SOIL MANAGEMENT PLAN
POTOMAC YARD
LANDBAY K
ALEXANDRIA, VIRGINIA

ECS PROJECT NO. 9676-T1

FOR

LAND PLANNING & DESIGN ASSOCIATES

JUNE 28, 2010

ECS MID-ATLANTIC, LLC
"Setting the Standard for Service"
Geotechnical • Construction Materials • Environmental • Facilities

June 28, 2010

Mr. Zac Lette
Land Planning & Design Associates
22630 Davis Drive
Suite 175
Sterling, Virginia 20164

ECS Project No. 9676-T1

Reference: Soil Management Plan, Potomac Yard Landbay K, Jefferson Davis Highway, Alexandria, Virginia.

Dear Mr. Lette:

ECS Mid-Atlantic, LLC (ECS) is pleased to provide Land Planning & Design with the Soil Management Plan for the above-referenced property. Our services were provided in accordance with ECS Proposal No. 33697-EP dated March 15, 2010. If you have any questions or comments regarding this report, or any other aspect of the project, please contact us at (703) 471-8400.

Respectfully submitted,

ECS MID-ATLANTIC, LLC

David J. Bookbinder
Environmental Scientist

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Principal Environmental Manager

(DJB/environ/rpt/9000/9676-T1/9676-T1-SMP)

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PURPOSE

The purpose of this Soil Management/Contingency Plan is to communicate handling procedures associated with contaminated materials that may be encountered in the fill material at the Potomac Yards site to contractors who perform work at the site. This plan is not intended to act as a health and safety plan, but is intended to be presented to all onsite workers, as information, and to become an attachment to each contractor's health and safety plan. Each contractor is responsible for developing their own site specific, health and safety plan. In particular, this plan is intended to address environmental concerns associated with the construction of at-grade townhouse units and associated site improvements.

SITE HISTORY AND PROPOSED DEVELOPMENT SCENARIO

The site is an approximately 34-acre property that is currently identified as Landbay K. The site is located in the southern, Alexandria, portion of the larger Potomac Yards property. Specifically, the Landbay K portion of the Potomac Yards site is located to the east of the Potomac Avenue, extending approximately 1.5 miles from the south of the shopping center to Braddock Road. Potomac Yards as a whole was used as a rail yard from the early 1900s through the early 1990s. During that time, a majority of the site contained rail tracks, as well as a roundhouse and maintenance and other buildings associated with the railroad. Between 1989 and 1993 the rail yard was decommissioned and the rail tracks and associated buildings were removed.

It is documented that cinder ballast materials have been deposited in certain areas of the site. Some of this material contains heavy metals and petroleum contaminants that may require special handling and disposal. Additionally, some soils beneath the property have been impacted by historic petroleum releases. The site has been the subject of several environmental characterization studies, including the following:

- Extent of Contamination Study, Potomac Yard, Alexandria, Virginia. Environmental Technology of North America. May 24, 1995.

- Human Health Risk Assessment and On-Site Ecological Risk Assessment, Potomac Yards Site, Alexandria, Virginia. The Weinberg Group, Inc. October 13, 1995.

- Soil Characterization and Management Plan, Potomac Yard – Arlington South Tract, Arlington, Virginia. Earth Tech. July 8, 2003.

- Environmental Investigation, Potomac Yards, Land Bay K, Alexandria, Virginia. ECS Mid-Atlantic, LLC. June 9, 2010.

In general, previous investigations identified low levels of various contaminants in soil and groundwater across the site. Soil sampling included the analysis of metals, volatile organic compounds (VOCs), PCBs, and petroleum compounds. According to the Human Health Risk Assessment and On-Site Ecological Risk Assessment performed by the Weinberg Group, Inc, (1995) the carcinogenic and non-carcinogenic risks posed by the various contaminants in onsite soil were within or below the EPA's risk range for risk management at Superfund sites. The primary contaminant of potential concern in the soil was arsenic, which was located within the cinder ballast at shallow depths across the site.

With regard to the risk assessment, the primary contaminant of potential concern in the soil is arsenic, which was located within the cinder ballast at shallow depths across the site. The other principle contaminant of concern with regard to development is petroleum contaminated soils. Based on previous studies performed throughout the Potomac Yards property, it is likely that petroleum contaminated soils will be found in pockets throughout the site related to smaller surface spills during the site's use as a rail yard.

Proposed final site development includes the construction of a pedestrian park, as well as associated site improvements. It is our understanding that the proposed redevelopment of the site will primarily involve the placement of fill materials to raise the current level of the property with limited subsurface excavation across the site. If petroleum-contaminated soil or cinder ballast is encountered within any shallow excavations necessary for the installation of the retaining wall, etc., all contaminated materials will be removed to a depth of at least two feet below final surface grade, and replaced with two feet of clean engineered fill. If contaminated soil or cinder ballast is encountered in utility trench excavations, the material will be removed from the site and properly disposed, and the utility trenches backfilled with clean engineered fill material. In no case should contaminated soil or cinder ballast be used backfill within a utility trench.

SOIL MANAGEMENT, POTENTIAL EXPOSURE AND CONTROLS

Potential exposure pathways are associated with construction workers both during initial development and to a lesser extent in the event future servicing requires excavation of utility lines. Risk scenarios for construction workers both short (development) and long term (future servicing) are expected to involve exposure pathways of inhalation from fugitive dust and incidental ingestion of soil particles.

For the installation of the utility corridors in areas where impacted soils are encountered, it is recommended that the trenches be over excavated at least two feet on all sides. Prior to installation of the utility, a layer of clean fill should be placed at the base of the excavation (i.e. replace the over excavated material). If the excavation for the utilities is in non-impacted material, then over excavation may not be necessary; however, the utility excavation should be observed by a competent environmental professional prior to final utility placement to verify the condition of the material remaining in the trench. If necessary, the excavated material should be screened for evidence of environmental contamination based on elevated photoionization detector (PID) readings, or other visual or olfactory evidence of contamination (i.e. staining, odors, etc.). In areas where obvious contamination is present, full-time screening may not be required. Once the utility is placed in the excavation, the utility trench should be backfilled with clean fill (i.e. non-contaminated material).

Contaminated material produced as a result of the utility installation or other excavation should be disposed of in accordance with applicable Virginia Department of Environmental Quality (VDEQ) Waste Management Regulations. Based on the contaminants detected at the site, impacted materials should be taken to a lined landfill (or other appropriate disposal/treatment facility) capable of handling non-hazardous levels of heavy metals and TPH. Excavated contaminated materials should be loaded directly onto trucks, removed from the site and disposed appropriately. If necessary, this material should be stockpiled on the site for the period of time it takes to excavate an appropriate length of trench and have it loaded onto trucks, only. Contaminated soil should not be stockpiled on site for a period longer than one working day.

During the development process care should be taken to reduce worker exposure potential and ensure that the material is contained on the site until its final placement is complete. As such, engineering controls should be instituted so that no visible emissions or dust is produced during the handling process. This can be accomplished by the use of water sprayers or trucks as needed during site grading and excavation. In addition to these controls, any stockpiled material should be covered with plastic or otherwise stabilized to inhibit runoff, visible emissions and dust.

Workers should not be allowed to eat, smoke or drink in the areas of the site at which impacted soils are exposed. A designated worker “break” area should be established as needed at the site. Workers should be required to wash any exposed areas regularly during the workday and at a minimum prior to eating, smoking or drinking and upon leaving the site. Also work clothes should be changed prior to exiting the site. Based on the known environmental information for the site it does not appear that personal protective equipment (PPE) above Level D (i.e. normal work clothes to include work gloves, safety glasses, hardhat, and safety shoes) will be needed when working at the site.

Once the development of the site is complete, the site will be capped with concrete, brick paving, asphalt paving or a minimum of two feet of clean (i.e. non-contaminated) soil, or some combination thereof, depending upon its final disposition at the site. The clean fill

materials may be imported from offsite sources, or taken from the existing stockpile of soils imported from excavations on the northern portion of the Potomac Yards site. Cinder ballast materials will not be used as fill material, and will be removed from the site where encountered. In areas of the site where net cut is required, the areas should be over-excavated to a minimum depth of two feet to ensure the removal of contaminated materials, and the material replaced with clean, compacted fill materials. This form of encapsulation will effectively eliminate the long-term exposure potential by eliminating the potential for ingestion and inhalation of the impacted material. Please refer to the 1995 Weinberg Group, Inc risk assessment for details related to the specific exposure routes and their elimination as a result of development and capping of the site. In areas that will not be capped by concrete or asphalt, or where soils from other portions of the Potomac Yards property are used as uncapped fill, a limited program of confirmatory testing should be performed to ensure that the soils will pose no significant risk to future occupants of the site. ECS has collected daily confirmatory samples from the materials imported to the stockpile area from the northern portion of the Potomac Yards site, and any soils found to contain TPH greater than 50 parts per million were removed and sent to a lined landfill. The final confirmatory testing program will be performed in addition to the confirmatory testing that has already been performed as a final safeguard.

SOIL CONTAMINANTS AND CONCENTRATIONS

Based on the 2010 ECS Environmental Investigation, the table on the following page breaks down the contaminants present in soils beneath the site for Landbay K, along with their respective detected concentrations. Contaminants that were not detected are not included in these tables.

LANDBAY K	70 Samples	
Contaminant	**Highest Detected Concentration**	**Mean Concentration**
Arsenic	650 ppm	171.2 ppm
Barium	310 ppm	67.3 ppm
Chromium	27 ppm	13.9 ppm
Lead	110 ppm	43.5 ppm
Silver	250 ppm	114.6 ppm
TPH DRO	7,100 ppm	777.8 ppm
TPH GRO	1,500 ppm	1,210 ppm
Benzene	3 ppb	3 ppb
2-Butanone	12 ppb	12 ppb
Ethylbenzene	27 ppb	15 ppb
Isopropylbenzene	92 ppb	80.5 ppb
4-Isopropyltoluene	370 ppb	199 ppb
Naphthalene	200 ppb	200 ppb
n-Propylbenzene	180 ppb	124.5 ppb
1,2,4-Trimethylbenzene	350 ppb	180.5 ppb

1,3,5-Trimethylbenzene	220 ppb	114 ppb
Total Xylenes	39 ppb	21 ppb

The above tables are based on the 2010 ECS study, and are not inclusive of all previous studies that have been performed for the Potomac Yards property. The final Weinberg Group, Inc. 1995 Human Health Risk Assessment and On-Site Ecological Risk Assessment for the property has been previously reviewed and approved by both the Virginia Department of Environmental Quality and the Federal Environmental Protection Agency, and found no significant risk to future occupants of the property. Additionally, no known activities have occurred on the property since the 1995 study that would have had an adverse impact on the property.

The bulk of the inorganic (metals) contamination was found in the upper six feet below surface grades, and the highest arsenic and silver concentrations were found in cinder ballast materials. For this reason, all contractors and subcontractors should take special care to control surface runoff and fugitive dust emissions from cinder ballast materials when they are encountered.

Petroleum contaminated soils were found generally at shallow depths and consisted primarily of diesel. As noted, it is likely that the petroleum-contaminated soils will be found in seams or pockets related to numerous small surface spills or other releases during the years of rail yard operations, rather than from a single release with an identifiable plume. Therefore, it is not economically feasible to perform a full site characterization to identify all possible locations and quantities of petroleum-impacted soil on the property. Petroleum impacted soils will be identified during the excavation by field screening methods, and will disposed off site in accordance with applicable Virginia Solid Waste Management regulations.

CONTINGENCY PLANNING

As noted, at this time it is anticipated that some of the excavated soils will be re-used at the site (in areas other than the utility corridors). Some of the material may be used to fill deeper areas of the site. If the material is to be stockpiled for a period longer than one workday then it should be placed in a designated stockpile area. The stockpile should be surrounded by a berm capable of containing the soil and any potential runoff that may occur in the event of rain. For a working stockpile, the berm should be replaced when left unattended for an extended period of time and at a minimum at the end of each workday. Engineering controls, as discussed above, should be instituted to eliminate visible emissions and dust from the stockpile area.

If during the course of development unknown or unforeseen conditions arise, work in the area of the site should cease until such time as the site supervisor can assess the situation. These situations may include:

- Unusual odors;
- Sheens or slicks on standing water surfaces;
- Seeping liquids or discolored water;
- Seeping gases and/or vapors;
- Underground piping, lines, tanks or drums or
- Any unusual buried object that cannot be readily identified.

Although this list is not exhaustive, in the event these situations or other unknowns are encountered, we strongly recommend that personnel immediately stop work in the area and contact their direct supervisor. **Do Not** attempt to fully assess the situation/item without first contacting your supervisor. Please keep in mind that worker safety is of utmost importance. **Do Not** perform any action that would jeopardize the health and safety of yourself or those working around you. You are responsible for your own actions as well as the health and safety of yourself and those working around you. Therefore, if you encounter an unusual situation, stop action and get appropriate advice before proceeding.

In the event that an unusual situation is encountered during work, first notify your direct supervisor. Your supervisor should then report directly to the site supervisor for Land Planning and Design Associates (LPDA) who will have responsibility to assess the situation and contact the appropriate capable personnel to handle the situation or item. ECS Mid-Atlantic, LLC (ECS) is the environmental consultant for LPDA. Mr. David Bookbinder of ECS can be contacted at 703-471-8400, if needed.

If any unanticipated contamination, underground storage tanks, drums, or other containers of petroleum products or hazardous substances, the site supervisor must immediately notify the City of Alexandria Department of Transportation and Environmental Services, Division of Environmental Quality. The site supervisor will also notify City of Alexandria Code Enforcement when potentially hazardous substances have been discovered on the site. In the event of a large gas leak or discovery of flowing liquids of suspicious origin, on-site personnel must call 911 immediately.