

REQUEST FOR PROPOSAL

RFP # 20-32

2021 Engineering Inspection Services

City of Ann Arbor
Public Services Area - Engineering



Due Date: October 14, 2020 by 2:00 p.m. (local time)

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

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SECTION I - GENERAL INFORMATION

A. OBJECTIVE

The City of Ann Arbor is seeking the services of a Professional Engineering firm to provide full-time project inspection services in connection with the 2020 Capital Preventative Bridge Maintenance Project. The project inspectors will work with, and report to, the City's Project Manager/Project Engineer on all inspection tasks associated with the projects.

The City is seeking these services for the duration of the construction of these projects that are expected to be performed in Spring and Summer 2021. The 2020 Capital Bridge Maintenance Project consists of the construction of various capital preventative maintenance measures on the Broadway Bridges over the MDOT-owned Wolverine Line and the Huron River, the Fuller Road Bridges over the Huron River, the Island Drive bridge over Traver Creek, the Huron Parkway bridge over the Huron River, the Wolverine Line, and Geddes Avenue. More specifically, the work will consist of both deep and shallow hand-chipping and patching barrier wall, sidewalks, and concrete bridge decks with latex-modified concrete; placement of healer-sealer or epoxy overlays; removing mechanical anchors and replacing them with epoxy-adhesive, anchored threaded studs; placing a 6-inch, composite, cast-in-place concrete deck over existing pre-stressed bridge planks; rip-rap placement and repairs; repairing a fabricated metal railing post; and other related work. Pedestrian and vehicular traffic will be maintained as shown on the project plans and is an important aspect of this work.

An important element of the project is the required coordinating of the work with Amtrak for their needed inspection services. All project personnel will be required to pay for, and pass, the required Amtrak contractor training so that they can safely occupy the railroad right-of-way.

Plans and contract documents for this project have been prepared (as noted below), are provided as an attachment to this RFP, and must be reviewed prior to the submittal of a proposal for the work. Note, final contract documents for the 2020 Capital Bridge Preventative Maintenance Project are not yet completed. However, pre-final versions of the contract plans and proposed detailed specifications for the project are attached. It is expected that final contract documents for this project will be completed in mid-October, 2020.

B. QUESTIONS AND CLARIFICATIONS / DESIGNATED CITY CONTACTS

All questions regarding this Request for Proposal (RFP) shall be submitted via e-mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFP.

All questions shall be submitted on, or before, September 28, 2020 at 10:00 a.m., and should be addressed as follows:

Scope of Work/Proposal Content questions shall be e-mailed to **Michael G. Nearing, P.E., Senior Project Manager**, mnearing@a2gov.org

RFP Process and Compliance questions shall be e-mailed to **Colin Spencer, Buyer** - CSpencer@a2gov.org

Should any prospective offeror be in doubt as to the true meaning of any portion of this RFP, or should the prospective offeror find any ambiguity, inconsistency, or omission therein, the prospective offeror shall make a written request for an official interpretation or correction by the due date for questions above.

All interpretations, corrections, or additions to this RFP will be made only as an official addendum that will be posted to a2gov.org and MITN.info and it shall be the prospective offeror's responsibility to ensure they have received all addenda before submitting a proposal. Any addendum issued by the City shall become part of the RFP and must be incorporated in the proposal where applicable.

C. PRE-PROPOSAL MEETING

A pre-proposal meeting will **not** be held for this project due to pandemic and social distancing concerns.

Any questions that prospective proposers may have regarding the project or any of its elements shall be addressed in writing to either Mr. Colin Spencer or Mr. Michael G. Nearing, P.E. as outlined in sub-paragraph B. contained herein.

D. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the prospective offeror. An official authorized to bind the offeror to its provisions must sign the proposal in ink. Each proposal must remain valid for at least ninety days from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the offeror's ability to meet the requirements of the RFP. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

E. SELECTION CRITERIA

Responses to this RFP will be evaluated using a point system as shown in Section III. A selection committee comprised of staff from the City will complete the evaluation.

The fee proposals will not be reviewed at the initial evaluation. After initial evaluation, the City will determine top proposals, and open only those fee proposals. The City will then

determine which, if any, firms will be interviewed. During the interviews, the selected firms will be given the opportunity to discuss their proposal, qualifications, past experience, and their fee proposal in more detail. The City further reserves the right to interview the key personnel assigned by the selected offeror to this project. If the City chooses to interview any respondents, the interviews will be tentatively held the **week of October 26, 2020**. Offeror must be available on these dates.

All proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the proposal response shall be documented and included as part of the final contract.

F. SEALED PROPOSAL SUBMISSION

All proposals are due and must be delivered to the City on or before, October 14, 2020 at 2:00 p.m. (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each respondent must submit in a sealed envelope

- **one (1) original proposal**
- **three (3) additional proposal copies**
- **one (1) digital copy of the proposal preferably on a USB/flash drive as one file in PDF format**

Each respondent must submit in a single separate sealed envelope marked Fee Proposal

- **two (2) copies of the fee proposal**

The fee proposal and all costs must be separate from the rest of the proposal. The Offeror is requested to separate their proposed fees for each project so that the estimated cost for each project is easily discernable.

Proposals submitted must be clearly marked: **“RFP No. 20-32 – 2021 Engineering Inspection Services”** and list the offeror’s name and address.

Proposals must be addressed and delivered to:
City of Ann Arbor
c/o Customer Service
301 East Huron Street
Ann Arbor, MI 48107

All proposals received on or before the due date will be publicly opened and recorded on the due date. No immediate decisions will be rendered.

Hand delivered bids may be dropped off in the Purchasing drop box located in the Ann Street (north) vestibule of City Hall which is open to the public at all hours.

The City will not be liable to any prospective offeror for any unforeseen circumstances, delivery, or postal delays. Postmarking on the due date will not substitute for receipt of the proposal. Offerors are responsible for submission of their proposal. Additional time will not be granted to a single prospective offeror. However, additional time may be granted to all prospective offerors at the discretion of the City.

A proposal may be disqualified if the following required forms are not included with the proposal:

- **Attachment C - City of Ann Arbor Non-Discrimination Declaration of Compliance**
- **Attachment D - City of Ann Arbor Living Wage Declaration of Compliance**
- **Attachment E - Vendor Conflict of Interest Disclosure Form of the RFP Document**

Proposals that fail to provide these forms listed above upon proposal opening may be deemed non-responsive and may not be considered for award.

Please provide the forms outlined above (Attachments C, D and E) within your narrative proposal, not within the separately sealed Fee Proposal envelope.

All proposed fees, cost or compensation for the services requested herein should be provided in the separately sealed Fee Proposal envelope only.

G. DISCLOSURES

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

H. TYPE OF CONTRACT

A sample of the Professional Services Agreement is included as Appendix A. Those who wish to submit a proposal to the City are required to review this sample agreement carefully. **The City will not entertain changes to its Professional Services Agreement.**

The City reserves the right to award the total proposal, to reject any or all proposals in whole or in part, and to waive any informality or technical defects if, in the City's sole judgment, the best interests of the City will be so served.

This RFP and the selected offeror's response thereto, shall constitute the basis of the scope of services in the contract by reference.

I. NON-DISCRIMINATION

All offerors proposing to do business with the City 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 Attachment C 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 a contract with the City.

J. WAGE REQUIREMENTS

The Attachments provided herein outline the requirements for payment of prevailing wages or of a "living wage" to employees providing service to the City under this contract. The successful offeror must comply with all applicable requirements and provide documentary proof of compliance when requested.

K. CONFLICT OF INTEREST DISCLOSURE

The City of Ann Arbor Purchasing Policy requires that the consultant complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected offeror unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may be awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Conflict of Interest Disclosure Form is attached.

L. COST LIABILITY

The City of Ann Arbor assumes no responsibility or liability for costs incurred by the offeror prior to the execution of a Professional Services Agreement. The liability of the City is limited to the terms and conditions outlined in the Agreement. By submitting a proposal, offeror agrees to bear all costs incurred or related to the preparation, submission, and selection process for the proposal.

M. DEBARMENT

Submission of a proposal in response to this RFP is certification that the Respondent 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.

N. PROPOSAL PROTEST

All proposal protests must be in writing and filed with the Purchasing Manager within five (5) business days of the award action. The offeror must clearly state the reasons for the protest. If an offeror contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the offeror to the Purchasing Manager. The Purchasing Manager will provide the offeror with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee, whose decision shall be final.

Any inquiries or requests regarding this procurement should be only submitted in writing to the Designated City Contacts provided herein. Attempts by the offeror to initiate contact with anyone other than the Designated City Contacts provided herein that the offeror believes can influence the procurement decision, e.g., Elected Officials, City Administrator, Selection Committee Members, Appointed Committee Members, etc., may lead to immediate elimination from further consideration.

O. SCHEDULE

The proposals submitted should define an appropriate schedule in accordance with the requirements of the Proposed Work Plan in Section III.

The following is the schedule for this RFP process.

<u>Activity/Event</u>	<u>Anticipated Date</u>
Written Question Deadline	September 28, 2020, 10:00 a.m.
Addenda Published (if needed)	October 1, 2020
Proposal Due Date	October 14, 2020, 2:00 p.m. (Local Time)
Tentative Interviews (if needed)	Week of October 26, 2020
Selection/Negotiations	Week of November 2, 2020
Expected City Council Authorizations	January, 2021 (first Council Meeting)

The above schedule is for information purposes only and is subject to change at the City’s discretion.

P. IRS FORM W-9

The selected offeror will be required to provide the City of Ann Arbor an IRS form W-9.

Q. RESERVATION OF RIGHTS

1. The City reserves the right in its sole and absolute discretion to accept or reject any or all proposals, or alternative proposals, in whole or in part, with or without cause.
2. The City reserves the right to waive, or not waive, informalities or irregularities in of any proposal if determined by the City to be in its best interest.
3. The City reserves the right to request additional information from any or all offerors.

4. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested within RFP.
5. The City reserves the right to determine whether the scope of the project will be entirely as described in the RFP, a portion of the scope, or a revised scope be implemented.
6. The City reserves the right to select one or more consultants to perform services.
7. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in this RFP, unless clearly and specifically noted in the proposal submitted.
8. The City reserves the right to disqualify proposals that fail to respond to any requirements outlined in the RFP, or failure to enclose copies of the required documents outlined within RFP.

R. ENVIRONMENTAL COMMITMENT

The City of Ann Arbor recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a vibrant community and economy. The City further recognizes that the products and services the City buys have inherent environmental and economic impacts and that the City should make procurement decisions that embody, promote, and encourage the City's commitment to the environment.

The City encourages potential vendors to bring forward emerging and progressive products and services that are best suited to the City's environmental principles.

SECTION II - SCOPE OF SERVICES

The following services shall be provided by the Consultant in conjunction with the delivery of the 2020 Capital Bridge Preventative Maintenance Project.

The Consultant shall perform all needed project tasks in conformance with the requirements of the City of Ann Arbor.

On-Site Inspection: Activities associated with this task will be dedicated to verifying that all materials provided and work performed is in conformance with the project plans and specifications, and they include: providing inspection personnel that possess the necessary, current, accreditations consistent with City of Ann Arbor and federal-aid oversight procedures; thorough review of the plans and specifications and other project related documents prior to construction start up; daily communication with contractor supervision to coordinate inspection activities and to properly inspect, test, measure, and document the work; daily communication with the contractor, advising of needed corrections to the work, i.e. traffic control or soil erosion device maintenance, etc.; daily communication with the survey crew(s) to obtain proper interpretation of stakes and coordinate daily staking needs; daily communication with testing personnel to properly sample and test the materials and work; attend the weekly progress/planning meeting; inspect materials to be used in the work, verifying they meet the project specifications; document material usage and quantities on the IDR using FieldBook; review/inspect the Contractor's equipment to confirm it meets the project specifications, and document the specific type and amount of equipment used on the IDR; inspect the contractor's workmanship to verify that it meets the methods, tolerances, time requirements, temperature requirements etc., of the specifications, and document this on the IDR; inspect and document that the work is performed and completed to the lines, grades, and elevations required by the project plans and specifications; document the contractor workforce and weather conditions on the IDR; document daily contractor activities, including any description and explanation of downtime, damage to the work, any actions taken by others including utilities, City forces, adjacent property owners, etc. on the IDR; where possible final measure work as it's done by the contractor, calculate quantities and document this on the IDR or in field books as appropriate; conduct wage rate interviews with the appropriate members of the contractor's and sub-contractor's work forces; conduct daily review/inspection of temporary traffic control devices and the maintenance of traffic throughout the construction influence area; conduct periodic nighttime review/inspection of temporary traffic control devices and the maintenance of traffic throughout the construction influence area; provide certified storm water operators and conduct daily inspection of all soil erosion and sedimentation control devices for proper maintenance and effectiveness as placed; perform and document NPDES inspections at the required frequencies; suspend any work and/or reject any materials not conforming to the contract requirements; perform and document wage rate interviews; document changes, extra work, "revisions to" notes etc. on the plans to assist in the preparation of "as built" plans; develop and maintain the project "punch list"; keep all needed force account documentation, as required.

The Consultant shall furnish its inspectors with equipment and materials as necessary to properly perform their work. This will include, but is not limited to, laptop computers equipped with FieldBook, cell phones with texting and internet capabilities, proposal, plans, MDOT Standard

Specifications for Construction, City of Ann Arbor standard plans and specifications, MDOT standard plans, a Nikon AP-5 Auto Level with tri-pod legs or equivalent, eye level, right angle prism, plumb bob with gammon reel, 25 foot grade pole, 6 foot level, 1 torpedo level, 1-100 foot cloth tape, 1-25 foot steel tape, measuring wheel, pick axe, road point shovel, 8# sledge hammer, paint, first-aid kit, and any other hand tools needed to inspect the work.

Once assigned to the project, inspection personnel will not be removed from, or added to, the project without the written authorization of the City's Project Manager.

Project Close-Out: The project close-out tasks include: Working with the City's Project Manager/Project Engineer to resolve all outstanding disputes and issues relative to extra or additional work, pay item quantities, and materials documentation; prepare, review, and balance all final pay item quantities; provide complete project documentation and any files, notes, or other documentation generated as part of the project's inspection activities; and one complete set of "marked-up, as-built" plans to the City for their use in preparing as-built drawings of the project when it has been completed.

SECTION III - MINIMUM INFORMATION REQUIRED

PROPOSAL FORMAT

Offerors should organize Proposals into the following Sections:

- A. Professional Qualifications
- B. Past Involvement with Similar Projects
- C. Proposed Work Plan
- D. Fee Proposal (include in a separate sealed envelope clearly marked “Fee Proposal”)
- E. Authorized Negotiator
- F. Attachments

The following describes the elements that should be included in each of the proposal sections and the weighted point system that will be used for evaluation of the proposals.

A. Professional Qualifications – 30 points

1. State the full name and address of your organization and, if applicable, the branch office or other subsidiary element that will perform, or assist in performing, the work hereunder. Indicate whether it operates as an individual, partnership, or corporation. If as a corporation, include whether it is licensed to operate in the State of Michigan.
2. Include the name of executive and professional personnel by skill and qualification that will be employed in the work. Show where these personnel will be physically located during the time they are engaged in the work. Indicate which of these individuals you consider key to the successful completion of the project. Identify only individuals who will do the work on this project by name and title. Resumes and qualifications are required for all proposed project personnel, including all subcontractors. Qualifications and capabilities of any subcontractors must also be included.
3. State history of the firm, in terms of length of existence, types of services provided, etc. Identify the technical details that make the firm uniquely qualified for this work.

B. Past involvement with Similar Projects – 30 points

The written proposal must include a list of specific experience in the project area and indicate proven ability in implementing similar projects for the firm **and** the individuals to be involved in the project. A complete list of client references must be provided for similar projects recently completed. The list shall include the firm/agency name, address, telephone number, project title, and contact person.

C. Proposed Work Plan – 20 points

Provide a detailed and comprehensive description of how the offeror intends to provide the services requested in this RFP. This description shall include, but not be limited to: how the project(s) will be managed and scheduled, how and when data and materials will be delivered to the City, communication and coordination, the working relationship between the offeror and City staff, and the company's general philosophy in regards to providing the requested services.

Offerors shall be evaluated on the clarity, thoroughness, and content of their responses to the above items.

D. Fee Proposal - 20 points

Fee schedules shall be submitted in a separate, sealed, envelope as part of the proposal. Fee quotations are to include the names, title, hourly rates, overhead factors, and any other relevant details. The proposal should highlight key staff and positions that would likely be involved with projects. Offerors shall be capable of justifying the details of the fee proposal relative to personnel costs, overhead, how the overhead rate is derived, material and time.

E. Authorized Negotiator

Include the name, phone number, and e-mail address of persons(s) in your organization authorized to negotiate the agreement with the City

F. Attachments

Legal Status of Offeror, Conflict of Interest Form, Living Wage Compliance Form, and the Non-Discrimination Form must be returned with the proposal. These elements should be included as attachments to the proposal submission.

PROPOSAL EVALUATION

1. The selection committee will evaluate each proposal by the above-described criteria and point system (A through C) to select a short-list of firms for further consideration. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm to be a candidate for an interview. The committee may contact references to verify material submitted by the offerors.
2. The committee then will schedule interviews with the selected firms if necessary. The selected firms will be given the opportunity to discuss in more detail their qualifications, past experience, proposed work plan and fee proposal.

3. The interview must include the project team members expected to complete a majority of work on the project, but no more than six members total. The interview shall consist of a presentation of up to thirty minutes (or the length provided by the committee) by the offeror, including the person who will be the project manager on this contract, followed by approximately thirty minutes of questions and answers. Audiovisual aids may be used during the oral interviews. The committee may record the oral interviews.
4. The firms interviewed will then be re-evaluated by the above criteria (A through D), and adjustments to scoring will be made as appropriate. After evaluation of the proposals, further negotiation with the selected firm may be pursued leading to the award of a contract by City Council, if suitable proposals are received.

The City reserves the right to waive the interview process and evaluate the offerors based on their proposals and fee schedules alone and open fee schedules before or prior to interviews.

The City will determine whether the final scope of the project to be negotiated will be entirely as described in this RFP, a portion of the scope, or a revised scope.

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.

Any proposal that does not conform fully to these instructions may be rejected.

PREPARATION OF PROPOSALS

Proposals should have no plastic bindings but will not be rejected as non-responsive for being bound. Staples or binder clips are acceptable. Proposals should be printed double sided on recycled paper. Proposals should not be more than 30 sheets (60 sides), not including required attachments and resumes.

Each person signing the proposal certifies that they are a person in the offeror's firm/organization responsible for the decisions regarding the fees being offered in the Proposal and has not and will not participate in any action contrary to the terms of this provision.

ADDENDA

If it becomes necessary to revise any part of the RFP, notice of the addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or the City of Ann Arbor web site www.A2gov.org for all parties to download.

Each offeror must acknowledge in its proposal all addenda it has received. The failure of an offeror to receive or acknowledge receipt of any addenda shall not relieve the offeror of the responsibility for complying with the terms thereof. The City will not be bound by oral responses to inquiries or written responses other than official written addenda.

SECTION IV - ATTACHMENTS

Attachment A – Project Plans and Contract Documents

A.1 – 2020 Capital Preventative Bridge Maintenance Plans (preliminary set)

A.2 – Pre-final Detailed Specifications – 2020 Capital Preventative Bridge Maintenance Plans

Attachment B - Legal Status of Offeror

Attachment C – Non-Discrimination Ordinance Declaration of Compliance Form

Attachment D – Living Wage Declaration of Compliance Form

Attachment E – Vendor Conflict of Interest Disclosure Form

Attachment F – Non-Discrimination Ordinance Poster

Attachment G – Living Wage Ordinance Poster

ATTACHMENT A.1
2020 Capital Bridge Preventative Maintenance Plans
(Preliminary Set)



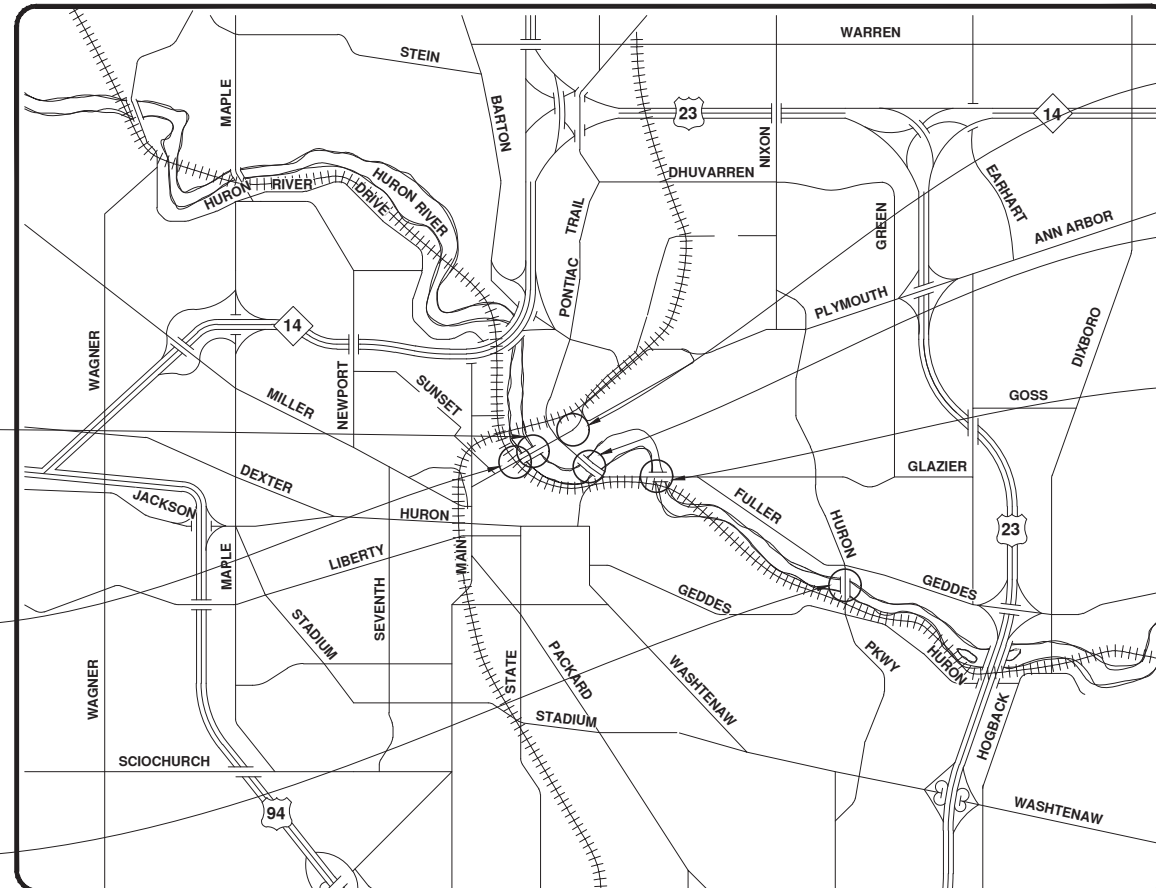
CITY OF ANN ARBOR PROJECT MANAGEMENT

2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAIDEN LANE OVER HURON RIVER
HURON PARKWAY OVER HURON RIVER
ISLAND DRIVE OVER TRAVER CREEK
BROADWAY OVER DEPOT STREET & MDOT RAILROAD
BROADWAY OVER HURON RIVER
WB & EB FULLER ROAD OVER HURON RIVER

STANDARD PLANS		
CONSTRUCTION OF THE FOLLOWING ITEMS, WHEN CALLED FOR ON THE PLANS, WILL BE CONSTRUCTED ACCORDING TO MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD PLANS AS INDICATED.		
REQUIRED ON THIS PROJECT	ITEM OF WORK	STANDARD PLAN NUMBERS
X	INLET-JUNCTION CHAMBER	SD-S-9*
X	SINGLE INLET STRUCTURE	SD-S-10*
X	COVER K	R-15-G
X	CURB RAMP AND DETECTABLE WARNING SURFACE	R-28-J
X	PRECAST CONCRETE END SECTION FOR PIPE CULVERT	R-86-F
X	GUARDRAIL, TYPE MGS-8	R-60-J
X	GUARDRAIL, ANCHORAGE, BRIDGE DETAILS	R-67-G
X	BRIDGE RAILING, AESTHETIC PARAPET TUBE	B-25-K
X	FENCING FOR PEDESTRIAN STRUCTURE	B-35-D
X	MOLDING, BEVEL, LIGHT STD. ANCHOR BOLT ASSEMBLY AND NAME PLATE DETAILS	B-103-E
TRAFFIC AND SAFETY STANDARD PLANS		
X	TEMPORARY TRAFFIC CONTROL DEVICES	WZD-125-E

* CITY DETAIL

CITY OF ANN ARBOR FILE NO. 2020-025



VICINITY MAP

**PRELIMINARY
NOT FOR CONSTRUCTION**

STR 11075
BROADWAY OVER HURON RIVER

STR 11076
BROADWAY OVER DEPOT ST & MDOT RAILROAD

STR 11074
HURON PARKWAY OVER HURON RIVER

STR 11081
ISLAND DRIVE OVER TRAVER CREEK

STR 11072
MAIDEN LANE OVER HURON RIVER

STR 11070 & 11071
WB & EB FULLER ROAD OVER HURON RIVER



ENGINEERING

MICHAEL G. NEARING, P.E. - MI LICENSE No. 38748
SENIOR PROJECT MANAGER

XX/XX/XXXX
DATE

PREPARED UNDER THE SUPERVISION OF

JONATHAN DRUMMOND, P.E. - MI LICENSE No. 50042

XX/XX/XXXX
DATE



REV.	DESCRIPTION	DATE	DRAWN	CHECKED
			BSM	JBD
		X-XX-20		

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-6647
www.a2gov.org



PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
TITLE SHEET

ENGINEER'S SEAL
SCALE: NONE
DRAWING No.
2020-025

NOTES:

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE CONTRACT DOCUMENTS AND DETAILED SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE LATEST REVISIONS OF THE CITY OF ANN ARBOR PUBLIC SERVICE DEPARTMENT STANDARD SPECIFICATIONS AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION 2012 EDITION AS APPLICABLE.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, THE CONTRACTOR SHALL CALL 811 OR 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS, PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

THE UNDERGROUND LOCATIONS AND DEPTH SHOWN FOR ALL PUBLIC AND PRIVATE UTILITIES ARE APPROXIMATE. THE CITY OF ANN ARBOR, THE UNIVERSITY OF MICHIGAN, AND FTCH ASSUMES NO RESPONSIBILITY FOR THEIR ACCURATE REPRESENTATION IN THIS DRAWING. THE CONTRACTOR SHALL CONTACT MISS DIG TO LOCATE ALL MARKED AND UNMARKED UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DELAYS, DAMAGES, COSTS AND/OR CHARGES INCURRED DUE TO AND/OR BY REASON OF ANY UTILITY, STRUCTURE, FEATURES AND/OR SITE CONDITION, WHETHER SHOWN ON THE PLANS OR NOT. 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 DURING THE OPERATIONS OF ITS SUBCONTRACTORS OR SUPPLIERS.

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 AS SPECIFIED IN MAINTAINING TRAFFIC PLANS AND SPECIFICATIONS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUOUS MAINTENANCE OF THE TEMPORARY TRAFFIC CONTROL DEVICES AND SOIL EROSION CONTROL MEASURES WITHIN THE CONSTRUCTION AREA AND APPROACHES TO PROJECT SITE, UNTIL THE FINAL COMPLETION OF THE PROJECT. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE RELATED ITEMS OF WORK.

THE LOCATION OF MATERIAL STOCK PILES AND ON-SITE STAGING AREAS TO BE APPROVED BY THE ENGINEER. ANY MATERIALS STOCKPILED OR STORED SHALL NOT CREATE AN EROSION PROBLEM, INTERFERE WITH DRAINAGE, OR CREATE INSUFFICIENT SIGHT DISTANCE.

EXISTING STREET NAME, GUIDE, REGULATORY SIGNS, MAILBOXES, ETC., 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 THE OTHER BID ITEMS OF WORK.

A RAILROAD PERMIT IS NOT REQUIRED UNDER THE CONDITION THAT THE CONTRACTOR KEEPS ALL WORKERS, MATERIALS, VEHICLES AND EQUIPMENT ON THE PARKING LOTS SIDE OF THE PIER BETWEEN THE AREA TO BE PATCHED AND THE RAILROAD TRACKS, AND IN NO CIRCUMSTANCE SHALL THE CONTRACTOR ACCESS THE TRACK SIDE OF THE PIER.

ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

UNLESS OTHERWISE SHOWN ON THE PLANS PROVIDE MINIMUM CONCRETE CLEAR COVER FOR REINFORCEMENT ACCORDING TO THE FOLLOWING:
 CONCRETE CAST AGAINST EARTH: 3 IN.
 PRESTRESSED BEAMS: 1 IN.
 ALL OTHER UNLESS SHOWN ON PLANS: 2 IN.

REMOVAL OF EXISTING HMA OVERLAY, HMA CAP OR HMA PATCHES AS A RESULT OF REMOVAL OF OTHER SUPERSTRUCTURE ITEMS SHALL BE INCLUDED IN THE REMOVAL OF THOSE ITEMS AND SHALL NOT BE PAID FOR SEPARATELY

TRAVER CREEK AND HURON RIVER WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. THE PREVENTIVE MEASURES SHALL BE EFFECTIVE. IF DEBRIS FALL OFF THE STRUCTURE, IT SHALL BE REMOVED IMMEDIATELY.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.

MEANS OF WATER CONTROL MAY BE USED, AS APPROVED BY THE ENGINEER, PROVIDED THEY DO NOT DISTURB THE STREAM BED. WATER CONTROL, WHETHER IT BE BY COFFERDAM OR OTHER APPROVED MEANS, SHALL BE PAID FOR AS COFFERDAM.

LOW TEMPERATURE PROTECTION OF CONCRETE PATCHING MATERIALS SHALL BE APPLIED ACCORDING TO SECTION 706.03 J. OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE OTHER BID ITEMS OF WORK.

ADHESIVE ANCHOR SYSTEMS SHALL BE CHOSEN FROM HILITI HIT-RE-500V3 CERAMIC 6, EPCON ACRYLIC 7, DEWALT PURE 110+EPOXY, SIKA ANCHORFIX 500 EPOXY, OR AS ENGINEER APPROVES EQUAL.

SYSTEMS FOR ANCHORING HORIZONTAL OR VERTICAL REINFORCEMENT AND BOLTS IN EXISTING CONCRETE SHALL BE CHOSEN FROM THE QUALIFIED PRODUCTS LIST IN THE CURRENT MDOT MATERIALS SOURCE GUIDE.

NO PORTION OF THE FORMWORK OR FALSEWORK SHALL ENCR OACH ON THE EXISTING UNDERCLEARANCE.

ALL CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, EXCEPT AS MODIFIED IN THESE PLANS.

ALL REINFORCEMENT BARS SHALL BE NEW AND EPOXY COATED.

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6	EXISTING GENERAL PLAN OF STRUCTURE - MAIDEN LANE
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PUBLIC UTILITY CONTACT INFORMATION		
WATER	CITY OF ANN ARBOR FIELD OPERATIONS SERVICE UNIT W.R. WHEELER SERVICE CENTER 4251 STONE SCHOOL ROAD ANN ARBOR, MI 48108	DAN WOODEN (734) 794-6350
SANITARY		TRAVIS CONLEY (734) 794-3325
STORM		PAT MAINO (734) 794-3304
FORESTRY		MATT WALDSMITH (734) 794-3321
SIGNS SIGNALS STREET LIGHTS		CHUCK FOJTIK (734) 794-6361

PRIVATE UTILITY CONTACT INFORMATION		
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	SHAWN BURNSIDE (734) 996-2135
FIBER OPTIC	MCI 2800 N. GLENFILLE ROAD RICHARDSON, TX 75082	DEAN BOYERS (972) 729-6016

PRELIMINARY
NOT FOR CONSTRUCTION

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
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



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
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301 EAST HURON STREET
ANN ARBOR, MI 48106
734-794-4410
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 PROJECT INFORMATION AND NOTE SHEET

SCALE: 1"=40'
PROFILE: NA
DRAWING No. 2020-025



MISCELLANEOUS QUANTITIES

ITEM DESCRIPTION	Unit	"Maiden Lane over Huron River"	Huron Parkway over Huron River	Island Dr. over Traver Creek	Broadway over Depot St & MDOT RR	Broadway over Huron River	Fuller Road over Huron River
Clearing	Ac			0.1			
Tree, Rem, 6 inch to 18 inch	Ea		3.0				
Stump, Rem, 6 inch to 18 inch, Modified	Ea		3.0				
Fence, Rem	Ft			120.0			
Remove Concrete Curb and Gutter	Ft			287.0			
Remove Bituminous Pavement	Syd			400.0			
Remove Concrete Sidewalk, Ramp & Drives- Any Thickness	Syd		20.0	166.0			
Exploratory Investigation, Approach Sidewalk	Ea						2.0
Bypass Pumping	LSUM			1.0			
Subbase, CIP, Class II Granular Material, Modified	Cyd			20.0			
Aggregate Base, Variable Thickness	Cyd			47.0			
Culv End Sect, 12 inch	Ea			1.0			
Sewer, CI IV, 12 Inch, Tr Det A	Ft			25.0			
Sewer, CI IV, 12 Inch, Tr Det B	Ft			25.0			
Dr Structure, 24 inch Dia	Ea			1.0			
Dr Structure, 36 inch Dia	Ea			1.0			
Dr Structure Cover	Ea			2.0			
HMA, LVSP	Ton			102.0			
Overband Crack Fill	Ft				114.0	114.0	200.0
E3 Joint Sealant	Ft				168.0	160.0	104.0
Cofferdams	LSUM						1.0
Expansion Joint Device, Cover Plate	Ft		13.0				
Reinforcement, Steel, Epoxy Coated	Lb		750.0	6578.0	500.0	200.0	500.0
Expansion Joint Device, Cover Plate, Modified	Ft		52.0				
Conc, Grade D, Modified	Cyd			48.0			
Conc, Sidewalk Joint Replacement	Cyd		6.0				
Penetrating Healer/Sealer, Brdge Deck	Syd				1950.0	1131.0	
Joint Waterproofing, Special	Ft			48.0			
Conc Surface Coating	Syd				800.0	385.0	848.0
Bridge Railing, Aesthetic Parapet Tube, Modified	Ft			60.0			
Hand Chipping, Shallow	Syd		50		40	20	46
Hand Chipping, Deep	Syd		50		75	20	106
Hand Chipping, Other Than Deck	Cft	8	130		100	100	50
Patch, Full Depth	Cyd		7				
Patch, Forming	Sft	24	50		200	150	200
Patching Conc, C-L	Cyd	1	17		40	30	30
Patching Conc, F-L	Cyd		2				
Bolt, Adhesive Anchored, 5/8 inch	Ea	24					
Epoxy Ovly	Syd					1144	1144
Structures, Rehabilitation, Rem Portions (Str 11072)	LSUM			1			
Embedded Galvanic Anode	Ea				230	60	480
Hand Chipping, Special	Sft						100
Beam End Repair, Latex Modified Conc	Cft						10
Mechanical Anchor, Adjust	Ea				1280	392	
Bridge Railing, End Post, Galvanized	Ea	6					
Galvanized Bridge Railing Repair	LSUM		1				
Lighting Conduit, Attach	LSUM			1			
Field Repr of Damaged Galvanized Coating	LSUM		1				
Curb and Gutter, Conc F4, Special	Ft			275			
Detectable Warning Surface	Ft			5			
6" Concrete Sidewalk, Ramp, Drive Approach	Sft		180	1185			
12" Concrete Sidewalk, Ramp, Drive Approach	Sft			398			
Guardrail, Curved, Type MGS-8	Ft			32			
Guardrail Anch, Bridge, Det M1	Ea			1			
Timber Rub Rail, Replace	Ft						243
Hand Digging Guardrail Post	Ea			7			
Guardrail Anch, Bridge, Det M1, Modified	Ea			1			
Fence, Structure	Sft			330			
Pavt Mrkg, Polyurea, 6 inch, White	Ft		5500				
Pavt Mrkg, Polyurea, 6 inch, Yellow	Ft		3050				
Riprap, Heavy, Modified	Syd		45.00	32.00			130.00
Slope Protection, Remove and Replace	Syd			6.00			
Slope Protection, Replace	Syd		5.00				
Mulch Blanket	Syd			275.00			
Hydroseeding	Syd			275.00			
Topsoil Surface, 4 inch	Syd			275.00			
Conc Column Cap, Remove and Reset	Ea				2.00		

MAINTAINING TRAFFIC QUANTITIES

Item Description	Unit	Maiden Ln Bridge	Huron Pkwy Bridge	Island Dr Bridge	Broadway Bridges	Fuller Road Bridges
Barricades, Type III, High Intensity, Double Sided, Lighted, Furn	Ea	0	6	6	18	17
Barricades, Type III, High Intensity, Double Sided, Lighted, Oper	Ea	0	6	6	18	17
Channelizing Device, 42 inch, Furn	Ea	0	0	0	60	106
Channelizing Device, 42 inch, Oper	Ea	0	0	0	60	106
Conc Barrier Ending, Temp, Detail 2, Adj	Ea	0	4	0	0	0
Conc Barrier Ending, Temp, Detail 2, Furn	Ea	0	4	0	0	0
Conc Barrier Ending, Temp, Detail 2, Oper	Ea	0	4	0	0	0
Conc Barrier, Temp, Adj	Ft	0	2550	0	0	0
Conc Barrier, Temp, Furn	Ft	0	2240	0	0	0
Conc Barrier, Temp, Oper	Ft	0	2240	0	0	0
Pedestrian Type II Barricade, Temp	Ea	6	10	3	8	12
Pedestrian Type II Channelizer, Temp	Ft	420	96	10	1285	632
Lighted Arrow, Type A, Furn	Ea	0	2	0	0	0
Lighted Arrow, Type A, Oper	Ea	0	2	0	0	0
Lighted Arrow, Type C, Furn	Ea	0	0	0	1	2
Lighted Arrow, Type C, Oper	Ea	0	0	0	1	2
Minor Traf Devices	LS	0.1	0.5	0.4	0	0
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, White, Temp	Ft	0	5910	0	450	490
Pavt Mrkg, Wet Reflective, Type R, Tape, 4 inch, Yellow, Temp	Ft	0	6340	0	125	825
Plastic Drum, High Intensity, Furn	Ea	0	143	0	0	0
Plastic Drum, High Intensity, Oper	Ea	0	143	0	0	0
Sign Cover	Ea	0	0	0	10	10
Sign Cover, Type 1	Ea	0	0	0	2	2
Sign, Type B, Temp, Prismatic, Furn	Sft	98	88	141	360	569
Sign, Type B, Temp, Prismatic, Oper	Sft	98	88	141	360	569
Sign, Type B, Temp, Prismatic, Special, Furn	Sft	0	0	0	30	29
Sign, Type B, Temp, Prismatic, Special, Oper	Sft	0	0	0	30	29
Traffic Regulator Control	LS	0.1	0.5	0.4	0	0

PRELIMINARY
NOT FOR CONSTRUCTION

	CHECKED
	DRAWN
	DATE
	DESCRIPTION
	REV.

CITY OF ANN ARBOR
 PUBLIC SERVICE
 301 EAST HURON STREET
 P.O. BOX 8647
 ANN ARBOR, MI 48107-8647
 www.a2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 PROJECT INFORMATION AND NOTE SHEET

SCALE: 1"=40'
 PROFILE: NA
 DRAWING No. 2020-025
 SHEET No.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-1647
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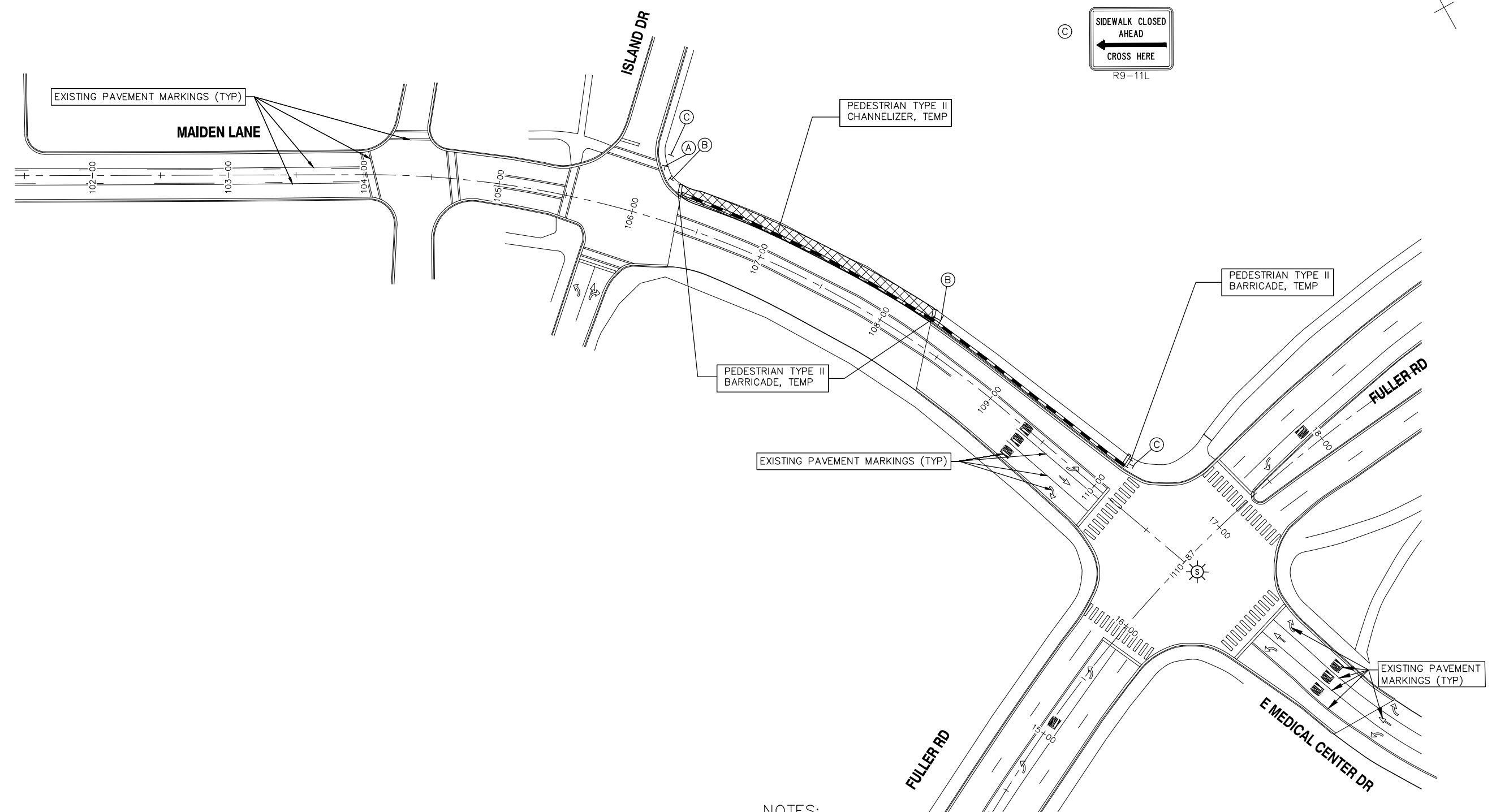
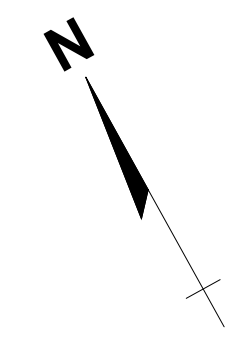


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING PEDESTRIAN TRAFFIC SHEET - STAGE 1

SCALE: 1"=40'
 PROFILE: N/A
 DRAWING No. 2020-025

- LEGEND**
- ⊥ TEMPORARY SIGN
 - ⊥ PEDESTRIAN TYPE II BARRICADE, TEMP
 - EXISTING PVMT MRKG
 - ▨ WORK ZONE
 - ⊙ SIGNALIZED INTERSECTION
 - ▬ PEDESTRIAN TYPE II CHANNELIZER, TEMP

- (A) R9-11R
- (B) R9-9
- (C) R9-11L



NOTES:

DAILY LANE CLOSURES MAY BE UTILIZED IF ADDITIONAL SPACE IS NEEDED. IF UTILIZED, THE CONTRACTOR SHALL APPLY FOR THE NECESSARY LANE CLOSURE PERMITS FROM THE CITY OF ANN ARBOR, PROJECT MANAGEMENT UNIT, AND COMPLY WITH THE ALLOWABLE LANE CLOSURE TIME RESTRICTIONS. ALL LABOR, MATERIAL, AND EQUIPMENT COSTS SHALL BE INCLUDED IN THE PAY ITEM "MINOR TRAFFIC DEVICES, MAX" AND WILL NOT BE PAID SEPARATELY.

MAINTAINING TRAFFIC
 (MAIDEN LANE OVER HURON RIVER)



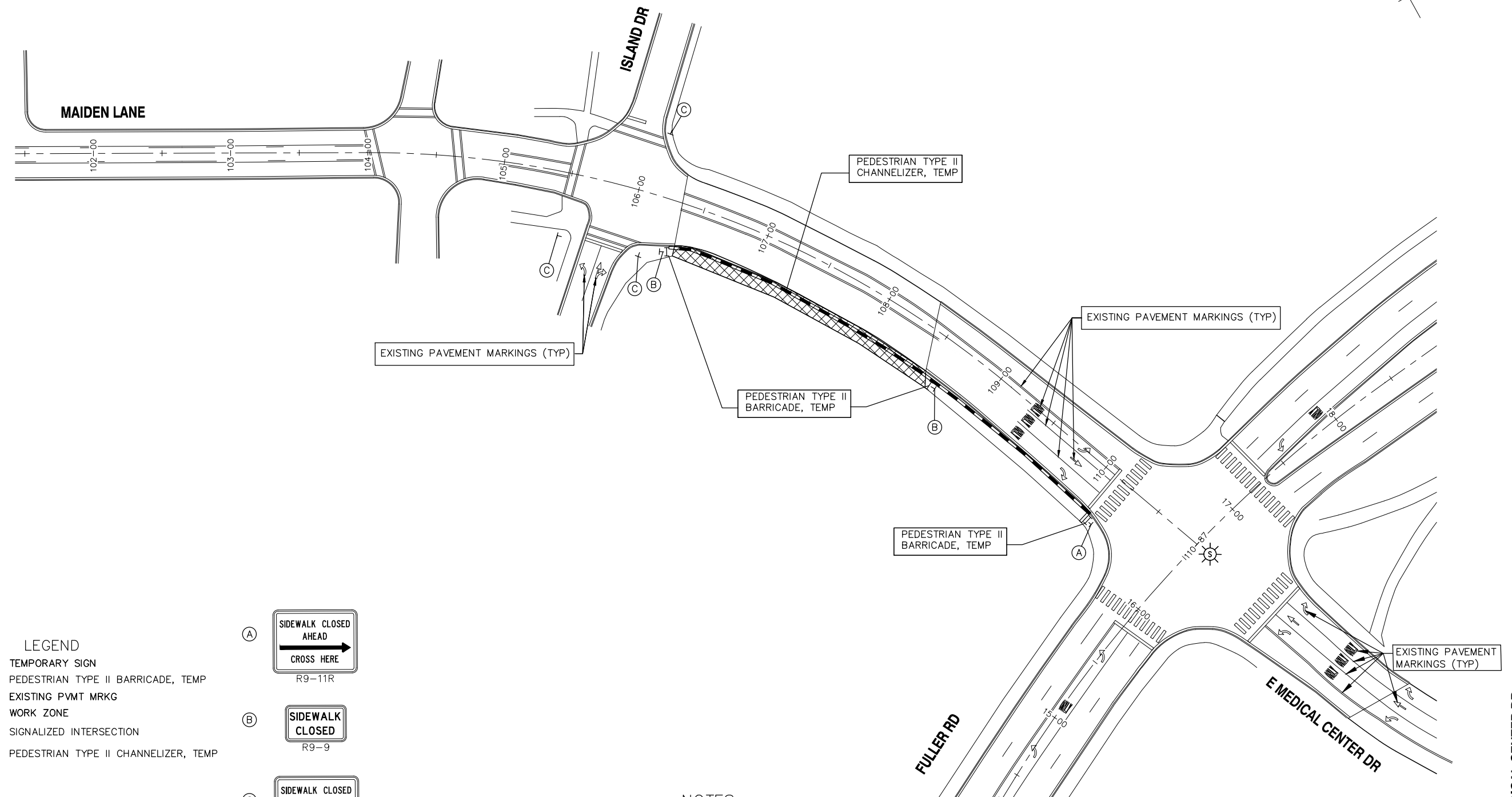
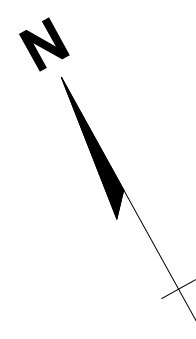
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING PEDESTRIAN TRAFFIC SHEET - STAGE 2

SCALE 1"=40'
PROFILE: N/A
DRAWING No. 2020-025



- LEGEND**
- TEMPORARY SIGN
 - PEDESTRIAN TYPE II BARRICADE, TEMP
 - EXISTING PVMT MRKG
 - WORK ZONE
 - SIGNALIZED INTERSECTION
 - PEDESTRIAN TYPE II CHANNELIZER, TEMP

- (A) R9-11R
- (B) R9-9
- (C) R9-11L

NOTES:

DAILY LANE CLOSURES MAY BE UTILIZED IF ADDITIONAL SPACE IS NEEDED. IF UTILIZED, THE CONTRACTOR SHALL APPLY FOR THE NECESSARY LANE CLOSURE PERMITS FROM THE CITY OF ANN ARBOR, PROJECT MANAGEMENT UNIT, AND COMPLY WITH THE ALLOWABLE LANE CLOSURE TIME RESTRICTIONS. ALL LABOR, MATERIAL, AND EQUIPMENT COSTS SHALL BE INCLUDED IN THE PAY ITEM "MINOR TRAFFIC DEVICES, MAX" AND WILL NOT BE PAID SEPARATELY.

MAINTAINING TRAFFIC
(MAIDEN LANE OVER HURON RIVER)

E MEDICAL CENTER DR

THIS SHEET IS PROVIDED TO AID THE CONTRACTOR IN UNDERSTANDING THE EXISTING CONDITIONS OF THE PROPOSED WORK. THE CONTRACTOR SHALL THOROUGHLY REVIEW AND FAMILIARIZE THEMSELVES WITH THIS SHEET AND ALL ITS CONTENTS. CONTRACT PAY ITEMS MAY, OR MAY NOT, BE SHOWN ON THIS SHEET. REGARDLESS, THE CONTRACTOR SHALL FULLY FAMILIARIZE THEMSELVES WITH ALL CONDITIONS OF THE WORK AND THE EXISTING STRUCTURE AND SHALL ACCOUNT FOR ANY AND ALL NEEDED COSTS TO PERFORM THE WORK OF THIS PROJECT ARISING FROM THE EXISTING CONDITIONS OF THE EXISTING BRIDGE STRUCTURE AND ITS APPURTENANCES.

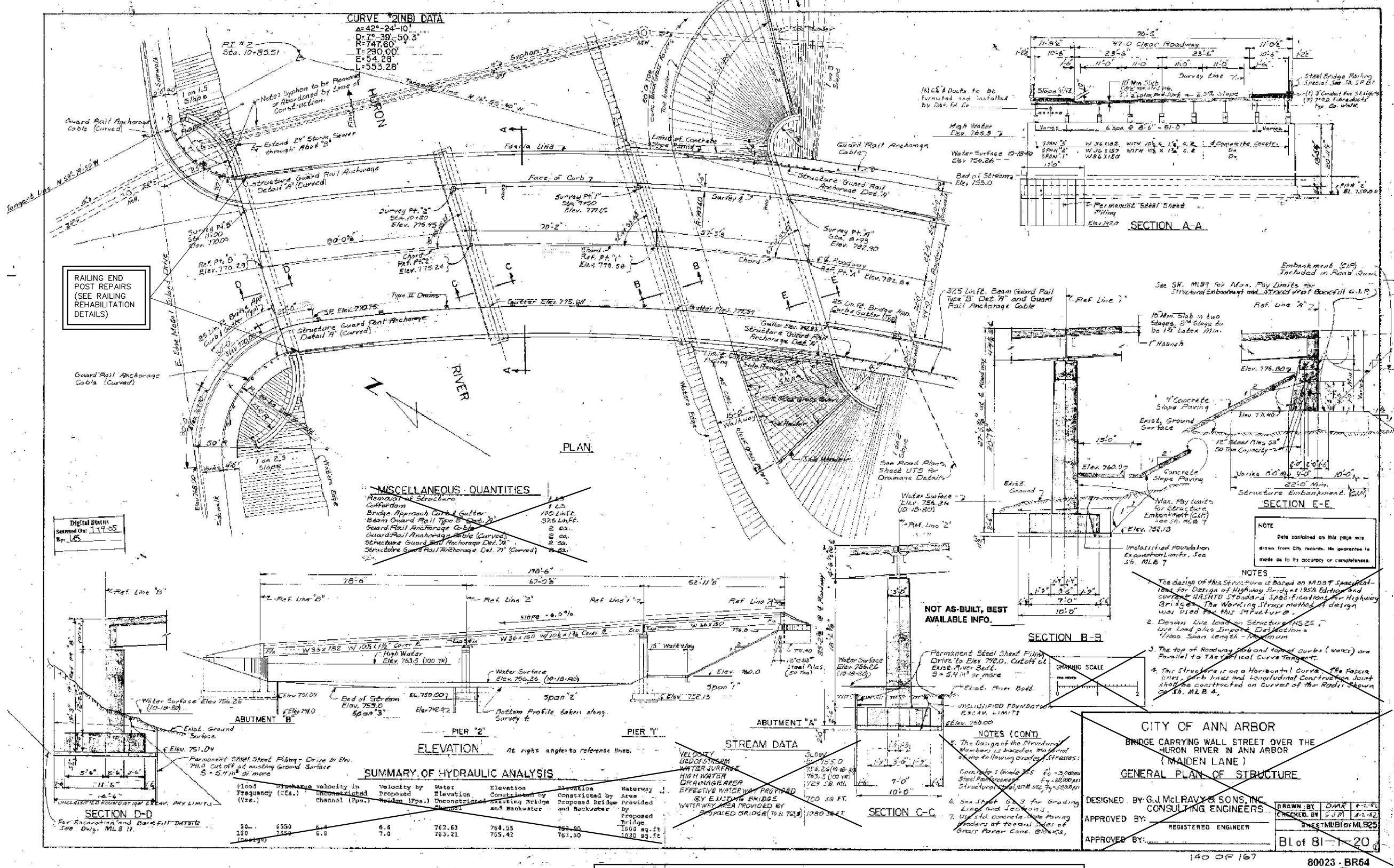


REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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 PUBLIC SERVICE
 301 EAST HURON STREET
 ANN ARBOR, MI 48107-0667
 WWW.A2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 EXISTING GENERAL PLAN OF STRUCTURE

DESIGNED BY: G.J. McRAVY & SONS, INC.
 CONSULTING ENGINEERS
 APPROVED BY: _____
 REGISTERED ENGINEER
 APPROVED BY: _____
 REGISTERED ENGINEER



RAILING END POST REPAIRS
 (SEE RAILING REHABILITATION DETAILS)

Digital Stamp
 Sealed On: 11-17-05
 By: [Signature]

MISCELLANEOUS QUANTITIES

Remove Existing Structure	1 LS
Concrete	190 LinFt
Beam Guard Rail Type B (Det. 7)	326 LinFt
Guard Rail Anchorage Cable	2 ea.
Guard Rail Anchorage Cable (Curved)	2 ea.
Structure Guard Rail Anchorage Det. 7A	2 ea.
Structure Guard Rail Anchorage Det. 7B (Curved)	2 ea.

SUMMARY OF HYDRAULIC ANALYSIS

Flood Frequency (Yrs.)	Discharge (Cfs.)	Velocity in Unconstricted Channel (Fps.)	Velocity by Proposed Channel (Fps.)	Water Elevation (Ft.)	Elevation Constriction by Existing Bridge and Backwater	Elevation Constriction by Proposed Bridge and Backwater	Waterway Area Provided	Waterway Area Required
50	6550	6.4	6.6	762.63	764.55	763.80	1800 sq. ft.	1800 sq. ft.
100	7588	6.8	7.0	763.21	765.42	763.50	1800 sq. ft.	1800 sq. ft.

SN 11072

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED WITH THE LEGEND BOX BELOW LABELED WITH THIS STRUCTURE'S NUMBER

	PROPOSED WORK
	DENOTES REMOVED PORTIONS

CITY OF ANN ARBOR
 BRIDGE CARRYING WALL STREET OVER THE HURON RIVER IN ANN ARBOR (MAIDEN LANE)
 GENERAL PLAN OF STRUCTURE

DESIGNED BY: G.J. McRAVY & SONS, INC.
 CONSULTING ENGINEERS
 APPROVED BY: _____
 REGISTERED ENGINEER
 APPROVED BY: _____
 REGISTERED ENGINEER

SCALE: 1" = 10'-0"

DATE: 11-17-05

BY: [Signature]

SHEET NO. 81-1-20

140 OF 167

80023 - BR64

MAIDEN LANE OVER HURON RIVER

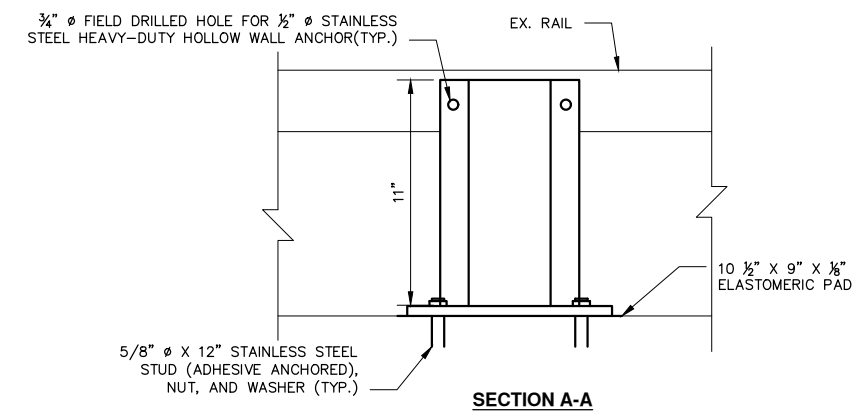
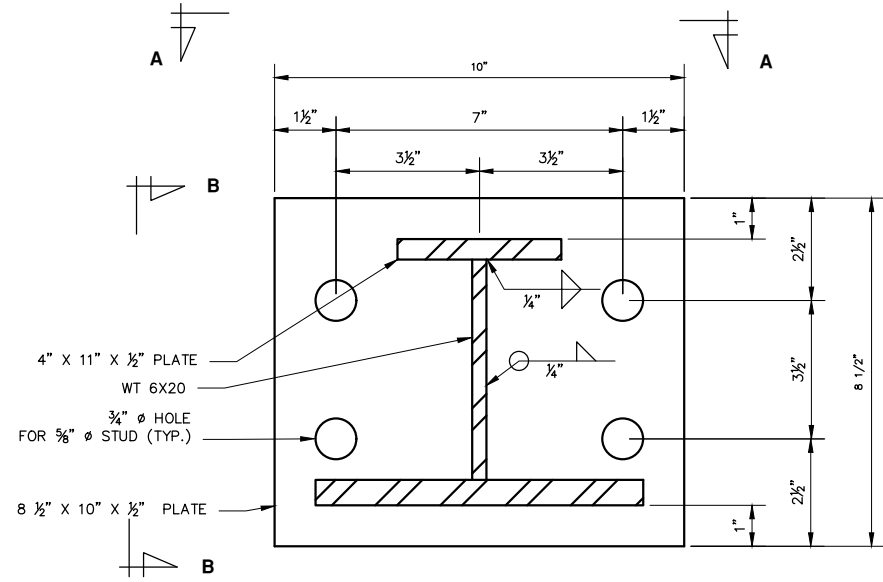
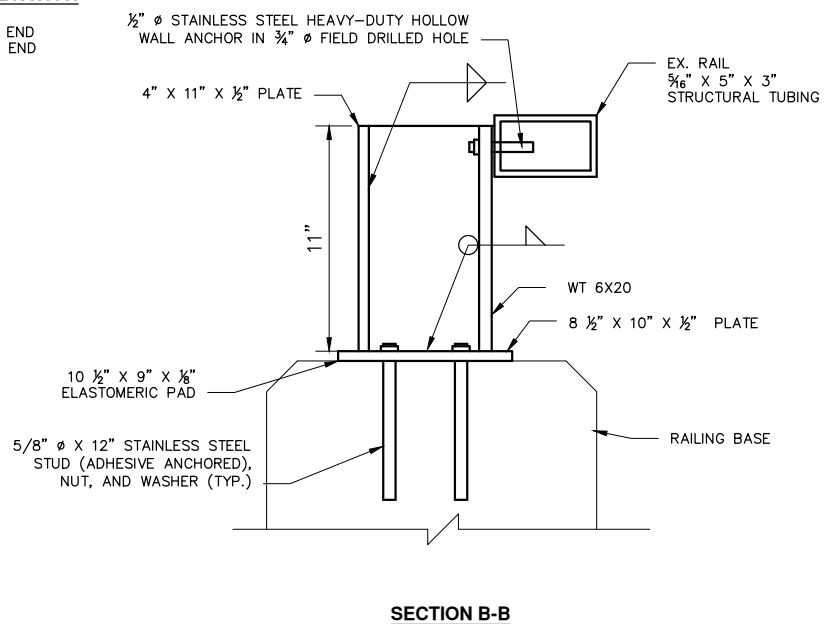
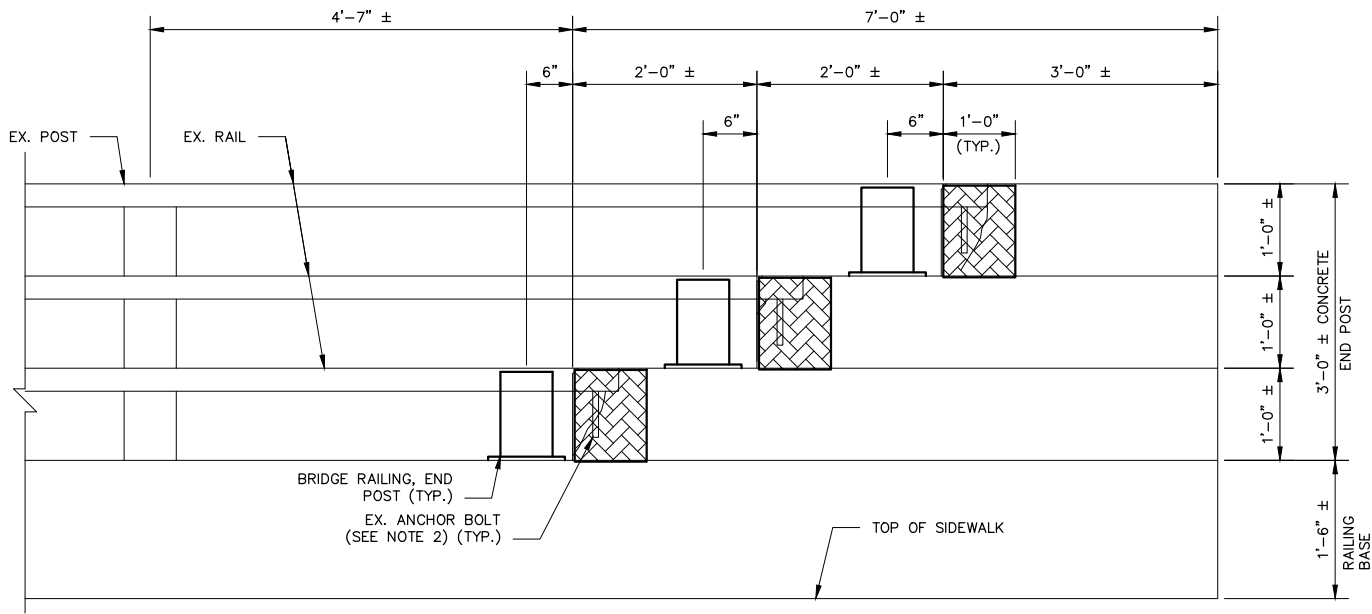
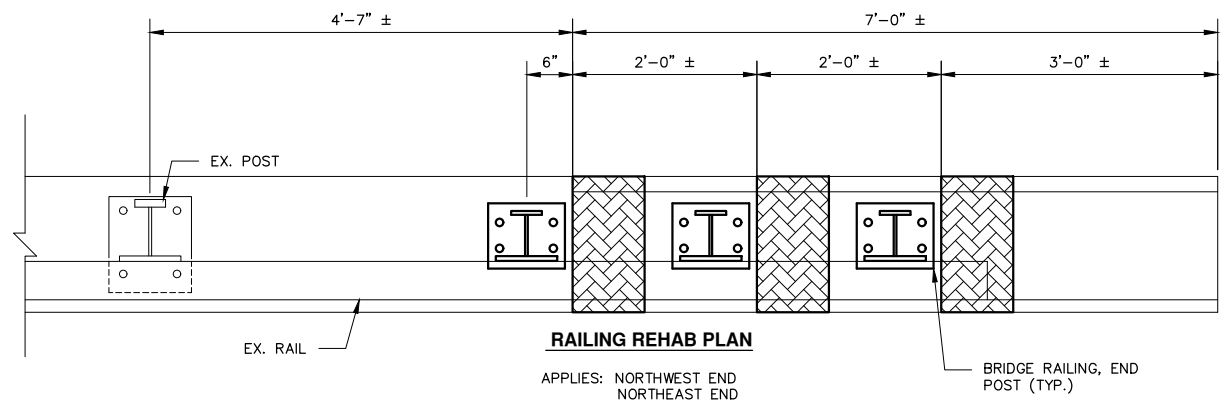
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
RAILING REHABILITATION DETAILS

SCALE NONE
PROFILE: NA
DRAWING No. 2020-025



MISCELLANEOUS QUANTITIES

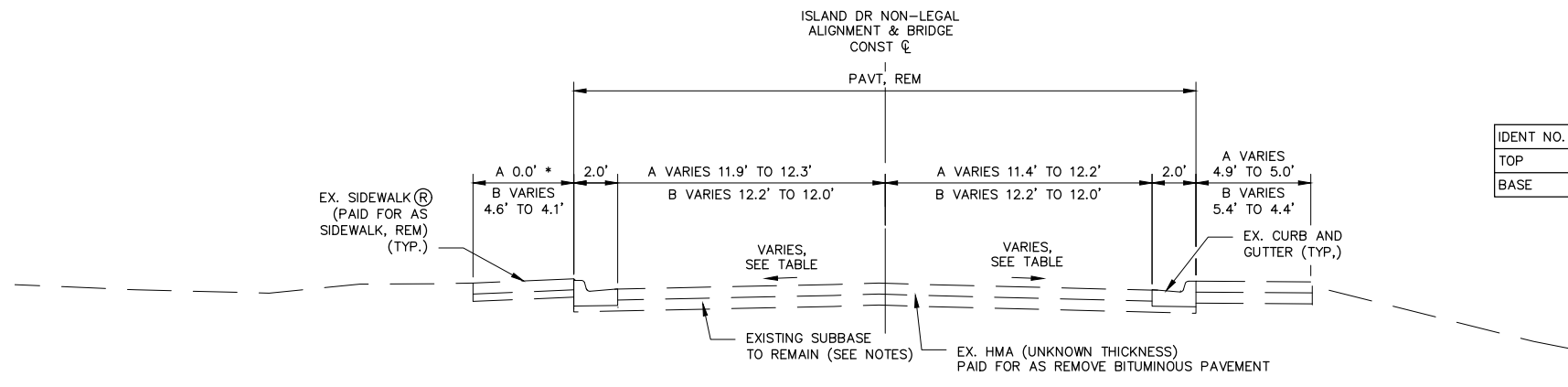
8 Cft	Hand Chipping, Other Than Deck
24 Sft	Patch, Forming
24 Ea	Bolt, Adhesive Anchored, 5/8 inch
1 Cyd	Patching Conc., C-L
6 Ea	Bridge Railing, End Post, Galvanized

- NOTES:**
- 1. EXISTING REINFORCEMENT SHALL BE LEFT INTACT AND BLAST CLEANED OR REPLACED AT THE DIRECTION OF THE ENGINEER.
 - 2. EXISTING RAILING ANCHOR BOLTS ARE TO BE REMOVED PRIOR TO PATCHING CONCRETE END BLOCKS.
 - 3. SEE SPECIAL PROVISION FOR MORE INFORMATION, INCLUDING FINISHING REQUIREMENTS.



HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE LBS PER SYD	PERFORMANCE GRADE	REMARKS
TOP	HMA, LVSP	226	58-28	TOP COURSE
BASE	HMA, LVSP	339	58-28	BASE COURSE

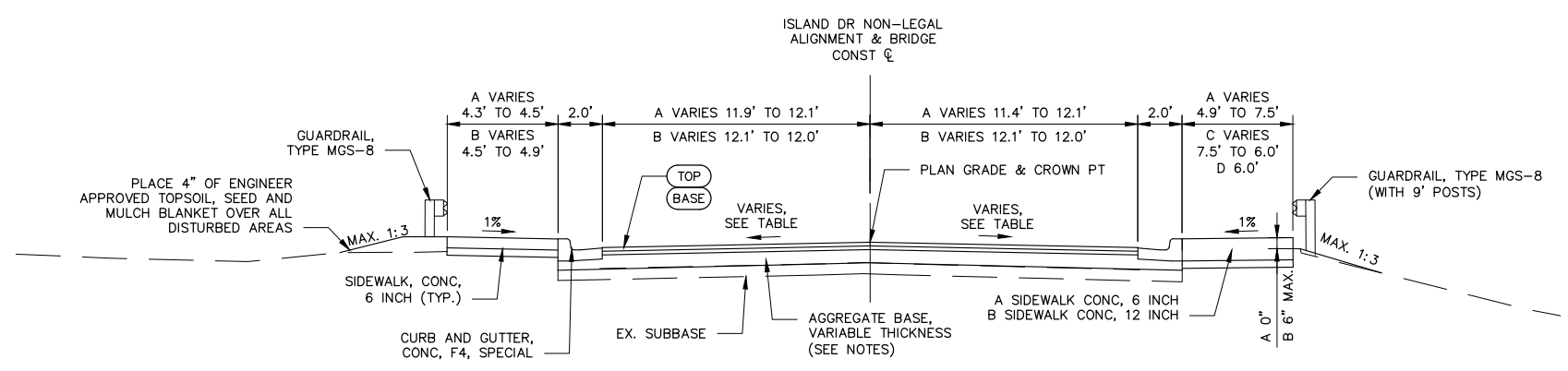


EXISTING NORMAL SECTION

SECTION APPLIES TO:
 A STA. 10+50.00 TO STA. 11+23.00
 B STA. 11+47.00 TO STA. 12+05.00
 * NO EXISTING SIDEWALK IN SOUTHWEST QUADRANT

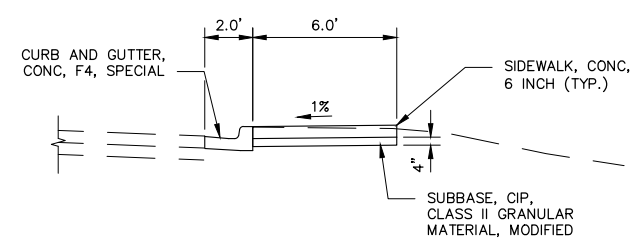
CROSS SLOPE TABLE		
STATION	LEFT (%)	RIGHT (%)
10+50	2.8±	2.5±
11+00	2.0	2.0
11+50	2.0	2.0
12+00	2.0	4.5
12+05	2.0±	4.3±

CROSS SLOPE VARIES LINEARLY BETWEEN THE STATIONS PROVIDED IN THE TABLE.



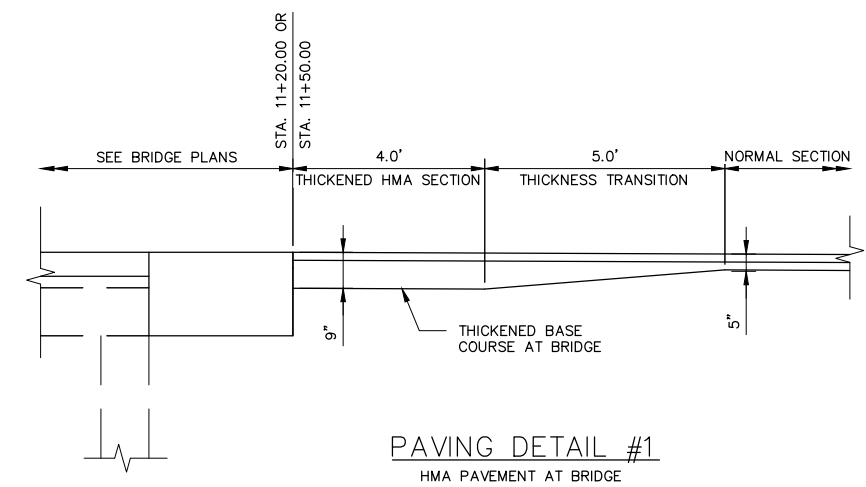
PROPOSED NORMAL SECTION

SECTION APPLIES TO:
 A STA. 10+50.00 TO STA. 11+20.00
 B STA. 11+50.00 TO STA. 12+05.00
 C STA. 11+50.00 TO STA. 11+60.00
 D STA. 11+60.00 TO STA. 12+05.00

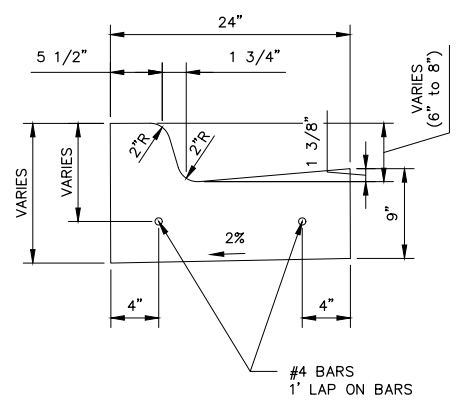


PROPOSED PARTIAL SECTION

SECTION APPLIES TO:
 STA. 12+05.00 TO STA. 12+30.00 **
 ** SIDEWALK RAMP AT STATION 12+15.00 (SEE CONSTRUCTION SHEET)



PAVING DETAIL #1
HMA PAVEMENT AT BRIDGE



PAVING DETAIL #2

(MODIFIED MDOT F4 CURB SHAPE WITH VARIABLE HEIGHT, PAID FOR AS CURB AND GUTTER, CONC, F4, SPECIAL)

NOTES:

AGGREGATE BASE THICKNESS SHALL BE ADJUSTED TO ACHIEVE THE DESIRED PROFILE GRADE. AGGREGATE BASE MATERIAL SHALL BE COMPACTED TO 98% OF THE MATERIAL MAX. DRY UNIT WEIGHT.
 SAND SUB-BASE MATERIALS SHALL BE COMPACTED TO 95% OF THE MATERIAL MAX. DRY UNIT WEIGHT.

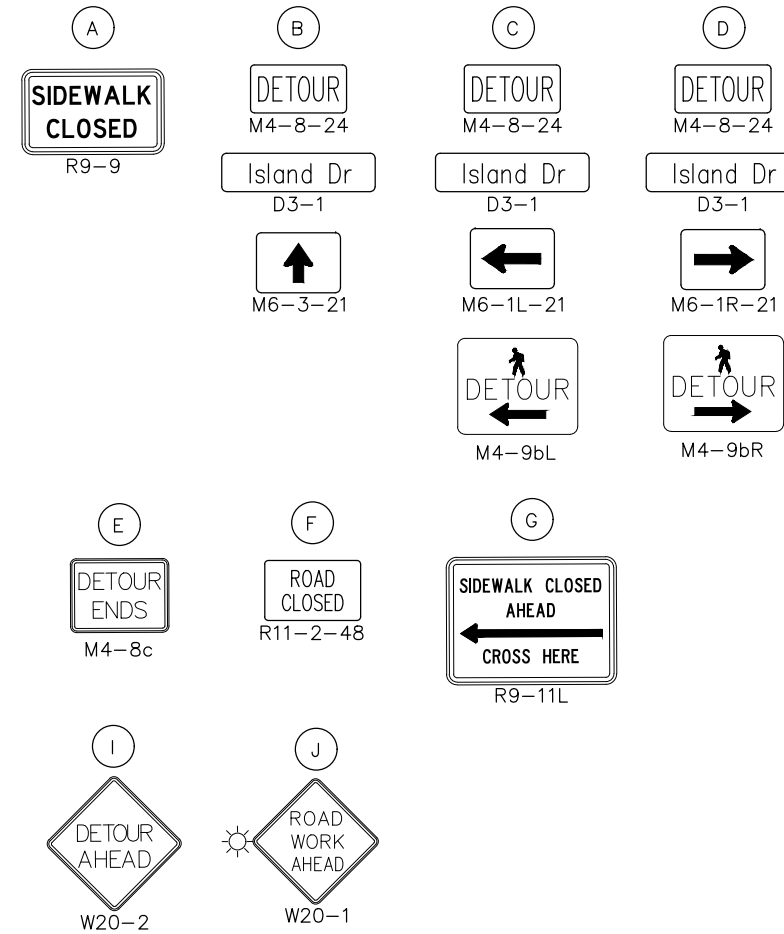
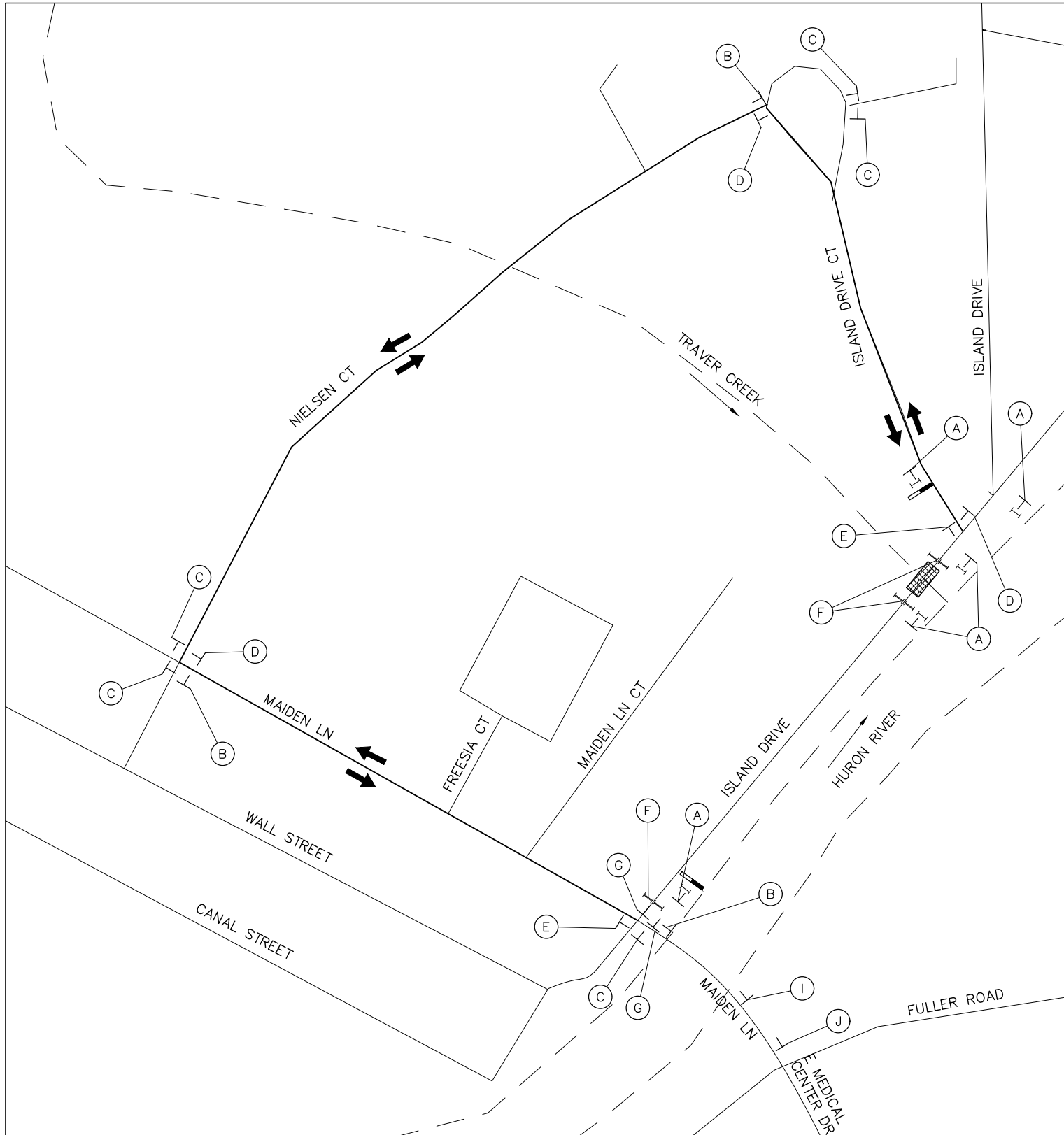
ISLAND DRIVE OVER TRAVER CREEK

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 PROPOSED TYPICAL SECTIONS & PAVING DETAILS

SCALE NONE
 PROFILE: N/A
 DRAWING No. 2020-025
 SHEET No.



LEGEND

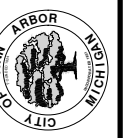
- TRAFFIC FLOW
- TEMPORARY SIGN
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- PEDESTRIAN TYPE II BARRICADE, TEMP
- WORK ZONE
- PEDESTRIAN TYPE II CHANNELIZER, TEMP
- WATERWAY

ISLAND DRIVE OVER TRAVER CREEK



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
DETOUR PLAN

SCALE: 1"=40'
PROFILE: NA
DRAWING No. 2020-025



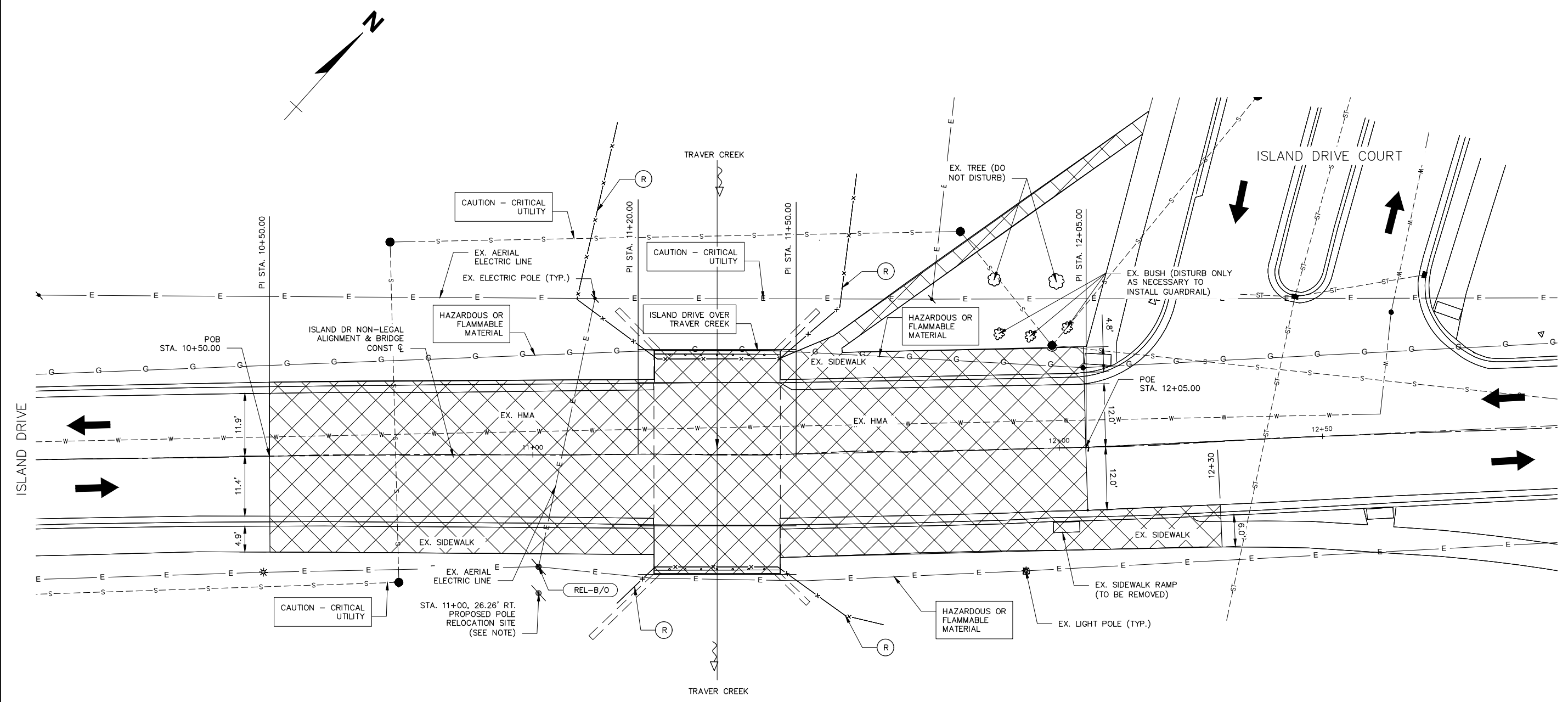
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
REMOVAL SHEET

SCALE NONE
PROFILE: NA
DRAWING No. 2020-025
SHEET No.



STA	POINT	NORTHING	EASTING
8+95.00	BEGIN ϵ	288016.43	13295021.55
10+50.00	PI	288134.53	13295121.93
11+20.00	PI	288187.39	13295167.82
11+50.00	PI	288209.94	13295187.60
12+05.00	PI	288252.15	13295222.87
13+15.00	END ϵ	288338.09	13295291.52

CONTROL PT 1	DESCRIPTION : IRON PIN SET
	COORDINATES : 288331.35, 13295263.72
	ELEVATION : 762.44
CONTROL PT 2	DESCRIPTION : IRON PIN SET
	COORDINATES : 288050.12, 13295079.38
	ELEVATION : 761.39

BENCHMARK	ELEVATION	STATION	OFFSET	DESCRIPTION
BENCHMARK A	763.26	13+11.78	23.49' LT	RR SPIKE IN SOUTH SIDE OF UTILITY POLE, NE QUADRANT OF ISLAND DR AND ISLAND COURT DR.
BENCHMARK B	764.57	8+99.33	34.53' LT	SPIKE IN SE SIDE OF UTILITY POLE, ON NORTH SIDE OF ISLAND DR, IN FRONT OF BUILDING #1110

- LEGEND:**
- DENOTES REMOVED PORTIONS OF PAVEMENT, SIDEWALK, AND CURB AND GUTTER
 - DENOTES FENCE TO BE REMOVED
 - DENOTES REMOVAL

Quantity	Unit	Item
0.1	Acre	Clearing
120	Ft	Fence, Rem
287	Ft	Remove Concrete Curb and Gutter
400	Syd	Remove Bituminous Pavement
166	Syd	Remove Concrete Sidewalk, Ramp & Drives - Any Thickness

NOTES:

POLE IS TO BE RELOCATED BY DTE PRIOR TO CONSTRUCTION. CONTRACTOR TO CONFIRM AND COORDINATE WITH DTE IF NECESSARY TO COMPLETE RELOCATION.

REMOVE TREES AND BRUSH WITHIN 20 FEET OF STRUCTURE TO FACILITATE CONSTRUCTION. REMOVE TREES AND BRUSH AS DIRECTED BY THE ENGINEER IN ORDER TO INSTALL THE PROPOSED STORM SEWER IN THE EAST QUADRANT. DO NOT REMOVE THE TREES LABELED AS "DO NOT DISTURB" IN THE NORTH QUADRANT, AND ONLY DISTURB THE BUSHES AS NECESSARY TO INSTALL THE GUARDRAIL.

ISLAND DRIVE OVER TRAVER CREEK



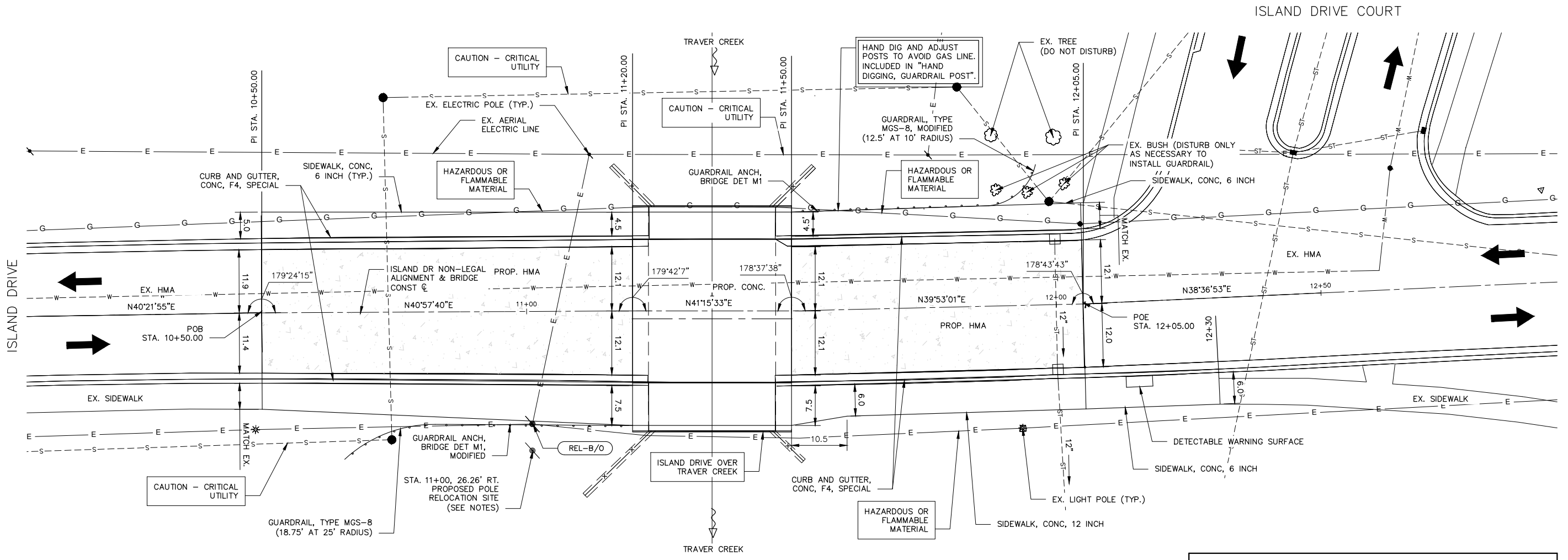
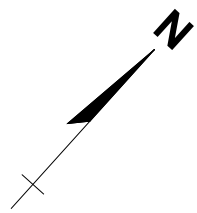
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONSTRUCTION SHEET

SCALE NONE
PROFILE: NA
DRAWING No.
Island Dr CONST_001



STA	POINT	NORTHING	EASTING
8+95.00	BEGIN ϵ	288016.43	13295021.55
10+50.00	PI	288134.53	13295121.93
11+20.00	PI	288187.39	13295167.82
11+50.00	PI	288209.94	13295187.60
12+05.00	PI	288252.15	13295222.87
13+15.00	END ϵ	288338.09	13295291.52

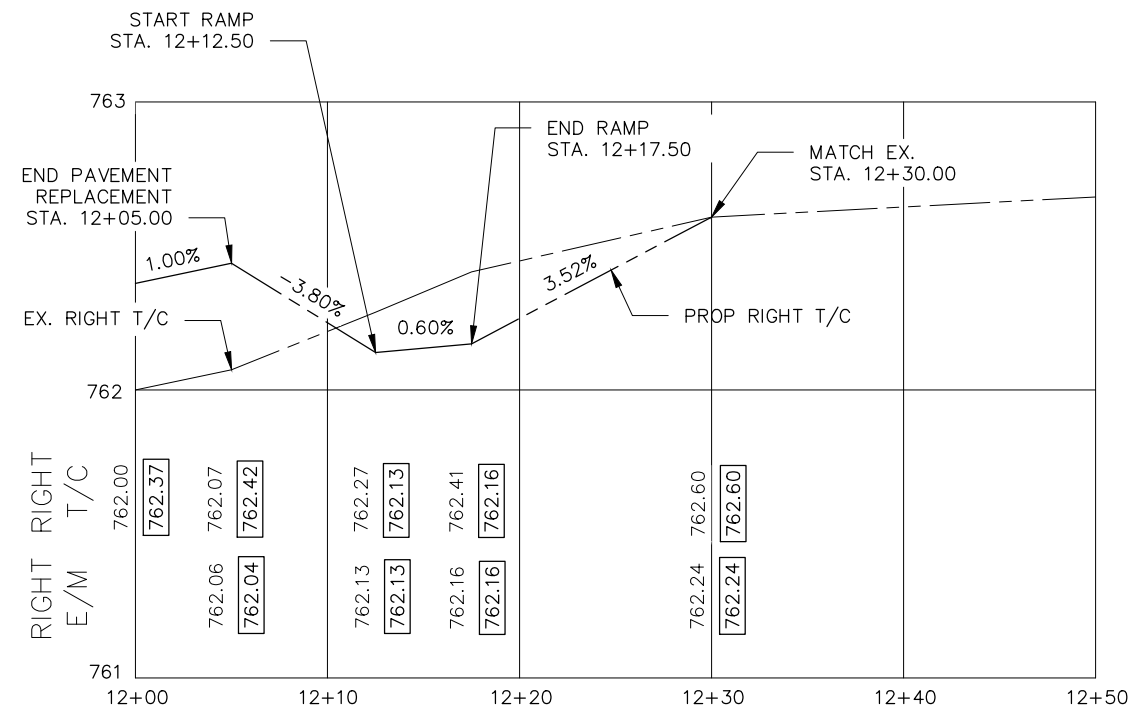
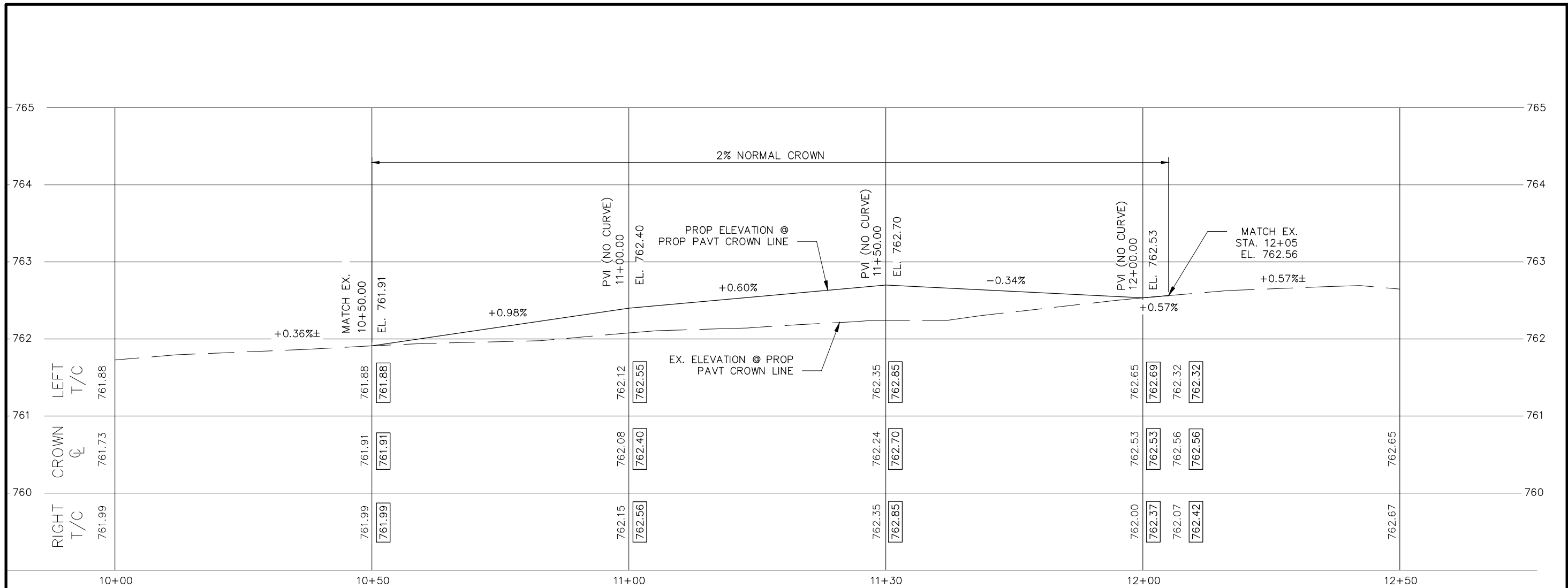
CONTROL PT 1	DESCRIPTION : IRON PIN SET
COORDINATES : 288331.35, 13295263.72	ELEVATION : 762.44
CONTROL PT 2	DESCRIPTION : IRON PIN SET
COORDINATES : 288050.12, 13295079.38	ELEVATION : 761.39

BENCHMARK	ELEVATION	STATION	OFFSET	DESCRIPTION
BENCHMARK A	763.26	13+11.78	23.49' LT	RR SPIKE IN SOUTH SIDE OF UTILITY POLE, NE QUADRANT OF ISLAND DR AND ISLAND COURT DR.
BENCHMARK B	764.57	8+99.33	34.53' LT	SPIKE IN SE SIDE OF UTILITY POLE, ON NORTH SIDE OF ISLAND DR, IN FRONT OF BUILDING #1110

20	Cyd	Subbase, CIP, Class II Granular Material, Modified
47	Cyd	Aggregate Base, Variable Thickness
1	Ea	Culv End Sect, 12 inch
25	Ft	Sewer, Cl IV, 12 Inch, Tr Det A
25	Ft	Sewer, Cl IV, 12 Inch, Tr Det B
1	Ea	Dr Structure, 24 inch Dia
1	Ea	Dr Structure, 36 inch Dia
2	Ea	Dr Structure Cover K
102	Ton	HMA, LVSP
275	Ft	Concrete Barrier Curb and Gutter
5	Ft	Detectable Warning Surface
1185	Sft	6" Concrete Sidewalk, Ramp, Drive Approach
398	Sft	12" Concrete Sidewalk, Ramp, Drive Approach
32	Sft	Guardrail, Curved, Type MGS-8
1	Ea	Guardrail Anch, Bridge, Det M1
1	Ea	Guardrail Anch, Bridge, Det M1, Modified
7	Ea	Hand Digging Guardrail Post
275	Syd	Mulch Blanket
275	Syd	Hydroseeding
275	Syd	Topsoil Surface, 4 inch

NOTES:
POLE IS TO BE RELOCATED BY DTE PRIOR TO CONSTRUCTION. CONTRACTOR TO CONFIRM AND COORDINATE WITH DTE IF NECESSARY TO COMPLETE RELOCATION.

ISLAND DRIVE OVER TRAVER CREEK



SIDEWALK RAMP DETAIL
(APPLIES RIGHT SIDE ONLY)

ISLAND DRIVE OVER TRAVER CREEK



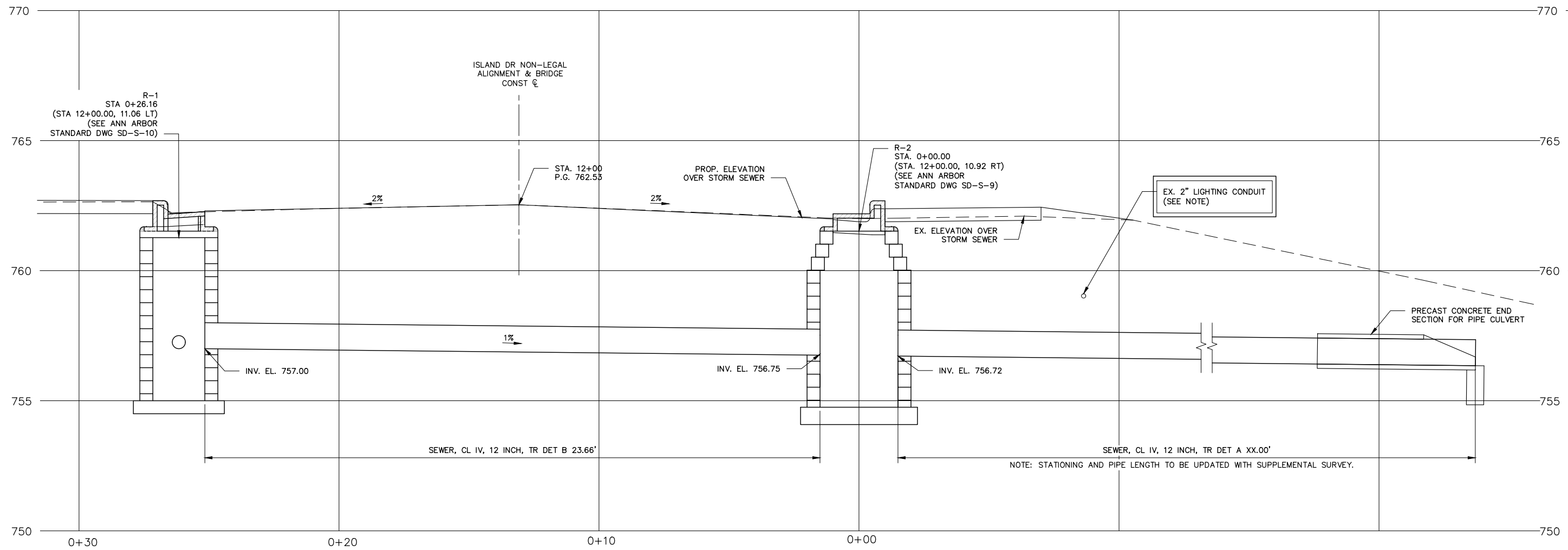
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
PROFILE SHEET

SCALE NONE
PROFILE: NA
DRAWING No. 2020-025



STRUCTURE/ STATION, OFFSET	TOP-OF-CASTING ELEVATION	E/M ELEVATION	INVERT ELEV. SIZE DIRECTION	DEPTH (FEET)	SIZE	APPLICATION/ CONSTRUCTION
R-1/ 12+00.00, 11.06' LT	762.69	762.28	757.50 6" UD 757.00 12" S	7.73'	SINGLE INLET	SINGLE INLET/NEW (COVER K)
R-2/ 12+00.00, 10.92' RT	762.37	761.96	757.25 6" UD 756.75 12" S	8.10'	3' DIA.	INLET JUNCTION - NEW (COVER K)

NOTES:

LOCATION OF EXISTING 2" LIGHTING CONDUIT IS APPROXIMATE. TAKE CARE WHEN EXCAVATING TO AVOID DAMAGING THIS CONDUIT, AND SUPPORT IT THROUGHOUT CONSTRUCTION TO AVOID DAMAGE. ANY DAMAGE TO THE EXISTING 2" LIGHTING CONDUIT WILL BE REPAIRED BY THE CONTRACTOR. SUPPORTING THE CONDUIT DURING CONSTRUCTION SHALL BE INCLUDED FOR PAYMENT IN "SEWER, CL IV, 12 INCH, TR DET A". NO ADDITIONAL PAYMENT WILL BE MADE TO REPAIR ANY DAMAGE TO THE EXISTING 2" LIGHTING CONDUIT.

ISLAND DRIVE OVER TRAVER CREEK

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 STORM SEWER PROFILE
 SCALE NONE
 DRAWING No. 2020-025
 SHEET No. 13 of 87
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 CITY OF ANN ARBOR MICHIGAN

REV.	DESCRIPTION	DATE	DRAWN	CHECKED



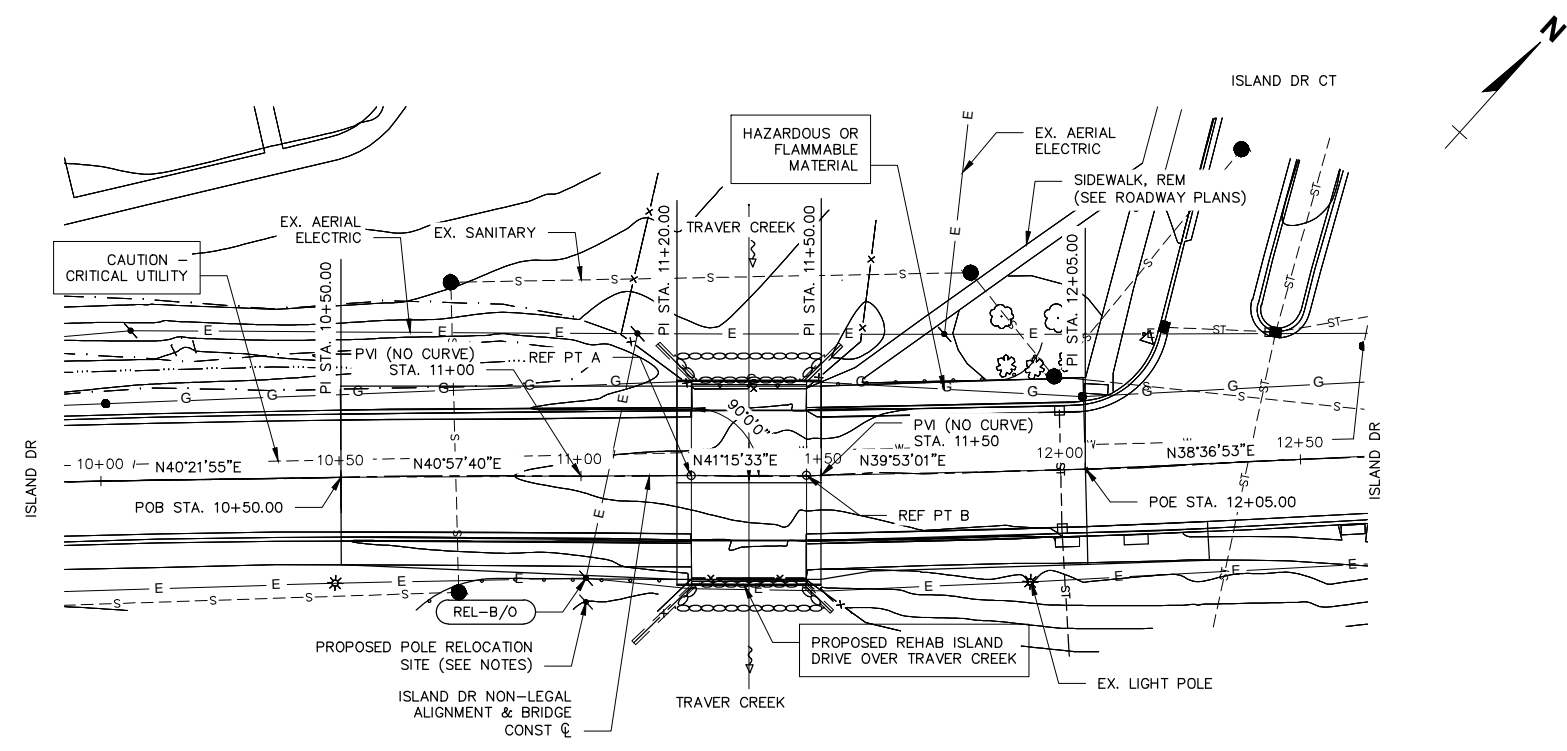
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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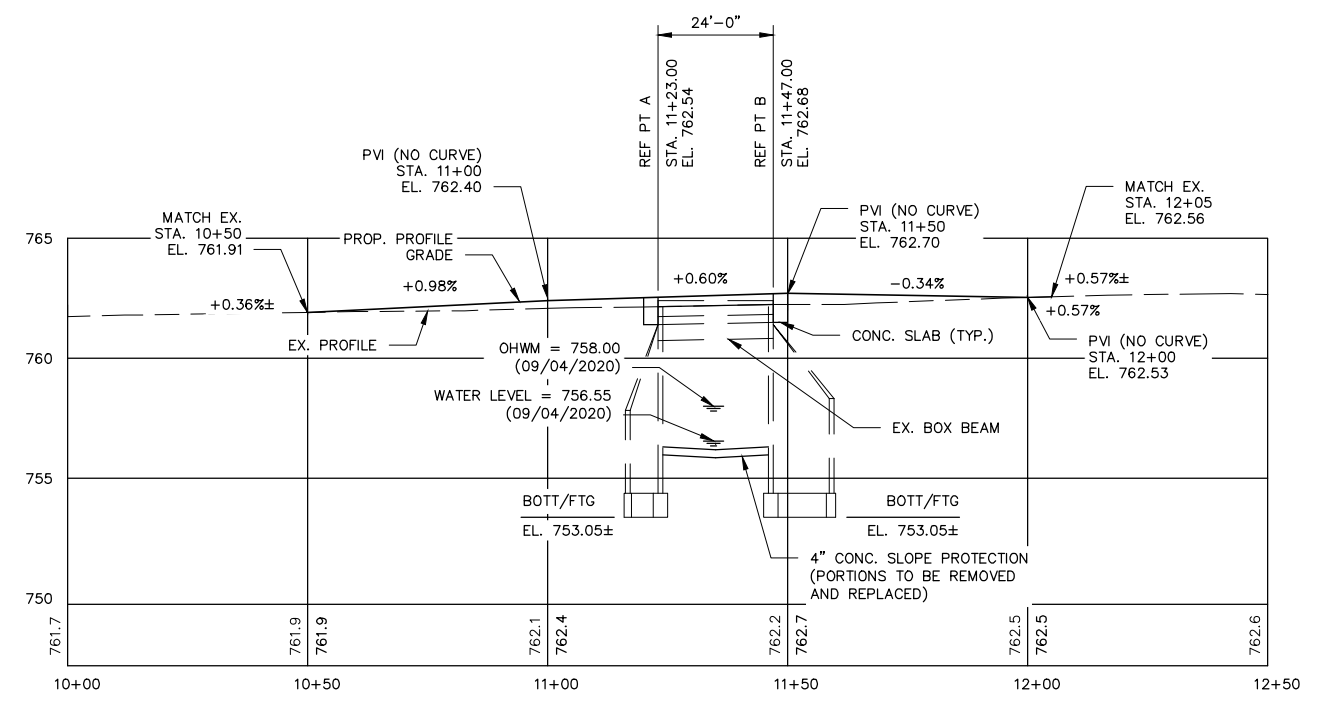


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GENERAL PLAN OF SITE

SCALE NONE
PROFILE: NA
DRAWING No. 2020-025
SHEET No.



SITUATION PLAN



PROFILE ALONG ISLAND DRIVE NON-LEGAL ALIGNMENT

VERTICAL SCALE 1" = 4'

EXISTING STRUCTURE

THE EXISTING STRUCTURE IS A SINGLE SPAN BOX BEAM SUPERSTRUCTURE ON SPREAD FOOTINGS AND WAS BUILT IN 1962. IT HAS AN OVERALL LENGTH OF 24'-0" WITH AN OUT TO OUT WIDTH 42'-3", CLEAR ROADWAY IS 27'-2" AND WAS DESIGNED FOR HS 20 LIVE LOAD.

BENCHMARKS

SEE ROADWAY SHEETS FOR BENCHMARKS

UTILITIES

SEE PROJECT INFORMATION SHEET FOR UTILITIES

NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES REMOVAL OF THE ASPHALT WEARING SURFACE, THE INSTALLATION OF A NEW CONCRETE WEARING SURFACE, BARRIER REPLACEMENT, FENCE REPLACEMENT AND SLOPE PROTECTION REPAIRS. ALL OTHER WORK IS INCLUDED IN THE ROADWAY PLANS THAT ARE A PART OF THIS CONTRACT.

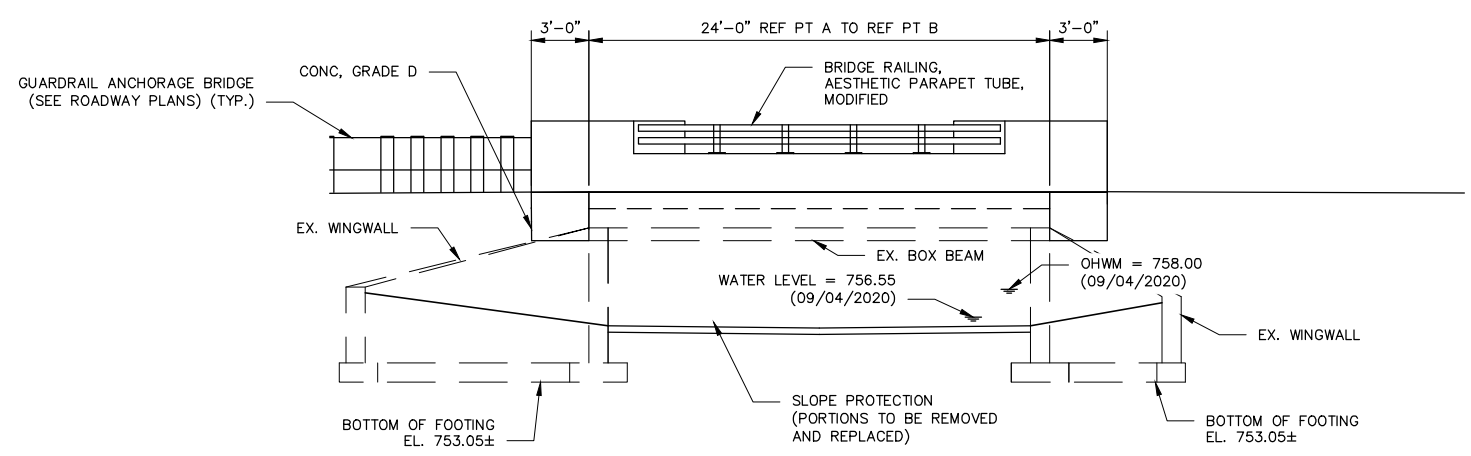
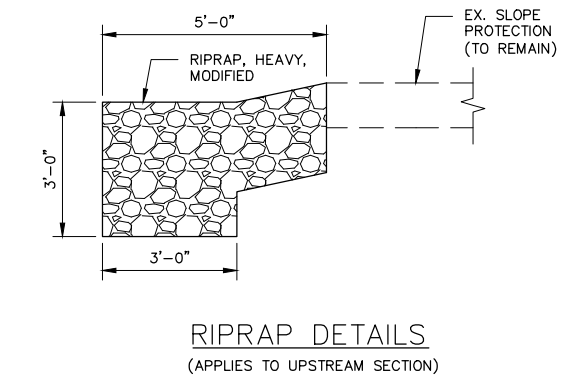
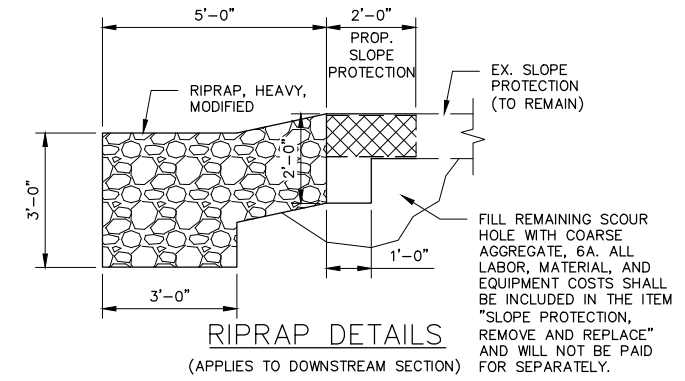
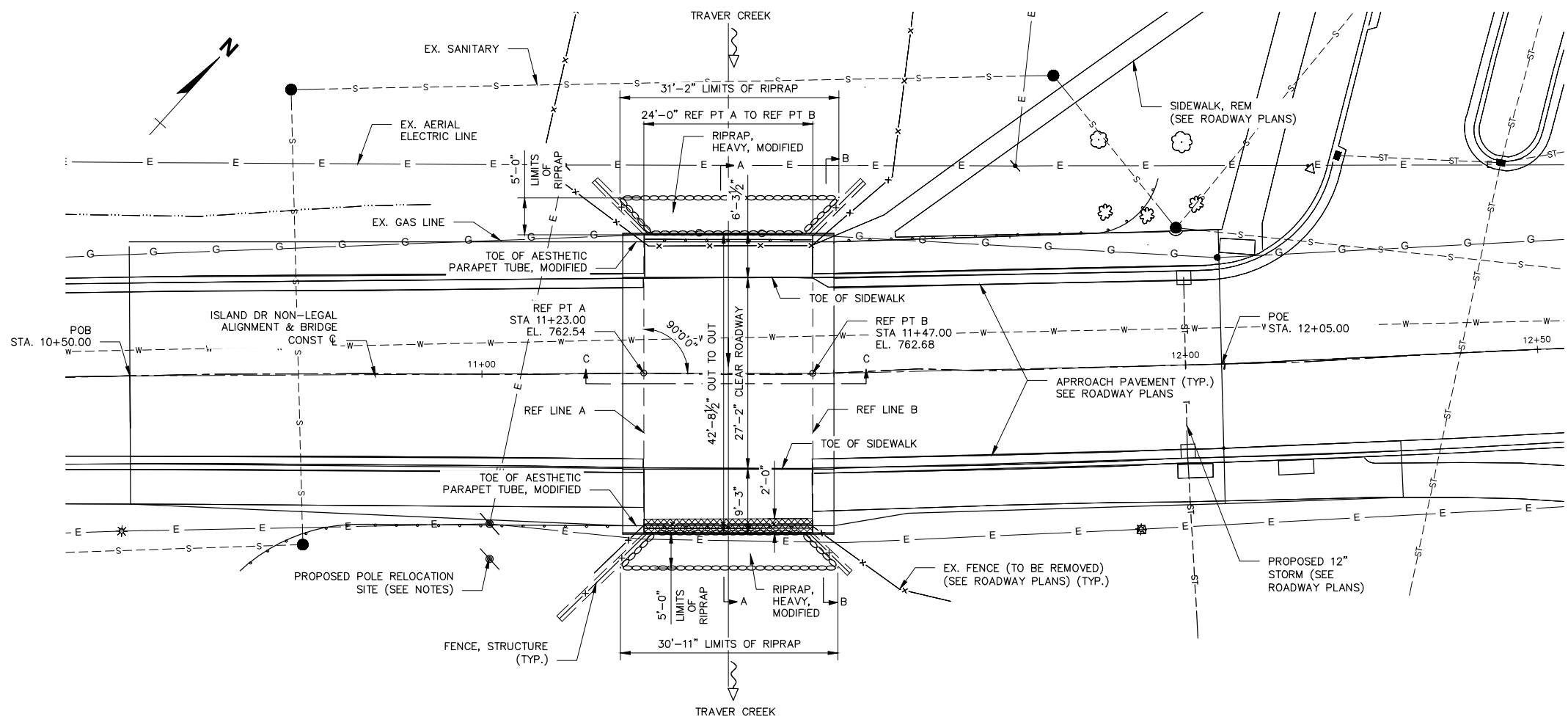
THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

ISLAND DRIVE VEHICULAR AND PEDESTRIAN TRAFFIC IS TO BE DETOURED UTILIZING EXISTING ROADS.

PLAN ELEVATIONS REFER TO NAVD 88 DATUM.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE. REMOVAL OF DEBRIS WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE BID ITEM "STRUCTURES, REHABILITATION, REM PORTIONS".

POLE IS TO BE RELOCATED BY DTE PRIOR TO CONSTRUCTION. CONTRACTOR TO CONFIRM AND COORDINATE WITH DTE IF NECESSARY TO COMPLETE RELOCATION.



MISCELLANEOUS QUANTITIES		
1	LS	Bypass Pumping
1	LS	Structures, Rehabilitation, Rem Portions (Str 11072)
32	Syd	Riprap, Heavy, Modified
11	Syd	Slope Protection, Remove and Replace

LEGEND



NOTES:

THE WORK COVERED BY THESE PLANS INCLUDES REMOVAL OF THE EXISTING ASPHALT WEARING SURFACE, THE INSTALLATION OF A NEW CONCRETE WEARING SURFACE, BARRIER REPLACEMENT, FENCE REPLACEMENT, SLOPE PROTECTION REPAIRS, AND MAINTAINING TRAFFIC.

THE REHABILITATION DESIGN OF THIS STRUCTURE IS BASED ON THE CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS20-44. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH. THE ORIGINAL STRUCTURE WAS DESIGNED FOR HS-20 LOADING.

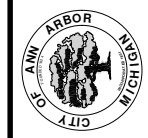
FOR DETAILS OF SLOPE PROTECTION, SEE STANDARD PLAN B-102-SERIES.

THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED. THE ESTIMATED WEIGHT OF RIPRAP IS 48 TONS.

POLE IS TO BE RELOCATED BY DTE PRIOR TO CONSTRUCTION. CONTRACTOR TO CONFIRM AND COORDINATE WITH DTE IF NECESSARY TO COMPLETE RELOCATION.

ISLAND DRIVE OVER TRAVER CREEK

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GENERAL PLAN OF STRUCTURE

PROFILE: NA
SCALE: NONE
DRAWING No. 2020-025
SHEET No.



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

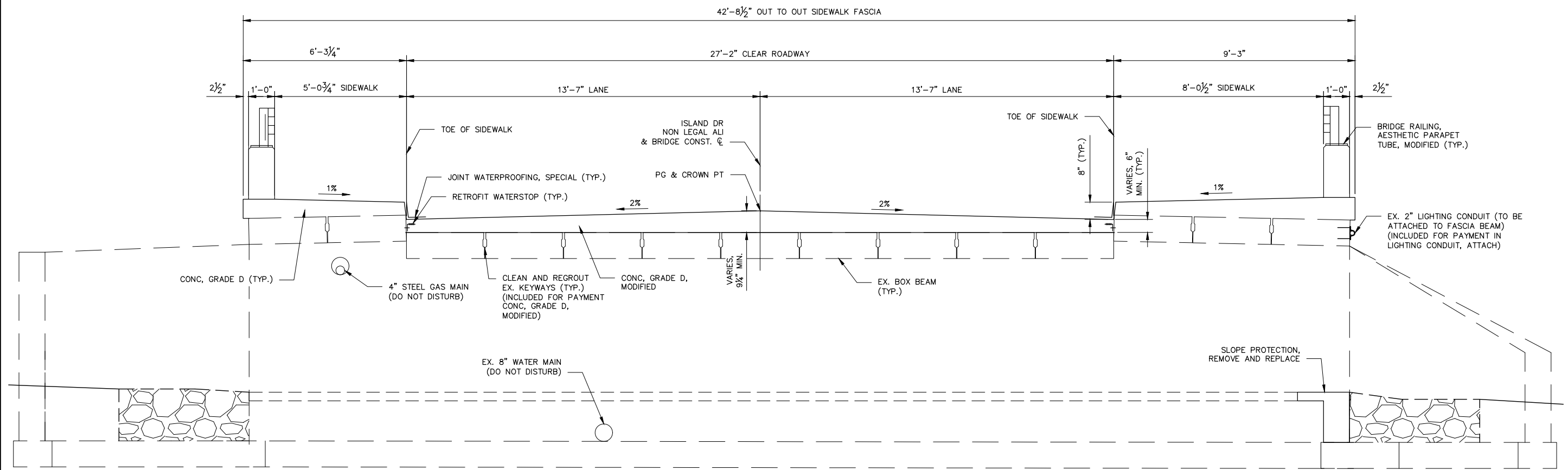
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GENERAL PLAN OF STRUCTURE

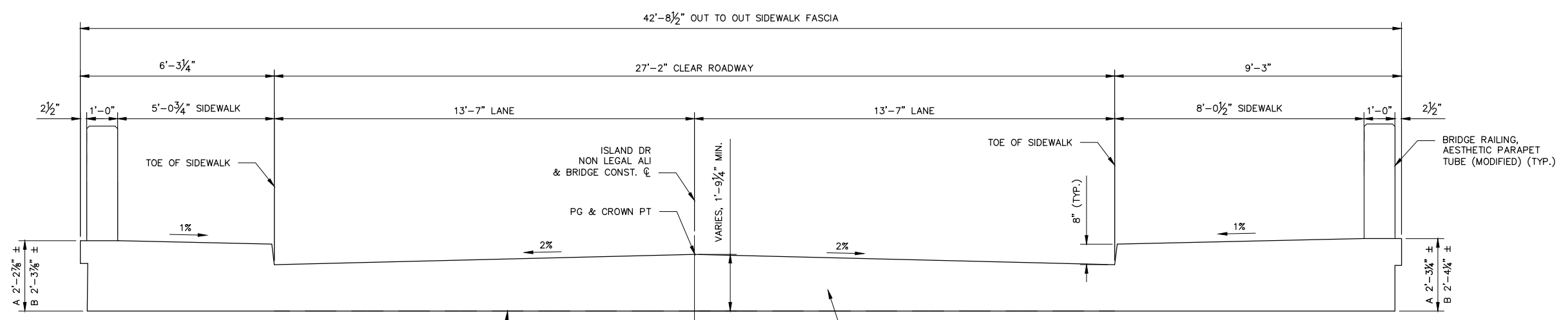
SCALE NONE
PROFILE: NA
DRAWING No. 2020-025

SHEET No. 16 of 87



SECTION A-A

APPLIES STA. 11+23.00 TO STA. 11+47.00
(LOOKING EASTERLY)

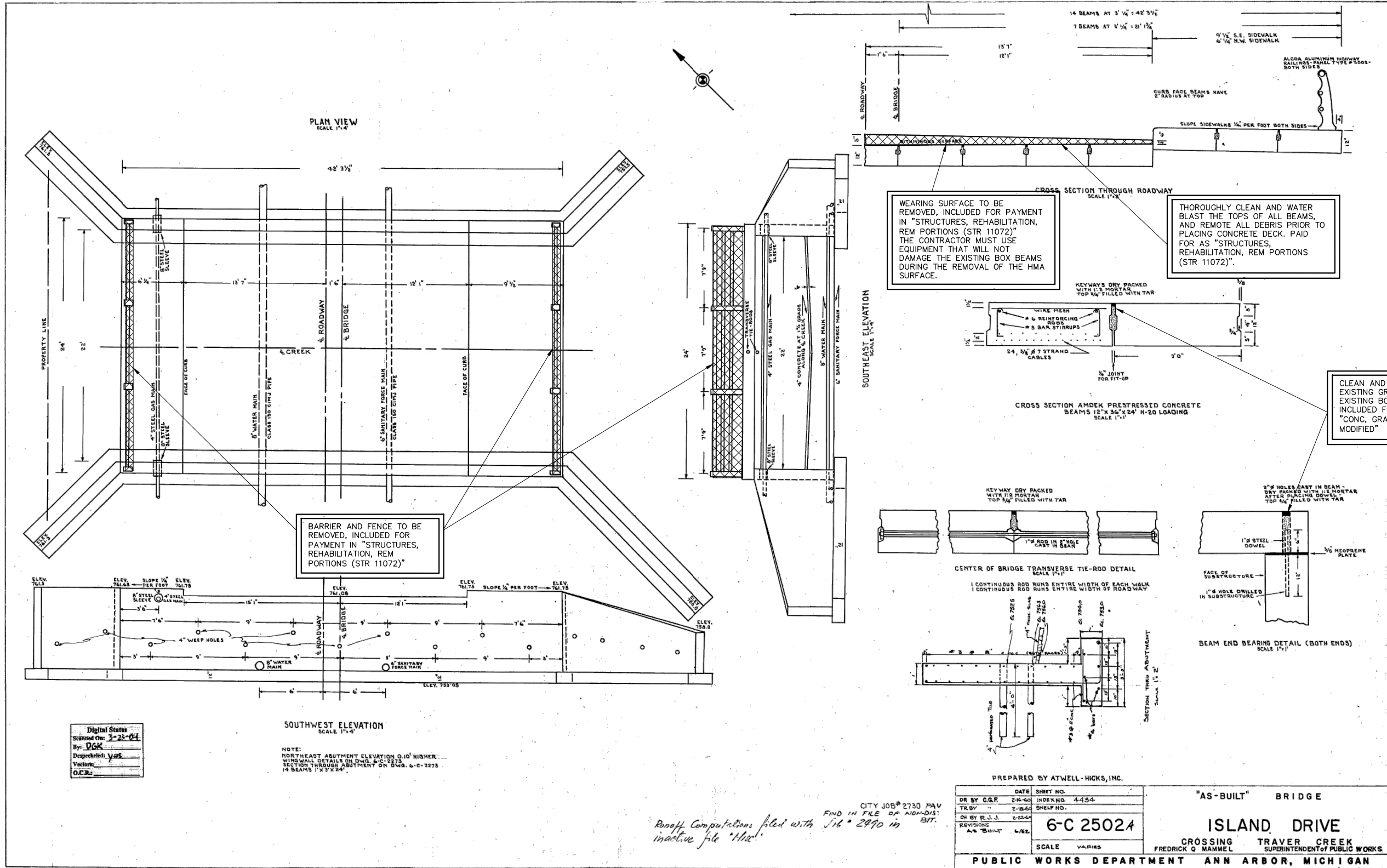


SECTION B-B

A STA. 11+20.00 TO STA. 11+23.00
B STA. 11+47.00 TO STA. 11+50.00
(LOOKING EASTERLY)

ISLAND DRIVE OVER TRAVER CREEK

THIS SHEET IS PROVIDED TO AID THE CONTRACTOR IN UNDERSTANDING THE EXISTING CONDITIONS OF THE PROPOSED WORK. THE CONTRACTOR SHALL THOROUGHLY REVIEW AND FAMILIARIZE THEMSELVES WITH THIS SHEET AND ALL ITS CONTENTS. CONTRACT PAY ITEMS MAY, OR MAY NOT, BE SHOWN ON THIS SHEET. REGARDLESS, THE CONTRACTOR SHALL FULLY FAMILIARIZE THEMSELVES WITH ALL CONDITIONS OF THE WORK AND THE EXISTING STRUCTURE AND SHALL ACCOUNT FOR ANY AND ALL NEEDED COSTS TO PERFORM THE WORK OF THIS PROJECT ARISING FROM THE EXISTING CONDITIONS OF THE EXISTING BRIDGE STRUCTURE AND ITS APPURTENANCES.



Digital Stamp
 Scanned On: 2-23-04
 By: DSK
 Disapproved: VAS
 Vector:
 O.C.R.:

NOTE:
 NORTHEAST ABUTMENT ELEVATION 0'10" HIGHER
 WINGWALL DETAILS ON DWG. 6-C-2275
 SECTION THROUGH ABUTMENT ON DWG. 6-C-2273
 14 BEAMS 1' x 24"

Renoff Computations filed with Job # 2990 in inactive file "Hic"
 CITY JOB # 2730 PAV
 FIND IN FILE OF NDR-DIS.
 BIT.

PREPARED BY ATWELL-HICKS, INC.

DATE	SHEET NO.
2-16-60	2-18-64
INDEX NO. 4434	SHELF NO.
DR BY C.G.R.	CH BY R.J.J.
TR BY	REVISIONS
2-18-64	AS BUILT 6/82

6-C 2502A

SCALE VARIES

"AS-BUILT" BRIDGE

ISLAND DRIVE

CROSSING TRAVER CREEK

FREDRICK Q. MAMMEL SUPERINTENDENT OF PUBLIC WORKS

PUBLIC WORKS DEPARTMENT ANN ARBOR, MICHIGAN

SN 11072

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED WITH THE LEGEND BOX BELOW LABELED WITH THIS STRUCTURE'S NUMBER

	PROPOSED WORK
	DENOTES REMOVED PORTIONS

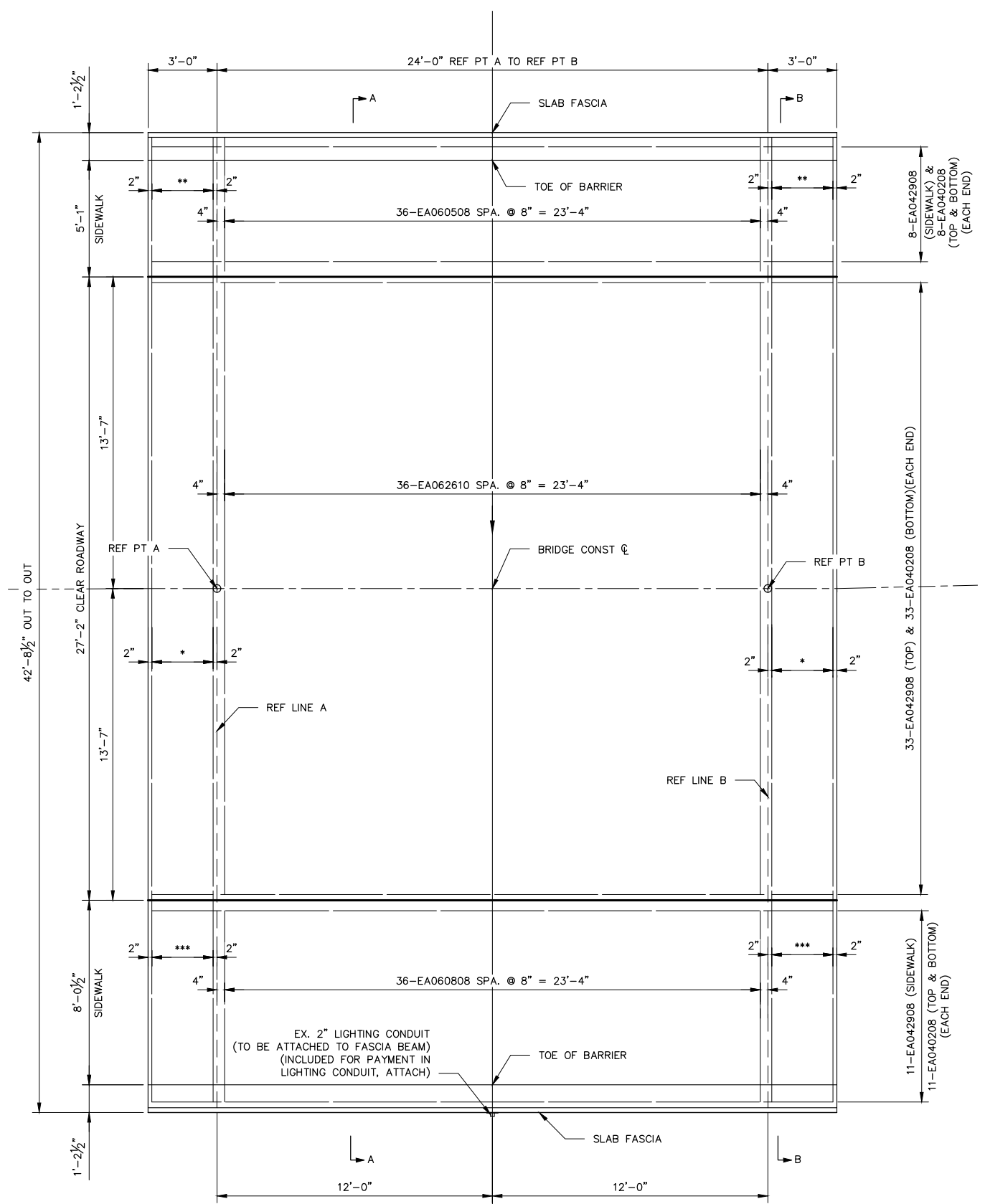
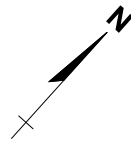
ISLAND DRIVE OVER TRAVER CREEK

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 ANN ARBOR 734-784-4410
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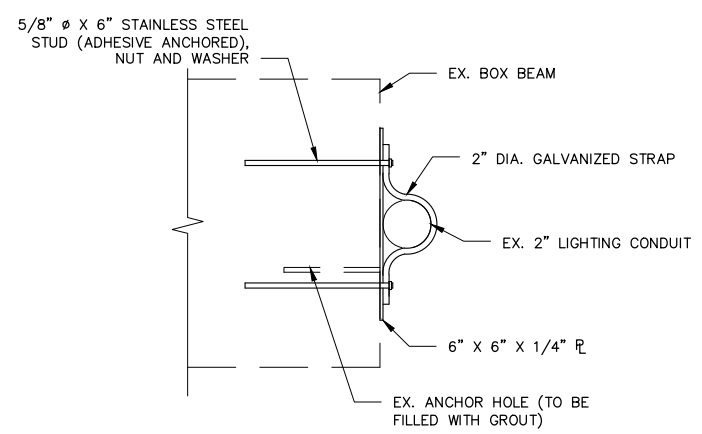


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 EXISTING GENERAL PLAN OF STRUCTURE

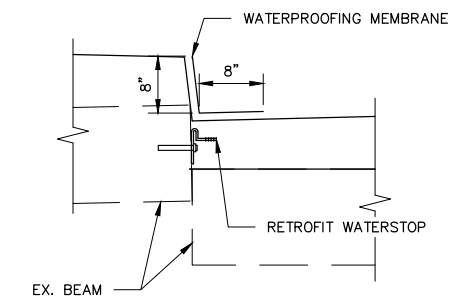
PROFILE: NA
 SCALE: NONE
 DRAWING No. 2020-025
 SHEET No.



PLAN
 ELO4 BARS CAST WITH SIDEWALK. SEE PLAN OF BARRIER



LIGHTING CONDUIT ATTACHMENT DETAIL



JOINT WATERPROOFING DETAIL

LEGEND

- * - 5-EA064204 SPA. @ 8" = 2'-8" (TOP & BOTTOM)
- ** - 5-ED060906 SPA. @ 8" = 2'-8"
- *** - 5-ED061206 SPA. @ 8" = 2'-8"

ISLAND DRIVE OVER TRAVER CREEK

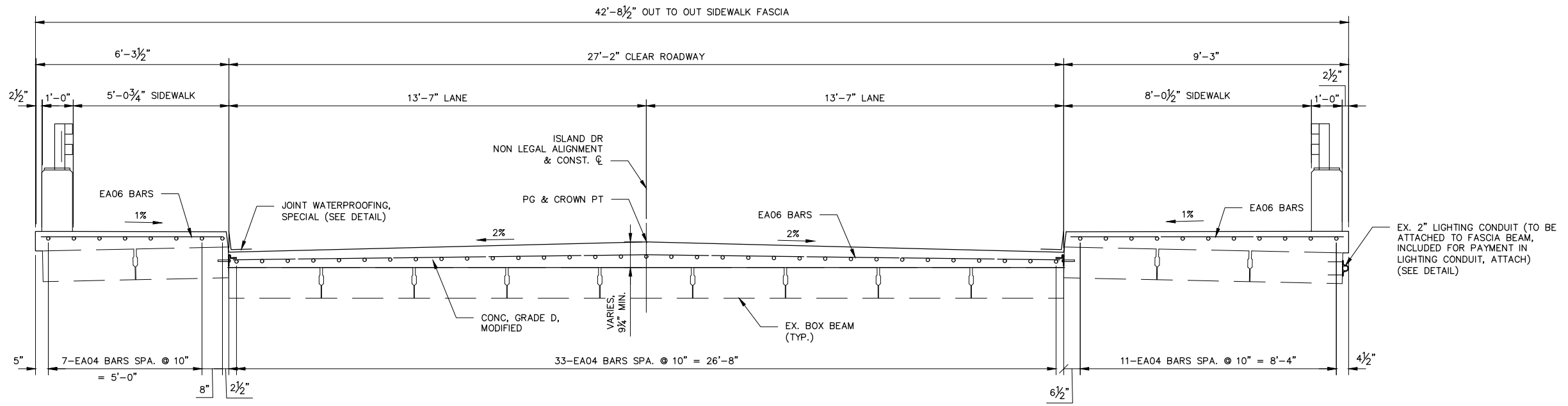
REV.	DATE	DRAWN	CHECKED	DESCRIPTION

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 SLAB DETAIL

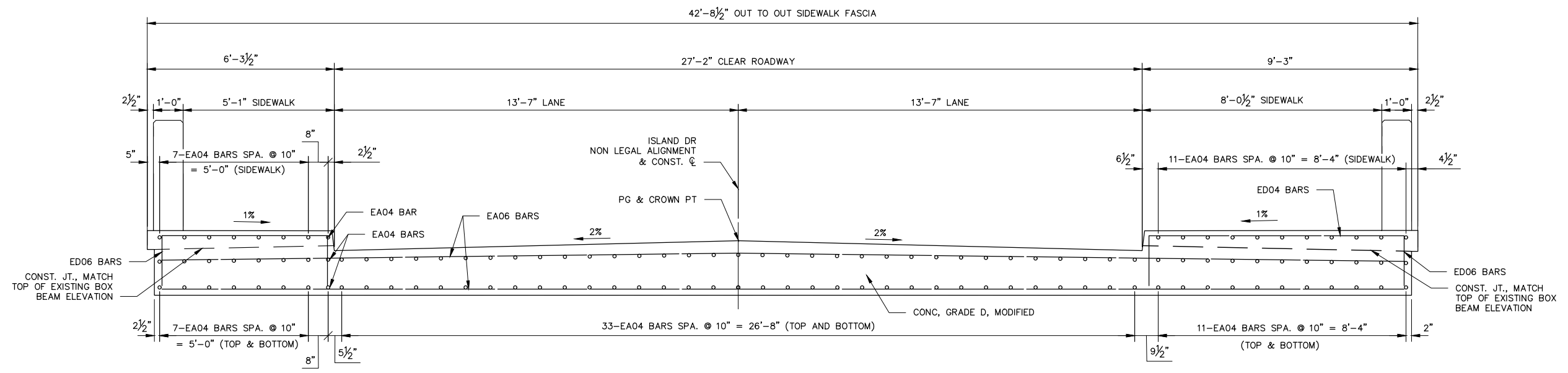
SCALE NONE	PROFILE: NA
DRAWING No. 2020-025	

SHEET No. 18 of 87



SECTION A-A

APPLIES STA. 11+23.00 TO STA. 11+47.00
(LOOKING EASTERLY)



SECTION B-B

APPLIES STA. 11+20.00 TO STA. 11+23.00
APPLIES STA. 11+47.00 TO STA. 11+50.00
(LOOKING EASTERLY)

MISCELLANEOUS QUANTITIES		
48	Cyd	Conc. Grade D, Modified
1	LS	Lighting Conduit, Attach
48	Ft	Joint Waterproofing, Special

ISLAND DRIVE OVER TRAVER CREEK

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
SLAB DETAIL

SCALE NONE
PROFILE: NA
DRAWING No. 2020-025
SHEET No.



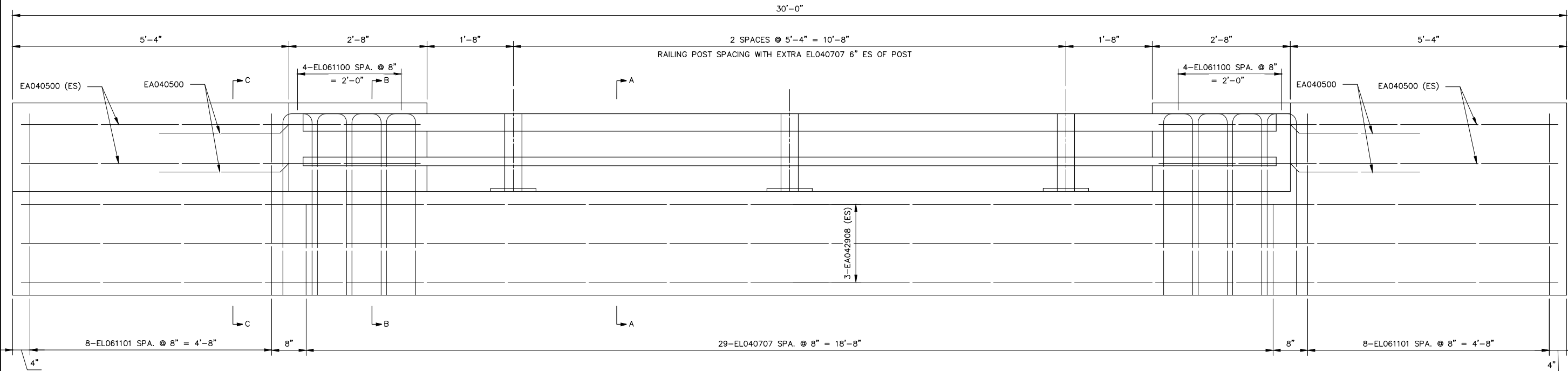
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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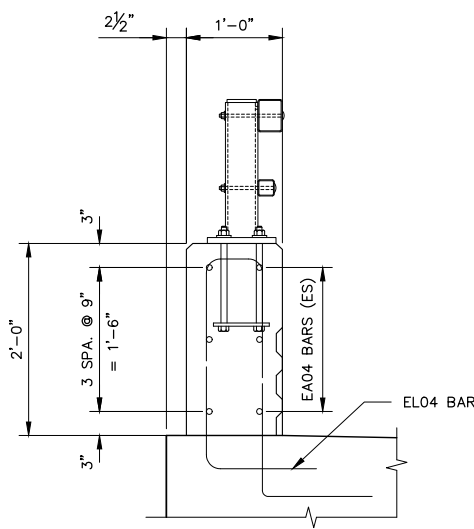


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
BARRIER DETAILS

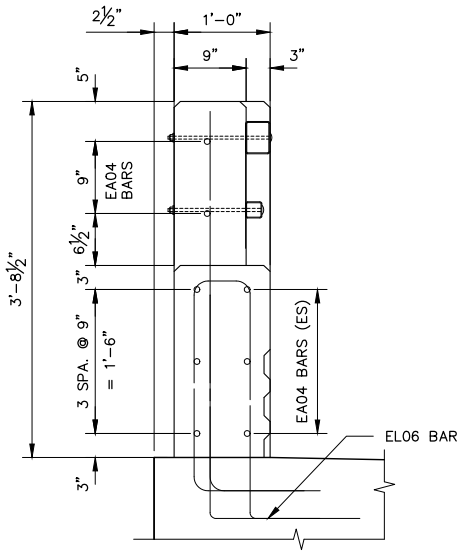
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SCALE: NONE
DRAWING No. 2020-025



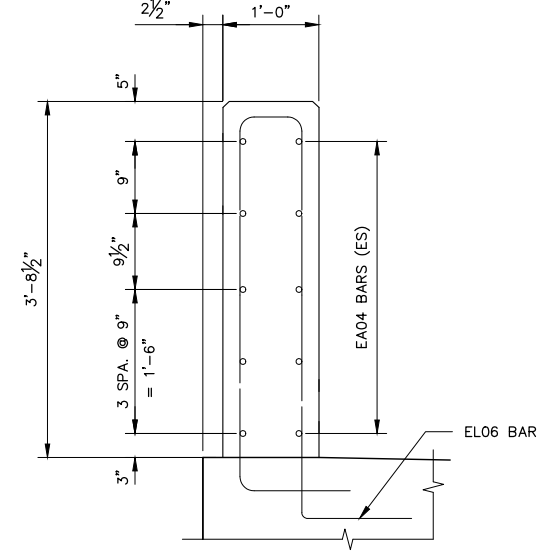
BARRIER ELEVATION



SECTION A-A



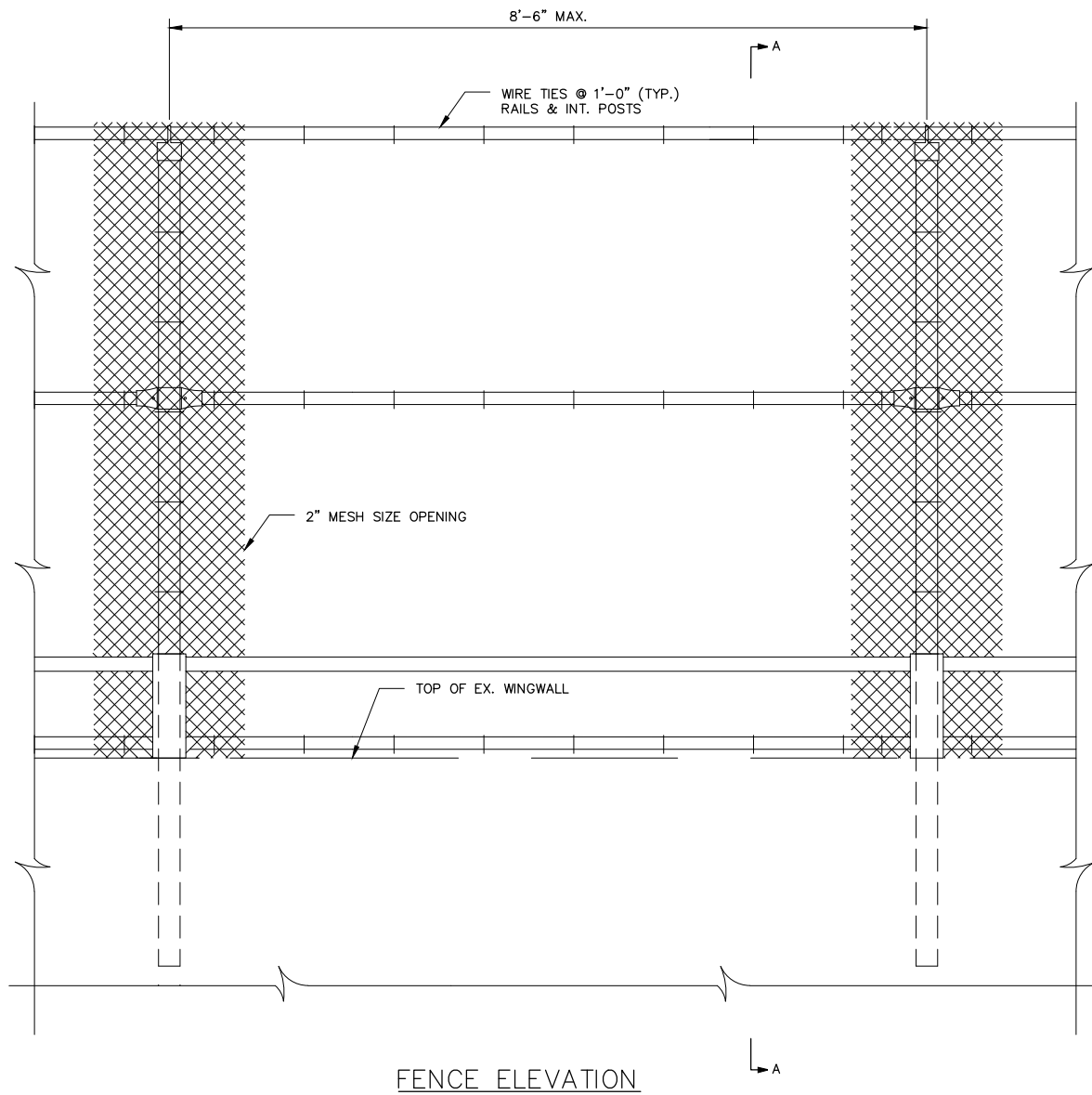
SECTION B-B



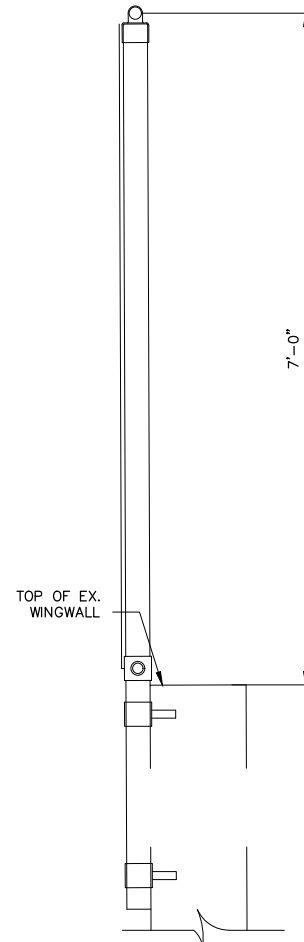
SECTION C-C

MISCELLANEOUS QUANTITIES	
60	Ft Bridge Railing, Aesthetic Parapet Tube, Modified

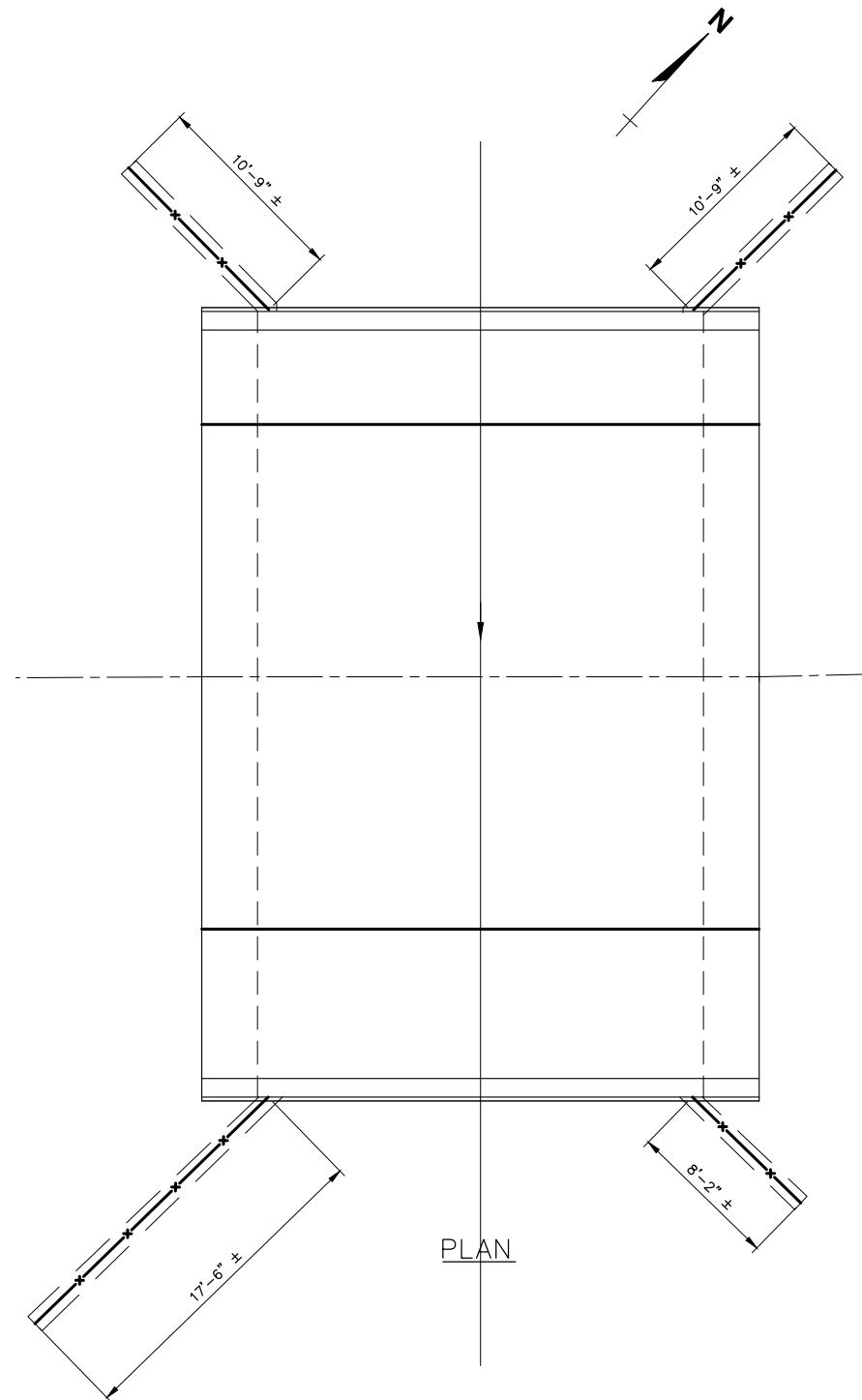
ISLAND DRIVE OVER TRAVER CREEK



FENCE ELEVATION



SECTION A-A



PLAN

NOTES:

INSTALL PEDESTRIAN FENCING IN ACCORDANCE WITH STANDARD DRAWING B-35-D, EXCEPT MOUNT FENCE TO THE EXISTING WINGWALLS INSTEAD OF AN EXISTING BARRIER.

THE PEDESTRIAN FENCING SHALL BE BLACK POLYVINYL PVC COATING, FEDERAL STANDARD 595C, COLOR NO. 17038. ALL FENCE POSTS SHALL BE 2½" NOMINAL (2.875" O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C. HORIZONTAL RAILS SHALL BE 1¼" NOMINAL (1.66" O.D.) PIPE IN CONFORMANCE WITH ASTM F669, CLASS 1C OR ASTM F1083.

ALL FENCE COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH MDT'S STANDARD SPECIFICATIONS FOR CONSTRUCTION. FENCE FABRIC, FRAMING, FITTING, AND HARDWARE SHALL BE COATED WITH BLACK POLYVINYL CHLORIDE.

DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN CONFORMANCE WITH MDT'S CURRENT STANDARD SPECIFICATION FOR CONSTRUCTION.

FENCE FABRIC SHALL BE #9 GAGE MESH AND EB BLACK PVC COATED IN CONFORMANCE WITH MDT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL POSTS SHALL BE INSTALLED PLUMB AND MAY BE SHIMMED WITH NON-METALLIC SHIMS, APPROVED BY THE ENGINEER. COSTS FROM SHIMMING SHALL BE INCLUDED IN THE PAY ITEM "FENCE, STRUCTURE."

ALL BOLT FASTENERS SECURED IN CONCRETE SHALL BE ½" DIAMETER "ADHESIVE ANCHORED BOLTS" WITH 4½" EMBEDMENT. THE STRUCTURAL ADHESIVE SHALL BE CHOSEN FROM THE QUALIFIED PRODUCTS LIST IN THE CURRENT MDT MATERIALS SOURCE GUIDE.

THE HOLE SIZE AND INSTALLATION PROCEDURES FOR ADHESIVE ANCHORED BOLTS SHALL BE PROPOSED BY THE CONTRACTOR IN ACCORDANCE WITH THE ADHESIVE BONDING AGENT MANUFACTURER'S RECOMMENDATION AND FIELD TESTED IN ACCORDANCE WITH MDT'S CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO INSTALL PEDESTRIAN FENCING SHALL BE INCLUDED IN PAY ITEM "FENCE, STRUCTURE".

MISCELLANEOUS QUANTITIES	
330	Sft Fence, Structure

ISLAND DRIVE OVER TRAVER CREEK



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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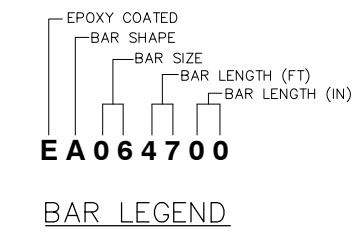
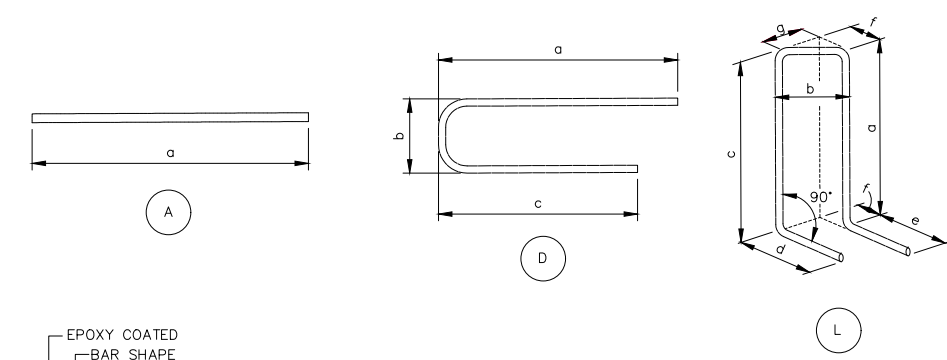
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
FENCE DETAILS

SCALE NONE
PROFILE: NA
DRAWING No. 2020-025



SLAB REINFORCING STEEL LIST													
MARK	DIMENSIONS										NUMBER	WEIGHT	
	A	B	C	D	E	F	G	H	J				
EA040208	2'-8"											142	253
EA042908	29'-8"											52	1031
EA062610	26'-10"											36	1451
EA064204	42'-4"											20	1267
EA060508	5'-8"											36	306
EA060808	8'-8"											36	469
ED060906	1'-11"	5'-8"	1'-11"									10	143
ED061206	1'-11"	8'-8"	1'-11"									10	188
SLAB TOTAL												5108	

RAILING REINFORCING STEEL LIST													
MARK	DIMENSIONS										NUMBER	WEIGHT	
	A	B	C	D	E	F	G	H	J				
EA040500	5'-0"											24	80
EA042908	29'-8"											12	238
EL040707	2'-2"	7"	2'-6"	1'-2"	1'-2"	7"	0"					70	355
EL061100	3'-10 1/2"	6 3/4"	4'-2 1/2"	1'-2 1/8"	1'-2 1/8"	0"	6 3/4"					16	264
EL061101	4'-2 1/2"	7 1/4"	3'-10 1/2"	1'-2 3/8"	1'-2 3/8"	7 1/4"	0"					32	533
RAILING TOTAL												1470	



NOTES
REINFORCEMENT SHALL BE BUNDLED AND TAGGED AS TO THE LOCATION AS SHOWN ON THIS SHEET.

MISCELLANEOUS QUANTITIES		
6578	Lb	Reinforcement, Steel, Epoxy Coated

ISLAND DRIVE OVER TRAVER CREEK









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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
REINFORCEMENT LIST

SCALE NONE
DRAWING No. 2020-025
SHEET No. 22 of 87

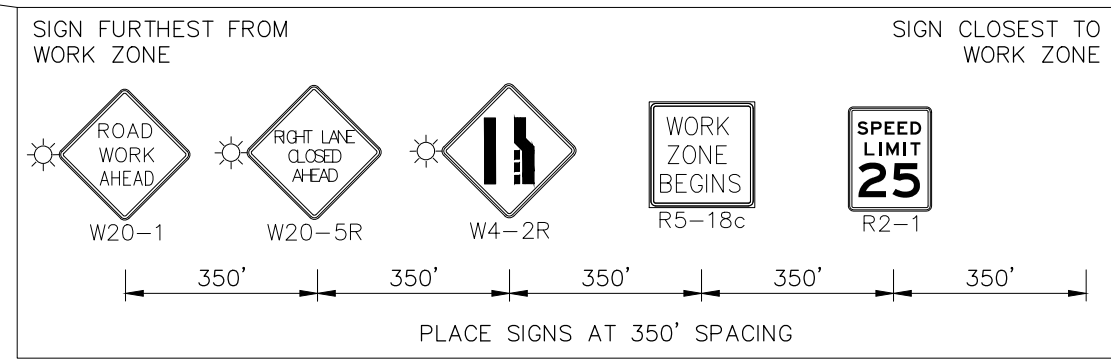
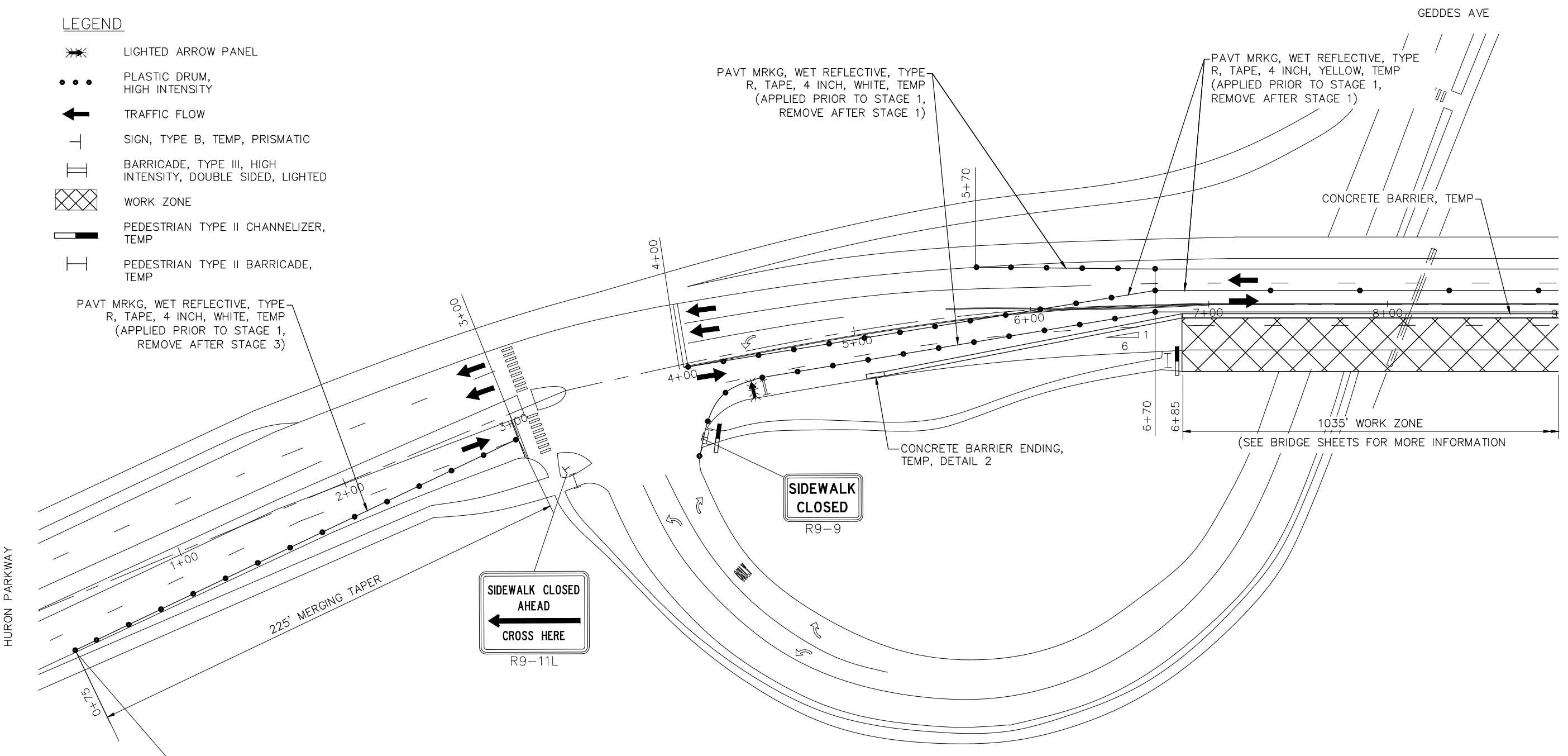
LEGEND

-  LIGHTED ARROW PANEL
-  PLASTIC DRUM, HIGH INTENSITY
-  TRAFFIC FLOW
-  SIGN, TYPE B, TEMP, PRISMATIC
-  BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
-  WORK ZONE
-  PEDESTRIAN TYPE II CHANNELIZER, TEMP
-  PEDESTRIAN TYPE II BARRICADE, TEMP

PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, WHITE, TEMP (APPLIED PRIOR TO STAGE 1, REMOVE AFTER STAGE 3)


PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, WHITE, TEMP (APPLIED PRIOR TO STAGE 1, REMOVE AFTER STAGE 1)

PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, YELLOW, TEMP (APPLIED PRIOR TO STAGE 1, REMOVE AFTER STAGE 1)




STAGE 1
 STA. 0+50 TO 8+50
 STA. 8+50 TO STA 16+50 NOT SHOWN (SEE BRIDGE SHEETS FOR MORE INFORMATION)
 STA. 16+50 TO STA. 24+50 SHOWN ON SHEET 2/6

MAINTENANCE OF TRAFFIC 1/6
 (HURON PARKWAY OVER HURON RIVER)




REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC - STAGE 1









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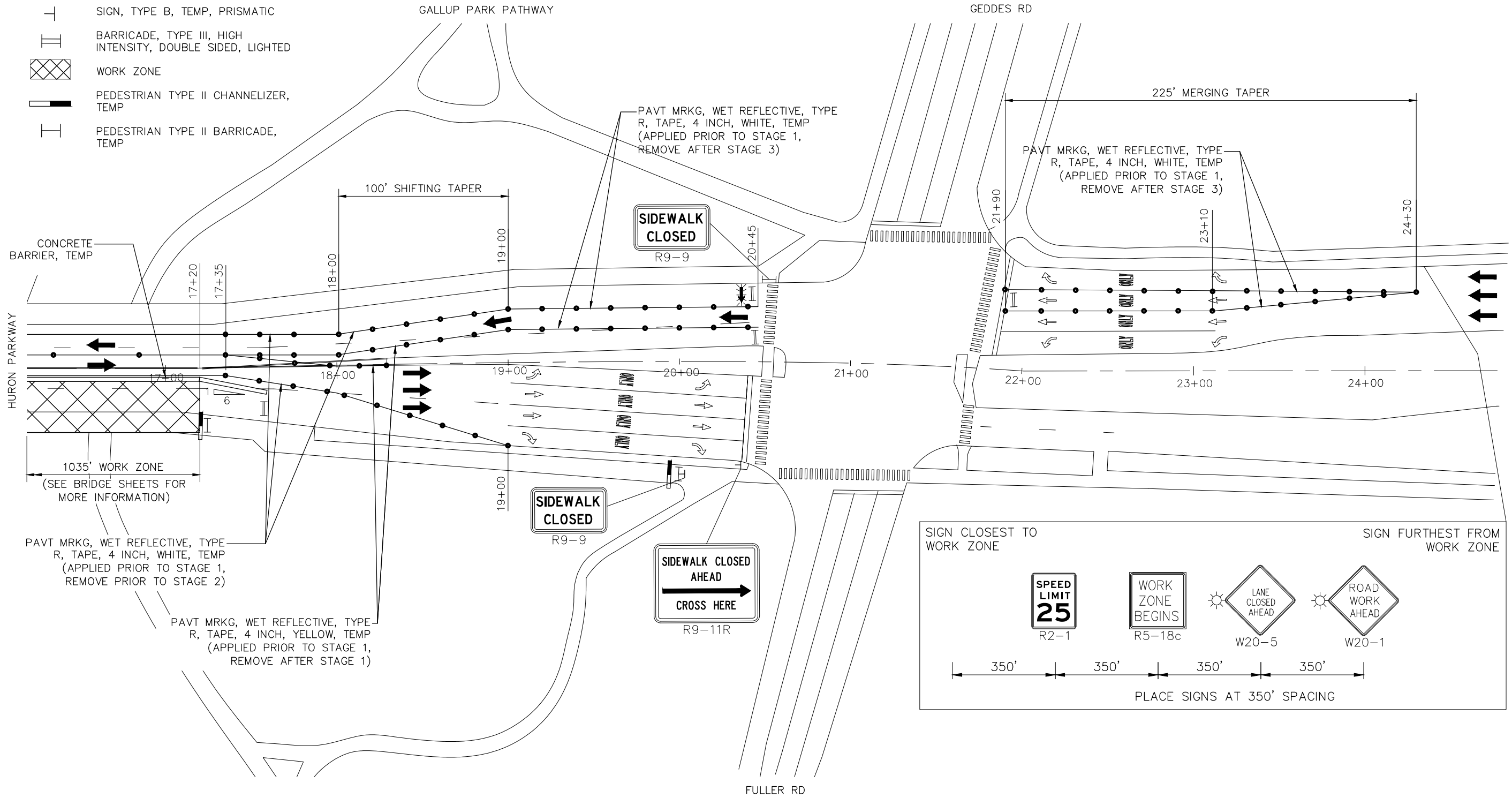


DRAWING No. **2020-025**

SHEET No. **23 of 87**

LEGEND

-  LIGHTED ARROW PANEL
-  PLASTIC DRUM, HIGH INTENSITY
-  TRAFFIC FLOW
-  SIGN, TYPE B, TEMP, PRISMATIC
-  BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
-  WORK ZONE
-  PEDESTRIAN TYPE II CHANNELIZER, TEMP
-  PEDESTRIAN TYPE II BARRICADE, TEMP



STAGE 1


STA. 16+50 TO 24+50
 STA. 8+50 TO STA. 16+50 NOT SHOWN (SEE BRIDGE SHEETS FOR MORE INFORMATION)
 STA. 0+50 TO STA. 8+50 SHOWN ON SHEET 1/6

MAINTENANCE OF TRAFFIC 2/6
 (HURON PARKWAY OVER HURON RIVER)



REV.	DESCRIPTION	DATE	DRAWN	CHECKED









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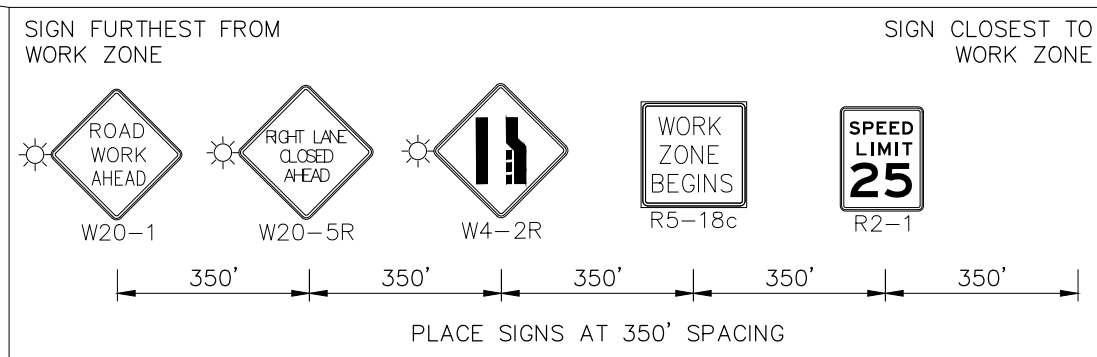
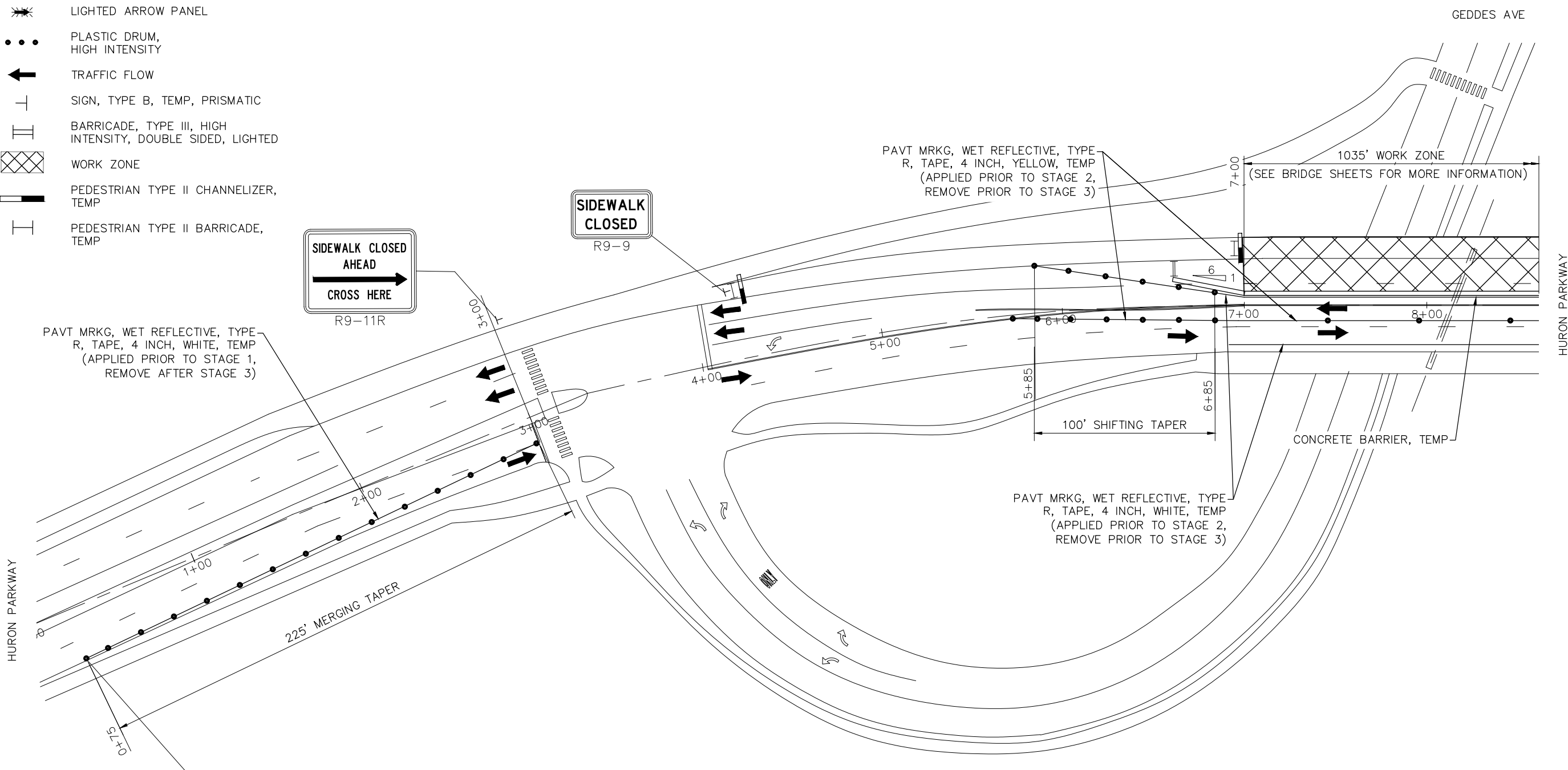


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC - STAGE 1

SCALE: 1"=30'
 PROFILE: N/A
 DRAWING No. **2020-025**

LEGEND

-  LIGHTED ARROW PANEL
-  PLASTIC DRUM, HIGH INTENSITY
-  TRAFFIC FLOW
-  SIGN, TYPE B, TEMP, PRISMATIC
-  BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
-  WORK ZONE
-  PEDESTRIAN TYPE II CHANNELIZER, TEMP
-  PEDESTRIAN TYPE II BARRICADE, TEMP



STAGE 2
 STA. 0+50 TO 8+50
 STA. 8+50 TO STA 16+50 NOT SHOWN (SEE BRIDGE SHEETS FOR MORE INFORMATION)
 STA. 16+50 TO STA. 24+50 SHOWN ON SHEET 4/6

MAINTENANCE OF TRAFFIC 3/6
 (HURON PARKWAY OVER HURON RIVER)



REV.	DESCRIPTION	DATE	DRAWN	CHECKED









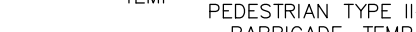
CITY OF ANN ARBOR
 PUBLIC SERVICE
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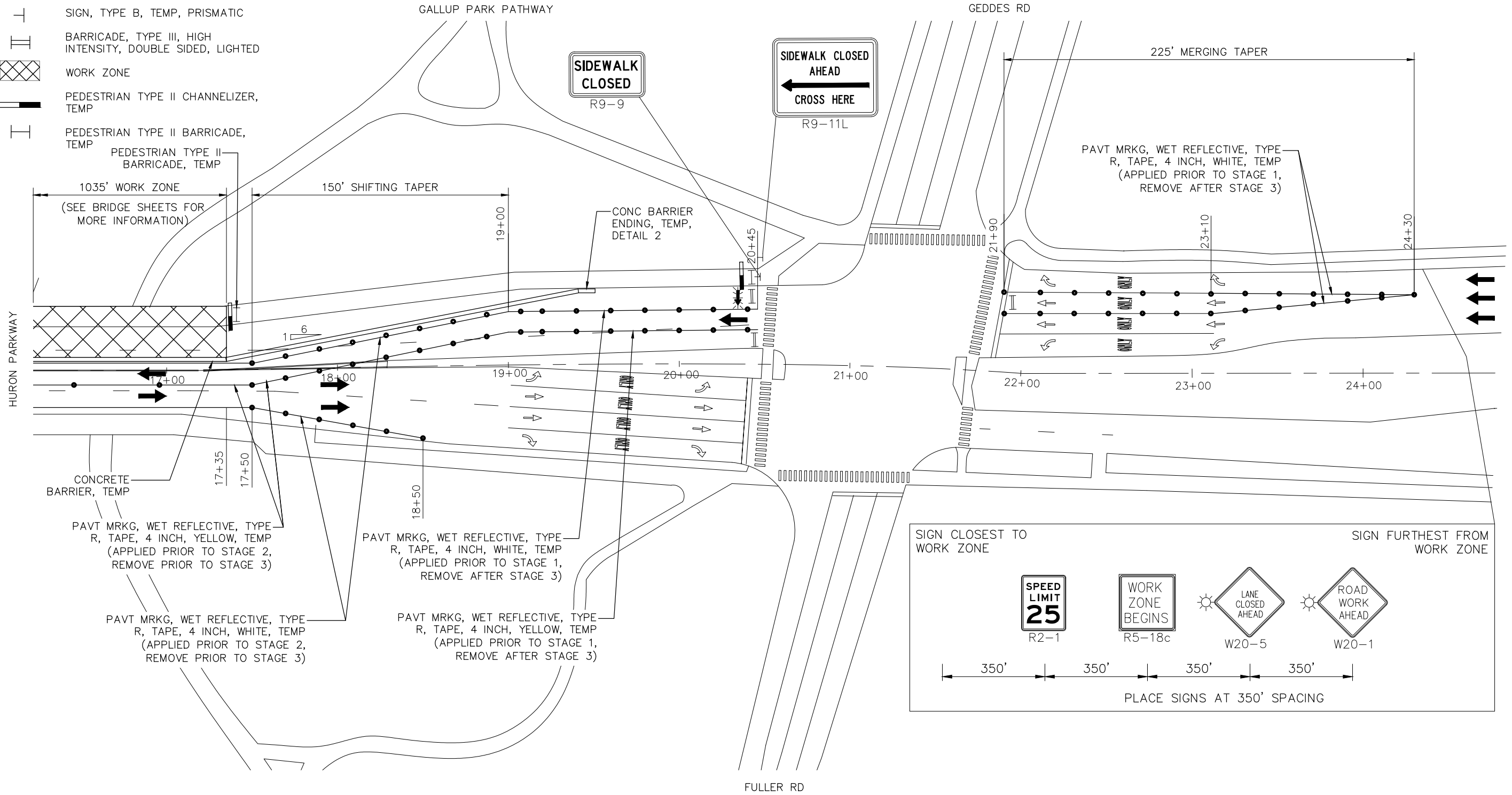


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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC - STAGE 2

SCALE 1"=30'
 PROFILE: NA
 DRAWING No. **2020-025**

LEGEND

-  LIGHTED ARROW PANEL
-  PLASTIC DRUM, HIGH INTENSITY
-  TRAFFIC FLOW
-  SIGN, TYPE B, TEMP, PRISMATIC
-  BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
-  WORK ZONE
-  PEDESTRIAN TYPE II CHANNELIZER, TEMP
-  PEDESTRIAN TYPE II BARRICADE, TEMP
-  PEDESTRIAN TYPE II BARRICADE, TEMP



STAGE 2


STA. 16+50 TO 24+50
 STA. 8+50 TO STA. 16+50 NOT SHOWN (SEE BRIDGE SHEETS FOR MORE INFORMATION)
 STA. 0+50 TO STA. 8+50 SHOWN ON SHEET 3/6

MAINTENANCE OF TRAFFIC 4/6
 (HURON PARKWAY OVER HURON RIVER)



REV.	DESCRIPTION	DATE	DRAWN	CHECKED









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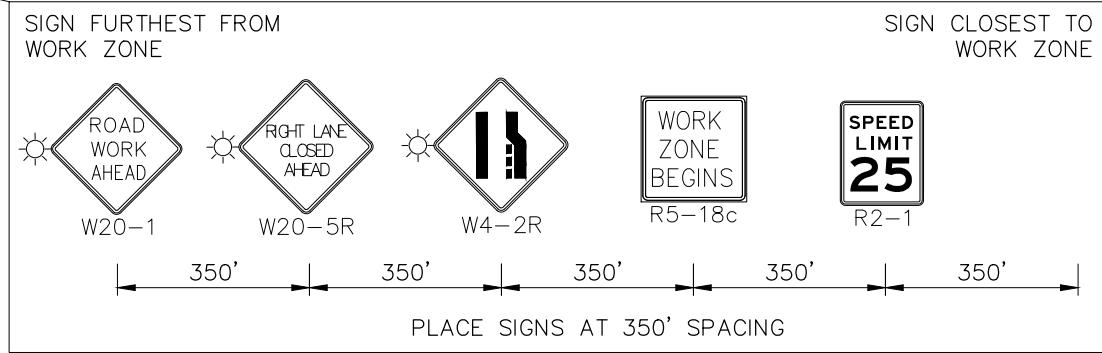
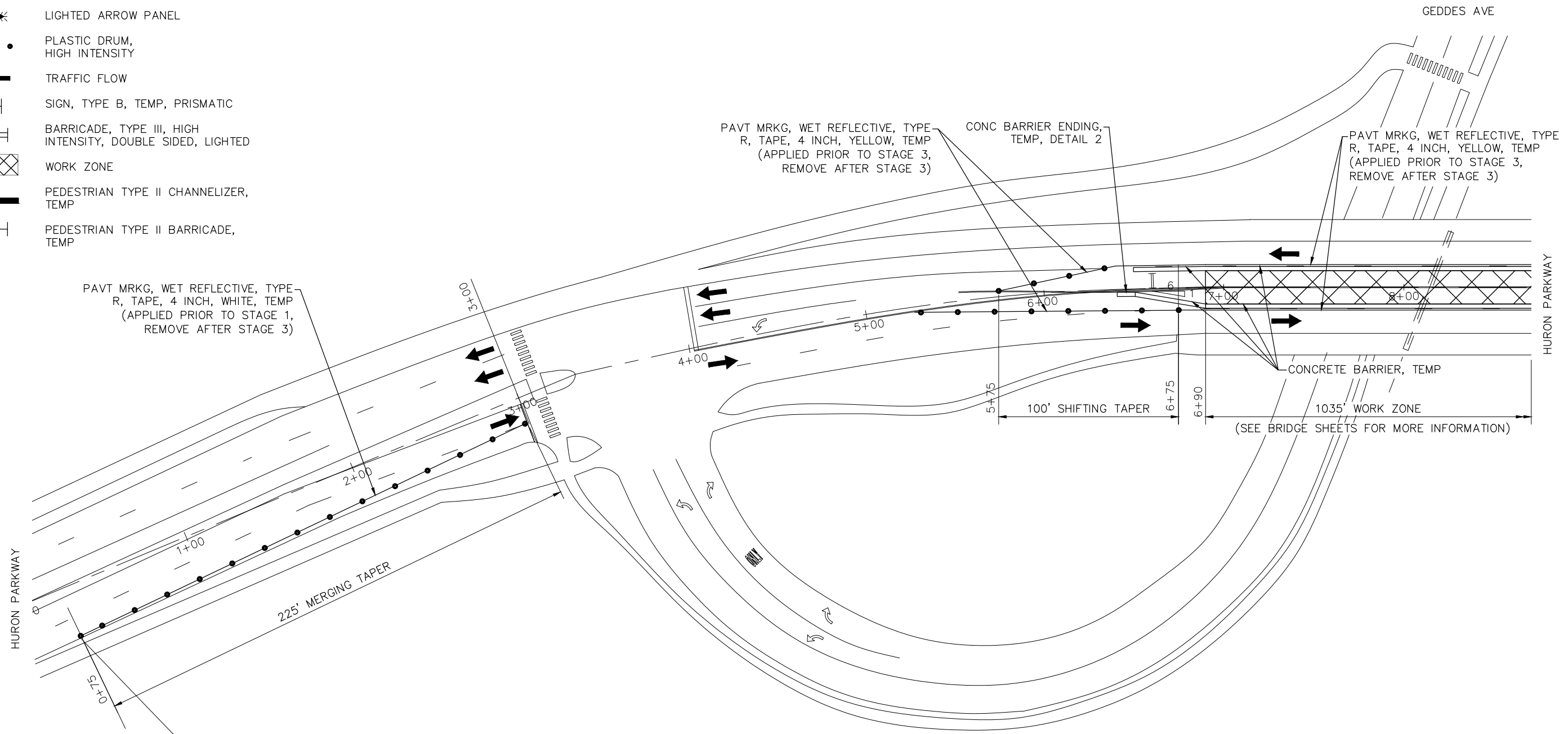


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC - STAGE 2

SCALE: 1"=30'
 PROFILE: N/A
 DRAWING No. **2020-025**


LEGEND

-  LIGHTED ARROW PANEL
-  PLASTIC DRUM, HIGH INTENSITY
-  TRAFFIC FLOW
-  SIGN, TYPE B, TEMP, PRISMATIC
-  BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
-  WORK ZONE
-  PEDESTRIAN TYPE II CHANNELIZER, TEMP
-  PEDESTRIAN TYPE II BARRICADE, TEMP



STAGE 3
 STA. 0+50 TO 8+50
 STA. 8+50 TO STA 16+50 NOT SHOWN (SEE BRIDGE SHEETS FOR MORE INFORMATION)
 STA. 16+50 TO STA. 24+50 SHOWN ON SHEET **6/6**


MAINTENANCE OF TRAFFIC 5/6
 (HURON PARKWAY OVER HURON RIVER)



Know Where Below.
Call Before You Dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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






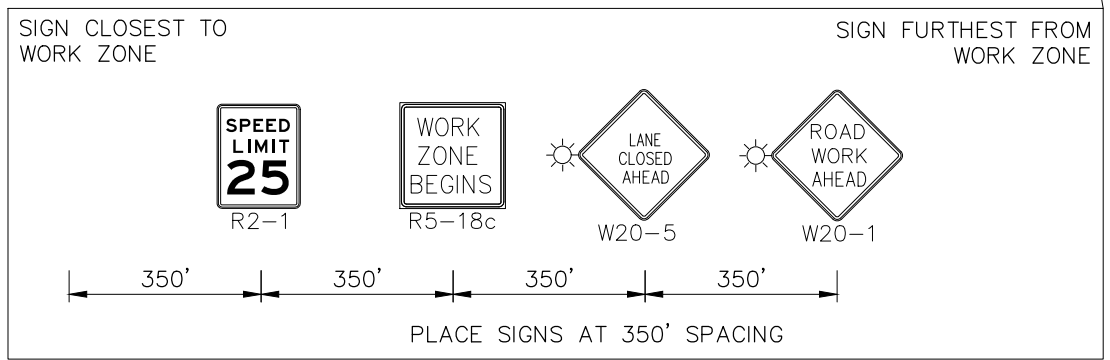
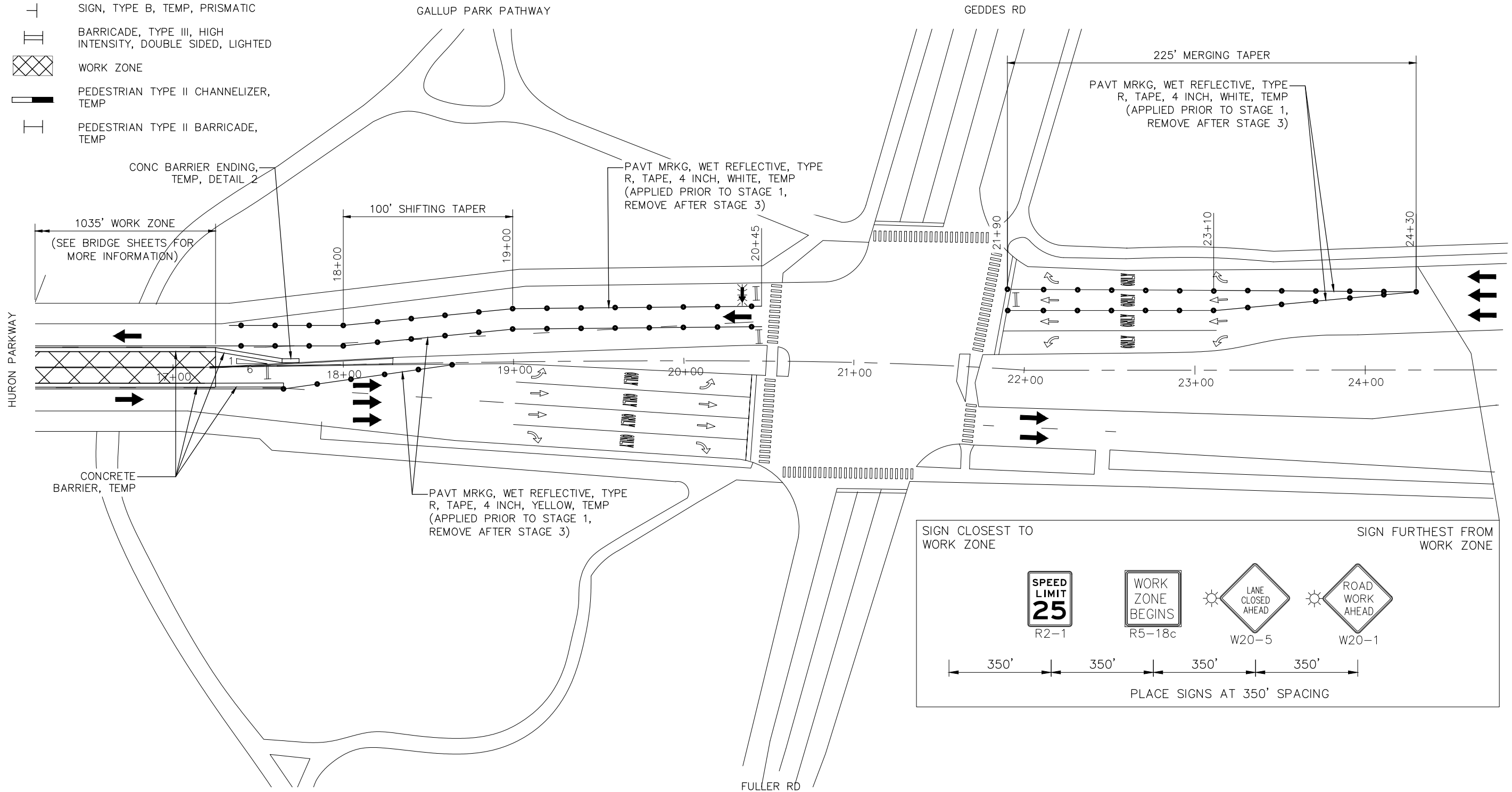
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 SCALE: 1"=30'
 PROFILE: N/A
 DRAWING No. 2020-025
 SHEET No.

CITY OF ANN ARBOR
 PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC - STAGE 3

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LEGEND

-  LIGHTED ARROW PANEL
-  PLASTIC DRUM, HIGH INTENSITY
-  TRAFFIC FLOW
-  SIGN, TYPE B, TEMP, PRISMATIC
-  BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
-  WORK ZONE
-  PEDESTRIAN TYPE II CHANNELIZER, TEMP
-  PEDESTRIAN TYPE II BARRICADE, TEMP




STAGE 3
 STA. 16+50 TO 24+50
 STA. 8+50 TO STA 16+50 NOT SHOWN (SEE BRIDGE SHEETS FOR MORE INFORMATION)
 STA. 0+50 TO STA. 8+50 SHOWN ON SHEET 5/6

MAINTENANCE OF TRAFFIC 6/6
 (HURON PARKWAY OVER HURON RIVER)



Know what's below.
Call Before you dig.

REV.	DATE	DRAWN	CHECKED	DESCRIPTION




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CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC - STAGE 3

SCALE: 1"=30'



PROFILE: NA

DRAWING No.

2020-025

SHEET No.

28 of 87



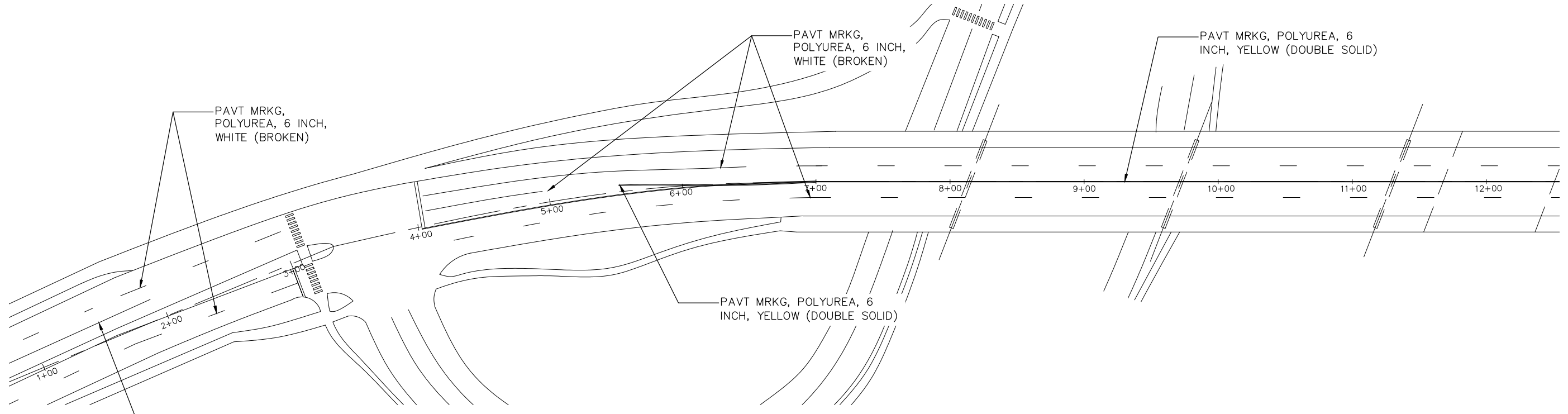
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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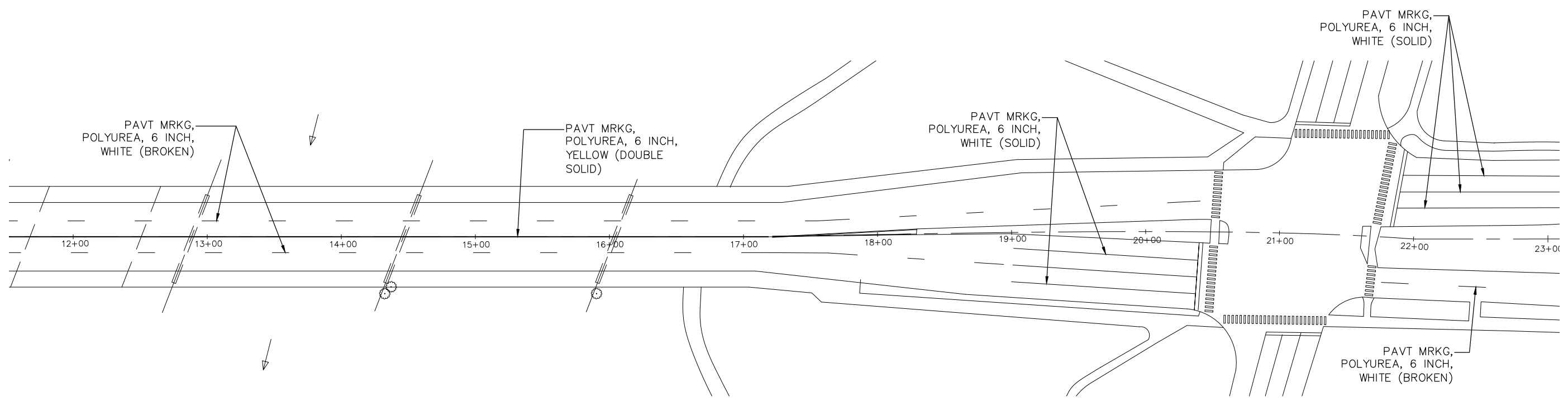


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
PAVEMENT MARKING

SCALE 1"=30'
DRAWING No. 2020-025
PROFILE: NA



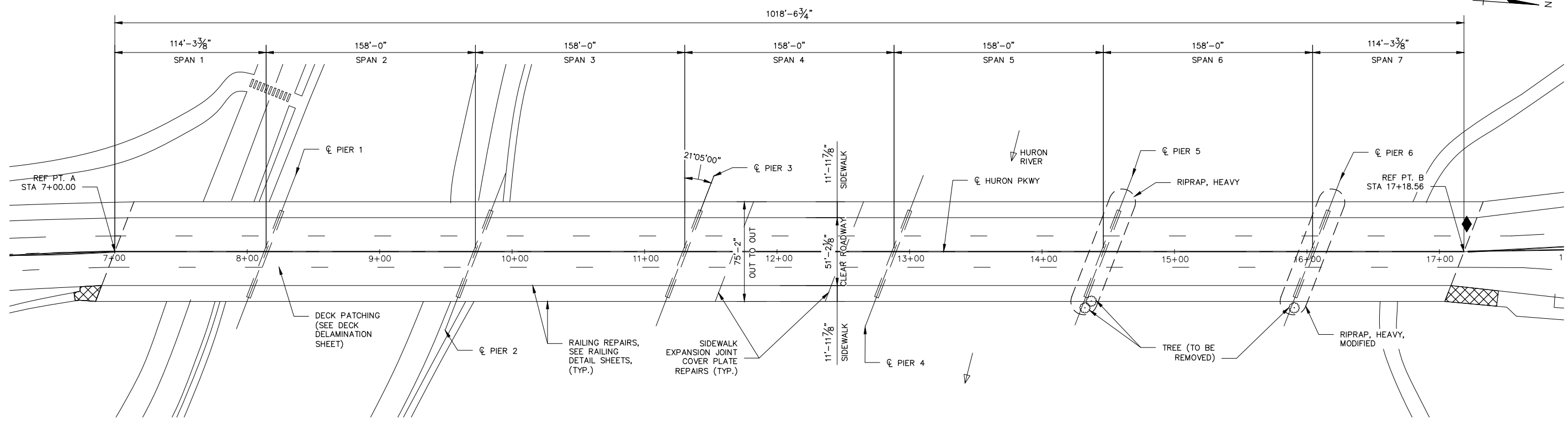
PLAN
(STA. 0+50.00 TO STA. 12+50.00)



PLAN
(STA. 12+50.00 TO STA. 24+50.00)



MISCELLANEOUS QUANTITIES		
5500	Ft	Pavt Mrkg, Polyurea, 6 inch, White
3050	Ft	Pavt Mrkg, Polyurea, 6 inch, Yellow

HURON PARKWAY OVER HURON RIVER



PLAN

LEGEND:

-  - REMOVE AND REPLACE APPROACH SIDEWALK PORTIONS AS DIRECTED BY THE ENGINEER
-  - REMOVE AND REPLACE SLOPE PROTECTION PORTIONS AS DIRECTED BY THE ENGINEER

MISCELLANEOUS QUANTITIES

3	Ea	Tree, Rem, 6 inch to 18 inch
3	Ea	Stump, Rem, 6 inch to 18 inch, Modified
20	Syd	Remove Concrete Sidewalk, Ramp & Drives - Any Thickness
180	Sft	6" Concrete Sidewalk, Ramp, Drive Approach
45	Syd	Riprap, Heavy, Modified
5	Syd	Slope Protection, Replace

NOTES:


THE WORK COVERED BY THESE PLANS INCLUDES DECK PATCHING, REPAIR OF GALVANIZED COATING ON BRIDGE RAILINGS, TREE REMOVAL, SIDEWALK EXPANSION JOINT REPAIRS, SUBSTRUCTURE REPAIRS, SIDEWALK REPAIRS, AND MAINTAINING TRAFFIC.

THE REHABILITATION DESIGN OF THIS STRUCTURE IS BASED ON THE CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS20-44. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/1000 OF SPAN LENGTH. THE ORIGINAL STRUCTURE WAS DESIGNED FOR UNKNOWN LOADING.

THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED. THE ESTIMATED WEIGHT OF RIPRAP IS 67 TONS.


COMPLETELY REMOVE AND DISPOSE OF ANY TREES OR BRUSH GROWING IN RIPRAP AREAS. THIS WORK SHALL BE INCLUDES IN THE ITEM OF WORK "TREE, REM, 6 INCH TO 18 INCH AND STUMP, REM, 6 INCH TO 18 INCH, MODIFIED".

HURON PARKWAY OVER HURON RIVER



Know what's below.
Call before you dig.


REV.	DESCRIPTION	DATE	DRAWN	CHECKED



CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106-6647
www.a2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GENERAL PLAN OF STRUCTURE

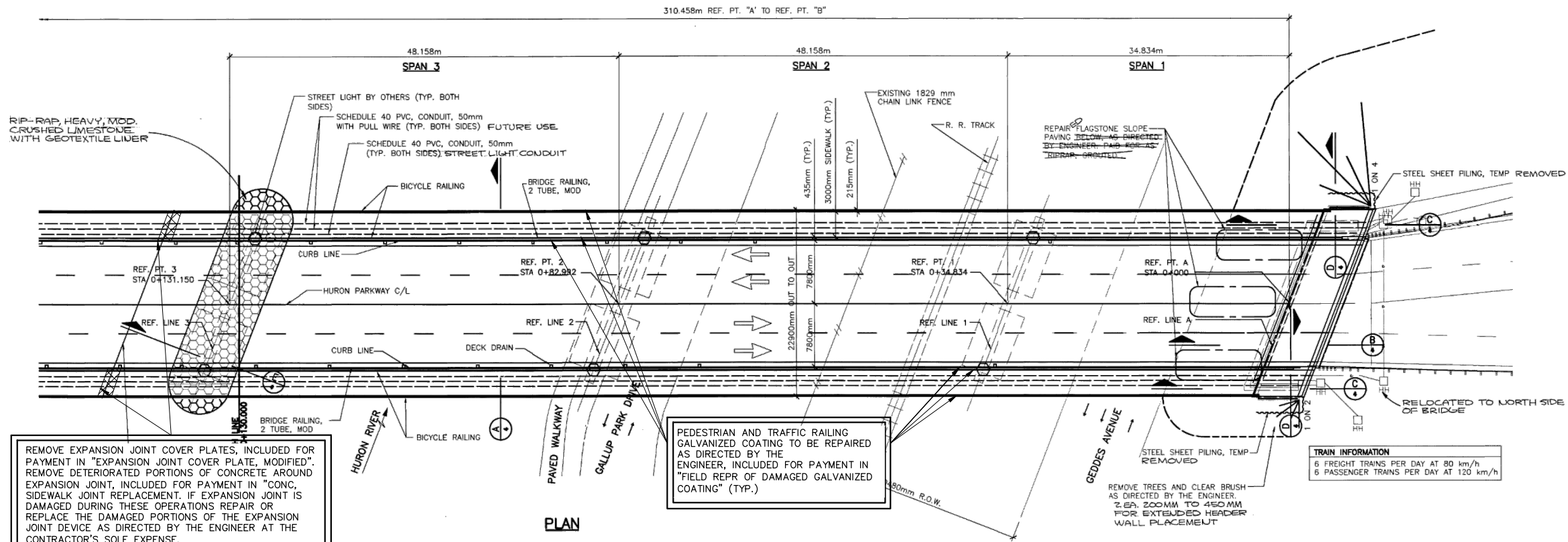
SCALE: 1"=30'
PROFILE: N/A



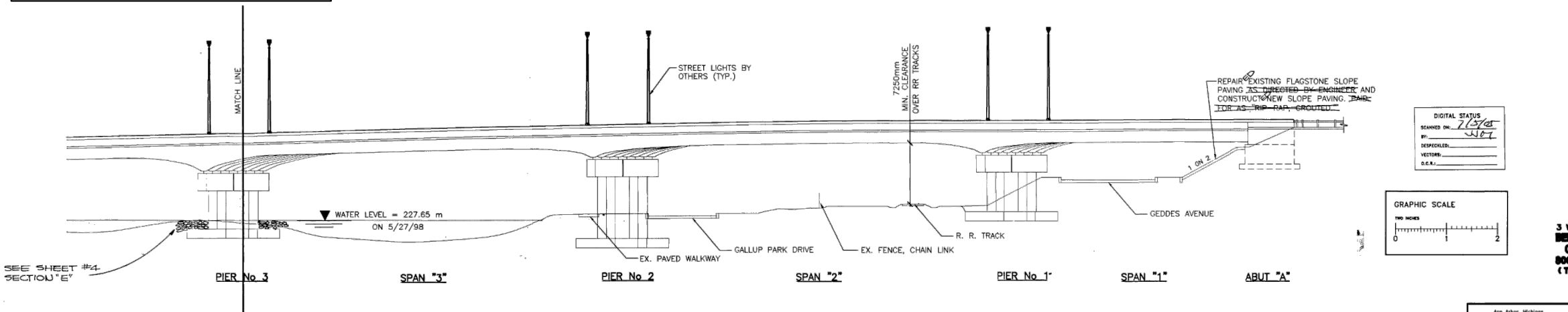
DRAWING No. **2020-025**

SHEET No. **31 of 87**

THIS SHEET IS PROVIDED TO AID THE CONTRACTOR IN UNDERSTANDING THE EXISTING CONDITIONS OF THE PROPOSED WORK. THE CONTRACTOR SHALL THOROUGHLY REVIEW AND FAMILIARIZE THEMSELVES WITH THIS SHEET AND ALL ITS CONTENTS. CONTRACT PAY ITEMS ARE SHOWN ON THIS SHEET. REGARDLESS, THE CONTRACTOR SHALL FULLY FAMILIARIZE THEMSELVES WITH ALL CONDITIONS OF THE WORK AND THE EXISTING STRUCTURE AND SHALL ACCOUNT FOR ANY AND ALL NEEDED COSTS TO PERFORM THE WORK OF THIS PROJECT ARISING FROM THE EXISTING CONDITIONS OF THE EXISTING BRIDGE STRUCTURE AND ITS APPURTENANCES.



PLAN



ELEVATION

DIMENSIONS & ELEVATIONS PER PLAN UNLESS OTHERWISE NOTED

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

Ann Arbor, Michigan Detroit, Michigan Eastland, Michigan Grand Rapids, Michigan Lansing, Michigan Livingston County, Michigan		M-C NAME	
McNAMEE PORTER & SEELEY, INC.		FIRST-CIRCLE FIRM SINCE 1914	
DESIGNED E.WESTRATE	CHECKED S.KELLEY		
SCALE	CHDS DATE 2/20/99 EWD		
PART 04P5\0106\078301\0152			

SEE SHEET 3 OF 58	N/A	AS-BUILT	6-05	JTZ	DPF
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DRBY
		3/99	EJW	SJK	

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

HURON PARKWAY BRIDGE REHABILITATION

GENERAL PLAN OF STRUCTURE

APPROVED BY: *Sean J. Kelley*
SEAN J. KELLEY, P.E., MICHIGAN NO. 37725

DRAWING NO. 98083-ST1
SHEET NO. 3 OF 58

SN 11074

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED WITH THE LEGEND BOX BELOW LABELED WITH THIS STRUCTURE'S NUMBER

	PROPOSED WORK
	DENOTES REMOVED PORTIONS

HURON PARKWAY OVER HURON RIVER

811 Know Where Below. Call Before You Dig.

REV.	DATE	DRAWN	CHECKED

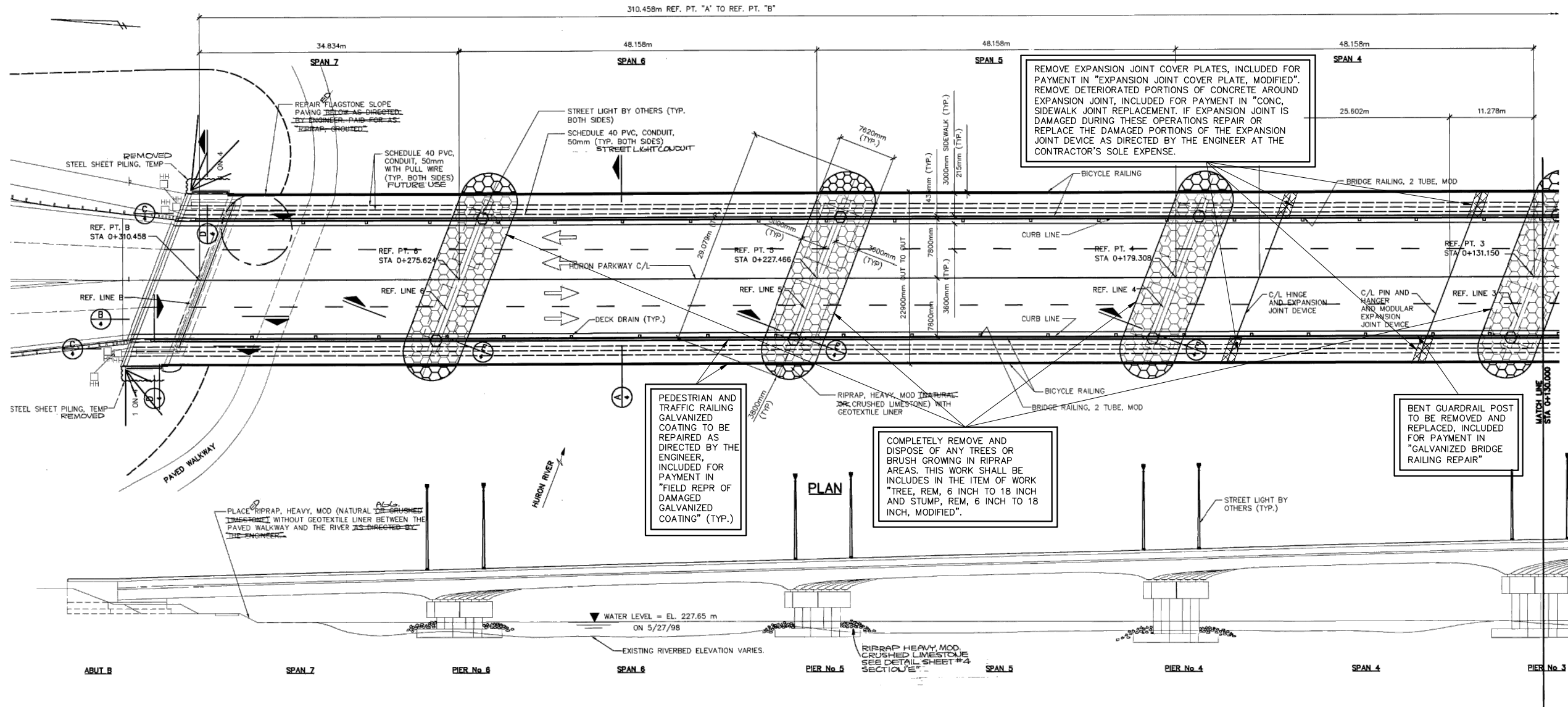
DESCRIPTION

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
ANN ARBOR 734-784-4410
www.aagov.org

CITY OF ANN ARBOR
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

PROFILE: NA
SCALE NONE
DRAWING No. 2020-025
SHEET No. 32 of 87

THIS SHEET IS PROVIDED TO AID THE CONTRACTOR IN UNDERSTANDING THE EXISTING CONDITIONS OF THE PROPOSED WORK. THE CONTRACTOR SHALL THOROUGHLY REVIEW AND FAMILIARIZE THEMSELVES WITH THIS SHEET AND ALL ITS CONTENTS. CONTRACT PAY ITEMS MAY OR MAY NOT BE SHOWN ON THIS SHEET. REGARDLESS, THE CONTRACTOR SHALL FULLY FAMILIARIZE THEMSELVES WITH ALL CONDITIONS OF THE WORK AND THE EXISTING STRUCTURE AND SHALL ACCOUNT FOR ANY AND ALL NEEDED COSTS TO PERFORM THE WORK OF THIS PROJECT ARISING FROM THE EXISTING CONDITIONS OF THE EXISTING BRIDGE STRUCTURE AND ITS APPURTENANCES.



EXISTING BENCH MARK DATA:
 STATION 1028 IS LOCATED ON THE NORTHWEST CORNER OF THE HURON PARKWAY BRIDGE OVER THE HURON RIVER, SAID STATION BEING IN THE SOUTHWEST 1/4 OF SECTION 26, ANN ARBOR TOWNSHIP, IN THE CITY OF ANN ARBOR, MICHIGAN. THE STATION IS LOCATED ON THE WESTERLY CONCRETE RAIL, 0.3m (1.0 FT) SOUTH OF THE NORTH END OF RAIL, CENTERED 0.15m (0.5 FT) FROM THE EAST AND WEST EDGES OF THE RAIL, SAID STATION IS A VERTICAL CONTROL POINT AND IS DESCRIBED AS THE 1972 EDITION OF THE CITY OF ANN ARBOR BRASS DISC, WHICH IS SET IN THE CONCRETE RAIL, FLUSH WITH THE TOP AND APPROXIMATELY 0.91m (3 FT) ABOVE THE ROAD GRADE. THIS POINT WAS SET BY THE CITY OF ANN ARBOR IN 1972.

BM#	BENCH MARK DESCRIPTION	ELEVATION (NAVD 88 DATUM)
1028	CITY OF ANN ARBOR BRASS DISK SET IN THE TOP OF THE WEST CONCRETE PARAPET WALL AT THE NORTH END OF THE HURON PARKWAY BRIDGE OVER THE HURON RIVER. ELEV. = 233.406	233.406 m
1	CHISELED SQUARE ON TOP OF THE EAST CONCRETE PARAPET WALL AT THE SOUTH END OF THE HURON PARKWAY BRIDGE OVER THE HURON RIVER. ELEV. = 239.329	239.329 m
2	SOUTHEAST BOLT ON LIGHT POLE ON EAST SIDE OF HURON PARKWAY (IN TRAFFIC ISLAND SOUTH OF THE BRIDGE) ELEV. = 236.916	236.916 m
3	NORTHWEST BOLT ON LIGHT POLE EAST SIDE OF HURON PARKWAY (1ST POLE NORTHERLY OF HURON RIVER DRIVE) ELEV. = 233.969	233.969 m
4	CHISELED SQUARE WEST SIDE OF MAST ARM (NORTHEAST CORNER OF HURON PARKWAY AND HURON RIVER DRIVE) ELEV. = 234.344	234.344 m
5	STEAMER VALVE ON HYDRANT ON THE NORTHWEST CORNER OF HURON PARKWAY AND FULLER ROAD INTERSECTION. ELEV. = 231.612	231.612 m
6	STEAMER VALVE ON FIRST HYDRANT EAST OF HURON PARKWAY ON THE NORTH SIDE OF GEDDES ROAD. ELEV. = 230.661	230.661 m
7	NORTHWEST BOLT ON LIGHT POLE ON EAST SIDE OF DRIVE FROM SOUTH SIDE FULLER ROAD TO GALLUP PARK. ELEV. = 231.653	231.653 m
8	TOP NORTHEAST BOLT TO LIGHT POLE BASE AT SOUTHWEST CORNER HURON PARKWAY AND FULLER DRIVE. ELEV. = 231.265	231.265 m

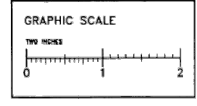
ELEVATION

- LEGEND**
- FENCE
 - WATER FLOW
 - RIPRAP, HEAVY, MOD (NATURAL AGGREGATE OR CRUSHED LIMESTONE) WITH GEOTEXTILE LINER
 - PROPOSED STREET LIGHT
 - PROPOSED HANDHOLE

DIGITAL STATUS
 SCANNED ON: 7/5/24
 BY: [Signature]
 DESIGNED: [Signature]
 CHECKED: [Signature]
 DATE: [Signature]

MISCELLANEOUS QUANTITIES

710 m ²	RIPRAP, HEAVY, MOD
1 LS	STRUCTURES, REHABILITATION, REM POTIONS
400 m ³	BACKFILL, STRUCTURE, CIP
350 m ³	EXCAVATION, FND
280 m ²	STEEL SHEET PILING, TEMP
100 m ²	RIPRAP, CROUTED
34 m	SLOPE PAVING HEADER
8 EA	TREE, REM, 200 mm TO 450 mm
200 m ²	CLEARING



DIMENSIONS & ELEVATIONS PER PLAN UNLESS OTHERWISE NOTED.

SN 11074

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED WITH THE LEGEND BOX BELOW LABELED WITH THIS STRUCTURE'S NUMBER

- - PROPOSED WORK
- ⊗ - DENOTES REMOVED PORTIONS

- NOTES:**
- BEFORE CONTRACTOR BEGINS WORK ON EITHER SIDE OF BRIDGE, THE CONTRACTOR SHALL CONTACT DETROIT EDISON TO RESOLVE POWER WIRING FOR LIGHTING.
 - CONTRACTOR SHALL INSTALL CONDUIT AND LIGHT STANDARD ANCHORAGES. LIGHT STANDARD ANCHORAGES SHALL BE ACQUIRED FROM DETROIT EDISON PRIOR TO BEGINNING OF CONSTRUCTION. CONTACT CHUCK ROWELL OF DETROIT EDISON FOR THE FORMS. MR. ROWELL CAN BE CONTACTED AT PHONE NUMBER 234.397.4178. DETROIT EDISON WILL PULL THE WIRE AND ERECT THE POLES AND LUMINAIRES. DETROIT EDISON WORK IS NOT INCLUDED ON THE CONTRACT PRICE.

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

3 WORKING DAYS BEFORE YOU DRG CALL 988-080 (TOLL FREE)

Ann Arbor, Michigan
 Detroit, Michigan
 Escanaba, Michigan
 Grand Rapids, Michigan
 Lansing, Michigan
 Liveston County, Michigan

McNAMEE, PORTER & SHELLEY, INC.
 WENAWEE FIRST-CHOICE FIRM SINCE 1993

DESIGNED: E. WESTRATE
 CHECKED: S. KELLEY
 SCALE: CAD DATE: 2-20-99 DTLS
 PART: 0-MPS-0106-07830-03-05

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

HURON PARKWAY BRIDGE REHABILITATION GENERAL PLAN OF STRUCTURE

APPROVED BY: [Signature]
 SEAN J. KELLEY, P.E., MICHIGAN NO. 37725

DRAWING NO. BR 98083-ST2
 SHEET NO. 3 OF 58

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

REV.	DATE	DESCRIPTION	CHECKED	DRAWN

CITY OF ANN ARBOR
 PUBLIC SERVICES
 301 EAST HURON STREET
 P.O. BOX 8647
 ANN ARBOR, MI 48106-0847
 www.a2gov.org

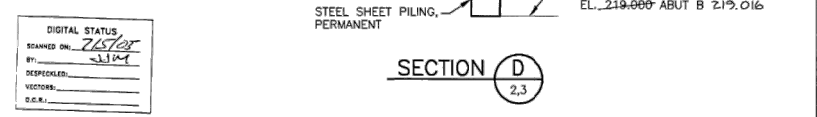
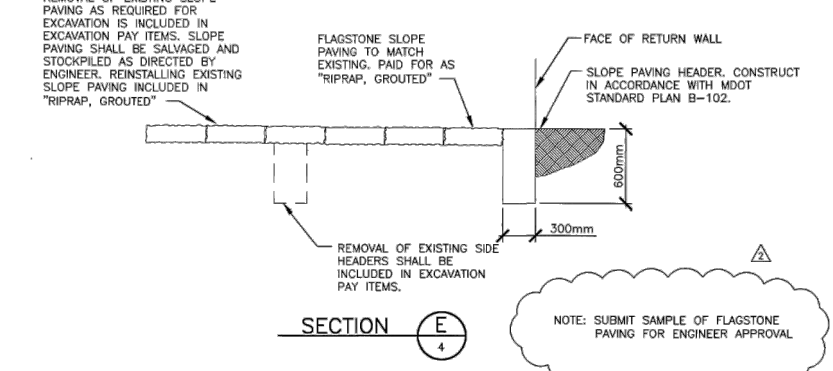
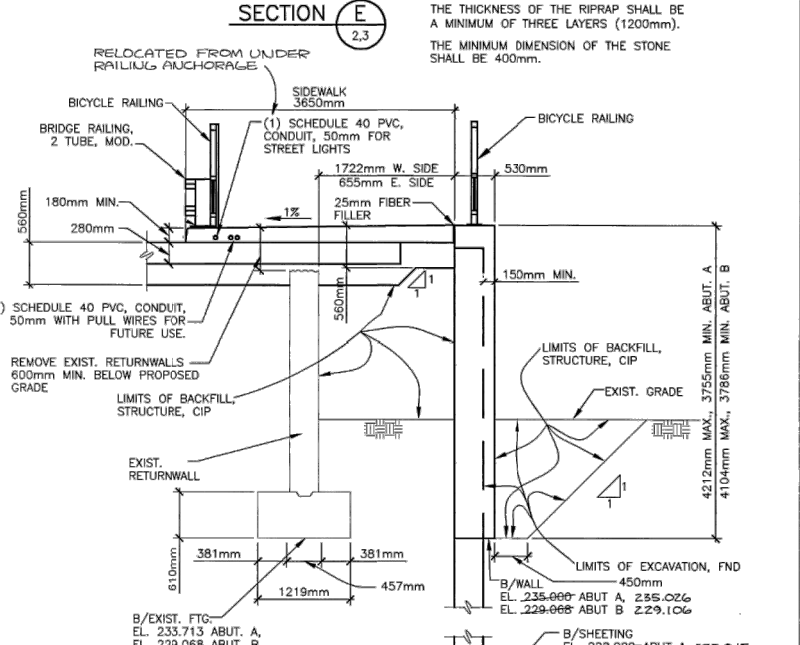
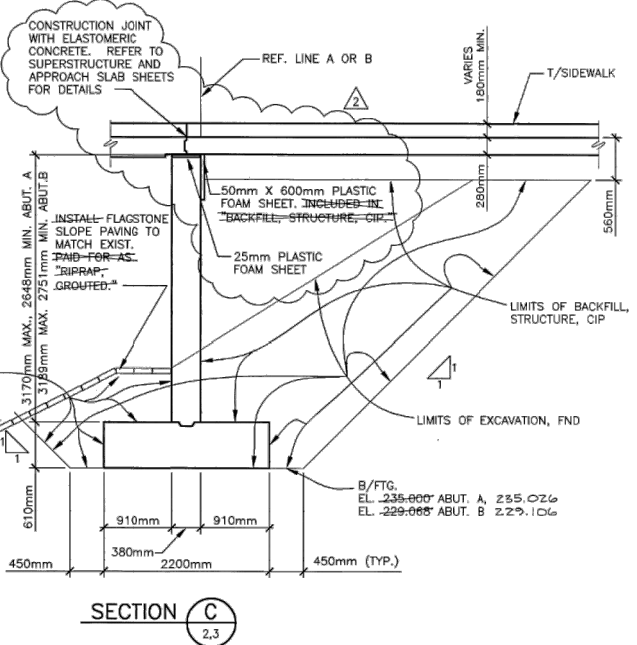
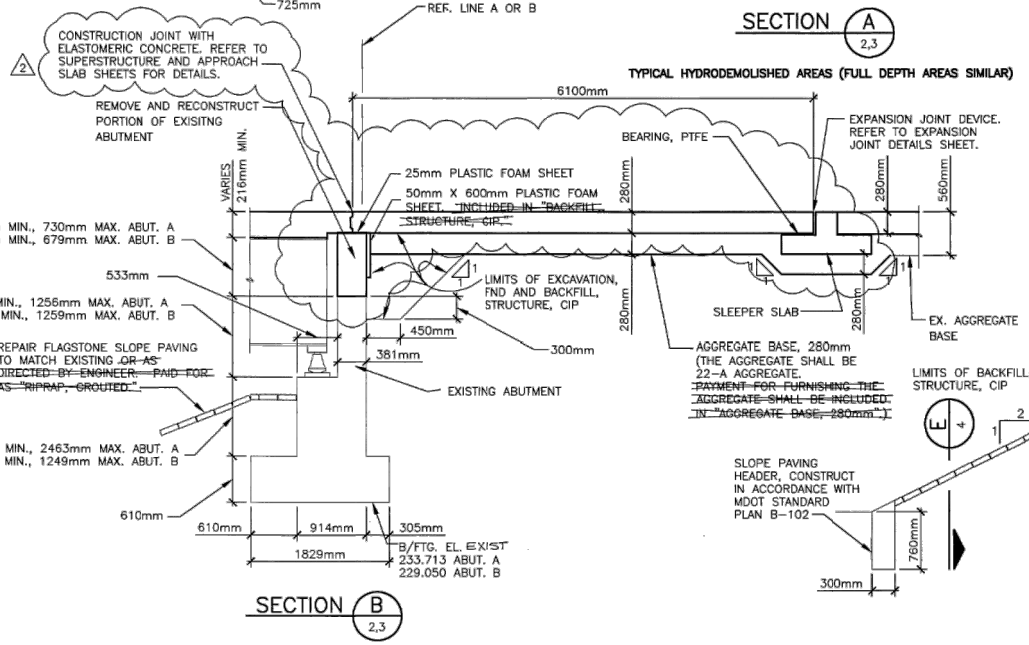
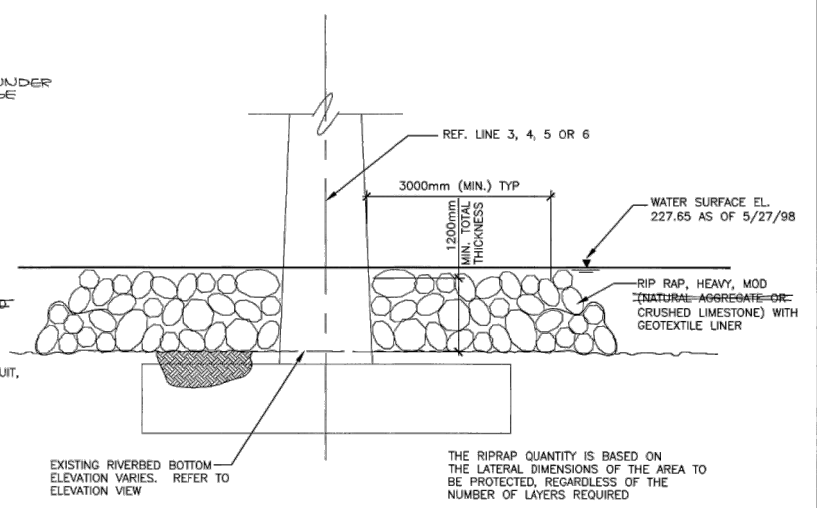
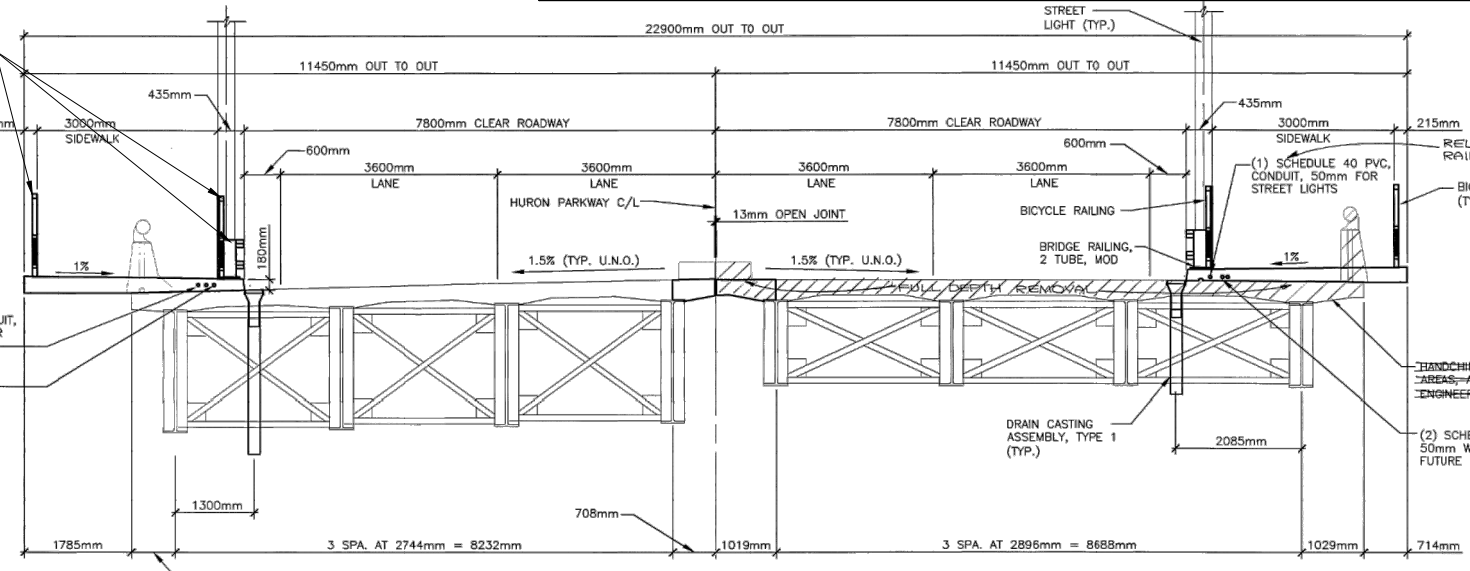
CITY OF ANN ARBOR

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 EXISTING GENERAL PLAN OF STRUCTURE

SCALE NONE
 PROFILE: NA
 DRAWING NO. BR 98083-ST2
 SHEET NO. 3 OF 58
 2020-025
 SHEET NO. 33 OF 87

THIS SHEET IS PROVIDED TO AID THE CONTRACTOR IN UNDERSTANDING THE EXISTING CONDITIONS OF THE PROPOSED WORK. THE CONTRACTOR SHALL THOROUGHLY REVIEW AND FAMILIARIZE THEMSELVES WITH THIS SHEET AND ALL ITS CONTENTS. CONTRACT PAY ITEMS MAY OR MAY NOT BE SHOWN ON THIS SHEET. REGARDLESS, THE CONTRACTOR SHALL FULLY FAMILIARIZE THEMSELVES WITH ALL CONDITIONS OF THE WORK AND THE EXISTING STRUCTURE AND SHALL ACCOUNT FOR ANY AND ALL NEEDED COSTS TO PERFORM THE WORK OF THIS PROJECT ARISING FROM THE EXISTING CONDITIONS OF THE EXISTING BRIDGE STRUCTURE AND ITS APPURTENANCES.

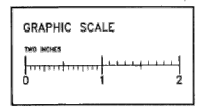
PEDESTRIAN AND TRAFFIC RAILING GALVANIZED COATING TO BE REPAIRED AS DIRECTED BY THE ENGINEER, INCLUDED FOR PAYMENT IN "FIELD REPR OF DAMAGED GALVANIZED COATING" BOTH SIDES (TYP.)



DIGITAL STATUS
 SCANNED ON: 2/15/08
 BY: [Signature]
 DESIGNED: [Signature]
 CHECKED: [Signature]
 DATE: [Signature]

NOTE:
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McNAMEE, PORTER & SEELEY, INC.
 DESIGNED: T. DOMBROWSKI
 CHECKED: S. KELLEY
 SCALE: [Blank]
 CAD DATE: 5/12/99 RWR
 PART: 02/PPS/0106/0700/05/03



3 WORKING DAYS BEFORE YOU DIG CALL 888 888 888 888-7271 (TOLL FREE)

DIMENSIONS & ELEVATIONS PER PLAN UNLESS OTHERWISE NOTED

AS-BUILT	6-05	JTE	DPF
ADDENDUM #2	5/99	TJD	SJK
ORIGINAL ISSUE	3/99	TJD	SJK

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

HURON PARKWAY BRIDGE REHABILITATION
GENERAL PLAN OF STRUCTURE

DESIGNED: T. DOMBROWSKI
 CHECKED: S. KELLEY
 DATE: 5/17/99

APPROVED BY: [Signature]
 SEAN J. KELLEY P.E., MICHIGAN NO. 37725

DRAWING NO. BR 2
 98083-BT3-ADD-2
 SHEET NO. 4 OF 58

SN 11074

THE ONLY ITEMS OF WORK TO BE DONE FROM THIS SHEET ARE IDENTIFIED WITH THE LEGEND BOX BELOW LABELED WITH THIS STRUCTURE'S NUMBER

[Box with diagonal lines]	PROPOSED WORK
[Box with cross-hatch]	DENOTES REMOVED PORTIONS

HURON PARKWAY OVER HURON RIVER

811 Know Where Below. Call Before You Dig.

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 301 EAST HURON STREET
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CITY OF ANN ARBOR
 PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 EXISTING GENERAL PLAN OF STRUCTURE

PROFILE: NA
 SCALE NONE
 DRAWING NO. 2020-025
 SHEET NO. 34 OF 87

REV.	DATE	DRAWN	CHECKED	DESCRIPTION

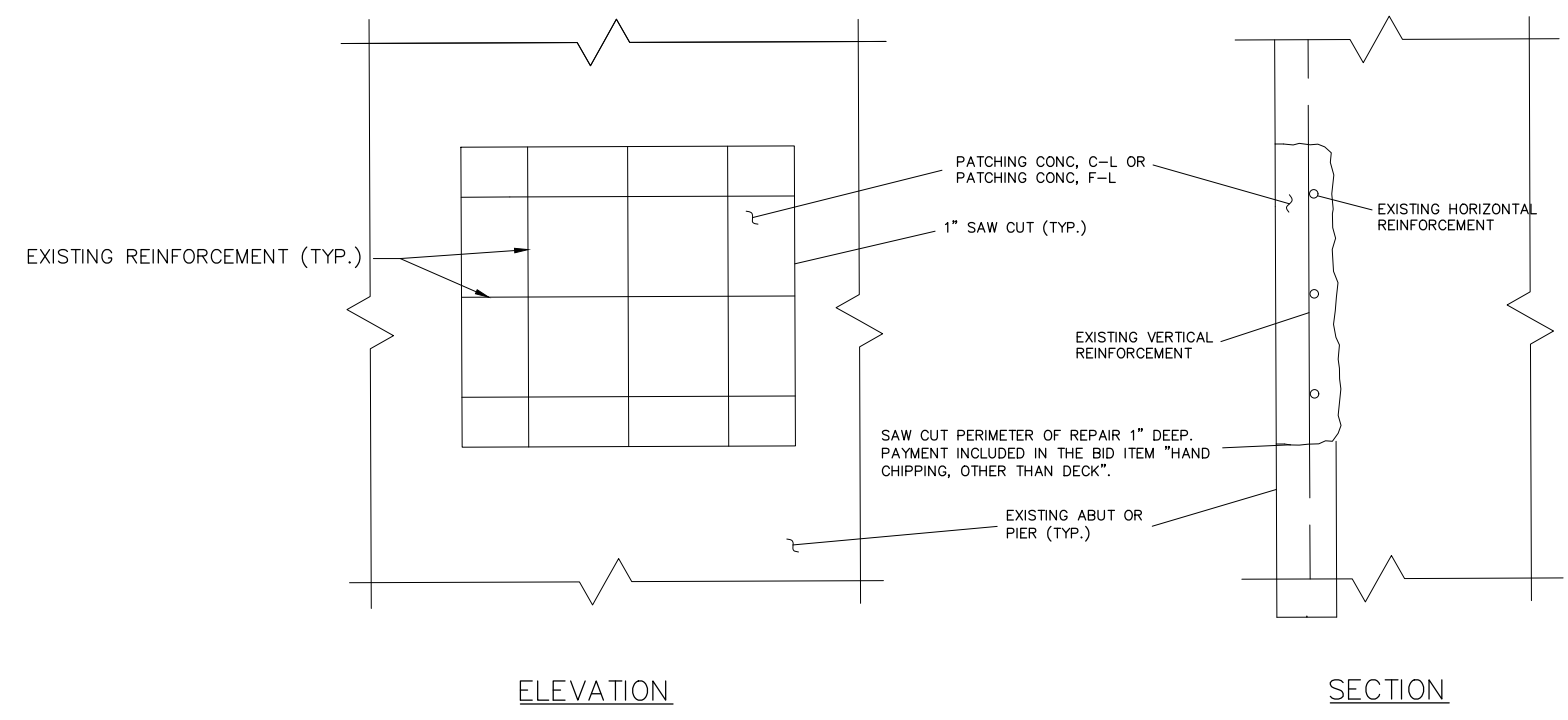
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 PUBLIC SERVICE
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 ANN ARBOR, MI 48106-0647
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 SUBSTRUCTURE REPAIR DETAILS

SCALE 1"=40'
 PROFILE: NA
 DRAWING No. 2020-025



ELEVATION

SECTION

SUBSTRUCTURE PATCHING DETAIL
 REMOVE UNSOUND CONCRETE, EXPOSE EXISTING REINFORCEMENT, REPLACE/CLEAN CORRODED REINFORCEMENT, PER ENGINEER.

MISCELLANEOUS QUANTITIES		
100	Lb	**Reinforcement, Steel, Epoxy Coated
130	Cft	*Hand Chipping, Other Than Deck
30	Cyd	*Patching Conc, C-L
2	Cyd	*Patching Conc, F-L
50	Sft	*Patch, Forming

* FOR SUBSTRUCTURE REPAIRS AS DIRECTED BY THE ENGINEER
 ** STEEL REINFORCEMENT NEEDED TO REPLACE WEAKENED REINFORCEMENT FOUND DURING CONCRETE REPAIRS

SUBSTRUCTURE REPAIR NOTES:

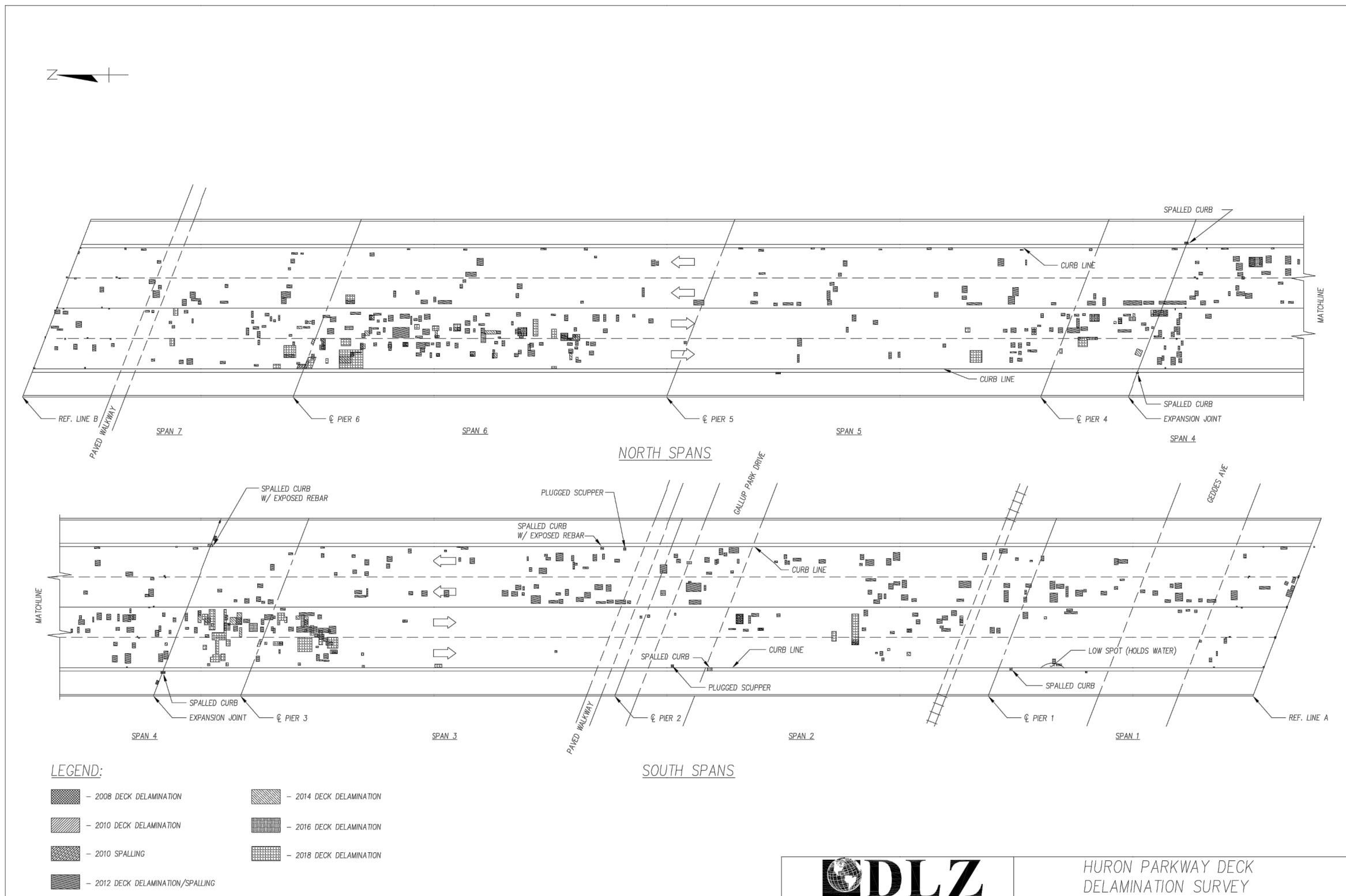
QUANTITIES INCLUDE REPAIRS TO PIERS AND ABUTMENTS. CONCRETE REPAIR QUANTITIES ARE ESTIMATED AND BASED ON EXISTING CONDITIONS DETERMINED BY A FIELD SURVEY RECORDED IN THE INSPECTION REPORT AND DATED NOVEMBER, 2018.

SUBSTRUCTURE UNITS SHALL BE SOUNDED PRIOR TO CONSTRUCTION AND SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER.

FOR BEVEL AND MOLDING DETAILS, SEE STANDARD PLAN B-103 SERIES.

FORMS FOR LARGE PATCHES SHALL BE INSTALLED IN 2'-0" TO 4'-0" HIGH SECTIONS WITH THE TOP OF FORM NO MORE THAN 4'-0" ABOVE THE LEVEL OF CONCRETE AS THE POUR PROGRESSES.

LOW TEMPERATURE PROTECTION OF CONCRETE SHALL BE APPLIED ACCORDING TO SECTION 706.03J, OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION. LOW TEMPERATURE PROTECTION OF CONCRETE WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE ITEM "PATCHING CONC, C-L" OR "PATCHING CONC, F-L".

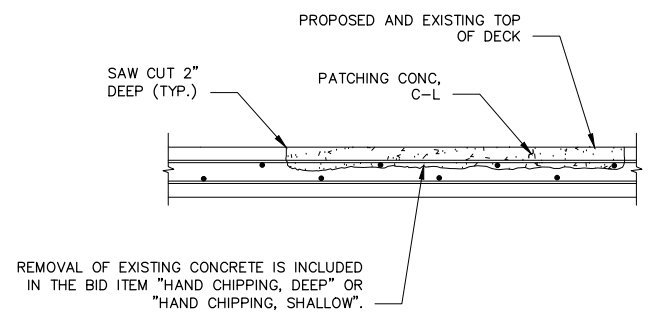


LEGEND:

- 2008 DECK DELAMINATION
- 2010 DECK DELAMINATION
- 2010 SPALLING
- 2012 DECK DELAMINATION/SPALLING
- 2014 DECK DELAMINATION
- 2016 DECK DELAMINATION
- 2018 DECK DELAMINATION

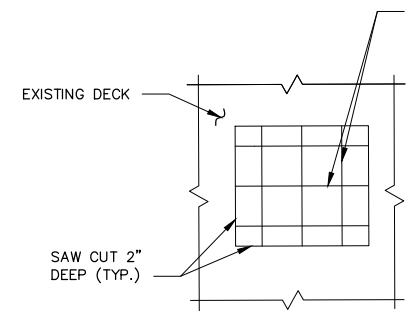


HURON PARKWAY DECK DELAMINATION SURVEY



REMOVAL OF EXISTING CONCRETE IS INCLUDED IN THE BID ITEM "HAND CHIPPING, DEEP" OR "HAND CHIPPING, SHALLOW".

PARTIAL DECK SECTION



PLAN - DECK PATCHING REPAIR

SALVAGE AND BLAST CLEAN EXISTING TRANSVERSE AND LONGITUDINAL REBARS. DETERIORATED REINFORCEMENT SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.

MISCELLANEOUS QUANTITIES		
150	Lb	**Reinforcement, Steel, Epoxy Coated
50	Syd	Hand Chipping, Shallow
50	Syd	Hand Chipping, Deep
7	Cyd	Patch, Full Depth
12	Cyd	Patching Conc, C-L

** STEEL REINFORCEMENT NEEDED TO REPLACE WEAKENED REINFORCEMENT FOUND DURING CONCRETE REPAIRS

HURON PARKWAY OVER HURON RIVER

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS

DECK DELAMINATION SURVEY

SCALE NONE

DRAWING No. **2020-025**

SHEET No. **36 of 87**

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1707
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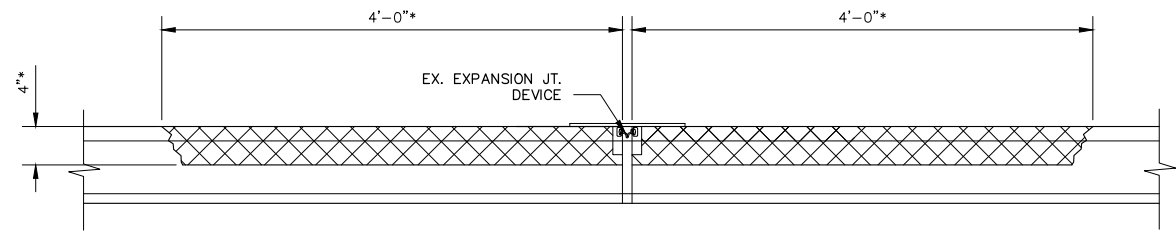
Know what's below.
Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

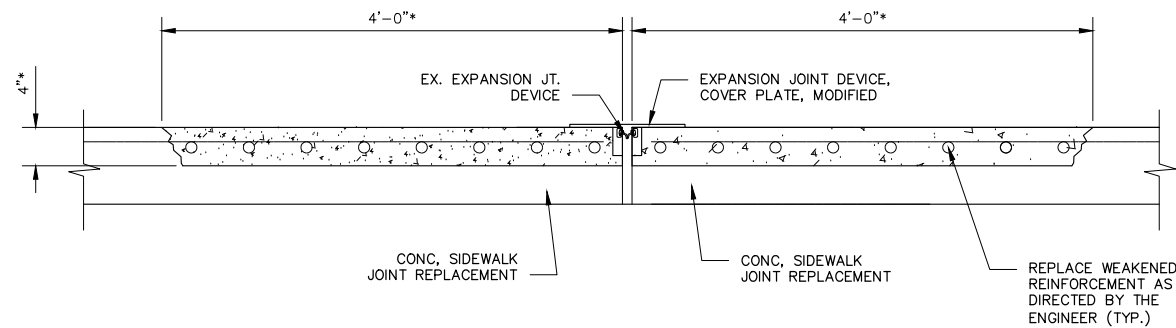
CITY OF ANN ARBOR
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 301 EAST HURON STREET
 ANN ARBOR, MI 48107-8647
 ANN ARBOR 734-784-4410
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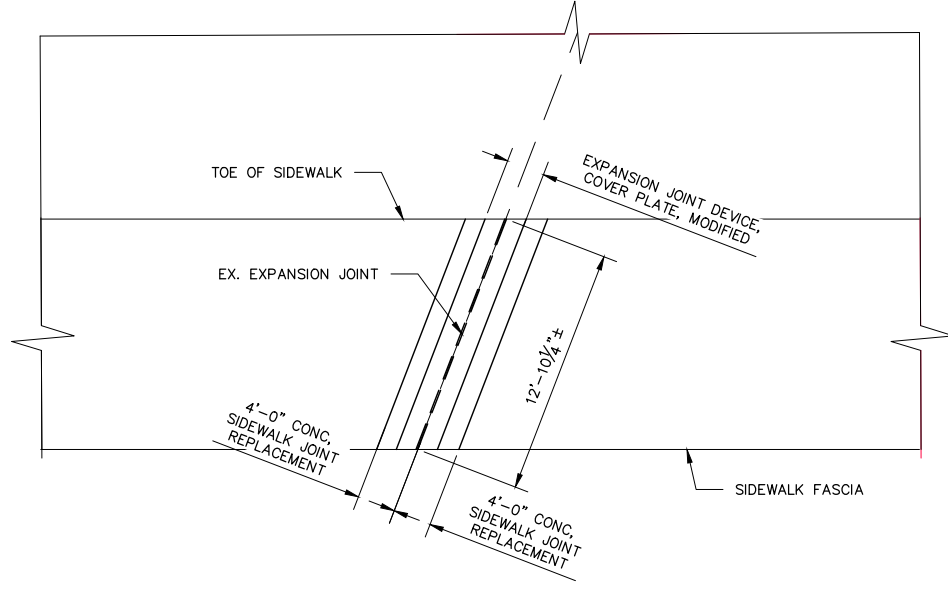
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 HURON PARKWAY
 BRIDGES REHABILITATION PROJECT
 HURON PARKWAY OVER HURON RIVER
 SIDEWALK REHABILITATION DETAILS



EXISTING SECTION THROUGH SIDEWALK



PROPOSED SECTION THROUGH SIDEWALK
 * DIMENSIONS GIVEN ARE APPROXIMATE AND SHALL BE DETERMINED BY THE ENGINEER



PLAN
 (4 REQUIRED)

MISCELLANEOUS QUANTITIES		
100	Lb	**Reinforcement, Steel, Epoxy Coated
13	Ft	Expansion Joint Cover Plate
52	Ft	Expansion Joint Device, Cover Plate, Modified
5	Cyd	*Conc, Sidewalk Joint Replacement

- ** STEEL REINFORCEMENT NEEDED TO REPLACE WEAKENED REINFORCEMENT FOUND DURING CONCRETE REPAIRS
- * FOR USE AS DIRECTED BY THE ENGINEER

NOTES:

THE EXPANSION JOINT COVER PLATE OVER THE WEST SIDEWALK AT THE SOUTH EXPANSION JOINT IS DAMAGED. THIS COVER PLATE SHALL BE REPLACED. THE NEW COVER PLATE SHALL BE INCLUDED FOR PAYMENT IN "EXPANSION JOINT, COVER PLATE". THE OTHER THREE EXPANSION JOINT COVER PLATES SHALL BE SALVAGED. ALL FOUR EXPANSION JOINT COVER PLATES SHALL HAVE SLIP-RESISTANT COATING APPLIED BEFORE BEING REINSTALLED, INCLUDED FOR PAYMENT IN "EXPANSION JOINT, COVER PLATE, MODIFIED".



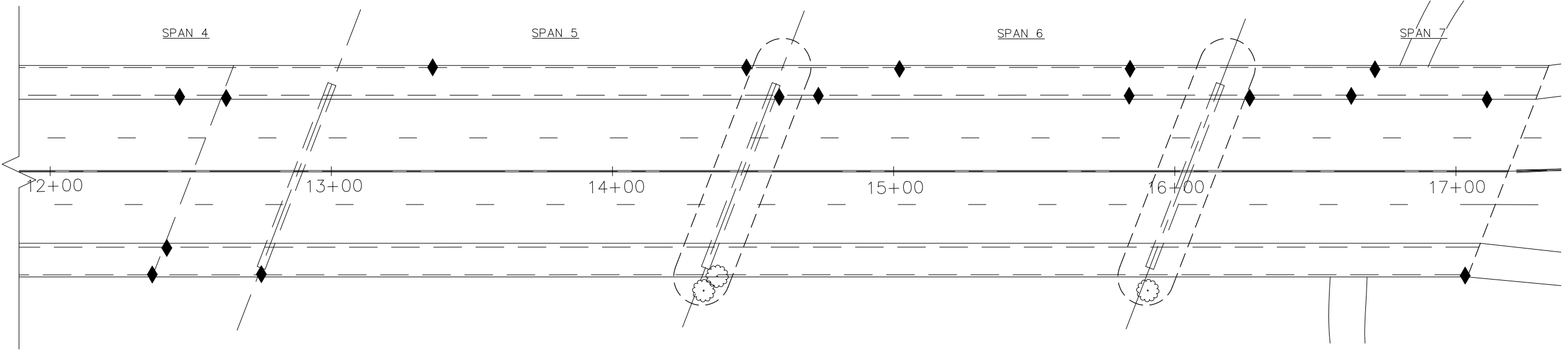
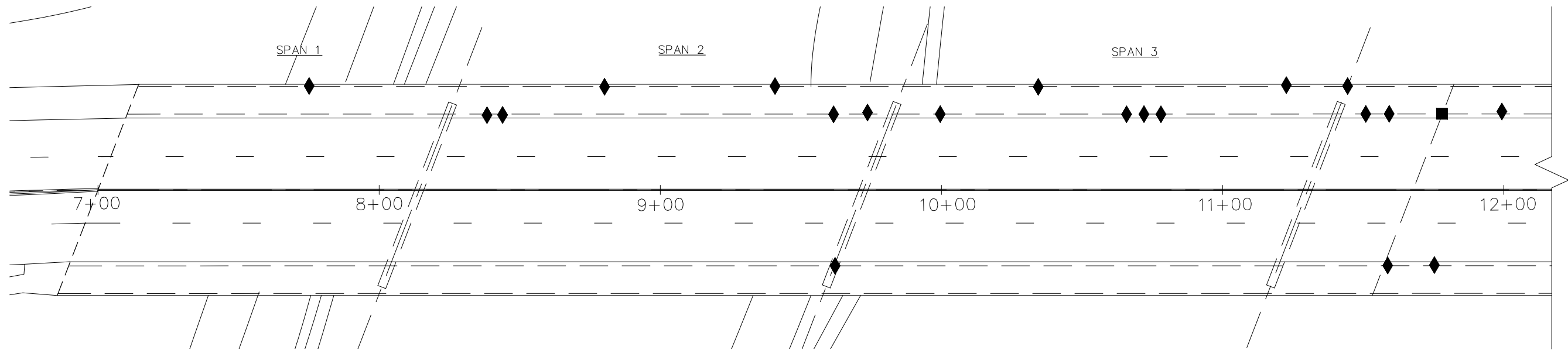
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
 PUBLIC SERVICE
 301 EAST HURON STREET
 ANN ARBOR, MI 48106-1647
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 RAILING REHAB DETAIL

SCALE: 1"=30'
 PROFILE: N/A
 DRAWING No. 2020-025



RAILING PLAN

MISCELLANEOUS QUANTITIES	
1	LS Galvanized Bridge Railing Repair
1	LS Field Repr of Damaged Galvanized Coating

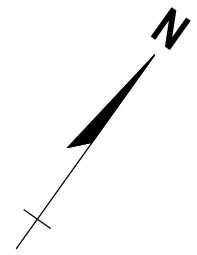
LEGEND	
◆	SPOT RUST
■	BENT RAILING

HURON PARKWAY OVER HURON RIVER

E_SUMMIT_ST

DEPOT ST

NORFOLK
SOUTHERN
RAILWAY



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1500
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

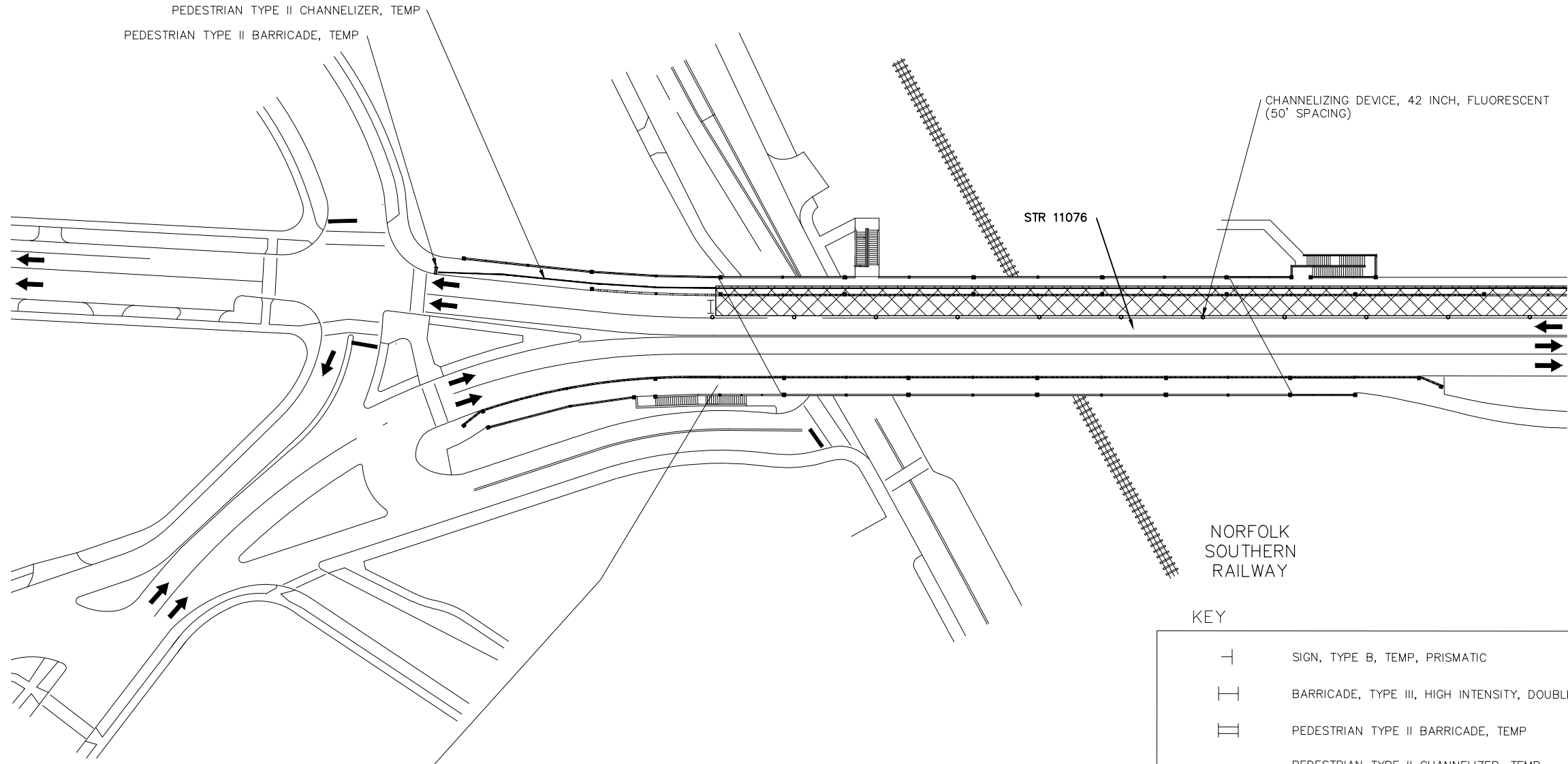
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PLAN (FT)
DRAWING No. 2020-025

SHEET No. 39 of 87

BEAKES ST

DETROIT ST

BROADWAY



STR 11076

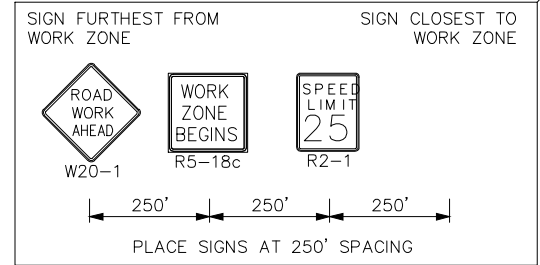
CHANNELIZING DEVICE, 42 INCH, FLUORESCENT
(50' SPACING)

NORFOLK
SOUTHERN
RAILWAY

STAGE 1
APPLIES: CLOSE WB OUTSIDE LANE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH



N DIVISION ST

HIGH ST

DEPOT ST

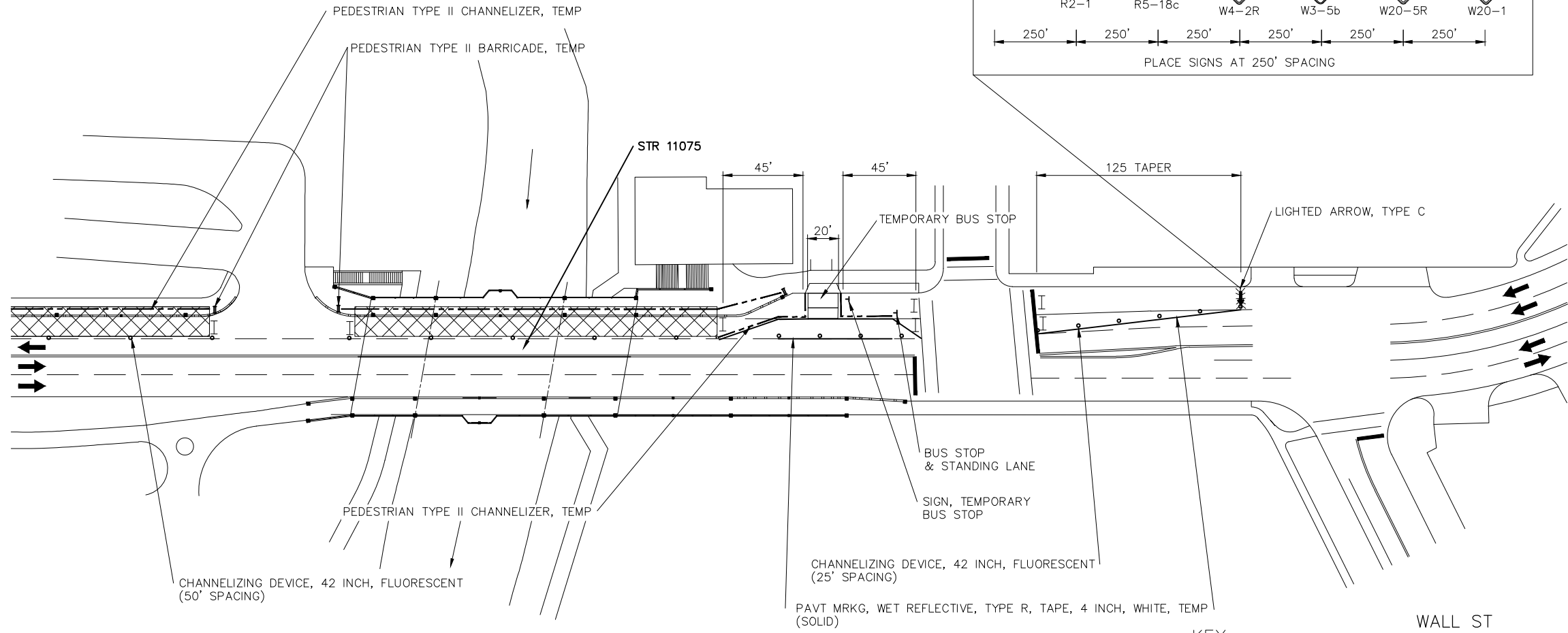
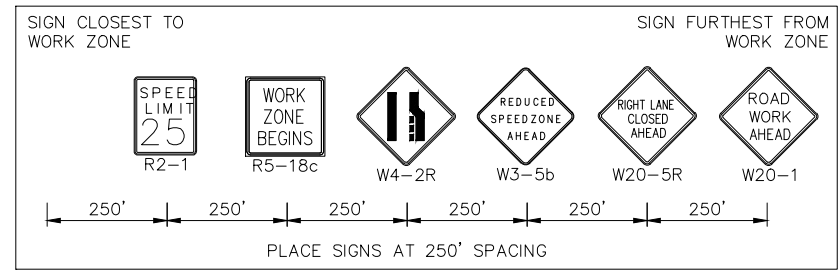
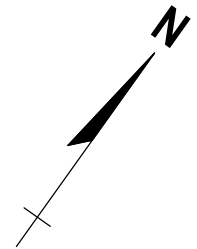
MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD
& BROADWAY OVER HURON RIVER)

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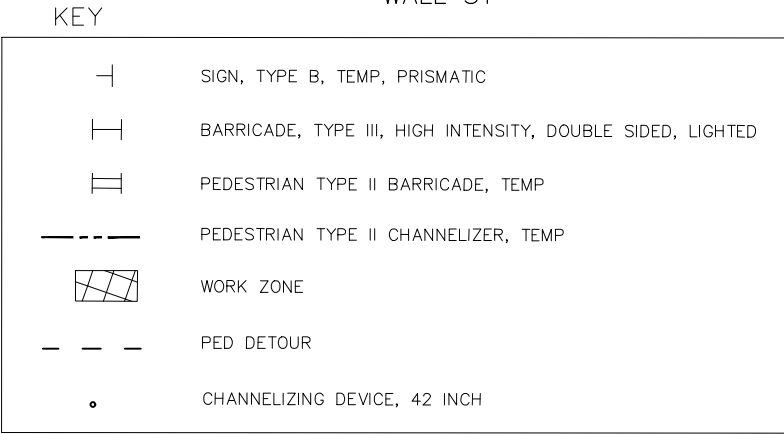
FILE NAME: Z:\2020\0957\CAD\CDD\2019\TO MAINBROADWAY102_MOT_STAGE-1.DWG

HURON RIVER

SWIFT ST



STAGE 1
APPLIES: CLOSE WB OUTSIDE LANE



BROADWAY

BROADWAY

HURON RIVER

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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PUBLIC SERVICE
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2019 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

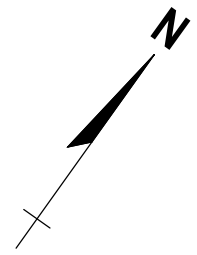
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PLAN (FT)

DRAWING No.
2020-025

E SUMMIT ST

DEPOT ST

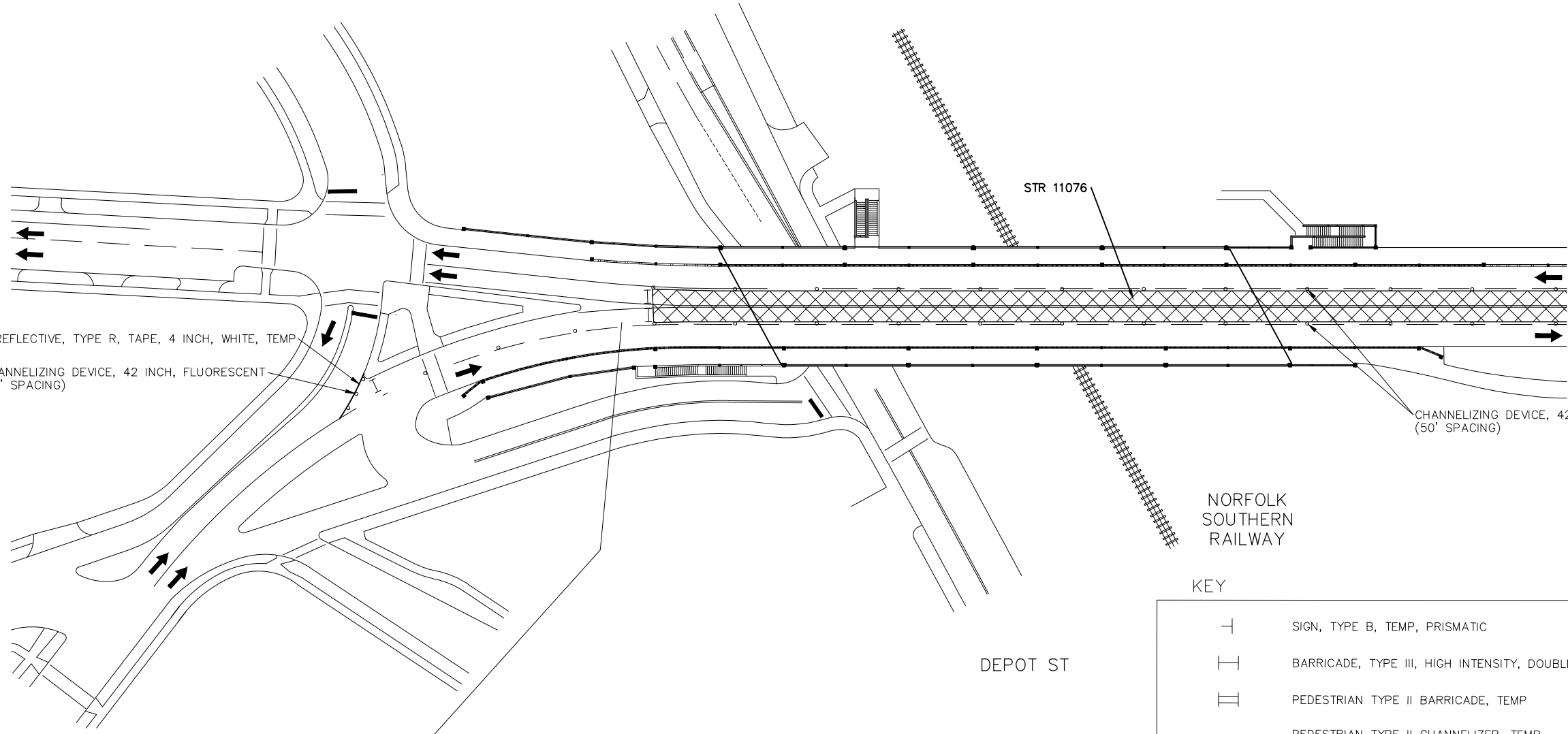
NORFOLK SOUTHERN RAILWAY



BEAKES ST

DETROIT ST

BROADWAY



PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, WHITE, TEMP (SOLID)
CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (10' SPACING)

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (50' SPACING)

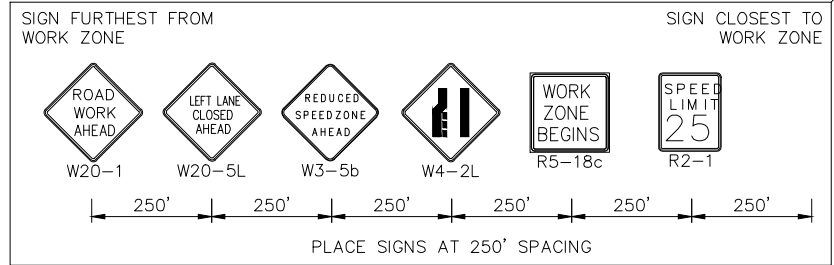
NORFOLK SOUTHERN RAILWAY

DEPOT ST

STAGE 2
APPLIES: CLOSE WB AND EB INSIDE LANES

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH



N DIVISION ST

HIGH ST

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

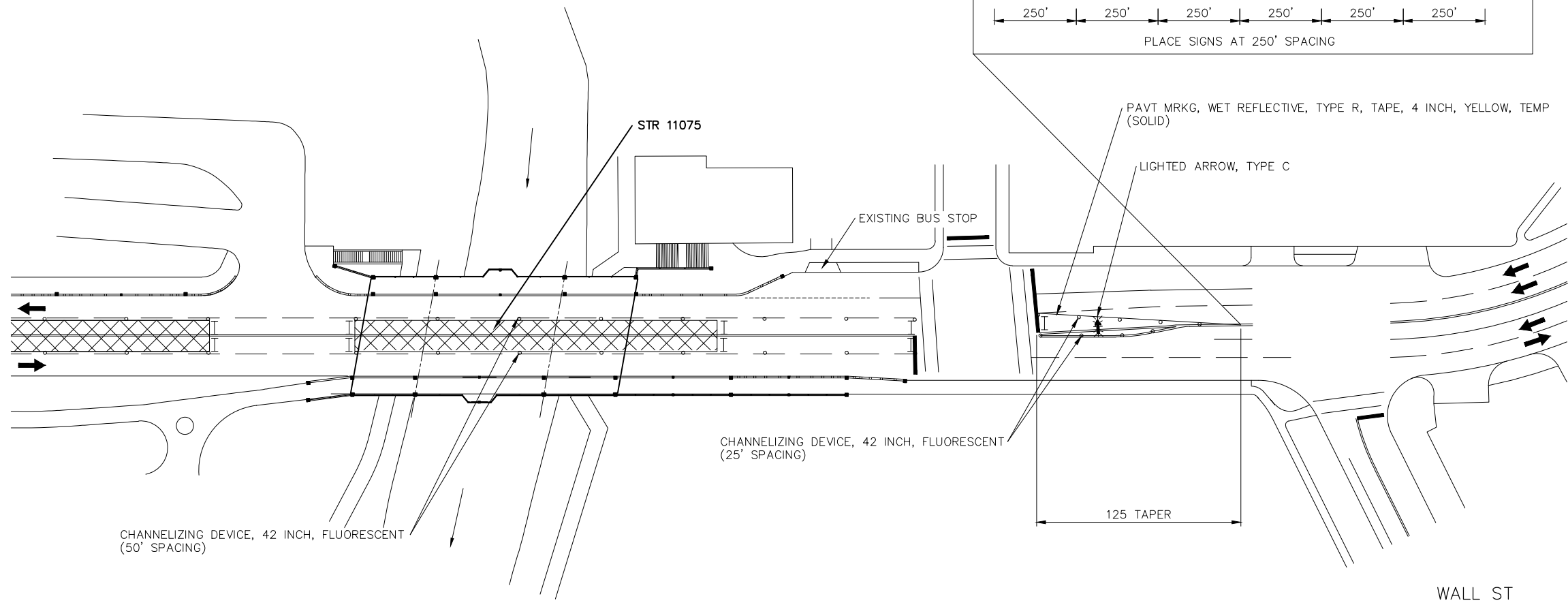
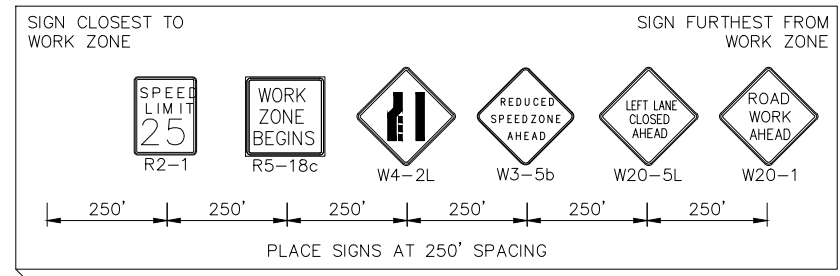
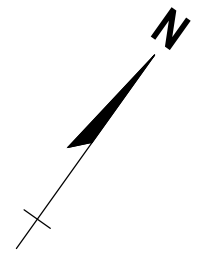
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PLAN (FT)
DRAWING No. 2020-025

SHEET No. 41 of 87

FILE NAME: Z:\2020\09\67\CAD\CAD\2019\TO ML\BROADWAY\2001_MOT_STAGE-2.DWG

HURON RIVER

SWIFT ST



CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (50' SPACING)

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (25' SPACING)

125 TAPER

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

STAGE 2
APPLIES: CLOSE WB AND EB INSIDE LANES

BROADWAY

BROADWAY

WALL ST

HURON RIVER

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

FILE NAME: Z:\2020\09\87\CAD\CAD2019\TO MAINBROADWAY2020_MOT_STAGE-2.DWG

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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80
PLAN (FT)

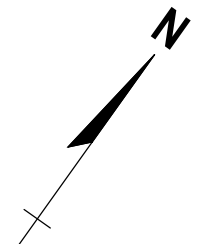
DRAWING No.
2020-025

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

E SUMMIT ST

DEPOT ST

NORFOLK SOUTHERN RAILWAY



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

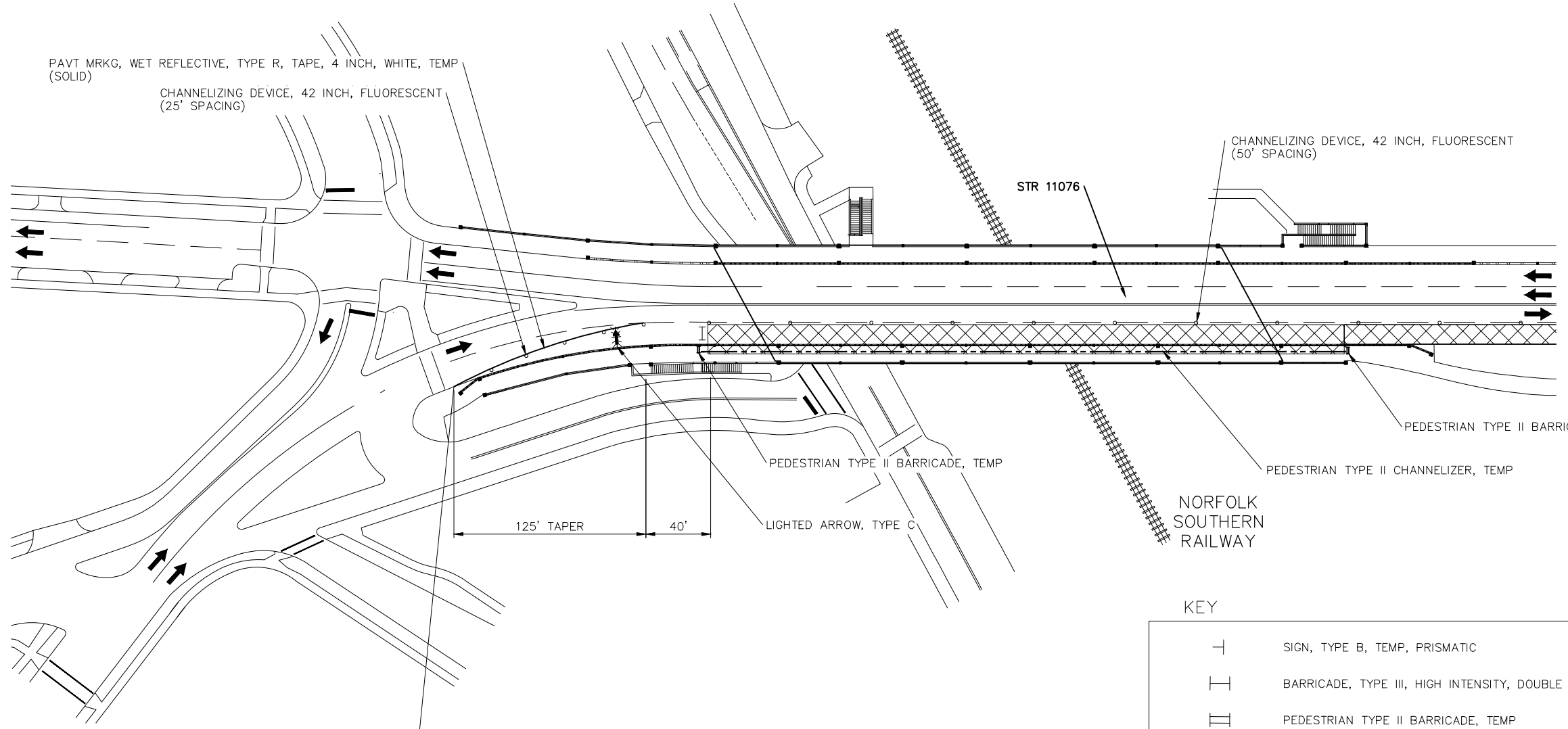
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PLAN (FT)

DRAWING No. **2020-025**

BEAKES ST

DETROIT ST

BROADWAY



STAGE 3
APPLIES: CLOSE EB OUTSIDE LANE

KEY

- SIGN, TYPE B, TEMP, PRISMATIC
- BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
- PEDESTRIAN TYPE II BARRICADE, TEMP
- PEDESTRIAN TYPE II CHANNELIZER, TEMP
- WORK ZONE
- PED DETOUR
- CHANNELIZING DEVICE, 42 INCH

SIGN FURTHEST FROM WORK ZONE SIGN CLOSEST TO WORK ZONE

W20-1	W20-5R	W3-5b	W4-2R	R5-18c	R2-1

250' 250' 250' 250' 250' 250'

PLACE SIGNS AT 250' SPACING

N DIVISION ST

HIGH ST

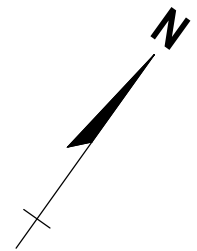
DEPOT ST

MAINTAINING TRAFFIC
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

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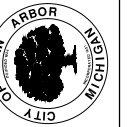
HURON RIVER

SWIFT ST



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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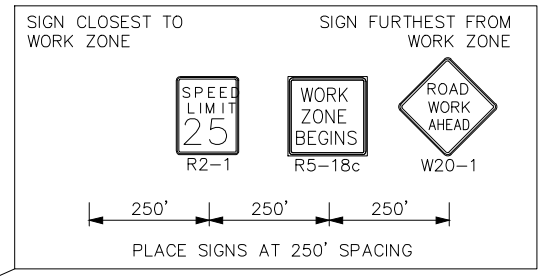
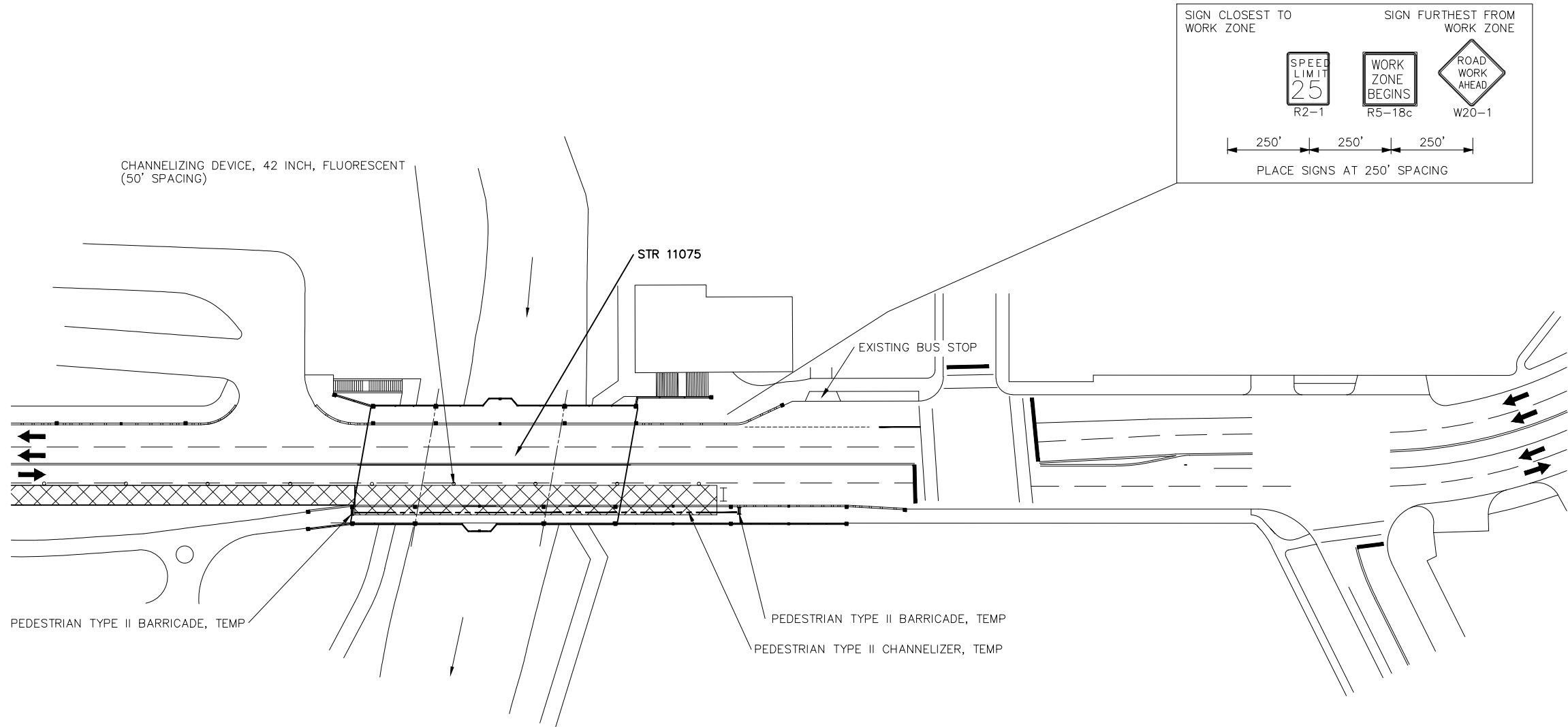
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80
 PLAN (FT)

DRAWING No.
2020-025

BROADWAY

BROADWAY



STAGE 3
 APPLIES: CLOSE EB OUTSIDE LANE

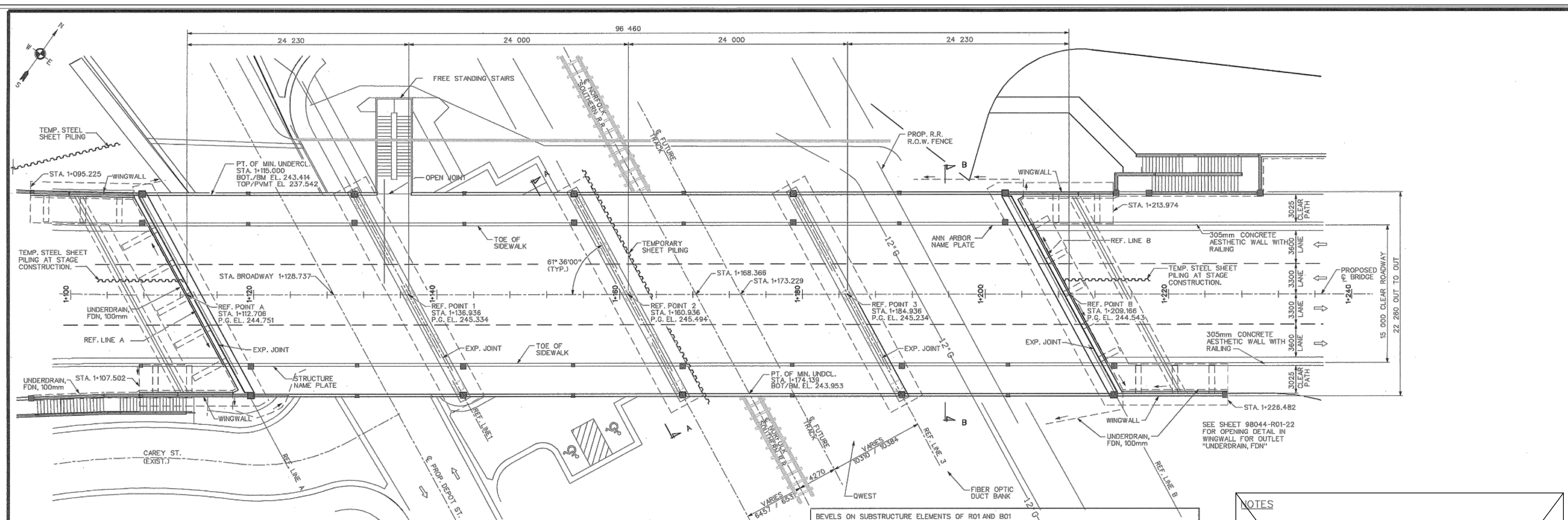
KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

WALL ST

HURON RIVER

MAINTAINING TRAFFIC
 (BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)



BEVELS ON SUBSTRUCTURE ELEMENTS OF R01 AND B01

THE CONTRACTOR IS DIRECTED TO CONSTRUCT BEVELS OF THE DIMENSION SHOWN ON THE SUBSTRUCTURE ELEMENTS OF BOTH R01 AND B01 AS FOLLOWS:

CRASHWALLS: 19mm ON ALL HORIZONTAL AND VERTICAL CORNERS

COLUMNS: 92mm ON ALL VERTICAL CORNERS

PIER CAPS: 38mm ON ALL HORIZONTAL AND VERTICAL CORNERS

ABUTMENTS: 38mm ON ALL HORIZONTAL AND VERTICAL CORNERS, 19mm FOR ALL SCORE MARKS, 19mm FOR ALL HORIZONTAL AND VERTICAL JOINTS

NOTES

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES MS23 LOADING. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

THE TOP OF ROADWAY SLAB AND TOPS OF SIDEWALKS AND BRIDGE RAILINGS ARE PARALLEL TO THE VERTICAL CURVE.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AND THE RAILWAY DETAILED EXCAVATION PLANS, TEMPORARY SHORING PLANS, AND CALCULATIONS ALL PREPARED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF MICHIGAN SHOWING SIZES OF ALL TEMPORARY SHORING STRUCTURAL MEMBERS, DETAILS OF CONNECTION AND EMBEDMENT DEPTH. THE PLANS SHALL INCLUDE A PLAN VIEW SHOWING ALL THE PROPOSED EXCAVATIONS AND DISTANCES FROM CENTERLINE OF TRACK TO FACE OF EXCAVATION. PLANS SHALL SHOW A SECTION NORMAL TO THE TRACK SHOWING THE SHORING LOCATION RELATIVE TO THE CENTERLINE OF TRACK AND SHOWING THE HEIGHT OF SHEETING AND TRACK ELEVATION IN RELATION TO THE BOTTOM OF EXCAVATION. THE PLANS MUST BE COMPLETE AND ACCURATELY DESCRIBE THE NATURE OF THE WORK. THE PLANS AND CALCULATIONS SHALL BE APPROVED BY THE RAILWAY BEFORE EXCAVATION BEGINS.

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AND THE RAILWAY A DEMOLITION PLAN INDICATING THE METHOD OF TRACK PROTECTION, THE SEQUENCE OF DEMOLITION AND A DESCRIPTION OF THE PROCEDURE AND EQUIPMENT TO BE USED DURING DEMOLITION. ALL DEMOLITION PLANS AND PROCEDURES SHALL BE REVIEWED AND APPROVED BY THE RAILWAY BEFORE DEMOLITION BEGINS. NO DEBRIS SHALL BE ALLOWED TO INTENTIONALLY FALL TO RAILWAY PROPERTY.

A MINIMUM TEMPORARY VERTICAL CONSTRUCTION UNDERCLEARANCE OF 6.71m WILL BE ALLOWED OVER THE RAILROAD TRACK BETWEEN POINTS 4.27m EITHER SIDE OF TRACK CENTERLINE.

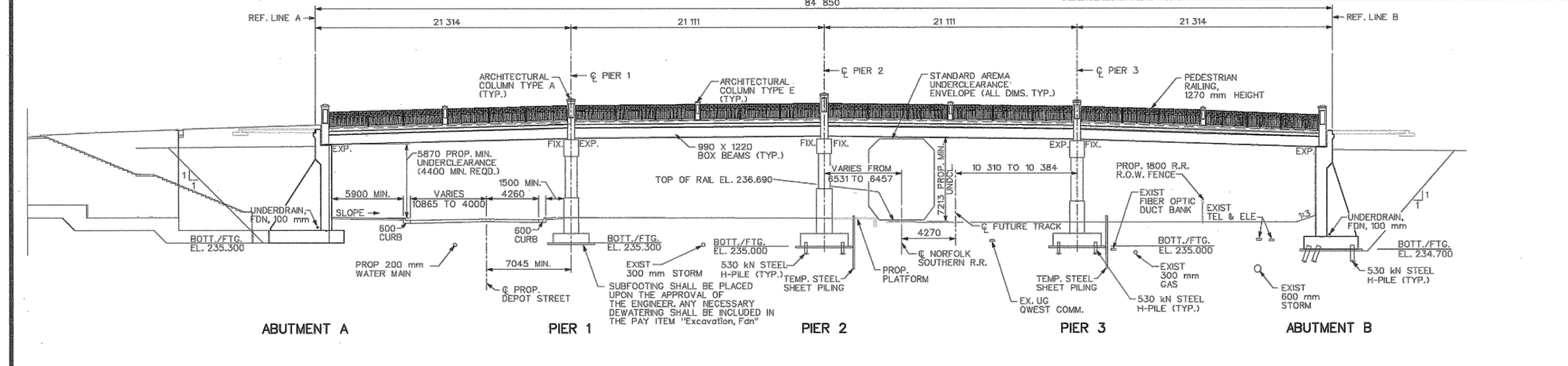
A MINIMUM HORIZONTAL CLEARANCE OF 4.27m FROM CENTERLINE OF TRACK SHALL BE MAINTAINED AT ALL TIMES.

UPON COMPLETION OF CONSTRUCTION WORK, THE CONTRACTOR SHALL ENSURE THAT ALL MATERIALS AND EQUIPMENT HAVE BEEN REMOVED AND THAT THE PERMANENT VERTICAL AND HORIZONTAL CLEARANCES IN SPAN 3 (OVER AND ADJACENT TO THE RAILROAD) ARE AT LEAST THOSE SHOWN ON THE PLANS.

REFER TO THE "SPECIAL PROVISION FOR PROTECTION OF RAILWAY INTEREST" LOCATED IN THE PROPOSAL FOR FURTHER REQUIREMENTS WHEN WORKING ON OR ABOVE RAILWAY PROPERTY.

THE PAY ITEM "SANDBLASTING CONCRETE SURFACES" SHALL BE USED FOR AESTHETIC PURPOSES TO PROVIDE A UNIFORM, BLEMISH-FREE APPEARANCE AND SHALL BE PERFORMED ON ALL SUBSTRUCTURE CONCRETE EXPOSED TO VIEW IN THE FINISHED WORK.

FALSE DECKING IS REQUIRED IN SPAN 1 (OVER DEPOT ST) AND SPAN 3 (OVER RAILROAD) AND AS DIRECTED BY THE ENGINEER.



ELEVATION
NOTE: SHOWN NORMAL TO NORFOLK SOUTHERN R.R. & DEPOT ST.

MISCELLANEOUS QUANTITIES

8658	ms	Backfill, Structure, CP
1	LS	Structures, Rem, R01
6383	m3	Excavation, Fdn
111	m	Underdrain, Fdn, 100 mm
498.7	m2	Steel Sheet Piling, Temp, Left in Place
0	m2	Steel Sheet Piling, Temp, Left in Place
27.9	m	Fence, Chain Link, 1800 mm
1	ea	Fence, Gate, 4800 mm, For 1800 mm Chain Link Fence
100000	DLRS	Removal and Disposal of Asbestos Materials
1023.4	m2	False Decking
1987.4	m2	Sandblasting Concrete Surface
1	ea	Structure Name Plate

LEGEND

EXISTING FENCE	EXISTING SANITARY SEWER & MANHOLE	EXISTING TELEPHONE	EXISTING RD. & GRADE	PROPOSED SANITARY SEWER & MANHOLE	PROPOSED CURB & GUTTER
CONTOUR	UTILITY POLE & GUY	GAS LINE	LEFT EDGE/RD. GRADE	STORM SEWER & CAT. BAS.	
STORM SEWER & CAT. BAS.	FIRE HYDRANT ASSEMBLY	CABLE T.V.	RIGHT EDGE/RD. GRADE	WATER MAIN W/F. H. ASSEM.	
WATER MAIN & VALVE-IN-WELL	LIGHT POLE	ELECTRIC SIGN	CURB & GUTTER	CONTOUR	
WATER MAIN & VALVE-IN-BOX	END SECTION		EDGE/GRAVEL	ROAD & GRADE	

4	AS-BUILT	2/23/05	KV	JLF			
3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR			
	FINAL REVIEW SUBMITTAL	11/21/01					
	G.I. SUBMITTAL	01/01					
BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY	APPROVED BY:

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ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER NORFOLK SOUTHERN RR AND DEPOT STREET (R01 OF 81102A)
GENERAL PLAN OF STRUCTURE

SCALE: 1:200
DRAWING NO. 98044-R01-5
SHEET NO. 216 OF 334

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BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

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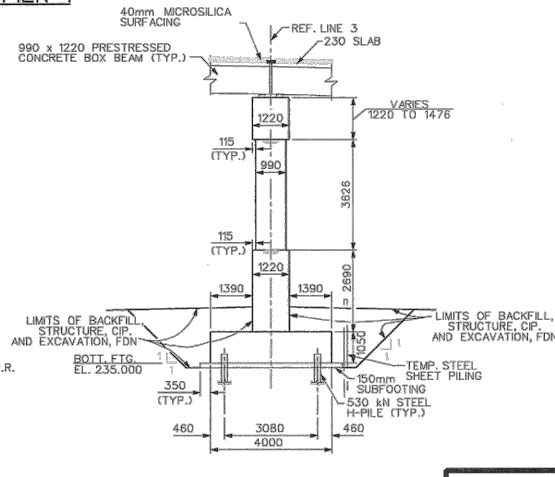
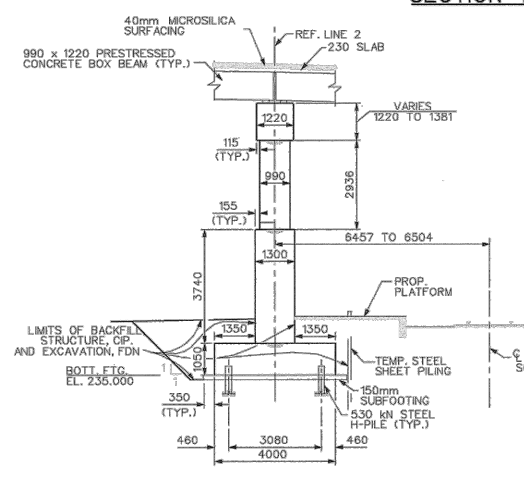
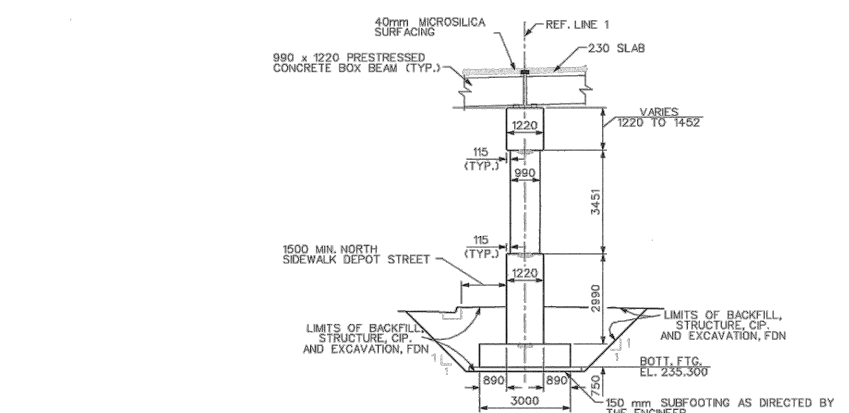
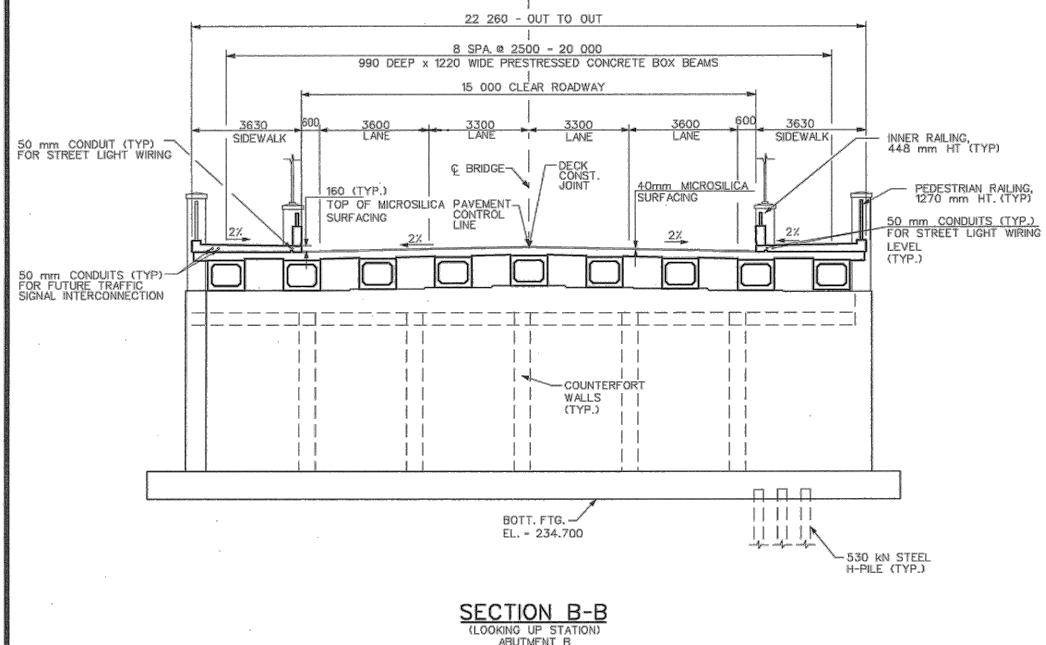
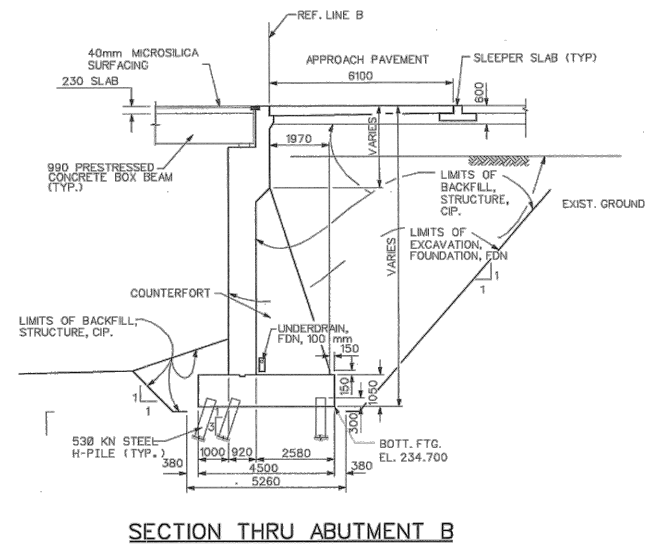
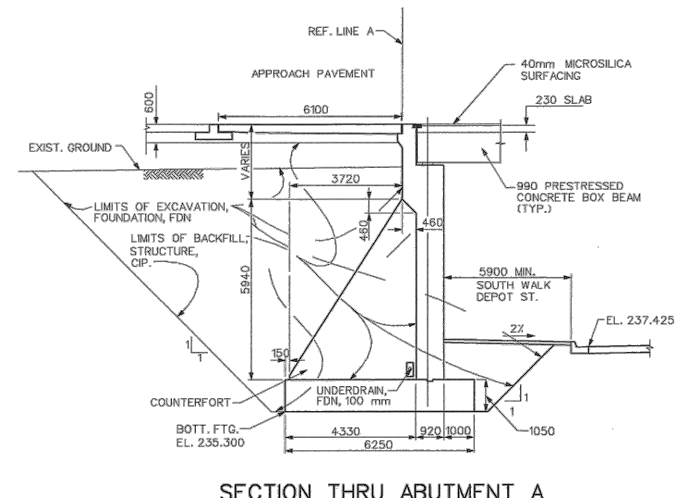
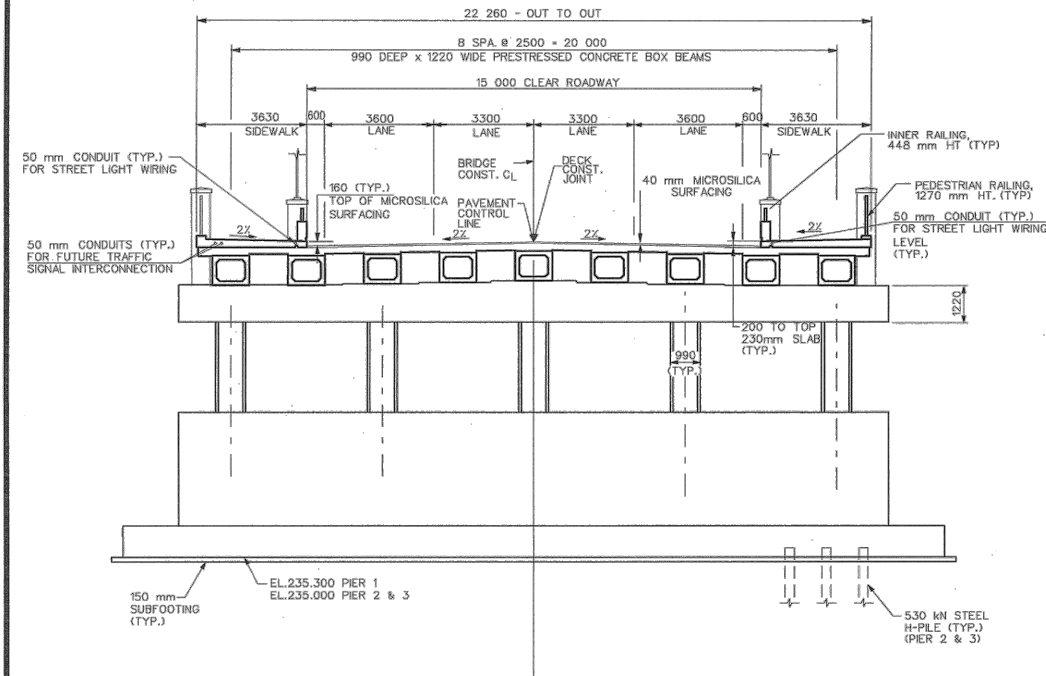
CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106-6647 ANN ARBOR, MI 734-794-6110 www.a2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING No. 2020-025
SHEET No. 45 of 87

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FILE NAME: \\F:\CHALLENGE\PROJECTS\2019\803091\CADD\DWG\WORKING\ROADWAY_OVER_DEPOT_EXIST_002.DWG



EXISTING FENCE		EXISTING SANITARY SEWER & MANHOLE		EXISTING TELEPHONE		EXISTING RD. & GRADE		PROPOSED SANITARY SEWER & MANHOLE		PROPOSED CURB & GUTTER	
CONTOUR	267	UTILITY POLE & GUY	1	GAS LINE	0	LEFT EDGE/RO. GRADE	---	STORM SEWER & CAT. BAS.	S	---	---
STORM SEWER & CAT. BAS.	---	FIRE HYDRANT ASSEMBLY	2	CABLE T.V.	4	RIGHT EDGE/RO. GRADE	---	WATER MAIN 1/4" H. ASSEM.	R	---	---
WATER MAIN & VALVE-IN-WELL	---	LIGHT POLE	3	ELECTRIC	261	CURB & GUTTER	---	CONTOUR	---	---	---
WATER MAIN & VALVE-IN-BOX	---	END SECTION	4	SIGN	---	EDGE/GRAVEL	---	ROAD & GRADE	---	---	---

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY
		4	AS-BUILT	2/23/05	KV	JLF
		3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR
			FINAL REVIEW SUBMITTAL	11/21/01		
			G.I. SUBMITTAL	01/01		

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER NORFOLK SOUTHERN RR AND DEPOT STREET (R01 OF 81102A)
GENERAL PLAN OF STRUCTURE

SCALE: 1"=100'

DRAWING NO. **98044-R01-6**

SHEET NO. 217 OF 334

APPROVED BY: _____

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BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

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REV.	DATE	DRAWN	CHECKED	DESCRIPTION

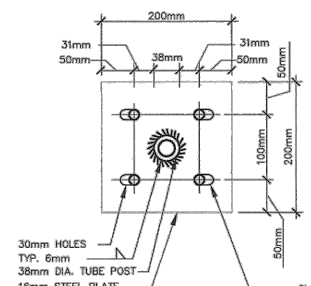
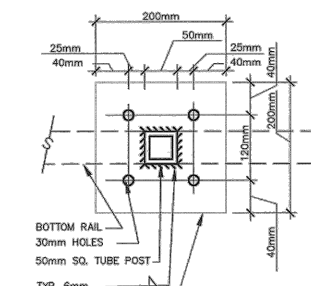
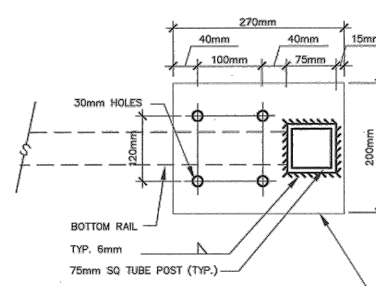
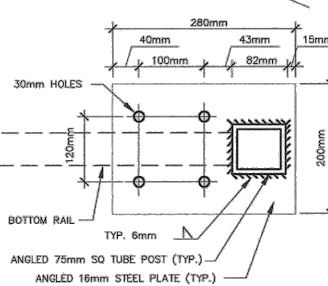
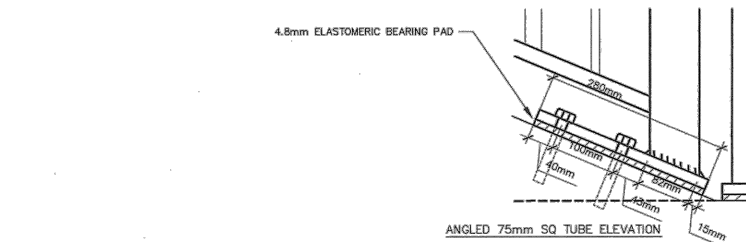
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 301 EAST HURON STREET
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

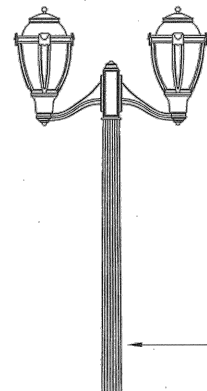
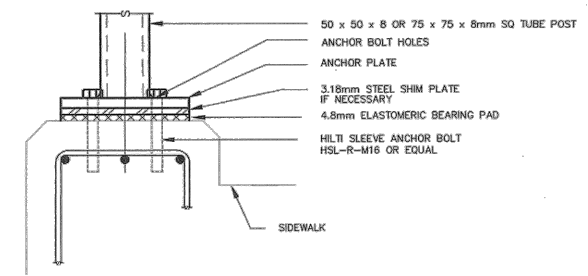
SCALE: NO SCALE
 DRAWING No. **2020-025**

SHEET No. **46 of 87**

FILE NAME: \\FCHALL\PROJECTS\2019\180381\CADD\CDDMD WORKING\ROADWAY_COVER_DEPOT_EXIST_003.DWG



2 MOUNTING ENLARGEMENT
A21 SCALE: 1:5



1 ANCHOR PLATES
A21 SCALE: 1:5

ANGLED 75mm SQ TUBE BASE PLATE FOR SLOPED RAIL MOUNTING

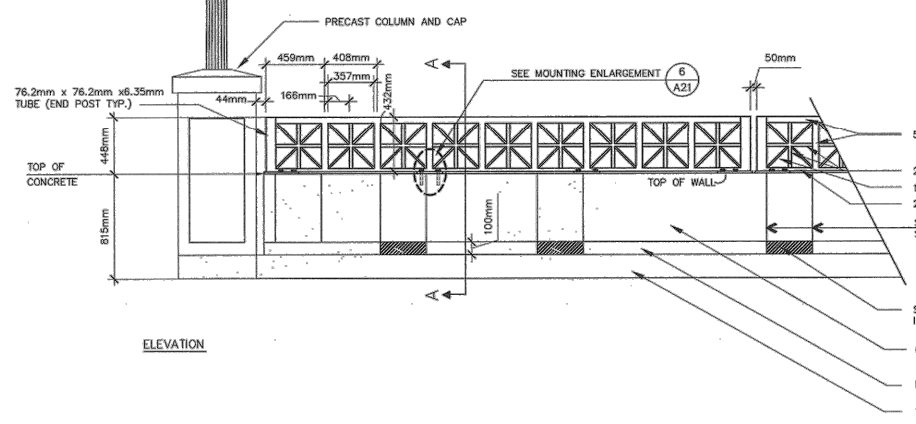
75mm SQ TUBE BASE PLATE FOR RAILING MOUNTING TYPICAL

50mm SQ TUBE BASE PLATE FOR RAILING MOUNTING ON BOTH SIDES OF EXPANSION JOINTS

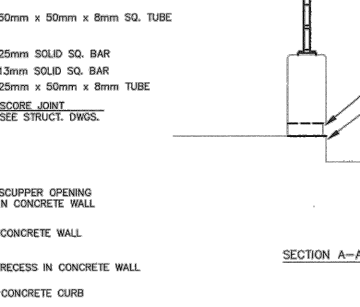
38mm ROUND TUBE BASE PLATE FOR STAIR RAIL MOUNTING IN VARIOUS LOCATIONS

SLOTTED HOLES ARE NECESSARY AT SOME STAIRS SEE STAIR PLANS FOR LOCATIONS

NOTES:
INSIDE BRIDGE BARRIER STEEL TO MATCH THE TOP (433mm) PORTION OF THE OUTSIDE BRIDGE RAIL.
FOR PRECAST COLUMNS AND CAST-IN-PLACE CONCRETE INFORMATION, SEE STRUCTURAL DWGS.

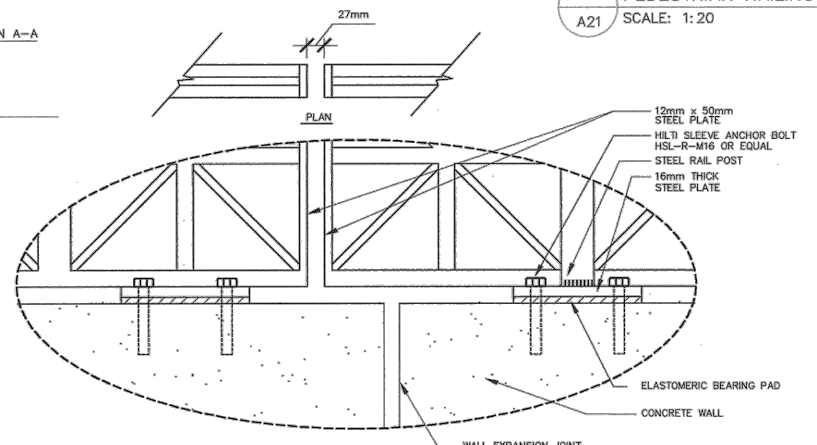


3 CRASH WALL WITH INNER RAILING
A21 SCALE 1:25



SECTION A-A

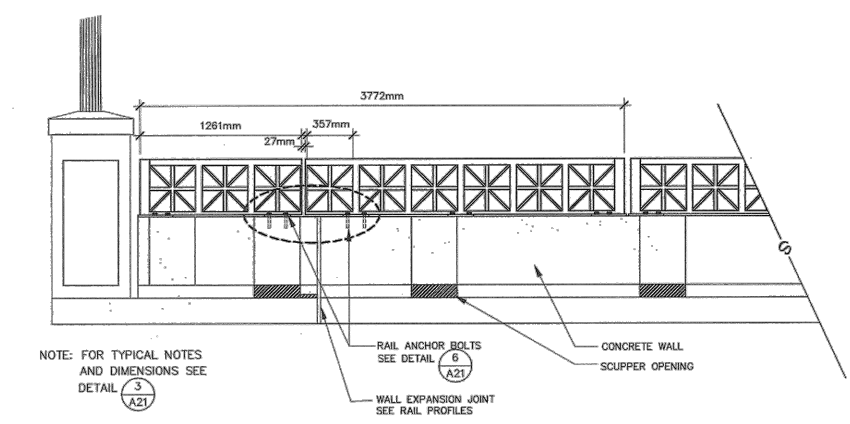
4 PEDESTRIAN RAILING
A21 SCALE: 1:20



6 EXPANSION RAIL ENLARGEMENT
A21 SCALE: 1:5



NOTES
ALL HORIZONTAL RAILS SHALL FOLLOW THE PROFILE GIVEN BY THE ROAD AND BRIDGE.
IT IS ADVISED THAT BEFORE PRODUCTION OF THE RAIL BEGINS ALL DIMENSIONS AND ELEVATIONS SHOULD BE FIELD VERIFIED. THIS WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE PAY ITEM FOR "ORNAMENTAL STEEL RAILING".
STEEL SHIM PLATES 3.18mm THICK MAY BE USED AT POSTS TO HELP PLUMB THE RAIL. NO MORE THAN THREE PLATES PER POST SHALL BE USED. SEE SPECIFICATIONS.
FIELD WELDING WILL NOT BE ALLOWED. ALL FIELD CONNECTIONS ARE TO BE MECHANICAL.



5 CRASH WALL WITH INNER RAILING EXPANSION RAIL
A21 SCALE: 1:25

Beckett & Raeder
EARTH TECH
ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR
BROADWAY BRIDGES RECONSTRUCTION PROJECT
TYPICAL RAILING DETAILS
SCALE AS SHOWN
DRAWING NO. 98044-A21
SHEET NO. 210 OF 334

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
		4	NO AS-BUILT CHANGES	3/24/05	KV	REL
		3	FINAL MDOT REVIEW	11/21/01		
			FINAL REVIEW/SUBMITTAL	11/21/01		
			REVIEW	08/01		
			Q.I. SUBMITTAL	01/01		SBR

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BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

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

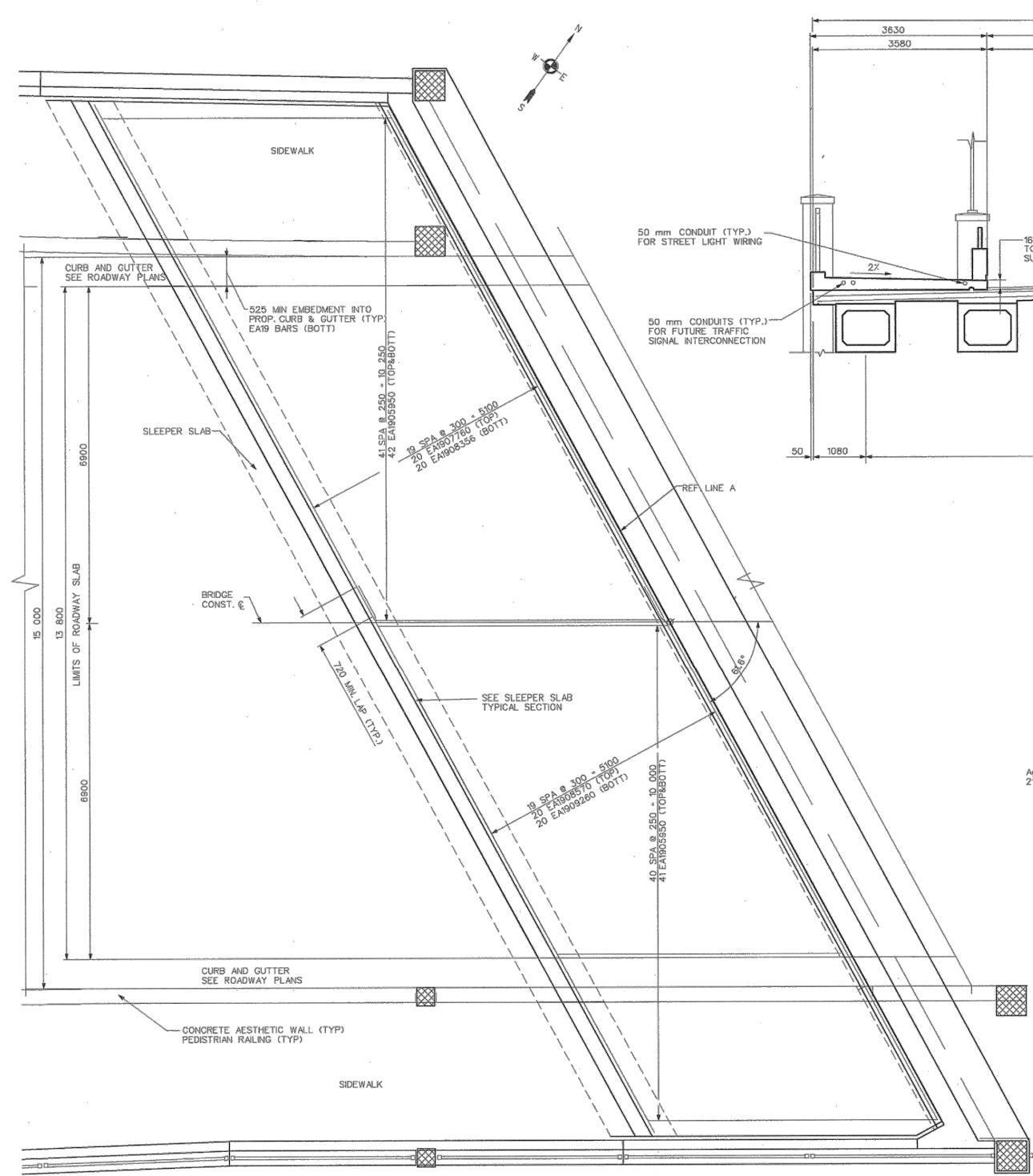
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING TYPICAL RAILING DETAILS

SCALE: NO SCALE
DRAWING No. 2020-025
SHEET No. 47 of 87

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FILE NAME: \\FCHALL\PROJECTS\2019\80381\CD\DDMD WORKING\ROADWAY_OVER_DEPOT_EXIST_004.DWG

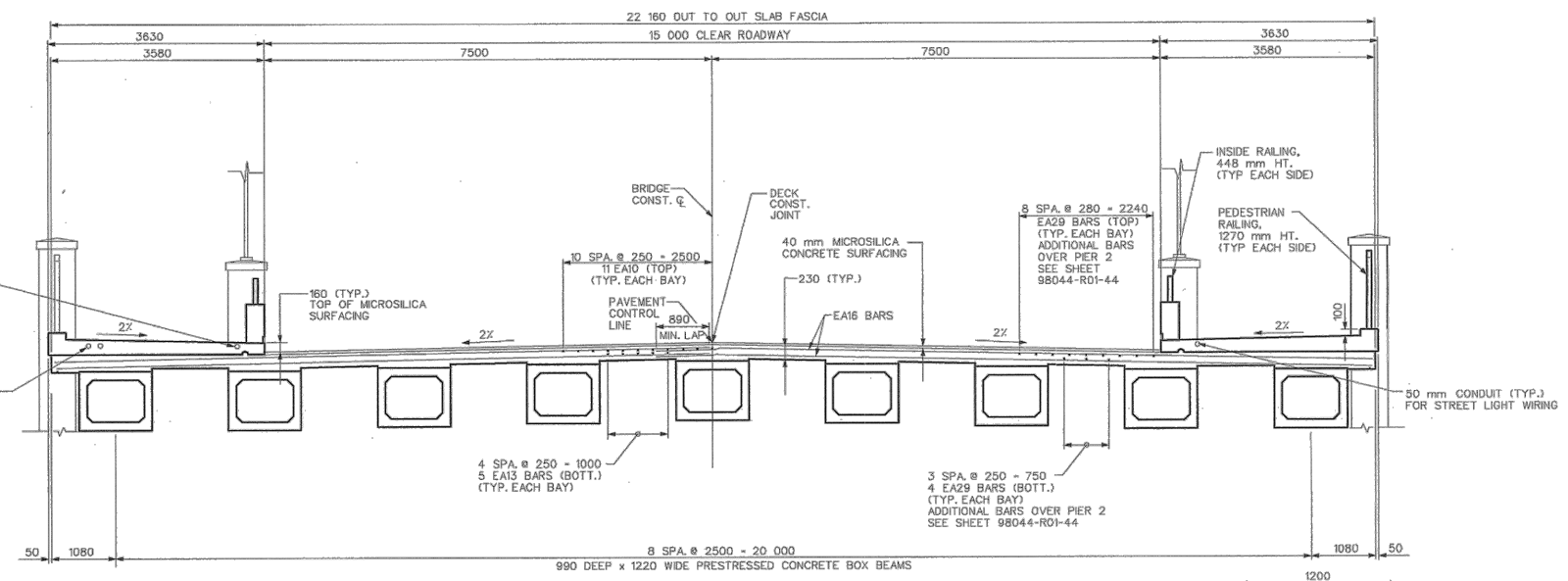


PLAN OF APPROACH SLAB
TYP WEST SIDE SHOWN, EAST SIDE IDENTICAL

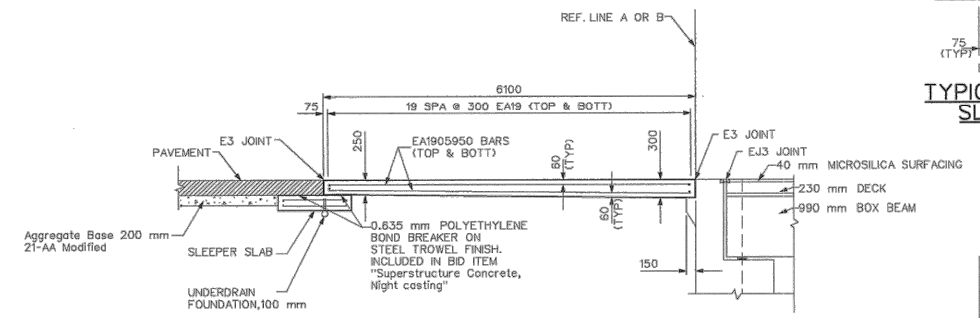
R01 Sleeper Slab, Sidewalk and Road Approach Slab (North Half)

Bar	Dimension (mm)	No	Reqd	Notes
EA1301050	1050	74		long. reinf. in sleeper slab, plan calls for 108, Bar sheet shows 34
EA191935	11935	16		transverse reinf. in sleeper slab, cut on bar sheet
EA1902180	2180	40		top onto EA1907760 trans reinf. in road app. slab - extend reinf. to full width of slab
EA1901485	1485	49		top onto EA1908356 trans reinf. in road app. slab to extend reinf. to full width of slab
EA1905850	5850	84		long Reinf. need 60 in the sidewalk app. slabs + 136 in the road app. slabs - 196, Bar sheet shows 112

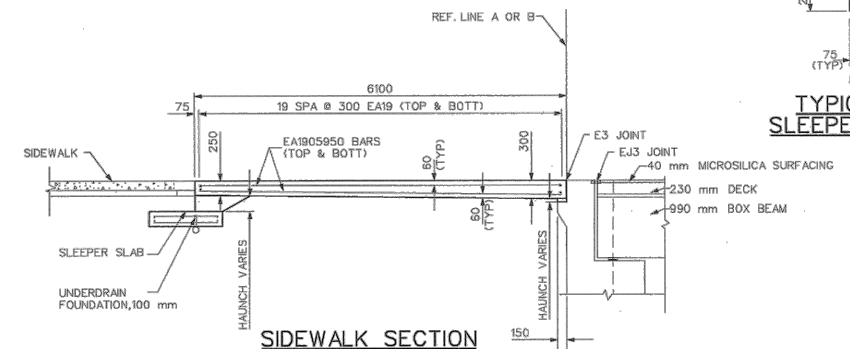
Notes:
Work Order #38
Transverse reinforcement was ordered for the sidewalk approach slabs. EA1902925 were ordered and will have to be cut in the field to fit the width of the sidewalk approach slab.
Top and bottom mats of reinforcement in the road approach slab will extend into the curb.



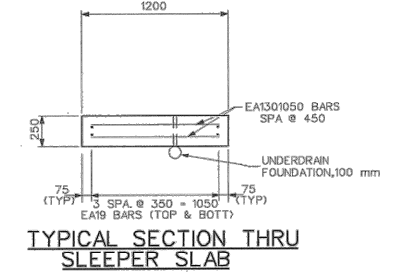
TYPICAL DECK SECTION
LOOKING UP STATION



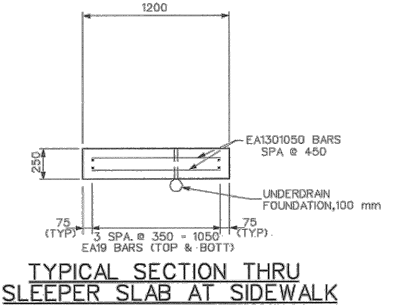
APPROACH ROADWAY SECTION



SIDEWALK SECTION



TYPICAL SECTION THRU SLEEPER SLAB



TYPICAL SECTION THRU SLEEPER SLAB AT SIDEWALK

LEGEND

EXISTING FENCE	EXISTING SANITARY SEWER & MANHOLE	EXISTING TELEPHONE	EXISTING RD. & GRADE	PROPOSED SANITARY SEWER & MANHOLE	PROPOSED CURB & GUTTER
CONTOUR	UTILITY POLE & GUY	GAS LINE	LEFT EDGE/RD. GRADE	STORM SEWER & CAT. BAS.	PROPOSED CURB & GUTTER
STORM SEWER & CAT. BAS.	FIRE HYDRANT ASSEMBLY	CABLE T.V.	RIGHT EDGE/RD. GRADE	WATER MAIN W/F.H. ASSEM.	
WATER MAIN & VALVE-IN-WELL	LIGHT POLE	ELECTRIC	CURB & GUTTER	CONTOUR	
WATER MAIN & VALVE-IN-BOX	END SECTION	STIM	EDGE/GRAVEL	ROAD & GRADE	

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ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER NORFOLK SOUTHERN RR AND DEPOT STREET (R01 OF 81102A)
SUPERSTRUCTURE DETAILS

SCALE: 1"=50'

DRAWING NO. **98044-R01-47**
SHEET NO. 258 OF 334

REV. NO.	DESCRIPTION	DATE	DR. BY	CR. BY
4	AS-BUILT	2/23/05	KV	JLF
3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR
	FINAL REVIEW SUBMITTAL	11/21/01		
	G.I. SUBMITTAL	01/01		

APPROVED BY: _____

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

811
View details below. Call before you dig.

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

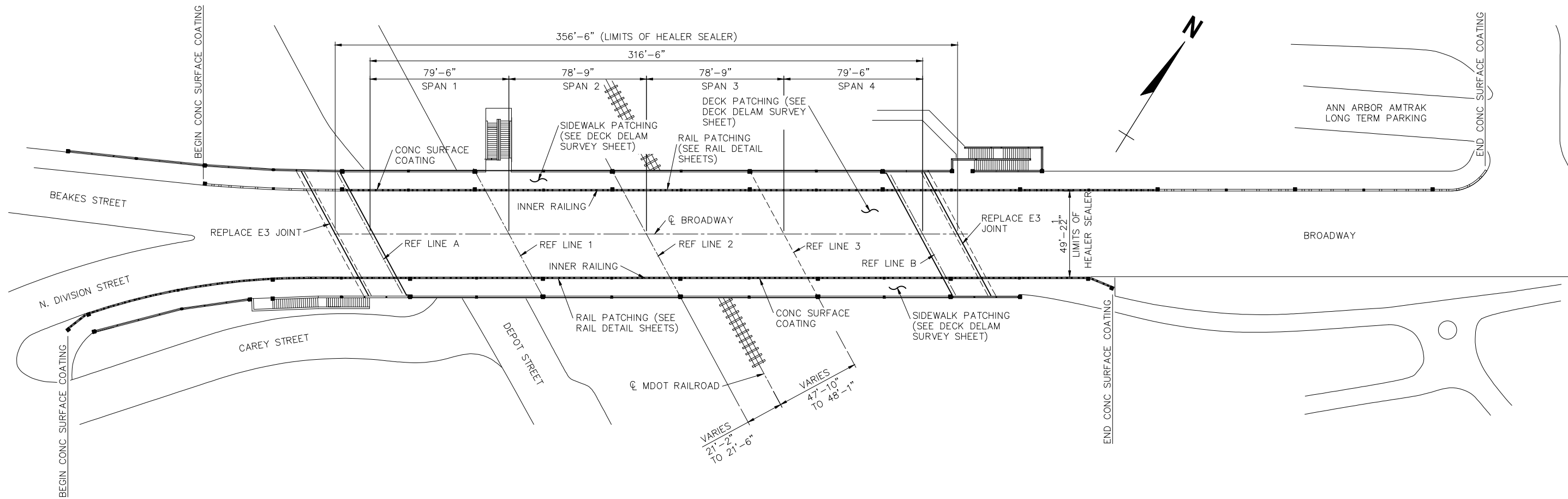
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING SUPERSTRUCTURE DETAILS

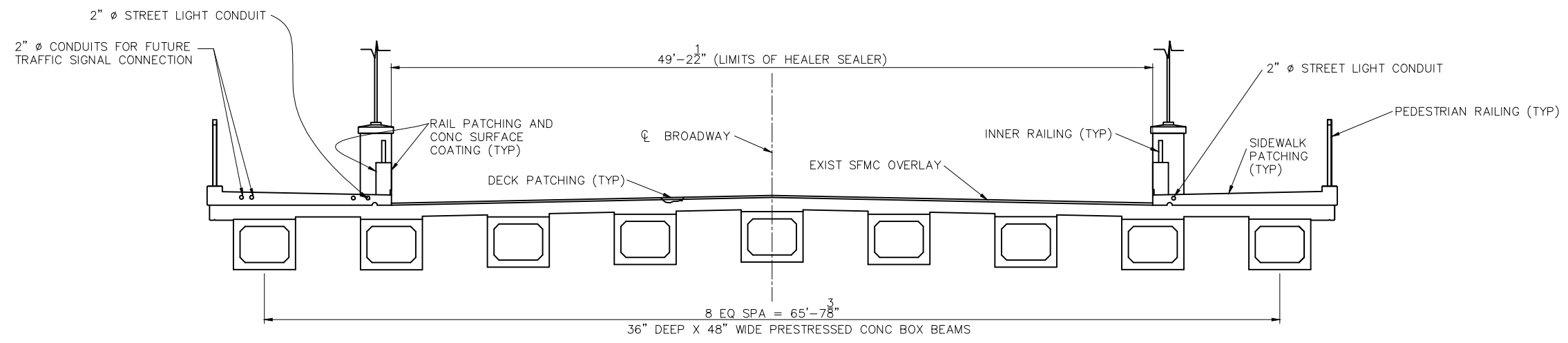
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DRAWING No. **2020-025**

SHEET No. **48 of 87**

FILE NAME: Z:\2020\05097\CAD\CAD\2019\TO MINIBROADWAY_OVER_DEPOT_GFSTR_001.DWG



PLAN



DECK SECTION

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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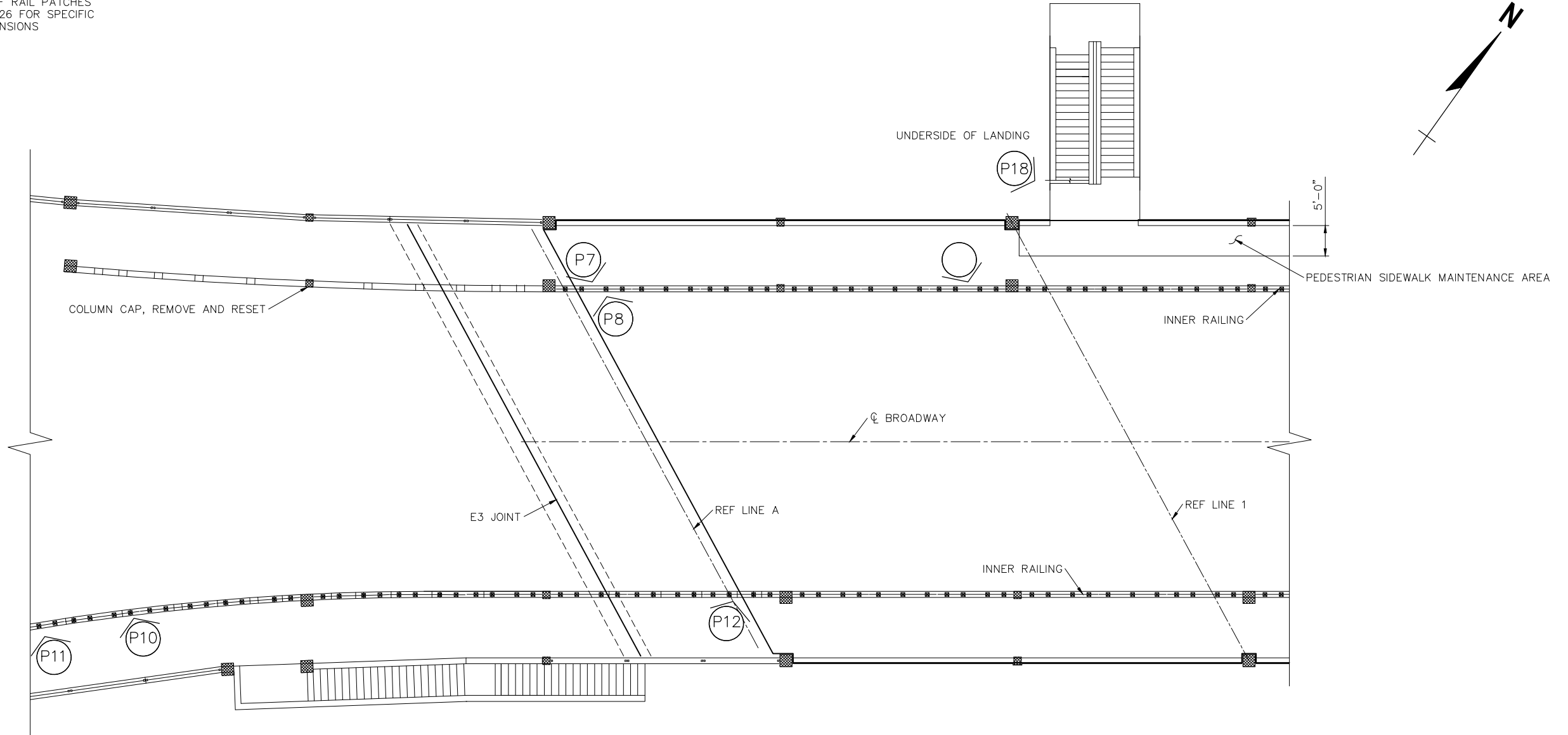


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING No. 2020-025

LEGEND

(P##) = LOCATION OF RAIL PATCHES
SEE SHEET 26 FOR SPECIFIC
PATCH DIMENSIONS



PLAN - WEST

NOTES:

A RAILROAD PERMIT IS NOT REQUIRED UNDER THE CONDITION THAT THE CONTRACTOR KEEPS ALL WORKERS, MATERIALS, VEHICLES AND EQUIPMENT ON THE PARKING LOT SIDE OF THE PIER BETWEEN THE AREA TO BE PATCHED AND THE RAILROAD TRACKS, AND IN NO CIRCUMSTANCE SHALL THE CONTRACTOR ACCESS THE TRACK SIDE OF THE PIER.

IN ORDER TO PERFORM THE BARRIER RAIL REPAIRS, THE CONTRACTOR SHALL REMOVE, STORE, PROTECT, AND REPLACE WHEN THE PATCHES HAVE BEEN PROPERLY CURED, THE NEEDED METAL RAILING SEGMENTS. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ASSOCIATED ITEMS OF WORK.

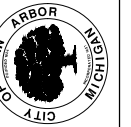
BROADWAY OVER DEPOT STREET AND MDOT RAILROAD

FILE NAME: Z:\2020\09\7\CAD\CAD\2019\TO MAINROADWAY_OVER_DEPOT_RAIL_001.DWG



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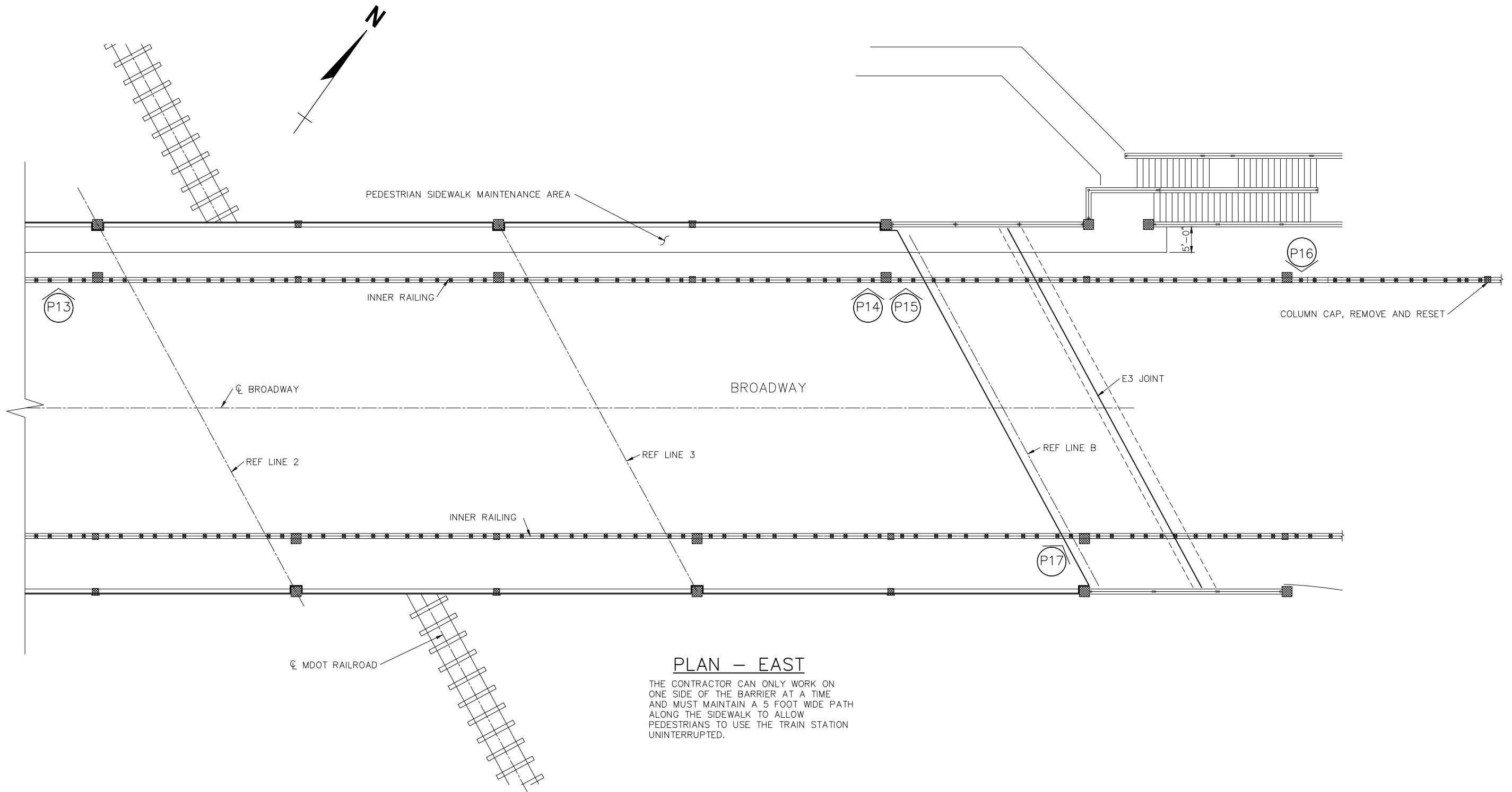
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONCRETE RAIL PATCHING LOCATIONS

SCALE: NO SCALE
DRAWING No. 2020-025

FILE NAME: Z:\2020\0957\CAD\CAD2019\TO MAINROADWAY_OVER_DEPOT_RAIL_002.DWG



PLAN - EAST
 THE CONTRACTOR CAN ONLY WORK ON ONE SIDE OF THE BARRIER AT A TIME AND MUST MAINTAIN A 5 FOOT WIDE PATH ALONG THE SIDEWALK TO ALLOW PEDESTRIANS TO USE THE TRAIN STATION UNINTERRUPTED.

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD



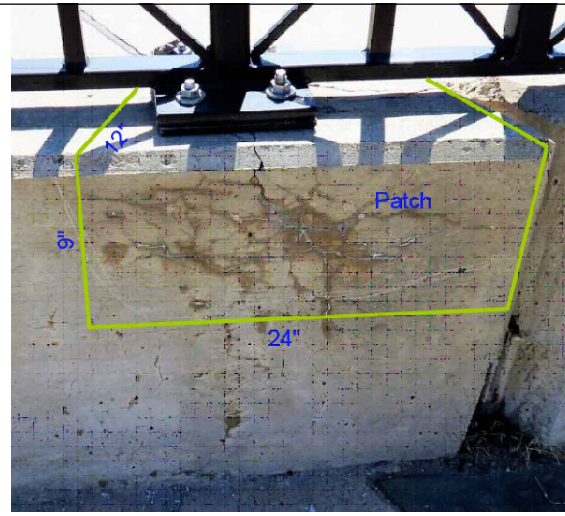
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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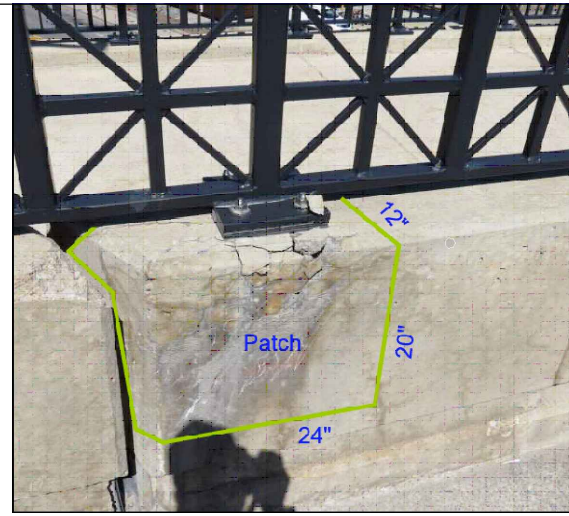


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 CONCRETE RAIL PATCHING LOCATIONS

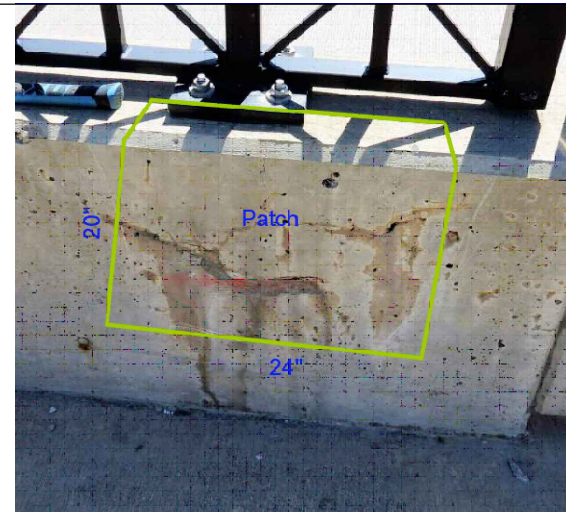
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 DRAWING No. 2020-025



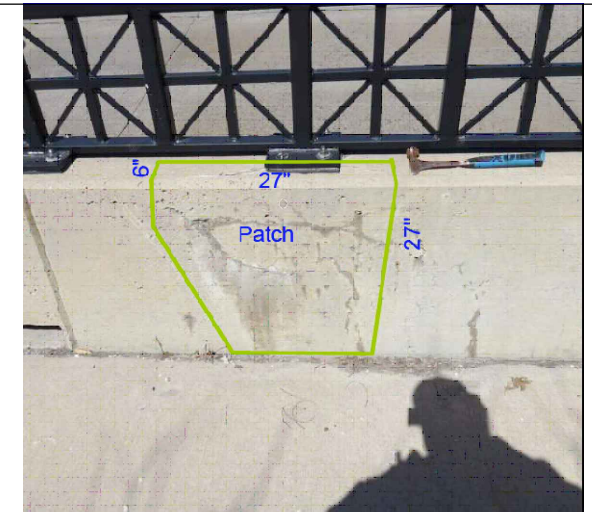
P7



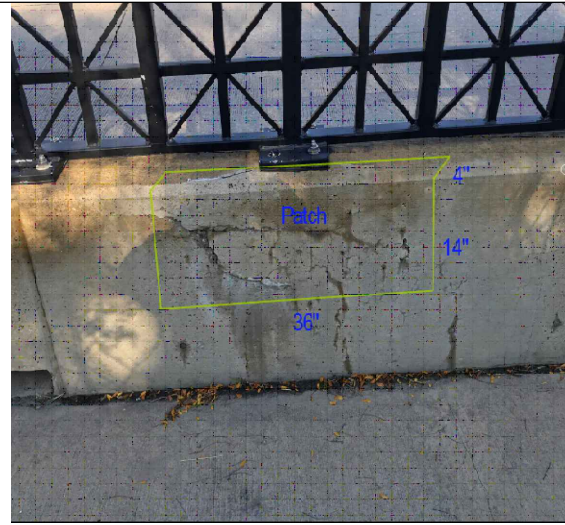
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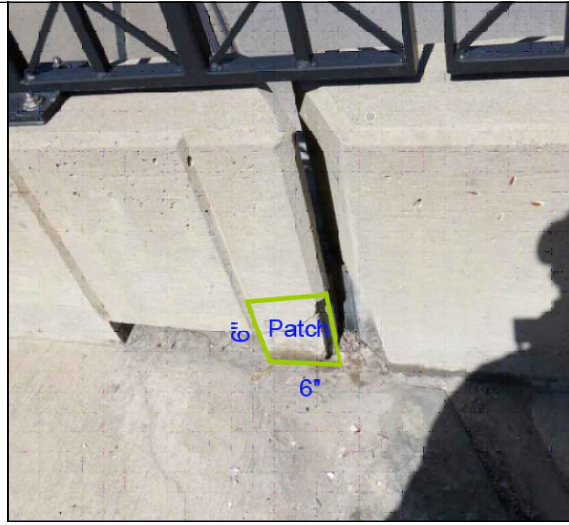
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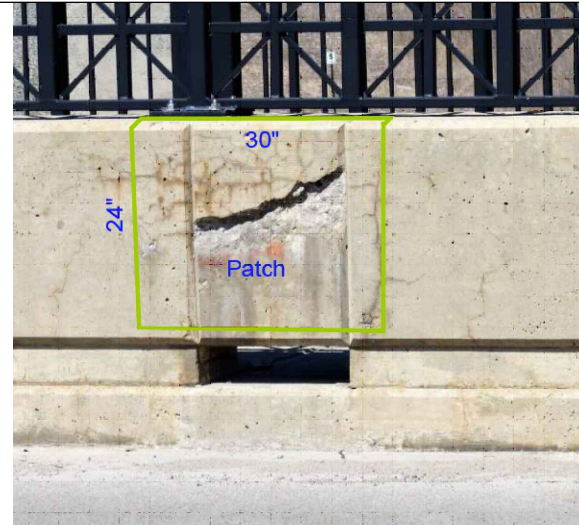
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P11



P12



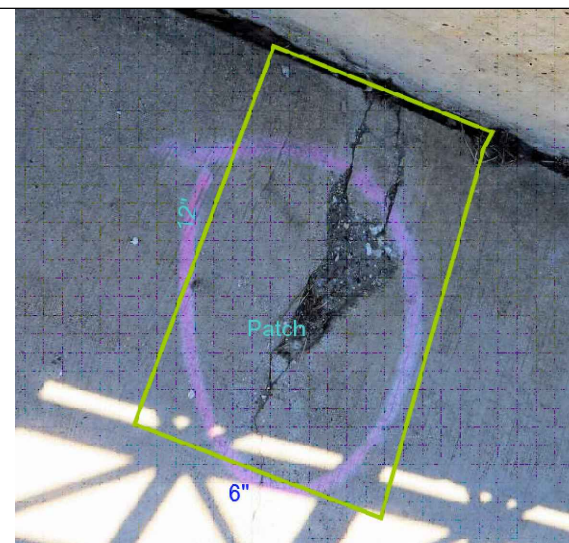
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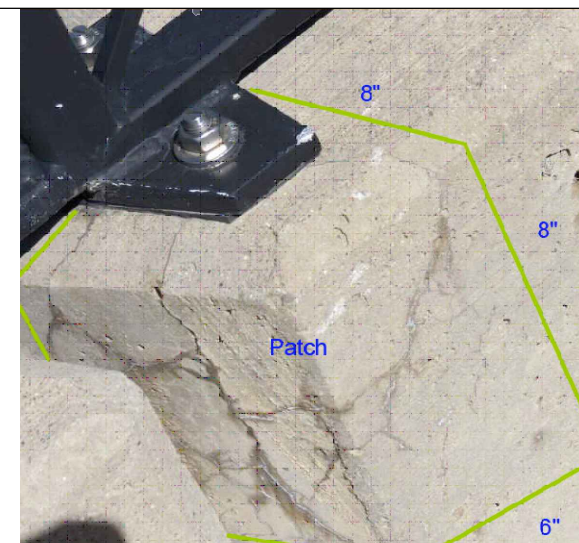
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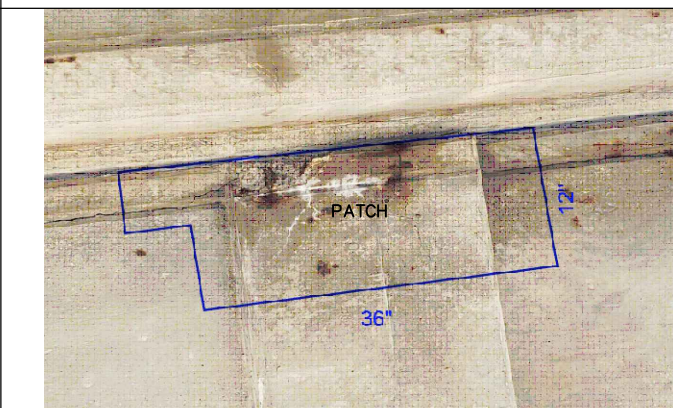
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P16



P17



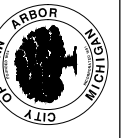
P18

BROADWAY OVER DEPOT STREET
AND MDOT RAILROAD

FILE NAME: Z:\2020\200567\CAD\CD\2019\TO MAIN\ROADWAY_COVER_DEPOT_RAIL_003.DWG



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

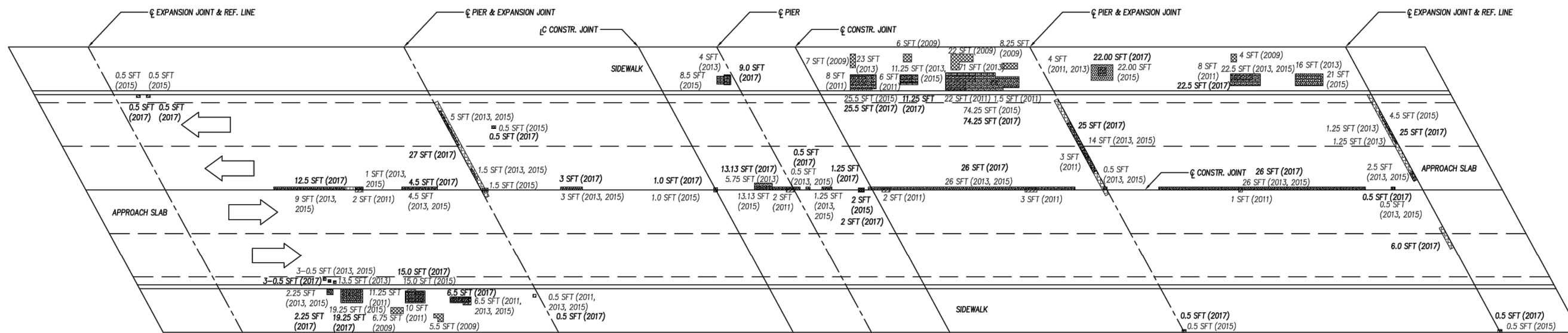


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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 CONCRETE RAIL PATCHING LOCATIONS

SCALE: NO SCALE
 DRAWING No. 2020-025
 SHEET No. 52 of 87

FILE NAME: Z:\2020\09\67\CAD\CAD\2019\10 MLNBRDWAY_COVER_DEPOT_DECK_DELAM_SURVEY_001.DWG



PLAN OF DECK DEFICIENCIES

SIZES AND LOCATIONS OF DEFICIENCIES SHOWN ON THIS SHEET ARE APPROXIMATED FROM PREVIOUS DECK EVALUATION. CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF DEFICIENCIES AND PATCH AS DIRECTED BY THE ENGINEER. CONTRACTOR TO GIVE ENGINEER 36 HOURS TO VERIFY LIMITS OF PATCHING PRIOR TO PLACING PATCHING MATERIAL.

LEGEND:

	- 2009 DECK DELAMINATION	2009 TOTAL DECK DELAMINATION = 61.50 SFT
	- 2011 DECK DELAMINATION	2011 TOTAL DECK DELAMINATION = 79.50 SFT
	- 2013 DECK DELAMINATION	2013 TOTAL DECK DELAMINATION = 290.0 SFT
	- 2015 DECK DELAMINATION	2015 TOTAL DECK DELAMINATION = 347.15 SFT
	- 2017 DECK DELAMINATION	2017 TOTAL DECK DELAMINATION = 402.65 SFT



BROADWAY BRIDGE OVER DEPOT ST AND NS RR DECK DELAMINATION SURVEY

BROADWAY OVER DEPOT STREET AND MDOT RAILROAD



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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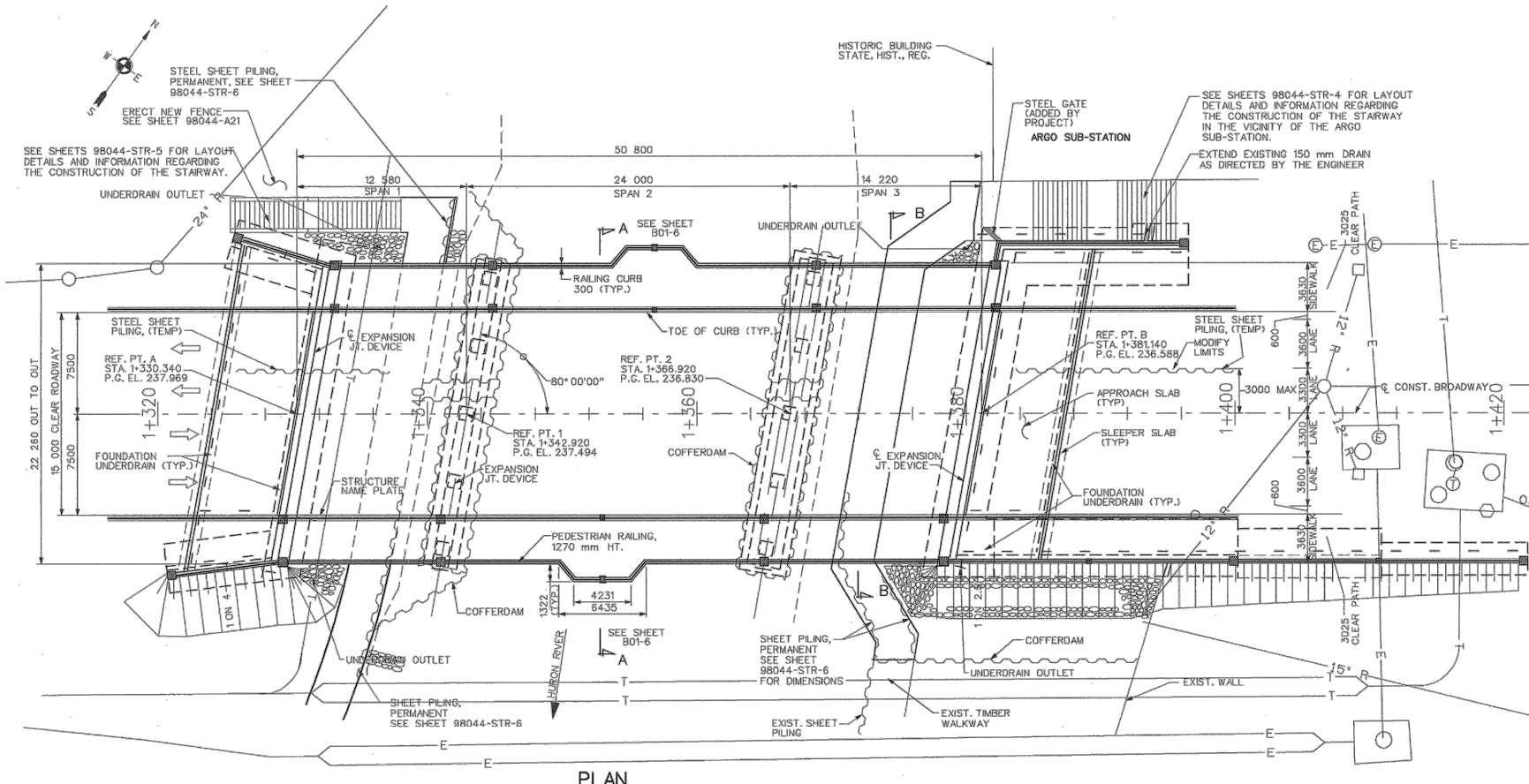


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
DECK DELAMINATION AND PATCHING PLAN

SCALE: NO SCALE
DRAWING No. 2020-025

SHEET No. 53 of 87

SUMMARY OF HYDRAULIC ANALYSIS							
FLOOD DATA	DISCHARGE (m ³ /s)	EXISTING		PROPOSED			
		WATER SURFACE ELEV @ U/S FACE OF STRUCTURE (m)	VELOCITY IN D/S CHANNEL (m/s)	WATER SURFACE ELEV @ U/S FACE OF STRUCTURE (m)	VELOCITY IN D/S CHANNEL (m/s)	WATERWAY AREA (m ²) @ D/S FACE	CHANGE IN WSCL 45 m U/S OF PROPOSED STRUCTURE (m)
50-YEAR	184.86	233.26	3.05	233.28	2.94	62.60	-0.05
100-YEAR	212.38	233.44	3.21	233.47	3.05	68.63	-0.02

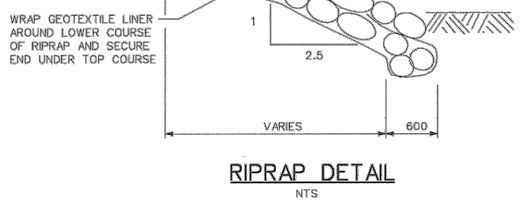
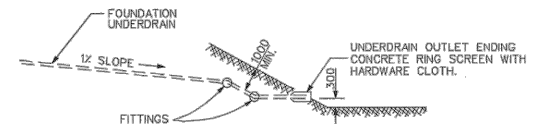
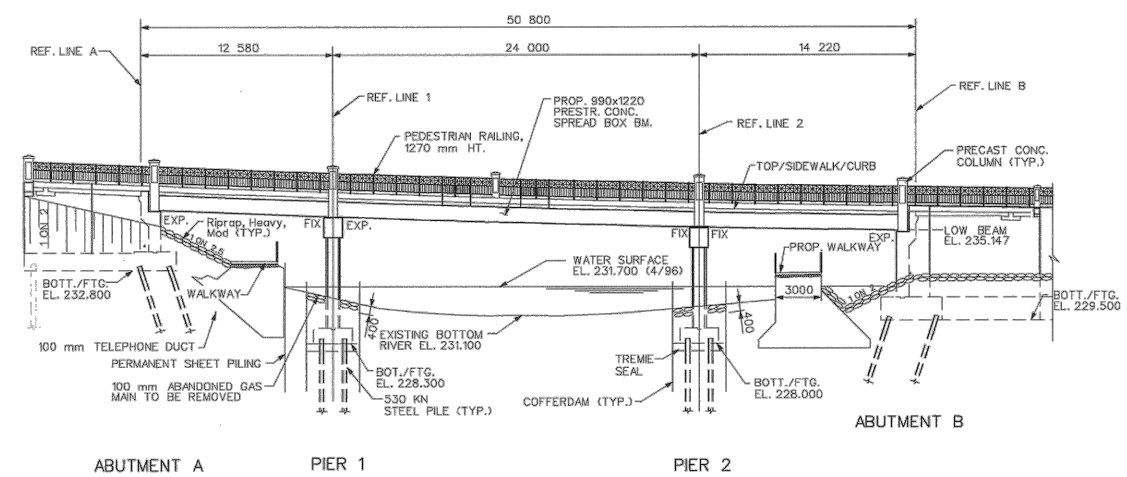


MISCELLANEOUS QUANTITIES		
3961	m ³	Backfill, Structure, CIP
1	LS	Structures, Ram, Portion, B01
1	LS	Cofferdams
3308	m ³	Excavation, Fdn
380	m ²	Riprap, Heavy, Modified
438	m ³	Excavation, General
117	m	Underdrain, Fdn, 400 mm
4	ea	Underdrain, Outlet, 100 mm
735	m ²	Steel Sheet Piling, Temp
1	LS	Dewatering, Abutment B
124	m ²	Steel Sheet Piling, Temp, Left in Place
50000	dfs	Removal and Disposal of Asbestos Materials
1078	m ²	False Decking
1	ea	Structure Name Plate

THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA REQUIRED, REGARDLESS OF NUMBER OF LAYERS REQUIRED.

WHERE POSSIBLE CONTRACTOR TO REUSE PROTECTIVE SHIELD FROM DEMOLITION PHASE DURING CONSTRUCTION OF NEW SUPERSTRUCTURE. NO ADDITIONAL PAYMENT SHALL BE MADE FOR REUSE OF PROTECTIVE SHIELD. IF NECESSARY, CONTRACTOR MAY, WITH APPROVAL OF THE ENGINEER, ERECT FALSE DECKING. CONTRACTOR WILL BE PAID FOR FALSE DECKING WHERE APPROVED.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE SPECIAL LAYOUTS OF THE TEMP SHEET PILING TO FACILITATE THE CONSTRUCTION AS DETAILED HEREIN. ALL COSTS ASSOCIATED WITH ADDITIONAL BRACING, NEEDLE BEAMS, ETC. SHALL BE DEEMED TO BE INCLUDED IN THE COST OF "Steel Sheet Piling, Temp." AND WILL NOT BE PAID FOR SEPARATELY. THE CONTRACTOR SHALL NOT RESTRICT THE EXISTING LANE OF INBOUND TRAFFIC ALONG BROADWAY IN ANY MANNER DURING THE CONSTRUCTION OF BRIDGE.



NOTES

THE DESIGN OF THIS STRUCTURE IS BASED ON CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES M23. LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE LOAD FACTOR METHOD OF DESIGN WAS USED FOR THIS STRUCTURE.

THE TOP OF ROADWAY SLAB AND TOPS OF SIDEWALKS AND BRIDGE RAILINGS ARE PARALLEL TO THE VERTICAL CURVE.

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN. THE ELEVATIONS MAY BE USED PROVIDED THEY ARE VERIFIED WITH THE LAND AND WATER MANAGEMENT DIVISION, MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

WITHOUT THE PREVENTIVE MEASURES SHOWN ON THESE PLANS, THERE IS A POSSIBILITY THAT STREAM BED SCOUR MAY OCCUR. THE ESTIMATED TOTAL SCOUR DEPTH IS CALCULATED TO BE 1 METER AT ABUTMENTS A & B, 4.1 METERS AT PIERS 1 & 2, AND 1 METERS AT PIER 2. THESE DEPTHS ARE BASED ON A 100 YEAR RUNOFF EVENT.

THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED. THE ESTIMATED MASS OF RIPRAP IS 456 METRIC TONS.

THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 1933 SQUARE KILOMETERS.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.

THE TREMIE SEAL DESIGN WAS BASED ON A WATER SURFACE ELEVATION OF 231.700

FALSE DECKING SHALL BE USED IN ALL SPANS OVER THE RIVER AND AS DIRECTED BY THE ENGINEER.

SEE SPECIAL PROVISION ENTITLED "ASBESTOS" FOR ADDITIONAL INFORMATION RELATED TO ASBESTOS CONTAINING CONDUITS AND THE LINE.

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LEGEND	
EXISTING FENCE	EXISTING SANITARY SEWER & MANHOLE
CONTOUR	UTILITY POLE & GUY
STORM SEWER & CAT. BAS.	FIRE HYDRANT ASSEMBLY
WATER MAIN & VALVE-IN-WELL	LIGHT POLE
WATER MAIN & VALVE-IN-BOX	END SECTION
EXISTING TELEPHONE	EXISTING 80-# GRADE
GAS LINE	LEFT EDGE/ROD. GRADE
CABLE T.V.	RIGHT EDGE/ROD. GRADE
ELECTRIC	CURB & GUTTER
SIGN	EDGE/GRAVEL
PROPOSED SANITARY SEWER & MANHOLE	PROPOSED CURB & GUTTER
STORM SEWER & CAT. BAS.	WATER MAIN W/F.H. ASSEM.
CONTOUR	ROAD # GRADE

REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
4	AS-BUILT	3/24/05	KV	REL
3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR
	FINAL REVIEW SUBMITTAL	11/21/01		
	G.I. SUBMITTAL	01/01		

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER HURON RIVER
(801 OF 81102A)

GENERAL PLAN OF STRUCTURE

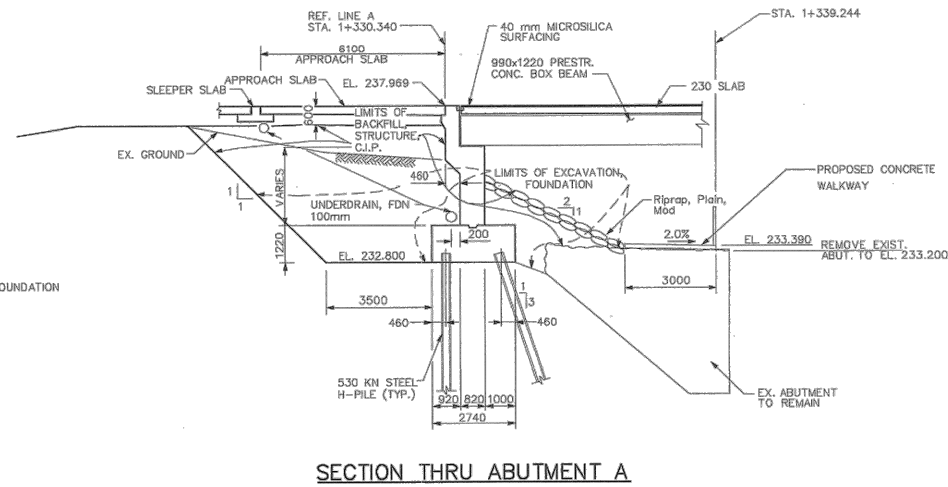
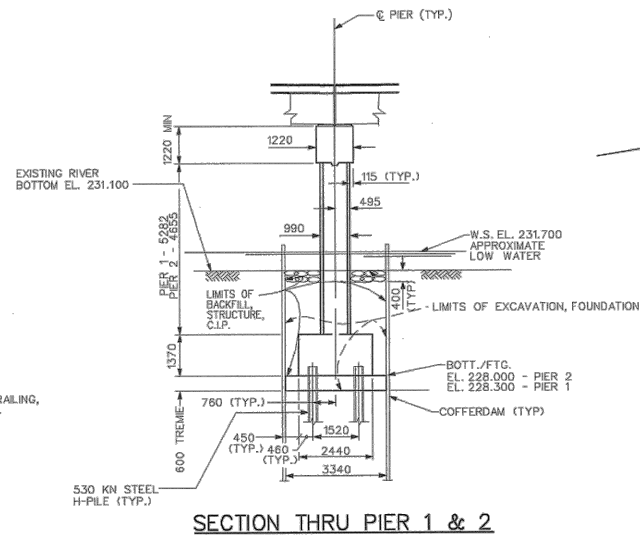
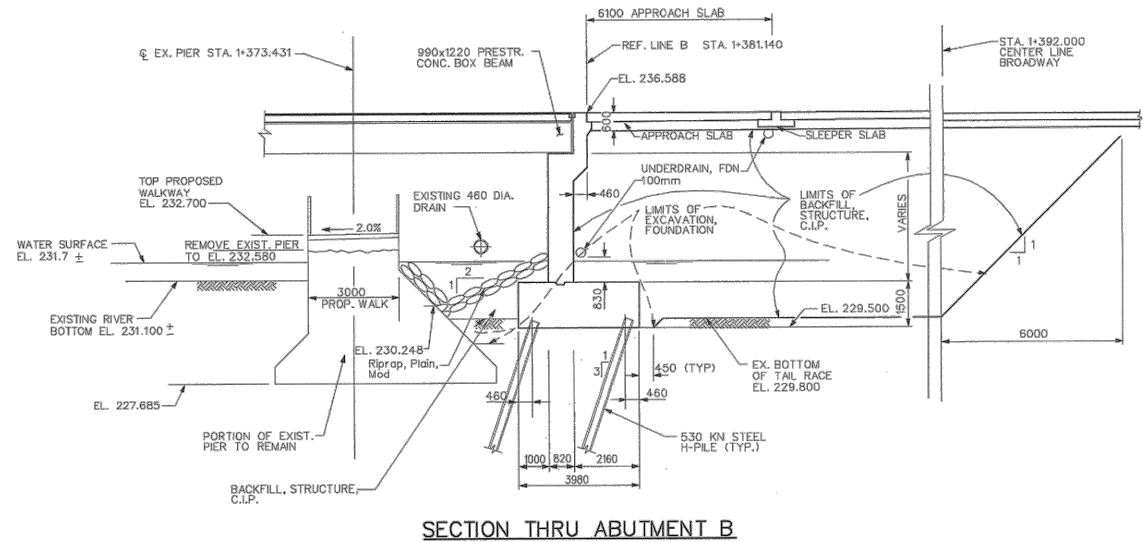
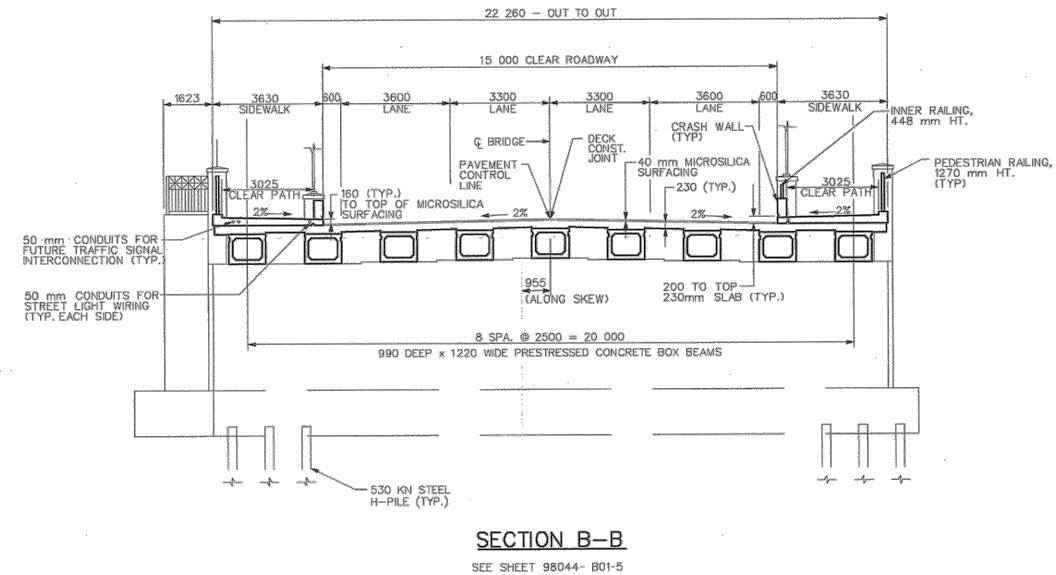
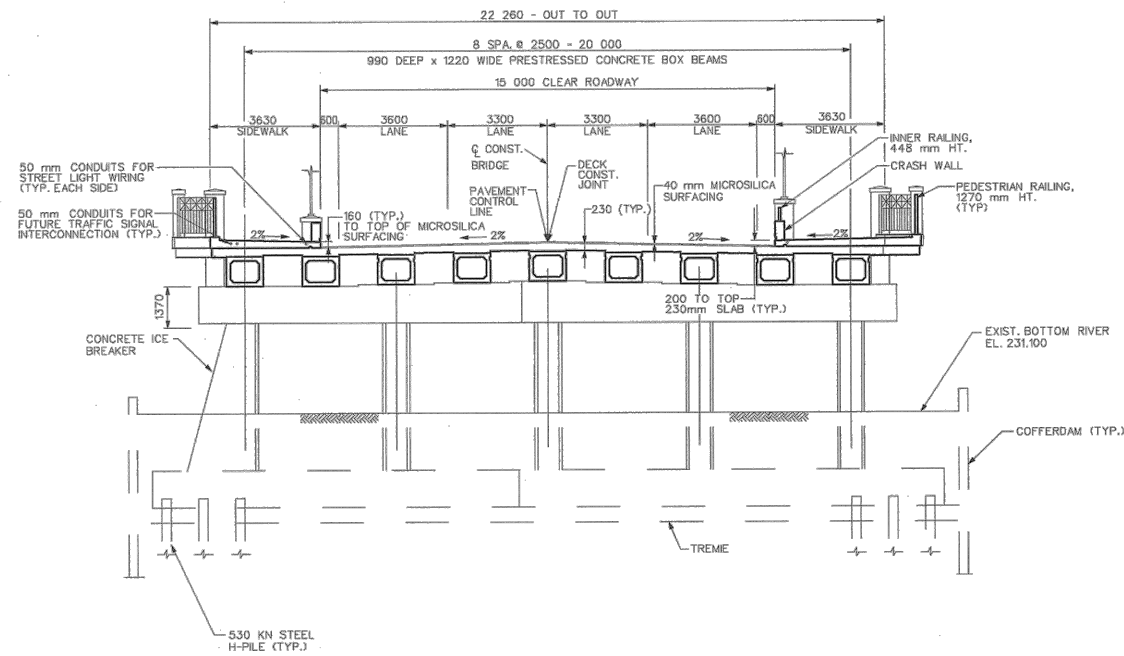
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DRAWING NO. **98044-801-5**

SHEET NO. 279 OF 334

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FILE NAME: \\FTCHALL\PROJECTS\2019\80044\81\CD\DD\WORKING\ROADWAY_COVER_HURON_DECK_EXIST_002.DWG



NOTE: Backfill, Structure, CIP is paid for on Sheet 98044-B01-5

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ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER HURON RIVER
1801 OF 81102A1
GENERAL PLAN OF STRUCTURE

SCALE: 1:100
DRAWING NO. 98044-B01-6
SHEET NO. 280 OF 334

LEGEND		EXISTING TELEPHONE		EXISTING RD. & GRADE		PROPOSED SANITARY SEWER & MANHOLE		PROPOSED CURB & GUTTER	
EXISTING FENCE	---	EXISTING TELEPHONE	---	EXISTING RD. & GRADE	---	PROPOSED SANITARY SEWER & MANHOLE	---	PROPOSED CURB & GUTTER	---
CONTOUR	---	GAS LINE	---	LEFT EDGE/RO. GRADE	---	STORM SEWER & CAT. BAS.	---	WATER MAIN W/P.F.R. ASSEM.	---
STORM SEWER & CAT. BAS.	---	CABLE T.V.	---	RIGHT EDGE/RO. GRADE	---	WATER MAIN W/P.F.R. ASSEM.	---	CONTOUR	---
WATER MAIN & VALVE-IN-BELL	---	ELECTRIC	---	CURB & GUTTER	---	CONTOUR	---	ROAD & GRADE	---
WATER MAIN & VALVE-IN-BOX	---	SIGN	---	EDGE/GRAVEL	---	ROAD & GRADE	---		
END SECTION	---								

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
		4	AS-BUILT	3/24/05	KV	REL
		3	FINAL MDT REVIEW	05/03/02	K.B.	CLR
			FINAL REVIEW SUBMITTAL	11/21/01		
			G.I. SUBMITTAL	01/01		

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BROADWAY OVER HURON RIVER

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REV.	DATE	DRAWN	CHECKED

DESCRIPTION

REV.

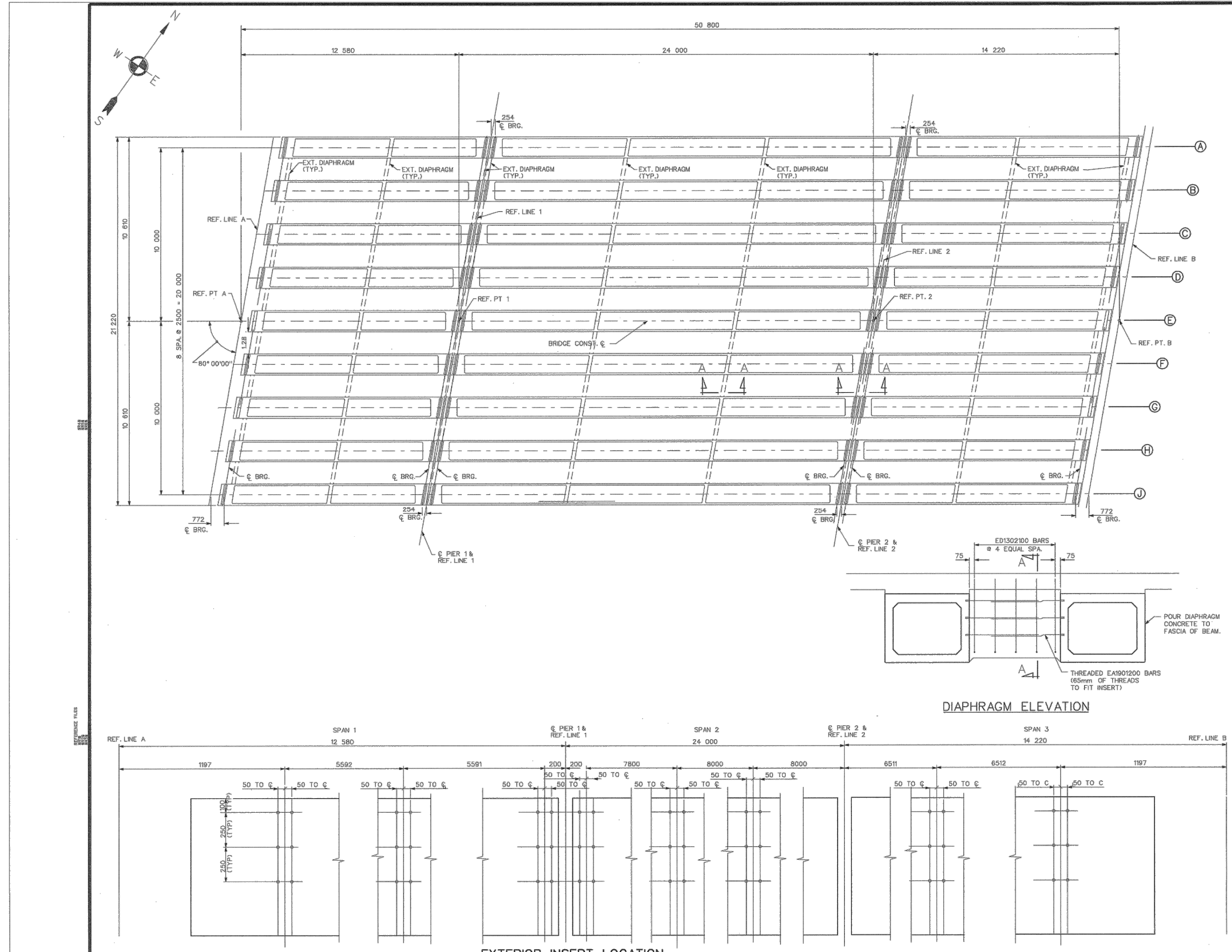
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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

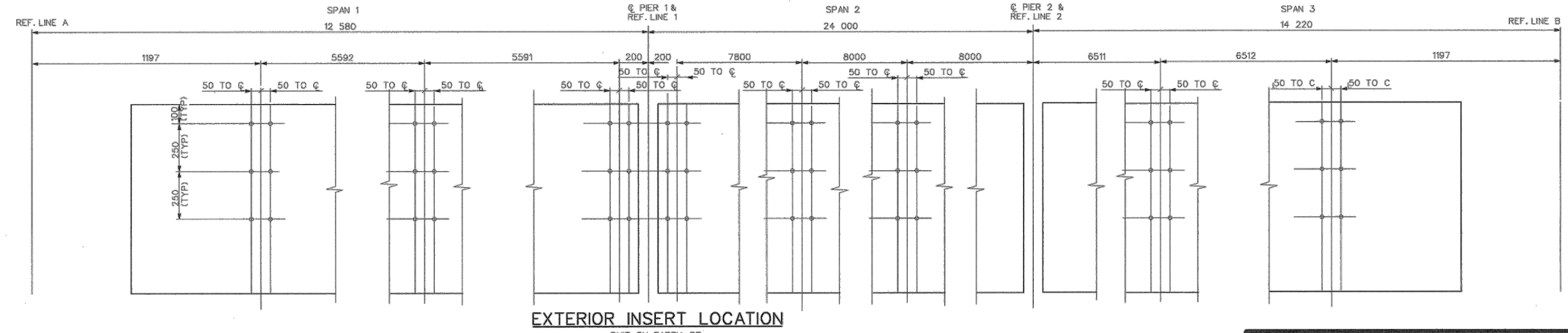
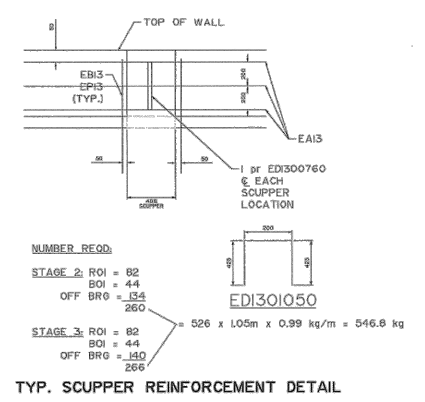
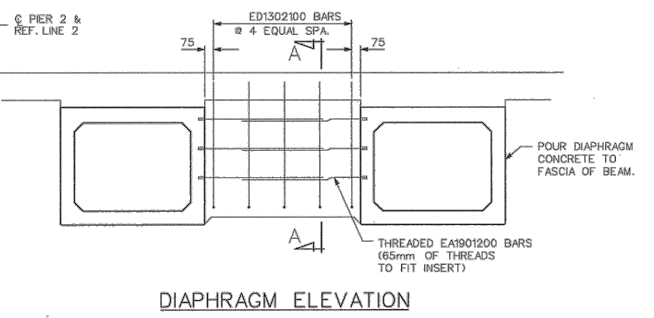
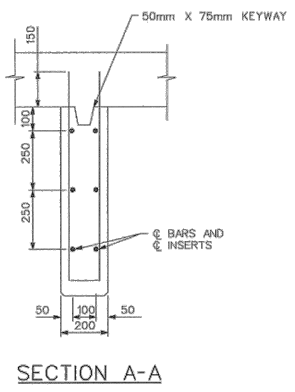
SCALE: NO SCALE
DRAWING No. 2020-025

SHEET No. 55 of 87

FILE NAME: I:\FCHALL\PROJECTS\2019\80381\CAD\CADD\WORKING\ROADWAY_OVER_HURON_DECK_EXIST_003.DWG



NOTES:
 PRESTRESSING STRANDS SHALL BE GIVEN AN INITIAL PRESTRESS AS FOLLOWS:
 1. 24 mm DIA. - 195 kN PRESTRESS
 CONCRETE INSERTS SHALL BE PARALLEL TO REF. LINE AND 10mm DIAMETER RICHMOND, TYPE T2 OR TYPE TL2FI DAYTON SUPERIOR, TYPE B-1 HEAVY OR TYPE B-1B WILLIAMS, TYPE C-12 OR TYPE C-18 MEADOW STEEL, TYPE CT-2 OR TYPE C-44 OR EQUAL.
 TOTAL ESTIMATED CHANGE OF LENGTH OF BOTTOM FLANGE AT TRANSFER OF PRESTRESS FORCE IS: SPAN 1 - 3 mm, SPAN 2 - 14mm, SPAN 3 - 3mm.
 THE ESTIMATED BEAM CAMBER AT RELEASE IS SPAN 1 - 3 mm, SPAN 2 - 44 mm, SPAN 3 - 3 mm.
 THIS CAMBER IS DUE TO PRESTRESS AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.
 THREADING OF REINFORCEMENT AND INSTALLATION INTO CONCRETE INSERTS IS INCLUDED IN THE BID ITEM "PRESTRESSED CONCRETE BOX BEAM, FURNISHED, 990mm".
 LIFTING DEVICES SHALL BE REMOVED AFTER BEAMS ARE ERECTED. REMOVAL IS INCLUDED IN THE BID ITEM "PRESTRESSED CONCRETE BOX BEAM, ERECTED, 990mm".
 POSITION DOWELS SHALL BE HOT-DIP GALVANIZED ACCORDING TO AASHTO M 232. POSITION DOWELS ARE INCLUDED IN PAYMENT FOR "PRESTRESSED CONCRETE BOX BEAMS, FURNISHED, 990mm".
 PRESTRESSING STRAND SHALL BE 15.24mm NOMINAL DIAMETER MEETING THE REQUIREMENTS OF ASTM A416M, GRADE 1860, LOW RELAXATION STRAND.



LEGEND

EXISTING FENCE	EXISTING SANITARY SEWER & MANHOLE	EXISTING TELEPHONE	EXISTING RD. & GRADE	PROPOSED SANITARY SEWER & MANHOLE	PROPOSED CURB & GUTTER
CONTOUR	UTILITY POLE & GUY	GAS LINE	LEFT EDGE/RO. GRADE	STORM SEWER & CAT. BAS.	BENCH MARK
STORM SEWER & CAT. BAS.	FIRE HYDRANT ASSEMBLY	CABLE T.V.	RIGHT EDGE/RO. GRADE	WATER MAIN W/P.H. ASSEM.	SURVEY BOOK
WATER MAIN & VALVE-IN-WELL	LIGHT POLE	ELECTRIC SIGN	CURB & GUTTER	CONTOUR	REV. NO.
WATER MAIN & VALVE-IN-BOX	END SECTION		EDGE/GRAVEL	ROAD & GRADE	DESCRIPTION

REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
4	NO AS-BUILT NEEDED	3/24/05	KV	REL.
3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR.
	FINAL REVIEW SUBMITTAL	11/21/01		
	G.J. SUBMITTAL	01/01		

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BROADWAY BRIDGES RECONSTRUCTION PROJECT
 BROADWAY OVER HURON RIVER (801 OF 81102A)
 BOX BEAM DETAILS

SCALE: 1"=10'

DRAWING NO. **98044-B01-34**
 SHEET NO. 3 OF 334

APPROVED BY: _____

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BROADWAY OVER HURON RIVER

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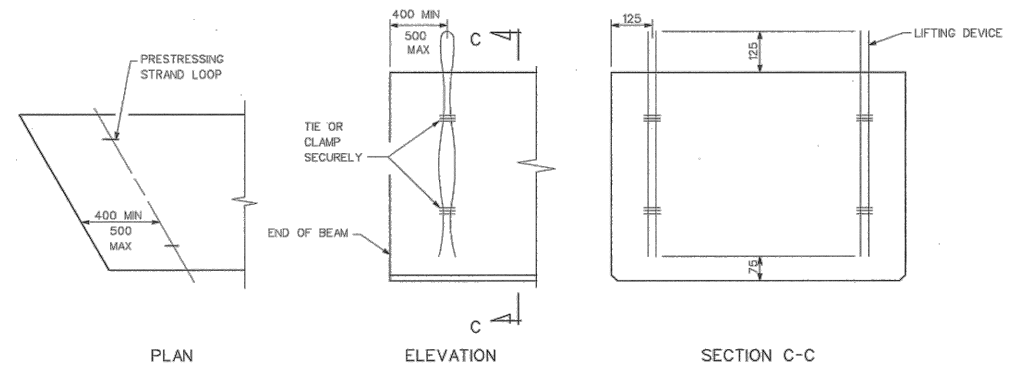
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 EXISTING BOX BEAM DETAILS

SCALE: **NO SCALE**

DRAWING No. **2020-025**

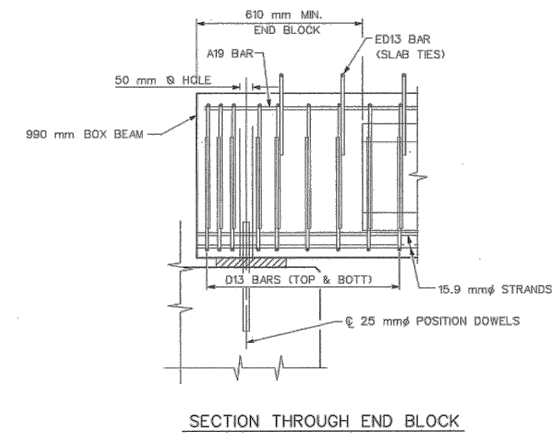
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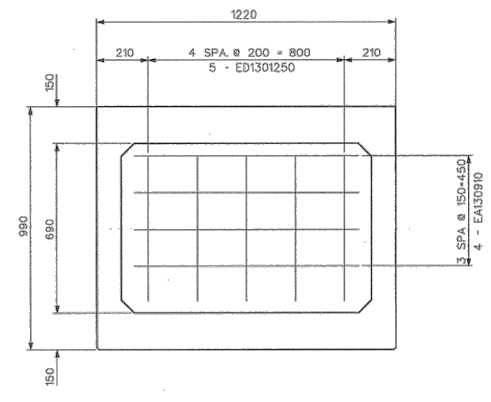


DETAILS OF LIFTING DEVICE

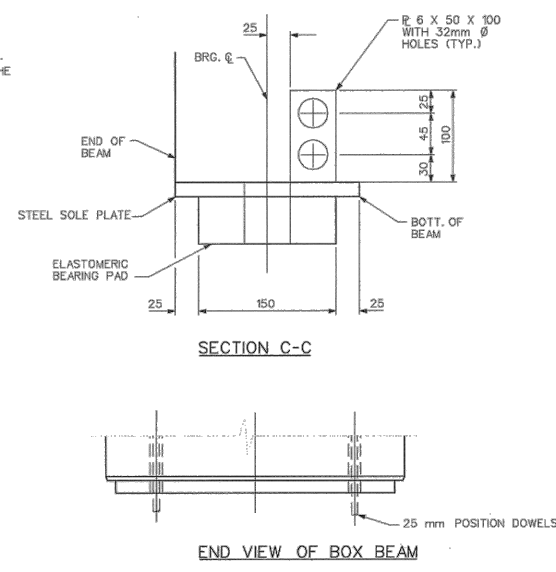
NOTE: LIFTING OF BEAM SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES. OTHER TYPES OF LIFTING DEVICES MAY BE USED SUBJECT TO APPROVAL BY THE ENGINEER.



SECTION THROUGH END BLOCK



INTERIOR DIAPHRAGM DETAILS



SECTION C-C

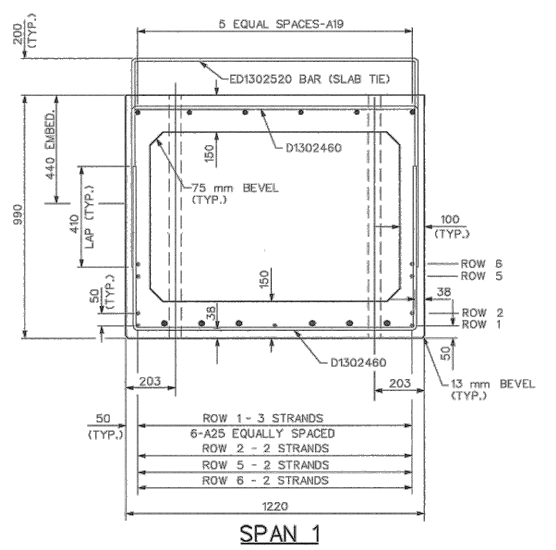
END VIEW OF BOX BEAM

TILT OF SOLE PLATE IN %

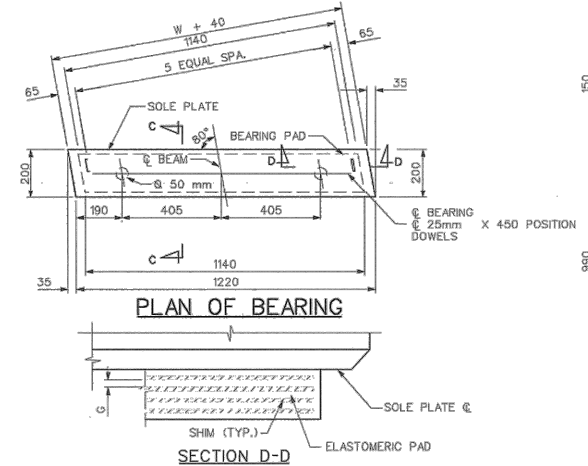
GIRDER	ABUT A		PIER 1		PIER 2		ABUT B	
	SPAN 1	SPAN 2	SPAN 1	SPAN 2	SPAN 1	SPAN 2	SPAN 1	SPAN 2
A	3.67	3.67	2.67	2.67	1.62	1.62		
B	3.69	3.69	2.69	2.69	1.64	1.64		
C	3.71	3.71	2.71	2.71	1.67	1.67		
D	3.74	3.74	2.74	2.74	1.69	1.69		
E	3.76	3.76	2.76	2.76	1.72	1.72		
F	3.79	3.79	2.79	2.79	1.74	1.74		
G	3.81	3.81	2.81	2.81	1.77	1.77		
H	3.84	3.84	2.84	2.84	1.79	1.79		
J	3.86	3.86	2.86	2.86	1.82	1.82		

ELASTOMERIC PAD & SOLE PLATE DIMENSIONS

	SPAN 1		SPAN 2		SPAN 3	
	ABUT A	PIER 1	PIER 1	PIER 2	PIER 2	ABUT B
L	150	150	150	150	150	150
W	1140	1140	1140	1140	1140	1140
THICKNESS	51	51	51	51	51	51
NO. OF INT. LAYERS	3	3	3	3	3	3
MIN. STEEL SOLE PL THICKNESS	20	20	20	20	20	20
STEEL SOLE PL LENGTH	1239	1239	1239	1239	1239	1239
STEEL SOLE PL WIDTH	200	200	200	200	200	200
COVER LAYER THICKNESS	6	6	6	6	6	6
INT. LAYER THICKNESS, G	9	9	9	9	9	9
SHIM THICKNESS	3	3	3	3	3	3



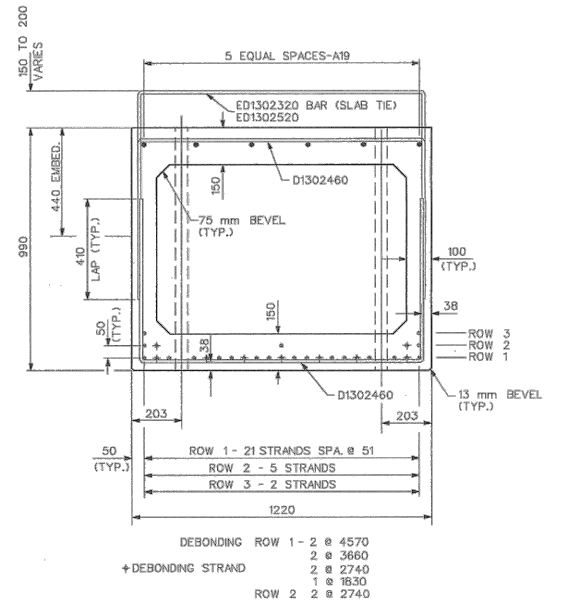
SPAN 1



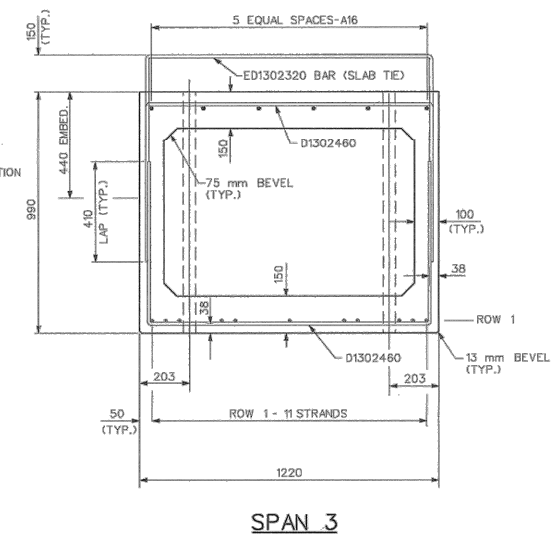
PLAN OF BEARING

SECTION D-D

NOTE: SOLE PLATE AND APPURTENANCES SHALL BE FABRICATED FROM A3670 M270 M GRADE 250 STRUCTURAL STEEL AND NOT-DIP GALVANIZED ACCORDING TO ASTM A232



SPAN 2



SPAN 3

PRESTRESSING STRAND LIFTING DEVICES

BEAM MASS (METRIC TONS)	STRAND SIZE (mm)	NO. OF STRANDS
18	9.53	2
24	11.11	2
33	12.7	2
27	9.53	3
37	11.11	3
49	12.7	3

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BROADWAY BRIDGES RECONSTRUCTION PROJECT
BROADWAY OVER HURON RIVER
1801 OF 811021A
BOX BEAMS DETAILS

SCALE: NTS
DRAWING No. 98044-B01-36
SHEET No. 310 OF 334

LEGEND

EXISTING FENCE	EXISTING SANITARY SEWER & MANHOLE	EXISTING TELEPHONE	EXISTING RD. & GRADE	PROPOSED SANITARY SEWER & MANHOLE	PROPOSED CURB & GUTTER
CONTOUR	UTILITY POLE & GUY	GAS LINE	LEFT EDGE/RD. GRADE	STORM SEWER & CAT. BAS.	
STORM SEWER & CAT. BAS.	FIRE HYDRANT ASSEMBLY	CABLE T.V.	RIGHT EDGE/RD. GRADE	WATER MAIN W/F. H. ASSEM.	
WATER MAIN & VALVE-IN-BELL	LIGHT POLE	ELECTRIC SIGN	CURB & GUTTER	CONTOUR	
WATER MAIN & VALVE-IN-BOX	END SECTION		EDGE/GRAVEL	ROAD & GRADE	

BENCH MARK	SURVEY BOOK	REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
		4	NO AS-BUILT NEEDED	3/24/05	KV	REL
		3	FINAL MDOT REVIEW	05/03/02	K.B.	CLR
			FINAL REVIEW SUBMITTAL	11/21/01		
			G.I. SUBMITTAL	01/01		

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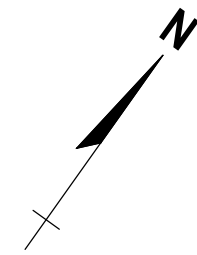
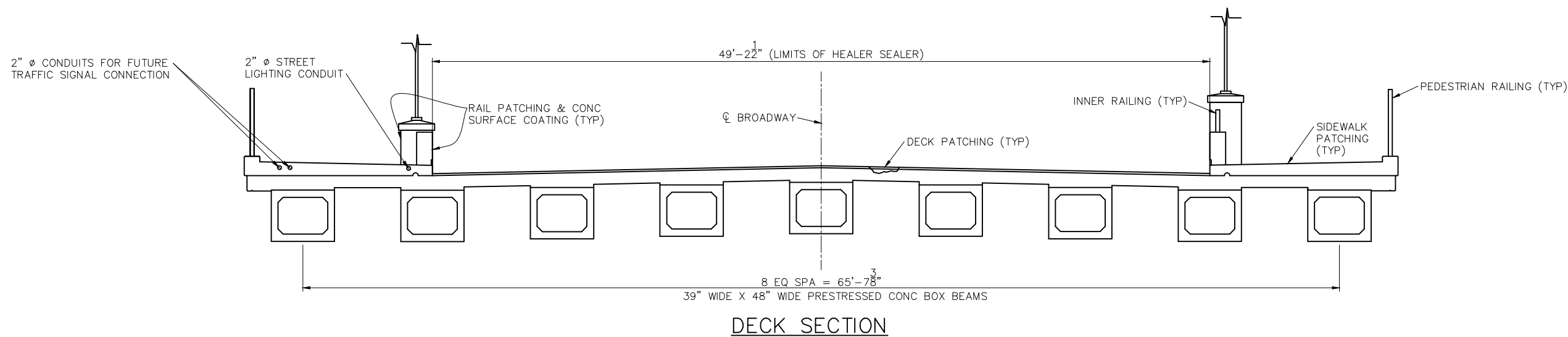
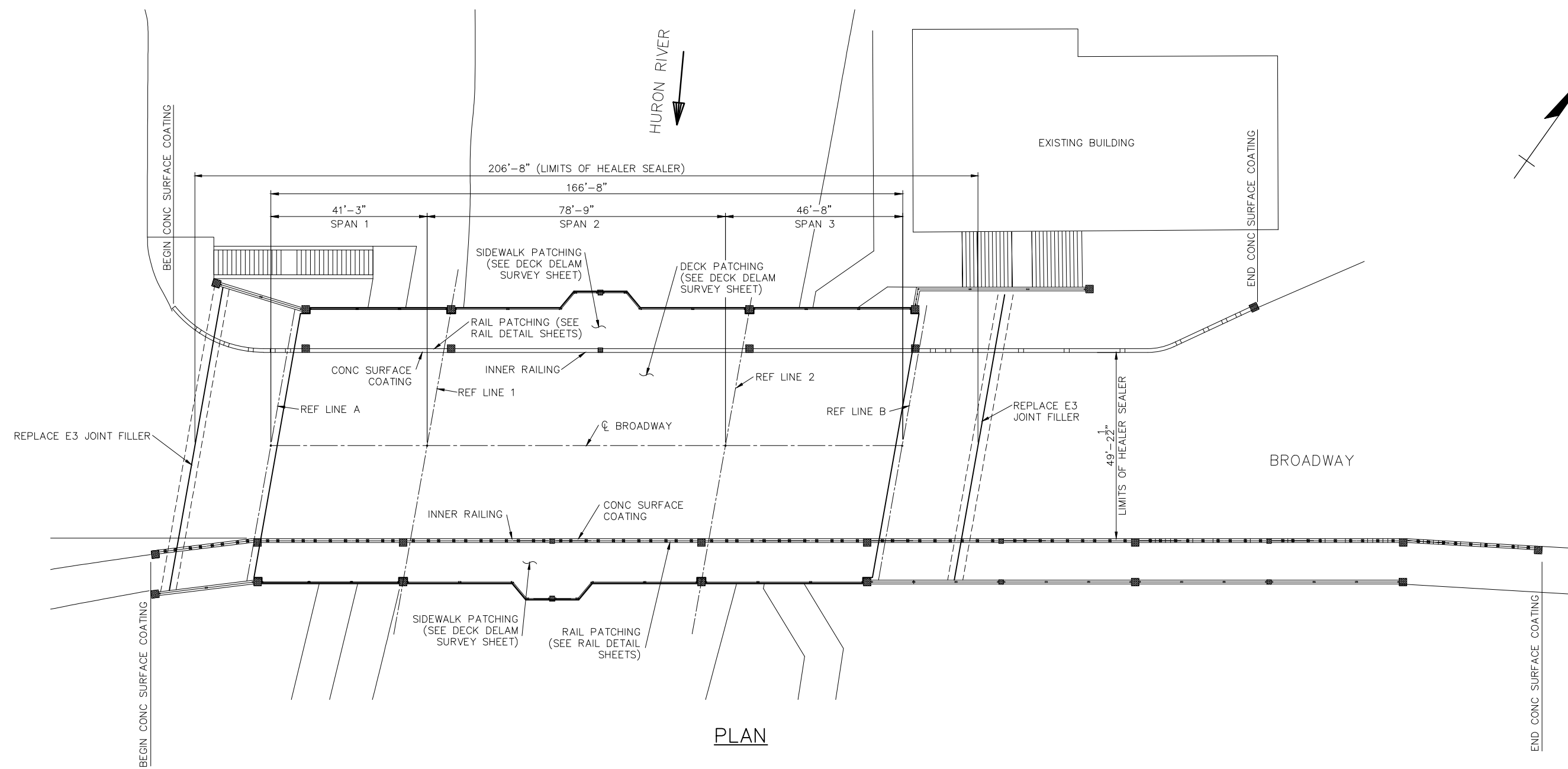
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING BOX BEAM DETAILS

SCALE: NO SCALE
DRAWING No. 98044-B01-36
SHEET No. 310 OF 334

PROJECT MANAGER: [Name]
DESIGNER: [Name]
CHECKED: [Name]
DATE: [Date]
DRAWN: [Name]

SHEET No. 57 of 87

FILE NAME: Z:\2020\09\87\CAD\CAD\2019\TO MLNBRDWAY_OVER_HURON_GPSTR_001.DWG

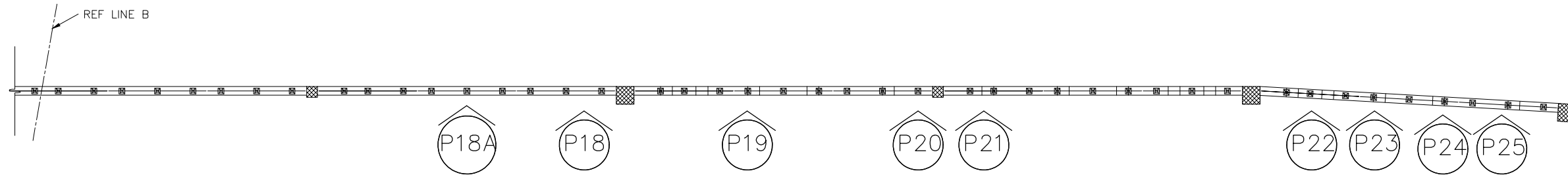


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<p>CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106-1687 734-794-6410 www.a2gov.org</p>	<table border="1"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>DRAWN</th> <th>CHECKED</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REV.	DESCRIPTION	DATE	DRAWN	CHECKED					
REV.	DESCRIPTION	DATE	DRAWN	CHECKED							
<p>PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS GENERAL PLAN OF STRUCTURE</p>											
<p>SCALE: NO SCALE</p>	<p>DRAWING No. 2020-025</p>										
<p>SHEET No. 58 of 87</p>											

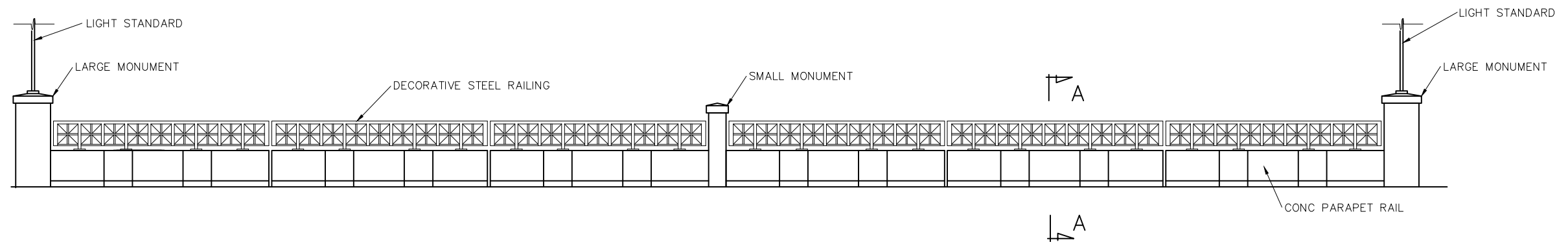
BROADWAY OVER HURON RIVER

LEGEND

P## = LOCATION OF RAIL PATCHES
SEE SHEET 34 FOR SPECIFIC
PATCH DIMENSIONS

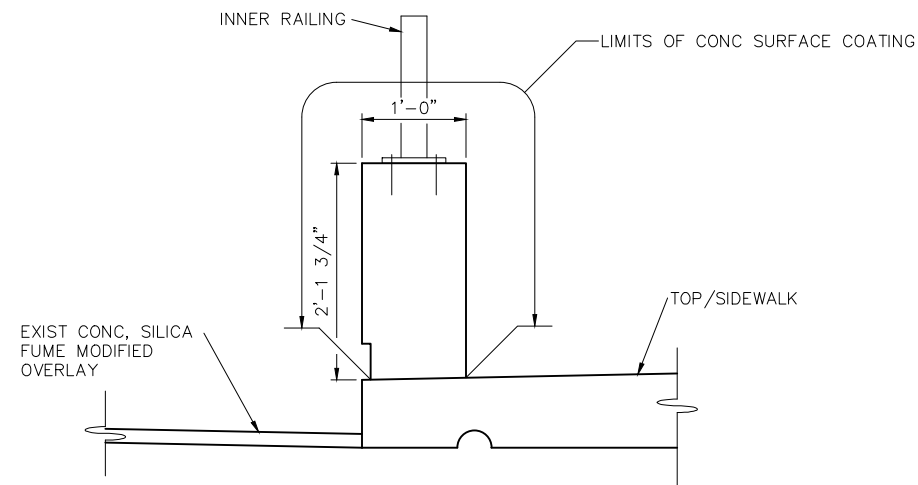


PLAN – SOUTH RAIL PATCHING LOCATIONS



ELEVATION – INNER RAIL

PROTECT EXIST MONUMENTS FROM APPLICATION OF CONC SURFACE COATING RAILING. ALL MEANS OF PROTECTION SHALL BE COMPLETELY EFFECTIVE (TYP ALL MONUMENTS).



SECTION A-A

NOTE:
IN ORDER TO PERFORM THE BARRIER RAIL REPAIRS, THE CONTRACTOR SHALL REMOVE, STORE, PROTECT, AND REPLACE WHEN THE PATCHES HAVE BEEN PROPERLY CURED, THE NEEDED METAL RAILING SEGMENTS. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ASSOCIATED ITEMS OF WORK.

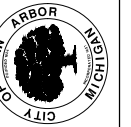
BROADWAY OVER HURON RIVER

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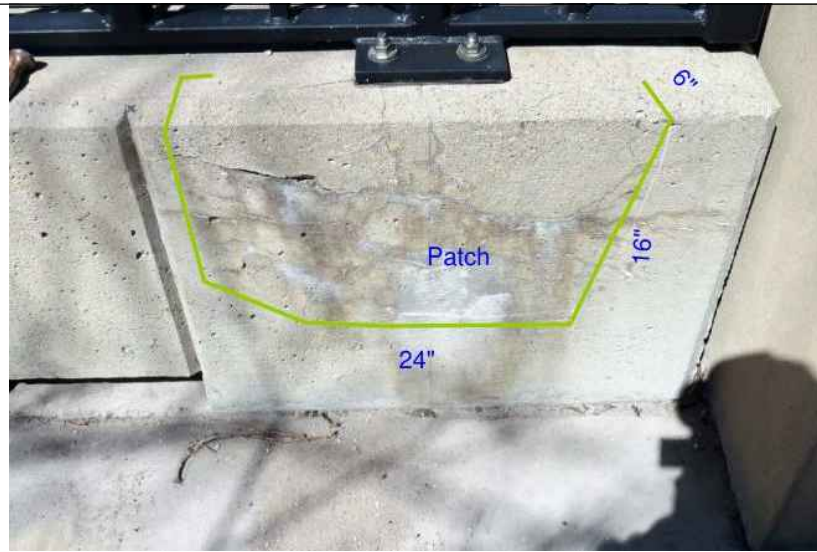
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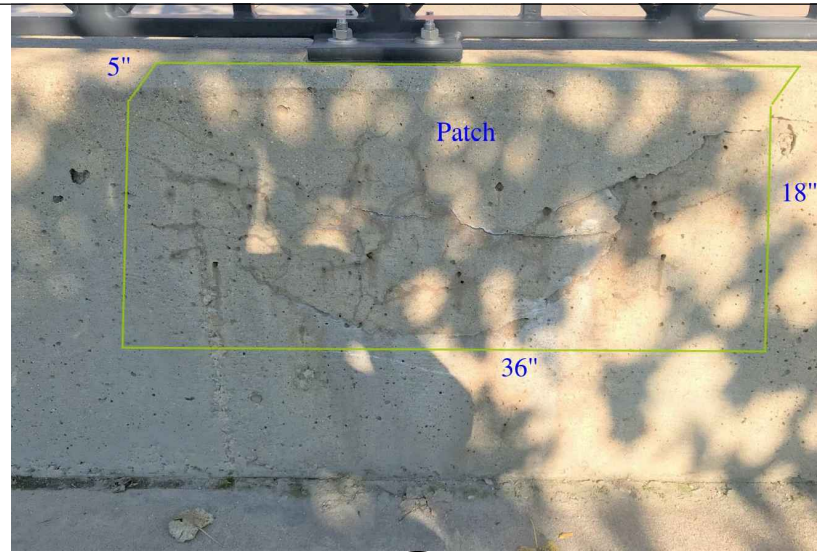


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONC RAIL PATCHING LOCATIONS

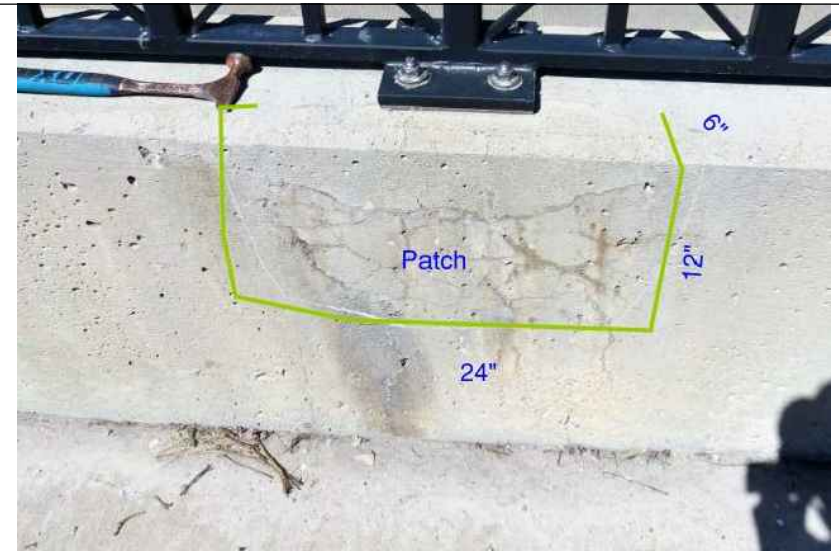
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DRAWING No. 2020-025



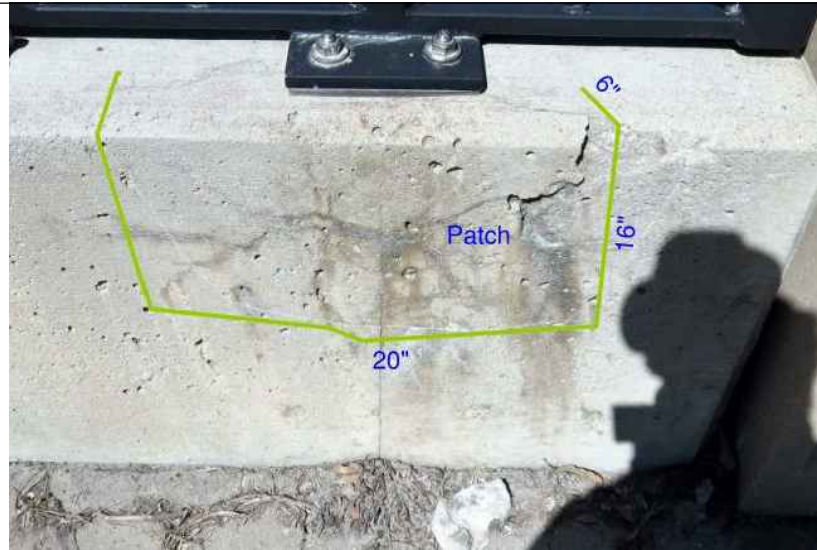
P18



P18A



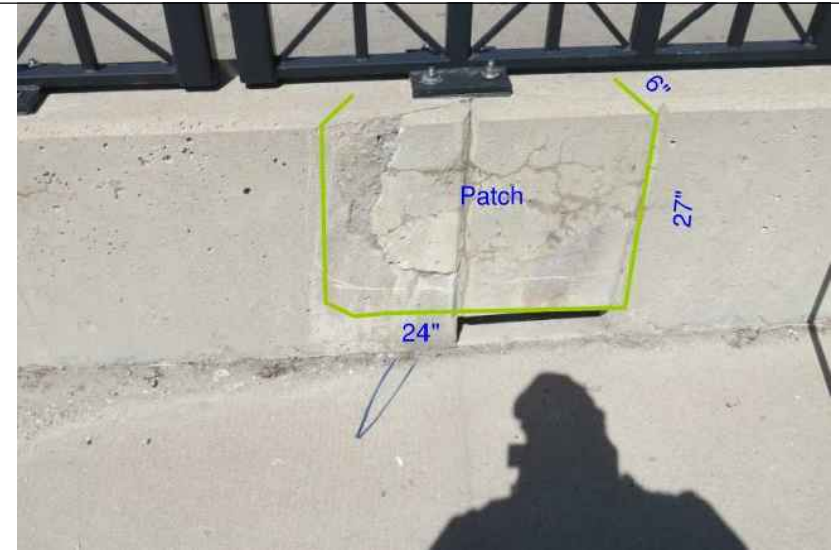
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P20



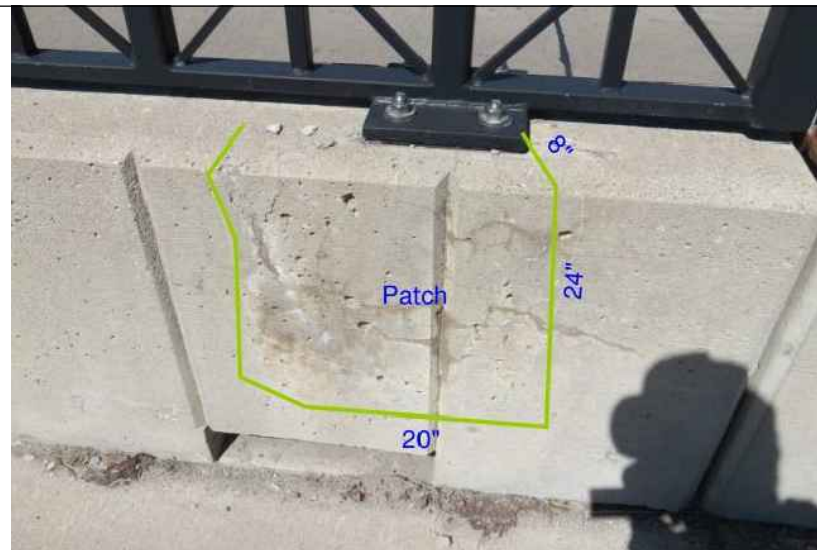
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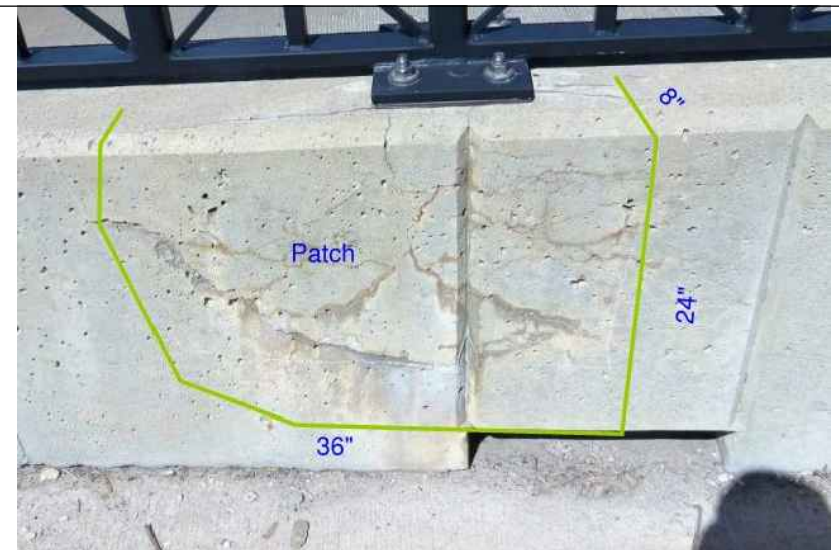
P22



P23



P24




P25

BROADWAY OVER HURON RIVER

FILE NAME: Z:\2020\09\7\CAD\CAD\2019\10 MLNBRDWAY_COVER_HURON_RAIL_002.DWG



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

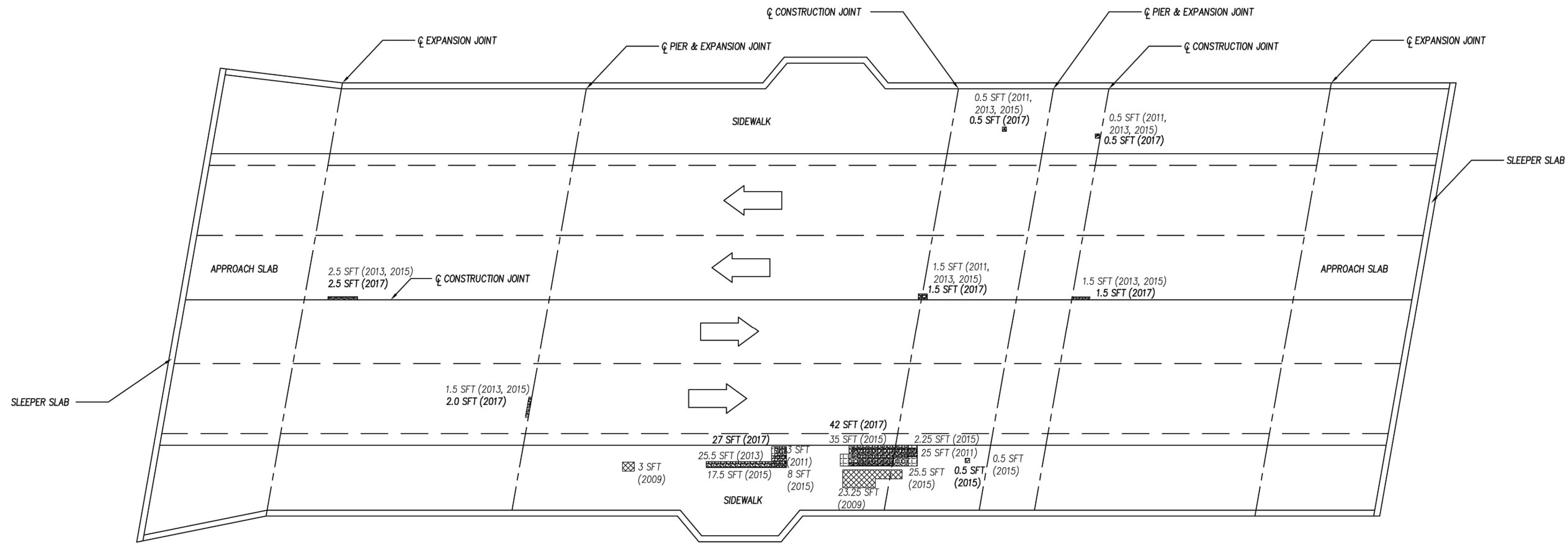


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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 CONC RAIL PATCHING LOCATIONS

SCALE: NO SCALE
 DRAWING No. 2020-025

FILE NAME: Z:\2020\09\87\CAD\CAD\2019\10 MLNBRDWAY_OVER_HURON_DECK_DELAM_SURVEY_001.DWG



PLAN OF DECK DEFICIENCIES

SIZES AND LOCATIONS OF DEFICIENCIES SHOWN ON THIS SHEET ARE APPROXIMATED FROM PREVIOUS DECK EVALUATION. CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF DEFICIENCIES AND PATCH AS DIRECTED BY THE ENGINEER. CONTRACTOR TO GIVE ENGINEER 36 HOURS TO VERIFY LIMITS OF PATCHING PRIOR TO PLACING PATCHING MATERIAL.

LEGEND:

- 2009 DECK DELAMINATION
- 2011 DECK DELAMINATIONS AND SPALLS
- 2013 DECK DELAMINATIONS AND SPALLS
- 2015 DECK DELAMINATIONS AND SPALLS
- 2017 DECK DELAMINATIONS AND SPALLS

2009 TOTAL DECK DELAMINATION = 26.25 SFT
 2011 TOTAL DECK DELAMINATION = 30.50 SFT
 2013 TOTAL DECK DELAMINATION = 51.0 SFT
 2015 TOTAL DECK DELAMINATION = 64.73 SFT
 2017 TOTAL DECK DELAMINATION = 73.73 SFT



BROADWAY BRIDGE OVER THE HURON RIVER
 DECK DELAMINATION SURVEY



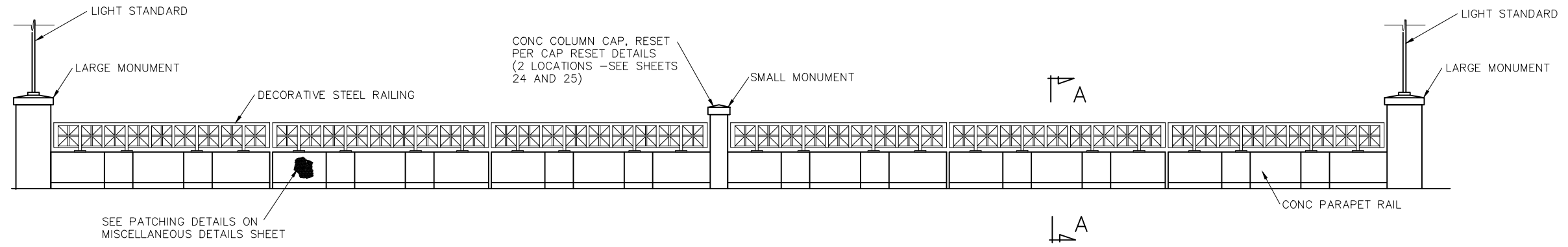
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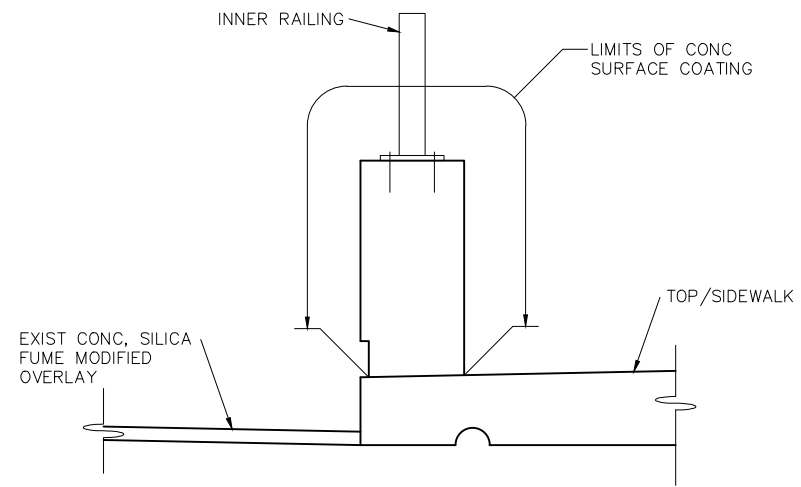
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 DECK DELAMINATION AND PATCHING PLAN

SCALE: NO SCALE
 DRAWING No. 2020-025

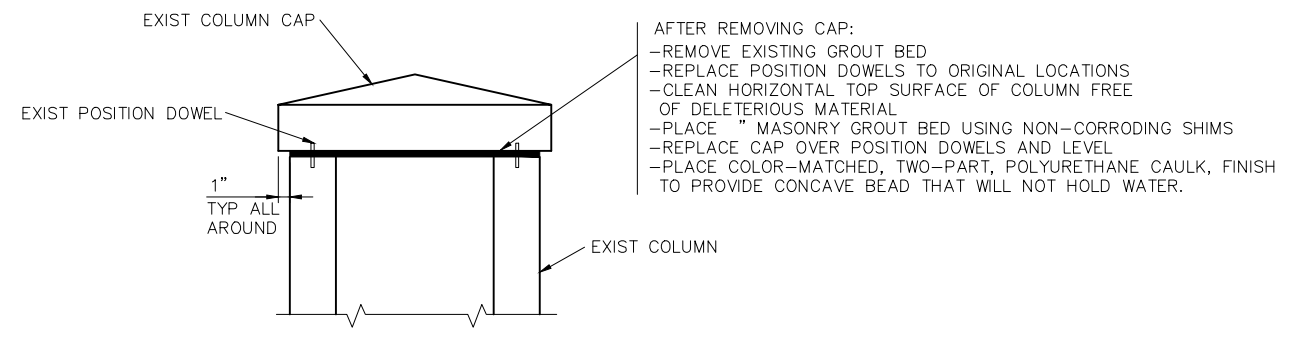


TYPICAL ELEVATION – INNER RAIL

PROTECT EXIST MONUMENTS FROM APPLICATION OF CONC SURFACE COATING RAILING. ALL MEANS OF PROTECTION SHOULD BE COMPLETELY EFFECTIVE (TYP ALL MONUMENTS).



SECTION A-A

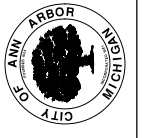


CAP RESET DETAIL



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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONCRETE RAIL REPAIR DETAILS

SCALE: NO SCALE
DRAWING No. 2020-025

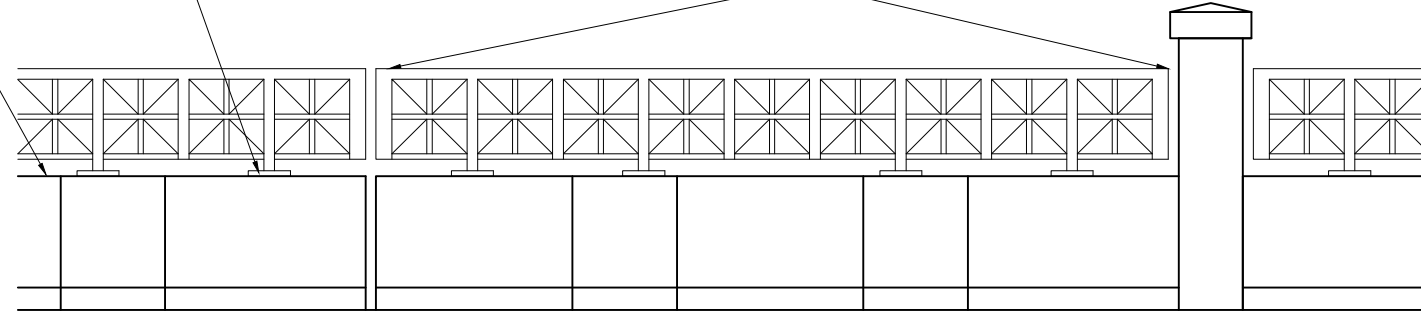
CONCRETE RAIL REPAIR DETAILS
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

FILE NAME: Z:\2020\09\7\CAD\CAD2019\TO MINIBROADWAY_OVER_DEPOT_RAIL_004.DWG

4 BOLTS PER POST FOUNDATION TO BE REMOVED AND REPLACED AFTER ANCHOR ADJUSTMENTS (TYP)

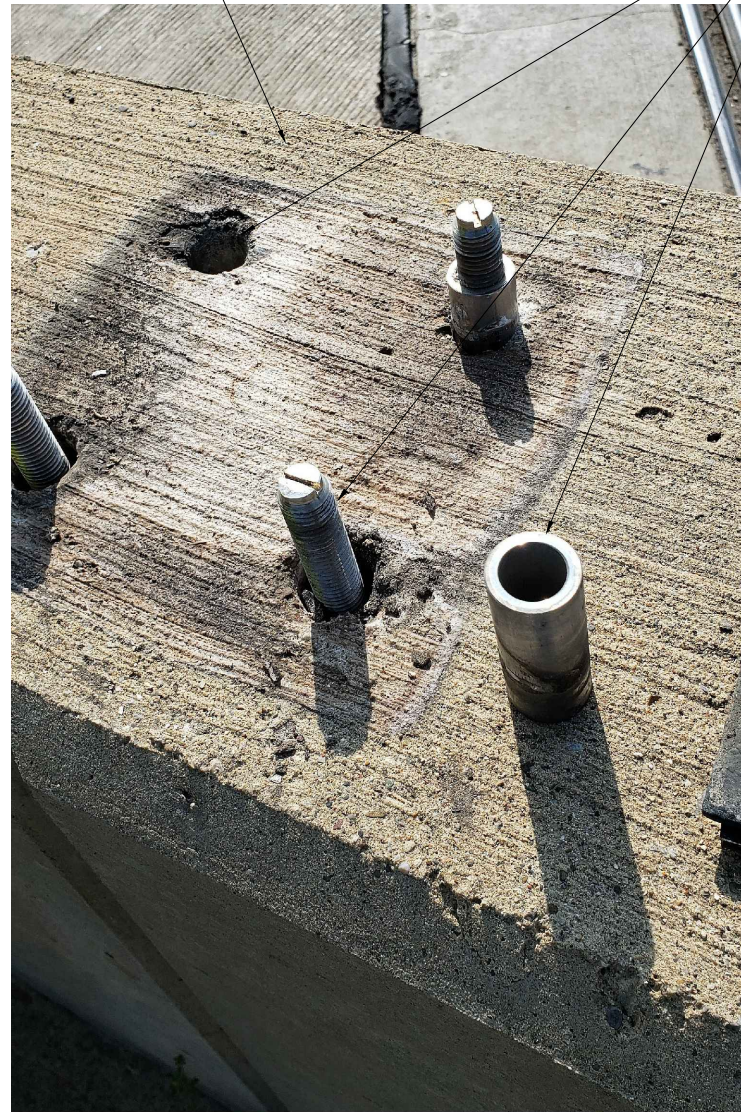
REMOVE, SALVAGE AND PROTECT RAILING SECTIONS BY FIRST REMOVING ALL ANCHOR NUTS FOR EACH SECTION

TOP OF CONCRETE PARAPET RAIL



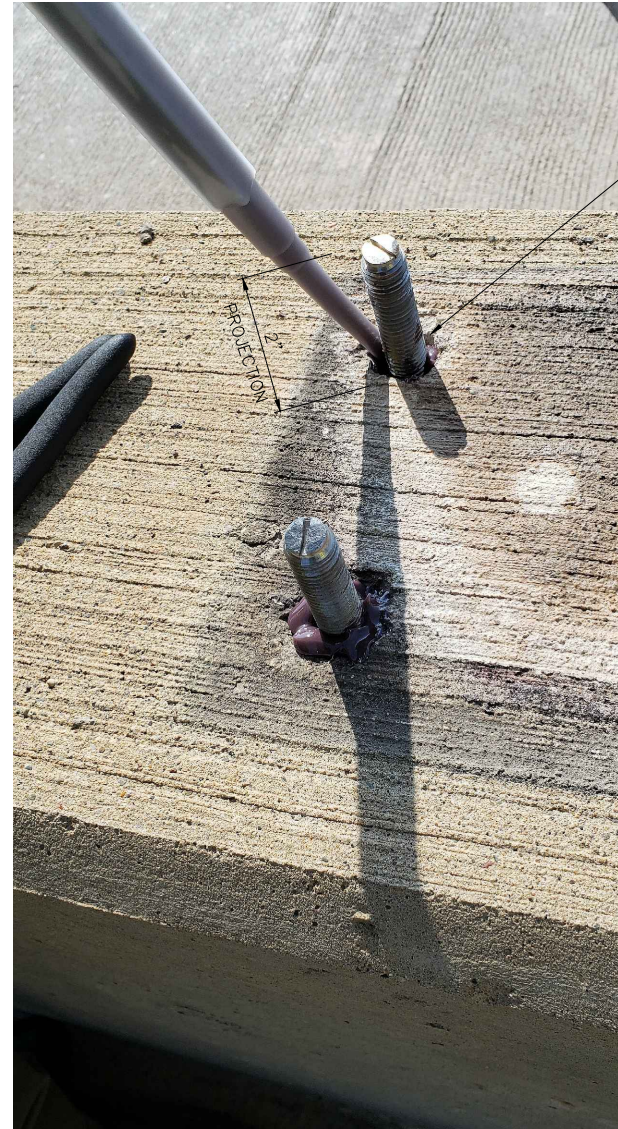
RAILING ELEVATION

TOP OF CONCRETE PARAPET RAIL



AFTER REMOVING METAL RAILING AND ?" BEARING PAD:

- REMOVE THREADED RODS
- REMOVE SLEEVES
- BLOW OUT HOLES WITH HIGH-PRESSURE AIR
- CLEAN THREADED RODS WITH WIRE BRUSH



PRIOR TO REINSTALLING METAL RAILING AND ?" BEARING PAD:

- REINSTALL THREADED RODS TO 2" PROJECTION ABOVE TOP OF CONCRETE
- DO NOT REINSTALL SLEEVES
- INJECT HILTI HIT-RE 100 ADHESIVE, FILLING VOID TO TOP OF CONCRETE
- TOOL ADHESIVE TO LEAVE SMOOTH SURFACE AT TOP OF CONCRETE FREE OF SURFACE VOIDS

ANCHOR ADJUSTMENT DETAILS

RAILING ANCHOR ADJUSTMENT DETAILS
(BROADWAY OVER DEPOT STREET AND MDOT RAILROAD & BROADWAY OVER HURON RIVER)

<p>811 Know what's below. Call before you dig.</p>	
	<p>CHECKED</p>
	<p>DRAWN</p>
	<p>DATE</p>
	<p>DESCRIPTION</p>
	<p>REV.</p>
<p>CITY OF ANN ARBOR PUBLIC SERVICE 301 EAST HURON STREET ANN ARBOR, MI 48106-1647 734-794-6410 www.a2gov.org</p>	
<p>PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS RAILING ANCHOR ADJUSTMENT DETAILS</p>	
<p>SCALE: NO SCALE</p>	<p>DRAWING No. 2020-025</p>
<p>SHEET No. 63 of 87</p>	

FULLER
LOT M-78



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

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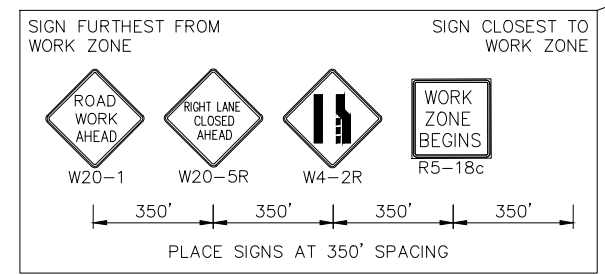
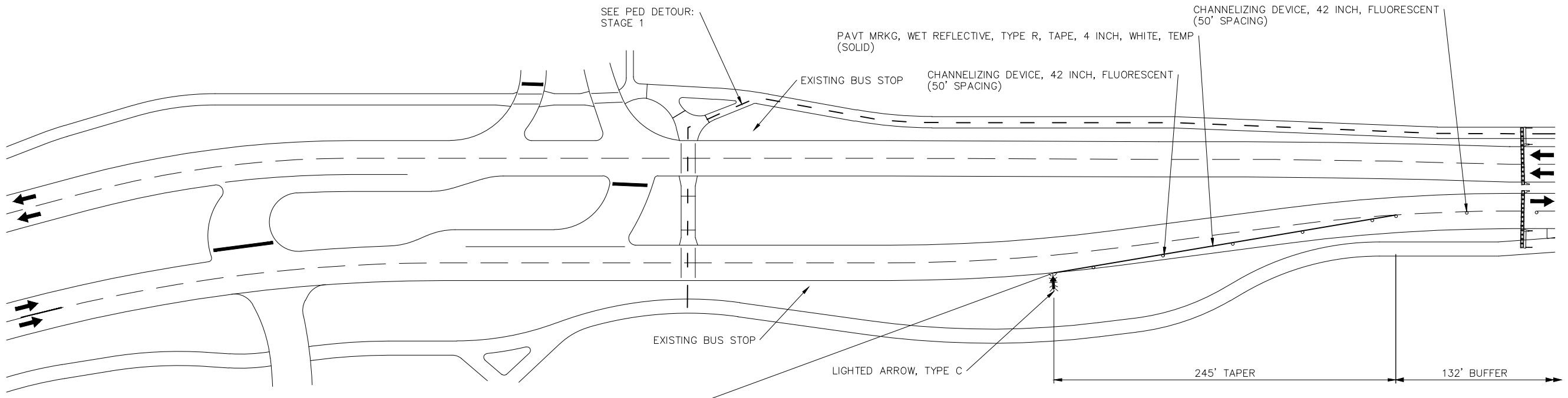


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80
PLAN (FT)
DRAWING No.
2020-025

FULLER RD

FULLER RD



STAGE 1
APPLIES: CLOSE EB OUTSIDE LANE AND SIDEWALK
DETOUR PEDS TO WB SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

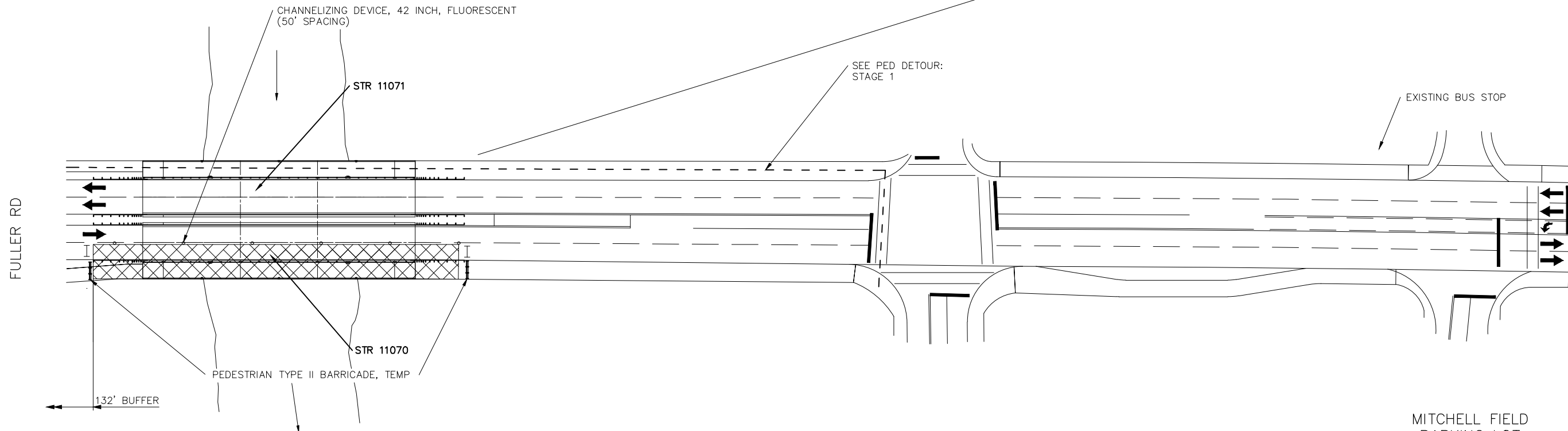
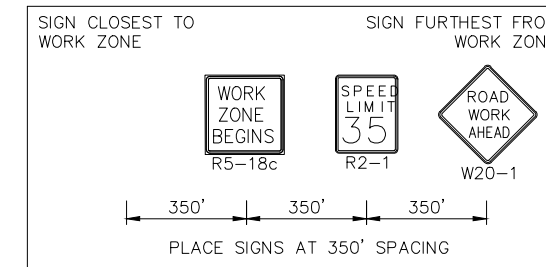
U OF M PARKING
YELLOW LOT

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)

HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



STAGE 1
 APPLIES: CLOSE EB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO WB SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

MAINTAINING TRAFFIC
 (FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2020\09\07\CAD\CAD\2019\10\10\MANFULLER1002_MOT - STAGE-1.DWG

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 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80
 PLAN (FT)
 DRAWING No.
 2020-025

SHEET No.
 65 of 87

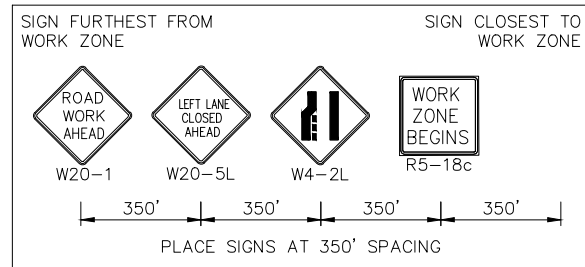
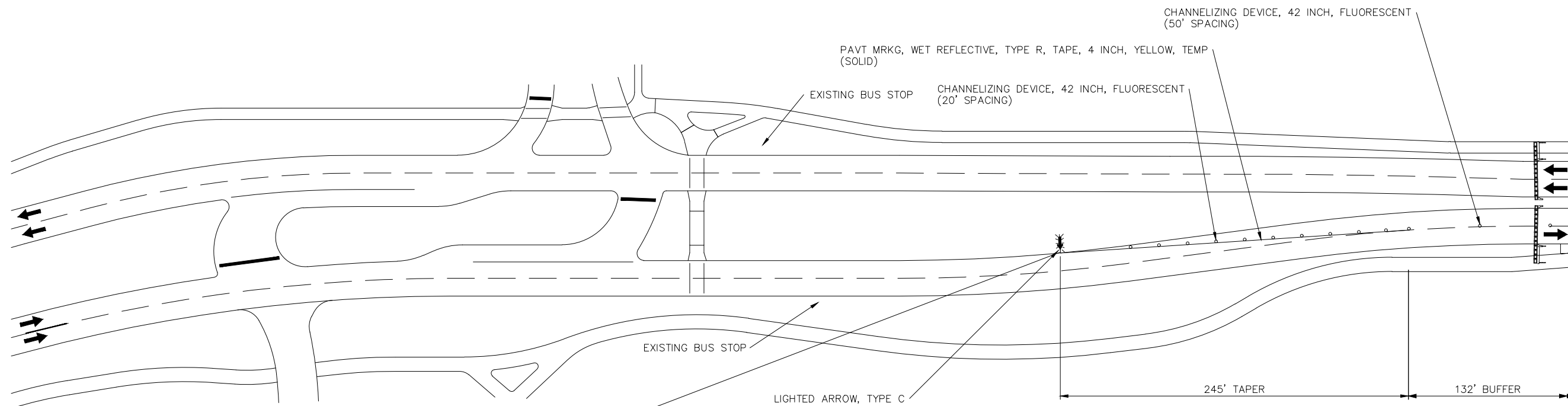
REV.	DESCRIPTION	DATE	DRAWN	CHECKED

FULLER
LOT M-78



FULLER RD

FULLER RD



STAGE 2
APPLIES: CLOSE EB AND WB INSIDE LANES

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)

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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80
PLAN (FT)
DRAWING No.
2020-025

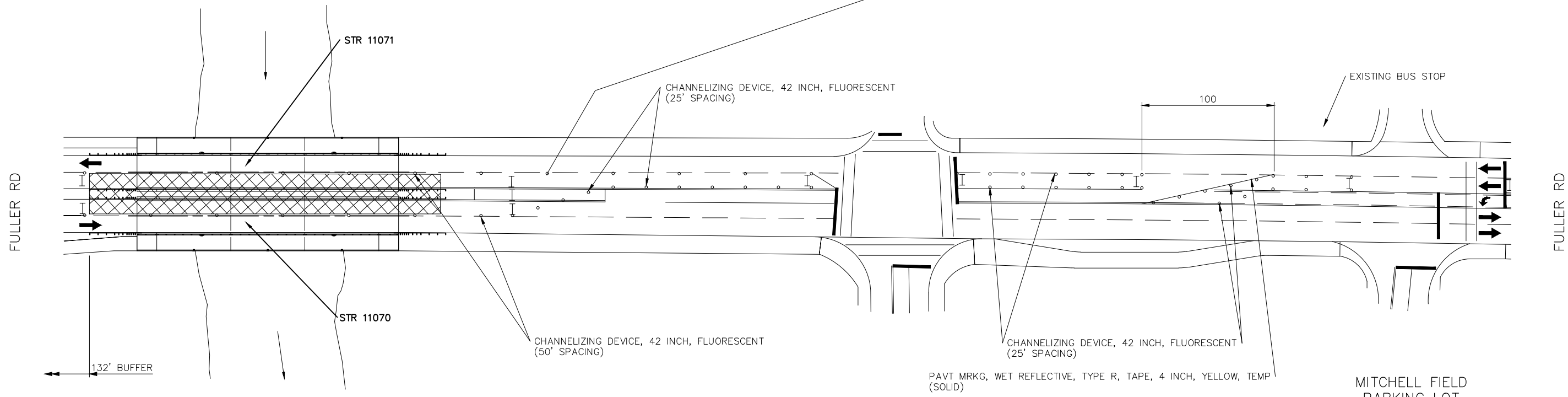
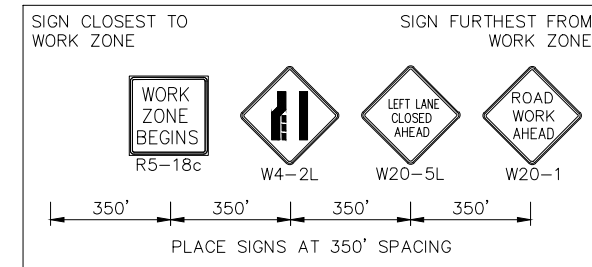
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66 of 87

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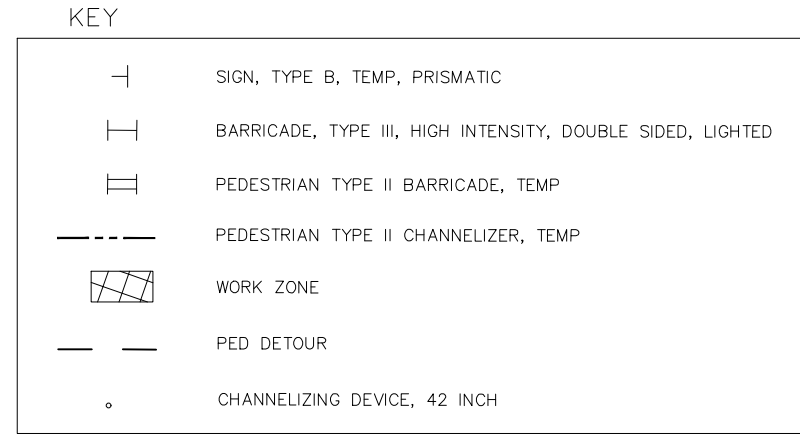
HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



STAGE 2
 APPLIES: CLOSE EB and WB INSIDE LANES



MAINTAINING TRAFFIC
 (FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2020\09\07\CAD\CAD\2019\10\10\MAIN\FULLER2020_MOT - STAGE2.DWG

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 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80
 PLAN (FT)

DRAWING No.
2020-025

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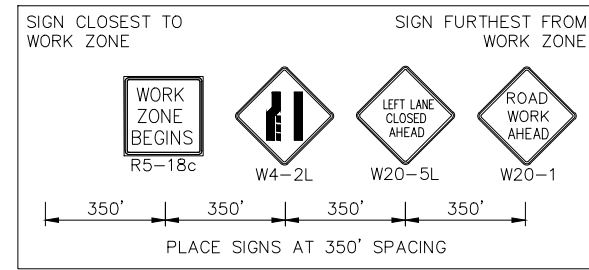
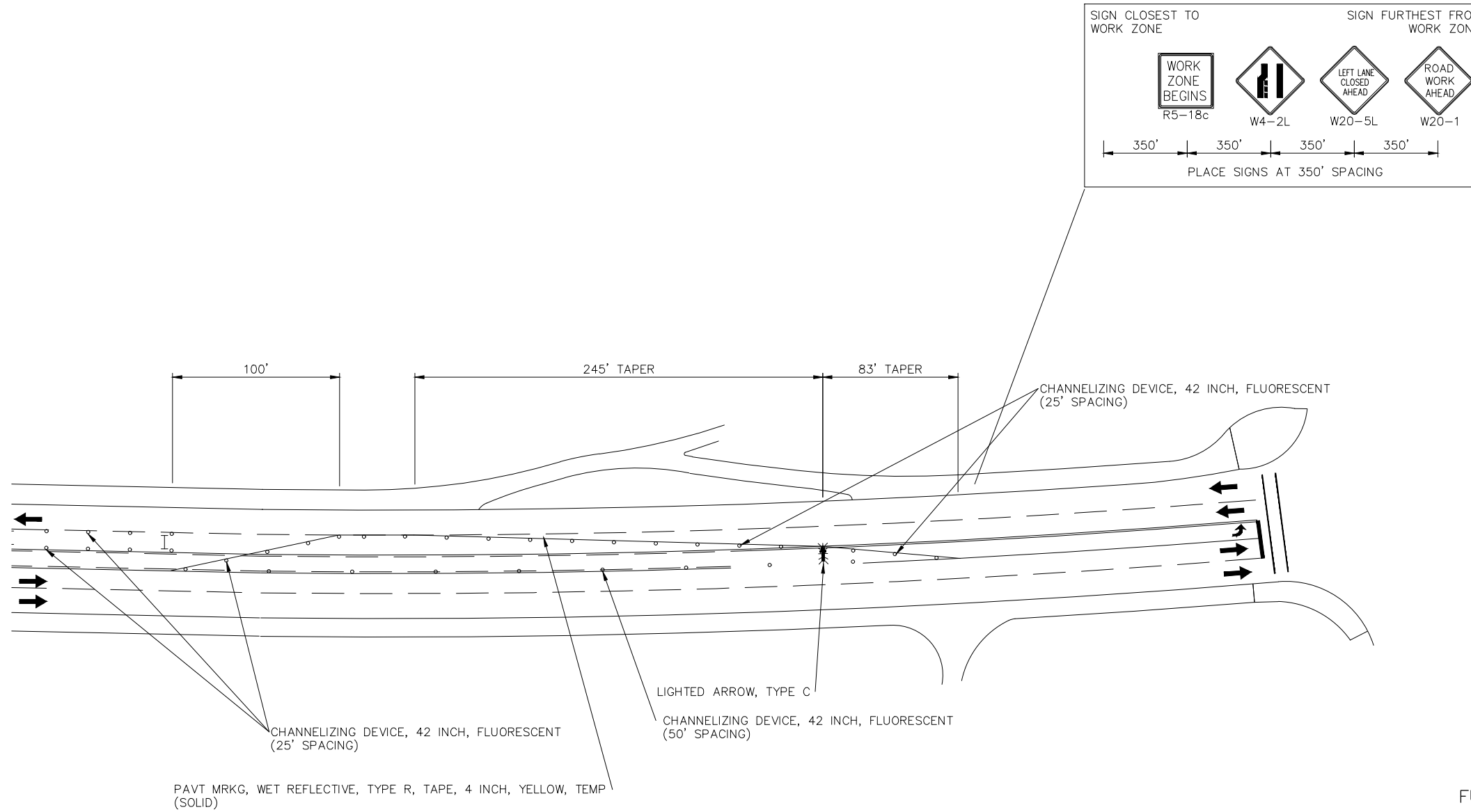
FULLER RD

BORDER TO
BORDER TRAIL

BONISTEEL BLVD

FULLER RD

FULLER CT

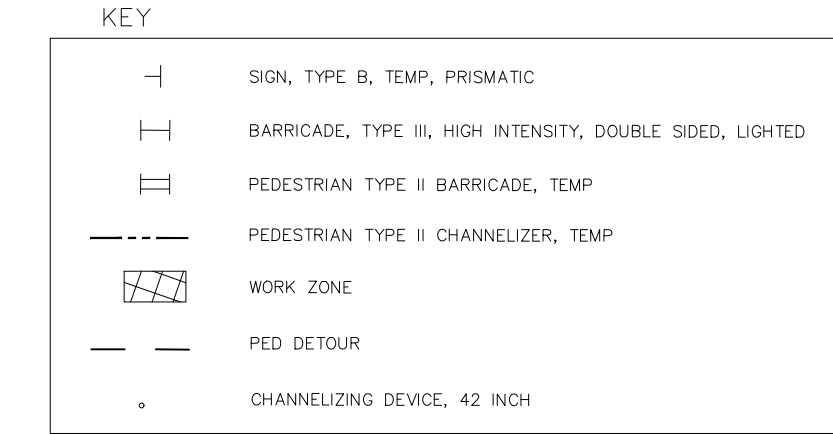


PAVT MRKG, WET REFLECTIVE, TYPE R, TAPE, 4 INCH, YELLOW, TEMP (SOLID)

LIGHTED ARROW, TYPE C

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (25' SPACING)

CHANNELIZING DEVICE, 42 INCH, FLUORESCENT (50' SPACING)



STAGE 2
APPLIES: CLOSE EB and WB INSIDE LANES

BORDER TO
BORDER TRAIL

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)



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CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC

SCALE: 0 80
PLAN (FT)

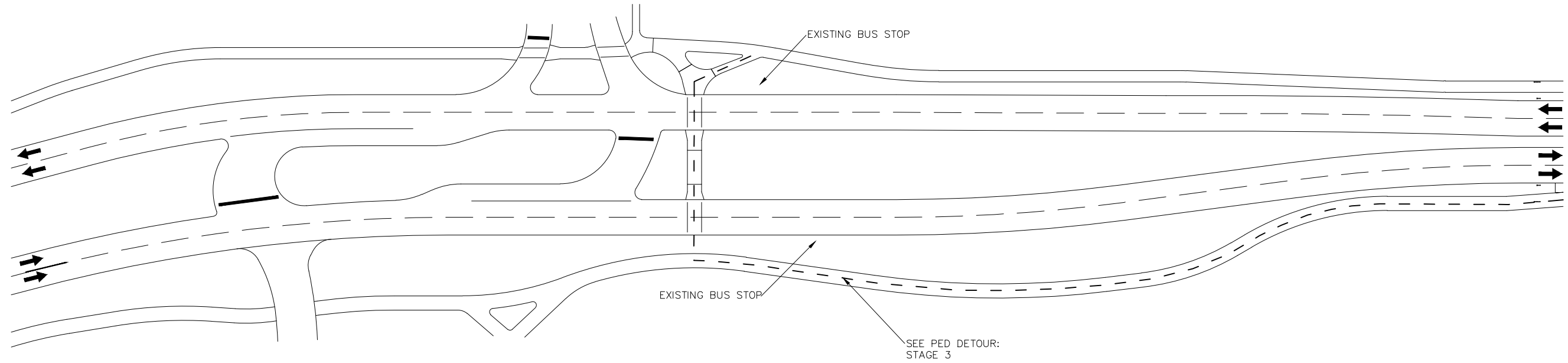
DRAWING No.
2020-025

FILE NAME: Z:\2020\09\67\CAD\CAD\2019\TO MAIN\FULLER001_JMOT - STAGE-3.DWG

FULLER
LOT M-78

FULLER RD

FULLER RD



STAGE 3
 APPLIES: CLOSE WB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO EB SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

MAINTAINING TRAFFIC
(FULLER ROAD OVER HURON RIVER)

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 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80
 PLAN (FT)

DRAWING No.
2020-025

HURON RIVER

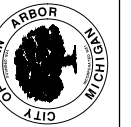
CEDAR BEND DR

NC78 PARKING LOT



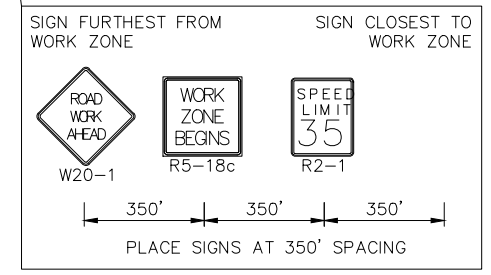
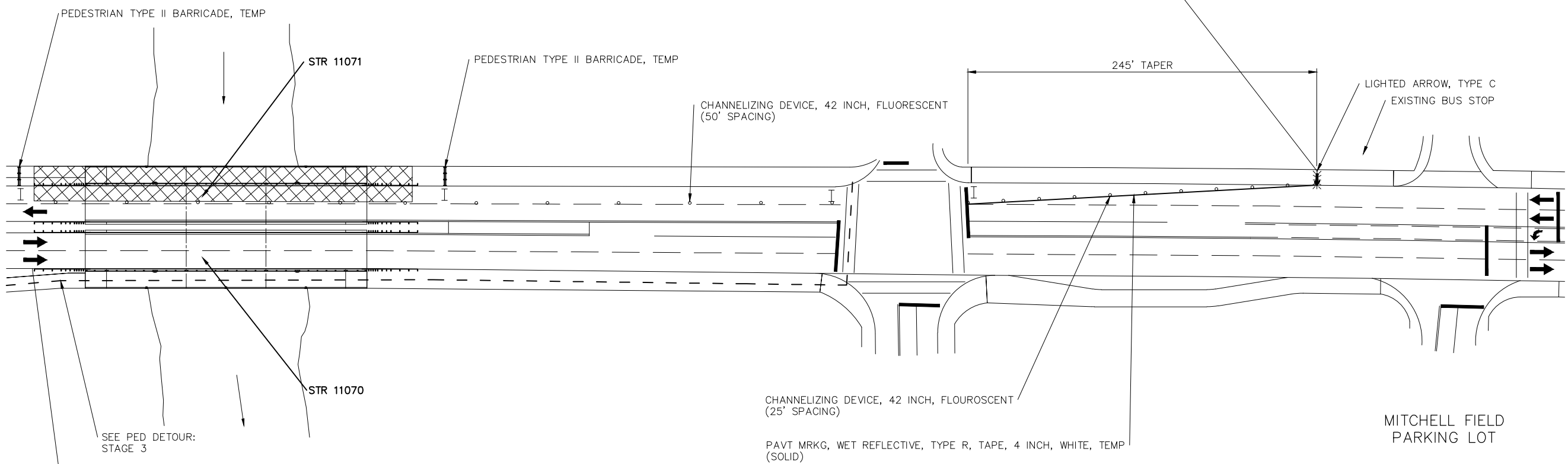
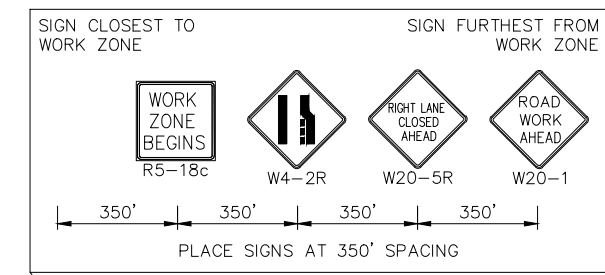
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 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 80
 PLAN (FT)
 DRAWING No.
2020-025



STAGE 3
 APPLIES: CLOSE WB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO EB SIDE

KEY

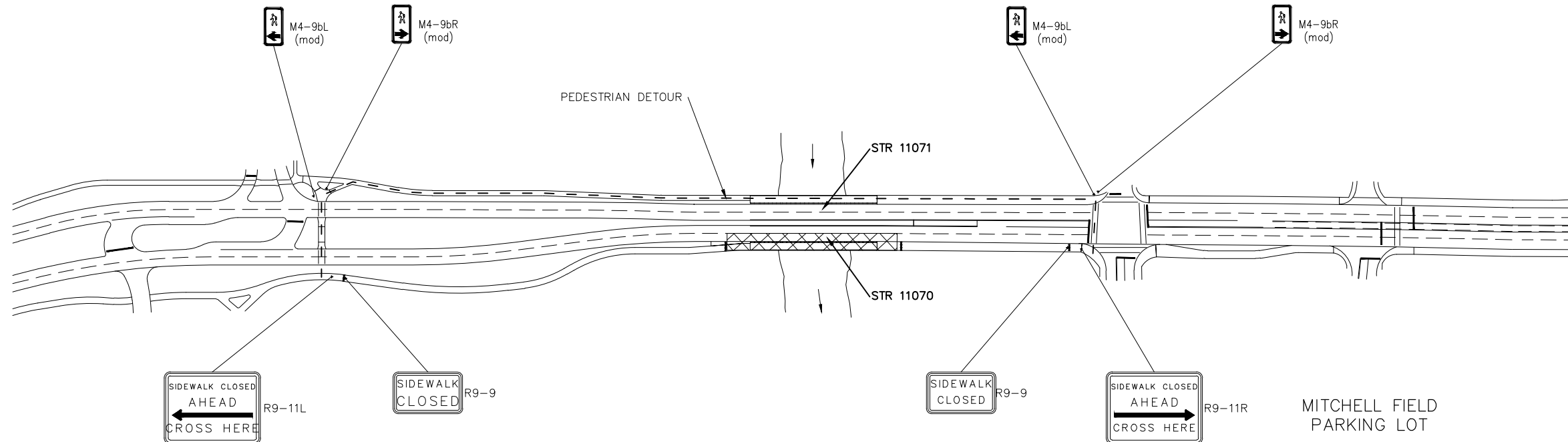
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	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

MAINTAINING TRAFFIC
 (FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2020\09\07\CAD\CAD\2019\TO MAIN\FULLER002_MOT - STAGE3.DWG

FILE NAME: Z:\2020\0957\CAD\CAD2019\TO MAIN\FULLER01_PED-DETOUR_STAGE1.DWG

FULLER RD



PED DETOUR: STAGE 1
 APPLIES: CLOSE EB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO NORTH SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

HURON RIVER

CEDAR BEND DR

MAINTAINING TRAFFIC
 (FULLER ROAD OVER HURON RIVER)



FULLER RD

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 200
 PLAN (FT)
 DRAWING No.
2020-025

SHEET No.
 71 of 87

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HURON RIVER

CEDAR BEND DR

NC78 PARKING LOT



REV.	DATE	DRAWN	CHECKED

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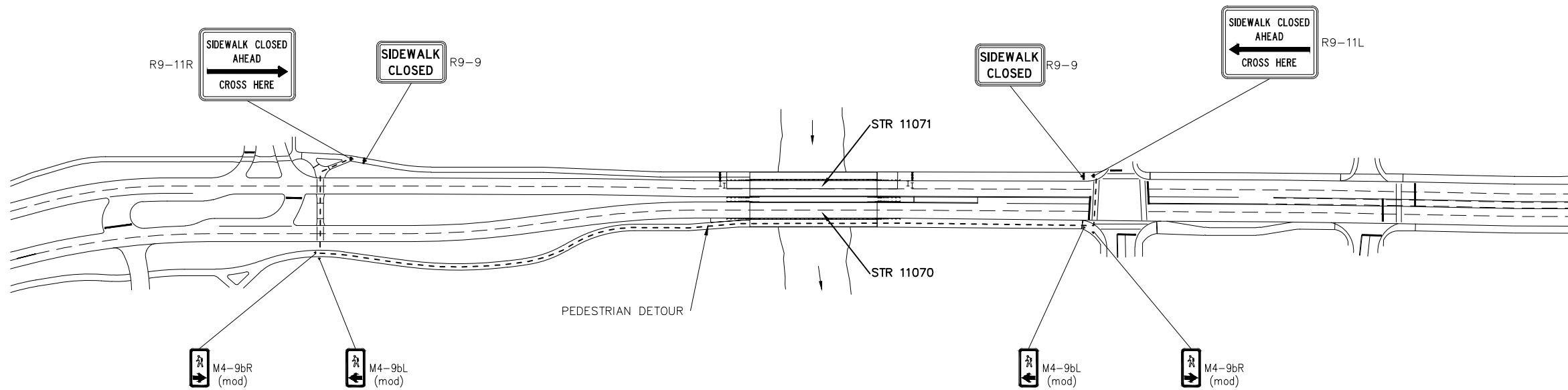
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
 CITY OF ANN ARBOR 2020 BRIDGE
 CAPITAL PREVENTIVE MAINTENANCE REPAIRS
 MAINTAINING TRAFFIC

SCALE: 0 100 200
 PLAN (FT)
 DRAWING No.
2020-025

SHEET No.
 72 of 87

FULLER RD

FULLER RD



PED DETOUR: STAGE 3
 APPLIES: CLOSE WB OUTSIDE LANE AND SIDEWALK
 DETOUR PEDS TO SOUTH SIDE

KEY

	SIGN, TYPE B, TEMP, PRISMATIC
	BARRICADE, TYPE III, HIGH INTENSITY, DOUBLE SIDED, LIGHTED
	PEDESTRIAN TYPE II BARRICADE, TEMP
	PEDESTRIAN TYPE II CHANNELIZER, TEMP
	WORK ZONE
	PED DETOUR
	CHANNELIZING DEVICE, 42 INCH

U OF M PARKING
YELLOW LOT

HURON RIVER

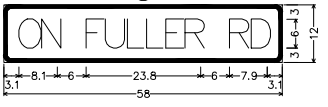
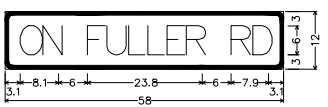
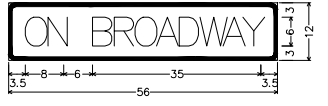
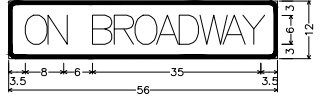
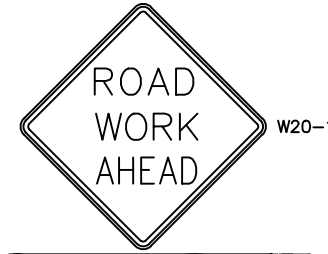
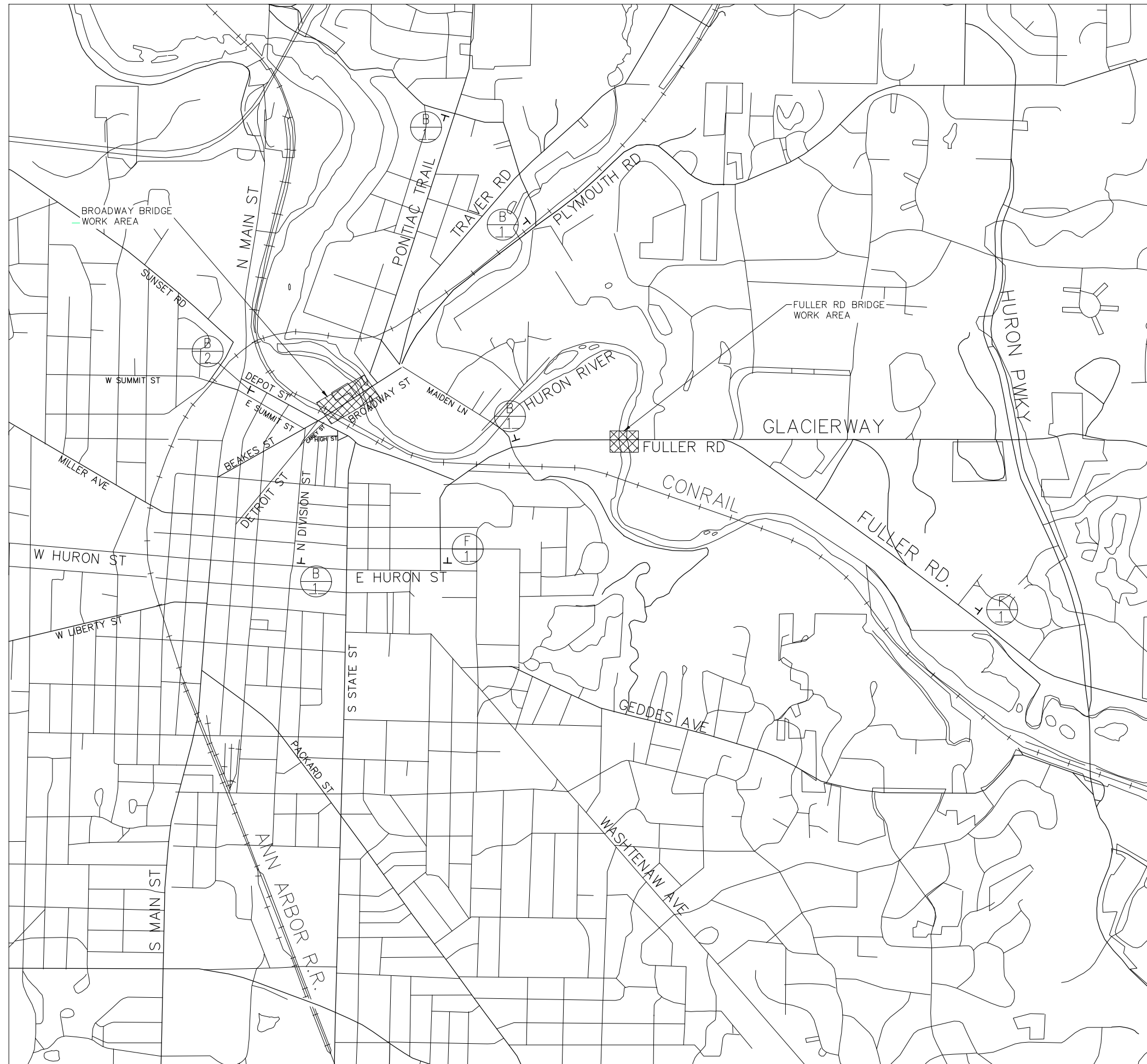
CEDAR BEND DR

MITCHELL FIELD
 PARKING LOT (FULLER ROAD OVER HURON RIVER)

MAINTAINING TRAFFIC

FILE NAME: Z:\2020\09\7\CAD\CAD\2019\10 MAIN\FULLER403_PED\DETOUR_STAGE-3.DWG

FILE NAME: Z:\2020\09\07\CAD\CDD\2019\10 MINIMOT - GLOBAL SIGNING.DWG



MAINTAINING TRAFFIC



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

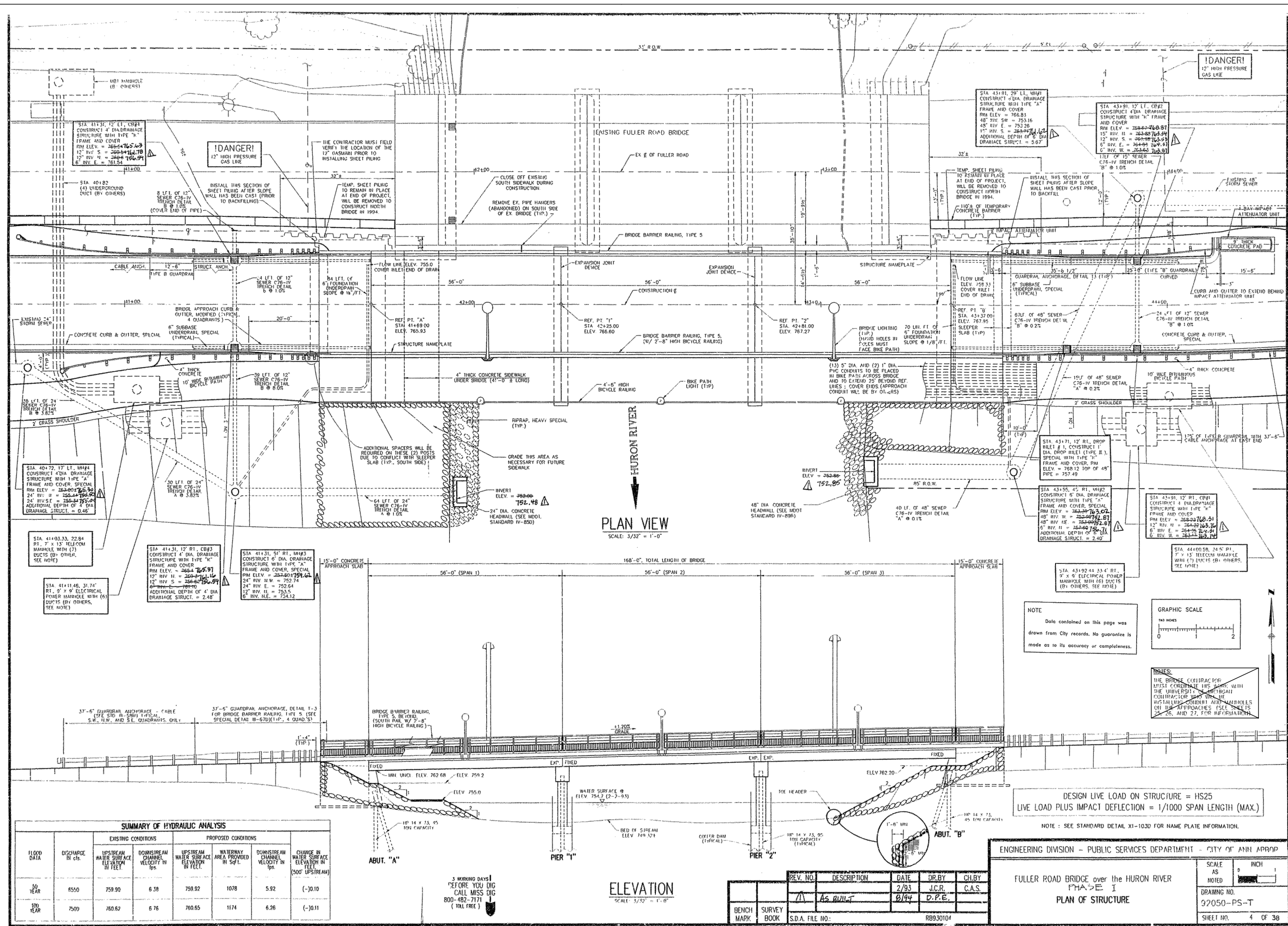
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MAINTAINING TRAFFIC DETOUR MAP

SCALE: 0 PLAN (FT) 80
DRAWING No. 2020-025

FILE NAME: I:\FULLPROJECT\2019\80081\CAD\CADD\WORKING\FULLER_EXIST_001.DWG



SUMMARY OF HYDRAULIC ANALYSIS

FLOOD DATA	DISCHARGE BY CR.	EXISTING CONDITIONS		PROPOSED CONDITIONS		CHANGE IN WATER SURFACE ELEVATION IN FEET (500' UPSTREAM)	
		UPSTREAM WATER SURFACE ELEVATION IN FEET	DOWNSTREAM CHANNEL VELOCITY IN FPS	UPSTREAM WATER SURFACE ELEVATION IN FEET	DOWNSTREAM CHANNEL VELOCITY IN FPS		
50 YEAR	6550	759.90	6.38	759.92	1078	5.92	(-10.10)
100 YEAR	7500	760.62	6.76	760.65	1174	6.26	(-10.11)

3 WORKING DAYS BEFORE YOU OIG CALL MISS OIG 800-482-7171 (TOLL FREE)

ELEVATION
SCALE: 3/32" = 1'-0"

REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY
1	As BUILT	8/94	J.C.R.	C.A.S.

BENCH SURVEY BOOK
S.D.A. FILE NO: R8930104

DESIGN LIVE LOAD ON STRUCTURE = HS25
LIVE LOAD PLUS IMPACT DEFLECTION = 1/1000 SPAN LENGTH (MAX.)
NOTE: SEE STANDARD DETAIL X1-103D FOR NAME PLATE INFORMATION.

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PAGE 1
PLAN OF STRUCTURE

SCALE: AS NOTED

DRAWING NO. 92050-PS-T
SHEET NO. 4 OF 38

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FULLER ROAD OVER HURON RIVER (EASTBOUND)

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

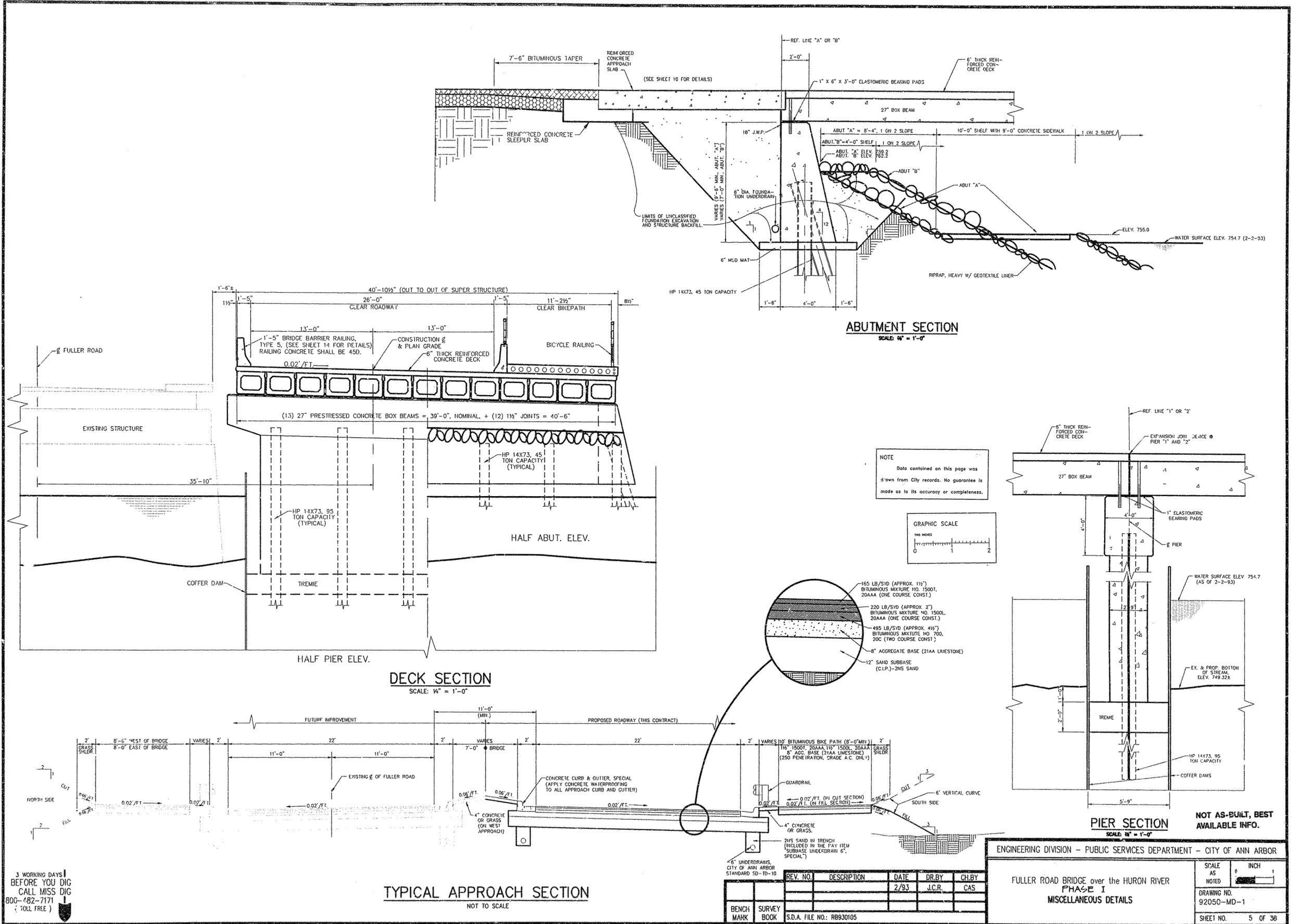
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PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48106
ANN ARBOR 734-764-6647
WWW.A2gov.org

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING No. 2020-025
SHEET No. 74 of 87

FILE NAME: \\FTCHALL\PROJECTS\2019\803081\CADD\DWG\WORKING\FULLER_EXIST_002.DWG

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FULLER ROAD OVER HURON RIVER
(EASTBOUND)

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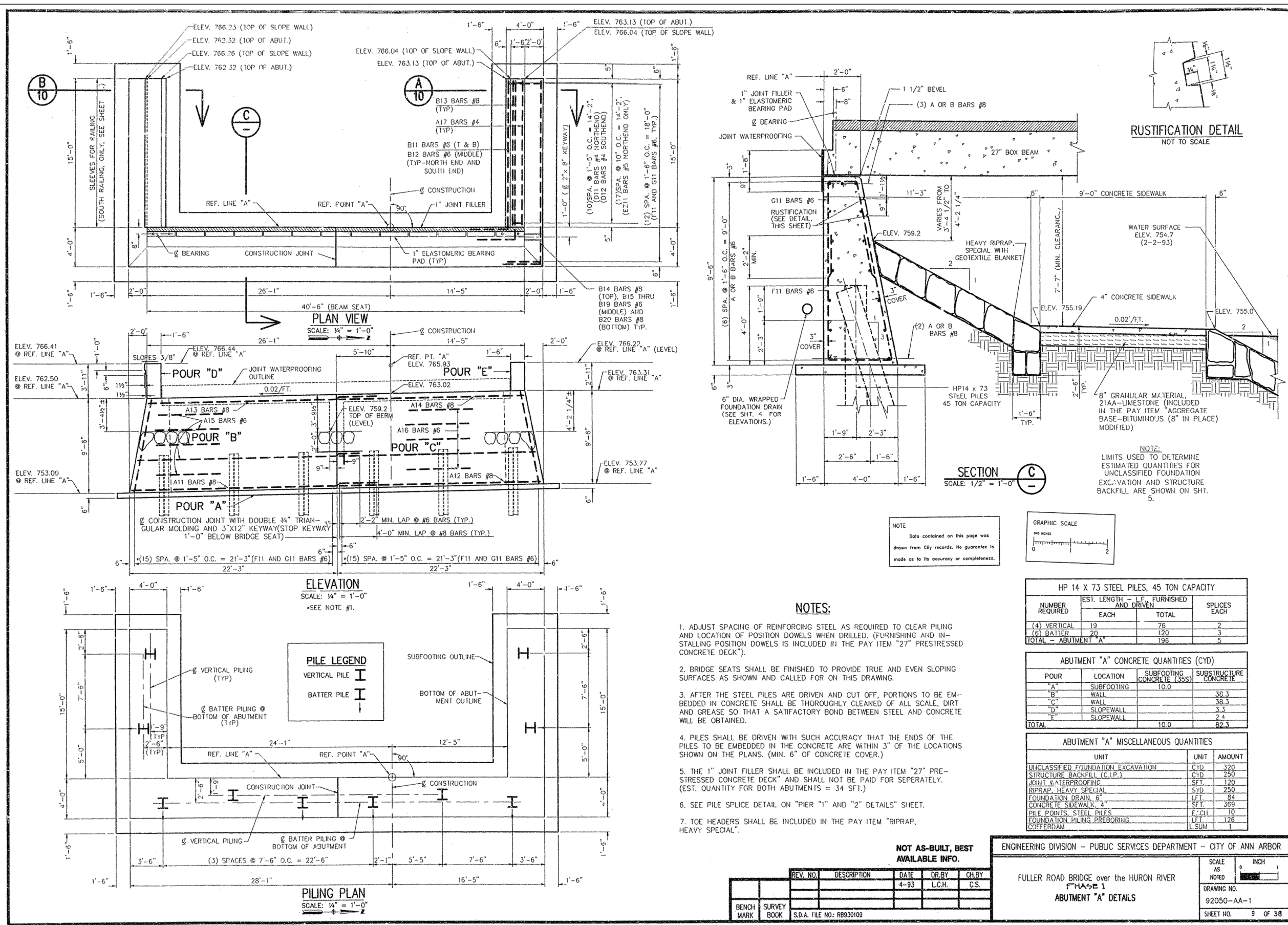
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING No. 2020-025

REV.	DESCRIPTION	DATE	DRAWN	CHECKED

SHEET No. 75 of 87

FILE NAME: \\FTCHALL\PROJECTS\2019\180381\CAD\CADD\M WORKING\FULLER_EXIST_003.DWG



- NOTES:**
- ADJUST SPACING OF REINFORCING STEEL AS REQUIRED TO CLEAR PILING AND LOCATION OF POSITION DOWELS WHEN DRILLED. (FURNISHING AND INSTALLING POSITION DOWELS IS INCLUDED IN THE PAY ITEM "27" PRESTRESSED CONCRETE DECK").
 - BRIDGE SEATS SHALL BE FINISHED TO PROVIDE TRUE AND EVEN SLOPING SURFACES AS SHOWN AND CALLED FOR ON THIS DRAWING.
 - AFTER THE STEEL PILES ARE DRIVEN AND CUT OFF, PORTIONS TO BE EMBEDDED IN CONCRETE SHALL BE THOROUGHLY CLEANED OF ALL SCALE, DIRT AND GREASE SO THAT A SATISFACTORY BOND BETWEEN STEEL AND CONCRETE WILL BE OBTAINED.
 - PILES SHALL BE DRIVEN WITH SUCH ACCURACY THAT THE ENDS OF THE PILES TO BE EMBEDDED IN THE CONCRETE ARE WITHIN 3" OF THE LOCATIONS SHOWN ON THE PLANS. (MIN. 6" OF CONCRETE COVER.)
 - THE 1" JOINT FILLER SHALL BE INCLUDED IN THE PAY ITEM "27" PRESTRESSED CONCRETE DECK" AND SHALL NOT BE PAID FOR SEPARATELY. (EST. QUANTITY FOR BOTH ABUTMENTS IS 34 SF.)
 - SEE PILE SPLICE DETAIL ON "PIER "1" AND "2" DETAILS" SHEET.
 - TOE HEADERS SHALL BE INCLUDED IN THE PAY ITEM "RIPRAP, HEAVY SPECIAL".

NOT AS-BUILT, BEST AVAILABLE INFO.

REV. NO.	DESCRIPTION	DATE	DR. BY	CH. BY
4-93			L.C.H.	C.S.

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE 1
ABUTMENT "A" DETAILS

SCALE AS NOTED
DRAWING NO. 92050-AA-1
SHEET NO. 9 OF 38

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FULLER ROAD OVER HURON RIVER (EASTBOUND)

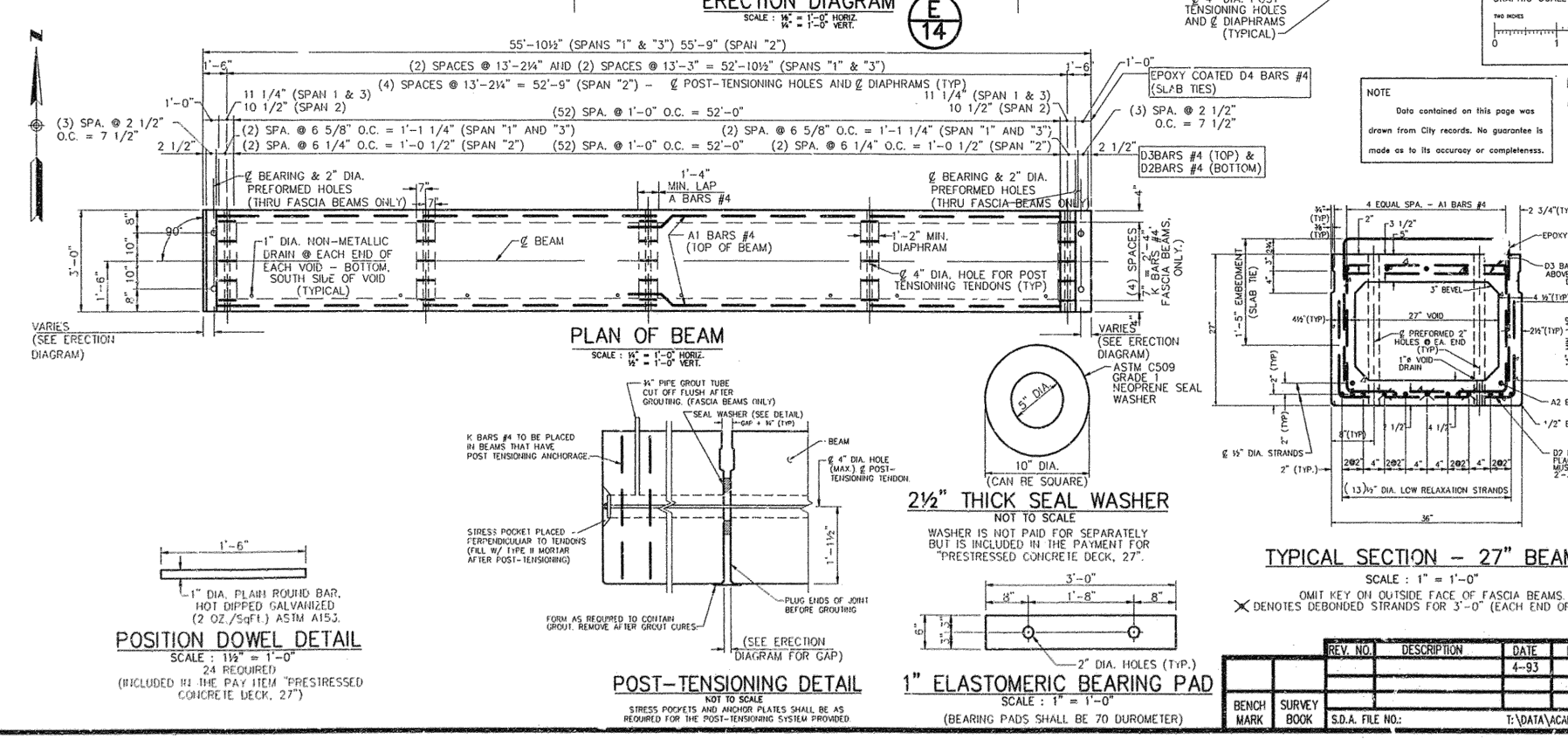
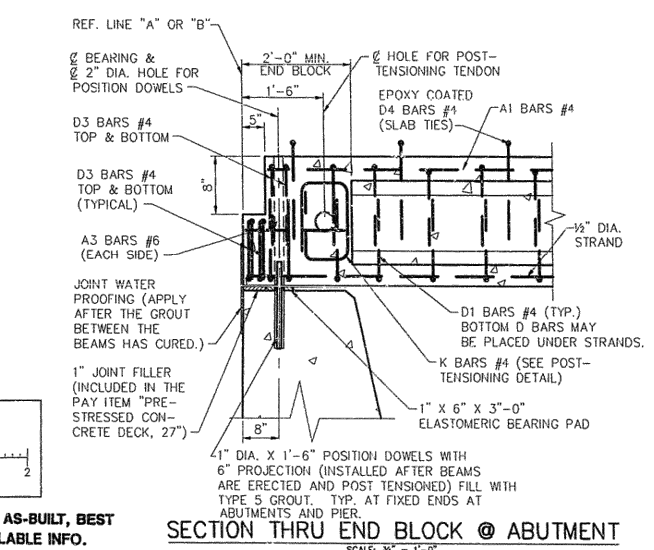
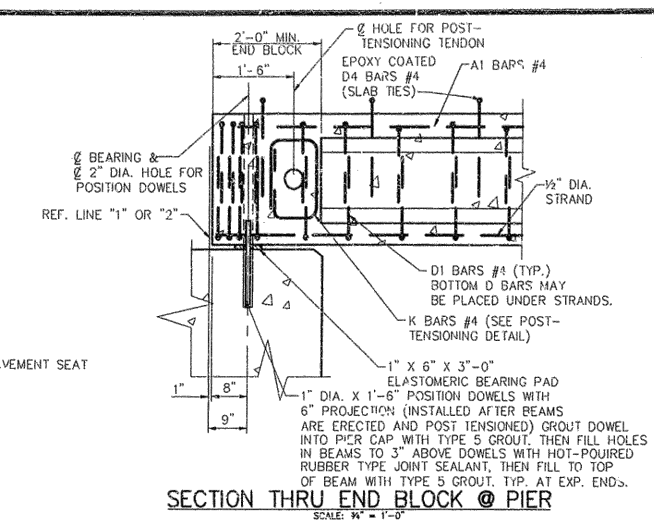
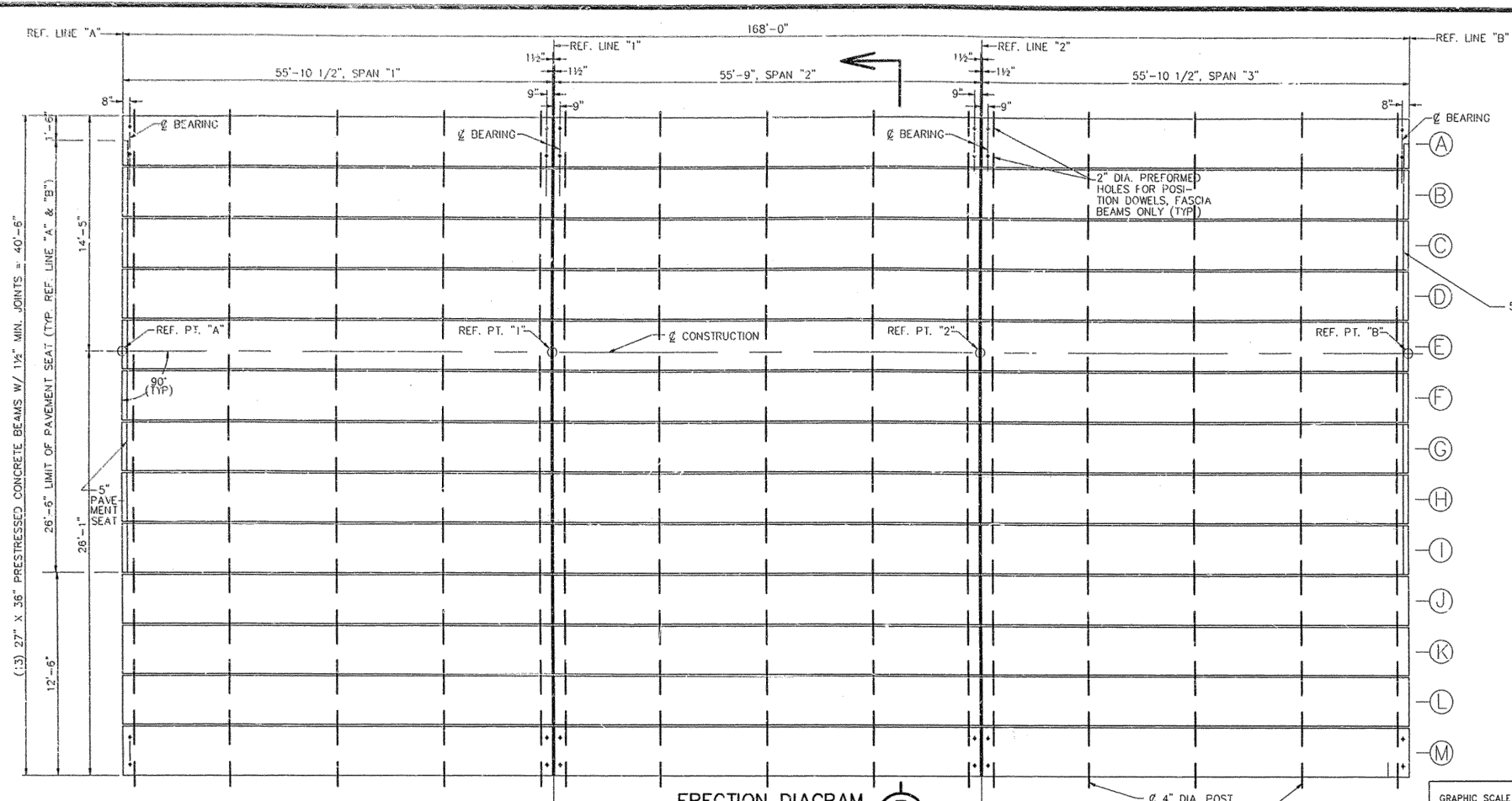
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING ABUTMENT A DETAILS

SCALE: NO SCALE
DRAWING No. 2020-025
SHEET No. 76 of 87



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

NOT AS-BUILT, BEST AVAILABLE INFO.

- NOTES
1. PRECAST, PRESTRESSED CONCRETE BOX BEAMS SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE MICHIGAN DEPT. OF STATE HIGHWAYS AND TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 1990 EDITION, AND THE SPECIAL PROVISIONS FOR THIS JOB.
 2. PRESTRESSING STRANDS SHALL BE 1/2" DIA. WITH A CROSS SECTIONAL AREA OF .151 SQ. IN., MEETING REQUIREMENTS OF A.S.T.M. A416, GRADE 270. INITIAL PRESTRESS SHALL BE 31.00 KIPS PER STRAND, STRANDS SHALL BE STRESS RELIEVED & HEAT TREATED.
 3. INITIAL POST TENSIONING FORCE IS 82.5 KIPS.
 4. MEMBRANE WATERPROOFING AT BEAM ENDS IS NOT TO BE APPLIED UNTIL THE VOIDS BETWEEN THE BEAMS HAVE BEEN GROUTED.
 5. THE DESIGN LIVE LOADING IS HS25.
 6. SET POSITION DOWELS IN CONCRETE AS DESCRIBED IN SECTIONS 5.03.14 AND 5.03.21 OF M.D.O.T.'S STD. SPECIFICATIONS FOR CONSTRUCTION, 1990 EDITION.
 7. THE TOP SURFACE OF BOX BEAMS SHALL BE INTENTIONALLY ROUGHENED.
 8. NO BOND STRESS SHALL BE TRANSFERRED TO THE CONCRETE UNLESS END ANCHORAGE BE RELEASED UNTIL THE CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 3500 P.S.I.
 9. BEAM BEARING PADS SHALL BE SHIMMED AS NECESSARY, IN AN APPROVED MANNER DURING ERECTION TO PROVIDE FULL BEARING CONTACT WITH THE BOTTOM OF THE BEAM.
 10. TACK WELDING OF STEEL REINFORCEMENT IS PROHIBITED.
 11. BOND BREAKERS SHALL BE USED ON THE STRANDS IN THE BOTTOM ROWS AND PLACED SYMMETRICALLY ABOUT THE CENTERLINE OF THE BEAM. PLACING BOND BREAKERS ON PERIPHERAL STRANDS SHALL BE AVOIDED. THE NUMBER, LOCATION, AND LENGTH OF THE BOND BREAKERS SHALL BE AS SHOWN IN THE DETAILS. LENGTH SHOWN IS FROM END OF BEAM TO END OF BREAKER. THEY SHALL CONSIST OF TWO TUBES (ONE INSIDE THE OTHER) WITH OVERLAP TURNED IN OPPOSITE DIR.
 12. THE APPROXIMATE WEIGHT OF EACH BEAM IS 17 TONS.
 13. LIFTING OF BEAMS SHALL BE BY EQUAL LOADS TO EACH PAIR OF LIFTING DEVICES.
 14. CALCIUM NITRITE SHALL BE ADDED AS A CORROSION INHIBITOR IN THE PRESTRESSED CONCRETE BEAMS.
 15. THE ESTIMATED BEAM CAMBER AT THE TIME OF RELEASE IS 1/4". THIS CAMBER IS DUE TO THE PRESTRESSING AND DEAD LOAD OF THE BEAM ONLY AND IS MEASURED IN THE ERECTED POSITION.

REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

FULLER ROAD BRIDGE over the HURON RIVER
PHASE 1
BEAM DETAILS

SCALE AS NOTED

DRAWING NO. 92050-BD-1

SHEET NO. 12 OF 38

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FULLER ROAD OVER HURON RIVER
(EASTBOUND)

811
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ANN ARBOR
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CITY OF ANN ARBOR
MICHIGAN

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING BEAM DETAILS

SCALE: NO SCALE

DRAWING No. 2020-025

SHEET No. 77 of 87



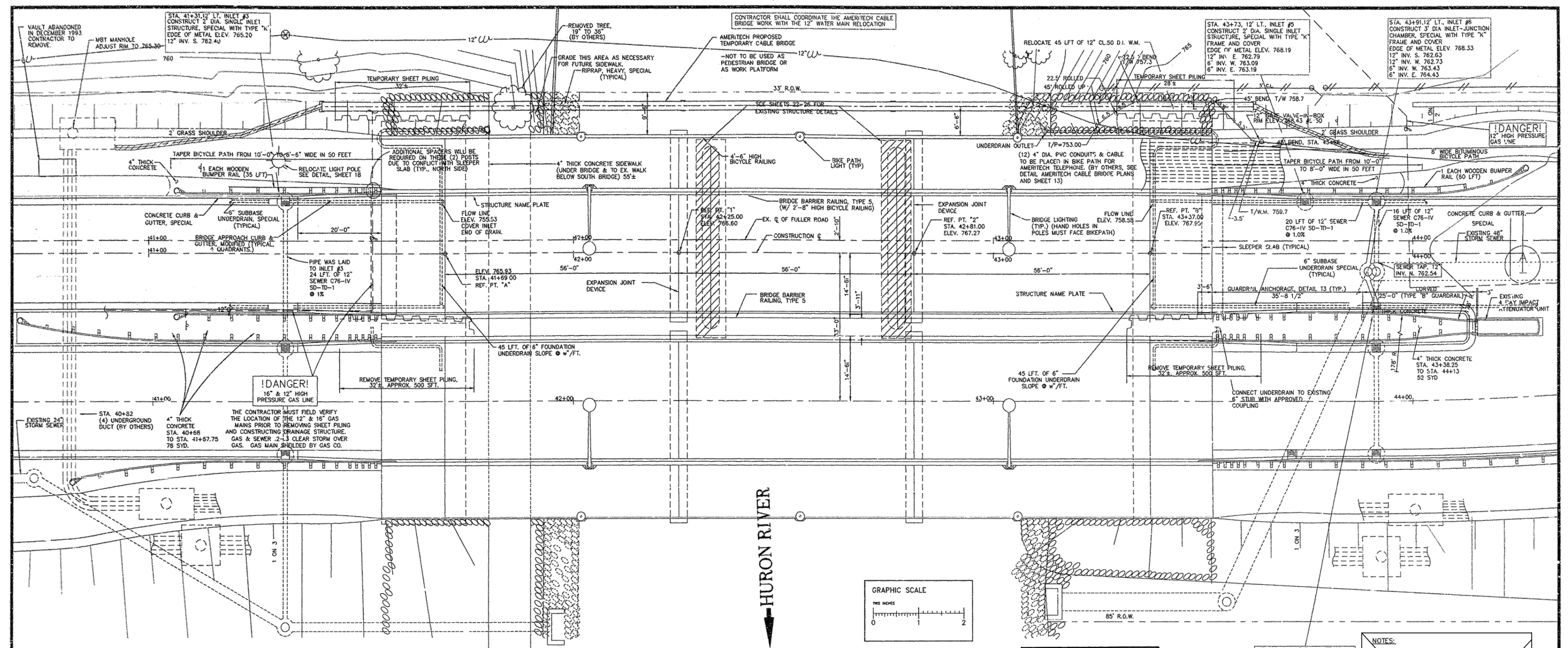
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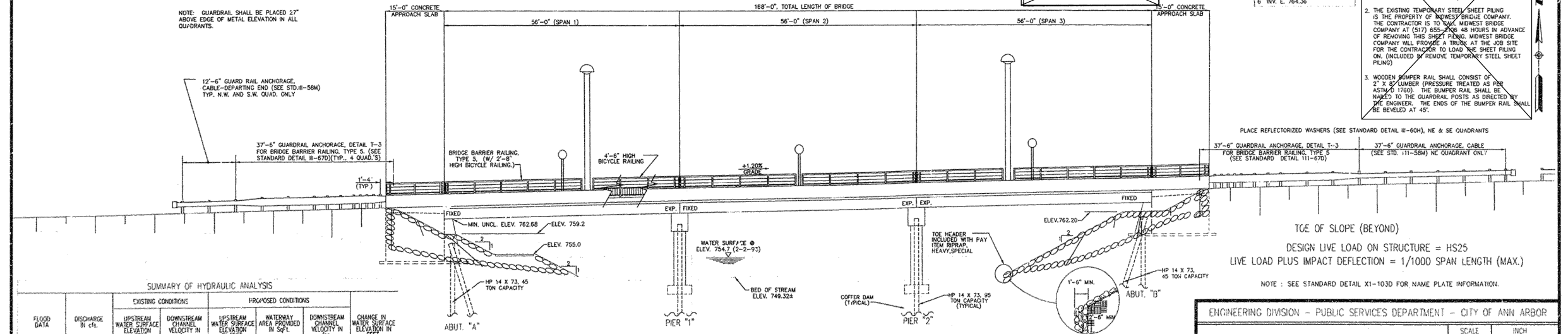


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING GENERAL PLAN OF STRUCTURE

SCALE: NO SCALE
DRAWING NO. 2020-025



PLAN VIEW
SCALE: 3/32" = 1'-0"



SECTION A

SUMMARY OF HYDRAULIC ANALYSIS

FLOOD DATA	DISCHARGE IN CFS	EXISTING CONDITIONS		PROPOSED CONDITIONS		CHANGE IN WATER SURFACE ELEVATION IN FEET (500' UPSTREAM)
		UPSTREAM WATER SURFACE ELEVATION IN FEET	DOWNSWATER CHANNEL VELOCITY IN FPS	UPSTREAM WATER SURFACE ELEVATION IN FEET	DOWNSWATER CHANNEL VELOCITY IN FPS	
50 YEAR	6550	759.90	6.38	759.92	1078	5.92 (-)0.10
100 YEAR	7500	760.62	6.70	760.65	1174	6.26 (-)0.11

REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY
AS-BUILT		6/95	S.M.M.	D.F.
		9/93	E.V.	C.A.S.

BENCH SURVEY BOOK
S.D.A. FILE NO.: R993010

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR

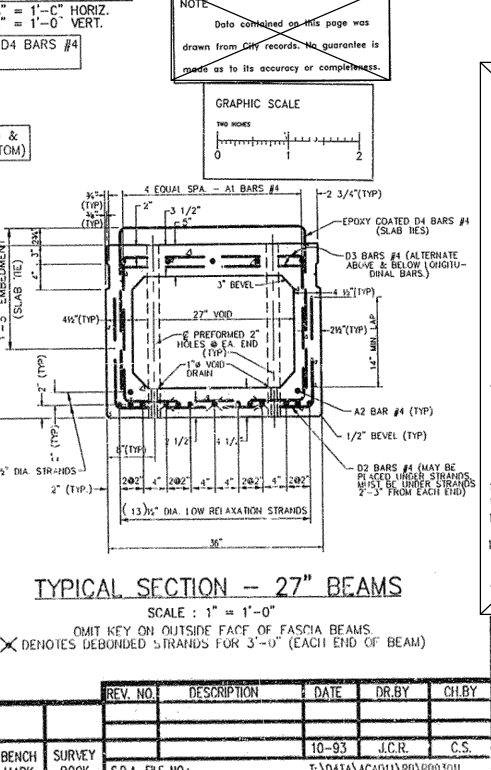
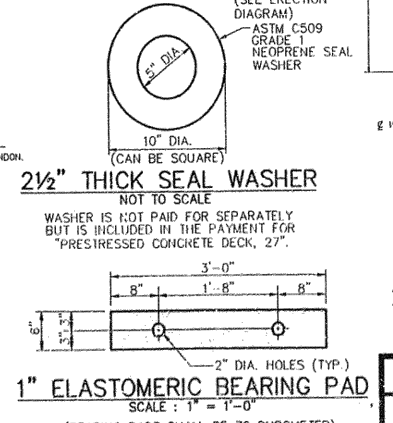
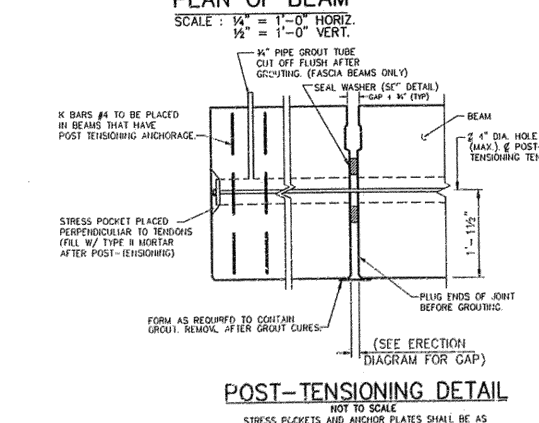
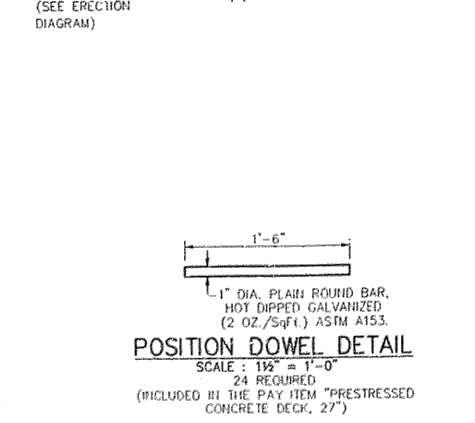
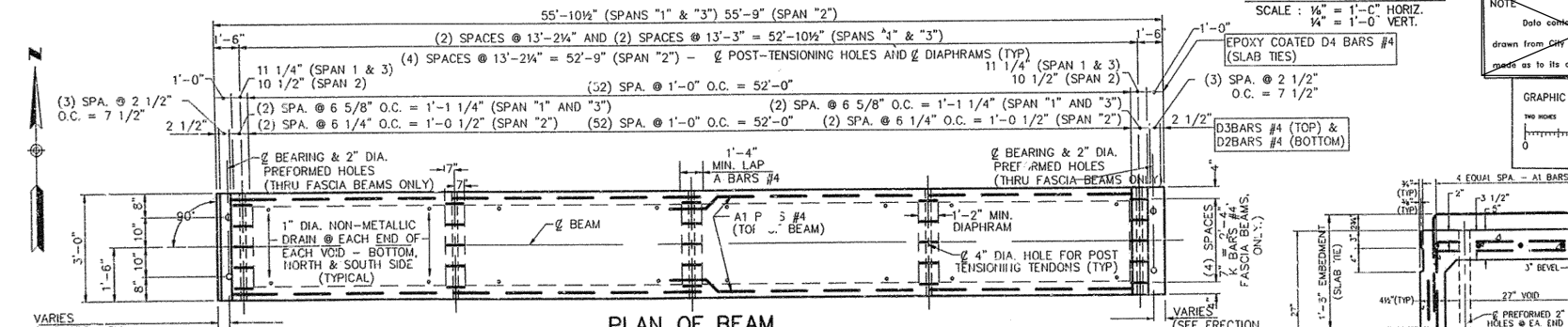
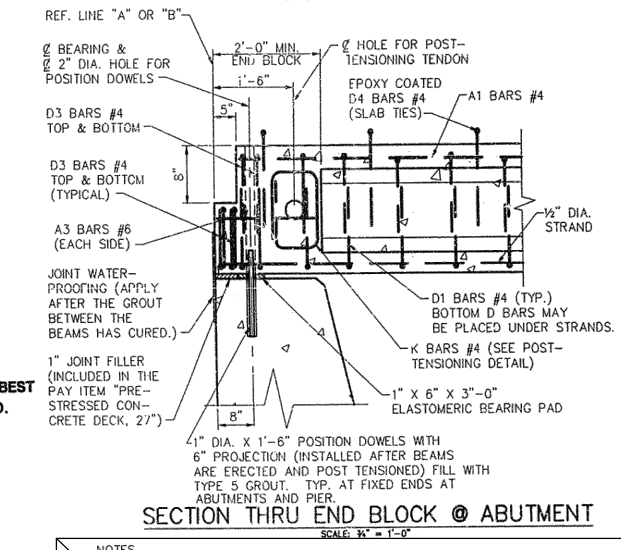
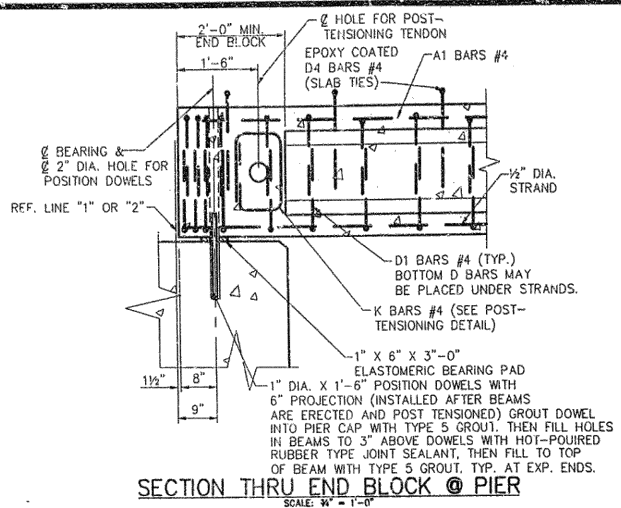
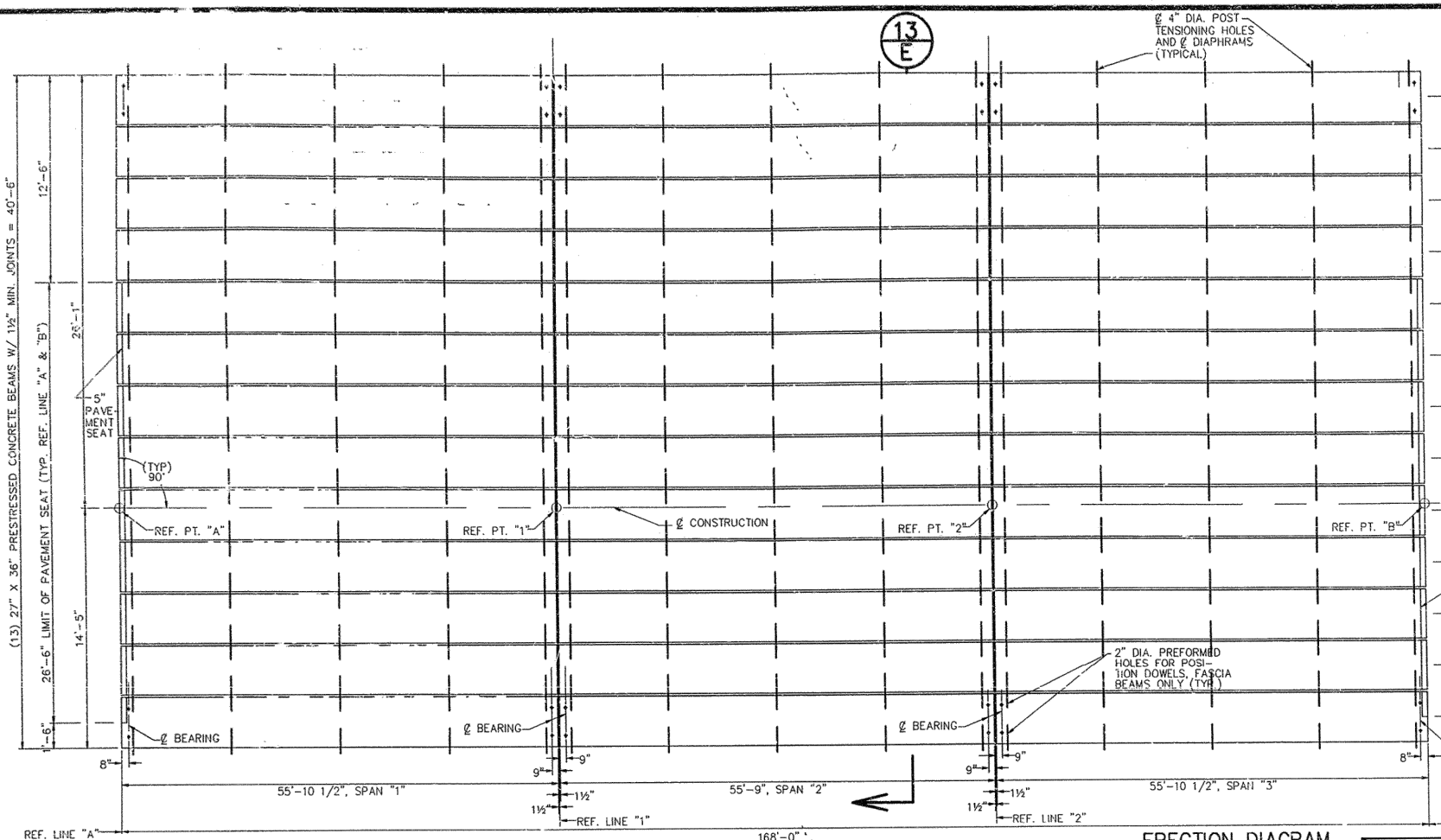
FULLER ROAD BRIDGE over the HURON RIVER
PHASE II
PLAN OF STRUCTURE

SCALE AS NOTED
DRAWING NO. 92050-PS1
SHEET NO. 4 OF 41

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FULLER ROAD OVER HURON RIVER
(WESTBOUND)

FILE NAME: \\FTCHALL\PROJECTS\2019\800381\CADD\DDMD WORKING\FULLER_EXIST_008.DWG




- NOTES**
1. PRECAST, PRESTRESSED CONCRETE BOX BEAMS SHALL BE MANUFACTURED AND ERRECTED IN ACCORDANCE WITH THE MICHIGAN DEPT. OF STATE HIGHWAYS AND TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION 1990 EDITION AND THE SPECIAL PROVISIONS FOR THIS JOB.
 2. PRESTRESSING STRANDS SHALL BE 1/2\"/>

ENGINEERING DIVISION - PUBLIC SERVICES DEPARTMENT - CITY OF ANN ARBOR				
FULLER ROAD BRIDGE over the HURON RIVER				
BEAM DETAILS				
SCALE AS NOTED	1	INCH		
DRAWING NO.	92050-BD-1			
SHEET NO.	11 OF 41			

REV. NO.	DESCRIPTION	DATE	DR. BY	CHK. BY

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FULLER ROAD OVER HURON RIVER
(WESTBOUND)



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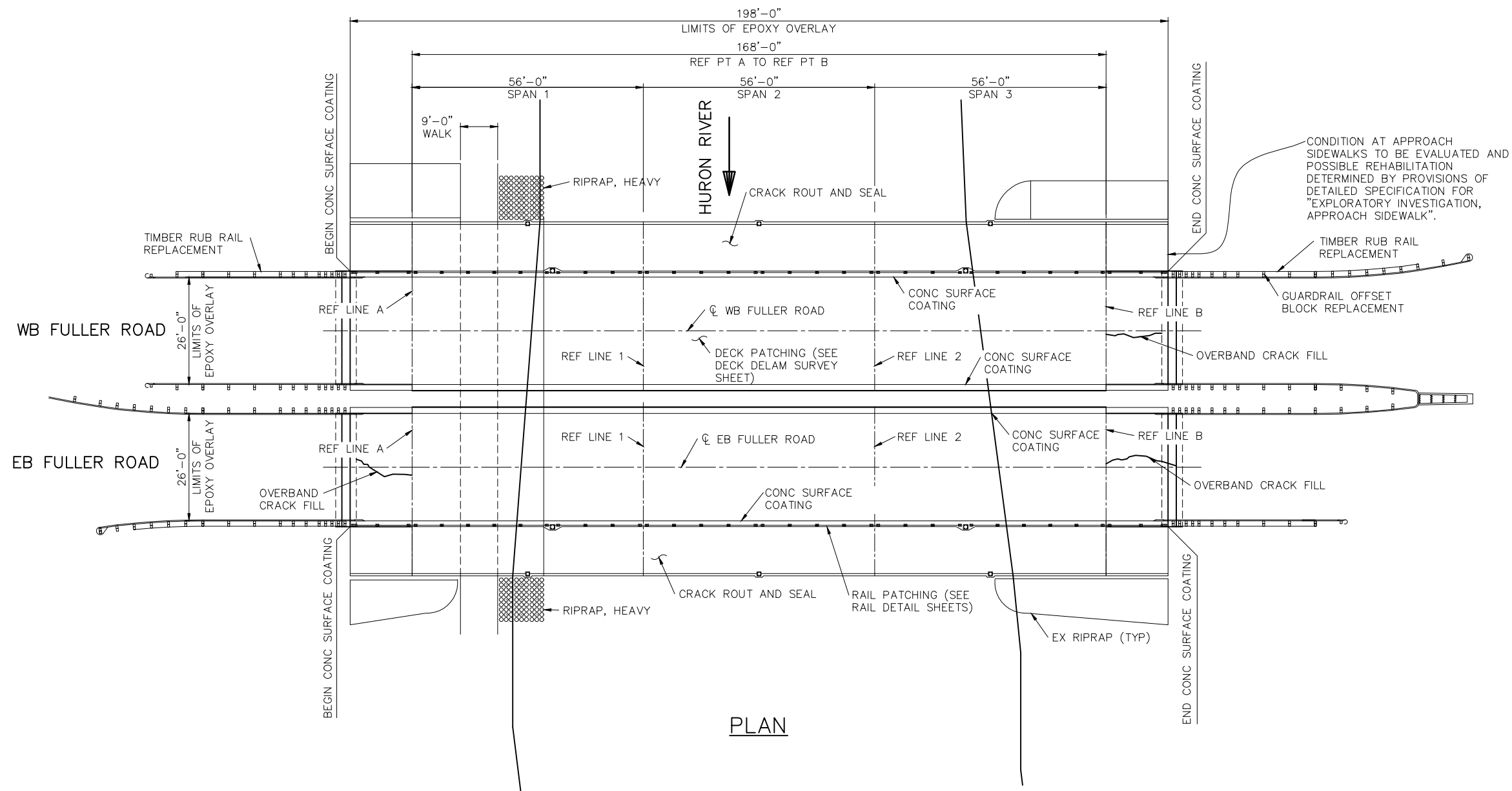
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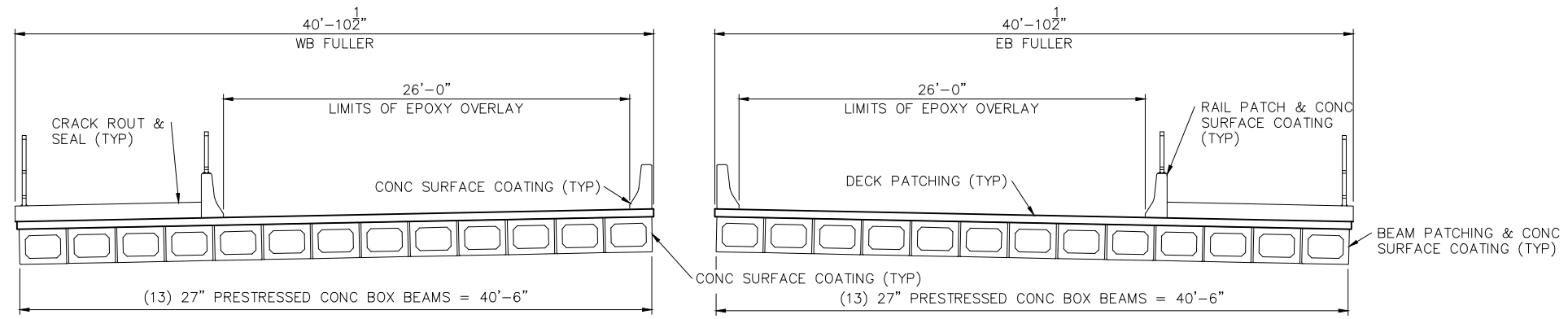


PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
EXISTING BEAM DETAILS

SCALE:	NO SCALE
DRAWING No.	2020-025
SHEET No.	79 of 87




PLAN



DECK SECTION
(LOOKING EAST)

FULLER ROAD OVER HURON RIVER

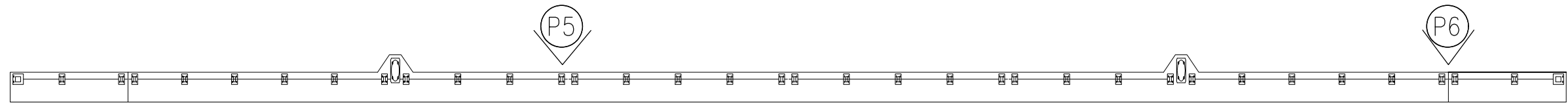
FILE NAME: Z:\2020\09\67\CAD\CAD\201910 MAINFULLER_GPSTR_001.DWG

		811 <small>Know what's below. Call before you dig.</small>	
		CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48106 734-794-6410 www.a2gov.org	DESCRIPTION REV.
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SCALE: NO SCALE	DRAWING No. 2020-025	DATE DRAWN CHECKED	SHEET No. 80 of 87

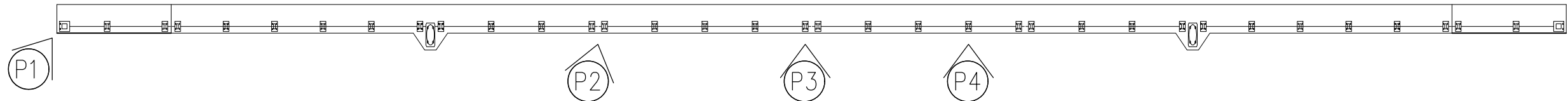
FILE NAME: Z:\2020\200567\CAD\CDD\2018\TO MLN\FULLER_RAIL_001.DWG

LEGEND

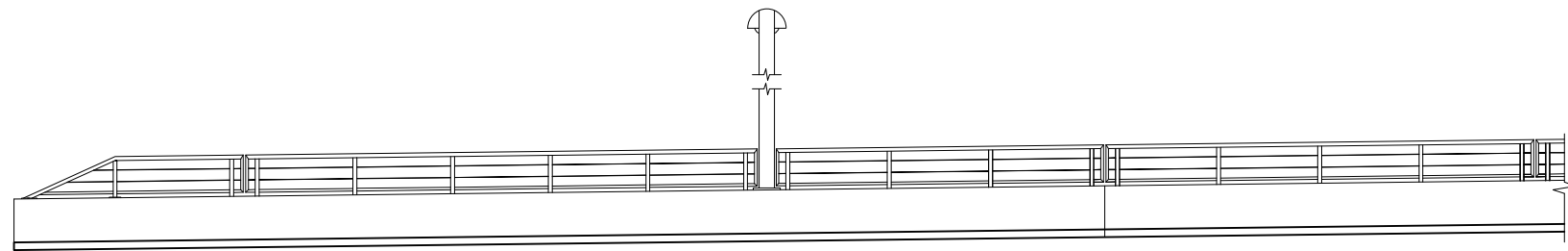
P# = LOCATION OF RAIL PATCHES
SEE SHEET 44 FOR SPECIFIC
PATCH DIMENSIONS



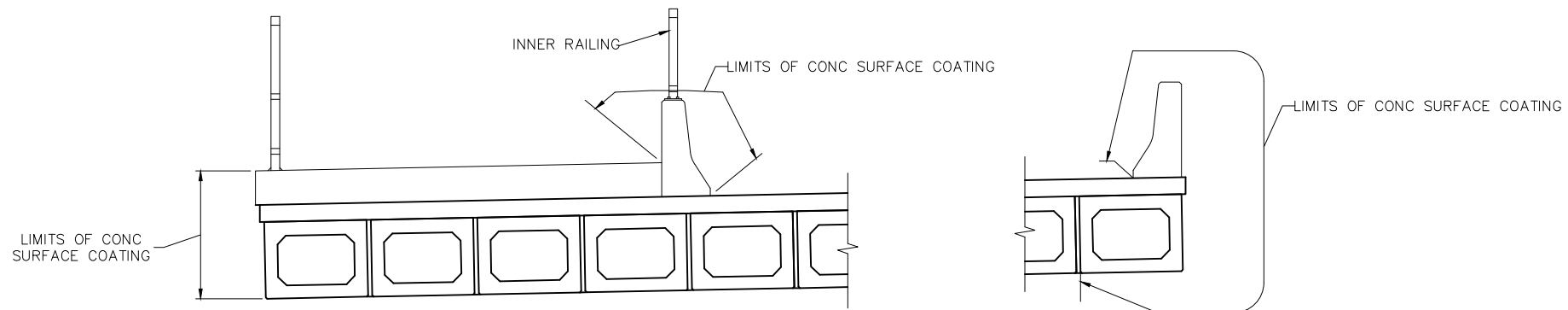
WESTBOUND INNER RAIL – NORTH



EASTBOUND INNER RAIL – SOUTH



ELEVATION – INNER RAIL

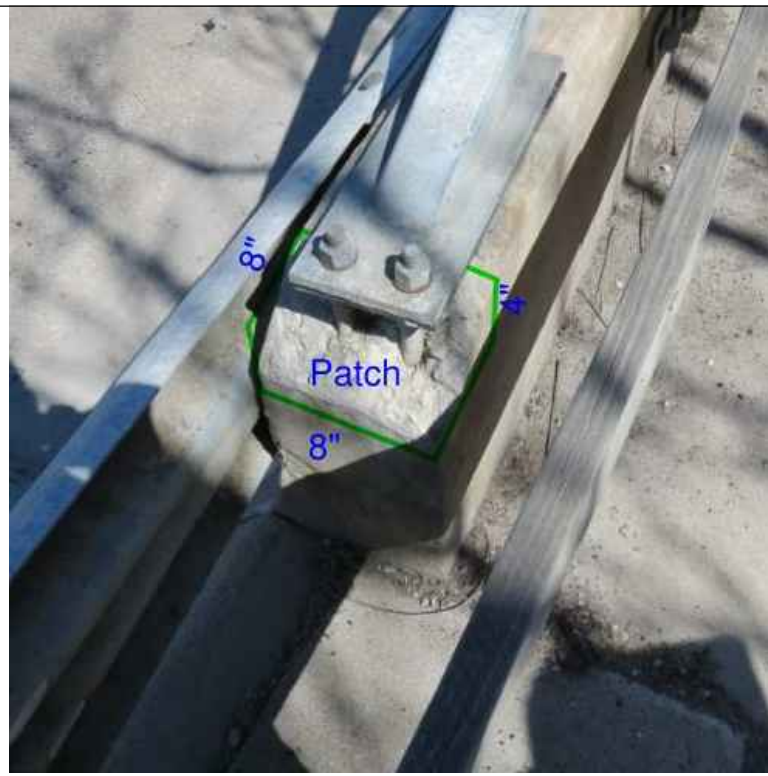


PARTIAL DECK SECTION

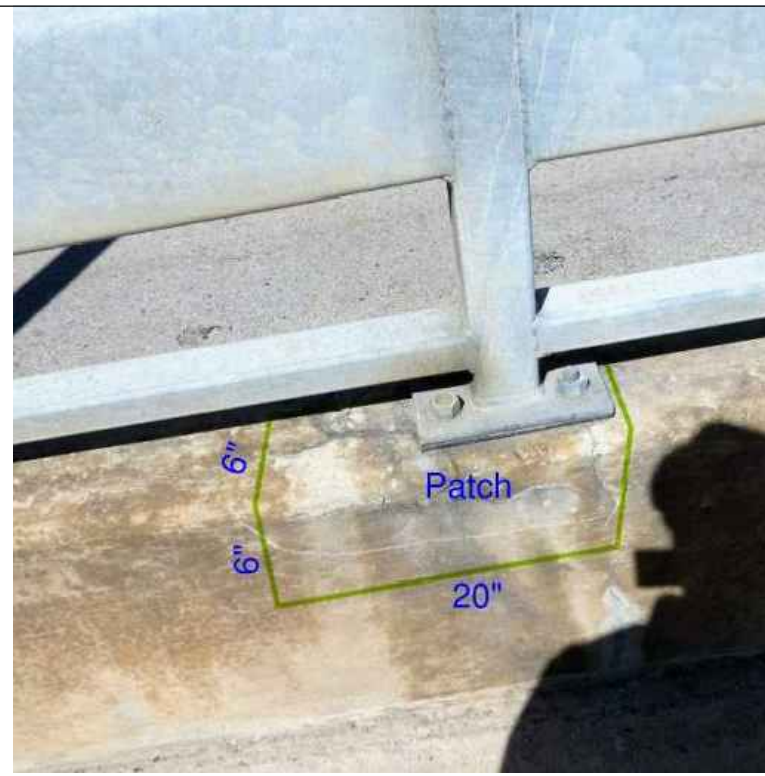
NOTE:
IN ORDER TO PERFORM THE BARRIER RAIL REPAIRS, THE CONTRACTOR SHALL REMOVE, STORE, PROTECT, AND REPLACE WHEN THE PATCHES HAVE BEEN PROPERLY CURED, THE NEEDED METAL RAILING SEGMENTS. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE ASSOCIATED ITEMS OF WORK.

FULLER ROAD OVER HURON RIVER

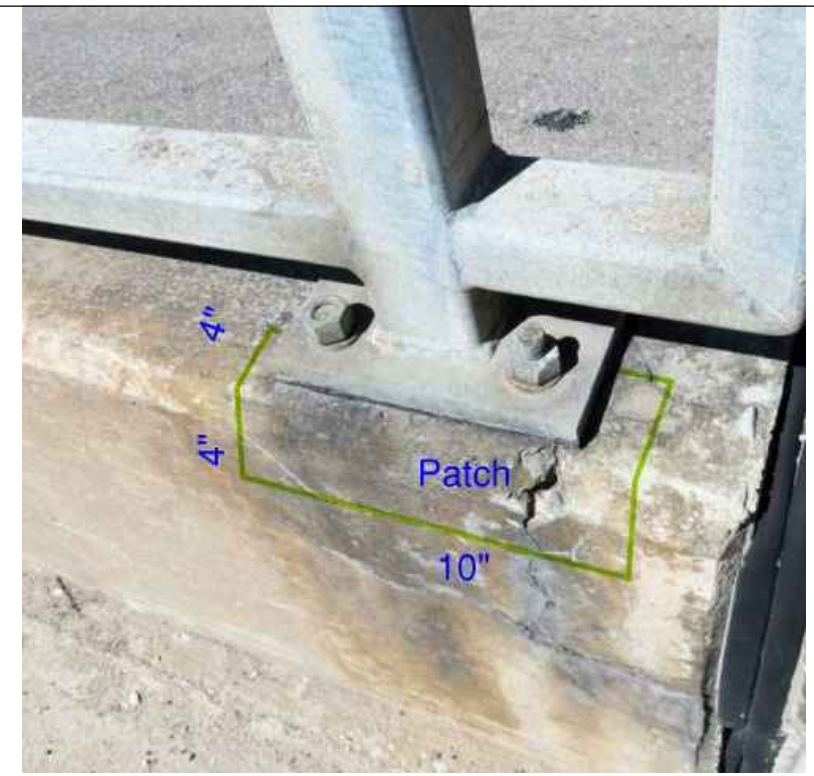
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CITY OF ANN ARBOR PUBLIC SERVICE 301 E. WASHINGTON STREET P.O. BOX 6847 ANN ARBOR, MI 48107-6847 734-794-4410 www.a2gov.org	CITY OF ANN ARBOR MICHIGAN
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR CITY OF ANN ARBOR 2020 BRIDGE CAPITAL PREVENTIVE MAINTENANCE REPAIRS CONCRETE RAIL PATCHING LOCATIONS	
SCALE: NO SCALE	DRAWING No. 2020-025
SHEET No. 81 of 87	
REV.	DESCRIPTION
DATE	DRAWN
CHECKED	DRAWN



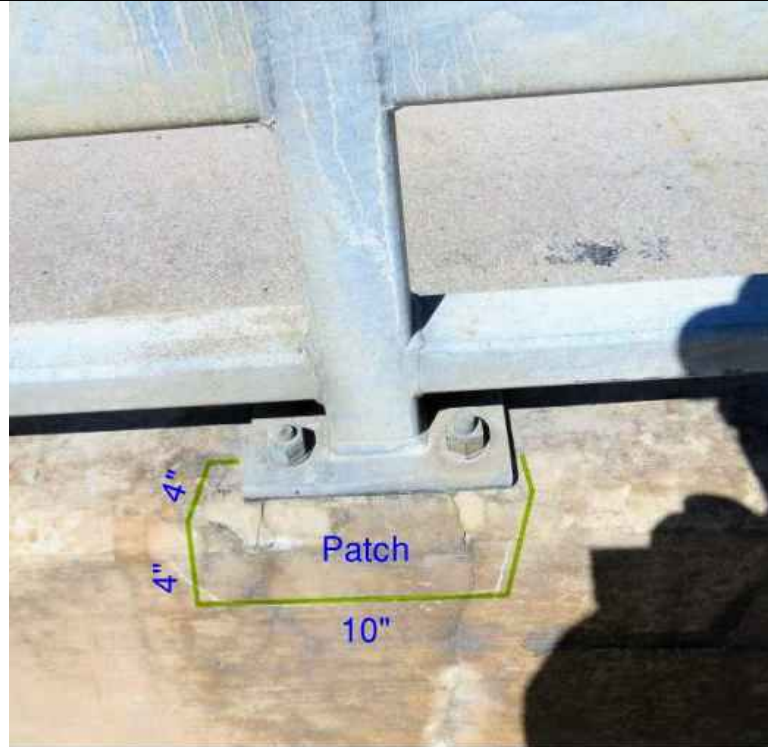
P1



P2



P3



P4



P5



P6

FULLER ROAD OVER
HURON RIVER

FILE NAME: Z:\2020\09\67\CAD\CAD\2019\TO_MENFULLER_RAIL_002.DWG



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

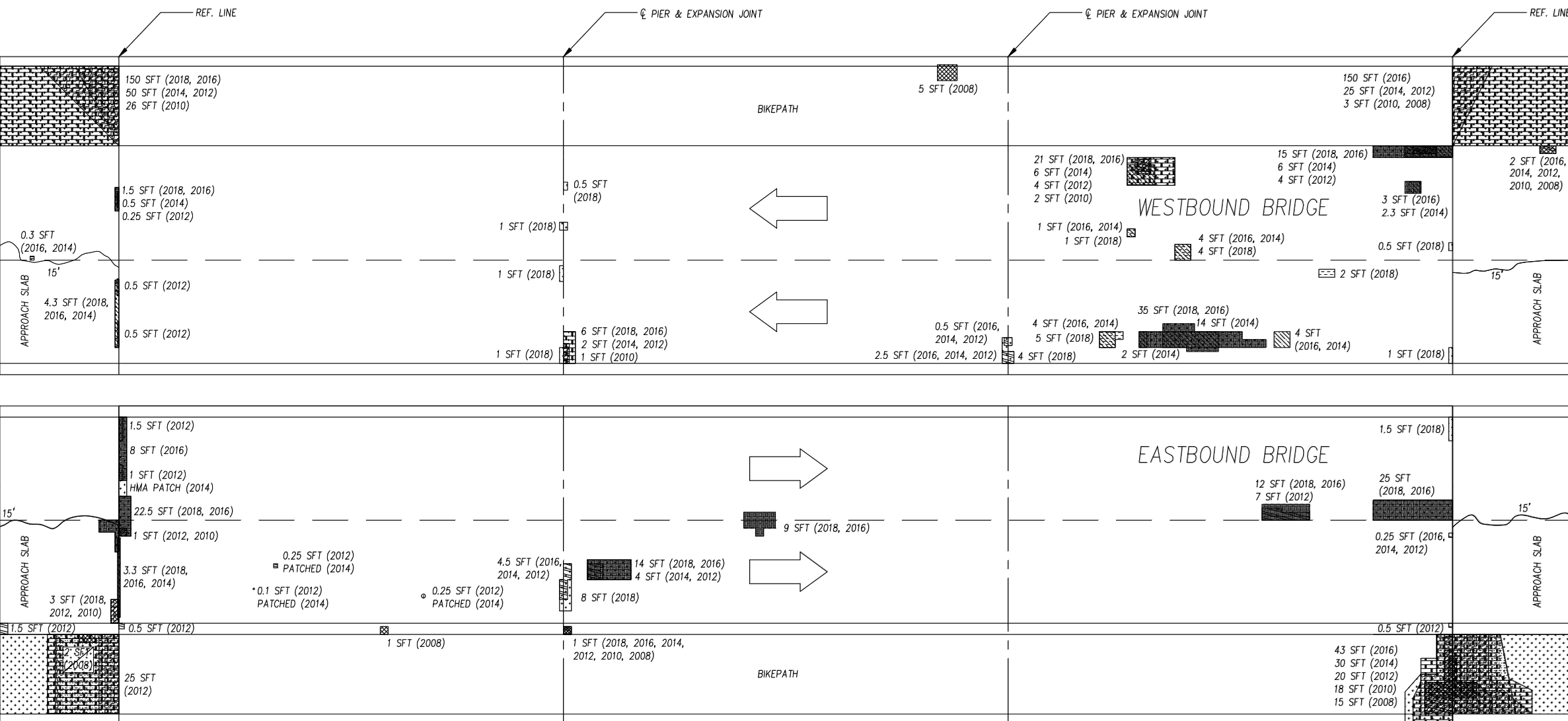
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PUBLIC SERVICE
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
CONCRETE RAIL PATCHING LOCATIONS

SCALE: NO SCALE
DRAWING No. 2020-025

FILE NAME: Z:\2020\09\07\CAD\CAD\2019\TO MAIN\FULLER_DECK_DELAM_SURVEY_001.DWG



CONDITION AT APPROACH SIDEWALKS TO BE EVALUATED AND POSSIBLE REHABILITATION DETERMINED BY PROVISIONS OF DETAILED SPECIFICATION FOR "EXPLORATORY INVESTIGATION, APPROACH SIDEWALK".

PLAN OF DECK DEFICIENCIES

SIZES AND LOCATIONS OF DEFICIENCIES SHOWN ON THIS SHEET ARE APPROXIMATED FROM PREVIOUS DECK EVALUATION. CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF DEFICIENCIES AND PATCH AS DIRECTED BY THE ENGINEER. CONTRACTOR TO GIVE ENGINEER 36 HOURS TO VERIFY LIMITS OF PATCHING PRIOR TO PLACING PATCHING MATERIAL.

- 2008 DECK DELAMINATION
- 2010 DECK DELAMINATION
- 2010 SPALLING
- 2010 HOLLOW SOUNDING CONCRETE
- 2012 DECK DELAMINATION
- 2012 SPALLING
- 2012 HOLLOW SOUNDING CONCRETE
- 2014 DECK DELAMINATION
- 2014 SPALLING
- 2014 HOLLOW SOUNDING CONCRETE
- 2016 DECK DELAMINATION
- 2016 SPALLING
- 2016 HOLLOW SOUNDING CONCRETE
- DECK CRACK
- 2018 DECK DELAMINATION
- 2018 SPALLING



FULLER ROAD DECK DELAMINATION SURVEY

FULLER ROAD OVER HURON RIVER

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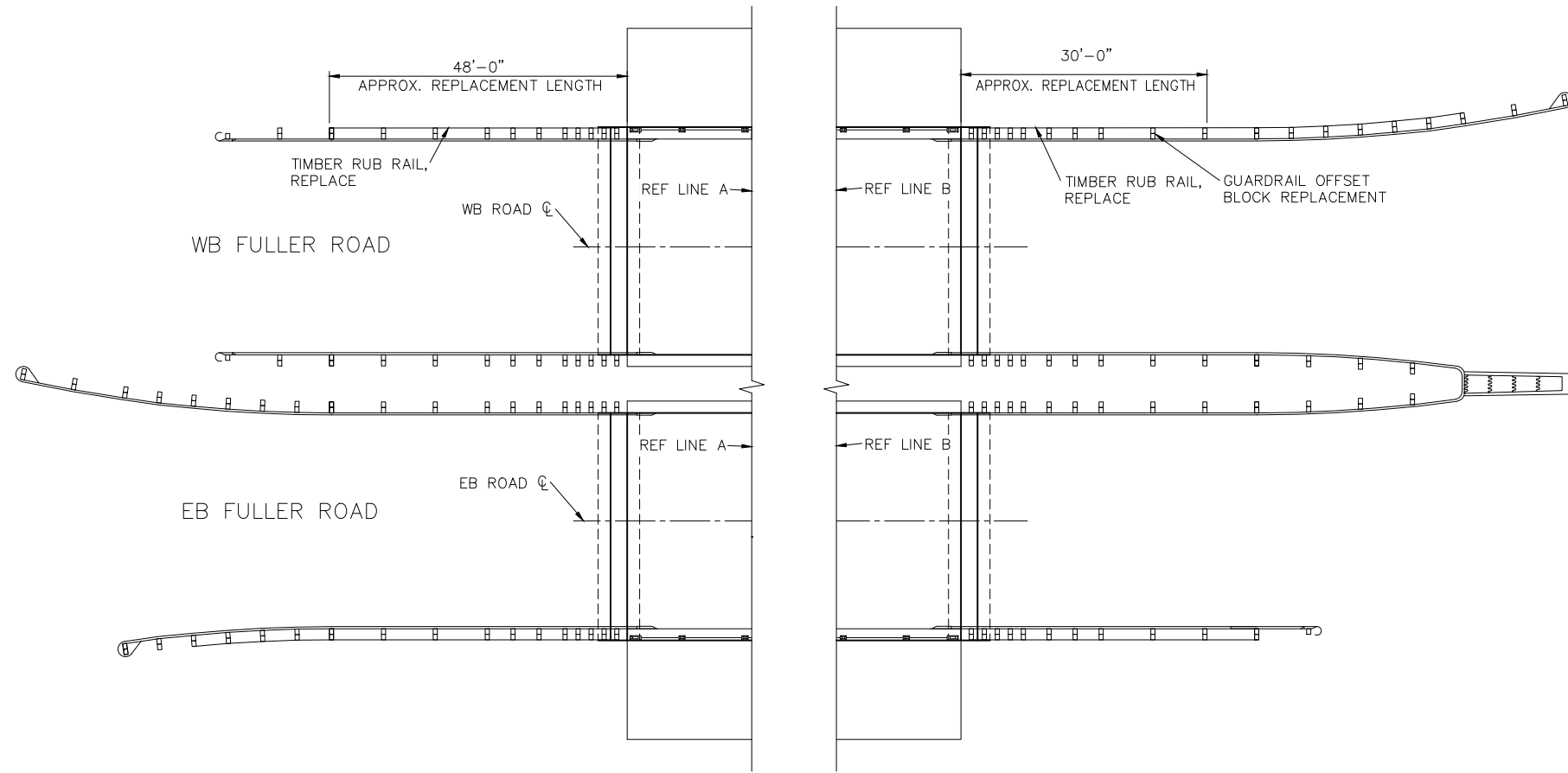
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
DECK DELAMINATION AND PATCHING PLAN

SCALE: NO SCALE
DRAWING No. 2020-025

SHEET No. 83 of 87



GUARDRAIL REPAIR LOCATIONS PLAN

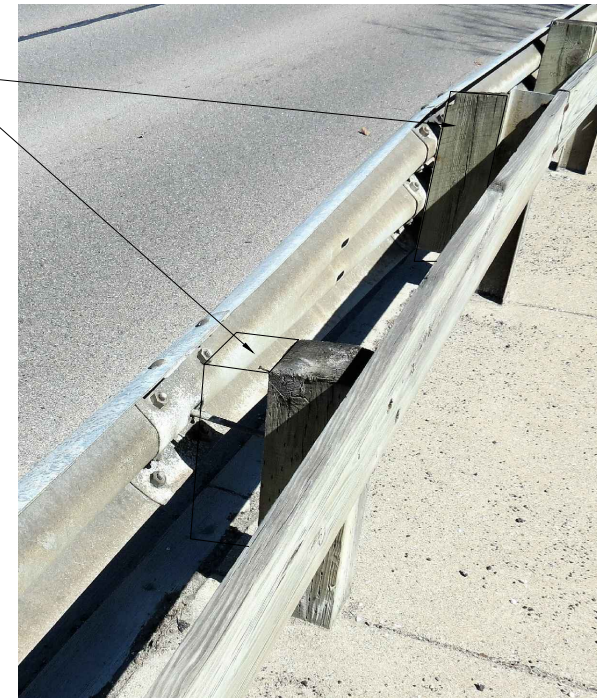
REMOVE EXIST CONNECTION HARDWARE. SALVAGE AND REUSE AS CONDITION ALLOWS. REPLACE HARDWARE ELEMENTS THAT ARE BENT, BROKEN OR HEAVILY CORRODED, AS DIRECTED BY THE ENGINEER.



RUB RAIL REPLACEMENT DETAIL

FIELD BEND AS NEEDED

REPLACE MISSING AND BROKEN TIMBER OFFSET BLOCKS PER MDOT STD. PLAN R-60-J. SALVAGE AND REUSE CONNECTION HARDWARE AS CONDITION ALLOWS. REPLACE HARDWARE ELEMENTS THAT ARE BENT, BROKEN OR HEAVILY CORRODED, AS DIRECTED BY THE ENGINEER.



OFFSET BLOCK REPLACEMENT DETAIL

GUARDRAIL AND RUB RAIL REPAIR DETAILS

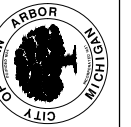
(FULLER ROAD OVER HURON RIVER)

FILE NAME: Z:\2020\09\67\CAD\CAD\2019\TO MAIN\FULLER_RUBRAIL_001.DWG



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

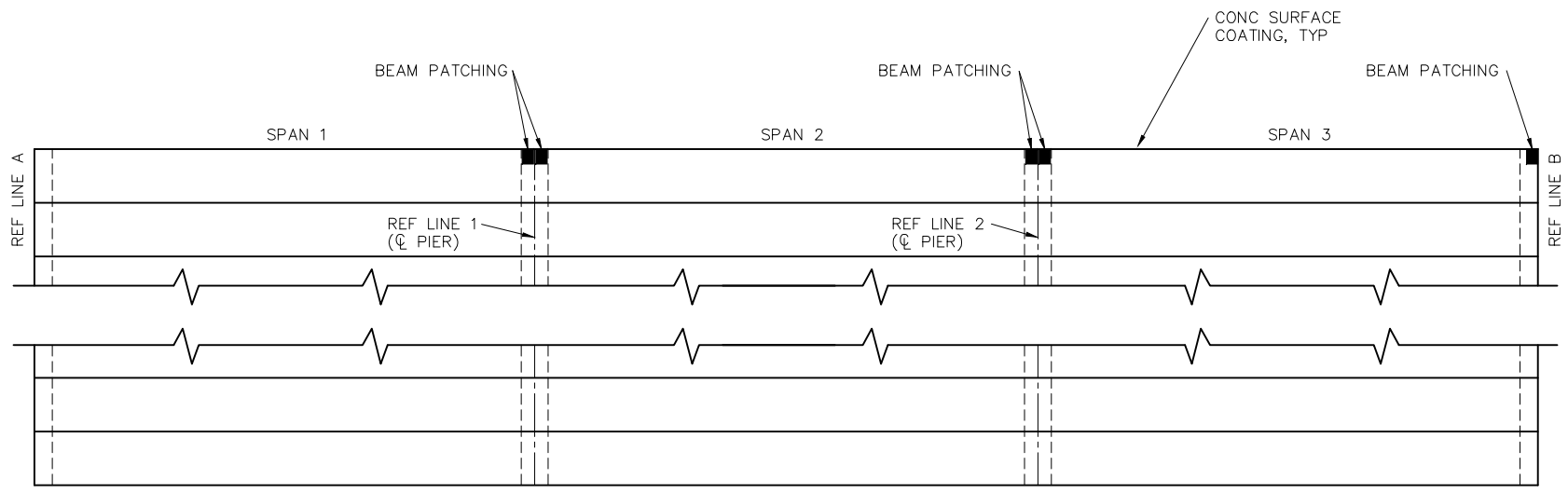
CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1700
734-794-6410
www.a2gov.org



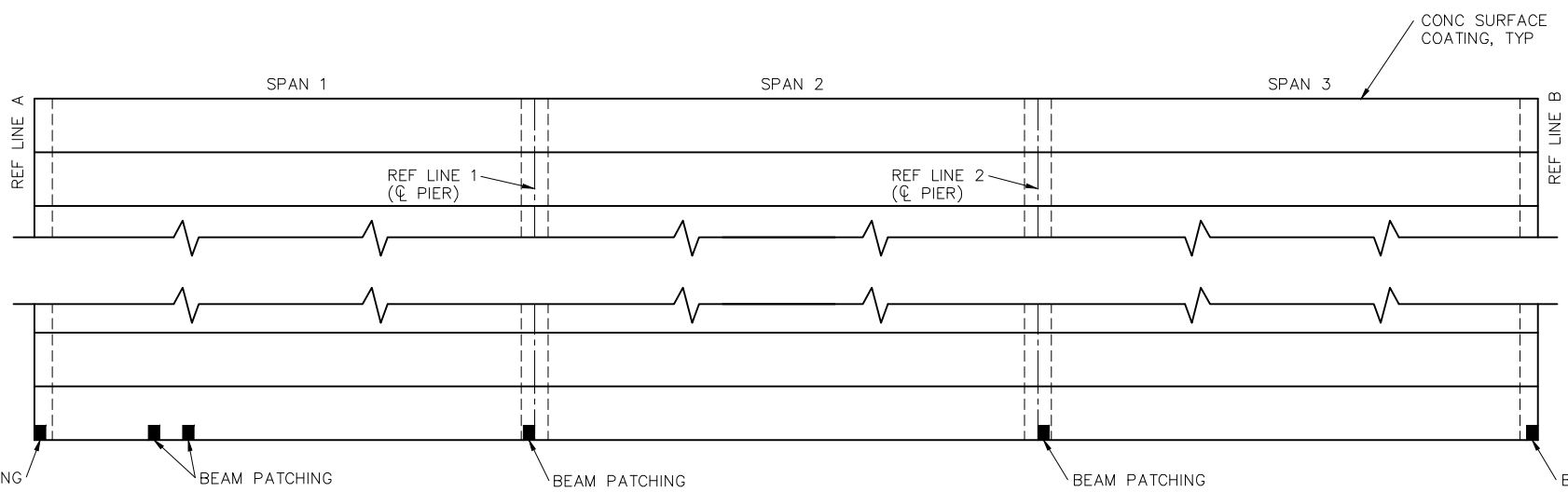
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
GUARDRAIL AND RUB RAIL REPAIR DETAILS

SCALE: NO SCALE
DRAWING No. 2020-025

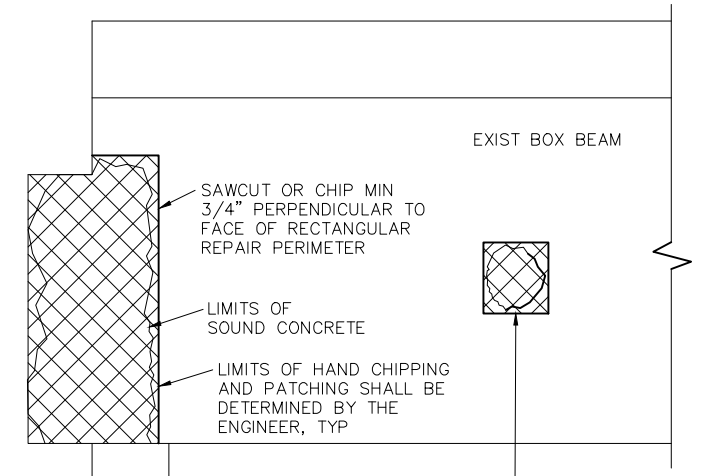
FILE NAME: Z:\2020\0957\CAD\CDD\2019\TO MAIN BEAM DETAILS_001.DWG



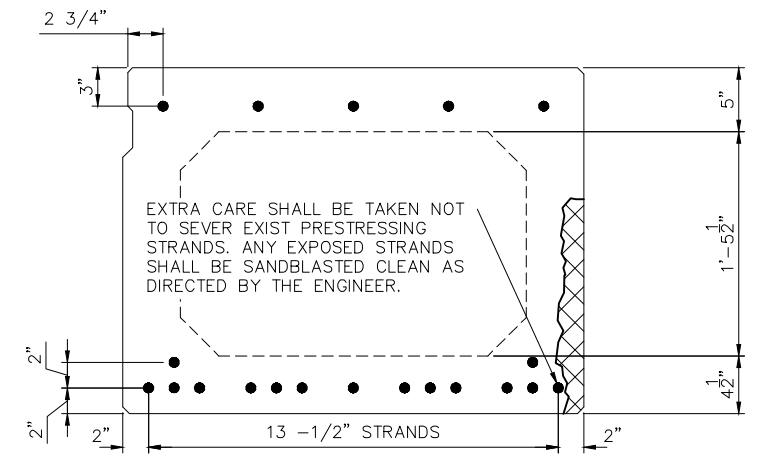
FRAMING PLAN - FULLER ROAD WB



FRAMING PLAN - FULLER ROAD EB



BEAM END ELEVATION



BEAM SECTION

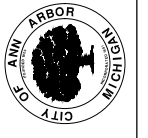
ANCHOR HOLES NEEDED FOR PATCH FORMING SHALL BE LOCATED BETWEEN BOTTOM OF TOP FLANGE AND TOP OF BOTTOM FLANGE.

PRESTRESSED CONCRETE BEAM REPAIR DETAILS
(FULLER ROAD OVER HURON RIVER)



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

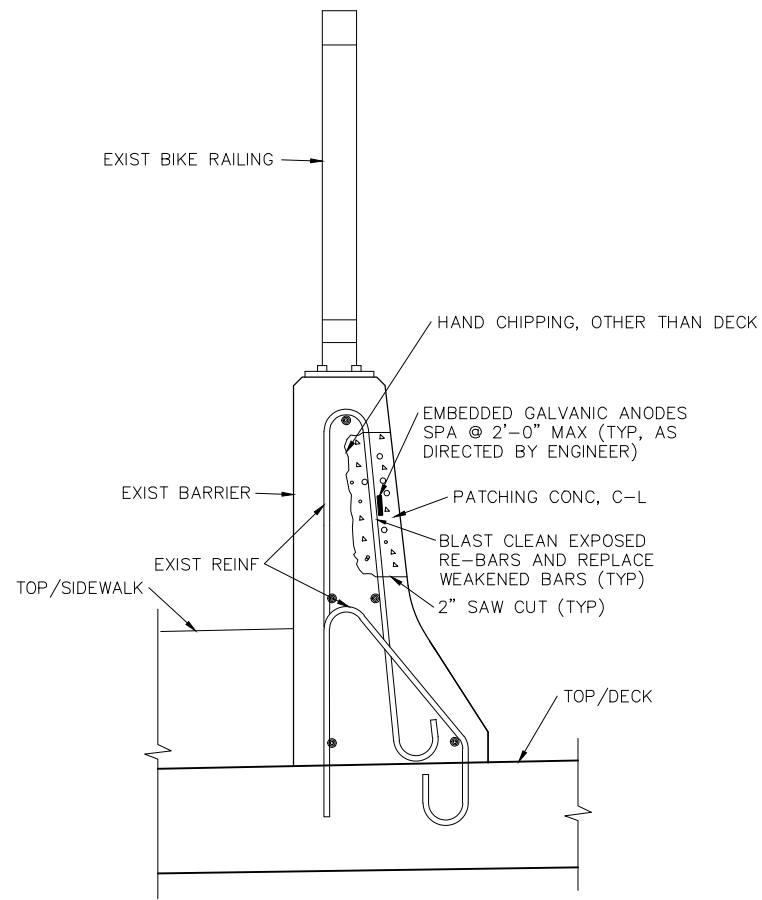
CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1647
www.a2gov.org



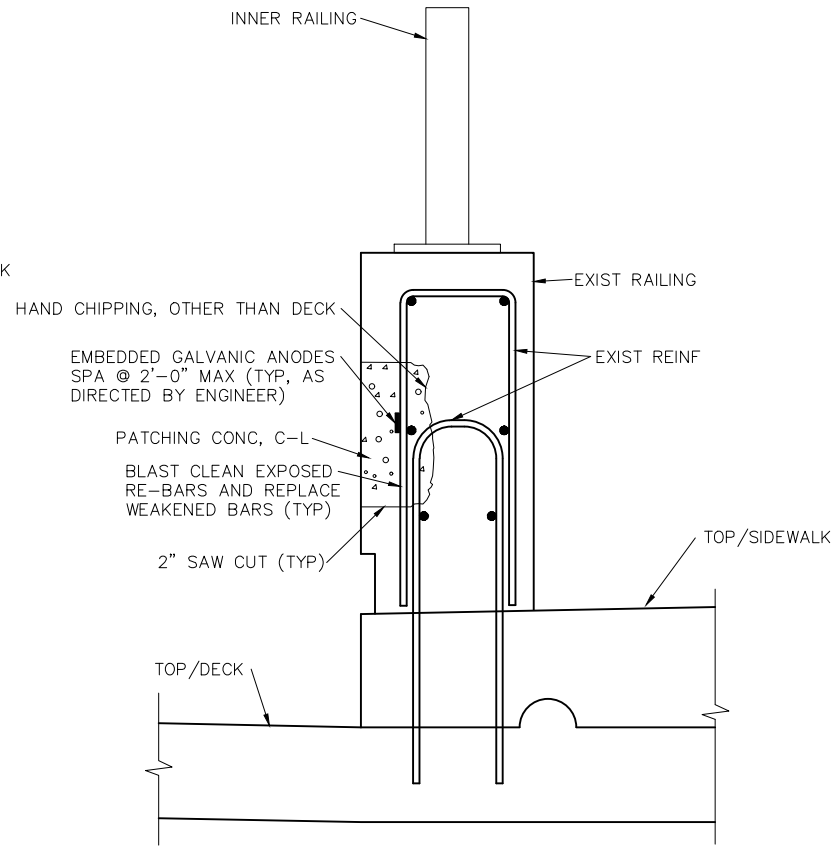
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
PRESTRESSED CONCRETE BEAM REPAIR DETAILS

SCALE: NO SCALE
DRAWING No. 2020-025

FILE NAME: Z:\2020\0957\CAD\CAD\2019\10 ML\MISC_DETAILS_001.DWG



FULLER ROAD RAILING



BROADWAY RAILING

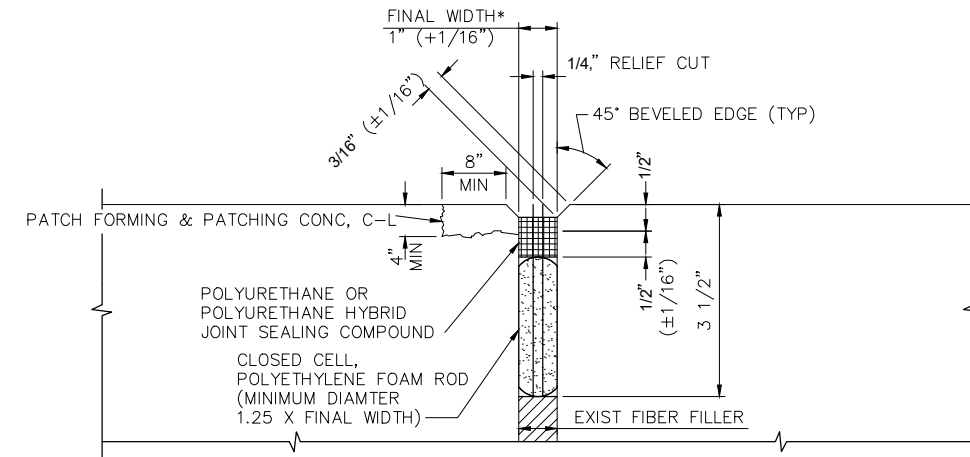
(APPLIES TO BOTH BRIDGES)

TYPICAL RAILING PATCH DETAILS

(DECK REINFORCEMENT NOT SHOWN FOR CLARITY)

SALVAGE AND BLAST CLEAN EXPOSED REINFORCEMENT. INCLUDED IN THE BID ITEM "HAND CHIPPING, OTHER THAN DECK".

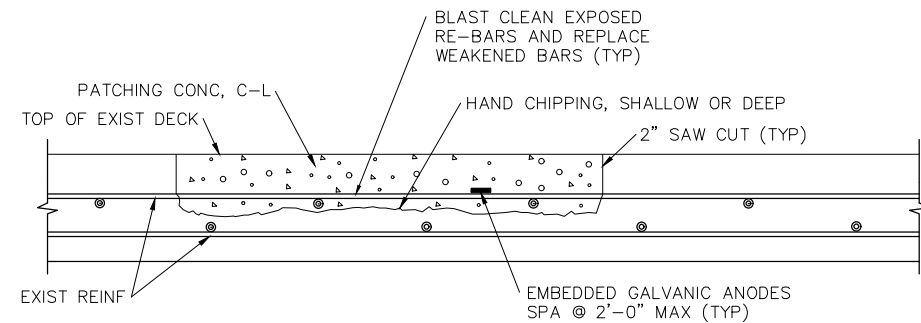
ENGINEER MUST VERIFY PREPARATION OF CAVITY AT EACH LOCATION PRIOR TO PLACING PATCH MATERIAL.



E3 JOINT REPLACEMENT DETAIL

(APPLIES TO BOTH BROADWAY BRIDGES)

AT LOCATION OF JOINT EDGE SPALLS, LIMITS TO BE APPROVED BY ENGINEER. ADDITIONAL WIDTH SAW-CUTTING MAY BE REQUIRED. ALL COSTS ASSOCIATED WITH ADDITIONAL SAW-CUTTING SHALL BE INCLUDED IN THE ITEM OF WORK "E3 JOINT SEALANT" AND WILL NOT BE PAID FOR SEPARATELY.



TYPICAL DECK PATCH

(APPLIES TO ALL THREE BRIDGES)

SALVAGE, BLAST CLEAN, AND REUSE ALL EXPOSED REINFORCEMENT. INCLUDED IN THE BID ITEM "HAND CHIPPING, OTHER THAN DECK".

ENGINEER MUST VERIFY PREPARATION OF CAVITY AT EACH LOCATION PRIOR TO PLACING PATCH MATERIAL.

MISCELLANEOUS DETAILS



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

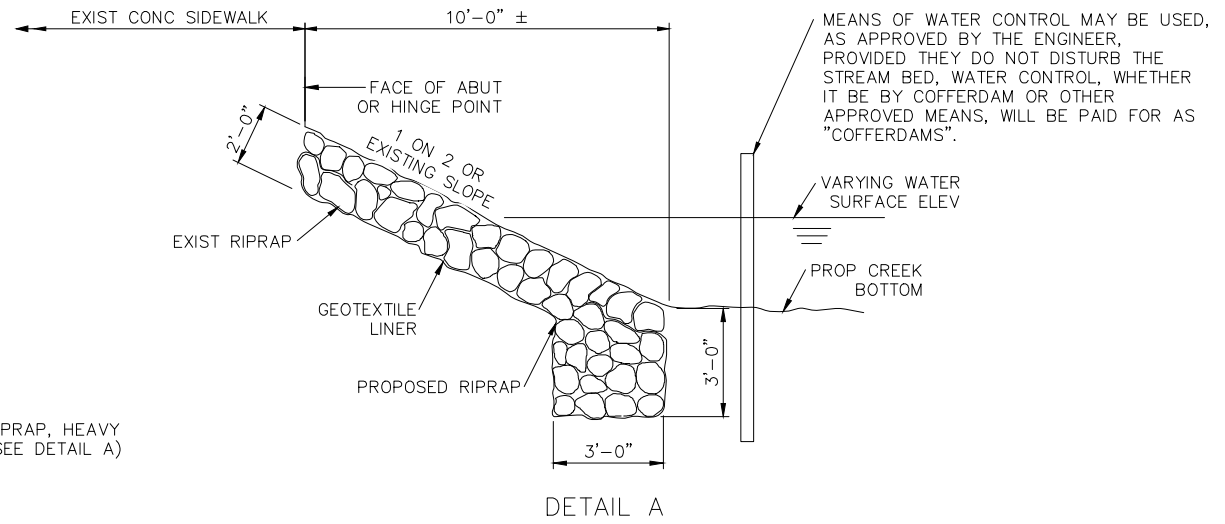
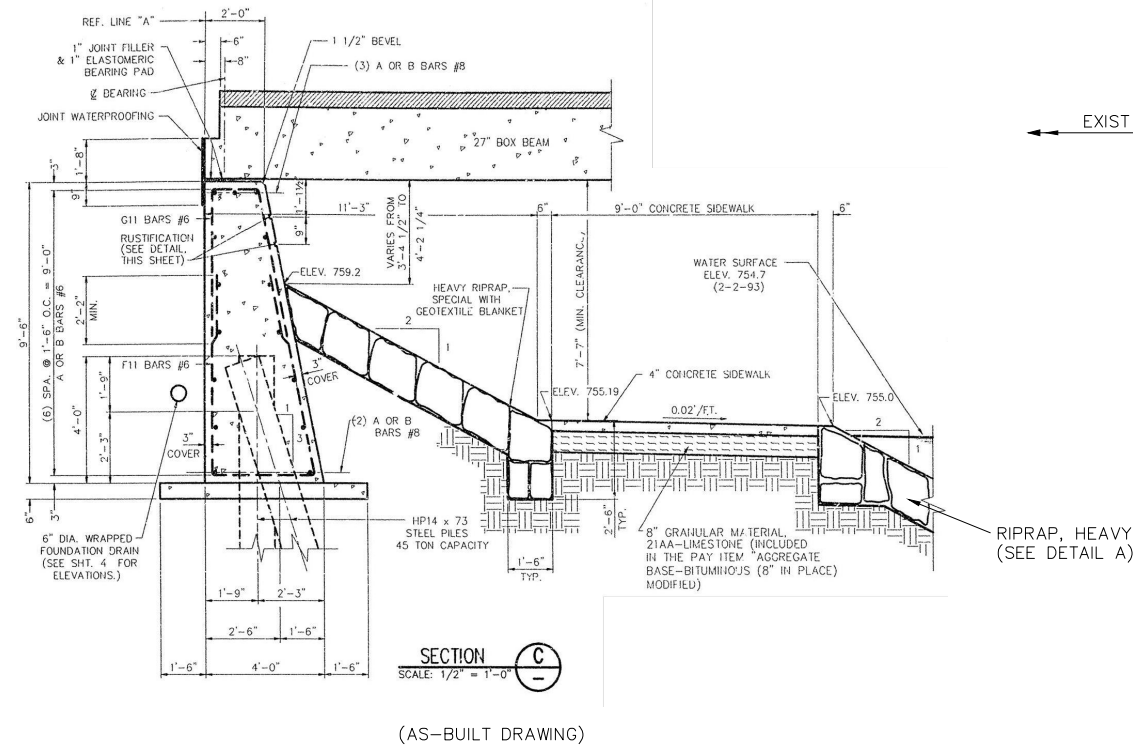
CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
ANN ARBOR, MI 48106-1705
734-794-6410
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
MISCELLANEOUS DETAILS

SCALE: NO SCALE
DRAWING No. 2020-025

FILE NAME: Z:\2020\0957\CAD\CAD2019\10 ML\MISC_DETAILS_002.DWG



RIPRAP DETAILS

(FULLER ROAD WEST ABUTMENT)

TOE OF RIPRAP SHALL BE AT OR BELOW EXISTING STREAMBED/SLOPE ELEVATION.

AN APPROPRIATE METHOD OF WATER DIVERSION FOR PLACING RIPRAP SHALL BE PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

THE RIPRAP SCHEME SHOWN IS A MINIMUM REQUIREMENT FOR SCOUR. BROKEN CONCRETE SHALL NOT BE USED FOR RIPRAP. ONLY NATURAL, ROUNDED STONES SHALL BE USED.

MEANS OF WATER CONTROL MAY BE USED, AS APPROVED BY THE ENGINEER, PROVIDED THEY DO NOT DISTURB THE STREAM BED, WATER CONTROL, WHETHER IT BE BY COFFERDAM OR OTHER APPROVED MEANS, WILL BE PAID FOR AS "COFFERDAMS".

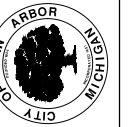
RIPRAP DETAILS

(FULLER ROAD OVER HURON RIVER)



REV.	DESCRIPTION	DATE	DRAWN	CHECKED

CITY OF ANN ARBOR
PUBLIC SERVICE
301 EAST HURON STREET
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734-794-6410
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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
CITY OF ANN ARBOR 2020 BRIDGE
CAPITAL PREVENTIVE MAINTENANCE REPAIRS
RIPRAP DETAILS

SCALE: NO SCALE
DRAWING No. 2020-025

ATTACHMENT A.2

Pre-final Detailed Specifications – 2020 Capital Preventative Bridge Maintenance Project

The Prospective Proposers (Consultant) shall note that the Detailed Specifications that are included herein are to be considered **draft** versions of these documents and are subject to change. They are being included here to provide an example of the probable contract specifications that will be established as part of the intended project.

MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING 103A

**CITY OF ANN ARBOR
SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC
AND
CONSTRUCTION SEQUENCING**

FIS:JD

1 of 4

6/26/20

General.- Maintain traffic according to Subsection 104.11 and Sections 812 and 922 of the MDOT 2012 Standard Specifications for Construction, including any Supplemental Specifications, the 2011 Edition of the Michigan Manual on Uniform Traffic Control Devices (MMUTCD), and as specified herein.

The Contractor shall furnish, erect, maintain and, upon completion of the work, remove all traffic control devices and barricade lights within the project and around the perimeter of the project for the safety and protection of through and local traffic. This includes, but is not limited to; advance, regulatory, and warning signs; barricades and channeling devices at intersecting streets on which traffic is to be maintained; barricades at the ends of the project and at right-of-way lines of intersecting streets, and moving traffic control devices for construction operations.

Materials.- The materials and equipment shall meet the requirements specified in the sections designated of the MDOT 2012 Standard Specifications for Construction and all Special Provisions contained in these Contract Documents.

Permits.- Prior to the start of construction, the Contractor shall obtain a "Right-of-Way" and a "Lane Closure" Permit from the City of Ann Arbor Project Management Services Unit. The fees for these permits will be waived. The lane closure permit must be obtained at least 48 hours in advance of any proposed street or lane closing.

Work Restrictions.- Lane closures, other than short-term daily closures will not be permitted on Maiden Lane. Sidewalk closures will be permitted on Maiden Lane for railing rehabilitation work.

A complete road closure will be permitted for a period not to exceed 60 days on Island Drive. A detour route shall be posted as detailed in the plans.

Sidewalk and Lane closures will be permitted on Huron Parkway as detailed in the plans.

Sidewalk and Lane closures will be permitted on Broadway Street as detailed in the plans.

Sidewalk and Lane closures will be permitted on Fuller Road as detailed in the plans.

MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING 103A

CITY OF ANN ARBOR SPECIAL PROVISION FOR **MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING**

FIS:JD

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During the University of Michigan home football game weekends no work whatsoever will be permitted. All streets and sidewalks that can be opened shall be opened. Home football game weekends start at 3:30 p.m. on Friday and end at 7:00 a.m. the following Monday.

During the Ann Arbor Art Fairs, July 15 through 18, 2021, road work and traffic interruptions will not be permitted. All streets and sidewalks that can be opened shall be opened. Work that will not interrupt traffic will be permitted. Trucking on or off site will not be permitted.

During the University of Michigan fall student move-in dates, road work and traffic interruptions will not be permitted. All streets and sidewalks that can be opened shall be opened. Work that will not interrupt traffic will be permitted. Trucking on or off site will not be permitted. The exact move-in dates are not known at this time but will be in late August or early September. The Contractor shall anticipate at least two days for each fall student move-in and shall include this time in their construction schedule.

Police and Fire.- The Contractor shall notify local police, fire departments and emergency response units a minimum of three business days (72 hours) prior to the closure of any roads, or traffic shifts causing restricted movements of traffic or restricted access.

Work Performed by City of Ann Arbor Signs and Signals Unit.- City of Ann Arbor Signs and Signals Unit will be responsible for adjustments to pedestrian signals at the following intersections when sidewalk closures are in place; Fuller Road and Maiden Lane, Huron Parkway and Fuller Road, Huron Parkway and Geddes Avenue, Fuller Road and Cedar Bend Drive, Broadway Street and Swift Street. The Contractor shall coordinate with, and provide at least 72 hours (working days only, Monday through Friday) advance notice, to Signs and Signals personnel for these purposes.

Maintenance of Traffic, General.- Unless otherwise indicated on the drawings, residential side streets shall not be closed to through traffic except during construction operations of short duration and only with written approval of the Engineer.

The Contractor shall not obstruct traffic lanes in any manner from 7:00 to 9:00 a.m. and from 3:30 to 6:00 p.m. At other times the temporary obstruction of traffic for loading and unloading of trucks will be permitted if the Contractor provides flag control in conformance with Part VI of the MMUTCD. During temporary obstructions, a minimum of two flaggers

MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING 103A

**CITY OF ANN ARBOR
SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC
AND
CONSTRUCTION SEQUENCING**

FIS:JD

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6/26/20

are required. The cost of flag control shall be included in the contract pay item "Traffic Regulator Control".

Daily lane closures in accordance with City of Ann Arbor requirements will be permitted for select activities detailed in the Sequence of Construction. Obtain a "Lane Closure" permit for daily lane closures as detailed in the Permits section of this Special Provision. Daily lane closures shall be implemented using signs, cones, drums, lighted arrow boards, and other devices as required by the MMUTCD. The cost of daily lane closures shall be included in the contract pay item "Minor Traf Devices".

The Contractor shall coordinate his operations with all Utilities, Contractors and/or sub-Contractors performing work on this and other projects within, or adjacent to, the Construction Influence Area (CIA).

Maintenance.- A minimum of one (1) driveway shall be maintained at all times to all residences and businesses. Walks, driveways, and entrances to buildings shall not be blocked. Vehicular and pedestrian access shall be maintained to all properties.

Signs and Pavement Markings.- When sidewalk closures are in place, the Contractor shall completely cover all conflicting warning, regulatory and guide signs in accordance with Section 812.03 of the Standard Specifications for Construction, 2012 edition, and all applicable details therein.

Sequence of Construction.- This special provision does not detail all the project work. It is intended to indicate major project requirements and assist the Contractor in developing, for the review and approval of the Engineer, the Progress Schedule as outlined elsewhere in the contract documents.

The Contractor shall notify the Engineer a minimum of 5 working days prior to the implementation of any pedestrian detours, or temporary lane closures. These detours or lane closures shall only be implemented with the approval of the Engineer. The Contractor shall also notify City of Ann Arbor Signs and Signals personnel regarding signal work as specified in the section entitled "Work Performed by City of Ann Arbor Signs and Signals."

All proposed work must be performed in accordance with the timing requirements of the Progress Clause. Proposed work at each structure may take place in succession or

MAINTAINING TRAFFIC AND CONSTRUCTION SEQUENCING 103A

**CITY OF ANN ARBOR
SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC
AND
CONSTRUCTION SEQUENCING**

FIS:JD

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6/26/20

concurrently. Daily lane closures in accordance with City of Ann Arbor requirements will be permitted during mobilization, de-mobilization, and at other times as approved by the Engineer. Pedestrian detours for railing repairs and barrier rehabilitation work at Maiden Lane may take place at any time during the course of the project in accordance with the timing requirements of the Progress Clause.

Measurement and Payment.- The estimated quantities for maintaining traffic is based on the maintenance of traffic plans. Any additional signing, traffic control devices, pavement markings, or the like required to expedite the construction, beyond that which is specified, shall be at the Contractor's sole expense.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CERTIFIED PAYROLL COMPLIANCE AND REPORTING

AA:MGN

1 of 2

01/30/18

a. Description.- This specification covers all administrative requirements, payroll reporting procedures to be followed by Contractors performing work on City-sponsored public improvements projects, and all other miscellaneous and incidental costs associated with complying with the applicable sections of the City of Ann Arbor Code of Ordinances with regard to payment of prevailing wages and its Prevailing Wage Compliance policy.

This specification is **not** intended to include the actual labor costs associated with the payment of prevailing wages as required. Those costs should be properly incorporated in all other items of work bid.

b. General.- The Contractor is expected to comply with all applicable sections of Federal and State prevailing wage laws, duly promulgated regulations, the City of Ann Arbor Code of Ordinances, and its Prevailing Wage Compliance Policy as defined within the contract documents. The Contractor shall provide the required certified payrolls, city-required declarations, and reports requested elsewhere in the contract documents within the timeline(s) stipulated therein.

The Contractor shall also provide corrected copies of any submitted documents that are found to contain errors, omissions, inconsistencies, or other defects that render the report invalid. The corrected copies shall be provided when requested by the Supervising Professional.

The Contractor shall also attend any required meetings as needed to fully discuss and ensure compliance with the contract requirements regarding prevailing wage compliance. The Contractor shall require all employees engaged in on-site work to participate in, provide the requested information to the extent practicable, and cooperate in the interview process. The City of Ann Arbor will provided the needed language interpreters in order to perform wage rate interviews or other field investigations as needed.

Certified Payrolls may be submitted on City-provided forms or forms used by the Contractor, as long as the Contractor's forms contain all required payroll information. If the Contractor elects to provide their own forms, the forms shall be approved by the Supervising Professional prior to the beginning of on-site work.

CERTIFIED PAYROLL COMPLIANCE AND REPORTING 104

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CERTIFIED PAYROLL COMPLIANCE AND REPORTING

AA:MGN

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01/30/18

c. Unbalanced Bidding.- The City of Ann Arbor will examine the submitted cost for this item of work prior to contract award. If the City determines, in its sole discretion, that the costs bid by the Contractor for complying with the contract requirements are not reasonable, accurately reported, or may contain discrepancies, the City reserves the right to request additional documentation that fully supports and justifies the price as bid. Should the submitted information not be determined to be reasonable or justify the costs, the City reserves the right to pursue award of the contract to the second low bidder without penalty or prejudice to any other remedies that it may have or may elect to exercise with respect to the original low-bidder.

The Contract Completion date will not be extended as a result of the City’s investigation of the as-bid amount for this item of work, even if the anticipated contract award date must be adjusted. The only exception will be if the Contractor adequately demonstrates that their costs were appropriate and justifiable. If so, the City will adjust the contract completion date by the number of calendar days commensurate with the length of the investigation, if the published Notice to Proceed date of the work cannot be met. The contract unit prices for all other items of work will not be adjusted regardless of an adjustment of the contract completion date being made.

d. 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:

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Certified Payroll Compliance and Reporting	Lump Sum

The unit price for this item of work shall include all supervisory, accounting, administrative, and equipment costs needed to monitor and perform all work related to maintaining compliance with the tasks specified in this Detailed Specification, the City of Ann Arbor Code of Ordinances, its Prevailing Wage Compliance policy and the applicable Federal and State laws.

Payment for this work will be made with each progress payment, on a pro-rata basis, based on the percentage of construction completed. When all of the work of this contract has been completed, the measurement of this item shall be 1.0 times the Lump Sum bid amount. This amount will not be increased for any reason, including extensions of time, extra work, and/or adjustments to existing items of work.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE

AA:MGN

1 of 3

11/07/19

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

1. The Contractor shall not begin the work of this project until receipt of the fully executed Contract and Notice-to-Proceed. It is expected that the work of this project will begin on Wednesday, April 15, 2020.

2. The entire work under this Contract including, but not limited to; maintaining traffic; chipping and patching; rip-rap installation; concrete surface coating; overband crack sealing; removal of traffic devices; clean-up and restoration of the site; and all other contract work shall be completed by the **Substantial Completion** date of **Wednesday, July 8, 2020**.

3. Final restoration of all areas within the project limits and any other disturbed areas shall be completed by the **Final Completion** date of **Friday, July 31, 2020**.

Failure to meet the Substantial Completion date for all work as specified herein within the times specified herein, including time extensions granted thereto as determined by the Engineer, shall entitle the City to deduct from the payments due the Contractor, **\$900.00** in Liquidated Damages, and not as a penalty, for delays in the completion of the work for each and every calendar day beyond the Substantial Completion date as defined in this Detailed Specification.

If the Contractor fails to complete the work such that Final Completion cannot be granted by the date specified herein, including time extensions granted thereto as determined by the Engineer, it shall entitle the City to deduct from the payments due the Contractor, **\$450.00** in Liquidated Damages, and not as a penalty, for delays in the Final Completion of the work for each and every calendar day beyond the Final Completion date defined in this Detailed Specification.

The Contractor shall be furnished with 2 copies of the Contract, for their execution, on, or about, Wednesday, December 18, 2019. The Contractor shall properly execute both copies of the Contract and return them, with the required Bonds and Insurance Certificates, to the City within 21 calendar days. The Contractor shall not begin the work before the applicable date(s) as described herein without approval from the Engineer, and in no case before receipt of the fully executed Contract. **City Council approval is expected Monday, February 3, 2020**.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE

AA:MGN

2 of 3

11/07/19

This project is on an expedited schedule. Time is of the essence in the performance of the work of this contract. The Contractor is expected to mobilize sufficient personnel and equipment and work throughout all authorized hours to complete the project within the specified time/date of this Contract.

The hours of work shall be governed by the Ann Arbor City Code and are 7:00 a.m. to 8:00 p.m. Monday through Saturday. Work on Sunday will not be allowed unless approved in advance by the Public Services Area Administrator.

Prior to the start of any construction, including mobilization and staging, the Contractor shall submit a detailed progress schedule of work for the Engineer's review and approval. Work shall not start until a schedule is approved in writing by the Engineer. The proposed schedule must fully comply with the scheduling requirements contained herein, and in other Detailed Specifications contained within the contract documents. The Contractor shall update the approved work schedule upon changes and upon request by the Engineer and present it to the Engineer within 7 days of said request or change.

The Progress Schedule shall include, as a minimum, the controlling work items for the completion of the project and the planned dates that these work items will be controlling operations. When specified in the contract documents, intermediate completion dates, as well as the date the project is to be opened to traffic, and the final project completion date shall also be included in the project schedule.

The City of Ann Arbor has not obtained a Temporary Permit of Entry from MDOT or Amtrak for work within the existing railroad right-of-way. Should the Contractor elect to stage any work within the MDOT-owned railroad right-of-way they shall be responsible to obtain any and all needed permits from MDOT and/or Amtrak. No time extensions will be granted for any delays whatsoever that are caused by MDOT or Amtrak for this project.

No work shall be performed, or lane closures, permitted during any University of Michigan Home Football Game weekend, which for the purpose of this contract, is defined as 3:30 p.m. on the Friday immediately prior to the game and extending until 7:00 a.m. on the Monday immediately thereafter. All roadways and sidewalks shall be re-opened for these events.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT SCHEDULE

AA:MGN

3 of 3

11/07/19

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

If the work required by this construction contract is not completed by the specified date(s) including any extensions of time granted thereto, at the sole discretion of the City of Ann Arbor, this Contract may be terminated with no additional compensation due to the Contractor, and the Contractor may be forbidden to bid on future City of Ann Arbor projects for a period of at least 3 years. If the Engineer elects to terminate the Contract, contract pay items paid for on a Lump Sum basis shall be paid up to a maximum percentage equal to the percentage of the contract work that has been completed.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HOURS OF WORK

AA:MGN

1 of 1

09-04-20

a. General Restrictions.- Hours of work shall be as stated in the Ann Arbor City Code Title IX, Chapter 106, Pg. 9.13, Weekdays, Monday through Saturday, between the hours of 7:00 a.m. and 8:00 p.m.

b. Exceptions.- The Contractor shall only perform work at night or on Sundays as required by the contract documents, unless there is a special need and the work is approved by the Engineer. All requests to work during off-hours shall be submitted to the Engineer for approval a minimum of three (3) working days prior to beginning the work.

c. Method of Payment.- The costs of night work, whether required by the Contract or requested by the Contractor, shall not be paid for separately, but shall be considered included in the cost of the affected contract items (pay items).

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX. \$ _____

AA:MGN

1 of 4

11/12/19

a. **Description.**- This work shall consist of performing all needed preparatory work and operations needed to begin the work of the project. All elements of this item of work are to be performed in accordance with the City of Ann Arbor Standard Specifications for Construction (current edition), the 2012 MDOT Standard Specifications for Construction (as applicable), as shown on the plans, and as directed by the Engineer.

b. **Materials.**- None specified.

c. **Methods of Construction.**- 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, material testing, inspection, and construction surveying and staking;
- Coordination of, and cooperation with, other contractors, agencies, departments, and utilities;
- Coordination with City forces to stockpile and load used castings on City vehicles;
- Protection and maintenance of all existing utilities, including support, protection, capping, repair, replacement, connection or re-connection of existing pipes, and utilities damaged by the Contractor's operations;
- Maintaining and removing all soil erosion and sedimentation controls (as specified herein or as shown on project plans) for which no pay item exists;
- Maintaining the site, and all areas within the Construction Influence Area, in a well-graded and drained state at all times during the course of the project. De-watering and drainage of all excavations as required to maintain a stable, open hole;
- The continuous maintenance of the temporary road surface within the Construction Influence Area throughout the duration of the construction. This includes any needed grading to maintain the surface in a smooth condition free of potholes, ruts, bumps, or other objectionable conditions.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX. \$ _____

AA:MGN

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11/12/19

- Temporary sheeting, bracing, and shoring of excavations in accordance with the applicable MIOSHA Standards;
- Maintaining driveway openings, sidewalks, bike paths, mail deliveries, and solid waste/recycle pick-ups. This includes the placement and maintenance of maintenance aggregate in driveway openings and Engineer approved "cold-patch" material across sidewalk ramps all as needed and as directed by the Engineer;
- Storing all materials and equipment and repairing damaged areas caused by the work of the project;
- Temporary removal/re-location, storage, and re-installation/re-setting of existing street name, guide, and regulatory signs, mailboxes, newspaper tubes, etc. which conflict with the proposed construction;
- Site clean-up on a daily basis during the course of the project's construction;
- Coordination efforts to furnish and operate various-size vehicles/equipment as directed by the Engineer
- Furnishing and operating vacuum-type street cleaning equipment a minimum of once per week, or more frequently, if directed by the Engineer;
- Furnishing and operating vacuum-type utility structure cleaning equipment,
- Furnishing and operating both vibratory plate and pneumatic-type ("pogo-stick") compactors;
- Noise and dust control in accordance with the applicable City of Ann Arbor Ordinances;
- Mobilization(s) and demobilization(s) of all needed materials, equipment, and personnel;
- Furnishing of all required shop drawings, informational submittals, and material certifications for all needed materials and supplies incorporated into the project;
- The proper off-site disposal of all excavated materials and debris;

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX. \$ _____

AA:MGN

3 of 4

11/12/19

- Removal of shrubs, brush, and trees less than 6" diameter (DBH) as shown on the plan sheets or as directed by Engineer that is required to effectively complete the work of the project;
- Fencing to protect excavation over 1' in depth during non-work hours. The fencing must be a minimum of 36" high, be constructed of orange HDPE material, and reasonably secured to prevent unwanted access;
- All miscellaneous and incidental items such as overhead, insurance, and permits; and,
- Meeting all requirements relating to Debarment Certification, Davis Bacon Act, and Disadvantaged Business Enterprise, and providing the necessary documentation.

d. **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. 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 item (pay item):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
General Conditions, Max. \$ _____	Lump Sum

**CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GENERAL CONDITIONS, MAX. \$ _____**

AA:MGN

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11/12/19

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 of Ann Arbor Standard Specifications for Construction and as modified by this Detailed Specification.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SUBBASE AND AGGREGATE BASE

FIS/JBD:COAA:MGN

1 of 2

09-04-20

a. Description. This work shall consist of constructing subbase and/or aggregate base courses, on either a prepared subgrade or subbase as indicated on the Plans or where directed by the Engineer. This work shall be performed in accordance with Sections 301, 302, and 307 of the 2012 MDOT Standard Specification for Construction except as specified herein.

b. Materials. The material used for this work shall meet the requirements of Sections 301, 302, 307, and 902 of MDOT 2012 Standard Specification for Construction, except that the aggregate base shall be either 21-AA limestone (permanent applications) or 22-A (temporary pavement applications) with a maximum loss by washing of 8% and the subbase shall be Class II Granular Material.

c. Construction Method. Subbase, aggregate base courses, and approaches shall not be placed when there are indications that the mixture may become frozen before the maximum unit weight is obtained, and in no case shall they be placed on a frozen subbase or subgrade.

The subbase and subgrade shall be shaped to the crown and grade specified on the plans and maintained in a smooth condition. The top of the subbase shall be placed to within ½ inch below and ½ inch above plan grade. The top of the aggregate base shall be placed to within ½ inch below and ¼ inch above plan grade. Variations within this tolerance shall be gradual. If in the opinion of the Engineer, the Contractor's equipment is causing or will cause any ruts in or damage to the subbase or subgrade, the equipment shall not be permitted on the subbase or subgrade.

Should the subgrade, subbase or aggregate base become damaged due to the Contractor's equipment or by local traffic, the subgrade, subbase, or aggregate base course shall be restored to the condition required by the Specifications without additional compensation to the Contractor.

No pavement course, concrete curb and gutter, or concrete driveway opening shall be placed until the subbase has been compacted to not less than 95 percent, and aggregate base course to not less than 98 percent of their respective maximum dry densities and until a "Permit to Place" has been issued by the Engineer.

Base course aggregate shall be handled and/or stockpiled on-site in a manner that minimizes segregation. Base course aggregate shall be deposited from trucks or through a spreader in a manner that will minimize segregation of material and that is approved by

the Engineer. The re-handling of base course aggregate by the Contractor will not be considered sufficient cause to allow the material to become segregated. The Contractor may be required to wet the materials prior to and/or during placement to minimize segregation and to aid in compaction of the material should it be necessary.

All structures, including manholes, valve boxes, inlet structures and curbs shall be protected from damage and contamination by debris and construction materials. Structures shall be maintained clean of construction debris and properly covered at all times during the construction.

The Contractor may be charged for the cleaning by others of accumulated construction debris in the utility structures, and damages resulting from the uncleaned structures.

d. Measurement and Payment. The completed work as measured will be paid for at the contract unit prices for the following contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Subbase, CIP, Class II Granular Material, Modified	Cubic Yard
Aggregate Base, Variable Thickness.....	Cubic Yard

“Subbase, CIP, Class II Granular Material, Modified”, and “Aggregate Base, variable thickness” will be measured by volume in cubic yards. The items of work will be paid for at the contract unit prices, which shall be payment in full for all labor, material and equipment needed to accomplish this work.

The subbase will be calculated using the nominal width and depth of the subbase indicated on the plans. The aggregate base will be placed on top of the existing aggregate base after the existing asphalt surface has been removed in order to achieve the desired profile grade as indicated on the plans. As the existing HMA thickness is unknown, it is impossible to calculate precisely how much aggregate will be required. The aggregate base will be calculated using the nominal width of the aggregate base indicated on the plans and an approximate average depth of aggregate base of 5 inches.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
STORM SEWER, MODIFIED

FIS/JBD:COAA:MGN

1 of 9

09-04-20

a. Description. This work shall consist of installing storm sewer in accordance with Section 402 of the Michigan Department of Transportation 2012 Standard Specifications for Construction and as specified herein. All newly constructed storm sewer shall be tested, and video inspected in accordance with the requirements of this special provision.

The Contractor shall furnish all materials, equipment, tools, and labor necessary to perform the work required by this special provision and shall unload, haul, distribute, store, and install all pipe, fittings, and accessories.

The Contractor shall excavate all trenches and pits to the required dimensions; excavate the bell holes; sheet, brace, and properly support the adjoining ground or structures where necessary to comply with MIOSHA and other relevant safety standards; properly handle and remove all drainage or ground water so that the work can be completed in accordance with the specifications; install and test the pipe, fittings, and accessories; backfill and compact all fill materials within trenches and pits; and remove and properly dispose of surplus or unsuitable excavated material off-site.

b. Materials. The materials used for this work shall be in accordance with Section 402.02 except as modified herein.

Bedding and backfill for Trench Detail A shall be Granular Material, Class II, meeting the requirements of Section 902. Bedding and backfill for Trench Detail B shall be Granular Material, Class II and Engineer-approved material for the backfill that is placed at an elevation greater than 1-foot above the top-of-pipe and/or outside the 1:1 influence line of paved areas.

All pipe shall be concrete, contain steel reinforcement, and shall be of the type, class, and size as shown on the plans.

Reinforced concrete pipe shall conform to the requirements for reinforced concrete pipe of ASTM Designation C 76, Class IV, unless otherwise designated on the Plans. For diameters larger than listed in ASTM Specifications, wall thickness and reinforcing steel shall be as shown in Section 909 Table 909-3 or 909-4 as applicable.

Reinforced elliptical concrete pipe shall conform to the requirements for reinforced concrete elliptical pipe of ASTM Designation C 507, Class as designated on the Plans. For diameters larger than listed in ASTM Specifications, wall thickness and reinforced steel shall be as shown in Section 909 Table 909-5.

Joints for reinforced concrete pipe shall meet ASTM C 443 and shall be rubber gasket for tongue and groove, full bell and spigot rubber O-ring gasket, or modified grooved tongue with rubber gasket. Joints for sewers over 36 inches in diameter shall have inside joints cement mortar pointed to their full depth and shall have the outside joints provided with a cement mortar collar.

Joints for reinforced concrete elliptical pipe shall be mastic compound with inside cement mortar pointing to full depth and outside cement mortar collar.

Lubricants used in making up joints shall be supplied by the pipe manufacturer and the joints shall be coupled in accordance with the manufacturer's requirements.

Class X concrete as described in this special provision shall consist of Portland Cement, coarse and fine aggregates, and water, proportioned with 282 lbs. cement (3 sacks) per cubic yard to produce a minimum 28-day compressive strength of 1000 psi.

c. Pipe Inspection and Delivery. The following information shall be clearly marked on each length of pipe:

- a) The pipe designation and class (e.g., C 76, Class IV).
- b) The name or trademark of the manufacturer.
- c) Identification of the manufacturing plant.
- d) The date of manufacture.
- e) Testing lot number or testing lab stamp.
- f) Reinforced concrete pipe with elliptical reinforcement shall be clearly marked on the inside and the outside opposite walls along the minor axes of the elliptical reinforcing.
- g) Beveled pipe shall be marked with the amount of bevel and the point of maximum length shall be marked on the beveled end.

All pipe furnished shall be subject to inspection on arrival at the job site by the Engineer. The purpose of the inspection shall be to cull and reject pipe or fittings that, independent of physical tests specified under the standard specifications designated herein, fail to conform to the requirements of these Specifications.

The Contractor shall notify the Engineer sufficiently in advance so that an Inspector may be on the job during the unloading of materials. A minimum notice of 24 hours is required for such unloading and inspection.

Concrete pipe of any type shall be subject to rejection on account of any of the following:

- a) Variation in any dimension exceeding the permissible variations given in the material specifications.
- b) Fractures or cracks passing through the wall.
- c) Defects that indicate imperfect proportioning, mixing, or molding.
- d) Surface defects indicating honeycombed or open texture.

- e) Variation of more than 1/16 inch per lineal foot in alignment of pipe intended to be straight.
- f) Insecure attachment of branches or spurs.
- g) Damaged ends, where in the judgment of the Engineer such damage would prevent making a satisfactory joint.

Rejected pipe shall be plainly marked by the Inspector and immediately removed from the site of the work by the Contractor without cost to the project.

All pipe furnished shall be accompanied by the manufacturer's certificate of test showing conformity with the Specifications. Each certificate shall identify a specific lot number, quantity of pipe, and show actual test results for the lot furnished. These certificates shall be submitted to the Inspector at the time of unloading.

d. Methods of Construction. All construction shall be performed in accordance with Section 402.03 except as modified herein.

The Contractor shall fully comply with all laws and regulations governing construction methods and the furnishing and use of all safeguards, safety devices, protective equipment, and pollution controls. Where required to support the surfaces of adjacent roadways, structures, or excavations, or to protect the construction work, adjacent work, or workmen, the Contractor shall design and install sheeting, bracing, and shoring. The Engineer will not review the Contractor's design(s) or be responsible for the adequacy of the elements supporting the trench. The placing of such supports shall not release the Contractor of the responsibility for the sufficiency and integrity of the trench, trench opening, and the safety of all persons involved in the work. In the removing of sheeting and bracing after the construction has been completed, special care shall be taken to prevent any caving of the sides of the excavation and injury to the completed work or to adjacent property.

The bedding and backfill for Trench Detail A shall be MDOT Class II sand compacted to 95% of its maximum dry density. Compaction shall be performed as specified elsewhere in this special provision.

The bedding and backfill for Trench Detail B to a point 12 inches above the top of pipe, shall be MDOT Class II granular material compacted to 95% of its maximum dry density. The backfill above a point 12 inches above the top of pipe shall be Engineer-approved material, compacted to 90% of its maximum dry density. Compaction shall be performed as specified elsewhere in this special provision.

The Contractor shall proceed with caution in the excavation and preparation of the trench so that the exact location of underground structures, both known and unknown, may be determined, and the Contractor shall be held responsible for the repair of such structures when broken or otherwise damaged. The Contractor shall not intentionally remove existing storm sewer, storm sewer leads, or sanitary sewer leads in lieu of protecting and preserving them in order to expedite the proposed construction.

Excavation normally shall be by open cut from the surface, except as otherwise specified, or in special cases where crossing under trees, pavements, or structures. The Contractor may use tunnel methods if permitted in writing by the Engineer, provided his method of backfill is such, in the judgment of the Engineer, as to avoid any present or future injury to the tree, pavement, or structure. All excavation shall be in such manner as will provide adequate room for the construction and installation of the work to the lines, grades and dimensions shown on the Plans.

The trench shall be excavated to a minimum of four inches below the final location of the pipe. For reinforced concrete pipe 66" in diameter or larger, the trench will be excavated to a minimum of six inches below the pipe. This cut shall be filled to the level of the bottom quadrant of the pipe with Class II granular material as specified herein, shaped and compacted to the pipe barrel.

Bell holes shall be provided in the trench bottom at each joint to permit the joints to be made properly.

The Contractor shall dig-up and expose all utility crossings prior to laying any storm sewer pipe. This will allow the Engineer to adjust the grade of the storm sewer, if possible, to avoid the existing utilities. The costs of the exploratory excavation, and all related costs, shall be included in the unit price of the storm sewer. The Engineer may require that some dig-ups be performed out of the current construction stage or phase where the sewer work is taking place in order to aid in alignment decisions. Any required traffic control measures required to comply with this requirement shall be included in the costs of "Minor Traf Devices" and "Traffic Regulator Control."

During the construction it may be necessary to cross under or over certain sewers, drains, culverts, water lines, gas lines, electric lines, and other underground structures or facilities, known or unknown. The Contractor shall make every effort to prevent damage to such underground structures and facilities. Wherever such structures or facilities are disturbed or broken, they shall be restored to a condition that is as good, or better than, that which existed prior to the disturbance and shall be acceptable to the owner and the City, at the Contractor's expense. These crossings shall be made with a minimum of twelve inches of vertical clearance between facilities.

Not more than 50 feet of trench shall be open at one time in advance of the pipe laying operation. At no time shall more than 200 feet of trench be opened and incompletely backfilled. At the end of each day, no more than 25 feet of trench may be left open, and access to all drives shall be restored. This opening shall be surrounded by fencing and barricades, or plated. The remainder of the trenching operation shall be available for safe vehicular and pedestrian traffic at all times.

All excavated material approved by the Engineer as backfill material and imported backfill material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks and driveways. All excavated material which is unsuitable for

backfill shall be immediately removed from the site by the Contractor unless otherwise provided in the contract documents. Hydrants under pressure, manholes of any kind, valve boxes, curb stop boxes, fire and police call boxes, and other utility controls shall be left unobstructed and accessible until the work is completed. Gutters shall be kept clear, or other satisfactory provisions made, for street drainage, and natural water courses shall not be obstructed.

Each pipe shall be inspected for defects prior to being lowered into the trench. Inside of pipe and outside of spigot shall be cleaned of any earth or foreign matter.

Proper implements, tools, and facilities satisfactory to the Engineer shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All pipe, manhole bases, manhole sections, and other similar items shall be carefully lowered into the trench piece by piece by means of suitable tools or equipment as recommended by the manufacturer, in such a manner as to prevent damage to them and their protective coatings and linings. Under no circumstances shall materials be dropped or dumped into the trench.

Construction of sewers shall begin at the outlet end and proceed upgrade. Pipe shall be laid on the prepared pipe bedding with the bell ends facing the direction of laying, unless otherwise directed by the Engineer.

The Contractor shall take every precaution to prevent foreign material from entering the pipe while it is being placed in the line. During laying operations, no debris, tools, clothing or other materials shall be placed in the pipe. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug. This provision shall apply during the noon hours as well as overnight. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.

Pipe shall be jointed as specified elsewhere herein.

No pipe shall be laid until a cut sheet for that pipe has been approved by the Engineer. All pipe shall be laid at the correct line and grade as indicated by the grade stakes and offset line. The correct line and grade shall be maintained by the use of a laser alignment system. Each pipe, as laid, shall be checked by the Contractor to insure that this result is obtained. The grade as shown on the Plans is that of the pipe invert for sewers and the work must conform to this profile. A variation of $\frac{1}{4}$ " from this profile grade will be deemed sufficient reason to cause the work to be rejected and re-laid. Sewer pipe alignment shall be maintained so as to not vary more than $\frac{1}{2}$ " from the correct line on pipes up to 36 inches in diameter nor more than 1" on pipes 42 inches in diameter and larger. Any pipe found out of line shall be re-laid properly by the Contractor.

Mechanical means shall be used for pulling home all rubber-gasketed pipe regardless of trench condition where manual means will not result in pushing and holding the pipe home. When a trench box or liner is used, a cable shall be used to pull the joints home and hold them in position.

Where work is performed in wet trenches or trenches with running sand, the Contractor shall provide and use mechanical means for pulling the pipe home in making up the joint and for holding the pipe joints tight until completion of the line. Mechanical means shall consist of a cable placed inside or outside of the pipe with a suitable winch, jack, or come-along for pulling the pipe home and holding the pipe in position.

Where not required by these Specifications, manual means will be acceptable only if the joints can be pushed home and hold themselves securely in place.

All pipes shall be bed on a four inch or thicker layer of compacted Class II granular material (unless noted otherwise on the applicable trench details) unless pipe undercutting is required. Perform any required pipe undercutting as directed by the Engineer and in accordance with the Section 402.03.A.

Where Class II granular material used as pipe bedding is required by the plans, from the bedding to the pipe centerline backfill shall be carefully placed Class II granular material, placed in maximum lift thicknesses of six inches, loose measure. Each lift shall be thoroughly compacted by hand tamps, pneumatic "pogo-sticks", or other approved methods, to at least 95% of the material's maximum dry density at optimum moisture content. Each lift shall extend the full width of the space between the pipe and trench wall, and the fill shall be brought up evenly on both sides of the pipe. The backfill under the haunches of the pipe shall be consolidated by the use of a tee-bar.

Where Class II granular material used as pipe bedding is required by the plans, from the pipe centerline to the top of the pipe, backfill shall be Class II granular material placed in maximum lift thicknesses of six inches, loose measure. Each lift shall be thoroughly compacted by hand tamps, pneumatic "pogo-sticks", or other approved methods, to at least 95% of the material's maximum dry density.

From the top of the pipe to two feet above the top of the pipe backfill shall be Class II granular material uniformly spread and machine tamped. Machine tamping shall include manually operated vibrating plate compactors. The backfill material shall be compacted in lifts of twelve inches, loose measure.

From two feet above the top of the pipe to the grade shown on the Plans or to the subgrade of surface materials, or to the subgrade of surface structures, backfill shall be Class II granular material (Trench Detail I installations) uniformly spread and machine tamped. If machine tamping includes manually operated vibrating plate compactors or self-propelled vibrating rollers the backfill material shall be compacted in lifts not exceeding twelve inches, loose measure. If a backhoe mounted compactor is employed, the backfill material shall be compacted in lifts of thirty-six inches, loose measure. Approval to use a particular machine tamping method will be withdrawn by the Engineer if the method causes injury to the pipe or adjacent structures or movement of the pipe. Each lift shall be thoroughly compacted to at least 95% of material's maximum dry density. The Engineer may give consideration to giving written permission to increase

the thickness of the lifts specified in this paragraph if satisfactory compaction is achieved and no undesirable side effects occur.

All storm sewer shall be television inspected by the Contractor. The Contractor shall furnish all labor, equipment and materials necessary for the television inspection. The Engineer shall be given 24 hours' notice so that an Inspector may witness the television inspection. All storm sewer lines are to be thoroughly cleaned prior to television inspection, by jetting of the lines or other approved methods. Television inspection shall consist of wetting the invert of the section by pouring clean water in the upstream manhole until it appears in the downstream manhole, and then, after the water has stopped flowing, passing a television camera through the section. From the top of the pipe to two feet above the top of the pipe backfill shall be Class II granular material uniformly spread and machine tamped. Machine tamping shall include manually operated vibrating plate compactors. The backfill material shall be compacted in lifts of twelve inches, loose measure.

From two feet above the top of the pipe to the grade shown on the Plans or to the subgrade of surface materials, or to the subgrade of surface structures, backfill shall be Class II granular material (Trench Detail A installations) uniformly spread and machine tamped. If machine tamping includes manually operated vibrating plate compactors or self-propelled vibrating rollers the backfill material shall be compacted in lifts not exceeding twelve inches, loose measure. If a backhoe mounted compactor is employed, the backfill material shall be compacted in lifts of thirty-six inches, loose measure. Approval to use a particular machine tamping method will be withdrawn by the Engineer if the method causes injury to the pipe or adjacent structures or movement of the pipe. Each lift shall be thoroughly compacted to at least 95% of material's maximum dry density. The Engineer may give consideration to giving written permission to increase the thickness of the lifts specified in this paragraph if satisfactory compaction is achieved and no undesirable side effects occur.

From one foot above the top of the pipe to the grade shown on the Plans or to the subgrade of surface materials, or to the subgrade of surface structures, backfill shall be Engineer-approved material (Trench Detail B installations) uniformly spread and machine tamped. If machine tamping includes manually operated vibrating plate compactors or self-propelled vibrating rollers the backfill material shall be compacted in lifts not exceeding twelve inches, loose measure. If a backhoe mounted compactor is employed, the backfill material shall be compacted in lifts of thirty-six inches, loose measure. Approval to use a particular machine tamping method will be withdrawn by the Engineer if the method causes injury to the pipe or adjacent structures or movement of the pipe. Each lift shall be thoroughly compacted to at least 90% of the material's maximum dry density.

All storm sewer shall be television inspected by the Contractor. The Contractor shall furnish all labor, equipment and materials necessary for the television inspection. The Engineer shall be given 24 hours' notice so that an Inspector may witness the television inspection. All storm sewer lines are to be thoroughly cleaned prior to television

inspection, by jetting of the lines or other approved methods. Television inspection shall consist of wetting the invert of the section by pouring clean water in the upstream manhole until it appears in the downstream manhole, and then, after the water has stopped flowing, passing a television camera through the section. The television camera shall be passed through the section of pipe from the downstream to upstream end. Any runs of sewer not televised in this manner shall be re-televised at the Contractor's expense. The camera shall be connected to a monitor and a digital video recorder capable of generating DVD format disks. The video inspection record shall indicate the date, the section tested, and the actual distance from the beginning manhole to the ending manhole and shall note each visible defect. The DVD shall be furnished to the Engineer for review.

The television inspection will be deemed satisfactory if no visible defects, including, but not limited to, dips or low spots, high spots, errors in horizontal or vertical alignment, joint offsets, leaks, cracks, standing water greater than 1/4", or debris, are present. Only after all tests have been successfully completed, and acknowledged by the Engineer in writing, may the storm sewer be placed into service.

If a sewer repair is required as a result of damage during construction operations or television inspection failure, the Contractor shall expose the sewer pipe and perform the required correction(s), as specified herein and as directed by the Engineer.

If the repair is required due to the pipe being out of alignment or off grade, the pipe shall be adjusted so as to be placed in proper alignment and grade. Coarse-graded aggregate material shall be carefully placed under the haunches of the realigned pipe and compacted by the use of a tee-bar. From the haunches of the pipe, backfilling shall be performed in accordance with the requirements for backfilling as outlined elsewhere in this special provision.

If the pipe cannot be satisfactorily realigned or an open joint reset; or if the pipe is cracked, broken, or permanently deflected, the affected pipe shall be removed and replaced with the same pipe material. The pipe to be removed is to be sawed on each side of the damaged section in a neat and workmanlike manner without damage to the adjacent pipe. The replacement pipe section shall fit flush to the remaining pipe at each end. These sawed joints shall be coupled using a flexible pipe coupling and stainless steel shear ring. These joints shall be encased to the pipe centerline with Class X concrete one foot on either side of the flexible coupling. The remaining pipe backfill shall be performed in accordance with the applicable requirements for backfilling as outlined elsewhere in this special provision.

e. Measurement and Payment. The completed work as measured will be paid for at the contract unit prices for the following contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Sewer, CI IV, 12 inch, Tr Det A, Modified	Foot
Sewer, CI IV, 12 inch, Tr Det B, Modified	Foot

The items of work listed above shall be paid for by the length of pipe actually installed. The unit price for this item of work shall include all labor, material, and equipment costs, including video inspection, and all needed items to properly complete the work as shown on the plans, as detailed in the Specifications, and as directed by the Engineer.

The herein specified dig-ups shall be included in the cost of the pipe and not paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
DRAINAGE STRUCTURES

FIS/JBD:COAA:MGN

1 of 4

09-04-20

a. Description. This work shall consist of constructing drainage structures in accordance with Section 403 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, as shown on the plans, and as specified herein.

b. Materials. The materials used for this work shall conform to Subsection 403.02 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, except as specified herein.

Storm sewer drainage structures shall be constructed of precast or cast-in-place reinforced concrete sections, or concrete masonry units. All sanitary sewer manholes and gate wells (water main valve manholes) shall be constructed of precast reinforced concrete sections.

Precast reinforced concrete bases, bottom sections, manhole risers, grade adjustment rings, concentric cones, eccentric cones, and flat slab tops shall conform to the requirements of ASTM C-478. Joints on precast manholes used on all sanitary sewers shall meet ASTM C-443, rubber O-ring gasket.

Precast manhole tees and radius pipe sections shall conform to requirements for reinforced concrete pipe, ASTM C-76, Class IV. Joints shall conform to adjacent pipe. Tees and radius pipe shall conform to details indicated on drawings offered by the Concrete Pipe Association of Michigan, Inc., or Engineer approved equal.

If precast drainage structures are used, they shall be designed to accommodate HL-93 Modified Live Load requirements as determined by a Professional Engineer licensed by the State of Michigan, regardless of where they are to be installed. For the purposes of design, a HL-93 Modified Live Load shall consist of 1.2 times the design truck or 1.2 times a single 60-kip load, whichever produces the greater stresses.

If precast structures are used, the Contractor shall field verify inverts prior to fabricating precast units. No additional payment will be made to the Contractor for precast units that cannot be used due to existing inverts being different than shown on the plans, changes in vertical or horizontal alignment due to conditions found in the field, or similar unforeseen circumstances.

If the Contractor elects to use pre-cast drainage structures, or if portions of the drainage structures are constructed with pre-cast concrete elements, the Contractor shall submit to the Engineer for review and approval shop drawings in accordance with Section

104.02 of the Michigan Department of Transportation 2012 Standard Specifications for Construction.

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 CPM network schedule.

Concrete masonry units shall conform to the requirements for concrete masonry units for catch basins and manholes, ASTM C-139.

Concrete brick shall conform to the requirements for concrete building brick, ASTM C-55, Grade N-1.

Where specified on the plans, use a PVC liner that is 30 mils thick. The PVC liner shall be seamless for its entire length and width in its installed position. Use resins to manufacture the PVC liner that are 100 percent first quality virgin polyvinyl chloride. The PVC liner must be resistant to ultraviolet degradation, construction damage and all forms of biological and chemical degradation normally encountered in highway construction applications. Satisfy the physical properties contained in the following table.

PVC Liner Physical Requirements

Property	Test Method	Requirement
Thickness Tolerance	ASTM D 1593	5+/- percent
100 Percent Modulus	ASTM D 882	1000 psi (minimum)
Elongation @ Break	ASTM D 882	300 percent (minimum)
Dimensional Stability	ASTM D 1204 (212 degrees F, 15 minutes)	5 percent change (maximum)

With each material shipment, provide test data certification from the manufacturer which includes a certified report of quality control test results obtained from the lot(s) of material in the shipment. Label each unit of material to provide product identification sufficient for field identification and correlation to certified test results. Certify the specified physical properties as minimum average roll values (MARV).

Plastic coated manhole steps shall be injection molded of copolymer polypropylene, encapsulating a 1/2 inch grade 60 steel reinforcing bar. Plastic-coated manhole steps shall meet the performance test described in ASTM C-478, Paragraph

ll, and shall have an impact resistance of 300 ft.-lbs. with only minor deflection and no cracking or breaking. The steps shall resist pull out forces of 1500 lbs.

c. Methods of Construction. The construction methods used shall conform to Section 403.03 of the Michigan Department of Transportation 2012 Standard Specifications for Construction except as specified herein.

Excavation shall be carried to the depth and width required to permit the construction of the required base. The excavation width shall be greater than the base. The bottom of the excavation shall be trimmed to a uniform horizontal bed and be completely dewatered before any concrete is placed therein. Precast manhole bases and precast bottom sections are allowed.

Concrete block construction shall only be allowed for storm sewer manholes and inlets and shall be built of the size and dimensions shown on the Plans. The block shall be clean, laid in a full bed of mortar, and thoroughly bonded by completely filling the vertical end grooves with mortar so as to interlock with the adjacent block. The mortar beds and joints shall not exceed 3/4 inch thickness. The vertical joints are to be completely filled with the joints on the inside face rubbed full of mortar and struck smooth as the manhole, inlet or structure is built up. The entire outside face of the structure shall receive a 1/2" thick mortar coat and struck smooth. All masonry materials, sand, and water shall be heated to over 50° F during freezing weather, and the completed work shall be covered and protected from damage by freezing.

Circular precast manhole sections shall be constructed in accordance with the details as shown on the plans. Manhole stack units shall be constructed on level poured-in-place bases, precast concrete bases, or precast concrete bottom sections.

Precast cone sections shall be constructed in accordance with the details as shown on the plans. These units shall be eccentric for all manholes, precast or block. All structures shall be topped with a minimum of one, and a maximum of three, 2" tall, brick or precast adjustment courses.

Manholes, inlets, gate wells and structures shall be constructed within 2-1/2 inches of plumb.

Frames and cover castings shall be set in full mortar beds and pointed on the structure interior to a smooth, brushed finish. The covers shall be set flush with sidewalk, roadway pavement, or ground surfaces. The Engineer shall be notified prior to the final paving so as to allow inspection of the final casting adjustments for all utility structures. In gravel streets, covers shall be set six to eight inches below finished gravel surface.

Sewer pipes shall extend into structures a minimum of 1/2 inch and a maximum of 3 inches.

Flow channels for sewer structures shall be finished in accordance with the details as shown on the plans. All flow channels shall be screeded and floated to a smooth, uniform surface and troweled to a hard surface finish.

Stubs for future sewer connections shall be furnished and placed by the Contractor as shown on the Plans and as directed by the Engineer. Connections shall be properly supported and braced when not resting on original ground so that any settlement will not disturb the connection. Stubs shall consist of one length of sewer pipe, of the size indicated on the Plans, with a watertight plug.

The excavation shall be kept in a dry condition. All necessary dewatering shall be paid for separately in accordance with the Special Provision entitled "Dewatering".

All necessary adjustments for new structures shall be included in the cost of the structure.

Removal and/or abandonment of the temporary drainage structures shall be performed as shown on the plans and as directed by the Engineer.

d. Measurement and Payment. The completed work as measured shall be paid at the contract unit price for the following contract items (pay items):

<u>(Contract Item) Pay Item</u>	<u>Pay Unit</u>
Dr Structure, Single Inlet	Each
Dr Structure, Inlet-Junction Chamber.....	Each

Payment for drainage structures includes furnishing the labor, equipment and materials for all necessary excavation, disposing of surplus excavated material, backfilling, and constructing the structure complete, including pipe connections and structure cleaning.

Payment for additional depth for drainage structures includes furnishing the labor, equipment, and materials for all necessary excavation, disposing of surplus excavated material, backfilling, and constructing the structure complete, including pipe connections and structure cleaning, for the portion of the structure which is deeper than 8 feet (including sump).

Payment for adjusting of drainage structure covers shall be included in payment for the structure. Drainage structure covers will be paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
BYPASS PUMPING

FIS/JBD:COAA:MGN

1 of 2

09-04-20

a. Description. This work consists of designing, installing, maintaining, and removing construction dams (including dewatering) and bypass pumping to work in a dry condition and to maintain water flows. This work must be in accordance with sections 208 and 704 of the Standard Specifications for Construction, EGLE Permit, as directed by the Engineer and this special provision.

b. Materials. Provide materials according to the 2012 Standard Specifications for Construction as detailed below.

Geosynthetics	910
Sand and Stone Bags	916
Coarse Aggregate, 6A.....	902
Open-Graded Aggregate, 34R	902
Filter Bags.....	910

c. Construction. Install a construction dam in order to provide a dry construction site to install the riprap and slope protection at the Island Drive structure as show on the plans. The construction dam must only consist of one of the following: stone bags, sand bags, or an MDOT approved proprietary product.

1. Design and Installation. Design, installation, maintenance and removal of the temporary construction dam, dewatering, and bypass pumping are the responsibility of the Contractor. Proposed design shall be created in accordance with Sections 104.02 and 707.03.C.1 of the 2012 MDOT Standard Specifications for Construction. For each submittal or resubmittal, the Contractor shall allow at least 14 calendar days from the date of submittal to receive the Engineer’s acceptance or request for revisions. The Engineer’s acceptance is required before beginning the work. Resubmittals may take less than 14 calendar days depending upon the magnitude of revisions requested. 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 CPM network schedule.

2. Dewatering and Bypass Pumping. The dewatering and bypass pumping operations must be performed in a proper and predetermined sequence such as to create a dry and stable area to work in. Dewatering and bypass pumping must be performed and sufficiently maintained so as not to cause harmful effects to up and down stream properties, utilities and pavements. The consequences of surface runoff and surface flood water caused by climatic conditions must be taken into consideration in designing the dewatering and bypass pumping system.

3. Filter Bags or Sediment Traps. Dewatering and bypass pumping operations must utilize a sediment basin or filter bag to settle out/filter out sediment from water discharged into the watercourse. The sediment basin or filter bag must be located a sufficient distance from the watercourse or wetland to allow for adequate settling or filtering through natural vegetation and/or gravel filter berm. The sediment trap or filter bag must be provided,

installed, maintained and removed as described in section 208 of the Standard Specifications for Construction.

A series of Gravel Filter Berms must also be used in conjunction with the sediment trap to filter the water prior to re-entry into the watercourse.

The Sediment Basin and Gravel Filter Berms must be of adequate size to still the water for a sufficient time to remove the suspended particles. If the water returning to the watercourse remains turbid, the Sediment Basin may need to be expanded. A second Sediment Basin may be required in conjunction with a Filter Bag, in addition to the original Sediment Basin and Gravel Filter Berms.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit lump sum price using the following pay items:

Pay Item	Pay Unit
Bypass Pumping (SN 11081).....	Lump

Bypass Pumping includes designing, furnishing, installing, maintaining and removing the temporary construction dam, including dewatering and filtration as noted in this special provision. Also included in the contract lump sum price for **Bypass Pumping** is designing, furnishing, installing, maintaining and removing the required materials, supplies, and equipment needed to maintain the watercourse while the construction dam(s) are in place. Also included in the contract unit price for **Bypass Pumping** is the design, construction, maintenance, and removal of the Sediment Basin, Gravel Filter Berms or Filter Bag required to settle/filter out sediment prior to discharging back to the watercourse. If a larger or second Sediment Basin in conjunction with a Filter Bag is required to reduce sediment, this work will not be paid for separately but will be considered included in the pay item for **Bypass Pumping**. **Bypass Pumping** will be paid for on a lump sum basis for all locations required.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
EXPLORATORY INVESTIGATION, APPROACH SIDEWALK

FTCH/VDG:COAA:MGN

1 of 1

09-03-19

a. Description. This work consists of providing all materials, equipment and labor for determining the existence, or lack of existence, of voids under the concrete approach sidewalks by way of exploratory investigation at the Fuller Road over Huron River bridge approaches. All work shall be performed in accordance with Sections 206, 501 and 901 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, except as modified by this Detailed Specification.

b. Materials. Superpave HMA Mixtures per Section 902

c. Construction.

Applies to locations where the concrete approach sidewalk transitions to HMA sidewalk, as determined by the Engineer. Work to follow procedures listed herein:

Removal and Investigation:

1. Sawcut 24" x 36" rectangular area in existing HMA sidewalk pavement.
2. Carefully remove existing HMA layer with sawcut area.
3. Hand dig base material to a depth of approximately 3" to 6" below existing concrete sidewalk. Contractor must take care not to damage existing utility ducts cast into sidewalk.
4. With direction from the Engineer, determine whether or not there are voids below the concrete sidewalk or spalls/delaminations in the sidewalk substrate.
 - a) If voids are found underneath, or within, the concrete approach sidewalks. The Engineer will direct the remedial measures to be employed by the Contractor to eliminate the observed deficiencies. The remedial work will be paid for as negotiated extra work in accordance with Section 15 of the General Conditions of the contract.

Backfill and Restore Approach Pavement:

5. Backfill with removed base material and MDOT Class II Granular Material in accordance with Section 206.03.B.2.b. Contractor shall take care to backfill and compact base material around existing utility ducts to fill voids between and equalize pressure around ducts without damage to ducts.
6. Place HMA, LVSP per Section 501 to match existing HMA pavement thickness and grade. Compact to 92 to 96% of the materials 6mm.

d. 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
Exploratory Investigation, Approach Sidewalk	Each

Exploratory Investigation, Approach Sidewalk includes all labor, materials, and equipment for sawcutting and removing existing HMA section, excavating to exploratory depth, making determination on quality of concrete sidewalk base material and/or substrate, and backfilling and restoring HMA pavement to existing grade.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
OVERBAND CRACK FILL

FTCH/VDG:COAA:MGN

1 of 1

09/03/19

a. Description. This work consists of providing all materials, equipment, and labor for filling approach pavement cracks and covering over E3 joints at the bridge end reference lines as identified in the contract or as directed by the Engineer. All work shall be performed in accordance with Section 502 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, except as modified by this Detailed Specification.

b. Materials. Use materials as described in Section 502.02

c. Construction. Follow methods described in Section 502.03. Provide labor and equipment meeting the requirements of Section 108. Completely cover full length of replaced E3 end joints and other cracks as directed by the Engineer with overband material.

d. 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
Overband Crack Fill.....	Foot

Overband Crack Fill includes all labor, materials, and equipment costs for preparing and filling pavement cracks and covering over E3 end joints; providing the required documentation; and any and all corrective action as required to bring the work into compliance with the contract specifications.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
E3 JOINT SEALANT REPLACEMENT

FTCH/VDG:COAA:MGN

1 of 2

05-23-19

- a. Description.** This work consists of replacing and resealing existing E3 expansion joints. Work includes completely removing existing joint sealants and backer rods, cleaning the joints, and sealing the joints with a polyurethane or polyurethane hybrid joint sealant at the locations shown on the plans, or as directed by the Engineer. Perform all work in accordance with Section 602 of the 2012 Michigan Department of Transportation Standard Specifications for Construction, detailed specifications, and standard plans.
- b. Materials.** Provide all materials in accordance with subsection 602.02 of the Standard Specifications for Construction, except as modified in this special provision.

Provide a solid, round, closed-cell, polyethylene foam backer rod meeting the requirements of *ASTM D 5249, for Type 1*. Non-sag polyurethane and polyurethane hybrid sealants must meet *ASTM C 920, Type S, Grade NS, Class 35*. Self-leveling polyurethane and polyurethane hybrids must meet *ASTM C 920, Type S, Grade P, Class 35*. Select a polyurethane or polyurethane hybrid based on the performance requirements in Table 1, or as approved by the Engineer.

Table 1: Polyurethane or Polyurethane Hybrid Sealant Requirements

Property	Test Method	Minimum Result
Movement capability, %	<i>ASTM C 719</i>	+35/-35
Tensile strength, psi	<i>ASTM D 412</i>	175
Tear strength, psi	<i>ASTM D 624</i>	35
Ultimate elongation at break, %	<i>ASTM D 412</i>	500
Hardness, Shore A	<i>ASTM C 661</i>	25
Tack-free time, hrs	<i>ASTM C 679</i>	6
Adhesion in peel, lbf	<i>ASTM C 794</i>	20

- c. Construction.** Construct and seal E3 expansion joints in accordance with Section 602.03. F of the Standard Specifications for Construction and Standard Plan R-39 Series, except as modified in this special provision.

1. Joint Preparation. Immediately prior to application of the polyurethane or polyurethane hybrid sealant, clean joint faces by abrasive blasting to remove all materials that may interfere with the bonding or curing of the sealant. If resealing joint, remove all existing sealant prior to abrasive blasting. Ensure the prepared joint faces meet the *International Concrete Repair Institute Guideline No. 03732*, concrete surface profile 3 (CSP 3). Use a vacuum or oil-free moisture-free air blast to remove all dust and other loose material. Remove any oil or other contamination after initial cleaning. Ensure there is no visible moisture present on the surface of the concrete at the time of application. The Engineer will not allow the use of artificial heat to dry joints before sealing. Ensure that the fiber joint filler is secure and installed at the proper

elevation relative to the joint reservoir. Place backer rod to a depth according to the sealant manufacturer's recommendations.

2. Joint Sealing. Do not install sealant on concrete surfaces that are less than 28 days of age, unless otherwise specified by the manufacturer's recommendation. Horizontal applications with a cross slope less than or equal to 6 percent may use a self-leveling or non-sag sealant. Horizontal applications with a cross slope greater than 6 percent and vertical applications must use a non-sag sealant. Do not place sealant if weather or surface conditions are such that the material cannot be properly handled, placed, and cured within the manufacturer's requirements and specified requirements of traffic control.

- d. **Measurement and Payment.** The completed work as described will be measured and paid for at the contract unit price using the following contract item (pay item).

Contract Item (Pay Item)	Pay Unit
E3 Joint Replacement.....	Foot

E3 Joint Replacement will be measured in place and paid for at the contract unit price per foot. Payment includes all labor, materials, and equipment required to remove existing joint material, prepare surfaces and place new joint material.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONC, GRADE D, MODIFIED

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of providing all labor, equipment and materials necessary to construct a reinforced concrete wearing surface of variable thickness over the existing box beam superstructure as shown on the plans. Prior to applying this wearing surface, the longitudinal joints between the existing box beams will be grouted.

b. Materials. Provide materials in accordance with sections 702 and 706 of the Standard Specifications for Construction.

c. Construction. The existing asphalt wearing surface and grout between the box beams shall be removed and the surface of the top of the box beams shall be cleaned. This work will be paid for separately.

After this work has been performed, the engineer shall inspect the top of the box beams to determine if any additional work needs to be performed on the beams. If required, any remedial work required on the beams shall be paid for by change order. Once directed by the engineer that no remedial work is required or that any remedial work required has been satisfactorily completed, proceed to construct the reinforced concrete wearing surface.

Construct the reinforced concrete wearing surface in accordance with subsection 602.03 of the Standard Specifications for Construction, the details shown on the plans and this special provision. Work must be conducted without causing damage to the underlying box beams. Prior to placing concrete, grout longitudinal joints between the existing box beams in accordance with subsection 708.03 of the Standard Specifications for Construction.

d. 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
Conc Grade D, Modified	Cubic Yard

Conc Pavt, Reinf, Modified quantities will be based on plan quantities in accordance with subsection 109.01.A. The work includes placing grout between box beams, forming, placing, curing, and protecting concrete.

Reinforcing steel will be measured and paid for separately.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
EXPANSION JOINT COVER PLATE, MODIFIED

FIS/JBD:COAA:MGN

1 of 2

09-04-20

a. Description. This work shall include removing the existing sidewalk expansion joint cover plates, cleaning, applying slip-resistant coating as described herein, and replacing the cover plates after the slip-resistant coating has been applied.

b. Materials. Provide one of the following slip resistant coating systems:

1. Algrip
Ross Technology Corp.
104 N Maple Ave.
Leola, PA 17540
2. Mebac # 3
IKG
1514 South Sheldon Road
Houston, TX, 77015
3. Slipnot Grade 2, Steel
W.S. Molnar Company
2445 Beaufait St.
Detroit, MI, 48207

If any existing hardware for the cover plates is deemed unusable by the engineer, provide new hardware in accordance with section 908 of the 2012 Standard Specifications for Construction.

c. Construction. Remove the existing cover plates from the locations designated in the plans. If necessary, temporarily remove portions of the steel bridge railing in order to remove the existing expansion joint cover plates.

Existing galvanizing shall be removed from the cover plates by acid pickling, and the steel shall be blast cleaned, if necessary, to achieve SSPC-SP-1 surface condition.

The approved slip-resistant surface shall be applied in the manufacturer's shop.

Apply the slip-resistant surface to steel substrate using an all metal plasma stream deposition process to bond the surface to the substrate, resulting in the primarily Martensitic steel surface having a random hatch matrix.

After the slip-resistant surface has been applied to the substrate, hot-dip galvanize the entire piece in accordance with ASTM A123.

Use the following limits during hot-dip galvanizing: when pickled in heated sulfuric acid solution, do not exceed 3 minutes immersion. When pickled in hydrochloric acid solution at ambient temperature, do not exceed 10 minutes immersion.

Do not apply slip-resistant surfacing to countersunk surfaces for countersunk bolts or other areas shown on the plans. Do not bend plates, bars, or shapes after the slip-resistant surface has been applied.

Replace defective or damaged slip-resistant surfaces as directed by the Engineer.

After the slip resistant coating has been applied, re-install the expansion joint cover plates and any removed portions of steel bridge railing.

d. 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
Expansion Joint Cover Plate, Modified	Foot

Expansion Joint Cover Plate, Modified will be measured to the limits shown in the plans. Payment shall include all labor, shipping, material, and equipment required to remove, clean, apply the approved slip resistant coating, galvanize, and re-install the cover plates.

If removal of the existing bridge railing is necessary to remove and reinstall the cover plates all labor, material, and equipment costs shall be included in **Expansion Joint Cover Plate, Modified**, and will not be paid for separately.

Where new cover plate is called for on the plans furnishing of the new expansion joint cover plate is to be paid for as **Expansion Joint Device, Cover Plate**. At this location(s) removal and disposal of the existing cover plate, application of the slip resistant coating, galvanizing, and installation shall be included in **Expansion Joint Cover Plate, Modified**.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PORTLAND CEMENT CONCRETE FOR BRIDGE DECK JOINT REPLACEMENT

FIS/JBD:COAA:MGN

1 of 2

09-04-20

a. Description. This work consists of providing the Portland cement concrete mixture included in this special provision for use in partial depth concrete replacement around existing bridge sidewalk expansion joints. The Contractor will not be granted the option of using other concrete mixtures in lieu of the concrete mixture described in this special provision, unless otherwise specified on the plans. All work must be in accordance with the standard specifications, except as modified herein.

b. Materials. Concrete mixture must contain the following materials per cubic yard:

Mix Water (total).....	282 lb
Net w/c Ratio	0.38
Portland Cement, Type I	658 lb
2NS Fine Aggregate, Dry.....	1475 lb
26A Coarse Aggregate, Dry.....	1519 lb
FA/TA* Ratio by Absolute Vol.	0.50
Mid-Range (Type MR) Water Reducer.....	mfg. rec.

*FA/TA = Fine Aggregate to Total Aggregate ratio

Concrete air-entrainment and slump will be as follows:

Entrained Air	5.0 - 8.0%
Slump after addition of Water Reducer.	2 - 6 inches

Values are assumed for the fine aggregate (specific gravity of 2.64 and absorption of 0.95) and coarse aggregate (specific gravity of 2.72, absorption of 1.10, and unit weight of 89 lbs/ft³). The Contractor must make the necessary proportion adjustments for aggregate absorption and specific gravity and must submit the adjusted mix design to the Engineer 5 days prior to concrete placement.

Curing compound must be linseed oil based and must meet subsection 903.07.A of the Standard Specifications for Construction.

Insulating blankets must meet the requirements of subsection 903.07.C of the Standard Specifications for Construction.

c. Equipment. Equipment requirements are as specified in section 712 of the Standard Specifications for Construction.

d. Construction.

1. Temperature Limitations. Concrete may not be placed at air temperatures below 50 degrees F, nor above 90 degrees F. The top surface of the concrete must be covered with insulating blankets, having a minimum R Value specified in Table 706-1 of the Standard

Specifications, when the air temperature is below 60 degrees F. All test specimens used for opening to traffic strength measurements must be cured in the same manner as the in-situ concrete. The insulating blankets must remain in place until immediately prior to opening to traffic.

2. Concrete Finishing and Texturing. The concrete surface must be finished and textured according to subsections 706.03.M.3 and 706.03.M.4 of the Standard Specifications for Construction.

3. Curing. Immediately after finishing and texturing, a heavy coating of curing compound must be applied to all exposed freshly placed concrete surfaces at a minimum rate of 1 gallon per 150 square feet of surface. The concrete surfaces must then be continuously cured with wet burlap. The burlap must be soaked in water for a minimum of 12 hours prior to its use. Plastic sheeting will then be securely placed over the burlap to protect the top surfaces from evaporation. If insulating blankets are used to protect the concrete, they must be securely placed over the plastic sheeting. The continuous wet cure must remain in place for 7 days, or until just prior to opening to traffic, as specified.

4. Opening to Traffic. The minimum concrete compressive strength of 2000 psi must be attained prior to opening to traffic.

5. Strength Requirements. Strength requirements will be as specified in Table 701-1 of the Standard Specifications for Grade D concrete.

e. 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
Conc, Sidewalk Joint Replacement	Cubic Yard

Conc, Sidewalk Joint Replacement will be measured in cubic yards based on actual concrete placed as determined by automated batch ticket printouts. Deductions will be made for wasted or rejected materials. Payment for the completed work includes all labor, equipment and material necessary for forming, placing, finishing, and curing the concrete according to this special provision.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
JOINT WATERPROOFING, SPECIAL

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of providing all labor, equipment, and materials to furnish and install a retrofit waterstop and liquid waterproofing membrane between the new concrete deck surface and the vertical surface of the sidewalk beams. All work shall be performed in accordance with the Michigan Department of Transportation 2012 Standard Specifications for Construction, as shown on the plans, and as described herein.

b. Materials. Provide retrofit waterstop and waterproofing membrane as shown on the plans and as specified herein.

Retrofit waterstop shall be Polyvinyl chloride, minimum 1,750 psi tensile strength, minimum -35 degrees F working temperature, 6 inch wide, 3/8 inch thick, maximum possible lengths, non-tapered ribbed profile, pre-formed corner sections, heat-welded jointing; factory-installed hog rings or grommets at 12 inch spacing along length of waterstop. Use Greenstreak Plastic Products No. 581, or equal as approved by the Engineer.

Waterproofing Membrane shall be water activated, cold-applied, solvent-free, non-shrink, liquid waterproofing membrane. Waterproofing shall have the following properties as determined by laboratory testing. Use HYDRALASTIC 836 SL Waterproofing Membrane by W. R. MEADOWS, or equal as approved by the Engineer.

- a) Solids content by weight, ASTM C2369: 96%.
- b) Tensile Strength, ASTM D412: 350 psi.
- c) Elongation at break, ASTM D412: 500%.
- d) Water Vapor Transmission, ASTM E96 (Method BW): 0.1 perm in.
- e) Shore 00 Hardness, ASTM D2240: >76.
- f) VOC, ASTM D2369: 47 g/L

c. Construction.

1. Surface Preparation. Prior to installation, the surface of the existing beams shall be thoroughly cleaned. Payment for this work is included in other pay items.

2. Installation. Install the retrofit waterstop and waterproofing membrane per the manufacturer's recommendations and as approved by the engineer.

d. 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
Joint Waterproofing, Special.....	Foot

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE SURFACE COATING

FTCH/VDG:COAA:MGN

1 of 3

5/23/19

a. Description. This work consists of furnishing and applying an acrylic-based concrete surface coating to concrete structures, including, but not limited to, bridge railing, deck fascia and beam fascia locations as specified on the plans. Ensure all work and materials are performed in accordance with the standard specifications, except as modified herein.

b. Materials. Select the acrylic based concrete surface coating from the products listed below. On any single structure, use the same product for all areas to be coated with a specified color. Do not mix colors or products from more than one source. Ensure the color of the first coat is in contrast with both the bare concrete and the finish coat.

For this project, furnish and apply a smooth textured, concrete coating of the following color, or another Engineer approved color:

Federal Standard color #36375

Submit color samples to the Engineer for review and approval, a minimum of 14 days prior to the desired application date. If required by the Engineer, complete a test section to demonstrate the final color prior to application of the coating to the structure.

<u>Company</u>	<u>Product</u>
Benjamin Moore	Super Spec Masonry 100% Acrylic Elastomeric Coating Flat 056
Carboline Company	Carbocrylic 3350
ChemMasters	Colorcoat
ChemMasters	Colorlastic
Conspec	Permacoat
ICI Dulux Paints	Decra-Flex 300
O'Leary Paint Company	O'Leary 1375 Elastomeric
PPG Industries, Inc.	Perma-Crete Pitt-Flex Elastomeric Coating 4-110
Sherwin-Williams	Concrete Texture Coating Smooth B97-160 Series
Sika Corporation	Elastocolor
Sika Corporation	Sikagard 550W Elastic
Sonneborn	Super Color Coat
Tamms Industries	Tammolastic
Thoro	Thorocoat
Thoro	Thorolastic

c. Construction.

1. Surface Preparation. Cure new concrete a minimum of 28 days before coating. Following the curing period, and prior to coating, test for moisture content in the concrete as described below.

Prepare the surface, including removing fins and projections and filling surface voids and cracks. The Contractor shall provide a material for the Engineer's review and approval to fill all surface voids. Fill and repair surface voids according to the material supplier's recommendation, except as modified by the detailed specification. Ensure all concrete to be coated is tested for the presence of moisture after surface preparation has been completed and prior to application of the coating. Ensure testing is in accordance with *ASTM D 4263*. Tape an 18 inch by 18 inch sheet (4 mil) of transparent polyethylene to the concrete surface to be coated. Ensure all edges are sealed with tape that will stick to the concrete substrate and not allow the infiltration of air. Leave the plastic sheet in place a minimum of 16 hours to detect the presence of moisture in the concrete. There must be no moisture visible on the polyethylene sheet after the minimum period of time has elapsed for coating work to begin. This must be verified by the Engineer before application of the coating begins. This test may not be reliable in cooler conditions. Alternate methods to detect moisture must be approved by the Engineer. This test should be performed a minimum of once every 100 lineal feet on barriers, walls etc., and a minimum of once on columns, piers, etc.

Ensure the surface to be coated is dry and free from all contamination including, but not limited to: dirt, form release agents, oil, grease, laitance, loose material and curing compounds. Clean surface by low-pressure water cleaning, steam cleaning, or abrasive blasting (followed by oil-free compressed air cleaning) or by combination to achieve an acceptable cleaned surface. When low-pressure water cleaning or steam cleaning is used, the concrete surface profile (CSP) must be CSP 1 in accordance with the *International Concrete Repair Institute Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays* (Guideline No. 310.2R-2013). When abrasive blasting is used, the concrete surface profile must be CSP 2 to CSP 4. Low-pressure water or steam cleaning primarily removes water soluble contaminants. Aged concrete with contaminants such as hardened curing compound may require light abrasive blasting to completely remove the curing compound. Since many curing compounds contain wax, even well adhered residue must be removed prior to coating to ensure a good bond between the surface coating and the concrete.

When low pressure water cleaning or steam cleaning is used, the power washer must deliver 3000 - 4500 psi and utilize a 15 degree or smaller nozzle tip held perpendicular to the surface being cleaned. When using light abrasive blasting to remove contaminants on new construction, be careful not to remove excessive concrete material.

2. Visual Inspection. Check surface cleanliness by lightly rubbing with a dark cloth or by pressing translucent adhesive tape onto the concrete surface in the presence of the Engineer. An acceptable level of residual dust can be agreed upon by the Engineer and the Contractor. Perform a water drop test in the presence of the Engineer prior to coating the concrete surface to detect for the presence of any hydrophobic contaminants. Hydrophobic contaminants include materials such as form release agents, curing compounds, oil, grease, wax, and resins. If contaminants are detected, as evidenced by a lack of rapid absorption of the water drop into the concrete, remove the contaminants and perform the tests again until no contaminants are detected.

3. Application. Apply two coats (do not dilute) of the acrylic based concrete surface coating. Apply each coat to provide the minimum wet film thickness as recommended by the manufacturer. A primer is not required unless stated as required in the manufacturer's product data sheet. Temperature limitations of the air, coating material and concrete for

application shall follow manufacturer's recommendations but must not be outside the temperature range of 45 to 90 degrees F and the temperature of the air, coating material and concrete must be at least 5 degrees F above the dew point. Do not apply the concrete surface coating at a relative humidity greater than 90 percent or if rain is forecasted within the specified rain resistance period.

4. Masking existing railings and columns. The Contractor shall either remove or mask existing metal railing elements, pre-cast columns, and other surrounding features to prevent over-spray or un-intended application of the concrete surface coating to these elements. If metal railing elements are removed to facilitate the application of the concrete surface coating, the railing elements shall be numbered in sequential fashion and cataloged so that they can be replaced in their original location. Provide the Engineer a copy of the cataloged information for review and verification purposes. Do not damage the existing coating(s) of the railing elements during handling while removing, storing, and re-installing the railing elements.

d. 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
Conc Surface Coating	Square Yard

Conc Surface Coating includes all labor, equipment, and materials to prepare the substrate concrete surface, mask existing surfaces from over-spray, remove, store, replace existing railing elements, conduct the visual inspection, and apply the primer (if required) and two top coats of surface coating. No additional payment will be made for the test sections regardless of how many are required to verify moisture content of the concrete substrate.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
PENETRATING HEALER SEALER ON BRIDGE DECKS

FTCH/VDG:COAA:MGN

1 of 4

5/23/19

a. Description. This work consists of providing all labor, materials, and equipment required to prepare, clean, and apply a penetrating epoxy healer/sealer system to concrete bridge decks. Ensure all work is completed in accordance with Section 712 of the 2012 Michigan Department of Transportation Standard Specifications for Construction except as modified herein. Bring any discrepancies between the two to the attention of the Engineer as soon as they are observed.

b. Materials. Use solvent-free, moisture insensitive, 100 percent solids, two-component epoxy based healer sealer. Ensure containers are marked clearly “Part A” or “Part B”. The epoxies that are approved for healer sealers are in Table 1.

Table 1: Approved Two Component 100 Percent Solids Epoxy Systems

Supplier	Product	Contact Information
E-Chem	EP100	E-Chem, LLC (Ray Breer) 2944 William St. SE Albuquerque, NM 87102 (505) 217-2121
Euclid Chemical	Dural 335 Dural 50 LM	The Euclid Chemical Co. (Jamie Elsey) 20416 Harper Avenue Harper Woods, MI 48225 (313) 886-9700
Poly-Carb	Mark 127	Poly-Carb, Inc. (Dan Patacca) 1881 West Oak Parkway Marletta, GA 30062 (330) 405-3311
Sika	Sikadur 55 SLV	Sika – US (Wesley Pringle) 673 Cherry Orchard Road Canton, MI 48188 (248) 866-8956
Unitex	Pro-Poxy 40 LV LM	Dayton Superior Corporation (Blair Oldfield) 1125 Byers Road Miamisburg, OH 45342 (224) 217-0447

Ensure aggregate meets the gradation requirements in Table 2 and has a hardness of six or higher on the Mohs hardness scale. Ensure aggregate is angular, consists of natural silica sand, basalt, or other nonfriable aggregate, and contains less than 0.2 percent moisture when tested in accordance with *ASTM C 566*.

Table 2: Aggregate Gradation Requirements

Sieve Size	Minimum % Passing	Maximum % Passing
4	100	100
16	95	100
30	85	100
50	15	75
100	0	25
200	0	10
Pan	0	0

Ensure the aggregate is chosen from an approved supplier in Table 3 unless otherwise approved.

Table 3: Approved Aggregate Suppliers

Aggregate Supplier	Telephone
Cheboygan Cement	(231) 627-5631
Earth Work Solutions	(307) 682-4346
Fairmount Santrol	(800) 237-4986
Flint Rock Products	(918) 673-1737
Nugent Sand Company	(231) 755-1686
Red Flint Sand and Gravel	(800) 238-9139
Sand Products Corp.	(906) 292-5432
US Silica	(800) 238-9139
Washington Rock Quarries, Inc.	(253) 377-3438
Wexford Sand Co.	(800) 255-7263

Provide a test data certification to the Engineer that the materials meet the requirements specified herein.

c. Equipment. For the epoxy healer sealer, provide a distribution system or distributor capable of accurately blending the epoxy resin and hardening agent, and uniformly and accurately applying the epoxy materials at the specified rate to the bridge deck in such a manner as to cover 100 percent of the work area, including 1 inch of the vertical face of curb/barrier. Provide a fine aggregate spreader capable of uniformly and accurately applying dry aggregate to cover 100 percent of the epoxy material. Provide a self-propelled vacuum truck.

For hand applications, provide calibrated containers, a Jiffy® type mixer, squeegees, and stiff bristle brooms suitable for mixing and applying the epoxy and aggregate.

For mechanical applications, provide mixing equipment that will automatically and accurately proportion the components in accordance with the manufacturer's recommendations and will mix and continuously place the healer sealer. Ensure the operation proceeds in such a manner that will not allow the mixed materials to segregate, dry, be exposed or otherwise harden in such a way as to impair the retention and bonding of broadcasted aggregate.

d. Construction

1. Surface Preparation. Ensure patching and cleaning operations are inspected and approved prior to healer sealer installation. Protect utilities, drainage structures, curbs, bridge expansion joint devices, and any other structure within or adjacent to the healer sealer location from surface preparation activities and application of the surface treatment materials.

Do not perform surface preparation or installation of healer sealer on concrete patches less than 28 days of age. Ensure that traffic paint lines are removed. Clean the entire concrete surface by abrasive blasting or shotblasting to remove all materials that may interfere with the bonding or curing of the binder. The cleaned concrete surface must meet the *International Concrete Repair Institute Guideline 310.2R, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repair*, concrete surface profile (CSP) 3. Ensure mortar is sound and sufficiently bonded to the coarse aggregate, and presents a uniform CSP necessary for adequate bond. Use a vacuum truck or oil-free, moisture-free, air blast to remove all dust and other loose material. Brooms are prohibited. Remove any oil or other contamination after initial cleaning.

The Engineer will inspect and approve patching and cleaning operations prior to placement of the healer sealer. The Engineer's approval is required prior to placement of the healer sealer.

Ensure healer sealer is applied within 24 hours of the final cleaning, and prior to opening the area to traffic.

No visible moisture can be present on the surface of the concrete at the time of healer sealer application. Oil-free, moisture-free, compressed air may be used to dry the deck surface. Use a plastic sheet left taped in place in accordance with *ASTM D 4263* to identify moisture in the healer sealer area except as modified herein. Tape an 18 inch by 18 inch transparent polyethylene sheet (4 mil) to the deck every 500 square feet. Ensure all edges are sealed with tape that will stick to the concrete substrate. Leave the plastic sheet in place for a minimum of 3 hours or as directed by the manufacturer's recommendations for cure time for the conditions, whichever is longer. Ensure there is no moisture visible on the polyethylene sheet. Alternate methods to detect moisture must be approved by the Engineer.

Remove all debris from the neoprene glands of strip-seal style expansion joints. Protect the expansion joints, and any other areas not to be sealed, from damage during preparation of the surface. Ensure the protection is removed once the epoxy and aggregate has been applied and prior to initial set. Ensure removing the protection is done soon enough to in no way harm the adjacent sealed surface. Ensure the protection meets the approval of the Engineer.

2. Application. Ensure handling and mixing of the epoxy resin and hardening agent is performed in a safe manner to achieve the desired results in accordance with the manufacturer's recommendations or as directed by the Engineer. Do not place healer sealer materials when the concrete surface is less than 50 degrees Fahrenheit (F) or ambient air temperature is forecast to fall below 50 degrees F within 8 hours of application. Do not place healer sealer materials if weather or surface conditions are such that the material cannot be properly handled, placed, and cured in accordance with the manufacturer's requirements and the specified requirements for traffic control.

After the epoxy mixture has been prepared for the healer sealer, immediately and uniformly apply it to the surface of the bridge deck. Allow epoxy to pool and penetrate deck surface per the manufacturer's recommendation prior to application of dry aggregate. Ensure application of aggregate is of sufficient quantity so the entire surface is covered in excess. Ensure no bleed through or wet spots are visible in the overlay. Remove and replace any areas with wet spots or where epoxy has bled through. Minimize all foot traffic on the uncured epoxy and ensure any foot traffic will only be done with steel spiked shoes approved by the Engineer. Cure healer sealer until vacuuming or brooming can be performed without tearing or damaging the surface. Do not allow traffic or equipment on the healer sealer surface during the curing period. Remove all loose aggregate after the curing period by vacuuming or brooming. Ensure all strip-seal style expansion joints are free of loose aggregate, epoxy and other debris resulting from healer sealer operations.

e. 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
Healer Sealer	Square Yard

Healer Sealer includes all labor, material, and equipment costs required for cleaning, preparing and applying a penetrating healer/sealer system including miscellaneous clean-up. Also includes all labor, material, and equipment costs necessary for cleaning strip-seal style expansion joints.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR

EPOXY OVERLAY ON BRIDGE DECKS

FTCH/VDG:COAA:MGN

1 of 5

7/17/19

a. Description. This work consists of providing all labor, materials, and equipment for cleaning/preparing entire deck surface and applying a two-coat epoxy overlay. Ensure all work is completed in accordance with Section 712 of the Standard Specifications for Construction except as modified herein. Bring any discrepancies between the two to the attention of the Engineer as soon as they are observed.

b. Materials. Use a solvent-free, moisture insensitive, 100 percent solids, low-modulus, and two-component epoxy system to overlay the structure. Ensure containers are marked clearly “Part A” or “Part B”. The epoxies that are approved for thin overlays are in Table 1.

Table 1: Approved Two Component 100 Percent Solids Epoxy Systems

Supplier	Product	Contact Information
BASF	MasterSeal 350	BASF (David McCarron) 20611 Windemere Macomb, MI 48044 (586) 557-0235
E-Bond	526 Lo-Mod	Ridgemoor Supply Inc. (Jake Ike) 4484 Roger B. Chaffee Dr. Kentwood, MI 49548 (616) 532-0782
Euclid Chemical	Flexolith Flexolith Summer Grade Flexolith HD	The Euclid Chemical Co. (Jamie Elsey) 20416 Harper Avenue Harper Woods, MI 48225 (313) 886-9700
Sika	Sikadur 22-Lo Mod	Sika – US (Wesley Pringle) 673 Cherry Orchard Road Canton, MI 48188 (248) 866-8956
Unitex	Propoxy Type III DOT	Dayton Superior Corporation (Blair Oldfield) 1125 Byers Road Miamisburg, OH 45342 (224) 217-0447

Ensure aggregate meets the gradation requirements in Table 2 and has a hardness of seven or higher on the Mohs hardness scale. Ensure aggregate is angular, consists of natural silica sand, basalt, or other nonfriable aggregate, and contains less than 0.2 percent moisture when tested in accordance with *ASTM C 566*.

Table 2: Angular Aggregates Gradation Requirements

Sieve Size	Minimum % Passing	Maximum % Passing
3/8	100	100
4	98	100
8	30	75
16	0	5
30	0	1
Pan	0	0
	Minimum	Maximum
Fineness Modulus	2.28	2.81

The aggregate shall be chosen from an approved supplier from Table 3.

Table 3: Approved Aggregate Suppliers

Earth Work Solutions - E.O. Sowerwine P.O. Box 1007 Gillette, WY 82717 (307) 682-4346
Flint Rock Products - Tammy Epps 800 S. College Road P.O. Box 217 Picher, Oklahoma 74360 (918) 673-1737 Fax: (918) 673-1749
Red Flint Sand and Gravel - Jim Danzinger 1 American Blvd PO Box 688 Eau Clair, WI 54702 (800) 238-9139
Washington Rock Quarries, Inc. - Greg Lanphere 21711 103 rd Ave. Ct. E Suite C302 Graham, WA 98338 (253) 377-3438
Imerys Refractory Minerals 100 Mansell Court East Suite 615 Roswell, GA 30076 (770) 225-7923

Provide a test data certification to the Engineer that the materials meet the requirements specified herein.

c. Equipment. For the epoxy overlay, provide a distribution system or distributor capable of accurately blending the epoxy resin and hardening agent, and uniformly and accurately applying the epoxy materials at the specified rate to the bridge deck in such a manner as to cover 100 percent of the work area including 1 inch of the vertical face of curb/barrier. Provide a fine aggregate spreader capable of uniformly and accurately applying dry aggregate to cover 100 percent of the epoxy material. Provide a self-propelled vacuum truck.

For hand applications, provide calibrated containers, a Jiffy® type mixer, and notched squeegees which are suitable for mixing and applying the epoxy and aggregate.

For mechanical applications, provide mixing equipment that will automatically and accurately proportion the components in accordance with the manufacturer's recommendations, mix, and continuously place the epoxy overlay. Ensure the operation proceeds in such a manner that will not allow the mixed material to segregate, dry, be exposed or otherwise harden in such a way as to impair the retention and bonding of broadcasted aggregate.

d. Construction.

1. Surface Preparation. The Engineer will inspect patching and cleaning operations. The Engineer's approval is required prior to placement of the overlay. Protect utilities, drainage structures, curbs, bridge expansion joint devices, and any other structure within or adjacent to the epoxy overlay location from surface preparation activities and application of the surface treatment materials.

Do not perform surface preparation or installation of epoxy overlay on concrete patches less than 28 days of age. Ensure that traffic paint lines and tining are removed. Clean the entire concrete surface by abrasive blasting or shotblasting to remove all materials that may interfere with the bonding or curing of the binder. The cleaned concrete surface must meet the *International Concrete Repair Institute Guideline 310.2R, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repair*, concrete surface profile (CSP) 7. Ensure mortar is sound and sufficiently bonded to the coarse aggregate, and presents a uniform CSP necessary for adequate bond. Use a vacuum truck or oil-free moisture-free air blast to remove all dust and other loose material. The Contractor's operations shall not create excessive dust. All containment methods shall be entirely effective. Brooms are prohibited. Remove any oil or other contamination after initial cleaning.

Ensure both courses of epoxy overlay are applied within 24 hours of the final cleaning, and prior to opening the area to traffic.

No visible moisture can be present on the surface of the concrete at the time of epoxy overlay application. Oil-free, moisture-free, compressed air may be used to dry the deck surface. Use a plastic sheet left taped in place in accordance with *ASTM D 4263* to identify moisture in the epoxy overlay area except as modified herein. Tape an 18 inch by 18 inch transparent polyethylene sheet (4 mil) to the deck every 500 square feet. Ensure all edges are sealed with tape that will stick to the concrete substrate. Leave the plastic sheet in place for a minimum of 3 hours or the manufacturer's recommended cure time for the conditions, whichever is longer. Ensure there is no moisture visible on the polyethylene sheet. Alternate methods to detect moisture must be approved by the Engineer.

Remove all debris from the neoprene glands of strip-seal style expansion joints. Protect the expansion joints, and any other areas not to be overlaid, from damage during preparation of the surface. Ensure the protection is removed once the epoxy and aggregate has been applied and prior to initial set. Ensure removing the protection is done soon enough to in no way harm the adjacent overlay. Ensure protection is applied again prior to the second coat and removed again prior to initial set as to not damage adjacent surfaces. Ensure the protection meets the approval of the Engineer.

2. Application. Ensure handling and mixing of the epoxy resin and hardening agent is performed in a safe manner to achieve the desired results in accordance with the manufacturer's recommendations for a two-coat system or as directed by the Engineer. Do not place epoxy overlay materials when the concrete surface is less than 50 degrees Fahrenheit (F) or ambient air temperature is forecast to fall below 50 degrees F within 8 hours of application. Do not place epoxy overlay materials if weather or surface conditions are such that the material cannot be properly handled, placed, and cured in accordance with the manufacturer's requirements and the specified requirements of traffic control.

Apply the epoxy overlay in two separate courses in accordance with the manufacturer's recommendation for a two-coat system with the following rate of application. Ensure the first course is no less than 2½ gallons per 100 square feet. Ensure the second course is no less than 5 gallons per 100 square feet.

Ensure application of aggregate to both the first and second courses is of sufficient quantity so the entire surface is covered in excess. Ensure no bleed through, or wet spots are visible in the overlay. Remove and replace any areas within course applications with wet spots or where epoxy has bled through.

After the epoxy mixture has been prepared for the overlay, immediately and uniformly apply it to the surface of the bridge deck with a notched squeegee. Apply the dry aggregate in such a manner as to cover the epoxy mixture completely within 5 minutes. Minimize all foot traffic on the uncured epoxy and ensure any foot traffic will only be done with steel spiked shoes approved by the Engineer. Cure each course of epoxy overlay until vacuuming or brooming can be performed without tearing or damaging the surface. Do not allow traffic or equipment on the overlay surface during the curing period. Remove by vacuuming or brooming all loose aggregate after the first course curing period. Immediately apply the next overlay course to complete the overlay. Ensure the minimum curing periods are in accordance with the manufacturer's recommendations, as shown in Table 4, or as directed by the Engineer. Remove by vacuuming or brooming all loose aggregate after the second course curing period. Ensure all strip-seal style expansion joints are free of loose aggregate, epoxy and other debris resulting from overlay operations.

Table 4: Anticipated Cure Time (Hours)

Average Temperature of Deck, Epoxy and Aggregate Components, Degrees F	1 st Course	2 nd Course
<60		(a)
60-64	2	2
65-69	2	2
70-74	1.75	1.75
75-79	1.75	1.75
80-84	1.5	1.5
>85	1	1
a. Second course must be cured for minimum of 8 hours if the air temperature drops below 60 degrees F during the curing period, or per the manufacturer's recommendations.		

Plan and execute the work to provide the minimum curing periods as specified in Table 4, or other longer minimum curing periods as recommended by the manufacturer, prior to opening to public or construction traffic, unless otherwise permitted. Ensure first course applications are not opened to traffic. Remove any contamination, detrimental to adhesion of the second course, from the first course at Contractor’s sole expense prior to the application of the second course.

Remove and replace any areas damaged or marred by the Contractor’s operations in accordance with this special provision at no additional cost to the Department.

Provide the Engineer with all records including, but not limited to, the following for each batch provided:

- batch numbers and sizes,
- location of batches as placed on deck, referenced by stations,
- batch time,
- temperature of air, deck surface, epoxy components, including aggregates,
- loose aggregate removal time, and
- time open to traffic.

e. 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
Epoxy Ovly	Square Yard

Epoxy Ovly includes all material, labor, and equipment required for cleaning, preparing and applying a two-coat epoxy overlay system including miscellaneous clean-up. Also included are all labor, material, and equipment costs necessary for completely cleaning strip-seal style expansion joints.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PRESTRESSED CONCRETE BEAM REPAIR PREPARATION

FTCH/VDG:COAA:MGN

1 of 1

09-03-19

a. Description. This work consists of removing loose concrete adjacent to cracks, at locations specified by the Engineer, on damaged prestressed concrete beams. This work includes saw cutting, hand chipping, and water blasting concrete to a depth of 2 inches, and cleaning the exposed existing reinforcement and prestressing steel.

b. Materials. None specified.

c. Construction. Perform work in accordance with section 712 of the Standard Specifications for Construction except as modified herein. Saw cut perimeter of the areas to be patched or filled to a depth of 1 inch. Remove concrete by hand chipping or high pressure water blasting at locations specified by the Engineer. If manual pneumatic hammers are used, they must be limited to 30 pounds. Do not use pneumatic hammers within 1 inch of the prestressing strands. Use mauls or other tools approved by the Engineer in areas within 1 inch of the prestressing strands. Thoroughly clean scale, rust, and debris from all exposed reinforcing and prestressing steel using methods approved by the Engineer.

d. 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
Hand Chipping, Special.....	Square Foot

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
CONCRETE COLUMN CAP, REMOVE AND RESET

FTCH/VDG:COAA:MGN

1 of 2

11-13-19

a. Description. This work consists of removing and salvaging existing concrete column caps, cleaning and preparing surface, mortaring cap in place, and sealing with elastomeric sealant.

b. Materials. The materials must meet the following:

Mortar.....ASTM C720 Type M
Elastomeric Sealant.....ASTM C920 – 2-Component, Type M, Grade NS

The sealant (caulk) must be a 2-component, non-sag polyurethane-based elastomeric sealant such as Sikaflex -2c NS EZ Mix or Engineer approved equivalent. Choose color to match mortar or as approved by the Engineer.

c. Construction.

1. Surface Preparation and Cleaning. Remove the existing concrete cap in a careful manner not to damage or chip the cap. Remove any remnants of the existing mortar on top of the column as well as any loose or deleterious material to the satisfaction of the Engineer. Clean the existing dowels free of any remaining mortar and loose material. Following the removal of cap and loose material, blast clean the entire top of column surface with oil free compressed air to produce a clean substrate surface. Complete the cap resetting within 24 hours of cleaning the substrate.

2. Mixing: Combine and thoroughly mix cementitious materials, water, aggregates and admixtures in a mechanical batch mixer. Comply with applicable ASTM standards and material manufacturer's recommendations for mixing time and water content. Measure and batch materials by volume so that required proportions can be accurately controlled and maintained.

3. Mortar Application: Place ½" layer of mortar across entire top of concrete column. Leave ½" inset relief from face of column all around.

4. Cap Placement: Replace concrete cap in position over existing dowels. Placement shall be made to provide equal overhang on all four sides of the column, and so that the bottom of cap is level in both directions.

5. Sealant Application: Caulk apply ½" thick 2-component polyurethane elastomeric sealant over face of exposed mortar no less than 10 days after setting cap. Tool sealant to a smooth surface even with the column face.

6. Temperature Limitations: As prescribed in the manufacturer's specifications.

- d. **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
Conc Column Cap, Remove and Reset	Each

Conc Column Cap, Remove and Reset will be paid for based each cap reset, and includes all labor, material, and equipment cost associated with the work to remove cap, prepare surfaces, mortar, reset cap in place and seal mortar.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
STEEL BICYCLE RAILING REPAIR

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of removing, repairing damaged portions, and reinstalling the steel bicycle railing at the location shown on the plans (approximate Sta. 11+75 left of Huron Parkway Bridge).

b. Materials. Provide materials as specified in Sections 707 and 713 of the Standard Specifications for Construction.

c. Construction. Remove damaged railing segment in its entirety by unbolting from the adjacent railings, posts, and sidewalk anchors.

Save and reuse existing hardware for reattachment. If any existing hardware is deemed unusable by the Engineer, provide new hardware in accordance with section 908.09C of the 2012 Standard Specifications for Construction.

Remove existing galvanization by acid pickling the entire railing section. Blast clean, if necessary, to achieve SSPC-SP-1 surface condition.

Replace bent picket with a new $\frac{3}{4}$ " x $\frac{3}{4}$ " x 18"± steel bar, shop welded into place with a 1/8" all-around fillet weld, top and bottom.

After the slip-resistant surface has been applied to the substrate, hot-dip galvanize the entire railing segment in accordance with ASTM A123.

Replace repaired railing section using existing, or replacement hardware.

d. 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
Steel Bicycle Railing Repair (SN 11074)	Lump

Payment for **Steel Bicycle Railing Repair** includes all labor, material, shipping, and equipment costs to remove the existing railing segment, clean the entire railing segment, remove and replace the damaged picket, galvanize the entire railing segment, provide new attachment hardware if necessary, and re-install the railing segment.

All costs associated with repair of railing damaged during these operations will be borne by the Contractor.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
BRIDGE RAILING, END POST

FIS/JBD:COAA:MGN

1 of 3

09-04-20

a. Description. This work consists of providing all labor, equipment and materials to furnish, fabricate, and install new steel end posts to existing steel three-tube bridge railing. All work shall be performed in accordance with Sections 713 and 716 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, as shown on the plans, and as described herein.

b. Materials. Provide materials in accordance with Section 713.02 of the standard specifications, except as shown on the plans and as specified herein.

The posts are to be hot-dip galvanized and coated after fabrication. Galvanizing shall be performed in accordance with Section 707.03.C.17 of the 2012 MDOT Standard Specifications for Construction. Choose one of the coating systems below. The color of the top coat will be high gloss black, Federal Standard No. 595b, color number 17038.

1. Carboline Company
Carbozinc 859 – Primer
Carboguard 893 – Intermediate Coat
Carboguard 133 LH – Top Coat
2. Sherwin Williams
Zinc Clad III HS – Primer
Macropoxy 646 – Intermediate Coat
Acrolon 218 HS – Top Coat
3. PPG Industries
Amercoat 68HS – Primer
Amercoat 399 – Intermediate Coat
Amercoat 450H – Top Coat

New stainless steel accessories, including anchor bolts, heavy duty hollow wall anchors, nuts, and washers, conforming to ASTM F593 shall be furnished for attachment to the existing railing.

c. Construction. Construction must be in accordance with the standard specifications, except as shown on the plans, and as specified herein.

The Contractor is responsible for producing all shop drawings. Field verify dimensions prior to preparing the shop drawings. Shop drawings shall be created in accordance with Sections 104.02 and 707.03.C.1 of the 2012 MDOT Standard Specifications for Construction. For each submittal or resubmittal, the Contractor shall allow at least 14 calendar days from the date of submittal to receive the Engineer's acceptance or request for revisions. The Engineer's acceptance is required before beginning the work. Resubmittals may take less than 14

calendar days depending upon the magnitude of revisions requested. 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 CPM network schedule.

Surface preparation prior to galvanizing steel must conform to *SSPC-SP 10 Near White Blast Cleaning* and *SSPC-SP8 Pickling*. An alternate method for cleaning may be submitted to the Engineer for approval.

The thickness of applied hot-dip galvanizing is to be performed using measurement techniques described in SSPC-PA-2. Any areas with insufficient galvanizing thickness shall be repaired in accordance with subsection 716.03.E of the Standard Specifications for Construction with the exception that zinc-rich paint shall not be considered to be an acceptable method of repair of damaged galvanization.

After galvanizing, quenching shall be performed with a phosphate solution to help with paint adhesion. Clean and degrease surfaces after galvanizing using either an alkaline or solvent solution per the solvent manufacturer's directions and clean rags. Care must be taken to prevent removing too much of the zinc coating. After cleaning thoroughly rinse the surface with hot water and allow to dry completely.

After cleaning and degreasing profile the surfaces by lightly sweep blasting. Care must be taken to prevent removing too much of the zinc coating. Particle size for a sweep blast of galvanized steel should range between 200-500 microns (8-20 mils). Aluminum/magnesium silicate or other proven material to remove oxide layer and roughen galvanized surfaces shall be used. A surface profile of 40-50 microns (1.5-2 mils) shall be achieved. Ensure surfaces are clean and dry prior to the painting application.

After profiling, coat the railing with one of the coating systems listed. Apply the coating(s) in accordance with the manufacturer's recommendations and MDOT required cure times.

During transportation, posts shall be carefully handled and packed with soft materials such as carpet scraps, cardboard, or similar material such that the new coating is not damaged. Lift railing elements with slings or other materials that will not scratch or damage the railing coating.

Field repair all minor scratches and abrasions which occur in the field and which do not compromise the galvanizing by cleaning, priming, and painting per section 716.03.D of the Standard Specifications for Construction. Field repair all areas of exposed steel at the weld locations and at locations of minor scratches and abrasions which compromise the galvanizing as per section 716.03.E of the Standard Specifications for Construction, except that zinc-rich paint shall not be used for the repair of damaged galvanized surfaces. Only zinc-based solder or sprayed zinc shall be used. Repair coating in accordance with section 716.03.D of the Standard Specifications for Construction. If over 0.5% of the total surface area, or over 10 square inches in any one area, of the railing's finish is damaged then the entire railing shall be sent back to the shop and recoated.

Complete all work so as not to damage the existing railing. If any damage occurs, submit a plan for repairs to the Engineer for approval prior to the performance of the remedial work.

Installation shall only be performed on portions of the structure closed to pedestrian traffic

during respective work stages. The railing shall be fully installed prior to reopening the portion of the structure to pedestrians.

d. Measurement and Payment. The completed work shall be paid for at the contract unit price for the following contract item (pay item):

Pay Item	Pay Unit
Bridge Railing, End Post, Galvanized	Each

Payment for **Bridge Railing, End Post** includes all labor, material, and equipment required to furnish, fabricate, coat, and install the new posts as described herein and shown on the drawings. Also included is the cost associated with elastomeric pads, field drilling holes in existing steel railing elements to facilitate installation, and supplying stainless steel anchor bolts for attachment to the concrete base. All costs associated with installing the anchor bolts into the concrete base of the existing railing, including drilling and cleaning holes, filling holes with adhesive, placing anchor bolts, and testing will be paid for separately.

Payment for **Bridge Railing, End Post** also includes all equipment, labor, and material required to produce shop drawings and any required revisions.

All costs associated with repair of railing damaged during these operations will be borne by the Contractor.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
FIELD REPAIR OF GALVANIZED COATING

FIS:JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of providing all labor, equipment, and materials to apply galvanizing repair material to portions of the existing galvanized structural steel bridge railing components as shown in the plans and as described herein.

b. Materials. Provide an organic zinc-rich coating containing a maximum of 221 gms/L VOC, as supplied, and at least 92% metallic zinc (ASTM D520, Type III), by weight, in the dried film, exhibiting galvanic, anticorrosion protection to iron and steel, and conforming to Society for Protective Coatings Specification SSPC Paint 20, Type II, Level 1, Zinc Rich Coating and American Society for Testing and Materials Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings, ASTM A 780-01, and meeting the performance requirements of Specification SSPC Paint 29, Type II, Level 1, Zinc Dust Sacrificial Primer Performance-Based, Military Specification MIL-P-21035B, Paint High Zinc Dust Content, Galvanizing Repair (Metric) and Military Specification MIL-PRF-26915D, Primer Coating, For Steel Surfaces.

The intention of this specification is to provide a galvanizing repair material, not simply a zinc-rich primer intended for coating. Zinc-rich primers will not be accepted.

c. Construction. Clean surfaces to SSPC-SP-1 condition. Apply two coats of the galvanizing repair material, allowing a minimum of 12 hours between each coat.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract lump sum price using the following pay item.

Pay Item	Pay Unit
Field Repr of Damaged Galvanized Coating (SN 11074).....	Lump

Field Repr of Damaged Galvanized Coating will be paid for at the contract lump sum price. It is estimated that, as shown in the plans, there are approximately 40 locations to be repaired, and that each location requires an average of 0.5 SF of galvanizing repair, for a total estimated area of 20 SF.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
GUARDRAIL ANCHORAGE, BRIDGE, DETAIL M1, MODIFIED

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of providing all materials, labor, and equipment required to construct a Guardrail Anch, Bridge, Det M1, Modified, of specified type, as detailed on the plans, in accordance with applicable details and notes in Standard Plan R-67 Series and B-22 Series, as specified in this special provision, and as directed by the Engineer.

b. Materials. Provide materials in accordance with subsections 711.02 and 807.02 of the Standard Specifications for Construction.

c. Construction. Construct guardrail anchorage in accordance with subsections 711.03.E and 807.03 of the Standard Specifications for Construction and Standard Plan R-67 Series and B-22 Series, except utilize 9-foot-long guardrail posts in lieu of standard guardrail posts.

d. 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
Guardrail Anch, Bridge, Det M1, Modified.....	Each

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
HAND DIGGING GUARDRAIL POST

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of hand digging holes to place guardrail posts that are in close proximity to utilities as indicated on the plans, as directed by the Engineer. Perform this work in accordance with section 807 of the Standard Specifications for Construction, as shown on the plans, as directed by the Engineer and as contained herein.

b. Materials. Ensure materials are in accordance with Section 807 of the Standard Specifications for Construction.

c. Construction. Install posts to the proper depth and alignment as required by the contract by means of hand digging holes, then backfilling and compacting sound earth around the posts in 12-inch layers.

d. 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
Hand Digging Guardrail Post	Each

Hand Digging Guardrail Post will include all labor, equipment and material needed to excavate a hole for the guardrail post; and backfill and compact the fill around the guardrail post. The guardrail post is considered to be included in the payment for the guardrail item being installed.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TIMBER RUB RAIL, REPLACE

FTCH/VDG:COAA:MGN

1 of 1

09-03-19

a. Description. This work consists of providing all labor, materials, and equipment costs for removing existing timber rub rail sections and installing new rub rails.

b. Materials. Salvage and re-use existing connection hardware such as bolts, nuts, washers and connecting plates. Replace hardware elements where determined to be unsuitable for re-use by the Engineer. Use galvanized A325 bolts and threaded parts of same size and length as existing. Timber rub rail sections shall be Prime Ground Contact grade Pressure Treated Lumber, 8" x 2" sections with 10 foot minimum lengths.

c. Construction. Applies to sections of existing rub rails at the Fuller Road over Huron River bridge approaches. Perform all work as shown on GUARDRAIL AND RUB RAIL REPAIR DETAILS, plan sheet 48 and listed in procedures herein.

1. Remove and salvage existing bolts connecting rub rail sections to existing guardrail.
2. Replace connecting hardware elements with new elements of the same size as directed by the Engineer.
3. Receive approval of the Engineer for each new timber section, to be inspected for excessive splits, checks and warping.
4. Field cut sections to match existing timber sections to be replaced.
5. Field drill holes to match existing connection locations.
6. Install new rub rail sections.
7. Install connecting hardware and tighten to 40 ft-lb torque or until timber visibly compresses under washer/nut.

d. 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
Timber Rub Rail, Replace.....	Foot

Timber Rub Rail, Replace includes all labor, materials, and equipment costs for removing existing connection hardware and rub rail sections, salvaging existing connection hardware, replacing hardware determined to be unsuitable for re-use, installing new rub rail sections, and discarding old rub rail materials.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
SLOPE PROTECTION, REMOVE AND REPLACE

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of removing portions of undermined concrete slope protection at the Island Drive structure for the purpose of installing a concrete header, as shown in the plans and described herein.

b. Materials. All materials must be in accordance with Section 813 of the Standard Specifications for Construction.

c. Construction. Remove slope protection to the limits shown, place fill in voids as needed and compact, place geotextile liner where appropriate, and replace slope protection, including a concrete header as shown in the plans.

Voids below the damaged slope protection must be filled with Granular Material Class II and compacted in place according to the Standard Specifications.

d. 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
Slope Protection, Remove and Replace.....	Square Yard

Slope Protection, Remove and Replace includes all labor, equipment and materials necessary to remove and replace the slope protection as described. Placing and compacting fill in voids below the slope protection is included in this pay item and will not be paid for separately.

Bypass pumping required to perform this work will be paid for separately.

Damage to the slope protection caused by Contractor's operation will be repaired at the Contractor's expense as directed by the Engineer.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
BRIDGE SLOPE PROTECTION REPLACEMENT

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Description. This work consists of replacing damaged grouted riprap slope protection at the north abutment of the Huron Parkway structure as directed by the Engineer.

b. Materials. All materials must be in accordance with section 813 of the Standard Specifications for Construction.

c. Construction. Remove damaged slope protection, place fill in voids as needed and compact, place geotextile liner where appropriate, replace slope protection in-kind and dispose of excess materials.

Voids below the damaged slope protection must be filled with Granular Material Class II and compacted in place according to the standard specifications.

The locations where slope protection needs work will be as directed by the Engineer and perform replacement work in accordance with Standard Plan B-102 Series and the standard specifications.

d. 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
Slope Protection, Replace.....	Square Yard

Slope Protection, Replace includes all labor, equipment and materials necessary to remove and replace the slope protection as described. Placing and compacting fill in voids below the slope protection is included in this pay item and will not be paid for separately.

Damage to the slope protection caused by Contractor's operation will be repaired at the Contractor's expense as directed by the Engineer.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
RIPRAP, MODIFIED

FIS/JBD:COAA:MGN

1 of 1

09-04-20

a. Materials.- The work shall be completed in accordance with Section 813 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, as shown on the plan sheets, and as modified herein.

The riprap shall be an Engineer approved, consistent gray colored, natural stone, or crushed limestone. The Contractor shall provide a sample of the stone to the Engineer for review. The use of broken concrete shall not be allowed under any circumstance.

b. Measurement and Payment.- The completed work shall be paid for at the contract unit price for the following contract item (pay item):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Riprap, Plain, Modified.....	Square Yard
Riprap, Heavy, Modified.....	Square Yard

“Riprap, Plain, Modified” and “Riprap, Heavy, Modified” shall be measured in place by the square yard and include all labor, materials, and equipment necessary to perform the work as specified above

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
TURF ESTABLISHMENT

FIS/JBD:COAA:MGN

1 of 3

09-04-20

a. Description. This work shall consist of furnishing and placing 4” of Engineer-approved topsoil, hydroseeding lawn areas, and placing mulch blankets as indicated on the plans, as detailed in the specifications, or as directed by the Engineer.

The related work of preparing the earth bed, furnishing, and placing the topsoil, furnishing the seed mixtures, furnishing the fertilizer, sowing the seed, furnishing and installing the mulch blanket and watering shall conform to the requirements of this Special Provision and Section 816, Turf Establishment, of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction.

b. Materials. The materials shall meet the requirements specified in the 2012 MDOT Standard Specifications for Construction except as specified herein:

- Seed shall be fresh, clean, dry, new-crop seed complying with the AOSA’s “Rules for Testing Seed”, tested for purity and germination tolerances.

Variety	Proportion By Weight	Purity	Germination
Baron Kentucky Bluegrass	25%	90	80
Kentucky Bluegrass 98/80	15%	98	80
Park Kentucky Bluegrass	15%	90	80
Omega III Perennial Ryegrass	20%	98	90
Creeping Red Fescue	25%	95	90

Maximum weed content shall be 0.30%.

- Fertilizers shall be a Class A. The percentages by weight shall be at a minimum 10N-10P-10K or as required and approved by the Engineer.
- The seed, fertilizer, and adhesive (mulch binder) shall be mixed together and applied at one time.
- Water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances.

Mulch Blanket:

Straw/jute blanket shall be constructed with a 100% agricultural straw matrix with jute and cotton netting on top and bottom, be 100% biodegradable, and have a typical functional longevity of 12 months. Use 6 inch long biodegradable stakes 24 inch O.C. or as directed by the Engineer. Plastic weaving will not be permitted.

c. Maintenance and Acceptance. It is the responsibility of the Contractor to establish a dense, vigorous, weed free lawn of permanent grasses, free from mounds and depressions prior to final acceptance and payment of this project. Any portion of a seeded area that fails to show a uniform germination, shall be re-seeded. Such re-seeding shall be at the Contractor's expense and shall continue until a dense, vigorous and weed free lawn is established.

The Contractor shall maintain all lawn areas until they have been accepted by the Engineer. Lawn maintenance shall begin immediately after the grass seed is in place, and shall continue until final acceptance with the following requirements:

- Lawns shall be protected and maintained by watering, mowing, and reseeding as necessary, until the period of time when the final acceptance and payment is made. The Contractor shall establish a uniform, dense, vigorous, and weed-free stand of the specified grasses. Maintenance includes, but is not limited to; deposition of additional topsoil; re-seeding; watering; fertilizing; mowing, and any other work as required to correct all settlement, erosion, germination, and establishment issues until the date of final acceptance by the Engineer.
- Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over three (3) percent of the area nor greater than 6"x 6" in size.

When the above requirements have been fulfilled, the Engineer will accept the lawn.

a. Measurement and Payment. The completed work shall be paid for at the contract unit price for the following contract items (pay items):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Topsoil Surface, 4 inch	Square Yard
Hydroseeding.....	Square Yard
Mulch Blanket.....	Square Yard

"Topsoil Surface, 4 inch", "Hydroseeding" and "Mulch Blanket " will be measured by area in square yards and will be paid for at the contract unit prices which shall be payment in full for all labor, materials, and equipment needed to accomplish this work.

Topsoil placement shall occur at the locations called for on the plans or, as directed by the Engineer. The unit price "Topsoil Surface, 4 inch" shall include the grading of the area to receive the topsoil, preparing the earth bed, spreading and raking the topsoil to provide a uniform surface free of large clods, lumps, rocks, brush, roots, or other deleterious materials, as determined by the Engineer.

The hydroseeding shall be placed on all lawn areas as called for on the plans, and shall include furnishing and installing seed, fertilizer, mulch blankets, and all required watering necessary for the establishment of the turf. Watering will not be paid for separately.

Any damage or soiling to signs, fences, trees, pavements, or structures shall be repaired and/or cleaned by the Contractor at the Contractor's sole expense.

After initial placement of the topsoil and hydroseed mixture(s), fifty (50) percent of the total quantity placed for each item will be certified for payment. The remaining fifty (50) percent of the total quantities will be held by the Engineer until such time as all lawn areas have been established and accepted by the Engineer.

Final acceptance shall occur no sooner than June 15th of the year after the year in which the lawn areas were initially planted during the previous spring planting season; or, final acceptance will occur no sooner than November 1st of the year after the year in which the lawn areas were initially planted during the previous summer planting season.

In no case shall lawn areas be accepted in the same year in which they were planted.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
**PRESTRESSED CONCRETE BEAM REPAIR WITH LATEX MODIFIED
CONCRETE**

FTCH/VDG:COAA:MGN

1 of 2

09-03-19

a. Description. This work consists of placing latex modified concrete to repair the prepared portion of bridge beams. Preparation of the bridge beam will be according to the Prestressed Concrete Beam Repair Details plan sheet.

b. Materials. The materials must meet the following:

Portland Cement, Type 1	901
Fine Aggregate, 2NS	902
Coarse Aggregate, 26A	902
Latex Admixture	903
Admixtures	903
Water.....	911

The beam patching mixture must meet the requirements for Patching Mixture Type C-L in Table 703-1 and Section 703 of the Standard Specifications for Construction. In addition to the requirements of Section 902, the coarse aggregate 26A, must be 100 percent crushed material.

c. Construction.

1. Equipment. Use equipment in accordance with Subsection 703.03.A of the 2012 MDOT Standard Specifications for Construction. Certification will be performed by MDOT.

2. Surface Preparation and Cleaning. Remove unsound concrete as shown on the plans, to the satisfaction of the Engineer, in accordance with the Special Provision for Prestressed Concrete Beam Repair Preparation. Following the removal of unsound concrete from the beam and prior to the placement of the repair, blast clean the entire repair surface with oil free compressed air to produce a clean substrate surface. Complete the concrete repair within 48 hours of cleaning the substrate.

3. Mix, Place, Finish and Cure in accordance with Subsection 712.03.O of the Standard Specifications for Construction.

4. Temperature Limitations. The temperature limitations of Subsections 712.03.R and 712.03.S of the Standard Specifications for Construction apply.

- d. **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
Beam End Repair, Latex Modified Conc	CubicFoot

Beam End Repair, Latex Modified Conc material will be measured and paid for based on volume in place. **Beam End Repair, Latex Modified Conc** includes all labor, material, and equipment cost associated with the work including, but not limited to, blast cleaning the beam, forming the repair area, pre-wetting, furnishing, placing, consolidating, finishing, and curing (96 hour) the repair concrete.

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
MECHANICAL ANCHOR, ADJUST

FTCH/VDG:COAA:MGN

1 of 2

9/03/19

a. Description. This work consists of providing all materials, equipment and labor for adjusting the existing mechanical anchors affixing the metal railing to the bridge concrete parapet rails.

b. Materials. Salvage and re-use existing anchors and elastomeric base plate leveling pads, and galvanized steel shim plates. Where anchor rods are determined unsuitable for re-use by the Engineer, replace with stainless steel Hilti HAS M16 (length = 7.5 inch) threaded anchor rods.

c. Construction. Applies to each anchor rod on the bridge railing for Broadway over Depot Street and MDOT Railroad and Broadway over Huron River. Perform the work as shown on RAILING ANCHOR ADJUSTMENT DETAILS, plan sheet 47, and in accordance with the procedures listed herein:

Removal and Preparation:

1. Remove and salvage all existing anchor nuts and washers for each metal panel to be removed.
2. Salvage each metal rail panel and protect on-site or store off-site. Catalogue railing panels with a labeling system to ensure each railing panel is replaced in its exact location.
3. If stored on-site, leave a minimum of 5 feet of sidewalk free for pedestrian traffic.
4. Remove and salvage existing threaded rods and elastomeric leveling pads.
5. Remove and discard existing anchor sleeves.
6. Clean out existing anchor holes with high-pressure air (minimum 2400 psi).
7. Clean threaded rod with wire brush, and degreaser as needed, free of burs and deleterious material.

Reinstallation:

8. Reinstall threaded rods such that there is a 2 inch projection above top of concrete.
9. Where an existing threaded rod is determined unsuitable for re-use by the Engineer, replace existing threaded rod with new threaded rod.
10. Do not reinstall sleeves.
11. Inject Hilti HIT_RE 100 adhesive with caulking gun, filling void to top of concrete.
12. Tool adhesive leaving smooth surface at top of concrete, free of surface voids. Allow epoxy to cure to reach its design strength.
13. Reinstall elastomeric leveling pad.
14. Reinstall metal rail panel over reinstalled anchor rods.
15. Torque anchor nuts to 60 ft-lb.
16. Repeat procedure for each metal rail panel.

d. 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
Mechanical Anchor, Adjust, Complete.....	Each

CITY OF ANN ARBOR

DETAILED SPECIFICATION
FOR
MECHANICAL ANCHOR, ADJUST

FTCH/VDG:COAA:MGN

2 of 2

9/03/19

Mechanical Anchor, Adjust, Complete includes all labor, materials, and equipment costs for removing, storing and reinstalling metal railing, removing existing anchor rods, sleeves and leveling pads, cleaning existing anchor rods and anchor holes, reinstalling anchor rods and leveling pads, and applying adhesive. Any anchor rods to be replaced shall be included in the pay item.

CITY OF ANN ARBOR
 DETAILED SPECIFICATION
 FOR
TIMBER RUB RAIL, REPLACE

FTCH/VDG:COAA:MGN

1 of 1

09-03-19

a. Description. This work consists of providing all labor, materials, and equipment costs for removing existing timber rub rail sections and installing new rub rails.

b. Materials. Salvage and re-use existing connection hardware such as bolts, nuts, washers and connecting plates. Replace hardware elements where determined to be unsuitable for re-use by the Engineer. Use galvanized A325 bolts and threaded parts of same size and length as existing. Timber rub rail sections shall be Prime Ground Contact grade Pressure Treated Lumber, 8" x 2" sections with 10 foot minimum lengths.

c. Construction. Applies to sections of existing rub rails at the Fuller Road over Huron River bridge approaches. Perform all work as shown on GUARDRAIL AND RUB RAIL REPAIR DETAILS, plan sheet 48 and listed in procedures herein.

1. Remove and salvage existing bolts connecting rub rail sections to existing guardrail.
2. Replace connecting hardware elements with new elements of the same size as directed by the Engineer.
3. Receive approval of the Engineer for each new timber section, to be inspected for excessive splits, checks and warping.
4. Field cut sections to match existing timber sections to be replaced.
5. Field drill holes to match existing connection locations.
6. Install new rub rail sections.
7. Install connecting hardware and tighten to 40 ft-lb torque or until timber visibly compresses under washer/nut.

d. 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
Timber Rub Rail, Replace.....	Foot

Timber Rub Rail, Replace includes all labor, materials, and equipment costs for removing existing connection hardware and rub rail sections, salvaging existing connection hardware, replacing hardware determined to be unsuitable for re-use, installing new rub rail sections, and discarding old rub rail materials.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MINOR TRAFFIC DEVICES, MAX. \$ _____

AA:MGN

1 of 2

11/12/19

a. Description.- This work shall consist of protecting and maintaining vehicular and pedestrian traffic in accordance with the City of Ann Arbor Standard Specifications for Construction; Section 812 of the 2012 MDOT Standard Specifications for Construction; Part 6 of the Michigan Manual of Uniform Traffic Control Devices, Latest Revised Edition (MMUTCD); this Detailed Specification; and, as shown on the plans and as directed by the Engineer.

This item of work shall include, but not be limited to:

- The furnishing and operating of miscellaneous signs, warning devices, and cones as required for the entire duration of the project;
- The operation of additional signs furnished by the City;
- Furnishing and installing meter bags (where required);
- Coordinating with the City to have meter heads removed and reinstalled (where required);
- Maintaining pedestrian traffic in accordance with the requirements of the American's with Disabilities Act (ADA);
- Temporarily covering conflicting traffic controls with Engineer-approved covers;
- Temporarily covering conflicting existing signs as directed by the Engineer with approved sign covers; and,
- Any and all other miscellaneous and/or incidental items that are necessary to properly and safely 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 plan set for this project.

b. Materials.- Traffic maintenance material and equipment shall meet the requirements as specified in Section 812.02 of the 2012 MDOT Standard Specifications for Construction.

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

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
MINOR TRAFFIC DEVICES, MAX. \$ _____

AA:MGN

2 of 2

11/12/19

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

The Contractor shall temporarily cover conflicting traffic and/or parking signs when 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 sole expense.

The Contractor shall furnish and install the traffic control items as shown on the contract plan sheets and details included therein.

"Road Work 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.

Removable black pavement marking cover tape shall be used to cover conflicting pavement markings as directed by the Engineer.

Temporary pavement markings may be used within transition areas, if requested by the Contractor, and approved by the Engineer. All temporary pavement markings shall be removable.

d. 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 shall be paid for at the contract unit price for the following contract item (Pay Item):

<u>Pay Item</u>	<u>Pay Unit</u>
Minor Traffic Devices, Max. ____	Lump Sum

The unit price for this item of work shall include all labor, material, and equipment costs required to perform the work specified herein.

CITY OF ANN ARBOR
SPECIAL PROVISION
FOR
RIPRAP, MODIFIED

AA:MGN

1 of 1

11/12/19

a. Materials.- The work shall be completed in accordance with Section 813 of the Michigan Department of Transportation 2012 Standard Specifications for Construction, as shown on the plan sheets, and as modified herein.

The riprap shall be an Engineer approved, consistent gray colored, natural stone, or crushed limestone. The Contractor shall provide a sample of the stone to the Engineer for review. The use of broken concrete shall not be allowed under any circumstance.

b. Measurement and Payment.- The completed work shall be paid for at the contract unit price for the following contract item (pay item):

<u>Contract Item (Pay Item)</u>	<u>Pay Unit</u>
Riprap, Plain, Modified	Square Yard
Riprap, Heavy, Modified	Square Yard

“Riprap, Plain, Modified” and “Riprap, Heavy, Modified” shall be measured in place by the square yard and include all labor, materials, and equipment necessary to perform the work as specified above.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT CLEAN-UP AND RESTORATION, SPECIAL

AA:MGN

1 of 2

11/12/19

a. Description.- This work consists of performing on-going clean-up, removing, and disposing of all construction debris of any type; used formwork; spilled concrete patching materials, splatter, or any other deleterious remnants of the project's work; soil erosion control fences, protective fences, fallen timber, logs, brush, rocks, boulders, and any other rubbish generated from the Contractor's operations within the project limits or areas impacted by their operations. The Contractor shall perform final restoration as described in this Detailed Specification, as indicated on the Drawings, and as directed by the Engineer.

The Contractor shall restore all damaged turf and/or construction areas as they relate to the project's work. This shall include, but not be limited to; salvaging the existing topsoil, stockpiling the existing topsoil as needed, scarifying and making friable the topsoil of disturbed areas; preparing the earth bed, re-spreading the topsoil, furnishing the seed mixtures, sowing the seed, furnishing, placing, and anchoring the mulch blanket. All work shall conform to the requirements of this Detailed Specification and Section 816, Turf Establishment, of the 2012 edition of the Michigan Department of Transportation (MDOT) Standard Specifications for Construction.

b. Materials.- The materials shall meet the requirements specified in the 2012 edition of the MDOT Standard Specifications for Construction, except as specified herein:

1. Mulch.- Mulch seeded areas with straw mulch blankets. The chosen blanket(s) shall be the appropriate materials for the site conditions to promote germination and growth of seed and to mitigate soil erosion and sedimentation. Mulch blankets shall be chosen from the MDOT Qualified Products list for the Engineer's approval.

2. Seed Mixtures shall be THM seed mixtures. Select a product from the MDOT Qualified Products List for the Engineer's approval.

c. Construction.- Provide project cleanup as an ongoing operation. Perform project cleanup within the right-of-way and any other areas impacted by the project work operations.

Fill all holes and ruts resulting from the work operations with Engineer-approved material. Compact and level all backfill materials and restore ruts and holes to the surrounding contour as directed by the Engineer.

PROJECT CLEAN-UP AND RESTORATION, SPECIAL 816A

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
PROJECT CLEAN-UP AND RESTORATION, SPECIAL

AA:MGN

2 of 2

11/12/19

Grade, spread topsoil, remove rocks over 2 inches in diameter, place additional topsoil (as needed), place permanent seeding, and furnish, place, and anchor erosion control straw mulch blanket in all areas disturbed by the Contractor's operations. The Contractor shall be responsible for performing the permanent restoration of the Project area and other areas as part of the work of this Detailed Specification.

Topsoil placement shall occur at the locations called for on the Drawings or as directed by the Engineer. Minimum topsoil thickness in restoration areas shall be 4 inches. The Contractor may be required to truck in additional topsoil.

Damage to seeded areas resulting from erosion shall be repaired by the Contractor at the Contractor's expense. Scattered bare spots in seeded areas will not be allowed over 3 percent of the area nor greater than 6- by 6-inch in size.

Clean existing culverts, ditches, depressions, or other areas that contain sediment or debris from the work operations.

Neatly fill any ruts or depressions resulting from removal of soil erosion control materials with existing materials after their removal. Maintenance of silt fencing and other soil erosion control materials until such time as they are no longer needed, then removal and proper disposal of them from the site, shall be included in the bid price for the related soil erosion control device.

The project site shall be left in a condition that is clean and free of all project-generated debris and to the satisfaction of the Engineer.

d. Measurement and Payment.- The completed work as measured shall be paid at the contract unit price for the following contract pay items:

<u>Contract Pay Item</u>	<u>Pay Unit</u>
Project Clean-Up and Restoration, Special.....	Lump Sum

The lump sum price for "Project Clean-Up and Restoration, Special" shall include all remaining project clean-up and restoration work, including all labor, material, and equipment costs required to complete the work as specified herein.

**ATTACHMENT B
LEGAL STATUS OF OFFEROR**

(The Respondent shall fill out the provision and strike out the remaining ones.)

The Respondent 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 proposal, is authorized to execute contracts on behalf of respondent.*

*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 with the County of _____, whose members are (attach list including street and mailing address for each.)
- An individual, whose signature with address, is affixed to this RFP.

Respondent has examined the basic requirements of this RFP and its scope of services, including all Addendum (if applicable) and hereby agrees to offer the services as specified in the RFP.

Signature _____ Date: _____,

(Print) Name _____ Title _____

Firm: _____

Address: _____

Contact Phone _____ Fax _____

Email _____

ATTACHMENT C
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

**ATTACHMENT D
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 \$13.91/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 \$15.51/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 with 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

Street Address

Signature of Authorized Representative

Date

City, State, Zip

Print Name and Title

Phone/Email address



ATTACHMENT E

VENDOR CONFLICT OF INTEREST DISCLOSURE FORM
--

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor’s conflict of interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

1. No City official or employee or City employee’s immediate family member has an ownership interest in vendor’s company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor’s Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Conflict of Interest Disclosure*	
Name of City of Ann Arbor employees, elected officials or immediate family members with whom there may be a potential conflict of interest.	<input type="checkbox"/> Relationship to employee <hr/> <input type="checkbox"/> Interest in vendor’s company <input type="checkbox"/> Other (please describe in box below)

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that this Conflict of Interest Disclosure has been examined by me and that its contents are true and correct to my knowledge and belief and I have the authority to so certify on behalf of the Vendor by my signature below:		
Vendor Name	Vendor Phone Number	
Signature of Vendor Authorized Representative	Date	Printed Name of Vendor Authorized Representative

ATTACHMENT F
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/humanrights.

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 believes there has been a violation of this chapter, he/she may file a complaint with the City's Human Rights Commission. The complaint must be filed within 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 allegedly discriminatory action. A complaint that is not filed within this timeframe cannot be considered by the Human Rights Commission. To file a complaint, first complete the complaint form, which is available at www.a2gov.org/humanrights. Then submit it to the Human Rights Commission by e-mail (hrc@a2gov.org), by mail (Ann Arbor Human Rights Commission, PO Box 8647, Ann Arbor, MI 48107), or in person (City Clerk's Office). For further information, please call the commission at 734-794-6141 or e-mail the commission at hrc@a2gov.org.

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.

**THIS IS AN OFFICIAL GOVERNMENT NOTICE AND
MUST BE DISPLAYED WHERE EMPLOYEES CAN READILY SEE IT.**

**ATTACHMENT G
CITY OF ANN ARBOR LIVING WAGE ORDINANCE**

RATE EFFECTIVE APRIL 30, 2020 - ENDING APRIL 29, 2021

\$13.91 per hour

If the employer provides health care benefits*

\$15.51 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**

APPENDIX A: SAMPLE PROFESSIONAL SERVICES AGREEMENT

If a contract is awarded, the selected Firm(s) will be required to adhere to a set of general contract provisions which will become a part of any formal agreement. These provisions are general principles which apply to all contractors/service providers to the City of Ann Arbor. The required provisions are:

(2020 PSA Auto AI over \$25,000 Rev. 1)

This agreement ("Agreement") is between the City of Ann Arbor, a Michigan municipal corporation, having its offices at 301 E. Huron St. Ann Arbor, Michigan 48104 ("City"), and _____ ("Contractor"), a(n) _____, with its address at _____ (State where organized) _____ (Partnership, Sole Proprietorship, or Corporation). City and Contractor are referred to collectively herein as the "Parties." The Parties agree as follows:

I. DEFINITIONS

Administering Service Area/Unit means _____.

Contract Administrator means _____, acting personally or through any assistants authorized by the Administrator/Manager of the Administering Service Area/Unit.

Deliverables means all Plans, Specifications, Reports, Recommendations, and other materials developed for and delivered to City by Contractor under this Agreement.

Project means _____.
Project name

II. DURATION

Contractor shall commence performance on _____, 20__ ("Commencement Date"). This Agreement shall remain in effect until satisfactory completion of the Services specified below unless terminated as provided for in Article XI. The terms and conditions of this Agreement shall apply to the earlier of the Effective Date or Commencement Date.

III. SERVICES

A. The Contractor agrees to provide _____

Type of service

("Services") in connection with the Project as described in Exhibit A. The City retains the right to make changes to the quantities of service within the general scope of the Agreement at any time by a written order. If the changes add to or deduct from the extent of the services, the compensation shall be adjusted

accordingly. All such changes shall be executed under the conditions of the original Agreement.

- B. Quality of Services under this Agreement shall be of the level of quality performed by persons regularly rendering this type of service. Determination of acceptable quality shall be made solely by the Contract Administrator.
- C. The Contractor shall perform its Services for the Project in compliance with all statutory, regulatory, and contractual requirements now or hereafter in effect as may be applicable to the rights and obligations set forth in the Agreement. The Contractor shall also comply with and be subject to the City of Ann Arbor policies applicable to independent contractors.
- D. The Contractor may rely upon the accuracy of reports and surveys provided to it by the City (if any) except when defects should have been apparent to a reasonably competent professional or when it has actual notice of any defects in the reports and surveys.

IV. INDEPENDENT CONTRACTOR

The Parties agree that at all times and for all purposes under the terms of this Agreement each Party's relationship to any other Party shall be that of an independent contractor. Each Party will be solely responsible for the acts of its own employees, agents, and servants. No liability, right, or benefit arising out of any employer/employee relationship, either express or implied, shall arise or accrue to any Party as a result of this Agreement.

Contractor does not have any authority to execute any contract or agreement on behalf of the City, and is not granted any authority to assume or create any obligation or liability on the City's behalf, or to bind the City in any way.

V. COMPENSATION OF CONTRACTOR

- A. The Contractor shall be paid in the manner set forth in Exhibit B. Payment shall be made monthly, unless another payment term is specified in Exhibit B, following receipt of invoices submitted by the Contractor, and approved by the Contract Administrator.
- B. The Contractor will be compensated for Services performed in addition to the Services described in Article III, only when the scope of and compensation for those additional Services have received prior written approval of the Contract Administrator.
- C. The Contractor shall keep complete records of work performed (e.g. tasks performed, hours allocated, etc.) so that the City may verify invoices submitted by the Contractor. Such records shall be made available to the City upon request and submitted in summary form with each invoice.

VI. INSURANCE/INDEMNIFICATION

- A. The Contractor shall procure and maintain from the Effective Date or Commencement Date of this Agreement (whichever is earlier) through the conclusion of this Agreement, such insurance policies, including those set forth in Exhibit C, as will protect itself and the City from all claims for bodily injuries, death or property damage that may arise under this Agreement; whether the act(s) or omission(s) giving rise to the claim were made by the Contractor, any subcontractor, or anyone employed by them directly or indirectly. Prior to commencement of work under this Agreement, Contractor shall provide to the City documentation satisfactory to the City, through City-approved means (currently myCOI), demonstrating it has obtained the policies and endorsements required by Exhibit C. Contractor shall add registration@mycoitracking.com to its safe sender's list so that it will receive necessary communication from myCOI. When requested, Contractor shall provide the same documentation for its subcontractor(s) (if any).

- B. Any insurance provider of Contractor shall be 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-authorized insurance companies are not acceptable unless approved in writing by the City.

- C. To the fullest extent permitted by law, Contractor shall indemnify, defend, and hold the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses, including attorney's fees, resulting or alleged to result, from any acts or omissions by Contractor or its employees and agents occurring in the performance of or breach in this Agreement, except to the extent that any suit, claim, judgment or expense are finally judicially determined to have resulted from the City's negligence or willful misconduct or its failure to comply with any of its material obligations set forth in this Agreement.

VII. COMPLIANCE REQUIREMENTS

- A. Nondiscrimination. 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 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.

- B. Living Wage. 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 City 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 City 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 City, 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.

VIII. WARRANTIES BY THE CONTRACTOR

- A. The Contractor warrants that the quality of its Services under this Agreement shall conform to the level of quality performed by persons regularly rendering this type of service.
- B. The Contractor warrants that it has all the skills, experience, and professional licenses (if applicable) necessary to perform the Services pursuant to this Agreement.
- C. The Contractor warrants that it has available, or will engage, at its own expense, sufficient trained employees to provide the Services pursuant to this Agreement.
- D. The Contractor warrants that it has no personal or financial interest in the Project other than the fee it is to receive under this Agreement. The Contractor further certifies that it shall not acquire any such interest, direct or indirect, which would conflict in any manner with the performance of the Services it is to provide pursuant to this Agreement. Further Contractor agrees and certifies that it does not and will not employ or engage any person with a personal or financial interest in this Agreement.
- E. The Contractor warrants that it is not, and shall not become overdue or in default to the City for any contract, debt, or any other obligation to the City including real and personal property taxes. Further Contractor agrees that the City shall have the right to set off any such debt against compensation awarded for Services under this Agreement.
- F. The Contractor warrants that its proposal for services was made in good faith, it arrived at the costs of its proposal independently, without consultation, communication or agreement, for the purpose of restricting completion as to any matter relating to such fees with any competitor for these Services; and no attempt has been made or shall be made by the Contractor to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.

- G. The person signing this Agreement on behalf of Contractor represents and warrants that she/he has express authority to sign this Agreement for Contractor and agrees to hold the City harmless for any costs or consequences of the absence of actual authority to sign.

IX. OBLIGATIONS OF THE CITY

- A. The City agrees to give the Contractor access to the Project area and other City-owned properties as required to perform the necessary Services under this Agreement.
- B. The City shall notify the Contractor of any defects in the Services of which the Contract Administrator has actual notice.

X. ASSIGNMENT

- A. The Contractor shall not subcontract or assign any portion of any right or obligation under this Agreement without prior written consent from the City. Notwithstanding any consent by the City 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 the Agreement unless specifically released from the requirement, in writing, by the City.
- B. The Contractor shall retain the right to pledge payment(s) due and payable under this Agreement to third parties.

XI. TERMINATION OF AGREEMENT

- A. If either party is in breach of this Agreement for a period of fifteen (15) days following receipt of notice from the non-breaching party with respect to a breach, the non-breaching party may pursue any remedies available to it against the breaching party under applicable law, including but not limited to, the right to terminate this Agreement without further notice. The waiver of any breach by any party to this Agreement shall not waive any subsequent breach by any party.
- B. The City may terminate this Agreement, on at least thirty (30) days advance notice, for any reason, including convenience, without incurring any penalty, expense or liability to Contractor, except the obligation to pay for Services actually performed under the Agreement before the termination date.
- C. Contractor acknowledges that, if this Agreement extends for several fiscal years, continuation of this Agreement is subject to appropriation of funds for this Project. If funds to enable the City to effect continued payment under this Agreement are not appropriated or otherwise made available, the City shall have the right to terminate this Agreement without penalty at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The Contract Administrator shall give Contractor written notice of such non-appropriation within thirty (30) days after it receives

notice of such non-appropriation.

- D. The provisions of Articles VI and VIII shall survive the expiration or earlier termination of this Agreement for any reason. The expiration or termination of this Agreement, for any reason, shall not release either party from any obligation or liability to the other party, including any payment obligation that has already accrued and Contractor's obligation to deliver all Deliverables due as of the date of termination of the Agreement.

XII. REMEDIES

- A. This Agreement does not, and is not intended to, impair, divest, delegate or contravene any constitutional, statutory and/or other legal right, privilege, power, obligation, duty or immunity of the Parties.
- B. All rights and remedies provided in this Agreement are cumulative and not exclusive, and the exercise by either party of any right or remedy does not preclude the exercise of any other rights or remedies that may now or subsequently be available at law, in equity, by statute, in any agreement between the parties or otherwise.
- C. Absent a written waiver, no act, failure, or delay by a Party to pursue or enforce any rights or remedies under this Agreement shall constitute a waiver of those rights with regard to any existing or subsequent breach of this Agreement. No waiver of any term, condition, or provision of this Agreement, whether by conduct or otherwise, in one or more instances, shall be deemed or construed as a continuing waiver of any term, condition, or provision of this Agreement. No waiver by either Party shall subsequently effect its right to require strict performance of this Agreement.

XIII. NOTICE

All notices and submissions required under this Agreement shall be delivered to the respective party in the manner described herein to the address stated below or such other address as either party may designate by prior written notice to the other. Notices given under this Agreement shall be in writing and shall be personally delivered, sent by next day express delivery service, certified mail, or first class U.S. mail postage prepaid, and addressed to the person listed below. Notice will be deemed given on the date when one of the following first occur: (1) the date of actual receipt; (2) the next business day when notice is sent next day express delivery service or personal delivery; or (3) three days after mailing first class or certified U.S. mail.

If Notice is sent to the CONTRACTOR, it shall be addressed and sent to:

If Notice is sent to the CITY, it shall be addressed and sent to:

City of Ann Arbor

(insert name of Administering Service Area Administrator)

301 E. Huron St.
Ann Arbor, Michigan 48104

With a copy to: The City of Ann Arbor
ATTN: Office of the City Attorney
301 East Huron Street, 3rd Floor
Ann Arbor, Michigan 48104

XIV. CHOICE OF LAW AND FORUM

This Agreement will be governed and controlled in all respects by the laws of the State of Michigan, including interpretation, enforceability, validity and construction, excepting the principles of conflicts of law. The parties submit to the jurisdiction and venue of the Circuit Court for Washtenaw County, State of Michigan, or, if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Southern Division, with respect to any action arising, directly or indirectly, out of this Agreement or the performance or breach of this Agreement. The parties stipulate that the venues referenced in this Agreement are convenient and waive any claim of non-convenience.

XV. OWNERSHIP OF DOCUMENTS

Upon completion or termination of this Agreement, all documents (i.e., Deliverables) prepared by or obtained by the Contractor as provided under the terms of this Agreement shall be delivered to and become the property of the City. Original basic survey notes, sketches, charts, drawings, partially completed drawings, computations, quantities and other data shall remain in the possession of the Contractor as instruments of service unless specifically incorporated in a deliverable, but shall be made available, upon request, to the City without restriction or limitation on their use. The City acknowledges that the documents are prepared only for the Project. Prior to completion of the contracted Services the City shall have a recognized proprietary interest in the work product of the Contractor.

XVI. CONFLICTS OF INTEREST OR REPRESENTATION

Contractor certifies it has no financial interest in the Services to be provided under this Agreement other than the compensation specified herein. Contractor further certifies that it presently has no personal or financial interest, and shall not acquire any such interest, direct or indirect, which would conflict in any manner with its performance of the Services under this Agreement.

Contractor agrees to advise the City if Contractor has been or is retained to handle any matter in which its representation is adverse to the City. The City's prospective consent to the Contractor's representation of a client in matters adverse to the City, as identified above, will not apply in any instance where, as the result of Contractor's representation, the Contractor has obtained

sensitive, proprietary or otherwise confidential information of a non-public nature that, if known to another client of the Contractor, could be used in any such other matter by the other client to the material disadvantage of the City. Each matter will be reviewed on a case by case basis.

XVII. SEVERABILITY OF PROVISIONS

Whenever possible, each provision of this Agreement will be interpreted in a manner as to be effective and valid under applicable law. However, if any provision of this Agreement or the application of any provision to any party or circumstance will be prohibited by or invalid under applicable law, that provision will be ineffective to the extent of the prohibition or invalidity without invalidating the remainder of the provisions of this Agreement or the application of the provision to other parties and circumstances.

XVIII. EXTENT OF AGREEMENT

This Agreement, together Exhibits A, B, and C, constitutes the entire understanding between the City and the Contractor with respect to the subject matter of the Agreement and it supersedes, unless otherwise incorporated by reference herein, all prior representations, negotiations, agreements or understandings whether written or oral. Neither party has relied on any prior representations, of any kind or nature, in entering into this Agreement. No terms or conditions of either party's invoice, purchase order or other administrative document shall modify the terms and conditions of this Agreement, regardless of the other party's failure to object to such form. This Agreement shall be binding on and shall inure to the benefit of the parties to this Agreement and their permitted successors and permitted assigns and nothing in this Agreement, 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 Agreement. This Agreement may only be altered, amended or modified by written amendment signed by the Contractor and the City. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall be deemed to be one and the same agreement.

XIX. ELECTRONIC TRANSACTION

The parties agree that signatures on this Agreement may be delivered electronically in lieu of an original signature and agree to treat electronic signatures as original signatures that bind them to this Agreement. This Agreement may be executed and delivered by facsimile and upon such delivery, the facsimile signature will be deemed to have the same effect as if the original signature had been delivered to the other party.

XX. EFFECTIVE DATE

This Agreement will become effective when all parties have signed it. The Effective Date of this Agreement will be the date this Agreement is signed by the last party to sign it.

[REMAINDER OF PAGE LEFT BLANK; SIGNATURE PAGE FOLLOWS]

FOR CONTRACTOR

By _____
Type Name

Its

Date: _____

FOR THE CITY OF ANN ARBOR

By _____
Christopher Taylor, Mayor

By _____
Jacqueline Beaudry, City Clerk

Date: _____

Approved as to substance

Type Name
Service Area Administrator

Tom Crawford, Interim City Administrator

Approved as to form and content

Stephen K. Postema, City Attorney

**EXHIBIT A
SCOPE OF SERVICES**

(Insert/Attach Scope of Work & Deliverables Schedule)

**EXHIBIT B
COMPENSATION**

General

Contractor shall be paid for those Services performed pursuant to this Agreement inclusive of all reimbursable expenses (if applicable), in accordance with the terms and conditions herein. The Compensation Schedule below/attached states nature and amount of compensation the Contractor may charge the City:

(insert/Attach Negotiated Fee Arrangement)

**EXHIBIT C
INSURANCE REQUIREMENTS**

From the earlier of the Effective Date or the Commencement Date of this Agreement, and continuing without interruption during the term of this Agreement, Contractor shall have, at a minimum, the following insurance, including all endorsements necessary for Contractor to have or provide the required coverage.

A. The Contractor shall have insurance that meets the following minimum requirements:

1. Professional Liability Insurance or Errors and Omissions Insurance protecting the Contractor and its employees in an amount not less than \$1,000,000.

2. 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

3. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 04 13 or current equivalent. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City's protections as an additional insured under the policy. Further, 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 Project General Aggregate
\$1,000,000	Personal and Advertising Injury

4. Motor Vehicle Liability Insurance equivalent to, as a minimum, Insurance Services Office form CA 00 01 10 13 or current equivalent. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. The City of Ann Arbor shall be an additional insured. There shall be no added exclusions or limiting endorsements that diminish the City'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.

5. Umbrella/Excess Liability Insurance shall be provided to apply in 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.

- B. Insurance required under A.3 and A.4 above shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City 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 for any insurance listed herein.
- C. Insurance companies and policy forms are subject to approval of the City Attorney, which approval shall not be unreasonably withheld. Documentation must provide and demonstrate an unconditional and unqualified 30-day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number(s); name of insurance company; name(s), email address(es), and address(es) 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 may be approved by the City in its sole discretion; (c) that the policy conforms to the requirements specified. Contractor shall furnish the City with satisfactory certificates of insurance and endorsements prior to commencement of any work. If any of the above coverages expire by their terms during the term of this Agreement, the Contractor shall deliver proof of renewal and/or new policies and endorsements to the Administering Service Area/Unit at least ten days prior to the expiration date.

