CITY OF DULUTH

REQUEST FOR PROPOSALS FOR

Coastal and Civil Engineering Services for Brighton Beach Bank Failure

RFP NUMBER 21-99263

ISSUED FEBRUARY 17, 2021

MARCH 10

PROPOSALS DUE ~~FEBRUARY 19~~, 2021 by 2:00 pm

SUBMIT TO

CITY OF DULUTH
ATTN: PURCHASING DIVISION
CITY HALL, ROOM 120
411 WEST 1ST STREET
DULUTH, MN 55802

PART I - GENERAL INFORMATION

I-1. Project Overview. The City of Duluth is looking for an experienced team of professional Coastal Engineers and Civil Engineers to provide comprehensive design services and construction administration for a portion of the shoreline at Brighton Beach that has failed and is threatening the existing road. This bank failure is located at the northern corner of the park where the existing road turns inland up the hill to meet old highway 61 (see map in Appendix B).

This is a FEMA-funded project with a very tight schedule. Permitting and construction must be coordinated with the trail project currently (TPCU).

This project is separate from the other work in progress at Brighton Beach. Questions should be directed to purchasing@duluthmn.gov.

Additional detail is provided in **Part IV** of this RFP.

I-2. Calendar of Events. The City will make every effort to adhere to the following schedule:

Activity	Date
Pre-proposal site visit will be held on this date.	Tue. 2/23/21 at 1:00 pm
Deadline to submit Questions via email to purchasing@duluthmn.gov	Thur. 2/25/21
Answers to questions will be posted to the City website no later than this date.	Mon. 3/1/21
Proposals must be received in the Purchasing Office by **2:00 PM** on this date.	Wed. 3/10/2021

I-3. Rejection of Proposals. The City reserves the right, in its sole and complete discretion, to reject any and all proposals or cancel the request for proposals, at any time prior to the time a contract is fully executed, when it is in its best interests. The City is not liable for any costs the Bidder incurs in preparation and submission of its proposal, in participating in the RFP process or in anticipation of award of the contract.

I-4. Pre-proposal Conference. The City will hold an optional site visit as specified in the Calendar of Events at Brighton Beach Park (near Congdon Boulevard and Brighton Beach Road). Interested bidders are encouraged to attend and should meet at the project site.

I-5. Questions & Answers. Any questions regarding this RFP must be submitted by e-mail to the Purchasing Office at purchasing@duluthmn.gov **no later than** the date

indicated on the Calendar of Events. Answers to the questions will be posted as an Addendum to the RFP.

I-6. Addenda to the RFP. If the City deems it necessary to revise any part of this RFP before the proposal response date, the City will post an addendum to its website http://www.duluthmn.gov/purchasing/bids-request-for-proposals/ . Although an e-mail notification will be sent, it is the Bidder's responsibility to periodically check the website for any new information

I-7. Proposals. To be considered, hard copies of proposals must arrive at the City on or before the time and date specified in the RFP Calendar of Events. The City will not accept proposals via email or facsimile transmission. **Due to the closure of City Hall as a result of the pandemic, proposals cannot be dropped off in the Purchasing office. There is a black drop box near the parking area on the 2nd Street side of City Hall with an opening that is 11in x 3in. If your proposal is larger than the opening, you must submit it via a delivery or carrier service such as USPS, FedEx or UPS. It is recommended that you have proposals delivered the day before the deadline to ensure they are delivered on time.** The City reserves the right to reject or to deduct evaluation points for late proposals.

Proposals must be signed by an authorized official. If the official signs the Proposal Cover Sheet attached as Appendix A, this requirement will be met. Proposals must remain valid for 60 days or until a contract is fully executed.

Please submit one (1) paper copy of the Technical Submittal and one (1) paper copy of the Cost Submittal. The Cost Submittal should be in a separate sealed envelope. In addition, Bidders shall submit one copy of the entire proposal (Technical and Cost submittals, along with all requested documents) on flash drive in Microsoft Office-compatible or pdf format.

All materials submitted in response to this RFP will become property of the City and will become public record after the evaluation process is completed and an award decision made.

I-8. Small Diverse Business Information. The City encourages participation by minority, women, and veteran-owned businesses as prime contractors, and encourages all prime contractors to make a significant commitment to use minority, women, veteran-owned and other disadvantaged business entities as subcontractors and suppliers**.** A list of certified Disadvantaged Business Enterprises is maintained by the Minnesota Unified Certification Program at http://mnucp.metc.state.mn.us/ .

I-9. Term of Contract. The term of the contract will begin once the contract is fully executed and is anticipated to end by July 1, 2021. The selected Bidder shall not start the performance of any work nor shall the City be liable to pay the selected Bidder for any service or work performed or expenses incurred before the contract is executed.

I-10. Payment. All compensation will be based on percentage of project completed and will not exceed the amount identified in the agreement. Weekly progress reports will be provided to the City and will include tracking of estimated percentage of overall project scope completed to date. Hourly task breakdown by employee is for evaluation purposes and does not imply that payment will be based on hours worked.

I-11. Mandatory Disclosures. By submitting a proposal, each Bidder understands, represents, and acknowledges that:

A. Their proposal has been developed by the Bidder independently and has been submitted without collusion with and without agreement, understanding, or planned common course of action with any other vendor or suppliers of materials, supplies, equipment, or services described in the Request for Proposals, designed to limit independent bidding or competition, and that the contents of the proposal have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder.

B. There is no conflict of interest. A conflict of interest exists if a Bidder has any interest that would actually conflict, or has the appearance of conflicting, in any manner or degree with the performance of work on the project. If there are potential conflicts, identify the municipalities, developers, and other public or private entities with whom your company is currently, or have been, employed and which may be affected.

C. It is not currently under suspension or debarment by the State of Minnesota, any other state or the federal government.

D. The company is either organized under Minnesota law or has a Certificate of Authority from the Minnesota Secretary of State to do business in Minnesota, in accordance with the requirements in M.S. 303.03.

I-12. Notification of Selection. Bidders whose proposals are not selected will be notified in writing.

PART II - PROPOSAL REQUIREMENTS

1. Cover Letter
2. A restatement of the goals and objectives and the project tasks to demonstrate the Proposer's understanding of the project.
3. An outline of the Proposer’s background and experience with similar projects. Experience shown should provide proof of past work experience in successful seawall engineering, engineering competency in large water body coastal/shoreline projects, and any experience with the City of Duluth.

4. Identify the personnel that will be conducting the project and detail their training and work experience, particularly in the projects listed to document competency in seawall and coastal engineering. Identify a professional Coastal Engineer licensed in the State of Minnesota who will oversee the project.

   No change in personnel assigned to the project will be permitted without approval of the City.

5. Provide a detailed work plan identifying the tasks to be accomplished and the budget hours to be expended on each task. The work plan shall also identify the deliverables at key milestones in the project as well as any other services expected to be provided by the City.

6. Provide a minimum of three (3) references, including names, addresses and telephone numbers, for whom the Proposer has performed similar services, and who can address past performance in seawall and coastal engineering design.

7. Provide one copy of the cost proposal in a separate envelope, clearly marked on the outside with "Cost Proposal". The terms of the proposal as stated must be valid for the length of the project.

   The Proposer must include a lump sum, not-to-exceed total project cost including any sub consultant fees, along with the following information:

   - A breakdown of the hours by task for each employee.
   - Identification of anticipated direct expenses.
   - Include miscellaneous charges such as mileage and copies.
   - Identification of any assumptions made while developing the cost proposal.
   - Identification of any cost information related to additional services or tasks. Include this in the cost proposal, but identify it as additional costs and do not make it part of the total project cost.

8. The proposal shall be limited to 15 single-sided 8 ½ x 11 pages, excluding the front and back covers, the cover letter, the cost proposal and any addenda. The separate cost proposal can be an 11" X 17" sheet.

9. Proposer to provide anticipated project schedule from the start of the design process to completion of construction.

PART III - CRITERIA FOR SELECTION

The proposals will be reviewed by City Staff. The intent of the selection process is to review proposals and make an award based upon qualifications as described therein. A 100-point scale will be used to create the final evaluation recommendations. The factors and weighting on which proposals will be judged are:

Qualifications of the Bidder and Personnel	30%
Prior experience with similar work	30%

Work Plan & Schedule	25%
Cost	15%

PART IV – PROJECT DETAIL

The primary objective of this project is to establish a gravel bed for the trail construction project in the northeast corner of the park with the major bank failure. That bank failure has compromised a portion of the road and will continue to erode the infrastructure over time. The trail project currently underway (TPCU) is slated to use the existing road bed for its route. Due to funding constraints the TPCU project cannot deviate from the proposed grant-approved route.

This Brighton Beach Bank Failure (BBBF) project is intended to stabilize the bank failure and push the trail back far enough away from Lake Superior so it is out of the reach of wave action. Coastal stabilization is not in the scope of the TPCU project, but needs to happen before the TPCU trail passes through.

The City is looking to the Coastal Engineer to provide a design solution that does not include any engineered structures that may cover the beach or add unnecessary cost to the project. We want a passive solution that takes into account the natural erosion rates of the shoreline, stabilization of the shoreline, and moving the trail inland the appropriate distance. For shoreline erosion mitigation, design must include solutions that allow the cobble beach to remain, and establish a slope above the cobble beach to the edge of the trail that is near the angle or at the angle of repose that can be vegetated and stabilized naturally.

Wetland impacts will be encountered and must be coordinated with the open wetland permit through the City Engineering department. Our goal is to keep the combined wetland impacts of both the TPCU and the BBBF projects under the deminimums calculation in order to be able to submit them both under a joint wetland permit. No wetland permitting services are included in the scope of this project.

The Coastal Engineering Team will coordinate with the City Engineering Office working on the TPCU, ensuring concepts and final designs are constructible as it relates to the TPCU project.

Coastal engineering services to do the following:

- Determine trail alignment between approximately stations 110+00 and 118+00
- Move trail away from the influence of the lake wave impact zone and allow natural erosion to run its course and not impact the integrity of the trail
    - No formal wave erosion deterrent structures wanted on this project.
- Wetland permitting may be a limiting factor for the timing of the project
    - A wetland delineation has been completed and wetland permitting is already under contract through the TPCU and is not included in this scope.
    - Determine limits of impacts to wetland.
    - Keep total wetland impacts less than 2,000 SF.

    - Wetland survey and wetland delineation information will be provided by the City.
- Will need to coordinate with the TPCU project
- Finished constructed product shall be a class 5 trail subgrade consistent with the existing drawings out for the TPCU project (see cross section in Appendix B), and must be ready to pave with the TPCU project mid-summer 2021. Pavement is not in the scope of this BBBF construction project.
- Extend culverts as necessary to move the trail inland
- Maintain the existing cobble beaches in the project area
- Remove foreign debris from the cobble beaches in the project area (concrete, brick, garbage, etc.)
- Will need tree replacement per the UDC
    - City to provide the tree survey data in a point file

Project Schedule

Consultant Contract Awarded	March 2021
Extent of Wetland Impact Determined	April 15, 2021
Design Complete	April 2021
Bid Construction	May 2021
Construction Complete	July 01, 2021

Meetings

Provide a summary of the necessary meetings along the entire duration of the project along with anticipated cost of each meeting.

Survey Services

The City of Duluth will provide a full existing-conditions topographic survey in PDF and AutoCAD format to the selected consultant team.

Concept Pre-Design

The Coastal Engineering design team will provide concept level pre-designs and associated cost estimates that support moving the trail inland and stabilizing the failed bank in the corner of Brighton Beach Park.

1. Review existing conditions, plans, and other pertinent documents.
2. Participate in one internal stakeholder meeting which may include staff from City departments (Property & Facilities Management and Engineering).
3. Based on stakeholder input, create multiple design alternatives, review with staff and modify design alternatives.

Permitting Phase

Consultant to list in the RFP response any necessary permits (local, state, federal) needed for the bank stabilization and trail realignment. The City anticipates there will be wetland impacts with the relocation of the trail. These impacts need to be coordinated with the wetland impacts permit currently open for the TPCU project through the park. The City wants to see a solution that does not go over deminimums exemption for the

two combined projects in order to allow the aggressive schedule to succeed. No wetland permitting services are included in this scope of work.

Design and Bidding Phase
The Coastal Engineer will produce full specifications and plans ready for bid. Cost estimates of the project shall be prepared and updated at each step in the design process. Consultant shall support the bid process by attending the pre-bid meeting with contractors, preparing addenda as needed, evaluating the bids in a timely manner, and assisting City staff in making a recommendation for contract award.

Construction Survey and Layout
The Coastal Engineer shall provide all staking necessary for the construction of the project, as approved by the City.

Construction Administration and Inspection
The Coastal Engineering design team shall provide 100 percent on-site construction administration.

For purposes of this project, 100 percent construction administration / site observation is defined as a requirement of documented presence by an approved individual whenever construction crews are on site and work is being performed. It shall include daily pre-job briefs and recording meeting notes to be included in weekly observation reports; and providing weekly progress reports and other reports as needed to support the project. During construction, potential changes to project scope, quantities, cost or final product will be disclosed, reported and discussed with City staff at the next weekly progress meeting or before. No significant changes will be approved by successful proposer without prior City approval in writing.

PART IV – APPENDICES

Appendix A

Proposal Cover Sheet – this form must be completed and returned with the proposal.

Appendix B - Exhibits

Exhibit B-1 Project Location Map

Exhibit B-2 Existing Conditions Survey

Exhibit B-3 Typical Trail Cross Section

Exhibit B-4 Brighton Beach Trail (TPCU) Construction Documents

City of Duluth
Supplementary Provisions – State & Federal Funding
21-AA05 Lakewalk and Shoreline Restoration – Phase IV

1. Disbursements
   a. No money under this Contract shall be disbursed by the City to any Contractor unless the Contractor is in compliance with the Federal Agency requirements with regard to accounting and fiscal matters to the extent they are applicable.
   b. Unearned payments under this Contract may be suspended or terminated upon the Contractor's refusal to accept any additional conditions that may be imposed by the Federal Agency at any time; or if the grant, if applicable, to the City under which this Contract is made is suspended or terminated.

2. Subcontracting Requirements
   a. The Contractor shall include in any subcontract the clauses set forth in these City of Duluth Supplementary Provisions in their entirety and shall also include a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.
   b. The Contractor shall not subcontract any part of the work covered by this Contract or permit subcontracted work to be further subcontracted without the City's prior written approval of the subcontractors. The City will not approve any subcontractor for work covered by this Contract who is at the time ineligible under the provisions of any applicable regulations issued by a Federal Agency or the Secretary of Labor, United States Department of Labor, to receive an award of such subcontract.

3. Breach of Contract.

The City may, subject to the Force Majeure provisions below and in addition to its other rights under the Contract, declare the Contractor in breach of the Contract by written notice thereof to the Contractor, and terminate the Contract in whole or in part, in accordance with Section 4, Termination, for reasons including but not limited to any of the following:

   a. Failure to begin the Work within the time specified in the Contract;
   b. Failure to perform the Work with sufficient labor, equipment, or material to insure the completion of the specified Work in accordance with the Contract terms;
   c. Unsatisfactory performance of the Work;
   d. Failure or refusal to remove material, or remove and replace any Work rejected as defective or unsatisfactory;
   e. Discontinuance of the Work without approval;
   f. Failure to resume the Work, which has been discontinued, within a reasonable time after notice to do so;
   g. Insolvency or bankruptcy;
   h. Failure to protect, to repair, or to make good any damage or injury to property;
   i. Breach of any provision of the Contract;
   j. Misrepresentations made in the Contractor's bid/proposal; or
   k. Failure to comply with applicable industry standards, customs, and practice.

4. Termination

If the Contractor is in breach of the Contract, the City, by written notice to the Contractor, may terminate the Contractor's right to proceed with the Work. Upon such termination, the City may take over the Work and prosecute the same to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any additional cost incurred by the City in its completion of the Work and they shall also be liable to the City for liquidated damages for any delay in the completion of the Work as provided below. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the Work such materials, tools, equipment, and plant as may be on the site of the Work and necessary therefore.

City shall have the right to terminate this contract immediately without other cause in the event that all or a portion of the funds that the City intends to use to fund its obligations under the contract have their source with the State or Federal government or any agency thereof and said source reduces or eliminates their obligation to provide some or all of the funds previously committed by it to fund City's payment obligations under the Contract. The City

agrees that termination hereunder will not relieve the City of its obligation to pay Contractor for Work satisfactorily performed and reasonable costs incurred prior to the effective date.

Notwithstanding anything herein to the contrary, the City may terminate this Contract at any time upon written notice given by the City (for any reason, including the convenience of the City) to the Contractor at least thirty (30) days prior to the effective date of the termination of this Contract. The City agrees that termination hereunder will not relieve the City of its obligation to pay Contractor for Work satisfactorily performed and reasonable costs incurred prior to the effective date of the termination provided that Contractor has not committed a breach of this Contract. Nothing contained in this section shall prevent either party from pursuing or collecting any damages to which it may be entitled by law.

5. Force Majeure.

The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the Work due to any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency; any acts of the City; causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in their performance of some other contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones, and other extreme weather conditions; nor to any delay of any Subcontractor occasioned by any of the causes specified above. The Contractor shall promptly notify the City in writing within ten (10) days of the delay. Upon receipt of such notification, the City shall ascertain the facts and the cause of the delay. If, upon the basis of facts and the terms of the Contract, the delay is properly excusable, the City shall extend the time for completing the Work for a period of time commensurate with the period of excusable delay.

6. Contracting with Small and Minority Businesses, Women's Business Enterprises, and Labor Surplus Area Firms.

Per 2 CFR 200.321, prime contractor must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms (collectively referred to as socioeconomic firms) are used when possible. The affirmative steps must include:

a. Placing qualified socioeconomic firms on solicitation lists;
b. Assuring that socioeconomic firms are solicited whenever they are potential sources;
c. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by socioeconomic firms;
d. Establishing delivery schedules, where the requirements permit, which encourage participation by socioeconomic firms; and
e. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

7. Contract Work Hours and Safety Standards Act. Contractor shall comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Contractor shall compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. Contractor shall ensure that no laborer or mechanic involved in the Work is required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence. In addition, state or local funding sources may impose more strict requirements or higher rates for wages, benefits, and overtime rates. Contractors must review the labor cost bidding data form included with the bid package and compensate workers accordingly.

8. Rights to Inventions Made Under a Contract or Agreement.

For any contracts involving the "substitution of parties, assignment or performance of experimental, developmental, or research work", Contractor shall comply with the requirements of 37 CFR Part 401, ''Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,'' and any implementing regulations issued by the awarding agency.

9. Clean Air Act and Federal Water Pollution Control Act Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401–7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251–1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA). Contractor agrees to include this provision in any subcontract exceeding $150,000 that is financed in whole or in part with Federal funds.

10. Energy Standards.

Contractor shall comply with all mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201).

11. Suspension and Debarment.

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the contractor is required to verify that none of the contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945. The contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

12. Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended) Contractors must certify that that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352.

13. Procurement of Recovered Materials.

In the performance of this contract, the Contractor shall comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. This shall include making maximum use of products containing recovered materials as designated by the Environmental Protection Agency (EPA) unless (i) the materials cannot be acquired competitively and within the timeframe required by the contract performance schedule; (ii) the materials designated by the EPA do not meet contract performance requirements; or (iii) the materials cannot be acquired for a reasonable price. Information about this requirement, along with the list of EPA-designated items, is available at the EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program.

14. Changes. To be eligible for FEMA assistance under the non-Federal entity's FEMA grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope. FEMA recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

15. Access to Records. The following access to records requirements apply to this contract:

a. The contractor agrees to provide The City of Duluth, the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

b. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

c. The contractor agrees to provide the FEMA Administrator or his/her authorized representatives access to construction or other work sites pertaining to the work being completed under the contract."

16. DHS Seal, Logo, and Flags. The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval.

17. Compliance with Federal Law, Regulations, and Executive Orders. This is an acknowledgement that FEMA financial assistance will be used to fund the contract only. The contractor will comply will all applicable

federal law, regulations, executive orders, FEMA policies, procedures, and directives.

18. No Obligation by Federal Government. The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

19. Program Fraud and False or Fraudulent Statements or Related Acts. The contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor's actions pertaining to this contract.

BYRD ANTI-LOBBYING AMENDMENT CERTIFICATION
(To be submitted with each bid or offer exceeding $100,000)

The undersigned, [Company] _____ certifies, to the best of his or her knowledge, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, [Company] _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 *et seq*., apply to this certification and disclosure, if any.

_____
Signature of Contractor's Authorized Official

_____
Name and Title of Contractor's Authorized Official

_____
Date

APPENDIX A - PROPOSAL COVER SHEET

CITY OF DULUTH
RFP# 21-99263
Coastal and Civil Engineering Services for Brighton Beach Bank Failure

Bidder Information:	
Bidder Name	
Mailing Address	
Contact Person	
Contact Person's Phone Number	
Contact Person's E-Mail Address	
Federal ID Number	
Authorized Signature	
Title	

APPENDIX B - EXHIBITS

Brighton Beach

Exhibit B-1

Legend

- Bank Failure - FEMA section
- Currently Underway - Lakewalk Trail Construction

Google Earth

© 2021 Google

1000 ft

Exhibit B-2

4/22/2020 9:59:11 AM

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PC: 77+42.36
T-BUR
BEGIN S.P. 118-090-024
BEGIN CITY PROJ. NO. 1544
STA. 78+00.00
78+00
PT: 78+49.33
STA. 78+52.7 24.7 LT
PRESERVE AND PROTECT
PARK SIGN
PC: 79+17.46
STA. 79+23.0 22' LT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±47 LF
INPLACE T.H. 61
(CONGDON BLVD)
1:15 TAPER
INPLACE RIGHT OF WAY
(MNDOT)
630
625
620
615
610
605
79+00
80+00
81+00
82+00
83+00
℄ LAKEWALK EXTENSION
PT: 80+75.54
STA. 81+28.3 42' LT
24 IN CM CULVERT
(LEAVE AS IS)
PC: 81+36.90
STA. 79+05.0 C/L
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±10 LF
STA. 79+05.0
BEGIN LAKEWALK EXTENSION
CONSTRUCTION
STA. 79+06.0 ℄
INP. 12 IN RCP CULVERT
(LEAVE AS IS)
SALVAGE ROCK
WITHIN CONSTRUCTION LIMIT
STA. 80+40.0 33' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±19 LF
STA. 81+37.1 46.7' RT
INP. ± 54 LF 18 IN CM CULVERT
(LEAVE AS IS)
STA. 81+45.9 5.9' RT
INP. ± 9 LF 15 IN CM CULVERT
(REMOVE)
PT: 82+83.48
CONSTRUCTION LIMIT
CONSTRUCTION LIMIT
STA. 82+21.8 19.5 RT
PRESERVE AND PROTECT
SURVEY MONUMENT
(1" PIN IN CONC)
LAKE SUPERIOR
OUTLOT "A"
STA. 83+45.7 47.8' RT
INP. ± 50 LF 15 IN CM CULVERT
(LEAVE AS IS)
T-BUR
WET

N
W
E
S

0 20 40
SCALE IN FEET

LEGEND

REMOVE BITUMINOUS PAVEMENT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 34 OF 78

INPLACE T.H. 62
(CONGDON BLVD)

INPLACE RIGHT OF WAY
(MNDOT)

CENTURY LINK

INPLACE RIGHT OF WAY
(CITY OF DULUTH)

CONSTRUCTION LIMIT

℄ LAKEWALK EXTENSION

PC: 87+06.10
PT: 87+17.87
PC: 87+72.82
PT: 88+40.26
PC: 88+95.59
PT: 89+30.39
PC: 89+84.64

84+00 85+00 86+00 87+00 88+00 89+00

CONSTRUCTION LIMIT

STA. 86+19.2' 30' RT
INP. ± 9 LF 12 IN CM CULVERT
(LEAVE AS IS)

STA. 86+82.1' 22.5' RT
PRESERVE AND PROTECT
SURVEY MONUMENT
(X IN LEDGE ROCK)

STA. 87+40.0' 32' RT
INP. ± 10 LF 12 IN CM CULVERT
(LEAVE AS IS)

INPLACE ALIGNMENT
(BRIGHTON BEACH ROAD)

UTLOT "A"

MEM-B

LAKE SUPERIOR

630 625 620 615 610 605

T-BUR WET

LEGEND

REMOVE BITUMINOUS PAVEMENT

0 20 40
SCALE IN FEET

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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 35 OF 78

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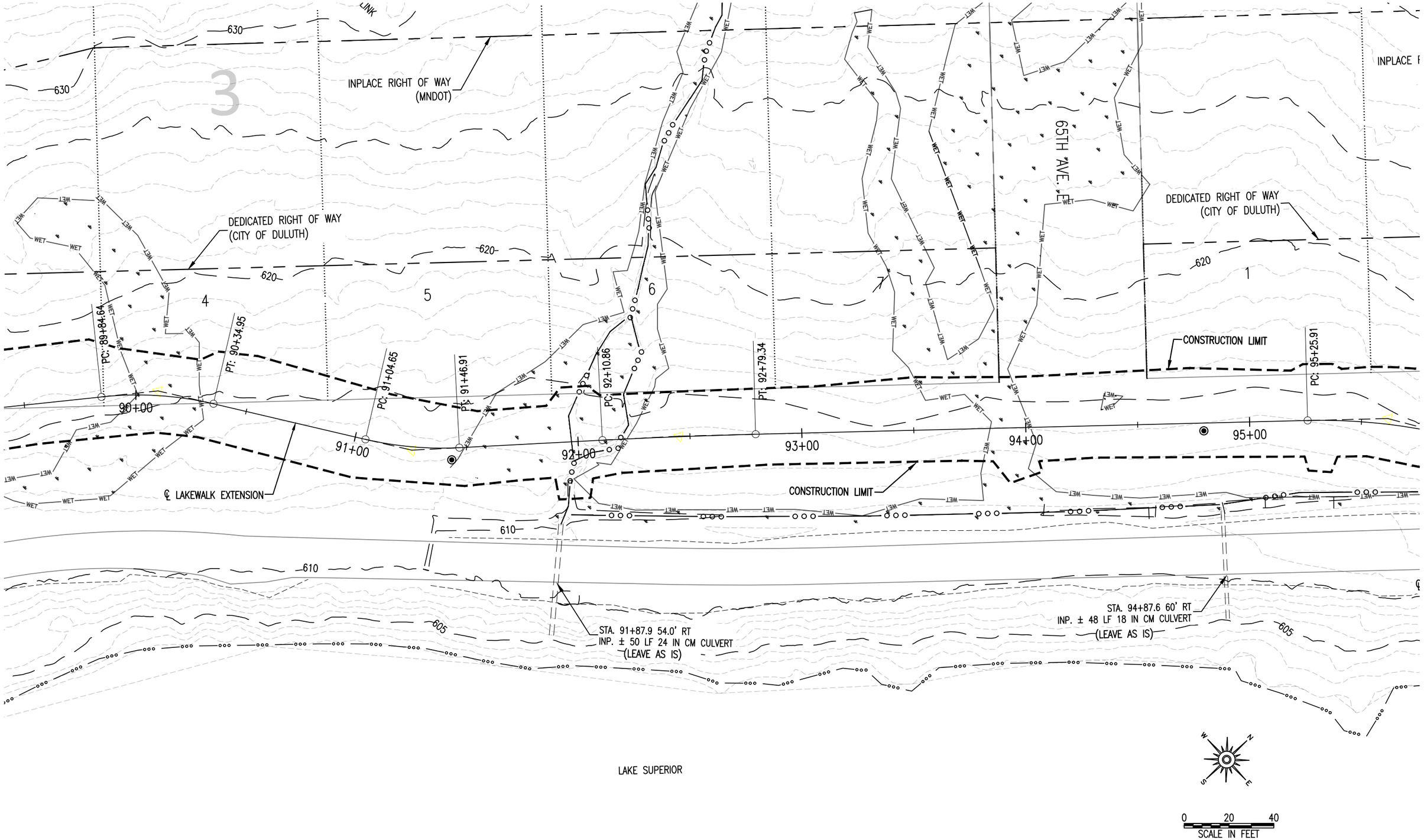

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 36 OF 78

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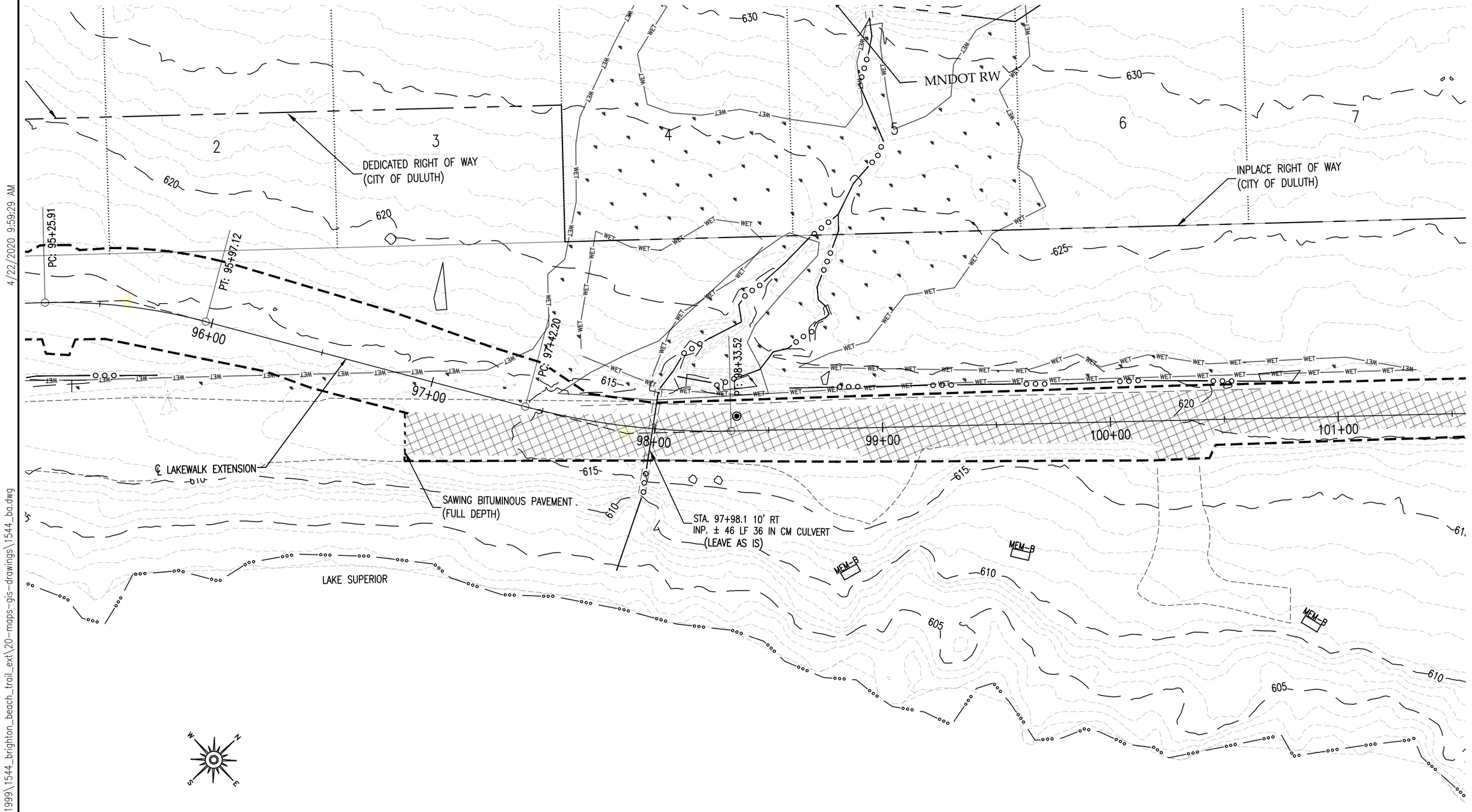

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PATRICK F. LOOMIS
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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 37 OF 78

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INPLACE RIGHT OF WAY
(CITY OF DULUTH)

68TH AVE. E CREEK

STA. 101+76.0 25.2' LT
PRESERVE AND PROTECT
SURVEY MONUMENT
(SANDSTONE MON.)

PC: 102+60.07

CONSTRUCTION LIMIT

STA. 103+84.0 35' LT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±19 LF

STA. 104+03.5 42.9' LT
INP. ± 40 LF 15 IN CM CULVERT
(LEAVE AS IS)

PT: 103+67.95

BRIGHTON BEACH ROAD

STA. 108+11.0 33.3' LT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±19 LF

PC: 102+96.75

STA. 102+40.0 17' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±22 LF

SALVAGE ROCK
WITHIN CONSTRUCTION LIMITS

MEM-B

CONSTRUCTION LIMIT

STA. 105+30.0 26' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±100 LF

RELOCATE
BENCH

STA. 106+38.0 23' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ± 23 LF

PC: 105+01.34

PT: 107+30.70

STA. 104+87.0 19' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±24 LF

℄ LAKEWALK EXTENSION

STA. 106+64.0 16' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±12 LF

STA. 103+89.8 77.8' RT
INP. ± 27 LF 18 IN CM CULVERT
(LEAVE AS IS)

SALVAGE ROCK
WITHIN CONSTRUCTION LIMITS

STA. 105+73.0 17.5' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±14 LF

LAKE SUPERIOR

LEGEND

REMOVE BITUMINOUS PAVEMENT

0 20 40
SCALE IN FEET

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SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 38 OF 78

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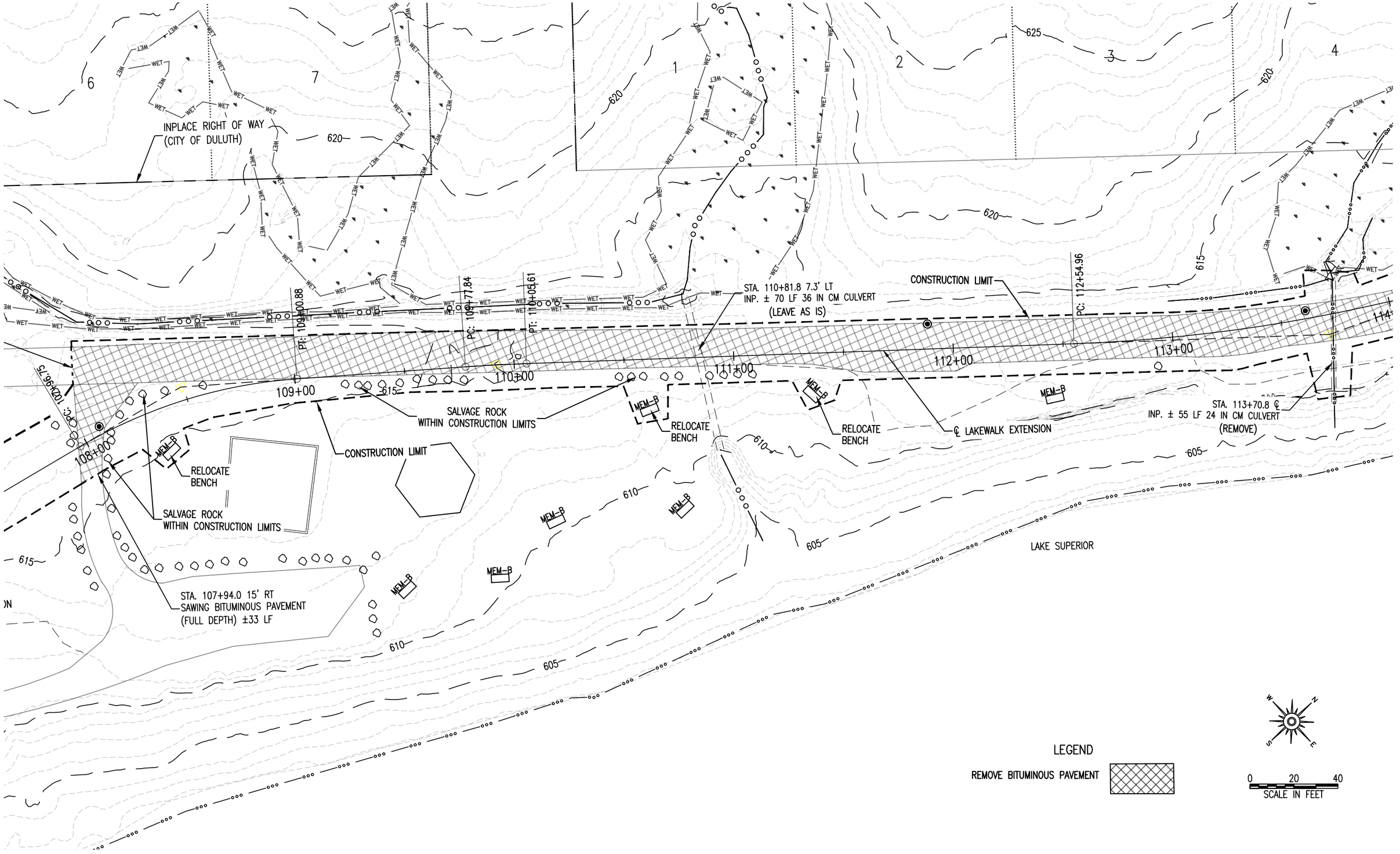

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SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 39 OF 78

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(CITY OF DULUTH)

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

LESTER RIVER WHITE PINE FOREST

PI: 116+46.33

PI: 114+86.05

PC: 115+36.80

PC: 120+88.

℄ LAK

REMOVE BITUMINOUS PAVEMENT

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

STA. 117+25.2 ℄
INP. ± 40 LF 15 IN CM CULVERT
(REMOVE)

MEM-B

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

℄ LAKEWALK EXTENSION

LAKE SUPERIOR

LEGEND

REMOVE BITUMINOUS PAVEMENT

0 20 40
SCALE IN FEET

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 40 OF 78

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INPLACE RIGHT OF WAY
MSAS 185
(CITY OF DULUTH)

℄ MSAS 185 (CONGDON BLVD)

STA. 121+42.0 25' LT
PRESERVE AND PROTECT
PARK SIGN

STA. 121+42.9 C/L
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±33 LF

STA. 121+25.0 35' LT
SALVAGE SIGN

PC: 121+88.63

PT: 122+57.20

EP: 123+09.41

123+09

123+00

122+00

121+00

120+00

119+00

118+00

117+00

T-BUR

INPLACE RIGHT OF WAY
MSAS 185
(CITY OF DULUTH)

PT: 121+34.65

PC: 120+88.98

PT: 119+49.53

STA. 122+22.3
END S.P. 118-090-024
END CITY PROJ. NO. 1544

STA. 121+42.9
END LAKEWALK EXTENSION CONSTRUCTION

℄ LAKEWALK EXTENSION

REMOVE BITUMINOUS PAVEMENT

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

PT: 117+28.85

STA. 117+25.2 ℄
INP. ± 40 LF 15 IN CM CULVERT
(REMOVE)

WET

640
635
630
625
620

N
W
E
S

0 20 40
SCALE IN FEET

LEGEND

REMOVE BITUMINOUS PAVEMENT

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

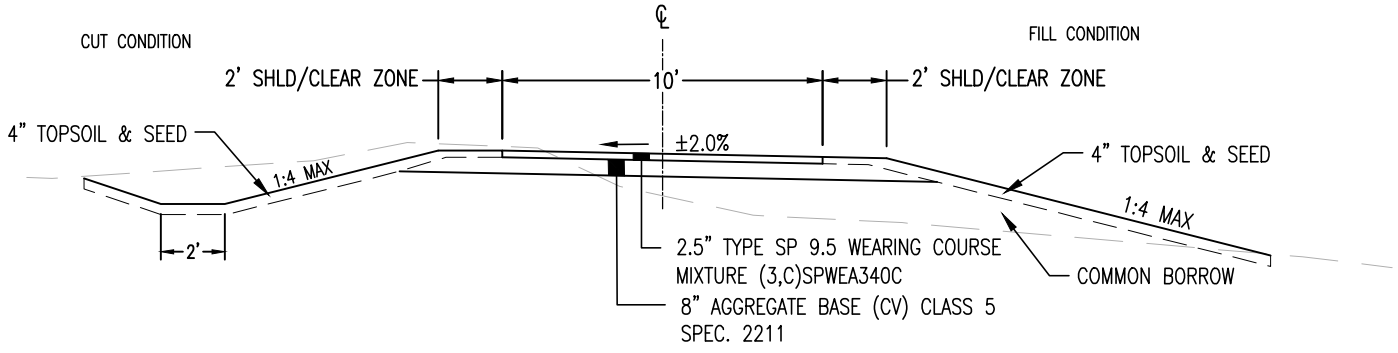
CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 41 OF 78



TYPICAL SECTION

10' BITUMINOUS MULTI-USE TRAIL

EXHIBIT B-4

MINNESOTA DEPARTMENT OF TRANSPORTATION
CITY OF DULUTH
DEPARTMENT OF PUBLIC WORKS AND UTILITIES
ENGINEERING DIVISION

CONSTRUCTION PLANS FOR: GRADING, AGGREGATE BASE, BITUMINOUS SURFACING, DRAINAGE

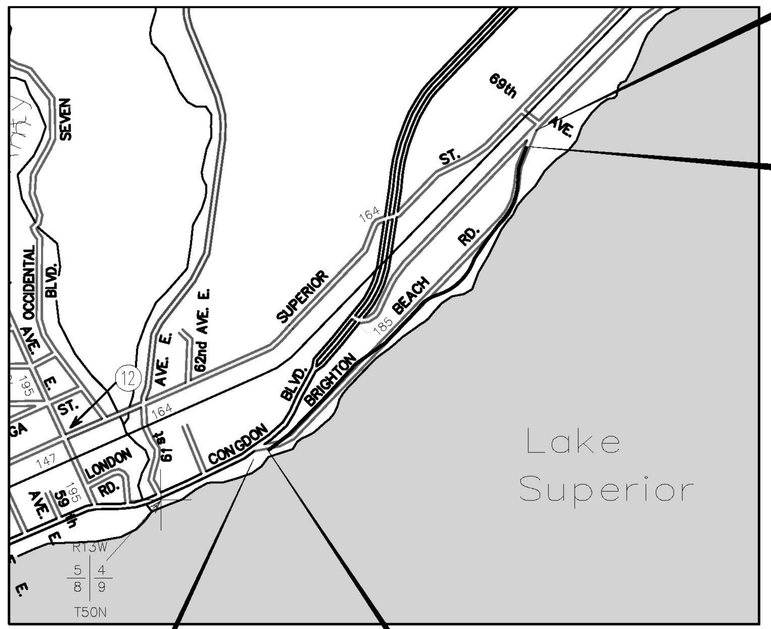
LOCATED ON T.H. 61 – 0.33 MILES NE OF 60TH AVE. E. TO MSAS 185 (CONGDON BLVD.) 160 FEET SW OF 69TH AVE. E.

STATE PROJ. NO. 118–090–024 . . .
GROSS LENGTH . . . 4422.13 FEET . 0.838 MILES
BRIDGES–LENGTH . . . – . . . FEET . – . . . MILES
EXCEPTIONS–LENGTH . . – . . . FEET . – . . . MILES
NET LENGTH . . . 4422.13 . . . FEET . 0.838 MILES

A POINT APPROX. 988' EAST AND 479' NORTH OF THE S.W. CORNER. OF SEC. 4, T 50 N, R 13 W

TO

A POINT APPROX. 3654' EAST AND 3562' NORTH OF THE S.W. CORNER OF SEC. 4, T 50 N, R 13 W



END
S.P. 118–090–024
CITY PROJ. NO. 1544
STA. 122+22.13

END
LAKEWALK EXTENSION CONSTRUCTION
STA. 121+42.9

BEGIN
S.P. 118–090–024
CITY PROJ. NO. 1544
STA 78+00.0

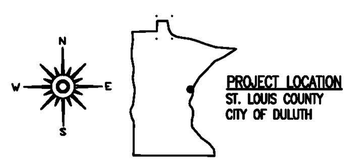
BEGIN
LAKEWALK EXTENSION CONSTRUCTION
STA 79+05.0

DESIGN DESIGNATION
S.P. 118–090–024

DESIGN SPEED 20 MPH
BASED ON STOPPING SIGHT DISTANCE . . . . . .
HEIGHT OF EYE 3.83' HEIGHT OF OBJECT 0
DESIGN SPEED NOT ACHIEVED AT:
STA. N/A TO STA. N/A MPH N/A.

SCALES

PLAN	40'
INDEX MAP	1500'
SWPPP PLAN	60'



PROJECT LOCATION
ST. LOUIS COUNTY
CITY OF DULUTH

MINN PROJECT NO STPF–TA 6920 (085)

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. AVAILABLE AT:
http://www.dot.state.mn.us/pre-letting/spec/index.html

THE 2019 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT CONSTRUCTION STANDARDS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY.
AVAILABLE AT:
http://www.duluthmn.gov/engineering/standard-construction-specifications/

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

INDEX

THIS PLAN CONTAINS 78 SHEETS

DESIGN TEAM

P. LOOMIS, D. KRATOCHWILL

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PATRICK F. LOOMIS
PROJECT ENGINEER (TYPED OR PRINTED NAME)

Patrick F Loomis — 4-08-2020 — 49099
PROJECT ENGINEER — DATE — LIC. NO.

CITY APPROVAL

Cari Pedersen — 4/7/2020
APPROVED CHIEF ENGINEER OF TRANSPORTATION — DATE

Eric R Shaffer — 4/8/2020
APPROVED CHIEF ENGINEER OF UTILITIES — DATE

Cindy Voigt — 4/7/2020
APPROVED CITY ENGINEER — DATE

STATE APPROVAL

4/29/2020
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE–AID RULES/POLICY — DATE

APPROVED FOR FEDERAL AID FUNDING: STATE AID ENGINEER — DATE

PLAN REVISIONS		
DATE	SHEET NO.	APPROVER

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1–800–252–1166 REQUIRED BY LAW

STATE AID PROJECT NUMBER – SP 118–090–024 | CITY PROJECT NUMBER 1544 | SHEET NO. 1 OF 78

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PLAN LEGEND

RIGHT OF WAY LINE
DITCH CENTERLINE
FENCE LINE
RETAINING WALL
GRAVEL LINE
GUARD RAIL
RAILROAD TRACK
TREE LINE
STREAM FLOW LINE
WETLAND LIMIT — WET — WET — WET —
LAKESHORE
EX SANITARY SEWER
PR SANITARY SEWER
AB SANITARY SEWER — AB-SSWR — AB-SSWR —
EX FORCE MAIN — FM — FM — FM — FM —
PR FORCE MAIN — FM — FM — FM — FM —
AB FORCE MAIN — FM — FM — FM — FM —
EX STORM SEWER
PR STORM SEWER
AB STORM SEWER — AB-STRM — AB-STRM —
EX WATER MAIN
PR WATER MAIN
AB WATER MAIN — AB-WTR — AB-WTR —
EX GAS MAIN — HPG — HPG —
PR GAS MAIN — HPG — HPG —
AB GAS MAIN — AB-GAS — AB-GAS —
EX STEAM LINE — STEAM — STEAM —
PR STEAM LINE — STEAM — STEAM —
AB STEAM LINE — STEAM — STEAM —
UG TV CABLE — TV-BUR —
OH TV CABLE — CATV — CATV —
AB TV CABLE — AB-CATV — AB-CATV —
UG ELECTRIC LINE — AB-ELEC — AB-ELEC —
OH ELECTRIC LINE — E-OH — E-OH —
AB ELECTRIC — AB-ELEC — AB-ELEC —
UG FIBER OPTIC CABLE — FO-BUR —
OH FIBER OPTIC CABLE — FO —
AB FIBER OPTIC CABLE — AB-F/O — AB-F/O —
UG TELEPHONE — E-BUR — E-BUR —
OH TELEPHONE — E-OH — E-OH —
AB TELEPHONE — T-BUR — T-BUR —

GENERAL CONSTRUCTION NOTES

SURVEYS AND RIGHT OF WAY

THE CONTRACTOR SHALL PRESERVE ALL LAND AND PROPERTY CORNERS, VERTICAL & HORIZONTAL CONTROLS, SURVEY AND RIGHT OF WAY MONUMENTS. THE RIGHT OF WAY SHOWN IN THIS PLAN GIVES A GRAPHICAL LOCATION WITH RESPECT TO THE PLAN ALIGNMENTS. FOR EXACT RIGHT OF WAY LIMITS, SEE MAP ON FILE WITH THE CITY OF DULUTH.

DRAINAGE

PIPE ELEVATIONS, OFFSETS, AND COORDINATES AS SHOWN IN THE PLAN, ARE TO THE CENTER OF THE APRONS. ALL CONCRETE PIPE AND APRONS SHALL BE TIED. (INCIDENTAL)

GRADING NOTES:

EXCAVATION LIMIT LINES AS SHOWN ON THE TYPICAL SECTIONS, CROSS SECTIONS, AND DETAILS IN THIS PLAN ARE FOR THE COMPUTATION OF PAY QUANTITIES. TEMPORARY AND INTERMEDIATE EXCAVATION LIMITS AND SLOPES ARE TO BE DETERMINED BY THE CONTRACTOR DURING CONSTRUCTION, DEPENDING ON SOIL PROPERTIES AND SAFETY FACTORS. ADDITIONAL EXCAVATION AND BACKFILL BEYOND THE LIMITS SHOWN ON PLAN FOR SOIL AND SAFETY ISSUES SHALL BE CONSIDERED THE CONTRACTORS RESPONSIBILITY WITH NO DIRECT PAYMENT MADE.

THE CONTRACTORS ACTIVITIES ARE NOT TO EXCEED CONSTRUCTION LIMITS IN THE WETLAND AREAS. THIS INCLUDES EQUIPMENT, WORKING, PLACING OR STOCKPILING MATERIALS OR IMPACTING THE WETLANDS IN ANY WAY.

ALL MATERIAL NOT USED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE ROW IN ACCORDANCE WITH SPEC 2104.

UNIQUE FEATURES

THE PROJECT SITE CONTAINS NUMEROUS NATURAL FEATURES KNOWN AS VERNAL POOLS. THESE SMALL WATER-FILLED DEPRESSIONS ARE CONSIDERED CRITICAL TO THE SHORELINE HABITAT. VERNAL POOLS ARE CONSIDERED TO BE WETLANDS AND SHALL BE PROTECTED AS WETLANDS AT ALL TIMES DURING CONSTRUCTION. VERNAL POOL PROTECTION SHOULD BE ADDRESSED IN THE CONTRACTORS STORMWATER PROTECTION PLAN.

EROSION CONTROL

THE CONTRACTOR HAS THE OPTION OF USING THE WOOD CHIPS FROM THE CLEARING OPERATIONS IN PLACE OF BIO ROLLS FOR DITCH CHECKS AS PART OF THEIR TEMPORARY EROSION CONTROL MEASURE. THE CONTRACTOR SHOULD COMMUNICATE THE USE OF WOOD CHIPS AS PART OF THEIR EROSION CONTROL SCHEDULE.

ABBREVIATIONS USED IN THIS PLAN

AB = ABANDONED
EX = EXISTING OR IN-PLACE
PR = PROPOSED
UG = UNDERGROUND
OH = OVERHEAD
PL = PLACE
REM = REMOVE
SDG = SPECIAL DITCH GRADE

TABULATION CHART INDEX

PLAN SYMBOLS

EX SANITARY MANHOLE (SAN)
EX SANITARY CLEANOUT
EX STORM MANHOLE (STRM)
EX STORM CATCHBASIN
EX WATER MANHOLE (W)
EX WATER VALVE (WV)
EX WATER HYDRANT
EX. WATER SHUTOFF (S)
EX. WATER & GAS MH (W&G)
EX. GAS MANHOLE (GAS)
EX. GAS VALVE (GV)
EX. GAS SHUTOFF
EX. STEAM MANHOLE (STEAM)
EX. TELEPHONE MANHOLE (T)
EX. ELECTRIC MANHOLE (E)
EX. UTILITY POLE
EX. LIGHT POLE
EX. ELECTRIC VAULT
EX. GUY ANCHOR
EX. ELECTRIC TRANSFORMER (ET)
EX. STREET LIGHT
EX. SIGNAL W/STREET LIGHT
EX. HAND HOLE (H.H.) (H.H)
EX. TELEPHONE PEDESTAL
EX. WELL (W)
EX. SIGN
EX. DECIDUOUS TREE
EX. CONIFEROUS TREE
EX. PARKING METER
BENCHMARK
CONTROL POINT
FOUND CI MONUMENT
SOIL BORING — SB#: ?? ELEV: ??

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SIGNATURE: Patrick Loomis
PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020
LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544
STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK
LEGEND – GENERAL NOTES
SHEET NO. 02 OF 78

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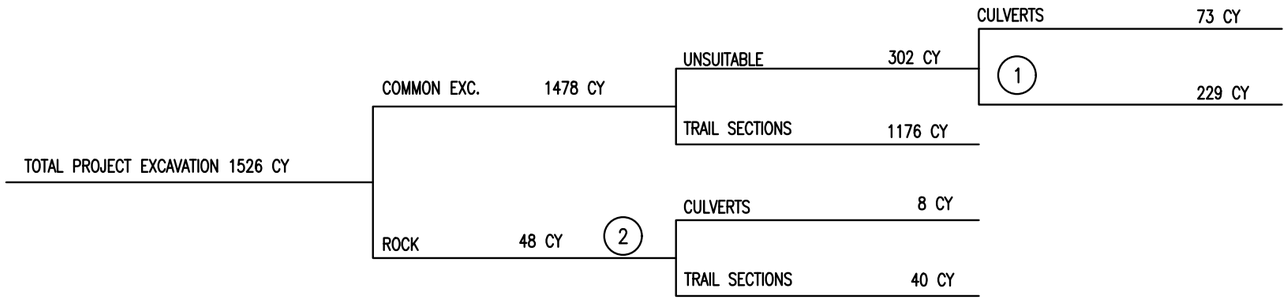
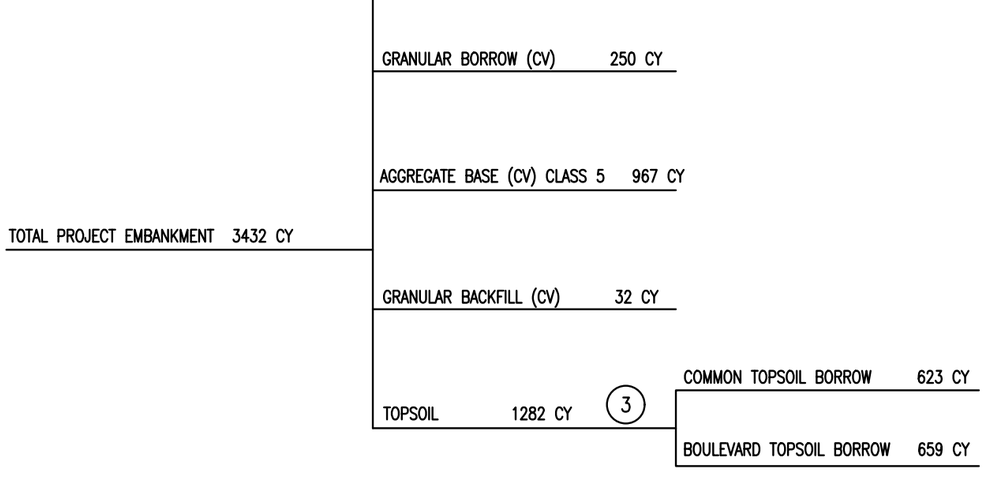
EARTHWORK BALANCES





EARTHWORK NOTES:

THIS PROJECT REQUIRES 3432 CY OF COMMON EMBANKMENT MATERIAL.

1. ALL EXCAVATED MATERIALS FROM STATION 88+50 TO 98+40 (WOODED AREA).
2. DOES NOT INCLUDE REMOVAL AND SALVAGE OF INPLACE DECORATIVE ROCKS.
3. THIS PROJECT REQUIRES 1282 CY OF IMPORTED TOPSOIL. DURING CONSTRUCTION, IF THE ENGINEER DETERMINES THAT THERE IS MATERIAL SUITABLE FOR TOPSOIL ONSITE THEN STRIPING, STOCKPILING AND PLACEMENT OF MATERIAL WILL BE PAID FOR AS COMMON TOPSOIL BORROW (CY). CONSTRUCTION SLOPES MUST BE COVERED IN 4" OF MATERIAL MEETING COMMON TOPSOIL BORROW SPECIFICATION. "A" HORIZON SOILS PER MnDOT GRADING AND BASE MANUAL MAY BE CONSIDERED TOPSOIL IF APPROVED BY ENGINEER.

CONTRACTOR SHALL REMOVE ALL STICKS AND ROCKS EXCEEDING 3" IN ANY DIMENSION AT THE TIME OF FINAL TOPSOIL PLACEMENT AND/OR AFTER LOOSENING THE SOIL PRIOR TO SEEDING OR BOTH.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

SOILS EW BALANCE

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STATEMENT OF ESTIMATED QUANTITIES

LINE	NOTES	CHART	SHEET	SPEC. NO	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES	S.P. 118-090-024 PARTICIPATING	S.P. 118-090-024 NON-PARTICIPATING
1				2021.501	MOBILIZATION	LUMP SUM	1	0.98	0.02
2		A	6, 37-44	2101.505	CLEARING	ACRE	1.7	1.7	
3		A	6, 37-44	2101.505	GRUBBING	ACRE	1.7	1.7	
4		A	6, 37-44	2104.502	SALVAGE BOULDER	EACH	89	89	
5		F	6, 37-44	2104.502	SALVAGE SIGN	EACH	5	5	
6		A	6, 37-44	2104.502	SALVAGE BENCH	EACH	5		5
7		A	6, 37-44	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	353	353	
8		C	37-44	2104.503	REMOVE PIPE CULVERTS	LIN FT	104	104	
9		A	6 , 37	2104.504	REMOVE CONCRETE PAVEMENT	SQ YD	26	26	
10		A	6, 37-44	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	4 916	4 916	
11		C	8	2105.504	GEOTEXTILE FABRIC TYPE 5	SQ YD	287	287	
12		B	3, 56-80	2105.507	COMMON EXCAVATION (CV)	CU YD	1 478	1 478	
13		B	3	2105.507	ROCK EXCAVATION	CU YD	48	48	
14		B	3	2105.507	GRANULAR BORROW (CV)	CU YD	250	250	
15		B	3	2105.507	COMMON BORROW (CV)	CU YD	901	901	
16		B	3	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	967	967	
17	1	B	3, 7	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C)	TON	708	708	
18		B	3, 7	2411.507	GRANULAR BACKFILL (CV)	CU YD	32	32	
19	2	C	8, 55	2501.502	15" RC PIPE APRON	EACH	2	2	
20	2	C	8, 54, 55	2501.502	30" RC PIPE APRON	EACH	2	2	
21	2	C	8, 53, 54	2501.502	22" SPAN RC PIPE-ARCH APRON	EACH	12	12	
22	2	C	8, 53-54	2501.502	28" SPAN RC PIPE-ARCH APRON	EACH	4	4	
23	2	C	8, 53,54	2501.503	22" SPAN RC PIPE-ARCH CULVERT CLASS IIA	LIN FT	84	84	
24	2	C	8, 53,54	2501.503	28" SPAN RC PIPE-ARCH CULVERT CLASS IIA	LIN FT	44	44	
25	2	C	8, 55	2501.503	15" RC PIPE CULVERT DESIGN 3006 CLASS III	LIN FT	28	28	
26	2	C	8, 54, 55	2501.503	30" RC PIPE CULVERT DESIGN 3006 CLASS III	LIN FT	40	40	
27		C	8, 45-52	2501.603	CLEAN DRAINAGE DITCH	LIN FT	929	929	
28		C	8, 45-52	2511.507	RANDOM RIPRAP CLASS III	CU YD	78	78	
29	3	-		2511.602	PLACE BOULDER	EACH	89	89	
30		F	33	2540.602	BOLLARD	EACH	4		4

NOTES

1. CALCULATED AT 120 LBS/ SQ YD/ INCH
2. ALL PIPES SHALL BE TIED (INCIDENTAL)
3. ALONG TRAIL. PER DIRECTION OF ENGINEER
4. SEE CONSTRUCTION PLAN SHEETS FOR LOCATIONS.
5. NATURAL BASED FERTILIZER. APPLY AT 200 LBS /ACRE. 18-1-8 FOR CLAY SOILS
6. NATURAL NETTING MATERIAL
7. DITCH BOTTOM STABILIZATION AS DIRECTED BY ENGINEER.
8. SEED MIX 36-311 USED FOR PERMANENT TURF ESTABLISHMENT, APPLY AT 33.5 LBS/ACRE
9. APPLIED AT 2 TONS/ ACRE
10. SEE LOCATIONS ON SHEETS 42, 49
11. BOULEVARD TOPSOIL BORROW SHALL BE APPLIED FROM THE EDGE OF TRAIL TO THE TOE OF SLOPE.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

STATEMENT OF ESTIMATED QUANTITIES

SHEET NO. 4 OF 78

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STATEMENT OF ESTIMATED QUANTITIES

LINE	NOTES	CHART	SHEET	SPEC. NO	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES	S.P. 118-090-024 PARTICIPATING	S.P. 118-090-024 NON-PARTICIPATING
31	4	F	33	2557.503	WIRE FENCE DESIGN 48V-9322	LIN FT	250		250
32	4	F	33	2557.602	INSTALL VEHICULAR GATE	EACH	2		2
33			81	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.98	0.02
34		F	52	2564.518	SIGN PANELS TYPE C	SQ FT	2.25	2.25	
35			9	2573.501	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	0.98	0.02
36		D	9, 13-15	2573.502	CULVERT END CONTROLS	EACH	20	20	
37		D	9, 13-15	2573.503	SILT FENCE TYPE HI	LIN FT	3 931	3 931	
38		D	9, 13-15	2573.503	FLOTATION SILT CURTAIN TYPE STILL WATER	LIN FT	40	40	
39		D	9, 13-15	2573.503	SEDIMENT CONTROL LOG TYPE WOOD FIBER	LIN FT	4 680	4 680	
40		D	9, 13-15	2573.503	SEDIMENT CONTROL LOG TYPE ROCK	LIN FT	200	200	
41		D	9, 13-15	2573.602	ROCK DITCH CHECK	EACH	32	32	
42		E	3	2574.505	SUBSOILING	ACRE	2.4	2.4	
43		E	3	2574.505	SOIL BED PREPARATION	ACRE	2.4	2.4	
44		B	3	2574.507	COMMON TOPSOIL BORROW	CU YD	623	623	
45	11	B	3	2574.507	BOULEVARD TOPSOIL BORROW	CU YD	659	659	
46	5	E	10, 13-15	2574.508	FERTILIZER TYPE 4	LB	484	484	
47	6	E	10, 13-15	2575.504	EROSION CONTROL BLANKET CATEGORY 3N	SQ YD	11 723	11 723	
48		E	10, 13-15	2575.505	SEEDING	ACRE	2.4	2.42	
49		E	10, 13-15	2575.505	DISK ANCHORING	ACRE	2.4	2.42	
50		E	10, 13-15	2575.504	RAPID STABILIZATION METHOD 1	SQ YD	11 723	11 723	
51		E	10, 13-15	2575.508	SEED MIXTURE 32-241	LB	92	92	
52	8	E	10, 13-15	2575.508	SEED MIXTURE 36-311	LB	81	81	
53	9	E	10, 13-15	2575.509	MULCH TYPE 3	TON	73	73	
54	7	E	10, 13-15	2575.604	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	348	348	
55	10	F	10, 42, 49	2582.503	4" SOLID LINE MULTI COMP	LIN FT	143	143	

NOTES

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4. SEE CONSTRUCTION PLAN SHEETS FOR LOCATIONS.
5. NATURAL BASED FERTILIZER. APPLY AT 200 LBS /ACRE. 18-1-8 FOR CLAY SOILS
6. NATURAL NETTING MATERIAL
7. DITCH BOTTOM STABILIZATION AS DIRECTED BY ENGINEER.
8. SEED MIX 36-311 USED FOR PERMANENT TURF ESTABLISHMENT, APPLY AT 33.5 LBS/ACRE
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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

STATEMENT OF ESTIMATED QUANTITIES

SHEET NO. 5 OF 78

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MnDOT STANDARD PLATES

THE FOLLOWING STANDARD PLATES SHALL APPLY ON THIS PROJECT

PLATE NO.	DESCRIPTION
3000M	REINFORCED CONCRETE PIPE (5 SHEETS)
3006H	GASKET JOINT FOR RC PIPE (2 SHEETS)
3014K	REINFORCED CONCRETE PIPE ARCH
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE ARCH
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
8000J	CHANNELIZERS
9322K	CHAIN LINK FENCE

CITY OF DULUTH STANDARD DETAILS

THE FOLLOWING DETAILS ARE APPROVED BY THE CITY OF DULUTH

PLATE NO.	DESCRIPTION
EX-3	CONCRETE STORM SEVER BEDDING - (RC CULVERTS)
EX-4	CONCRETE STORM SEVER BEDDING - (RC CULVERTS)
G-33	BOLLARD DETAIL

REMOVALS

A

LOCATION	LT / RT	CLEARING 2101 ACRE	GRUBBING 2101 ACRE	SALVAGE BOULDER 2104 EACH	SALVAGE BENCH ① 2104 EACH	SAWING BITUMINOUS PAVEMENT (FULL DEPTH) 2104 LIN FT	REMOVE CONCRETE PAVEMENT 2104 SQ YD	REMOVE BITUMINOUS PAVEMENT 2104 SQ YD	REMARKS
79+05.0	5 RT TO 5 LT					10			
79+05.0 80+55.0	40 RT TO 20 LT	0.06	0.06					307	
78+50.0 TO 80+50.0				34					
79+12.0 TO 79+17.0	5 RT TO 5 LT						6		
79+25.0	22' LT					47			APPROX MID-POINT OF SAWING LINE
79+50.0 TO 97+75.0		0.90	0.90						
80+39.6	32' RT					19			APPROX MID-POINT OF SAWING LINE
96+90.00 TO 103+80.0		0.12	0.12					1469	
102+40.0	17' RT					19			APPROX MID-POINT OF SAWING LINE
102+50.0 TO 111+60.0		0.60	0.60						
102+75.0 TO 104+00.0				13					
103+84.0	35' RT					22			APPROX MID-POINT OF SAWING LINE
104+87.0	19' RT					24			APPROX MID-POINT OF SAWING LINE
104+75.0 TO 105+70.0								221	
105+00.0 TO 105+50.0				10					
105+30.0	26' LT					100			APPROX MID-POINT OF SAWING LINE
105+72.0	17.5' RT					14			APPROX MID-POINT OF SAWING LINE
106+38.0	23' RT					23			APPROX MID-POINT OF SAWING LINE
106+64.0	16' RT					12			APPROX MID-POINT OF SAWING LINE
106+65.0 TO 106+70.0								63	
107+50.0					1		4		
107+94.0	15' RT			13		11			APPROX MID-POINT OF SAWING LINE
108+11.0	38' LT					19			APPROX MID-POINT OF SAWING LINE
107+90.0 TO 121+42.0								2856	
108+30.0					1		4		
109+00.0 TO 110+00.0				9					
110+50.0 TO 111+25.0				9					
110+60.0					1		4		
111+40.0					1		4		
112+50.0					1		4		
112+90.0				1					
121+42.7	C/L					33			APPROX MID-POINT OF SAWING LINE
TOTALS		**1.7**	**1.7**	**89**	**5**	**353**	**26**	**4916**	

NOTES

① NON-PARTICIPATING.

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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION CHARTS

SHEET NO. 6 OF 78

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SUBBASE, AGGREGATE BASE, TOPSOIL AND BITUMINOUS

B

LOCATION	LT/RT	COMMON EXCAVATION (CV) 2105 CU YD	ROCK EXCAVATION 2105 CU YD	COMMON BORROW 2105 LIN FT	GRANULAR BORROW 2105 LIN FT	AGGREGATE BASE (CV) CLASS 5 2211 CU YD	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) 2360 TON	GRANULAR BACKFILL 2411 CU YD	COMMON TOPSOIL BORROW 2574 CU YD	BOULEVARD TOPSOIL BORROW 2574 CU YD	REMARKS
79+05.0 to 98+00	LT / RT	445		810	250	490	315		298	359	
81+38	C/L	4				7		8			CLUVERT P-1
83+75.3	C/L	5				3		2			CLUVERT P-2
86++85.3	C/L	4				3					CLUVERT P-3
92+00	C/L	8	8			5		3			CLUVERT P-4
93+91	C/L	6				4					CLUVERT P-5
95+30	C/L	5				3					CLUVERT P-6
98+00.0 TO 103+00	LT / RT	226				80	85		55	60	
102+50 TO 103+50	LT / RT		40								AS DIRECTED
103+00 TO 108+90	LT / RT	354		91		150	100		133	100	
104+08.0	C/L	2				4		4			CULVERT P-7
106+00.0	C/L	5				3					CULVERT P-8
108+90 TO 121+42.9	LT / RT	380				200	208		137	140	
113+73.9	C/L	28				10		8			CULVERT P-9
117+32.8	C/L	6				5		7			CULVERT P-10
TOTALS		1478	48	901	250	967	708	32	623	659	

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CONSTRUCTION CHARTS

SHEET NO. 7 OF 78

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DRAINAGE ITEMS

C

STRUCTURE				INLET			OUTLET			PIPE	REMOVE PIPE CULVERTS	GEOTEXTILE FABRIC TYPE 5	15" RC PIPE APRON	30" RC PIPE APRON	22" SPAN RC PIPE-ARCH APRON	28" SPAN RC PIPE-ARCH APRON	22" SPAN RC PIPE-ARCH CULVERT	28" SPAN RC PIPE-ARCH CULVERT	15" RC PIPE CULVERT DESIGN 3006	30" RC PIPE CULVERT DESIGN 3006	CLEAN DRAINAGE DITCH	RANDOM RIP RAP CLASS III	
FLOWS FROM	FLOWS THRU	FLOWS TO	STATION	NORTHING	EASTING	EL.	NORTHING	EASTING	EL	SLOPE %	2104	(2) 2105	2501	2501	2501	2501	2501	2501	CLASS III 2501	CLASS III 2501	2501	(3) 2511	REMARKS
											LIN FT	SQ YD	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	CU YD	
5001	P-1	5002	81+38	3362011.39	4869647.51	611.71	3362991.42	4870616.53	609.98	4.85	9.0	34.0				2		24				9	REMOVE 15" CMP
5003	P-2	5004	83+75	3361981.94	4869668.82	611.48	3362974.41	4870633.46	611.00	2.00		26.0			2		12				102	7	
5005	P-3	5006	86+85	3362156.45	4869829.83	612.18	3363541.03	4871300.01	611.72	2.00		26.0			2		12				85	7	
5007	P-4	5008	92+00	3362139.85	4869847.16	613.23	3363510.64	4871308.68	610.26	9.37		26.0			2		20					7	
5009	P-5	5010	93+91	3362381.50	4870042.95	613.12	3363623.07	4871464.16	612.03	3.89		26.0			2		16				60	7	
5011	P-6	5012	95+30	3362364.96	4870060.34	613.26	3363605.72	4871481.43	612.57	2.91		26.0			2		12				80	7	
5013	P-7	5014	104+08	3362756.84	4870383.59	615.39	3364240.52	4871912.63	613.53	5.53		34.0				2		20				9	
5015	P-8	5016	106+00	3362736.98	4870404.95	613.71	3364203.54	4871949.93	613.24	2.00		26.0			2		12				80	7	
5017	P-9	5018	113+74	3362889.75	4870514.79	608.93	3364564.88	4872016.18	607.89	2.00	55.0	42.0		2						40		13	REMOVE 24" CMP
5019	P-10	5020	117+32	3362877.95	4870540.18	622.01	3364556.08	4872053.40	621.09	2.29	40.0	21.0	2						28			5	REMOVE 15' CMP
STA 101+38 TO 102+00 LT																					62		SHEET 48
STA. 113+00 TO 113+60 LT																					160		SHEET 50
STA 114+40 TO 116+95 LT																					255		SHEET 51
STA 116+95 TO 117+40 LT																					45		SHEET 51
TOTALS											**104**	**287**	**2**	**2**	**12**	**4**	**84**	**44**	**28**	**40**	**929**	**78**	

NOTES

② GEOTEXTILE QUANTITIES BASED UPON MNDOT STANDARD PLATE 3133D.
③ RIP RAP QUANTITIES BASED UPON MNDOT STANDARD PLATE 3133D

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DRAWN BY: DJK

CONSTRUCTION CHARTS

SHEET NO. 8 OF 78

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TEMPORARY EROSION CONTROL

D

LOCATION	LT/RT	CULVERT END CONTROLS 2573 EACH	SILT FENCE HI 2573 LIN FT	FLOTATION SILT CURTAIN TYPE STILL WATER 2573 LIN FT	SEDIMENT CONTROL LOG TYPE WOOD FIBER 2573 LIN FT	SEDIMENT CONTROL LOG TYPE ROCK 2573 LIN FT	ROCK DITCH CHECK 2573 EACH	REMARKS
LAKEWALK TRAIL STA.								
79+05 TO 81+40	RT		236		255		3	
81+40	LT /RT	2						CULVERT P-1
81+40 TO 89+62.0	RT		815		818		10	
83+44	56' RT	1						INPLACE CULVERT INLET
83+75.3	LT/RT	2						CULVERT P-2
86+85.5	RT	1						CULVERT P-3
89+62.0 TO 90+23.7	RT				105			
90+23.7 TO 91+85.7	RT		170		183		3	
91+85.7 TO 92+09.6	RT	2			35			CULVERT P-4 (OUT) , INPLACE CULVERT (IN)
92+09.6 TO 93+76.3	RT		165		168		4	
93+76.3 TO 94+10	RT	2	70					CULVERT P-5 (INLET AND OUTLET)
94+10.0 TO 96+56.02	RT	1	247		241		2	CULVERT P-6 (OUTLET)
96+52.02 TO 96+95.8	RT		110					
96+95.8 TO 103+94.2	RT		703		703			
97+99.7	17' LT	1			535			INPLACE CULVERT INLET
98+54.2 TO 103+76.1								
103+76.1 TO 104+10.5	LT /RT	2	25					CULVERT P-7 (INLET & OUTLET)
104+10.5 TO 113+59.7	RT	1	970		970			CULVERT P-8 (OUTLET)
110+79.0	28' LT	1						INPLACE CULVERT (INLET)
108+08.8 TO 113+60.0	LT				287			
113+74.8	LT/RT	2						CULVERT P-9 (INLET & OUTLET)
113+55.0 TO 113+75.0	RT		40	40				CULVERT P-9 - SHORELINE
113+75.0 TO 117+08	RT		380		380			
114+24.0 TO 115+00.0	LT						5	
117+31.0	LT /RT	2						CULVERT P-10
117+49.2 TO 118+15.0	LT						5	
VARIOUS LOCATIONS						200		AS DIRECTED BY ENGINEER
TOTALS		20	3931	40	4680	200	32	

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION CHARTS

SHEET NO. 9 OF 78

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PERMANENT TURF ESTABLISHMENT

E

LOCATION	LT/ RT	FERTILIZER TYPE 4 2574 LB	SUBSOILING 2574 ACRE	SOIL BED PREPARATION 2574 ACRE	EROSION CONTROL BLANKET CATEGORY 3N 2575 SQ YD	RAPID STABILIZATION METHOD 1 2575 SQ YD	SEEDING 2575 ACRE	DISK ANCHORING 2575 ACRE	SEED MIXTURE 32-241 2575 LB	SEED MIXTURE 36-311 2575 LB	MULCH TYPE 3 2575 TON	ROLLED EROSION PREVENTION CATEGORY 25 2575 SQ YD	REMARKS
LAKEWALK TRAIL STA.													
79+05 TO 100+40	LT/ RT	268	1.34	1.34	6 485	6 485	1.34	1.34	51	45	40		
100+40 TO 114+00	LT/ RT	150	0.75	0.75	3 631	3 631	0.75	0.75	28	25	23		
114+00 TO 121+41	LT/ RT	66	0.33	0.33	1 607	1 607	0.33	0.33	13	11	10		
STA. 101+38 TO 102+00	LT											41	DITCH CLEANING X 6' WIDTH
STA. 113+00 TO 113+60	LT											107	DITCH CLEANING X 6' WIDTH
STA. 114+40 TO 116+95	LT											170	DITCH CLEANING X 6' WIDTH
STA. 116+95 TO 117+40	LT											30	DITCH CLEANING X 6' WIDTH
TOTALS		**484**	**2.4**	**2.4**	**11723**	**11723**	**2.4**	**2.4**	**92**	**81**	**73**	**348**	

SIGNAGE & MISC

F

LOCATION	LT/ RT	SALVAGE SIGN 2104 EACH	BOLLARD ① 2540 EACH	WIRE FENCE DESIGN 48v-9322 ① 2557 LIN FT	INSTALL VEHICULAR GATE ① 2557 EACH	SIGN PANEL TYPE C 2564 SQ FT	4" SOLID LINE MULTI COMP 2582 SQ FT	REMARKS
LAKEWALK STA.								
78+69 TO 79+42	59'-55' LT						73	FOGLINE ON T.H. 61 (CONGDON BLVD) WHITE
78+52.7	24.7 LT		2	200	1			SEE SHEET 33 FOR DETAILS
78+50.0	30' LT	1						BRIGHTON BEACH ROAD / CONGDON BLVD
79+00.0	10' LT							NO MOTOR VEHICLES (PRESERVE)
79+08.0	7' LT	1						TRAIL "STOP"
79+50.0	20' RT	1						PARK CLOSED 10-6
79+75.0	10' LT	1						UNKNOWN SIGN
121+25.0	35' LT	1						BRIGHTON BEACH ROAD / SCENIC STREET SIGN
121+50.0	LT/ RT		2	50	1			SEE SHEET 33 FOR DETAILS
121+56 TO 122+26							70	FOGLINE ON MSAS 185 (CONGDON BLVD) WHITE
AS DIRECTED						2.25		TRAIL STOP SIGN
TOTALS		**5**	**4**	**250**	**2**	**2.25**	**143**	

NOTES

① NON–PARTICIPATING.

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SHEET NO. 10 OF 78

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EROSION CONTROL NOTES

1. GENERAL

THE MINNESOTA POLLUTION CONTROL AGENCY (MPCA) REGULATES STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY DISTURBING LAND EQUAL TO OR GREATER THAN ONE ACRE THROUGH A GENERAL STORMWATER PERMIT (PERMIT NO. MN R100001) AUTHORIZING THE DISCHARGE OF STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY TO WATERS OF THE STATE IN COMPLIANCE WITH THE CLEAN WATER ACT AND THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM (NPDES/SDS) PROGRAM. THE GENERAL PERMIT (PERMIT) REQUIRES THE DEVELOPMENT AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE SWPPP IS A COMBINATION OF NARRATIVE, CALCULATIONS, PLANS SHEETS, AND STANDARD DETAIL SHEETS THAT ADDRESS THE FORESEEABLE CONDITIONS AT ANY STAGE IN THE CONSTRUCTION OR POST-CONSTRUCTION ACTIVITIES.

2. GENERAL AND ADMINISTRATIVE REQUIREMENTS

A. RESPONSIBLE PARTIES: THE OWNER AND GENERAL CONTRACTOR (OPERATOR)(CONTRACTOR) ARE CO-PERMITTEES OF THE PERMIT AND ARE JOINTLY RESPONSIBLE FOR COMPLIANCE WITH TERMS AND CONDITIONS OF THE PERMIT. OBTAIN AND REVIEW THE PERMIT AND COMPLY WITH PERMIT SECTIONS 3, 4, 6-24 (PERMIT PART 3.5). VERIFY THAT PERMIT REQUIREMENTS ARE SATISFIED AND COMPLETE THE BLANKS ON THIS SWPPP SHEETS.

B. PERMIT APPLICATION (PERMIT ITEM 3.2): THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE OWNER, COMPLETING THE PERMIT APPLICATION ON-LINE, AND PAYING THE APPLICATION FEE. APPLY ON-LINE AT THE MPCA CONSTRUCTION STORM WATER WEBSITE: https://www.pca.state.mn.us/water/construction-stormwater.

C. PERMIT COVERAGE (PERMIT ITEMS 3.3, 3.4): FOR PROJECTS THAT DISTURB LESS THAN 50 ACRES AND DO NOT DISCHARGE STORMWATER WITHIN 1 MILE (AERIAL RADIUS MEASUREMENT FROM PROJECT BOUNDARIES) OF A SPECIAL OR IMPAIRED WATER, PERMIT COVERAGE TYPICALLY BECOMES EFFECTIVE UPON ON-LINE APPLICATION AND COMPLETION OF THE PAYMENT PROCESS.

FOR OTHER PROJECTS, THE COMPLETE SWPPP MUST BE SUBMITTED TO THE MPCA AT LEAST 30 DAYS BEFORE THE START OF CONSTRUCTION. CONSTRUCTION MAY BEGIN AFTER ON-LINE APPLICATION, COMPLETION OF THE PAYMENT PROCESS, AND, AFTER RECEIVING A DETERMINATION LETTER FROM THE MPCA THAT REVIEW OF THE SWPPP IS COMPLETE. IF THE MPCA FAILS TO CONTACT PERMITTEES WITHIN 30 DAYS OF APPLICATION RECEIPT, COVERAGE IS EFFECTIVE 30 DAYS AFTER COMPLETING THE PAYMENT PROCESS.

* DOES THE PROJECT DISTURB 50 ACRES OR MORE? NO
* DOES THE PROJECT DISCHARGE WITHIN 1-MILE OF A SPECIAL (PERMIT ITEM 23.3-23.6) OR IMPAIRED WATER (PERMIT ITEM 23.7)? YES
  -LAKE SUPERIOR

DO NOT BEGIN LAND DISTURBING CONSTRUCTION ACTIVITIES UNTIL PERMIT COVERAGE IS EFFECTIVE. THE START OF ANY LAND DISTURBING ACTIVITIES SIGNIFIES THAT THE CONTRACTOR IS ASSUMING RESPONSIBILITY FOR PERMIT COVERAGE AND HAS COMPLIED WITH PERMIT REQUIREMENTS.

D. NOTIFICATION OF COVERAGE (PERMIT ITEM 3.6): THE CONTRACTOR WILL RECEIVE A NOTIFICATION OF COVERAGE FROM THE MPCA (E.G., VIA EMAIL). KEEP OR POST A COPY OF THE NOTIFICATION OF COVERAGE WITH THE SWPPP AT THE PROJECT SITE. PROVIDE COPIES TO THE OWNER IMMEDIATELY.

E. CHANGE OF COVERAGE FOR NEW OWNER OR NEW OPERATOR (PERMIT ITEMS 3.7, 3.8): FOR A NEW OWNER OR OPERATOR, THE CURRENT OWNER, AND NEW OWNER OR OPERATOR, MUST SUBMIT A "NOTICE OF TERMINATION/PERMIT MODIFICATION FORM" PRIOR TO THE NEW OWNER OR OPERATOR COMMENCING CONSTRUCTION ACTIVITY, NO LATER THAN 30 DAYS AFTER PROPERTY OWNERSHIP TRANSITION. THIS FORM IS AVAILABLE AT THE ABOVE MPCA WEBSITE.

F. TERMINATION OF COVERAGE (PERMIT SECTION 4): THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE OWNER AND TERMINATING PERMIT COVERAGE BY COMPLETING AND SUBMITTING A "NOTICE OF TERMINATION/PERMIT MODIFICATION FORM" TO THE MPCA AFTER ALL OF THE CONDITIONS OF PERMIT ITEM 4.4 AND 4.5 ARE SATISFIED.

G. RECORD RETENTION AND AVAILABILITY (PERMIT SECTION 20): THE CONTRACTOR SHALL KEEP A COPY OF THE SWPPP, INCLUDING ALL CHANGES TO IT, AND INSPECTIONS AND MAINTENANCE RECORDS ON SITE DURING CONSTRUCTION PER PERMIT SECTION 20. THIS DOCUMENTATION MUST BE KEPT ON FILE FOR 3 YEARS AFTER SUBMITTAL OF THE NOTICE OF TERMINATION. COORDINATE TRANSFER OF THIS DOCUMENTATION TO THE OWNER AT PROJECT COMPLETION.

H. CHANGES (AMENDMENTS) TO SWPPP (PERMIT SECTION 6): UPDATE AND DOCUMENT CHANGES TO THE SWPPP DURING CONSTRUCTION PER PERMIT SECTION 6. KEEP DOCUMENTATION WITH THE SWPPP (E.G., "THE REASON INLET PROTECTION WAS REMOVED FROM INLET 23 WAS DUE TO STREET FLOODING/FREEZING CONCERNS, AS ALLOWED BY PERMIT ITEM 9.8.").

3. CONSTRUCTION ACTIVITY REQUIREMENTS

A. GENERAL: COMPLY WITH THE PERMIT AND SWPPP AND THE REQUIREMENTS OF THE PERMIT. THE BEST MANAGEMENT PRACTICES (BMPS) IDENTIFIED IN THE SWPPP AND PERMIT MUST BE SELECTED, INSTALLED, AND MAINTAINED IN AN APPROPRIATE AND FUNCTIONAL MANNER IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, MANUFACTURER RECOMMENDATIONS, AND ACCEPTED ENGINEERING PRACTICES.

B. EROSION PREVENTION PRACTICES (PERMIT SECTION 8): BEFORE WORK BEGINS, DELINEATE THE LOCATION OF AREAS NOT TO BE DISTURBED (E.G., BUFFERS).

WHEN STEEP SLOPES MUST BE DISTURBED, USE TECHNIQUES SUCH AS PHASING AND STABILIZATION PRACTICES DESIGNED FOR STEEP SLOPES (E.G., SLOPE DRAINING, TERRACING).

WHEN CONSTRUCTION ACTIVITY WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS, STABILIZE EXPOSED SOIL AREAS (INCLUDING STOCKPILES) IMMEDIATELY, AND COMPLETE THE STABILIZATION NO LATER THAN 7 DAYS FOR SPECIAL OR IMPAIRED WATERS AS DESCRIBED IN PERMIT SECTION 23. AMEND SWPPP BY INDICATING THE LOCATION OF AREAS WHERE CONSTRUCTION WILL BE PHASED TO MINIMIZE DURATION OF EXPOSED SOIL AREAS (E.G., STEEP SLOPE AREAS).

PLAN FOR AND IMPLEMENT CONSTRUCTION PRACTICES TO SATISFY THE ABOVE AND ALL CONDITIONS OF PERMIT SECTION 8.

C. SEDIMENT CONTROL PRACTICES (PERMIT SECTIONS 9 AND 14): BEFORE ANY LAND DISTURBING ACTIVITY BEGINS, ESTABLISH SEDIMENT CONTROL BMPS ON ALL DOWNGRADIENT AREAS OF THE SITE THAT DRAIN TO ANY SURFACE WATERS, INCLUDING BUT NOT LIMITED TO, CURB AND GUTTER SYSTEMS, STORM SEWER INLETS, DITCHES. BMPS MUST BE LOCATED UPGRADIENT OF ANY BUFFER ZONES AND MUST REMAIN IN PLACE UNTIL PERMANENT COVER IS ESTABLISHED FOR THE AREA DRAINING TO IT.

PLAN FOR AND IMPLEMENT CONSTRUCTION PRACTICES TO SATISFY ALL CONDITIONS OF PERMIT SECTION 9 AND 14.

D. DEWATERING AND BASIN DRAINING (PERMIT SECTION 10): COMPLY WITH SECTION 10 OF THE PERMIT.

E. INSPECTIONS AND MAINTENANCE (PERMIT SECTION 11): COMPLY WITH SECTION 11 OF THE PERMIT.

F. POLLUTION PREVENTION MANAGEMENT MEASURES (PERMIT SECTION 12): COMPLY WITH SECTION 12 OF THE PERMIT. AMEND SWPPP BY INDICATING THE LOCATION OF POTENTIAL POLLUTANT GENERATING ACTIVITIES ON SITE MAPS FOR THE DURATION OF CONSTRUCTION PER PERMIT SECTION 5.9.

4. SWPPP RESPONSIBILITIES/TRAINED INDIVIDUALS

A. THE FOLLOWING PERSON PREPARED THE SWPPP AND IS TRAINED IN SWPPP DESIGN (PERMIT ITEM2 5.20, 21.2.a):

NAME: PATRICK LOOMIS, PROJECT ENGINEER / CITY OF DULUTH.

TRAINING DATE/INSTRUCTOR/ENTITY: CERTIFICATION 2/1/2020, EXPIRES 2022
JOHN CHAPMAN/UNIVERSITY OF MN

TRAINING CONTENT/HOURS: DESIGN OF CONSTRUCTION SWPPP / 8 HOUR REFRESHER

B. THE CONTRACTOR WILL OVERSEE SWPPP IMPLEMENTATION, REVISE AND AMEND THE SWPPP, AND PERFORM INSPECTIONS. THE FOLLOWING CONTRACTOR REPRESENTATIVE IS TRAINED TO PERFORM THESE DUTIES AND WILL ASSUME THESE RESPONSIBILITIES (PERMIT ITEMS 5.20, 21.2.b):

NAME: _____

TRAINING
DATE/INSTRUCTOR/ENTITY: _____

TRAINING
CONTENT/HOURS: _____

C. THE CONTRACTOR WILL SUPERVISE THE INSTALLATION, MAINTENANCE AND REPAIR OF BMPS BEFORE AND DURING CONSTRUCTION. THE FOLLOWING CONTRACTOR REPRESENTATIVE IS TRAINED TO PERFORM THESE DUTIES AND WILL ASSUME THESE RESPONSIBILITIES (PERMIT ITEMS 5.20, 21.2.c):

NAME: _____

TRAINING
DATE/INSTRUCTOR/ENTITY: _____

TRAINING
CONTENT/HOURS: _____

D. PERSON KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS WHO WILL COORDINATE WITH CONTRACTORS, SUBCONTRACTORS, AND OPERATORS ON-SITE TO OVERSEE IMPLEMENTATION OF THE SWPPP (PERMIT ITEM 5.21)(TYPICALLY GENERAL CONTRACTOR):

NAME/TITLE:
_____

E. THE PERSON(S), ORGANIZATION, OR ENTITIES RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT SYSTEMS (PERMIT ITEM 5.23):

NAME/TITLE: CITY OF DULUTH

MAINTENANCE PLAN: N/A

F. CHAIN OF RESPONSIBILITY: THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL SWPPP IMPLEMENTATION ON THE CONSTRUCTION SITE AND IS ACCOUNTABLE FOR SUBCONTRACTORS AND OTHER CONTRACTORS WORKING ON SITE AND THEIR COMPLIANCE WITH THE GENERAL STORMWATER PERMIT AND SWPPP REQUIREMENTS.

5. REGULATORY AGENCIES AND PERMITS

A. COMPLY WITH REQUIREMENTS OF ALL REGULATORY AGENCIES AND PERMITS HAVING JURISDICTION DURING CONSTRUCTION ACTIVITIES. THE FOLLOWING ADDITIONAL REGULATORS AND PERMITS ARE KNOWN TO HAVE SITE JURISDICTION:

- CITY OF DULUTH

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

SWPPP

SHEET NO. 11 OF 78

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6. DESCRIPTION OF THE CONSTRUCTION ACTIVITY / SWPPP COMPONENTS

A. NARRATIVE/TIMING (PERMIT ITEM 5.4):

1) PROJECT SUMMARY: THE PROJECT WILL CONSTRUCT A MULTI-USE TRAIL WITH ASSOCIATED INFRASTRUCTURE WHICH INCLUDES:

a. GRADING AND EXCAVATION
b. PAVEMENT REMOVALS
c. STORM IMPROVEMENTS (CULVERT REPLACEMENT)
d. BITUMINOUS PAVING
e. TURF ESTABLISHMENT

2) TIMING FOR INSTALLATION OF EROSION & SEDIMENTATION BMPS AND PERMANENT STORMWATER MANAGEMENT SYSTEMS, IN GENERAL SEQUENTIAL ORDER FROM FIRST TO LAST (PERMIT ITEM 5.4):

a. INLET PROTECTION FOR EXISTING INLETS / SILT FENCE / DELINEATION AREAS NOT TO BE DISTURBED: PROVIDE PRIOR TO CONSTRUCTION; MAINTAIN DURING CONSTRUCTION.
b. SILT FENCE AROUND STOCKPILES: PROVIDE DURING CONSTRUCTION.
c. PORTABLE SEDIMENT CONTAINMENT SYSTEMS FOR TREATING WATER FROM DEWATERING OPERATIONS : PROVIDE DURING CONSTRUCTION.
d. INLET PROTECTION FOR NEW INLETS: PROVIDE AS CONSTRUCTED.
e. OIL-GRIT PRETREATMENT UNITS
f. HARD SURFACING (E.G., PAVEMENTS)
g. VEGETATIVE COVER / EROSION CONTROL BLANKETS: AFTER FINAL TOPSOIL PLACEMENT AND FINISH GRADING.
f. REMOVAL OF TEMPORARY BMPS: AFTER FINAL STABILIZATION IS ESTABLISHED.

3) IMPERVIOUS SURFACE AREAS / WATER QUALITY VOLUME:

a. PRE-CONSTRUCTION IMPERVIOUS (PERMIT ITEM 5.8): 2.51 ACRES
b. POST-CONSTRUCTION IMPERVIOUS (PERMIT ITEM 5.8): 2.46 ACRES
c. NET NEW IMPERVIOUS: -0.05 ACRES
d. WATER QUALITY VOLUME: N/A
e. ACTUAL WATER QUALITY VOLUME RETAINED ON-SITE / METHOD OF RETENTION: N/A
f. THE REASON THE FULL WATER QUALITY VOLUME CANNOT BE INFILTRATED (PER PERMIT ITEM 5.15): N/A
g. REMAINDER OF WATER QUALITY VOLUME AND ALTERNATIVE TREATMENT METHOD: N/A

4) CHEMICALS AND CHEMICAL TREATMENT SYSTEMS USED FOR ENHANCING THE ON-SITE SEDIMENTATION PROCESS AND HOW COMPLIANCE WILL BE ACHIEVED (PERMIT ITEM 5.22): N/A

5) PER PERMIT ITEM 5.13, DOCUMENTATION OF INFEASIBILITY FOR:

a. TEMPORARY SEDIMENT BASIN (PERMIT PART 14.10): CONTRACTOR SHALL INSTALL TEMP. SEDIMENT BASINS AT THE ENDS OF EACH CULVERT AS REQUIRED DURING CONSTRUCTION

ALTERNATIVE (PERMIT ITEM 5.14): N/A

b. OBTAINING RIGHT-OF-WAY FOR PERMANENT STORMWATER MANAGEMENT SYSTEMS OF LINEAR PROJECTS: N/A
c. BUFFER ZONES (PERMIT ITEMS 9.17 AND 23.11): 50' PERIMETER MAINTAINED ALONG WITH DOUBLE PERIMETER CONTROL INSTALLED 5' APART

6) STORMWATER MITIGATION MEASURES IDENTIFIED IN ENVIRONMENTAL REVIEW OR OTHER REQUIRED REVIEW (PERMIT ITEM 5.16): NO HYDRO MULCH WILL BE USED, ONLY 3N OR 4N NATIONAL NETTING PRODUCTS. MNDOT DZ VEGITATION PRACTICES MUST BE FOLLOWED. SEE SPECIAL PROVISIONS FOR SEED MIX FOR NON MOWED AREAS.

B. STORMWATER REPORT (PERMIT ITEM 5.6): N/A

C. SITE ASSESSMENTS FOR GROUNDWATER OR SOIL CONTAMINATION (PERMIT ITEM 5.25): N/A

D. PLAN SHEETS:

1) SWPPP (PERMIT ITEM 5.2): THESE SHEETS, INCLUDING DOCUMENTATION DESCRIBED AND REFERENCED HEREIN.
2) TEMPORARY BMPS / ESTIMATED QUANTITIES (E.G., LINEAR FEET OF SILT FENCE, SQUARE FEET OF EROSION CONTROL BLANKET) (PERMIT ITEMS 5.3, 5.5, 5.7, 5.9): SEE SHEETS 8, 13-15
3) PERMANENT BMPS (PERMIT ITEM 5.3, 5.5): SEE SHEETS 9, 13-15
4) EXISTING GRADES, DRAINAGE BOUNDARIES AND FLOW DIRECTIONS, DISCHARGE POINTS WHERE STORMWATER LEAVES THE SITE OR ENTERS SURFACE WATERS, AREAS OF STEEP SLOPES (PERMIT ITEM 5.9): SEE SHEETS 34-41
5) FINAL GRADES, DRAINAGE BOUNDARIES AND FLOW DIRECTIONS, DISCHARGE POINTS WHERE STORMWATER LEAVES THE SITE OR ENTERS SURFACE WATERS, AREAS OF STEEP SLOPES (PERMIT ITEM 5.9): SEE SHEETS 13-15,
6) IMPERVIOUS SURFACING / METHODS OF FINAL STABILIZATION (PERMANENT COVER)(PERMIT ITEM 5.17): SEE SHEETS 13-15, 20-22.
7) MAP OF SURFACE WATERS, EXISTING WETLANDS AND STORMWATER PONDS/BASINS IDENTIFIABLE ON USGS 7.5 MIN. QUAD. MAPS, NWI MAP OR EQUIVALENT WITHIN 1 MILE OF SITE (AERIAL RADIUS MEASUREMENT FROM PROJECT BOUNDARIES) THAT RECEIVE RUNOFF FROM SITE DURING OR AFTER CONSTRUCTION (IDENTIFY SPECIAL AND IMPAIRED WATERS AND ANY APPROVED TMDLS)(PERMIT ITEMS 5.10, 5.19): N/A
8) FOR THE ABOVE SPECIAL OR IMPAIRED WATERS, DOCUMENTATION OF BMPS USED TO ADDRESS TMDL OR WLA REQUIREMENTS TO COMPLY WITH PERMIT SECTION 23: N/A
9) SITE MAP OF CONSTRUCTION ACTIVITY AREAS THAT ARE ADJACENT TO AND DRAIN TO MINNESOTA DEPARTMENT OF NATURAL RESOURCES (MDNR) PUBLIC WATERS PROMULGATED AS "WORK IN WATER RESTRICTIONS" DURING SPECIFIED FISH SPAWNING TIMES (PERMIT ITEM 5.11): N/A
10) METHODS TO PRESERVE TOPSOIL AND TOPSOIL PRESERVATION AREAS (PERMIT ITEM 5.24): CONTRACTOR SHALL SALVAGE AND REUSE ALL TOPSOIL.
11) METHODS TO MINIMIZE SOIL COMPACTION AND INFILTRATION AREAS TO BE PROTECTED FROM EXCESSIVE SOIL COMPACTION AND SEDIMENTATION (PERMIT ITEM 5.24): N/A
12) AREAS WHERE CONSTRUCTION WILL BE PHASED TO MINIMIZE THE DURATION OF EXPOSED SOILS (PERMIT ITEM 5.18): N/A
13) DELINEATION OF BUFFER ZONES (PERMIT ITEM 5.12): N/A

E. STANDARD DETAIL SHEETS: SEE SHEETS 19 - 28

F. MAINTENANCE PLAN: N/A

7. STANDARDS SPECIFICATIONS FOR CONSTRUCTION:

UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS, MATERIAL AND CONSTRUCTION REQUIREMENTS FOR TEMPORARY SEDIMENT CONTROL AND EROSION PREVENTION SHALL BE IN ACCORDANCE WITH THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION.

8. CALCULATIONS AND OTHER INFORMATION USED FOR DESIGN OF TEMPORARY SEDIMENTATION BASINS AND PERMANENT STORMWATER TREATMENT SYSTEMS (PERMIT ITEM 5.6): N/A

9. PROCEDURES TO ESTABLISH ADDITIONAL TEMPORARY BMPS, AS NECESSARY, DURING CONSTRUCTION (PERMIT ITEM 5.5):

A. IF REGULAR INSPECTIONS OR OTHER OBSERVATIONS INDICATE THE NEED FOR ADDITIONAL TEMPORARY BMPS TO PREVENT EROSION, THEN PROVIDE ADDITIONAL BMPS BEFORE THE NEXT RAIN EVENT.

- MAINTAIN CLEAR AND UPDATED PLANS (MAPS) OF THE CURRENT TEMPORARY BMPS.

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SWPPP

SHEET NO. 12 OF 78

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STA. 78+52.7 24.7 LT
PRESERVE AND PROTECT
PARK SIGN

STA. 79+05.0
BEGIN SILT FENCE TYPE HI
SEDIMENT CONTROL LOG
TYPE WOOD FIBER

BEGIN S.P. 118-090-024
BEGIN CITY PROJ. NO. 1544
STA. 78+00.00

STA. 79+05.0
BEGIN LAKEWALK EXTENSION
CONSTRUCTION

STA. 80+55 TO STA. 81+20
DITCH CHECKS
SEE PG 27 FOR SPACING

LAKE SUPERIOR

STA. 82+21.8 19.5 RT
PRESERVE AND PROTECT
SURVEY MONUMENT
(1" PIN IN CONC)

CENTURY LINK

℄ LAKEWALK EXTENSION

STA. 86+82.1' 22.5' RT
PRESERVE AND PROTECT
SURVEY MONUMENT
(X IN LEDGE ROCK)

MEM-B

0 30 60
SCALE IN FEET

STA. 89+62.0 TO 90+23.7
BREAK SILT FENCE TYPE HI
USE SEDIMENT CONTROL LOG
TYPE WOOD FIBER

STA. 91+85.7 TO 92+09.6
USE SEDIMENT CONTROL LOG
TYPE WOOD FIBER

STA. 93+76.3 TO 94+10.0
BREAK SILT FENCE TYPE HI
USE SEDIMENT CONTROL LOG
TYPE WOOD FIBER

℄ LAKEWALK EXTENSION

LAKE SUPERIOR

LAKE SUPERIOR

- DITCH CHECK
- C CULVERT END CONTROL
- FLOW DIRECTION
- SILT FENCE TYPE HI
- SEDIMENT CONTROL LOG TYPE WOOD FIBER
- PERMANENT SEEDING & RAPID STABILIZATION METHOD 4

1. RAPID STABILIZATION METHOD 1 SHALL BE USED AS TEMPORARY EROSION CONTROL IN AREAS WITH STEEP SLOPES, AREAS ADJACENT TO LAKE SUPERIOR, AND AREAS NOT TOUCHED FOR A PERIOD OF THREE DAYS. CONTRACTOR SHALL USE SEED MIXTURE [32-241 AT 38/LBS ACRE, FERTILIZER TYPE4 AT 200 LBS/ACRE AND MULCH TYPE 3 AT 2 TON/ACRE.
2. PERMANENT EROSION CONTROL CONSISTS OF SEED MIXTURE 36-311 AT 33.5LB/ACRE, FERTILIZER TYPE 4 AT 200 LB/ACRE AND EROSION CONTROL BLANKET 3N.
3. SEE SHEET 28 FOR CULVERT END CONTROL METHODS.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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EROSION CONTROL PLAN

SHEET NO. 13 OF 78

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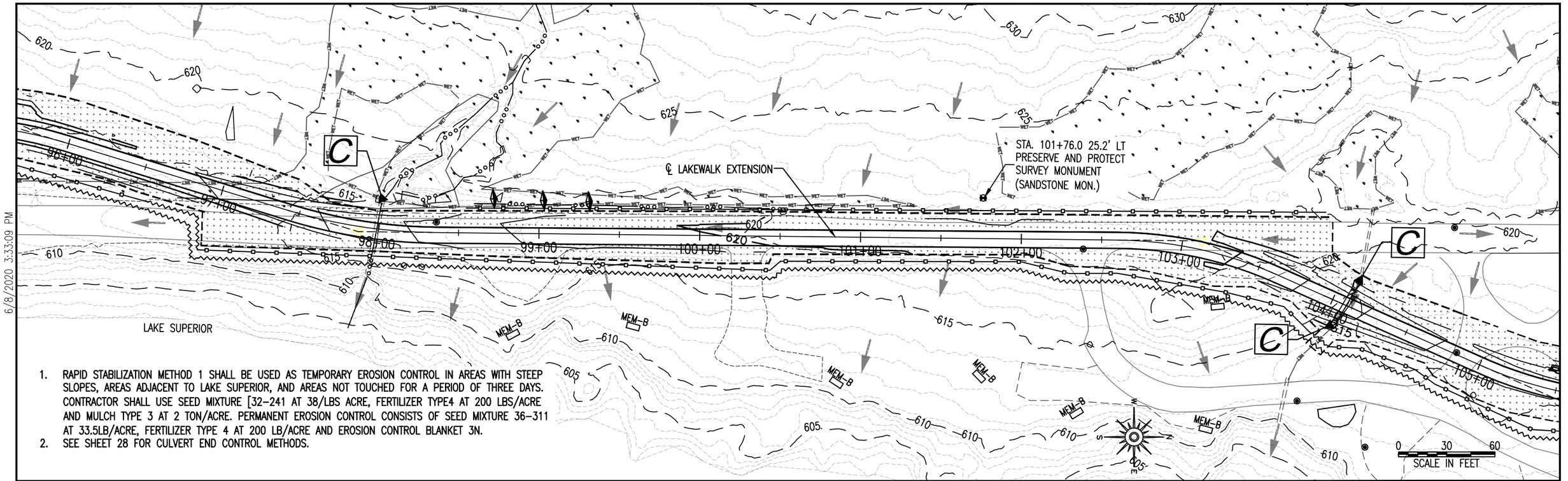
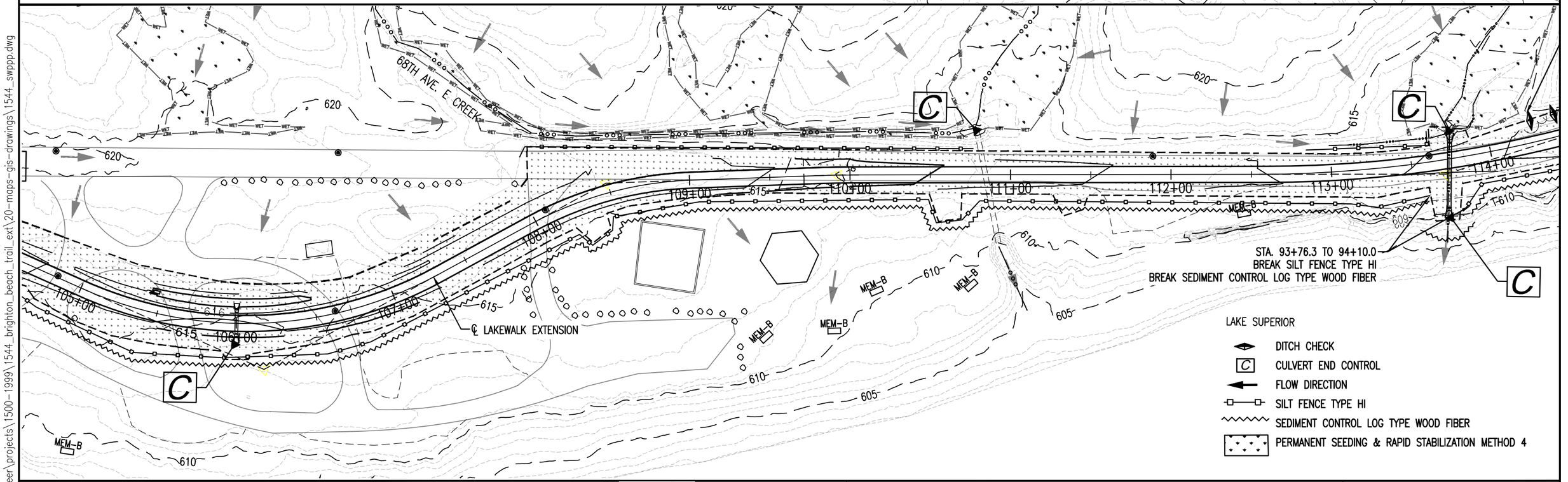


1. RAPID STABILIZATION METHOD 1 SHALL BE USED AS TEMPORARY EROSION CONTROL IN AREAS WITH STEEP SLOPES, AREAS ADJACENT TO LAKE SUPERIOR, AND AREAS NOT TOUCHED FOR A PERIOD OF THREE DAYS. CONTRACTOR SHALL USE SEED MIXTURE [32-241 AT 38/LBS ACRE, FERTILIZER TYPE4 AT 200 LBS/ACRE AND MULCH TYPE 3 AT 2 TON/ACRE. PERMANENT EROSION CONTROL CONSISTS OF SEED MIXTURE 36-311 AT 33.5LB/ACRE, FERTILIZER TYPE 4 AT 200 LB/ACRE AND EROSION CONTROL BLANKET 3N.
2. SEE SHEET 28 FOR CULVERT END CONTROL METHODS.



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

EROSION CONTROL PLAN

SHEET NO. 14 OF 78

6/8/2020 3:33:15 PM

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STA. 121+42.0 25' LT
- PRESERVE AND PROTECT
PARK SIGN

STA. 122+22.3
END S.P. 118-090-024
END CITY PROJ. NO. 1544

STA. 121+42.9
END LAKEWALK EXTENSION
CONSTRUCTION

℄ LAKEWALK EXTENSION

STA. 117+49.2 TO STA. 118+15.0
SEDIMENT CONTROL LOG TYPE ROCK
SEE SHEET 27 FOR SPACING

STA. 114+24.0 TO STA. 115+00.0
SEDIMENT CONTROL LOG TYPE ROCK
SEE SHEET 27 FOR SPACING

LESTER RIVER WHITE PINE FORE

LAKE SUPERIOR

1. RAPID STABILIZATION METHOD 1 SHALL BE USED AS TEMPORARY EROSION CONTROL IN AREAS WITH STEEP SLOPES, AREAS ADJACENT TO LAKE SUPERIOR, AND AREAS NOT TOUCHED FOR A PERIOD OF THREE DAYS. CONTRACTOR SHALL USE SEED MIXTURE [32-241 AT 38/LBS ACRE, FERTILIZER TYPE4 AT 200 LBS/ACRE AND MULCH TYPE 3 AT 2 TON/ACRE.
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3. SEE SHEET 28 FOR CULVERT END CONTROL METHODS.

DITCH CHECK
C CULVERT END CONTROL
FLOW DIRECTION
SILT FENCE TYPE HI
SEDIMENT CONTROL LOG TYPE WOOD FIBER
PERMANENT SEEDING & RAPID STABILIZATION METHOD 4

0 30 60
SCALE IN FEET

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

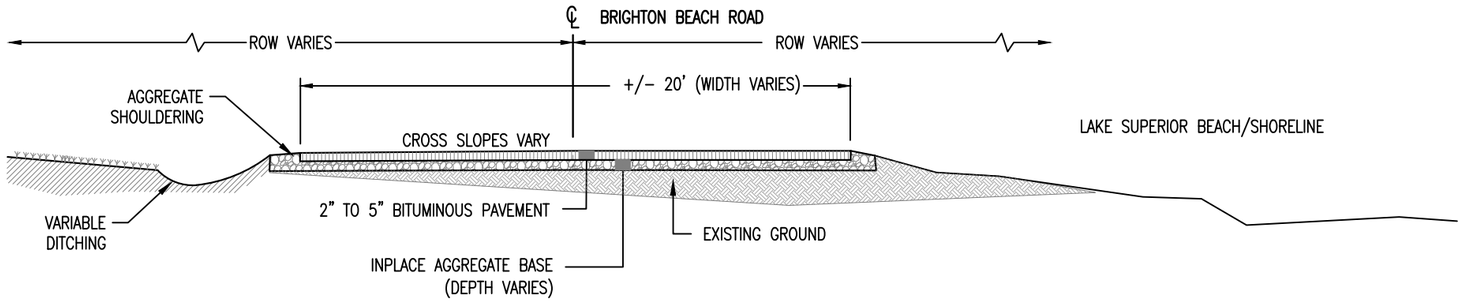
DRAWN BY: DJK

EROSION CONTROL PLAN

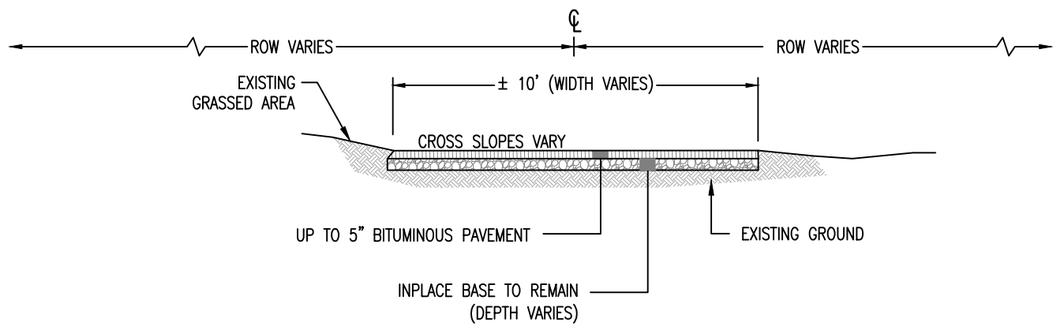
SHEET NO. 15 OF 78

6/8/2020 3:33:26 PM

IN-PLACE TYPICAL SECTION
BRIGHTON BEACH ROAD
APPLIES:
STA. 79+05.0 TO 122+75.4



IN-PLACE TYPICAL SECTION
GITCHI-GAMI PARK
ANCILLARY ROADS
RANDOM LOCATIONS BETWEEN:
STA. 102+75.0 TO 108+75.0
NO SCALE



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SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

TYPICAL SECTIONS

SHEET NO. 16 OF 78

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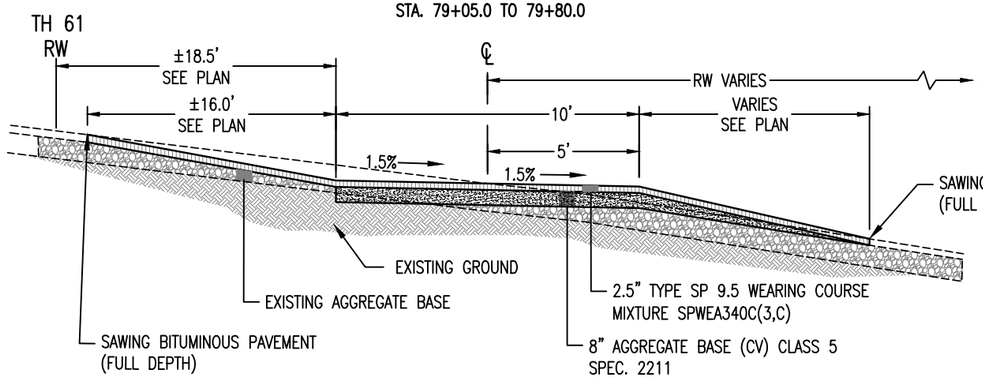
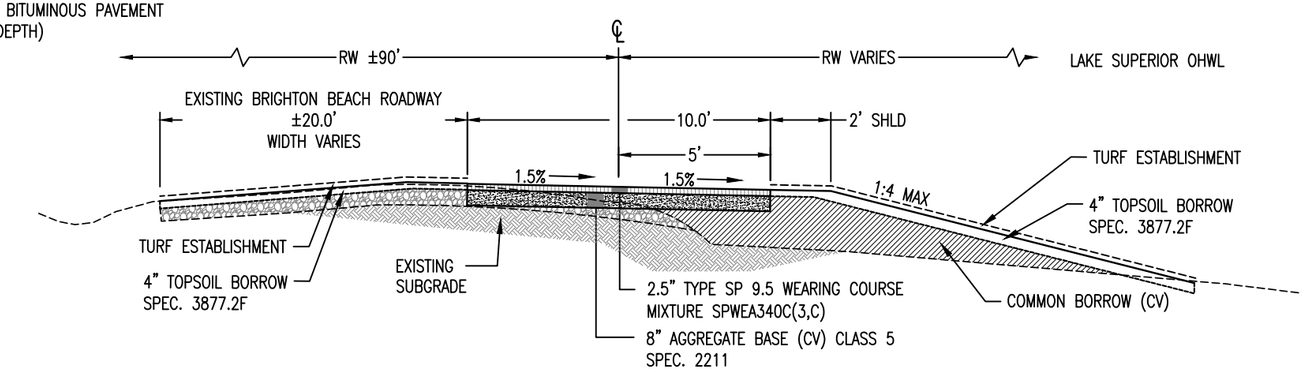
BRIGHTON BEACH ENTRANCE PROFILE

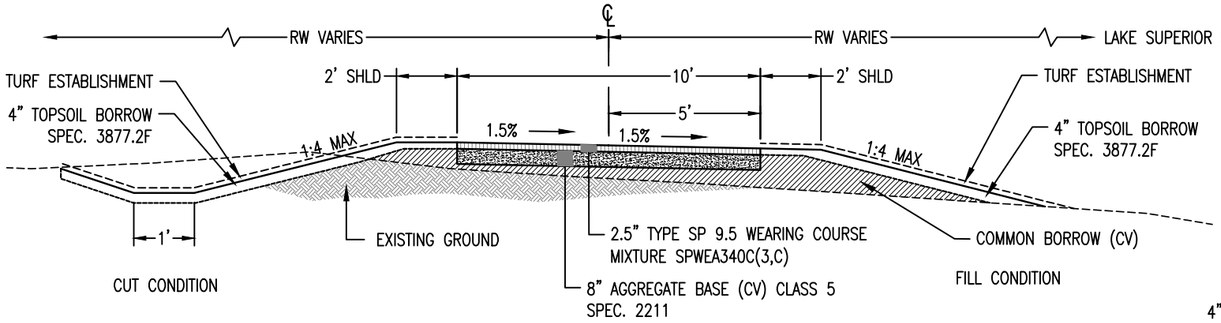


PROPOSED TYPICAL SECTION
LAKE WALK
SHARED USE TRAIL
APPLIES:
STA. 79+05.0 TO 79+80.0

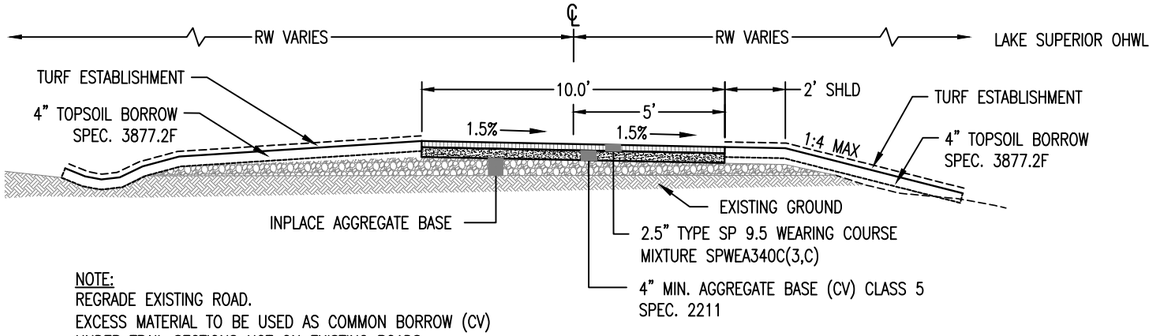
PROPOSED TYPICAL SECTION
LAKE WALK
SHARED USE TRAIL
APPLIES:
STA. 108+50.0 TO 113+50.0



PROPOSED TYPICAL SECTION
LAKE WALK
SHARED USE TRAIL
APPLIES:
STA. 79+80.0 TO 97+50.0 AND STA. 103+84.0 TO 108+50.0

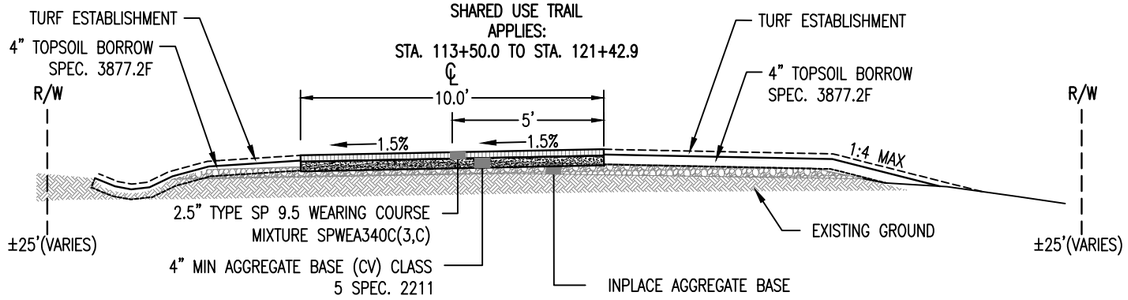


PROPOSED TYPICAL SECTION
LAKE WALK
SHARED USE TRAIL
APPLIES:
STA. 97+50.0 TO 103+84.0



NOTE:
REGRADE EXISTING ROAD.
EXCESS MATERIAL TO BE USED AS COMMON BORROW (CV)
UNDER TRAIL SECTIONS NOT ON EXISTING ROADS.
PER ENGINEER.

PROPOSED TYPICAL SECTION
LAKE WALK
SHARED USE TRAIL
APPLIES:
STA. 113+50.0 TO STA. 121+42.9



NOTE:
REGRADE INPLACE ROAD.
EXCESS MATERIAL TO BE USED AS COMMON BORROW (CV)
UNDER TRAIL SECTIONS NOT ON INPLACE ROADS.
PER ENGINEER.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis — PATRICK F. LOOMIS (TYPE NAME) — DATE: xx/xx/xxxx — LIC. NO: 49099

CITY OF DULUTH
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411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK
TYPICAL SECTIONS
SHEET NO. 17 OF 78

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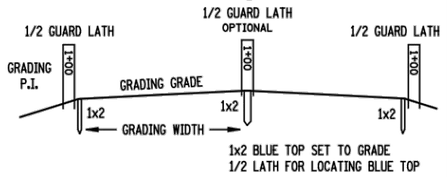
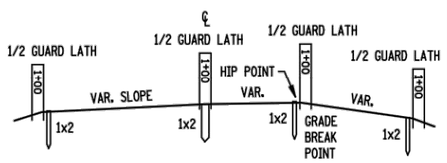
BLUE TOPS

NORMAL SECTION

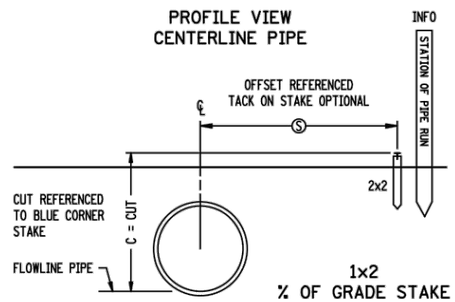


TRANSITION SECTION

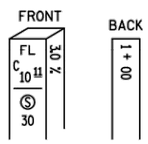


PIPE STAKING

PROFILE VIEW CENTERLINE PIPE

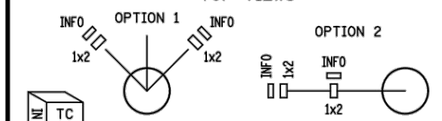


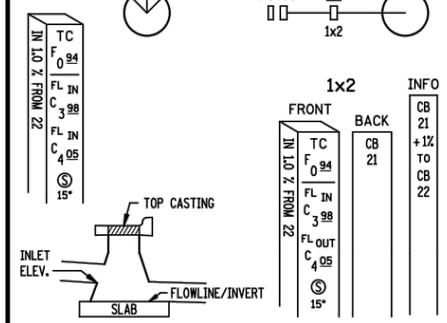
1x2 % OF GRADE STAKE



CATCH BASIN OR MANHOLE (CB/MH)

TOP VIEWS

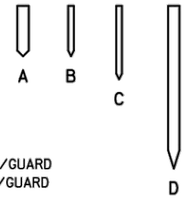




FLOWLINE/INVERT + 0.7'

STANDARD STAKES

TYPES:
REFERENCE (REF)
INFORMATIONAL (INFO)
VISIBILITY (VIS)
GUARD (GUARD)



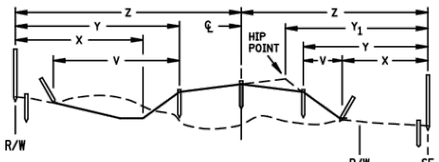
SIZES:
A = 2" X 2" X VAR. REF/INFO/GUARD
B = 1" X 2" X VAR. REF/INFO/GUARD
C = 1" X 2" X VAR. REF
D = LATH INFO/VIS/GUARD
1x2 OR LATH = INFO STAKES

ABBREVIATIONS

BBL = BARREL (PIPE)
B.C. = BACK CURB
C & G = CURB & GUTTER
C = CUT
CAP = CORR. ALUM. PIPE
CB = CATCH BASIN
℄ = CENTERLINE
CL & GR = CLEAR & GRUB
CMP = CORR. METAL PIPE
COR = CORNER
CR = CROWN
CSP = CORR. STEEL PIPE
℄ = DITCH CUT
D.E. = DRAINAGE EASEMENT
DI = DROP INLET
EB = EASTBOUND
E.M. = EDGE BITUMINOUS MAT
E.S. = EDGE CONCRETE SLAB
F = FILL
FF = FRONT FACE
FL = FLOW LINE
FL IN = FLOWLINE INLET
FL OUT = FLOWLINE OUTLET
GR = GRADE
GW = GRADING WIDTH
HH = HANDHOLE
HP = HIP POINT
LT = LEFT
MH = MANHOLE
NB = NORTHBOUND
Ⓢ = OFFSET
PAR = PARCEL
% = PERCENT GRADE
P.E. = PERM. EASEMENT
RAD = RADIUS POINT
RCP = REINF. CONC. PIPE
RP = REFERENCE POINT
RSC = REINF. SECT. CONC.
RT = RIGHT
R/W = RIGHT OF WAY
SB = SOUTHBOUND
SCP = SECT. CONC. PIPE
SH = SHOULDER
TC = TOP CASTING OR TOP CURB
T.E. = TEMP. EASEMENT
3 :1 = SLOPE (EXAMPLE)
WB = WESTBOUND
WP = WORKING POINTS

SLOPE STAKES

SINGLE ROADWAY - EXAMPLE 'A'



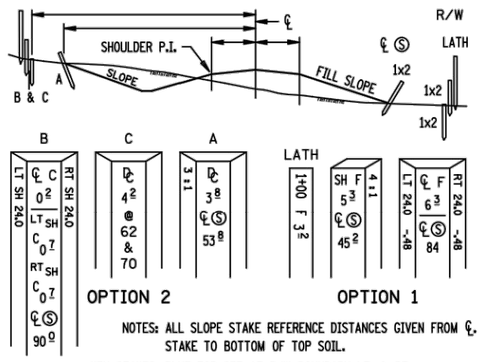
STAKE 'A'
FULL LATH AND HUB-STATION
DIST. TO ℄ WITH CUT/FILL TO ℄ (Z)
DIST. TO SHLD. WITH CUT/FILL TO SHLD. (Y) (Y1)
DIST. TO TOE OF SLOPE, CUT/FILL FROM HUB (X)
OFFSET TO SAFTY SLOPE
OFFSET TO HIP POINT

STAKE 'B'
FULL LATH
DITCH CUT/SHLD. FILL
SLOPE RATED
DISTANCE TO INSLOPE TOE (V1) OR SHOULDER (AS APPLIES) (V)

NOTE:
BLUE TOPS REQUIRED ON ℄ AND BOTH SHOULDERS AT MINIMUM
ALL CULVERTS TO BE STAKED
MINIMUM DATA TO BE PROVIDED
STAKE TO BOTTOM OF TOPSOIL

SLOPE STAKES

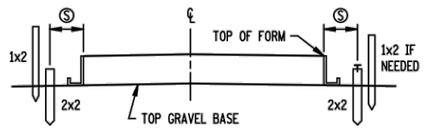
SINGLE ROADWAY - EXAMPLE 'B'



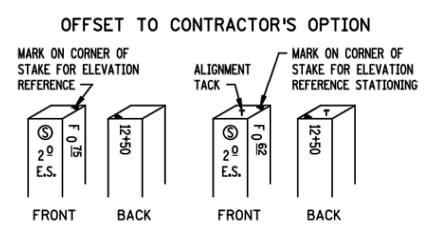
OPTION 2 OPTION 1

NOTES: ALL SLOPE STAKE REFERENCE DISTANCES GIVEN FROM ℄. STAKE TO BOTTOM OF TOP SOIL.
KEY STAKES: BLUE TOP SET AT R/W BOUNDARY LT. & RT. MAY BE EXCEPTIONS TO SETTING STAKE ON R/W.

CONCRETE PAVING STATIONARY FORM



OFFSET TO CONTRACTOR'S OPTION



NOTE INFORMATION ON STAKE IF NECESSARY

RECOMMENDED STAKING INTERVALS

FIGURE A

	SLOPE STAKES	SUB GRADE B.T.	CLASS MATERIAL B.T.	CONC PAVT	C & G	CL & GR LIMITS	MUCK EXC.	R/W	TEMP. EASE.
TANGENT	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
HORIZ. CURVE									
0 - 3°	100	100	100	50	50	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
OVER 3° -	100	50	50	25	25	ALL CORNERS	100	ALL CORNERS	ALL CORNERS
VERT. CURVE									
'M' 100' CHORD 0 - .25	100	100	100	50	50				
'M' OVER .25	100	50	50	25	25				
TRAN.		50	50						

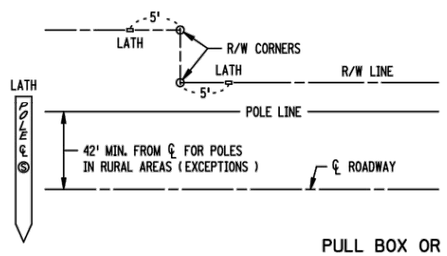
STAKING TOLERANCES (FEET)

	HORIZONTAL	VERTICAL
CONSTRUCTION LIMITS	± 1.5	
CLEARING & GRUBBING	2.0	
SLOPES STAKES	2.0	± 0.2
KEY STAKES	0.2	0.03
DRAINAGE STAKES	0.05	0.05
CURB & GUTTER	0.07	0.03
PAVING	0.05	0.03
ALIGNMENT	0.07	
UTILITY	0.10	0.05
STRUCTURAL	0.02	0.02
GUARD RAIL	0.5	
BUILDINGS	0.04	
O.H. SIGNS	0.05	0.05
MUCK EXCAVATION LIMITS	2.0	
R/W B-POINTS	0.10	
NOISE WALLS	1.0	0.5

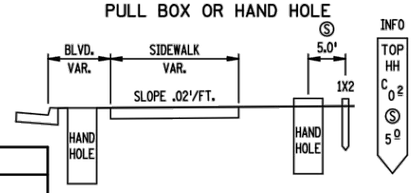
THE TOLERANCES ARE RELATIVE TO PROJECT DATUM

UTILITY (UTIL)

STAKE POLES MINIMUM OF 5 FT. FROM ANY R/W CORNER
EXAMPLE: POLE LINE = R/W LINE

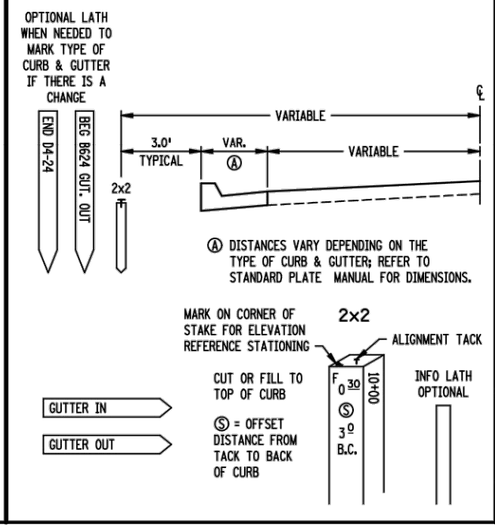


PULL BOX OR HAND HOLE

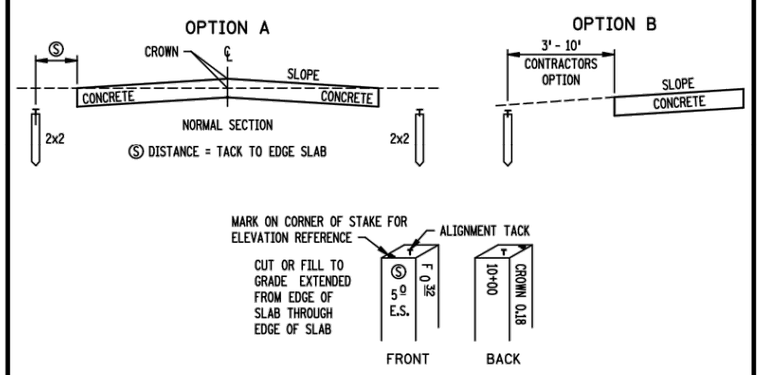


REVISION:
APPROVED: 8-6-2014
DIRECTOR, OFFICE OF LAND MANAGEMENT

CURB & GUTTER (CURB)



CONCRETE PAVING - SLIP FORM



DISCLAIMER

THESE STAKING INFORMATION SHEETS ARE FOR INFORMATION PURPOSES ONLY. STAKING PROCEDURES VARY AND MAY BE SUBJECT TO CHANGE DURING CONSTRUCTION BY CIRCUMSTANCES AND/OR AGREEMENTS BETWEEN SURVEY CREW AND CONTRACTOR.

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.115 | 1 OF 2

APPROVED: 8-6-2014
REVISED:

STATE DESIGN ENGINEER

STAKING INFORMATION SHEET

CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024 | SHEET NO. 18 OF 78

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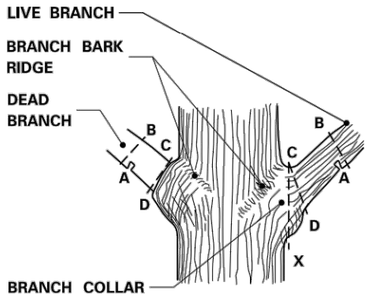


BRANCHES PRUNED AT TRUNK

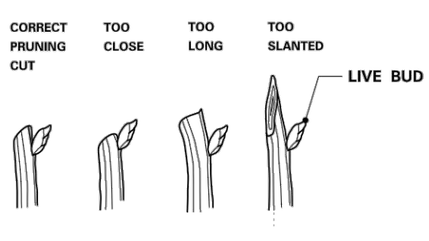
(SHIGO METHOD)

STEPS TO PRUNING WITH PRUNING SAW:

1. CUT PART WAY THROUGH THE BRANCH AT POINT A.
2. CUT COMPLETELY THROUGH BRANCH FROM POINT B TO A.
3. AT BRANCH COLLAR CUT FROM POINT C TO D.

INCORRECT CUT FROM POINT C TO X (TOO CLOSE) WILL RESULT IN DISCONTINUOUS CALLUS FORMATION AFTER ONE SEASON OF GROWTH.

CORRECT CUT FROM POINT C TO D (LEAVING BRANCH COLLAR BUT NOT THE STUB FROM POINT B TO A) WILL RESULT IN CONTINUOUS DOUGHNUT SHAPED CALLUS FORMATION AFTER ONE SEASON OF GROWTH.



BRANCHES PRUNED TO LIVE BUD

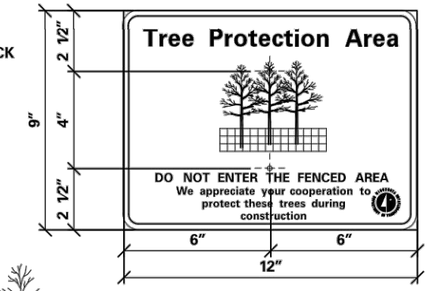
PRUNING NOTES:

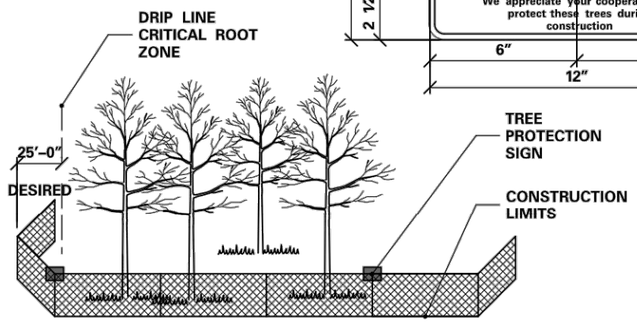
1. PRUNE USING CLEAN AND SHARP SCISSOR-TYPE PRUNER OR PRUNING SAW.
2. THE BEST TIME TO PRUNE IS LATE DORMANT SEASON OR EARLY SPRING.
3. AVOID PRUNING OAKS IN APRIL, MAY, JUNE OR JULY.
4. IF PRUNING IS NECESSARY OR IF WOUNDS OCCUR TO OAK TREES IN APRIL, MAY, JUNE OR JULY, IMMEDIATELY PAINT CUT SURFACE OR WOUND WITH LATEX PAINT OR SHELLAC.

PRUNING

(MnDOT 2571.3E.1 and 2571.3K.2.a(9))

1. FABRICATE 12" X 9" X 3/8" SIGN WITH 0.75" RADIUS CORNERS.
2. SIGN SHALL BE WHITE WITH BLACK LETTERING.
3. ATTACH SIGN TO POST USING 1" LENGTH WOOD SCREWS.

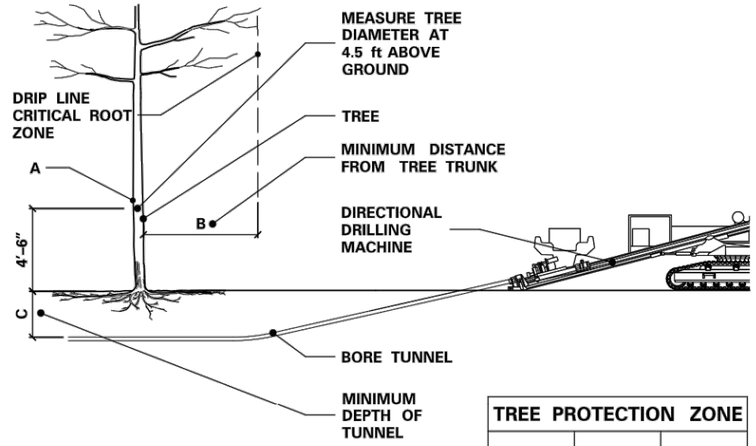




1. FURNISH AND INSTALL TEMPORARY FENCE AT THE TREE'S DRIPLINE OR CONSTRUCTION LIMITS AS SPECIFIED, PRIOR TO ANY CONSTRUCTION.
2. WHEN POSSIBLE PLACE FENCE 25 FEET BEYOND THE DRIP LINE.
3. PLACE TREE PROTECTION SIGNS ALONG FENCE AT 50' INTERVALS.

TEMPORARY FENCE

(MnDOT 2572.3A.1)



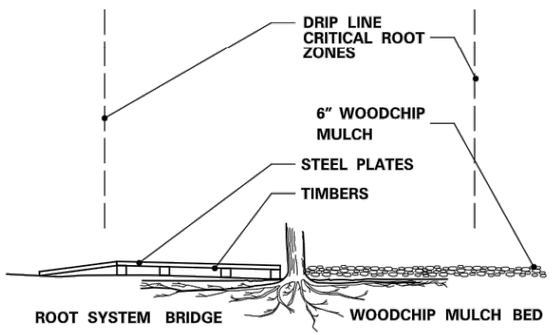
TREE PROTECTION ZONE		
A	B	C
<2"	2'	2'
2–4"	4'	2.5'
>4–9"	6'	2.5'
>9–14"	10'	3'
>14–19"	12'	3.25'
>19"	15'	4'

NOTE:

1. (A) IS THE DIAMETER OF TREES MEASURED 4'-6" FEET ABOVE THE GROUND AND IS TERMED THE "DIAMETER AT BREAST HEIGHT," (DBH).
2. USING A TREE DIAMETER TAPE, WRAP THE TAPE AROUND THE GIRTH OF THE TREE, AT THE DBH, BEING CAREFUL NOT TO TWIST THE TAPE.

UTILITY CONSTRUCTION

(MnDOT 2572.3A.5)



IF CONSTRUCTION VEHICLES MUST PASS OVER ROOT ZONES, THE CONTRACTOR MUST EITHER:

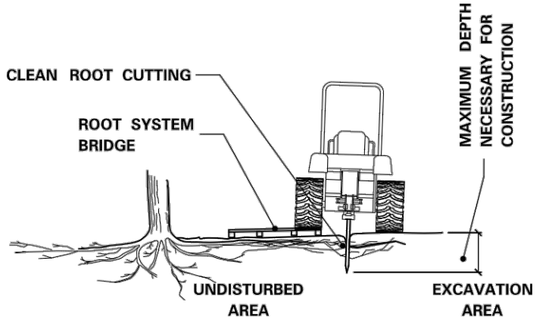
1. CONSTRUCT ROOT SYSTEM BRIDGES WITH STEEL PLATE SUPPORTED ON WOOD TIMBERS PLACED RADIALLY TO THE TREE TRUNK.

OR

2. PLACE A 6 INCH LAYER OF WOODCHIP MULCH OVER A TYPE III GEOTEXTILE (MnDOT 3733).

OTHER VEGETATION PROTECTION MEASURES

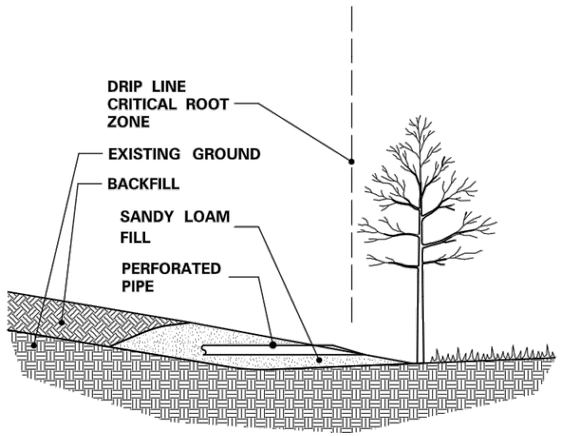
(MnDOT 2572.3A.12)



1. WHEN DESIGNATED IN THE PLAN OR DIRECTED BY THE ENGINEER, PRIOR TO EXCAVATION, ALL TREE ROOTS WILL BE CLEANLY CUT BY A VIBRATORY PLOW OR OTHER APPROVED ROOT CUTTER.
2. THE TREE ROOTS WILL BE CUT CLEANLY TO THE MINIMUM DEPTH NECESSARY FOR CONSTRUCTION.
3. IMMEDIATELY, AND CLEANLY CUT DAMAGED AND EXPOSED ROOTS.
4. ROOT ENDS EXPOSED BY EXCAVATION ACTIVITIES SHALL BE IMMEDIATELY COVERED WITH A 6" LAYER OF ADJACENT SOIL.
5. EXPOSED CUT OAK ROOTS SHALL BE IMMEDIATELY (WITHIN 5 MINUTES) TREATED WITH A WOUND DRESSING MATERIAL CONSISTING OF LATEX PAINT OR SHELLAC.

CLEAN ROOT CUTTING

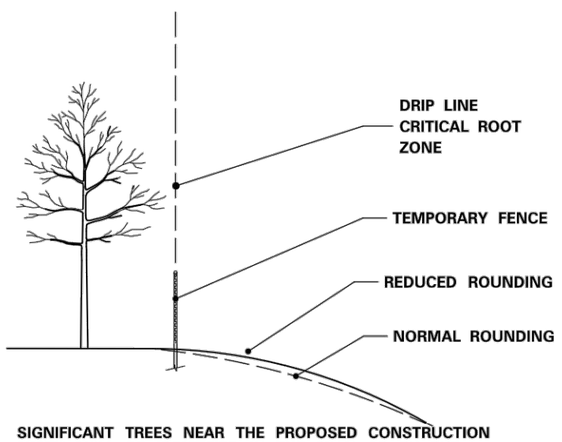
(MnDOT 2572.3A.2)



1. ANY FILL REQUIRED WITHIN THE DRIP LINE OF TREES, IS UNCOMPACTED ROOTING TOPSOIL BORROW.
2. EXCESSIVE FILL MAY REQUIRE PLACING PERFORATED PIPE WITH AT LEAST ONE DAYLIGHTED END OPENING AS AN AERATION SYSTEM.

ROOTING TOPSOIL BORROW

(MnDOT 2572.3A.4)



SIGNIFICANT TREES NEAR THE PROPOSED CONSTRUCTION LIMITS WILL BE IDENTIFIED IN THE PLAN OR BY THE ENGINEER AND WILL BE PRESERVED BY THE CONTRACTOR.

1. PLACE THE TEMPORARY FENCE.
2. REDUCE SLOPE ROUNDING WHERE ROOT ZONES ARE DISTURBED BY NORMAL SLOPE ROUNDING.
3. VARY BACKSLOPE STEEPNESS TO AVOID TREE LOSS OR UNNECESSARY ROOT DAMAGE.

SLOPE ROUNDING

REVISION:

APPROVED: DECEMBER 11, 2015

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.302 | 1 OF 1

APPROVED: 12-11-2015

REVISED:

STATE DESIGN ENGINEER

PROTECTION AND RESTORATION OF VEGETATION

CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024 | SHEET NO. 19 OF 78

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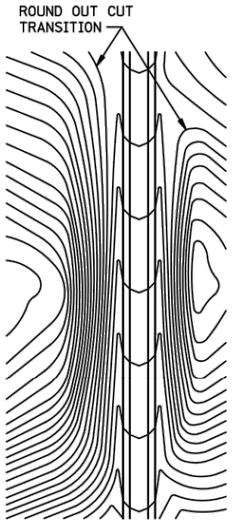
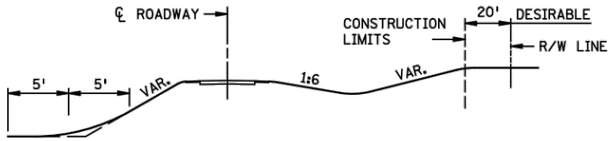
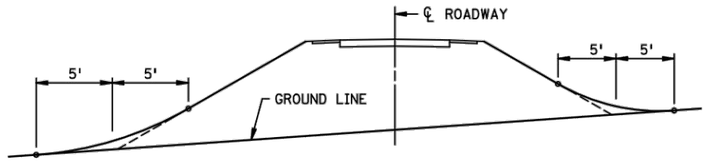


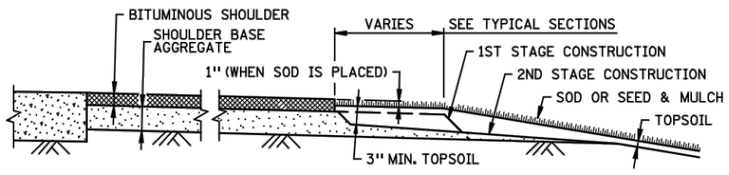
CONTOURING ROAD CUTS



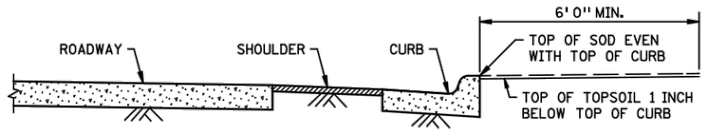
ROUNDING SHOULDERS AND BACKSLOPES



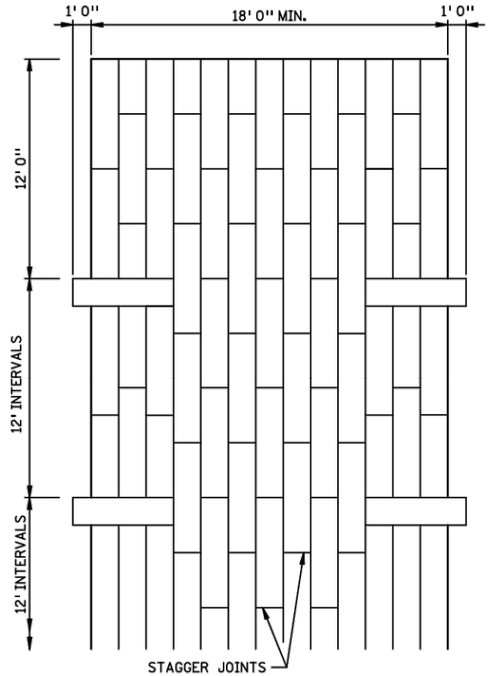
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



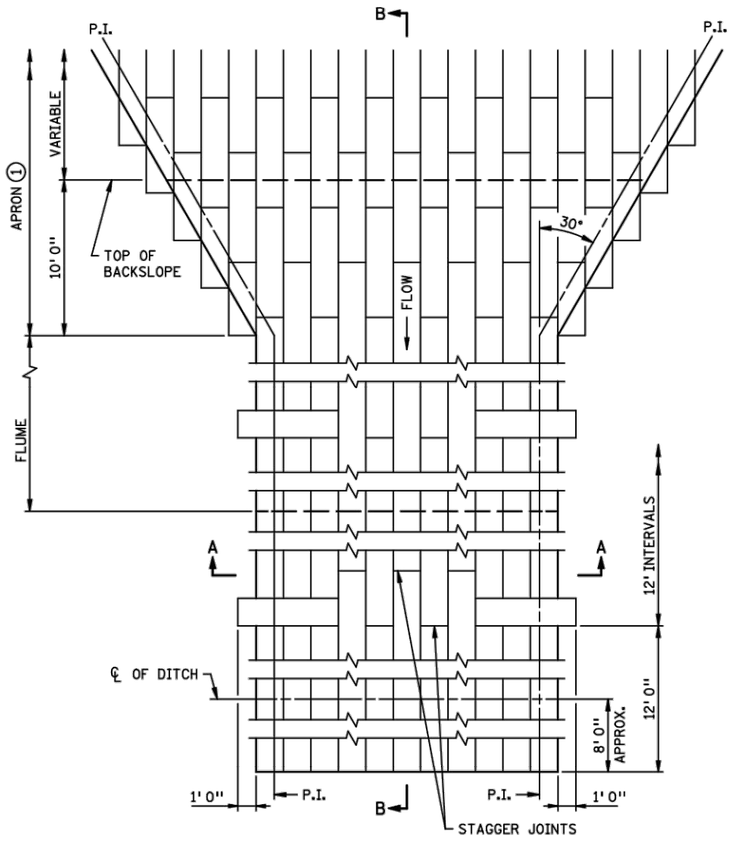
SHAPING AND TOPSOILING INSLOPES



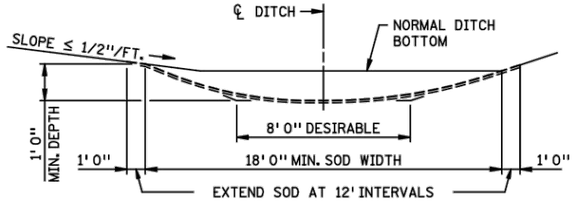
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



PLAN VIEW

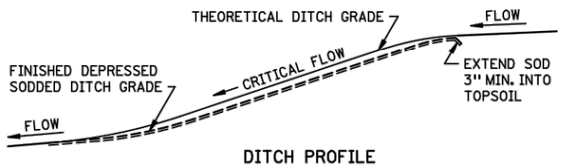


PLAN VIEW



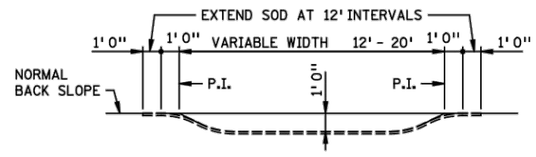
SODDED DITCH CROSS SECTION

WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

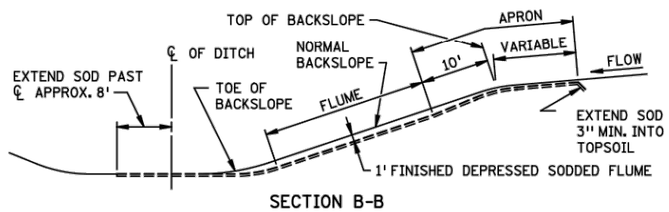


DITCH PROFILE

SODDED DITCH DETAILS



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.404	1 OF 3
APPROVED: 2-28-2017	
REVISED:	

PERMANENT EROSION CONTROL

ALONG ROADWAYS, DITCHES AND FLUMES

CITY PROJECT NO.: 1544	STATE AID PROJECT NO.: 118-090-024	SHEET NO. 20 OF 78

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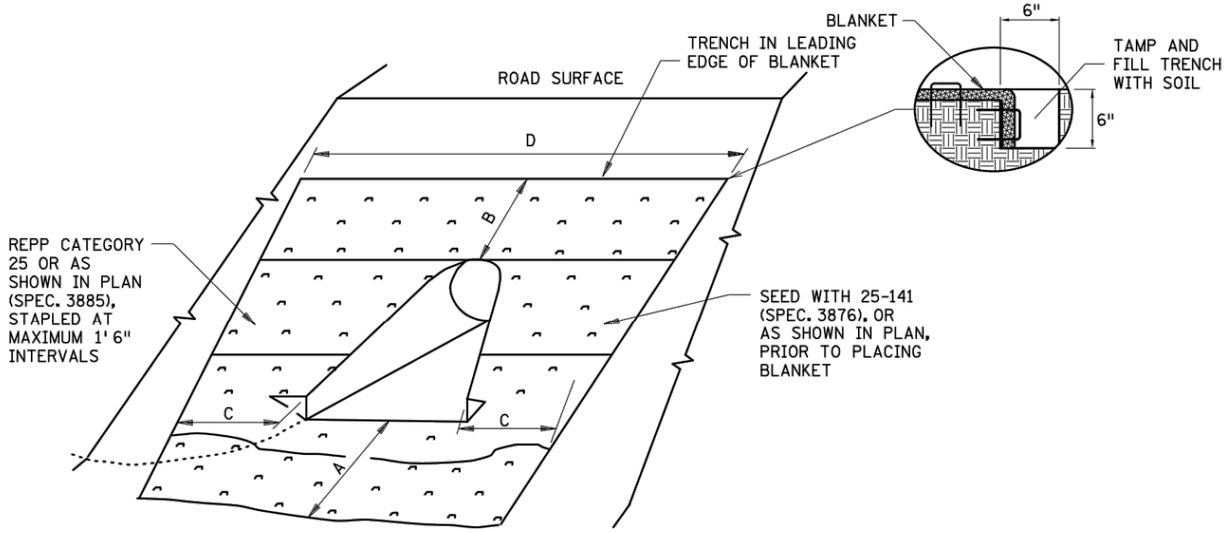


ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL

SOD SHALL BE STAPLED ON THE UPHILL SIDE OF THE ROLL AT 2' INTERVALS ALONG THE LENGTH OF THE ROLL. THREE STAPLES PER SQUARE YARD ARE REQUIRED.

SODDING DETAIL

CULVERT INLET APRON ①										
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT OUTLET APRON ①										
CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21"	16	14	16	18	19	15	6'	1.5'	3'	15'
24"	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'	17'
30"	23	23	24	28	29	N/A	9'	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	23'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	29'
60"	74	63	90	113	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.
② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

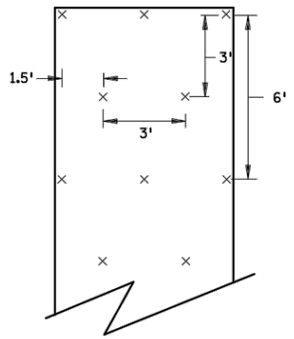
MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 2 OF 3

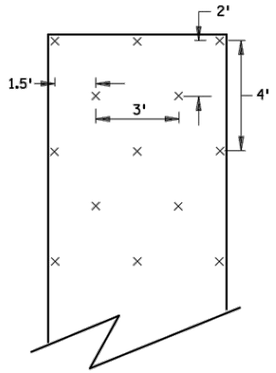
APPROVED: 1-8-2020
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL

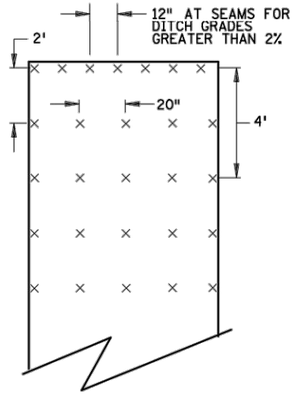
TURF ESTABLISHMENT DETAIL AT CULVERT ENDS



SLOPES FLATTER THAN 1:2
120 STAPLES PER 100 SQ YD

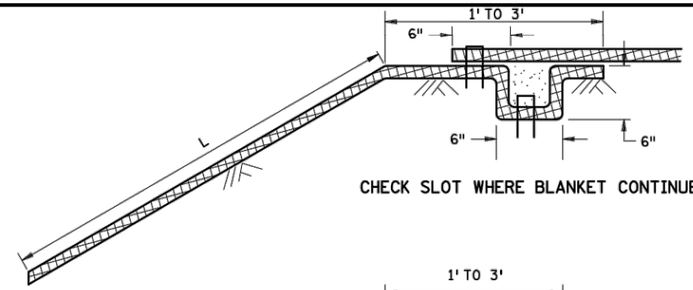


SLOPES 1:2 TO 1:1
170 STAPLES PER 100 SQ YD

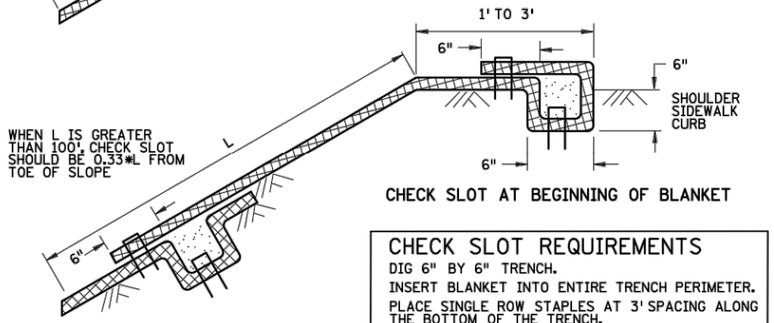


CHANNEL AND DITCH APPLICATIONS
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN



CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

CHECK SLOT REQUIREMENTS

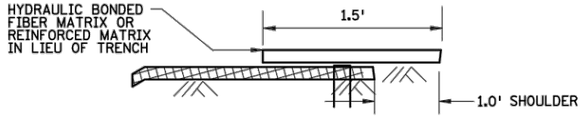
DIG 6" BY 6" TRENCH.

INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.

PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.

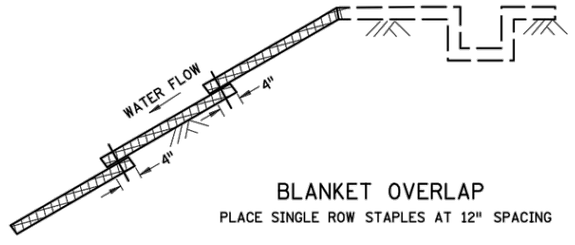
BACKFILL TRENCH WITH SOIL AND TAMP.

PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

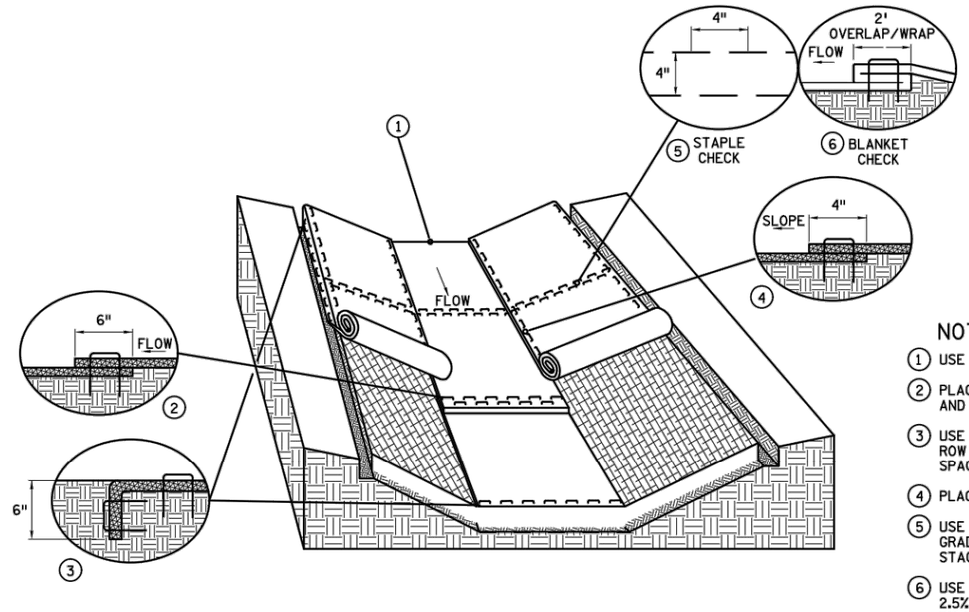


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

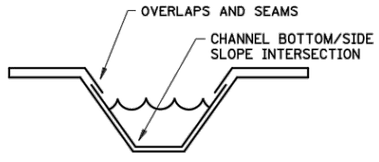
CHECK SLOT DETAILS



BLANKET OVERLAP
PLACE SINGLE ROW STAPLES AT 12" SPACING



DITCH BLANKET STAPLE DETAIL



DITCH BLANKET CRITICAL POINTS (7)

NOTES:

1. USE CHECK SLOT DETAIL (NO ALTERNATES).
2. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
3. USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
4. PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
5. USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5%. GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
6. USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:
   2.5%-3% 100' INTERVALS
   3%-5% 50' INTERVALS
   5%-7% 25' INTERVALS
7. CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.

GENERAL BLANKET INSTALLATION REQUIREMENTS

REPP = ROLLED EROSION PREVENTION PRODUCT.

PREPARE SOIL AS PER SPECIFICATION 2574.

LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".

OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 1.5'.

THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT ⅓ FROM THE BOTTOM OF THE SLOPE.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 3 OF 3

APPROVED: 1-8-2020
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL

REPP (BLANKET) STAPLE PATTERN FOR SLOPES

CITY PROJECT NO.: 1544	STATE AID PROJECT NO.: 118-090-024	SHEET NO. 22 OF 78

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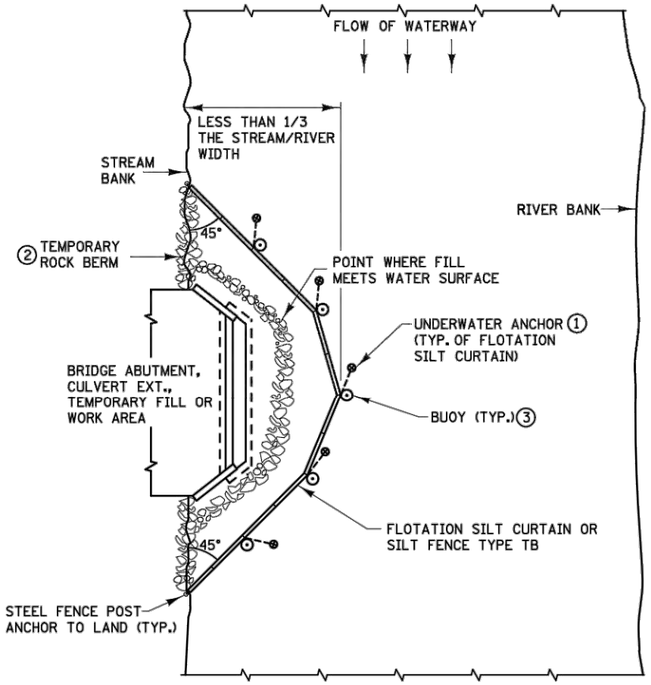
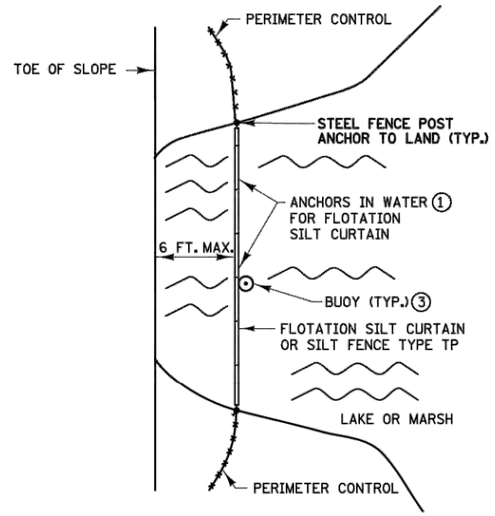
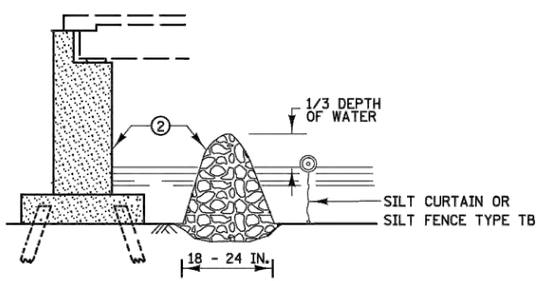


PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤



TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL

INSTALLATION GUIDELINES
SILT FENCE TYPE TB

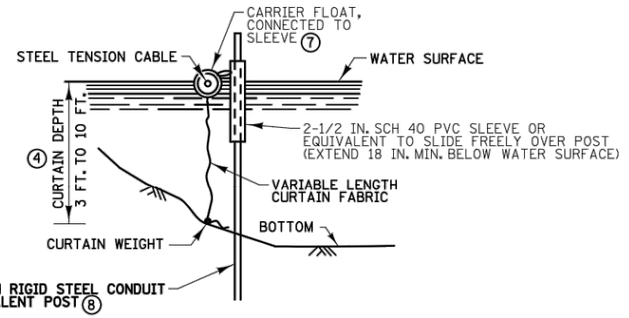
MINIMUM WATER DEPTH: 1 FT.
MAXIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: STILL WATER

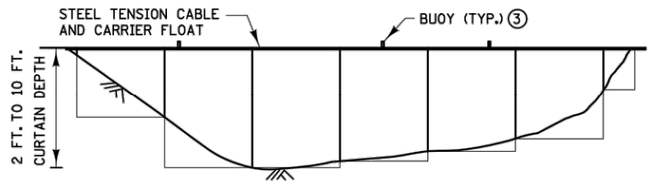
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 2 FT./SEC.
MAXIMUM WAVE HEIGHT: 1 FT

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: MOVING WATER

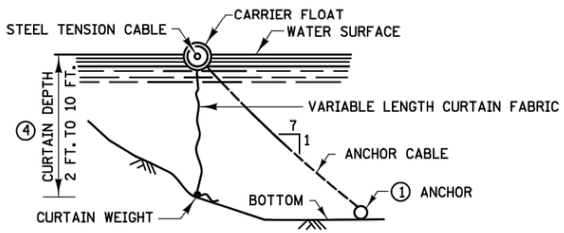
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.
MAXIMUM WAVE HEIGHT: 2 FT.



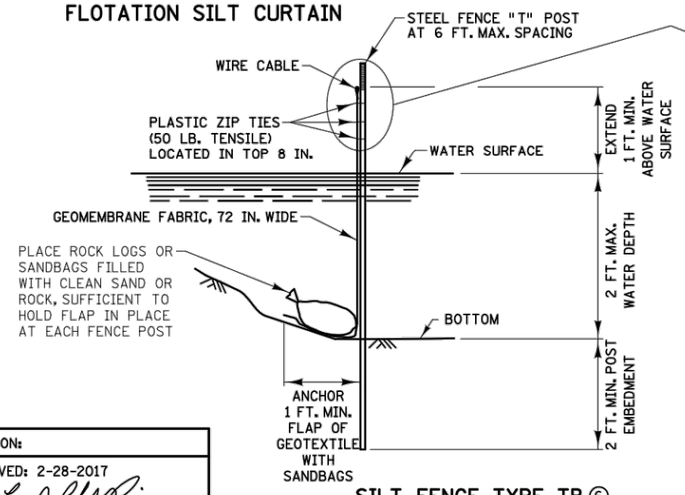
ALTERNATE FLOTATION SILT CURTAIN



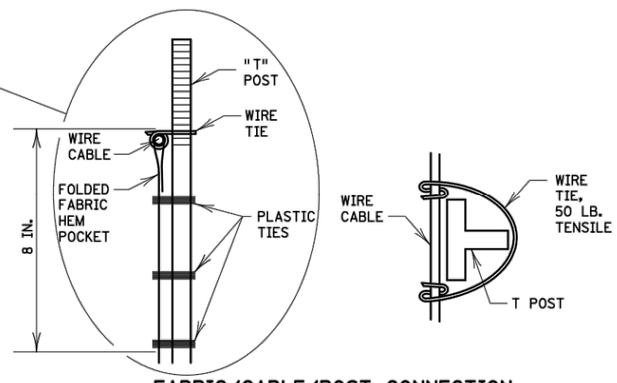
FRONT VIEW FOR FLOTATION SILT CURTAIN



FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥



FABRIC/CABLE/POST CONNECTION

NOTES:

SEE SPECS. 2573, 3886, 3887 & 3893.

① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.

② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.

③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.

④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.

⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.

⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.

⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.

⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 1 OF 8

APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SILT CURTAIN OR SILT FENCE TYPE TB

CITY PROJECT NO.: 1544	STATE AID PROJECT NO.: 118-090-024	SHEET NO. 23 OF 78

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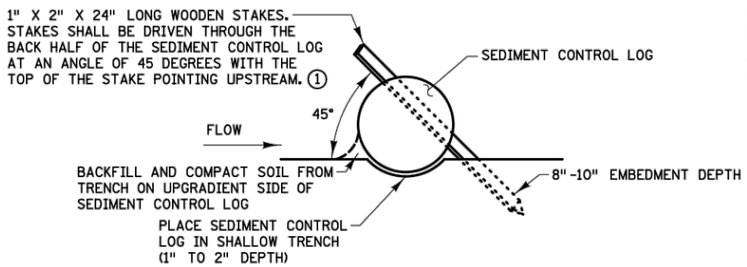
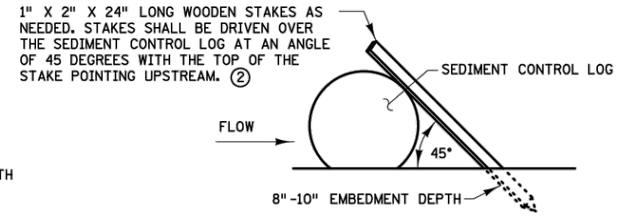
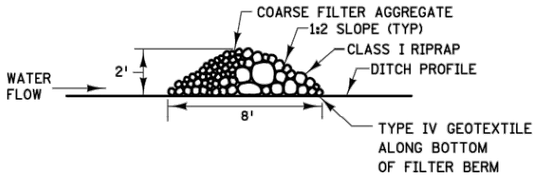


TYPES: STRAW, WOOD FIBER, OR COIR

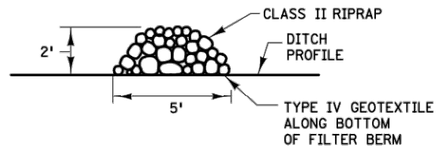


TYPES: WOOD CHIP, COMPOST, OR ROCK

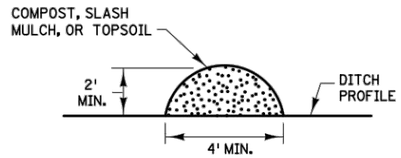
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

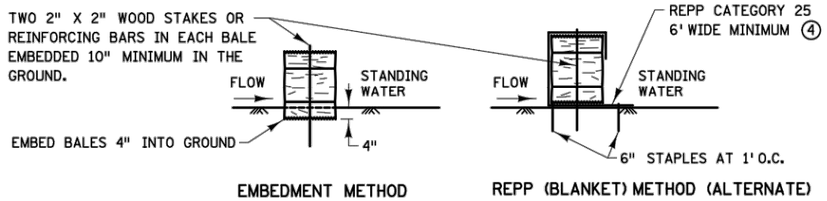


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS(3)

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 2 OF 8

APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024 | SHEET NO. 24 OF 78

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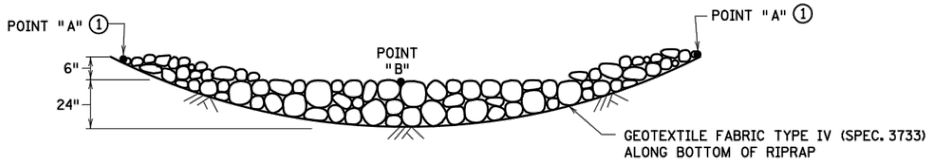
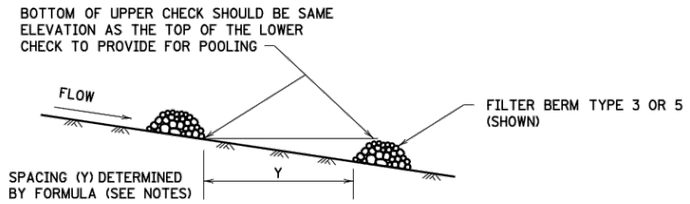
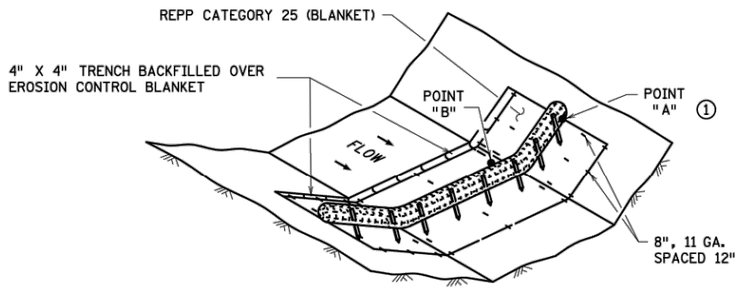
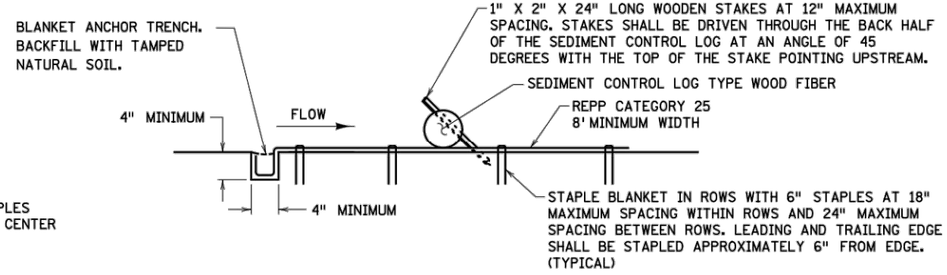


ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③
FOR USE ON ROUGH-GRADED AREAS
ONLY FOR USE OUTSIDE CLEAR ZONE ②

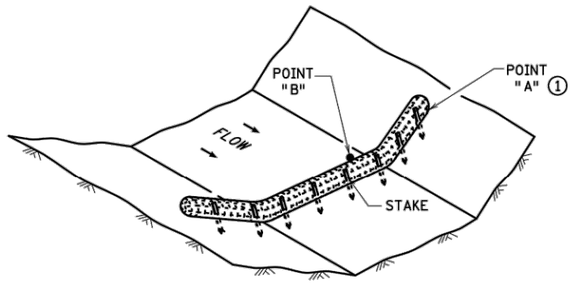


DITCH CHECK SPACING
FOR ALL FILTER BERM TYPES





SEDIMENT CONTROL LOG TYPE REPP (BLANKET) SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
FOR USE ON ROUGH GRADED AREAS

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WI THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT.)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE AND NOT AROUND THE ENDS.

② ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC.

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC.

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

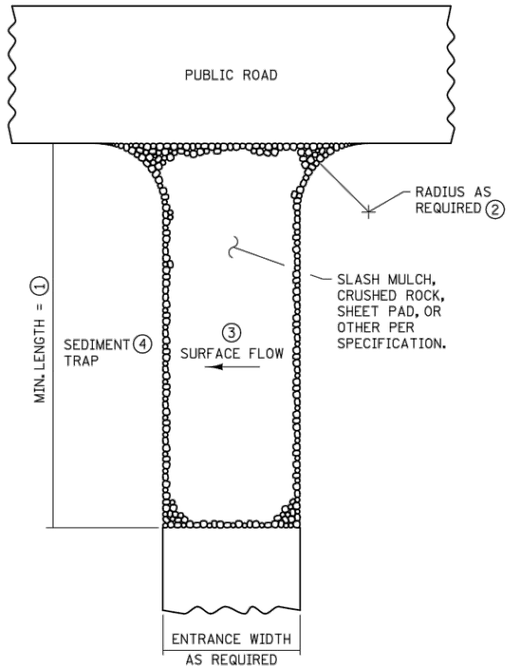
MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 3 OF 8

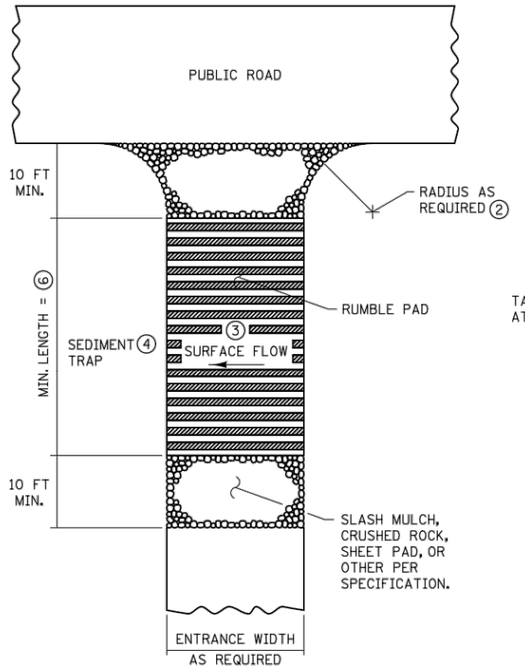
APPROVED: 1-8-2020
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

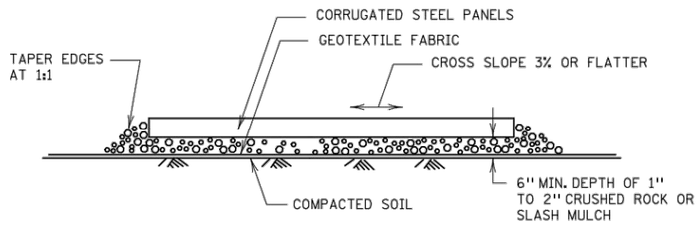
CITY PROJECT NO.: 1544	STATE AID PROJECT NO.: 118-090-024	SHEET NO. 25 OF 78



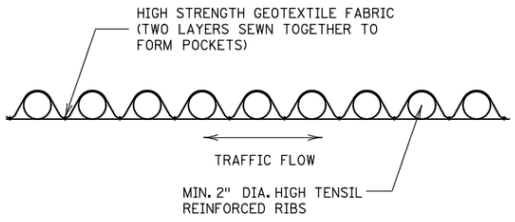
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



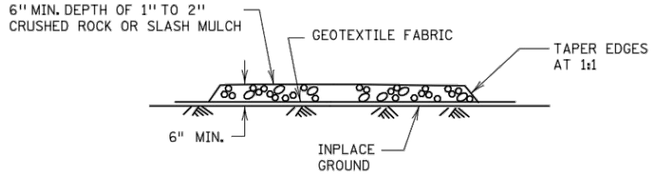
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.405 | 5 OF 8

APPROVED: 2-28-2017

REVISED:

TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

CITY PROJECT NO.:	1544	STATE AID PROJECT NO.:	118-090-024	SHEET NO. 26 OF 78

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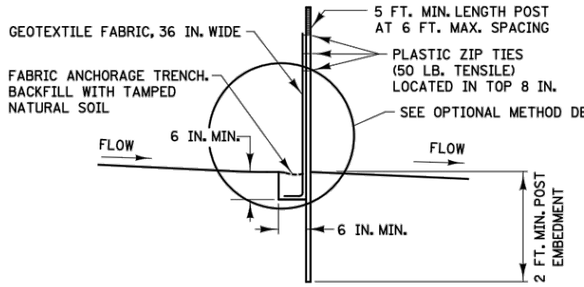
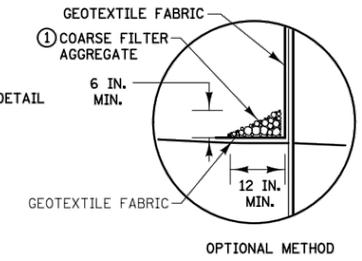
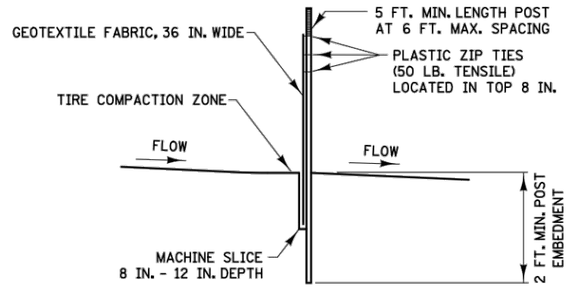


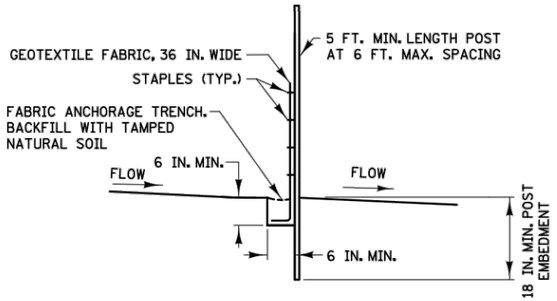


OPTIONAL METHOD

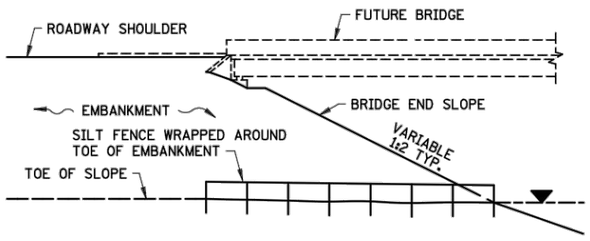
SILT FENCE TYPE HI ②
(HAND INSTALLED)



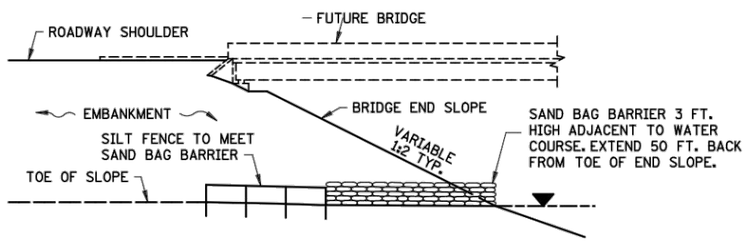
SILT FENCE TYPE MS ②
(MACHINE SLICED)



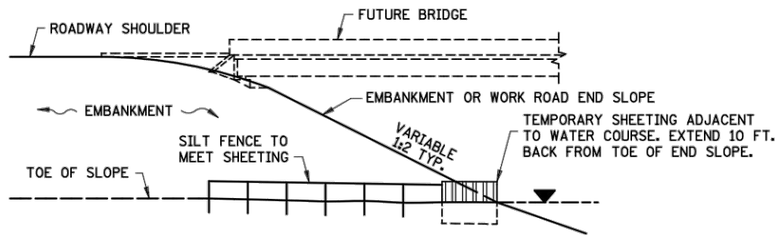
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

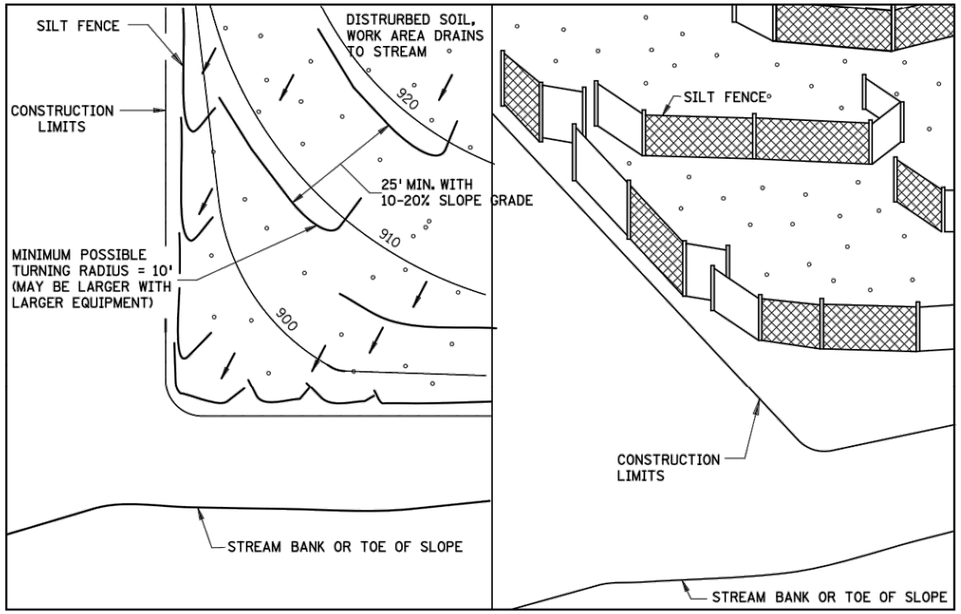


SILT FENCE WITH SAND BAGS ⑤

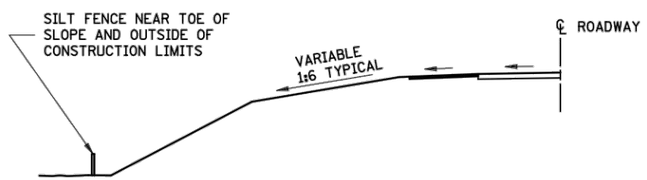


SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:
SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.405 | 6 OF 8

APPROVED: 2-28-2017
REVISED:

TEMPORARY SEDIMENT CONTROL
SILT FENCE

CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024 | SHEET NO. 27 OF 78

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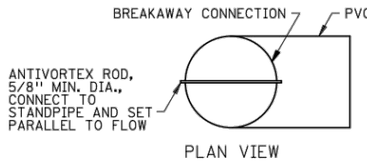
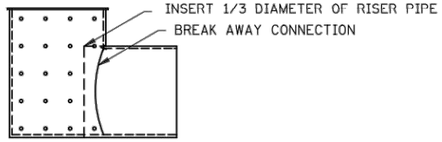
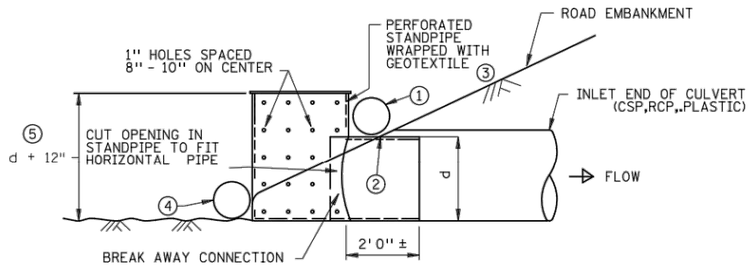


PLAN VIEW



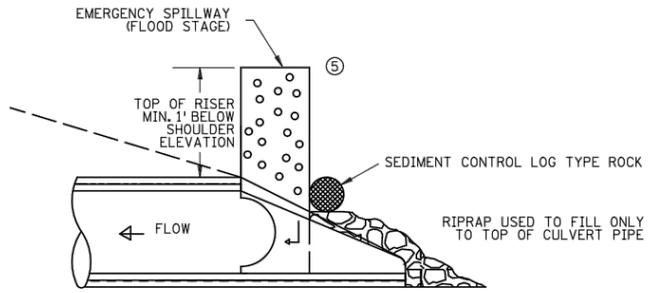
CULVERT STANDPIPE



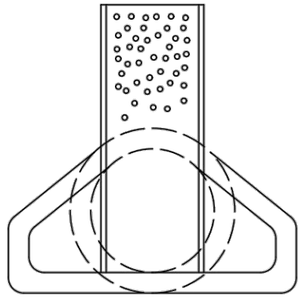
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

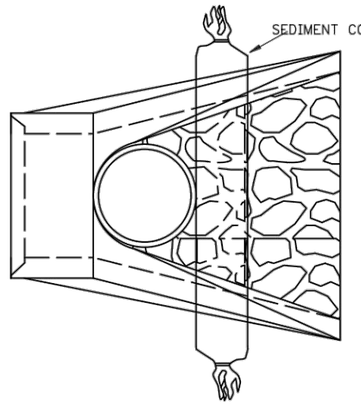
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



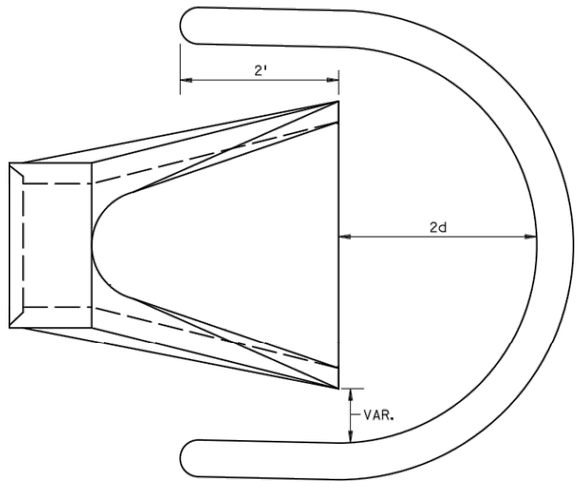
END VIEW



NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER

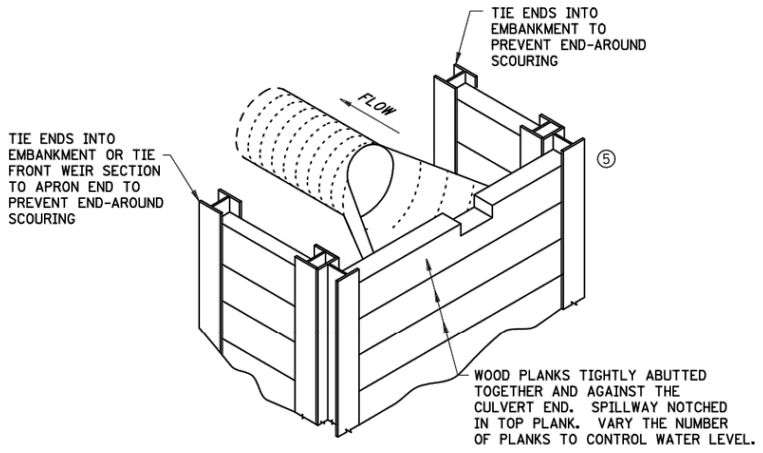
TOP VIEW

CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR (COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12"-36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.

MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.

② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.

③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.

④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.

⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 8 OF 8

APPROVED: 2-28-2017

REVISED:

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

CULVERT END CONTROLS

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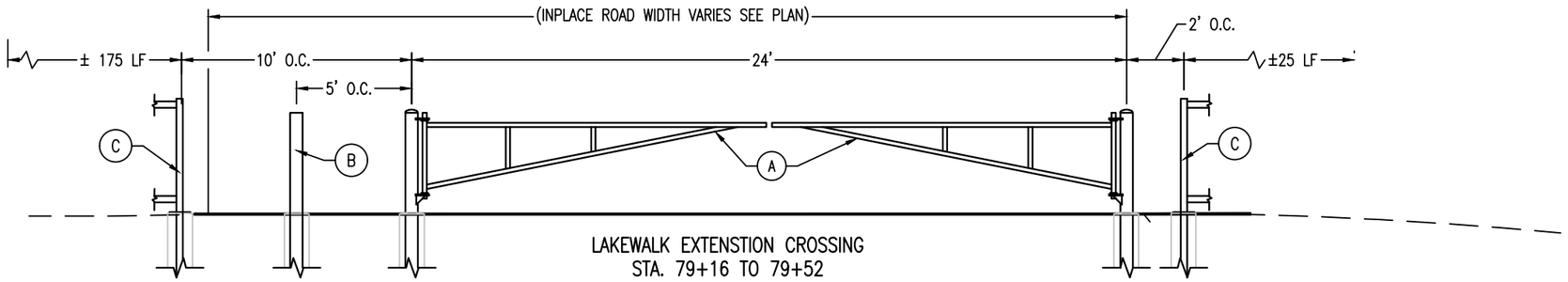
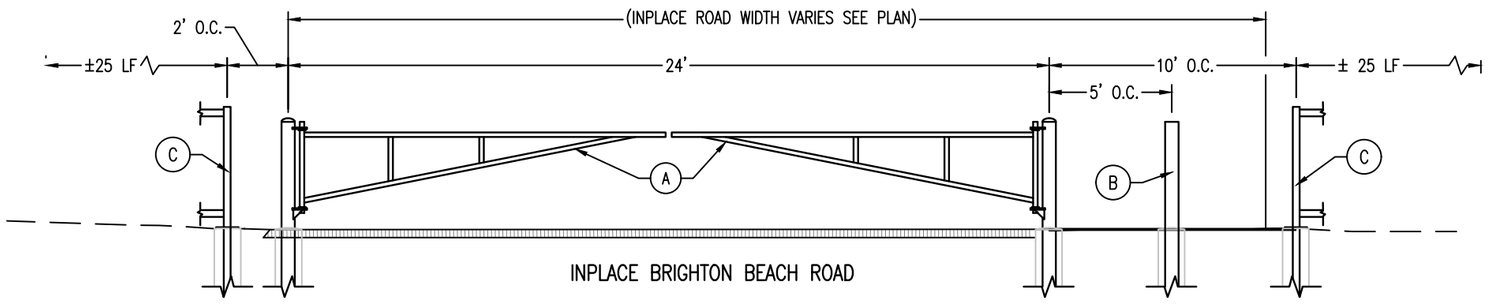
ENTRANCE GATE AND BOLLARD INSTALLATION LAYOUT (TYPICAL)



LAKEWALK EXTENSTION CROSSING
STA. 79+16 TO 79+52



INPLACE BRIGHTON BEACH ROAD

LAKEWALK EXTENSION
STA. 121+50

NOTES

(A) VEHICULAR GATE ASSEMBLY INCLUDING POSTS (SUPPLIED BY CITY OF DULUTH). GATE POST INSTALLED AS PER CITY OF DULUTH STD DETAIL G-33 (SHEET 30)

(B) STEEL BOLLARDS BY CONTRACTOR INSTALL AS PER CITY OF DULUTH STD DETAIL G-33 (SHEET 30)

(C) WIRE FENCE TYPE 48v9332. INSTALL AS DIRECTED BY ENGINEER.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION DETAILS

SHEET NO. 29 OF 78

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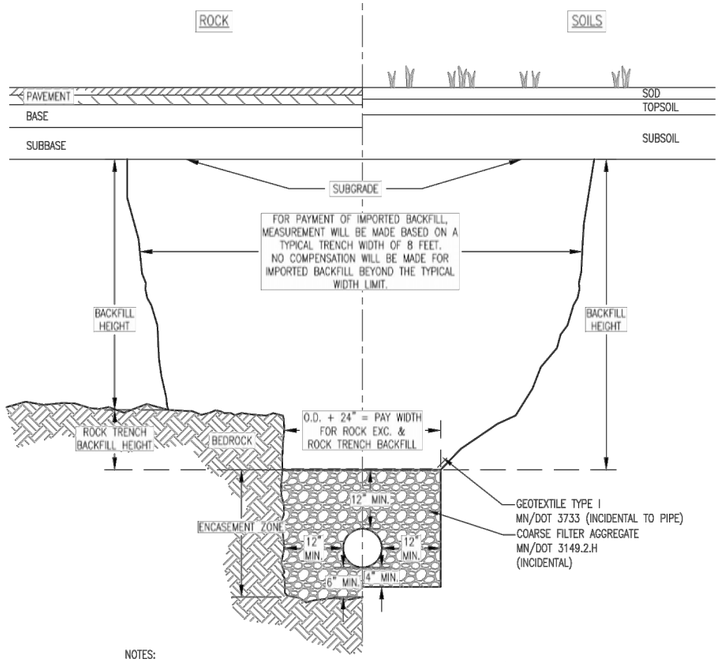
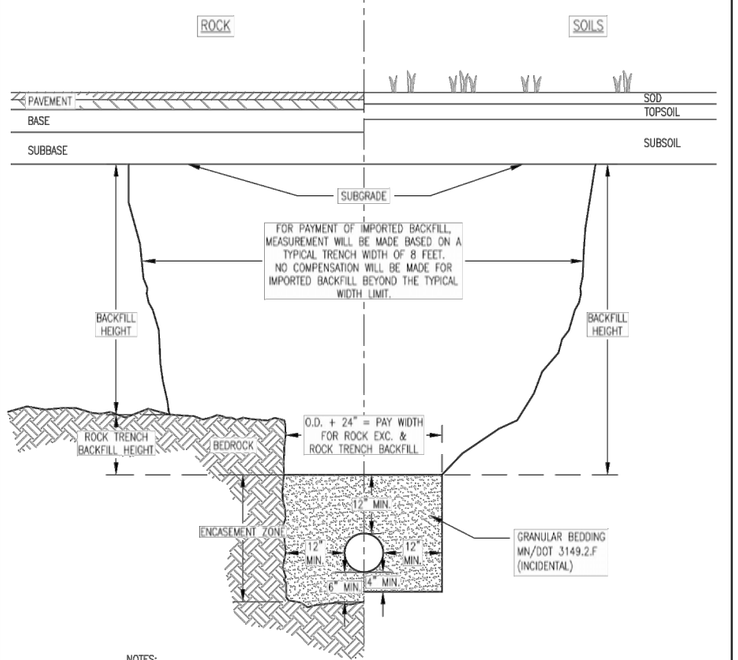


NOTES:
1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING		EX-3
REVISED/APPROVED 04/05/2019	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



NOTES:
1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

CONCRETE STORM SEWER BEDDING		EX-4
REVISED/APPROVED 04/05/2019	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

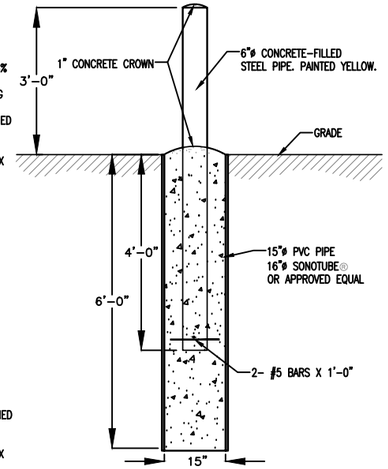
NOTES
1. MULTIPLE BOLLARDS SHALL BE SPACED AT 4' ON CENTER
2. BACKFILL BOLLARD WITH WASTE CUTTINGS, COMPACT TO 95% MAXIMUM DENSITY.
3. BOLLARD SHALL BE FINISHED WITH ONE OF THE FOLLOWING METHODS:

A. COVERED WITH A HDPE PLASTIC BOLLARD SLEEVE DESIGNED TO FIT OVER A 6" PIPE BOLLARD. THE SLEEVE SHALL HAVE A SMOOTH FINISH, DOME TOP, AND BE YELLOW IN COLOR. AN ADHESIVE SEALANT SHALL BE USED TO AFFIX THE SLEEVE TO THE BOLLARD.

B. PAINTED TO THE FOLLOWING SPECIFICATIONS

SURFACE PREPARATION	BLAST TO THE EXTENT OF AN SSPC-SP6 COMMECIAL-GRADE LEVEL OF CLEANLINESS AND PRIME BEFORE ANY RUST BLOOM REFORMS
PRIMER	APPLY ONE EVEN COAT OF TNEMEC SERIES 69-COLOR PRIMER TO A DFT OF 5.0 MILS
FIELD FINISH	APPLY ONE EVEN COAT OF TNEMEC SERIES 69-COLOR TO A DFT OF 5.0 MILS
FINAL FINISH	APPLY ONE COAT TNEMEC SERIES 73-COLOR TO A DFT OF 2.0-2.5 MILS OVER THE FIELD FINISH
COLORS	BOLLARDS: SAFETY YELLOW

C. COVERED WITH A HDPE PLASTIC BOLLARD SLEEVE DESIGNED TO FIT OVER A 6" PIPE BOLLARD. THE SLEEVE SHALL HAVE A SMOOTH FINISH, DOME TOP, AND BE YELLOW IN COLOR. AN ADHESIVE SEALANT SHALL BE USED TO AFFIX THE SLEEVE TO THE BOLLARD.



BOLLARD DETAIL		G-33
REVISED/APPROVED 02/19/2015	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis — PATRICK F. LOOMIS (TYPE NAME) — DATE: 4/8/2020 — LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION DETAILS

SHEET NO. 30 OF 78

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ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
1	POT	76+15.250						4,869,196.335	3,361,763.957	
	PC	76+57.916						4,869,233.933	3,361,784.126	N 61° 47' 20.7" E
C1	PI	76+78.318	18° 32' 23.5" RT	45° 50' 11.8"	125.000'	20.402'	40.448'	4,869,251.911	3,361,793.770	PI
	CC							4,869,293.023	3,361,673.974	
	PT	76+98.364						4,869,272.024	3,361,797.198	N 80° 19' 44.3" E
	PC	77+42.357						4,869,315.392	3,361,804.588	N 80° 19' 44.3" E
C2	PI	77+96.820	27° 12' 51.3" LT	25° 27' 53.2"	225.000'	54.463'	106.870'	4,869,369.081	3,361,813.737	PI
	CC							4,869,277.594	3,362,026.391	
	PT	78+49.228						4,869,412.643	3,361,846.427	N 53° 06' 53.0" E
	PC	79+17.464						4,869,467.221	3,361,887.384	N 53° 06' 53.0" E
C3	PI	79+96.762	11° 19' 17.6" RT	7° 09' 43.1"	800.000'	79.298'	158.079'	4,869,530.647	3,361,934.979	PI
	CC							4,869,947.393	3,361,247.512	
	PT	80+75.543						4,869,602.181	3,361,969.197	N 64° 26' 10.6" E
	PC	81+36.898						4,869,657.530	3,361,995.673	N 64° 26' 10.6" E
C4	PI	82+11.020	20° 59' 46.4" LT	14° 19' 26.2"	400.000'	74.122'	146.581'	4,869,724.396	3,362,027.657	PI
	CC							4,869,484.924	3,362,356.515	
	PT	82+83.479						4,869,775.362	3,362,081.477	N 43° 26' 24.3" E
	PC	87+06.102						4,870,065.955	3,362,388.340	N 43° 26' 24.3" E
C5	PI	87+11.984	1° 20' 53.3" LT	11° 27' 33.0"	500.000'	5.883'	11.765'	4,870,070.000	3,362,392.612	PI
	CC							4,869,702.908	3,362,732.138	
	PT	87+17.866						4,870,073.943	3,362,396.977	N 42° 05' 31.0" E
	PC	87+72.822						4,870,110.781	3,362,437.758	N 42° 05' 31.0" E
C6	PI	88+06.748	15° 27' 22.2" LT	22° 55' 05.9"	250.000'	33.926'	67.440'	4,870,133.522	3,362,462.934	PI
	CC							4,869,925.263	3,362,605.339	
	PT	88+40.262						4,870,148.732	3,362,493.259	N 26° 38' 08.8" E
	PC	88+95.595						4,870,173.539	3,362,542.720	N 26° 38' 08.8" E
C7	PI	89+13.071	13° 17' 27.2" RT	38° 11' 49.9"	150.000'	17.476'	34.795'	4,870,181.373	3,362,558.341	PI
	CC							4,870,307.620	3,362,475.472	
	PT	89+30.390						4,870,192.590	3,362,571.743	N 39° 55' 36.0" E
	PC	89+84.635						4,870,227.405	3,362,613.342	N 39° 55' 36.0" E
C8	PI	90+10.029	19° 13' 02.5" RT	38° 11' 49.9"	150.000'	25.394'	50.311'	4,870,243.703	3,362,632.815	PI
	CC							4,870,342.434	3,362,517.071	
	PT	90+34.946						4,870,265.502	3,362,645.839	N 59° 08' 38.5" E
	PC	91+04.651						4,870,325.341	3,362,681.590	N 59° 08' 38.5" E
C9	PI	91+25.920	16° 08' 25.6" LT	38° 11' 49.9"	150.000'	21.269'	42.256'	4,870,343.600	3,362,692.498	PI
	CC							4,870,248.409	3,362,810.359	
	PT	91+46.907						4,870,358.106	3,362,708.052	N 43° 00' 12.9" E
	PC	92+10.863						4,870,401.727	3,362,754.824	N 43° 00' 12.9" E
C10	PI	92+45.102	1° 34' 09.5" RT	2° 17' 30.6"	2,500.000'	34.239'	68.474'	4,870,425.079	3,362,779.864	PI
	CC							4,872,230.004	3,361,049.714	
	PT	92+79.337						4,870,449.109	3,362,804.254	N 44° 34' 22.5" E
	PC	95+25.906						4,870,622.155	3,362,979.900	N 44° 34' 22.5" E
C11	PI	95+61.754	16° 19' 12.9" RT	22° 55' 05.9"	250.000'	35.848'	71.211'	4,870,647.314	3,363,005.436	PI
	CC							4,870,800.245	3,362,804.446	
	PT	95+97.117						4,870,678.635	3,363,022.874	N 60° 53' 35.4" E
	PC	97+42.204						4,870,805.400	3,363,093.450	N 60° 53' 35.4" E
C12	PI	97+88.171	16° 15' 34.8" LT	17° 48' 20.8"	321.782'	45.967'	91.317'	4,870,845.562	3,363,115.811	PI
	CC							4,870,648.872	3,363,374.596	
	PT	98+33.521						4,870,877.857	3,363,148.522	N 44° 38' 00.6" E
	PC	102+60.069						4,871,177.537	3,363,452.060	N 44° 38' 00.6" E

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
C13	PI	103+11.729	23° 21' 00.8" RT	22° 55' 05.9"	250.000'	51.659'	101.885'	4,871,213.831	3,363,488.822	PI
	CC							4,871,355.441	3,363,276.418	
	PT	103+61.954						4,871,261.723	3,363,508.187	N 67° 59' 01.4" E
	PC	105+01.336						4,871,390.941	3,363,560.437	N 67° 59' 01.4" E
C14	PI	106+24.804	52° 34' 01.7" LT	22° 55' 05.9"	250.000'	123.468'	229.367'	4,871,505.406	3,363,606.722	PI
	CC							4,871,297.224	3,363,792.207	
	PT	107+30.703						4,871,538.228	3,363,725.748	N 15° 24' 59.7" E
	PC	107+96.751						4,871,555.786	3,363,789.419	N 15° 24' 59.7" E
C15	PI	108+49.765	26° 30' 59.0" RT	25° 27' 53.2"	225.000'	53.014'	104.130'	4,871,569.879	3,363,840.526	PI
	CC							4,871,772.690	3,363,729.606	
	PT	109+00.880						4,871,605.307	3,363,879.965	N 41° 55' 58.7" E
	PC	109+77.839						4,871,656.735	3,363,937.216	N 41° 55' 58.7" E
C16	PI	109+91.725	1° 59' 19.8" RT	7° 09' 43.1"	800.000'	13.886'	27.769'	4,871,666.014	3,363,947.546	PI
	CC							4,872,251.876	3,363,402.607	
	PT	110+05.608						4,871,675.647	3,363,957.548	N 43° 55' 18.5" E
	PC	112+54.964						4,871,848.619	3,364,137.156	N 43° 55' 18.5" E
C17	PI	113+71.432	17° 39' 14.3" LT	7° 38' 22.0"	750.000'	116.468'	231.090'	4,871,929.410	3,364,221.046	PI
	CC							4,871,308.403	3,364,657.413	
	PT	114+86.054						4,871,980.955	3,364,325.487	N 26° 16' 04.2" E
	PC	115+36.800						4,872,003.413	3,364,370.993	N 26° 16' 04.2" E
C18	PI	115+92.457	25° 06' 06.6" LT	22° 55' 05.9"	250.000'	55.657'	109.527'	4,872,028.045	3,364,420.903	PI
	CC							4,871,779.230	3,364,481.635	
	PT	116+46.328						4,872,029.178	3,364,476.548	N 1° 09' 57.6" E
	PC	117+28.852						4,872,030.857	3,364,559.055	N 1° 09' 57.6" E
C19	PI	118+41.018	25° 17' 16.1" RT	11° 27' 33.0"	500.000'	112.166'	220.678'	4,872,033.140	3,364,671.198	PI
	CC							4,872,530.754	3,364,548.881	
	PT	119+49.530						4,872,083.107	3,364,771.619	N 26° 27' 13.7" E
	PC	120+88.976						4,872,145.227	3,364,896.464	N 26° 27' 13.7" E
C20	PI	121+11.875	10° 28' 00.5" LT	22° 55' 05.9"	250.000'	22.899'	45.670'	4,872,155.427	3,364,916.965	PI
	CC							4,871,921.403	3,365,007.833	
	PT	121+34.646						4,872,161.734	3,364,938.978	N 15° 59' 13.2" E
	PC	121+85.829						4,872,175.831	3,364,988.181	N 15° 59' 13.2" E
C21	PI	122+22.308	29° 12' 34.3" RT	40° 55' 32.0"	140.000'	36.480'	71.372'	4,872,185.878	3,365,023.250	PI
	CC							4,872,310.416	3,364,949.623	
	PT	122+57.201						4,872,211.761	3,365,048.957	N 45° 11' 47.4" E
2	POT	123+09.405						4,872,248.802	3,365,085.744	

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

ALIGNMENT TABULATIONS

SHEET NO. 31 OF 78

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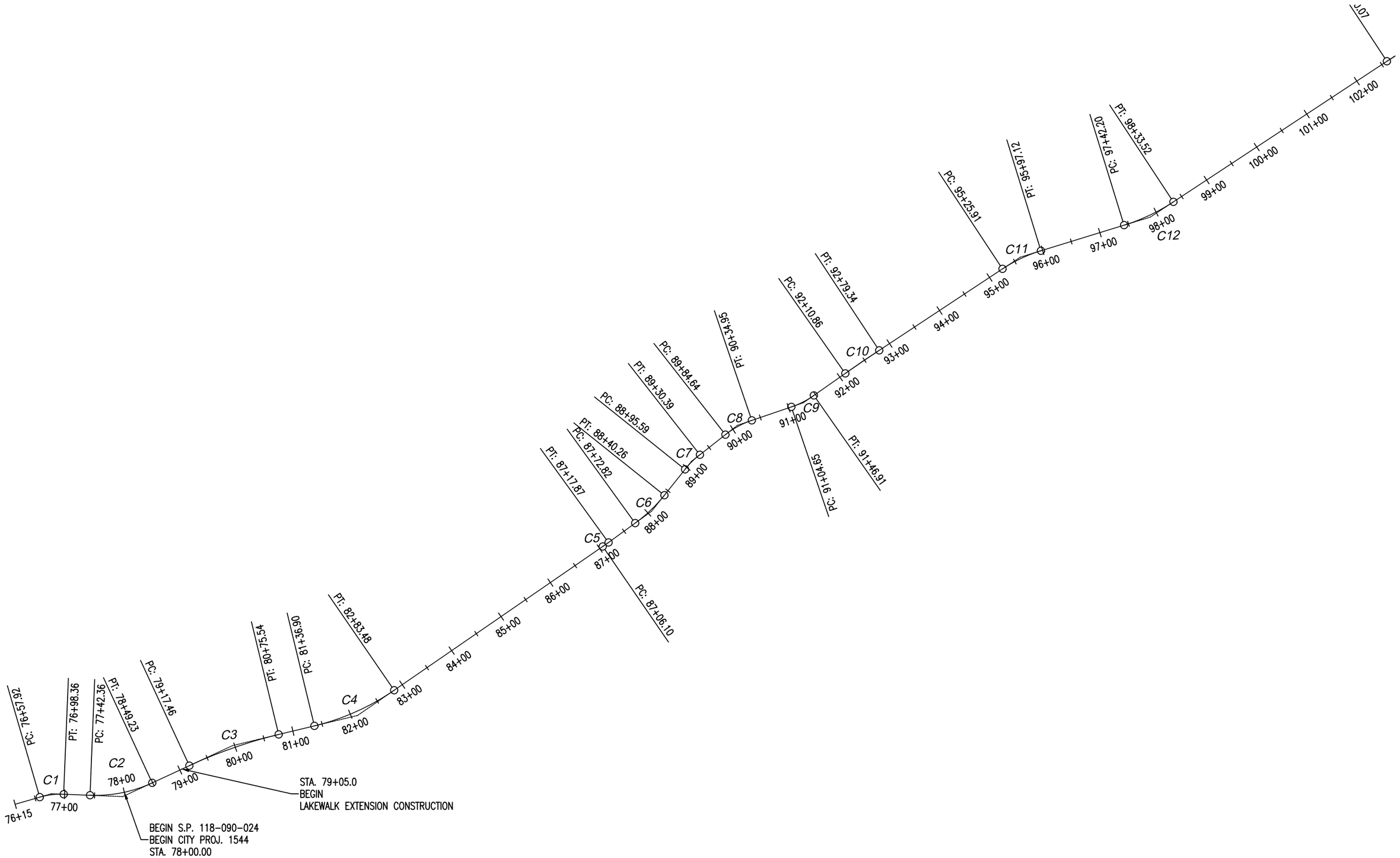

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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DATE: 4/8/2020

LIC. NO: 49099

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

ALIGNMENT TABULATIONS

SHEET NO. 32 OF 78

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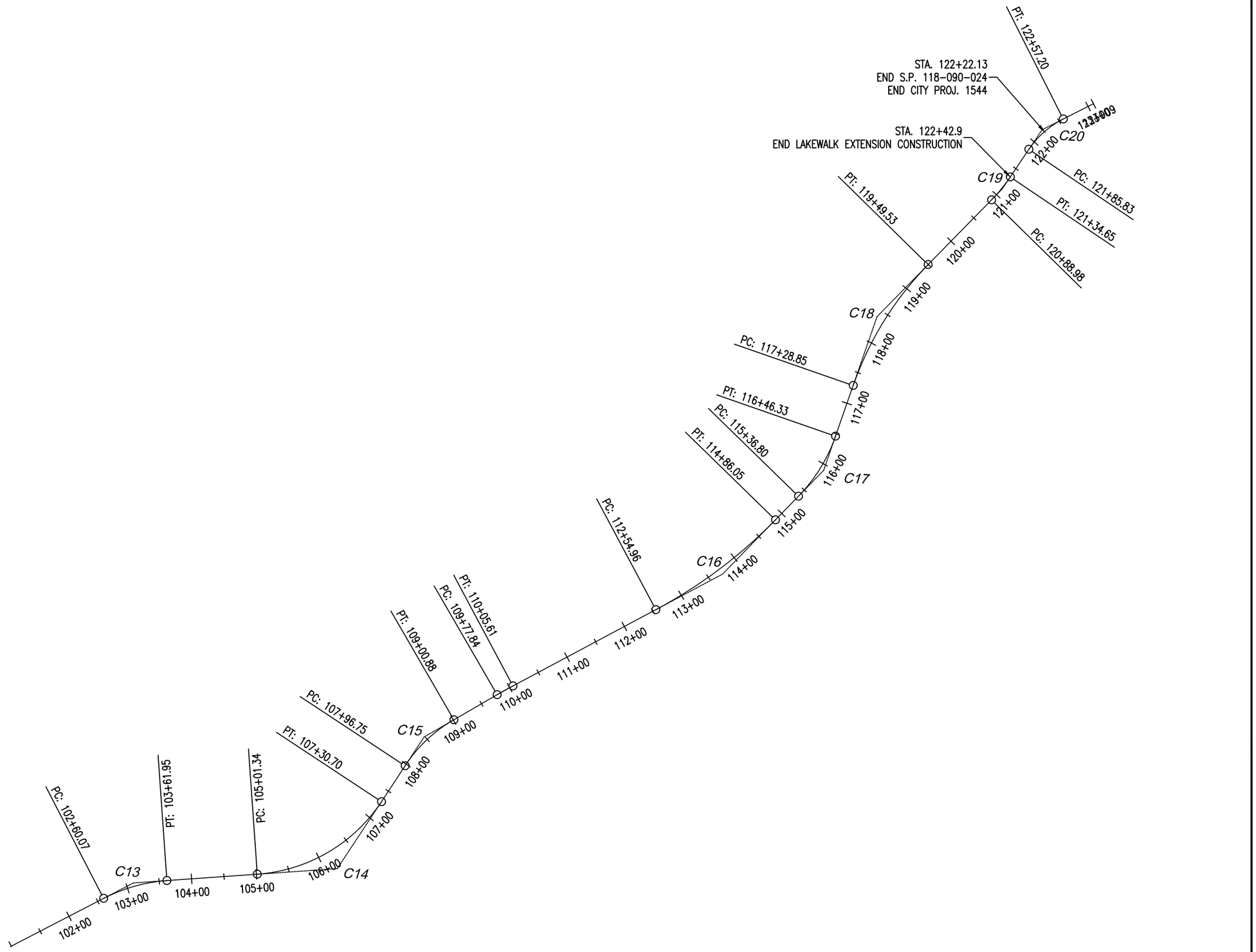

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LAKE WALK EXTENSION – BRIGHTON BEACH

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STATE AID PROJECT NO.: 118-090-024

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ALIGNMENT TABULATIONS

SHEET NO. 33 OF 78

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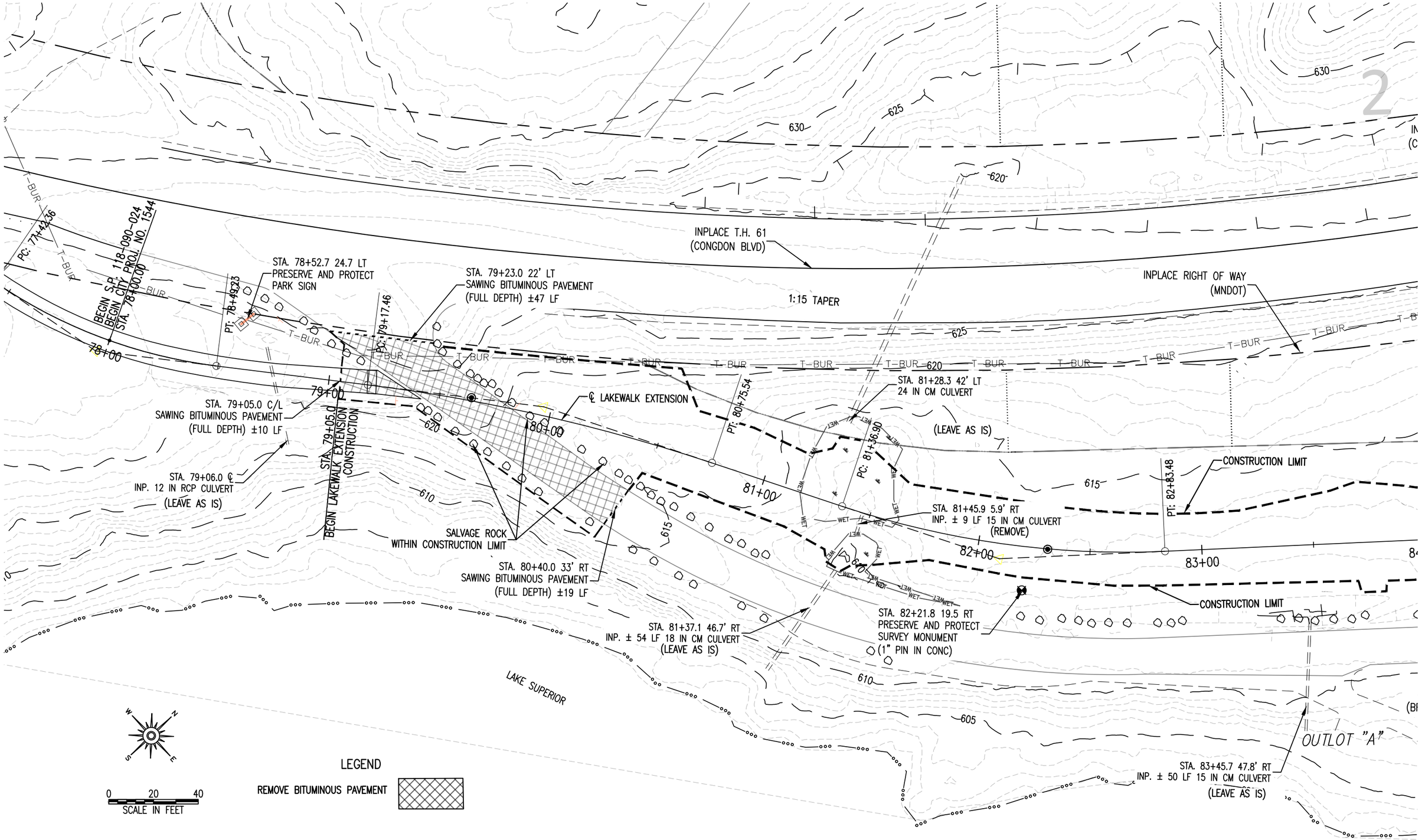

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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

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DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 34 OF 78

INPLACE T.H. 62
(CONGDON BLVD)

INPLACE RIGHT OF WAY
(MNDOT)

CENTURY LINK

INPLACE RIGHT OF WAY
(CITY OF DULUTH)

CONSTRUCTION LIMIT

℄ LAKEWALK EXTENSION

CONSTRUCTION LIMIT

STA. 86+19.2' 30' RT
INP. ± 9 LF 12 IN CM CULVERT
(LEAVE AS IS)

STA. 86+82.1' 22.5' RT
PRESERVE AND PROTECT
SURVEY MONUMENT
(X IN LEDGE ROCK)

STA. 87+40.0' 32' RT
INP. ± 10 LF 12 IN CM CULVERT
(LEAVE AS IS)

INPLACE ALIGNMENT
(BRIGHTON BEACH ROAD)

UTLOT "A"

LAKE SUPERIOR

PC: 87+06.10
PT: 87+17.87
PC: 87+72.82
PT: 88+40.26
PC: 88+95.59
PT: 89+30.39
PC: 89+84.64

84+00 85+00 86+00 87+00 88+00 89+00

T-BUR WET MEM-B

LEGEND

REMOVE BITUMINOUS PAVEMENT

0 20 40
SCALE IN FEET

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SIGNATURE: Patrick Loomis

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TYPE NAME

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ENGINEERING DIVISION
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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 35 OF 78

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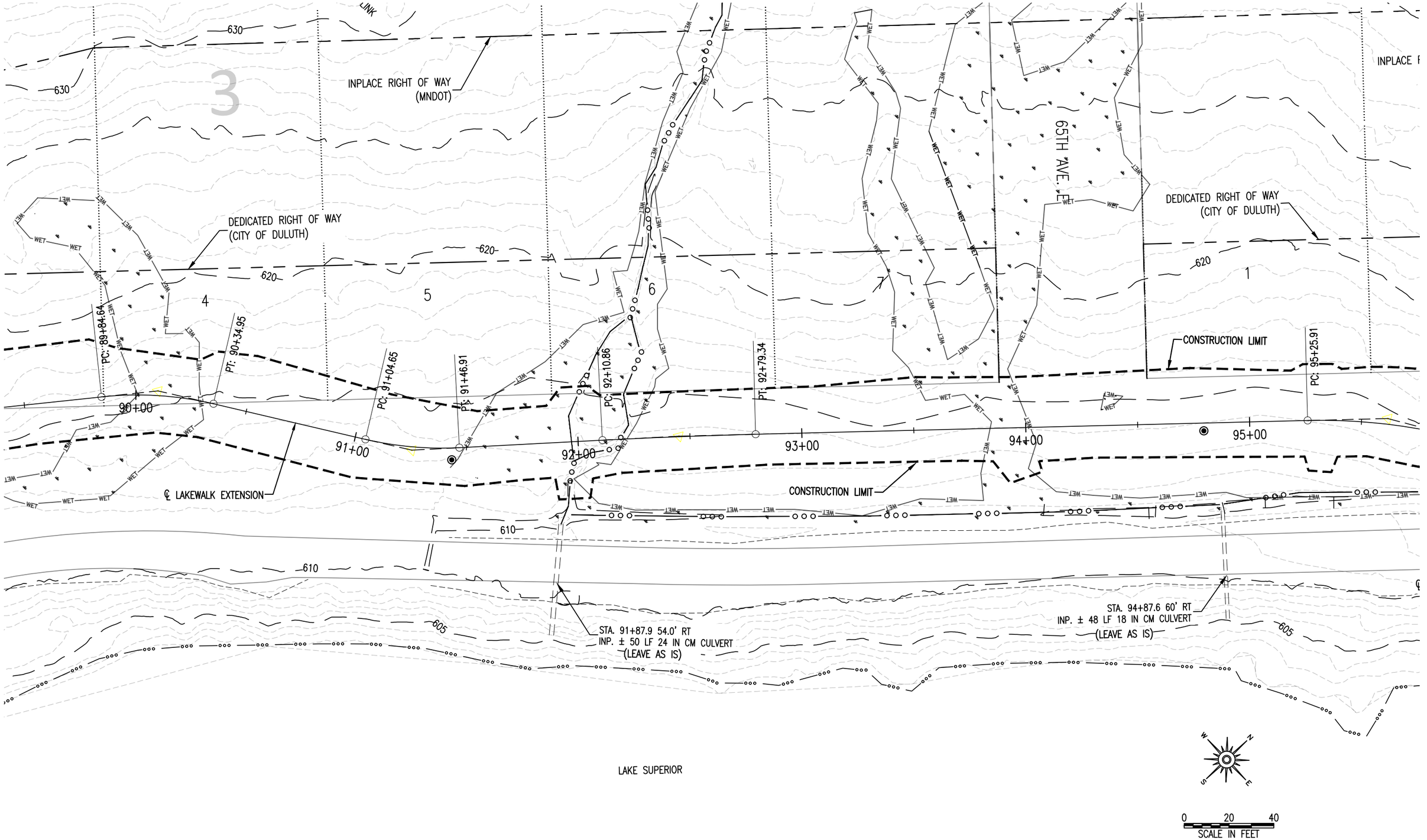

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SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 36 OF 78

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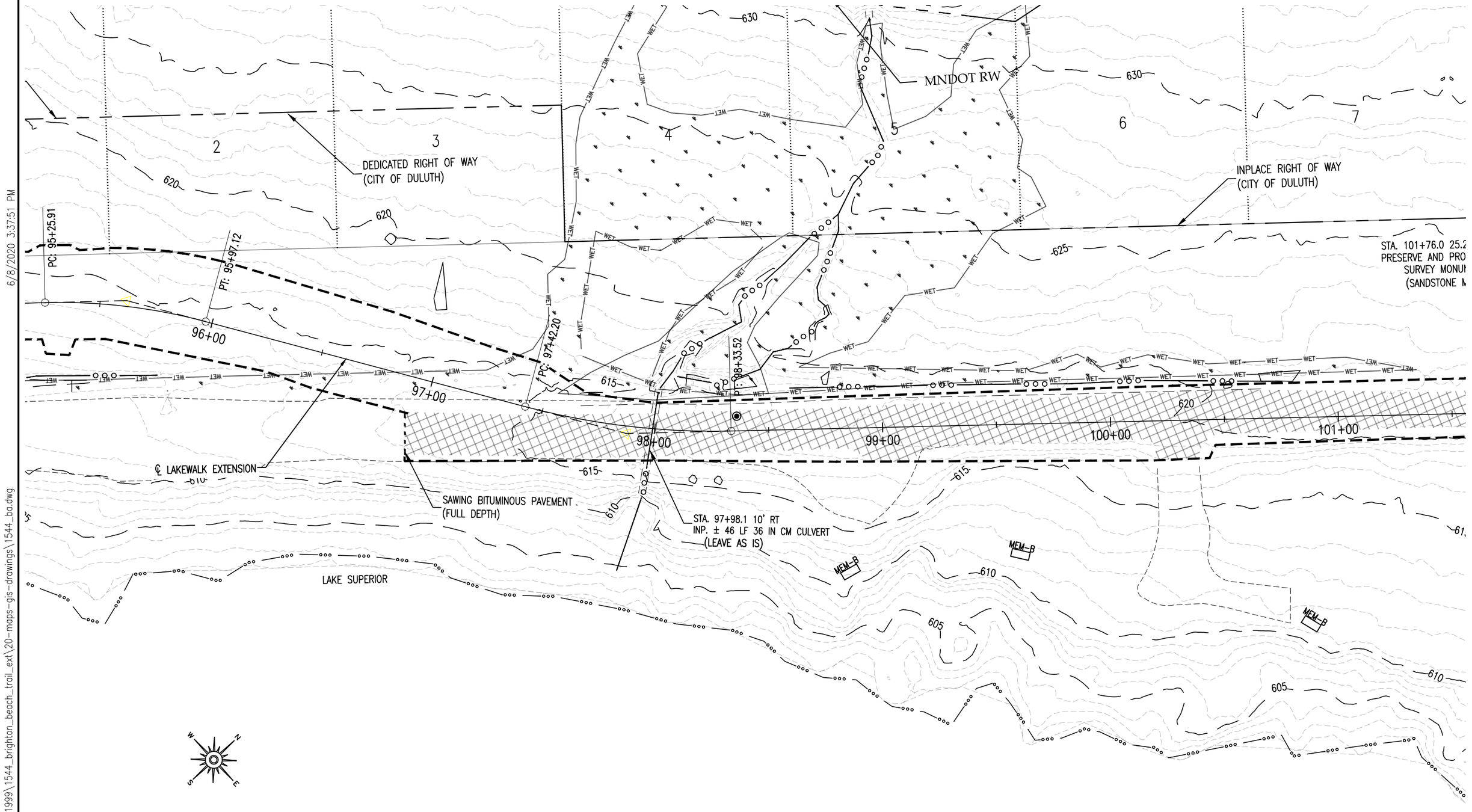

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LAKE WALK EXTENSION – BRIGHTON BEACH

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STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 37 OF 78

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.0 25.2' LT
ND PROTECT
MONUMENT
TONE MON.)

INPLACE RIGHT OF WAY
(CITY OF DULUTH)

68TH AVE. E CREEK

STA. 103+84.0 35' LT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±19 LF

STA. 104+03.5 42.9' LT
INP. ± 40 LF 15 IN CM CULVERT
(LEAVE AS IS)

STA. 108+11.0 33.3' LT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±19 LF

CONSTRUCTION LIMIT

PC: 102+60.07

PT: 103+61.95

BRIGHTON BEACH ROAD

PC: 102+96.75

STA. 105+30.0 26' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±100 LF

RELOCATE
BENCH

STA. 106+38.0 23' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ± 23 LF

PT: 107+30.70

PC: 105+01.34

STA. 102+40.0 17' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±22 LF

SALVAGE ROCK
WITHIN CONSTRUCTION LIMITS

CONSTRUCTION LIMIT

STA. 104+87.0 19' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±24 LF

℄ LAKEWALK EXTENSION

STA. 106+64.0 16' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±12 LF

STA. 103+89.8 77.8' RT
INP. ± 27 LF 18 IN CM CULVERT
(LEAVE AS IS)

SALVAGE ROCK
WITHIN CONSTRUCTION LIMITS

STA. 105+73.0 17.5' RT
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±14 LF

LAKE SUPERIOR

LEGEND

REMOVE BITUMINOUS PAVEMENT

0 20 40
SCALE IN FEET

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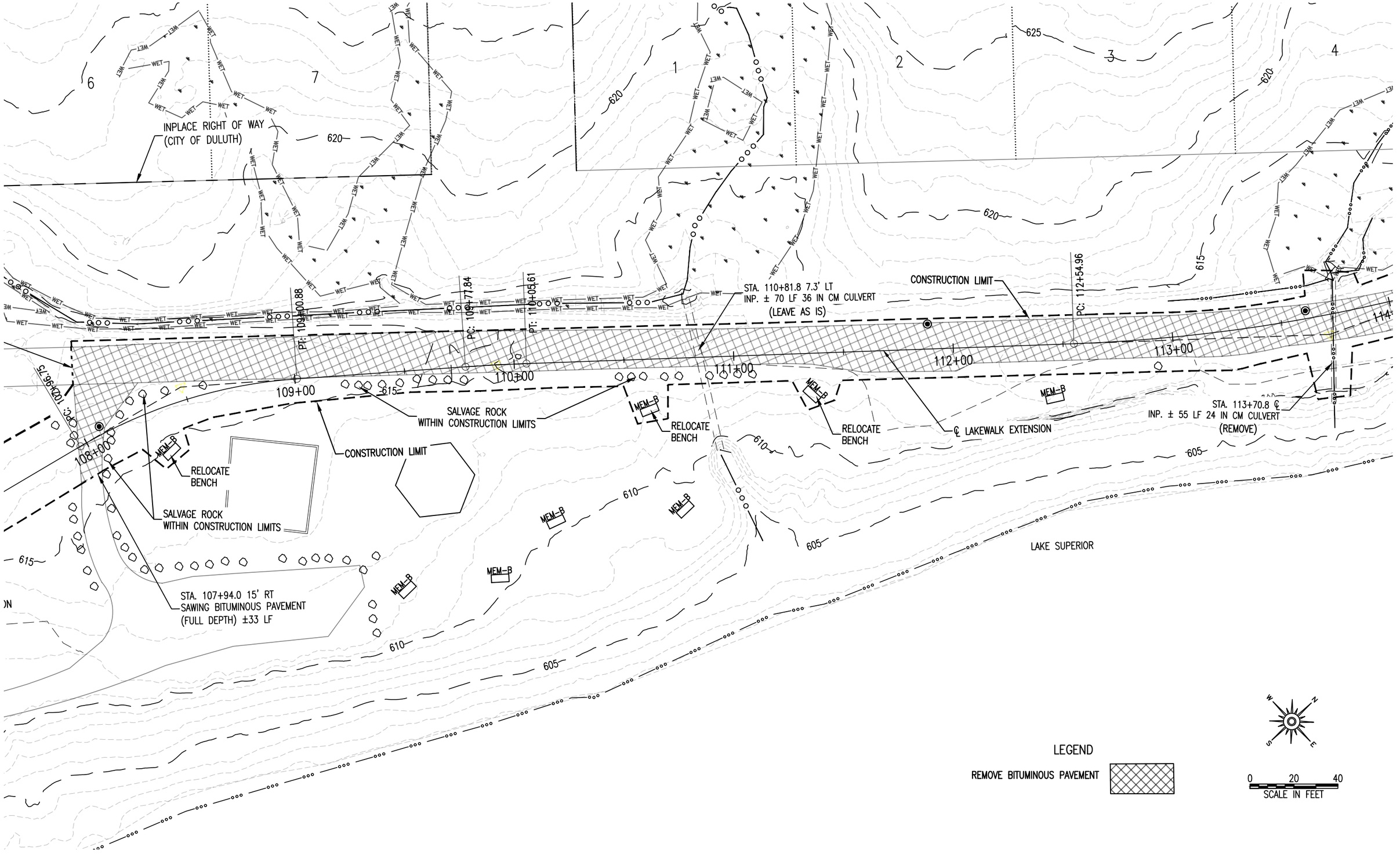
DRAWN BY: DJK

INPLACE TOPO & REMOVALS

SHEET NO. 38 OF 78



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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

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INPLACE TOPO & REMOVALS

SHEET NO. 39 OF 78

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(CITY OF DULUTH)

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

PI: 114+86.05

PC: 115+36.80

PI: 116+46.33

PC: 117+28.85

PI: 118+74.47

PC: 120+88.3

℄ LAKEWALK EXTENSION

℄ LAK

REMOVE BITUMINOUS PAVEMENT

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

STA. 117+25.2 ℄
INP. ± 40 LF 15 IN CM CULVERT
(REMOVE)

MEM-B

LESTER RIVER WHITE PINE FOREST

LAKE SUPERIOR

114+00 115+00 116+00 117+00 118+00 119+00 120+00

620 625 630 635 615 610 605 609

WET

LEGEND

REMOVE BITUMINOUS PAVEMENT

N NE E SE S

0 20 40
SCALE IN FEET

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TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

THE CITY OF DULUTH MINNESOTA

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

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INPLACE TOPO & REMOVALS

SHEET NO. 40 OF 78

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INPLACE RIGHT OF WAY
MSAS 185
(CITY OF DULUTH)

℄ MSAS 185 (CONGDON BLVD)

STA. 121+42.0 25' LT
PRESERVE AND PROTECT
PARK SIGN

STA. 121+42.9 C/L
SAWING BITUMINOUS PAVEMENT
(FULL DEPTH) ±33 LF

STA. 121+25.0 35' LT
SALVAGE SIGN

PC: 121+88.63

PT: 122+57.20

EP: 123+09.41

123+09

123+00

122+00

121+00

120+00

119+00

118+00

117+00

T-BUR

INPLACE RIGHT OF WAY
MSAS 185
(CITY OF DULUTH)

PT: 121+34.65

PC: 120+88.98

PT: 119+49.53

STA. 122+22.3
END S.P. 118-090-024
END CITY PROJ. NO. 1544

STA. 121+42.9
END LAKEWALK EXTENSION CONSTRUCTION

℄ LAKEWALK EXTENSION

REMOVE BITUMINOUS PAVEMENT

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

DEDICATED RIGHT OF WAY
(CITY OF DULUTH)

PT: 117+28.85

STA. 117+25.2 ℄
INP. ± 40 LF 15 IN CM CULVERT
(REMOVE)

WET

640
635
630
625
620

N
W
E
S

0 20 40
SCALE IN FEET

LEGEND

REMOVE BITUMINOUS PAVEMENT

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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

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STATE AID PROJECT NO.: 118-090-024

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INPLACE TOPO & REMOVALS

SHEET NO. 41 OF 78

STA. 78+59.0 TO 79+42.0 LT
4" SOLID LINE MULTI COMP

STA. 79+35.6 LT
VEHICULAR GATE, BOLLARDS & WIRE FENCE
SEE SHEET 28

STA. 78+52.7 24.7 LT
PRESERVE AND PROTECT
PARK SIGN

BEGIN S.P. 118-090-024
BEGIN CITY PROJ. NO. 1544
STA. 78+00.00

PT: 78+49.23

PC: 79+17.46

WIRE FENCE TYPE 48V9332
± 25 LF
PER ENGINEER

WIRE FENCE TYPE 48V9332
± 175 LF
PER ENGINEER

℄ LAKEWALK EXTENSION

STA. 79+05.0
BEGIN LAKEWALK EXTENSION CONSTRUCTION

PT: 80+75.54

PC: 81+36.90

P-1
STA. 81+38
24' X 28" SPAN RC PIPE-ARCH CULVERT
+2 - 28" SPAN RC PIPE-ARCH APRONS

P-2
STA. 83+75.3
12' X 22" SPAN RC PIPE-ARCH CULVERT
+2 - 22" SPAN RC PIPE-ARCH APRONS

PT: 82+83.48

CONSTRUCTION LIMIT

CONSTRUCTION LIMIT

(LEAVE AS IS)

SEE TYPICAL SECTIONS
FOR THIS AREA

(LEAVE AS IS)

R INSTALL RANDOM RIPRAP CLASS III
PER MNDOT STD PLATE 3133

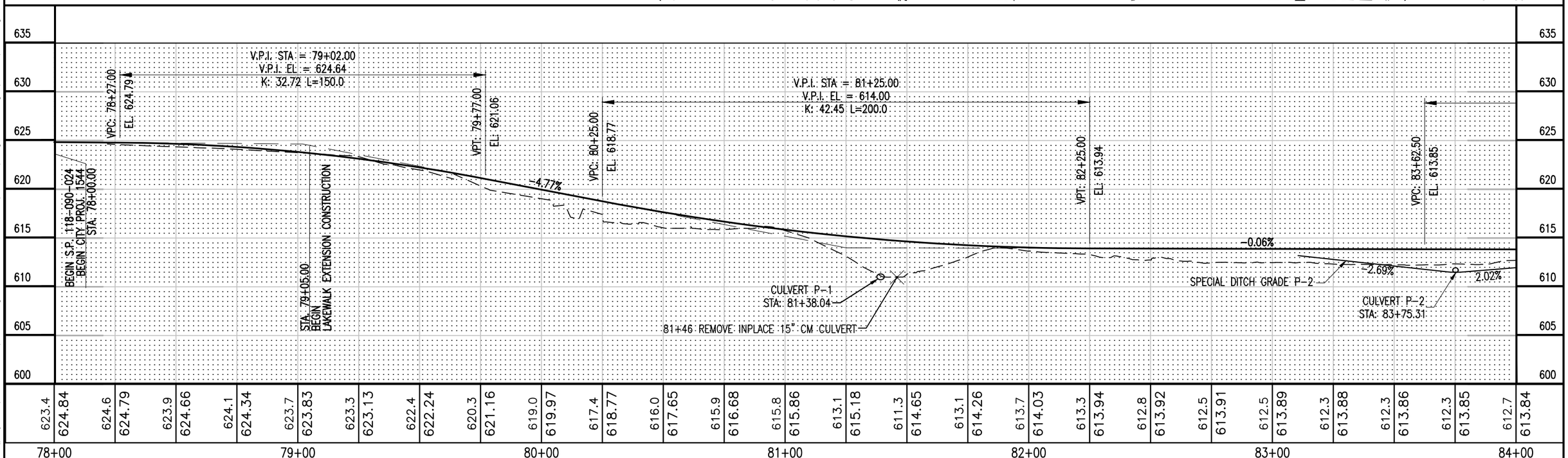
R

R

STA. 82+21.8 19.5 RT
PRESERVE AND PROTECT
SURVEY MONUMENT
(1" PIN IN CONC)

0 20 40
SCALE IN FEET

BITUMINOUS PAVEMENT
(ALL SHEETS)



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LAKE WALK EXTENSION - BRIGHTON BEACH

CITY PROJECT NO.: 1544

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CONSTRUCTION PLAN

SHEET NO. 42 OF 78

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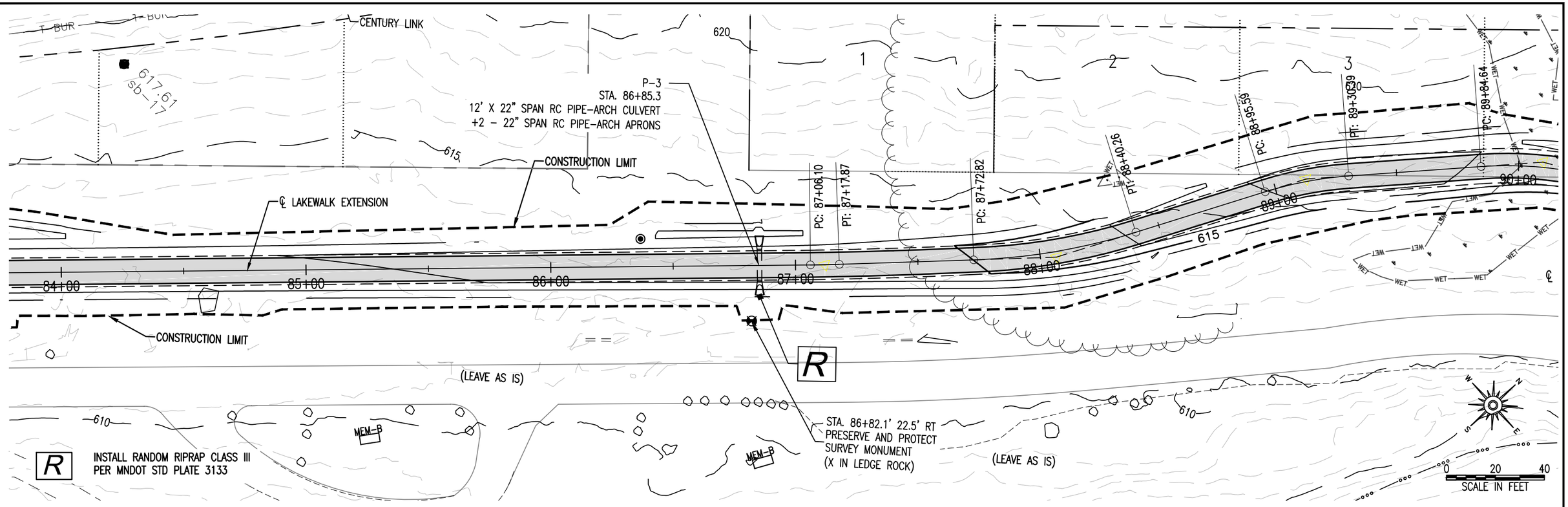

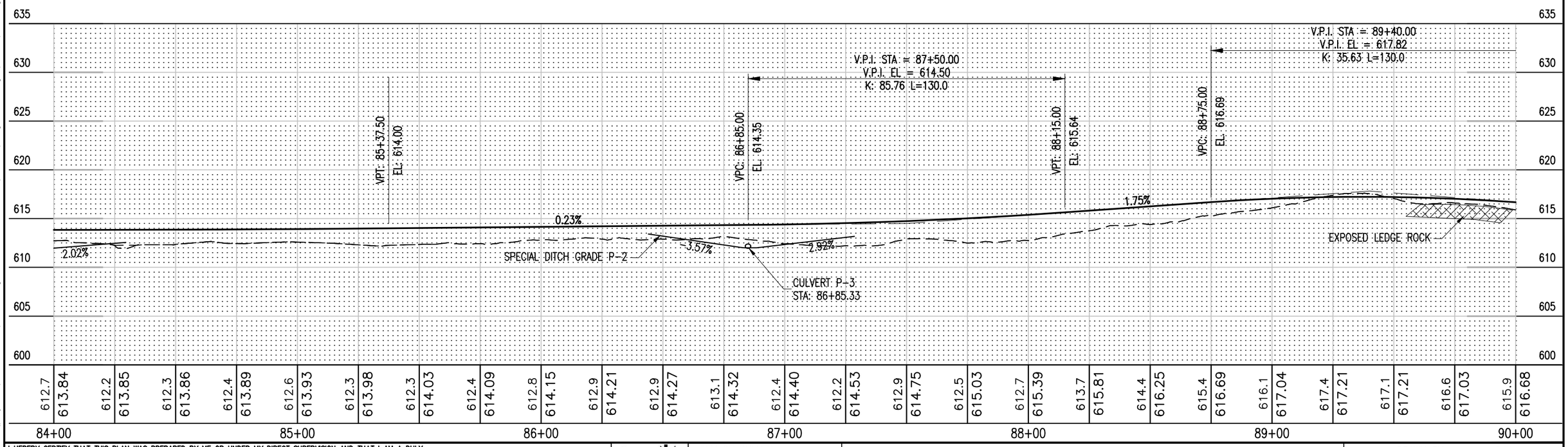

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LAKE WALK EXTENSION - BRIGHTON BEACH

CITY PROJECT NO.: 1544

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CONSTRUCTION PLAN

SHEET NO. 43 OF 78

P-4
STA. 92+00.0
20' X 22" SPAN RC PIPE-ARCH CULVERT
+2 - 22" SPAN RC PIPE-ARCH APRONS

P-5
STA. 93+91.0
12' X 22" SPAN RC PIPE-ARCH CULVERT
+2 - 22" SPAN RC PIPE-ARCH APRONS

P-6
STA. 95+30.0
12' X 22" SPAN RC PIPE-ARCH CULVERT
+2 - 22" SPAN RC PIPE-ARCH APRONS

PT: 90+34.95
PC: 91+04.65
PT: 91+46.91
PC: 92+10.86
PT: 92+79.34
CONSTRUCTION LIMIT
PC: 95+25.91
PT: 95+97.12

℄ LAKEWALK EXTENSION

CONSTRUCTION LIMIT

R INSTALL RANDOM RIPRAP CLASS III
PER MNDOT STD PLATE 3133

(LEAVE AS IS)

(LEAVE AS IS)

℄ LAKEWALK EXTENSION

SCALE IN FEET 0 20 40

V.P.I. STA = 91+15.00
V.P.I. EL = 614.50
K: 48.58 L=100.0

V.P.I. STA = 93+35.00
V.P.I. EL = 614.85
K: 1482.46 L=150.0

VPT: 90+05.00 EL: 616.59
VPC: 90+65.00 EL: 615.45
VPT: 91+65.00 EL: 614.58
VPC: 92+60.00 EL: 614.73
VPT: 94+10.00 EL: 615.05

-1.90%
0.16%
-8.48%
1.4%
0.26%
-5.04%
6.43%

CULVERT
STA: 90+10.00
INV. IN: 615.34

CULVERT P-4
STA: 92+00.00

ROCK STREAM BED

SPECIAL DITCH GRADE
P-5

CULVERT P-5
STA: 93+91.00

SPECIAL DITCH GRADE
P-6

CULVERT P-6
STA: 95+30.00

615.9 616.68 614.9 616.21 614.5 615.73 614.0 615.27 613.3 614.91 613.6 614.68 613.3 614.58 613.2 614.60 612.8 614.64 613.8 614.68 613.8 614.71 613.9 614.76 614.0 614.80 614.5 614.85 614.5 614.90 614.0 614.96 614.1 615.02 614.2 615.08 614.2 615.15 614.0 615.21 613.8 615.28 614.0 615.34 614.3 615.41 614.8 615.47 614.2 615.54

90+00 91+00 92+00 93+00 94+00 95+00 96+00

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TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION - BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION PLAN

SHEET NO. 44 OF 78

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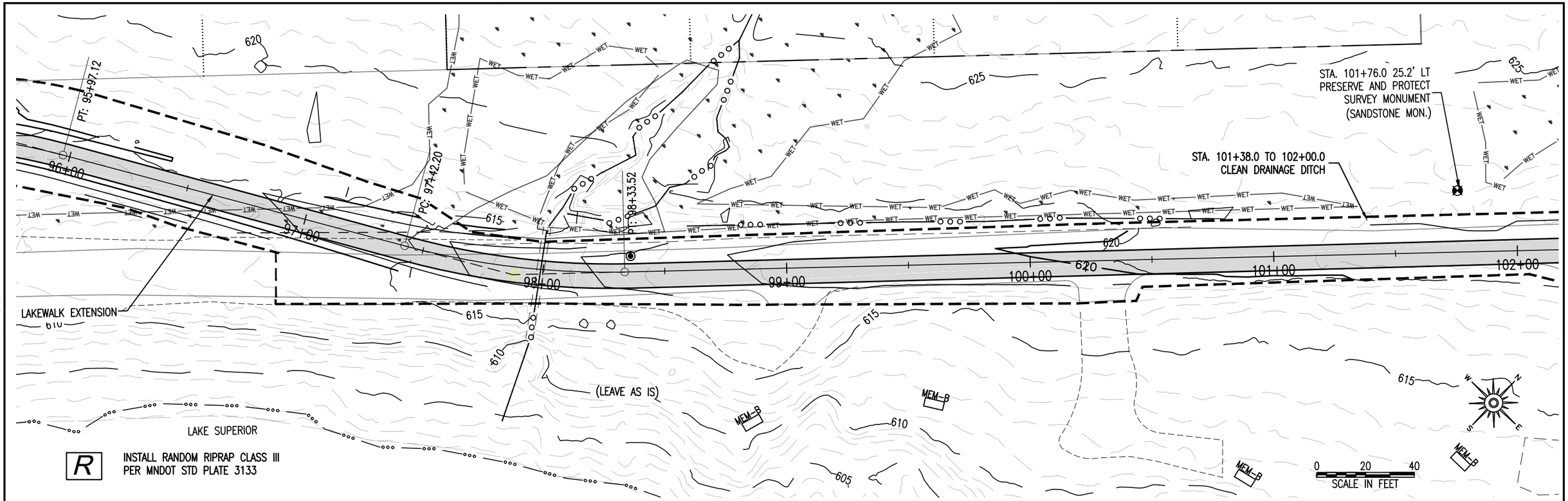

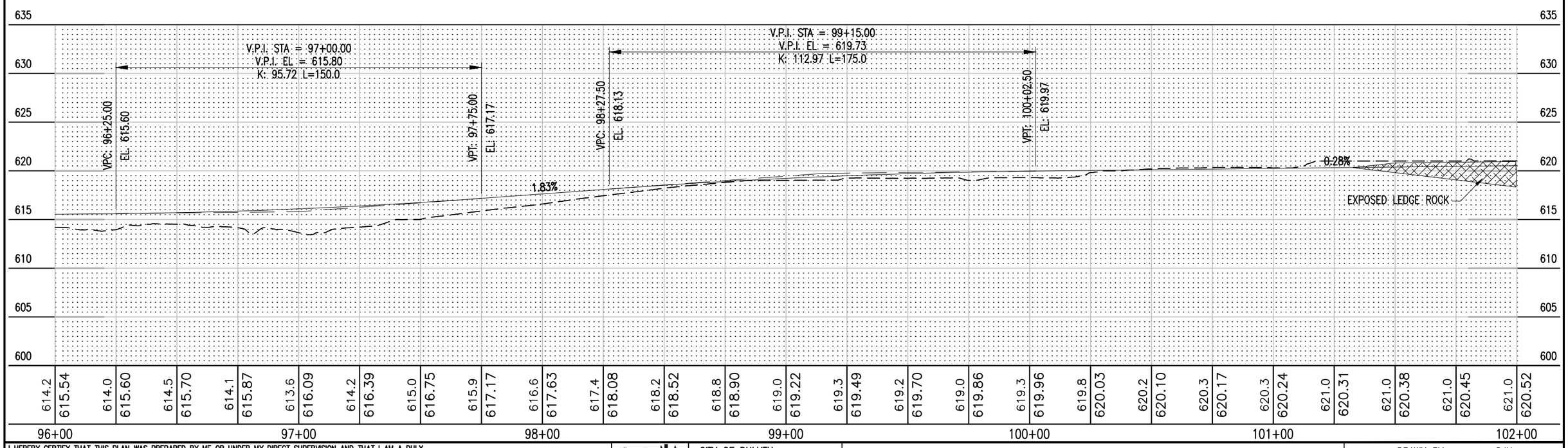

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STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION PLAN

SHEET NO. 45 OF 78

6/5/2020 3:30:21 PM

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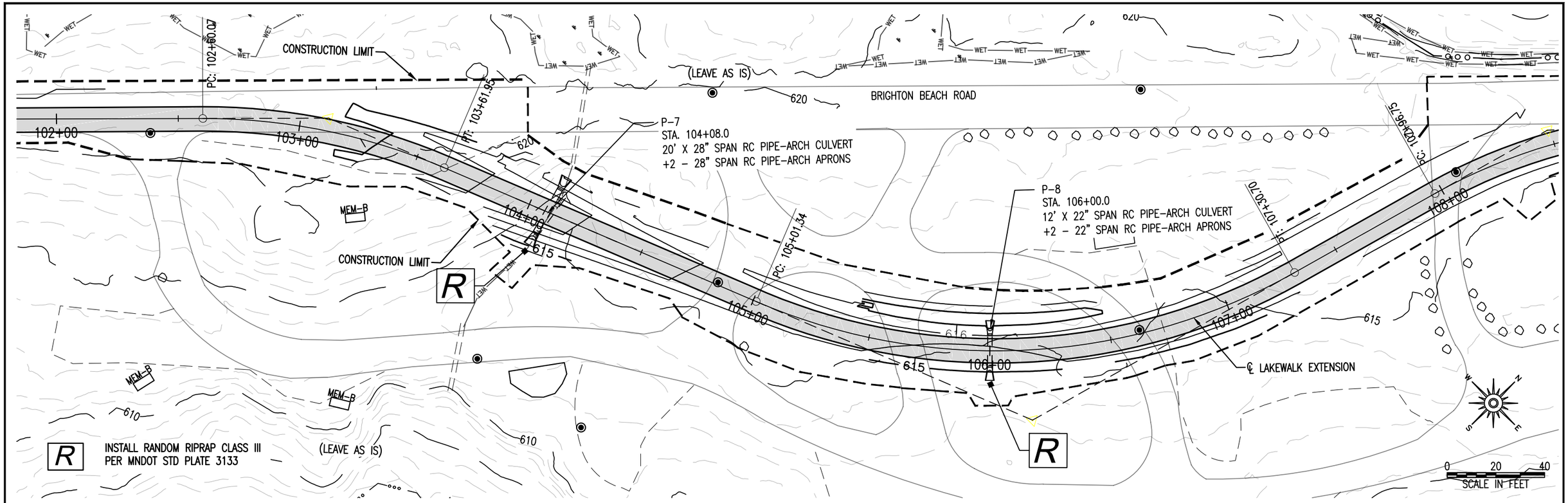

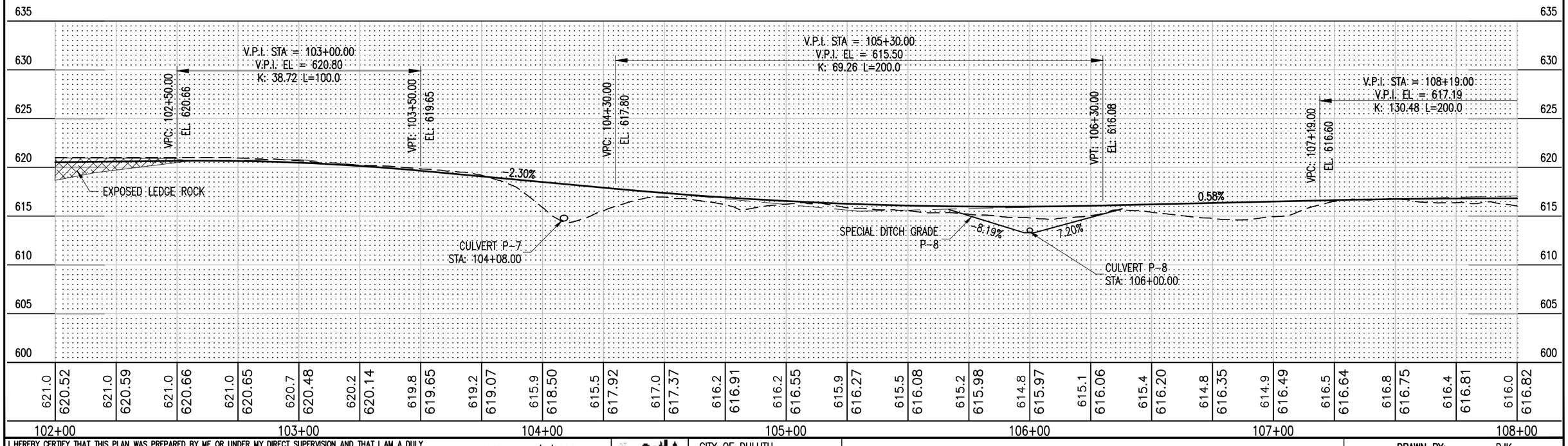

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION - BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION PLAN

SHEET NO. 46 OF 78

6/5/2020 3:30:21 PM

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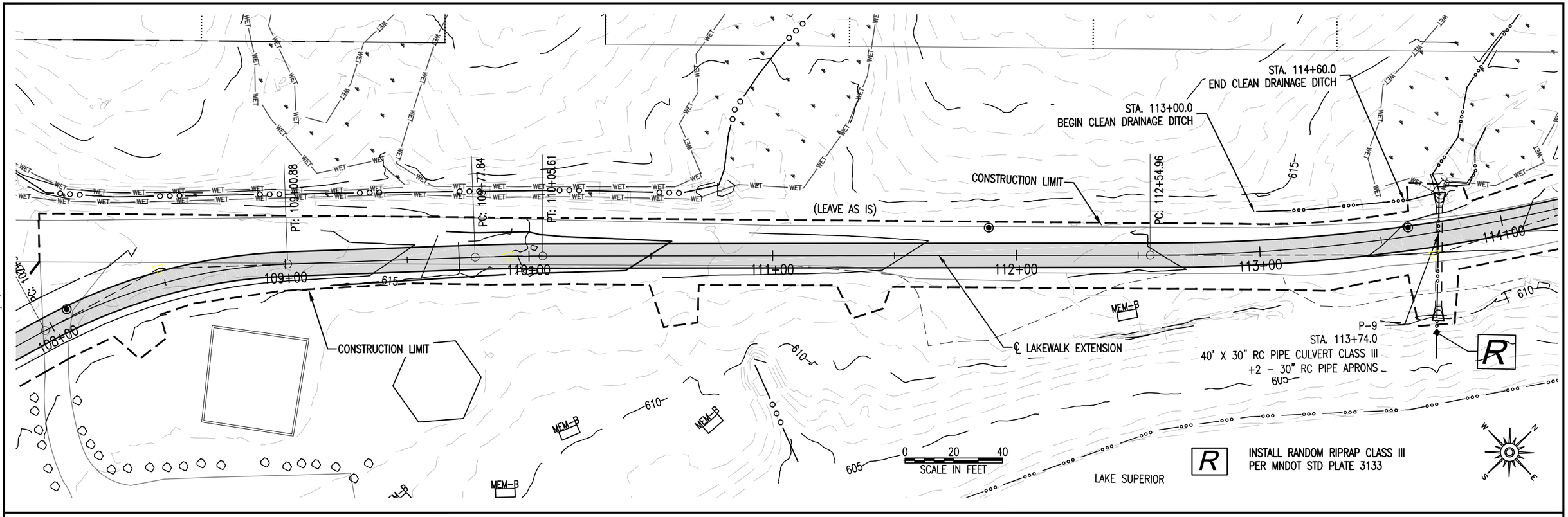

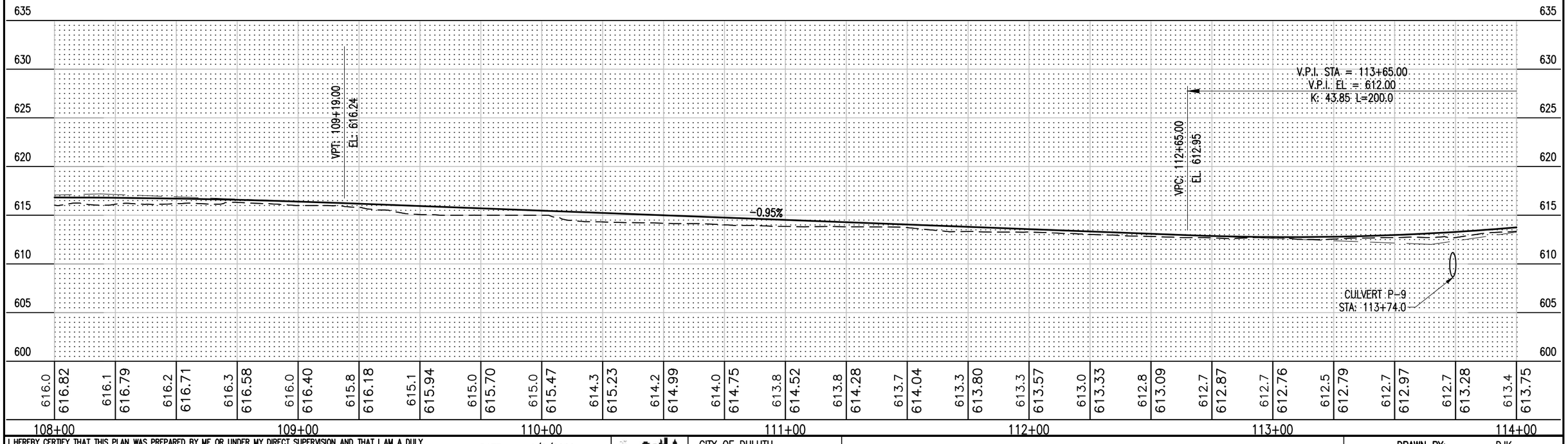

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION PLAN

SHEET NO. 47 OF 78

6/5/2020 3:30:21 PM

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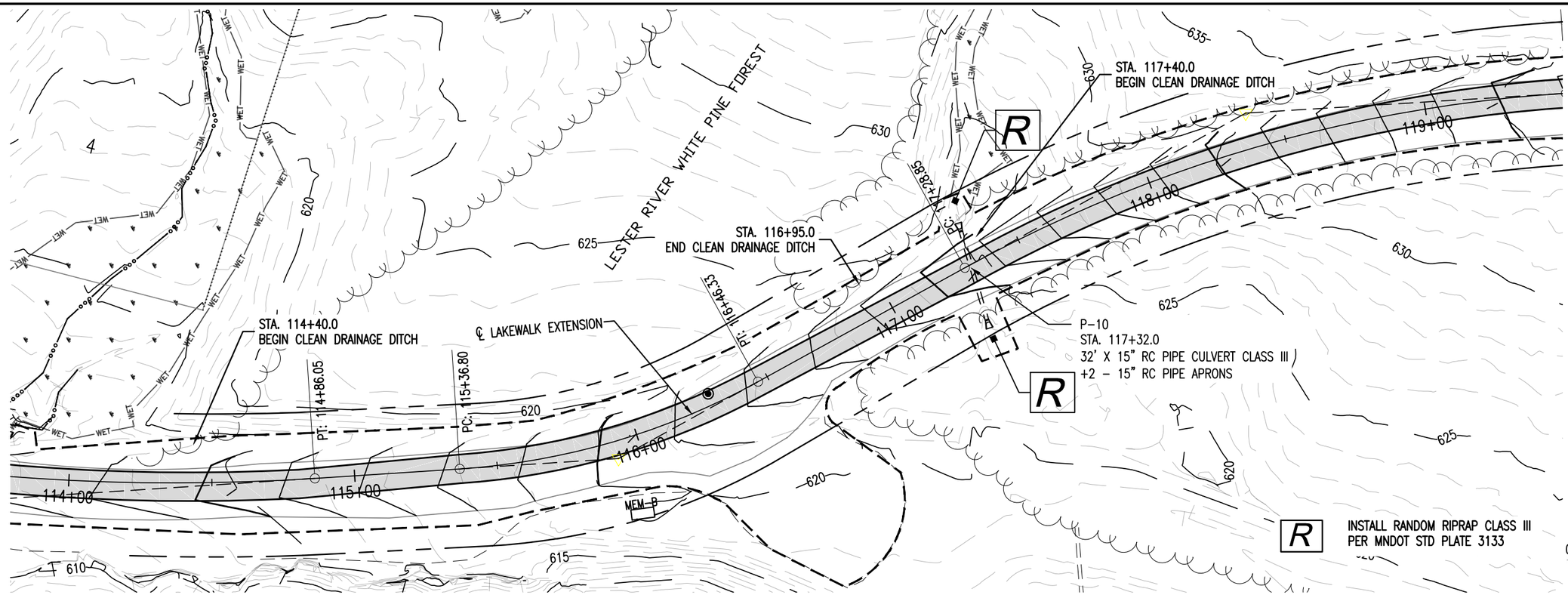

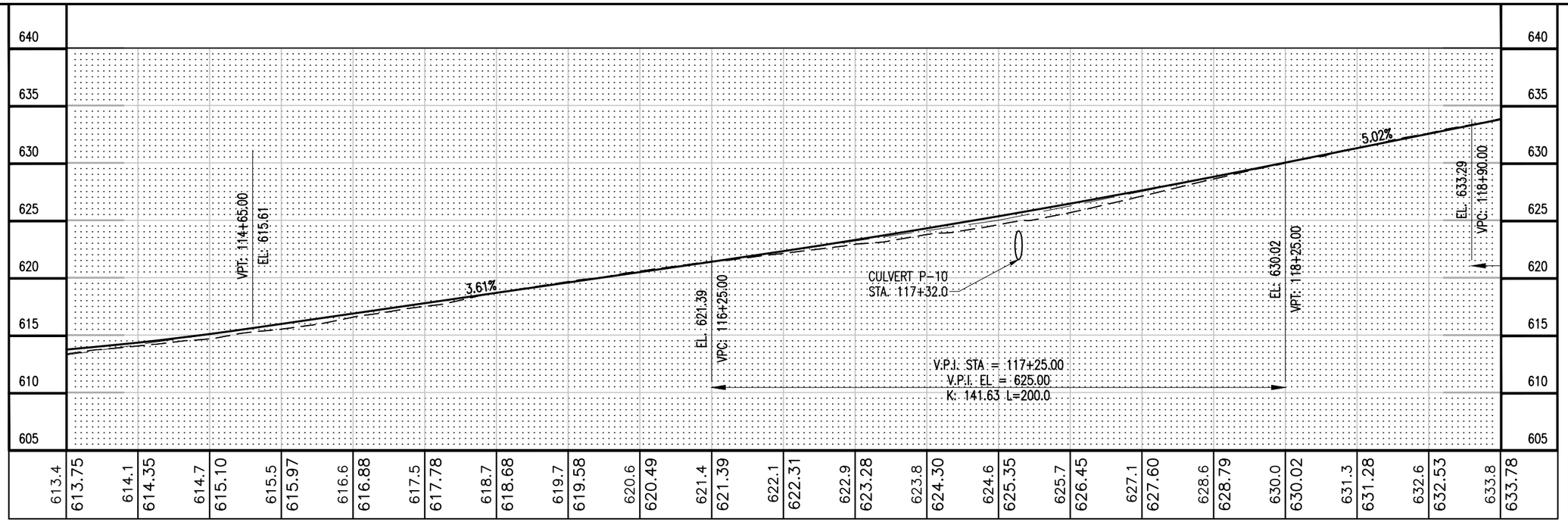

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION - BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION PLAN

SHEET NO. 48 OF 78

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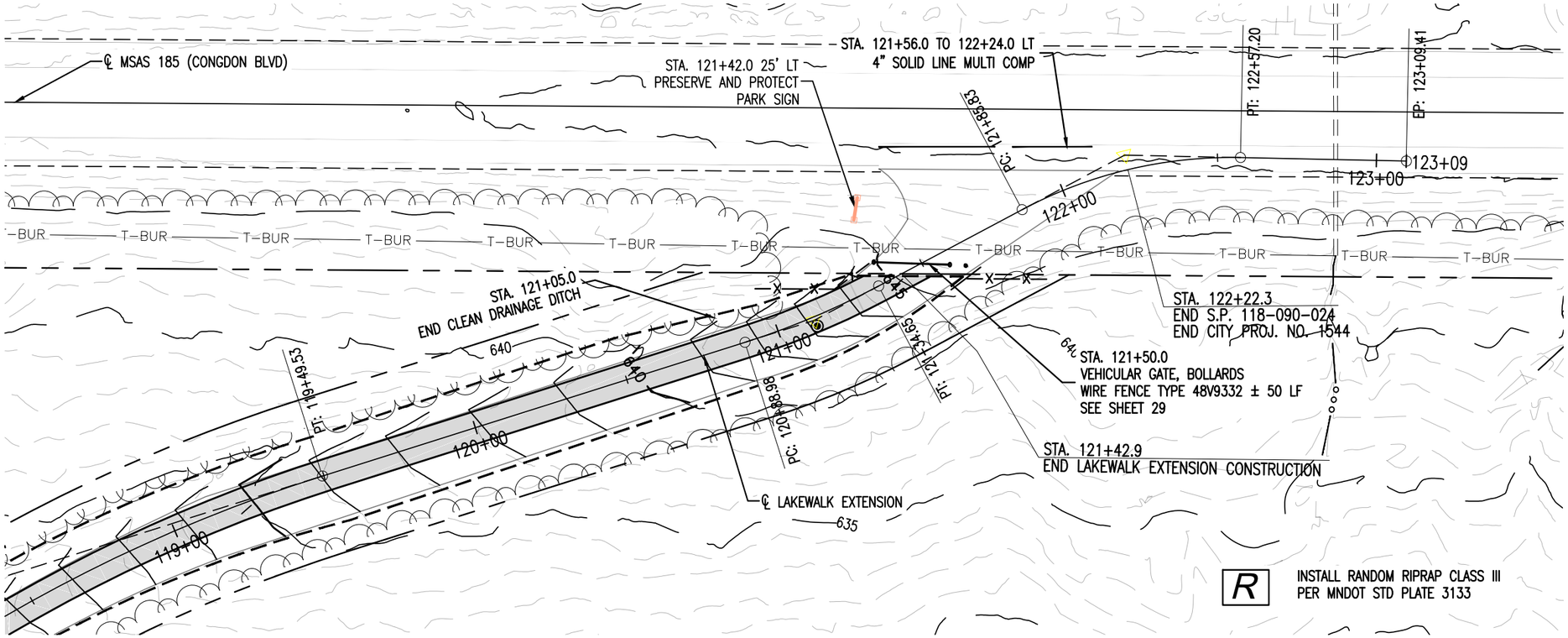

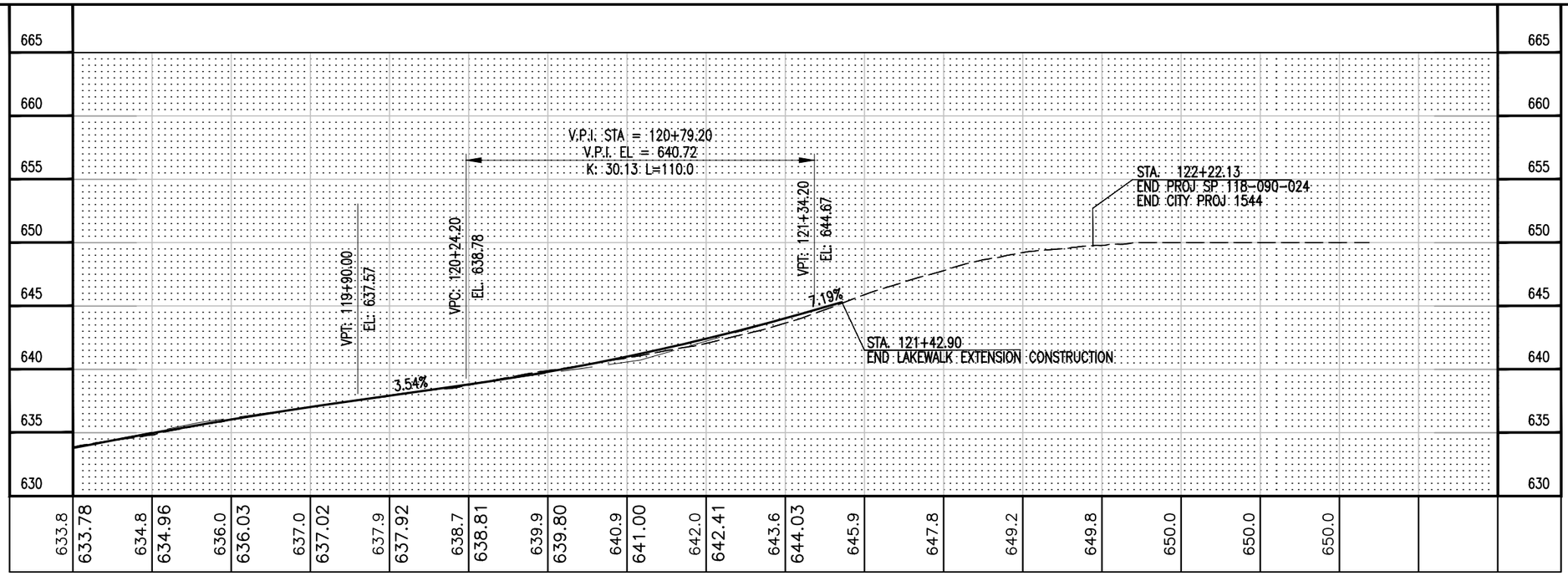

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CONSTRUCTION PLAN

SHEET NO. 49 OF 78

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6/8/2020 3:44:43 PM

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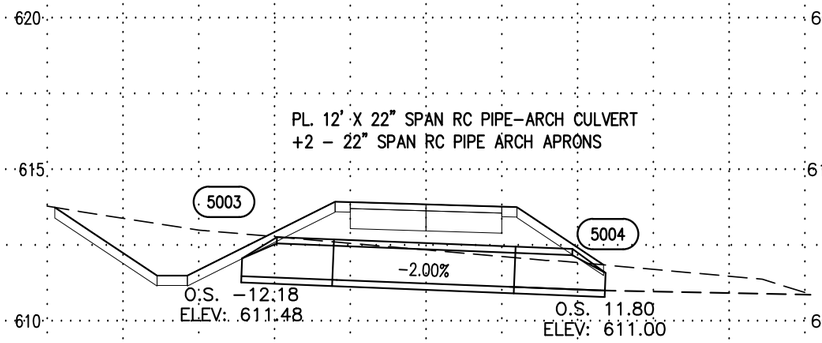
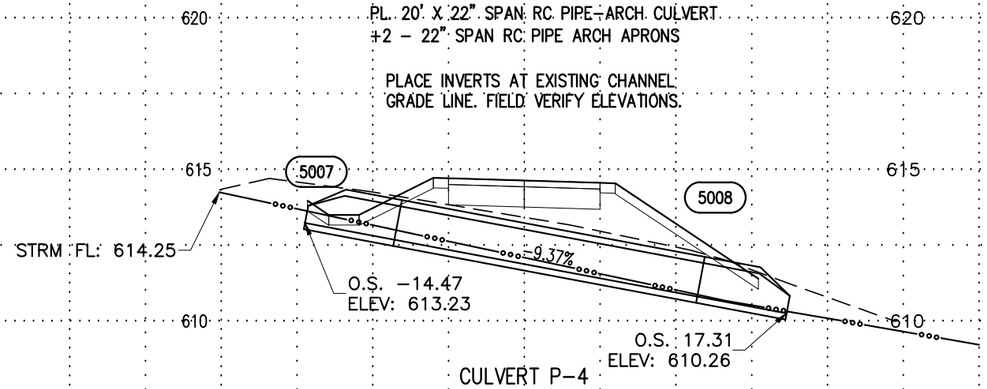
83+75.31



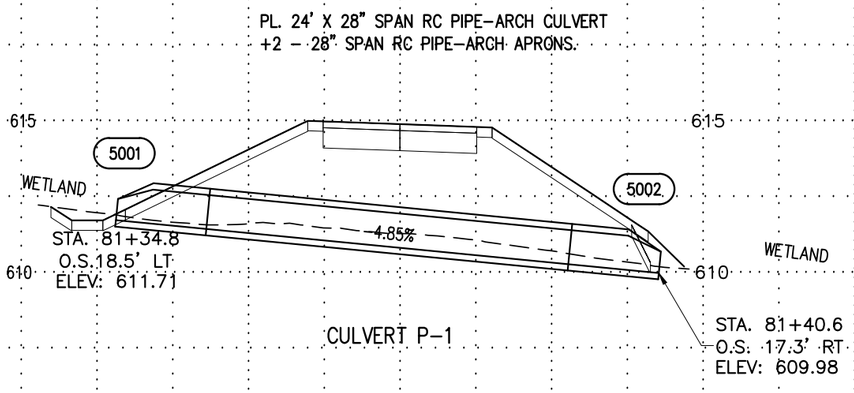
CULVERT P-2

92+00



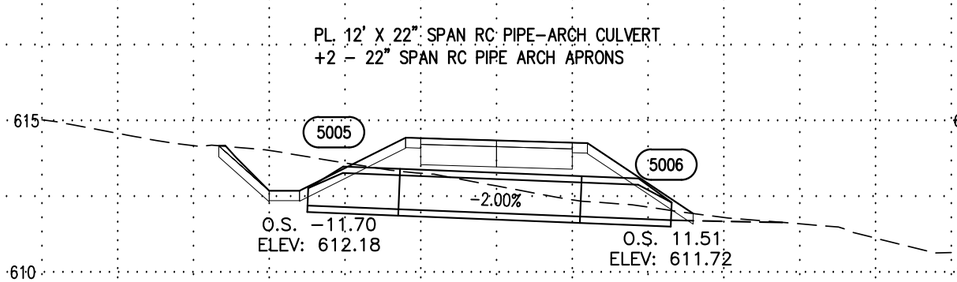
CULVERT P-4

81+38



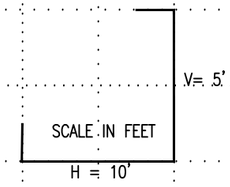
CULVERT P-1

86+85.33



CULVERT P-3

ALL DRAINAGE WORK ON THIS PAGE IS CONTAINED WITHIN CITY OF DULUTH RIGHT OF WAYS.



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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION - BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

DRAINAGE PROFILES

SHEET NO. 50 OF 78

6/8/2020 3:44:48 PM

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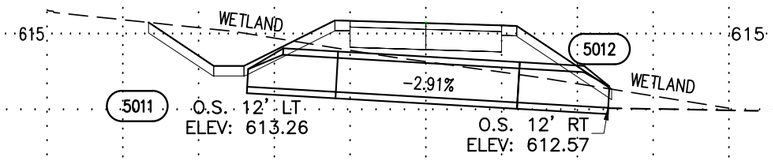
95+30

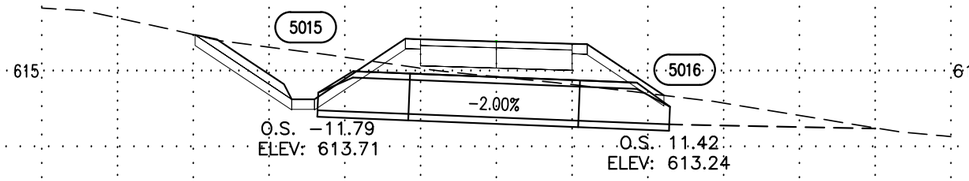
PL. 12' X 22" SPAN RC PIPE-ARCH CULVERT
+2 - 22" SPAN RC PIPE ARCH APRONS



CULVERT P-6

106+00

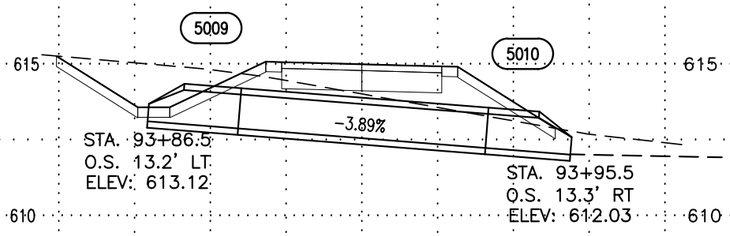
PL. 12' X 22" SPAN RC PIPE-ARCH CULVERT
+2 - 22" SPAN RC PIPE ARCH APRONS



CULVERT P-8

93+91

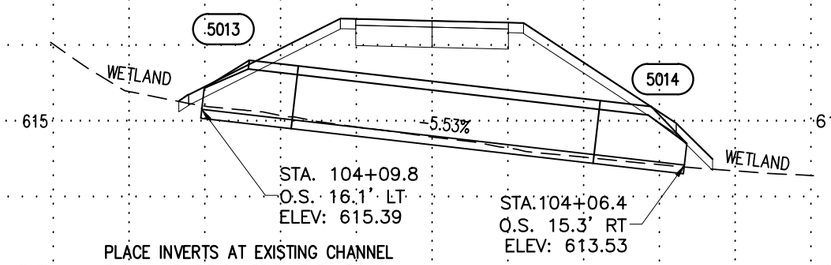
PL. 16' X 22" SPAN RC PIPE-ARCH CULVERT
+2 - 22" SPAN RC PIPE ARCH APRONS



CULVERT P-5

104+08

PL. 20' X 28" SPAN RC PIPE-ARCH CULVERT
+2 - 28" SPAN RC PIPE ARCH APRONS



PLACE INVERTS AT EXISTING CHANNEL FLOW LINE. FIELD VERIFY ELEVATIONS.

CULVERT P-7

ALL DRAINAGE WORK ON THIS PAGE IS CONTAINED WITHIN CITY OF DULUTH RIGHT OF WAYS.

V= 5'

SCALE IN FEET

H = 10'

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION - BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

DRAINAGE PROFILES

SHEET NO. 51 OF 78

6/8/2020 3:44:54 PM

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113+74

620

615

610

605

600

P.L. 40' X 30" RC PIPE CULVERT DESIGN 3006 CLASS III
+2 – 30" RC PIPE APRONS

5017

WETLAND

-2.00%

STA. 113+76.8
O.S. 16.8 ' LT
ELEV: 608.93

5018

STA. 113+68.3
O.S. 35' RT
ELEV: 607.89

LAKE SUPERIOR

CULVERT P-9

117+32

620

615

610

605

600

630

625

620

P.L. 28' X 15" RC PIPE CULVERT DESIGN 3006 CLASS III
+2 – 15" RC PIPE APRONS

R/W

5019

WETLAND

-2.29%

STA. 117+36.2
O.S. 15.9' LT
ELEV: 622.01

5020

R/W

WETLAND

STA. 117+27.5
O.S. 21.3 RT
ELEV: 621.09

CULVERT P-10

ALL WORK OUTSIDE OF THE TRAIL RIGHT OF WAYS IS CONTAINED UPON CITY OF DULUTH PROPERTY.

V= .5'

SCALE IN FEET

H = 10'

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

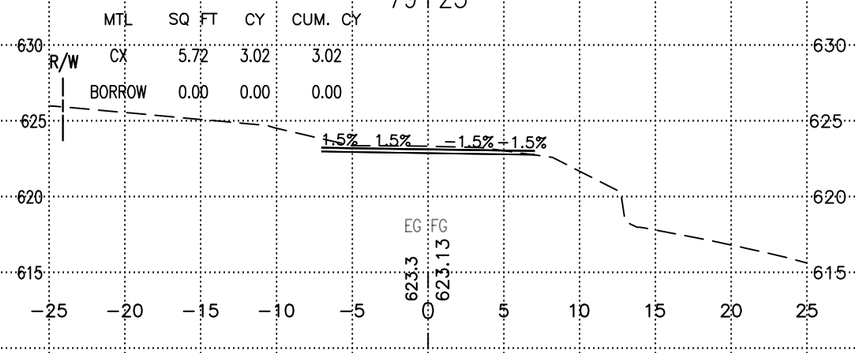
DRAINAGE PROFILES

SHEET NO. 52 OF 78

6/8/2020 3:50:31 PM

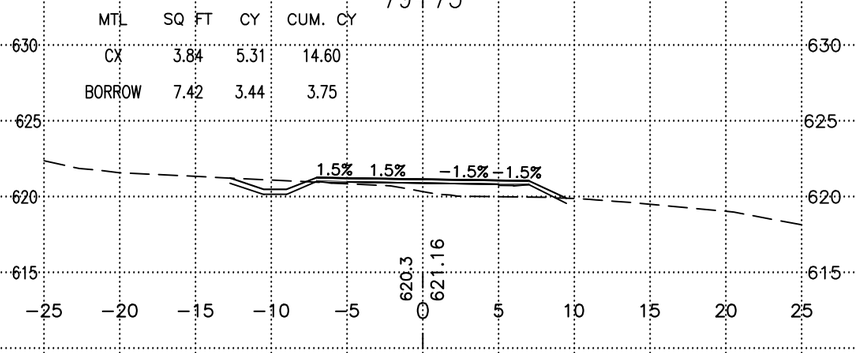
79+25

MTL	SQ FT	CY	CUM. CY
CX	5.72	3.02	3.02
BORROW	0.00	0.00	0.00



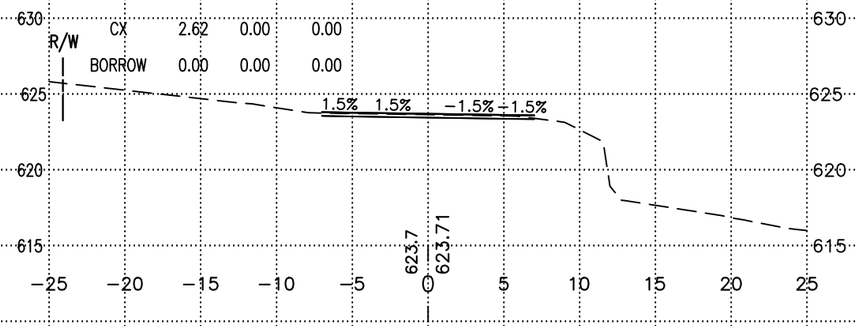
79+75

MTL	SQ FT	CY	CUM. CY
CX	3.84	5.31	14.60
BORROW	7.42	3.44	3.75



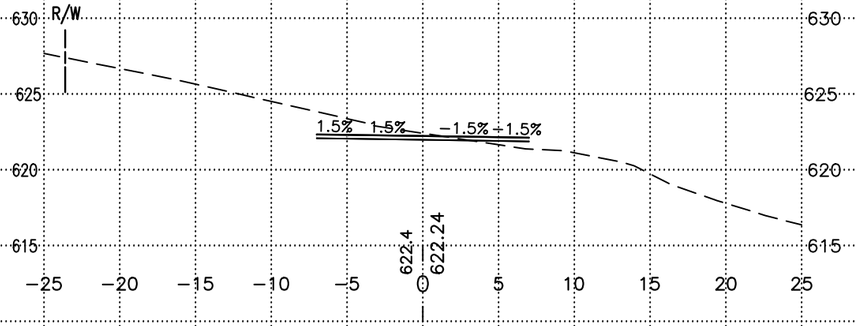
79+05

MTL	SQ FT	CY	CUM. CY
CX	2.62	0.00	0.00
BORROW	0.00	0.00	0.00



79+50

MTL	SQ FT	CY	CUM. CY
CX	7.87	6.27	9.28
BORROW	0.99	0.31	0.31



RIGHT OF WAY NOTE:

UNLESS MARKED ON INDIVIDUAL SECTIONS, ALL RIGHT OF WAY LINES FALL OUTSIDE THE LIMITS OF THE PROJECT CROSS SECTIONS.

0 5 10
SCALE IN FEET

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LIC. NO: 49099

DULUTH

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 53 OF 78

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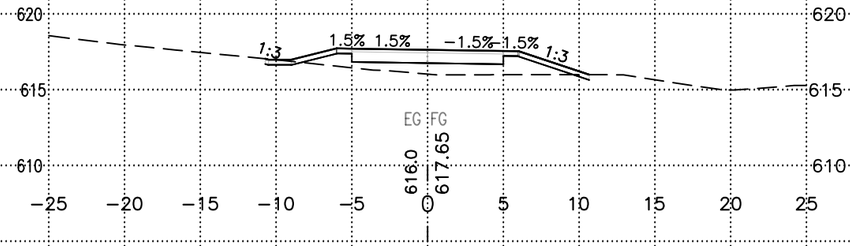
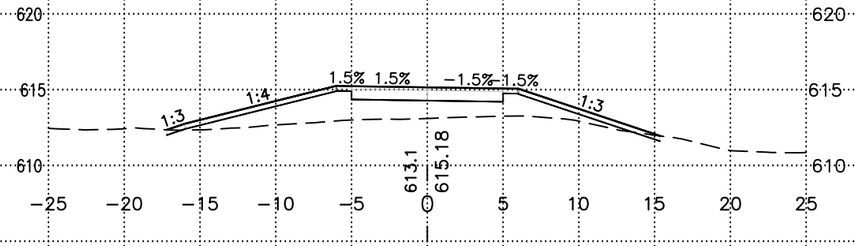
80+50

MTL	SQ FT	CY	CUM. CY
CX	0.81	0.57	17.24
BORROW	11.75	14.01	40.70



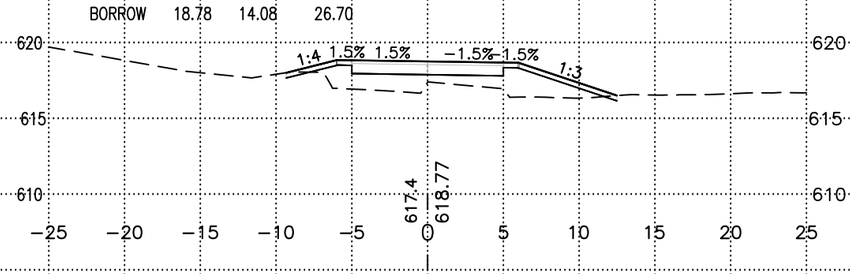
81+25

MTL	SQ FT	CY	CUM. CY
CX	0.48	4.48	31.88
BORROW	30.21	9.32	56.62



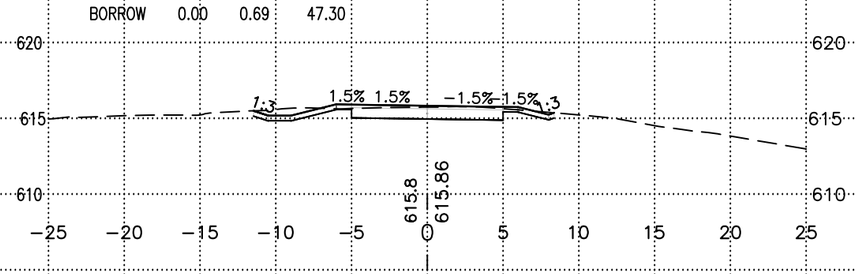
80+25

MTL	SQ FT	CY	CUM. CY
CX	0.44	0.39	16.68
BORROW	18.78	14.08	26.70



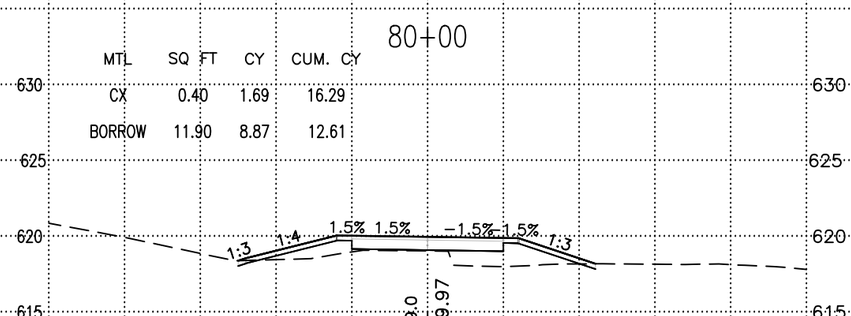
81+00

MTL	SQ FT	CY	CUM. CY
CX	11.68	7.65	27.40
BORROW	0.00	0.69	47.30



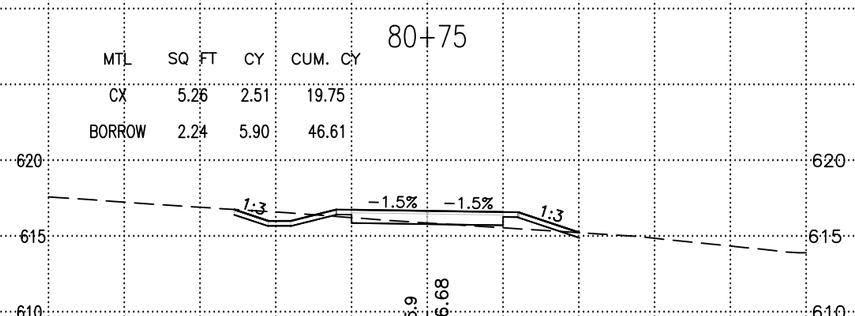
80+00

MTL	SQ FT	CY	CUM. CY
CX	0.40	1.69	16.29
BORROW	11.90	8.87	12.61



80+75

MTL	SQ FT	CY	CUM. CY
CX	5.26	2.51	19.75
BORROW	2.24	5.90	46.61



0 5 10
SCALE IN FEET

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DATE: 4/8/2020

LIC. NO: 49099

DULUTH MINNESOTA

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 54 OF 78

6/8/2020 4:26:30 PM

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6/8/2020 3:51:02 PM

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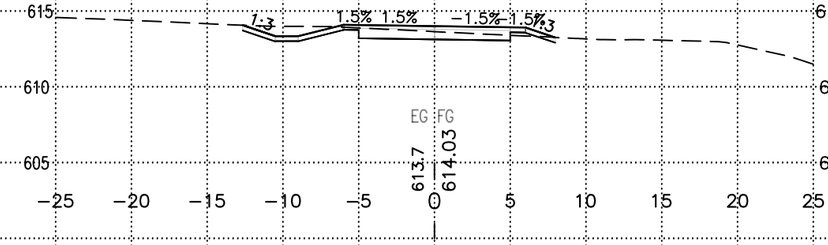
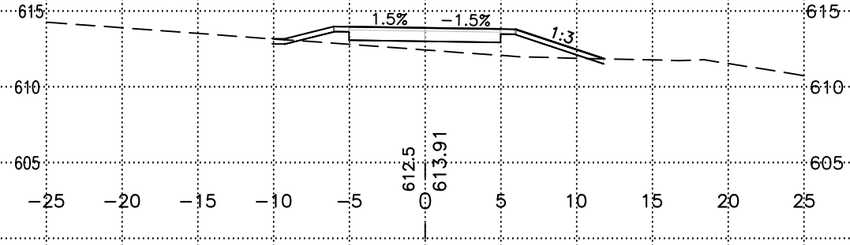
82+00

MTL	SQ FT	CY	CUM. CY
CX	10.21	5.18	38.42
BORROW	0.29	2.65	133.65



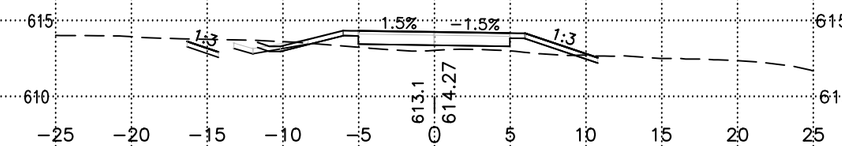
82+75

MTL	SQ FT	CY	CUM. CY
CX	0.55	0.92	50.27
BORROW	12.28	8.71	146.28



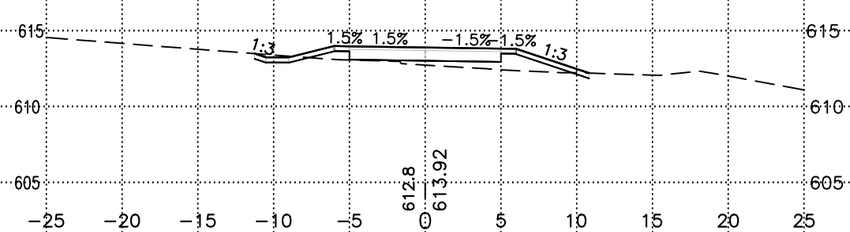
81+75

MTL	SQ FT	CY	CUM. CY
CX	2.02	0.99	33.25
BORROW	6.86	29.92	131.01



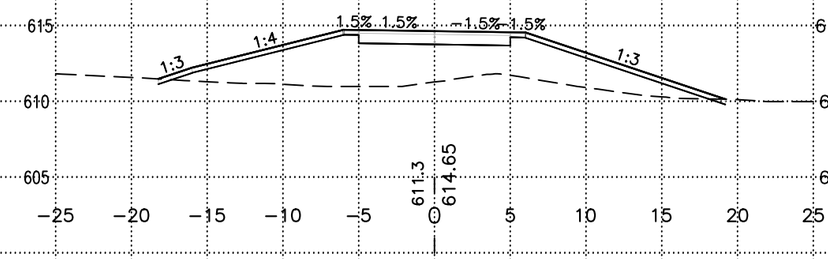
82+50

MTL	SQ FT	CY	CUM. CY
CX	1.52	3.36	49.34
BORROW	6.80	3.30	137.57



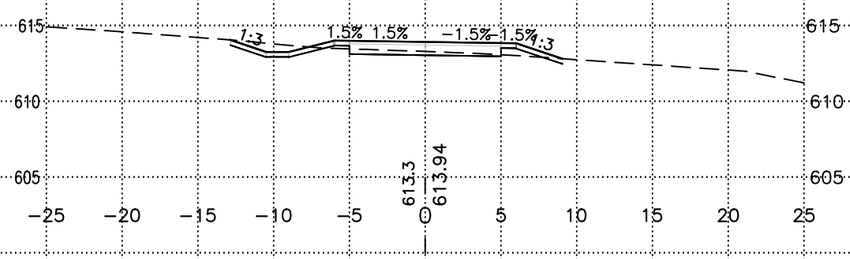
81+50

MTL	SQ FT	CY	CUM. CY
CX	0.34	0.38	32.26
BORROW	68.42	44.47	101.09



82+25

MTL	SQ FT	CY	CUM. CY
CX	6.27	7.56	45.98
BORROW	1.13	0.62	134.27



0 5 10
SCALE IN FEET

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

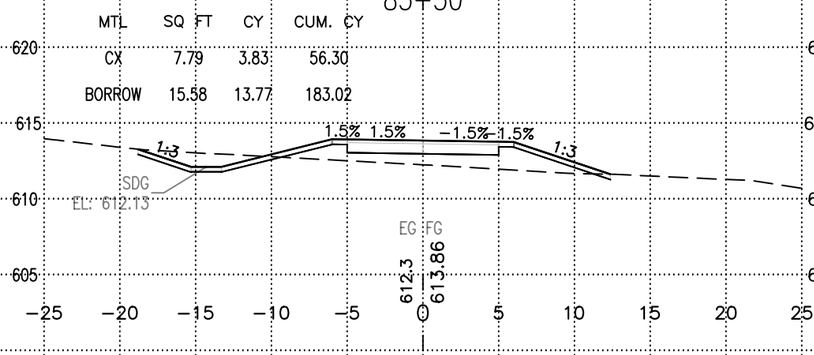
CROSS SECTIONS

SHEET NO. 55 OF 78

6/8/2020 3:51:17 PM

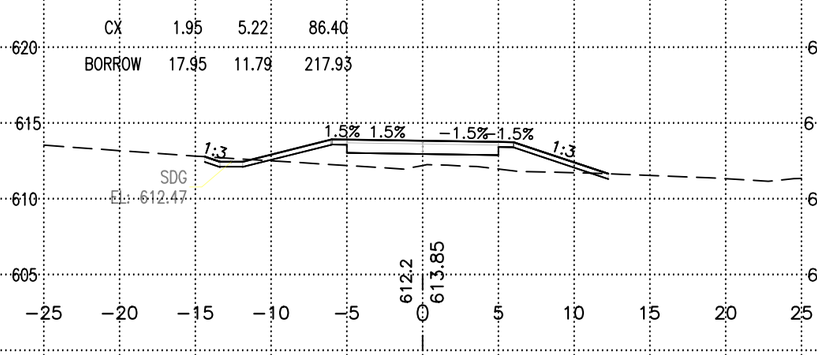
83+50

MTL	SQ FT	CY	CUM. CY
CX	7.79	3.83	56.30
BORROW	15.58	13.77	183.02



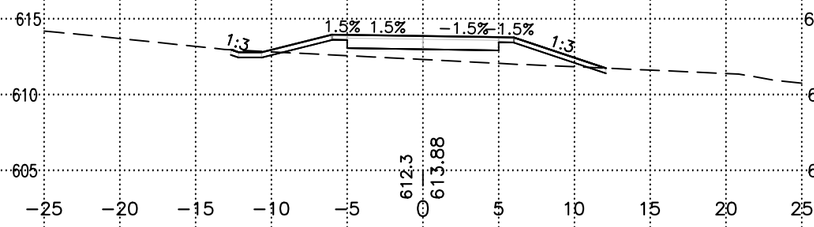
84+25

MTL	SQ FT	CY	CUM. CY
CX	1.95	5.22	86.40
BORROW	17.95	11.79	217.93



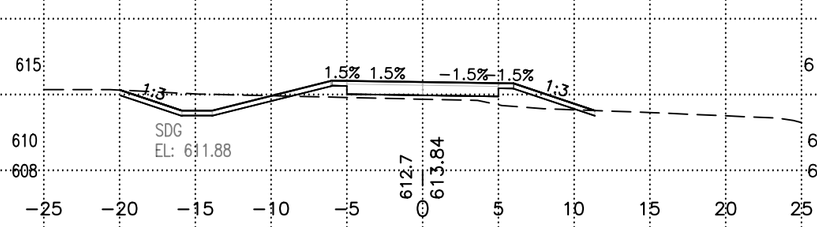
83+25

MTL	SQ FT	CY	CUM. CY
CX	1.36	1.31	52.47
BORROW	14.18	11.91	169.25



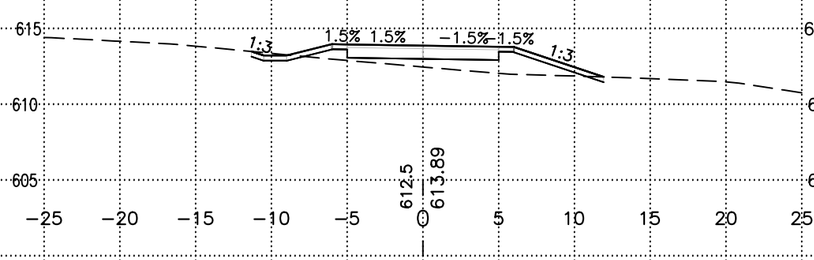
84+00

MTL	SQ FT	CY	CUM. CY
CX	10.45	13.14	81.17
BORROW	8.16	9.80	206.14



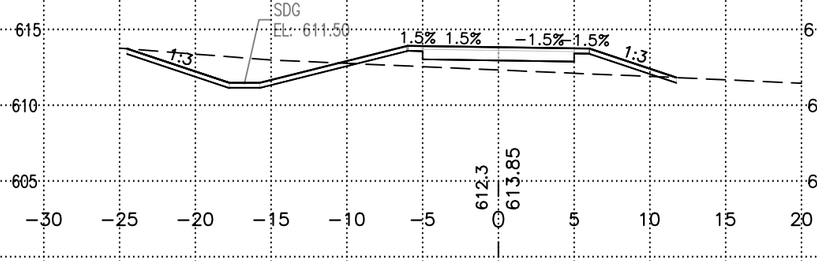
83+00

MTL	SQ FT	CY	CUM. CY
CX	1.47	0.90	51.17
BORROW	11.60	11.05	157.33



83+75

MTL	SQ FT	CY	CUM. CY
CX	18.29	11.73	68.04
BORROW	13.22	13.32	196.34



0 5 10
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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 56 OF 78

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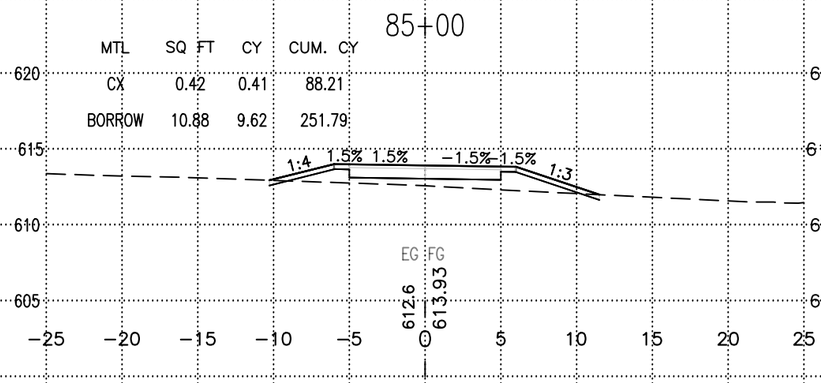
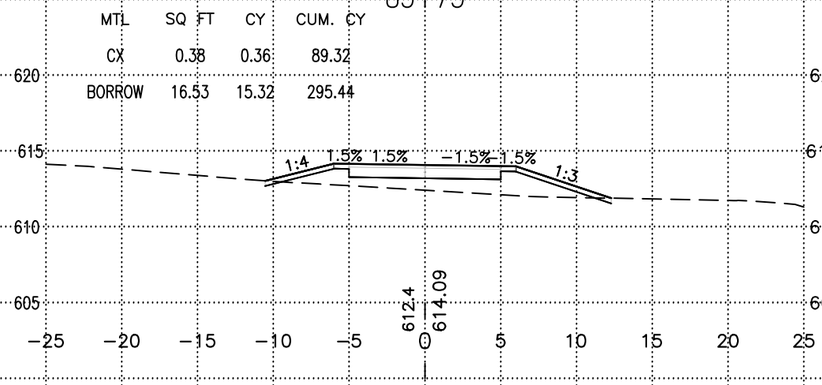
85+00

MTL	SQ FT	CY	CUM. CY
CX	0.42	0.41	88.21
BORROW	10.88	9.62	251.79



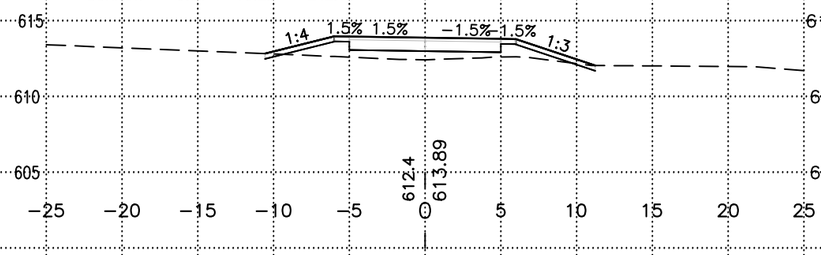
85+75

MTL	SQ FT	CY	CUM. CY
CX	0.38	0.36	89.32
BORROW	16.53	15.32	295.44



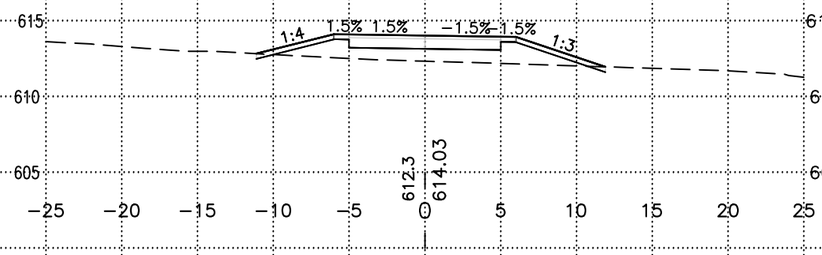
84+75

MTL	SQ FT	CY	CUM. CY
CX	0.46	0.40	87.80
BORROW	9.91	10.28	242.16



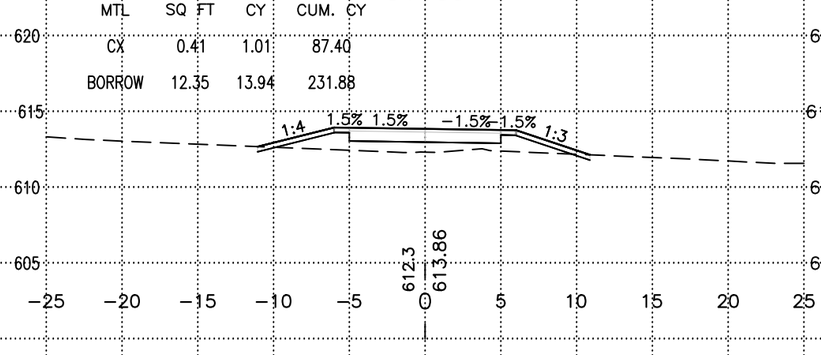
85+50

MTL	SQ FT	CY	CUM. CY
CX	0.40	0.37	88.96
BORROW	16.57	15.53	280.11



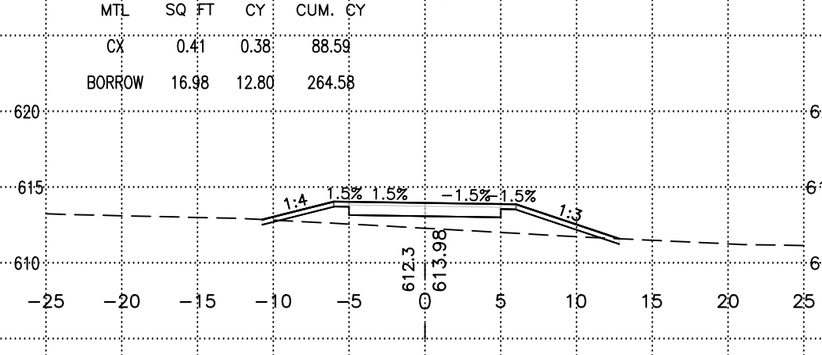
84+50

MTL	SQ FT	CY	CUM. CY
CX	0.41	1.01	87.40
BORROW	12.35	13.94	231.88



85+25

MTL	SQ FT	CY	CUM. CY
CX	0.41	0.38	88.59
BORROW	16.98	12.80	264.58



0 5 10
SCALE IN FEET

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LIC. NO: 49099

DULUTH

CITY OF DULUTH
ENGINEERING DIVISION
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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

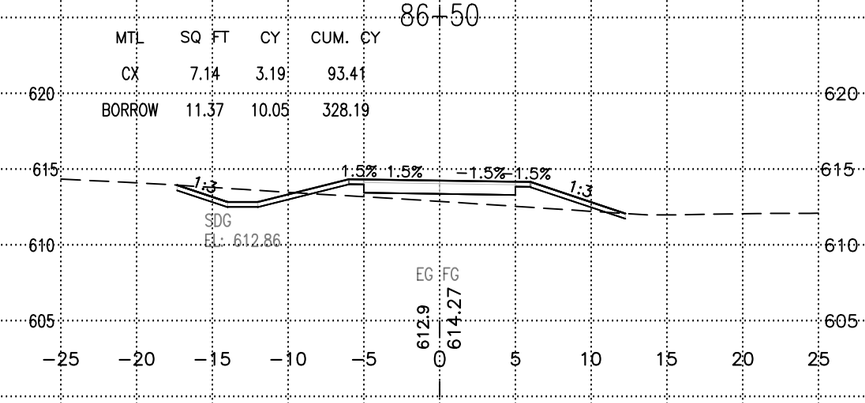
DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 57 OF 78

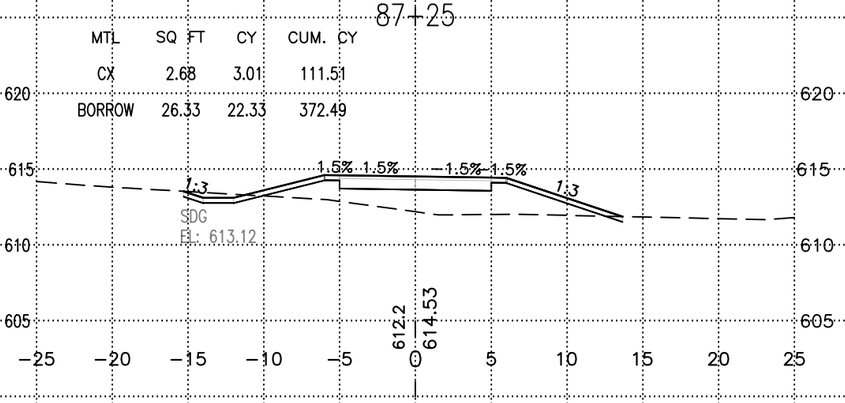
86+50

MTL	SQ FT	CY	CUM. CY
CX	7.14	3.19	93.41
BORROW	11.37	10.05	328.19



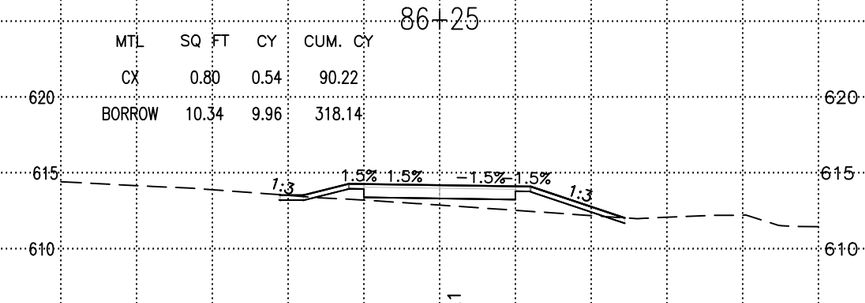
87+25

MTL	SQ FT	CY	CUM. CY
CX	2.68	3.01	111.51
BORROW	26.33	22.33	372.49



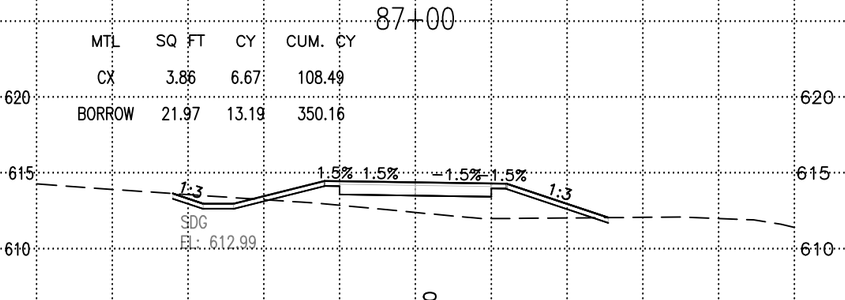
86+25

MTL	SQ FT	CY	CUM. CY
CX	0.80	0.54	90.22
BORROW	10.34	9.96	318.14



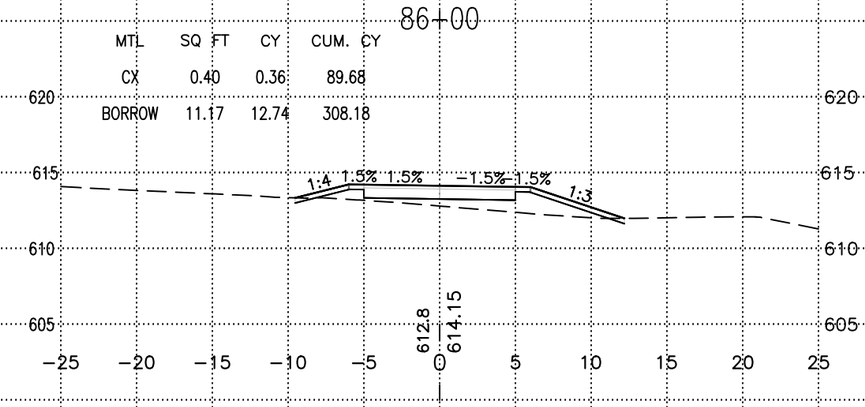
87+00

MTL	SQ FT	CY	CUM. CY
CX	3.86	6.67	108.49
BORROW	21.97	13.19	350.16



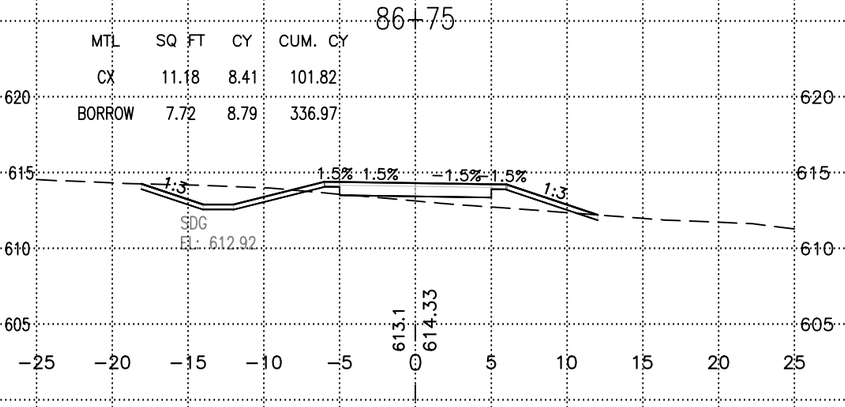
86+00

MTL	SQ FT	CY	CUM. CY
CX	0.40	0.36	89.68
BORROW	11.17	12.74	308.18



86+75

MTL	SQ FT	CY	CUM. CY
CX	11.18	8.41	101.82
BORROW	7.72	8.79	336.97



0 5 10
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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 58 OF 78

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6/8/2020 3:52:02 PM

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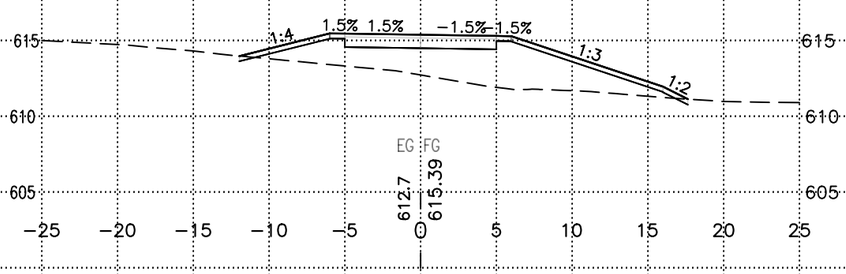
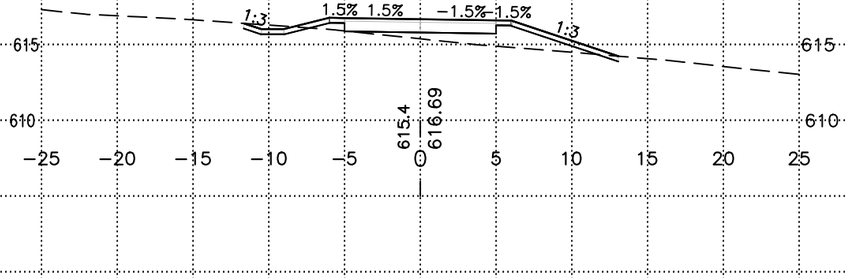
88+00

MTL	SQ FT	CY	CUM. CY
CX	0.33	0.31	113.46
BORROW	44.17	38.31	461.30



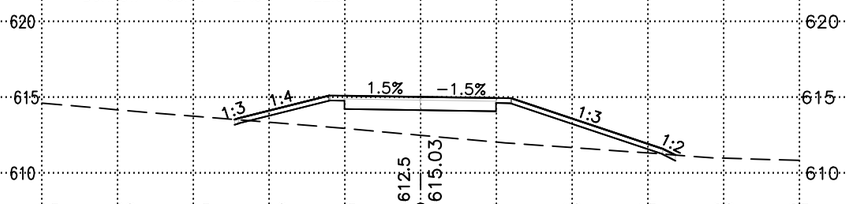
88+75

MTL	SQ FT	CY	CUM. CY
CX	2.15	1.10	115.21
BORROW	10.40	12.71	531.10



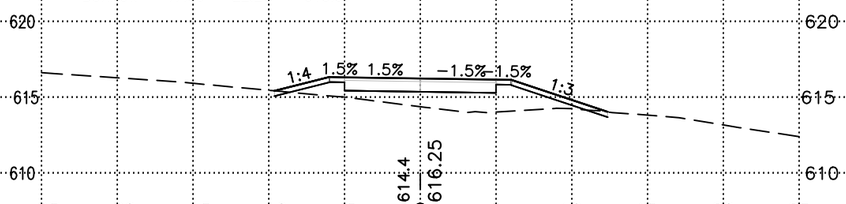
87+75

MTL	SQ FT	CY	CUM. CY
CX	0.33	0.35	113.16
BORROW	38.64	27.94	422.99



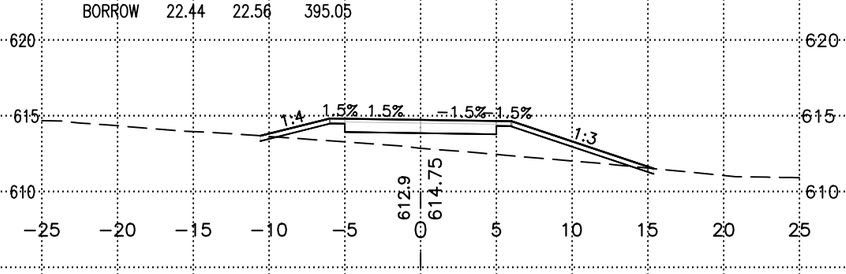
88+50

MTL	SQ FT	CY	CUM. CY
CX	0.43	0.35	114.11
BORROW	17.35	22.26	518.39



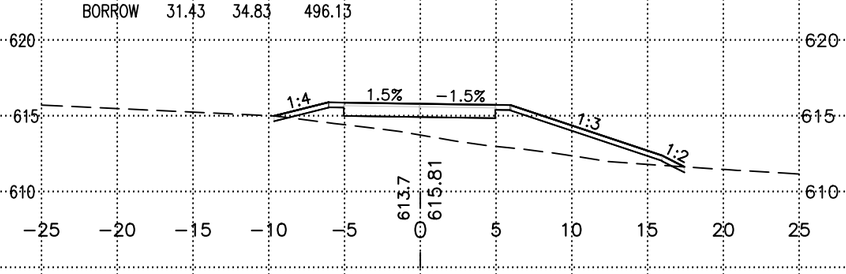
87+50

MTL	SQ FT	CY	CUM. CY
CX	0.44	1.30	112.80
BORROW	22.44	22.56	395.05



88+25

MTL	SQ FT	CY	CUM. CY
CX	0.32	0.30	113.77
BORROW	31.43	34.83	496.13



0 5 10
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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

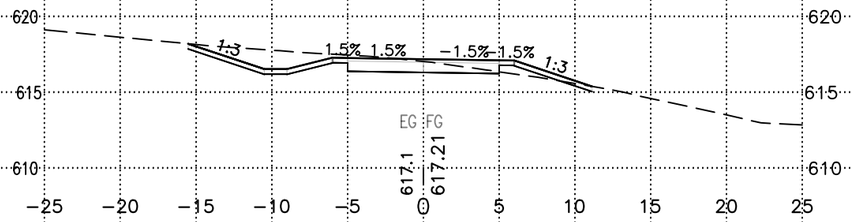
DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 59 OF 78

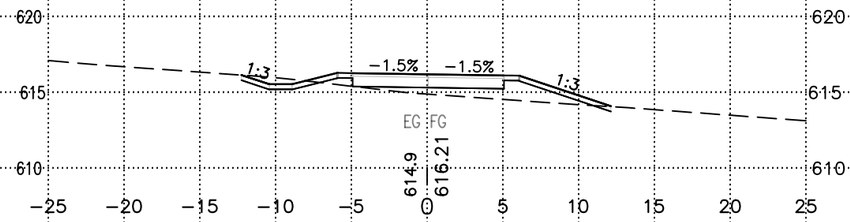
89+50

MTL	SQ FT	CY	CUM. CY
CX	17.98	21.47	156.39
BORROW	1.29	1.15	544.37



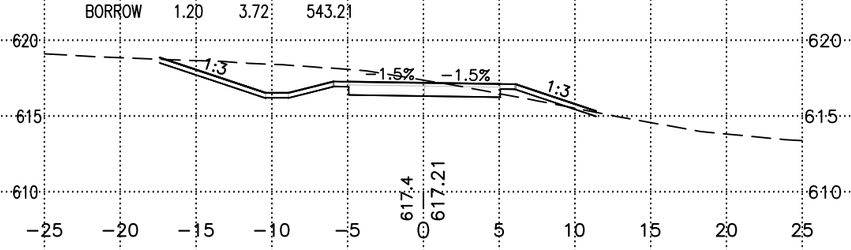
90+25

MTL	SQ FT	CY	CUM. CY
CX	2.96	5.33	190.56
BORROW	9.28	6.44	558.10



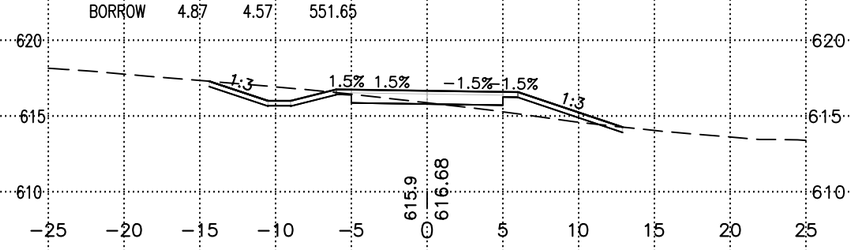
89+25

MTL	SQ FT	CY	CUM. CY
CX	28.82	15.59	134.92
BORROW	1.20	3.72	543.21



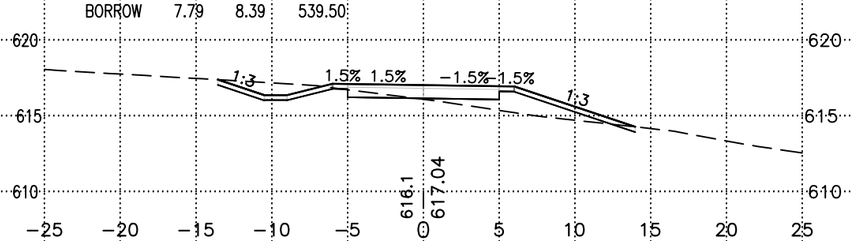
90+00

MTL	SQ FT	CY	CUM. CY
CX	9.12	12.25	185.22
BORROW	4.87	4.57	551.65



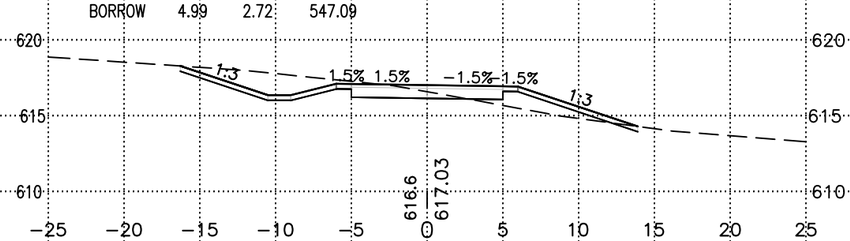
89+00

MTL	SQ FT	CY	CUM. CY
CX	7.25	4.12	119.33
BORROW	7.79	8.39	539.50



89+75

MTL	SQ FT	CY	CUM. CY
CX	17.83	16.58	172.97
BORROW	4.99	2.72	547.09



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DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 60 OF 78

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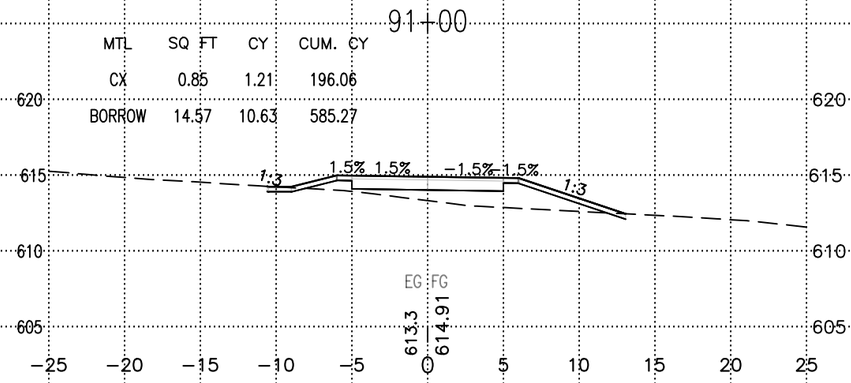
6/8/2020 3:52:32 PM

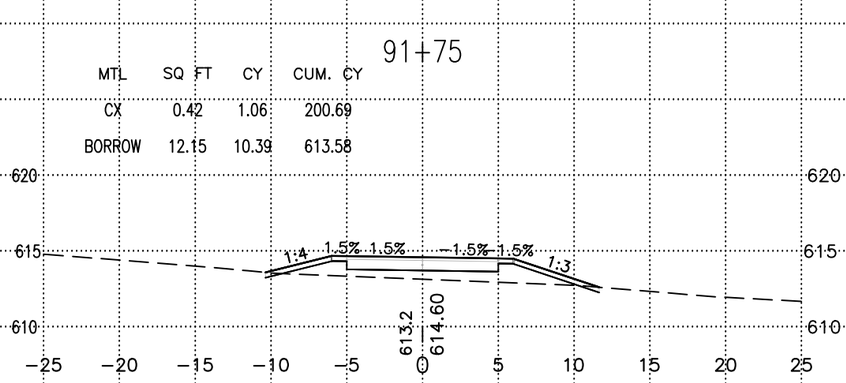
91+00

MTL	SQ FT	CY	CUM. CY
CX	0.85	1.21	196.06
BORROW	14.57	10.63	585.27



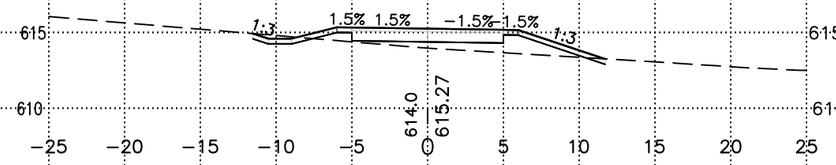
91+75

MTL	SQ FT	CY	CUM. CY
CX	0.42	1.06	200.69
BORROW	12.15	10.39	613.58



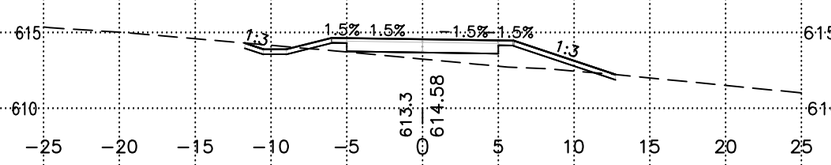
90+75

MTL	SQ FT	CY	CUM. CY
CX	1.83	1.88	194.84
BORROW	8.64	8.13	574.64



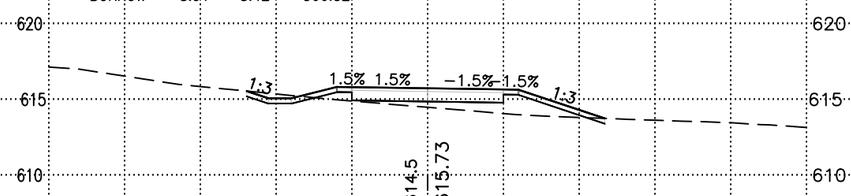
91+50

MTL	SQ FT	CY	CUM. CY
CX	2.09	2.10	199.63
BORROW	10.32	8.05	603.19



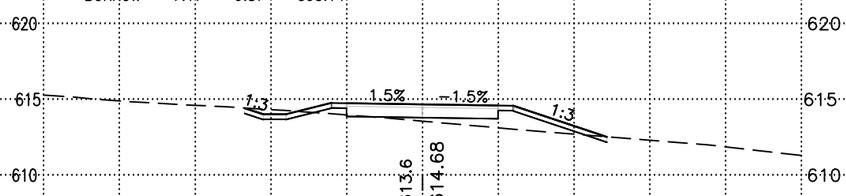
90+50

MTL	SQ FT	CY	CUM. CY
CX	2.24	2.40	192.96
BORROW	8.91	8.42	566.52



91+25

MTL	SQ FT	CY	CUM. CY
CX	2.46	1.47	197.52
BORROW	7.17	9.87	595.14



0 5 10
SCALE IN FEET

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SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 61 OF 78

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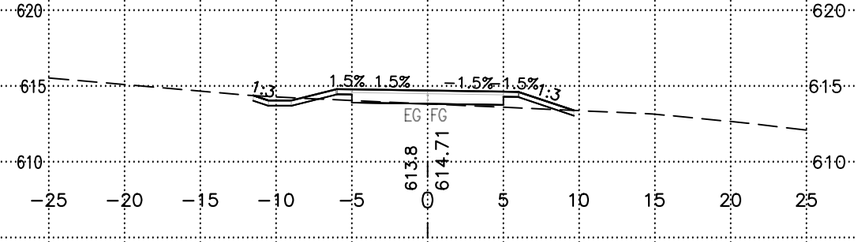
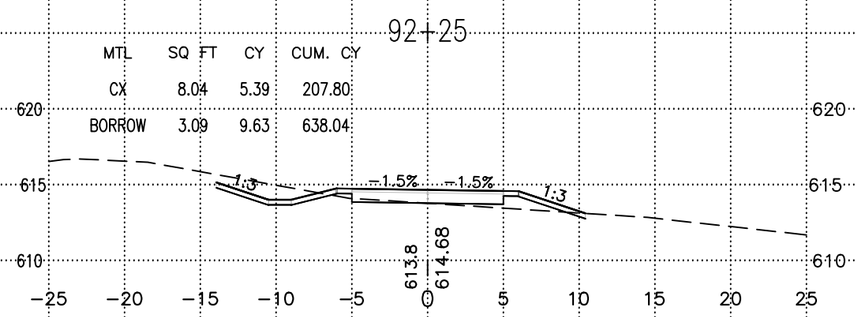
92+50

MTL	SQ FT	CY	CUM. CY
CX	2.37	4.56	212.36
BORROW	2.56	2.61	640.65



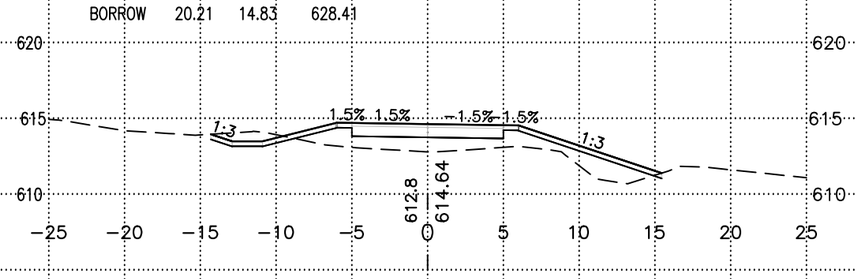
92+25

MTL	SQ FT	CY	CUM. CY
CX	8.04	5.39	207.80
BORROW	3.09	9.63	638.04



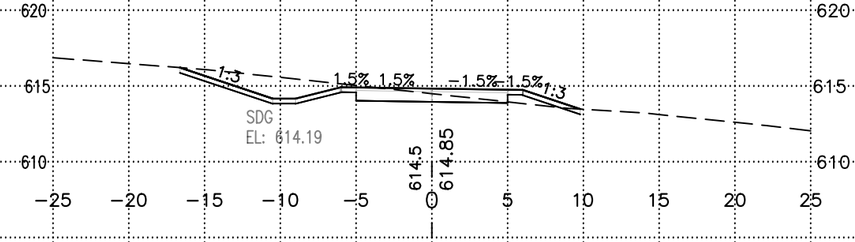
92+00

MTL	SQ FT	CY	CUM. CY
CX	3.86	1.71	202.40
BORROW	20.21	14.83	628.41



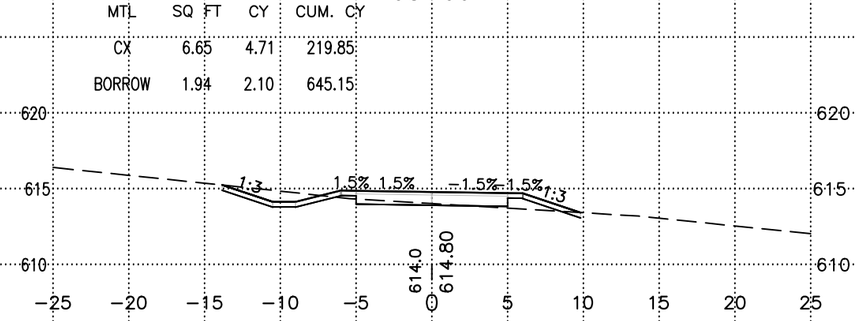
93+25

MTL	SQ FT	CY	CUM. CY
CX	18.61	11.23	231.08
BORROW	1.19	1.44	646.59



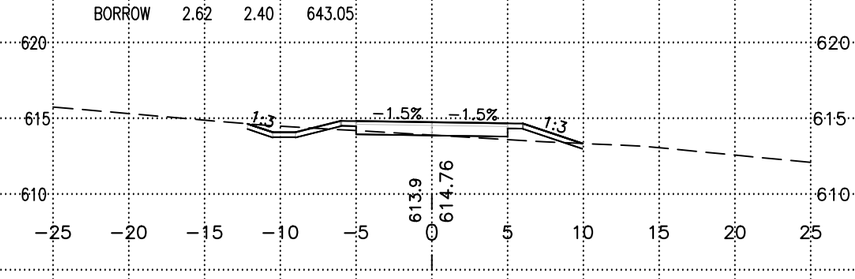
93+00

MTL	SQ FT	CY	CUM. CY
CX	6.65	4.71	219.85
BORROW	1.94	2.10	645.15



92+75

MTL	SQ FT	CY	CUM. CY
CX	3.67	2.78	215.14
BORROW	2.62	2.40	643.05



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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 62 OF 78

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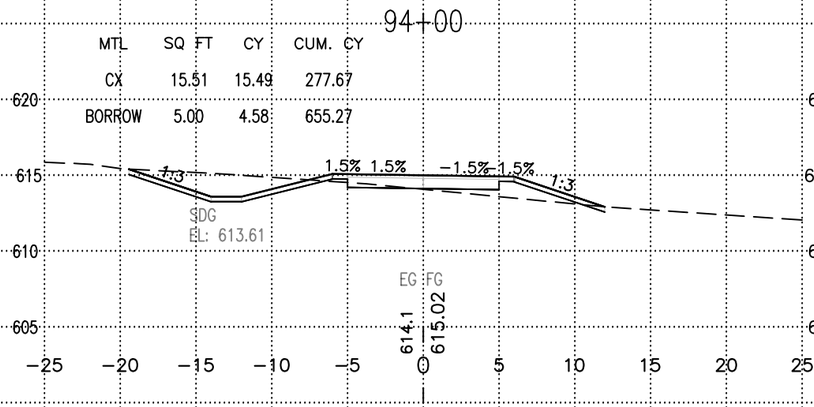
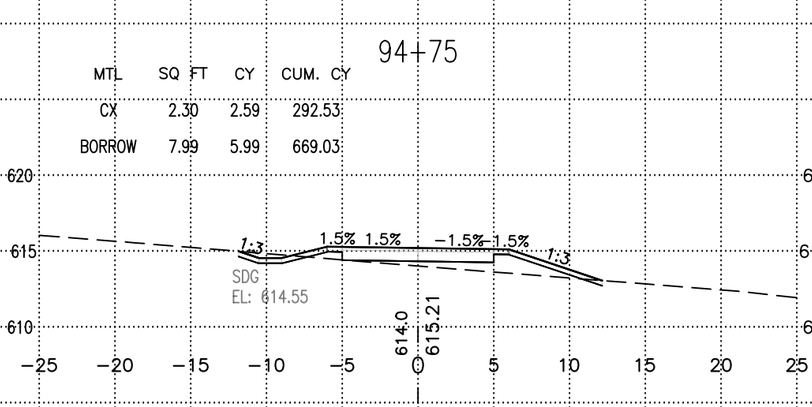
94+00

MTL	SQ FT	CY	CUM. CY
CX	15.51	15.49	277.67
BORROW	5.00	4.58	655.27



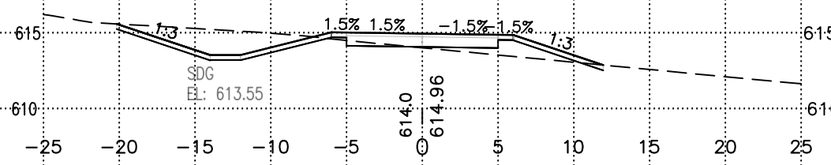
94+75

MTL	SQ FT	CY	CUM. CY
CX	2.30	2.59	292.53
BORROW	7.99	5.99	669.03



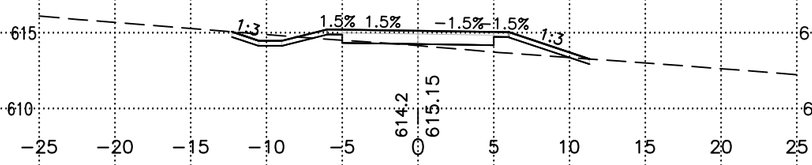
93+75

MTL	SQ FT	CY	CUM. CY
CX	17.98	15.41	262.18
BORROW	4.89	2.84	650.69



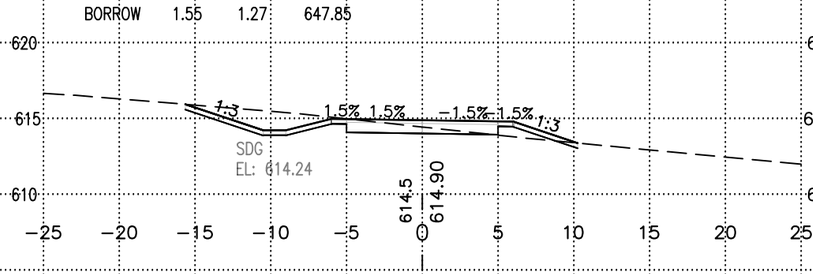
94+50

MTL	SQ FT	CY	CUM. CY
CX	3.33	3.57	289.94
BORROW	5.05	3.90	663.04



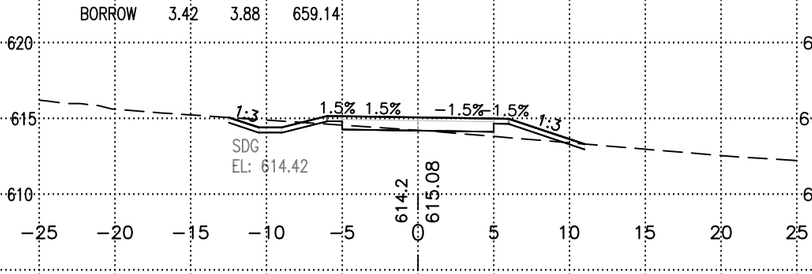
93+50

MTL	SQ FT	CY	CUM. CY
CX	15.33	15.69	246.78
BORROW	1.55	1.27	647.85



94+25

MTL	SQ FT	CY	CUM. CY
CX	4.41	8.70	286.37
BORROW	3.42	3.88	659.14



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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 63 OF 78

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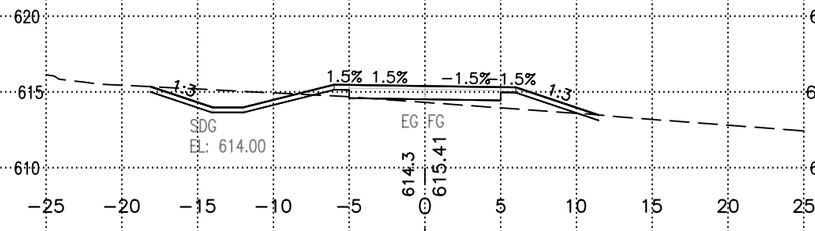
6/8/2020 3:53:17 PM

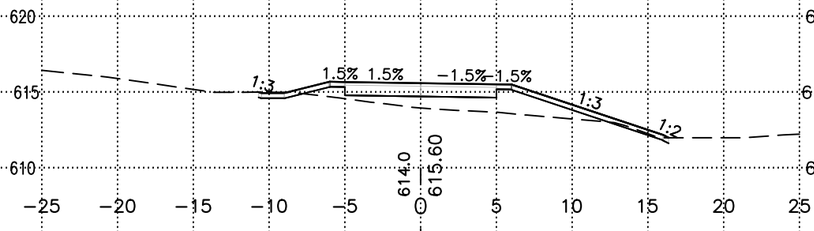
95+50

MTL	SQ FT	CY	CUM. CY
CX	10.29	9.51	315.58
BORROW	6.05	7.45	697.26



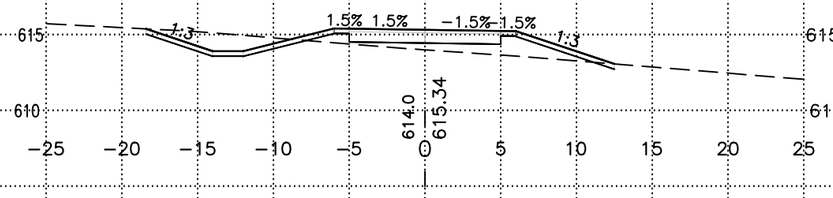
96+25

MTL	SQ FT	CY	CUM. CY
CX	1.39	2.35	338.46
BORROW	14.86	11.59	717.80



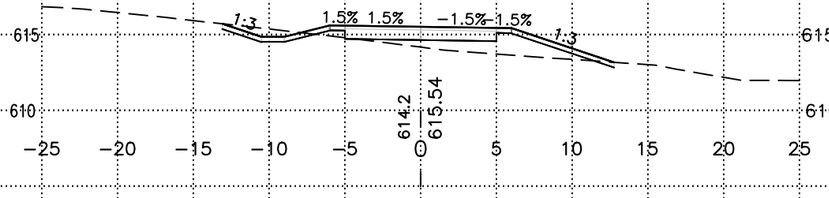
95+25

MTL	SQ FT	CY	CUM. CY
CX	10.25	8.76	306.07
BORROW	10.22	10.94	689.80



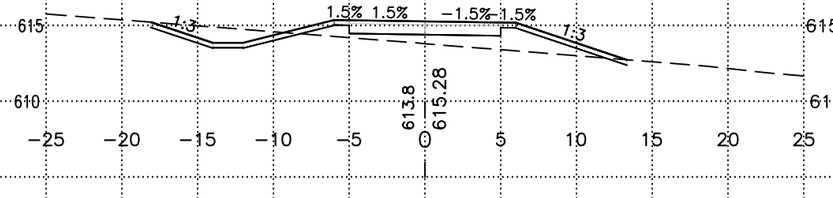
96+00

MTL	SQ FT	CY	CUM. CY
CX	3.89	8.52	336.12
BORROW	10.32	5.30	706.20



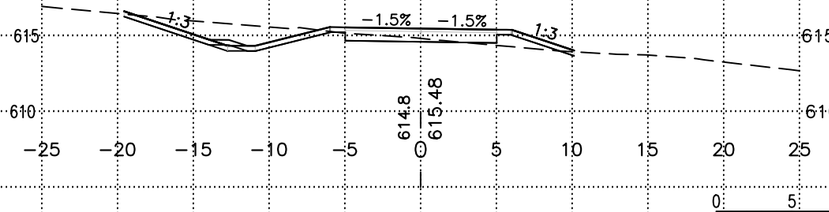
95+00

MTL	SQ FT	CY	CUM. CY
CX	8.70	4.77	297.30
BORROW	13.49	9.83	678.86



95+75

MTL	SQ FT	CY	CUM. CY
CX	15.87	12.02	327.60
BORROW	2.15	3.65	700.90



0 5 10
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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 64 OF 78

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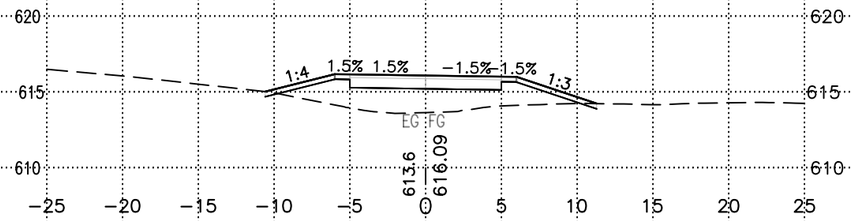
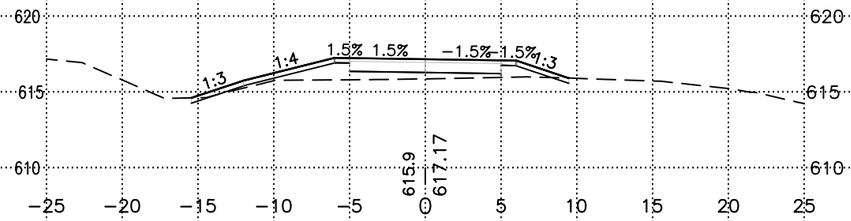
97+00

MTL	SQ FT	CY	CUM. CY
CX	0.34	0.31	341.65
BORROW	24.26	20.47	766.38



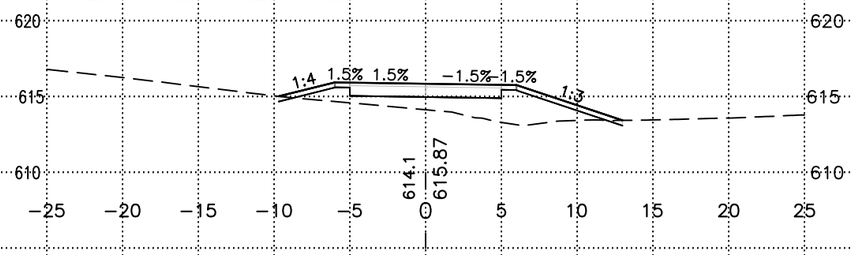
97+75

MTL	SQ FT	CY	CUM. CY
CX	0.41	0.32	342.52
BORROW	9.80	11.94	821.89



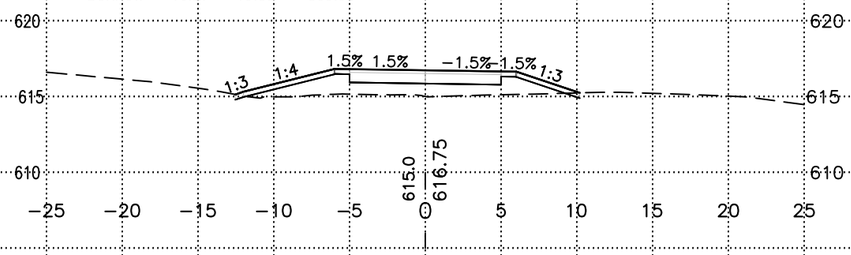
96+75

MTL	SQ FT	CY	CUM. CY
CX	0.34	1.13	341.34
BORROW	20.01	15.20	745.92



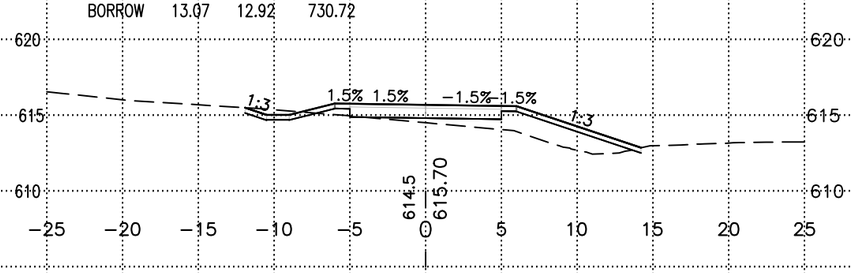
97+50

MTL	SQ FT	CY	CUM. CY
CX	0.29	0.26	342.20
BORROW	16.27	19.83	809.95



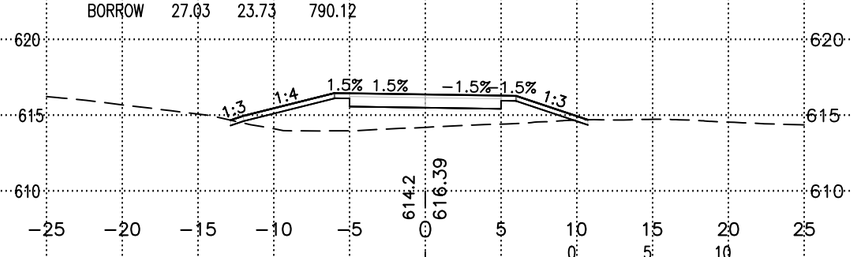
96+50

MTL	SQ FT	CY	CUM. CY
CX	2.42	1.74	340.21
BORROW	13.07	12.92	730.72



97+25

MTL	SQ FT	CY	CUM. CY
CX	0.27	0.28	341.94
BORROW	27.03	23.73	790.12



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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 65 OF 78

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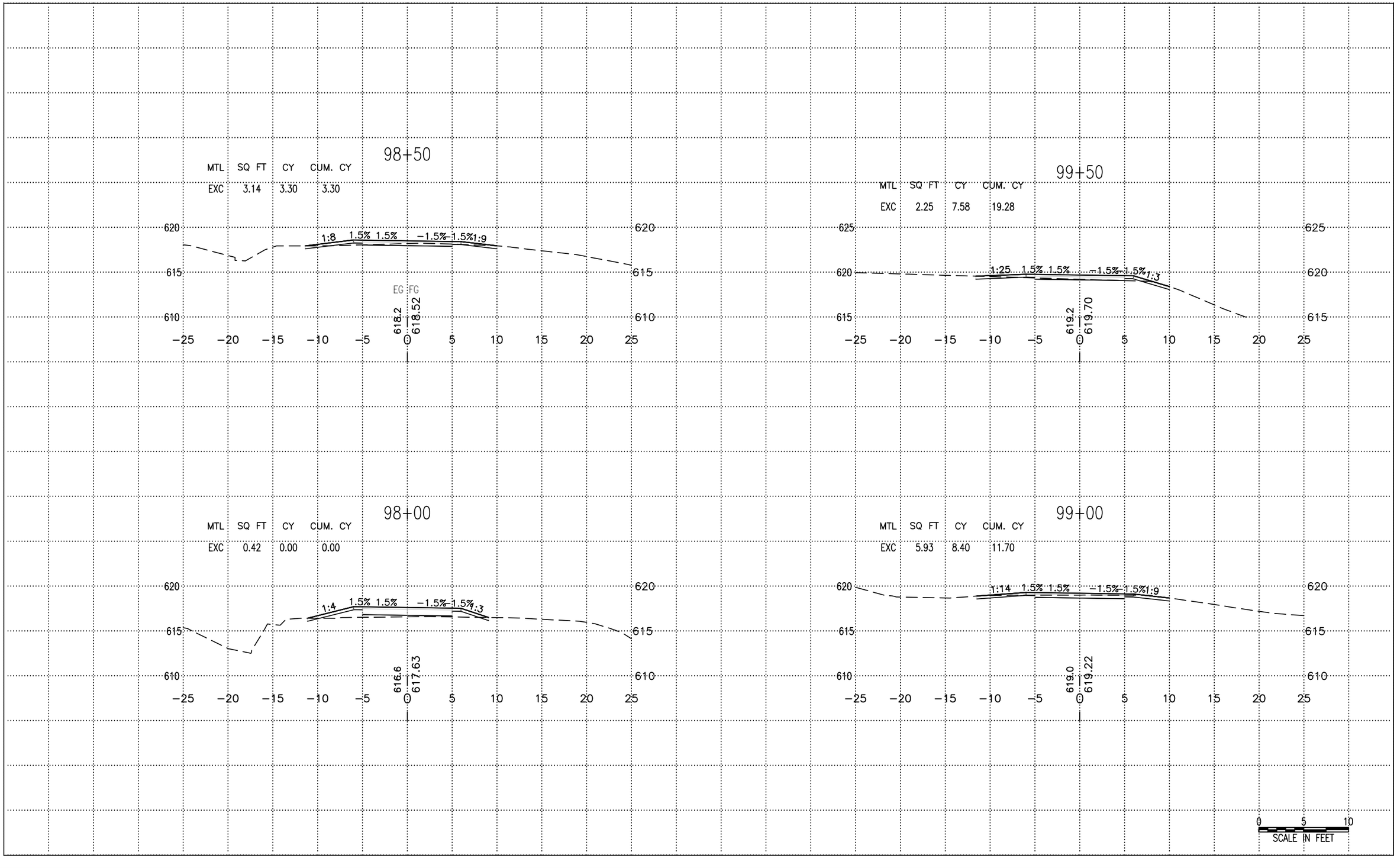

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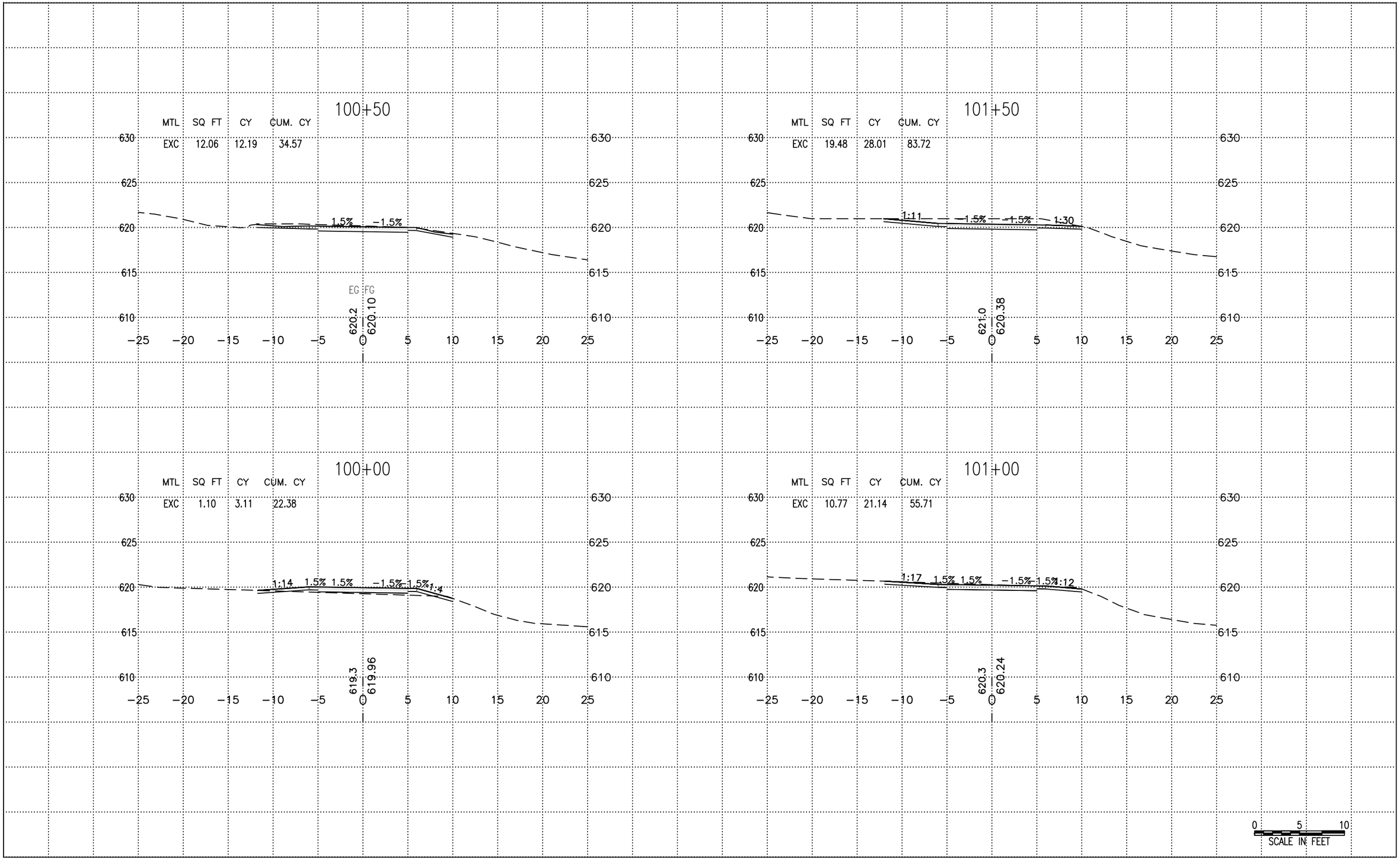

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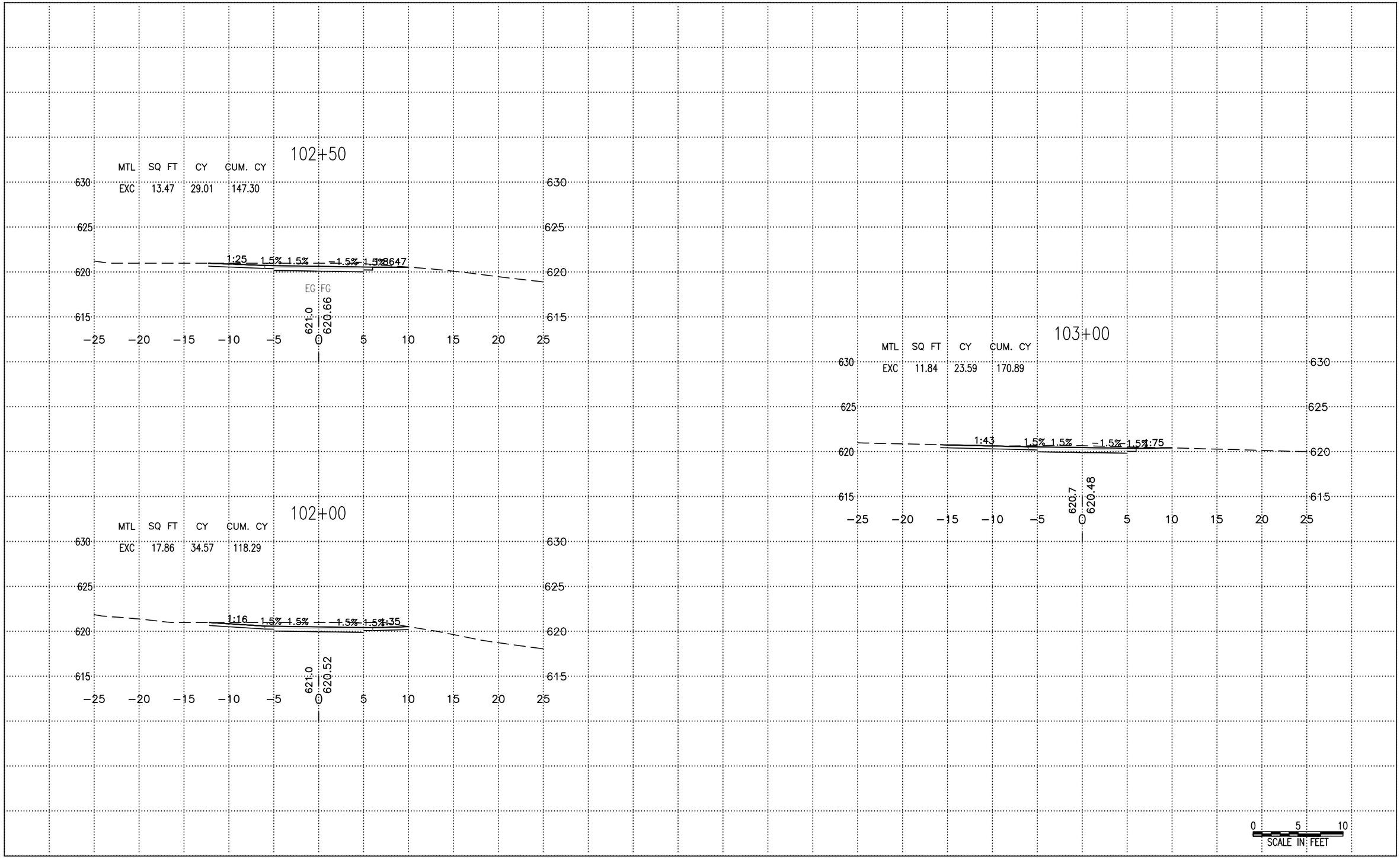

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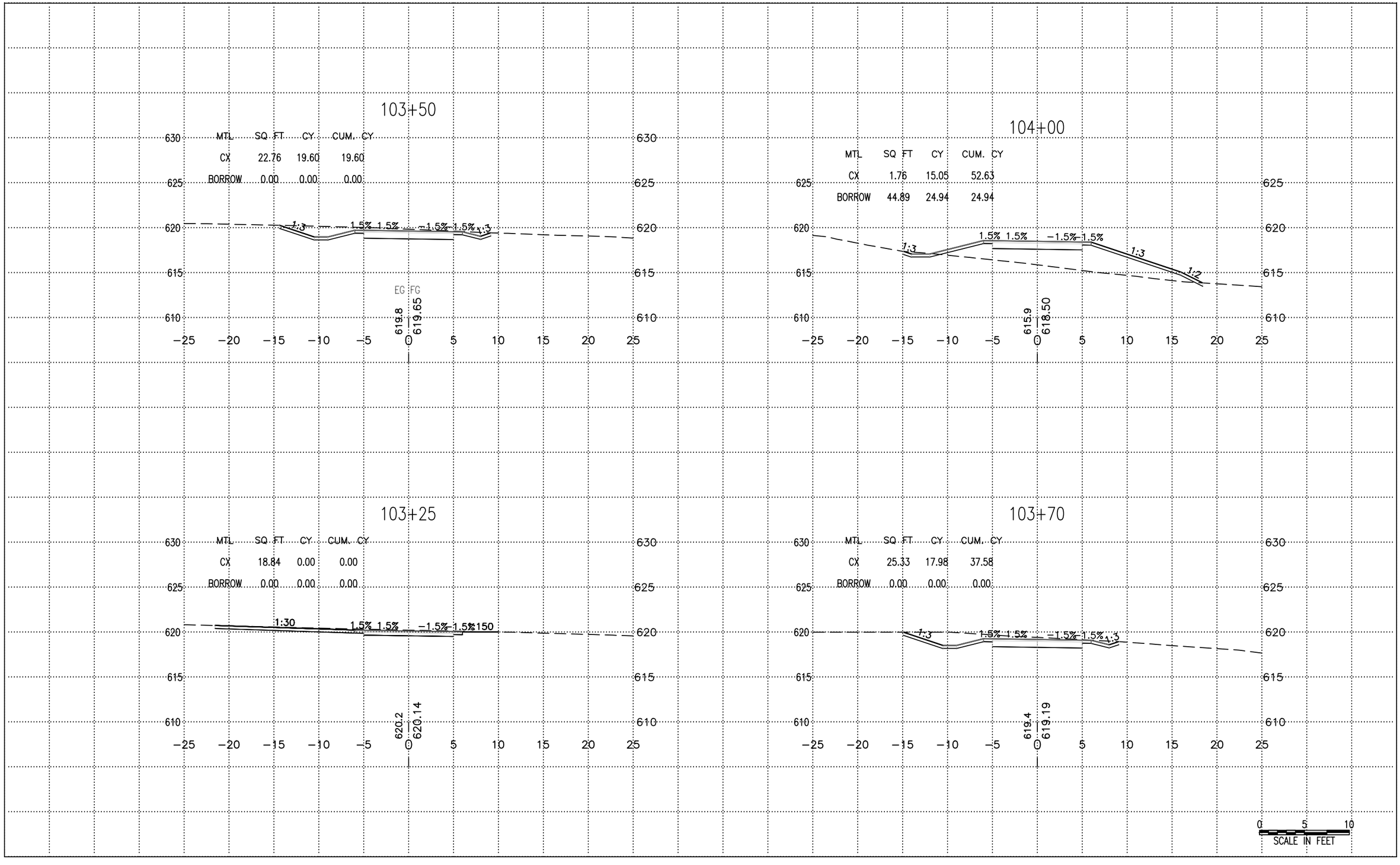

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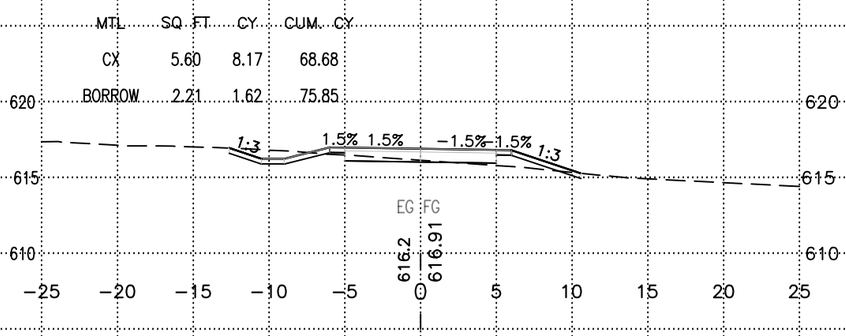
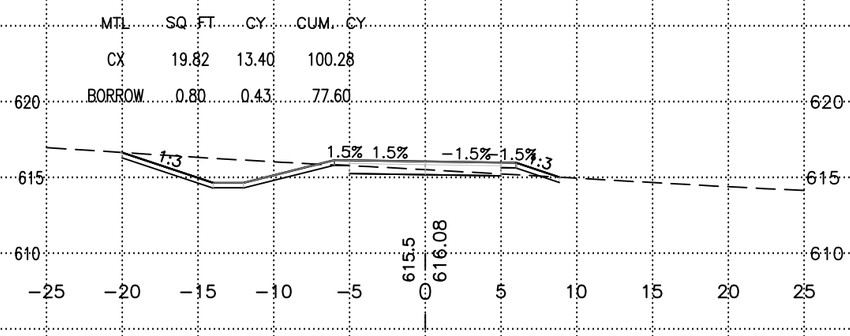
104+75

MTL	SQ. FT.	CY	CUM. CY
CX	5.60	8.17	68.68
BORROW	2.21	1.62	75.85



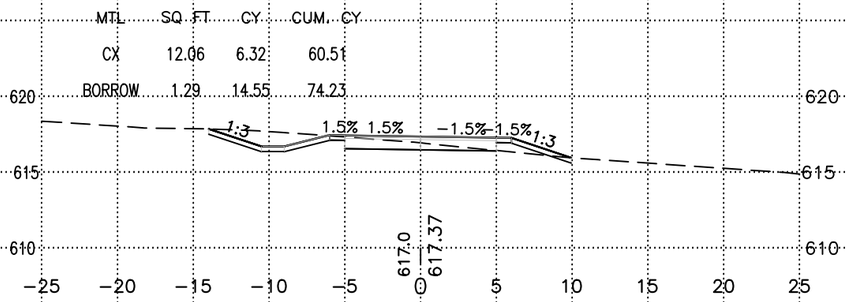
105+50

MTL	SQ. FT.	CY	CUM. CY
CX	19.82	13.40	100.28
BORROW	0.80	0.43	77.60



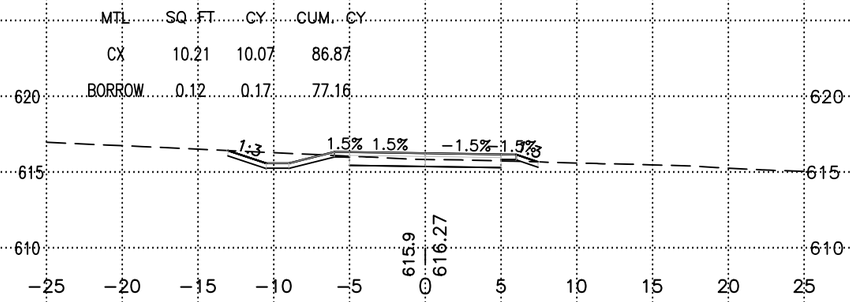
104+50

MTL	SQ. FT.	CY	CUM. CY
CX	12.06	6.32	60.51
BORROW	1.29	14.55	74.23



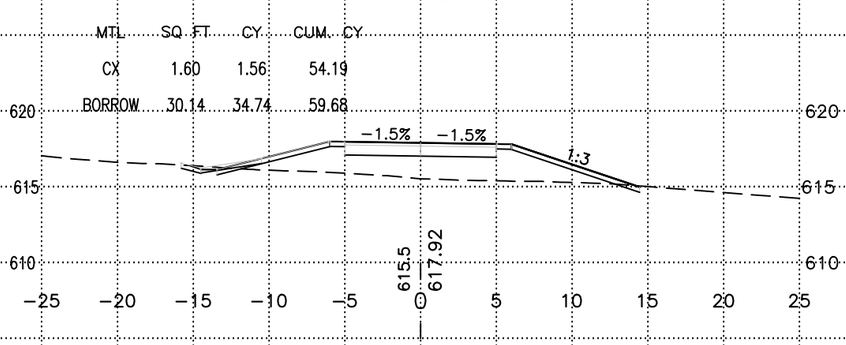
105+25

MTL	SQ. FT.	CY	CUM. CY
CX	10.21	10.07	86.87
BORROW	0.12	0.17	77.16



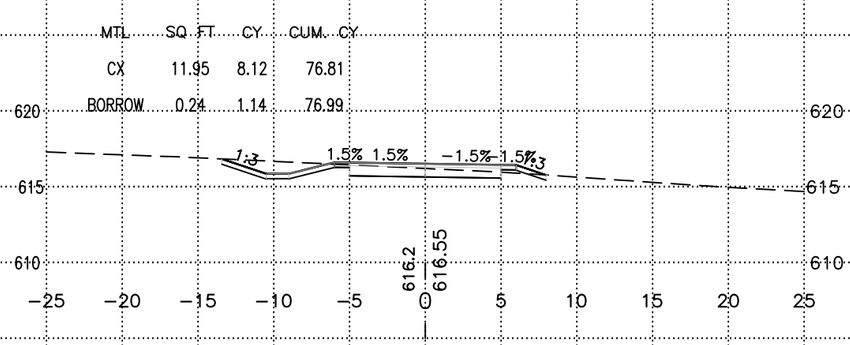
104+25

MTL	SQ. FT.	CY	CUM. CY
CX	1.60	1.56	54.19
BORROW	30.14	34.74	59.68



105+00

MTL	SQ. FT.	CY	CUM. CY
CX	11.95	8.12	76.81
BORROW	0.24	1.14	76.99



0 5 10
SCALE IN FEET

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 70 OF 78

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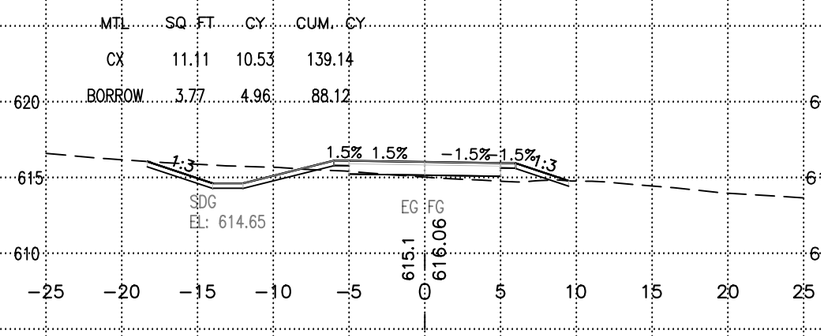
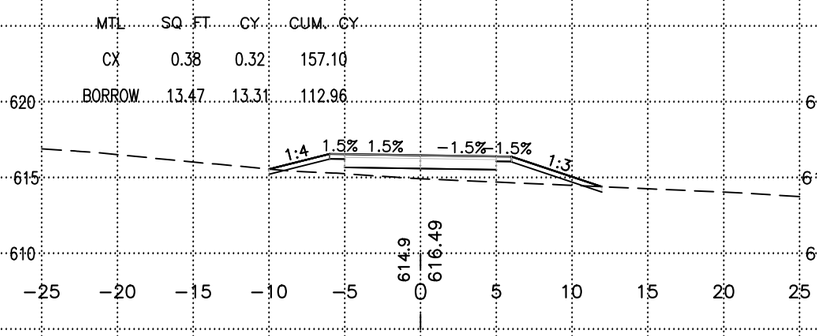
106+25

MTL	SQ FT	CY	CUM. CY
CX	11.11	10.53	139.14
BORROW	3.77	4.96	88.12



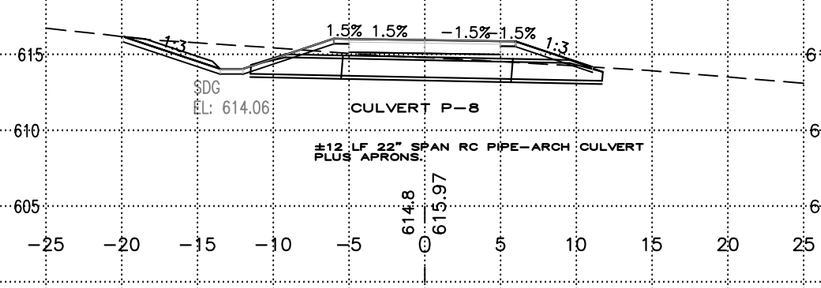
107+00

MTL	SQ FT	CY	CUM. CY
CX	0.38	0.32	157.10
BORROW	13.47	13.31	112.96



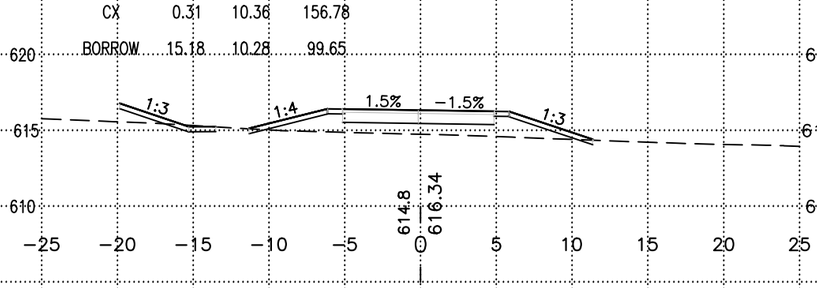
106+00

MTL	SQ FT	CY	CUM. CY
CX	12.86	12.61	128.61
BORROW	6.83	4.19	83.16



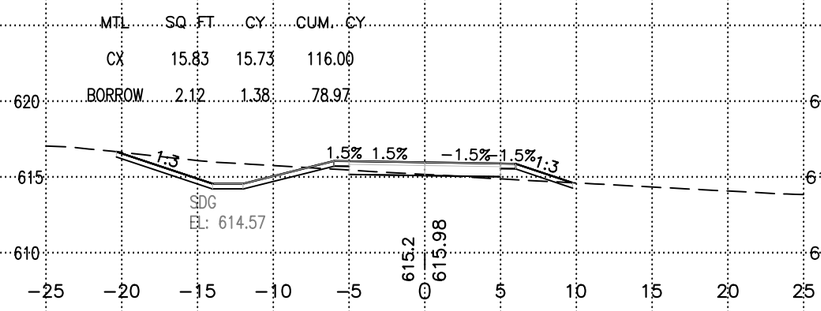
106+75

MTL	SQ FT	CY	CUM. CY
CX	0.31	10.36	156.78
BORROW	15.18	10.28	99.65



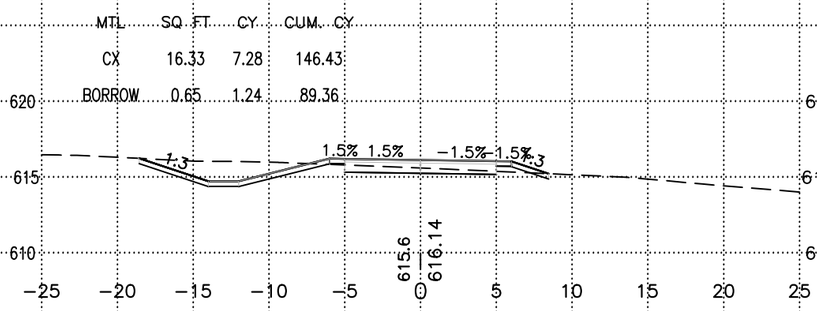
105+75

MTL	SQ FT	CY	CUM. CY
CX	15.83	15.73	116.00
BORROW	2.12	1.38	78.97



106+40

MTL	SQ FT	CY	CUM. CY
CX	16.33	7.28	146.43
BORROW	0.65	1.24	89.36



0 5 10
SCALE IN FEET

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

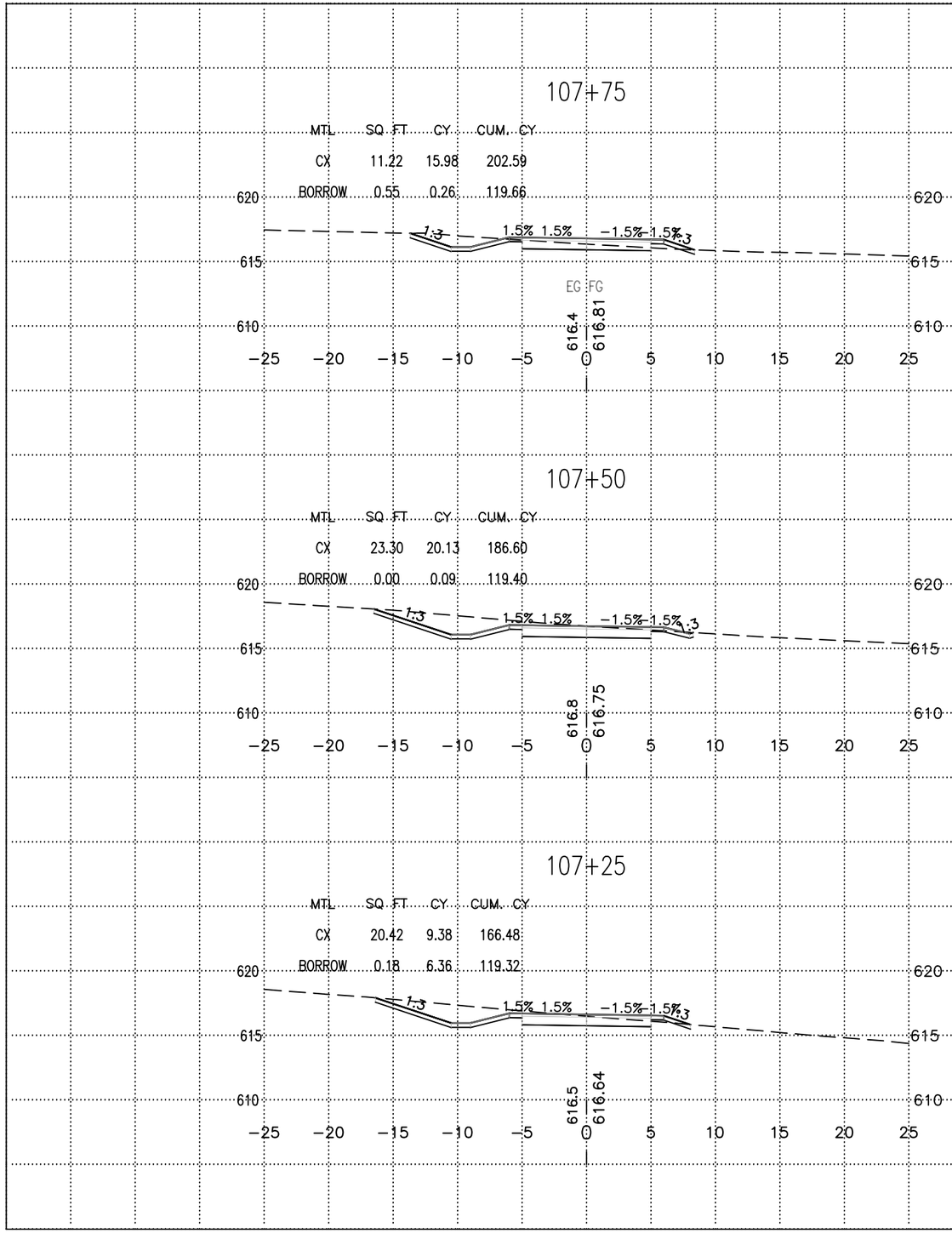
CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 71 OF 78



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CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 72 OF 78

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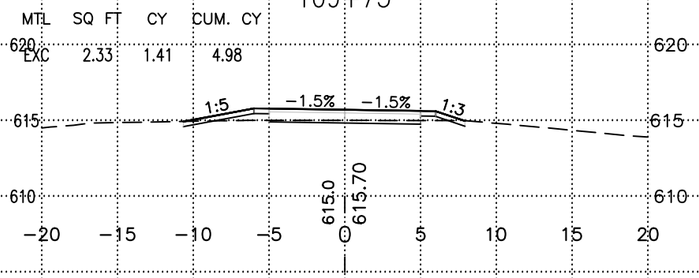
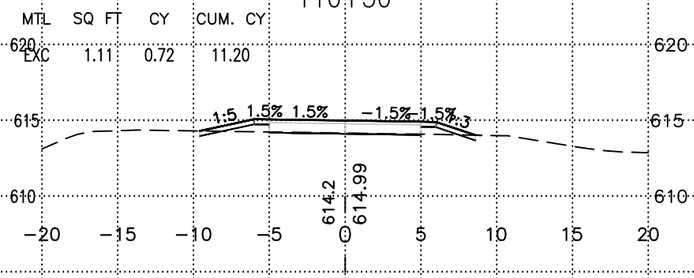
109+75

MTL	SQ FT	CY	CUM. CY
EXC	2.33	1.41	4.98



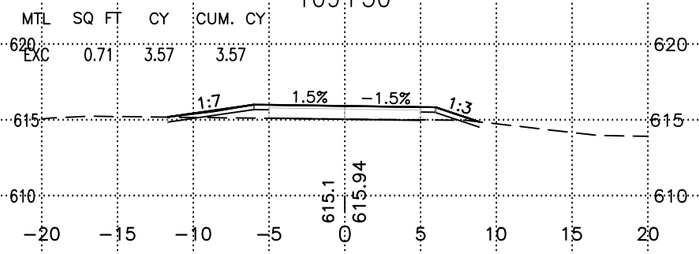
110+50

MTL	SQ FT	CY	CUM. CY
EXC	1.11	0.72	11.20



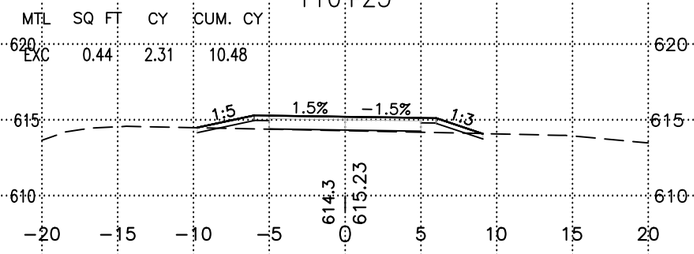
109+50

MTL	SQ FT	CY	CUM. CY
EXC	0.71	3.57	3.57



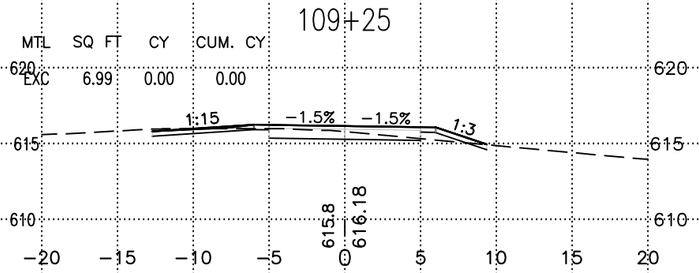
110+25

MTL	SQ FT	CY	CUM. CY
EXC	0.44	2.31	10.48



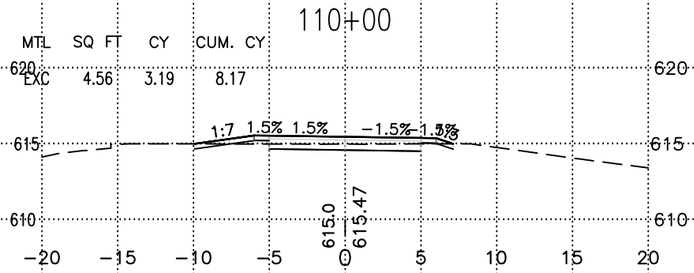
109+25

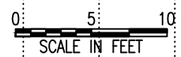
MTL	SQ FT	CY	CUM. CY
EXC	6.99	0.00	0.00



110+00

MTL	SQ FT	CY	CUM. CY
EXC	4.56	3.19	8.17





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PATRICK F. LOOMIS
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DULUTH MINNESOTA

CITY OF DULUTH
ENGINEERING DIVISION
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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 73 OF 78

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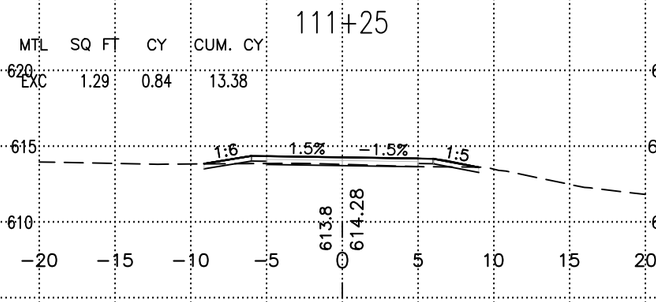

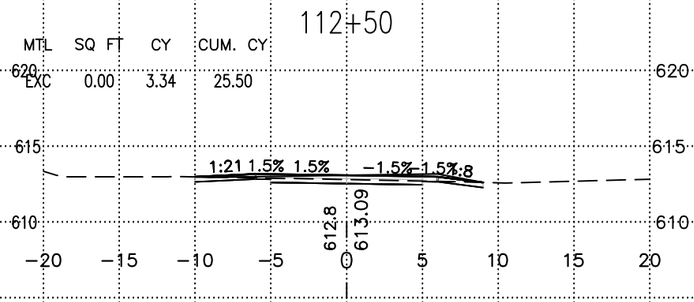

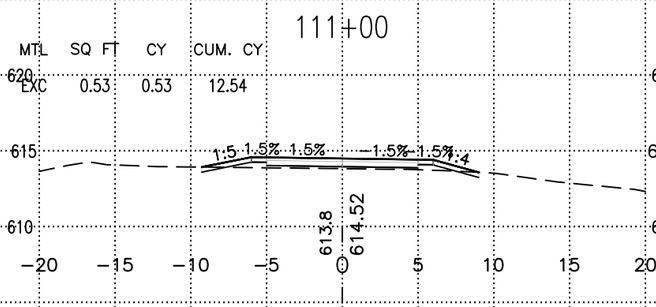

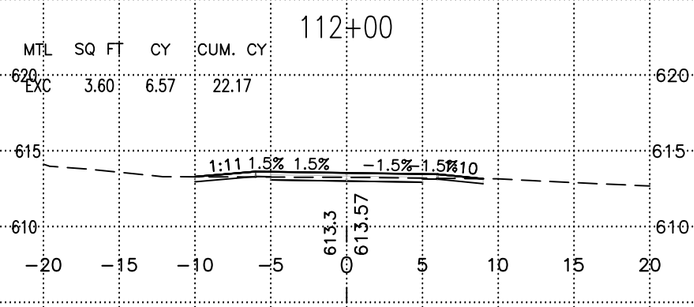

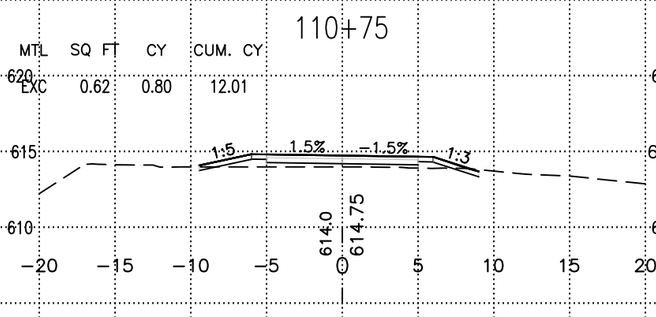

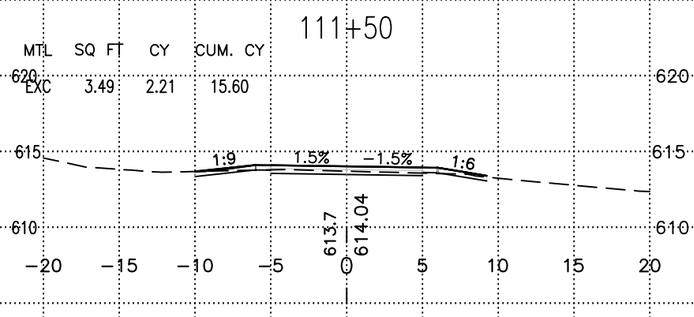

0 5 10
SCALE IN FEET

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 74 OF 78

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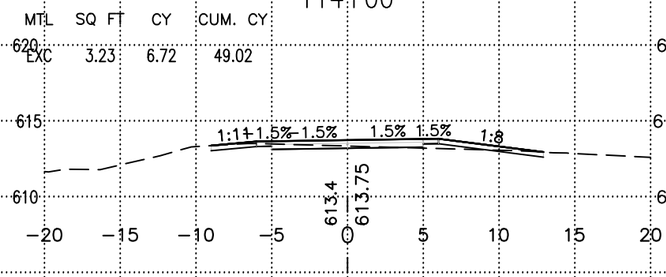
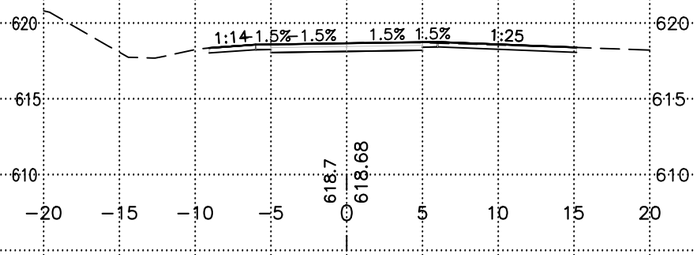
114+00

MTL	SQ FT	CY	CUM. CY
EXC	3.23	6.72	49.02



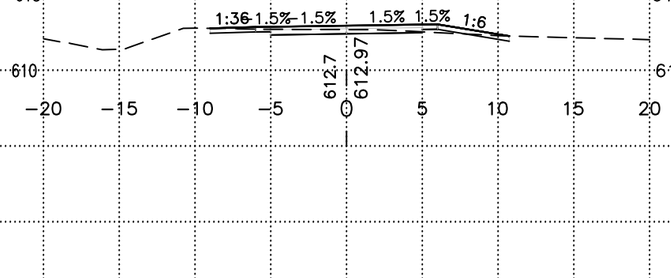
115+50

MTL	SQ FT	CY	CUM. CY
EXC	9.82	12.54	73.07



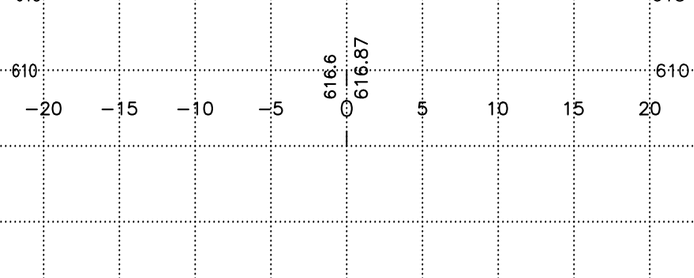
113+50

MTL	SQ FT	CY	CUM. CY
EXC	4.04	10.26	42.30



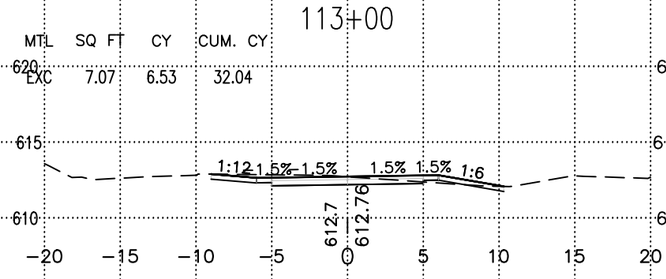
115+00

MTL	SQ FT	CY	CUM. CY
EXC	3.70	5.97	60.52



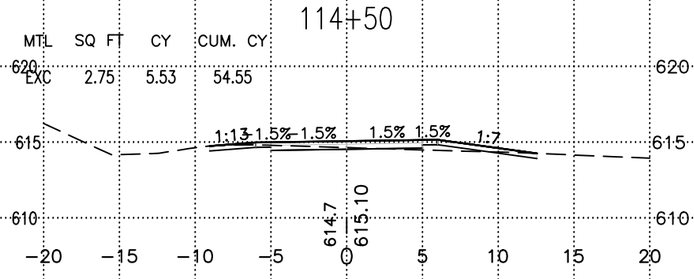
113+00

MTL	SQ FT	CY	CUM. CY
EXC	7.07	6.53	32.04



114+50

MTL	SQ FT	CY	CUM. CY
EXC	2.75	5.53	54.55



0 5 10
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DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 75 OF 78

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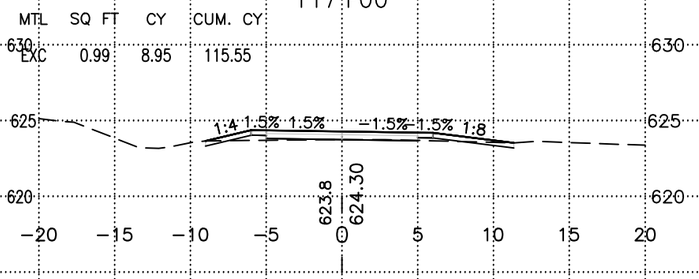
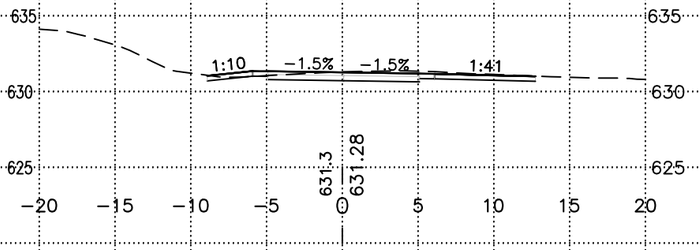
117+00

MTL	SQ FT	CY	CUM. CY
EXC	0.99	8.95	115.55



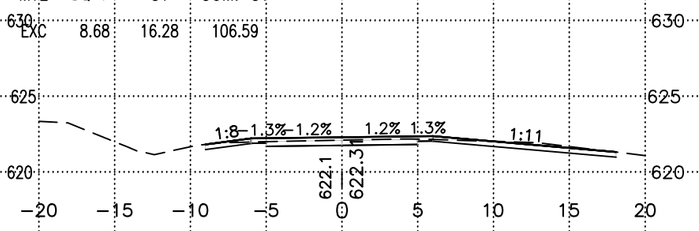
118+50

MTL	SQ FT	CY	CUM. CY
EXC	8.97	12.73	134.79



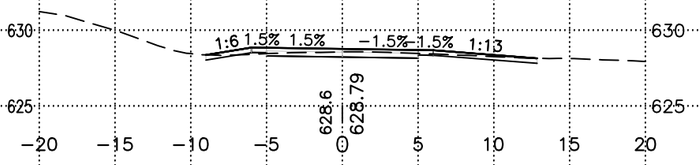
116+50

MTL	SQ FT	CY	CUM. CY
EXC	8.68	16.28	106.59



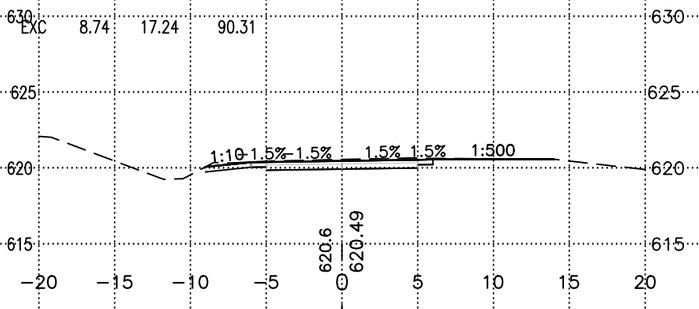
118+00

MTL	SQ FT	CY	CUM. CY
EXC	4.86	5.03	122.06



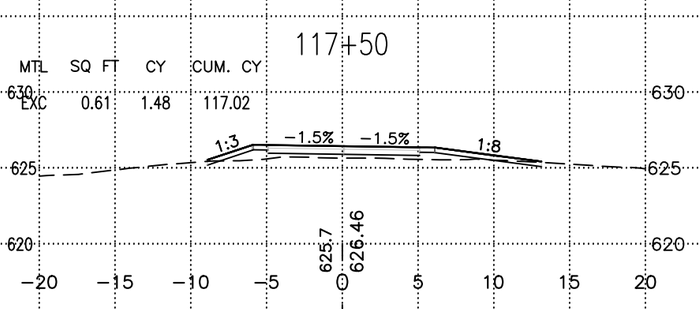
116+00

MTL	SQ FT	CY	CUM. CY
EXC	8.74	17.24	90.31



117+50

MTL	SQ FT	CY	CUM. CY
EXC	0.61	1.48	117.02



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LAKE WALK EXTENSION – BRIGHTON BEACH

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 76 OF 78

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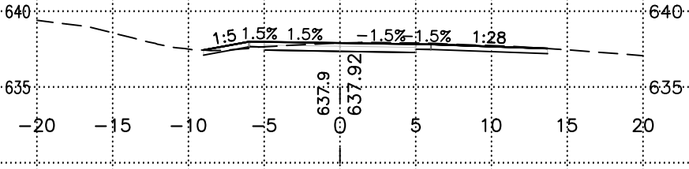
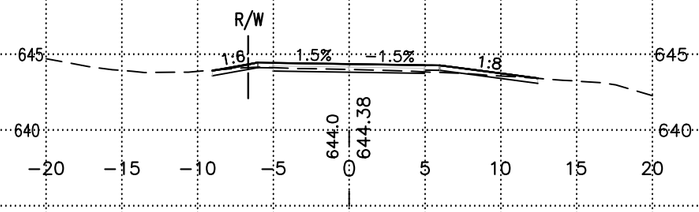
120+00

MTL	SQ FT	CY	CUM. CY
EXC	8.66	16.16	185.62



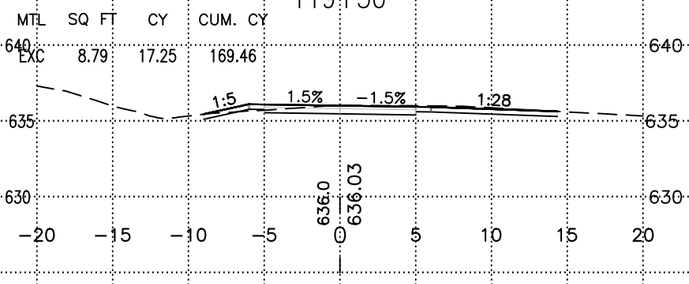
121+30

MTL	SQ FT	CY	CUM. CY
EXC	3.28	3.55	216.83



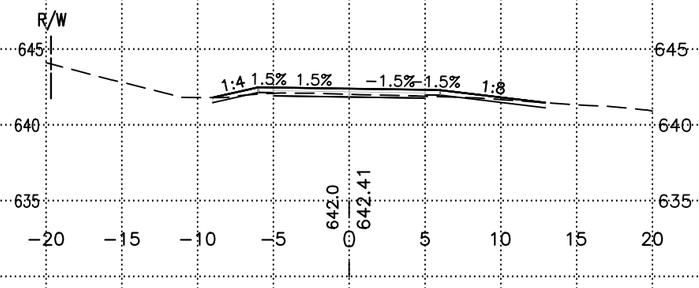
119+50

MTL	SQ FT	CY	CUM. CY
EXC	8.79	17.25	169.46



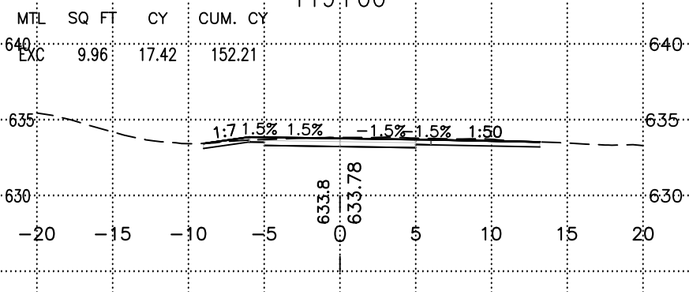
121+00

MTL	SQ FT	CY	CUM. CY
EXC	3.07	11.25	213.27



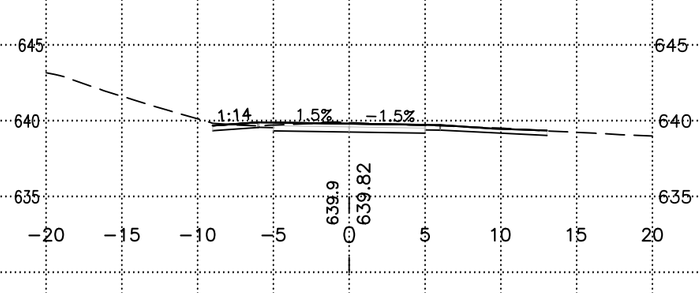
119+00

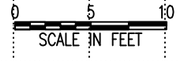
MTL	SQ FT	CY	CUM. CY
EXC	9.96	17.42	152.21



120+50

MTL	SQ FT	CY	CUM. CY
EXC	9.06	16.40	202.02





I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: _____ DATE: 4/8/2020

PATRICK F. LOOMIS
TYPE NAME

LIC. NO: 49099

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

LAKE WALK EXTENSION – BRIGHTON BEACH

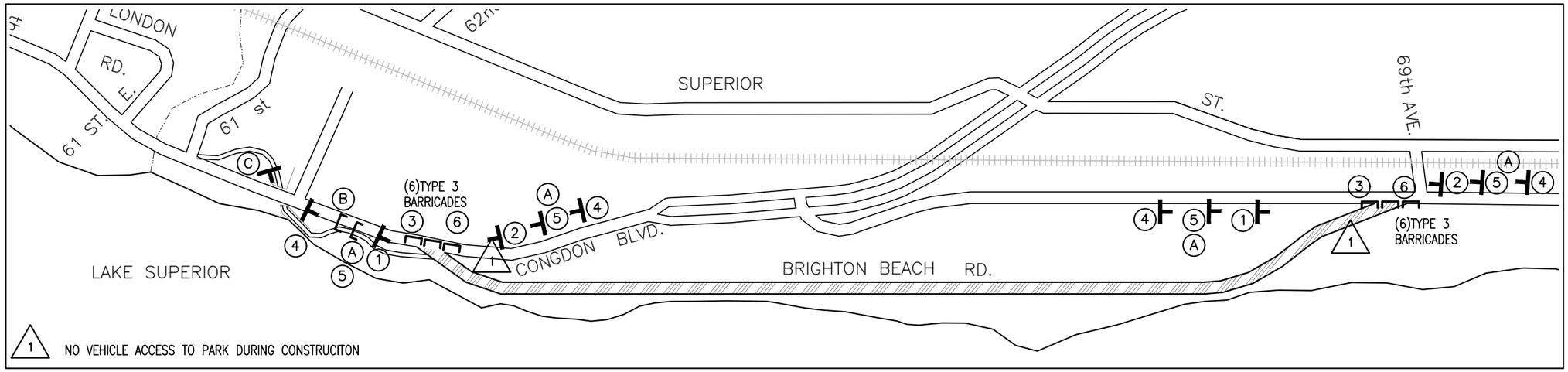
CITY PROJECT NO.: 1544 | STATE AID PROJECT NO.: 118-090-024

DRAWN BY: DJK

CROSS SECTIONS

SHEET NO. 77 OF 78

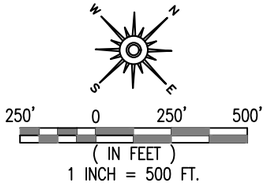
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.



ADVANCE NOTIFICATION CLOSURE SIGNS SHALL BE INSTALLED NO LESS THAN (7) SEVEN CALENDAR DAYS PRIOR TO PLANNED CLOSURE.

TRAFFIC SIGN LEGEND

KEY NOTE	SIGN NO.	DESCRIPTION MESSAGE	SIZE	
①	R3-1		24" x 24"	
②	R3-2		24" x 24"	
③	R11-2	ROAD CLOSED	48" x 30"	
④	W20-1	ROAD WORK AHEAD	36" x 36"	
⑤	W20-3	ROAD CLOSED AHEAD	48" x 48"	
⑥	R5-1	DO NOT ENTER	72" x 60"	
Ⓐ	SPECIAL	BRIGHTON BEACH RD	18" x 48"	
Ⓑ	SPECIAL	TRAIL CLOSED	18" x 48"	
Ⓒ	SPECIAL	TRAIL CLOSED AHEAD 500 FT	18" x 48"	



TRAFFIC SIGN LEGEND

DESCRIPTION	SYMBOL
TYPE III BARRICADE	
SIGN SUPPORT	
WEIGHTED CHANNELIZER TYPE A	

PROPOSED CONSTRUCTION

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF SIGNING AND A TRAFFIC CONTROL PLAN FOR MAINTAINING AND PROTECTING TRAFFIC THROUGH WORK AREAS WITHIN THE CONSTRUCTION ZONES. ALL TRAFFIC CONTROL PLANS AND SIGNING SHALL CONFORM TO THE MMUTCD INCLUDING PART VI AND THE CURRENT FIELD MANUAL. THIS PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AT LEAST 10–DAYS PRIOR TO THE PRE–CONSTRUCTION CONFERENCE.
2. INSTALLED BY THE CONTRACTOR. ALL APPROPRIATE SIGNING SHALL BE MAINTAINED DURING THE LIFE OF THE CONTRACT.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO AND BE PLACED IN ACCORDANCE WITH THE LATEST VERSION OF THE MINNESOTA STANDARD SIGNS MANUALS I,II, AND III, USING THE APPROPRIATE MATERIAL SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE ALL SIGNING REQUIRED BUT NOT ITEMIZED IN THIS TRAFFIC CONTROL PLAN.
4. MAINTENANCE OF LOCAL AND THROUGH TRAFFIC IS THE RESPONSIBILITY OF THE CONTRACTOR. PROPERTY OWNERS SHALL HAVE ACCESS AT ALL TIMES.
5. THE CONTRACTOR SHALL PLACE ADEQUATE PLASTIC DRUMS, WARNING SIGNS, AND BARRICADES WITHIN THE CONSTRUCTION ZONE TO PROTECT VEHICULAR TRAFFIC AND PEDESTRIAN TRAFFIC FROM CONSTRUCTION OPERATIONS. ADDITIONAL SIGNING MAY INCLUDE, BUT IS NOT LIMITED TO CHANNELIZATION OF TRAFFIC, BUMP, DIP, LOOSE GRAVEL, ETC.. THE NUMBER AND LOCATIONS OF TRAFFIC CONTROL DEVICES SHALL BE DETERMINED BY THE SEQUENCE OF THE CONTRACTORS OPERATIONS. TRAFFIC CONTROL DEVICES MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY ENGINEER.
6. TEMPORARY LANE CLOSURES BY THE CONTRACTOR WILL BE PERMITTED DURING THOSE HOURS AND AT THOSE LOCATIONS APPROVED BY THE ENGINEER, IN ACCORDANCE WITH THE PERTINENT LAYOUTS SHOWN IN APPENDIX "B" OF THE MMUTCD. ALL SUCH WORK RELATING TO THE CLOSURES, INCLUDING FLAGPERSONS, SHALL BE CONSTRUED TO BE INCLUDED IN THE LUMP SUM PAYMENT UNDER ITEM NO. 2563.601 (TRAFFIC CONTROL).
7. ALL WARNING SIGNS ARE TO BE 48" X 48", BLACK ON ORANGE WITH HIGH INTENSITY OR "DIAMOND GRADE" RETROREFLECTIVE SHEETING. ALL BLACK ON ORANGE WORK ZONE TRAFFIC CONTROL SIGNS; ORANGE AND WHITE TYPE I, TYPE II, AND TYPE III BARRICADES; DETOUR ROUTE MARKERS, AND ALL OTHER RIGID SIGNS INSTALLED TO CONTROL AND DIRECT TRAFFIC DURING CONSTRUCTION OPERATIONS SHALL BE CONSTRUCTED OF HIGH INTENSITY OR "DIAMOND GRADE" RETROREFLECTIVE SHEETING.
8. TYPE A (LOW INTENSITY) FLASHERS SHALL BE FURNISHED, INSTALLED, AND MAINTAINED ON ALL TYPE III BARRICADES AND ADVANCED WARNING SIGNS AS DETAILED IN THIS TRAFFIC CONTROL PLAN. ADDITIONAL FLASHERS SHALL BE FURNISHED, INSTALLED AND MAINTAINED ON SIGNS, BARRICADES, AND CHANNELIZERS AS NEEDED OR AS DIRECTED BY THE ENGINEER FOR TRAFFIC CONTROL THROUGH WORK ZONES WITHIN THE PROJECT LIMITS.
9. FLAGGING SHALL BE REQUIRED WHEN WORKING AT THE EDGE OF THE DRIVING LANE TO PROTECT TRAFFIC FROM CONSTRUCTION OPERATIONS FLAGGING SHALL BE IN ACCORDANCE WITH THE PERTINENT LAYOUT SHOWN IN PART VI OF THE MMUTCD INCLUDING THE CURRENT FIELD MANUAL. FLAGGERS SHALL USE TWO–WAY RADIOS FOR COMMUNICATION IN THE EVENT THEY ARE NOT IN SIGHT OF EACH OTHER OR AT THE DIRECTION OF THE ENGINEER. ALL SUCH WORK RELATED TO FLAGGING, INCLUDING FLAGPERSONS, SHALL BE INCLUDED IN THE LUMP SUM PAYMENT FOR TRAFFIC CONTROL (2563.601)
10. THE INITIAL CONSTRUCTION SIGNING SHALL BE ERECTED PRIOR TO THE CONSTRUCTION OPERATIONS THAT WILL AFFECT THE TRAVELING PUBLIC.
11. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED OR COVERED AS SOON AS THEY ARE NO LONGER REQUIRED OR APPROPRIATE.
12. THE CONTRACTOR SHALL FOLLOW THIS TRAFFIC CONTROL PLAN ALONG WITH SPECIFICATIONS 1404, 1710, THE SPECIAL PROVISIONS, AND THE GUIDELINES FOR TRAFFIC CONTROL TREATMENT OF LONGITUDINAL JOINTS AND EDGE DROP–OFFS IN WORK ZONES.
13. THE CONTRACTOR SHALL RECEIVE COMPENSATION FOR ALL WORK DESCRIBED HEREIN ON THE BASIS OF A LUMP SUM PAYMENT FOR TRAFFIC CONTROL (2563.601).
14. ONLY SIGNS, BARRICADES, VERTICAL PANELS, DRUM–LIKE CHANNELIZERS, AND CONES THAT MEET THE REQUIREMENTS OF "QUALITY STANDARDS FOR WORK ZONE TRAFFIC CONTROL" AS OUTLINED IN THE CURRENT FIELD MANUAL SHALL BE USED ON THIS PROJECT. WORK SHALL NOT BEGIN UNTIL A DETERMINATION HAS BEEN MADE THAT THE TRAFFIC CONTROL DEVICES MEET THE QUALITY REQUIRED IN THIS STANDARD. COMPLIANCE WITH THIS REQUIREMENT, IN ACCORDANCE WITH THE FORGOING, SHALL BE CONSIDERED INCIDENTAL WORK AND NO DIRECT COMPENSATION WILL BE MADE THEREFORE.
15. SIGNING SHALL NOT BE MOUNTED ON EXISTING SIGNS OR SIGNPOSTS. THEY SHALL BE MOUNTED ON THEIR OWN SIGN POST FURNISHED AND INSTALLED BY THE CONTRACTOR.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Patrick Loomis

PATRICK F. LOOMIS
TYPE NAME

DATE: 4/8/2020

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LAKE WALK EXTENSION – BRIGHTON BEACH

DRAWN BY: DJK

TRAFFIC CONTROL LAYOUT

CITY PROJECT NO.: 1544

STATE AID PROJECT NO.: 118–090–024

SHEET NO. 78 OF 78

6/8/2020 3:56:20 PM

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