



The City of  
**WORCESTER**

Administration & Finance – Purchasing Division  
Christopher J. Gagliastro, MCPPO – Purchasing Director  
455 Main Street, Room 201, Worcester, MA 01608  
P | 508-799-1220  
[purchasing@worcesterma.gov](mailto:purchasing@worcesterma.gov)

October 12, 2023

To All Bidders:

Subject: **8075-M4 Greenwood Street Landfill Groundwater Remediation Barrier/ DPWP**

**ADDENDUM NO. 5**

To Whom It May Concern:

With reference to our proposal request relative to the above subject, please refer to the changes/modifications/clarifications to the original proposal request.

- **PLEASE SEE ATTACHED SHEETS FOR CLARIFICATION TO QUESTIONS RELATING TO THIS BID.**

Proposers are requested to acknowledge and/or include this addendum with submission. All other terms, conditions and specifications remain unchanged.

Very truly yours,

Maureen McKeon  
Assistant Purchasing Director

## **Addendum No. 5**

### **1.1 PROJECT INFORMATION**

- A. Project Name: Greenwood Street Landfill – Groundwater Remediation Barrier Construction
- B. Owner: City of Worcester Department of Public Works and Parks
- C. Engineer: Nathan Jones, P.E., PMP
- D. Date of Addendum: October 12, 2023

### **1.2 NOTICE TO BIDDERS**

- A. This Addendum is issued to all registered plan holders pursuant to the INSTRUCTIONS to Bidders. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.
- B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

### **1.3 ATTACHMENTS**

- A. None

### **1.4 REVISIONS TO PREVIOUS ADDENDA:**

- A. None

### **1.5 QUESTIONS AND ANSWERS**

- A. Question closing date was October 11, 2023 at 10am. The answers to the final questions are provided below.

## QUESTIONS AND ANSWERS:

- 1) **Question:** Is there a target injection flow rate for the overburden and bedrock injection wells?

**Response:** Specification Section 331113.49 3.2(G) states: The target pressure for overburden injections will range from two (2) to four (4) pounds per square inch (psi). The target injection rates for overburden injections will range from two (2) to four (4) gallons per minute (gpm). The final overburden injection pressure ranges (psi) and flow rate (gpm) may slightly differ at each overburden injection well and will be determined by the Engineer during injections.

Specification Section 331113.49 3.3(H) states: The target pressure for bedrock injections will range from ten (10) to thirty (30) pounds per square inch (psi). The target injection rates for bedrock injections will range from two (2) to ten (10) gallons per minute (gpm). The final bedrock injection pressure ranges (psi) and flow rate (gpm) may slightly differ at each bedrock injection well and will be determined by the Engineer during injections.

- 2) **Question:** The specification suggest that the bedrock remediation amendments include Guar Gum but it is not listed in Table 1 as a component. Please specify the mass of Guar Gum to be utilized. Could Xanthum Gum be utilized as an alternative?

**Response:** The target amendment concentrations and volumes for bedrock hydraulic fracturing remediation are provided in Table 1 located within the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill. The volume of other chemicals/additives required for development of injection carrier slurries will be reviewed and approved by the Engineer during work plan submittal.

- 3) **Question:** The density of 60% sodium lactate is 11.02 lbs./gallon however based on the tables provided it is 10.6 lbs./gallon. Please clarify that the density of 11.02 is acceptable.

**Response:** The 60% sodium lactate density of 11.02 lbs./gallon is acceptable.

- 4) **Question:** For ZVI, the three microscale options are 4 um, <44 um and <125 um. Please clarify which is to be utilized and/or identify the assumed quantity for each.

**Response:** Bid the quantities identified in Table 1 of the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill. The Contractor shall determine the appropriate size of microscale zero valent iron (ZVI).

- 5) **Question:** Please clarify that an oxygen scavenger like sodium ascorbate is not required. This is typically utilized to drive the water anaerobic before injection of the microbes.

**Response:** See Specification Section 331113.49 3.2(D&K) and Section 331113.49 3.3(E&L). The Contractor shall determine if an oxygen scavenger shall be utilized.

- 6) **Question:** Please clarify that the intent is to batch mix the EVO, lactate, sodium bicarbonate, and bioaugmentation culture into a single injection mixture?

**Response:** Specification Section 331113.49 3.2(C) states: Create amendment solution by preparing the remediation amendment mixture. An amendment mixture containing a total injection volume per well of approximately 1,250 gallons including emulsified vegetable oil at approximately 12.5 gallons, sodium lactate at 35 gallons, sodium bicarbonate at 53 pounds, bioaugmentation culture at 3 liters, and approximately 1,203 gallons of potable water is anticipated to be used at each single overburden injection well location. The target amendment concentrations and volumes are provided in Table 2 located within the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

Specification Section 331113.49 3.3(D) states: Create amendment solution by preparing the remediation amendment mixture. An amendment mixture containing a total injection volume per well of approximately 1,000 gallons including sodium lactate at approximately 40 gallons, sodium bicarbonate at 40 pounds, bioaugmentation culture at 6 liters, and approximately 960 gallons of potable water is anticipated to be used at each single bedrock injection well location. The target amendment concentrations and volumes are provided in Table 3 located within the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

Specification Section 331113.49 3.2(D) and 3.3(E) states: Perform injections by mixing and injecting discrete batches.

- 7) **Question:** Is there a target injection flow rate for the overburden injection wells?

**Response:** See Response to Question 1 above

- 8) **Question:** Contract documents indicate that there are seven (7) existing bedrock wells installed. Were these wells hydraulically fractured per Line Item 11? What drilling contractor installed these wells, and what contractor hydraulically fractured them?

**Response:** Three existing wells were hydraulically fractured during the pilot study. Information on the well installation and hydraulic fracturing is included in the MCP Phase IV Remedial Implementation Plan Report submitted to MassDEP: [MassDEP Waste Site / Scanner Release File Viewer \(state.ma.us\)](#).

- 9) **Question:** Can you provide the sign-in-sheets for the bidwalk?

**Response:** The sign in sheet was provided in a previous addendum.