

# FINAL PLAN OF REMEDIAL ACTION



## CHRYSLER NEWARK ASSEMBLY PLANT SITE – OPERABLE UNIT 9 (-AKA- University of Delaware's Science and Technology Campus)

*550 South College Avenue  
Newark, Delaware*

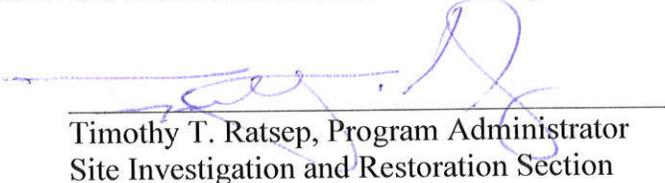
*May 8, 2012  
DNREC Project No. DE-0105*

This Final Plan of Remedial Action (Final Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) intention to address environmental contamination at the Chrysler Newark Assembly Plant Site – Operable Unit 9.

DNREC issued public notice of the Proposed Plan of Remedial Action (Proposed Plan) for Operable Unit 9 (OU-4) of the Site on April 18, 2012 and opened a 20-day public comment period. The Proposed Plan is attached. There were no comments from the public; therefore, the Proposed Plan is adopted as the Final Plan.

### **Approval:**

**This Final Plan meets the requirements of the Hazardous Substance Cleanup Act.**

  
\_\_\_\_\_  
Timothy T. Ratsep, Program Administrator  
Site Investigation and Restoration Section



## PROPOSED PLAN OF REMEDIAL ACTION

Chrysler Newark Assembly Plant Site – Operable Unit 9  
(-AKA- University of Delaware's Science and Technology Campus)  
Newark, Delaware  
DNREC Project No. DE-0105



April 2012

Delaware Department of Natural Resources and Environmental Control  
Division of Waste and Hazardous Substances  
Site Investigation & Restoration Section  
391 Lukens Drive  
New Castle, Delaware 19720

### CONTENTS

- Proposed Plan: Questions and Answers
- Figures 1, 2, & 3
- Glossary of Terms
- Attachment: *What is a Proposed Plan?*

# PROPOSED PLAN OF REMEDIAL ACTION

Chrysler Newark Assembly Plant Site (OU-9)

Newark, Delaware

DNREC Project No. DE-0105



**Approval:**

This Proposed Plan meets the requirements of the Hazardous Substance Cleanup Act.

Approved by:

Marjorie A. Crofts, Director  
Division of Waste and Hazardous Substances

4.12.12

Date

## Chrysler Newark Assembly Plant Site (OU-9)



### **What is the Chrysler Newark Assembly Plant Site (OU-9)?**

The Site is the former location of the Chrysler Newark Assembly Plant. The Site is depicted on Figure 1. It is currently owned by 1743 Holdings, LLC, a wholly-owned subsidiary of the University of Delaware. 1743 Holdings, LLC entered into a Brownfields Development Agreement (BDA) with the Department of Natural Resources and Environmental Control (DNREC) – Site Investigation and Restoration Section (SIRS) to perform a Brownfield Investigation and address contamination determined to be present on the Site. The Site has been divided into operable units or smaller areas to more easily manage its investigation and cleanup.

**This proposed plan specifically addresses Operable Unit 9 (OU-9) of the Site. The boundaries of OU-9 are depicted on Figure 2.**

**Tax Parcel Number:** 18-039.00-002 (See Figure 2 for OU-9 boundaries)

**Address:** 550 South College Avenue; Newark, Delaware

**Nearest major intersection:** Christina Parkway (Route 4) and South College Avenue (Route 896)

**Area:** ~29.5 acres

**Surrounding Property:** The property is bounded by OU-8 to the west, OU-3 to the north and east, and OU-4 to the south.

**Zoning:** MI- General Industrial

**Site Utilities:** Underground utility lines in OU-9 consist of storm sewers and laterals. Underground sanitary and industrial sewers have been abandoned. There are no water, natural gas, telecommunications, or electrical services within OU-9.

**Surface water:** There are no surface water bodies present in OU-9.

**Topography:** The ground surface within OU-9 currently is covered with the concrete floor slab of the former Assembly Building floor slab. Ground elevations within OU-9 are approximately 100 feet.

**Groundwater:** Groundwater was encountered at depths ranging from 6.1 to 11.3 feet below ground surface. Shallow groundwater OU-9 flows to the south toward Christina River and southwest toward Silver Brook. (Figure 3)

### **What happened at the Chrysler Newark Assembly Plant Site (OU-9)?**

Prior to the late 1940s/early 1950s, the Site was utilized for agricultural purposes. Subsequently, military tanks and later, automobiles were assembled at the Site. During the 1950's, a large vehicle assembly building was constructed wholly within OU-9 and was used for assembling military tanks before being converted to assembly of cars and trucks. The former Main Assembly Building was expanded eastward in 1973 to connect with the Administrative Building. Vehicle assembly ceased in December 2008.

## **What is the environmental problem at the Chrysler Newark Assembly Plant Site (OU-9)?**

Multiple areas of environmental concern or areas of concern (AOC) were identified in or near OU-9. These areas include: the former Executive Garage and the former MCI Tower Area (AOC-3-2), the former North Tank Farm Area, the ash and slag fill in the former Silver Brook valley (AOC-3-1), as well as the former Paint Mix Area (AOC-4-1), located nearby the boundary of OU-9 in OU-4.

The following environmental investigations were performed on the OU-9 portion of the Site:

- 1985: DNREC conducted a Preliminary Assessment on the entire Site, on behalf of the United States Environmental Protection Agency (US EPA). The assessment recommended further investigation at the Site due to repeated detections of perchloroethylene (PCE) and trichloroethylene (TCE) in the City of Newark municipal wells to determine if the Site was a contributor to the contamination.
- 1986: DNREC conducted a Desktop Site Inspection (SI). There were no soil or groundwater samples collected on the OU-9 portion of the Site during this investigation. The investigation did not recommend any follow-up activities at the Site.
- The previous owner performed limited subsurface environmental investigations within or near OU-9, related to former above and underground storage tank areas, including the Former MCI Tower Area (believed to have been associated with a former leaking underground gasoline storage tank). A multi-phase extraction (MPE) system was installed in the MCI Tower Area to remove free-phase gasoline and gasoline related substances from soil and groundwater. The MPE system was installed in 1990 and shut down in 2001, after groundwater monitoring indicated that separate phase gasoline was no longer present in the groundwater table.
- 2008: ATC, an environmental consulting firm, conducted Phase I and Phase II investigations on the entire Site, on behalf of Chrysler. During the Phase II investigation, 10 soil samples and 4 groundwater samples were collected within the bounds of OU-9, specifically in the vicinity of the historic hydraulic lifts and wood block floor area. Arsenic and the semi-volatile organics (SVOCs) benzo(a)pyrene and dibenz(a,h)anthracene were detected in excess of the Unrestricted Use Uniform Risk-Based Remediation Standards (URS). With regard to groundwater, only zinc was detected above the groundwater URS.
- 2008: Duffield Associates, an environmental consulting firm, conducted Phase I and Phase II Environmental Site Assessments on behalf of 1743 Holdings, LLC. No soil or groundwater samples were collected within the bounds of OU-9, but trenches and hydraulic lifts within OU-9 were noted as a Recognized Area of Environmental Concern (REC).
- 2010: Duffield Associates submitted a Limited Current Conditions Assessment (LCCA) to DNREC-SIRS. No soil or groundwater samples were collected within the bounds of OU-9. Five existing groundwater monitoring wells were sampled in the Former MCI Tower Area. Benzene, toluene, naphthalene, acetone, chloroethane, and aldrin were found to be present above the groundwater URS.

- 2011: Duffield Associates completed a BFI of OU-3 in May 2011. Eight soil borings were performed within the Former MCI Tower Area and the Former Executive Garage Area, immediately north of northeastern corner of OU-9. Within the former MCI Tower Area one soil boring (GP-124) contained moderate organic odor and one existing monitoring well (MCI-1A) yielded organic odor. Within the former Executive Garage Area, four soil borings yielded organic odor.
- 2011: Duffield Associates conducted a Brownfield Investigation (BFI) consisting of soil and groundwater sampling on the OU-9 portion of the Site. The BFI was performed in three phases. Phase I included the installation and analysis of 90 GORE<sup>®</sup> Modules, the completion of 12 soil borings in an area suspected to contain ash and slag fill materials and the installation of five monitoring wells. A total of 23 soil samples were analyzed. Phase II consisted of the completion of 22 soil borings at locations based on the analytic testing of the GORE<sup>®</sup> Modules and the installation of seven monitoring wells. A total of 45 soil samples were collected and analyzed. Phase III consisted of the collection and analysis of the groundwater samples from the 12 monitoring wells installed during Phases I and II as well as from one monitoring well installed during the OU-8 BFI.
- 2012: Duffield Associates conducted a Soil Vapor Assessment for OU-9. Chlorinated VOCs were found to be present in the sub-slab soil gas beneath the Administration Building portion of the Study Area. Naphthalene and chlorinated VOCs were reported as present at elevated concentrations in sub-slab soil gas in the southern and western portions of the Study Area. The slab underlying the existing Administration Building effectively mitigates the vapor intrusion threat posed, therefore equivalent construction methods are to be used in the Administration Building Expansion proposed in 2012.

### **What does the owner want to do at the Chrysler Newark Assembly Plant Site (OU-9)?**

The entire Site is the location of the University of Delaware's Science and Technology Campus. Portions of OU-9 may be utilized for infrastructure associated with future development, which will include associated buildings, underground utilities, access roads and parking.

### **What remedial actions are proposed at the Chrysler Newark Assembly Plant Site (OU-9)?**

Under current Site conditions, the concrete slab of the former Main Assembly Building limits the potential for human exposure to subsurface conditions in soils. Groundwater is not consumed or accessed for onsite use in OU-9. A combination of institutional and physical actions is recommended to remediate identified environmental conditions and support redevelopment of OU-9.

DNREC requires the following remedial actions be performed on the Former Chrysler Newark Assembly Plant Site (OU-9):

1. Recording of an environmental covenant consistent with Delaware's Uniform Environmental Covenants Act (Title 7, Del. Code Chapter 79, Subtitle II) (UECA) on the property deed. The covenant will: a) prohibit the installation of groundwater wells for drinking water purposes without the prior written approval of DNREC, b) identify the property as located within a Groundwater Management Zone, c) prohibit digging, drilling, excavating, grading, trenching, or any other earth disturbing activities within the bounds of AOC-3-1, AOC-3-2 and AOC-4-1 without prior written DNREC approval and d) restrict property to non-residential (restricted) use.
2. Maintenance of physical barriers that are in place in AOC-3-1 and AOC-4-1 to limit human contact with soils. When earth disturbing activities are performed within AOC-3-1, a barrier such as pavement, building slab, or one foot clean soil cap with marker fabric will be re-installed.
3. Implementation of soil vapor extraction and groundwater air sparging within the bounds of AOC-4-1 to promote removal of LNAPL and organic substances of concern from soil, groundwater, and soil gas.
4. Design and installation of a vapor barrier entirely beneath any enclosed, continuously-occupied structures constructed on OU-9 within a 100 foot radius of AOC-4-1. The vapor barrier will consist of a material placed beneath the building foundation to trap any soil vapor, along with a piping manifold that will divert the soil vapor so that it will vent outside of the structure. The piping will also allow for future access to test the integrity of the system components. The design will be provided to DNREC for review and approval prior to installation.
5. Development and implementation of a DNREC-approved Long-Term Stewardship (LTS) Plan. The LTS Plan will detail: a) the groundwater monitoring network and schedule to be followed in order to monitor the attenuation of the groundwater COCs, and b) the inspection schedule to be followed in order to ensure the long-term integrity of the cap placed atop impacted soil left in place.
6. Development and implementation of a DNREC-approved Contaminated Materials Management Plan (CMMP) to ensure that contaminated materials encountered during intrusive activities are handled properly.

**What are the long-term stewardship requirements that are proposed for the Chrysler Newark Assembly Plant Site (OU-9)?**

The long-term stewardship requirements proposed for the OU-9 portion of the Site include: following the groundwater monitoring schedule set forth in the DNREC-approved LTS Plan, as well as, continued adherence to the environmental covenant to be recorded on the property deed.

DNREC will issue a Certification of Completion of Remedy (COCR) for the Chrysler Newark Assembly Plant Site (OU-9) following the completion of the aforementioned remedial actions.

**How can I find additional information and/or comment on the Proposed Plan?**

The complete file on the Site, including the Environmental Site Assessment and the Brownfield Investigation report, is available at the DNREC office located at 391 Lukens Drive in New Castle. Most documents are also found on:

<http://www.nav.dnrec.delaware.gov/DEN3/>

The 20-day public comment period begins on Wednesday, April 18, 2012, and ends at close of business (4:30 pm) on Monday, May 7, 2012. Please send written comments to the DNREC office or call Lindsay Hall or Wendy March, Project Managers, at: 302-395-2600.

WAM/LJH:tlw; WAM12035.doc; DE 0105 II B 8

## Glossary of Terms Used in this Proposed Plan

<b>Contaminants of Concern (COC)</b>	These are potentially harmful substances at concentrations above acceptable levels (e.g. metals and PAHs).
<b>Certification of Completion of Remedy (COCR)</b>	A formal determination by the Secretary of DNREC that remedial activities required by the Final Plan of Remedial Action have been completed.
<b>Final Plan of Remedial Action</b>	DNREC's adopted plan for cleaning up a hazardous site.
<b>Hazardous Substance Cleanup Act (HSCA)</b>	Delaware Code Title 7, Chapter 91. The law that enables DNREC to identify parties responsible for hazardous substances releases and requires cleanup with oversight of the Department.
<b>Proposed Plan of Remedial Action</b>	DNREC's initial plan for cleaning up a hazardous site, which is subject to public comment before being adopted as final.
<b>Site Inspection (SI)</b>	Environmental study of a site which includes the sampling of soils, groundwater, surface water, sediment and/or wastes on the property, as appropriate. This evaluation is performed on behalf of the United States Environmental Protection Agency (U.S. EPA).
<b>Brownfield Investigation (BFI)</b>	Thorough environmental study of a site which includes 1) sampling of site environmental media and/or wastes on the property and 2) conducting a preliminary risk assessment using the data collected to determine the risk posed to human health and the environment.
<b>Risk</b>	Likelihood or probability of injury, disease, or death.
<b>Brownfield Development Agreement (BDA)</b>	This legal agreement is between a potential developer of a Delaware-certified Brownfields Site and the DNREC. The developer agrees to investigate and cleanup a Brownfields property under the oversight of the Department in exchange for liability protection.
<b>Uniform Environmental Covenant Act (UECA)</b>	Deed restrictions on the site. These can include restrictions on soil intrusion, groundwater usage or usage of the site based on the extent of the cleanup.
<b>Uniform Risk-Based Remediation Standards (URS)</b>	A set of concentration criteria for various contaminants potentially present in site media that are developed for protection of human health and the environment

## **What is a *Proposed Plan*?**

A Proposed Plan of Remedial Action (Proposed Plan) is a summary of how DNREC plans to clean up a contaminated site. A Final Plan of Remedial Action (Final Plan) is the adoption of the Proposed Plan after all comments made by the public, within the comment period of twenty days, have been considered and addressed by DNREC.

The Delaware State Legislature passed the Hazardous Substance Cleanup Act (HSCA) in 1990. The Legislature made sure that members of the public would be informed about environmental problems in their own neighborhoods and have a chance to express their opinion concerning the cleanup of those environmental problems before DNREC takes action.

After DNREC studies a site, it summarizes the problems there and proposes one or more possible solutions in a Proposed Plan. The Proposed Plan contains enough information to allow lay persons to understand the site. More detailed information can be found in the reports and documents approved by DNREC. All of the documents and reports created by DNREC or consultants during the course of the investigation of the site are available to the public at the offices of DNREC-SIRB or at DNREC's Delaware Environmental Navigator website:

<http://www.nav.dnrec.delaware.gov/DEN3/>

DNREC issues the Proposed Plan by advertising it in at least one newspaper in the county where the site is located. The legal notices for the Proposed Plans and the Final Plans usually run on Wednesdays or Sundays in the legal classified section of the News Journal and/or the Delaware State News. The public comment period begins on the day (Wednesday), or the day after (Sunday) the newspaper publishes the legal notice for the Proposed Plan.

DNREC frequently holds public meetings during the comment period. Those meetings are usually held during a weekday evening, at a location near the site. Citizens can request a public meeting if DNREC did not already schedule one.

The public may comment on the Proposed Plan by letter or email, or at the public meeting. DNREC considers all comments and questions from the public before the Proposed Plan is finalized and adopted as a Final Plan.

---

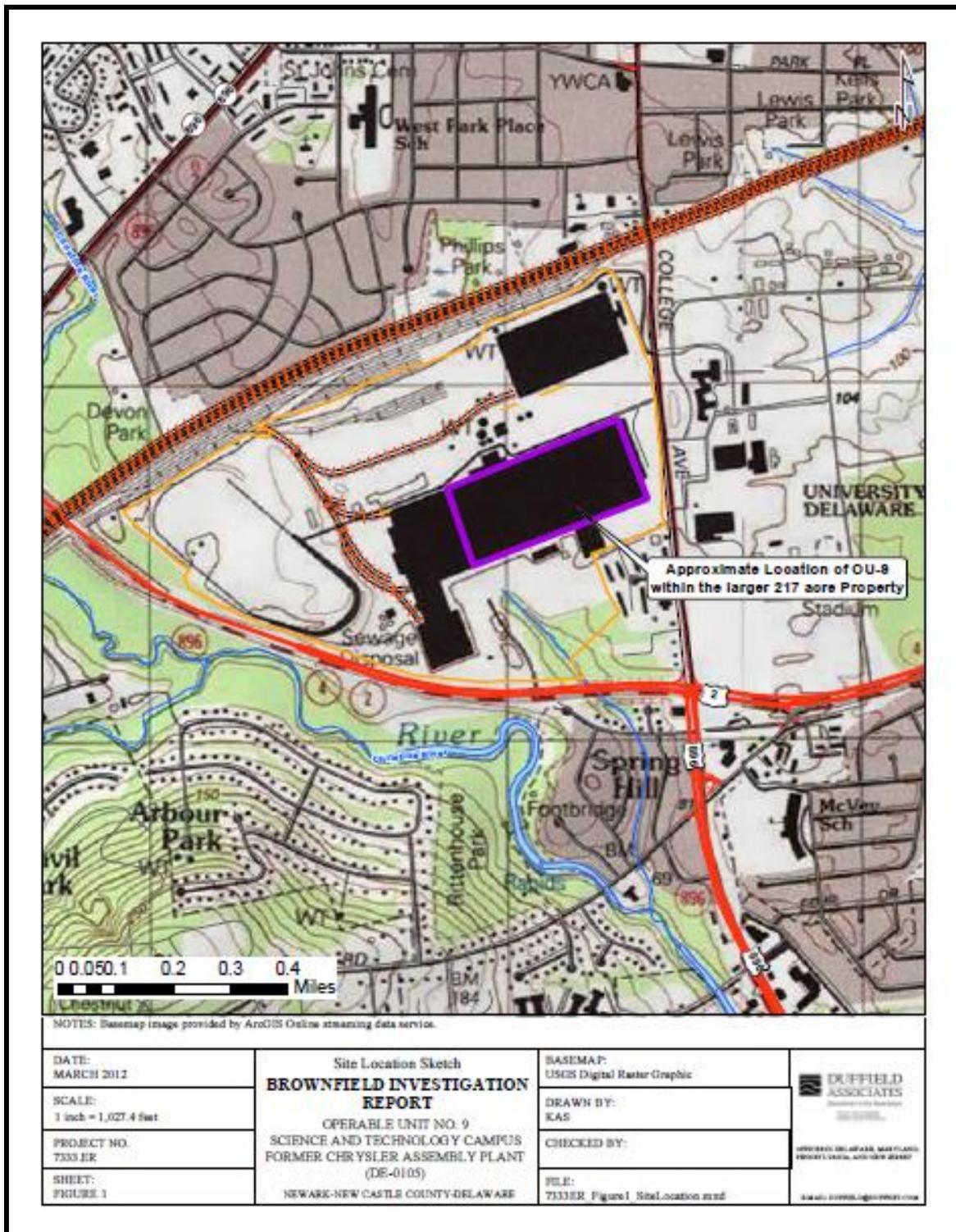


Figure 1: Site Location Map

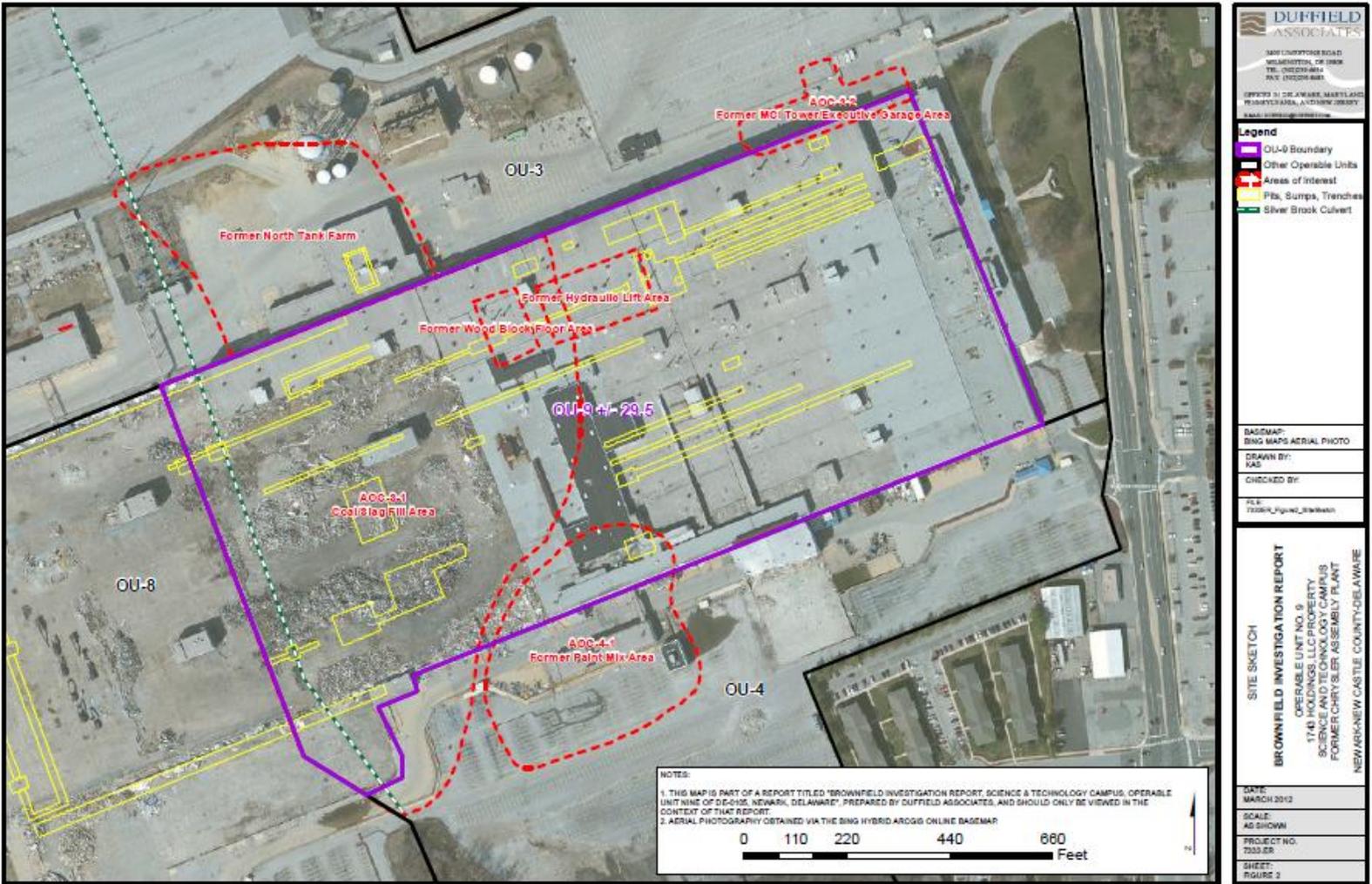


Figure 2: OU-9 Location Map

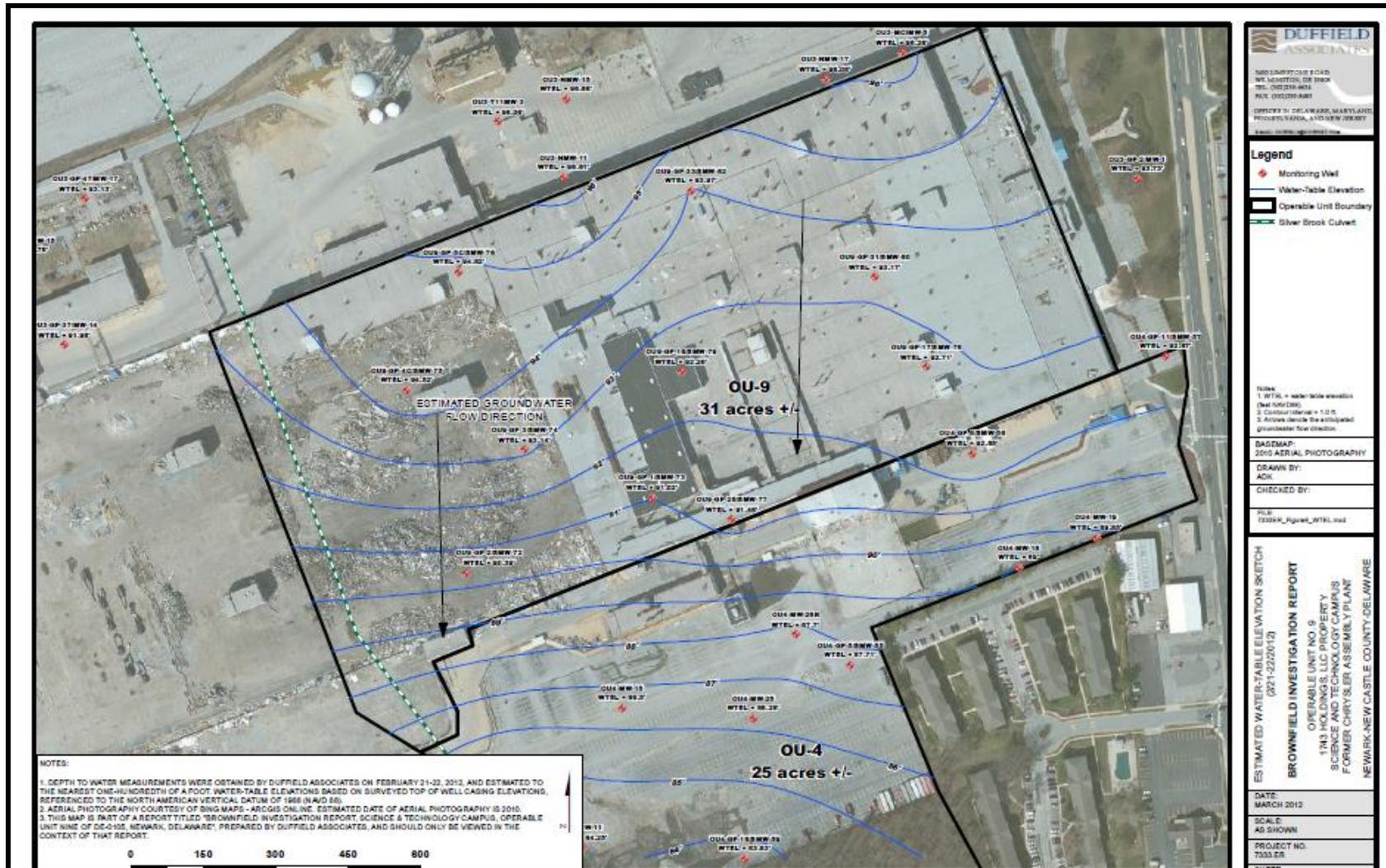


Figure 3: OU-9 Groundwater Contour Map