



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

October 10, 2023

To All Bidders:

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

ADDENDUM NO. 3

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 documents for Addendum #3 to this project.**

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. 3

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 10, 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. This Addendum includes the following attached Documents:
 - 1. Pre-Bid Meeting Agenda September 28, 2023 (attached)
 - 2. Pre-Bid Meeting Attendee List (attached)

1.4 REVISIONS TO PREVIOUS ADDENDA:

- A. Bid Closing revised from October 11, 2023 to October 18, 2023 at 10:00am

1.5 QUESTIONS AND ANSWERS

- A. Pre-Bid Meeting Questions and Answers from September 28, 2023 is attached.
- B. Questions directed to the City of Worcester Purchasing Department and Answers are attached.
- C. Additional Questions shall be submitted to the City by October 11, 2023 at 10am. Additional questions shall be submitted to Maureen McKeon: mckeonmp@worcesterma.gov.
- D. Answers to Additional Questions shall be issued as Addendum No.4.

QUESTIONS AND ANSWERS:

- 1) **Question:** Are there City of Worcester Conservation Commission permits and restrictions?

Response: Yes, the City of Worcester Conservation Commission provided an approved Order of Conditions (DEP#349-1334) and Notice of Intent (CC-2022-061) which is in Appendix A of the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

- 2) **Question:** Is there an equipment staging area on-site?

Response: Yes, the primary staging area is the area where the pre-bid meeting was held. The primary staging area is shown on Figure 1 (Site Overview Plan) in the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill

- 3) **Question:** Any potential wildlife impacts?

Response: There are no endangered wildlife within the project area.

- 4) **Question:** Is there a fire hydrant located on-site for water use?

Response: Yes, there is a fire hydrant located at the gated entrance of the site. See Figure 1 (Site Overview Plan) in the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

- 5) **Question:** Are there security gates/fence with lock system?

Response: Yes, there is one locked gate at the entrance of the site.

- 6) **Question:** Are there homeless camp areas in project area?

Response: There have been no observed homeless camps within the Greenwood Street landfill property.

- 7) **Question:** Can contractors work on weekends? Are there weekend work notification requirements?

Response: Yes, would need approval from the City to conduct weekend work or extended hour work. Section 2.6 - Document 8075-M4-Greenwood St Landfill Remediation states: Eight Hour Day, etc (Statutory reference: M.G.L Chapter 149, Sections 30, 34, and 34A) this Paragraph 2.6 applies only to contracts which are subject to the provisions of the aforesaid sections of the Massachusetts General Laws:

No laborer, worker, mechanic, foreman or inspector working within this Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

8) Question: Are there site access request requirements during the bidding phase?

Response: Yes, would need approval from the City of Worcester Department of Public Works and Parks to access the site during the bidding phase. Reach out to the City of Worcester Purchasing Department, Assistant Purchasing Director, Maureen McKeon to request additional site access (508) 799-1221. Email: mckeonmp@worcesterma.gov.

9) Question: Is tilt metering supposed to be conducted pre and post hydraulic fracturing?

Response: Specification Section 331113.36 3.2(D & H) states that tilt metering is to be conducted during the hydraulic fracturing process. The tilt metering is completed during the hydraulic fracturing/injection process to identify the extent of fracture injection propagation/and to map the distribution of amendment slurry.

10) Question: Does a specific tilt meter need to be used?

Response: Surficial tilt meters will be used during the hydraulic fracturing/amendment slurry injections to measure sub-surface deformations to identify the extent of fracture injection propagation/and to map the distribution of amendment slurry.

11) Question: Is tilt metering required in wetlands?

Response: Specification Section 331113.36 3.2(D) states that tilt metering will be conducted at up to three (3) bedrock fractures at up to thirteen (13) bedrock borehole locations. There is a total of twenty-six (26) bedrock borehole injection well installation locations. Due to the wet ground surface conditions within the bordering vegetated wetland (BVW), tilt metering will be conducted at bedrock borehole injection wells north, east and south of the wet ground surface areas.

12) Question: Are there sub-surface soil gradation changes with depth?

Response: Appendix B of the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill contains the boring/well construction logs within the groundwater remediation barrier installation area which would identify sub-surface gradation changes.

13) Question: Does subsurface material need to be drummed and where is the staging area?

Response: Specification Section 331113.13- 3.1(I) states that: The volume of soil cuttings and development water are expected to be small at each well installation location. It is anticipated that drill cuttings will be disposed of by raking into the ground surface. It is anticipated that well development test water will be discharged to the ground surface. In the event that soil cuttings and development water must be containerized at the site, contain the materials in 55-gallon steel drums and move them to an on-site location designated by the Engineer. In addition, the final location of the drums will be determined by the Engineer in the field (see Figure-1).

Specification Section 331113.13 3.4(D)(4) states that: All drill cuttings and drilling fluids shall be placed in 55-gallon steel drums for drilling work conducted off-site. Each drum shall be Massa-

chusetts Department of Transportation (MassDOT) approved and shall include a safety nut for inside and outside of the cover bolt.

Per Specification Section 015000 3.5(H) and Speciation Section 017300 3.6(A) below, the drums generated from off-site monitoring well installation and development shall be temporarily stored at the landfill staging area (Figure 1) and shall be disposed of by the Contractor.

- Specification Section 015000-6 3.5(H) states that: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- Specification Section 017300-5 3.6(A) states that: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.

14) Question: What do we do with the soil cuttings within the wetland resource area?

Response: See Notice of Intent (CC-2022-061) which is in Appendix A of the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill. Appendix A of the Notice of Intent (Project Narrative) states: Upon completion of injection well installation, each well installation location will be backfilled to match adjacent grades with drill cuttings, raked smoothed and the bordering vegetated wetlands (BVW) will be seeded with New England Wetland Plants Inc. New England Wet mix, or approved equal.

City of Worcester Conservation Commission provided an approved Order of Conditions (DEP#349-1334) and Notice of Intent (CC-2022-061) which is in Appendix A of the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

15) Question: What are the clearing requirements within the wetland buffer zones?

Response: See City of Worcester Conservation Commission approved Order of Conditions (DEP#349-1334) Section II (26) Tree Cutting: Tree cutting is allowed following installation of erosion and sediment controls; otherwise, it may be allowed, prior to such installation, with the explicit permission of the Commission or its Agents.

See Section II (27) Trees to Remain: All trees to remain post construction shall be marked on site as shown on the approved plan so that the Commission or its representative can verify them before any clearing takes place.

16) Question: Is it possible to get a copy of the pilot study results?

Response: The pilot study results are included in the Massachusetts Contingency Plan (MCP) Phase IV Remedial Implementation Plan submitted to the Massachusetts Department of Environmental Protection (MassDEP) and is available on MassDEP Searchable Sites under Release Tracking Number 2-0018909: [MassDEP Waste Site / Scanner Release File Viewer \(state.ma.us\)](https://www.mass.gov/info-details/massdep-waste-site-scanner-release-file-viewer)

17) Question: Where was the pilot study completed?

Response: The pilot study information is included the MCP Phase IV Remedial Implementation Plan, see link above from question 16.

18) Question: For vegetation clearing, do we need to cut all vegetation in the injection well groundwater remediation barrier installation area or can we selectively cut in between injection well locations?

Response: See Specification Section 311000 Site Clearing 3.2 (A): Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

See Notice of Intent (CC-2022-061) which is in Appendix A of the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill. Appendix A of the Notice of Intent (Project Narrative) states: Clearing of vegetation will be limited to what is necessary for equipment to access the well installation locations. When clearing is necessary, all trees and shrubs will be cut off level with the ground surface. Roots will not be removed. This will allow revegetation of the work area by stump sprouts.

19) Question: Can you woodchip small brush in the project construction area?

Response: See Specification Section 311000 Site Clearing 3.2(A): Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
3. Chip removed tree branches and dispose of off-site.

See Specification Section 311000 1.4(A): Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

20) Question: Where can we place equipment staging areas and can we make multiple staging areas?

Response: For the equipment staging area, see Figure 1 (Site Overview Plan) in the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

In addition, equipment staging areas can be added adjacent to the groundwater remediation barrier construction area. However, no equipment or staging of drill rigs shall occur within the 100-foot wetland buffer zone.

21) Question: Do you need preparation of staging areas similar to construction of the access road?

Response: No, staging areas do not need prior construction similar to the access road to place equipment. No staging areas shall be located within the 100-foot wetland buffer zone.

Also see City of Worcester Conservation Commission approved Order of Conditions (DEP#349-1334) Section IV (35) Access Road Materials: Placement of rip rap, trap rock, or any other permanent or loose fill material shall not be allowed within the Bordering Vegetated Wetland (BVW) or 30' buffer zone. Timber matting may be deployed as necessary to minimize impacts of equipment in the wetland.

22) Question: For follow up post construction work (i.e. groundwater sampling) need infrastructure installed during construction?

Response: Once the groundwater remediation construction is completed, all equipment and materials will be removed from the site except the construction access roads that will remain in place.

23) Question: Is there full -time oversight of vegetation clearing?

Response: Yes, full time oversight of the site preparation, clearing and access road construction will be completed.

24) Question: Line Items 4 and 6 Indicate Qty 22 new bedrock borehole Injection Wells. Figure 2 Indicates 7 existing wells for a total of 29 bedrock wells Line Item 11 Indicates Qty 26 bedrock boreholes with 3 fractures per well totaling 78 fractures. Are there 3 boreholes that won't be getting fractured or should the Qty for Line Item 11 be $29 \times 3 = 87$ fractures?

Response: Three of the bedrock injection wells were already hydraulically fractured during the pilot study so the correct number of bedrock injection wells to fracture is 26 with up to 3 fractures per well (totaling 78 fractures).

25) Question: The work associated with Line Item 11 indicates that the amendment gets injected as part of, or simultaneously with the fracturing process. How is Line Item 14 different than Line Item 11? Please clarify work to be completed as part of Line Item 14.

Response: Line item 14 (Bedrock Barrier Amendment Injections) does not include hydraulic fracturing. Line item 14 is completed as a separate remediation amendment injection after Line

Item 11 (Bedrock Barrier Hydraulic Fracturing/Amendment Injections). See Technical Specification 331113.49 for further details of the Bedrock Barrier Amendment Injections.

26) Question: Please clarify Qty of wells to be surveyed as part of Line Item 10. 67 Deep Overburden + 10 Shallow Overburden + 3 Offsite MW clusters + 7 Existing + 22 New Bedrock = 109 Total Wells.

Response: The existing wells have been surveyed and will not need additional survey. The total number of wells to be surveyed includes the following:

- 67 deep overburden wells
- 10 shallow overburden wells
- 3 off-site well clusters (total of 9 wells)
- 22 newly installed bedrock wells
- Total = 108 wells

27) Question: Please confirm that off-site disposal of drill cuttings and well development water is not anticipated at this time and there is not to be included in any bid form line item.

Response: Specification Section 331113.13- 3.1(I) states that: The volume of soil cuttings and development water are expected to be small at each well installation location. It is anticipated that drill cuttings will be disposed of by raking into the ground surface. It is anticipated that well development test water will be discharged to the ground surface. In the event that soil cuttings and development water must be containerized at the site, contain the materials in 55-gallon steel drums and move them to an on-site location designated by the Engineer. In addition, the final location of the drums will be determined by the Engineer in the field (see Figure-1).

Specification Section 331113.13 3.4(D)(4) states that: All drill cuttings and drilling fluids shall be placed in 55-gallon steel drums for drilling work conducted off-site. Each drum shall be Massachusetts Department of Transportation (MassDOT) approved and shall include a safety nut for inside and outside of the cover bolt.

Per Specification Section 015000 3.5(H) and Speciation Section 017300 3.6(A) below, the drums generated from off-site monitoring well installation and development shall be temporarily stored at the landfill staging area (Figure 1) and shall be disposed of by the Contractor.

- Specification Section 015000-6 3.5(H) states that: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- Specification Section 017300-5 3.6(A) states that: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

a. Use containers intended for holding waste materials of type to be stored.

28) Question: Are there liquidated damages for this project? I was unable to locate in contract documents.

Response: See Document 8075-M4-Greenwood St Landfill Remediation:

- Section 8.2.9 Progress and Completion
- Supplementary General Conditions – Part I, Section 2.2.2
- Supplemental General Conditions Section 2.4
- Supplemental General Conditions Section 4.7(f)(4)
- Form E00-D/3 Section XI Compliance – Information, Reports, Sanctions 2(a)

29) Question: Can the City of Worcester provide a time extension of one week for the bid submittal to allow for more competitive pricing from suppliers and subcontractors?

Response: Yes, the bid close will be extended to October 18, 2023.

30) Question: Can you provide either the CADD file or the existing control drawing for the entire site and/or identify how many benchmarks are established to verify existing control?

Response: CADD files with existing well locations will be provided to selected Contractor upon award. Assume that survey control will need to be re-established by the Contractor.

31) Question: Are we responsible for moving drummed soils from the offsite monitor wells to the site?

Response: Yes, per Section 015000-6 3.5(H) and Section 017300-5 3.6(A) below, the drums generated from off-site monitoring well installation and well development shall be temporarily stored at the landfill staging area (Figure 1) and shall be disposed of by the Contractor.

- Section 015000-6 3.5(H) states that: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- Section 017300-5 3.6(A) states that: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F.

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

a. Use containers intended for holding waste materials of type to be stored.

32) Question: The description of the bedrock monitoring well drilling states the boring will be drilled 20' beyond the permanent casing. Can you clarify that is a typo and no permanent casing will be installed at monitor well locations?

Response: For the off-site bedrock monitoring wells, the borings will be drilled 20 feet beyond the temporary steel casing. No permanent steel casing will be used for the off-site bedrock wells.

33) Question: Can the bedrock injection wells be developed via air lift upon completion of each well while the rig is still on the hole?

Response: Yes, per Specification Section 3311113.13 3.3(H): Complete the bedrock borehole well with a protective lock steel casing and conduct well development via jetting or other method approved by the Engineer.

34) Question: What is the anticipated start date once awarded?

Response: The Notice to Proceed is the anticipated start date for the project. See Section 8.1 Document 8075-M4-Greenwood St Landfill Remediation: The date of commencement of the Work is the date established in a notice to proceed. If there is no notice to proceed, it shall be the date of the Owner-Contractor Agreement or such other date as may be established therein.

35) Question: There is reference to a pilot study and existing fractured boreholes. Could we request a copy of the pilot study report where the hydraulic fracturing was performed?

Response: The pilot study results are included in the Massachusetts Contingency Plan (MCP) Phase IV Remedial Implementation Plan submitted to the Massachusetts Department of Environmental Protection (MassDEP) and is available on MassDEP Searchable Sites under Release Tracking Number 2-0018909: [MassDEP Waste Site / Scanner Release File Viewer \(state.ma.us\)](#).

36) Question: The RFP states that the Project shall be completed for occupation by December 1, 2024. Can the project completion be clarified? Does "completed for occupation" mean that all demobilization for the remediation project is completed by December 1? Or are there are other activities that need to be completed between remediation and December 1, 2024 such that remediation activities need to be completed by a date earlier than December 1, 2024. Further, Specification 11000 states that work within the Bordering Vegetated Wetland shall take place during summer months when conditions are dry to minimize the ground disturbance impact. This BVW requirements suggests that some other activities may not commence until late summer/early fall.

Response: Completed for occupation means that the demobilization for the remediation project shall be completed by December 1, 2024. The City of Worcester will request approval from the Conservation Commission to conduct the groundwater remediation barrier construction within the Bordering Vegetated Wetland (BVW) during the winter months.

37) Question: How can bidders coordinate for an additional site visit to take additional take offs for site clearing and tree removal?

Response: Reach out to the City of Worcester Purchasing Department, Assistant Purchasing Director, Maureen McKeon to request additional site access (508) 799-1221 or email at mckeonmp@worcesterma.gov.

38) Question: As part of its demobilization and site restoration efforts, shall the Contractor be responsible under this Scope of Work for removing existing access roads, access roads that Contractor constructs, upgrades to existing access roads, or timber matting? Specification 015000 directs removal of temporary roads and paved areas not intended for integration into permanent construction.

Response: Specification Section 015000 (D) states: Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. The constructed access roads will be used for integration into permanent construction, therefore, the access roads will not be removed except those within the 30 foot wetland buffer zone. Also, the Contractor is responsible for installation/removal of timber matting and any access roads within the 30-foot wetland buffer zone.

39) Question: Regarding the City of Worcester Conservation Commission Order of Conditions and Notice of Intent (CC-2022-061 & DEP#349-1334), Condition #44 (Wetland Restoration) includes certain long-term monitoring and reporting requirements for the wetlands. Is the Contractor responsible for completing this work?

Response: The Contractor is not responsible for wetland inspections and annual monitoring reports. Inspections and Reports will be conducted/prepared by a Professional Wetland Scientist at the end of each of the two growing seasons following construction and planting. Per the City of Worcester Conservation Commission Order of Conditions and Notice of Intent (CC-2022-061 & DEP#349-1334), Condition #44 (Wetland Restoration), the Contractor shall complete the following: the Bordering Vegetated Wetland(BVW) shall be restored and seeded with a native wetland seed mix at the conclusion of work. At least 75% of the surface area of any disturbed vegetation shall be re-established with indigenous wetland plant species within two growing seasons.

40) Question: Referencing the City of Worcester Conservation Commission Order of Conditions and Notice of Intent (CC-2022-061 & DEP#349-1334), please delineate or clarify which conditions the Contractor is responsible for implementing; and please delineate or clarify which conditions the Engineer, City, or others are responsible for implementing.

Response: Per the City of Worcester Conservation Commission Order of Conditions and Notice of Intent (CC-2022-061 & DEP#349-1334), the Contractor will assume all responsibility of the Order of Conditions except the following:

- Wetland inspections and annual monitoring reports.

41) Question: Please clarify if weekend work can be assumed for all or portions of the scope of work.

Response: Yes, would need approval from the City to conduct weekend work or extended hour work. Section 2.6 - Document 8075-M4-Greenwood St Landfill Remediation states: Eight Hour Day, etc (Statutory reference: M.G.L Chapter 149, Sections 30, 34, and 34A) this Paragraph 2.6 applies only to contracts which are subject to the provisions of the aforesaid sections of the Massachusetts General Laws:

No laborer, worker, mechanic, foreman or inspector working within this Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

42) Question: Who is responsible for assessing the “Rank” of the natural fractures in the boreholes?

Response: The borehole geophysical Contractor is responsible for assessing the Rank of the natural fractures in the bedrock borehole.

43) Question: Are specific boreholes identified for tilt metering? Can tilt meter measurements be assumed for efficiency (for example, every other borehole)? Or when will the contractor be notified which boreholes will undergo tilt metering?

Response: Currently, there are no specific boreholes identified for tilt metering. Bedrock boreholes where tilt metering will be conducted will be determined following review of the borehole geophysical logging results.

Specification Section 331113.36 3.2(D) states: Engineer will confirm which boreholes will require tiltmeter monitoring prior to fracture mobilization. Assume tilt metering will be conducted at up to three (3) bedrock fractures at up to thirteen (13) bedrock borehole locations. There is a total of twenty-six (26) bedrock borehole injection well installation locations.

44) Question: For boreholes requiring tilt metering in the general wetland area, how thick is the sludge top layer and how deep is it until a solid soil or rock layer is encountered?

Response: Due to the wet ground surface conditions within the bordering vegetated wetland, tilt metering will be conducted at bedrock borehole injection wells north, east and south of the wet ground surface areas.

45) Question: Is there an alternative plan for tilt metering if testing is not feasible in parts of the wetland/wetland buffer area?

Response: See response to Question 45 above.

46) Question: Line Item 11 is for 78 fractures with “per fracture” as the unit. Specification Section 331113 states that hydraulic fracturing and amendment injections will be completed “at up to three (3) locations per bedrock borehole (total of 26 bedrock boreholes and 78 fracturing locations).” When working in bedrock there is uncertainty in quantities that can be applied (for example, not all boreholes will have 3 fractures to inject into). Please provide guidance on how unit pricing should be handled if the actual quantity of a line item is less than the amount on the bid sheet based on field conditions.

Response: Bid the quantities identified in the bid sheet located in document: 8075-M4-Greenwood St Landfill Remediation and as identified in the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

47) Question: Specification 013529 states that “all personnel entering the site for the purpose of performing or supervising work, for health, safety, security, or administrative purposes, for maintenance, or for any other site-related function” have a minimum of 40 hours of off-site training in accordance with 29 CFR 1910.120. Are there any exemptions for personnel not performing subsurface activities or working with remediation processes (for example, installing temporary fence, portapotty cleaning, regular deliveries)?

Response: See Specification Section 013529 for health and safety requirements.

48) Question: Specification 013529 states that all personnel shall complete a site specific refresher training session of at least four hours. The specification also states that the site-specific health officer shall conduct this training. Will the City of Worcester, or agent for, provide any guidance on the details for a four-hour training? Can another identified staff, other than the SSHO, be identified to present the four-hour training whenever a new employee is starting work on the site?

Response: See Specification Section 013529 for health and safety requirements.

49) Question: Specification 015000 states that the contractor shall engage a pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals. Does the site have known issues with rodents, roaches, or other pests so that appropriate budgeting can be included in the bid.

Response: As noted during the pre-bid meeting, the City is unaware of known issues with rodents, roaches or other pests.

50) Question: Specification 015000 directs to provide a temporary standpipe for fire protection. Please provide additional details about the nearest water connection, recommended location for temporary standpipe, and other details for temporary standpipe and hose hanging on-site.

Response: The nearest water/hydrant location is located at the entrance to the site. Specification Section 331113 2.1 (A) Water Supply states: The Contractor shall be responsible for determining a source of water supply and transport subject to the Engineer’s approval, at no additional cost to the Owner. Obtain, transport, and/or haul water for drilling wells as required

for drilling, flushing/jetting activities, and dust control (if needed). Transport the water from the point of supply and supply appurtenances needed for connection to the water supply. A fire hydrant exists at the entrance to the site, however flow and pressure at the hydrant are not known. A hydrant use permit must be obtained through the City of Worcester if the hydrant is used as a water supply source. In any case, use only potable water for drilling. Provide, install, and maintain, water-supply connections, necessary pumps, piping, and piping road crossings for construction use. Upon completion, all temporary connections and piping installed shall be removed.

51) Question: Confirm that soil, water and development water that must be contained in 55- gallon drums will be characterized and properly disposed of by the City of Worcester.

Response: Per Specification Section 015000-6 3.5(H) and Section 017300-5 3.6(A) below, any drums generated containing soil, water and development water shall be characterized and disposed of by the Contractor.

- Specification Section 015000-6 3.5(H) states that: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- Specification Section 017300-5 3.6(A) states that: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 degrees F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.

52) Question: Confirm that two-foot long split spoon samples are to be collected for all 67 deep overburden wells and from all bedrock injection wells.

Response: Two foot long, two-inch diameter split spoon samples shall be collected every 5 feet or as directed by the Engineer at shallow and deep overburden injection wells and bedrock injection wells. See Specification Section 331113.13 3.2(B) and 3.3 (B).

53) Question: Is collection of bedrock cores required for any of the bedrock injection wells.

Response: All bedrock injection wells will be advanced via air hammer drilling methods. No bedrock cores will be collected during advancement of the bedrock injection wells. See Specification Statement 331113.13 3.3(C).

54) Question: Specification 331113.49 directs contractor to provide a minimum of 5,000 gallon mixing tank. Can contractor use multiple smaller tanks (e.g., 500 or 1,000 gallon tanks) instead of a larger mixing tank?

Response: Yes, multiple smaller tanks can be used.

55) Question: Specification 013529 requires a Health and Safety Manager who meets the qualifications of a Certified Industrial Hygienist. Is there a remediation industry experience equivalence (for example, more than 15 years of experience with project management of hazardous waste sites and oversight of environmental health and safety programs)?

Response: Alternative qualifications may be considered during work plan submittal and review.

56) Question: Is there an opportunity to provide caveats to any bid item line? There are uncertainties on the quantities that can be performed (for example, number of frac, boreholes) and whether they will match the bid design quantities. However, costs need to cover components within the line-item price that are lump sum or day rates.

Response: Bid the quantities identified in the bid sheet located in document: 8075-M4-Greenwood St Landfill Remediation and as identified in the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

57) Question: Please confirm that there are no limits on fracturing pressures allowed for the bedrock during fracking to achieve the fracture requirements (other than the stipulated amendment surfacing criteria)?

Response: Specification Section 331113.36 2.3(A) states: Equipment shall be capable of delivering sufficient pressures to hydraulically fracture existing bedrock fractures. Hydraulic fracturing equipment and associated fracturing pressures will be reviewed and approved by the Engineer during work plan submittal.

58) Question: Will we be required to hold the fracture pressure necessary to achieve fracking for any minimum period of time and how long will we be required to hold the packer in place if the pressure remains high before we are allowed to relieve it?

Response: Specification Section 33111.36 3.2(K) states: If in-situ pressures remain high such that the packer assembly cannot be readily deflated, leave packer assembly in place and proceed to next borehole by deploying the additional packer assembly. Hydraulic fracturing methods and equipment will be reviewed and approved by the Engineer during work plan submittal.

59) Question: If injection fluids surface the specifications call for reusing them. Are there any criteria for limits as to the quantity available for recovery, or requirements for collection, filtering and reuse?

Response: Specification Section 33111.36 3.2(I) states: If significant amendment surfacing occurs at the wellhead, the injection will immediately stop, and the packer system will be depressurized. Any surfaced amendment will be contained and re-used. The injection packer system tooling will be advanced to the next fracture initiation depth to continue fracturing at a different

depth than the one where surfacing occurred. Surface amendment recovery methods will be reviewed and approved by the Engineer during the work plan submittal.

Specification Section 33111.36 3.1(F) states that: All efforts should be made to minimize the quantity of unused fracture slurry water. If any is leftover, it should be containerized in either 55-gallon drums or 5-gallon buckets and be re-used.

For the purposes of bidding assume filtering of re-used amendment will not be required.

60) Question: Please confirm that the total project volume of amendments may be distributed between wells as determined by the engineer but that the total volume for the project for delivery will not change.

Response: Specification Section 33111.36 3.2(J) states: If no surfacing occurs, continue injecting until target volumes of material have been achieved. If conditions develop such that the target volume cannot be achieved, or if fracturing cannot be initiated at a given depth, injections may be stopped, as directed by the Engineer. To compensate for fractures where the target volume cannot be achieved, additional amendment volume may be injected into other nearby bore-holes/fractures, as directed by the Engineer. Additional amendment volumes beyond the target volume for a given fracture may not require sand proppant as part of the amendment formulation. The Engineer will provide direction regarding whether to include sand in these instances.

Bid the quantities identified in the bid sheet located in document: 8075-M4-Greenwood St Landfill Remediation and as identified in the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill.

61) Question: Will any amendment be requested for application or injection into a previous well after injection at another well location during fracking or secondary injections.

Response: See Response to Question 61, will be determined by the Engineer in the field.

62) Question: Please confirm where the fluids (other than slurry water that requires placement in drums) can be discharged to the ground with respect to the borehole location, wetland, and buffer zone and can fluids be put to ground at any location on site or within a certain distance from a respective borehole location.

Response: Specification Section 33111.13- 3.1(I) states: The volume of soil cuttings and development water are expected to be small at each well installation location. It is anticipated that drill cuttings will be disposed of by raking into the ground surface. It is anticipated that well development test water will be discharged to the ground surface. In the event that soil cuttings and development water must be containerized at the site, contain the materials in 55-gallon steel drums and move them to an on-site location designated by the Engineer. In addition, the final location of the drums will be determined by the Engineer in the field (see Figure-1).

See Notice of Intent (CC-2022-061) which is in Appendix A of the technical specifications document: 8075-M4-Tech-Specs-Drawings-Greenwood-Landfill. Appendix A of the Notice of Intent (Project Narrative) states: Upon completion of injection well installation, each well installation location will be backfilled to match adjacent grades with drill cuttings, raked smoothed and the

bordering vegetated wetlands (BVW) will be seeded with New England Wetland Plants Inc. New England Wet mix, or approved equal.

63) Question: What are the slurry water disposal requirements for drummed liquids?

Response: Specification Section 331113.36 3.1(F) states: Contractor shall temporarily contain-erize all fluids, personal protective equipment (PPE), and other disposable sampling equipment and will dispose of these materials as directed by the Engineer. It is currently anticipated that fluids can be discharged to the ground. All efforts should be made to minimize the quantity of unused fracture slurry water. If any is leftover, it should be containerized in either 55-gallon drums or 5-gallon buckets and be re-used.

64) Question: Section 013100, 1.7, B., 1 through 4 – please confirm if this section will, in part or in its entirety, be required.

Response: At a minimum, the Contractor is required to provide a web-based file sharing software system for submittals and responses.

65) Question: For powering the office trailer is there an available breaker with enough power that can be connected to? Or will a new breaker need to be provided?

Response: The Contractor will be required to coordinate with the local utility for connection or use a generator. See Specification Section 015000 2.2(5) and Section 015000 3.4(D)

66) Question: Are there any specifications related to the electrical run from the breaker to the panel feeding the office trailer? Will this need to be in conduit / pipe?

Response: All electrical power service overhead shall be overhead unless otherwise indicated. See Section 015000 3.4(D).

67) Question: Are there more than one set of geophysical investigations for reporting using Tilt Meters? Based on the unit of measure for the tiltmeter services, we are not sure if what is being requested is a surficial tiltmeter or some form of borehole measurement. If it is a borehole measurement, please confirm. This unit of measure suggests you are requesting borehole deviation logging which measures the angle (tilt) and direction of the borehole, that would be done before and/or after hydraulic fracturing and amendment injections, not during, and the hydraulic fracturing and amendment injection processes will not change the angle of the borehole fractures, so it may not be what is intended to be monitored.

Response: Tilt metering will be conducted using surficial tilt meters and not borehole deviation logging. Specification Section 331113.36 3.2(D & H) states that tilt metering is to be conducted during the hydraulic fracturing process. The tilt metering is completed during the hydraulic fracturing/injection process to identify the extent of fracture injection propagation/and to map the distribution of amendment slurry.

68) Question: The Contractor shall submit a draft report to the Engineer electronically within 45 business days after completion of the field work, and shall include documentation of field activities, quantities of amendment injected, fracture pressure and flow versus time plots and tiltme-

ter geophysics analysis results and associated 3-D fracture models, and all other monitoring data. Can you confirm that these requirements relate to televiewer logging for bedrock fracture orientation, surficial tilt metering, borehole deviation logging or more than one? Can you confirm on the respective deliverables for modeling under the applicable option?

Response: The draft report requirements are referring to Specification Section 33111.36 1.4(C). These reporting requirements are for surficial tiltmeter geophysics analysis results, associated 3-D fracture models and all other monitoring data associated with the surficial tilt metering.

69) Question: Tilt metering at up to thirty-nine (39) locations in up to thirteen boreholes. Can you confirm that you are looking for televiewer logging of boreholes “in up to thirteen boreholes”? Can you confirm what is required in the other 39 locations – possible surficial tilt meters?

Response: Specification Section 331113.36 1.2(B) states: Tilt metering at up to thirty-nine (39) locations in up to thirteen boreholes (13). This section is referring to conducting surficial tilt metering during the hydraulic fracturing at up to thirteen (13) boreholes at up to three (3) fractures per borehole.

70) Question: Set up the tiltmeter array deploying up to fifteen (15) tilt meters around a single well where borehole tiltmeter monitoring is to be performed. The tiltmeter sensors will be placed in two (2) to three (3) concentric circular arrays around each borehole. Are these 15 surface tilt meters being deployed? Please qualify the deployment of surface tilt meters, borehole log tilt meters, the single well, and each borehole location in the configuration for monitoring and frequency.

Response: Specification Section 331113.36 3.2(D) states: Engineer will confirm which boreholes will require tiltmeter monitoring prior to fracturing mobilization. Assume tilt metering will be conducted up to three (3) bedrock fractures at up to thirteen (13) bedrock borehole locations. Set up the tiltmeter array deploying up to fifteen (15) tilt meters around a single well where borehole tiltmeter monitoring is to be performed. The tiltmeter sensors will be placed in two (2) to three (3) concentric circular arrays around each borehole.

A total of fifteen (15) surficial tilt meters will be deployed around a single borehole well where tilt metering monitoring is being performed during hydraulic fracturing.

**City of Worcester, Massachusetts
Greenwood Street Landfill
Groundwater Remediation Barrier Construction**

**PRE-BID CONFERENCE AGENDA
September 28, 2023 10:00 a.m.**

1) Project Overview

The Project includes installing overburden and bedrock injection wells, hydraulic fracturing of bedrock, and injection of remedial additives to form a groundwater remediation barrier at the western property line of the Project Site. The remedial additives to be injected will reduce concentrations of chlorinated volatile organic compounds (cVOCs) in overburden and bedrock groundwater to prevent further off-site migration of the cVOC plume.

Scope Summary

- Site Preparation and Clearing of Vegetation
 - Conservation Commission Order of Conditions (8/29/22)
- Access Road Construction
- Installation of Overburden and Bedrock Injection Wells
- Borehole Geophysical Logging
- Hydraulic Fracturing/Emplacement of Remediation Amendments (Bedrock Wells)
- Bioremediation Amendment Injection in Overburden and Bedrock Wells

2) Schedule

- Pre-bid Meeting: September 28, 2023, 10:00 a.m. – Project Site (30 Nipnapp Trail, Worcester, Massachusetts)
- General Bid Opening: October 11, 2023, 10:00 a.m. – Purchasing Division, Room 201, City Hall, Worcester, Massachusetts
- Contract Duration: Project shall be completed for occupation by December 1, 2024.

3) Qualifications

- Statement of Bidders Qualifications:
 - Bidder requested to state what work of a similar character to that included in the proposal contract has done and to give references that will enable the Owner to judge experience, skill, business standing and overall responsibility.
- Installer Qualifications:
 - Completed three projects of similar scope and magnitude within the past five years.
 - Employs installers and supervisors trained to perform the above identified scope.

4) Miscellaneous Issues

- **Questions and Attendee List** – Only questions submitted in writing and responded to by Addenda will be binding. Oral responses should not be considered binding. Bidders were advised to submit questions in writing to Maureen McKeon (mckeonmp@worcesterma.gov). Attendees to the pre-bid conference are requested to sign the attendee list available at the pre-bid conference.
- **Addenda** – One addendum (No.1) has been issued to date for revision to bid opening deadline and rescheduled pre-bid conference.

5) Questions and Answers (formally responded to via addendum)

6) Site Walk

**CITY OF WORCESTER, MASSACHUSETTS
LANDFILL - GROUNDWATER REMEDIATION BA
PRE-BID CONFERENCE MEETING
THURSDAY, SEPTEMBER 28, 2023 AT 10:00 AM**

ATTENDANCE LIST

[illegible]