							
BENCH MARK	SURVEY BOOK	XXX	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
				BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

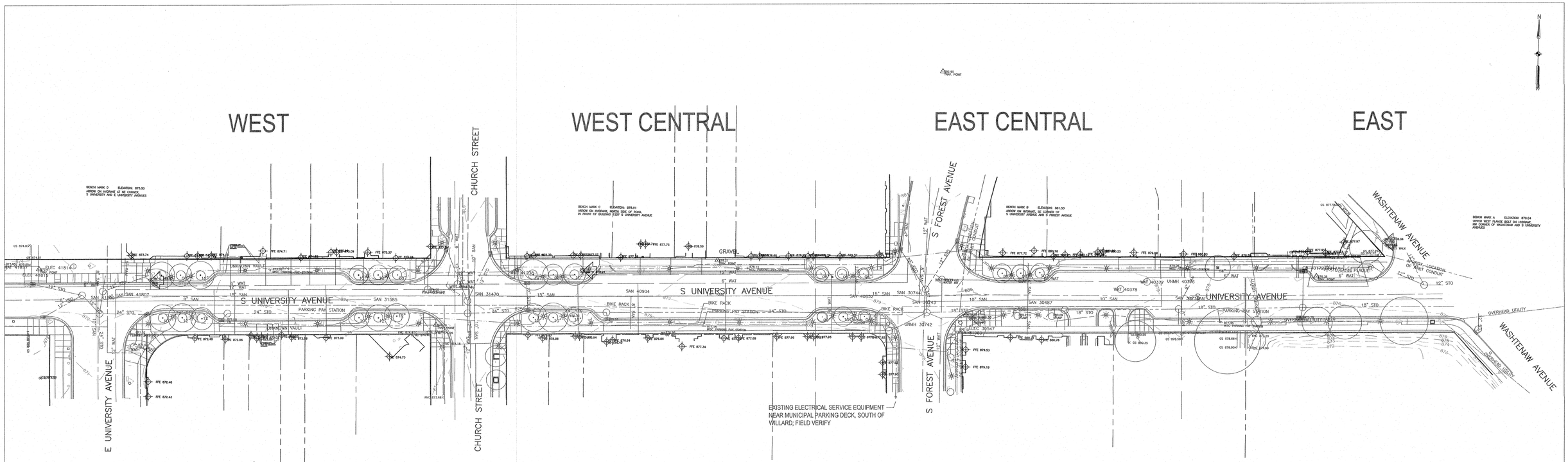
GENERAL NOTES

APPROVED BY _____

SCALE 1"=40' | INCH 0 1

DRAWING NO. G101

SHEET NO. 2 OF 59



SURVEY NOTES

1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE GRID COORDINATES, SOUTH ZONE (2113), GEOID 2012A, INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE, AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC..
2. VERTICAL DATUM IS ACCORDING TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC.. BENCHMARKS ARE LISTED HEREIN.
3. THE TOPOGRAPHIC SURVEY WAS CONDUCTED BY FISHBECK, THOMPSON, CARR & HUBER, INC. SURVEY STAFF. THE INITIAL FIELD WORK WAS COMPLETED IN NOVEMBER 2015 AND REVISED IN MARCH 2016.
4. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. ALL INFORMATION REGARDING LAND BOUNDARY, EASEMENTS, RIGHTS-OF-WAY, AND OTHER INFORMATION THAT MAY AFFECT TITLE WAS GAINED FROM AVAILABLE TAX RECORDS AND/OR RECORDED SUBDIVISION PLATS.
5. UNDERGROUND UTILITY LOCATIONS WERE DERIVED FROM ACTUAL MEASUREMENTS ON VISIBLE UTILITIES, MISS DIG FLAGS/MARKINGS, AND/OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS, NOR SHOULD THEY IT BE ASSUMED THAT THEY ARE THE ONLY UNDERGROUND UTILITIES IN THE AREA. ALL UTILITIES SHOULD BE APPROACHED WITH CAUTION. ADDITIONAL DETAILS REGARDING THE INDIVIDUAL UTILITIES ARE NOTED BELOW:

   EXISTING UNDERGROUND CONDUIT LOCATIONS ARE BASED OFF OF 1989 SOUTH UNIVERSITY STREETSCAPE PLANS PREPARED BY JOHNSON JOHNSON & ROY/INC.. LOCATIONS ARE FOR REFERENCE ONLY AND ARE TO BE FIELD VERIFIED PRIOR TO BID/CONSTRUCTION.
6. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED AND ARE NOT CONSIDERED A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE AND OR DEVELOPMENT OF THIS SITE.
7. ADDITIONAL SPOT ELEVATIONS MAY BE CONTAINED IN THE PROJECT DATABASE, AND ALTHOUGH NOT APPEARING IN THE RECORD PLAN DOCUMENT DUE TO SCALE AND VISIBILITY, WERE UTILIZED IN THE DIGITAL TERRAIN MODEL FOR CREATION OF THE ONE-FOOT CONTOURS. THE ADDITIONAL SPOT ELEVATION DATA IS AVAILABLE FOR FUTURE DESIGN ANALYSIS, BEING LOCATED ON A FROZEN LAYER WITHIN THE PROJECT DATABASE.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING STRUCTURE DATA

POINT NUMBER	TYPE	RIM	INVERT	ELEVATION	MATERIAL
30079	STORM	876.5	12" E	873.35	VCP
30080	STORM	876.71	12" N	873.11	RCP
			12" W	873.31	RCP
30170	STORM	875.93	12" N	870.83	VCP
			18" E	869.33	VCP
			12" S	871.13	VCP
			18"W	869.33	VCP
30171	STORM	875.2	12" N	872.6	VCP
30172	STORM	875.33	12" N	872.73	VCP
30233	STORM	878.25	18" E	869.25	RCP
			12" S	870.05	RCP
			18" W	869.25	RCP
30234	SANITARY	878.46	6" NE	869.76	VCP
			10" E	867.26	VCP
			8" S	867.66	VCP
			10"W	867.16	VCP
30414	STORM	879.46	24" E	868.66	RCP
			12" S	872.36	RCP
			24" W	868.66	RCP
30487	SANITARY	879.78	4" N	870.23	PVC
			10" E	866.28	VCP
			10" S	866.58	PVC
			10" W	866.28	VCP
30547	ELMH	879.64			
30548	TEMH	879.12			
30741	SANITARY	879.41	15" NE	873.16	VCP
			18" E	868.71	VCP
			5" SE	875.61	STEEL
			5" SW	875.01	PVC
			18" W	868.61	VCP
			5" SW	875.01	PVC
30742	STORM	878.59			
30743	SANITARY	879.76	8" N	869.86	VCP
			10" E	865.56	VCP
			15" NW	865.16	VCP
30744	SANITARY	879.63	15" SE	864.93	VCP
			15" W	864.93	VCP
30745	STORM	880.13	12" N	875.53	VCP
			15" S	875.13	VCP
			12" NW	875.63	VCP
30746	WAMH	880.25			
30769	STORM	878.43	12" NE	875.73	RCP
			12" W	875.83	RCP
31220	STORM	875.51	12" N	872.91	RCP
31221	STORM	875.8	24" E	867.5	VCP
			12" S	872.9	RCP
			24" W	867.5	VCP
31329	STORM	875.64	24" E	867.24	VCP
			24" W	867.24	VCP
31330	STORM	874.89	12" E SE	872.69	RCP
31468	STORM	874.81	15" N	868.41	VCP
			18" E	869.11	VCP
			15" S	869.61	VCP
			24" W	865.71	VCP
			24" E	866.81	VCP
31469	STORM	875.04	12" NE	870.14	VCP
			12" S	869.94	VCP
			12" NW	870.04	VCP
31470	SANITARY	875.19	10" N	866.19	VCP
			15" E	864.09	VCP
			10" S	866.09	VCP
			15" W	864.09	VCP
31471	WAMG	875.19			
31472	WAMH	874.68			
31585	SANITARY	874.17	8" W	871.17	VCP
			5" W	867.27	VCP
31717	UNMH	873.05			
31795	STORM	871.88	12" NE	868.38	RCP
31796	STORM	872.34			
31870	STORM	871.81	24" E	865.11	VCP
			24" W	864.91	VCP
31989	TEMH	871.66			
31990	TEMH	871.52			
32021	STORM	872.26	15" N	864.46	VCP
			24" E	865.06	VCP
			24" S	864.46	VCP
			12" W	865.26	VCP
			15" NW	867.06	VCP
			15"N	866.96	VCP
32081	STORM	871.6	12" NE	868.95	VCP
40014	STORM	876.2	12" E	873.25	VCP
40143	STORM	876.9	12" E	871.5	?
			12" NW	871.85	VCP
			12" W NW	871.9	?
40172	STORM	875.64	12" S	871.74	RCP
40173	STORM	875.66	12" S	871.76	RCP
40376	UNMH	878.75			
40377	WAMH	879.14			
40378	WAMH	879.46			
40618	STORM	880.03	12" SW	877.83	VCP
40709	STORM	879.67	12" SE	877.12	RCP
40852	SANITARY	878.98	12" NW	871.08	?
			15" E	864.98	VCP
			15"W	864.98	VCP
40709	STORM	879.67	12" SE	877.12	RCP
40904	SANITARY	876.63	15" E	864.43	VCP
			8" S	870.33	?
			15" W	864.43	VCP
40904	SANITARY	876.63	15" E	864.43	VCP
			8" S	870.33	?
			15" W	864.43	VCP
41232	STORM	875.24	12" S	873.04	RCP
41238	WAMH	875.4			
41278	STORM	875.06	12" SW	872.21	RCP
41410	STORM	874.83	12" SE	872.03	RCP
41672	UNMH	873.82			
41683	UNMH	873.72			
41742	STORM	872.54	12" NW	872.54	RCP
41745	STORM	873.12	12" SE	869.52	RCP
			12" SW	869.12	RCP
			5" W	871.42	PVC
41807	SANITARY	872.53	15" N	863.43	VCP
			15" E	863.43	VCP
			6" W	863.93	VCP
41809	SANITARY	872.54	8" N	863.74	VCP
			8" E	864.54	VCP
			10" S	863.74	VCP
			8" W	863.94	VCP
			8" E	864.84	VCP
41810	STORM	872.64	12" N	868.14	VCP
			12" S	867.24	VCP
			12" E SE	867.24	VCP
41812	STORM	872.6	15" SE	867.1	VCP
			12" SW	867.9	VCP
			12" W NW	868	VCP
41814	ELMH	872.74			
41815	ELMH	872.43			
41816	STORM	871.76	12" E SE	868.91	VCP
41817	WAMH	872.86			

CERTIFICATE

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH LOCAL AND STATE JURISDICTIONAL REQUIREMENTS REGULATING MAPPING STANDARDS. THE UNDERSIGNED STATES THAT PROPER FIELD PROCEDURES, INSTRUMENTATION AND ADEQUATE STAFF WERE EMPLOYED TO ACHIEVE THE RESULTS INDICATED HEREIN.

CASEY VEITENGRUBER, PS 57621
MICHIGAN PROFESSIONAL SURVEYOR
Fishbeck, Thompson, Carr & Huber, Inc.
39500 MacKenzie Dr. #100
Novi, MI 48377
csveitengruber@ftch.com

STATE OF MICHIGAN * CASEY S. VEITENGRUBER PROFESSIONAL SURVEYOR NO. 57621 * LICENSED PROFESSIONAL SURVEYOR

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

SEE ABOVE	XXX	-	SITE PLAN REVIEW	08AUG16	SJT/AMR	EM/BD
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SURVEY OVERALL

APPROVED BY _____

SCALE HOR. 1"=40' | INCH 0 1

DRAWING NO. V100

SHEET NO. 3 OF 56

SOUTH UNIVERSITY PROPERTIES
09-09-28-312-005
1101 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST
09-09-28-312-004
107 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-006
1111 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-007
1115 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-008
1119 SOUTH UNIVERSITY AVENUE

U OF M CREDIT UNION
09-09-28-312-009
121 SOUTH UNIVERSITY AVENUE

S UNIVERSITY AVENUE

E UNIVERSITY AVENUE

RIGHT-OF-WAY

66.00'

APPROXIMATE LIMITS OF UNDERGROUND VAULT (FROM 1989 CONSTRUCTION DOCUMENTS)

UNKNOWN VAULT

BRICK COLUMN

BIKE RACK

PARKING PAY STATION

CHARLES A CARVER PLAQUE

ODELL ASSOCIATES L.P. & FULLER MICHIGAN, LLC
09-09-28-311-006
1100 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST & FRED C. ULRICH FAMILY TRUST
09-09-28-311-005
1104 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST & FRED C. ULRICH FAMILY TRUST
09-09-28-311-004
1108 SOUTH UNIVERSITY AVENUE

1112 SOUTH UNIVERSITY, LLC
09-09-28-311-003
1112 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST & FRED C. ULRICH FAMILY TRUST
09-09-28-311-002
1114 SOUTH UNIVERSITY AVENUE

JOHN M ROGERS
09-09-28-311-001
1140 SOUTH UNIVERSITY AVENUE

MATCHLINE - SEE V102 FOR CONTINUATION
CHURCH STREET

Know what's below.
Call before you dig.

SHEET NOTES:
1. SEE THE OVERALL SURVEY SHEET FOR THE COMPOSITE SURVEY NOTES (SHEET NO. 3)

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE	XXX					
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SURVEY - WEST

APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. V101

SHEET NO. 4 OF 59

CHURCH STREET

GROVES SOUTH U, LLC
09-09-28-313-002
1201 SOUTH UNIVERSITY AVENUE

BEATTY HAWKINS LLC
09-09-28-313-003
1209 SOUTH UNIVERSITY AVENUE

1213 SOUTH UNIVERSITY LLC
09-09-28-313-004
1213 SOUTH UNIVERSITY AVENUE

TICE FAMILY PARTNERSHIP
09-09-28-313-005
1215 SOUTH UNIVERSITY AVENUE

UNIVERSITY TOWERS LLC
09-09-28-313-040
536 SOUTH FOREST AVENUE

GALLERIA ASSOCIATES LLC
09-09-28-310-025
1208 SOUTH UNIVERSITY AVENUE

S. UNIVERSITY AVENUE

66.00' RIGHT-OF-WAY

RIGHT-OF-WAY

MATCHLINE - SEE V101 FOR CONTINUATION

MATCHLINE - SEE V103 FOR CONTINUATION

SHEET NOTES:
1. SEE THE OVERALL SURVEY SHEET FOR THE COMPOSITE SURVEY NOTES (SHEET NO. 3)

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

Know what's below. Call before you dig.

SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SURVEY - WEST CENTRAL

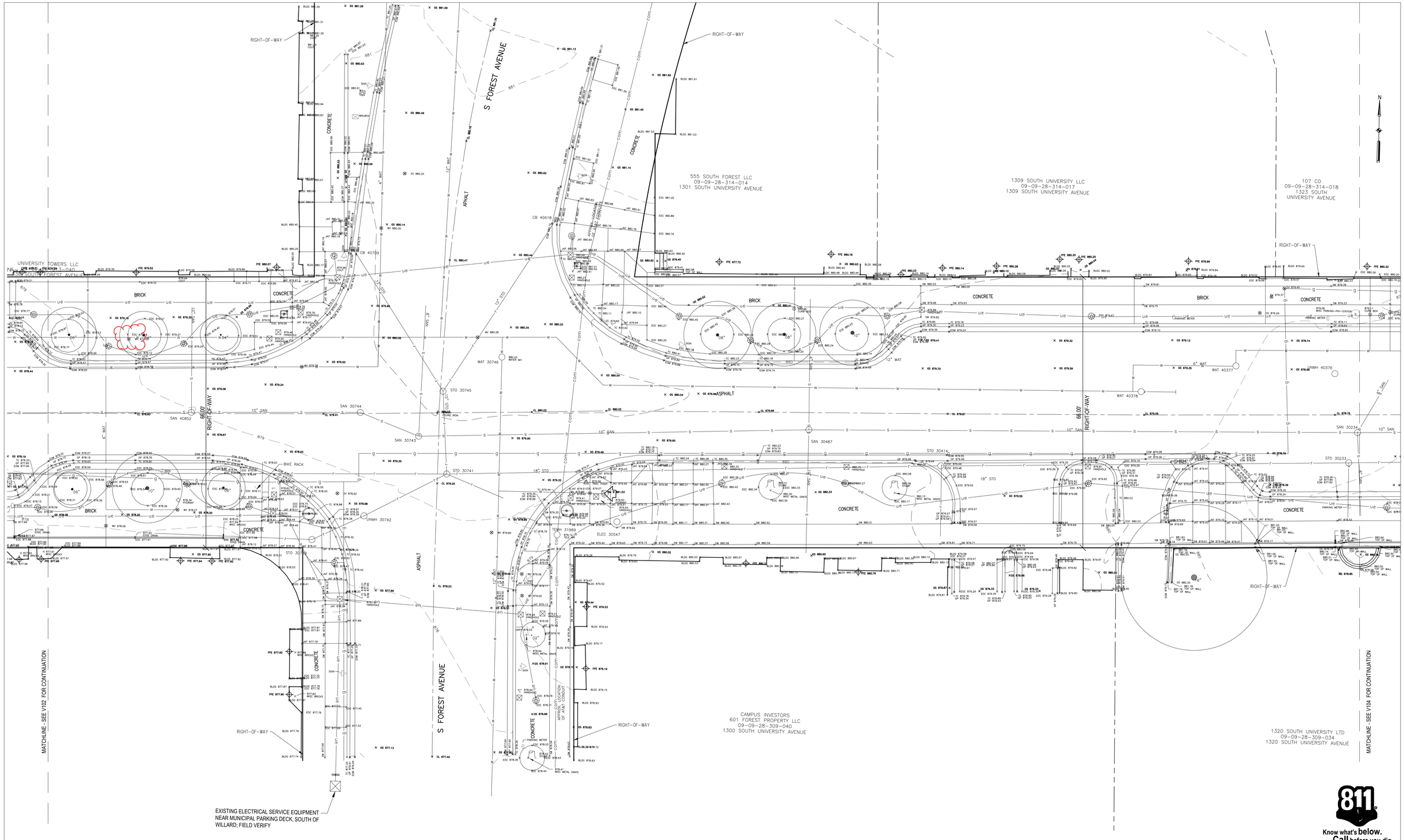
APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. V102

SHEET NO. 5 OF 59



SHEET NOTES:
1. SEE THE OVERALL SURVEY SHEET FOR THE COMPOSITE SURVEY NOTES (SHEET NO. 3)

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

Know what's below. Call before you dig.

SEE ABOVE	XXX	.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD
		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SURVEY - EAST CENTRAL

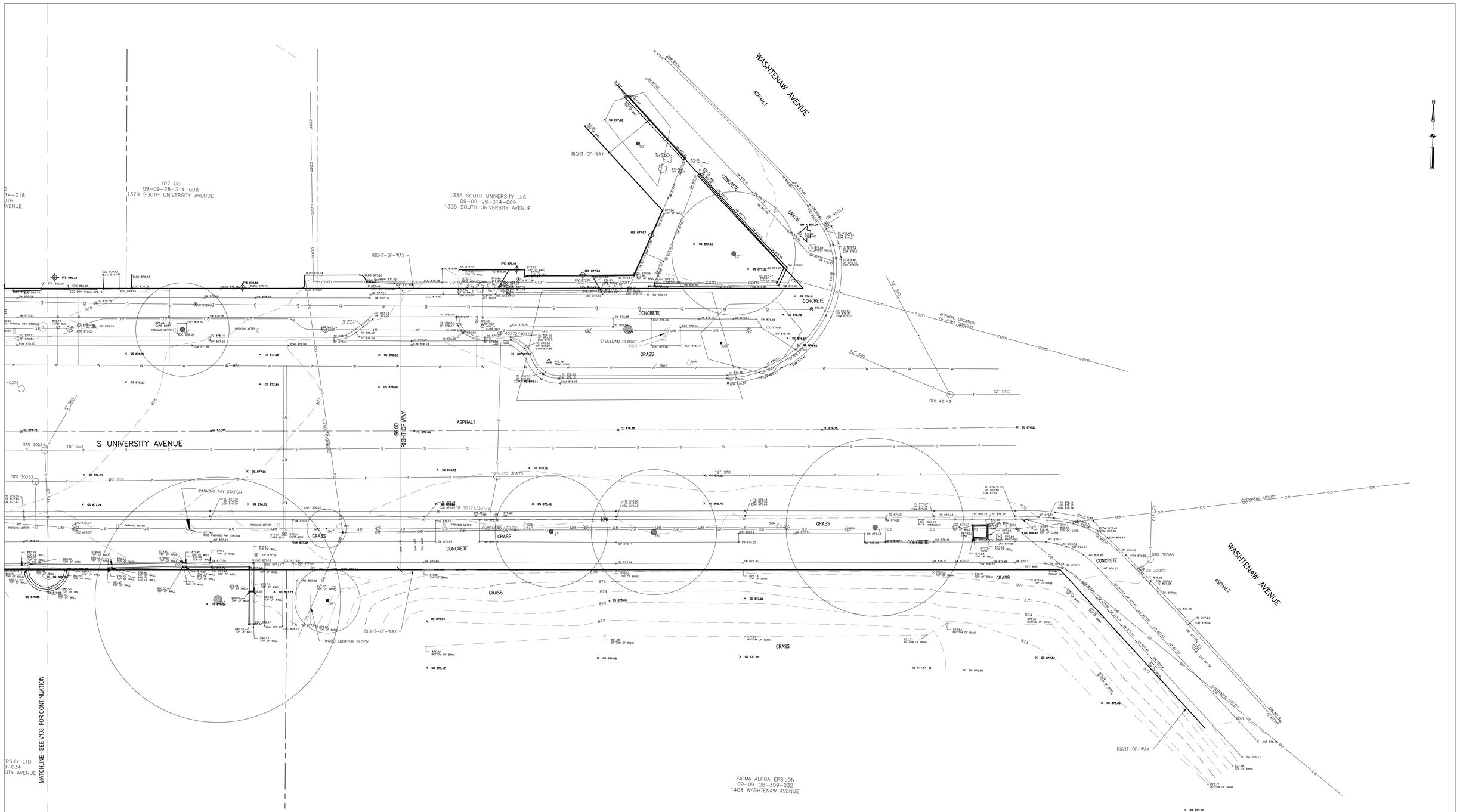
APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. V103

SHEET NO. 6 OF 59



SHEET NOTES:
1. SEE THE OVERALL SURVEY SHEET FOR THE COMPOSITE SURVEY NOTES (SHEET NO. 3)

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

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

SEE ABOVE	XXX					
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SURVEY - EAST

APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. V104

SHEET NO. 7 OF 59

INSTALLATION OF WORK IN THIS AREA TO BE COMPLETED BY OTHERS. CONTRACTOR TO PROVIDE MANUFACTURED MATERIALS FOR WORK IN THIS AREA PURSUANT TO DETAILED SPECIFICATIONS

SEE DETAIL 1 ON THIS SHEET FOR FULL EXTENTS

SOUTH UNIVERSITY PROPERTIES
09-09-28-312-005
1101 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST
09-09-28-312-004
1107 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-006
1111 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-007
1115 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-008
1119 SOUTH UNIVERSITY AVENUE

U OF M CREDIT UNION
09-09-28-312-009
121 SOUTH UNIVERSITY AVENUE

S UNIVERSITY AVENUE

E UNIVERSITY AVENUE

ODELL ASSOCIATES L.P. & FULLER MICHIGAN, LLC
09-09-28-311-006
1100 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST & FRED C. ULRICH FAMILY TRUST
09-09-28-311-002
1114 SOUTH UNIVERSITY AVENUE

JOHN M ROGERS
09-09-28-311-001
1140 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST & FRED C. ULRICH FAMILY TRUST
09-09-28-311-003
1104 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST & FRED C. ULRICH FAMILY TRUST
09-09-28-311-005
1108 SOUTH UNIVERSITY AVENUE

1112 SOUTH UNIVERSITY, LLC
09-09-28-311-004
1112 SOUTH UNIVERSITY AVENUE

234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE

500 - REMOVE BITUMINOUS PAVEMENT
501 - REMOVE CONCRETE PAVEMENT - ANY THICKNESS

REMOVE UNDERGROUND CONDUIT; REMOVE WIRING BACK TO NEAREST ADJACENT LIGHT POLE

PROTECT LIGHT POLE

206 - REMOVE CONCRETE PLANTER

232 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS

257 - REMOVE LIGHT STD SHAFT

284 - REMOVE PARKING METER

PROTECT HYDRANT

702 - INLET FILTER

SALVAGE SIGN

135 - TREE REMOVAL (8" AND LARGER TREES)

481 - WATER MAIN PIPE ABANDONMENT

SAWCUT PAVEMENT

386 - SEWER STRUCTURE ABANDONMENT

385 - SEWER PIPE ABANDONMENT

230 - REMOVE CONCRETE CURB & GUTTER - ANY TYPE

287 - REMOVE STRUCTURE

REMOVE POST

SALVAGE SIGN

PROTECT BIKE RACK

702 - INLET FILTER

PROTECT LIGHT POLE

MATCHLINE - SEE C102 FOR CONTINUATION
CHURCH STREET

SHEET NOTES:

1. PARKING ID HEADS AND PARKING PAY STATIONS TO BE SALVAGED BY OTHERS. CONTRACTOR IS TO REMOVE PARKING ID POSTS. CONTRACTOR IS TO COORDINATE SALVAGE WITH REPUBLIC PARKING.
2. CONTRACTOR IS TO SALVAGE ALL OTHER ROAD SIGNS WITHIN LIMITS OF WORK AND TRANSPORT TO CITY OF ANN ARBOR FIELD FOR STORAGE. CITY OF ANN ARBOR IS TO REINSTALL SIGNS AFTER CONSTRUCTION IS COMPLETE.
3. A PERMIT IS TO BE OBTAINED BY THE DDA'S DESIGN CONSULTANT FOR ANY WORK WITHIN MDOT RIGHT-OF-WAY.
4. SAWCUT AND REMOVE CONCRETE SIDEWALK, RAMP, & DRIVES - ANY THICKNESS AT NEAREST JOINT.
5. CITY RECORDS INDICATE THAT THE PAVEMENT SECTIONS OF S. UNIVERSITY HAVE A CONCRETE OR BRICK BASE UNDER ASPHALT SURFACE. REMOVAL OF THIS CONCRETE OR BRICK BASE SHALL BE PAID FOR UNDER THE PAY ITEM 501 - REMOVE CONCRETE PAVEMENT - ANY THICKNESS.
6. VERIFY LOCATION OF WATER MAIN SERVICE LEADS WITH ANN ARBOR PUBLIC WORKS DEPARTMENT PRIOR TO SAWCUTTING.

1 DETAIL 1

SCALE: 1" = 10'

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 135 - TREE REMOVAL (8" AND LARGER TREES)
- REMOVE OR SALVAGE ITEM
- PROTECT ITEM
- 386 - SEWER STRUCTURE ABANDONMENT
- UTILITY REMOVAL
- 230 - REMOVE CONCRETE CURB & GUTTER - ANY TYPE
- SAWCUT PAVEMENT
- 232 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
- 500 - REMOVE BITUMINOUS PAVEMENT
- 510 - COLD MILLING BITUMINOUS PAVEMENT
- TOPSOIL STRIPPING
- SF - 703 - SILT FENCE
- 702 - INLET FILTER
- LIMITS OF CONSTRUCTION

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SESC & DEMOLITION PLAN - WEST

APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. C101

SHEET NO. 8 OF 59

SEE ABOVE	XXX	.	.	.		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

GROVES SOUTH U, LLC
09-09-28-313-002
1201 SOUTH UNIVERSITY AVENUE

BEATTY HAWKINS LLC
09-09-28-313-003
1209 SOUTH UNIVERSITY AVENUE

1213 SOUTH UNIVERSITY LLC
09-09-28-313-004
1213 SOUTH UNIVERSITY AVENUE

TICE FAMILY PARTNERSHIP
09-09-28-313-005
1215 SOUTH UNIVERSITY AVENUE

UNIVERSITY TOWERS LLC
09-09-28-313-040
536 SOUTH FOREST AVENUE

CHURCH STREET

S. UNIVERSITY AVENUE

PROTECT LIGHT POLE
PROTECT SIGN
PROTECT HYDRANT
REMOVE UNDERGROUND CONDUIT; REMOVE WIRING BACK TO NEAREST ADJACENT LIGHT POLE
702 - INLET FILTER
232 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
206 - REMOVE CONCRETE PLANTER
257 - REMOVE LIGHT STD SHAFT
135 - TREE REMOVAL (8" AND LARGER TREES)
481 - WATER MAIN PIPE ABANDONMENT
SALVAGE SIGN
284 - REMOVE PARKING METER
500 - REMOVE BITUMINOUS PAVEMENT
501 - REMOVE CONCRETE PAVEMENT - ANY THICKNESS
SAWCUT PAVEMENT
230 - REMOVE CONCRETE CURB & GUTTER - ANY TYPE
REMOVE BIKE RACK
385 - SEWER PIPE ABANDONMENT
386 - SEWER STRUCTURE ABANDONMENT
284 - REMOVE PARKING METER
GRAVEL
BIKE RACK
CONCRETE
ASPHALT
RIGHT-OF-WAY

MATCHLINE - SEE C101 FOR CONTINUATION

MATCHLINE - SEE C103 FOR CONTINUATION

GALLERIA ASSOCIATES LLC
09-09-28-310-025
1208 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST

CHISHOLM & DAMES PROPERTY

SHEET NOTES:
1. PARKING ID HEADS AND PARKING PAY STATIONS TO BE SALVAGED BY OTHERS. CONTRACTOR IS TO REMOVE PARKING ID POSTS. CONTRACTOR IS TO COORDINATE SALVAGE WITH REPUBLIC PARKING.
2. CONTRACTOR IS TO SALVAGE ALL OTHER ROAD SIGNS WITHIN LIMITS OF WORK AND TRANSPORT TO CITY OF ANN ARBOR FIELD FOR STORAGE. CITY OF ANN ARBOR IS TO REINSTALL SIGNS AFTER CONSTRUCTION IS COMPLETE.
3. A PERMIT IS TO BE OBTAINED BY THE DDA'S DESIGN CONSULTANT FOR ANY WORK WITHIN MDOT RIGHT-OF-WAY.
4. SAWCUT AND REMOVE CONCRETE SIDEWALK, RAMP, & DRIVES - ANY THICKNESS AT NEAREST JOINT.
5. CITY RECORDS INDICATE THAT THE PAVEMENT SECTIONS OF S. UNIVERSITY HAVE A CONCRETE OR BRICK BASE UNDER ASPHALT SURFACE. REMOVAL OF THIS CONCRETE OR BRICK BASE SHALL BE PAID FOR UNDER THE PAY ITEM 501 - REMOVE CONCRETE PAVEMENT - ANY THICKNESS.
6. VERIFY LOCATION OF WATER MAIN SERVICE LEADS WITH ANN ARBOR PUBLIC WORKS DEPARTMENT PRIOR TO SAWCUTTING.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 135 - TREE REMOVAL (8" AND LARGER TREES)
- REMOVE OR SALVAGE ITEM
- PROTECT ITEM
- 386 - SEWER STRUCTURE ABANDONMENT
- UTILITY REMOVAL
- 230 - REMOVE CONCRETE CURB & GUTTER - ANY TYPE
- SAWCUT PAVEMENT
- 232 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
- 500 - REMOVE BITUMINOUS PAVEMENT
- 510 - COLD MILLING BITUMINOUS PAVEMENT
- TOPSOIL STRIPPING
- SF — 703 - SILT FENCE
- 702 - INLET FILTER
- LIMITS OF CONSTRUCTION

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

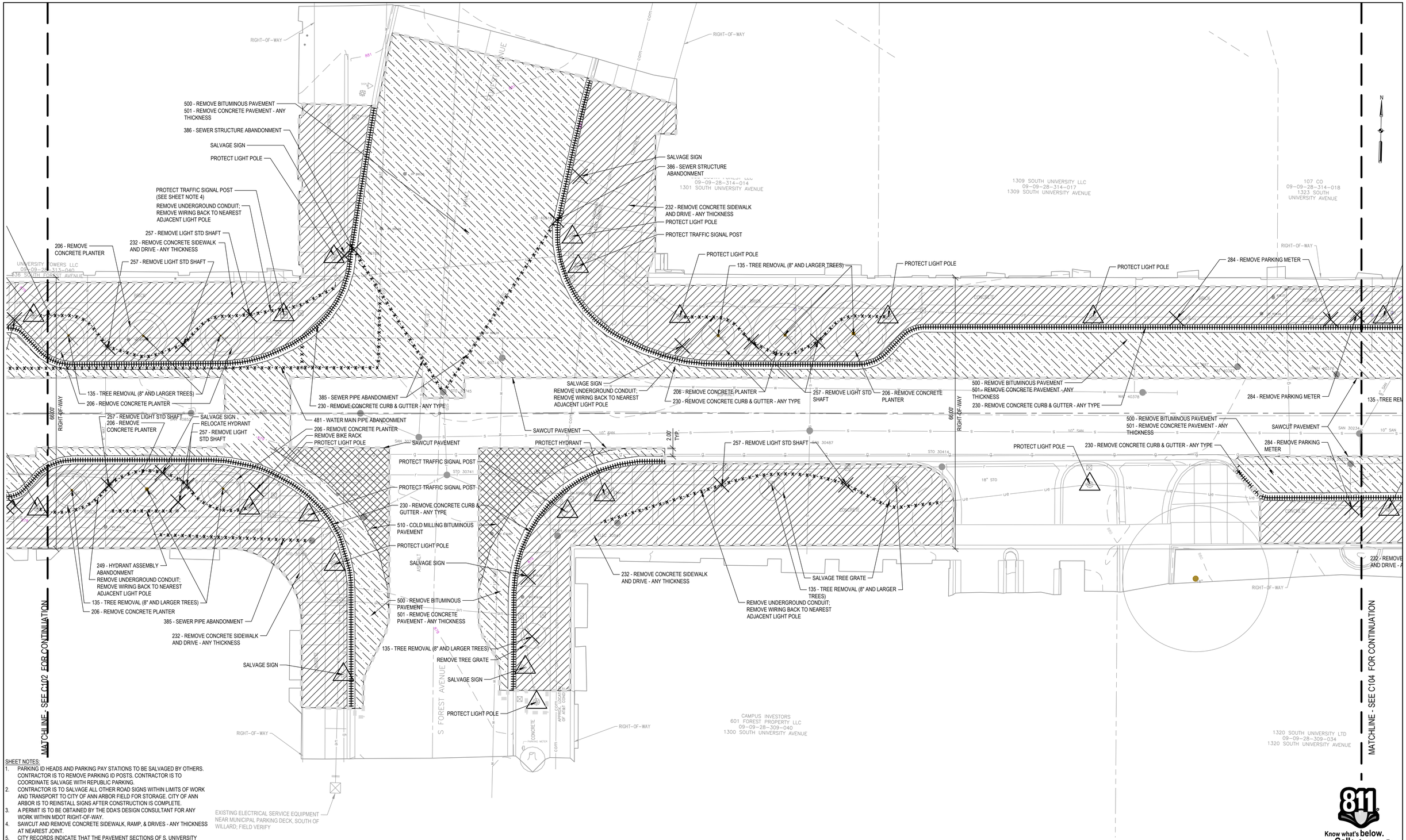
SESC & DEMOLITION PLAN - WEST CENTRAL

SCALE 1"=10'
INCH 0 1
DRAWING NO. C102
SHEET NO. 9 OF 59

APPROVED BY _____

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

SEE ABOVE BENCH MARK: XXX
SURVEY BOOK:



SHEET NOTES:

1. PARKING ID HEADS AND PARKING PAY STATIONS TO BE SALVAGED BY OTHERS. CONTRACTOR IS TO REMOVE PARKING ID POSTS. CONTRACTOR IS TO COORDINATE SALVAGE WITH REPUBLIC PARKING.
2. CONTRACTOR IS TO SALVAGE ALL OTHER ROAD SIGNS WITHIN LIMITS OF WORK AND TRANSPORT TO CITY OF ANN ARBOR FIELD FOR STORAGE. CITY OF ANN ARBOR IS TO REINSTALL SIGNS AFTER CONSTRUCTION IS COMPLETE.
3. A PERMIT IS TO BE OBTAINED BY THE DDA'S DESIGN CONSULTANT FOR ANY WORK WITHIN MDOT RIGHT-OF-WAY.
4. SAWCUT AND REMOVE CONCRETE SIDEWALK, RAMP, & DRIVES - ANY THICKNESS AT NEAREST JOINT.
5. CITY RECORDS INDICATE THAT THE PAVEMENT SECTIONS OF S. UNIVERSITY HAVE A CONCRETE OR BRICK BASE UNDER ASPHALT SURFACE. REMOVAL OF THIS CONCRETE OR BRICK BASE SHALL BE PAID FOR UNDER THE PAY ITEM 501 - REMOVE CONCRETE PAVEMENT - ANY THICKNESS.
6. VERIFY LOCATION OF WATER MAIN SERVICE LEADS WITH ANN ARBOR PUBLIC WORKS DEPARTMENT PRIOR TO SAWCUTTING.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 135 - TREE REMOVAL (8" AND LARGER TREES)
- REMOVE OR SALVAGE ITEM
- PROTECT ITEM
- 386 - SEWER STRUCTURE ABANDONMENT
- UTILITY REMOVAL
- 230 - REMOVE CONCRETE CURB & GUTTER - ANY TYPE
- SAWCUT PAVEMENT
- 232 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
- 500 - REMOVE BITUMINOUS PAVEMENT
- 510 - COLD MILLING BITUMINOUS PAVEMENT
- TOPSOIL STRIPPING
- SF 703 - SILT FENCE
- 702 - INLET FILTER
- LIMITS OF CONSTRUCTION

Know what's below. Call before you dig.

BENCH MARK	SURVEY BOOK
SEE ABOVE	XXX

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SESC & DEMOLITION PLAN - EAST CENTRAL

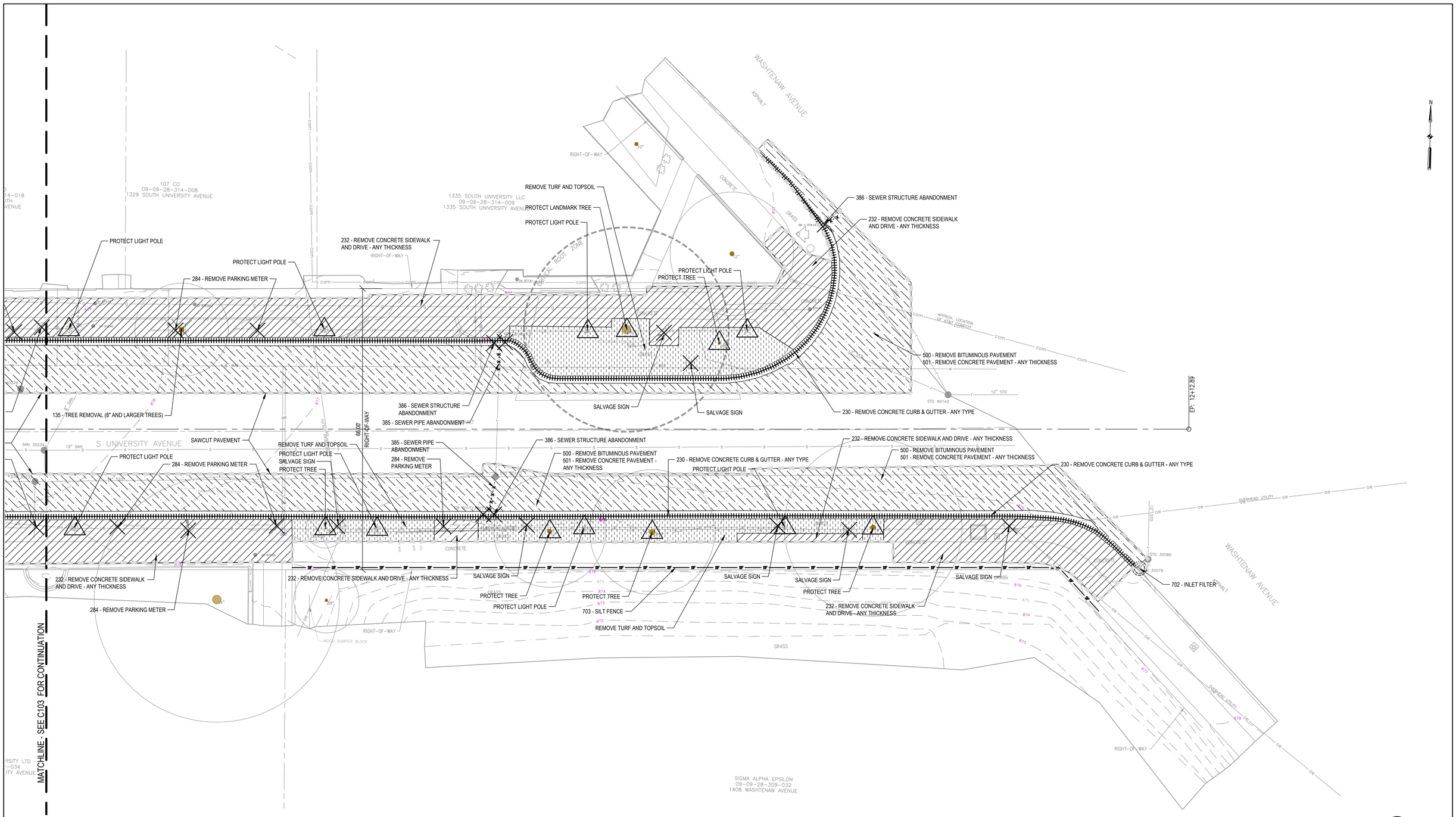
APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. C103

SHEET NO. 10 OF 59



SHEET NOTES:

1. PARKING ID HEADS AND PARKING PAY STATIONS TO BE SALVAGED BY OTHERS. CONTRACTOR IS TO REMOVE PARKING ID POSTS. CONTRACTOR IS TO COORDINATE SALVAGE WITH REPUBLIC PARKING.
2. CONTRACTOR IS TO SALVAGE ALL OTHER ROAD SIGNS WITHIN LIMITS OF WORK AND TRANSPORT TO CITY OF ANN ARBOR FIELD FOR STORAGE. CITY OF ANN ARBOR IS TO REINSTALL SIGNS AFTER CONSTRUCTION IS COMPLETE.
3. A PERMIT IS TO BE OBTAINED BY THE DDA'S DESIGN CONSULTANT FOR ANY WORK WITHIN MDOT RIGHT-OF-WAY.
4. SAWCUT AND REMOVE CONCRETE SIDEWALK, RAMP, & DRIVES - ANY THICKNESS AT NEAREST JOINT.
5. CITY RECORDS INDICATE THAT THE PAVEMENT SECTIONS OF S. UNIVERSITY HAVE A CONCRETE OR BRICK BASE UNDER ASPHALT SURFACE. REMOVAL OF THIS CONCRETE OR BRICK BASE SHALL BE PAID FOR UNDER THE PAY ITEM 501 - REMOVE CONCRETE PAVEMENT - ANY THICKNESS.
6. VERIFY LOCATION OF WATER MAIN SERVICE LEADS WITH ANN ARBOR PUBLIC WORKS DEPARTMENT PRIOR TO SAWCUTTING.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 135 - TREE REMOVAL (8" AND LARGER TREES)
- REMOVE OR SALVAGE ITEM
- PROTECT ITEM
- 386 - SEWER STRUCTURE ABANDONMENT
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- 230 - REMOVE CONCRETE CURB & GUTTER - ANY TYPE
- SAWCUT PAVEMENT
- 232 - REMOVE CONCRETE SIDEWALK AND DRIVE - ANY THICKNESS
- 500 - REMOVE BITUMINOUS PAVEMENT
- 510 - COLD MILLING BITUMINOUS PAVEMENT
- TOPSOIL STRIPPING
- SF 703 - SILT FENCE
- 702 - INLET FILTER
- LIMITS OF CONSTRUCTION

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

SEE ABOVE	XXX	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SESC & DEMOLITION PLAN - EAST

APPROVED BY _____

SCALE 1"=10' | INCH 0 1

DRAWING NO. C104

SHEET NO. 11 OF 59

GENERAL

NOTIFY THE CITY OF ANN ARBOR SOIL EROSION CONTROL OFFICE 48 HOURS PRIOR TO BEGINNING WORK ON THE PROJECT. PHONE: 734-794-6265.

1. 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.

2. ALL SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE PERMIT REQUIREMENTS OF THE CITY OF ANN ARBOR, CITY ORDINANCE CHAPTER 63, CITY OF ANN ARBOR STANDARDS DIVISION VII, THE LAWS OF THE STATE OF MICHIGAN, AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

3. 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.

4. 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.

5. ALL MUD/SOIL TRACKED ONTO ADJACENT 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 DDA, WITHIN FOUR (4) HOURS OF BEING SO ORDERED.

6. 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.

7. 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.

8. SPECIAL PRECAUTIONS WILL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.

9. PROPER DUST CONTROL SHALL BE MAINTAINED DURING CONSTRUCTION BY USE OF WATER TRUCKS AND/OR DUST PALLATIVE AS REQUIRED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SOIL EROSION CONTROL MEASURES AND REMOVAL OF 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.

11. 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.

SEQUENCE OF EROSION CONTROL MEASURES:

1. 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.

SOIL EROSION AND SEDIMENTATION CONTROL INSTALLATION MINIMUM REQUIREMENTS:

1.1. 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.

1.2. STRIP AND STOCKPILE TOPSOIL. STABILIZE STOCKPILE AS REQUIRED.

1.3. 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.

1.4. PERFORM MACHINE GRADING OPERATIONS AND CONSTRUCT PAVEMENTS (MAINLINE, SIDEWALKS, DRIVES, ETC.).

1.5. CONTINUALLY MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES, AS REQUIRED TO ALLOW DRAINAGE AND SEDIMENT REMOVAL. REMOVE ANY ACCUMULATED SEDIMENT IMMEDIATELY.

1.6. COMPLETE ALL BIORETENTION GRADING AND FINE GRADING.

1.7. REFER TO LANDSCAPE PLANTING PLANS FOR PERMANENT SITE STABILIZATION.

1.8. CLEAN OUT STORM SEWER SYSTEMS.

1.9. REMEDY ANY NOTED DEFECTS TO THE SATISFACTION OF THE CITY OF ANN ARBOR'S SOIL EROSION AND SEDIMENTATION CONTROL OFFICIAL.

1.10. 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.

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

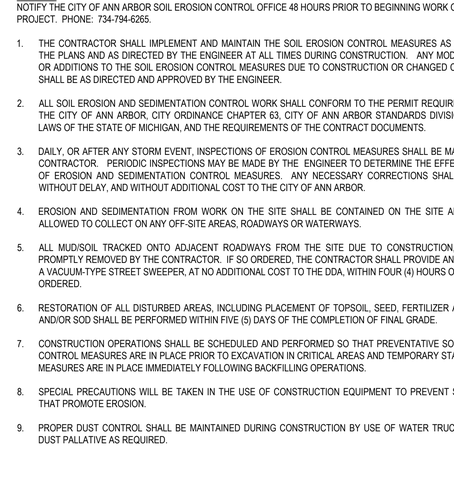
- FoA - Fox Sandy Loam , 0 to 2 percent slopes
- MmB - Miami Loam, 2 to 6 percent slopes
- MmC - Miami Loam, 6 to 12 percent slopes

IMPERVIOUS PROJECT AREA

33,021 FT^2 - CONC. WALK = 0.758 AC

8,586 FT^2 - BIT. ROADWAY = 0.197 AC

TOTAL AREA OF PROPOSED DISTURBANCE = 1.06 AC



SILTSACK DETAIL

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

REGULAR FLOW SILTSACK

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

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

HI-FLOW SILTSACK

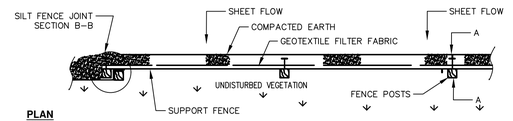
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

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

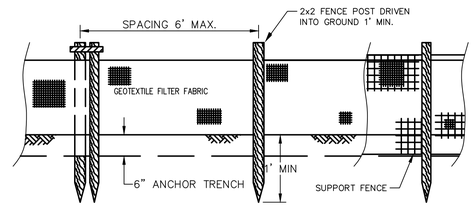
OIL-ABSORBANT SILTSACK

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

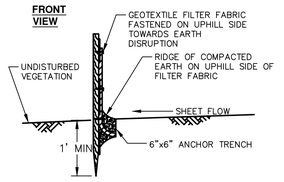
IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS THAT THE CONTRACTOR INSTALL THE REBAR AS SHOWN IN THIS DETAIL TO PROVIDE A FULLY FUNCTIONING UNIT. ALL COSTS ASSOCIATED WITH FURNISHING, CLEANING AS MANY TIMES AS REQUIRED, DISPOSAL OF SEDIMENT, AND REMOVING THE INLET FILTER WHEN NO LONGER NEEDED IS INCLUDED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



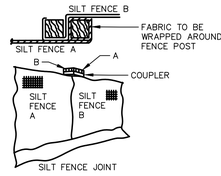
PLAN VIEW



FRONT VIEW



SECTION A-A



SECTION B-B

SILT FENCE SD-EC-3

Know what's below. Call before you dig.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE	XXX	.	.	.			
		.	.	.			
		.	.	.			
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD	
		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY	

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SESC & DEMOLITION DETAILS

SCALE AS SHOWN

INCH

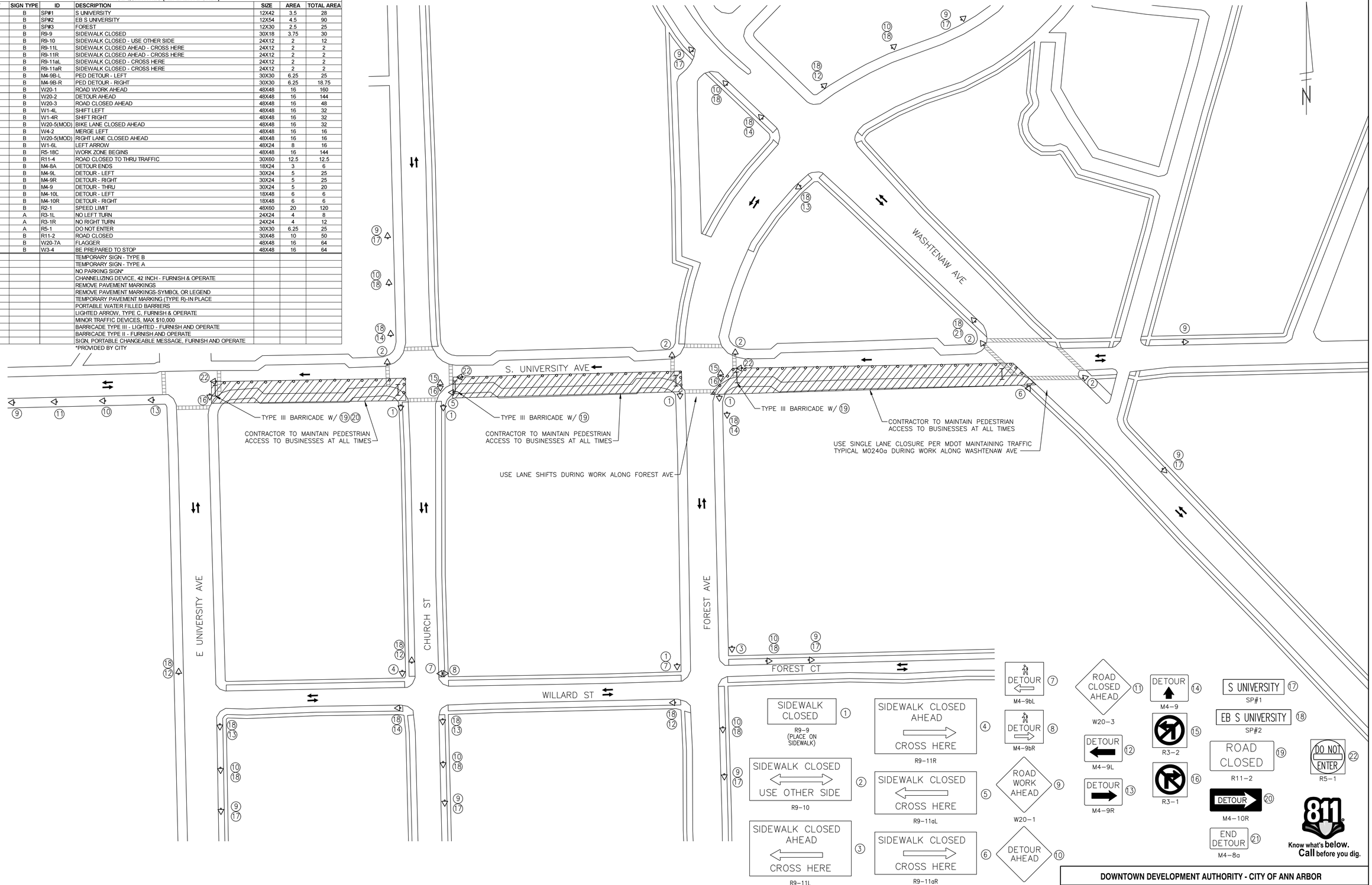
DRAWING NO. C105

SHEET NO. 12 OF 59

APPROVED BY

TRAFFIC CONTROL QUANTITIES (REFERENCE ONLY)							
QTY.	UNIT	SIGN TYPE	ID	DESCRIPTION	SIZE	AREA	TOTAL AREA
8	SF	B	SP#1	S UNIVERSITY	12X42	3.5	28
20	SF	B	SP#2	EB S UNIVERSITY	12X54	4.5	90
10	SF	B	SP#3	FOREST	12X30	2.5	25
8	SF	B	R9-9	SIDEWALK CLOSED	30X18	3.75	30
6	SF	B	R9-10	SIDEWALK CLOSED - USE OTHER SIDE	24X12	2	12
1	SF	B	R9-11L	SIDEWALK CLOSED AHEAD - CROSS HERE	24X12	2	2
1	SF	B	R9-11R	SIDEWALK CLOSED AHEAD - CROSS HERE	24X12	2	2
1	SF	B	R9-11aL	SIDEWALK CLOSED - CROSS HERE	24X12	2	2
1	SF	B	R9-11aR	SIDEWALK CLOSED - CROSS HERE	24X12	2	2
4	SF	B	M4-9B-L	PED DETOUR - LEFT	30X30	6.25	25
3	SF	B	M4-9B-R	PED DETOUR - RIGHT	30X30	6.25	18.75
10	SF	B	W20-1	ROAD WORK AHEAD	48X48	16	160
9	SF	B	W20-2	DETOUR AHEAD	48X48	16	144
3	SF	B	W20-3	ROAD CLOSED AHEAD	48X48	16	48
2	SF	B	W1-4L	SHIFT LEFT	48X48	16	32
2	SF	B	W1-4R	SHIFT RIGHT	48X48	16	32
2	SF	B	W20-5(MOD)	BIKE LANE CLOSED AHEAD	48X48	16	32
1	SF	B	W4-2	MERGE LEFT	48X48	16	16
1	SF	B	W20-5(MOD)	RIGHT LANE CLOSED AHEAD	48X48	16	16
2	SF	B	W1-6L	LEFT ARROW	48X24	8	16
9	SF	B	R5-18C	WORK ZONE BEGINS	48X48	16	144
1	SF	B	R11-4	ROAD CLOSED TO THRU TRAFFIC	30X60	12.5	12.5
2	SF	B	M4-8A	DETOUR ENDS	18X24	3	6
5	SF	B	M4-9L	DETOUR - LEFT	30X24	5	25
5	SF	B	M4-9R	DETOUR - RIGHT	30X24	5	25
4	SF	B	M4-9	DETOUR - THRU	30X24	5	20
1	SF	B	M4-10L	DETOUR - LEFT	18X48	6	6
1	SF	B	M4-10R	DETOUR - RIGHT	18X48	6	6
6	SF	B	R2-1	SPEED LIMIT	48X60	20	120
2	SF	A	R3-1L	NO LEFT TURN	24X24	4	8
3	SF	A	R3-1R	NO RIGHT TURN	24X24	4	12
4	SF	A	R5-1	DO NOT ENTER	30X30	6.25	25
5	SF	B	R11-2	ROAD CLOSED	30X48	10	50
4	SF	B	W20-7A	FLAGGER	48X48	16	64
4	SF	B	W3-4	BE PREPARED TO STOP	48X48	16	64
1276	SF			TEMPORARY SIGN - TYPE B			
45	SF			TEMPORARY SIGN - TYPE A			
40	EA			NO PARKING SIGN*			
120	EA			CHANNELIZING DEVICE, 42 INCH - FURNISH & OPERATE			
100	LF			REMOVE PAVEMENT MARKINGS			
2	EA			REMOVE PAVEMENT MARKINGS-SYMBOL OR LEGEND			
1000	LF			TEMPORARY PAVEMENT MARKING (TYPE R)-IN PLACE			
100	LF			PORTABLE WATER FILLED BARRIERS			
1	EA			LIGHTED ARROW, TYPE C, FURNISH & OPERATE			
1	LS			MINOR TRAFFIC DEVICES, MAX $10,000			
20	EA			BARRICADE TYPE III - LIGHTED - FURNISH AND OPERATE			
30	EA			BARRICADE TYPE II - FURNISH AND OPERATE			
2	EA			SIGN, PORTABLE CHANGEABLE MESSAGE, FURNISH AND OPERATE			

*PROVIDED BY CITY



LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- WORK ZONE
- DIRECTION OF TRAFFIC
- 273 - BARRICADE TYPE III - LIGHT - FURNISH & OPERATE
- 274 - BARRICADE TYPE II - LIGHT - FURNISH & OPERATE
- 272 - CHANNELIZING DEVICE, 42 INCH - FURNISH & OPERATE
- 275 - TEMPORARY SIGN - TYPE B
- 276 - TEMPORARY SIGN - TYPE A

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE	XXX	–	BID DOCUMENTS	05DEC16	CHP	CEW

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

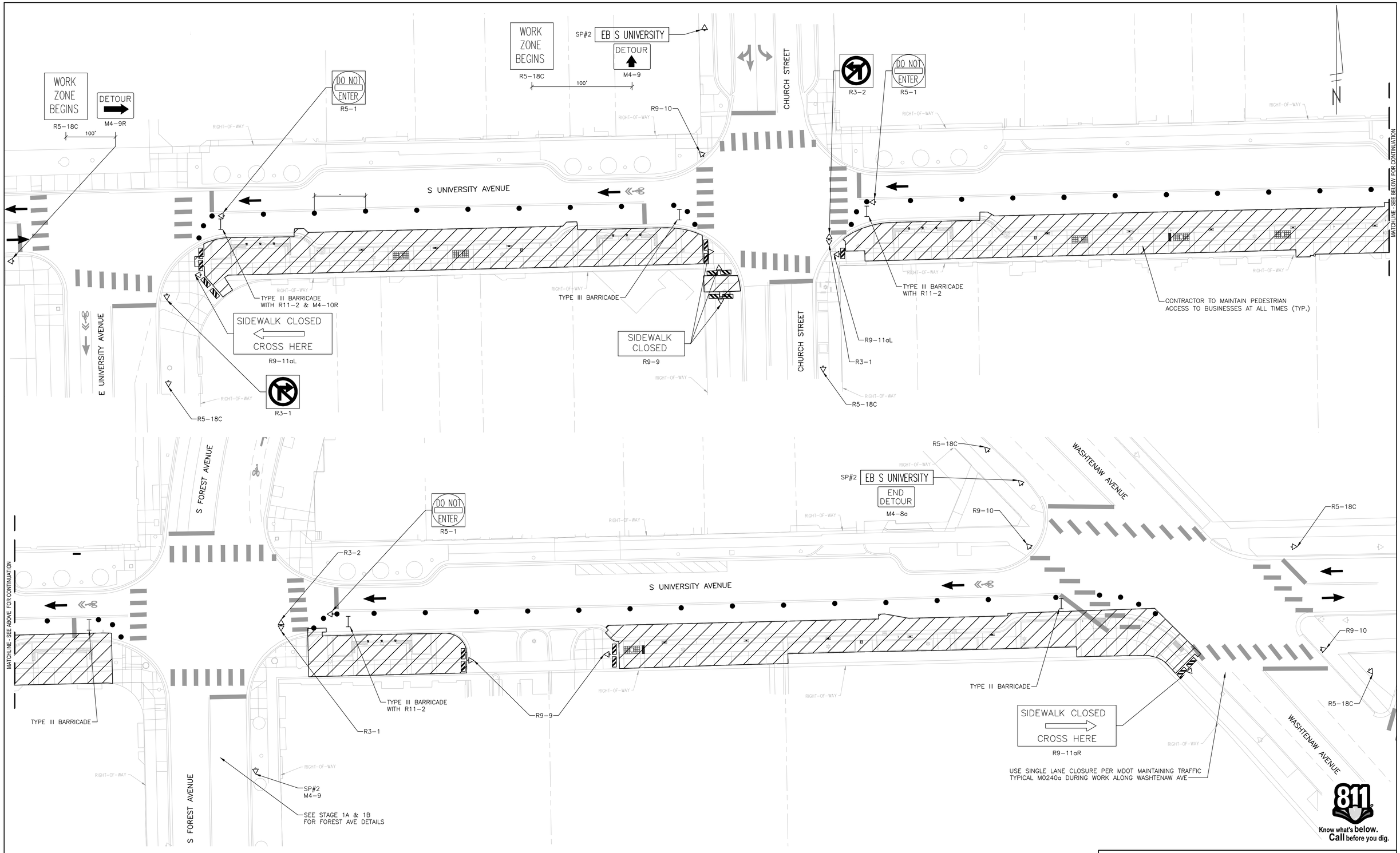
DETOUR PLAN - STAGE 1

APPROVED BY _____

SCALE HOR. 1"=60' | INCH 0 1

DRAWING NO. C111

SHEET NO. 13 OF 59



LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- WORK ZONE
- DIRECTION OF TRAFFIC
- 273 - BARRICADE TYPE III - LIGHT - FURNISH & OPERATE
- 274 - BARRICADE TYPE II - LIGHT - FURNISH & OPERATE
- 272 - CHANNELIZING DEVICE, 42 INCH - FURNISH & OPERATE
- 275 - TEMPORARY SIGN - TYPE B
- 276 - TEMPORARY SIGN - TYPE A

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
–	BID DOCUMENTS	05DEC16	CHP	CEW

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

MAINTENANCE OF TRAFFIC PLAN - STAGE 1

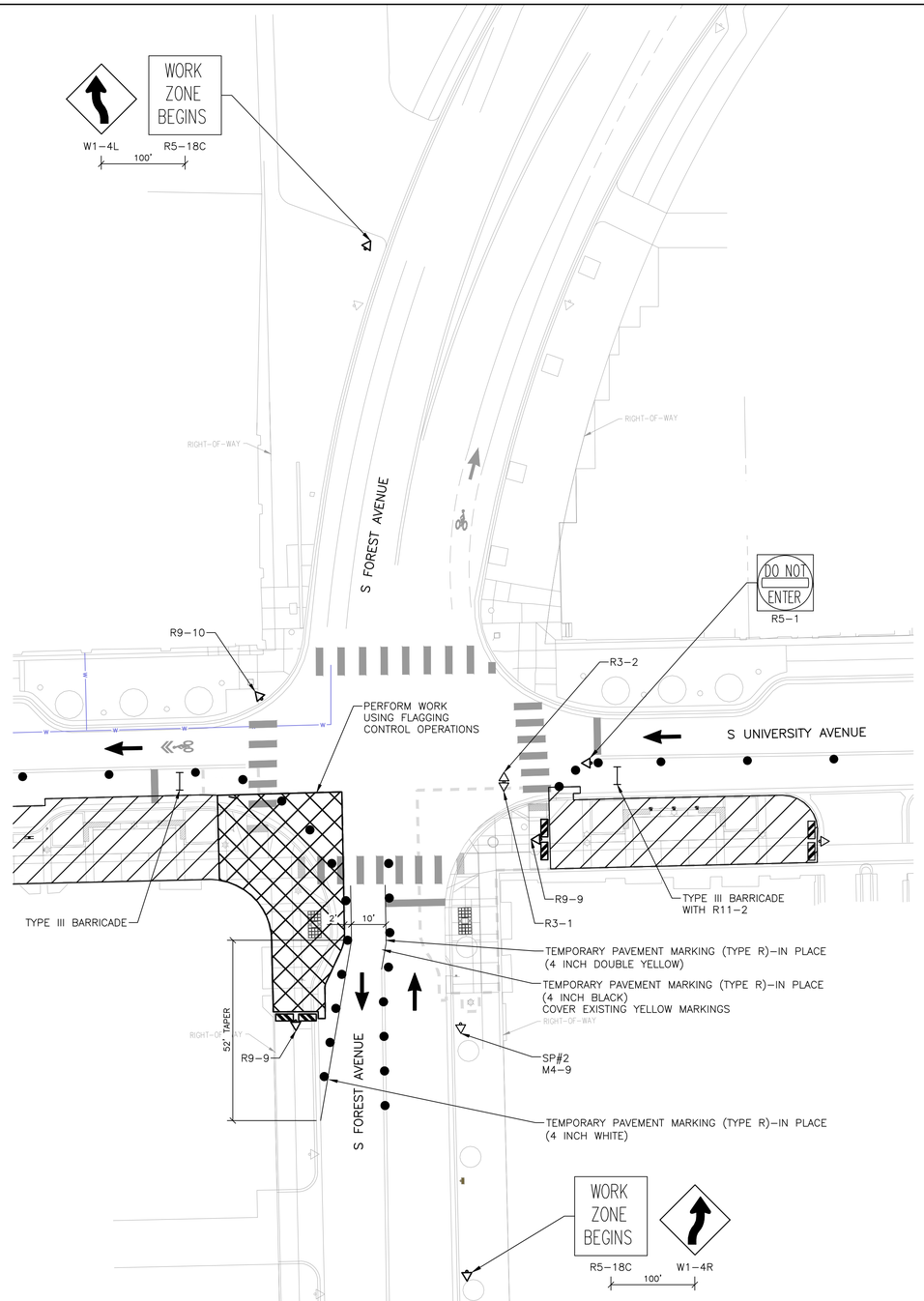
SCALE HOR. 1"=20'

INCH 0 1

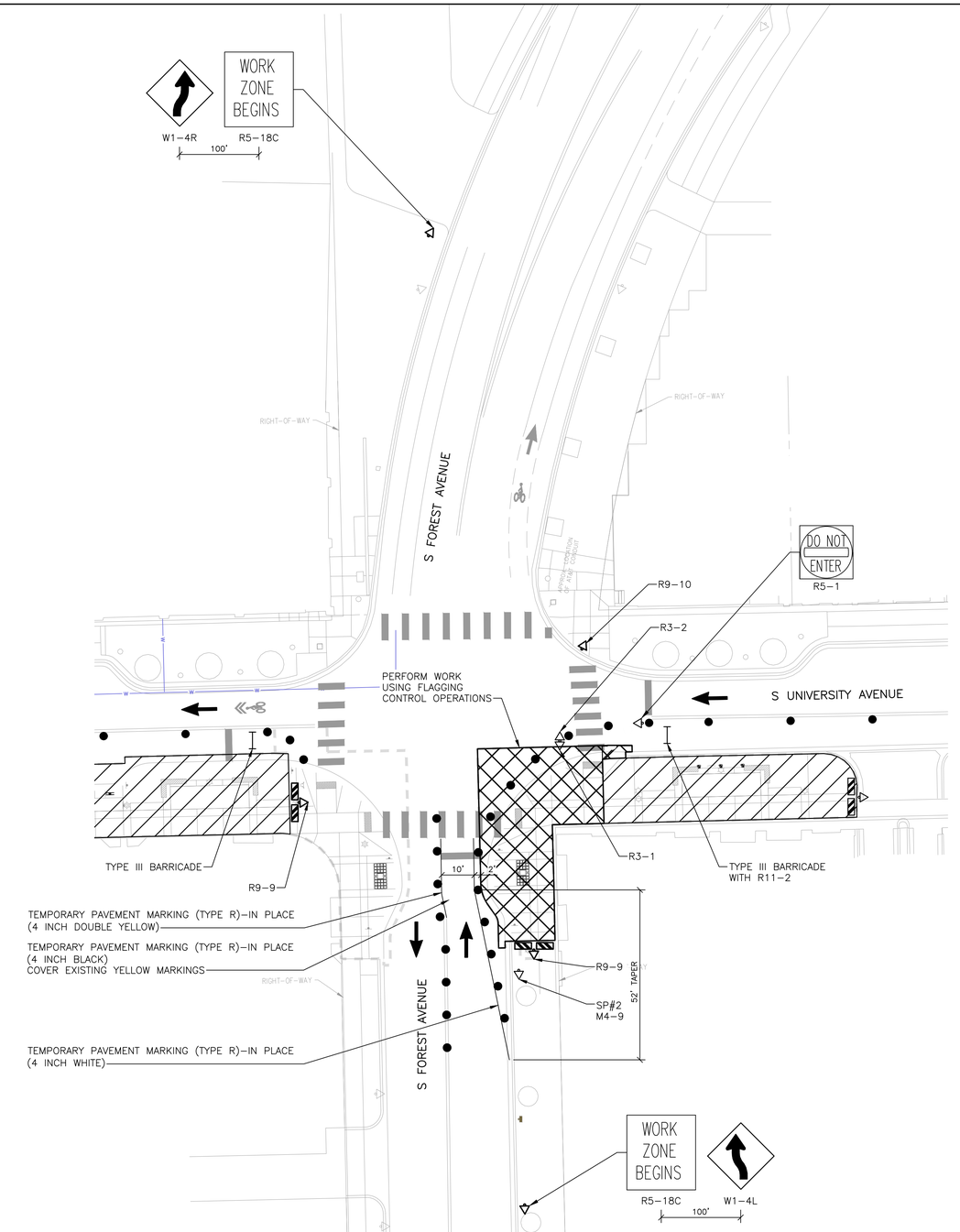
DRAWING NO. C112

SHEET NO. 14 OF 59

APPROVED BY _____



STAGE 1A



STAGE 1B

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- WORK ZONE
- DIRECTION OF TRAFFIC
- 273 - BARRICADE TYPE III - LIGHT - FURNISH & OPERATE
- 274 - BARRICADE TYPE II - LIGHT - FURNISH & OPERATE
- 272 - CHANNELIZING DEVICE, 42 INCH - FURNISH & OPERATE
- 275 - TEMPORARY SIGN - TYPE B
- 276 - TEMPORARY SIGN - TYPE A

SEE ABOVE	XXX					
		–	BID DOCUMENTS	05DEC16	CHP	CEW
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

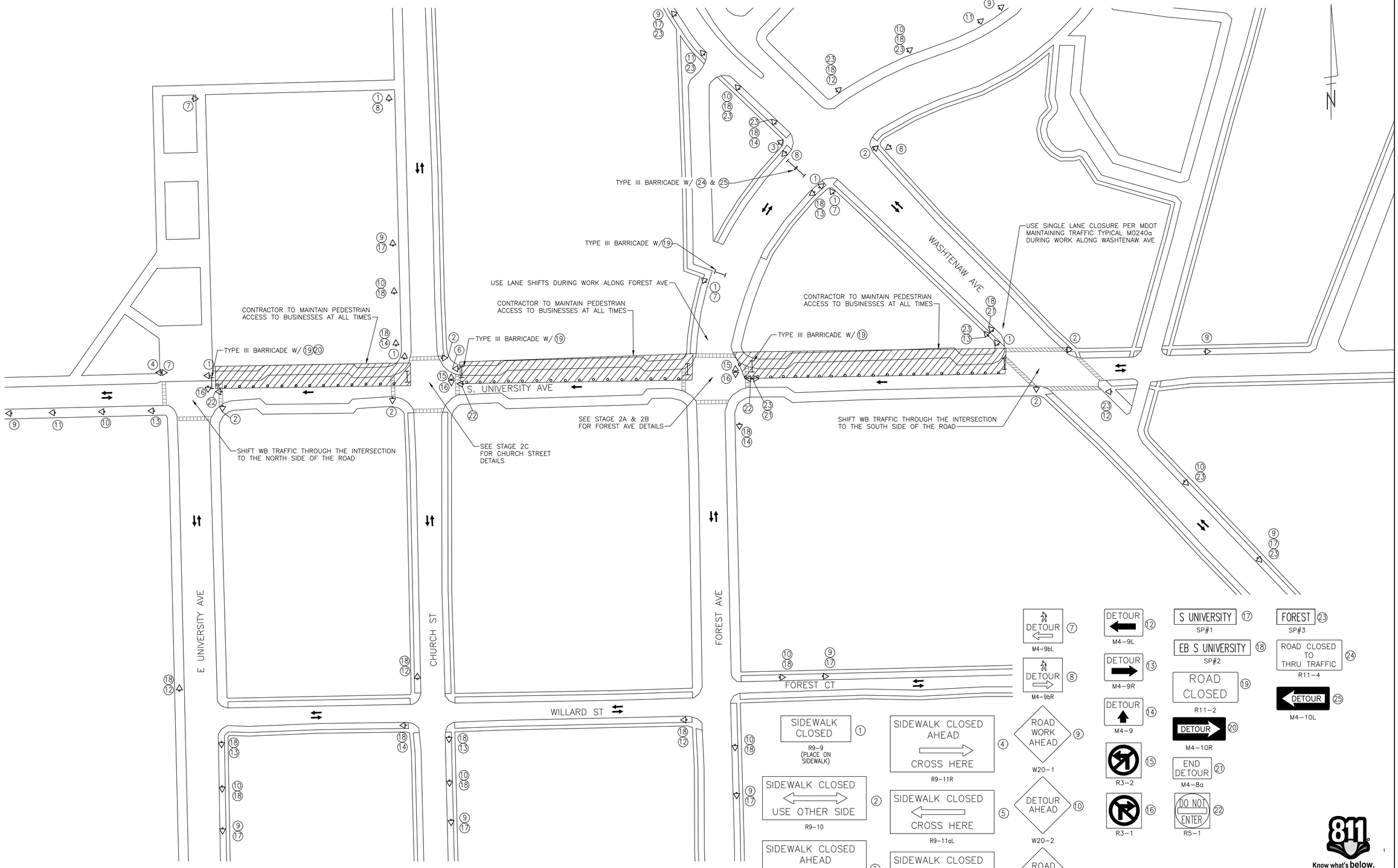
MAINTENANCE OF TRAFFIC PLAN - STAGE 1A & 1B

APPROVED BY _____

SCALE HOR. 1"=20' | INCH 0 1

DRAWING NO. C113

SHEET NO. 15 OF 59



LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- WORK ZONE
- DIRECTION OF TRAFFIC
- 273 - BARRICADE TYPE III - LIGHT - FURNISH & OPERATE
- 274 - BARRICADE TYPE II - LIGHT - FURNISH & OPERATE
- 272 - CHANNELIZING DEVICE, 42 INCH - FURNISH & OPERATE
- 275 - TEMPORARY SIGN - TYPE B
- 276 - TEMPORARY SIGN - TYPE A

SEE ABOVE	XXX	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK	–	BID DOCUMENTS	05DEC16	CHP	CEW

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

DETOUR PLAN - STAGE 2

SCALE HOR. 1"=60' | INCH

DRAWING NO. C114

SHEET NO. 16 OF 59

APPROVED BY _____

SIDEWALK CLOSED AHEAD
CROSS HERE
R9-11R

R3-1

SIDEWALK CLOSED
R9-9

DETOUR
M4-9bL

TYPE III BARRICADE WITH R11-2 & M4-10R

WORK ZONE BEGINS
R5-18C
100'

SP#2 EB S. UNIVERSITY AVE
DETOUR
M4-9

R9-9

TYPE III BARRICADE

CHURCH STREET

R9-10

SIDEWALK CLOSED
CROSS HERE
R9-11aR

TYPE III BARRICADE WITH R11-2

CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS TO BUSINESSES AT ALL TIMES (TYP.)

GRAVEL

S UNIVERSITY AVENUE

R3-2

PAVT MRKG, TYPE 4, 4 INCH, WHITE, TEMP (MAKE 12 INCH WIDE STOP BAR)
R5-1
PAVT MRKG, TYPE 4, 4 INCH, YELLOW, TEMP (DOUBLE DOTTED)

SIDEWALK CLOSED
USE OTHER SIDE
R9-10

W1-4R

PAVT MRKG COVER, TYPE R, BLACK

R9-10

R3-1
R5-1
PAVT MRKG, TYPE 4, 4 INCH, WHITE, TEMP (MAKE 12 INCH WIDE STOP BAR)

CHURCH STREET

R5-18C

WORK ZONE BEGINS
R5-18C
100'

DETOUR
M4-9R

E UNIVERSITY AVENUE

USE SINGLE LANE CLOSURE PER MDOT MAINTAINING TRAFFIC TYPICAL M0240a DURING WORK ALONG WASHTENAW AVE

R5-18C

SP#2 EB S. UNIVERSITY AVE
END DETOUR
M4-8a

R9-9

WASHTENAW AVENUE

WORK ZONE BEGINS
R5-18C
100'

W1-4L

R9-10

TYPE III BARRICADE

SEE STAGE 2A & 2B FOR FOREST AVE DETAILS

S FOREST AVENUE

R3-2

TYPE III BARRICADE WITH R11-2

TYPE III BARRICADE

S UNIVERSITY AVENUE

PAVT MRKG, TYPE 4, 4 INCH, WHITE, TEMP (MAKE 12 INCH WIDE STOP BAR)
R3-1
R5-1
PAVT MRKG COVER, TYPE R, BLACK

PAVT MRKG, TYPE 4, 4 INCH, WHITE, TEMP
PAVT MRKG, TYPE 4, 4 INCH, YELLOW, TEMP
PAVT MRKG COVER, TYPE R, BLACK
(COVER DOUBLE YELLOW LINES AND STOP BAR)

W1-6L

R9-10

R5-18C

WASHTENAW AVENUE

EXISTING ELECTRICAL SERVICE EQUIPMENT NEAR MUNICIPAL PARKING DECK, SOUTH OF WILLARD; FIELD VERIFY

S FOREST AVENUE

SP#2
M4-9

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- WORK ZONE
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- TYPE II BARRICADE
- 42" CHANNELIZING DEVICE
- TEMPORARY CONSTRUCTION SIGN

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

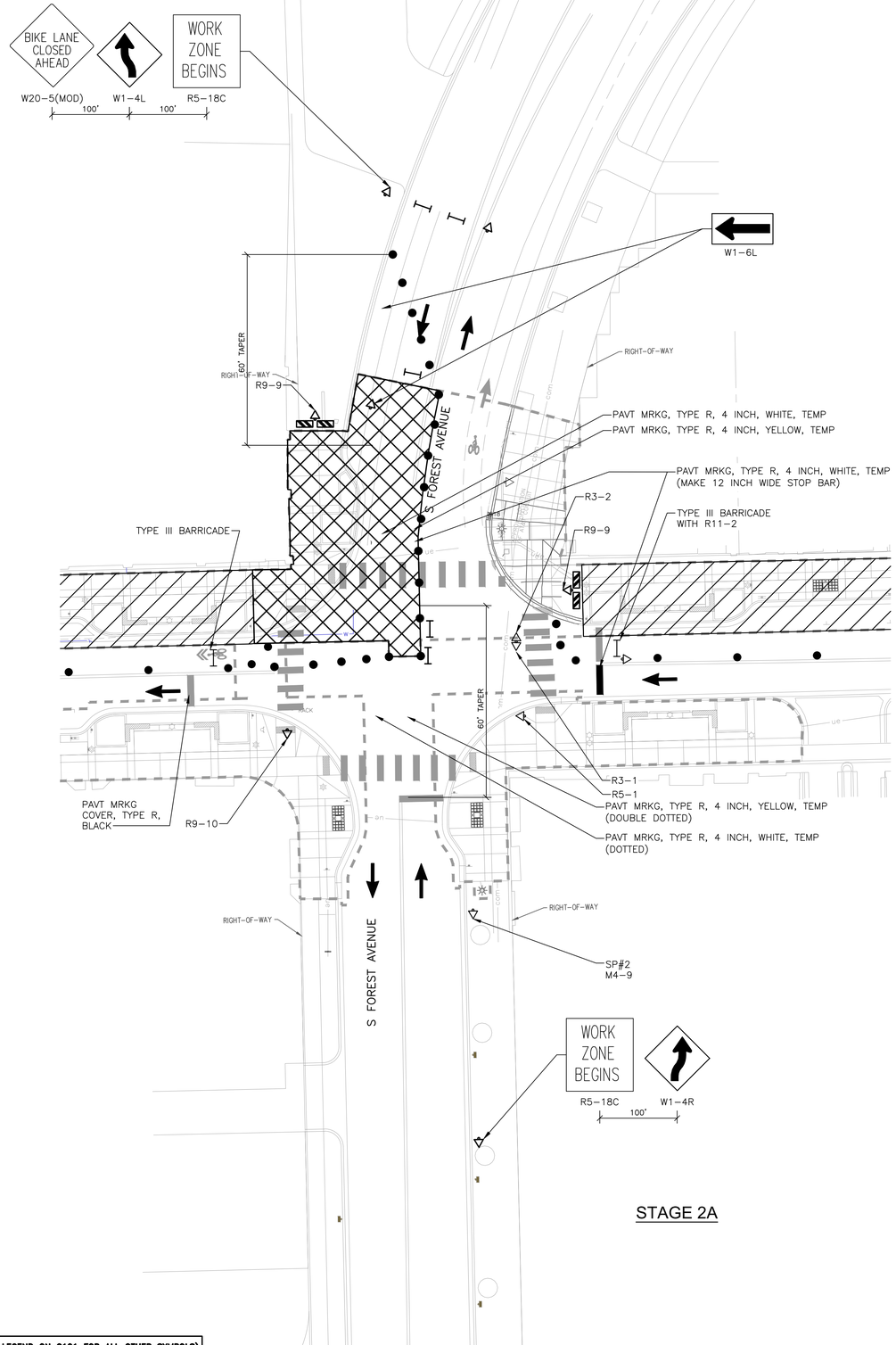
MAINTENANCE OF TRAFFIC PLAN - STAGE 2

SCALE 1"=40'
INCH 0 1

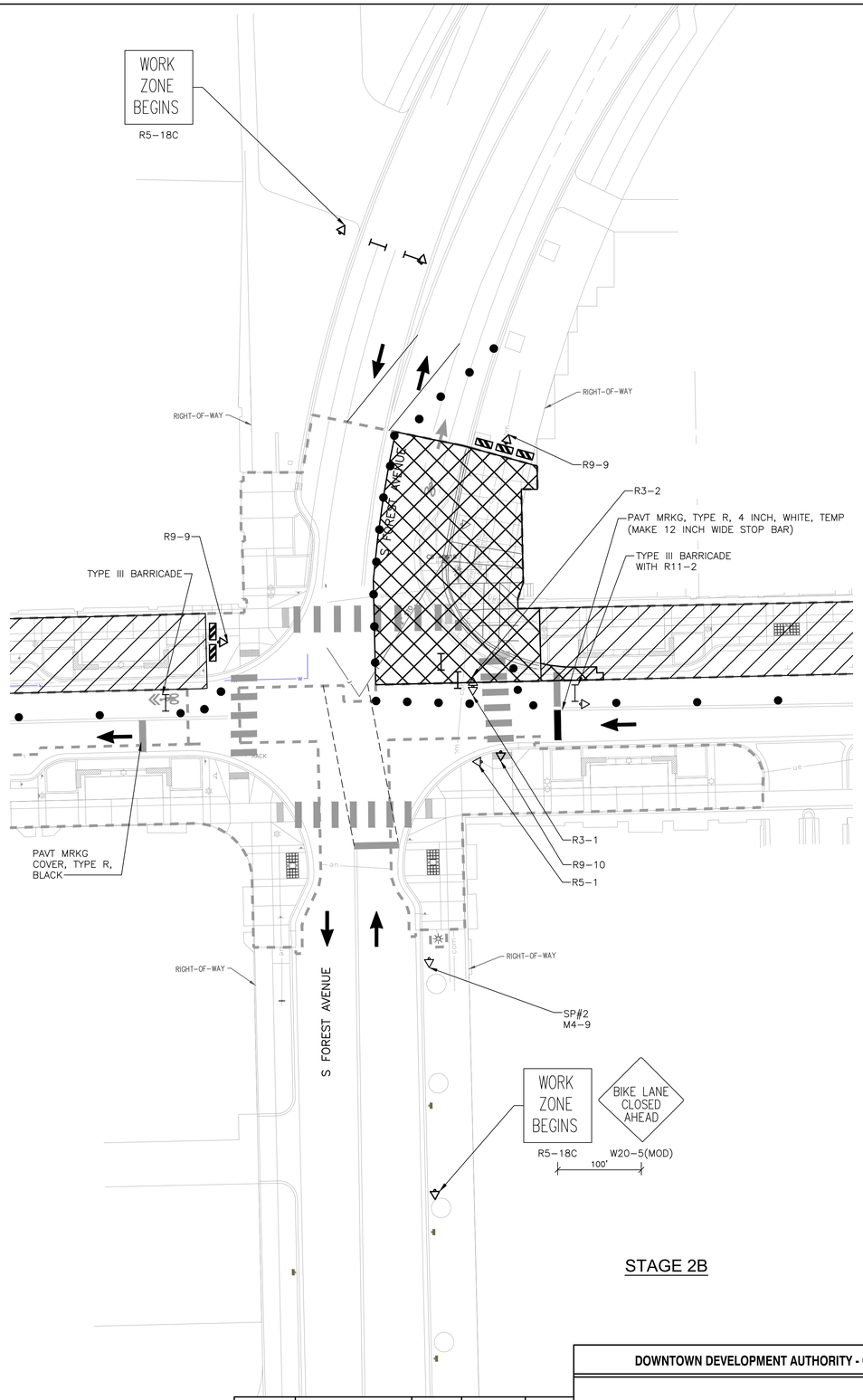
DRAWING NO. C115

SHEET NO. 17 OF 59

APPROVED BY _____



STAGE 2A



STAGE 2B

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- WORK ZONE
- DIRECTION OF TRAFFIC
- TYPE III BARRICADE
- TYPE II BARRICADE
- 42" CHANNELIZING DEVICE
- TEMPORARY CONSTRUCTION SIGN

SEE ABOVE	XXX					
		.	.	.		
		.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

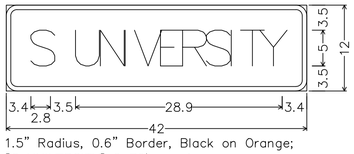
MAINTENANCE OF TRAFFIC PLAN - STAGE 2A & 2B

APPROVED BY _____

SCALE 1"=40' | INCH 0 1

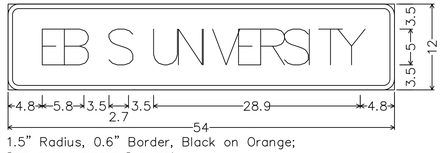
DRAWING NO. C116

SHEET NO. 18 OF 59



1.5" Radius, 0.6" Border, Black on Orange;
[S UNIVERSITY] C 70} spacing;

SP#1



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[EB S UNIVERSITY] C 70} spacing;

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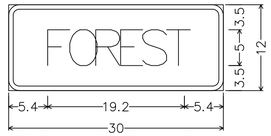
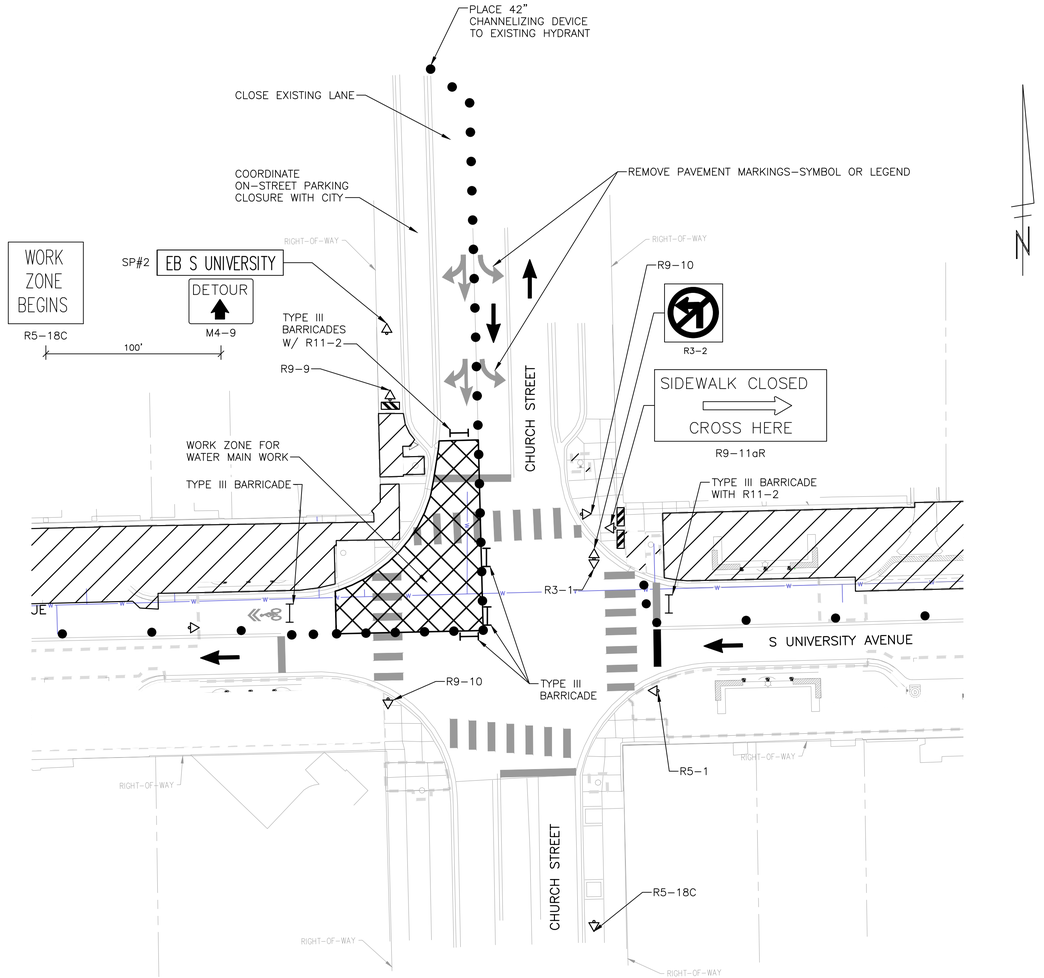
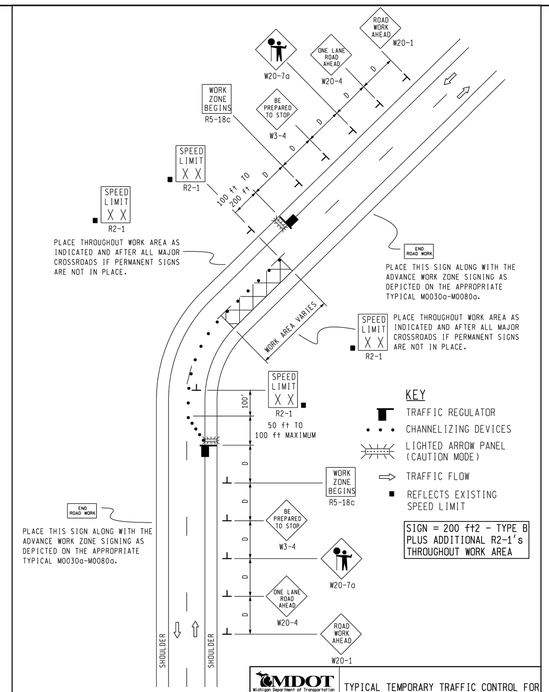


1.5" Radius, 0.6" Border, Black on Orange;
[FOREST] C 70} spacing;

SP#3

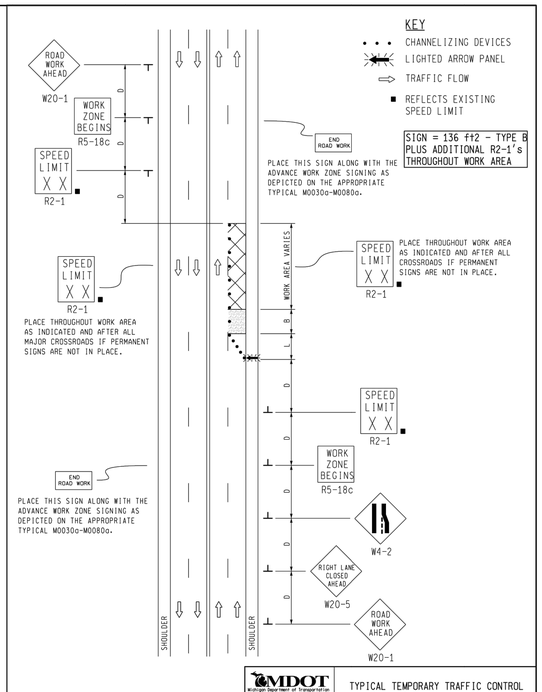


STAGE 2C



NOT TO SCALE

MDOT Michigan Department of Transportation — TRAFFIC AND SAFETY	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS, NO SPEED REDUCTION	
MAINTAINING TRAFFIC TYPICAL		
DRAWN BY: CDN:AE:ejf	OCTOBER 2011	M0140a
CHECKED BY: BMM:CRB	PLAN DATE:	SHEET 1 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0140a.dgn REV.	10/04/2011	



NOT TO SCALE

MDOT Michigan Department of Transportation — TRAFFIC AND SAFETY	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON AN UNDIVIDED MULTI-LANE ROADWAY, NO SPEED REDUCTION	
MAINTAINING TRAFFIC TYPICAL		
DRAWN BY: CDN:AE:ejf	OCTOBER 2011	M0240a
CHECKED BY: BMM:CRB	PLAN DATE:	SHEET 1 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0240a.dgn REV.	10/11/2011	

NOTES

1H. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES AND LENGTH OF LONGITUDINAL BUFFERS SEE M0020a FOR "D" VALUES.

2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.

3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.

3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.

4A. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES IN THE TAPER AREA(S) SHOULD BE 15 FEET AND SHOULD BE EQUAL IN FEET TO TWICE THE POSTED SPEED IN MILES PER HOUR IN THE PARALLEL AREA(S).

5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.

6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED. THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.

7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.

9. ALL TRAFFIC REGULATORS SHALL BE PROPERLY TRAINED AND SUPERVISED.

9A. IN ANY OPERATION INVOLVING MORE THAN ONE TRAFFIC REGULATOR, ONE PERSON SHOULD BE DESIGNATED AS HEAD TRAFFIC REGULATOR.

10. ALL TRAFFIC REGULATORS' CONDUCT, THEIR EQUIPMENT, AND TRAFFIC REGULATING PROCEDURES SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CURRENT EDITION OF THE MDOT HANDBOOK ENTITLED "TRAFFIC REGULATORS INSTRUCTION MANUAL."

11. WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS, APPROPRIATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY ILLUMINATE THE TRAFFIC REGULATOR'S STATIONS.

12E. THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS SHALL BE NO MORE THAN 2 MILES IN LENGTH UNLESS RESTRICTED FURTHER IN THE SPECIAL PROVISIONS FOR MAINTAINING TRAFFIC. ALL SEQUENCES OF MORE THAN 2 MILES IN LENGTH WILL REQUIRE WRITTEN PERMISSION FROM THE ENGINEER BEFORE PROCEEDING.

13. WHEN INTERSECTING ROADS OR SIGNIFICANT TRAFFIC GENERATORS (SHOPPING CENTERS, MOBILE HOME PARKS, ETC.) OCCUR WITHIN THE ONE-LANE TWO-WAY OPERATION, INTERMEDIATE TRAFFIC REGULATORS AND APPROPRIATE SIGNING SHALL BE PLACED AT THESE LOCATIONS.

14. ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W3-4 SIGNS.

15. THE HAND HELD (PADDLE) SIGNS REQUIRED BY THE MMUTCD TO CONTROL TRAFFIC WILL BE PAID FOR AS PART OF FLAG CONTROL.

28E. THE TRAFFIC REGULATORS SHOULD BE POSITIONED AT OR NEAR THE SIDE OF THE ROAD SO THAT THEY ARE SEEN CLEARLY AT A MINIMUM DISTANCE OF 500 FEET. THIS MAY REQUIRE EXTENDING THE BEGINNING OF THE LANE CLOSURE TO OVERCOME VIEWING PROBLEMS CAUSED BY HILLS AND CURVES.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
R2-1 REGULATORY - 48" x 60"
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

MDOT Michigan Department of Transportation — TRAFFIC AND SAFETY	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS, NO SPEED REDUCTION	
MAINTAINING TRAFFIC TYPICAL		
DRAWN BY: CDN:AE:ejf	OCTOBER 2011	M0140a
CHECKED BY: BMM:CRB	PLAN DATE:	SHEET 2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0140a.dgn REV.	10/04/2011	

NOTES

1B. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES
L = MINIMUM LENGTH OF TAPER
B = LENGTH OF LONGITUDINAL BUFFER
SEE M0020a FOR "D," "L," AND "B" VALUES

2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.

3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.

3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.

4E. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES SHOULD BE EQUAL IN FEET TO THE POSTED SPEED IN MILES PER HOUR ON TAPER(S) AND TWICE THE POSTED SPEED IN THE PARALLEL AREA(S).

5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.

6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED. THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.

7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.

8. WHEN BUFFER AREAS ARE ESTABLISHED, THERE SHALL BE NO EQUIPMENT OR MATERIALS STORED OR WORK CONDUCTED IN THE BUFFER AREA.

21. ALL EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH EITHER PROPOSED CHANGES IN TRAFFIC PATTERNS OR PROPOSED TEMPORARY TRAFFIC MARKINGS, SHALL BE REMOVED BEFORE ANY CHANGE IS MADE IN THE TRAFFIC PATTERN. EXCEPTION WILL BE MADE FOR DAYTIME-ONLY TRAFFIC PATTERNS THAT ARE ADEQUATELY DELINEATED BY OTHER TRAFFIC CONTROL DEVICES.

26. THE LIGHTED ARROW PANEL SHALL BE LOCATED AT THE BEGINNING OF THE TAPER AS SHOWN. WHEN PHYSICAL LIMITATIONS RESTRICT ITS PLACEMENT AS INDICATED, THEN IT SHALL BE PLACED AS CLOSE TO THE BEGINNING OF THE TAPER AS POSSIBLE.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
R2-1 REGULATORY - 48" x 60"
R5-18c REGULATORY - 48" x 48"

NOT TO SCALE

MDOT Michigan Department of Transportation — TRAFFIC AND SAFETY	TYPICAL TEMPORARY TRAFFIC CONTROL FOR A ONE-LANE CLOSURE ON AN UNDIVIDED MULTI-LANE ROADWAY, NO SPEED REDUCTION	
MAINTAINING TRAFFIC TYPICAL		
DRAWN BY: CDN:AE:ejf	OCTOBER 2011	M0240a
CHECKED BY: BMM:CRB	PLAN DATE:	SHEET 2 OF 2
FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0240a.dgn REV.	10/11/2011	

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- WORK ZONE
- DIRECTION OF TRAFFIC
- 273 - BARRICADE TYPE III - LIGHT - FURNISH & OPERATE
- 274 - BARRICADE TYPE II - LIGHT - FURNISH & OPERATE
- 272 - CHANNELIZING DEVICE, 42 INCH - FURNISH & OPERATE
- 275 - TEMPORARY SIGN - TYPE B
- 276 - TEMPORARY SIGN - TYPE A

SEE ABOVE	XXX	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK	–	BID DOCUMENTS	05DEC16	CHP	CEW

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

MAINTENANCE OF TRAFFIC PLAN - TYPICALS

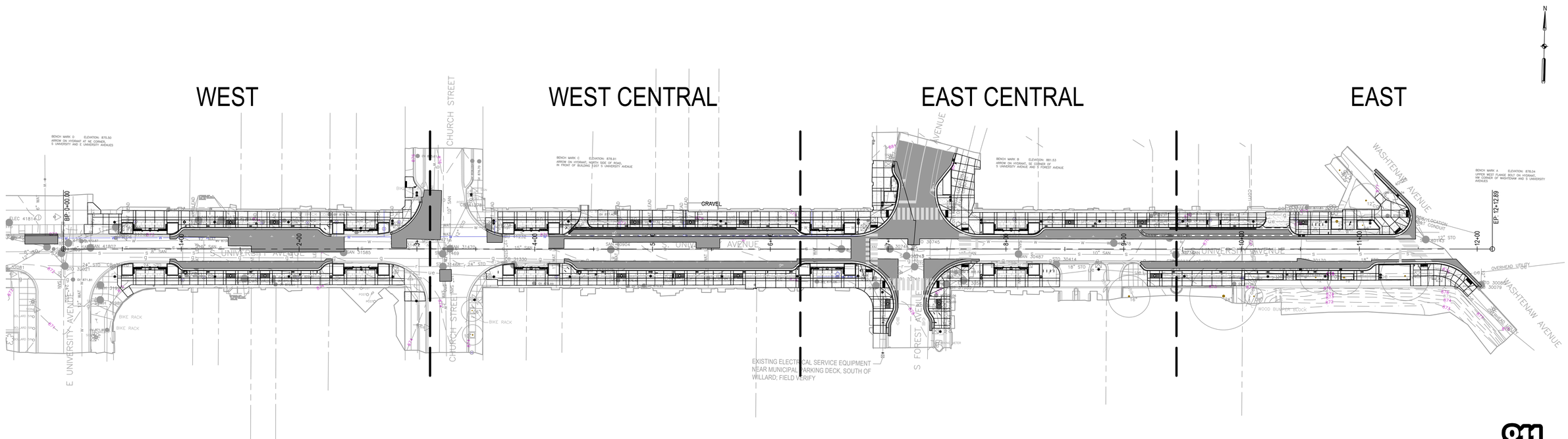
APPROVED BY _____

SCALE HOR. 1"=20'

INCH 0 1

DRAWING NO. C117

SHEET NO. 19 OF 59



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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
  - CONTRACTION JOINT (TOOLED)
  - EXPANSION JOINT
- 237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- 239 - SIDEWALK UNIT PAVERS
  - SUPPORT SLAB CONTRACTION JOINT (TOOLED)
- 220 - HMA PAVEMENT LEVELING
  221 - HMA PAVEMENT WEARING
- 221 - HMA PAVEMENT WEARING
- BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
- SPILLOUT BARRIER CURB AND GUTTER
- VALLEY CURB AND GUTTER
- FLUSH CURB AND GUTTER
- 280 - PLANTER CURB
- 240 - DETECTABLE WARNING, CAST IN PLACE
- 258 - LUMINAIRE INSTALLATION
  259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION
- 266 - TREE GRATE
- 215 - INFILTRATION INLET
- 440 - FIRE HYDRANT ASSEMBLY
- LIMITS OF WORK
- 285 - INSTALL PARKING METER

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
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.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

MATERIALS PLAN - OVERALL

APPROVED BY _____

SCALE 1"=40'

INCH 0 1

DRAWING NO. C120

SHEET NO. 20 OF 59

INSTALLATION OF WORK IN THIS AREA TO BE COMPLETED BY OTHERS. CONTRACTOR TO PROVIDE MANUFACTURED MATERIALS FOR WORK IN THIS AREA PURSUANT TO DETAILED SPECIFICATIONS

SEE DETAIL 1 ON THIS SHEET FOR FULL EXTENTS

267-267A - SIDEWALK GRATE (SEE SHEET NOTE 4)

236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE

258 - LUMINAIRE INSTALLATION (DOUBLE)

239-239A - FURNISH UNIT PAVER, TYP.

258 - LUMINAIRE INSTALLATION
259 - LIGHT STD SHAFT, INSTALL SALV

283-283A - FURNISH BIKE HOOP, TYP.

236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE

258 - LUMINAIRE INSTALLATION

239-239A - FURNISH UNIT PAVER TYP.

266-266A - FURNISH TREE GRATE

APPROXIMATE LIMITS OF UNDERGROUND VAULTS (FROM 1989 CONSTRUCTION DOCUMENTS)

258 - LUMINAIRE INSTALLATION
259 - LIGHT STD SHAFT, INSTALL SALV

239-239A - FURNISH UNIT PAVER TYP.

258 - LUMINAIRE INSTALLATION

234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (BARRIER CURB AND GUTTER), TYP.

220 - HMA PAVEMENT LEVELING
221 - HMA PAVEMENT WEARING

280-280A - FURNISH PLANTER CURB, TYP.

282-282A - FURNISH BENCH, PRECAST CONCRETE, TYP. (PLACED ON 8" CONCRETE SIDEWALK)

280-280A - FURNISH PLANTER CURB,TYP.

258 - LUMINAIRE INSTALLATION
259 - LIGHT STD SHAFT, INSTALL SALV

237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE

280 - PLANTER CURB,TYP.

258 - LUMINAIRE INSTALLATION

280-280A - FURNISH PLANTER CURB, TYP.

CONCRETE PAY STATION PAD

258 - LUMINAIRE INSTALLATION

280-280A - FURNISH PLANTER CURB, TYP.

282-282A - FURNISH BENCH, PRECAST CONCRETE, TYP. (PLACED ON 8" CONCRETE SIDEWALK)

258 - LUMINAIRE INSTALLATION

280-280A - FURNISH PLANTER CURB, TYP.

234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (BARRIER CURB AND GUTTER), TYP.

220 - HMA PAVEMENT LEVELING
221 - HMA PAVEMENT WEARING

258 - LUMINAIRE INSTALLATION

220 - HMA PAVEMENT LEVELING
221 - HMA PAVEMENT WEARING

234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (BARRIER CURB AND GUTTER MODIFIED)

283 - BIKE HOOP (SURFACE MOUNTED), TYP.

258 - LUMINAIRE INSTALLATION

237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE

280 - PLANTER CURB, TYP.

258 - LUMINAIRE INSTALLATION

282 - BENCH, PRECAST CONCRETE, TYP. (PLACED ON 8" CONCRETE SIDEWALK)

280 - PLANTER CURB, TYP.

258 - LUMINAIRE INSTALLATION

239 - SIDEWALK UNIT PAVERS

258 - LUMINAIRE INSTALLATION
259 - LIGHT STD SHAFT, INSTALL SALV

266 - TREE GRATE

239 - SIDEWALK UNIT PAVERS, TYP.

CONCRETE PAY STATION PAD

258 - LUMINAIRE INSTALLATION
259 - LIGHT STD SHAFT, INSTALL SALV

239 - SIDEWALK UNIT PAVERS

236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE

258 - LUMINAIRE INSTALLATION

MATCHLINE - SEE C122 FOR CONTINUATION

E. UNIVERSITY AVENUE

CHURCH STREET

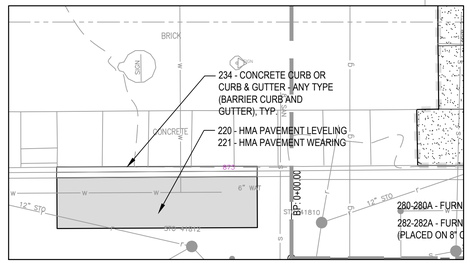
66.00' RIGHT-OF-WAY

BP 0+00.00

1+42 LT

2+00

3+00



1 DETAIL 1

SCALE: 1" = 10'

SHEET NOTES:

1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN, TREE GRATES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.
2. THE DDA WILL WORK WITH CITY OF ANN ARBOR PUBLIC WORKS TO SELECT AN ARCHITECTURAL COATING FOR THE STREET LIGHT POLES.
3. THE DDA WILL MAINTAIN ALL BIKE HOOPS IN THE RIGHT-OF-WAY.
4. MCNICHOLS GCM-1-100 SMOOTH, PRESS LOCKED, GALVANIZED STEEL HOT ROLLED GRATE. PRODUCT NO. 6601319999, OR APPROVED EQUAL. INSTALL GRATE IN A STAINLESS STEEL ANGLE FRAME, $1\frac{1}{2}$"x$1\frac{1}{2}$"x$\frac{3}{8}$". ANGLE FRAME IS TO BE EMBEDDED INTO THE CONCRETE WALK. GRATE AND FRAME SHALL BE FLUSH WITH SIDEWALK AND THE GRATE SHALL FIT SNUGLY AND BE FREE FROM ROCKING IN PLACE.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- CONTRACTION JOINT (TOOLED)
- EXPANSION JOINT
- 237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- 239 - SIDEWALK UNIT PAVERS
- SUPPORT SLAB CONTRACTION JOINT (TOOLED)
- 220 - HMA PAVEMENT LEVELING
- 221 - HMA PAVEMENT WEARING
- BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
- SPILLOUT BARRIER CURB AND GUTTER
- VALLEY CURB AND GUTTER
- FLUSH CURB AND GUTTER
- 280 - PLANTER CURB
- 240 - DETECTABLE WARNING, CAST IN PLACE
- 258 - LUMINAIRE INSTALLATION
- 259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION
- 266 - TREE GRATE
- 215 - INFILTRATION INLET
- 440 - FIRE HYDRANT ASSEMBLY
- LIMITS OF WORK
- 285 - INSTALL PARKING METER

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

MATERIALS PLAN - WEST

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

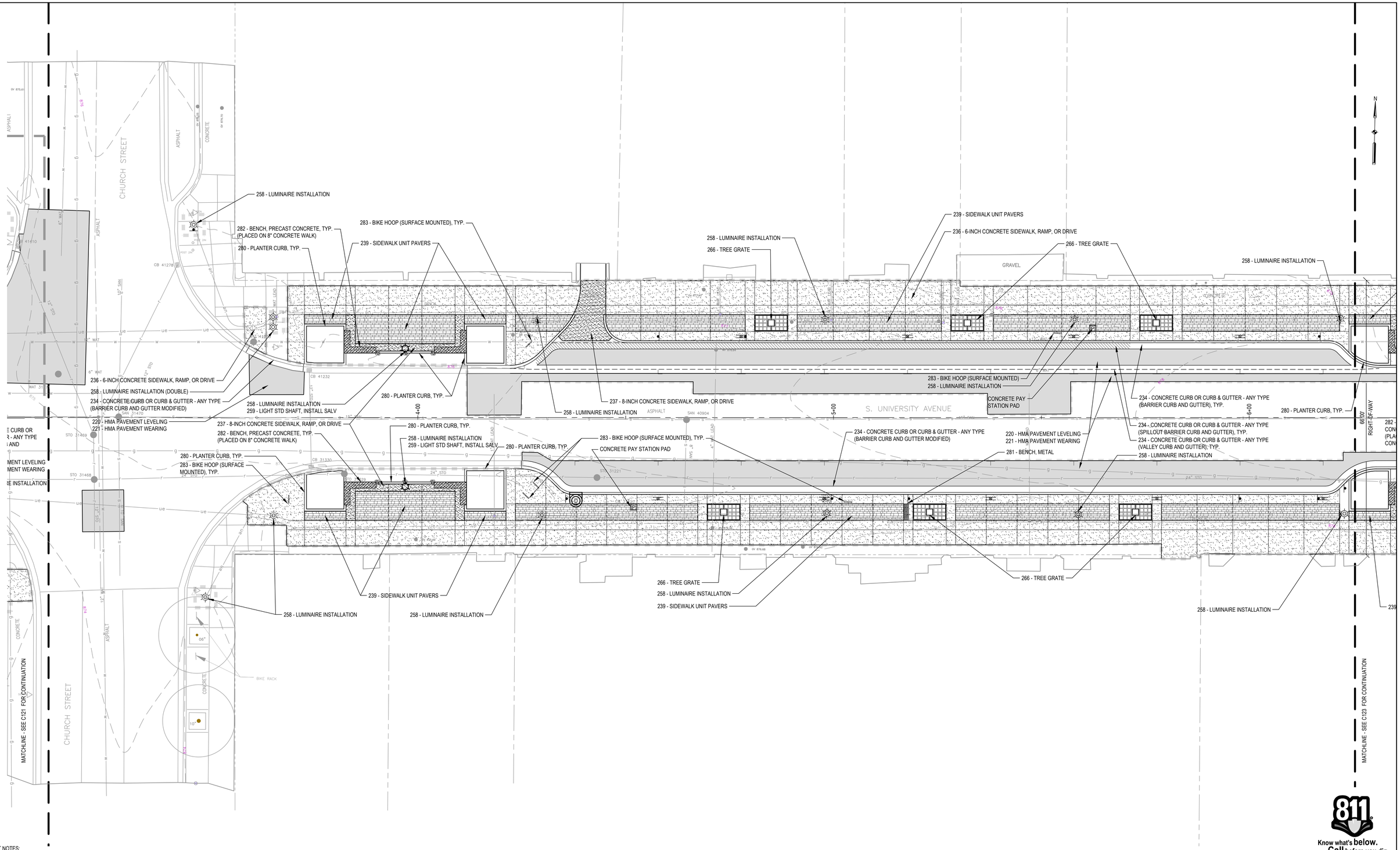
APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. C121

SHEET NO. 21 OF 59



SHEET NOTES:

1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN. TREE GRATES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.
2. THE DDA WILL WORK WITH CITY OF ANN ARBOR PUBLIC WORKS TO SELECT AN ARCHITECTURAL COATING FOR THE STREET LIGHT POLES.
3. THE DDA WILL MAINTAIN ALL BIKE HOOPS IN THE RIGHT-OF-WAY.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- CONTRACTION JOINT (TOOLED)
- EXPANSION JOINT
- 237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- 239 - SIDEWALK UNIT PAVERS
- SUPPORT SLAB CONTRACTION JOINT (TOOLED)
- 220 - HMA PAVEMENT LEVELING
- 221 - HMA PAVEMENT WEARING
- BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
- SPILLOUT BARRIER CURB AND GUTTER
- VALLEY CURB AND GUTTER
- FLUSH CURB AND GUTTER
- 280 - PLANTER CURB
- 240 - DETECTABLE WARNING, CAST IN PLACE
- 258 - LUMINAIRE INSTALLATION
- 259 - LIGHT STD SHAFT, INSTALL SALV
- 266 - TREE GRATE
- 215 - INFILTRATION INLET
- 440 - FIRE HYDRANT ASSEMBLY
- LIMITS OF WORK
- 285 - INSTALL PARKING METER

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
	XXX	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

MATERIALS PLAN - WEST CENTRAL

APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. C122

SHEET NO. 22 OF 59

234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (BARRIER CURB AND GUTTER), TYP.
236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
283 - BIKE HOOP (EMBEDDED), TYP.
280 - PLANTER CURB, TYP.
258 - LUMINAIRE INSTALLATION (DOUBLE)
239 - SIDEWALK UNIT PAVERS, TYP.
CONCRETE PAY STATION PAD
258 - LUMINAIRE INSTALLATION
236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE ,TYP.
266 - TREE GRATE
234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (BARRIER CURB AND GUTTER), TYP.
234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (VALLEY CURB AND GUTTER), TYP.
234 - CONCRETE CURB OR CURB & GUTTER - ANY TYPE (SPILLOUT BARRIER CURB AND GUTTER), TYP.
283 - BIKE HOOP (SURFACE MOUNTED), TYP.
281 - BENCH, METAL
239 - SIDEWALK UNIT PAVERS
282 - BENCH, PRECAST CONCRETE, TYP. (PLACED ON 8" CONCRETE WALK)
258 - LUMINAIRE INSTALLATION (DOUBLE)
259 - LIGHT STD SHAFT, INSTALL SALV
237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
220 - HMA PAVEMENT LEVELING
221 - HMA PAVEMENT WEARING
236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE, TYP.
258 - LUMINAIRE INSTALLATION
259 - LIGHT STD SHAFT, INSTALL SALV
239 - SIDEWALK UNIT PAVERS
266 - TREE GRATE
258 - LUMINAIRE INSTALLATION (DOUBLE)
259 - LIGHT STD SHAFT, INSTALL SALV
239 - SIDEWALK UNIT PAVERS
237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE, TYP.
266 - TREE GRATE
283 - BIKE HOOP (SURFACE MOUNTED), TYP.
258 - LUMINAIRE INSTALLATION
EXISTING ELECTRICAL SERVICE EQUIPMENT NEAR MUNICIPAL PARKING DECK, SOUTH OF WILLARD; FIELD VERIFY
S FOREST AVENUE
MATCHLINE - SEE C122 FOR CONTINUATION
MATCHLINE - SEE C124 FOR CONTINUATION
66.00' RIGHT-OF-WAY
8-00
9-00
N

SHEET NOTES:
1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN. TREE GRATES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.
2. THE DDA WILL WORK WITH CITY OF ANN ARBOR PUBLIC WORKS TO SELECT AN ARCHITECTURAL COATING FOR THE STREET LIGHT POLES.
3. THE DDA WILL MAINTAIN ALL BIKE HOOPS IN THE RIGHT-OF-WAY.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
CONTRACTION JOINT (TOOLED)
EXPANSION JOINT
237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
239 - SIDEWALK UNIT PAVERS
SUPPORT SLAB CONTRACTION JOINT (TOOLED)
220 - HMA PAVEMENT LEVELING
221 - HMA PAVEMENT WEARING
221 - HMA PAVEMENT WEARING
BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
SPILLOUT BARRIER CURB AND GUTTER
VALLEY CURB AND GUTTER
FLUSH CURB AND GUTTER
280 - PLANTER CURB
240 - DETECTABLE WARNING, CAST IN PLACE
258 - LUMINAIRE INSTALLATION
259 - LIGHT STD SHAFT, INSTALL SALV
258 - LUMINAIRE INSTALLATION
266 - TREE GRATE
215 - INFILTRATION INLET
440 - FIRE HYDRANT ASSEMBLY
LIMITS OF WORK
285 - INSTALL PARKING METER

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

MATERIALS PLAN - EAST CENTRAL

SCALE 1"=10'
INCH 0 1
DRAWING NO. C123
SHEET NO. 23 OF 59

APPROVED BY

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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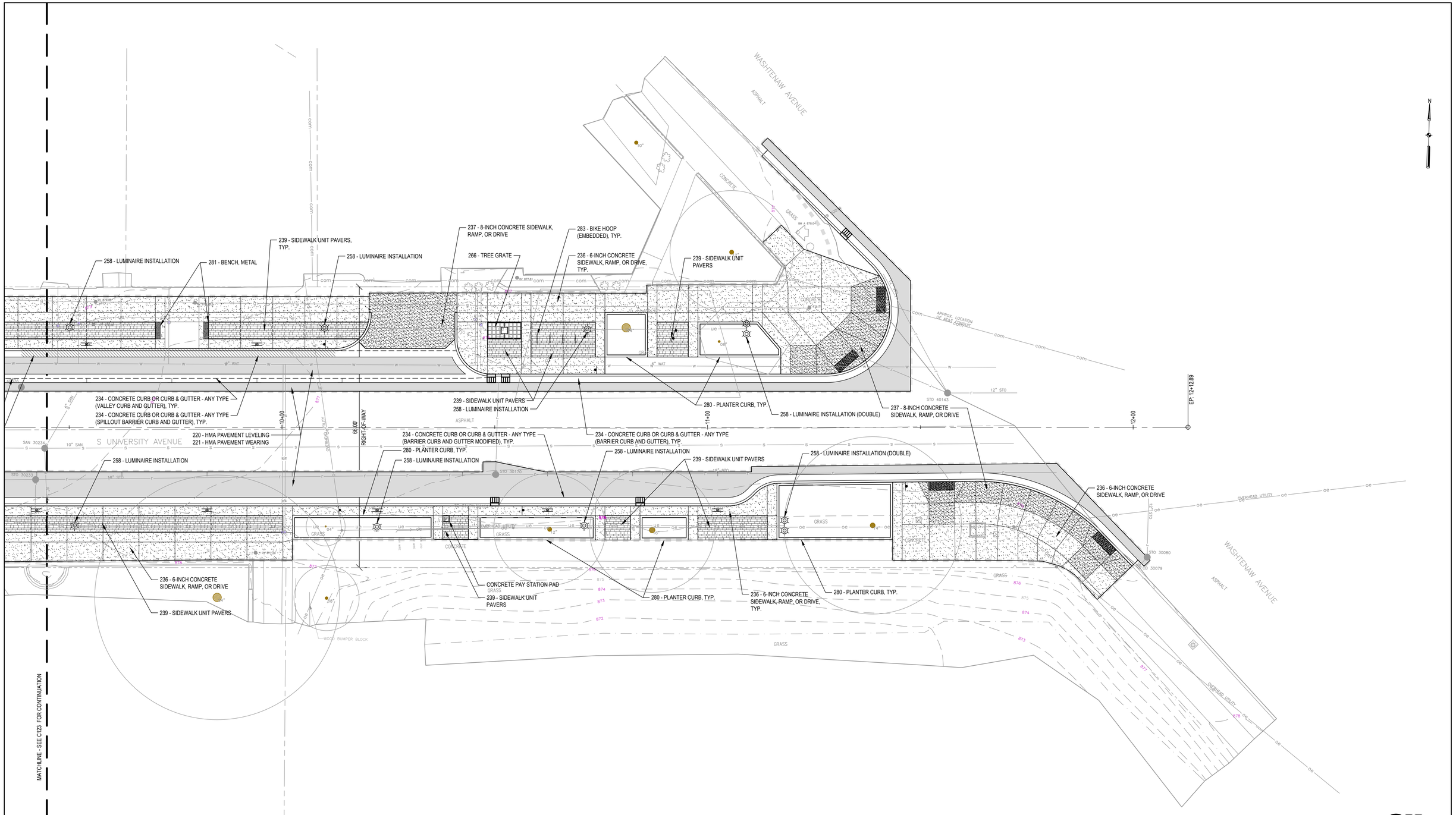
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

SEE ABOVE XXX
BENCH MARK
SURVEY BOOK



SHEET NOTES:

1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN, TREE GRATES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.
2. THE DDA WILL WORK WITH CITY OF ANN ARBOR PUBLIC WORKS TO SELECT AN ARCHITECTURAL COATING FOR THE STREET LIGHT POLES.
3. THE DDA WILL MAINTAIN ALL BIKE HOOPS IN THE RIGHT-OF-WAY.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- CONTRACTION JOINT (TOOLED)
- EXPANSION JOINT
- 237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- 239 - SIDEWALK UNIT PAVERS
- SUPPORT SLAB CONTRACTION JOINT (TOOLED)
- 220 - HMA PAVEMENT LEVELING
- 221 - HMA PAVEMENT WEARING
- 221 - HMA PAVEMENT WEARING
- BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
- SPILLOUT BARRIER CURB AND GUTTER
- VALLEY CURB AND GUTTER
- FLUSH CURB AND GUTTER
- 280 - PLANTER CURB
- 240 - DETECTABLE WARNING, CAST IN PLACE
- 258 - LUMINAIRE INSTALLATION
- 259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION
- 266 - TREE GRATE
- 215 - INFILTRATION INLET
- 440 - FIRE HYDRANT ASSEMBLY
- LIMITS OF WORK
- 285 - INSTALL PARKING METER

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

MATERIALS PLAN - EAST

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. C124

SHEET NO. 24 OF 59

INSTALLATION OF WORK IN THIS AREA TO BE COMPLETED BY OTHERS. CONTRACTOR TO PROVIDE MANUFACTURED MATERIALS FOR WORK IN THIS AREA PURSUANT TO DETAILED SPECIFICATIONS

SEE DETAIL 1 ON THIS SHEET FOR FULL EXTENTS

EXISTING R/W LINE

SOUTH UNIVERSITY PROPERTIES
09-09-28-312-005
1101 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST
09-09-28-312-004
1107 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-006
1111 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-007
1115 SOUTH UNIVERSITY AVENUE

CHISHOLM & DAMES ACCOUNTING
09-09-28-312-008
1119 SOUTH UNIVERSITY AVENUE

U OF M CREDIT UNION
09-09-28-312-009
121 SOUTH UNIVERSITY AVENUE

APPROXIMATE LIMITS OF UNDERGROUND VAULT (FROM 1989 CONSTRUCTION DOCUMENTS)

10.00' 2.25' EQ. 24.00' 2.25' EQ. 10.00' 2.25' EQ. 35.75' 2.25' EQ. 8.00' 2.25' EQ. 24.50' 2.25' EQ. 8.00' 2.25' EQ. 40.75' 2.25' EQ. 10.00' 2.25' EQ. 24.00' 2.25' EQ. 10.00'

BP 0+00.00

STA:0+49.20
OFF:12.76'L

STA:0+90.25
OFF:10.47'L

STA:0+49.20
OFF:13.54'R

STA:0+90.03
OFF:10.49'R

STA:2+27.15
OFF:10.65'L

STA:2+28.49
OFF:10.36'R

R5.00' R10.00' 16.50' 10.50' 2.00' 6.00' 4.00' 1.75' 7.00' 3.41' 3.43' 3.77' 3.70'

2.00'
SEE SHEET NOTE 4

1+00 2+00 3+00

S UNIVERSITY AVENUE

ASPHALT

CONCRETE

66.00'
RIGHT-OF-WAY

EXISTING R/W LINE

E UNIVERSITY AVENUE

ODELL ASSOCIATES L.P. &
FULLER MICHIGAN, LLC
09-09-28-311-006
1100 SOUTH UNIVERSITY AVENUE

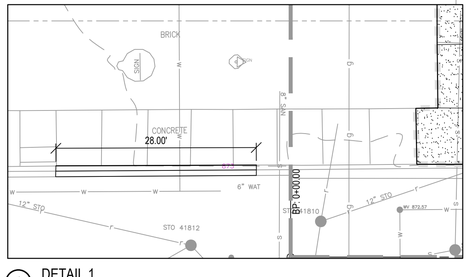
FRED C. ULRICH MARITAL TRUST
& FRED C. ULRICH FAMILY TRUST
09-09-28-311-005
1104 SOUTH UNIVERSITY AVENUE

FRED C. ULRICH MARITAL TRUST
& FRED C. ULRICH FAMILY TRUST
09-09-28-311-002
1114 SOUTH UNIVERSITY AVENUE

JOHN M ROGERS
09-09-28-311-001
1140 SOUTH UNIVERSITY AVENUE

CHURCH STREET

MATCHLINE - SEE C132 FOR CONTINUATION



1 DETAIL 1

SCALE: 1" = 10'

SHEET NOTES:
1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN. TREE GRATES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.
2. A PERMIT IS TO BE OBTAINED BY THE DDA'S DESIGN CONSULTANT FOR ANY WORK WITHIN MDOT RIGHT-OF-WAY.
3. ALL CONTRACTION JOINTS ARE TO BE TOOLED. REFER TO CITY OF ANN ARBOR SPECIFICATIONS FOR MORE JOINTING DETAILS.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- CONTRACTION JOINT (TOOLED)
- EXPANSION JOINT
- 237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- 239 - SIDEWALK UNIT PAVERS
- SUPPORT SLAB CONTRACTION JOINT (TOOLED)
- 220 - HMA PAVEMENT LEVELING
- 221 - HMA PAVEMENT WEARING
- 221 - HMA PAVEMENT WEARING
- BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
- SPILLOUT BARRIER CURB AND GUTTER
- VALLEY CURB AND GUTTER
- FLUSH CURB AND GUTTER
- 280 - PLANTER CURB
- 240 - DETECTABLE WARNING, CAST IN PLACE
- 258 - LUMINAIRE INSTALLATION
- 259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION
- 266 - TREE GRATE
- 215 - INFILTRATION INLET
- 440 - FIRE HYDRANT ASSEMBLY
- LIMITS OF WORK
- 285 - INSTALL PARKING METER

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LAYOUT PLAN - WEST

APPROVED BY _____

SCALE 1"=10' | INCH 0 1

DRAWING NO. C131

SHEET NO. 25 OF 59

GROVES SOUTH U, LLC
09-09-28-313-002
1201 SOUTH UNIVERSITY AVENUE

BEATTY HAWKINS LLC
09-09-28-313-003
1209 SOUTH UNIVERSITY AVENUE

1213 SOUTH UNIVERSITY LLC
09-09-28-313-004
1213 SOUTH UNIVERSITY AVENUE

TICE FAMILY PARTNERSHIP
09-09-28-313-005
1215 SOUTH UNIVERSITY AVENUE

UNIVERSITY TOWERS LLC
09-09-28-313-040
536 SOUTH FOREST AVENUE

CHURCH STREET

S. UNIVERSITY AVENUE

EXISTING R/W LINE

STA:3+72.72
OFF:12.91'L

STA:4+22.08
OFF:10.62'L

STA:5+71.37
OFF:16.50'L

STA:3+72.72
OFF:13.36'R

STA:4+24.96
OFF:10.37'R

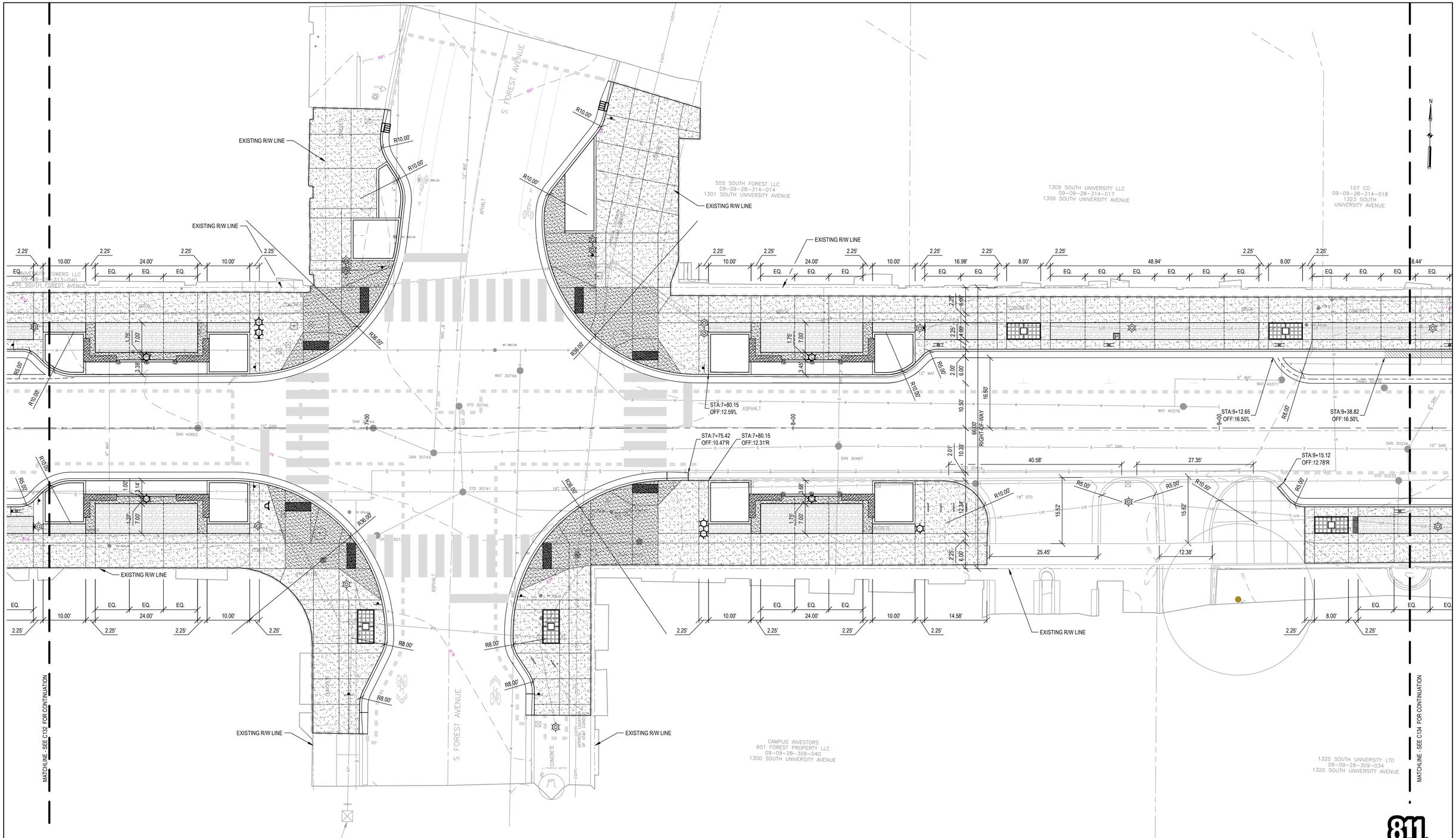
2.00'
SEE SHEET NOTE 4

RIGHT-OF-WAY

66.00'

10.00' 2.25' 24.00' 2.25' 10.00' 2.25' 15.67' 6.13' 33.50' 2.25' 8.00' 2.25' 34.68' 2.25' 8.00' 2.25' 32.93' 2.25' 8.00' 2.25' 37.87' 2.25' 10.00'

EQ. EQ. EQ.



SHEET NOTES:

1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN, TREE GRATES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.
2. A PERMIT IS TO BE OBTAINED BY THE DDA'S DESIGN CONSULTANT FOR ANY WORK WITHIN MDOT RIGHT-OF-WAY.
3. ALL CONTRACTION JOINTS ARE TO BE SAWCUT TOOLED. REFER TO CITY OF ANN ARBOR SPECIFICATIONS FOR MORE JOINTING DETAILS.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
CONTRACTION JOINT (TOOLED)
EXPANSION JOINT
237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
239 - SIDEWALK UNIT PAVERS
SUPPORT SLAB CONTRACTION JOINT (TOOLED)
220 - HMA PAVEMENT LEVELING
221 - HMA PAVEMENT WEARING
221 - HMA PAVEMENT WEARING
BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
SPILLOUT BARRIER CURB AND GUTTER
VALLEY CURB AND GUTTER
FLUSH CURB AND GUTTER
280 - PLANTER CURB
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258 - LUMINAIRE INSTALLATION
266 - TREE GRATE
215 - INFILTRATION INLET
440 - FIRE HYDRANT ASSEMBLY
LIMITS OF WORK
285 - INSTALL PARKING METER

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE	XXX	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LAYOUT PLAN - EAST CENTRAL

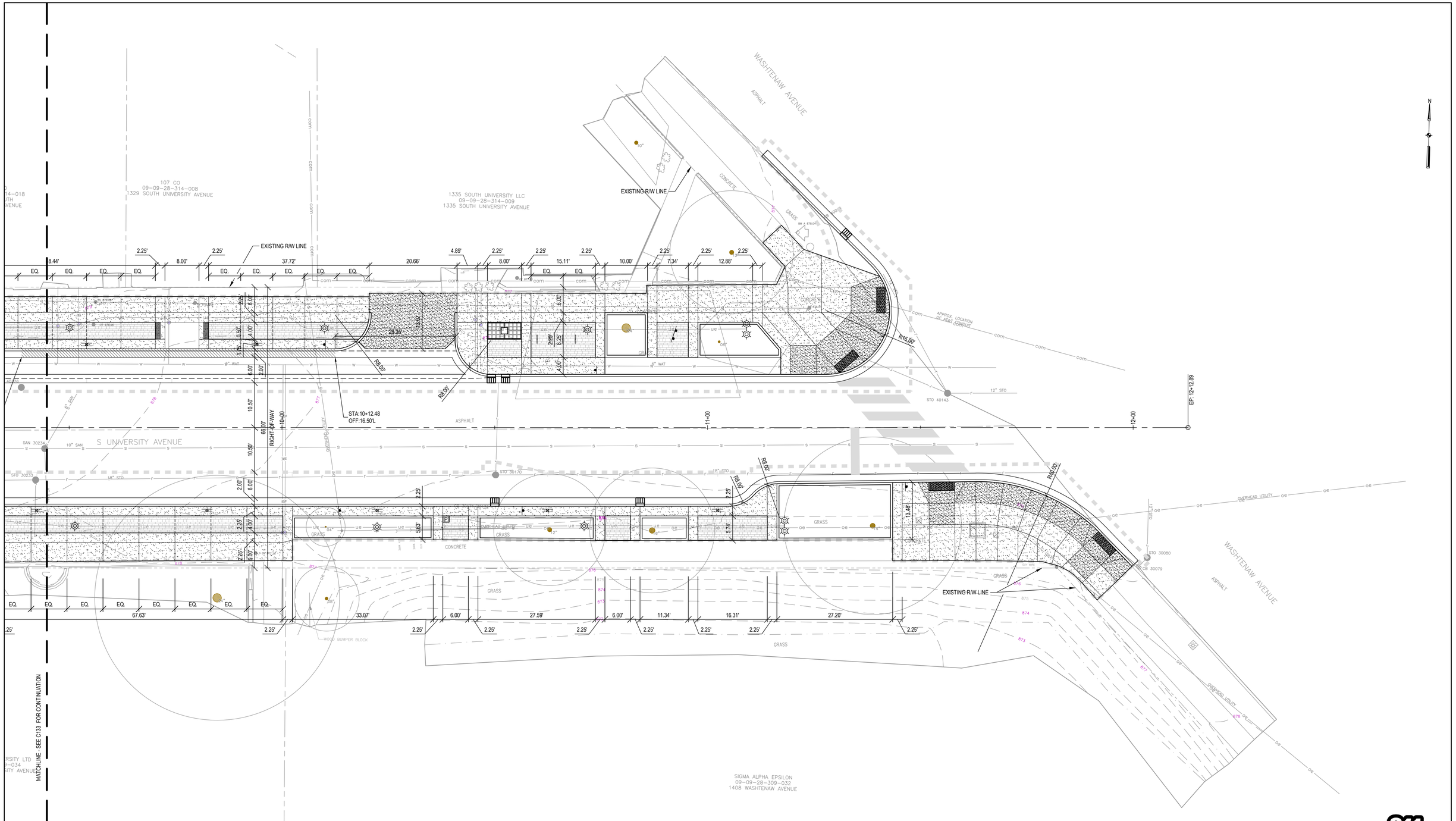
APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. C133

SHEET NO. 27 OF 59



SHEET NOTES:

1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN, TREE GRATES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.
2. A PERMIT IS TO BE OBTAINED BY THE DDA'S DESIGN CONSULTANT FOR ANY WORK WITHIN MDOT RIGHT-OF-WAY.
3. ALL CONTRACTION JOINTS ARE TO BE TOOLED. REFER TO CITY OF ANN ARBOR SPECIFICATIONS FOR MORE JOINTING DETAILS.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- 236 - 6-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
  - CONTRACTION JOINT (TOOLED)
  - EXPANSION JOINT
- 237 - 8-INCH CONCRETE SIDEWALK, RAMP, OR DRIVE
- 239 - SIDEWALK UNIT PAVERS
  - SUPPORT SLAB CONTRACTION JOINT (TOOLED)
- 220 - HMA PAVEMENT LEVELING
- 221 - HMA PAVEMENT WEARING
- BARRIER CURB AND GUTTER OR BARRIER CURB AND GUTTER MODIFIED
- SPILLOUT BARRIER CURB AND GUTTER
- VALLEY CURB AND GUTTER
- FLUSH CURB AND GUTTER
- 280 - PLANTER CURB
- 240 - DETECTABLE WARNING, CAST IN PLACE
- 258 - LUMINAIRE INSTALLATION
  - 259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION
- 266 - TREE GRATE
- 215 - INFILTRATION INLET
- 440 - FIRE HYDRANT ASSEMBLY
  - LIMITS OF WORK
- 285 - INSTALL PARKING METER

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LAYOUT PLAN - EAST

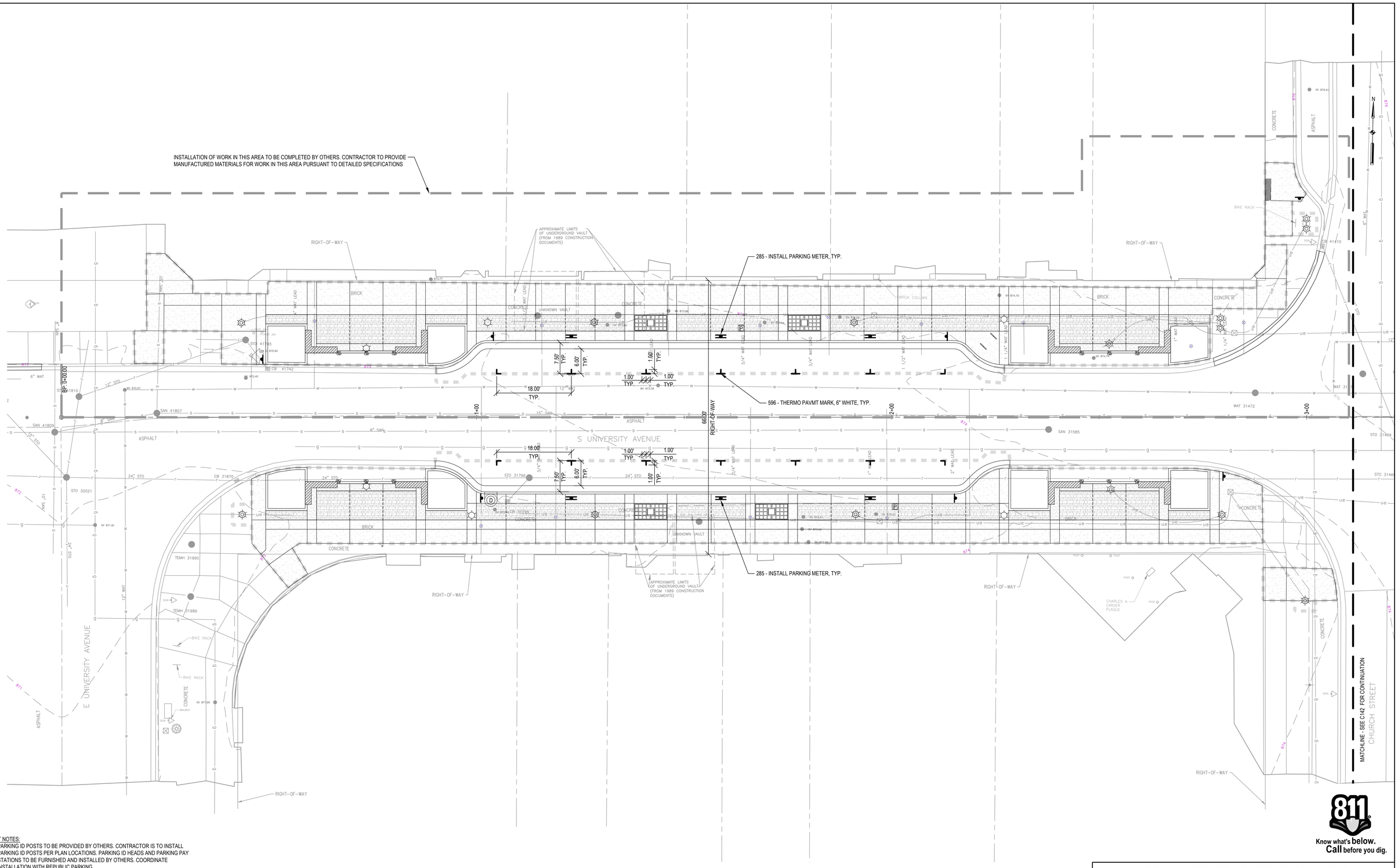
APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. C134

SHEET NO. 28 OF 59



SHEET NOTES:

1. PARKING ID POSTS TO BE PROVIDED BY OTHERS. CONTRACTOR IS TO INSTALL PARKING ID POSTS PER PLAN LOCATIONS. PARKING ID HEADS AND PARKING PAY STATIONS TO BE FURNISHED AND INSTALLED BY OTHERS. COORDINATE INSTALLATION WITH REPUBLIC PARKING.
2. ALL ROAD SIGNS ARE TO BE FURNISHED AND INSTALLED BY CITY OF ANN ARBOR AFTER CONSTRUCTION IS COMPLETE.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- SINGLE POST SIGN (INSTALLED BY OTHERS)
- DOUBLE POST SIGN (INSTALLED BY OTHERS)
- POLE MOUNTED SIGN (INSTALLED BY OTHERS)
- 285 - INSTALL PARKING METER
- SOLID PAVEMENT MARKING
- STOP BAR PAVEMENT MARKING
- CROSSWALK PAVEMENT MARKING
- HANDICAP PAVEMENT MARKING
- BIKE LANE PAVEMENT MARKING
- SHARROW PAVEMENT MARKING
- LIMIT OF WORK

SEE ABOVE	XXX	.	.	.		
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BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD
		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

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

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

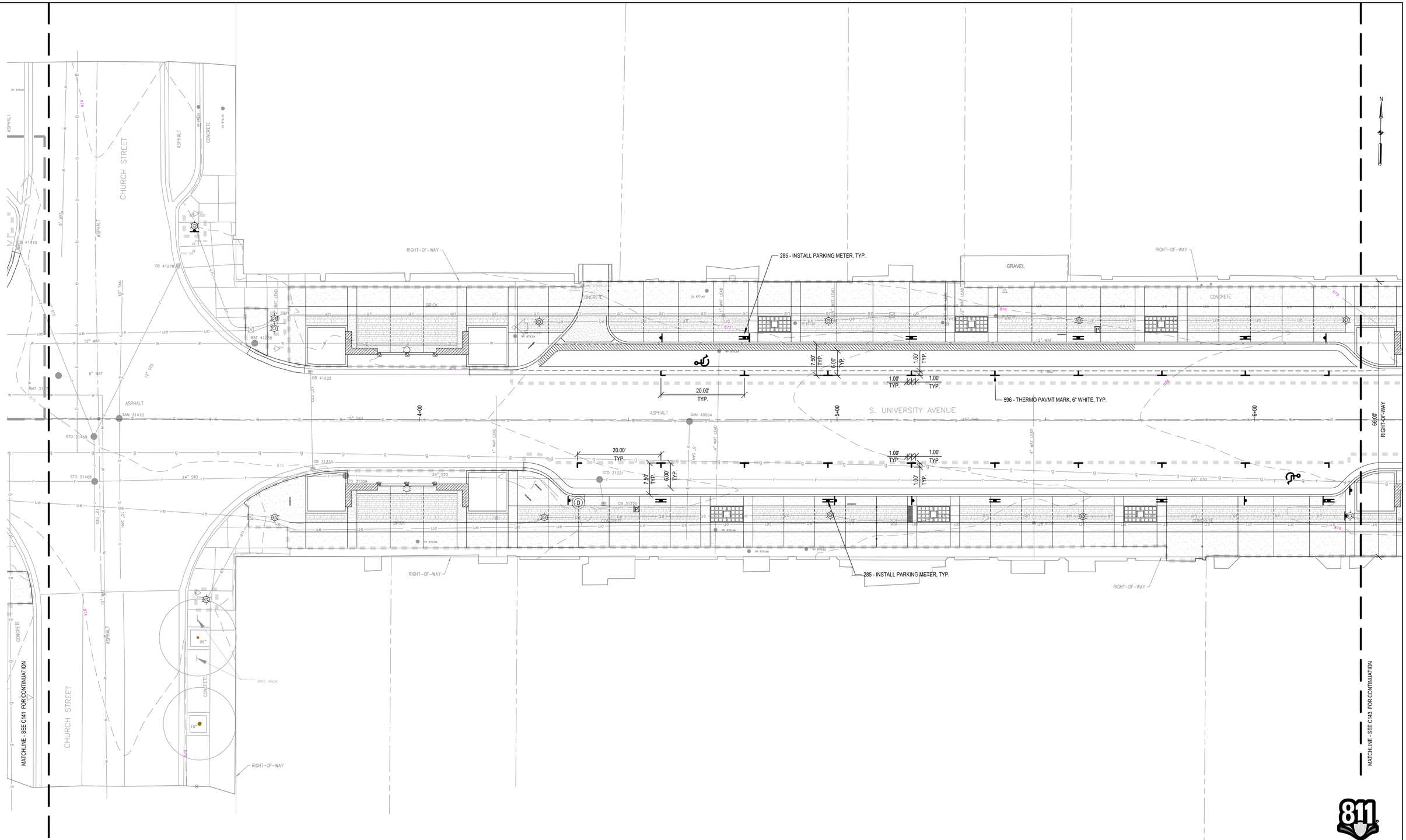
SIGNAGE AND STRIPING PLAN - WEST

APPROVED BY _____

SCALE 1"=10' | INCH 0 1

DRAWING NO. C141

SHEET NO. 29 OF 59



SHEET NOTES:

1. PARKING ID POSTS TO BE PROVIDED BY OTHERS. CONTRACTOR IS TO INSTALL PARKING ID POSTS PER PLAN LOCATIONS. PARKING ID HEADS AND PARKING PAY STATIONS TO BE FURNISHED AND INSTALLED BY OTHERS. COORDINATE INSTALLATION WITH REPUBLIC PARKING.
2. ALL ROAD SIGNS ARE TO BE FURNISHED AND INSTALLED BY CITY OF ANN ARBOR AFTER CONSTRUCTION IS COMPLETE.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- SINGLE POST SIGN (INSTALLED BY OTHERS)
- DOUBLE POST SIGN (INSTALLED BY OTHERS)
- POLE MOUNTED SIGN (INSTALLED BY OTHERS)
- 285 - INSTALL PARKING METER
- SOLID PAVEMENT MARKING
- STOP BAR PAVEMENT MARKING
- CROSSWALK PAVEMENT MARKING
- HANDICAP PAVEMENT MARKING
- BIKE LANE PAVEMENT MARKING
- SHARROW PAVEMENT MARKING
- LIMIT OF WORK

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SIGNAGE AND STRIPING PLAN - WEST CENTRAL

APPROVED BY _____

SCALE 1"=10' | INCH 0 1

DRAWING NO. C142

SHEET NO. 30 OF 59

ALIGN TO MATCH EXISTING PAVEMENT MARKINGS, TYP.

596 - THERMO PAVMT MARK, 6" WHITE, TYP.

592 - COLD PLASTIC PVMT MARK, SYMBOL WHITE TYP.

595 - THERMO PAVMT MARK, 4" YELLOW

597 - THERMO PAVMT MARK, 24" WHITE, TYP.

PAVT MRKG, THERMOPL, 12 INCH, CROSSWALK, TYP.

285 - INSTALL PARKING METER, TYP.

596 - THERMO PAVMT MARK, 6" WHITE, TYP.

592 - COLD PLASTIC PVMT MARK, SYMBOL WHITE, TYP.

EXISTING ELECTRICAL SERVICE EQUIPMENT NEAR MUNICIPAL PARKING DECK, SOUTH OF WILLARD; FIELD VERIFY

MATCHLINE - SEE C142 FOR CONTINUATION

MATCHLINE - SEE C144 FOR CONTINUATION

SHEET NOTES:

1. PARKING ID POSTS TO BE PROVIDED BY OTHERS. CONTRACTOR IS TO INSTALL PARKING ID POSTS PER PLAN LOCATIONS. PARKING ID HEADS AND PARKING PAY STATIONS TO BE FURNISHED AND INSTALLED BY OTHERS. COORDINATE INSTALLATION WITH REPUBLIC PARKING.
2. ALL ROAD SIGNS ARE TO BE FURNISHED AND INSTALLED BY CITY OF ANN ARBOR AFTER CONSTRUCTION IS COMPLETE.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- SINGLE POST SIGN (INSTALLED BY OTHERS)
- DOUBLE POST SIGN (INSTALLED BY OTHERS)
- POLE MOUNTED SIGN (INSTALLED BY OTHERS)
- 285 - INSTALL PARKING METER
- SOLID PAVEMENT MARKING
- STOP BAR PAVEMENT MARKING
- CROSSWALK PAVEMENT MARKING
- HANDICAP PAVEMENT MARKING
- BIKE LANE PAVEMENT MARKING
- SHARROW PAVEMENT MARKING
- LIMIT OF WORK

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SIGNAGE AND STRIPING PLAN - EAST CENTRAL

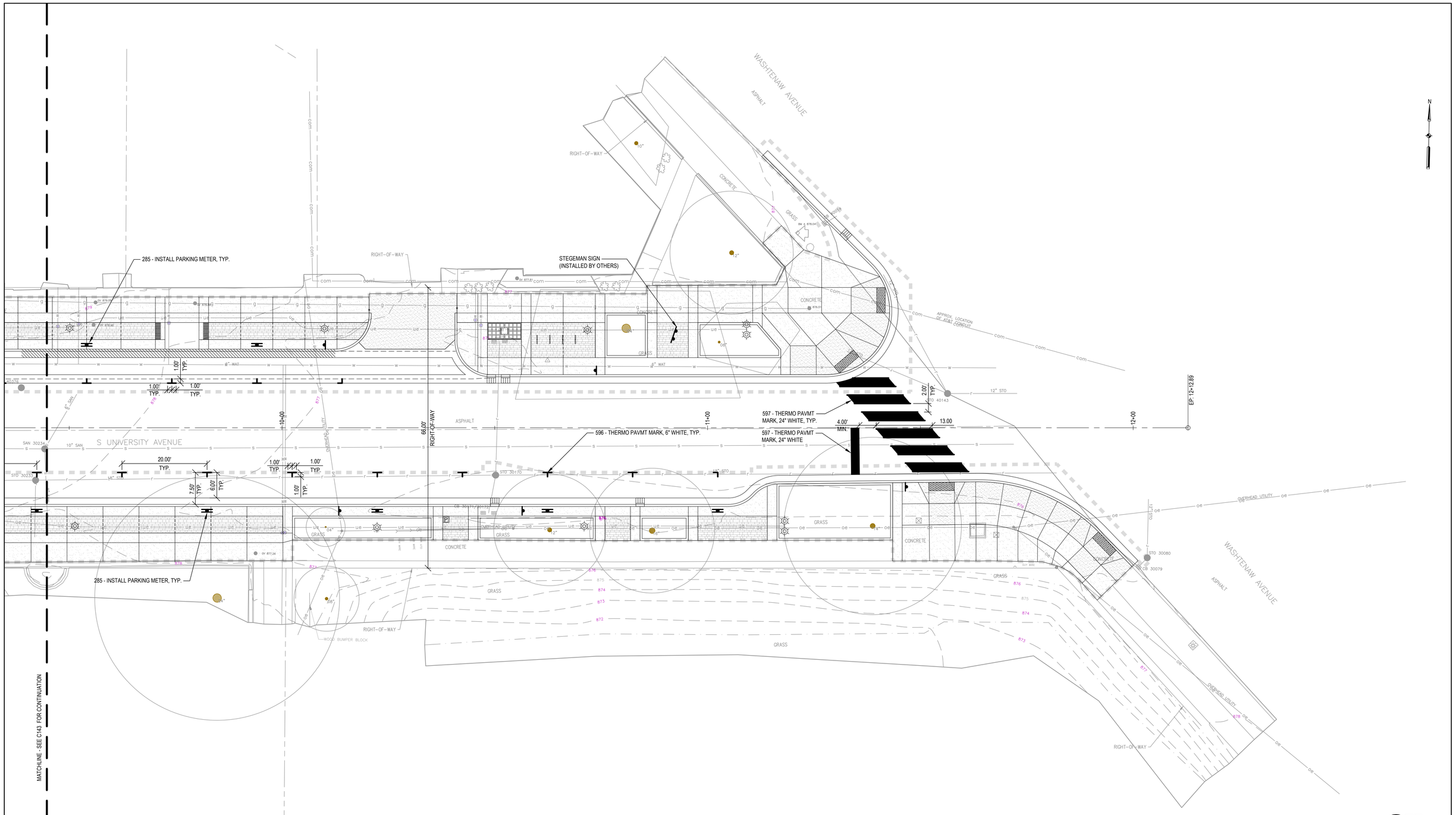
SCALE 1"=10' | INCH 0 1

DRAWING NO. C143

SHEET NO. 31 OF 59

APPROVED BY _____

SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD
		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY



SHEET NOTES:

1. PARKING ID POSTS TO BE PROVIDED BY OTHERS. CONTRACTOR IS TO INSTALL PARKING ID POSTS PER PLAN LOCATIONS. PARKING ID HEADS AND PARKING PAY STATIONS TO BE FURNISHED AND INSTALLED BY OTHERS. COORDINATE INSTALLATION WITH REPUBLIC PARKING.
2. ALL ROAD SIGNS ARE TO BE FURNISHED AND INSTALLED BY CITY OF ANN ARBOR AFTER CONSTRUCTION IS COMPLETE.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- SINGLE POST SIGN (INSTALLED BY OTHERS)
- DOUBLE POST SIGN (INSTALLED BY OTHERS)
- POLE MOUNTED SIGN (INSTALLED BY OTHERS)
- 285 - INSTALL PARKING METER
- SOLID PAVEMENT MARKING
- STOP BAR PAVEMENT MARKING
- CROSSWALK PAVEMENT MARKING
- HANDICAP PAVEMENT MARKING
- BIKE LANE PAVEMENT MARKING
- SHARROW PAVEMENT MARKING
- LIMIT OF WORK

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

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SIGNAGE AND STRIPING PLAN - EAST

SCALE 1"=10' | INCH 0 1

DRAWING NO. C144

SHEET NO. 32 OF 59

APPROVED BY _____

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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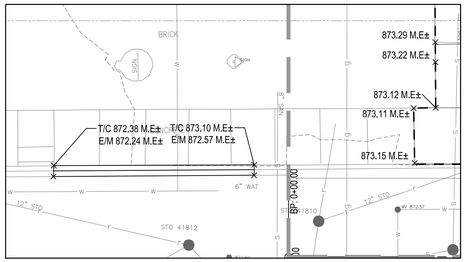
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

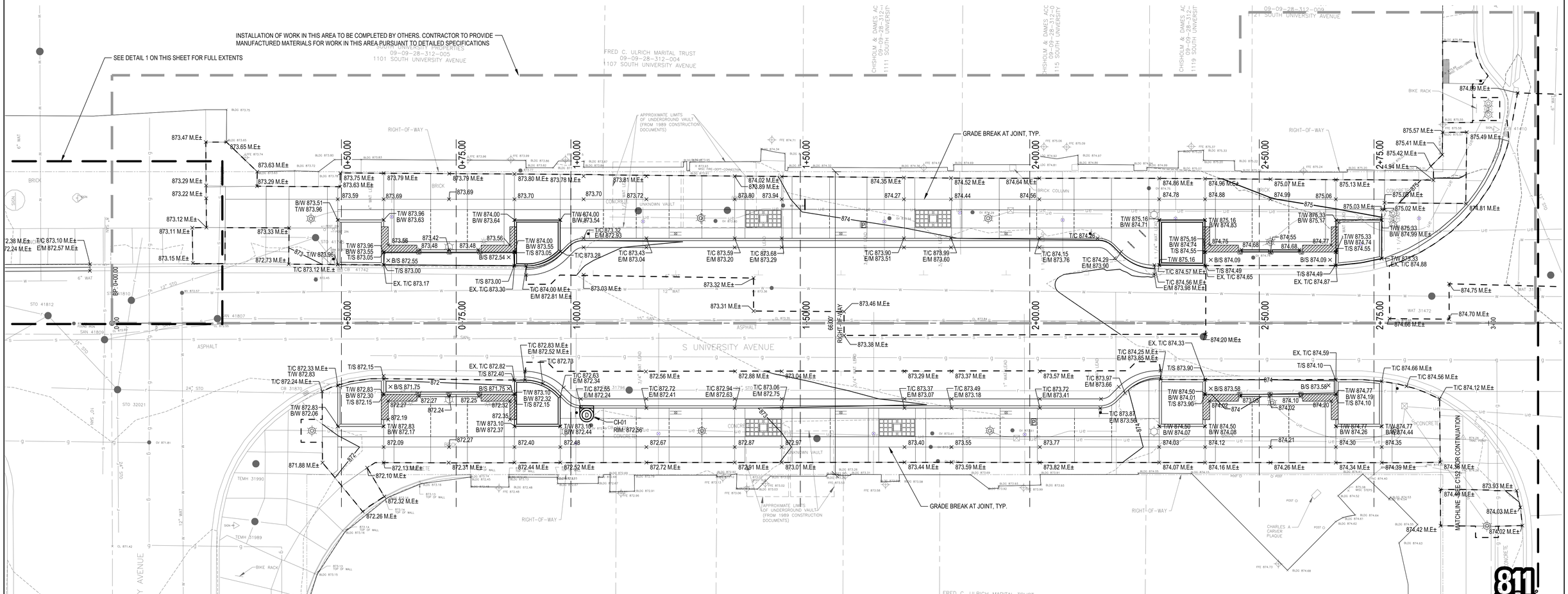
NOTES:
1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE GRID COORDINATES, SOUTH ZONE (2113), GEOID 2012A, INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE, AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY.

2. VERTICAL DATUM IS ACCORDING TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY. BENCHMARKS ARE LISTED THEREIN.



1 DETAIL 1

SCALE: 1" = 10'



SHEET NOTES:
1. ADJUST ALL UTILITY VALVES AND CURB BOXES TO FINISH GRADE ELEVATION (567 - ADJUST MONUMENT BOX OR GATE VALVE BOX).
2. PROVIDE CONCRETE COLLAR AROUND UTILITY VALVES AND CURB BOXES WHEN LOCATED IN SIDEWALK UNIT PAVERS. SEE SHEET C301 - TYPICAL TREE GRATE ENLARGEMENT & SECTION FOR MORE DETAILS.
3. ADJUST ALL EXISTING ELECTRICAL HANDHOLES TO FINISH GRADE ELEVATION. ROTATE PARALLEL AND PERPENDICULAR TO PAVER PATTERN.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING MAJOR CONTOUR	865	PROPOSED MAJOR CONTOUR	865	DRAINAGE SLOPE	2.5%	STRUCTURE RIM ELEVATION	RIM 861.50
EXISTING MINOR CONTOUR	864	PROPOSED MINOR CONTOUR	864	PROPOSED SPOT ELEVATION	861.50	TOP OF CURB ELEVATION	T/C 861.50
EXISTING SPOT ELEVATION	861.50	GRADING LIMITS		APPROX. SPOT ELEVATION: MATCH EXISTING GRADE	861.50 M.E.±	GUTTER OF CURB ELEVATION	G/C 861.50
		GRADE BREAK LINE				EDGE OF METAL ELEVATION	E/M 861.50

TOP OF SWALE ELEVATION	T/S 861.50						
BOTTOM OF SWALE ELEVATION	B/S 861.50						
TOP OF WALL ELEVATION	T/W 861.50						
BOTTOM OF WALL ELEVATION	B/W 861.50						

SEE ABOVE	XXX	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

GRADING PLAN - WEST

APPROVED BY _____

SCALE 1"=10' | INCH 0 1

DRAWING NO. C151

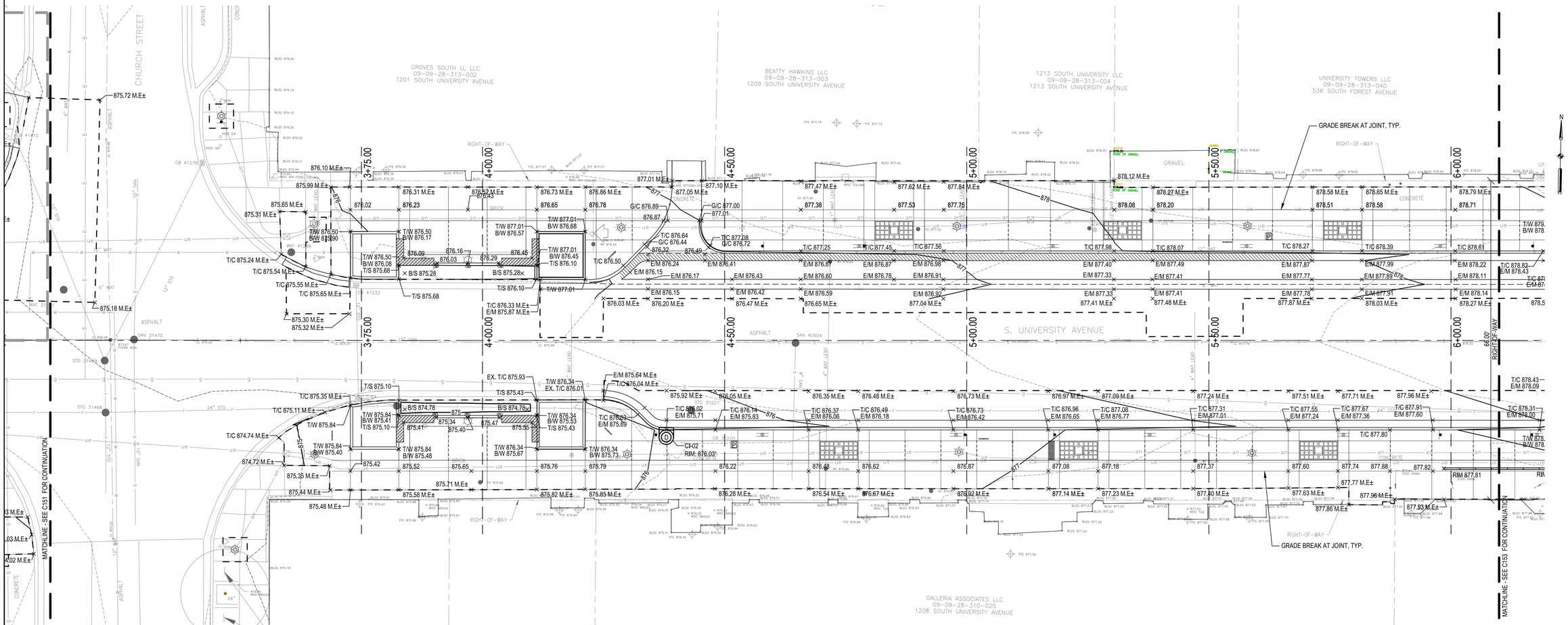
SHEET NO. 33 OF 59

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

NOTES:

1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE GRID COORDINATES, SOUTH ZONE (2113), GEOID 2012A, INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE, AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY.

2. VERTICAL DATUM IS ACCORDING TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY. BENCHMARKS ARE LISTED THEREIN.



SHEET NOTES:

1. ADJUST ALL UTILITY VALVES AND CURB BOXES TO FINISH GRADE ELEVATION. (567 - ADJUST MONUMENT BOX OR GATE VALVE BOX)
2. PROVIDE CONCRETE COLLAR AROUND UTILITY VALVES AND CURB BOXES WHEN LOCATED IN SIDEWALK UNIT PAVERS. SEE SHEET C301 - TYPICAL TREE GRATE ENLARGEMENT & SECTION FOR MORE DETAILS.
3. ADJUST ALL EXISTING ELECTRICAL HANDHOLES TO FINISH GRADE ELEVATION. ROTATE PARALLEL AND PERPENDICULAR TO PAVER PATTERN.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING MAJOR CONTOUR	865	PROPOSED MAJOR CONTOUR	865	DRAINAGE SLOPE	2.5%	STRUCTURE RIM ELEVATION	RIM 861.50
EXISTING MINOR CONTOUR	864	PROPOSED MINOR CONTOUR	864	PROPOSED SPOT ELEVATION	861.50	TOP OF CURB ELEVATION	T/C 861.50
EXISTING SPOT ELEVATION	861.50	GRADING LIMITS		APPROX. SPOT ELEVATION: MATCH EXISTING GRADE	861.50 M.E.±	GUTTER OF CURB ELEVATION	G/C 861.50
		GRADE BREAK LINE				EDGE OF METAL ELEVATION	E/M 861.50

TOP OF SWALE ELEVATION	T/S 861.50						
BOTTOM OF SWALE ELEVATION	B/S 861.50						
TOP OF WALL ELEVATION	T/W 861.50						
BOTTOM OF WALL ELEVATION	B/W 861.50						

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

GRADING PLAN - WEST CENTRAL

APPROVED BY _____

SCALE 1"=10' | INCH 0 1

DRAWING NO. C152

SHEET NO. 34 OF 59

NOTES:

1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE GRID COORDINATES, SOUTH ZONE (2113), GEOID 2012A, INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE, AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY.

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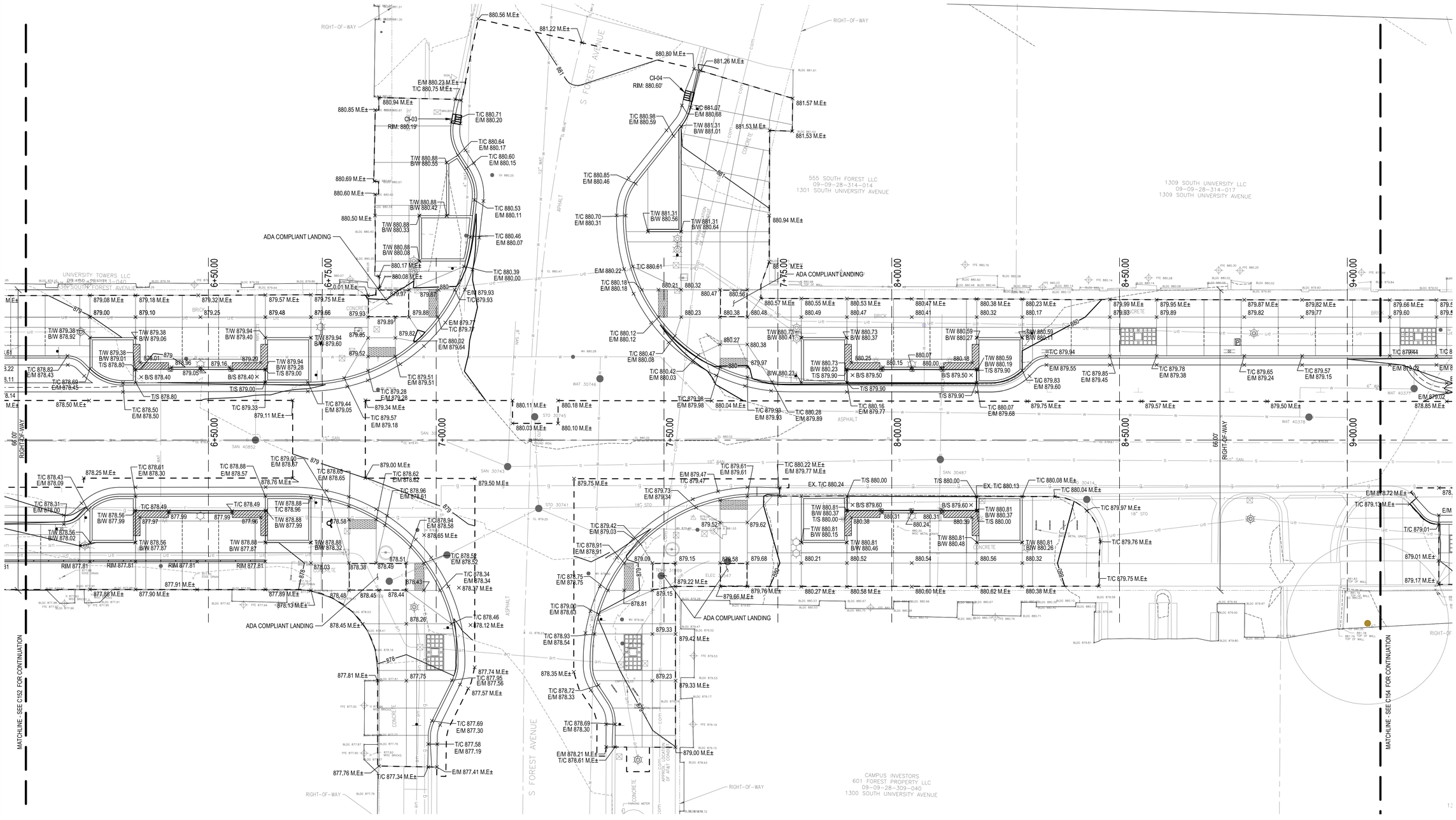

SHEET NOTES:

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2. PROVIDE CONCRETE COLLAR AROUND UTILITY VALVES AND CURB BOXES WHEN LOCATED IN SIDEWALK UNIT PAVERS. SEE SHEET C301 - TYPICAL TREE GRATE ENLARGEMENT & SECTION FOR MORE DETAILS.
3. ADJUST ALL EXISTING ELECTRICAL HANDHOLES TO FINISH GRADE ELEVATION. ROTATE PARALLEL AND PERPENDICULAR TO PAVER PATTERN.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING MAJOR CONTOUR	865	PROPOSED MAJOR CONTOUR	865	DRAINAGE SLOPE	2.5%	STRUCTURE RIM ELEVATION	RIM 861.50
EXISTING MINOR CONTOUR	864	PROPOSED MINOR CONTOUR	864	PROPOSED SPOT ELEVATION	861.50	TOP OF CURB ELEVATION	T/C 861.50
EXISTING SPOT ELEVATION	861.50	GRADING LIMITS		APPROX. SPOT ELEVATION: MATCH EXISTING GRADE	861.50 M.E.±	GUTTER OF CURB ELEVATION	G/C 861.50
		GRADE BREAK LINE				EDGE OF METAL ELEVATION	E/M 861.50

TOP OF SWALE ELEVATION	T/S 861.50						
BOTTOM OF SWALE ELEVATION	B/S 861.50						
TOP OF WALL ELEVATION	T/W 861.50						
BOTTOM OF WALL ELEVATION	B/W 861.50						

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

Know what's below. Call before you dig.

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

GRADING PLAN - EAST CENTRAL

APPROVED BY _____

SCALE 1"=10'

INCH 0 1

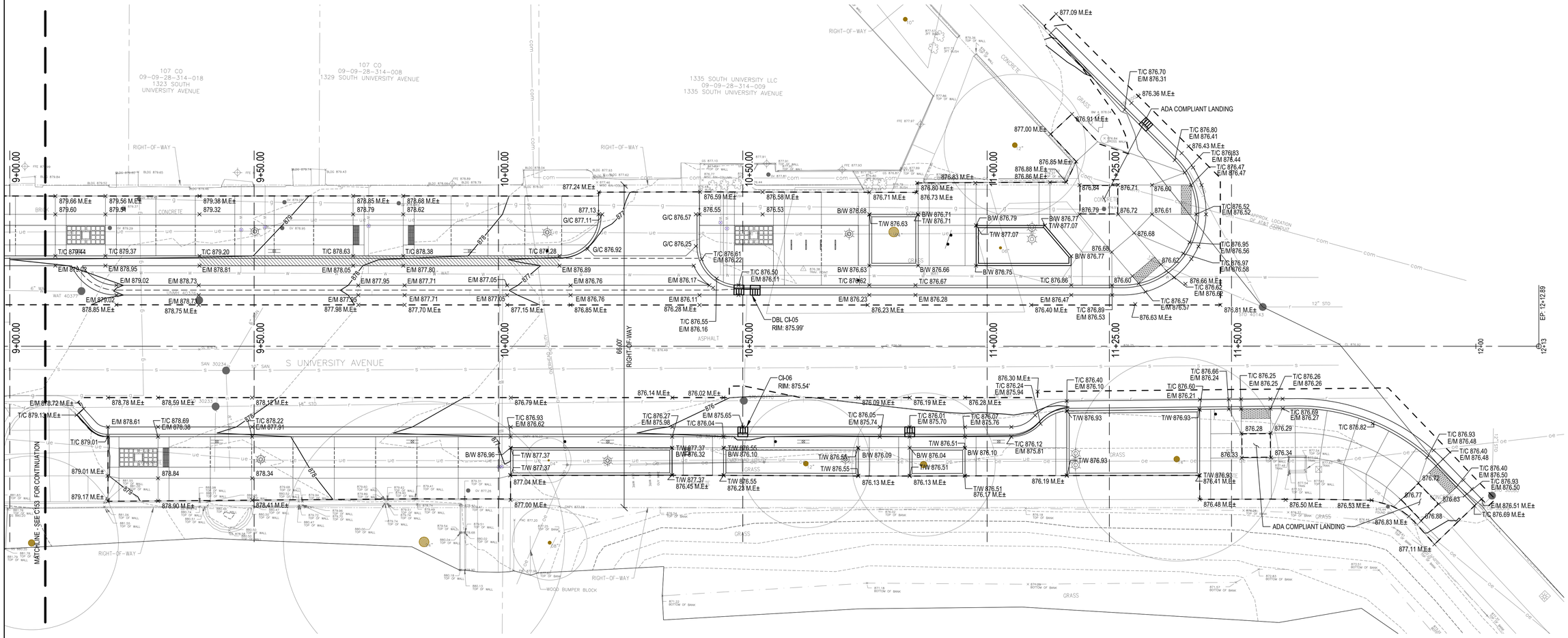
DRAWING NO. C153

SHEET NO. 35 OF 59

NOTES:

1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE GRID COORDINATES, SOUTH ZONE (2113), GEOID 2012A, INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE, AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY.

2. VERTICAL DATUM IS ACCORDING TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY. BENCHMARKS ARE LISTED THEREIN.



SHEET NOTES:

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2. PROVIDE CONCRETE COLLAR AROUND UTILITY VALVES AND CURB BOXES WHEN LOCATED IN SIDEWALK UNIT PAVERS. SEE SHEET C301 - TYPICAL TREE GRATE ENLARGEMENT & SECTION FOR MORE DETAILS.
3. ADJUST ALL EXISTING ELECTRICAL HANDHOLES TO FINISH GRADE ELEVATION. ROTATE PARALLEL AND PERPENDICULAR TO PAVER PATTERN.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING MAJOR CONTOUR	865	PROPOSED MAJOR CONTOUR	865	DRAINAGE SLOPE	2.5%	STRUCTURE RIM ELEVATION	RIM 861.50	TOP OF SWALE ELEVATION	T/S 861.50
EXISTING MINOR CONTOUR	864	PROPOSED MINOR CONTOUR	864	PROPOSED SPOT ELEVATION	861.50	TOP OF CURB ELEVATION	T/C 861.50	BOTTOM OF SWALE ELEVATION	B/S 861.50
EXISTING SPOT ELEVATION	861.50	GRADING LIMITS		APPROX. SPOT ELEVATION: MATCH EXISTING GRADE	861.50 M.E.±	GUTTER OF CURB ELEVATION	G/C 861.50	TOP OF WALL ELEVATION	T/W 861.50
		GRADE BREAK LINE				EDGE OF METAL ELEVATION	E/M 861.50	BOTTOM OF WALL ELEVATION	B/W 861.50
								SECTION EXISTING GRADE	
								SECTION PROPOSED GRADE	

Know what's below. Call before you dig.

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

GRADING PLAN - EAST

APPROVED BY _____

SCALE 1"= 10'

INCH 0 1

DRAWING NO. C154

SHEET NO. 36 OF 59

NOTES:

1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE GRID COORDINATES, SOUTH ZONE (2113), GEOID 2012A, INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE, AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY.

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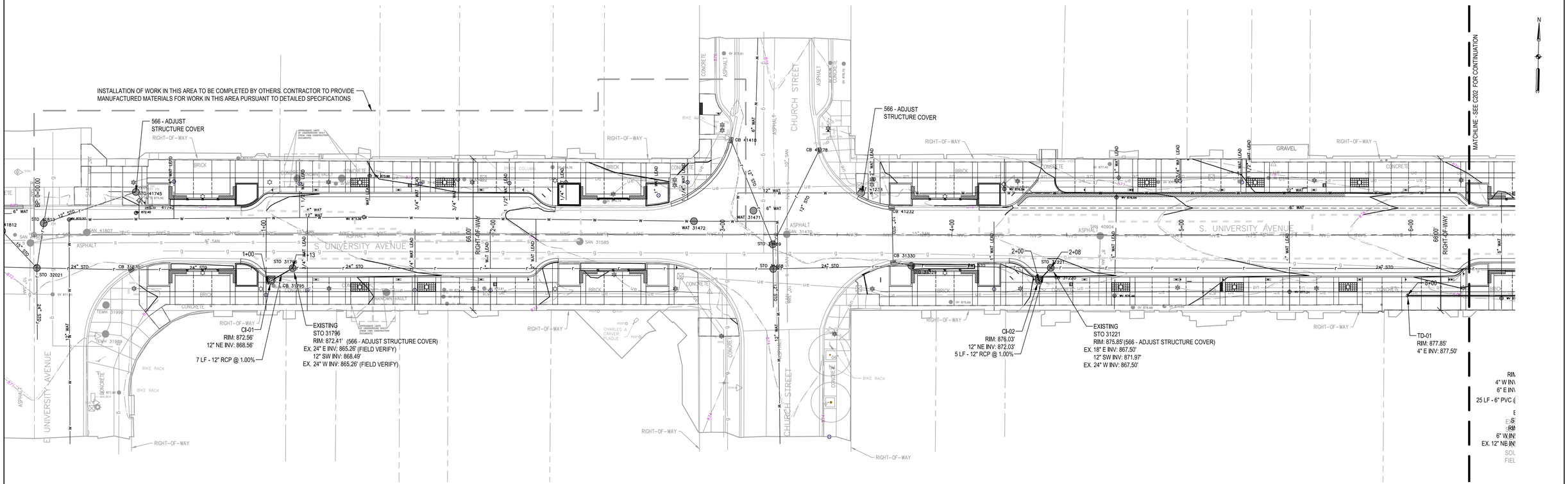
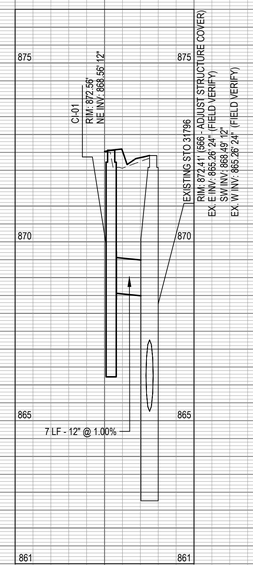
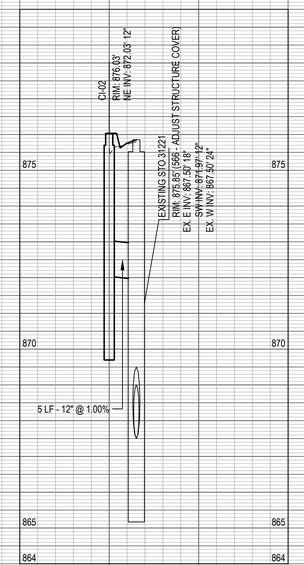


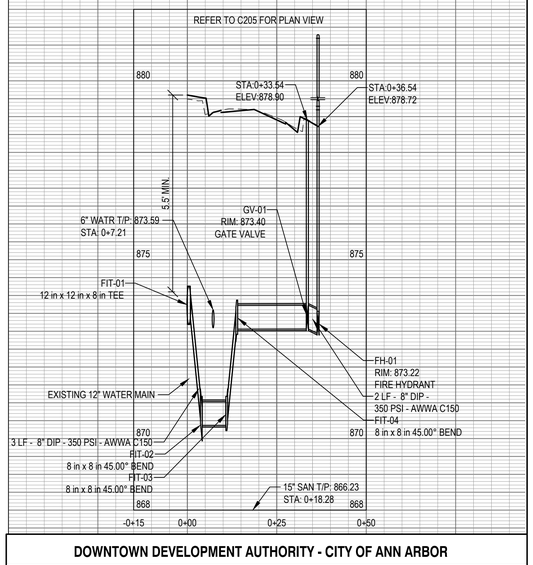
CI-01 TO EX. STO 31796 PROFILE



CI-02 TO EX STO 31221 PROFILE



HYDRANT RELOCATION PROFILE



LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING STORM	EXISTING CURB INLET	EXISTING SANITARY MANHOLE	STORM PIPE	OFFSET CURB INLET	FINISH GRADE
EXISTING WATER	EXISTING STORM MANHOLE	GV 878.68 EXISTING GAS VALVE	CURB INLET	WATER LINE	EXISTING GRADE
EXISTING SANITARY	WV 876.46 EXISTING WATER VALVE		STORM MANHOLE	HYDRANT	
EXISTING GAS	EXISTING HYDRANT		TRENCH DRAIN		

SEE ABOVE	XXX	.	.	.		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

UTILITY PLAN & PROFILES - WEST

APPROVED BY _____

SCALE
HOR. 1"=20'
VERT. 1"=2'

INCH
0 1

DRAWING NO.
C201

SHEET NO. 37 OF 59

NOTES:

1. HORIZONTAL DATUM IS ACCORDING TO MICHIGAN STATE PLANE GRID COORDINATES, SOUTH ZONE (2113), GEOID 2012A, INTERNATIONAL FEET AS LINEAR UNIT OF MEASURE, AS ESTABLISHED BY FISHBECK, THOMPSON, CARR & HUBER, INC. DURING THE CREATION OF THE EXISTING CONDITIONS TOPOGRAPHIC SURVEY.

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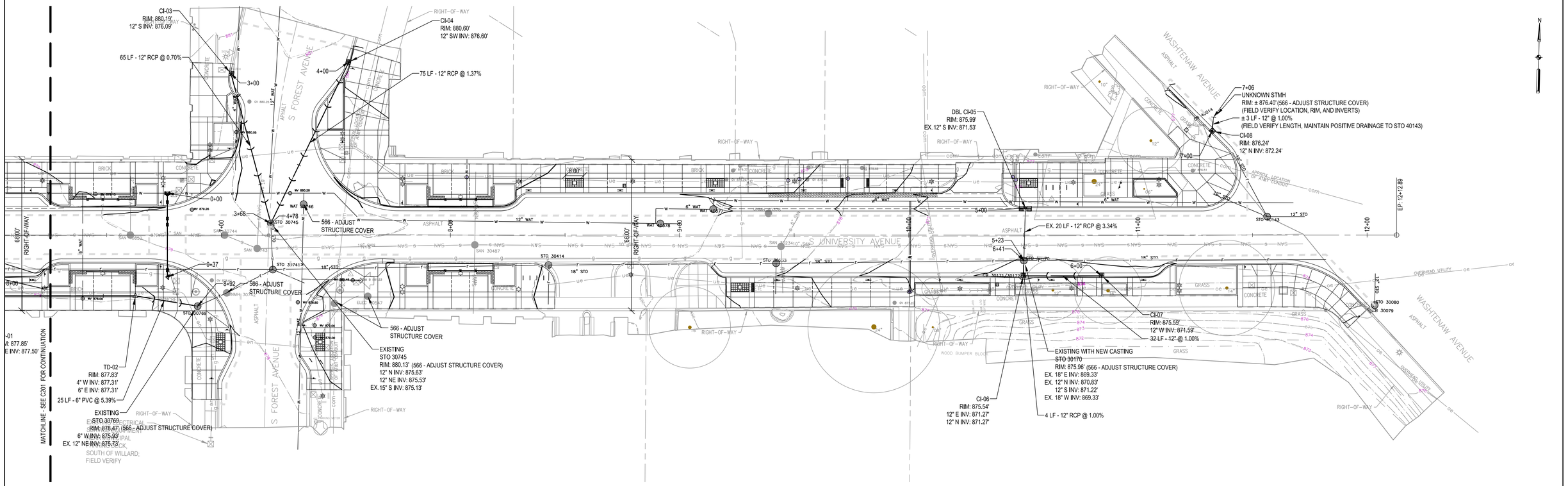
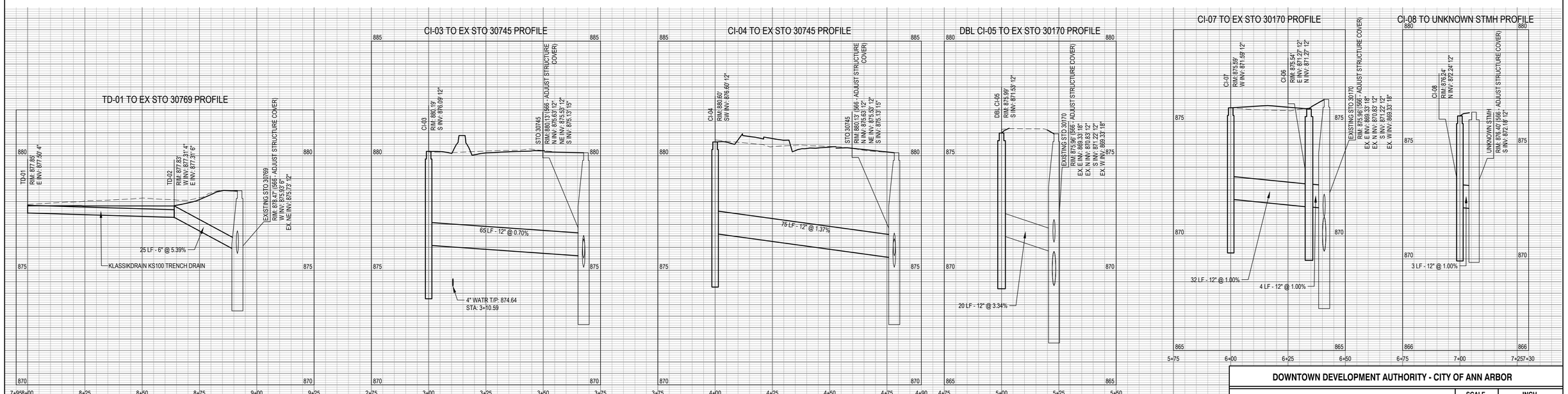




LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING STORM; EXISTING WATER; EXISTING SANITARY; EXISTING GAS; EXISTING CURB INLET; EXISTING STORM MANHOLE; WV 876.46 EXISTING WATER VALVE; EXISTING HYDRANT; GV 878.68 EXISTING SANITARY MANHOLE; EXISTING GAS VALVE; STORM PIPE; CURB INLET; STORM MANHOLE; TRENCH DRAIN; OFFSET CURB INLET; WATER LINE; HYDRANT; FINISH GRADE; EXISTING GRADE

SEE ABOVE	XXX	.	.	.		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

UTILITY PLAN & PROFILES - EAST

SCALE: HOR. 1"=20' VERT. 1"=2' | INCH 0 1

DRAWING NO. C202

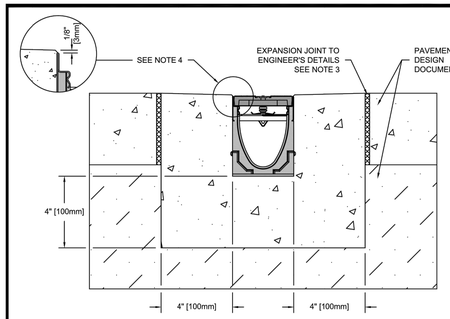
APPROVED BY _____

SHEET NO. 38 OF 59

STRUCTURE TABLE			
STRUCTURE NAME:	STRUCTURE DESCRIPTION:	DETAILS:	CASTING:
CI-01	2' DIA. PRECAST INFILTRATION INLET	RIM: 872.56 12" INV: 868.56	EJIW 7500 CB CI
CI-02	2' DIA. PRECAST INFILTRATION INLET	RIM: 876.03 12" INV: 872.03	EJIW 7500 CB CI
CI-03	2' DIA. PRECAST INFILTRATION INLET	RIM: 880.19 12" INV: 876.09	EJIW 7045 CB CI
CI-04	2' DIA. PRECAST INFILTRATION INLET	RIM: 880.60 12" INV: 876.60	EJIW 7045 CB CI
CI-06	4' DIA. PRECAST INFILTRATION INLET	RIM: 875.54 12" INV: 871.27 12" INV: 871.27	EJIW 7045 CB CI
CI-07	2' DIA. PRECAST INFILTRATION INLET	RIM: 875.59 12" INV: 871.59	EJIW 7045 CB CI
CI-08	2' DIA. PRECAST INFILTRATION INLET	RIM: 876.24 12" INV: 872.24	EJIW 7045 CB CI
DBL CI-05	24" x 64" DOUBLE INLET	RIM: 875.99 12" INV: 871.53	(2) NEENAH R-3249F
STO 30170	CASTING REPLACEMENT ON EXISTING STMH	RIM: 875.96 18" INV: 869.33 12" INV: 870.83 12" INV: 871.22 18" INV: 869.33	EJIW 1040M
TD-01	4" TRENCH DRAIN KS100 KS-1	RIM: 877.85 4" INV: 877.50	TYPE 447D STAINLESS LONGITUDINAL
TD-02	4" TRENCH DRAIN KS100 KS-18	RIM: 877.83 4" INV: 877.31 6" INV: 877.31	TYPE 447D STAINLESS LONGITUDINAL

1 CASTING SCHEDULE

N.T.S.



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

KS100 KLASSIKDRAIN - LOAD CLASS B

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE KS100 CHANNEL SYSTEM WITH STAINLESS STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN STAINLESS STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 4" (100mm) NOMINAL INTERNAL WIDTH WITH A 5.1" (130mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'QUICKLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

KS1-B-ECP
DATE: 08/25/15

KS100 - KLASSIKDRAIN - LOAD CLASS: B
Exposed Concrete Pavement
INSTALLATION DRAWING - ACO DRAIN

ACO Polymer Products, Inc.

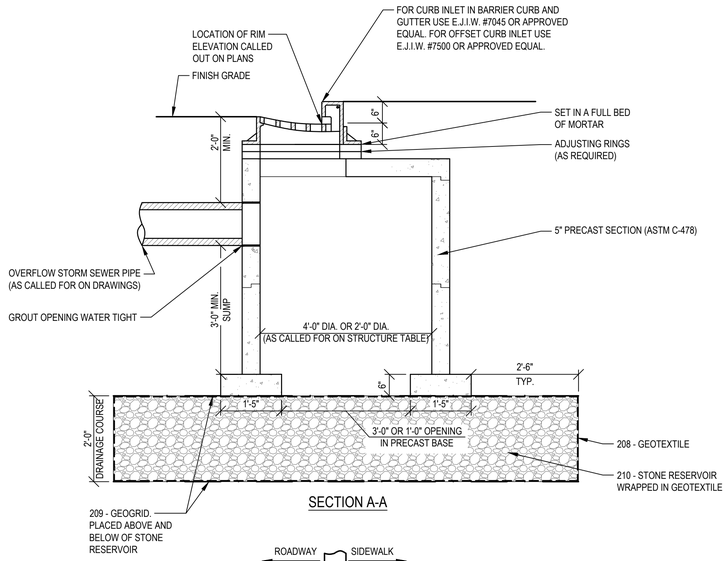
825 W. Beechcraft St. Casa Grande, AZ 85122 Tel: 520-421-9988 Fax: 520-421-9899	9470 Pinecone Dr. Mentor, OH 44060 Tel: 440-639-7230 Fax: 440-639-7235	4211 Pleasant Rd. Fort Mill, SC 29708 Tel: 440-639-7230 Fax: 803-802-1063

Arizona Tel: 888-490-9552 e-mail: sales@acousa.com Ohio Tel: 800-543-4764 www.acousa.com South Carolina Tel: 800-543-4764

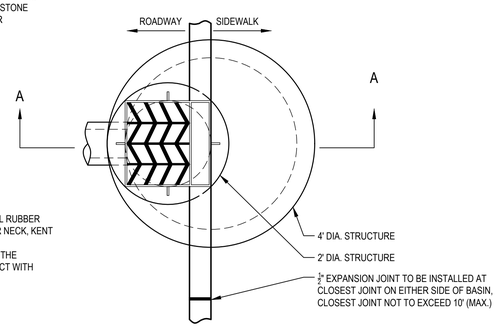
NOTES:
1. DETAIL IS PROVIDED FOR INFORMATION PURPOSES ONLY. REFER TO SPECIFICATIONS FOR PRODUCT REQUIRED. INSTALL IN CONCRETE ENCASEMENT, WHERE INDICATED ON PLANS, AND IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATION.

2 TRENCH DRAIN DETAIL

N.T.S.



SECTION A-A

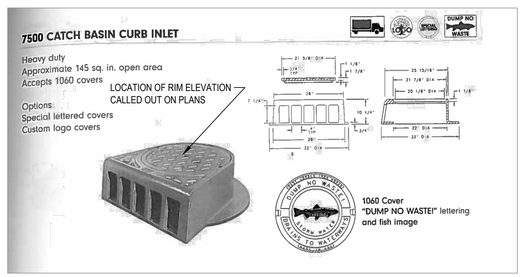


PLAN AND ORIENTATION

NOTES:
1. ALL JOINTS BETWEEN SECTIONS SHALL BE "O" RING, BUTYL RUBBER GASKETS CONFORMING TO ASTM C-443, SUCH AS: RUBBER NECK, KENT SEAL, EASY STICK, FORSHEDA, OR APPROVED EQUAL.
2. ROTATE 4' DIA. STRUCTURE SUCH THAT THE MAJORITY OF THE STRUCTURE IS BENEATH THE SIDEWALK TO AVOID CONFLICT WITH EXISTING SEWERS LOCATED IN ROAD.

3 INFILTRATION INLET

N.T.S.



4 EJIW 7500 CATCH BASIN CURB INLET CASTING

N.T.S.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

UTILITY DETAILS

APPROVED BY _____

SCALE INCH 0 1

DRAWING NO. C203

SHEET NO. 39 OF 59

NOTES

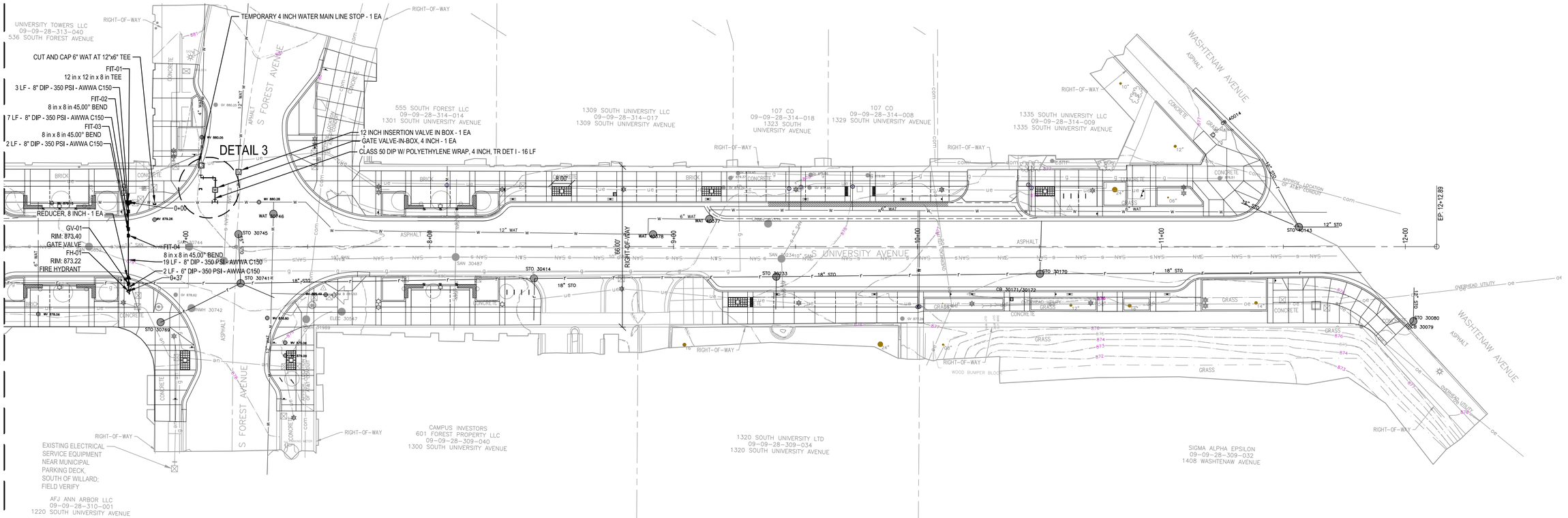
1. STATION REFERENCES FOR WATER MAIN FITTINGS AND APPURTENANCES ARE ALONG LENGTH OF PROPOSED WATER MAIN.
2. ALL MATERIALS, EQUIPMENT AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT CITY OF ANN ARBOR STANDARD SPECIFICATIONS AND DETAILS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.
3. DUCTILE IRON PIPE SHALL BE THICKNESS CLASS 52 WITH POLYETHYLENE WRAP AND PUSH-ON JOINTS, UNLESS OTHERWISE NOTED.
4. MECHANICAL JOINTS MUST MEET AWWA SPECIFICATION C111 AND SHALL INCLUDE PLAIN RUBBER MECHANICAL JOINT GASKETS. PLEASE QUOTE ONLY: AMERICAN PIPE "FAST GRIP" GASKET SYSTEM, GRIFFIN PIPE "FIELD LOK 350" GASKET SYSTEM, OR U.S. PIPE "FIELD LOK 350" GASKET SYSTEM.
5. ALL HORIZONTAL BENDS, TEES AND FITTINGS SHALL INCLUDE THRUST BLOCKS. RESTRAINED JOINTS ARE REQUIRED FOR VERTICAL BENDS. (TR-FLEX RESTRAINED JOINT PIPE BY U.S. PIPE, LOK-RING JOINT PIPE BY AMERICAN DUCTILE IRON PIPE, OR APPROVED EQUAL). RESTRAINED JOINT GASKET SYSTEMS MAY ALSO BE USED (FIELD-LOK 350 BY U.S. PIPE, FAST-GRIP BY AMERICAN DUCTILE IRON PIPE, OR APPROVED EQUAL).
6. CONTRACTOR TO FOLLOW CITY REQUIREMENTS FOR WATER MAIN TESTING. WATER MAIN PRESSURE/BACTERIA TESTING MATERIAL AND FEES WILL BE PAID BY THE CONTRACTOR.
7. ALL WATER MAIN TO HAVE A TYPICAL 5.5' COVER, MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE FOR STORM AND SANITARY CROSSINGS AND A MINIMUM OF 12" VERTICAL CLEARANCE WITH ALL OTHER UTILITIES.
8. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL UTILIZE STANDARD PIPE DEFLECTIONS FOR FOLLOWING THE PROPOSED ALIGNMENT.
9. NEW FIRE HYDRANTS SHALL BE EJW 5BR-250 WITH 4" STORZ QUICK CONNECT. VALVE SHALL BE EJIW FLOWMASTER RESILIENT SEATED GATE VALVES.
10. FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL NECESSARY THRUST BLOCKS, BENDS, PIPE AND FITTINGS, INCLUDING ADJUSTMENT OF THE STOP BOX. FIRE HYDRANT ASSEMBLY INCLUDES 6" STOP BOX LOCATED 3' FROM HYDRANT.
11. LINE STOPS SHALL BE INSTALLED WHERE EXISTING WATER MAINS CANNOT BE SUFFICIENTLY ISOLATED TO COMPLETE THE WORK.
12. CONNECTIONS TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE NEW WATER MAIN HAS BEEN SUCCESSFULLY PRESSURE TESTED AND HAS PASSED BACTERIOLOGICAL TESTING. FINAL CONNECTIONS SHALL BE COORDINATED WITH THE ENGINEER. THE CONTRACTOR SHALL PERFORM ALL WATER SYSTEM SHUT DOWNS AFTER APPROPRIATE NOTIFICATION TO THOSE AFFECTED.
13. ALL HYDRANTS REMOVED BY THE CONTRACTOR SHALL BE DELIVERED TO THE CITY OF ANN ARBOR FIELD OPERATIONS FACILITY LOCATED AT 4251 STONE SCHOOL ROAD, ANN ARBOR, MI 48108 BY THE CONTRACTOR AND WILL BECOME THE PROPERTY OF THE CITY OF ANN ARBOR.
14. ALL WATER MAIN TRENCH BACKFILL SHALL BE MDOT CLASS II MATERIAL.
15. ABANDONMENT OF WATER STRUCTURES SHALL FOLLOW CITY OF ANN ARBOR STANDARDS.
16. FITTINGS OTHER THAN THOSE SPECIFICALLY LISTED AS SEPARATE PAY ITEMS, BLOW-OFF ASSEMBLIES, CONCRETE THRUST BLOCKS, SOLID SLEEVES AND MECHANICAL PLUGS, WHICH ARE REQUIRED TO COMPLETE THE WORK, SHALL BE INCLUDED IN THE PRICE OF THE WATER MAIN.

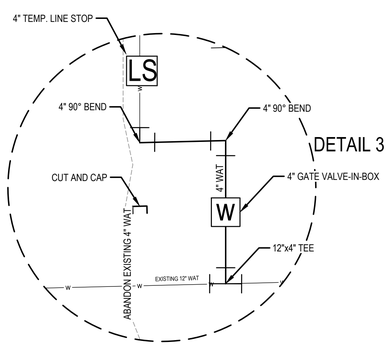
SEQUENCING NOTES

1. CONTRACTOR SHALL COORDINATE THE RECONNECTION OF EXISTING WATER SERVICES CONNECTED TO THE 6" WATER MAIN OVER TO THE EXISTING 12" WATER MAIN. THE CONTRACTOR SHALL EXCAVATE AND LOCATED EXISTING WATER SERVICES TO ALL PROPERTIES SERVICED BY THE 6" WATER MAIN IN THE APPROXIMATE LOCATIONS AS SHOWN. COORDINATE WITH THE CITY OF ANN ARBOR PUBLIC WORKS UNIT TO INSTALL THE NEW SERVICE CONNECTIONS. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN "EXCAVATE AND BACKFILL FOR WATER SERVICE TAP AND LEAD." CONTRACTOR SHALL STAGE THE WORK SUCH THAT WATER SERVICE IS RESTORED BY THE END OF THE WORKING DAY. NIGHT WORK MAY BE REQUIRED TO MINIMIZE IMPACT TO SERVED BUSINESSES.
2. CONTRACTOR SHALL INSTALL 12" INSERTION VALVES AT CHURCH STREET AND SOUTH FOREST.
3. CONTRACTOR SHALL COORDINATE WITH THE CITY OF ANN ARBOR TO PERFORM TEST SHUT DOWNS OF THE 6" WATER MAIN TO VERIFY LINE STOP LOCATIONS.
4. AS-NESSARY THE CONTRACTOR SHALL INSTALL 6" LINE STOPS AT EAST UNIVERSITY AND CHURCH STREET AND A 4" LINE STOP AT SOUTH FOREST.
5. CONTRACTOR SHALL CUT AND CAP THE 6" WATER MAIN AT THE SOUTH FOREST INTERCONNECT AND INSTALL THE 4" CONNECTION TO THE 12" WATER MAIN AT SOUTH FOREST.
6. CONTRACTOR SHALL RECONNECT THE 6" WATER MAIN ON CHURCH STREET TO THE 12" WATER MAIN.
7. CONTRACTOR SHALL CUT AND CAP 6" WATER MAIN ON EAST UNIVERSITY.
8. CONTRACTOR SHALL PROPERLY ABANDON ALL REMAINING APPURTENANCES ON THE 6" WATER MAIN.

ESTIMATED WATER MAIN REMOVAL QUANTITIES		
QUANTITY	UNIT	DESCRIPTION
98	LF	WATER MAIN PIPE ABANDONMENT
1	EA	GATE VALVE-IN-BOX ABANDONMENT

ESTIMATED WATER MAIN CONSTRUCTION QUANTITIES		
QUANTITY	UNIT	DESCRIPTION
30	LF	CLASS 50 DIP W/POLYETHYLENE WRAP, 8 INCH, TR DET I
16	LF	CLASS 50 DIP W/POLYETHYLENE WRAP, 4 INCH, TR DET I
4	EA	BENDS & REDUCERS, 8 INCH
2	EA	BENDS & REDUCERS, 4 INCH
2	EA	TEES & CROSSES, 12 INCH
1	EA	FIRE HYDRANT ASSEMBLY
1	EA	GATE VALVE-IN-BOX, 4 INCH
1	EA	TEMPORARY 4 INCH WATER MAIN LINE STOP
1	EA	12 INCH INSERTION VALVE IN BOX





PROPOSED WATER MAIN APPURTENANCES		
TYPE	OFFSET	STATION
FIRE HYDRANT ASSEMBLY	18.27 R	6+76.51
REDUCER, 8 INCH X 6 INCH	12.45 R	6+76.51
45° VERTICAL BEND, 8 INCH	4.62 L	6+76.51
45° VERTICAL BEND, 8 INCH	7.01 L	6+76.51
45° VERTICAL BEND, 8 INCH	14.41 L	6+76.51
TEE, 12 INCH X 8 INCH	18.27	6+76.51
CAP, 6 INCH	17.27 L	6+87.20
CAP, 4 INCH	23.84 L	7+6.08
90° HORIZONTAL BEND, 4 INCH	28.28 L	7+6.17
TEMPORARY 4 INCH WATER MAIN LINE STOP	33.29 L	7+6.32
90° HORIZONTAL BEND, 4 INCH	28.28 L	7+12.17
GATE VALVE-IN-BOX, 4 INCH	23.28 L	7+12.07
TEE, 12 INCH X 4 INCH	18.28 L	7+11.94
12 INCH INSERTION VALVE IN BOX	30.56 L	7+21.66

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING STORM · EXISTING WATER · EXISTING SANITARY · EXISTING GAS · EXISTING CURB INLET · EXISTING STORM MANHOLE · WV 876.46 · EXISTING WATER VALVE · EXISTING HYDRANT · EXISTING SANITARY MANHOLE · GV 878.68 · EXISTING GAS VALVE · STORM PIPE · CURB INLET · STORM MANHOLE · TRENCH DRAIN · OFFSET CURB INLET · WATER LINE · HYDRANT · GATE VALVE & WELL · TAPPING SLEEVE · ABANDON WATER LINE · FINISH GRADE · EXISTING GRADE · REMOVE WATER MAIN · LINE STOP · INSERTION VALVE · GATE VALVE & BOX

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

WATER MAIN PLAN - EAST

APPROVED BY _____

SCALE 1" = 20' · INCH 0 1

DRAWING NO. C205

SHEET NO. 41 OF 59

NOTES

1. STATION REFERENCES FOR WATER MAIN FITTINGS AND APPURTENANCES ARE ALONG LENGTH OF PROPOSED WATER MAIN.
2. ALL MATERIALS, EQUIPMENT AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT CITY OF ANN ARBOR STANDARD SPECIFICATIONS AND DETAILS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR FROM THIS REQUIREMENT.
3. DUCTILE IRON PIPE SHALL BE THICKNESS CLASS 52 WITH POLYETHYLENE WRAP AND PUSH-ON JOINTS, UNLESS OTHERWISE NOTED.
4. MECHANICAL JOINTS MUST MEET AWWA SPECIFICATION C111 AND SHALL INCLUDE PLAIN RUBBER MECHANICAL JOINT GASKETS. PLEASE QUOTE ONLY: AMERICAN PIPE "FAST GRIP" GASKET SYSTEM, GRIFFIN PIPE "FIELD LOK 350" GASKET SYSTEM, OR U.S. PIPE "FIELD LOK 350" GASKET SYSTEM.
5. ALL HORIZONTAL BENDS, TEES AND FITTINGS SHALL INCLUDE THRUST BLOCKS. RESTRAINED JOINTS ARE REQUIRED FOR VERTICAL BENDS. (TR-FLEX RESTRAINED JOINT PIPE BY U.S. PIPE, LOK-RING JOINT PIPE BY AMERICAN DUCTILE IRON PIPE, OR APPROVED EQUAL). RESTRAINED JOINT GASKET SYSTEMS MAY ALSO BE USED (FIELD-LOK 350 BY U.S. PIPE, FAST-GRIP BY AMERICAN DUCTILE IRON PIPE, OR APPROVED EQUAL).
6. CONTRACTOR TO FOLLOW CITY REQUIREMENTS FOR WATER MAIN TESTING. WATER MAIN PRESSURE/BACTERIA TESTING MATERIAL AND FEES WILL BE PAID BY THE CONTRACTOR.
7. ALL WATER MAIN TO HAVE A TYPICAL 5.5' COVER, MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE FOR STORM AND SANITARY CROSSINGS AND A MINIMUM OF 12" VERTICAL CLEARANCE WITH ALL OTHER UTILITIES.
8. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL UTILIZE STANDARD PIPE DEFLECTIONS FOR FOLLOWING THE PROPOSED ALIGNMENT.
9. NEW FIRE HYDRANTS SHALL BE EJW 5BR-250 WITH 4" STORZ QUICK CONNECT. VALVE SHALL BE EJIW FLOWMASTER RESILIENT SEATED GATE VALVES.
10. FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL NECESSARY THRUST BLOCKS, BENDS, PIPE AND FITTINGS, INCLUDING ADJUSTMENT OF THE STOP BOX. FIRE HYDRANT ASSEMBLY INCLUDES 6" STOP BOX LOCATED 3' FROM HYDRANT.
11. LINE STOPS SHALL BE INSTALLED WHERE EXISTING WATER MAINS CANNOT BE SUFFICIENTLY ISOLATED TO COMPLETE THE WORK.
12. CONNECTIONS TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL THE NEW WATER MAIN HAS BEEN SUCCESSFULLY PRESSURE TESTED AND HAS PASSED BACTERIOLOGICAL TESTING. FINAL CONNECTIONS SHALL BE COORDINATED WITH THE ENGINEER. THE CONTRACTOR SHALL PERFORM ALL WATER SYSTEM SHUT DOWNS AFTER APPROPRIATE NOTIFICATION TO THOSE AFFECTED.
13. ALL HYDRANTS REMOVED BY THE CONTRACTOR SHALL BE DELIVERED TO THE CITY OF ANN ARBOR FIELD OPERATIONS FACILITY LOCATED AT 4251 STONE SCHOOL ROAD, ANN ARBOR, MI 48108 BY THE CONTRACTOR AND WILL BECOME THE PROPERTY OF THE CITY OF ANN ARBOR.
14. ALL WATER MAIN TRENCH BACKFILL SHALL BE MDOT CLASS II MATERIAL.
15. ABANDONMENT OF WATER STRUCTURES SHALL FOLLOW CITY OF ANN ARBOR STANDARDS.
16. FITTINGS OTHER THAN THOSE SPECIFICALLY LISTED AS SEPARATE PAY ITEMS, BLOW-OFF ASSEMBLIES, CONCRETE THRUST BLOCKS, SOLID SLEEVES AND MECHANICAL PLUGS, WHICH ARE REQUIRED TO COMPLETE THE WORK, SHALL BE INCLUDED IN THE PRICE OF THE WATER MAIN.

SEQUENCING NOTES

1. CONTRACTOR SHALL COORDINATE THE RECONNECTION OF EXISTING WATER SERVICES CONNECTED TO THE 6" WATER MAIN OVER TO THE EXISTING 12" WATER MAIN. THE CONTRACTOR SHALL EXCAVATE AND LOCATED EXISTING WATER SERVICES TO ALL PROPERTIES SERVICED BY THE 6" WATER MAIN IN THE APPROXIMATE LOCATIONS AS SHOWN. COORDINATE WITH THE CITY OF ANN ARBOR PUBLIC WORKS UNIT TO INSTALL THE NEW SERVICE CONNECTIONS. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN "EXCAVATE AND BACKFILL FOR WATER SERVICE TAP AND LEAD." CONTRACTOR SHALL STAGE THE WORK SUCH THAT WATER SERVICE IS RESTORED BY THE END OF THE WORKING DAY. NIGHT WORK MAY BE REQUIRED TO MINIMIZE IMPACT TO SERVED BUSINESSES.
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3. CONTRACTOR SHALL COORDINATE WITH THE CITY OF ANN ARBOR TO PERFORM TEST SHUT DOWNS OF THE 6" WATER MAIN TO VERIFY LINE STOP LOCATIONS.
4. AS-NESSARY THE CONTRACTOR SHALL INSTALL 6" LINE STOPS AT EAST UNIVERSITY AND CHURCH STREET AND A 4" LINE STOP AT SOUTH FOREST.
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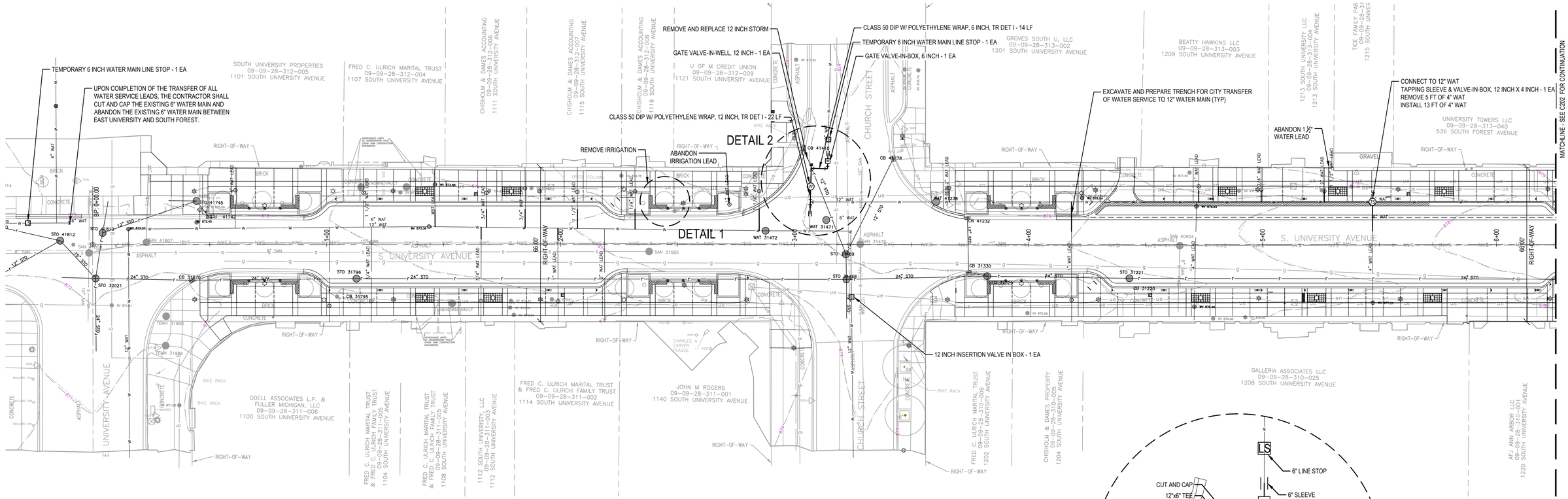
6. CONTRACTOR SHALL RECONNECT THE 6" WATER MAIN ON CHURCH STREET TO THE 12" WATER MAIN.
7. CONTRACTOR SHALL CUT AND CAP 6" WATER MAIN ON EAST UNIVERSITY.
8. CONTRACTOR SHALL PROPERLY ABANDON ALL REMAINING APPURTENANCES ON THE 6" WATER MAIN.

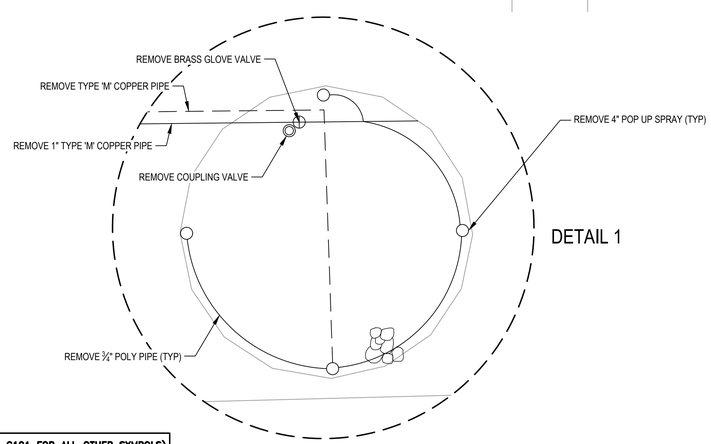
ESTIMATED WATER MAIN REMOVAL QUANTITIES

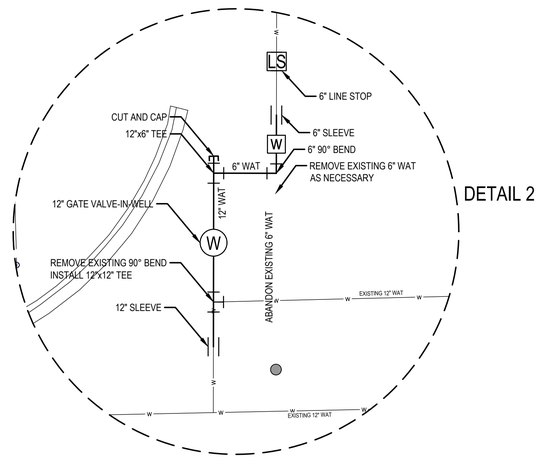
QUANTITY	UNIT	DESCRIPTION
636	LF	WATER MAIN PIPE ABANDONMENT
1	EA	GATE VALVE-IN-BOX ABANDONMENT
1	EA	GATE/BUTTERFLY VALVE-IN-WELL ABANDONMENT

ESTIMATED WATER MAIN CONSTRUCTION QUANTITIES

QUANTITY	UNIT	DESCRIPTION
22	LF	CLASS 50 DIP W/POLYETHYLENE WRAP, 12 INCH, TR DET I
14	LF	CLASS 50 DIP W/POLYETHYLENE WRAP, 6 INCH, TR DET I
1	EA	BENDS & REDUCERS, 6 INCH
2	EA	TEES & CROSSES, 12 INCH
1	EA	GATE VALVE-IN-BOX, 6 INCH
1	EA	GATE/BUTTERFLY VALVE-IN-WELL, 12 INCH
1	EA	TAPPING SLEEVE & VALVE-IN-BOX, 12 INCH
146	LF	EXCAVATE & BACKFILL FOR WATER SERVICE TAP AND LEAD
1	EA	TEMPORARY 6 INCH WATER MAIN LINE STOP
1	EA	12 INCH INSERTION VALVE IN BOX







PROPOSED WATER MAIN APPURTENANCES

TYPE	OFFSET	STATION
TEMPORARY 6 INCH WATER MAIN LINE STOP	9.14 L	-1+72.22
SLEEVE, 12 INCH	13.39 L	3+06.59
TEE, 12 INCH X 12 INCH	18.19 L	3+06.70
GATE VALVE-IN-WELL, 12 INCH	24.84 L	3+06.87
TEE, 12 INCH X 6 INCH	32.49 L	3+07.08
CAP, 12 INCH	34.49 L	3+07.13
90° HORIZONTAL BEND, 6 INCH	32.41 L	3+14.08
GATE VALVE-IN-BOX, 6 INCH	35.67 L	3+14.16
SLEEVE, 6 INCH	38.92 L	3+14.24
TEMPORARY 6 INCH WATER MAIN LINE STOP	44.91 L	3+14.40
12 INCH INSERTION VALVE IN BOX	22.83 R	3+24.48
TAPPING SLEEVE & VALVE-IN-BOX, 12 INCH	18.31 L	5+47.03

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING STORM, EXISTING WATER, EXISTING SANITARY, EXISTING GAS
EXISTING CURB INLET, EXISTING STORM MANHOLE, EXISTING WATER VALVE, EXISTING HYDRANT
WV 876.46, GV 878.68
EXISTING SANITARY MANHOLE, EXISTING GAS VALVE
STORM PIPE, CURB INLET, STORM MANHOLE, TRENCH DRAIN
OFFSET CURB INLET, WATER LINE, HYDRANT, GATE VALVE & WELL
TAPPING SLEEVE, ABANDON WATER LINE, FINISH GRADE, EXISTING GRADE
REMOVE WATER MAIN, LINE STOP, INSERTION VALVE, GATE VALVE & BOX

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

WATER MAIN PLAN - WEST

SCALE 1" = 20'

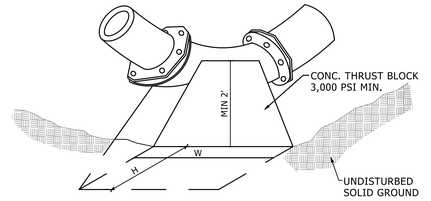
INCH 0 1

DRAWING NO. C204

SHEET NO. 40 OF 59

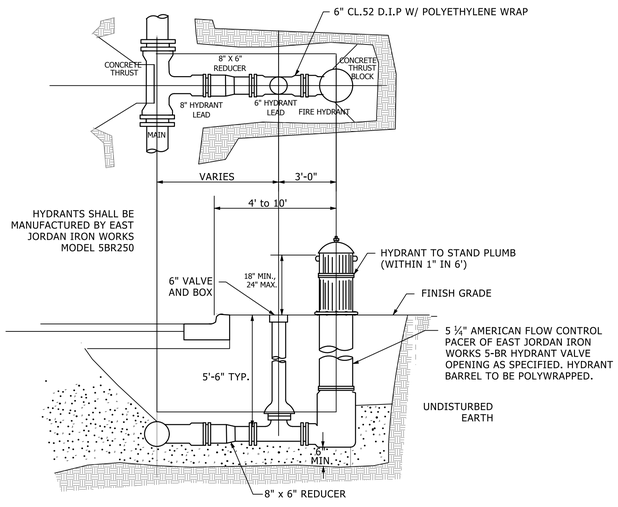
APPROVED BY _____

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



CITY OF ANN ARBOR THRUST BLOCK DETAIL

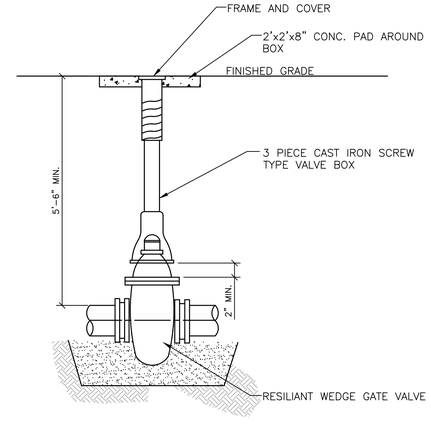
NO SCALE



NOTE: ALL PIPE, FITTINGS AND HYDRANT BARREL TO BE POLYWRAPPED PER AWWA C105

CITY OF ANN ARBOR WATER MAIN HYDRANT

NO SCALE



VALVE AND BOX DETAIL

NO SCALE

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

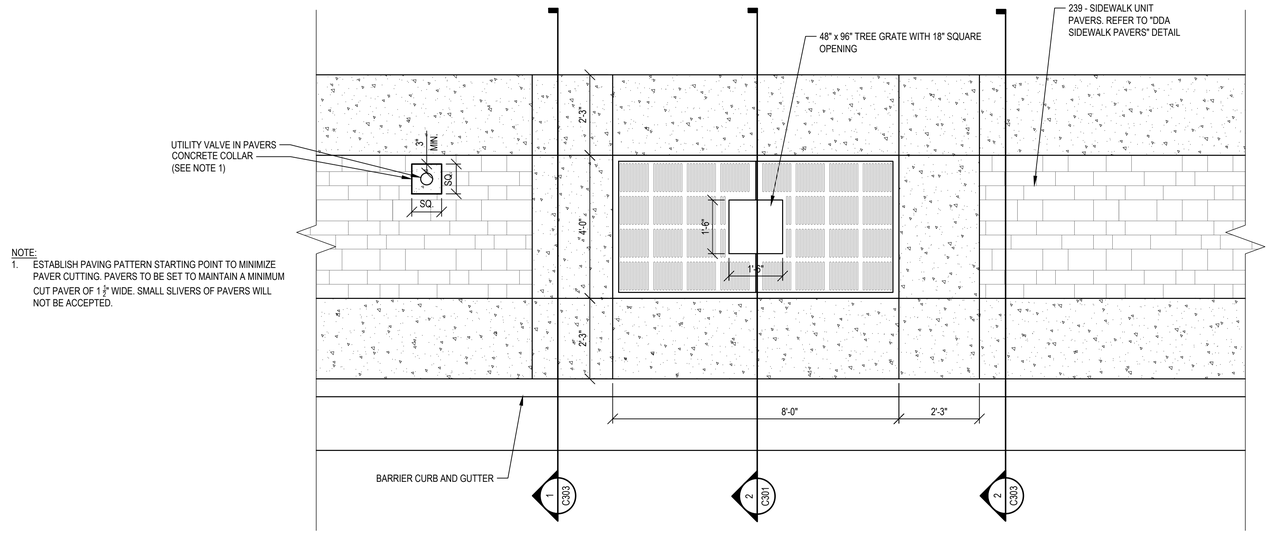
WATER MAIN DETAILS

APPROVED BY _____

SCALE: INCH (0 1)

DRAWING NO. C206

SHEET NO. 42 OF 59



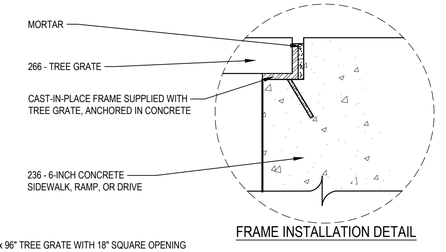
NOTE:
1. ESTABLISH PAVING PATTERN STARTING POINT TO MINIMIZE PAVER CUTTING. PAVERS TO BE SET TO MAINTAIN A MINIMUM CUT PAVER OF 1 ½" WIDE. SMALL SLIVERS OF PAVERS WILL NOT BE ACCEPTED.

1 TYPICAL TREE GRATE SECTION

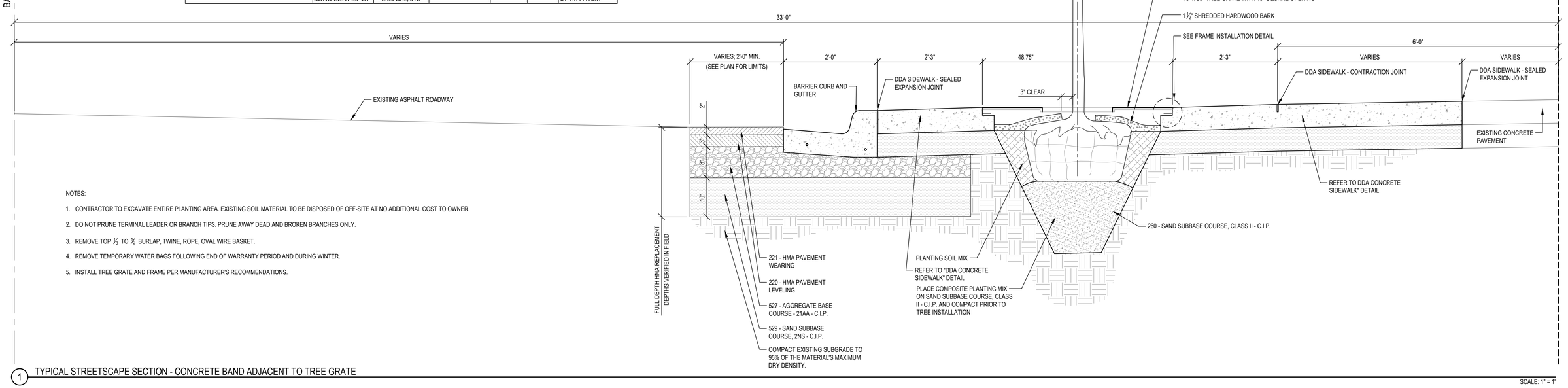
SCALE: 1/2" = 1'

SOUTH UNIVERSITY AVE - HMA FULL DEPTH APPLICATION ESTIMATE						
PAY ITEM	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)(V.I.F.)	AWI (MIN.)	BINDER	LOCATION/NOTES
221 - HMA PAVEMENT WEARING COURSE	LVSP	220 LBS/SYD	2.0	260 (TOP)	PG 58-28	
220 - HMA PAVEMENT LEVELING COURSE	3C	330 LBS/SYD	3.0	260 (TOP)	PG 58-28	
	BOND COAT SS-1H	0.05 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM

SOUTH UNIVERSITY AVE - HMA PARTIAL DEPTH APPLICATION ESTIMATE						
PAY ITEM	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)(V.I.F.)	AWI (MIN.)	BINDER	LOCATION/NOTES
221 - HMA PAVEMENT WEARING COURSE	LVSP	220 LBS/SYD	2.0	260 (TOP)	PG 58-28	
	BOND COAT SS-1H	0.05 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM



FRAME INSTALLATION DETAIL



NOTES:

1. CONTRACTOR TO EXCAVATE ENTIRE PLANTING AREA. EXISTING SOIL MATERIAL TO BE DISPOSED OF OFF-SITE AT NO ADDITIONAL COST TO OWNER.
2. DO NOT PRUNE TERMINAL LEADER OR BRANCH TIPS. PRUNE AWAY DEAD AND BROKEN BRANCHES ONLY.
3. REMOVE TOP ⅓ TO ½ BURLAP, TWINE, ROPE, OVAL WIRE BASKET.
4. REMOVE TEMPORARY WATER BAGS FOLLOWING END OF WARRANTY PERIOD AND DURING WINTER.
5. INSTALL TREE GRATE AND FRAME PER MANUFACTURER'S RECOMMENDATIONS.

1 TYPICAL STREETSCAPE SECTION - CONCRETE BAND ADJACENT TO TREE GRATE

SCALE: 1" = 1'

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

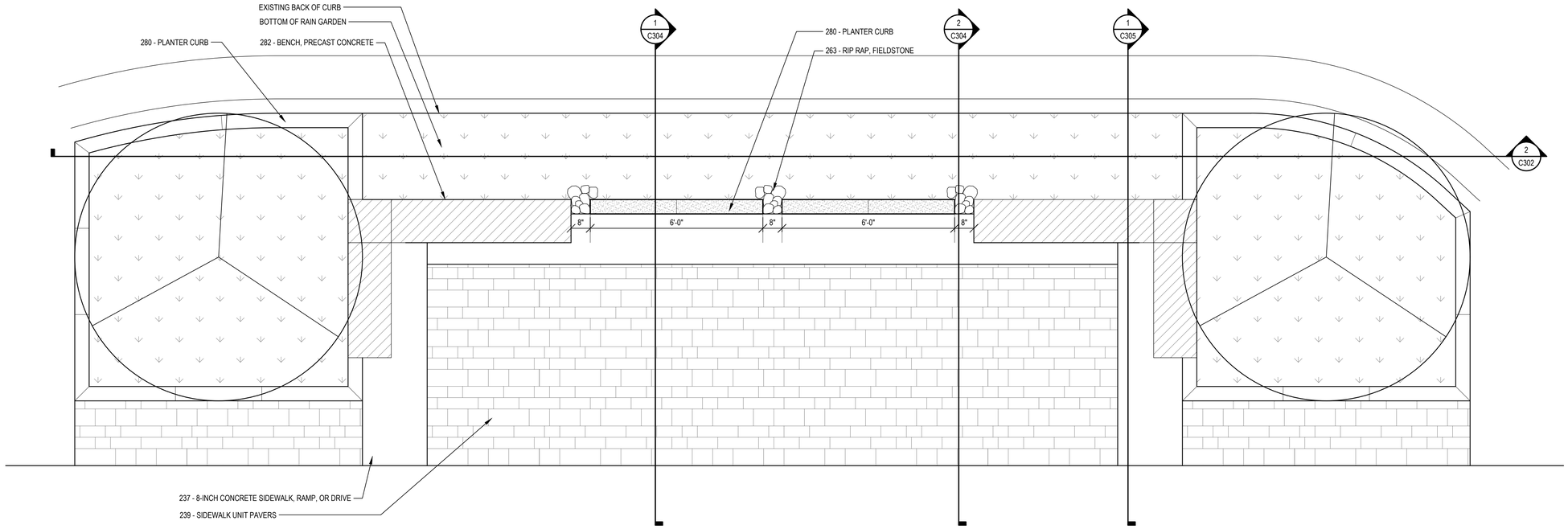
TYPICAL TREE GRATE ENLARGEMENT & SECTION

APPROVED BY _____

SCALE: AS SHOWN | INCH

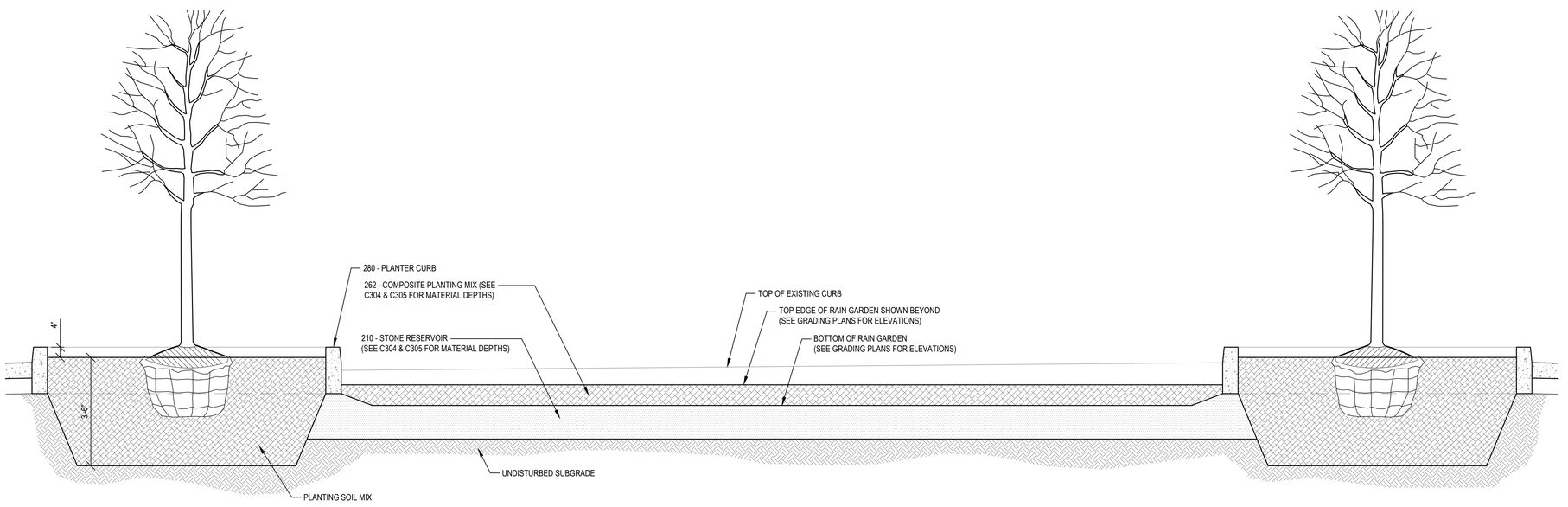
DRAWING NO. C301

SHEET NO. 43 OF 59



1 TYPICAL RAIN GARDEN SECTION

SCALE: 1/2" = 1'



2 SECTION VIEW THROUGH RAIN GARDEN AND PLANTERS

SCALE: 1/2" = 1'

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

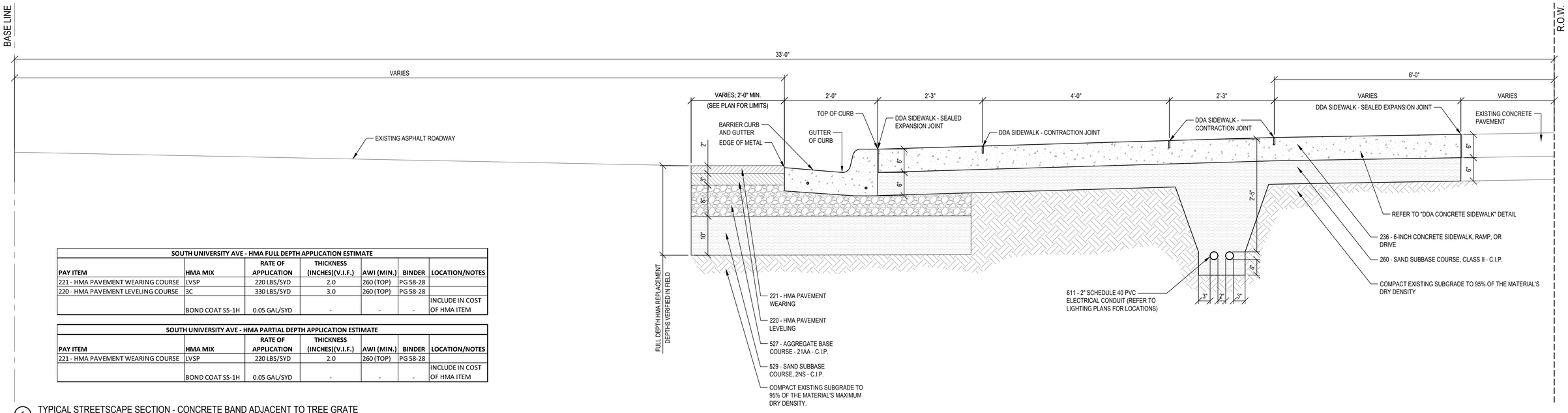
TYPICAL RAIN GARDEN ENLARGEMENT & SECTION

APPROVED BY _____

SCALE AS SHOWN | INCH

DRAWING NO. C302

SHEET NO. 44 OF 59

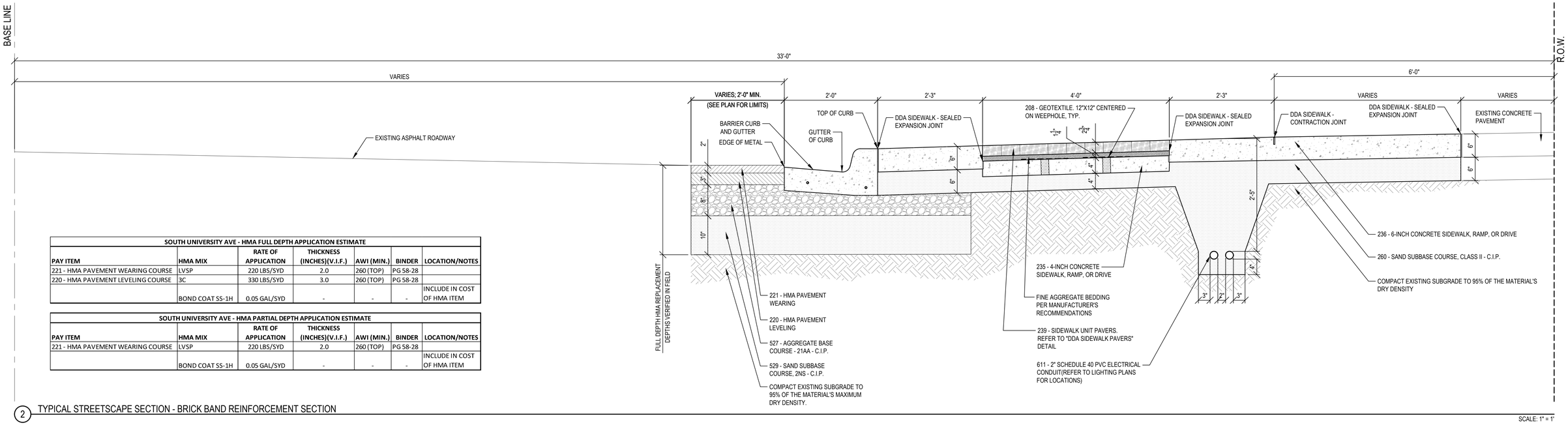


SOUTH UNIVERSITY AVE - HMA FULL DEPTH APPLICATION ESTIMATE						
PAY ITEM	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)(V.I.F.)	AWI (MIN.)	BINDER	LOCATION/NOTES
221 - HMA PAVEMENT WEARING COURSE	LVSP	220 LBS/SYD	2.0	260 (TOP)	PG 58-28	
220 - HMA PAVEMENT LEVELING COURSE	3C	330 LBS/SYD	3.0	260 (TOP)	PG 58-28	
	BOND COAT SS-1H	0.05 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM

SOUTH UNIVERSITY AVE - HMA PARTIAL DEPTH APPLICATION ESTIMATE						
PAY ITEM	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)(V.I.F.)	AWI (MIN.)	BINDER	LOCATION/NOTES
221 - HMA PAVEMENT WEARING COURSE	LVSP	220 LBS/SYD	2.0	260 (TOP)	PG 58-28	
	BOND COAT SS-1H	0.05 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM

1 TYPICAL STREETSCAPE SECTION - CONCRETE BAND ADJACENT TO TREE GRATE

SCALE: 1" = 1'



SOUTH UNIVERSITY AVE - HMA FULL DEPTH APPLICATION ESTIMATE						
PAY ITEM	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)(V.I.F.)	AWI (MIN.)	BINDER	LOCATION/NOTES
221 - HMA PAVEMENT WEARING COURSE	LVSP	220 LBS/SYD	2.0	260 (TOP)	PG 58-28	
220 - HMA PAVEMENT LEVELING COURSE	3C	330 LBS/SYD	3.0	260 (TOP)	PG 58-28	
	BOND COAT SS-1H	0.05 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM

SOUTH UNIVERSITY AVE - HMA PARTIAL DEPTH APPLICATION ESTIMATE						
PAY ITEM	HMA MIX	RATE OF APPLICATION	THICKNESS (INCHES)(V.I.F.)	AWI (MIN.)	BINDER	LOCATION/NOTES
221 - HMA PAVEMENT WEARING COURSE	LVSP	220 LBS/SYD	2.0	260 (TOP)	PG 58-28	
	BOND COAT SS-1H	0.05 GAL/SYD	-	-	-	INCLUDE IN COST OF HMA ITEM

2 TYPICAL STREETSCAPE SECTION - BRICK BAND REINFORCEMENT SECTION

SCALE: 1" = 1'

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD
		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

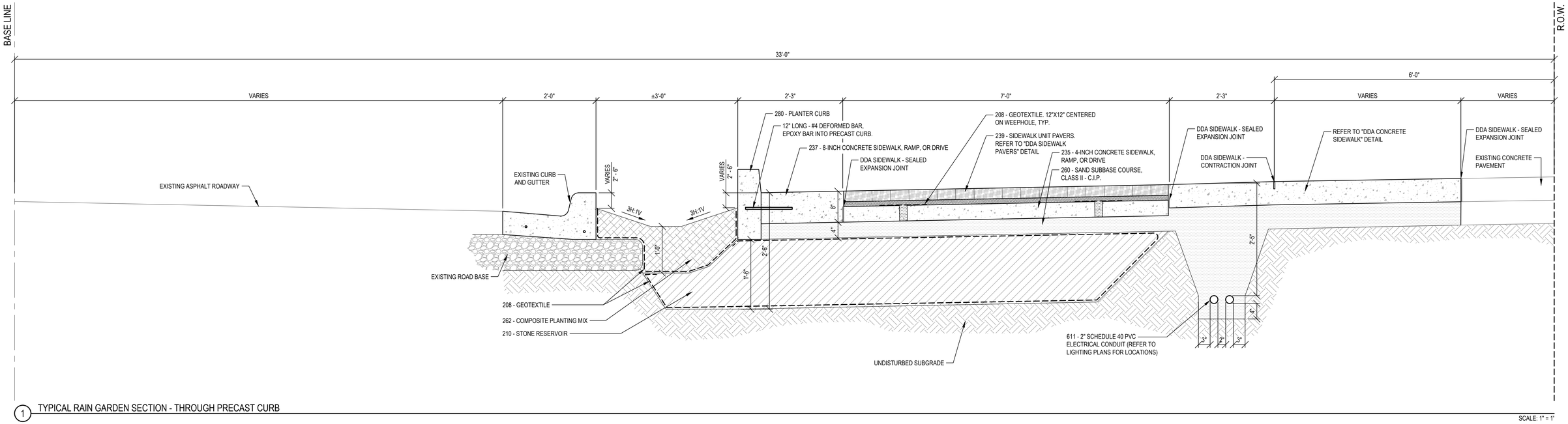
TYPICAL SECTIONS

APPROVED BY _____

SCALE AS SHOWN | INCH

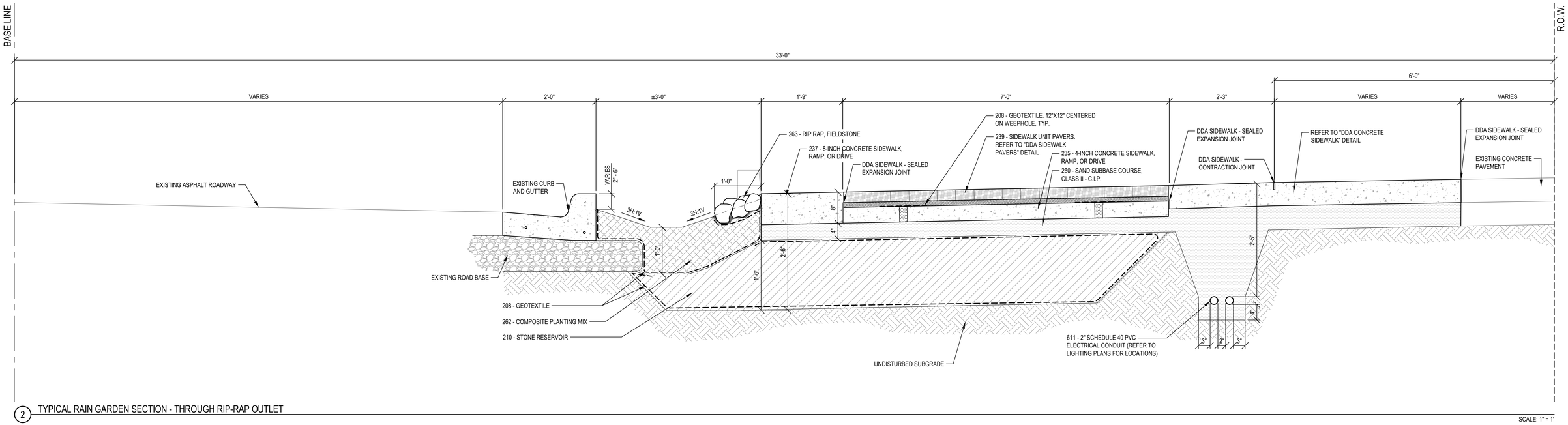
DRAWING NO. C303

SHEET NO. 45 OF 59



1 TYPICAL RAIN GARDEN SECTION - THROUGH PRECAST CURB

SCALE: 1" = 1'



2 TYPICAL RAIN GARDEN SECTION - THROUGH RIP-RAP OUTLET

SCALE: 1" = 1'

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE	XXX	.	.	.		
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		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

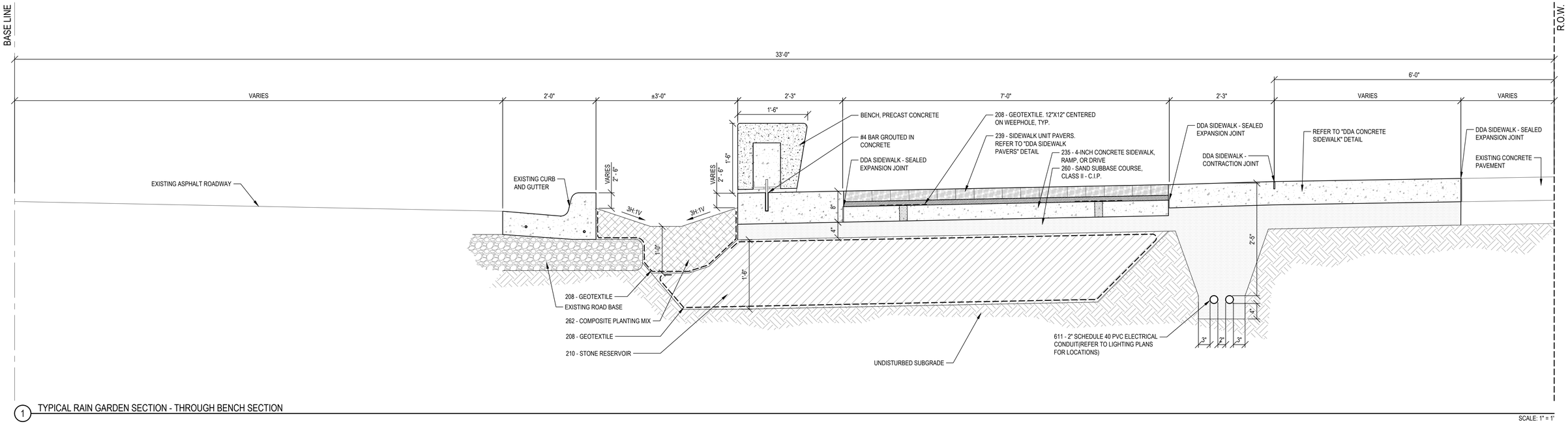
TYPICAL SECTIONS

APPROVED BY _____

SCALE AS SHOWN | INCH

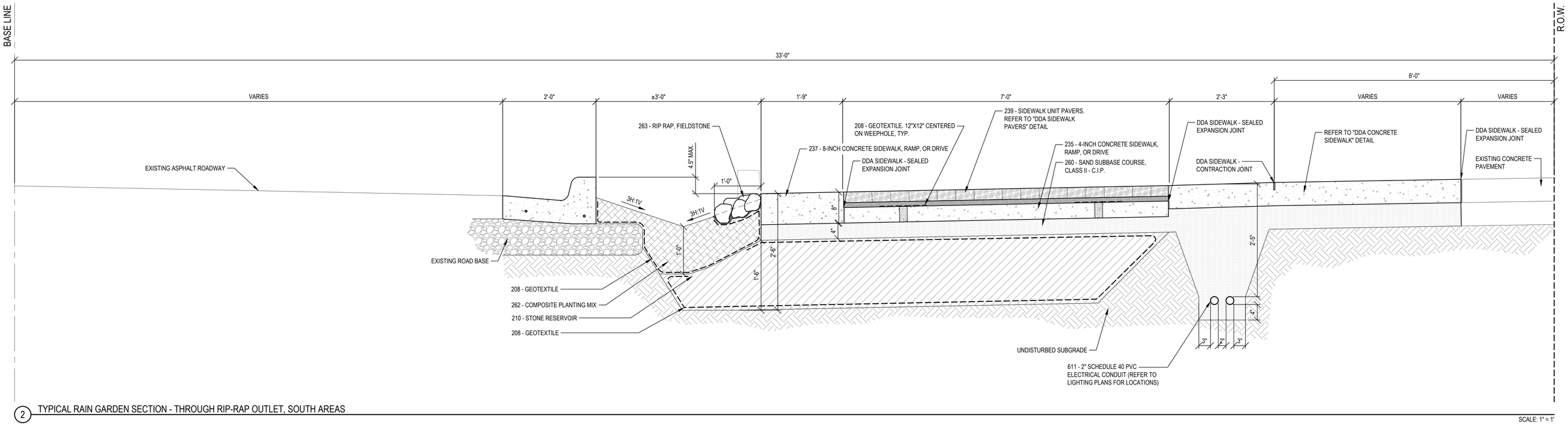
DRAWING NO. C304

SHEET NO. 46 OF 59



1 TYPICAL RAIN GARDEN SECTION - THROUGH BENCH SECTION

SCALE: 1" = 1'



2 TYPICAL RAIN GARDEN SECTION - THROUGH RIP-RAP OUTLET, SOUTH AREAS

SCALE: 1" = 1'

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
SEE ABOVE	XXX	.	.	.		
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		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

TYPICAL SECTIONS

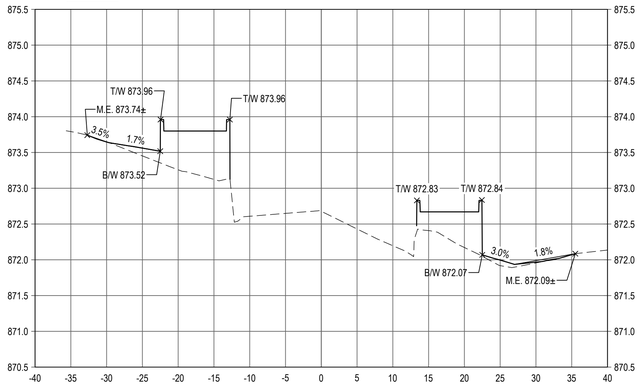
APPROVED BY _____

SCALE AS SHOWN | INCH

DRAWING NO. C305

SHEET NO. 47 OF 59

0+50.00



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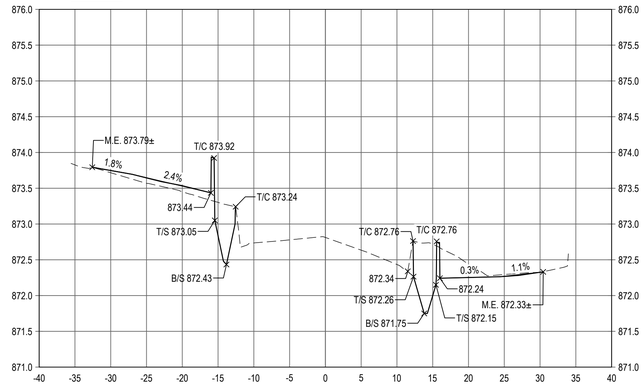

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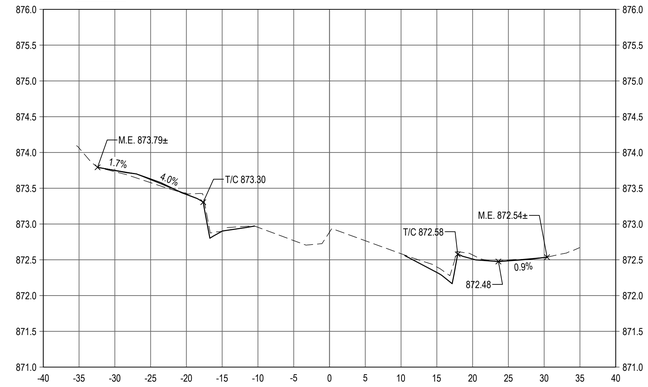

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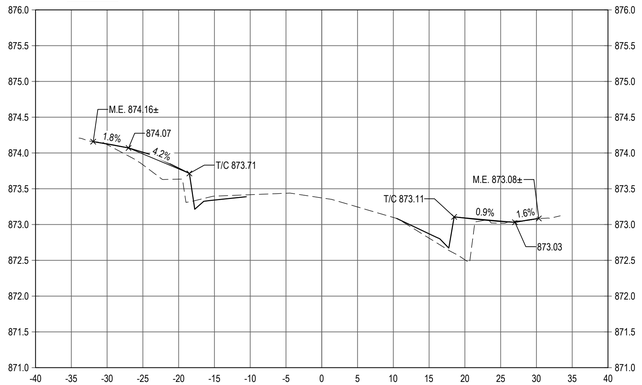

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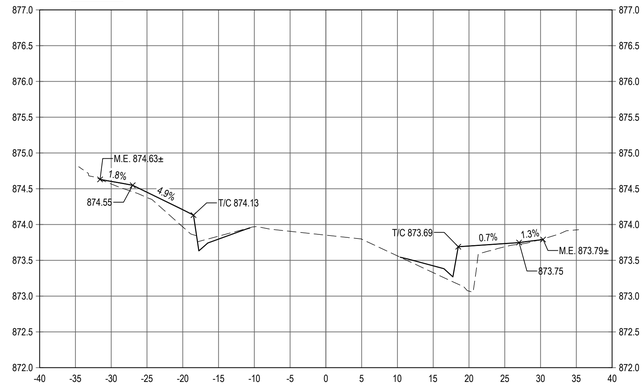

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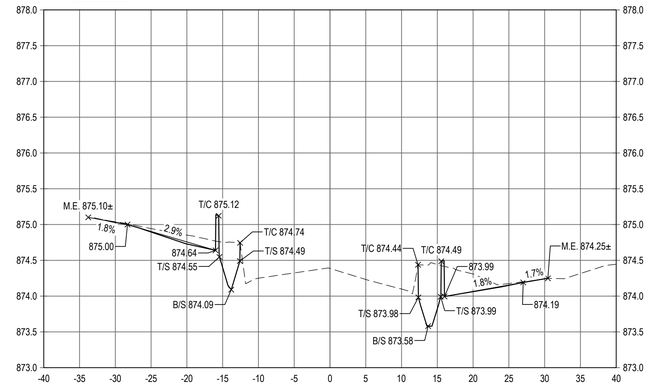
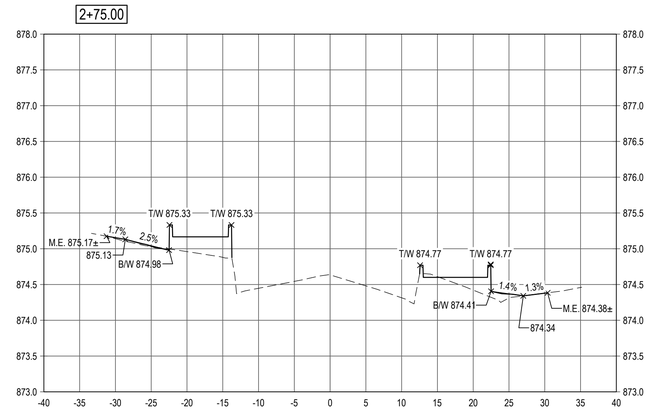
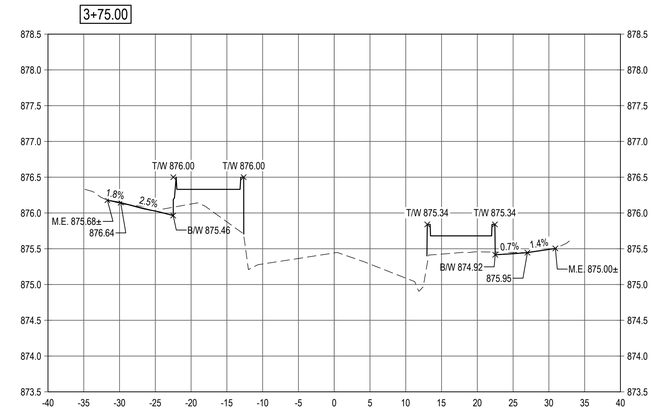


2+75.00



3+75.00



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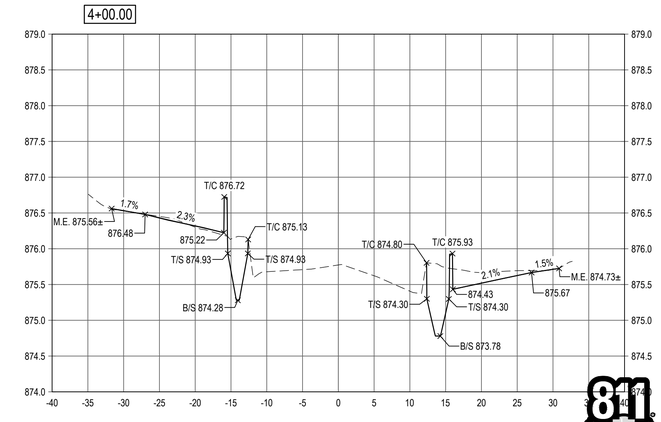


Know what's **below.**
Call before you dig.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

DRAINAGE SLOPE	2.5%	STRUCTURE RIM ELEVATION	RIM 861.50	TOP OF SWALE ELEVATION	T/S 861.50
PROPOSED SPOT ELEVATION	861.50	TOP OF CURB ELEVATION	T/C 861.50	BOTTOM OF SWALE ELEVATION	B/S 861.50
APPROX. SPOT ELEVATION: MATCH EXISTING GRADE	861.50 M.E.±	GUTTER OF CURB ELEVATION	G/C 861.50	TOP OF WALL ELEVATION	T/W 861.50
		EDGE OF METAL ELEVATION	E/M 861.50	BOTTOM OF WALL ELEVATION	B/W 861.50

SECTION EXISTING GRADE

SECTION PROPOSED GRADE

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

STATION SECTIONS

APPROVED BY _____

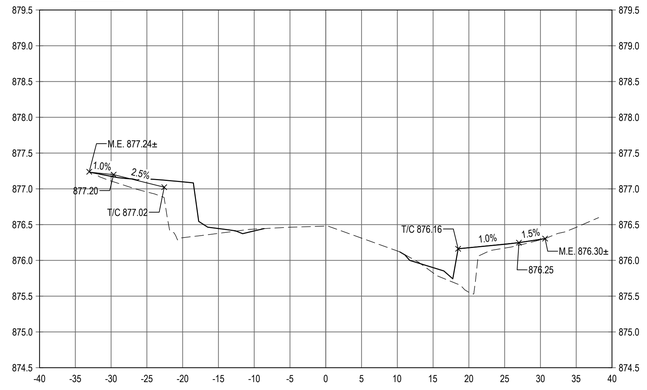
SCALE
HOR. 1"=10'
VERT. 1"=1'

INCH
0 1

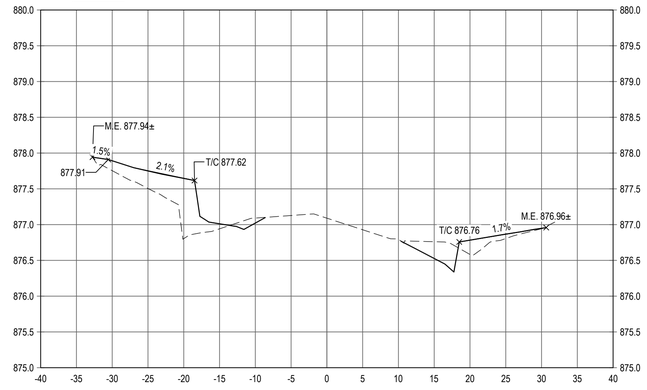
DRAWING NO.
C306

SHEET NO. 48 OF 59

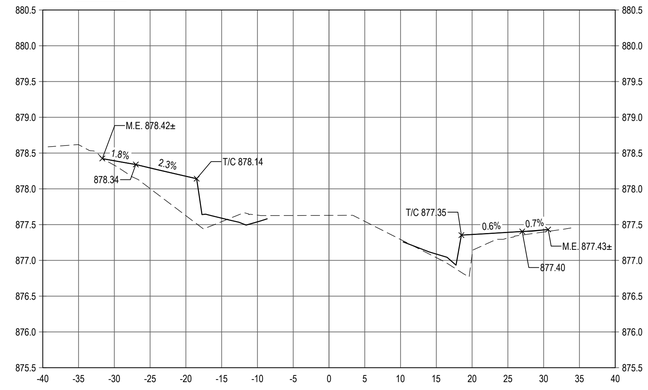
4+50.00



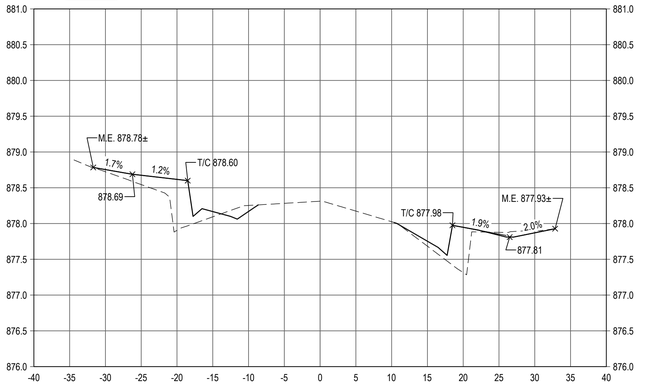
5+00.00



5+50.00



6+00.00



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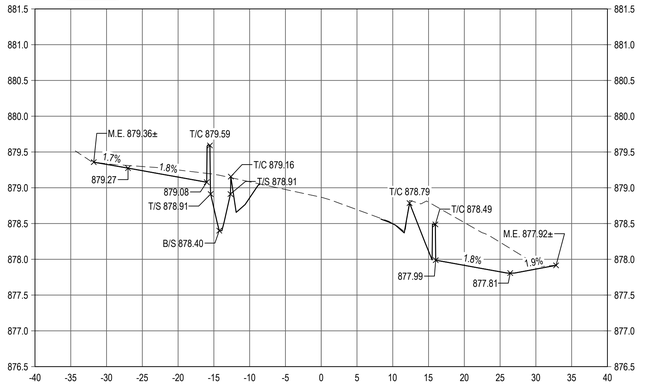

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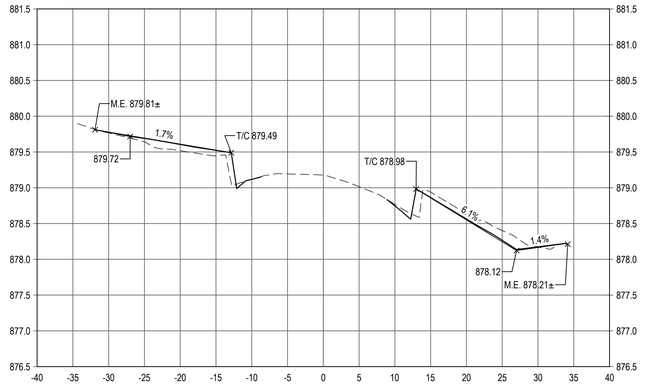

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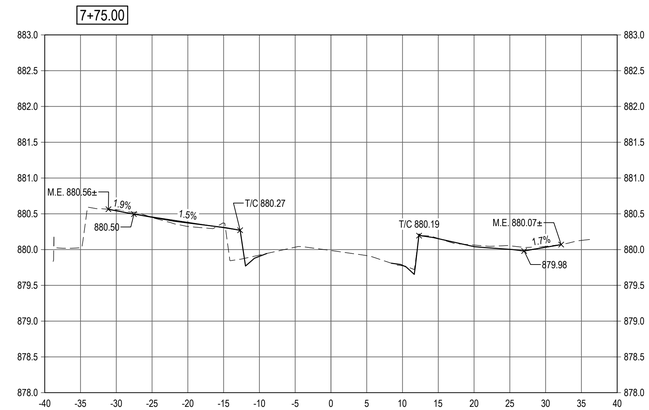
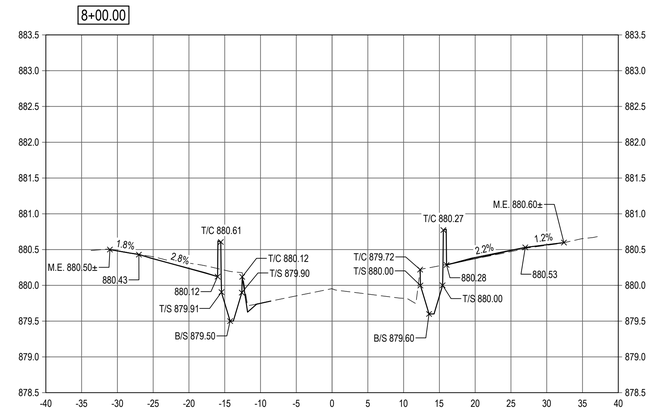


8+00.00



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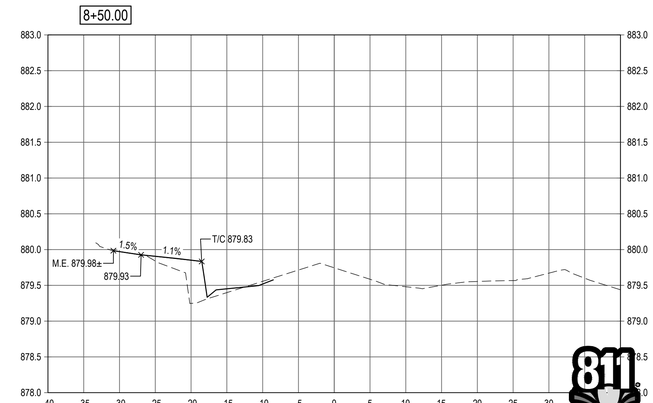


811
Know what's **below.**
Call before you dig.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

DRAINAGE SLOPE	2.5%	STRUCTURE RIM ELEVATION	RIM 861.50	TOP OF SWALE ELEVATION	T/S 861.50
PROPOSED SPOT ELEVATION	861.50	TOP OF CURB ELEVATION	T/C 861.50	BOTTOM OF SWALE ELEVATION	B/S 861.50
APPROX. SPOT ELEVATION: MATCH EXISTING GRADE	861.50 M.E.±	GUTTER OF CURB ELEVATION	G/C 861.50	TOP OF WALL ELEVATION	T/W 861.50
		EDGE OF METAL ELEVATION	E/M 861.50	BOTTOM OF WALL ELEVATION	B/W 861.50

SECTION EXISTING GRADE

SECTION PROPOSED GRADE

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

STATION SECTIONS

SCALE
HOR. 1"=10'
VERT. 1"=1'

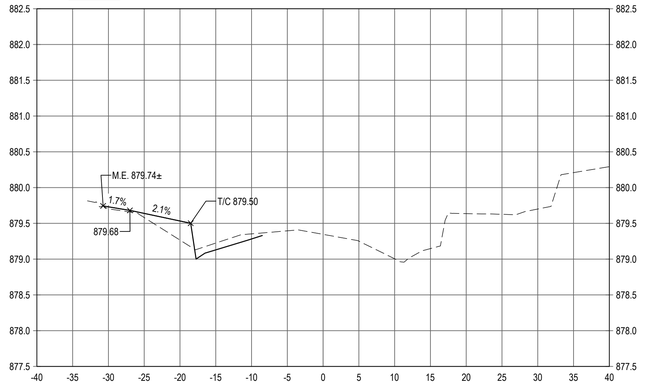
INCH
0 1

DRAWING NO.
C307

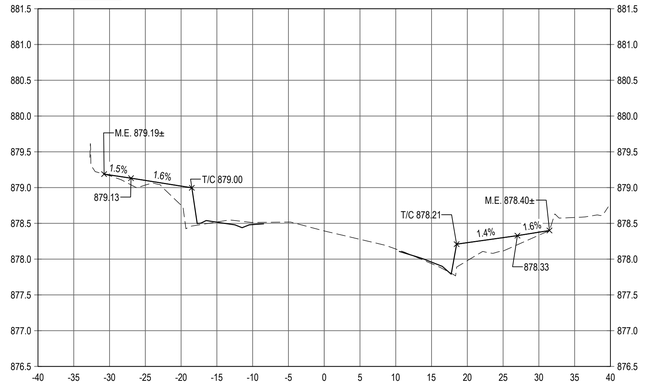
SHEET NO. 49 OF 59

APPROVED BY _____

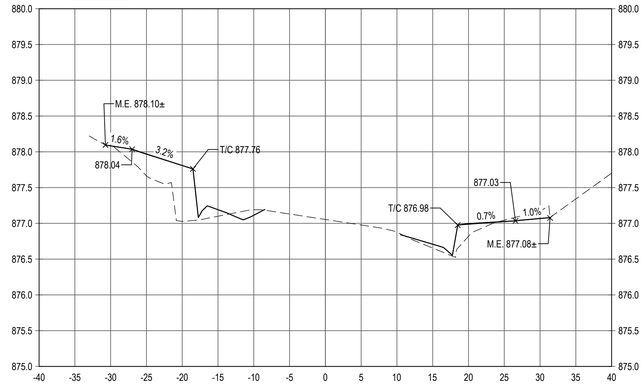
9+00.00



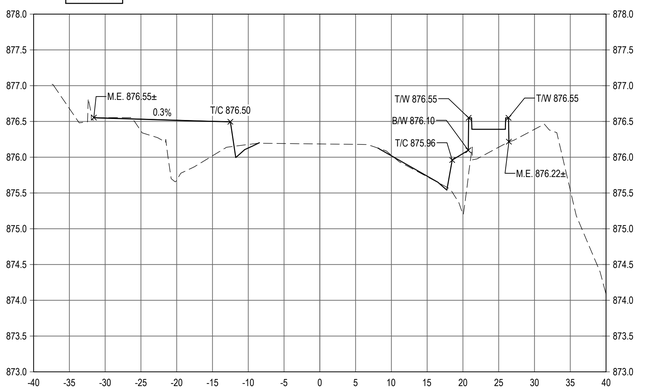
9+50.00



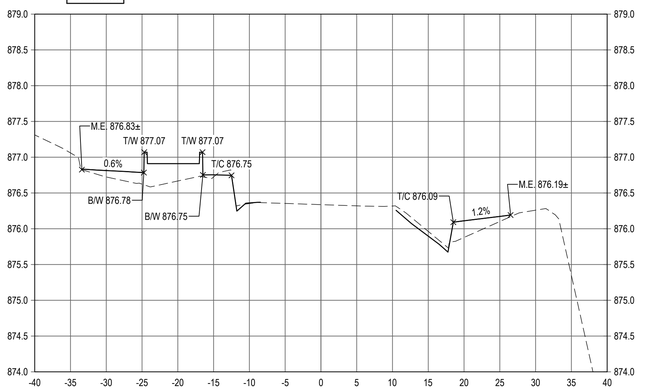
10+00.00



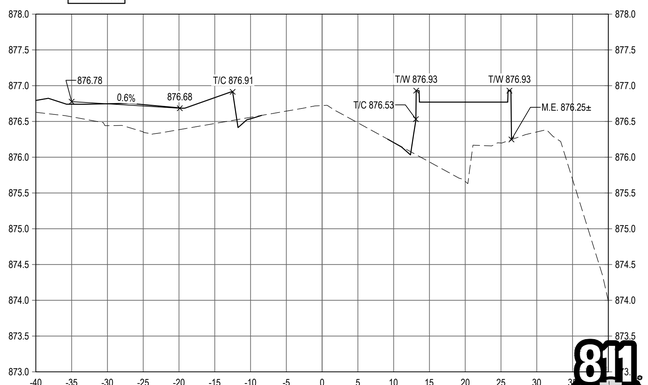
10+50.00



11+00.00



11+25.00



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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

DRAINAGE SLOPE	2.5%	STRUCTURE RIM ELEVATION	RIM 861.50	TOP OF SWALE ELEVATION	T/S 861.50
PROPOSED SPOT ELEVATION	861.50	TOP OF CURB ELEVATION	T/C 861.50	BOTTOM OF SWALE ELEVATION	B/S 861.50
APPROX. SPOT ELEVATION: MATCH EXISTING GRADE	861.50 M.E.±	GUTTER OF CURB ELEVATION	G/C 861.50	TOP OF WALL ELEVATION	T/W 861.50
		EDGE OF METAL ELEVATION	E/M 861.50	BOTTOM OF WALL ELEVATION	B/W 861.50

SECTION EXISTING GRADE

SECTION PROPOSED GRADE

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	.	.		
.	.	.		
.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

STATION SECTIONS

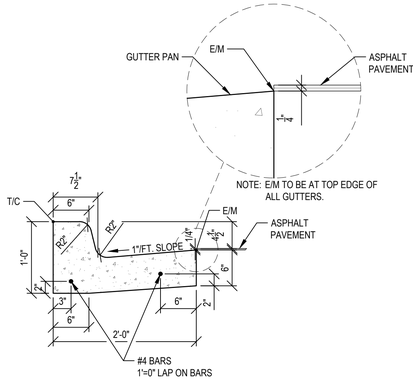
SCALE
HOR. 1"=10'
VERT. 1"=1'

INCH
0 1

DRAWING NO.
C308

SHEET NO. 50 OF 59

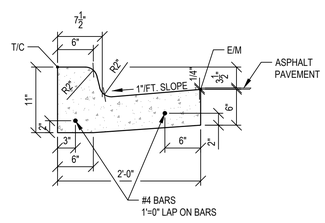
APPROVED BY _____



ALL BARRIER CURB AND GUTTER TO HAVE 6" REVEAL EXCEPT WHERE NOTED OTHERWISE.

1 BARRIER CURB AND GUTTER

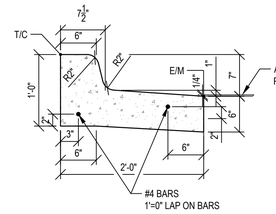
SCALE: 1" = 1'-0"



STA. 0+90.03 RIGHT TO STA. 2+28.49 RIGHT

2 BARRIER CURB AND GUTTER MODIFIED

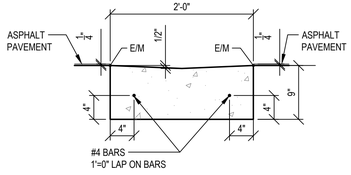
SCALE: 1" = 1'-0"



STA. 4+28.70 LEFT TO STA. 5+71.37 LEFT;
STA. 9+12.65 LEFT TO STA. 10+48.92 LEFT

3 SPILLOUT BARRIER CURB AND GUTTER

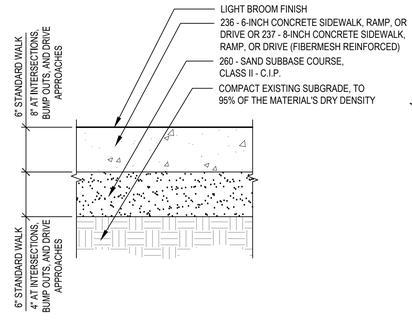
SCALE: 1" = 1'-0"



STA. 4+22.08 LEFT TO STA. 6+31.25 LEFT;
STA. 9+12.65 LEFT TO STA. 10+48.92 LEFT

4 VALLEY CURB AND GUTTER

SCALE: 1" = 1'-0"

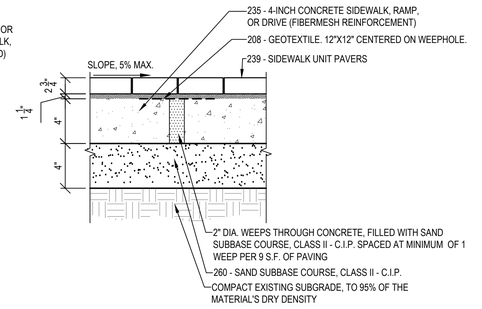


NOTES:

1. CONTRACTOR TO CONSTRUCT ALL SIDEWALKS, SIDEWALK RAMPS, CURBS, AND ALL OTHER CONCRETE ITEMS WITHIN A.D.A.A.G. COMPLIANCE.
2. ALL SIDEWALK CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDOT STANDARD DETAIL R-28-J.

5 DDA CONCRETE SIDEWALK

N.T.S.

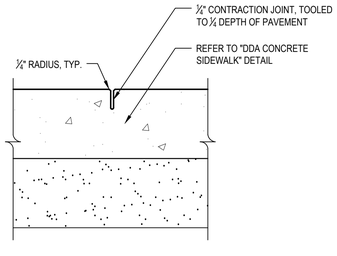


NOTES:

1. SIDEWALK UNIT PAVERS MUST BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS
2. BUILD A MOCK-UP OF PAVERS TO ESTABLISH THE ACTUAL WIDTH OF PAVER BAND TO AVOID SLIVERS OF PAVERS; APPROVAL BY DDA
3. ALL SIDEWALK UNIT PAVERS SHALL BE RATED FOR HEAVY VEHICULAR TRAFFIC

6 DDA SIDEWALK PAVERS

N.T.S.

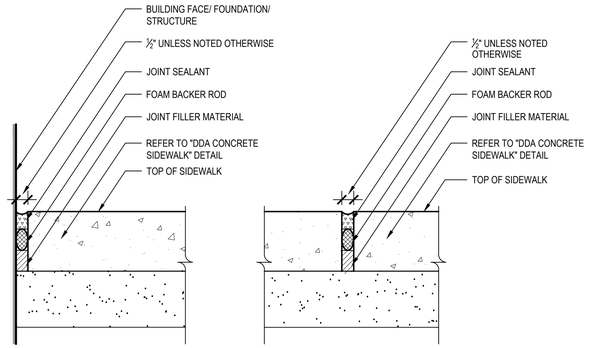


NOTE:
1. TOOLED CONTRACTION TO HAVE ½" RADIUS AT SURFACE OF JOINT

TOOLED CONTRACTION JOINT

7 DDA SIDEWALK - CONTRACTION JOINT

N.T.S.



CONCRETE TO BUILDING FACE, FOUNDATION, OR STRUCTURE

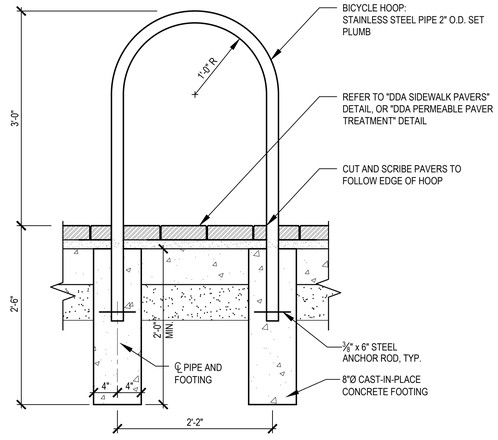
CONCRETE TO CONCRETE SIDEWALK

NOTE:
1. ALL EXPANSION JOINTS TO BE SEALED IN DDA DISTRICT
2. DOWELED SEALED EXPANSION JOINTS INCLUDING BARS AND SLEEVES ARE INCIDENTAL TO PAVEMENT PAY ITEMS.

8 DDA SIDEWALK - SEALED EXPANSION JOINT

N.T.S.

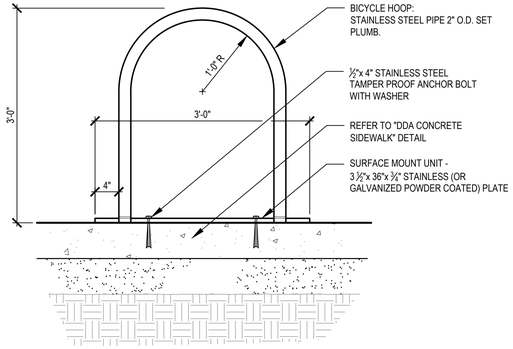
BICYCLE HOOP NOTES:
1. TO BE USED ONLY FOR DDA SIDEWALK PAVERS OR DDA PERMEABLE PAVER TREATMENTS
2. LOCATE AND GROUP BICYCLE HOOPS IN THE AMENITY ZONE.
3. BIKE HOOPS TO BE A MINIMUM OF 2'-10" FROM BACK OF CURB WHEN PERPENDICULAR TO CURB, AND 2'-0" WHEN PARALLEL.
4. REFER TO ANN ARBOR DOWNTOWN STREET DESIGN MANUAL FOR ADDITIONAL LAYOUT GUIDELINES.



9 BIKE HOOP (EMBEDDED)

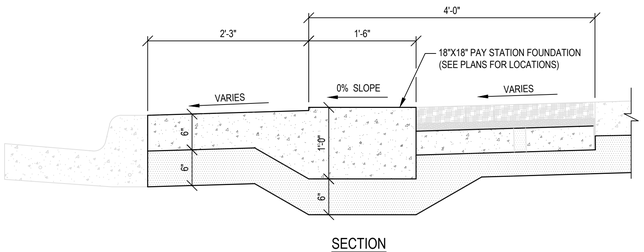
N.T.S.

BICYCLE HOOP NOTES:
1. TO BE USED ONLY FOR DDA CONCRETE SIDEWALK SURFACES
2. LOCATE AND GROUP BICYCLE HOOPS IN THE AMENITY ZONE.
3. BIKE HOOPS TO BE MINIMUM OF 2'-10" FROM BACK OF CURB WHEN PERPENDICULAR TO CURB, AND 2'-0" WHEN PARALLEL.
4. REFER TO ANN ARBOR DOWNTOWN STREET DESIGN MANUAL FOR ADDITIONAL LAYOUT GUIDELINES.



10 BIKE HOOP (SURFACE MOUNTED)

N.T.S.



SECTION

NOTES:
1. THICKENED PAVEMENT AS ILLUSTRATED HERE IS CONSIDERED INCIDENTAL, AND SHALL NOT BE PAID FOR SEPARATELY.

11 PARKING PAY STATION FOUNDATION

N.T.S.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SITE DETAILS

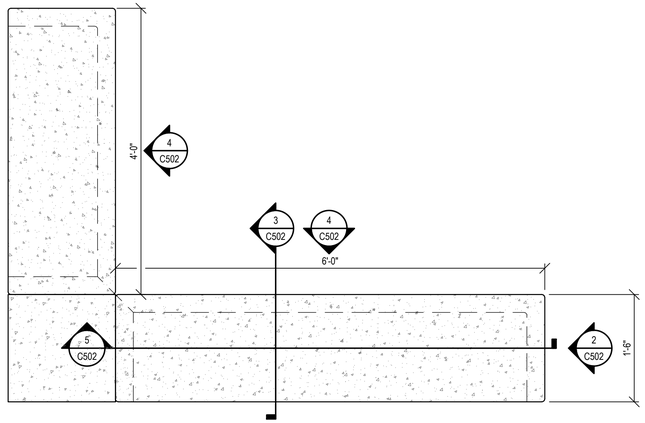
APPROVED BY _____

SCALE
HOR. 1"=40'
VERT. 1"=4'

INCH
0 1

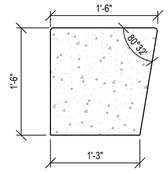
DRAWING NO.
C501

SHEET NO. 51 OF 59



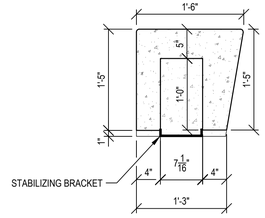
1 PRE-CAST CONCRETE BENCH - PLAN VIEW

SCALE: 1"=1'- 0"



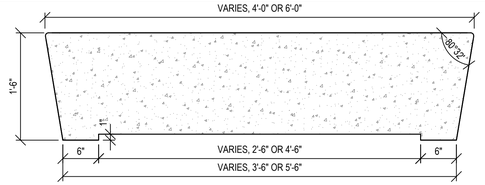
2 PRE-CAST CONCRETE BENCH - SIDE ELEVATION

SCALE: 1"=1'- 0"



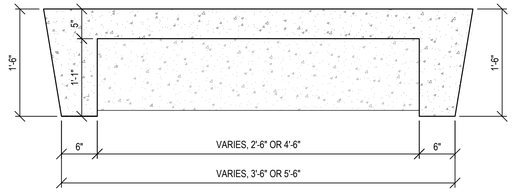
3 PRE-CAST CONCRETE BENCH - SIDE SECTION

SCALE: 1"=1'- 0"



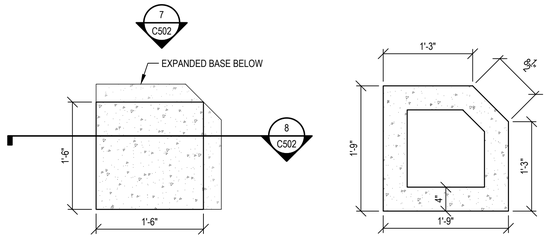
4 PRE-CAST CONCRETE BENCH - FRONT ELEVATION

SCALE: 1"=1'- 0"



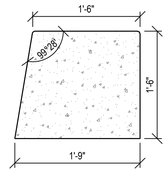
5 PRE-CAST CONCRETE BENCH - FRONT SECTION

SCALE: 1"=1'- 0"



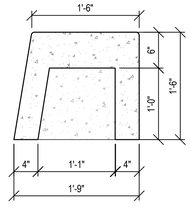
6 PRE-CAST CONCRETE BENCH CORNER - PLAN VIEW TOP & BOTTOM

SCALE: 1"=1'- 0"



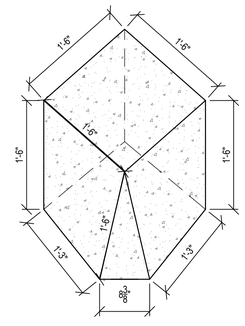
7 PRE-CAST CONCRETE BENCH CORNER - ELEVATION

SCALE: 1"=1'- 0"



8 PRE-CAST CONCRETE BENCH CORNER - SECTION

SCALE: 1"=1'- 0"



9 PRE-CAST CONCRETE BENCH CORNER - ISOMETRIC VIEW

SCALE: 1"=1'- 0"

SHEET NOTES:
1. ALL EXPOSED EDGES ON THE PRECAST CONCRETE BENCH UNITS SHALL BE CHAMFERED WITH A 1/2" RADIUS.

Know what's below. Call before you dig.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE						
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
			BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

SITE DETAILS

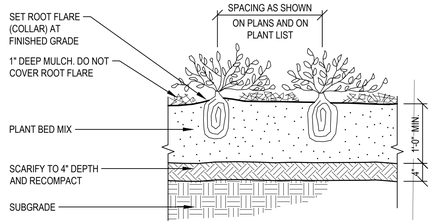
APPROVED BY _____

SCALE: INCH

DRAWING NO. C502

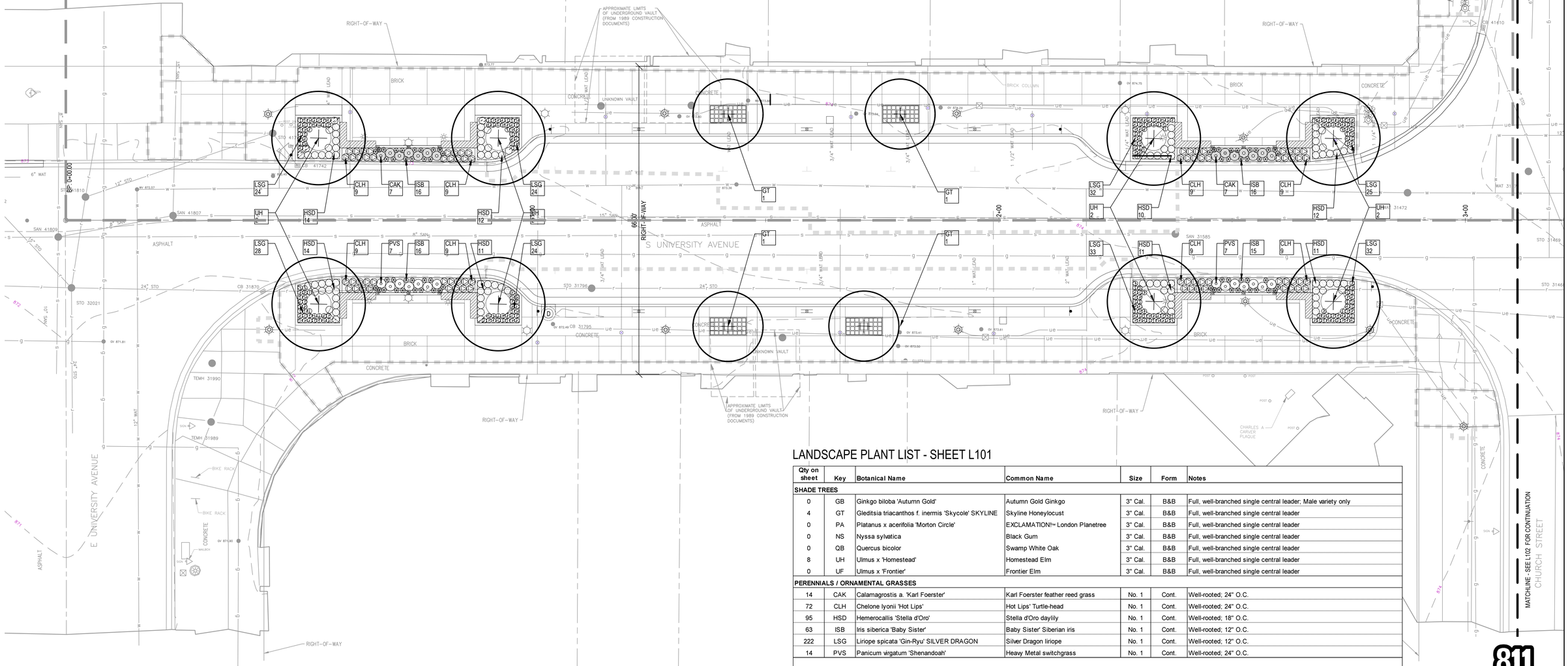
SHEET NO. 52 OF 59

NOTE:
CONTAINER PLANTS: REMOVE POTS AND SEPARATE POT BOUND ROOTS AS SPECIFIED.



PERENNIAL / ORNAMENTAL GRASS PLANTING N.T.S.

INSTALLATION OF WORK IN THIS AREA TO BE COMPLETED BY OTHERS. CONTRACTOR TO PROVIDE MANUFACTURED MATERIALS FOR WORK IN THIS AREA PURSUANT TO DETAILED SPECIFICATIONS



LANDSCAPE PLANT LIST - SHEET L101

Qty on sheet	Key	Botanical Name	Common Name	Size	Form	Notes
SHADE TREES						
0	GB	Ginkgo biloba 'Autumn Gold'	Autumn Gold Ginkgo	3" Cal.	B&B	Full, well-branched single central leader; Male variety only
4	GT	Gleditsia triacanthos f. inermis 'Skycole' SKYLINE	Skyline Honeylocust	3" Cal.	B&B	Full, well-branched single central leader
0	PA	Platanus x acerifolia 'Morton Circle'	EXCLAMATION!™ London Planetree	3" Cal.	B&B	Full, well-branched single central leader
0	NS	Nyssa sylvatica	Black Gum	3" Cal.	B&B	Full, well-branched single central leader
0	QB	Quercus bicolor	Swamp White Oak	3" Cal.	B&B	Full, well-branched single central leader
8	UH	Ulmus x 'Homestead'	Homestead Elm	3" Cal.	B&B	Full, well-branched single central leader
0	UF	Ulmus x 'Frontier'	Frontier Elm	3" Cal.	B&B	Full, well-branched single central leader
PERENNIALS / ORNAMENTAL GRASSES						
14	CAK	Calamagrostis a. 'Karl Foerster'	Karl Foerster feather reed grass	No. 1	Cont.	Well-rooted; 24" O.C.
72	CLH	Chelone lyonii 'Hot Lips'	Hot Lips' Turtle-head	No. 1	Cont.	Well-rooted; 24" O.C.
95	HSD	Hemerocallis 'Stella d'Oro'	Stella d'Oro daylily	No. 1	Cont.	Well-rooted; 18" O.C.
63	ISB	Iris siberica 'Baby Sister'	Baby Sister' Siberian iris	No. 1	Cont.	Well-rooted; 12" O.C.
222	LSG	Liriope spicata 'Gin-Ryu' SILVER DRAGON	Silver Dragon liriope	No. 1	Cont.	Well-rooted; 12" O.C.
14	PVS	Panicum virgatum 'Shenandoah'	Heavy Metal switchgrass	No. 1	Cont.	Well-rooted; 24" O.C.

SHEET NOTES:
1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN. TREES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

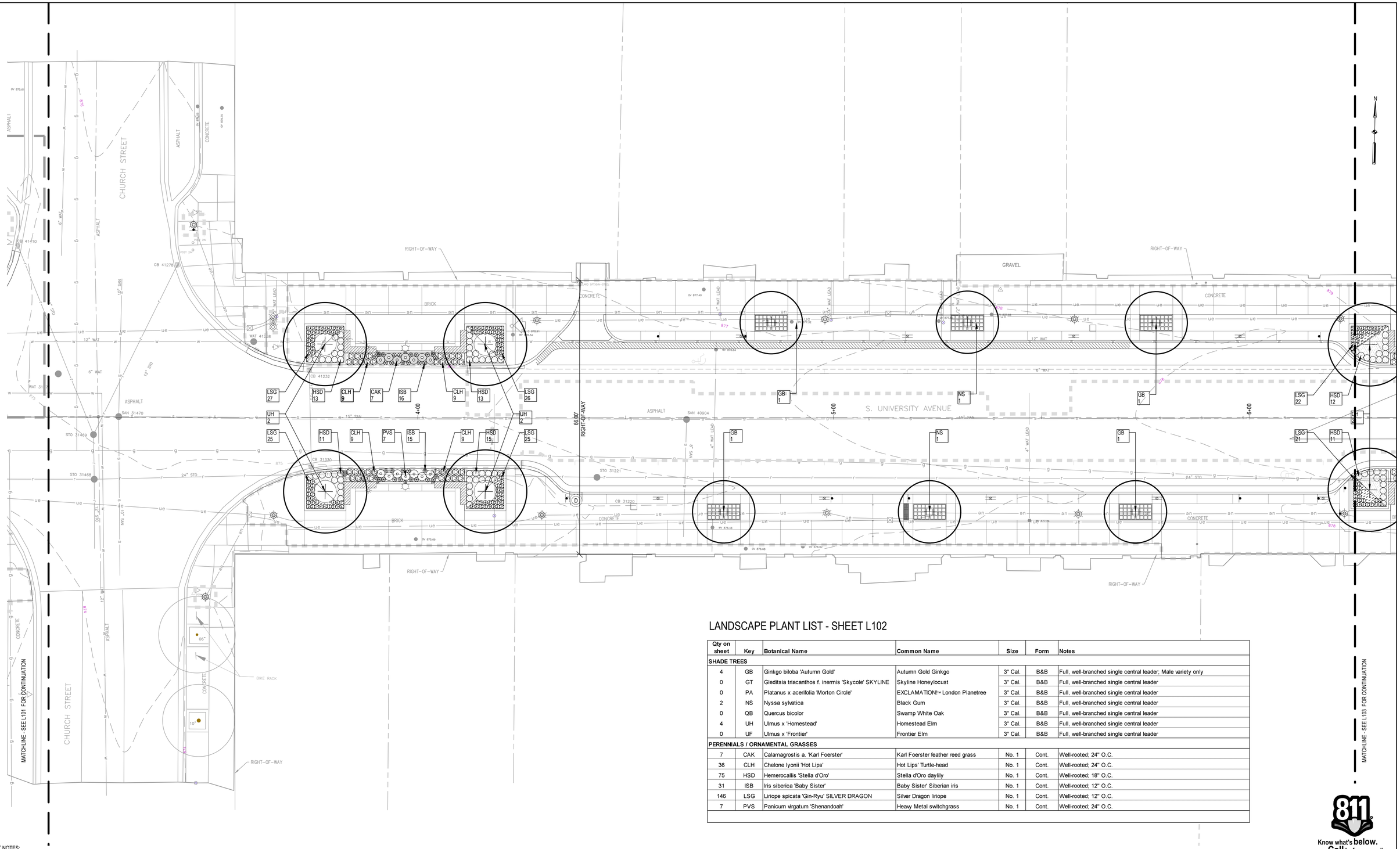
EXISTING TREE
DECIDUOUS SHADE TREE
PERENNIAL / GROUNDCOVER PLANT BED
INDIVIDUAL ORNAMENTAL GRASS / PERENNIAL

SEE ABOVE	XXX	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LANDSCAPE PLAN - WEST

SCALE 1"=10'
INCH 0 1
DRAWING NO. L101
SHEET NO. 53 OF 59
APPROVED BY



LANDSCAPE PLANT LIST - SHEET L102

Qty on sheet	Key	Botanical Name	Common Name	Size	Form	Notes
SHADE TREES						
4	GB	Ginkgo biloba 'Autumn Gold'	Autumn Gold Ginkgo	3" Cal.	B&B	Full, well-branched single central leader; Male variety only
0	GT	Gleditsia triacanthos f. inermis 'Skycole' SKYLINE	Skyline Honeylocust	3" Cal.	B&B	Full, well-branched single central leader
0	PA	Platanus x acerifolia 'Morton Circle'	EXCLAMATION!™ London Planetree	3" Cal.	B&B	Full, well-branched single central leader
2	NS	Nyssa sylvatica	Black Gum	3" Cal.	B&B	Full, well-branched single central leader
0	QB	Quercus bicolor	Swamp White Oak	3" Cal.	B&B	Full, well-branched single central leader
4	UH	Ulmus x 'Homestead'	Homestead Elm	3" Cal.	B&B	Full, well-branched single central leader
0	UF	Ulmus x 'Frontier'	Frontier Elm	3" Cal.	B&B	Full, well-branched single central leader
PERENNIALS / ORNAMENTAL GRASSES						
7	CAK	Calamagrostis a. 'Karl Foerster'	Karl Foerster feather reed grass	No. 1	Cont.	Well-rooted; 24" O.C.
36	CLH	Chelone lyonii 'Hot Lips'	Hot Lips' Turtle-head	No. 1	Cont.	Well-rooted; 24" O.C.
75	HSD	Hemerocallis 'Stella d'Oro'	Stella d'Oro daylily	No. 1	Cont.	Well-rooted; 18" O.C.
31	ISB	Iris siberica 'Baby Sister'	Baby Sister' Siberian iris	No. 1	Cont.	Well-rooted; 12" O.C.
146	LSG	Liriope spicata 'Gin-Ryu' SILVER DRAGON	Silver Dragon liriope	No. 1	Cont.	Well-rooted; 12" O.C.
7	PVS	Panicum virgatum 'Shenandoah'	Heavy Metal switchgrass	No. 1	Cont.	Well-rooted; 24" O.C.

SHEET NOTES:
1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN. TREES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING TREE

DECIDUOUS SHADE TREE

PERENNIAL / GROUNDCOVER PLANT BED

INDIVIDUAL ORNAMENTAL GRASS / PERENNIAL

Know what's below. Call before you dig.

SEE ABOVE	XXX	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD
BENCH MARK	SURVEY BOOK					

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LANDSCAPE PLAN - WEST CENTRAL

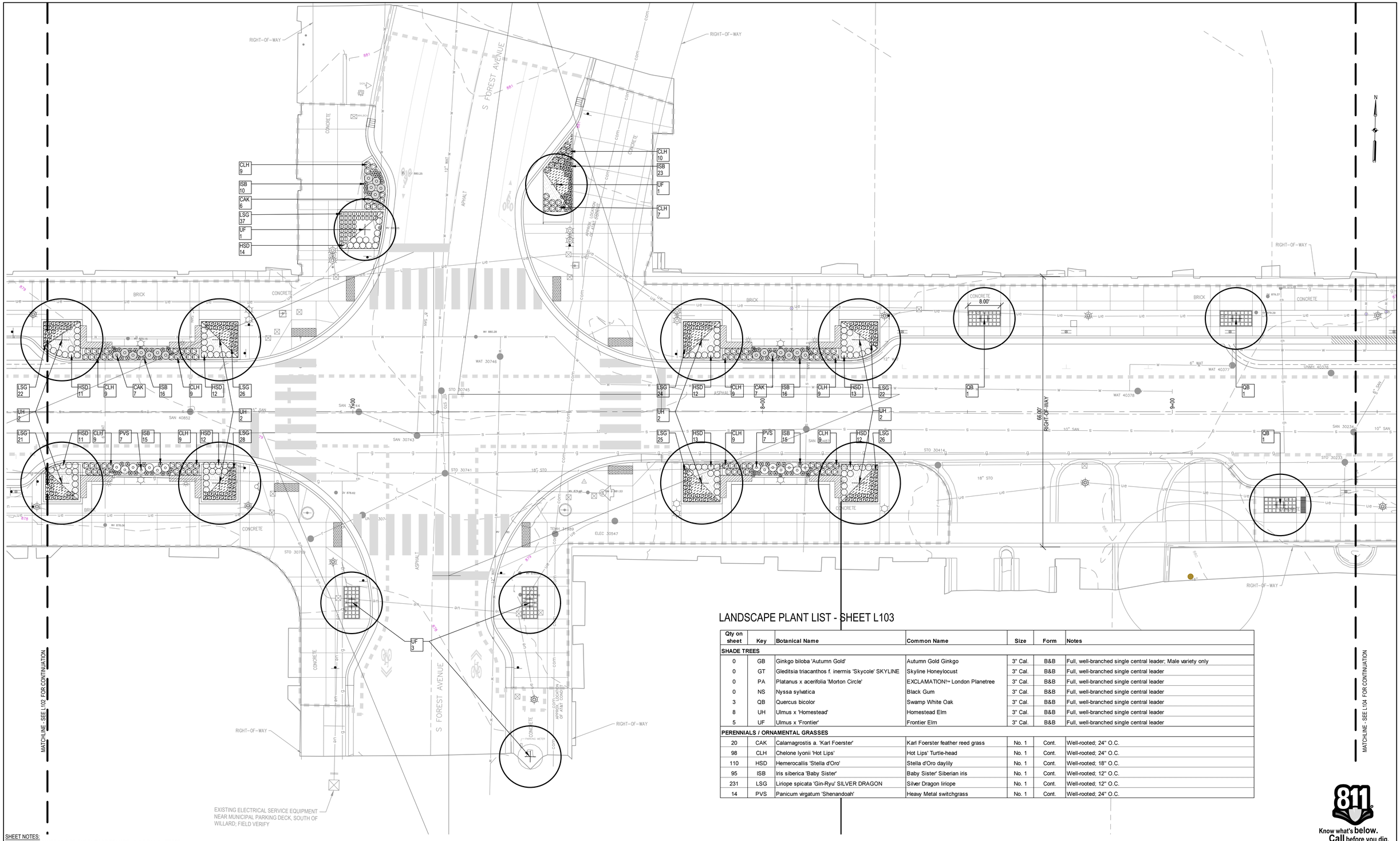
SCALE 1"=10'

INCH 0 1

DRAWING NO. L102

SHEET NO. 54 OF 59

APPROVED BY _____



LANDSCAPE PLANT LIST - SHEET L103

Qty on sheet	Key	Botanical Name	Common Name	Size	Form	Notes
SHADE TREES						
0	GB	Ginkgo biloba 'Autumn Gold'	Autumn Gold Ginkgo	3" Cal.	B&B	Full, well-branched single central leader; Male variety only
0	GT	Gleditsia triacanthos f. inermis 'Skycole' SKYLINE	Skyline Honeylocust	3" Cal.	B&B	Full, well-branched single central leader
0	PA	Platanus x acerifolia 'Morton Circle'	EXCLAMATION!™ London Planetree	3" Cal.	B&B	Full, well-branched single central leader
0	NS	Nyssa sylvatica	Black Gum	3" Cal.	B&B	Full, well-branched single central leader
3	QB	Quercus bicolor	Swamp White Oak	3" Cal.	B&B	Full, well-branched single central leader
8	UH	Ulmus x 'Homestead'	Homestead Elm	3" Cal.	B&B	Full, well-branched single central leader
5	UF	Ulmus x 'Frontier'	Frontier Elm	3" Cal.	B&B	Full, well-branched single central leader
PERENNIALS / ORNAMENTAL GRASSES						
20	CAK	Calamagrostis a. 'Karl Foerster'	Karl Foerster feather reed grass	No. 1	Cont.	Well-rooted; 24" O.C.
98	CLH	Chelone lyonii 'Hot Lips'	Hot Lips' Turtle-head	No. 1	Cont.	Well-rooted; 24" O.C.
110	HSD	Hemerocallis 'Stella d'Oro'	Stella d'Oro daylily	No. 1	Cont.	Well-rooted; 18" O.C.
95	ISB	Iris siberica 'Baby Sister'	Baby Sister' Siberian iris	No. 1	Cont.	Well-rooted; 12" O.C.
231	LSG	Liriope spicata 'Gin-Ryu' SILVER DRAGON	Silver Dragon liriope	No. 1	Cont.	Well-rooted; 12" O.C.
14	PVS	Panicum virgatum 'Shenandoah'	Heavy Metal switchgrass	No. 1	Cont.	Well-rooted; 24" O.C.

SHEET NOTES:
1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN. TREES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING TREE

DECIDUOUS SHADE TREE

PERENNIAL / GROUNDCOVER PLANT BED

INDIVIDUAL ORNAMENTAL GRASS / PERENNIAL

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LANDSCAPE PLAN - EAST CENTRAL

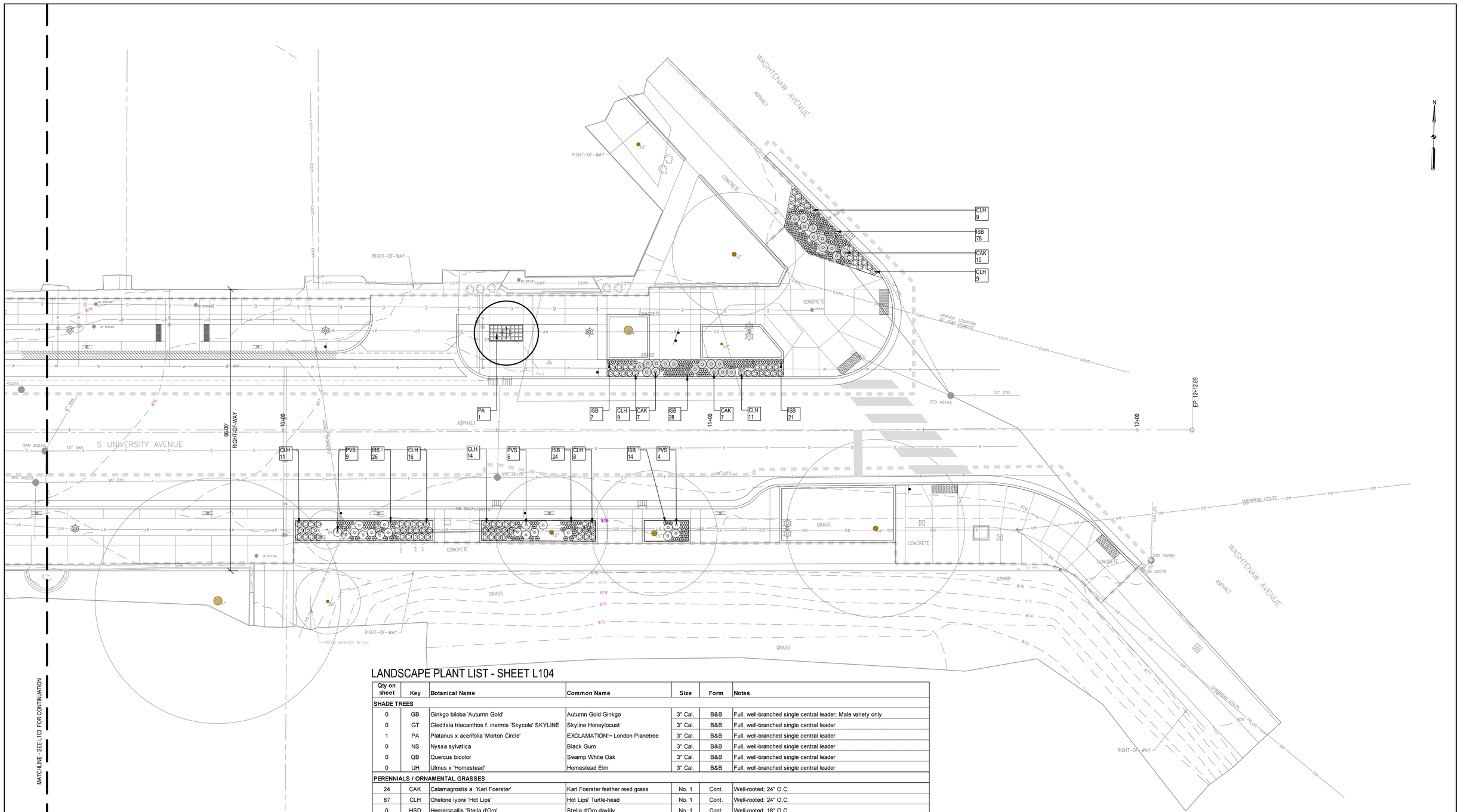
SCALE 1"=10'

INCH 0 1

DRAWING NO. L103

SHEET NO. 55 OF 59

APPROVED BY _____



LANDSCAPE PLANT LIST - SHEET L104

Qty on sheet	Key	Botanical Name	Common Name	Size	Form	Notes
SHADE TREES						
0	GB	Ginkgo biloba 'Autumn Gold'	Autumn Gold Ginkgo	3" Cal.	B&B	Full, well-branched single central leader; Male variety only
0	GT	Gleditsia triacanthos f. inermis 'Skycole' SKYLINE	Skyline Honeylocust	3" Cal.	B&B	Full, well-branched single central leader
1	PA	Platanus x acerifolia 'Morton Circle'	EXCLAMATION!™ London Planetree	3" Cal.	B&B	Full, well-branched single central leader
0	NS	Nyssa sylvatica	Black Gum	3" Cal.	B&B	Full, well-branched single central leader
0	QB	Quercus bicolor	Swamp White Oak	3" Cal.	B&B	Full, well-branched single central leader
0	UH	Ulmus x 'Homestead'	Homestead Elm	3" Cal.	B&B	Full, well-branched single central leader
PERENNIALS / ORNAMENTAL GRASSES						
24	CAK	Calamagrostis a. 'Karl Foerster'	Karl Foerster feather reed grass	No. 1	Cont.	Well-rooted; 24" O.C.
87	CLH	Chelone lyonii 'Hot Lips'	Hot Lips' Turtle-head	No. 1	Cont.	Well-rooted; 24" O.C.
0	HSD	Hemerocallis 'Stella d'Oro'	Stella d'Oro daylily	No. 1	Cont.	Well-rooted; 18" O.C.
195	ISB	Iris siberica 'Baby Sister'	Baby Sister' Siberian iris	No. 1	Cont.	Well-rooted; 12" O.C.
0	LSG	Liriope spicata 'Gin-Ryu' SILVER DRAGON	Silver Dragon liriope	No. 1	Cont.	Well-rooted; 12" O.C.
19	PVS	Panicum virgatum 'Shenandoah'	Heavy Metal switchgrass	No. 1	Cont.	Well-rooted; 24" O.C.

SHEET NOTES:
1. THE DDA IS WORKING TO ENCOURAGE PRIVATE VAULT FILL-IN. TREES AT STA. 1+42 LT/RT WILL NEED TO BE RELOCATED OR OMITTED IF VAULTS ARE TO REMAIN.

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

EXISTING TREE

DECIDUOUS SHADE TREE

PERENNIAL / GROUNDCOVER PLANT BED

INDIVIDUAL ORNAMENTAL GRASS / PERENNIAL

Know what's below. Call before you dig.

SEE ABOVE	XXX
BENCH MARK	SURVEY BOOK

REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
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.	.	.		
.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LANDSCAPE PLAN - EAST

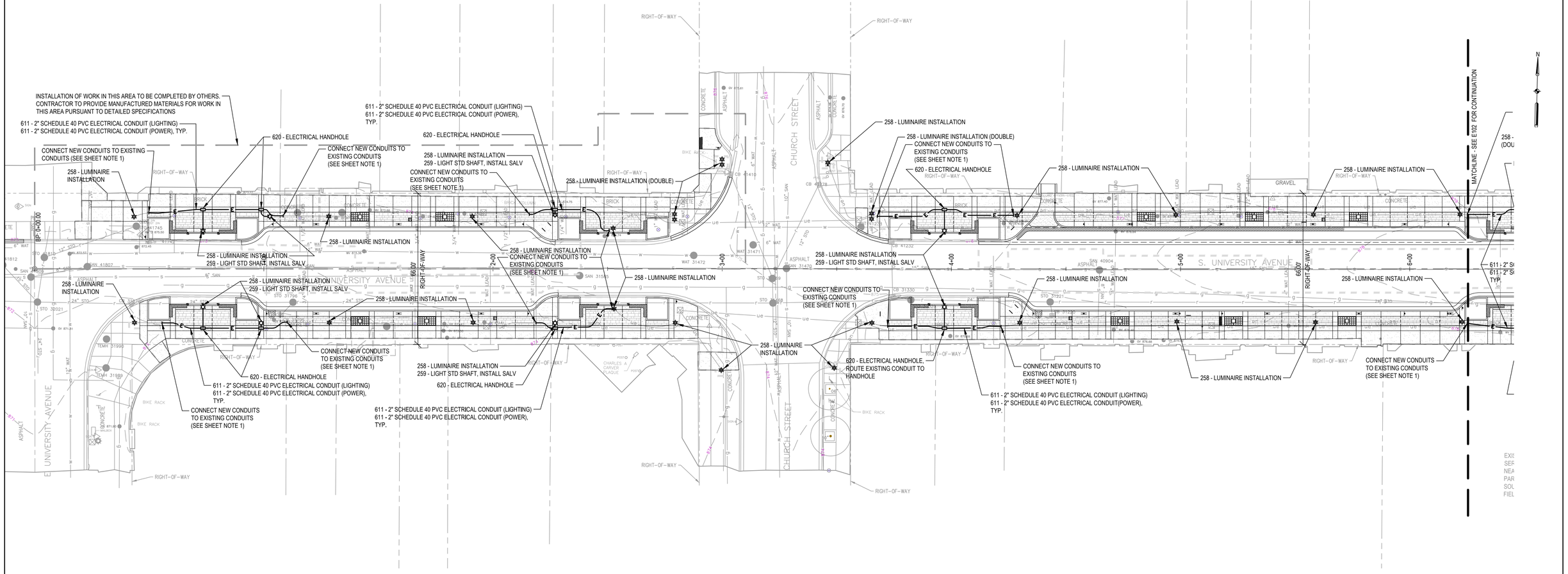
APPROVED BY _____

SCALE 1"=10'

INCH 0 1

DRAWING NO. L104

SHEET NO. 56 OF 59



SHEET NOTES:

1. RECONNECT RELOCATED FIXTURES TO EXISTING CIRCUIT. EXTEND WIRE AS REQUIRED FROM ADJACENT POLES TO REMAIN TO RELOCATED FIXTURES.
2. ALL NEW CONDUIT INCLUDES ALL FITTINGS REQUIRED TO CONNECT TO EXISTING CONDUIT.
3. EXISTING UNDERGROUND CONDUIT LOCATIONS ARE BASED OFF OF 1989 SOUTH UNIVERSITY STREETSCAPE PLANS PREPARED BY JOHNSON JOHNSON & ROY/INC.
4. LOCATIONS ARE FOR REFERENCE ONLY AND ARE TO BE FIELD VERIFIED PRIOR TO BID/CONSTRUCTION.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- EXISTING UNDERGROUND CONDUIT
- EXISTING HANDHOLE
- E — 611 - 2" SCHEDULE 40 PVC ELECTRICAL CONDUIT
- EHH — 620 - ELECTRICAL HANDHOLE
- 258 - LUMINAIRE INSTALLATION
- 258 - LUMINAIRE INSTALLATION (DOUBLE)
- 258 - LUMINAIRE INSTALLATION / 259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION (DOUBLE) / 259 - LIGHT STD SHAFT, INSTALL SALV

SEE ABOVE	XXX	.	.	.		
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BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY
		.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD

APPROVED BY _____

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

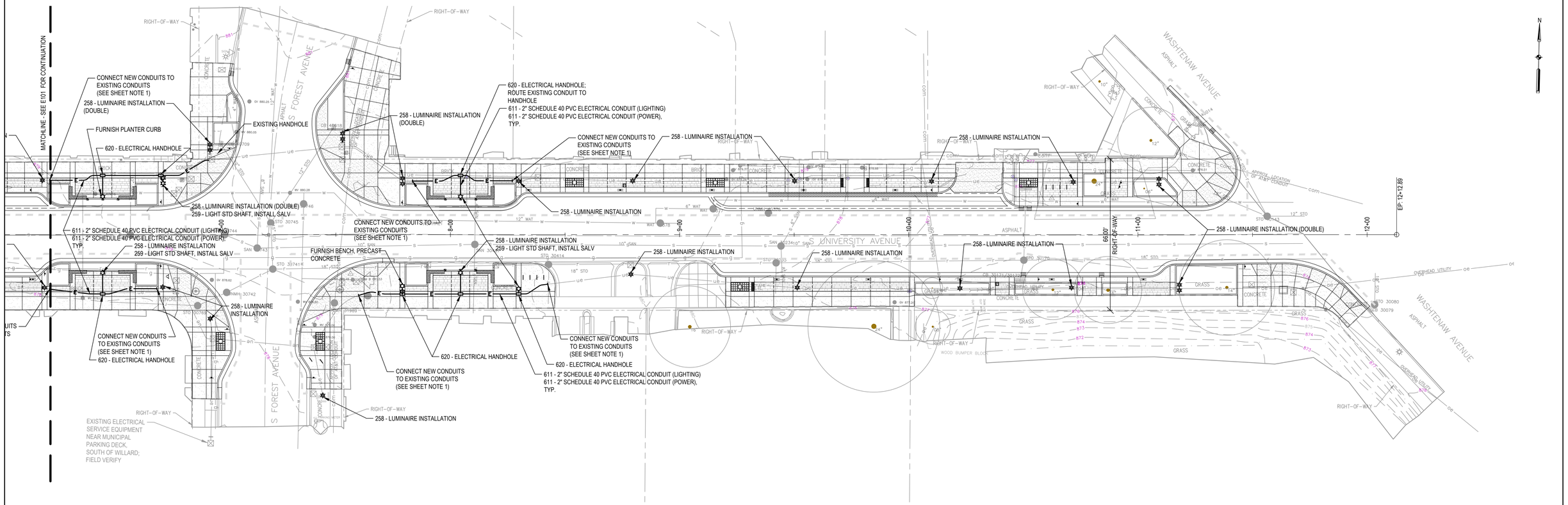
LIGHTING PLAN - WEST

SCALE
HOR. 1"=20'
VERT. 1"=2'

INCH
0 1

DRAWING NO. **E101**

SHEET NO. 57 OF 59



SHEET NOTES:

1. RECONNECT RELOCATED FIXTURES TO EXISTING CIRCUIT. EXTEND WIRE AS REQUIRED FROM ADJACENT POLES TO REMAIN TO RELOCATED FIXTURES.
2. ALL NEW CONDUIT INCLUDES ALL FITTINGS REQUIRED TO CONNECT TO EXISTING CONDUIT.
3. EXISTING UNDERGROUND CONDUIT LOCATIONS ARE BASED OFF OF 1989 SOUTH UNIVERSITY STREETSCAPE PLANS PREPARED BY JOHNSON JOHNSON & ROY/INC.
4. LOCATIONS ARE FOR REFERENCE ONLY AND ARE TO BE FIELD VERIFIED PRIOR TO BID/CONSTRUCTION.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

- EXISTING UNDERGROUND CONDUIT — E —
- EXISTING HANDHOLE EH
- 611 - 2" SCHEDULE 40 PVC ELECTRICAL CONDUIT
- 620 - ELECTRICAL HANDHOLE
- 258 - LUMINAIRE INSTALLATION
- 258 - LUMINAIRE INSTALLATION (DOUBLE)
- 258 - LUMINAIRE INSTALLATION; 259 - LIGHT STD SHAFT, INSTALL SALV
- 258 - LUMINAIRE INSTALLATION (DOUBLE); 259 - LIGHT STD SHAFT, INSTALL SALV

SEE ABOVE	XXX	.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD
		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

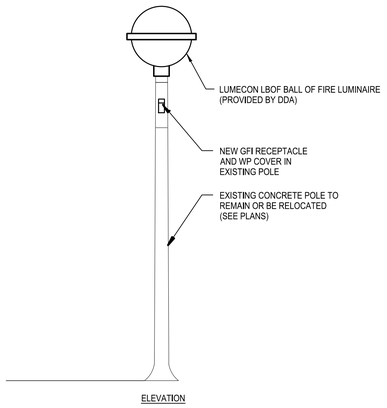
LIGHTING PLAN - EAST

APPROVED BY _____

SCALE
HOR. 1"=20'
VERT. 1"=2'
INCH 0 1

DRAWING NO. E102

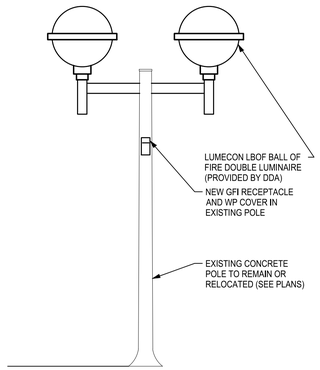
SHEET NO. 58 OF 59



ELEVATION

1 LIGHT FIXTURE, SINGLE GLOBE

N.T.S.



ELEVATION

2 LIGHT FIXTURE, DOUBLE GLOBE

N.T.S.

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

LEGEND (SEE MASTER LEGEND ON G101 FOR ALL OTHER SYMBOLS)

SEE ABOVE	XXX	.	.	.		
		.	.	.		
		.	.	.		
BENCH MARK	SURVEY BOOK	.	BID DOCUMENTS	05DEC16	SJT/AMR	EM/BD
		REV. NO.	DESCRIPTION	DATE	DR.BY	CH.BY

APPROVED BY _____

DOWNTOWN DEVELOPMENT AUTHORITY - CITY OF ANN ARBOR

LIGHTING DETAILS

SCALE
HOR. 1"=40'
VERT. 1"=4'

INCH
0 1

DRAWING NO.
E103

SHEET NO. 59 OF 59