Exhibit 1

ACCESS AGREEMENT
With
CITY OF DULUTH
411 West First Street
Duluth, MN 55802

Subject to the terms and conditions of this Access Agreement, the City of Duluth (Owner) hereby voluntarily grants a non-exclusive, temporary license to enter onto and access the property outlined in green on the attached Exhibit A (Property), to the employees and authorized representatives, agents, assigns, consultants, contractors and subcontractors of the United States Environmental Protection Agency (EPA) in order to conduct the activities outlined in the attached Exhibit B (the Work). The activities conducted by the EPA pursuant to this Access Agreement will be undertaken as part of the Great Lakes Restoration Initiative Great Lakes Legacy Act program to move towards delisting the St. Louis River Area of Concern and address the Restrictions on Dredging Beneficial Use Impairments.

1. EPA and all Authorized Parties shall, in the exercise of the rights and privileges granted by this Access Agreement, adhere to and comply with good engineering practices and all laws, ordinances, rules, regulations and orders applicable to EPA's activities, operations and work performed upon, or use of, the Property and comply with Owner's contractor safety standards. In the event that there is a conflict of safety standards among these resources, the strictest standards shall be employed. EPA and Authorized Parties shall conduct the Work in accordance with the Federal Acquisition Regulation (FAR). The Work shall be conducted on the Property by the EPA and its contractors and representatives (Authorized Parties).

2. The Work shall be coordinated in advance with Owner. EPA shall provide Owner a copy of the schedule for the Work with a 72-hour notice prior to commencement, along with the names and company affiliation of the Authorized Parties who will be present. The EPA shall provide a copy of this Access Agreement to all Authorized Parties before they may enter the Property and EPA shall require that all Authorized Parties comply with the terms of this Access Agreement at all times. The initial notice and any subsequent notices or communications shall be provided to:

Owner's Representative:	Danielle Erjavec City of Duluth 1532 West Michigan Street Duluth, MN 55806
EPA Representative:	Scott Cieniawski GLNPO Section Chief Remediation and Restoration Section 1 77 W. Jackson Blvd. Chicago IL 60604

3. EPA accepts the Property in "as-is" condition. EPA has inspected the Property and is satisfied that it is fit for EPA's purpose. Owner shall not be responsible for repairing, maintaining

or removing any alterations to or installations on the Property by EPA or its Authorized Parties. All tools, equipment, buildings, improvements, and other property taken upon or placed upon the Property by the EPA and/or Authorized Parties shall remain the property of said parties and must be removed prior to expiration of the Term (defined below), or termination of this Access Agreement, whichever occurs first.

4. Notwithstanding the date of execution of this Access Agreement, this Access Agreement shall commence on or about June 1, 2022, and shall continue through November 30, 2025 (the "Term"), unless earlier terminated as provided by this Access Agreement. This Access Agreement shall expire on November 30, 2025 unless earlier withdrawn, in which case notice of such withdrawal shall be made at least 10 days in advance. The expiration date of the Term may be extended by mutual agreement, confirmed in writing, prior to the expiration date.

5. Prior to the end of the Term, EPA shall restore the Property as set forth in Exhibit B and Exhibit C. The provisions of this paragraph are without prejudice to any rights the Owner may have to make a claim under applicable laws for any other damages than provided herein. The restoration requirements of this Access Agreement shall survive termination or expiration of this Access Agreement for any reason.

6. Nothing contained in this Access Agreement shall be deemed or construed to create the relationship of principal and agent, or a partnership, or any form of joint venture between the parties, it being understood and agreed that there is no relationship between the parties.

7. EPA and the Authorized Parties shall enter upon the Property at their own risk, and Owner shall not be held responsible or liable for injury, damage, or loss incurred by EPA or the Authorized Parties or any third party arising out of or in connection with activities under this Access Agreement, except to the extent that any injury is caused by the negligent acts or omissions of Owner.

8. EPA shall require all of the Authorized Parties to provide and maintain the following insurance throughout the Term, with proof and in form acceptable to Owner:

(i) Workers' Compensation Insurance in satisfaction of statutory requirements and limits where the Property is located and Employer's Liability insurance coverage in an amount of $2,000,000 per accident.

(ii) General Liability Insurance having a limit of not less than $2,000,000 per occurrence for all loss, damage, cost, and expense, including attorney's fees, arising out of but not limited to liability for third party bodily injury and property damage, independent contractors, contractual liability, products and completed operations.

(iii) Automobile Liability Insurance having a combined single limit of not less than $2,000,000 per occurrence.

(iv) Professional/Pollution Liability Insurance having a limit of not less than $5,000,000 each incident.

(v) Maximum deductible for the various coverages of $100,000. Insurance limit requirements may be satisfied by primary policies or through a combination of primary and excess/umbrella coverage so long as the total amount of insurance is not less than the sum of the limits specified above.

(vi) The liability coverages listed above and any other policies implicated or required to perform the Work, excluding Worker's Compensation and Employer's Liability, shall include Owner as an additional insured or an insured principal and shall be primary to any insurance maintained by Owner.

(vii) The EPA shall include the following statement in any contract as defined in FAR 36.507 with an Authorized Party (other than the EPA):

> As set forth in FAR 52.236-7 "Permits and Responsibilities," the Contractor will be responsible for damages to persons or property that occur as a result of the Contractor's fault or negligence, and will also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

(viii) All policies for the insurance described in this section shall include an undertaking from the insurers to provide at least thirty (30) days' prior written notice to Owner and EPA in the event of any cancellation of any such policies. EPA shall require all Authorized Parties to promptly notify Owner if any of the coverages identified above are cancelled, non-renewed, reduced, modified or terminated and not replaced with equivalent coverage or if coverage is reduced to amounts less than as specified above. In the event EPA learns that any of the coverages identified above, as to any of the Authorized Parties, are cancelled, non-renewed, reduced, modified or terminated and not replaced with equivalent coverage or if coverage is reduced to amounts less than as specified above, EPA shall promptly notify Owner.

(ix) All insurance shall be maintained continuously or have an extended discovery period for a period of no less than three (3) years after the EPA's and Owner's acceptance of the construction contractor's "as built" drawings.

Prior to the commencement of the Work, the EPA shall provide to Owner certificates of insurance, as to each Authorized Party (with the exception of EPA) evidencing the above insurance requirements, including the applicable endorsements evidencing compliance with the above conditions and certifying that at least the minimum coverage required herein is in effect and that the coverage will not be cancelled without at least thirty (30) days' advance written notice to Owner and EPA. Owner's acceptance of any certificate of insurance does not constitute approval or agreement by Owner that the insurance requirements have been met or that the insurance policies shown in the evidence of insurance are sufficient or adequate to protect all interests or liabilities. Failure of Owner to demand such certificate or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence provided will not be construed as a waiver of the obligations to maintain such insurance. Any failure to secure insurance coverage as may be necessary to carry out the terms and provisions of this Access Agreement or the failure to provide proof of insurance to Owner, shall not relieve nor operate as a waiver of the obligations under this Access Agreement or arising thereunder. Owner's failure to

request evidence of insurance including copies of the required endorsements, or Owner's failure to identify a deficiency from the evidence of insurance will not constitute or be construed as a waiver of the obligation to maintain such insurance or endorsements. The insurance and limits of liability indicated above shall not in any way be construed to limit or modify the obligations or liabilities set forth in this Access Agreement.

Owner will have the right, but not the obligation, of prohibiting any party from accessing the Property until such certificates of insurance or other evidence that insurance has been placed in complete compliance with these requirements is received by Owner.

9. Owner does not waive or otherwise compromise its rights under federal, state or local law, nor under common law, with the exception of those rights waived in entering into this Access Agreement.

10. This Access Agreement constitutes the entire agreement between the parties as to the subject matter and there are no verbal or collateral understandings, agreements, representations or warranties not expressly set forth herein. This Access Agreement may not be changed or terminated orally but only by an instrument in writing signed by both parties.

11. These terms, conditions, covenants, releases, provisions and undertakings shall be binding upon and inure to the benefit of the parties to this Access Agreement and their respective heirs, successors, representatives and assigns.

12. If any provision of this Access Agreement is held invalid under any applicable statute or rule of law, whether now existing or hereinafter passed or adopted, such invalidity shall not affect any other provision of this Access Agreement that can be given effect without the invalid provision, and, to this end, the provisions of this Access Agreement are declared to be severable. In such event, the particular provision held invalid shall be renegotiated and redrafted so as to comply with the particular statute or rule of law. In no event, however, shall this severability provision operate as to alter in any material respect the basic understandings of the parties as to their respective obligations hereunder.

13. EPA, an agency of the federal government, shall be liable for claims, damages and injuries which may occur under this Access Agreement as provided in subsections (a) and (b) below:

(a) The Federal Tort Claims Act (28 U.S.C. 2671 - 2680) provides coverage for damage or loss of property, or personal injury or death, caused by the negligent or wrongful act or omission of an employee of EPA while acting within the scope of his or her employment, under circumstances where EPA, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred.

(b) If an employee of EPA is injured in the performance of duty, government liability for that injury will be dictated by the provisions of the Federal Employees Compensation Act (5 U.S.C. 1801 et seq.), including the exclusions in 5 U.S.C. 8102(a).

14. EPA shall maintain all books, records, documents, and other evidence pertaining to this Access Agreement for six (6) years after termination or expiration of this Access Agreement for any reason.

15. Owner and EPA shall comply with the Minnesota Data Practices Act, Minn. Stat. Chapter 13, as it applies to all data relating to this Access Agreement.

City of Duluth

By: _____
Mayor

Attest: _____
City Clerk

Dated: _____

Countersigned:

_____
City Auditor

Approved as to form:

_____
City Attorney

U.S. Environmental Protection Agency

_____ _____

Signature Date

_____

EPA Representative's Printed or Typed Name

_____

Title

EXHIBIT A

Remediation will occur within 38 acres of open water and wetlands in the St. Louis River Estuary at Munger Landing. The goal of the remediation is to remove approximately 100,000 CY of sediment and soil contaminated with polychlorinated biphenyls (PCBs) and dioxin/furans. After material is removed and dewatered at Hallett Dock, the material will be hauled offsite. Biomedium will be hauled from Atlas Industrial to Hallett Dock and placed within the river and wetlands, along with sand.

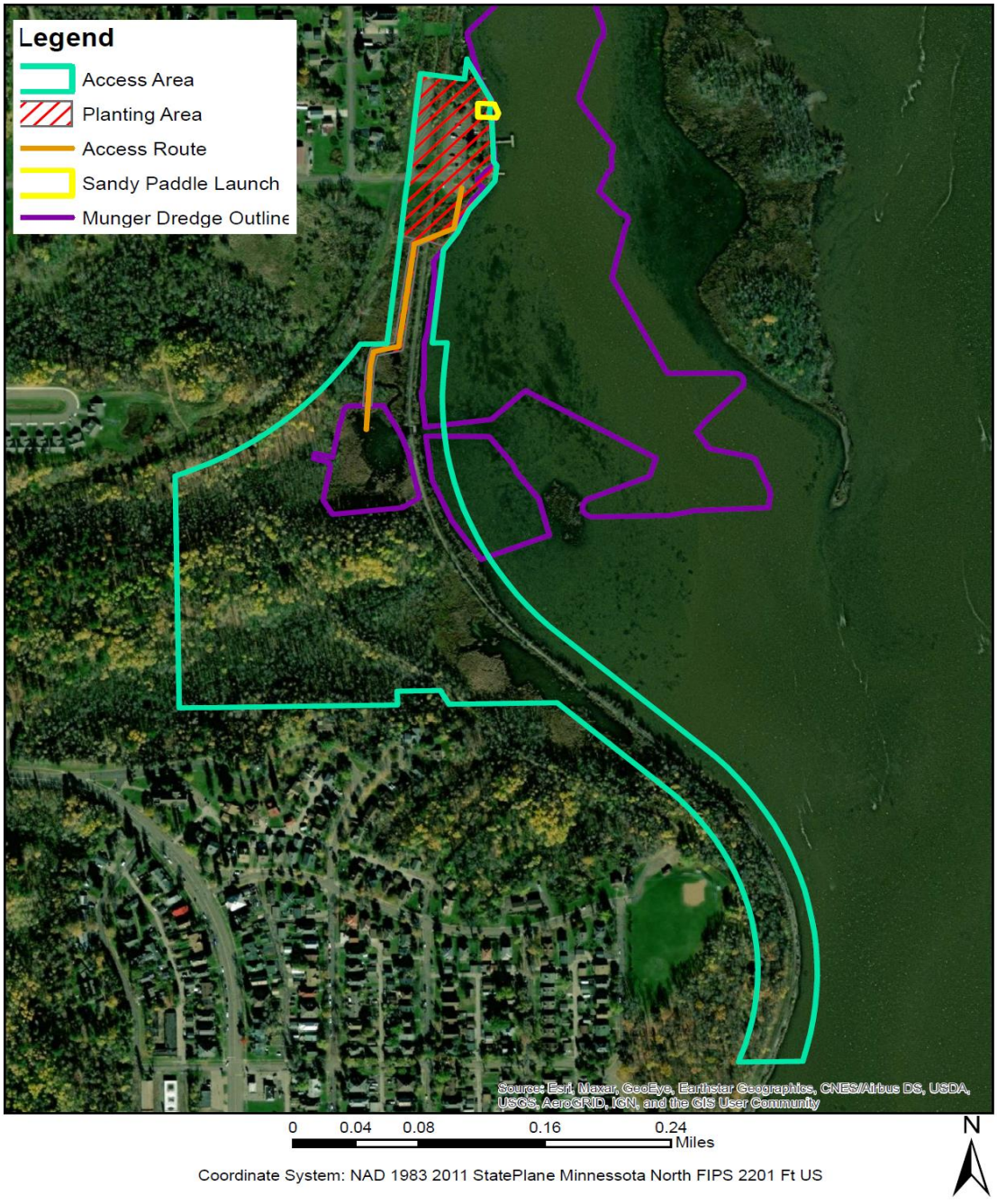

EXHIBIT B

Scope of Work at Munger Landing Sediment Remediation

Exhibit B

Great Lakes Legacy Act
City of Duluth Access Agreement
Statement of Work for Project Implementation

Munger Landing Remedial Clean-up
Saint Louis River Area of Concern,
Duluth, Minnesota

February 2022

1. Access Introduction

This statement of work (SOW) summarizes access needs for remedial work to be performed in the St. Louis River Area of Concern (Figure 1) in Duluth, MN at Munger Landing (Figure2) under the Great Lakes Legacy Act (GLLA) between the Minnesota Pollution Control Agency (MPCA) and the U.S. Environmental Protection Agency (EPA) Great Lakes National Program Office (GLNPO). The environmental remediation will be completed by an EPA contractor and their subcontractors with on-site oversight for work in Minnesota by EPA, United States Army Corps of Engineers (USACE), and Minnesota Pollution Control Agency.

2. Tasks

Critical construction tasks that are anticipated to take place at the City of Duluth Munger Landing site:

1. Mobilization, Demobilization and equipment staging at Munger Landing
2. Site preparation
3. Excavation of Contaminated Material
4. Site Restoration and Kayak landing
5. Plants installation and maintenance

2.1 MOBILIZATION AND DEMOBILIZATION

The contractor will potentially mobilize and demobilize resources (equipment, materials, facilities, and personnel) to the Munger Landing lower and upper parking lot via Clyde Avenue entrance to establish their operations in support of completing the remediation work in accordance with the specifications. The upper parking lot is limited to light use to minimize disturbance. It is anticipated that the contractor will use the Lower and Upper parking lot for mobilization and demobilization activities.

2.2 SITE PREPARATION

The contractor will potentially establish work storage areas and haul route as shown in Exhibit C. Contractor will utilize the lower and upper parking lot for site preparation to establish staging areas. The upper parking lot is limited to light use to minimize disturbance. Site preparation will include removal/disposal of pavement from the boat launch in the required excavation area and the existing concrete boat launch ramp. The contractor will establish a haul road due west of the parking lot. Modifications may include some vegetation and tree removal, filling and grading. Any clearing of tree limbs must be coordinated with the City of Duluth, according to Specification 01 35 13 (Exhibit C). Installation of signs will be installed at entrance points.

2.3 EXCAVATION OF CONTAMINATED MATERIAL

Contractors will excavate contaminated material at the landing and boat launch areas as shown in Exhibit C. The contractor will excavate 1,550 SF area near and including the Munger Landing boat launch as shown in Exhibit C. Upon excavation, material may be treated and temporarily stockpiled on-site or will be taken immediately offsite for treatment and disposal. Post excavation of contaminated material, the area will be backfilled with engineered fill or pavement replacement, where applicable. As the contaminated material at and near the boat launch is TSCA-regulated, the contractor is required to adhere to strict standards to manage contamination removal and disposal. Contractor activity in this area will be subject to heightened government oversight.

2.4 SITE RESTORATION AND INSTALLATION OF KAYAK LANDING

The contractor will restore any areas that were damaged or impacted during construction. The

contractor will replace the boat launch ramp and pavement that were demolished for soil removal, repair of haul roads or any pavement that was impacted during construction. The contractor will also install a sandy paddle sports landing as shown in Exhibit C.

2.5 Plant Installation and Maintenance

The contractor will conduct chemical vegetation control according to Exhibit C throughout the project to eradicate and prevent the spread of invasive species. The contractor will also conduct seeding in all disturbed areas with a 3-year monitoring and maintenance program to promote the establishment of native species as described in Exhibit C. An experienced Site Restoration Supervisor with a background in Northeast Minnesota native plant installation and maintenance will be on site during all planting and establishment activities.

The potential schedule for completion of the remedial action activities is provided below, however this schedule is subject to change based on Contractor's approach. EPA will work closely with the City of Duluth to provide status updates. The work is anticipated to begin on June 1 or shortly after and Contractor must conclude site restoration and demobilize equipment by February 2024. Plant installation and maintenance will take place through 2025.

Succession	Key Project Step
June 1, 2022 or After	Mobilization to site
June 2022	Site preparation
June 2022 -November 2023	Environmental remediation construction
November 2023 – February 2024	Demobilization
November 2023 – November 2025	Plant Installation and Maintenance
February 2024	Demobilization

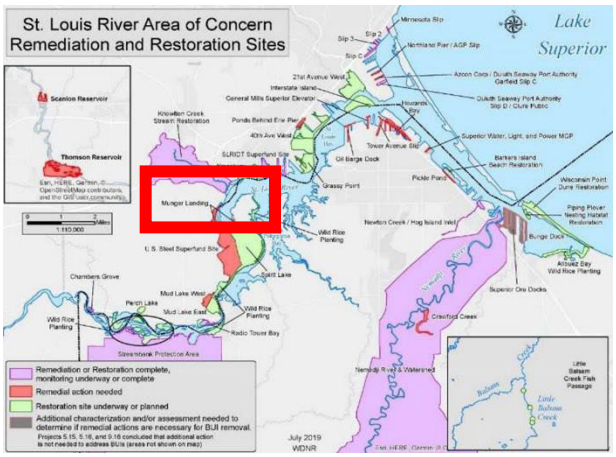

Figure 1: Site location of Munger Landing within the St. Louis River Area of Concern

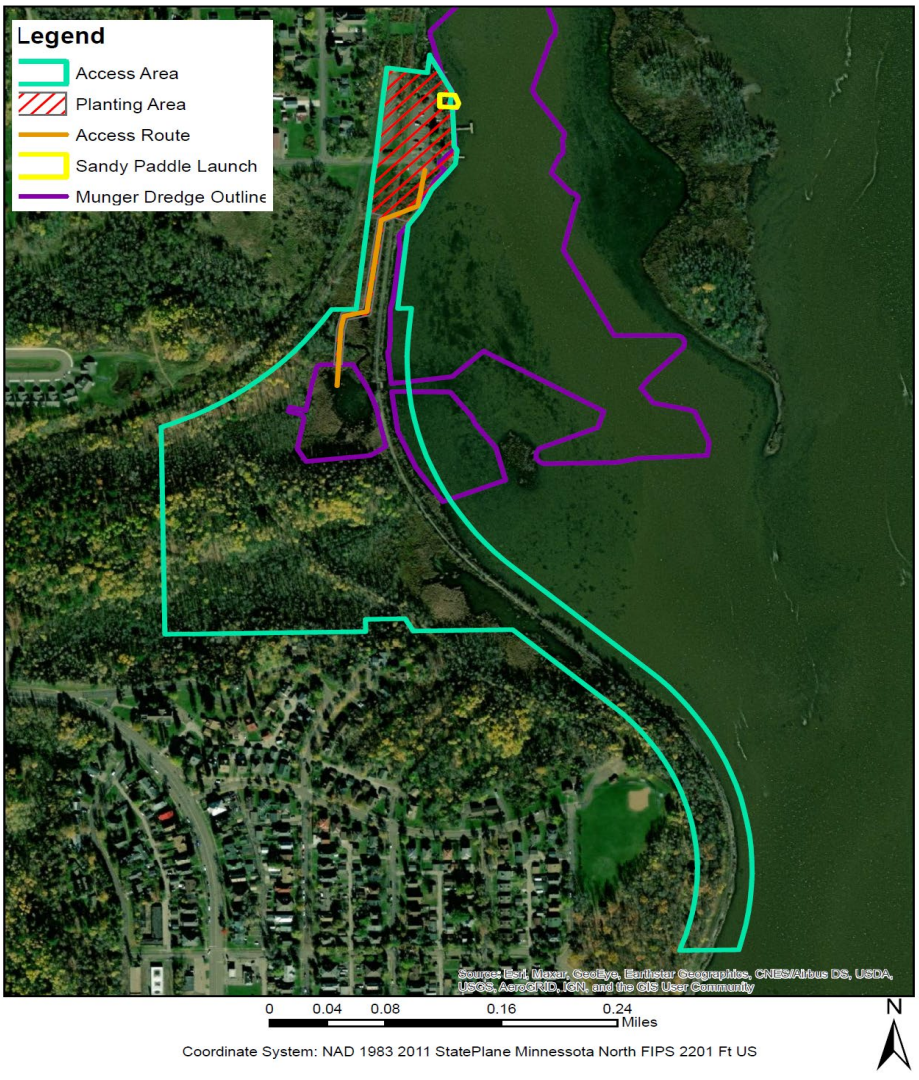

Figure 2: City of Duluth parcel map for Munger Landing Remediation

EXHIBIT C

Relevant Specifications on City of Duluth parcels for the Munger Landing Sediment Remediation

PROJECT TABLE OF CONTENTS

-- End of Project Table of Contents --

SECTION 01 35 13

SPECIAL PROJECT PROCEDURES
03/01

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Utility location findings; G

utility locating plan

NOTICE TO MARINERS

Traffic Control Plan

buoy relocation position

survey information

survey note format

SD-11 Closeout Submittals

Progress Photographs

1.2 SEVERE WEATHER

a. This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSE entitled "DEFAULT (FIXED-PRICE CONSTRUCTION)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

1. The weather experienced at the project site during the contract period must be found to be unusually severe, that is more severe than the adverse weather anticipated for the project location during any given month.

2. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar historical data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS FOR *LAKE SUPERIOR* BASED ON 7 DAY WORK WEEK *

JAN	FEB	MAR	APR 1-15	APR 16-30	MAY	JUN
(31)	(29)	(31)	(15)	(5)	(7)	(7)

JUL	AUG	SEP	OCT	NOV 1-15	NOV 16-30	DEC
(7)	(9)	(11)	(15)	(8)	(15)	(31)*

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for fifty percent (50%) or more of the contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recored as full days. If the number of actual adverse weather days exceeds the number of days anticipated in Subparagraph (b) above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days and issue a modification in accordance with the CONTRACT CLAUSE entitled "DEFAULT (FIXED PRICE CONSTRUCTION)".

1.3 PROJECT/SITE CONDITIONS

1.3.1 Condition and Use of Project Site

The drawings indicate soundings and elevations at the dredging and construction sites as found in condition surveys made as stated on the contract drawings. A notification of at least five (5) calendar days shall be given to the Contracting Officer Representative (COR) prior to bringing any construction equipment or material upon the work site. The Contractor shall be responsible for damages that may be suffered due to its operations. The Contractor shall note CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS."

1.3.1.1 Physical Conditions

The physical conditions shown on the drawings are indicative of those that prevailed at the time of the site investigations and may be different than those at the time of construction. Significant variations that would require changes to the plans or specification shall be reported to the Contracting Officer Representative (COR) immediately.

1.3.1.2 Protection of Historic Railroad

The Lake Superior and Mississippi Railroad Company (LS&M) operates an Historic Railroad that crosses the Munger Landing work area. The Contractor shall protect the Historic Railroad from damage during work performed for this contract. If the Contractor damages the Historic Railroad, a report thereof shall be made immediately to the Contracting Officer Representative (COR). In any event, existing utility lines, vegetation, structures, equipment, or improvements shall be protected from damage, and if damaged, shall be repaired by the Contractor at its own expense.

The LS&M operates weekend excursions open to the public, in which passengers are transported along approximately six-miles of the historic

Lake Superior and Mississippi Line. These excursions happen twice on Saturdays and Sundays, with the operating season lasting from 1 June to 31 October. The Contractor will ensure that the tracks are clear of any obstructions and equipment to allow for these excursions' use of the track through the project area.

The LS&M offers booked charter tours for individual groups including 30-50 passengers at a time. The LS&M has been instructed to provide the Contractor and COR a two-week notice of a booked charter via electronic mail (e-mail). The Contractor will acknowledge receipt of notice for a chartered train tour within 2 days via e-mail. Upon receiving a two-week notice from LS&M, the Contractor will be required to remove any equipment and cease any work that may impede the loading and unloading of passengers at Munger Landing and the operation of the train itself for the duration of the chartered tour.

The Contractor will be required to charter a bus to transport passengers between the LS&M parking lot (6930 Fremont Street, Duluth, MN 55807), where passengers will park, and the Munger Landing parking lot, where passengers will board the train.

For the 2023 operating season, the Contractor will charter a bus for up to eight tours coordinated between the LS&M and the Contractor.

Additionally, the LS&M requires access to ballast rock stored within and near the project area. Access to the ballast rock is needed for regular maintenance of the full railroad. To access the ballast rock, LS&M will provide the Contractor and COR a two-week notice of the need via electronic mail (e-mail). The Contractor will acknowledge receipt of notice within 2 days via e-mail. Upon receiving a two-week notice from LS&M, the Contractor will be required to coordinate with LS&M to provide them with reasonable and safe space for LS&M equipment. This will include, but not be limited to removal of any equipment blocking access and temporary pausing of work that may impede full access to the ballast rock.

1.3.1.3 Protection of St. Louis River Shoreline

The Contractor shall protect the St. Louis River shoreline from damage during work performed for this contract. The Contractor shall use the Ordinary High Water Level elevation 602.8 feet as the extent of work area except in areas designated in the drawings. If the Contractor damages any existing utility line, vegetation, structure, equipment or improvement, a report thereof shall be made immediately to the Contracting Officer Representative (COR). In any event, existing utility lines, vegetation, structures, equipment or improvements shall be protected from damage, and if damaged, shall be repaired by the Contractor at its own expense.

1.3.2 Ground Transport

All required on-land transport shall be provided by the Contractor.

1.3.3 Waterways Navigation and Traffic

The Contractor shall acquaint itself with all information and regulations pertaining to navigation and vessel traffic within the waterways at the project site. The Contractor shall coordinate with the U.S. Coast Guard to assure that a "NOTICE TO MARINERS" is issued prior to its work activity at the project site. The completed form shall be sent to the address stated in the Subparagraph entitled "Temporary Lights, Signals and Buoys Required

by U.S. Coast Guard". The Government will not undertake to keep the waterways free from vessels or other obstructions, except to the extent of such regulations, if any, as may be prescribed by the Secretary of the Army, in accordance with the provisions of Section 7 of the River and Harbor Act approved 8 August 1917 (see Title 33, U.S.C.A. Sec. 1). The Contractor is required to conduct its work in such manner as to obstruct navigation as little as possible and, in case the Contractor's plant so obstructs a channel as to make difficult or endanger the passage of vessels, said plant shall be promptly moved on the approach of any vessel to such an extent as may be necessary to afford a practicable passage. Upon completion of the work, the Contractor shall promptly remove its plant, including ranges, buoys, piles, and other marks placed by it under the contract in navigable waters or on shore.

1.3.3.1 Navigation

Information and regulations pertaining to navigation may be obtained from the current issue of the "UNITED STATES COAST PILOT 6," issued annually by the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA). The "UNITED STATES COAST PILOT" may be obtained from National Ocean Survey, NOAA, Distribution Division-C44, Riverdale, Maryland 20840.

1.3.3.2 Traffic

Vessels that may use the waterways at the project site consist of recreational craft and commercial vessels. This traffic may interfere with contract operations and the Contractor shall conduct its work with due regard to and in coordination with the requirements of all navigation. Information regarding the types and amount of passages made by commercial vessels that may use the waterways at the project site may be obtained from the current issue of the "Waterborne Commerce of the United States, Part 3, Waterways and Harbors, Great Lakes," published by the Department of Army, Corps of Engineers. The Department of the Army publication may be obtained at no charge from the following:

District Engineer, U.S. Army Engineer District, New Orleans, Waterborne Commerce Section, P.O. Box 60267, New Orleans, Louisiana 70160. Phone 504-862-1425, FAX 504-862-1091.

1.3.4 Prevailing Lake Levels

Average water levels in Lake Superior fluctuate above Low Water Datum (LWD).Portions of the work which could be accomplished above water during average years may have to be accomplished under water if lake levels are unusually high. Information on current and anticipated lake levels may be obtained from Detroit District, Corps of Engineers; CELRE-HH-W; P.O. Box 1027; Detroit, Michigan 48231.

1.3.5 Existing Vegetation, Structures, Equipment, Utilities & Improvements

General locations of applicable existing utilities, vegetation, structures, equipment and improvements, based upon latest information available to the Government have been shown on the drawings. However, it is the Contractor's obligation to establish the exact horizontal and vertical location and size of all existing utility lines which are located within the required work area. The Contractor shall submit a utility locating plan for locating existing utilities and a copy of its Utility location findings prior to commencing work on the site. Any utility lines which are not found by the Contractor, but which are known to exist at the project site,

shall be reported to the Contracting Officer Representative (COR) immediately. The Contracting Officer Representative (COR) will have the option of directing commencement of work at the site or requiring the Contractor to submit further plans for locating the utility lines. Once the utilities have been located and marked, the Contractor shall be deemed to have the location made known to it pursuant to CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS." If the Contractor damages any existing utility line, vegetation, structure, equipment or improvement, a report thereof shall be made immediately to the Contracting Officer Representative (COR). In any event, existing utility lines, vegetation, structures, equipment or improvements shall be protected from damage, and if damaged, shall be repaired by the Contractor at its own expense.

1.3.6 Vehicular Access

Throughout the period of work on this contract, the Contractor shall maintain an all-weather roadway through or around its work area when work therein would otherwise block an existing roadway. Such permanent or temporary roadways shall be kept open for use by emergency vehicles, as well as residential and commercial traffic at all times.

1.3.7 Utility Services

1.3.7.1 Contractor-Furnished Utility Services

The Contractor shall furnish, all water, electric current and other utilities required for its use.

1.3.7.2 Sanitary Facilities

The Contractor shall provide facilities for it's employees at no additional expense to the Government.

1.3.8 Protection and Maintenance of Traffic

1.3.8.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Clearing of tree limbs along haul routes, if necessary, shall be coordinated with the City of Duluth . Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads shall be removed unless otherwise approved by the Contracting Officer. Any dirt or mud which is tracked onto paved or surfaced roadways shall be promptly cleaned away. The Contractor shall restore all disturbed areas, regardless of ownership.

1.3.8.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required

whenever safe and public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.3.8.3 Public Roads

Contractor shall comply with all federal, state, and local regulations and ordinances regarding truck routes and load restrictions on all public roads, including any seasonal or special weight limitations. Contractor shall verify the status and restrictions of all roads along trucking routes. Prior to start of hauling material over public roads not part of the state trunk highway system, Contractor shall document condition of such roads and features. Documentation shall consist of "before" and "after" photographs or video. Perform inspection and documentation in the presence of the COR and, if possible, the local authority responsible for maintenance of the road.

The Contractor shall, at its own expense, protect public roads necessary for proper implementation of the work under this contract. Any dirt or mud which is tracked onto paved or surfaced roadways shall be promptly cleaned away. Upon completion of the work, public roads shall be restored or replaced to acceptable conditions as determined by the COR. The extent of necessary repairs to Clyde Ave. will be directed by the COR based on a comparison of pre-construction and post-construction road conditions documented by the Government; repairs shall be performed in accordance with applicable Minnesota Department of Transportation Manuals for road design and technical specifications. All repairs will include traffic control and all incidental items necessary to complete the required repair work directed by the COR. All other public roads used by the Contractor shall be documented.

1.3.9 Security Requirements

1.3.9.1 Security Checks

All personnel employed by the Contractor in the performance of the services specified in this contract or any representative of the Contractor entering the work area shall conform to all security regulations and rules which may be in effect during the contract period and will be subject to such checks as may be deemed necessary to ensure that no violations occur.

1.3.9.2 Loitering

Contractor personnel shall not loiter in or around the place of duty during off-duty hours. Upon completion of assigned duty, employees shall depart the grounds.

1.3.10 Contract Supervision and Representation

The Contractor's local representative shall be available to Government representatives during duty hours, 8 a.m. to 4:30 p.m., on normal working days and shall be available by telephone at other times. The name of the Contractor's representative and the contact telephone number shall be furnished to the Government.

1.3.11 Coordination with Others

The Contractor is informed that the Government may have other Contractors engaged in dredging at the same Government-furnished source area in the Federal Navigation Channel. Sharing use of the Government's mooring facilities with others may also be necessary. The Contractor shall coordinate its operations with the work of others and share use of the facilities at no additional cost to the Government. The coordination shall be such that the required work under each affected contract is not prevented from being completed within its allowed completion time as a result of failure to cooperate and coordinate operations. Coordination with others shall be through the Contracting Officer's Representative (COR) at the site.

1.3.12 Traffic Control Plan

The Contractor shall control traffic in accordance with its approved plan.

1.3.13 Temporary Lights, Signals and Buoys Required by Coast Guard

All temporary lights, signals and buoys required by the U.S. Coast Guard must be displayed during the required work. Information regarding required signals, lights, buoys and other requirements may be obtained from the Commander (oan), Ninth Coast Guard District, 1240 East Ninth Street, Cleveland, Ohio 44199-2060, Telephone (216) 522-3990.

1.3.14 Navigation Buoys

1.3.14.1 Relocation of Existing Buoys

If the relocation of existing navigation buoys is required to perform the contract work, the Contractor shall request permission for their relocation from the U.S. Coast Guard through the Contracting Officer Representative (COR). Once relocated, a record shall be maintained of the buoy relocation position(s). The request shall be provided to the Contracting Officer Representative (COR) not less than three (3) weeks prior to need of the buoy relocation. The Contractor shall be responsible for performing the relocation work, which shall be in accordance with U.S. Coast Guard requirements.

1.3.14.2 Temporary Dredging and Construction Buoys

In order to distinguish temporary buoys placed and maintained by the Contractor for dredging or construction purposes from aids to navigation placed by the U.S. Coast Guard, the Contractor's buoys shall be white and the top two (2) feet shall be light green in color. The Contractor shall remove its temporary buoys at the completion of the work.

1.3.14.3 Buoy Markings

If buoys with special markings are needed to indicate the different sides of the navigable channel, prior arrangements shall be made with the U.S. Coast Guard, through the Contracting Officer's Representative (COR).

1.3.15 Layout of Work and Surveys

1.3.15.1 Layout of Work

The following requirements are in addition to the requirements of CLAUSE

titled LAYOUT OF WORK.

1.3.15.2 Surveyor Requirements

The Contractor shall lay out the work by establishing all lines, grades, range markers and gauges at the site as necessary to control the work. All survey information shall be recorded in accordance with standard and approved methods and in the survey note format approved by the Government. All field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be available at all times during the progress of the work for ready examination by the Contracting Officer or his or her duly authorized representative and upon completion of the contract work the originals shall be turned over to the Contracting Officer Representative (COR) in ring binders.

1.3.15.3 Suspension

The Contracting Officer Representative (COR) may require that work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon satisfactory replacement of location and limit marks. Such suspension shall be at no additional cost to the Government and shall not entitle the Contractor to an extension of time for completing the work.

1.3.15.4 Verification

The Government shall perform bathymetric survey checks as the work progresses to verify thicknesses and grades established by the Contractor and to determine the conformance of the completed work as it progresses with the requirements of contract specifications and drawings. Such checking by the Contracting Officer Representative (COR) or his or her representative shall not relieve the Contractor of its responsibility to perform all work in accordance with the contract drawings and specifications and the thicknessesand grades given therein.

1.3.15.5 Lights

The Contractor shall not shine lights in the direction of nearby residential and commercial properties, unless otherwise approved by the COR. Each night, between sunset and sunrise and during periods of restricted visibility, provide lights for floating plants, pipelines, ranges, and markers. Also, provide lights for buoys that could endanger or obstruct navigation. When night work is in progress, maintain lights from sunset to sunrise for the observation of work operations. Lighting shall conform to United States Coast Guard requirements for visibility and color.

1.4 SEQUENCING AND SCHEDULING

1.4.1 Construction Period Restriction

The Contractor shall complete Work in accordance with Government approved work schedule.

1.4.2 Dredging Period Restriction

The Contractor's work in public waters will be subject to State of Minnesota and Wisconsin fisheries window restrictions which will restrict the allowed and prohibited dredging periods. If no waiver is provided,

work shall not commence prior to July 1, 2022. After July 1, 2022 work can proceed as specified throughout the site.

The number of calendar days within which the Contractor is required to complete the work under this contract, as established in Clause 52.211-10 titled "COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK", is exclusive of the above referenced periods during which dredging is prohibited and the days in these periods will not be counted when computing the required completion date.

1.4.3 Work Period Restrictions

No work is allowed at the Munger Landing site during the following periods:

a. Weekdays between 7 p.m. and 7 a.m.

b. Regular weekends between 7 p.m. and 7 a.m.

c. Federal Holidays:
https://www.opm.gov/policy-data-oversight/pay-leave/federal-holidays/

Work at the Hallett Dock #7 site may be conducted 24hrs/day, with the exception of Federal Holidays.

1.4.4 Start Work

Evidence that the Contractor has started mobilization and preparation of submittal register, and other preparatory work will satisfy the requirement that work commence within 10 calendar days after receipt of Notice to Proceed. Contractor shall not mobilize in the work sites or perform dredging in the Federal Navigation Channel until given notice to proceed by the COR.

1.5 ON-BOARD ACCOMMODATIONS FOR INSPECTORS

No accomodations for inspectors will be required for this contract.

1.6 ACCOMMODATIONS FOR INSPECTORS

No accomodations for inspectors will be required for this contract.

1.7 PROGRESS PHOTOGRAPHS

1.7.1 Photographs

Color photographs will be taken with ordinary digital cameras at high resolutions and submitted as JPG files. The JPG files may be submitted digitally as email attachments. The Contractor is responsible for selecting formats and media compatible with Government equipment. The Government utilizes ordinary office software and hardware with Windows based products.

1.7.2 Prework Photographs

Before work begins, the Contractor shall photograph salient site features and conditions. Images shall be chosen so that a comparison with final photographs will provide a comprehensive record of the work accomplished under this contract.

1.7.3 Construction Photographs

During construction, the Contractor shall photograph every activity, every crew and every major piece of construction equipment. The Contractor will take special care to photograph activities resulting from each contract modifications.

1.7.4 Completion Photograph

At completion, the Contractor shall photograph salient site features and conditions. Images shall be chosen so that a comparison with prework photographs will provide a comprehensive record of the work accomplished under this contract.

1.7.5 Photo Database

The Contractor shall compile a simple database using common office software. Microsoft Access and Excel are examples of acceptable source software. The database may be submitted on a CD. The Contractor is responsible for selecting formats and media compatible with Government equipment. The Government utilizes ordinary office software and hardware with Windows based products. The Contractor shall prepare a single database where each and every submitted photograph submitted under this section is represented by a single record. At a minimum, each record in the database shall include the following fields: descriptive title, date taken, contract number.

PART 2 PRODUCTS (NOT APPLICABLE)

2.1 MATERIALS

PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

SECTION 02 61 13

EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL
02/10, CHG 1: 02/21

PART 1 GENERAL

1.1 MEASUREMENT AND PAYMENT

1.1.1 Measurement

Measurement for excavation and onsite transportation shall be based on the actual number of cubic yards of contaminated material in-place prior to excavation. Determination of the volume of contaminated material excavated shall be based on cross-sectional volume determination reflecting the differential between the original elevations of the top of the contaminated material and the final elevations after removal of the contaminated material. Measurement for backfilling of excavated areas shall be based on in-place cubic yards of compacted fill. Measurement for construction of stockpile areas shall be based on the number of square yards of stockpile liner constructed.

1.1.2 Payment

1.1.2.1 Excavation and Transportation

Compensation for excavation and onsite transportation of contaminated material will be paid as a unit cost. This unit cost shall include any other items incidental to excavation and handling not defined as having a specific unit cost.

1.1.2.2 Backfilling

Compensation for backfill soil, transportation of backfill, backfill soil conditioning, backfilling, compaction, and geotechnical testing will be paid as a single unit cost.

1.1.2.3 Stockpiling

Compensation for construction of stockpile areas will be paid for as a unit cost. This unit cost shall include all aspects of grading, preparation, handling, placement, maintenance, removal, treatment, and disposal of stockpile cover materials and liner materials and all other items incidental to construction of stockpiles.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM D698	(2012; E 2014; E 2015) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

ASTM D1556/D1556M	(2015; E 2016) Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D2167	(2015) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2487	(2017; E 2020) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D5434	(2012) Field Logging of Subsurface Explorations of Soil and Rock
ASTM D6938	(2017a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D7928	(2017) Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926	Safety and Health Regulations for Construction

1.3 DESCRIPTION OF WORK

The work consists of excavation and temporary storage of approximately XXX cubic yards of contaminated material from the TSCA level area and the adjacent upland areas near the boat launch ramp. Approximate locations of contaminated material are shown on the drawings. Characterization data on the nature and extent of the contaminated material and subsurface conditions are shown in 01 99 90 Attachment O, Certified Final Design Documentation Report, Munger Landing Sediment Remediation, Duluth, Minnesota, September 2021. Submit an Onsite Material HandlingWork Plan as specified below. Notify the Contracting Officer within 24 hours, and before excavation, if contaminated material is discovered that has not been previously identified or if other discrepancies between data provided and actual field conditions are discovered. Backfill material is not available onsite. Ground water ranges between approximately 0 to 10 feet below pre-excavation ground surface, with the excavation extending to the shoreline of the St. Louis River. Required confirmation sampling and chemical analysis shall be conducted in accordance with paragraph 'CONFIRMATION SAMPLING AND ANALYSIS'. Handling and dredging of contaminated sediment from the St.Louis River channel and wetland areas is shown in SECTION 35 20 23 DREDGING.

1.3.1 Scheduling

Notify the Contracting Officer 15 calendar days prior to the start of excavation of contaminated material. The Contracting Officer will be responsible for contacting regulatory agencies in accordance with the applicable reporting requirements.

1.3.2 Onsite Material Handling Work Plan

Submit an Onsite Material Handling Work Plan within 30 calendar days after notice to proceed. No work at the site, with the exception of site inspections and surveys, shall be performed until the Onsite Material Handling Work Plan is approved. Allow 30 calendar days in the schedule for the Government's review. No adjustment for time or money will be made if resubmittals of the Work Plan are required due to deficiencies in the plan. At a minimum, the Work Plan shall include:

a. Schedule of activities.

b. Method of excavation and equipment to be used.

c. Shoring or side-wall slopes proposed.

d. Dewatering plan, and cofferdam plan.

e. Storage methods and locations for liquid and solid contaminated material including staging area and material transfer locations, and containment pad plan.

f. Borrow sources and haul routes.

g. Decontamination procedures.

h. Spill contingency plan.

1.3.3 Other Submittal Requirements

Submit separate cross-sections of each area before and after excavation and after backfilling, test results, and 1 electronic copy of the Closure Report within 30 calendar days of work completion at the site.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Onsite Material Handling Work Plan; G-AOF

Photographic Documentation

Preconstruction Sampling and Analysis

SD-02 Shop Drawings

Surveys

SD-06 Test Reports

Compaction

Closure Report; G[, [_____]]

Confirmation Sampling And Analysis Results

Post-Removal Sampling And Analysis Results

SD-07 Certificates

Transportation Documentation

Qualifications of the testing laboratory

SD-11 Closeout Submittals

Closure Report; G-Aof

1.5 REGULATORY REQUIREMENTS

1.5.1 Permits and Licenses

Government will obtain the permits identified below. Contractor shall obtain all other required federal, state, and local permits for excavating, dredging and storage of contaminated material. Obtain required federal, state, and local permits for excavation and storage of contaminated material. Permits shall be obtained at no additional cost to the Government.

The U.S. EPA will supply the following documents/permits and Contractor shall comply with and execute requirements of these U.S. EPA supplied permits:

a) Clean Water Act - Section 404
b) Rivers and Harbors Act - Section 10 (Nationwide Permit 38)
c) Coastal Zone Consistency Certification
d) Section 401 Water Quality Certification
e) National Historic Preservation Act Section 106 Consultation
f) Public Waters Work Permit
g) National Natural Heritage Review
h) MPCA Environmental Assessment Worksheet

Contractor shall obtain all additional permits necessary for performance of the work of these documents, including any State and local regulations.

1.5.2 Air Emissions

Air emissions shall be monitored and controlled in accordance with Section

01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

PART 2 PRODUCTS

2.1 SPILL RESPONSE MATERIALS

Provide appropriate spill response materials including, but not limited to the following: containers, adsorbents, shovels, and personal protective equipment. Spill response materials shall be available at all times when contaminated materials/wastes are being handled or transported. Spill response materials shall be compatible with the type of materials and contaminants being handled.

2.2 BACKFILL

Backfill material shall be obtained from offsite sources approved by the Contracting Officer. Provide materials classified as GW, GP, SW, or SP, by ASTM D2487 where
indicated. Not more than 25 percent by weight shall be finer than No. 200 sieve when tested in accordance with ASTM D1140, with a maximum ASTM D4318 liquid limit of 35, and a maximum ASTM D4318 plasticity index of 12. Backfill shall be free from roots and other organic matter, trash, debris, snow, ice or frozen materials. Backfill material shall be tested for the parameters listed below at a frequency of once per 3000 cubic yards. A minimum of one set of classification tests shall be performed per borrow source. One backfill sample per borrow source shall also be collected and tested for the chemical parameters listed below.

Physical Parameter	Criteria	Test Method
Grain Size	200 sieve material<25% by weight	ASTM D7928
Compaction	Compact fill and backfill materials to 95 percent of ASTM D698	ASTM D698
[_____]	[_____]	[_____]

Chemical Parameter	Test Frequency	Criteria
[_____]	[_____]	[_____]

Do not use material for backfill until borrow source chemical and physical test results have been submitted and approved.

PART 3 EXECUTION

3.1 SURVEYS

Perform surveys immediately prior to and after excavation of contaminated material to determine the volume of contaminated material removed. Also, perform surveys immediately after backfill of each excavation. Provide one east-west cross-section extending through the TSCA level soil excavation area to the TSCA level sediment dredge area in the St. Louis River. Locations of confirmation samples shall also be surveyed and shown

on the drawings. Upland survey will be referenced to NAD83 State Plane Minnesota North horizontally and North American Vertical Datum of 1988 (NAVD88) vertically.

3.2 PHOTOGRAPHIC DOCUMENTATION

Prior to construction of temporary staging areas, Contractor shall collect photographic documentation (or video documentation) of pre-construction conditions of the municipal haul roads, upland staging area(s), and pavement structures adjacent to excavation area(s).

3.3 EXISTING STRUCTURES AND UTILITIES

No excavation shall be performed until site utilities have been field located. Take the necessary precautions to ensure no damage occurs to existing structures and utilities. Damage to existing structures and utilities resulting from the Contractor's operations shall be repaired at no additional cost to the Government. Utilities encountered that were not previously shown or otherwise located shall not be disturbed without approval from the Contracting Officer.

3.4 CLEARING

Clearing shall be performed to the limits shown on the drawings. Clear areas as required and directed by the Contracting Officer of all trees, stumps, downed timber, brush, rubbish, matted roots, and pavements prior to commencing operations. Trees, stumps, roots, brush, and other, vegetation in areas to be cleared shall be cut off flush with or below the original ground surface.

3.5 CONTAMINATED MATERIAL REMOVAL

3.5.1 Excavation

Areas of contamination shall be excavated to the depth and extent shown on the drawings and not more than 0.2 ft beyond the depth and extent shown on the drawings unless directed by the Contracting Officer. Excavation shall be performed in a manner that will limit spills and the potential for contaminated material to be mixed with uncontaminated material. An excavation log describing visible signs of contamination encountered shall be maintained for each area of excavation. Excavation logs shall be prepared in accordance with ASTM D5434.

3.5.2 Shoring

If workers must enter the excavation, it shall be evaluated, shored, sloped or braced as required by EM 385-1-1 and 29 CFR 1926 section 650.

3.5.3 Dewatering

Surface water shall be diverted to prevent entry into the excavation. Dewatering shall be limited to that necessary to assure adequate access, a safe excavation, prevent the spread of contamination, and to ensure that compaction requirements can be met. No dewatering shall be performed without prior approval of the Contracting Officer. Dewatering and cofferdam methods shall be provided in the Onsite Material Handling Work Plan and approved by the COR prior to start of excavation.

3.6 UPLAND EXCAVATION CONFIRMATION SAMPLING AND ANALYSIS

The Contracting Officer shall be present to inspect the removal of contaminated material from each site including the TSCA level area site and the non-TSCA level site areas. After all material suspected of being contaminated has been removed from the TSCA level area site, the excavation shall be examined for evidence of contamination. Excavation of additional material shall be as directed by the Contracting Officer. After all suspected contaminated material is removed, confirmation samples shall be collected and analyzed for the following contaminants:

Chemical Parameter	Action Level
PCBs	[_____]
dioxins/furans	

Submit confirmation samples to the laboratory on rapid (24 hr) turn-around time for analysis. Laboratory shall copy the Contracting Officer on the analytical testing results reports submitted to the Contractor.

Grab Samples shall be collected to a depth of 6 inches below the wall surface at a frequency of one per 100 square feet from the bottom and each of the side walls or as directed by the Contracting Officer. A minimum of one sample shall be collected from the bottom and each side wall of the excavation.

Based on the results of the confirmation sampling the Contracting Officer will direct additional excavation in intervals of 6-inch thickness across the 100 square foot zone. Contractor shall allow at least 2 business days between receipt of results by the Contracting Officer from the laboratory and determination by Contracting Officer of next actions. Horizontal and vertical locations of samples shall be recorded in the field and documented by the Contractor on the as-built drawings.

Re-excavation will be limited to one re-excavation event to the deeper dredge target elevation specified by the Contracting Officer. Revision to the excavation target elevation will be documented with revised drawings showing adjusted elevation prior to re-excavation. Re-excavation will be performed in accordance with this Section. Excavation and removal tolerances apply to the revised excavation target elevations. Additional excavation shall be subject to approval by the Contracting Officer.

3.7 CONTAMINATED MATERIAL STORAGE

Material shall be placed in temporary storage immediately after excavation while awaiting test results. The following paragraphs describe acceptable methods of material storage. Storage units shall be in good condition and constructed of materials that are compatible with the material or liquid to be stored. If multiple storage units are required, each unit shall be clearly labeled with an identification number and a written log shall be kept to track the source of contaminated material in each temporary storage unit.

3.7.1 Stockpiles

Stockpiles shall be constructed to isolate stored contaminated material from the environment. The maximum stockpile size shall be 100 cubic yards.

Stockpiles shall be constructed to include:

a. A chemically resistant geomembrane liner free of holes and other damage. Non-reinforced geomembrane liners shall have a minimum thickness of 20 mils. Scrim reinforced geomembrane liners shall have a minimum weight of 40 lbs/1000 square feet. The ground surface on which the geomembrane is to be placed shall be free of rocks greater than 0.5 inches in diameter and any other object which could damage the membrane. The geomembrane liner shall be located on the existing adjacent parking lot pavement as shown in the drawings.

b. Geomembrane cover free of holes or other damage to prevent precipitation from entering the stockpile. Non-reinforced geomembrane covers shall have a minimum thickness of 10 mils. Scrim reinforced geomembrane covers shall have a minimum weight of 26 lbs/1000 square feet. The cover material shall be extended over the berms and anchored or ballasted to prevent it from being removed or damaged by wind.

c. Berms surrounding the stockpile, a minimum of 12 inches in height. Vehicle access points shall also be bermed.

d. The liner system shall be sloped to allow collection of leachate. Storage and removal of liquid which collects in the stockpile, in accordance with paragraph Liquid Storage.

3.7.2 Roll-Off Units

Roll-off units used to temporarily store contaminated material shall be water tight. A cover shall be placed over the units to prevent precipitation from contacting the stored material. The units shall be located in the existing parking lot area as shown on the drawings. Liquid which collects inside the units shall be removed and stored in accordance with paragraph Liquid Storage.

3.7.3 Liquid Storage

Liquid collected from excavations and stockpiles shall be temporarily stored in 55 gallon barrels or 500 gallon tanks. Liquid storage containers shall be water-tight and shall be located in the existing parking lot area as shown on the drawings.

3.8 SAMPLING

3.8.1 Sampling of Stored Materials

Samples of the stored soil and liquid collected from excavations and stockpiles shall be sampled and tested for disposal. Contractor shall propose the analytical laboratories to be used for the sample analyses. Perform testing by a DoD ELAP accredited commercial testing laboratory or the Contractor's validated testing facility. Analytical laboratories shall also be accredited through the Wisconsin Department of Natural Resources Laboratory Certification Program for all parameters that have such certifications and meet the criteria outlined in NR 149. Sample analysis shall meet the requirements of NR 700.13. Submit qualifications of the testing laboratory which shall be certified to perform the tests required and achieve the required detection limits. If a proposed analytical laboratory cannot meet specified analytical requirements, select another laboratory at no additional cost to the Government. Analyses for

contaminated material to be taken to an offsite disposal facility shall conform to local, state, and federal criteria as well as to the requirements of the treatment facility. Documentation of all analyses performed shall be furnished to the Contracting Officer. Sampling and analyses to the extent required by the approved offsite disposal facility shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government.]

3.8.2 Sampling Beneath Storage Units

Samples from beneath each storage unit shall be collected prior to construction of and after removal of the storage unit. Samples shall be collected at a frequency of one per each 500 square feet from a depth interval of 0 to 0.5 feet and shall be tested for the following:

Chemical Parameter	Action Level
[_____]	[_____]

Based on test results, soil or pavement which has become contaminated above action levels shall be removed at no additional cost to the Government. Contaminated material which is removed from beneath the storage unit shall be handled in accordance with paragraph Sampling of Stored Material. As directed by the Contracting Officer and at no additional cost to the Government, additional sampling and testing shall be performed to verify areas of contamination found beneath stockpiles have been cleaned up to below action levels.

Post-removal samples shall be collected immediately after the removal of the staging area and prior to restoration. Post-removal samples shall be collected at the same location as pre-construction samples. Additional samples shall also be collected from locations where tears were noted in the staging area geomembrane (if any). Based on test results, soil which has become contaminated above preconstruction levels shall be removed at no additional cost to the Government. Contaminated material which is removed from beneath the staging area shall be transported offsite to an approved offsite treatment, storage or disposal (TSD) facility. Sampling and analyses required by the TSD facility for disposal of the material shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government. Documentation of all analyses performed shall be furnished to the Contracting Officer. As directed by the Contracting Officer and at no additional cost to the Government, additional sampling and testing shall be performed to verify areas of contamination found beneath staging areas have been cleaned up to preconstruction levels.

3.9 SPILL CONTINGENCY PLAN

Develop and implement written spill containment/control procedures. Describe prevention measures, such as building berms or dikes; spill control measures and material to be used (e.g., booms, vermiculite); location of the spill control material; personal protective equipment required to cleanup spills; disposal of contaminated material; and who is responsible to report the spill. Storage of contaminated material must be appropriately bermed, diked and contained to prevent any spillage of material on uncontaminated soil. Provide control as required by Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. Immediate containment actions shall be taken to minimize the effect of any spill or leak. Cleanup shall be in accordance with applicable federal, state, and local regulations. If

the spill or discharge is reportable, or human health or the environment are threatened, notify the National Response Center, the state, and the Contracting Officer as soon as possible. As directed by the Contracting Officer, additional sampling and testing shall be performed to verify spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the Government.

3.10 BACKFILLING

3.10.1 Confirmation Test Results

Excavations shall be backfilled immediately after all contaminated materials have been removed and confirmation test results have been approved. Backfill shall be placed and compacted to the lines and grades shown on the drawings.

3.10.2 Compaction

Place approved backfill in lifts with a maximum loose thickness of 8 inches. Compact soil to 95 percent of ASTM D698 maximum dry density. Perform density tests at a frequency of once per each lift of backfill placed. Determine field in-place dry density in accordance with ASTM D1556/D1556M, ASTM D2167, or ASTM D6938. If ASTM D6938 is used, a minimum of one in ten tests shall be checked using ASTM D1556/D1556M or ASTM D2167. Test results from ASTM D1556/D1556M or ASTM D2167 shall govern if there is a discrepancy with the ASTM D6938 test results.

3.11 DISPOSAL REQUIREMENTS

Offsite disposal of contaminated material shall be in accordance with Section 02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS.

3.12 CLOSURE REPORT

Submit a Closure Report electronically within 30 calendar days of completing work at the site. The report shall be labeled with the contract number, project name, location, date, name of general Contractor, and the Corps of Engineers District contracting for the work. The Closure Report shall include the following information as a minimum:

a. A cover letter signed by a responsible company official certifying that all services involved have been performed in accordance with the terms and conditions of the contract documents and regulatory requirements.

b. A narrative report including, but not limited to, the following:

(1) site conditions, ground water elevation, and cleanup criteria;

(2) excavation logs;

(3) field screening readings;

(4) quantity of materials removed from each area of contamination including upland excavation areas and subaqueous dredging areas;

(5) quantity of water/product removed during dewatering;

(6) sampling locations and sampling methods;

(7) sample collection data such as time of collection and method of preservation;

(8) sample chain-of-custody forms; and

(9) source of backfill.

c. Copies of all chemical and physical test results in electronic data format.

d. Copies of all manifests and land disposal restriction notifications.

e. Copies of all certifications of final disposal signed by the responsible disposal facility official.

f. Waste profile sheets.

g. Scale drawings showing limits of each excavation, limits of contamination, known underground utilities within 50 feet of excavation, sample locations, and sample identification numbers. On-site stockpile, storage, treatment, loading, and disposal areas shall also be shown on the drawings.

h. Progress Photographs. Color photographs shall be used to document progress of the work. A minimum of four views of the site showing the location of the area of contamination, entrance/exit road, and any other notable site conditions shall be taken before work begins. After work has been started, activities at each work location shall be photographically recorded weekly. Photographs shall be a minimum of 3 by 5 inches and shall include:

(1) Soil removal and sampling.

(2) Dewatering operations.

(3) Unanticipated events such as spills and the discovery of additional contaminated material.

(4) Contaminated material/water storage, handling, treatment, and transport.

(5) Site or task-specific employee respiratory and personal protection.

(6) Fill placement and grading.

(7) Post-construction photographs. After completion of work at each site, take a minimum of four views of each excavation site.

A digital version of all photos shown in the report shall be included with the Closure Report. Photographs shall be included in a photograph log that includes the following information for each photograph:

Project Name:	Direction of View:

Location:	Date/Time:
Photograph No.:	Description of View:

-- End of Section --

SECTION 03 30 53

MISCELLANEOUS CAST-IN-PLACE CONCRETE
05/14

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 301	(2016) Specifications for Structural Concrete
ACI 347R	(2014; Errata 1 2017) Guide to Formwork for Concrete

ASTM INTERNATIONAL (ASTM)

ASTM C920	(2018) Standard Specification for Elastomeric Joint Sealants
ASTM D1752	(2018) Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D5249	(2010; R 2016) Standard Specification for Backer Material for Use with Cold-and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints

1.2 SUBMITTALS

Government approval is required for submittals with a "G" classification. Submittals not having a "G" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Expansion Joint Filler Strips, Premolded
Joint Sealants - Field Molded Sealants

SD-07 Certificates

Cementitious Materials

1.3 DELIVERY, STORAGE, AND HANDLING

Protect material delivered and placed in storage off the ground from moisture, dirt, and other contaminants. Deliver sealants in the

manufacturer's original unopened containers. Remove sealants from the site whose shelf life has expired.

PART 2 PRODUCTS

2.1 MATERIALS

Submit manufacturer's literature from suppliers which demonstrates compliance with applicable specifications for the specified materials.

2.1.1 Expansion Joint Filler Strips, Premolded

Provide expansion joint filler strips, conforming to ASTM D1752, Type I or resin impregnated fiberboard conforming to to the physical requirements of ASTM D1752. Unless otherwised indicated, filler material must be 3/8" thick and of a width applicable for the joint formed. Backer material, when required, must conform to ASTM D5249.

2.1.2 Joint Sealants - Field Molded Sealants

Conform to ASTM C920, Type M, Grade NS, Class 25, use NT for vertical joints and Type M, Grade P, Class 25, use T for horizontal joints. Provide polyethylene tape, coated paper, metal foil, or similar type bond breaker materials. The backup material needs to be compressible, nonshrink, nonreactive with the sealant, and a nonabsorptive material such as extruded butyl or polychloroprene foam rubber. Immediately prior to installation of field-molded sealants, clean the joint of all debris and further cleaned using water, chemical solvents, or other means as recommended by the sealant manufacturer or directed.

2.1.3 Formwork

Design and engineer the formwork as well as its construction in accordance with ACI 301 Section 2 and 5 and ACI 347R. Fabricate of wood, steel, or other approved material. Submit formwork design prior to the first concrete placement.

2.1.4 Form Coatings

Provide form coating in accordance with ACI 301.

PART 3 EXECUTION

3.1 PREPARATION

Prepare construction joints to expose coarse aggregate. The surface must be clean, damp, and free of laitance. Remove snow, ice, standing or flowing water, loose particles, debris, and foreign matter. Satisfactorily compact earth foundations. Make spare vibrators available. Placement cannot begin until the entire preparation has been accepted by the Government.

3.2 INSTALLATION

3.2.1 Formwork Installation

Forms must be properly aligned, adequately supported, and mortar-tight. Provide smooth form surfaces, free from irregularities, dents, sags, or holes when used for permanently exposed faces. Chamfer all exposed joints

and edges , unless otherwise indicated.

3.2.2 Joint Installation

Joint locations and details, including materials and methods of installation of joint fillers shall be as specified, as shown, and as directed.

3.2.3 Expansion and Construction Joints

Premolded filler strips shall have oiled wood strips secured to the top thereof and shall be accurately positioned and secured against displacement to clean, smooth concrete surfaces. The wood strips shall be slightly tapered, dressed and of the size required to install filler strips at the desired level below the finished concrete surface and to form the groove for the joint sealant or seals to the size shown. Material used to secure premolded fillers and wood strips to concrete shall not harm the concrete and shall be compatible with the joint sealant or seals. The wood strips shall not be removed until after the concrete curing period. The groove shall be thoroughly cleaned of all laitance, curing compound, foreign materials, protrusions of hardened concrete and any dust which shall be blown out of the groove with oil-free compressed air.

3.2.4 Joint Sealant

Fill sawed contraction joints and expansion joints in slabs with joint sealant, unless otherwise shown. Joint surfaces must be clean, dry, and free of oil or other foreign material which would adversely affect the bond between sealant and concrete. Apply joint sealant as recommended by the manufacturer of the sealant.

Do not seal joints when the sealant material, ambient air, or concrete temperature is less than 40 degrees F. Coat joints requiring a bond breaker with curing compound or with bituminous paint. Install bond breaker and back-up material where required. Prime joints and fill flush with joint sealant in accordance with the manufacturer's recommendations.

3.3 FINISHING

3.3.1 Finishing Formed Surfaces

Remove all fins and loose materials , and surface defects including filling of tie holes. Repair all honeycomb areas and other defects. Remove all unsound concrete from areas to be repaired. Ream or chip surface defects greater than 1/2 inch in diameter and holes left by removal of tie rods in all surfaces not to receive additional concrete and fill with dry-pack mortar. Brush-coat the prepared area with an approved epoxy resin or latex bonding compound or with a neat cement grout after dampening and filling with mortar or concrete. Use a blend of portland cement and white cement in mortar or concrete for repairs to all surfaces permanently exposed to view shall be so that the final color when cured is the same as adjacent concrete.

-- End of Section --

SECTION 32 01 90

ESTABLISHMENT ACTIVITIES
07/2013

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this section to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 152 - 186 Pesticide Programs

1.2 SCOPE

The development of the native landscape prior to and after native plant installation is the one of the primary responsibilities of the Contractor's Site Restoration Supervisor. This work includes native plant species stewardship and invasive/non-native species control. Formal inspection by the USACE will occur annually upon construction completion between August and October for the first year of planting establishment and first year of warranty , during which time the vegetation will be sampled to assess the different native plant communities. This data will be reported on a yearly basis and used to assess progress of restoration, if yearly performance standards were met, and to present recommendations for site management for the following year to meet the final acceptance criteria.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Monthly Invasive Species Control Report; G,

1.4 DEFINITIONS

1.4.1 Monthly Invasive Species Control Report

The Monthly Invasive Species Control Report must be submitted once a month for months that invasive species control work and/or application of herbicides has occurred for the contract duration. The report must include: sequence of treatment, dates, times, locations (mapped), acres per treatment of species per date, herbicide trade names, USEPA registration numbers, chemical compositions, formulations, original and applied concentrations, application rates of active ingredient (i.e., pounds/oz of active ingredient), equipment used for application and calibration of equipment. The Contractor is responsible for Federal, State, Regional and Local pest management record keeping and reporting

requirements. The monthly report must be submitted no later than 7 working days after the end of each month of activities. Reports will be used by the Contracting Officer Representative (COR) to verify success of invasive species control per month, such as percent of treated individuals that result in mortality, removal of seed heads before seeds fall, etc. The areas of treatment will be inspected by the Contracting Officer Representative (COR) to verify report contents. Changes to reports as directed by the Contracting Officer Representative (COR) must be made at no further cost to contract.

1.4.2 Performance Criteria

An 'invasive species' is defined as any non-native or aggressive native species listed as an invasive species. Invasive Herbaceous Species are listed at the following website: http://www.dot.state.mn.us/roadsides/vegetation/pdf/noxiousweeds.pdf.

Monitoring: Site inspections will occur each month by the Contractor's Site Restoration Supervisor and will be primarily concerned with successful invasive species control. End of the year monitoring will occur between August 15 and October 30. The first round of monitoring will be accomplished with stratified random transects. Each plant community type (e.g., southern wet meadow) will be monitored qualitatively with a meander survey and quantitatively with quadrats. The start of each transect will be randomly generated and 10-30 one meter squared quadrats will be placed along the length of transect. Length of transect and number of quadrats will be determined by amount of area within each sampled area as delineated by its plant community type. Each plant community type will have at minimum 1 transect with 10 quadrats and at a maximum 5 transects of 30 quadrats each. If performance criteria are not met, a second round of monitoring will be conducted by the Contractor's Site Restoration Supervisor if remedial actions have been taken to correct deficiencies after the initial round of monitoring has ended.

% Invasive Species Treated: 100% of all invasive species must be treated each year of the contract. Treatments consist of activities that result in killing all plants (browning and desiccation of leaves, roots and/or stems) or removal of above or below ground biomass before seeds are mature. % Invasive Species Treated will be assessed per month of invasive species control activities and approval of Monthly Invasive Species Control Reports. The Contracting Officer Representative (COR) will inspect areas of treatment and approve treatment results. If treatment is not approved, such as individuals of a population of invasive species were not properly treated with herbicide, individuals missed during mowing or seed heads were allowed to mature and not removed, remedial treatments will be recommended by the Contracting Officer Representative (COR). The areas not meeting approval will be assessed again in two weeks.

Average (Avg) % Invasive Species Coverage: This is defined as the average amount of invasive species that are present within 1 meter squared quadrats sampled along randomly placed transects. Percent coverage is averaged from all quadrats sampled per transect per community type. The Contractor's Site Restoration Supervisor is responsible for sampling quadrats per year and reporting survey results annually to the COR. Performance standards per year are listed in a table at the bottom of this specification.

Average (Avg) % Native Species: This is defined as the average percent coverage of native species (planted or volunteer) as calculated from quadrats along transects per plant community type. Performance standards per

year are listed in a table at the bottom of this specification. Percent coverage is averaged from all quadrats sampled per transect per community type. The Contractor's Site Restoration Supervisor is responsible for sampling quadrats per year and reporting results annually to the COR.

# of Planted Species M: This is defined as the number of native plant species that must be present within each plant community type (e.g., Southern Wet Meadow) based on the list of species to be installed in the proscribed BWSR seed mixtures. Because each plant community type has a different number of species to be installed, a percent per plant community type will be used to determine number of species that must be found within each plant community type. For example, 10% of ten species is one species. Presence of species is defined as a healthy easily identifiable individual plant. Plant species will be surveyed by meander method and will be performed by the Contractor's Site Restoration Supervisor for each plant community type for years 2 - 3 of the contract to assess presence of planted native species and results reported annually to the COR. Performance standards per year are listed in a table at the bottom of this specification.

# of Planted Species T: This is defined as the total cumulative number of native plant species that must be inventoried from 1 meter squared quadrats sampled along transects per community type based on the list of species to be installed as seed. Presence of species is defined as a healthy easily identifiable individual plant present within a quadrat. Number of planted native species found along transects per community type will be determined from an inventory generated from sampled quadrats. Plant species quadrat survey will be performed by the Contractor's Site Restoration Supervisor for each community type for one year of the contract to assess presence of planted native species and results reported annually to the COR.. Performance standards per year are listed in a table at the bottom of this specification.

PART 2 PRODUCTS

2.1 CHEMICAL PRODUCTS

Coordinate with Section 31 31 19.13 CHEMICAL VEGETATION CONTROL.

PART 3 EXECUTION

Directly after native plant seed installation, maintenance of the planted area must occur. Maintenance activities include the accurate and precise application of herbicides to control a number of invasive plant species (Section 31 31 19.13 CHEMICAL VEGETATION CONTROL) that occur or may invade the area. Activities also include the stewardship of native plant species.

3.1 HERBICIDE APPLICATION

Avoid and minimize impacts to existing fauna and native flora, coordinate with the Contracting Officer Representative (COR), and submit the Invasive Treatment Plan at the earliest possible time prior to herbicide application. Refer to section 31 31 19.13 CHEMICAL VEGETATION CONTROL. The use and management of pesticides are regulated under 40 CFR 152 - 186.

3.2 MOWING

Mowing is a way to keep non-desirable species from growing faster than the slower germinating native species and thereby minimize competition for

resources for the native seedlings. Mowing also minimizes the ability of non-desirable species from flowering and developing seed. Mowing must keep pace with the growth of the native seedlings by way of increasing the height of the mower to maximize impact to current plant community while minimizing the amount of disturbance to planted native seedlings. The Site Restoration Supervisor must identify native seedlings and set the height of the mowers based on their assessment. Mowing must only commence after assessment by the Site Restoration Supervisor. In areas seeded in the previous fall/winter, mowing may start the next spring as soon as invasive/aggressive native species begin to turn green and new green growth appears. In areas where seed was planted in the early spring, mowing must immediately start after planting as necessary. Mowing must occur as often as necessary to avoid large amounts of clippings to compact and smother planted native seedlings. Heavy machinery must not enter areas of wet soil and must not result in compaction of the soil through rutting or pitting. Mowing activities must be documented and included in monthly invasive species control reports.

Mowers must be inspected for seeds and other vegetative matter and cleaned thoroughly prior to bringing them to the site. No accumulations of seeds or vegetative matter must be allowed on equipment.

3.3 PERFORMANCE CRITERIA AND ACCEPTANCE

Conduct establishment activities throughout the period of site preparation for native plant installation and establishment to meet the performance criteria, especially as it relates to planted native species mortality and invasive/non-native species control. For purposes of bidding the Contractor is recommended to perform work at the site within the native species establishment areas at least 7 times during the growing season. The Contractor may have to make more visits to treat invasive species or water, at no extra cost to the Contract, but must meet the performance criteria. Performance criteria must be met at the end of the each growing season. If the performance criteria are not met, remedial actions must be performed in areas that did not meet the performance criteria. All remedial actions must be at no further cost to the Contract. Remedial actions must be in the form of overseeding in underperforming areas, or more control/treatments of invasive species.

# of Planted Species T: This is defined as the total number of unique native species planted as seed that must be inventoried from 1 meter squared quadrats sampled along transects per community type. When compared to the # of Planted Species M, this metric is used to ensure that plantings are evenly distributed throughout the site and that a small subset of the site is not used to ensure that performance standards are met sitewide. Presence of species is defined as a healthy easily identifiable individual plant present within a quadrat. Number of planted native species found along transects per community type will be determined from an inventory generated from sampled quadrats. Plant species quadrat survey will be performed by the USACE, Detroit District, for each community type for one year of the contract to assess presence of planted native species. Performance standards per year are listed in a table at the bottom of this specification.

Emergent Wetland Performance Criteria	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)
# of Planted Species T	N/A	10	12
# of Planted Species M	N/A	10	14
Average % Native Species	N/A	25%	50%
% Invasive Treated	100%	100%	100%
Avg % Invasive Coverage	5%	5%	5%
Installed live plant survival %	90%	90%	90%

Riparian Northeast Performance Criteria	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)
# of Planted Species T	N/A	10	18
# of Planted Species M	N/A	12	20
Average % Native Species	N/A	25%	50%
% Invasive Treated	100%	100%	100%
Avg % Invasive Coverage	5%	5%	5%
Installed live plant survival %	90%	90%	90%

Woodland Edge Northeast Performance Criteria	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)
# of Planted Species T	N/A	5	13
# of Planted Species M	N/A	10	15
Average % Native Species	N/A	25%	50%
% Invasive Treated	100%	100%	100%
Avg % Invasive Coverage	5%	5%	5%
Installed live plant survival %	90%	90%	90%

-- End of Section --

SECTION 32 93 01

NATIVE PLANTS
08/16

PART 1 GENERAL

Provide all labor, materials and equipment required or inferred from the plans and specifications to complete the work. The goal of the native plant installation is to restore a diverse native landscape to all areas disturbed during construction or by construction activities. Establish and maintain an effective management program to ensure that the native landscape becomes established according to the requirements contained herein. Contractor shall designate one Site Restoration Supervisor or Steward to oversee and direct the restoration process. The Site Supervisor or Steward for required native plant restoration may be a different individual than the Site Supervisor for required sediment remediation work. Native plant installation must be coordinated with all other activities.

1.1 DEFINITIONS

Site Restoration Supervisor or Steward is a person with a minimum of 7 years of demonstrated experience as a field biologist or restoration ecologist. The Site Restoration Supervisor or Steward shall have a background in botany with experience in the ecology of Northeast Minnesota. The Site Restoration Supervisor or Steward will oversee the installation of plant materials and seeding, and advise the Project Manager, Principal Engineer, and/or Construction Manager on planting methods, planting substitutions, planting locations, and the removal and avoidance of vegetation and valuable habitats encountered on the site throughout the work areas and access routes. The Site Restoration Supervisor or Steward is required to be on-site to ensure that site operations minimize ecological harm and that the restoration and establishment activities will result in the greatest ecological benefit. The Site Restoration Supervisor or Steward will coordinate with the Contracting Officer to recommend and get approval for alternate and adjustment placement of planting and planting zones as the site conditions warrant. The Site Restoration Supervisor is equivalent to a Project Manager.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Native Planting Plan; G

Plant installation schedule shall be submitted a minimum of 30 days before beginning plant installation. Schedule shall specify planting season (spring or fall), dates, locations, and plant materials to be installed.

Site Restoration Supervisor and Crew Qualifications; G

Predator Control Plan; G

SD-03 Product Data

Native Plant Data; G

Inoculants; G

Provide a list of purposed inoculants to be mixed with legumes prior to planting.

SD-06 Test Reports

Results of Seed Testing; G

SD-07 Certificates

Nursery Certificates; G

Provide documentation that nursery has been inspected and approved by the U.S. Department of Agriculture

SD-11 Closeout Submittals

Plant Warranty; G

Furnished plant material must have a warranty for plant growth to be in vigorous growing conditions for a minimum of 12 month period. A minimum 12 calendar month time period for the warranty of plant growth must be provided regardless of the contract time period. Warranty period starts after one year of planting establishment. After installation of all plants, notify the Contracting Officer Representative (COR) and request an inspection. As soon as practicable thereafter the Contracting Officer Representative (COR) will conduct an inspection, at which time all plants in a live, healthy condition will be accepted. Plants not in a live and healthy condition must be replaced at the Contractor's expense. During the 1 year warranty period it must be the responsibility of the Contractor to request replacement plants from the source nursery and replant as soon as favorable conditions exist. Mortality will be monitored by the Contracting Officer Representative (COR).

1.3 QUALITY ASSURANCE

Work must be performed by a Contractor specializing in native plant installation and establishment activities for native species. Firm and personnel experience in seeding projects with similar native species and maintenance activities are required. A qualified Site Restoration Supervisor must be on site during all planting and establishment activities. The Contracting Officer Representative (COR) will review and approve all Contractor qualifications.

1.3.1 Source Inspections

The nursery source of plant material and the source of any species propagated must be subject to inspection and approval by the Contracting

Officer Representative (COR).

1.4 DEFINITIONS

1.4.1 Native Planting Plan

Submit a yearly planting plan for each year seeding installation occurs. Submittal must be thirty days prior to the installation of plant material. The planting plan must include: written description of the timing, proposed methods of installation and a map of areas to be planted for that current year of service. Areas to be planted must be delineated as separate communities that will receive different seed mixes. The description must also include the approximate date each area will be planted, type of equipment to be used, list of species to be planted per area and total quantities of seeds per acre per area or rate of application. The yearly planting plans must be based on the plans provided in the specifications and plans. Also a contingency plan must be included in the plan for days when the weather is not favorable for seed installation.

1.4.2 Site Restoration Supervisor and Crew Qualifications

If site Restoration Supervisor or crew is different than invasive species treatment crew, the following qualifications must be submitted: a resume from the site Restoration Supervisor and all crew members. the site Restoration Supervisor must have the minimum verifiable qualifications:1) At least 7 years of demonstrated experience as a field biologist or restoration ecologist, 2) At least 7 years of native plant installation/maintenance in Northeast Minnesota, 3) ability to field identify 90% of plant species within a natural area in the Northeast Minnesota region, 4) three references and contact information, and 5) must be fluent in English. . The crew members must have the minimum verifiable qualifications: 1)At least two years of native plant installation/maintenance in the upper Midwest, 2)ability to recognize invasive vs. native plant species in a natural area in the Duluth region.

1.4.3 Native Plant Data

This data must be firmly attached to each bag of seed guaranteed by the Contractor to be accurate. Listed below are data to be included on the attachment. Seeds must be delivered unmixed and in separate bags and must be inspected for final approval prior to mixing. Data must include documentation for each species and if the same species were brought from different nurseries or from different source origins:

1)Name: Scientific name of species that must conform to the "Field Guide to the Native Plant Communities of Minnesota: The Laurentian Mixed Forest Provence" published by the Minnesota Department of Natural Resources.

2)Origin: The original wild source of the seed/rootstock must be guaranteed within 200 miles of the boundaries of Duluth, Minnesota. Any material that does not meet the distance criteria must be specified by geographic location and distance from Duluth, Minnesota.

3)Material Supplier: Name and location of supplier(s)/nursery(s)

4)For Seeds: PLS value, PLS weight and bulk weight: PLS shall be defined as 'Purity' X 'Total germination'. Total germination is defined as germination from hard/dormant seeds. TZ may be substituted

in lieu of total germination if necessary. Contractors shall indicate prior to inspection if seed it not available on a PLS basis. Copies of original seed test from independent seed testing laboratories must be attached to the exterior of seed packaging when delivered to the site.

5)For Seeds: Year of production and date of seed tests.

1.4.4 Predator Control Plan

Prior to the time of seeding or planting plugs, the Contractor must submit for the approval a written description of a predator control plan. The description must include what type of materials to be used, typical details if available, how they are to be installed, how the materials are to be maintained through the life of the contract and if or when the materials will be removed. The description must also include the approximate date when installation will occur. Also a contingency plan must be included for replacement of materials or use of new control techniques if proposed techniques are not having the desired effect of controlling the entry of wildlife into planted areas.

PART 2 PRODUCTS

2.1 INOCULANTS

All legumes must be inoculated with the proper bacteria in the amounts and manner recommended by the manufacturer of the inoculants before planting or being mixed with other seeds for planting. The inoculants must be furnished by the Contractor and must be approved by the Contracting Officer Representative (COR). The seed must be planted as soon as possible after inoculation.
Seed that has been standing more than 24 hours after inoculation must be reinoculated before planting.

2.2 SEEDS

All seeds must be guaranteed by the vendor to be true to name and variety. Whenever a particular origin is specified, all seeds furnished must be guaranteed to be from that origin. Provide Name and location of the seed supplier. Submit Nursery certifications.

2.2.1 Mixtures

Seed mixtures are attached to SECTION 01 99 90 LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHMENT. Seeds per species must be proportioned by weight. Seeds per species must be free of noxious weed seed and inorganic inert materials. The Contracting Officer Representative (COR) must approve variations in the mixtures in writing prior to installation. Adjustments must be made at no cost to the contract. Approval of substitutes must in no way waive any performance requirements of the contract.

2.2.2 Purity

The seed quantities indicated per acre (see attachment at the end SECTION 01 99 90 LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHMENT). must be the amounts of pure, live seed per acre for each species listed. Seed which has actual pure live seed yield according to tests less than the intended yield, must have the specified quantity adjusted to meet the intended pure live seed yields. The pure weight must total the amount

specified, with additional seed being supplied to meet 100% purity by bulk weight (e.g., 1.11 bulk pounds at 90% purity = 1.0 pure pounds). Provide a statement of the Purity and germination of the seeds. Submit any results of seed testing.

2.2.3 Procurement, Handling, and Storage

Seeds must be packed for delivery in suitable bags according to standard commercial practice. Each bag must be tagged or labeled. All seeds must be delivered to the site unmixed and each species packaged in separate bags. All species with dispersal appendages (e.g., Asclepias, asters, etc.) are requested on a 'de-fluffed' (DF) basis. Contractor must indicate prior to seed inspection if the seed is not available on a de-fluff basis. All 'hulled' species (e.g., Desmodium, Lespedeza, Petalostemum, etc.) are requested on a de-hulled basis. Contractor must notify prior to inspection if the seed is not available on a de-hulled basis. All deliveries of seed must be packaged and delivered in a manner to ensure the viability of the seed material. All seed must be packaged and covered in a manner as to ensure adequate protection against leakage, damage and to maintain dormancy while in transit. If the seeds are to be stored on site, they must be stored in an approved weather proof enclosure in such a manner as to protect the seeds from rot, decay, germination, mold, deterioration, and rodents, and permit easy access for inspection. The Contracting Officer Representative (COR) approval of the storage facility and the method of storage must not relieve the Contractor of their responsibility for the quality and fitness of the seeds at the time of their use. The contractor shall notify the Contracting Officer's Representative COR two weeks before the delivery of the seeds to the site, there must be no seed delivered on Fridays, weekends, or holidays without prior approval by the COR . Any seed received by the Contractor that does not meet the specifications will be rejected.

2.2.4 Plant Material Availability

The Contractor must locate sufficient quantities of specified plant materials to ensure that the quantity and quality of plant material will be available during the planting window specified.

2.2.5 Seed Inspection

The Government must inspect and approve all seeds prior to installation. Each bag shall be tagged or labeled with the NATIVE PLANT DATA. Each species must be packaged in separate bags. The seed bags must be inspected on-site or at an off-site mixing facility prior to mixing and installation. The off-site facility must be not be located farther than 1 hour drive from project site.

2.2.6 Equipment

2.2.6.1 Broadcast Seeders

If mechanical in nature, such as drawn behind a tractor, must provide uniform flow and a uniform coverage of area to be seeded. All seed must be installed in a broadcast manner, no seed drilling equipment is permitted. A Vicon broadcast seeder is acceptable.

2.2.6.2 Roller

In bare soil areas along rivers that have undergone grading, a rake and a

roller may be used. After seeding, seeds may be lightly raked into ground and then a roller with 100-220 lbs per roller width of uniform pressure may be rolled across seeded area to firmly press seeds into contact with the soil.

2.2.6.3 Hydraulic Seeder

When hydraulic seeders are used, the inoculants and seed required shall be applied in a single operation. Hydraulic seeding equipment shall include a pump rated and operated at no less than 100 gal/min and no less than 100 lb/2in pressure. The tank shall have a mechanical agitator powerful enough to keep the seed in a uniform suspension in the water.

PART 3 EXECUTION

Prior to installation, the Contracting Officer Representative (COR) reserves the right to adjust plant material locations, without adjusting seed/plant quantities, to meet field conditions, at no additional cost to the Government. The planting areas shown in the plans are approximate because of the changes in hydrology, canopy coverage and grade the site will undergo as the site is re-graded and trees are removed. Contractor shall restore areas along the access route to the Snively Creek wetland that are disturbed during sediment remediation construction activities, within the areas shown in the drawings. Contractor shall plant required appropriate seed mix within 2-feet of the required kayak launch access path (excluding the kayak launch beach area), and appropriate seed mix plus plant plugs in areas greater than 2-feet from the required concrete access path.

3.1 SITE PREPARATION

3.1.1 Decompaction

Compacted soil shall be restored through subsoiling or ripping to a maximum depth of 24 inches. Equipment used shall be described to the Contracting Officer's Representative COR for approval.

Soil shall be tested for compaction by the Contractor. Soil probe, auger, or shovel must be able to retrieve samples of restoration profile. Refusal of equipment shall be considered a failure of restoration. Protect finished decompacted soils from compaction by vehicular traffic.

Debris is not anticipated in the planting areas at Munger Landing. Should debris or other material be encountered which cannot be removed by the decompaction equipment, Contractor shall coordinate with the COR for direction. Contractor is responsible for disposal and incidental costs of debris removed from the site during execution of this contract.

3.1.2 Prior to Native Plant Installation

Prepare the planting area for optimal germination/establishment of native species and so that the performance standards are met. Hand-weed, mow and apply herbicide to the any invasive species refer to section 31 31 19.13 CHEMICAL VEGETATION CONTROL). Areas of installation must be free to the greatest extent possible after treatment of all woody or herbeceous invasive species.

3.1.3 Pre-Planting Inspection

Prior to planting activities, the Contracting Officer Representative (COR) must assess the success of site preparation as detailed in the approved Invasive Species Treatment Plan and Section 32 01 90 ESTABLISHMENT ACTIVITIES to ensure proper site preparation has occurred. If site preparation has not resulted in the desired results as stated above, the Contracting Officer Representative (COR) shall direct the Contractor to correct areas in need of further site preparation until the desired results are attained in a timely manner. Install native plant material only after site preparation has been completed and results approved by the Contracting Officer Representative (COR).

3.1.4 Demonstration of Seed Calibration

The Contractor must demonstrate to the Contracting Officer Representative (COR), prior to commencement of seeding, that seeding equipment is calibrated to sow at the specified rates.

3.2 INSTALLATION

Seeding or planting must not commence until all other site prep work, including any clearing and removal of woody species, invasive species and burning activities have been completed in the area to be seeded. Prior to seeding or planting the Contracting Officer Representative (COR) must be notified 5 days in advance. Prior to any seeding or planting the Contractor/Site Steward must notify in writing of any concerns about soil suitability, fertility, and capability to sustain vegetative growth and native species establishment. Later claims of non-performance due to site conditions will be rejected if concerns were not thoroughly described in writing and substantiated (e.g., via soil testing, etc.). Prior to the commencement of seeding or planting, the Contractor/Site Steward must notify the Contracting Officer Representative (COR) in writing of any concerns related to the project design (e.g., suitability of seed/plant list, etc.). Later claims of non-performance resulting from project design will be rejected if concerns were not thoroughly and specifically described in writing by the Contractor. All areas delineated on the plans and associated with a seeding/planting list must be planted with the specified seed or plug list. Seed mixtures must be proportioned by weight. Establishment activities must occur in areas of seeding and planting until a minimum of one year after installation or germination of native species until the end of the contract and the performance criteria have been met with final approval.

3.2.1 Seed Installation Seasons and Conditions

Seeds must be planted during the Spring of 2023. Prior to seed installation the Contracting Officer Representative (COR) must approve planting equipment and the planting rate at which it is calibrated. Other planting methods may be proposed, at no additional cost to the Contract, and final approval given by the Contracting Officer Representative (COR). Be aware that canopy cover may be heavy in areas to be planted with Emergent Wetland and Riparian Edge Northeast seed lists. Planting should be adjusted based on optimal light conditions for the specific species to be installed.

3.3 PRELIMINARY REVIEW AND ACCEPTANCE

Should the Contracting Officer Representative (COR) determine that the

installation work does not conform to the requirements of the Contract Documents, the Contractor will receive written notification from the COR of deficiencies preventing preliminary acceptance of work performed. Corrective work must be completed within fourteen calendar days after the date of the preliminary review notification. Upon completion of the corrective work, the Contractor must request another preliminary review to determine whether installation work conforms to the requirements of the contract documents. Corrective work, followed by the Contracting Officer Representative's (COR) review, will be required until the corrective work is approved by the Contracting Officer Representative (COR).

3.3.1 Clean-up

Excess and waste material must be removed daily. The Contractor must restore damaged or scarred areas harmed during planting operations to their original condition and at the Contractor's own expense.

3.3.2 Final Acceptance

Acceptance of work performed during seeding and plug installation will be given by the Contracting Officer Representative (COR) in accordance with above listed inspections and assessments.

Final acceptance of project results are detailed in Paragraph ESTABLISHMENT ACTIVITIES. If the results do not meet the established performance standards, or if they exhibit a chronic decline, the Contractor must take remedial action to reseed and steward the deficient areas until the performance standards are achieved and approved by the COR.

3.4 ESTABLISHMENT ACTIVITIES

Directly after native plant seed installation, maintenance of the planted area shall occur. Activities include the stewardship of native plant species that could include watering and provide control of predators that would seek to harm newly installed native plants. See specifications section 32 01 90 Establishment Activities.

3.4.1 Mowing

Mowing is a way to keep non-desirable species from growing faster then the slower germinating native species and thereby minimize competition for light with the native seedlings. Mowing also minimizes the ability of non-desirable species from flowering and developing seed. Mowing must keep pace with the growth of the native seedlings by way of increasing the height of the mower to maximize impact to current plant community while minimizing the amount of disturbance to planted native seedlings. The Site Restoration Supervisor must identify native seedlings and set the height of the mowers based on their assessment. Mowing must only commence after assessment by the Site Restoration Supervisor. In areas seeded in the previous fall/winter, mowing may start the next spring as soon as aggressive native species begin to turn green and new green growth appears. In areas were seed was planted in the early spring, mowing must immediately start after planting as necessary. Mowing must occur as often as necessary to avoid large amounts of clippings to compact and smother planted native seedlings. Heavy machinery must not enter areas of wet soil and must not result in compaction of the soil through rutting or pitting. Mowing activities must be documented and included control reports and the end of the year Site Assessment report.

3.4.2 Performance Criteria and Acceptance

Conduct establishment activities throughout the period of site preparation for native plant installation and establishment to meet the performance criteria, especially as it relates to planted native species mortality . For purposes of bidding the Contractor is recommended to perform work at the site within the native species establishment areas at least 7 times during the first year of establishment. The Contractor shall make additional visits to water in order to meet the performance criteria.

Performance criteria must be met at the end of the each growing season. If the performance criteria are not met, recommendations must be made in the site assessment report with detailed actions to be taken the year after to meet the performance criteria. Remedial actions must be performed in areas that did not meet the performance criteria, all remedial actions must be at no further cost to the Contract. Remedial actions must be in the form of overseeding in under performing areas. All remedial actions must be performed with no further cost to the Contract.

-- End of Section --

SECTION 35 20 26

SANDY PADDLE SPORT LANDING
08/20

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Sounding Equipment Description and Calibration Data
Verification that the Contractor's sounding equipment has been calibrated to correspond with the Government's Hydrographic Surveying Manual EM 1110-2-1103, sounding equipment shall be submitted prior to commencing work. Also submit the description of the Contractor's sounding equipment and transducer frequency prior to commencing work.

Dredging, Conveyance and Placement Plan; G-AOF
Prior to bringing equipment to the project site, submit plans of the proposed dredging, conveyance and placement operations. Include the proposed method for transporting equipment over the knee-high concrete parapit wall located at the North end of the placement site near the Duluth Entry.

Dredging Placement Safety Plan; G-AOF
Submit as required by the paragraph entitled "Placement in Indicated Placement Areas."

Notice Of Start Of Dredging
Submit as required by the paragraph entitled "Dredging."

SD-02 Shop Drawings

Submerged Pipeline
Indicate pipeline location and installation details.

Soundings
Submit drawings of surveys during progress of work by soundings.

SD-11 Closeout Submittals

Material Placement Records
Records indicating quantity and location of dredged material placement in the Government-furnished open-water and nearshore placement area(s).

1.2 OTHER DREDGING OPERATIONS

The Contractor should anticipate the possibility of concurrent dredging

operations, adjacent to or nearby the dredge and placement areas in this contract. Delays should be anticipated in transiting to, and through, the placement sites during concurrent dredging and placement operations. As a standard safety precaution, observe placement site specific restrictions pertaining to the limit of dredges operating within the area at a given time. Coordination with other dredge plant in the vicinity of the dredge and placement areas is required.

1.3 CHARACTER OF MATERIAL

Material dredged from the indicated borrow area consists primarily of native sand (medium to fine), with a shallow, upper layer of silt and organics. Dense to medium dense clay may be encountered within the dredge and overdepth prism. Very heavy or thick vegetative matter (e.g. thick mats of grassy or weedy material) may be encountered in the top layer as well. Loose to dense Sand with silt is expected to be encountered in the overdepth dredging prisms as well as the required dredging prisms. Cobbles and boulders may also be encountered as well as random and varying thickness dense clay layer seams may also be encountered in the dredge prism, not just the overdepth prism.

It is inherent in dredging operations in an old commercial industrial harbor as Duluth-Superior Harbor to encounter an array of man-made debris such as cable, ratchets, tires, wrecks, scrap materials of various composition, processed rock, riprap, etc.

Woody debris of varying shapes and sizes was distributed throughout the harbor during the flood event of 2012. It is anticipated that wood debris will be encountered in dredge areas.

The records of previous dredging and sampling are available for inspection at the Office of the Engineering & Construction Office, U.S. Army Corps of Engineers, Detroit District, 477 Michigan Avenue, McNamara Building, Detroit, Michigan.

1.4 PLACEMENT AREA CONDITIONS

The limits of the placement area and conditions of use shall be in accordance with the drawings. The Contractor is responsible for verifying proper placement of material into the designated placement area. Verification is to be supplied to the Government upon request.

1.5 DELIVERY OF PLANT AND ORDER OF WORK

Prior to bringing equipment to the project site, the contractor shall submit a Dredging, Conveyance and Placement Plan describing in detail how it plans to accomplish the work within the required period of performance.

1.6 ARTIFICIAL OBSTRUCTIONS

Except as indicated, the Government has no knowledge of cables, pipes, or other artificial obstructions or of any wrecks, wreckage, or other material that would necessitate the use of explosives or the employment of additional equipment for economical removal. However the Contractor is responsible for identifying any utilities or other channel crossings. Any existing channel crossings that are damaged due to the Contractor's operations shall be repaired at the Contractor's expense. If actual conditions differ from those stated or shown, or both, an adjustment in contract price or time for completion, or both, will be made in accordance

with the clause 52.236-2 "Differing Site Conditions."

1.7 PERMITS

The Contractor shall comply with conditions and requirements of the Corps of Engineers Permits and real estate instruments, and other State or Federal permitting requirements. Permits and real estate instruments for dredging and placement of material are attached as indicated. The Contractor is responsible for obtaining any additional permits as necessary to perform the work.

1.8 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain during the life of the contract, environmental protective measures. Also, provide environmental protective measures required to correct conditions, such as oil spills or debris, that occur during the dredging operations. Comply with Federal, State, and local regulations pertaining to water, air, and noise pollution.

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 DREDGING

The contractor is not required to dredge the entire borrow area footprint, as long as requirements for features of work relying on this material have been met. Once dredging within the borrow area has begun in any particular location, dredging that area must be completed until the allowable depth has been dredged to. Any materials in the allowable overdepth prism and allowable side slopes are not required to be removed.

3.1.1 Method

Dredging within the identified borrow site is restricted to mechanical dredging.

3.1.2 Woody Debris

Any woody debris encountered during dredging operations shall be disposed of offsite at an acceptable location approved by the COR. The Contractor shall bear all costs associated with this action.

3.2 CONDUCT OF DREDGING WORK

3.2.1 Restriction

Unless otherwise stated, the Contractor shall not dredge below a grade 3 feet above pipes, cables, tunnels, and other submerged crossings shown on the drawings or indicated in these specifications (see clause 52.236-4 titled "Physical Data"). This restriction applies for a distance of 25 feet upstream and 25 feet downstream of each channel crossing. Any existing crossing that is damaged due to Contractor operations shall be repaired by the Contractor at its expense.

3.2.2 Order of Work

Dredging of borrow material and placement within the indicated sandy paddle sport landing must be accomplished after remedial dredging has been

completed and residual cover and habitat restoration has concluded within the affected vicinity of the sandy paddle sport landing. The order of work may otherwise be completed at the Contractor's discretion. The Government reserves the right to change the order of work at any time.

3.2.3 Lights

If the contractor elects to utilize a transfer box for placement of materialat the sandy paddle sport landing, the Contractor shall not shine lights in the direction of nearby residential and commercial properties, unless otherwise approved by the COR. Each night, between sunset and sunrise and during periods of restricted visibility, provide lights for floating plants, pipelines, ranges, and markers. Also, provide lights for buoys that could endanger or obstruct navigation. When night work is in progress, maintain lights from sunset to sunrise for the observation of dredging operations. Lighting shall conform to United States Coast Guard requirements for visibility and color.

3.2.4 Ranges, Gages, and Lines

Furnish, set, and maintain ranges, buoys, and markers needed to define the work and to facilitate inspection. Establish and maintain gages in locations observable from each part of the work so that the depth may be determined. Suspend dredging when the gages or ranges cannot be seen or followed. The Contracting Officer will furnish, upon request by the Contractor, survey lines, points, and elevations necessary for the setting of ranges, gages, and buoys.

3.2.5 Plant

Maintain the plant, scows, coamings, barges, pipelines, and associated equipment to meet the requirements of the work. Promptly repair leaks or breaks along pipelines. Remove dredged material placed due to leaks and breaks.

3.2.6 Placement of Dredged Material

All nautical vessels, pipelines and land based transport and conveyance systems shall be operated, loaded and unloaded in such manner as to prevent overflow, spills, leaks, waste, or other loss of dredged materials between point of pick-up and point of deposition within the placement area. Hauling vessels shall have sufficient sidewall height and integrity to prevent drainage over or through the sides and bottom during hauling.

3.2.6.1 Method of Placement

The method employed by the Contractor in conveying dredged materials to the placement area shall be as approved by the Contracting Officer at all times. Temporary dumping or placement of materials outside of the placement area for subsequent rehandling into the placement area is prohibited unless otherwise approved by the Contracting Officer.

3.2.6.2 Transfer Site

If use of a transfer site is specified for use, the Contractor shall take soundings across the full width and length of the transfer site mooring area prior to the start-up of and immediately after the completion of transfer operations under the contract. Soundings shall be taken on lines and at intervals acceptable to the Contracting Officer. Prior and after

surveys of the transfer site shall be submitted to the Government.

3.2.6.3 Vehicular Conveyance

Vehicular conveyance of dredged material for the purpose of constructing the sandy paddle sport landing is prohibited.

3.2.6.4 Placement in Indicated Placement Areas

Prior to placement of dredge material, the Contractor will submit a Dredging Placement Safety Plan, describing in detail the means and methods to be utilized to provide for the public safety at the placement area, in accordance with the Accident Prevention Plan. Include proposed safety signage and temporary chain-link fence panels, unless otherwise approved by the COR. Include location, design, and dimensions of signs and temporary chain-link fence panels. Include how often temporary barracades will be inspected and maintained. During no work periods, weather days, or non-work days, provide a plan to maintain signage and temporary barricades. The dredged materials shall be deposited within the Government-furnished placement area shown on the drawings. Placement of the dredged materials within the placement area shall be as specified and shown except as otherwise directed by the Contracting Officer. Except as otherwise authorized by the Contracting Officer in writing, no placement shall be performed unless a representative of the Contractor for Quality Control is present at the time. The method employed by the Contractor in depositing dredged materials in the placement area shall be as approved by the Contracting Officer.

3.2.6.5 Government Furnished Placement Areas

3.2.6.5.1 Sandy Paddle Sport Landing

3.2.6.5.1.1 Requirements

The finished sandy paddle sport landing drainage shall be maintained waterward across the placed materials. The materials shall be placed in such a manner which will not block or interfere with natural or constructed drainage into the water. During placement, the contractor shall minimize erosion of existing shoreline sediments. If shore ice is present during placement operations, dredged materials shall be placed directly upon the ice within the required limits. Within these limits, the dredged materials shall be evenly distributed along the entire length of the placement area. The placement area shall be graded to meet the slope requirements indicated on the contract drawings.

3.2.6.6 Submerged Pipeline

If a leak occurs in the discharge pipeline, immediately discontinue using the line until leaks are repaired. Remove material placed due to leaks or breaks.

3.2.7 Condition of Scows, Hoppers, and Pipelines

Scows and hoppers used for transporting the dredged material shall be kept in good condition with coamings in repair. Doors of dump vessels shall be maintained in good repair and sealed in a proper manner to prevent the loss of dredged material. Decks of vessels shall be cleaned of dredged material before leaving the dredging area. Pipelines in hydraulic dredging systems shall be kept in good condition, free of leaks.

3.2.8 Unloading of Scows

When scow unloading is performed with the use of a clamshell or bucket, the placement area enclosure shall be returned to its original condition by removing all material deposited thereon to the satisfaction of the Contracting Officer.

3.2.9 Navigation Warnings

Furnish and maintain navigation warning signs along the pipeline.

3.2.10 Method of Communication

Provide a system of communication between the dredge crew and the crew at the placement area. A portable two-way radio is acceptable.

3.2.11 Salvaged Material

Anchors, chains, firearms, and other articles of value, which are brought to the surface during dredging operations, shall remain or become the property of the Government and shall be deposited on shore at a convenient location near the site of the work, as directed.

3.2.12 Plant Removal

Upon completion of the work, promptly remove plant, including ranges, buoys, piles, and other markers or obstructions.

3.3 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain a quality control system for dredging and placement operations to assure compliance with the Contract requirements and provide a Daily Report of Dredging Operations by completing the appropriate form and completing all inspections of items under this system, including, but not limited to, the following:

a. Layout of work, and placement areas.

b. Proper placement heights.

c. Conveyance and placement operations.

d. Removal of misplaced material.

e. Safety requirements.

3.4 GOVERNMENT INSPECTION

3.4.1 Gauge Maintenance

The Contractor shall maintain its gauges, ranges, location marks and limit marks in proper order and position. The presence of a Government inspector shall not relieve the Contractor of its responsibility for the proper execution of the work in accordance with the specifications and drawings.

3.4.2 Transportation

The Contractor shall furnish, on the request of the Contracting Officer or

any inspector, suitable transportation from designated points on shore to and from the various pieces of off-shore plant areas.

3.4.3 Compliance

Should the Contractor refuse, neglect, or delay compliance with the requirements specified herein, the sandy paddle sport landing may be furnished and maintained by the Contracting Officer, and the cost thereof will be deducted from any amounts due or to become due the Contractor.

3.5 FINAL EXAMINATION AND ACCEPTANCE

3.5.1 Examination

As soon as practicable after the completion of the entire work or any section thereof (if the work is divided into sections) as in the opinion of the Contracting Officer will not be subject to damage by further operations under the contract, such work will be thoroughly examined at the cost and expense of the Government by sounding or by sweeping, or both, as determined by the Contracting Officer. Should any grades, elevations, or footprint be determined not in accordance with the specified requirements for the sandy paddle sport landing under this examination, the Contractor is required to make the necessary improvements to meet the requirement(s) identified at no additional cost to the Government. If the Contractor dredges an excess quantity from the borrow area, it is the Contractor's responsibility to appropriately dispose of the material at no additional cost to the Government. Excess material dredged shall not be placed back in the borrow area footprint. The Contractor or its authorized representative will be notified when surveys are to be made at the placement area, and will be permitted to accompany the survey party. When the area is found to be in a satisfactory condition, it will be accepted finally. Should more than two (2) survey operations by the Government over the placement area be necessary by reason of work for construction of the sandy paddle sport landing, the cost of such third and any subsequent survey operation will be charged against the Contractor at the rate of $3,500 per calendar day in which the Government plant is engaged in surveying and/or is enroute to or from the site or held at or near the said site for such operations.

3.5.2 Acceptance

Final acceptance of the whole or part of the work and the deductions or corrections of deductions made thereon will not be reopened after having once been made, except on evidence of collusion, fraud, or obvious error,and the acceptance of a completed section shall not change the time of payment of the retained percentages of the whole or any part of the work.

-- End of Section --

ACCESS ROUTE: CLYDE AVENUE

RAILROAD (ACTIVE)

A1
C-101

A1
C-102

REQUIRED 50' WIDE
SANDY PADDLE SPORT AREA
EXTENDING INTO WATER
30' BEYOND LWD

FLOW
ST. LOUIS RIVER

LEGEND

- REQUIRED 5 FT X 12 FT X 5 IN CONCRETE PRECAST PLANKS
- REQUIRED BITUMOUS ASPHALT PAVING
- REQUIRED 2 TO 2 1/2 IN CRUSHED ROCK FILL
- SANDY PADDLE SPORT AREA

A1 REQUIRED SITE WORK- MUNGER LANDING
SCALE:1"=20'

0 20' 40'

N

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

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H7ECGSRH
AEC_P&W.STB
11:36:21 12/6/2021

DESIGNED BY:	ISSUE DATE:
V. PERSON	3 DECEMBER 2021
DRAWN BY:	SOLICITATION NO.:
S. HILL	•XXXXXX-XX-X-XXXX
CHECKED BY:	CONTRACT NO.:
A. JAMES	•XXXXXX-XX-X-XXXX
SUBMITTED BY:	PROJECT CODE:
P. ROSS	DSMIL
SIZE: ANSI D	FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE.
DETROIT, MICHIGAN 48226

Value Engineering

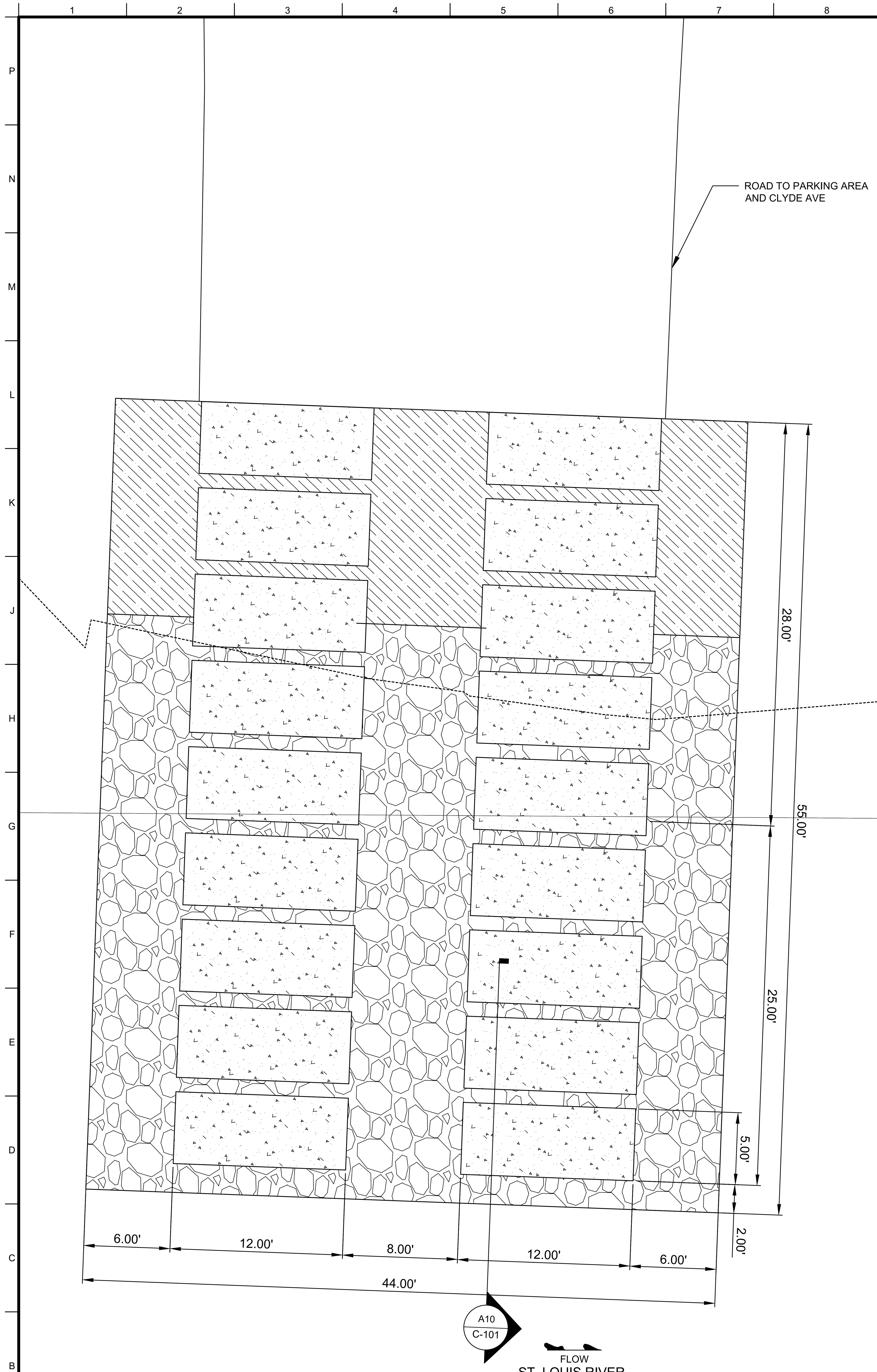
MUNGER LANDING SEDIMENT REMEDIATION
ST. LOUIS RIVER AREA OF CONCERN
ST. LOUIS COUNTY, DULUTH, MN
DOUGLAS COUNTY, SUPERIOR, WI

REQUIRED SITE WORK- MUNGER LANDING

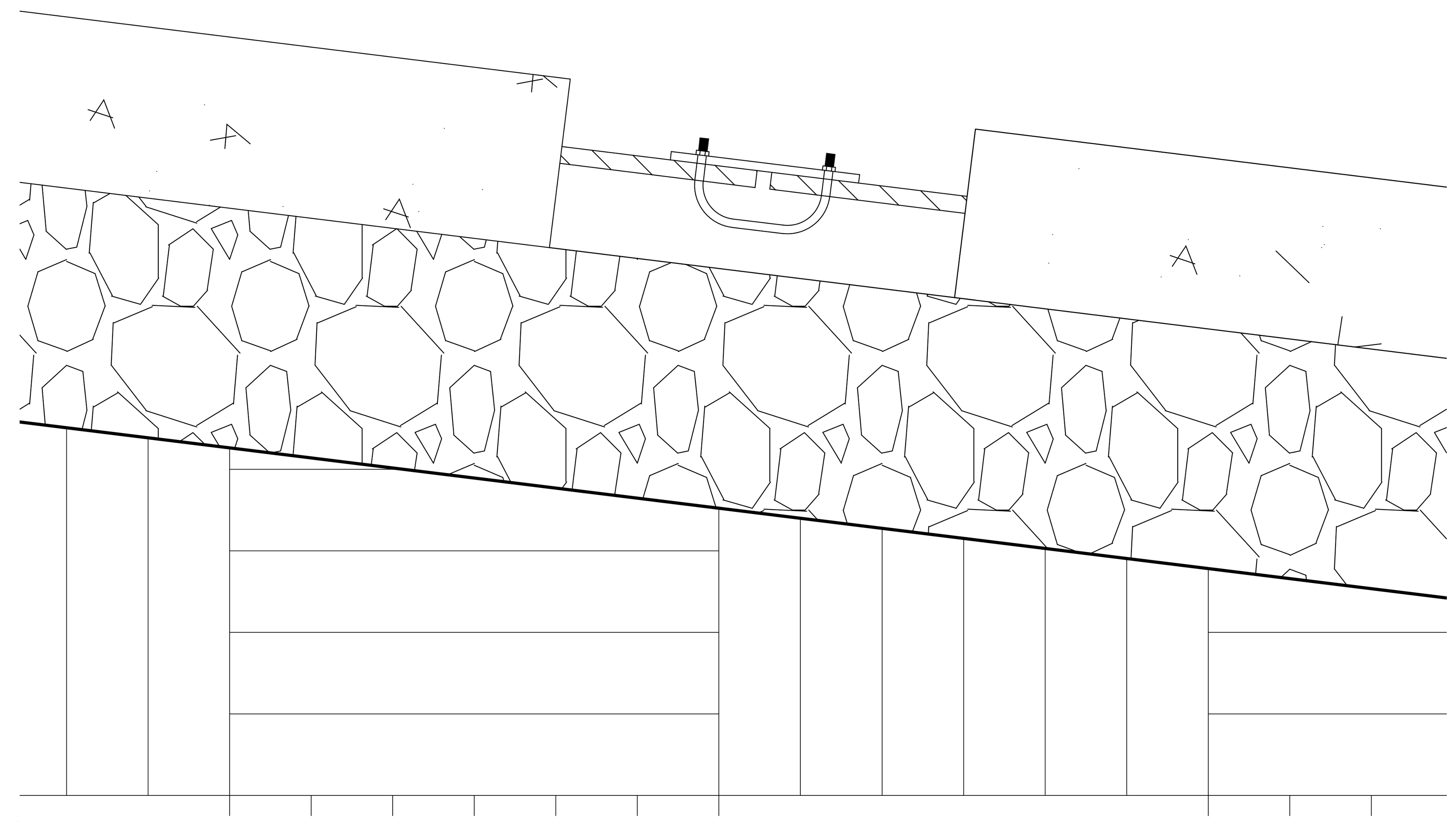
SHEET ID

C-100

95% BCOES BACKCHECK



A1 REQUIRED BOAT LAUNCH- MUNGER LANDING
SCALE:1"=5'



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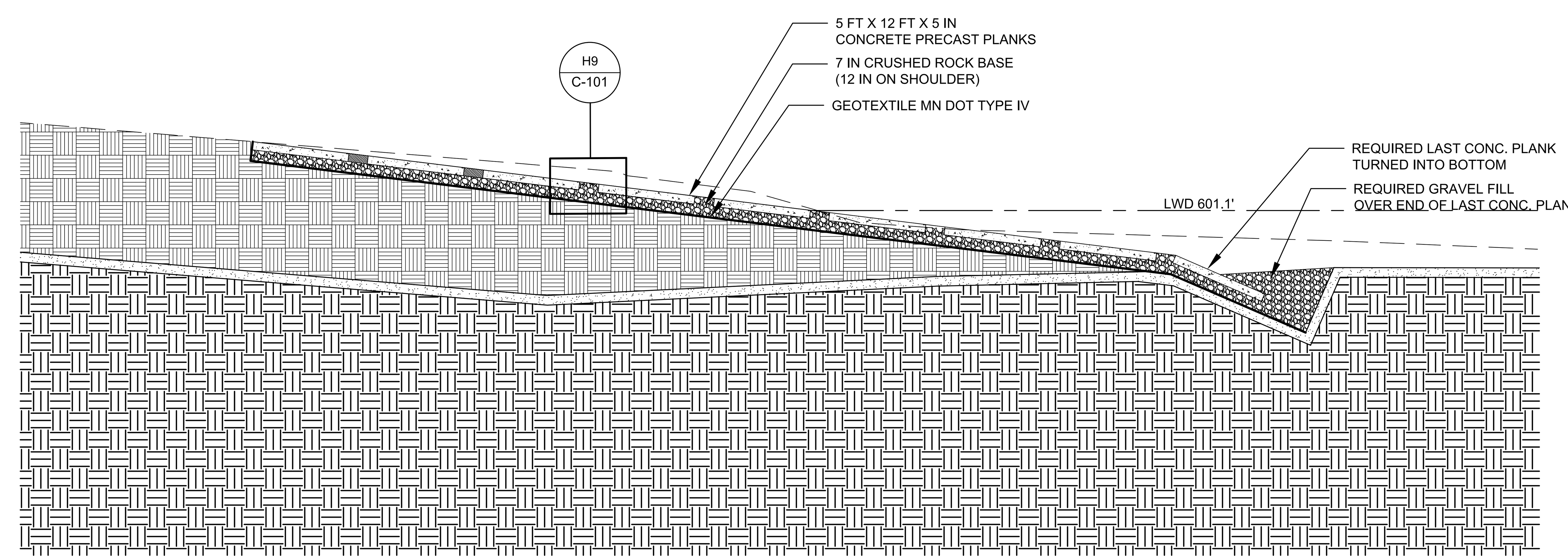

A1 / C-101 A10 REQUIRED BOAT LAUNCH SECTION
SCALE:1"=5'

LEGEND

- REQUIRED 5 FT X 12 FT X 5 IN CONCRETE PRECAST PLANKS
- REQUIRED BITUMOUS ASPHALT PAVING
- REQUIRED 2 TO 2 1/2 IN CRUSHED ROCK FILL
- REQUIRED 6" SUBAQUEOUS COVER
- REQUIRED 6" SUBAQUEOUS COVER
- REQUIRED 6" SUBAQUEOUS COVER

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: 3 DECEMBER 2021
SOLICITATION NO.: +XXXXXX-XX-X-XXXX
CONTRACT NO.: +XXXXXX-XX-X-XXXX
PROJECT CODE: DSML

DESIGNED BY: V. PERSON
DRAWN BY: S. HILL
CHECKED BY: A. JIMENEZ
SUBMITTED BY: P. ROSS
SIZE: ANSI D
FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE.
DETROIT, MICHIGAN 48226

MUNGER LANDING SEDIMENT REMEDIATION
ST. LOUIS RIVER AREA OF CONCERN
ST. LOUIS COUNTY, DULUTH, MN
DOUGLAS COUNTY, SUPERIOR, WI

REQUIRED BOAT LAUNCH- MUNGER LANDING

SHEET ID
C-101

95% BCOES BACKCHECK

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AEC_B&W.STB
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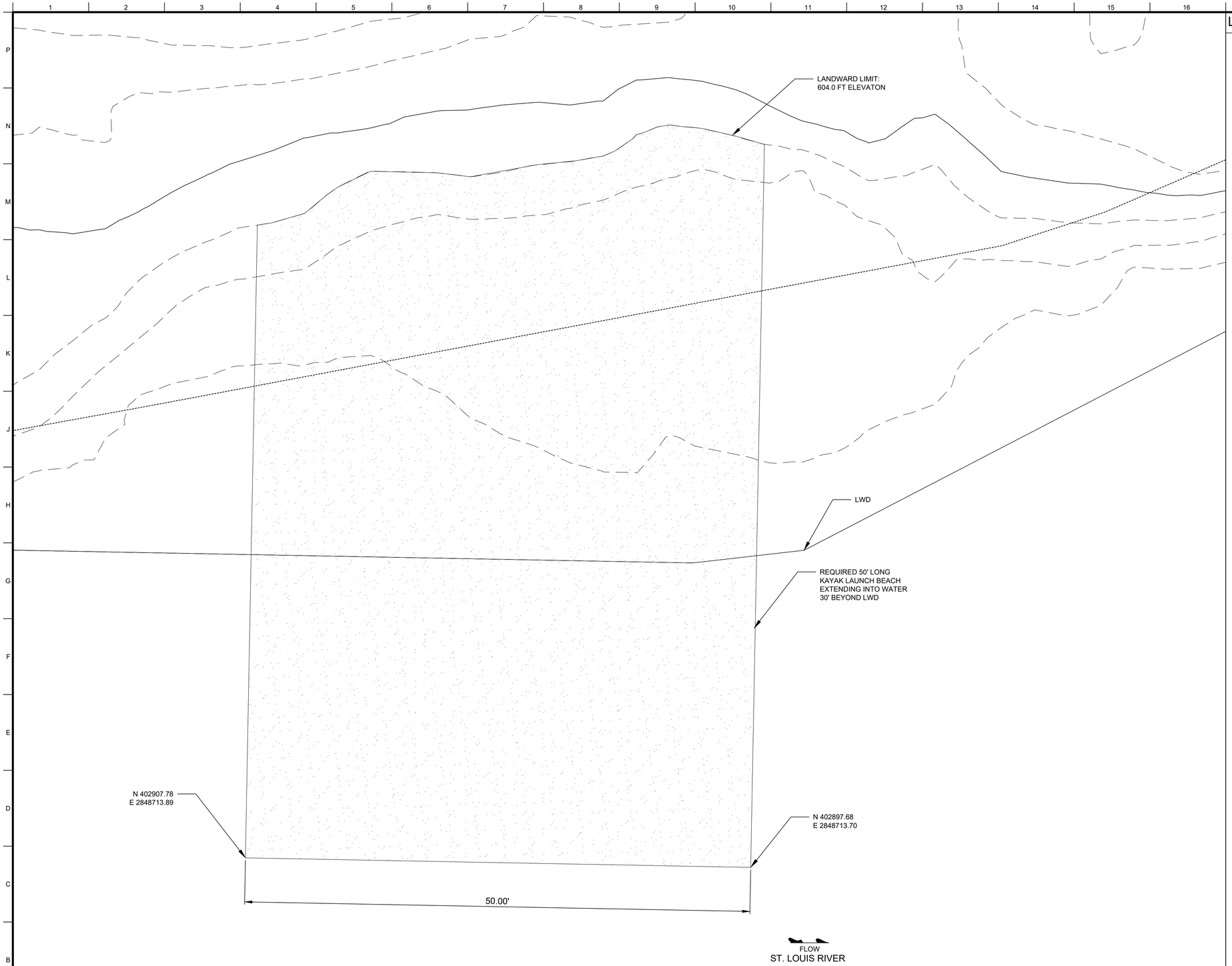

LEGEND

SANDY PADDLE SPORT AREA

A1 SANDY PADDLE SPORT AREA
SCALE:1"=5'

N

0 5' 10'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

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H7ECGSRH
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AEC_P&W.STB

DESIGNED BY:	ISSUE DATE:
V. PERSON	3 DECEMBER 2021
DRAWN BY:	SOLICITATION NO.:
S. HILL	*XXXXXX-XX-X-XXXX
CHECKED BY:	CONTRACT NO.:
A. MEITZ	*XXXXXX-XX-X-XXXX
SUBMITTED BY:	PROJECT CODE:
P. ROSS	DSMIL
SIZE: ANSI D	FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MICHIGAN 48226

Water Engineering

MUNGER LANDING SEDIMENT REMEDIATION
ST. LOUIS RIVER AREA OF CONCERN
ST. LOUIS COUNTY, DULUTH, MN
DOUGLAS COUNTY, SUPERIOR, WI

SANDY PADDLE SPORT AREA

SHEET ID

C-102

95% BCOES BACKCHECK

LEGEND

- ACCESS ROUTE: CLYDE AVENUE
- UPPER PARKING LOT LIGHT STORAGE AREA APPROX 27,000 SF
- WORK AND STORAGE AREA APPROX 51,000 SF
- 20' WIDE HAUL ROUTE TO WETLANDS
- WETLAND DREDGE AREA

A1 BOAT LAUNCH, KAYAK ACCESS AND WETLAND DREDGE AREA ACCESS

SCALE:1"=200'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

C:\USERS\H7ECGSRH\DESKTOP\FY21 MUNGER LANDING\PLAN SETS\03_SHEETS\DSML-RR101A.DWG
H7ECGSRH
13:57:38 9/17/2021
AEC_P&W.STB

DESIGNED BY: V. PERSON
DRAWN BY: S. HILL
CHECKED BY: A. MEYER
SUBMITTED BY: P. ROSS
SIZE: ANSI D
ISSUE DATE: 17 SEPTEMBER 2021
SOLICITATION NO.: •XXXXXX-XX-X-XXXX
CONTRACT NO.: •XXXXXX-XX-X-XXXX
PROJECT CODE: DSML
FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MICHIGAN 48226

Wade Engineering

ST. LOUIS COUNTY
DULUTH, MINNESOTA
MUNGER LANDING SEDIMENT REMEDIATION
ST. LOUIS RIVER AOC - REMEDIAL ACTION PLAN

BOAT LAUNCH, KAYAK ACCESS AND WETLAND DREDGE AREA ACCESS

SHEET ID
RR101

95% BCOES REVIEW

PARKING LOT

EXISTING PAVED BOAT LAUNCH
SHORT TERM PARKING AREA

EXISTING REMOVABLE BOAT LAUNCH
DOCK TO BE REMOVED PRIOR TO THE
START OF CONSTRUCTION BY OTHERS

PAVED WALKWAY TO FISHING PIER

FISHING PIER TO BE REMOVED BY OTHERS
PRIOR TO THE START OF CONSTRUCTION

610

OHWM

LWD

FLOW
ST. LOUIS RIVER

N

0 10' 20'

A1 CN105 A1 REQUIRED DREDGING PLAN- TSCA AREA
SCALE:1"=10'

GENERAL SHEET NOTES

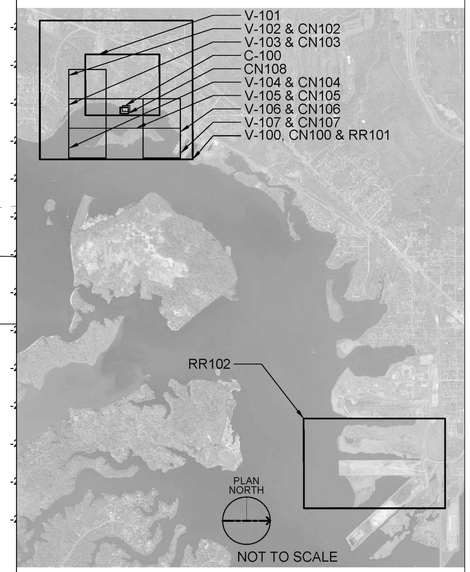
1. THE RIVER SHORELINE DREDGE AREAS CONTAIN DENSE VEGETATION IN SOME AREAS. SEE SHEET CN100 REQUIRED CLEARING AND GRUBBING. VEGETATION REMOVED FROM WITHIN THE TSCA DREDGE/EXCAVATION AREA MUST BE TREATED AS TSCA MATERIAL.
2. KEEP TSCA MATERIAL SEPARATE FROM OTHER MATERIALS DURING REMOVAL, DEWATERING, AND DISPOSAL IN ACCORDANCE WITH SPECIFICATION SECTIONS 02 61 13 AND 02 81 00.

LEGEND

MN LIDAR:
- EXISTING MAJOR CONTOUR (10' INTERVAL)
- EXISTING MINOR CONTOUR (2' INTERVAL)

USACE SURVEY
- EXISTING MAJOR CONTOUR (5' INTERVAL)
- EXISTING MINOR CONTOUR (1' INTERVAL)
- OHWM (EL 602.8)
- LWD (EL 601.1)
- STATE BORDER
- REQUIRED FEATURES
- REQUIRED DREDGE LIMITS
- -2.0 REQUIRED CUT DEPTH (FEET)
- REQUIRED TSCA DREDGE/EXCAVATION AREA
- REQUIRED UPLAND NON-TSCA EXCAVATION AREAS

SHEET KEY MAP



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: 3 DECEMBER 2021
SOLICITATION NO.: +XXXXXX-XX-X-XXXX
CONTRACT NO.: +XXXXXX-XX-X-XXXX
PROJECT CODE: DSMIL

DESIGNED BY: V. PERSON
DRAWN BY: S. HILL
CHECKED BY: A. JIMENEZ
SUBMITTED BY: R. ROSS
SIZE: ANSI D
FILE NAME:

U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
477 MICHIGAN AVE
DETROIT, MICHIGAN 48226

Value Engineering

MUNGER LANDING SEDIMENT REMEDIATION
ST. LOUIS RIVER AREA OF CONCERN
ST. LOUIS COUNTY, DULUTH, MN
DOUGLAS COUNTY, SUPERIOR, WI

DREDGING AND EXCAVATION PLAN - TSCA AREA

SHEET ID
CN108

95% BCOES BACKCHECK

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