



Aggregate Industries- Northeast Region, Inc.

1831 Broadway

Saugus, MA 01906

Reclamation Project

Fill Management Plan

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Section 1

Introduction

This Fill Management Plan (FMP) provides an overview of the requirements that will be implemented to manage the acceptance and placement of soils and materials meeting the Massachusetts Department of Environmental Protection (MassDEP) Acceptance Criteria described herein, during the reclamation of Aggregate Industries- Northeast Region, Inc.'s (AINER) Saugus, Massachusetts Quarry. The procedures outlined in this document and the proposed use of MassDEP numeric acceptance criteria currently being developed for Reclamation Soil form the basis of this FMP to be reviewed and approved by the Town of Saugus and MassDEP. As described in further detail below, the materials acceptance protocols reflect the requirements of the Massachusetts Contingency Plan ("MCP", 310 CMR 40.0000) and the Interim Policy on the Re-Use of Soils for Large Reclamation Projects Policy # Comm-15-01 ("Comm 15-01"), dated August 28, 2015.

The intent of the Interim Policy is to obtain site-specific approvals from MassDEP, utilizing an Administrative Consent Order (ACO) to establish soil management protocols to be protective of human health and the environment.

The reclamation of the Saugus Quarry will be completed using MassDEP-approved materials for reclaiming hard rock quarries. These materials are anticipated to include a variety of soil and material types that meet the Acceptance Criteria, including the following:

- Soils generated from both non-MCP and MCP disposal sites
- Out of State soils
- Dredged material
- Blasted rock
- Yard sweepings generated by the AINER Saugus facility during the sweeping of internal facility roadways and along Broadway in the immediate vicinity of the facility entrance consistent with Section 5.6 of MassDEP Policy #BAW-18-001.

The reuse standards approved/developed by MassDEP for the reuse of such materials assumed the conservative exposure scenarios to be protective of human health and the environment. All materials to be used at the Saugus facility would be generated from specific, tested, and documented sources.

Additional materials may be considered in the future with MassDEP approval, including:

- Reclaimed Asphalt Product (RAP) that is stockpiled on site at the Saugus quarry and to be received from outside sources.
- Processed uncoated asphalt, brick, and concrete (ABC).

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- Processed, uncoated ABC may be further evaluated in the future with regards to any updates to MassDEP's Reclamation Policy.
- Receipt of soils greater than the RCS-1 standards as MassDEP regulations/guidance related to reclamation activities may change.

Although AINER is not proposing the use of reclaimed RAP and processed, uncoated ABC as reclamation material at this time, the FMP will allow for the following:

- The use of reclaimed RAP and processed, uncoated ABC for the construction of haul roads; and
- The storage of reclaimed RAP and processed, uncoated ABC stockpiles in the reclamation area for use as aggregate materials associated with current site operations.

A Licensed Site Professional (LSP) will be tasked with documenting compliance with the testing protocols and acceptance criteria as developed by MassDEP. The LSP is a site cleanup professional that oversees and certifies that site activities adhere to provisions of the MCP. Independent LSPs will be involved at each in-state soil source location representing the generator, at the Saugus facility providing review of the generators documentation and independent compliance testing (as employed by AINER), and to provide periodic analysis/testing and record review of the reclamation material (employed by the Town of Saugus).

An LSP or independent Qualified Environment Professional (QEP) will be tasked with documenting compliance with the testing protocols and acceptance criteria for materials originating from out of state locations.

The QEP shall be an individual who: is knowledgeable about the procedures and methods for characterizing contaminated media; is familiar with Massachusetts and federal regulations applicable to the management of such materials; performs or oversees the management of contaminated soil as an integral part of his or her professional duties; and is professionally licensed or certified in a discipline related to environmental assessment (i.e., engineering, geology, soil science, or environmental science) by a state or recognized professional organization.

One of AINER's LSP's roles will consist of reviewing the required documentation for conformance to the FMP. This review is to determine if the sampling programs are representative of overall conditions at the generation site based on current and former site operations and proximity of nearby MCP regulated disposal sites. If sufficient analytical data is not available from the generator's LSP/QEP, AINER will notify the generator of the need to collect additional data to comply with the FMP.

The general process for accepting material at the quarry will consist of the following steps, as outlined below:

- Adoption of MassDEP acceptance criteria for Reclamation Soil and development of a FMP;

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- Characterization via laboratory analysis of the material by the generator;
- Comparison of analytical results to the MassDEP Reclamation Soil acceptance criteria;
- Submittal of the documentation outlining the results of the above two steps to AINER;
- Review of each documentation package by an independent LSP representing AINER to determine compliance with the soils acceptance criteria and other requirements of the FMP;
- QA/QC inspections and random inspections of the material at the facility prior to placement;
- Spot analysis/testing and record review of the reclamation material by an LSP contracted or approved by the Town of Saugus; and
- Placement and tracking of the material.

Section 2

Site Description/Background

General information about the Site and surrounding area was obtained by conducting site reconnaissance and a review of mapping for the area. The information is summarized below.

2.1 Site Identification and Location

The street address for the Saugus facility is 1831 Broadway/Route 99. The facility is located on an approximately 60+acre site and is surrounded by mixed commercial, light industrial and residential uses. A portion of the non-quarry property at its south-west perimeter is located in the Town of Melrose. For reference, a Site Location Map (Figure 1), a Massachusetts Geographic Information System (MassGIS) Priority Resource Map (Figure 2), and Aerial Photograph (Figure 3) are included in Appendix A. The actual reclamation area encompasses approximately 31 +/- acres. Industrial operations and activities currently at the site will remain in operation.

2.2 Name and Address of Parties Involved

The Site is currently owned by:

Aggregate Industries – Northeast Region, Inc.
1715 Broadway
Saugus, MA 01906
Site Contact: Kevin Peart, Head of Northeast Region

The Operations Manager of the Site for soil placement is:

Aggregate Industries - Northeast Region, Inc.
1831 Broadway
Saugus, MA 01906
Site Contact: Dominick Sobotka and Robert Morrissey

The LSP reviewing soil packages on behalf of AINER is:

Brown and Caldwell
One Tech Drive
Suite 310
Andover, MA 01810
LSP: Marilyn Wade (#4513)

2.3 Surrounding Land Use and Description

The quarry facility is accessed off of Broadway/ Route 99 in Saugus, MA. The municipal boundary between the Town of Saugus and City of Melrose bisects the site, with the quarry

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facility located to the north in Saugus. Properties surrounding the subject parcels consist of light industrial, mixed commercial and residential properties as follows:

North:	Undeveloped wooded land, followed by residential properties along Butler Avenue, Whittier Avenue, and Cheever Avenue
South:	Waste Management Transfer Station and a cemetery followed by Broadway/Route 99 and commercial properties
East:	Commercial properties to the southeast along Broadway, undeveloped wooded land east of the quarry towards Collins Avenue and beyond
West:	City of Melrose composting yard, followed by the Mt. Hood Golf Course

2.4 Surrounding Resource Areas

The following resource areas were identified by MassGIS mapping (Figure 2 in Appendix A) within ½-mile of the Site:

- The site is located within an area designated as Priority Habitat for Rare Species by the Massachusetts Natural Heritage and Endangered Species Program (NHESP). This designation was placed on the site in 2007 due to the presence of a nesting pair of peregrine falcons at the quarry.
- A Potentially Productive Aquifer and MassDEP Approved Zone II Wellhead Protection Area are located approximately 1,800 feet northeast of the site. This aquifer is not present at the quarry site.
- Three private drinking water wells (6 Bayfield Road, 6 Felton Street and 10 Enmore Road) are located between 1,800 and 2,000 feet east of the site that are used only for irrigation. These three homes are connected to Town water.
- An area of Protected and Recreational Open Space lies to the west (Mount Hood Golf Course), 500 feet north, 2,220 feet southeast and ½-mile east of the site.
- Isolated inland wetlands are located 400 feet, north, northeast, northwest and west, 1,000 feet south and east, 2,000 feet west, and ½-mile east, southeast and west of the site.
- There are two unnamed ponds approximately 1,500 feet west of the site associated with the Mount Hood Golf Course.
- One NHESP certified vernal pool is located approximately ½-mile west of the site.
- There are no known irrigation pumps currently present at the AINER property.

2.5 Reportable Concentrations

Reportable Concentrations (RCs) applicable to the site have been determined based on information obtained from site reconnaissance and MassGIS mapping. The soil and

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groundwater RCs applicable to the site include RCS-1 for soil and RCGW-2 for groundwater.

Based on Site conditions and exposure scenarios, it has been determined that the reclamation area meets the criteria of a soil category RCS-1, as defined by 310 CMR 40.0360. The determination is supported by the following criteria:

- The reclamation area is located within 500 feet of residentially zoned property.

Based on a review of the MassGIS Priority Resource Map (Figure 2 in Appendix A), the Saugus and Melrose Zoning Maps, local file reviews and on conditions observed at the Site, groundwater at the Site meets the criteria of groundwater category RCGW-2.

- RCGW-1 – This criterion does not apply since the reclamation area is not located within the geographic boundaries of a MassDEP Approved Wellhead Protection Area (Zone II), Interim Wellhead Protection Area, Zone A of Class A surface water body used as a public water supply, Potentially Productive Aquifer or an aquifer protection district. Additionally, according to Saugus and Melrose officials, there are no private drinking water wells, irrigation wells, cooling water wells, agricultural wells, food processing wells, non-community water supplies or industrial wells within 1,000 feet of the reclamation area. The parcel of land associated with reclamation area and surrounding properties are serviced by a municipal water system. According to the Saugus and Melrose Zoning Maps, the reclamation area is not located within an aquifer or groundwater protection district.
- RCGW-2 – This criterion applies since the reclamation area is not located within a current or potential drinking water resource area.

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Materials that are scheduled to be placed at the Site will be from construction or remediation projects where the materials have either been pre-characterized by an LSP/QEP prior to excavation or characterized from stockpiled soil. All soils to be placed at the Site will be characterized by the generator's LSP/QEP. Prior to acceptance and placement of soils at the Site, AINER's LSP will review the characterization data packages of all potential candidate soils.

3.1 ACO Approval

MassDEP issued Administrative Consent Order (ACO), No. 00002599 on June 16, 2017. The ACO addresses how the material being sent to the Site will be sampled, documented, tracked, transported and managed. The document also clearly outlines what materials can and cannot be accepted. By reference, the ACO incorporates the contents of this Fill Management Plan.

3.2 Soil Acceptance Criteria

To document that the reclamation materials meet the requirements of the MCP and its supporting guidance documents and policies, the characterization of soil and materials will be required. Acceptance Criteria for Reclamation Soil has been developed in accordance with COMM-15-01, the MCP (310 CMR 40.0000) and negotiations with MassDEP. The acceptance criteria has been developed to help control the following:

- The background levels of underlying groundwater to prevent unacceptable levels through leaching of OHM;
- Human exposure at off-site/abutting properties through direct contact with the soil or inhalation of vapors or particulates emanating from the site;
- Degradation of wildlife habitats; and
- Degradation of neighboring properties, wetlands, and waterways through storm water runoff.

The criteria are based on review of available and applicable soil standards, guidelines, values, criteria, and background levels established by MassDEP in various regulations, guidelines, and MassDEP technical guidance documents including the Interim Policy on the Re-Use of Soil for Large Reclamation Projects, Policy #COMM-15-01 dated August 28, 2015; MassDEP's *Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil* dated May 23, 2002 (Background Guidance); and concentration ranges of typical contaminants detected in historic urban fill, naturally-deposited soil, Boston Blue Clay, and other soil. The Acceptance Criteria were established to be protective of surrounding natural resource areas identified in Section 2.4.

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Soil being placed at the Site shall not exceed the following field screening/visual criteria:

- Field screening results of soil headspace from representative samples must not exceed a reading of Total Volatile Organic Vapors (TVOVs), in the jar headspace of 5 parts per million (ppm). All soil and fill material received by the facility must be screened with a PID meter at a frequency of at least one sample per 50 cubic yards, using the MassDEP Jar Headspace procedure.
- Visually, fill materials may not contain more than 5% by volume of bituminous pavement/ brick/ concrete, and may not contain any bituminous pavement/ brick/ concrete greater than 6 inches in any dimension. Bituminous pavement/ brick /concrete greater than 6 inches in any dimension that are received at the site shall either be crushed on-site to the proper dimensions prior to filling or shall be removed from the site.
- Other solid wastes (Wood/Plastic/Paper/Wire/Pipe) are permissible only in incidental, randomly dispersed, de minimis quantities that are collectively less than 1% by volume of all fill material.
- Soil containing free liquids, or soil with evidence of staining, odors, or other discolorations indicative of an oil and hazardous material shall be prohibited.

The following materials will not be accepted at the AINER Saugus Quarry facility:

- Industrial waste or catch basin cleanings
- Coated and/or unprocessed ABC
- Construction and Demolition (C&D) Debris
- Materials that exceed AINER's Acceptance Criteria (Appendix B - Table 1)
- Solid Waste subject to 310 CMR 19.00 and 16.00

Soil mixed with bentonite, cement or other slurry or solidification material may be accepted on a case by case basis. Similarly, odor reductant foam may be considered for approval as an additive on a case by case basis. A description of the process and materials generating the soil with slurry/solidification or odor reductant must be provided. The Safety Data Sheet (SDS) for each slurry and additive product must be submitted for review and approval. If needed, pH must be adjusted to meet Acceptance Criteria prior to arrival at the fill site. Soil with slurry mixture is subject to additional field screening for pH (at a frequency of one test per 500 cubic yards) prior to arrival at the fill site and subject to rejection if Acceptance Criteria are not met.

As noted in Section 1, reclaimed RAP and processed, uncoated ABC may be used for the construction of haul roads and/or stockpiled in the quarry for use as aggregate materials associated with current site operations.

3.2.1 Reclamation Materials

The acceptance criteria for metals and polycyclic aromatic hydrocarbons (PAHs) placed within the reclamation area will be less than the RCS-1 values (310 CMR 40.16000). The

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acceptance criteria for the remaining constituents were established as less than 50% of the RCS-1 value (TPH), less than 10% of the RCS-1 values (VOCs, PCBs, VPH fractions, and pesticides/herbicides) and that the soil does not exhibit a characteristic of hazardous waste. For analytes with no RCS-1 values, assuming there is no reason to believe they would be present in a soil sample, the allowable limit is less than the reporting limit (RL) of that analyte as established by the "typical" CAM procedure (i.e., no need to employ special techniques like SIM). The soil acceptance criteria are presented on Table 1 in Appendix B.

3.3 Groundwater Protection

3.3.1 Groundwater Characteristics

Currently, water is pumped from the quarry pond (located at the bottom on the quarry) and utilized in the production of ready mix concrete and as dust suppression water on site. Water can also be pumped for off-site discharge as needed under an existing NPDES permit. Based on the observed low seepage of water from the quarry walls, water management during quarry filling is expected to be primarily associated with stormwater precipitation events. Based upon inquiries of parties with knowledge of on-site pumping and NPDES operations, there are no records or data on the volumes of water pumped and/or discharged in this manner.

As outlined in Section 2.5, conditions observed at the Site and in accordance with 310 CMR 40.0362 and 40.0932, groundwater at the Site meets the criteria of groundwater category of RCGW-2 and GW-3.

- RCGW-2 - Applies because the site is not located within a current or potential drinking water resource area.
- GW-3 – Applies as all groundwater in Massachusetts has the potential to discharge to surface water.

Although the Method 1 GW-2 criteria does not apply to the reclamation area, future re-use of the site may include the development of either a residential and/or commercial structure(s). Therefore, as a conservative measure, certain parameters within the soil acceptance criteria are well below RCS-1 standards.

3.3.2 Generator-Supplied Groundwater Information

Available groundwater monitoring data (e.g., groundwater monitoring data from MCP disposal sites or Remediation General Permit (RGP) groundwater, influent and effluent data), shall be provided to AINER by the generator for review.

3.3.3 Groundwater Monitoring

Based on available information, the overburden groundwater at the Site generally flows from the west to the east. The proposed monitoring network will consist of four monitoring well locations, three downgradient (MW-2 through MW-4) and one upgradient (MW-1). The monitoring wells will be installed using air-rotary hammer drilling method at a depth

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of 10 feet below the elevation of the base of filling. The approximate locations of the proposed monitoring wells are provided on Figure 3.

The monitoring wells will be installed in accordance with *MassDEP Publication WSC-310-91, Standard References for Monitoring Wells*. In summary, monitoring wells will be constructed with two-inch diameter; Schedule 40, polyvinyl chloride (PVC) riser and a 20-foot, 0.010-inch slotted well screen with flush-joint threads. No glues or additives will be used during the installation. Clean washed No. 2 sand will be backfilled around the PVC to two feet above the screen with a bentonite seal placed above the sand.

The groundwater samples will be collected in accordance with the most recent *United States Environmental Protection Agency (EPA) Region I Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells* publication. The groundwater samples will be submitted to a NELAC accredited environmental laboratory and shall be analyzed for the parameters discussed in 3.3.3.1 below in accordance with the latest version of the specified test method. The groundwater monitoring program will consist of a baseline monitoring event, annual monitoring events throughout the entire reclamation process and a post reclamation groundwater monitoring event. Based on the groundwater results, additional monitoring wells may be installed along the perimeter of the quarry to evaluate for potential migration and fate/transport.

3.3.3.1 Baseline Groundwater Monitoring

Following the installation of each monitoring well, a baseline groundwater sampling event will be conducted one week following the installation and development of the groundwater monitoring wells. The samples designated shall be submitted to a NELAC accredited laboratory for the chemical analyses required. MassDEP Compendium of Analytical Methods (CAM) methods must be used for all analytes that have CAM Methods. Reporting Limits must be low enough to allow comparison to Acceptance Criteria. Environmental samples shall be collected, labeled, and preserved in accordance with established protocols for the respective analysis, and submitted to the analytical laboratory under chain-of-custody procedures. Laboratory environmental analyses for the following parameters shall be in accordance with the latest version of the specified test method:

- Extractable and Volatile Petroleum Hydrocarbons by MassDEP EPH/VPH Methods
- Volatile Organic Compounds (VOCs) by EPA 8260
- MCP 14 Metals by EPA 6010/7000 (total and dissolved)
- PCBs by EPA 8082
- Herbicides by EPA 8151
- Pesticides by EPA 8081
- Perchlorates by EPA 314

3.3.3.2 Annual Groundwater Monitoring

Groundwater samples will be collected from each of the monitoring wells on an annual basis (Spring/Summer) and analyzed for the following parameters:

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- Extractable and Volatile Petroleum Hydrocarbons by MassDEP EPH/VPD Methods
- Volatile Organic Compounds (VOCs) by EPA 8260
- MCP 14 Metals by EPA 6010/7000 (total and dissolved)

3.3.3.3 Post Reclamation Groundwater Monitoring

Two years after completion of the reclamation project, the wells must be re-tested for the full analyte list utilized in the baseline sampling effort.

3.4 Soil Testing Requirements

For acceptance of soils / materials, the generator will provide a profile package including laboratory analytical data for the parameters listed below. Prior to shipment to the Site, the generator's LSP/QEP should collect composite soil samples at the frequency outlined in Table 3-1, in areas and locations with similar soil characteristics (e.g. visual, olfactory, and PID conditions). Composite samples should be created from five to ten individual samples collected in-situ or from stockpiled material; however, apparent "hot spots" must be characterized using grab samples. In the event that grab samples are used to characterize the candidate soils, the LSP/QEP shall state why the use of grab samples is appropriate and adequately representative of the soils being proposed for re-use. This information will allow AINER to confirm that the soils received at the site conform to the MassDEP criteria for Reclamation Soils. If adequate analytical data is not provided by the generator's LSP/QEP, the generator will be required to collect additional samples.

Samples designated for environmental analysis shall be submitted to a NELAC accredited laboratory for the chemical analyses required. MassDEP CAM methods must be used for all analytes that have CAM Methods. Laboratory reporting limits must be low enough to allow comparison to Acceptance Criteria, with the exception of those volatile and semi-volatile organic contaminants listed in CAM as having poor purging efficiency/difficulties achieving reporting limits, which may be evaluated by project LSPs on a case by case basis, provided that reporting limits are less than RCS-1 concentrations. Environmental samples shall be collected, labeled, and preserved in accordance with established protocols for the respective analysis, and submitted to the analytical laboratory under chain-of-custody procedures. Laboratory environmental analyses for the following parameters shall be in accordance with the latest version of the specified test method:

- Field Screening for Total Organic Vapors (PID following MADEP Jar Headspace Screening Procedure based upon an isobutylene response factor)
- Volatile Organic Compounds (EPA 8260)
- Semi-volatile Organic Compounds (EPA 8270 full list)
- Metals – MCP 14 metals by EPA 6010/7000
- PCBs by EPA 8082
- Total Petroleum Hydrocarbons (summation of EPH/VPD Fractions can be substituted) by MassDEP Methods
- Hexavalent Chromium if Total Chromium >100 mg/kg by EPA 7196A

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- pH/Corrosivity by 150.1/SM-4500H+ B/9040/9045
- Conductivity/Specific Conductance by EPA 9050A (may be excluded or limited based on site history)
- Herbicides (may be excluded or limited based on site history) by EPA 8151
- Pesticides (may be excluded or limited based on site history) by EPA 8081
- Ignitibility/Flash point (may be excluded or limited based on site history)
- Reactive Cyanide (may be excluded or limited based on site history)
- Reactive Sulfide (may be excluded or limited based on site history)
- TCLP for any analyte exceeding EPA TCLP Trigger Values by EPA Method 1311
- If blasted/excavated bedrock is accepted – a Net Acid Generation (NAG) test (may be limited to 1 test profile per 1,000 cubic yards based on site specific characteristics). Suggested reference is Nevada Modified Net Acid Generation Test Procedure (Final NV NAG Test Guidance Rev01)
- Other tests as deemed prudent based on soil source location history.

Sampling and QA/QC procedures acceptable to MassDEP will be adhered to and QA/QC results will be considered by the generator in determining if the soil profiling is acceptable before considering shipment to the Saugus facility. Laboratory analytical data sheets, chain-of-custody form, and laboratory QA/QC reports will be provided with the soil profiling packages along with pertinent maps/sketches and field testing results for review by AINER and the Site LSP.

Table 3-1: Sampling Requirements AINER Saugus Quarry		
Source/Origin Description		Minimum Sampling Frequency
1	Naturally Deposited Soils Not from an area of known or suspected high background levels of metals, not proximate to urban fill soil, not proximate to MCP Disposal*. No industrial/commercial history. No agricultural history with likely pesticide/herbicide use.	1 test profile per 1,000 cubic yards (1,500 – 1,700 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of 1 sample/100 cubic yards to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria.
2	Boston Blue Clay, Marine Soils, and other naturally-deposited soils from known or suspected areas of elevated metals. Not proximate to urban fill soil, not proximate to MCP Disposal Site*. No industrial or manufacturing history. No agricultural history with likely pesticide/herbicide use.	1 test profile per 1,000 cubic yards (1,500 – 1,700 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of 1 sample/100 cubic yards to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria.
3	Urban Fill Soil Historic Fill and other soil in areas where impacts would be expected from fill materials, lead paint, oils, pesticides/herbicides use, and other anthropogenic activities. No industrial or manufacturing history.	1 test profile per 500 cu yds (750-850 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of 1 sample/100 cubic yards to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria.

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Table 3-1: Sampling Requirements

AINER Saugus Quarry

Source/Origin	Description	Minimum Sampling Frequency
4	Industrial Soils - Soil from current or former Industrial, Commercial, or Manufacturing site with history of Tannery, Textiles, Chemical/Paint Production, Circuit Board manufacturing, Plating/Metal finishing, Foundry operations, Coal Gasification, Dry Cleaning, Salvage Yards, or Herbicide/pesticide use, storage or distribution facilities. No soil or fill shall be obtained from or immediately contiguous to such locations unless an LSP/QEP provides a report detailing why such soils conform to acceptance criteria.	Minimum 1 test profile per 500 cu yds (750-850 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of 1 sample/100 cubic yards to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria. Additional test parameters such as cyanide must be included as appropriate.
5	Other - Soil from source not otherwise described above where historic test data indicate exceedance of Acceptance Criteria, or where past use or site history indicated use or storage of oil or hazardous materials at more than household quantities, or use of pesticide/herbicides	Minimum 1 test profile per 500 cu yds (750-850 ton) If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of 1 sample/100 cubic yards to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria.
6	Blasted/Excavated Bedrock (if applicable)	Minimum 1 test profile per 1,000 cu yds (1,500 – 1,700 ton) to characterize acid generation potential.
7	Dredge Material (if applicable)	In accordance with the 401 Certification process, as specified at 314 CMR 9.07(9)

The more conservative sampling protocol shall apply to soils that meet more than one of the above.

* A deposit of interest is considered vertically proximate to urban fill or a MCP Disposal Site if there is a reasonable possibility that contaminants in the urban fill or disposal site could be present in the naturally deposited soil, either via initial releases/deposition or via migration. Sampling of naturally deposited soils that underlay urban fill or a MCP Disposal Site may be performed at a 1 sample/1,000 CY frequency once it is established that any surface contamination does not extend into the native material. A deposit of interest is horizontally “proximate” if it is located within 100 feet of urban fill or an MCP Disposal Site.

3.5 QA/QC Inspection/Testing

In order to provide assurances to the public and AINER, the following testing protocol for incoming materials has been established.

3.5.1 3rd Party Monthly Inspections

Monthly third-party inspections will be conducted by an independent LSP, P.E., QEP, or other qualified environmental professional approved by MassDEP and contracted by either the Town of Saugus or AINER. The third party inspector will conduct unannounced and random inspections during normal operating hours. The independent and random testing protocol is provided in Appendix C. The third party inspector will perform the following:

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- Observe the practices involved in the receipt and/or placement of soil and fill materials at the Property, to the extent that such activities are occurring.
- Inspect the soil and fill materials that are being unloaded and/or placed/recently placed during the inspection, if any, and inspect all areas of the Property where soil and fill materials have been placed since the previous inspection.
- Collect a grab sample of any area or load of soil that appears to be contaminated, based upon staining, discoloration, odors, or PID readings. If no area or load appears to be contaminated, collect a composite soil sample from a minimum of one load of soil being delivered or recently delivered to the Property and submit the collected samples to a laboratory for the soil profile analyses specified in the FMP. The composite sample shall consist of a minimum of 5 to 10 subsamples from the load(s) under evaluation. If a load has been selected by the third-party inspector for sampling, the load will remain in a holding bay until the laboratory results have been received
- If no soil and/or fill materials have been accepted since the last monthly inspection and there is no area that appears to be contaminated based on the inspector's observations, a monthly sample will not be taken.
- Inspect all erosion control measures including but not limited to, silt fence, hay bales, temporary basins and swales.
- The third party inspector shall have the authority and shall immediately stop work on the Project for any activity that is in significant noncompliance with the approved FMP and shall immediately notify MassDEP thereof.
- The third party inspector shall prepare an inspection report documenting the findings for each inspection and shall submit such report to AINER on or before the 15th of each month. The report will be submitted to the MassDEP along with AINER's monthly status report.

3.5.2 Monthly Reporting

Monthly reports shall be submitted electronically to MassDEP by the 21st of each month for the previous calendar month, using eDEP Transmittal Form BWSC 126, Section B(2), under a Release Tracking Number (RTN) that will be issued by MassDEP for the site. The monthly reports shall include the following:

- The total tons of soil received by the site in the previous month; the total tons of soil received by the site since the signing of the Consent Order; and the estimated total tons of capacity remaining at the site.
- A tabulation showing the origin/addresses of the sources of soil received during the previous month:
 - The total tons received for the month from each address.
 - A notation on whether the required PID screening at 1 sample/50 yd³ was conducted at the point of generation or point of unloading at the facility, and affirmation that soil with headspace concentrations greater than 5

Section 3 Fill Management Plan

ppmV was either rejected or approved after further evaluation by an LSP/QEP from each address.

- A notation on any problems or issues experienced during the previous month; any noteworthy activities expected in the upcoming month, and any significant changes in the project design, schedule, or on-property contact persons.
- A report by the third party inspector, to include:
 - Observations of practices that are not compliant with the FMP and/or Consent Order;
 - Observations of solid or hazardous waste, stained soils, odors or sheens;
 - Observations on airborne dust and dust control measures employed;
 - Specific recommendations for repair, replacement or changes to erosion control measures at the Property;
 - Status updates of actions taken by Respondent to implement the recommendations made in prior inspection reports, if any; and
 - The results and laboratory analytical report(s) for the soil sample(s) collected during the inspection, including, but not limited to the following, providing that the testing results for a given inspection may be submitted in the next monthly report if not available for submittal with the inspection report:
 - The analytical results in a tabular format comparing the results to the Acceptance Criteria identified in the FMP.
 - A clear statement regarding whether any of the Acceptance Criteria were exceeded.
 - The laboratory analytical reports and chain of custody documentation.
- Any other information or data deemed to be significant and/or noteworthy by AINER, AINER's LSP, or the third party inspector.

3.6 Required Acceptance Documentation

A Soil Submittal Package is to be provided by representatives of each location of soil origin for review and approval by representatives of AINER.

A complete package is to be provided to:

Aggregate Industries – Northeast Region, Inc.
1831 Broadway
Saugus, Massachusetts 01906
Attention: Bill Reinhardt
781-941-7200
Email: Bill.Reinhardt@aggregate-us.com

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The Soil Submittal Package shall consist of a MassDEP Bill of Lading (BOL) or Material Shipping Record (MSR), a table comparing the soil sample results to MassDEP acceptance criteria (the table shall include RCS-1, and MassDEP published background values as reference), a site plan showing the sampling location, the Generator Profile provided in Appendix D, and an Opinion Letter signed by a LSP or QEP. The Opinion letter shall contain the following information:

- Estimated quantity of the soil or material;
- Description of the historical use(s) of the soil generation site;
- Description of the soil characterization sampling program and analytical results, and any field screening analytical data used to support the determination;
- A physical description of the soil including the soil classification method used;
- A statement from the generator as to whether the site is a listed Disposal Site, as defined in the MCP, or if any releases or spills have occurred on or in the vicinity of the site which may have affected the site, including the types of oils and hazardous materials spilled/released; and
- A statement that the generator has used due diligence, as described in MassDEP's Policy HW93-01 to characterize that the soil does not contain a listed hazardous waste and/or is itself a characteristic hazardous waste.

3.7 Soil Submittal and Approval Process

The Soil Submittal Package from the proposed generator's property will be reviewed and approved by AINER's LSP. The Soil Submittal Package will be concurrently submitted to the Town of Saugus and/ or its consultant for review. Comments from the Town will be provided to AINER within 48 hours. When the package is approved, the soils will receive an approval code which will be logged into AINER's database. The approval code will be required to be placed on all MSRs. The MSR will be entered into the database for tracking purposes.

3.8 Soil Placement/Phasing

Trucks with appropriate transportation documentation will be directed to an unloading area. Please refer to the Phased Fill Plan in Appendix E for an overview of how the reclamation of the Quarry will progress. The plans depict the volume of materials associated with reclamation activities in accordance with the information in Table 3-2 below.

Table 3-2 Reclamation Volumes		
Phase	Area	Reclamation Operation
Phase 1	18.4+ acres	3,172,000+ cy
Phase 2	6.9+ acres	721,000+ cy
Phase 3	6.0+ acres	932,000+ cy

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Materials will be placed into the Quarry by Aggregate personnel using appropriate heavy equipment from the Quarry edge and from within the Quarry as needed.

As noted above, the Quarry is located within mapped habitat for state-listed species protected under the Massachusetts Endangered Species Act. AINER has conducted extensive consultation with the Division of Fisheries and Wildlife (DFW), Natural Heritage and Endangered Species Program (NHESP) regarding the project. To allow the reclamation project to commence while continuing to evaluate the species' use of the site and potential net benefit measures, NHESP has granted a conditional no-take determination (see Appendix G) for the first phase of Phase 1 of the project. Phase 1 encompasses approximately 1300 linear feet, starting at the southern-most tip of the Phase 1 area and ending at the northern-most tip of the Phase 1 area. Phase 1A of the project will constitute reclamation of the Phase 1 area when soil has been placed 600 feet +/- 50 feet from the southern-most point of Phase 1. Phase 1B will involve reclamation of the Phase 1 area for the remainder of Phase 1. Phase 1A and Phase 1B will be delineated by a marker within the quarry (i.e. a flag, painted marker, or similar).

A Conservation and Management Permit (CMP) pursuant to 321 CMR 10.24 was issued to AINER on February 9, 2018 by the Massachusetts Division of Fisheries and Wildlife allowing fill activities to proceed in the Phase 1B area of the quarry.

Soils may be rejected upon delivery to the facility based on visual or olfactory evidence of contamination, or PID readings performed by AINER that are greater than 5 ppmv. If the on-site personnel deem the material to be suspect, based on these factors, the truck will be rejected and sent back to the generator for additional testing. Should the materials be deemed suspect once placed, the material will be segregated and tested at the generator's expense, to determine whether it meets the Acceptance Criteria. If the material is acceptable it will be used as reclamation material. If the material does not meet the Acceptance Criteria, the soil shall be removed from the facility within seven (7) days. The generator of the site from which the rejected soil was shipped shall be responsible for removing and disposing of such rejected in accordance with applicable regulatory requirements and at the generator's expense. If the generator fails to remove the rejected soil, AINER shall dispose of the rejected soil in accordance with applicable regulatory requirements. All material must be either accepted and reused, or rejected and removed from the Property within thirty (30) days of deposition.

Soils may be rejected upon delivery to the facility based on the presence of greater than 5% ABC Material, ABC Materials larger than 6 inches in any dimension, or greater than 1% (de minimis) other solids wastes. If the on-site personnel deem the material to be suspect, based on these factors, the truck will be rejected and sent back to the generator. Should the materials be deemed suspect once placed, the material will be segregated and stockpiled for proper removal and disposal by the generator of the site, at the generator's expense. If the generator fails to remove the rejected soil, AINER shall dispose of the rejected soil in accordance with applicable regulatory requirements.

All soil and fill material received by the facility must be screened with a PID meter at a frequency of at least one sample per 50 cubic yards, using the MassDEP Jar Headspace

Section 3 Fill Management Plan

procedure (Appendix C). Soils or fill displaying signs of contamination (e.g., staining/discoloration/odors/drum or tank fragments) shall be preferentially selected for testing. The PID meter must be calibrated to an Isobutylene standard. Soil or fill samples displaying headspace concentrations greater than 5 ppmV must be segregated and evaluated by an LSP/QEP. The PID screening may be conducted by the generator at the generation source and provided to AINER or by AINER at the Saugus Quarry. If conducted by the generator, the PID screening results will be documented in the field summary table included in the Generator Profile and provided to AINER prior to the start of shipping. If PID screening is performed by the generator at the time of shipment, the data must be attached to the MSR and both documents provided to AINER at the time the load is received.

3.8.1 Generator Soil Placement Requirements

Personnel at the site where the soil is being loaded, under the overall direction of an LSP/QEP, must continuously inspect soil being excavated and loaded for signs of contamination (e.g., staining/discoloration/odors/drum or tank fragments) or unacceptable materials (e.g., Solid Wastes). Any suspect materials must be segregated for further evaluation by an LSP/QEP. Any field observations during loading will be documented in the field summary table included in the Generator Profile and provided to AINER.

3.8.2 Receiving Facility Soil Placement Requirements

Trained personnel at the Saugus Quarry, under the overall direction of AINER's LSP, must continuously inspect incoming soil for signs of contamination (e.g., staining/discoloration/odors/drum or tank fragments) or unacceptable materials (e.g., Solid Wastes). Any suspect materials must be segregated for further evaluation by AINER.

3.9 Documentation and Record Keeping

Only materials that meet the approved regulatory requirements for the project and the environmental characterization requirements outlined above will be accepted at the site. The documentation and record keeping procedures have been developed to ensure that the project is completed in accordance with the relevant and appropriate regulatory requirements and MassDEP acceptance criteria for off-site fill materials. The documentation and record keeping procedures will also be utilized to demonstrate that sufficient information has been obtained to verify that the off-site fill materials may be accepted at the site. Each source of off-site fill material accepted at the Site will be required to provide an LSP/QEP opinion that states the material meets the requirements for acceptance for the Saugus Quarry site.

When in operation, AINER personnel, or their designee, shall oversee the receipt and placement of all off-site materials. AINER, or their designee will review on a daily basis the approved sources of off-site materials, and undertake the QA/QC procedures necessary to ensure compliance with the approved requirements for acceptance of off-site fill materials.

Section 3 Fill Management Plan

In addition to the characterization documentation and certifications described in Section 3.4, daily records documenting the fill management activities at the site (for both off-site and on-site fill materials) shall be maintained by AINER. The daily records shall include a summary of all materials accepted at the site. The record shall include information on the source of the material, the date and time of receipt at the site, the registration number and name for each delivery truck, the weight of the material, the physical characteristics of the material and the approximate location (both horizontally and vertically) where the material was placed within the site. The daily record keeping activities shall also include documentation that the environmental controls and monitoring activities described in Section 4 of this FMP and in the Stormwater Pollution Prevention Plan (SWPPP) have been implemented as required.

The daily records shall be maintained on-site and shall be accessible to the Town of Saugus and its representatives as well as MassDEP at all times. These records will be maintained throughout the duration of the reclamation activities and available upon request. The site will be subject to the US Environmental Protection Agency (US EPA) document retention policy.

Section 4

Construction Impact Mitigation

Site reclamation activities will be conducted in accordance with environmental mitigation measures contained within the SWPPP (see Appendix F) and the FMP.

4.1 Site Access

The Site is located at 1831 Broadway (Route 99) approximately 1,500 feet south of the Routes 1 and 99 interchange.

Access to the Saugus Quarry from Boston and points south will be from Route 1 North. The trucks will be restricted to the following State Highway route:

- Take the Route 60 Rotary exit from Route 1 north towards Malden/ Revere
- Take third exit for 60 west towards Malden
- Continue on 60 west/ Squire Road
- Turn left onto Lynn Street
- Bear right to continue on Route 60 west/ Eastern Avenue
- Turn right onto Broadway/ Route 99
- The site entrance will be on the left

Access to the Saugus Quarry from points north will be from Route 1 South. The trucks will be restricted to the following State Highway route:

- Take the Broadway (Route 99) exit off Route 1 South
- Merge onto Broadway (Route 99), continue for 0.3 miles
- The site entrance will be on the right

Access will be through the Gate/Scale House into the Site and to the unloading area as directed by AINER. Roadways will be maintained for truck access. Hours of operation for reclamation material acceptance are 6:00 am to 8:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays. Prior written approval of the Board of Health or other designated Town Board/ Department is required for Sunday operations or other hours outside those listed here.

4.2 Reclamation Traffic Control

Reclamation truck access will be controlled by AINER. The following elements constitute the traffic control and management plans for the reclamation of the quarry, and will be enforced for the duration of this site reclamation program:

Section 4 Construction Impact Mitigation

- All contracts with providers of fill and those under a written contract that regularly enter and leave the site will include provisions that describe the required route(s) for access between the site and Route 99, including the interim routes and the direct highway connections.
- Trucks used to transport fill for reclamation purposes shall be allowed to enter and depart the site on the agreed upon schedule.
- AINER will use diligent efforts in cooperation with officials from the Town of Saugus to control the routing and volume of reclamation traffic such that the operation proceeds with the minimum practical adverse impact on the Town.

4.3 Interim Stabilization

Based on the proposed project lifetime and fill placement phasing, interim soil stabilization controls will be implemented to minimize erosion, sediment runoff and fugitive dust. Stabilization controls utilized for erosion and sediment control may be broadly categorized as nonstructural and structural controls.

Nonstructural controls addressing erosion typically include: plans and designs to minimize disruption of the natural features, drainage, topography, vegetative cover features; phased development to minimize the area of bare soil exposed at any given time; plans to disturb only the smallest area necessary to perform current activities; and specific plans for the stabilization of exposed surfaces in a timely manner.

Structural controls are preventive and also mitigative since they control erosion and sediment movement. Structural controls include vegetative and non-vegetative stabilization of exposed surfaces, perimeter controls, sediment traps, improved sediment basins, silt fences, filter fabrics, etc.

4.4 Stormwater Controls

Materials transported to the Saugus facility will be unloaded at a safe designated truck unloading area depicted on Figure 4 in Appendix A. This designated location will be pitched to drain towards the quarry to ensure stormwater is controlled. In addition, best management practices shall be used to limit impacts to surrounding areas.

Fill material unloaded at the site will be placed and shaped with construction equipment or other equipment.

Additional details regarding the design and location of the stormwater controls are provided in the SWPPP. The SWPPP will be a living document that will be periodically updated throughout the reclamation process.

4.5 Noise Impact Management

Noise associated with reclamation operations will comply with the Town of Saugus Noise Ordinance and MassDEP Noise Pollution Policy (310 CMR 7.00), which requires that noise levels cannot cause a public nuisance. Reclamation activities will be limited to Monday through Saturday, unless prior written approval of the Town is obtained for Sunday

Section 4 Construction Impact Mitigation

operations. Existing activities, including earth-moving activities, operation of the asphalt and ready mix concrete plants, stone product trucking, RAP and concrete crushing, blasting and crushing of stone, and general construction activity will continue to operate under existing hours of operation.

4.6 Air Quality & Dust Control

The reclamation project will include the control of fugitive dust, as listed below:

- All arriving trucks transporting fill or loaded trucks exiting the site will be required to be covered;
- Water and/or other dust suppressants will be applied to unpaved haul roads on a regular basis to suppress dust. Alternatively, compacted reclaimed asphalt product (RAP) and processed, uncoated ABC can be used for haul road construction;
- Paved entrance and exit roads will be swept and/or watered during hours of operation every day that fill is being delivered to the site, weather permitting;
- New fill will be placed in permanent locations and graded as soon as practical to take advantage of the fill's natural moisture content in suppressing dust;
- A tire washing system will be established and used, weather permitting, for each truck transporting fill.

4.7 Site Security and Public Safety

To ensure the security of the site and provide for the safety of the public at-large, AINER will continue to provide assurances that the perimeter fence to the site is secure. Fence reports will be maintained by AINER and available to the Town of Saugus upon request.

4.8 Public Involvement

AINER will establish a hotline to field any complaints from the public pertaining to the reclamation process. The complaints will be documented in a database that will be shared with the Town of Saugus and include, the time and date of the complaint, the type of complaint and any corrective actions to be implemented.

4.8 Complaints

All environmental complaints, whether verbal or written, will be recorded in the External Communications component of ENVOY, which is AINER's Environmental Management System database. Upon receipt of a complaint, all relevant information to enable the complaint to be handled effectively shall be documented. This shall include:

- Name and address of the person making the complaint
- Contact telephone number
- Date and time of the complaint
- Means by which the complaint was communicated

Section 4 Construction Impact Mitigation

- The nature of the complaint, including severity and duration
- Name of the person who received the complaint

If a complaint is received via telephone, the person answering the phone shall record the name and the number of the person making the complaint and deliver this information to the appropriate Site Representative. Site Representatives shall investigate all environmental complaints.

Details including further contact with the complainant, communication with regulatory authorities, or communication among AINER employees regarding the complaint will be recorded by the Site Representative within the External Communications component of ENVOY.

Appendix A – Figures





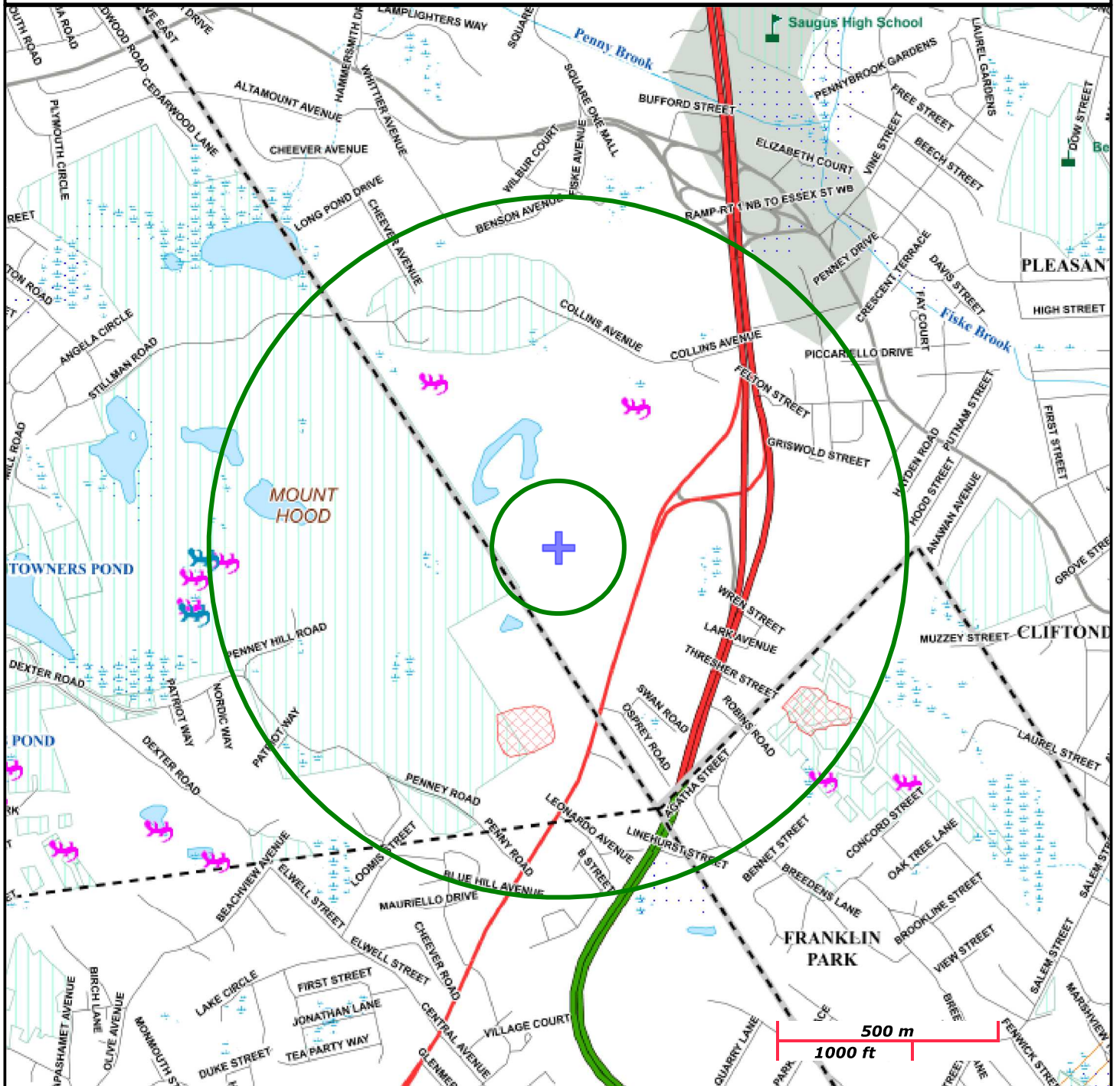


FIGURE 2
PRIORITY RESOURCES MAP

AGGREGATE INDUSTRIES - SAUGUS QUARRY
1831 BROADWAY, SAUGUS, MASSACHUSETTS



October 2021



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source

Non Potential Drinking Water Source Area: Medium, High (Yield)

PWS Protection Areas: Zone II, IWPA, Zone A

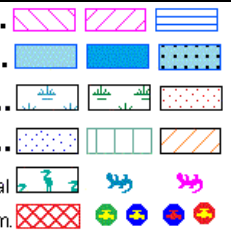
Hydrography: Open Water, PWS Reservoir, Tidal Flat

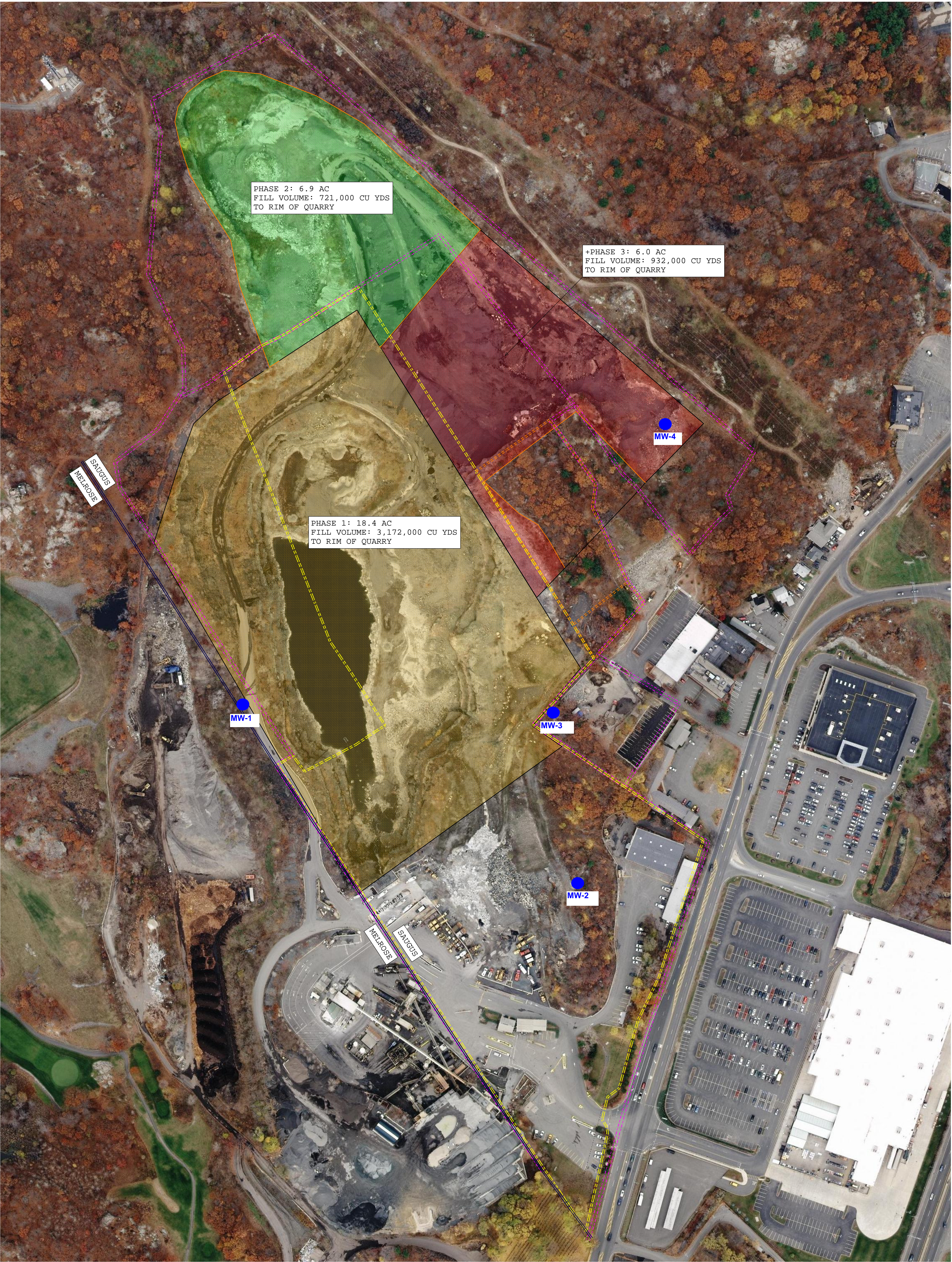
Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

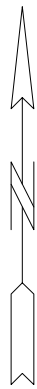
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com. GW, SW, Emerg., Non-Com.





● MONITORING WELL



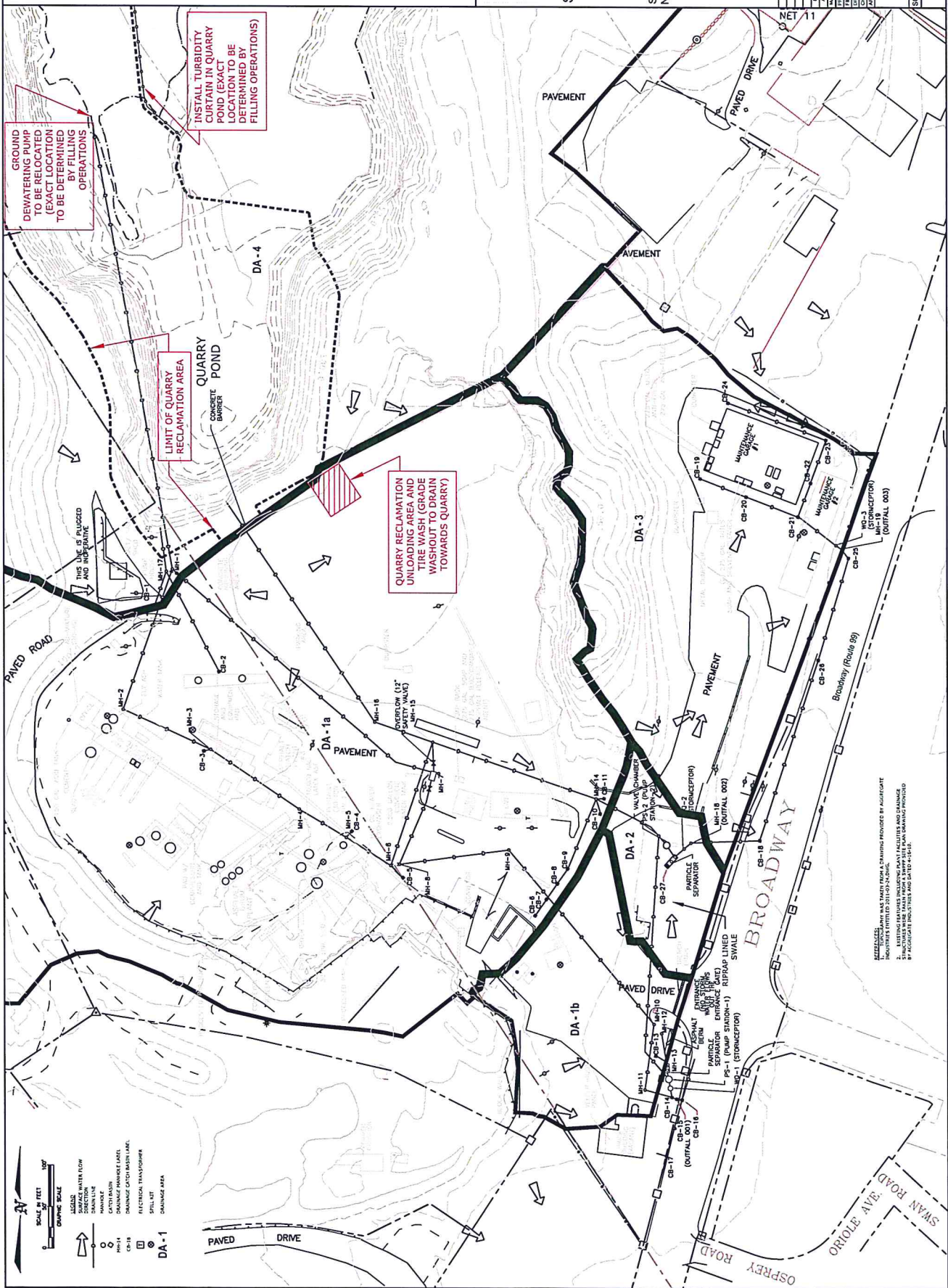


AI Geological Services
Mid Atlantic Region
6401 Golden Triangle Drive, Suite 120
Greenbelt, MD, 20770
Tel. 301-982-1400
Email: tim.higbee@aggregate-us.com

Site SAUGUS QUARRY

Title FIGURE 3: AERIAL PHOTOGRAPH

Scale	Date 6/7/2017	Drawing No.
Drawn By : 1200	Checked By	



NOTES:
 1. THIS PLAN WAS PREPARED BY AGGREGATE INDUSTRIES FOR THE PROJECT.
 2. THE EXISTING SITE CONDITIONS WERE OBTAINED FROM AERIAL PHOTOGRAPHS AND FIELD SURVEY.
 3. THE EXISTING SITE CONDITIONS WERE OBTAINED FROM AERIAL PHOTOGRAPHS AND FIELD SURVEY.
 4. THE EXISTING SITE CONDITIONS WERE OBTAINED FROM AERIAL PHOTOGRAPHS AND FIELD SURVEY.

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Figure 4

Appendix B – Soil Acceptance Criteria Table



Table 1 - Acceptance Criteria Aggregate Industries - Saugus Quarry 1831 Broadway Saugus, Massachusetts		
Analytical Test	Compound	Acceptance Criteria ^(1,2)
SVOCs	Target PAHs	
	Acenaphthene	<4
	Acenaphthylene	<1
	Anthracene	<1,000
	Benzo(a)anthracene	<7
	Benzo(a)pyrene	<2
	Benzo(b)fluoranthene	<7
	Benzo(g,h,i)perylene	<1,000
	Benzo(k)fluoranthene	<70
	Chrysene	<70
	Dibenzo(a,h)anthracene	<0.7
	Fluoranthene	<1,000
	Fluorene	<1,000
	Indeno(1,2,3-cd)pyrene	<7
	2-Methylnaphthalene	<0.7
	Naphthalene	<4
	Phenanthrene	<10
	Pyrene	<1,000
	Other common SVOCs	
	Bis(2-ethylhexyl)phthalate	<60
	Dibenzofuran	<100
	All Other SVOCs	To be considered on case by case basis ⁽⁸⁾
Metals	Antimony, Total	<20
	Arsenic, Total	<20
	Barium, Total	<1,000
	Beryllium, Total	<90
	Cadmium, Total	<70
	Chromium, Total	<100
	(Chromium III)	<225
	(Chromium VI)	<100
	Lead, Total	<200
	Mercury, Total	<20
	Nickel, Total	<600
	Selenium, Total	<400
	Silver, Total	<100
	Thallium, Total	<8
	Vanadium	<400
	Zinc	<1,000
	Other Metals ⁽³⁾	To be considered on case by case basis ⁽⁸⁾
Total Petroleum Hydrocarbons (TPH)	TPH ⁽⁴⁾	<500
Extractable Petroleum Hydrocarbons (EPH)	C ₉ -C ₁₈ Aliphatics	Summation of EPH Fractions <500
	C ₁₉ -C ₃₆ Aliphatics	
	C ₁₁ -C ₂₂ Aromatics	
Volatile Petroleum Hydrocarbons (VPH)	C ₅ -C ₈ Aliphatics	<10
	C ₉ -C ₁₂ Aliphatics	<100
	C ₉ -C ₁₀ Aromatics	<10
Pesticides	All Pesticides	RL <10% RCS-1 or 0.05 mg/kg ⁽⁵⁾ ⁽⁸⁾
Herbicides	All Herbicides	RL <10% RCS-1 or 0.05 mg/kg ⁽⁵⁾ ⁽⁸⁾
Volatile Organic Compounds (VOCs)	All VOCs	<10% of RCS-1 or 0.1 mg/kg ⁽⁵⁾ ⁽⁸⁾ To be considered on a case by case basis
Polychlorinated Biphenyls (PCBs)	Total PCBs	<0.1
Waste Characteristics	Reactive Cyanide	<250
	Reactive Sulfide	<500
	Ignitability (Flashpoint in F°)	>140
	Corrosivity (pH)	5.0-9.0 pH ≥ 4 and ≤11 to be considered on a case by case basis
General Chemistry	Specific Conductance	<2,000 uMho/cm
Net Acid Generation		pH ≥4
Field Parameters	Total Volatile Organic Vapor Screening ⁽⁶⁾	<5 ppmv
	Debris/Solid Waste Materials	de minimis (<5% by volume ABC, all ABC < 6 inches and <1% Wood/Plastic/Paper/Wire/Pipe & other Solid Waste)
	Odor ⁽⁷⁾	No petroleum, solvent, organic, sulfide or other nuisance odors
	Moisture Content/%Solids	No Free Liquids

Notes:
All results are reported in milligrams per kilogram (mg/kg) are for dry weight, unless otherwise noted.
Reporting limits must be low enough to allow comparison to Acceptance Criteria
Current EPA/MassDEP or other approved method required for laboratory testing; MassDEP CAM utilized where applicable
(1&2) The acceptance criteria were derived using the following MassDEP Regulations and Guidance
Massachusetts Contingency Plan 310 CMR 40.0000 (MCP)
MassDEP, Interim Policy on the Re-Use of Soil for Large Reclamation Projects Policy # COMM-15-01, August 28, 2015
(3) Other metals analysis may be requested based on-site history, location, etc.
(4) In addition to or in lieu of TPH analysis, the summation of the extractable petroleum hydrocarbon (EPH)/ volatile petroleum hydrocarbon (VPH) fractions can be utilized for TPH comparison, or each EPH fraction can be demonstrated to be less than 10% of its corresponding RCS-1 value.
(5) Whichever is greater, provided both Reporting Limits (RLs) and results are < RCS-1.
(6) TVOV screening following the MassDEP Jar Headspace Screening Procedure referenced in Policy #WSC 94-400 Attachment 2 modified to use isobutylene response factor
(7) Soil with odor control agent applied at point of origin may be considered. MSDS and other product info must be provided for review prior to acceptance.
(8) For compounds with no RCS-1 values listed in the MCP MOHML, provided there is no reason to believe such compounds would be present in the soil, the acceptance criteria are less than the RLs for those analytes as established by CAM methods.

Appendix C – Material Testing Protocol



Aggregate Industries Northeast Region, Inc. Saugus Quarry Materials Testing Protocol

The following protocol is provided as an appendix to the Fill Management Plan (FMP) for the Aggregate Industries Northeast Region (AINER) Saugus Quarry. The following protocol has been developed for use by the 3rd Party Independent Inspector during the random testing events.

An independent Massachusetts accredited environmental laboratory will be contracted to perform testing of the samples. Soil being placed at AINER's Saugus facility shall not exceed the following field screening/visual criteria:

- Field screening results of soil headspace from representative samples must not exceed a reading of Total Volatile Organic Vapors (TVOVs), in the jar headspace of 5 parts per million (ppm).
- Visually, the soil must not exhibit solid waste debris (excepted as noted below) greater than 5% by volume for asphalt/brick/concrete less than 6 inches.
- Other solid wastes (Wood/Plastic/Paper/Wire/Pipe) are permissible only in incidental, randomly dispersed, de minimis quantities that are collectively less than 1% by volume of all fill material.
- Soil containing free liquids with evidence staining, odors, or other discolorations indicative of an oil and hazardous material shall be prohibited.

The following typical soil sampling equipment will be used for the collection of samples and record keeping:

- Log Book
- Stainless Steel trowel or equivalent
- Hand Auger
- Clean wide mouthed sample jars with lids
- Labels
- Aluminum foil
- 8 oz. Glass sample jars
- Methanol and unpreserved water (UPW) preserved 40 mL volatile organic analysis (VOA) vial for high and low level VOCs
- Disposable gloves
- Cooler with Ice
- Chain of Custody forms
- Camera
- Potable water
- Alconox detergent or equivalent
- Brushes

Aggregate Industries Saugus – Materials Testing Protocol

- Buckets
- Paper towels
- Tape Measure
- String
- Survey stakes

MassDEP Compendium of Analytical Methods (CAM) methods must be used for all analytes that have CAM Methods. Reporting Limits must be low enough to allow comparison to Acceptance Criteria. Soil samples will be submitted to a Massachusetts accredited laboratory for the following parameters:

- Field Screening for Total Organic Vapors (PID following MADEP Jar Headspace Screening Procedure based upon an isobutylene response factor)
- Volatile Organic Compounds (EPA 8260)
- Semi-volatile Organic Compounds (EPA 8270 full list)
- Metals – MCP 14 metals by EPA 6010/7000
- PCBs by EPA 8082
- Total Petroleum Hydrocarbons (summation of EPH/VPH Fractions can be substituted) by MassDEP Methods
- Hexavalent Chromium if Total Chromium >100 mg/kg by EPA 7196A
- pH/Corrosivity by 150.1/SM-4500H+ B/9040/9045
- Herbicides (may be excluded or limited based on site history) by EPA 8151
- Pesticides (may be excluded or limited based on site history) by EPA 8081
- Ignitibility/Flash point (may be excluded or limited based on site history)
- Reactive Cyanide (may be excluded or limited based on site history)
- Reactive Sulfide (may be excluded or limited based on site history)
- TCLP for any analyte exceeding EPA TCLP Trigger Values by EPA Method 1312
- If blasted/excavated bedrock is accepted – a Net Acid Generation (NAG) test
- Other tests as deemed prudent based on soil source location history.

Using a hand auger or shovel, a composite sample will be prepared by collecting 5 to 10 samples from the load(s) designated to be sampled. Individual grabs shall be collected from soils that are similar in nature. If soils present within the load are not homogenous, then composite samples will be collected from each of the different soil types. A headspace analysis will be performed on the composite sample. Using the composite sample an 8-ounce glass sample jar will be filled with the composite material. The jar will be sealed with the provided lid. If the headspace reading from the composite sample exceeds 5 ppm, also fill a methanol and UPW preserved 40-mL VOA vial with approximately 10 grams of the composite material (1/1 ratio of weight soils to volume of preservative).

Aggregate Industries Saugus – Materials Testing Protocol

If no soil and/or fill materials have been accepted since the last monthly inspection and there is no area that appears to be contaminated based on the inspector's observations, a monthly sample will not be taken.

Sample jars will be labeled appropriately with date, time, depth, sample ID, and sampler's initials. The jars will be labeled for their respective analyses. The samples will immediately be placed in a cooler with ice (or equivalent) for preservation during shipment to the laboratory. Disposable gloves and safety glasses will be worn during sampling of the material and while handling samples.

A written sampling report will be completed by AINER's third party inspector for each monthly sampling event with copies sent to the Town of Saugus and AINER for inclusion in the monthly MassDEP report. The report shall identify the sampling procedures, the hauler of the material, and include a summary table for the sampling results with comparisons to the FMP's acceptance criteria.

In the event that any soil placed at the property is determined through such sampling and testing not to meet the criteria for Acceptable Materials, AINER's LSP will immediately implement the following "Failed Load Procedures":

- Within 4 hours of test results, cover the isolated load, identify the source materials, notify appropriate AINER's officials, and notify the LSP representing the source materials that they are on notice for load failure
- Within two business days make arrangement to remove the materials from the property for disposal in accordance with applicable requirements. In all cases, the failed soil will be removed from the property within 30 days.

Should the independent confirmatory testing program result in more than three failed loads in the first twelve months of operation, the generator will work with AINER to increase the testing frequency to a level acceptable to both the AINER and the Town of Saugus.

MassDEP Jar Headspace Analytical Screening Procedure

A PID meter with a 10.6+/- eV lamp, calibrated to an Isobutylene standard in accordance with the manufacturer's instructions must be used. Prior to each day's use, and following an erratic response condition, a "bump test" must be conducted by analyzing an Isobutylene gas standard. The recovery must be at least 70%.

1. Half-fill a glass jar with the sample to be analyzed. Quickly cover the open top with one or two sheets of clean aluminum foil and subsequently apply screw caps to tightly seal the jars. Sixteen ounce (16 oz.; approximately 500 ml) soil or "mason" type jars are preferred; jars less than 8 oz. total capacity (approximately 250 ml), may not be used.
2. Allow headspace development for at least 10 minutes. Vigorously shake jars for 15 seconds both at the beginning and end of the headspace development period. Where ambient temperatures are below 32° F, headspace development should be within a heated vehicle or building.

Aggregate Industries Saugus – Materials Testing Protocol

3. Subsequent to headspace development, remove screw lid to expose foil seal. Quickly puncture foil seal with instrument sampling probe, to a point about one-half of the headspace depth. Exercise care to avoid uptake of water droplets or soil particulates.
4. Following probe insertion through foil seal record highest meter response as the jar headspace concentration. Maximum response should occur between 2 and 5 seconds. Erratic meter response may occur at high organic vapor concentrations or conditions of elevated headspace moisture, in which case the test should be repeated.

Appendix D – Generator Profile





**SOIL SUBMITTAL PACKAGE CHECKLIST
SAUGUS QUARRY RECLAMATION PROJECT
1831 BROADWAY
SAUGUS, MA**

Please RETURN this check list with all the supporting information

Facility Name: Aggregate Industries – Saugus Quarry

Address: 1831 Broadway, Saugus, MA

Owner: Aggregate Industries – Northeast, 1715 Broadway, Saugus, MA

Operator: Aggregate Industries – Northeast, 1831 Broadway, Saugus, MA

Contact Person: _____ **Title:** _____ **Telephone#:** _____

Type of Project: Saugus Quarry Reclamation

Provide the following information in a QEP/LSP Opinion Letter

1. Frequency of sampling.
2. Laboratory Testing performed.
3. Description of site and contaminants provided
4. Description of current and former site usage/history is provided.
5. Laboratory Soil analytical reports, with laboratory QA/QC results and Chain of Custody attached.
6. Quantity of soil
7. Field screening data used to support chemical composition
8. Physical description/soil classification
9. Site figure showing soil origin, soil stockpiles, and location of all soil samples
10. Data table comparing all applicable results to Soil Acceptance Criteria
11. MassDEP Contained-In Determination provided (if applicable)

Soil Reuse Submittal – Saugus Quarry Reclamation, Saugus, MA

PROFILE NUMBER _____

(Assigned by Aggregate Industries.)

A. SITE INFORMATION:

Name:	Contact:
Address:	Phone:
City:	State, Zip:
Release Tracking No. or Site ID No. (if applicable):	

B. GENERATOR INFORMATION:

Name:	Contact:
Address:	Phone:
City:	State, Zip:

C. CONSULTANT INFORMATION:

Company:	Contact:
Address:	Phone:
City:	State, Zip:

D. ESTIMATED SOIL QUANTITY:

Tons: _____ or Cubic Yards: _____

E. LABORATORY ANALYSIS

Check the following laboratory analysis performed on the material to be reused (check all that apply)

- ☐ VOCs
- ☐ SVOCs
- ☐ EPH
- ☐ VPH
- ☐ PCBs,
- ☐ MCP14 Metals
- ☐ TCLP (if required by total levels)
- ☐ Conductivity
- ☐ pH
- ☐ Reactivity
- ☐ Ignitability
- ☐ Other laboratory analysis performed:

- ☐ Field screening performed (describe below)

Attach data summary tables and all laboratory reports for applicable samples only

F. SITE HISTORY:

<input type="checkbox"/> No	<input type="checkbox"/> Yes	Tannery operations
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Textile manufacturing
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Foundry operations
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Dry Cleaning operations
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Coal Gasification operations
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Machine Shop activities
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Salvage/Junk Yard operations
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Petroleum Storage facility (more than household quantities)
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Plating/metal finishing operations
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Chemical Production operations
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Circuit Board Manufacturing
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Herbicide or Pesticide were used or likely used, stored, or disposed
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Urban Fill Soils are present
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Boston Blue Clay is present
<input type="checkbox"/> No	<input type="checkbox"/> Yes	Soil with elevated natural background of Arsenic are suspected to be present
<input type="checkbox"/> No	<input type="checkbox"/> Yes	The site was a dumping ground for dredge spoils, fill soil, ash, or other waste
<input type="checkbox"/> No	<input type="checkbox"/> Yes	The site is classified as RCS-1

Soil Reuse Submittal – Saugus Quarry Reclamation, Saugus, MA

Past Use(s):

Current Use(s):

G. PHYSICAL SOIL DESCRIPTION:

Physical Description (sand, gravel, silt, peat, fill, etc.):

Check if the following materials are present (check all that apply):

- ☐ Clay ☐ Coal ☐ Ash ☐ Suspect Asbestos Materials
☐ Construction Debris ☐ Vegetative Matter ☐ Other Material: _____

H. SOIL SAMPLING METHODOLOGY:

Sampling Methods (check all that apply):

- ☐ Grab ☐ Composite ☐ Headspace Screened

No. of Individual Samples/Composite Soil Sample: _____

- ☐ Visually Contaminated ☐ Olfactory Contaminated ☐ Other: _____

I. SOIL CHARACTERIZATION METHODOLOGY:

Soil Characterization (check all that apply):

- ☐ Stockpile ☐ In-situ ☐ Other: _____

J. CERTIFICATION

I, the generator, having used due diligence and determined that the soil described within this Soil Submittal Package and intended for reuse at Saugus Quarry Reclamation Project meets the acceptance criteria described within the Reclamation Plan. There is no reason to suspect or believe soil intended for reuse at Saugus Quarry is classified as a hazardous waste or contains any other contaminants than those at levels described herein.

Signature of Generator:

Date:

Generator - Printed Name:

PROFILE NUMBER: _____

SITE INFORMATION: _____



Name:	Site Contact:
Address:	Phone:
City:	State, Zip:
Release Tracking No. or Site ID No. (if applicable):	
Company Performing PID Screening:	Name of PID Screener:

Field Screening Summary Table

PID #	Truck Number	Screening Date ⁽²⁾ (mm/dd/yyyy)	Shipment Date (mm/dd/yyyy)	PID Screening Results (ppmV)	Observations ⁽¹⁾
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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25					

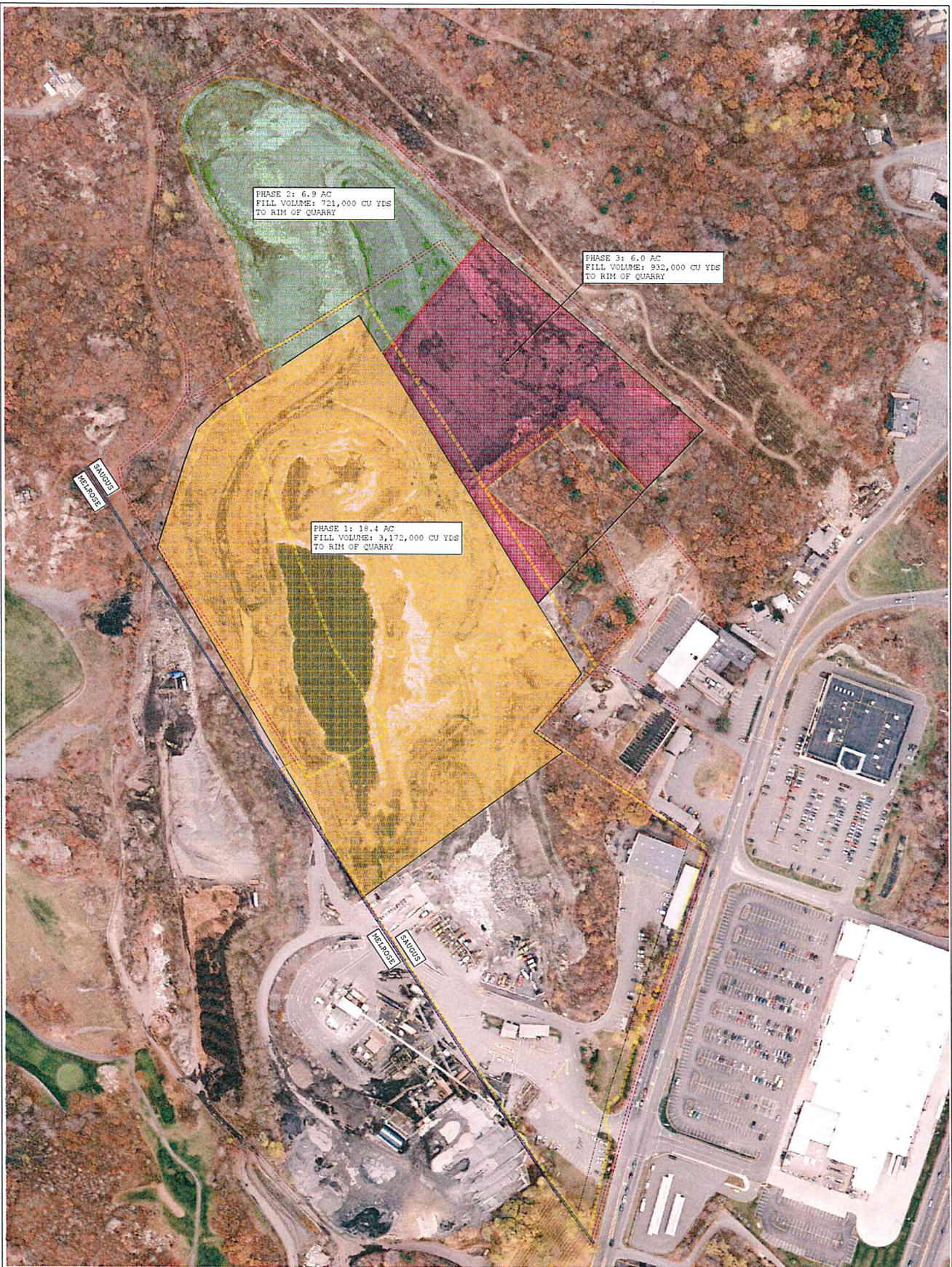
Notes:

1: Should provide some identifying features of soil tested. Document any evidence of staining/discoloration/odors/drum or tank fragments, or unacceptable materials

2: If different then shipment date

Appendix E – Conceptual Reclamation Plan





40 Geological Services
Mid-Point Program
1600 Center Triangle Drive, Suite 120
Baltimore, MD 21201
Tel: 301.842.7400
E-mail: info@aggregateindustries.com

Site SAUGUS QUARRY

Title PHASE PLAN
REVISED: 3-14-16

Scale	Date	Drawing No.
1 : 1200	MAR 2016	
Drawn By	Checked By	
TEH		

**Appendix F – Stormwater Pollution Prevention Plan
(SWPPP), Provided Under Separate Cover**



Appendix G – NHESP Correspondence





MASSWILDLIFE

DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
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Jack Buckley, *Director*

September 22, 2016

Aggregate Industries – Northeast Region
c/o Lisa Young
1715 Broadway
Saugus, MA 01906

RE: Applicant: Aggregate Industries – Northeast Region (AINER), c/o Lisa Young
 Project Location: 1831 Broadway, SAUGUS
 (Essex County Registry of Deeds, Book 27588, Page 513)
 Project Description: Saugus Quarry Reclamation Project
 NHESP File No.: **16-35834**

Dear Applicant:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") received the MESA Project Review Checklist, project plans ("Figure 7 Phase Plan" dated March 14, 2016) and other required materials for review pursuant to the Massachusetts Endangered Species Act (MESA) (MGL c.131A) and its implementing regulations (321 CMR 10.00).

The MESA is administered by the Division, and prohibits the Take of state-listed species. The Take of state-listed species is defined as "in reference to animals...harm...kill...disrupt the nesting, breeding, feeding or migratory activity...and in reference to plants...collect, pick, kill, transplant, cut or process...Disruption of nesting, breeding, feeding, or migratory activity may result from, but is not limited to, the modification, degradation, or destruction of Habitat" of state-listed species (321 CMR 10.02).

The Division has determined that this project, as currently proposed, will occur **within** the actual habitat of the Peregrine Falcon (*Falco peregrinus*), a species state-listed as "Endangered" according to the Massachusetts Natural Heritage Atlas (13th Edition). This species and their habitats are protected in accordance with the MESA. A Fact Sheet for this species can be found on our website, www.mass.gov/nhesp.

The project, as currently proposed, includes the reclamation of an existing quarry using MassDEP-approved materials. The project will occur in multiple phases over a fifteen (15) year timeframe, as further described in the project plans, project description, and MESA Checklist Follow Up (dated September 21, 2016). The project also includes post-closure development of the site, though the type and scope of development remains undefined at this time.

Phases 1A, 2 and 3

Based on the information provided and the information contained in our database, the Division finds that Phases 1A, 2 and 3 of this project, as currently proposed, **must be conditioned** in order to avoid a

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prohibited Take of state-listed species (321 CMR 10.18(2)(a)). To avoid a prohibited Take of state-listed species, the following conditions must be met:

1. Recordation: Prior to the start of work, the Applicant shall: (a) record this letter in the Essex County Registry of Deeds or the Land Court for the district in which the property is located so as to become a record part of the chain of title for the property; and (b) provide the Division with proof of said recordation.
2. Monitoring and Protection Plan: Prior to January 31, 2017, the Applicant shall submit a draft monitoring plan to the Division for review and approval. Said plan shall be implemented by a qualified wildlife biologist approved by the Division, and shall include a detailed protocol for ongoing monitoring of Peregrine Falcon nesting activity/success within the project area, including documentation of any changes in nesting behavior. Said plan shall also include a schedule for assessing and implementing measures to enhance Peregrine Falcon nesting within the project area prior to January 31, 2018.
3. Annual Reporting: Unless otherwise approved by the Division, the Applicant shall submit annual reports to the Division. Said reports shall include results of the monitoring and enhancement activities outlined above, as well as progress toward completion of work activities within Phases 1A, 2 and 3.

Provided the above-noted conditions are fully implemented and there are no changes to the project plans, Phases 1A, 2 and 3 of the project will not result in a Take of state-listed species. We note that all work is subject to the anti-segmentation provisions (321 CMR 10.16) of the MESA. This determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the project plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

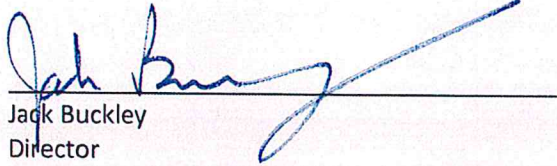
Phase 1B

The Division has been involved in ongoing consultations with the Applicant to evaluate and address potential impacts to state-listed species and their habitats associated with Phase 1B of the proposed project. Therefore, the Division's review of Phase 1B pursuant to the MESA is ongoing. No work or other activities related to Phase 1B shall be conducted on the project site until the Division has issued a final MESA determination and all related MESA permitting requirements for Phase 1B are complete.

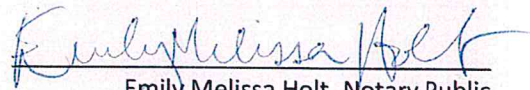
Preliminarily, the Division anticipates that Phase 1B of the proposed project will likely result in a Take of Peregrine Falcon. Projects resulting in a Take of state-listed species may only be permitted if the project and proposed mitigation meet the standards for issuance of a Conservation and Management Permit (CMP; 321 CMR 10.23). The Applicant is aware that Phase 1B of the proposed project will require a CMP to proceed and is proposing to implement a Division-approved monitoring and mitigation assessment plan to evaluate potential net benefit mitigation measures. As further described in the MESA Checklist Follow Up (dated September 21, 2016), said plan will include monitoring of nesting activities as well as assessment of potential enhancement opportunities at other quarries owned by the Applicant in Massachusetts. The Applicant intends to continue coordinating with the Division and to submit CMP

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Jesse Leddick, Endangered Species Review Biologist, at jesse.leddick@state.ma.us or (508) 389-6386.

Sincerely,


Jack Buckley
Director
Massachusetts Division of Fisheries & Wildlife

On this 22nd day of September, 2016, before me, the undersigned notary public, personally appeared Jack Buckley, Director, proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.


Emily Melissa Holt, Notary Public
My Commission Expires: July 28, 2017

cc: Briony Angus, Tighe & Bond



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