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Design Criteria Report

OU1, Modified Zone 1, USS Lead Superfund Property | East Chicago, Indiana

May 2023

Prepared for:
Industrial Development Advantage of East Chicago, LLC
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List of Acronyms

AMP	Air Monitoring Plan
ARARs	Applicable or Relevant and Appropriate Requirements
Bgs	below ground surface
BMP	Best Management Practices
CD	Consent Decree
CQAP	Construction Quality Assurance Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminants of Concern
CY	Cubic Yard
DOT	Department of Transportation
ECHA	East Chicago Housing Authority
EPA	U.S. Environmental Protection Agency
ERP	Emergency Response Plan
ESD	Explanation of Significant Differences
FS	Feasibility Study
FSAP	Field Sampling and Analysis Plan
GPS	Global Positioning System
HASP	Health and Safety Plan
HUD	Housing and Urban Development
ICS	Incremental Composite Sampling
IC	Institutional Controls
ICIAP	Institutional Controls Implementation and Assurance Plan
IDA	Industrial Development Advantage of East Chicago, LLC
IDEM	Indiana Department of Environmental Management
mg/kg	micro grams per kilograms
NPDES	National Pollutant Discharge Elimination System
OU	Operable Unit
O&M	Operations & Maintenance
O&M Plan	Operations 7 Maintenance Plan
ppm	parts per million
PC	Project Coordinator
PS	Performance Standards
PRSP	Periodic Review Support Plan
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAO	Remedial Action Objectives
RAL	Remedial Action Level
RD	Remedial Design
ROD	Record of Decision
RODA	Record of Decision Amendment
RI	Remedial Investigation
RPM	EPA Remedial Project Manager
Site	USS Lead OU1 Modified Zone 1
SMP	Soil Management Plan
SOW	Statement of Work
SPC	State Project Coordinator
T&D	Transportation and Disposal
TODP	Transportation and Off-site Disposal Plan
TCLP	Toxicity Characteristic Leaching Procedure
USS Lead	U.S. Smelter and Lead Refinery, Inc.
WCHC	West Calumet Housing Complex

1.0 Project Description

Verdantas LLC (Verdantas) has prepared this Design Criteria Report as the Supervising Contractor on behalf of Industrial Development Advantage of East Chicago, LLC (IDA) "Purchaser" of a portion Operable Unit 1 (OU1), Modified Zone 1 of the U.S. Smelter and Lead Refinery, Inc. (USS Lead) Superfund Property located in East Chicago, Indiana, purchased by the Purchaser (Property). OU1 Modified Zone 1 is defined in Section III of the Administrative Settlement Agreement for Remedial Action by Prospective Purchaser ("Settlement"). For definition purposes throughout this document and the companion OU1 planning documents, the term "Property" is used consistent with the definition in the Settlement to solely refer to "Modified Zone 1" in OU1, as shown on Figure 1. IDA is a real estate developer and the Purchaser as defined in the Settlement Agreement and is responsible for the remedial action at the Property.

This RD/RA Work Plan was prepared to address lead and arsenic contaminated soil exceeding commercial/industrial Remedial Action Levels (RALs) within the upper 12 inches in areas of the Property in accordance with the March 2020 Record of Decision Amendment (RODA). The U.S. Environmental Protection Agency (EPA) Region 5 is the lead agency that will be overseeing the implementation of this RD/RA and the supporting agency is the Indiana Department of Environmental Management (IDEM).

The remedy being implemented includes the actions described in Section VI of the RODA for the Property (Alternate 4A). The remedy generally includes excavation and off-Property disposal of contaminated soils that exceed the industrial/commercial performance standards of 800 ppm for lead and 26 ppm for arsenic, down to a maximum depth of 12 inches below ground surface (bgs). Specific excavation limits and requirements are described in greater detail in Section 2.3.2. The remedy also includes implementation of excavation and backfilling, compliance monitoring and reporting, and implementation and monitoring of Institutional Controls (ICs).

The RD/RA will be performed in accordance with the Settlement requirements, which incorporates the RODA and the Statement of Work (SOW) signed by U.S. Department of Justice on April 7, 2022. The SOW defines specific response activities and obligations that will guide the preparation of this Work Plan and the execution of the work as described herein.

The Property consists of the 52.726-acre portion of Operable Unit 1 ("OU-1"), modified Zone 1 Property as shown on **Figure 1** and **Figure 2**. The remediation areas are shown on **Figure 3**. On February 24, 2020, IDA entered into an agreement with the City of East Chicago to purchase and redevelop the Property ("Redevelopment Agreement"). The Redevelopment Agreement contemplated the remediation of the Property and redevelopment by construction of a commercial use facility.

In April 2009, the US EPA placed the Site on the National Priorities List ("NPL") to prioritize the investigation and remediation of the Site under the Comprehensive Environmental Response Compensation and Liability Act ("CERCLA"). On October 28, 2014, the US District Court for the Northern District of Indiana entered a Consent Decree ("CD") regarding the remediation of the Site. The CD required the Chemours Company FC, LLC ("Chemours") company, Atlantic Richfield Company ("ARC"), and E.I. Du Pont de Nemours and Company ("DuPont") collectively the "CD Respondents" to work with US EPA to fund the excavation and removal of contaminated soil from what were defined in the CD as Zones 1 and 3 and to transport and dispose of the contaminated soil.

Almost all of Zone 1 is included in the Property which includes parcels formerly owned by the East Chicago Housing Authority ("ECHA") and the City of East Chicago ("City"). At the time of the entry

of the CD, Zone 1 included a housing complex owned and operated by ECHA, which was subsequently closed and demolished by the City. On March 25, 2020, US EPA issued an Amended Record of Decision ("Amended ROD") regarding remediation of what it identified as Modified Zone 1 and the Amended ROD established one set of remediation goals if the use of Modified Zone 1 remained residential and established another set of goals if Modified Zone 1 was purchased by a developer and rezoned for commercial use. On May 26, 2020, the City approved an ordinance rezoning the Property for commercial use. The US EPA and IDA negotiated an Administrative Settlement Agreement for Remedial Action by Prospective Purchaser ("PPA") to require remediation of the Property consistent with the Amended ROD and a SOW. CD Respondents and US EPA negotiated an Administrative Settlement Agreement and Order on Consent for Payment of Certain Operable Unit 1 Response Costs and Providing Financial Assurance Associated with PPA for Remedial Design and Remedial Action at Modified Zone I of Operable Unit I of the U.S. Smelter and Lead Refinery, Inc. Superfund Site ("ASAOC").

1.1 Scope of Work

All Remedial Action (RA) activities will be conducted in accordance with EPA requirements for hazardous waste investigation/cleanup actions under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the Superfund Amendments and Reauthorization Act of 1984 (SARA), and the National Contingency Plan (NCP) dated March 1990. This Property is part of USS Lead OU1 Modified Zone 1 Superfund Site and is currently listed on the National Priorities List (NPL).

In general, this RA project includes Property preparation, including the decommissioning of existing on-Property groundwater monitoring wells and temporary wells, stabilization, and excavation of lead and/or arsenic contaminated soil that exceeds Remedial Action Levels to a depth of one-foot below ground surface, placement of one-foot of clean soil in excavated areas, followed by installation of up to six replacement groundwater monitoring wells.

Based on previous toxicity characteristics leaching procedure (TCLP) testing of soil within one-foot of the surface across the 55 on-Property Decision Units (DUs), the soil will either remain in place (11 DUs), will be directly loaded onto trucks for off-Property disposal (20 DUs), will be stabilized on-Property using a reagent to render the material non-hazardous prior to off-Property disposal (22 DUs), or will be stabilized in place to render the material non-hazardous and will remain on the Property (2 DUs).

In the 42 DUs where one-foot of soil will be removed for off-Property disposal, the vertical and horizontal extent of the Decision Unit excavations will be surveyed by a professional land surveyor to confirm excavation depth across the DUs. Once excavation depth is acquired, a demarcation barrier will be placed at the base of the excavations to denote the contact between clean and impacted soil. Clean soil imported from off the Property will be placed on the demarcation barrier, compacted, and graded to original grade. Additional imported soils will be placed above original grades during or following Property remediation to provide appropriate stormwater drainage. The surface will be stabilized with vegetation, as needed, for erosion and sediment control until the Property is developed. Some areas outside of the development area that are currently greenspace and will remain greenspace may require topsoil amendment. Dust control and air monitoring will be performed throughout the project to ensure protection of on-Property workers and nearby residents. Upon completion of soil replacement across the Property, up to six groundwater monitoring wells will be installed on the Property to replace those removed at the initiation of the project.

1.2 Design Criteria Report Purpose and RD/RA Objective

The purpose of the Design Criteria Report is to describe the technical parameters upon which the design is based to enable IDA to implement the remedy for soils (Alternative 4A) set forth in the March 2020 RODA and the Explanation of Significant Differences (ESD). This Design Criteria Report has been prepared in accordance with USEPA's *Remedial Design/Remedial Action Handbook*, EPA 540/R-95/059 (June 1995).

The objective of the RD/RA is to reduce lead and arsenic levels in impacted soils to a maximum depth of one foot below ground surface (bgs) to acceptable levels for human health risk from exposure to arsenic and lead through ingestion, direct contact, or inhalation exposure pathways; assuming commercial/industrial uses and prevention of the release of contaminants to off-Property media.

2.0 RD/RA Elements, Rationale and Pre-Design Activities

2.1 Project Planning and Pre-Design

Project planning and remedial design tasks include preparation of the RD/RA Work Plan and the associated documents listed in Section 3.2. The planning and design task includes preparation of design documents, along with substantive adherence to environmental and construction permits that would be required if this were not a CERCLA action.

This Design Criteria Report addresses both Remedial Design and Remedial Action. The information herein serves as the basis of design, supplemented with construction drawings and technical specifications to include the boundary survey, primary features, utility locations, features that will require protection during excavation, excavation limits, haul routes, Property controls, erosion and sediment controls, and a proposed grading plan.

2.2 Selected Remedial Action and Performance Standards

The selected remedy specified in the March 2020 RODA for commercial/Industrial land use (Alternate 4A) will serve as the RA for the Property. As detailed in the RODA, the major components of the selected remedy are listed below and described in more detail in Section 2.3.

1. Property Preparation-This component describes the methods to prepare the Property for the remedial action.
2. Excavation- This component describes the methods to excavate contaminated soils that exceed the industrial/commercial RALs (787 mg/kg for lead and 19 mg/kg for arsenic) down to a maximum depth of one-foot bgs, surveying limits of excavation, and installation of a demarcation barrier. Note the RALs for arsenic and lead were re-evaluated as part of decision unit sampling and were reduced from the RALs presented in the March 2020 RODA, 26 mg/kg (arsenic) and 800 mg/kg (lead).
3. Stabilization of Lead-Impacted Soil- This component describes the selected reagent and concentrations for the treatment of soils that exceed the toxicity characteristic leaching procedure (TCLP) threshold of 5 mg/L for lead, are characteristically hazardous, and will be handled in accordance with the Treatability Study.
4. Backfilling Excavations- This component describes backfill and restoration procedures within the excavated areas.
5. Material Handling, Transport and Disposal- This component describes the process for loading, material handling, and segregation; re-use of material (e.g., gravel); truck washing; transportation routes; and disposal facility approval and coordination.
6. Institutional Controls- This component describes the institutional controls that will apply to the Property, including land use restrictions, groundwater use restrictions, etc., and notices that contaminants exist on the Property.
7. Operations & Maintenance- The component describes the performance monitoring of institutional controls.

Additional remedy elements are spelled out in the RODA and are discussed further in later sections of this report. The implementation of the above noted RA components will conform to the construction drawings and technical specifications.

2.3 Remedial Design/Remedial Action Elements

The following sections provide the rationale behind remedial design elements, including Property preparation, excavation, stabilization of lead-impacted material, backfilling, material handling transport and disposal, institutional controls, and Operation & Maintenance.

2.3.1 Property Preparation

Property preparation activities will include:

- Identification of current Property conditions and features that may influence the final location of design components;
- Utility clearance by the selected Subcontractor;
- Decommissioning of groundwater monitoring wells on the Property in accordance with the Groundwater Monitoring Well Abandonment and Installation Plan.
- Subcontractor mobilization including establishment of equipment, import soil stockpile, and material staging areas located proximate to, but outside of, the active work area;
- Installation of Best Management Practices (BMPs) and Storm Water Pollution Prevention Plan (SWP3) controls;
- Set up monitoring system and conduct background air monitoring during Property preparation;
- Clearing and grubbing of woody vegetative materials (e.g., trees and bushes);
- Removal of fencing within the footprint of the active work zones and placement of fencing in areas where it is absent near the Property boundaries to limit access to the Property;
- Demolition of infrastructure remaining from the former housing development within the upper one foot of the ground surface necessary to facilitate remediation;
- Construction of access roads; and
- Installation of fencing, signage, and other Property control measures, as appropriate.

2.3.2 Excavation

Excavation is required to remove contaminated soils that exceed the industrial/commercial RALs (787 ppm for lead and 19 ppm for arsenic) down to a maximum depth of one foot bgs. Based on the results of the previous investigations and Decision Unit sampling, the limits of arsenic and lead impacted soils that will be excavated and disposed off-Property have been defined and clarified during the RD. The design for excavation is anticipated to include the following:

- Defining areas of existing aggregate to be re-used on-Property;
- Defining areas for placement of excavated aggregate for re-use on-Property;
- Defining areas requiring no action;
- Defining areas requiring excavation with no stabilization;
- Defining areas requiring stabilization prior to excavation;
- Defining areas requiring stabilization but do not require excavation;
- Determining temporary stormwater management measures to manage storm run-on and run-off and erosion;
- Describing dust and air quality monitoring and dust control measures that will be implemented during the excavation activities including thresholds and mitigation measures;
- Identifying requirements for placement of the demarcation barrier prior to backfilling; and
- Pre- and post-excavation surveying requirements.

2.3.3 Stabilization of Lead-Impacted Material

In-situ treatment to chemically stabilize soils that exceed the toxicity characteristic (TC) threshold of 5 mg/L for lead will be necessary to meet off-Property disposal requirements. The design for

stabilization is anticipated to include:

- The Forgen Treatability Study concluded that mix design of 2% triple superphosphate by dry weight is recommended for soil treatment. The report recommends that prior to implementing full scale treatment the selected Subcontractor should treat at least 100 cubic yards of impacted soil in Decision Units B6, B9, and E9 (exhibiting the highest lead contamination) and demonstrate successful treatment. These areas are shown on Sheets 8 and 9 of the Design Plans, Appendix A;
- Identifying requirements for confirmation sampling following stabilization as described in the Field Sampling and Analysis Plan (FSAP);
- Conducting stabilization on select decision units that fail TCLP for lead as outlined on Sheets 8 and 9 of the Design Plans, Appendix A. This includes decision units C3 and E7 that require stabilization but do not require excavation.
- Defining requirements to verify that the stabilized soils are no longer characteristically hazardous; and
- Implementing dust and air quality monitoring and dust control measures that will be implemented during the stabilization activities as described in the Air Monitoring Plan (AMP).

2.3.4 Backfilling of Excavations

After arsenic and/or lead is excavated from the defined areas, the excavations will be backfilled and graded in accordance with the design. The design for backfilling the excavations is anticipated to include the following:

- Conceptual plan for backfilling operations including timing and sequencing of backfill; materials to be placed during backfilling, laydown area(s) for stockpiling backfill materials, and dust control and SWPPP management of stockpiled soils;
- Placement and compaction requirements for backfill materials including maximum lift thicknesses and minimum compaction requirements;
- The placement of a visible barrier prior to backfilling the excavated area;
- Requirements for imported backfill materials and potential borrow sources(s) and testing; and
- Backfilled areas will be restored with topsoil cover and seeding, where required. Areas that are currently greenspace in the utility corridor and outside of the area of re-development, specifically DUs F1, F2, F3, F4, F8, and F9 shall be seeded and topsoil will only be added as necessary. Seeding will be conducted in areas outside of the current greenspace areas (DUs F1, F2, F3, F4, F8, and F9) only if the placement of proposed development related backfill is delayed more than 90 days from remedy completion.

2.3.5 Material Handling, Transport, and Disposal

Excavated material will be processed for transportation to off-Property location(s) for disposal. The existing aggregate base from former roadways or structures will be removed and stockpiled on the Property for re-use during future development below hardscape surfaces. The RD for material handling, segregation, transportation, and disposal is anticipated to include the following:

- Describing mechanism for loading soils for transportation to off-Property location(s) for disposal;
- Describing mechanisms for removal of aggregate base and stockpiling for reuse onProperty;
- Describing mechanisms for removal and disposal of general demolition debris from residential infrastructure, tree stumps and vegetative debris,
- Evaluating the rate at which excavated materials can be managed that will be used in developing the operations and sequencing of excavation and backfilling activities;
- Describing requirements for containment of excavated materials, loading/unloading of

trucks, and loading and unloading areas;
- Describing decontamination procedures for equipment;
- Describing requirements for truck washing prior to departing the Property;
- Identifying applicable DOT transportation requirements for transporting soils and miscellaneous demolition debris/vegetative waste and tree stumps to off-Property disposal facilities. The Transportation and Disposal Plan defines options for transportation, shipping routes, alternate roads, entrance, and exit to access the Property; and
- Identifying off-Property disposal facilities criteria and requirements. This will include evaluating waste profile requirements (e.g., chemical analysis and sample frequency requirements) prior to shipment of waste to the disposal facilities.

2.3.6 Institutional Controls

An Institutional Control Implementation and Assurance Plan (ICIAP) will be developed as part of RD efforts. ICs in the form of a restricted covenant will be used to restrict land use to commercial/industrial purposes, restrict groundwater use, and include language to notify future prospective owners that contaminated soil exists below one foot of the existing grade, approximately 585 feet AMSL. Areas remediated via excavation will also have a geotextile fabric installed prior to backfilling providing a demarcation barrier for future excavators.

2.3.7 Operation and Maintenance

An Operation and Maintenance (O&M) Plan will be developed as part of RA efforts. O&M Tasks may include periodic inspections of vegetation until the Property is stabilized, ongoing monitoring of vegetation, and potential erosion areas.

2.3.8 Installation of Monitoring Wells Operation and Maintenance

Select monitoring wells well be replaced at the Property following remedy completion in accordance with the Groundwater Monitoring Well Abandonment and Installation Plan.

2.4 Pre-Design Investigations

Additional investigations were performed to collect necessary information to design the RA selected in the RODA. The following investigations were performed as part of the RD process.

2.4.1 Lead Stabilization Treatability Study

A Lead Treatability Study Work Plan was prepared in November 2021 and samples were collected in December 2021. The Treatability Study and Work Plan were approved by the EPA in December 2022.

The Treatability Study was prepared by Forgen in February 2022 and evaluated the following reagents:
- Portland Type I/II Cement (Heidelburg)
- Terrabond TS
- Triple Superphosphate (TSP)
- Enviroblend
- Hydrated Lime (Lhoist)
- Blastex 215

The Treatability Study concluded that Triple Superphosphate was the most effective reagent to meet the performance criteria of TCLP-leachable Pb concentrations < 5.0 mg/L. None of the

alkaline-based reagents were able to reduce the TCLP-leachable lead concentrations below 5.0 mg/L. Based on these results, a mix design of 2% triple superphosphate by dry weight would be recommended for the full-scale treatment. Successful full-scale treatment will require thorough mixing of the TSP and the impacted soil. The selected Subcontractor for full-scale treatment will be required to treat at least 100 cubic yards of impacted soil in Decision Units B6, B9, and E9 and demonstrate successful treatment before proceeding with the full-scale treatment. The method used for applying soil treatment in the test areas will be determined by the selected Subcontractor.

The preferred methods for soil mixing include several in-situ methods including, but not limited to, dozers, excavators, scrapers, rotary soil mixers/road reclaimers and tillers to minimize dust generation with less material handling. The use of a pug mill is less desirable because of the additional material handling and potential for additional dust generation. The proposed specific mixing method will be determined by the selected Subcontractor. The means and methods will be evaluated and approved as part of the treatability demonstration within selected test areas during the initial phase of the Project. After successful demonstration of the treatment approach, the approved method will then be used for the full-scale stabilization. The methods used for stabilization will be the same for soils that will be excavated for disposal as employed for those soils that will remain in place (DUs C3 and E7).

2.4.2 Baseline Topographic, Decision Unit and Utility Survey

The Purchaser is providing a survey that was performed by a Professional Land Surveyor licensed in the State of Indiana. This survey shall be used by the Subcontractor to establish survey controls including current surface elevations, aggregate roadway and former building pads, Decision Unit and Property boundaries. Utility locations were identified in order to help develop the excavation plan/sequence, as well as to determine how best to protect the utilities and other features to remain during the excavation and restoration activities. The Subcontractor shall verify utility information including but not limited to from publicly available existing drawings and by contacting the Indiana 811 service will be contacted to mark the location of all recorded public utilities servicing the Property.

2.5 Attainment of ARARs and Substantive Permit Requirements

CERCLA provides that no Federal, State, or local permit is required for the portion of any response action conducted on-Property but requires that the substantive requirements that would be contained in a permit must be satisfied. This section outlines the specific statutes or regulations for which a permit would be required without the CERCLA permit exemption and describes how the substantive requirements that would otherwise be established in such permits will be satisfied as the remedy is designed and implemented.

Without the CERCLA permit exemption, a project involving the activities required to implement the OU1 Modified Zone 1 RA would typically be required to obtain permits for erosion and sediment control, stormwater discharge/management, and any required local or state construction permitting. Substantive requirements that would be contained in a permit will be addressed and adhered to during RA activities as detailed in the Preliminary Design.

3.0 Preliminary RD and Supporting RD/RA Project Plans

3.1 Introduction

This section outlines the Preliminary RD and also summarizes the RD/RA project plans that are required pursuant to the SOW that supplement and support the RD/RA Work Plan.

3.2 Preliminary Remedial Design Submittals

The design deliverables that will be submitted to EPA are listed below. These design submittals and their scope will be consistent with the SOW. These deliverables will be submitted to the EPA in accordance with the RD schedule included in Table 1.

The Preliminary RD includes:

- This Design Criteria Report
- Preliminary drawings and technical specifications (Appendix A)
- Supporting Documents (Appendix B):
    - Health and Safety Plan (HASP)
    - Field Sampling and Analysis Plan (FSAP)
    - Quality Assurance Project Plan (QAPP)
    - Air Monitoring Plan (AMP)
    - Construction Quality Assurance Plan (CQAP)
    - Emergency Response Plan (ERP)
    - Transportation and Off-Site Disposal Plan (TODP)
    - Operations &Maintenance Plan (O&M Plan)
    - Groundwater Monitoring Well Abandonment and Installation Plan
    - Institutional Controls Implementation and Assurance Plan (ICIAP)
    - Soil Import Plan
- Lead Treatability Study (Appendix C)

3.2.1 Preliminary (30%) RD Drawings

Preliminary drawings and technical specifications included in Appendix A are based on the November 2020 Decision Unit sampling results as well as information obtained from the pre-design topographic survey and treatability study. Based on the RALs established following the Decision Unit sampling and a review of TCLP data, no action is required for 11 Decision Units while the remaining 44 Decision Units require soil excavation and off-Property disposal. Stabilization of soils due to TCLP lead exceedances is required in 24 Decision Units of the 44

As part of the Preliminary Design, the existing conditions of the Property have been field verified, as necessary, and the technical requirements of the RA are outlined so that they may be reviewed to determine if the final design will provide an effective remedy.

4.0 Remedial Action Construction Subcontractor Selection and Contracting

IDA and the Supervising Contractor will select the Remedial Acton Construction Subcontractor (Subcontractor) through a competitive bidding process. Bid documents will be assembled by the Supervising Contractor on behalf of IDA and issued to a minimum of three pre-qualified bidders. Bid proposals from responding bidders will be evaluated and a construction subcontractor will be selected.

Potential Subcontractors will be required to provide information regarding their qualifications and a description on how they would perform the work.

The main criteria for Subcontractor selection are listed below, with no implied order of preference:

- Availability to meet schedule
- Contract terms
- Subcontractor equipment, construction methods and QC procedures
- Subcontractor overall qualifications
- Health and safety culture and record
- Insurance and bonding
- Price
- Understanding of the work

4.1 Developing a Contracting Strategy

IDA and the Supervising Contractor will work cooperatively with EPA to efficiently complete the RD/RA and identify opportunities to accelerate completion of the project. Potential areas for acceleration may include:

- Submitting supporting plans for EPA review prior to EPA's final approval of the RD/RA work plan;
- Pre-qualifying subcontractors, preparing bid documents, and conducting bidding prior to EPA's final approval of the RD, subject to updates based on the final RD; and
- Initiating Property Preparation activities (as described in the RD/RA Work Plan) while the rest of the design activities are ongoing including construction of temporary access roads and staging areas, importing and staging of approved backfill material, and conducting soil stabilization on a test plot as recommended in the Lead Treatability Study.

Changes to the schedule to accommodate these types of schedule acceleration activities will be coordinated with EPA.

5.0 Construction Summary and Schedule

5.1 Preliminary RA Schedule

Table 1 is a Preliminary RA Schedule showing the duration of various tasks that will be triggered by the approval of the RD/RA Work Plan. The task durations correspond to the deadlines specified in the Settlement. This Preliminary RA Schedule will be replaced by a revised, Final RA Construction Schedule that will be developed in collaboration with the selected Construction Subcontractor and reviewed at the pre-construction meeting before start of construction.

5.2 Construction Summary and Sequencing

The following sections detail the activities associated with implementing the RA components. The sequencing of construction work is listed here in the general order that the work will be accomplished, but the actual sequence of work activities will be determined by the selected Subcontractor once the contract is signed and the Subcontractor's schedule is received.

5.2.1 Pre-Construction Activities

Prior to or upon finalization of the design documents, including the design drawings and technical specifications, the Supervising Contractor will issue bid packages to prospective bidders for the RA. At the end of the bidding process, IDA and the Supervising Contractor will review the bids, interview potential Subcontractors, obtain clarification of issues with the bid, and then select a Subcontractor to receive the RA construction award.

The bidding Subcontractors will be required to provide the following submittals with the bid:

- List all proposed suppliers and subcontractors used in the preparation of the bid.
- Identify the Subcontractor's key personnel proposed to perform the work on the Property and provide their resumes and work experience. The list shall contain at a minimum the Subcontractor's project manager, project superintendent, project foreman, and project health and safety officer.
- A preliminary Subcontractor's progress schedule for performance of the work
- A preliminary material handling plan.
- A preliminary amendment to the HASP.

Upon contract award, the Subcontractor will prepare and submit, or review the following documents:

- Prepared by the Subcontractor:
    - Final RA Construction Schedule.
    - The Subcontractor shall secure all road use permits, if necessary, prior to mobilization.
    - Health and Safety Requirements, the Subcontractor shall submit a HASP amendment. This document shall be complete with Subcontractor-specific requirements and activity hazard analyses (AHAs) for all tasks to be performed as part of the RA.
    - Material handling plan
- Subcontractor shall review the following documents prepared by the Supervising Contractor:
    - Transportation and Off-Property Disposal Plan
    - Stormwater Pollution Prevention Plan (SWPPP)

- Air Monitoring Plan.
- Construction Quality Assurance Quality Control Plan
- Emergency Response Plan
- O&M Plan

A pre-construction conference will be held after contract award and prior to mobilization.

The Supervising Contractor will hold a pre-project safety analysis (pre-JSA) call as well as a JSA call /meeting prior to the start of field activities for each major work element. The purpose and attendees of this meeting are described in the HASP.

IDA may use a separate contract to perform most of the tree clearing and grubbing activities in areas as necessary to allow for import materials to be delivered to the Property prior to remedy implementation. The tree clearing may start about a month before the mobilization of the Subcontractor. The balance of the clearing will be performed by the Subcontractor. Initial tree clearing will be limited to trunk removal and root balls will be removed as part of the remedy. The clearing of trees shall be coordinated with the installation of the sediment and erosion control measures.

Details such as the proposed staging areas, procedures, methods, equipment, sequence, and schedule to be used for the clearing work are to be included in the material handling plan.

Prior to mobilization, the Subcontractor is to take pre-construction photographs and video to document the condition of the work areas, ECHA maintenance building and parking lot, and adjacent roadways. These will include but not be limited to East 151st Street and McCook Street sections used to haul materials from the Property to the off-Property disposal facility.

5.2.1.1 Health and Safety

In accordance with the SOW for the project, a Property-specific HASP has been prepared by the Supervising Contractor based on the best available information regarding the physical and chemical hazards known or suspected to be present at OU1 Modified Zone 1. While it is not possible to discover, evaluate, and protect in advance against all possible hazards which may be encountered during the completion of this project, most of the likely hazards can be anticipated and adherence to the requirements of the HASP will significantly reduce the potential for occupational injury. The Subcontractor will be responsible for developing their own HASP for their employees that must meet the requirements of the Supervising Contractor's HASP.

The HASP provides a general description of the levels of personal protection and safe operating guidelines expected of each employee or subcontractor associated with the environmental services being conducted. HASP supplements will be generated as necessary to address any additional activities or changes in Property conditions which may occur during field operations. Once generated, each supplement will be inserted in the master HASP and reviewed/acknowledged by field personnel prior to the start of applicable work activities.

A copy of the Subcontractor's Property-specific HASP will be maintained on-Property and available for review at all times. Field staff will perform all operations in accordance with the applicable HASP.

Through the Supervising Contractor's understanding of the SOW and the work practices that will be involved to achieve the safe execution and successful completion of this project, there are four key aspects that must be considered for the safe execution of this project, as detailed in the following subsections.

5.2.1.2 Utility Clearances

Prior to any ground disturbing activities, proper utility clearances must be obtained, verified, and understood by all individuals involved with field activities. The Subcontractor will coordinate utility clearance through the local one-call system (Indiana 811) and a 3rd party utility verification company to ensure that all utilities are identified and properly marked/located in the proposed areas of work prior to initiating any ground-disturbing activities. The Supervision Contractor's project staff will be present at all times during utility clearance surveys and will maintain control of all work being performed in OU1 Modified Zone 1.

Abandoned television cable and telephone lines may be encountered during the excavation. Based on the shallow nature of most excavation work it is not anticipated that abandoned sewer water, and stormwater utility lines will be encountered while performing the excavation activities. Storm sewer grates, sanitary sewer manholes and water valves may be encountered but will not be removed or disturbed as part of the remedy. If abandoned utility lines are encountered, the contingency plan section of the HASP (Section 4.1) describes how unknown buried lines will be observed and addressed to ensure worker safety and prevent any spills or releases from unknown pipes.

5.2.1.3 Heavy Equipment Operations

Field operations that involve heavy equipment represent a significant risk to ground workers as well as the equipment operators. Heavy equipment may cause serious injury or death during operations as a result of roll-over, contact with ground personnel (crushed-by or struck-by injuries), and contact with overhead or underground utilities. As such, the Supervising Contractor has developed health and safety protocols outlining the specific concerns associated with heavy equipment operations, including communications, personnel clearances, PPE, utility clearances, operator training, inspection/maintenance of the equipment, and general safe operating procedures.

All aspects of these procedures will be strictly adhered to, and an appropriately trained individual designated by the Subcontractor as a Competent Person for heavy equipment operations and excavation will be on-Property at all times during these operations. This Competent Person will have the necessary training and experience to identify existing and predictable hazards and will be authorized to take prompt corrective measures to eliminate them.

5.2.1.4 Excavation Safety

Following the proper precautions associated with safe excavation practices will be essential for the successful completion of this project. Whenever possible, the Supervising Contractor will minimize the necessity of employees entering the excavation (e.g., to take measurements, collect GPS data, etc.); however, all excavations more than one foot deep in competent soil or sloped adequately enough to protect the well-being and safety of adjacent people, equipment, and/or Property. The Supervising Contractor has developed an SOP outlining the specific concerns associated with safe excavation and trenching procedures, including utility clearances, protective systems, superimposed loads, weather conditions, and hazardous atmospheres. Copies of relevant Supervising Contractor's SOPs will be maintained on-Property with the HASP, and all employees will be familiar with their requirements. In addition, all excavation and associated activities will be performed in accordance with 29 CFR 1926, Subpart P.

5.2.1.5 Dust and Noise Control

An additional concern during the execution of this project is the protection of the public and on-Property workers from the potential negative impacts of dust and noise during excavation, loading, and heavy equipment operations.

The Property-specific HASP describes in detail the measures that will be taken to ensure the safety of staff, subcontractors, and the nearby community. The Air Monitoring Program described in the AMP is designed to provide protection from and control of dust/particulate emissions. Excavation work will be performed in accordance with 29 CFR 1926.62 and performed by 40-hour trained personnel in accordance with HAZWOPER requirements (29 CFR 1910.120) and the Property-specific HASP. The March 17, 2021, EPA Memo identified potential hazards to heavy equipment operators due to inhalation of arsenic and lead-laden particulates; these will also be measured and mitigated in accordance with the AMP.

Ambient construction noise and potential impacts on neighbors also remain a concern during construction activities. The Supervising Contractor will perform periodic perimeter noise monitoring as necessary during construction operations and will recommend mitigating engineering controls as required. If necessary, the Supervising Contractor will consider coordinating noise-intensive work activities with community driven schedules.

5.3 Soil Excavation and Stabilization

Soil stabilization and excavation activities will commence following completion of site preparation that generally include: clearing/grubbing, site fencing replacement/installation, site demolition, access road improvements, gravel removal, and establishing survey control. The general sequence of remedial activities following site preparation generally includes:

1. Treatability stabilization demonstration of Decision Units B6, B9, and E9;
2. In-Situ stabilization of all Decision Units requiring stabilization;
3. Remedial excavation, transport and disposal of non-hazardous soils
4. Surveying base elevation of the excavated areas;
5. Installing visual demarcation barrier;
6. Placement of clean backfill material;
7. Survey top of clean backfill material; and
8. Final grading, seeding and mulching.

The Subcontractor shall establish survey controls including staking out the excavation areas delineating both the non-hazardous and the high lead areas as shown on Figure 3.

The Subcontractor must decontaminate all equipment and trucks prior to leaving work areas and or prior to leaving the Property to prevent tracking of contaminated materials between the work areas of the Property or off Property.

The soil stabilization treatment areas will require special handling, including preparing the treatment area; treating; sampling; and testing for TCLP lead. First a test plot will be conducted in accordance with the Treatability Study on approximately 100 cubic yards of material in decision units B6, B9 and E9 using an application volume of 2% triple superphosphate by dry weight to evaluate the effectiveness of the treatment. If treatment does not reduce concentrations of lead below the 5.0 mg/L threshold for the waste to be considered non-hazardous for lead in accordance with TCLP, then additional reagent will be added to the test plot in 1% (dry weight) increments. The results of the test plot will be used to adjust the formulation for the Property. Confirmation sampling and analytical testing shall be conducted in accordance with the FSAP and QAPP.

Following completion of the test plots the remaining decision units requiring treatment and remaining areas of decision units B6, B9 and E9 not treated as part of the test plots shall be treated

and stabilized. Following stabilization confirmation samples shall be collected for chemical analysis in accordance with the FSAP and QAPP. Areas that fail confirmation analyses shall be further treated and re-tested until the areas pass analytical criteria. The excavation plan shall be implemented following completion of the stabilization and treatment.

The Subcontractor will excavate the non-hazardous soils and stabilized soils requiring off-Property disposal. This activity will include handling, loading, hauling, staging if necessary. The Subcontractor's material handling plan will define the sequencing of the various areas that will be excavated in consideration of prevailing winds (excavating from west to east), north to south, etc. in consideration of ingress egress from the Property. The Subcontractor is responsible for coordinating the trucks, loading the trucks, and decontaminating the trucks before they leave the Property.

Verification that the RD objectives are achieved will be accomplished by performing surveys of the excavation areas at least three times, including:

1. Before the excavation,
2. After the material has been excavated to confirm the required depth of material has been removed to the required limits, and
3. After backfill to confirm the required cover soil has been installed.

These surveys will be performed by a licensed Professional Surveyor registered in Indiana.

5.4 Excavation Area Restoration

In parallel with the excavation of soils, the Subcontractor will backfill the excavation areas with clean soils from off Property import sources.

Excavated areas will be backfilled with approved clean imported material. Imported backfill must be sampled and analyzed in accordance with the Soil Import Plan, FSAP and QAPP, respectively. Approved imported material may be stockpiled in decision units that do not require stabilization or excavation prior to implementation of the remedy. Backfilled areas will be restored with seed and mulch, as needed, for erosion and sediment control until the Property is developed. Up to six inches of topsoil may be added in areas that will remain as greenspace and require seeding, specifically DUs F1, F2, F3, F4, F8 and F9.

5.5 Erosion Control Methods

Temporary Erosion Control: The Subcontractor shall install, maintain, and if needed, relocate and or repair all soil erosion and sediment control equipment and features detailed in the specifications and on the drawings. These features include silt fence downgradient of the excavation. The Subcontractor shall maintain these control measures throughout the Property restoration to prevent soil erosion; prevent damage to ground cover and prevent release of contaminants or wastes. Control measures shall be maintained until the vegetation is established with a minimum of 70% vegetative cover.

5.6 Dust Control

The Subcontractor shall implement the AMP. The AMP will target dust control and control of emission of dust with lead levels that may exceed action levels.

Dust control may include water sprinkling, certain chemical treatments (calcium chloride), or similar methods. Dust control shall be repeated at intervals that will ensure that ground conditions in work areas, areas under active grading, and haul roads do not result in the release of visible dust clouds from the Property. The Subcontractor cannot allow dust or soil emissions to occur from trucks used to transport contaminated materials or soils. The Subcontractor shall ensure all truck haulers cover the soil in the truck beds.

5.7 Air Monitoring

The Supervising Contractor will perform air monitoring in accordance with the AMP at the Property perimeter and real-time air monitoring for dust upgradient and downgradient of the work areas. The purposes of the Supervising Contractor's real-time monitoring will be to:

- Detect risks to off Property personnel and receptors;
- Determine if an upgrade (or downgrade) of personnel protective equipment is required while performing on Property work;
- Recommend engineering controls, protocols, or emergency procedures to the Subcontractor if the established action levels are encountered.

The Supervising Contractor's AMP shall include, at a minimum, any additional air monitoring for dust to be performed by the Supervising Contractor and procedures for the collection of samples from workers within the work area for lead analysis.

All supervisory and safety personnel working on the Property must participate in a health and safety training program that complies with criteria set forth by the Occupational Safety and Health Administration in accordance with 29 *Code of Federal Regulations* (CFR) 1910.120(e). Subcontractors who are not performing intrusive activities are not required to have 29 CFR 1910.120(e) training but must be working under the oversight of someone who does. All personnel involved in field activities must participate in a medical monitoring program as required by 29 CFR 1910.120(f). Substance abuse testing and background checks is required for all employees working on the Property.

The Supervising Contractor shall designate an individual to be the Property Safety and Health Officer (SSHO). Where appropriate for each work crew, the Supervising Contractor shall designate one person as a health and safety support person. These individuals shall perform activities at their location consistent with the HASP such as air monitoring, decontamination, and safety oversight on behalf of the SSHO. They shall have appropriate training equivalent to the SSHO in the specific areas for which they have responsibility. They shall report to and be under the supervision of the SSHO.

A pre-JSA hazard identification call will be held, a Job Safety Analysis (JSA) will be prepared, and a JSA call/meeting held for each major work element. These calls/meetings will include the representatives from the Supervising Contractor, and any subcontractors involved in the work element.

5.8 Construction Quality Program

The CQAP describes QC and QA procedures for the RA construction activities for the Property. This plan summarizes the QC requirements detailed in the specifications and includes the CQA program to ensure the work is performed in accordance with the approved design documents.

Post Construction Submittals:

Upon completion of construction, the Subcontractor is required to submit final record topographical drawings documenting final topography of the backfilled excavation areas. The drawings should include all new drainage structures and all existing structures visible on the surface of the ground or noted on the contract drawings. The Subcontractor shall submit the results of all testing performed as part of the work and shall provide material certifications and warranties if not already submitted.

5.9 Project Close-Out

The Subcontractor shall comply with the general conditions of the contract and provide all required submittals before requesting the Supervising Contractor's inspection of the work, or a designated portion of the work, for certification of substantial completion. The Subcontractor shall perform final cleaning and remove temporary facilities and tools before final closeout.

Once the Supervising Contractor and IDA agree that the construction is complete, IDA will notify the EPA to arrange for a prefinal Inspection. The EPA will perform a walk-through inspection and will advise IDA, who will then advise the Supervising Contractor of any outstanding construction items discovered during the walkthrough. Once the Supervising Contractor has completed the outstanding work, a final inspection walk-through will be performed.

5.10 Post Construction Monitoring / Operation and Maintenance

Once vegetation is established (defined as at least 70% grass cover), the Subcontractor shall remove temporary erosion controls. The Subcontractor will be required to periodically inspect vegetation until vegetation is fully established. The monitoring of grass cover and potential erosion areas will be addressed in the O&M Plan.

5.11 Schedule for Other Plan Submittals

Table 1 provides a preliminary schedule for submittal of other significant deliverables or completion of other activities associated with RA construction.

6.0 Certification by Project Coordinator

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

David B. Mustafaga, PG, CPG
Project Coordinator

Table

Estimated Work Plan/Remedial Design Schedule (Accelerated)

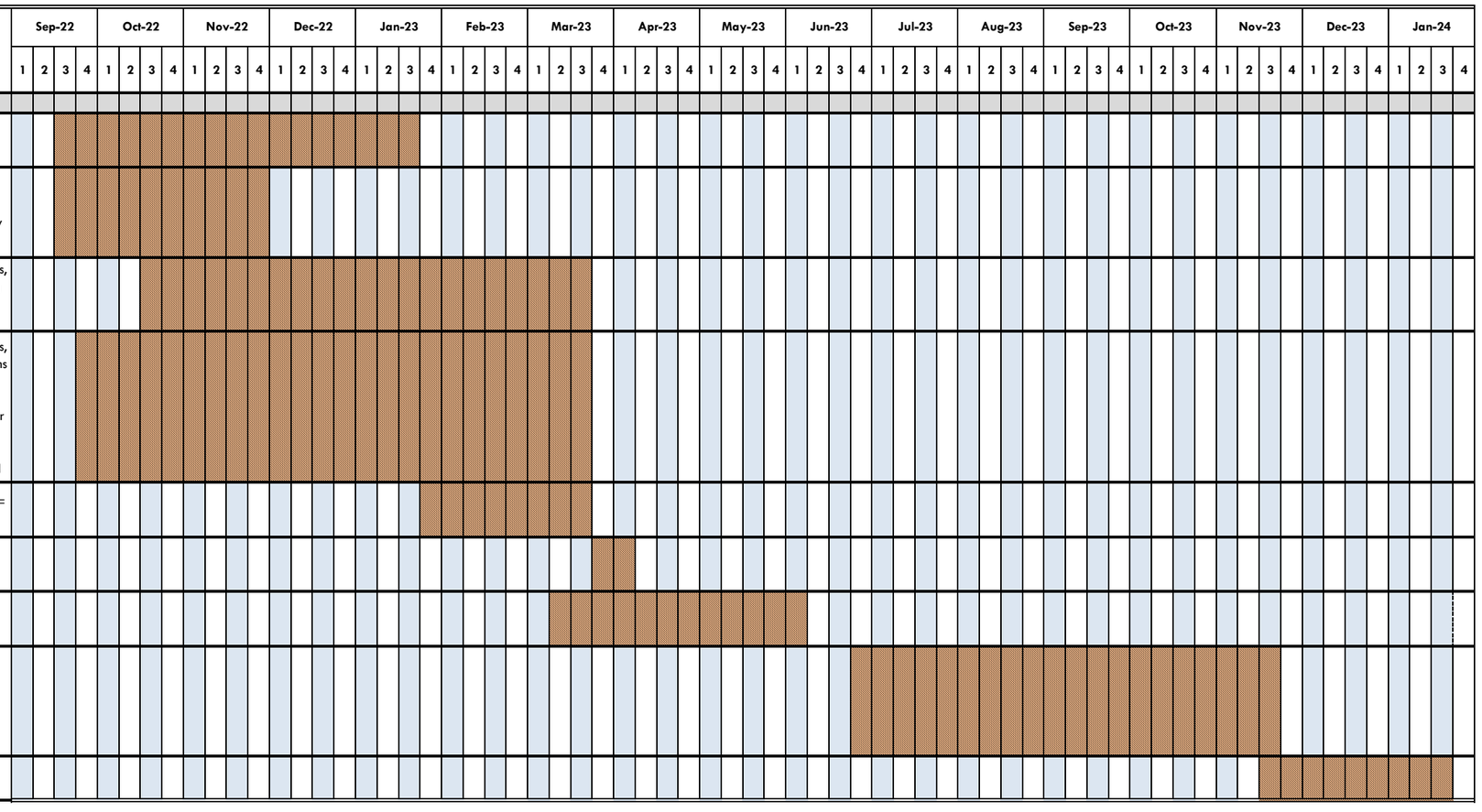
Table 1

USS Lead Superfund Site, Operable Unit 1, Modified Zone 1, East Chicago, Lake County, Indiana

February 2023

EFFECTIVE DATE 9/19/2022

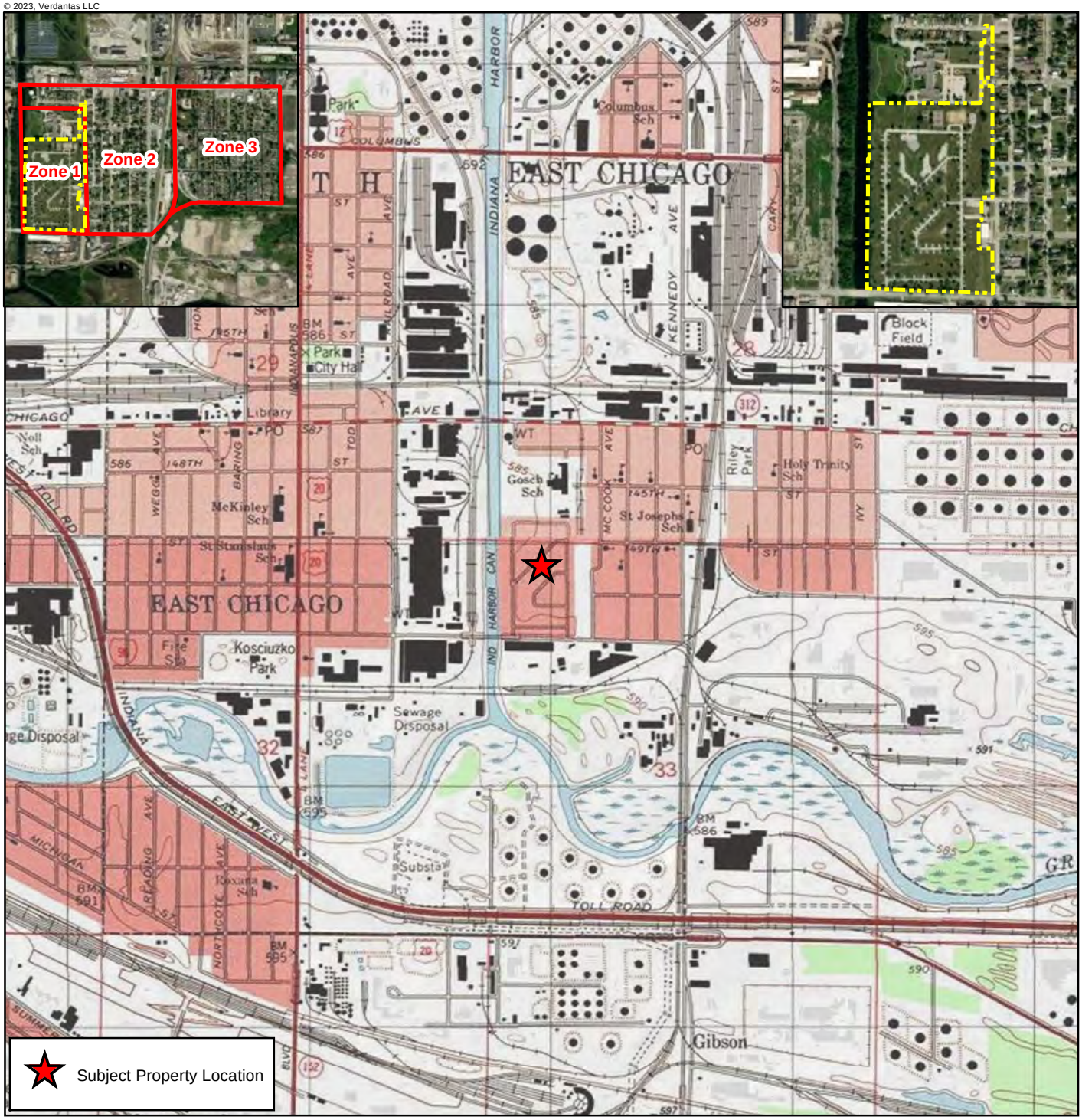
ACTIVITY	Deadline	START	Due Date Initial Draft to Agency[1]	Estimated Max Duration (Days)	Estimated Agency Approval Date	Status
RD/RA Work Plan	60 days after effective date	9/19/2022	11/10/2022	95	1/22/2023	Rev 01 in agency review
Treatability Study Work Plan[2]	30 days after effective date	9/19/2022	10/10/2022	64	11/22/2022	approved by agency
Preliminary 30% Design	30 days after approval of RD/RA Work Plan	10/19/2022	2/15/2023	30	3/17/2023	in progress, presenting to EPA on Jan 25
Supporting Deliverables (Health and Safety Plan, Emergency Response Plan, Field Sampling Plan, QAPP, CQA/QCP, AMP, O&M Plan, TODP, Groundwater Monitoring Well Abandonment and Installation Plan and ICIAP)	30 days after approval of RD/RA Work Plan	9/26/2022	2/15/2023	30	3/17/2023	in progress, Work Plans are being sent to agency for review as they are completed
Pre-Final (90-95%) RD	30 days after EPA submits comments on 30%	3/17/2023	2/15/2023	0	3/17/2023	30% will = 90% RD
Final (100%) RD	30 days after EPA submits comments on pre-final	3/17/2023	3/24/2023	14	3/31/2023	
Remedial Bid Process[3]	start at 30% design submittal	3/8/2023	NA	90	6/6/2023	
Remedy Implementation	Start in late Spring-Summer 2023	6/27/2023	NA	150	11/24/2023	
Project Closeout	14 days after RA Completion Inspection	11/24/2023	12/18/2023	60	1/23/2024	



1. Due Date per SOW or for the accelerated schedule this is the estimated date of submission to agency
2. Treatability Work Plan is complete, Treatability Study is complete, not yet approved by agency
3. Includes Bid Notice, Bid Doc Prep, Bid, Award,start of this task may be conducted earlier to obtain updated pricing

Modified Schedule showing accelerated completion of Work Plans and bid document prep/bidding process

Figures



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0 1,000 2,000 4,000 Feet

1:24,000

Quadrangles: Whiting and Highland, IN

Source: The topographic map was acquired through the USGS Topographic Map web service.

The aerial photo was acquired through the Esri Imagery Web Service. Aerial photography dated 2020.

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Design Criteria Report
OU1, Modified Zone 1, USS Lead Superfund Site

Subject Property Location

East Chicago, Lake County, Indiana

Date:
April 2023

File Name:
15773_01_Fig01_SLM.mxd

Edited: 3/31/2023 By: kyusuf

Figure
1

Produced Using Esri's ArcGIS Software

0 100 200 400 Feet

1:2,400

PRIVATE ST
VERNON AV
MUNICIPAL DR
148TH ST
MCCOOK AV
149TH ST
149TH PL
150TH ST
151ST PL
151ST ST
MAGNOLIA ST
LARKSPUR ST
JONQUIL LN
ASTER ST
GLADIOLA ST
Indiana Harbor Canal

Former Goodman Park
Former WCHC Area

OU1MW6
OU1MW13
ECHA-MW-35
OU1MW14
ECHA-MW-09
OU1MW15
ECHA-MW-01

Notes:
1) The aerial photo was acquired through the Esri Imagery Web Service. Aerial photography dated 2020.
2) Road names in gray have been vacated and removed.

Property Boundary
Parcel
2019 Remediated Soil Area
Existing Monitoring Wells

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April 2023

Design Criteria Report
OU1, Modified Zone 1, USS Lead Superfund Site

Subject Property Layout

East Chicago, Lake County, Indiana

Figure 2

Produced Using Esri's ArcGIS Software

File Name: 15773_01_Fig02_SitePlan.mxd

Edited: 3/31/2023 By: kyusuf

- Property Boundary
- Decision Unit Grid
- Composite Sampling Location (0.0' - 1.0')
- Waste Disposal Profiling Sample Location
- Triplicate Sampling Locations
- Decision Unit not requiring Excavation
- Decision Unit requiring Excavation and No Stabilization
- Decision Unit requiring Excavation and Stabilization
- Decision Unit not requiring Excavation but Requires Stabilization (exceeds TCLP Lead)

0 100 200 400 Feet

1:2,400

A B C D E F

0 1 2 3 4 5 6 7 8 9

Note:
The aerial photo was acquired through the Esri Imagery Web Service. Aerial photography dated 2020.

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April 2023

Design Criteria Report
OU1, Modified Zone 1, USS Lead Superfund Site

Remedial Areas Map

East Chicago, Lake County, Indiana

Figure 3

Produced Using Esri's ArcGIS Software

File Name: 15773_01_Fig03_PropSamps.mxd

Edited: 3/31/2023 By: kyusuf

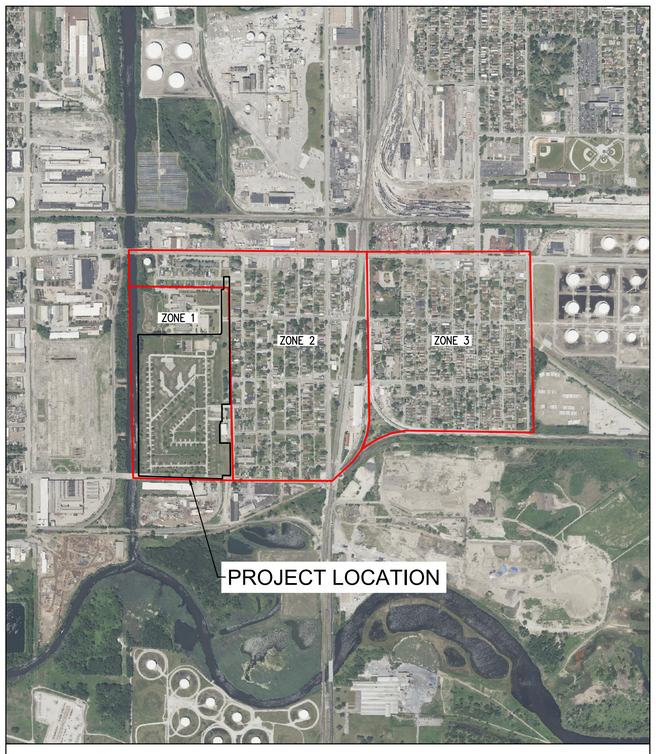
Appendix A

Remedial Design Plans
Technical Specifications

USS LEAD SUPERFUND SITE - OU1 MODIFIED ZONE 1 REMEDIATION PROJECT

EAST CHICAGO, LAKE COUNTY, INDIANA

APRIL 2023



OPERABLE UNIT (OU) ZONE MAP

1000' 0 1000' 2000'
DRAWING SCALE 1" = 1000'

VICINITY MAP

500' 0 500' 1000'
DRAWING SCALE 1" = 500'

SHEET INDEX

NOTE:
THESE PLANS ARE INTENDED TO BE PRINTED IN COLOR.

PREPARED FOR:

INDUSTRIAL DEVELOPMENT ADVANTAGE OF EAST CHICAGO, LLC (IDA)
2105 WEST 1800 NORTH
FARR WEST, UT 84404
(801) 732-2034

PREPARED BY:

VERDANTAS LLC (VERDANTAS)
6397 EMERALD PARKWAY, SUITE 200
DUBLIN, OH 43016
(614) 793-8777

OTHER RELEVANT AGENCIES:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM)
100 NORTH SENATE AVE.
INDIANAPOLIS, IN 46204
(800) 451-6027

U.S. ENVIRONMENTAL PROTECTION AGENECY (USEPA)
US EPA REGION 5
77 W. JACKSON BLVD.
CHICAGO, IL 60604-3590
(800) 621-8431

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FAX: 614.360.0023

MARK JOSEPH BENNETT
REGISTERED
No. 10606047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY	DATE
1	ISSUED FOR CONSTRUCTION		4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

TITLE SHEET

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 1

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GENERAL NOTES

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, PROCEDURES, AND/OR TECHNIQUES.
2. ANY MODIFICATION TO THE SPECIFICATIONS OR CHANGES TO THE WORK AS SHOWN ON THE DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE SUPERVISING CONTRACTOR.
3. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS ASSOCIATED WITH THESE IMPROVEMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF ALL WORK PERFORMED WITHIN THE RIGHT-OF-WAY, PUBLIC EASEMENTS AND WITHIN THE WORK LIMITS FOR A PERIOD OF (1) ONE YEAR FROM THE FINAL ACCEPTANCE OF THE WORK, AND SHALL MAKE ANY NECESSARY REPAIRS AT NO COST TO THE OWNER.
5. THESE PLANS HAVE BEEN PREPARED USING THE MOST ACCURATE INFORMATION AND DATA AVAILABLE AT THE TIME OF PREPARATION. LOCATIONS OF FEATURES SHOWN IN THESE PLANS ARE APPROXIMATE, AND IS NOT INTENDED TO BE AN ACCURATE PROPERTY SURVEY. FIELD CONDITIONS MAY BE ENCOUNTERED DURING CONSTRUCTION WHICH VARIES FROM THOSE DEPICTED HEREIN. AS SUCH, THESE PLANS SHOULD BE USED AS A CONSTRUCTION CONTROL REFERENCE, NOT A PRECISE CONSTRUCTION DOCUMENT. MODIFICATIONS TO THE IMPROVEMENTS AS SHOWN MAY BE REQUIRED BASED ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.
6. THE CONTRACTOR SHALL CONFINE ACTIVITIES TO THE PROJECT SITE, EXISTING RIGHTS-OF-WAY, TEMPORARY EASEMENTS AND PERMANENT EASEMENTS, AND SHALL NOT TRESPASS UPON OTHER PROPERTIES WITHOUT WRITTEN PERMISSION OF THOSE OWNER(S).
7. EXCEPT AS OTHERWISE PROVIDED IN THESE PLANS, FLOW IN EXISTING SEWERS, CULVERTS, STREAMS AND DITCHES SHALL BE MAINTAINED AT ALL TIMES DURING AND AFTER CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING SEWER SYSTEM RESULTING FROM THEIR OPERATIONS OR NEGLIGENCE.
8. ALL EXISTING PUBLIC AND QUASI-PUBLIC FEATURES IN THE EXISTING PUBLIC RIGHTS-OF-WAY THAT ARE DISTURBED BY THE CONTRACTOR DUE TO THE PROSECUTION OF THE WORK SUCH AS, BUT NOT LIMITED TO: MAIL BOXES, CURB, GUARDRAILS, DRIVEWAYS, SWALES, SEWERS, DITCHES, CATCH BASINS, BERMS, SEEDED AREAS, SIDEWALKS, FENCING, ETC., SHALL BE REPLACED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR AND TO THE SATISFACTION OF THE OWNER AND SUPERVISING CONTRACTOR, AND AT NO ADDITIONAL COST TO THE OWNER.
9. NO NONRUBBER TIRE VEHICLES SHALL BE MOVED ON STATE, COUNTY, CITY OR VILLAGE STREETS. EXCEPTIONS MAY ONLY BE GRANTED BY THE APPROPRIATE JURISDICTION WHERE SHORT DISTANCES AND SPECIAL CIRCUMSTANCES ARE INVOLVED. GRANTING OF EXCEPTIONS MUST BE IN WRITING AND ANY DAMAGE MUST BE REPAIRED TO THE SATISFACTION OF THE APPROPRIATE JURISDICTION. THE CONTRACTOR SHALL USE EXTREME CARE WHEN OPERATING NONRUBBER TIRE VEHICLES ON STREETS OR DRIVEWAYS TO AVOID MARKING OR DAMAGING THE PAVEMENT. PROTECTION OF THE PAVEMENT FROM DAMAGE RESULTING FROM THE TRACKS OF NONRUBBER TIRE VEHICLES UTILIZED IN THE EXCAVATION SHALL BE REQUIRED. A WOOD PLANK SYSTEM, USED TIRES, RUBBER MATS OR OTHER MEANS AS APPROVED BY THE APPROPRIATE JURISDICTION SHALL BE USED TO PROTECT THE PAVEMENT.
10. THE TRACKING OR SPILLAGE OF MUD, DIRT, OR DEBRIS UPON STATE, COUNTY, TOWNSHIP, CITY OR VILLAGE ROADWAYS IS PROHIBITED, AND ANY SUCH OCCURRENCE SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES FOR PROTECTION OF PEDESTRIANS AND VEHICULAR TRAFFIC. CONTROLS MAY CONSIST OF, BUT ARE NOT LIMITED TO, FLAGGERS, DRUMS, BARRIERS, SIGNS, LIGHTS, FENCING, AND UNIFORMED TRAFFIC CONTROLLERS IN ACCORDANCE WITH INDIANA DEPARTMENT OF TRANSPORTATION REQUIREMENTS. ALL TRAFFIC CONTROL IMPLEMENTATION AND COST IS THE RESPONSIBILITY OF THE CONTRACTOR.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE SITE BY DISPOSING OF ALL CONSTRUCTION RUBBISH, TRASH AND DEBRIS IN ACCORDANCE WITH STATE SOLID WASTE DISPOSAL REGULATIONS. IN ADDITION, SAID CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL PEDESTRIAN BARRICADES AND FENCING AROUND ACTIVE WORK ZONES TO PROHIBIT THE TRESPASS OF PEDESTRIANS INTO THE WORK ZONE DURING WORKING HOURS AND NON-WORKING HOURS.
13. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SURVEYS TO COMPLETE THE PROJECT INCLUDING REESTABLISHMENT OF CONTROL POINTS, PROPERTY LAYOUT, AND STAKING OF EASEMENTS. THE CONTRACTOR SHALL REFERENCE ALL IRON PINS AND MONUMENTS BEFORE EXCAVATING AT OR NEAR SAID IRON PINS OR MONUMENTS. IF ANY PINS OR MONUMENTS ARE DESTROYED OR DAMAGED BY THE CONTRACTOR, THEY SHALL BE ACCURATELY REPLACED BY A REGISTERED SURVEYOR IN THE STATE OF INDIANA AT THE COMPLETION OF THE PROJECT.
14. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND MATERIAL SUBMITTALS FOR ALL SITE IMPROVEMENT PRODUCTS AND MATERIALS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. ANY MATERIALS PURCHASED AND INSTALLED WITHOUT APPROVED SUBMITTALS CAN BE REJECTED BY THE OWNER AND ORDERED TO BE REMOVED FROM THE SITE AT NO COST TO THE OWNER. OTHER SUBMITTALS MAY ALSO BE REQUESTED BY THE ENGINEER OR OWNER, INCLUDING, BUT NOT LIMITED TO: HEALTH AND SAFETY PLAN, 811 CALL DOCUMENTATION, PROJECT SCHEDULE, AND SCHEDULE OF VALUES.
15. THE CONTRACTOR IS HEREBY NOTIFIED THAT UNAUTHORIZED USE OF FIRE HYDRANTS WILL NOT BE PERMITTED AND THAT UNAUTHORIZED USE OF FIRE HYDRANTS WILL RESULT IN THE CONTRACTOR'S PROSECUTION FOR THEFT OF A PUBLIC UTILITY. IF NEEDED, CONTRACTOR SHALL COORDINATE WITH THE CITY OF EAST CHICAGO FOR AUTHORIZATION TO ACCESS PUBLIC FIRE HYDRANTS.
16. ALL FUEL/LIQUID TANKS AND DRUMS SHALL BE STORED IN A MARKED STORAGE AREA. SECONDARY CONTAINMENT SHALL BE PROVIDED FOR ALL FUEL OIL STORAGE TANKS. VEHICLE FUELING AND MAINTENANCE SHALL OCCUR IN DESIGNATED AREAS. THESE DESIGNATED AREAS SHALL BE LOCATED AWAY FROM WATERCOURSES, DRAINAGE DITCHES, FIELD DRAINS, OR OTHER STORM WATER DRAINAGE AREAS.
17. IN THE EVENT OF A SMALL RELEASE (LESS THAN THE REPORTABLE QUANTITY OF 25 GALLONS) OF PETROLEUM WASTE, THE CITY OF EAST CHICAGO FIRE DEPARTMENT SHALL BE CONTACTED. IN THE EVENT OF A LARGER RELEASE (25 OR MORE GALLONS) OF PETROLEUM WASTE, CONTACT INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AT 800-451-6027, THE CITY OF EAST CHICAGO FIRE DEPARTMENT AT 219-391-8472, AND THE CROWN POINT EMERGENCY MANAGEMENT AGENCY AT 219-662-3254.
18. ALL REQUIREMENTS DESCRIBED WITHIN THE GENERAL NOTES SECTION AND CONTRACT DOCUMENTS, UNLESS OTHERWISE INDICATED, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT WITH NO ASSOCIATED PAY ITEM AND NO ADDITIONAL COMPENSATION TO BE AWARDED TO THE CONTRACTOR.

HEALTH AND SAFETY

1. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. THE CONTRACTOR SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 DURING THE CONDUCT AND PERFORMANCE ON AND IN CONNECTION WITH THIS PROJECT. IT IS ALSO THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN, AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR EXERCISING REASONABLE CARE IN OPERATING EQUIPMENT IN THE VICINITY OF UTILITIES, WHETHER OVERHEAD, AT GROUND LEVEL, OR BURIED, AND SHALL SAVE AND HOLD HARMLESS THE SUPERVISING CONTRACTOR, THE OWNER, AND ANY OF THEIR DESIGNATED AGENTS FROM AND AGAINST ANY AND ALL CLAIMS AND DAMAGES OF ANY KIND OF INJURY TO, OR DEATH TO, ANY PERSON OR PERSONS AND FROM DAMAGE TO OR LOSS OF PROPERTY, ARISING OUT OF, OR ATTRIBUTED TO THE NEGLIGENCE OF CONTRACTOR'S OPERATIONS.
3. THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH THE REGULATIONS OF THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), THE U.S. DEPARTMENT OF TRANSPORTATION (DOT), AND SIMILAR STATE AND OTHER AGENCIES HAVING JURISDICTION OVER THE WORK BEING PERFORMED.
4. THE CONTRACTOR SHALL PROVIDE NECESSARY HEALTH AND SAFETY TRAINING FOR ALL OF THE CONTRACTOR'S ON-SITE PERSONNEL.
5. THE CONTRACTOR SHALL AT ALL TIMES MEET ALL SAFETY REQUIREMENTS SET FORTH IN THEIR HEALTH & SAFETY PLAN (HASP) FOR THE SITE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONDITIONS AT THE SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY WHILE PERFORMING THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL COMPLY WITH THE CONSTRUCTION SAFETY COMMISSION "GENERAL SAFETY RULES AND REGULATIONS FOR THE CONSTRUCTION INDUSTRY," 29 CFR 1926 AND SAFETY RULES. THE CONTRACTOR SHALL REQUIRE ALL PERSONNEL TO WEAR APPROPRIATE PROTECTIVE CLOTHING, HARD HATS, ETC., AS REQUIRED BY LAW.
6. CONTRACTOR'S SITE-SPECIFIC HASP SHALL INCLUDE DONNING OF LEVEL C FULL-FACE ATMOSPHERIC AIR PURIFYING RESPIRATORS, AS THEY MAY BE REQUIRED DURING CERTAIN PROPOSED REMEDIAL EXCAVATION ACTIVITIES.
7. WOOD AND OTHER WASTE SHALL NOT BE BURNED AT THE SITE, BUT SHALL BE REMOVED WITH OTHER DEBRIS.
8. IN ACCORDANCE WITH GENERALLY ACCEPTED PRACTICES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MATTERS RELATING TO THE HEALTH AND SAFETY OF ITS PERSONNEL AND EQUIPMENT AND THE PUBLIC IN PERFORMANCE OF THE WORK. THIS INCLUDES RECOGNITION OF THE POTENTIAL HEALTH AND SAFETY HAZARDS ASSOCIATED WITH THE WORK AND INCLUDES COMPLIANCE WITH THE MINIMUM REQUIREMENTS OF THE HEALTH AND SAFETY PLAN IN FORCE FOR THE WORK, IF APPLICABLE. IT IS UNDERSTOOD THAT PROTECTIVE MEASURES SPECIFIED IN ANY HEALTH AND SAFETY PLAN ARE MINIMUM REQUIREMENTS FOR THE WORK.
9. ALL REQUIREMENTS DESCRIBED WITHIN THE HEALTH AND SAFETY NOTES SECTION, UNLESS OTHERWISE INDICATED, SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT WITH NO ASSOCIATED PAY ITEM AND NO ADDITIONAL COMPENSATION TO BE AWARDED TO THE CONTRACTOR.

PRE-CONSTRUCTION DOCUMENTATION

1. PRIOR TO MOBILIZATION, THE CONTRACTOR SHALL TAKE PRE-CONSTRUCTION PHOTOGRAPHS AND VIDEO TO DOCUMENT THE CONDITION OF THE WORK AREAS, ECHA MAINTENANCE BUILDING AND PARKING LOT, AND ADJACENT ROADWAYS. THESE ROADWAYS WILL INCLUDE, BUT ARE NOT LIMITED TO EAST 151ST STREET AND MCCOOK STREET SECTIONS USED TO HAUL MATERIALS FROM THE SITE TO THE OFF-SITE DISPOSAL FACILITY.

DUST CONTROL AND AIR MONITORING

1. DUST CONTROL SHALL BE IMPLEMENTED THROUGHOUT THE PROJECT. USED OIL SHALL NOT BE USED AS A DUST SUPPRESSANT. DUST CONTROLS SHALL INCLUDE THE USE OF WATER TRUCKS TO WET DISTURBED AREAS, TARPING STOCKPILES, TEMPORARY STABILIZATION OF DISTURBED AREAS, AND REGULATION OF THE SPEED OF VEHICLES ON SITE.
2. CONTINUOUS AIR MONITORING AT THE SITE SHALL BE PERFORMED AND MANAGED BY THE SUPERVISING CONTRACTOR DURING REMEDIAL EXCAVATION ACTIVITIES. AIR MONITORING ACTIVITIES SHALL COMPLY WITH THE REQUIREMENTS OF THE AIR MONITORING PLAN, HASP, AND RD/RA WORK PLAN.

PROJECT SUPPORTING DOCUMENTATION

1. CONTRACTOR SHALL COMPLY WITH THE WITH THE FOLLOWING SUPPORTING DOCUMENTATION:

- RD/RA WORK PLAN
- HEALTH AND SAFETY PLAN (HASP)
- AIR MONITORING PLAN
- CONSTRUCTION QUALITY ASSURANCE PLAN (CQAP)
- EMERGENCY RESPONSE PLAN (ERP)
- TRANSPORTATION AND OFF-SITE DISPOSAL PLAN (TODP)
- GROUNDWATER MONITORING WELL ABANDONMENT AND INSTALLATION PLAN
- STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
- CONTRACT SPECIFICATIONS

DEMOLITION NOTES

1. PROPOSED DEMOLITION AND SITE CLEARING WORK SHALL BE PERFORMED TO FACILITATE REMEDIAL EXCAVATION WORK. REFER TO THE DEMOLITION PLAN ON SHEET 7 AND SITE CLEARING PLAN ON SHEET 6.
2. ALL WASTE, DEBRIS, RUBBLE, AND UNUSABLE MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND PROPERLY DISPOSED OF AT FACILITIES APPROVED FOR THE PERTINENT MATERIAL. SURFACE DEBRIS SHALL BE PICKED UP AND DISPOSED OF PRIOR TO DEMOBILIZATION.
3. ALL CONSTRUCTION AND DEMOLITION DEBRIS (C&DD) SHALL BE DISPOSED OF IN AN EPA APPROVED C&DD LANDFILL. ANTICIPATED DEMOLITION DEBRIS INCLUDES, BUT IS NOT LIMITED TO, ASPHALT AND CONCRETE PAVEMENTS, FENCING, POSTS, BOLLARDS, LIGHT POLES, ETC.
4. EXISTING GRAVEL TO BE REMOVED SHALL BE PLACED IN EITHER OF THE TWO PROPOSED ON-SITE GRAVEL STOCKPILE OPTION AREAS SHOWN ON SHEET 7 FOR FUTURE RE-USE. REFER TO SHEET 7 FOR EXTENTS OF GRAVEL REMOVAL. CONTRACTOR SHALL EXCAVATE GRAVEL WITH EXTREME CAUTION TO PREVENT COMINGLING WITH SITE SOILS, AND IN NO WAY SHALL STOCKPILED GRAVEL FOR FUTURE RE-USE CONTAIN COMINGLED SITE SOILS. SHOULD REMOVED GRAVEL BE COMINGLED, IT SHALL BE HANDLED AS PART OF REMEDIAL EXCAVATION BASED ON ITS CORRESPONDING DECISION UNIT TYPE DEFINED ON SHEETS 8 AND 9. NO EXCAVATED GRAVEL IS PERMITTED TO LEAVE THE SITE.

REMEDIAL EXCAVATION & BACKFILLING NOTES

1. PROPOSED REMEDIAL EXCAVATION SHALL BE PERFORMED TO REMOVE LEAD AND ARSENIC CONTAMINATED SOILS THAT EXCEED THE INDUSTRIAL/COMMERCIAL REMEDIAL ACTION LEVELS (RALs) WITHIN THE UPPER 12 INCHES ACROSS THE SITE. SEE REMEDIATION PLANS ON SHEETS 8 AND 9 FOR LOCATION OF PROPOSED REMEDIAL EXCAVATION AREAS (YELLOW AND RED SHADED DECISION UNITS). NOTE THAT RED SHADED DECISION UNITS ALSO REQUIRE IN-SITU STABILIZATION.
2. IN-SITU STABILIZATION SHALL BE PERFORMED WITHIN AREAS EXCEEDING THE TOXICITY CHARACTERISTICS THRESHOLD OF 5 MG/L FOR LEAD (RED SHADED DECISION UNITS SHOWN ON REMEDIATION PLAN SHEETS 8 AND 9) TO MEET OFF-SITE DISPOSAL REQUIREMENTS. ONCE SOILS HAVE BEEN CHEMICALLY STABILIZED/TREATED, THEY CAN BE REMEDIALLY EXCAVATED AND DISPOSED OFF-SITE, IF REQUIRED. AREAS NOT REQUIRING EXCAVATION AND DISPOSAL, BUT EXCEEDS TCLP LEAD, SHALL BE STABILIZED AND LEFT IN PLACE (GREEN HATCHED DECISION UNITS C3 AND E7). SEE NOTE 2.1 BELOW.

    2.1. THE FORGEN TREATABILITY STUDY CONCLUDED THAT MIX DESIGN OF 2% TRIPLE SUPERPHOSPHATE BY DRY WEIGHT IS RECOMMENDED FOR SOIL TREATMENT. THE REPORT RECOMMENDS THAT PRIOR TO IMPLEMENTING FULL SCALE TREATMENT, THE SELECTED CONTRACTOR SHOULD TREAT AT LEAST 100 CY OF IMPACTED SOIL IN DECISION UNITS B6, B9, AND E9 (EXHIBITING THE HIGHEST LEAD CONTAMINATION) AND DEMONSTRATE SUCCESSFUL TREATMENT. REFER TO THE REMEDIATION PLANS ON SHEETS 8 AND 9 FOR LOCATIONS OF THESE DECISION UNITS.

3. ALL NON-DEDICATED SAMPLING EQUIPMENT THAT HAS, OR WILL, COME INTO CONTACT WITH THE ENVIRONMENTAL MEDIA WILL BE DECONTAMINATED IN ACCORDANCE WITH VERDANTAS SOP NO. VDTSGLK.SOP.F1000.
4. CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED CONFIRMATION SAMPLING POST-STABILIZATION ACTIVITIES FOR VERIFICATION THAT REMEDIATED SOILS MEET REQUIREMENTS SET FORTH IN THE RD/RA WORK PLAN. CONTRACTOR SHALL PROVIDE A MINIMUM 2 DAYS NOTICE TO THE OWNER AND SUPERVISING CONTRACTOR PRIOR TO SAMPLING.
5. SOIL BACKFILLING OF ALL REMEDIAL EXCAVATED AREAS (12 INCH DEPTH) SHALL BE PERFORMED USING CLEAN ON-SITE BORROW MATERIAL. THIS MATERIAL TO BE PROVIDED BY THE OWNER, AND WILL BE STOCKPILED IN THE DESIGNATED AREA SHOWN ON SHEET 7 FOR CONTRACTOR'S USE. CONTRACTOR SHALL PLACE AND COMPACT ALL SOIL BACKFILL IN TWO EQUAL LIFTS OVER THE PROPOSED GEOTEXTILE DEMARCATION BARRIER. CONTRACTOR IS RESPONSIBLE FOR ALL COMPACTION TESTING TO VERIFY A MINIMUM 98% COMPACTION LEVEL OF ALL REMEDIATED AREAS AFTER BACKFILLING.
6. CONTRACTOR IS RESPONSIBLE FOR COVERING AND PROTECTING ALL STOCKPILED MATERIALS THAT ARE NOT BEING ACTIVELY USED, INCLUDING THE OWNER'S ON-SITE BORROW STOCKPILE. DURING THE COURSE OF THE BORROW OPERATION, CONTRACTOR SHALL BE RESPONSIBLE FOR MANAGING AND MAINTAINING THE OPERATION OF THE OWNER'S ON-SITE BORROW STOCKPILE. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION AND MAINTAINING ALL ACCESS ROADS AND HAUL ROUTES USED. UPON COMPLETION OF SITE BORROW ACTIVITIES, THE CONTRACTOR SHALL PERFORM GRADING AND SURFACE RESTORATION IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS. COORDINATION AND APPROVAL BY THE OWNER AND THE SUPERVISING CONTRACTOR SHALL BE REQUIRED PRIOR TO CONSTRUCTION AND/OR USE OF ACCESS ROADS AND HAUL ROUTES.
7. CONTRACTOR SHALL PROVIDE LAYOUT STAKING OF THE PROPOSED LIMITS OF THE REMEDIAL EXCAVATION AREAS. CONTRACTOR SHALL ALSO PROVIDE A POST EXCAVATION TOPOGRAPHICAL SURVEY OF THE REMEDIATION AREAS, WHICH WILL BE USED TO VERIFY THAT VERTICAL AND HORIZONTAL LIMITS OF THE REMEDIATION AREAS HAVE BEEN MET.
8. CONTRACTOR SHALL WORK FROM EXISTING PAVED SURFACES AND LOAD TRUCKS ON EXISTING PAVED OR GRAVEL SURFACES AS MUCH AS PRACTICABLE TO PREVENT TRACKING OF SOILS OFFSITE.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO IMPLEMENT "BEST MANAGEMENT PRACTICES" TO CONTROL SEDIMENT LADEN STORMWATER RUNOFF. CONTRACTOR SHALL COMPLY WITH THE PROJECT SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWP3) PREPARED BY VERDANTAS LLC.
10. ALL REMEDIATION VOID AREAS SHALL BE BACKFILLED OR PROTECTED BY TEMPORARY FENCING OR APPROVED BARRICADES AT THE END OF EACH WORK DAY AS DIRECTED BY THE SUPERVISING CONTRACTOR.
11. SHOULD ACCUMULATED WATER WITHIN REMEDIATION AREAS BE ENCOUNTERED, THE CONTRACTOR SHALL FURNISH AND OPERATE SUITABLE PUMPING EQUIPMENT OF SUCH CAPACITY ADEQUATE TO DEWATER ACCUMULATED WATER WITHIN REMEDIAL AREAS. AREAS SHALL BE SUFFICIENTLY DEWATERED SO THAT THE PLACEMENT OF BACKFILL IS MADE IN AN AREA FREE OF STANDING WATER. THE CONTRACTOR SHALL PROPERLY CONTAINERIZE, CHARACTERIZE AND DISPOSE OF WATER AS DESCRIBED IN THE CONTRACT DOCUMENTS.
12. ALL CONTAMINATED SOILS MUST BE TREATED AND/OR DISPOSED IN EPA APPROVED SOLID WASTE MANAGEMENT FACILITIES OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITIES (TSDFS). RUNOFF FROM CONTAMINATED SOILS SHALL NOT BE DISCHARGED FROM THE SITE. PROPER PERMITS SHALL BE OBTAINED FOR DEVELOPMENT PROJECTS ON SOLID WASTE LANDFILL SITES OR REDEVELOPMENT SITES.
13. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY ALL SITE CONDITIONS ILLUSTRATED TO BE DEMOLISHED OR REMEDIATED. IF THERE ARE PRE-BID QUESTIONS OR PERCEIVED AND REAL CONFLICTS REGARDING CONSTRUCTION DOCUMENTS COMPARED TO ACTUAL FIELD CONDITIONS, SAID CONTRACTOR SHALL NOTIFY THE ENGINEER OR OWNER PRIOR TO BIDDING. IF CONFLICTS EXIST, APPROPRIATE REVISIONS WILL BE MADE TO THE BIDDING DOCUMENTS VIA AN ADDENDUM.
14. SEE SHEET 4 FOR LOCATION OF EXISTING MONITORING WELL "ECHA-MW-01" TO BE PROTECTED, AND ACCOMPANYING NOTES.

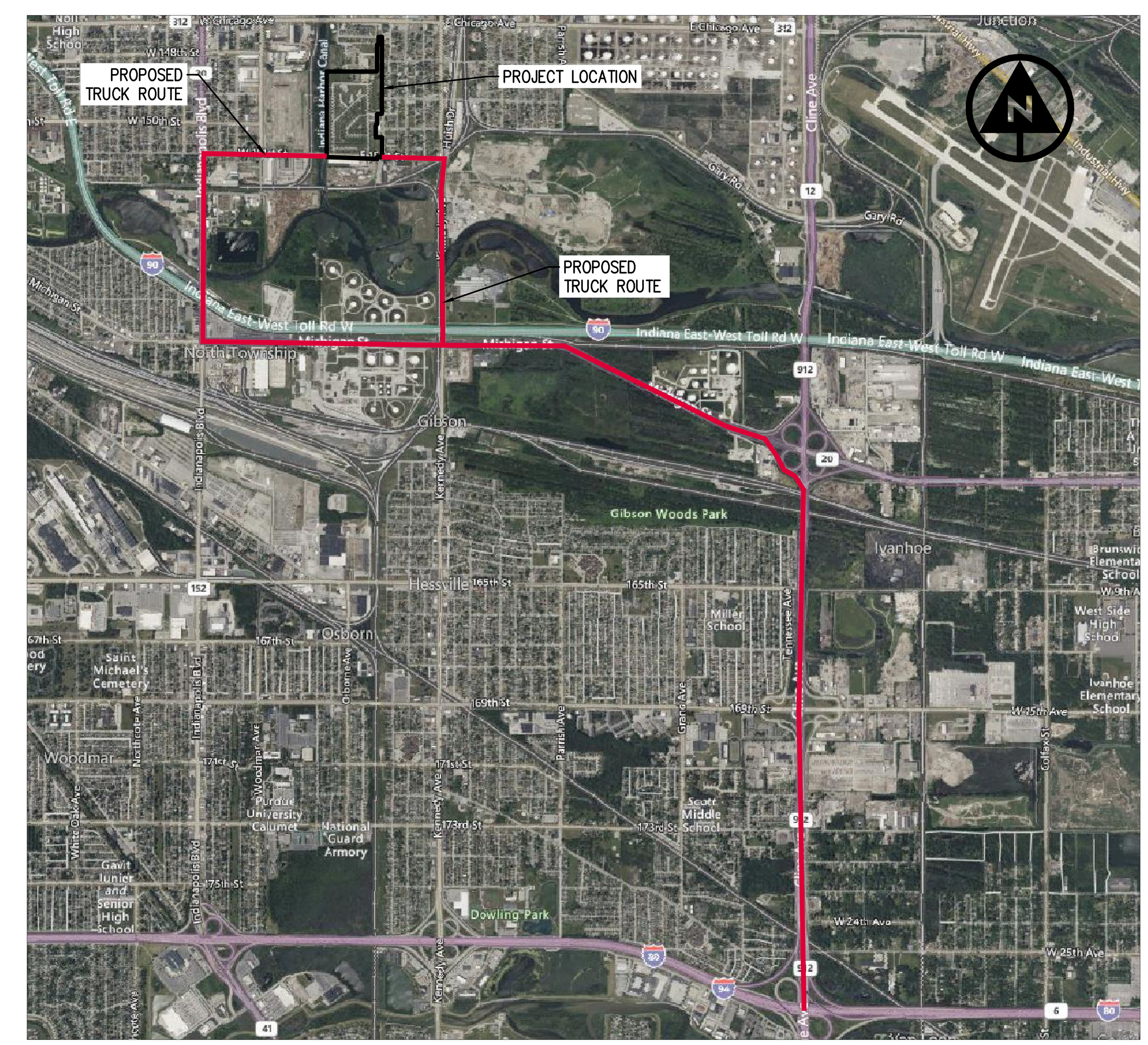
SITE UTILITIES

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION, INVESTIGATION, LOCATION, SUPPORT, AND PROTECTION OF ALL EXISTING ACTIVE UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. IF EXCAVATING AROUND EXISTING ACTIVE UTILITIES TO REMAIN, THE CONTRACTOR SHALL CAREFULLY PERFORM HAND-DIGGING TO EXPOSE THESE UTILITIES OR STRUCTURES TO VERIFY THE VERTICAL AND HORIZONTAL EFFECT ON THE PROPOSED WORK, AND PROVIDE PROPER BRACING TO SUPPORT/PROTECT THESE UTILITIES.
2. THE CONTRACTOR SHALL NOT INTERRUPT ANY EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER. IF A UTILITY INTERRUPTION IS REQUIRED THE CONTRACTOR SHALL COORDINATE THE INTERRUPTION WITH THE OWNER A MINIMUM OF 72 HOURS IN ADVANCE.

LIST OF MAJOR CONSTRUCTION ACTIVITIES

CONSTRUCTION ACTIVITIES AT THE SITE INCLUDE BUT ARE NOT LIMITED TO:

1. PREPARE AND INSTALL EROSION & SEDIMENT CONTROLS.
2. ESTABLISH LAYOUT AND STAKING OF ALL PROPOSED REMEDIAL EXCAVATION AREAS.
3. PERFORM SITE CLEARING AND DEMOLITION OF EXISTING VEGETATION AND TREES, ASPHALT AND CONCRETE SURFACES, FENCES, LIGHT POLES, POSTS, ETC. LOCATED WITHIN PROPOSED REMEDIAL EXCAVATION AREAS. DISPOSE OF ALL DEMOLISHED AND CLEARED MATERIALS OFF SITE.
4. REMOVE ALL EXISTING GRAVEL MATERIAL WITHIN PROPOSED REMEDIAL EXCAVATION AREAS, AND RE-LOCATE GRAVEL MATERIAL TO THE DESIGNATED ON-SITE STOCKPILE AREA FOR FUTURE RE-USE.
5. PERFORM TEST TREATMENT OF IMPACTED SOILS PRIOR TO IMPLEMENTING FULL SCALE IN-SITU TREATMENT.
6. PERFORM IN-SITU TREATMENT OF EXISTING CONTAMINATED SOILS WITHIN PROPOSED STABILIZATION AREAS. ONCE STABILIZED, SOIL CAN BE REMOVED AND DISPOSED OF OFF-SITE, IF REQUIRED, AS PART OF REMEDIAL EXCAVATION.
7. PERFORM REMEDIAL EXCAVATION, OFF-SITE DISPOSAL, AND CLEAN SOIL BACKFILLING OF ALL DESIGNATED AREAS TO A DEPTH UP TO 12 INCHES BELOW GRADE.
8. PERFORM FINAL GRADING TO PROMOTE POSITIVE DRAINAGE THROUGHOUT THE SITE.
9. SEED ALL DISTURBED AREAS.
10. COMPLETE AS-BUILT SURVEY.



TRUCK ROUTE MAP NOTES:

1. ALL CONSTRUCTION RELATED TRAFFIC SHALL USE EITHER E. 151ST ST. TO KENNEDY AVE. TO MICHIGAN ST. (US-20), OR W. 151ST ST. TO INDIANAPOLIS BLVD. TO US-20. USE US-20 TO CLINE AVE. (SR-912) TO THE INTERSTATE AND DESIGNATED TRUCK ROUTES.
2. NO CONSTRUCTION RELATED TRAFFIC PERMITTED THROUGH RESIDENTIAL NEIGHBORHOODS OR ON ANY OTHER LOCAL ROADS WITHOUT PRIOR AUTHORIZATION FROM ENGINEER AND MUNICIPAL JURISDICTION.
3. TRAFFIC SPEEDS ON UNPAVED SURFACES WITHIN THE PROJECT BOUNDARY WILL BE LIMITED TO 15MPH OR LESS TO REDUCE DUST EMISSIONS.
4. ALL TRUCKS WILL BE COVERED AND LEAVE 1-FOOT OF FREEBOARD.
5. ALL VEHICLES LEAVING THE SITE WILL BE CLEANED ACCORDING TO THE SPECIFICATION.
6. REFER TO SITE TRAFFIC PLAN ON SHEET 13.

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FAX 614.360.0023

MARK JOSEPH BONIFAS
REGISTERED
No. PE10606047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HGP/DBM	15773

No.	REVISION	CHK'D BY DATE
1	ISSUED FOR CONSTRUCTION	4/5/23

EAST CHICAGO, LAKE COUNTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT
GENERAL NOTES

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 2

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LEGEND

EXISTING PROPERTY LINE

NOTES:

1. EXISTING PROPERTY LINE SHOWN WAS OBTAINED FROM A TOPOGRAPHIC FIELD SURVEY COMPLETED BY ROBINSON ENGINEERING, LTD. BETWEEN 11/4/2022 AND 11/29/2022. TOPOGRAPHIC SURVEY CAD FILE RECEIVED BY ROBINSON ENGINEERING, LTD. ON 12/21/2022.
2. EXISTING AERIAL IMAGERY SHOWN CONSISTS OF A 0.22 METER RESOLUTION, PROCESSED AND RETRIEVED FROM SKYWATCH ONLINE DATABASE ON 12/16/2022. AERIAL IMAGERY CAPTURED ON 11/23/2022.

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EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

SITE MAP WITH AERIAL

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 3

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80' 0 80' 160'
DRAWING SCALE 1" = 80'

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING UTILITY EASEMENT
- EXISTING FENCE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS LINE MARKER
- EXISTING MONITORING WELL
- EXISTING MONITORING WELL TO BE PROTECTED
- EXISTING POST
- EXISTING GUY WIRE ANCHOR
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING POWER POLE WITH LIGHT
- EXISTING TRANSMISSION TOWER
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING BUSH

SURVEYOR NOTES:
VISIBLE EVIDENCE AVAILABLE AT THE TIME OF THE TOPOGRAPHIC SURVEY SITE VISIT WAS COLLECTED. THIS INCLUDES BUT IS NOT LIMITED TO POWER POLES, UTILITY JUNCTION BOXES, UTILITY MANHOLES, ETC. HOWEVER, THERE MAY EXIST OTHER UTILITY INFRASTRUCTURE WITHIN THE SITE WHERE NO VISIBLE EVIDENCE WAS AVAILABLE AT THE TIME OF THE SITE VISIT. THERE IS NO WARRANTY OR GUARANTEE THAT ALL UTILITIES HAVE BEEN INDICATED UPON THE TOPOGRAPHIC SURVEY.

THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED SURVEYS TO COMPLETE THE PROJECT INCLUDING REESTABLISHMENT OF CONTROL POINTS, DAMAGED R/W PINS AND STAKING OF EASEMENTS. THE CONTRACTOR SHALL REFERENCE ALL IRON PINS AND MONUMENTS BEFORE EXCAVATING AT OR NEAR SAID IRON PINS OR MONUMENTS. IF ANY PINS OR MONUMENTS ARE DESTROYED OR DAMAGED BY THE CONTRACTOR, THEY SHALL BE ACCURATELY REPLACED BY A REGISTERED SURVEYOR IN THE STATE OF INDIANA AT THE COMPLETION OF THE PROJECT.

DATE OF TOPOGRAPHIC SURVEY FIELD WORK: 11/4/2022 - 11/29/2022
SURVEY PERFORMED BY: ROBINSON ENGINEERING, LTD.

THE CONTRACTOR AND/OR HIS SURVEYOR SHALL BE RESPONSIBLE TO CROSS CHECK ALL CONTROL FOR DISTURBANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

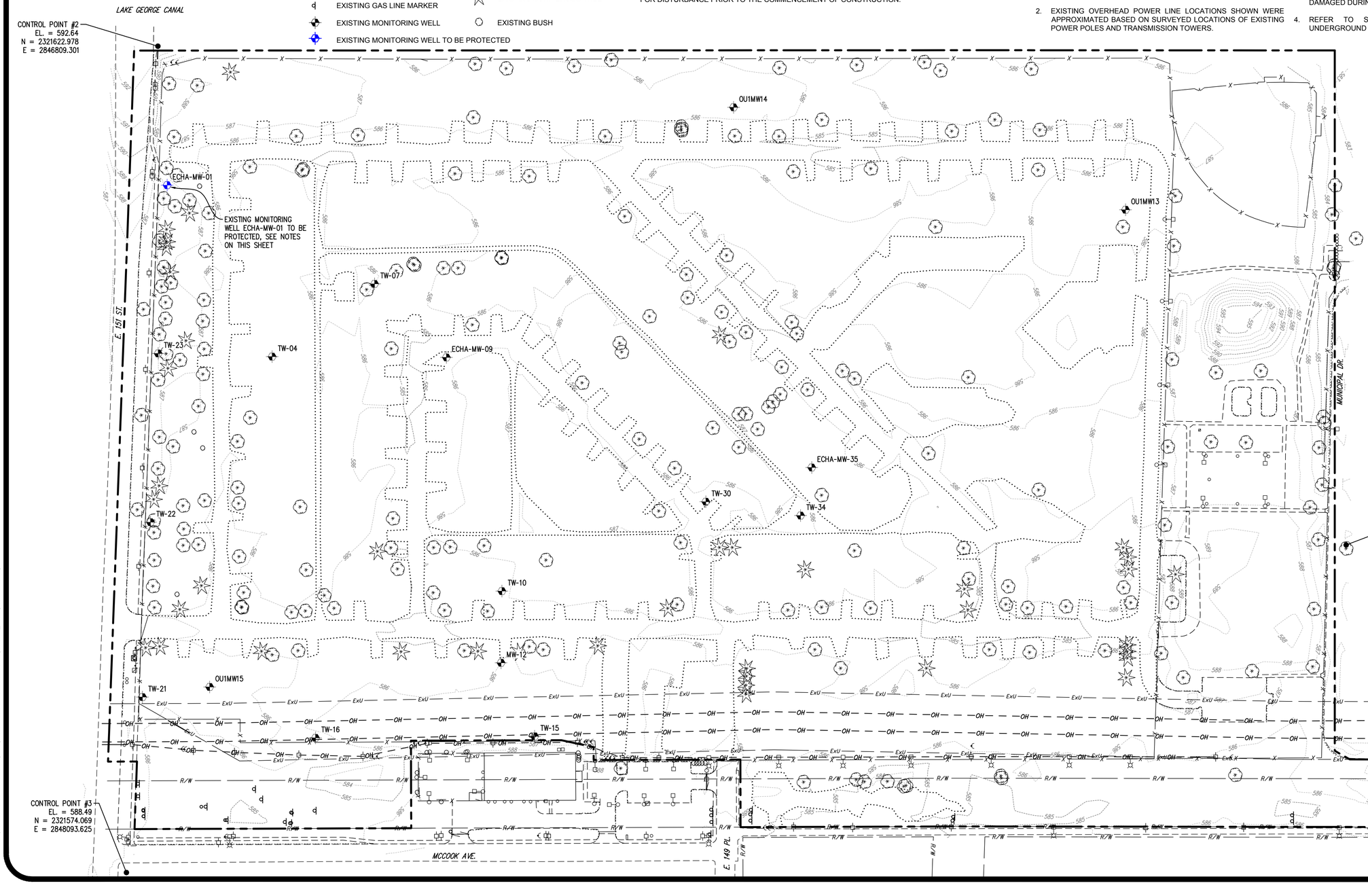
CONTROL POINTS:
BASIS OF BEARING: TRUE NORTH, BASED ON OBSERVATIONS, GPS DATA COLLECTED ON INDIANA STATE PLANE WEST COORDINATE SYSTEM, NAD83, NAVD88, GEOID 18.

CONTROL POINTS SET BY ROBINSON ENGINEERING, LTD. ARE AS FOLLOWS:

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2323470.209	2847584.497	587.54	SOUTH CAP BOLT OF FIRE HYDRANT
2	2321622.978	2846809.301	592.64	BRASS DISK ON TOP OF CONCRETE WALL
3	2321574.069	2848093.625	588.49	ARROW ON FLANGE OF FIRE HYDRANT

NOTES:

1. EXISTING PROPERTY LINE, SITE FEATURES, AND GRADES SHOWN ARE BASED ON A TOPOGRAPHIC FIELD SURVEY COMPLETED BY ROBINSON ENGINEERING, LTD. BETWEEN 11/4/2022 AND 11/29/2022. TOPOGRAPHIC SURVEY CAD FILE RECEIVED BY ROBINSON ENGINEERING, LTD. ON 12/21/2022.
2. EXISTING OVERHEAD POWER LINE LOCATIONS SHOWN WERE APPROXIMATED BASED ON SURVEYED LOCATIONS OF EXISTING POWER POLES AND TRANSMISSION TOWERS.
3. CONTRACTOR SHALL PROTECT AND AVOID DISTURBANCE TO EXISTING MONITORING WELL "ECHA-MW-01" THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR SHALL MAINTAIN A 2'X2' NO WORK ZONE AROUND THIS MONITORING WELL DURING CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIR OR REPLACEMENT SHOULD THE WELL GET DAMAGED DURING CONSTRUCTION.
4. REFER TO SHEET 5 FOR LOCATIONS OF EXISTING UNDERGROUND UTILITIES.



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MARK JOSEPH BANIAS
REGISTERED
No. 21060047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY DATE
1	ISSUED FOR CONSTRUCTION	4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

EXISTING CONDITIONS

APPLICATION NO.
DATE: 4/5/2023
SCALE: AS NOTED
SHEET: 4

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80′ 0 80′ 160′
DRAWING SCALE 1" = 80′

LEGEND

- EXISTING PROPERTY LINE
- EXISTING STORM SEWER PIPE
- EXISTING SANITARY SEWER PIPE
- EXISTING ELECTRIC LINE (APPROX.)
- EXISTING GAS LINE (APPROX.)
- EXISTING WATER LINE (APPROX.)
- EXISTING GAS LINE MARKER
- EXISTING GAS METER
- EXISTING MONITORING WELL
- EXISTING MONITORING WELL TO BE PROTECTED (SEE NOTE 4)
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING COMBINATION SEWER MANHOLE
- EXISTING SANITARY CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING WATER METER
- EXISTING WATER MANHOLE
- EXISTING WATER BUFFALO BOX
- EXISTING ELECTRIC METER
- EXISTING ELECTRIC BOX
- EXISTING CABLE TV PEDESTAL

NOTES:

1. EXISTING PROPERTY LINE SHOWN IS BASED ON A TOPOGRAPHIC FIELD SURVEY COMPLETED BY ROBINSON ENGINEERING, LTD. BETWEEN 11/4/2022 AND 11/29/2022. TOPOGRAPHIC SURVEY CAD FILE RECEIVED BY ROBINSON ENGINEERING, LTD. ON 12/21/2022.
2. EXISTING UNDERGROUND UTILITIES SHOWN ON THIS SHEET WERE OBTAINED FROM A COMBINATION OF THE TOPOGRAPHIC SURVEY DESCRIBED IN NOTE 1 ON THIS SHEET, THE WEST CALUMET HOUSING COMPLEX DEMOLITION PLANS BY AMERECO, INC., DATED DECEMBER 2017, AND HISTORICAL SITE DRAWINGS. EXISTING UNDERGROUND ELECTRIC AND GAS LINES SHOWN ARE APPROXIMATE BASED ON POINT LOCATIONS PROVIDED IN AMERECO'S DEMOLITION PLAN CAD FILE (RECEIVED BY AMERECO ON 1/25/2023). EXISTING WATER LINES ARE APPROXIMATE BASED ON HISTORICAL SITE DRAWINGS.
3. IT IS THE INTENT THAT ALL EXISTING UNDERGROUND UTILITIES SHOWN LOCATED WITHIN THE PROJECT AREA HAVE BEEN PREVIOUSLY ABANDONED/CAPPED/PLUGGED AND LEFT IN PLACE. CONTRACTOR SHALL FIELD VERIFY UTILITY LOCATIONS WITHIN THE PROJECT AREA.
4. CONTRACTOR SHALL PROTECT AND AVOID DISTURBANCE TO EXISTING MONITORING WELL "ECHA-MW-01" THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR SHALL MAINTAIN A 2'X2' NO WORK ZONE AROUND THIS MONITORING WELL DURING CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIR OR REPLACEMENT SHOULD THE WELL GET DAMAGED DURING CONSTRUCTION.
5. REFER TO THE SITE UTILITIES NOTES ON SHEET 2.

LAKE GEORGE CANAL

EXISTING MONITORING WELL ECHA-MW-01 TO BE PROTECTED, SEE NOTE 4 ON THIS SHEET

ECHA-MW-01, OU1MW14, OU1MW13, TW-07, TW-23, TW-04, ECHA-MW-09, ECHA-MW-35, TW-30, TW-34, TW-22, TW-10, MW-12, OU1MW1, TW-21, TW-16, TW-15, OU1MW6

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MCCOOK AVE.
E. 149 PL
E. 148 ST.
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DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY DATE
1	ISSUED FOR CONSTRUCTION	4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

EXISTING UNDERGROUND UTILITIES

APPLICATION NO.
DATE: 4/5/2023
SCALE: AS NOTED
SHEET: 5

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80′ 0 80′ 160′
DRAWING SCALE 1" = 80′

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING DECIDUOUS TREE (DO NOT DISTURB)
- EXISTING DECIDUOUS TREE (TO BE CLEARED)
- EXISTING CONIFEROUS TREE (DO NOT DISTURB)
- EXISTING CONIFEROUS TREE (TO BE CLEARED)
- FS12 PROPOSED 12" FILTER SOCK
- (A1) DECISION UNIT ID
- NO WORK ZONE
- NO CLEARING WITHIN AREAS NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION (SEE NOTE 4)

NOTES:

1. NO EXCAVATION SHALL BE PERFORMED WITHIN THE NO WORK ZONES. THESE ZONES ARE LOCATED AT THE EXISTING ELECTRIC TRANSMISSION TOWERS, WHICH ARE OWNED AND MAINTAINED BY NORTHERN INDIANA PUBLIC SERVICE COMPANY (NIPSCO). PER NIPSCO REQUIREMENTS, CONTRACTOR SHALL MAINTAIN A DISTANCE OF AT LEAST 6' BACK FROM THE OUTERMOST POINT OF TOWER LEG/FOUNDATION WHEN EXCAVATING.
2. CONTRACTOR SHALL PERFORM SITE CLEARING OF ALL TREES LOCATED WITHIN PROPOSED REMEDIAL EXCAVATION AREAS, WITH THE EXCEPTION OF THE EXISTING LARGE TREES (3' DIAMETER OR LARGER) LOCATED WITHIN DECISION UNITS F1, F2, F3, AND F4 (SEE RED CLOUDED AREA ON THIS SHEET). CONTRACTOR SHALL CAREFULLY HAND DIG AROUND THESE LARGE TREES IN A MANNER AS TO MAINTAIN THEIR ROOT INTEGRITY.
3. SITE CLEARING WITHIN PROPOSED REMEDIAL EXCAVATION AREAS SHALL INCLUDE REMOVAL OF ANY VEGETATION PRIOR TO ANY SOILS EXCAVATION. FOR TREE CLEARING, STUMPS SHALL BE GROUND DOWN TO 12-INCHES OR MORE BELOW GRADE. TREE ROOT BULBS SHALL BE COMPLETELY REMOVED AND DISPOSED OF AS PART OF ALTERNATE WORK, IF IMPLEMENTED. ALL WOODED MATERIAL SHALL BE CHIPPED AND DISPOSED OF OFF SITE.
4. NO SITE CLEARING SHALL BE PERFORMED WITHIN GREEN DECISION UNITS NOT REQUIRING EXCAVATION AND IN-SITU STABILIZATION. REFER TO THE REMEDIATION PLANS ON SHEETS 8 AND 9.
5. REFER TO ALTERNATE PLAN ON SHEET 14.

LAKE GEORGE CANAL

PROPOSED 12" FILTER SOCK

NO CLEARING SHALL BE PERFORMED IN AREAS NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION

PROPOSED 12" FILTER SOCK

PROPOSED ON-SITE CONTRACTOR STAGING AND LAYDOWN AREA

NO WORK ZONE

NO WORK ZONE

NO WORK ZONE

NO CLEARING SHALL BE PERFORMED IN AREAS NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION

NO CLEARING SHALL BE PERFORMED IN AREAS NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION

48" DIA.
60" DIA.
48"(2) DIA.
48" DIA.
36" DIA.
60" DIA.

CONTRACTOR SHALL NOT DISTURB EXISTING LARGE TREES LOCATED WITHIN DECISION UNITS F1, F2, F3, AND F4 (CLOUDED AREA), SEE NOTE 2 ON THIS SHEET.

E. 151 ST.
MCCOOK AVE.
E. 149 PL.
MUNICIPAL DR.
E. 148 ST.

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No.	REVISION	CHK'D BY DATE
1	ISSUED FOR CONSTRUCTION	4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

SITE CLEARING PLAN

APPLICATION NO.
DATE: 4/5/2023
SCALE: AS NOTED
SHEET: 6

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80′ 0 80′ 160′
DRAWING SCALE 1" = 80′

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING EDGE OF GRAVEL
- EXISTING FENCE
- PROPOSED FENCE REMOVAL
- PROPOSED FENCE
- A1 DECISION UNIT ID
- NO WORK ZONE (SEE NOTE 1)
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- PROPOSED GRAVEL REMOVAL
- PROPOSED PAVEMENT REMOVAL

DND = DO NOT DISTURB
TBR = TO BE REMOVED

NOTES:

1. NO EXCAVATION SHALL BE PERFORMED WITHIN THE NO WORK ZONES. THESE ZONES ARE LOCATED AT EXISTING ELECTRIC TRANSMISSION TOWERS, WHICH ARE OWNED AND MAINTAINED BY NORTHERN INDIANA PUBLIC SERVICE COMPANY (NIPSCO). PER NIPSCO REQUIREMENTS, CONTRACTOR SHALL MAINTAIN A DISTANCE OF AT LEAST 6' BACK FROM THE OUTERMOST POINT OF TOWER LEG/FOUNDATION WHEN EXCAVATING. PROPOSED FENCE REMOVAL AND PAVEMENT DEMOLITION IS THE ONLY WORK TO BE PERFORMED WITHIN THE NO WORK ZONES.
2. THE INTENT OF THIS DEMOLITION PLAN IS TO REMOVE ALL SITE IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO, EXISTING PAVEMENT, GRAVEL, FENCING, STRUCTURES, LIGHT POLES, POSTS, ETC. WITHIN THE PROPOSED REMEDIAL EXCAVATION AREA DECISION UNITS, AS DEFINED ON SHEETS 8 AND 9, TO FACILITATE REMEDIAL EXCAVATION WORK.
3. NO DEMOLITION ACTIVITIES SHALL OCCUR WITHIN DECISION UNITS NOT REQUIRING EXCAVATION OR STABILIZATION (DECISION UNITS A1, A2, A3, B1, B2, C1, E6, F0, F5, F6, AND F7). SAW CUTS SHALL BE MADE TO PROTECT EXISTING PAVEMENT TO REMAIN, AS APPLICABLE.
4. EXISTING FENCE TO BE REMOVED INCLUDES BOTH ALUMINUM CHAIN LINK FENCING WITH BARBED WIRE, AND WROUGHT IRON FENCING. EXISTING ALUMINUM CHAIN LINK FENCE TO BE REMOVED SHALL BE EVALUATED BY IDA FOR RE-PURPOSING FOR PROPOSED FENCE SECTIONS IF UNDAMAGED AND IN GOOD CONDITION. CONTRACTOR MAY ADJUST LOCATION OF PROPOSED FENCE ALONG EASTERN PROPERTY LINE TO AVOID EXISTING POWER POLES. ALL PROPOSED FENCING SHALL BE ALUMINUM CHAIN LINK.
5. THE LIMITS OF EXISTING GRAVEL AREAS IS APPROXIMATE. IN ADDITION, EXISTING GRAVEL DEPTH VARIES BASED ON BORINGS COMPLETED BY VERDANTAS LLC (FORMERLY HULL & ASSOCIATES, LLC) ON 11/9/2020 THROUGH 11/17/2020. SEE REMEDIATION PLAN B ON SHEET 9 FOR BORING LOCATIONS. FOR PURPOSES OF THIS PLAN, GRAVEL DEPTH IS ASSUMED TO BE 6" ON AVERAGE THROUGHOUT THE SITE. REMOVED GRAVEL SHALL BE FREE OF COMINGLED SOIL AND PLACED IN EITHER ONE OF THE PROPOSED ON-SITE GRAVEL STOCKPILE OPTION AREAS SHOWN FOR FUTURE RE-USE. NO EXCAVATED GRAVEL IS PERMITTED TO LEAVE THE SITE.
6. REFER TO THE DEMOLITION NOTES ON SHEET 2, AND ALTERNATE PLAN ON SHEET 14.

LAKE GEORGE CANAL
EXISTING CHAIN LINK FENCE, DND
EXISTING PROPERTY LINE
PROPOSED ON-SITE GRAVEL STOCKPILE AREA
EXISTING CHAIN LINK FENCE, DND
EXISTING FENCE, DND (TBR UNDER ALTERNATE)
TIE PROPOSED FENCE INTO EXISTING FENCE
PROPOSED CHAIN LINK FENCE (≈ 608 LF)
EXISTING FENCE, DND (TBR UNDER ALTERNATE)
EXISTING LIGHT POLE AND ELECTRIC BOX, DND (TBR UNDER ALTERNATE)
EXISTING POSTS, DND
EXISTING GRAVEL, TBR
PROPOSED OWNER'S ON-SITE BORROW STOCKPILE AREA
EXISTING CONCRETE SIDEWALK, DND (TBR UNDER ALTERNATE)
EXISTING WATER MANHOLE, DND
TIE PROPOSED FENCE INTO EXISTING FENCE
EXISTING LIGHT POLE AND ELECTRIC BOX, TBR
EXISTING ASPHALT SIDEWALK, DND (TBR UNDER ALTERNATE)
EXISTING GRAVEL, TBR
EXISTING CHAIN LINK FENCE, DND
EXISTING LIGHT POLE AND ELECTRIC BOX, TBR
EXISTING LIGHT POLE, DND
EXISTING ASPHALT PAVEMENT, DND (TBR UNDER ALTERNATE)
EXISTING POSTS WITHIN PAVEMENT REMOVAL AREA, TBR (TYP.)
EXISTING STORM SEWER AND ASSOCIATED STRUCTURES, DND (TYP.)
TIE PROPOSED FENCE INTO EXISTING FENCE
EXISTING ASPHALT PAVEMENT, TBR
EXISTING LIGHT POLE, TBR
EXISTING CONCRETE PAVEMENT, TBR
EXISTING CHAIN LINK FENCE, TBR (≈654 LF)
EXISTING LIGHT POLES, TBR
EXISTING ASPHALT PAVEMENT, TBR
EXISTING WROUGHT IRON FENCE, TBR (≈427 LF)
EXISTING ASPHALT PAVEMENT, TBR
EXISTING CONCRETE PAVEMENT, TBR
EXISTING CONCRETE STRUCTURE, TBR
NO WORK ZONE
EXISTING CHAIN LINK FENCE, TBR (≈461 LF)
EXISTING CHAIN LINK FENCE, DND
NO WORK ZONE
TIE PROPOSED FENCE INTO EXISTING FENCE
PROPOSED CHAIN LINK FENCE
TIE PROPOSED FENCE INTO EXISTING FENCE
TIE PROPOSED FENCE INTO EXISTING FENCE
EXISTING WROUGHT IRON FENCE, TBR (≈297 LF)
EXISTING PROPERTY LINE
EXISTING POWER POLES WITH LIGHT, DND (TYP.)
EXISTING GAS LINE MARKERS AND VENT PIPES, DND (TYP.)
PROPOSED CHAIN LINK FENCE (≈ 740 LF)
EXISTING POWER POLE AND GUY WIRE ANCHORS, DND (TYP.)
EXISTING GRAVEL, TBR
EXISTING CHAIN LINK FENCE, TBR (≈643 LF)
PROPOSED CHAIN LINK FENCE (≈ 1,885 LF)
PROPOSED ON-SITE CONTRACTOR STAGING AND LAYDOWN AREA
E. 151 ST.
MCCOOK AVE.
E. 149 PL.
E. 148 ST.
MUNICIPAL DR.

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No. 10606047
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DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY	DATE
1	ISSUED FOR CONSTRUCTION		4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

DEMOLITION PLAN

APPLICATION NO.
DATE: 4/5/2023
SCALE: AS NOTED
SHEET: 7

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80' 0 80' 160'

DRAWING SCALE 1" = 80'

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING EDGE OF GRAVEL
- A1 DECISION UNIT ID
- 1 DECISION UNIT POINT LOCATION (SEE TABLE ON THIS SHEET)
- EXISTING MONITORING WELL TO BE PROTECTED (SEE NOTE 8)
- AREA NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION
- PROPOSED REMEDIAL EXCAVATION AREA WITH NO STABILIZATION
- PROPOSED REMEDIAL EXCAVATION AND STABILIZATION AREA
- PROPOSED STABILIZATION AREA WITH NO EXCAVATION (EXCEEDS TCLP LEAD)
- PROPOSED SOIL TREATMENT TEST AREA (SEE NOTE 7)
- NO WORK ZONE (SEE NOTE 3)

NOTES:

1. EXISTING PROPERTY LINE, SITE FEATURES, AND GRADES SHOWN ARE BASED ON A TOPOGRAPHIC FIELD SURVEY COMPLETED BY ROBINSON ENGINEERING, LTD. BETWEEN 11/4/2022 AND 11/29/2022. TOPOGRAPHIC SURVEY CAD FILE RECEIVED BY ROBINSON ENGINEERING, LTD. ON 12/21/2022.
2. EXISTING OVERHEAD POWER LINE LOCATIONS SHOWN WERE APPROXIMATED BASED ON SURVEYED LOCATIONS OF EXISTING POWER POLES AND TRANSMISSION TOWERS.
3. NO EXCAVATION SHALL BE PERFORMED WITHIN THE NO WORK ZONES. THESE ZONES ARE LOCATED AT EXISTING ELECTRIC TRANSMISSION TOWERS, WHICH ARE OWNED AND MAINTAINED BY NORTHERN INDIANA PUBLIC SERVICE COMPANY (NIPSCO). PER NIPSCO REQUIREMENTS, CONTRACTOR SHALL MAINTAIN A DISTANCE OF AT LEAST 6' BACK FROM THE OUTERMOST POINT OF TOWER LEG/FOUNDATION WHEN EXCAVATING.
4. REMEDIAL EXCAVATION SHALL BE OFFSET A DISTANCE OF 1' FROM EXISTING FENCE LINES TO REMAIN, AND 4' FROM EDGE OF EXISTING POWER POLES, GUY WIRE ANCHORS, AND UTILITY STICKUPS TO REMAIN. CONTRACTOR SHALL BRACE POWER POLES AS NECESSARY DURING EXCAVATION.
5. THE EASTERN BOUNDARY OF DECISION UNITS F1, F2, F3, AND F4 SHALL BE OFFSET 5' FROM THE PROPERTY LINE TO MINIMIZE DISTURBANCE TO TOE OF EXISTING ROADWAY. REFER TO THE DECISION UNIT POINT TABLE ON THIS SHEET.
6. CONTRACTOR SHALL SUBMIT TO THE ENGINEER POST-EXCAVATION SURVEY DOCUMENTATION DEMONSTRATING REMEDIAL EXCAVATION HAS BEEN COMPLETED PER THE DESIGN. THIS DOCUMENTATION MUST BE APPROVED BY THE SUPERVISING CONTRACTOR PRIOR TO STARTING BACKFILLING ACTIVITIES.
7. REFER TO THE REMEDIAL EXCAVATION & BACKFILLING NOTES ON SHEET 2. PRIOR TO IMPLEMENTING FULL SCALE TREATMENT (IN-SITU STABILIZATION), CONTRACTOR SHALL TREAT AT LEAST 100 CY OF IMPACTED SOILS WITHIN THE PROPOSED SOIL TREATMENT TEST AREAS (DECISION UNITS B6, B9, E9) SHOWN ON THIS SHEET, AND DEMONSTRATE SUCCESSFUL TREATMENT.
8. CONTRACTOR SHALL PROTECT AND AVOID DISTURBANCE TO EXISTING MONITORING WELL "ECHA-MW-01" THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR SHALL MAINTAIN A 2'X2' NO WORK ZONE AROUND THIS MONITORING WELL DURING CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIR OR REPLACEMENT SHOULD THE WELL GET DAMAGED DURING CONSTRUCTION.
9. REFER TO SHEET 2 FOR NOTES REGARDING DECONTAMINATION.

DECISION UNIT POINT LOCATION, SEE TABLE ON THIS SHEET (TYP.)

DECISION UNIT ID (TYP.)

PROPERTY LINE

LAKE GEORGE CANAL

ECHA-MW-01

EXISTING MONITORING WELL ECHA-MW-01 TO BE PROTECTED, SEE NOTES ON THIS SHEET

OU1MW14

PROPOSED ON-SITE GRAVEL STOCKPILE AREA

OU1MW13

PROPOSED OWNER'S ON-SITE BORROW STOCKPILE AREA

TW-07

TW-23

TW-04

ECHA-MW-09

ECHA-MW-35

TW-30

TW-34

TW-22

TW-10

PROPOSED ON-SITE CONTRACTOR STAGING AND LAYDOWN AREA

OU1MW5

TW-21

NO WORK ZONE

MW-12

TW-16

NO WORK ZONE

NO WORK ZONE

OU1MW6

E. 151 ST.

MUNICIPAL DR.

MCCOOK AVE.

E. 149 PL.

E. 149 ST.

DECISION UNIT POINT LOCATION TABLE

Point #	Northing	Easting	Point #	Northing	Easting
1	2323452.29	2846835.77	54	2322206.15	2847708.11
2	2323258.36	2846836.36	55	2321992.13	2847707.97
3	2323195.95	2846836.42	56	2321778.11	2847707.84
4	2323172.72	2846827.74	57	2321597.58	2847707.72
5	2323057.62	2846827.92	58	2323432.64	2847884.28
6	2322844.13	2846827.95	59	2323437.38	2847893.45
7	2322638.35	2846828.59	60	2323452.45	2847910.03
8	2322435.02	2846828.92	61	2323595.97	2847918.77
9	2322221.61	2846829.26	62	2323596.06	2847924.64
10	2322005.30	2846829.33	63	2323604.73	2847925.12
11	2321789.57	2846828.46	64	2323622.11	2847945.27
12	2321681.84	2846828.56	65	2323431.87	2847917.78
13	2321632.73	2846842.15	66	2323398.79	2847890.67
14	2321629.56	2846853.83	67	2323359.76	2847891.01
15	2323452.44	2847047.42	68	2323360.07	2847852.37
16	2323254.59	2847047.01	69	2323398.53	2847852.04
17	2323053.77	2847046.60	70	2323238.99	2847917.45
18	2322841.32	2847046.16	71	2323038.44	2847917.11
19	2322635.04	2847045.73	72	2322830.12	2847916.76
20	2322429.17	2847045.31	73	2322621.77	2847916.40
21	2322217.82	2847044.87	74	2322599.87	2847877.03
22	2322002.23	2847044.42	75	2322559.93	2847877.64
23	2321786.76	2847043.98	76	2322559.90	2847838.06
24	2321623.08	2847043.64	77	2322599.23	2847837.38
25	2323452.45	2847186.95	78	2322405.65	2847916.04
26	2323443.68	2847200.96	79	2322202.50	2847915.69
27	2323441.84	2847263.52	80	2321988.98	1847915.33
28	2323250.71	2847263.32	81	2321775.42	2847914.80
29	2323049.96	2847263.12	82	2321752.49	2847895.51
30	2322838.53	2847262.90	83	2321711.12	2847896.15
31	2322631.74	2847262.69	84	2321710.44	2847855.92
32	2322423.31	2847262.48	85	2321751.22	2847854.64
33	2322214.00	2847262.26	86	2321590.02	2847914.65
34	2321998.92	2847262.04	87	2323620.37	2848023.00
35	2321783.92	2847261.82	88	2323452.46	2848022.76
36	2321614.54	2847261.65	89	2323452.46	2848017.76
37	2323435.23	2847487.44	90	2323237.15	2848017.46
38	2323442.25	2847496.08	91	2323036.68	2848017.18
39	2323246.71	2847486.77	92	2322828.83	2848017.09
40	2323046.03	2847486.07	93	2322620.23	2848017.76
41	2322835.67	2847485.33	94	2322620.15	2848022.76
42	2322628.35	2847484.60	95	2322402.75	2848023.46
43	2322417.33	2847483.86	96	2322200.59	2848024.10
44	2322210.11	2847483.13	97	2321987.31	2848024.79
45	2321995.56	2847482.38	98	2321773.99	2848025.47
46	2321781.06	2847481.62	99	2321586.64	2848026.07
47	2321606.13	2847481.01	100	2322300.45	2847915.38
48	2323436.95	2847708.90	101	2322300.40	2847898.78
49	2323242.73	2847708.78	102	2322250.36	2847887.94
50	2323042.11	2847708.65	103	2322202.99	2847888.10
51	2322832.80	2847708.52	104	2322016.36	2847888.69
52	2322624.94	2847708.38	105	2322016.45	2847915.24
53	2322411.27	2847708.24	106	2322016.80	2848024.69

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MARK JOSEPH BANTA REGISTERED P.E. No. 10606047 STATE OF INDIANA PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY	DATE
1	ISSUED FOR CONSTRUCTION		4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

REMEDIATION PLAN A

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 8

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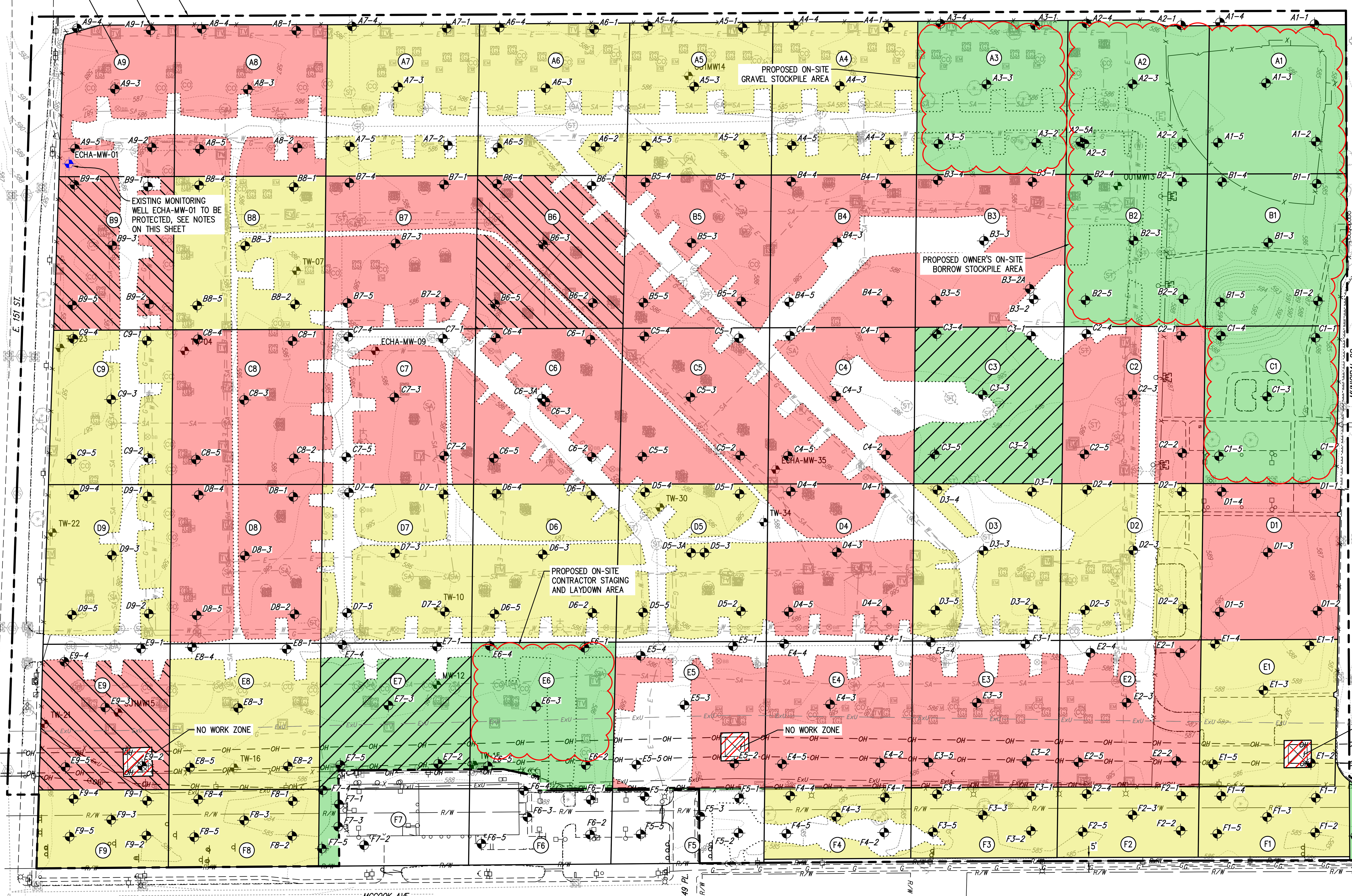
LEGEND

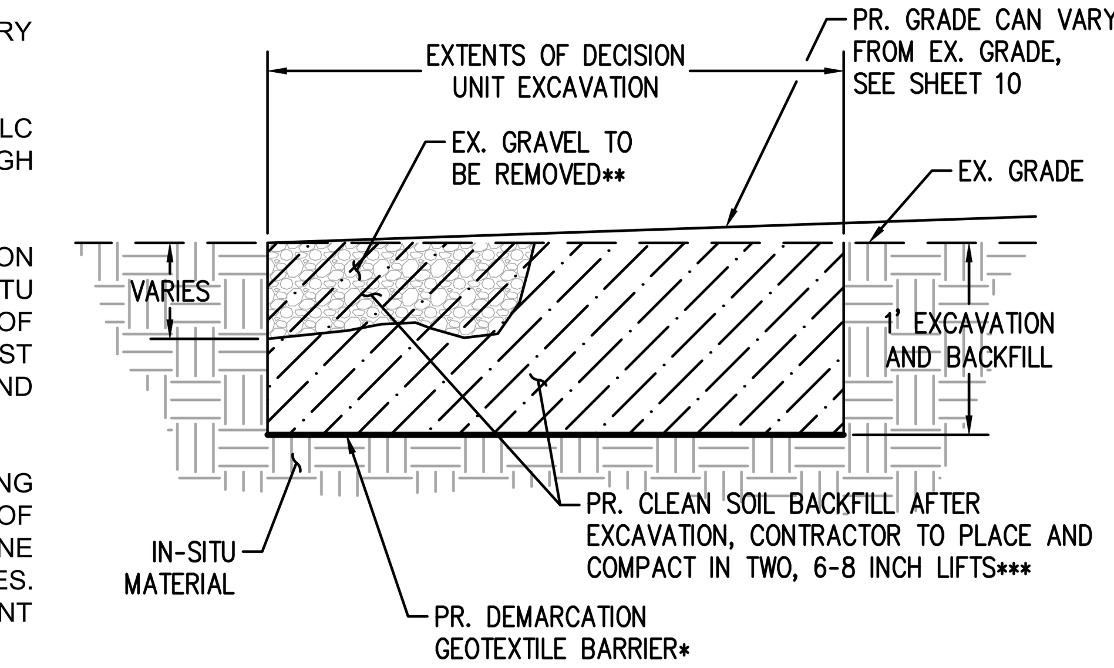
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING EDGE OF GRAVEL
- EXISTING BORING LOCATION
- (A1) DECISION UNIT ID
- EXISTING MONITORING WELL TO BE PROTECTED (SEE NOTE 7)
- AREA NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION
- PROPOSED REMEDIAL EXCAVATION AREA WITH NO STABILIZATION, (SEE DETAIL 1 THIS SHEET)
- PROPOSED REMEDIAL EXCAVATION AND STABILIZATION AREA, (SEE DETAIL 2 THIS SHEET)
- PROPOSED STABILIZATION AREA WITH NO EXCAVATION (EXCEEDS TCLP LEAD), (SEE DETAIL 3 THIS SHEET)
- PROPOSED SOIL TREATMENT TEST AREA (SEE NOTE 6)
- NO WORK ZONE (SEE NOTE 3)

NOTES:

1. EXISTING PROPERTY LINE, SITE FEATURES, AND GRADES SHOWN ARE BASED ON A TOPOGRAPHIC FIELD SURVEY COMPLETED BY ROBINSON ENGINEERING, LTD. BETWEEN 11/4/2022 AND 11/29/2022. TOPOGRAPHIC SURVEY CAD FILE RECEIVED BY ROBINSON ENGINEERING, LTD. ON 12/21/2022.
2. EXISTING OVERHEAD POWER LINE LOCATIONS SHOWN WERE APPROXIMATED BASED ON SURVEYED LOCATIONS OF EXISTING POWER POLES AND TRANSMISSION TOWERS.
3. NO EXCAVATION SHALL BE PERFORMED WITHIN THE NO WORK ZONES. THESE ZONES ARE LOCATED AT EXISTING ELECTRIC TRANSMISSION TOWERS, WHICH ARE OWNED AND MAINTAINED BY NORTHERN INDIANA PUBLIC SERVICE COMPANY (NIPSCO). PER NIPSCO REQUIREMENTS, CONTRACTOR SHALL MAINTAIN A DISTANCE OF AT LEAST 6' BACK FROM THE OUTERMOST POINT OF TOWER LEG/FOUNDATION WHEN EXCAVATING.
4. REMEDIAL EXCAVATION SHALL BE OFFSET A DISTANCE OF 1' FROM EXISTING FENCE LINES TO REMAIN, AND 4' FROM EDGE OF EXISTING POWER POLES, GUY WIRE ANCHORS, AND UTILITY STICKUPS TO REMAIN. CONTRACTOR SHALL BRACE POWER POLES AS NECESSARY DURING EXCAVATION.
5. EXISTING BORINGS SHOWN WERE COMPLETED BY VERDANTAS LLC (FORMERLY HULL & ASSOCIATES, LLC) ON 11/9/2020 THROUGH 11/17/2020.
6. REFER TO THE REMEDIAL EXCAVATION & BACKFILLING NOTES ON SHEET 2. PRIOR TO IMPLEMENTING FULL SCALE TREATMENT (IN-SITU STABILIZATION), CONTRACTOR SHALL TREAT AT LEAST 100 CY OF IMPACTED SOILS WITHIN THE PROPOSED SOIL TREATMENT TEST AREAS (DECISION UNITS B6, B9, E9) SHOWN ON THIS SHEET, AND DEMONSTRATE SUCCESSFUL TREATMENT.
7. CONTRACTOR SHALL PROTECT AND AVOID DISTURBANCE TO EXISTING MONITORING WELL "ECHA-MW-01" THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR SHALL MAINTAIN A 2'X2' NO WORK ZONE AROUND THIS MONITORING WELL DURING CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE FOR ANY REPAIR OR REPLACEMENT SHOULD THE WELL GET DAMAGED DURING CONSTRUCTION.
8. REFER TO SHEET 2 FOR NOTES REGARDING DECONTAMINATION.

DRAWING SCALE 1" = 80'



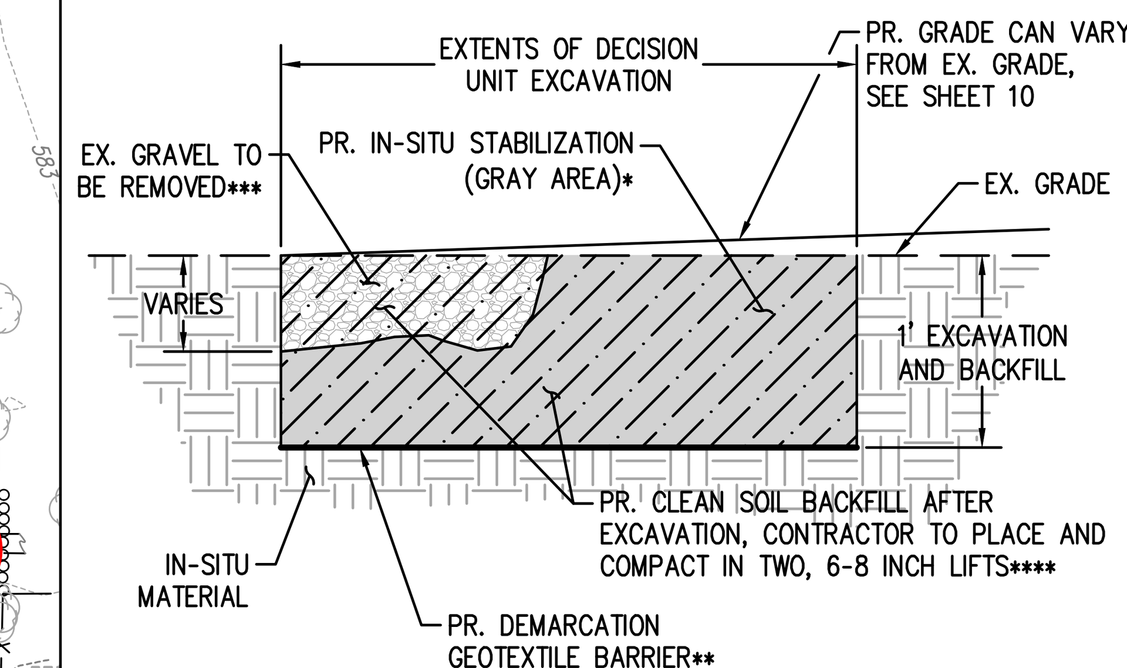


* DEMARCATION GEOTEXTILE BARRIER SHALL BE OF WOVEN MATERIAL ALLOWING FOR DRAINAGE TO UNDERLYING LAYERS.

** REFER TO DEMOLITION NOTES ON SHEET 2.

*** REFER TO REMEDIAL EXCAVATION & BACKFILLING NOTES ON SHEET 2.

1 REMEDIAL EXCAVATION - NO STABILIZATION
Scale: NTS



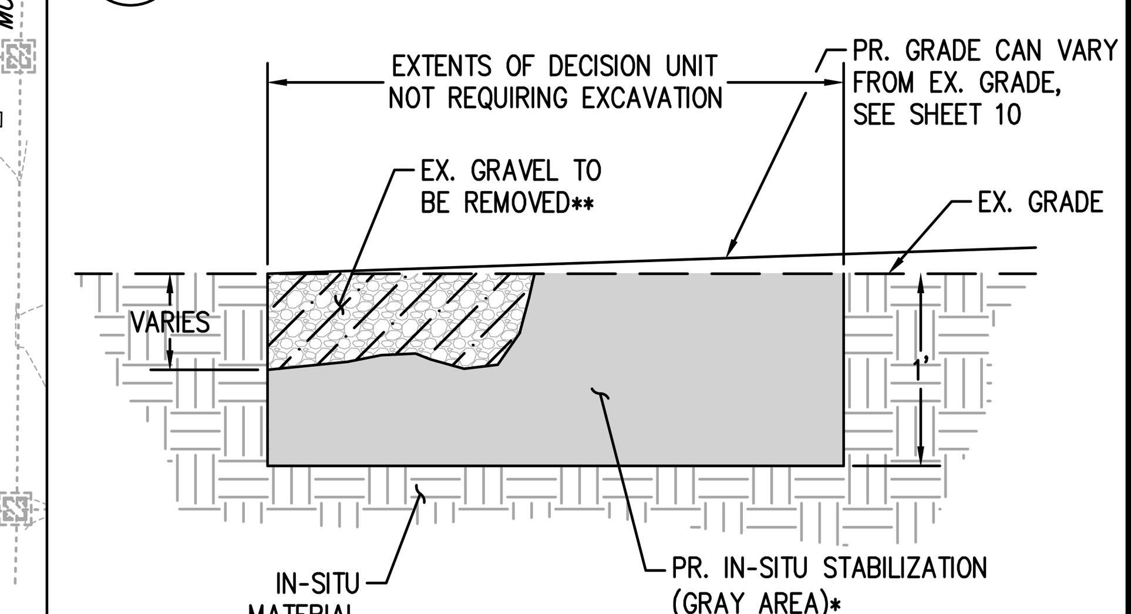
* GRAY SHADED AREA REPRESENTS EXISTING CONTAMINATED SOILS TO RECEIVE IN-SITU STABILIZATION PRIOR TO EXCAVATION.

** DEMARCATION GEOTEXTILE BARRIER SHALL BE OF WOVEN MATERIAL ALLOWING FOR DRAINAGE TO UNDERLYING LAYERS.

*** REFER TO DEMOLITION NOTES ON SHEET 2.

**** REFER TO REMEDIAL EXCAVATION & BACKFILLING NOTES ON SHEET 2.

2 REMEDIAL EXCAVATION - WITH STABILIZATION
Scale: NTS



* GRAY SHADED AREA REPRESENTS EXISTING CONTAMINATED SOILS TO RECEIVE IN-SITU STABILIZATION, THEN LEFT IN PLACE.

** FOLLOWING REMOVAL OF EXISTING GRAVEL AND IN-SITU STABILIZATION, CONTRACTOR TO BACKFILL VOID WITH CLEAN SOIL MATERIAL. BACKFILL SHALL BE PLACED AND COMPACTED IN TWO, 6-8 INCH LIFTS. REFER TO DEMOLITION NOTES, AND REMEDIAL EXCAVATION & BACKFILLING NOTES ON SHEET 2.

3 STABILIZATION - NO REMEDIAL EXCAVATION
Scale: NTS

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6397 EMERALD PKWY, SUITE 200
DUBLIN, OH 43016
TEL 614.793.8777
FAX 614.360.0023

MARK JOSEPH BONIFAS, REGISTERED No. PE10606047, STATE OF INDIANA, PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HGP/DBM	15773

No.	REVISION	DATE	CHK'D BY
1	ISSUED FOR CONSTRUCTION	4/5/23	

EAST CHICAGO, LAKE COUNTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

REMEDIATION PLAN B

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 9

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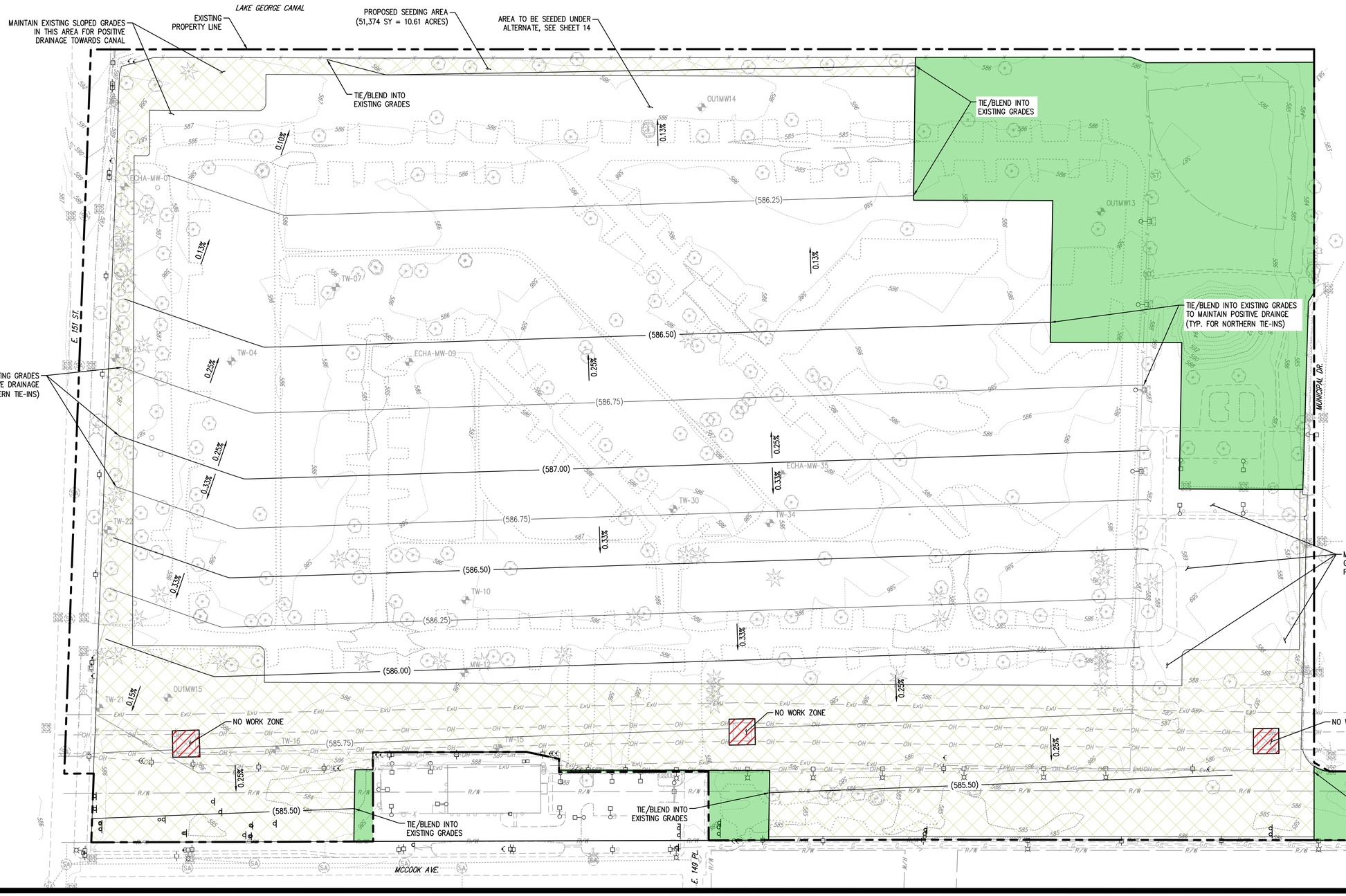
80' 0 80' 160'
DRAWING SCALE 1" = 80'

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- PROPOSED MAJOR CONTOUR (0.50' INTERVALS)
- PROPOSED MINOR CONTOUR (0.25' INTERVALS)
- PROPOSED SEEDING AREA
- NO GRADING OR SEEDING WITHIN AREAS NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION
- NO WORK ZONE

NOTES:

1. EXISTING PROPERTY LINE, SITE FEATURES, AND GRADES SHOWN ARE BASED ON A TOPOGRAPHIC SURVEY COMPLETED BY ROBINSON ENGINEERING, LTD. BETWEEN 11/4/2022 AND 11/29/2022.
2. CONTRACTOR SHALL FIELD ADJUST/BLEND PROPOSED GRADES AS NEEDED TO PROVIDE PROPER TIE-IN TO EXISTING GRADES, AND TO PROMOTE POSITIVE DRAINAGE THROUGHOUT THE SITE.
3. THE LIMITS OF PROPOSED SEEDING SHOWN IS BASED ON AREAS NOT REQUIRING REMEDIAL EXCAVATION OR STABILIZATION, AS WELL AS THE APPROXIMATE LOCATION OF FUTURE DEVELOPMENT OF THE PROPERTY, WHICH DOES NOT REQUIRE SEEDING. SEE SHEET 12 FOR PROPOSED SEED MIXES.
4. REFER TO ALTERNATE PLAN ON SHEET 14.



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MARK JOSEPH BANAS
REGISTERED
No. 10606047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY	DATE
1	ISSUED FOR CONSTRUCTION		4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

GRADING & SEEDING PLAN

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 10

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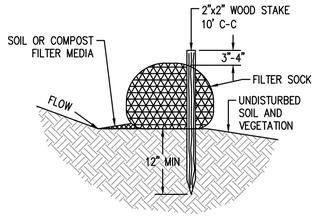


MAXIMUM SLOPE LENGTHS AND RECOMMENDED FILTER SOCK DIAMETER					
SLOPE	8"	12"	18"	24"	32"
0% - 2%	125'	250'	300'	350'	400'
2% - 10%	100'	125'	200'	250'	300'
10% - 20%	75'	100'	150'	200'	250'
20% - 33%	25'	50'	75'	100'	125'
>33%	10'	25'	50'	75'	100'

GENERAL NOTES

1. INSTALL AND SIZE FILTER SOCKS IN ACCORDANCE WITH THE RECOMMENDATIONS OF CHAPTER 7 OF THE INDIANA STORM WATER QUALITY MANUAL BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
2. MATERIALS - COMPOST USED FOR FILTER SOCKS SHALL BE WEED, PATHOGEN, AND INSECT FREE AND FREE OF ANY REFUSE, CONTAMINANTS, OR OTHER MATERIALS TOXIC TO PLANT GROWTH. THEY SHALL BE DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER AND CONSIST OF PARTICLES RANGING FROM ¼" TO 2".
3. FILTER SOCKS SHALL BE 3 TO 5 MIL CONTINUOUS, TUBULAR, HDPE ¾" KNITTED MESH NETTING MATERIAL, FILLED WITH COMPOST PASSING THE ABOVE SPECIFICATIONS FOR COMPOST MATERIAL,

INSTALLATION

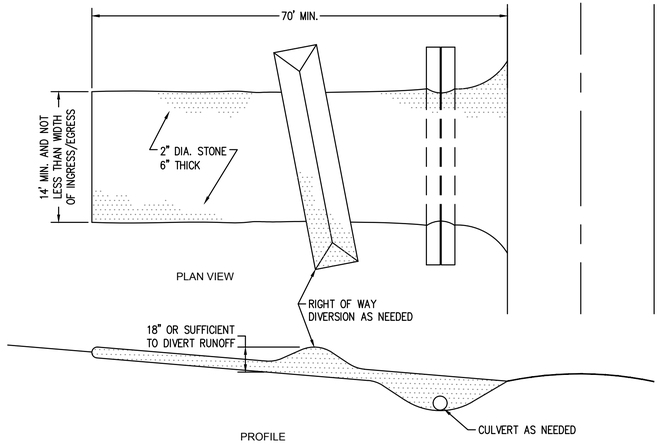
1. FILTER SOCKS SHALL BE PLACED ON A LEVEL LINE, GENERALLY PARALLEL TO THE BASE OF THE SLOPE OR OTHER AFFECTED AREA. ON SLOPES APPROACHING 2:1, ADDITIONAL SOCKS SHALL BE PROVIDED AT THE TOP AND AS NEEDED MID-SLOPE, END SHALL BE WINGED UPSLOPE FOR A MINIMUM OF 4 FEET TO PREVENT CIRCUMVENTION.
2. FILTER SOCKS INTENDED TO BE LEFT AS A PERMANENT FILTER OR PART OF THE NATURAL LANDSCAPE SHALL BE SEEDED AT THE TIME OF INSTALLATION FOR ESTABLISHMENT OF PERMANENT VEGETATION.
3. WOODEN STAKES MAY BE PLACED EITHER FILTER SOCKS OR ON THE DOWNHILL SIDE OF FILTER SOCKS, CONTRACTOR TO ENSURE STABILITY WITH ENTER PLACEMENT.

MAINTENANCE

1. ROUTINELY INSPECT FILTER SOCKS AFTER EACH SIGNIFICANT RAIN, MAINTAINING FILTER SOCKS IN A FUNCTIONAL CONDITION AT ALL TIMES.
2. REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE FILTER SOCK WHEN THEY REACH ½ OF THE EXPOSED HEIGHT OF THE CONTROL.
3. WHERE THE FILTER SOCK DETERIORATES OR FAILS, IT SHALL BE REPAIRED OR REPLACED WITH A MORE EFFECTIVE ALTERNATIVE.
4. FILTER SOCKS SHALL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED IN SUCH A WAY AS TO FACILITATE AND NOT OBSTRUCT SEEDINGS.

FS FILTER SOCK DETAIL

Scale: NTS

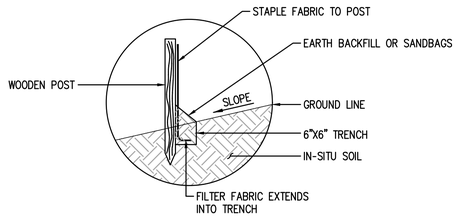


NOTES:

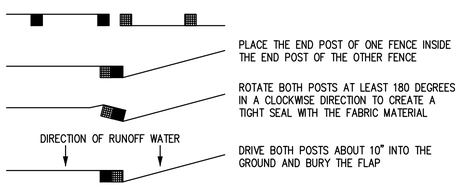
1. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION SITE SHALL BE RESTRICTED FROM MUDDY AREAS.
2. MAINTENANCE - TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVED IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
3. BEDDING - A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LBS., AND A MULLEN BURST STRENGTH OF AT LEAST 190 LBS.

CE CONSTRUCTION ENTRANCE

Scale: NTS



SLOPE CHECK



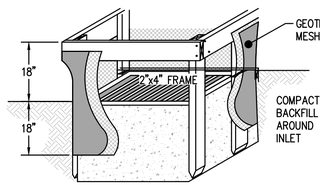
ATTACHING TWO SILT FENCES

SILT FENCE NOTES:

1. SILT FENCE TO BE INSTALLED PARALLEL TO SLOPE.
2. USE SILT FENCE AS NEEDED TO PREVENT THE TRANSPORT OF SEDIMENT-LADEN WATER.

SF SILT FENCE DETAIL

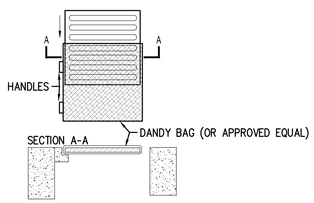
Scale: NTS



1. INSTALL IN ACCORDANCE WITH THE RECOMMENDATIONS OF CHAPTER 7 OF THE INDIANA STORM WATER QUALITY MANUAL BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.
2. INLET PROTECTION SHALL BE CONSTRUCTED EITHER BEFORE UPSLOPE LAND DISTURBANCE BEGINS OR BEFORE THE INLET BECOMES FUNCTIONAL.
3. THE EARTH AROUND THE INLET SHALL BE EXCAVATED COMPLETELY TO A DEPTH AT LEAST 18 INCHES.
4. THE WOODEN FRAME SHALL BE CONSTRUCTED OF 2-INCH BY 4-INCH CONSTRUCTION GRADE LUMBER. THE 2-INCH BY 4-INCH POSTS SHALL BE DRIVEN ONE (1) FT. INTO THE GROUND AT FOUR CORNERS OF THE INLET AND THE TOP PORTION OF 2-INCH BY 4-INCH FRAME ASSEMBLED USING THE OVERLAP JOINT SHOWN. THE TOP OF THE FRAME SHALL BE AT LEAST 6 INCHES BELOW ADJACENT ROADS IF PONDED WATER WILL POSE A SAFETY HAZARD TO TRAFFIC.
5. WIRE MESH SHALL BE OF SUFFICIENT STRENGTH TO SUPPORT FABRIC WITH WATER FULLY IMPOUNDED AGAINST IT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY TO THE FRAME.
6. GEOTEXTILE MATERIAL SHALL HAVE AN EQUIVALENT OPENING SIZE OF 20-40 SIEVE AND BE RESISTANT TO SUNLIGHT. IT SHALL BE STRETCHED TIGHTLY AROUND THE FRAME AND FASTENED SECURELY. IT SHALL EXTEND FROM THE TOP OF THE FRAME TO 18 INCHES BELOW THE INLET NOTCH ELEVATION. THE GEOTEXTILE SHALL OVERLAP ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.
7. BACKFILL SHALL BE PLACED AROUND THE INLET IN COMPACTED 6-INCH LAYERS UNTIL THE EARTH IS EVEN WITH NOTCH ELEVATION ON ENDS AND TOP ELEVATION ON SIDES.
8. A COMPACTED EARTH DIKE OR CHECK DAM SHALL BE CONSTRUCTED IN THE DITCH LINE BELOW THE INLET IF THE INLET IS NOT IN A DEPRESSION. THE TOP OF THE DIKE SHALL BE AT LEAST 6 INCHES HIGHER THAN THE TOP OF THE FRAME.

GP GEOTEXTILE INLET PROTECTION

Scale: NTS



INSPECTION:

1. REMOVE THE UNIT WITH GRATE INSIDE BAG USING HANDLES, INSPECT CATCH BASIN OR MANHOLE AND REPLACE.

MAINTENANCE:

1. REMOVE DRIED SEDIMENT FROM SURFACE OF UNIT AS NEEDED WITH STIFF BROOM OR SQUARE POINT SHOVEL. REMOVE FINE MATERIAL FROM INSIDE ENVELOPE AS NEEDED.

DB DANDY BAG INLET PROTECTION

Scale: NTS

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MARK JOSEPH BANAS
REGISTERED
No. PE10606047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY DATE
1	ISSUED FOR CONSTRUCTION	4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

EROSION & SEDIMENT CONTROL DETAILS

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 11

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PROJECT DATA

PROJECT DESCRIPTION:	SOILS REMEDIATION, IN-SITU STABILIZATION, AND EXCAVATION, SITE DEMOLITION, FENCE CONSTRUCTION, AND GRADING.
PROJECT DISTURBED AREA:	42.39 ACRES
SITE LOCATION:	USS LEAD SUPERFUND SITE KNOWN AS MODIFIED ZONE 1 CITY OF EAST CHICAGO LAKE COUNTY, INDIANA
SOIL DATA:	URBAN LAND & OAKVILLE-ADRIAN COMPLEX (USDA WEB SOIL SURVEY), AND VARIOUS TYPES OF FILL
IMMEDIATE RECEIVING WATERS:	OFF-SITE STORM SEWERS
SUBSEQUENT RECEIVING WATERS:	LAKE GEORGE CANAL, LAKE MICHIGAN
PRIOR LAND USE:	COMMERICAL / RESIDENTIAL

THERE WILL BE A DECREASE IN THE PERCENT IMPERVIOUSNESS OF THE SITE AT COMPLETION OF THE PROJECT.

A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN PREPARED BY VERDANTAS LLC FOR THIS PROJECT. THE SWPPP AND GENERAL PERMIT SHALL GOVERN THE WORK WHICH IS THE RESPONSIBILITY OF THE CONTRACTOR. THE SWPPP SHALL GOVERN FOR ANY DISCREPANCY BETWEEN IT AND EROSION & SEDIMENT CONTROLS DESCRIBED IN THESE PLANS.

BMP SELECTION FOR PROJECT IMPROVEMENTS
BMP TREATMENTS FOR THE PROJECT AREA CONSIST OF FILTER SOCKS, SILT FENCE, AND INLET PROTECTION.

GENERAL EROSION AND SEDIMENT CONTROL NOTES
EROSION CONTROL SHALL CONSIST OF TEMPORARY CONTROL MEASURES AS DETAILED ON THE PLANS OR ORDERED BY THE CITY OF EAST CHICAGO DURING THE TERM OF CONSTRUCTION TO CONTROL SOIL EROSION AND SEDIMENTATION THROUGH THE USE OF EROSION CONTROL BEST MANAGEMENT PRACTICES (BMP'S).

TEMPORARY EROSION AND SEDIMENT CONTROL ITEMS, THE LOCATION AND SIZE OF WHICH ARE DETAILED ON THE PLANS, SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY CLEARING OR DEMOLITION OPERATIONS. CONDITIONS THAT DEVELOP DURING CONSTRUCTION THAT WERE NOT FORESEEN DURING DESIGN STAGE, THAT REQUIRE ADDITIONAL OR MODIFIED TEMPORARY OR PERMANENT BMP'S SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE OR SUPERVISING CONTRACTOR.

PERIMETER SEDIMENT CONTROLS, SHALL BE IMPLEMENTED PRIOR TO GRADING AND WITHIN 7 DAYS FROM THE START OF GRUBBING. THEY SHALL CONTINUE TO FUNCTION UNTIL THE UP SLOPE DEVELOPMENT AREAS ARE RE-ESTABLISHED WITH VEGETATION.

SEDIMENT LADEN WATER SHALL NOT BE DISCHARGED TO STREAMS, WATER RESOURCES, OR THE STORM SEWER SYSTEM.

ADDITIONAL EROSION AND SEDIMENT CONTROL BMP'S MAY BE REQUIRED BY THE CITY OF EAST CHICAGO AS UNFORSEEN SITUATIONS MAY ARISE THAT REQUIRE ADDITIONAL EROSION AND SEDIMENT CONTROL PRACTICES.

CLEARING AND GRUBBING
LIMITS OF DISTURBANCE FOR CLEARING AND GRADING SHALL BE CLEARLY MARKED ON THE SITE BY THE CONTRACTOR WITH SIGNAGE, FLAGGING AND/OR ORANGE CONSTRUCTION FENCING.

THE CONTRACTOR SHALL LIMIT THE SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY EXCAVATION, BORROW AND FILL OPERATIONS AND PROVIDE IMMEDIATE PERMANENT OR TEMPORARY CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT STREAMS, WATER RESOURCES, WETLANDS, OR OTHER AREAS OF WATER IMPOUNDMENT.

STABILIZATION
PERMANENT AND TEMPORARY STABILIZATION SHALL OCCUR AS REQUIRED IN THE FOLLOWING TABLES:

TABLE 1: PERMANENT STABILIZATION

PERMANENT STABILIZATION	
AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROL
ANY AREA THAT WILL LIE DORMANT FOR ONE YEAR OR MORE	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE
ANY AREA WITHIN 50 FT. OF A STREAM AND AT FINAL GRADE	WITHIN 2 DAYS OF REACHING FINAL GRADE
ANY OTHER AREAS AT FINAL GRADE	WITHIN 7 DAYS OF REACHING FINAL GRADE WITHIN THAT AREA

TEMPORARY SEEDING
SEEDED AREAS SHALL BE INSPECTED AND WHERE THE SEED HAS NOT PRODUCED 70% COVER SHALL BE RESEEDED BY THE CONTRACTOR. AREAS SHALL BE STABILIZED WITH STRAW MULCH WHEN CONDITIONS PROHIBIT SEEDING.

STRAW MULCH SHALL BE APPLIED AT A RATE OF 2-3 STANDARD 45 LB. BALES PER 1000 SQ. FT. OF DISTURBED AREA OR 2 TONS PER ACRE. ALL HYDROSEEDING MUST BE STRAW MULCHED ACCORDING TO THE ABOVE SPECIFICATIONS UNLESS IT IS WATERED WEEKLY.

ALL DETENTION PONDS, RETENTION PONDS, WATER QUALITY STRUCTURES, SEDIMENT PONDS, SEDIMENT TRAPS, EARTHEN DIVERSIONS, OR EMBANKMENTS SHALL BE SEEDED AND STRAW MULCHED WITHIN 7 DAYS OF COMPLETED CONSTRUCTION.

TABLE 2: TEMPORARY STABILIZATION

TEMPORARY STABILIZATION	
AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROL
ANY DISTURBED AREAS WITHIN 50 FEET OF A STREAM AND NOT AT FINAL GRADE	WITHIN 2 DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS
FOR ALL CONSTRUCTION ACTIVITIES, ANY DISTURBED AREA, INCLUDING SOIL STOCKPILES THAT WILL BE DORMANT FOR MORE THAN 21 DAYS BUT LESS THAN 1 YEAR, AND NOT WITHIN 50 FEET OF A STREAM	WITHIN 7 DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA
DISTURBED AREAS THAT WILL REMAIN IDLE OVER WINTER	PRIOR TO THE ONSET OF WINTER WEATHER (NOV. 1) STRAW MULCH 2-3 BALES PER 1000 SQ. FT. OR 2 TONS PER ACRE

SEEDING AND MULCHING
SEDIMENT CONTROL SHALL BE ACCOMPLISHED BY SEEDING AND MULCHING UPON COMPLETION OF EXCAVATION OR FILL AND ALL DISTURBED AREAS IN ACCORDANCE WITH THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) STANDARD SPECIFICATIONS 2022 OR AS DIRECTED BY THE SUPERVISING CONTRACTOR. THE FOLLOWING MIXTURES SHALL BE USED FOR SEEDING:

TEMPORARY SEED MIX:	SECTION 205.04, SPRING MIX (IF CONSTRUCTION JANUARY 1 - JUNE 15) SECTION 205.04, FALL MIX (IF CONSTRUCTION SEPTEMBER 1 - DECEMBER 31) SECTION 205.04, MULCH TYPE A ONLY (IF CONSTRUCTION JUNE 16 - AUGUST 31)
PERMANENT SEED MIX:	SECTION 621.06, SEED MIXTURE R

PERMANENT STABILIZATION OF CONVEYANCE CHANNELS
THE CONTRACTOR SHALL UNDERTAKE SPECIAL MEASURES TO STABILIZE CHANNELS AND OUTFALLS AND PREVENT EROSIVE FLOWS. MEASURES MAY INCLUDE SEEDING, DORMANT SEEDING, MULCHING, EROSION CONTROL MATTING, SODDING, RIPRAP, NATURAL CHANNEL DESIGN WITH BIO-ENGINEERING TECHNIQUES, OR ROCK CHECK DAMS, ALL AS DEFINED IN THE MOST RECENT EDITION OF THE INDIANA STORM WATER QUALITY MANUAL PUBLISHED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.

SOIL TRANSPORT ONTO PUBLIC ROADS
WHERE SOIL IS TRANSPORTED ONTO PUBLIC ROAD SURFACES, THE ROADS SHALL BE CLEANED THOROUGHLY BY EITHER SWEEPING OR SCRAPING AT THE END OF EACH WORK DAY OR MORE FREQUENTLY IF NEEDED IN ORDER TO ENSURE PUBLIC SAFETY. STREET WASHING IS NOT PERMITTED. IF APPLICABLE, THE CATCH BASINS NEAREST TO ANY SITE WORK SHALL BE CLEANED WEEKLY.

ADDITIONAL REQUIREMENTS TO CONTROL SOIL TRANSPORT ONTO PUBLIC ROADS MAY INCLUDE:
1. COMPOST FILTER SOCK, SILT FENCE OR CONSTRUCTION FENCE INSTALLED AROUND THE PERIMETER OF THE DEVELOPMENT AREA TO ENSURE ALL VEHICLE TRAFFIC ADHERES TO DESIGNATED CONSTRUCTION ENTRANCES.

CREDIBLE MATERIAL RAMPS IN STREETS TO ENABLE EQUIPMENT TO CROSS CURBS SHALL BE PROPERLY REMOVED IMMEDIATELY AFTER USE.

COMPOST FILTER SOCK, SILT FENCE AND DIVERSIONS
SHEET FLOW RUNOFF FROM DENUDED AREAS SHALL BE INTERCEPTED BY COMPOST FILTER SOCK, SILT FENCE OR DIVERSIONS TO PROTECT ADJACENT PROPERTIES, WATER RESOURCES, AND WETLANDS FROM SEDIMENT TRANSPORTED VIA SHEET FLOW. WHERE INTENDED TO PROVIDE SEDIMENT CONTROL, COMPOST FILTER SOCK/SILT FENCE SHALL BE PLACED ON A LEVEL CONTOUR AND SHALL BE CAPABLE OF TEMPORARILY PONDING RUNOFF.

INLET PROTECTION
INLET PROTECTION IS MANDATORY. INLET PROTECTION SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT VERSION OF THE INDIANA STORM WATER QUALITY MANUAL BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT. STRAW OR HAY BALES ARE NOT ACCEPTABLE FORMS OF INLET PROTECTION.

NON-SEDIMENT POLLUTANTS CONTROLS
NO SOLID OR LIQUID WASTE, INCLUDING BUILDING MATERIALS, SHALL BE DISCHARGED IN STORM WATER RUNOFF. ALL NECESSARY BMP'S MUST BE IMPLEMENTED TO PREVENT THE DISCHARGE OF NON-SEDIMENT POLLUTANTS TO THE DRAINAGE SYSTEM OF THE SITE, WATER RESOURCES, OR WETLANDS. UNDER NO CIRCUMSTANCE SHALL CONCRETE TRUCKS WASH OUT DIRECTLY INTO A DRAINAGE CHANNEL, STREET, STORM SEWER, OR OTHER PUBLIC FACILITY OR NATURAL RESOURCE. EXPOSURE OF WASTE MATERIALS TO STORM WATER IS NOT RECOMMENDED.

TRENCH AND GROUNDWATER CONTROL
THERE SHALL BE NO SEDIMENT LADEN OR TURBID DISCHARGES TO WATER RESOURCES OR WETLANDS RESULTING FROM DEWATERING ACTIVITIES. IF TRENCH OR GROUND WATER CONTAINS SEDIMENT, IT MUST PASS THROUGH A SEDIMENT SETTLING POND OR OTHER EQUALLY EFFECTIVE SEDIMENT CONTROL DEVICE PRIOR TO BEING DISCHARGED FROM THE CONSTRUCTION SITE. ALTERNATIVELY, SEDIMENT MAY BE REMOVED BE SETTLING IN PLACE OR BY DEWATERING INTO A SUMP PIT, FILTER BAG, OR COMPARABLE PRACTICE. GROUND WATER DEWATERING WHICH DOES NOT CONTAIN SEDIMENT OR OTHER POLLUTANTS IS NOT REQUIRED TO BE TREATED PRIOR TO DISCHARGE. HOWEVER, CARE MUST BE TAKEN WHEN DISCHARGING GROUND WATER TO ENSURE THAT IT DOES NOT BECOME POLLUTANT LADEN BY TRAVERSING OVER DISTURBED SOILS OR OTHER POLLUTANT SOURCES.

INSPECTION
ALL CONTROLS ON THE SITE SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN ONE-HALF INCH OF RAIN PER 24 HOUR PERIOD. THE CONTRACTOR SHALL ASSIGN QUALIFIED INSPECTION PERSONNEL TO CONDUCT THESE INSPECTIONS TO ENSURE THAT THE CONTROL PRACTICES ARE FUNCTIONAL AND TO EVALUATE WHETHER THE SWP3 IS ADEQUATE, OR WHETHER ADDITIONAL CONTROL MEASURES ARE REQUIRED. QUALIFIED INSPECTION PERSONNEL ARE INDIVIDUALS WITH KNOWLEDGE AND EXPERIENCE IN THE INSTALLATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROLS.

INSPECTIONS SHALL MEET THE FOLLOWING REQUIREMENTS:
1. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM.

2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. THE CONTRACTOR SHALL UTILIZE AN INSPECTION FORM TO DOCUMENT INSPECTIONS. THE INSPECTION FORM SHALL INCLUDE:

   a. THE INSPECTION DATE.
   b. NAMES, TITLES AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION.
   c. WEATHER INFORMATION FOR THE PERIOD SINCE THE LAST INSPECTION, INCLUDING A BEST ESTIMATE OF THE BEGINNING OF EACH STORM EVENT, DURATION OF EACH STORM EVENT AND APPROXIMATE AMOUNT OF RAINFALL FOR EACH STORM EVENT IN INCHES, AND WHETHER ANY DISCHARGES OCCURRED.
   d. LOCATIONS OF:
   - DISCHARGES FROM SEDIMENT OR OTHER POLLUTANTS FROM THE SITE.
   - BMP'S THAT NEED TO BE MAINTAINED.
   - BMP'S THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION.
   - WHERE ADDITIONAL BMP'S ARE NEEDED THAT DID NOT EXIST AT THE TIME OF THE INSPECTION.

3. DISCHARGE LOCATIONS SHALL BE INSPECTED TO DETERMINE WHETHER EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO THE RECEIVING WATER RESOURCE OR WETLANDS.

4. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF-SITE VEHICLE TRACKING.

MAINTENANCE
ALL CONTROL PRACTICES SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION UNTIL FINAL STABILIZATION. ALL SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED IN A FUNCTIONAL CONDITION UNTIL ALL UP SLOPE AREAS THEY CONTROL REACH FINAL STABILIZATION. THE CONTRACTOR SHALL COMPLY WITH THE MAINTENANCE SCHEDULE CONTAINED IN THE APPROVED PLANS FOR THE PROPOSED EROSION CONTROLS.

WHEN INSPECTIONS REVEAL THE NEED FOR REPAIR, REPLACEMENT, OR INSTALLATION OF EROSION AND SEDIMENT CONTROL BMP'S, THE FOLLOWING PROCEDURES SHALL BE FOLLOWED:

1. WHEN PRACTICES REQUIRE REPAIR OR MAINTENANCE: CONTROL PRACTICES IN NEED OF REPAIR OR MAINTENANCE, MUST BE REPAIRED OR MAINTAINED WITHIN 3 DAYS OF THE INSPECTION.

2. WHEN PRACTICES FAIL TO PROVIDE THEIR INTENDED FUNCTION: CONTROL PRACTICES THAT FAIL TO PERFORM THEIR INTENDED FUNCTION SHALL BE REPLACED WITH ANOTHER MORE APPROPRIATE CONTROL WITHIN 10 DAYS.

WASTE DISPOSAL
A COVERED DUMPSTER SHALL BE MADE AVAILABLE FOR THE PROPER DISPOSAL OF GARBAGE, PLASTER, DRYWALL, GROUT, GYPSUM, AND OTHER WASTE MATERIALS. ALL CONTAINERS MUST BE LEAK PROOF. ALL WASTE MATERIALS INCLUDING TOXIC OR HAZARDOUS WASTE SHALL BE DISPOSED OF AT FACILITIES APPROVED FOR THE PERTINENT MATERIAL.

CONSTRUCTION AND DEMOLITION DEBRIS (C&DD)
ALL C&DD SHALL BE DISPOSED OF IN AN EPA APPROVED C&DD LANDFILL. MATERIALS WHICH CONTAIN ASBESTOS MUST COMPLY WITH STATE AIR POLLUTION REGULATIONS.

OPEN BURNING
OPEN BURNING IS NOT PERMITTED.

DUST CONTROLS AND SUPPRESSANTS
DUST CONTROL SHALL BE INTEGRATED THROUGHOUT THE PROJECT. USED OIL SHALL NOT BE USED AS A DUST SUPPRESSANT. DUST CONTROLS MAY INCLUDE THE USE OF WATER TRUCKS TO WET DISTURBED AREAS, TARPING STOCKPILES, TEMPORARY STABILIZATION OF DISTURBED AREAS, AND REGULATION OF THE SPEED OF VEHICLES ON THE SITE.

PERMITS
THIS SITE IS COVERED UNDER INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT CONSTRUCTION STORMWATER GENERAL PERMIT (INRA00000).

STRUCTURAL BMP'S
PERMANENT BMP'S FOR POST CONSTRUCTION TREATMENT OF STORM WATER (CONVERSION OF SEDIMENT LAND TO STORM WATER POND) SHALL NOT BE INSTALLED UNTIL 70% OF THE DISTURBED AREA IS STABILIZED.

SWPPP FORMS AND LOGS
SWPPP FORMS AND LOGS TO BE COMPLETED AND MAINTAINED BY THE CONTRACTOR AS PART OF THE SWPPP (PREPARED BY VERDANTAS LLC), AND PROVIDED IN THE ACCOMPANYING CONTRACT DOCUMENTS. THESE FORMS AND LOGS CONSIST OF THE FOLLOWING:

1. STORM WATER CONSTRUCTION SITE INSPECTION REPORT
2. CORRECTIVE ACTION LOG
3. GRADING AND STABILIZATION ACTIVITIES LOG

ALL ADDITIONAL FORMS, REPORTS, LOGS, ETC. AS MAY BE REQUIRED TO COMPLY WITH THE SWPPP ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

verdantas
PEOPLE FOCUSED FUTURE
6397 EMERALD PKWY, SUITE 200
DUBLIN, OH 43016
TEL 614.793.8777
FAX 614.360.0023

MARK JOSEPH BANAS
REGISTERED
No. PE10606047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY	DATE
1	ISSUED FOR CONSTRUCTION		4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

EROSION & SEDIMENT CONTROL NOTES

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 12

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LEGEND

EXISTING PROPERTY LINE

PROPOSED SITE TRAFFIC FLOW ARROW

NOTES:

1. EXISTING PROPERTY LINE AND SITE FEATURES SHOWN ARE BASED ON A TOPOGRAPHIC SURVEY COMPLETED BY ROBINSON ENGINEERING, LTD. BETWEEN 11/4/2022 AND 11/29/2022. TOPOGRAPHIC SURVEY CAD FILE RECEIVED BY ROBINSON ENGINEERING, LTD. ON 12/21/2022.
2. EXISTING AERIAL IMAGERY SHOWN CONSISTS OF A 0.22 METER RESOLUTION, PROCESSED AND RETRIEVED FROM SKYWATCH ONLINE DATABASE ON 12/16/2022. AERIAL IMAGERY CAPTURED ON 11/23/2022.
3. THIS SITE TRAFFIC PLAN IS FOR PLANNING PURPOSES ONLY. HOWEVER, CONTRACTOR SHALL ONLY UTILIZE EXISTING ENTRANCE FROM E. 151 ST. FOR SITE INGRESS AND EGRESS. CONTRACTOR MAY CHOOSE TO MODIFY THIS PLAN BASED ON SEQUENCE AND/OR METHODS OF CONSTRUCTION ACTIVITIES AFTER SUBMITTAL TO THE SUPERVISING CONTRACTOR FOR APPROVAL.
4. ALL NON-DEDICATED SAMPLING EQUIPMENT THAT HAS, OR WILL, COME INTO CONTACT WITH THE ENVIRONMENTAL MEDIA WILL BE DECONTAMINATED IN ACCORDANCE WITH VERDANTAS SOP NO. VDTSGLK.SOP.F1000.
5. CONTRACTOR SHALL INSTALL EITHER A TRUCK WHEEL WASH, RUMBLE PADS/STRIPS, OR BOTH, TO REMOVE LOOSE DIRT/DEBRIS FROM TRUCK WHEELS TO MINIMIZE OFF-SITE TRACKING ONTO PUBLIC ROADWAYS.
6. CONTRACTOR MAY USE APPROVED CLEAN NATURAL GRAVEL OR QUARRIED CRUSHED AGGREGATE MATERIALS TO IMPROVE HAUL ROADS AND ACCESS THROUGHOUT THE SITE, IF NEEDED.

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FAX 614.360.0023

MARK JOSEPH BANTA
REGISTERED
No. PE10606047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY DATE
1	ISSUED FOR CONSTRUCTION	4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

SITE TRAFFIC PLAN

APPLICATION NO.

DATE: 4/5/2023

SCALE: AS NOTED

SHEET: 13

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80′ 0 80′ 160′
DRAWING SCALE 1" = 80′

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING PROPERTY LINE
- EXISTING FENCE
- PROPOSED FENCE REMOVAL
- EXISTING DECIDUOUS TREE (DO NOT DISTURB)
- EXISTING DECIDUOUS TREE (TO BE CLEARED)
- A1 DECISION UNIT ID
- NO WORK ZONE
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- PROPOSED PAVEMENT REMOVAL
- PROPOSED SEEDING AREA

DND = DO NOT DISTURB
TBR = TO BE REMOVED

NOTES:

1. THIS ALTERNATE PLAN INCLUDES AN ALTERNATE SITE CLEARING AND DEMOLITION AREA (DECISION UNITS A1, A2, A3, B1, B2, AND C1), WHICH IS NOT INCLUDED WITHIN THE BASE BID PROJECT AREA. REFER TO THE BASE BID SITE CLEARING PLAN AND NOTES ON SHEET 6, AND THE BASE BID DEMOLITION PLAN AND NOTES ON SHEET 7.
2. THIS ALTERNATE PLAN INCLUDES AN ALTERNATE SEEDING AREA, WHICH REPRESENTS SEEDING NOT INCLUDED IN THE BASE BID PROJECT AREA. REFER TO THE BASE BID GRADING & SEEDING PLAN AND NOTES ON SHEET 10.

LAKE GEORGE CANAL
EXISTING PROPERTY LINE
EXISTING CHAIN LINK FENCE, TBR (≈428 LF)
EXISTING CHAIN LINK FENCE, TBR (≈866 LF)
EXISTING TREE, DND
EXISTING TREE, TBR (TYP.)
EXISTING POSTS, DND
EXISTING TREE, DND
EXISTING CONCRETE SIDEWALK, TBR
EXISTING WATER MANHOLE, DND
EXISTING ASPHALT SIDEWALK, TBR
EXISTING LIGHT POLES AND ELECTRIC BOXES, TBR
EXISTING STORM SEWER AND ASSOCIATED STRUCTURES, DND (TYP.)
EXISTING POSTS WITHIN PAVEMENT REMOVAL AREA, TBR (TYP.)
EXISTING LIGHT POLE, DND
EXISTING ASPHALT PAVEMENT, TBR
EXISTING LIGHT POLES, TBR
EXISTING STORM MANHOLE, DND
EXISTING TWO ABANDONDED CATCH BASINS WITHIN PAVEMENT AREA, TBR DURING PAVEMENT DEMOLITION, STORM PIPES TO BE LEFT IN PLACE
PROPOSED SEEDING AREA (153,783 SY = 31.77 ACRES)
NO WORK ZONE
NO WORK ZONE
NO WORK ZONE
EXISTING PROPERTY LINE
E. 151 ST.
E. 149 PL.
E. 148 ST.
MUNICIPAL DR.
MCCOOK AVE.
ECHA-MW-01
ECHA-MW-09
ECHA-MW-35
OU1MW14
OU1MW13
OU1MW15
OU1MW6
TW-01
TW-04
TW-10
TW-12
TW-15
TW-16
TW-21
TW-22
TW-23
TW-30
TW-34

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MARK JOSEPH BANTA
REGISTERED
No. 10606047
STATE OF INDIANA
PROFESSIONAL ENGINEER

DATE: 4/5/23

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT NO.
JRS	JRS	HQP/DBM	15773

No.	REVISION	CHK'D BY	DATE
1	ISSUED FOR CONSTRUCTION		4/5/23

EAST CHICAGO, LAKE COUTY, IN
USS LEAD SUPERFUND SITE
OU1 MODIFIED ZONE 1
REMEDIATION PROJECT

ALTERNATE PLAN

APPLICATION NO.
DATE: 4/5/2023
SCALE: AS NOTED
SHEET: 14

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TECHNICAL SPECIFICATIONS

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Contract Description.
B. Work by Project Property Owner.
C. Project Property Owner supplied Products.
D. Subcontractor use of site.
E. Future Work.
F. Work Sequence.
G. Project Property Owner occupancy.

1.2 CONTRACT DESCRIPTION

A. Contract Type: The Sub-Agreement between Environmental Remediator and Subcontractor shall be utilized for this Project.
B. Assignment: The Subcontractor shall not assign, transfer, convey or otherwise dispose of the Contract, or its right to execute it, or its right, title or interest in or to it or any part thereof, or assign, any of the monies due or to become due under the Contract, except by written consent of the Environmental Remediator, and the giving of any such consent to a particular assignment shall not dispense with the necessity of such consent to any further or other assignments. Any such assignment contrary to these provisions shall be null and void and of no effect on the Environmental Remediator. Any assignment, transfer, or conveyance permitted by the Environmental Remediator in writing shall not be valid until the actual assignment, transfer or conveyance is filed in the office of the Environmental Remediator.
C. Termination of Contract: In addition to the rights the Environmental Remediator may otherwise have, the Environmental Remediator shall have the right to terminate the Subcontractor's right to continue the Work on the Contract upon (1) the failure of the Subcontractor to begin on or within 14 days of the notice to proceed with physical preparation at the Property for the Work; (2) the failure of the Subcontractor to begin the Work on or within 14 days of the notice to proceed; (3) the failure of the Subcontractor to cure any unexcused delay in performance within three days after written notice is given if it appears to the Environmental Remediator that the Work has been so unreasonably delayed as to tend to indicate the likelihood of failure of completion within the time specified; (4) failure to replace any Work, material or equipment not meeting the Contract specifications within

three days after receipt of written notice of the Subcontractor's failure to properly provide conforming Work, material or equipment; (5) failure to complete the Work by the Completion Date with any extensions which may have been granted; (6) any other default not cured by the Subcontractor on or within ten days of notice, and if the default is of the type that cannot be cured in that time period, then the Subcontractor has begun to cure said default and diligently and continuously pursues cure; or (7) if the Subcontractor shall become insolvent, or shall be adjudged as bankrupt, or shall make any assignment for the benefit of its creditors, or if a receiver of its property shall be appointed. The Environmental Remediator's right to terminate the Contract shall be without prejudice to any other right or remedy, and the Environmental Remediator may enter upon the premises and take possession of all materials, tools and appliances thereon, and finish the Work by whatever method it may deem expedient.

D. Delivery of Material: The delivery of any material, equipment, or the performance of any labor hereunder which does not in all respects conform to the Contract, may be rejected and the Subcontractor shall be notified by the Environmental Remediator of such rejection and the reason therefore, which notice shall be confirmed in writing. If the Subcontractor fails to effect immediate replacement of such rejected materials, equipment and labor with material, equipment and labor meeting the requirements of the order and of the Contract, the Environmental Remediator may purchase material, equipment and hire labor of the character required under the order up to the amount rejected and the Subcontractor and its surety shall be liable to the Environmental Remediator for any excess cost and expense occasioned the Environmental Remediator thereby. The Environmental Remediator shall have the right to suspend the whole or any part of the Work, when the Subcontractor is not doing the Work in accordance with the Contract. No extension of time for completion of the Work or claim for damages will be allowed by reason of such suspension.

E. Subcontractor's Liability for Damages: In the case of such discontinuance of the employment of the Subcontractor, it shall not be entitled to receive any further payment under the Contract until the Work is wholly completed, at which time, if the unpaid balance of the amount to be paid under the Contract shall exceed the expenses incurred by the Environmental Remediator in finishing the Work, such excess shall be paid by the Environmental Remediator to the Subcontractor, but if such expenses shall exceed such unpaid balance, the Subcontractor shall pay the difference to the Environmental Remediator. If the right of the Subcontractor under the Contract is terminated, the Subcontractor shall only be paid for Work actually performed and material incorporated into the project at the agreed to rate. The Subcontractor shall remain liable to the Environmental Remediator for any damages by the Environmental Remediator regardless of the termination of the right to continue.

F. Rights of the Environmental Remediator in Case of Nonperformance: If the Subcontractor shall refuse or neglect to supply a sufficient number of

properly skilled Workmen, or materials of the proper quality, or shall fail in any respect to prosecute the Work or any part thereof with promptness and diligence, or fail in the performance of any of its Sub-Agreement, the Environmental Remediator may, after 48 hours written notice to the Subcontractor, provide such labor or materials, and deduct the cost thereof from any monies then due or thereafter to become due to the Subcontractor under the Contract.

1.3 WORK BY PROJECT ENVIRONMENTAL REMEDIATOR

A. The Project Environmental Remediator will award a Contract for the Work as described within the Contract Documents, which will commence on the date indicated within the Notice to Proceed.

B. Work under this Contract generally includes but is not limited to the following:

Site Remedial Action Implementation activities covered by this Bid Document will include, but are not limited to:

1. Site Specific Health and Safety Plan.
2. Mobilization/ Demobilization/ General Conditions Complete.
3. Performance and Payment Bond.
4. Site Clearing Complete.
5. Demolition of Residual Structures and Features: Demolish, Load, Transport, and Off-Site Disposal Complete.
6. Site Security Fencing Complete.
7. Excavation of Existing Gravel Areas Down to 6" Below Surface Grade, Loading, On-site Transport, and Stockpiling Complete.
8. Treatability Demonstration of Decision Units B6, B9, and E9 Complete.
9. In-Situ Stabilization For Rendering Hazardous Soil Non-Hazardous Complete.
10. Remedial Excavation and Loading of Non-Hazardous Soils and Treated Non-Hazardous Soils Complete.
11. Non-Hazardous Soils and Treated Non-Hazardous Soils Off-Site Transport and Disposal Complete
12. Installation of Visual Demarcation Barrier Complete
13. Remedial Excavation Areas Backfill and Compaction Using Owner's On-Site Stockpiled Backfill Materials Complete.
14. Site Grading Using Owner's On-Site Stockpiled Backfilled Materials Complete.
15. Seeding and Strawing Within Identified Utility Corridor Area Complete.

The Subcontractor must perform the Work in accordance with the Contract Documents including all Attachments hereto that will be incorporated into the Contract between the Environmental Remediator and Subcontractor.

The successful Bidder will carry out the necessary means and methods to conduct the appropriate work activities to meet the requirements of the Contract Documents. Reference the List of Unit Prices for a description of Work associated with the Property. All Work shall be completed within the timeframe established at Bid award days from the commencement date as stated within the Notice to Proceed.

If the Environmental Remediator elects to proceed on the basis of one of the Alternates (Reference Section 01028 -Alternates) modifications to the overall Project Work will be required.

The Environmental Remediator will retain ten (10) percent of the proposed payment value up to 90 % of the completed Work specified in the Contract Documents that has been completed and approved by the Environmental Remediator.

C. Acceptance of Performance: It shall be understood and agreed by the parties hereto that the Environmental Remediator shall determine if the quality of the Work and the material and equipment furnished under the Contract is satisfactory.

1.4 PROJECT PROPERTY OWNER SUPPLIED PRODUCTS

A. Property Owner: To provide, and stage on-site, approved clean soil backfill material for backfilling of remedial excavation areas, unless an Alternate Item is approved and initiated under the Contract.

B. Environmental Remediator's Responsibilities: (Reference General Conditions and applicable Supplementary Conditions).

C. Subcontractor's Responsibilities: (Reference General Conditions and applicable Supplementary Conditions)

1.5 SUBCONTRACTOR USE OF SITE

A. Access to Site: (As delineated within the Contract Documents)

B. Prior to mobilization, take pre-construction photographs and video to document the condition of the work area, (e.g., ECHA maintenance building and parking lot, adjacent roadways, and sidewalks etc.).

C. Construction Operations: (Limited to the areas as delineated within the Contract Documents)

D. No operations of any kind by the Subcontractor shall occur within areas designated as "EXCLUSION ZONES" on the Contract Drawings.

E. Time Restrictions for Performing Work: (Reference General Conditions and coordinate time restrictions with the Property Owner)

F. Utility Outages and Shutdown: (All outages and shutdowns shall be coordinated with the Property Owner)

G. Handling and Protection of Materials: If requested by the Environmental Remediator or Property Owner, a planned method of moving or placing of materials shall be submitted for approval. This approval shall not relieve the

Subcontractor of responsibility for the safety of the material and personnel. The Subcontractor shall be responsible for unloading, uncrating, and handling all equipment and material to be erected by it, whether furnished by the Subcontractor or others. Any salvaged material considered usable by the Environmental Remediator, or Property Owner shall be stored and disposed in such a manner as the Environmental Remediator, or Property Owner may direct. Such usable material shall belong to the Environmental Remediator or Property Owner if it results from material ordered directly by the Environmental Remediator or Property Owner, and consigned to the Environmental Remediator or Property Owner, or it is material removed from the existing facilities by the Subcontractor during the course of its Work. It shall be deemed to belong to the Subcontractor if it results from equipment or material ordered directly by the Subcontractor and consigned to the Subcontractor.

1.6 FUTURE WORK

Not Used.

1.7 WORK SEQUENCE

A. Reference the Invitation to Bid Section 02000 and coordinate Work sequence with the Environmental Remediator prior to commencing wok activities.

1.8 PROJECT PROPERTY OWNER OCCUPANCY

A. The Subcontractor shall cooperate with Environmental Remediator and Property Owner to minimize conflict in performing the Work of this Project.

PART 2 PRODUCTS

Refer to the Contract Drawings and Specifications.

PART 3EXECUTION

Refer to the Contract Drawings and Specifications.

END OF SECTION

SECTION 01019

CONTRACT CONSIDERATIONS

PART 1GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.
B. Conflict between Contract Documents: In the event there is a conflict between the provisions in various Contract Documents, and it is impossible to reconcile the conflict between the provisions, the most stringent provision shall apply.

1.1 SECTION INCLUDES

A. Cash Allowances
B. Contingency allowance
C. Inspecting and testing allowances
D. Schedule of values
E. Application for payment
F. Change procedures
G. Defect assessment
H. Measurement and payment - Unit prices
I. Alternatives

1.2 RELATED SECTIONS

A. Base Bid Form – Unit Prices
B. Contract Forms
C. General Conditions and Supplemental Conditions
D. Section 01600 – Material and Equipment

1.3 CASH ALLOWANCES

Not Used.

1.4 CONTINGENCY ALLOWANCE

Not Used.

1.5 INSPECTING AND TESTING ALLOWANCES

Not Used.

1.6 SCHEDULE OF VALUES

A. Submit a printed schedule on Subcontractor's standard form or electronic media printout will be considered.
B. Submit Schedule of Values in duplicate as provided in the Environmental Remediator - Subcontractor Sub-Agreement.
C. Format: The Schedule of Values must be broken down to the satisfaction of the Property Owner to effectively monitor and track progress and payment.
D. Include within each line item, a direct proportional amount of Subcontractor's overhead and profit.
E. Revise schedule to list approved Change Orders, with each Application for Payment.

1.7 APPLICATIONS FOR PAYMENT

A. Submit two copies of each application on the Subcontractor's Estimate form, which is included within the Contract Forms' section of these Contract Documents.
B. Payment Period is as defined within the Environmental Remediator-Subcontractor Sub-Agreement.
C. Retainage is as defined within the Environmental Remediator-Subcontractor Sub-Agreement.
D. Include an updated construction progress schedule.
E. Terms of Payment are as defined within the Contract.

1.8 CHANGE PROCEDURES

A. The Environmental Remediator will advise of minor changes in the Work not involving an adjustment to Contract Price or Contract Time by issuing supplemental instructions on the Field Order form as included within the Contract Form's section of these Contract Documents.
B. The Environmental Remediator may issue a Proposal Request, which includes a detailed description of a proposed change with supplementary or revised Contract Drawings and specifications. Subcontractor will prepare and submit a proposal within seven (7) days of receiving a Proposal Request.
C. The Subcontractor may propose changes by submitting a request for change to the Environmental Remediator, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation.
D. Environmental Remediator may issue a directive signed by the Environmental Remediator, instructing the Subcontractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. This directive will describe changes in the Work and designate the method of determining any change in Contract Price or Contract Time. The Subcontractor shall promptly execute the directive.

E. Time and Material Change Order: If directed by the Environmental Remediator, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Environmental Remediator will determine the change allowable in Contract Price and Contract Time as provided in the Contract Documents.
F. Maintain detailed records of Work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
G. Change Order Forms: Utilize the Change Order form, which is included within the Contract Forms' section of these Contract Documents.
H. Execution of Change Orders: Environmental Remediator will issue Change Orders for signatures of parties as provided in the Sub-Agreement between the Environmental Remediator and Subcontractor.

1.9 DEFECT ASSESSMENT

A. The Subcontractor shall replace the Work, or portions of the Work, not conforming to specified requirements at the Subcontractor's expense.
B. If, in the opinion of the Environmental Remediator, it is not practical to remove and replace the Work, the Environmental Remediator will direct an appropriate remedy or adjust payment.

1.10 MEASUREMENT AND PAYMENT - UNIT PRICES

A. Authority: Measurement methods are delineated within the Prices to include - Section 00312, Base Bid Form.
B. The Subcontractor shall take measurements and compute quantities. The Environmental Remediator will verify the measurements and quantities as calculated by the Subcontractor and such verified quantities shall serve as the basis for payment pursuant to the Contract Documents. The Subcontractor shall provide all the necessary assistance as stipulated by the Environmental Remediator in verifying and confirming said measurements and quantities.
C. Unit Quantities: Quantities and measurements indicated within the Bid Forms are for contract estimation purposes only. Actual quantities provided by the Subcontractor and verified by the Environmental Remediator shall determine payment.
D. Payment Includes: Full compensation for all activities and Work described in the Contract Documents, including, but not limited to all required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals, erection, application, or installation of an item of Work, including overhead and profit.
E. Unit Price Schedule: Reference Appendix B – List of Unit Prices.

1.11 ALTERNATIVES

A. Reference Appendix C- List of Alternatives
B. Reference Technical Specification Section 01028 - Alternates

PART 2PRODUCTS

Not Used.

PART 3EXECUTION

Not Used.

END OF SECTION

SECTION 01028

ALTERNATES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Contract Drawings and general provisions of the Contract apply to this section.
B. Refer to Document 00403- Appendix C List of Alternates

1.2 GENERAL

A. To allow the Environmental Remediator to compare total costs where alternate materials and methods might be used, and to enable the Environmental Remediator's decision prior to awarding the Contract, certain alternates have been established as described in this Section of these Specifications.
B. Required alternates are worded briefly. Claims for additional compensation will not be granted because of manifest omissions or discrepancies due to the brevity. Pertinent Sections of these Specifications describe the materials and methods required under the various alternates.
C. Each Bidder shall submit with his proposal in the space provided on Bid Proposal Form alternate proposals stating the additions to or deductions from the base Bid lump sum amount for substituting, omitting, adding, changing, or altering materials, equipment, or construction from that shown on the Contract Drawings or specified.
D. The difference in cost shall include omissions, changes, alterations, additions, and adjustments of trades as may be necessary because of each addition, substitution, omission, change, or alteration.
E. If the Environmental Remediator elects to proceed on the basis of one or more of the alternates, make modifications to the Work required in providing the selected alternate or alternates for the approval of the Environmental Remediator and at no additional cost to the Environmental Remediator other than as proposed on the Bid Proposal Form.
F. Contractors shall include a summary of work sequencing and timing to commence with work associated with Alternate items..

1.3 SUMMARY OF ALTERNATES

Alternate (03)

Alternate Item 03-01 Site Clearing within Alternate Area Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, permits, and supervision for the Subcontractor to clear all existing wooded vegetation (e.g., trees, saplings, shrubs, brush, vines, etc.) complete, from

within the Work Limits of the Alternate Area as identified on the Contract Drawings. This Item will also include mowing of overgrown grass areas as needed, prior to implementation of Importing and stockpiling activities of approved clean off-site imported backfill materials. Prior to any construction activities being performed, the Alternate Area Work Limits shall be cleared as needed in accordance with the Contract Specification Section 02110 (Site Clearing). All material generated from this operation shall be manage accordingly by the Subcontractor and shall be removed and disposed of off-Site to an appropriately licensed facility of recycler. All trees, brush, and wooded material, where applicable, shall be chipped, ground, and processed to achieve the requisite non-regulated chip size of less than 1" in at least two dimensions as determined by visual inspection and approved by the Environmental Remediator. All tree stumps shall be ground down a minimum of one foot below ground surface.

The Subcontractor will be responsible for removing all existing obstructions and debris encountered within the Alternate work limits that would impede or otherwise hinder Importing and stockpiling activities of approved clean off-site imported backfill materials. All obstructions and debris shall be managed in a safe and proper manner so as not to release any substance into the air or onto the land surface, waterway, or any other portion of the environment. This item will include all staging, transportation and disposal fees associated with the complete and proper disposal at an appropriately licensed facility of recycler in accordance with applicable federal, state and local laws, rules, regulations and ordinances.

Alternate Pay Item 03-01 will be paid as a Lump Sum.

Alternate Item 03-02 Demolition of Residual Structures and Features within Alternate Area: Demolish, Load, Transport, and Off-Site Disposal Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, and supervision for the Subcontractor to demolish and remove, off-Site transport, and disposal/recycle of all identified property residual structures, features, within the Alternate Area and all other associated surface components (e.g., concrete slabs, asphalt pavement, former baseball area fencing, wrought iron fencing, chain link fencing (excluding property perimeter chain link fencing), abandoned light poles, sidewalks, abandoned electrical boxes, etc.) identified on the Contract Drawings. The area containing structures, features to be demolished are shown on the Contract Drawings and shall be removed and appropriately disposed of off-Site. The Subcontractor shall exercise caution while performing demolition activities near existing structures that are to remain and these efforts shall be performed so as to not undermine existing structure that are to remain as identified in the Contract Drawings. The Subcontractor shall provide and install any required barrier, sheeting, shoring, bracing materials needed to accommodate these operations.

The Subcontractor will be responsible to ensure proper disconnection of all utilities (water, sanitary, storm, gas, electric, communications, etc.) has been completed

prior to starting any demolition activities. The limit of any utility disconnection efforts shall be properly marked at the surface (with a depth from surface elevation to the top of the remaining utility section and the utility's type and size identified on the marker) and markers shall be surveyed for their location to enable full utility decommissioning activities as applicable. Subcontractor shall not adversely impact any of the above systems which serve other portions of buildings or structures on contiguous properties which are to remain. Temporarily rerouting and permanently re-connecting of said systems, which serve the other portions of buildings or structures on contiguous properties which are to remain, shall be a part of this pay item as applicable.

It should be noted that any subsurface (i.e., within the top 12" from surface grade) foundations or abandoned utility line encountered during demolition activities, shall be left in place and where any remaining portion of subsurface foundation or utility lines are encountered, the Subcontractor will be required to provided survey for those locations and limits, with elevation to the top of the remaining foundation or utility section and the utility's type and size identified on the survey. This information will be incorporated into Subcontractor's final As-built deliverable to the Environmental Remediator.

The Environmental Remediator and the Property Owner is committed to managing waste in a sustainable and practical manner, while building a cleaner community and healthy environment by promoting the economic use of construction materials and methods so that waste is minimized and any waste that is produced can be re-used, recycled or recovered in other ways before disposal options are explored. The Subcontractor is encouraged to develop and implement a Site Waste Management Plan (SWMP) which may identify any cost savings that may be achieved as a result of the SWMP, associated with this Pay Item. Waste management decisions will be the general responsibility of the Subcontractor.

This item will also include removal, On-Site hauling, loading, Off-Site transportation, and disposal of all demolition debris generated to a licensed Construction & Demolition Debris (C&DD) or other applicable disposal facility or recycler, operating in accordance with applicable federal, state, and local laws, rules, regulations, and ordinances of unsuitable or non-recyclable materials. Proper characterization for disposal and manifesting will be the responsibility of the Subcontractor. Materials shall be managed to minimize the incorporation of soil materials, spilling, dust, stormwater, and run off during removal and hauling On-Site and Off-Site.

Alternate Pay Item 03-02 will be paid as a Lump Sum.

Alternate Item 03-03 Off-Site Backfill Materials Import, Stockpiling, and Management Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, and supervision for the Subcontractor to provide suitable off-Site imported backfill material source for use as backfill material within the Property's

remedial excavation areas. This item will include providing the required environmental testing data and documentation of proposed off-Site imported backfill materials for evaluation and approval, import and transportation of approved off-site backfill materials to the Property, and any necessary On-Site stockpiling and management of approved off-site imported backfill materials complete at the Property. The specified off-site import backfill material source(s) will be designated in the bid submittal for approval by the Environmental Remediator, and access shall be granted to the Environmental Remediator for evaluation and sampling if required or requested prior to delivery to the Property. The Subcontractor shall mandate that the supplier(s) follow the Fill Import Plan and complete an Environmental Questionnaire in accordance with Fill import Plan. A copy of the Fill Import Plan and form is included within the Attachment Section of the Contract Documents. The form to be completed for off-site imported backfill source approval will be submitted to the Environmental Remediator for approval.

Each off-site imported backfill materials source will be evaluated using the Environmental Questionnaire and in accordance with the Field Sampling and Analysis Plan (FSAP), found in the Attachment Section of the Contract Documents. The questionnaire reviews the historical use of the land associated with its origin and the potential for releases of hazardous substances or petroleum related to the land use. Based on review of the Environmental Questionnaire and any provided supporting environmental documentation, proposed off-Site imported backfill materials may be required to be characterized by the Subcontractor in order to demonstrate that the materials meet applicable Site standards and an analytical profile may be required to be tailored, based on potential hazardous substance or petroleum identified in the questionnaire.

The samples may be required to be analyzed for the following, but is not limited to:

- VOCs by Method 5035/8260B;
- SVOCs by Method 8270C;
- Polychlorinated biphenyls (PCBs) by Method 8082;
- Metals by Method 6010/7470;

Analytical results will determine whether the materials can be used on the site. The certified analytical laboratory testing results for the proposed off-site imported backfill materials will be provided to the Environmental Remediator for approval. Additionally, the Subcontractor shall mandate that the certified analytical laboratory submit an Affidavit for the proposed off-site imported backfill materials source indicating that the material meets applicable standards, to the Environmental Remediator.

Proposed Off-Site imported backfill materials from each source shall be sampled and analyzed in accordance with the FSAP prior to being delivered to the Property and thereafter at a frequency of two composite samples per 4,000 cubic yards. delivered. The Project will require and estimated minimum volume of

approximately **82,000** cubic yards of clean off-site backfill materials for import and placement. The Environmental Remediator will review each source and all analytical results prior to approving the import of the fill to the Property. Fill shall be considered acceptable if it contains less than the industrial/commercial performance standards of 400 mg/kg lead, 26 mg/kg arsenic, and otherwise meets IDEM Use of Backfill Fact Sheet dated October 11, 2022. for residential screening levels for all other relevant constituents.

During the course of the Off-Site backfill materials import and if necessary, onsite Stockpiling operation, the Subcontractor shall be responsible for managing and maintaining the operation (e.g., erosion control, dust control, stockpile grading and management etc.) at the On-Site stockpiled backfill location. No secondary On-Site stockpiling of the of imported backfill materials will be permitted outside of the designated approved stockpile location identified on the Construction Drawings, unless approved otherwise by the Property Owner and/or the Environmental Remediator and if approved, performed at the sole cost of the Subcontractor. The Subcontractor will be responsible for construction and maintaining all access roads and haul routes used. Upon completion of off-Site import activities; the Contractor shall perform grading and surface restoration in accordance with the Contract requirements. Coordination and approval by the Property Owner and/or the Environmental Remediator shall be required prior to construction and or use of access roads and haul routes. Subcontractor shall be responsible for managing and preventing off-site tracking of soils onto existing public roadway. Installation of wheel cleaning systems will be installed on Property where a stabilized construction exit is not adequate to prevent off-site tracking of soil. Wheel cleaning systems will be installed and used to remove soil from construction vehicles and equipment before they leave the Property and enter paved streets. Refer to Section 01570 (Traffic Safety and Regulations).

Alternate Pay Item 03-03 will be paid by the cubic yards of material imported, places and graded as verified by Subcontractors survey quantities under Pay Alternate Pay Items 03-04 and 03-05.

Alternate Item 03-04 Remedial Excavation Areas Backfill and Compaction Using Off-Site Imported Backfill Materials Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, and supervision for the Subcontractor to place and compact suitable Off-Site imported Backfill materials complete, within all cavities that were created during soils remedial excavation efforts on the Property and following approval to perform backfill efforts by the Environmental Remediator. For the purpose of the Alternate bid item, assume backfill materials shall be provided under Alternate Pay Item 03-03.

All backfill activities shall be performed in accordance with Specification Sections 02205 (Backfilling Materials) and 02223 (Backfilling) and all other pertinent sections of this Contract Document. The Subcontractor will be responsible to provide and obtain any required geotechnical testing data of the proposed Off-Site imported Backfill materials as applicable and necessary for Subcontractor's needs. For

reference only, it is estimated that approximately **63,962** cubic yards of Off-Site imported Backfill materials will be backfilled and compacted. The Subcontractor is responsible for verifying all quantities. Backfilling operations will be compacted to a firm and unyielding condition as determined by visual observation and inspection. Backfilling will be completed to the required grades as specified on the Contract Drawings. Backfill material shall be managed to minimize dust, storm water, and runoff during hauling and placement.

During the course of work, the Subcontractor shall be responsible for managing and maintaining the operation (e.g., erosion control, dust control, stockpile grading and management etc.) at the On-Site stockpile location as applicable. No additional On-Site stockpiling of off-site imported soils material will be permitted unless approved by the Property Owner and the Environmental Remediator and if approved, performed at the cost of the Subcontractor. The Subcontractor will be responsible for construction and maintaining all access roads and haul routes used. Upon completion of off-Site imported backfill activities; the Subcontractor shall perform grading and surface restoration within stockpile location as applicable in accordance with the Contract Document requirements. Coordination and approval by the Property Owner and the Environmental Remediator shall be required prior to construction and or use of access roads and haul routes.

The Subcontractor shall include as part of this pay item, a professional surveyor certified in the state of Indiana to provide post topographical survey of the completed backfilling activities that will be used to document the overall extents (i.e., horizontal, base, and top of backfill elevations) of the remedial backfill. The Survey will include one (1) foot contour intervals established to the local state plane datum. All information shall include a plan view and a Point Number, Northing, Easting, Elevation, Description (PNEZD) Table in paper and electronic format (i.e., PDF and CAD file) and be submitted to the Environmental Remediator prior to request for compensation of this item.

Alternate Pay Item 03-04 will be paid as a Lump Sum as determined by the Environmental Remediator's verification of the surveys demonstrating required grades have been achieved per each individual Decision Unit.

Alternate Item 03-05 Site Grading Using Off-Site Imported Backfill Materials Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, and supervision to place, compact, and perform Site grading complete, using Off-Site imported backfill materials, within the proposed grading limits as called out in the Contract Drawings, following Environmental Remediator's and Property Owner's approval to perform Site grading activities. For reference only, it is estimated that approximately **17,893** cubic yards of Off-Site imported backfill will be placed, compacted, and graded to achieve the required final Site grades. The Subcontractor is responsible for verifying all quantities. For the

purpose of the Alternate bid Item, assume backfill materials shall be provided under Alternate Pay Item 03-03.

All Site Grading activities shall be performed in general accordance with Specification Sections 02205 (Backfilling Materials) and 02223 (Backfilling) and all other pertinent sections of this Contract Document. The Subcontractor will be responsible to provide and obtain any required geotechnical testing data of the proposed Off-Site imported backfill material as applicable and necessary for Subcontractor's needs. Grading operations will be compacted to a firm and unyielding condition as determined by visual observation and inspection. Grading will be completed to the required grades as specified on the Contract Drawings. Backfill materials shall be managed to minimize dust, storm water, and runoff during hauling and placement.

During the course of the use of the approved stockpile area, the Subcontractor shall be responsible for managing and maintaining the operation (e.g., erosion control, dust control, stockpile grading and management etc.) at the On-Site stockpile locations. No additional On-Site stockpiling of off-site imported backfill materials will be permitted unless approved by the Property Owner and the Environmental Remediator and if approved, performed at the cost of the Subcontractor. The Subcontractor will be responsible for construction and maintaining all access roads and haul routes used. Upon completion of On-Site backfill activities; the Subcontractor shall perform grading and surface restoration in accordance with the Contract Document requirements. Coordination and approval by the Property Owner and Environmental Remediator shall be required prior to construction and or use of access roads and haul routes.

Cost shall also include a professional surveyor certified in the state of Indiana to provide an as-built survey of the final graded Property. The Survey data will include one (1) foot contour intervals established to the local state plane datum. All information shall include a plan view and a Point Number, Northing, Easting, Elevation, Description (PNEZD) Table in paper and electronic format (i.e., PDF and CAD file) and be submitted to the Environmental Remediator prior to request for compensation of this pay item.

Alternate Pay Item 03-05 will be paid as a Lump Sum as determined by the Environmental Remediators' verification of the survey that final grades have been met.

Alternate Item 03-06 Seeding and Strawing Balance of Site Complete

This item will include all necessary labor, equipment, materials, fees, costs, insurance, and supervision for subsurface preparation, hydro-seeding, strawing, and fertilizer complete, within the balance of Site (i.e., Approximately 37.2 acres. The Subcontractor is responsible for verifying all quantities.), as called out in the Contract Drawings Alternate Sheet once final design grades have been achieved and approved within the Project work limits. Hydro-Seeding and strawing shall be performed in general accordance with Specification Section 02936 (Seeding)

Alternate Pay Item 03-06 will be paid as a Lump Sum.

Alternate Item 03-07 Installation of Fence Privacy Screen Mesh Fabric Complete

This item will include all necessary labor, equipment, materials, fees, costs, insurance, permits, and supervision to provide and install approximately 4,837 lineal feet of Privacy Screening onto the Property perimeter fence line to screen from view the Project Site from adjacent streets and properties with a durable, sight-obscuring mesh fabric at least six feet in height. Screening material shall be constructed of a knitted polyethylene material in green or black, securely fixed to the inside face of the fencing. The Subcontractor is responsible for verifying all quantities. All installed privacy screening will be the responsibility of the Subcontractor to maintain in good condition throughout the duration of project. Subcontractor shall be responsible with replacement or repair of any damage section(s) of installed privacy screening. At the conclusion of all Work activities, the privacy screening shall remain in place.

Alternate Pay Item 03-07 will be paid as a Lump Sum.

Alternate Item 03-08 Remove, Load, Off-Site Transport and Disposal of Tree Stumps Within Remedial Excavation Area Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, permits, and supervision for the Subcontractor to remove, load, off-site transport, and disposal of all tree stumps within the remedial excavation areas complete, identified on the Contract Drawing and in accordance with the Contract Requirements. Tree stump removal operations will be sequenced appropriately and shall be not proceed until approval by the Environmental Remediator is given, and that verification of Site Clearing and In-Situ Stabilization activities have been completed accordingly and as applicable.

Stumps shall be containerized separately from the remedial excavated soils and be disposed of Off-Site as contaminated Non-Hazardous material to the Environmental Remediators approved licensed disposal facility: Republic Newton County Landfill, located at 2266 E 500 S Rd Brook IN 47922. Every effort shall be made to limit any comingling of in-situ soils with the removed stumps during removal and loading operations.

The Subcontractor is responsible for managing, constructing, and maintaining all access roads and haul routes within the Property limits used to and from the work area, as needed and as appliable. Coordination and approval by the Property Owner and the Environmental Remediator shall be required prior to construction and or use of access roads and haul routes. Subcontractor shall be responsible for establishing exclusion zone around the areas in which disturbance of the subsoils will be required in order to perform stump removal activities. The Subcontractor shall set up and establish decontamination area as well. All equipment and vehicles which come into contact with the disturbed soils shall be decontaminated before leaving

the exclusion zone, with the exception that the vehicles or containers which are used to transport the excavated soils do not have to be decontaminated, provided only the inside of the container portion of the vehicle has come into contact with the excavated soils.

Best management practices will be implemented to prevent the runoff and spillage of contaminated soil outside the remedial excavation areas. Accidental spills will be cleaned up immediately and be reported to the Environmental Remediator. All Site activities at the Property associated with stump removal activities will be performed with proper Personal Protection Equipment and be performed in accordance with the Subcontractor's developed and approved Site-Specific Health and Safety Plan, Soils Management Plan, as well as with the Contract Documents. Subcontractor shall be responsible for managing and preventing off-site tracking of soils onto existing public roadway. Installation of wheel cleaning systems will be installed on the Property where a stabilized construction exit is not adequate to prevent off-site tracking of soil. Wheel cleaning systems will be installed and used to remove soil from construction vehicles and equipment before they leave the Property and enter paved streets. Refer to Section 01570 (Traffic Safety and Regulations).

Alternate Pay Item 03-08 will be paid as a Lump Sum.

Alternate Item 03-09 Site Redevelopment Backfill, Compaction and Grading Using Owner's Off-Site Imported Backfill Materials Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, and supervision to place, compact, and perform Site grading complete, using Owner's Off-Site Imported Backfill Materials, within the proposed grading limits as called out in the Contract Drawings, following completion of remedial backfilling activities. For reference only, it is estimated that approximately **465,000** cubic yards of Owner's Off-Site Imported Backfill Materials will be placed, compacted, and graded to achieve the required final Site grades for Site redevelopment needs. The Subcontractor is responsible for verifying all quantities. For the purpose of the Alternate bid Item, assume backfill materials shall be directly offloaded within the limits of the proposed grading area by the Owner.

All Site Grading activities shall be performed in general accordance with Specification Sections 02205 (Backfilling Materials) and 02223 (Backfilling) and all other pertinent sections of this Contract Document. The Subcontractor will be responsible to provide and obtain any required geotechnical testing data of the proposed Off-Site imported Backfill material as applicable and necessary for Subcontractor's needs. Backfill materials placed shall be compacted in-place to a minimum of 95 percent of the maximum dry density and within ± 3% of the optimum moisture content based on the moisture-density relationship determined by American Society for Testing and Materials Test Methods D1557 (Modified Proctor analysis) and D2922 (field density test by nuclear methods). Grading operations will be compacted to a firm and unyielding condition as determined by visual observation and inspection. Grading will be completed to the required

grades as specified by the Owner. Backfill materials shall be managed to minimize dust, storm water, and runoff during placement, compaction, and grading.

Cost shall also include a professional surveyor certified in the state of Indiana to provide an as-built survey of the final graded Property. The Survey data will include one (1) foot contour intervals established to the local state plane datum. All information shall include a plan view and a Point Number, Northing, Easting, Elevation, Description (PNEZD) Table in paper and electronic format (i.e., PDF and CAD file) and be submitted to the Owner prior to request for compensation of this pay item.

Alternate Pay Item 03-09 will be paid by the cubic yards of Owner's Imported Backfill Materials places, compacted, and graded as verified by Subcontractors survey quantities.

Alternate Item 03-10 Installation of New Site Security Fencing Complete

This item will include all necessary labor, equipment, materials, fees, expenses, costs, insurance, permits, and supervision to provide and install new site security fencing as generally delineated on the Contract Drawings; and, to prevent unauthorized access into the work area prior to, and throughout the duration of Site remediation activities. Security fencing installation and materials shall be in general accordance with Technical Specification Section 02832 and shall be galvanized steel, 72-inches in height. For reference only, the Project proposes installation of approximately **3,233** linear feet of new security fencing. There is approximately **2,186** linear feet of existing chain link security fencing that require removal and off-Site disposal. The Subcontractor is responsible for verifying all quantities.

This item will also include removal, On-Site hauling, loading, Off-Site transportation, and disposal of all identified sections of existing chain-link fencing requiring removal, to a licensed Construction & Demolition Debris (C&DD) or other applicable disposal facility or recycler, operating in accordance with applicable federal, state, and local laws, rules, regulations, and ordinances of unsuitable or non-recyclable materials. Removed fencing materials shall be managed to minimize the incorporation of soil materials, spilling, dust, stormwater, and run off during removal and hauling On-Site and Off-Site.

New security fencing installation locations as well as identified section of exsiting chain-link fencing location to be removed shall be verified and approved by the Environmental Remediator and the Property Owner prior to start of work. Refer to the Contract Drawings for proposed location of new Site security fencing and existing section to be removed. All existing and newly installed security fencing will be the responsibility of the Subcontractor to maintain in good condition throughout the duration of Contract. Subcontractor shall be responsible for replacement or repair of any section(s) of existing perimeter security fencing or gates or any newly installed fencing that are damage during Site activities, at the Subcontractor's expense. At the conclusion of all Work activities, the fencing shall remain in place.

Alternate Pay Item 03-10 will be paid as a Lump Sum.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01039
COORDINATION AND MEETINGS

PART 1GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Coordination and project conditions.
B. Subcontractors Superintendence.
C. Field engineering.
D. Preconstruction meeting.
E. Property mobilization meeting.
F. Progress meetings.

1.2 RELATED SECTIONS

Not Used.

1.3 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of the various sections of the Contract Documents to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
C. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Property Owner's partial occupancy.
D. After Property Owner occupancy of premises, coordinate access to Property for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Property Owner's activities.
D. Labor Relations: The Subcontractor shall be responsible for its own labor relations with any trade or union represented among its employees, and it shall negotiate and seek to adjust all disputes between itself and its employees or anyone representing such employees. The same responsibility shall extend to the Sub-Subcontractors. If any dispute (other than disputes affecting wage rates, hours, or conditions of employment) arises with any person discharged for cause by one contractor or subcontractor may not be re-employed on the job Property by another, without the Environmental Remediator or Property Owner's approval. Trade or a union which, in the opinion of the Environmental Remediator or Property Owner, affects more than a single contractor or which threatens, unless resolved, to delay the Work generally or to postpone the completion of the Work beyond the contemplated or scheduled completion date, then the Environmental Remediator or Property Owner shall have the right

to intervene and to attempt to affect a solution or adjustment of such dispute which will permit the uninterrupted continuation of the Work. The Environmental Remediator or Property Owner, may by written notice, request the Subcontractor dismiss forthwith any superintendent, foreman or watchman of the Subcontractor or its Sub-Subcontractor, that the Environmental Remediator or Property Owner may deem incompetent, or careless or a hindrance to the proper completion of the Work. The Subcontractor shall comply with such notice as promptly as practicable without detriment to the Work. Any additional cost or expense incurred by any Subcontractor under the provisions of the preceding paragraphs shall not form the basis of any claim for an extra, or for any compensation over and above, or in addition to, the contract price previously agreed upon between such Subcontractor and the Environmental Remediator.

1.4 SUBCONTRACTORS SUPERINTENDENT

A. The Subcontractor shall at all times have a competent superintendent in charge of the Work, who is thoroughly familiar with the class of Work covered by the specifications. The superintendent shall not be transferred or relieved without one week's prior written notice to the Environmental Remediator.
B. The Subcontractor's superintendent shall represent the Subcontractor and all instructions given to him shall be binding as if given to the Subcontractor. He shall have authority to execute such instructions.
C. The Subcontractor's superintendent shall at all times cooperate with the Environmental Remediator, Property Owner, and other Site contractors in all matters, including labor relations.

1.5 FIELD SURVEYING & ENGINEERING

A. Subcontractor shall employ a Land Surveyor registered in the State of Indiana and acceptable to Property Owner and Environmental Remediator.
B. Subcontractor shall locate and protect survey control and reference points as originally depicted within the Contract Drawings.
C. Control datum for survey is that shown on the Contract Drawings.
D. The Subcontractor shall verify set-backs and easements; confirm drawing dimensions and elevations.
E. The Subcontractor shall provide field engineering services and establish elevations, lines, and levels, utilizing recognized survey practices.
F. The Subcontractor shall submit a copy of the applicable drawings stating that the elevations and locations of the Work are in conformance with the Contract Documents.

1.6 PRECONSTRUCTION MEETING

A. Prior to construction commencement, the Subcontractor shall meet with the Environmental Remediator and the Property Owner for a Pre-Construction Meeting. The purpose of this conference is to review site security, safety, submittal items and procedures, payrolls and labor relations, environmental protection, progress schedules, and payment and procurement of materials. The principal features of work will also be reviewed and address any questions regarding the Contract and work site

B. Attendance Required: Environmental Remediator, Property Owner, and Subcontractor, as well as the Subcontractor's project manager, superintendent, the Health and Safety Officer, Quality Control Officer, and other key personnel will be required.

C. Suggested Agenda:

1. Preliminary Matters: Introductions, Attendance Sheet, Project Communications.
2. Contract Document Status: Issuance, Identify Commencement/ Completion.
3. Breakdown of Pay Items.
4. Schedules: Construction/shop drawing/payment schedules, liquidated damages, meetings.
5. Superintendent: Identify individual and other responsible parties.
6. Sub-Subcontractors: Must be submitted/approved.
7. Safety: Subcontractor's responsibility.
8. As-built Drawings: Identify process.
9. Changes: Identify process.
10. Payments: Identify process.
11. Sequence of Construction.
12. Job Specific Items.

D. Environmental Remediator may prepare meeting minutes and distribute copies within seven (7) working days after the meeting to all participants.

E. At least two weeks prior to this Meeting, the Subcontractor shall submit to the Environmental Remediator electronic copies of the following:
1. Updated Project Schedule;
2. Site Specific Health and Safety Plan;
3. Dust Control Plan;
4. Material Handling Plan;

1.7 SITE MOBILIZATION MEETING

Not Used.

1.8 PROGRESS MEETINGS

A. Environmental Remediator may schedule and administer meetings throughout progress of the Work.

B. Environmental Remediator may make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
C. Attendance Required: Subcontractor and Environmental Remediator and others as appropriate to agenda topics for each meeting.
D. Suggested Agenda:

1. Review of minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Field observations, problems, conflicts.
4. Problems which have impeded work progress and proposed corrective actions.
5. Materials and equipment delivery schedules.
6. Current project Schedule.
7. Activities during current work period.
8. Work planned for next period.
9. Submittals.
10. Health and Safety.
11. Quality Control.
12. Changes and substitutions.
13. Other business.

E. Environmental Remediator may prepare meeting minutes and distribute copies within seven (7) working days after the meeting to all participants.

PART 2PRODUCTS

Not Used.

PART 3EXECUTION

Not Used.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Submittal procedures.
B. Construction progress schedules.
C. Proposed Products list.
D. Product Data.
E. Shop Drawings.
F. Samples.
G. Design data.
H. Test reports.
I. Certificates.
J. Manufacturer's instructions.
K. Manufacturer's field reports.
L. Erection drawings.
M. Construction photographs.

1.2 RELATED SECTIONS

A. Section 01400 - Quality Control: Manufacturers' field services and reports.
B. Section 01700 - Contract Closeout: Contract warranties, bonds, manufacturers' certificates, and any other closeout submittals.

1.3 REFERENCES

Not Used.

1.4 SUBMITTAL PROCEDURES

A. Include a transmittal cover letter with each submittal. Do not group submittals within one cover letter: a separate cover letter shall be included for each submittal.
B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
C. Identify Project, Manufacture, Sub-subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate.

D. Apply Subcontractor's stamp signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
E. Schedule submittals to expedite the Project and deliver said submittals to Environmental Remediator. Coordinate submission of related items.
F. For each submittal for review, allow seven (7) working days excluding delivery time to and from the Subcontractor.
G. Identify variations from Contract Documents and Product or system limitations, which may be detrimental to successful performance of the completed Work.
H. Provide space for Subcontractor and Environmental Remediator review stamps.
I. When revised for resubmission, identify all changes made since previous submission.
J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
K. Submittals not requested will not be recognized or processed.

1.5 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial schedule in duplicate within five (5) days after the Effective Date of Environmental Remediator and Subcontractor Sub-Agreement.
B. Revise and resubmit as required.
C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
D. Submit a horizontal bar chart with separate line for each major portion of Work or operation, identifying first workday of each week.
E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
F. Indicate estimated percentage of completion for each item of Work at each submission.
G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Environmental Remediator or Property Owner and required by Allowances.

1.6 PROPOSED PRODUCTS LIST

A. With your Bid Package submit list of major equipment and/or products proposed for use, with name of manufacturer, trade name, and model number of each product.
B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.
C. Standards and Substitutions:
    1. The type or make of any material, equipment, article, device, fixture or furnishing, or of any form of construction, named in these

specifications, whether or not the words "or approved equal" or those of like import are used shall be known as the "Standard" specified. The Bid shall be based only on the Standards specified.

2. Where two or more Standards are named together, Bidders may Bid upon any of the Standards named.
3. Bidders may, at their discretion, request consideration of substitutions for the Standards specified provided:
   a. They name on the substitution sheet attached to the Bid Form the substitute item Bid upon and the addition or deduction they will make to or from their base Bid in the event the substitute is accepted.
   b. They submit with their Bid, on the due date, a complete specification or description, with illustrations where necessary, each item listed on the substitution sheet.
4. Each proposed substitution will be analyzed to determine quality and fitness for the purpose intended as compared with the Standard and a decision as to its acceptance or rejection will be rendered prior to an award of contract. The decision of the Environmental Remediator and the Property Owner as to the acceptability of any substitute item shall be final.
5. In the event the Bidder names no substitutes on its substitution sheet, the Standard shall be used and no substitute therefore permitted.
6. The lowest gross price Bid on the Standards specified will constitute the Bid to be considered for award.
7. The use of any experimental or untried methods, or the use or installation of any experimental or untried materials or equipment or any combination of either or both, shall not be allowed. Each Bidder, or the Sub-subcontractor if a Contract has been awarded, shall, if so required by the Environmental Remediator, submit ample proof that the method of doing any of the Work has been successfully used for like Work for a period of at least one year; or that the materials or equipment or any combination of either or both proposed to be used on, or furnished for the Work, is of a reliable make and is of a type that has been successfully used in practical service outside of the Bidder or the Subcontractor's facilities, for a period of not less than one year.

1.7 PRODUCT DATA

A. Product Data For Review:
   1. Submitted to Environmental Remediator for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
   2. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

B. Product Data For Information:

1. Submitted for the Environmental Remediator.

C. Product Data For Project Close-out:
   1. Submitted for the Environmental Remediator's benefit during and after Project completion.

D. Submit the number of copies, which the Subcontractor requires, plus two copies, which will be retained by the Environmental Remediator.

E. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

F. After review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01700 - CONTRACT CLOSEOUT.

1.8 SHOP DRAWINGS

A. Shop Drawings For Review:
   1. Submitted to Environmental Remediator for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
   2. After review, produce copies and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

B. Shop Drawings For Information:
   1. Submitted for the Environmental Remediator.

C. Shop Drawings For Project Close-out:
   1. Submitted for the Environmental Remediator's benefit during and after Project completion.

D. Submit in the form of one reproducible copy and three standard copies, which will be retained by Environmental Remediator.

1.9 SAMPLES

A. Samples For Review:
   1. Submitted to Environmental Remediator for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.
   2. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

B. Samples For Information:
   1. Submitted for the Environmental Remediator.

C. Samples For Selection:
   1. Submitted to Environmental Remediator for aesthetic, color, or finish selection.
   2. Submit samples of finishes from the full range of manufacturers' standard colors, in custom colors selected, textures, and patterns for Environmental Remediator's selection.

3. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article above and for record documents purposes described in Section 01700 - CONTRACT CLOSEOUT.

D. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing Work.
E. Include identification on each sample, with full Project information.
F. Submit the number of samples specified in individual specification sections; three of which will be retained by Environmental Remediator.
G. Reviewed samples, which may be used in the Work, are indicated in individual specification sections.
H. Samples will not be used for testing purposes unless specifically stated in the specification section.

1.10 DESIGN DATA

A. The Subcontractor shall submit for the Environmental Remediator.
B. The Subcontractor shall submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.11 TEST REPORTS

A. The Subcontractor shall submit for the Environmental Remediator.
B. The Subcontractor shall submit test reports for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.12 CERTIFICATES

A. When specified in individual specification sections, submit certification by the manufacturer, installation/application Sub-subcontractor, or the Subcontractor to Environmental Remediator, in quantities specified for Product Data.
B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
C. Certificates may be recent or previous test results on material or Product but must be acceptable to Environmental Remediator.

1.13 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Environmental Remediator for delivery to Environmental Remediator in quantities specified for Product Data.

B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
C.Refer to Section 01400 - Quality Control, Manufacturers' Field Services article.

1.14 MANUFACTURER'S FIELD REPORTS

A. The Subcontractor shall submit reports for the Environmental Remediator.
B. The Subcontractor shall submit report in duplicate within 3 days of observation to Environmental Remediator for information.
C. The Subcontractor shall submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the Contract Documents.

1.15 ERECTION DRAWINGS

Not Used.

1.16 CONSTRUCTION PHOTOGRAPHS

Not Used.

PART 2 PRODUCTS

As call out for on the Contract Drawings

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01380

PROJECT PHOTOGRAPHS AND VIDEO RECORDING

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SCOPE

A. The Work included in this Section covers the labor, material, and equipment necessary to take and submit a video recording Pre-Construction Survey, and Project photographs and video recording prior to, during and after construction of selected locations and operations, by the Subcontractor.

1.2 PRE-CONSTRUCTION SURVEY

A. The Subcontractor shall make a video recording of the property, East 151 St. McCook Ave, Municipal Drive, and existing ally drive between E. 149th and E. 148 St. prior to his mobilization at the Project Site. The video recording shall be of a sufficient duration needed to capture identify all pertinent physical aspects of the Project Site and it surroundings.

B. The Subcontractor shall provide sufficient edited video recording on digital format, to fully describe the conditions at the project site. Details to be video recording are as follow:
   1. Common to project site (at a minimum): recording of water levels in adjacent canal, location of culverts, close-ups of the landscaping around residences, close-ups of building foundations and other structures, panoramas of woodlands, the exterior condition of the structures, on all sides showing existing conditions.
   2. The Subcontractor shall notify the Environmental Remediator when the preconstruction video recording is to be carried out so that he may be present when it is performed to direct added taping of specific items considered critical by him.

C. The edited video recording shall be approved by the Environmental Remediator prior to the addition of commentary which shall also be approved by the Environmental Remediator.

D. The Subcontractor shall provide the Environmental Remediator with electronic copies of the approved video recording, prior to any work commencing on the project site.

1.3 PHOTOGRAPHS

A. Photographs shall be taken throughout the Project of the views identified below, as approved by the Environmental Remediator.

B. The Subcontractor shall provide the Environmental Remediator with digital copies of color photographs taken, with date stamp, of each view at the following work tasks and areas. The minimum numbers of individual views are shown in parentheses.

1. Before construction work begins:
   a. Existing Fences and Gates (sufficient to show entire fence line)
   b. Support Zone Location (3)
   c. Site Access (including Public and Private Roads)(5)
   d. Adjacent Properties (Including Buildings)(10)
   e. Existing Storm Sewer Features (5)
   f. Overhead Utilities, (1 every 100 ft)
   g. Trees, Vegetation & Landscaping (10)
   h. Existing Monitoring Wells (1 each well)
   i. Miscellaneous Site Features (10)

1.4 VIDEO RECORDING

A. The Subcontractor shall provide for the property approximately 1 to 2 hours of edited video recording on digital format, with commentary depicting the main operations of the Project during and after completion of Project construction. Main operations shall include the following:
   1. Mobilization and Demobilization;
   2. Decontamination Pad and Drum Staging Construction;
   3. Clearing and Site Grading;
   4. Demolition of Identified Structure and Features;
   5. In-situ Solidification/Stabilization;
   6. Construction of the Final Soil Cover;
   7. Surface Water Management;
   8. Remedial Excavation;
   9. Landscaping;
   10. Decontamination of Vehicles and Off-Site Transportation;
   11. Construction of vertical barriers, temporary support systems;
   12. Implementation of Health and Safety Requirements;
   13. Security Fence Installation; and
   14. Site Restoration (e.g., seeding).

B. The edited video recording shall be approved by the Environmental Remediator prior to the addition of commentary which shall also be approved by the Environmental Remediator.

C. The Subcontractor shall provide the Environmental Remediator prior to project closeout with digital copies of the approved video recording.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Quality assurance - control of installation.
B. Tolerances
C. References and standards.
D. Mock-up.
E. Inspecting and testing laboratory services.
F. Manufacturers' field services.
G. Responsibility of Subcontractor for damages to Work

1.2 RELATED SECTIONS

A. Section 01300 - Submittals: Submission of manufacturers' instructions and certificates.
B. Section 00200 - Information Available to Bidders (Refer to ATTACHMENT G Construction Quality Assurance Pan)

1.3 QUALITY ASSURANCE - CONTROL OF INSTALLATION

A. The quality of the work shall be the responsibility of the Subcontractor. The Subcontractor shall provide and maintain an effective quality control program that complies with the approved Construction Quality Assurance Plan documents prepared by the Environmental Remediator.
B. The Subcontractor shall furnish qualified personnel, appropriate facilities, instruments, and testing devices necessary for the performance of the quality control system; these shall be adequate to cover the operations, including both on-site and off-site testing, and shall be keyed to the approved site activities to be implemented.
C. Sufficient inspections and tests shall be performed on a continuous basis of the items of work, including work performed by Sub-subcontractors, to establish conformance to applicable Contract Specifications and Drawings with respect to the quality of materials, workmanship, construction, finish, and functional performance.
D. Progress payments for material, supplies, services, and work accomplished will be withheld until the Subcontractor has certified that the materials, supplies, services, and work fully comply with the Contract requirements and copies of relevant inspections and required tests thereof have been submitted to the Environmental Remediator.

E. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality. Comply with manufacturers' instructions, including each step in sequence.

F. Should manufacturers' instructions conflict with Contract Documents, request clarification from Environmental Remediator before proceeding.

G. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

H. Perform Work by persons qualified to produce required and specified quality.

I. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

1.4 INSPECTION AND TESTS

A. The Subcontractor's quality control program shall consist of three phases of inspections and tests to confirm that each feature of the work is carried out in accordance with the Contract Specifications and Drawings.

1. Phase I inspections shall be performed prior to beginning each feature of work. Phase I inspections for each feature of work shall include:
    a. A review of submittal and other subcontract requirements, (particularly Activity Hazard Analyses and other Health and Safety Requirements) with the foremen or supervisors directly responsible for the performance of the work;
    b. Checks to confirm that provisions have been made to provide required field control testing;
    c. Examination of each work area to ascertain that preliminary work has been completed;
    d. Verification of field dimensions and notice to the Environmental Remediator of any discrepancies;
    e. Physical examination of materials and equipment to confirm that they conform to approved shop drawings or submittal data and that the materials and equipment are on hand.
2. Phase II inspections shall be performed as soon as work begins on a representative portion of each feature of work and shall include examination of the quality of workmanship as well as a review of control testing to confirm compliance with Contract requirements.
3. Phase III inspections including control testing and analysis shall be performed continuously as each feature of work progresses, until completion, to assure compliance with subcontract requirements. Inspections and test results shall be recorded daily.
    a. The Subcontractor shall perform tests specified or required to verify that control measures are adequate to provide a product which conforms to contract requirements.

b. The attached sample " Report" form shall be reproduced and completed to show the results of the inspections and tests and submitted to the Environmental Remediator on the first work day following the date covered by the report.

1.5 DEFICIENCIES

A. The Subcontractor shall stop work on any item or work feature, pending satisfactory correction of any deficiency noted by the Quality Control Manager, his staff or the Environmental Remediator.

B. If recurring deficiencies in an item or items indicate that the quality control program is inadequate, corrective actions shall be taken as approved by the Environmental Remediator.

C. If the Subcontractor fails or refuses to take such corrective actions promptly, the Environmental Remediator may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop work orders shall be made the subject of a claim for extension of time or for excess costs or damages by the Subcontractor.

1.6 TOLERANCES

The Subcontractor shall perform all of the following activities:

A. Monitor installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. If applicable, comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Environmental Remediator before proceeding.

1.7 REFERENCES AND STANDARDS

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. Neither the contractual relationships, duties, nor responsibilities of the parties in Contract nor those of the Environmental Remediator shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.8 MOCK-UP

Not Used.

1.9 TESTING AND INSPECTION SERVICES

A. Where required, the Subcontractor will appoint, employ, and pay for specified required services of an independent firm to perform required testing and/or inspection as noted in the Contract Documents. The independent firm must be approved by the Environmental Remediator and Property Owner.
B. The independent firm will perform tests and/or inspection, and other services specified in individual specification sections and as required by the Environmental Remediator and Authority having Jurisdiction over the Work.
C. Testing and/or Inspection for source quality control, may occur on or off the Project Site. Perform off-site Testing and/or Inspection as required by the Environmental Remediator.
D. Reports will be submitted by the independent firm to the Environmental Remediator and Subcontractor indicating observations and results of tests and indicating compliance or non-compliance with Contract requirements.

1.10 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, the Subcontractor will be responsible to provide Manufacturers Field Service as necessary.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
B. Verify that existing substrate is capable of to receiving new Work being applied.
C. Examine and verify specific conditions described in individual specification sections.

3.2 PREPARATION

A. Refer to Contract Drawings.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section. The Subcontractor shall perform and maintain all of the services and activities described herein.

1.1 SECTION INCLUDES

A. Temporary Utilities: Electricity, lighting, heat, ventilation, water, and sanitary facilities are to be paid, provided and maintained by the Subcontractor.
B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
C. Construction Facilities: Access roads, parking, progress cleaning, project signage, and temporary buildings/trailer.

1.2 RELATED SECTIONS

A. Section 01700 - Contract Closeout: Final cleaning.

1.3 TEMPORARY ELECTRICITY

A. Cost: By Subcontractor; provide and pay for power service required from current site power generating entity.
B. Coordinate power service with current site power generating entity, or as directed by the utility. Do not disrupt Property Owner's use of service.
C. Complement existing power service capacity and characteristics as required.
D. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.
E. Provide main service disconnect and over-current protection at location directed by the utility.
F. Permanent convenience receptacles may not be utilized during construction.
G. Electricity and lighting shall be in accordance with Federal, State, and local regulations as well as local utility company requirements. All work shall be in accordance with the National Electric Code.

1.4 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain lighting for construction operations.
B. Provide and maintain lighting to exterior staging and storage areas after dark for security purposes.

C Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
D. Maintain lighting and provide routine repairs.

1.5 TEMPORARY HEATING

A. Provide for heating devices and heat as needed to maintain specified conditions for construction operations.
B. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated, and filters are in place. Provide for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.6 TEMPORARY COOLING

A. Provide for cooling devices and cooling as needed to maintain specified conditions for construction operations.
B. Prior to operation of permanent equipment for temporary cooling purposes, verify that installation is approved for operation, equipment is lubricated, and filters are in place. Provide for operation, maintenance, and regular replacement of filters and worn or consumed parts.

1.7 TEMPORARY VENTILATION

A. Ventilate enclosed areas to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.8 TELEPHONE SERVICE

A. Not Used.

1.9 FACSIMILE SERVICE

A. Not Used.

1.10 TEMPORARY WATER SERVICE

A. Provide and maintain suitable quality water service. Connect to existing water source after coordinating with the Property Owner, the City, or local authority for construction operations at time of project mobilization.
B. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.
C. Fire hydrants and stop valves adjacent to the Work or on or adjacent to the Property shall be kept readily accessible to fire apparatus and no material or other obstruction shall be placed within five (5) feet of any hydrant or stop valve unless by special permission of the proper authorities.

1.11 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Existing outdoor temporary facility use provided by other may be permitted. Provide at time of project mobilization.
B. Sanitary facilities, and disposal of sanitary wastes, shall be in accordance with State and local regulations.

1.12 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, and to protect existing facilities and adjacent properties from damage from construction operations.
B. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.13 FENCING

A. Provide as call out in the Contract Drawings.

1.14 WATER CONTROL

A. Maintain excavations free of water and take all precautions necessary to limit the accumulation of water contact with potentially impacted material during remedial excavation activities. Provide, operate, and maintain pumping equipment.
B. Protect Site from puddling or running water. Provide water barriers as required to protect Site from soil erosion.
C. Best management practices should be implemented during construction so as to minimize adverse impacts to the chemical, physical and biological characteristics of waterbodies, more specifically minimization of On-Site erosion and transport of sediments Off-Site during construction.

1.15 EXTERIOR ENCLOSURES

A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.16 INTERIOR ENCLOSURES

Not Used.

1.17 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.
B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.
C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
D. Protect finished areas from traffic, wear, damage, or movement of heavy equipment.
E. Prohibit traffic or storage upon proposed remediation areas as applicable. If traffic or activity is necessary, obtain approval.
F. Prohibit traffic from landscaped areas.

1.18 SECURITY

A. Provide security and facilities to protect Work, all equipment, and existing facilities, Environmental Remediator and Property Owner's operations from unauthorized entry, vandalism, or theft.
B. Coordinate with Environmental Remediator and Property Owner's security program, if applicable and as relevant.

1.19 ACCESS ROADS

A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.
B. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
C. Provide and maintain access to fire hydrants, free of obstructions.
D. Provide means of removing mud from vehicle wheels before entering streets.
E. Designated existing on-site roads may be used for construction traffic.

1.20 PARKING

A. Coordinate temporary parking areas with the Property Owner to accommodate construction personnel.
B. When site space is not adequate, provide additional off-site parking.
C. Do not allow vehicle parking on remedial excavation areas.
D. Parking areas shall be regulated for free and safe entry and egress to and from the Project Site.
E. The Subcontractor shall control vehicular traffic on the Project Site for safe and efficient operations.

1.21 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition at all times during the performance of the Work.
B. Collect and remove waste materials, debris, and rubbish from site weekly and appropriately dispose off-site.

1.22 PROJECT IDENTIFICATION

Not Used.

1.23 FIELD OFFICES AND SHEDS

A. A Subcontractor field office shall be provided and maintained for use by the Environmental Remediator and or Property Owner, for the duration of the entire Contract. The offices shall have at least the approximate total capacity and facilities specified hereinafter and as instructed by the Environmental Remediator.
B. The Subcontractor's offices shall be lockable. Environmental Remediator's and Subcontractor's offices shall have different locks and keys. The Environmental Remediator's and Subcontractor's offices shall be in separate trailers.
C. Trailers shall be placed on concrete blocks and leveled, with adequate wooden steps and handrails provided at each exterior door. The trailers and their associated equipment shall be new or recently renovated to a like-new condition subject to the Environmental Remediator's approval. The interiors shall consist of a pastel shade paneling. The office shall be provided with regular maintenance, janitorial service; potable water, electric; lighting requirements as instructed by the Environmental Remediator. The following shall be provided:
    1. Trailer or building shall have two (2) partitioned offices with doors, each having a minimum of 120 square feet of floor area. Each office shall contain at least two (2) operable windows, an exterior lockable door and shall be supplied with the following equipment:
        a. Be weather tight, with lighting, electrical outlets, data (broadband internet access), heating, cooling, and ventilating equipment, and equipped with sturdy furniture, drawing rack, and drawing display table at time of project mobilization.
        b. Provide space for Project meetings, with waste basket, table, and chairs to accommodate 8 persons.
        c. Provide separate private office, similarly equipped, and furnished, for use by Environmental Remediator at time of project mobilization.
        d. Non-toxic dry chemical fire extinguisher UL-approved for Class A, B and C fires (minimum rating of 2A, 10B, 10C);

D. Prior to installation of offices, the Subcontractor shall consult with the Environmental Remediator in regard to location, access, and related facilities.
E. All trailers and equipment supplied to the Environmental Remediator shall be the property of and be removed by the Subcontractor at the completion of the Project.

1.24 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Final Application for Payment inspection.
B. Clean and repair damage caused by installation or use of temporary work.
C. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified conditions.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01568

POLLUTION CONTROL

PART 1GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SCOPE

A. The Subcontractor shall furnish all labor, supervision, materials, permits, tools, equipment, incidentals and services necessary to prevent the release of any Hazardous Substances, pollutants, contaminants, or other hazardous materials, as defined in the Contract Documents, resulting from his operations, as necessary to comply with all federal, state and local laws, rules, regulations and ordinances, and the requirements of all Contract Documents.

B. Whenever demolition, excavation, or other Work of any kind creates harmful dust or fumes, equipment for the complete protection of all personnel and property against dust and fumes shall be installed, maintained and effectively operated by the Subcontractor.

1.2 RELATED SECTIONS

A. Section 01019 – Contract Consideration
B. Section 01300 – Submittals
C. Section 01400 – Quality Control
D. Section 01569 – Contaminated Material / Emergency Response

1.3 REFERENCES

Not Used.

1.4 DEFINITION

Not Used.

1.5 SUBMITTALS

Not Used.

PART 2PRODUCTS

2.1 DUST PALLIATIVES

A. Dust Palliatives shall be used by the Subcontractor.

B. All temporary and/or permanent natural or synthetic erosion control materials shall be of the type and size which are consistent with manufacturer's recommendations for its intended use.

PART 3 EXECUTION

3.1 GENERAL

A. Subcontractor shall comply with all federal, state and local requirements as they pertain to pollution control.
B. Subcontractor shall accept full and exclusive responsibility for all fines, damages, costs and liability, including but not limited to attorney's fees, resulting from failure to provide the required pollution control.
C. At the Environmental Remediator's request, the Subcontractor shall implement additional pollution control measures. Such measures shall be at the Subcontractor's expense. The failure of the Environmental Remediator to request the implementation of additional measures shall in no way reduce or relieve the Subcontractor's responsibility for providing the required pollution controls.
D. If proper pollution controls are not being provided by the Subcontractor, all Work, except cleanup operations and the implementation of pollution controls, may be stopped by the Environmental Remediator or Property Owner at the Subcontractor's expense, until the Subcontractor has complied with the Contract requirements to the satisfaction of the Environmental Remediator or Property Owner.

3.2 DUST AND ODOR CONTROL

A. Subcontractor shall conduct his operations and maintain areas of his activities, to minimize the creation and dispersion of dust and odors in compliance with the Air Monitoring Plan.
B. At a minimum, the Subcontractor shall implement the following methods as necessary to control dust and odors.

1. At any given time, limit the area from which existing vegetation is removed.
2. Keep access roads, clean of mud and debris.
3. Apply water only to haul roads, access roads and exposed earth.
4. Tarp all vehicles which are transporting potentially dust generating materials or residue.
5. Immediately remove dry waste and rubbish. If such is impractical, cover the material or use other measures to prevent blowing of dust.

C. The Subcontractor shall take any necessary measures (in addition to those required by Federal, State, and local laws and regulation and requirements of other Sections of these Specifications) to control dust and odor to an acceptable level as determined by the Environmental Remediator, Property Owner, or Regulatory Agency having authority and jurisdiction.

D. The Subcontractor shall be responsible for providing dust control on all unpaved roads used by transport vehicles and construction equipment. The subcontractor shall maintain all work areas free from dust which would contribute to air pollutions. Frequent sprinkling with clean water will be permitted to control dust. Sprinkling must be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs, or as directed by the Environmental Remediator or Regulatory Agency authority and jurisdiction. No oils, calcium chlorite or contaminated liquids shall be used for dust control.

3.3 EROSION AND SEDIMENTATION CONTROL

A. Subcontractor shall install permanent and temporary erosion control features as necessary to assure effective and continuous erosion throughout the construction and post-construction period.

B. Subcontractor shall construct and maintain filters, sedimentation traps, or stilling basins with overflows, as necessary to ensure that water containing suspended material from any part of the Subcontractor's operations shall be clarified before discharging to drains or streams or any location offsite. All water discharged from the site shall be done in accordance with any applicable Federal, State or Local regulations. In no event shall water that comes in contact with waste material be allowed to discharge to drains or streams.

C. Temporary controls may be required for construction which is conducted outside the limits of the site, such as at borrow sources, along haul roads, etc.

D. Permanent erosion and sedimentation controls include the establishment of permanent vegetation and the installation of all permanent channels, ditches (including linings) and sediment basins.

E. Temporary erosion and sedimentation controls include, but are not limited to, limiting the surface area of erodible earth, providing temporary vegetation, and using straw, site and sediment fence, dikes, slope protection, sediment pits, mulches, etc.

F. The Subcontractor shall incorporate all permanent erosion control features into the project at the earliest possible time.

G. Except where future construction operations will damage slopes, the Subcontractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available.

H. Temporary and permanent erosion control features shall be checked after each measurable rainfall and re-established as necessary.

I. Temporary erosion control features shall be maintained to the satisfaction of the Environmental Remediator and shall be removed or replaced when direct by the Environmental Remediator.

3.4 CONTROL OF NOISE

A. The Subcontractor shall eliminate noise to as great an extent as possible, at all times. Air compressors shall be equipped with silencers and the exhaust of all gasoline motors and other power equipment shall be provided with mufflers.
B. Site activities shall comply with the provisions of the East Chicago Municipal Code, Title 16 of the Environmental Protection Code (§16.05.390, Noise Regulation). To comply with the construction noise requirements, transportation of soil waste will only occur between the hours of 7 a.m. to 6 p.m. local time, work will be limited to Monday through Friday and truck idling will be minimized.
C. The subcontractor may schedule his operations to suit the progress of the project within this time frame. No on-site activities shall be permitted outside this time frame identified without the prior approval of the City, Property Owner and/or the Environmental Remediator.

3.5 SMOKE PREVENTION

A. Strict compliance with all applicable federal, state and local laws, rules, regulations and ordinances regulating the production and emission of smoke is required.

3.6 SANITARY REGULATIONS

A. The Subcontractor shall obey and enforce all sanitary regulations and orders; shall take precautions against infectious diseases and the spread of same; and shall maintain sanitary conditions around all temporary sanitary facilities, tool and supply houses, and other parts of the Work

3.7 DISPOSAL OF DEBRIS

A. All debris and wastes resulting from construction operations on this Contract shall be removed and disposed by the Subcontractor in an approved location in accordance with applicable Federal, State, and local laws and the requirements of other Sections of these Specifications. Such materials shall be removed from the Work Area before requesting final acceptance of the work.
B. Disposal in or adjacent to the Project Site of any debris, wastes, effluents, trash, garbage, oil, grease, chemicals, etc. resulting from Project work will not be permitted.
C. If any waste material is dumped in unauthorized areas, the Subcontractor shall remove the material and restore the area to its original condition. If necessary, ground contaminated from such unauthorized disposal operation shall be excavated, disposed as directed by the Environmental Remediator, replaced with suitable fill material, compacted and finished with topsoil, and planted as required to reestablish vegetation, at the Subcontractor's expense.

3.8 NOTIFICATION

A. Should the Environmental Remediator become aware of any apparent noncompliance with Federal, State or local environmental laws or regulations by the Subcontractor, he shall notify the Subcontractor immediately verbally and also in writing. The Subcontractor shall, after receipt of such notice, immediately inform the Environmental Remediator of his proposed corrective action and shall take such action as may be approved. If the Subcontractor fails or refuses to comply promptly, the Environmental Remediator may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be the subject of either an extension of time or reimbursement for additional costs or damages.

3.9 MAINTENANCE OF POLLUTION CONTROL OPERATIONS DURING CONSTRUCTION

A. During the life of this Contract, the Subcontractor shall maintain all pollution control operations specifically required for this Contract as long as the operations creating the particular pollutants are being carried out or until the materials concerned have become stabilized to the extent that the pollution is no longer being created. Prior to and during the construction period, the Subcontractor shall conduct training sessions for his employees on environmental protection. The curricula shall include methods of detecting and avoiding pollution, familiarity with pollution regulations, care of vegetation and plants and site facilities to prevent and correct environmental pollution.

END OF SECTION

SECTION 01569

CONTAMINATED MATERIALS / EMERGENCY RESPONSE

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to this section.

1.1 SCOPE

A. The Subcontractor shall furnish all labor, supervision, equipment, and material necessary for the proper handling, transportation, and disposal of contaminated material, water, and debris, in accordance with all applicable federal, state and local laws, rules, regulations and ordinances.

1.2 RELATED SECTIONS

A. Section 01400 - Quality Control
B. Section 01568 - Pollution Control

1.3 REFERENCES

Not Used.

1.4 DEFINITIONS

A. Contaminated Material: Any material or media which consists of and/or which has been impacted by or came in contact with any "Hazardous Substances", "Pollutants", or "Contaminants" as defined under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U. S. C. 9601 et seq., as amended, or similarly defined under any applicable federal, state and local laws, rules, regulations and ordinances, including, but not limited to any heavy metals, petroleum, lubricants, fuel, solvents, leachate, waste, radioactive material, hydraulic fluids, polychlorinated biphenyl (PCBs), any organic volatile compounds or toxic substances, as well as any surface water, groundwater or contaminated soils.
B. Work Area: The area outside the "No Work Zone" generally bounded by fences existing or erected by the Subcontractor.
C. Support Zone: An area of the Work Area outside the Exclusion Zone, accessible for deliveries and visitors. No persons, vehicles or equipment may enter these areas from the Exclusion Zone without having gone through specified decontamination procedures in the adjacent Contamination Reduction Zone. The Environmental Remediator's offices, Subcontractor's offices, personnel washing facilities, etc. shall be located in the Support

Zone.

D. Stockpile Area: An area of the Support Zone designated on the Contract Drawings for temporary stockpiling of approved backfill materials.

E. Exclusion Zone: An area within the Work Area, surrounded by security fencing, enclosing areas of contamination. Protective clothing and breathing apparatus as specified in SECTION 01035: HEALTH AND SAFETY REQUIREMENTS and in the approved Health and Safety Plan must be worn in Exclusion Zones.

F. Contamination Reduction Zone: An area at the exit point of the Exclusion Zone through which all personnel, vehicles, and equipment must enter and exit. All decontamination of vehicles and equipment and removal of personnel protective clothing and breathing apparatus must take place in a Contamination Reduction Zone.

G. No Work Zone: Area off-limits to Subcontractor's operations.

H. Hazardous Waste - any solid waste which meets the definition of hazardous waste in 40 CFR 261.3 and applicable Indiana Regulations.

1. Any solid waste contaminated with a hazardous waste is defined as a hazardous waste. Accordingly, decontamination pad residues, contaminated personal protection equipment, contaminated haul roads, spill clean-up residues, and any other solid waste similarly contaminated with hazardous waste is also a hazardous waste.

1.5 SUBMITTALS

A. The Subcontractor shall provide a written description of proposed method for handling Contaminated Material (e.g., Materials Handling Plan)

B. The Subcontractor shall submit a plan showing the boundaries of each zone, for the Environmental Remediator's approval.

PART 2PRODUCTS

Not Used.

PART 3EXECUTION

3.1 GENERAL

A. All procedures for handling and disposing of Contaminated Material are subject to the approval of the Environmental Remediator. At a minimum, handling and disposal methods shall comply with the requirements of the Contract Documents and all applicable federal, state and local laws, rules, regulations and ordinances. **THE SUBCONTRACTOR SHALL NOT REMOVE FROM THE POINT OF GENERATION, TRANSPORT, TREAT, STORE, OR DISCHARGE ANY CONTAMINATED MATERIAL WITHOUT PRIOR APPROVAL FROM THE ENVIRONMENTAL REMEDIATOR.**

3.2 EXCAVATED WASTE

A. General:

1. An exclusion zone shall be set up around the area in which excavation is to be performed. All equipment and vehicles which come into contact with the excavated soils shall be decontaminated before leaving the exclusion zone, with the exception that the vehicles or containers which are used to transport the excavated soils do not have to be decontaminated, provided only the inside of the container portion of the vehicle has come into contact with the excavated soils.
2. All excavated soils shall be transported in leak proof vehicles or containers.
3. Prior to being decontaminated and except when excavated soil is being loaded or unloaded, open-top vehicles or containers which are used to transport waste shall be tarped. Whenever reasonably possible, open-top vehicles or containers shall be covered or tarped during the transport of excavated soil on-site.
4. Any remedial activities or demolition shall be conducted in accordance with the approved site-specified HASP, prepared by the Subcontractor.

B. Disposal of Excavated Soil

1. Soil which is required to be excavated in order to perform the work shown in the Contract Documents must be disposed of off-site, unless otherwise directed by the Environmental Remediator.
2. The approved disposal facility for this Project is Republic's Newton County Landfill. A waste profile has been submitted and we are waiting on final approval by the landfill. The landfill address is 2266 E 500 S Rd Brook IN 47922. The sales representative is Brian Ridge he can be reached at 219-863-1441.

3.3 POTENTIALLY CONTAMINATED MATERIALS

A. The Subcontractor shall provide for analytical testing of potentially contaminated water encountered during excavation. The Subcontractor shall place water into frac tanks for characterization prior to disposal or as otherwise directed by the Environmental Remediator. The disposal of contaminated water shall be provided by the Subcontractor as approved by the Environmental Remediator.
B. Soils or water impacted by leaking fuel tanks or equipment, hydraulic fluids, lubricants, or solvents will be tested by the Subcontractor to determine proper disposal requirements. Analytical testing will be provided by the Subcontractor upon the review of the test methods, parameters, laboratory, and other relevant information by the Environmental Remediator.

C. The Subcontractor shall be responsible for disposal of all non-site related materials generated by its personnel or equipment to complete the Work. Disposal of all materials shall be conducted in accordance with all applicable federal, state and local laws, rules, regulations and ordinances.

3.4 CONTAMINATED WATER AND DECONTAMINATION WATER

A. All water which comes into contact with the excavated soil shall be contained on-site. The Subcontractor shall notify the Environmental Remediator of the water management methods immediately. Work will not proceed in the area if standing water remains.

B. If stormwater has not infiltrated into the exposed area before construction can proceed, the excess water will be pumped from the area and appropriately containerized in a designated frac tank.

C. All contaminated water encountered during construction activities, including water removed from excavations, shall be contained on-site or pumped to a temporary storage tank by the Subcontractor (unless directed otherwise by Environmental Remediator).

D. All water generated from decontamination activities shall be containerized for testing by the Subcontractor.

E. Make-up water used for drilling shall be recirculated back through the borehole or collected, containerized and tested by the Subcontractor for off-site disposal. Off-site disposal of water will be provided by the Subcontractor as approved by the Environmental Remediator.

F. The Subcontractor shall keep daily logs that will identify the quantity and origin of all water added to any storage tank.

G. The Subcontractor shall be responsible for all costs related directly or indirectly to the Subcontractor's mismanagement, including, but not limited to, any costs for disposal of soil or water.

H. Water determined not to be contaminated after testing will be disposed at the Environmental Remediator's direction after consultation with the appropriate authorities.

3.5 EMERGENCY RESPONSE

A. Should an incident arise which necessitates Emergency Response, including but not limited to, fire, explosion, release or imminent release of contaminated materials, or accident, the Subcontractor shall immediately notify the Property Owner and Environmental Remediator.

B. Emergency Response activities shall be initiated by the Subcontractor according to the procedures and protocol established within the approved HASP, the Emergency Response Plan and site pre-construction safety meeting.

3.6 CONTINGENCY PLAN

A. General

1. The Subcontractor shall be prepared to provide responses to potential releases from the site during construction and be prepared to manage Contaminated Material collected during construction.
2. Minimum plans for emergency response are outlined in Parts 3.6 B through E of this Section. The Subcontractor shall provide additional plans for emergency responses as needed in the Subcontractor's Health and Safety Plan.
3. The Subcontractor shall identify an on-site Health and Safety Representative to coordinate the Health and Safety requirements, monitoring, and personal protection equipment requirements.

B. Potential Release of Contaminated Stormwater

1. Should a release of stormwater that contacts Contaminated Material occur, the following procedures shall be followed:
   a. During storm events, stormwater runoff will be diverted as best as possible from any exposed areas to minimize the volume of stormwater that contacts the Contaminated Material. No Contaminated Material will remain exposed at the end of daily construction activities as reasonably practical.
   b. If rainfall is sufficiently heavy that Work is temporarily ceased, the exposed area should be covered with either soil or an appropriate geosynthetic material as reasonably practical to minimize the amount of rainfall that contacts Contaminated Material.
   c. If stormwater has not infiltrated into the exposed area before construction can proceed, the excess water will be pumped from the area and appropriately containerized in a frac tank. The collected liquid will be sampled to determine final disposal requirements. If all levels are below applicable discharge standards (MCLs), the containerized stormwater may be disposed into the existing sanitary sewer system; otherwise, the collected stormwater will be disposed off-site at an approved facility.
   d. If the collected stormwater may overflow the excavation or exposed area, earthen berms or dikes will be constructed to contain the flow.

C. Fires or Explosions during Construction

1. The potential for fires or explosions during construction is limited, but must be considered.
2. Procedures to monitor for explosive conditions during drilling, if

applicable, should be included in the approved HASP prepared by the Subcontractor.

3. Should an explosion or fire occur requiring emergency assistance, the procedures identified in Part 3.6 E of this Section shall be implemented.
4. On-site personnel should not attempt to control fires or explosions that clearly require assistance from trained emergency response units.

D. Management of Contaminated Materials

1. All Contaminated Materials shall be covered overnight in a closed, leak-proof container in an area where the containers will not be contacted by any surface water flow.
2. Contaminated water or decontaminated water will be contained on-site in closed/covered, leak proof containers in a diked area until testing can be performed to determine the proper disposal method of the material as described in Part 3.4 of this Section.

E. Emergency Assistance Procedures and Notifications

1. The Subcontractor shall identify an Emergency Coordinator.
2. The responsibilities of the Emergency Coordinator include:
   a. Assessing the situation and determining whether an emergency exists and report and coordinating immediately with the Property Owner and Environmental Remediator.
   b. Notifying outside emergency services (fire, police, regional hazardous response team, hospitals, etc.), as necessary.
   c. Coordinate and contact emergency maintenance personnel (including maintaining a list of key personnel including all after hours telephone numbers for emergency maintenance or response groups which may be involved).
   d. Establishing specific locations of wind direction indicators on-site.
3. If an emergency response has been enacted, the Emergency Coordinator, shall notify and report to the appropriate agencies as needed including, but not limited to, National Response Center, Indiana Department of Environmental Management, U.S. EPA, Department of Transportation, Health and Safety Representative, the City East Chicago, and Lake County.
4. If the Emergency Coordinator, and the Site Health and Safety Officer determine that a situation exists that requires assistance of outside response personnel, the City of City East Chicago will be contacted. The City East Chicago will contact and coordinate with other emergency response agencies as delineated within the City East Chicago Safety Department Standard Operating Procedures.
5. The Subcontractor's personnel shall provide information to the City

East Chicago and other agencies as needed to assist in implementation of actions to protect on-site personnel and the community.

END OF SECTION

SECTION 01570

TRAFFIC SAFETY AND REGULATIONS

PART 1 GENERAL

1.1 SCOPE

A. This Section covers the Subcontractor's obligations with respect to use of public and private roads within and adjacent to the Project Site.

1.2 GENERAL

A. The Subcontractor shall comply with all rules and regulations of the State, County and Township authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the appropriate authorities. The work shall be conducted to assure the least possible obstruction to traffic and normal commercial pursuits. All obstructions within public roadways shall be protected by installing approved signs, barricades, and lights where necessary for the safety of the public. The convenience of the general public and residents and the protection of persons and property shall be provided in an adequate and satisfactory manner.

B. When flagmen and guards are required by regulation or when deemed necessary for safety, they shall be furnished with approved orange wearing apparel and other regulation traffic control devices, by the Subcontractor.

1.3 POLICE AND FIRE SERVICE

A. The Police and Fire Departments having jurisdiction in the area, shall be notified before closing any roadway or portion of a roadway. No closing shall be made without the Environmental Remediator's prior approval. Closure shall be made with the least interference to fire equipment access, which shall not be prevented under any circumstances.

B. Contact with the Police Department shall be provided as specified in the Contract Documents.

1.4. WHEEL CLEANING SYSTEMS

A. Primary Use:

1. Wheel cleaning systems will be installed on Site where a stabilized construction exit is not adequate to prevent off-site tracking of soil.
2. Wheel cleaning systems will be installed and used to remove soil from construction vehicles and equipment before they leave the Site and enter paved streets.

3. Wheel cleaning systems will be used with a stabilized construction exit to minimize the tracking of soil from disturbed areas and provide added protection and reduce the need to remove sediment from the streets.

B. General Design Criteria:

1. Dependent on Site contains and when allowable, provide separate entrances and exits to the construction site so that incoming vehicles do not drive through the wheel cleaning system. Signage and employee training is critical to making the system work.
2. Wheel cleaning systems should be located within the stabilized construction exit so that the vehicle does not pick up additional sediment load by traversing disturbed areas. A minimum of 25 feet of stabilized exit shall be maintained between the cleaning system and the paved road.
3. The stabilized exit shall be sloped at 1 percent toward the cleaning system.
4. The width of the stabilized exit may be reduced to 10 to 20 feet, depending on the size and number of vehicles using the exit, as long as all exiting traffic is funneled through the cleaning system.
5. Post a sign requiring all vehicles to use the cleaning system before leaving the site. Posted speed limit through the wheel cleaning system should be 5 mph.
6. Wheel cleaning systems should be designed with ease of access to areas where sediment will accumulate, so the system can be frequently cleaned.

C. Rumble Racks:

1. The minimum cleaning system shall consist of 10 foot wide, 8 foot long, steel grates with individual bars of the grates at varying heights to shake the vehicle and knock off soil. These grates are also known as rumble racks.
2. Minimum length of the rumble rack shall be the length of the circumference of the largest tire on vehicles that will be using the construction exit. Two to three lengths of grates are typically necessary to provide adequate soil removal, depending on soil type and size of vehicles.
3. Grates shall be placed over an excavated pit that is a minimum of one foot deep.
4. Grates may be purchased pre-made from vendors or constructed by welding 10-foot lengths of structural steel tubing (rectangular section) or angle. The lengths of steel ("bars" of the rumble rack) should be welded to steel beams or other cross supports in a manner that provides for alternating heights. This is accomplished with rectangular steel tube by alternating the long and short sides of the

tube upward. Angle iron, welded to the support structure with the angle pointed upward, may also be used. Round tubing shall not be used, as it does not adequately shake the tires.

5. Size and spacing of bars and support beams shall be designed based on the size and weight of vehicles expected to be using the rumble rack.
6. Welded or manufactured grates may be cleaned and re-used on multiple projects.

D. Wheel Washes:

1. Two common types of wheel wash systems constructed onsite are the corrugated metal wheel wash and the flooded basin wheel wash. In addition, several companies manufacture packaged wash systems that can be assembled onsite and re-used. All of these require a source of water, and several of the packaged systems require electricity to run pumps for water pressure.
2. All wheel washes must provide a means to collect the wash water in a sediment basin or other sediment control that provides equivalent or better treatment prior to discharge from the site.
3. For the flooded basin wheel wash, sedimentation occurs in the wash basin, meaning the basin cannot be used for a period of time while settling is allowed to occur. Cleaning of the basin should be done first thing in the morning after particles have settled overnight, and ideally the basin would be cleaned on Monday after settling all weekend. If the basin is pumped for cleaning, it should be accomplished using the controls in Section 01568 Pollution Controls.
4. Corrugated metal wheel washes shall be constructed over a drainage swale that conveys the wash water to a sediment barrier, typically a sediment basin. However, a passive or active treatment system may be needed to adequately remove suspended solids depending on the permit
requirements for the site.
5. Swales, sediment basins, stone outlet sediment traps, and other controls for the wash water must be sized for the anticipated flows from the wheel wash using criteria in their respective sections of this manual. Depending on the volume of water, two sediment controls may be needed in parallel, to allow for settling and cleaning of one sediment control while the other is in operation for the wheel wash.
6. Manufactured wash systems frequently collect, filter, and recycle the wash water, resulting in the use of less water and producing less wash water to treat for sediment removal. For this reason, they may be more cost-effective over the life of the project, even if their initial cost is higher.
7. If a packaged wheel wash system does not include a sediment collection area, then a swale and sediment trap is required, similar to the corrugated metal wheel wash.

8. Prohibit the use of soap for wheel washing. The purpose of a wheel wash is to remove soil that would otherwise fall off on the roadway, not to clean the vehicle. Refer to Section 01580 Decontamination for proper vehicle washing procedures. The discharge of wash water with soap in it is prohibited, and soap is not removed by a sediment control.
9. Train employees to only use water in the wheel wash for removing accumulations of soil from the wheels and undercarriage. Minimize water contact with other portions of the vehicle or equipment.
10. Wash water contaminated with oil, grease or fuel requires special handling and disposal. Refer to Refer to Section 01580 Decontamination.

END OF SECTION

SECTION 01580

DECONTAMINATION

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SCOPE

A. The Subcontractor shall furnish all labor, supervision, equipment, and material necessary for the proper decontamination of equipment and material.

1.2 RELATED SECTIONS

A. Section 01019 – Contract Considerations
B. Section 01400 – Quality Control
C. Section 01568 – Pollution Control
D. Section 01569 – Contaminated Material / Emergency Response

1.3 REFERENCE

A. Health and Safety Plan.

1.4 DEFINITIONS

A. Contaminated Material: Shall have the same definition as provided in Section 01569 of these Specifications at Part 1, Section 1.4 A.
B. Decontamination Pad: A containment structure, constructed of suitable materials and of sufficient size, that all decontamination water will be collected within the containment structure.
C. Decontamination Water: Water which is used to decontaminate equipment, tools, or vehicles.

1.5 SUBMITTALS

A. The Subcontractor shall provide a written plan outlining decontamination procedures and the location of decontamination facilities.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 GENERAL

A. All vehicles, tools, or equipment which comes into contact with waste or with a material which has been determined to be a Contaminated Material shall be decontaminated.
B. An equipment decontamination pad shall be constructed at the location shown in the Contract Drawings. The location shown may be relocated by the Subcontractor with the approval of the Environmental Remediator. The Subcontractor shall be responsible for all repair and maintenance of the decontamination pad as needed.
B. All vehicles, recoverable equipment, and materials used in the Exclusion Zone shall be decontaminated in the Contamination Reduction Zone prior to re-entering the Support Zone.

3.2 DECONTAMINATION AREA

A. All decontamination activities shall be performed on a decontamination pad.
B. Subject to the approval of the Environmental Remediator, plastic from a decontamination pad may be disposed of in accordance with the requirements for excavated waste.
A. The Subcontractor shall be responsible for the detailed design of the equipment decontamination pad which shall meet the requirements shown on the Contract Drawings and the following criteria:
    1. Adequate dimensions to contain wash water and debris from largest sized vehicles;
    2. Perimeter to be curbed and provided with splash guards;
    3. Reinforced concrete overlaid with an impervious membrane required to prevent seepage into the ground;
    4. Sumps and pumping facilities to be adequate for anticipated use.
B. Complete details of the decontamination pad shall be submitted to the Environmental Remediator for his approval prior to commencement of the construction.
C. The collection sump shall be pumped out periodically and decontamination water shall be managed and disposed in accordance with Contract Requirements.
D. The decontamination pad and sump shall be kept free of accumulations of debris and sediment and shall be washed down after each vehicle decontamination. Debris and sediment shall be containerized, removed and disposed off-site by the Subcontractor.

3.3 EQUIPMENT

A. Any equipment which comes into contact with the Contaminated Materials shall be decontaminated with a high-temperature, high-pressure wash prior to entering and leaving the site.

B. All portions of equipment which are utilized in an "exclusion zone", and which come into contact with a Contaminated Material, shall be decontaminated with a high-temperature, high-pressure wash.

C. Equipment which is utilized in an "exclusion zone" shall be transported to decontamination areas in a manner which prevents the spread of contamination. Any spread of contamination resulting from such equipment transportation shall be remediated at the expense of the Subcontractor.

D. Equipment which cannot be driven or transported to the decontamination pad without the portion of the equipment which came into contact with the Contaminated Material coming into contact with the site, or without materials being dropped onto the site, shall be decontaminated within the "exclusion zone."

E. Decontamination of equipment which is utilized in an "exclusion zone", but which does not come into contact with the Contaminated Materials is not required. The determination that a piece of equipment has not come into contact with the Contaminated materials, shall be supported through an appropriate demonstration provided by the Subcontractor to the Environmental Remediator or his designee. Such a demonstration shall conform to general industry practice and applicable regulatory requirements. The Environmental Remediator or his designee shall review such demonstrations and inform the Subcontractor of the results of such review. The Subcontractor shall assume all costs associated with such demonstrations and any decontamination required there from.

F. All decontamination water and other materials used for decontamination will be disposed in accordance with Section 01569.

G. Procedures for decontamination of equipment and materials shall be included in the Subcontractor's Health and Safety Plan.

H. Employees engaged in decontamination of equipment and materials shall wear protective equipment including disposable or non-disposable clothing and respiratory protection consistent with the approved Health and Safety Plan.

I. Solvents, acids, bases, or other hazardous substances shall not be used for decontamination. Detergents used for equipment decontamination shall be biodegradable. The Subcontractor shall specify what, if any, detergents are to be used, subject to approval by the Environmental Remediator.

J. A certificate or other record of decontamination and inspection shall be completed by the Subcontractor's Health and Safety Specialist (HSS) for each vehicle leaving the Exclusion Zone.

K. A certificate or other record of decontamination shall be completed by the Subcontractor's HSS for each large item which has been decontaminated.

L. The Subcontractor's HSS performing the inspections shall not be the same individual who performs the decontamination.

M. The Subcontractor shall maintain copies of decontamination and inspection records on site for review or inspection by the Environmental Remediator or his designated representative. These records shall be turned

over to the Environmental Remediator at the completion of the work or at any other reasonable time suggested by the Environmental Remediator.

3.4 FINAL APPROVAL

A. Prior to removal from the Project Site, decontaminated equipment and materials shall be inspected and approved by the Subcontractor's HSS and the Environmental Remediator.

B. A certificate or other record of final decontamination for each item shall be issued to the Environmental Remediator by the Subcontractor's HSS. The Subcontractor shall develop a recordkeeping method for this purpose for approval by the Environmental Remediator.

C. Upon completion of the work, the decontamination pad shall be cleaned using a high pressure wash system and emptied of all water, sediment, and debris, dismantled and disposed off-site. The Subcontractor shall submit the details of the decontamination pad closure for review and approval by the Environmental Remediator.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Products.
B. Transportation and handling.
C. Storage and protection.
D. Product options.
E. Substitutions.

1.2 RELATED SECTIONS

A. Section 00105 - Instructions to Bidders: Product options and substitution procedures.
B Section 01400 - Quality Control. The Subcontractor shall provide all materials and equipment, and perform all services and activities required in this Section.

1.3 PRODUCTS

A. Refer to the Contract Drawing and Documents.

1.4 TRANSPORTATION AND HANDLING

A. Transport and handle Products in accordance with manufacturer's instructions.
B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.5 STORAGE AND PROTECTION

A. Store and protect Products in accordance with manufacturer's instructions.
B. Store with seals and labels intact and legible.
C. Store sensitive Products in weather tight, climate controlled, enclosures in an environment favorable to Product.
D. For exterior storage of fabricated Products, place on sloped supports above ground.

E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
F. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of Products.
G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
H. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
I. Arrange storage of Products to permit access for inspection. Periodically inspect to verify Products are undamaged and are maintained in acceptable condition.

1.6 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.7 SUBSTITUTIONS

A. General Conditions specify requirements for submitting requests for Substitutions during the construction period.
B. Substitutions may be considered when a Product becomes unavailable through no fault of the Subcontractor.
C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
D. A request constitutes a representation that the Bidder and/or Subcontractor:
    1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
    2. Will provide the same warranty for the Substitution as for the specified Product.
    3. Will coordinate installation and make changes to other Work, which may be required for the Work to be complete with no additional cost to Environmental Remediator.
    4. Waives claims for additional costs or time extension, which may subsequently become apparent.
    5. Will reimburse Property Owner and Environmental Remediator for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit three copies of request for Substitution for consideration. Limit each request to one proposed Substitution.
2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
3. The Environmental Remediator will notify Subcontractor in writing of decision to accept or reject request.

PART 2PRODUCTS

Not Used.

PART 3EXECUTION

Not Used.

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Closeout procedures.
B. Final cleaning.
C. Adjusting.
D. Project record documents.
E. Operation and maintenance data.
F. Spare parts and maintenance Products.
G. Warranties and bonds.
H. Maintenance service.

1.2 RELATED SECTIONS

A. Section 01500 - Construction Facilities and Temporary Controls. The Subcontractor shall perform all services and activities required in this Section.

1.3 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Environmental Remediator's review.
B. Provide submittals to Environmental Remediator that are required by governing or other authorities.
C. Submit final Application for Payment identifying total adjusted Contract Price, previous payments, and sum remaining due.

1.4 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.
B. Clean debris from Property.
C. Remove all waste and surplus materials, rubbish, and construction facilities from the Property.

1.5 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.6 PROJECT RECORD DOCUMENTS

A. Maintain on-site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Environmental Remediator.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish first floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   4. Measured horizontal and vertical locations of all Work items.
   5. Field changes of dimension and detail.
   6. Details not on original Contract Drawings.

G. Submit documents to Environmental Remediator with claim for final Application for Payment.

1.7 OPERATION AND MAINTENANCE DATA

Not Used.

1.8 SPARE PARTS AND MAINTENANCE PRODUCTS

Not Used.

1.9 WARRANTIES AND BONDS

A. When specified in individual specification sections, submit all manufactures warranties for the Property Owner and Environmental Remediator review and records.

1.10 MAINTENANCE SERVICE

Not Used.

PART 2PRODUCTS

Not Used.

PART 3EXECUTION

Not Used.

END OF SECTION

SECTION 02060

DEMOLITION

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.

1.1 SECTION INCLUDES

A. Demolition of designated structures and features identified on the Contract Drawing.
B. Demolish flexible and rigid pavements.
C. Decommission utilities as defined by the respective governing authority.
D. Site Backfill, Grading and Clean-Up.

1.2 RELATED SECTIONS

A. Section 01019 - Contract Considerations: Requirements applicable to unit prices for the Work of this Section.
B. Section 01039 - Coordination and Meetings.
C. Section 01300 - Submittals.
D. Section 01500 - Construction Facilities and Temporary Controls: Barriers, fences, and dust control.
E. Section 01600 - Material and Equipment.
F. Section 01700 - Contract Closeout: Project record documents.
G. Section 02205 - Backfill Materials.
H. Section 02223 - Backfilling.

The Subcontractor shall perform all services and activities in accordance with this Section.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

Reference the Prices to Include Section for a description of the respective pay items.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.
B. Proposed dust and odor control measures.
C. Proposed noise-control measures.
D. Video Recoding, photograph sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by demolition operations.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01700.
B. Accurately survey, record actual locations of capped, abandoned utilities and any other subsurface obstructions encountered during construction.

1.6 QUALIFICATIONS

A. Company specializing in performing the work of this section with minimum of five to ten years documented successful project experience.

1.7 REGULATORY REQUIREMENTS

A. Conform to applicable federal, state, and local laws, rules, regulations, and ordinances for demolition of structures, safety of adjacent structures, dust control, runoff, disposal, and all other activities associated with this Project.
B. Obtain required permits and licenses and pay all associated fees and charges required by the governing authorities.
C. Notify affected utility companies before starting Work and comply with their requirements.
D. Do not close or obstruct roadways, sidewalks, or hydrants without permits.
E. Conform to applicable regulatory procedures when discovering hazardous or Contaminated Materials.
F. Subcontractor shall dispose of and remove all CD&D materials generated, to an approved off-site disposal facility.

1.8 SEQUENCING

A. Sequence Work under the provisions of Section 01010.

1.9 SCHEDULING

A. Schedule Work under the provisions of Section 01010.
B. Schedule demolition work to coincide with in-situ stabilization operations and site remedial excavation work, whenever possible. In certain instances, demolition will have to be completed prior to site in-situ stabilization and remedial excavation work.
C. Conduct demolition so that Property Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Property Owner of activities that will affect Property Owner's operations.
D. Storage or sale of removed items or materials (on-site) will not be permitted.
E. Coordinate working hours with the Environmental Remediator and the Property Owner, depending on demolition means and methods.

PART 2 PRODUCTS

2.1 FILL MATERIALS

A. Fill Material: Backfill Materials shall be utilized on the Project as specified within Section 02205, unless otherwise directed and/or shown on the Contract Drawings.

PART 3 EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during demolition.
B. Provide, erect, and maintain temporary barriers and security devices as needed at locations delineated on the Contract Drawings or as directed by the Environmental Remediator and/or the Property Owner.
C. The Subcontractor shall have full control of the demolition process and the clearance of the site.
D. Protect existing landscaping materials, appurtenances, and structures that are not to be demolished.
E. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.
F. Survey, mark location(s) of utilities as applicable.
G. Conduct demolition operations and remove debris to ensure minimum interference with access road and other adjacent occupied and used facilities.
H. Do not close or obstruct access road, or other adjacent occupied or used facilities without permission from the Environmental Remediator and/or the Property Owner. Provide alternate routes around closed or obstructed traffic ways if required.
I. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around the demolition area. Erect temporary protection where required by governing authorities.

3.2 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize disturbance of in-situ soils.
B. Cease operations immediately if adjacent structures appear to be in danger. Notify Environmental Remediator and the Property Owner. Do not resume operations until directed.
B. Although not anticipated, if required, obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon or limit access to their property.
C. Use water mist, temporary enclosures, and/or other suitable methods to limit the spread of dust and dirt in accordance with the Air Monitoring Plan. Comply with governing environmental protection regulations. Remove debris from elevated portions of buildings by chute, hoist or other device that will convey debris to grade level.

D. At the end of each workday, clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to their condition prior to the start of demolition operations.

3.3 DEMOLITION

A. Disconnect, cap, and identify all designated utilities within demolition areas. Coordinate all utility decommissioning with the respective utilities, prior to the actual decommissioning. Provide documentation to support these coordination efforts.
B. All demolished materials resulting from this Work shall become the property of the Subcontractor and shall be removed from the premises and properly disposed, unless otherwise directed by Environmental Remediator and/or the Property Owner. Do not allow materials to accumulate onsite and remove from the Site as the Work progresses.
C. Explosives and blasting are not permitted in the performance of the demolition Work.
D. Any part of a structure, whether structural, collateral, or accessory, which has become unstable through removal of other parts, shall be removed as soon as possible and no such unstable part shall be left free standing or inadequately braced at the end of any day's Work.
E. Foundations encountered near the perimeter of the defined Work area shall be left in place unless otherwise directed.
F. Backfill excavated/open pits, cavities, and depressions caused as a result of demolition, in accordance with Section 02223.
G. Rough grade and compact areas affected by demolition to maintain site grades and contours which will not allow ponding of water.

3.4 SCHEDULES

A. Not Used.

END OF SECTION

SECTION 02110

SITE CLEARING

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to this section.

1.1 SECTION INCLUDES

A. Removing existing wooded vegetation.
B. Removal of debris.
C. Temporary erosion and sedimentation control.
D. Chipping and Grinding.

1.2 RELATED SECTIONS

A. Section 02205 – Backfill Materials.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Site Clearing: Reference the prices to include section for a description of this pay item.

1.4 REGULATORY REQUIREMENTS

A. Conform to all Federal, State and Local codes, for environmental requirements and disposal of debris.
B. Coordinate clearing Work with all utility companies before starting work and comply with their requirements.

1.5 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain on Property, cleared materials shall become the Subcontractor's property and shall be removed from Project Site and properly disposed of in accordance with applicable regulations.

1.6 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during Site-clearing operations.
B. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Property Owner and authorities having jurisdiction.

C. Provide alternate routes around closed or obstructed trafficways if required by Property Owner or authorities having jurisdiction.
D. Protect items indicated on the Contract Drawing that are to remain on premises, where indicated.
E. Utility Locator Service:
   1. Employ the services of a private utility locate service as needed.
   2. Before clearing activities begins, it is the Subcontractor's responsibility to contact Indiana811 by calling 811 or visiting indiana811.org remote ticket entry system, depending on the complexity of the project and areas to be marked. The Subcontractor shall take other measures as needed to ensure utilities are appropriately marked and an assured distance is maintained for the duration of the Contract. Subcontractor shall coordinate with Environmental Remediator and/or Property Owner regarding location of all private utilities On-Site.

PART 2PRODUCTS

Not Used.

PART 3EXECUTION

3.1 PREPARATION

A. Contact all utility companies at least two days before work commences.
B. Protect and maintain benchmarks and survey control points from disturbance during construction.
C. Verify that existing plant life designated to remain is tagged or identified.
D. Protect existing Site improvements to remain from damage during construction (e.g., Monitoring Well ECHA MW-01).
   1. Restore damaged improvements to their original condition, as acceptable to Environmental Remediator.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion and sedimentation control measures in accordance with the Stormwater Pollution Prevention Plan (SWPPP) to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion and sedimentation control Contract Drawings and requirements of authorities having jurisdiction.
B. Verify that flows of water redirected from construction areas or generated by construction activity are not off-property.
C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established as applicable.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal unless otherwise directed by the Owner.

3.3 PROTECTION

A. Locate, identify, and protect utilities that remain, from damage.
B. Protect trees, plant growth, and features designated to remain, as final landscaping.
C. Protect benchmarks, survey control points, and existing structures from damage or displacement.

3.4 CLEARING

A. All areas as shown on the Contract Drawings where Site remedial implementation and improvements activities are to take place shall be cleared.
B. Remove obstructions, debris, cut, mow, or brush hog tall grass, and other vegetation to permit implementation of Site remediation activities (i.e., In-situ Stabilization and Remedial Excavation).
C. Remove trees and shrubs, or other wooded vegetation within the work limits. Unless otherwise specified, clear all wooded vegetation down to the stump.
D. The remaining stumps shall be ground down to one foot below grade where the main root ball and root systems will remain in place unless directed and agreed upon otherwise by the Environmental Remediator to be removed and disposed of during and as part of the remedial excavation operations as indicated on the Contract Drawings and the Alternate Pay Items.
E. Clear undergrowth and deadwood, without disturbing the soil.
F. At all times, the Subcontractor shall remain within the property lines, easement areas, designated perimeter limits, or work areas shown on the Contract Drawings.

3.5 SCALPING

Not Used

3.6 REMOVAL

A. Remove debris, rock, and extracted plant life from Site.
B. Excavate and remove all existing obstructions and debris encountered within the work limits that would impede or otherwise hinder Site remedial implementation and improvements.

3.7 DISPOSAL

A. Disposal: Remove all trees, shrubs, other vegetation removed during clearing. Remove obstructions, and waste materials, including trash and debris, and legally dispose of them off the Property in accordance with all local, state, and federal regulations.

3.8 CHIPPING AND GRINDING

A. Subcontractor is responsible for chipping/grinding On-Site all woody materials generated from the Site clearing activities as necessary.
B. The terms "*chipping*" or "*grinding*" mean the cutting, shredding, and other break-up of larger pieces of wood into smaller pieces.
C. Subcontractor will grind all woody material to achieve the requisite non-regulated chip size of less than 1" in at least two dimensions.
D. The Subcontractor shall provide all necessary equipment capable of cutting down whole trees up to 48 inches in diameter and 40 feet tall, grinding/chipping branches, and any additional equipment deemed necessary for the grinding work to be successfully performed.
E. The Subcontractor is responsible for overall Site management, including Stockpiling wood debris and wood chip material and Off-Site disposal.

3.9 TOPSOIL EXCAVATION

Not Used

END OF SECTION

SECTION 02205

BACKFILL MATERIALS

PART 1GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Clayey Soil Materials
B. Granular Backfill Materials

1.2 RELATED SECTIONS

A. Section 01019 - Contract Considerations
B. Section 01400 - Quality Control: Testing Soil Fill Materials
C. Section 02223 - Backfilling

1.3 UNIT PRICES - MEASUREMENT AND PAYMENT

A. Backfill Materials: Reference the Prices to Include section for a description of pay items.

1.4 REFERENCES

A. ASTM D422 - Test Method for Particle – Size Analysis of Soils.
B. ASTM D698/AASHTO T99- Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
C. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
D. ASTM D1557/AASHTO T180 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
E. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
F. ASTM D2216 – Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
G. ASTM D2487 - Classification of Soils for Engineering Purposes. (Unified Soil Classification System).
H. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
I. ASTM D3017 - Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

J. ASTM D4318 - Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

1.5 SUBMITTALS FOR REVIEW

A. Section 01300 - Submittals: Procedures for submittals.
B. Section 01400 - Quality Control: Procedures for quality control.
C. Materials Source: Submit name for imported materials source prior to incorporation.

1.6 SUBMITTALS FOR INFORMATION

A. Refer to Section 01300 - Submittals: Procedures for submittals.
B. Refer to Section 01400 – Quality Control: Procedures for quality control
C. Off Site Import Backfill Materials Source: Submit name and completed Borrow Source Questionnaire for imported materials source prior to incorporation.
D. Provide certified analytical data for approval along with affidavit.

1.7 QUALITY ASSURANCE

A. Backfill materials shall meet the product requirements as outlined within Part 2 PRODUCTS.
B. Backfill compaction shall meet the percentage of maximum dry density and the optimum moisture content as delineated within Section 02223 – Backfilling as appliable.

PART 2 PRODUCTS

A. The Subcontractor shall provide/use the following backfill materials and perform all services and activities defined in this Section.

2.1 BACKFILL MATERIALS

Owner's On-Site Stockpiled Backfill Materials:

A. On-Site Soils Stockpiled Materials approved for backfill materials will be utilized as needed and as directed by the Property Owner and Environmental Remediator and as defined in the Fill Import Plan and the Contract Drawings.
B. Compacted On-Site stockpiled backfill materials in accordance with the requirements of the Contract Drawings.

Off-Site Imported backfill Materials: Alternate Item (Refer to Section 01028 Alternates)

A. Approved Off-Site imported backfill materials will be utilized as directed by the Environmental Remediator and/or the Property Owner, and as defined:
   1. Fine Aggregate - ASTM D2487 Classifications.
   2. Natural Clayey Soils: Clayey soil shall be classified as CL, CL-ML, GC or SC as defined by the United Soil Classification System (USCS) within ASTM D2487 and be free of all deleterious materials (i.e., large rocks, limbs, roots, et.).
   3. Common Fill brought from clean off-site sources and proven clean shall consist of a well-graded soil free of deleterious or other objectionable materials, and shall in general conform to the following criteria:
      a. Maximum Particle Size: 4 inches.
         Passing a US Standard No. 4 size sieve: between 75% and 30%, by weight.
         Passing a US Standard No. 200 size sieve: between 40% and 15%, by weight
         Plasticity Index: between 2% and 15%
   4. As identified in the Fill Import Plan

B. Compacted soil material: Compacted soil in accordance with the Contract Documents.

2.2 SOURCE QUALITY CONTROL

A. Section 01400 - Quality Control: Testing and analysis of material.
B. Section 02223 – Backfilling: Placement and compaction criteria.
C. Off Site Imported Backfill materials shall be subjected to the following laboratory analyses
   1. All proposed Off Site Borrow Imported Backfill materials shall meet the requirements of the Fill Import Plan.
   2. If requested by the Property Owner and/or the Environmental Remediator, Off-Site Imported Backfill materials shall be subjected to the following laboratory analyses:
      a. Grain-size distribution per ASTM D422 for sieve and hydrometer analyses, Atterberg limits per ASTM D4318, and moisture content per ASTM D2216 shall be determined for a least every 10,000 cubic yards of soil placed and recompacted.
D. All proposed Off-Site imported backfill materials will be required to be characterized by the Subcontractor and be approved by the Environmental Remediator prior to import and placement. An Environmental Questionnaire shall be completed for each proposed borrow source and be presented to the Environmental Remediator of review. If required, grab samples shall be collected from representative locations at the borrow source, using a composite sampling method (minimum of 8 portions of material taken from various locations in the pile's quarter to create one composite sample). Once the samples are collected, they will be formed into a composite sample and placed into

laboratory supplied containers for shipping to a certified laboratory for laboratory analysis. Each sample will be named appropriately as to include the pile number and/or location from which the samples was taken. The samples may be required to be analyzed for the following, but is not limited to:

- VOCs by Method 5035/8260B;
- SVOCs by Method 8270C;
- Polychlorinated biphenyls (PCBs) by Method 8082;
- Metals by Method 6010/7470;

Analytical results will determine whether the materials can be used on the site. The certified analytical laboratory testing results for the proposed borrow will be provided to the Environmental Remediator for approval. Additionally, the Contractor shall mandate that the certified analytical laboratory submit an Affidavit for the proposed borrow source indicating that the material meets applicable Site standards, to the Environmental Remediator. Payment for off-site imported backfill materials, including all loading, off-site hauling, unloading, and stockpiling of the materials, as well as placement and compaction of the materials, shall be part of this pay item.

E. If tests indicate materials do not meet specified requirements, change material and retest.
F. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 STOCKPILING

A. If applicable Stockpile approved Off-Site imported backfill materials On-Site at locations as specified on the Contract Drawing or as directed by the Environmental Remediator.
B. Stockpile in sufficient quantities to meet Project schedule and requirements.
C. Segregate/Separate differing materials with dividers or stockpile apart to prevent mixing.
D. Prevent intermixing of soil types and contamination.
E. Direct surface water away from compacted stockpile areas to prevent erosion or deterioration of materials in accordance with the SWPPP.
F. Implement dust control on stockpiles as necessary to comply with the Air Monitoring Plan.

3.2 STOCKPILE CLEANUP

A. Leave area in a clean and neat condition. Grade site surface to prevent ponding of precipitation.

3.3 EXCAVATING

A. Excavate materials as described within Section 02222 – Excavating and in accordance with the Contract Drawings.

3.4 BACKFILLING

A. Backfill with materials as described within Section 02223 – Backfilling and in accordance with the Contract Drawings.

END OF SECTION

SECTION 02222

EXCAVATING

PART 1GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Excavation associated with remedial activities.

1.2 RELATED SECTIONS

A. Section 01019 - Contract Considerations.
B. Section 01400 - Quality Control.
C. Section 01500 - Construction Facilities and Temporary Controls.
D. Section 01568 - Pollution Control
E. Section 01569 - Contaminated Materials/ Emergency Response
F. Section 01580 - Decontamination
G. Section 01600 - Materials and Equipment
D. Section 02223 - Backfilling.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Reference the Prices to include a description of pay items.

1.4 FIELD MEASUREMENTS

A. Verify that survey benchmarks and intended elevations for the Work are as indicated.

PART 2PRODUCTS

Not Used.

PART 3 EXECUTION

The Subcontractor shall perform all excavating in accordance with the requirements of this Section and the Contract Drawings.

3.1 PREPARATION

A. Identify required lines, levels, contours, and datum locations.
B. Locate, identify, and protect utilities that remain from damage.
C. Notify all utility companies prior to working in the vicinity of their lines.

D. Protect all existing features inside or outside of buildings.
E. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
F. Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
G. Provide alternate routes around closed or obstructed traffic ways if required by Property Owner or authorities having jurisdiction.
H. Clearing shall be carried out in accordance with the provisions of Section 02110

3.2 EXCAVATING

A. Underpin adjacent structures which may be damaged by excavating Work if necessary.
B. Excavate existing stumps/root bulbs and subsoils material to accommodate remediation objectives.
C. Excavate to working elevations/depths for Work per the Contract Drawings.
D. Hand trim excavation as required and as needed. Remove loose matter.
E. Notify Environmental Remediator of unexpected subsurface conditions and discontinue affected Work in area until notified to resume Work.
F. In addition to requirements of this Section, excavation of contaminated soil shall also be performed in accordance with the requirements of the approved HASP.
G. Excavation, where shown on the Contract Drawings or as required to complete the work specified in these Contract Documents, shall be performed in accordance with the requirements of this Section.
H. All excavation work shall be performed in such a way as to minimize disturbance and maintain stability of subgrade soils. Special care shall be taken not to disturb the bottom of excavations. Excavation to the final grade levels must be done by methods which minimize traffic on the subgrade.
I. The excavation equipment must be of such size and capacity sufficient to excavate to depths required in the Contract Documents. Any cohesionless sands and silts and soft clays encountered below the groundwater table represent potentially unstable subgrade conditions in excavations, without proper dewatering and/or temporary protection/shoring.
J. The Subcontractor shall be responsible at all times for carrying out all excavation operations in a safe and prudent manner so that the workmen, the public and adjacent public and private property, utilities, structures, monitoring wells, etc., will be protected. As a minimum, all excavation shall be done in accordance with OSH A Standards. All applicable local, State, and Federal requirements shall be observed.
K. The Subcontractor shall bench or cut back, dewater and shore as necessary for stability, safety and protection of utilities, structures, etc.

L. No materials or fill shall be placed by the Subcontractor until the subgrades have been surveyed by the Subcontractor, as required and approved by the Environmental Remediator.
M. Install visual demarcation barrier prior to backfilling.

3.3 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field inspection and testing.
B. Provide for visual inspection of bearing surfaces.
C. The Subcontractor shall employ a land surveyor, registered, and licensed in State of Indiana, to stake all limits of work. The Subcontractor must accurately locate and maintain location of all buildings, roads, paved areas, utilities, features, etc. and advise the Environmental Remediator of any discrepancies prior to initiating Work.
D. Surveys shall be made of the surface, bottom, and sides of the excavations prior to the placement of fill, and after the compaction of fill.
E. In areas of solidification/stabilization, the limits of the excavations and the top of the solidified mass shall be surveyed prior to and after the placement of the fill for the Final Cover.
F. The excavations shall be surveyed with cross-sections taken at not more than twenty-five (25) foot intervals, and survey points at twenty-five (25) feet or less if there is a significant change in the slope of the surface. The spacing of cross-sections and survey points shall be reduced for smaller excavations. Prior to performing the survey, the Subcontractor shall submit the proposed spacing of survey points to the Environmental Remediator for approval.
G. Preliminary cross-section sketches of the bottom of excavations shall be submitted to the Environmental Remediator prior to the start of filling.
H. Contract Drawings showing the survey baseline and cross-sections shall be prepared and sealed by the surveyor and submitted to the Environmental Remediator within three (3) weeks of the completion of filling and completing the Final Cover.
I. The Subcontractor shall be responsible for all surveying associated with the Work. The Environmental Remediator's surveyor may perform independent check surveying: however, independent surveying does not relieve the Subcontractor's responsibility to layout, control and document the Work. The surveyor for the Subcontractor will cooperate with the other surveyors on the Project to the maximum degree possible.
J. Additional surveying required due to areas not being to the required lines and grades and/or thicknesses will be performed at the Subcontractor's expense.

3.4 PROTECTION

A. Protect and maintain erosion and sedimentation controls during earth-moving operations.

B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project Site and surrounding area.

C Prevent displacement or loose material from falling into excavation; maintain soil stability.

D. Protect bottom of excavations and adjacent to and beneath foundation from freezing.

E. Protect the Work Exclusion Zones from any excavation activity by maintaining one foot set back from existing fence lines, remain 4 feet from the edge of existing power poles, brace poles, power guy wires and utility stickups, and six feet from the base of transmission towers.

3.5 SUBGRADE INSPECTION

A. Notify Environmental Remediator when excavations have reached required target depth in accordance with Contract Documents.

3.6 FILLING

A. Refer to Section 02223 Backfilling

END OF SECTION

SECTION 02223

BACKFILLING

PART 1GENERAL

A. Contract Drawings and general provisions of the Contract apply to this section.

1.1 SECTION INCLUDES

A. Site filling and backfilling.
B. Fill for excavation.

1.2 RELATED SECTIONS

A. Section 01019 - Contract Considerations.
B. Section 01400 - Quality Control: Compaction testing.
C. Section 01500 - Construction Facilities and Temporary Controls.
D. Section 02205 - Backfill Materials.
E. Section 02222 - Excavating.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Reference the Prices to include a description of pay items.

1.4 REFERENCES

A. ASTM D698/AASHTO T99 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
B. ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
C. ASTM D1557/AASHTO T180 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
D. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
E. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
F. ASTM D3017 - Test Methods for Water Content of Soil and Rock Mixtures.

PART 2PRODUCTS

2.1 BACKFILL MATERIALS

A. Reference Section 02205 for a description of these products.

PART 3EXECUTION

A. The Subcontractor shall perform all backfilling in accordance with the requirements of this Section.

3.1 EXAMINATION

A. Verify that the subgrade area has been excavated to the required limits and that the area has been approved for backfilling by the Environmental Remediator.

3.2 PREPARATION

A. Notify Environmental Remediator when remedial excavations areas have reached required subgrade and is ready for backfilling.
B. Verify that surveys have been made of the surface, bottom, and sides of the excavation areas and that they meet the required limits identified on the Contract Drawings, prior to the placement of fill.
C. Verify that a visual demarcation barrier has been installed per the Contract Drawings and that the backfill areas has been approved for filling.

3.3 BACKFILLING

A. Fill shall be placed in the manner as described in the following paragraphs.
B. The fill shall be thoroughly mixed and spread evenly by mechanical equipment or other suitable means above the approved subgrade in lifts not exceeding fifteen (15) inches before compaction (or less, if needed) and shall be built up in horizontal layers, as nearly even as practicable with the contiguous existing grades.
C. The fill shall be sufficiently dry so that it does not quake, weave, or roll under the action of the construction equipment (including the compactor). If, in the opinion of the Environmental Remediator the fill material becomes too wet for the required compaction, the fill shall be dried prior to commencing or continuing compaction operations. Likewise, if, in the opinion of the Environmental Remediator, the fill material becomes too dry for the required compaction, the fill shall be moistened prior to commencing or continuing compaction operations.
D. Material that is too wet shall be spread and permitted to dry, assisted by discing or harrowing, if necessary, until the moisture content is reduced to the required limits. When the material is too dry, the Subcontractor shall sprinkle each layer with water. Harrowing, or other approved methods, will be required to work the moisture into the soil until a uniform distribution of moisture is obtained. Water applied on a layer shall be accurately controlled. Should soil be too wet to obtain the desired compaction, the compacting of the section shall be delayed until the moisture limit is reduced to the required moisture by wetting or drying the soil at the Site,

the Subcontractor shall condition the material off the Site, or secure soil at an appropriate moisture content, at no additional cost.

E. The moisture content after compaction shall be as uniform as practicable throughout any one layer.

F. Each lift shall be compacted in a manner to achieve a firm and unyielding condition.

G. The degree of compaction shall be checked visual and successive lifts of fill shall not be placed until the previous lift has been accepted. Any soft spots shall be removed or recompacted before new fill material is placed.

H. No fill materials shall be placed when either the fill material or the underlying material on which it is to be placed is frozen. In the event the subgrade or any fill which has already been placed is frozen, it shall be scarified, thawed, and recompacted or removed, to the approval of the Environmental Remediator before the next fill is placed. Any soft spots resulting from frost shall be removed or recompacted to the satisfaction of the Environmental Remediator before new fill material is placed. No frozen material shall be used as fill.

I. The Subcontractor shall maintain completed fill areas in an undisturbed and compacted state until completion of the Contract work. All work and materials required for remedial maintenance shall be performed at no additional cost.

J. In the event of slides, sloughing, or erosion in any part of the work, the Subcontractor shall remove the disturbed material from the damaged area and shall rebuild such portion as directed by the Environmental Remediator. The removal of material and the rebuilding of the slide area shall be performed at no additional cost.

K. Approval by the Environmental Remediator does not release the Subcontractor from his full responsibility for the accurate and complete performance of the Work in accordance with the Contract Drawings and the Specifications.

3.4 TOLERANCES

A. Top Surface of Backfilling Areas: Plus or minus ¼" from required elevations.

3.5 FIELD QUALITY CONTROL

A. Section 01400 - Quality Control: Field inspection and testing.

B. The Subcontractor shall employ a land surveyor, registered, and licensed in State of Indiana, to stake all limits of work. The Subcontractor must accurately locate and maintain location of all buildings, roads, paved areas, utilities, features, etc. and advise the Environmental Remediator of any discrepancies prior to initiating Work.

D. Surveys shall be made of the surface of the backfill after the compaction and grades are met.

E. Backfill areas shall be surveyed with cross-sections taken at not more than twenty-five (25) foot intervals, and survey points at twenty-five (25) feet or

less if there is a significant change in the slope of the surface. The spacing of cross-sections and survey points shall be reduced for smaller excavations. Prior to performing the survey, the Subcontractor shall submit the proposed spacing of survey points to the Environmental Remediator for approval.

F. Preliminary cross-section sketches of the top of backfill shall be submitted to the Environmental Remediator upon completion of filling.

H. Contract Drawings showing the survey baseline and cross-sections shall be prepared and sealed by the surveyor and submitted to the Environmental Remediator within three (3) weeks of the completion of filling and completing the Final Cover.

I. The Subcontractor shall be responsible for all surveying associated with the Work. The Environmental Remediator's surveyor may perform independent check surveying: however, independent surveying does not relieve the Subcontractor's responsibility to layout, control and document the Work. The surveyor for the Subcontractor will cooperate with the other surveyors on the Project to the maximum degree possible.

J. Additional surveying required due to areas not being to the required lines and grades and/or thicknesses will be performed at the Subcontractor's expense.

3.6 PROTECTION OF FINISHED WORK

A. Protect finished Work under provisions of Section 01500.

B. Reshape and re-compact fills subjected to vehicular traffic.

3.7 SCHEDULE

A. Reference the Contract Drawings for areas to be backfilled.

END OF SECTION

SECTION 02242

SOIL STABILIZATION

PART 1 - GENERAL

A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to this section.

1.1 SECTION INCLUDES

A. The Work covered in this Section includes furnishing all labor, equipment and materials necessary to perform in-situ solidification/stabilization of all all areas identified on the Contract Drawings. The limits and depths of areas to stabilized are shown on the Contract Drawings.

1.2 REFERENCE STANDARDS

A. The publications listed below form part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest editions of these references shall be applicable.

B. American Society for Testing and Materials (ASTM).

ASTM A-2540
ASTM D-5057

C. U.S. Environmental Protection Agency.

SW-846 Method 9045
SW-846 Method 3050B, 6010D
SW-846 Methods 1311, 6020B

D. Treatability Testing Report for USS Lead OU-1, Forgen, February 2022.

1.3 RELATED SECTIONS

A. Section 01400 - Quality Control
B. Section 02205 - Soil Materials.
C. Section 02222 - Excavating.
D. Section 02223 - Backfilling

1.4 UNIT PRICE MEASUREMENT AND PAYMENT

A. Reference the Prices to include a description of pay items.

1.5 SUBMITTALS FOR REVIEW

A. Submit mix design and materials mix ratio that will achieve specified requirements. Refer to Attachment Section of the Contract Documents for the Treatability Study.

B. Work Plan:

1. The Subcontractor shall submit a preconstruction Work Plan for approval by the Environmental Remediator one week prior to the Pre-Work Conference. The Work Plan shall include, but not be limited to, the following items:

a. Schedule - A schedule in sufficient detail to identify the major segments of the Work. Starting and ending dates for all major work items shall be clearly identified.
b. Construction Method - A detailed description of the proposed methods of construction which shall include, but not be limited to, in-situ mixing and monitoring, rate of advancement, and the minimum weight (pounds) of dry reagent.
c. Equipment - A list of major equipment by type and capacity and support equipment.
d. Include a list of test methods and minimum standards with which to gauge the quality of the work during construction including depth measurements.
e. The Plan shall address the physical properties and manufacturer's stated properties for all permanent materials including manufacturer's certifications of quality, mill certificates, gradation test data, and other pertinent data.
f. The Plan shall state when the QC data will be submitted to the Environmental Remediator and the correction procedures to be employed in the case of substandard results.

1.6 JOB CONDITIONS

A. Health and Safety

1. The Subcontractor shall take action to safeguard persons and properties in accordance with approved Health and Safety Plan.

B. Dust Control

1. The Subcontractor shall take all necessary precautions to maintain compliance with the Air Monitoring Plan and to prevent dusting of the Work Area and haul roads by continual wetting of surfaces with water, applying dust control products or other methods approved

by the Environmental Remediator. Petroleum products shall not be utilized.

C. Erosion Control

1. The Subcontractor shall take all precautions to prevent siltation, and soil erosion in accordance.

D. Temporary Roads and Equipment Support

1. The Subcontractor shall design and construct temporary roads and equipment support foundations as necessary to provide access to the Work Area, protect subgrades, work, and environment in accordance with provisions in the Contract Documents. All locations and designs must be approved by the Environmental Remediator prior to construction.
2. When no longer needed, the Subcontractor shall remove the temporary roads, equipment foundations and dispose of materials, as directed by the Environmental Remediator, and restore the site to the preconstruction conditions as approved by the Environmental Remediator

.

1.7 ENVIRONMENTAL REQUIREMENTS

A. The Subcontractor shall carry out the Work to prevent soil erosion, and to minimize the creation of air-borne dust in accordance with the requirements of the Air Monitoring Plan and other relevant Contract Documents.
B. Minimize creation of air-borne dust when handling soil stabilization reagent.

PART 2 - PRODUCTS

2.1 MATERIAL REQUIREMENTS

A. Triple Superphosphate (TSP): $Ca(H_2PO_4).\ H_2O$
1. Granular: The purpose of the TSP is to fix in-situ high lead containing soils material in a stabilizing matrix rendering it non-hazardous. The material shall be premixed in batch or continuous mix plants which combine materials in predetermined proportions.
a. Analysis%: 0% N, 46% H_2PO_4, 0% K_2O
2. The TSP shall be adequately protected from moisture and contamination while in transit. TSP shall be stored appropriately in bulk storage container. Reclaimed TSP or TSP containing lumps or deleterious matter shall not be used.

B. Water (if required):

1. Fresh water, free of excessive amounts of deleterious substances that adversely affect the properties of the TSP shall be used.
2. Potential water sources shall be tested by the Subcontractor prior to or at the beginning of site work, but prior to beginning the soils stabilization activities, to assure that the water is of suitable characteristics for incorporation.
3. It is the responsibility of the Subcontractor that the resulting mixture from the water shall always meet the standard of this Specification.

2.2 EQUIPMENT

A. The Subcontractor shall furnish the necessary plant and equipment for the in-situ solidification/stabilization of the areas shown on the Contract Drawings. The equipment shall be of the type and capacity to complete the Work in an efficient manner in conformance with the Specifications and shall be maintained in operable condition at all times.

C. Capable of excavating subsoil, mixing, and placing materials, wetting, consolidation, and compaction of material.

2.3 SOIL-TSP MIX

A. The results of treatability studies, conducted by others, suggest that a mix design of 2% triple superphosphate by dry weight may achieve the specified performance criteria. However, these proportions are for guidance only and in no way relieve the Subcontractor of his responsibility to achieve the performance criteria.

B. The Subcontractor shall be required to treat at least 100 cubic yards of impacted soil in Decision Units B6, B9, and E9 and demonstrate successful treatment before proceeding with the full-scale treatment. The results verifying the mix design effectiveness shall be submitted and approved by the Environmental Remediator prior to full scale operations.

C. Should water be required, then this shall be carefully added to the mix to achieve a consistent mixture without lumping but not to create a wet plastic consistency.

D. The Subcontractor shall alter the mix design during the production, as necessary, in accordance with field conditions. Mix alterations shall be approved by the Environmental Remediator prior to use.

E. To be acceptable, soils stabilized with Triple Superphosphate shall be analyzed for TCLP lead and arsenic in accordance with SW-846; 1311, 6010D) and for pH (SW9045D), and meet the TCLP arsenic results of < 5.0 mg/L, TCLP lead < 5.0 mg/L and pH >2.0 and <12.5.

PART 3 - EXECUTION

3.1 EXAMINATION

A. The Subcontractor shall not treat any area that is frozen or excessively

wet, as determined by the Environmental Remediator.

3.2 EXCAVATION

A. The Work shall be carried out in a manner which will protect adjacent structures which may be damaged by the Subcontractor's operations.
B. The Subcontractor shall excavate in areas and to depths shown on the Contract Drawings.
C. The Subcontractor shall remove any large boulders, or debris prior to mixing for stabilization.
D. Should the Subcontractor encounter unexpected subsurface conditions, he shall notify the Environmental Remediator immediately and discontinue the affected Work in the area until notified to resume the Work.

3.4 SOIL TREATMENT

A. In-situ soil stabilization/solidification shall be to the depths and locations shown on the Contract Drawings.
B. The Subcontractor shall mix the soils material with the required additives in-situ. Where the mixture is too dry, water shall be added to the mix to achieve the mix formulation and required solidification/stabilization.
D. Mixing of materials shall be performed in a continuous operation.

3.5 CURING

A. Immediately following the In-situ soil stabilization/solidification, allow a minimum of two (2) hours before collecting confirmation samples.

3.6 FIELD QUALITY CONTROL

A. Preconstruction Design Mix
    1. Prior to construction, a design mix program shall be conducted to determine the design mix ingredients, sequence of mixing, additives properties and on-Site soils properties. The basic guiding principal for the Preconstruction Design program is to strive to accurately model expected field results.
    2. Results of a Treatability Study performed for the representative soil types found at the sites are included in the Contract Documents and can be referenced in Section 00200 - Information Available to Bidders. The data from this study in no way relieves the Subcontractor of the responsibility to verify to his satisfaction that the results are accurate.
B. Samples of the stabilized mixture will be collected and tested on-site by the Environmental Remediator.
    1. Five Samples will be collected per applicable individual Decision Units requiring stabilization, which will then be composited to form one composite sample and then will be analyzed.

2. Soils stabilized with Triple Superphosphate shall be analyzed for TCLP lead and arsenic in accordance with SW-846; 1311, (6010D) and for pH (SW9045D), this applies to all stabilized Decision Units (DU) that will be excavated and disposed at a licensed disposal facility. The exceptions are DU C3 and E7, which require stabilization but do not require excavation and will only require analysis for TCLP lead. Acceptance criteria for the landfill include TCLP arsenic results < 5.0 mg/L, TCLP lead < 5.0 mg/L and pH >2.0 and <12.5.
2. In-place solidified/stabilized material can be sampled two (2) hours following completion of treatment.

3.7 TESTING

A. Materials
1. The Subcontractor shall submit data, tests, manufacturer's certificates, etc. to document the compliance of materials to these Specifications.
2. TSP- The supplier shall provide certification of the contents, makeup, and source of this material.

3.8 RECORDS

A. The Subcontractor shall maintain records for the testing, measurements, observations, and inspection. Quality Control Reports shall be submitted to the Environmental Remediator each day (or at the end of each shift), whichever is more frequent, on a form acceptable to the Environmental Remediator. These reports shall list the test results, measurements, and observations made and received by the Subcontractor that day.

END OF SECTION

SECTION 02831

CHAIN LINK FENCES AND GATES

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to this section.

1.1 SECTION INCLUDES

A. Erection, maintenance, fence framework, fabric, and accessories.
B. Excavation for post bases; concrete foundation for posts, and center drop for gates.
C. Manual gates and related hardware.
D. Refer to Contract Document for proposed layout and location of gates.

1.2 REFERENCES

A. ASTM A116 - Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.
B. ASTM A121 - Zinc-Coated (Galvanized) Steel Barbed Wire.
C. ASTM A123 - Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
D. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
E. ASTM A392 - Zinc-Coated Steel Chain-Link Fence Fabric.
F. ASTM A428 - Weight of Coating on Aluminum-Coated Iron or Steel Articles.
G. ASTM A446 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
H. ASTM A491 - Aluminum-Coated Steel Chain Link Fence Fabric.
I. ASTM A569 - Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality.
J. ASTM A585 - Aluminum Coated Steel Barbed Wire.
K. ASTM C94 - Ready-mixed Concrete.
L. ASTM F567 - Installation of Chain-Link Fence.
M. ASTM F573 - Residential Zinc-Coated Steel Chain Link Fence Fabric.
N. ASTM F668 - Poly (Vinyl Chloride) (PVC) Coated Steel Chain Link Fence Fabric.
O. ASTM F1043 – Standard Specification for Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework.
P. ASTM F1083 - Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.
Q. ASTM F1234 - Protective Coatings on Steel Framework for Fences.
R. Chain Link Fence Manufacturers Institute (CLFMI) - Product Manual.

1.3 SYSTEM DESCRIPTION

A. Fence Height: 72 inches.

B. Line Driven Post Spacing: At intervals not exceeding 10 feet.
C. Fence Post and Rail Strength: Conform to ASTM F1043 Heavy Industrial Fence quality.
D. Gates: Provide personnel/vehicle gate of quality for functional access to Site with a minimum with of 20 feet to allow access for emergency vehicles and capable of manual operation by one person.

1.4 SUBMITTALS FOR REVIEW

A. Section 01300 - Submittals: Procedures for submittals.
B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
C. Shop Drawings: Indicate plan layout of fencing, location and size of gate, existing pavement and roads, access to fire hydrant and hose connection, spacing of components, any other Site-specific conditions, post foundation dimensions, hardware anchorage, and schedule of components. Prepare drawing after Site observation and verification of Existing conditions.

1.5 SUBMITTALS FOR INFORMATION

A. Section 01300 - Submittals: Procedures for submittals.
B. Manufacturer's Installation Instructions: Indicate installation requirements.

1.6 SUBMITTALS FOR CLOSEOUT

A. Section 01700 - Contract Closeout: Procedures for submittals.
B. Project Record Documents: Accurately record actual locations of property perimeter posts relative to property lines and easements.

1.7 QUALITY ASSURANCE

A. Perform Work in accordance with manufacturer's instructions and ASTM F567.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

PART 2PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: As approved by the Environmental Remediator

2.2 MATERIALS

A. Framing Steel: ASTM F1083 Schedule 40 galvanized steel pipe, welded construction, minimum yield strength of 25 ksi; coating conforming to ASTM F1234 Type A on pipe exterior and interior.
B. Fabric Wire Steel: ASTM A392 zinc coated wire fabric.
C. Concrete: Type specified by fencing manufacturer.

2.3 COMPONENTS

A. Line Posts: 1.9 inch diameter.
B. Corner and Terminal Posts: 2.38 inch.
C. Gate Posts: 3.5 inch diameter for gate leaves up to 13 feet wide, 6.63 inch diameter for gate leaves up to 18 feet wide.
D. Top and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled.
E. Gate Frame: 1.66 inch diameter for welded fabrication.
F. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, top salvage twisted tight, bottom selvage twisted tight.
G. Tension Wire: 6 gage thick steel, single strand.
H. Tie Wire: Aluminum alloy steel wire.
I. Screening shall be constructed of a knitted polyethylene material in green or black, securely fixed to the inside face of the fencing. No twisted wire is to protrude on the exterior side of the fence. Any screening that is torn or ripped will be replaced at the contractor's expense. No tears or rips greater than 2" in any dimension will be allowed. No visible gaps in the fencing are allowed, including between panels or under them. Gates must close tightly with no gaps in or around them.

2.4 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.
C. Gate Hardware: Fork latch with gravity drop; two 180 degree gate hinges per leaf and hardware for padlock.

2.5 FINISHES

A. Components and Fabric: Galvanized to ASTM A123; 2.0 oz/sq ft coating.
B. Hardware: Galvanized to ASTM A153, 2.0 oz/sq ft coating.
C. Accessories: Same finish as framing.

PART 3EXECUTION

3.1 INSTALLATION

A. Install framework, fabric, accessories, and gates in accordance with ASTM F567 and manufacturer's instructions.
B. Place fabric on outside of posts and rails.

C. Set intermediate, terminal, gate posts plumb, in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.
D. Line Post Footing Depth Below Finish Grade: minimum of 3 feet.
E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: minimum of 3 feet.
F. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
G. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
H. Install center and bottom brace rail on corner gate leaves.
I. Do not stretch fabric until concrete foundation has cured 7 days.
J. Stretch fabric between terminal posts or at intervals of 100 feet (30 m) maximum, whichever is less.
K. Position bottom of fabric 2 inches above finished grade.
L. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches (380 mm) on centers.
M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
N. Install bottom tension wire stretched taut between terminal posts.
O. Do not attach the hinged side of gate from building wall; provide gate posts.
P. Install gate with fabric and barbed wire overhang to match fence.
Q. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

3.2 ERECTION TOLERANCES

A. Maximum Variation From Plumb: ¼ inch.
B. Maximum Offset From True Position: 1 inch.
C. Components shall not infringe adjacent property lines.

3.3 MAINTENANCE

A. Throughout the duration of the project, maintain fencing in good condition. If damaged, repair immediately.

END OF SECTION

SECTION 02936

SEEDING

PART 1 GENERAL

A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to this section.

1.1 SECTION INCLUDES

A. Preparation of subsoil.
B. Seeding, mulching, and fertilizing.
C. Maintenance.

1.2 RELATED SECTIONS

A. Section 02205 – Backfilling Material.
B. Section 02223 - Backfilling: Rough grading of Site.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Reference the Prices to include a description of pay items.

1.4 REFERENCES

A. FS O-F-241 - Fertilizers, Mixed, Commercial.

1.5 DEFINITIONS

A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Morning Glory, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nimble Will, Bindweed, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.6 SUBMITTALS AT PROJECT CLOSEOUT

A. Section 01700 - Contract Closeout: Procedures for submittals.
B. Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.7 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.8 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer and herbicide composition.
B. Provide certificate of compliance from authority having jurisdiction indicating approval of seed mixture.

1.9 DELIVERY, STORAGE, AND PROTECTION

A. Material and Equipment: Transport, handle, store, and protect products.
B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.10 MAINTENANCE SERVICE

A. Section 01700 - Contract Closeout.
B. Maintain seeded areas immediately after placement until grass is well established and exhibits a vigorous growing condition for at least two cuttings.

PART 2 PRODUCTS

2.1 SEED SUPPLIERS

A. Manufacturers: As approved by the Environmental Remediator.
    1. Materials and Equipment: Product options and substitutions.

2.2 SEED MIXTURE

A. Seed shall be Indiana-certified seed of the latest season's crop and shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures, purity, germination, weed-seed content, and inert material. Seed shall be labeled in conformance with U.S. Department of Agriculture rules and regulations under the Federal Seed Act and applicable Indiana seed regulations.
B. Seed mixtures shall conform to the Contract Drawings.

2.3 SOIL MATERIALS

A. Property Owner's On-Site Stockpiled Backfill Materials.
B. Approved Off-Site Imported Backfill Materials

2.4 ACCESSORIES

A. Mulching Material: Oat or wheat straw, free from weeds and foreign matter detrimental to plant life, and dry.
B. Fertilizer
C. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.
D. Mulching.
E. Stakes: Softwood lumber, chisel pointed.
F. String: Inorganic fiber.

2.5 TESTS

A. Section 01400 - Quality Control: Provide mix formulation for hydroseeding.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that prepared soil base is ready to receive the work of this section.

3.2 PREPARATION OF SUBSOIL

A. Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.
B. Remove foreign materials, weeds and undesirable plants and their roots.
C. Scarify subsoil as needed.

3.3 FERTILIZING

A. Apply fertilizer in accordance with manufacturer's instructions.
B. Apply after smooth raking of top of soil and prior to roller compaction.
C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.
D. Mix thoroughly into upper 2 inches of soil.
E. Lightly water to aid the dissipation of fertilizer.

3.5 HYDROSEEDING

A. Apply seeded slurry with a hydraulic seeder at a rate in accordance with manufacturer's instructions and evenly in two intersecting directions.
B. Do not hydroseed area in excess of that which can be mulched on same day.

3.4 SEED PROTECTION

A. Cover seeded slopes where grade is 3H:1V or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
B. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Provide 12 inch overlap of adjacent rolls. Backfill trench and rake smooth, level with adjacent soil.
C. Secure outside edges and overlaps at 36 inch intervals with stakes.
D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches.

3.5 MAINTENANCE

A. Seeded areas shall be maintained by the Subcontractor until the areas are accepted and alive and healthy.
B. Water to prevent grass and soil from drying out.
C. Roll surface to remove minor depressions or irregularities.
D. Control growth of weeds. Submit weed growth control plan, prior to implementation.
E. Immediately reseed areas which show bare spots.
F. Protect seeded areas with warning signs during maintenance period.

3.6 SCHEDULE

Reference the Contract Drawings for seeding location.

END OF SECTION

Appendix B
Supporting Documents

Appendix B1

Health and Safety Plan (HASP)

Appendix B2

Field Sampling and Analysis Plan (FSAP)

Appendix B3

Quality Assurance Project Plan (QAPP)

Appendix B4

Air Monitoring Plan

Appendix B5

Construction Quality Assurance Plan (CQAP)

Appendix B6

Emergency Response Plan (ERP)

Appendix B7

Transportation and Off-Property Disposal Plan (TODP)

Appendix B8

Operations &Maintenance Plan (O&M Plan)

Appendix B9

Groundwater Monitoring Well Abandonment and Installation Plan

Appendix B10

Institutional Controls Implementation and Assurance Plan (ICIAP)

Appendix B11

Soil Import Plan

Appendix C

Lead Treatability Study