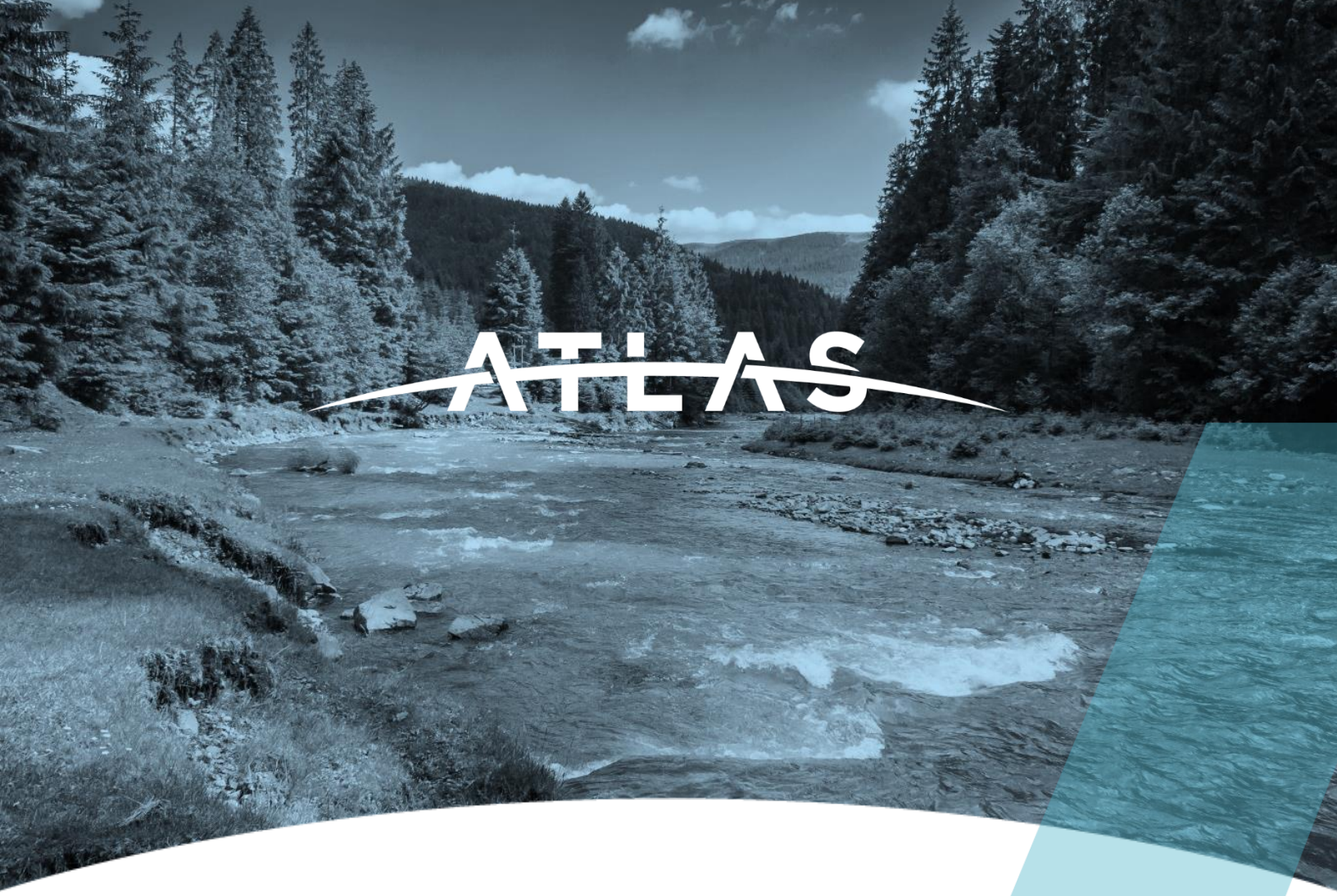

DUE CARE PLAN – SCOPE OF WORK

SURFACE EXPOSURE BARRIER (SOIL CAP)
AB FORD PARK PROPERTY
100 LENOX STREET, DETROIT, MICHIGAN 48215

PREPARED FOR:

Mr. Hosam Hassanien, PG, CPG
City of Detroit
Environmental Affairs
Buildings, Safety, Engineering and Environmental Department
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June 4, 2024

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June 4, 2024

Mr. Hosam Hassanien
CITY OF DETROIT
ENVIRONMENTAL AFFAIRS
2 Woodward Avenue – CAYMC, Suite 401
Detroit, Michigan 48226

Subject: **Due Care Plan – Scope of Work**
Surface Exposure Barrier Installation / Construction, Soil and Groundwater Management Plan
AB Ford Park Property
100 Lenox Street, Detroit, Michigan 48215

Dear Mr. Hassanien:

Under contract with Giffels Webster, Atlas Technical Consultants LLC (Atlas) is pleased to present this Due Care Plan Scope of Work (DC SOW) relating to the City of Detroit's planned construction and renovation of the existing AB Ford Park at 100 Lenox Street, Detroit, MI.

The planned project activities include clearing and removal of all existing vegetation, including trees, throughout the park, and removal of most existing park improvements. This will be followed by the installation of a clean soil cap (i.e., Surface Exposure Barrier) across the entirety of the park in areas where structural exposure barriers (e.g., building slabs, parking lots, etc.) are not present.

Due Care obligations presented in the attached Due Care Scope of Work includes import fill material sampling, exposure barrier installation and inspections; fugitive dust monitoring and analysis; waste characterization as needed; permitting/sampling; surface water management; soil gas sampling; final Documentation of Due Care Compliance (DDCC) / Operation and Maintenance Plan for Post Due Care Inspections; and related task items.

If you have any questions, please contact the undersigned.

Respectfully submitted,
Atlas Technical Consultants LLC

Nathaniel Wanner, CPG
Senior Project Manager

Joshua Schuyler
Operations Manager

Attachment: Exposure Barrier Plan

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EXECUTIVE SUMMARY

Atlas has contracted with Giffels Webster to assist and provide environmental services relating to the City of Detroit's planned construction and renovation of the existing AB Ford Park, located at 100 Lennox Street, Detroit, Michigan. Environmental services include those related to construction of a Surface Protective Barrier (e.g., direct contact exposure barrier) to address Due Care (DC) obligations.

The following provides a detailed Due Care Plan Scope of Work (DC SOW) regarding specifications and installation of the exposure barrier, construction oversight, fugitive dust monitoring, waste characterization, permitting/sampling relating to surface water collection/assessment and potential discharge to City Publicly Owned Treatment Works (POTW), management and final Documentation of Due Care Compliance (DDCC) and post DC operation and maintenance (O&M) plans.

The planned project activities consist of, but may not be limited to, clearing and removal of all existing vegetation, including trees, throughout the park, and removal of most existing park improvements. This will be followed by the installation of a clean soil cap (i.e., Surface Protective Barrier) across the entirety of the park. Following installation of the soil cap, construction of various improvements and structures throughout the park include, but are not limited to, the construction of approximately 22,000 square feet of concrete walkways, two (2) pickleball courts, one (1) tennis court, one (1) integrated skate path, four (4) outdoor shelters, lighting improvements, the resurfacing of the existing Lakewood asphalt parking lot serving the park and final restoration of all disturbed surfaces with topsoil and seed.

1. INTRODUCTION

The City of Detroit has requested that Atlas contract with Giffels Webster to assist and provide environmental services related to site construction Due Care obligations, development of plans for installation of the exposure barrier, oversight/inspection, and documentation of site activities.

This Due Care Plan – Scope of Work (DC SOW) for a Surface Exposure Barrier (Plan) has been developed in general compliance with Michigan Department of Environment, Great Lakes, and Energy (EGLE) guidance for exposure barriers for the direct contact pathway (EGLE 2024). Direct contact barriers are referenced by various terms such as engineered barriers, engineering controls, caps, or covers; for this DC SOW, the term exposure barrier will be used to include all types of direct contact exposure barriers.

1.1 Project Background

The City of Detroit, Construction and Demolition Department (C&DD) retained Atlas to conduct Due Care activities in planning for the demolition of the former Lenox Center Building (located at AB Ford Park). These activities included a Phase I Environmental Site Assessment (ESA), a Phase II ESA, Delineation Assessment and Summary Report, and a Due Care Evaluation (DCE) (for building/site demolition only). Atlas was later retained to conduct additional site assessment on an approximately 12-acre western portion of AB Ford Park, which included a Delineation of Soil-Fill Material Contamination Summary on behalf of C&DD. The site assessment activities indicated that the Subject Property meets the definition of a "facility" as that term is defined in Part 201 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended (Part 201).

The City of Detroit, Parks and Recreation currently owns/operates the property. An owner or operator of a facility has due care obligations under Section 20107a and Section 21304c with respect to any existing contamination. A DCE was prepared on behalf of the City of Detroit in respect to its planned park construction and renovation activities in accordance with Section 20107a of Part 201 using the information provided in the Phase II ESA, Delineation Assessment Summary, and Delineation of Soil-Fill Material Contamination Summary (Atlas 2024).

The DCE was based on current property conditions, identified contamination above cleanup criteria, and planned City of Detroit activities. It includes the identification of complete exposure pathways, presents applicable criteria by category of land use, and provides recommendations of response activities or corrective actions.

1.2 Description of Property and Affected Areas

The Subject Property includes an area of approximately 29.5 acres. This includes the approximately 12-acre western portion where additional assessment (sampling) was performed and that is currently developed with an 8,116 square foot community center building and associated parking that was completed in 2023 (see Figure A for current property location and Figure B for the AB Ford Master Plan Rendering). The Subject Property building serves as a

community space as well as a sustainable resilience hub during emergencies and includes a community hub space, flexible space for indoor youth sports and community events, classrooms, and quiet learning space. The Subject Property is serviced by municipally supplied utilities. The municipalities having jurisdiction over the Subject Property are the City of Detroit and Wayne County. The City of Detroit, Parks and Recreation currently owns/operates the property.

The area surrounding the building generally includes grass and/or landscaping with asphalt driveways/parking areas to the north. A playground is located east of the building and a pavilion and basketball court are located west of the building. Concrete pads and two missile tracking radar towers, associated with the U.S. Army Integrated Fire Control (IFC) site D-23, are also present on the Subject Property.

As indicated above, the planned project activities consist of, but may not be limited to, clearing and removal of all existing vegetation, including trees, throughout the park, removal of most existing park improvements followed by the installation of a clean soil cap (i.e., Exposure Barrier) to limit direct contact to existing soil at the site across the entirety of the park and, following installation of the soil cap/exposure barrier, construction of various improvements and structures throughout the park. The planned improvements include, but are not limited to, the construction of approximately 22,000 square feet of concrete walkways, two (2) pickleball courts, one (1) tennis court, one (1) integrated skate path, four (4) outdoor shelters, lighting improvements, the resurfacing of the existing Lakewood asphalt parking lot serving the park and final restoration of all disturbed surfaces with topsoil and seed.

In addition, the naturalized portion of the property will feature a pollinator meadow, arboretum for educational enrichment opportunities, and additional tree plantings. Other renovations expected to take place at the park include updates to the existing restroom building and Detroit Pistons-sponsored basketball courts.

Based on information provided by C&DD, there are currently no land or resource use limitations or institutional controls established on the Subject Property. There are no known aboveground storage tanks, underground storage tanks or containers of hazardous substances present or abandoned on the Subject Property. There are no current response activities or corrective actions being conducted at the Subject Property by liable or non-liable parties.

The Subject Property is currently accessed from the northwest corner of the parcel via Lenox Street. Municipally supplied utilities (electricity, natural gas, water, storm sewer, sanitary sewer) are provided to the Subject Property. There are no known water wells or septic systems identified or reported for the Subject Property. Two newly constructed inter-connected bio swales (completed in 2023) that receive stormwater runoff and are connected to the municipal sewer system are located on the northwestern portion of the Subject Property, west of the newly constructed community center building. There is no other surface water on the Subject Property. The Detroit River is located directly south of the Subject Property.

1.3 Facility Contaminant Summary

The following soil contaminants of concern (COCs) that are applicable to this DCE were identified during soil sampling in the western portion of the Subject Property:

Contaminant	Maximum Concentration (µg/kg)	Location of Maximum Concentration	Part 201 Residential or Non-Residential GCC / DCC / VIAP
Arsenic	100,000	SB-10 (0-2)	**Residential DCC Nonresidential DCC**
Cadmium	1,100,000	SB-58 (0-2)	**Residential DCC**
Lead	10,500,000	SB-158 (0-2)	**Residential DCC Nonresidential DCC**
Mercury	7,150	SB-118 (0-2)	**Residential VIAP**
Benzo(a)anthracene	61,200	SB-96 (0-2)	**Residential DCC**
Benzo(a)pyrene	43,500	SB-96 (0-2)	**Residential DCC Nonresidential DCC**
Benzo(b)fluoranthene	58,500	SB-96 (0-2)	**Residential DCC**
Dibenz(a,h)anthracene	8,420	SB-96 (0-2)	**Residential DCC Nonresidential DCC**
Indeno(1,2,3-cd)pyrene	24,900	SB-96 (0-2)	**Residential DCC**
Naphthalene	1,950	SB-33 (2-4)	**Residential VIAP**
Phenanthrene	69,500	SB-96 (0-2)	**Residential VIAP**

Notes: *Only analytes for which one or more of the Part 201 Criteria are exceeded are included in the above table.*

VIAP - Volatilization to Indoor Air Pathway

GCC – Generic Cleanup Criteria

DCC – Direct Contact Criteria

Exposure barriers may be implemented at properties with known contamination or as a presumptive remedy. Based on soil-fill material grid sampling completed to date within the western portion of the park, the level, nature, and distribution of soil/ fill material contamination within the eastern portion of the park are expected to be similar, if not identical, to the western portion of the park fully investigated in mid-2023. Therefore, a presumptive remedy consisting of construction and installation of a Surface Protective Barrier/Exposure Barrier (i.e., clean soil cap) has been recommended for the entire Subject Property (including the eastern portion of the park) to prevent direct human contact with the contaminated materials.

1.4 Description and Purpose of the Exposure Barrier

Exposure barriers are one method of mitigating or preventing exposures through the soil direct contact pathway. The intent of an exposure barrier is to mitigate or prevent a person's contact with and incidental ingestion of contaminated soils during the normal use of the property. An exposure barrier does not destroy or remove contamination; therefore, it must be constructed and maintained in a manner that assures the barrier will mitigate or prevent unacceptable exposure for as long as the contamination remains at the property. As such, the exposure barrier must cover all areas where representative sampling has demonstrated concentrations above applicable criteria.

Exposure barrier selection is based on the site-specific conditions and the current and anticipated future uses of the property. At a minimum, an exposure barrier must remain protective during normal operations and activities at the property. It is expected that the property will be used as a municipal park, and that a central management entity will be responsible for site construction and maintenance, fencing, and other activities that may result in future disturbance of contaminated materials and/or exposure barriers.

The following activities and exposure pathways are anticipated during current planned park construction/ renovation activities:

- Soil particles could be dispersed through wind and water erosion to adjacent properties or through storm sewer systems.
- Perched shallow groundwater may be encountered and could be dispersed in construction site runoff to adjacent properties or storm sewer systems.
- Construction workers may be exposed to hazardous substances found in soil and groundwater.
- Exacerbation of existing contamination could be a result of handling soil and groundwater encountered during construction or soil adhered to demolition debris, construction workers, and/or demolition and construction equipment/trucks leaving the Subject Property.
- Authorized visitors or unauthorized users may be exposed to hazardous substances found in soil and groundwater.

1.5 Applicable Standards and Reporting Requirements

It is the responsibility of the property owner and party implementing the exposure barrier to follow proper engineering practices and comply with all local, state, and federal laws and permitting requirements (EGLE 2024, Section 2.5). This will include meeting applicable standards, health and safety protocols, and providing documentation that proper protocols were followed.

As part of the documentation for compliance with Section 20107a(1)(b) there must be compliance with Rule 1005, Rule 1009, Rule 1011, Rule 1013(6), Rule 1015, Rule 1107, and Rule 1019 with regards to the conditions at the Subject Property. Based on applicable conditions and the proposed development plans, the following rules apply to the Subject Property during site activities to be completed:

During construction activities, Best Management Practices (BMP) will be utilized for the storage, usage and disposal of lubricants, coolants, cleaning supplies, and precautions will be taken to prevent spills, overfills or material releases.

Other laws and regulations in addition to Part 201 that may be relevant to the management of hazardous substances include, but are not limited to, the following:

(a) Part 55 of the act (air pollution control).

(b) Part 111 of the act (hazardous waste management).

(c) Part 115 of the act (solid waste management).

(d) Part 211 of the act (underground storage tank regulation).

(e) Part 213 of the act (leaking underground storage tanks).

(f) Part 615 of the act (supervisor of wells).

(g) Act No. 207 of the Public Acts of 1941, as amended, being §29.1 et seq. of the Michigan Compiled Laws and known as the fire protection code.

(h) The toxic substances control act, 15 U.S.C. §2601 et seq.

(i) The resource conservation and recovery act, 42 U.S.C. §6901 et seq.

(j) Rules and regulations promulgated under the laws listed in subdivisions (a) to (i) of rule 299.51005.

The City should notify all on-site contractors and workers of the presence of soil and groundwater impacts during park construction and renovation activities. Example notification forms are provided in Appendix I.

2. SURFACE EXPOSURE BARRIER DESIGN

Installation of a soil exposure barrier was recommended across the Subject Property to eliminate the direct contact exposure pathway. An exposure barrier works by providing physical isolation between the receptor and the contaminated media. Exposure barriers rely on structural or thickness elements (or both) to provide a physical barrier that is protective and durable. Exposure barriers consisting of structural elements (structural exposure barriers) rely on the inherent nature and/or physical strength of the material to mitigate or prevent contact. Structural exposure barriers include, but are not limited to, asphalt, concrete, membrane liners, and building slabs and foundations. Exposure barriers relying on the thickness and depth of a cover material to mitigate or prevent contact (non-structural exposure barriers) include but are not limited to, clean soil, compacted clay, gravel, rock, and other loose aggregate material (EGLE 2024, Section 3.0).

The exposure barrier at the Subject Property will have both non-structural and structural components (Figure B). Non-structural exposure barriers will generally be constructed with two (2) feet or more of clean fill materials underlain by a demarcation layer. Structural exposure barriers will generally consist of building slabs and foundations, asphalt, and concrete.

Example exposure barrier construction diagrams are provided in Appendix II.

2.1 Non-Structural Exposure Barriers

Non-structural exposure barriers are defined as soil, gravel, rock, or other loose non-organic material installed to a minimum thickness. Exposure barriers constructed of gravel, rock, and other aggregate materials are categorized the same as other non-structural exposure barriers except for the establishment of a surface vegetative layer. Non-structural exposure barriers should be installed over a demarcation layer (EGLE 2024).

Non-structural exposure barriers must be stabilized to prevent erosion. Soil exposure barriers must be stabilized and maintained with a healthy dense vegetative cover or landscaping material.

2.1.1 Minimum Barrier Thickness

Non-structural exposure barriers should be a minimum of two feet (24 inches) in thickness. Clean physically screened organic topsoil that will promote vegetative growth can be included in the measured thickness of the barrier. The vegetive layer, biodegradable landscaping materials (wood chips, mulch, compost, etc.), and shredded rubber mulch are not included in the measured barrier thickness (EGLE 2024, Section 3.1).

Diligent effort should be made to ensure the minimum two-foot exposure barrier thickness. If it is not possible or practical to create a 24-inch-thick non-structural exposure barrier in localized areas, then the thickness may be reduced provided that the area(s) with less than 24-inch thickness is as small as possible. If non-structural exposure barriers that have significant deviation from EGLE guidance are constructed at the Subject Property, then additional

consultation/review should be completed to determine whether land use restrictions or other insurances and reporting beyond those outlined in this plan must be implemented.

It is imperative that exposure barrier thicknesses be appropriately surveyed and documented (Section 4). Playground areas should not be reduced to a thickness of less than 18 inches. For other active recreational areas (sports fields, picnic areas, biking or walking trails, etc.) the thickness should be no less than 12 inches. For passive recreational areas (naturalized greenspace, open park, gravel trails) the barrier thickness may be reduced to no less than 6 inches (EGLE 2024, Appendix A). Non-structural barriers should never be less than 6 inches in thickness. If a barrier less than 6 inches in thickness is required, a structural barrier should be constructed (Section 2.2).

2.1.2 Acceptable Materials

The soil layer of the exposure barrier may consist of on or off-site borrow material that meets cleanup criteria applicable to the property, as determined by an environmental professional (Section 2.1.3). This may include soil, gravel, rock, or other loose non-organic materials.

Gravel, stone, or pavement is the preferred exposure barrier material for pathways and trails (EGLE 2024, Section 2.2).

The vegetative layer, biodegradable landscaping materials (wood chips, mulch, compost, etc.), and shredded rubber mulch are not included in the measured barrier thickness (EGLE 2024, Section 3.1). These materials may be placed atop exposure barriers. Clean physically screened organic topsoil that will promote vegetative growth can be included in the measured thickness of the barrier.

2.1.3 Borrow Source and Clean Backfill Testing

Borrow sources should be identified and tested well in advance of construction to ensure they meet the project specifications and do not contain hazardous substances or petroleum above applicable criteria. The environmental characterization should be performed by an environmental professional. Appropriate environmental characterization of borrow materials may be accomplished by:

1. Appropriate research into the source of the materials, like that performed during All Appropriate Inquiry (Phase I) environmental site assessments, and/or
2. Appropriate confirmatory sampling and analysis to demonstrate that materials are not contaminated above applicable unrestricted (“residential”) standards.

Confirmatory soil sampling/analysis of any existing site soils to be reused as surface and/or topsoil for final grade is recommended (Atlas 2024, Section 6.1).

Generally, non-soil aggregate materials such as clean gravel or crushed concrete may be presumed to be clean without additional testing unless there is reason to believe otherwise. Such

reasons may include, but are not limited to, aggregate sourced from facilities that handled hazardous substances or petroleum and concrete that may be painted with lead or PCB-containing paints.

Borrow source and clean backfill testing must be appropriately documented (Section 4).

Based on site specifications, Atlas estimates a total of approximately 96,000 cubic yards (cyd) of fill material (sand, topsoil, etc.) will be used on the site. Atlas will require documentation of historical site use and location of all fill/borrow sources from the contractor. Based on discussions between Atlas and City of Detroit Buildings, Safety, Engineering and Environmental Department / Environmental Affairs (BSEED-EA), if soil is excavated from a single/virgin source (licensed gravel/borrow pit), the recommendation is for the collection of one (1) composite sample per 4,000 cyd of soil. If imported soil will be derived from multiple sources (e.g., fill soils and topsoil from different sources), qualifications must be met for each source in accordance with the sampling frequency and analysis included in this section.

Composite samples will be collected from the fill source (prior to delivery to the project site) from five (5) evenly spaced grid locations for each 4,000 cyd of import soil (two discrete samples from each quadrant / 10 samples total) composited into one sample for laboratory analysis. Efforts will be made to collect representative samples (based on the extent, thickness, and geometry of the fill), though sampling will be biased in each area sampled towards “worst-case” samples that may exhibit physical evidence of environmental impact (if present). Each sample will be collected into two aliquots: one for field screening, and the other in a sealed glass jar for laboratory analysis. One (1) duplicate sample will be collected for every 10 samples collected. Atlas estimates a total of 28 samples to be submitted for analysis based on current construction specifications for fill and topsoil. The jarred samples will be placed on ice in a cooler. The bagged samples will be field screened with a photoionization detector (PID) calibrated for VOCs.

Samples will be submitted for laboratory analysis (utilizing the City of Detroit sampling analysis list for fill materials) including the following compounds:

- Volatile Organic Compounds (VOCs) - U.S. EPA Method 8260B/624
- Semi-Volatile Organic Compounds (SVOCs) - U.S. EPA Method 8270C/625
- Polychlorinated Biphenyls (PCBs) - U.S. EPA Method 8082
- Michigan 10 Metals - U.S. EPA Method 6020/7471
- Chloride - U.S. EPA Method 9056
- Herbicides and Pesticides - U.S. EPA 8081/8082

Samples will be analyzed on a 7–10-day turnaround basis unless otherwise requested. This analytical approach assumes that physical evidence of potential impact is not identified in the subject materials based on field PID screening as noted above and/or physical observation. If

evidence of impact is identified, Atlas will contact BSEED/EA with recommendations for additional characterization as appropriate.

2.1.4 Demarcation Layer

Section 3.1.3 of the EGLE exposure barrier guidance (EGLE 2024) states that the demarcation layer should be a durable non-biodegradable material installed as a marker to indicate that soil beneath it is contaminated and that maintenance and/or repairs to the exposure barrier is necessary when it becomes exposed. In addition to serving as an indicator, the demarcation layer also reduces the chance of contaminated soils being brought to the surface by shallow landscaping activities or burrowing animals.

The demarcation layer should be bright, easily distinguishable, durable, suitably permeable for drainage, and designed to be used in subsurface applications. A brightly colored geotextile is common. Geotextiles should be installed so the material is overlapping a minimum of 6-inches without gaps to maintain a uniform layer over the contaminated material. Consult with the project engineer and/or product manufacturer for additional installation guidance.

Orange geotextiles that may be considered for demarcation layers are readily available from suppliers for environmental construction and barrier applications. Examples of acceptable geotextile fabrics include: MIRAFI 140NLO and TerraTex® SD Orange. Specifications for the anticipated geotextile TerraTex® SD Orange is provided in Appendix III. Equivalent, alternative materials should be approved by the project engineer.

Demarcation layers are not applicable when relying on an existing (in situ) layer of soil as an exposure barrier (Section 2.1.5).

Although a demarcation layer is optional for soil exposure barriers that are comprised of minimum of 4 feet or greater in thickness (EGLE 2024, Section 3.1.3), demarcation layers are recommended beneath all non-structural exposure barriers, regardless of depth, and particularly where disturbances such as landscaping and tree planting could extend within one foot of the base of the exposure barrier.

2.1.5 Use of Existing Soils as an Exposure Barrier

An existing (in situ) layer of soil may serve as an exposure barrier if it meets direct contact criteria and comprises a minimum thickness of 24 inches. To demonstrate existing soils are acceptable, environmental samples must be collected representative of the minimum soil thickness across the entire area of the exposure barrier. The samples should be analyzed for contaminants of concern and results shall not exceed applicable criteria, as determined by a qualified environmental professional. If soils were imported and placed overtop contaminated materials prior to development of this Plan, then appropriate testing and confirmation of their thickness must be performed or reviewed.

When existing soil is used to mitigate or prevent direct contact with contamination within four (4) feet of the ground surface, inspection, maintenance, and monitoring of the exposure barrier are required elements and must take into consideration the absence of the demarcation layer as an indicator of required repair.

2.1.6 Planting of Vegetation

Non-structural exposure barriers must be stabilized to prevent erosion. Where stabilization is not provided by gravel, aggregate, or similar means, soil exposure barriers must be stabilized and maintained with a healthy dense vegetative cover or landscaping material.

Vegetation plans should account for the minimum exposure barrier thickness of 24 inches. A thicker barrier can be constructed if additional depth is required to accommodate root systems. As discussed in Section 2.1.4, a demarcation layer is required beneath soil exposure barriers that are less than 4 feet in thickness. Although optional beneath 4 feet, demarcation layers should always be present if disturbances such as tree planting are likely to extend within one foot of the base of the exposure barrier.

The exposure barrier may be extended to a greater depth following initial installation to accommodate anticipated future root depth presuming that all requirements of this Plan, including soil handling protocols, are maintained. For example, a 24-inch soil barrier may be placed above a demarcation layer across a large area of the Subject Property. Clean soil may then be cleared in localized areas to expose the demarcation layer, which can then be slit so that underlying (presumably contaminated) materials can be removed to a greater depth. The contaminated materials can then be disposed off-site or moved beneath the exposure barrier in another area of the Subject Property, and a new demarcation layer placed across the localized excavation (overlapping the existing layer that was slit) prior to backfilling with clean soils. Alternatively, additional soil can be added above the exposure barrier to create greater thickness.

2.2 Structural Exposure Barriers

Structural exposure barriers include building floors, foundations, asphalt, and concrete pavement including streets, sidewalks, parking lots, and other permanent structural components. A structural exposure barrier may also consist of a geomembrane typically installed within a stormwater pond or as part of a layered engineered system designed to protect the membrane from damage. Depending on the design and construction materials used, some athletic fields utilizing synthetic turf or engineered playground surfacing may be considered structural exposure barriers as determined on a site-specific basis (Section 2.2.3).

Structural exposure barriers are highly effective at mitigating or preventing exposures, are durable, and are typically readily observable for damage and deterioration (EGLE 2024, Section 3.2).

Thickness of structural exposure barriers and subgrade components are not specified in this Plan. It is assumed that such barriers have been, or will be, designed and constructed in accordance

with general engineering practices appropriate for their intended use and in accordance with applicable permitting and building codes. Existing pavements and buildings may be designated as exposure barriers, even if the design details are unknown (EGLE 2024, Section 3.2).

2.2.1 Potential for Vapor Intrusion / Soil Gas Sampling

A person may inhale substances in indoor air from volatile substances present in soil or groundwater that may volatilize into buildings present on the Subject Property. An owner or operator of a facility must take actions to protect people from exposure of contamination present in subsurface vapors. Soil gas sampling was performed by Atlas in August 2023, and all samples had COC concentrations below laboratory detection limits. Based on the results, the vapor intrusion pathway was not an unacceptable exposure and, therefore, no response activities were proposed in the Due Care Evaluation based on conditions at the time (Atlas 2024). However, a need remains for conducting additional vapor intrusion assessments to evaluate existing structures or new structures to be constructed as the planned park construction/ renovation work progresses, as warranted.

Atlas will install (via hand auger and temporary soil gas sampling points) up to six (6) soil gas points at the site as directed by the City (for the area of a current restroom to be renovated) and collect one round of samples for laboratory analysis. Soil gas points and sampling will be conducted as outlined in EGLE document, “Guidance Document for the Vapor Intrusion Pathway” and in laboratory supplied sampling guidance for Vapor Tube Sampling Procedures. The samples will be collected using a constructed pathway between the vapor pinpoint and the Vapor Tube (sorbent tube). The pathway is created using plastic and Tygon® tubing, as well as plastic stopcocks allowing for the control of flow direction supplied by the laboratory.

Before the soil gas sampling will be started, two separate quality assurance/quality control (QA/QC) tests will be conducted, the first being a helium shroud test. The helium shroud test uses a large plastic hood to cover the sample train and connections between the vapor pin and the vapor tube. A tracer gas (high-grade helium) is then injected beneath the plastic hood; a grab sample of the air from the tubing located beneath the helium hood is then collected and checked for the presence of helium in the field using a helium detector, thus indicating if a leak is present.

The second test used is known as a shut-in test. This test involves the extraction of air from the sample lines that creates a vacuum measured using a mercury (Hg) vacuum gauge or Magnahelics to test the tightness of the compression fittings on the sample train. Valves to the sampling location and the vapor tube are shut and air is extracted from the sampling lines, inducing a vacuum. When all external valves are closed, the vacuum within the sample train should remain steady for at least one minute. The loss of vacuum pressure while performing the shut-in test indicates a leak and that the fittings need to be adjusted until the sample train can hold a steady vacuum pressure.

Field Blank and Field Spikes will be collected prior to sample collection. All equipment will be calibrated prior to each sample collection per the laboratory supplied Vapor Tube Sampling Procedures.

Once both QA/QC tests are successfully completed, QA/QC samples collected and equipment calibrated, soil gas samples will be collected as outlined by laboratory procedures. All samples will be collected for a minimum of 10 minutes at 0.2 L/min. The soil gas samples will be transported to Fibertec Laboratory in Holt, MI (or an equally qualified laboratory), for analysis.

Up to 12 soil gas samples are anticipated to be analyzed for the following parameters (upon request of BSEED-EA):

- Polycyclic Aromatic Hydrocarbons (PAHs) (National Institute of Occupational Safety & Health [NIOSH] 5515/TO-13A Modified for PAH analysis in soil gas). Notice of approval of analysis by EGLE to be included with laboratory report.
- Mercury (Hg) (NIOSH 6009 Modified / 6009M method for mercury analysis in soil gas). Notice of approval of analysis by EGLE to be included with laboratory report.
- Volatile Organic Compounds (Method TO-15 / bottle vac).

If results of the soil gas sampling show that there is a potential for unacceptable exposure resulting from the vapor intrusion to indoor air pathway, then additional assessment and/or corrective action will be recommended (to include revision of relevant sections of this plan).

2.2.2 Building Slabs

Buildings with permanent structural components, such as basement or ground floor slabs, can serve as structural exposure barriers.

Buildings with crawlspaces are not considered to be structural exposure barriers if the crawlspaces are underlain by soil or aggregate. In such situations, they should be constructed and treated as non-structural exposure barriers.

2.2.3 Pavements

Pavements such as streets, sidewalks, and parking lots can serve as structural exposure barriers.

To simplify construction, inspection, and reporting, it may be advisable to construct such features atop non-structural exposure barriers. This is particularly recommended for paved pathways or sidewalks that serve as paths through the park and are not adjacent to buildings or parking lots. Constructing such sidewalks atop non-structural exposure barriers simplifies inspections, reduces the likelihood of exposure to contaminated soils during maintenance activities, and facilitates potential future rerouting of pathways if park needs change.

2.2.4 Other Structural Exposure Barriers

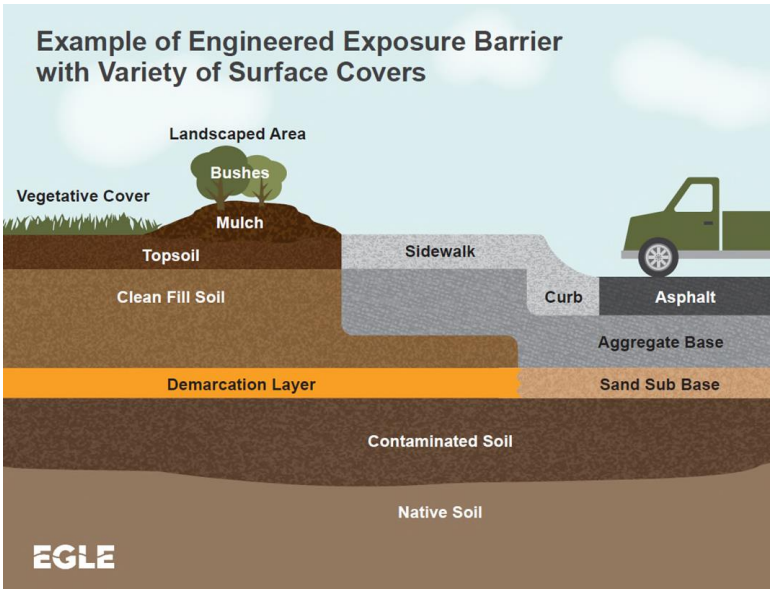
Structural barriers other than buildings and pavements, such as stormwater geomembranes or artificial turf, must be reviewed by the project engineer to validate that they can appropriately serve as a structural exposure barrier. If they are not sufficiently durable, protective, or readily inspected, then such membranes, artificial turf, etc. should be placed atop a non-structural exposure barrier.

2.2.5 Demarcation Layer

Structural exposure barriers may be used in conjunction with a demarcation material such as those discussed in Section 2.1.4; however, it is not required as the structural component can serve as the indicator layer over the contaminated material (EGLE 2024, Section 3.2).

2.3 Transitions Between Non-Structural and Structural Exposure Barriers

As shown in the figure below (EGLE 2024), where possible, demarcation layers for non-structural exposure barriers should extend at least six inches beneath structural exposure barriers.



2.4 Grading at the Property Boundary

As necessary to avoid disturbance of adjoining properties at the boundary of the Subject Property, it is acceptable to slope the base of a non-structural exposure barrier, and corresponding demarcation layer, at approximately 45 degrees so that it meets ground surface at the property boundary.

2.5 Utilities and Penetrations of the Exposure Barrier

It may be necessary to penetrate exposure barriers and demarcation layers with utilities, fence post piers. In these situations, demarcation layers (Section 2.1.4) or structural exposure barriers

should be flush with the edges/sides of the penetration (e.g., a hole in an orange geotextile demarcation layer should be the same size as a pipe going through it).

As an alternative to penetration, the thickness of non-structural exposure barriers may be increased so that the demarcation layer is beneath utilities, fence post piers, etc.

Utility companies that may encounter contaminated materials at the Subject Property should be notified of the presence of contaminated materials and appropriate precautions (Section 3.3). Example notification is provided in Appendix I.

3. EXPOSURE BARRIER CONSTRUCTION

Exposure barrier construction must be performed in a manner that mitigates or eliminates human exposure to contamination because of construction activities. Concerns for potential exposure to contaminated soil are present both during the construction activities and after completion of the construction activities. Therefore, this Plan presents risk mitigation measures:

- to protect construction workers from contamination that exceed applicable standards for construction activities,
- to protect non-construction workers from exposure to contamination during the construction activities, which can be accomplished through appropriate site control measures, and
- to protect non-construction workers from exposure to contamination after construction completion, which can be accomplished through proper soil management of the contaminated soil and restoration of the clean soils within the point of compliance.

3.1 Site Control

Access to work areas should be restricted during the construction and renovation activities. These areas should be accessible only to authorized contractors, consultants, agents, or employees of the City of Detroit. Access restrictions should include a secure 6-foot-high vinyl-paneled fencing and/or locked gated access with proper signage (or equivalent).

3.2 Community Reach Out and Notification

It is recommended that the City perform community outreach prior to any significant construction activities during which contaminated materials may be exposed (such as during exposure barrier construction). Communications should include the reason for the activities, and the precautions being taken and procedures to be followed to mitigate exposure to the public, site workers, and future occupants of or visitors to the Subject Property.

3.3 Health and Safety

Health and safety are paramount during any construction activities. The intent of this section is to outline precautions that should be taken with respect to contamination identified in the Subject Property. These precautions are over and above general construction safety procedures typical of construction projects.

3.3.1 Health and Safety Plan

Onsite construction companies and associated workers are required to have a Site-Specific Health & Safety Plan (SSHASP), in conformance with all applicable OSHA and MIOSHA requirements and regulations, requiring a negative exposure assessment for each COC identified at a concentration greater than the residential cleanup criteria and/or wear appropriate Personal

Protective Equipment (PPE), when necessary, including but limited to steel-toed boots, long pants, gloves, safety glasses or safety goggles (Atlas 2024, Section 6.1).

Note that OSHA requires special programs and exposure monitoring for several hazardous substances including lead, inorganic arsenic, cadmium, coal tar pitch volatiles (which includes some PAH compounds), etc. (29 CFR 1910.1001 through 1052). Depending on characterization results of suspect material sampling, workers may at times be exposed to concentrations of hazardous substances such as lead above background or construction worker direct contact ARARs during the course of operations. The construction contractor should evaluate OSHA requirements for such substances for applicability to the work required and monitor potential worker exposure to airborne contaminants per OSHA regulations for those COCs present in on-site soils. Refer to the OSHA general industry standards or the equivalent construction industry standards for applicable programs.

A sample SSHASP for the subject project that addresses such conditions based on information known to date is provided under separate cover. Contractors at the site are not subcontracted with Atlas and are, therefore, are not subject to the Atlas SSHASP. Contractors are required to adhere to their own Site-Specific HASP and other OSHA requirements under contract with City of Detroit. The sample SSHASP also outlines potential environmental hazards, recommended personal protective equipment, and decontamination procedures. The HASP focuses on environmental issues only; it does NOT address shoring of walls or other construction-specific health and safety issues associated with the project. The construction/excavation contractor should develop a similar SSHASP that is specific to the contracted work.

Personnel entering the work zone shall be required to review, sign, and follow the HASP. Please note that the sample SSHASP provided requires workers exposed to potentially contaminated soils (if such are encountered during construction) to have OSHA training (with annual refreshers) per 29 CFR 1910.120 (Hazardous Waste Site Operations and Emergency Response or HAZWOPER). This is due to the potential to encounter conditions that have not been previously characterized.

If environmentally suspect materials are encountered during construction/excavation, other than those previously identified, the material shall be characterized, and the HASP shall be modified accordingly as appropriate. Pending findings, HASP amendment as applicable shall include monitoring of excavation activities by a Health and Safety/Environmental Professional to ensure that conditions do not exceed OSHA exposure thresholds.

Tailgate meetings will be held at the beginning of each work shift to emphasize project health and safety, specific hazards of the areas to be entered, and work objectives for that period. Contractors will be responsible for conducting any regulatory required personal air monitoring of their employees, at their discretion.

3.3.2 Notifications

Whenever construction or excavation workers are reasonably expected to be exposed to contaminated soils, the owner of the Subject Property is responsible to provide written and documented notifications of relevant environmental hazards to any employees, contractors, tenants, relevant third parties (e.g., utility companies), easement holders, or other personnel that perform activities at the Subject Property that may result in exposure to contaminants. If the owner provides notification directly to non-individuals (such as a construction company), it should be made clear that the information must be passed on to ***all*** employees and subcontractor employees who may be exposed to contaminated soils at the Subject Property.

Notification should include the identity of the chemical(s) of concern present on the Subject Property, their location on the Subject Property, the affected media, the precautions to be taken to avoid exposure, how to handle contaminated media on the property, and actions to be taken should significant exposure occur.

Example notification is provided in Appendix I.

3.3.3 General Precautions

In conformance with OSHA 29 CFR 1910.120, a Competent Person and Supervisor should be onsite or readily accessible during work activities. Contractors will be responsible for ensuring workers have the appropriate level of hazard awareness training, which may include up to 40-Hour HAZWOPER certification (Atlas 2024, Section 6.1).

Exposure to contaminants on the Subject Property could occur when construction workers come in contact with soils beneath existing exposure barriers or where exposure barriers are not present (e.g., during construction). Contact can include dermal contact with exposed skin, such as bare hands and forearms, accidental ingestion when soil gets on food, such as transfer from dirty hands to food, or breathing in particles of contaminated soil as dust. Construction workers should always attempt to limit their exposure to contaminated soils or lessen the time after contact that the impacted soil remains on the skin. Area under construction shall be controlled adequately so that other receptors (i.e., non-construction workers or public) are not adversely impacted as a result of the construction activities. Specific precautions to be taken at all times when the upper two feet of soil is breached are as follows:

1. Workers should avoid handling impacted soils and wear clothing that limits the skin area available for contact with the soil. Examples of such clothing include gloves, hard hats, long sleeve shirts, and long pants. If handling is required, workers should wear nitrile gloves with outer work gloves and should use tools, rather than their hands, to handle the impacted soils. The nitrile gloves should be disposed after working with impacted soil. PPE clothing should be disposed at the end of each workday.

2. PPE, gloves, and clothing should be removed if they become wet or excessively contaminated. PPE should be changed at the end of each workday or according to manufacturer's recommendations.

3. Wash hands frequently and always before eating, smoking, chewing gum or tobacco, or other activities that involve contact between the hands and items to be placed in the mouth. This will prevent the spread of any soil on the hands to the items being placed in the mouth.

4. Break areas and facilities not directly related to construction should not be located in the immediate area of excavations or other areas of exposed soils. If practicable, downwind locations for these facilities should be avoided.

5. Do not apply ointments, cream, make-up or other substances before washing both the area to which the substance is to be applied and, if the substance is to be applied by hand, the hands. The application of such substances can provide a mechanism by which soil can be trapped next to the skin.

6. Cover cuts, scrapes and other open skin areas. Injured skin allows compounds in the soil to be more readily absorbed into the body than intact skin.

7. Wash hands and other exposed areas with a water and detergent solution, especially those areas with visible dirt, before scheduled breaks, before leaving the work site for extended time periods, and before leaving the site at the end of the day. This limits the amount of time that the soil is potentially in contact with the skin, thereby reducing the amount of the chemicals that can be absorbed through the skin.

8. Workers should not wear dirty clothes or shoes home or in vehicles. If possible, workers should park in an area where cars will not be contaminated with dust.

9. Change work clothes shortly after leaving the property, especially those work clothes having either visible dirt or made damp through sweat or other liquids. Wash such clothes prior to wearing them again. Gloves and other such items that come into direct contact with the soil should also be washed, if possible.

10. Wash hair and other less accessible portions of the body shortly after leaving the work site for the day. Dirt and dust that contain substances such as lead can settle in the hair and spread by contact between the hands and the hair. Dirt and dust can also infiltrate under and through clothing, especially clothing becoming wet or sweaty.

11. Generally, avoid direct contact between the skin and the contaminated soils at the property.

12. Minimize the suspension of dust to the degree possible and specify measures to be taken for minimizing dust. Dust masks should be worn when warranted.

13. Adequate and appropriate site control to limit access to the construction area until construction completion.

14. When exposure barriers were previously installed and are being disturbed, restoration of clean soil cover to the appropriate point of compliance depth (e.g., 24 inches) to ensure continued compliance with applicable standards after construction completion.

Whenever significant exposures to contaminated materials are suspected to have occurred at the property, the following steps must be taken:

1. Immediately remove and decontaminate all personnel.

2. Provide medical surveillance monitoring as needed for personnel.

3. Restrict access to the contaminated area.

4. Perform sampling and analysis as required to determine levels of personal protective equipment, decontamination of personnel and equipment, training needs, medical surveillance, and waste management requirements, prior to resuming work at the site.

3.3.4 Dust Suppression and Air Monitoring

A person can inhale ambient air particles from substances present in soil (with or without vegetation) via wind erosion of contaminated soils and vehicle traffic. Based on the soil analytical results, contamination was not detected above applicable Part 201 Generic Residential Cleanup Criteria (GRCC) and the contaminants are not likely to volatilize. This complete pathway was not identified as an unacceptable exposure and, therefore, no response activities were required based upon available data (Atlas 2024). Atlas, however, does suggest common construction practices of dust/erosion mitigation, construction traffic/soil removal and post construction vegetative cover to minimize dispersion of soil, along with precautions to ensure that volatile contaminants are not present at greater concentrations than previously realized.

During construction activities, impacted soils may become airborne as dust particles. As such, dust suppression may be implemented as necessary during construction activities that disturb impacted soils to eliminate visible dust. In such an event, dust suppression measures may be applied to the excavation areas, site roads, or other work areas to minimize dust generation. Dust suppression may consist of applying water spray to the soil surface or, if necessary, modifying work activities (e.g., reducing equipment speed, minimizing soil drop height from an excavator's bucket, etc.) to reduce potential dust generation. Soil stockpiles and truck beds containing soil may be covered to minimize the potential for dust generation. If sustained winds exceed 20 miles per hour (mph), consideration should be given as to whether excavation should be paused, or other precautions taken, until winds drop below 20 mph.

To be protective of both onsite construction workers, offsite residents, and the public in the area during construction activities, general air monitoring should be conducted to identify and quantify

hazardous substances in the air. This will be performed through both daily and periodic monitoring of air and fugitive dust, as described below.

INITIAL AND PERIODIC AIR AND FUGITIVE DUST MONITORING

Air monitoring during earthwork will include periodic monitoring for reactive organic compounds (ROC), using a handheld photo-ionization detector (PID), around the perimeter of the work area, in the work zone, and at stockpiles. Periodic monitoring will alert the workers to the presence of elevated levels of ROC's coming from the impacted soil. The objective is to control the ROC emissions for the protection of the public and the workers. Air monitoring data will help the contractor determine the appropriate level of PPE (respiratory protection devices) needed for the workers performing earthwork activities. The data will also help the contractor determine appropriate measures for dust and odor control.

Baseline samples/data (perimeter and work zone samples) will be collected during the first ten (10) days of construction activities. This will include the use of daily direct read/data-logging instruments (2 TSI DusTrak DRX 8534 units, or similar) and collection of samples for quantitative laboratory analysis. Samples will be collected using four (4) perimeter downwind pumps (a GilAir Plus or similar) and two (2) personal/work zone pumps (metals analysis for lead, arsenic and cadmium).

A sample will be collected from each location per day of removal activities (six (6) per day). Sample pumps will be calibrated per manufacturer directions prior to each sampling event (daily). Atlas will collect data on calibration and flow verification, which will occur twice a day: when the equipment is deployed and after sample collection. The flow rate and the total volume of air pumped through the filter will meet requirements outlined in the laboratory analytical method (i.e., National Institute for Occupational Safety and Health (NIOSH) Method 7300/7303 for lead).

The downwind pumps will be placed at a minimum height of 4.5 feet above the ground surface to represent the typical adult breathing zone. Personal dust measurements within the breathing zone of 2 representative construction workers will also be completed. Workers will be selected by the Atlas field staff and will be representative of worst-case personal exposure tasks.

Metals analysis will include lead, cadmium, and arsenic. This will provide baseline readings of background particulate matter prior to construction activities with which to compare readings to when construction activities commence.

Once a baseline (for metals analysis) is established for up to 2 weeks (10 days) with sufficient data collected to determine potential exposures, the sampling frequency will be reduced (after discussion with City of Detroit BSEED/EA) to one sample per week through the remaining 36-week construction schedule (or through duration of construction). Samples (6 per day) will be submitted for 24-hour laboratory turn-around-time (TAT) for the first week (5 days), with the second week (6 per day) for standard TAT of 5 days. All remaining samples will be analyzed with

standard TAT, unless data indicates the need for increased sampling frequency and expedited TAT.

Analytical results will be compared with the OSHA permissible exposure limit (PEL) for arsenic (10 ug/m3), cadmium (5 ug/m3), and the EPA regional screening level (RSL)/NAAQS screening level for lead (0.15 ug/m3). It should be noted that NAAQS does not have standards for these metals, except for lead, in which the standard is the same for both the EPA RSL and the NAAQS (0.15 ug/m3).

DAILY AIR AND FUGITIVE DUST MONITORING

During construction activities that involve excavation and/or disturbance of soil (including the 10-day initial baseline period discussed above), Atlas personnel will perform dust monitoring at representative upwind and downwind locations (as needed based on daily weather/wind readings) near the perimeter of the construction site during each workday. Atlas will also observe and record visible dust emissions. These measurements are intended to demonstrate that the dust control measures employed effectively minimize potential impacts to nearby residences and the public. Dust measurements will be obtained using desktop and/or hand-held instruments (e.g., TSI DustTrak DRX 8534) operated by an Atlas field technician and recorded on field data sheets.

Specifically, the Atlas field technician will:

a. Maintain and calibrate up to two (2) hand-held TSI DustTrak DRX 8534 monitoring instruments prior to each workday. Obtain baseline dust readings both upwind and downwind each morning prior to commencing daily site construction activities. The purpose of these measurements is to determine if significant dust concentrations are being produced off-site. As with the air pumps, the monitoring instrument will be placed at a minimum height of 4.5 feet above ground surface, assumed to be a typical breathing height.

b. Set the instruments in “data logging” mode and periodically monitor the site perimeter at representative upwind and downwind locations throughout the course of each workday. Representative locations should consider what soil disturbing activities (e.g., grading) are taking place, their proximity to residential areas, and wind direction.

c. Monitor wind direction and speed daily using available weather data from the National Weather Service (NWS) website for weather monitoring observations at Coleman A. Young Municipal Airport (located 5.2 miles northwest of the site) to compare to action limits set for instant gust of wind greater than (>) 20 miles per hour (mph) and a 15-minute average for wind at >25 mph. Data collected from the NWS will include the following:

   - Temperature (in degrees Fahrenheit (^{o}F))
   - Relative humidity
   - Wind direction and wind speed

- Current weather conditions.

e. Dust monitoring equipment will include a visible warning system to alert people that an exceedance of the action level has occurred. If an exceedance occurs, activities will be stopped, and engineering controls will be re-evaluated to ensure that emissions remain below applicable action levels.

f. Perform daily personal dust (soil particulate analysis for lead, arsenic and cadmium) within the breathing zone of two (2) representative construction workers (e.g., excavator operator, oversight attendant) daily for the first two weeks, then one sample set weekly (if baseline data indicates frequency can be reduced) through duration of the project. Workers will be selected by the Atlas field staff and will be representative of worst-case personal exposure tasks.

h. Observe instrument readings and communicate with the construction and excavation crew in the event of an exceedance of dust action levels at the site perimeter, communicated with the construction and excavation crew.

i. Recommend implementation of additional dust control measures (misters, wet methods, drive areas, etc.), if necessary.

j. Maintain daily field logs containing field measurements, monitoring locations, visual observations, and additional actions taken in response to an exceedance of dust action levels, if necessary.

If the monitoring equipment appears to have erratic readings, re-calibration or bump-testing should be performed.

Air monitoring results at downwind perimeter locations will be compared to site-specific action levels that are based upon the National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for particulates with diameters less than 10 and 2.5 microns (PM10 and PM2.5, respectively). Namely, 0.15 milligrams per cubic meter (mg/m^3) for PM10 and 0.035 mg/m^3 for PM2.5. This air monitoring and sampling plan assumes that a perimeter particulate concentration above the 24-hour time weighted average (TWA) of 0.15 mg/m^3 for PM10 and 0.035 mg/m^3 for PM2.5 represents an action level exceedance which will require a mitigating response, such as moistening soils to suppress dust (presuming no significant contribution from upwind sources).

For on-site construction and excavation activities (not at the site perimeter), the action level for respirable dust (PM10) is 5 mg/m^3 (5,000 $\mu g/m^3$). Observable airborne dust at the action level of 5 mg/m^3 is easily visible and typically does not require real-time instruments to determine. Therefore, while dust control measures are implemented and dust is not visible, exceedances of the permissible exposure levels for COCs are not expected.

When dust monitoring shows that particulate concentrations are less than 5 mg/m^3 (< 5,000 µg/m^3), work can proceed with OSHA Level D personal protective equipment: hard hat, work gloves, safety glasses, steel-toe boots or shoes, and nitrile gloves for handling soil.

When dust monitoring shows that particulate concentrations are greater than 5 mg/m^3 (> 5,000 µg/m^3), additional response measures should be implemented. Recorded dust data will be evaluated to determine the need to upgrade PPE and/or for making changes in work practices, which may include work in OSHA Level C: half- or full-face air purifying respirators with N-100, R-100 or P-100 (HEPA) filters.

It is recommended to cease operations while assessing dust control measures and, where possible, move upwind, while continuing air monitoring.

SSHASPs (Section 3.3.1) should be reviewed for additional information and requirements relevant to protecting workers from exposure to airborne COCs.

3.4 Stormwater Management of Surface Runoff & Pollution Prevention

During construction, it is unlikely that storm water may accumulate in low-lying areas. However, during site development activities, storm water best management practices (BMPs) will be followed in accordance with the General Contractor's Soil Erosion and Sedimentation Control permit (SESC) and in compliance with Michigan guidelines. BMPs for the site development activities may include the use of fiber rolls, inlet protection, stabilized construction entrances, landscape and paving, street cleaning, and catch basin cleaning (as applicable).

Additionally, BMPs will be utilized for the storage, usage and disposal of lubricants, coolants, cleaning supplies, and precautions will be taken to prevent spills, overfills or material releases. The BMP utilized at the Subject Property will be properly documented and will include, but is not limited to, the following:

- Containers will be kept capped, labeled, and stored in dedicated areas inside the building on impervious surfaces void of drains or other potential subsurface migration pathways.
- Secondary containment may be used if needed.
- An inventory of safety data sheets will be maintained.
- Strict inventory control measures will be implemented.

To prevent stormwater from flowing offsite, silt fence will be installed around the perimeter of the property and inlet filters will be placed over catch basins. The filters will be periodically cleaned. If stormwater accumulates on site and must be removed, it should be containerized and held at the site until analytical data is obtained for disposal and/or possibly discharge.

Atlas will perform the necessary steps in obtaining the surface dewatering discharge permits for construction activities (if needed) under Great Lakes Water Authority (GLWA) publicly owned treatment works (POTW) permits. The steps will include correspondence with the GLWA per the

scope of work and site conditions, on-site sample collection of ponded surface water, application completion and submittal, project setup and management, initial permit sampling to accurately characterize potential discharge characteristics, laboratory analysis of surface water samples and coordination with permitting agencies. Verification of sanitary capacities and conditions and operation will be performed by others.

All surface water or groundwater identified at the site must be contained on-site or containerized pending approvals for discharge or disposal in accordance with Section 3.10.2 of this Plan. It is the responsibility of the on-site contractor to contain the water on-site. Surface or groundwater shall not be allowed to run off-site or enter storm/sanitary sewer systems without prior written approval and inspection of discharge point/process.

3.5 Soil Handling/Relocation

Existing soil at the site may be relocated either intentionally (such as relocating and grading soils on-site as necessary prior to installation of the exposure barrier) or unintentionally (because of wind or rain erosion or through soils being tracked off property because of adherence to personal or construction vehicles). The following discusses steps to follow to prevent off-site soil dispersion because of intentional and unintentional soil relocating.

3.5.1 Intentional Soil Relocation

Existing soil at the site may be relocated on-site as necessary to re-grade the site prior to installation of the exposure barrier. However, it is critically important that any relocation of contaminated soil is done in accordance with Part 201 Section 20120c. This statute details the provisions under which contaminated soil may be relocated. For example, material should not be relocated to a location that is not the facility. Soil may only be relocated on site to areas similarly contaminated. Relocation to uncontaminated areas may create a new facility for which the property owner and contractors can be held responsible. Some situations may require prior notification to the department before contaminated materials can be relocated (EGLE 2024, Section 3.4).

Any soil relocation on the Subject Property shall be documented with detailed description of site activities, appropriate sampling/ characterization, scaled-site plans, and location/ extent of soil relocation. The City shall maintain documentation of appropriate screening, characterization, and disposal to comply with due care obligations (Atlas 2024, Section 8.1).

Soil being relocated/graded at the site should be relocated in similar areas of soil impacts to prevent exacerbation of the existing contamination under Due Care Obligations. Soil being relocated from the western portion to the eastern portion should be assessed prior to relocating. As noted earlier, sampling in the western portion of the Subject Property identified the presence of contamination. Placement of an exposure barrier in the eastern portion of the Subject Property will be performed as a presumptive remedy – no sampling was performed. If contaminated soils are to be relocated from the western portion of the Subject Property to the eastern portion of the

Subject Property, then it must first be confirmed that the eastern portion of the Subject Property comprises a "facility", noting areas of similar concentrations of contaminants. If contaminated materials were to be placed atop non-contaminated areas, then it could inadvertently result in the creation of a new facility.

Atlas will document soil relocation/grading on-site during construction and exposure barrier installation. The City of Detroit will provide Atlas with proposed fill locations prior to relocating soil from the western to the eastern portion of the site. The locations of proposed fill on the eastern portion of the site should be sampled to confirm these areas are of similar soil contamination (as soil on the western portion) under Due Care Requirements. Composite sampling and analysis of the following parameters (in areas of proposed fill) should be completed prior to approval of soil relocation. Samples are anticipated to be collected within the relocation area to include 1 sample per grid (composited from up to 5 locations) within the upper 2 feet of soil and submitted foranalysis of the following parameters to adhere to a similar sampling and analysis plan aspreviously conducted for the western portion of the site.

- Polycyclic Aromatic Hydrocarbons (PAHs) – U.S. EPA Method 8270
- Michigan 10 Metals (MI Metals) – U.S. EPA Method 600/700

Soils should also be field screened for volatile organic compounds (VOCs) utilizing a PID during site grading/re-locating.

Atlas will perform general oversight activities including observation of general environmental conditions during excavation and grading activities. Atlas will observe and document the following items:

- Soil conditions including soil discoloration, odors, unknown piping, or other previously unidentified fill.
- Tracking of soil relocation (including documentation of grid #s) for all soil moved from one location to another on the site.
- Survey data including site cut, demarcation barriers, fill thickness, sample locations, and grid areas of soil relocation.

Atlas will notify contractors and the City if unanticipated contamination appears to be present and will make recommendations for addressing the unknown conditions. See Section 3.12 for additional information on unanticipated contamination.

3.5.2 Unintentional Soil Relocation/Erosion

Relocation of impacted soil via dust and soil erosion should be minimized via BMPs, as needed, including but not limited to Soil Erosion Sedimentation Control (SESC) measures and covering stockpiled impacted soils during rain events to prevent leaching and surface run-off of potentially impacted water.

Construction planning should include SESC measures to prevent movement of materials. Infiltration of precipitation through stockpiled contaminated soil should also be minimized, and any infiltrated water should be kept from going offsite and/or into stormwater basins and the onsite bio swales.

The contractor should control dust to protect workers and the public. Dust control measures are like standard construction practices, and can include, but are not limited to:

- Watering exposed soil in areas where affected soil excavation activities are occurring to prevent visible dust plumes from migrating beyond work zone limits. Do not overwater. Overwatering may cause contaminated water to runoff of the site into storm drains or onto adjacent properties;
- Spraying impacted soil with Soil-Sement®;
- Minimizing the drop height of soil while excavating, stockpiling, and loading;
- Ceasing soil excavation activities if airborne dust becomes visible. Excavation can resume after the area is adequately moistened to inhibit dust generation.
- The area immediately outside the site will periodically be swept and scraped to prevent tracking of soil and dispersion of dust from the property. Material will be swept back onto the property.
- If dust is detected even after using the above control methods, operations should be stopped. Move upwind until the cause of the problem is determined, and an effective solution is implemented.

Additional dust control measures are listed in Section 3.3.4 along with daily air monitoring for fugitive dust.

Section 3.9 discusses methods to prevent unintentional soil relocation as a result of soils adhering to vehicles entering and exiting the site.

3.6 Temporary Material / Contaminated Soil Stockpiling & Staging Onsite

When contaminated soils are excavated at the property, they must be handled in a manner that prevents exposure to inhabitants and construction workers. Precautions should include:

- Excavated soils should be staged on plastic sheeting, pavement, containers, or other means to prevent their mixing with the clean soil cap.
- During prolonged staging of contaminated soils, soils should be covered with a tarp or other protective measures should be taken to ensure weather events do not cause the soil to be dispersed. Soil dispersed by wind or water can spread across the building slab or impact the clean soil cap.

3.7 Material / Contaminated Soil Disposal Offsite

It is expected that contaminated soil will remain at the site and be covered with an exposure barrier. If material is removed from the site, it must first be appropriately characterized (Section 3.11). Contaminated soil should only be taken offsite for disposal at an appropriately licensed facility, and not for reuse at another property.

All excavated material shall be field screened (via visual observation and/or PID screening) and properly characterized if any soil is transported off-site. A record should be kept of all activity related to the handling, disposition, and sampling/analysis of impacted material. Such records will be provided in a report to the property owner upon completion of construction. Documentation should include location maps, work logs, waste manifests (if generated), training records for OSHA-trained personnel, HASPs, and laboratory analytical reports (including chain-of-custody documentation).

Atlas will collect soil samples for waste characterization in any areas where on-site soil cannot be relocated on site (due to soil balancing, tree, or other utility/subsurface feature installation) or because of on-site Due Care Obligations. Soil sampling will only be conducted if stockpiled soil cannot be re-used on-site beneath the exposure barrier in pre-approved locations. Atlas will collect samples as outlined in previously submitted Due Care Evaluation or per landfill requirements. Waste Characterization analysis will be completed in accordance with landfill requirements, and is anticipated to include analysis of one (1) composite sample per 1,000 cyd of soil being transported off-site for disposal for the following:

- TCLP Volatile Organic Compounds (VOCs) - U.S. EPA Method 1311/12 / 8260
- TCLP Semi-Volatile Organic Compounds (SVOCs) - U.S. EPA Method 1311/12 / 8270
- TCLP RCRA 8 Metals – U.S. EPA Method 1311/12 / 7000
- Polychlorinated Biphenyls (PCBs) - U.S. EPA Method 8082

3.8 Imported Fill

Imported Fill Material (exposure barrier material, topsoil, etc.) should be certified “clean” with documentation that the material meets cleanup criteria applicable to the property (below Residential Cleanup Criteria). Documentation can include certification/analysis from the borrow/fill source or analysis performed on the borrow source prior to delivery to the site, as detailed in Section 2.1.3. As previously noted, Atlas will be completing sampling and analysis of the fill (borrow sites) prior to importing any fill to the site.

3.9 Construction Track-Out Controls

To the extent practical, efforts should be made to limit the contact of equipment with contaminated soil. To minimize the spread of soil, it is recommended that stabilized construction entrance/exits (consisting of an aggregate pad with filter cloth) be installed through which loose soil can dislodge

from truck tires. Equipment (e.g., trucks and excavation equipment) that is exposed to site soil during redevelopment activities will be cleaned prior to movement out of active work zones and leaving the site. Loose soil should be removed from equipment by hand brushing, taking care to minimize dust generation. Soil clinging to rubber tires can be brushed off or removed by driving the equipment over portable rumble strips placed adjacent to the excavated area. Several passes may be needed to remove clayey soils adhering to the tires. Spraying or washing equipment with water is not recommended due to the potential to generate contaminated runoff water.

3.10 Waste Profiling and Management

When profiling is completed to the satisfaction of the disposal facility (Section 3.7), and approved by the City, the stockpiled impacted soil should be transported by an approved, licensed, waste hauler to an approved disposal facility. The delivery should be pre-arranged with the disposal facility.

3.10.1 Soil

Excess soil that cannot be reused on site shall be disposed of in a licensed landfill. Soil characterization in accordance with applicable landfill protocols should be performed prior to any offsite soil disposal. The disposal facility will determine the required sampling frequency and laboratory analyses based upon the profiling requirements of the disposal facility; however, Section 3.7 lists laboratory analytical methods Atlas anticipates will be uses to characterize soils for potential off-site disposal. Soil designated for offsite removal will be either directly loaded for transportation or stockpiled in a predetermined staging area. The staging area(s) will be staged according to Section 3.6: placed on an impervious barrier and covered to prevent soil dispersion either by wind or precipitation.

Impacted soil removed from the site will be hauled by truck in accordance with applicable federal, state, and local rules and regulations in effect for the transportation of environmentally impacted materials. The transportation contractor will be required to keep the wheels and exterior portions of the trucks free of excessive dirt and debris while on public roadways. Each loaded truck will be covered to reduce the potential of material blowing onto the roadways. If excessive dirt and/or debris are deposited on the roadways as a direct result of the contractor's operations, the contractor will be responsible for cleaning the affected areas of the streets in a timely manner.

All impacted material removed from the site will be manifested with an individual manifest for each truckload leaving the site. Manifests are typically provided by the waste hauler. Each load of impacted soil will be accompanied by a separate manifest. Information on a manifest for this SMP area will include information about the waste generator, the transporter, the receiving facility, and other information. The contractor should become familiar with the manifest before scheduling transport.

A City representative, or the City's authorized representative, will sign a manifest for each load leaving the subject site. Each driver will be required to have the manifest signed at the disposal

facility to document proper disposal of the load. The completed manifest should be returned to the City representative by noon of the following workday.

Decisions as to whether disposed soil may be used as daily landfill cover will be made by the disposal facility.

3.10.2 Water

Groundwater was encountered at the site at depths ranging from approximately 4 feet to 12 feet below ground surface. As such, it is possible that perched shallow groundwater may be encountered during construction activities such as utility work and could be dispersed in construction site runoff to adjacent properties or storm sewers. Benzene was identified in perched groundwater above Drinking Water Criteria (DWC) (Atlas 2024, Section 4.3.1). In the event that water accumulates in excavations and requires removal to facilitate the completion of a given subsurface construction activity, the water should be sampled for waste characterization to determine the appropriate disposal requirements (Atlas 2024, Section 6.1). The pumping of groundwater from an open excavation onto the ground should be strictly prohibited unless the water is treated and/or properly permitted (Atlas 2024, Section 8.1).

Potential disposal alternatives include:

- Discharge to the sanitary sewer system and off-site treatment at sewage treatment plant;
- Isolation and transport to an off-site treatment facility; or
- On-site treatment and surface water discharge (not anticipated nor discussed in this SOW).

If stormwater accumulates on site and must be removed, it should be containerized and held at the site until analytical data is obtained for disposal and/or possibly discharge.

All surface water or groundwater identified at the site for disposal must be contained on-site or containerized pending approvals for discharge or disposal. It is the responsibility of the on-site contractor to contain the water on-site. Surface or groundwater shall not be allowed to run off-site or enter storm/sanitary sewer systems without prior written approval and inspection of discharge point/process. GLWA Permit sampling and analysis will be completed in accordance with EPA protocol in 40 CFR 136 and will include the standard permit requirements (non-industrial site) as indicated below (and under GLWA permit analyte list).

- Acidity/Alkalinity (pH)
- Biological Oxygen Demand (BOD)
- Total Suspended Solids (TSS)
- Phosphorus (P)

- Fats, Oil or Grease (FOG)
- Metals
- Toxic Organic Priority Pollutants
- Per- and Poly – fluoroalkyl Substances (PFAS) – pending GLWA exemptions

Water requiring removal from the construction site because of construction-dewatering may be discharged to the sanitary-sewer system if a permit to discharge into the sanitary-sewer system is secured and laboratory analysis confirms contaminant concentrations below local sanitary-sewer effluent limits. Discharge of the effluent to the local sanitary sewer may require pre-treatment to meet effluent limits.

3.10.3 Other Wastes

Other wastes may include waste material encountered while excavating, unexpected media encountered in addition to soils and groundwater (e.g., boulders, former building materials, etc.), PPE, and other materials used to protect underlying soils from impacted media.

Any large debris and solid waste material such as former foundations, concrete, wood, or metal shall be separated from the soil by mechanical means and salvaged for recycling or disposed off-site as solid waste. In addition, all used PPE, including gloves and protective clothing should be removed following equipment decontamination, and properly disposed of.

Leftover plastic sheeting used for soil stockpiling, if any, should be collected and transported to an approved disposal facility.

3.11 Potential Problems

During construction, previously unknown conditions might be encountered including unanticipated contaminated media (such as soil or groundwater), underground storage tanks, hydraulic lifts, railroad ties, and materials associated with historical building structures, as well as asbestos containing materials (ACM), underground utilities, and others. The following presents steps to be taken if unanticipated conditions are encountered.

3.11.1 Unanticipated Contaminated Media

Unanticipated Contaminated Media is any material that appears to be contaminated that is encountered in areas of excavation where contaminated media is not anticipated. Staining, discoloration, chemical/petroleum odors, or other evidence of non-natural conditions are qualitative indicators of potential environmental impact. During excavation, the contractor should continually assess the materials being removed and determine the presence of potentially contaminated soils, solid waste, and/or other non-native or non-naturally occurring materials. If potentially contaminated soils are encountered in an area based on odors, atypical soil discoloration, buried containers or other materials contributing to a potential release, etc., the Contractor must stop further excavation work in that area until an environmental professional can

assess the situation and provide the Contractor with specific directions for managing the contaminated soils. Contaminated soil must be stockpiled separately from clean soils; an environmental professional will provide direction to the Contractor in segregating contaminated soils and stockpiling. Stockpiling of soils should follow recommendations outlined in Section 3.6. Additional guidance on managing all excavated soil is provided below.

The principal impacts to soils are primarily metals (arsenic, cadmium, lead, and mercury) in which these impacts are not discernable by odor or discoloration, along with select PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene), which can be discernable by odor and potential soil discoloration. Unanticipated Contaminated Media may be distinctly different in odor or color than the site fill material and native soils at the site and includes, but is not limited to:

- Petroleum hydrocarbon impacted soil;
- Unknown drums or Underground Storage Tanks;
- Unknown hazardous material containers;
- Debris, solid wastes, including suspect asbestos containing materials;
- Spills or releases from construction equipment.

Should Unanticipated Contaminated Media be encountered, the following steps should be followed:

- The Contractor will secure the area by cordoning off the area with cones and caution tape, providing plastic cover, and controlling any runoff from the area. All construction activities in the vicinity shall be terminated until all parties have been notified and the City and/or City's representative has authorized the Contractor to resume construction. If said material is identified by excavation, excavated materials will be stockpiled as outlined in Section 3.6, isolated, and managed in a similar manner.
- The Contractor will follow proper notification procedures of project team, take dated photographs, and provide Atlas and the City with a general description of the encountered material.
- The City or City's Representative will authorize representative sampling of the material, which will be analyzed, at a minimum, for the following constituents: total metals, VOCs, and PAHs. Other constituents may be added to the analyte list based on observation of the encountered material, including, but not limited to, VOCs, semi-volatile organic materials "SVOCs", asbestos-containing materials (ACMs), or other applicable tests, depending upon the type of impact/discharge, and in consultation with Atlas.

- The Contractor shall cooperate with the City and Atlas to facilitate observation and sampling of said encountered material. The Contractor will be provided with a copy of the laboratory's test results and Atlas and the City will direct the Contractor's subsequent actions.

3.11.2 Discarded Containers and Construction/Demolition Debris

Any abandoned or discarded containers that are discovered should not be disturbed and any activities that could result in damage to buried containers should be ceased. Construction activities should not resume until the abandoned or discarded container(s) are properly removed. Notification to EGLE is required for any abandoned or discarded containers and non-regulated underground storage tanks per Rule 299.51015(1); EGLE form EQP 4476 may be used for this purpose (Atlas 2024, Section 8.1).

In the event former foundations and/or demolition debris (concrete, bricks, building materials) is encountered during excavation, the debris should be separated from the soil by mechanical means and stockpiled for potential salvaging for recycling or disposal off-site as solid waste. Segregated building materials should be assessed for the potential of suspected ACM.

3.11.3 Means of Detecting Potential Problems

Excavated materials placed at the site should be monitored for evidence of impact such as stained/discolored soil, chemical odors, buried drums or other industrial debris, or adverse health effects (e.g., headaches, watery eyes, skin irritation, etc.). If materials are found to be locally stained, discolored, odiferous, to have buried drums/containers, or exhibit other indicators of potential environmental impact, work should stop in such areas until completion of further environmental investigation. The contractor will immediately contact Atlas and the designated City of Detroit contact if any potentially impacted soil is encountered outside expected areas.

3.11.4 Deviations from Initial Design

Deviations from the minimum barrier thickness described in the design specifications due to technical infeasibility because of unforeseen conditions must still effectively mitigate unacceptable exposures. If the Contractor suspects that an unforeseen condition will prohibit the installation of the exposure barrier per the design specifications, the Contractor should immediately stop work and contact both Atlas and the Owner’s representative. Work should not continue until an it is evaluated as to whether the site conditions will allow the construction and installation of the designed exposure barrier or whether an alternative exposure barrier is required to be designed that will meet the performance standard to mitigate or prevent a person’s contact and incidental ingestion of contaminated soils. Deviations from the initial design of the exposure barrier will not occur unless approved by both the construction engineer, the environmental professional, the Owner’s representative, and, as necessary, EGLE.

4. CONSTRUCTION DOCUMENTATION

The performance and effectiveness of a well-designed exposure barrier relies on proper installation. Maintaining documentation of the construction and installation of an exposure barrier is required when performed as a Part 201 response activity, or to comply with Due Care obligations. Documentation must be provided to EGLE upon request, and it is highly recommended that the documentation be provided to current and future owners and operators of the property to meet disclosure requirements for contaminated properties. The documentation must demonstrate that the exposure barrier is effective to mitigate exposures. The documentation will need to demonstrate proper construction, thickness of the exposure barrier, and materials used. Documentation should also include the plan for inspecting and monitoring the exposure barrier.

As applicable, documentation for an installed exposure barrier (applicable for both non-structural or structural) should include, but not be limited to:

- Basis for the design including known current and future land uses.
- The exposure barrier design, including specifications and product specification sheets.
- Record of the as-built construction and installation of the recommended Exposure Barrier (i.e., clean soil cap) to be placed across the entire park property, which may include:
    - Photographic documentation of specific exposure barrier components that are representative of the entire construction. This includes but is not limited to structural components, the installed demarcation layer with overlapping seams, and representative photographs showing the measurements from the depth of the demarcation layer to the top of the non-structural exposure barrier.
    - Surveys if relied on for demonstration of exposure barrier location, elevations, and thickness. For example, a licensed professional surveyor or engineer can conduct a grade survey before and after installation of the exposure barrier as a form of documentation. This baseline survey can assist with future monitoring of the barrier thickness.
    - Surveyed control points, settling plates, pins, or rods if relied on to measure wear and degradation of the exposure barrier.
    - Field measurements.
    - Field logs documenting the exposure barrier construction, such as volume/quantity of borrow materials used in the construction of the barrier.
    - As built plans documenting the exposure barrier as installed, including deviations from the design plans.

- Representative verification cores or excavations if relied upon to demonstrate the barrier location and thickness.
- Disposal records for all material moved off-site or any soil relocated at the site.
- Records of all applicable permits, required inspections as noted in any permits, documentation of proper soil handling (including removal of soil from construction debris, vehicles/equipment, and workers prior to leaving the Subject Property).

- Documentation that all borrow source materials meet criteria applicable to the property.
- Detailed scaled and/or surveyed property maps depicting the following, as appropriate:
  - Site features including structures, paved surfaces, utilities, greenspaces, and operations.
  - Contaminant concentration maps, including sample locations used to determine the extent of the area to be mitigated.
  - The known or presumed area to be mitigated.
  - The location, types, dimensions, and description of exposure barriers. Include overlay of site features and analytical testing results, if available.
  - Restrictive covenant and easement areas, as applicable.
- Acknowledgement of notice/understanding of the Due Care Evaluation provided to on-site workers and documented with signatures.
- A copy of the SSHASP as required under applicable regulations (MIOSHA, OSHA, etc.) along with copies of signature logs and daily tailgate safety meetings.
- Copies of institutional controls (restrictive covenants, notifications, lease and rental agreements, easements, etc.).
- The plan for inspection, maintenance, and monitoring of the exposure barrier.

4.1 Non-Structural Exposure Barriers

For the installation of the non-structural exposure barrier (e.g., soil cap), Atlas will complete oversight of soil grading, excavation, general air monitoring (PID), and the demarcation barrier installation. Documentation will include the following:

- Daily survey data including collecting various locations across the site with a GNSS Trimble R780 unit tied into existing datum. The data to be recorded includes X, Y, Z coordinates for existing grade, excavated/demarcation barrier grade and final fill grade,
- Daily inspection forms will be completed,

- Photo logs will be maintained to document at a minimum the survey data, the demarcation layer installation, any soil excavation and stockpiling, and removal,
- Actual in field measurements,
- Backfill sampling confirmation (laboratory analytical reports, chain-of-custody documentation, etc.),
- Soil tracking, and
- Utility and other subsurface structure installation as needed throughout the project to document Due Care obligations.

4.2 Structural Exposure Barriers

Documentation required for structural exposure barriers is like that for non-structural exposure barriers. Documentation should include the detailed description of all site activities completed, volume/ quantity of material(s) used, scaled-site plans, color photographs and photographic measurement documentation. Because the structural barrier is a permanent structure, thickness of structural exposure barriers and their subgrade components should be designed in accordance with general engineering practices appropriate for their intended use and in accordance with applicable permitting and building codes. Existing pavements and buildings may be designated as exposure barriers, even if the design details are unknown. However, if the structural exposure barrier(s) is being installed at the same time as the non-structural exposure barrier, in addition to the as-built plans, the following should be documented:

- The type and quantity of materials used for the structural exposure barrier. This should also include the type and thickness of base fill that may be used during construction, along with the type of materials used for the barrier.
- To what extent the demarcation layer extends below the structural barrier.
- The type of maintenance that may be required of the property owner and the frequency of the maintenance.
- Although a demarcation layer is not required under a structural barrier (the structural barrier acts as a demarcation layer in that if the structural barrier is breached, the underlying soils are assumed to be impacted), if one is used, the type and elevation of the demarcation layer.

4.3 Transitions Between Non-Structural and Structural Exposure Barriers

The site will contain a combination of non-structural and structural exposure barriers. Because non-structural exposure barriers are generally underlain with a demarcation layer and a demarcation layer is not required under structural exposure barriers, care should be taken when designing the transition between non-structural and structural exposure barriers. In the transition

between non-structural and structural exposure barriers, a demarcation layer can serve as an indicator layer over contaminated material. Where possible, Atlas recommends the use of demarcation material (discussed in Section 2.2.4) as a transition layer between structural and non-structural exposure barriers. Documentation for the transition area should be outlined in any as-built plans. When possible, the demarcation layer underlying the non-structural exposure barrier should extend at least six inches under the structural exposure barrier. This area of overlapping types of exposure barriers should be documented on the as-built drawings. Documentation of this transition area should include the following:

- A copy of the as-built construction drawings.
- The type and quantity of materials used for the structural exposure barrier. This should also include the type and thickness of base fill that may be used during construction, along with the type of materials used for the barrier.
- A survey of the elevation of the demarcation layer.
- The type and quantity of materials used between the demarcation layer and the structural exposure barrier. This could be a base layer to the structural barrier, or the base layer along with clean fill material.
- The analytical data for the borrow source and clean backfill that may be used in the transition area.
- Photographs documenting the transition area.
- Final length of the demarcation layer beneath the structural barrier if it does not extend the full length.
- Any change in elevation between the non-structural and structural exposure barriers.

5. POST-CONSTRUCTION INSPECTION, MAINTENANCE, AND MONITORING

The property owner's responsibility does not end once the exposure barrier has been constructed. As long as contamination remains in place beneath an exposure barrier, inspection, maintenance, and monitoring is required under Part 201 to ensure the continued effectiveness of the remedy. A written inspection, maintenance, and monitoring plan is recommended for all exposure barriers (structural and non-structural) and is required when seeking department approval. Records of installation and repairs over the life of the exposure barrier will also be necessary for submittals to the department for approval and must be made available if requested by the department (EGLE 2024, Section 5.0).

Regular monitoring, inspection, and maintenance of the exposure barrier is performed to ensure that the exposure barrier remains intact, and to evaluate damage due to settling, exposure to the weather, wear from traffic, increasing age, and other actions (digging, vehicle ruts, etc.) that may result in deterioration of the exposure barrier (EGLE 2024, Section 5.1). The following discusses the type and frequency of inspections, potential maintenance, and monitoring for the exposure barrier.

5.1 Inspections

Regular inspection of an exposure barrier is performed to ensure that the exposure barrier remains intact and continues to be protective of human health and the environment. Inspection differs from monitoring in that the inspection is a scheduled formal process that involves examining the barrier to ensure it continues to remain intact. The frequency of inspection is generally dependent on the type and location of the exposure barrier. Non-structural exposure barriers exposed to the elements would require a more frequent inspection schedule than a structural exposure barrier that is enclosed and protected from the elements, such as a building slab or foundation. The following provides recommendations on inspection schedules for each type of exposure barrier.

5.1.1 Non-Structural Exposure Barrier

At a minimum, a non-structural exposure barrier should be thoroughly inspected at least twice per year (e.g., prior to March 1st and September 1st).

During inspection, particular attention should be given to the following areas or under the following circumstances:

- Intensive use areas including vehicle and equipment traffic, trails and paths, gardening, pet activities, recreation areas, playgrounds, and sports activities.
- Areas where erosion from precipitation, stormwater runoff, or wind could occur, including steep slopes and places where runoff is channelized and is noted to occur.

- Areas where other natural forces, including shallow groundwater, surface water inundation, seasonal flooding, freeze and thaw cycles, and frost heave may occur.
- Areas where burrowing animals and wildlife are noted.
- Natural or planted vegetation, including effects caused by roots.
- Areas in which utility maintenance may be required.
- Areas in which settlement and shifting of installed exposure barrier elements is likely to occur.

Results of inspections will be documented on the reporting forms found in Appendix IV.

If disturbance or potential disturbance of the exposure barrier is found, the potential for exposure to contaminated soils must be evaluated and appropriate response actions taken, such as repair, restoration, or erosion control, must be implemented. Atlas recommends that repairs to a non-structural exposure barrier be initiated as soon as practicable, but no more than 30 days after the initial inspection. Atlas further recommends that a follow-up inspection be performed within 30 days after the repairs have been completed to assess the efficacy of the repair.

If it appears that the demarcation layer has been exposed, the demarcation layer should be inspected to determine if damage has occurred to the demarcation layer and that the underlying impacted soils may be exposed. If the underlying impacted soils are exposed, the following emergency actions shall be implemented:

- Notify the property owner;
- Construct or erect a barrier which will prohibit the public or recreational visitors to the site from contacting the underlying soils. This could include, but is not limited to, the construction of a fence around the exposed area, covering the area with a steel plate, placing signage which indicates no trespassing in the area due to construction activities, etc.
- Replace the damaged demarcation layer. Note, this may include a patch of the demarcation layer which should include a minimum of a 6-inch overlap with the non-damaged portion of the layer.
- Replacement of the overlying clean fill to the required minimum depth (e.g., 24 inches) followed by any topsoil and seeding or other vegetative or nonvegetative (such as mulch) covering. Imported fill should be tested per Section 3.8.

5.1.2 Structural Exposure Barrier

At a minimum, structural exposure barriers should be thoroughly inspected at least annually, although a semi-annual inspection is recommended for consistency with non-structural exposure barriers. Structural exposure barriers not exposed to the elements, such as a building foundation, should be inspected annually while structural exposure barriers exposed to the elements, such as asphalt parking lots or asphalt or concrete walkways, may require more frequent inspections, such as semi-annually. At a minimum, semi-annual inspections are recommended for any pavement (cement, asphalt, etc.) exposed to heavy traffic and used as a structural barrier at the subject property. If a building slab is being used as a structural exposure barrier, the building slabs must be maintained to ensure its continued integrity to prevent direct contact with the underlying contaminated soils and/or groundwater. For the purposes of inspection, if a structural exposure barrier, or a portion thereof, includes a building, then the lowest accessible floor in the building should be inspected, whether that be a basement, first floor, or crawlspace; however, it should be noted that crawlspaces should not be constructed with dirt floors as these would be considered part of a non-structural exposure barrier.

5.1.2.1 CONCRETE

The building floor, assumed to be concrete, should be inspected for any holes, cracks, or spalling (pitting, flaking, or general degradation of the concrete) that may have occurred. Holes identified in the concrete must be patched and any cracking or spalling must be patched when there is the likelihood that the barrier between recreational visitors and contaminated soils will be breached. Note that the mere presence of cracks or deterioration does not mean a structural barrier is no longer protective; however, it may indicate the need for repair and maintenance to ensure the longevity of the barrier (EGLE 2024, Section 3.2). Atlas recommends that if holes or cracks are identified in a foundation acting as a structural exposure barrier, the holes or cracks be patched within 30 days of the date of inspection.

If spalling is identified in a foundation acting as a structural exposure barrier, Atlas recommends the concrete be assessed to determine the depth to which the concrete degradation (spalling) has occurred. In areas where the spalling has occurred to a depth less than or equal to 1/3 the total depth of the concrete, the concrete can generally be repaired with a cement patch (such as Portland cement or epoxy). For areas where spalling has occurred to a depth greater than 1/3 of the thickness, re-enforcement of the concrete may be necessary prior to patching, or the full depth of the concrete may need to be restored.

If the concrete requires restoration, potentially exposing the underlying impacted soils, Atlas recommends the removal of the degraded concrete and replacement occur within the same day to minimize the amount of time potentially impacted soils are exposed. If the concrete cannot be replaced within in the same day and the underlying soils may be exposed, Atlas recommends the area be covered or restricted in a manner that prevents the public or recreational visitors from exposure to the underlying impacted soils. This could include the placement of a heavy steel

plate over the exposed area or preventing access to the area from the public, such as a temporary closure of the facility.

For floor slabs near the surrounding surface grade, any cracks 1/8 inch in diameter or greater should be sealed. If no potential for vapor intrusion is identified, then cracks should be sealed if there is any potential for direct contact exposure to contaminated media.

Additional measures may be appropriate if a potential for vapor intrusion is identified (Section 2.2.1), such as sealing any basement crack that is fully penetrating.

During inspection of structural exposure barriers, particular attention must be paid to areas where construction or other activities may have caused cracking or other damage to the building slabs. If disturbance or potential disturbance of the slab is found, the potential for exposure to contaminated soils and/or groundwater must be evaluated and appropriate response actions such as repair and restoration must be implemented.

Results of inspections will be documented on the reporting forms found in Appendix IV of this report.

5.1.2.2 ASPHALT

Asphalt parking areas or walking paths should be inspected at least semi-annually (twice per year) for potholes and cracks greater than 1/4-inch wide. Note that the mere presence of cracks or deterioration does not mean a structural barrier is no longer protective; however, it may indicate the need for repair and maintenance to ensure the longevity of the barrier (EGLE 2024, Section 3.2). Results of inspections will be documented on the reporting forms found in Appendix IV of this report.

Areas of asphalt that require repair should be repaired within 30 days from the date of inspection.

5.1.3 Unscheduled Inspections

5.1.3.1 CHANGES IN LAND USE OR ACTIVITIES

Other instances or situations which would require an inspection in addition to the regular inspection schedule would be if the exposure barrier was installed to account for a specific land use (e.g., residential land use) or activity. Future changes to the land use and/or activities would require reevaluation of the effectiveness of the exposure barrier for new anticipated conditions (EGLE 2024, Section 2.3).

5.1.3.2 TRIGGERING EVENTS

Triggering events could necessitate unscheduled or more frequent inspections of the exposure barrier. Triggering events could include an event as the result of changes in weather patterns due to climate change, such as increased periods of drought and/or rainfall. Unscheduled inspections may occur when there has been an unusual weather event and/or natural disaster. Situations which could necessitate additional inspections may include, but is not limited to:

- Higher than normal precipitation events may trigger an inspection of a non-structural exposure barrier to assess for damage as a result of erosion.
- Erosion could also occur when water flows off a structural barrier, such as a sidewalk or asphalt parking lot, or where water is channeled against a structural barrier and the underlying base layer is eroded.
- Settling that could occur of a structural exposure barrier, such as a sidewalk or the edges of parking areas, as a result of the structural exposure barrier being undercut by runoff.
- Extreme drought may cause contraction and cracking in the upper layers of the soil resulting in the settling of a non-structural and structural exposure barrier.

Results of these inspections will be documented on the reporting forms found in Appendix IV of this report.

5.2 Maintenance

Surfaces at the property must be maintained to ensure their stability. For instance, erosion can be prevented by installation of impermeable surfaces, maintenance of vegetative cover or other similar means. Sloping surfaces to prevent water from pooling on surfaces, sealing and re-sealing surfaces, and general housekeeping can help with the longevity of walkways, parking areas, and recreational areas (such as tennis, pickleball, or basketball courts, etc.). Section 5.1 discussed maintenance activities in response to inspections and because of potential damage identified during inspections. This section will discuss routine maintenance used to ensure the longevity and stability of structural and non-structural barriers, planned disturbances of the exposure barriers, along with un-anticipated maintenance that may be required because of unanticipated disturbances of the exposure barriers.

Scheduled work is a planned maintenance or construction event that allows time for pre-planning and coordination among the contractor, the City, government agencies, and other stakeholders before disturbance of impacted soil actually occurs.

Excavation activities that will disturb the impacted material should be planned and scheduled such that all necessary resources are available to manage impacted soil. This approach has the additional advantage of minimizing disruptions to the construction schedule.

Prior to digging within the exposure barrier area, the contractor should review this management plan to determine if the proposed activities could potentially encounter impacted soil in the soil management area. If impacted soil could potentially be encountered, the contractor should make the required notifications in advance of the scheduled work (Section 3.3.2).

5.2.1 Routine Maintenance and Planned Disturbances

Routine preventative maintenance may be necessary to extend the long-term effectiveness of the exposure barrier. Maintenance will depend on the type of exposure barrier: non-

structural versus structural, and the type of materials used to construct the barrier. The following will discuss general maintenance for each type of anticipated exposure barrier, along with measures that may be used when the property owner is notified of a planned disturbance (e.g., replacement of vegetation, such as a tree that has died, or planned utility maintenance).

5.2.1.1 NON-STRUCTURAL EXPOSURE BARRIERS

Preventative maintenance of non-structural vegetative exposure barriers may include fertilization, irrigation when drought stressed, mowing, and removal of unwanted deep rooting vegetation and burrowing animals. Maintaining vegetated non-structural exposure barriers will reduce erosion during precipitation events and reduce the potential for wind erosion of surficial soils.

It is anticipated that occasional utility maintenance or general maintenance of irrigation lines (if applicable) will be necessary. In these instances, the work can be scheduled, and preventative measures can be implemented to mitigate exposure to impacted soil for both the onsite workers and the recreational visitors. Depending on the size of the area in which the work is to be performed and the depth to which the work will be performed, mitigation measures may be unnecessary.

Work performed above the demarcation layer would not require special or additional requirements for soil placement as the soils above the demarcation layer are considered clean fill. However, if work is to be performed below the demarcation layer, Atlas recommends a minimum of the following:

- Visitors to the site will be prohibited from entering the work area. This could include the use of fencing and signage designating the area as a work area.
- Soils disturbed or excavated above the demarcation layer will be segregated from those from below the demarcation layer.
- Soils below the demarcation layer will be segregated from those above the demarcation layer. The soil below the demarcation layer will be handled as outlined in Sections 3.5 and 3.6.
- If soil below the demarcation layer is to be disposed of off-site, soil will be handled as outlined in Section 3.7.

5.2.1.2 STRUCTURAL EXPOSURE BARRIERS

Structural exposure barriers are highly effective at mitigating or preventing exposures, are durable, and are typically readily observable for damage and deterioration. Note that the mere presence of cracks or deterioration does not mean a structural barrier is no longer protective;

however, it may indicate the need for repair and maintenance to ensure the longevity of the barrier.

Building Slab

Building slabs are easily inspected. It is recommended that a slab be inspected at least once per year, and that the lowest level be inspected for spalling, cracks, or fissures that could occur around piping entering through the building slab. As noted above, the presence of cracks does not mean the structural barrier is no longer protective, but the cracks should be repaired to ensure the protectiveness of the structural barrier. In addition to repairing cracks, the application of protective treatments or sealants may also be recommended to prolong the life of the building slab.

Pavements

Pavement maintenance may include cleaning, repairing cracks, application of protective treatments, and sealants (EGLE 2024, Section 5.2)

Maintenance tasks for the parking lot will be dependent upon the findings of inspections. If breaches and cracks that may result in soil exposure are identified, they should be repaired within 30 days of discovery. The repair will consist of filling and asphalt re-sealing for small cracks; larger cracks may require additional asphalt paving followed by re-sealing. The repair method will be specific to the size of the crack and will be evaluated at the time of discovery. Suitable materials and installation methods depending on the weather conditions will be utilized.

5.2.2 Unanticipated Disturbances

Un-scheduled (emergency) work is a time-critical event (e.g., burst water line) that requires potential disturbance of impacted soil by city staff, utility workers, or others at very short notice. This would result in an unanticipated disturbance of the exposure barrier. In this case, pre-planning and coordination will most likely not occur; however, the City, government agencies, and other stakeholders should be notified as soon as practicable during the emergency activity being performed. As noted in Section 3.3.2, utility companies should be notified in advance of contaminated materials.

If un-scheduled (emergency) work is performed within the exposure barrier area and work is to occur below the demarcation layer, all soil below the demarcation layer should be considered contaminated unless documentation can be provided that indicate the soil is clean. This documentation may be in the form of laboratory analysis and comparison to appropriate risk standards, or through documentation that contaminated soil was previously excavated and replaced with clean materials.

If an unanticipated disturbance of contaminated soil takes place, actions should be implemented immediately to prevent exposure to both the on-site worker and to potential visitors to the property. The disposition of any excavated contaminated soils should be ascertained, and appropriate

measures taken to prevent exposure in accordance with the procedures outlined in Sections 3.5 to 3.7 of this report.

Excavation in the exposure barrier area that is required to occur below the demarcation layer should be stopped as soon as practicable until the following can be performed:

- Make the required notifications (Section 3.3.2).
- Follow health and safety guidelines (Section 3.3).
- Separate and properly stockpile impacted soil (Section 3.5).
- If directed to do so, collect soil samples of stockpiles (Section 3.7).
- Coordinate with the City and the approved disposal facility to:
    - Profile the impacted soil (Section 3.10).
    - Dispose of the impacted soil (Section 3.10.1).

Impacted soil should not be used to backfill an excavation unless placed beneath the demarcation layer where it was excavated from; it should be transported to a disposal facility that is approved by the City.

The remedy consists of maintaining a minimum two-foot cap of clean soil at the property in areas of non-structural exposure barriers.

Maintenance tasks for the soil cap will be dependent on the findings in the semi-annual inspections or other unscheduled observations. If breaches that may result in contaminated soil exposure are identified, they will be repaired within the timeframes outlined below. The repair method will be specific to the size and location of the exposure and will be evaluated at the time of discovery.

5.2.1.1 TIMEFRAMES

If an exposure barrier disturbance occurs but does not expose soils beneath the demarcation layer, the exposure barrier must be replaced within 30 days from the cessation of the activity causing the disturbance. In the case of erosion or other activities not initiated by the property owner or their representative, replacement must take place within 30 days of identifying the disturbance.

If contaminated soils are exposed and the exposure barrier cannot be immediately repaired, temporary measures should be taken to mitigate exposure to contaminated soils. These measures should be implemented at the start of a planned disturbance. In the case of erosion or other activities not initiated by the property owner or their representative, these measures should be implemented within one (1) week of discovery of the disturbance. These measures may include installation of temporary fencing such as construction or snow fence to prevent

unauthorized access, placement of tarps, plastic sheeting or plywood over exposed and stockpiled soils, or other measures.

When relying on these temporary measures to prevent exposure, they should be inspected at least weekly to ensure their continued effectiveness.

If an exposure barrier disturbance exposes soils beneath the demarcation layer, the disturbance should be repaired within 30 days from the cessation of the activity causing the disturbance. In the case of erosion or other activities not initiated by the property owner or their representative, replacement should take place within 30 days of identifying the disturbance.

5.2.3 Procedures

5.2.3.1 NO EXPOSURE OF CONTAMINATED SOILS

When an excavation occurs above the demarcation layer, soils which are excavated can be assumed to be clean fill materials. These soils can be staged directly on the adjacent soils if care is taken to prevent the mixing of the clean fill material with the soils underlying the demarcation layer. Soils removed above the demarcation layer should be placed back in the excavation from which they were removed, above the demarcation layer. If additional fill is required to bring the excavation back to the original grade, imported fill should be tested to ensure it meets residential use standards. Imported clean fill materials can consist of other clean soil, gravel, sand, concrete, pavement, or other noncontaminated materials. Please refer to Section 3.8 for additional information regarding the import of clean fill and the analytical testing recommended for the imported fill material.

5.2.3.2 EXCAVATION OF CONTAMINATED SOILS

Contaminated soils excavated at the property from below the demarcation layer must be handled in a manner that prevents exposure to the onsite construction workers, park workers, and the public. The following outlines the steps and precautions that should be followed when excavating occurs below the demarcation layer.

Staging and Soil Handling

Excavated soils from above and below the demarcation layer should be properly staged. Soils above the demarcation layer should be segregated and staged away from those below the demarcation layer to prevent mixing of clean and contaminated soils, as outlined in Section 5.2.3.1.

- Soil excavated from below the demarcation layer should be staged on plastic sheeting, pavement, containers, or other means to prevent their mixing with the clean soil cap.
- During prolonged staging of contaminated soil, soil should be covered with a tarp or other protective measures should be taken to ensure weather events do not cause the soil to

be dispersed. Soil dispersed by wind or water can spread across the property or impact the clean soil cap.

Replacing Soils in an Excavation

When replacing contaminated soil in an excavation, it must be placed below the demarcation layer. Alternatively, the soil can be appropriately disposed of offsite and replaced with clean materials. Replacement materials can consist of the removed soil segregated from the above materials by the demarcation layer. Other clean soil, gravel, sand, concrete, pavement, or other non-contaminated materials may also be placed back in the excavation.

Off-Site Disposal

Impacted soils from beneath the demarcation layer can be disposed of at an offsite landfill facility. If material is removed from the site, it must be managed in accordance with the procedures in Section 3.10.

5.2.3.3 MAINTAINING THE DEMARCATION LAYER

Any excavation that occurs at the property should be performed in such a manner as to maintain the integrity of the demarcation layer regardless of whether the work is scheduled or unscheduled. Whenever possible, new or replacement demarcation layers should overlap existing by a minimum of six inches.

Excavation Above the Demarcation Layer

Excavation which occurs above the demarcation layer should be performed in such a manner to not damage the underlying demarcation layer. Due to the thickness of the overlying clean fill material (assumed to be 24-inches), manual excavation (shovels) is preferred over mechanical excavation as the teeth usually found on the bucket of a mechanical excavator could damage the demarcation layer.

Excavation Below the Demarcation Layer

If excavation is to occur below the demarcation layer, care should be taken to minimize damage to the demarcation layer. The following outlines the minimum steps contractors shall follow to preserve the integrity of the demarcation layer when working below the layer.

The damaged geotextile material should be removed from the excavation and properly disposed of at a landfill.

The area in which the excavation work is being performed should be over-excavated so that the demarcation layer is exposed on either side of the excavation area.

Upon completion of the excavation work, the demarcation layer should be patched per manufacturers' directions. The patch should include an overlap with the existing geotextile membrane of at least six inches as outlined in Section 4.3.

5.2.3.4 DOCUMENTATION

Documents should be maintained for any excavation which occurs at the property, regardless of whether it occurs above or below the demarcation layer. At a minimum, the following should be documented:

- Field logs documenting the location of the excavation, including the people and companies involved in the work.
- A photolog to accompany the field log documenting the procedures followed for staging the excavated soils.
- If required, the volume/quantity of borrow materials used in backfilling the excavation.
- Final survey data demonstrating the exposure barrier has been returned to original grade.
- Maintain disposal records for all material moved off-site or any soil relocated at the site.
- Maintain records of all applicable permits, required inspections as noted in any permits, documentation of proper soil handling (including removal of soil from construction debris, vehicles/equipment, and workers prior to leaving the Subject Property).

5.3 Monitoring

Monitoring is like inspections but is not a formal process, may not be as in depth or detailed as an inspection, and occurs more frequently than a detailed inspection. The following discusses a potential monitoring schedule for both the non-structural and structural exposure barrier.

5.3.1 Non-Structural Exposure Barrier

During the weeks and months post installation of the non-structural exposure barrier, Atlas recommends the non-structural exposure barrier be monitored at a minimum schedule of bi-weekly. Special attention should be made to the following:

- The vegetative cover of the non-structural exposure barrier should be assessed to ensure the vegetative cover is being established (e.g., seed has germinated, grass is growing, etc.). Areas where poor germination has occurred, or the seed has been lost (animal scavenging or erosion), should be over-seeded.
- The cover should be assessed following precipitation events to ensure no erosion of the soil or seed has occurred.
- High traffic or high use areas should be assessed to ensure the vegetative cover was not impaired, potentially exposing the underlying soil to increased erosion.
- At all times, the exposure barrier should be monitored to ensure the demarcation layer has not been exposed.

5.3.2 Structural Exposure Barrier

To determine the effectiveness of a structural exposure barrier, the barrier should be monitored at least four (4) times per year in addition to the semi-annual inspections. This would include slabs and foundations of buildings, concrete or asphalt parking lots, walking paths, and recreational courts, etc. being used as structural exposure barriers. High traffic or high use areas and/or areas exposed to the elements such as walking paths, sidewalks, recreational courts, and parking areas, may require a more frequent monitoring schedule, such as monthly. These areas should be assessed for

- Broken, cracked, or pitted pavement.
- Exposed soils beneath the pavement.
- Settling of the pavement or structure.

If a building, or portion of a building, is razed, the building slab must continue to be maintained as an exposure barrier unless an appropriate alternative exposure barrier (24-inch non-structural barrier, parking lot, etc.) is constructed in its place and appropriately documented.

5.3.3 Schedules

Inspection and monitoring schedules will vary depending upon the type of exposure barrier.

Non-structural exposure barriers will require more frequent monitoring (monthly to quarterly) during the first couple of years to ensure the surface cover remains in sound condition without signs of erosion. Once a good seasonal track record is established, the monitoring frequency can be reduced. Vegetated soil exposure barriers may require daily to weekly monitoring immediately following construction until the vegetative cover is established. Industry standards typically call for at least 90 percent healthy turf growth across seeded areas before monitoring frequencies are reduced.

Non-routine monitoring should be conducted following certain triggering events such as scheduled and unscheduled construction activities, severe storms, and flooding.

FIRST TWO YEARS

Non-structural exposure barriers will require more frequent monitoring (monthly to quarterly) during the first couple of years to ensure the surface cover remains in sound condition without signs of erosion. Once a good seasonal track record is established, the monitoring frequency can be reduced. Vegetated soil exposure barriers may require daily to weekly monitoring immediately following construction until the vegetative cover is established.

LONG-TERM

Monitoring frequencies for established exposure barriers typically range from quarterly to annually. It is recommended that all exposure barriers are formally inspected at least once per

year. Non-routine monitoring should be conducted following certain triggering events such as construction activities, severe storms, and flooding.

TRIGGERING EVENTS

Events that may trigger additional monitoring and inspection could include;

- Evidence of erosion due to unexpected weather events (e.g. major storms)
- Flooding or surface water inundation because of unexpected weather events.
- Emergency situations such as those outlined under Section 5.2.2.

5.4 Documentation and Reporting

Inspection of both non-structural and structural exposure barriers should be documented on the inspection forms provided in Appendix IV. Documentation should be provided to the property owner for their records. Additional documentation could also include:

- Documentation for any construction activity, whether scheduled or unscheduled, that breaches the exposure barrier, as outlined in Section 5.2.3.4.
- Documentation of scheduled maintenance performed on the exposure barrier, whether non-structural or structural.
- Documentation of any unscheduled construction performed on the exposure barrier.
- Documentation of any imported fill material used in maintenance or repair of the exposure barrier.
- Documentation of the removal of any contaminated soils from beneath the demarcation layer during scheduled or unscheduled construction or excavation activities on the exposure barrier.
- Changes to the exposure barrier, such as the addition or replacement of structural exposure barriers (e.g., replacing a non-structural walking path with a structural walking path).

6. RECORD KEEPING AND REPORTING

This document is not intended to represent a Documentation of Due Care Compliance (DDCC) for submission to and approval by Michigan Department of Environment, Great Lakes, and Energy (EGLE). An owner or operator of a facility must take actions to protect people from exposure to contamination present in soil, groundwater, and subsurface vapors. Documentation of due care evaluations, all conducted response activities, and compliance with Section 7a or Section 4c need to be made available to EGLE, but not submitted, within eight (8) months of becoming the owner or operator of a facility. EGLE may request documentation of due care compliance from the owner or operator.

Maintain a record of all notices provided to entities and maintain these records throughout ownership and/or operation of the Subject Property. A variety of documents should be maintained which support the use of the exposure barrier as a remedy for direct contact of the underlying soils and supports the on-going efficacy of the remedy through documentation of inspections and monitoring along with any maintenance or repairs performed on the exposure barrier.

Records should be kept throughout the life of this soil remedy. In general, documentation should be maintained that provides evidence of the chosen remedy's effectiveness, in this case, an exposure barrier used to mitigate direct contact with the underlying soils.

Documentation should demonstrate how compliance with applicable standards is being met or maintained using non-structural and structural exposure barriers. To show that the remedy remains effective, on-going monitoring and inspections shall be performed.

6.1 Construction Documentation

The performance and effectiveness of a well-designed exposure barrier relies on proper installation. Maintaining documentation of the construction and installation of an exposure barrier is required when performed as a Part 201 response activity, or to comply with due care.

It is highly recommended that the documentation be provided to current and future owners and operators of the property to meet disclosure requirements for contaminated properties. The documentation must demonstrate that the exposure barrier is effective to mitigate exposures. The documentation will need to demonstrate proper construction, thickness of the exposure barrier, and materials used. Documentation should also include the plan for inspecting and monitoring the exposure barrier. See Section 4.0 for a list of recommended documentation that should be kept on file as part of construction documentation.

6.2 Inspection Documentation

Regular inspection of an exposure barrier is performed to ensure that the exposure barrier remains intact and continues to be protective of human health and the environment. An inspection is a scheduled formal process that involves examining the barrier to ensure it continues to remain intact. Appendix IV contains examples of inspection forms that can be

used when inspecting the exposure barrier. These forms should be kept on file to provide documentation that the owner has been compliant with their Due Care obligations.

6.3 Maintenance and Repair Documentation

Documentation regarding general maintenance and repair of the exposure barrier should be maintained.

6.4 Reporting

Reporting to EGLE is not presently required.[1] Final Documentation of Due Care Compliance (DDCC) will not be submitted to EGLE but will be submitted for file with City of Detroit Due Care files, in the event EGLE requests a copy of the final DDCC document.

During construction activities, deliverables are required by the City of Detroit and/or under Due Care obligations to document implementation of proposed remedial actions/exposure barrier and site redevelopment activities. These include:

- Weekly Status Reports
    - A summary of weekly activities to be delivered weekly (e.g., every Monday) throughout the implementation of remedial actions at the Site for submittal under Due Care activities.
    - Inspection forms.
    - Photo logs.
    - Daily tracking sheets.
    - Laboratory analytical results, as available.
    - Any significant issues, safety concerns or other potential delays including recommendations for resolution.
- GLWA permitting / sampling summary and totals.
    - Project summary totals of sampling, inspection, and discharge totals (weekly updates in status reports).
    - Final project documentation/close out to be submitted to the City and GLWA.
- Documentation of Due Care Compliance Report
    - Final Summary report to document all on-site activities related to Due Care Compliance

[1] However, EGLE may request copies of record keeping and documentation at any time.

- All survey data / downloaded (x, y, z coordinates) to Giffels Webster will be incorporated into final site figures, exposure barrier cross sections and locations of soil removal/re-location.
- Documentation of subsurface features installed (utilities, footings, trees, etc.) and inspection and photo documentation, including surveyed locations (x, y, z coordinates).

Similarly, routine inspections associated with post-construction operations and maintenance should be reported to the City and made available to EGLE upon request.

7. MODIFICATION OR TERMINATION OF THIS PLAN

The design life and on-going inspection and maintenance of the exposure barrier must be for as long as the contaminated material remains in place (EGLE 2024, Section 2.6). The property owner may terminate the on-going obligations associated with the exposure barrier if the property owner can document that it is no longer necessary for the property to have an exposure barrier. This could include removal or remediation of contaminated materials, or demonstration that soils below the barrier no longer present a risk to human health and the environment.

Note that replacement of non-structural exposure barriers with structural exposure barriers does not automatically terminate on-going inspection obligations of this plan; however, it may modify the frequency and nature of inspections.

7.1 Data and Information Collected

Data to be collected in conjunction with modification or termination of this due care plan may include the following:

- Topographic survey
- Documentation of testing activities or soil removal
- Anticipated land use.

7.2 Criteria for Termination or Modification

The design life and on-going inspection and maintenance of the exposure barrier must be for as long as the contaminated material remains in place (EGLE 2024, Section 2.6). As long as contamination remains in place beneath an exposure barrier, inspection, maintenance, and monitoring is required under Part 201 to ensure the continued effectiveness of the remedy. (EGLE 2024, Section 5.0).

When contamination is present at a depth greater than 4 feet or an exposure barrier is installed with a thickness of 4 feet or greater, inspection and monitoring requirements may be reduced or eliminated. Four feet was selected based on a depth not typically excavated during routine residential landscaping and excavation activities such as installation of fence or deck posts, utility work, planting of trees, and other minor construction that would bring contaminated soils to the surface. The property owner will still have obligations including proper notifications, restrictions, soil management, and repair and maintenance of the exposure barrier (EGLE 2024, Section 5.4).

7.3 Approvals

Modifications resulting in non-structural exposure barriers with a thickness of less than 24 inches will generally require consultation with EGLE prior to implementation.

8. LIMITATIONS

This Due Care Plan Scope of Work has been developed in consideration of Part 201 and was restricted to observations made during the aforementioned Due Care Evaluation. Sketches and maps used in this report are included to aid visual understanding by the reader and should not be considered surveys or engineering studies, unless otherwise indicated or required in association with Part 201. In preparing this report, Atlas has relied upon previous assessments. Atlas did not detect any inconsistency or omission of a nature that might call into question the validity of any information obtained during the performance of these assessments. To the extent that the conclusions in this plan are based in whole or in part on such information, they are contingent on its validity.

No Due Care Evaluation or scope of work can wholly eliminate uncertainty regarding the potential for environmental impacts concerning a Subject Property. Performance of this Due Care Plan Scope of Work is intended to reduce, but not eliminate, such uncertainty recognizing the limits of time and cost.

Atlas represents that, within the limitations of the agreed upon scope of services, this work has been undertaken and performed in a professional manner, in accordance with generally accepted industry practices, and using the degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances and locations. No other warranty, expressed or implied, is made. Specifically, Atlas does not and cannot represent that the property contains no hazardous material, oil, or other latent condition beyond that identified by Atlas during the work performed.

9. REFERENCES

Atlas. 2024. *Due Care Evaluation for Construction Activities: Lenox Center / AB Ford Park Property. Project 188BS23244. Dated February 5, 2024.* Detroit, Michigan: Atlas Technical Consultants LLC (Atlas).

EGLE. 2024. *Exposure Barriers for the Direct Contact Pathway: Design, Documentation, and Management Guidance Under Part 201.* Remediation and Development Division, Michigan Department of Environment, Great Lakes, and Energy (EGLE).

APPENDIX I
EXAMPLE NOTICE TO CONTRACTORS AND WORKERS

Due Care Notification for Contractors and Workers at the AB Ford Park Property Detroit, Michigan

The Property located at 100 Lenox Street, Detroit, Wayne County, Michigan meets the definition of a "facility" as that term is defined in Part 201 of the Natural Resources and Environmental Protection Act (NREPA), PA 451 of 1994, as amended (Part 201).

Property Overview

The Property includes an area of approximately 29.5 acres. This includes the approximately 12-acre western portion where additional assessment (sampling) was performed and that is currently developed with an 8,116 square foot community center building and associated parking that was completed in 2023 (see Figure A for current property location and Figure B for the AB Ford Master Plan Rendering). The Property building serves as a community space as well as a sustainable resilience hub during emergencies and includes a community hub space, flexible space for indoor youth sports and community events, classrooms, and quiet learning space. The Property is serviced by municipally supplied utilities. The municipalities having jurisdiction over the Property are the City of Detroit and Wayne County. The City of Detroit, Parks and Recreation currently owns/operates the Property.

Purpose of this Notification

Whenever construction or excavation workers are reasonably expected to be exposed to contaminated soils, the owner of the Property is responsible to provide written and documented notifications of relevant environmental hazards to any employees, contractors, tenants, relevant third parties (e.g., utility companies), easement holders, or other personnel that perform activities at the Subject Property that may result in exposure to contaminants. If the owner provides notification directly to non-individuals (such as a construction company), it should be made clear that the information must be passed on to ***all*** employees and subcontractor employees who may be exposed to contaminated soils at the Subject Property.

Contaminated Media

Contaminants of concern (COCs) were identified in soils within the western portion of the Property, as summarized in the table on the following page. The COCs are also presumed to be present at similar concentrations in the eastern portion of the Property. Additionally, groundwater contamination has been identified.

Contaminant	Maximum Concentration (µg/kg)	Location of Maximum Concentration	Part 201 Residential or Non-Residential GCC / DCC / VIAP
Arsenic	100,000	SB-10 (0-2)	**Residential DCC Nonresidential DCC**
Cadmium	1,100,000	SB-58 (0-2)	**Residential DCC**
Lead	10,500,000	SB-158 (0-2)	**Residential DCC Nonresidential DCC**
Mercury	7,150	SB-118 (0-2)	**Residential VIAP**
Benzo(a)anthracene	61,200	SB-96 (0-2)	**Residential DCC**
Benzo(a)pyrene	43,500	SB-96 (0-2)	**Residential DCC Nonresidential DCC**
Benzo(b)fluoranthene	58,500	SB-96 (0-2)	**Residential DCC**
Dibenz(a,h)anthracene	8,420	SB-96 (0-2)	**Residential DCC Nonresidential DCC**
Indeno(1,2,3-cd)pyrene	24,900	SB-96 (0-2)	**Residential DCC**
Naphthalene	1,950	SB-33 (2-4)	**Residential VIAP**
Phenanthrene	69,500	SB-96 (0-2)	**Residential VIAP**

Notes: *Only analytes for which one or more of the Part 201 Criteria are exceeded are included in the above table.*

VIAP - Volatilization to Indoor Air Pathway

GCC – Generic Cleanup Criteria

DCC – Direct Contact Criteria

Surface Exposure Barrier

To mitigate the possibility of individuals contacting contaminated soils, an exposure barrier is being constructed at the Property. This includes structural exposure barriers such as building floors, foundations, asphalt, and concrete pavement including streets, sidewalks, parking lots, and other permanent structural components. It also includes non-structural exposure barriers ("soil cap") defined as soil, gravel, rock, or other loose non-organic material installed to a minimum thickness (generally two feet). Non-structural exposure barriers are generally underlain by a demarcation layer such as orange geotextile fabric.

Soil beneath exposure barriers, or in areas where exposure barriers are not yet constructed, should be presumed to contain the COCs listed above at concentrations that may cause adverse health effects.

Exposure barrier construction must be performed in a manner that mitigates or eliminates human exposure to contamination because of construction activities. Concerns for potential exposure to contaminated soil are

present both during the construction activities and after completion of the construction activities. Therefore, risk mitigation measures are intended to:

- to protect construction workers from contamination that exceed applicable standards for construction activities,
- to protect non-construction workers from exposure to contamination during the construction activities, which can be accomplished through appropriate site control measures, and
- to protect non-construction workers from exposure to contamination after construction completion, which can be accomplished through proper soil management of the contaminated soil and restoration of the clean soils within the point of compliance.

Site-Specific Health and Safety Plan

If workers may contact contaminated materials, they are required to follow a Site-Specific Health & Safety Plan (SSHASP) provided by their employer, in conformance with all applicable OSHA and MIOSHA requirements and regulations. Personnel entering the work zone shall be required to review, sign, and follow the SSHASP. Please note that the SSHASP is likely to require workers exposed to potentially contaminated soils (if such are encountered during construction) to have OSHA training (with annual refreshers) per 29 CFR 1910.120 (Hazardous Waste Site Operations and Emergency Response or HAZWOPER). This is due to the potential to encounter conditions that have not been previously characterized.

General Precautions to Avoid Exposure

Access to work areas should be restricted during the construction and renovation activities. These areas should be accessible only to authorized contractors, consultants, agents, or employees of the City of Detroit.

Exposure to contaminants on the Property could occur when construction workers come in contact with soil beneath existing exposure barriers or where exposure barriers are not present (e.g., during construction). Contact can include dermal contact with exposed skin, such as bare hands and forearms, accidental ingestion when soil gets on food, such as transfer from dirty hands to food, or breathing in particles of contaminated soil as dust. Construction workers should always attempt to limit their exposure to contaminated soils or lessen the time after contact that the impacted soil remains on the skin. Area under construction shall be controlled adequately so that other receptors (i.e., non-construction workers or public) are not adversely impacted as a result of the construction activities. Specific precautions to be taken at all times when the upper two feet of soil is breached are as follows:

1. Workers should avoid handling impacted soils and wear clothing that limits the skin area available for contact with the soil. Examples of such clothing include gloves, hard hats, long sleeve shirts, and long pants. If handling is required, workers should wear nitrile gloves with outer work gloves and should use tools, rather than their hands, to handle the impacted soils. The nitrile gloves should be disposed after working with impacted soil. PPE clothing should be disposed at the end of each workday.
2. PPE, gloves, and clothing should be removed if they become wet or excessively contaminated. PPE should be changed at the end of each workday or according to manufacturer's recommendations.

3. Wash hands frequently and always before eating, smoking, chewing gum or tobacco, or other activities that involve contact between the hands and items to be placed in the mouth. This will prevent the spread of any soil on the hands to the items being placed in the mouth.

4. Break areas and facilities not directly related to construction should not be located in the immediate area of excavations or other areas of exposed soils. If practicable, downwind locations for these facilities should be avoided.

5. Do not apply ointments, cream, make-up or other substances before washing both the area to which the substance is to be applied and, if the substance is to be applied by hand, the hands. The application of such substances can provide a mechanism by which soil can be trapped next to the skin.

6. Cover cuts, scrapes, and other open skin areas. Injured skin allows compounds in the soil to be more readily absorbed into the body than intact skin.

7. Wash hands and other exposed areas with a water and detergent solution, especially those areas with visible dirt, before scheduled breaks, before leaving the work site for extended time periods, and before leaving the site at the end of the day. This limits the amount of time that the soil is potentially in contact with the skin, thereby reducing the amount of the chemicals that can be absorbed through the skin.

8. Workers should not wear dirty clothes or shoes home or in vehicles. If possible, workers should park in an area where cars will not be contaminated with dust.

9. Change work clothes shortly after leaving the property, especially those work clothes having either visible dirt or made damp through sweat or other liquids. Wash such clothes prior to wearing them again. Gloves and other such items that come into direct contact with the soil should also be washed, if possible.

10. Wash hair and other less accessible portions of the body shortly after leaving the work site for the day. Dirt and dust that contain substances such as lead can settle in the hair and spread by contact between the hands and the hair. Dirt and dust can also infiltrate under and through clothing, especially clothing becoming wet or sweaty.

11. Generally avoid direct contact between the skin and the contaminated soils at the property.

12. Minimize the suspension of dust to the degree possible and specify measures to be taken for minimizing dust. Dust masks should be worn when warranted.

13. Adequate and appropriate site control to limit access to the construction area until construction completion.

14. When exposure barriers were previously installed and are being disturbed, restoration of clean soil cover to the appropriate point of compliance depth (e.g., 24 inches) to ensure continued compliance with applicable standards after construction completion.

Actions to take upon Significant Exposure

Whenever significant exposures to contaminated materials are suspected to have occurred at the property, the following steps must be taken:

1. Immediately remove and decontaminate all personnel.
2. Provide medical surveillance monitoring as needed for personnel.
3. Restrict access to the contaminated area.
4. Perform sampling and analysis as required to determine levels of personal protective equipment, decontamination of personnel and equipment, training needs, medical surveillance, and waste management requirements, prior to resuming work at the site.

Handling of Contaminated Media

It is critically important that any relocation of contaminated soil is done in accordance with Part 201 Section 20120c. This statute details the provisions under which contaminated soil may be relocated. For example, material should not be relocated to a location that is not the facility. Soil may only be relocated on site to areas similarly contaminated. Relocation to uncontaminated areas may create a new facility for which the property owner and contractors can be held responsible. Some situations may require prior notifications before contaminated materials can be relocated.

When contaminated soils are excavated at the Property, they must be handled in a manner that prevents exposure to inhabitants and construction workers. Precautions should include:

- Excavated soils should be staged on plastic sheeting, pavement, containers, or other means to prevent their mixing with the clean soil cap.
- During prolonged staging of contaminated soil, soil should be covered with a tarp or other protective measures should be taken to ensure weather events do not cause the soil to be dispersed. Soil dispersed by wind or water can spread across the building slab or impact the clean soil cap.

Work performed above a demarcation layer would not require special or additional requirements for soil placement as the soil above the demarcation layer is considered clean fill. However, if work is to be performed below an exposure barrier, a minimum of the following is recommended:

- Visitors to the site will be prohibited from entering the work area. This could include the use of fencing and signage designating the area as a work area.
- Soils disturbed or excavated above the demarcation layer will be segregated from those from below the demarcation layer.
- Soil below the demarcation layer will be segregated from those above the demarcation layer and handled in accordance with the Due Care Evaluation and Due Care Plan – Scope of Work prepared for the Property.

The Due Care Evaluation and Due Care Plan – Scope of Work contain additional requirements related to soil handling, worker monitoring, imported fill materials, waste characterization and handling, and other requirements applicable to the Property. These documents should be reviewed for additional requirements relative to planned activities.

Unknown Conditions

Unanticipated contaminated media is any material that appears to be contaminated that is encountered in areas of excavation where contaminated media is not anticipated. Staining, discoloration, chemical/petroleum odors, or other evidence of non-natural conditions are qualitative indicators of potential environmental impact. During excavation, the contractor and workers should continually assess the materials being removed and determine the presence of potentially contaminated soils, solid waste, and/or other non-native or non-naturally occurring materials. If potentially contaminated soils are encountered in an area based on odors, atypical soil discoloration, buried containers or other materials contributing to a potential release, etc., the Contractor must stop further excavation work in that area until an environmental professional can assess the situation and provide the Contractor with specific directions for managing the contaminated soils.

Unanticipated Contaminated Media may be distinctly different in odor or color than the site fill material and native soils at the site and includes, but is not limited to:

- Petroleum hydrocarbon impacted soil;
- Unknown drums or Underground Storage Tanks;
- Unknown hazardous material containers;
- Hydraulic lifts;
- Railroad ties;
- Debris, solid wastes, including suspect asbestos containing materials; or
- Spills or releases from construction equipment.

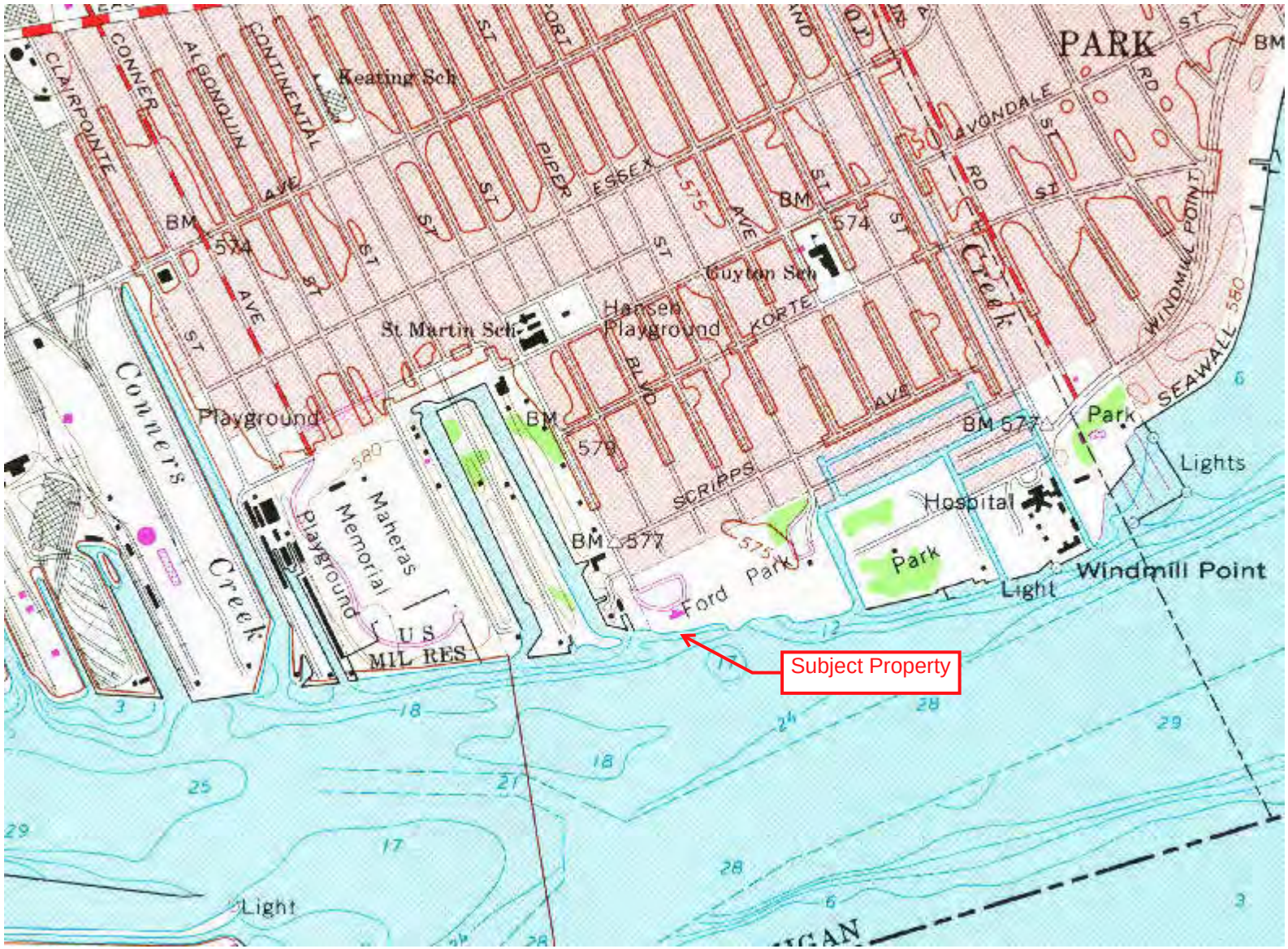
Acknowledgement

By signing below, you are acknowledging the following:

- You are aware this property is a “facility.”
- You have received this Due Care Notification, and both the Due Care Evaluation and Due Care Plan – Scope of Work have been made available to you.
- You have read and understand the contents of this Due Care Notification.
- You understand the potential pathways through which you, other workers, and the public could be exposed to contamination at the Property and will follow appropriate precautions and material handling protocols to eliminate or mitigate such exposure.
- If you represent a particular company or contractor, you will provide copies of this Due Care Notification to all personnel and subcontractors who may perform work at the Property.

Acknowledged by:

_____	_____
Printed Name	Company/Affiliation
_____	_____
Signature	Date



Source: USGS Topographic Map 7.5 Minute Belle Isle , Michigan Quadrangle dated 1968, photorevised 1981

ATLAS

Subject Property Location Map
Figure A

Lenox Center Property
100 Lenox Street
Detroit, Michigan

PROJECT NO.: 188BS23244

DRAWN BY: AJT

N

A.B. FORD PARK MASTER PLAN

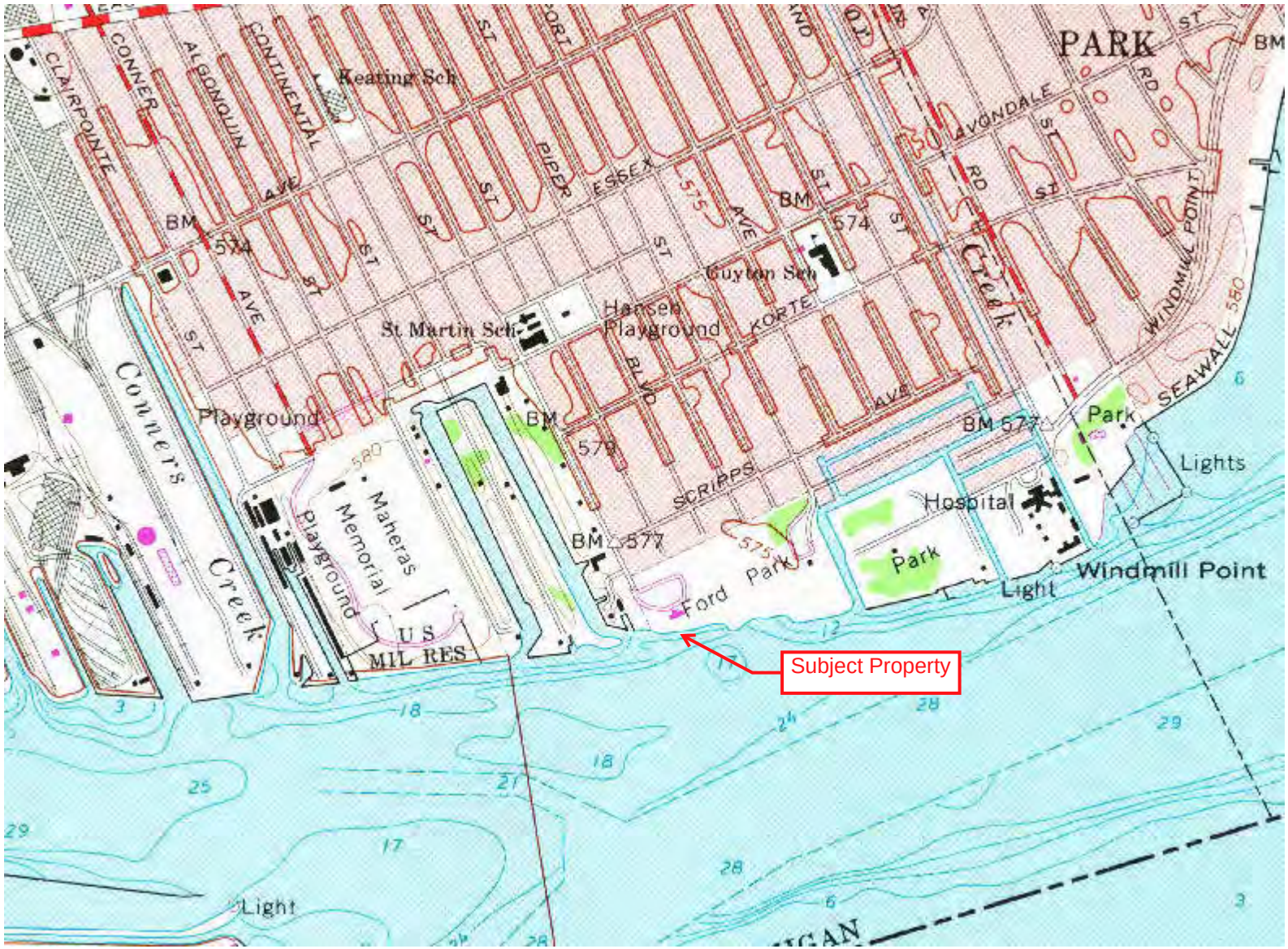
ATLAS

AB FORD MASTER PLAN RENDERING

CITY OF DETROIT 100 LENOX STREET DETROIT, WAYNE COUNTY, MICHIGAN

Project Number: 188BS23244	
Date: 08/18/2023	
Drn. By: DH	Ckd. By: JS
Scale: AS SHOWN	
Figure: B	

APPENDIX II
EXAMPLE CONSTRUCTION DIAGRAMS



Source: USGS Topographic Map 7.5 Minute Belle Isle , Michigan Quadrangle dated 1968, photorevised 1981

ATLAS

Subject Property Location Map
Figure A

Lenox Center Property
100 Lenox Street
Detroit, Michigan

PROJECT NO.: 188BS23244

DRAWN BY: AJT

N

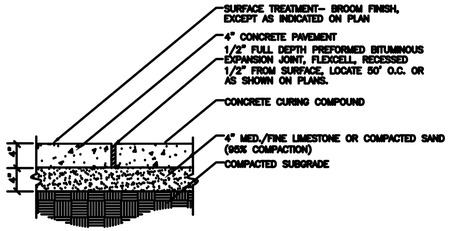
A.B. FORD PARK MASTER PLAN

ATLAS

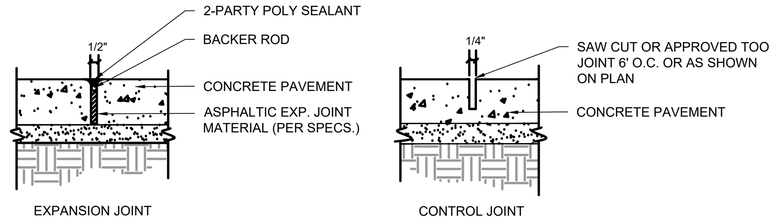
AB FORD MASTER PLAN RENDERING

CITY OF DETROIT 100 LENOX STREET DETROIT, WAYNE COUNTY, MICHIGAN

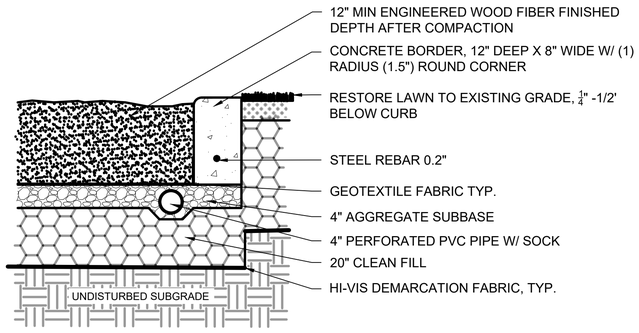
Project Number: 188BS23244	
Date: 08/18/2023	
Drn. By: DH	Ckd. By: JS
Scale: AS SHOWN	
Figure: B	



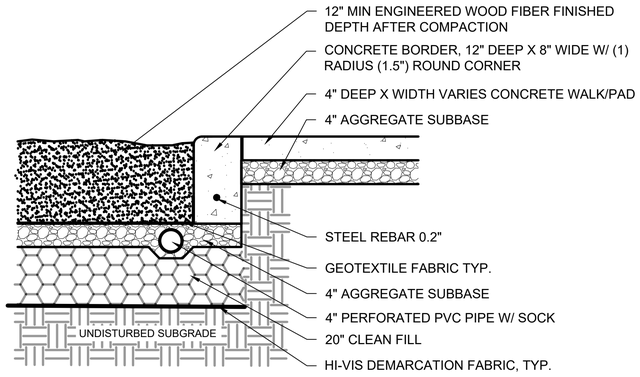
1 L5.01 4" CONCRETE PAVEMENT
NOT TO SCALE



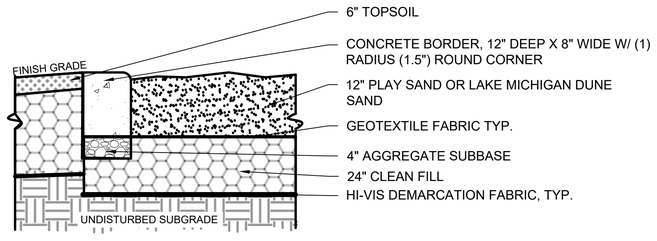
2 L5.01 EXPANSION AND CONTROL JOINTS
NOT TO SCALE



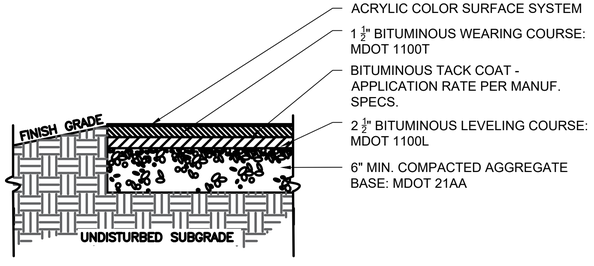
3 L5.01 EWF WITH CONCRETE BORDER & DRAINAGE SYS. W/ ENVIRONMENTAL CAP
NOT TO SCALE



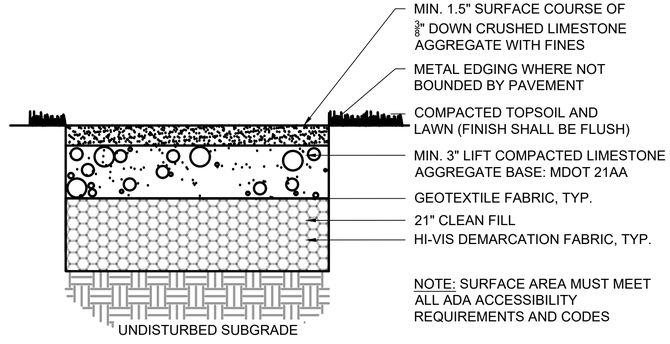
4 L5.01 EWF WITH CONCRETE WALKWAY/PAD & DRAINAGE SYS. W/ ENVIRONMENTAL CAP
NOT TO SCALE



5 L5.01 SAND BEACH AREA W/ ENVIRONMENTAL CAP
NOT TO SCALE



6 L5.01 ACRYLIC COLOR COATED BITUMINOUS PAVEMENT
NOT TO SCALE



7 L5.01 AGGREGATE PLAZA SURFACE W/ ENVIRONMENTAL CAP
NOT TO SCALE

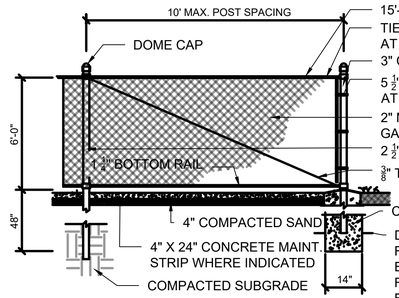
CITY OF DETROIT
GENERAL SERVICES DEPARTMENT
LANDSCAPE DESIGN UNIT
115 ERSKINE, DETROIT MI 48201
PH: (313) 628-0900 FAX:(313) 628-0927

PROJECT NAME:
A.B. FORD PARK SNF RENOVATION

DRAWN: XX	XX
CHECKED: TK	AS SHOWN
ISSUED FOR	DATE

SHEET TITLE:
DETAILS-CONSTRUCTION

FOR FILE PROJ #: PROP #: 243 DIST #: 4	SHEET L5.01



ELEVATION

15'-0" SS40 TOP RAIL POWDER COATED. SEE SPEC

TIES 24" O.C. ALONG TOP RAIL & SURLOC STAPLES AT 2 PER RAIL & POST

3" CORNER & END POSTS TYP. SS40

5 1/2" X 3/8" TENSION BANDS W/ TENSION BAR AT CORNER AND END POSTS

2" MESH CHAIN LINK FABRIC 2" X 9" GAUGE GALV. CORE TYPE 2A

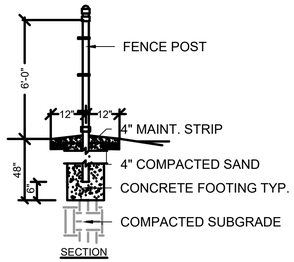
2 1/2" LINE POST TYP. SCH 40

3/8" TRUSS ROD W/ TURNBUCKLE AT CORNERS

CONCRETE FOOTING TYP.

DEMARCATION BARRIER AT 24". EXCAVATE FILL TO 24", CUT 'X' IN DEMARCATION BARRIER TO CONTINUE EXCAVATING TO FOOTING DEPTH. PLACE DEMARCATION BARRIER FLAPS BACK AGAINST FOOTING TO ENSURE FULL BARRIER REMAINS IN TACT.

NOTE: ANY SOIL REMOVED FROM BELOW THE DEMARCATION BARRIER SHOULD BE PROPERLY HANDLED, CHARACTERIZED, AND DISPOSED OF AT LICENSED TYPE II LANDFILL.



SECTION

NOTE:
ALL METAL PARTS SHALL BE VINYL COATED UNLESS OTHERWISE SPECIFIED ALL FABRIC SHALL BE SECURED WITH SURELOCKS PER SPECIFICATION IF NOT SPECIFIED TWO PER EACH POST AND TWO PER 10' SECTION RAILS

1 / L5.02 6' CHAIN LINK FENCE W/ CONCRETE MAINT.STRIP

NOT TO SCALE

ELEVATION

1 1/4" TOP RAIL

BALL CAP

TIES 24" O.C. ALONG TOP RAIL & SURLOC STAPLES AT 2 PER RAIL & POST

3" CORNER & END POSTS

1 3/4" MESH CHAIN LINK FABRIC; FABRIC TO BE INSTALLED ON OUTSIDE POSTS

5 1/2" X 3/8" TENSION BANDS W/ TENSION BAR AT CORNER AND END POSTS

2 1/2" LINE POST TYP.

3/8" TRUSS ROD W/ TURNBUCKLE AT CORNERS

1 1/4" BOTTOM RAIL

4" COMPACTED SAND

CONCRETE FOOTING TYP.

DEMARCATION BARRIER AT 24". EXCAVATE FILL TO 24", CUT 'X' IN DEMARCATION BARRIER TO CONTINUE EXCAVATING TO FOOTING DEPTH. PLACE DEMARCATION BARRIER FLAPS BACK AGAINST FOOTING TO ENSURE FULL BARRIER REMAINS IN TACT.

NOTE: ANY SOIL REMOVED FROM BELOW THE DEMARCATION BARRIER SHOULD BE PROPERLY HANDLED, CHARACTERIZED, AND DISPOSED OF AT LICENSED TYPE II LANDFILL.

SECTION

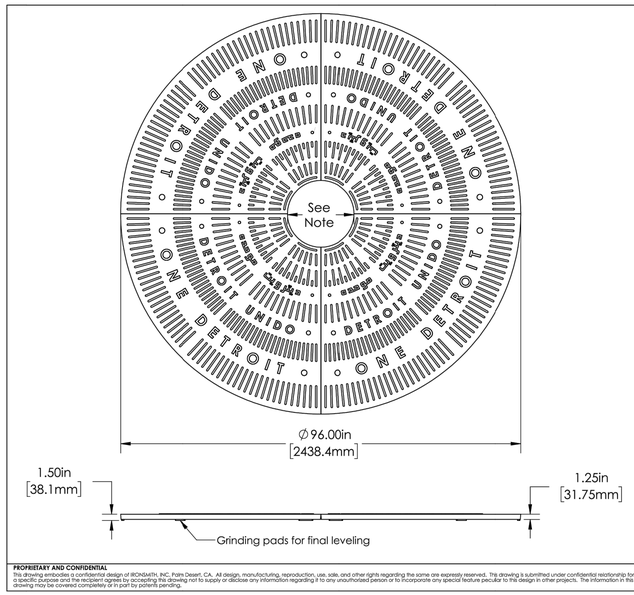
NOTES:
ALL METAL PARTS SHALL BE VINYL COATED UNLESS OTHERWISE SPECIFIED ALL FABRIC SHALL BE SECURED WITH SURELOCKS PER SPECIFICATION

2 / L5.02 10 & 12' CHAIN LINK FENCE W/ CONCRETE MAINT. STRIP

NOT TO SCALE

03 TREE GRATE INSTALLATION DETAIL

NOT TO SCALE



9605-2 - ONE DETROIT STARBURST-2 Tree Grate

96" Round Tree grate in four sections for pedestrian loads only

3/8" Maximum slot opening for A.D.A. compliance and pedestrian safety

Cast from 100% recycled gray iron.

Tree opening:
16", 18", 28", 35" Grates can be ordered with or later expanded to these openings. Please specify when ordering.

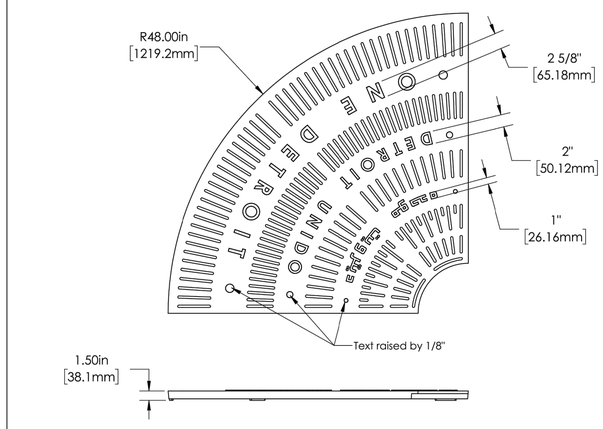
Finish: Unfinished

Use frame model:
9601F-CS

Weight:
Iron = 900 lb / 409 Kg

DO NOT SCALE DRAWING

IRONSMITH
41-701 Corporate Way #3
Palm Desert, CA 92260
(800) 338-4766
(760) 776-5080 Fax



9605-2 - One Detroit 96" Round Custom Tree Grate.

3/8" Maximum slot opening for
A.D.A. compliance and pedestrian safety.

Tree opening: 12"- 35" Grates can be ordered with or
later expandedto these openings.

From 100% recycled gray iron
Finish: Unfinished
Use frame model: 9601F-CS

DO NOT SCALE DRAWING

IRONSMITH
41-701 Corporate Way #3
Palm Desert, CA 92260
(800) 338-4766
(760) 776-5080 Fax

CITY OF DETROIT
GENERAL SERVICES DEPARTMENT
LANDSCAPE DESIGN UNIT
115 ERSKINE, DETROIT MI 48201
PH: (313) 628-0900 FAX:(313) 628-0927

PROJECT NAME:
A.B. FORD PARK SNF RENOVATION

DRAWN: XX	XX
CHECKED: TK	AS SHOWN
ISSUED FOR	DATE

SHEET TITLE:
DETAILS-CONSTRUCTION

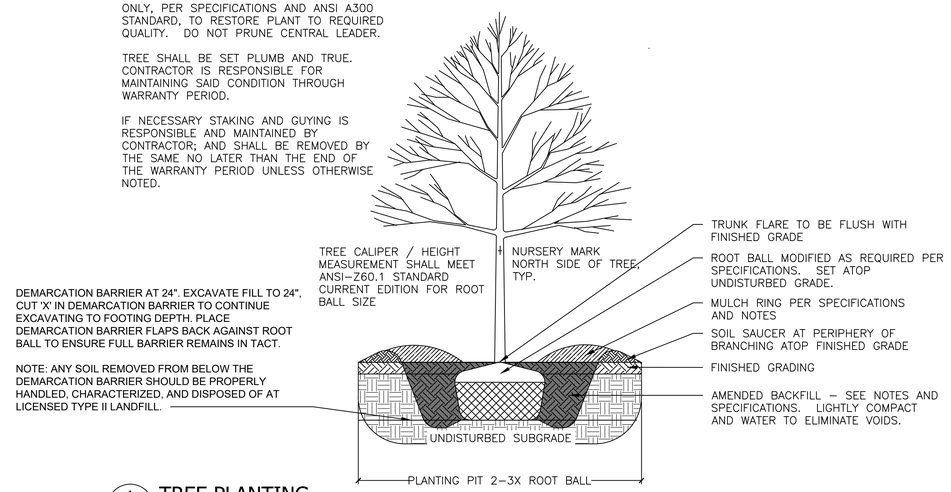
FOR FILE PROJ #: PROP #: 243 DIST #: 4	SHEET L5.02

TREE SHALL CONFORM TO ANSI–Z60.1 STANDARD FOR SIZING, FORM, AND ROOT BALL CONDITION.

CONTRACTOR TO PRUNE BROKEN BRANCHES ONLY, PER SPECIFICATIONS AND ANSI A300 STANDARD, TO RESTORE PLANT TO REQUIRED QUALITY. DO NOT PRUNE CENTRAL LEADER.

TREE SHALL BE SET PLUMB AND TRUE. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SAID CONDITION THROUGH WARRANTY PERIOD.

IF NECESSARY STAKING AND GUYING IS RESPONSIBLE AND MAINTAINED BY CONTRACTOR; AND SHALL BE REMOVED BY THE SAME NO LATER THAN THE END OF THE WARRANTY PERIOD UNLESS OTHERWISE NOTED.



1 / L1.06 TREE PLANTING
NOT TO SCALE

CITY OF DETROIT
GENERAL SERVICES DEPARTMENT
LANDSCAPE DESIGN UNIT
115 ERSKINE, DETROIT MI 48201
PH: (313) 628-0900 FAX:(313) 628-0927

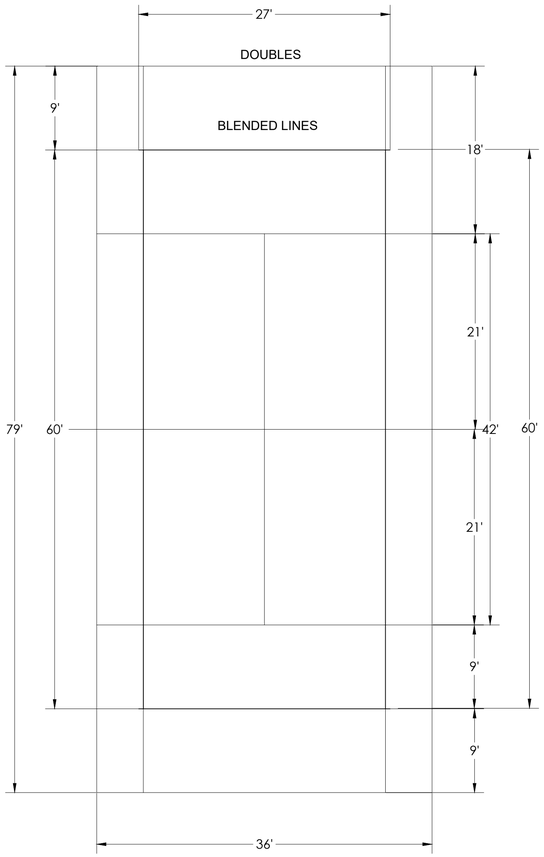
PROJECT NAME:
A.B. FORD PARK SNF RENOVATION

DRAWN: XX	XX
CHECKED: TK	AS SHOWN

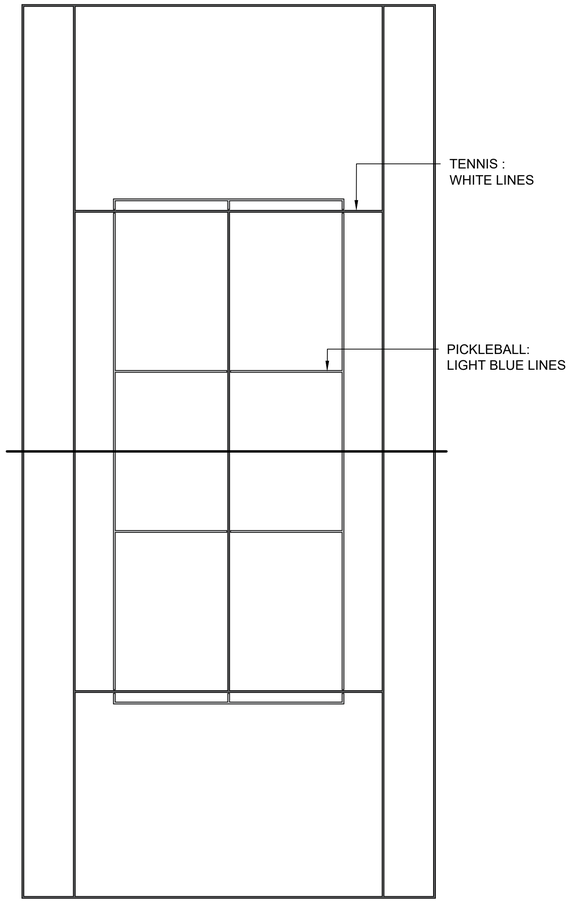
ISSUED FOR	DATE

SHEET TITLE:
DETAILS-CONSTRUCTION

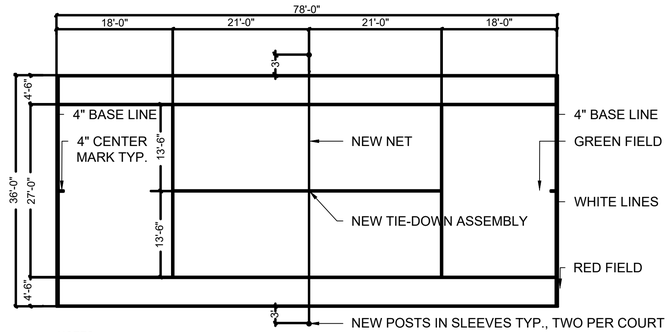
FOR FILE PROJ #: PROP #: 243 DIST #: 4	SHEET L5.02



1 L5.15 FULL TENNIS COURT WITH BLENDED LINES
NOT TO SCALE

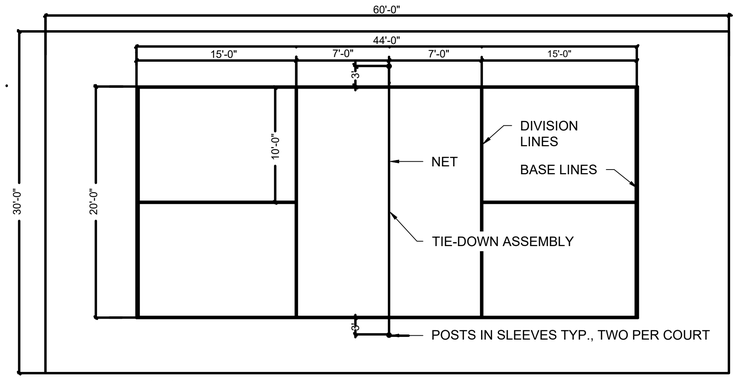


2 L5.15 TENNIS / PICKLEBALL LAYOUT
NOT TO SCALE



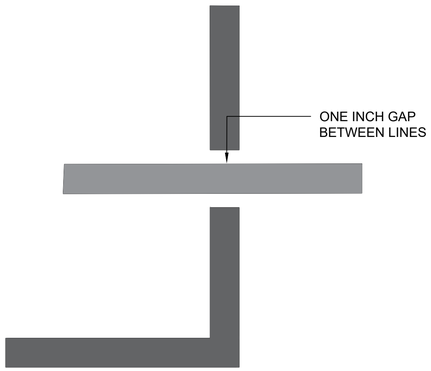
NOTES:
DIMENSIONS GIVEN TO OUTSIDE OF LINES EXCEPT CENTER LINE. ALL LINES SHALL BE TWO INCHES WIDE EXCEPT FOR BASE LINES WHICH SHALL BE FOUR INCHES WIDE. INCLUDE NUMBER SIGNS AS SPECIFIED

3 L5.15 TENNIS COURT LINE LAYOUT
NOT TO SCALE



NOTES:
DIMENSIONS GIVEN TO OUTSIDE OF LINES EXCEPT CENTER LINE. ALL LINES SHALL BE TWO INCHES WIDE EXCEPT FOR BASE LINES WHICH SHALL BE FOUR INCHES WIDE. INCLUDE NUMBER SIGNS AS SPECIFIED

4 L5.15 PICKLEBALL COURT
NOT TO SCALE

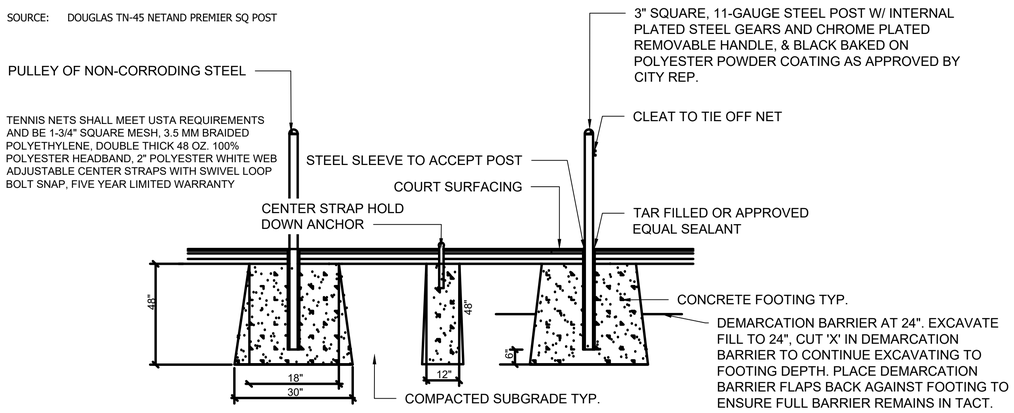


5 L5.15 TYPICAL CROSSING LINE DETAIL
NOT TO SCALE

SOURCE: DOUGLAS TN-45 NETAND PREMIER SQ POST

PULLEY OF NON-CORRODING STEEL

TENNIS NETS SHALL MEET USTA REQUIREMENTS AND BE 1-3/4" SQUARE MESH, 3.5 MM BRAIDED POLYETHYLENE, DOUBLE THICK 48 OZ. 100% POLYESTER HEADBAND, 2" POLYESTER WHITE WEB ADJUSTABLE CENTER STRAPS WITH SWIVEL LOOP BOLT SNAP, FIVE YEAR LIMITED WARRANTY



NOTE: ANY SOIL REMOVED FROM BELOW THE DEMARCATION BARRIER SHOULD BE PROPERLY HANDLED, CHARACTERIZED, AND DISPOSED OF AT LICENSED TYPE II LANDFILL.

6 L5.15 TENNIS/PICKLEBALL POST AND TIE DOWN
NOT TO SCALE

CITY OF DETROIT
GENERAL SERVICES DEPARTMENT
LANDSCAPE DESIGN UNIT
115 ERSKINE, DETROIT MI 48201
PH: (313) 628-0900 FAX:(313) 628-0927

1. DO NOT SCALE OFF THE DRAWINGS, DETAILS ARE NOT TO SCALE.

2. CHECK ALL MANUFACTURER'S SPECIFICATIONS AND DRAWINGS FOR FURTHER DETAILED INFORMATION.

3. CONTRACTOR TO SUPPLY AND APPLY LOCK TIGHT OR OTHER APPROVED THEFT DETERRENT PRODUCT TO ALL SITE AMENITIES WHERE APPLICABLE.

4. ALL BOLTS SHALL BE CUT OR SAWED SO THERE IS A MAXIMUM OF 3 THREADS VISIBLE.

5. IF NOT SUPPLIED BY THE MANUFACTURER ALL HARDWARE SHALL BE PURCHASED AND INSTALLED (STAINLESS STEEL) BY THE CONTRACTOR.

6. ALL SITE AMENITIES SHALL BE LAYED OUT AND APPROVED BY THE CITY REPRESENTATIVE PRIOR TO INSTALLATION.

7. ALL SUBGRADES SHALL BE COMPACTED TO 95%.

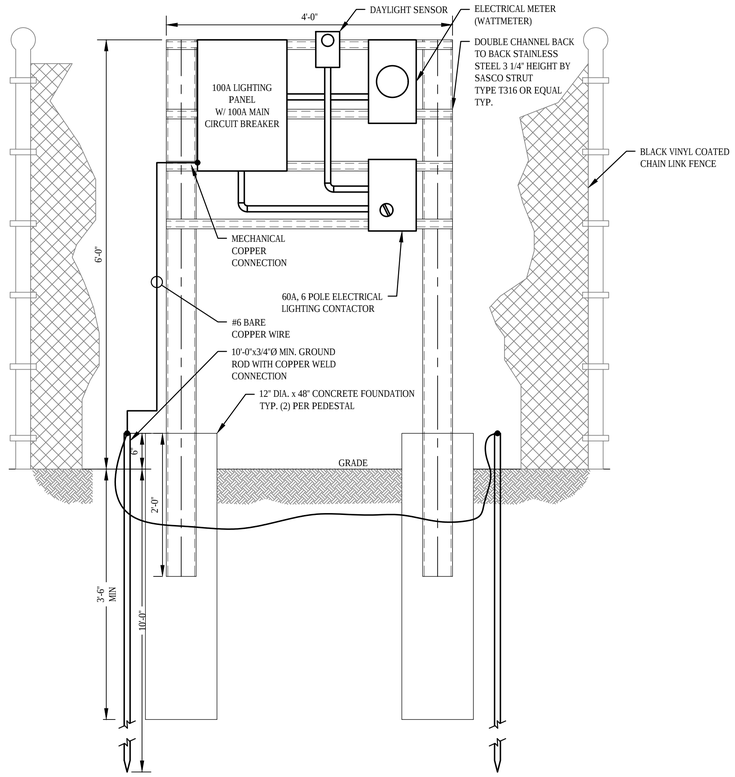
8. CALL MISS DIG 72 HOURS (3 WORKING DAYS) PRIOR TO ANY CONSTRUCTION OR EXCAVATION TO MARK ALL UTILITIES. (800) 482-7171

PROJECT NAME:
A.B. FORD PARK SNF RENOVATION

DRAWN:	
CHECKED:	
ISSUED FOR	DATE

SHEET TITLE:
TENNIS COURT DETAILS

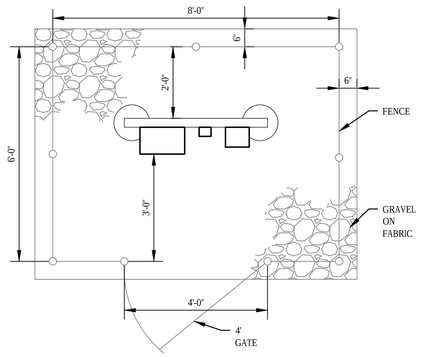
FOR FILE PROJ #: PROP #: 243 DIST #: 4	SHEET L5.03



1 E-02 PEDESTAL MOUNTING DETAIL FOR LIGHTING PANEL

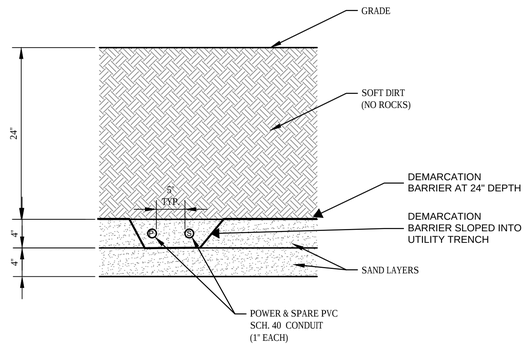
1" = 1'-0"

NOTE: REFER TO 1A FOR PEDESTAL MOUNTING PLAN



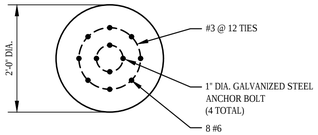
1A E-02 PEDESTAL MOUNTING PLAN

1/2" = 1'-0"



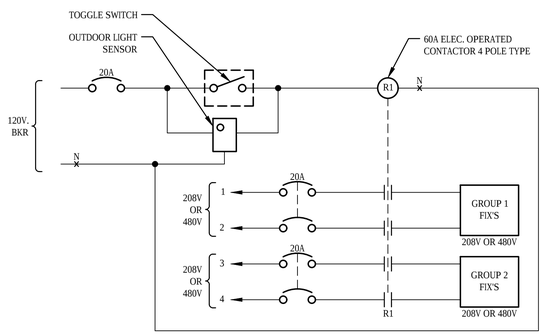
2 E-02 UNDERGROUND CONDUIT LAYOUT

NOT TO SCALE



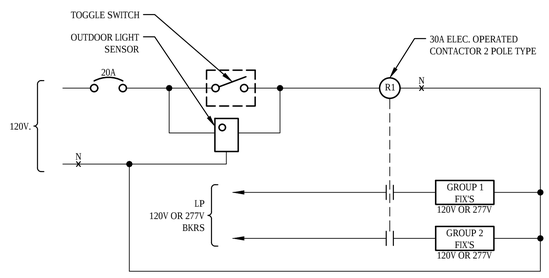
A-A SECTION

NOT TO SCALE



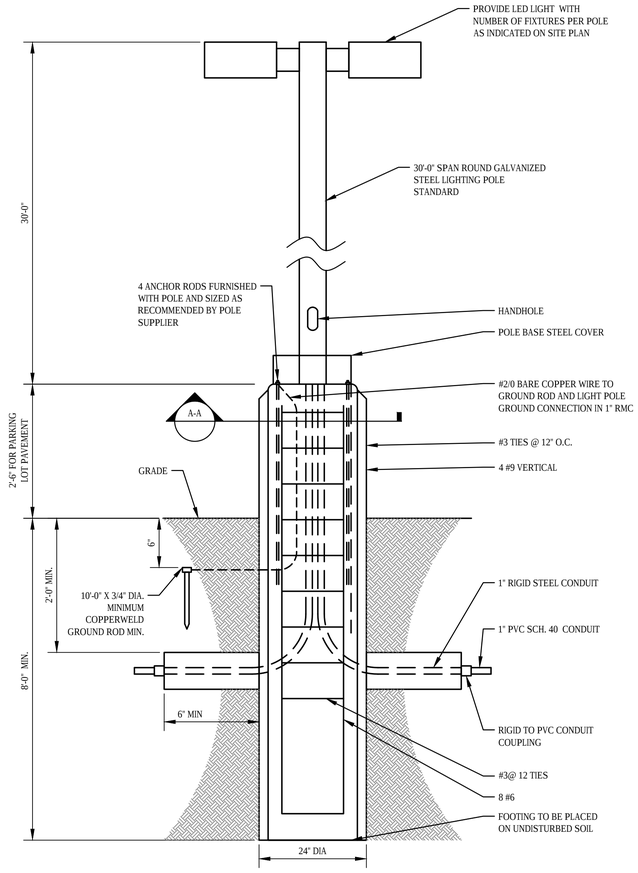
4 E-02 CONTROL CIRCUIT FOR 208V / 480V FIXTURES

NOT TO SCALE



5 E-02 CONTROL CIRCUIT FOR 120V / 277V FIXTURES

NOT TO SCALE



3 E-02 PARKWAY AND ROADWAY LIGHTING FIXTURE DETAIL

NOT TO SCALE

RECORD DRAWING

No.	Issue	Drawn	Approved	Date
ê	ê	ê	ê	ê
ê	ê	ê	ê	ê
ê	ê	ê	ê	ê
2	RECORD DRAWING	GRM	MAK	9/2020
1	FOR CONSTRUCTION	GRM	MAK	9/27/19

Bar is one inch on original size sheet

0 1"

GHD

Drawn	G. MCMAHON	Designer	R. AYYAR
Drafting Check	R. AYYAR	Design Check	R. AYYAR
Project Manager	M. KOWALSKI	Date	SEPTEMBER 2019
This document shall not be used for construction unless signed and sealed for construction.		Scale	AS NOTED

Client CITY OF DETROIT

Project LIGHTING RETROFIT / REPLACEMENT / NEW DESIGN

Title ELECTRICAL DETAILS AND CONTROL CIRCUITS

Project No. 11199379

Original Size Arch D

Sheet No. E-02

Sheet 2 of 3

Plot Date: 18 September 2020 - 12:25 PM Plotted By: Gregory McMahon Filename: N:\US\Detroit\Projects\563\11199379\Digital_Design\ACAD 2018\Sheets\GENERAL\11199379_GENERAL DWGS-E-02.dwg

APPENDIX III
EXAMPLE MATERIAL SPECIFICATIONS

HANES® GEO COMPONENTS™
A Leggett & Platt® COMPANY

815 Buxton Street | Winston Salem, NC | 27101
PH: 888.239.4539 | FAX: 336.747.1652
www.HanesGeo.com

February 5, 2024

REF: TerraTex SD Orange Spec Sheet

TerraTex® SD Orange is a nonwoven geotextile made up of polypropylene fibers. These fibers are needled to form a stable and durable network such that the fibers retain their relative position. It is non-biodegradable and resistant to most soil chemicals, acids, and alkali with a pH range of 3 to 12. TerraTex® SD Orange is manufactured to meet or exceed the following minimum average roll values:

Unless noted otherwise, all values are minimum average roll values (MARV).

PROPERTY	TEST METHOD	ENGLISH	METRIC
Grab Tensile	ASTM D4632	**100** lbs	**0.445** kN
Grab Elongation	ASTM D4632	**50** %	**50** %
Trapezoid Tear	ASTM D4533	**45** lbs	**0.2** kN
CBR Puncture	ASTM D6241	**310** lbs	**1.38** kN
Permittivity [1]	ASTM D4491	**2.55** sec^{-1}	**2.55** sec^{-1}
Water Flow Rate [1]	ASTM D4491	**188** gpm/ft^2	**7,659** Lpm/m^2
AOS [1, 2]	ASTM D4751	**70** US Std. Sieve	**0.212** mm
UV Resistance	ASTM D4355	**70** % @ 500 hrs	**70** % @ 500 hrs

1 At the time of manufacturing. Handling, storage, and shipping may change these properties.
2 Value represents maximum average roll value.

Respectfully submitted,

Michael Combs – Product Manager
Hanes Geo Components

APPENDIX IV
EXAMPLE INSPECTION FORMS

Surface Exposure Barrier
Contaminated Material Exposure/Disturbance Form
AB Ford Park Property
Detroit, Michigan

Note – this form is to be used when a disturbance to an exposure barrier(s) results in exposure or disturbance of contaminated materials. Appropriate maps showing the location of the exposure/disturbance and photographic documentation should be attached. Attach additional sheets as needed.

Date of Disturbance: _____ to _____

Was the disturbance planned?

☐ Yes ☐ No

Describe the event resulting in exposure or disturbance of contaminated materials: _____

_____

_____

_____

_____

_____

Was a particular company or contractor responsible for the disturbance (or addressing the disturbance)?

☐ Yes ☐ No

If yes, identify: _____

_____

_____

Was the company or contractor responsible for the disturbance (or addressing the disturbance) notified in advance of requirements in the Due Care Plan Scope of Work for the Surface Exposure Barrier?

☐ Yes ☐ No

If no, explain: _____

_____

_____

What measures were implemented to monitor potential exposures and protect both workers and the public*? (Attach additional discussion and documentation as appropriate.)*

_____

_____

_____

Surface Exposure Barrier
Contaminated Material Exposure/Disturbance Form
AB Ford Park Property
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Were any workers or members of the public exposed to contaminated materials?

☐ Yes ☐ No

If yes, explain the nature and duration of their exposure: _____

_____

_____

_____

What measures were implemented to contain contaminated materials and prevent their spread?

_____

_____

_____

Were demarcation layers disturbed, repaired, or replaced?

☐ Yes ☐ No

Describe: _____

_____

_____

_____

Was any contaminated soil returned to an excavation?

☐ Yes ☐ No

If yes, describe its origin and method/depth of placement: _____

_____

_____

_____

Was any testing of soil, groundwater, or other media performed?

☐ Yes ☐ No

If yes, describe and attach a copy of the results: _____

_____

_____

_____

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Was any contaminated material (soil, water, etc.) taken off-site?

☐ Yes ☐ No

If yes, describe their characterization, transport, and final disposition. Attach relevant documentation and manifests.

Has the exposure barrier been restored?

☐ Yes ☐ No

If yes, describe its restoration and attach photographs documenting restoration. If no, describe plans for its restoration:

Were new materials used to restore the exposure barrier?

☐ Yes ☐ No

If yes, describe the material. For non-structural exposure barriers, provide documentation that materials used were not contaminated:

Were demarcation layers restored or installed new?

☐ Yes ☐ No

If yes, describe the material used, method of placement, and depth of placement. Attach photographs.

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Was the nature of the exposure barrier changed (e.g., structural barrier replaced with non-structural barrier, changes to the thickness of a soil cap, different demarcation layers, etc.)?

☐ Yes ☐ No

If yes, explain and attach appropriate documentation such as surveys: _____

_____

_____

_____

_____

Comments: _____

_____

_____

_____

_____

_____

_____

Form completed by:

_____ _____
Printed Name Company/Affiliation

_____ _____
Signature Date

Surface Exposure Barrier
Disturbance Form
AB Ford Park Property
Detroit, Michigan

Note – this form is to be used when a disturbance to an exposure barrier(s) occurs. Appropriate maps showing the location of the disturbance and photographic documentation should be attached.

Date of Disturbance: _____ to _____

Describe the event resulting in the disturbance: _____

_____

_____

_____

_____

_____

Were contaminated materials at or below the exposure barrier exposed or disturbed?

☐ Yes ☐ No

If yes, also complete a "Contaminated Material Exposure/Disturbance Form."

Was the company or contractor responsible for the disturbance (or responding to the disturbance) notified in advance of requirements in the Due Care Plan Scope of Work for the Surface Exposure Barrier?

☐ Yes ☐ No

If no, explain: _____

_____

_____

Were any temporary measures implemented to protect workers and/or the public during the disturbance?

☐ Yes ☐ No

Explain: _____

_____

_____

Surface Exposure Barrier
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Has the exposure barrier been restored?

☐ Yes ☐ No

If yes, describe its restoration and attach photographs documenting restoration. If no, describe plans for its restoration: _____

_____

_____

_____

_____

Were new materials used to restore the exposure barrier?

☐ Yes ☐ No

If yes, describe the material. For non-structural exposure barriers, provide documentation that materials used were not contaminated: _____

_____

Were demarcation layers restored or installed new?

☐ Yes ☐ No

If yes, describe the material used, method of placement, and depth of placement. Attach photographs: _____

_____

_____

_____

Comments: _____

_____

_____

_____

_____

_____

Form completed by: _____ _____

Printed Name Company/Affiliation

_____ _____

Signature Date

Surface Exposure Barrier
Inspection Form
AB Ford Park Property
Detroit, Michigan

Date of Inspection: _____ Date of Previous Inspection: _____

What prompted this inspection? ☐ Routine inspection

☐ Reported disturbance of exposure barrier, additional forms may be necessary.

☐ Other (flooding, storm, etc.): _____

Note – portions of the property can be inspected at different times, provided all areas subject to engineering controls are inspected in accordance with the Surface Exposure Barrier Due Care Plan Scope of Work. Attach maps, figures, and photographs as appropriate to document the area inspected and relevant observations.

What portion of the property was inspected? _____

Is documentation of existing exposure barriers available that clearly defines areas of structural vs. non-structural barriers, presence and types of demarcation layers, and thicknesses of soil caps?

☐ Yes ☐ No

If no, explain and discuss any plans to obtain such documentation: _____

_____

_____

Was damage observed during the inspection, were demarcation layers exposed, or were any exposure barriers (e.g., building slab, pavement, soil cap) disturbed or removed since the last inspection?

☐ Yes ☐ No

(Please attach a separate "Surface Exposure Barrier Disturbance Form" for each event.)

Do non-structural exposure barriers (i.e., soil caps) have sufficient vegetation or other cover to prevent erosion?

☐ Yes ☐ No

If no, describe (include percent germination as appropriate): _____

_____

Were any contaminated soils at or below the point of compliance (e.g., beneath demarcation layers) exposed or disturbed since the previous inspection?

☐ Yes ☐ No

(Please attach a separate "Contaminated Material Exposure/Disturbance" for each event.)

Surface Exposure Barrier
Inspection Form
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Were any repairs to exposure barriers (including scheduled maintenance) made since the previous inspection?

☐ Yes ☐ No

If yes, please describe and include disturbance forms as appropriate: _____

_____

_____

Are any disturbances to exposure barriers anticipated before the next inspection (e.g., planned construction or landscaping)?

☐ Yes ☐ No

If yes, please describe the anticipated disturbances: _____

_____

_____

Are there any areas where there is risk of soil cap disturbance (e.g., erosion above or near the soil cap)?

☐ Yes ☐ No

If yes, please explain: _____

_____

_____

Comments: _____

_____

_____

_____

_____

_____

_____

_____

Form completed by:

_____	_____
Printed Name	Company/Affiliation
_____	_____
Signature	Date