

**Site Receptor Survey  
76 Service Station No. 256380  
200 South 36<sup>th</sup> Street  
Bellingham, Washington**

**September 24, 2003**

**For  
ConocoPhillips**

VCP # 256380, Bellingham  
aka Starvin Sams Mini Mart 14  
VCP # NW 1487

TOSCO 6380  
Bellingham  
LUST 471259

Site Receptor Survey  
76 Service Station No. 256380  
200 South 36<sup>th</sup> Street  
Bellingham, Washington

September 24, 2003

ENTERED  
9/28-9  
2005

For  
ConocoPhillips



September 24, 2003

Consulting Engineers  
and Geoscientists

ConocoPhillips  
3977 Leary Way NW  
Seattle, Washington 98107

Attention Timothy D Johnson

Site Receptor Survey  
76 Service Station No 256380  
200 South 36th Street  
Snohomish, Washington  
GEI File No 4823-410-01

We are submitting two copies of our "Site Receptor Survey" for research activities regarding ConocoPhillips 76 Service Station No 256380 in Bellingham, Washington. Our services were conducted in general accordance with the Tosco Consultant Services Agreement and the Work Order authorized on March 17, 2003.

We appreciate the opportunity to be of continued service to ConocoPhillips. Please call if you have questions regarding this report.

Yours very truly,

GeoEngineers, Inc

*Kurt S Anderson*  
for Kurt S Anderson, LG, LHG  
Principal

MET LJB KSA akf  
C:\VER \ConocoPhillips\4823410\01\finals\482341001R.doc

Two copies submitted

GeoEngineers, Inc  
2924 Colby Avenue  
Everett WA 98201  
Telephone (425) 252-4565  
Fax (425) 252-4586

## TABLE OF CONTENTS

	<u>Page No</u>
INTRODUCTION	1
BACKGROUND	1
SITE DESCRIPTION	3
POTENTIAL CONTAMINANT MIGRATION PATHWAYS	3
CONTAMINANT MIGRATION	3
HYDROGEOLOGIC SITE CHARACTERIZATION	3
REGIONAL HYDROGEOLOGY	3
HYDROGEOLOGY IN THE LOCALITY OF THE SITE	4
SITE RECEPTOR SURVEY	4
GROUNDWATER USE SURVEY	4
Well Log Review	4
Interviews with City Personnel	4
SURFACE WATER USE SURVEY	4
Surface Water Bodies	5
Wetland Search	5
Reasonably Likely Future Water Use	5
UTILITY SEARCH	5
BASEMENT SEARCH	6
SUMMARY	6
REFERENCES	7
LIMITATIONS	8
<b>FIGURES</b>	<u>Figure No</u>
VICINITY MAP	1
SITE PLAN	2
POTENTIAL RECEPTORS	3
<b>APPENDICES</b>	<u>Page No</u>
APPENDIX A - REPORT LIMITATIONS AND GUIDELINES FOR USE	A-1 A-3

**SITE RECEPTOR SURVEY  
76 SERVICE STATION NO. 256380  
BELLINGHAM, WASHINGTON  
FOR  
CONOCOPHILLIPS**

**INTRODUCTION**

GeoEngineers is pleased to submit this report summarizing the results of our site receptor survey recently completed for the ConocoPhillips (76-branded) Site No. 256380 (site), located at 200 South 36th Street, Bellingham, Washington. The site is shown relative to surrounding features in the Vicinity Map, Figure 1. The current site layout is shown in the Site Plan, Figure 2. ConocoPhillips, formerly Tosco Corporation (Tosco), purchased the site from Unocal in 1997, and subsequently sold the site to the current owner, Keith Oil Company, in 2002.

**BACKGROUND**

The site was developed with a service station since about 1965. Unocal purchased the site in 1971. Original Unocal facilities included the service station building with two hoists, two 5,000-gallon underground storage tanks (USTs), one 8,000-gallon UST, one 500-gallon waste oil UST, two dispenser islands and likely one 5,000-gallon heating oil UST. Product piping was replaced with fiberglass product lines in 1981, and the fuel USTs were replaced with two 12,000-gallon fiberglass USTs in 1984. One of the hoists was replaced in 1983 because the hoist had an air leak. The other hoist was replaced in 1985 because of an oil leak.

Pacific Environmental Group (PEG) conducted a soil gas survey at the site in 1997. Seven soil gas probes were installed near the USTs, dispenser islands and product lines. Benzene, ethylbenzene, toluene and xylenes (BETX), methyl tert-butyl ether (MTBE) and/or gasoline-range hydrocarbons were detected in the vapors obtained from five of the locations located near the tanks, product lines and dispensers.

PEG documented the removal of the heating oil and waste oil USTs in 1998. The dispenser islands were also modified in 1998. Diesel- and heavy oil-impacted soil remained in the south and east sidewalls and/or base of the heating oil/waste oil UST excavation. Approximately 38 tons of soil removed from the excavation was hauled to TPS Technologies' facility in Tacoma, Washington for recycling.

PEG completed eight direct-push borings at the site in 1998. Soil beneath the site consisted of silty sand underlain by clay, with the contact at approximately 4 to 9 feet below ground surface (bgs). Groundwater was encountered at depths ranging from 7 to 17 feet bgs. Petroleum compounds were detected at concentrations exceeding the 1996 MTCA Method A groundwater cleanup levels in the following locations: (1) diesel and gasoline in soil and gasoline in groundwater to the west of the former heating oil/waste oil USTs, (2) diesel in groundwater in the vicinity of the former waste oil UST, (3) benzene in groundwater north of the gasoline USTs and west of the dispenser islands, and (4) gasoline and benzene in soil and gasoline and BETX compounds in water north of the east dispenser islands.

The IT Group installed four monitoring wells (MW-1 through MW-4) at the site in 1999. Drilling was completed to depths ranging from approximately 21 to 26.5 feet bgs. Soil observed consisted primarily of silt and clay. Groundwater was observed at depths of approximately 11 to 13 feet bgs during drilling and at depths of 5 to 8 bgs feet in the monitoring wells, with the gradient to the southwest. Gasoline-range hydrocarbons were detected at a concentration exceeding the 1996 MTCA Method A soil cleanup level in the 6.5-foot sample from MW-3, located downgradient of the dispenser islands. Total lead was detected at concentrations exceeding the 1996 MTCA Method A groundwater cleanup levels in groundwater samples from MW-2 through MW-4. BETX and petroleum hydrocarbons were not detected in the groundwater samples.

In May 2002, GeoEngineers observed remedial soil excavation at and near the product lines and dispenser islands during a station upgrade by Keith Oil Company. BETX and/or petroleum hydrocarbons at concentrations exceeding the 2001 MTCA Method A soil cleanup levels remained in soil at depths to approximately 10.5 to 11 feet bgs in the dispenser island area.

In June 2002, GeoEngineers observed the installation of underground piping for a potential air sparging and vapor extraction system. The piping consisted of four vertical sparge points and horizontal vapor extraction piping placed in three trenches completed in the dispenser island area. The trenches were excavated to depths of approximately 11 feet bgs. Soil observed in the trenches included silty sand to depths of approximately 10.5 feet bgs, interbedded with layers of 0.5 foot- to 1-foot-thick clay and peat at depths of approximately 3.5 and 5 feet bgs. Glacial till consisting of very dense silty sand with gravel was observed at the base of the trenches at approximately 10.5 feet bgs. The trenches were backfilled with pea gravel to above the vapor extraction lines. A seal, consisting of visqueen sheeting and lean mix concrete, was subsequently placed over the pea gravel to prevent short-circuiting through the backfill. The remainder of the trench was backfilled with imported backfill material, and the site surface was paved. The piping that ends at the vault was not hooked up to aboveground equipment.

In May and June 2002, approximately 230 cubic yards of petroleum-impacted soil were excavated from the product line and dispenser island excavations, new canopy footing excavations and the underground remediation piping trenches. The petroleum-impacted soil was hauled to TPS' facility in Tacoma, Washington for recycling.

Environmental Resolutions, Inc. (ERI) has monitored groundwater at the site on a periodic basis since 1999. Based on groundwater levels from the on-site wells, the shallow groundwater gradient is fairly flat and direction of flow is variable. The apparent gradient has varied from being to the northwest, northeast, southeast or southwest since 1999. BETX and petroleum hydrocarbon concentrations either have been non-detect or less than 1996 MTCA cleanup levels in groundwater samples from MW-2 through MW-4. Concentrations of one or more BETX compounds and/or gasoline- and diesel-range hydrocarbons have exceeded the 1996 MTCA Method A cleanup levels in samples from MW-1 since February 2001. Total lead concentrations in groundwater samples from the wells occasionally exceed the MTCA Method A cleanup level, however, dissolved lead was not detected in the February 2001 or February 2002 samples.

## **SITE DESCRIPTION**

The subject site is an approximate 0.3-acre rectangular-shaped parcel located southwest of the intersection between 36th Street and Bill McDonald Parkway. The surface of the site is paved, relatively level, and with a ground surface elevation of approximately 190 feet above sea level. The surface drops down to the west to a parking lot. The site is located within an area of mixed residential and commercial land use.

Properties surrounding the site include a parking lot for Haggen Food and Pharmacy to the west/southwest, Burger King restaurant across Byron Avenue to the north, Denny's restaurant across 36th Street to the east, and numerous shops (Bellingham Mall) to the south. The Interstate 5 (I-5) right-of-way, including off-ramps, is located to the southeast, and is approximately 800 feet wide. Properties located north and south of the site are primarily commercial, properties located to the northwest and west of the site are primarily single- and multi-family residential. The site and surrounding properties are shown in Figure 3.

## **POTENTIAL CONTAMINANT MIGRATION PATHWAYS**

Potential contaminant migration pathways identified include (1) leaching through the vadose zone to groundwater, (2) vapor phase transport through vadose zone soil, (3) groundwater flow to surface water, and (4) vapor and/or groundwater transport through utility corridors. Potential groundwater receptors include (1) water wells and (2) surface water bodies. Potential vapor receptors include basements.

## **CONTAMINANT MIGRATION**

Dissolved-phase petroleum-related compounds have been detected in groundwater samples obtained from the monitoring well located at the northeast corner of the site, which is the downgradient well on occasion. There are no off-site monitoring wells adjacent to the site to assess whether groundwater with contaminants at concentrations exceeding cleanup levels is present off site.

## **HYDROGEOLOGIC SITE CHARACTERIZATION**

### **REGIONAL HYDROGEOLOGY**

The site is situated in Bellingham, Washington near the north valley wall of the Skagit River. The Skagit River is located within Puget Sound Lowland. The Puget Lowland is a portion of a regional north-south trending topographic trough that extends from the Fraser River Valley in British Columbia to northern Oregon. The Skagit River Valley is contained by steep mountains that rise above the river valley bottoms to elevations greater than 3,000 feet in most locations. Bedrock is at or near the ground surface in most of the valley wall area located at elevations higher than 500 feet. The mountains that form the valley walls consist of a complex assemblage of volcanic, metamorphic, igneous and sedimentary rocks. The valley bottom in the vicinity of the site is underlain by undifferentiated glacial deposits of the Fraser glaciation. Relatively impermeable bedrock underlies the glacial deposits at depth. The sedimentary rock of the

Chuckanut Formation is located less than a quarter mile west of the site. Groundwater, if any, in the area is perched in the glacial deposits.

Based on information compiled from 1948 to 2002 and presented by the Western Regional Climate Center, the average annual precipitation in Bellingham is approximately 36 inches per year.

## **HYDROGEOLOGY IN THE LOCALITY OF THE SITE**

Soil beneath the site consists of about 10.5 feet of silty sand, interbedded with clay and peat, underlain by glacial till. The till consists of very dense silty sand with gravel. The shallow aquifer beneath the site is within the upper silty sand unit, at depths of approximately 5 to 8 feet bgs. The silty sand is relatively impermeable. The backfill in utility trenches located within the silty sand are permeable, as observed during installation of the underground remediation piping. The groundwater flow gradient beneath the site is relatively flat and variable in direction. The seasonal fluctuations of groundwater levels vary by 2 feet or less.

## **SITE RECEPTOR SURVEY**

### **GROUNDWATER USE SURVEY**

The groundwater use survey completed for this report included the following: (1) a review of water well logs filed with the Washington Department of Ecology (Ecology); (2) an interview with Leonard Nelson of the City of Bellingham Water District, and (3) discussion and correspondence with City of Bellingham Planning personnel.

### **Well Log Review**

GeoEngineers conducted a review of well logs filed with Ecology within a 1/2-mile radius of the site. Fifteen resource protection wells (monitoring wells) are located on the McDonald's property (also occupied by a Mobil gasoline station) approximately 350 feet from the subject site. There are no water wells reported to be located within a 1/2-mile radius of the site.

### **Interviews with City Personnel**

A field representative of GeoEngineers interviewed Mr. Leonard Nelson of City of Bellingham Public Works and Utilities on April 1, 2003 regarding the City's water supply system. According to Mr. Nelson, the City uses Lake Whatcom in Bellingham as a source for their municipal water supply. Further, Mr. Nelson reported that while there may be a shallow water table, no wells are used for water in the site area.

### **SURFACE WATER USE SURVEY**

Surface water bodies were identified in the site vicinity by (1) review of the U.S. Geological Survey (USGS) "Bellingham South, Washington" 7.5-minute topographic quadrangle revised in 1995, and (2) observations in the field during a reconnaissance by GeoEngineers' representative.

on April 7, 2003. The surface water use survey completed for this survey included an interview with Leonard Nelson of City of Bellingham Utilities & Public Works.

### **Surface Water Bodies**

The only surface water bodies within one mile of the site are Connelly Creek, which ends approximately 1/4 mile southwest of the site, and an unnamed creek, located approximately 1/3 mile east of the site (Figure 3).

### **Wetland Search**

Based on a field reconnaissance on April 7, 2003, and study of the local topographic maps, there are no wetlands within a 1/2-mile radius of the site.

### **Reasonably Likely Future Water Use**

Based on our review of City of Bellingham zoning maps, the site is zoned as Commercial Moshe Quince, of the City of Bellingham Planning Department, indicated on April 7, 2003 that while plans could change at any time, current zoning of the site and surrounding areas is likely to remain the same in the foreseeable future. According to City Planning personnel and the zoning map, surrounding properties are zoned Residential Multi, Residential Single and Commercial, and are likely to remain so in the future. Since the current land use is not expected to change in the vicinity of the site, it appears likely that the current types of water use also will not change in the next 10 to 20 years.

### **UTILITY SEARCH**

A utility search was conducted for the area surrounding the subject site. One-Call Utility Locate Service was contacted on March 31, 2003 to ascertain which utilities exist in the subject area. A representative of One-Call indicated that utilities in the area include those operated by AT&T (phone), AT&T Broadband (cable and internet), Washington State Department of Transportation (traffic signals), Puget Sound Energy (electricity), Bellingham Public Utility District (water and sewer), US West/Qwest (fiber optic cable), Western Washington University (private university utilities) and Cascade Natural Gas (gas). The representative indicated that the City maintains water, sanitary sewer and storm drain systems.

Invert elevations were unavailable for the intersection of 36<sup>th</sup> Street and Bill McDonald Parkway. Additional information regarding invert elevations for water mains is only general. The City maintains a minimum burial of water mains of 36 inches below the final grade of the surface, in accordance with state guidelines. No other information was available through the City regarding invert elevations of utilities.

An additional call was placed on June 13, 2003 to One-Call to verify that no changes had occurred in the area since our last phone conversation. At that time, a request was placed by One-Call to all of the utility providers in the intersection to provide maps of their respective utilities in the area. Any utility providers that were unable to produce maps were asked to call GeoEngineers to notify us of their unavailability. As of June 30, 2003, we have received the

following notifications Central Locating Services, locating for Puget Sound Energy, indicated that no maps were available from Puget Sound Energy for the area. We then contacted Puget Sound Energy, who also confirmed that there was no underground service coverage for the subject area. Cascade Natural Gas responded to the utility map request on June 18, 2003. A map showing their underground utilities is incorporated into Figure 3. A field representative for Qwest reported that Qwest had a fiber optic cable buried in the south edge of the sidewalk that borders the south side of Bill McDonald Parkway and another that lies near a phone booth at the northwest corner of the subject site. The latter extends to a manhole located on Samish Way. A map was not provided of the phone lines. Utilities for which maps were not provided are not included in Figure 3.

Maps showing city-maintained utilities were obtained at Bellingham City Hall for water, sanitary sewer and storm drains. These utilities within approximately 1/8 mile of the site are shown in Figure 3.

### **BASEMENT SEARCH**

A field representative for GeoEngineers conducted a search for basements as potential vapor receptors within a 1/4-mile radius of the site. The search was initiated at the Bellingham City Hall building. Bill Ecker of the City's Building Services Department was interviewed, but indicated that the City does not have information specifically regarding basements and that obtaining such information was unlikely. Additionally, the Whatcom County Assessor's office was contacted. The Assessor's office indicated that basement information might be available in their microfiche records from 1960 to 1985, if specific addresses are searched. Instead, a drive-by site reconnaissance was conducted in the field. Eight likely basements were identified within 1/4 mile west and northwest of the site. Any structures that are believed to have basements are shown in Figure 3.

### **SUMMARY**

The contaminant migration pathways identified at the site include (1) leaching through the vadose zone to groundwater, based on groundwater data from monitoring well MW-1, and (2) possible vapor phase transport through vadose zone soil. Groundwater flow direction beneath the site, which has varied 360 degrees by season or year. Therefore, the petroleum-related dissolved compounds detected in groundwater samples from MW-1 represent either downgradient or upgradient groundwater conditions, depending on the groundwater flow direction at the time of sampling. Potential off-site sources of dissolved petroleum contaminants include gasoline stations to the north of the site. Utility corridors are possible, but not likely, conduits of a dissolved plume migration onto the site or from the site because of the depth to groundwater (7 to 17 feet bgs). It is possible, in our opinion, that there is potential off-site migration of lighter-end petroleum vapors via utility corridors.

There do not appear to be potential drinking water receptors in the site vicinity and the closest surface water body is approximately 1/4 mile from the site. Potential off-site migration the vapor

phase is unlikely to reach basement receptors because the closest basement observed in the site vicinity is approximately 600 feet west of the site

## REFERENCES

Ecker, Bill, City of Bellingham Utilities & Public Works, personal interview with Matthew Thomas, GeoEngineers, Inc , April 7, 2003

Environmental Resolutions, Inc , Groundwater Monitoring Reports, prepared for ConocoPhillips or Tosco

GeoEngineers, Inc , 1995, "Phase I Environmental Site Assessment", prepared for Unocal (this report also provided a review of a property history report by PHR Environmental Consultants, Inc provided by Unocal)

GeoEngineers, Inc , 2002, "Product Line Removal and Underground Remediation Piping Installation Activities", prepared for Tosco

IT Corporation, 1999, "Supplemental Environmental Investigation" prepared for Tosco

Nelson, Leonard, City of Bellingham Utilities & Public Works, phone interview with Matthew Thomas, GeoEngineers, Inc , April 1, 2003

One-Call Utility Locate Services, Customer Service Representative, Phone Call with Matthew Thomas, GeoEngineers, Inc , March 31, 2003

Pacific Environmental Group, Inc , 1997, "Soil Gas Survey Results", prepared for Tosco

Pacific Environmental Group, Inc , 1998, "Environmental Investigation", prepared for Tosco, October 9, 1998

Pacific Environmental Group, Inc , 1998, "Environmental Investigation", prepared for Tosco, December 21, 1998

Quince, Moshe, City of Bellingham Planning Department, Personal Interview with Matthew Thomas, GeoEngineers, Inc , April 7, 2003

Washington Department of Ecology, [http //apps ecy wa gov/wellog/](http://apps.ecy.wa.gov/wellog/) , March 31, 2003

Western Regional Climate Center, <http://www.wrcc.dri.edu/summary/climsmwa.html>,  
May 1, 2003,

Whatcom County Assessor's Office, phone call with Matthew Thomas, GeoEngineers, Inc.,  
March 31, 2003

### LIMITATIONS

We have prepared this report for the exclusive use of the ConocoPhillips their authorized agents and regulatory agencies

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to the appendix titled "Report Limitations and Guidelines for Use" for additional information pertaining to use of this report.

————— ◀ ◆ ▶ —————

GeoEngineers appreciates the opportunity to provide ConocoPhillips with professional environmental services. Please call if you have any questions regarding this report.

Respectfully submitted,

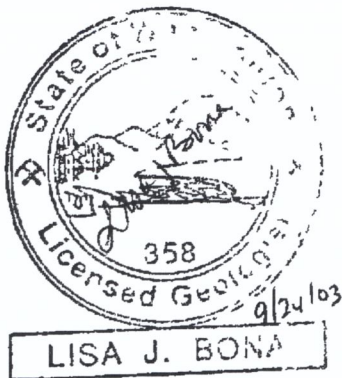
GeoEngineers, Inc.

*Lisa J. Bona*

Lisa J Bona, LG  
Senior Geologist

*Lisa J. Bona*

*fr* Kurt S Anderson, LG, LHG  
Principal



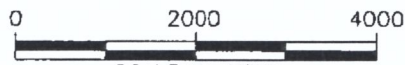
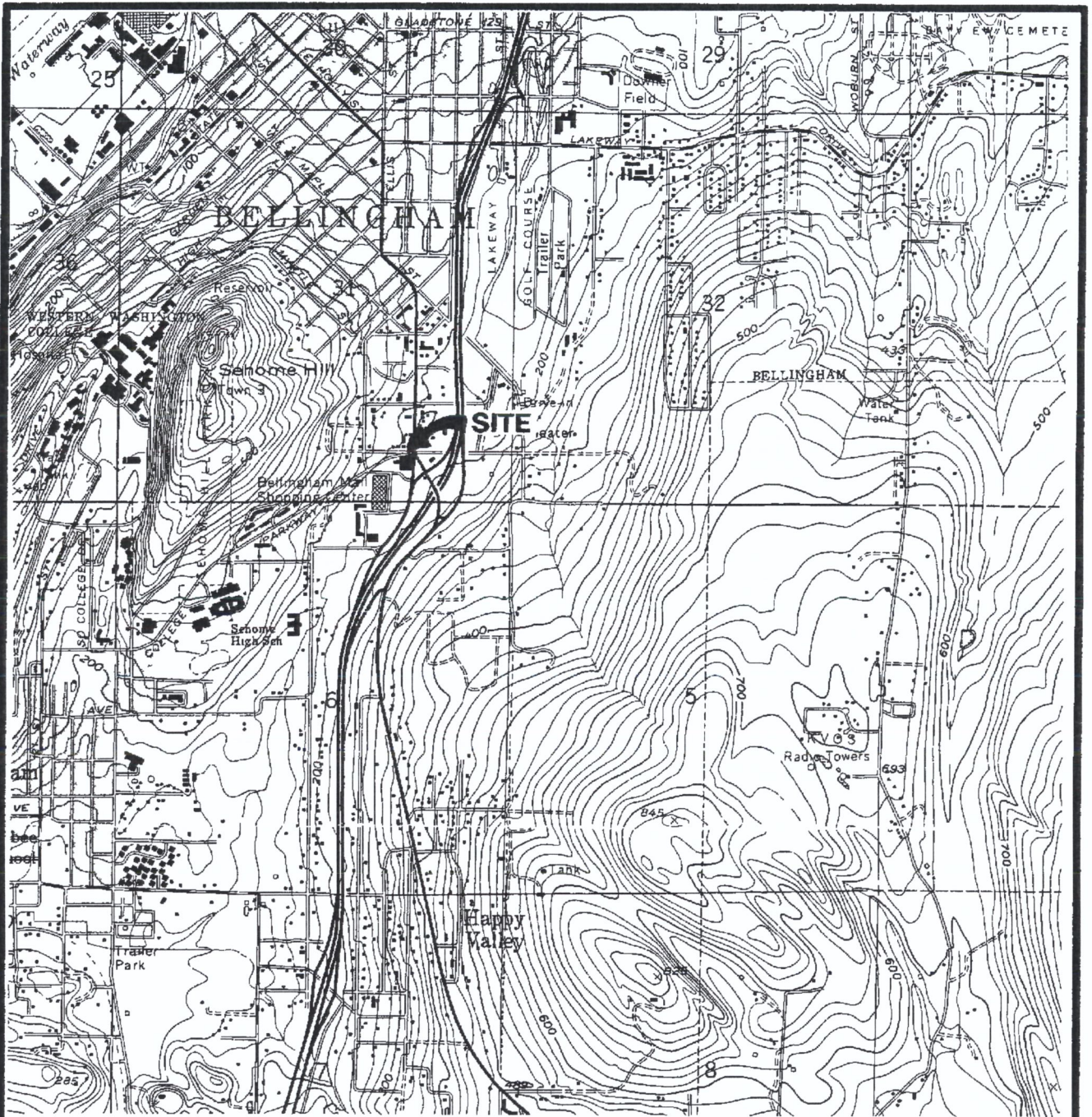
MET LJB KSA akf  
EVER \ConocoPhillips\4823410\01\finals\482341001R.doc

9-24-03.F

04/30/03

LJB SYF

EVER 4823-410-01 T1008



SCALE IN FEET

CONTOUR INTERVAL 20 FEET

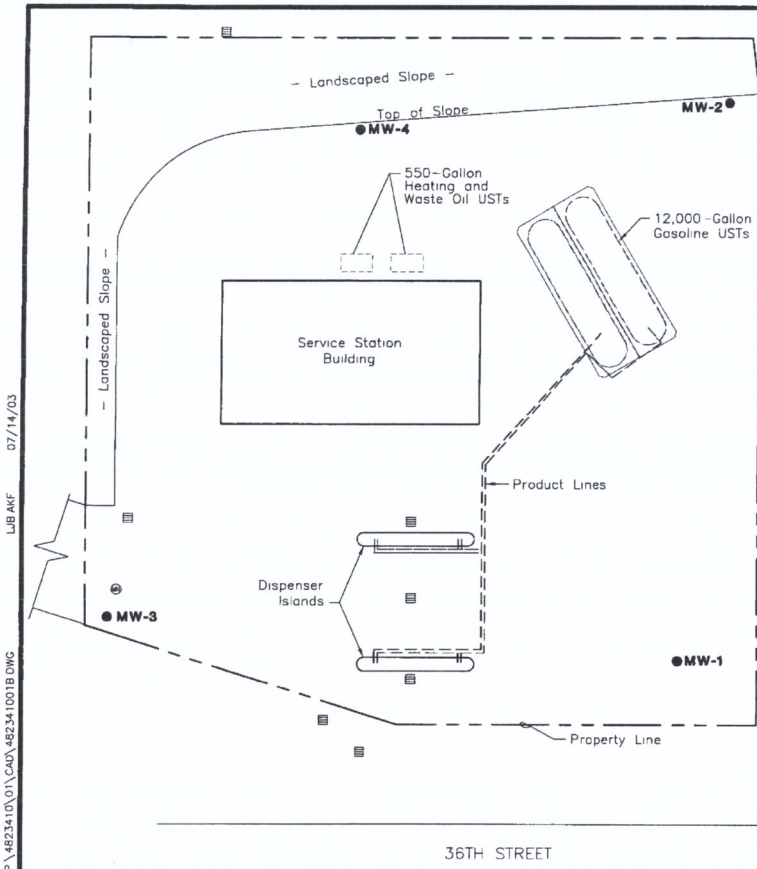


Reference USGS 7.5' topographic quadrangle map "Bellingham South, Wash" photorevised 1972



VICINITY MAP

FIGURE 1



EXPLANATION

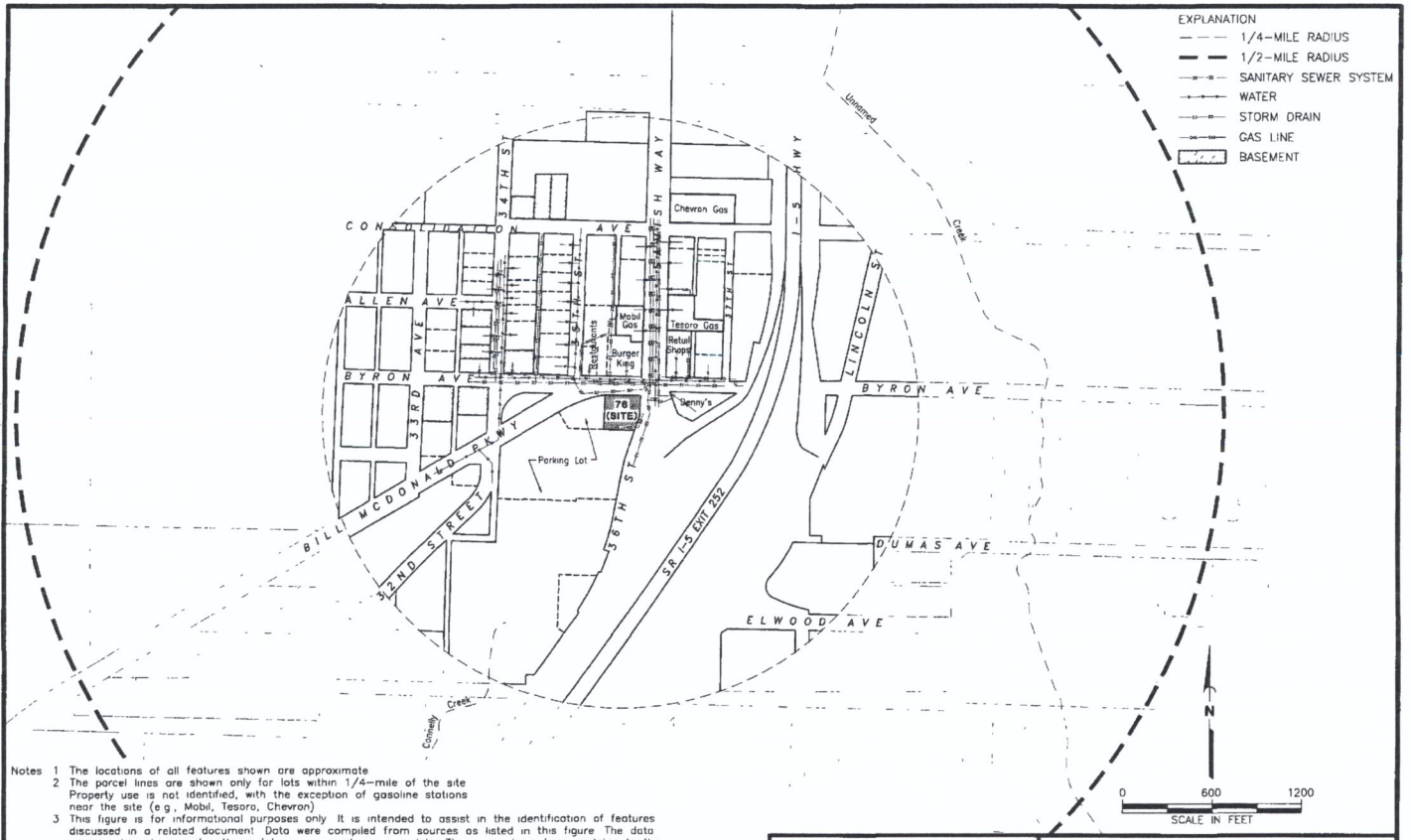
- ▣ CATCH BASIN
- MW-1 GROUNDWATER MONITORING WELL
- ▭ UST UNDERGROUND STORAGE TANK
- ⊙ MANHOLE

Notes 1 The locations of all features shown are approximate  
 2 This figure is for informational purposes only it is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc and will serve as the official document of record  
 Reference Drawing entitled "General Arrangement," by Unocal, dated 04/04/72

	SITE PLAN
	FIGURE 2

9-24-03-F  
 LUB AVE 07/14/03  
 EVER P \ 462341\01\CAD\462341001B.DWG

- EXPLANATION
- 1/4-MILE RADIUS
  - - - 1/2-MILE RADIUS
  - SANITARY SEWER SYSTEM
  - WATER
  - STORM DRAIN
  - GAS LINE
  - BASEMENT



Notes

- 1 The locations of all features shown are approximate
- 2 The parcel lines are shown only for lots within 1/4-mile of the site. Property use is not identified, with the exception of gasoline stations near the site (e.g., Mobil, Tesoro, Chevron)
- 3 This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Reference: Undated drawing entitled "City of Bellingham Public Works Utility Locations" by City of Bellingham, and "City of Bellingham GIS Report" dated 04/08/03.



POTENTIAL RECEPTORS  
FIGURE 3

7-24-03.F

EVERP:\482341.D\01\CAD\T1008\482341\00111008A.DWG LuB SYF 08/08/03

**APPENDIX A**

**REPORT LIMITATIONS AND GUIDELINES FOR USE**

## **APPENDIX A REPORT LIMITATIONS AND GUIDELINES FOR USE<sup>1</sup>**

This Appendix provides information to help you manage your risks with respect to the use of this report

### **ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS**

This report has been prepared for the exclusive use of ConocoPhillips, their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except ConocoPhillips should rely on this environmental report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

### **THIS ENVIRONMENTAL REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS**

This report has been prepared for ConocoPhillips 76 Service Station No. 256380 in Bellingham, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

### **RELIANCE CONDITIONS FOR THIRD PARTIES**

Our report was prepared for the exclusive use of our Client. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

---

<sup>1</sup> Developed based on material provided by ASPE, Professional Firms Practicing in the Geosciences, [www.aspe.org](http://www.aspe.org)

## **ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING**

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

## **UNCERTAINTY MAY REMAIN EVEN AFTER THIS PHASE II ESA IS COMPLETED**

No ESA can wholly eliminate uncertainty regarding the potential for contamination in connection with a property. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely-spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

## **SUBSURFACE CONDITIONS CAN CHANGE**

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

## **SOIL AND GROUNDWATER END USE**

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other sites or for other on-site uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on site to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject site to another location or its reuse on site in instances that we were not aware of or could not control.

## **MOST ENVIRONMENTAL FINDINGS ARE PROFESSIONAL OPINIONS**

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the site. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

### **DO NOT REDRAW THE EXPLORATION LOGS**

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but recognize that separating logs from the report can elevate risk.

### **READ THESE PROVISIONS CLOSELY**

Some clients, design professionals and contractors may not recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

### **GEOTECHNICAL, GEOLOGIC AND GEOENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED**

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations, e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

### **BIOLOGICAL POLLUTANTS**

GeoEngineers' Scope of Work specifically excludes the investigation, detection, or assessment of the presence of Biological Compounds that are Pollutants in or around any structure. Accordingly, this report includes no interpretations, recommendations, findings, or conclusions for the purpose of detecting, assessing, or abating Biological Pollutants. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts.