

## W. R. Grace & Co., Inc. (Acton Plant) Superfund Site



**- DRAFT -**

**September 2004**

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## **PURPOSE OF THIS DOCUMENT**

EPA-New England is responsible for the cleanup of over 100 Superfund sites throughout New England. Although protecting human health and the environment is the primary objective of these cleanups, EPA also recognizes the value in helping to return Superfund sites to beneficial reuse. Understanding the current and likely future uses of a site is fundamental to achieving both objectives.

Most importantly, accurate information on the likely uses of a Superfund site and the surrounding areas are necessary to make reasonable assumptions about possible exposures to contaminants. These assumptions form the basis for establishing site-specific cleanup levels and, ultimately, for designing a protective remedy. Uncertainty in this information makes it difficult to appropriately tailor the site investigation and cleanup, and oftentimes leads to increased project costs and delays.

From the standpoint of facilitating site reuse, details regarding current or planned uses can enable EPA to consider those uses in the selection, design, and implementation of the remedy. For instance, it may be possible to locate a soil or groundwater treatment system so as not to physically restrict the use of the site for other purposes. In other cases, the cleanup might be phased in a way that allows certain portions of a site to be available for reuse sooner. There are numerous Superfund sites across the country where reuse has already been facilitated in this manner. However, such accommodations will only be considered if they do not compromise the protectiveness of the cleanup.

This Reuse Assessment summarizes information on the current and potential future land uses at the W.R. Grace & Co., Inc. (Acton Plant) Superfund Site (the Site) that are currently known to EPA. EPA has obtained input from W.R. Grace, Acton Citizens for Environmental Safety (ACES), and the towns of Acton and Concord to summarize the uses considered likely, feasible, and desirable by the various stakeholders involved with the Site.

EPA will continue to work with the towns, ACES, W.R. Grace, and the Massachusetts Department of Environmental Protection to develop a more complete and realistic understanding of potential Site uses. This information may also be used to support EPA's decisions regarding future cleanup actions at the Site.

This reuse assessment is presented in three sections:

- **Section 1 - Site Background:** Describes the physical, environmental, and historical context of the Site.
- **Section 2 - Use/Reuse Status:** Describes the current and potential future uses of the separate parcels or discrete areas within the Site. The perspectives of W. R. Grace, town officials, and a local citizens' group are included.
- **Section 3 - Findings/Issues:** Provides a general summary of relevant findings and potential issues.

## **SECTION 1 - SITE BACKGROUND**

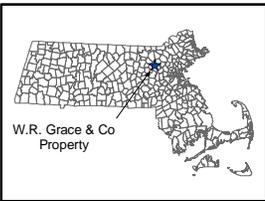
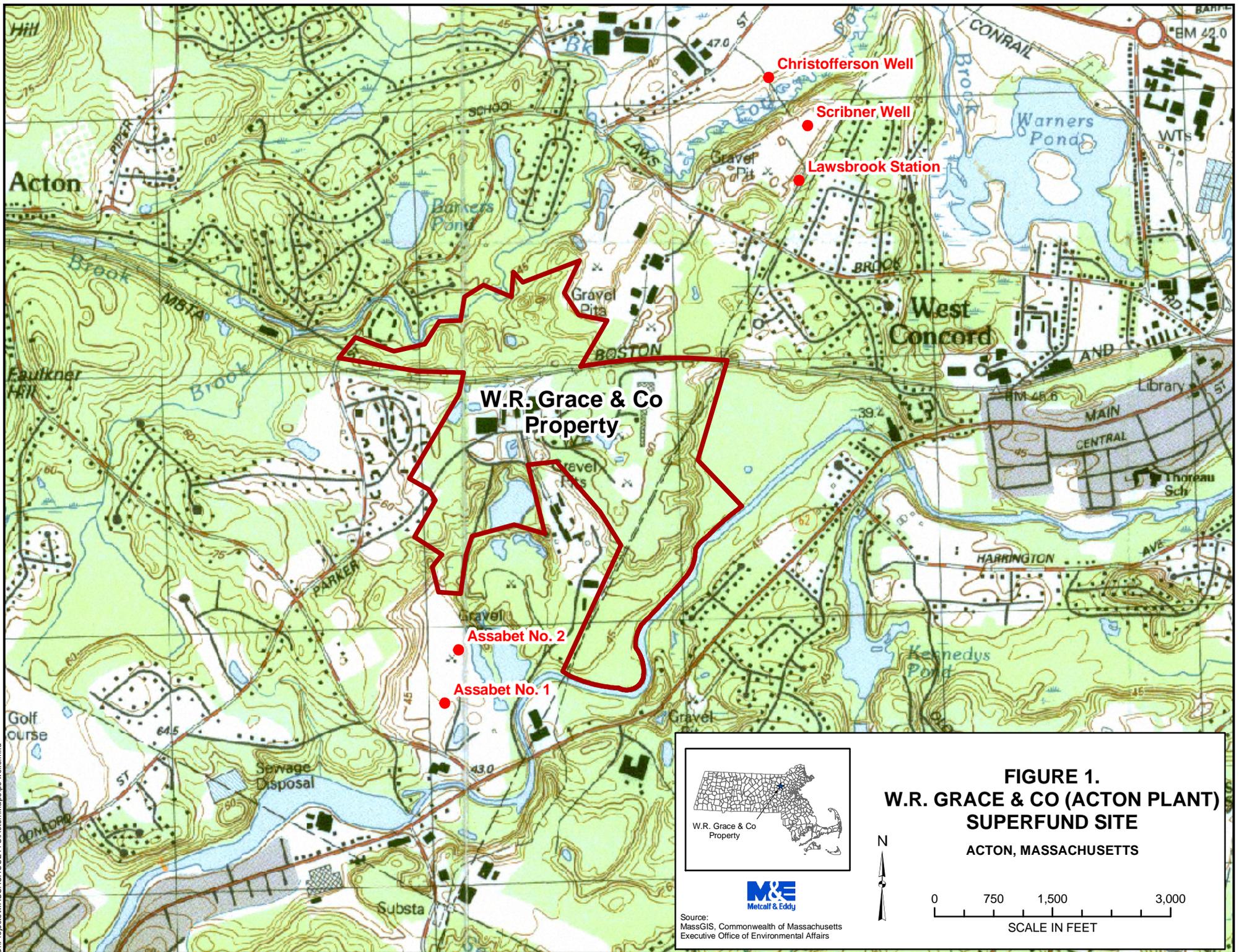
### **General Site Description**

The W.R. Grace (Acton Plant) Site is located off of Independence Road in Acton and Concord, Massachusetts (Figure 1). The Site is partially bordered to the north by Fort Pond Brook, to the east and southeast by the Assabet River, to the south by industrial parks, and to the north and west by residential housing.

Figure 2 shows the Grace property boundary and relevant Site features. The on-site landfill, referred to as the Industrial Landfill, is located within the Acton portion of the Site, just west of the Concord town line. The Industrial Landfill has been capped as part of remedial actions at the Site. As described further below, contaminated sludges and soils from source areas were excavated, stabilized and placed onto the Industrial Landfill prior to capping.

Surface water bodies located at the Site include Sinking Pond, in the southwest area of the Grace property, the Assabet River along the eastern border of the Site, and several wetland areas. Fort Pond Brook is located just north of the Grace property. The MBTA commuter rail line runs in an east-west direction across the Grace property.

For the purpose of this reuse assessment, the parcels under consideration include those owned by Grace, as well as non-Grace-owned parcels that lie within the area of Acton and Concord defined by the green line shown on Figure 3. This border represents the area within 500 feet of the mapped region of contaminated groundwater, and is the area within which a private well survey was performed by consultants for Grace as part of the remedial investigation for Operable Unit 3. The town of Acton Board of Health has established a temporary moratorium on the installation of private irrigation wells in Acton within this area. The temporary moratorium may or may not become permanent, depending on the outcome of the remedial investigation, feasibility study, and public health risk assessment currently being prepared for Operable Unit 3 of the Site.



W.R. Grace & Co Property



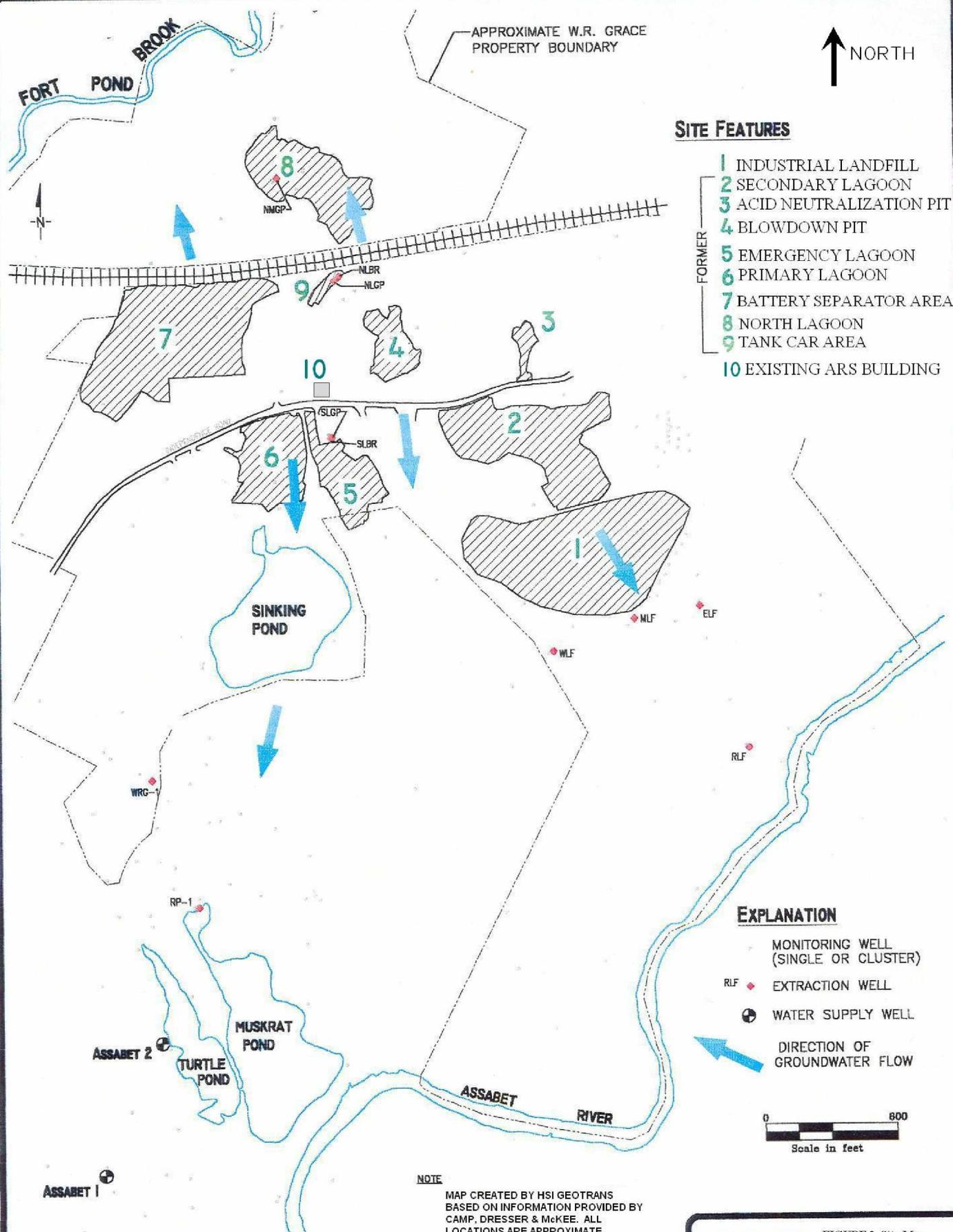
Source: MassGIS, Commonwealth of Massachusetts Executive Office of Environmental Affairs



0 750 1,500 3,000

SCALE IN FEET

**FIGURE 1.**  
**W.R. GRACE & CO (ACTON PLANT)**  
**SUPERFUND SITE**  
 ACTON, MASSACHUSETTS



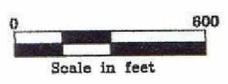
**SITE FEATURES**

- 1 INDUSTRIAL LANDFILL
- 2 SECONDARY LAGOON
- 3 ACID NEUTRALIZATION PIT
- 4 BLOWDOWN PIT
- 5 EMERGENCY LAGOON
- 6 PRIMARY LAGOON
- 7 BATTERY SEPARATOR AREA
- 8 NORTH LAGOON
- 9 TANK CAR AREA
- 10 EXISTING ARS BUILDING

FORMER

**EXPLANATION**

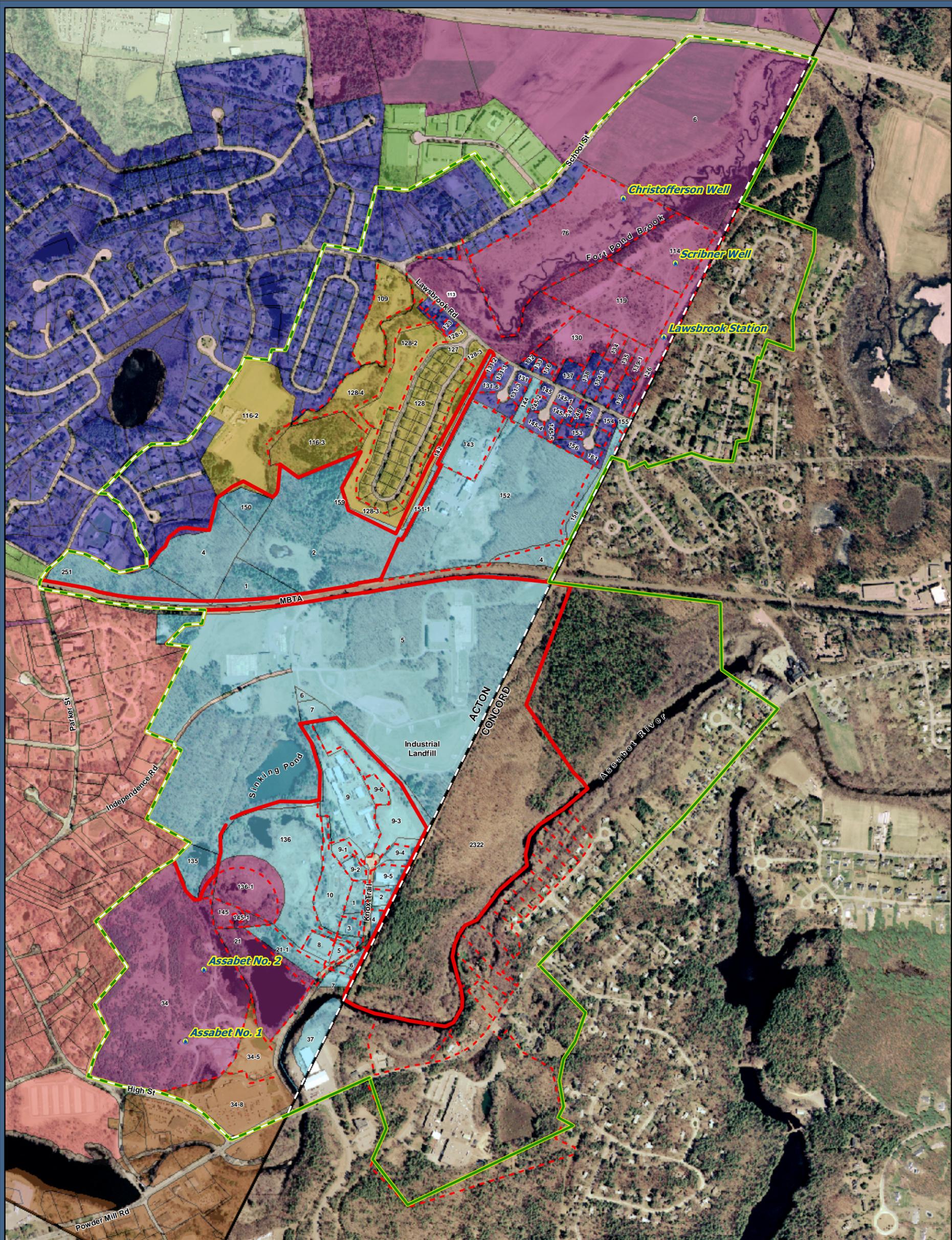
- MONITORING WELL (SINGLE OR CLUSTER)
- EXTRACTION WELL
- WATER SUPPLY WELL
- DIRECTION OF GROUNDWATER FLOW



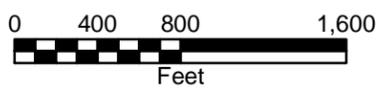
**NOTE**  
 MAP CREATED BY HSI GEOTRANS  
 BASED ON INFORMATION PROVIDED BY  
 CAMP, DRESSER & McKEE. ALL  
 LOCATIONS ARE APPROXIMATE

**M&E**  
**Metcalf & Eddy**  
 AN AECOM COMPANY

FIGURE 2. Site Map  
 W.R. Grace & Co.  
 Superfund Site  
 Acton, Massachusetts  
 GRACE-SITE.jpg



SOURCE: Orthophoto: MassGIS, Commonwealth of Massachusetts  
 Executive Office of Environmental Affairs  
 Property Boundaries: GeoTrans, Inc.; Revised Private Will Survey Area 2002



| LEGEND      |  |
|-------------|--|
| <b>ZONE</b> | WR Grace Property                        |
| ARC         | Other Properties                         |
| LI          | Private Well Survey Area                 |
| OP-1        | Municipal Wells                          |
| PM          | Acton Temporary Well Moratorium Boundary |
| R-2         |  |
| R-4         |  |
| R-8/4       |  |
| TD          |  |

**FIGURE 3.**  
**PARCELS WITHIN**  
**PRIVATE WELL**  
**SURVEY AREA**  
 WR GRACE RE-USE  
 ACTON, MASSACHUSETTS



## **Neighboring Activities and Land Uses**

The Site is located in Acton and Concord, Massachusetts, and consists of the Grace property and surrounding parcels within the mapped region of contaminated groundwater. Acton and Concord are suburban communities located northwest of Boston. The Site is located approximately 19 miles from Boston and approximately 28 miles from Worcester. The town of Acton has a population of approximately 20,331 residents (2000 US Census), and an area of 20 square miles. The town of Concord has a population of 16,993 residents (2000 US Census) and an area of 26 square miles.

The Site is located near Route 2 which is major commuting route into Boston. The MBTA Commuter Rail Line servicing Fitchburg to Boston, bisects the Site. The closest train stops are located in South Acton and West Concord.

Residential areas border the Grace property to the west, north, and east. Industrial areas border the Grace property to the south and northeast.

The Concord parcel of the Grace property (Figure 3, Parcel No. 2322) contains the MADEP disposal site known as the Debris Area off Knox Trail (RTN #3-21297), also historically referred to as the "Concord Landfill". The Debris Area is located in the southernmost portion of the parcel, bordered by Knox Trail to the west and the Assabet River to the south and east. The Debris Area comprises approximately 4 acres of the approximately 80 acre parcel. It is believed that the Debris Area was used for limited disposal of domestic paper waste, rubber balloons, demolition waste, barreled waste consisting of solidified polymers or other solid materials, and treated paper used in the manufacture of batteries (Sullivan DCM and Woodard & Curran, 2002). Groundwater beneath the Debris Area is regulated as part of the Superfund site.

A Release Abatement Measure Plan was submitted in April 2002 for removal of solid waste and PCB-contaminated soil and debris from the Debris Area, but it has not been implemented. A Phase I Initial Site Investigation and Tier Classification were submitted for the Debris Area in December 2002. The site was classified Tier 1C and MADEP issued a Tier 1C permit for the site in April 2003. The Phase II comprehensive site assessment and Phase III Remedial Action Plan are currently in preparation and are due to MADEP in April 2005.

Two MADEP disposal sites are located on properties that abut the Grace property. An industrial property, which is referred to as the Agway/Kress site, is located adjacent to

the Grace property to the south (Figure 3, Parcel No. 9). The site is a MADEP disposal site (MADEP Site No. 2-0000003), which was closed out in January 2001 with a Class A4 Response Action Outcome (RAO) in accordance with the Massachusetts Contingency Plan. This property was acquired by Eastern States Farmers' Exchange in 1944. In 1964, Agway purchased the property and used it for the production and distribution of agricultural products. In 1973, the property was sold to Nineofus Realty Trust and it has since been used for light industrial and commercial purposes. A Class A4 RAO indicates that Activity and Use Limitations (AULs) were needed to maintain a condition of No Significant Risk. Also, soil that is considered inaccessible contains oil and/or hazardous materials that exceed one or more MCP Upper Concentration Limits.

Another industrial property is located adjacent to the Grace property to the north (Figure 3, Parcel No. 152). This property was first used for industrial purposes when it was acquired by Airco Industrial in 1948. The property is a MADEP disposal site (MADEP Site No. 2-0000816 and RTN 2-11200). The facility is now operated by BOC Gases and is currently used as a filling and distribution facility for compressed gases, including helium, nitrogen, and nitrous oxide.

The Nuclear Metals (Starmet) Superfund Site is located within an industrial park in Concord, south of the Grace property and south of the Assabet River. The site was used for the production of specialty products containing depleted uranium.

## **Site Zoning**

**Acton.** The town of Acton zoning designations for the Site and surrounding areas are shown on Figure 3. The Acton portion of the Grace property is zoned Technology District (TD). Business and industrial uses that are allowed without a special permit include: office; health care facility; repair shop, technical shop, or studio; building trade shop; parking facility; transportation services; warehouse; or manufacturing. Allowable institutional and public service uses include: municipal, educational, religious, public or private utility facilities, child care facility, and commercial education or instruction. Agriculture and conservation uses are also allowed. Uses that are prohibited in this zone include recreation, all residential uses, retail stores, services, gas stations, commercial entertainment, and vehicle repair, sale, or rental. Uses that would require a special permit from the Board of Selectmen include: retirement community, hospital, restaurant, hotel, commercial recreation, distribution plant, or scientific. Details are provided in the Town of Acton Zoning Bylaw (amended through April 2004).

Other parcels in Acton within the private well survey area are zoned TD, various types of residential, Agricultural Recreation Conservation (ARC), or Powder Mill (PM) District. The ARC zoning applies to the parcels owned by the Acton Water District, and where municipal well fields are located (see Figure 3). The Assabet well field is south of the Grace property and the School Street well field is to the northeast of the Grace property. The PM zoning applies to Parcels 34-5 (Assabet Sand and Gravel) and 34-8 (Powder Mill Shopping Plaza). PM is a business district and residential uses are not allowed.

**Concord.** The Concord portion of the Grace property (Parcel No. 2322 on Figure 3) is zoned as Residence B. Uses that are allowed in Residence B areas without a special permit include: single-family dwellings; certain institutional uses (educational, child care facility, religious, or cemetery); municipal or underground utility uses; or forestry, agriculture, or conservation uses. Other uses are allowable with a special permit, such as residential developments; private recreation (e.g., country club, playground, boating, fitness club); philanthropic (library, museum, art gallery); lodge and club (private); or greenhouse. Details are provided in the Town of Concord Zoning Bylaw (amended through April 2004).

Of the non-residential parcels located within the private well survey area, the majority are in use in accordance with TD or PM zoning for various commercial purposes. Uses include offices, manufacturing, warehouses, a gravel pit, various shops, and commercial recreation. The Grace-owned parcels are vacant, as are the parcels that

are zoned ARC (with the exception of the municipal wells located on ARC-zoned parcels; see Figure 3).

It is noted that the temporary well moratorium issued by the Acton Board of Health is not applicable to Concord. Figure 3 illustrates the areas in both towns within 500 feet of the mapped region of contaminated groundwater (that is, the boundary for the private well survey), but it should not be interpreted to mean that a moratorium on private well installation exists in this part of Concord.

## Environmental History/Status

Table 1 provides a chronology of Site events, with further explanation below.

| <b>Table 1: Chronology of Site Events</b>   |                    |
|---|--------------------|
| <b>Event</b>  | <b>Date</b>        |
| Dewey & Almy Chemical Company manufactures various products at the Acton site at various times, such as: latex, resins, plasticizers, and paper battery separators  | 1945 - 1954        |
| W.R. Grace acquires Dewey & Almy and continues various chemical manufacturing processes at the Acton site   | 1954 - 1991        |
| Organic contaminants (vinylidene chloride, vinyl chloride, ethylbenzene, and benzene) detected in municipal wells, Assabet No. 1 and No. 2  | 1978               |
| The United States sues W.R. Grace to require cleanup of the Site  | April 17, 1980     |
| MADEP issues an Administrative Order to W.R. Grace, specifying procedures and requirements for evaluating and correcting Site contamination   | July 14, 1980      |
| W.R. Grace and EPA enter into a Consent Decree to clean up waste disposal areas and restore groundwater in drinking water aquifers. The provisions of the Consent Decree are similar to the requirements of the July 14, 1980 MADEP Administrative Order. | October 21, 1980   |
| MADEP issues an Amended Order to W.R. Grace, amending MADEP's July 14, 1980 order to conform with the Consent Decree language   | April 15, 1981     |
| Site added to the National Priorities List  | September 8, 1983  |
| Aquifer Restoration System construction completed and operation begins  | March 1985         |
| Phase IV Report and Addendum, detailing the OU-1 remedy, is completed   | June 6, 1989       |
| Risk Analysis Report completed by Alliance Technologies Corporation for EPA   | June 30, 1989      |
| Record of Decision for OU-1 signed by Paul G. Keough, Acting Regional Administrator   | September 29, 1989 |

| <b>Table 1: Chronology of Site Events</b>   |                    |
|---|--------------------|
| <b>Event</b>  | <b>Date</b>        |
| Camp, Dresser & McKee (CDM), consultant for W.R. Grace, issued Remedial Design/Remedial Action (RD/RA) Work Plan for OU-1 | January 1991       |
| CDM issued report on Field Pilot Programs for upgrading air stripping tower portion of ARS                                | May 1991           |
| Quarterly well monitoring begins  | March 1992         |
| Odor controls for air-stripping tower installed and operational; Site security measures implemented                       | September 1992     |
| CDM submitted revised 100% design package for OU-1 remedial action  | August 1993        |
| GZA issued Final Site Work Plan and Construction Quality Control Plan for OU-1 remedial action                            | July 1994          |
| OU-1 Remedial Action initiated; Air monitoring system installed   | October 17, 1994   |
| Landfill gas treatment system delivered and installed; Permanent fencing around landfill installed                        | March 1997         |
| Final site inspection performed   | June 1997          |
| Remedial Action Report for OU-1 issued by EPA   | September 30, 1997 |
| Revised Construction Quality Assurance Closeout Report for OU-1 issued by CDM for W.R. Grace                              | February 1998      |
| First 5-year review report issued by EPA for the Site   | September 1999     |
| Draft Remedial Investigation Report and Phase 2 Work Plan for OU-3 issued by GeoTrans for W.R. Grace                      | August 30, 2002    |
| Phase 2 Remedial Investigation Report issued by GeoTrans for W.R. Grace   | May 14, 2003       |
| Draft Baseline Ecological Risk Assessment issued by Menzie-Cura for W.R. Grace  | July 30, 2004      |
| Draft Public Health Risk Assessment Deliverable 3 issued by Menzie-Cura for W.R. Grace                                    | August 5, 2004     |
| Second 5-year review report issued by EPA for the Site  | September 29, 2004 |

## **Past Site Operations**

Former occupants of the Grace property include American Cyanamid Company, which manufactured explosives, and Dewey & Almy Chemical Company, which produced synthetic rubber container sealant products, latex products, plasticizers, and resins.

W.R. Grace and Company (Grace) acquired the property from Dewey & Almy in 1954. Historical operations at the Grace property included the production of materials used to make concrete and organic chemicals, container sealing compounds, latex products, and paper and plastic battery separators. Effluent wastes from these operations were disposed of in several on-site unlined lagoons and an on-site landfill. In addition, the by-products of some chemical processes were disposed of in the Blowdown Pit, which was located in the center of the property. Discharge to these areas ceased in 1980. Production of organic chemicals was discontinued in 1982. A second battery separator plant (Daramic) was constructed in 1979 and operated until 1991. All buildings have been demolished, with the exception of the building associated with the Aquifer Restoration System (ARS).

## **Federal and State Response Actions**

Groundwater contamination was first discovered in 1978, when two Acton municipal supply wells, Assabet No. 1 and No. 2, were found to be contaminated with 1,1-dichloroethene (also known as vinylidene chloride or VDC), and lesser amounts of vinyl chloride, ethylbenzene, and benzene. Assabet No. 1 and Assabet No. 2 are located southwest of the Grace property (Figure 3). The Town of Acton closed the two wells as a precautionary measure.

The United States sued Grace on April 17, 1980 and in October 1980, the EPA and Grace entered into a Consent Decree which outlined the framework for site cleanup. On September 8, 1983, the Site was added to the National Priorities List (NPL).

Shortly after the Consent Decree was finalized, Grace initiated an engineering plan for aquifer cleanup and accelerated restoration of groundwater to meet federal Maximum Contaminant Levels (MCLs). Beginning in 1980, groundwater investigations and monitoring were performed to evaluate the hydrogeology of the Site and the nature and extent of groundwater contamination. The results of these investigations were used as a basis for the design of the Aquifer Restoration System. Grace constructed and began

operating the ARS in March 1985, following approval of the design by EPA and MADEP. The ARS consists of a network of extraction wells which pump groundwater from both the overburden and shallow bedrock. Groundwater from the extraction wells is treated by an on-site treatment plant consisting of an air stripper and vapor-phase carbon for treatment of stripper off gas and for odor control. Treated groundwater is discharged to Sinking Pond.

In 1989, EPA issued a Record of Decision (ROD) (USEPA, 1989) for the Site. The Site cleanup was divided into three operable units (OUs), as follows:

OU 1 - Disposal areas and surficial contamination areas at the Site

OU 2 - Residual contamination in disposal areas at the Site following implementation of OU 1

OU 3 - Contaminated groundwater and the establishment of groundwater target cleanup goals

Implementation of the remedy for OU 1 began in November 1994 and was completed in July 1997. The remedy consisted of excavation of contaminated material from several source areas with off-site incineration of highly contaminated soil and sludge. Less contaminated soil, sludge, and sediment was solidified on-site with removal of VOCs by heat followed by on-site disposal in the Industrial Landfill. The Industrial Landfill was then capped and excavated waste areas were graded.

The OU 1 soil cleanup goals were met based on the results of post-excavation sampling at each source area. The soil cleanup goals were developed to protect against the potential risks from continued leaching of source area contamination into the groundwater. It was also determined that attainment of the soil cleanup levels would reduce risks from direct contact with and incidental ingestion of contaminated soil to a level protective of human health under residential assumptions (USEPA, 1989).

Source areas that were excavated include the Battery Separator Area (Lagoons 1, 2, and 3 and battery chip pile), Blowdown Pit, Boiler Lagoon, Emergency Lagoon, North Lagoon, Primary Lagoon, Secondary Lagoon, and Tank Car Area (see Figure 2). Since soil cleanup goals were met at each source area, no additional remedy under OU 2 was needed.

In order for the remedy at OU 1 to be protective in the long-term, it may be necessary to establish institutional controls that will be legally enforceable, so that the integrity of the landfill cap is maintained. These controls could supplement the requirements of the existing Consent Decree, which required Grace to file a notice with the Registry of Deeds, and also requires Grace to obtain the consent of the United States before transferring any of their Site property. The deed notice required under the Consent Decree is in place and Grace continues to maintain the integrity and security of the Industrial Landfill.

### **Site Contamination**

The following summarizes the contaminants detected at the Site as identified in the Phase I and Phase II investigations, that formed the basis for the 1989 ROD:

**Soils, Sludges, & Sediment.** Soils and sludges have been identified as “surface materials” in the ROD for OU 1. The Blowdown Pit was found to contain the most highly contaminated material on the Site (primarily VDC), while material in and under the Boiler Lagoon demonstrated lower contaminant levels than the other lagoons. VDC, VC, ethylbenzene, and benzene were the primary contaminants identified in the Primary Lagoon, Secondary Lagoon, and Emergency Lagoon sludge and underlying soils. Benzene, toluene, and ethylbenzene were the prominent compounds in soils underlying the Industrial Landfill. In North Lagoon sludges and underlying soils, VOC contamination was detected along with metals, cyanide, and phthalates. The principal contaminants found in Boiler Lagoon sludges and underlying soils were phthalates and metals, while ethylbenzene, formaldehyde, VDC, benzene, phenol, and metals predominated in Battery Separator Area soils/sludges. Soils in the Tank Car Area were contaminated with VDC, phthalates, and metals. Eight surface material indicator chemicals were selected for evaluation in the risk assessment. The eight indicator chemicals included: VC, VDC, benzene, toluene, ethylbenzene, formaldehyde, arsenic, and cadmium.

**Groundwater.** Fifteen indicator chemicals were selected for evaluation in the risk assessment. The fifteen indicator chemicals included: VC, VDC, benzene, toluene, trichloroethene (TCE), ethylbenzene, formaldehyde, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, and zinc.

**Surface Water.** 1,1,1-Trichloroethane (TCA) and VDC were detected in surface water samples from the Assabet River. Benzene, chloroform, toluene, xylene, tetrachloroethene (PCE) and VDC were detected in Fort Pond Brook surface water

samples.

A risk analysis was performed by Alliance Technologies Corporation (Alliance, 1989) that evaluated future human health risks associated with site-wide exposure to surface material and groundwater and specific source area exposures under conditions of residential use. The risk analysis concluded that the Grace property was likely to pose significant carcinogenic and noncarcinogenic risk to human health in the event the property is developed and used for residential purposes, in the absence of remediation. Significant groundwater risk contributors included VDC, VC, arsenic, lead, and zinc. Risks associated with exposure to surface material were primarily attributed to VDC, VC, and arsenic.

As stated previously, contaminated source areas were remediated under OU 1, with completion of the OU 1 remedy in July 1997. The OU 1 remedy consisted of excavation of contaminated material from several source areas with off-site incineration of highly contaminated soil and sludge. Less contaminated soil, sludge, and sediment was solidified on-site with removal of VOCs by heat followed by on-site disposal in the Industrial Landfill. The Industrial Landfill was then capped and excavated waste areas were graded.

Groundwater is also undergoing remediation as stated above, in accordance with the 1980 Consent Decree that preceded the Site's listing on the NPL. Grace constructed and began operating the Aquifer Remediation System in March 1985. The effectiveness of the ARS will be evaluated as part of the ongoing Feasibility Study for OU 3. The Remedial Investigation, including Human Health and Ecological Risk Assessments, is also underway for OU 3. A remedy for OU 3 is anticipated to be selected in the fall of 2005. The distribution of VDC in groundwater, based on groundwater monitoring conducted in the fall of 2003, is illustrated in Figure 4 developed by GeoTrans for W.R. Grace (GeoTrans, 2004).

NOTE: BASE MAP BY COL-EAST 1998. WELL LOCATIONS, W.R. GRACE PROPERTY LINE & MISC. SITE FEATURES COMPILED FROM INFORMATION PROVIDED BY CAMP DRESSER & McKEE. SURROUNDING PROPERTY LINE LOCATIONS ARE FROM THE TOWN OF ACTON AND CONCORD ASSESSORS MAPS.

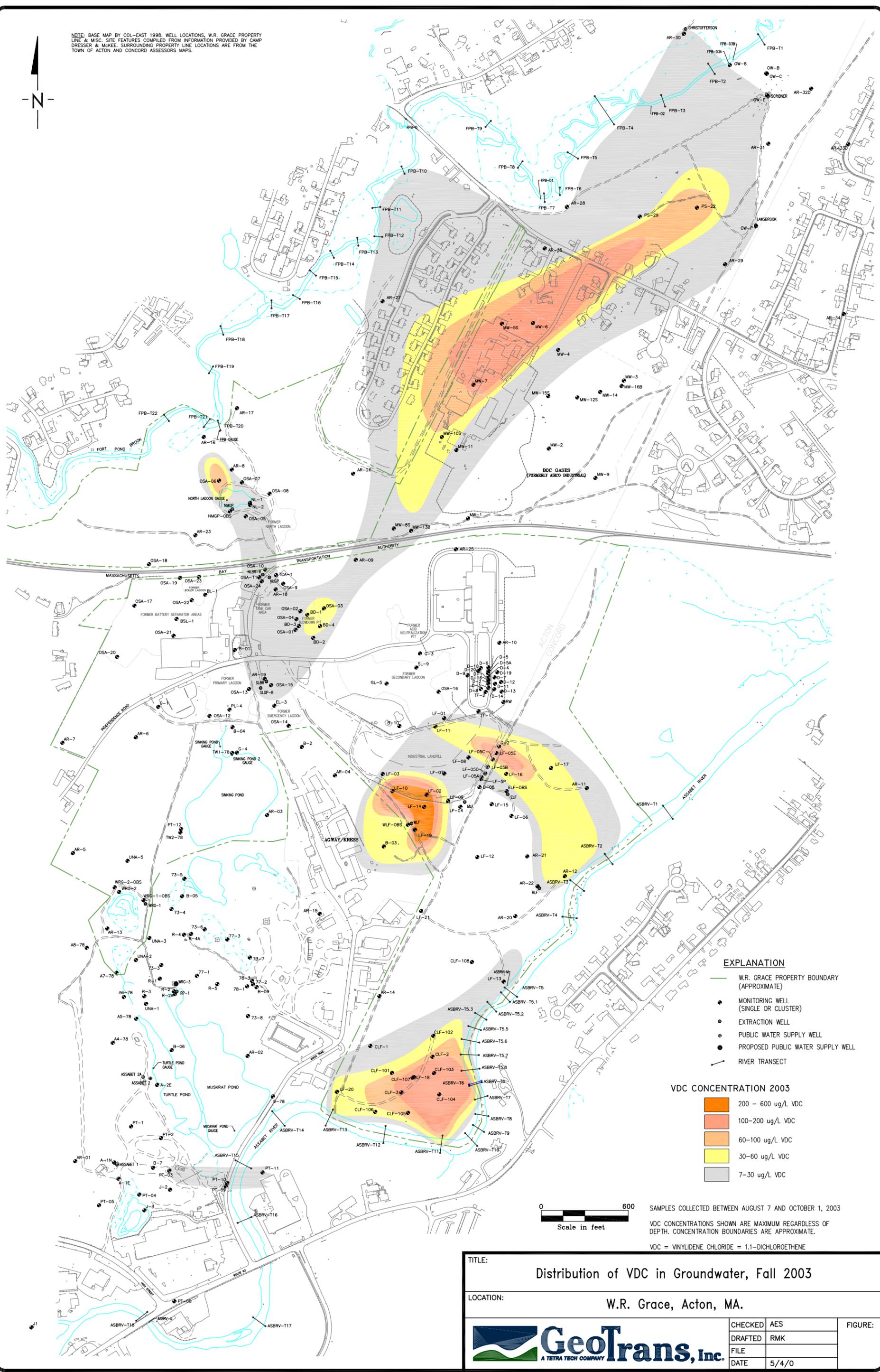


Figure 4.

## **SECTION 2 - USE/REUSE STATUS**

Figure 3 shows the parcels within the private well survey area, with those owned by Grace shown within the red border. This discussion considers the currently undeveloped parcels by ownership as follows:

### Grace-owned parcels

- Acton parcels, zoned as Technology District (TD)
- Concord parcel, zoned as Residence B

### Acton Water District parcels

Parcels that are currently being used for residential and commercial purposes are not further discussed, except to note that the parcels within Acton (see Figure 3) are currently subject to restrictions on groundwater use (that is, the Acton Board of Health temporary private irrigation well moratorium). This temporary moratorium may or may not become permanent, depending on the outcome of the ongoing feasibility study and risk assessment being developed by consultants for Grace, with oversight by EPA, MADEP, and the town of Acton.

### **Grace-Owned Parcels**

Representatives of Grace, the town of Acton, and the town of Concord have been interviewed to obtain their input on potential reuse options for the Grace-owned parcels. Grace has also performed a land use analysis for its parcels. This section summarizes information obtained from the following sources: the 2001 Grace land use analysis, the 2004 summary prepared by Grace regarding the impediments to redevelopment of the Grace property, interviews performed for this reuse assessment, and the town of Acton master plan and zoning by-laws.

### **Grace Land Use Analysis, 2001**

Grace commissioned the preparation of a land use analysis in 2001. The land use analysis was prepared by Sasaki Associates, Inc. The analysis divided the Grace-owned parcels into several areas : Area 1 - north side of railroad tracks (51 acres, Acton), Area 2 - south side of railroad tracks (136 acres, Acton), Area 3 - south side of railroad tracks (72 acres, Concord) (see figure in Appendix A). Net Usable Land Areas were estimated as follows: Area 1 - 27 acres (53% of the actual acreage); Area 2

- 92 acres (67% of the actual acreage); and Area 3 - 42 acres (58% of the actual acreage).

The analysis identified several potential constraints to redevelopment, such as: steep slopes and wetland areas/surface water bodies that limit the usable land area (see second figure in Appendix A for slopes), the railroad tracks that separate Area 1 from Areas 2 and 3, the gas transmission line that bisects the property, abutting uses that are noisy and/or visually unappealing, and currently limited access for vehicles via a small residential street (Independence Road).

The analysis presented three redevelopment scenarios encompassing the three areas: Office R&D, Light Industrial, and Residential/Recreational. The first two scenarios are consistent with the Technology District zoning, but the land use analysis noted that they were developed based on the assumptions of “unconstrained market, utility, and traffic conditions.” The conclusion of the analysis was that a residential/recreational plan was more likely to be feasible, and a conceptual site plan was presented for an 18 hole golf course and some housing.

### **Update from Grace**

The Grace representative who is overseeing the Superfund site investigation and remediation was contacted, to inquire whether Grace had given further consideration to the potential for redevelopment of their property since the 2001 land use analysis was prepared. In March of 2004, as an update to the 2001 land use analysis, she provided to EPA an executive summary of the impediments to redevelopment of the Grace-owned parcels that was prepared by Grace’s real estate counsel. The executive summary and supporting figures from Grace are included in Appendix A. The obstacles presented in the summary were similar to those presented in the 2001 land use analysis and were as follows: 1) access, 2) slopes, 3) surface waters and wetlands, 4) physical encumbrances, 5) zoning, and 6) net usable land area.

**Access.** The two current access roads, Parker Street and Independence Road, were cited as being limited because they are secondary roadways through residential areas.

Access via Powder Mill Road (Route 62) or Knox Trail would require access to be opened through land that is not owned by Grace.

**Slopes.** Steep slopes (see figure entitled “Site Constraints” in Appendix A) were cited as an obstacle, because they affect most portions of the property and would limit the locations and sizes of buildings that could be constructed on the property.

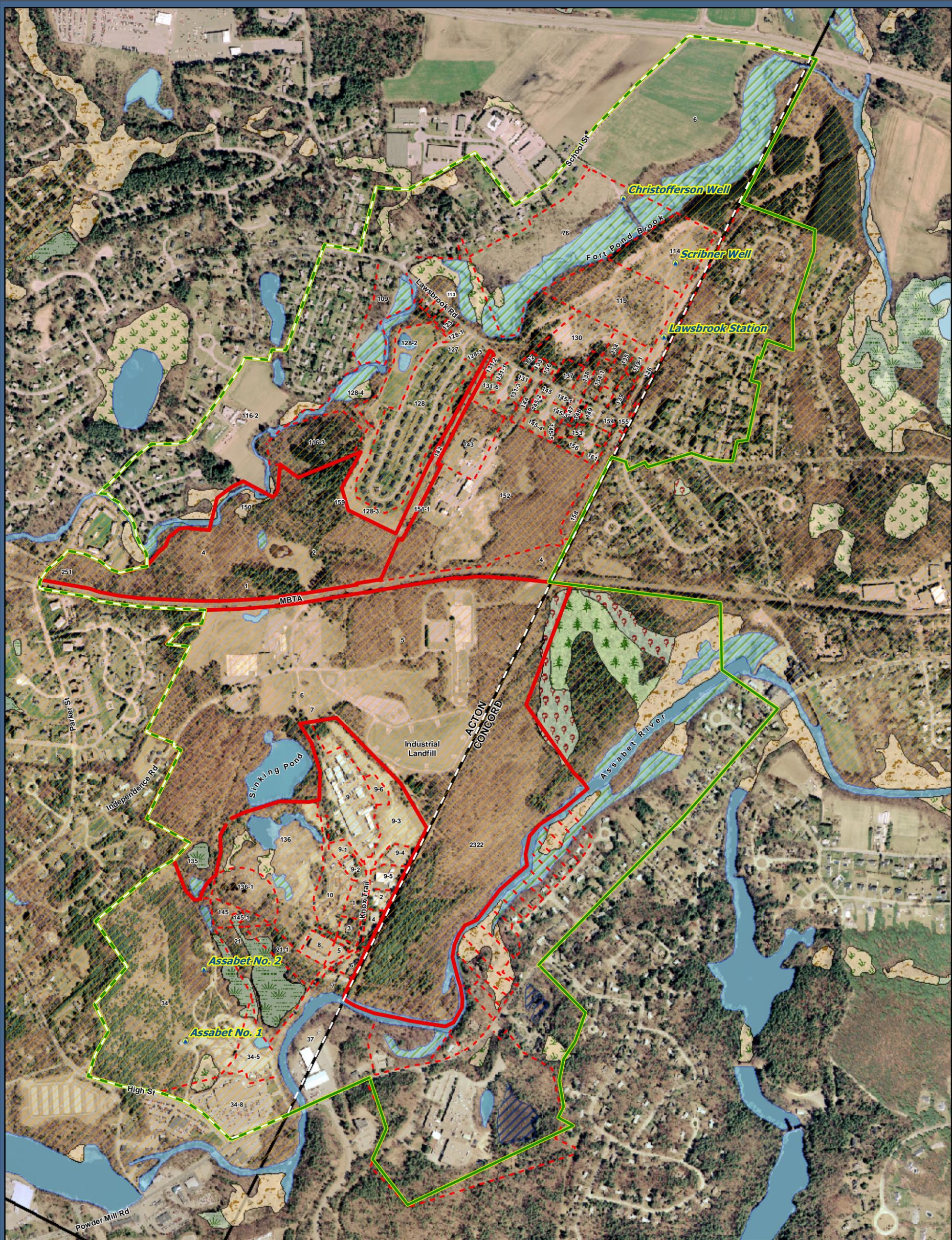
**Surface Waters and Wetlands.** Sinking Pond, the flood plain of the Assabet River, and the on-site wetlands near Fort Pond Brook and on the Concord parcel were noted as obstacles because the acreage they encompass must be excluded from the total developable land at the site. Figure 5 shows the wetlands, uplands, and open water within the private well survey area as obtained from MassGIS.

**Physical Encumbrances.** The MBTA commuter rail line was cited as an obstacle because it cuts Area 1 off from Area 2 and Area 3, reducing flexibility in developing the areas together. The easement for the Tennessee gas transmission line, which runs approximately along the Acton/Concord town line and separates Area 2 from Area 3, was also cited as a physical obstacle.

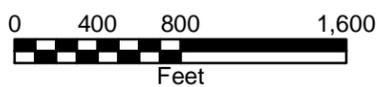
**Zoning.** The zoning of the Site is shown on Figure 3. Grace considers the zoning of their parcels in Acton as Technology District to be an obstacle, because most of the surrounding land is residential. Grace views residential and recreational uses as more likely to be viable for their property, because of its location and access through abutting residential areas, but notes that rezoning of the Acton parcels to allow for such uses would be difficult.

**Net Usable Land Area.** The executive summary cites the 2001 analysis by Sasaki Associates, which indicates that while the acreage owned by Grace appears to be large, a significant percentage of the land is not usable for redevelopment.

Grace summarized these obstacles by noting that even after the Site is fully remediated, it is their judgment that only a limited portion of the Grace-owned parcels will be suitable for redevelopment.



SOURCE: Orthophoto: MassGIS, Commonwealth of Massachusetts  
 Executive Office of Environmental Affairs  
 Property Boundaries: GeoTrans, Inc.; Revised Private Will Survey Area 2002  
 Wetlands: MassGIS, Commonwealth of Massachusetts  
 Executive Office of Environmental Affairs



**LEGEND**

- WR Grace Property
  - - - Private Well Survey Area
  - - - Other Properties
  - Municipal Wells
  - - - Acton Temporary Well Moratorium Boundary
- Wetlands**
- |                             |                          |
|-----------------------------|--------------------------|
| Bog                         | Shrub Swamp              |
| Cranberry Bog               | Upland                   |
| Deep Marsh                  | Wooded Swamp Coniferous  |
| Open Water                  | Wooded Swamp Deciduous   |
| Shallow Marsh Meadow or Fen | Wooded Swamp Mixed Trees |

**FIGURE 5.**  
**WETLANDS WITHIN**  
**PRIVATE WELL**  
**SURVEY AREA**  
 WR GRACE RE-USE  
 ACTON, MASSACHUSETTS

g:\projects\massachusetts\acton\maps\wr\grace-wetlands.mxd

## **Town of Acton Role**

Input from the town of Acton was solicited from three sources: town officials, the Acton Water District, and the citizens' group Acton Citizens for Environmental Safety (ACES). The Acton representatives generally have a more optimistic view of the potential for redevelopment of the Grace-owned parcels within the current zoning restrictions (i.e., Technology District), than has been expressed by Grace representatives. Interviews with these groups are summarized below.

**Interview with Town Officials.** Town of Acton officials plan to take an active role in shaping the future reuse of the Grace-owned property, as discussed in an interview conducted with EPA and MADEP on August 11, 2004. The attendance list for the interview session is presented in Appendix B.

The town made available copies of the zoning bylaw (amended through April 2004) and excerpts from the town's 1998 Master Plan Update. The economic development component of the Master Plan Update included several recommended actions that relate to the town's preferences for reuse of the Grace-owned property: encouragement of commercial development, giving special attention to development of the few remaining commercial/industrial sites in the town, and preventing the conversion or loss of commercial and industrial land to residential development (Master Plan Update Executive Summary, Acton Planning Board, December 1998). During the August 11 meeting, town representatives confirmed that the economic development goals expressed in the Master Plan Update were of primary importance to town residents, primarily because of the need to increase the commercial tax base and reduce the residential taxpayer burden. The Grace-owned property has been identified as worthy of special attention, because it is viewed as one of the few remaining areas within Acton that is available for commercial redevelopment. The plan presented in the 2001 Grace land use analysis, which included a golf course and residences, would require a zoning change and is not consistent with the town's master plan. The view was expressed that the voters would not support the rezoning of the parcels to allow for non-commercial uses (residential or recreational). However, town representatives also strongly expressed their preference that the selected remedy for the Superfund site should be designed and constructed to allow for the possibility of residential use in the future. Town representatives also expressed the opinion that developers would be more interested in acquiring the property from Grace if there were no need for institutional controls restricting land use.

During the interview session, it was learned that the town recently established the

Acton Economic Development and Industrial Corporation (EDIC) under a special act of the Massachusetts Legislature. The purpose of the EDIC is to seek out and implement economic development opportunities that are consistent with the town's planning goals. The directors of the EDIC were appointed by the Board of Selectmen and had their first meeting on August 10, 2004. The EDIC is going to prepare an economic development plan that will need to be approved by town meeting before it can be implemented. The EDIC would like to examine the Grace-owned property, with the goal of fostering redevelopment for light industrial/commercial uses consistent with the Technology District zoning. The EDIC plans to solicit funding to perform a market study of the Grace-owned property.

During the interview session, participants expressed the view that the town and Grace would need to work together, and communicate early and regularly, to redevelop the property successfully. The EDIC and Planning Board members expressed willingness to work with Grace to reduce obstacles to commercial redevelopment. For example, although access to the Grace-owned property is currently limited, the town believes that access can be improved and is willing to work with Grace or a future new owner to improve it. The possibility of working with MBTA to develop a train station was also mentioned.

Town representatives identified possibilities for redevelopment that they would view favorably, such as an office park or a university satellite campus. A restaurant would be allowable under current zoning, to service office workers. A preference was expressed for larger projects, but incremental development via approval of smaller projects was not ruled out.

Town representatives were asked what they felt were the biggest obstacles to redevelopment of the Grace-owned property. The obstacles mentioned included: the need for remediation facilities to remain on the property (for example, a possible new groundwater treatment plant, monitoring wells, the Industrial Landfill); the possibility that potential buyers would be concerned about liability for site remediation; and the currently limited access to the property. EPA and MADEP explained some mechanisms whereby the concern about potential liability for remediation could be addressed. Town representatives did not seem to feel that any of these obstacles were insurmountable.

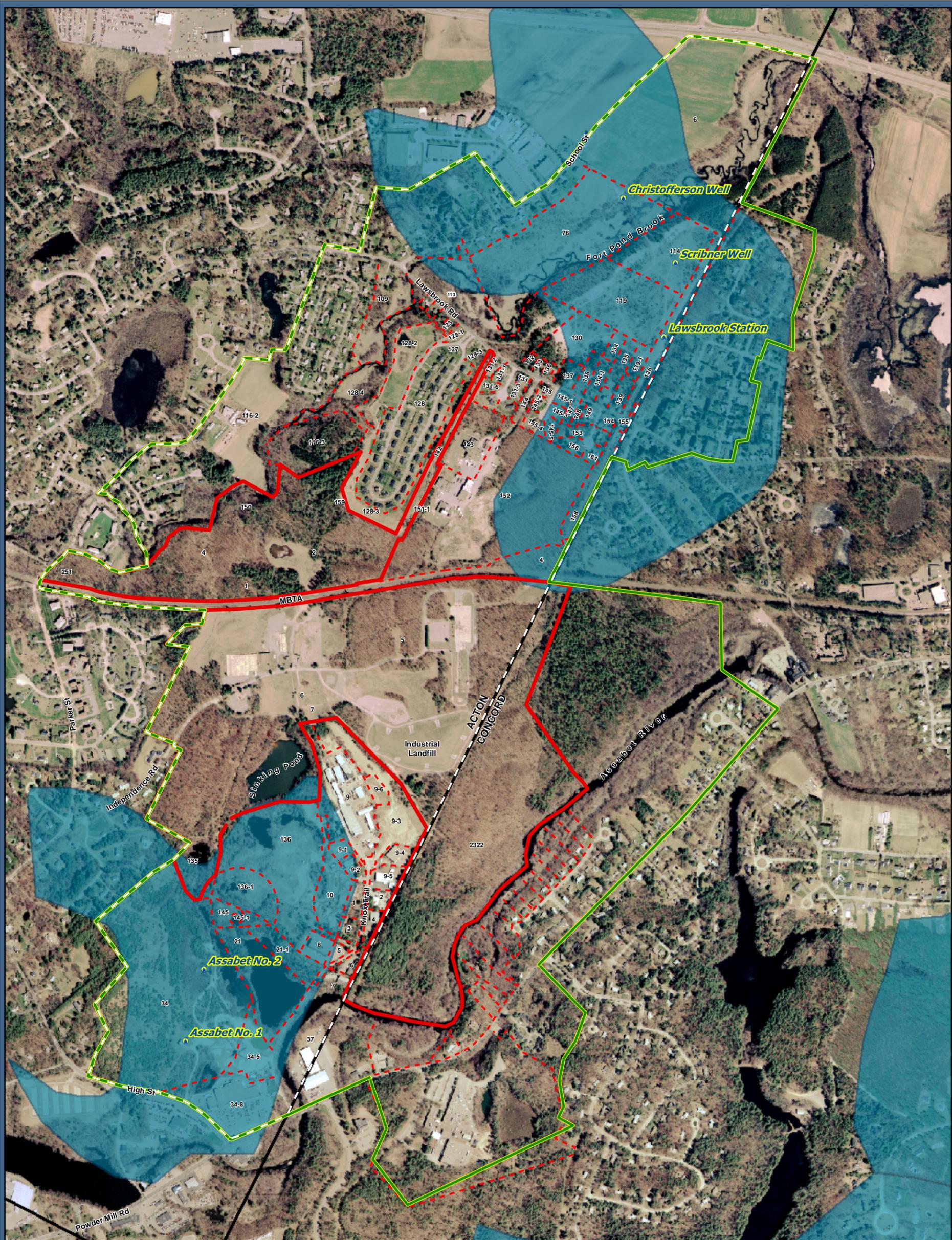
**Interview with Acton Water District.** In addition to owning several parcels within the private well survey area, the Acton Water District is interested in the Site because of the potential for utilizing a former Grace production well as a water supply well, and because the redevelopment of the Grace property would likely increase the demand for

town water. The AWD's Environmental Manager was contacted by telephone on August 19, 2004 to obtain AWD's perspective regarding the potential for redevelopment of the Grace property, or possible changes in the use of property currently owned by AWD.

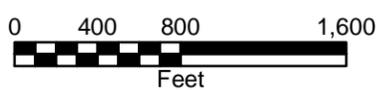
AWD has an interest in possibly obtaining additional land in the vicinity of the former Grace production well known as WRG-3, and in pursuing the possibility of using this well as a water supply well. Well WRG-3 is located to the northeast of Assabet No. 2 (outside of the Grace property) in Parcel 145-1 (Figure 6). The combined Zone II delineation for Assabet No. 1, Assabet No. 2, and WRG-3 is shown in Figure 6. AWD currently owns the land surrounding the Zone I delineation for WRG-3 but does not own Parcel 136 or Parcel 21-1. In 2000, AWD contemplated performing a pumping test of WRG-3, and approached EPA, MADEP, and Grace to discuss the issue. At that time, the regulatory agencies and Grace expressed concern that it was not known whether the pumping test, or possible reactivation of the well permanently, would impact remediation of the groundwater plume. WRG-3 is located within 20 feet of extraction well RP-1, and within 600 feet of extraction well WRG-1, both of which are part of the Aquifer Restoration System currently in operation (see Figure 2). The pumping test was not performed and the possibility of reactivating WRG-3 was put on hold.

AWD believes that although considerable barriers exist to using WRG-3, the water is needed and it is worth pursuing the possibility further, once a remedy is selected for groundwater at the Site. Redevelopment of the Grace parcels would likely increase demand for water. AWD commented that redevelopment for Technology District uses (such as an office park) would most likely result in lower demand for water than would residential redevelopment. AWD also believes that no matter how the Grace-owned property is developed, there will be a demand for water that will likely exceed the capacity of the current supply wells. AWD recommends that redevelopment of the Grace-owned property be pursued hand in hand with an evaluation of reactivating WRG-3 as a supply well. The availability of water to support redevelopment is considered by AWD to be an obstacle to redevelopment.

With respect to the parcels within the private well survey area that are already owned by AWD, no changes in land use are planned. The parcel just north of the School Street well field (Parcel 6 on Figure 6) is owned by the Commonwealth of Massachusetts and is leased for agricultural uses. AWD is not interested in acquiring this parcel.



SOURCE: Orthophoto: MassGIS, Commonwealth of Massachusetts  
 Executive Office of Environmental Affairs  
 Property Boundaries: GeoTrans, Inc.; Revised Private Will Survey Area 2002



**LEGEND**

- Acton Temporary Well Moratorium Boundary
- WR Grace Property
- Other Properties
- Private Well Survey Area
- Municipal Wells
- Zone II

**FIGURE 6.  
 ZONE II PROTECTION  
 DISTRICTS**

WR GRACE RE-USE  
 ACTON, MASSACHUSETTS



**Interview with ACES.** The president of ACES attended the interview with Town of Acton officials conducted on August 11, 2004. Subsequent to that meeting, she solicited input from other ACES members, and M&E interviewed her on September 2, 2004 to obtain that input. ACES echoed the views expressed by town officials regarding cleanup objectives; namely, that the selected remedy should be designed and constructed to allow for the possibility of residential use in the future. ACES does not want there to be a need for institutional controls restricting land use, but acknowledges that such controls will be required for the Industrial Landfill. ACES strongly feels that future redevelopment plans must consider that the site is in a sensitive area, near five municipal supply wells, and that no use should be allowed that could potentially result in additional contamination of groundwater. Examples cited by members as undesirable future uses included: any underground storage tanks, disposal of sewage effluent, or a golf course. ACES does not want a golf course because maintenance of it would require irrigation water (they are not in favor of using contaminated water for irrigation), and use of herbicides at a golf course could impact the groundwater. ACES also is concerned that redevelopment might interfere with site remediation or adversely impact Sinking Pond.

ACES members offered input regarding their preferences for redevelopment of the Grace-owned parcels. Similar to town officials, ACES believes the property offers some advantages (size, proximity to rail line) that should be maximized. A use that benefits the community is highly desirable, either in the form of increased tax revenue, or a direct benefit to residents. An example of the latter might be the development of a teen center or university satellite campus on the property, although some ACES members expressed concern that young people might be more sensitive to any contamination that might remain at the site. Site cleanup to residential standards would mitigate this concern. Other desirable uses mentioned included an office park or wildlife habitat/open space. Low-impact development practices (“green” buildings, smaller building footprints, retaining some open space, reducing impermeable surfaces, use of rain barrels to collect water) are advocated by ACES for whatever development does take place on the property.

An architect who is a member of ACES also suggested that vapor barriers be used for any building constructed on the property, even if a risk assessment indicates that vapor intrusion will not present a risk to building occupants. His suggestion is derived from his belief that it is not very expensive to install vapor barriers for new construction, but if a problem develops later it is expensive to correct it for an existing structure. It was also mentioned that the selected remedy will need to demonstrate effective odor control, if redevelopment is to proceed successfully.

## **Town of Concord Role**

M&E spoke with the Concord Town Planner, Ms. Marcia Rasmussen, on September 20, 2004 regarding the town's preferences for redevelopment of the Grace-owned parcel in Concord (Parcel No. 2322), and possible obstacles to redevelopment.

Ms. Rasmussen noted that the primary obstacle to redevelopment of this parcel, other than its designation as a Superfund site, is the difficulty in gaining access to the parcel in Concord. With the Acton-Concord town line serving as the western edge of the parcel in Concord, the parcel is bounded on the north by the MBTA commuter rail line (an active railroad line) and permanently protected open space. To the east is a parcel of privately owned land that has questionable frontage and access on a way that was abandoned by the Middlesex County Commissioners in the 1980's, and to the south is the Assabet River (a designated "Wild and Scenic River"). In order to gain access to Parcel No. 2322 in Concord, one would need to either build a bridge over the Assabet River (acquiring additional property to the south of the Assabet River), or to acquire the adjacent privately owned land to the east and conduct the legal research needed to demonstrate that there is right of access and frontage on Pond Lane.

Ms. Rasmussen explained that this parcel (No. 2322) is zoned Residence B. Uses that are allowed "by right" in the Residence B district include: single-family dwelling, educational uses, child care facility, religious use, municipal use, and the extensive uses of forestry, agriculture and conservation. Uses allowed by special permit include: two-family or additional dwelling, boarding house, philanthropic and lodge/club, greenhouse, and private recreation. In addition, there are certain cluster development options that are allowed by special permit (Planned Residential Development, Residential Cluster and Residential Compound) but these uses generally require minimum criteria that this parcel may not meet.

As for potential subdivision of the land, the Town of Concord's Subdivision Rules and Regulations (amended through August 2003) do not allow a subdivision of land where access to the subdivision tract in Concord is through land in another Town (Section 6.2.3) and no subdivision shall be approved unless the land to be subdivided has frontage on an existing public street or an existing private way in the Town of Concord (Section 6.7.1). Hence, Parcel No. 2322 could not be subdivided unless there were a way to gain access through Concord. Uses that would not require subdivision and that could otherwise be permitted under Residence B zoning, as outlined above, would be possible.

The town would be interested in acquiring the parcel for conservation and open space purposes (and perhaps other municipal purposes) and views the parcel as being essentially undevelopable now, because of the limited access. However, the Town is concerned about site contamination and possible liability if the Town were to acquire the parcel from Grace.

## **SECTION 3 - GENERAL FINDINGS/RECOMMENDATIONS**

### **Reasonably Anticipated Future Land Uses**

It is important to emphasize that the federal government (EPA) does not have an ownership or redevelopment interest in the Site. As such, EPA maintains a neutral position with respect to the nature of its future use(s). In conducting a Reuse Assessment, EPA seeks to identify those land uses that can be reasonably anticipated based on currently available information. However, in doing so, EPA does not attempt to determine which reuse scenario is “best suited” for a given Site. Where multiple uses are possible, or there is uncertainty regarding those uses, EPA will consider the range of protective uses that could reasonably occur (EPA, 2001; EPA, 1995).

**Grace-Owned Parcels in Acton.** The initial findings suggest that a range of future uses is possible for the parcels in Acton that are currently owned by Grace. A range of uses has been proposed, including residential/recreational, educational (university campus), and light commercial (office park). The likelihood of any of these proposals succeeding is complicated by the physical obstacles noted by Grace, as well as the differing views of Grace and the town of Acton regarding uses that are likely to be successful and desirable. The zoning of the parcels, as Technology District, does not allow for the residential or recreational uses that Grace’s land use analysis suggests are most feasible. The town has strongly expressed the position that the zoning is unlikely to be changed in the foreseeable future. Sustained communication between Grace and the town will be needed to allow for successful redevelopment.

The presence of Site contamination limits reuse potential in the vicinity of the Industrial Landfill, where enforceable institutional controls will likely be required to maintain the integrity of the landfill cap. Other obstacles that can be overcome relate to concerns about Superfund liability or exposure to contamination that may be raised by future landowners or tenants. EPA and MADEP will need to work with Grace, the town, the community, and potential developers to allay these concerns.

**Grace-Owned Parcel In Concord.** The findings indicate that redevelopment of this parcel is limited by access issues to a greater degree than Superfund site issues. The town of Concord is interested in acquiring the parcel for conservation land, a use for which access is not a limitation, but has concerns about Superfund liability.

**Acton Water District Parcels.** The use of the parcels within the Site boundary that are owned by the Acton Water District is likely to remain the same for the foreseeable

future. The AWD intends to maintain the School Street and Assabet well fields, and in the long term may also pursue re-activation of WRG-3 as a public water supply well. Obstacles to re-activation of WRG-3 are significant, because of possible impacts on remediation of the groundwater contamination plume. The remedy for OU 3 (groundwater) has yet to be selected. A Record of Decision for OU 3 is anticipated in late 2005.

### **Reuse Issues/Considerations**

**Communication.** As noted above, communication between Grace and the town of Acton will need to be strengthened to allow for redevelopment of the Grace-owned parcels in Acton. The Economic Development Industrial Corporation recently established by the town is positioned to play a significant role in facilitating redevelopment and maintaining communication with Grace. The purpose of the EDIC is to seek out and implement economic development opportunities that are consistent with the town's planning goals. The EDIC intends to examine the Grace-owned property, with the goal of fostering redevelopment for light industrial/commercial uses consistent with the Technology District zoning.

**Superfund Liability Concerns.** The towns have raised several questions regarding Superfund and Massachusetts General Law 21E liability that could have a bearing on reuse of the Site. These are:

- The town's liability, should the town consider acquiring property from Grace
- A developer's liability if they acquire or lease the property from Grace, which could impact the marketability of the property
- Possible mechanisms for funding long-term O&M of the remedy, to protect against the possibility of Grace going out of business and ceasing to perform O&M

It will be important for EPA and MADEP to work with Grace, the town, the community, and potential buyers to help minimize the potential barriers posed by liability concerns. Some options include:

- **Statutory Exemptions.** The Small Business Liability Relief and Brownfields Revitalization Act, enacted in January 2002, amended

CERCLA to provide liability limitations for landowners that qualify as : (1) bona fide prospective purchasers, (2) contiguous property owners, or (3) innocent landowners. A prospective purchaser can obtain liability protection by meeting certain criteria and satisfying certain continuing obligations. The Massachusetts Brownfields Act of 1998 provides similar limitations on 21E liability.

- **Insurance Products.** Environmental insurance policies are commercially available that can be purchased to limit financial exposure and help secure loans from lending institutions.
- **Ready-for-Reuse Determinations.** EPA has recently implemented a new initiative whereby it can determine that all or certain portions of a Site are available for either “restricted” or “unrestricted” use. This determination and the specific nature of any restrictions (e.g., institutional controls, prohibited uses, etc.) are summarized in a supporting document that can be made available to property owners, developers and other interested parties. These determinations are intended to promote earlier use of Superfund sites.

### **Recommendations for Follow-up**

It should be noted that there are uncertainties and unresolved issues associated with the reuse/redevelopment of the W.R. Grace Superfund Site. In order to assist with the redevelopment of the Site, EPA recommends that the Town of Acton, W.R. Grace, and other relevant parties attempt to meet to begin the process of resolving outstanding issues. EPA and/or MADEP could be available to provide assistance with this matter.

## **SECTION 4 - REFERENCES**

- Acton Planning Board, 1998. Master Plan Update, Town of Acton, Massachusetts, Executive Summary. Consulting Assistance Provided By: Whiteman & Taintor; LandUse, Incorporated; TAMS Consultants, Inc.; and Howard/Stein-Hudson Associates, Inc. December 1998.
- Alliance Technologies Corporation, 1989. Risk Analysis of the W.R. Grace Site, Acton, Massachusetts. Prepared for U.S. Environmental Protection Agency, Office of Waste Programs Enforcement, Washington, DC, Contract No. 68-W9-0003. June 30, 1989.
- GeoTrans Inc. 2004. *Operable Unit Three Monitoring Program Report, 2003*, W.R. Grace (Acton Plant) Superfund Site, Acton, Massachusetts, prepared for W.R. Grace & Co. May 4, 2004.
- HSI GeoTrans, 1988. Initial Site Characterization Report, Operable Unit Three, W.R. Grace Superfund Site, Acton, Massachusetts, Prepared by HSI GeoTrans, August 12, 1988.
- Sullivan Design and Construction Management (DCM), P.C. and Woodard & Curran, Inc., 2002. Release Abatement Measure Plan, RTN #3-21297, Debris Area off Knox Trail, Concord, MA. Prepared for W.R. Grace & Co. - Conn. April 2002.
- USEPA, 1989. Record of Decision, W.R. Grace Site - Acton, Massachusetts, Prepared by the United States Environmental Protection Agency, September 29, 1989.
- USEPA, 1995. Land Use in the CERCLA Remedy Selection Process. OSWER Directive No. 9355.7-04, May 25, 1995.
- USEPA, 2001. Reuse Assessments: A Tool To Implement The Superfund Land Use Directive. OSWER Directive No. 9355.7-06P, June 4, 2001.

**APPENDIX A**

**ACTON SITE EXECUTIVE SUMMARY  
(PREPARED BY W.R. GRACE & CO. - CONN., MARCH 4, 2004)**

*DRAFT*

## Acton Site Executive Summary

Prepared by W. R. Grace & Co. – Conn.  
March 4, 2004

W. R. Grace & Co. – Conn. (“Grace”) is the fee owner of a contiguous tract of land containing approximately 259 acres (the “Site”), of which approximately 187 acres are located in the Town of Acton, Massachusetts and approximately 72 acres are located in the Town of Concord, Massachusetts. The Site was formerly used by Grace for production of container sealant products, latex products, plasticizers and resins, as well as paper and polyethylene battery separators. All of the former manufacturing facilities have been demolished (although several building slabs and paved areas are still present). The purpose and intent of this summary is to provide for the benefit of the Office of Site Remediation & Restoration of the U.S. Environmental Protection Agency an overview of the major impediments to the redevelopment of the Site, other than those related to the environmental condition or remediation of the Site.

Attached hereto is a plat of the Site, prepared by Sasaki Associates, Inc. (“Sasaki”), a site civil engineering company retained by Grace to assist in Grace’s planning for the re-use of the Site. At times throughout this summary, different parts of the Site will be referenced as follows, based on the areas shown on this plat:

- Area I – North side of railroad tracks (51 acres; Acton);
- Area II – South side of railroad tracks (136 acres; Acton);  
and
- Area III – South side of railroad tracks (72 acres; Concord).

### Access to the Site

A major obstacle to the successful redevelopment of the Site is its limited access. Area I can only be accessed from Parker Street, and Areas II and III can only be accessed from Independence Road. Neither Parker Street nor Independence Road is a primary transportation roadway, nor does either have a primary roadway in close proximity. While the southernmost portions of Area III are close to Knox Trail, and while much of Area III is close to Main Street (Route 62), the intervening land between each such roadway and Area III is not owned by Grace. Therefore, access to the Site is limited in location and, where it can occur, it must occur by secondary roadways through residentially zoned districts.

### Slopes

The steep slopes that are scattered throughout the Site present another significant obstacle. As the attached chart, labeled "Site Constraints," shows, approximately 72 acres of the Site (a full 28% of the land mass) contains slopes of greater than 15%. Another 19 acres (an additional 7% of the total acreage) contains slopes of between 10% and 15%. These areas of steep slope would be less of an obstacle to development if they were clustered together. However, they affect most portions of the Site, and would seriously limit the location and size of the footprint of any buildings to be constructed on the Site.

### Surface Waters and Wetlands

Any redevelopment of the Site must take into account the surface water bodies and wetlands present. These include Sinking Pond at the southwest of Area II, the Assabet River forming the eastern border of Area III, and the wetlands in Area III. There are also wetlands in Area I, not far from Fort Pond Brook on the northwest side of Area I. These areas must be excluded from the total developable land at the Site.

### Physical Encumbrances

Also noteworthy is the active railroad commuter line which bisects the Site, separating Area I, to the north, from Areas II and III to the south. This railroad line will make any linkages between Area I and Areas II and III extremely difficult, and further restrict the flexibility of future development.

There is also a major gas transmission line which bisects the Site, this time separating Area II, to the west, from Area III, to the east. This, too, will restrict the flexibility of future development.

### Zoning

Areas I and II are both zoned TD, Technology District. The Technology District zoning classification permits business or professional offices, warehouse and light manufacturing uses, but does not permit any residential uses, retail stores, non-office business uses, or most recreational uses. Given the residential nature of surrounding areas on the west, north, and east, Grace believes that residential uses would be desirable on portions of the Site unaffected by Grace's prior operations, and that recreational uses would be appropriate on significant other portions. Based on the political structure of the Town of Acton, any zoning change would require not only the support by the Town's selectmen and governing bodies, but also a positive vote by the Town's citizenry, making the possibility of rezoning both a major and an uncertain

endeavor. Consequently, the development options for the Site are further constrained.

In addition to the significant limitations in use imposed by the existing Technology District zoning classification for Areas I and II, the zoning code imposes increased required setbacks (200 feet) from the adjacent residential use zoning, riverfront setback requirements associated with the frontage along Fort Pond Brook, and setbacks associated with all of the existing wetlands. These setback requirements further limit Grace's ability to develop the property.

#### Net Usable Land Area

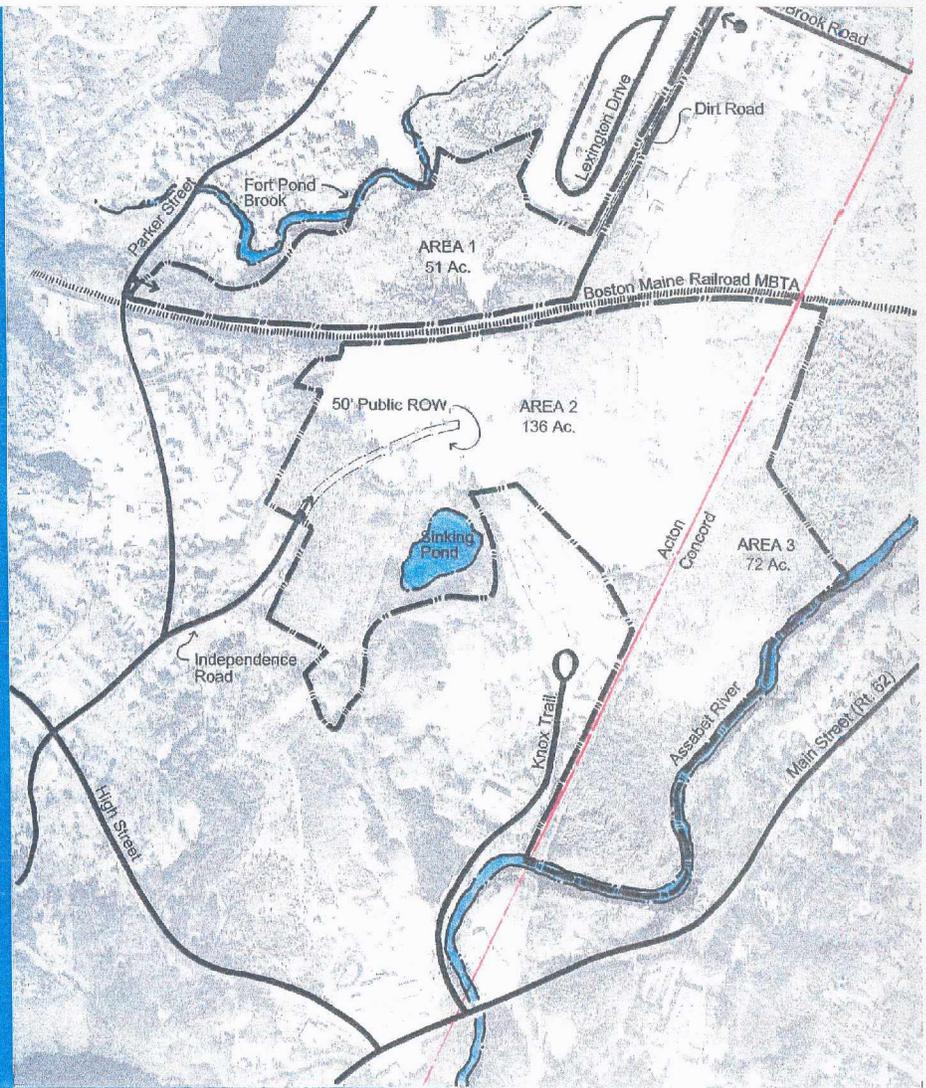
Based upon Sasaki's compilation and evaluation of all of the foregoing factors, along with the environmental constraints resulting from Grace's prior use of the Site and current remediation, Sasaki established a Net Usable Land Area ("NULA") as a primary indicator quantifying the potential reuse and redevelopment of the Site. Sasaki ultimately concluded that Area I only had an NULA of 27 acres, or 53% of the actual acreage of Area I; Area 2 had an NULA of 92 acres, or 67% of the actual acreage of Area II; and Area 3 only had an NULA of 42 acres, or 58% of the actual acreage of Area III, each a disappointingly low percentage.

#### Conclusion

In summary, the impediments to redevelopment of the Site are not purely related to environmental conditions, but also derive from the significant inherent problems of access, topography, surface waters and wetlands, a railroad crossing, a gas transmission line, and zoning. Even after remediation of the Site, only a limited portion of the site will be suitable for reuse and redevelopment, and then only for certain carefully chosen purposes.

Local Roads  
Potential Access Points

Total Acres: 259 ac.  
Area 1 : 51 ac.  
Area 2: 136 ac.  
Area 3: 72 ac.



GRACE

ENGINEERS

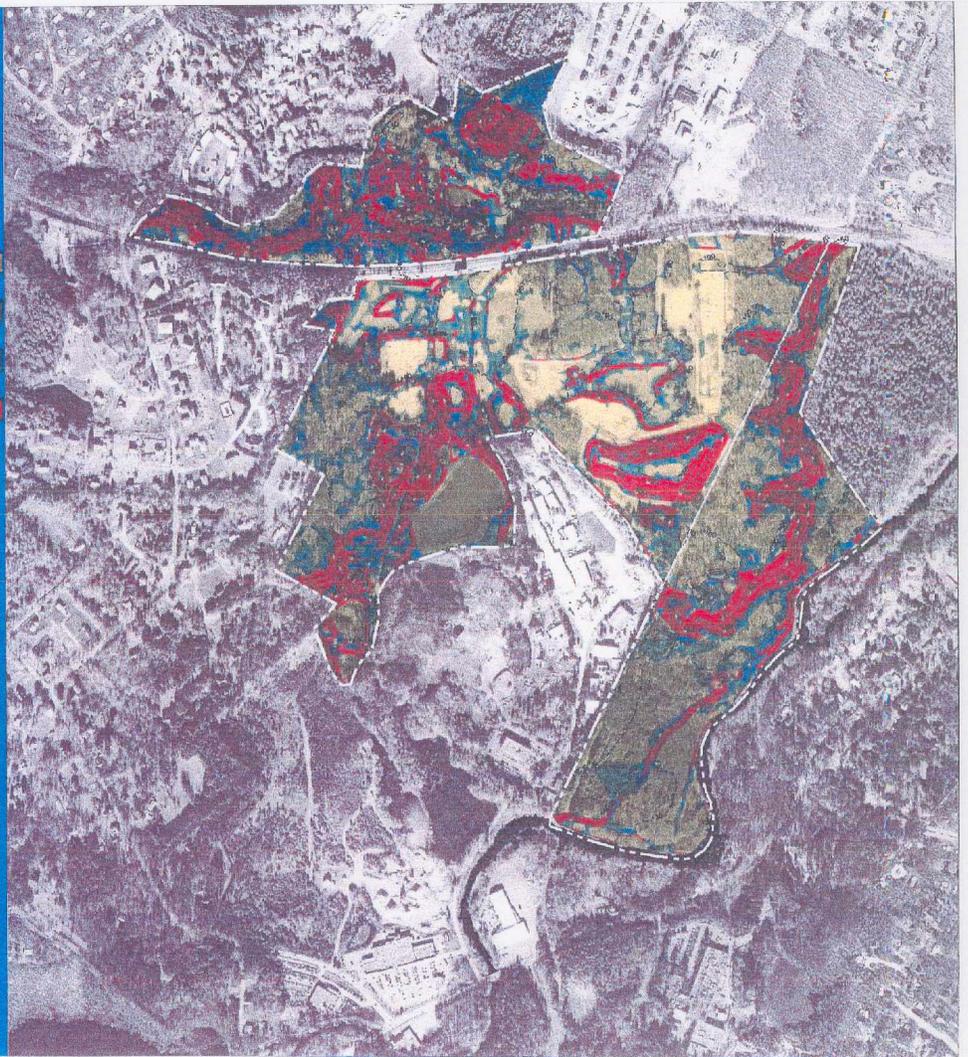
SPALDING & SEYE

# Site Constraints

Total Acres: 259 ac.

## Slopes:

|         |               |   |
|---------|---------------|---|
| 0-5%    | 135 ac. (52%) |  |
| 5-10%   | 33 ac. (13%)  |  |
| 10-15 % | 19 ac. (7%)   |  |
| > 15%   | 72 ac. (28%)  |  |



**GRACE**

**CONSTRUCTION**

**SKULDING & SEYE**

**APPENDIX B**

**SIGN-IN SHEET, MEETING WITH ACTON TOWN OFFICIALS, AUGUST 11, 2004**

*DRAFT*

# W.R. Grace Reuse Meeting Sign In Sheet

Wednesday, August 11, 2004

Acton Town Hall, Room 204

| Name                   | Organization                | Telephone Number              |
|------------------------|-----------------------------|-------------------------------|
| 1.) Derrick Gobbens    | USEPA                       | 617-918-1448                  |
| 2.) Barbara Weir       | M+E (contractor<br>for EPA) | 781-224-4608                  |
| 3.) Daniel Keefe       | DEP                         | 617.292.5940                  |
| 4.) Doug Halley        | Acton Board of Health       | 978-264-9634                  |
| 5.) Josh Chernin       | Acton EDIC                  | (978) 264-9505                |
| 6.) Sarah White        | EPA                         | 617/918-1026                  |
| 7.) Mary Michelman     | ACES                        | 978 263-7370                  |
| 8.) DON JOHNSON        | ACTON TOWN MANAGER          | 978 264-9612                  |
| 9.) Jonathan Avesy     | Acton EDIC                  | 978-263-5002                  |
| 10.) Ann Chang         | EDC                         | 978 263-4726                  |
| 11.) Walter Foster     | Board of Selectmen          | <del>978</del> (617) 228-4448 |
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