EXHIBIT B

DRAFT CLEANUP ACTION PLAN
FIBERGLASS DEBRIS LANDFILL
HYTEC-LITTLEROCK SITE
HALO-KUNTUX LANE
LITTLEROCK, WASHINGTON

DECEMBER 2009

PREPARED BY:

Washington State Department of Ecology
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LIST OF ACRONYMS AND ABBREVIATIONS

ARARs	Applicable or Relevant and Appropriate Requirements
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
COCs	Chemicals of Concern
cPAHs	Carcinogenic Polyaromatic Hydrocarbons
Ecology	Washington State Department of Ecology
EM	Electromagnetic Method
FS	Feasibility Study
GC/MS	Gas Chromatography/Mass Spectrometry
GPR	Ground Penetrating Radar
GPS	Global Positioning System
HASP	Health and Safety Plan
ICs	Institutional Controls
µg/kg	Micrograms per kilogram
µg/l	Micrograms per Liter
mg/l	Milligrams per Liter
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
MTCA	Model Toxics Control Act
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PID	Photo Ionization Detector
PLP	Potentially Liable Person
POC	Point of Compliance
ppbv	Parts per billion volume
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAO	Remedial Action Objective
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RL	Reporting Limit
SAIC	Science Applications International Corporation
SAP	Sampling and Analysis Plan
SHA	Site Hazard Assessment
STL	Severn Trent Laboratories
SVOCs	Semivolatile Organic Compounds
TEQ	Total Toxicity Equivalent
TEE	Terrestrial Ecological Evaluation

TEF	Toxicity Equivalence Factor
TDS	Total Dissolved Solids
TICs	Tentatively Identified Compounds
TPH	Total Petroleum Hydrocarbons
TPH-Dx	Total Petroleum Hydrocarbons – Diesel range
TPH-HCID	Total Petroleum Hydrocarbons - Hydrocarbon Identification
TSS	Total Suspended Solids
USCS	Unified Soil Classification System
USGS	United States Geological Survey
VOCs	Volatile Organic Compounds
WAC	Washington Administrative Code
WADNR	Washington State Department of Natural Resources
WARM	Washington Ranking Method
WDOH	Washington Department of Health
WDFW	Washington Department of Fish and Wildlife

1.0 Introduction

This document presents a Cleanup Action Plan (CAP) for the Hytec-Littlerock property located near Littlerock, Washington. The Washington Department of Ecology (Ecology) issued Agreed Order No. 2888 requiring the Potentially Liable Persons (PLPs) to perform a Remedial Investigation/Feasibility Study (RI/FS) and to prepare a draft CAP. The RI/FS was finalized on August 1, 2007 and approved by Ecology on September 5, 2007.

Based on the RI/FS results, Ecology concluded that there are two distinguished contaminated Sites at the property. These Sites are the Fiberglass Debris Landfill area, and the Bordeaux Dump and Rusted Drum areas.

This document presents a Cleanup Action Plan (CAP) for the Fiberglass Debris Landfill which is the Site for the purpose of this cleanup.

The CAP was prepared in accordance with the requirements of the Model Toxics Control Act (MTCA) following the procedures contained in Chapter 173-340 of the Washington Administrative Code (WAC 173-340). The final CAP will be issued by Ecology, after considering public comment.

1.1 Objectives of the CAP

Pursuant to the requirements of WAC 173-340-380, the objective of the CAP is to propose a cleanup action for the Site. The general objectives of the CAP are to:

- Summarize cleanup action alternatives evaluated in the RI/FS that will meet cleanup action objectives for the Site
- Provide a general description of the proposed cleanup action developed in accordance with WAC 173-340-350 through WAC 173-340-390
- Summarize the rationale for selecting the proposed alternative
- Provide a draft cleanup plan that can be reviewed and commented on by the public and allows for public participation in the selection of a cleanup action for the Site

1.2 Report Organization

This CAP is organized as follows:

- Section 1.0 (this section) of the CAP report presents general introductory information, objectives and report organization
- Section 2.0 presents a description of the Site
- Section 3.0 describes the Site history and results of the RI
- Section 4.0 presents a summary of surface water and groundwater conditions
- Section 5.0 presents the nature and extent of contamination and identifies cleanup levels
- Section 6.0 summarizes cleanup alternatives considered for the Site that were evaluated in the FS
- Section 7.0 identifies the recommended cleanup action alternative(s) for the Site
- Section 8.0 describes how the proposed cleanup action(s) will meet the MTCA requirements
- Section 9.0 lists references cited throughout the CAP

2.0 Site Description

The property is located in a rural area of Thurston County southwest of Littlerock, Washington and is zoned residential. The Site is accessed via Halo Kuntux Lane, a private gated road connecting to Bordeaux Road on the southern boundary of the property. The property location is shown on Figure 2-1 in Appendix A. The legal description of the property is the East ½ of the NW ¼ of Section 9, Township 16 North, Range 3 West of the Willamette Meridian, lying northerly of the county road known as Bordeaux Road.

The Site investigation area (defined in Agreed Order No. 2888) comprises approximately 44 acres and was divided into five parcels of land in late 1998. Four of the parcels are 5 acres in size and the fifth is approximately 24 acres in size. Two of the 5-acre parcels have single-family residences and the remaining two 5-acre parcels do not have residences constructed on them. The 24-acre parcel to the east and south sides of the Site is undeveloped and includes a former gravel pit along Bordeaux Road. The former gravel pit (along Bordeaux Road) is approximately 30 feet deep. The specific dates of operation of the gravel pit are not known. The property boundary, parcel boundaries, and owner names are shown on Figure 2-2 in Appendix A.

Mr. and Mrs. Lufkin (the current owners of the 24-acre parcel), and Hytec, Inc. have been identified as PLPs by Ecology. Mr. Lufkin purchased the entire 44-acre parcel in July 1975. At that time, Mr. Lufkin was the President of Hytec, a company that

manufactured fiberglass bathroom fixtures. Hytec obtained a solid waste disposal permit from the Thurston-Mason County Health District in 1976 and used the north-central portion of the Site to dispose of waste fiberglass, fiberglass trimmings, and waste polyester resin. This area is referred to as the fiberglass debris landfill in the RI/FS and this CAP.

An old dump (generally thought to be the historic dump from the Town of Bordeaux, circa 1900-1930) is present in a wooded area east of Halo Kuntux Lane in the southeastern section of the Site. The location and extent of this historical dump shown on Figure 2-2 in Appendix A was determined using historical photographs, geotechnical studies, and characterization studies conducted during the RI.

Based on the RI/FS results, Ecology concluded that there are two distinguished contaminated Sites within the 44-acre property. These Sites are the Hytec Fiberglass Debris Landfill area, and the Bordeaux Dump and Rusted Drum area.

The CAP for the Bordeaux landfill and Rusted Drum area is being implemented under a separate consent decree. This CAP covers the cleanup of the Hytec fiberglass debris landfill area.

The history of the entire 44-acre property and summary of investigative actions conducted are presented in Section 3.

3.1 Site Background

Mr. and Mrs. Lufkin purchased the 44-acre property in July 1975 from Mr. and Mrs. Conwell. Mr. Lufkin was the president of Hytec at that time. Hytec obtained a solid waste disposal permit from the Thurston-Mason County Health District in 1976 and subsequently used the north-central portion of the property to dispose of waste fiberglass, fiberglass trimmings, and waste polyester resin. The waste was reported to have been disposed of in two natural depressions in the north-central portion of the property.

The Lufkins sold the entire 44-acre parcel to Patricia and Pamela Mathews in 1995 (the Lufkins financed the purchase). The ownership was returned to the Lufkins in 1998 through forfeiture. Subdivision of the 44-acre parcel was initiated by the Mathews and completed in 1998 and included four 5-acre parcels on the west side of the Site. Two of the parcels were purchased by Mr. and Mrs. Pavlicek and two were purchased by Mr. and Mrs. Monte. The Montes subsequently sold the two northern most parcels (on the west side); one to Ms. Morgan in 2002, and the most northern parcel to Mr. and Mrs. Spears in 2002.

Debris associated with the fiberglass debris landfill was encountered during the construction of the northern portion (cul-de-sac area) of Halo Kuntux Lane in the late 1990s. Additional fiberglass debris was encountered on the Morgan property during trenching of utility lines west of Halo Kuntux Lane. Phase I of the RI focused on the fiberglass debris landfill area of the Site. The property is also known to include a small area that is a historical dump thought to be from the former Town of Bordeaux (circa 1900-1930). Phase II of the RI focused on the other suspect areas of the property including the Bordeaux dump.

3.1.1 Regulatory History

3.1.1.1 Solid Waste Disposal Permit

As noted previously, a solid waste disposal permit was issued by the Thurston-Mason County Health District in 1976 and Hytec used a portion of the property to dispose of waste fiberglass, fiberglass trimmings, and waste polyester resin.

3.1.1.2 Initial Site Hazard Assessment and MTCA Ranking

In 1990, Ecology completed a preliminary Site hazard assessment (SHA). Following the SHA, Ecology ranked this Site as 3 (1 indicating the highest relative risk and 5 the lowest) under the Washington Ranking Method (WARM). In August 1992, Ecology informed Mr. Lufkin that the WARM ranking for the Site had been reduced from 3 to 4. In July 1993, the Washington State Department of Health conducted a preliminary assessment of the potential for the Site to affect public health and concluded, at that time, that the Site did not present a significant hazard to public health (Ecology 2005).

3.1.1.3 Agreed Order and RI/FS

In 2005, Ecology issued Agreed No. Order 2888 requiring the responsible parties to perform a RI/FS and to prepare a cleanup action plan for the Site. The Agreed Order identified the Lufkins (the current owners of the 24-acre parcel), and Hytec, Inc. as PLPs. The RI/FS was initiated in April 2006 and completed in August 2007 (CALIBRE 2007) and Approved by Ecology on September 2007.

3.2 History of Site Investigations

This section briefly summarizes the environmental investigations that have been conducted at the fiberglass debris area. Table 3-1 in Appendix A presents a summary of Site investigations and sampling.

3.2.1 SAIC Investigations for Initial Site Hazard Assessment

In 1990, a field investigation was conducted as part of a preliminary Site hazard assessment (SHA) by Science Applications International Corporation (SAIC) under contract to the Washington State Department of Ecology (SAIC 1990). The first phase

of the SAIC investigation, started in October 1990, was a magnetic survey covering the location of the fiberglass debris landfill. The subsequent SAIC sampling included soil gas and soil samples. The soil gas samples (collected in 1990) indicated several VOCs present, and the soil samples indicated the presence of VOCs at concentrations below MTCA Method B soil cleanup levels for unrestricted land use.

3.2.2 Initial Private Well Sampling

Groundwater samples were collected from the Morgan water supply system in June 2003. The samples were collected by the property owner and analyzed for VOCs using EPA Method 8260B. The water sample collected indicated the presence of VOCs at concentrations below MTCA Method B groundwater cleanup levels and MCLs.

3.2.3 Stemen and Insight Geologic Groundwater Sampling

Two private supply wells were sampled in 2004. The two wells sampled included the Morgan well, in the immediate vicinity of the fiberglass debris landfill, and the Pavlicek well, located approximately 400 feet to the south of the landfill area. Stemen Environmental sampled both wells in March 2004, and Insight Geologic sampled both wells in December 2004 (Insight Geologic 2005). The water samples collected indicated that the concentrations of all analytes (VOCs, SVOCs and metals) were below MTCA Methods A/B groundwater cleanup levels.

No written report accompanied the data from Stemen Environmental and it is unknown whether the samples were collected, stored, and transported in accordance with acceptable sample collection and handling methods.

3.2.4 Initial RI of Soil and Groundwater around the Fiberglass Debris Landfill

The RI was initiated at the Site in April 2006, in accordance with the RI Work Plan (CALIBRE 2006a). The objective of the initial sampling was to determine Site geology/stratigraphy, depth to groundwater, groundwater flow direction, characterization of subsurface soil, and water quality near the water table in order to determine appropriate placement of groundwater monitoring wells near the fiberglass debris landfill.

Direct-push (Geoprobe) sampling methods were used in April 2006 to collect subsurface soil and groundwater samples from nine locations around the fiberglass debris fill area at the Site.

3.2.5 RI Geophysical Survey

The objectives of the geophysical survey were to identify the boundaries of the fiberglass debris landfill and to determine the location and depth of subsurface metal anomalies (e.g., drums or other containers). The geophysical survey and mapping work were conducted in May 2006. The geophysical survey also included several

transects over the Bordeaux dump area.

3.2.6 RI Test Pits for Investigation of Fiberglass Debris Landfill

The test pits/trenching task was completed in June 2006. The objectives of the test pit/trenches and interim removal actions were to confirm the results of the geophysical testing, verify the fill boundaries and depths, identify and remove specific metal objects, and collect samples of the fill material below the drums for laboratory analysis. The work included excavation of 14 test pits to verify the boundaries of the filled areas (based on maps derived from the geophysical testing), excavation/removal of 17 shallow metallic objects and buried drums, and sampling and analysis of soil/fill material. The visual observations from the test pits were consistent with the fill boundaries identified in the geophysical testing. In general, the soil samples collected (from the fill) indicated that all COCs (VOCs, SVOCs and metals) were present at levels below the MTCA Method B soil cleanup levels (based on residential contact) and below the values unrestricted land use in Table 749-2 of the MTCA, but did exceeded the calculated soil-to-groundwater soil cleanup levels based on equation 747-1 of MTCA. Table 5-1 in Appendix A shows the maximum concentration of each COC and their comparison with the applicable soil cleanup levels.

3.2.7 RI Monitoring Wells and Borings

Four groundwater monitoring wells and two deep borings (advanced to bedrock) were installed in August 2006. The objectives of this task included installation of monitoring wells for determining groundwater quality, determining groundwater elevations and gradients, and acquiring additional data for geologic characterization. Monitoring wells were constructed to the base of the first water bearing zone just above the perching geologic layer (a clay layer present above the bedrock). After well construction was complete, all monitoring wells and boring locations were surveyed.

3.2.8 RI Sampling of Monitoring Wells and Private Wells

Groundwater sampling of monitoring wells and two private wells was conducted to evaluate water quality in the immediate area of the fiberglass debris landfill and in private wells located near the fill area. Groundwater sampling of the four monitoring wells was conducted on September 1, 2006. On September 14, 2006, the two private water-supply wells (Morgan and Pavlicek wells) were sampled. A second round of monitoring well sampling was conducted during December 2006. The water samples collected indicated that the concentrations of all VOCs, SVOCs and metals present were below the MTCA Method B groundwater cleanup levels.

4.0 Summary of Surface Water and Groundwater Conditions

This section provides a brief overview of the surface and groundwater conditions at the Site. The regional hydrogeology of the area has been studied by the USGS (USGS 1999, Washington Dept of Conservation/USGS 1961, 1966). A detailed discussion of the local hydrogeology is presented in the RI/FS (CALIBRE 2007).

4.1 Surface Water

The nearest surface water bodies to the Site are Mima Creek and the Black River, which are located approximately 2,000 feet to the southwest and 6,000 feet to the east of the property, respectively. One ephemeral creek (unnamed) flows past the property near the northeast corner. A wetland area has been observed along the west side of the Morgan property. At times of heavy precipitation, an ephemeral creek has been observed flowing from this wetland area along the bottom of the bluff on the west side of the property. The gravel pit (adjacent to Bordeaux Road) has also been observed to contain water after extended periods of heavy precipitation. Figures 4-1 in Appendix A shows the locations of Mima Creek, the unnamed intermittent stream and a drainage channel. There are no impacts to the surface water from the Site contamination.

4.2 Groundwater

This section presents a brief overview of the Site geology and hydrogeology. A more detailed discussion is presented in the final RI/FS report submitted to Ecology on August 9, 2007.

4.2.1 General Overview of Geology

Glacial advance outwash gravel **(Qva)** covers the surface of the entire 44-acre property investigated during the RI/FS, and appears to be contiguous with thick gravel deposits found on the Mima Prairie to the east. Typically, the advance outwash deposits **(Qva)** are underlain by unconsolidated and undifferentiated deposits of quaternary and tertiary ages **(TQu)**. These deposits are of low permeability and generally contain layers of clay and dense silt. Generally beneath **TQu** is bedrock **(Tb)**. In some locations, the **TQu** transitions to interbedded layers of dense silt or silty-sand near the contact with bedrock. North of the property boundary, the basalt is covered only with a 15-foot outwash gravel layer (Vashon advance or recessional gravel). The thickness of the advance outwash gravel sequence increases down slope to the east and south towards the Mima Prairie.

4.2.2 Site Hydrogeology

The conceptual model presented in the RI/FS Report indicates that groundwater flows

predominantly on the surface of a perching layer to the southeast (SE) at a hydraulic gradient of 0.06 feet/feet (of approximately 150 degrees clockwise from north). However, the groundwater flow direction experiences a change from flowing toward the SE during high water levels in April to flowing toward the South-Southeast (SSE) during low water levels in September. This change in the groundwater flow direction is plausible with the seasonal water level changes, but may also be an artifact of the different data sets used in developing the water level elevation contours.

The steep hydraulic gradient (0.06 to 0.10 foot/foot) combined with the apparent high permeability soil is indicative of a thin groundwater zone perched on an underlying and steeply dipping low permeability layer (clay/dense silt above bedrock). The steep groundwater gradient is created by the underlying surface slope of the perching low permeability layer.

The four monitoring wells installed in the area of the fiberglass debris landfill are screened at and above the low permeability layer. On-Site seasonal changes in water levels range from approximately 6 feet in the area of the fiberglass debris landfill to as much as 25 feet in the down-gradient area southeast of the fiberglass debris landfill area.

The two private water-supply wells in the area of the fiberglass debris landfill (Morgan and Spears private wells) are screened in the bedrock. The water-level data indicates a downward vertical gradient from the shallow perched zone to the deeper zones in bedrock. The third water supply well (Pavlicek well), located south of the fiberglass debris landfill, appears to be screened in the glacial outwash gravel.

Table 5-3 in Appendix A shows the summary of data from the private water-supply wells (Morgan and Pavlicek wells) in 2004 and 2006 and their comparison with the MTCA Method B groundwater cleanup levels.

Figure 4-2 in Appendix A shows the groundwater flow direction, existing groundwater-monitoring locations and domestic water supply wells at the Site. Figure 4-3 in Appendix A shows the locations of the public drinking water supply wells within a one-mile radius of the Site.

5.0 Nature and Extent of Contamination

This section discusses the nature and extent of contamination at the Site. The MTCA cleanup levels are described along with the location and estimated volume of impacted media. Section 5.1 discusses the Site cleanup levels and points of compliance. Section 5.2 discusses the contamination at the Site.

5.1 Cleanup Levels and Points of Compliance for the Soil and Groundwater

The soil cleanup level for the Site is selected by considering the lowest of the following values: Methods A or B soil cleanup levels, soil concentration for unrestricted land use Table 749-2 of the MTCA, and the soil concentration protective of groundwater for each chemical of concern.

Table 5-1 in Appendix A show the highest contaminant concentrations measured during soil investigations for the fiberglass debris landfill. These values are compared with the applicable soil cleanup levels.

For soil cleanup levels based on protection of groundwater, the point of compliance is soil throughout the Site. For soil cleanup levels based on human exposure or ecological exposure (i.e., via direct contact or other exposure pathways where contact with the soil is required), the standard point of compliance is all soil throughout the Site to a depth of fifteen feet bgs. This is based on the estimated depth of soil that could be excavated and distributed at the soil surface as a result of Site development activities.

Groundwater at and around the Site is used as a potable water supply. The property is zoned residential and all cleanup levels for protection of human health are based on residential exposure scenarios (typically the highest frequency of exposure and therefore requiring the lowest cleanup levels).

Groundwater cleanup levels are based on the MTCA Method A, or Method B if there is no Method A value for a specific COC. Tables 5-2 in Appendix A show the COCs and their comparison with the applicable groundwater cleanup levels. The points of compliance for groundwater are all the groundwater monitoring wells specified in the compliance monitoring plan as explained in Appendix B.

5.2 Contamination Found at the Site

A summary of the nature and extent of contamination in soil and groundwater at the fiberglass landfill area is presented in the following sections.

5.2.1 Soil Contamination

The COCs identified are cadmium, 1,2-dichloroethane, 1,4-dichlorobenzene, carbon tetrachloride, chlorobenzene, styrene, trichlorofluoromethane, bis(2-chloroethyl)ether, dimethyl phthalate, pentachlorophenol, and cPAHs. Table 5-1 of Appendix A lists these COCs and applicable soil cleanup levels.

The area impacted by soil contamination covers approximately 1/2 acre to a depth

ranging from approximately 1 to 7 feet bgs. The volume of impacted fill/soil is estimated at 3,200 cubic yards. The fiberglass impacted soil area is shown in Figure 5-1 in Appendix A.

5.2.2 Groundwater Quality

Low levels of organic compounds have been detected in some groundwater samples near the fiberglass debris landfill. No COCs were detected at levels exceeding applicable MTCA Methods A and/or B groundwater levels in the groundwater samples collected.

The maximum concentration of COCs measured and their comparison with the applicable Methods A and B are shown in Table 5-2 of Appendix A.

5.3 Summary of Nature and Extent of Contamination

The data collected in the RI indicates that the extent of contamination at the Site is limited to soil/fill materials at the fiberglass debris landfill. The estimated boundaries of the fill area for the fiberglass debris landfill are shown in Figure 5-1 in Appendix A.

The RI included Geoprobe sampling, sampling of groundwater in monitoring wells, and sampling of water supply wells in the area of the fiberglass debris landfill. The Site groundwater monitoring data have been compared to applicable MTCA screening criteria. Based on the existing data (i.e., all data collected in the RI and historical data collected previously), the concentrations of substances detected in groundwater around and beneath the fiberglass debris landfill have not exceeded the applicable MTCA groundwater Methods A or B cleanup levels.

6.0 Summary of Remedial Action Alternatives

This section summarizes the cleanup action alternatives evaluated in the FS to meet the cleanup objectives. The cleanup objectives are to eliminate potential leaching of COCs in the soil into the groundwater, and to eliminate potential exposure to human and ecological receptors from soils containing COCs at concentrations exceeding cleanup levels.

The FS focused on approaches known to be effective with the contaminants, media, and conditions at the Site. A detailed discussion of the evaluation of the selected alternatives is presented in the FS (CALIBRE 2007). The remedial alternatives considered for cleanup of the Site include:

- **Alternative 1 No Action** The No Action Alternative assessed the consequences of leaving the Site in its current state.
- **Alternative 2 Institutional Controls** The Institutional Controls Alternative includes specific measures used to limit or prevent contact with affected soils. Controls include signs, access restrictions (fences), and land use restrictions.
- **Alternative 3 Containment (Capping)** The Containment Alternative for soil includes a physical barrier (soil cap) implemented to restrict direct contact with the soil. Capping involves placing a clean soil cover, asphalt, concrete or geomembrane over the contaminated soil and leaving the contaminated soil in place.
- **Alternative 4 Treatment to Remove or Immobilize the Contaminants** The Treatment Alternative includes specific technologies used to remove contaminants or to stabilize inorganic compounds. This included soil vapor extraction (typically for VOCs), enhanced bioremediation (typically for SVOCs), and stabilization of inorganic compounds. All of these technologies may be applied either in-situ or ex-situ to soils.
- **Alternative 5 Excavation and Off-Site Disposal or Recycling** The Excavation/Disposal Alternative includes excavating soil with contaminant concentrations exceeding specified soil cleanup levels and hauling the soil to an appropriate off-Site facility for disposal.

7.0 Proposed Remedial Action Alternative

The proposed remedial action for the Fiberglass Debris Landfill (the Site) includes the following elements:

Alternative 5 – Excavation and Off-Site Disposal or Recycling

The excavation and off-Site disposal or recycling alternative includes excavation of soils exceeding cleanup levels specified in Table 5-1 of Appendix A. The intent of the action would be to eliminate the potential for dermal contact or ingestion of the affected soil by residents, to eliminate the potential exposure to ecological receptors, and to achieve soil cleanup levels based on protection of groundwater. The excavated material would be sampled and profiled for proper disposal at an appropriate landfill based on the waste designation following the procedures defined in WAC 173-303. Soils with no contaminants and soils in which all contaminants present were at levels below cleanup levels would remain on Site and would be used as fill material in areas where excavations were conducted. Backfill soil (sampled to verify that it is not contaminated) would have to be imported (or moved from another non-impacted area of the Site) to fill the excavated areas.

The Site groundwater monitoring data from the fiberglass debris landfill area have been compared to applicable MTCA criteria. Based on existing data, the concentrations of substances detected in groundwater have not exceeded the MTCA groundwater Methods A and/or B cleanup levels at a standard point of compliance. Two new bedrock wells will be installed in the area expected to be down-gradient of the fiberglass debris landfill (near existing wells HLMW02A and HLMW03A). As a part of long term monitoring of groundwater, the two new wells (in bedrock), along with other selected Site monitoring wells will be monitored quarterly for one year. The groundwater monitoring will begin after the remedial action is implemented to verify that groundwater does not contain chemicals of concern exceeding the applicable MTCA cleanup levels.

The volume of soil to be excavated from the fiberglass area is estimated to be approximately 3,200 cubic yards. The feasibility study added a 25% contingency factor to estimate that the approximate total volume of contaminated soil to be excavated will be 4,000 cubic yards. These values are only estimates. The actual soil volume will be determined with excavation and confirmational monitoring.

8.0 Selection of Cleanup Action

This section provides an evaluation of the proposed cleanup actions following the MTCA selection criteria identified in WAC 173-340-360. The criteria used for evaluating and ranking the alternatives (WAC 173-340-360(2)(a)), include threshold factors that all cleanup actions must meet and additional balancing criteria/other factors used to compare cleanup alternatives which meet all threshold criteria. The MTCA criteria include the following threshold factors:

1) Protection of human health and the environment
2) Compliance with cleanup standards
3) Compliance with applicable state and federal laws
4) Provision for compliance monitoring

The other requirements for the selected alternative (contained in WAC 173-340-360) consist of:

5) Use of permanent solutions to the maximum extent practicable
6) Attaining cleanup in a reasonable time frame
7) Considering public concerns

8.1 Threshold Requirements

8.1.1 Protection of Human Health and the Environment

The proposed cleanup action for the fiberglass landfill Site meets the MTCA requirement for protection of human health and the environment by removing from the Site all soil that contains COCs at levels exceeding applicable MTCA cleanup levels (discussed previously in section 5).

8.1.2 Compliance with Cleanup Standards

The proposed cleanup action for the fiberglass landfill Site meets the MTCA cleanup standards (soil cleanup levels at the points of compliance). The RI has investigated the Site and defined specific areas where soil/fill exceeds MTCA cleanup levels based on residential land use and calculated soil-to-groundwater cleanup levels. The cleanup action has been developed to address those areas and comply with cleanup standards.

8.1.3 Compliance with Applicable State and Federal Laws

The proposed cleanup action for the fiberglass landfill Site meets the requirement to comply with applicable state and federal laws. The Site RI/FS identified State and Federal requirements that are potentially applicable or relevant and appropriate requirements (ARARs) for remedial actions at the Site. A variety of state and federal laws are listed in the RI/FS as ARARs. The MTCA cleanup standards (established for protection of human health and the environment) are the foremost ARARs related to selection of the Site cleanup action. Other ARARs that may apply to this Site are:

a. Clean Air Act
b. Clean Water Act
c. Hazardous Material Transportation Act
d. Resource Conservation and Recovery Act
e. Safe Drinking Water Act
f. State Groundwater Quality Standards WAC 246-290.
g. State Environmental Policy Act
h. Minimum Standards for Construction and Maintenance of Water Wells WAC 173-160
i. Grading requirements from Thurston County

8.1.4 Compliance Monitoring

The proposed cleanup action for the fiberglass landfill Site includes compliance monitoring to verify that actions taken meet the MTCA requirements. The specific details of the compliance monitoring for soil and groundwater are given in Appendix B of this CAP. This excavation and off-Site disposal alternative includes protection monitoring during soil excavation to confirm human health and the environment are adequately protected. Performance monitoring is required during excavation to confirm soils remaining meet cleanup levels at the appropriate points of compliance.

In addition, groundwater will be monitored for four quarters following excavation to get data on the condition of groundwater after removal of the contaminated soil.

8.2 Other Requirements

The other requirements contained in WAC 173-340-360(3) consist of the use of permanent solutions to the maximum extent practicable, attaining cleanup in a reasonable time frame, and addressing public concerns.

8.2.1 Use of Permanent Solutions to the Maximum Extent Practicable

The proposed cleanup action for the fiberglass landfill Site will result in permanent reduction in the toxicity, mobility, and volume of hazardous substances at the Site (i.e., the contaminated soil will be excavated and transferred to an appropriate disposal facility). This alternative meets the soil cleanup levels at the point of compliance under MTCA, because it implements a permanent cleanup action for the Site.

8.2.2 Attaining Cleanup in a Reasonable Time

The proposed cleanup action for the fiberglass landfill Site will attain cleanup standards in a reasonable time period. Implementation of the alternative will be most successful if the excavation/handling of soil are completed when conditions are dry. Therefore, the alternative may be limited to the summer season, but still could be accomplished in a reasonable time.

8.2.3 Public Concerns

This draft cleanup action plan has been prepared to solicit public input on the proposed cleanup action. Ecology will address public concerns after receipt of public comments on the proposed cleanup action.

9.0 References

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APPENDIX A

LIST OF TABLES

LIST OF FIGURES

Table 5-1: Comparison of highest soil concentrations of chemicals of concern measured in the fiberglass debris landfill area with the MTCA Method B soil cleanup levels for unrestricted land use and calculated soil-to-groundwater concentrations, and Ecological Criteria in Tables 749-2 of the MTCA.

Chemicals Of Concern	Highest Concentration Measured, µg/kg	MTCA Methods A or B Soil Cleanup level µg/kg[(1)]	MTCA Method B Soil Cleanup level (based on soil leaching to groundwater), µg/kg[(2)]	Ecological Criteria for unrestricted land use, µg/kg[(3)]
Cadmium	3,000	2,000	***690*** [(5)]	25,000
1,2-Dichloroethane	130	11,000	***24***	-
1,4-Dichlorobenzene	1,600	42,000	***1,237***	-
Carbon tetrachloride	700	7,700	***46***	-
Chlorobenzene	2,200	1,600,000	***874***	-
Styrene	330,000	33,000	***2,234***	-
Trichlorofluoromethane	1,800,000	24,000,000	***36,854***	-
Bis(2-chloroethyl)ether	270	910	***0.20***	-
Carcinogenic Polycyclic Aromatic Hydrocarbon (cPAHs)[(4)], (TEQ)[(4)]	240	**140**	-	30,000
Dimethyl phthalate	340,000	80,000,000	***87,040***	-
Pentachlorophenol	2,600	8,300	***16***	11,000

[(1)] MTCA Methods A or B Soil Cleanup Levels for unrestricted land use.
[(2)] Soil-to-groundwater values calculated by equation 747-1 in the MTCA.
[(3)] Table 749-2 of the MTCA, Criteria for unrestricted land use.
[(4)]Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAH) include Benzo(a)Pyrene, Benzo(a) Anthracene, Benzo(b)Fluoranthene, Benzo(k)Fluoranthene, Chrysene, Dibenzo(a,h) Anthracene, and Indeno(1,2,3-cd)Pyrene. Total Toxicity Equivalent (TEQ) was calculated by multiplying each cPAH compound concentration by the Toxic Equivalency Factor (TEF) for that compound. The TEFs used for each cPAHs are the following: Benzo(a)pyrene =1, Benzo(a) Anthracene = 0.1, Benzo(b)Fluoranthene = 0.1, Benzo(k)Fluoranthene = 0.1, Chrysene = 0.01, Dibenzo(a,h) Anthracene = 0.1, and Indeno(1,2,3-cd)Pyrene = 0.1.
[(5)] The final Cadmium soil cleanup level will be determined before the start of remedial action by on of the MTCA methods described in WAC 173-340-747(3):
WAC 173-340-747 (3) (b), Variable parameters three-phase partitioning model;
WAC 173-340-747 (3) (d), Leaching tests;
WAC 173-340-747(3) (e) , Alternative fate and transport models; or
WAC 173-340-747(3) (f), Empirical demonstration.

Values presented in **Bold font** are the applicable soil cleanup levels at the Point of Compliance.

Table 5-2: Comparison of highest groundwater concentrations of chemicals of concern measured in groundwater (multiple Geoprobe and monitoring wells) at and/or near the fiberglass debris landfill with the MTCA Methods A and B groundwater cleanup levels.

Chemicals Of Concern	Highest Measured Groundwater Concentration, µg/L	MTCA Methods A or B Groundwater Cleanup level, µg/L
Cadmium	4.3	5[(1)]
Chloroform	0.24	3.40[(2)]
cis-1,2-Dichloroethene	0.35	80[(2)]
Trichloroethene	0.22	5[(1)]
Phenol	0.15	4,800[(2)]
Di-n-butyl phthalate	1.1	1,600[(2)]
Trichlorofluoromethane	56	2,400[(2)]
Naphthalene	0.036	160[(1)]
Bis(2-ethylhexyl) phthalate	2.1	6[(2)]

[(1)] MTCA Method A Groundwater Cleanup Levels.
[(2)] MTCA Method B Groundwater Cleanup Levels.

Table 5-3: Chemicals found in Morgan and Pavlicek drinking water supply wells near the fiberglass debris landfill during 2004 and 2006 sampling events.

Chemicals Of Concern	Morgan Drinking Water Supply Well, µg/L	Pavlicek Drinking Water Supply Well, µg/L	MTCA Method B Groundwater Cleanup Level, µg/L
2-methyl naphthalene	0.213	-	32
Phenol	1.3	1.6	4,800
Di-n-butyl phthalate	0.3-0.34	1.7	1,600
Trichlorofluoromethane	0.32-0.34	0.69-2.1	2,400
Naphthalene	0.072-1.09	-	160
Bis(2-ethylhexyl) phthalate	0.92	0.93	6

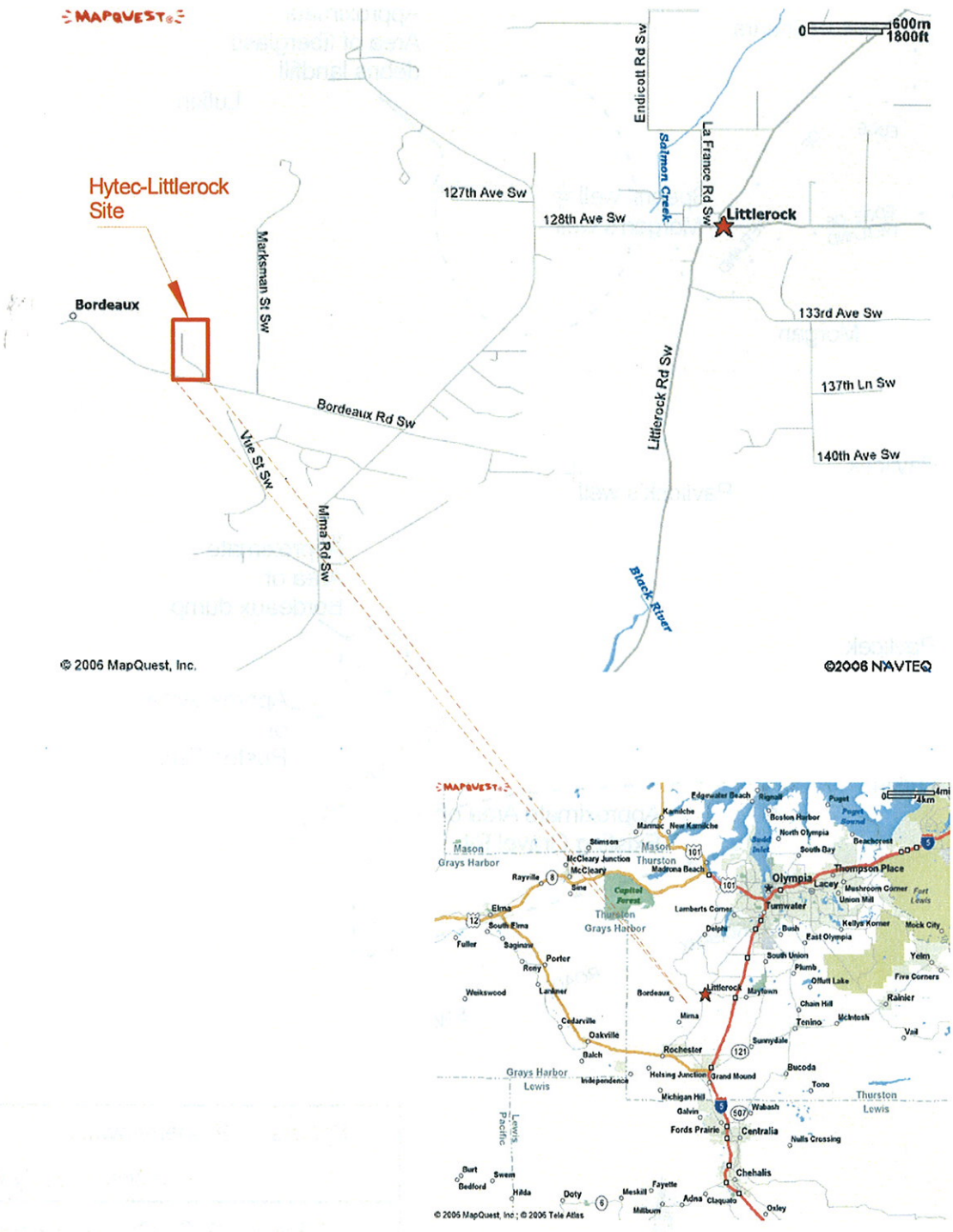


Figure 2-1. Site Vicinity and Location, Hytec-Littlerock Site

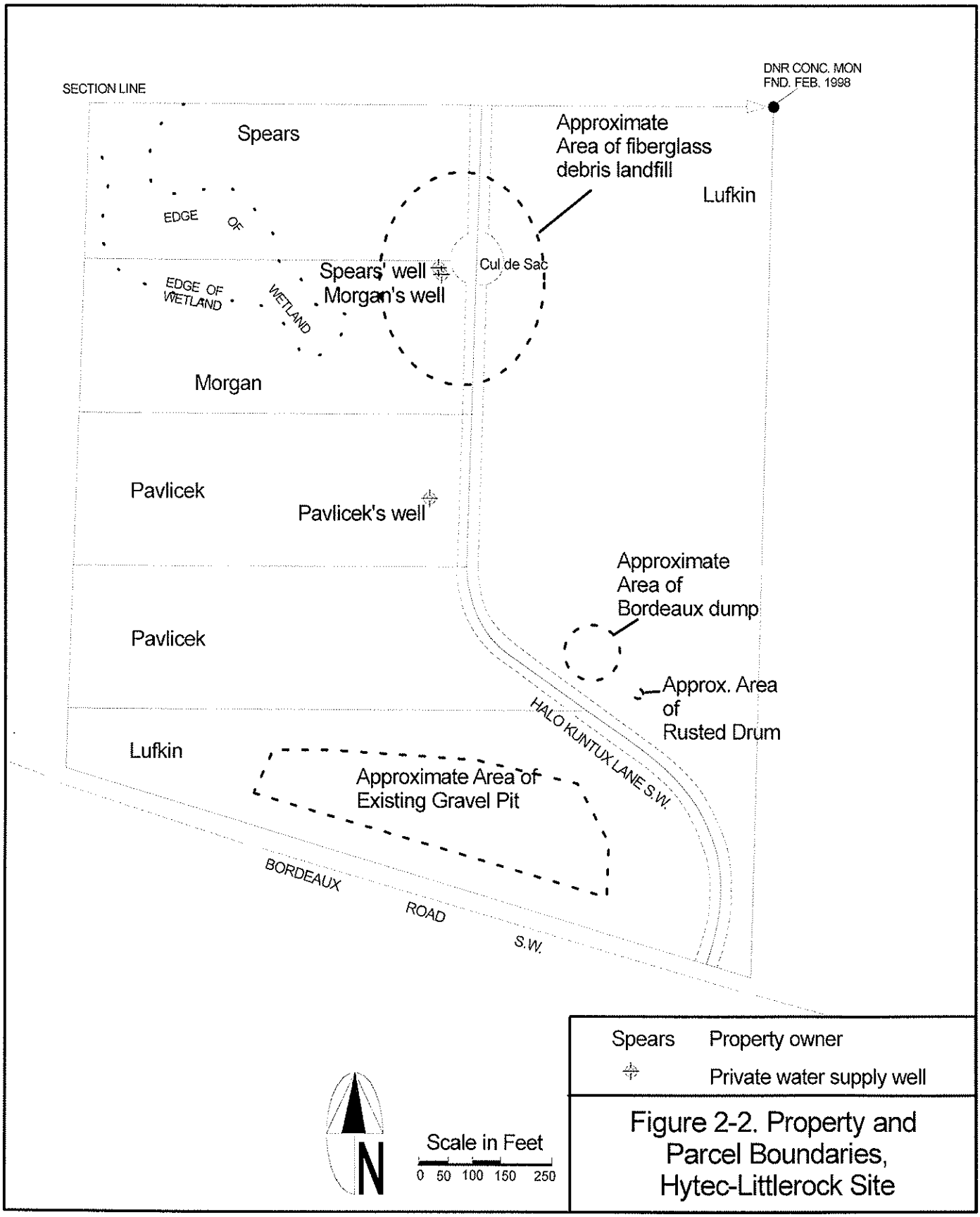


Figure 2-2. Property and Parcel Boundaries, Hytec-Littlerock Site

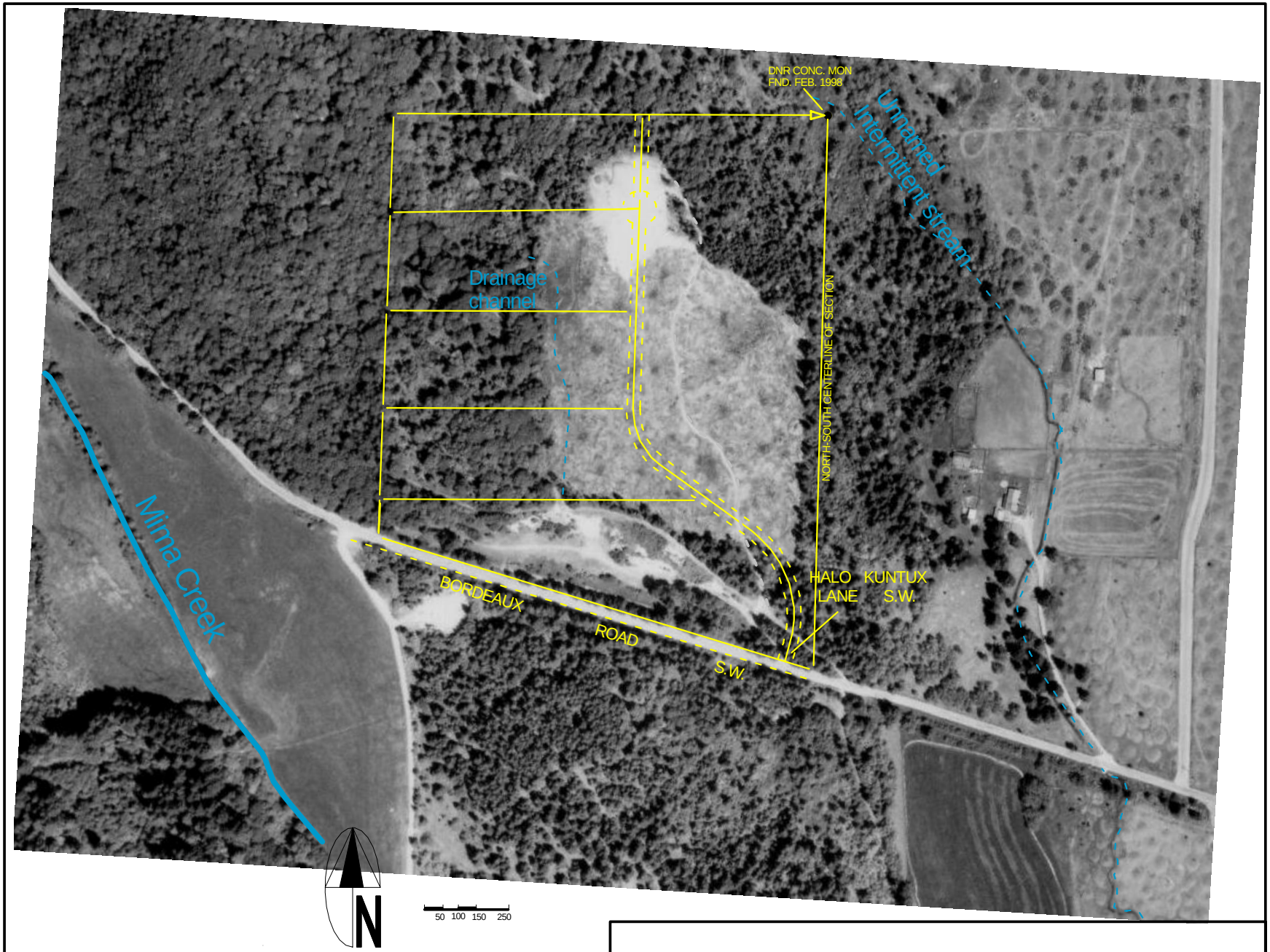


Figure 4-1 Mima Creek, unnamed intermittent stream, and drainage channel

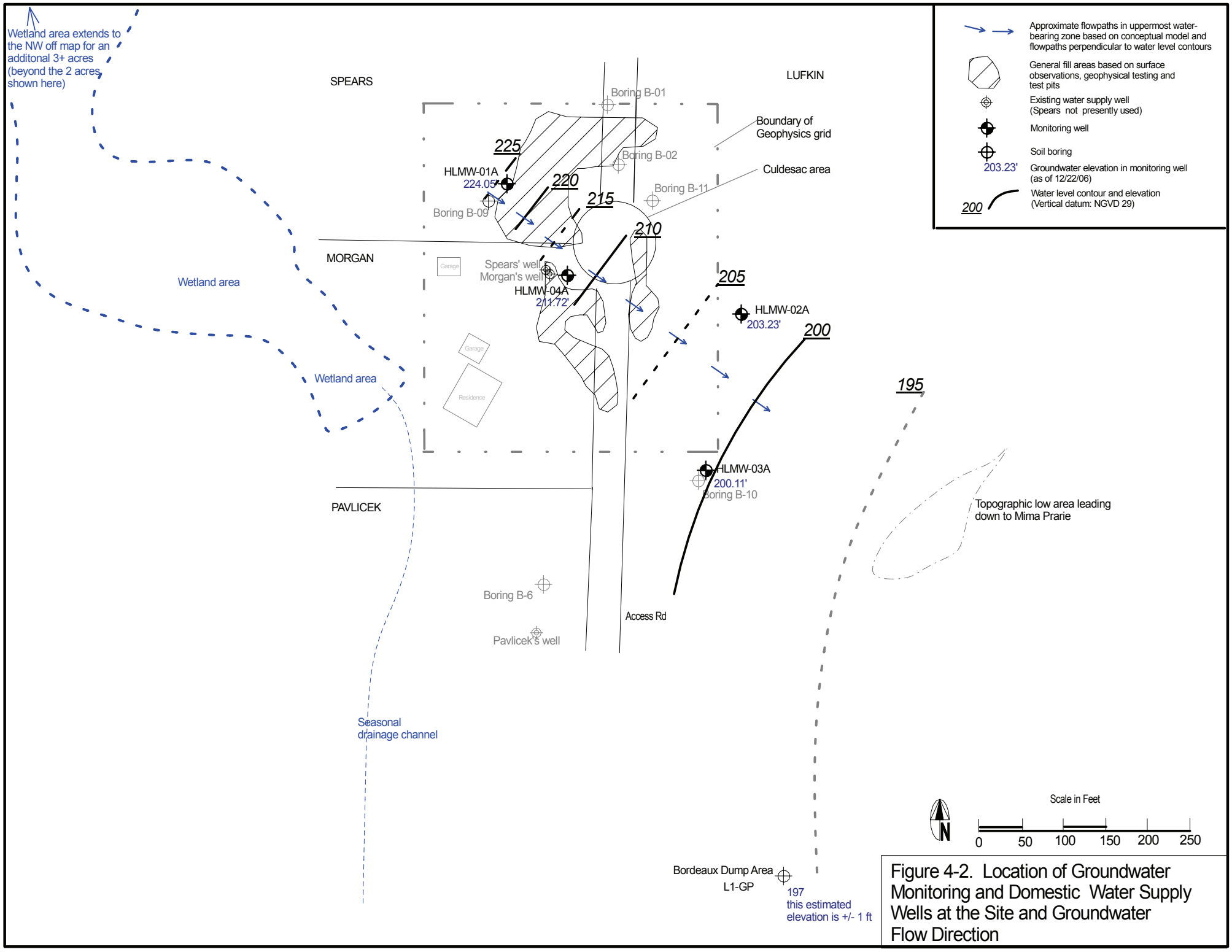
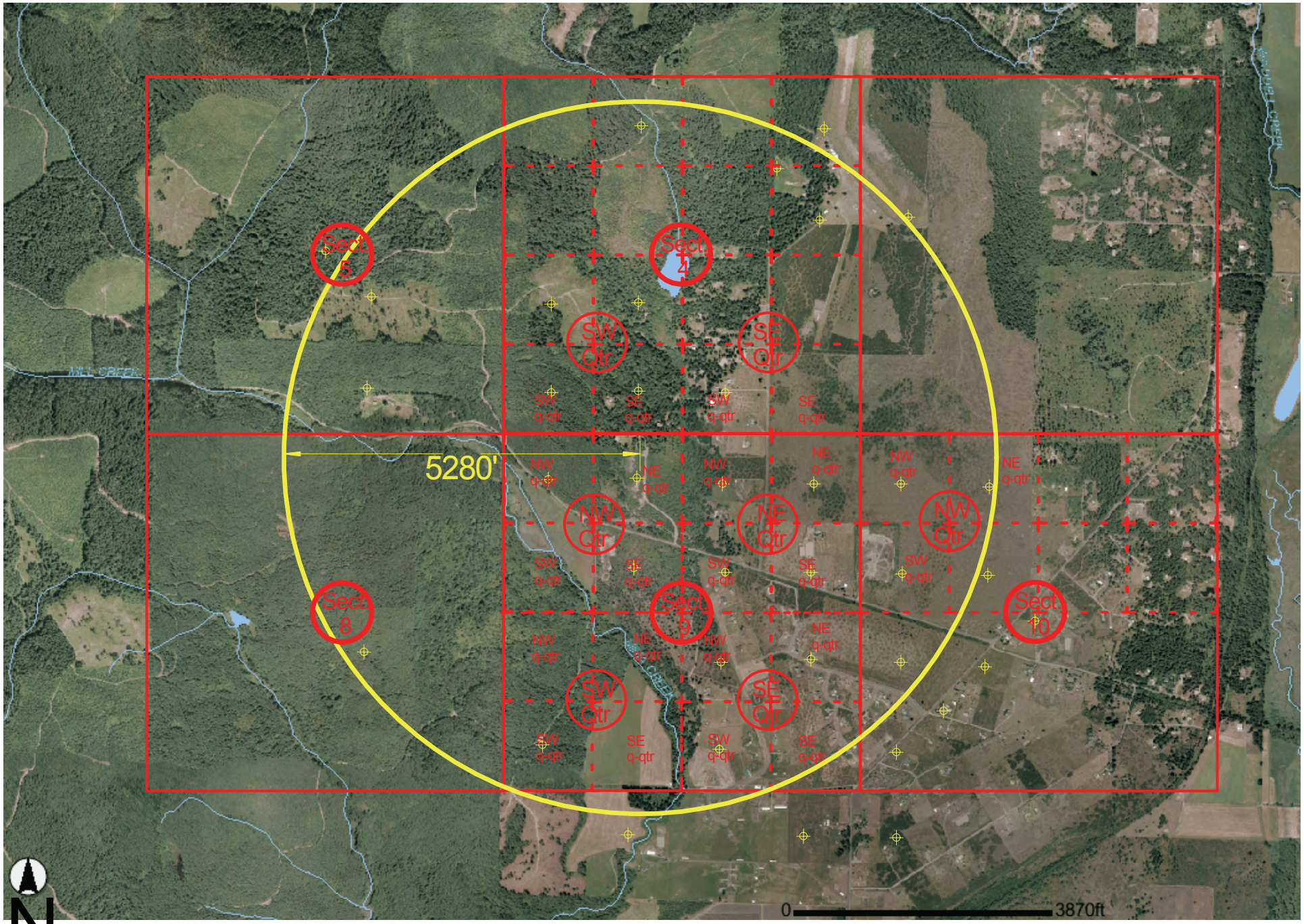


Figure 4-2. Location of Groundwater Monitoring and Domestic Water Supply Wells at the Site and Groundwater Flow Direction



Wells located within the 1/4-1/4 section, each symbol represents one or more wells in the 1/4-1/4

Figure 4-3. Location of Domestic Water Supply Wells within 1-mile Radius of Hytec-Littlerock Site
All data from Ecology well log database and Thurston County GIS/Assessor Data

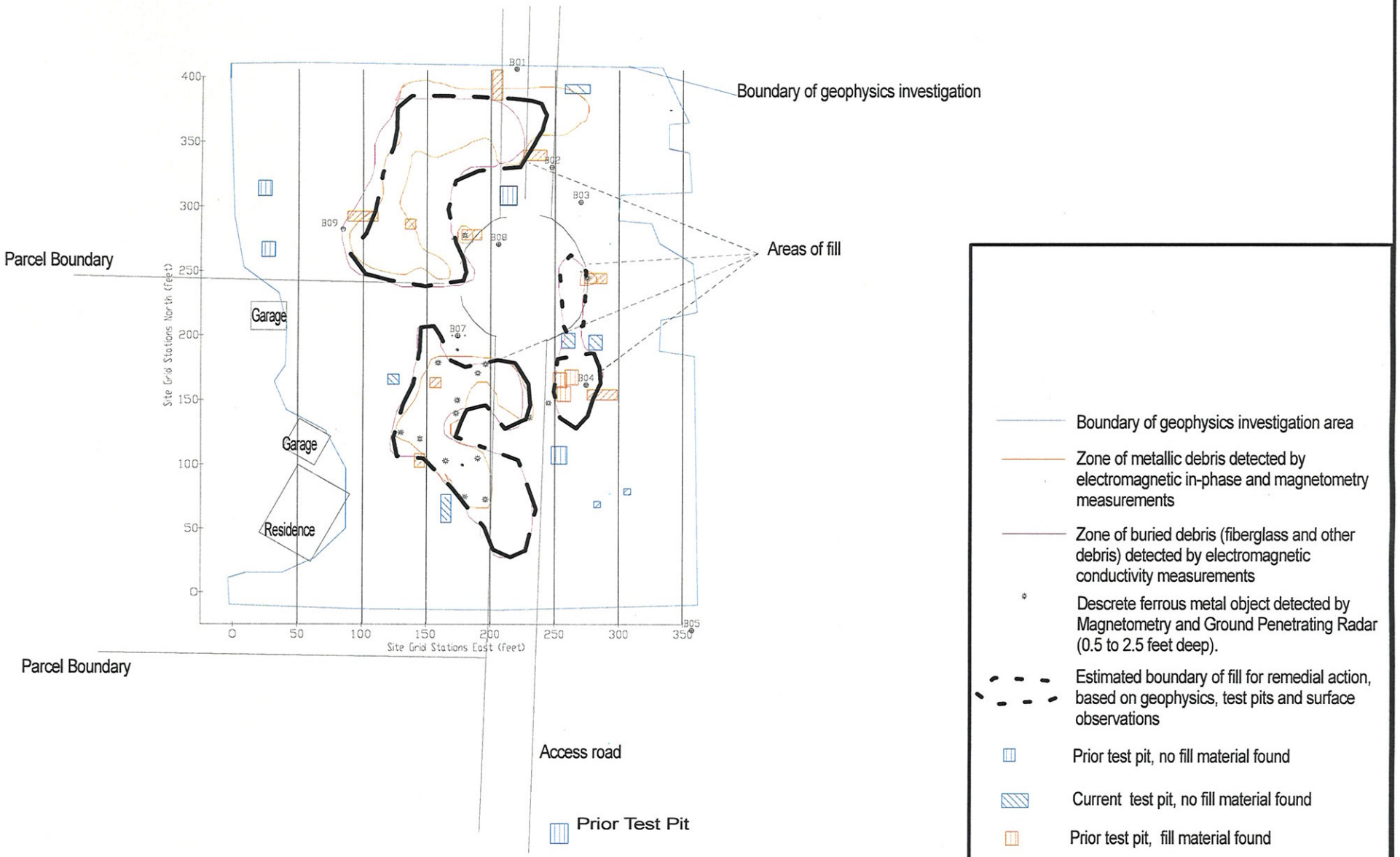


Figure 5-1. Estimated Boundaries of Fill, Fiberglass Debris Landfill Hytec-Littlerock Site

Appendix B

Task 1 – Draft Soil Compliance Monitoring Plan

Submit a Draft Soil Compliance Monitoring Plan in accordance with the requirements of WAC 173-340-740 (7) for Ecology's review and approval.

In addition, the Draft Soil Compliance Monitoring Plan should have procedures outlined for handling of the contaminated soil from excavation. The handling includes on-Site storage and sorting/transportation and disposal. Provisions should be included that clearly describe excavated soil storage areas, procedures to control stormwater run-on and run-off to and from the soil stock pile, procedures for characterization and disposal of the contaminated soil, and procedures for testing of back fill material to ensure that the back fill soil is not contaminated. The Draft Soil Compliance Monitoring Plan will specifically describe procedures for complying with the requirements of the Dangerous Waste Regulations, Chapter 173-303 WAC during soil excavation/storage/transportation and disposal.

The Soil Compliance Monitoring Plan must include all relevant elements required in WAC 173-340-400 (4).

Schedule: Within 30 days of the effective date of the Consent Decree governing cleanup at this site.

Task 2 – Final Soil Compliance Monitoring Plan

Submit a final Soil Compliance Monitoring Plan for Ecology's approval. The final plan will incorporate Ecology's comments on the draft plan.

Schedule: Within 20 days after Ecology provides comments on the draft plan.

Task 3 – Draft Groundwater Compliance Monitoring Plan

Submit a Draft Groundwater Compliance Monitoring Plan in accordance with the requirements of WAC 173-340-720 (9) for Ecology's review and approval.

The groundwater monitoring wells that must be included in the groundwater compliance monitoring plan are MW-01, MW-02, MW-03, MW-04, Morgan's well, Spears' well, Pavlicek's well, and two new deep wells that will be installed in the bed rock.

If during the soil excavation any of the groundwater monitoring wells are destroyed or damaged, PLPs will inform Ecology and propose a new groundwater monitoring well (s) location (s) to Ecology. The final location (s) of the proposed well (s) should be based on an agreement with Ecology.

Schedule: Within 30 days after the effective date of the Consent Decree governing cleanup at this site.

Task 4 – Final Groundwater Compliance Monitoring Plan

Submit a final Groundwater Compliance Monitoring Plan for Ecology's approval. The final plan will incorporate Ecology's comments on the draft plan.

Schedule: Within 30 days after Ecology provides comments on the draft plan.

Task 5 - Health and Safety Plan

All work, including sampling and other field data gathering activities, shall be performed under an appropriate health and safety plan for the protection of workers and the surrounding community in accordance with Ecology and Washington Industrial Safety and Health Act (WISHA) requirements. The Health and Safety Plan shall be submitted to Ecology prior to commencing any action on the Site. Mr. and Ms. Lufkin and Hytec Inc. shall be solely responsible for ensuring that the plan satisfies applicable laws and regulations.

Schedule: Within 20 days after the effective date of the Consent Decree governing cleanup at this site.

Task 6 - Draft Remedial Action Report

The Final Remedial Action Report shall address the following:

1. Exact volume of contaminated soil excavated and disposed.
2. Description of and results of tests used to characterize the contaminated soil.
3. Where and how the contaminated soil was disposed of.
4. All the hazardous waste manifests and receipts for disposal and recycling of the excavated soil.
5. Volume and source(s) of the fill material used and tests that were used to ensure the fill material is not contaminated.
6. A map (s) showing the exact locations of the excavations.
7. A professional engineer stamp should accompany this report with a statement that, "the remedial action was executed in accordance with the final Cleanup Action Plan."
8. A statement that all the monitoring wells at the Site will be decommissioned in accordance with WAC 173-160. Decommissioning of the monitoring wells will take place upon completion of the remedial action in accordance with the CAP and after a written letter from Ecology stating all the terms and conditions in the CAP have been met.

Schedule: Within 90 days after the conclusion of the remedial action at the Site.

Task 7 - Final Remedial Action Report

Schedule: Within 60 days after Ecology provides comments on the draft remedial action report.