



**Soil and Groundwater Management Plan  
Catamount Howard LLC (SMS# 2004-3311)  
Catamount Van Ness LLC  
Burlington Vermont**

**Submitted to:**

**Catamount Howard LLC  
Catamount Van Ness LLC  
210 College Street, Suite 201  
Burlington VT**

**Prepared by:**

**Greatwood Engineering Management, LLC  
PO Box 249  
Hinesburg VT 05461**

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## 1.0 Introduction

The Greatwood Management Company (GWMC) has developed this Soil and Groundwater Management Plan to address contaminated soils that may be disturbed by the construction activities undertaken as part of the Catamount Howard, LLC. - St. Paul Street Redevelopment Project (the Subject Property). These construction activities include the excavation and backfill of certain areas of an approximately 2.6 acre block located in downtown Burlington, Vermont. The proposed construction activities currently include parking structures and new buildings. The block in question includes multiple parcels and is bounded by:

East by St. Paul Street  
North by Main Street  
West by Pine Street  
South by King Street.

As described within this Soil and Groundwater Management Plan, only one distinct area of contamination is known to exist. This area is associated with the former service station(s) that historically occupied the buildings within this block of Burlington. The source of contamination appears to be isolated to releases from up to four (4) underground storage tanks identified to the east of the Subject Property under the sidewalk area of St. Paul Street. Given the extent of due diligence performed to date on this property, GWMC believes that it is unlikely that additional contamination will be discovered. However, if subsequent areas of contamination are identified, these areas will be addressed as described by the procedures contained within this plan.

This Soil and Groundwater Management Plan provides identification and management procedures to be followed by development/construction contractors and consultants who are retained by various parties to monitor and excavate the areas of the Subject Property that have been identified as being impacted by petroleum and other compounds. Only contaminated soil disturbed or otherwise encountered by construction activities shall require special handling practices. Soil or groundwater which may be potentially contaminated, but remain outside of the limits of excavation may remain in place.

## 2.0 Summary of Previous Investigations

A Phase I Environmental Site Assessment (ESA) was performed by Griffin International in April 2004. As part of this ESA, historic fire insurance maps (Sanborn) were reviewed. A number of features of interest were identified during this review. This included:

1. One (1) potential underground storage tank located immediately north of the Hinds Building.
2. One (1) potential underground storage tank located immediately north of the former Penrose building.

3. Two (2) underground storage tanks located immediately south of the Howard Bank (now Bank North) building.
4. Four (4) potential underground storage tanks located under the sidewalk immediately east of the Subject Property.

A series of investigations were conducted on the on-site features to determine the presence and potential impacts to the Subject Property. The scope and extent of these investigations included test borings and test pits. The findings are summarized below.

#### *2.1 Test Borings – Griffin International*

A series of five (5) borings via a geo-probe rig were advanced immediately north of the Hinds Building to determine the presence of a tank and any impacts to the subject property. These borings indicated elevated readings via photo ionization detector (PID) screenings of the soils. The concentrations indicated ranged from 0 to 180+. The depth from which these elevated readings were detected was 6-9 feet below ground surface or deeper.

#### *2.2 Geo-Physical Investigation*

A subsurface geo-physical investigation was conducted by Hager-Richter Geo-science in April 2005. This investigation included the use of magnetic survey and ground penetrating radar. This investigation indicated anomalies north of the Hinds Building and in the sidewalk to the east of the Subject Property. The object north of the Hinds building was tentatively identified as buried metal. There were four (4) USTs identified in the sidewalk area. The area north of the former Penrose Building did not indicate any anomalies.

The four tanks identified by this investigation were removed on June 21, 2006. Evidence of contamination, including odor, staining and elevated PID readings were detected in all four tank graves. All four tanks were in poor condition with two of them exhibiting many holes. A completed tank removal report is available upon request.

#### *2.3 Test Pit Investigation*

A series of test pits were advanced in the area immediately north of the Hinds Building and the Penrose Building in August of 2005 by KAS, Inc. The soils in this area were screened using a PID. The test pit north of the Hinds Building was advanced to approximately seven (7) feet bgs. North of the Penrose Building the test pit was advanced to six (6) feet bgs. No tanks, indications of fill pipes or elevated PID readings were indicated in this area of the site.

#### *2.4 Test Boring Grid – Greatwood Management*

A series of test borings were advanced on a grid pattern in the area immediately north and west of the Hinds Building in an attempt to determine the extent of subsurface contamination. The borings were advanced via a geo-probe rig with the soils being screened utilizing an OVM 580B, PID. The contamination appeared to be limited to the deeper layers, below five feet bgs. Further, the highest PID soil screening readings were indicated immediately adjacent to St. Paul Street, up hill of the Hinds Building anomaly described by Griffin and Hager-Richter.

### 2.5 *Bank North Tanks*

The area immediately south of the Bank North Building (former Howard Bank Building) indicated a pavement cut that corresponded to the identified location of the underground storage tank(s) identified by Griffin International. Bank North was contacted in regards to the removal of these tanks. It was confirmed that the tanks had been removed in approximately 1990. The bank is searching their records for the removal assessment report regarding these tanks.

### 3.0 **Soil Contamination**

The identified soil contamination appears to be isolated to the area immediately east and north of the Hinds Building. This area appears to have been impacted by releases from the underground storage tanks located under the sidewalk to the east of the property line of the Subject Property.

Based on the grid pattern of soil borings conducted on the site, there does not appear to be any contamination in the upper five feet of the site. Contamination appears to be encountered at the 5-10 foot area with some areas exhibiting contamination in the 10-15 foot layer.

The construction activities in this area will likely include the excavation for foundation structures including footings and frost walls, slabs, and other features. The current construction design calls for a building to be constructed approximately at sidewalk grade immediately adjacent to the sidewalk with excavation to a lower elevation approximately 50 feet west of the inner edge of the sidewalk to a deeper elevation to accommodate a parking structure.

### 4.0 **Sensitive Receptors**

There are no known sensitive receptors associated with this area under undisturbed conditions. There are municipal provided drinking water and sewer systems in this area of Burlington. Therefore, no drinking water wells or other routes of exposure currently exist or are proposed. During disturbance, the site workers in these specific areas of the site may be exposed to elevated concentrations of volatile organic compounds.

### 5.0 **Excavation, Screening, Handling and Disposal of Contaminated Soils**

As described above, the estimated limits of soil contamination is believed to have been reasonably delineated for the purposes of construction in both location and concentration.

During the construction/excavation activities conducted within the area of the contamination, the excavated soil shall be sampled and screened in the field by an environmental professional using a Photo-Ionization Detector (PID). The screening shall occur at specific depths and is independent of additional screening that shall be conducted as part of the Health and Safety requirements for working in this area.

Soils that are identified as being impacted, by the environmental consultant, will be clearly segregated from other excavated materials for off-site disposal. Reasonable care shall be

taken to ensure that contaminated soils are not mixed with non-contaminated soils. If contaminated soils are stored temporarily on site, they shall be placed on 6-mil plastic sheeting and properly covered and protected to prevent rainwater or surface runoff from coming in contact with contaminated stockpiles.

In general, if excavated soils exhibit a PID concentration below 10 ppm, the soils may be used as backfill in the same location as it was excavated, assuming that they meet applicable construction standards as residual contamination will be considered de minimus. Soils excavated from one area of the site that exhibit concentrations in excess of 10 ppm shall not be used as backfill on other areas of the site. Soils exhibiting PID concentrations above 10 ppm will be properly containerized (most likely roll-off containers) and transported off-site for disposal. These materials shall be transported as NON-RCRA, NON-DOT materials to a pre-approved receiving facility. Soils with evidence of free product shall be segregated and transported as a hazardous waste in accordance with all local, State and Federal Requirements. (See Section 6 for shipment and disposal requirements).

Detailed records of the screening values recorded and volume of soil segregated for special handling will be documented and kept on file with the Catamount Howard, LLC.

## **6.0 Soil Disposal Options**

Once the soils are screened and segregated during the excavation activities, the impacted soils will be containerized and properly disposed of off-site. Disposal options shall be determined based on the screening of the soils conducted during the excavation process. Disposal facilities to be reviewed will include, but may not be limited to:

- EMSI in New York State
- MTS in New Hampshire
- Chemical City, New Jersey
- Casella Waste Management in New Hampshire

All transported soils shall be treated and/or disposed of in a manner that provides a permanent release from liability to Catamount Howard, LLC and its development partners.

The segregated materials shall be shipped as a NON-RCRA, NON-DOT material for disposal unless determined that other classifications are required per chemical analysis. Proper disposal receipts, bills-of-laden or other suitable transport paperwork that provides an exact weight of the materials disposed of (or other method approved by Catamount Howard, LLC); the location of the disposal facility and other pertinent information shall be provided by the transport company to Catamount Howard, LLC.

Prior to shipment of these materials off-site, the Contractor shall be responsible for obtaining all permits as required by the Vermont Agency of Natural Resources and Agency of Transportation, as necessary.

## **7.0 Health and Safety**

The screening of the soils discussed in this Soils Management Plan are independent of the screening and other requirements that may be required as part of the Health and Safety (H&S) requirements for work on this project. The Contractor shall be required to develop and implement a Health and Safety Plan for the excavation of these soils and other work tasks as appropriate. The H & S Plan shall be compliant with all aspects of 29 CFR 1910.120 and/or other local, State or Federal worker safety requirements.