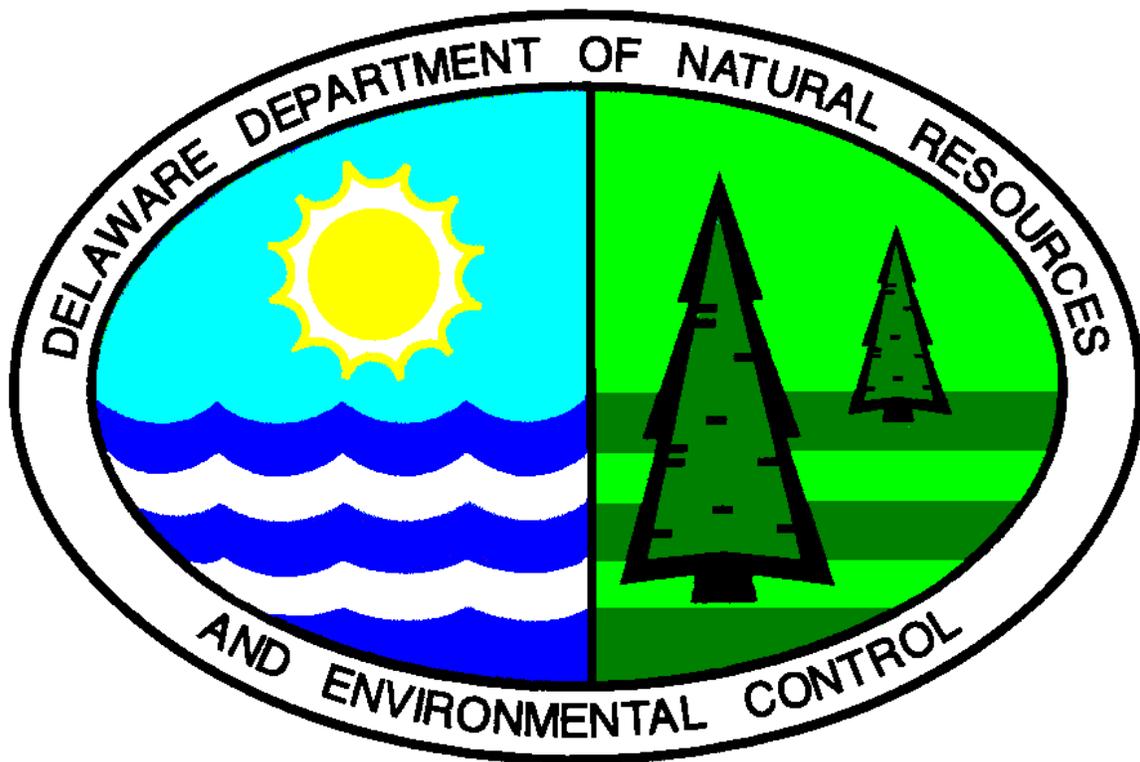


**Cabean Square Site  
Final Plan of Remedial Action  
DE1081**



**June 1998**

**Department of Natural Resources and Environmental Control  
Division of Air and Waste Management  
Site Investigation and Restoration Branch**

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# Cabean Square Site Final Plan of Remedial Action

## I. Introduction

The Delaware Department of Natural Resources and Environmental Control (“DNREC”) performed a Remedial Investigation (“RI”) of the Cabean Square Site (“Site”) under the Delaware Hazardous Substance Cleanup Act (“HSCA”) 7 Del. C. Chapter 91. Based on the comprehensive environmental investigations performed for the Site and the interim action taken at the Site, DNREC concluded that the Site, in its present condition, does not present an unacceptable risk to public health, welfare or the environment.

## II. Organization and Contents of the Proposed and Final Plans

DNREC issues this final plan under the provisions of HSCA and the Regulations Governing Hazardous Substance Cleanup, (“Regulations”). The final plan presents DNREC’s assessment of the health and environmental risks posed by the Site and plans for limited further action.

DNREC provided notice to the public and an opportunity for the public to comment on the proposed plan in accordance with Section 12 of the Regulations. At the comment period’s conclusion, (the public comment period for this Proposed Plan closed on June 22, 1998), DNREC had not received any substantive comments to the proposed plan. Therefore, DNREC issues this final plan of remedial action. The final plan of remedial action designates the selected remedy for the Site. The proposed plan, the comments received from the public, DNREC’s responses to those comments, and the final plan of remedial action constitute the remedial decision record.

Section 8 of the Regulations discusses the contents of the proposed and final plan of remedial action. The proposed and final plan contain the following site information:

- A summary of the procedures, analytical results, and conclusions of the remedial investigation,
- A discussion of objectives,
- A summary of the risk assessment results, and
- A plan for the site’s future.

## III. Site Description

The Site is located south of A Street between Bradford and Claymont Streets in Wilmington, New Castle County, Delaware, see Figure 1. The Site includes approximately 0.8 acres and contains a partially constructed nine-unit townhouse group.

The Site is bounded to the northwest, north, and east by city streets, and to the southwest by townhouses and to the south by the backyards belonging to the townhouses. Public water and sewer serve the townhouses. Public water and sewer will serve the Site.

The Site is located within an area mapped as floodplain that is regulated by the City of Wilmington. The Site is in the Coastal Plain Physiographic Province approximately 1 mile south of the Fall Line. The Site sits on an eastward thickening wedge of unconsolidated interbedded sand, silts, and clay layers with lenses of sand, silt or clay sediment. There are three water bearing formation separated by clay layers under the Site, the Columbia, the Upper Potomac, and the Lower Potomac. Groundwater in the Columbia and the Upper Potomac flow to the northeast and the Christina and Delaware Rivers. Groundwater in the Lower Potomac flows to the south. The Lower Potomac is utilized as a commercial drinking water supply. Within the Site area, the Columbia and the Lower Potomac are not used as drinking water supplies.

Topographically, the Site is generally flat but slopes very gently to the east. Surface water on the Site flows towards the north and east to storm sewers located in the streets immediately adjacent to the Site. However, on the whole, the Site topography has been reworked on numerous occasions in the last 100 years and any resemblance to the natural topography and surface water flow patterns is only coincidental. Site soils have been mapped as the Albino-Keyport-Mattapex-Urban (AKM-Urban) Complex and the Othello-Fallsington-Urban (OF-Urban) Complex. The AKM-Urban consists of soils for which the profiles have either been historically removed or filled. The OF-Urban typically consists of soils that have been historically filled.

There are no mapped wetlands present on the Site.

Presently, the Site consists of largely open land with a partially constructed nine-unit townhouse group facing Bradford Street on the northeasterly portion of the Site. The townhouses were built in 1991-1992 and are boarded closed. The southeastern portion of the Site is open land predominantly vegetated with grasses; the western portion (the historic automotive repair center) is largely covered with stone and sparsely vegetated. In addition, slag, which was likely used to stabilize the Site soils (e.g. temporary pavement), was placed on the southwestern portion of the Site.

#### **IV. Site History**

The Site is a collection of residential and commercial properties that have been demolished and rebuilt over the years. The commercial property, located in the western portion of the property was Drake's Body Shop, an automotive repair center which started operation during the mid 1960's. During the late 1960's a fire destroyed the building and the shop and the buildings were rebuilt. The automotive center operated a welding operation as well as a normal automotive repair shop. The center contained paints, paint thinners and lacquer thinners, which were reportedly disposed of off-site properly. In the rear of the Drake building the following was stored: vehicles, automotive parts, batteries, and five 55-gallon drums.

The Site is currently under the care of the Wilmington Housing Development Corporation and is slated for redevelopment as townhouses. Wilmington Housing Development Corporation entered into a voluntary agreement with DNREC to perform the investigation and cleanup at the Site.

## **V. Remedial Investigation Procedures**

DNREC conducted an extensive review of past investigations prepared for the Site. After review of the work conducted, DNREC worked with Duffield Associates, Inc. (the consultant for the Wilmington Housing Development Authority) to develop a Work Plan to address the following:

- Determine the presence or absence of contaminants in the underlying fill material; if present, determine the contaminant fate and transport, and
- Determine the presence or absence of a source in the underlying soils, and if present to remove the source.

The Work Plan called for the following tasks:

- Re-sample and analyze the Site soils;
- Develop a profile of the volume of material impacted;
- A risk assessment, if necessary, both human health and/or ecological, and
- A FS, if the Site poses unacceptable risk to human health and the environment to correct these risks.

## **VI. Remedial Investigation Results**

The following is a brief summary of the results of the investigations for the Site.

### **A. General Information**

All residents are currently connected to public water and waste water systems.

### **B. Surface Slag Material**

Slag, which was likely used for surface stabilization (temporary paving), was observed in the southwestern portion of the Site. The slag area is approximately nine (9) feet wide, 85 feet long and approximately 0.3 foot to a foot deep. Analytical results indicate that the slag contains elevated concentrations of beryllium.

### **C. Soils Containing Petroleum Hydrocarbons**

A mixture of weathered lubricating oil with possible coal tar distillates was found in the Site soils with total petroleum hydrocarbon (TPH) concentrations ranging in the near surface samples (0.5 to 1.5 feet below surface) from 114 milligrams per kilogram (mg/kg) to 1,830 mg/kg. TPH values for the deeper soil samples (1.5 to 2.0 feet below surface) ranged from 10.7 mg/kg to 1,320 mg/kg. Based on the reported weathered condition from the laboratory, the TPH would appear to be the result of poor housekeeping practices at the automotive shop. No underground storage tanks were found on the property.

#### **D. Metals Containing Soils**

The analytical results indicated that the near surface soils exceeded the 400 mg/kg residential surface soil concentration for lead. The lead in soils is visible and appears to directly correlate to the location of batteries found on the Site.

#### **E. Solid Waste**

Debris (demolition) was encountered in test pits up to about five (5) feet below the surface.

#### **F. Summary**

The results of the study indicated that the Site contains elevated concentrations of surficial soil lead contamination as related to the automotive shops battery operation; elevated concentrations in surface soils of TPH from generally poor housekeeping by the automotive shop; and elevated beryllium concentrations from slag used as a driveway pavement.

Debris was encountered in the fill up to a depth of approximately five feet below surface.

### **VII. Interim Action**

The agreement with Wilmington Housing Development Corporation provided that, if during the course of investigation means became apparent to reduce the contamination or prevent its spread, appropriate action would be taken immediately. Therefore the following remedial interim actions have occurred:

- Off-site and proper disposal of materials not designated as clean fill by the Delaware Regulations Governing Solid Waste;
- Removal, and proper off-site disposal of soils containing lead concentrations greater than 400 mg/kg;
- Removal, proper off-site disposal of slag containing elevated concentrations of beryllium greater than 1 mg/kg; and
- Removal, proper off-site disposal of soils containing elevated concentrations of TPH greater than 100 mg/kg.

### **VIII. Facility Remedial Action Objectives**

The Regulations provide that DNREC sets objectives for land use, resource use, and cleanup levels that are protective of human health and the environment. The following objectives are determined to be appropriate for the Site:

- Prevent residential exposure to impacted media, and
- Continue the use of public water and sewer for all purposes to the surrounding community,

These objectives are consistent with the value of the Site as part of the surrounding land use, New Castle County zoning policies, state regulations governing water supply, and worker health and safety.

## **IX. Risk Evaluation Summary**

Duffield performed a health risk assessment to evaluate the possible effects on human health from the use of the Site consistent with the objectives discussed above.

The Risk Evaluation evaluated whether there was a possible health risk and/or environmental impacts from the release of hazardous substances from the Site given that nearly all the residents in the immediate area are connected to municipal water supply and the interim action removed all soil contamination.

There is no completed pathway for exposure to ground water or for soils for any potential human or ecological receptors in the area.

## **X. Final Remedial Action Plan**

Based on the results of the Remedial Investigation and Feasibility Study and the Interim Action at the Site, DNREC concluded that the risks associated with the Site are acceptable with a restricted groundwater access. Therefore, DNREC will:

- Restrict drinking water access and create a groundwater management zone for the Site.

## **XI. Declaration**

This Final Plan of Remedial Action for the Cabean Square Site is protective of human health, welfare, and the environment and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

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Division of Air and Waste Management

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## Figure 1 - Site Location

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