The City *of* Worcester

Department of Parks, Recreation & Cemetery

Robert C. Antonelli, Jr., Commissioner

REQUESTS FOR BIDS

Lake View Playground Improvements

PROJECT SPECIAL CONDITIONS AND SPECIFICATIONS

February 2026

TABLE OF CONTENTS

PROJECT SPECIAL CONDITIONS

ARTICLE 1 PROJECT SITE

a. All work of this contract is located within the confines and adjacent Right-of-Way of 125 Coburn Avenue., owned and maintained by the City of Worcester Department of Parks, Recreation & Cemetery (DPRC).

ARTICLE 2 SUMMARY OF WORK

a. The work to be completed under this contract involves the furnishing of all labor, materials and equipment for the following items of work and all incidentals thereto. All work shall be performed in full accordance with the specifications, other contract documents, obviously implied and necessary or under the direction of the Owner.

b. The plans and specifications are intended to be cooperative, and any item called for in one and not the other shall be as binding as if called for in both. During the bidding period discrepancies should be immediately brought to the attention of the Owner for clarification. If a discrepancy is discovered within the plans and the specifications after the Bid period, the Owner will determine which shall apply.

c. When Applicable, The City of Worcester DPRC, will specify Project Standard appurtenances/amenities such as, but not limited to, park benches, trash receptacles, irrigation controllers, pedestrian, parking and sports field lighting, etc. in the facilities within their jurisdiction that are currently installed at this or other facilities. By standardizing, it provides the Division with a consistent product which through familiarity reduces operator training and maintenance time. Standardization also provides opportunities for maintenance cost saving through interchangeable parts such as but not inclusive to luminaries, ballast, poles, compatibility with current Division maintenance equipment etc.

    i. No substitution or equal will be accepted for the following item(s).
        1. Pedestrian/Pathway lighting pole and fixture, Holophane.
        2. Musco Sports Lighting System.
        3. Site Furnishings benches and receptacles, Dumor.

d. Quality Control: To ensure the highest level of quality with respect to the playing surface of this greatly utilized public athletic facility, the General Contractor / Awardee shall have a minimum of five (5) years of successful experience.

    1. as the Prime Contractor constructing (provide verifiable references upon request)
    2. ability to demonstrate constructing (provide verifiable references upon request)
    3. coordinating and supervising (provide verifiable references upon request)

    Park and Playground Improvements of similar size and quality of this Project as per the standards of the Project specifications and construction drawings.

ARTICLE 3 WORK WITHIN A PUBLIC PROPERTY

a. As a source of information, all the work to be undertaken is located within the confines of an unsecured public property, and as such is subject to acts of vandalism. The City of Worcester is not liable for any damage to the Contractor's equipment or materials. The Contractor shall take all means and measures necessary to protect the public, work in progress, work completed, and all furnishings, materials and equipment stored at the site through the completion of the Project. The repair or replacement of work in place or in progress shall be the sole responsibility of the Contractor and shall be accomplished at no cost to the Owner.

ARTICLE 4 SITE INSPECTION

a. It shall be contingent upon the Contractor to inspect the site as an aid to determining the extent of the work under the various contract items before submission of the Bid.

ARTICLE 5 PRE-CONSTRUCTION MEETINGS

a. A mandatory pre-construction meeting will be arranged by the Owner's representative after the award of the Contract. Sub-consultants may be asked to attend the pre-construction meeting if determined by the Owner's Representative to be warranted.

ARTICLE 6 SITE ACCESS

a. Prospective bidders are advised that access to the Project sites shall be in accordance with the governing traffic patterns with specific locations into the site, to be verified in the field after the award of the contract.

b. Regardless of the eventual location of the construction access and limits of work, the Contractor shall make every provision to ensure the access and safety of the public using the balance of any of the existing amenities on the property.

ARTICLE 7 OWNER'S TAX EXEMPTION

a. The Awarding Authority, as a department of a corporate municipality in the Commonwealth, is exempt from the taxes listed below. The contractor shall notify all suppliers of the following current certificates.

1. Federal Excise Taxes as applied to articles taxable under Chapter 32 of the Internal Revenue Code of 1954, as amended, City Excise Tax Exemption Certificate is not required.

2. From Sales and Use Tax imposed by the Commonwealth of Massachusetts under Chapter 14, Acts of 1966, the City has been assigned and exemption certificate with respect to leases, rentals, or purchases of "Tangible Personal Property". The Owner at the Contractor's request will furnish the tax-exempt certification number.

ARTICLE 8 TIME FOR COMPLETION & SEQUENCE OF WORK

a. Except as the work may be interrupted by weather conditions as hereinafter specified, the Contractor shall prosecute the Work with the diligence necessary to ensure its completion within the required time. The Contractor shall provide sufficient labor, materials, and equipment, and shall promptly take such appropriate action to keep the Work on schedule or as directed by the Owner. No additional time shall be provided for Change Orders.

b. The Parks, Recreation and Cemetery Division shall be solely responsible for determining when the work will be interrupted due to unsatisfactory weather conditions. Determination of the period to be included in the Time for Completion shall cease when the City directs that the work stops due to weather and shall commence again on the first working day thereafter that the City may designate the work to be resumed.

c. The Contractor must completely understand that once the Contractor mobilizes and begins work, the Contractor shall be on-site, every day during the normal work week, and must work continuously until substantial completion of the Project. The Parks, Recreation, and Cemetery Division will not allow any time gaps of any length of time during the construction due to the Contractor's scheduling of other work not related to this specific Contract.

d. It should be further understood that this Project will not be a "fill-in" for the Contractor and that the Contractor does not have the ability to start and stop construction at the Contractor's option. Any unauthorized time gaps will be subject to a flat fee of $500.00 per day. The Owner reserves the right to deduct the said fee from the Contractor's periodic application for payment and the Contract Sum.

e. The Contractor shall carry on the Work and adhere to the schedule during all disputes and disagreements with the Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements. The Contractor shall exercise reasonable precautions, efforts and measures to avoid or mitigate situations that would cause delays.

f. The punch list shall be completed within 28 days from the date of issue.

g. The Contractor advised that the required calendar days regarding Time for Completion and Punchlist, shall be consecutive.

ARTICLE 9 LIQUIDATED DAMAGES

a. Prospective Bidders are advised that liquidated damages shall be in effect for this Project. The Contractor shall be liable for and compensate the Owner.

1. the sum of Five Hundred and Dollars ($500.00) as fixed and agreed, as liquidated damages for each calendar day of delay from the date stipulated for completion, or as modified in accordance with the provisions of the Contract
2. If Applicable, State and Federal Grant Funding losses. This Project is funded by a time sensitive LWCF Grant.
3. Project to start on July 01, 2026, and to be completed for use/occupancy by May 30, 2027.
4. and/or actual costs incurred by the Owner for additional Construction Administration/Management (City Staff, Consultants, etc.) salaries/compensation from the date stipulated for completion, or as modified in accordance with the provisions of the Contract and notification to The Sureties.

ARTICLE 10 CONSTRUCTION SCHEDULES & PAYMENT ESTIMATES

a. The Contractor must submit a construction schedule to the Owner indicating the general sequence of all work under this Contract. This schedule must be submitted within 7 calendar days of the date of the Notice-to-Proceed and shall be revised if required to the satisfaction of the Owner.

b. The Contractor shall submit a breakdown and monthly cost estimate (schedule of values) for all items of work, including separate categories, phases, grant funded or reasonable requests by the Owner.

c. The established breakdown of items, categories and values shall be utilized to prepare the monthly pay requisition forms. It is recommended that the Contractor submit a draft Payment Applications to the Owner for approval, no later than the second week of every month. The Owner shall review and edit this copy to indicate the amount of payment to be approved and return this to the Contractor after field review.

d. Revised/updated; monthly payment estimates, construction schedule, As Built and proof of up-to-date daily construction reports shall be submitted with monthly Payment Applications. The Contractor shall then formally submit three (3) originals of the Payment Applications, conforming to the Owner's approval, for payment.

ARTICLE 11 CONSTRUCTION REPORTS & WEEKLY PROGRESS MEETINGS

a. The Contractor and Sub-Contractors shall attend a regular weekly meeting with the Owner at the Parks, Recreation and Cemetery Division Headquarters, 50 Officer Manny Familia Way, Worcester, MA, at a pre-determined time set by the Owner. The Contractor must be present for these meetings during the Contract and reserves no right to cancel the meeting.

b. The Contractor will be required to take minutes for the weekly scheduled meetings. The Contractor will have three (3) business days from the date of the meeting to submit to the Owner the minutes of the meeting on the Parks, Recreation and Cemetery Division form. The form will be supplied to the respective Contractor when the Notice to Proceed has been issued.

c. The Contactor will be required to maintain daily construction reports (DCRs) (format and information required to be provided and/or approved by Owner). PDF of the DCRs shall be submitted weekly for Owner review and files.

d. The Owner may desire other meetings from time to time, and the Contractor shall attend these, and such Sub-Contractors as are directed to attend. All the above-mentioned conditions should apply.

ARTICLE 12 HOURS OF OPERATION

a. Unless otherwise approved by the Owner, hours of operation shall be 7:00 a.m. to 3:30 p.m., Monday through Friday, excluding City observed holiday(s).

ARTICLE 13 CONTRACT DOCUMENTS

a. The Owner will furnish the Contractor, without charge, TWO (2) complete hard copies of the Bid Documents.

ARTICLE 14 STORAGE, USE OF MATERIALS & EQUIPMENT/MACHINERY

a. Bidders are advised that the storage of equipment within the confines of the Project limit shall be at the Contractors own risk. No material or equipment shall be stored outside the limits of work as defined in the contract documents, designated and agreed to by the Owner.

b. The Contractor shall not use as any part of his operation any skid steered, track driven, or heavy machinery/equipment on adjacent roadways.

ARTICLE 15 DELIVERY, INSPECTION & ACCEPTANCE OF NEW AMENITIES

a. General Contractor shall provide product manufacturer and Owner, 72 hours advance notice of any onsite scheduled deliveries of Amenities for Inspection and Acceptance.

b. Any damage noted by any of the parties present at the time of inspection shall be corrected in one of the three options below, as determined by the Owner, with no delays or extensions to the Project Schedule.
   1. Repair to the FIT & FINISH of the manufacturer's/factory Specification prior to installation.
   2. Replace with new product from manufacturer/factory.
   3. Install damaged products and field repair to the Owner's satisfaction and provide new identical replacement part as spare.
   4. This Article shall also apply to amenities stored offsite and damage discovered while under the Responsibilities of the General Contractor, until the Acceptance of Work.

ARTICLE 16 CARE AND RESPONSIBILITIES OF CONTRACTOR

a. Except as otherwise specifically stated in the Contract Documents and Technical Specifications, the Contractor shall provide and pay for all materials, tools, labor, equipment, water, light, heat, power, transportation, superintendence, protection, temporary construction of every nature, charges, levies, fees or other expenses, permits and back charges and all other services and facilities of every nature whatsoever necessary for the performance of the Contract and to deliver all improvements embraced in this Contract completed in every respect within the specified time.

b. Unless otherwise specified herein all materials, workmanship, methods, and practices shall conform to the current Standards and Ordinances of the appropriate Departments and/or Commissions of the City. The following documents are available online at http://www.ci.worcester.ma.us/dpw/.

   i. The City of Worcester DPW and Parks, Engineering Division, Construction Management Section, Standard Specifications and Details - March 2007 or current edition.

   ii. Permit Manual – Revised 2004 or current edition.

c. The Contractor shall be responsible for detailed layout. All stakeout and grade control shall be performed by a third-party MA registered Land Surveyor, approved by the Owner, for this purpose. The Owner has the

option to verify and approve the layout and locations of improvements prior to excavation or installation.

d. Grade control shall be verified by the Contractor for compliance with federal, state and or local accessibility requirements. During the construction sequence (such as: installation of subbase, bituminous binder and/or top, concrete flatwork etc.), the Contractor shall be required to verify grades, by approved methods, with the Owner present and prior to placement of finished grade for sidewalks, pathways, plazas, ramps, parking spaces, associated appurtenances, etc., that are required to meet accessibility and the Project Documents.

e. The Contractor shall verify the dimensions and utility locations shown on the plans and if any inconsistencies or discrepancies should be noted on the Drawings, or between the Drawings and actual field conditions, or between the Drawings and the specifications he/she shall immediately notify the Owner. The Contractor will be held responsible for any errors resulting from his/her failure to exercise the precaution. Such information shall be marked on copies of the "As Built" drawings and the original "As Built" drawings are to be reviewed at weekly job meetings.

f. The Contractor shall provide final As Built Survey Drawings to the Owner. See "Record Drawings – As Built" of this Section. Punch list items shall be completed within twenty-eight (28) consecutive calendar days from date of issue, unless agreed upon otherwise by both parties. Owner has the right to complete punch list items not completed in within this timeline and deduct cost from the Contract.

g. The Contractor shall maintain a full-time onsite superintendent, whether the construction forces are employed by his construction company or employed by a Sub-Contractor.

h. As soon as the Contract is executed, the Contractor shall order materials, submit construction schedules as herein after specified and otherwise anticipate the Notice to Proceed. When the Owner gives the Notice to Proceed, the work of construction shall begin at the time stipulated therein and shall be completed within the Time for Completion specified.

i. It is the Contractor's responsibility to make his own investigation and related assumptions, to satisfy her/him as to subsurface conditions and to ensure that these are reflected in the bid.

j. To verify locations of utilities and varying field conditions, exploratory excavations may be necessary, the cost of which is to be included in the contract bid price.

k. The Contractor's attention is called to the necessity of obtaining permits and coordination with, especially those required by various departments of the city and all external utility companies. These permit fees will <u>not be waived</u> by the city and must be paid in full by the Contractor.

l. The Contractor shall furnish and maintain all temporary fences, barriers, enclosures, lights and warning devices necessary to protect his/her work area and to protect the public and his work forces throughout the life of this Contract.

ARTICLE 17 EMERGENCY CONTACT INFORMATION

a. The Contractor will be required to submit within seven (7) business days after the Notice to Proceed a list of all people that will be involved with the completion of this Project including all principal(s), president(s), superintendent, and Project manager of the company. The list shall contain the following information, including but not limited to name, title, address, voice mail number, cell/contact phone number, fax number and email address.

ARTICLE 18 ON SITE SUPERINTENDENT & PROJECT MANAGER

a. The Contractor must, always, maintain an on-site Superintendent during the construction and administration of this Contract. The superintendent must be completely familiar with all aspects of the Project and capable of following the construction through from start to finish. The Contractor does not have the right to switch, replace, change or otherwise remove the superintendent assigned to this Project unless specifically authorized in writing by the Owner. The on-site superintendent must be present a minimum of seven (7) hours per day during construction. If the on-site superintendent fails to meet the above-mentioned requirements, the Contractor will

be subject to a flat fee of $500.00 per day. The Owner reserves the right to deduct the said fee from the Contractor's periodic application for payment and the Contract Sum.

The Contractor must assign a Project Manager to this Contract that is completely familiar with all aspects of the work, available and capable of completing the Project. The Contractor does not have the right to switch, replace, change or otherwise remove the on-site Superintendent and/or Project Manager assigned to this Project unless specifically authorized in writing by the Owner. The Owner will discuss all matters regarding the administration of this Contract with only one (1) Project Manager, regardless of how many the Contractor assigns to the Project.

All correspondence, emails, voice mail, faxes, etc. will be handled through the designated Project Manager only. The Parks, Recreation and Cemetery Division reserves the right, in conjunction with the Contractor, to remove the Contractor's assigned on-site Superintendent and/or Project Manager if the City feels it is the best interest to do. Upon written notification, the Contractor must assign a new Project Manager within three (3) business days.

ARTICLE 19 PROVISIONS FOR TRAFFIC/POLICE DETAIL (As Applicable)

a. The Contractor shall not close or obstruct any portion of the RIGHT-OF-WAY without obtaining the necessary permission from the proper municipal authorities. If any street or private way shall be rendered unsafe by the Contractor's work, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the Owner including the provision of police details required to complete the work.

b. The Contractor at his/her expense shall maintain public roads and sidewalks passable and accessible, and the Contractor shall assume full responsibility for the adequacy and safety of provisions made. He shall conduct his construction operations such that interference with the activities of park users will be held to a minimum.

c. The Contractor shall cooperate in every way possible with the municipal authorities in accommodating park activities and events.

ARTICLE 20 COMMUNICATIONS

a. All notices, demands, requests, instructions, approvals, proposals and claims must be in writing and must be presented in person or by mail to the Owner, or alternate methods (s) agreed upon by both parties.

b. Any notice to or demand upon the Contractor shall be considered sufficiently given if delivered at the office or field office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may from time to time designate in writing to the Owner), or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

c. All papers required to be delivered to the Owner shall, unless otherwise specified in writing to the Contractor, be delivered to:

Robert C. Antonelli, Jr., Assistant Commissioner
Department of Parks, Recreation & Cemetery
50 Officer Manny Familia Way, Worcester, MA 01605

and any notice to or demand upon the Owner shall be sufficiently given is so delivered, or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered with charges prepaid to any telegraph company for transmission to said Owner at such address, or to such other representatives of the Owner or to such other address as the Owner may subsequently specify in writing to the Contractor for such purpose.

d. Any such notice shall be deemed to have been given as of the time of actual delivery or (in the case of mailing) when the same should have been received in due course of post, or in the case of telegrams, at the time of actual receipt.

ARTICLE 21 PARTIAL USE OF SITE IMPROVEMENTS

a. The Owner, at its election, may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the Technical Specifications and if, in its opinion, each such section is reasonably safe, fit and convenient for the use and accommodation for which it was intended, provided:

1. The use of such sections of the improvements shall in no way impede the completion of the remainder of the work by the Contractor.
2. The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.
3. The use of such sections shall in no way relieve the Contractor of his liability due to having used defective materials or due to poor workmanship.
4. The period of guarantee stipulated in the specifications shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

ARTICLE 22 SAMPLING, TESTING, INSPECTION OF WORK & MATERIALS

a. Sampling, testing and inspections ordered or required by the Owner to ensure that work and materials are as specified, and that compaction of all materials conforms to the necessary requirements shall be taken and completed by the Owner or representatives of a Massachusetts certified testing laboratory satisfactory to the Owner and shall be paid for by the Owner unless described/required in the Technical Specifications. Contractor shall provide the Owner at least 72 hours advance notice of work to coordinate the intent of this Article and shall apply automatically with all work below finished grade unless directed otherwise by the Owner.

ARTICLE 23 TEMPORARY FACILITIES

a. Furnish all labor, materials, and services to fulfill the requirements for temporary facilities, at no additional cost to the Owner, and comply with all requirements set forth herein, except where noted requirements conflict with Federal, State, or Local laws, rules, and regulations, in which case(s) the applicable Federal, State, or Local requirements shall govern.

ARTICLE 24 SANITARY FACILITIES

a. Provide, place, and maintain in good order from commencement to final completion of the work, suitable temporary toilet facilities for use by all people employed under this contract. Toilets shall be rented from and serviced by an approved company and shall be kept sanitary and always secure. The type of toilets proposed for use shall have the approval of the appropriate City Agency, and the number of units shall be as recommended by the Department of Labor. Toilets shall be locked during non-working hours and placed in a secure (fenced) location, where possible.

ARTICLE 25 TEMPORARY LIGHT AND POWER

a. Make all necessary arrangements with the local utility company and pay all costs, including labor, in operating and maintaining all temporary services for electricity used during the construction, unless specifically noted otherwise.

b. Ensure that temporary wiring, outlets, and lighting are provided in accordance with the current requirements of Bulletin No. 12, Division of Industrial Safety, Department of Public Safety, Commonwealth of Massachusetts.

ARTICLE 26 TEMPORARY WATER

a. The contractor shall be responsible for furnishing, installing and coordinating temporary water needs and temporary connections.

ARTICLE 27 UTILITIES

a. The Contractor shall obtain and pay for all licenses and/or permits, which are required by the City or any other agencies that may be involved; he/she shall comply with all codes, regulations and standards of the City.

b. Contractor shall be responsible for all on-site coordination with utility companies and public agencies and for obtaining all required permits and paying all required fees. In accordance with M.G.L., Chapter 82, Section 40, including amendments; Contractor shall notify all utility companies and government agencies in writing prior to such excavation, Contractor shall also call "Dig Safe" at 1-(888) 344-7233 no less than 72 hours (exclusive of Saturdays, Sundays and Holidays.) prior to such excavation. Documentation of requests and numbers provided to Contractor shall be provided to Owner prior to excavation work.

ARTICLE 28 PHOTOGRAPHS & TIME-LAPSE CAMERAS

a. The Contractor shall be required to furnish one (1) view of before, during and after photographs of each site conditions. The Contractor is encouraged to submit "during" photographs along with each pay requisition to facilitate approvals. Photographs in electronic format via compact disc (jpeg or tiff) are acceptable.

b. The Contactor shall be required to furnish, install and continuously maintain two (2) industrial-grade, wireless, battery operated, weather-proof, construction time-lapse cameras. Cameras shall be securely mounted up to 25'-0" above sidewalk grade on existing light poles adjacent to the Project, location and field of view to be reviewed and approved by Owner. Minimum specification for the performance of the cameras shall be Brinno Model BCC200 or approved equal. The cameras' AVI file (1 frame per 1 minute, 5 frames per second- and 30-day maximum duration) shall be submitted with monthly Payment Applications. Cameras shall be operational within 10 calendar days of notice to proceed (NTP) and prior to start of work, whichever is sooner. and maintained until substantial completion of the Project. Cameras and appurtenances shall become property of the Owner at the conclusion of the Project in proper working condition or replaced with new.

ARTICLE 29 CONTRACTOR'S SHOP & WORKING DRAWINGS

a. Contractor to coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

b. All Contractors are directed to the timeliness and critical importance of expediting the submittal process. Any lead times that may impact sequencing should be prioritized to meet the Project schedule. The Owner must be notified if any delays arise that impact lead times.

c. The Contractor shall coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that requires sequential activity.

d. The Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

e. To avoid the need to delay installation because of the time required to process submittals and to allow sufficient time for submittal review, all initial product submittals, shop drawings shall be submitted for processing and within twenty-eight calendar days (28) days from the date of Notice to Proceed.

f. The Contractor must allow the Owner 10 calendar days (10) per initial and subsequent shop drawing review to achieve efficient construction sequencing. Allow additional time if the Owner must delay processing to permit coordination with subsequent submittals. If an intermediate submittal is necessary, process the same

as the initial submittal. Allow ample time for reprocessing each submittal to achieve efficient construction sequence.

g. No extension of Contract Time will be authorized because of the Contractor's failure to transmit submittals to the Owner for processing sufficiently in advance of the scheduled Work.

h. Shop drawings, product data and samples submitted for each item will be reviewed no more than two (2) times at the Owner's expense. Submittals failing to comply with the Contract requirements will be reviewed at times convenient to the Owner and the Owner's consultants and at the Contractor's expense, based upon the hourly rate of the Engineer/Consultant for each subsequent re-submittal. The Owner reserves the right to deduct said reimbursement from the Contractor's periodic application for payment and the Contract Sum.

i. The Owner's review and approval of submittals shall be held to limitations stated in the conditions of the Contract. In no case shall approval or acceptance by the Owner be interpreted as release of Contractor of responsibility to fulfill requirements of Contract Documents. No acceptance or approval of submittals, nor any indication or note marked by the Owner on submittals, shall constitute authorization for increase in Contract Sum. The Owner will stamp each submittal with an action stamp.

j. As the timely submittal of samples, shop drawings, catalogue cuts and other related submittals is of paramount importance to the completion of the Project within the stipulated time, a contract value of 1% will be assigned to this effort. Upon receipt of the complete submittal package the General Contractor will be permitted to submit payment of this item with a value equal to 1% of the base bid contract amount.

k. Show on a large scale any unique fabrication and setting requirements or any other specified areas seen as necessary or as directed by the Owner's Representative.

l. Prior to review by Owner's representative, shop drawings shall indicate specification section or drawing reference and proof of review and approval by Contractor for Project compliance, otherwise the submittal will be rejected immediately and count as one (1) official review as per item "h" above.

m. The Contractor shall provide two sets of 3-ring binder hard copies of all final approved shop documents and or drawings and warranties as part of the closeout of the Project.

n. The contractor shall submit to the Owner's Representative a notarized certificate of compliance from the galvanizer with all galvanizing requirements including ASTM number and weight of coatings in ounces per square foot. The certificate of compliance shall also contain the following:

1. Sole Source Responsibility: include statement that galvanizers accept sole responsibility for coatings under this Article. Galvanizer who does not accept this responsibility is not acceptable and will be rejected.

2. Quality Assurance: include evidence that Galvanizer meets the requirements of ANSI Q90.

3. Certificate of Compliance with Current Environmental Regulations: Galvanizer shall certify that coatings proposed for use comply with applicable environmental regulations. Contractor and Galvanizer shall be responsible for penalties assessed by governmental or environmental authorities for coatings that do not comply with current environmental regulations. All coatings shall be Lead-free.

ARTICLE 30 HISTORICAL, ARCHAEOLOGICAL OR ANTIQUE ITEMS

a. The Contractor during his excavation, site clearance and other operations may come upon, uncover or otherwise discover items of historical, archaeological or antique nature. The Contractor shall immediately stop operations at the site of the discovery and notify the Owner so that a proper evaluation may be made of its importance. The Owner shall arrange for the evaluation in a manner that shall not unduly interfere with the Contractor's operation.

b. All such items, if designated by competent authority to be of historical, archaeological or antique nature, shall not become the property of the Contractor but shall be placed in the custody of the Owner for disposition.

c. The Contractor shall be required to remove with care or to assist in the removal of any such item or items and to transport the same to a place of safe keeping within the City. The costs for so assisting shall be reimbursed to the Contractor if

approved by the Owner.

ARTICLE 31 PROVISIONS FOR PUBLIC SAFETY & CONVENIENCE

a. Care shall be taken to establish and maintain such methods and procedures as will not create hazards. Access to all park facilities should be maintained in a reasonable and safe manner for the duration of the construction period.

b. Every reasonable effort shall be made to reduce to a minimum any interference with or inconveniences to park operations and park patrons due to the construction work. Excavated material shall be trucked away and returned if the Owner deems it necessary and practical as a means for avoiding serious interference with and inconvenience to business concerns and abutters.

c. The Contractor's attention is directed to the fact that the work on this Project is to be performed within a recreation area and adjacent to park drives and walkways which are utilized by pedestrians, bikers, joggers and vehicles. The Contractor shall be responsible for the installation of adequate precautions and other safety measures and controls deemed necessary by the Owner to protect all park users.

d. Any automotive equipment not protected by traffic cones that is operating on a public way under this Project shall have one amber flashing warning light mounted on the cab roof or on the highest practical point of the machinery. This light will be in operation while the equipment is working.

e. Trenches shall not be opened in park areas until all material and equipment required for the work are on the site and available for immediate use. The work at each trench shall be practically continuous, with the placing of utilities, backfill and patching (where applicable) of the surface closely following each preceding operation. When work is not in progress, trenches in areas subject to use by park patrons shall be covered with steel plates capable of safely sustaining all anticipated loads.

f. The Contractor shall provide traffic signs, warning markers and other construction safety measures as necessary to maintain public safety and optimum traffic flow. Parking of personal vehicles will be prohibited in construction areas as directed.

g. With suspension of construction activities during holidays, weekends and nights, the Contractor shall remove temporary traffic and/or safety control devices, as requested, and return them to their positions when work begins again. Payment for the installation and maintenance of appropriate safety provisions shall be included under the base bid price and no separate payment shall be considered.

h. The Contractor shall without additional compensation be required to always maintain access to the Project area and property for fire apparatus and other emergency vehicles.

ARTICLE 32 PROTECTION OF EXISTING FACILITIES

a. All existing walks, pipes, conduits, poles, fences, stairways, curbing, walls, buildings, trees and other structures which are to remain in place shall be carefully supported and protected from injury by the Contractor without additional compensation and in case of injury they shall be restored by him without compensation therefore to as good condition as that in which they were found. The value of any trees damaged shall be determined in accordance with established practices of the American Association of Nurserymen or a Registered or Certified Arborist selected by the Project Manager. Limits of liability shall not be limited to the replacement with new and immature trees.

b. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings, where required, for accommodation of travel and to provide access to the building/property during construction, and shall remove said structures thereafter.

c. The location of all/priorly existing utility systems is not known and therefore may not be shown on the drawings

prepared for this Project. The existence of utilities shall not be considered an unusual obstacle, and the Contractor shall not be entitled to extra compensation for maintaining, protecting, or repairing these utilities. The Contractor shall use the exploratory excavation included in his contract price, whenever he/she or the Owner's representatives deem it necessary to verify, or prevent interruption of, existing services.

ARTICLE 33 AS BUILT SURVEY / PROJECT CLOSEOUT DELIVERABLES

a. The Contractor shall cooperate with the Project Manager and shall prepare and maintain a live set of as built drawings on which shall be recorded accurately, as the work progresses, the actual "as built" quantities and locations and dimensions of all his work, indicating thereon all variations from the Contract Drawings. This record of "as built" conditions shall include ALL the work of the Contractor and Sub-Contractors and proof of compliance prior to final acceptance of all work. As built shall be submitted for review with monthly payment applications.

b. Prior to final acceptance of the work, all "as built" data shall be transferred as a separate overlay or external reference with the digital Auto CAD format files provided to the Contractor by the Owner. This work shall be performed by the Contractor's Registered Land Surveyor with the cooperation of the Contractor as required. After review and approval by the Owner the record drawings will be completed and delivered to the Owner.

1. All geographic data must be submitted in a standard real-world coordinate system. The following coordinate system is required:

Projection:	Massachusetts State-plane Mainland
Datum:	NAD83
Fipszone:	2001
Units:	Feet
Spheroid:	GRS1980

2. All digital data must be delivered in the following format:

Autodesk AutoCAD dwg. format, and one of the following file formats:

ESRI Geodatabase
ESRI Shapefile format
ESRI Arc/Info Interchange File format (e00)
Autodesk AutoCAD dxf format

3. All data must be clean of undershooting and overshooting arcs (dangles). Polygons must be snapped closed at nodes and lines must snap to one another at nodes.

4. All data must be thematically organized. There must be separate layers for road edges, road centerlines, buildings, streams, water and sewer mains, hydrants, easements, parcels, water bodies, etc. For example, if a stream coincides with a parcel boundary, that coincident line must appear in both the parcel layer and the stream layer. All data shown on the plan shall be submitted digitally.

5. Features, which contain a third dimension or elevation data (z value) must have the elevation value within the attribute data. If elevation data is submitted in a CAD format, then the value must be part of the feature (polyline).

6. Documentation:

A. A list of all files being submitted is required.

B. CAD data shall include metadata for each layer included within the file. This documentation will provide information on the source of the data, feature type (point, line, polygon, etc.), source date, and a general description of what is shown on the layer(s).

C.

C. GIS data submissions (e.g., mdb, shp file, e00 export) must include all items from B above as well as metadata for each of the feature's geographic data attributes. This will include a complete description of each attribute's definition as well as a description of what each of the attribute values mean for each field.

7. Documentation on the method/s used for data collection shall be submitted for all data deliverables.

8. Documentation on horizontal and vertical accuracy shall be submitted for all data deliverables.

9. Text & Annotation:

   A. For CAD submissions, text must be placed in separate layers. Features must not be erased to accommodate the placement of text. Text layers must be thematically separate, meaning that text associated with hydrography should be placed on a single layer, while text pertaining to a parcel's ID number should be placed on yet another separate layer. For example, should there be text on a map defining a parcel's ID number and another piece of text defining a stream name, the deliverable to the town must include two (2) separate text layers, one for the parcel ID numbers and one for the stream names.

   B. Text associated with a GIS formatted data deliverable must be in one of four forms.

      1. A label attribute. This would be related to the feature's attribute fields as previously described above in Section 6.

      2. Annotation subclass. This would be separate annotation included within a feature data set as a series of text attribute tables (TAT).

      3. Annotation coverage (e00 export). This would be an entirely separate feature class containing text or annotation only.

      4. Feature linked annotation as prescribed in ArcGIS.

10. The Owner shall supply the Contractor with electronic files (AutoCAD) for the sole purpose of creating As Built Drawings.

11. As built tasks shall be assigned a monetary value equal to 2 percent (2%) of Initial Contract value or $20,000 (whichever is greater) and be included as an item in the approved Schedule of values.

12. Contractor shall submit the final approved as built within twenty-eight (28) consecutive calendar days of Issue of Punch list and:

    a. Prior to Notice of substantial completion.
    b. Prior to Approval of final payment application.

ARTICLE 34 RUBBISH REMOVAL

a. The Contractor shall remove all rubbish, waste, tools, equipment, and appurtenances caused by and used in the execution of the work; but this shall in no way be construed to relieve the Contractor of his primary responsibility for maintaining the site clean and free of debris, leaving all work in a clean condition. The Contractor shall always keep the site free of rubbish and construction debris.

b. The Contractor shall provide sufficient metal barrels or dumpsters into which all refuse and garbage shall be deposited. All containers shall have tight fitting covers. These shall be secured overnight or removed daily.

c. At the end of each work week, the Contractor shall thoroughly clean premises of rubbish and debris of any nature and remove such from the premises.

ARTICLE 35 PROJECT CONSTRUCTION SIGN

a. Contractor will provide and temporarily install one monolithic 48" high X 96" wide X ¾" thick Project sign and 2- 4"x 4" posts to identify the Project at a location to be determined in the field by the Owner.

b. The Project sign shall conform exactly to the City of Worcester's DPRC prototype Projects sign including but not limited to size, backer material, font style, size and relief, capitalization, color, weather proofing, fasteners and fastener locations.

c. Final Graphic and language will be provided by the Owner (Background color is forest green, text is white). The sample below is for reference only.

d. The Contractor shall be responsible installation and removal of sign and posts.

End of DPRC Special Conditions

PROJECT SPECIFIC SPECIAL SPECIFICATIONS

General

1. The following special standard specifications are to be used on contract work awarded by the City of Worcester DPRC. They are intended to supplement, support and suit this specific Project.

ARTICLE 36 DEMOLITION, SITE EXCAVATION & PREPARATION

a. The work shall consist of excavating, removing and legal disposal of surplus if any, vegetation, earth, boulders, masonry, existing pavements, building materials, footings, appurtenances and other materials encountered of whatever nature that is unsuitable for the construction and improvements of finished conditions. Excavated to the depth necessary to install according to the specifications, plans and details plans provided in the construction bidding documents.

b. Location of existing utilities shall be verified before excavation commences. The Drawings are based on available utility record drawings and site observation.

c. The excavation shall be carried out to such depths that sufficient materials will be left above the designated grade to allow for compaction to this grade. Should the Contractor, through negligence or other fault, excavate below the designated lines, he shall replace such excavation at his own expense. The Owner shall have complete control over excavation, moving, placing, and disposition of all material. Existing materials/objects determined to be unsuitable or not required or used, as determined by the Owner, for finished conditions shall be disposed offsite at no additional cost.

d. The Contractor shall inform and satisfy himself as to the character, quantity, and distribution of all material to be excavated. No payment shall be made for any excavated material which is used for purposes other than those designated or implied.

e. If it is necessary in the process of the work to interrupt existing surface drainage, sewers, or to pass under drainage, conduits, utilities, or similar underground structures, or parts thereof, the Contractor shall protect it or provide temporary services. The Contractor shall, at his own expense, satisfactorily repair all damage to such facilities or structures that may result from any of his operations or from negligence during the period of the Contract.

f. No excavation shall be started until the Owner has approved the proposed area of construction.

g. Excavation shall be performed at such places as are indicated on the Drawings, to the lines, grades and elevations shown or as directed by the Project Manager and shall be made in such manner that requirements for the formation of the sub-grade can be followed. Unless directed otherwise any disturbed existing rimmed structures shall be adjusted flush to final adjacent grade.

h. Existing pavements and base courses shall be carefully saw cut or core drilled and removed to the lines indicated and, in a manner, to obtain sound edges or connections, and so as not to disturb or damage existing buildings, utilities, pavements, and base coats which are to remain.

i. Unit pavers, such as granite brick and concrete, shall be carefully removed and stockpiled for reuse, if required.

j. All excavations shall be opened using minimum, straight, parallel cuts through pavement and base materials, and other excavations opened using square or rectangular cuts or as directed to minimize removal while permitting regular, straight-line repair and patching.

k. No excavation shall commence in any until the pavement covering the proposed excavation has been marked for cutting.

l. Examples of the excavated areas shall be made safe for the residents at the end of each workday.

m. Transport excavated materials, waste materials, trash, and debris and legally dispose of it off City property.

n. Prevent, minimize and control groundwater and/or surface water to accumulate in excavations. Remove water to prevent the undercutting of footings and soil changes detrimental to the stability of sub-grades, foundations and granite, brick or concrete paving.

o. Payment for site excavation and preparation work shall be considered incidental to the individual items installed. No separate payment shall be made for site excavation and preparation work. No separate payment shall be made for all labor, equipment, tools and incidentals necessary to complete the work to the satisfaction of the City, including transportation and disposal of excavated materials.

p. It is the responsibility of the Contractor to verify the accuracy of all survey information provided by the Owner prior to commencing excavations or filling operations. Commencement of these operations constitutes acceptance of the survey information as appropriate to meet the intent of the Contract.

q. Soil testing, if required, for all materials to be reused on-site or removed and disposed of off-site, shall be the responsibility of the Contractor. The City reserves the right to obtain its own test results from the same sample as the Contractor without penalties to the Owner. The Contractor is required to obtain a large enough sample to divide with the Owner for this proposes.

r. Transport excavated materials, waste materials, trash, and debris and legally dispose of it off City property.

s. Surplus excavated material not needed as specified above shall be hauled away and disposed of by the Contractor at no additional cost to the Owner, at appropriate locations, and in accordance with arrangements made by him. Disposal of all rubble shall be in accordance with all applicable local, state and federal regulations.

t. The Contractor shall comply with Massachusetts regulations (310 CMR 40.0032) that govern the removal and disposal of surplus excavated materials. Materials, including contaminated soils, having concentrations of oil or hazardous materials less than an otherwise Reportable Concentration and that are not a hazardous waste, may not be disposed of at locations where concentrations of oil and/or hazardous material at the receiving site

are significantly lower than the levels of those oil and /or hazardous materials present in the soil being disposed or reused.

u. If required: In response to the State/ Federal imposed quarantine regarding the Asian long-horned beetle infestation, the protocol for handling and disposal of wood-based materials within the Project area by the Contractor shall be to:

i. At a minimum, process all onsite vegetative, wood and cellulose based materials (trees, shrubs, root, stumps, branches, leaves, etc. twelve inches and under in diameter and designated for disposal) to a size of less than one inch as measured in two directions by approved mechanical means (woodchipper) prior to disposal/removal offsite. All other existing vegetative, wood and cellulose based products; tree trunks, stumps, branches etc., greater than twelve inches, in diameter and designated for removal/disposal shall be delivered to the current transfer station.

ii. Contractor shall be responsible to comply with changes or current quarantine protocols for the duration of the Project.

ARTICLE 37 CAST IN PLACE CEMENT CONCRETE

a. The scope of work under this article shall consist of furnishing all labor, materials, equipment, transportation, reinforcing, forming, finishing and curing of cast in place concrete for the construction of concrete pads, footings and walls for the structures and site improvements as specified herein and according to the plans and details shown in the construction drawings and the balance of any concrete construction necessary to completion of the Project.

b. Unless otherwise specified, all materials shall conform to the relevant provisions of Section 901, Cement Concrete Masonry, and Section M4, Cement and Concrete Materials of latest edition of The Massachusetts Department of Public Works Standard Specifications for Highways, Bridges and Waterways.

c. At a minimum, concrete to be used shall be Class 4,000 PSI - minimum 28-day compressive strength, and cement content of 610 lbs. per cubic yard for ¾" coarse aggregate. Concrete shall be discharged at site within 90 minutes after batching.

d. All horizontal (pad) concrete construction shall be air entrained which shall be 4.5% to 7%, as determined by ASTM C231.

e. Formwork shall be sufficient to resist pressure of the concrete without springing and tight enough to prevent leakage of mortar. Forms shall be staked, braced, or tied together to maintain their position and shape when concrete is compacted in place. Forms shall be clean and shall produce an even finish for exposed surfaces. Forms shall not be removed for at least twenty-four (24) hours after concrete has been placed, or longer if directed by Owner.

f. Preformed expansion joint filler shall be non-extruding and resilient non-bituminous type conforming to AASHTO-M135.

g. Reinforcing as required or pads shall be welded wire fabric, 6" X 6", W1.4 X W1.4 gauge cold-drawn steel wires formed into a mesh and welded together at points of intersection in conformance with ASTM A-185-70. Welded wire fabric shall be furnished in mats and not in rolls.

h. All references to 'processed gravel', gravel borrow', or 'gravel' shall conform to Article 38 Gravel Borrow.

i. Curing and protection shall be accomplished by applicable optimum method specified in Section 901, Cement Concrete Masonry, and Section M4, Cement and Concrete Materials of latest edition of The Massachusetts Department of Public Works Standard Specifications for Highways, Bridges and Waterways.

j. The Contractor is responsible for the quality and strength of the concrete. Inferior concrete, including that damaged by frost action shall be removed and replaced at no additional cost to the Owner.

k. The Contractor shall be responsible to repair or replace any concrete exhibiting deficient materials or workmanship with in one (1) year of final acceptance.

l. Payment for concrete and concrete work shall be considered incidental to the individual item in which the concrete is used. No separate payment shall be made for concrete work.

ARTICLE 38 GRAVEL BORROW

a. The scope of work under this article shall consist of furnishing all labor, materials, equipment and transportation required for placement and compaction of approved processed gravel according to the plans and details plans and details shown in the construction drawings and the balance of any subbase construction necessary to the completion of the Project.

b. All references to 'processed gravel', 'gravel borrow', or 'gravel base' shall conform to this Article.

c. Gravel borrow shall consist of inert material that is hard durable stone and coarse sand, free from loam and clay, surface coatings and deleterious material. Gravel borrow containing recycled bituminous and concrete material shall not be used in areas of pervious finish grade (i.e., ball fields, skinned, and lawns areas, etc.).

d. Gradation requirements for gravel borrow shall be determined by AASHO-T11 and T27 and shall conform to the following:

Sieve	Percent Passing
2"	100
½"	50-85
No. 4	40-75
No. 50	8-28
No. 200	0-10

e. Maximum size of stone in gravel shall be two (2) inches, largest dimension.

f. Gravel shall be spread and compacted in layers not exceeding six (6) inches in depth compacted measurement and all layers shall be compacted to not less than ninety-five percent (95%) of the maximum dry density of the material as determined by the Standard AASHO Test Designation T99 compaction test Method C at optimum moisture content.

ARTICLE 39 Reserved

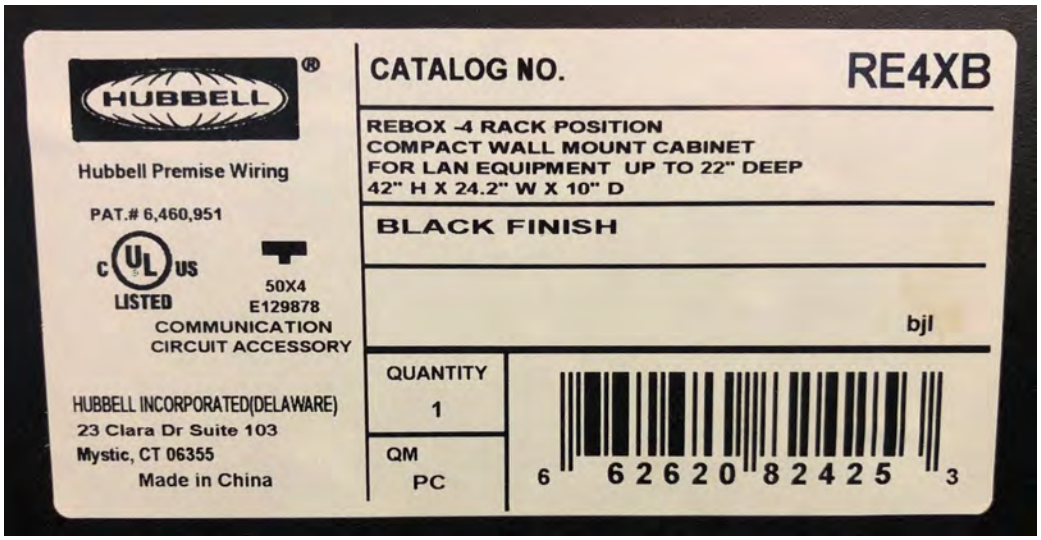
ARTICLE 40 Reserved

ARTICLE 41 DPRC STANDARD SECURITY CAMERA APPURTENANCES

a. Include in Base Bid $125,000.00 for allowance to furnish and install cameras, associated appurtenances and five (5) DPRC standard master key and keyed-alike padlocks. The owner will be responsible for securing specifications and vendor pricing for products, installation, and connection of security camera system. Project Contract terms apply

b. Include in Base Bid, to furnish, install, horizontal run, all vertical splices to cameras and testing of 2000 LF of fiber optic cable, type 12 strand single mode outdoor plant fiber and required connections/appurtenances.

c. Include in Base Bid, to furnish, install, one (1) locking cabinet for security equipment and appurtenances. Model Hubbell Catalog No. RE4XB, as indicated below, or approved equal. Furnish and install one duplex for equipment use. Security equipment cabinet shall be mounted INSIDE of new properly sized electrical cabinet or Building.



d. Communications conduits shall be 2-inch type HDPE continuous roll, smooth wall SDR 09 between handholes, communication conduits run into light poles can be Schedule 40 PVC. Electrical and HDPE conduits shall be in separate handhole/pull box.

e. Include in base bid, to coordinate, furnish and install on each pedestrian light pole with communication handhole, one pole mounted NEMA 3R rated utility cabinet, with stainless steel back panel, include labor and materials to energized duplex outlet for security cameras, security camera appurtenances. Cameras and appurtenances inside pole mounted utility cabinet are not included in Base Bid (see item "a" of this Article. Furnish and install manufacturer's standard auxiliary wire exits (2). Furnish and install manufacturer's standard and provided "trac nut" hardware, include fabrication of custom H-bracket mounts for the utility cabinet and camera. Utility cabinet standard shall be Stahlin Part# RJ1614HW-P, Type# 1,3R,4X,6P,12 painted black or approved equal.

ARTICLE 42 DPRC STANDARD EXTERIOR CABINET ENCLOSURES

1. Electrical Service, Public Announcement and Water Service Cabinets
    a. Provide outdoor NEMA 3R stainless steel cabinet sized to contain the required appurtenances included in plans, specifications, and details.
    b. Cabinet shall be manufactured from 0.125-inch-thick minimum stainless steel. Provide the cabinet with continuous piano hinge(s) welded in place, and stainless-steel pad lockable handle with a three-point catch.
    c. Coordinate dimensions to provide a 6" minimum clear workspace between equipment and cabinet or as per relevant code, whichever is more stringent. Mount cabinet on a 12" thick level concrete pad with sleeve style masonry anchors at six minimum locations.
    d. Public Announcement (PA) cabinet dimension shall be 18" W X 24" H X 18" D.
    e. Submit shop drawings for review.
    f. Concrete foundation shall extend six inches beyond the footprint of the cabinet on all sides and be six inches above finished grade.
    g. Location of the concrete pad to be verified by the Owner.
    h. Electrical and PA cabinets exterior shall have a powder-coated finish, color is black.
    i. Electrical cabinet to include a thermostatically controlled, diagonal cross ventilation, filtered, fan rated for 20 ACH. with fixed stainless steel exterior louvers.

2. Irrigation Controller Cabinet
    a. Shall be Strong Box Model SB-22SS (24" W X 38" H X 17" D).
    b. Mount cabinet on a 12" thick level concrete pad with sleeve style masonry anchors at six min. locations).
    c. Concrete foundation shall extend six inches beyond the footprint of the cabinet on all sides and be six inches above finished grade.

d. Location of the concrete pad to be verified by the Owner.

3. Article 42 supersedes all references to exterior electrical service, water service and irrigation controller cabinets in Bid Drawings and Specification unless noted in an Addenda.

ARTICLE 43 PLAYGROUND EQUIPMENT

A. Equipment selection is based on specific program requirements and physical constraints within the site. Equipment must be a commercially produced product ***(not custom fabricated)*** that is designed for the specific recreational purposes required by DPRC as outlined in these specifications.

a. Composite play structures, swing sets primary post(s) and concrete footings shall be embedded to a minimum depth of 48-inches below finished grade (top of safety surfacing) and as per manufacturer's diameter. Top of concrete footing shall be flush with base of safety surfacing.
b. Provide a choice of up to a three premium color combination for composite play equipment.
c. Required Submittals: (CAD drawing of playground layout is available upon request.)
d. Submit 2-D layout and 3-D color rendering with quote.
e. Submit guaranteed lead time for delivery and installation.
f. Additional hardware shall be provided in sufficient quantity to complete the assembly of the play equipment, including hardware for surface mounting onto the concrete pad. All hardware shall be stainless steel or non-ferrous. Bidder shall provide the Owner with all maintenance and repair supplies, installation manuals, tool kits and materials that were shipped with each product for the Owner's Inventory.

ARTICLE 44 Reserved

ARTICLE 45 Reserved

ARTICLE 46 Reserved

ARTICLE 47 Reserved

ARTICLE 48 ATTACHMENTS

12-09-24 Subsurface Investigation Report by BETA Group (105 pages)
12-23-25 Subsurface Investigation Report by BETA Group (113 pages)

End of DPRC Special Conditions and Specifications.

December 9, 2024

Ms. Alice W. Webb, PLA, ASLA
Principal
EarthDesign Landscape Architecture LLC
280 Beverly Road
Worcester, Massachusetts 01605

Re: Subsurface Investigation
Lake View Playground
125 Coburn Avenue
Worcester, Massachusetts

Dear Ms. Webb:

BETA Group, Inc. (BETA) has conducted a preliminary subsurface investigation at the referenced location on behalf of EarthDesign Architecture LLC. The sampling and analytical program was conducted to support soil management activities during upcoming renovation of Lake View Playground. Lake View Playground is a public multi-use park improved with a playground and basketball court. Renovations to the park are planned to commence in 2025 or 2026. A summary of the subsurface soil investigations and analytical results is presented below.

Site Description

The subject property (hereafter referred to as "the Site") is a public park owned by the City of Worcester and improved with a playground and basketball court. The Site is located in a residential area classified as resident district RL-7 (Residence, Limited). The location of the Site is shown in the attached Figure 1: Site Locus. The Site is bound by Coburn Avenue and Agate Avenue to the west and east, respectively. Residential properties are present along the western side of Coburn Avenue and eastern side of Agate Avenue. A church with parking lot abuts the Site to the north. Lake View Street abuts the Site to the south. Lake View Elementary School is present on the south side of Lake View Street. The basketball court and playground are located on the southeast side of the Site. Most of the Site consists of grass-landscaped areas and trees. A gated fence runs along the perimeter of the Site.

MCP Reportable Concentrations

In accordance with Massachusetts Contingency Plan (MCP) (310 CMR 40.0000), target analyte concentrations detected during laboratory soil analyses are compared to applicable MCP Reportable Concentrations to determine whether a release condition is present that requires notification to the Massachusetts Department of Environmental Protection (MassDEP), pursuant to 310 CMR 40.0315. Two reporting categories exist for concentrations of oil or hazardous materials (OHM) in soil:

- Reporting Category RCS-1 (310 CMR 40.0361) is applicable to all soil samples obtained at or within 500-feet of a residential dwelling, a residentially zoned property, school, playground, recreational area, or park, or within the geographical boundaries of a groundwater resource area.
- Reporting Category RCS-2 (310 CMR 40.0362) is applicable to all soil samples that are not obtained from category RCS-1 areas.

The Site contains a playground/park and is within 500 feet of residential dwellings and a school; therefore, the applicable reporting category is RCS-1.

Soil Assessment Activities

On September 19, 2024, BETA supervised the advancement of sixteen (16) soil borings at the site identified as B-1 through B-16. Borings were advanced by Martin Geo-Environmental (Martin) using a truck-mounted direct push drill rig. Borings were advanced in various locations throughout the Site to evaluate soil conditions in locations expected to be disturbed and/or transported off-site during redevelopment of the playground. The borings were advanced to depths ranging 5 feet to 15 feet below grade (fbg). Soil boring depth was based on the expected depth of soil to be disturbed during playground redevelopment. Soil samples were collected continuously using a macro-core sampler.

Soil samples from each boring were field screened for evidence of potential contamination utilizing olfactory, visual, and jar head space techniques. Samples were screened for total organic vapors (TOV) using a photoionization detector (PID) equipped with a 10.6 eV lamp calibrated to a 100 parts per million (ppm) isobutylene reference standard. Field screening results are included in the attached boring logs (Appendix A: Boring Logs).

BETA collected four (4) composite soil samples and four (4) discrete soil samples for laboratory analysis. Composite soil samples were prepared by combining equal amounts of soil from each sample interval collected from multiple boring locations. Composite soil samples are identified as B1-B6 Comp, B7-B12 Comp, B13-B14 Comp, and B15-B16 Comp. The sample names indicate the soil borings included in the composite. Discrete soil samples were collected based on TVOC field screening results. Generally, discrete soil samples were collected from the sample interval with the highest TVOC concentration at the selected boring location. Discrete soil samples were collected from borings B-6 and B-15 at a depth of 0 to 2.5 fbg and from borings B-10 and B-15 at a depth of 7.5 to 10 fbg.

Samples were submitted to a Massachusetts-certified laboratory for analysis. Composite samples were analyzed for total petroleum hydrocarbons (TPH), MCP 14 metals, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, reactive cyanide, reactive sulfide, pH, flashpoint, and specific conductance. Discrete samples were analyzed for volatile organic compounds (VOCs). The laboratory analytical report is included in Appendix B: Analytical Reports (attached). Soil analytical results are summarized in Table 1: Summary of Soil Analytical Results (attached).

Discussion of Soil Screening/Sampling Results

Field screening revealed the presence of urban fill in soil borings B-2, B-3, B-4, B-5, B-6, B-9, B-11 and B-12 at depths ranging from 0.5 fbg to 2.5 fbg. Materials encountered included ash, glass, bricks, slag and other anthropogenic material. TVOC field screening results ranged from 0.1 ppm to 9.1 ppm. No olfactory evidence of contamination was observed.

Analytical results for the composite soil samples revealed concentrations of arsenic exceeding the applicable RCS-1 reporting concentration. However, the Site is located in an area which has been documented by the U.S. Geological Survey as an area of naturally occurring elevated arsenic concentrations and is not considered an analyte of concern for the Site. Barium, beryllium, cadmium, chromium, lead, nickel, selenium, vanadium, and zinc were detected at concentrations below the RCS-1 reportable concentrations. Antimony, silver, thallium, and mercury were reported as not detected above laboratory reporting limits.

Pesticides, Herbicides and PCBs were not detected in the composite samples. TPH was not detected above laboratory reporting limits with the exception of sample B1-B6 Comp at 39 mg/kg. The TPH concentration in B1-B6 Comp is below the applicable reportable concentration.

SVOCs were reported as not detected in samples B13-B14 Comp and B15-B16 Comp. SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene) were detected at concentrations above laboratory reporting limits but below RCS-1 reportable concentrations in samples B1-B6 Comp and B7-B12 Comp. In addition, benzo(g,h,i)perylene was detected above the laboratory reporting limit but below RCS-1 reportable concentration in B1-B6 Comp.

VOCs were reported as not detected in all of the grab samples analyzed with the exception of chloroform in B6 0-2.5'. Chloroform was reported at concentration above the laboratory reporting limit but below the RCS-1 reportable concentration.

The geologic descriptions of each soil boring are included in boring logs attached as Appendix A. The soil sample and boring locations are depicted in Figure 2: Soil Boring Locations. The laboratory analytical data are summarized in Table 1. The complete laboratory analytical report is attached in Appendix B.

Conclusions

The following conclusions are based on the results of the above-described subsurface assessment.

- Pesticides, herbicides, PCBs, and VOCs were reported as not detected, below the laboratory reporting limits, in all samples analyzed.
- Metals (barium, beryllium, cadmium, chromium, lead, nickel, selenium, vanadium, and zinc), TPH, and SVOC were detected in soil at concentrations below the applicable reportable concentrations.
- Arsenic was detected at concentrations exceeding the RCS-1 reportable concentration. However, elevated concentrations of arsenic are most likely due to naturally occurring deposits typical for Worcester County and are exempt from the notification requirements in accordance with 310 CMR 40.0317(22).
- Urban fill containing coal ash, slag, and glass was observed in soil located approximately 0.5 to 2.5 feet below grade in the central portion of the Site, in the area of the proposed basketball court and playground.
- The presence of urban fill containing coal ash or wood ash is likely a contributing source of metals and SVOCs in soil at the Site.
- Metals and SVOC detected in composite soil samples do not exceed the MassDEP identified background levels in soil for "soil containing coal ash or wood ash associated with fill material".

Recommendations

BETA presents the following recommendations for your consideration:

Although arsenic in soil at the Site is considered exempt from reporting under the 310 CMR 40.0317(22) the MCP at 310 CMR 40.0370(1) requires response actions shall be undertaken for releases of threats of release of material that do not require notification under 310 CMR 40.0300 if the releases or threats of release pose a significant risk of health, safety, public welfare, or the environment as described in 310 CMR 40.0900. BETA recommends soil containing arsenic at elevated concentrations be isolated by at least three (3) feet of clean fill material during the final construction within the project limits.

The subject assessment involved collection of composite samples and therefore it is unknown where in the soil column the elevated arsenic would be present. We recommend the collection of additional discrete samples from selected locations to determine the degree and extent of arsenic in the disturbed areas.

We recommend you include the results of the subsurface investigation report in the bid documents to provide full disclosure of known environmental conditions to minimize potential change order requests and schedule changes related to worker protection and/or soil. We also recommend you include Handling, Transportation, and Disposal of Excavated Materials specification in the Bid Documents. Excess soil containing contaminants above RCS-1 levels must be disposed of at appropriately licensed, off-site soil management facilities.

If you have any questions, please do not hesitate to contact Robert Smith at (860) 993-3162.

Very Truly Yours,
BETA GROUP, INC.

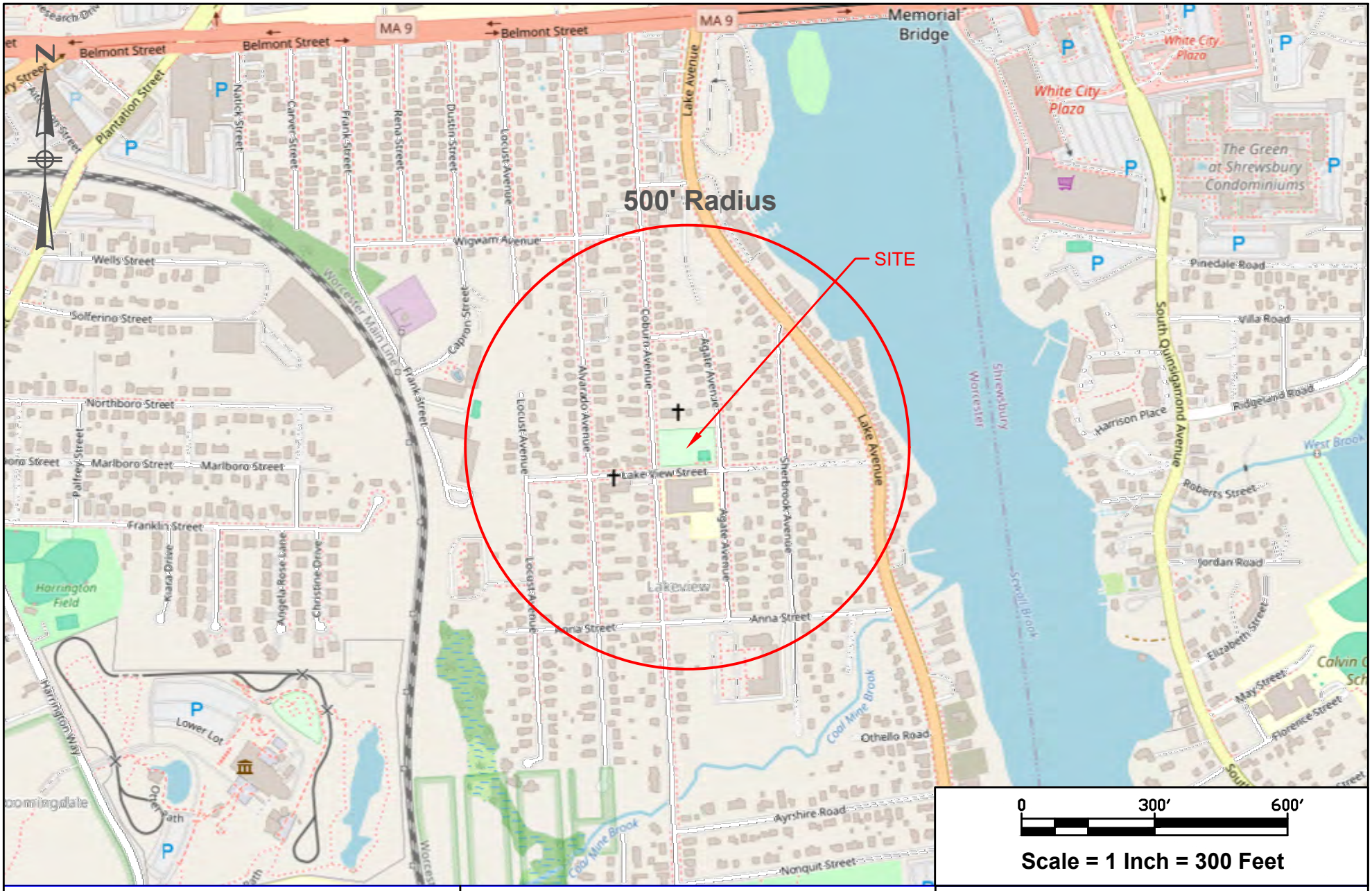
Robert E. Smith, LSP
Associate

Susan Benoit
Senior Project Manager

Attachments:

Figure 1: Site Locus
Figure 2: Soil Boring Locations
Table 1: Summary of Soil Analytical Results
Appendix A: Boring Logs
Appendix B: Analytical Reports

FIGURES



BETA
www.BETA-Inc.com

Lakeview Playground
125 Coburn Avenue, Worcester MA

Site Locus
Figure No. 1

N

PROPERTY LINE (TYPICAL)

EARLY CHILDHOOD PLAY AREA

SCHOOL-AGE PLAY AREA

SEE-SAW

TOT SWINGS

SENSORY PLAY PANELS

B-7

B-6

SLIDE

3' HILL

BRIDGE

3' HILL

SLIDE

CLIMBER

NEW TREE

EXISTING FENCE (TYPICAL)

B-15

B-16

POTENTIAL LOCATION OF UNDERGROUND STORMWATER DETENTION SYSTEM

B-13

B-14

LAWN AREA

PLAY SHELTER

PICNIC TABLE

BASKET SWING

EXISTING ELEVATION CONTOUR (TYPICAL)

PICNIC TABLE

PLAY STRUCTURE

STANDING SPINNER

B-5

ZIP LINE

B-8

SAFETY ZONE (TYPI-CAL)

SWING SET (6 SWINGS)

MERRY-GO-ROUND

4' HILL

SLIDE

POURED-IN-PLACE RUBBER PLAYGROUND SURFACING (2 COLORS), TYPICAL

PICNIC TABLE

BENCH (TYPICAL)

B-4

B-9

10' FENCE

SPORTS LIGHT

B-10

BASKETBALL COURT

MAINTENANCE GATE

EXISTING SIDEWALK

B-11

B-12

4' FENCE

WALKWAY

PICNIC TABLE

EXISTING TREE TO REMAIN (TYPICAL)

SHELTER

LIGHT (TYPICAL)

EXPANDED GARDEN

EXISTING POLLINATOR GARDEN

B-3

SPORTS LIGHT

10' FENCE

B-2

BENCHES

B-1

TRASH CONTAINERS

PICNIC TABLE

GATES

WALKWAY

4' FENCE

BIKE RACK

GATE

LAKE VIEW STREET

\\BETA-INC.COM\RI\ENV\SC\11468 - EARTHDESIGN - LAKEVIEW PLAYGROUND\SUBSURFACE INVESTIGATION\FIGURES\SOIL BORING LOCATIONS.DWG

Prepared by:

BETA

Print Date: 12/5/2024 12:07 PM

Lakeview Playground

125 Coburn Avenue
Worcester MA

Map Source: Earth Design Landscape Architecture Concept Plan entitled: Lakeview Playground Improvements, Master Plan Concept 2 - Preferred Option

0 20' 40'

Scale: 1 Inch = 20 Feet

Figure No. 2

Soil Boring Locations

Tables

Table 1
Summary of Soil Analytical Results
Lakeview Playground
125 Coburn Avenue, Worcester, MA

Sample ID:	Reportable Concentration RCS-1	B1-B6 Comp		B7-B12 Comp		B13-B14 Comp		B15-B16 Comp	
Date Sampled:		9/19/2024 14:55		9/19/2024 15:15		9/19/2024 15:50		9/19/2024 16:00	
Parameter		Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
General Chemistry									
Flashpoint (degrees F)		> 200	70	> 200	70	> 200	70	> 200	70
Specific Conductance (uS/cm)		8.1	2	7.6	2	4.4	2	5	2
pH (SU)		7.2		6.5		6.4		6.1	
Herbicides (ug/kg)									
Dalapon	1000000	ND	103	ND	102	ND	101	ND	102
Dicamba	500000	ND	51	ND	51	ND	50	ND	51
Dichloroprop		ND	51	ND	51	ND	50	ND	51
2,4-D	100000	ND	51	ND	51	ND	50	ND	51
2,4,5-TP (Silvex)	100000	ND	51	ND	51	ND	50	ND	51
2,4,5-T	100000	ND	51	ND	51	ND	50	ND	51
2,4-DB	100000	ND	51	ND	51	ND	50	ND	51
Dinoseb	500000	ND	103	ND	102	ND	101	ND	102
Pesticides (ug/kg)									
alpha-BHC	50000	ND	1.7	ND	1.67	ND	1.67	ND	1.68
gamma-BHC (Lindane)	3	ND	1.7	ND	1.67	ND	1.67	ND	1.68
beta-BHC	10000	ND	1.7	ND	1.67	ND	1.67	ND	1.68
delta-BHC	10000	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Heptachlor	300	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Aldrin	90	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Heptachlor epoxide	200	ND	1.7	ND	1.67	ND	1.67	ND	1.68
gamma-Chlordane	see Chlordane	ND	1.7	ND	1.67	ND	1.67	ND	1.68
alpha-Chlordane	see Chlordane	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Chlordane	6000	ND	17	ND	16.7	ND	16.7	ND	16.8
4,4'-DDE	7000	ND	3.4	ND	3.32	ND	3.33	ND	3.36
Endosulfan I	500	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Dieldrin	90	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Endrin	20000	ND	1.7	ND	1.67	ND	1.67	ND	1.68
4,4'-DDD	10000	ND	3.4	ND	3.32	ND	3.33	ND	3.36
Endosulfan II	500	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Endrin aldehyde	10000	ND	1.7	ND	1.67	ND	1.67	ND	1.68
4,4'-DDT	7000	ND	3.4	ND	3.32	ND	3.33	ND	3.36
Methoxychlor	300000	ND	3.4	ND	3.32	ND	3.33	ND	3.36
Endosulfan sulfate		ND	1.7	ND	1.67	ND	1.67	ND	1.68
Endrin Ketone		ND	1.7	ND	1.67	ND	1.67	ND	1.68
Endosulfan (I & II)	600	ND	1.7	ND	1.67	ND	1.67	ND	1.68
Toxaphene	10000	ND	17	ND	16.7	ND	16.7	ND	16.8
Polychlorinated Biphenyls (PCBs) (ug/kg)									
Aroclor-1016	1000	ND	67	ND	66	ND	66	ND	67
Aroclor-1221	1000	ND	67	ND	66	ND	66	ND	67
Aroclor-1232	1000	ND	67	ND	66	ND	66	ND	67
Aroclor-1242	1000	ND	67	ND	66	ND	66	ND	67
Aroclor-1248	1000	ND	67	ND	66	ND	66	ND	67
Aroclor-1254	1000	ND	67	ND	66	ND	66	ND	67
Aroclor-1260	1000	ND	67	ND	66	ND	66	ND	67
Aroclor-1262		ND	67	ND	66	ND	66	ND	67
Aroclor-1268		ND	67	ND	66	ND	66	ND	67
PCBs (Total)	1000	ND	67	ND	66	ND	66	ND	67
Reactivity (mg/kg)									
Cyanide	30	ND	0.2	ND	0.2	ND	0.2	ND	0.2
Sulfide		ND	0.1	ND	0.1	ND	0.1	ND	0.1
Total Petroleum Hydrocarbons (mg/kg)									
Total Petroleum Hydrocarbons	1000	39	27	ND	28	ND	27	ND	29
Total Metals (mg/kg)									
Antimony	20	ND	0.7	ND	0.72	ND	0.72	ND	0.77
Arsenic	20	27.5	1.06	33.6	1.09	79.1	1.08	33.3	1.17
Barium	1000	41.2	0.35	41.2	0.36	22.5	0.36	24.4	0.39
Beryllium	100	0.62	0.35	0.55	0.36	0.42	0.36	0.5	0.39
Cadmium	80	0.88	0.53	0.8	0.55	0.89	0.54	1.29	0.58
Chromium	100	23.6	0.53	25.8	0.55	20.7	0.54	24.3	0.58
Lead	200	49.7	0.53	26	0.55	9.05	0.54	10.8	0.58
Nickel	700	27.1	0.53	22.5	0.55	25.9	0.54	30.5	0.58
Selenium	400	2.47	1.06	2.39	1.09	3.07	1.08	3.58	1.17
Silver	100	ND	1.06	ND	1.09	ND	1.08	ND	1.17
Vanadium	500	21	0.35	23.6	0.36	16.6	0.36	24.2	0.39
Zinc	1000	105	2.1	62	2.2	42.8	2.2	54.4	2.3
Thallium	8	ND	0.35	ND	0.36	ND	0.36	ND	0.39
Mercury	20	ND	0.095	ND	0.102	ND	0.102	ND	0.097

Notes:
BOLD = Detection
BOLD and Shaded = Concentration Above Applicable Standards
ND = Concentration detected below the laboratory reporting limit
Conc = concentration
RL = Reporting Limit
SU = Standard Units
ug/kg = Micrograms per kilogram
mg/kg = Milligrams per kilogram
uS/cm = Microsiemens per centimeter

Table 1
Summary of Soil Analytical Results
Lakeview Playground
125 Coburn Avenue, Worcester, MA

Sample ID:	Reportable Concentration S-1	B1-B6 Comp		B7-B12 Comp		B13-B14 Comp		B15-B16 Comp	
Date Sampled:		9/19/2024 14:55		9/19/2024 15:15		9/19/2024 15:50		9/19/2024 16:00	
Parameter		Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Semivolatile organic compounds (ug/kg)									
1,2,4-Trichlorobenzene	2000	ND	138	ND	137	ND	136	ND	139
1,2-Dichlorobenzene	9000	ND	138	ND	137	ND	136	ND	139
1,3-Dichlorobenzene	3000	ND	138	ND	137	ND	136	ND	139
1,4-Dichlorobenzene	700	ND	138	ND	137	ND	136	ND	139
Phenol	900	ND	138	ND	137	ND	136	ND	139
2,4,5-Trichlorophenol	4000	ND	138	ND	137	ND	136	ND	139
2,4,6-Trichlorophenol	700	ND	138	ND	137	ND	136	ND	139
2,4-Dichlorophenol	700	ND	138	ND	137	ND	136	ND	139
2,4-Dimethylphenol	700	ND	350	ND	349	ND	344	ND	352
2,4-Dinitrophenol	3000	ND	350	ND	349	ND	344	ND	352
2,4-Dinitrotoluene	700	ND	138	ND	137	ND	136	ND	139
2,6-Dinitrotoluene	100000	ND	138	ND	137	ND	136	ND	139
2-Chloronaphthalene	1000000	ND	138	ND	137	ND	136	ND	139
2-Chlorophenol	700	ND	138	ND	137	ND	136	ND	139
2-Methylnaphthalene	700	ND	138	ND	137	ND	136	ND	139
Nitrobenzene	500000	ND	138	ND	137	ND	136	ND	139
2-Methylphenol	500000	ND	138	ND	137	ND	136	ND	139
2-Nitroaniline		ND	138	ND	137	ND	136	ND	139
2-Nitrophenol	100000	ND	350	ND	349	ND	344	ND	352
3,3'-Dichlorobenzidine	3000	ND	350	ND	349	ND	344	ND	352
3-Nitroaniline		ND	138	ND	137	ND	136	ND	139
4,6-Dinitro-2-methylphenol	50000	ND	350	ND	349	ND	344	ND	352
4-Bromophenyl phenyl ether	100000	ND	138	ND	137	ND	136	ND	139
4-Chloro-3-methylphenol	1000000	ND	138	ND	137	ND	136	ND	139
4-Chloroaniline	1000	ND	138	ND	137	ND	136	ND	139
4-Chlorophenyl phenyl ether	1000000	ND	138	ND	137	ND	136	ND	139
4-Nitroaniline		ND	138	ND	137	ND	136	ND	139
4-Nitrophenol	100000	ND	350	ND	349	ND	344	ND	352
Acenaphthene	4000	ND	138	ND	137	ND	136	ND	139
Acenaphthylene	2000	ND	138	ND	137	ND	136	ND	139
Aniline	1000000	ND	138	ND	137	ND	136	ND	139
Anthracene	1000000	ND	138	ND	137	ND	136	ND	139
Benzo(a)anthracene	20000	254	138	209	137	ND	136	ND	139
Benzo(a)pyrene	2000	246	138	209	137	ND	136	ND	139
Benzo(b)fluoranthene	20000	336	138	263	137	ND	136	ND	139
Benzo(g,h,i)perylene	1000000	154	138	ND	137	ND	136	ND	139
Benzo(k)fluoranthene	200000	ND	138	ND	137	ND	136	ND	139
Benzoic acid	1000000	ND	1060	ND	1060	ND	1040	ND	1070
Biphenyl	50	ND	21	ND	21	ND	21	ND	21
Bis(2-chloroethoxy)methane	500000	ND	138	ND	137	ND	136	ND	139
Bis(2-chloroethyl)ether	700	ND	138	ND	137	ND	136	ND	139
Bis(2-chloroisopropyl)ether	700	ND	138	ND	137	ND	136	ND	139
Bis(2-ethylhexyl)phthalate	100000	ND	425	ND	423	ND	417	ND	427
Butyl benzyl phthalate	100000	ND	138	ND	137	ND	136	ND	139
Chrysene	200000	277	138	205	137	ND	136	ND	139
Di-n-octyl phthalate	1000000	ND	212	ND	211	ND	209	ND	213
Dibenz(a,h)anthracene	2000	ND	138	ND	137	ND	136	ND	139
Dibenzofuran	100000	ND	138	ND	137	ND	136	ND	139
Diethyl phthalate	10000	ND	138	ND	137	ND	136	ND	139
Dimethyl phthalate	700	ND	350	ND	349	ND	344	ND	352
Di-n-butyl phthalate	50000	ND	212	ND	211	ND	209	ND	213
Fluoranthene	1000000	476	138	447	137	ND	136	ND	139
Fluorene	1000000	ND	138	ND	137	ND	136	ND	139
Hexachlorobenzene	700	ND	138	ND	137	ND	136	ND	139
Hexachlorobutadiene	30000	ND	138	ND	137	ND	136	ND	139
Hexachlorocyclopentadiene	50000	ND	350	ND	349	ND	344	ND	352
Hexachloroethane	700	ND	138	ND	137	ND	136	ND	139
Indeno(1,2,3-cd)pyrene	20000	159	138	139	137	ND	136	ND	139
Isophorone	100000	ND	138	ND	137	ND	136	ND	139
Naphthalene	4000	ND	138	ND	137	ND	136	ND	139
N-Nitrosodimethylamine	50000	ND	138	ND	137	ND	136	ND	139
N-Nitrosodi-n-propylamine	50000	ND	138	ND	137	ND	136	ND	139
N-Nitrosodiphenylamine	100000	ND	138	ND	137	ND	136	ND	139
Pentachlorophenol	3000	ND	350	ND	349	ND	344	ND	352
Phenanthrene	10000	280	138	313	137	ND	136	ND	139
Pyrene	1000000	419	138	394	137	ND	136	ND	139
m&p-Cresol	500000	ND	276	ND	275	ND	271	ND	277
Pyridine	500000	ND	138	ND	137	ND	136	ND	139
Azobenzene		ND	138	ND	137	ND	136	ND	139
Total Dichlorobenzene	700	ND	138	ND	137	ND	136	ND	139

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Table 1
Summary of Soil Analytical Results
Lakeview Playground
125 Coburn Avenue, Worcester, MA

		Sample ID:	B6 0-2.5		B10 7.5-10		B15 7.5-10		B14 0-2.5	
		Date Sampled:	9/19/2024 14:30		9/19/2024 15:05		9/19/2024 15:30		9/19/2024 15:45	
Parameter	CAS Number	Reportable Concentration S-1	Conc.	RL	Conc.	RL	Conc.	RL	Conc.	RL
Volatile Organic Compounds 8260C (5035-LL) (ug/kg)										
Acetone	67-64-1	6000	ND	114	ND	101	ND	87	ND	77
Benzene	71-43-2	2000	ND	6	ND	5	ND	4	ND	4
Bromobenzene	108-86-1	100000	ND	6	ND	5	ND	4	ND	4
Bromochloromethane	74-97-5		ND	6	ND	5	ND	4	ND	4
Bromodichloromethane	75-27-4	100	ND	6	ND	5	ND	4	ND	4
Bromoform	75-25-2	100	ND	6	ND	5	ND	4	ND	4
Bromomethane	74-83-9	500	ND	6	ND	5	ND	4	ND	4
2-Butanone	78-93-3	4000	ND	114	ND	101	ND	87	ND	77
tert-Butyl alcohol	75-65-0	100000	ND	6	ND	5	ND	4	ND	4
sec-Butylbenzene	135-98-8		ND	6	ND	5	ND	4	ND	4
n-Butylbenzene	104-51-8		ND	6	ND	5	ND	4	ND	4
tert-Butylbenzene	98-06-6	100000	ND	6	ND	5	ND	4	ND	4
Methyl t-butyl ether (MTBE)	1634-04-4	100	ND	6	ND	5	ND	4	ND	4
Carbon Disulfide	75-15-0	100000	ND	6	ND	5	ND	4	ND	4
Carbon Tetrachloride	56-23-5	5000	ND	6	ND	5	ND	4	ND	4
Chlorobenzene	108-90-7	1000	ND	6	ND	5	ND	4	ND	4
Chloroethane	75-00-3	100000	ND	6	ND	5	ND	4	ND	4
Chloroform	67-66-3	200	15	6	ND	5	ND	4	ND	4
Chloromethane	74-87-3	100000	ND	6	ND	5	ND	4	ND	4
4-Chlorotoluene	106-43-4		ND	6	ND	5	ND	4	ND	4
2-Chlorotoluene	95-49-8	100000	ND	6	ND	5	ND	4	ND	4
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	10000	ND	6	ND	5	ND	4	ND	4
Dibromochloromethane	124-48-1	5	ND	6	ND	5	ND	4	ND	4
1,2-Dibromoethane (EDB)	106-93-4	100	ND	6	ND	5	ND	4	ND	4
Dibromomethane	74-95-3	500000	ND	6	ND	5	ND	4	ND	4
1,2-Dichlorobenzene	95-50-1	9000	ND	6	ND	5	ND	4	ND	4
1,3-Dichlorobenzene	541-73-1	3000	ND	6	ND	5	ND	4	ND	4
1,4-Dichlorobenzene	106-46-7	700	ND	6	ND	5	ND	4	ND	4
1,1-Dichloroethane	75-34-3	400	ND	6	ND	5	ND	4	ND	4
1,2-Dichloroethane	107-06-2	100	ND	6	ND	5	ND	4	ND	4
1,2 Dichloroethene, Total	540-59-0	300	ND	6	ND	5	ND	4	ND	4
trans-1,2-Dichloroethene	156-60-5	1000	ND	6	ND	5	ND	4	ND	4
cis-1,2-Dichloroethene	156-59-2	100	ND	6	ND	5	ND	4	ND	4
1,1-Dichloroethene	75-35-4	3000	ND	6	ND	5	ND	4	ND	4
1,2-Dichloropropane	78-87-5	100	ND	6	ND	5	ND	4	ND	4
2,2-Dichloropropane	594-20-7		ND	6	ND	5	ND	4	ND	4
cis-1,3-Dichloropropene	10061-01-5	10	ND	6	ND	5	ND	4	ND	4
trans-1,3-Dichloropropene	10061-02-6	10	ND	6	ND	5	ND	4	ND	4
1,1-Dichloropropene	563-58-6		ND	6	ND	5	ND	4	ND	4
1,3-Dichloropropene (cis + trans)	542-75-6	10	ND	6	ND	5	ND	4	ND	4
Diethyl ether	60-29-7	100000	ND	6	ND	5	ND	4	ND	4
1,4-Dioxane	123-91-1	200	ND	114	ND	101	ND	87	ND	77
Ethylbenzene	100-41-4	40000	ND	6	ND	5	ND	4	ND	4
Hexachlorobutadiene	87-68-3	30000	ND	6	ND	5	ND	4	ND	4
2-Hexanone	591-78-6	100000	ND	114	ND	101	ND	87	ND	77
Isopropylbenzene	98-82-8	1000000	ND	6	ND	5	ND	4	ND	4
p-Isopropyltoluene	99-87-6	100000	ND	6	ND	5	ND	4	ND	4
Methylene Chloride	75-09-2	100	ND	6	ND	5	ND	4	ND	4
4-Methyl-2-pentanone	108-10-1	400	ND	114	ND	101	ND	87	ND	77
Naphthalene	91-20-3	4000	ND	6	ND	5	ND	4	ND	4
n-Propylbenzene	103-65-1	100000	ND	6	ND	5	ND	4	ND	4
Styrene	100-42-5	3000	ND	6	ND	5	ND	4	ND	4
1,1,1,2-Tetrachloroethane	630-20-6	100	ND	6	ND	5	ND	4	ND	4
Tetrachloroethene	127-18-4	1000	ND	6	ND	5	ND	4	ND	4
Tetrahydrofuran	109-99-9	500000	ND	6	ND	5	ND	4	ND	4
Toluene	108-88-3	30000	ND	6	ND	5	ND	4	ND	4
1,2,4-Trichlorobenzene	120-82-1	2000	ND	6	ND	5	ND	4	ND	4
1,2,3-Trichlorobenzene	87-61-6		ND	6	ND	5	ND	4	ND	4
1,1,2-Trichloroethane	79-00-5	100	ND	6	ND	5	ND	4	ND	4
1,1,1-Trichloroethane	71-55-6	30000	ND	6	ND	5	ND	4	ND	4
Trichloroethene	79-01-6	300	ND	6	ND	5	ND	4	ND	4
1,2,3-Trichloropropane	96-18-4	100000	ND	6	ND	5	ND	4	ND	4
1,3,5-Trimethylbenzene	108-67-8	10000	ND	6	ND	5	ND	4	ND	4
1,2,4-Trimethylbenzene	95-63-6	1000000	ND	6	ND	5	ND	4	ND	4
Vinyl Chloride	75-01-4	300	ND	6	ND	5	ND	4	ND	4
o-Xylene	95-47-6	see Total xylenes	ND	6	ND	5	ND	4	ND	4
m&p-Xylene	1330-20-7	see Total xylenes	ND	11	ND	10	ND	9	ND	8
Total xylenes	1330-20-7	100000	ND	6	ND	5	ND	4	ND	4
1,1,2,2-Tetrachloroethane	79-34-5	5	ND	6	ND	5	ND	4	ND	4
tert-Amyl methyl ether	994-05-8		ND	6	ND	5	ND	4	ND	4
1,3-Dichloropropane	142-28-9	500000	ND	6	ND	5	ND	4	ND	4
Ethyl tert-butyl ether	637-92-3		ND	6	ND	5	ND	4	ND	4
Diisopropyl ether	108-20-3	100000	ND	6	ND	5	ND	4	ND	4
Trichlorofluoromethane	75-69-4	1000000	ND	6	ND	5	ND	4	ND	4
Dichlorodifluoromethane	75-71-8	1000000	ND	6	ND	5	ND	4	ND	4

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APPENDIX A

BORING LOG

BORING ID: B-1

Page 1 of 1

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	15
SIZE (ID)	2"	NA	NA	TIME	1315	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH	15'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	34/60	N/A	0.6		9" Topsoil - Dry, brown fine SAND, some silt, little fine gravel	
2							
3						25" Dry, brown grey coarse to fine GRAVEL, some coarse to fine sand, trace silt	
4				0.3			
5							
6	5-10'	51/60	N/A	0.1		51" Dry, brown grey coarse to fine GRAVEL, some coarse to fine sand, trace silt. Pushed through rock @ 6.5-6.7' and 7.1-7.3'	
7							
8							
9				0.3			
10							
11	10-15'	60/60	N/A	0.2		60" Dry, brown grey medium to fine GRAVEL and coarse to fine SAND. Slag @ 10.9-11'	
12							
13							
14				0.1			
15							
16	15-20'	N/A	NA	N/A		END OF BORING AT 15' NO WELL INSTALLED	
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:
START DATE: 9/19/2024
END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-2

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1245	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	45/60	N/A	0.2		9" Topsoil - Dry, brown fine SAND, some silt, little fine gravel	
2						7" Dry, grey urban fill, coal ash, slag glass, coarse to fine SAND, trace silt	
3						9" Dry, dark brown SILT, some fine sand	
4				0.5		20" Dry, brown to grey coarse to fine GRAVEL and coarse to fine SAND, trace silt	
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-3

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1400	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	37/60	N/A	0.2		10" Topsoil - Dry, light brown medium to fine SAND, some silt, little fine gravel	
2						10" Dry, urban fill, coal ash, slag, glass	
3							
4				0.2		16" Dry, brown to grey coarse to fine SAND trace silt	
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-4

Page 1 of 1

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1200	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	42/60	N/A	0.7		5" Dry, brown fine SAND, some silt, little fine gravel	
2						14" Dry, grey urban fill, coal ash, slag glass, coarse to fine SAND, some fine sand, trace silt	
3						8" Dry, dark brown SILT, some fine sand, little fine gravel	
4				0.7		15" Dry, brown grey coarse to fine GRAVEL, some coarse to fine sand, trace silt	
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-5

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1140	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	42/60	N/A	1.5		11" Dry brown topsoil, loamy SAND, some roots, little gravel 12" Dry, grey urban fill, coal ash, clinkers, glass, ceramic chips 5" organic layer with roots, SILT 9" Dry brown SILT, some fine sand 7" Dry grey coarse to fine GRAVEL, some coarse to find sand, trace silt	
2							
3							
4				4.2			
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-6

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1120	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	41/60	N/A	4.3		6" Dry brown topsoil, loamy SAND, some roots 4" Dry, potential grey urban fill, grey fine GRAVEL, some coarse to fine sand, trace silt 8" dry brown SILT, some fine sand, little fine gravel 23" Dry grey to red coarse to fine GRAVEL, some coarse to fine sand, trace silt. Coarse sand layer @ 29- 32"	
2							
3							
4				4			
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-7

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1100	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	51/60	N/A	3.2		6" Dry light brown topsoil, loamy SAND, some coarse sand 9" Dry, grey fine GRAVEL, some coarse sand, trace silt 36" Dry brown grey coarse to fine GRAVEL and coarse to fine SAND, trace silt. Coarse sand layer @ 40-44"	
2							
3							
4				2.5			
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-8

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1050	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	20/60	N/A	3.5		2"Dry, brown top soil 7" Dry, brown medium to fine SAND, some fine gravel, trace silt	
2							
3							
4				3.7		9" Dry brown SILT, some fine sand, little fine gravel	
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-9

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1230	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	39/60	N/A	4.2		9" Dry brown fine SAND, some silt, little fine gravel	
2						9" Dry brown fine SAND, some gravel, trace silt	
3						10" Dry grey urban fill, coal ash, slag, glass, coarse SAND, some fine sand, trace silt	
4				4.3			
5						10" Dry brown grey fine GRAVEL, some coarse to fine sand, little silt	
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-10

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	15
SIZE (ID)	2"	NA	NA	TIME	1035	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH	15'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	38/60	N/A	0.7		8.5" Dry brown topsoil 9.5" Dry, brown grey coarse to fine GRAVEL, some coase to fine sand, trace silt 7" Dry brown coarse GRAVEL, some coarse to fine sand, trace silt 5" Dry light brown coarse to fine SAND, some fine gravel, trace silt 8" Dry light brown coarse to fine GRAVEL, some coarse to fine sand, trace silt	
2							
3							
4				0.1			
5							
6	5-10'	40/60	N/A	3.6		40" Dry, brown coarse to fine GRAVEL, some coarse to fine sand, trace silt.	
7							
8							
9				6.2			
10							
11	10-15'	48/60	N/A	4.8		15" Dry, brown grey coarse to fine GRAVEL, some coarse to medium sand 33" Dry, grey coarse to fine GRAVEL, some sand, little silt	
12							
13							
14				2.6			
15							
16	15-20'	N/A	NA	N/A		END OF BORING AT 15' NO WELL INSTALLED	
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:
START DATE: 9/19/2024
END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-11

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1345	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	36/60	N/A	0.1		3" Mulch 6" Dry light brown medium to fine SAND, little coarse sand, trace fine gravel 9" Dry urban fill, coal ash, slag 7" Dry reddish brown SILT, little fine gravel 11" Dry brown grey coarse to fine GRAVEL, some coarse to fine sand, trace silt	
2							
3							
4				0.4			
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-12

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	5
SIZE (ID)	2"	NA	NA	TIME	1400	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	5'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	25/60	N/A	0.1		5" Dry light brown topsoil, medium to fine SAND, some silt, little fine gravel	
2						10" Urban fill, coal ash, slag	
3							
4				0.2		10" Dry brown SILT, some fine sand, little fine gravel	
5							
6	5-10'	N/A	N/A	N/A		END OF BORING AT 5' NO WELL INSTALLED	
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-13

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	10
SIZE (ID)	2"	NA	NA	TIME	1005	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	10'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	47/60	N/A	5.1		12" Dry brown topsoil	
2							
3						30" Dry grey to brown coarse to fine GRAVEL, some coarse to fine sand, trace silt	
4				2.6			
5						5" Dry brown coarse SAND	
6	5-10'	52/60	N/A	2.5		9" Dry light brown coarse to fine SAND, some gravel, trace silt	
7							
8						43" Dry grey brown coarse to fine GRAVEL, some coarse to fine SAND, trace silt. 7.5" Pushed through rock @7.5' - 8.5'	
9				6.6			
10							
11	10-15'	N/A	N/A	N/A		END OF BORING AT 10' NO WELL INSTALLED	
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-14

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	10
SIZE (ID)	2"	NA	NA	TIME	1020	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	10'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	45/60	N/A	9.1		5" Dry brown topsoil 10" Dry brown SILT, some medium to fine gravel trace fine sand	
2							
3							
4				6.1		30" Dry grey coarse to fine gravel - sand lens @ 27-31", 33-37"	
5							
6	5-10'	46/60	N/A	1.1		45" Dry brown grey coarse to fine GRAVEL, some coarse to fine sand, trace silt. Pushed through rock @ 5.5', 7.1', 7.7', and 8.5'	
7							
8							
9				5.7			
10							
11	10-15'	N/A	N/A	N/A		END OF BORING AT 10' NO WELL INSTALLED	
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-15

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	10
SIZE (ID)	2"	NA	NA	TIME	0945	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	10'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	38/60	N/A	1.7		7" Topsoil 3" Dry light brown fine SAND, little fine gravel	
2							
3							
4				2		28" Dry brown medium SAND and GRAVEL, trace silt	
5							
6	5-10'	44/60	N/A	3.0		22" Dry brown coarse to fine SAND and medium to fine GRAVEL, trace silt	
7							
8							
9				7.7		22" Dry brown coarse to fine SAND and medium to fine GRAVEL. Pushed through rock @ 9'	
10							
11	10-15'	N/A	N/A	N/A		END OF BORING AT 10' NO WELL INSTALLED	
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:

START DATE: 9/19/2024

END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-16

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle and S. Benoit
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Martin Geoenvironmental

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Direct Push	NA	NA	DATE	9/19/2024	Overburden (feet):	10
SIZE (ID)	2"	NA	NA	TIME	0930	Rock Cored (feet):	---
HAMMER WEIGHT	NA	NA	---	DEPTH	10'	# of samples:	0
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	---

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-5'	41/60	N/A	1		3" Dry brown loamy SAND and SILT, trace coarse sand, vegetative matter and roots	
2							
3						23" Dry dark brown SILT, some coarse to medium gravel	
4				2.2			
5						15" Dry light brown medium SAND and fine GRAVEL, little coarse gravel	
6	5-10'	54/60	N/A	1.0		3" slough	
7							
8						51" Dry light brown medium SAND and fine GRAVEL, little coarse gravel	
9				4.0			
10							
11	10-15'	N/A	N/A	N/A		END OF BORING AT 10' NO WELL INSTALLED	
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Direct Push

SURFACE ELEVATION:
START DATE: 9/19/2024
END DATE: 9/19/2024

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

APPENDIX B

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 4I20011
Client Project: 24.11468.00 - Lakeview Playground, Worcester, MA

Report Date: 03-October-2024

Prepared for:

Rob Smith
BETA Group
315 Norwood Park South
Norwood, MA 02062

Mike Mccallum, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
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Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 09/20/24. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 4I20011. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
4I20011-01	B1-B6 Comp	Soil	09/19/2024	09/20/2024
4I20011-02	B7-B12 Comp	Soil	09/19/2024	09/20/2024
4I20011-03	B13-B14 Comp	Soil	09/19/2024	09/20/2024
4I20011-04	B15-B16 Comp	Soil	09/19/2024	09/20/2024
4I20011-05	B6 0-2.5	Soil	09/19/2024	09/20/2024
4I20011-06	B10 7.5-10	Soil	09/19/2024	09/20/2024
4I20011-07	B15 7.5-10	Soil	09/19/2024	09/20/2024
4I20011-08	B14 0-2.5	Soil	09/19/2024	09/20/2024

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

B10 7.5-10 (Lab Number: 4I20011-06)

	Method
Volatile Organic Compounds	EPA 8260D

B13-B14 Comp (Lab Number: 4I20011-03)

	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Flashpoint	EPA 1010A-Mod
Herbicides	EPA 8151A
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Pesticides	EPA 8081B
pH	SM4500-H-B (11)
Reactive Cyanide	NETL Internal
Reactive Sulfide	NETL Internal
Selenium	EPA 6010C
Semivolatile Organic Compounds	EPA 8270E
Silver	EPA 6010C
Specific Conductance	SM2510 - Modified
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Vanadium	EPA 6010C
Zinc	EPA 6010C

B14 0-2.5 (Lab Number: 4I20011-08)

	Method
Volatile Organic Compounds	EPA 8260D

B15 7.5-10 (Lab Number: 4I20011-07)

	Method
Volatile Organic Compounds	EPA 8260D

B15-B16 Comp (Lab Number: 4I20011-04)

	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Flashpoint	EPA 1010A-Mod
Herbicides	EPA 8151A
Lead	EPA 6010C

Request for Analysis (continued)

B15-B16 Comp (Lab Number: 4I20011-04) (continued)

	Method
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Pesticides	EPA 8081B
pH	SM4500-H-B (11)
Reactive Cyanide	NETL Internal
Reactive Sulfide	NETL Internal
Selenium	EPA 6010C
Semivolatile Organic Compounds	EPA 8270E
Silver	EPA 6010C
Specific Conductance	SM2510 - Modified
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Vanadium	EPA 6010C
Zinc	EPA 6010C

B1-B6 Comp (Lab Number: 4I20011-01)

	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Flashpoint	EPA 1010A-Mod
Herbicides	EPA 8151A
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Pesticides	EPA 8081B
pH	SM4500-H-B (11)
Reactive Cyanide	NETL Internal
Reactive Sulfide	NETL Internal
Selenium	EPA 6010C
Semivolatile Organic Compounds	EPA 8270E
Silver	EPA 6010C
Specific Conductance	SM2510 - Modified
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Vanadium	EPA 6010C
Zinc	EPA 6010C

B6 0-2.5 (Lab Number: 4I20011-05)

	Method
Volatile Organic Compounds	EPA 8260D

Request for Analysis (continued)

B7-B12 Comp (Lab Number: 4I20011-02)

	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Barium	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Flashpoint	EPA 1010A-Mod
Herbicides	EPA 8151A
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Pesticides	EPA 8081B
pH	SM4500-H-B (11)
Reactive Cyanide	NETL Internal
Reactive Sulfide	NETL Internal
Selenium	EPA 6010C
Semivolatile Organic Compounds	EPA 8270E
Silver	EPA 6010C
Specific Conductance	SM2510 - Modified
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Vanadium	EPA 6010C
Zinc	EPA 6010C

Method References

Reactive Cyanide, Standard Operating Procedure 407, New England Testing Laboratory Inc.

Reactive Sulfide, Standard Operating Procedure 426, New England Testing Laboratory Inc.

Standard Methods for the Examination of Water and Wastewater, 20th Edition, APHA/ AWWA-WPCF, 1998

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt:

The samples associated with this work order were received in appropriately cooled and preserved containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Exceptions: None

Analysis:

All samples were prepared and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances. Results for all soil samples, unless otherwise indicated, are reported on a dry weight basis.

Exceptions: None

Results: General Chemistry

Sample: B1-B6 Comp

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Flashpoint	> 200		70	degrees F	09/26/24	09/26/24
pH	**7.2**			SU	09/23/24	09/23/24
Specific Conductance	**8.1**		2.0	uS/cm	09/23/24	09/23/24

Results: General Chemistry

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Flashpoint	> 200		70	degrees F	09/26/24	09/26/24
pH	**6.5**			SU	09/23/24	09/23/24
Specific Conductance	**7.6**		2.0	uS/cm	09/23/24	09/23/24

Results: General Chemistry

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Flashpoint	> 200		70	degrees F	09/26/24	09/26/24
pH	**6.4**			SU	09/23/24	09/23/24
Specific Conductance	**4.4**		2.0	uS/cm	09/23/24	09/23/24

Results: General Chemistry

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Flashpoint	> 200		70	degrees F	09/26/24	09/26/24
pH	**6.1**			SU	09/23/24	09/23/24
Specific Conductance	**5.0**		2.0	uS/cm	09/23/24	09/23/24

Results: Reactivity

Sample: B1-B6 Comp
Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Reactive Cyanide	ND		0.2	mg/kg	09/23/24	09/23/24
Reactive Sulfide	ND		0.1	mg/kg	09/23/24	09/23/24

Results: Reactivity

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Reactive Cyanide	ND		0.2	mg/kg	09/23/24	09/23/24
Reactive Sulfide	ND		0.1	mg/kg	09/23/24	09/23/24

Results: Reactivity

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Reactive Cyanide	ND		0.2	mg/kg	09/23/24	09/23/24
Reactive Sulfide	ND		0.1	mg/kg	09/23/24	09/23/24

Results: Reactivity

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Reactive Cyanide	ND		0.2	mg/kg	09/23/24	09/23/24
Reactive Sulfide	ND		0.1	mg/kg	09/23/24	09/23/24

Results: Total Metals

Sample: B1-B6 Comp

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	ND		0.70	mg/kg	09/24/24	10/02/24
Arsenic	**27.5**		1.06	mg/kg	09/24/24	10/02/24
Barium	**41.2**		0.35	mg/kg	09/24/24	10/02/24
Beryllium	**0.62**		0.35	mg/kg	09/24/24	10/02/24
Cadmium	**0.88**		0.53	mg/kg	09/24/24	10/02/24
Chromium	**23.6**		0.53	mg/kg	09/24/24	10/02/24
Lead	**49.7**		0.53	mg/kg	09/24/24	10/02/24
Mercury	ND		0.095	mg/kg	09/25/24	09/26/24
Nickel	**27.1**		0.53	mg/kg	09/24/24	10/02/24
Selenium	**2.47**		1.06	mg/kg	09/24/24	10/02/24
Silver	ND		1.06	mg/kg	09/24/24	10/02/24
Vanadium	**21.0**		0.35	mg/kg	09/24/24	10/02/24
Zinc	**105**		2.1	mg/kg	09/24/24	10/02/24
Thallium	ND		0.35	mg/kg	09/24/24	10/02/24

Results: Total Metals

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	ND		0.72	mg/kg	09/24/24	09/25/24
Arsenic	**33.6**		1.09	mg/kg	09/24/24	09/25/24
Barium	**41.2**		0.36	mg/kg	09/24/24	09/25/24
Beryllium	**0.55**		0.36	mg/kg	09/24/24	09/25/24
Cadmium	**0.80**		0.55	mg/kg	09/24/24	09/25/24
Chromium	**25.8**		0.55	mg/kg	09/24/24	09/25/24
Lead	**26.0**		0.55	mg/kg	09/24/24	09/25/24
Mercury	ND		0.102	mg/kg	09/25/24	09/26/24
Nickel	**22.5**		0.55	mg/kg	09/24/24	09/25/24
Selenium	**2.39**		1.09	mg/kg	09/24/24	09/25/24
Silver	ND		1.09	mg/kg	09/24/24	09/25/24
Vanadium	**23.6**		0.36	mg/kg	09/24/24	09/25/24
Zinc	**62.0**		2.2	mg/kg	09/24/24	09/25/24
Thallium	ND		0.36	mg/kg	09/24/24	09/25/24

Results: Total Metals

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	ND		0.72	mg/kg	09/24/24	09/25/24
Arsenic	**79.1**		1.08	mg/kg	09/24/24	09/25/24
Barium	**22.5**		0.36	mg/kg	09/24/24	09/25/24
Beryllium	**0.42**		0.36	mg/kg	09/24/24	09/25/24
Cadmium	**0.89**		0.54	mg/kg	09/24/24	09/25/24
Chromium	**20.7**		0.54	mg/kg	09/24/24	09/25/24
Lead	**9.05**		0.54	mg/kg	09/24/24	09/25/24
Mercury	ND		0.102	mg/kg	09/25/24	09/26/24
Nickel	**25.9**		0.54	mg/kg	09/24/24	09/25/24
Selenium	**3.07**		1.08	mg/kg	09/24/24	09/25/24
Silver	ND		1.08	mg/kg	09/24/24	09/25/24
Vanadium	**16.6**		0.36	mg/kg	09/24/24	09/25/24
Zinc	**42.8**		2.2	mg/kg	09/24/24	09/25/24
Thallium	ND		0.36	mg/kg	09/24/24	09/25/24

Results: Total Metals

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	ND		0.77	mg/kg	09/24/24	09/25/24
Arsenic	**33.3**		1.17	mg/kg	09/24/24	09/25/24
Barium	**24.4**		0.39	mg/kg	09/24/24	09/25/24
Beryllium	**0.50**		0.39	mg/kg	09/24/24	09/25/24
Cadmium	**1.29**		0.58	mg/kg	09/24/24	09/25/24
Chromium	**24.3**		0.58	mg/kg	09/24/24	09/25/24
Lead	**10.8**		0.58	mg/kg	09/24/24	09/25/24
Mercury	ND		0.097	mg/kg	09/25/24	09/26/24
Nickel	**30.5**		0.58	mg/kg	09/24/24	09/25/24
Selenium	**3.58**		1.17	mg/kg	09/24/24	09/25/24
Silver	ND		1.17	mg/kg	09/24/24	09/25/24
Vanadium	**24.2**		0.39	mg/kg	09/24/24	09/25/24
Zinc	**54.4**		2.3	mg/kg	09/24/24	09/25/24
Thallium	ND		0.39	mg/kg	09/24/24	09/25/24

Results: Volatile Organic Compounds 8260C (5035-LL)

Sample: B6 0-2.5

Lab Number: 4I20011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		114	ug/kg	09/30/24	09/30/24
Benzene	ND		6	ug/kg	09/30/24	09/30/24
Bromobenzene	ND		6	ug/kg	09/30/24	09/30/24
Bromochloromethane	ND		6	ug/kg	09/30/24	09/30/24
Bromodichloromethane	ND		6	ug/kg	09/30/24	09/30/24
Bromoform	ND		6	ug/kg	09/30/24	09/30/24
Bromomethane	ND		6	ug/kg	09/30/24	09/30/24
2-Butanone	ND		114	ug/kg	09/30/24	09/30/24
tert-Butyl alcohol	ND		6	ug/kg	09/30/24	09/30/24
sec-Butylbenzene	ND		6	ug/kg	09/30/24	09/30/24
n-Butylbenzene	ND		6	ug/kg	09/30/24	09/30/24
tert-Butylbenzene	ND		6	ug/kg	09/30/24	09/30/24
Methyl t-butyl ether (MTBE)	ND		6	ug/kg	09/30/24	09/30/24
Carbon Disulfide	ND		6	ug/kg	09/30/24	09/30/24
Carbon Tetrachloride	ND		6	ug/kg	09/30/24	09/30/24
Chlorobenzene	ND		6	ug/kg	09/30/24	09/30/24
Chloroethane	ND		6	ug/kg	09/30/24	09/30/24
Chloroform	**15**		6	ug/kg	09/30/24	09/30/24
Chloromethane	ND		6	ug/kg	09/30/24	09/30/24
4-Chlorotoluene	ND		6	ug/kg	09/30/24	09/30/24
2-Chlorotoluene	ND		6	ug/kg	09/30/24	09/30/24
1,2-Dibromo-3-chloropropane (DBCP)	ND		6	ug/kg	09/30/24	09/30/24
Dibromochloromethane	ND		6	ug/kg	09/30/24	09/30/24
1,2-Dibromoethane (EDB)	ND		6	ug/kg	09/30/24	09/30/24
Dibromomethane	ND		6	ug/kg	09/30/24	09/30/24
1,2-Dichlorobenzene	ND		6	ug/kg	09/30/24	09/30/24
1,3-Dichlorobenzene	ND		6	ug/kg	09/30/24	09/30/24
1,4-Dichlorobenzene	ND		6	ug/kg	09/30/24	09/30/24
1,1-Dichloroethane	ND		6	ug/kg	09/30/24	09/30/24
1,2-Dichloroethane	ND		6	ug/kg	09/30/24	09/30/24
1,2 Dichloroethene, Total	ND		6	ug/kg	09/30/24	09/30/24
trans-1,2-Dichloroethene	ND		6	ug/kg	09/30/24	09/30/24
cis-1,2-Dichloroethene	ND		6	ug/kg	09/30/24	09/30/24
1,1-Dichloroethene	ND		6	ug/kg	09/30/24	09/30/24
1,2-Dichloropropane	ND		6	ug/kg	09/30/24	09/30/24
2,2-Dichloropropane	ND		6	ug/kg	09/30/24	09/30/24
cis-1,3-Dichloropropene	ND		6	ug/kg	09/30/24	09/30/24
trans-1,3-Dichloropropene	ND		6	ug/kg	09/30/24	09/30/24
1,1-Dichloropropene	ND		6	ug/kg	09/30/24	09/30/24
1,3-Dichloropropene (cis + trans)	ND		6	ug/kg	09/30/24	09/30/24
Diethyl ether	ND		6	ug/kg	09/30/24	09/30/24
1,4-Dioxane	ND		114	ug/kg	09/30/24	09/30/24
Ethylbenzene	ND		6	ug/kg	09/30/24	09/30/24
Hexachlorobutadiene	ND		6	ug/kg	09/30/24	09/30/24
2-Hexanone	ND		114	ug/kg	09/30/24	09/30/24
Isopropylbenzene	ND		6	ug/kg	09/30/24	09/30/24
p-Isopropyltoluene	ND		6	ug/kg	09/30/24	09/30

Results: Volatile Organic Compounds 8260C (5035-LL) (Continued)

Sample: B6 0-2.5 (Continued)

Lab Number: 4I20011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Methylene Chloride	ND		6	ug/kg	09/30/24	09/30/24
4-Methyl-2-pentanone	ND		114	ug/kg	09/30/24	09/30/24
Naphthalene	ND		6	ug/kg	09/30/24	09/30/24
n-Propylbenzene	ND		6	ug/kg	09/30/24	09/30/24
Styrene	ND		6	ug/kg	09/30/24	09/30/24
1,1,1,2-Tetrachloroethane	ND		6	ug/kg	09/30/24	09/30/24
Tetrachloroethene	ND		6	ug/kg	09/30/24	09/30/24
Tetrahydrofuran	ND		6	ug/kg	09/30/24	09/30/24
Toluene	ND		6	ug/kg	09/30/24	09/30/24
1,2,4-Trichlorobenzene	ND		6	ug/kg	09/30/24	09/30/24
1,2,3-Trichlorobenzene	ND		6	ug/kg	09/30/24	09/30/24
1,1,2-Trichloroethane	ND		6	ug/kg	09/30/24	09/30/24
1,1,1-Trichloroethane	ND		6	ug/kg	09/30/24	09/30/24
Trichloroethene	ND		6	ug/kg	09/30/24	09/30/24
1,2,3-Trichloropropane	ND		6	ug/kg	09/30/24	09/30/24
1,3,5-Trimethylbenzene	ND		6	ug/kg	09/30/24	09/30/24
1,2,4-Trimethylbenzene	ND		6	ug/kg	09/30/24	09/30/24
Vinyl Chloride	ND		6	ug/kg	09/30/24	09/30/24
o-Xylene	ND		6	ug/kg	09/30/24	09/30/24
m&p-Xylene	ND		11	ug/kg	09/30/24	09/30/24
Total xylenes	ND		6	ug/kg	09/30/24	09/30/24
1,1,2,2-Tetrachloroethane	ND		6	ug/kg	09/30/24	09/30/24
tert-Amyl methyl ether	ND		6	ug/kg	09/30/24	09/30/24
1,3-Dichloropropane	ND		6	ug/kg	09/30/24	09/30/24
Ethyl tert-butyl ether	ND		6	ug/kg	09/30/24	09/30/24
Diisopropyl ether	ND		6	ug/kg	09/30/24	09/30/24
Trichlorofluoromethane	ND		6	ug/kg	09/30/24	09/30/24
Dichlorodifluoromethane	ND		6	ug/kg	09/30/24	09/30/24

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*98.2%*	*70-130*	09/30/24	09/30/24
1,2-Dichloroethane-d4	*107%*	*70-130*	09/30/24	09/30/24
Toluene-d8	*99.4%*	*70-130*	09/30/24	09/30/24

Results: Volatile Organic Compounds 8260C (5035-LL)

Sample: B10 7.5-10

Lab Number: 4I20011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		101	ug/kg	09/24/24	09/24/24
Benzene	ND		5	ug/kg	09/24/24	09/24/24
Bromobenzene	ND		5	ug/kg	09/24/24	09/24/24
Bromochloromethane	ND		5	ug/kg	09/24/24	09/24/24
Bromodichloromethane	ND		5	ug/kg	09/24/24	09/24/24
Bromoform	ND		5	ug/kg	09/24/24	09/24/24
Bromomethane	ND		5	ug/kg	09/24/24	09/24/24
2-Butanone	ND		101	ug/kg	09/24/24	09/24/24
tert-Butyl alcohol	ND		5	ug/kg	09/24/24	09/24/24
sec-Butylbenzene	ND		5	ug/kg	09/24/24	09/24/24
n-Butylbenzene	ND		5	ug/kg	09/24/24	09/24/24
tert-Butylbenzene	ND		5	ug/kg	09/24/24	09/24/24
Methyl t-butyl ether (MTBE)	ND		5	ug/kg	09/24/24	09/24/24
Carbon Disulfide	ND		5	ug/kg	09/24/24	09/24/24
Carbon Tetrachloride	ND		5	ug/kg	09/24/24	09/24/24
Chlorobenzene	ND		5	ug/kg	09/24/24	09/24/24
Chloroethane	ND		5	ug/kg	09/24/24	09/24/24
Chloroform	ND		5	ug/kg	09/24/24	09/24/24
Chloromethane	ND		5	ug/kg	09/24/24	09/24/24
4-Chlorotoluene	ND		5	ug/kg	09/24/24	09/24/24
2-Chlorotoluene	ND		5	ug/kg	09/24/24	09/24/24
1,2-Dibromo-3-chloropropane (DBCP)	ND		5	ug/kg	09/24/24	09/24/24
Dibromochloromethane	ND		5	ug/kg	09/24/24	09/24/24
1,2-Dibromoethane (EDB)	ND		5	ug/kg	09/24/24	09/24/24
Dibromomethane	ND		5	ug/kg	09/24/24	09/24/24
1,2-Dichlorobenzene	ND		5	ug/kg	09/24/24	09/24/24
1,3-Dichlorobenzene	ND		5	ug/kg	09/24/24	09/24/24
1,4-Dichlorobenzene	ND		5	ug/kg	09/24/24	09/24/24
1,1-Dichloroethane	ND		5	ug/kg	09/24/24	09/24/24
1,2-Dichloroethane	ND		5	ug/kg	09/24/24	09/24/24
1,2 Dichloroethene, Total	ND		5	ug/kg	09/24/24	09/24/24
trans-1,2-Dichloroethene	ND		5	ug/kg	09/24/24	09/24/24
cis-1,2-Dichloroethene	ND		5	ug/kg	09/24/24	09/24/24
1,1-Dichloroethene	ND		5	ug/kg	09/24/24	09/24/24
1,2-Dichloropropane	ND		5	ug/kg	09/24/24	09/24/24
2,2-Dichloropropane	ND		5	ug/kg	09/24/24	09/24/24
cis-1,3-Dichloropropene	ND		5	ug/kg	09/24/24	09/24/24
trans-1,3-Dichloropropene	ND		5	ug/kg	09/24/24	09/24/24
1,1-Dichloropropene	ND		5	ug/kg	09/24/24	09/24/24
1,3-Dichloropropene (cis + trans)	ND		5	ug/kg	09/24/24	09/24/24
Diethyl ether	ND		5	ug/kg	09/24/24	09/24/24
1,4-Dioxane	ND		101	ug/kg	09/24/24	09/24/24
Ethylbenzene	ND		5	ug/kg	09/24/24	09/24/24
Hexachlorobutadiene	ND		5	ug/kg	09/24/24	09/24/24
2-Hexanone	ND		101	ug/kg	09/24/24	09/24/24
Isopropylbenzene	ND		5	ug/kg	09/24/24	09/24/24
p-Isopropyltoluene	ND		5	ug/kg	09/24/24	09/24

Results: Volatile Organic Compounds 8260C (5035-LL) (Continued)

Sample: B10 7.5-10 (Continued)

Lab Number: 4I20011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Methylene Chloride	ND		5	ug/kg	09/24/24	09/24/24
4-Methyl-2-pentanone	ND		101	ug/kg	09/24/24	09/24/24
Naphthalene	ND		5	ug/kg	09/24/24	09/24/24
n-Propylbenzene	ND		5	ug/kg	09/24/24	09/24/24
Styrene	ND		5	ug/kg	09/24/24	09/24/24
1,1,1,2-Tetrachloroethane	ND		5	ug/kg	09/24/24	09/24/24
Tetrachloroethene	ND		5	ug/kg	09/24/24	09/24/24
Tetrahydrofuran	ND		5	ug/kg	09/24/24	09/24/24
Toluene	ND		5	ug/kg	09/24/24	09/24/24
1,2,4-Trichlorobenzene	ND		5	ug/kg	09/24/24	09/24/24
1,2,3-Trichlorobenzene	ND		5	ug/kg	09/24/24	09/24/24
1,1,2-Trichloroethane	ND		5	ug/kg	09/24/24	09/24/24
1,1,1-Trichloroethane	ND		5	ug/kg	09/24/24	09/24/24
Trichloroethene	ND		5	ug/kg	09/24/24	09/24/24
1,2,3-Trichloropropane	ND		5	ug/kg	09/24/24	09/24/24
1,3,5-Trimethylbenzene	ND		5	ug/kg	09/24/24	09/24/24
1,2,4-Trimethylbenzene	ND		5	ug/kg	09/24/24	09/24/24
Vinyl Chloride	ND		5	ug/kg	09/24/24	09/24/24
o-Xylene	ND		5	ug/kg	09/24/24	09/24/24
m&p-Xylene	ND		10	ug/kg	09/24/24	09/24/24
Total xylenes	ND		5	ug/kg	09/24/24	09/24/24
1,1,2,2-Tetrachloroethane	ND		5	ug/kg	09/24/24	09/24/24
tert-Amyl methyl ether	ND		5	ug/kg	09/24/24	09/24/24
1,3-Dichloropropane	ND		5	ug/kg	09/24/24	09/24/24
Ethyl tert-butyl ether	ND		5	ug/kg	09/24/24	09/24/24
Diisopropyl ether	ND		5	ug/kg	09/24/24	09/24/24
Trichlorofluoromethane	ND		5	ug/kg	09/24/24	09/24/24
Dichlorodifluoromethane	ND		5	ug/kg	09/24/24	09/24/24

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*102%*	*70-130*	09/24/24	09/24/24
1,2-Dichloroethane-d4	*109%*	*70-130*	09/24/24	09/24/24
Toluene-d8	*102%*	*70-130*	09/24/24	09/24/24

Results: Volatile Organic Compounds 8260C (5035-LL)

Sample: B15 7.5-10

Lab Number: 4I20011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		87	ug/kg	09/24/24	09/24/24
Benzene	ND		4	ug/kg	09/24/24	09/24/24
Bromobenzene	ND		4	ug/kg	09/24/24	09/24/24
Bromochloromethane	ND		4	ug/kg	09/24/24	09/24/24
Bromodichloromethane	ND		4	ug/kg	09/24/24	09/24/24
Bromoform	ND		4	ug/kg	09/24/24	09/24/24
Bromomethane	ND		4	ug/kg	09/24/24	09/24/24
2-Butanone	ND		87	ug/kg	09/24/24	09/24/24
tert-Butyl alcohol	ND		4	ug/kg	09/24/24	09/24/24
sec-Butylbenzene	ND		4	ug/kg	09/24/24	09/24/24
n-Butylbenzene	ND		4	ug/kg	09/24/24	09/24/24
tert-Butylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Methyl t-butyl ether (MTBE)	ND		4	ug/kg	09/24/24	09/24/24
Carbon Disulfide	ND		4	ug/kg	09/24/24	09/24/24
Carbon Tetrachloride	ND		4	ug/kg	09/24/24	09/24/24
Chlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
Chloroethane	ND		4	ug/kg	09/24/24	09/24/24
Chloroform	ND		4	ug/kg	09/24/24	09/24/24
Chloromethane	ND		4	ug/kg	09/24/24	09/24/24
4-Chlorotoluene	ND		4	ug/kg	09/24/24	09/24/24
2-Chlorotoluene	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dibromo-3-chloropropane (DBCP)	ND		4	ug/kg	09/24/24	09/24/24
Dibromochloromethane	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dibromoethane (EDB)	ND		4	ug/kg	09/24/24	09/24/24
Dibromomethane	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,3-Dichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,4-Dichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,1-Dichloroethane	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dichloroethane	ND		4	ug/kg	09/24/24	09/24/24
1,2 Dichloroethene, Total	ND		4	ug/kg	09/24/24	09/24/24
trans-1,2-Dichloroethene	ND		4	ug/kg	09/24/24	09/24/24
cis-1,2-Dichloroethene	ND		4	ug/kg	09/24/24	09/24/24
1,1-Dichloroethene	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dichloropropane	ND		4	ug/kg	09/24/24	09/24/24
2,2-Dichloropropane	ND		4	ug/kg	09/24/24	09/24/24
cis-1,3-Dichloropropene	ND		4	ug/kg	09/24/24	09/24/24
trans-1,3-Dichloropropene	ND		4	ug/kg	09/24/24	09/24/24
1,1-Dichloropropene	ND		4	ug/kg	09/24/24	09/24/24
1,3-Dichloropropene (cis + trans)	ND		4	ug/kg	09/24/24	09/24/24
Diethyl ether	ND		4	ug/kg	09/24/24	09/24/24
1,4-Dioxane	ND		87	ug/kg	09/24/24	09/24/24
Ethylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Hexachlorobutadiene	ND		4	ug/kg	09/24/24	09/24/24
2-Hexanone	ND		87	ug/kg	09/24/24	09/24/24
Isopropylbenzene	ND		4	ug/kg	09/24/24	09/24/24
p-Isopropyltoluene	ND		4	ug/kg	09/24/24	09/24/24

Results: Volatile Organic Compounds 8260C (5035-LL) (Continued)

Sample: B15 7.5-10 (Continued)

Lab Number: 4I20011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Methylene Chloride	ND		4	ug/kg	09/24/24	09/24/24
4-Methyl-2-pentanone	ND		87	ug/kg	09/24/24	09/24/24
Naphthalene	ND		4	ug/kg	09/24/24	09/24/24
n-Propylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Styrene	ND		4	ug/kg	09/24/24	09/24/24
1,1,1,2-Tetrachloroethane	ND		4	ug/kg	09/24/24	09/24/24
Tetrachloroethene	ND		4	ug/kg	09/24/24	09/24/24
Tetrahydrofuran	ND		4	ug/kg	09/24/24	09/24/24
Toluene	ND		4	ug/kg	09/24/24	09/24/24
1,2,4-Trichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,2,3-Trichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,1,2-Trichloroethane	ND		4	ug/kg	09/24/24	09/24/24
1,1,1-Trichloroethane	ND		4	ug/kg	09/24/24	09/24/24
Trichloroethene	ND		4	ug/kg	09/24/24	09/24/24
1,2,3-Trichloropropane	ND		4	ug/kg	09/24/24	09/24/24
1,3,5-Trimethylbenzene	ND		4	ug/kg	09/24/24	09/24/24
1,2,4-Trimethylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Vinyl Chloride	ND		4	ug/kg	09/24/24	09/24/24
o-Xylene	ND		4	ug/kg	09/24/24	09/24/24
m&p-Xylene	ND		9	ug/kg	09/24/24	09/24/24
Total xylenes	ND		4	ug/kg	09/24/24	09/24/24
1,1,2,2-Tetrachloroethane	ND		4	ug/kg	09/24/24	09/24/24
tert-Amyl methyl ether	ND		4	ug/kg	09/24/24	09/24/24
1,3-Dichloropropane	ND		4	ug/kg	09/24/24	09/24/24
Ethyl tert-butyl ether	ND		4	ug/kg	09/24/24	09/24/24
Diisopropyl ether	ND		4	ug/kg	09/24/24	09/24/24
Trichlorofluoromethane	ND		4	ug/kg	09/24/24	09/24/24
Dichlorodifluoromethane	ND		4	ug/kg	09/24/24	09/24/24

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*102%*	*70-130*	09/24/24	09/24/24
1,2-Dichloroethane-d4	*109%*	*70-130*	09/24/24	09/24/24
Toluene-d8	*101%*	*70-130*	09/24/24	09/24/24

Results: Volatile Organic Compounds 8260C (5035-LL)

Sample: B14 0-2.5

Lab Number: 4I20011-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		77	ug/kg	09/24/24	09/24/24
Benzene	ND		4	ug/kg	09/24/24	09/24/24
Bromobenzene	ND		4	ug/kg	09/24/24	09/24/24
Bromochloromethane	ND		4	ug/kg	09/24/24	09/24/24
Bromodichloromethane	ND		4	ug/kg	09/24/24	09/24/24
Bromoform	ND		4	ug/kg	09/24/24	09/24/24
Bromomethane	ND		4	ug/kg	09/24/24	09/24/24
2-Butanone	ND		77	ug/kg	09/24/24	09/24/24
tert-Butyl alcohol	ND		4	ug/kg	09/24/24	09/24/24
sec-Butylbenzene	ND		4	ug/kg	09/24/24	09/24/24
n-Butylbenzene	ND		4	ug/kg	09/24/24	09/24/24
tert-Butylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Methyl t-butyl ether (MTBE)	ND		4	ug/kg	09/24/24	09/24/24
Carbon Disulfide	ND		4	ug/kg	09/24/24	09/24/24
Carbon Tetrachloride	ND		4	ug/kg	09/24/24	09/24/24
Chlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
Chloroethane	ND		4	ug/kg	09/24/24	09/24/24
Chloroform	ND		4	ug/kg	09/24/24	09/24/24
Chloromethane	ND		4	ug/kg	09/24/24	09/24/24
4-Chlorotoluene	ND		4	ug/kg	09/24/24	09/24/24
2-Chlorotoluene	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dibromo-3-chloropropane (DBCP)	ND		4	ug/kg	09/24/24	09/24/24
Dibromochloromethane	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dibromoethane (EDB)	ND		4	ug/kg	09/24/24	09/24/24
Dibromomethane	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,3-Dichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,4-Dichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,1-Dichloroethane	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dichloroethane	ND		4	ug/kg	09/24/24	09/24/24
1,2 Dichloroethene, Total	ND		4	ug/kg	09/24/24	09/24/24
trans-1,2-Dichloroethene	ND		4	ug/kg	09/24/24	09/24/24
cis-1,2-Dichloroethene	ND		4	ug/kg	09/24/24	09/24/24
1,1-Dichloroethene	ND		4	ug/kg	09/24/24	09/24/24
1,2-Dichloropropane	ND		4	ug/kg	09/24/24	09/24/24
2,2-Dichloropropane	ND		4	ug/kg	09/24/24	09/24/24
cis-1,3-Dichloropropene	ND		4	ug/kg	09/24/24	09/24/24
trans-1,3-Dichloropropene	ND		4	ug/kg	09/24/24	09/24/24
1,1-Dichloropropene	ND		4	ug/kg	09/24/24	09/24/24
1,3-Dichloropropene (cis + trans)	ND		4	ug/kg	09/24/24	09/24/24
Diethyl ether	ND		4	ug/kg	09/24/24	09/24/24
1,4-Dioxane	ND		77	ug/kg	09/24/24	09/24/24
Ethylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Hexachlorobutadiene	ND		4	ug/kg	09/24/24	09/24/24
2-Hexanone	ND		77	ug/kg	09/24/24	09/24/24
Isopropylbenzene	ND		4	ug/kg	09/24/24	09/24/24
p-Isopropyltoluene	ND		4	ug/kg	09/24/24	09/24

Results: Volatile Organic Compounds 8260C (5035-LL) (Continued)

Sample: B14 0-2.5 (Continued)

Lab Number: 4I20011-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Methylene Chloride	ND		4	ug/kg	09/24/24	09/24/24
4-Methyl-2-pentanone	ND		77	ug/kg	09/24/24	09/24/24
Naphthalene	ND		4	ug/kg	09/24/24	09/24/24
n-Propylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Styrene	ND		4	ug/kg	09/24/24	09/24/24
1,1,1,2-Tetrachloroethane	ND		4	ug/kg	09/24/24	09/24/24
Tetrachloroethene	ND		4	ug/kg	09/24/24	09/24/24
Tetrahydrofuran	ND		4	ug/kg	09/24/24	09/24/24
Toluene	ND		4	ug/kg	09/24/24	09/24/24
1,2,4-Trichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,2,3-Trichlorobenzene	ND		4	ug/kg	09/24/24	09/24/24
1,1,2-Trichloroethane	ND		4	ug/kg	09/24/24	09/24/24
1,1,1-Trichloroethane	ND		4	ug/kg	09/24/24	09/24/24
Trichloroethene	ND		4	ug/kg	09/24/24	09/24/24
1,2,3-Trichloropropane	ND		4	ug/kg	09/24/24	09/24/24
1,3,5-Trimethylbenzene	ND		4	ug/kg	09/24/24	09/24/24
1,2,4-Trimethylbenzene	ND		4	ug/kg	09/24/24	09/24/24
Vinyl Chloride	ND		4	ug/kg	09/24/24	09/24/24
o-Xylene	ND		4	ug/kg	09/24/24	09/24/24
m&p-Xylene	ND		8	ug/kg	09/24/24	09/24/24
Total xylenes	ND		4	ug/kg	09/24/24	09/24/24
1,1,2,2-Tetrachloroethane	ND		4	ug/kg	09/24/24	09/24/24
tert-Amyl methyl ether	ND		4	ug/kg	09/24/24	09/24/24
1,3-Dichloropropane	ND		4	ug/kg	09/24/24	09/24/24
Ethyl tert-butyl ether	ND		4	ug/kg	09/24/24	09/24/24
Diisopropyl ether	ND		4	ug/kg	09/24/24	09/24/24
Trichlorofluoromethane	ND		4	ug/kg	09/24/24	09/24/24
Dichlorodifluoromethane	ND		4	ug/kg	09/24/24	09/24/24

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*98.8%*	*70-130*	09/24/24	09/24/24
1,2-Dichloroethane-d4	*109%*	*70-130*	09/24/24	09/24/24
Toluene-d8	*100%*	*70-130*	09/24/24	09/24/24

Results: Semivolatile organic compounds

Sample: B1-B6 Comp

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
1,2,4-Trichlorobenzene	ND		138	ug/kg	09/27/24	10/01/24
1,2-Dichlorobenzene	ND		138	ug/kg	09/27/24	10/01/24
1,3-Dichlorobenzene	ND		138	ug/kg	09/27/24	10/01/24
1,4-Dichlorobenzene	ND		138	ug/kg	09/27/24	10/01/24
Phenol	ND		138	ug/kg	09/27/24	10/01/24
2,4,5-Trichlorophenol	ND		138	ug/kg	09/27/24	10/01/24
2,4,6-Trichlorophenol	ND		138	ug/kg	09/27/24	10/01/24
2,4-Dichlorophenol	ND		138	ug/kg	09/27/24	10/01/24
2,4-Dimethylphenol	ND		350	ug/kg	09/27/24	10/01/24
2,4-Dinitrophenol	ND		350	ug/kg	09/27/24	10/01/24
2,4-Dinitrotoluene	ND		138	ug/kg	09/27/24	10/01/24
2,6-Dinitrotoluene	ND		138	ug/kg	09/27/24	10/01/24
2-Chloronaphthalene	ND		138	ug/kg	09/27/24	10/01/24
2-Chlorophenol	ND		138	ug/kg	09/27/24	10/01/24
2-Methylnaphthalene	ND		138	ug/kg	09/27/24	10/01/24
Nitrobenzene	ND		138	ug/kg	09/27/24	10/01/24
2-Methylphenol	ND		138	ug/kg	09/27/24	10/01/24
2-Nitroaniline	ND		138	ug/kg	09/27/24	10/01/24
2-Nitrophenol	ND		350	ug/kg	09/27/24	10/01/24
3,3'-Dichlorobenzidine	ND		350	ug/kg	09/27/24	10/01/24
3-Nitroaniline	ND		138	ug/kg	09/27/24	10/01/24
4,6-Dinitro-2-methylphenol	ND		350	ug/kg	09/27/24	10/01/24
4-Bromophenyl phenyl ether	ND		138	ug/kg	09/27/24	10/01/24
4-Chloro-3-methylphenol	ND		138	ug/kg	09/27/24	10/01/24
4-Chloroaniline	ND		138	ug/kg	09/27/24	10/01/24
4-Chlorophenyl phenyl ether	ND		138	ug/kg	09/27/24	10/01/24
4-Nitroaniline	ND		138	ug/kg	09/27/24	10/01/24
4-Nitrophenol	ND		350	ug/kg	09/27/24	10/01/24
Acenaphthene	ND		138	ug/kg	09/27/24	10/01/24
Acenaphthylene	ND		138	ug/kg	09/27/24	10/01/24
Aniline	ND		138	ug/kg	09/27/24	10/01/24
Anthracene	ND		138	ug/kg	09/27/24	10/01/24
Benzo(a)anthracene	**254**		138	ug/kg	09/27/24	10/01/24
Benzo(a)pyrene	**246**		138	ug/kg	09/27/24	10/01/24
Benzo(b)fluoranthene	**336**		138	ug/kg	09/27/24	10/01/24
Benzo(g,h,i)perylene	**154**		138	ug/kg	09/27/24	10/01/24
Benzo(k)fluoranthene	ND		138	ug/kg	09/27/24	10/01/24
Benzoic acid	ND		1060	ug/kg	09/27/24	10/01/24
Biphenyl	ND		21	ug/kg	09/27/24	10/01/24
Bis(2-chloroethoxy)methane	ND		138	ug/kg	09/27/24	10/01/24
Bis(2-chloroethyl)ether	ND		138	ug/kg	09/27/24	10/01/24
Bis(2-chloroisopropyl)ether	ND		138	ug/kg	09/27/24	10/01/24
Bis(2-ethylhexyl)phthalate	ND		425	ug/kg	09/27/24	10/01/24
Butyl benzyl phthalate	ND		138	ug/kg	09/27/24	10/01/24
Chrysene	**277**		138	ug/kg	09/27/24	10/01/24
Di-n-octyl phthalate	ND		212	ug/kg	09/27/24	10/01/24
Dibenz(a,h)anthracene	ND		138	ug/kg	09/27/24	10/01/24

Results: Semivolatile organic compounds (Continued)

Sample: B1-B6 Comp (Continued)

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dibenzofuran	ND		138	ug/kg	09/27/24	10/01/24
Diethyl phthalate	ND		138	ug/kg	09/27/24	10/01/24
Dimethyl phthalate	ND		350	ug/kg	09/27/24	10/01/24
Di-n-butyl phthalate	ND		212	ug/kg	09/27/24	10/01/24
Fluoranthene	**476**		138	ug/kg	09/27/24	10/01/24
Fluorene	ND		138	ug/kg	09/27/24	10/01/24
Hexachlorobenzene	ND		138	ug/kg	09/27/24	10/01/24
Hexachlorobutadiene	ND		138	ug/kg	09/27/24	10/01/24
Hexachlorocyclopentadiene	ND		350	ug/kg	09/27/24	10/01/24
Hexachloroethane	ND		138	ug/kg	09/27/24	10/01/24
Indeno(1,2,3-cd)pyrene	**159**		138	ug/kg	09/27/24	10/01/24
Isophorone	ND		138	ug/kg	09/27/24	10/01/24
Naphthalene	ND		138	ug/kg	09/27/24	10/01/24
N-Nitrosodimethylamine	ND		138	ug/kg	09/27/24	10/01/24
N-Nitrosodi-n-propylamine	ND		138	ug/kg	09/27/24	10/01/24
N-Nitrosodiphenylamine	ND		138	ug/kg	09/27/24	10/01/24
Pentachlorophenol	ND		350	ug/kg	09/27/24	10/01/24
Phenanthrene	**280**		138	ug/kg	09/27/24	10/01/24
Pyrene	**419**		138	ug/kg	09/27/24	10/01/24
m&p-Cresol	ND		276	ug/kg	09/27/24	10/01/24
Pyridine	ND		138	ug/kg	09/27/24	10/01/24
Azobenzene	ND		138	ug/kg	09/27/24	10/01/24
Total Dichlorobenzene	ND		138	ug/kg	09/27/24	10/01/24

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*65.7%*	*30-126*	09/27/24	10/01/24
p-Terphenyl-d14	*81.2%*	*47-130*	09/27/24	10/01/24
2-Fluorobiphenyl	*66.9%*	*34-130*	09/27/24	10/01/24
Phenol-d6	*64.5%*	*30-130*	09/27/24	10/01/24
2,4,6-Tribromophenol	*79.4%*	*30-130*	09/27/24	10/01/24
2-Fluorophenol	*59.1%*	*30-130*	09/27/24	10/01/24

Results: Semivolatile organic compounds

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
1,2,4-Trichlorobenzene	ND		137	ug/kg	09/27/24	10/02/24
1,2-Dichlorobenzene	ND		137	ug/kg	09/27/24	10/02/24
1,3-Dichlorobenzene	ND		137	ug/kg	09/27/24	10/02/24
1,4-Dichlorobenzene	ND		137	ug/kg	09/27/24	10/02/24
Phenol	ND		137	ug/kg	09/27/24	10/02/24
2,4,5-Trichlorophenol	ND		137	ug/kg	09/27/24	10/02/24
2,4,6-Trichlorophenol	ND		137	ug/kg	09/27/24	10/02/24
2,4-Dichlorophenol	ND		137	ug/kg	09/27/24	10/02/24
2,4-Dimethylphenol	ND		349	ug/kg	09/27/24	10/02/24
2,4-Dinitrophenol	ND		349	ug/kg	09/27/24	10/02/24
2,4-Dinitrotoluene	ND		137	ug/kg	09/27/24	10/02/24
2,6-Dinitrotoluene	ND		137	ug/kg	09/27/24	10/02/24
2-Chloronaphthalene	ND		137	ug/kg	09/27/24	10/02/24
2-Chlorophenol	ND		137	ug/kg	09/27/24	10/02/24
2-Methylnaphthalene	ND		137	ug/kg	09/27/24	10/02/24
Nitrobenzene	ND		137	ug/kg	09/27/24	10/02/24
2-Methylphenol	ND		137	ug/kg	09/27/24	10/02/24
2-Nitroaniline	ND		137	ug/kg	09/27/24	10/02/24
2-Nitrophenol	ND		349	ug/kg	09/27/24	10/02/24
3,3'-Dichlorobenzidine	ND		349	ug/kg	09/27/24	10/02/24
3-Nitroaniline	ND		137	ug/kg	09/27/24	10/02/24
4,6-Dinitro-2-methylphenol	ND		349	ug/kg	09/27/24	10/02/24
4-Bromophenyl phenyl ether	ND		137	ug/kg	09/27/24	10/02/24
4-Chloro-3-methylphenol	ND		137	ug/kg	09/27/24	10/02/24
4-Chloroaniline	ND		137	ug/kg	09/27/24	10/02/24
4-Chlorophenyl phenyl ether	ND		137	ug/kg	09/27/24	10/02/24
4-Nitroaniline	ND		137	ug/kg	09/27/24	10/02/24
4-Nitrophenol	ND		349	ug/kg	09/27/24	10/02/24
Acenaphthene	ND		137	ug/kg	09/27/24	10/02/24
Acenaphthylene	ND		137	ug/kg	09/27/24	10/02/24
Aniline	ND		137	ug/kg	09/27/24	10/02/24
Anthracene	ND		137	ug/kg	09/27/24	10/02/24
Benzo(a)anthracene	**209**		137	ug/kg	09/27/24	10/02/24
Benzo(a)pyrene	**209**		137	ug/kg	09/27/24	10/02/24
Benzo(b)fluoranthene	**263**		137	ug/kg	09/27/24	10/02/24
Benzo(g,h,i)perylene	ND		137	ug/kg	09/27/24	10/02/24
Benzo(k)fluoranthene	ND		137	ug/kg	09/27/24	10/02/24
Benzoic acid	ND		1060	ug/kg	09/27/24	10/02/24
Biphenyl	ND		21	ug/kg	09/27/24	10/02/24
Bis(2-chloroethoxy)methane	ND		137	ug/kg	09/27/24	10/02/24
Bis(2-chloroethyl)ether	ND		137	ug/kg	09/27/24	10/02/24
Bis(2-chloroisopropyl)ether	ND		137	ug/kg	09/27/24	10/02/24
Bis(2-ethylhexyl)phthalate	ND		423	ug/kg	09/27/24	10/02/24
Butyl benzyl phthalate	ND		137	ug/kg	09/27/24	10/02/24
Chrysene	**205**		137	ug/kg	09/27/24	10/02/24
Di-n-octyl phthalate	ND		211	ug/kg	09/27/24	10/02/24
Dibenz(a,h)anthracene	ND		137	ug/kg	09/27/24	10/02/24

Results: Semivolatile organic compounds (Continued)

Sample: B7-B12 Comp (Continued)

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dibenzofuran	ND		137	ug/kg	09/27/24	10/02/24
Diethyl phthalate	ND		137	ug/kg	09/27/24	10/02/24
Dimethyl phthalate	ND		349	ug/kg	09/27/24	10/02/24
Di-n-butyl phthalate	ND		211	ug/kg	09/27/24	10/02/24
Fluoranthene	**447**		137	ug/kg	09/27/24	10/02/24
Fluorene	ND		137	ug/kg	09/27/24	10/02/24
Hexachlorobenzene	ND		137	ug/kg	09/27/24	10/02/24
Hexachlorobutadiene	ND		137	ug/kg	09/27/24	10/02/24
Hexachlorocyclopentadiene	ND		349	ug/kg	09/27/24	10/02/24
Hexachloroethane	ND		137	ug/kg	09/27/24	10/02/24
Indeno(1,2,3-cd)pyrene	**139**		137	ug/kg	09/27/24	10/02/24
Isophorone	ND		137	ug/kg	09/27/24	10/02/24
Naphthalene	ND		137	ug/kg	09/27/24	10/02/24
N-Nitrosodimethylamine	ND		137	ug/kg	09/27/24	10/02/24
N-Nitrosodi-n-propylamine	ND		137	ug/kg	09/27/24	10/02/24
N-Nitrosodiphenylamine	ND		137	ug/kg	09/27/24	10/02/24
Pentachlorophenol	ND		349	ug/kg	09/27/24	10/02/24
Phenanthrene	**313**		137	ug/kg	09/27/24	10/02/24
Pyrene	**394**		137	ug/kg	09/27/24	10/02/24
m&p-Cresol	ND		275	ug/kg	09/27/24	10/02/24
Pyridine	ND		137	ug/kg	09/27/24	10/02/24
Azobenzene	ND		137	ug/kg	09/27/24	10/02/24
Total Dichlorobenzene	ND		137	ug/kg	09/27/24	10/02/24

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*53.8%*	*30-126*	09/27/24	10/02/24
p-Terphenyl-d14	*66.8%*	*47-130*	09/27/24	10/02/24
2-Fluorobiphenyl	*55.1%*	*34-130*	09/27/24	10/02/24
Phenol-d6	*53.0%*	*30-130*	09/27/24	10/02/24
2,4,6-Tribromophenol	*63.7%*	*30-130*	09/27/24	10/02/24
2-Fluorophenol	*47.2%*	*30-130*	09/27/24	10/02/24

Results: Semivolatile organic compounds

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
1,2,4-Trichlorobenzene	ND		136	ug/kg	09/27/24	10/02/24
1,2-Dichlorobenzene	ND		136	ug/kg	09/27/24	10/02/24
1,3-Dichlorobenzene	ND		136	ug/kg	09/27/24	10/02/24
1,4-Dichlorobenzene	ND		136	ug/kg	09/27/24	10/02/24
Phenol	ND		136	ug/kg	09/27/24	10/02/24
2,4,5-Trichlorophenol	ND		136	ug/kg	09/27/24	10/02/24
2,4,6-Trichlorophenol	ND		136	ug/kg	09/27/24	10/02/24
2,4-Dichlorophenol	ND		136	ug/kg	09/27/24	10/02/24
2,4-Dimethylphenol	ND		344	ug/kg	09/27/24	10/02/24
2,4-Dinitrophenol	ND		344	ug/kg	09/27/24	10/02/24
2,4-Dinitrotoluene	ND		136	ug/kg	09/27/24	10/02/24
2,6-Dinitrotoluene	ND		136	ug/kg	09/27/24	10/02/24
2-Chloronaphthalene	ND		136	ug/kg	09/27/24	10/02/24
2-Chlorophenol	ND		136	ug/kg	09/27/24	10/02/24
2-Methylnaphthalene	ND		136	ug/kg	09/27/24	10/02/24
Nitrobenzene	ND		136	ug/kg	09/27/24	10/02/24
2-Methylphenol	ND		136	ug/kg	09/27/24	10/02/24
2-Nitroaniline	ND		136	ug/kg	09/27/24	10/02/24
2-Nitrophenol	ND		344	ug/kg	09/27/24	10/02/24
3,3'-Dichlorobenzidine	ND		344	ug/kg	09/27/24	10/02/24
3-Nitroaniline	ND		136	ug/kg	09/27/24	10/02/24
4,6-Dinitro-2-methylphenol	ND		344	ug/kg	09/27/24	10/02/24
4-Bromophenyl phenyl ether	ND		136	ug/kg	09/27/24	10/02/24
4-Chloro-3-methylphenol	ND		136	ug/kg	09/27/24	10/02/24
4-Chloroaniline	ND		136	ug/kg	09/27/24	10/02/24
4-Chlorophenyl phenyl ether	ND		136	ug/kg	09/27/24	10/02/24
4-Nitroaniline	ND		136	ug/kg	09/27/24	10/02/24
4-Nitrophenol	ND		344	ug/kg	09/27/24	10/02/24
Acenaphthene	ND		136	ug/kg	09/27/24	10/02/24
Acenaphthylene	ND		136	ug/kg	09/27/24	10/02/24
Aniline	ND		136	ug/kg	09/27/24	10/02/24
Anthracene	ND		136	ug/kg	09/27/24	10/02/24
Benzo(a)anthracene	ND		136	ug/kg	09/27/24	10/02/24
Benzo(a)pyrene	ND		136	ug/kg	09/27/24	10/02/24
Benzo(b)fluoranthene	ND		136	ug/kg	09/27/24	10/02/24
Benzo(g,h,i)perylene	ND		136	ug/kg	09/27/24	10/02/24
Benzo(k)fluoranthene	ND		136	ug/kg	09/27/24	10/02/24
Benzoic acid	ND		1040	ug/kg	09/27/24	10/02/24
Biphenyl	ND		21	ug/kg	09/27/24	10/02/24
Bis(2-chloroethoxy)methane	ND		136	ug/kg	09/27/24	10/02/24
Bis(2-chloroethyl)ether	ND		136	ug/kg	09/27/24	10/02/24
Bis(2-chloroisopropyl)ether	ND		136	ug/kg	09/27/24	10/02/24
Bis(2-ethylhexyl)phthalate	ND		417	ug/kg	09/27/24	10/02/24
Butyl benzyl phthalate	ND		136	ug/kg	09/27/24	10/02/24
Chrysene	ND		136	ug/kg	09/27/24	10/02/24
Di-n-octyl phthalate	ND		209	ug/kg	09/27/24	10/02/24
Dibenz(a,h)anthracene	ND		136	ug/kg	09/27/24	10/02/24

Results: Semivolatile organic compounds (Continued)

Sample: B13-B14 Comp (Continued)

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dibenzofuran	ND		136	ug/kg	09/27/24	10/02/24
Diethyl phthalate	ND		136	ug/kg	09/27/24	10/02/24
Dimethyl phthalate	ND		344	ug/kg	09/27/24	10/02/24
Di-n-butyl phthalate	ND		209	ug/kg	09/27/24	10/02/24
Fluoranthene	ND		136	ug/kg	09/27/24	10/02/24
Fluorene	ND		136	ug/kg	09/27/24	10/02/24
Hexachlorobenzene	ND		136	ug/kg	09/27/24	10/02/24
Hexachlorobutadiene	ND		136	ug/kg	09/27/24	10/02/24
Hexachlorocyclopentadiene	ND		344	ug/kg	09/27/24	10/02/24
Hexachloroethane	ND		136	ug/kg	09/27/24	10/02/24
Indeno(1,2,3-cd)pyrene	ND		136	ug/kg	09/27/24	10/02/24
Isophorone	ND		136	ug/kg	09/27/24	10/02/24
Naphthalene	ND		136	ug/kg	09/27/24	10/02/24
N-Nitrosodimethylamine	ND		136	ug/kg	09/27/24	10/02/24
N-Nitrosodi-n-propylamine	ND		136	ug/kg	09/27/24	10/02/24
N-Nitrosodiphenylamine	ND		136	ug/kg	09/27/24	10/02/24
Pentachlorophenol	ND		344	ug/kg	09/27/24	10/02/24
Phenanthrene	ND		136	ug/kg	09/27/24	10/02/24
Pyrene	ND		136	ug/kg	09/27/24	10/02/24
m&p-Cresol	ND		271	ug/kg	09/27/24	10/02/24
Pyridine	ND		136	ug/kg	09/27/24	10/02/24
Azobenzene	ND		136	ug/kg	09/27/24	10/02/24
Total Dichlorobenzene	ND		136	ug/kg	09/27/24	10/02/24

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*38.4%*	*30-126*	09/27/24	10/02/24
p-Terphenyl-d14	*54.0%*	*47-130*	09/27/24	10/02/24
2-Fluorobiphenyl	*41.5%*	*34-130*	09/27/24	10/02/24
Phenol-d6	*39.4%*	*30-130*	09/27/24	10/02/24
2,4,6-Tribromophenol	*50.4%*	*30-130*	09/27/24	10/02/24
2-Fluorophenol	*34.9%*	*30-130*	09/27/24	10/02/24

Results: Semivolatile organic compounds

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
1,2,4-Trichlorobenzene	ND		139	ug/kg	09/27/24	10/01/24
1,2-Dichlorobenzene	ND		139	ug/kg	09/27/24	10/01/24
1,3-Dichlorobenzene	ND		139	ug/kg	09/27/24	10/01/24
1,4-Dichlorobenzene	ND		139	ug/kg	09/27/24	10/01/24
Phenol	ND		139	ug/kg	09/27/24	10/01/24
2,4,5-Trichlorophenol	ND		139	ug/kg	09/27/24	10/01/24
2,4,6-Trichlorophenol	ND		139	ug/kg	09/27/24	10/01/24
2,4-Dichlorophenol	ND		139	ug/kg	09/27/24	10/01/24
2,4-Dimethylphenol	ND		352	ug/kg	09/27/24	10/01/24
2,4-Dinitrophenol	ND		352	ug/kg	09/27/24	10/01/24
2,4-Dinitrotoluene	ND		139	ug/kg	09/27/24	10/01/24
2,6-Dinitrotoluene	ND		139	ug/kg	09/27/24	10/01/24
2-Chloronaphthalene	ND		139	ug/kg	09/27/24	10/01/24
2-Chlorophenol	ND		139	ug/kg	09/27/24	10/01/24
2-Methylnaphthalene	ND		139	ug/kg	09/27/24	10/01/24
Nitrobenzene	ND		139	ug/kg	09/27/24	10/01/24
2-Methylphenol	ND		139	ug/kg	09/27/24	10/01/24
2-Nitroaniline	ND		139	ug/kg	09/27/24	10/01/24
2-Nitrophenol	ND		352	ug/kg	09/27/24	10/01/24
3,3'-Dichlorobenzidine	ND		352	ug/kg	09/27/24	10/01/24
3-Nitroaniline	ND		139	ug/kg	09/27/24	10/01/24
4,6-Dinitro-2-methylphenol	ND		352	ug/kg	09/27/24	10/01/24
4-Bromophenyl phenyl ether	ND		139	ug/kg	09/27/24	10/01/24
4-Chloro-3-methylphenol	ND		139	ug/kg	09/27/24	10/01/24
4-Chloroaniline	ND		139	ug/kg	09/27/24	10/01/24
4-Chlorophenyl phenyl ether	ND		139	ug/kg	09/27/24	10/01/24
4-Nitroaniline	ND		139	ug/kg	09/27/24	10/01/24
4-Nitrophenol	ND		352	ug/kg	09/27/24	10/01/24
Acenaphthene	ND		139	ug/kg	09/27/24	10/01/24
Acenaphthylene	ND		139	ug/kg	09/27/24	10/01/24
Aniline	ND		139	ug/kg	09/27/24	10/01/24
Anthracene	ND		139	ug/kg	09/27/24	10/01/24
Benzo(a)anthracene	ND		139	ug/kg	09/27/24	10/01/24
Benzo(a)pyrene	ND		139	ug/kg	09/27/24	10/01/24
Benzo(b)fluoranthene	ND		139	ug/kg	09/27/24	10/01/24
Benzo(g,h,i)perylene	ND		139	ug/kg	09/27/24	10/01/24
Benzo(k)fluoranthene	ND		139	ug/kg	09/27/24	10/01/24
Benzoic acid	ND		1070	ug/kg	09/27/24	10/01/24
Biphenyl	ND		21	ug/kg	09/27/24	10/01/24
Bis(2-chloroethoxy)methane	ND		139	ug/kg	09/27/24	10/01/24
Bis(2-chloroethyl)ether	ND		139	ug/kg	09/27/24	10/01/24
Bis(2-chloroisopropyl)ether	ND		139	ug/kg	09/27/24	10/01/24
Bis(2-ethylhexyl)phthalate	ND		427	ug/kg	09/27/24	10/01/24
Butyl benzyl phthalate	ND		139	ug/kg	09/27/24	10/01/24
Chrysene	ND		139	ug/kg	09/27/24	10/01/24
Di-n-octyl phthalate	ND		213	ug/kg	09/27/24	10/01/24
Dibenz(a,h)anthracene	ND		139	ug/kg	09/27/24	10/01/24

Results: Semivolatile organic compounds (Continued)

Sample: B15-B16 Comp (Continued)

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dibenzofuran	ND		139	ug/kg	09/27/24	10/01/24
Diethyl phthalate	ND		139	ug/kg	09/27/24	10/01/24
Dimethyl phthalate	ND		352	ug/kg	09/27/24	10/01/24
Di-n-butyl phthalate	ND		213	ug/kg	09/27/24	10/01/24
Fluoranthene	ND		139	ug/kg	09/27/24	10/01/24
Fluorene	ND		139	ug/kg	09/27/24	10/01/24
Hexachlorobenzene	ND		139	ug/kg	09/27/24	10/01/24
Hexachlorobutadiene	ND		139	ug/kg	09/27/24	10/01/24
Hexachlorocyclopentadiene	ND		352	ug/kg	09/27/24	10/01/24
Hexachloroethane	ND		139	ug/kg	09/27/24	10/01/24
Indeno(1,2,3-cd)pyrene	ND		139	ug/kg	09/27/24	10/01/24
Isophorone	ND		139	ug/kg	09/27/24	10/01/24
Naphthalene	ND		139	ug/kg	09/27/24	10/01/24
N-Nitrosodimethylamine	ND		139	ug/kg	09/27/24	10/01/24
N-Nitrosodi-n-propylamine	ND		139	ug/kg	09/27/24	10/01/24
N-Nitrosodiphenylamine	ND		139	ug/kg	09/27/24	10/01/24
Pentachlorophenol	ND		352	ug/kg	09/27/24	10/01/24
Phenanthrene	ND		139	ug/kg	09/27/24	10/01/24
Pyrene	ND		139	ug/kg	09/27/24	10/01/24
m&p-Cresol	ND		277	ug/kg	09/27/24	10/01/24
Pyridine	ND		139	ug/kg	09/27/24	10/01/24
Azobenzene	ND		139	ug/kg	09/27/24	10/01/24
Total Dichlorobenzene	ND		139	ug/kg	09/27/24	10/01/24

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*69.3%*	*30-126*	09/27/24	10/01/24
p-Terphenyl-d14	*76.3%*	*47-130*	09/27/24	10/01/24
2-Fluorobiphenyl	*66.7%*	*34-130*	09/27/24	10/01/24
Phenol-d6	*67.5%*	*30-130*	09/27/24	10/01/24
2,4,6-Tribromophenol	*79.9%*	*30-130*	09/27/24	10/01/24
2-Fluorophenol	*63.1%*	*30-130*	09/27/24	10/01/24

Results: Pesticides

Sample: B1-B6 Comp

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
alpha-BHC	ND		1.70	ug/kg	09/27/24	10/02/24
gamma-BHC (Lindane)	ND		1.70	ug/kg	09/27/24	10/02/24
beta-BHC	ND		1.70	ug/kg	09/27/24	10/02/24
delta-BHC	ND		1.70	ug/kg	09/27/24	10/02/24
Heptachlor	ND		1.70	ug/kg	09/27/24	10/02/24
Aldrin	ND		1.70	ug/kg	09/27/24	10/02/24
Heptachlor epoxide	ND		1.70	ug/kg	09/27/24	10/02/24
gamma-Chlordane	ND		1.70	ug/kg	09/27/24	10/02/24
alpha-Chlordane	ND		1.70	ug/kg	09/27/24	10/02/24
Chlordane	ND		17.0	ug/kg	09/27/24	10/02/24
4,4'-DDE	ND		3.40	ug/kg	09/27/24	10/02/24
Endosulfan I	ND		1.70	ug/kg	09/27/24	10/02/24
Dieldrin	ND		1.70	ug/kg	09/27/24	10/02/24
Endrin	ND		1.70	ug/kg	09/27/24	10/02/24
4,4'-DDD	ND		3.40	ug/kg	09/27/24	10/02/24
Endosulfan II	ND		1.70	ug/kg	09/27/24	10/02/24
Endrin aldehyde	ND		1.70	ug/kg	09/27/24	10/02/24
4,4'-DDT	ND		3.40	ug/kg	09/27/24	10/02/24
Methoxychlor	ND		3.40	ug/kg	09/27/24	10/02/24
Endosulfan sulfate	ND		1.70	ug/kg	09/27/24	10/02/24
Endrin Ketone	ND		1.70	ug/kg	09/27/24	10/02/24
Endosulfan (I & II)	ND		1.70	ug/kg	09/27/24	10/02/24
Toxaphene	ND		17.0	ug/kg	09/27/24	10/02/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*40.4%*	*30-106*	09/27/24	10/02/24
Decachlorobiphenyl (DCBP)	*47.1%*	*32-110*	09/27/24	10/02/24

Results: Pesticides

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
alpha-BHC	ND		1.67	ug/kg	09/27/24	10/02/24
gamma-BHC (Lindane)	ND		1.67	ug/kg	09/27/24	10/02/24
beta-BHC	ND		1.67	ug/kg	09/27/24	10/02/24
delta-BHC	ND		1.67	ug/kg	09/27/24	10/02/24
Heptachlor	ND		1.67	ug/kg	09/27/24	10/02/24
Aldrin	ND		1.67	ug/kg	09/27/24	10/02/24
Heptachlor epoxide	ND		1.67	ug/kg	09/27/24	10/02/24
gamma-Chlordane	ND		1.67	ug/kg	09/27/24	10/02/24
alpha-Chlordane	ND		1.67	ug/kg	09/27/24	10/02/24
Chlordane	ND		16.7	ug/kg	09/27/24	10/02/24
4,4'-DDE	ND		3.32	ug/kg	09/27/24	10/02/24
Endosulfan I	ND		1.67	ug/kg	09/27/24	10/02/24
Dieldrin	ND		1.67	ug/kg	09/27/24	10/02/24
Endrin	ND		1.67	ug/kg	09/27/24	10/02/24
4,4'-DDD	ND		3.32	ug/kg	09/27/24	10/02/24
Endosulfan II	ND		1.67	ug/kg	09/27/24	10/02/24
Endrin aldehyde	ND		1.67	ug/kg	09/27/24	10/02/24
4,4'-DDT	ND		3.32	ug/kg	09/27/24	10/02/24
Methoxychlor	ND		3.32	ug/kg	09/27/24	10/02/24
Endosulfan sulfate	ND		1.67	ug/kg	09/27/24	10/02/24
Endrin Ketone	ND		1.67	ug/kg	09/27/24	10/02/24
Endosulfan (I & II)	ND		1.67	ug/kg	09/27/24	10/02/24
Toxaphene	ND		16.7	ug/kg	09/27/24	10/02/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*32.3%*	*30-106*	09/27/24	10/02/24
Decachlorobiphenyl (DCBP)	*46.8%*	*32-110*	09/27/24	10/02/24

Results: Pesticides

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
alpha-BHC	ND		1.67	ug/kg	09/27/24	10/01/24
gamma-BHC (Lindane)	ND		1.67	ug/kg	09/27/24	10/01/24
beta-BHC	ND		1.67	ug/kg	09/27/24	10/01/24
delta-BHC	ND		1.67	ug/kg	09/27/24	10/01/24
Heptachlor	ND		1.67	ug/kg	09/27/24	10/01/24
Aldrin	ND		1.67	ug/kg	09/27/24	10/01/24
Heptachlor epoxide	ND		1.67	ug/kg	09/27/24	10/01/24
gamma-Chlordane	ND		1.67	ug/kg	09/27/24	10/01/24
alpha-Chlordane	ND		1.67	ug/kg	09/27/24	10/01/24
Chlordane	ND		16.7	ug/kg	09/27/24	10/01/24
4,4'-DDE	ND		3.33	ug/kg	09/27/24	10/01/24
Endosulfan I	ND		1.67	ug/kg	09/27/24	10/01/24
Dieldrin	ND		1.67	ug/kg	09/27/24	10/01/24
Endrin	ND		1.67	ug/kg	09/27/24	10/01/24
4,4'-DDD	ND		3.33	ug/kg	09/27/24	10/01/24
Endosulfan II	ND		1.67	ug/kg	09/27/24	10/01/24
Endrin aldehyde	ND		1.67	ug/kg	09/27/24	10/01/24
4,4'-DDT	ND		3.33	ug/kg	09/27/24	10/01/24
Methoxychlor	ND		3.33	ug/kg	09/27/24	10/01/24
Endosulfan sulfate	ND		1.67	ug/kg	09/27/24	10/01/24
Endrin Ketone	ND		1.67	ug/kg	09/27/24	10/01/24
Endosulfan (I & II)	ND		1.67	ug/kg	09/27/24	10/01/24
Toxaphene	ND		16.7	ug/kg	09/27/24	10/01/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*66.6%*	*30-106*	09/27/24	10/01/24
Decachlorobiphenyl (DCBP)	*83.7%*	*32-110*	09/27/24	10/01/24

Results: Pesticides

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
alpha-BHC	ND		1.68	ug/kg	09/27/24	10/02/24
gamma-BHC (Lindane)	ND		1.68	ug/kg	09/27/24	10/02/24
beta-BHC	ND		1.68	ug/kg	09/27/24	10/02/24
delta-BHC	ND		1.68	ug/kg	09/27/24	10/02/24
Heptachlor	ND		1.68	ug/kg	09/27/24	10/02/24
Aldrin	ND		1.68	ug/kg	09/27/24	10/02/24
Heptachlor epoxide	ND		1.68	ug/kg	09/27/24	10/02/24
gamma-Chlordane	ND		1.68	ug/kg	09/27/24	10/02/24
alpha-Chlordane	ND		1.68	ug/kg	09/27/24	10/02/24
Chlordane	ND		16.8	ug/kg	09/27/24	10/02/24
4,4'-DDE	ND		3.36	ug/kg	09/27/24	10/02/24
Endosulfan I	ND		1.68	ug/kg	09/27/24	10/02/24
Dieldrin	ND		1.68	ug/kg	09/27/24	10/02/24
Endrin	ND		1.68	ug/kg	09/27/24	10/02/24
4,4'-DDD	ND		3.36	ug/kg	09/27/24	10/02/24
Endosulfan II	ND		1.68	ug/kg	09/27/24	10/02/24
Endrin aldehyde	ND		1.68	ug/kg	09/27/24	10/02/24
4,4'-DDT	ND		3.36	ug/kg	09/27/24	10/02/24
Methoxychlor	ND		3.36	ug/kg	09/27/24	10/02/24
Endosulfan sulfate	ND		1.68	ug/kg	09/27/24	10/02/24
Endrin Ketone	ND		1.68	ug/kg	09/27/24	10/02/24
Endosulfan (I & II)	ND		1.68	ug/kg	09/27/24	10/02/24
Toxaphene	ND		16.8	ug/kg	09/27/24	10/02/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*53.2%*	*30-106*	09/27/24	10/02/24
Decachlorobiphenyl (DCBP)	*65.9%*	*32-110*	09/27/24	10/02/24

Results: Polychlorinated Biphenyls (PCBs)

Sample: B1-B6 Comp

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1221	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1232	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1242	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1248	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1254	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1260	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1262	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1268	ND		67	ug/kg	09/27/24	10/01/24
PCBs (Total)	ND		67	ug/kg	09/27/24	10/01/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*64.5%*	*36.2-130*	09/27/24	10/01/24
Decachlorobiphenyl (DCBP)	*70.8%*	*43.3-130*	09/27/24	10/01/24

Results: Polychlorinated Biphenyls (PCBs)

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1221	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1232	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1242	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1248	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1254	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1260	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1262	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1268	ND		66	ug/kg	09/27/24	10/01/24
PCBs (Total)	ND		66	ug/kg	09/27/24	10/01/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*58.0%*	*36.2-130*	09/27/24	10/01/24
Decachlorobiphenyl (DCBP)	*69.8%*	*43.3-130*	09/27/24	10/01/24

Results: Polychlorinated Biphenyls (PCBs)

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1221	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1232	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1242	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1248	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1254	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1260	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1262	ND		66	ug/kg	09/27/24	10/01/24
Aroclor-1268	ND		66	ug/kg	09/27/24	10/01/24
PCBs (Total)	ND		66	ug/kg	09/27/24	10/01/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*86.2%*	*36.2-130*	09/27/24	10/01/24
Decachlorobiphenyl (DCBP)	*108%*	*43.3-130*	09/27/24	10/01/24

Results: Polychlorinated Biphenyls (PCBs)

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1221	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1232	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1242	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1248	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1254	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1260	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1262	ND		67	ug/kg	09/27/24	10/01/24
Aroclor-1268	ND		67	ug/kg	09/27/24	10/01/24
PCBs (Total)	ND		67	ug/kg	09/27/24	10/01/24

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*78.2%*	*36.2-130*	09/27/24	10/01/24
Decachlorobiphenyl (DCBP)	*94.8%*	*43.3-130*	09/27/24	10/01/24

Results: Herbicides

Sample: B1-B6 Comp

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dalapon	ND		103	ug/kg	09/24/24	09/30/24
Dicamba	ND		51	ug/kg	09/24/24	09/30/24
Dichloroprop	ND		51	ug/kg	09/24/24	09/30/24
2,4-D	ND		51	ug/kg	09/24/24	09/30/24
2,4,5-TP (Silvex)	ND		51	ug/kg	09/24/24	09/30/24
2,4,5-T	ND		51	ug/kg	09/24/24	09/30/24
2,4-DB	ND		51	ug/kg	09/24/24	09/30/24
Dinoseb	ND		103	ug/kg	09/24/24	09/30/24

Surrogate(s)	Recovery%	Limits		
2,4-Dichlorophenyl acetic acid	*99.7%*	*41-145*	09/24/24	09/30/24

Results: Herbicides

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dalapon	ND		102	ug/kg	09/24/24	09/30/24
Dicamba	ND		51	ug/kg	09/24/24	09/30/24
Dichloroprop	ND		51	ug/kg	09/24/24	09/30/24
2,4-D	ND		51	ug/kg	09/24/24	09/30/24
2,4,5-TP (Silvex)	ND		51	ug/kg	09/24/24	09/30/24
2,4,5-T	ND		51	ug/kg	09/24/24	09/30/24
2,4-DB	ND		51	ug/kg	09/24/24	09/30/24
Dinoseb	ND		102	ug/kg	09/24/24	09/30/24

Surrogate(s)	Recovery%	Limits		
2,4-Dichlorophenyl acetic acid	*78.6%*	*41-145*	09/24/24	09/30/24

Results: Herbicides

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dalapon	ND		101	ug/kg	09/24/24	09/30/24
Dicamba	ND		50	ug/kg	09/24/24	09/30/24
Dichloroprop	ND		50	ug/kg	09/24/24	09/30/24
2,4-D	ND		50	ug/kg	09/24/24	09/30/24
2,4,5-TP (Silvex)	ND		50	ug/kg	09/24/24	09/30/24
2,4,5-T	ND		50	ug/kg	09/24/24	09/30/24
2,4-DB	ND		50	ug/kg	09/24/24	09/30/24
Dinoseb	ND		101	ug/kg	09/24/24	09/30/24

Surrogate(s)	Recovery%	Limits		
2,4-Dichlorophenyl acetic acid	*46.1%*	*41-145*	09/24/24	09/30/24

Results: Herbicides

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dalapon	ND		102	ug/kg	09/24/24	10/01/24
Dicamba	ND		51	ug/kg	09/24/24	10/01/24
Dichloroprop	ND		51	ug/kg	09/24/24	10/01/24
2,4-D	ND		51	ug/kg	09/24/24	10/01/24
2,4,5-TP (Silvex)	ND		51	ug/kg	09/24/24	10/01/24
2,4,5-T	ND		51	ug/kg	09/24/24	10/01/24
2,4-DB	ND		51	ug/kg	09/24/24	10/01/24
Dinoseb	ND		102	ug/kg	09/24/24	10/01/24

Surrogate(s)	Recovery%	Limits		
2,4-Dichlorophenyl acetic acid	*41.5%*	*41-145*	09/24/24	10/01/24

Results: Total Petroleum Hydrocarbons

Sample: B1-B6 Comp

Lab Number: 4I20011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**39**		27	mg/kg	09/30/24	10/01/24
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*111%*		*50-130*		09/30/24	10/01/24

Results: Total Petroleum Hydrocarbons

Sample: B7-B12 Comp

Lab Number: 4I20011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		28	mg/kg	09/30/24	10/01/24
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*105%*		*50-130*		09/30/24	10/01/24

Results: Total Petroleum Hydrocarbons

Sample: B13-B14 Comp

Lab Number: 4I20011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		27	mg/kg	09/30/24	10/01/24
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*85.1%*		*50-130*		09/30/24	10/01/24

Results: Total Petroleum Hydrocarbons

Sample: B15-B16 Comp

Lab Number: 4I20011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		29	mg/kg	09/30/24	10/01/24
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*96.2%*		*50-130*		09/30/24	10/01/24

Quality Control

General Chemistry

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I0920 - Conductivity										
Blank (B4I0920-BLK1)					Prepared & Analyzed: 09/23/24					
Specific Conductance	ND		2.0	uS/cm						
Duplicate (B4I0920-DUP1)		Source: 4I19064-01			Prepared & Analyzed: 09/23/24					
Specific Conductance	150		2.0	uS/cm		150			0.00	200
Batch: B4I0921 - pH										
LCS (B4I0921-BS1)					Prepared & Analyzed: 09/23/24					
pH	7.1			SU	7.00		101	0-200		
Duplicate (B4I0921-DUP1)		Source: 4I19064-01			Prepared & Analyzed: 09/23/24					
pH	8.8			SU		8.9			0.113	200
Batch: B4I1108 - Flashpoint-EPA 1010A-Mod										
LCS (B4I1108-BS1)					Prepared & Analyzed: 09/26/24					
Flashpoint	81		70	degrees F	80.0		101	90-110		
Duplicate (B4I1108-DUP1)		Source: 4I19066-01			Prepared & Analyzed: 09/26/24					
Flashpoint	> 200		70	degrees F		ND				20

Quality Control
(Continued)

Reactivity

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I0917 - Reactivity										
Blank (B4I0917-BLK1)					Prepared & Analyzed: 09/23/24					
Cyanide	ND		0.2	mg/kg						
Blank (B4I0917-BLK2)					Prepared & Analyzed: 09/23/24					
Cyanide	ND		0.2	mg/kg						
Duplicate (B4I0917-DUP1)		Source: 4I19039-06			Prepared & Analyzed: 09/23/24					
Cyanide	ND		0.3	mg/kg dry		ND				20
Batch: B4I0918 - Reactivity										
Blank (B4I0918-BLK1)					Prepared & Analyzed: 09/23/24					
Sulfide	ND		0.1	mg/kg						
Blank (B4I0918-BLK2)					Prepared & Analyzed: 09/23/24					
Sulfide	ND		0.1	mg/kg						
LCS (B4I0918-BS1)					Prepared & Analyzed: 09/23/24					
Sulfide	4.1		0.1	mg/kg	4.00		102	90-110		
LCS (B4I0918-BS2)					Prepared & Analyzed: 09/23/24					
Sulfide	3.6		0.1	mg/kg	4.00		90.5	90-110		
Duplicate (B4I0918-DUP1)		Source: 4I19039-06			Prepared & Analyzed: 09/23/24					
Sulfide	ND		0.1	mg/kg dry		ND				20
Matrix Spike (B4I0918-MS1)		Source: 4I19039-06			Prepared & Analyzed: 09/23/24					
Sulfide	5.0		0.1	mg/kg dry	5.11	ND	98.5	80-120		

Quality Control
(Continued)

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I0999 - Metals Digestion Soils										
Blank (B4I0999-BLK1)					Prepared: 09/24/24 Analyzed: 09/25/24					
Barium	ND		0.33	mg/kg						
Silver	ND		1.00	mg/kg						
Arsenic	ND		1.00	mg/kg						
Cadmium	ND		0.50	mg/kg						
Antimony	ND		0.66	mg/kg						
Beryllium	ND		0.33	mg/kg						
Zinc	ND		2.0	mg/kg						
Vanadium	ND		0.33	mg/kg						
Selenium	ND		1.00	mg/kg						
Chromium	ND		0.50	mg/kg						
Lead	ND		0.50	mg/kg						
Nickel	ND		0.50	mg/kg						
Thallium	ND		0.33	mg/kg						
LCS (B4I0999-BS1)					Prepared: 09/24/24 Analyzed: 09/25/24					
Nickel	93.8		0.50	mg/kg	100		93.8	85-112		
Lead	93.9		0.50	mg/kg	100		93.9	85-115		
Silver	43.4		1.00	mg/kg	40.0		108	85-115		
Barium	94.6		0.33	mg/kg	100		94.6	85-115		
Antimony	88.0		0.66	mg/kg	100		88.0	85-115		
Selenium	18.7		1.00	mg/kg	20.0		93.5	85-115		
Arsenic	19.5		1.00	mg/kg	20.0		97.6	85-115		
Vanadium	96.2		0.33	mg/kg	100		96.2	85-115		
Beryllium	19.4		0.33	mg/kg	20.0		97.0	85-115		
Zinc	96.6		2.0	mg/kg	100		96.6	85-115		
Cadmium	94.1		0.50	mg/kg	100		94.1	85-115		
Chromium	95.3		0.50	mg/kg	100		95.3	85-115		
Thallium	97.9		0.33	mg/kg	100		97.9	85-115		

Quality Control
(Continued)

Total Metals (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1047 - Metals Cold-Vapor Mercury										
Blank (B4I1047-BLK1)					Prepared: 09/25/24 Analyzed: 09/26/24					
Mercury	ND		0.100	mg/kg						
LCS (B4I1047-BS1)					Prepared: 09/25/24 Analyzed: 09/26/24					
Mercury	4.88			ug/l	5.00		97.5	93-114		

Volatile Organic Compounds 8260C (5035-LL)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1011 - EPA 5035										
Blank (B4I1011-BLK1)					Prepared & Analyzed: 09/24/24					
Acetone	ND		100	ug/kg						
Benzene	ND		5	ug/kg						
Bromobenzene	ND		5	ug/kg						
Bromochloromethane	ND		5	ug/kg						
Bromodichloromethane	ND		5	ug/kg						
Bromoform	ND		5	ug/kg						
Bromomethane	ND		5	ug/kg						
2-Butanone	ND		100	ug/kg						
tert-Butyl alcohol	ND		5	ug/kg						
sec-Butylbenzene	ND		5	ug/kg						
n-Butylbenzene	ND		5	ug/kg						
tert-Butylbenzene	ND		5	ug/kg						
Methyl t-butyl ether (MTBE)	ND		5	ug/kg						
Carbon Disulfide	ND		5	ug/kg						
Carbon Tetrachloride	ND		5	ug/kg						
Chlorobenzene	ND		5	ug/kg						
Chloroethane	ND		5	ug/kg						
Chloroform	ND		5	ug/kg						
Chloromethane	ND		5	ug/kg						
4-Chlorotoluene	ND		5	ug/kg						
2-Chlorotoluene	ND		5	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		5	ug/kg						
Dibromochloromethane	ND		5	ug/kg						
1,2-Dibromoethane (EDB)	ND		5	ug/kg						
Dibromomethane	ND		5	ug/kg						
1,2-Dichlorobenzene	ND		5	ug/kg						
1,3-Dichlorobenzene	ND		5	ug/kg						
1,4-Dichlorobenzene	ND		5	ug/kg						
1,1-Dichloroethane	ND		5	ug/kg						
1,2-Dichloroethane	ND		5	ug/kg						
1,2 Dichloroethene, Total	ND		5	ug/kg						
trans-1,2-Dichloroethene	ND		5	ug/kg						
cis-1,2-Dichloroethene	ND		5	ug/kg						
1,1-Dichloroethene	ND		5	ug/kg						
1,2-Dichloropropane	ND		5	ug/kg						
2,2-Dichloropropane	ND		5	ug/kg						
cis-1,3-Dichloropropene	ND		5	ug/kg						
trans-1,3-Dichloropropene	ND		5	ug/kg						
1,1-Dichloropropene	ND		5	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		5	ug/kg						
Diethyl ether	ND		5	ug/kg						
1,4-Dioxane	ND		100	ug/kg						
Ethylbenzene	ND		5	ug/kg						
Hexachlorobutadiene	ND		5	ug/kg						
2-Hexanone	ND		100	ug/kg						
Isopropylbenzene	ND		5	ug/kg						
p-Isopropyltoluene	ND		5	ug/kg						
Methylene Chloride	ND		5	ug/kg						
4-Methyl-2-pentanone	ND		100	ug/kg						
Naphthalene	ND		5	ug/kg						
n-Propylbenzene	ND		5	ug/kg						
Styrene	ND		5	ug/kg						
1,1,1,2-Tetrachloroethane	ND		5	ug/kg						
Tetrachloroethene	ND		5	ug/kg						
Tetrahydrofuran	ND		5	ug/kg						
Toluene	ND		5	ug/kg						
1,2,4-Trichlorobenzene	ND		5	ug/kg						

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1011 - EPA 5035 (Continued)										
Blank (B4I1011-BLK1)					Prepared & Analyzed: 09/24/24					
1,2,3-Trichlorobenzene	ND		5	ug/kg						
1,1,2-Trichloroethane	ND		5	ug/kg						
1,1,1-Trichloroethane	ND		5	ug/kg						
Trichloroethene	ND		5	ug/kg						
1,2,3-Trichloropropane	ND		5	ug/kg						
1,3,5-Trimethylbenzene	ND		5	ug/kg						
1,2,4-Trimethylbenzene	ND		5	ug/kg						
Vinyl Chloride	ND		5	ug/kg						
o-Xylene	ND		5	ug/kg						
m&p-Xylene	ND		10	ug/kg						
Total xylenes	ND		5	ug/kg						
1,1,2,2-Tetrachloroethane	ND		5	ug/kg						
tert-Amyl methyl ether	ND		5	ug/kg						
1,3-Dichloropropane	ND		5	ug/kg						
Ethyl tert-butyl ether	ND		5	ug/kg						
Diisopropyl ether	ND		5	ug/kg						
Trichlorofluoromethane	ND		5	ug/kg						
Dichlorodifluoromethane	ND		5	ug/kg						
Surrogate: 4-Bromofluorobenzene			*49.6*	ug/kg	*50.0*		*99.2*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*51.7*	ug/kg	*50.0*		*103*	*70-130*		
Surrogate: Toluene-d8			*50.7*	ug/kg	*50.0*		*101*	*70-130*		
LCS (B4I1011-BS1)					Prepared & Analyzed: 09/24/24					
Acetone	43		5	ug/kg	50.0		86.7	50-150		
Benzene	50		5	ug/kg	50.0		100	70-130		
Bromobenzene	49		5	ug/kg	50.0		97.6	70-130		
Bromochloromethane	52		5	ug/kg	50.0		104	70-130		
Bromodichloromethane	51		5	ug/kg	50.0		102	70-130		
Bromoform	44		5	ug/kg	50.0		88.3	70-130		
Bromomethane	49		5	ug/kg	50.0		97.1	50-150		
2-Butanone	47		5	ug/kg	50.0		93.3	50-150		
tert-Butyl alcohol	46		5	ug/kg	50.0		91.9	70-130		
sec-Butylbenzene	52		5	ug/kg	50.0		104	70-130		
n-Butylbenzene	52		5	ug/kg	50.0		104	70-130		
tert-Butylbenzene	51		5	ug/kg	50.0		102	70-130		
Methyl t-butyl ether (MTBE)	48		5	ug/kg	50.0		95.7	70-130		
Carbon Disulfide	45		5	ug/kg	50.0		90.5	50-150		
Carbon Tetrachloride	47		5	ug/kg	50.0		94.8	70-130		
Chlorobenzene	49		5	ug/kg	50.0		98.2	70-130		
Chloroethane	40		5	ug/kg	50.0		80.1	50-150		
Chloroform	47		5	ug/kg	50.0		93.7	70-130		
Chloromethane	41		5	ug/kg	50.0		82.3	50-150		
4-Chlorotoluene	50		5	ug/kg	50.0		99.7	70-130		
2-Chlorotoluene	49		5	ug/kg	50.0		98.2	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	46		5	ug/kg	50.0		92.8	70-130		
Dibromochloromethane	46		5	ug/kg	50.0		93.0	70-130		
1,2-Dibromoethane (EDB)	51		5	ug/kg	50.0		103	70-130		
Dibromomethane	52		5	ug/kg	50.0		104	60-140		
1,2-Dichlorobenzene	49		5	ug/kg	50.0		99.0	70-130		
1,3-Dichlorobenzene	50		5	ug/kg	50.0		99.2	70-130		
1,4-Dichlorobenzene	48		5	ug/kg	50.0		96.2	70-130		
1,1-Dichloroethane	50		5	ug/kg	50.0		101	70-130		
1,2-Dichloroethane	49		5	ug/kg	50.0		98.8	70-130		
trans-1,2-Dichloroethene	50		5	ug/kg	50.0		99.3	70-130		
cis-1,2-Dichloroethene	50		5	ug/kg	50.0		99.2	70-130		
1,1-Dichloroethene	49		5	ug/kg	50.0		97.2	70-130		
1,2-Dichloropropane	49		5	ug/kg	50.0		98.3	70-130		

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1011 - EPA 5035 (Continued)										
LCS (B4I1011-BS1)					Prepared & Analyzed: 09/24/24					
2,2-Dichloropropane	50		5	ug/kg	50.0		99.2	70-130		
cis-1,3-Dichloropropene	47		5	ug/kg	50.0		94.5	70-130		
trans-1,3-Dichloropropene	47		5	ug/kg	50.0		94.5	70-130		
1,1-Dichloropropene	50		5	ug/kg	50.0		100	70-130		
Diethyl ether	45		5	ug/kg	50.0		90.0	60-140		
1,4-Dioxane	302		100	ug/kg	250		121	0-200		
Ethylbenzene	50		5	ug/kg	50.0		100	70-130		
Hexachlorobutadiene	49		5	ug/kg	50.0		97.3	70-130		
2-Hexanone	45		5	ug/kg	50.0		90.0	50-150		
Isopropylbenzene	51		5	ug/kg	50.0		102	70-130		
p-Isopropyltoluene	52		5	ug/kg	50.0		104	70-130		
Methylene Chloride	33		5	ug/kg	50.0		66.6	60-140		
4-Methyl-2-pentanone	48		5	ug/kg	50.0		95.5	50-150		
Naphthalene	53		5	ug/kg	50.0		106	70-130		
n-Propylbenzene	51		5	ug/kg	50.0		103	70-130		
Styrene	50		5	ug/kg	50.0		101	70-130		
1,1,1,2-Tetrachloroethane	52		5	ug/kg	50.0		105	70-130		
Tetrachloroethene	50		5	ug/kg	50.0		99.4	70-130		
Tetrahydrofuran	51		5	ug/kg	50.0		102	50-150		
Toluene	49		5	ug/kg	50.0		98.5	70-130		
1,2,4-Trichlorobenzene	49		5	ug/kg	50.0		98.6	70-130		
1,2,3-Trichlorobenzene	49		5	ug/kg	50.0		99.0	70-130		
1,1,2-Trichloroethane	48		5	ug/kg	50.0		96.9	70-130		
1,1,1-Trichloroethane	53		5	ug/kg	50.0		107	70-130		
Trichloroethene	49		5	ug/kg	50.0		98.4	70-130		
1,2,3-Trichloropropane	52		5	ug/kg	50.0		104	70-130		
1,3,5-Trimethylbenzene	51		5	ug/kg	50.0		101	70-130		
1,2,4-Trimethylbenzene	51		5	ug/kg	50.0		101	70-130		
Vinyl Chloride	41		5	ug/kg	50.0		82.3	50-150		
o-Xylene	50		5	ug/kg	50.0		99.0	70-130		
m&p-Xylene	100		10	ug/kg	100		99.5	70-130		
1,1,2,2-Tetrachloroethane	51		5	ug/kg	50.0		103	70-130		
tert-Amyl methyl ether	48		5	ug/kg	50.0		96.8	70-130		
1,3-Dichloropropane	51		5	ug/kg	50.0		102	70-130		
Ethyl tert-butyl ether	48		5	ug/kg	50.0		95.7	70-130		
Trichlorofluoromethane	47		5	ug/kg	50.0		93.4	50-150		
Dichlorodifluoromethane	53		5	ug/kg	50.0		105	50-150		
Surrogate: 4-Bromofluorobenzene			*50.4*	ug/kg	*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*50.6*	ug/kg	*50.0*		*101*	*70-130*		
Surrogate: Toluene-d8			*50.0*	ug/kg	*50.0*		*99.9*	*70-130*		

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1011 - EPA 5035 (Continued)										
LCS Dup (B4I1011-BSD1)					Prepared & Analyzed: 09/24/24					
Acetone	43		5	ug/kg	50.0		85.2	50-150	1.79	30
Benzene	45		5	ug/kg	50.0		89.5	70-130	11.6	20
Bromobenzene	44		5	ug/kg	50.0		88.5	70-130	9.87	20
Bromochloromethane	46		5	ug/kg	50.0		92.6	70-130	11.5	20
Bromodichloromethane	46		5	ug/kg	50.0		92.6	70-130	9.62	20
Bromoform	41		5	ug/kg	50.0		81.1	70-130	8.50	20
Bromomethane	39		5	ug/kg	50.0		78.0	50-150	21.7	30
2-Butanone	45		5	ug/kg	50.0		89.5	50-150	4.16	30
tert-Butyl alcohol	50		5	ug/kg	50.0		99.4	70-130	7.86	20
sec-Butylbenzene	47		5	ug/kg	50.0		93.9	70-130	10.0	20
n-Butylbenzene	47		5	ug/kg	50.0		94.6	70-130	9.45	20
tert-Butylbenzene	46		5	ug/kg	50.0		91.1	70-130	11.5	20
Methyl t-butyl ether (MTBE)	43		5	ug/kg	50.0		85.9	70-130	10.8	20
Carbon Disulfide	41		5	ug/kg	50.0		81.6	50-150	10.3	40
Carbon Tetrachloride	44		5	ug/kg	50.0		87.5	70-130	7.98	20
Chlorobenzene	44		5	ug/kg	50.0		87.0	70-130	12.1	20
Chloroethane	35		5	ug/kg	50.0		70.0	50-150	13.5	30
Chloroform	42		5	ug/kg	50.0		84.3	70-130	10.6	20
Chloromethane	37		5	ug/kg	50.0		74.0	50-150	10.6	30
4-Chlorotoluene	45		5	ug/kg	50.0		90.4	70-130	9.76	20
2-Chlorotoluene	44		5	ug/kg	50.0		88.7	70-130	10.1	20
1,2-Dibromo-3-chloropropane (DBCP)	44		5	ug/kg	50.0		88.1	70-130	5.22	20
Dibromochloromethane	42		5	ug/kg	50.0		84.4	70-130	9.72	20
1,2-Dibromoethane (EDB)	48		5	ug/kg	50.0		96.9	70-130	5.81	20
Dibromomethane	48		5	ug/kg	50.0		96.9	60-140	6.65	30
1,2-Dichlorobenzene	45		5	ug/kg	50.0		89.6	70-130	9.99	20
1,3-Dichlorobenzene	44		5	ug/kg	50.0		88.4	70-130	11.5	20
1,4-Dichlorobenzene	44		5	ug/kg	50.0		88.4	70-130	8.50	20
1,1-Dichloroethane	44		5	ug/kg	50.0		88.2	70-130	13.3	20
1,2-Dichloroethane	44		5	ug/kg	50.0		88.9	70-130	10.5	20
trans-1,2-Dichloroethene	44		5	ug/kg	50.0		87.7	70-130	12.4	20
cis-1,2-Dichloroethene	45		5	ug/kg	50.0		89.9	70-130	9.85	20
1,1-Dichloroethene	44		5	ug/kg	50.0		87.4	70-130	10.6	20
1,2-Dichloropropane	43		5	ug/kg	50.0		86.9	70-130	12.2	20
2,2-Dichloropropane	45		5	ug/kg	50.0		90.9	70-130	8.75	20
cis-1,3-Dichloropropene	43		5	ug/kg	50.0		85.3	70-130	10.2	20
trans-1,3-Dichloropropene	43		5	ug/kg	50.0		85.1	70-130	10.4	20
1,1-Dichloropropene	47		5	ug/kg	50.0		93.4	70-130	7.12	20
Diethyl ether	41		5	ug/kg	50.0		81.4	60-140	10.0	30
1,4-Dioxane	279		100	ug/kg	250		111	0-200	8.02	50
Ethylbenzene	45		5	ug/kg	50.0		90.4	70-130	10.4	20
Hexachlorobutadiene	44		5	ug/kg	50.0		88.7	70-130	9.23	20
2-Hexanone	42		5	ug/kg	50.0		83.5	50-150	7.59	20
Isopropylbenzene	46		5	ug/kg	50.0		92.5	70-130	9.40	20
p-Isopropyltoluene	47		5	ug/kg	50.0		93.4	70-130	11.0	20
Methylene Chloride	28		5	ug/kg	50.0		56.4	60-140	16.5	30
4-Methyl-2-pentanone	46		5	ug/kg	50.0		91.1	50-150	4.65	20
Naphthalene	50		5	ug/kg	50.0		101	70-130	5.17	20
n-Propylbenzene	46		5	ug/kg	50.0		92.5	70-130	10.5	20
Styrene	45		5	ug/kg	50.0		90.7	70-130	10.3	20
1,1,1,2-Tetrachloroethane	47		5	ug/kg	50.0		93.4	70-130	11.5	20
Tetrachloroethene	45		5	ug/kg	50.0		90.4	70-130	9.53	20
Tetrahydrofuran	49		5	ug/kg	50.0		98.8	50-150	3.21	40
Toluene	44		5	ug/kg	50.0		87.1	70-130	12.3	20
1,2,4-Trichlorobenzene	46		5	ug/kg	50.0		91.3	70-130	7.77	20
1,2,3-Trichlorobenzene	46		5	ug/kg	50.0		91.9	70-130	7.42	20
1,1,2-Trichloroethane	44		5	ug/kg	50.0		88.8	70-130	8.74	20

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1011 - EPA 5035 (Continued)										
LCS Dup (B4I1011-BSD1)					Prepared & Analyzed: 09/24/24					
1,1,1-Trichloroethane	48		5	ug/kg	50.0		96.1	70-130	10.6	20
Trichloroethene	45		5	ug/kg	50.0		89.7	70-130	9.25	20
1,2,3-Trichloropropane	45		5	ug/kg	50.0		89.1	70-130	15.6	20
1,3,5-Trimethylbenzene	46		5	ug/kg	50.0		92.5	70-130	8.89	20
1,2,4-Trimethylbenzene	46		5	ug/kg	50.0		91.8	70-130	9.68	20
Vinyl Chloride	37		5	ug/kg	50.0		73.8	50-150	10.9	30
o-Xylene	44		5	ug/kg	50.0		88.8	70-130	10.9	20
m&p-Xylene	88		10	ug/kg	100		88.4	70-130	11.9	20
1,1,2,2-Tetrachloroethane	48		5	ug/kg	50.0		95.2	70-130	7.73	20
tert-Amyl methyl ether	43		5	ug/kg	50.0		87.0	70-130	10.8	20
1,3-Dichloropropane	47		5	ug/kg	50.0		93.3	70-130	8.82	20
Ethyl tert-butyl ether	43		5	ug/kg	50.0		85.9	70-130	10.8	20
Trichlorofluoromethane	41		5	ug/kg	50.0		82.3	50-150	12.6	20
Dichlorodifluoromethane	46		5	ug/kg	50.0		92.4	50-150	13.0	30
Surrogate: 4-Bromofluorobenzene			*50.0*	ug/kg	*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*49.7*	ug/kg	*50.0*		*99.5*	*70-130*		
Surrogate: Toluene-d8			*49.5*	ug/kg	*50.0*		*99.0*	*70-130*		
Batch: B4I1278 - EPA 5035										
Blank (B4I1278-BLK1)					Prepared & Analyzed: 09/30/24					
Acetone	ND		100	ug/kg						
Benzene	ND		5	ug/kg						
Bromobenzene	ND		5	ug/kg						
Bromochloromethane	ND		5	ug/kg						
Bromodichloromethane	ND		5	ug/kg						
Bromoform	ND		5	ug/kg						
Bromomethane	ND		5	ug/kg						
2-Butanone	ND		100	ug/kg						
tert-Butyl alcohol	ND		5	ug/kg						
sec-Butylbenzene	ND		5	ug/kg						
n-Butylbenzene	ND		5	ug/kg						
tert-Butylbenzene	ND		5	ug/kg						
Methyl t-butyl ether (MTBE)	ND		5	ug/kg						
Carbon Disulfide	ND		5	ug/kg						
Carbon Tetrachloride	ND		5	ug/kg						
Chlorobenzene	ND		5	ug/kg						
Chloroethane	ND		5	ug/kg						
Chloroform	ND		5	ug/kg						
Chloromethane	ND		5	ug/kg						
4-Chlorotoluene	ND		5	ug/kg						
2-Chlorotoluene	ND		5	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		5	ug/kg						
Dibromochloromethane	ND		5	ug/kg						
1,2-Dibromoethane (EDB)	ND		5	ug/kg						
Dibromomethane	ND		5	ug/kg						
1,2-Dichlorobenzene	ND		5	ug/kg						
1,3-Dichlorobenzene	ND		5	ug/kg						
1,4-Dichlorobenzene	ND		5	ug/kg						
1,1-Dichloroethane	ND		5	ug/kg						
1,2-Dichloroethane	ND		5	ug/kg						
trans-1,2-Dichloroethene	ND		5	ug/kg						
1,2 Dichloroethene, Total	ND		5	ug/kg						
cis-1,2-Dichloroethene	ND		5	ug/kg						
1,1-Dichloroethene	ND		5	ug/kg						
1,2-Dichloropropane	ND		5	ug/kg						
2,2-Dichloropropane	ND		5	ug/kg						
cis-1,3-Dichloropropene	ND		5	ug/kg						

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1278 - EPA 5035 (Continued)										
Blank (B4I1278-BLK1)					Prepared & Analyzed: 09/30/24					
trans-1,3-Dichloropropene	ND		5	ug/kg						
1,1-Dichloropropene	ND		5	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		5	ug/kg						
Diethyl ether	ND		5	ug/kg						
1,4-Dioxane	ND		100	ug/kg						
Ethylbenzene	ND		5	ug/kg						
Hexachlorobutadiene	ND		5	ug/kg						
2-Hexanone	ND		100	ug/kg						
Isopropylbenzene	ND		5	ug/kg						
p-Isopropyltoluene	ND		5	ug/kg						
Methylene Chloride	ND		5	ug/kg						
4-Methyl-2-pentanone	ND		100	ug/kg						
Naphthalene	ND		5	ug/kg						
n-Propylbenzene	ND		5	ug/kg						
Styrene	ND		5	ug/kg						
1,1,1,2-Tetrachloroethane	ND		5	ug/kg						
Tetrachloroethene	ND		5	ug/kg						
Tetrahydrofuran	ND		5	ug/kg						
Toluene	ND		5	ug/kg						
1,2,4-Trichlorobenzene	ND		5	ug/kg						
1,2,3-Trichlorobenzene	ND		5	ug/kg						
1,1,2-Trichloroethane	ND		5	ug/kg						
1,1,1-Trichloroethane	ND		5	ug/kg						
Trichloroethene	ND		5	ug/kg						
1,2,3-Trichloropropane	ND		5	ug/kg						
1,3,5-Trimethylbenzene	ND		5	ug/kg						
1,2,4-Trimethylbenzene	ND		5	ug/kg						
Vinyl Chloride	ND		5	ug/kg						
o-Xylene	ND		5	ug/kg						
m&p-Xylene	ND		10	ug/kg						
Total xylenes	ND		5	ug/kg						
1,1,2,2-Tetrachloroethane	ND		5	ug/kg						
tert-Amyl methyl ether	ND		5	ug/kg						
1,3-Dichloropropane	ND		5	ug/kg						
Ethyl tert-butyl ether	ND		5	ug/kg						
Diisopropyl ether	ND		5	ug/kg						
Trichlorofluoromethane	ND		5	ug/kg						
Dichlorodifluoromethane	ND		5	ug/kg						
Surrogate: 4-Bromofluorobenzene			*50.9*	ug/kg	*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*49.1*	ug/kg	*50.0*		*98.2*	*70-130*		
Surrogate: Toluene-d8			*49.9*	ug/kg	*50.0*		*99.9*	*70-130*		

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1278 - EPA 5035 (Continued)										
LCS (B4I1278-BS1)					Prepared & Analyzed: 09/30/24					
Acetone	53		5	ug/kg	50.0		106	50-150		
Benzene	44		5	ug/kg	50.0		87.8	70-130		
Bromobenzene	44		5	ug/kg	50.0		88.6	70-130		
Bromochloromethane	45		5	ug/kg	50.0		90.2	70-130		
Bromodichloromethane	47		5	ug/kg	50.0		93.4	70-130		
Bromoform	48		5	ug/kg	50.0		96.1	70-130		
Bromomethane	41		5	ug/kg	50.0		81.4	50-150		
2-Butanone	47		5	ug/kg	50.0		93.6	50-150		
tert-Butyl alcohol	43		5	ug/kg	50.0		86.5	70-130		
sec-Butylbenzene	45		5	ug/kg	50.0		90.6	70-130		
n-Butylbenzene	46		5	ug/kg	50.0		92.9	70-130		
tert-Butylbenzene	45		5	ug/kg	50.0		90.2	70-130		
Methyl t-butyl ether (MTBE)	44		5	ug/kg	50.0		87.1	70-130		
Carbon Disulfide	42		5	ug/kg	50.0		84.5	50-150		
Carbon Tetrachloride	48		5	ug/kg	50.0		96.2	70-130		
Chlorobenzene	43		5	ug/kg	50.0		86.3	70-130		
Chloroethane	48		5	ug/kg	50.0		97.0	50-150		
Chloroform	44		5	ug/kg	50.0		88.6	70-130		
Chloromethane	44		5	ug/kg	50.0		87.8	50-150		
4-Chlorotoluene	44		5	ug/kg	50.0		88.9	70-130		
2-Chlorotoluene	44		5	ug/kg	50.0		87.7	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	49		5	ug/kg	50.0		97.7	70-130		
Dibromochloromethane	48		5	ug/kg	50.0		96.3	70-130		
1,2-Dibromoethane (EDB)	49		5	ug/kg	50.0		97.2	70-130		
Dibromomethane	46		5	ug/kg	50.0		92.9	60-140		
1,2-Dichlorobenzene	45		5	ug/kg	50.0		90.5	70-130		
1,3-Dichlorobenzene	44		5	ug/kg	50.0		87.6	70-130		
1,4-Dichlorobenzene	45		5	ug/kg	50.0		89.6	70-130		
1,1-Dichloroethane	46		5	ug/kg	50.0		91.5	70-130		
1,2-Dichloroethane	43		5	ug/kg	50.0		86.8	70-130		
trans-1,2-Dichloroethene	45		5	ug/kg	50.0		89.4	70-130		
cis-1,2-Dichloroethene	45		5	ug/kg	50.0		89.8	70-130		
1,1-Dichloroethene	46		5	ug/kg	50.0		91.9	70-130		
1,2-Dichloropropane	45		5	ug/kg	50.0		89.6	70-130		
2,2-Dichloropropane	48		5	ug/kg	50.0		96.7	70-130		
cis-1,3-Dichloropropene	46		5	ug/kg	50.0		93.0	70-130		
trans-1,3-Dichloropropene	48		5	ug/kg	50.0		96.6	70-130		
1,1-Dichloropropene	46		5	ug/kg	50.0		92.3	70-130		
Diethyl ether	43		5	ug/kg	50.0		86.6	60-140		
1,4-Dioxane	248		100	ug/kg	250		99.2	0-200		
Ethylbenzene	44		5	ug/kg	50.0		88.2	70-130		
Hexachlorobutadiene	46		5	ug/kg	50.0		92.8	70-130		
2-Hexanone	49		5	ug/kg	50.0		97.1	50-150		
Isopropylbenzene	44		5	ug/kg	50.0		88.6	70-130		
p-Isopropyltoluene	45		5	ug/kg	50.0		89.2	70-130		
Methylene Chloride	52		5	ug/kg	50.0		103	60-140		
4-Methyl-2-pentanone	41		5	ug/kg	50.0		82.2	50-150		
Naphthalene	47		5	ug/kg	50.0		94.5	70-130		
n-Propylbenzene	45		5	ug/kg	50.0		89.9	70-130		
Styrene	44		5	ug/kg	50.0		88.9	70-130		
1,1,1,2-Tetrachloroethane	46		5	ug/kg	50.0		91.3	70-130		
Tetrachloroethene	47		5	ug/kg	50.0		93.6	70-130		
Tetrahydrofuran	47		5	ug/kg	50.0		93.8	50-150		
Toluene	45		5	ug/kg	50.0		89.8	70-130		
1,2,4-Trichlorobenzene	46		5	ug/kg	50.0		92.4	70-130		
1,2,3-Trichlorobenzene	47		5	ug/kg	50.0		93.6	70-130		
1,1,2-Trichloroethane	50		5	ug/kg	50.0		99.0	70-130		

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1278 - EPA 5035 (Continued)										
LCS (B4I1278-BS1)					Prepared & Analyzed: 09/30/24					
1,1,1-Trichloroethane	46		5	ug/kg	50.0		91.4	70-130		
Trichloroethene	45		5	ug/kg	50.0		89.4	70-130		
1,2,3-Trichloropropane	46		5	ug/kg	50.0		92.9	70-130		
1,3,5-Trimethylbenzene	45		5	ug/kg	50.0		90.6	70-130		
1,2,4-Trimethylbenzene	45		5	ug/kg	50.0		89.4	70-130		
Vinyl Chloride	49		5	ug/kg	50.0		98.6	50-150		
o-Xylene	44		5	ug/kg	50.0		88.3	70-130		
m&p-Xylene	88		10	ug/kg	100		87.6	70-130		
1,1,2,2-Tetrachloroethane	46		5	ug/kg	50.0		91.2	70-130		
tert-Amyl methyl ether	43		5	ug/kg	50.0		86.5	70-130		
1,3-Dichloropropane	47		5	ug/kg	50.0		93.5	70-130		
Ethyl tert-butyl ether	43		5	ug/kg	50.0		85.5	70-130		
Trichlorofluoromethane	50		5	ug/kg	50.0		101	50-150		
Dichlorodifluoromethane	62		5	ug/kg	50.0		123	50-150		
Surrogate: 4-Bromofluorobenzene			*49.9*	ug/kg	*50.0*		*99.8*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*48.2*	ug/kg	*50.0*		*96.5*	*70-130*		
Surrogate: Toluene-d8			*50.8*	ug/kg	*50.0*		*102*	*70-130*		
LCS Dup (B4I1278-BSD1)					Prepared & Analyzed: 09/30/24					
Acetone	48		5	ug/kg	50.0		96.5	50-150	9.61	30
Benzene	53		5	ug/kg	50.0		106	70-130	18.6	20
Bromobenzene	50		5	ug/kg	50.0		101	70-130	12.7	20
Bromochloromethane	55		5	ug/kg	50.0		110	70-130	19.5	20
Bromodichloromethane	56		5	ug/kg	50.0		111	70-130	17.5	20
Bromoform	55		5	ug/kg	50.0		109	70-130	12.9	20
Bromomethane	53		5	ug/kg	50.0		105	50-150	25.4	30
2-Butanone	46		5	ug/kg	50.0		91.0	50-150	2.82	30
tert-Butyl alcohol	51		5	ug/kg	50.0		103	70-130	17.3	20
sec-Butylbenzene	53		5	ug/kg	50.0		105	70-130	14.9	20
n-Butylbenzene	54		5	ug/kg	50.0		108	70-130	14.7	20
tert-Butylbenzene	52		5	ug/kg	50.0		104	70-130	13.8	20
Methyl t-butyl ether (MTBE)	49		5	ug/kg	50.0		97.9	70-130	11.8	20
Carbon Disulfide	51		5	ug/kg	50.0		103	50-150	19.4	40
Carbon Tetrachloride	57		5	ug/kg	50.0		113	70-130	16.3	20
Chlorobenzene	50		5	ug/kg	50.0		99.2	70-130	13.9	20
Chloroethane	58		5	ug/kg	50.0		117	50-150	18.6	30
Chloroform	52		5	ug/kg	50.0		104	70-130	16.5	20
Chloromethane	52		5	ug/kg	50.0		105	50-150	17.8	30
4-Chlorotoluene	51		5	ug/kg	50.0		101	70-130	13.1	20
2-Chlorotoluene	50		5	ug/kg	50.0		101	70-130	14.0	20
1,2-Dibromo-3-chloropropane (DBCP)	52		5	ug/kg	50.0		104	70-130	6.59	20
Dibromochloromethane	57		5	ug/kg	50.0		115	70-130	17.4	20
1,2-Dibromoethane (EDB)	55		5	ug/kg	50.0		109	70-130	11.9	20
Dibromomethane	54		5	ug/kg	50.0		109	60-140	15.6	30
1,2-Dichlorobenzene	51		5	ug/kg	50.0		102	70-130	11.6	20
1,3-Dichlorobenzene	50		5	ug/kg	50.0		101	70-130	14.1	20
1,4-Dichlorobenzene	51		5	ug/kg	50.0		102	70-130	12.9	20
1,1-Dichloroethane	52		5	ug/kg	50.0		105	70-130	13.7	20
1,2-Dichloroethane	52		5	ug/kg	50.0		104	70-130	18.3	20
trans-1,2-Dichloroethene	53		5	ug/kg	50.0		106	70-130	17.0	20
cis-1,2-Dichloroethene	53		5	ug/kg	50.0		106	70-130	16.4	20
1,1-Dichloroethene	55		5	ug/kg	50.0		109	70-130	17.4	20
1,2-Dichloropropane	53		5	ug/kg	50.0		106	70-130	16.8	20
2,2-Dichloropropane	57		5	ug/kg	50.0		113	70-130	15.6	20
cis-1,3-Dichloropropene	55		5	ug/kg	50.0		110	70-130	17.0	20
trans-1,3-Dichloropropene	56		5	ug/kg	50.0		112	70-130	14.7	20
1,1-Dichloropropene	56		5	ug/kg	50.0		111	70-130	18.6	20

Volatile Organic Compounds 8260C (5035-LL) (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1278 - EPA 5035 (Continued)										
LCS Dup (B4I1278-BSD1)					Prepared & Analyzed: 09/30/24					
Diethyl ether	51		5	ug/kg	50.0		102	60-140	16.6	30
1,4-Dioxane	283		100	ug/kg	250		113	0-200	13.0	50
Ethylbenzene	51		5	ug/kg	50.0		102	70-130	14.1	20
Hexachlorobutadiene	54		5	ug/kg	50.0		108	70-130	15.5	20
2-Hexanone	49		5	ug/kg	50.0		98.7	50-150	1.72	20
Isopropylbenzene	51		5	ug/kg	50.0		103	70-130	14.8	20
p-Isopropyltoluene	52		5	ug/kg	50.0		104	70-130	15.7	20
Methylene Chloride	64		5	ug/kg	50.0		127	60-140	20.9	30
4-Methyl-2-pentanone	45		5	ug/kg	50.0		89.5	50-150	8.53	20
Naphthalene	53		5	ug/kg	50.0		106	70-130	11.1	20
n-Propylbenzene	52		5	ug/kg	50.0		104	70-130	14.3	20
Styrene	51		5	ug/kg	50.0		102	70-130	13.3	20
1,1,1,2-Tetrachloroethane	51		5	ug/kg	50.0		103	70-130	12.0	20
Tetrachloroethene	56		5	ug/kg	50.0		111	70-130	17.1	20
Tetrahydrofuran	52		5	ug/kg	50.0		105	50-150	11.2	40
Toluene	53		5	ug/kg	50.0		106	70-130	16.7	20
1,2,4-Trichlorobenzene	52		5	ug/kg	50.0		104	70-130	12.0	20
1,2,3-Trichlorobenzene	53		5	ug/kg	50.0		105	70-130	11.8	20
1,1,2-Trichloroethane	55		5	ug/kg	50.0		109	70-130	9.67	20
1,1,1-Trichloroethane	54		5	ug/kg	50.0		109	70-130	17.5	20
Trichloroethene	53		5	ug/kg	50.0		107	70-130	17.8	20
1,2,3-Trichloropropane	47		5	ug/kg	50.0		94.1	70-130	1.24	20
1,3,5-Trimethylbenzene	52		5	ug/kg	50.0		104	70-130	13.5	20
1,2,4-Trimethylbenzene	51		5	ug/kg	50.0		102	70-130	12.7	20
Vinyl Chloride	60		5	ug/kg	50.0		120	50-150	19.3	30
o-Xylene	51		5	ug/kg	50.0		102	70-130	14.3	20
m&p-Xylene	101		10	ug/kg	100		101	70-130	13.8	20
1,1,2,2-Tetrachloroethane	50		5	ug/kg	50.0		99.3	70-130	8.52	20
tert-Amyl methyl ether	50		5	ug/kg	50.0		99.4	70-130	13.9	20
1,3-Dichloropropane	54		5	ug/kg	50.0		108	70-130	14.7	20
Ethyl tert-butyl ether	49		5	ug/kg	50.0		98.2	70-130	13.8	20
Trichlorofluoromethane	61		5	ug/kg	50.0		121	50-150	18.5	20
Dichlorodifluoromethane	58		5	ug/kg	50.0		117	50-150	5.36	30
Surrogate: 4-Bromofluorobenzene			*49.5*	ug/kg	*50.0*		*99.1*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*51.1*	ug/kg	*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8			*52.8*	ug/kg	*50.0*		*106*	*70-130*		

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1189 - 1_Semivolatiles Extractions										
Blank (B4I1189-BLK1)					Prepared: 09/27/24 Analyzed: 10/01/24					
1,2,4-Trichlorobenzene	ND		130	ug/kg						
1,2-Dichlorobenzene	ND		130	ug/kg						
1,3-Dichlorobenzene	ND		130	ug/kg						
1,4-Dichlorobenzene	ND		130	ug/kg						
Phenol	ND		130	ug/kg						
2,4,5-Trichlorophenol	ND		130	ug/kg						
2,4,6-Trichlorophenol	ND		130	ug/kg						
2,4-Dichlorophenol	ND		130	ug/kg						
2,4-Dimethylphenol	ND		330	ug/kg						
2,4-Dinitrophenol	ND		330	ug/kg						
2,4-Dinitrotoluene	ND		130	ug/kg						
2,6-Dinitrotoluene	ND		130	ug/kg						
2-Chloronaphthalene	ND		130	ug/kg						
2-Chlorophenol	ND		130	ug/kg						
2-Methylnaphthalene	ND		130	ug/kg						
Nitrobenzene	ND		130	ug/kg						
2-Methylphenol	ND		130	ug/kg						
2-Nitroaniline	ND		130	ug/kg						
2-Nitrophenol	ND		330	ug/kg						
3,3'-Dichlorobenzidine	ND		330	ug/kg						
3-Nitroaniline	ND		130	ug/kg						
4,6-Dinitro-2-methylphenol	ND		330	ug/kg						
4-Bromophenyl phenyl ether	ND		130	ug/kg						
4-Chloro-3-methylphenol	ND		130	ug/kg						
4-Chloroaniline	ND		130	ug/kg						
4-Chlorophenyl phenyl ether	ND		130	ug/kg						
4-Nitroaniline	ND		130	ug/kg						
4-Nitrophenol	ND		330	ug/kg						
Acenaphthene	ND		130	ug/kg						
Acenaphthylene	ND		130	ug/kg						
Aniline	ND		130	ug/kg						
Anthracene	ND		130	ug/kg						
Benzo(a)anthracene	ND		130	ug/kg						
Benzo(a)pyrene	ND		130	ug/kg						
Benzo(b)fluoranthene	ND		130	ug/kg						
Benzo(g,h,i)perylene	ND		130	ug/kg						
Benzo(k)fluoranthene	ND		130	ug/kg						
Benzoic acid	ND		1000	ug/kg						
Biphenyl	ND		20	ug/kg						
Bis(2-chloroethoxy)methane	ND		130	ug/kg						
Bis(2-chloroethyl)ether	ND		130	ug/kg						
Bis(2-chloroisopropyl)ether	ND		130	ug/kg						
Bis(2-ethylhexyl)phthalate	ND		400	ug/kg						
Butyl benzyl phthalate	ND		130	ug/kg						
Chrysene	ND		130	ug/kg						
Di-n-octyl phthalate	ND		200	ug/kg						
Dibenz(a,h)anthracene	ND		130	ug/kg						
Dibenzofuran	ND		130	ug/kg						
Diethyl phthalate	ND		130	ug/kg						
Dimethyl phthalate	ND		330	ug/kg						
Di-n-butyl phthalate	ND		200	ug/kg						
Fluoranthene	ND		130	ug/kg						
Fluorene	ND		130	ug/kg						
Hexachlorobenzene	ND		130	ug/kg						
Hexachlorobutadiene	ND		130	ug/kg						
Hexachlorocyclopentadiene	ND		330	ug/kg						
Hexachloroethane	ND		130	ug/kg						

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1189 - 1_Semivolatiles Extractions (Continued)										
Blank (B4I1189-BLK1)					Prepared: 09/27/24 Analyzed: 10/01/24					
Indeno(1,2,3-cd)pyrene	ND		130	ug/kg						
Isophorone	ND		130	ug/kg						
Naphthalene	ND		130	ug/kg						
N-Nitrosodimethylamine	ND		130	ug/kg						
N-Nitrosodi-n-propylamine	ND		130	ug/kg						
N-Nitrosodiphenylamine	ND		130	ug/kg						
Pentachlorophenol	ND		330	ug/kg						
Phenanthrene	ND		130	ug/kg						
Pyrene	ND		130	ug/kg						
m&p-Cresol	ND		260	ug/kg						
Pyridine	ND		130	ug/kg						
Azobenzene	ND		130	ug/kg						
Total Dichlorobenzene	ND		130	ug/kg						
Surrogate: Nitrobenzene-d5			*1630*	ug/kg	*3330*		*48.8*	*30-126*		
Surrogate: p-Terphenyl-d14			*1850*	ug/kg	*3330*		*55.4*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*1460*	ug/kg	*3330*		*43.7*	*34-130*		
Surrogate: Phenol-d6			*1470*	ug/kg	*3330*		*44.0*	*30-130*		
Surrogate: 2,4,6-Tribromophenol			*1600*	ug/kg	*3330*		*48.1*	*30-130*		
Surrogate: 2-Fluorophenol			*1330*	ug/kg	*3330*		*40.0*	*30-130*		
LCS (B4I1189-BS1)					Prepared: 09/27/24 Analyzed: 10/01/24					
1,2,4-Trichlorobenzene	1860		130	ug/kg	3330		55.8	40-130		
1,2-Dichlorobenzene	1840		130	ug/kg	3330		55.1	40-130		
1,3-Dichlorobenzene	1750		130	ug/kg	3330		52.4	40-130		
1,4-Dichlorobenzene	1790		130	ug/kg	3330		53.7	40-130		
Phenol	1970		130	ug/kg	3330		59.1	40-130		
2,4,5-Trichlorophenol	2230		130	ug/kg	3330		67.0	40-130		
2,4,6-Trichlorophenol	2120		130	ug/kg	3330		63.7	40-130		
2,4-Dichlorophenol	1940		130	ug/kg	3330		58.1	40-130		
2,4-Dimethylphenol	1910		330	ug/kg	3330		57.4	40-130		
2,4-Dinitrophenol	1670		330	ug/kg	3330		50.0	15-140		
2,4-Dinitrotoluene	2610		130	ug/kg	3330		78.2	40-130		
2,6-Dinitrotoluene	2600		130	ug/kg	3330		78.1	40-130		
2-Chloronaphthalene	2040		130	ug/kg	3330		61.3	40-130		
2-Chlorophenol	1970		130	ug/kg	3330		59.2	40-130		
2-Methylnaphthalene	1890		130	ug/kg	3330		56.6	40-130		
Nitrobenzene	1950		130	ug/kg	3330		58.4	40-130		
2-Methylphenol	1960		130	ug/kg	3330		58.9	40-130		
2-Nitroaniline	2890		130	ug/kg	3330		86.6	40-130		
2-Nitrophenol	2040		330	ug/kg	3330		61.3	40-130		
3-Nitroaniline	2550		130	ug/kg	3330		76.4	40-130		
4,6-Dinitro-2-methylphenol	2410		330	ug/kg	3330		72.3	30-130		
4-Bromophenyl phenyl ether	2080		130	ug/kg	3330		62.4	40-130		
4-Chloro-3-methylphenol	2190		130	ug/kg	3330		65.6	40-130		
4-Chlorophenyl phenyl ether	2080		130	ug/kg	3330		62.4	40-130		
4-Nitroaniline	2460		130	ug/kg	3330		73.7	40-130		
4-Nitrophenol	2350		330	ug/kg	3330		70.5	40-130		
Acenaphthene	2110		130	ug/kg	3330		63.3	40-130		
Acenaphthylene	1920		130	ug/kg	3330		57.7	40-130		
Anthracene	2220		130	ug/kg	3330		66.5	40-130		
Benzo(a)anthracene	2360		130	ug/kg	3330		70.7	40-130		
Benzo(a)pyrene	2380		130	ug/kg	3330		71.4	40-130		
Benzo(b)fluoranthene	2390		130	ug/kg	3330		71.6	40-130		
Benzo(g,h,i)perylene	2390		130	ug/kg	3330		71.8	40-130		
Benzo(k)fluoranthene	2450		130	ug/kg	3330		73.4	40-130		
Biphenyl	505		20	ug/kg	833		60.6	40-130		
Bis(2-chloroethoxy)methane	2210		130	ug/kg	3330		66.3	40-130		

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1189 - 1_Semivolatiles Extractions (Continued)										
LCS (B4I1189-BS1)					Prepared: 09/27/24 Analyzed: 10/01/24					
Bis(2-chloroethyl)ether	2000		130	ug/kg	3330		60.0	40-130		
Bis(2-chloroisopropyl)ether	2470		130	ug/kg	3330		74.0	40-130		
Bis(2-ethylhexyl)phthalate	2800		400	ug/kg	3330		83.9	40-130		
Butyl benzyl phthalate	2720		130	ug/kg	3330		81.6	40-130		
Chrysene	2330		130	ug/kg	3330		70.0	40-130		
Di-n-octyl phthalate	3100		200	ug/kg	3330		92.9	40-130		
Dibenz(a,h)anthracene	2320		130	ug/kg	3330		69.7	40-130		
Dibenzofuran	2150		130	ug/kg	3330		64.5	40-130		
Diethyl phthalate	2240		130	ug/kg	3330		67.1	40-130		
Dimethyl phthalate	2120		330	ug/kg	3330		63.6	40-130		
Di-n-butyl phthalate	2270		200	ug/kg	3330		68.2	40-130		
Fluoranthene	2120		130	ug/kg	3330		63.5	40-130		
Fluorene	2080		130	ug/kg	3330		62.4	40-130		
Hexachlorobenzene	2280		130	ug/kg	3330		68.5	40-130		
Hexachlorobutadiene	1940		130	ug/kg	3330		58.3	40-130		
Hexachlorocyclopentadiene	1810		330	ug/kg	3330		54.2	40-130		
Hexachloroethane	1750		130	ug/kg	3330		52.4	40-130		
Indeno(1,2,3-cd)pyrene	2310		130	ug/kg	3330		69.4	40-130		
Isophorone	2260		130	ug/kg	3330		67.9	40-130		
Naphthalene	1960		130	ug/kg	3330		58.7	40-130		
N-Nitrosodimethylamine	1760		130	ug/kg	3330		52.8	40-130		
N-Nitrosodi-n-propylamine	2170		130	ug/kg	3330		65.0	40-130		
N-Nitrosodiphenylamine	2550		130	ug/kg	3330		76.4	40-130		
Pentachlorophenol	2470		330	ug/kg	3330		74.0	15-140		
Phenanthrene	2310		130	ug/kg	3330		69.2	40-130		
Pyrene	2230		130	ug/kg	3330		67.0	40-130		
m&p-Cresol	2110		260	ug/kg	3330		63.3	40-130		
Surrogate: Nitrobenzene-d5			*2420*	ug/kg	*3330*		*72.5*	*30-126*		
Surrogate: p-Terphenyl-d14			*2640*	ug/kg	*3330*		*79.2*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2360*	ug/kg	*3330*		*70.8*	*34-130*		
Surrogate: Phenol-d6			*2300*	ug/kg	*3330*		*68.9*	*30-130*		
Surrogate: 2,4,6-Tribromophenol			*2830*	ug/kg	*3330*		*84.9*	*30-130*		
Surrogate: 2-Fluorophenol			*2040*	ug/kg	*3330*		*61.2*	*30-130*		

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1189 - 1_Semivolatiles Extractions (Continued)										
LCS Dup (B4I1189-BSD1)					Prepared: 09/27/24 Analyzed: 10/01/24					
1,2,4-Trichlorobenzene	1850		130	ug/kg	3330		55.6	40-130	0.251	30
1,2-Dichlorobenzene	1860		130	ug/kg	3330		55.8	40-130	1.12	30
1,3-Dichlorobenzene	1690		130	ug/kg	3330		50.8	40-130	3.10	30
1,4-Dichlorobenzene	1780		130	ug/kg	3330		53.5	40-130	0.373	30
Phenol	1980		130	ug/kg	3330		59.4	40-130	0.473	30
2,4,5-Trichlorophenol	2220		130	ug/kg	3330		66.6	40-130	0.599	30
2,4,6-Trichlorophenol	2200		130	ug/kg	3330		65.9	40-130	3.36	30
2,4-Dichlorophenol	1930		130	ug/kg	3330		57.8	40-130	0.587	30
2,4-Dimethylphenol	1840		330	ug/kg	3330		55.1	40-130	4.05	30
2,4-Dinitrophenol	1720		330	ug/kg	3330		51.6	15-140	3.07	30
2,4-Dinitrotoluene	2730		130	ug/kg	3330		81.9	40-130	4.65	30
2,6-Dinitrotoluene	2740		130	ug/kg	3330		82.2	40-130	5.04	30
2-Chloronaphthalene	2120		130	ug/kg	3330		63.6	40-130	3.65	30
2-Chlorophenol	1990		130	ug/kg	3330		59.7	40-130	0.706	30
2-Methylnaphthalene	1850		130	ug/kg	3330		55.4	40-130	2.25	30
Nitrobenzene	2100		130	ug/kg	3330		62.9	40-130	7.42	30
2-Methylphenol	2020		130	ug/kg	3330		60.5	40-130	2.68	30
2-Nitroaniline	3060		130	ug/kg	3330		91.7	40-130	5.74	30
2-Nitrophenol	2040		330	ug/kg	3330		61.3	40-130	0.0653	30
3-Nitroaniline	2650		130	ug/kg	3330		79.5	40-130	4.00	30
4,6-Dinitro-2-methylphenol	2610		330	ug/kg	3330		78.3	30-130	7.94	30
4-Bromophenyl phenyl ether	2130		130	ug/kg	3330		63.8	40-130	2.28	30
4-Chloro-3-methylphenol	2110		130	ug/kg	3330		63.2	40-130	3.63	30
4-Chlorophenyl phenyl ether	2190		130	ug/kg	3330		65.7	40-130	5.12	30
4-Nitroaniline	2610		130	ug/kg	3330		78.3	40-130	6.05	30
4-Nitrophenol	2420		330	ug/kg	3330		72.5	40-130	2.80	30
Acenaphthene	2150		130	ug/kg	3330		64.6	40-130	2.13	30
Acenaphthylene	1950		130	ug/kg	3330		58.4	40-130	1.24	30
Anthracene	2220		130	ug/kg	3330		66.5	40-130	0.120	30
Benzo(a)anthracene	2340		130	ug/kg	3330		70.1	40-130	0.909	30
Benzo(a)pyrene	2440		130	ug/kg	3330		73.3	40-130	2.62	30
Benzo(b)fluoranthene	2330		130	ug/kg	3330		70.0	40-130	2.29	30
Benzo(g,h,i)perylene	2340		130	ug/kg	3330		70.1	40-130	2.40	30
Benzo(k)fluoranthene	2420		130	ug/kg	3330		72.7	40-130	0.986	30
Biphenyl	503		20	ug/kg	833		60.3	40-130	0.397	30
Bis(2-chloroethoxy)methane	2140		130	ug/kg	3330		64.3	40-130	3.19	30
Bis(2-chloroethyl)ether	2050		130	ug/kg	3330		61.4	40-130	2.30	30
Bis(2-chloroisopropyl)ether	2480		130	ug/kg	3330		74.3	40-130	0.512	30
Bis(2-ethylhexyl)phthalate	2780		400	ug/kg	3330		83.4	40-130	0.669	30
Butyl benzyl phthalate	2710		130	ug/kg	3330		81.4	40-130	0.270	30
Chrysene	2270		130	ug/kg	3330		68.0	40-130	2.96	30
Di-n-octyl phthalate	3080		200	ug/kg	3330		92.5	40-130	0.518	30
Dibenz(a,h)anthracene	2350		130	ug/kg	3330		70.5	40-130	1.23	30
Dibenzofuran	2210		130	ug/kg	3330		66.2	40-130	2.69	30
Diethyl phthalate	2310		130	ug/kg	3330		69.4	40-130	3.37	30
Dimethyl phthalate	2210		330	ug/kg	3330		66.3	40-130	4.19	30
Di-n-butyl phthalate	2340		200	ug/kg	3330		70.3	40-130	2.98	30
Fluoranthene	2280		130	ug/kg	3330		68.5	40-130	7.57	30
Fluorene	2210		130	ug/kg	3330		66.4	40-130	6.21	30
Hexachlorobenzene	2310		130	ug/kg	3330		69.3	40-130	1.07	30
Hexachlorobutadiene	1930		130	ug/kg	3330		58.0	40-130	0.516	30
Hexachlorocyclopentadiene	1830		330	ug/kg	3330		54.8	40-130	1.14	30
Hexachloroethane	1820		130	ug/kg	3330		54.7	40-130	4.37	30
Indeno(1,2,3-cd)pyrene	2330		130	ug/kg	3330		70.0	40-130	0.976	30
Isophorone	2230		130	ug/kg	3330		67.0	40-130	1.36	30
Naphthalene	1950		130	ug/kg	3330		58.5	40-130	0.410	30
N-Nitrosodimethylamine	1910		130	ug/kg	3330		57.4	40-130	8.37	30

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1189 - 1_Semivolatiles Extractions (Continued)										
LCS Dup (B4I1189-BSD1)					Prepared: 09/27/24 Analyzed: 10/01/24					
N-Nitrosodi-n-propylamine	2290		130	ug/kg	3330		68.6	40-130	5.51	30
N-Nitrosodiphenylamine	2640		130	ug/kg	3330		79.1	40-130	3.47	30
Pentachlorophenol	2500		330	ug/kg	3330		75.0	15-140	1.37	30
Phenanthrene	2340		130	ug/kg	3330		70.3	40-130	1.49	30
Pyrene	2260		130	ug/kg	3330		67.9	40-130	1.30	30
m&p-Cresol	2100		260	ug/kg	3330		63.0	40-130	0.475	30
Surrogate: Nitrobenzene-d5			*2470*	ug/kg	*3330*		*74.1*	*30-126*		
Surrogate: p-Terphenyl-d14			*2710*	ug/kg	*3330*		*81.4*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2380*	ug/kg	*3330*		*71.5*	*34-130*		
Surrogate: Phenol-d6			*2310*	ug/kg	*3330*		*69.3*	*30-130*		
Surrogate: 2,4,6-Tribromophenol			*2920*	ug/kg	*3330*		*87.7*	*30-130*		
Surrogate: 2-Fluorophenol			*2100*	ug/kg	*3330*		*63.1*	*30-130*		

Pesticides

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1141 - 1_Semivolatiles Extractions										
Blank (B4I1141-BLK1)					Prepared & Analyzed: 09/27/24					
alpha-BHC	ND		1.67	ug/kg						
gamma-BHC (Lindane)	ND		1.67	ug/kg						
beta-BHC	ND		1.67	ug/kg						
delta-BHC	ND		1.67	ug/kg						
Heptachlor	ND		1.67	ug/kg						
Aldrin	ND		1.67	ug/kg						
Heptachlor epoxide	ND		1.67	ug/kg						
gamma-Chlordane	ND		1.67	ug/kg						
alpha-Chlordane	ND		1.67	ug/kg						
Chlordane	ND		16.7	ug/kg						
4,4'-DDE	ND		3.33	ug/kg						
Endosulfan I	ND		1.67	ug/kg						
Dieldrin	ND		1.67	ug/kg						
Endrin	ND		1.67	ug/kg						
4,4'-DDD	ND		3.33	ug/kg						
Endosulfan II	ND		1.67	ug/kg						
Endrin aldehyde	ND		1.67	ug/kg						
4,4'-DDT	ND		3.33	ug/kg						
Methoxychlor	ND		3.33	ug/kg						
Endosulfan sulfate	ND		1.67	ug/kg						
Endrin Ketone	ND		1.67	ug/kg						
Endosulfan (I & II)	ND		1.67	ug/kg						
Toxaphene	ND		16.7	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*13.3*	ug/kg	*13.3*		*99.8*	*30-106*		
Surrogate: Decachlorobiphenyl (DCBP)			*13.6*	ug/kg	*13.3*		*102*	*32-110*		
LCS (B4I1141-BS1)					Prepared: 09/27/24 Analyzed: 10/01/24					
alpha-BHC	6.67		1.67	ug/kg	13.3		50.0	50-132		
gamma-BHC (Lindane)	7.31		1.67	ug/kg	13.3		54.8	54-128		
beta-BHC	9.25		1.67	ug/kg	13.3		69.4	69-126		
delta-BHC	7.13		1.67	ug/kg	13.3		53.5	40-126		
Heptachlor	7.45		1.67	ug/kg	13.3		55.9	55-125		
Aldrin	6.08		1.67	ug/kg	13.3		45.6	45-135		
Heptachlor epoxide	7.36		1.67	ug/kg	13.3		55.2	54-127		
gamma-Chlordane	7.38		1.67	ug/kg	13.3		55.4	55-124		
alpha-Chlordane	7.40		1.67	ug/kg	13.3		55.5	54-126		
4,4'-DDE	8.77		3.33	ug/kg	13.3		65.8	63-130		
Endosulfan I	7.48		1.67	ug/kg	13.3		56.1	53-128		
Dieldrin	7.86		1.67	ug/kg	13.3		59.0	57-124		
Endrin	10.2		1.67	ug/kg	13.3		76.3	40-140		
4,4'-DDD	10.1		3.33	ug/kg	13.3		75.4	74-140		
Endosulfan II	8.36		1.67	ug/kg	13.3		62.7	45-125		
Endrin aldehyde	7.44		1.67	ug/kg	13.3		55.8	40-140		
4,4'-DDT	11.7		3.33	ug/kg	13.3		88.1	60-140		
Methoxychlor	11.9		3.33	ug/kg	13.3		88.9	71-140		
Endosulfan sulfate	8.68		1.67	ug/kg	13.3		65.1	43-131		
Endrin Ketone	8.19		1.67	ug/kg	13.3		61.4	56-131		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*5.63*	ug/kg	*13.3*		*42.2*	*38-106*		
Surrogate: Decachlorobiphenyl (DCBP)			*10.3*	ug/kg	*13.3*		*77.4*	*32-110*		

Pesticides (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1141 - 1_Semivolatiles Extractions (Continued)										
LCS Dup (B4I1141-BSD1)					Prepared: 09/27/24 Analyzed: 10/01/24					
alpha-BHC	6.73		1.67	ug/kg	13.3		50.5	50-132	0.935	30
gamma-BHC (Lindane)	7.31		1.67	ug/kg	13.3		54.8	54-128	0.0958	30
beta-BHC	9.93		1.67	ug/kg	13.3		74.5	69-126	7.08	30
delta-BHC	6.25		1.67	ug/kg	13.3		46.9	40-126	13.2	30
Heptachlor	7.38		1.67	ug/kg	13.3		55.3	55-125	0.935	30
Aldrin	6.12		1.67	ug/kg	13.3		45.9	45-135	0.650	30
Heptachlor epoxide	7.50		1.67	ug/kg	13.3		56.3	54-127	1.88	30
gamma-Chlordane	7.69		1.67	ug/kg	13.3		57.7	55-124	4.07	30
alpha-Chlordane	7.78		1.67	ug/kg	13.3		58.4	54-126	5.09	30
4,4'-DDE	8.62		3.33	ug/kg	13.3		64.7	63-130	1.76	30
Endosulfan I	7.73		1.67	ug/kg	13.3		58.0	53-128	3.37	30
Dieldrin	7.71		1.67	ug/kg	13.3		57.8	57-124	2.01	30
Endrin	8.87		1.67	ug/kg	13.3		66.5	40-140	13.7	30
4,4'-DDD	10.1		3.33	ug/kg	13.3		76.0	74-140	0.793	30
Endrin aldehyde	6.36		1.67	ug/kg	13.3		47.7	40-140	15.6	30
Endosulfan II	7.36		1.67	ug/kg	13.3		55.2	45-125	12.7	30
4,4'-DDT	10.5		3.33	ug/kg	13.3		78.5	60-140	11.5	30
Methoxychlor	10.7		3.33	ug/kg	13.3		80.0	71-140	10.6	30
Endosulfan sulfate	7.72		1.67	ug/kg	13.3		57.9	43-131	11.6	30
Endrin Ketone	8.09		1.67	ug/kg	13.3		60.7	56-131	1.18	30
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*5.37*	ug/kg	*13.3*		*40.3*	*38-106*		
Surrogate: Decachlorobiphenyl (DCBP)			*8.54*	ug/kg	*13.3*		*64.0*	*32-110*		

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1140 - 1_Semivolatiles Extractions										
Blank (B4I1140-BLK1)					Prepared & Analyzed: 09/27/24					
Aroclor-1016	ND		66	ug/kg						
Aroclor-1221	ND		66	ug/kg						
Aroclor-1232	ND		66	ug/kg						
Aroclor-1242	ND		66	ug/kg						
Aroclor-1248	ND		66	ug/kg						
Aroclor-1254	ND		66	ug/kg						
Aroclor-1260	ND		66	ug/kg						
Aroclor-1262	ND		66	ug/kg						
Aroclor-1268	ND		66	ug/kg						
PCBs (Total)	ND		66	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*13.9*	ug/kg	*13.3*		*105*	*36.2-130*		
Surrogate: Decachlorobiphenyl (DCBP)			*14.9*	ug/kg	*13.3*		*112*	*43.3-130*		
LCS (B4I1140-BS1)					Prepared & Analyzed: 09/27/24					
Aroclor-1016	184		66	ug/kg	167		110	58.2-125		
Aroclor-1260	201		66	ug/kg	167		121	65.5-130		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*15.1*	ug/kg	*13.3*		*113*	*36.2-130*		
Surrogate: Decachlorobiphenyl (DCBP)			*16.5*	ug/kg	*13.3*		*124*	*43.3-130*		
LCS Dup (B4I1140-BSD1)					Prepared & Analyzed: 09/27/24					
Aroclor-1016	170		66	ug/kg	167		102	58.2-125	7.90	20
Aroclor-1260	185		66	ug/kg	167		111	65.5-130	8.66	20
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*14.8*	ug/kg	*13.3*		*111*	*36.2-130*		
Surrogate: Decachlorobiphenyl (DCBP)			*16.5*	ug/kg	*13.3*		*123*	*43.3-130*		

Quality Control
(Continued)

Herbicides

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1034 - 1_Semivolatiles Extractions										
Blank (B4I1034-BLK1)					Prepared: 09/24/24 Analyzed: 09/30/24					
Dalapon	ND		100	ug/kg						
Dicamba	ND		50	ug/kg						
Dichloroprop	ND		50	ug/kg						
2,4-D	ND		50	ug/kg						
2,4,5-TP (Silvex)	ND		50	ug/kg						
2,4,5-T	ND		50	ug/kg						
2,4-DB	ND		50	ug/kg						
Dinoseb	ND		100	ug/kg						
Surrogate: 2,4-Dichlorophenyl acetic acid			*211*	ug/kg	*250*		*84.5*	*41-145*		
LCS (B4I1034-BS1)					Prepared: 09/24/24 Analyzed: 09/30/24					
Dalapon	118		100	ug/kg	250		47.0	40-140		
Dicamba	139		50	ug/kg	250		55.6	40-140		
Dichloroprop	198		50	ug/kg	250		79.1	40-140		
2,4-D	148		50	ug/kg	250		59.2	40-140		
2,4,5-TP (Silvex)	205		50	ug/kg	250		82.1	40-140		
2,4,5-T	147		50	ug/kg	250		58.7	40-140		
2,4-DB	309		50	ug/kg	250		123	40-140		
Dinoseb	173		100	ug/kg	250		69.0	40-140		
Surrogate: 2,4-Dichlorophenyl acetic acid			*266*	ug/kg	*250*		*107*	*41-145*		
LCS Dup (B4I1034-BSD1)					Prepared: 09/24/24 Analyzed: 09/30/24					
Dalapon	142		100	ug/kg	250		56.7	40-140	18.6	20
Dicamba	140		50	ug/kg	250		56.0	40-140	0.606	20
Dichloroprop	207		50	ug/kg	250		82.8	40-140	4.54	20
2,4-D	171		50	ug/kg	250		68.5	40-140	14.6	20
2,4,5-TP (Silvex)	199		50	ug/kg	250		79.5	40-140	3.27	20
2,4,5-T	171		50	ug/kg	250		68.2	40-140	15.0	20
2,4-DB	298		50	ug/kg	250		119	40-140	3.64	20
Dinoseb	166		100	ug/kg	250		66.4	40-140	3.84	20
Surrogate: 2,4-Dichlorophenyl acetic acid			*254*	ug/kg	*250*		*102*	*41-145*		

Quality Control
(Continued)

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B4I1216 - 1_Semivolatiles Extractions										
Blank (B4I1216-BLK1)					Prepared & Analyzed: 09/30/24					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*8.48*	mg/kg	*8.33*		*102*	*50-130*		
LCS (B4I1216-BS1)					Prepared & Analyzed: 09/30/24					
Total Petroleum Hydrocarbons	345		27	mg/kg	667		51.8	44.7-125		
Surrogate: Chlorooctadecane			*8.71*	mg/kg	*8.33*		*105*	*50-130*		
LCS Dup (B4I1216-BSD1)					Prepared & Analyzed: 09/30/24					
Total Petroleum Hydrocarbons	314		27	mg/kg	667		47.2	44.7-125	9.38	30
Surrogate: Chlorooctadecane			*7.42*	mg/kg	*8.33*		*89.1*	*50-130*		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

New England Testing Laboratory
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

4 I 2 0011 !

Chain of Custody Record

Project No.	Project Name/Location:				Matrix					Tests**									
24.11468.00	Lakeview Playground, Worcester MA																		
Client: BETA Group Inc.																			
Report To: Rob Smith																			
Invoice To: RSmith@BETA-inc.com																			
Date	**Time**	**Comp**	**Grab**	**Sample I.D.**	**Aqueous**	**Soil**	**Other**	**No. of Containers**	**Preservative**	MCP 14 Metals	VOCs 8260	SVOCs full list 8270	PCBs 8082	Conductance	TPH, pH, Flashpoint	Reactivity Cyanide	Reactivity Sulfide	Organochlorine Pesticides and herbicides	
9/19/24	1455	X		B1-B6 Comp.		X		2	None	X		X	X	X	X	X	X	X	
9/19/24	1515	X		B7-B12 Comp.		X		2	None	X		X	X	X	X	X	X	X	
9/19/24	1550	X		B13-B14 Comp		X		2	None	X		X	X	X	X	X	X	X	
9/19/24	1600	X		B15-B16 Comp		X		2	None	X		X	X	X	X	X	X	X	
9/19/24	1430		X	B6 0-2.5		X		3	MEOH/Stir Bar		X								
9/19/24	1505		X	B10 7.5-10		X		3	MeOH/Stir Bar		X								
9/19/24	1530		X	B15 7.5-10		X		3	MeOH/Stir Bar		X								
9/19/24	1545		X	B14 0-2.5		X		3	MeOH/Stir Bar		X								
								20											

Sampled By:	Date/Time	Received By:	Date/Time	Laboratory Remarks:	Special Instructions:
Andrew Kinsella	9/19/24 1430-1600	Worcester Fridge	9/19/24 1700		• TCLP RCRA 8 Metals that exceed 20x rule only MCP RCS-1 Standards
Relinquished By:	**Date/Time**	**Received By:**	**Date/Time**		
R Shaw	9/20/24 15:50	R Shaw	9/20/24 10:31	Temp. Received: 3	

**Netlab Subcontracts the following tests: Radiologicals, Radon, TOC, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates

Turnaround Time [Business Days]: **5 Days**

JN 9/20/24 1550

MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc. Project #: 247.11468.00

Project Location: Worcester, MA RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
4I20011

Matrices: ☐ Groundwater/Surface Water ☒ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☒	7470/7471 Hg CAM III B ☒	MassDEP VPH (GC/PID/FID) CAM IV A ☐	8082 PCB CAM V A ☒	9014 Total Cyanide/PAC CAM VI A ☐	6860 Perchlorate CAM VIII B ☐
8270 SVOC CAM II B ☒	7010 Metals CAM III C ☐	MassDEP VPH (GC/MS) CAM IV C ☐	8081 Pesticides CAM V B ☒	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☒	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☒ Yes ☐ No
E	VPH, EPH, APH, and TO-15 only a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	☐ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☒ Yes ☐ No[1]

***Data User Note*: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☒ Yes ☐ No[1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☒ Yes ☐ No[1]

[1]*All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: _____ **Position:** Laboratory Director

Printed Name: Mike McCallum **Date**: 10/3/2024

IMPROVING COMMUNITIES TOGETHER

December 23, 2025

Ms. Alice W. Webb, PLA, ASLA
Principal
EarthDesign Landscape Architecture LLC
280 Beverly Road
Worcester, Massachusetts 01605

Re: Supplemental Subsurface Investigation
Lake View Playground
125 Coburn Avenue
Worcester, Massachusetts

Dear Ms. Webb:

BETA Group, Inc. (BETA) has conducted a supplemental subsurface investigation at the above-referenced location on behalf of EarthDesign Architecture LLC. BETA completed subsurface investigation in September 2024 and identified arsenic at elevated concentrations. The sampling and analytical program was conducted to support soil management activities during upcoming renovation of Lake View Playground and evaluate current exposure by human receptors. The subsurface investigation program was designed to evaluate arsenic specifically in shallow soil as this would encounter the most disturbance during construction and provides the highest exposure potential for human receptors. Lake View Playground is a public multi-use park improved with a playground and basketball court. Renovations to the park are planned to commence in 2025 or 2026. A summary of the subsurface soil investigation is presented below.

Site Description

The subject property (hereafter referred to as "the Site") is a public park owned by the City of Worcester and improved with a playground and basketball court. An adjacent elementary school uses the Site during recess. The Site is located in a residential area classified as resident district RL-7 (Residence, Limited). The location of the Site is shown in the attached **Figure 1: Site Locus**. The Site is bound by Coburn Avenue and Agate Avenue to the west and east, respectively. Residential properties are present along the western side of Coburn Avenue and eastern side of Agate Avenue. A church with parking lot abuts the Site to the north. Lake View Street abuts the Site to the south. Lake View Elementary School is present on the south side of Lake View Street. The basketball court and playground are located on the southeast side of the Site. Most of the Site consists of grass-landscaped areas and trees. A gated fence runs along the perimeter of the Site.

MCP Reportable Concentrations

In accordance with Massachusetts Contingency Plan (MCP) (310 CMR 40.0000), target analyte concentrations detected during laboratory soil analyses are compared to applicable MCP Reportable Concentrations to determine whether a release condition is present that requires notification to the Massachusetts Department of Environmental Protection (MassDEP), pursuant to 310 CMR 40.0315. Two reporting categories exist for concentrations of oil or hazardous materials (OHM) in soil:

- Reporting Category RCS-1 (310 CMR 40.0361) is applicable to all soil samples obtained at or within 500-feet of a residential dwelling, a residentially zoned property, school, playground, recreational area, or park, or within the geographical boundaries of a groundwater resource area.
- Reporting Category RCS-2 (310 CMR 40.0362) is applicable to all soil samples that are not obtained from category RCS-1 areas.

The Site contains a playground/park and is within 500 feet of residential dwellings and a school; therefore, the applicable reporting category is RCS-1.

Soil Assessment Activities

On November 7, 2025 and November 24, 2025, BETA supervised the advancement of sixteen (16) soil borings at the site identified as B-1 through B-16. Borings were advanced by Harris Lawn & Landscape (Harris) using hand augers. Borings were advanced in various locations throughout the Site to evaluate soil conditions in locations expected to be disturbed and/or transported off-site during redevelopment of the playground. The borings were advanced to a maximum depth of 4 feet below grade (fbg). Soil boring depth was based on the need to further delineate arsenic concentrations in the top 5 feet of soil, which will be disturbed during playground redevelopment.

Soil samples were collected from one-foot intervals in each boring until refusal was encountered. Due to refusal, no samples were able to be collected from the 4 to 5 foot sample interval although this depth is less critical than the upper three feet. Visual field screening revealed the presence of urban fill in soil borings B-1, B-3, B-5, and B-12 at depths ranging from 0.5 fbg to 2.0 fbg. Materials encountered included ash, glass, bricks, slag and other anthropogenic material. Soil descriptions are provided in **Appendix A: Boring Logs** (attached).

Samples were submitted to ESS Laboratory, a Massachusetts-certified laboratory for analysis of arsenic. The laboratory analytical reports are included in **Appendix B: Analytical Reports** (attached). Soil analytical results are summarized in **Table 1: Summary of Soil Analytical Results** (attached).

Analytical results for the soil samples indicated concentrations of arsenic exceeding the applicable RCS-1 reporting concentration. However, the Site is located in an area which has been documented by the U.S. Geological Survey as an area of naturally occurring elevated arsenic concentrations and is not considered an analyte of concern for the Site.

The geologic descriptions of each soil boring are included in boring logs attached as **Appendix A**. The soil sample and boring locations are depicted in **Figure 2: Soil Boring Locations**. The laboratory analytical data are summarized in **Table 1**. The complete laboratory analytical report is attached in **Appendix B**.

Conclusions

The following conclusions are based on the results of the above-described subsurface assessment.

- Arsenic was observed in shallow soil at concentrations up to 30.2 milligrams per kilogram (mg/kg) which presents potential exposure for park visitors including children. BETA conducted a screening level evaluation of risk to human receptors and based on use as a park, there is not a condition of significant risk as defined in 310 CMR 40.0000 in association with short-term exposure under current uses.
- Arsenic up to 49.7 mg/kg was observed at a depth of 2 to 3 feet near the proposed infiltration gallery. This is consistent with the 2024 results which indicated arsenic at the highest concentration in a similar location. This threshold falls just below the 50 mg/kg criteria for an imminent hazard under the Massachusetts Contingency Plan (MCP) 40.0321(2)(b). It should be noted this criteria only applies to soil within 12 inches of the surface and would not apply to soil that is not subject to reporting under the MCP.
- Arsenic was detected at concentrations exceeding the RCS-1 reportable concentration in every boring except B-7 and B-12. However, elevated concentrations of arsenic are most likely due to naturally occurring deposits typical for Worcester County and are exempt from the notification requirements in accordance with 310 CMR 40.0317(22).
- Urban fill containing coal ash, slag, and glass was observed in soil located approximately 0.5 to 2.0 feet below grade in the central portion of the Site, in the area of the proposed basketball court and playground.

Recommendations

BETA presents the following recommendations for your consideration:

- Although arsenic in soil at the Site is considered exempt from reporting under the 310 CMR 40.0317(22) the MCP at 310 CMR 40.0370(1) requires response actions shall be undertaken for releases of threats of release of material that do not require notification under 310 CMR 40.0300 if the releases or threats of release pose a significant risk of health, safety, public welfare, or the environment as described in 310 CMR 40.0900. BETA recommends soil containing arsenic at elevated concentrations be removed for off-site disposal or isolated by at least three (3) feet of clean fill material following final construction within the project limits. Disturbance

of soil should be minimized during construction using wet methods and excess soil should be stockpiled on and under 6-mil polyethylene sheeting.

- BETA recommends limiting access to unpaved areas of the park if feasible prior to development to mitigate exposure of human receptors. Disturbance of soil in the park prior to construction should be minimized to avoid exposure to arsenic and other contaminants present due to the presence of urban fill and naturally occurring arsenic. Activities that result in mobilization of soil into the air should be avoided if possible and if required, wet-methods should be used to minimize dust.
- We recommend you include the results of this supplemental subsurface investigation report in the bid documents to provide full disclosure of known environmental conditions to minimize potential change order requests and schedule changes related to worker protection and/or soil. We also recommend you include Handling, Transportation, and Disposal of Excavated Materials specification in the Bid Documents. Excess soil containing contaminants above RCS-1 levels must be disposed of at appropriately licensed, off-site soil management facilities.

If you have any questions, please do not hesitate to contact Robert Smith at (860) 993-3162.

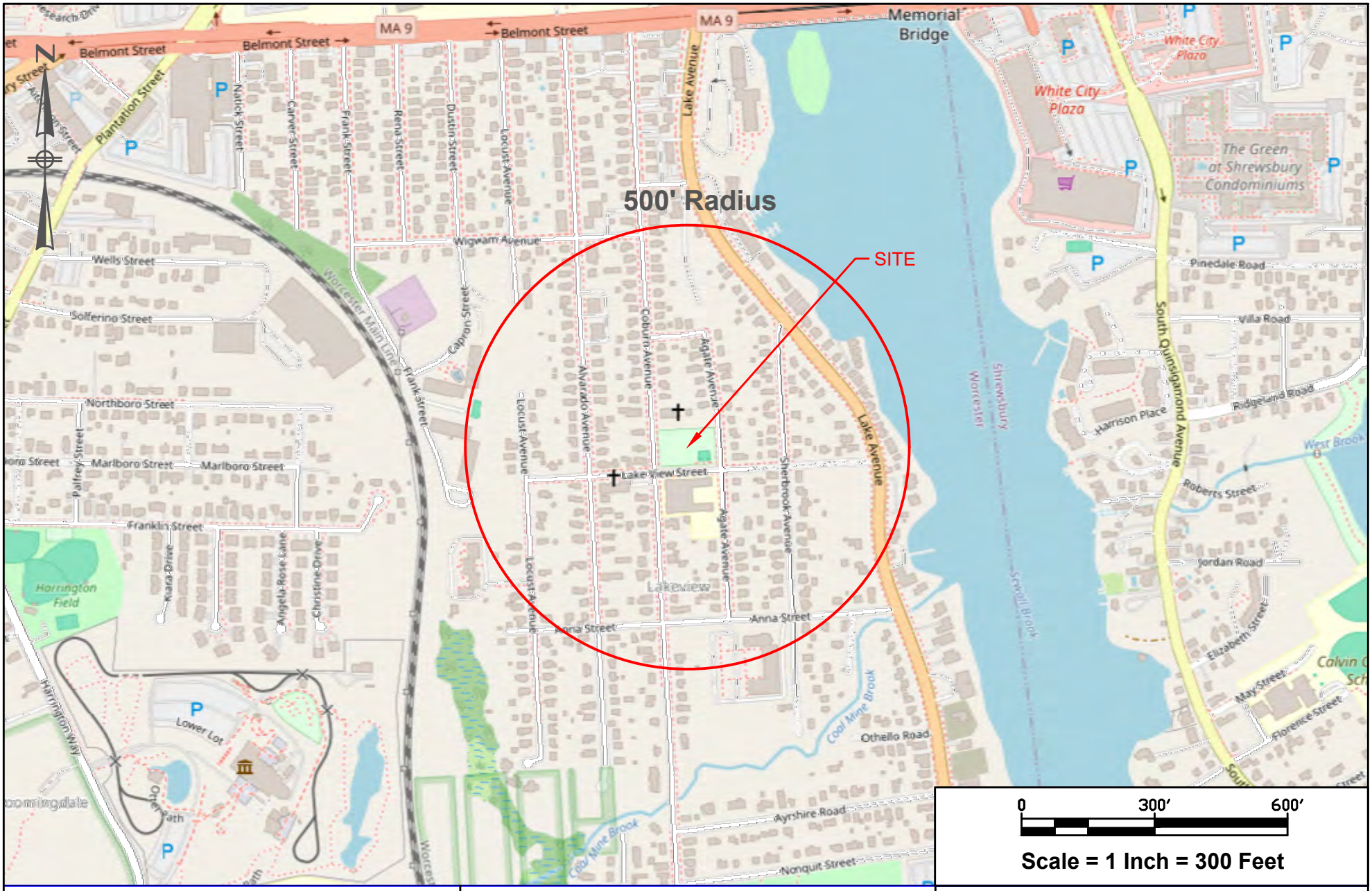
Very Truly Yours,
BETA GROUP, INC.

Robert E. Smith, LSP
Associate

Attachments:

Figure 1: Site Locus
Figure 2: Soil Boring Locations
Table 1: Summary of Soil Analytical Results
Appendix A: Boring Logs
Appendix B: Analytical Reports

FIGURES



BETA
www.BETA-Inc.com

Lakeview Playground
125 Coburn Avenue, Worcester MA

Site Locus
Figure No. 1

N

PROPERTY LINE (TYPICAL)

EARLY CHILDHOOD PLAY AREA

SCHOOL-AGE PLAY AREA

SEE-SAW

TOT SWINGS

SENSORY PLAY PANELS

B-7

B-6

SLIDE

3' HILL

BRIDGE

3' HILL

SLIDE

CLIMBER

NEW TREE

EXISTING FENCE (TYPICAL)

B-15

B-16

POTENTIAL LOCATION OF UNDERGROUND STORMWATER DETENTION SYSTEM

B-13

B-14

LAWN AREA

PLAY SHELTER

PICNIC TABLE

BASKET SWING

EXISTING ELEVATION CONTOUR (TYPICAL)

PICNIC TABLE

PLAY STRUCTURE

STANDING SPINNER

B-5

ZIP LINE

B-8

SAFETY ZONE (TYPI-CAL)

SWING SET (6 SWINGS)

MERRY-GO-ROUND

4' HILL

SLIDE

POURED-IN-PLACE RUBBER PLAYGROUND SURFACING (2 COLORS), TYPICAL

PICNIC TABLE

BENCH (TYPICAL)

B-4

B-9

10' FENCE

SPORTS LIGHT

B-10

BASKETBALL COURT

MAINTENANCE GATE

EXISTING SIDEWALK

B-11

B-12

4' FENCE

WALKWAY

PICNIC TABLE

EXISTING TREE TO REMAIN (TYPICAL)

SHELTER

LIGHT (TYPICAL)

EXPANDED GARDEN

EXISTING POLLINATOR GARDEN

B-3

SPORTS LIGHT

10' FENCE

B-2

BENCHES

B-1

TRASH CONTAINERS

PICNIC TABLE

GATES

WALKWAY

4' FENCE

BIKE RACK

GATE

LAKE VIEW STREET

\\BETA-INC.COM\RI\ENV\SC\11468 - EARTHDESIGN - LAKEVIEW PLAYGROUND\SUBSURFACE INVESTIGATION\FIGURES\SOIL BORING LOCATIONS.DWG

Prepared by:

BETA

Print Date: 12/5/2024 12:07 PM

Lakeview Playground

125 Coburn Avenue
Worcester MA

Map Source: Earth Design Landscape Architecture Concept Plan entitled: Lakeview Playground Improvements, Master Plan Concept 2 - Preferred Option

0 20' 40'

Scale: 1 Inch = 20 Feet

Figure No. 2

Soil Boring Locations

TABLES

Table 1 - Summary of Soil Laboratory Analytical Results

Lake View Playground

125 Coburn Avenue, Worcester, Massachusetts

Depth (feet)	RCS-1 Standard	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14	B-15	B-16
Arsenic concentration - milligrams per kilogram (mg/kg)																	
0-1	20	**21**	**21.6**	**28.4**	**21.8**	<2.8	17.1	13	**30.2**	**21.7**	**29.8**	14	16.8	10.8	14.4	17.4	**25.7**
1-2		17.5	**21.2**	18.5	19.1	**29.7**	11	14.5	**20.4**	**22.3**	16.2	18	18.3	**27.5**	**25**	**47.1**	**23.3**
2-3		13.7	**21.9**	16.7	19	19.5	12.4	14.5	**32**	NT	**23.7**	**24.7**	NT	**25.7**	**20.1**	**47.7**	**49.7**
3-4		NT	18.6	NT	**20.2**	14.1	**20.7**	19.6	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:

NT - Not Tested

APPENDIX A

BORING LOG

BORING ID: B-1

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1000	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, dark brown, medium to fine SAND and fine GRAVEL, little silt and medium gravel. Evidence of fill (slag, ceramic)	
2	1-2'					Dry, dark brown SILT, some medium to fine sand, little fine gravel. Evidence of fill (slag, ceramic)	
3	2-3'					Dry, grey-brown, medium to fine SAND, trace silt. Evidence of fill (slag, ash, burnt wood)	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-2

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	4
SIZE (ID)	3"	NA	NA	TIME	1015	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	4.00	# of samples:	4
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND and SILT, little fine gravel. Organic matter present (roots)	
2	1-2'					Moist, dark brown, SILT, some fine sand, little fine gravel	
3	2-3'					Dry, light brown-brown, fine GRAVEL, some silt and clay	
4	3-4'					Dry, light brown-brown, fine GRAVEL, some silt and clay	
5	4-5'					END OF BORING AT 4'	
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-3

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1130	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, little fine gravel, trace silt, Evidence of fill (glass, ash, wood, slag)	
2	1-2'					Dry, dark brown, medium to fine SAND, some silt and clay	
3	2-3'					Dry, brown, coarse to fine SAND, some fine gravel, trace silt	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-4

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	4
SIZE (ID)	3"	NA	NA	TIME	1330	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	4.00	# of samples:	4
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, little gravel, trace silt	
2	1-2'					Dry, light brown-brown, medium to fine SAND, some fine gravel, little coarse sand, trace silt	
3	2-3'					Dry, brown, coarse to fine SAND, some fine gravel, little silt	
4	3-4'					Dry, brown, fine GRAVEL and coarse SAND, some medium to fine sand, trace silt	
5	4-5'					END OF BORING AT 4'	
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-5

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	4
SIZE (ID)	3"	NA	NA	TIME	1500	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	4.00	# of samples:	4
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, some fine grave and coarse sand, trace silt	
2	1-2'					Dry, dark brown, medium to fine SAND, some fine gravel and coarse sand, trace silt. Evidence of fill (ash slag, glass)	
3	2-3'					Dry, dark brown, medium to fine SAND, some coarse sand, trace silt	
4	3-4'					Dry, dark brown, medium to fine SAND, some coarse sand, trace silt	
5	4-5'					END OF BORING AT 4'	
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-6

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	4
SIZE (ID)	3"	NA	NA	TIME	900	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	4.00	# of samples:	4
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, little silt, trace fine gravel and coarse sand. Organic matter present (grass roots)	
2	1-2'					Dry, brown, medium to fine SAND, some silt, little fine gravel and coarse sand	
3	2-3'					Dry, brown, coarse to fine SAND, some fine gravel, trace silt	
4	3-4'					Dry, brown, coarse to fine SAND, some fine gravel, trace silt	
5	4-5'					END OF BORING AT 4'	
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-7

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	4
SIZE (ID)	3"	NA	NA	TIME	945	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	4.00	# of samples:	4
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, some silt, little fine gravel and coarse sand	
2	1-2'					Dry, brown, medium to fine SAND, some silt, little fine gravel, trace coarse sand	
3	2-3'					Dry, brown, medium to fine SAND, some silt, little fine gravel, trace coarse sand	
4	3-4'					Dry, brown, coarse to fine SAND, little fine gravel, trace silt	
5	4-5'					END OF BORING AT 4'	
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-8

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1030	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, some fine gravel and coarse sand, little silt	
2	1-2'					Dry, brown, coarse to medium SAND and fine GRAVEL, some fine sand and silt	
3	2-3'					Dry, brown, coarse to medium SAND and fine GRAVEL, some fine sand and silt	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-9

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	2
SIZE (ID)	3"	NA	NA	TIME	1515	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	2.00	# of samples:	2
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, some fine gravel and coarse sand, little silt	
2	1-2'					Dry, brown, medium to fine SAND, some fine gravel and coarse sand, little silt	
3	2-3'					END OF BORING AT 2'	
4	3-4'						
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-10

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1115	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, coarse to fine SAND, little fine gravel and silt	
2	1-2'					Dry, brown, coarse to medium SAND and fine GRAVEL, some fine sand and silt	
3	2-3'					Dry, brown, coarse to medium SAND and fine GRAVEL, some fine sand and silt	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-11

Page 1 of 1

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1430	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, some fine gravel, little coarse gravel, trace silt	
2	1-2'					Dry, brown, coarse to fine SAND, little fine gravel, trace silt	
3	2-3'					Dry, light brown-brown, medium to fine SAND, some silt and clay, little fine gravel	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-12

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/7/2025	Overburden (feet):	2
SIZE (ID)	3"	NA	NA	TIME	1130	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	2.00	# of samples:	2
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, little coarse sand, trace silt	
2	1-2'					Moist, brown, coarse to fine SAND and SILT. Evidence of fill (ash, slag, wood glass)	
3	2-3'					END OF BORING AT 2'	
4	3-4'						
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/7/2025
END DATE: 11/7/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-13

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1300	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, coarse to fine SAND, little fine gravel, trace silt. Organic matter present (grass roots)	
2	1-2'					Dry, brown, coarse to fine SAND, little fine gravel, trace silt	
3	2-3'					Dry, brown, coarse to fine SAND, little fine gravel, trace silt	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-14

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1330	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, medium to fine SAND, little fine gravel, trace silt. Organic matter present (grass roots)	
2	1-2'					Dry, brown, medium to fine SAND, little fine gravel, trace silt	
3	2-3'					Dry, brown, medium to fine SAND, little fine gravel, trace silt	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-15

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1400	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, coarse to fine SAND, little fine gravel, trace silt	
2	1-2'					Dry, brown, coarse to fine SAND, some fine gravel, trace silt	
3	2-3'					Dry, brown, coarse to fine SAND, some fine gravel, trace silt	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

BORING LOG

BORING ID: B-16

PROJECT:	LakeView Playground	BETA JOB NUMBER:	24.11468.00
		FIELD REP:	A.Ravenelle
LOCATION:	125 Coburn Ave Worcester, MA 01604	CLIENT:	EarthDesign
Consultant:	BETA	DRILLER:	Harris Lawn & Landscape

	SAMPLER	CASING	CORE BARREL	DEPTH OF BORING		SUMMARY	
TYPE	Hand Auger	NA	NA	DATE	11/24/2025	Overburden (feet):	3
SIZE (ID)	3"	NA	NA	TIME	1440	Rock Cored (feet):	
HAMMER WEIGHT	NA	NA	---	DEPTH (feet)	3.00	# of samples:	3
HAMMER FALL	NA	NA	---	SURFACE ELEV:	---	Well set (feet):	

SAMPLING INTERVALS							
DEPTH (feet)	Sample ID #	REC/PEN Inches	Blows / 6" `--/--/--/--	PID (ppmv)	Groundwater	DESCRIPTION OF MATERIALS (Burmister Soil Classification System)	Monitoring Well Construction Details
1	0-1'	N/A	N/A	N/A		Dry, brown, coarse to fine SAND, little fine gravel, trace silt	
2	1-2'					Dry, brown, coarse to fine SAND, some fine gravel, trace silt	
3	2-3'					Dry, brown, coarse to medium SAND, some fine gravel, little fine sand and silt	
4	3-4'					END OF BORING AT 3'	
5	4-5'						
6	5-10'	N/A	N/A	N/A			
7							
8							
9							
10							
11	10-15'	N/A	N/A	N/A			
12							
13							
14							
15							
16	15-20'	N/A	NA	N/A			
17							
18							
19							
20							

DRILLING RIG TYPE: Hand Auger

SURFACE ELEVATION:
START DATE: 11/24/2025
END DATE: 11/24/2025

PROPORTIONS USED		RELATIVE DENSITY		CONSISTENCY		SOIL CLASSIFICATION (inches)			
trace	0-10%	0-4	Very Loose	0-2	Very Soft	Boulders	>11.8	Fine Sand	.02-.003
little	10-20%	4-10	Loose	2-4	Soft	Cobbles	11.8-2.9	Silt	<.003
some	20-35%	10-30	Medium Dense	4-8	Medium Stiff	Coarse Gravel	2.9-.75	Clay	<.003
and	35-50%	30-50	Dense	8-15	Stiff	Fine Gravel	.75-.19		
		50+	Very Dense	15-30	Very Stiff	Coarse Sand	.19-.08		
				30+	Hard	Medium Sand	.08-.02		

APPENDIX B

CERTIFICATE OF ANALYSIS

Robert Smith
Beta Engineering
315 Norwood Park South
Norwood, MA 02062

RE: Lakeview Playground (11468.00)
ESS Laboratory Work Order Number: 25L0151

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:33 pm, Dec 16, 2025

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0151

Sample Receipt

The following samples were received on December 03, 2025 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
25L0151-01	B-6 2-3ft	Soil	6010D
25L0151-02	B-6 3-4ft	Soil	6010D
25L0151-03	B-7 0-1ft	Soil	6010D
25L0151-04	B-7 1-2ft	Soil	6010D
25L0151-05	B-7 2-3ft	Soil	6010D
25L0151-06	B-7 3-4ft	Soil	6010D
25L0151-07	B-8 0-1ft	Soil	6010D
25L0151-08	B-8 1-2ft	Soil	6010D
25L0151-09	B-8 2-3ft	Soil	6010D
25L0151-10	B-9 0-1ft	Soil	6010D
25L0151-11	B-9 1-2ft	Soil	6010D
25L0151-12	B-10 0-1ft	Soil	6010D
25L0151-13	B-10 1-2ft	Soil	6010D
25L0151-14	B-10 2-3ft	Soil	6010D
25L0151-15	B-11 0-1ft	Soil	6010D
25L0151-16	B-11 1-2ft	Soil	6010D
25L0151-17	B-11 2-3ft	Soil	6010D
25L0151-18	B-12 0-1ft	Soil	6010D
25L0151-19	B-12 1-2ft	Soil	6010D

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0151

Project Narrative

No unusual observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0151

Current SW-846 Methodology Versions

Analytical Methods

1010A - Flashpoint
6010D - ICP
6020B - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260D - VOA
8270E - SVOA
8270E SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 19-2.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0151

MassDEP Analytical Protocol Certification Form

Laboratory Name: ESS Laboratory Project #: 11468.00
Project Location: Lakeview Playground RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
25L0151-01 through 25L0151-19

Matrices: ☐ Groundwater/Surface Water/Wastewater/Landfill Leachate ☒ Soil/Sediment ☐ Biosolids
☐ Tissue ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☐	MassDEP VPH CAM IV A ☐ PID/FID	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC ☐	6860 Perchlorate CAM VIII B ☐	1633 PFAS CAM X A ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No [1]
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No [1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No [1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☒ Yes ☐ No [1]
E1	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes ☐ No [1]
E2	PFAS only: Were aqueous samples extracted without filtering?	☐ Yes ☐ No [1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No [1]

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits/lower limits of quantitation at or below all CAM reporting limits/lower limits of quantitation specified in the selected CAM protocol(s)?	☒ Yes ☐ No [1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☒ Yes ☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☒ No [1]

1 *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Laurel Stoddard **Position:** Laboratory Director

Printed Name: Laurel Stoddard **Date:** 12/16/2025

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-6 2-3ft
Date Sampled: 11/24/25 09:20
Percent Solids: 80

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**12.4** (2.74)	---	6010D	---	1	CEV	12/15/25 18:33	2.29 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-6 3-4ft
Date Sampled: 11/24/25 09:30
Percent Solids: 91

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**20.7** (2.64)	---	6010D	---	1	CEV	12/15/25 18:35	2.07 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-7 0-1ft
Date Sampled: 11/24/25 09:40
Percent Solids: 93

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**13.0** (2.59)	---	6010D	---	1	CEV	12/15/25 18:38	2.07 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-7 1-2ft
Date Sampled: 11/24/25 09:50
Percent Solids: 84

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**14.5** (2.35)	---	6010D	---	1	CEV	12/15/25 18:40	2.53 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-7 2-3ft
Date Sampled: 11/24/25 10:00
Percent Solids: 83

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**14.5** (3.01)	---	6010D	---	1	CEV	12/15/25 18:48	2 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-7 3-4ft
Date Sampled: 11/24/25 10:20
Percent Solids: 90

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**19.6** (2.45)	---	6010D	---	1	CEV	12/15/25 18:51	2.27 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-8 0-1ft
Date Sampled: 11/24/25 10:30
Percent Solids: 83

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-07
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**30.2** (2.95)	---	6010D	---	1	CEV	12/15/25 18:53	2.05 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-8 1-2ft
Date Sampled: 11/24/25 10:40
Percent Solids: 84

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-08
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**20.4** (2.97)	---	6010D	---	1	CEV	12/15/25 18:55	2 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-8 2-3ft
Date Sampled: 11/24/25 10:50
Percent Solids: 92

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-09
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**32.0** (2.64)	---	6010D	---	1	CEV	12/15/25 18:58	2.06 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-9 0-1ft
Date Sampled: 11/07/25 15:15
Percent Solids: 82

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-10
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**21.7** (2.63)	---	6010D	---	1	CEV	12/15/25 19:00	2.33 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-9 1-2ft
Date Sampled: 11/07/25 15:20
Percent Solids: 89

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-11
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**22.3** (2.66)	---	6010D	---	1	CEV	12/15/25 19:02	2.11 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-10 0-1ft
Date Sampled: 11/24/25 11:10
Percent Solids: 92

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-12
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**29.8** (2.58)	---	6010D	---	1	CEV	12/15/25 19:05	2.11 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-10 1-2ft
Date Sampled: 11/24/25 11:20
Percent Solids: 91

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-13
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**16.2** (2.72)	---	6010D	---	1	CEV	12/15/25 19:07	2.01 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-10 2-3ft
Date Sampled: 11/24/25 11:30
Percent Solids: 86

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-14
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**23.7** (2.80)	---	6010D	---	1	CEV	12/15/25 19:09	2.08 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-11 0-1ft
Date Sampled: 11/07/25 13:23
Percent Solids: 87

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-15
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**14.0** (2.63)	---	6010D	---	1	CEV	12/15/25 19:17	2.18 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-11 1-2ft
Date Sampled: 11/07/25 14:47
Percent Solids: 82

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-16
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**18.0** (3.05)	---	6010D	---	1	CEV	12/15/25 19:20	2.01 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-11 2-3ft
Date Sampled: 11/07/25 14:50
Percent Solids: 83

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-17
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**24.7** (2.80)	---	6010D	---	1	CEV	12/15/25 19:22	2.15 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-12 0-1ft
Date Sampled: 11/07/25 11:30
Percent Solids: 85

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-18
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**16.8** (2.82)	---	6010D	---	1	CEV	12/15/25 19:24	2.09 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-12 1-2ft
Date Sampled: 11/07/25 11:38
Percent Solids: 83

ESS Laboratory Work Order: 25L0151
ESS Laboratory Sample ID: 25L0151-19
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**18.3** (2.95)	---	6010D	---	1	CEV	12/15/25 19:27	2.05 100	DL50946

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0151

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch DL50946 - 3050B										
Blank										
Arsenic	ND	2.49	mg/kg wet							
LCS										
Arsenic	54.7	7.69	mg/kg wet	63.55		86	80-120			
LCS Dup										
Arsenic	52.9	7.14	mg/kg wet	63.55		83	80-120	3	30	

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0151

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0151

ESS Laboratory Certifications and Accreditations

Environmental

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Beta Engineering - ML/TB

Shipped/Delivered Via: ESS Courier

ESS Project ID: 25L0151
Date Received: 12/3/2025
Project Due Date: 12/10/2025
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp (°C): 1.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / (NA)
10. Were any analyses received outside of hold time? Yes / (No)

11. Any Subcontracting needed? Yes / (No)
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / (No)
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA
13. Are the samples properly preserved? (Yes) / No
    a. If metals preserved upon receipt: Date: _____ Time: _____ By/Acid Lot#: _____
    b. If dissolved metals are requested, are they: Field Filtered / To Be Lab Filtered
    c. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / (No)
    a. Was there a need to contact the client? Yes / No
    Who was contacted? _____ Date: _____ Time: _____ By: _____

Resolution:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	732648	Yes	N/A	Yes	4 oz. Jar	NP	
2	732649	Yes	N/A	Yes	4 oz. Jar	NP	
3	732650	Yes	N/A	Yes	4 oz. Jar	NP	
4	732651	Yes	N/A	Yes	4 oz. Jar	NP	
5	732652	Yes	N/A	Yes	4 oz. Jar	NP	
6	732653	Yes	N/A	Yes	4 oz. Jar	NP	
7	732654	Yes	N/A	Yes	4 oz. Jar	NP	
8	732655	Yes	N/A	Yes	4 oz. Jar	NP	
9	732656	Yes	N/A	Yes	4 oz. Jar	NP	
10	732657	Yes	N/A	Yes	4 oz. Jar	NP	
11	732658	Yes	N/A	Yes	4 oz. Jar	NP	
12	732659	Yes	N/A	Yes	4 oz. Jar	NP	
13	732660	Yes	N/A	Yes	4 oz. Jar	NP	
14	732661	Yes	N/A	Yes	4 oz. Jar	NP	
15	732662	Yes	N/A	Yes	4 oz. Jar	NP	
16	732663	Yes	N/A	Yes	4 oz. Jar	NP	
17	732664	Yes	N/A	Yes	4 oz. Jar	NP	
18	732665	Yes	N/A	Yes	4 oz. Jar	NP	
19	732666	Yes	N/A	Yes	4 oz. Jar	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Beta Engineering - ML/TB

ESS Project ID: 25L0151
Date Received: 12/3/2025

2nd Review
Were all containers scanned into storage/lab? Initials

Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 9:15 12/4/25
Reviewed By: Date & Time: 12/4/25 1437

ESS Laboratory

Analytical Balance — BAL Laboratory

185 Frances Avenue, Cranston, RI 02910
Phone: 401-461-7181
www.esslaboratory.com

Work Order # 25L0151 Page 3 of 6

Turn Time (Days): [X] Standard [ ] 4 [ ] 3 [ ] 2 [ ] 1 [ ] SameDay
Regulatory State: MA Criteria: RCS-1
PROJECT TYPE: [ ] CT RCP [X] MA MCP [ ] RGP [ ] Permit [ ] 401 WQ [ ] Drinking Water

PAYMENT: Amount $ ____ Check # ____ V MC D AmEx Cash

ELECTRONIC DELIVERABLES (Final Reports are PDF): [X] EQuIS [ ] State Upload [ ] Enviro Data [ ] CLP-Like Package [X] Other (Specify) → Excel, Limit checker

CLIENT INFORMATION

Client: BETA Group, Inc.
Address: 89 Shrewsbury Street, Worcester, MA 01604
Phone: 508-615-4913
Persons Authorized to Receive Data: aravenelle@BETA-inc.com, rsmith@BETA-inc.com

PROJECT INFORMATION

Project Name: Lakeview Playground
Project Location: Worcester, Massachusetts
Project Number: 11468.00
Project Manager: Rob Smith
Bill to: ap@BETA-inc.com
PO#: 11468.00
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs.

REQUESTED ANALYSES

Laboratory ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Arsenic	Total Number of Bottles
1	11/24/25	920	G	Soil	B-6 2-3'	X	1
2		930			B-6 3-4'	X	1
3		940			B-7 0-1'	X	1
4		950			B-7 1-2'	X	1
5		1000			B-7 2-3'	X	1
6		1020			B-7 3-4'	X	1
7		1030			B-8 0-1'	X	1
8		1040			B-8 1-2'	X	1
9		1050			B-8 2-3'	X	1
10	11/7/25	1515			B-9 0-1'	X	1
						MG	

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other
Number of Bottles per Sample:

9	1	10	
1	1		

Shipping Conditions (circle one): (Ice) Iced Ambient
Cooler Temperature (°C): 1.3 IR1
Client approval required for temperature >6°C
[ ] Approved by Client (initials/date →)

Sampled by: A. Ravenelle

Comments: * Please specify "Other" preservative and containers types in this space
- Samples placed in fridge on date collected
- 51 Samples total

Chain needs to be filled out neatly and completely for on time delivery.

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration: [ ] Laboratory Filter [ ] Field Filter

Relinquished by (Signature)	Date	Time	Received By (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
[signature]	12/2/25	1500	Worcester Fridge	Fridge	12/3/25	11:55	[signature] 12/3/25 11:55
Relinquished by (Signature)	Date	Time	Received By (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
[signature]	12/3/25	16:22	[signature]				

ESS Laboratory

Analytical Balance – BAL Laboratory

185 Frances Avenue, Cranston, RI 02910
Phone: 401-461-7181
www.esslaboratory.com

Work Order # 25L0151 Page 4 of 6

Turn Time (Days): [X] Standard [ ] 4 [ ] 3 [ ] 2 [ ] 1 [ ] SameDay
Regulatory State: MA Criteria: RCS-1
PROJECT TYPE: [ ] CT RCP [X] MA MCP [ ] RGP [ ] Permit [ ] 401 WQ [ ] Drinking Water

PAYMENT: Amount $ _____ Check # _____ V MC D AmEx Cash

ELECTRONIC DELIVERABLES (Final Reports are PDF): [X] EQuIS [ ] State Upload [X] Enviro Data [ ] CLP-Like Package [X] Other (Specify) → Excel, Limitchecker

CLIENT INFORMATION

Client: BETA Group, Inc.
Address: 89 Shrewsbury Street, Worcester, MA 01604
Phone: 508-615-4913
Persons Authorized to Receive Data: aravenelle@BETA-inc.com, rsmith@BETA-inc.com

PROJECT INFORMATION

Project Name: Lakeview Playground
Project Location: Worcester, Massachusetts
Project Number: 11468.00
Project Manager: Rob Smith
Bill to: ap@BETA-inc.com
PO#: 11468.00
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs.

REQUESTED ANALYSES

Laboratory ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Arsenic	Total Number of Bottles
11	11/7/25	1520	G	Soil	B-9 1-2'	X	1
12	11/24/25	1110			B-10 0-1'	X	1
13	↓	1120			B-10 1-2'	X	1
14	↓	1130			B-10 2-3'	X	1
15	11/7/25	1323			B-11 0-1'	X	1
16	↓	1447			B-11 1-2'	X	1
17	↓	1450			B-11 2-3'	X	1
18	↓	1130			B-12 0-1'	X	1
19	↓	1138	↓	↓	B-12 1-2'	X	1

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial — AG
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* — 9 — 9
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other — 1
Number of Bottles per Sample: 1

Shipping Conditions (circle one)

Ice / Iced / Ambient
Cooler Temperature (°C): 1.3 IR1
Client approval required for temperature >6°C
[ ] Approved by Client (initials/date →)

Sampled by: A. Ravenelle

Comments: * Please specify "Other" preservative and containers types in this space
- Samples placed in fridge on date collected
- 51 Samples total

Chain needs to be filled out neatly and completely for on time delivery.

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration: [ ] Laboratory Filter [ ] Field Filter

Relinquished by (Signature)	Date	Time	Received By (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
[signature]	12/2/25	1500	Waqar-Fridge	Fridge	12/3/25	11:55	[signature] 12/3/25 11:55
Relinquished by (Signature)	**Date**	**Time**	**Received By (Signature)**	**Relinquished by (Signature)**	**Date**	**Time**	**Received by (Signature)**
[signature]	12/3/25	16:22	[signature]				

CERTIFICATE OF ANALYSIS

Robert Smith
Beta Engineering
315 Norwood Park South
Norwood, MA 02062

RE: Lakeview Playground (11468.00)
ESS Laboratory Work Order Number: 25L0150

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:07 pm, Dec 16, 2025

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0150

Sample Receipt

The following samples were received on December 03, 2025 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for metals were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
25L0150-01	B-13 0-1ft	Soil	6010D
25L0150-02	B-13 1-2ft	Soil	6010D
25L0150-03	B-13 2-3ft	Soil	6010D
25L0150-04	B-14 0-1ft	Soil	6010D
25L0150-05	B-14 1-2ft	Soil	6010D
25L0150-06	B-14 2-3ft	Soil	6010D
25L0150-07	B-15 0-1ft	Soil	6010D
25L0150-08	B-15 1-2ft	Soil	6010D
25L0150-09	B-15 2-3ft	Soil	6010D
25L0150-10	B-16 0-1ft	Soil	6010D
25L0150-11	B-16 1-2ft	Soil	6010D
25L0150-12	B-16 2-3ft	Soil	6010D

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0150

Project Narrative

No unusual observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0150

Current SW-846 Methodology Versions

Analytical Methods

1010A - Flashpoint
6010D - ICP
6020B - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260D - VOA
8270E - SVOA
8270E SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 19-2.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0150

MassDEP Analytical Protocol Certification Form

Laboratory Name: ESS Laboratory Project #: 11468.00
Project Location: Lakeview Playground RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
25L0150-01 through 25L0150-12

Matrices: ☐ Groundwater/Surface Water/Wastewater/Landfill Leachate ☒ Soil/Sediment ☐ Biosolids
☐ Tissue ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☐	MassDEP VPH CAM IV A ☐ PID/FID	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC ☐	6860 Perchlorate CAM VIII B ☐	1633 PFAS CAM X A ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No [1]
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No [1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No [1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☒ Yes ☐ No [1]
E1	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes ☐ No [1]
E2	PFAS only: Were aqueous samples extracted without filtering?	☐ Yes ☐ No [1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No [1]

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits/lower limits of quantitation at or below all CAM reporting limits/lower limits of quantitation specified in the selected CAM protocol(s)?	☒ Yes ☐ No [1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☒ Yes ☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☒ No [1]

1 *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Laurel Stoddard **Position:** Laboratory Director

Printed Name: Laurel Stoddard **Date:** 12/16/2025

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-13 0-1ft
Date Sampled: 11/24/25 13:00
Percent Solids: 93

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**10.8** (2.17)	---	6010D	---	1	CEV	12/15/25 15:06	2.47 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-13 1-2ft
Date Sampled: 11/24/25 13:15
Percent Solids: 85

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**27.5** (2.91)	---	6010D	---	1	CEV	12/15/25 15:08	2.03 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-13 2-3ft
Date Sampled: 11/24/25 13:30
Percent Solids: 86

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**25.7** (2.74)	---	6010D	---	1	CEV	12/15/25 15:11	2.12 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-14 0-1ft
Date Sampled: 11/24/25 13:40
Percent Solids: 86

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**14.4** (2.52)	---	6010D	---	1	CEV	12/15/25 15:13	2.32 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-14 1-2ft
Date Sampled: 11/24/25 13:50
Percent Solids: 92

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**25.0** (2.29)	---	6010D	---	1	CEV	12/15/25 15:15	2.36 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-14 2-3ft
Date Sampled: 11/24/25 14:00
Percent Solids: 81

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**20.1** (3.06)	---	6010D	---	1	CEV	12/15/25 15:17	2.01 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-15 0-1ft
Date Sampled: 11/24/25 14:10
Percent Solids: 85

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-07
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**17.4** (2.90)	---	6010D	---	1	CEV	12/15/25 15:20	2.03 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-15 1-2ft
Date Sampled: 11/24/25 14:20
Percent Solids: 95

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-08
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**47.1** (2.43)	---	6010D	---	1	CEV	12/15/25 15:22	2.17 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-15 2-3ft
Date Sampled: 11/24/25 14:30
Percent Solids: 95

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-09
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**47.7** (2.40)	---	6010D	---	1	CEV	12/15/25 15:24	2.2 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-16 0-1ft
Date Sampled: 11/24/25 14:40
Percent Solids: 86

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-10
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**25.7** (2.62)	---	6010D	---	1	CEV	12/15/25 15:27	2.23 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-16 1-2ft
Date Sampled: 11/24/25 14:50
Percent Solids: 87

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-11
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**23.3** (2.84)	---	6010D	---	1	CEV	12/15/25 15:35	2.02 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-16 2-3ft
Date Sampled: 11/24/25 14:50
Percent Solids: 95

ESS Laboratory Work Order: 25L0150
ESS Laboratory Sample ID: 25L0150-12
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**49.7** (2.15)	---	6010D	---	1	CEV	12/15/25 15:37	2.45 100	DL50945

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0150

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DL50945 - 3050B										
Blank										
Arsenic	ND	2.37	mg/kg wet							
LCS										
Arsenic	49.7	8.06	mg/kg wet	63.55		78	63-137			
LCS Dup										
Arsenic	50.4	6.94	mg/kg wet	63.55		79	63-137	1	30	

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0150

Notes and Definitions

U	Analyte included in the analysis, but not detected
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0150

ESS Laboratory Certifications and Accreditations

Environmental

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Beta Engineering - ML/TB

Shipped/Delivered Via: ESS Courier

ESS Project ID: 25L0150
Date Received: 12/3/2025
Project Due Date: 12/10/2025
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp (°C): 1.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA
13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By/Acid Lot#:
    b. If dissolved metals are requested, are they: Field Filtered / To Be Lab Filtered
    c. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

Time discrepancy Sample # 12 Time COC = 1460. Time on sample = 1500

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No

Who was contacted? Date: Time: By:

Resolution:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	732635	Yes	N/A	Yes	4 oz. Jar	NP	
2	732636	Yes	N/A	Yes	4 oz. Jar	NP	
3	732637	Yes	N/A	Yes	4 oz. Jar	NP	
4	732638	Yes	N/A	Yes	4 oz. Jar	NP	
5	732639	Yes	N/A	Yes	4 oz. Jar	NP	
6	732640	Yes	N/A	Yes	4 oz. Jar	NP	
7	732641	Yes	N/A	Yes	4 oz. Jar	NP	
8	732642	Yes	N/A	Yes	4 oz. Jar	NP	
9	732643	Yes	N/A	Yes	4 oz. Jar	NP	
10	732644	Yes	N/A	Yes	4 oz. Jar	NP	
11	732645	Yes	N/A	Yes	4 oz. Jar	NP	
12	732646	Yes	N/A	Yes	4 oz. Jar	NP	
~~13~~	~~732647~~	~~Yes~~	~~N/A~~	~~Yes~~	~~4 oz. Jar~~	~~NP~~	

2nd Review

Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Beta Engineering - ML/TB

ESS Project ID: 25L0150

Date Received: 12/3/2025

Completed By:

Date & Time: 9:45 12/4/25

Reviewed By:

Date & Time: 12/4/25 1437

ESS Laboratory

Analytical Balance – BAL Laboratory

185 Frances Avenue, Cranston, RI 02910
Phone: 401-461-7181
www.esslaboratory.com

Work Order # 25L0150 Page 5 of 6

Turn Time (Days): ☒ Standard ☐ 4 ☐ 3 ☐ 2 ☐ 1 ☐ SameDay
Regulatory State: MA Criteria: RCS-1
PROJECT TYPE: ☐ CT RCP ☒ MA MCP ☐ RGP ☐ Permit ☐ 401 WQ ☐ Drinking Water

PAYMENT: Amount $ ____ Check # ____ V MC D AmEx Cash

ELECTRONIC DELIVERABLES (Final Reports are PDF): ☒ EQuIS ☐ State Upload ☒ Enviro Data ☐ CLP-Like Package ☒ Other (Specify) → Excel y Limit checker

CLIENT INFORMATION

Client: BETA Group, Inc.
Address: 89 Shrewsbury Street, Worcester, MA 01604
Phone: 508-615-4913
Persons Authorized to Receive Data: aravenelle@BETA-inc.com, rsmith@BETA-inc.com

PROJECT INFORMATION

Project Name: Lakeview Playground
Project Location: Worcester, Massachusetts
Project Number: 11468.00
Project Manager: Rob Smith
Bill to: ap@BETA-inc.com
PO#: 11468.00
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs.

REQUESTED ANALYSES

Laboratory ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Arsenic	Total Number of Bottles
1	11/24/25	1300	G	Soil	B-13 0-1'	X	1
2		1315			B-13 1-2'	X	1
3		1330			B-13 2-3'	X	1
4		1340			B-14 0-1'	X	1
5		1350			B-14 1-2'	X	1
6		1400			B-14 2-3'	X	1
7		1410			B-15 0-1'	X	1
8		1420			B-15 1-2'	X	1
9		1430			B-15 2-3'	X	1
					Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial	AG	9
					Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*	9	
					Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other	1	
					Number of Bottles per Sample:	1	

Shipping Conditions (circle one)

Ice / Iced / Ambient
Cooler Temperature (°C): 1.3°C IR1
Client approval required for temperature >6°C
☐ Approved by Client (initials/date →)

Sampled by: A. Ravenelle

Comments: * Please specify "Other" preservative and containers types in this space
- Samples Placed in Fridge on date Collected
- 51 Samples total

Chain needs to be filled out neatly and completely for on time delivery.

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration: ☐ Laboratory Filter ☐ Field Filter

Relinquished by (Signature)	Date	Time	Received By (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
Andrew Ravenelle	12/2/25	1500	Worcester Fridge	Fridge	12/3/25	11:55	Andrew Ravenelle 12/3/25 11:55
Andrew Ravenelle	12/3/25	16:22					

ESS Laboratory

Analytical Balance - BAL Laboratory

185 Frances Avenue, Cranston, RI 02910
Phone: 401-461-7181
www.esslaboratory.com

Work Order # 25L0150 Page 6 of 6

Turn Time (Days): [X] Standard [ ] 4 [ ] 3 [ ] 2 [ ] 1 [ ] SameDay
Regulatory State: MA Criteria: RCS-1
PROJECT TYPE: [ ] CT RCP [X] MA MCP [ ] RGP [ ] Permit [ ] 401 WQ [ ] Drinking Water

PAYMENT: Amount $ ____ Check # ____ V MC D AmEx Cash

ELECTRONIC DELIVERABLES (Final Reports are PDF): [X] EQuIS [ ] State Upload [X] Enviro Data [ ] CLP-Like Package [X] Other (Specify) → Excel Limit Check

CLIENT INFORMATION

Client: BETA Group, Inc.
Address: 89 Shrewsbury Street, Worcester, MA 01604
Phone: 508-615-4913
Persons Authorized to Receive Data: aravenelle@BETA-inc.com, rsmith@BETA-inc.com

PROJECT INFORMATION

Project Name: Lakeview Playground
Project Location: Worcester, Massachusetts
Project Number: 11468.00
Project Manager: Rob Smith
Bill to: ap@BETA-inc.com
PO#: 11468.00
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs.

REQUESTED ANALYSES

Laboratory ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Arsenic	Total Number of Bottles
10	11/24/25	1440	G	Soil	B-16 0-1'	X	1
11	↓	1450	↓	↓	B-16 1-2'	X	1
12	↓	1460	↓	↓	B-16 2-3'	X	1

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial — AG
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other* — 9
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other — 1
Number of Bottles per Sample: 3

Shipping Conditions (circle one)

(Ice) Iced Ambient
Cooler Temperature (°C): 1.3°C IR1
Client approval required for temperature >6°C
[ ] Approved by Client (initials/date →)

Sampled by: A. Ravenelle

Comments: * Please specify "Other" preservative and containers types in this space
- Samples placed in fridge on date Collected
- 51 Samples total

Chain needs to be filled out neatly and completely for on time delivery.

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration: [ ] Laboratory Filter [ ] Field Filter SL 12/3

Relinquished by (Signature)	Date	Time	Received By (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
[signature]	12/2/25	1500	Worcester Fridge	Fridge	12/3/25	11:55	[signature] 12/3/25 11:55
[signature]	12/3/25	16:22	[signature]				

CERTIFICATE OF ANALYSIS

Robert Smith
Beta Engineering
315 Norwood Park South
Norwood, MA 02062

RE: Lakeview Playground (11468.00)
ESS Laboratory Work Order Number: 25L0152

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 4:52 pm, Dec 18, 2025

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0152

Sample Receipt

The following samples were received on December 03, 2025 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Lab Number	Sample Name	Matrix	Analysis
25L0152-01	B-1 0-1ft	Soil	6010D
25L0152-02	B-1 1-2ft	Soil	6010D
25L0152-03	B-1 2-3ft	Soil	6010D
25L0152-04	B-2 0-1ft	Soil	6010D
25L0152-05	B-2 1-2ft	Soil	6010D
25L0152-06	B-2 2-3ft	Soil	6010D
25L0152-07	B-2 36in-41in	Soil	6010D
25L0152-08	B-3 0-1ft	Soil	6010D
25L0152-09	B-3 1-2ft	Soil	6010D
25L0152-10	B-3 2-3ft	Soil	6010D
25L0152-11	B-4 0-1ft	Soil	6010D
25L0152-12	B-4 1-2ft	Soil	6010D
25L0152-13	B-4 2-3ft	Soil	6010D
25L0152-14	B-4 3-4ft	Soil	6010D
25L0152-15	B-5 0-1ft	Soil	6010D
25L0152-16	B-5 1-2ft	Soil	6010D
25L0152-17	B-5 2-3ft	Soil	6010D
25L0152-18	B-5 3-4ft	Soil	6010D
25L0152-19	B-6 0-1ft	Soil	6010D
25L0152-20	B-6 1-2ft	Soil	6010D

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0152

Project Narrative

Total Metals

25L0152-15 **Elevated Method Reporting Limits due to sample matrix (EL).**
Arsenic

No other observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0152

Current SW-846 Methodology Versions

Analytical Methods

1010A - Flashpoint
6010D - ICP
6020B - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260D - VOA
8270E - SVOA
8270E SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 19-2.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0152

MassDEP Analytical Protocol Certification Form

Laboratory Name: ESS Laboratory Project #: 11468.00
Project Location: Lakeview Playground RTN:

This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):
25L0152-01 through 25L0152-20

Matrices: ☐ Groundwater/Surface Water/Wastewater/Landfill Leachate ☒ Soil/Sediment ☐ Biosolids
☐ Tissue ☐ Drinking Water ☐ Air ☐ Other:

CAM Protocol (check all that apply below):

8260 VOC CAM II A ☐	7470/7471 Hg CAM III B ☐	MassDEP VPH CAM IV A ☐ PID/FID	8081 Pesticides CAM V B ☐	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☐	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☐	8151 Herbicides CAM V C ☐	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☒	6020 Metals CAM III D ☐	8082 PCB CAM V A ☐	9014 Total Cyanide/PAC ☐	6860 Perchlorate CAM VIII B ☐	1633 PFAS CAM X A ☐

Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	☒ Yes ☐ No [1]
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☒ Yes ☐ No [1]
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☒ Yes ☐ No [1]
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☒ Yes ☐ No [1]
E1	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	☐ Yes ☐ No [1]
E2	PFAS only: Were aqueous samples extracted without filtering?	☐ Yes ☐ No [1]
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☒ Yes ☐ No [1]

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits/lower limits of quantitation at or below all CAM reporting limits/lower limits of quantitation specified in the selected CAM protocol(s)?	☐ Yes ☒ No [1]

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.

H	Were **all** QC performance standards specified in the CAM protocol(s) achieved?	☒ Yes ☐ No [1]
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☒ No [1]

1 *All negative responses must be addressed in an attached laboratory narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, is accurate and complete.

Signature: Laurel Stoddard **Position:** Laboratory Director

Printed Name: Laurel Stoddard **Date:** 12/18/2025

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-1 0-1ft
Date Sampled: 11/07/25 09:50
Percent Solids: 87

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**21.0** (2.57)	---	6010D	---	1	CEV	12/17/25 1:18	2.23 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-1 1-2ft
Date Sampled: 11/07/25 10:10
Percent Solids: 85

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**17.5** (2.72)	---	6010D	---	1	CEV	12/17/25 1:20	2.16 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-1 2-3ft
Date Sampled: 11/07/25 10:30
Percent Solids: 86

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-03
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**13.7** (2.88)	---	6010D	---	1	CEV	12/17/25 1:23	2.02 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-2 0-1ft
Date Sampled: 11/07/25 10:15
Percent Solids: 85

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-04
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**21.6** (2.80)	---	6010D	---	1	CEV	12/17/25 1:25	2.09 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-2 1-2ft
Date Sampled: 11/07/25 10:17
Percent Solids: 92

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-05
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**21.2** (2.20)	---	6010D	---	1	CEV	12/17/25 1:27	2.47 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-2 2-3ft
Date Sampled: 11/07/25 10:50
Percent Solids: 73

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-06
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**21.9** (3.25)	---	6010D	---	1	CEV	12/17/25 1:29	2.12 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-2 36in-41in
Date Sampled: 11/07/25 11:22
Percent Solids: 83

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-07
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**18.6** (2.89)	---	6010D	---	1	CEV	12/17/25 1:32	2.08 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-3 0-1ft
Date Sampled: 11/07/25 11:18
Percent Solids: 78

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-08
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**28.4** (2.99)	---	6010D	---	1	CEV	12/17/25 1:34	2.14 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-3 1-2ft
Date Sampled: 11/07/25 11:43
Percent Solids: 79

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-09
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**18.5** (3.02)	---	6010D	---	1	CEV	12/17/25 1:36	2.09 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-3 2-3ft
Date Sampled: 11/07/25 12:20
Percent Solids: 91

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-10
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**16.7** (2.39)	---	6010D	---	1	CEV	12/17/25 1:54	2.29 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-4 0-1ft
Date Sampled: 11/07/25 13:16
Percent Solids: 76

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-11
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**21.8** (3.12)	---	6010D	---	1	CEV	12/17/25 1:56	2.11 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-4 1-2ft
Date Sampled: 11/07/25 13:30
Percent Solids: 82

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-12
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**19.1** (3.01)	---	6010D	---	1	CEV	12/17/25 1:59	2.03 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-4 2-3ft
Date Sampled: 11/07/25 14:20
Percent Solids: 94

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-13
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**19.0** (2.56)	---	6010D	---	1	CEV	12/17/25 2:01	2.08 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-4 3-4ft
Date Sampled: 11/07/25 14:40
Percent Solids: 95

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-14
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**20.2** (2.36)	---	6010D	---	1	CEV	12/17/25 2:04	2.24 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-5 0-1ft
Date Sampled: 11/07/25 15:00
Percent Solids: 81

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-15
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**EL** ND (2.80)	---	6010D	---	1	CEV	12/17/25 2:21	2.21 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-5 1-2ft
Date Sampled: 11/07/25 15:05
Percent Solids: 91

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-16
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**29.7** (2.50)	---	6010D	---	1	CEV	12/17/25 2:23	2.21 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-5 2-3ft
Date Sampled: 11/07/25 15:10
Percent Solids: 85

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-17
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**19.5** (2.80)	---	6010D	---	1	CEV	12/17/25 2:26	2.1 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-5 3-4ft
Date Sampled: 11/07/25 15:30
Percent Solids: 88

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-18
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**14.1** (2.61)	---	6010D	---	1	CEV	12/17/25 2:28	2.17 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-6 0-1ft
Date Sampled: 11/24/25 09:00
Percent Solids: 89

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-19
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**17.1** (2.69)	---	6010D	---	1	CEV	12/17/25 2:30	2.08 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground
Client Sample ID: B-6 1-2ft
Date Sampled: 11/24/25 09:10
Percent Solids: 79

ESS Laboratory Work Order: 25L0152
ESS Laboratory Sample ID: 25L0152-20
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	IV / FV	Batch
Arsenic	**11.0** (3.06)	---	6010D	---	1	CEV	12/17/25 2:33	2.08 100	DL50947

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0152

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DL50947 - 3050B										
Blank										
Arsenic	ND	2.39	mg/kg wet							
LCS										
Arsenic	51.4	7.35	mg/kg wet	63.55		81	63-137			
LCS Dup										
Arsenic	50.0	7.81	mg/kg wet	63.55		79	63-137	3	30	

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground ESS Laboratory Work Order: 25L0152

Notes and Definitions

U	Analyte included in the analysis, but not detected
EL	Elevated Method Reporting Limits due to sample matrix (EL).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Beta Engineering
Client Project ID: Lakeview Playground

ESS Laboratory Work Order: 25L0152

ESS Laboratory Certifications and Accreditations

Environmental

Rhode Island Potable and Non Potable Water: LAI00179
http://www.health.ri.gov/find/labs/analytical/ESS.pdf

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml

Massachusetts Potable and Non Potable Water: M-RI002
http://public.dep.state.ma.us/Labcert/Labcert.aspx

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
http://www.wadsworth.org/labcert/elap/comm.html

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

Pennsylvania: 68-01752
http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Beta Engineering - ML/TB

Shipped/Delivered Via: ESS Courier

ESS Project ID: 25L0152
Date Received: 12/3/2025
Project Due Date: 12/10/2025
Days for Project: 5 Day

1. Air bill manifest present? No
   Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
   Temp (°C): 1.3 Iced with: Ice
5. Was COC signed and dated by client? Yes
6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. **Were labs informed about short holds & rushes?** Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
    ESS Sample IDs:
    Analysis:
    TAT:
12. Were VOAs received? Yes / No
    a. Air bubbles in aqueous VOAs? Yes / No
    b. Does methanol cover soil completely? Yes / No / NA
13. Are the samples properly preserved? Yes / No
    a. If metals preserved upon receipt: Date: Time: By/Acid Lot#:
    b. If dissolved metals are requested, are they: Field Filtered / To Be Lab Filtered
    c. Low Level VOA vials frozen: Date: Time: By:

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
    a. Was there a need to contact the client? Yes / No
    Who was contacted? Date: Time: By:

Resolution:

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	732667	Yes	N/A	Yes	4 oz. Jar	NP	
2	732668	Yes	N/A	Yes	4 oz. Jar	NP	
3	732669	Yes	N/A	Yes	4 oz. Jar	NP	
4	732670	Yes	N/A	Yes	4 oz. Jar	NP	
5	732671	Yes	N/A	Yes	4 oz. Jar	NP	
6	732672	Yes	N/A	Yes	4 oz. Jar	NP	
7	732673	Yes	N/A	Yes	4 oz. Jar	NP	
8	732674	Yes	N/A	Yes	4 oz. Jar	NP	
9	732675	Yes	N/A	Yes	4 oz. Jar	NP	
10	732676	Yes	N/A	Yes	4 oz. Jar	NP	
11	732677	Yes	N/A	Yes	4 oz. Jar	NP	
12	732678	Yes	N/A	Yes	4 oz. Jar	NP	
13	732679	Yes	N/A	Yes	4 oz. Jar	NP	
14	732680	Yes	N/A	Yes	4 oz. Jar	NP	
15	732681	Yes	N/A	Yes	4 oz. Jar	NP	
16	732682	Yes	N/A	Yes	4 oz. Jar	NP	
17	732683	Yes	N/A	Yes	4 oz. Jar	NP	
18	732684	Yes	N/A	Yes	4 oz. Jar	NP	
19	732685	Yes	N/A	Yes	4 oz. Jar	NP	
20	732686	Yes	N/A	Yes	4 oz. Jar	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Beta Engineering - ML/TB

ESS Project ID: 25L0152

Date Received: 12/3/2025

2nd Review

Were all containers scanned into storage/lab? Initials

Are barcode labels on correct containers? Yes / No

Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA

Are all Hex Chrome stickers attached? Yes / No / NA

Are all QC stickers attached? Yes / No / NA

Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 9:14 12/4/25

Reviewed By: AO Date & Time: 12/4/25 1441

ESS Laboratory

Analytical Balance — BAL Laboratory

185 Frances Avenue, Cranston, RI 02910
Phone: 401-461-7181
www.esslaboratory.com

Work Order # 251052

Page 1 of 6

Turn Time (Days): [X] Standard [ ] 4 [ ] 3 [ ] 2 [ ] 1 [ ] SameDay

Regulatory State: MA Criteria: RCS-1

PROJECT TYPE: [ ] CT RCP [X] MA MCP [ ] RGP [ ] Permit [ ] 401 WQ [ ] Drinking Water

PAYMENT: Amount $ _____ Check # _____ V MC D AmEx Cash

ELECTRONIC DELIVERABLES (Final Reports are PDF): [X] EQuIS [ ] State Upload [X] Enviro Data [ ] CLP-Like Package [X] Other (Specify) → Excel j limit checker

CLIENT INFORMATION

Client: BETA Group, Inc.
Address: 89 Shrewsbury Street, Worcester, MA 01604
Phone: 508-615-4913
Persons Authorized to Receive Data: aravenelle@BETA-inc.com, rsmith@BETA-inc.com

PROJECT INFORMATION

Project Name: Lakeview Playground
Project Location: Worcester, Massachusetts
Project Number: 11468.00
Project Manager: Rob Smith
Bill to: ap@BETA-inc.com
PO#: 11468.00
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs.

REQUESTED ANALYSES

Laboratory ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Arsenic	Total Number of Bottles
1	11/7/25	950	G	Soil	B-1 0-1'	X	1
2		1010			B-1 1-2'	X	1
3		1030			B-1 2-3'	X	1
4		1015			B-2 0-1'	X	1
5		1017			B-2 1-2'	X	1
6		1050			B-2 2-3'	X	1
7		1122			B-2 36"-41"	X	1
8		1118			B-3 0-1'	X	1
9		1143			B-3 1-2'	X	1
10	↓	1220	↓	↓	B-3 2-3'	X	1
						AG	10
						9	
						1	
						1	

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial

Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*

Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other

Number of Bottles per Sample:

Shipping Conditions (circle one)

(Ice) Iced Ambient

Cooler Temperature (°C): 1.3

Client approval required for temperature >6°C

[ ] Approved by Client (initials/date →)

Sampled by : A. Ravenelle

Comments: * Please specify "Other" preservative and containers types in this space

- Samples placed in fridge on date collected
- 51 Samples total

Chain needs to be filled out neatly and completely for on time delivery.

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration: [ ] Laboratory Filter [ ] Field Filter

Relinquished by (Signature)	Date	Time	Received By (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
[signature]	12/2/25	1500	Worcester Fridge	Fridge	12/3/25	11:55	[signature] 12/3/25 11:55
[signature]	12/3/25	16:22	[signature]				

ESS Laboratory

Analytical Balance — BAL Laboratory

185 Frances Avenue, Cranston, RI 02910
Phone: 401-461-7181
www.esslaboratory.com

Work Order # 2510152 Page 2 of 6

Turn Time (Days): [X] Standard [ ] 4 [ ] 3 [ ] 2 [ ] 1 [ ] SameDay
Regulatory State: MA Criteria: RCS-1
PROJECT TYPE: [ ] CT RCP [X] MA MCP [ ] RGP [ ] Permit [ ] 401 WQ [ ] Drinking Water

PAYMENT: Amount $ ____ Check # ____ V MC D AmEx Cash

ELECTRONIC DELIVERABLES (Final Reports are PDF): [X] EQuIS [ ] State Upload [X] Enviro Data [ ] CLP-Like Package [X] Other (Specify) Excel, limit checks

CLIENT INFORMATION

Client: BETA Group, Inc.
Address: 89 Shrewsbury Street, Worcester, MA 01604
Phone: 508-615-4913
Persons Authorized to Receive Data: aravenelle@BETA-inc.com, rsmith@BETA-inc.com

PROJECT INFORMATION

Project Name: Lakeview Playground
Project Location: Worcester, Massachusetts
Project Number: 11468.00
Project Manager: Rob Smith
Bill to: ap@BETA-inc.com
PO#: 11468.00
Quote#:

Client acknowledges that sampling is compliant with all EPA / State regulatory programs.

REQUESTED ANALYSES

Laboratory ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Arsenic	Total Number of Bottles
11	11/7/25	1316	G	Soil	B-4 0-1'	X	1
12		1330			B-4 1-2'	X	1
13		1420			B-4 2-3'	X	1
14		1440			B-4 3-4'	X	1
15		1500			B-5 0-1'	X	1
16		1505			B-5 1-2'	X	1
17		1510			B-5 2-3'	X	1
18		1530			B-5 3-4'	X	1
19	11/24/25	900			B-6 0-1'	X	1
20	11/24/25	910			B-6 1-2'	X	1
						AG	
						9	
						1	10
					Number of Bottles per Sample:	1	

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer J-Jar O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other

Shipping Conditions (circle one)

Ice / Iced / Ambient
Cooler Temperature (°C): 1.3° IR1
Client approval required for temperature >6°C
[ ] Approved by Client (initials/date →)

Sampled by: A. Ravenelle

Comments: * Please specify "Other" preservative and containers types in this space
- Samples placed in Fridge on date Collected
-5 | Samples total

Chain needs to be filled out neatly and completely for on time delivery.

All samples submitted are subject to ESS Laboratory's payment terms and conditions.

Dissolved Filtration: [ ] Laboratory Filter [ ] Field Filter

Relinquished by (Signature)	Date	Time	Received By (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
Andrew Ravenelle	12/2/25	1500	Worcester Fridge	Fridge	12/3/25	11:55	12/3/25 11:55
Andrew Ravenelle	12/3/25	16:22					