

May 1999

**SHANNON & WILSON, INC.**

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

*At Shannon & Wilson, our mission is to be a progressive, well-managed professional consulting firm in the fields of engineering and applied earth sciences. Our goal is to perform our services with the highest degree of professionalism with due consideration to the best interests of the public, our clients, and our employees.*



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**PHASE II ENVIRONMENTAL SITE ASSESSMENT  
BRUTSCHE PROPERTY  
KENT, WASHINGTON**

**1.0 INTRODUCTION**

**1.1 Authorization**

Shannon & Wilson Inc., has completed a Phase II Environmental Site Assessment (ESA) for the Brutsche property located at 221 and 223 Smith Street in Kent, Washington (Figure 1). The work was accomplished in accordance with the scope outlined in our Phase II ESA proposal dated March 31, 1999. The work was authorized by Mr. Brent McFall of the City of Kent (City) on April 1, 1999.

**1.2 Objectives**

The objective of this investigation was to determine if the recognized environmental conditions identified in the Phase I ESA for the property have adversely impacted the site, in anticipation of property purchase. The scope of work for this Phase II ESA included the following tasks:

- ▶ A geophysical survey to attempt to locate potential underground storage tanks (USTs) or other underground features
- ▶ Soil sampling and chemical analysis
- ▶ Groundwater sampling and chemical analysis
- ▶ Preparation of this report

This report is organized in eight sections. Sections 1.0, 2.0, and 3.0 describe the project objectives, background, and the geologic and hydrogeologic setting of the site, respectively. Section 4.0 presents the field investigation findings; and Section 5.0 presents our conclusions and recommendations. Sections 6.0 and 7.0 present our closure section and the reference list, respectively. Appendix A contains probe logs for the property, and Appendix B contains a summary of previous environmental reports on the property. Appendix C contains a summary of field methodology used, and Appendix D contains the geophysical report for the property. Appendix E contains the analytical laboratory report and Appendix F contains an information

sheet that Shannon & Wilson has developed to assist you and others in understanding the uses and limitations of this report.

## 2.0 BACKGROUND

For the purpose of this report, the Brutsche property is discussed by its four tax parcels, arbitrarily named Parcels A through D for this Phase II ESA (Figure 2). This report focuses on Parcels B, C, and D, the portion of the property the City is anticipating purchasing. We understand that Parcel A will likely be purchased by Sound Transit as part of the proposed Kent Commuter Rail Station.

### 2.1 Site Description

The subject property is bound by vacated Temperance Street on the north, Parcel A on the east, a parking area on the south, and 4<sup>th</sup> Avenue N on the west (Figure 2). Parcel B is trapezoidal-shaped and its southern border is the former railroad right-of-way that comprises Parcel C. Parcel C is curved and runs the entire length of Parcel B. Parcel D is the westernmost parcel of the subject property; it is rectangular in shape.

Parcels B, C, and D are currently undeveloped, and have grass, dirt, or gravel surfacing. Much of the property is covered with blackberries and used as storage for vehicles and debris. Two large areas of shallow standing water, with an apparent petroleum sheen, were observed during the Phase I ESA; they were absent during sampling activities.

### 2.2 Historical Summary

In 1929, Parcels B and C were vacant and undeveloped except for a railroad spur line running through Parcel C. Parcels B and C remained vacant except for the railroad spur line through approximately 1990, when the railroad spur line was no longer present. In the 1990 photo, large amounts of vehicle and debris storage were evident, and paved parking and storage were observed on the southeast portion of Parcels B and C. A large vehicle and debris storage area (with significant surface staining or standing water) was also observed in the 1990 photo on the northeast corner of Parcel B, extending north onto the Borden Chemical property; the west half of Parcels B and C appeared to be covered with grass and various soil piles. A 1995 aerial photo shows that the storage area is smaller than in 1990 and that more soil piles were evident.

The south half of Parcel B and the east half of Parcel C were the subject of an environmental investigation (see Section 2.3 and Appendix B). In 1988, this area was reportedly used to store vehicles and "an assortment of junk." Twenty-two 55-gallon drums with unknown contents were located in this area (Earth Consultants, 1988). At the time of this Phase II investigation, the east half of Parcel B was covered with blackberries and an area of bare dirt was observed. (The area of bare dirt was a large area of surface water at the time of the Phase I ESA [Winter 1999].) Varying amounts of debris, concrete rubble, and equipment were stored on the remaining portion of the parcels.

Sanborn maps and aerial photographs show that Parcel D was vacant in 1929 and remained vacant except for a railroad spur line until approximately 1985. The 1990 aerial photograph shows Parcel D as mostly bare dirt with a large area of stained soil or standing water located in the center of the parcel. At the time of this investigation, it was occupied by vehicles and debris that were moved there within the past one to two years. Parcel D was primarily vacant prior to that time.

### **2.3 Previous Environmental Studies**

For the Phase I ESA, Shannon & Wilson reviewed several existing reports regarding environmental work previously conducted on the Brutsche property. Mr. Pat Brutsche, the property owner, provided the reports which were prepared between 1988 and 1990. In brief, two areas of surface soil contamination were present on the east portion of Parcels B and C. Contamination appeared to have resulted from drum storage. Subsequent reports indicate that the drums and impacted soils were removed. These reports are further discussed in Appendix B.

### **2.4 Phase I ESA**

A Phase I ESA was performed on the property by Shannon & Wilson in March 1999, for Sound Transit. Environmental concerns identified included:

- ▶ Historic railroad spur; potential impacts to soil and groundwater if spills occurred, or if railroad tracks and ties remain buried on site.
- ▶ Vehicle and equipment storage; potential for hazardous materials to have leaked from stored equipment and to have been released to the soils on site.
- ▶ Stormwater pond may be contaminated from Parcel A runoff; potential for sediment contamination.

- ▶ Fill material, debris, and equipment present in Parcel B; potential for underlying soils to be impacted.
- ▶ Oil drum observed on southeast side of Parcel C; it is not known if material in this drum has leaked to the underlying soils.
- ▶ Off- to on-site contamination; potential for contamination from known and suspected contaminated sites. Sites include the King County Library and a drum storage area (located southeast across Smith Street), a former, possible fuel transfer business (located south of Parcel C), and the JSWJ property (east of Parcel A).

### 3.0 GEOLOGY AND HYDROGEOLOGY

#### 3.1 Regional and Site Geologic Conditions

Kent lies within the Puget Sound Lowland, a structural and topographic low filled with interbedded glacial and nonglacial deposits. The area has been glaciated at least six times in the past two million years. The current topography is largely a result of the last glacial advance, which occurred about 12,000 to 15,000 years ago, followed by recent modification by stream erosion and deposition. The older deposits that are overridden by glaciers are generally dense or hard, whereas post-glacial deposits are generally loose to medium dense.

The property lies within the 2-mile-wide Duwamish Valley which developed initially as a deep, wide glacial trough and has since been infilled by post-glacial alluvial deposits. This flat valley is locally underlain by approximately 400 feet of alluvial and lacustrine deposits (Luzier, 1969; and Mullineaux, 1965). These deposits are underlain by glacially overridden deposits, which in turn are underlain by bedrock at a depth of approximately 1,000 feet (Mullineaux, 1965; and Buchanan-Banks and Collins, 1994). The upper 200 feet of the alluvium were largely deposited by the White and Green Rivers before the southward diversion of the White River. They consist of interbedded sand and gravel overlain by finer-grained, discontinuous deposits of silty sand, silt, clay, and peat. This alluvium has medium to high permeability. Widespread or discontinuous artificial fill overlie the alluvium throughout much of the proposed Kent Station and surrounding area.

Soils encountered during site explorations generally consisted of fill overlying fine to medium sand with varying amounts of silt. Fill material consisting of varying amounts of sand, gravel, and debris, ranges in thickness from several inches to about 3.5 feet. The materials encountered in the probes are described in the probe logs, which are included in Appendix A.

### 3.2 Groundwater Conditions

The property is located at approximately 35 feet above mean sea level (MSL) on the alluvial floodplain of the Duwamish Valley. The shallow water table in the floodplain deposits has a very low gradient, with groundwater flow generally to the west, toward the Green River. Groundwater was encountered between about 2 and 3.5 feet below ground surface (bgs) during this investigation. The groundwater level is expected to fluctuate seasonally, and is likely higher following the wet winter and spring seasons. Variability in subsurface lithology due to former meandering of the Green and White Rivers, subsurface utilities, ditches, fill, and buried structures can all impact the local, shallow groundwater flow direction. At the time the wells were installed on site by Earth Consultants (1988), groundwater flow was inferred to be to the northwest. Groundwater elevations obtained from monitoring wells located at the Kent Regional Library site (Rittenhouse-Zeman & Associates, Inc. [RZA], 1990), adjacent to the south of the subject property, also indicate that groundwater flow in the vicinity of the subject property is to the northwest.

## 4.0 FIELD INVESTIGATION

The field investigation included a geophysical survey and limited soil and groundwater sampling. Sampling locations were selected for field investigation (geophysical survey, soil, and/or water sampling) based on surface features, accessibility, and data compiled for the Phase I ESA. The Phase I ESA data included historical information (former use, former occupants), interviews, and a site reconnaissance. Field methods utilized, including sample collection, field screening, selected analyses, and documentation procedures, are presented in Appendix C. Sample collection and documentation were completed in accordance with Shannon & Wilson's standard operating procedures.

The scope of work was intended to address only those environmental concerns with the greatest potential to result in widespread contamination. The sampling effort was limited in extent and served as a screening effort only. It was not intended to absolutely define the lateral extent of soil and/or groundwater contamination.

### 4.1 Geophysical Survey

A geophysical survey was performed in accessible portions of the property to evaluate whether any former or abandoned tanks are present. Areas beneath stored vehicles or soil piles, or

covered with blackberry thickets were not investigated. No evidence of USTs or buried objects of concern was found. The geophysical report is contained in Appendix D.

#### 4.2 Soil and Groundwater Sampling

Seven probes were advanced on the Brutsche property to address the concerns summarized in Section 2.4. Soil and groundwater sampling locations are shown on Figure 2.

Six of the probes (WAC-F01 through WAC-F06) were advanced on Parcels B, C, and D. One soil sample (from water table depth) and one groundwater sample were collected from these probes. All of the samples were submitted for petroleum analysis by Methods Northwest Total Petroleum Hydrocarbons as Gasoline (NWTPH-G) and Northwest Total Petroleum Hydrocarbons as Diesel – Extended (NWTPH-Dx). Groundwater from all six probes was also analyzed for volatile organic compounds (VOCs).

The seventh probe (BRU-E02) was advanced on Parcel A. The purpose of advancing BRU-E02 was to address the potential of contamination from former drum storage. The exact area of former drum storage is unknown, and blackberries prevented the probe from being located farther west. Therefore, the probe was advanced near the western edge of Parcel A. One soil (from water table depth) and one groundwater sample were collected from this probe. Samples were submitted for analysis for petroleum by Methods NWTPH-G and NWTPH-Dx, semivolatile organic compounds (SVOCs), Resource, Conservation, and Recovery Act (RCRA) metals. Groundwater from this probe was also analyzed for VOCs.

No field indications of contamination such as elevated PID readings or the presence of sheen from the soil or groundwater was observed in any of the probes.

No contaminants were detected above laboratory practical quantitation limits, with the exception of RCRA metals. In probe BRU-E02, barium and chromium were detected at 43 and 9.5 milligrams per kilogram (mg/kg) in soil. These detections are well within metals background concentrations for Puget Sound and are also below Washington Model Toxics Control Act (MTCA) cleanup criteria. In groundwater, barium (120 micrograms per liter [mg/L]) was the only dissolved metal detected in BRU-E02. This detection was also below MTCA cleanup criteria.

The analytical laboratory report is contained in Appendix E.

## 5.0 CONCLUSIONS

No USTs or buried objects of concern appear to be present beneath the subject property, based on geophysical explorations. Therefore contamination relating to unknown former tanks or structures on the subject property is not expected.

Limited subsurface soil and groundwater sampling close to areas of potential contamination and in areas with potential impacts from historical operations did not indicate any impacts to soil or groundwater on the property. However, it was not possible to sample all areas of the property. Therefore, there is a low potential that sporadic contamination is present on the property that was not detected during this Phase II ESA limited soil and groundwater sampling.

Although subsurface soil and groundwater samples did not contain detectable levels of petroleum products, due to the current use of the property as a vehicle parking area and minor surface staining noted on the property, sporadic surface soil petroleum contamination is expected to be present throughout the property.

Fill (from several inches to 3.5 feet thick) was observed in all of the probes, and the source of the fill is unknown. Although no samples of the fill were submitted for analytical testing, no field indications of contamination were observed in this fill.

## 6.0 RECOMMENDATIONS

Based on the results of our limited field investigation, there is low environmental liability associated with Brutsche Parcels B, C, and D. However, not all areas of the property could be investigated because of access limitations. Therefore, we recommend the following for future site development:

- ▶ Contingency plans and funds are recommended to accommodate unforeseen delays and costs to the future site development projects should contamination be encountered.
- ▶ All excavations should be monitored for contamination to expedite segregation and disposition of potentially contaminated soil and groundwater.
- ▶ When contaminated soil is encountered or suspected, analytical testing will be required to determine disposal and possible end uses of the excavated soil. Analytical testing will be required for treatment/disposal of any contaminated groundwater removed by dewatering.

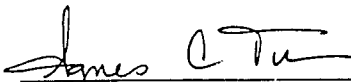
- ▶ Dewatering should be minimized to the extent possible to avoid the potential for withdrawing contaminated groundwater from nearby off-site contaminated sources.
- ▶ A construction contingency plan should be prepared with instructions for contractors handling and working in contaminated soil and groundwater conditions.

## 7.0 CLOSURE

Shannon & Wilson has prepared this report in a professional manner, using that level of skill and care normally exercised for similar projects under similar conditions by reputable and competent environmental consultants currently practicing in the area, and in accordance with the terms and conditions set forth in our proposal dated March 31, 1999. The data presented in this report are based on limited research and sampling at the site and should be considered representative at the time of our observations. Other areas of contamination that were not obvious during our site work could be present at the site. Shannon & Wilson is not responsible for facts that were concealed, withheld, or not fully disclosed at the time the report was prepared. We also note that the facts and conditions referenced in this report may change over time, and the conclusions and recommendations set forth here are described at the time of this report. Conclusions and recommendations were made within the operative constraints of the scope, budget, and schedule for this project. We believe that the conclusions stated here are factual, but no guarantee is made or implied.

This report is for the exclusive use of the City of Kent and its representatives. Shannon & Wilson has prepared the attached Appendix F, "Important Information About Your Environmental Report," to assist you and others in understanding the uses and limitations of our reports.

SHANNON & WILSON, INC.



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Engineer



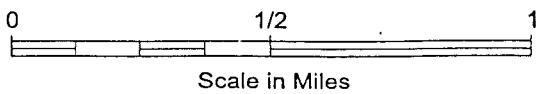
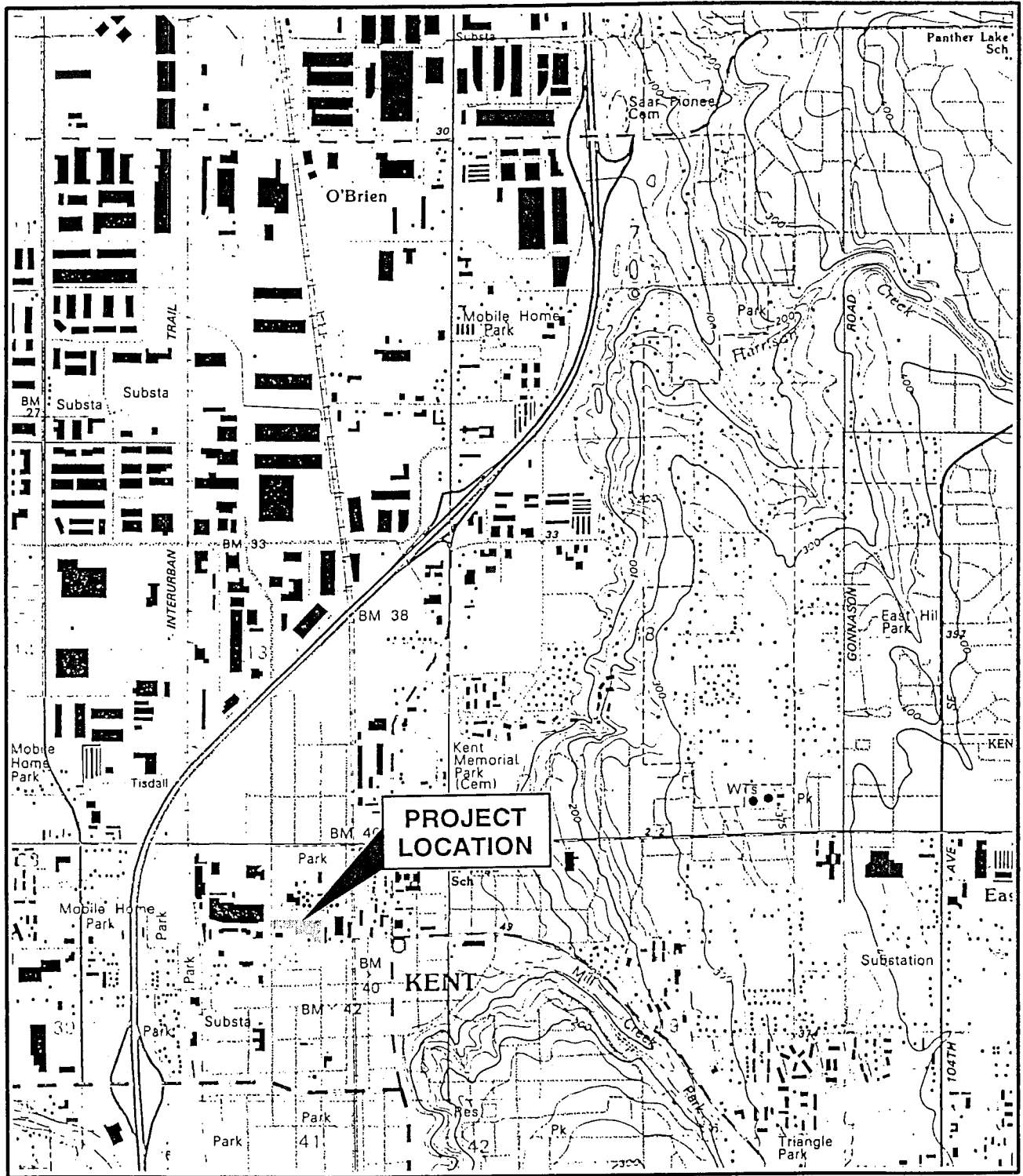
Scott W. Gaulke  
Associate

ACT:SWG:DNC/act

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Washington Department of Ecology, 1996, The Model Toxics Control Act cleanup regulation,  
chapter 173-340 WAC: Olympia, Wash., Publication No. 94-06, January.



**NOTE**

Map adapted from 1:24,000 USGS topographic map of Renton, WA quadrangle, dated 1949, revised 1994.

Brutsche Property  
Phase II Environmental Site Assessment  
Kent, Washington

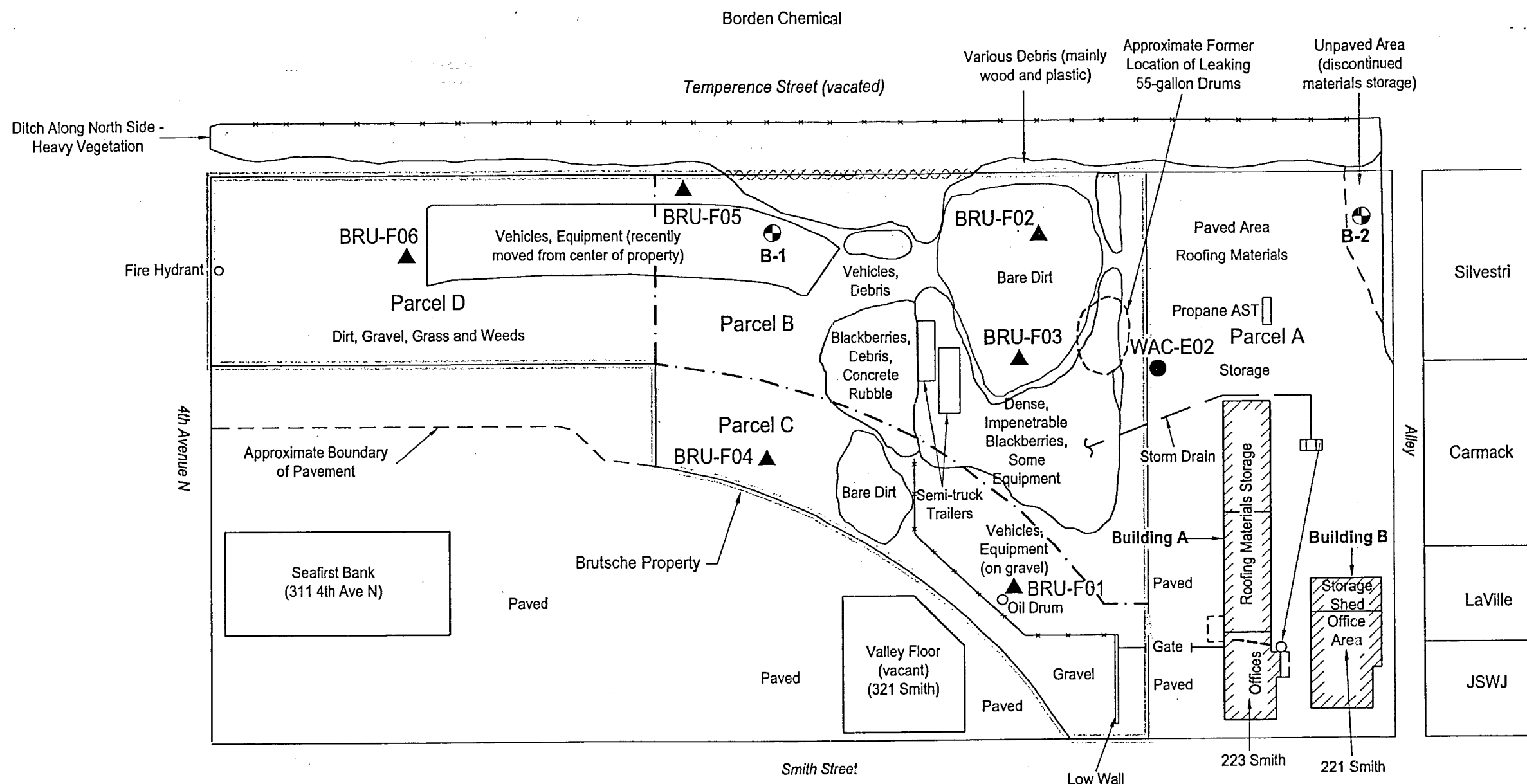
**VICINITY MAP**

May 1999

T-1901-01

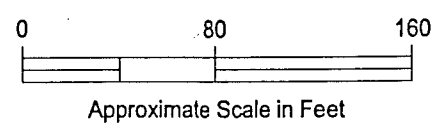
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Geotechnical and Environmental Consultants

**FIG. 1**



**LEGEND**

- |  |  |  |   |
|--|--|--|---|
|  | Subject Property   |  | AST Aboveground Storage Tank  |
|  | Storm Drain  |  | UST Underground Storage Tank  |
|  | Areas of Blackberries and Vegetation that Prevented Inspection |  | B-1 Approximate Location of Monitoring Well (Installed by Earth Consultants in 1988)                          |
|  | Former Area of Standing Water                                  |  | BRU-F01 Probe Designation and Approximate Location  |
|  | Building Outline   |  | BRU-F02 Probe Designation and Approximate Location  |
|  | Fence  |  | WAC-E02 Probe Designation and Approximate Location (coordinated with Sound Transit investigation on Parcel A) |
|  | Parcel Boundary  |  |   |



**NOTES**

1. No contaminant concentrations exceeded Washington Model Toxics Control Act cleanup criteria.
2. Storm drain location is approximate and based on geophysical exploration. Discharge point is unknown because of dense blackberries.

Brutsche Property Phase II Environmental Site Assessment Kent, Washington	
<b>SITE AND EXPLORATION PLAN</b>	
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SHANNON & WILSON, INC. <small>Geotechnical and Environmental Consultants</small>	<b>FIG. 2</b>