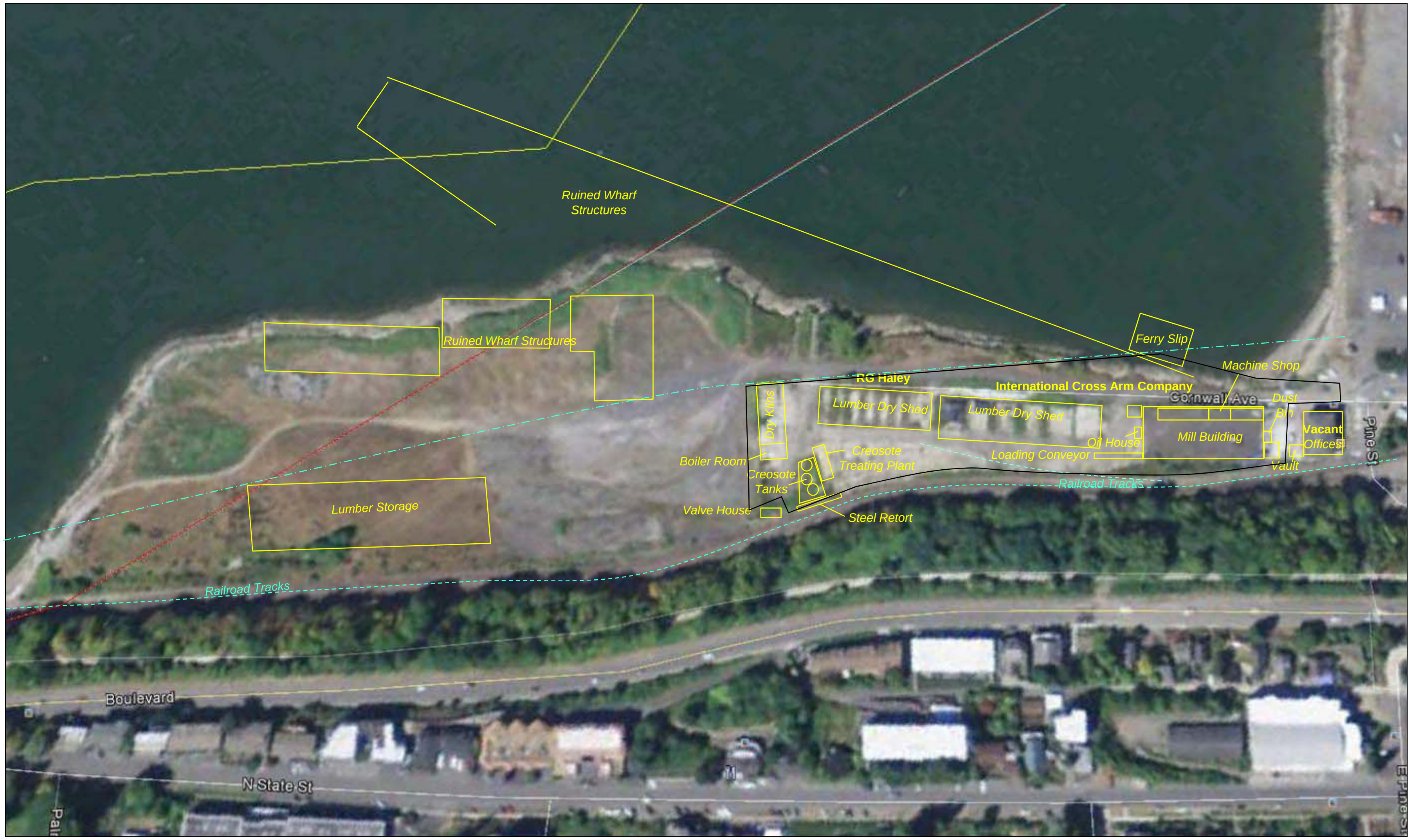
APPENDIX A
Historical Reference Materials



LEGEND:

- Historic features as shown on 1963 Sanborn map and 1950 aerial photographs
- Inner Harbor Line
- City Owned Property, Former R.G. Haley International

NOTES:

1. The locations of all features shown are approximate.
2. This drawing is only for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

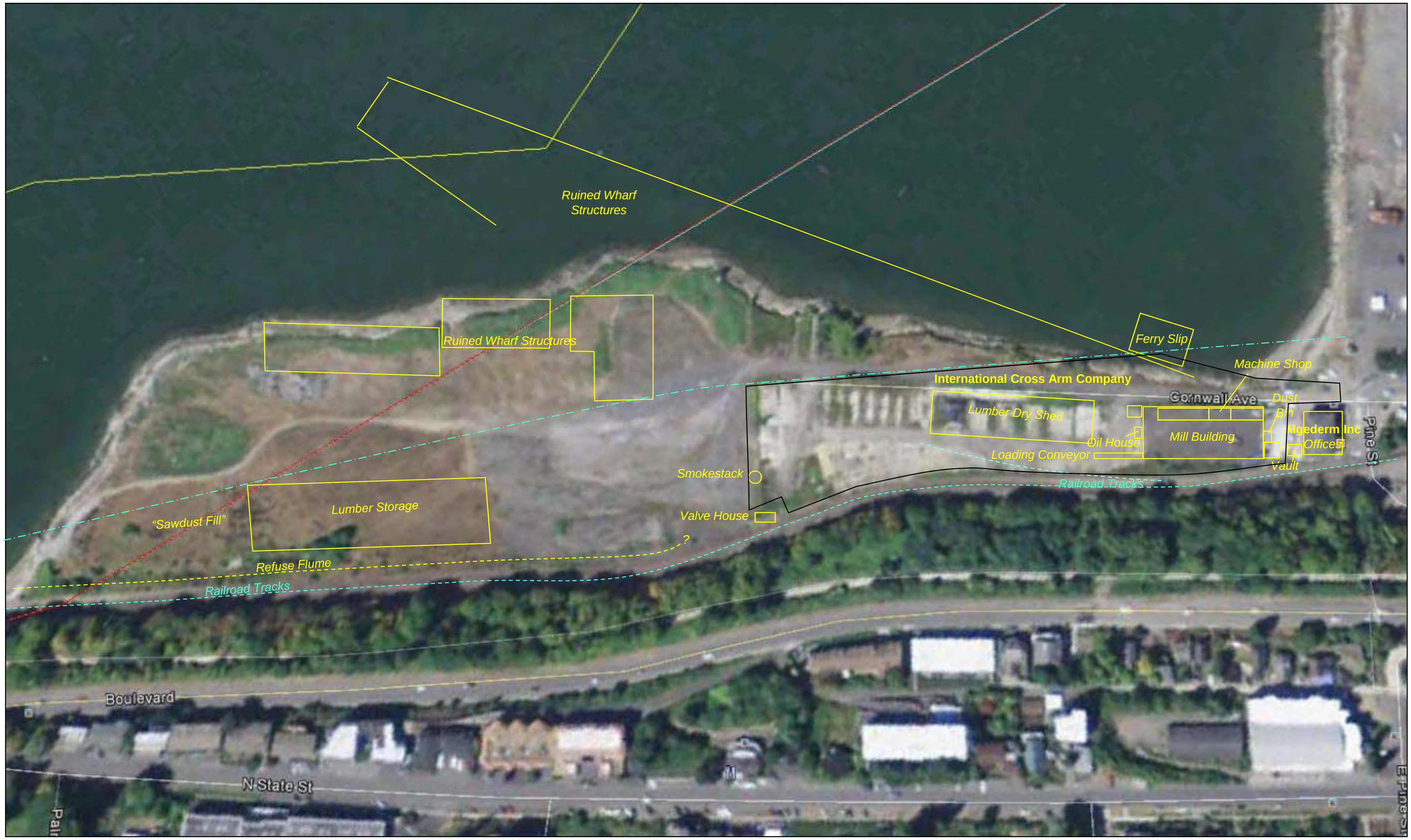
Reference: Google Earth Aerial Photograph, 2011

Historical Features c. 1960

Former R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure A-1



LEGEND:

- Historic features as shown on 1950 Sanborn map and 1950 aerial photographs
- Inner Harbor Line
- City Owned Property, Former R.G. Haley International

NOTES:

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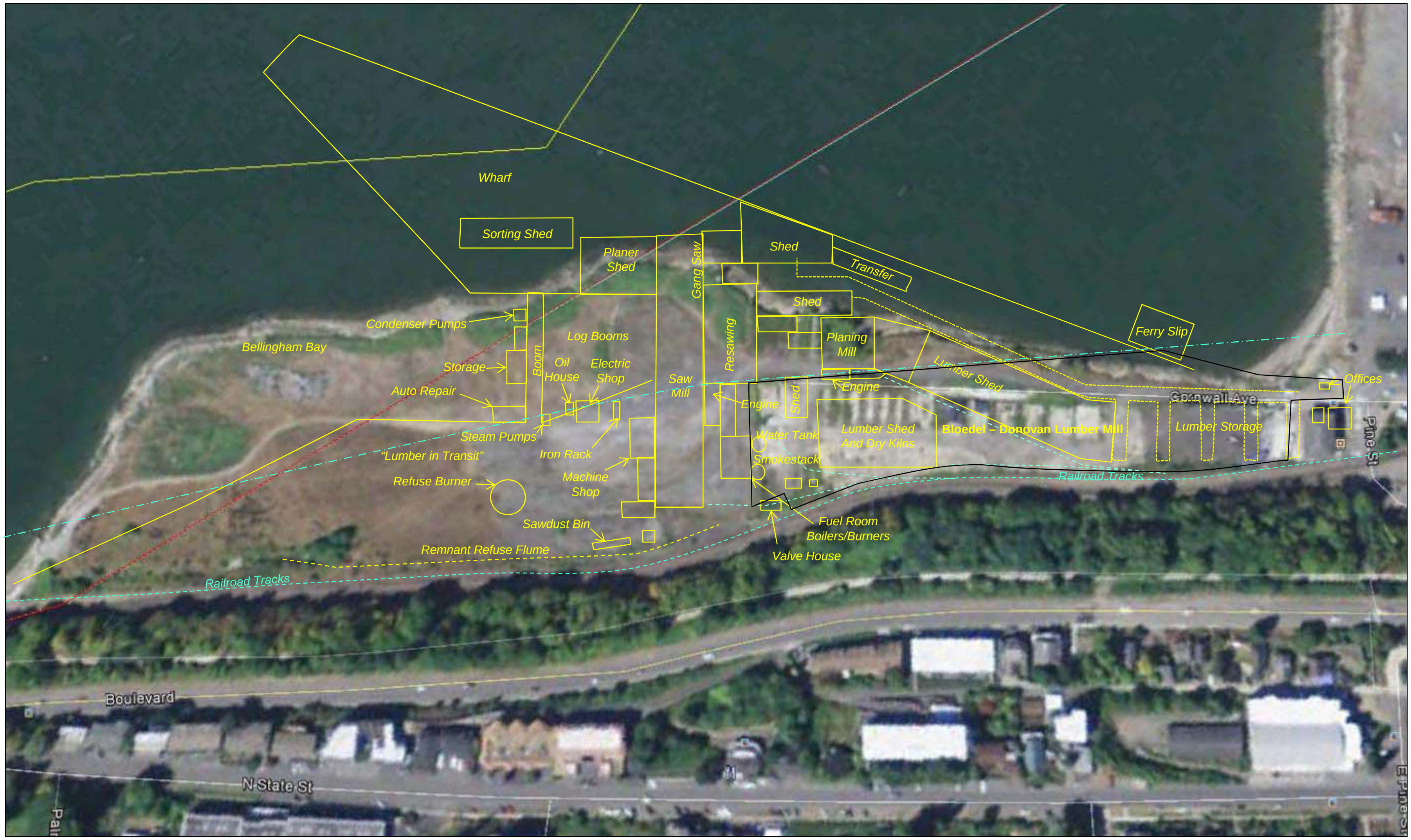
Reference: Google Earth Aerial Photograph, 2011

Historical Features c. 1950

Former R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure A-2



LEGEND:

Historic features as shown on 1930 Sanborn map and pre-1950 aerial photograph

Inner Harbor Line

City Owned Property, Former R.G. Haley International

NOTES:

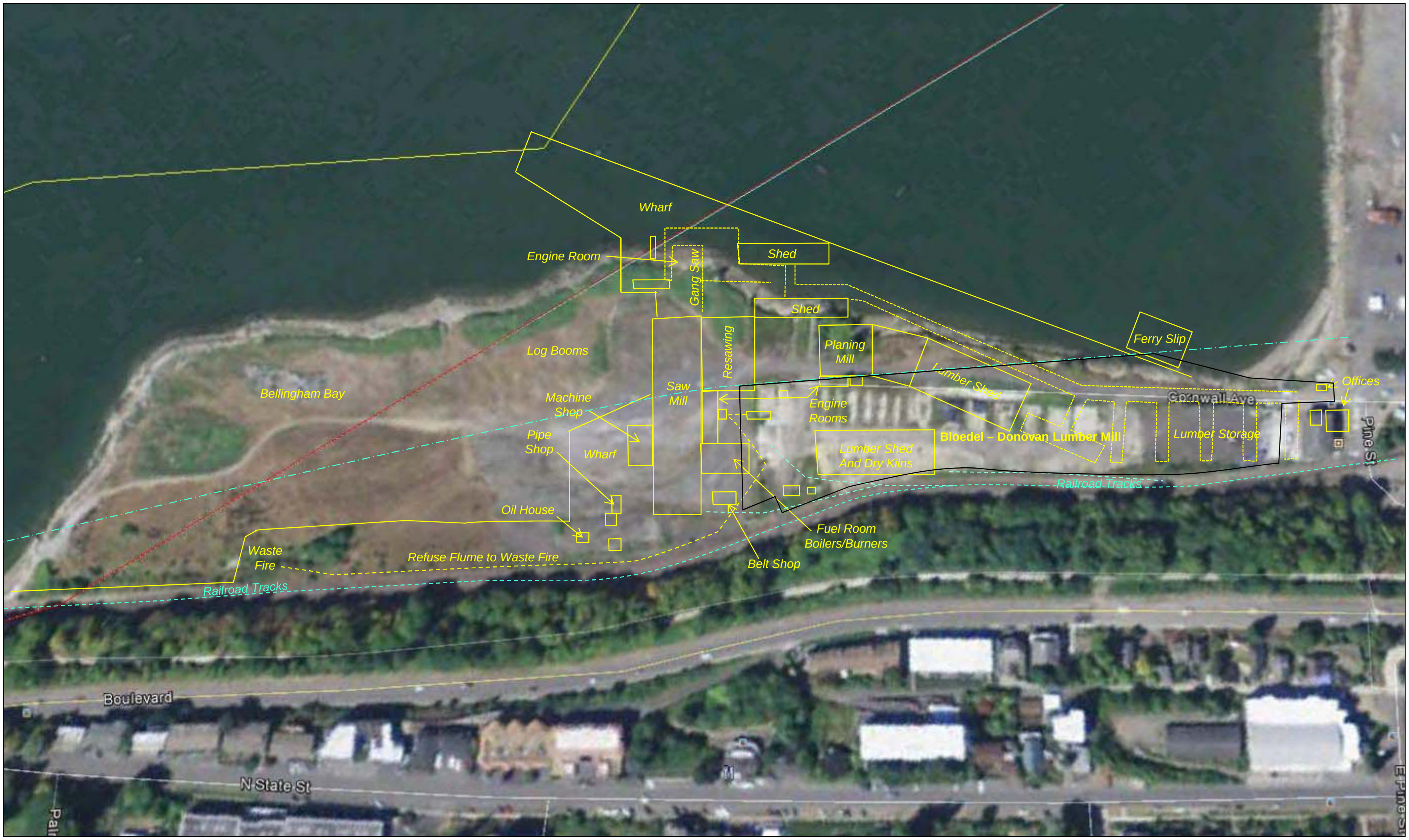
1. The locations of all features shown are approximate.
2. This drawing is only for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Google Earth Aerial Photograph, 2011

Historical Features c. 1930

Former R.G. Haley Site
Bellingham, Washington

GeoEngineers | Figure A-3



LEGEND:

- Historic features as shown on 1913 Sanborn map
- Inner Harbor Line
- City Owned Property, Former R.G. Haley International

NOTES:

1. The locations of all features shown are approximate.
2. This drawing is only for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Google Earth Aerial Photograph, 2011

Historical Features c. 1913

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure A-4

LEGEND:

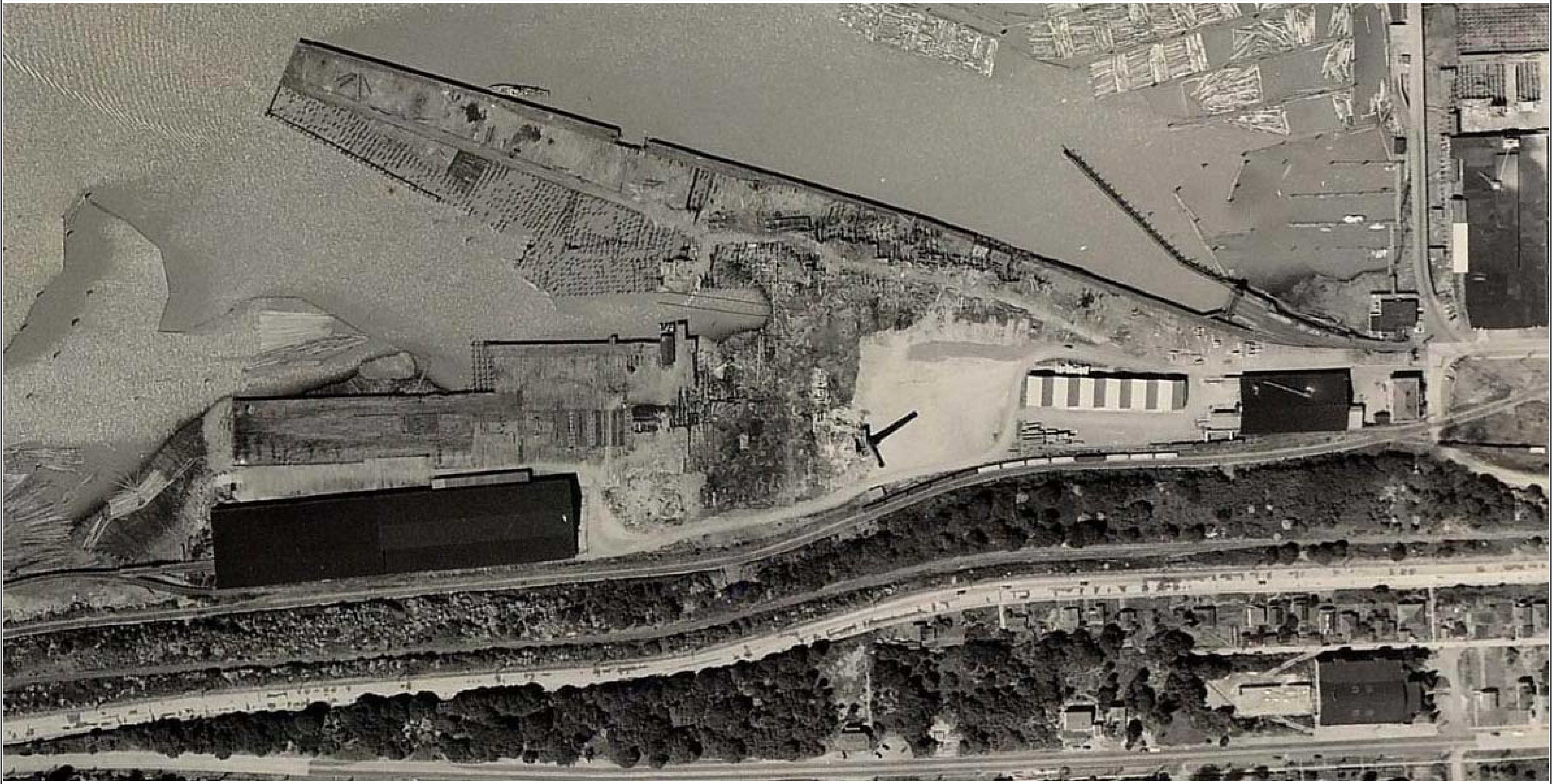
- Historic features as shown on 1897 Sanborn maps and 1895 photographs
- Inner Harbor Line
- City Owned Property, Former R.G. Haley International
- Approximate 1887 shoreline

NOTES:

1. The locations of all features shown are approximate.
2. This drawing is only for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Google Earth Aerial Photograph, 2011

Historical Features c. 1897	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure A-5



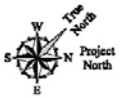
Reference: City of Bellingham, Aerial Photos, Section 36, 1950.

Historical Aerial Photo - 1950

R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure A-6



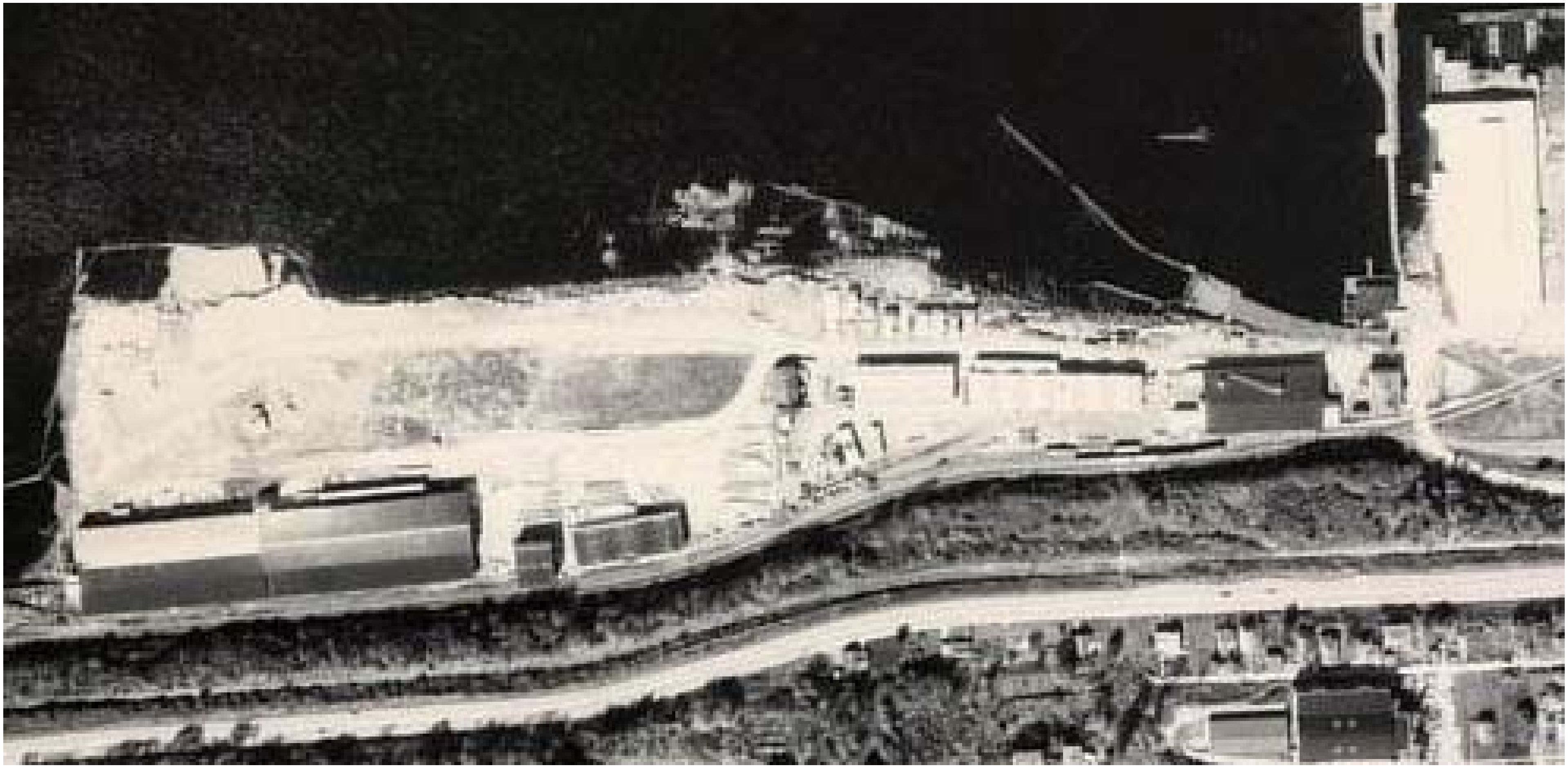
Reference: Port of Bellingham Photograph Collection, Reference Number
NW950-75F-0-1-976, Photo Number 1036, April 2, 1953.

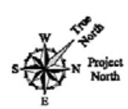
Historical Aerial Photo - 1953

R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure A-7





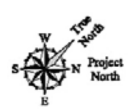
Reference: City of Bellingham, Aerial Photos, Section 36, 1963.

Historical Aerial Photo - 1963

R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure A-8



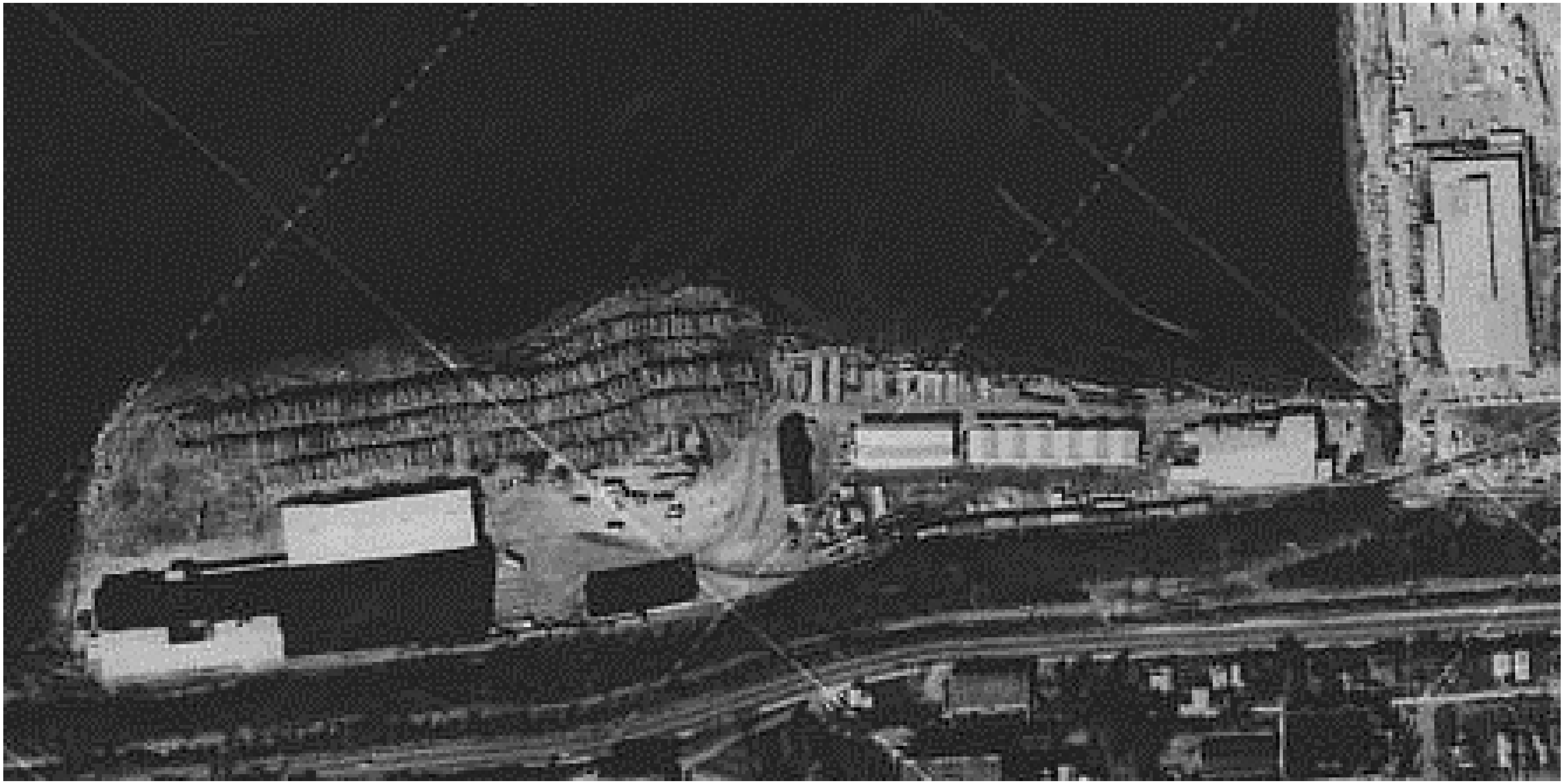
Reference: Port of Bellingham Photograph Collection, Reference Number NW950-75F-0-1-498, Photo Number 549.139, May 1971.

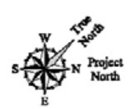
Historical Aerial Photo - 1971

R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure A-9





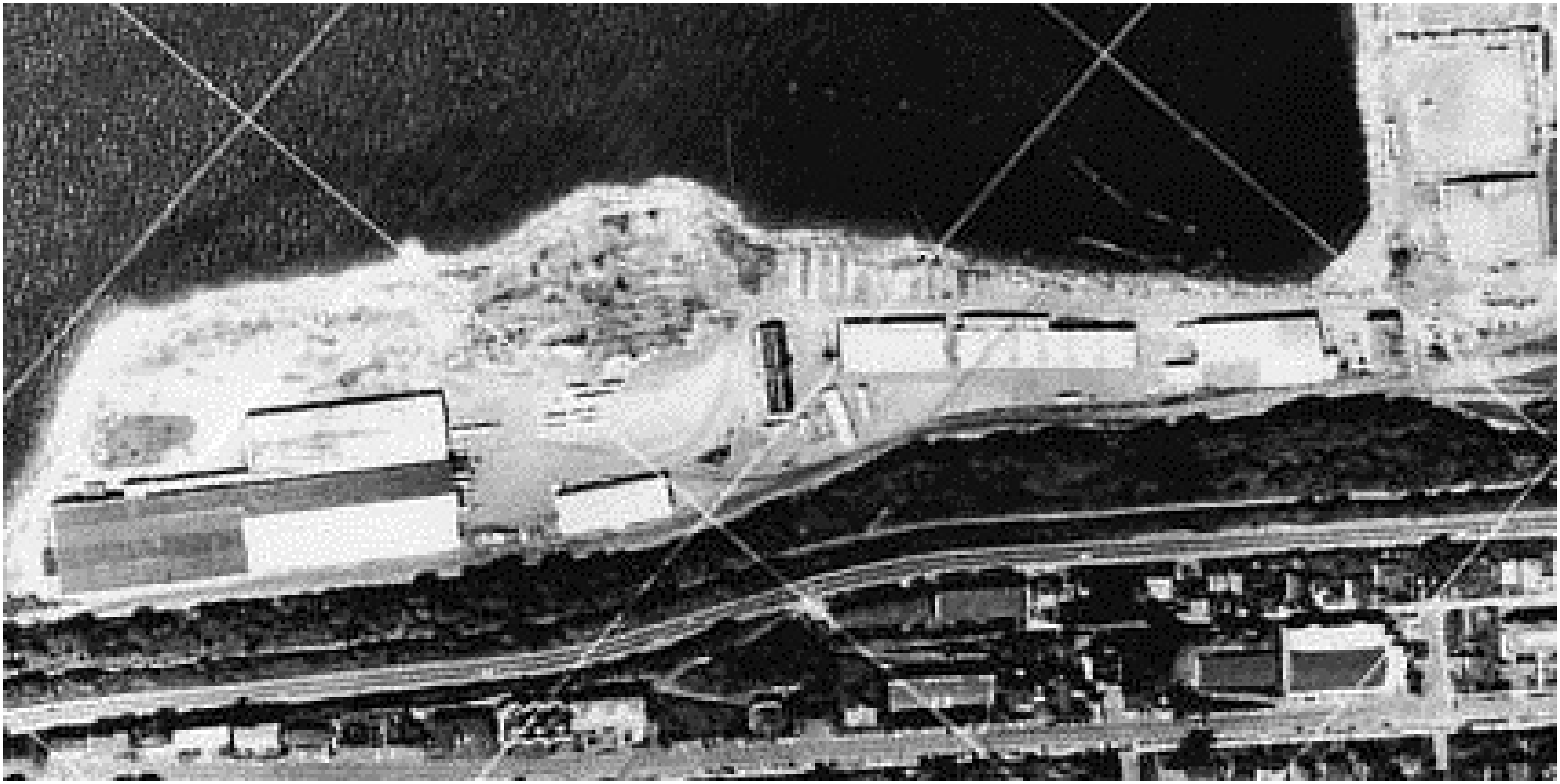
Reference: City of Bellingham, Aerial Photos, Section 36, 1975.

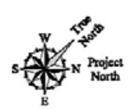
Historical Aerial Photo - 1975

R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure A-10





Reference: City of Bellingham, Aerial Photos, Section 36, 1988.

Historical Aerial Photo - 1988

R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure A-11

EXHIBIT A-1

2002 DNR Tideland History and Use

Section 2-Site History

The RG Haley site is bounded by Pine Street, Alder Street, the Burlington Northern Santa Fe Railroad tracks and Bellingham Bay. The site includes land originally acquired from the United States by C.C. Vail as a donation land claim (Vail DLC). Vail located the boundary of the donation land claim along, for the most part, the eastern boundary of what was later to be known as Cornwall Avenue.

To a large extent, the fill shown on the Douglas Management record of survey corresponds to the original Bloedel Donovan Wharf. The Port of Bellingham later acquired the Blodel Donovan Mill and Wharf. DNR has no record where the debris was deposited upon demolition of these improvements (i.e. mill and wharf). A late 1940/early 1950 aerial photograph shows the extent of the improvements on the site prior to the demolition of the mill and the wharf, and also shows the original International Crossarm building. The description of fill in the area corresponds to its use as a Whatcom Waterway dredge disposal site (circa 1953), a site used for Bloedel Donovan mill demolition material, and a site used as a municipal landfill area (records indicate that the Sanitary Service Company used coal slag rather than clean cover material in violation of the Port contract with the City).

- Coal was discovered to the north of the C.C. Vail donation land claim. The Bellingham Bay Coal Co. was formed. C.C. Vail quit claimed his donation land claim to the Bellingham Coal Co. in 1855. The coal company opened the coal mine at the intersection of Railroad Ave. and Myrtle Street. The Bellingham Bay Coal Company constructed a wharf to deep water near Ivy Street as part of its operation. This mine was closed in 1878.

- The owners of the Coal Company formed the Bellingham Bay Improvement Co. (BBIC). In 1883, the BBIC laid out a town site. P.B. Cornwall, Aliens Hayward, D.O. Mills, J.B. Hogan and Lad Texas formed the Bellingham Bay and British Columbia Railroad Company. In 1885, hard coal was discovered at Lake Whatcom. As part of the mine's development, the BBIC developed along the shores of Bellingham Bay north of Beecher Street railroad lines, coal bunkers, a lumber mill and the Sehome wharf. These facilities were located on the aquatic lands located between Pine and Beech Streets along the southern shore of Bellingham Bay.

- In December 1888, the Bellingham Bay Improvement Co. constructed a sawmill at the foot of Alder Street "between Sehome wharf and the coal bunkers." By November 1889, the mill employed as many as 80 people.

- In 1883, the Bellingham Bay and British Columbia Railroad Co. acquired a right of way across the Bellingham Bay Coal Co. land. The Fairhaven and Southern Railway was constructed along the shoreline of this area in 1890.

- The aquatic lands came to the State as an incident of becoming a state in November 1889. Lands below, and including, the line of ordinary high tide in waters where the tide ebbs and flows are public lands of the State under what is known as the 'equal footing' doctrine. The Washington State Constitution directed that harbor areas be established, and authorized municipal corporations powers to extend streets across tidelands and harbor areas. It also required the legislature to create a harbor line commission to locate and establish harbor lines in the navigable waters of all harbors, bays and inlets of the state."

- The harbor line commission established the harbor area in New Whatcom in 1891. Within the established harbor area, as well as over platted streets, were located the BBIC's Sehome wharf, its sawmill, as well as coal bunkers. The 1891 Whatcom Tideland Appraiser's Map of New Whatcom Tidelands locate the BBIC lumber mill located south of Alder Street. Also shown on this map is Sehome Wharf extending across the harbor area from the corner of Pine and Cornwall (Dock Street), and what was later to be designated tideland block 240 ½.

- In establishing the inner harbor line, the harbor line commission also platted first class tidelands. Two small tideland parcels within the R.G. Haley site located between Alder and Pine Streets were created by the plat (tideland blocks 242 and 240 ½). The BBIC acquired both tideland blocks in 1892. The harbor line commission also platted Pine Street, Cedar Street, Alder Street and Cornwall Avenue over the harbor area. In 1898, the City of Bellingham vacated all the streets and alleys platted over the Vail donation land claim lands and first class tidelands. The City by ordinance **closed** all the streets crossing the harbor area for thirty years authorizing the BBIC to occupy them to promote trade, commerce, transportation, manufacture, or other industries.

- The State Constitution reserves harbor areas "for the leasing of the right to build and maintain wharves, docks and other structures." The Constitution also declares that waters beyond harbor lines shall never be granted, sold or leased "to any private person, corporation, or association." The Legislature, under its Constitutional mandate to issue general laws for the leasing of the "right to build and maintain wharves, docks and other structures" upon harbor areas, has issued statutes delegating to DNR, and its predecessors, explicit authorities to authorize the occupation of harbor areas. DNR is directly accountable to the State legislature for the administration and management of specified activities on state owned aquatic lands. DNR has authorized the occupation of state owned aquatic lands for commerce and navigation through a lease, permit, or other form of use authorization.

- The BBIC leased the harbor area between the Vail and Prattle donation land claim boundary and Army Street in 1899. The lease excluded the platted streets running across the harbor area.

- In 1912, the BBIC subleased the harbor area to the Bellingham Bay Lumber Co. and the Bellingham Bay and British Columbia Railroad (BB&BCRR). In 1913, the Bellingham Bay Lumber Co. assigned its interest to the harbor area lease to Bloedel Donovan. The Chicago, Milwaukee and St. Paul Railroad acquired the BB&BCRR in 1918.

- The 1912 BBIC harbor area lease exhibit shows the location of the mill's wharf and the associated mill structures both within the harbor area, and those located on private tidelands. Immediately north of Alder Street within the harbor area were located the Planing Mill, shed and a portion of the shipping shed. On the private tidelands a dry kiln was located, as well as a shed. At Cedar Street was located a loading platform, and from Cedar to Pine Street within the harbor area was located the Milwaukee Car Ferry terminal and Sehome Dock. Bellingham Bay Lumber Co. lumber storage was located on the private tidelands. An overhead electric tram linked the lumber storage area with the Sorting table located on the mill wharf.

- Even though the Chicago, Milwaukee and St. Paul Railroad and Bloedel Donovan had acquired the upland properties, the harbor area lease remained in the name of the BBIC. In 1925, the BBIC lease was assigned to the railroad and the lumber company to correspond to their sublease areas. The activities within the harbor area included a planer located close to Alder Street, lumber shed and yards as well as the Chicago, Milwaukee and St. Paul Railroad car ferry located in front of Cedar Street. Dressed lumber storage and yards were located on the private uplands.

- In 1947, the Port of Bellingham acquired the Bloedel Donovan Lumber Mill properties, including the harbor area lease and the ownership of the improvements within the harbor area. In 1949, the Commissioner determined that the Port intended to use the area strictly for Port purposes and therefore would be entitled to have the use of the area without payment of rental.

- The Port of Bellingham established Industrial Site No. 3 in this area.

- In 1948, the Port of Bellingham leased the upland properties between Alder and Pine north and east of the extended Cornwall Avenue to the International Crossarm Manufacturing Co. DNR does not have a copy of this lease.

- Prior to 1948, railroad revenue maps show the International Crossarm Co. to be located According to the 1948 update of the 1913 Sanborn Insurance Map shows the International Crossarm facilities. The International Crossarm Manufacturing Co. facilities depicted on the map included a lumber dry shed, a large building with a loading conveyor located adjacent to the Chicago, Milwaukee and St. Paul Railroad line.

- On August 11, 1953, the Port Commission, as reported in its minutes, extended the International Crossarm Lease for certain property on Industrial Site No. 3, was authorized executed for the period of five years from July 1, 1953, all in accordance with the terms and conditions of the original lease dated June 21, 1948. DNR does not have a copy of this lease.

- According to a map of dredging disposal areas found in Corps of Engineers files, a portion of the harbor area located between Alder Street and the CMSt.PRR car ferry was used as a Whatcom Creek waterway dredge disposal site in 1953. DNR has no record of this disposal.

- Port of Bellingham 1947-1965: From 1953-1965 Port sublet to City for use as a sanitary landfill. It should be noted that the fill area shown on the Douglas Management Record of Survey corresponds to the original location of the Bloedel Donovan wharf. The Port, during City occupation of harbor area, required City to perform certain actions to conform with sub-lease, including the use of clean cover material rather than coal slag; the erection of boom sticks to control garbage, the control of fires, restrictions on open/close times, and directions on the type of garbage which could be deposited in the landfill.

- In a 1955 Inspection Report prepared as part of the Port of Bellingham's application for lease renewal, Department of Public Lands Inspector J. Reid reported to the Commissioner that the harbor area westerly of Cedar Street remained old docks, loading wharves and trestles decayed to no value. He reported that the old Bloedel Donovan Lumber Mill had be destroyed by fire and never rebuilt.

- In 1955, the Sanitary Service Company left fires burning at the City Dump. Wind blew fire into the International Crossarm yard. The Port's insurance company had objections to the action of the Sanitary Service Company leaving fires burning.

- On a Port of Bellingham map dated November 14, 1961, the R.G. Haley site was depicted. It shows the retort being located on and north of Alder Street, adjacent to the Chicago, Milwaukee and St. Paul Railroad line. It also shows the approximate location of drying sheds. American Fabricators is identified on the map as leasing the harbor area.

- In 1962, the Port of Bellingham sold the area between Alder and Pine Street to the R.G. Haley International Crossarm Co.

In 1965, harbor area lease 1555 (HA1627) was issued to Frank Brooks Manufacturing Co. Lease 1555 was canceled in 1976. Harbor Area Lease 2353 was issued to Frank Brooks for 10.28 acres comprising the filled area of the site. Georgia Pacific now leases the harbor area.

EXHIBIT A-2
1995 TetraTech Historical Report Chapter 5

FINAL REPORT
TC-0416; 0417

INITIAL CHARACTERIZATION OF CONTAMINANTS AND USES AT THE CORNWALL LANDFILL AND IN BELLINGHAM BAY

30 June 1995

Prepared For:

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Seattle, Washington 98101

5.0 CORNWALL AVENUE LANDFILL AND R.G. HALEY SITES

The Cornwall Avenue Landfill underlies property currently leased by DNR to the Georgia-Pacific West Corporation. The landfill has been identified by Ecology as a confirmed or suspected contaminated site under the Model Toxics Control Act, and graded 2 on a scale of 1 to 5, where grade 1 is the highest priority for investigation and remedial action (Ecology, no date, size hazard assessment). The only other site within 1/4 mile of the landfill that has been identified by Ecology as a confirmed or suspected contamination site is the former R.G. Haley International Corporation, Inc. wood treatment facility, which is adjacent to the landfill (Figure 5-1). This site has been given the grade of 3 on the above scale.

Section 5.1 is a detailed history of this site and the surrounding area prepared by HRA, Inc. Sections 5.2 and 5.3 review contaminant sampling processes and results from this site and the immediate vicinity.

5.1 HISTORICAL OVERVIEW OF CORNWALL AVENUE LANDFILL AND VICINITY

5.1.1 Early Industries in Bellingham Bay

During the nineteenth century, Bellingham Bay became one of the first industrial areas in Washington. Lumbering began in the early 1850s with the development of a saw mill on Whatcom Creek. Vast stores of timber soon attracted additional lumbering operations along Bellingham Bay, which provided access to markets. During the early 1850s, settlers also discovered coal, and established the first coal mining operation in Washington Territory (Anonymous 1902, Moen 1969).

In 1853, Henry Hewitt and William Brown found an outcropping of coal while scouting for logs near Sehome Hill, south of what is now Laurel Street, between State Street and the shoreline. The claim was sold to a group of San Francisco businessmen, who organized the Bellingham Bay Coal Company. In 1855, they opened the Sehome Mine, which produced at the rate of 500 tons per year. Its shaft began at the intersection of Railroad Avenue and Myrtle Street, eventually extending as far northwest as the

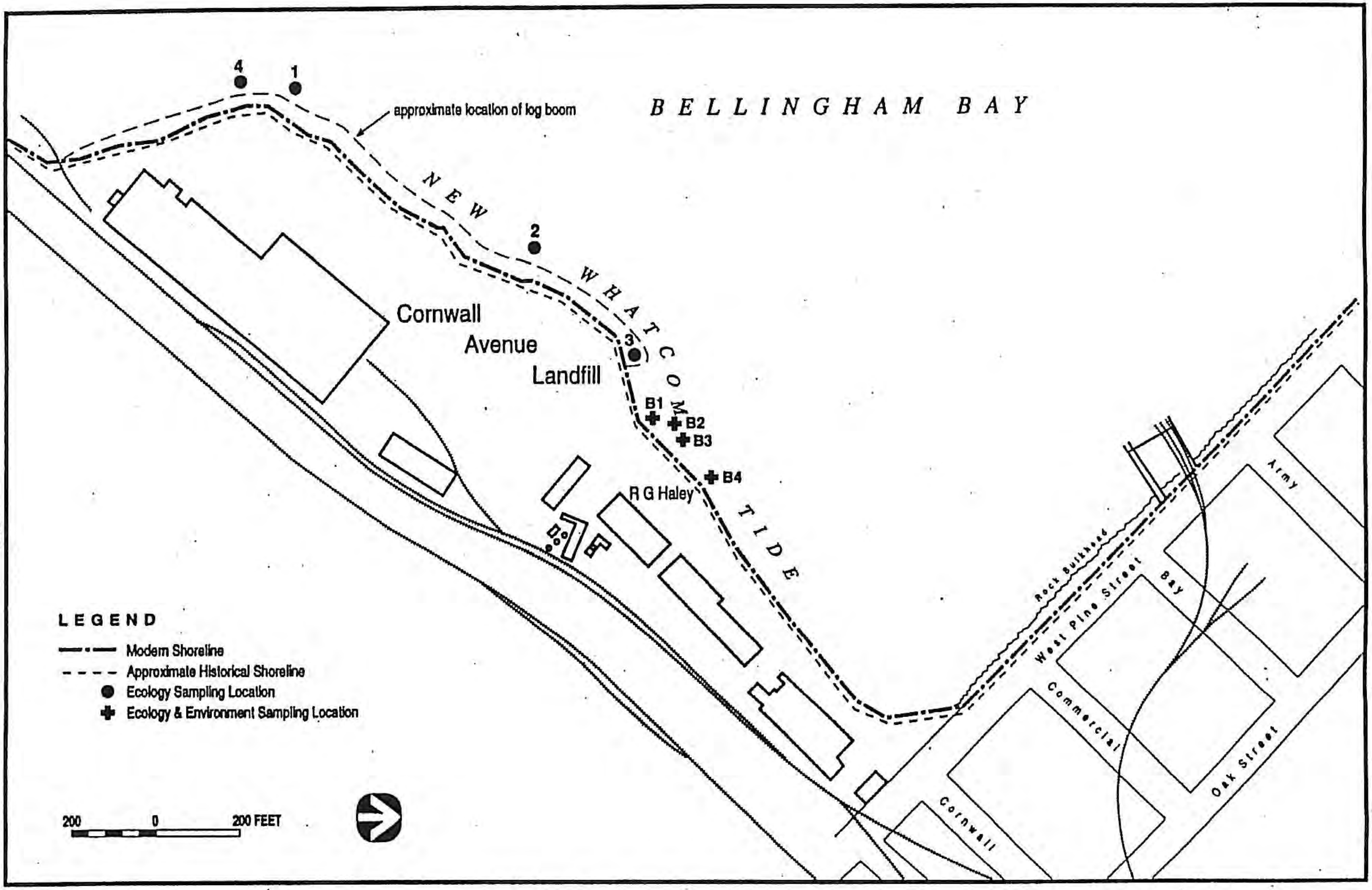

Figure 5-1. Cornwall Landfill Area and Offshore Intertidal Sampling Locations.

intersection of Champion, Unity and Dock (now Cornwall) Streets. The Sehome vein proved to be 17 feet thick, and the dip and the strike carried the seam under the waters of Bellingham Bay. The Washington State Division of Mines and Geology reported that Sehome coal was mined beneath the tidewaters (Batchelor 1982).

Operation of the Sehome Mine was periodically interrupted by fires caused by explosive gases, and flooding owing to inadequate pumping equipment. By 1878, its supply of coal had dwindled, and the mine shut down (Batchelor 1982, Tweit interview 1995). A map dated 1966 indicates that coal mining activity covered an approximate area that includes what is now the Cornwall Landfill (Washington Surveying and Rating Bureau). Coal mining continued in the Bellingham Bay area after the Sehome Mine closed. Workers loaded coal at the Sehome wharf, located at the foot of Dock Street, which became Cornwall in the mid-1920s. This structure, which remained in use through the early twentieth century, featured rail lines to the edge, and chutes to drop the coal into the cargo compartments of waiting ships (Scott and Turbeville 1980) (Figure 5-2).

5.1.2 Bellingham Bay Improvement Company

The mild success of the coal industry encouraged additional development of the area at the foot of Dock Street. In 1883, investors in the Bellingham Bay Coal Company formed the Bellingham Bay and British Columbia Railroad Company to promote the area as a terminus for the transcontinental railroad. During the 1880s, the company constructed a rail line from the tidewater to the national boundary, where it connected with the Canadian Pacific Railroad. In 1889, Cornwall and the other investors established the Bellingham Bay Improvement Company (BBIC), to develop the Bellingham Bay area through real estate platting and sales. The Bellingham Bay and British Columbia Railroad Company operated under the BBIC's charter, which called for starting new industries and building additional transportation systems (Prosser 1903, Kraig 1981, Kraig 1989).

In 1891, the BBIC constructed a saw mill along the waterfront, using the Sehome wharf at the foot of Dock Street. A map of the BBIC's early facilities dated 1891 indicates that a "dump," perhaps associated with lumbering operations, was located at Elk and Beech Streets, near the project area (Whatcom County Appraiser's Map 1891). Although Historical Research Associates did not locate additional references, this map could indicate that dumping remained a longstanding use of the property. The BBIC mill, which became the second largest on Puget Sound, featured a capacity of two hundred thousand feet of lumber

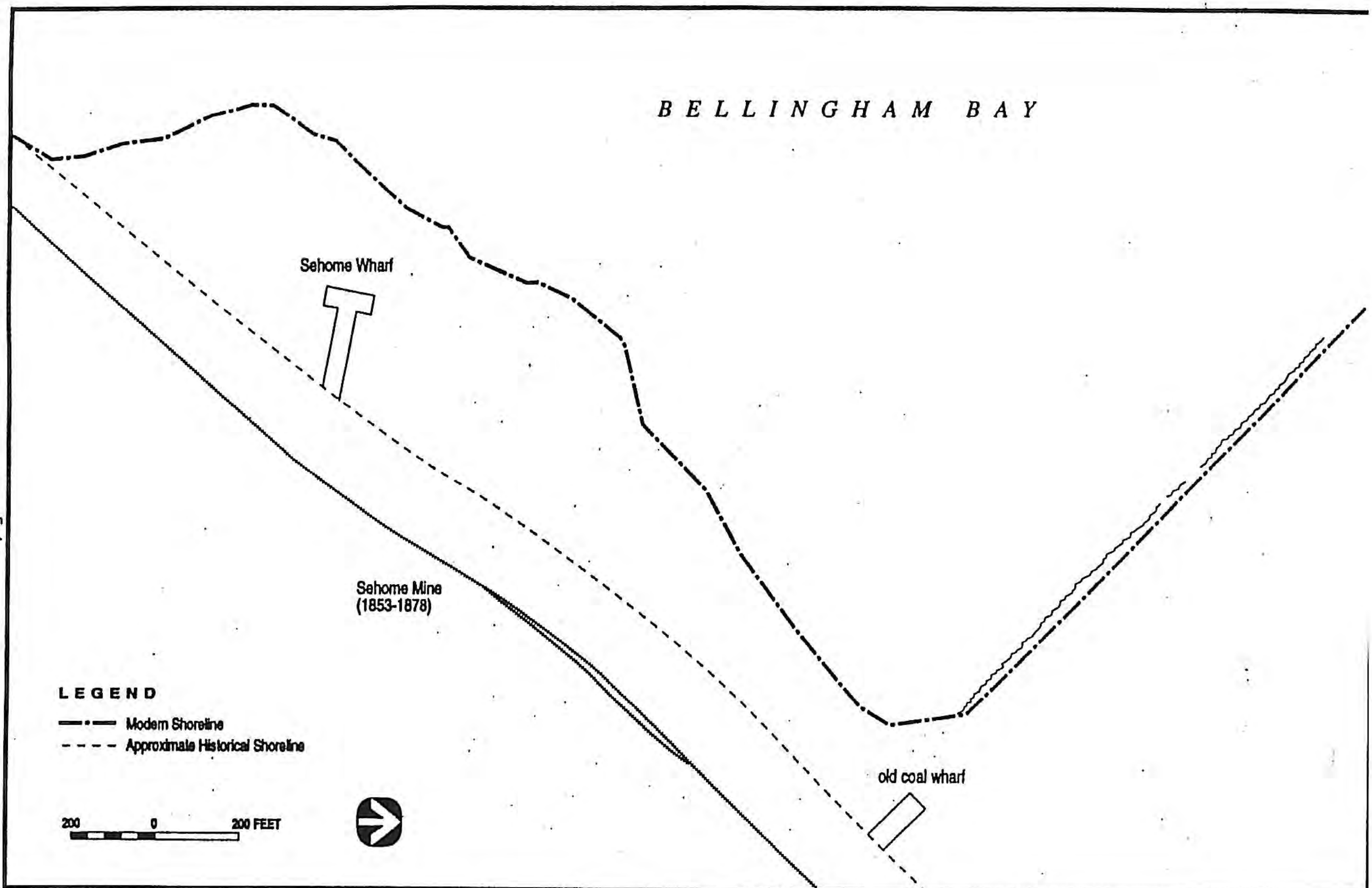

Figure 5-2. Cornwall Landfill Area 1880-1890.

every ten hours, and employed 200 workers. "Perhaps no other one company has done as much for the improvement and progress" of Bellingham, noted one historian in 1903, "for it has largely promoted industrial and commercial interests with the result that the city's growth has been augmented and its prosperity largely increased" (Prosser 1903). In 1911, the BBIC petitioned the Board of State Land Commissioners to fill in a portion of the harbor in the project area. For all its early promise, however, the BBIC proved to be short-lived. By 1912, the Bellingham Securities Syndicate had purchased its properties, and the mill and rail lines were sold to private investors, signalling the end of an era of high expectations and boosterism in the Bellingham Bay area. In 1933, the Bellingham Bay Improvement Company dissolved, and around 1940, the Bellingham Securities Syndicate also disbanded (Kraig 1989) (Figures 5-3 and 5-4).

5.1.3 Bloedel Donovan Lumber Company

In 1913, the Bloedel Donovan Lumber Company purchased the mill at the foot of Dock Street. This entity resulted from the merging of the Lake Whatcom Logging Company and the Larson Lumber Company that same year (Clark 1969). By 1918, Bloedel Donovan had remodeled the mill, adding a sash and door factory as well as a box factory. The company stored 40 million feet of box lumber at the site, and maintained one of the largest privately-owned deep water docks on the Pacific Coast (Koert and Biery 1980) (Figure 5-4).

In 1925, the State of Washington leased portions of the project area to the Bloedel Donovan Lumber Company, stating that "The lessee shall not make or suffer to be made any artificial filling in of said leased area or any deposit of rock, earth, ballast, refuse, garbage or other matter within such area, except as provided by law or as approved in writing by the Commissioner of Public Lands" (State of Washington 1925). By World War II, timber reserves had become depleted, and Bloedel Donovan holdings were liquidated in 1945 and 1946. In 1942, the company assigned a portion of its lease to the Port of Bellingham, which purchased the mill in 1947 for $75,000 (Edson, no date) (Figures 5-5 to 5-7).

5.1.4 Brooks Lumber Company/American Fabricators

During the early twentieth century, Frank N. Brooks became "one of the prominent operators" in Bellingham's lumber industry. Described as a "true westerner," Brooks was a native of Minneapolis who established the Brooks Lumber Company in Michigan in 1914. Five years later, he moved his business to

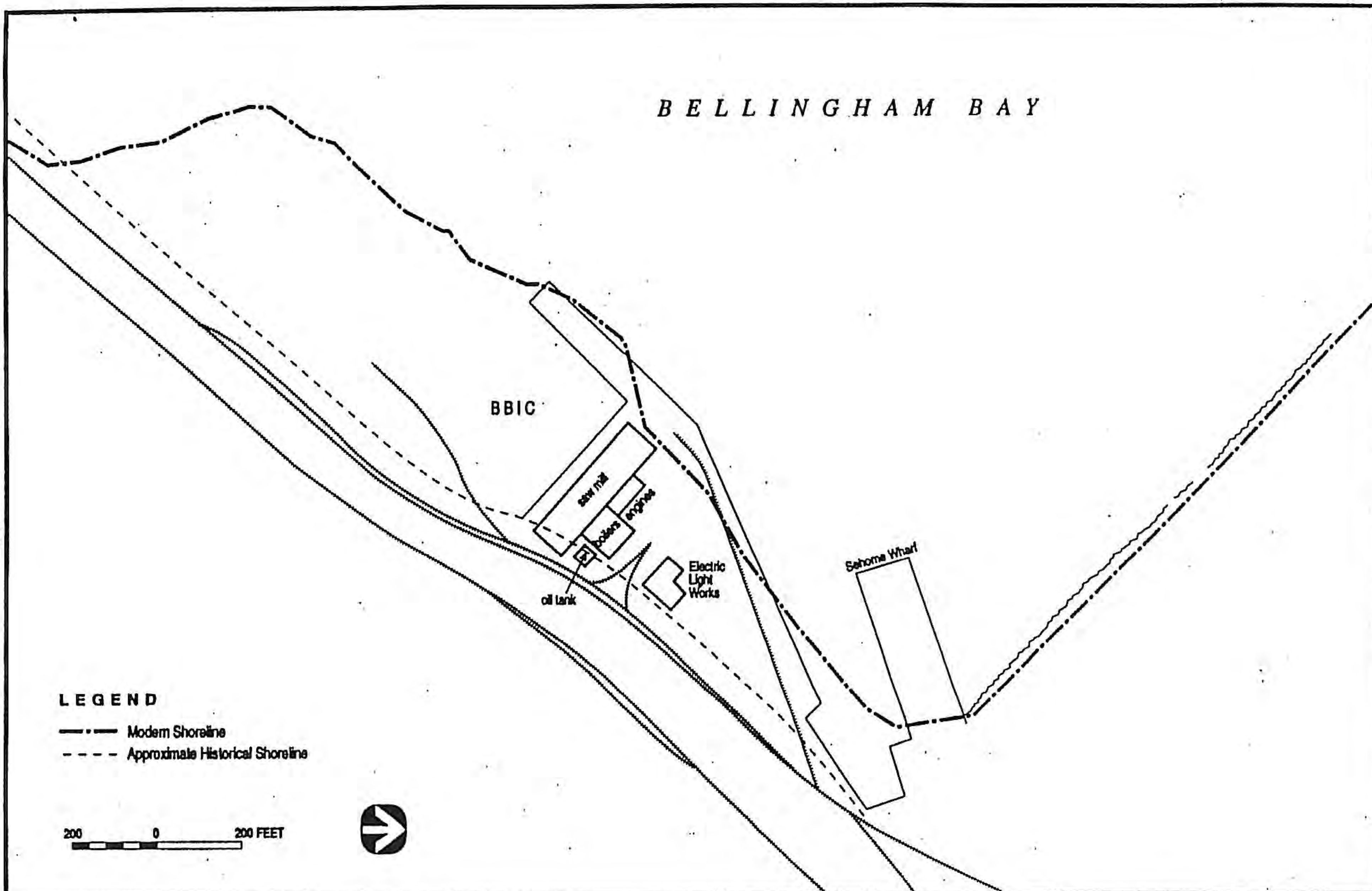

Figure 5-3 Cornwall Landfill Area 1890-1900.

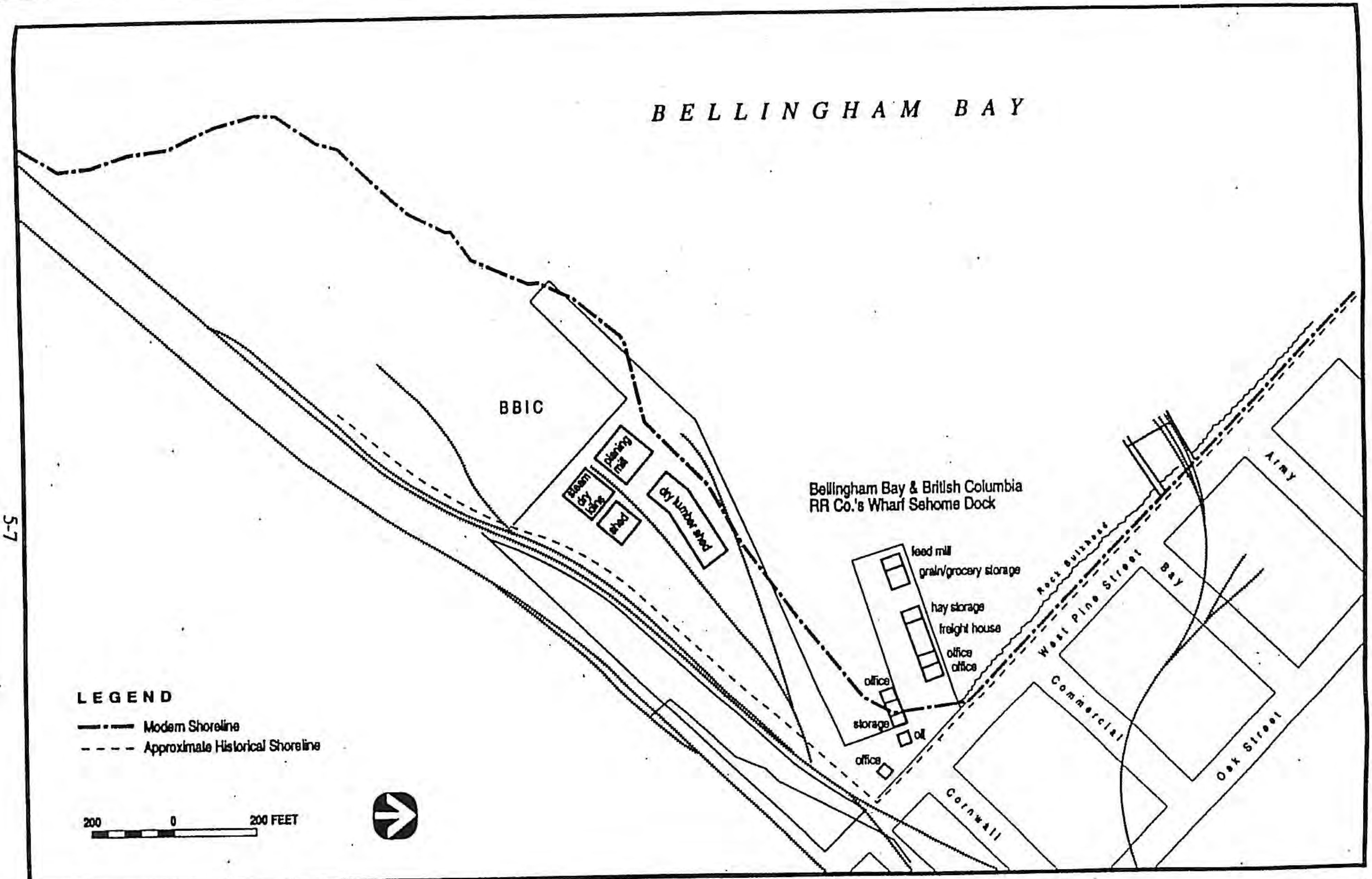

Figure 5-4 Cornwall Landfill Area 1900-1910.

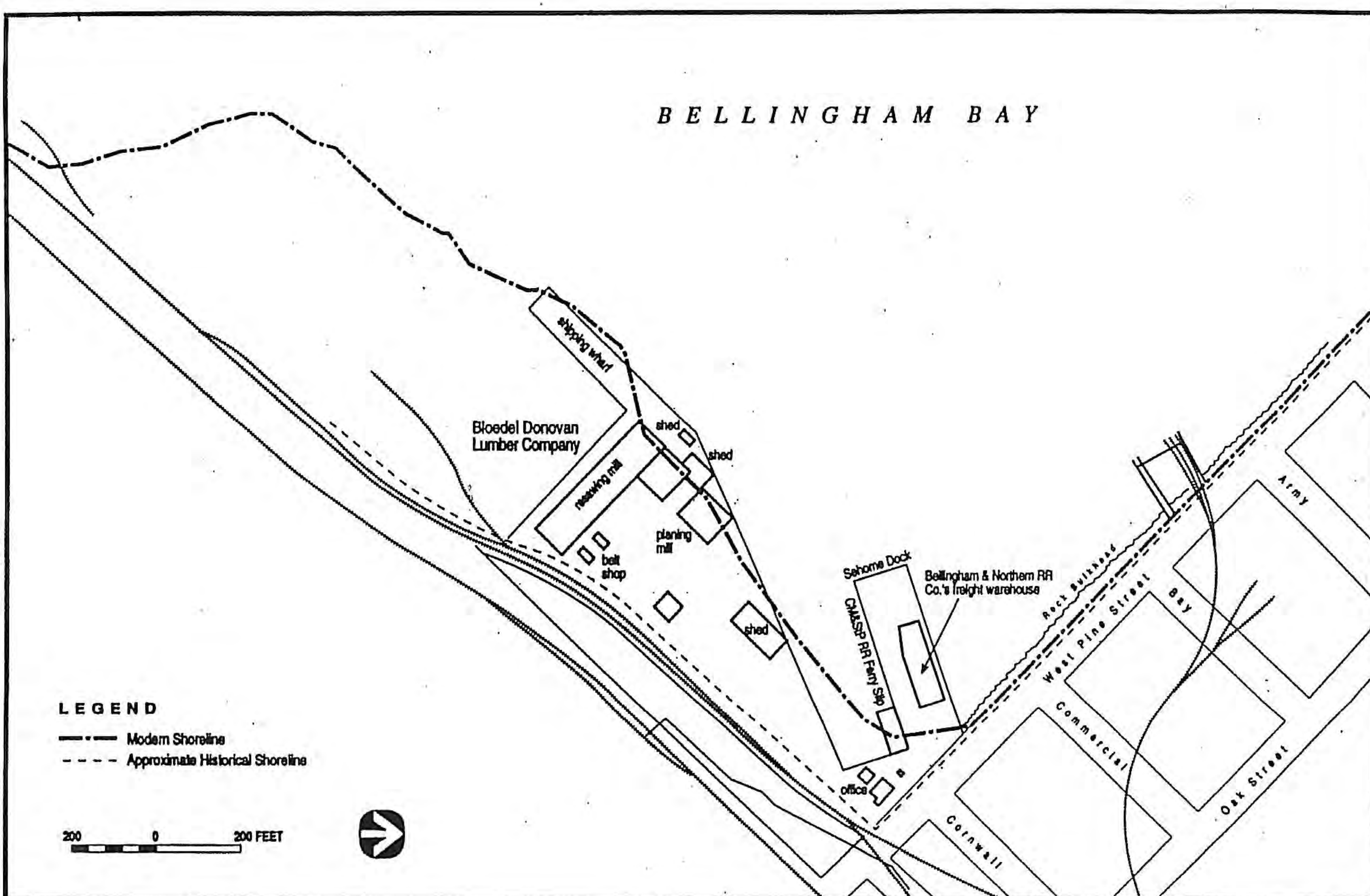

Figure 5-5 Cornwall Landfill Area 1910-1920.

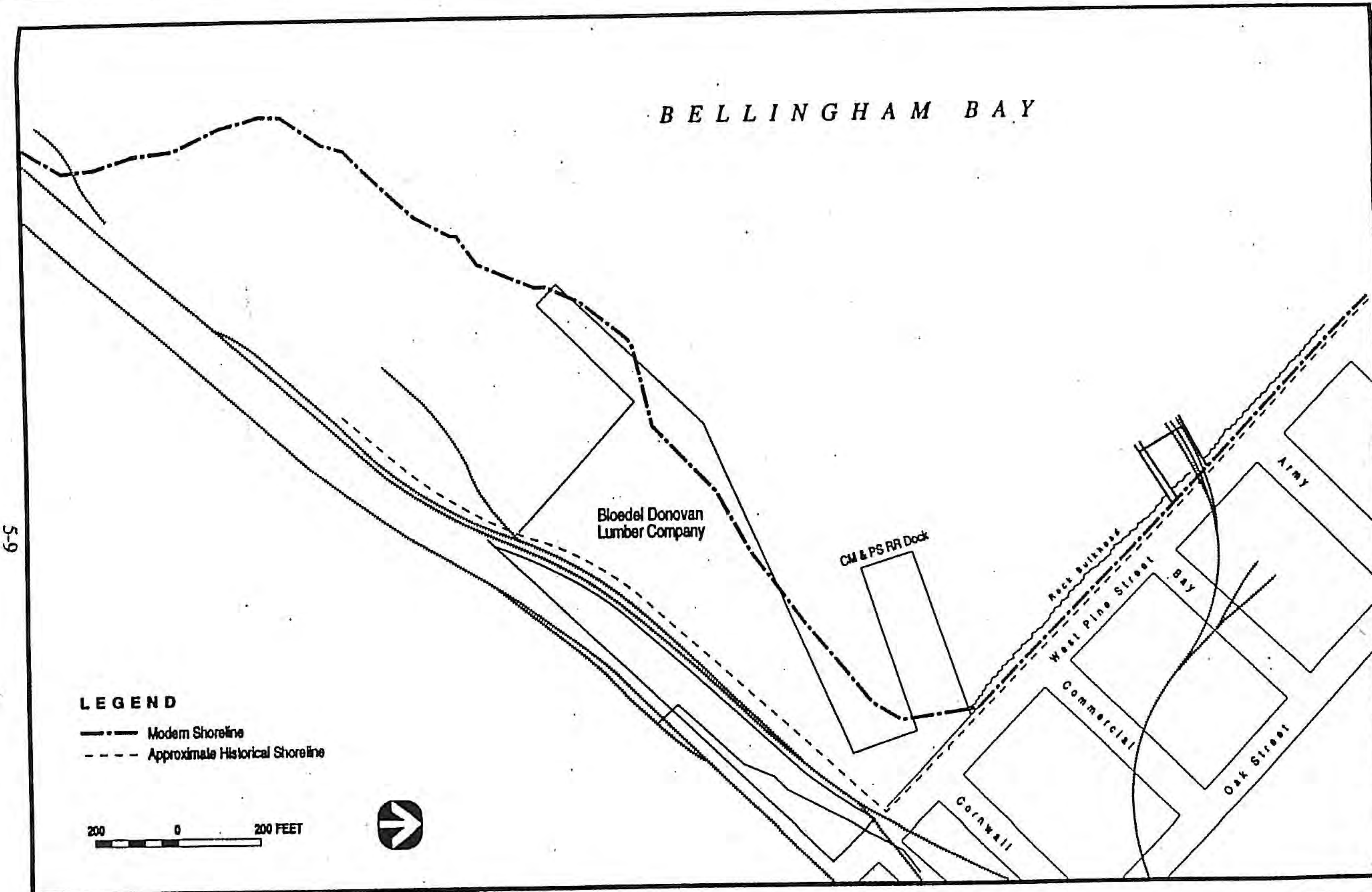

Figure 5-6 Cornwall Landfill Area 1920-1930.

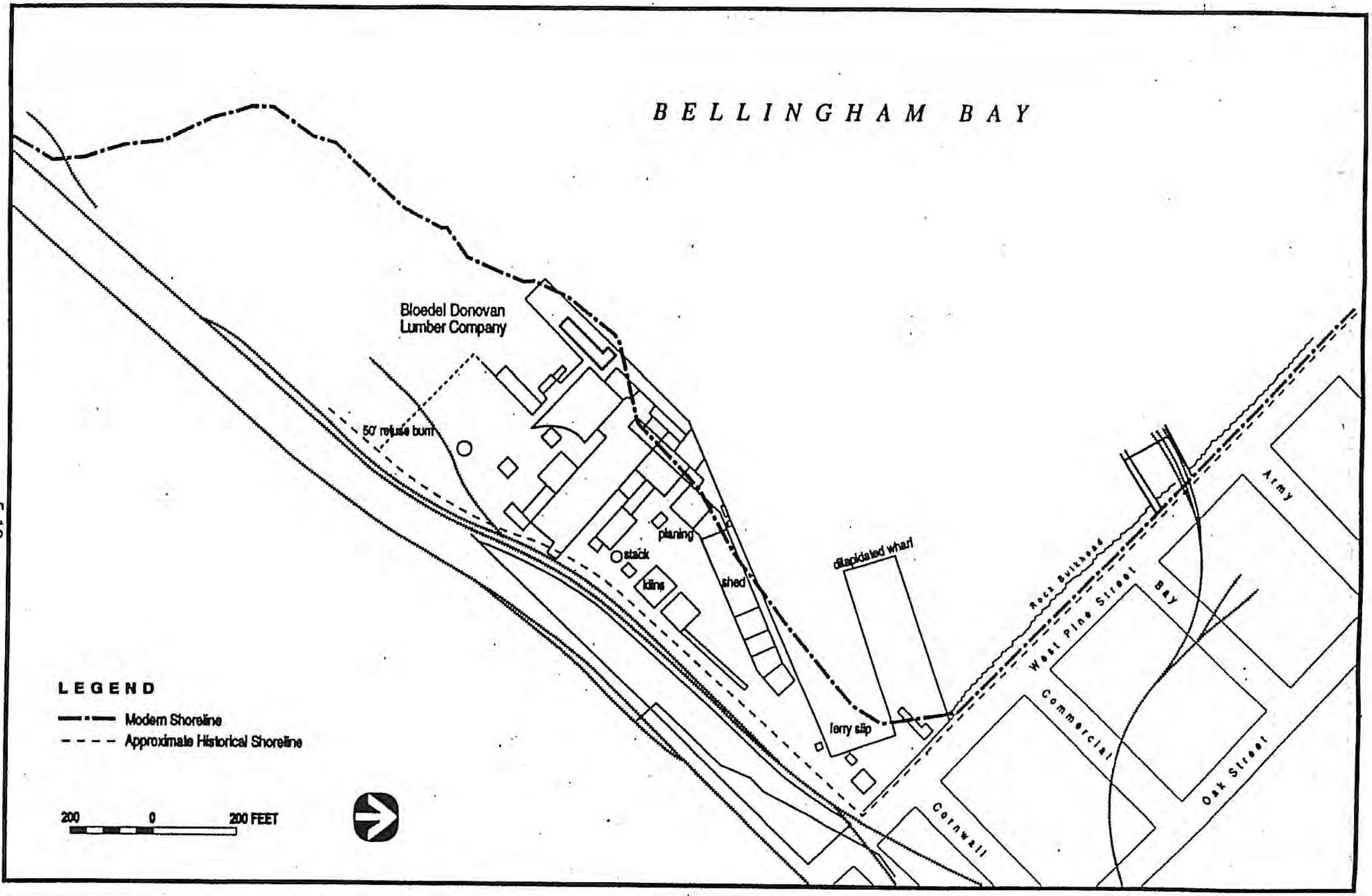

Figure 5-7 Cornwall Landfill Area 1930-1940.

Bellingham Bay (Roth 1926). Brooks Lumber Company first appeared in *Polk's Bellingham and Whatcom County Directory* in 1920-1921 (Polk 1921).

It is not clear when this company began operating in the project area. In 1927, Brooks complained that Bellingham's lack of facilities for handling lumber for water shipment had forced small mills out of business in the area. His objective was to persuade the U.S. Army Corps of Engineers to proceed with improvements on Squalicum Creek (U.S. House 1928). In 1942, the American Wood-Preservers' Association reported that the Brooks Lumber Company maintained two wood-treatment tanks, measuring 6x8x24, in Bellingham. The American Wood-Preservers' Association continued to report the wood-treating activities of the company, which became Brooks Manufacturing, through the early 1990s (American Wood-Preservers' Assn. 1942, 1990).

In 1954, *Polk's Bellingham and Whatcom County Directory* listed American Fabricators, with Frank C. Brooks, Frank N. Brooks's son, as president (Polk 1954). During the 1950s, American Fabricators, a division of Brooks Lumber Company, was located at the foot of Cornwall Avenue, suggesting that Brooks Lumber Company had been operating at this site. An interview confirmed that Brooks Lumber Company was located at the site around this time (Dahlgren interview 1995). American Fabricators was involved in glue lamination of wood structures, and operated one of the nation's largest plants devoted to this activity.

By the early 1960s, this company had purchased "the old Bloedel Donovan office buildings and site" (Hitchman 1972). In 1962, American Fabricators leased 9 1/2 acres of fill land to the City of Bellingham for an extension of the city garbage dump (Bellingham Herald 1962). Polk Directories indicate that Brooks Manufacturing and American Fabricators moved to Iowa Street in 1974 (Polk 1974). Brooks Manufacturing continues to conduct business at this location.

5.1.5 International Cross Arm/R.G. Haley/G.R. Plume Company

International Cross Arm Company first appeared in *Polk's Bellingham and Whatcom County Directory* in 1923 (Polk 1923). During the 1920s, this business operated in Victoria, British Columbia, where J.O. Cameron served as its president. International Cross Arm Company also ran a "substantial" wood by-product factory in Bellingham, where it was located at the foot of Taylor Avenue. Here it manufactured cross arms for telegraph and telephone lines, and Axel G. Bulow managed the facility (Roth 1926).

The American Wood-Preservers' Association began reporting the wood-treating activities of International Cross Arm Company during the early 1950s (American Wood-Preservers' Assn. 1952). At that time, the company was conducting its wood-treating business at 499 Cornwall Avenue, where it stored up to 2 1/2 million board feet. In 1956, the company began doing business as R.G. Haley International Corporation, with Richard Haley serving as president and Axel G. Bulow as vice-president. In 1957, the company acquired a new kiln at its Cornwall location, which allowed lumber to be cured in 10 days. Previously, the cross arm lumber was air-dried, a process that could take up to four months (Polk 1954, 1956; Bellingham Herald 1957). The facilities also included a retort, storage tanks for PCP, control room, and some large storage sheds (Ecology and Environment Inc. 1986).

Ralph Stephan, plant manager for R.G. Haley International Corporation, reported that the company stockpiled lumber on concrete pads along the waterfront. Waste waters from the wood-treatment process were released into an unlined seepage pit on the property. Before the plant closed in the 1980s, 5,000 to 6,000 gallons of sludge from the R.G. Haley plant were collected by Crosby and Overton, Inc., which disposed of the material at Chemical Security Systems, Inc. in Arlington, Oregon (Purnell 1991). According to one source, R.G. Haley International Corporation wanted to expand its operations during the 1980s, but the company was unable to secure a shoreline permit to do so (Maury interview 1995). In 1985, the facility closed its operations, and in 1991, G.R. Plume was located at the site (Polk 1991, Ecology and Environment 1986, Dahlgren interview 1995) (Figures 5-8 to 5-11).

5.1.6 Georgia-Pacific Corporation

In 1926, Ossian Anderson founded the San Juan Pulp Company, which established a pulp plant on five acres of tidelands north of the project area. Three years later, the business was reorganized as the Puget Sound Pulp and Timber Company. Anderson served as the new company's first president. By 1938, it had constructed the pulp mill on the tidelands that continues to operate at the present time. In 1941, this operation was enlarged to produce 160,000 tons annually. Encouraged by the war effort, the Defense Plant Corporation built a plant at the site to produce ethyl alcohol from the sugars present in the sulfite waste liquor of the pulp mill. The Puget Sound Pulp and Timber Company later purchased this plant. In 1946 and 1947, the company added a modern log barking and chipping plant and a paperboard manufacturing plant to its operations. Production at the paperboard plant averaged 45 tons per day, until it closed in the early 1980s (Georgia Pacific 1991).

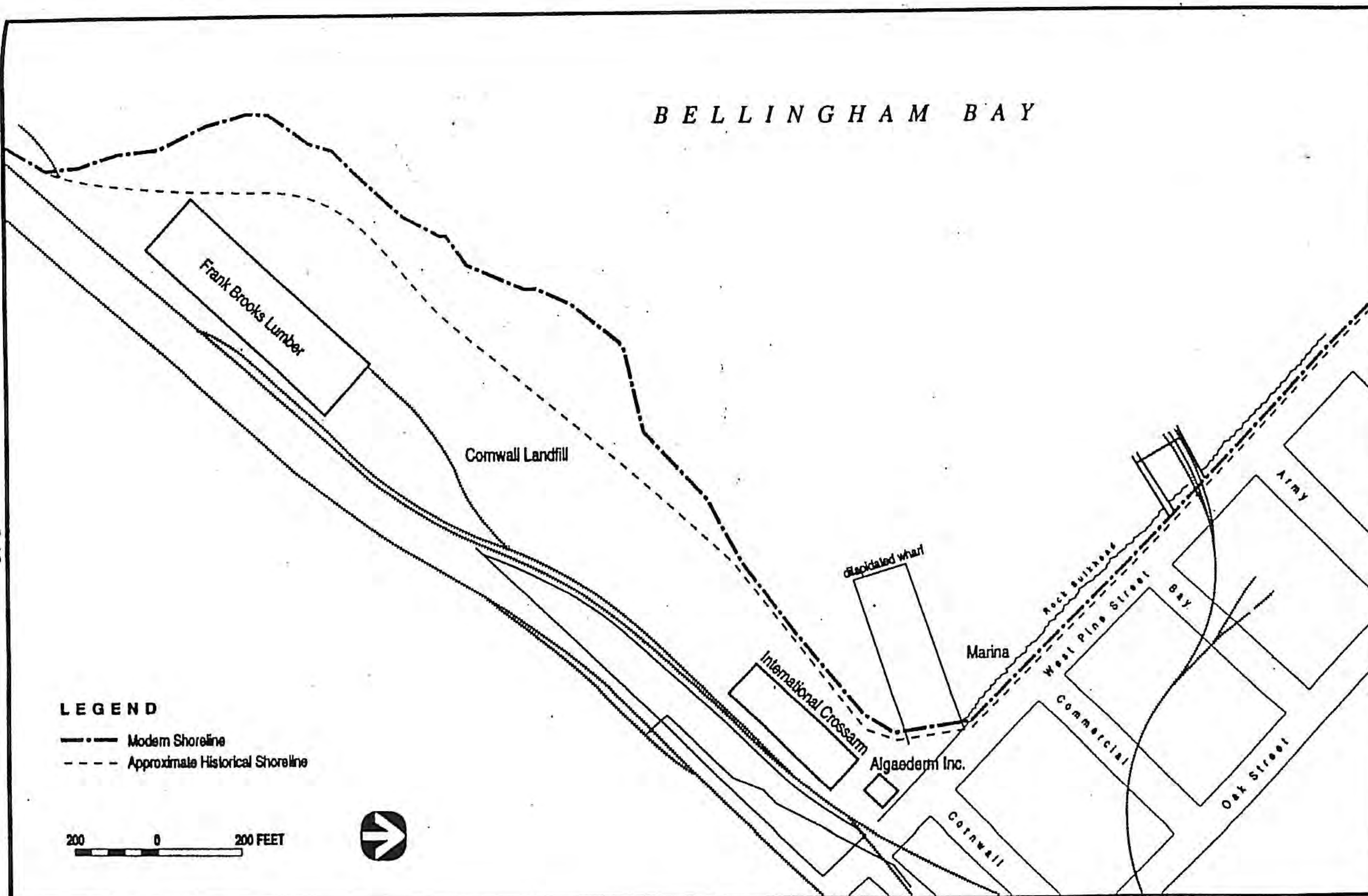

Figure 5-8 Cornwall Landfill Area 1940-1950.

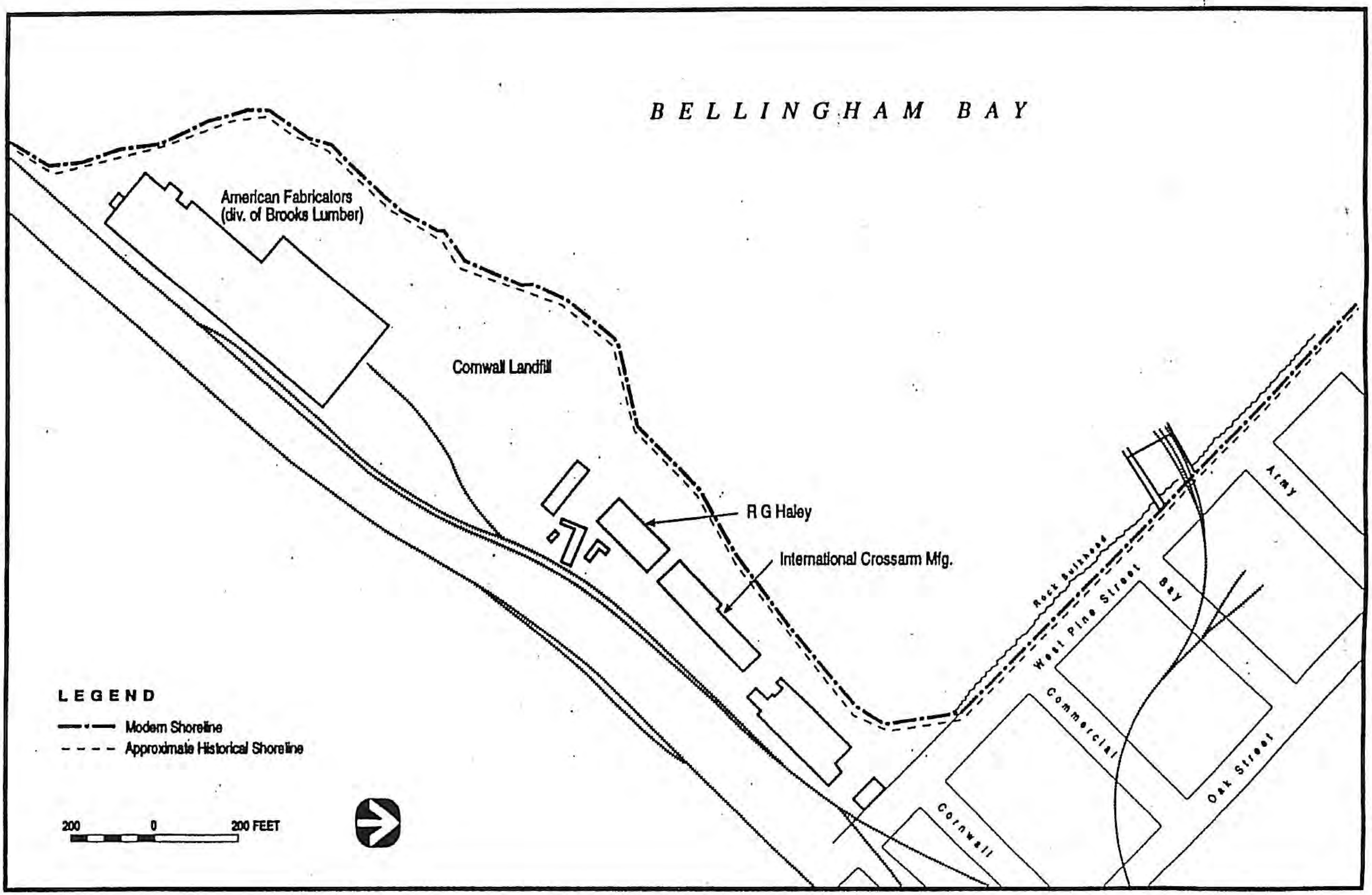

Figure 5-9 Cornwall Landfill Area 1950-1960.

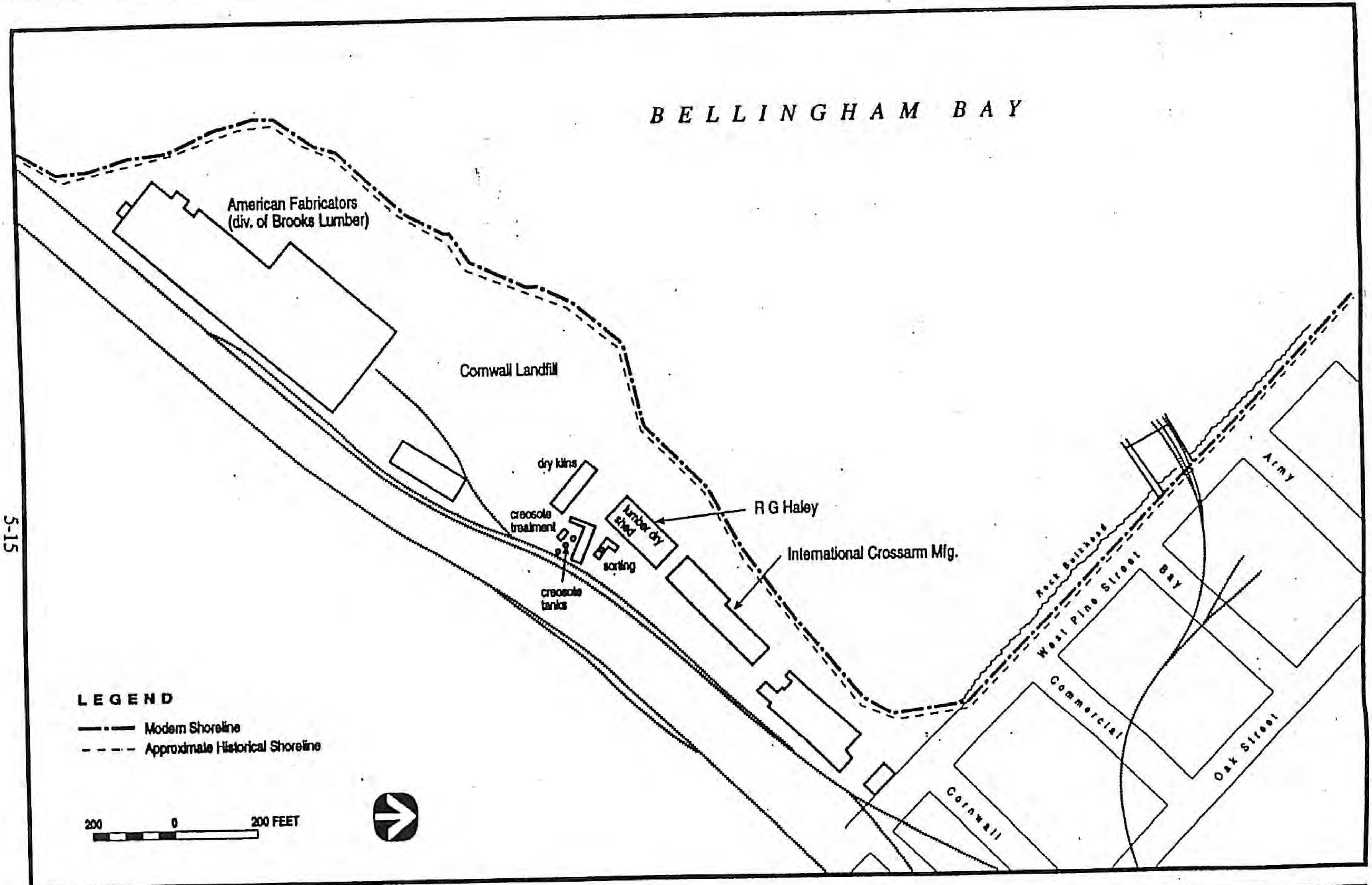

Figure 5-10 Cornwall Landfill Area 1960-1970.

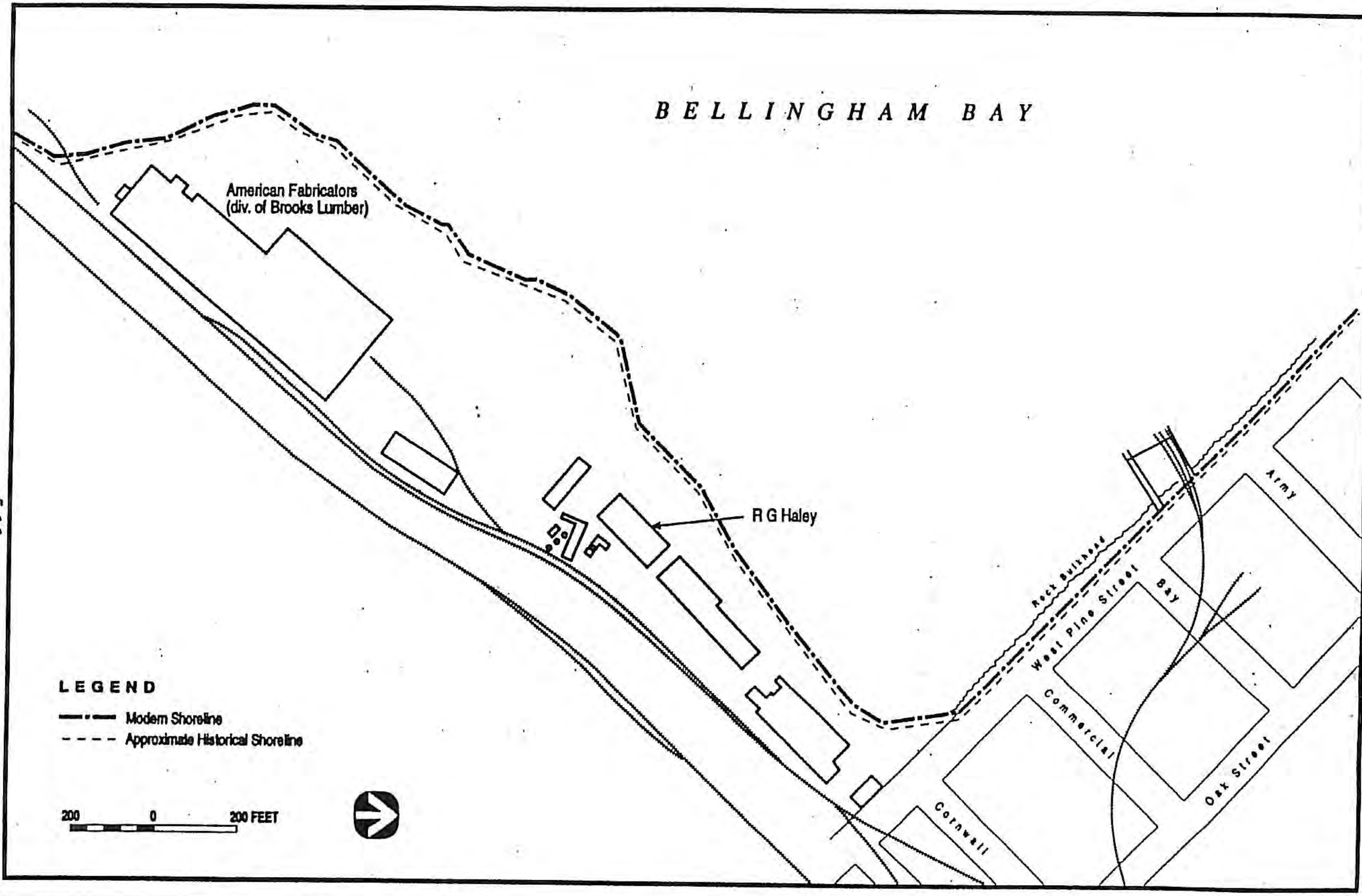

Figure 5-11 Cornwall Landfill Area 1970-1980.

By 1958, the Puget Sound Pulp and Timber Company had acquired the adjacent tissue manufacturing operations of Pacific Coast Paper Mills. In 1963, the company merged with the Georgia-Pacific Corporation, based in Atlanta with headquarters in Portland, Oregon. Georgia-Pacific continued to run the Bellingham plants, and in 1965, the company constructed a chlorine-caustic soda, sulfuric acid, and sodium chlorate plant for its pulp and tissue bleaching operations (Georgia Pacific 1991).

In 1971, Georgia-Pacific leased a portion of the project area, which it purchased from Brooks Manufacturing in 1985 (Dahlgren interview 1995). In 1972, the company added a 600-ton-per-day pulp dryer. Throughout the 1970s and 1980s, Georgia-Pacific Corporation continued to improve its facility, adding a pulp washer, additional digesters, power substations, wood-handling installations, warehousing, by-product expansions, and chip plants. It also provided primary and secondary treatment of its waste water streams (Georgia Pacific 1991).

5.1.7 Sanitary Services Company

Agostino Razore founded City Sanitary Services as a partnership in Bellingham in 1929. At that time, five employees provided refuse collection service to 500 customers. During the mid-1970s, the business incorporated and changed its name to Sanitary Service Company. By the 1990s, the company had employed 50 people, who served approximately 25,000 residential and commercial customers in Bellingham, Ferndale, Birch Bay, and the unincorporated areas of southern Whatcom County (Kenefick, A., personal communication, 1995; Sanitary Service Co. no date; Nikula interview 1995).

According to Joe Razore, municipal garbage was first landfilled in the project area, at the southwest foot of Cornwall Avenue, around 1945 (Purnell 1991). In 1951, Josie Razore and Agostino Razore signed a 10-year contract with the City of Bellingham concerning residential and commercial garbage collection. According to the contract, the company was to "furnish and properly maintain a sufficient number of vehicles suitably manned and equipped to remove all of the garbage, inflammable material and ashes of all persons, buildings and structures within the City limits." The contract also defined "garbage" as "all waste and refuse substances that may be or become a menace to public health or that will ferment or emit a disagreeable odor" (City of Bellingham 1991). For the next 40 years, the City of Bellingham and City Sanitary Services Company signed numerous agreements for garbage service.

In summary, the companies that operated at or near the project area were engaged in activities that might have produced contaminants. In the United States, the wood-preserving process began utilizing chlorinated phenols during the 1930s, and it is possible that the treating facilities of Brooks Manufacturing and R.G. Haley used pentachlorophenol (Hunt and Garratt 1953). The Georgia-Pacific Corporation, as noted, also produced a variety of chemicals in the vicinity. City Sanitary Services accepted waste from a variety of sources, including households and businesses, which could have contributed to contamination at the site.

5.1.8 The Development of the Cornwall Landfill

In 1953, the Port of Bellingham leased a portion of the former Bloedel Donovan Lumber Company site to the City of Bellingham "for the dumping of waste materials of all kinds." The City and its Contractor, which was City Sanitary Services, would remain responsible for coverage of the refuse, and for maintaining the sanitary fill in accordance with the Board of Health regulations (Port of Bellingham 1953). Moreover, the lease, dated September 9, 1953, stated that "Lessee expressly agrees to hold Lessor harmless from any and all damages, or liability to any person whomsoever, arising out of fire or any other cause, resulting from the use of said leased premises by Lessee and/or its Contractor" (Zuanich interview 1995).

The following year, the superintendent of St. Joseph's Hospital complained to the City Council that rats from the garbage dump had invaded the grounds of his facility, endangering children. The City Council agreed to ask the Health Committee to study the need for bulkheading along the water side of the garbage dump (City of Bellingham 1954).

Throughout the 1950s, the Cornwall Landfill remained the city's only garbage dump. Ed Dahlgren, a longtime resident of the area and a consultant to Georgia-Pacific Corporation, recalled standing on the bluff above the dump and throwing his garbage over the edge. "Solid waste wasn't pollution in those days," he reflected (Dahlgren interview 1995).

During the 1950s, dumping was not strongly monitored. In 1954, for example, the Port complained to the City that 30 to 40 automobiles had been dumped at the site, in violation of the terms of the lease (Port of Bellingham 1954). Furthermore, numerous fires at the dump throughout the 1950s threatened adjacent businesses, including American Fabricators. Although the Board of Public Works had required that a watchman be stationed at the dump "at all times" it was open to the public, on several occasions the dump remained unsupervised as the fires burned. Ed Dahlgren also indicated that "it is possible that Sanitary Services contracted with hospitals" for waste disposal (Port of Bellingham 1954, 1955, 1958, 1959).

In 1956, however, the Bellingham and Whatcom County Department of Public Health reported that the garbage at the dump was covered with dirt fill "within a reasonable time," rodents were under control, and few complaints about the odor had been received. Still, this agency recommended installation of a second boom to contain the debris that would sometimes break loose and float into Bellingham Bay (Port of Bellingham 1956).

During the 1950s, officials at the Port of Bellingham regarded "furnishing space for a garbage dump" as "one of the cheapest ways to acquire filled in land" (Port of Bellingham 1959). At that time, this agency planned to develop "the North Side tideland area" as a shipping terminal (Bellingham Herald 1961). In 1958, the Port's Development Plan suggested that the 20-acre area along the extension of Cornwall Avenue would provide about 2,800 feet of deep water frontage on Bellingham Bay. Although water had once covered the 20 acres, approximately 2 had been "reclaimed with sanitary fill." The proposed development would require placing approximately 600,000 cubic yards of fill material on the 18 acres that remained underwater. Providing a structure to retain the placed fill would prove costly, however, and the Plan noted that this development "was not considered to be of high priority for industrial development" (Port of Bellingham 1958). During the early 1960s, the Port further decided not to develop the old Bloedel Donovan site as a terminal (Hitchman 1972).

By 1962, as noted, American Fabricators had agreed to lease 9 1/2 acres to the City of Bellingham for an extension of its garbage dump. The fill, both parties pointed out, "could eventually become valuable for industrial sites" (State of Washington Archives 1962b). On March 13 of that year, the Bellingham and Whatcom County Department of Public Health expressed concern regarding this expansion, notifying the Washington Pollution Control Commission that the dump would operate in "15' to 30' of water much of the time." Although plans called for double booming of the site, no bulkheading had been proposed. "Loss of garbage and rubbish into the bay will continue," the Department of Public Health worried. This agency further claimed that the U.S. Army Corps of Engineers had informed the City that it could not enlarge the dump (State of Washington Archives 1962a). Even so, on March 19, 1962, the City Council passed an ordinance authorizing the extension (City of Bellingham 1962).

The "Refuse Act" of 1899 had grant the U.S. Army Corps of Engineers the authority to regulate activities – including dumping – that could impair the navigability of the nation's waterways (Cowdry 1975). By June of 1962, this agency had concluded that "adequate bulkheading" was required to prevent shoaling in the area immediately adjacent to the fill (Port of Bellingham 1952).

That year, the Port of Bellingham informed the City that it did not want the dumping to continue along the waterfront, owing to pollution of Bellingham Bay and to siltation of the Whatcom Creek Waterway. As early as 1961, the Port Commissioners expressed concern about floating garbage that had broken free of the dump. The agency, however, remained uncertain that it had the authority to close the site (Port of Bellingham 1961, 1962, 1964; Bellingham Herald 1962a). The Port complained as well that the dump had become an eyesore and an embarrassment to local residents. "There's certainly not a more unsightly place in the state," observed one Port official (Bellingham Herald no date).

The Washington State Pollution Commission and the Whatcom County Health Department also protested the dump, noting that it "presents a health hazard." Waste materials from the site could not be contained behind the boom, owing to the depth of the water. Debris "would sluff off as a result of erosion, wind and tidal action," these agencies worried, "thus presenting a menace to navigation and fouling the dredged ship channel" (Washington State Archives 1962b).

On August 21, 1962, the Pollution Commission sent a certified letter stating that the City of Bellingham operated the dump "in violation of the Pollution Control Laws of the State of Washington." This correspondence instructed the City to discontinue the disposal of garbage at the site. According to the Pollution Commission, residents of the area complained about the large numbers of seagulls attracted to the dump as well as "the foul odors which it creates" (Washington State Archives 1962c).

Charles Olson, the City's attorney, informed the Pollution Commission, however, that use of the dump would continue. "We feel that the present site is the best garbage disposal site," he explained in September, 1962, "and that adequate methods are available and within the immediate plans of the city" (Bellingham Herald 1962a,b). Throughout the early 1960s, the Cornwall dump continued to prove controversial. "We've had enough of dumps," concluded one frustrated Health Department official (Bellingham Herald 1964).

Opposition to the garbage dump prompted several City Councilmen to complain in 1963 about $100,000 that the City had granted the Port for construction of a small boat harbor. "There is feeling that the City has received no consideration for the money and they are agitating for repayment," noted one memorandum (Port of Bellingham 1963).

In April, 1965, the Bellingham Port Commission received a request from the City to continue garbage dumping at the Cornwall site until June 1, 1965 "or until such time as the dike is completed." This request was forwarded to the Washington State Department of Resources (DNR), which named the following conditions:

a. proof of a signed contract between the City of Bellingham and Georgia Pacific Corporation for use of property within the proposed new dumping site, and

b. evidence of a contract between the City and a contractor to construct a dike on the off-shore edge of the new dumping site.

The DNR required that these conditions be met and confirmed by its district administrator at Deming before April 30, 1965. Should the Port fail to supply the required proof, the DNR warned, its Harbor Area lease "will be subject to cancellation" (City of Bellingham 1965). Shirley Daniels, District Administrator, also noted that the DNR had protested the dump earlier, in part because the Harbor Area was under lease to the Port. "As I have stated on numerous occasions in the past," Daniels wrote the Port Commissioners in 1965, "I would like to remind both the Port of Bellingham and the City of Bellingham that this is an illegal operation on State owned lands and we take a very dim view of the entire operation" (Port of Bellingham 1965).

In the spring of 1965, the city located a new dump site off Roeder Avenue, and by June of that year, City Sanitary Services had placed a layer of dirt over much of the dump, in preparation for closure of the site (Bellingham Herald 1965a). "The changeover was quiet," noted one observer, "amazingly so, when one thinks back to the storms of controversy that marked abortive attempts to evacuate the old site and find a new one" (Bellingham Herald 1965b).

5.1.9 Recent Developments

In 1970, the newly created Department of Ecology assumed the responsibilities of the Department of Water Resources and the Pollution Control Commission. In 1988, this agency identified the Cornwall dump as a site "potentially contaminated with hazardous substances" (DNR 1988). Four years later, a beachcomber discovered medical waste, including blood vials and syringes, at the site. Although its origin remained uncertain, Health Department officials determined that the material appeared on the site after the dump's closure. The Department of Ecology and the City of Bellingham then shared the cost of sampling beach seeps and intertidal sediments. The Health Department, charged with protecting the public from exposure to hazardous materials, ordered Georgia-Pacific Corporation to secure the site with patrols, fencing, and log booms (DNR 1992a). The Department of Natural Resources shared costs for sampling as part of an intertidal investigation and site fencing (DNR 1992b).

The Department of Ecology's initial investigation of the Cornwall Landfill revealed that Georgia-Pacific was using the site for raw log storage. Solid waste was exposed at the southwest corner of the landfill, and samples confirmed that the site could be contaminated. In 1992, the agency informed the Port of Bellingham, City of Bellingham, DNR, and Georgia-Pacific Corporation that, on a scale of 1 to 5, with 1 being the highest, the Cornwall Landfill ranked as a "2" under the Model Toxics Control Act (DNR no date). That year, the Health Department informed a variety of agencies, including the DNR's Division of Aquatic Lands, that "conditions at the site represent a threat to public health," concluding that "timely remediation is necessary" (DNR 1992c).

5.2 CONTAMINANT SAMPLING AT THE CORNWALL AVENUE LANDFILL

Ecology's Site Hazard Assessment reports that between about 1945 and 1964, a tideflat area at the foot of Cornwall Avenue in Bellingham was used as a municipal waste disposal site by the City of Bellingham (Ecology, no date, Site Hazard Assessment Cornwall Avenue Landfill). Ecology also reports that the refuse disposed in the area included household garbage and pulp mill waste.

5.2.1 Site Description

The landfill is estimated to cover approximately 2.4 ha (6 acres) and contain from 2,550-12,750 m^3 (10,000-50,000 yd^3) of waste covered with 15 cm (6 in) or more of uncontaminated soil. Medical wastes have been observed at the toe of the shoreward retaining wall at the southwest corner of the property, presumably derived from the landfill due to erosion or subsidence of the wall. A lens of coal tailings up to 46 cm (18 in) thick was noted near the middle of the northeastern portion of the retaining wall (W.D. Purnell & Associates, Inc. 1991). During an initial investigation conducted by Ecology in April 1992, stained sediments were observed at the toe of the shoreward retaining wall. Drainage emanating from the slope to Bellingham Bay, presumably leachate from the landfill, was also noted.

5.2.2 Site Contaminants

As part of their Site Hazard Assessment, Ecology collected and analyzed four water samples (identified by Ecology as leachate samples) and two marine sediment samples (Pebles, L., 18 June 1992, personal communication; Pebles, L., 25 June 1992, personal communication). Based on Ecology's map of sampling locations, the "leachate" samples appear to be samples of water seeping from intertidal sands, offshore and beyond the retaining wall. These samples will be referred to herein as seep samples and likely represent an admixture of seawater, groundwater, and possibly a dilute portion of leachate from the landfill.

The Georgia-Pacific Corporation contracted with W.D. Purnell & Associates, Inc. (1991) to perform a Phase I Site Assessment of the property. As part of the Phase I assessment, W.D. Purnell & Associates collected and analyzed two subsurface soil samples from a stained area between two concrete pads located on the site. The results of these analyses are summarized below.

5.2.2.1. Sampling conducted by W.D. Purnell & Associates, Inc.. The two soil samples collected by W.D. Purnell & Associates were analyzed for semi-volatile compounds only, including pentachlorophenol and PAHs. The field sampling protocols that were described indicated that proper care was taken to collect representative soil samples from the site. Quality assurance data provided in the W.D. Purnell & Associates report indicate that the data for soil sample S-1 were acceptable. Due to a laboratory extraction and dilution error, the detection limits for soil sample S-2 were elevated and therefore some compounds detected in sample S-1 may have been present in sample S-2 but at concentrations below the reported detection limit. Elevated concentrations of several low molecular weight PAHs and pentachlorophenol in both samples (Table 5-1) indicate that the contamination present in the vicinity of the concrete pads was derived from wood treatment wastes.

TABLE 5-1. RESULTS OF LABORATORY ANALYSES OF SOIL SAMPLES COLLECTED AT THE CORNWALL AVENUE LANDFILL BY W.D. PURNELL & ASSOCIATES, INC.

Compound	Sample S-1 Sampling Depth (17-20")	Sample S-2 Sampling Depth (11-14")
Naphthalene	3.1 mg/kg	<81 mg/kg
2-Methylnaphthalene	110 mg/kg	4,300 mg/kg
Acenaphthene	12 mg/kg	490 mg/kg
Dibenzofuran	<0.74 mg/kg	150 mg/kg
Fluorene	14 mg/kg	8,100 mg/kg
Penatchlorophenol	810 mg/kg	59,000 mg/kg
Phenanthrene	87 mg/kg	5,200 mg/kg
Anthracene	4.1 mg/kg	190 mg/kg
Pyrene	3.8 mg/kg	150 mg/kg

Note: There are no Method A Cleanup Levels for these compounds (Table 2, Model Toxics Control Act, WAC-173-340).

*5.2.2.2 **Sampling conducted by Ecology***. Sampling of beach seeps and marine sediments [surface 3 cm (1.2 in)] was conducted by Ecology on 6 May 1992 (Figure 5-12). These samples were analyzed for metals, volatile and semi-volatile organic compounds, chlorinated pesticides and PCBs, and 2,3,7,8-tetrachlorodibenzo-*p*-dioxin. No analyses of sediment grain size or TOC were reported for the sediment samples.

Few details have been provided by Ecology regarding methods used to collect the beach seep and marine sediment samples. Seep samples should have been collected from a shallow depression excavated in the beach sand. The water should have been allowed to pool in the depression and allowed to overflow for a sufficient amount of time to exchange the water in the depression at least once. Care should also have been taken to allow suspended material in the excavation to settle prior to collection of the sample. Ecology has stated only that the samples were taken with a clean glass sample jar and that they were not filtered prior to analysis (Pebles, L., 16 July 1992, personal communication). The laboratory case narrative from Analytical Resources indicated that the seep samples received were "...turbid and dark in color" (Pebles, L., 25 June 1992, personal communication).

Quality assurance data provided by Ecology indicate that the data for the seep and sediment sampling were generally acceptable. However, the mercury concentrations reported for the beach seep samples were qualified with a "B" indicating blank contamination. Ecology reported that mercury was detected in two procedural blanks at concentrations of 0.055 and 0.097 μg/L. The seep sample mercury concentrations were reported to range from below the detection limit of 0.050 μg/L (Station #4) to 0.242 μg/L (station #3). Because the reported seep mercury concentrations are less than five times the mean blank concentration (0.076 μg/L), it is probable that the reported concentrations are positively biased due to laboratory contamination. In addition, analytical results for thallium and selenium in seep samples indicates that matrix spike recovery results were not within control limits. Analytical results for antimony, arsenic, cadmium, chromium, selenium, and silver in sediment samples were also qualified with an "N". Therefore, the reported concentrations of mercury in seep samples and arsenic, cadmium, chromium, selenium, and silver in sediment should be viewed with caution.

The metals antimony, beryllium, cadmium, chromium, silver, and thallium were not detected in the beach seep samples and antimony, beryllium, and thallium were not detected in the marine sediment samples that were analyzed. No volatile organic compounds were detected in the beach seep samples and only

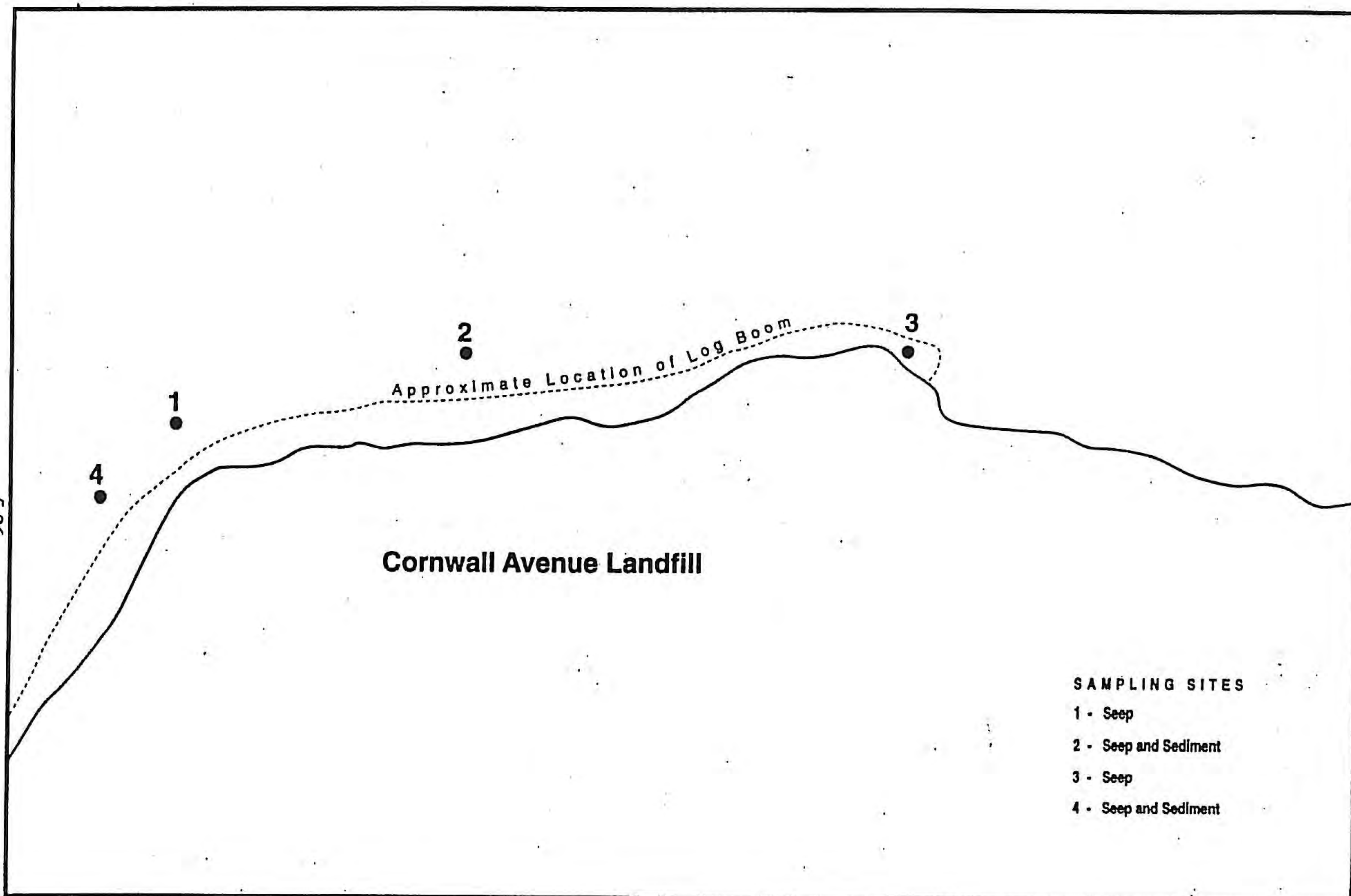

Figure 5-12. Ecology Seep and Sediment Sampling Sites at the Cornwall Avenue Landfill.

one volatile compound (methylene chloride) was detected in one of the two marine sediment samples. In general, few semi-volatile compounds were detected (including pentachlorophenol) in seep or sediment samples. Chlorinated pesticides and Aroclor PCBs were not detected in seep samples but DDT and Aroclor PCBs were detected in one sediment sample. Tetrachlorodibenzo-*p*-dioxin (2,3,7,8-TCDD) was not detected in seep or sediment samples.

The contaminants detected in the beach seep and marine sediment samples are summarized in Tables 5-2 and 5-3, respectively. The beach seep data are also compared to the Method A Cleanup Levels for groundwater and the Washington marine water quality criteria for the protection of organisms from chronic contaminant effects. The Method A Cleanup Levels for groundwater assume that the groundwater at the site is a potential drinking water source. However, Method A Cleanup Levels may not be appropriate for this site because the groundwater is likely to be brackish and already unsuitable for drinking. It should also be noted that the State standards are for dissolved (i.e., filtered) metals (recognizing that the toxic form of the metal is generally the available dissolved form) and that the data reported by Ecology are for total recoverable (i.e., unfiltered) metals. Because a portion of the metals detected in these samples was likely in a particulate form, comparison to the State standards for dissolved metals may be overly conservative.

The marine sediment data are also compared to the Method A Cleanup Levels for soils and to the marine sediment management standards. The Method A Cleanup Levels for soil assume that the site is or could be suitable for residential use. However, it is unlikely that the Cornwall Avenue Landfill site would be considered potentially residential. Comparison of marine sediment management standards to the measured levels of non-ionic organic compounds (e.g., PAHs and PCBs) is complicated by the fact that Ecology did not report measurements of total organic carbon. Sediment standards for non-ionic organic compounds are based on contaminant concentrations normalized to the organic carbon content of the sediments to account for the buffering effect organic carbon has on the toxicity of these compounds. Ecology (1991) recommends that in the absence of organic carbon data, an estimate of 1 percent can be used in screening analyses. Table 5-2, organic contaminant data were normalized using the 1 percent figure for comparison to the sediment standards.

Ignoring the weaknesses in the analytical data noted above, a list of potential problem contaminants can be made based on exceedances of Method A Cleanup Levels, chronic marine water quality criteria, or

TABLE 5-2. CONTAMINANTS DETECTED IN BEACH SEEP SAMPLES COLLECTED BY ECOLOGY IN THE VICINITY OF THE CORNWALL AVENUE LANDFILL, 6 MAY 1992.

	Beach Samples				Method A Cleanup Level Groundwater[a]	Washington Marine Chronic Water Quality Standards[b]
Sample #: Station ID:	92 198040 #1	92 198041 #2	92 198043 #3	92 198044 #4		
	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L
Arsenic	11	2.1P	2.2P	1.5U	5	36
Copper	4,950	5.1P	9.7P	16		2.9[c]
Iron	52,400E	6,620E	16,700E	6,360E		
Lead[d]	185N	11.2N	14.2N	2.8PN		5.8[c]
Lead[d]	220	20U	20U	20U	5	5.8[c]
Mercury	0.209PB	0.074PB	0.242PB	0.05U	5	0.025
Nickel	18	10U	10U	10U	2	7.9[c]
Selenium	4UN	2.2PN	2UN	2UN		71
Zinc	280E	29E	230E	46E		76.6[c]
Cyanide	10	4	2	6		1.0
Semivolatiles						
Total Phenols	2	2	2U	2U		
1,4 Dichlorobenzene	1.4J	1U	1U	1U		
4-Methylphenol	5.5	1U	1U	1U		
Total Petroleum Hydrocarbons						
WTPH-418	2	1U	1U	1U	1,000	
Tentatively Identified Compounds						
Dimethylbenzene isomer						
Sulfur	2J			2500J		
Carbon disulfide	3500J	10J	1100J	5.2		

Note: Shaded values indicate exceedances of cleanup levels and/or water quality standards.

Qualifiers:

B = Analyte was also found in the analytical method blank indicating the sample may have been contaminated.
E = Reported result is an estimate because of the presence of interference.
J = The analyte was positively identified. The associated numerical result is an estimate.
N = For metals analytes the spike sample recovery is not within control limits.
P = The analyte was detected above the instrument detection limit but below the established minimum quantitiation limit.
U = The analyte was not detected at or above the reported result.

[a] Table 1, Model Toxics Control Act, WAC-173-340.

[b] Water Quality Standards, WAC-173-201A-040.

[c] Washington Standards for cadmium, copper, lead, nickel, silver, and zinc are based on the concentration measured after filtering the sample through an 0.45 μm filter.

[d] Two analytical results were reported by the laboratory for lead.

TABLE 5-3. CONTAMINANTS DETECTED IN MARINE SEDIMENT SAMPLES COLLECTED BY ECOLOGY IN THE VICINITY OF THE CORNWALL AVENUE LANDFILL, 6 MAY 1992
(Page 1 of 2)

	Marine sediment samples		Method A Cleanup Level - Soil -[a]	Marine Sediment Quality Standards[b]	Marine Sediment Cleanup Screening Levels[c]
Sample #: Station ID:	92 198042 #2	92 198045 #4			
	mg/kg-dry wt	mg/kg-dry wt	mg/kg-dry wt	mg/kg-dry wt	mg/kg-dry wt
Metals					
Arsenic	3.08N	1.74N	20	57	93
Cadmium	4.2N	1UN	2	5.1	6.7
Chromium	152N	82.4N	100	260	270
Copper	756E	378E		390	390
Iron	75,300	23,600			
Lead	431	887	250	450	530
Mercury	0.34	0.071	1	0.41	0.59
Nickel	87.3	26.8			
Selenium	0.39N	0.2UN			
Silver	2.7PN	1.5UN		6.1	6.1
Zinc	2,140E	313E		410	960
Cyanide	0.52E	0.07E			
	µg/kg-dry wt	µg/kg-dry wt	µg/kg-dry wt	µg/kg-dry wt	µg/kg-dry wt
Volatiles					
Methylene chloride	4.1		1.9	U	U
Semivolatiles					
Phenols	190	60		420	420
Phthalates					
Bis(2-ethylhexyl)phthalate	1,300	42J		d	d
Di-n-butylphthalate	67J	39J		d	d
Low Molecular Weight PAH					
Phenanthrene	44J	68U		d	d
High Molecular Weight PAH					
Benzo(a)anthracene[e]	53J	68U	1,000[e]	d	d
Benzo(b,k)fluoranthene[e]	120	68U	1,000[e]	d	d
Chrysene[e]	66J	68U	1,000[e]	d	d
Fluoranthene	99	68U		d	d
Pyrene	96	68U		d	d
Tentatively Identified Compounds					
Hexadecanoic acid	1,500J				
Chlorinated Pesticides/PCBs					
4,4'-DDD	25	8U	1,000		
4,4'-DDT	31N	8U	1,000		
Aroclor 1242/1016	160	80U	1,000	d	d
Aroclor 1254	160	80U	1,000	d	d
OC-normalized data	mg/kg OC	mg/kg OC		mg/kg OC	mg/kg OC
Phenanthrene	4.4J	6.8U		480	480
Benzo(a)anthracene	5.3J	6.8U		270	270
Benzo(b,k)fluoranthene	12	6.8U		450	450
Chrysene	6.6J	6.8U		460	460
Fluoranthene	9.9	6.8U		1,200	1,200
Pyrene	9.6	6.8U		1,400	1,400
Bis(2-ethylhexyl)phthalate	130	4.2J		78	78
Di-n-butylphthalate	0.7J	3.9J		1,700	1,700
Aroclor 1242/1016	16	8U		12	65
Aroclor 1254	16	8U		12	65

TABLE 5-3. CONTAMINANTS DETECTED IN MARINE SEDIMENT SAMPLES COLLECTED BY ECOLOGY IN THE VICINITY OF THE CORNWALL AVENUE LANDFILL, 6 MAY 1992
(Page 2 of 2)

Note: Shaded values indicate exceedance of soil cleanup level and/or marine sediment management standards. The standard or cleanup exceeded is shown in bold.

Qualifiers:

E	=	Reported result is an estimate because of the presence of interference.
J	=	The analyte was positively identified. The associated numerical result is an estimate.
N	=	For organic analytes there is evidence the analyte is present in this sample. For metals analytes the spike sample recovery is not within control limits.
P	=	The analyte was detected above the instrument detection limit but below the established minimum quantitiation limit.
U	=	The analyte was not detected at or above the reported result.

[a] Table 2, Model Toxics Control Act, WAC-173-340.

[b] Table I. Sediment Management Standards, WAC-173-204.

[c] Table III. Sediment Management Standards, WAC-173-204.

[d] Marine Sediment Standards based on organic carbon-mormalized contaminant data for this compound. Organic carbon-normalized values are compared to the standard at the bottom of the table.

[e] Method A Cleanup Level for carcinogenic PAH.

sediment management standards. Exceedances of these screening levels occurred for arsenic, copper, lead, mercury, zinc, and cyanide in beach seep samples, and cadmium, chromium, copper, lead, zinc, bis(2-ethylhexyl)phthalate, and Aroclor PCBs in marine sediments. Based on a more critical screening of the data [i.e., excluding qualified data and using only the most appropriate screening levels (i.e., marine sediment quality standards)] a more conservative list of potential problem contaminants would be identified: copper, zinc, and depending on the actual sediment organic carbon content bis(2-ethylhexyl)-phthalate and Aroclor PCB in marine sediments. However, the more extensive list of potential problem contaminants will be used in the data synthesis Section 6.0, which provides an analysis of the possible sources of identified problem contaminants and identifies data gaps that prevent: 1) confirmation of the problem contaminants at the site, and 2) identification of the sources of these contaminants.

5.3 CONTAMINANT SAMPLING AT THE R.G. HALEY SITE

Ecology conducted a Site Hazard Assessment field investigation at the R.G. Haley site on 9 May 1992 (Ecology, no date, Site Hazard Assessment R.G. Haley International Corporation). Under the Model Toxics Control Act, the site has been ranked 3 on a scale of 1 to 5, where rank 1 is the highest priority for investigation and remedial action. The facility was also the focus of a site inspection conducted for the U.S. EPA in 1985 to determine if the facility warranted federal cleanup action (Ecology and Environment, Inc. 1986).

5.3.1 Site Description

The R.G. Haley site is underlain by fill material (Ecology and Environment, Inc. 1986). The types of material in the fill have been identified include boulders, large timbers, concrete blocks, bricks, and remnants of garbage. It is uncertain whether any portion of the R.G. Haley property was filled with refuse as part of the City of Bellingham's municipal land filling operation.

The wood treatment operation consisted of a building for milling lumber, a drying kiln, a retort, storage tanks for pentachlorophenol, a control room, and some large storage sheds (Ecology and Environment, Inc. 1986). Wood delivered to the facility was milled to specifications and dried in the kiln. Finished wood was loaded into the retort where it was treated with a pentachlorophenol solution in a carrier oil under high temperature and pressure. Following treatment, a vacuum was created in the retort and the moisture in the wood evaporated. This process created an oil/water vapor that was condensed in a heat exchanger using non-contact cooling water. The condensate was directed to an oil/water separator and the oil fraction was reused in the wood treatment process. Wastewater from the oil/water separator was discharged to an unlined seepage pit, approximately 4.3 x 7.3 m (14 x 24 ft), with a depth of 1.5 m (5 ft). The facility was permitted to discharge non-contact cooling water and stormwater runoff to Bellingham Bay.

As part of the plant closure, the seepage pit was filled with gravel and capped with a 15-20 cm (6-8 in) layer of unreinforced concrete (Ecology and Environment, Inc. 1986). Pentachlorophenol-contaminated sludge from the retort and the seepage pit were disposed of at Chem-Security Systems, Inc. in Arlington, OR. However, the investigation conducted by Ecology and Environment, Inc. (1986) indicated that soil and groundwater at the site contained elevated concentrations of pentachlorophenol and PAH. Analytical results summarized by Ecology and Environment, Inc. (1986) and the sampling conducted by Ecology in their May 1992 investigation are reviewed below.

5.3.2 Site Contaminants

Analysis of soil and groundwater samples at the R.G. Haley site has been limited to semi-volatile organic compounds, including pentachlorophenol and PAHs. No analyses for metals, chlorinated pesticides, or PCB compounds were identified during this review. The laboratory analyses conducted for Ecology and Environment, Inc. and the Washington Department of Ecology were of acceptable quality. Because the contaminants detected in the sampling efforts summarized below are typically found at wood treatment facilities, there is no reason to believe that the compounds were identified in error. However, some analytical interference has been encountered due to the presence of relatively high concentrations of the carrier oil in the samples.

Prior to removal of the seepage pit sludge, soil sampling was conducted for R.G. Haley by Howard Edde, Inc. (Ecology and Environment, Inc. 1986). These samples were analyzed for pentachlorophenol. The highest soil concentrations of pentachlorophenol (approximately 100 mg/kg) were measured at a depth of approximately 1.8 m (6 ft) in the vicinity of the seepage pit and retort. Samples collected at shallow depths contained lower concentrations ranging from 0.6-6.8 mg/kg. Soil concentrations as high as 1.1 mg/kg were detected at locations along the western half of the site near Bellingham Bay. Following removal of the seepage pit sludge, samples were collected from the seepage pit walls and analyzed for pentachlorophenol. A concentration of 14,000 mg/kg of pentachlorophenol was measured in a sample from the side wall of the pit and a concentration of 720 mg/kg was measured in a sample from the bottom.

Sampling conducted by Ecology and Environment, Inc. (1986) included two groundwater monitoring wells installed to characterize subsurface soil and groundwater contamination near the seepage pit and retort, two soil borings to characterize contamination within the bermed area of the pentachlorophenol oil storage tanks, and four intertidal shallow groundwater sampling locations to the west of the site in Bellingham Bay (Figure 5-13). The monitoring wells indicated that the depth to groundwater was 6 to 7 ft and the depth to bedrock (a dark grey, friable siltstone) was approximately 13 to 15 ft. The types of lithology encountered above the bedrock included fill (bricks with variable sized cobbles and gravel in a clay matrix), gravelly silt, silty gravelly sand, sand, and clay layers.

Pentachlorophenol and the carrier oil were detected in soil and groundwater at the monitoring well sites, in soil from the bermed storage tank area, and in one intertidal groundwater sample (Tables 5-4 and 5-5). The highest soil concentration of pentachlorophenol (230 mg/kg) was measured in a soil boring from the bermed tank area at a depth of approximately 2.6-2.7 m (8.5-9 ft). The range of pentachlorophenol concentrations measured in soils sampled during installation of the monitoring wells ranged from 0.7 to 32 mg/kg. Groundwater concentrations of pentachlorophenol in the monitoring wells ranged from 0.17 to 4.4 mg/L. One shallow groundwater sample collected from the intertidal area at station B-4 contained an estimated concentration of 0.021 mg/L of pentachlorophenol.

A number of PAH compounds were also detected in soil and groundwater samples collected by Ecology and Environment, Inc. (1986) and a number of phenolic compounds were detected in soil and groundwater collected from the monitoring wells (Table 5-4 and 5-5). The PAHs identified are predominantly low molecular weight compounds that are likely derived from the carrier oil. Ecology collected and analyzed a single composite sample collected from the site on 9 May 1992. The sample was only analyzed for semi-volatile organic compounds including pentachlorophenol and PAHs. The composite sample consisted of one to two ounces of soil from visibly stained areas on the site shown in Figure 5-13. The sample also included soil from the same stained soil location at the Cornwall Avenue site (an area between two concrete pads) sampled by W.D. Purnell and Associates which was described above.

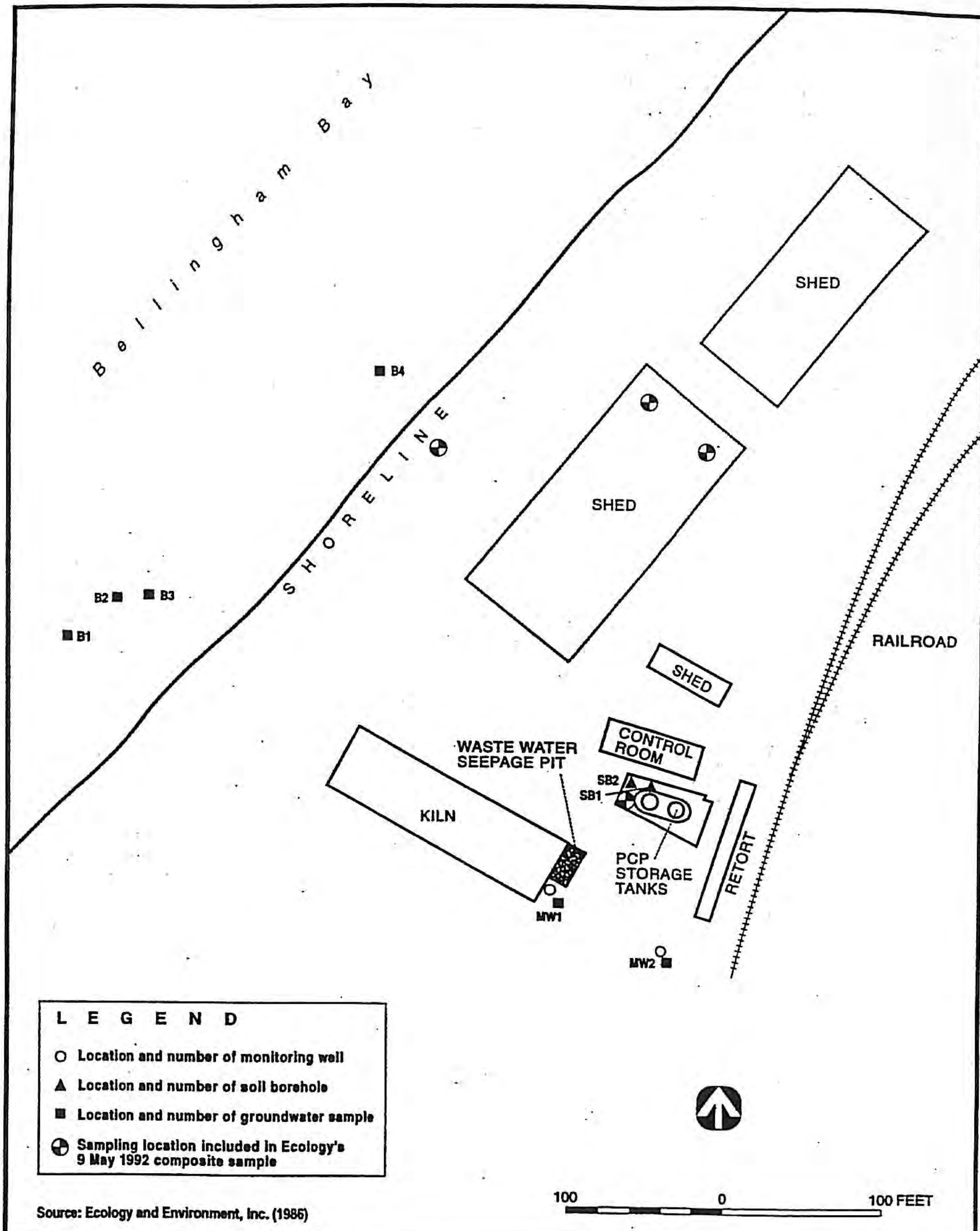

Figure 5-13. Sample Locations at the R.G. Haley International Corporation Site.

TABLE 5-4. CONCENTRATIONS OF DETECTED PRIORITY POLLUTANT BASE-NEUTRAL/ACID COMPOUNDS IN SOIL SAMPLES AT R.G. HALEY INTERNATIONAL CORPORATION, INC., BELLINGHAM, WASHINGTON (μg/kg)

	Sample Location														
	MW1-A	MW1-B	MW1-C	MW1-D	MW2-A	MW2-B	MW2-C	MW2-D	SB1-A	SB1-B	SB1-C	SB2-A	SB2-B	SB2-C	Method A Cleanu Level-Soil[a]
Phenols															
2 Methylphenol								610							
4 Methylphenol								870							
2,4 Dimethylphenol								910							
2,4,5 Trichlorophenol							15,000	190J						13,000	
Phenol							12,000	3,000							
Pentachlorophenol	2,600		9,800	700J	32,000			8,400	160,000	18,000	150,000	20,000	19,000J	230,000	
Low Molecular Weight PAH															
Naphthalene			270J	73J	10,000	26,000	78,000	1,700		240J	2,100J	300J	13,000	58,000	
2-Methylnaphthalene	63J		1,400	260J	63,000	130,000	160,000	5,200		1,500	25,000	1,600	41,000	240,000	
Anthracene												160J			
Phenanthrene	340		860	83J	23,000	23,000	14,000	1,100		11,000	14,000	2,500		47,000	
Fluorene	89J		380	43J	7,600	8,300J	13,000	650		400J	400J	580		23,000	
Acenaphthylene												110J			
Acenaphthene	34J		250J	5,600J	5,400J	11,000	480				2,300J	140J		13,000	
High Molecular Weight PAH															
Benzo(a)anthracene	100J												330		1,000[b]
Benzo(b)fluoranthene												360			1,000[b]
Benzo(k)fluoranthene												360			1,000[b]
Benzo(a)pyrene			250J	250J								240J			1,000[b]
Fluoranthene												850			
Ideno(1,2,3-cd)pyrene												110J			1,000[b]
Benzo(g,h,i)pyrelene												130J			1,000[b]
Pyrene	96J		150J		3,500J			88J		250J	3,300J	1,300		6,200J	
Chrysene	96J											310J			1,000[b]
Total PAH	718J		3,310J	6,059J	112,500J	198,300J	256,480	8,738J		13,390J	4,710	7,950J	4,000	387,200J	
Miscellaneous Compounds															
Bis(2-ethylhexyl)phthalate	74J					4,200J									
Dibenzofuran					2,300J							290J			
n-Nitrosodiphenylamine						15,000									

Source: Ecology and Environment, Inc. (1986).

J = Estimated concentration. Analytical Quality Control Criteria not completely acceptable or detection at concentrations less than Contract Required Detection Limit (CRDL).

[a] Table 2, Model Toxics Control Act, WAC-173-340.

[b] Method A Cleanup level for carcinogenic PAH. There are no Method A Cleanup levels for the other compounds that were detected.

TABLE 5-5. CONCENTRATIONS OF DETECTED PRIORITY POLLUTANT BASE-NEUTRAL/ACID COMPOUNDS IN GROUNDWATER SAMPLES AT R.G. HALEY INTERNATIONAL CORPORATION, INC., BELLINGHAM, WASINGTON ($\mu g/L$)

Compound	Sample Location					
	B-1	B-2	B-3	B-4	MW-1	MW-2
Phenols						
Pentachlorophenol				21J	170	3,400
2-Methylphenol						34
4-Methylphenol						65
2,4-Dimethylphenol						40
2,4-Dichlorophenol						21
2,4,5-Trichlorophenol						54
2,4,6-Trichlorophenol						5J
Dibenzofuran					4J	
n-Nitrosodiphenylamine				77		
Butyl benzyl phthalate				4J		
Total Phenols				21J	170	3,614
Low Molecular Weight PAH						
Naphthalene						170
2-Methylnaphthalene					10	310
Phenanthrene				22	8J	36
Fluorene				26	8J	20
Acenaphthene				20	10	16
High Molecular Weight PAH						
Pyrene				5J		
Total PAHs				73J	28J	552

Source: Ecology and Environment, Inc. (1986).

Note: There are no Method A Cleanup Levels for these compounds (Table 1, Model Toxics Control Act, WAC-173-340).

J = Estimated concentration. Analytical Quality Control Criteria not completely acceptable or detection at concentrations less than Contract Required Detection Limit (CRDL).

Low levels of some of the semi-volatile compounds were detected in the blank. Only concentrations greater than five times the laboratory blank concentration were considered to be present in the soil sample. Because of the relatively high concentrations of some analytes, surrogate spike recoveries could not be accurately determined. Therefore, these sample results should be viewed with caution. However, the detection of pentachlorophenol and low molecular weight PAH (Table 5-6) at relatively high concentrations is consistent with previous sampling at the site that has implicated wood treatment wastes as the source of the contaminants detected.

5.4 SUMMARY

Historical review of activities in the vicinity of the Cornwall Avenue Landfill site indicate a complicated history of commercial and industrial activity beginning as early as the mid-1800s that has led to the filling of the former tidelands at the site. During the period of 1953 to 1964, portions of the area were used as a municipal landfill. It is also possible that the landfill received industrial wastes from operators of the site or other nearby industries. Due to operation of a coal mine and coal shipping wharf at the site during the 1800s and early 1900s, coal tailings are also found in the fill material.

The extent and contents of the landfill are still poorly known, but may extend beneath the R.G. Haley property to the north. Contaminant sampling for a relatively complete suite of metals and organic constituents at intertidal locations in Bellingham Bay offshore of the Cornwall Avenue Landfill site indicated the presence of several metals and possibly PCBs and bis(2-ethylhexyl)phthalate at levels exceeding relatively conservative standards or screening levels. Contaminant sampling at the R.G. Haley site has been limited to semi-volatile organic compounds. Semi-volatile compounds detected in soils and groundwater at this site include a number of low molecular weight PAHs and pentachlorophenol from historical wood treatment activities at the site. Soil contamination with PAHs and pentachlorophenol was also detected at a location between two concrete pads adjacent to the R.G. Haley site. Contamination of soil at this location may have resulted from encroachment of wood treatment activities at the R.G. Haley site.

The area of the Cornwall Avenue Landfill is composed of a heterogeneous fill material an is underlain by bedrock. The fill is covered with a permeable soil layer that could allow infiltration of runoff water. The seaward retaining wall of the landfill does not prevent the exchange of groundwater with Bellingham

EXHIBIT A-3
Haley Property History Report by Chris Friday

Chris Friday
Historical Consultant
3201 Meridian St.
Bellingham, WA 98225

June 12, 2002

Steve Woodward
Geoengineers
Plaza 600 Building
600 Stewart Street, Suite 1420
Seattle, WA 98101

Dear Mr. Woodward:

I have had an opportunity to review the materials sent to me on May 9 and to complete a preliminary assessment of the same as well as an inventory of possible materials related to the history of the R.G. Haley site. This packet contains the following items:

1. A brief commentary regarding the likelihood of finding substantive additional historical evidence regarding the R.G. Haley Property and recommendations regarding any future work on my part.
2. A brief assessment of the letter of April 12, 2002, by Joanne Snarski, DNR, Aquatic Land Manager, and the June 30, 1995, Tetra Tech and Historical Research Associates "Initial Characterization of Contaminants and Uses at the Cornwall Landfill and in Bellingham Bay."
3. An annotated inventory of potential historical materials.
4. Fourteen photographs from the Whatcom Museum of the International Cross Arm (R.G. Haley) site between 1951 and 1969.
5. An invoice for my services and expenses.

I will also be sending you several digital images from the Sanborn Maps located at the Center for Pacific Northwest Studies within the next several days.

Please feel free to contact me regarding any questions you may have.

Sincerely,

Chris Friday

R.G. Haley Site: Commentary regarding Historical Evidence and Recommendations for Future Work

While previous studies of this or nearby sites lack much substantive discussion of what actually transpired, there is little in the extant historical record to warrant additional historical research. Photographs reproduced as a part of this preliminary investigation offer some indication that the landfill site and fill from dredging operations may well have impacted the R.G. Haley site, but the exact extent of that impact would be difficult to determine. Port of Bellingham records may provide more detail regarding leases and other issues than is presently available, but again, do not appear to offer a particularly different history than that currently available through other sources. Finally, local newspaper accounts suggest a rather regular pattern of train derailments “behind” the R.G Haley site, but there is nothing to indicate any major spill took place at this spot and further research in the daily newspaper would hardly be warranted as it would be particularly time consuming and has a high likelihood of being entirely unproductive.

My recommendation is that Geoengineers and the current owners of the R.G. Haley site review the inventory of historical documents and sources provided herein and either assigns one of their own staff members to retrieve copies or arranges with me on an hourly basis ($30 per hour) plus copying costs to have certain specific items reproduced. While I would be happy to provide a lengthy historical analysis of the site (approximately 30 to 50 hours of additional work at $100 per hour) should either Geoengineers or the owners of the R.G. Haley site wish, I do not believe that I could provide a substantially different history than that already in your possession. It might be possible to interview former employees of R.G. Haley to determine what, for example, was stored (and potentially dumped) on the banks between the main buildings and the waterline, but I suspect that even that information would simply thicken the detail in the extant history rather than offer a substantively different perspective.

Assessment of the letter of April 12, 2002, by Joanne Snarski, DNR, Aquatic Land Manager:

This letter provides a concise chronicle of the history of the site and its relation to surrounding properties. I find no information that contradicts any in my initial survey of the historical record. I believe I could only add greater detail to the outline that this document provides.

Assessment of the June 30, 1995, Tetra Tech and Historical Research Associates "Initial Characterization of Contaminants and Uses at the Cornwall Landfill and in Bellingham Bay":

Reading through the "Historical Overview of Cornwall Avenue Landfill and Vicinity" (5-1 through 5-22, I find no substantive errors or misrepresentations of the basic history of the area. The evidence for this historical analysis comes primarily from secondary sources and several interviews.

While I have no fundamental objections to the history that was produced, I would like to note that the discussion of "Historical Resources" (Appendix A-1), is somewhat suspect in terms of the actual level of research done in Bellingham itself. The report misidentifies the location of certain archival sources, claims to have surveyed some which were clearly not surveyed in anything but a cursory fashion, and entirely neglects others. Furthermore, the bibliography appears rather "padded" in an attempt to make the historical research appear more thorough than it actually was.

Given the inadequacy of the survey of historical materials in Bellingham, I endeavored to undertake a more careful and thorough, albeit initial, survey of the records in Bellingham to assess the history presented in the Tetra Tech and Historical Research Associates report and to ascertain if any additional sources might offer a different historical perspective. I have included an annotated inventory of my findings in the next section.

Annotated Inventory of Potential Historical Materials

Whatcom Museum of History and Art, Bellingham, Washington

Folder 1999.28:
This folder consists of twenty-three photographs of the Haley area, most aerial, taken from 1953-1969. These are very detailed views of the area (much closer scale than the Map Library aerial photographs) and fourteen of the most relevant have been reproduced and are included in this report. They have been arranged chronologically, numbered 1-14, with the following captions pasted on the back:

- **Photograph 1:** n.d.—c. 1950s (?)—This photo appears to have been taken before the issues raised by the creation of the DNR landfill. Gives some general sense of the Haley site.
- **Photograph 2:** 6/2/1951—a distant view of the various wharves and buildings.
- **Photograph 3:** 6/3/1951—a closer view of the International Cross Arm site (later Haley) with what appears to be the outlines of future road construction drawn on the original by hand.
- **Photograph 4:** 6/3/1951—a closer view of the site taken from the north (or from the bay) with blue hand drawn lines suggesting where the fill from dredging and later landfill will go.
- **Photograph 5:** n.d.—[probably also 1951]—similar to Photograph 4, but taken from the south (or from the land)
- **Photograph 6:** 4/2/1953—this view taken from the bay has the caption "International Cross Arm Co." written on it with another set of blue lines suggesting the site for a future road or future dumping. The image clearly shows where the fill from the dredging site was dumped. The large chimney from the earlier photos is no longer in place, but the pad-site is still visible. Geoengineers staff should pay particular attention to the placement of the road into the future landfill site and the placement of several apparent landfill dumping areas close to the International Cross Arm site.
- **Photograph 7:** 4/2/1953—an even more detailed view of the site that abuts the International Cross Arm site. Evidence of the exact placement of the road and fill dumping is clearly evident. Just below the area where the road turns along the edge of the Haley site is an area that was in the process of being filled with unidentified waste products—either large scraps of wood and timber or other general waste items of an unknown origin.
- **Photograph 8:** 4/2/1953—a view of the same scene as that in photographs 4 and 5, but from the land side with the caption "150 [ft.]" drawn between the large buildings nearest the waste fire.
- **Photograph 9:** 9/20/54—a view of the site showing the impact of substantial infill from dredging activity and dumping at the landfill. This image clarifies the relationship between the dump site and the Haley site. A substantial portion of the Haley site between the waterline and the road appears to be used for storage of timber and other miscellaneous items as well as some parking.

- **Photograph 10:** 4/11/1965—a close view of the very edge of the Haley site. While no timber is stored near the water's edge as in photograph 9, large containers, crates, and other unidentified items are visible.
- **Photograph 11:** n.d.—[c. 1965?]—from a greater distance than photograph 10, shows much the same but with large stacks of timber near the water's edge.
- **Photograph 12:** n.d.—[c. 1965?]—from high above the site, very much the same as photograph 11.
- **Photograph 13:** 6/26/1969—no. 63—From high above the site but with a clear indication of the location of buildings and the storage of timber.
- **Photograph 14:** 6/26/1969—no. 64—similar to photograph 13.

Washington State Archives, Northwest Region, Bellingham, Washington

Port of Bellingham Commission Meeting Minutes:
These minutes and their attendant resolutions (also listed below) provide a good framework for understanding land use at the mill site during the Port's tenure.

- 12/5/47, p 615 announces the Port's intention to purchase the Bloedel-Donavan Mill site. See *resolution 264.*
- 6/8/48. p 633. A legal description of the property leased to International Cross Arms. The minutes include the terms of the 5-year lease, including the Port's responsibility to fill additional land for the plant.
- 2/9/49. Port claims to have already filled 2 ½ acres at the Bloedel-Donovan Site (industrial area #3). The fill appears to have come from various excavation projects around Bellingham. These minutes also note other leases at area #3. These include Hydraulic Supply and Manufacturing in Warehouse #7 (American Fabricators)[see p 709]
- 4/12/49. p 690. Port grants The City of Bellingham permission to use the Bloedel-Donavan Stack to burn trash.
- 7/14/53 p 852. Renewal of International Cross Arms lease. No detail.
- 8/11/53 p855. Port grants approval of garbage dumping. See also 9/8/53.
- 11/10/53 p 866 Skagit Steel and Iron used Warehouse #7 before American Fabricators.
- 8/10/54 p 902. Lease for dump. No detail.
- 4/12/55. Bellingham Shipyards (parent company to American Fabricators) tries to lease area between Warehouse #7 and International Cross Arms. Minutes provide no resolution. These minutes also include a comment to the city that the Port had completed almost all the fill at the dump area.
- 12/13/55 Port transfers International Cross Arms lease and its terms to R.G. Haley International Corporation. Minutes also deal with the malfunctioning toilets and heat in the Bloedel-Donavan office building.
- 3/13/56 Port approves 3000 dollars for construction of riprap to contain fill at industrial site #3.

- 11/13/56 Port leases to American Fabricators tracts D, B and a small part of C. Located on the north and west sides of Warehouse #7. The Port does not charge rental on B, however, because the fill process is ongoing.
- 12/11/56 Port approves driving 14 pilings at site #3 to allow another year's dumping. Minutes also mention that the Corp of Engineers approved the plan for dredging the Whatcom Waterway.
- 6/10/58. Port renews Haley lease.
- 4/14/59 p 4 Minutes mention the Port's purchase of rock from "the American Theatre Excavation" for use and Squalicum and Bloedel-Donovan.
- 11/10/59. Port approves driving more pilings to "make more land available"
- 7/12/60. Port pays for a soil analysis in front of Bloedel-Donovan.
- 9/16/60 p 4. 2 leases with Haley (treating plant location and drying kiln area) renewed. Port determines that buildings at American Fabricators are so dilapidated that they would do better to sell them and attempts to do so for one dollar. American Fabricators does not immediately take the Port up on these terms.
- 10/11/60 Un-located water leak in pipe going to American Fabricators.
- 2/14/61. Port informs the city that the dump should be closed.
- 6/13/61 p 4 -- Haley requests the right to lease a small piece of land across Cornwall Avenue and that the Port combine all of its leases (3 including the most recent). Port approves.
- 7/14/61. Port notes major break in the Water line running to American Fabricators and R.G. Haley
- 8/11/61. p 2. Port classifies area #3 as surplus property and marks it for sale. See resolution 434.
- 10/31/61 p 2. Port decides to have the area surveyed.
- 12/12/61 p 4. Because of the survey, the Port determines that three acres of tideland should "logically" be leased to R.G Haley.
- 2/13/62. Port approves an American Fabricators' sublease to a ship breaking firm.
- 3/13/62. Port sells property to R.G Haley and American Fabricators. See Resolution 440.

Port of Bellingham Resolutions:

Number	Resolution
262	Resolution provides a legal description of the Bloedel-Donovan site.
263	An amended version of 262, this resolution includes harbor area leases.
264	Legal description of Bloedel-Donovan transaction and land.
331	Concerns paving road through property.
346	Describes a railroad lease starting at Pine Street and running south.
434	Declares area #3 surplus.
440	Terms of sale and legal description of land transferred to R.G. Haley. Includes easements for water main and drainpipe.

Bellingham Public Library, Bellingham, Washington

Bellingham Herald Clippings Files:
These files were created by the paper and the library to track local events and issues. Searches in a variety of potential areas yielded little with the exception of the following items filed under "Railroads 1957-78," which includes multiple descriptions of ***minor*** train derailments in the vicinity of the Haley site. For examples, see:

- **6/15/60** "Runaway Boxcars Slam Into Freight Train" describing a collision and small fire in the area.
- **3/27/78** chronicling a slow speed derailment of cars carrying "non flammable liquid sulfur" and an estimate that there had been at least 6-8 similar derailments in the last five years given the layout of the Milwaukee Road's siding in the area.
- **3/29/78** another slow speed derailment, this time of two boxcars. Photo with the article includes portion of Haley International Cross Arms in the background.

Center for Pacific Northwest Studies, Western Washington University, Bellingham, Washington

Bellingham Bay Improvement Company Records: This is an extensive collection of material at the Center for Pacific Northwest Studies, Western Washington University, regarding the economic and political development of the Bellingham area between c. 1880 and the mid-1920s. The initial survey of the records revealed two archives boxes with some limited information and twelve maps that offer some limited detail.

Manuscript materials:
Box 2—"Report of operations 1912" (p. 18) has a description of the mill property sold to Bloedel-Donavan. This includes itemized lists of machinery and its location.

Box 9—Materials concerning sale of mill to Bloedel-Donovan. Most of these documents deal exclusively with financial aspects of the transaction.

Maps: These materials reflect shoreline changes and the expansion of industrial activity in general terms, between c. 1880 and the mid-1920s.

- Map 9, folder 6--(1883) the basic shoreline and a coal wharf.
- Map 2, folder 7--(1890) limited detail of the BBIC mill and boiler house.
- Map 1, folder 9--(1883) New Whatcom Wharf.
- Map 10, folder 9--(n.d) the basic shoreline and a shipyard to the south of the mill.
- Map 1, folder 10--(1921) limited detail of the Bloedel-Donovan mill.
- Map 3, folder 10--(1910) the location of BBIC buildings.
- Map 16, folder 10--(1926) the expanded location of Bloedel-Donovan buildings.
- Map 1, folder 11--(1891) early BBIC mill (smaller than that of later years).
- Map 6, folder 11—(1904) large map of BBIC mill.
- Map 15, folder 11--(1923) basic map of mill site and a car ferry slip to the north.

- Map 4, folder 12--(1904) layout of the BBIC mill and individual structures.
- Map 16, folder 12--(1912, updated version of 12-4) more buildings and detail.

Pacific American Fisheries Company Records: Another extensive collection of manuscripts and maps at the Center for Pacific Northwest Studies, but of limited use in assessing the history of the Haley site. Map 5, folder 4, (n.d.) shows Bloedel-Donovan Mill and shoreline. This map is a tracing of the United States Coast and Geodetic Survey Chart No. 6378.

Miscellaneous Maps Collection: This collection has three maps with some limited information regarding the shoreline and Haley site. The maps are:

- Map 2, folder 4--(1890) BBIC mill with detail.
- Map 4, folder 4--(1883) shoreline with detail.
- Map 8, folder 4--(1920s) large Kroll Company map of mill and harbor.

Galen Biery Collection: The records of a local historian, this collection contains six maps of potential use in assessing the Haley site including maps and photographs.

Maps:

- Map 2, folder 4--(n.d.) "Lands of the BB & BC RR. Co." structures along the rail line.
- Map 3, folder 4--(n.d.) prior to the construction of BBIC mill.
- Map 3, folder 6--3 (c. 1890s) BBIC mill building.
- Map 1, folder 7--(c. 1890s) Birdseye view of area.
- Map 5, folder 7--(1903) limited detail of shoreline and structures.
- Map 6, folder 8--(1883) limited detail of shoreline and structures.

Photographs:

- *Photo 108*--(c.1890-1910) provides a good waterfront view. *CPNWS Description*: An industrial site on the Bellingham waterfront. Lumber is stacked about. At left is a building with three smoke stacks. A waste burner is in the center of the photo. On the right is a three-story waterfront structure with distinctive diamond shaped windows. On the far right is a three-masted lumber schooner. In the foreground is a vehicle; "Fairhaven Cash Grocery" is printed on the side; it's unclear if this is a horse-drawn wagon or whether it has been refitted with a gas engine.
- *Photo 109*--(c. 1912-1915) waste burner on site under construction. *CPNWS Description:* **"**Four men are standing atop a newly constructed waste burner. Caption: 'Bloedel-Donovan Mill Burner.' This burner has a domed top and straight sides."
- *Photo 110*--(mid-1920s) *CPNWS Description:* "The industrial waterfront of Bellingham. On the left is Columbia Valley Lumber Company. In the center is Puget Sound Pulp and Timber (San Juan Division) later to be called Georgia-Pacific. Citizen Dock waterway is on the far right. Lummi Island is on the horizon and in the fore ground, left to right, the following businesses can be identified. Friese Hide and Tallow (Corner of Chestnut and Bay); Sears Roebuck & Co. (corner of Bay and Holly)."

- *Photo 115*--(1920s) postcard of wharf. *CPNWS Description:* **"**Caption: 'OCEAN VESSESELS LOADING LUMBER, BELLINGHAM, WASH. ELLIS #2917.' Two combination steam/sail cargo vessels are taking on cargo at the docks at the south end of Cornwall Avenue. The long dock at the cement plant can be seen in the background."
- *Photo 127*--Early twentieth century photo from behind the mill. *CPNWS Description:* "The view is from The Boulevard to the west. In the foreground is the Great Northern Railroad track. On the left, schooners are docked at the Bloedel-Donovan Mill at the west end of Pine."
- *Photo 166*--(c. 1920s) from the bay of the mill in production. *CPNWS Description:* "Bloedel-Donovan Lumber Mills shipping site on Bellingham Bay. Two steam ships are being loaded with finished lumber. South hill, in the immediate background, is obscured by the smoke and steam produced by the ship and the mill."
- *Photo 402*--Early twentieth century birdseye view of the mill and harbor. *CPNWS Description:* A view across Bellingham Bay from Sehome at about the place where State and the Boulevard intersect. The long gray building in the center of the photo is Bellingham Bay Lumber Company's lumber and planning mill. The 'street' is the current bed of The Boulevard. The tower of Bellingham's City Hall can be seen on the right side of the photo."

Howard Buswell Collection: The records of a local historian with five photographs of potential use in assessing the history of the Haley site.
Photographs:

- *Photo 732*--(c. 1915) from Sehome hill of the harbor and the shoreline. *CPNWS Description:* **"**Bellingham from Sehome Hill. c1915."
- *Photo* 733--(n.d.) early BBIC sawmill. *CPNWS Description:* **"**Bellingham Bay Improvement Company sawmill. (BBIC)."

- *Photo 736*--(c. 1917) from the Bellingham Bay. *CPNWS Description:* **"**Front Caption: 'City of Bellingham, Wash.' View of Bellingham taken from the bay shows early University Buildings, the Armory and the elementary school on High Street. c1917."
- *Photo 1183*--(1898) postcard of BBIC mill. *CPNWS Description:* **"**Front Caption: 'Compliments of Bellingham Bay Improvement Company, New Whatcom, Washington.' Lumber prices on the back. The mill depicted was the Bloedel-Donovan mill also visible is a four-masted sailing schooner the dock and three ferries are crossing the bay. 1898"
- *Photo 2059* – (c. 1920s) Sandison aerial photo of general area. *CPNWS Description:* **"**An aerial view of Bellingham looking south along Cornwall Avenue from Champion as far south as the E. K. Wood Lumber Company. The dock entering Bellingham Bay at an angle is Sehome Dock."

J.J. Donovan Photograph Collection: This is a small collection of photographs of the Bloedel-Donovan operations between 1900 and 1926. This collection was not assessed

in the TTHRA Report and may be of some potential use for an assessment of the Haley site.
Photographs:

- *Photo* 42--Exterior of the box mill
- *Photo 43*--42 with more detail.
- *Photo 44*--Filing room interior.
- *Photo 45*--Engine room interior.
- *Photo 46*--Mill "B" interior.
- *Photo 48*--Sash and door factory.
- *Photo 49*--Mill from the water.
- *Photo 50*--Cargo mill.
- *Photo 51*--Cargo mill (1926).
- *Photos 55-70*--Various shots of timber production.

Bruce Cheever Railroad Photograph Collection: An extensive collection of railroad photographs with a focus on the Pacific Northwest, only one photograph in this collection (*BMA-47*--A very early (c. 1870s) photo of the waterfront with coal wharf in the background.) appears to be of any use for an assessment of the Haley site.

Center for Pacific Northwest Studies Pamphlet Collection: This extensive collection, not assessed in the TTHRA Report, has a few items of relevancy to the Haley site.
Materials:

- *Box 21*--has issues of *The Head Saw*, a mid-1920s Bloedel-Donavan company publication that sometimes makes passing mention of mill operations and explains the mill's transition from steam power fueled by burning wood waste, to electrical power. (The Bellingham Public Library also has several issues of *The Head Saw*, one of which chronicles the burning and rebuilding of the box factory.)
- *Box 29*--has "The Ports of Everett, Bellingham, and Grays Harbor" (1938), which provides a description of the harbor, including histories of Port of Bellingham dredging and other harbor altering activities prior to 1938. Includes a fold-out map of the harbor and its industrial attributes.
- *Box 39*--has "Port of Bellingham 1927," which has several pictures of the Bloedel-Donavan mill.

Whatcom Falls Mill Company Collection: This collection has a few detailed photographs and some miscellaneous materials regarding the Bloedel-Donovan Mill, which were not assessed in the TTHRA Report, but appear to be of some potential use.

- 1 folder--"Information on other mills 1889-1933," Box 2, has a Bloedel-Donavan year-end report with a basic synopsis of production and markets. Probably of little use.
- 1 folder "Photos – other mills," Box 2, has various photos of log dumps and the box factory at the foot of Cornwall.

- 1 photo, in folder 4, Box 2, *is* a good 1918 Sandison photo of the mill looking northward.
- 1 photo in folder 4, box 5, is a large, c. 1920 aerial photo of the bay that provides good detail of the area.

Huxley Map Library, Western Washington University

Aerial Photographs: The aerial photograph collection includes fly-overs of the bay from the 1940s through the 1960s. These provide a good source for documenting changing uses of the area, but appear to duplicate most of those already in Geoengineers' possession. Two sample years are:

- 1943 Photographs (16-L5-372 and 17-L5-372) show the Bloedel-Donavan mill and adjacent area. Individual Mill buildings and wharf area, and log booms are quite distinguishable.
- 1966 Photographs (BBK- 266- 202 and BBK- 266-203) show the same area. The wharf and many of the mill buildings are gone. Large stacks of lumber (treated ties?) cover the area.

Orthophotographic Maps: These maps are more recent, larger scale, versions of the aerial photographs. They are taken by section and provide a great deal of detail. Two sample maps are:

- 1975 (Drawer 30, G4 284. 84: A4 52 Sheet #21) This photo shows large stacks of lumber covering the International Cross Arms site and extending to the edge of the bay. Good photo and large scale. This drawer also includes even larger scale photos of the area just to the north of the site.
- 1988 (Drawer 29, G4284 .B4:A4 S 2B Sheet #36) shows the area 1988.

APPENDIX B
Previous Studies Tables and Figures

Table B-1

Summary of All Explorations and Sample Data Used in the RI

R.G. Haley Site

Bellingham, Washington

Exploration Name (on RI Figures)	Type of Exploration	Date Completed	Soil Sampled	Historical Well - Groundwater Sampled pre-2012	Existing Well - Groundwater Sampled 2012	Soil Vapor Sampled	Sediment Sampled	Name of Study and Report Name If Applicable, Author, Year	Exploration Log Grouping	Original or Alternate Exploration Name for Cross Referencing to Other Reports (Sample ID in Analytical Database, if Different than Exploration Name, is Shown in Quotes)
SP-A	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-A, A
SP-B	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-B, B
SP-C	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-C, C
SP-D	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-D, D
SP-E	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-E, E
SP-F	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-F, F
SP-G	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-G, G
SP-H	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-H, H
SP-I	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-I, I
SP-J	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-J, J
SP-K	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-K, K
SP-L	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-L, L
SP-M	Test Pit or Hand Auger Boring	08/28/84	Yes	--	--	--	--	Haley Site, Engineers Report, Howard Edde, 1985	No Log	HEI-SP-M, M
B-1	Intertidal Zone Soil Boring	11/11/85	--	Yes	--	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	No Log	"IZ-B-1"
B-2	Intertidal Zone Soil Boring	11/11/85	--	Yes	--	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	No Log	"IZ-B-2"
B-3	Intertidal Zone Soil Boring	11/11/85	--	Yes	--	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	No Log	"IZ-B-3"
B-4	Intertidal Zone Soil Boring	11/11/85	--	Yes	--	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	No Log	"IZ-B-4"
SB-1	Direct Push Soil Boring	11/11/85	Yes	--	--	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	No Log	SB1 (E&E)
SB-2	Direct Push Soil Boring	11/11/85	Yes	--	--	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	No Log	SB2 (E&E)
TP-1	Test Pit	03/20/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-01
TP-2	Test Pit	03/20/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-02, "HWT-TP-02"
TP-3	Test Pit	03/20/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-03, "HWT-TP-03"
TP-4	Test Pit	03/20/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-04
TP-5	Test Pit	03/20/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-05
TP-6	Test Pit	03/20/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-06, "HWT-TP-06"
TP-7	Test Pit	03/20/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-07
TP-8	Test Pit	03/20/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-08
TP-9	Test Pit	03/20/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TP-09, "HWT-TP-09"
TP-10	Test Pit	03/20/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TP-11	Test Pit	03/21/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TP-12	Test Pit	03/21/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	"HWT-TP-12"
TP-13	Test Pit	03/21/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TP-14	Test Pit	03/21/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	"HWT-TP-14"
TP-15	Test Pit	03/21/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TP-16	Test Pit	03/21/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TP-17	Test Pit	03/30/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TP-18	Test Pit	03/30/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TP-19	Test Pit	03/30/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
B-01	Hollow Stem Auger Boring	03/21/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TL-B-01, TL-B-1
B-02	Hollow Stem Auger Boring	03/21/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	TL-B-2
TL-MW-1	Monitoring Well - Hollow Stem Auger	04/03/00	Yes	Yes	Yes	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TL-MW-2	Monitoring Well - Hollow Stem Auger	04/04/00	Yes	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TL-MW-3	Monitoring Well - Hollow Stem Auger	04/04/00	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TL-MW-4	Monitoring Well - Hollow Stem Auger	04/03/00	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TL-MW-5	Monitoring Well - Hollow Stem Auger	04/03/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TL-MW-5A	Monitoring Well - Hollow Stem Auger	03/07/01	Yes	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
TL-MW-6	Monitoring Well - Hollow Stem Auger	03/12/01	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	

Exploration Name (on RI Figures)	Type of Exploration	Date Completed	Soil Sampled	Historical Well - Groundwater Sampled pre-2012	Existing Well - Groundwater Sampled 2012	Soil Vapor Sampled	Sediment Sampled	Name of Study and Report Name If Applicable, Author, Year	Exploration Log Grouping	Original or Alternate Exploration Name for Cross Referencing to Other Reports (Sample ID in Analytical Database, if Different than Exploration Name, is Shown in Quotes)
TL-MW-7	Monitoring Well - Hollow Stem Auger	03/07/01	--	--	Yes	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
TL-MW-8	Monitoring Well - Hollow Stem Auger	03/07/01	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
TL-MW-9	Monitoring Well - Hollow Stem Auger	03/12/01	--	--	Yes	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
TL-MW-10	Monitoring Well - Hollow Stem Auger	06/16/04	Yes	Yes	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-MW-11	Monitoring Well - Hollow Stem Auger	06/18/04	Yes	Yes	Yes	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-MW-12	Monitoring Well - Hollow Stem Auger	07/11/12	--	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
TL-MW-13	Monitoring Well - Hollow Stem Auger	07/03/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
TL-MW-14	Monitoring Well - Hollow Stem Auger	07/02/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
TL-MW-15	Monitoring Well - Hollow Stem Auger	06/27/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
TL-MW-16	Monitoring Well - Hollow Stem Auger	06/28/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-MW-2	Monitoring Well - Cable Tool Drilling	03/13/86	Yes	Yes	--	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	Pre 2012 Haley	BH # 2/ MW-2 (E&E)
HS-MW-3	Monitoring Well - Hollow Stem Auger	04/04/00	Yes	Yes	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-4	Monitoring Well - Hollow Stem Auger	04/04/00	Yes	Yes	Yes	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-5	Monitoring Well - Hollow Stem Auger	04/04/00	Yes	Yes	Yes	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-6	Monitoring Well - Hollow Stem Auger	04/03/00	Yes	Yes	Yes	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-7	Monitoring Well - Hollow Stem Auger	04/05/00	Yes	Yes	Yes	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-7A	Monitoring Well - Hollow Stem Auger	04/04/00	--	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-8	Monitoring Well - Hollow Stem Auger	04/04/00	Yes	Yes	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-9	Monitoring Well - Hollow Stem Auger	04/05/00	Yes	Yes	Yes	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-MW-10	Monitoring Well - Hollow Stem Auger	06/16/04	--	Yes	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-MW-11	Monitoring Well - Hollow Stem Auger	06/16/04	Yes	Yes	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	HS-MW-11D, HS-MW-11D A
HS-MW-12	Monitoring Well - Hollow Stem Auger	06/16/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-MW-12A	Monitoring Well - Hollow Stem Auger	06/18/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-MW-13	Monitoring Well - Hollow Stem Auger	06/16/04	Yes	Yes	Yes	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	HS-MW-13D
HS-MW-14	Monitoring Well - Hollow Stem Auger	06/16/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	HS-MW-14A
HS-MW-15	Monitoring Well - Hollow Stem Auger	06/18/04	--	Yes	Yes	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	HS-MW-15A
HS-MW-16	Monitoring Well - Hollow Stem Auger	06/17/04	Yes	Yes	Yes	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-MW-17	Monitoring Well - Hollow Stem Auger	06/27/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-MW-19	Monitoring Well - Hollow Stem Auger	07/10/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-B-1	Hollow Stem Auger Boring	04/05/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
HS-B-2	Hollow Stem Auger Boring	04/05/00	Yes	--	--	--	--	Haley Site, Interim Cleanup Action Plan, GeoEngineers, 2000	Pre 2012 GeoEngineers	
TL-B-3	Hollow Stem Auger Boring	04/05/00	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-B-4	Hollow Stem Auger Boring	04/05/00	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-B-5	Hollow Stem Auger Boring	04/05/00	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
RW-1	Monitoring Well - Hollow Stem Auger	07/24/01	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
RW-2	Monitoring Well - Hollow Stem Auger	07/24/01	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
RW-3	Monitoring Well - Hollow Stem Auger	07/24/01	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
RW-4	Monitoring Well - Hollow Stem Auger	02/06/02	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
RW-5	Monitoring Well - Hollow Stem Auger	02/06/02	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
RW-6	Monitoring Well - Hollow Stem Auger	02/06/02	--	--	Existing Well Contains LNAPL (Not Sampled)	--	--	Haley Site, Interim Cleanup Action Report, GeoEngineers, 2002	Pre 2012 GeoEngineers	
CL-MW-1D	Monitoring Well - Hollow Stem Auger	06/16/04	Yes	Yes	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
CL-MW-1H	Monitoring Well - Cable Tool Drilling	03/12/86	Yes	Yes	Yes	--	--	Haley Site Inspection Report, Ecology and Environment, 1986	Pre 2012 Haley	BH # 1/ MW-1 (E&E)
CL-MW-1S	Monitoring Well - Hollow Stem Auger	06/18/04	--	Yes	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
CL-MW-1	Monitoring Well - Hollow Stem Auger	06/26/98	--	Yes	Yes	--	--	Cornwall Site, Focused RI, Landau, 1998	Pre 2012 Cornwall	MW-1 "Focused RI, 1998" (Landau)
CL-MW-2	Monitoring Well - Hollow Stem Auger	06/25/98	--	Yes	--	--	--	Cornwall Site, Focused RI, Landau, 1998	Pre 2012 Cornwall	MW-2 "Focused RI, 1998" (Landau)
CL-MW-3	Monitoring Well - Hollow Stem Auger	06/25/98	--	Yes	--	--	--	Cornwall Site, Focused RI, Landau, 1998	Pre 2012 Cornwall	MW-3 "Focused RI, 1998" (Landau)
CL-MW-4	Monitoring Well - Hollow Stem Auger	06/25/98	--	Yes	--	--	--	Cornwall Site, Focused RI, Landau, 1998	Pre 2012 Cornwall	MW-4 "Focused RI, 1998" (Landau)
CL-MW-5	Monitoring Well - Hollow Stem Auger	06/26/98	--	Yes	--	--	--	Cornwall Site, Focused RI, Landau, 1998	Pre 2012 Cornwall	MW-5 "Focused RI, 1998" (Landau)
CL-MW-6	Monitoring Well - Hollow Stem Auger	06/27/03	--	Yes	Yes	--	--	Cornwall Site, Draft Work Plan Supplemental RI, Landau, 2002	Pre 2012 Cornwall	MW-6 "Supplemental RI, 2002" (Landau)

Exploration Name (on RI Figures)	Type of Exploration	Date Completed	Soil Sampled	Historical Well - Groundwater Sampled pre-2012	Existing Well - Groundwater Sampled 2012	Soil Vapor Sampled	Sediment Sampled	Name of Study and Report Name If Applicable, Author, Year	Exploration Log Grouping	Original or Alternate Exploration Name for Cross Referencing to Other Reports (Sample ID in Analytical Database, if Different than Exploration Name, is Shown in Quotes)
CL-MW-7	Monitoring Well - Hollow Stem Auger	06/27/03	--	Yes	--	--	--	Cornwall Site, Draft Work Plan Supplemental RI, Landau, 2002	Pre 2012 Cornwall	MW-7"Supplemental RI, 2002" (Landau)
CL-MW-8	Monitoring Well - Hollow Stem Auger	06/27/03	--	Yes	--	--	--	Cornwall Site, Draft Work Plan Supplemental RI, Landau, 2002	Pre 2012 Cornwall	MW-8"Supplemental RI, 2002" (Landau)
CL-MW-9	Monitoring Well - Hollow Stem Auger	06/27/03	--	Yes	Yes	--	--	Cornwall Site, Draft Work Plan Supplemental RI, Landau, 2002	Pre 2012 Cornwall	MW-9"Supplemental RI, 2002" (Landau)
CL-MW-10	Monitoring Well - Hollow Stem Auger	06/27/03	--	Yes	--	--	--	Cornwall Site, Draft Work Plan Supplemental RI, Landau, 2002	Pre 2012 Cornwall	MW-10"Supplemental RI, 2002" (Landau)
PS-2	Surface Sediment	09/19/03	--	--	--	--	Yes	Haley Site, Final Sediment Quality Assessment and RI Work Plan, GeoEngineers, 2005	No Log	
PS-4	Surface Sediment	09/19/03	--	--	--	--	Yes	Haley Site, Final Sediment Quality Assessment and RI Work Plan, GeoEngineers, 2005	No Log	
PS-7	Surface Sediment	09/19/03	--	--	--	--	Yes	Haley Site, Final Sediment Quality Assessment and RI Work Plan, GeoEngineers, 2005	No Log	
PS-13	Surface Sediment	09/19/03	--	--	--	--	Yes	Haley Site, Final Sediment Quality Assessment and RI Work Plan, GeoEngineers, 2005	No Log	
PS-16	Surface Sediment	09/19/03	--	--	--	--	Yes	Haley Site, Final Sediment Quality Assessment and RI Work Plan, GeoEngineers, 2005	No Log	
PS-20	Surface Sediment	09/19/03	--	--	--	--	Yes	Haley Site, Final Sediment Quality Assessment and RI Work Plan, GeoEngineers, 2005	No Log	
HS-HA-1	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-HA-2	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-HA-3	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-HA-4	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-HA-5	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-HA-1	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-HA-2A	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	TL-HA-2
TL-HA-3	Hand Auger Boring	06/14/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-1	Direct Push Soil Boring	06/15/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-2	Direct Push Soil Boring	06/15/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-3	Direct Push Soil Boring	06/15/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-4	Direct Push Soil Boring	06/15/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-5	Direct Push Soil Boring	06/15/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-5A	Direct Push Soil Boring	06/15/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-5B	Direct Push Soil Boring	06/15/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-6	Direct Push Soil Boring	06/15/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-7	Direct Push Soil Boring	06/15/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-8	Direct Push Soil Boring	06/15/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-9	Direct Push Soil Boring	06/15/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-10	Direct Push Soil Boring	06/15/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-11	Direct Push Soil Boring	06/16/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-12	Direct Push Soil Boring	06/16/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-13	Direct Push Soil Boring	06/16/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-14	Direct Push Soil Boring	06/18/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-14A	Direct Push Soil Boring	06/18/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-15	Direct Push Soil Boring	06/21/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-15A	Direct Push Soil Boring	06/21/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-16	Direct Push Soil Boring	06/18/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
HS-DP-17	Direct Push Soil Boring	06/18/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
IZ-DP-1	Sediment Core Intertidal Zone	06/17/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
IZ-MW-1	Sediment Core Intertidal Zone Monitoring Well	06/17/04	--	Yes	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
IZ-MW-2	Sediment Core Intertidal Zone Monitoring Well	06/17/04	--	Yes	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
IZ-MW-3	Sediment Core Intertidal Zone Monitoring Well	06/17/04	--	Yes	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
IZ-MW-4	Sediment Core Intertidal Zone Monitoring Well	06/17/04	--	Yes	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-DP-1	Direct Push Soil Boring	06/21/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-DP-2	Direct Push Soil Boring	06/21/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-DP-3	Direct Push Soil Boring	06/21/04	--	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
TL-DP-4	Direct Push Soil Boring	06/21/04	Yes	--	--	--	--	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	Pre 2012 GeoEngineers	
AF-MW01	Monitoring Well - Hollow Stem Auger	7/19/04	Yes	Yes	--	--	--	Cornwall Site, Phase II ESA for Georgia Pacific, Aspect Consulting, 2004	Pre 2012 Cornwall	
AF-MW02	Monitoring Well - Hollow Stem Auger	7/19/04	Yes	Yes	--	--	--	Cornwall Site, Phase II ESA for Georgia Pacific, Aspect Consulting, 2004	Pre 2012 Cornwall	
AF-SB01	Direct Push Soil Boring	7/19/04	Yes	--	--	--	--	Cornwall Site, Phase II ESA for Georgia Pacific, Aspect Consulting, 2004	Pre 2012 Cornwall	
AF-SB02	Direct Push Soil Boring	7/19/04	Yes	--	--	--	--	Cornwall Site, Phase II ESA for Georgia Pacific, Aspect Consulting, 2004	Pre 2012 Cornwall	

Exploration Name (on RI Figures)	Type of Exploration	Date Completed	Soil Sampled	Historical Well - Groundwater Sampled pre-2012	Existing Well - Groundwater Sampled 2012	Soil Vapor Sampled	Sediment Sampled	Name of Study and Report Name If Applicable, Author, Year	Exploration Log Grouping	Original or Alternate Exploration Name for Cross Referencing to Other Reports (Sample ID in Analytical Database, if Different than Exploration Name, is Shown in Quotes)
AF-SB-03	Direct Push Soil Boring	7/19/04	--	--	--	--	--	Cornwall Site, Phase II ESA for Georgia Pacific, Aspect Consulting, 2004	Pre 2012 Cornwall	
AF-SB04	Direct Push Soil Boring	7/19/04	Yes	--	--	--	--	Cornwall Site, Phase II ESA for Georgia Pacific, Aspect Consulting, 2004	Pre 2012 Cornwall	
RI-1	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
RI-2	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
RI-3	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
RI-4	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
RI-5	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
RI-6	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
RI-7	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
RI-8	Surface Sediment	07/29/04	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
SRI-1	Surface Sediment	09/08/05	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
SRI-2	Surface Sediment	09/08/05	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
SRI-3	Surface Sediment	09/08/05	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
SRI-4	Surface Sediment	09/08/05	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
SRI-5	Surface Sediment	09/08/05	--	--	--	--	Yes	Haley Site, Draft Final RI/FS, GeoEngineers, 2007	No Log	
CL-SB-101	Direct Push Soil Boring	06/25/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
CL-SB-102	Direct Push Soil Boring	06/25/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
CL-SB-103	Direct Push Soil Boring	06/25/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-SB-101	Direct Push Soil Boring	06/26/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-SB-102	Direct Push Soil Boring	06/25/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-SB-103	Direct Push Soil Boring	06/25/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-SB-104	Direct Push Soil Boring	06/25/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-SS-104	Hand Auger Boring	05/12/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	No log	
TL-SB-101	Direct Push Soil Boring	06/26/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-SS-104	Hand Auger Boring	05/15/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	No Log	
CL-MW-101	Monitoring Well - Hollow Stem Auger	06/29/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
CL-MW-102	Monitoring Well - Hollow Stem Auger	06/29/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
CL-MW-103	Monitoring Well - Hollow Stem Auger	07/10/12	Yes	Yes	Yes	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
HS-SB-18	Hollow Stem Auger Boring	07/11/12	Yes	--	--	--	--	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
MW-11D	Monitoring Well - Hollow Stem Auger	07/18/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-11S	Monitoring Well - Hollow Stem Auger	07/16/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-12D	Monitoring Well - Hollow Stem Auger	07/18/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-12S	Monitoring Well - Hollow Stem Auger	07/18/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-13D	Monitoring Well - Hollow Stem Auger	07/16/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-13S	Monitoring Well - Hollow Stem Auger	07/16/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-14D	Monitoring Well - Hollow Stem Auger	07/17/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-14S	Monitoring Well - Hollow Stem Auger	07/17/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-15D	Monitoring Well - Hollow Stem Auger	07/17/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-15S	Monitoring Well - Hollow Stem Auger	07/16/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-16D	Monitoring Well - Hollow Stem Auger	07/17/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
MW-16S	Monitoring Well - Hollow Stem Auger	07/17/12	--	Yes	Yes	--	--	Cornwall Site, Draft RI/FS, Landau, 2013	2012 Landau Associates	
COB-SC-01	Sediment Core	08/27/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-02	Sediment Core	08/27/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-03	Sediment Core	08/01/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-04	Sediment Core	08/02/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-05	Sediment Core	08/01/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-06	Sediment Core	08/02/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-07	Sediment Core	08/27/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-08	Sediment Core	08/03/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SC-09	Sediment Core	08/01/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	2012 GeoEngineers	
COB-SS-01	Surface Sediment	08/03/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	
COB-SS-02	Surface Sediment	08/03/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	
COB-SS-03	Surface Sediment	08/03/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	
COB-SS-04	Surface Sediment	08/03/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	
COB-SS-05	Surface Sediment	08/03/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	
COB-SS-06	Surface Sediment	08/04/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	
COB-SS-07	Surface Sediment	08/04/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	

Exploration Name (on RI Figures)	Type of Exploration	Date Completed	Soil Sampled	Historical Well - Groundwater Sampled pre-2012	Existing Well - Groundwater Sampled 2012	Soil Vapor Sampled	Sediment Sampled	Name of Study and Report Name If Applicable, Author, Year	Exploration Log Grouping	Original or Alternate Exploration Name for Cross Referencing to Other Reports (Sample ID in Analytical Database, if Different than Exploration Name, is Shown in Quotes)
COB-SS-08	Surface Sediment	08/14/12	--	--	--	--	Yes	2012 Supplemental Investigation, GeoEngineers	No Log	
HS-SV-1	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
HS-SV-2	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
HS-SV-3	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
HS-SV-4	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
HS-SV-5	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
HS-SV-6	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
HS-SV-7	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
HS-SV-8	Direct Push Soil Boring	08/16/05	--	--	--	Yes	--	Haley Site, Technical Memorandum, Soil Vapor Analytical Data, GeoEngineers, 2005	No Log	
RGH-SS-01	Surface Sediment	08/26/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	No Log	
RGH-SS-02	Surface Sediment	08/26/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	No Log	
RGH-SS-03	Surface Sediment	08/26/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	No Log	
RGH-SC-01	Sediment Core	08/26/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
RGH-SC-02	Sediment Core	08/26/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
RGH-SC-03	Sediment Core	08/27/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
RGH-SC-04	Sediment Core	08/27/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
RGH-SC-05	Sediment Core	08/27/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
RGH-SC-06	Sediment Core	08/27/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
RGH-SC-07	Sediment Core	09/24/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
RGH-SC-08	Sediment Core	09/24/08	--	--	--	--	Yes	Sediment Site Characterization Evaluation of Bellingham Bay, Hart Crowser, 2009	2008, Hart Crowser	
6B-03-SS	Surface Sediment	08/22/08	--	--	--	--	Yes	Whatcom Waterway Pre-remedial Design Investigation, Anchor QEA, 2010	No log	
6B-04-SS	Surface Sediment	08/22/08	--	--	--	--	Yes	Whatcom Waterway Pre-remedial Design Investigation, Anchor QEA, 2010	No log	
6B-01-DC	Sediment Core	04/30/09	--	--	--	--	Yes	Whatcom Waterway Pre-remedial Design Investigation, Anchor QEA, 2010	No log	
6B-02-DC	Sediment Core	04/30/09	--	--	--	--	Yes	Whatcom Waterway Pre-remedial Design Investigation, Anchor QEA, 2010	No log	
AN-SS-29	Surface Sediment	06/07/02	--	--	--	--	Yes	Whatcom Waterway, Pre-Remedial Design Investigation, Anchor, 2003	No log	

Table B-2

Chronological List of Prior Studies for Haley Site

R.G. Haley Site
Bellingham, Washington

Year	Investigation and Report Citation	Explorations Completed (Available Logs in Appendix D, Locations Shown in Figures B-1, B-2, B-3)
1985	"Engineers Report of Upgraded Environmental Controls at R.G. Haley International Corporation, Inc," Howard Edde, Inc., February 1985.	**Soil borings:**
		SP-A (HEI-SP-A) through SP-M (HEI-SP-M)
1986	"Site Inspection Report of R.G.Haley International Corporation, Inc.", prepared for United States Environmental Protection Agency by Ecology and Environment, May 1986.	**Borings:**
		B-1 (IZ-B-1) through B-4 (IZ-B-4) and SB1 (SB-1) and SB2 (SB-2)
	This report documents the seepage pit excavation by Haley in July 1985	**Monitoring wells:**
		CL-MW-1H (BH#1) and HS-MW-2 (BH#2)
1991	"Environmental Site Assessment Phase I, Georgia Pacific Corporation Lease HA2353" prepared for Georgia Pacific Corporation by W.D. Purnell and Associates Inc., December 12, 1991.	**Soil Samples:**
		Two soil samples S-1 and S-2 were obtained; however, locations could not be confirmed.
2000-2001	Interim Cleanup Action Site Characterization, "Interim Cleanup Action Plan, Former R. G. Haley International Wood Treating/DNR Property Site, Bellingham, Washington", prepared for Perkins Coie LLP by GeoEngineers, July 6, 2000.	**Explorations completed in March and April 2000.**
		Test Pits:
		TP-1 through TP-19
		Soil Borings:
		B-01 and B-02
		TL-B-3 through TL-B-5
		HS-B-1 and HS-B-2
		Monitoring Wells:
		TL-MW-1 through TL-MW-5
		HS-MW-7A
		HS-MW-3 through HS-MW-9
2000-2002	Shoreline Containment and Sediment Excavation "Interim Cleanup Action Report, Former R.G. Haley International Wood Treating/DNR Property Site, Bellingham, Washington", prepared for Perkins Coie LLP by GeoEngineers, May 20, 2002.	**Explorations completed in March 2001 and February 2002.**
		Monitoring Wells:
		TL-MW-5A and TL-MW-6 through TL-MW-9
		Recovery Wells:
		RW-1 through RW-6
2003-2004	Preliminary Sediment Screening Study: "Final Sediment Quality Assessment and Remedial Investigation Work Plan, R.G. Haley International Corporation Site, Bellingham, Washington", prepared for Douglas Management Company by GeoEngineers, May 3, 2005.	**Explorations completed in September and November 2003.**
		Surface Sediment:
		PS-1 through PS-28
2005	"Technical Memorandum, Soil Vapor Analytical Data", prepared for Department of Ecology by GeoEngineers, November 22, 2005.	**Soil Vapor Samples completed August 16, 2005.**
		HS-SV-1 through HS-SV-8
2007	"Draft-Final RI/FS Report, R. G. Haley International Corporation Site, Bellingham, Washington, Agreed Order No. DE2186" prepared for Douglas Management Company by GeoEngineers, September 5, 2007.	**Explorations completed in June 2004.**
		Borings:
		HS-HA-1 through HS-HA-5
		TL-HA-1 through TL-HA-3
		HS-DP-1 through HS-DP-17, HS-DP-5A, HS-DP-5B, HS-DP-14A, HS-DP-15A, IZ-DP-1, IZ-MW-1 through IZ-MW-4, TL-DP-1 through TL-DP-4
		Monitoring Wells:
		TL-MW-10 through TL-MW-11, HS-MW-10 through HS-MW-16, HS-MW-12A, CL-MW-1D, and CL-MW-1S
		Sediment Samples:
		RI-1 through RI-8 and SRI-1 through SRI-5.

Notes:

Several older explorations were renamed to eliminate confusion and provide consistent nomenclature with respect to the RI. The revised exploration identified is provided in this table followed by the original identification in parenthesis.

Table B-3

Historic Groundwater Analytical Summary Table

R.G. Haley Site

Bellingham, Washington

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples AF-MW-01 7/26/04	Pre-2012 Samples AF-MW-02 7/26/04	Pre-2012 Samples CL-MW-1-062404 6/24/04	Pre-2012 Samples CL-MW-1_20020717 7/17/02	Pre-2012 Samples CL-MW-1 7/13/98	Pre-2012 Samples CL-MW-1D-091405 9/14/05	Pre-2012 Samples CL-MW-1D-033105 3/31/05	Pre-2012 Samples CL-MW-1D-120904 12/09/04	Pre-2012 Samples CL-MW-1D-092304 9/23/04
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	48.4	--	--	--	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	0.7	1 U	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	22	--	--	--	--
Iron	ug/l		2660	7940	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	1 U	--	--	--	--
Manganese	ug/l	100	1050	1400	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		1	2	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	28	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		0.25 U	0.77 J	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		0.25 U	0.76 J	0.25 U	--	2.8	0.25 U	1.37	2.08	1.87
Lube Oil-range Hydrocarbons	mg/l		--	--	0.5 U	--	0.52	0.5 U	0.5 U	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	1 U	--	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	1 U	--	--	--	--	--
Toluene	ug/l	15000	--	--	--	1 U	--	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	1 U	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	0.51	120	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	0.1 U	97	--	--	38	--	--	--	--
Acenaphthene	ug/l	3.3	0.14	4	--	--	1.6	--	--	--	--
Acenaphthylene	ug/l	13	--	--	--	--	0.42	--	--	--	--
Anthracene	ug/l	9.6	--	--	--	--	4.1	--	--	--	--
Benzo(ghi)perylene	ug/l	0.016	--	--	--	--	0.05 U	--	--	--	--
Benzo(k)fluoranthene	ug/l	0.018	--	--	--	--	0.05 U	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples AF-MW-01 7/26/04	Pre-2012 Samples AF-MW-02 7/26/04	Pre-2012 Samples CL-MW-1-062404 6/24/04	Pre-2012 Samples CL-MW-1_20020717 7/17/02	Pre-2012 Samples CL-MW-1 7/13/98	Pre-2012 Samples CL-MW-1D-091405 9/14/05	Pre-2012 Samples CL-MW-1D-033105 3/31/05	Pre-2012 Samples CL-MW-1D-120904 12/09/04	Pre-2012 Samples CL-MW-1D-092304 9/23/04
Fluoranthene	ug/l	3.3	--	--	--	--	0.05 U	--	--	--	--
Fluorene	ug/l	3	0.1 U	**2.9**	--	--	**2**	--	--	--	--
Naphthalene	ug/l	83	0.1 U	**1.6**	--	--	**2.2**	--	--	--	--
Phenanthrene	ug/l	6	0.1 U	**2.8**	--	--	**3.5**	--	--	--	--
Pyrene	ug/l	15	0.1 U	**0.12**	--	--	0.05 U	--	--	--	--
CPAHs											
Benzo(a)anthracene	ug/l	0.018	--	--	--	--	0.05 U	--	--	--	--
Benzo(a)pyrene	ug/l	0.018	--	--	--	--	0.05 U	--	--	--	--
Benzo(b)fluoranthene	ug/l	0.018	--	--	--	--	0.05 U	--	--	--	--
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	--	--	--	--	0.05 U	--	--	--	--
Dibenzo(a,h)anthracene	ug/l	0.01	--	--	--	--	0.05 U	--	--	--	--
Indeno(1,2,3-cd)pyrene	ug/l	0.01	--	--	--	--	0.05 U	--	--	--	--
cPAH TEQ	ug/l	0.018	--	--	--	--	0.03775 UT	--	--	--	--
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	ug/l	5	--	--	--	--	--	--	--	--	--
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		1 U	**4.8**	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	**Unit**	**Screening Levels**	**Pre-2012 Samples AF-MW-01 7/26/04**	**Pre-2012 Samples AF-MW-02 7/26/04**	**Pre-2012 Samples CL-MW-1-062404 6/24/04**	**Pre-2012 Samples CL-MW-1_20020717 7/17/02**	**Pre-2012 Samples CL-MW-1 7/13/98**	**Pre-2012 Samples CL-MW-1D-091405 9/14/05**	**Pre-2012 Samples CL-MW-1D-033105 3/31/05**	**Pre-2012 Samples CL-MW-1D-120904 12/09/04**	**Pre-2012 Samples CL-MW-1D-092304 9/23/04**
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	--	--	--	--	--	--	--	--	--
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	--	--	--	--	5 U	--	--	--	--
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples CL-MW-1D-062204 6/22/04	Pre-2012 Samples CL-MW-1H-091505 9/15/05	Pre-2012 Samples CL-MW-1H-033105 3/31/05	Pre-2012 Samples CL-MW-1H-120904 12/09/04	Pre-2012 Samples CL-MW-1H-092404 9/24/04	Pre-2012 Samples CL-MW-1H-062404 6/24/04	Pre-2012 Samples CL-MW-1H 11/11/85	Pre-2012 Samples CL-MW-1S-091405 9/14/05	Pre-2012 Samples CL-MW-1S-033105 3/31/05
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		**16.1**	--	--	--	--	**9.24**	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**1.68**	**1.86**	**3.12**	**3.13**	**1.29**	**2.02**	--	0.25 U	**41.5**
Lube Oil-range Hydrocarbons	mg/l		**0.581**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	**104**
BTEX											
Benzene	ug/l	2.4	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	--	--	--	--	--	--
Toluene	ug/l	15000	--	--	--	--	--	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	--	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	--	**9.78**	**1.42**	**1.37**	--	**3.63**	--	**552**	**364**
Acenaphthene	ug/l	3.3	--	**5.46 E**	**6.85**	**6.41**	--	**6.94**	--	**40.2**	**13.3**
Acenaphthylene	ug/l	13	--	0.01 U	0.01 U	0.1 U	--	**1.38**	--	0.1 U	**2.68**
Anthracene	ug/l	9.6	--	0.01 U	0.01 U	**0.92**	--	**0.268**	--	0.1 U	0.1 U
Benzo(ghi)perylene	ug/l	0.016	--	0.1 U	0.1 U	1 U	--	0.1 U	--	1 U	1 U
Benzo(k)fluoranthene	ug/l	0.018	--	**0.0547**	**0.0138**	0.1 U	--	**0.0133**	--	0.1 U	0.1 U

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples CL-MW-1D-062204 6/22/04	Pre-2012 Samples CL-MW-1H-091505 9/15/05	Pre-2012 Samples CL-MW-1H-033105 3/31/05	Pre-2012 Samples CL-MW-1H-120904 12/09/04	Pre-2012 Samples CL-MW-1H-092404 9/24/04	Pre-2012 Samples CL-MW-1H-062404 6/24/04	Pre-2012 Samples CL-MW-1H 11/11/85	Pre-2012 Samples CL-MW-1S-091405 9/14/05	Pre-2012 Samples CL-MW-1S-033105 3/31/05
Fluoranthene	ug/l	3.3	--	0.313	0.263	0.417	--	0.26	--	0.1 U	0.1 U
Fluorene	ug/l	3	--	7.58	3.42	5.54	--	7.08	--	18.3	12.3
Naphthalene	ug/l	83	--	2.44	0.01 U	1.16	--	2.68	--	0.1 U	1.91
Phenanthrene	ug/l	6	--	0.883	0.689	1.36	--	0.959	--	40	16.3
Pyrene	ug/l	15	--	0.476	0.687	0.713	--	0.582	--	6.54	1.63
CPAHs											
Benzo(a)anthracene	ug/l	0.018	--	0.01 U	0.0315	0.1 U	--	0.0187	--	0.1 U	0.1 U
Benzo(a)pyrene	ug/l	0.018	--	0.01 U	0.0122	0.1 U	--	0.0112	--	0.1 U	0.1 U
Benzo(b)fluoranthene	ug/l	0.018	--	0.0296	0.0174	0.1 U	--	0.0156	--	0.1 U	0.1 U
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	--	0.01 U	0.076	0.141	--	0.072	--	0.1 U	0.1 U
Dibenzo(a,h)anthracene	ug/l	0.01	--	0.01 U	0.01 U	0.1 U	--	0.01 U	--	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	--	0.01 U	0.01 U	0.1 U	--	0.01 U	--	0.1 U	0.398
cPAH TEQ	ug/l	0.018	--	0.01498 T	0.02023 T	0.07641 T	--	0.01768 T	--	0.0755 UT	0.1103 T
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		--	0.5 U	0.5 U	5 U	--	0.5 U	--	5 U	5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	--	0.5 U	0.5 U	5 U	--	0.5 U	--	--	5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		--	0.05 U	0.05 U	0.5 U	--	0.05 U	50 U	--	0.5 U
2,4,6-Trichlorophenol	ug/l	5	--	0.05 U	0.05 U	0.5 U	--	0.0835	10 U	0.5 U	0.5 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	10 U	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	10 U	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	10 U	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	--	1.71	0.816	2.03	--	3.2	4 J	0.1 U	4.76
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples CL-MW-1D-062204 6/22/04	Pre-2012 Samples CL-MW-1H-091505 9/15/05	Pre-2012 Samples CL-MW-1H-033105 3/31/05	Pre-2012 Samples CL-MW-1H-120904 12/09/04	Pre-2012 Samples CL-MW-1H-092404 9/24/04	Pre-2012 Samples CL-MW-1H-062404 6/24/04	Pre-2012 Samples CL-MW-1H 11/11/85	Pre-2012 Samples CL-MW-1S-091405 9/14/05	Pre-2012 Samples CL-MW-1S-033105 3/31/05
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	--	0.02 U	0.02 U	0.2 UJ	--	**1.74**	10 U	0.2 U	**4.17 J**
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	10 U	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	10 U	--	--
Pentachlorophenol	ug/l	3	--	0.05 U	**1.67 J**	0.5 UJ	--	**1.64 J**	170	0.5 U	0.5 U
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples CL-MW-1S-120904 12/09/04	Pre-2012 Samples CL-MW-1S-092404 9/24/04	Pre-2012 Samples CL-MW-1S-062204 6/22/04	Pre-2012 Samples CL-MW-3_20020716 7/16/02	Pre-2012 Samples CL-MW-5_20020716 7/16/02	Pre-2012 Samples CL-MW-5 7/13/98	Pre-2012 Samples CL-MW-6-091405 9/14/05	Pre-2012 Samples CL-MW-6-033105 3/31/05	Pre-2012 Samples CL-MW-6-120904 12/09/04
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	**32.2**	--	--	--	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**27.3**	**21.2**	**1.72**	--	--	**0.65**	**202**	**0.974**	**1.29**
Lube Oil-range Hydrocarbons	mg/l		**24**	**22.5**	**1.16**	--	--	0.5 U	50 U	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	1 U	1 U	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	1 U	--	--	--	--	--
Toluene	ug/l	15000	--	--	--	1 U	1 U	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	1 U	1 U	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	**205**	--	**770 J**	--	--	**21**	**10400**	**32.2**	**7.8**
Acenaphthene	ug/l	3.3	**4.55**	--	**16.2 J**	--	--	**0.58**	**731**	**6.19**	**3.03**
Acenaphthylene	ug/l	13	0.1 U	--	**4.23 J**	--	--	0.05 U	5 U	**1.1**	0.1 U
Anthracene	ug/l	9.6	0.1 U	--	0.1 UJ	--	--	**0.36**	5 U	0.01 U	0.1 U
Benzo(ghi)perylene	ug/l	0.016	1 U	--	1 UJ	--	--	0.05 U	50 U	0.1 U	1 U
Benzo(k)fluoranthene	ug/l	0.018	0.1 U	--	0.1 UJ	--	--	0.05 U	5 U	0.01 U	0.1 U

Yellow fill indicates the result > the screening level
Blue Fill indicates the reporting limit > the screening level
Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples CL-MW-1S-120904 12/09/04	Pre-2012 Samples CL-MW-1S-092404 9/24/04	Pre-2012 Samples CL-MW-1S-062204 6/22/04	Pre-2012 Samples CL-MW-3_20020716 7/16/02	Pre-2012 Samples CL-MW-5_20020716 7/16/02	Pre-2012 Samples CL-MW-5 7/13/98	Pre-2012 Samples CL-MW-6-091405 9/14/05	Pre-2012 Samples CL-MW-6-033105 3/31/05	Pre-2012 Samples CL-MW-6-120904 12/09/04
Fluoranthene	ug/l	3.3	0.1 U	--	**1.59 J**	--	--	0.05 U	**78.7**	**0.0681**	0.1 U
Fluorene	ug/l	3	**4.61**	--	**19.7 J**	--	--	**0.46**	**805**	**5.67**	**3.08**
Naphthalene	ug/l	83	**3.87**	--	**47.1 J**	--	--	**5.3**	**904**	**9.66**	**3.95**
Phenanthrene	ug/l	6	**5.31**	--	**41.5 J**	--	--	0.05 U	**2390**	**5.32**	**1.97**
Pyrene	ug/l	15	0.1 U	--	**3.01 J**	--	--	0.05 U	**239**	**0.191**	0.1 U
CPAHs											
Benzo(a)anthracene	ug/l	0.018	0.1 U	--	**0.293 J**	--	--	0.05 U	**15.3**	0.01 U	0.1 U
Benzo(a)pyrene	ug/l	0.018	0.1 U	--	0.1 UJ	--	--	0.05 U	5 U	0.01 U	0.1 U
Benzo(b)fluoranthene	ug/l	0.018	0.1 U	--	0.1 UJ	--	--	0.05 U	5 U	0.01 U	0.1 U
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	0.1 U	--	**0.623 J**	--	--	0.05 U	**27.4**	0.01 U	0.1 U
Dibenzo(a,h)anthracene	ug/l	0.01	0.1 U	--	0.1 UJ	--	--	0.05 U	5 U	0.01 U	0.1 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.1 U	--	0.1 UJ	--	--	0.05 U	5 U	0.01 U	0.1 U
cPAH TEQ	ug/l	0.018	0.0755 UT	--	0.10553 UT	--	--	0.03775 UT	**5.304 T**	0.00755 UT	0.0755 UT
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		5 U	--	5 UJ	--	--	--	250 U	**1.04**	5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	5 U	--	5 UJ	--	--	--	250 U	10 U	5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		0.5 U	--	0.5 UJ	--	--	--	25 U	**1.18**	0.5 U
2,4,6-Trichlorophenol	ug/l	5	0.5 U	--	0.5 UJ	--	--	--	25 U	--	0.5 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	0.1 U	--	**3.18 J**	--	--	--	**339**	**1.85**	0.1 U
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples CL-MW-1S-120904 12/09/04	Pre-2012 Samples CL-MW-1S-092404 9/24/04	Pre-2012 Samples CL-MW-1S-062204 6/22/04	Pre-2012 Samples CL-MW-3_20020716 7/16/02	Pre-2012 Samples CL-MW-5_20020716 7/16/02	Pre-2012 Samples CL-MW-5 7/13/98	Pre-2012 Samples CL-MW-6-091405 9/14/05	Pre-2012 Samples CL-MW-6-033105 3/31/05	Pre-2012 Samples CL-MW-6-120904 12/09/04
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	0.2 UJ	--	0.2 UJ	--	--	--	10 U	1.06	0.2 UJ
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	0.5 UJ	--	3.1 J	--	--	5 U	25 U	7.37	0.5 UJ
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	**Unit**	**Screening Levels**	**Pre-2012 Samples CL-MW-6-092404 9/24/04**	**Pre-2012 Samples CL-MW-6-062404 6/24/04**	**Pre-2012 Samples CL-MW-6_20020716 7/16/02**	**Pre-2012 Samples CL-MW-7-091405 9/14/05**	**Pre-2012 Samples CL-MW-7-033105 3/31/05**	**Pre-2012 Samples CL-MW-7-120904 12/09/04**	**Pre-2012 Samples CL-MW-7-092304 9/23/04**	**Pre-2012 Samples CL-MW-7-062404 6/24/04**	**Pre-2012 Samples CL-MW-7_20020717 7/17/02**
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	**12.1**	--	--	--	--	--	**31.8**	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**1.51**	**0.287**	--	0.25 U	0.25 UJ	**0.341**	**0.409**	**0.279**	--
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
BTEX											
Benzene	ug/l	2.4	--	--	1 U	--	--	--	--	--	1 U
Ethylbenzene	ug/l	2100	--	--	**1.7**	--	--	--	--	--	1 U
Toluene	ug/l	15000	--	--	1 U	--	--	--	--	--	1 U
Total Xylenes	ug/l	310	--	--	**1.8**	--	--	--	--	--	1 U
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	--	**37**	--	**8.19**	**30.9**	**8.39**	--	**32.8**	--
Acenaphthene	ug/l	3.3	--	**7.74**	--	**0.605**	**0.938**	**0.383**	--	**0.62**	--
Acenaphthylene	ug/l	13	--	**1.1**	--	0.2 U	**0.127**	0.1 U	--	**0.0698**	--
Anthracene	ug/l	9.6	--	**0.419**	--	0.2 U	**0.057**	0.1 U	--	0.01 U	--
Benzo(ghi)perylene	ug/l	0.016	--	0.1 U	--	2 U	0.1 U	1 U	--	0.1 U	--
Benzo(k)fluoranthene	ug/l	0.018	--	0.01 U	--	0.2 U	0.01 U	0.1 U	--	0.01 U	--

Yellow fill indicates the result > the screening level
Blue Fill indicates the reporting limit > the screening level
Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples CL-MW-6-092404 9/24/04	Pre-2012 Samples CL-MW-6-062404 6/24/04	Pre-2012 Samples CL-MW-6_20020716 7/16/02	Pre-2012 Samples CL-MW-7-091405 9/14/05	Pre-2012 Samples CL-MW-7-033105 3/31/05	Pre-2012 Samples CL-MW-7-120904 12/09/04	Pre-2012 Samples CL-MW-7-092304 9/23/04	Pre-2012 Samples CL-MW-7-062404 6/24/04	Pre-2012 Samples CL-MW-7_20020717 7/17/02
Fluoranthene	ug/l	3.3	--	0.0627	--	0.0788	0.0603	0.1 U	--	0.0442	--
Fluorene	ug/l	3	--	7.17	--	0.886	0.551	0.385	--	0.0165	--
Naphthalene	ug/l	83	--	12.5	--	0.809	0.537	0.546	--	0.405	--
Phenanthrene	ug/l	6	--	5.33	--	0.283	0.442	0.3	--	0.253	--
Pyrene	ug/l	15	--	0.198	--	0.2 U	0.0415	0.1 U	--	0.0375	--
CPAHs											
Benzo(a)anthracene	ug/l	0.018	--	0.01 U	--	0.2 U	0.01 U	0.1 U	--	0.01 U	--
Benzo(a)pyrene	ug/l	0.018	--	0.01 U	--	0.2 U	0.01 U	0.1 U	--	0.01 U	--
Benzo(b)fluoranthene	ug/l	0.018	--	0.01 U	--	0.2 U	0.01 U	0.1 U	--	0.01 U	--
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	--	0.01 U	--	0.2 U	0.01 U	0.1 U	--	0.01 U	--
Dibenzo(a,h)anthracene	ug/l	0.01	--	0.01 U	--	0.2 U	0.01 U	0.1 U	--	0.01 U	--
Indeno(1,2,3-cd)pyrene	ug/l	0.01	--	0.01 U	--	0.01 U	0.01 U	0.1 U	--	0.01 U	--
cPAH TEQ	ug/l	0.018	--	0.00755 UT	--	0.1415 UT	0.00755 UT	0.0755 UT	--	0.00755 UT	--
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		--	0.5 U	--	10 U	0.5 U	5 U	--	0.5 U	--
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	--	1.87	--	10 U	0.5 U	5 U	--	0.5 U	--
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		--	0.192	--	1 U	0.05 U	0.5 U	--	0.05 U	--
2,4,6-Trichlorophenol	ug/l	5	--	0.721	--	1 U	0.0526	0.5 U	--	0.05 U	--
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	--	1.92	--	0.2 U	0.181	0.107	--	0.146	--
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	**Unit**	**Screening Levels**	**Pre-2012 Samples CL-MW-6-092404 9/24/04**	**Pre-2012 Samples CL-MW-6-062404 6/24/04**	**Pre-2012 Samples CL-MW-6_20020716 7/16/02**	**Pre-2012 Samples CL-MW-7-091405 9/14/05**	**Pre-2012 Samples CL-MW-7-033105 3/31/05**	**Pre-2012 Samples CL-MW-7-120904 12/09/04**	**Pre-2012 Samples CL-MW-7-092304 9/23/04**	**Pre-2012 Samples CL-MW-7-062404 6/24/04**	**Pre-2012 Samples CL-MW-7_20020717 7/17/02**
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	--	0.02 U	--	**0.469**	**0.457**	**0.41 J**	--	**0.407**	--
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	--	**78.5 J**	--	0.05 UJ	**0.59**	0.5 UJ	--	0.05 U	--
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples CL-MW-8_20020716 7/16/02	Pre-2012 Samples CL-MW-9_20020717 7/17/02	Pre-2012 Samples CL-MW-10_20020717 7/17/02	Pre-2012 Samples HS-MW-2-041400 4/14/00	Pre-2012 Samples HS-MW-2-062404 6/24/04	Pre-2012 Samples HS-MW-3-041300 4/13/00	Pre-2012 Samples HS-MW-4-091505 9/15/05	Pre-2012 Samples HS-MW-4-040105 4/01/05	Pre-2012 Samples HS-MW-4-120904 12/09/04
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	--	--	**16.5**	--	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		--	--	--	**3.14**	**2.74**	**3.36**	**7.02**	**9.26**	**8.68**
Lube Oil-range Hydrocarbons	mg/l		--	--	--	0.5 U	0.5 U	0.5 U	**3.66**	**4.06**	**3.25**
BTEX											
Benzene	ug/l	2.4	1 U	1 U	1 U	--	--	--	--	--	--
Ethylbenzene	ug/l	2100	1 U	1 U	1 U	--	--	--	--	--	--
Toluene	ug/l	15000	1 U	1 U	1 U	--	--	--	--	--	--
Total Xylenes	ug/l	310	1 U	1 U	1 U	--	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	--	--	--	--	**337**	--	**444**	**363**	--
Acenaphthene	ug/l	3.3	--	--	--	**4.19**	**8.94**	**7.45**	**12.8**	**10.6**	**3.26**
Acenaphthylene	ug/l	13	--	--	--	**0.958**	**1.58**	**1.5**	0.1 U	**1.97**	--
Anthracene	ug/l	9.6	--	--	--	**4.71**	0.01 UJ	**0.762**	0.1 U	0.1 U	--
Benzo(ghi)perylene	ug/l	0.016	--	--	--	0.1 U	0.1 U	0.1 U	1 U	1 U	--
Benzo(k)fluoranthene	ug/l	0.018	--	--	--	0.1 U	**0.0183 J**	0.1 U	0.1 U	0.1 U	--

Yellow fill indicates the result > the screening level
Blue Fill indicates the reporting limit > the screening level
Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples CL-MW-8_20020716 7/16/02	Pre-2012 Samples CL-MW-9_20020717 7/17/02	Pre-2012 Samples CL-MW-10_20020717 7/17/02	Pre-2012 Samples HS-MW-2-041400 4/14/00	Pre-2012 Samples HS-MW-2-062404 6/24/04	Pre-2012 Samples HS-MW-3-041300 4/13/00	Pre-2012 Samples HS-MW-4-091505 9/15/05	Pre-2012 Samples HS-MW-4-040105 4/01/05	Pre-2012 Samples HS-MW-4-120904 12/09/04
Fluoranthene	ug/l	3.3	--	--	--	0.1 U	**0.468 J**	0.1 U	0.1 U	0.1 U	--
Fluorene	ug/l	3	--	--	--	**4.37**	**7.94**	**8.72**	**8.78**	**8.73**	**5.37**
Naphthalene	ug/l	83	--	--	--	**182**	**154**	**116**	**134**	**130**	--
Phenanthrene	ug/l	6	--	--	--	**5.87**	**4.94**	**8.63**	**10**	**8.47**	**2.46**
Pyrene	ug/l	15	--	--	--	0.1 U	**0.558 J**	0.1 U	**0.627**	**0.433**	--
CPAHs											
Benzo(a)anthracene	ug/l	0.018	--	--	--	0.1 U	**0.0818 J**	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene	ug/l	0.018	--	--	--	0.1 U	**0.0224 J**	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(b)fluoranthene	ug/l	0.018	--	--	--	0.1 U	**0.0287 J**	0.1 U	0.1 U	0.1 U	--
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	--	--	--	0.1 U	**0.113 J**	0.1 U	0.1 U	0.1 U	--
Dibenzo(a,h)anthracene	ug/l	0.01	--	--	--	0.1 U	0.01 U	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	--	--	--	0.1 U	0.01 UJ	0.1 U	0.1 U	0.1 U	--
cPAH TEQ	ug/l	0.018	--	--	--	0.0755 UT	0.03741 UT	0.0755 UT	0.0755 UT	0.0755 UT	--
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		--	--	--	1 U	0.5 UJ	1 U	5 U	5 U	5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	--	--	--	0.5 U	0.5 UJ	**0.571**	5 U	5 U	5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		--	--	--	0.5 U	0.05 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2,4,6-Trichlorophenol	ug/l	5	--	--	--	0.5 U	**0.0968 J**	**0.781**	0.5 U	0.5 U	0.5 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	--	--	--	--	**2.27**	--	**5.66**	**4.59**	--
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples CL-MW-8_20020716 7/16/02	Pre-2012 Samples CL-MW-9_20020717 7/17/02	Pre-2012 Samples CL-MW-10_20020717 7/17/02	Pre-2012 Samples HS-MW-2-041400 4/14/00	Pre-2012 Samples HS-MW-2-062404 6/24/04	Pre-2012 Samples HS-MW-3-041300 4/13/00	Pre-2012 Samples HS-MW-4-091505 9/15/05	Pre-2012 Samples HS-MW-4-040105 4/01/05	Pre-2012 Samples HS-MW-4-120904 12/09/04
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	--	--	--	--	0.02 U	--	0.2 U	2.51	0.2 UJ
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	--	--	--	2.3	7.86 J	3.12	0.644	5.01	0.5 UJ
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-4-092304 9/23/04	Pre-2012 Samples HS-MW-4-062304 6/23/04	Pre-2012 Samples HS-MW-4-041300 4/13/00	Pre-2012 Samples HS-MW-5-091505 9/15/05	Pre-2012 Samples HS-MW-5-033105 3/31/05	Pre-2012 Samples HS-MW-5-120904 12/09/04	Pre-2012 Samples HS-MW-5-092304 9/23/04	Pre-2012 Samples HS-MW-5-062304 6/23/04	Pre-2012 Samples HS-MW-5-041300 4/13/00
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	72.6	--	--	--	--	--	9.76	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**2.56**	**2.66**	**3.19**	0.25 U	0.25 U	**1.39**	0.25 U	0.25 U	0.25 U
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	**0.876**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	--	--	--	--	--	--
Toluene	ug/l	15000	--	--	--	--	--	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	--	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	--	**75.4**	--	**25 J**	**24.2**	**17.7**	--	**0.558**	--
Acenaphthene	ug/l	3.3	--	**3.75**	**4.71**	**0.681 J**	**1.19**	**0.639 J**	--	**0.126**	**0.342**
Acenaphthylene	ug/l	13	--	**0.513**	**1.29**	0.01 U	**0.165**	0.01 U	--	**0.0112**	0.1 U
Anthracene	ug/l	9.6	--	0.01 U	**0.522**	**0.0254**	0.01 U	0.01 U	--	0.01 U	0.1 U
Benzo(ghi)perylene	ug/l	0.016	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U
Benzo(k)fluoranthene	ug/l	0.018	--	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.1 U

Yellow fill indicates the result > the screening level
Blue Fill indicates the reporting limit > the screening level
Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples HS-MW-4-092304 9/23/04	Pre-2012 Samples HS-MW-4-062304 6/23/04	Pre-2012 Samples HS-MW-4-041300 4/13/00	Pre-2012 Samples HS-MW-5-091505 9/15/05	Pre-2012 Samples HS-MW-5-033105 3/31/05	Pre-2012 Samples HS-MW-5-120904 12/09/04	Pre-2012 Samples HS-MW-5-092304 9/23/04	Pre-2012 Samples HS-MW-5-062304 6/23/04	Pre-2012 Samples HS-MW-5-041300 4/13/00
Fluoranthene	ug/l	3.3	--	0.01 U	**0.116**	**0.0209**	**0.0136**	0.01 U	--	0.01 U	0.1 U
Fluorene	ug/l	3	--	0.01 U	**5.31**	**0.287 J**	**0.592**	--	--	**0.0831**	**0.228**
Naphthalene	ug/l	83	--	**44.5**	**111**	**6.2 J**	**6.65**	**4.3**	--	**0.289**	**2.09**
Phenanthrene	ug/l	6	--	0.01 U	**8.46**	**0.0772 J**	**0.151**	**0.077 J**	--	**0.0316**	**0.209**
Pyrene	ug/l	15	--	0.01 U	**0.213**	**0.0151**	**0.0112**	0.01 U	--	**0.0118**	0.1 U
CPAHs											
Benzo(a)anthracene	ug/l	0.018	--	0.01 U	0.1 U	**0.0125**	0.01 U	0.01 U	--	0.01 U	0.1 U
Benzo(a)pyrene	ug/l	0.018	--	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.1 U
Benzo(b)fluoranthene	ug/l	0.018	--	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.1 U
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	--	0.01 U	0.1 U	**0.0125**	0.01 U	0.01 U	--	0.01 U	0.1 U
Dibenzo(a,h)anthracene	ug/l	0.01	--	0.01 U	0.1 U	0.01 U	0.01 U	--	--	0.01 U	0.1 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	--	0.01 U	0.1 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.1 U
cPAH TEQ	ug/l	0.018	--	0.00755 UT	0.0755 UT	**0.008375 T**	0.00755 UT	--	--	0.00755 UT	0.0755 UT
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		--	--	1 U	0.5 U	0.5 U	0.5 U	--	0.5 U	1 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	--	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		--	**0.172 J**	0.5 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.5 U
2,4,6-Trichlorophenol	ug/l	5	--	**0.0609 J**	0.5 U	0.05 U	0.05 U	--	--	0.05 U	0.5 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	--	0.01 U	--	**0.11 J**	**0.196**	**0.109 J**	--	**0.0447**	--
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-4-092304 9/23/04	Pre-2012 Samples HS-MW-4-062304 6/23/04	Pre-2012 Samples HS-MW-4-041300 4/13/00	Pre-2012 Samples HS-MW-5-091505 9/15/05	Pre-2012 Samples HS-MW-5-033105 3/31/05	Pre-2012 Samples HS-MW-5-120904 12/09/04	Pre-2012 Samples HS-MW-5-092304 9/23/04	Pre-2012 Samples HS-MW-5-062304 6/23/04	Pre-2012 Samples HS-MW-5-041300 4/13/00
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	--	0.02 U	--	0.02 UJ	0.02 UJ	--	--	**0.0353**	--
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	--	**0.0989 J**	**11.6**	0.05 UJ	**0.336 J**	0.05 U	--	0.05 U	**1.86**
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-6-091405 9/14/05	Pre-2012 Samples HS-MW-6-033105 3/31/05	Pre-2012 Samples HS-MW-6-121004 12/09/04	Pre-2012 Samples HS-MW-6-092404 9/24/04	Pre-2012 Samples HS-MW-6-062404 6/24/04	Pre-2012 Samples HS-MW-6-041300 4/13/00	Pre-2012 Samples HS-MW-7-041400 4/14/00	Pre-2012 Samples HS-MW-8-041400 4/14/00	Pre-2012 Samples HS-MW-9-091505 9/15/05
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	--	--	**25.2**	--	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**0.936**	**2.52**	**2.52**	**2.7**	**1.67**	**1.2**	**2.32**	**2.95**	0.25 U
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	--	--	--	--	--	--
Toluene	ug/l	15000	--	--	--	--	--	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	--	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	**10.3**	**574 J**	**294**	--	**428**	--	--	--	0.1 U
Acenaphthene	ug/l	3.3	**8.54**	--	**7.37**	--	**9.23**	**4.02**	**4.79**	0.1 U	0.01 U
Acenaphthylene	ug/l	13	0.5 U	**1.99 J**	0.1 U	--	**1.68**	**0.734**	**1.04**	0.1 U	0.01 U
Anthracene	ug/l	9.6	0.5 U	0.01 UJ	0.1 U	--	**0.618 J**	0.1 U	**0.153**	0.1 U	0.01 U
Benzo(ghi)perylene	ug/l	0.016	5 U	0.1 UJ	1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(k)fluoranthene	ug/l	0.018	0.5 U	0.01 UJ	0.1 U	--	**0.0323 J**	0.1 U	0.1 U	0.1 U	0.01 U

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-6-091405 9/14/05	Pre-2012 Samples HS-MW-6-033105 3/31/05	Pre-2012 Samples HS-MW-6-121004 12/09/04	Pre-2012 Samples HS-MW-6-092404 9/24/04	Pre-2012 Samples HS-MW-6-062404 6/24/04	Pre-2012 Samples HS-MW-6-041300 4/13/00	Pre-2012 Samples HS-MW-7-041400 4/14/00	Pre-2012 Samples HS-MW-8-041400 4/14/00	Pre-2012 Samples HS-MW-9-091505 9/15/05
Fluoranthene	ug/l	3.3	0.5 U	**0.0663 J**	0.1 U	--	**0.982 J**	0.1 U	0.1 U	0.1 U	**0.0127**
Fluorene	ug/l	3	**5.23**	**7.91 J**	**5.35**	--	**2.76**	**2.72**	**4.33**	**0.41**	0.01 U
Naphthalene	ug/l	83	0.5 U	**1.41 J**	0.1 U	--	**5.68 J**	**9.82**	**26.2**	**0.215**	0.01 U
Phenanthrene	ug/l	6	**2.6**	**4.81 J**	**3.22**	--	**3.55**	**0.87**	**3.78**	0.1 U	0.01 U
Pyrene	ug/l	15	0.5 U	**0.072 J**	**0.308**	--	**0.904 J**	0.1 U	0.1 U	0.1 U	**0.0115**
CPAHs											
Benzo(a)anthracene	ug/l	0.018	0.5 U	0.01 UJ	0.1 U	--	**0.133 J**	0.1 U	0.1 U	0.1 U	0.01 U
Benzo(a)pyrene	ug/l	0.018	0.5 U	0.01 UJ	0.1 U	--	**0.0372 J**	0.1 U	0.1 U	0.1 U	0.01 U
Benzo(b)fluoranthene	ug/l	0.018	0.5 U	0.01 UJ	0.1 U	--	**0.0438 J**	0.1 U	0.1 U	0.1 U	0.01 U
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	0.5 U	0.01 UJ	0.1 U	--	**0.181**	0.1 U	0.1 U	0.1 U	0.01 U
Dibenzo(a,h)anthracene	ug/l	0.01	0.5 U	0.01 UJ	0.1 U	--	0.01 U	0.1 U	0.1 U	0.1 U	0.01 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.5 U	0.01 UJ	0.1 U	--	**0.0102 J**	0.1 U	0.1 U	0.1 U	0.01 U
cPAH TEQ	ug/l	0.018	0.3775 UT	0.00755 UT	0.0755 UT	--	**0.06144 T**	0.0755 UT	0.0755 UT	0.0755 UT	0.00755 UT
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		25 U	0.5 UJ	5 U	--	5 UJ	1 U	1 U	1 U	0.5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	25 U	0.5 UJ	5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		2.5 U	0.05 UJ	--	--	0.5 UJ	0.5 U	0.5 U	0.5 U	0.05 U
2,4,6-Trichlorophenol	ug/l	5	2.5 U	0.05 UJ	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.05 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	**2.03**	**3.04 J**	--	--	**3.06**	--	--	--	0.01 U
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-6-091405 9/14/05	Pre-2012 Samples HS-MW-6-033105 3/31/05	Pre-2012 Samples HS-MW-6-121004 12/09/04	Pre-2012 Samples HS-MW-6-092404 9/24/04	Pre-2012 Samples HS-MW-6-062404 6/24/04	Pre-2012 Samples HS-MW-6-041300 4/13/00	Pre-2012 Samples HS-MW-7-041400 4/14/00	Pre-2012 Samples HS-MW-8-041400 4/14/00	Pre-2012 Samples HS-MW-9-091505 9/15/05
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	1 U	0.02 UJ	**1.21 J**	--	0.02 U	--	--	--	0.02 U
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	2.5 U	**0.678 J**	0.5 U	--	**17.9 J**	0.5 U	0.5 U	0.5 U	**0.0749**
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-9-033105 3/31/05	Pre-2012 Samples HS-MW-9-120904 12/09/04	Pre-2012 Samples HS-MW-9-092304 9/23/04	Pre-2012 Samples HS-MW-9-062304 6/23/04	Pre-2012 Samples HS-MW-9-041300 4/13/00	Pre-2012 Samples HS-MW-10-091505 9/15/05	Pre-2012 Samples HS-MW-10-033105 3/31/05	Pre-2012 Samples HS-MW-10-120904 12/09/04	Pre-2012 Samples HS-MW-10-092304 9/23/04
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	--	**75.9**	--	--	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	**2.06**	**1.9**	**3.84**	**1.28**
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**2.62**	**1.66**	**4.43**	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	--	--	--	--	--	--
Toluene	ug/l	15000	--	--	--	--	--	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	--	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	0.1 U	0.1 U	--	0.1 U	--	**64.8**	**70.5**	**887**	--
Acenaphthene	ug/l	3.3	0.01 U	0.01 U	--	**0.0305**	0.1 U	**6.59**	**6.41**	**5.41 J**	--
Acenaphthylene	ug/l	13	0.01 U	0.01 U	--	0.01 U	0.1 U	0.2 U	**1.19**	0.1 U	--
Anthracene	ug/l	9.6	0.01 U	--	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 UJ	--
Benzo(ghi)perylene	ug/l	0.016	0.1 U	0.1 U	--	0.1 U	0.1 U	2 U	2 U	1 U	--
Benzo(k)fluoranthene	ug/l	0.018	0.01 U	**0.0254 J**	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 U	--

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Blue Fill indicates the reporting limit > the screening level
Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples HS-MW-9-033105 3/31/05	Pre-2012 Samples HS-MW-9-120904 12/09/04	Pre-2012 Samples HS-MW-9-092304 9/23/04	Pre-2012 Samples HS-MW-9-062304 6/23/04	Pre-2012 Samples HS-MW-9-041300 4/13/00	Pre-2012 Samples HS-MW-10-091505 9/15/05	Pre-2012 Samples HS-MW-10-033105 3/31/05	Pre-2012 Samples HS-MW-10-120904 12/09/04	Pre-2012 Samples HS-MW-10-092304 9/23/04
Fluoranthene	ug/l	3.3	0.01 U	0.01 U	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 UJ	--
Fluorene	ug/l	3	0.01 U	0.01 U	--	0.01 U	0.1 U	**5.37**	**6.14**	**4.75**	--
Naphthalene	ug/l	83	**0.0297**	**0.0145 J**	--	**0.017**	**0.84**	**1.31**	**1.52**	0.1 U	--
Phenanthrene	ug/l	6	0.01 U	0.01 U	--	0.01 U	0.1 U	**2.81**	**6.38**	**5.19 J**	--
Pyrene	ug/l	15	0.01 U	--	--	0.01 U	0.1 U	0.2 U	**0.446**	0.1 UJ	--
CPAHs											
Benzo(a)anthracene	ug/l	0.018	0.01 U	0.01 U	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 UJ	--
Benzo(a)pyrene	ug/l	0.018	0.01 U	**0.0385 J**	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 U	--
Benzo(b)fluoranthene	ug/l	0.018	0.01 U	**0.0261 J**	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 U	--
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	0.01 U	0.01 U	--	0.01 U	0.1 U	0.2 U	**0.36**	0.1 UJ	--
Dibenzo(a,h)anthracene	ug/l	0.01	0.01 U	**0.0446 J**	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 U	--
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.01 U	**0.0503 J**	--	0.01 U	0.1 U	0.2 U	0.2 U	0.1 U	--
cPAH TEQ	ug/l	0.018	0.00755 UT	0.05369 UT	--	0.00755 UT	0.0755 UT	0.151 UT	**0.1536 T**	0.0755 UT	--
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		0.5 U	--	--	0.5 U	1 U	10 U	10 U	5 U	--
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	0.5 U	0.5 U	--	0.5 U	0.5 U	10 U	10 U	5 U	--
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		0.05 U	0.05 U	--	0.05 U	0.5 U	1 U	1 U	0.5 U	--
2,4,6-Trichlorophenol	ug/l	5	0.05 U	0.05 U	--	0.05 U	0.5 U	1 U	1 UJ	0.5 U	--
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	0.01 U	--	--	0.01 U	--	**2.33**	**0.783**	0.1 U	--
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-9-033105 3/31/05	Pre-2012 Samples HS-MW-9-120904 12/09/04	Pre-2012 Samples HS-MW-9-092304 9/23/04	Pre-2012 Samples HS-MW-9-062304 6/23/04	Pre-2012 Samples HS-MW-9-041300 4/13/00	Pre-2012 Samples HS-MW-10-091505 9/15/05	Pre-2012 Samples HS-MW-10-033105 3/31/05	Pre-2012 Samples HS-MW-10-120904 12/09/04	Pre-2012 Samples HS-MW-10-092304 9/23/04
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	0.02 U	0.02 U	--	0.02 U	--	**2.2**	0.4 U	0.2 U	--
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	**0.313 J**	0.05 UJ	--	0.05 U	0.5 U	1 U	**2.94**	0.5 UJ	--
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

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Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples HS-MW-10-062304 6/23/04	Pre-2012 Samples HS-MW-11-091505 9/15/05	Pre-2012 Samples HS-MW-11-040105 4/01/05	Pre-2012 Samples HS-MW-11-120904 12/09/04	Pre-2012 Samples HS-MW-11-092304 9/23/04	Pre-2012 Samples HS-MW-11-062304 6/23/04	Pre-2012 Samples HS-MW-13-091505 9/15/05	Pre-2012 Samples HS-MW-13-040105 4/01/05	Pre-2012 Samples HS-MW-13-120904 12/09/04
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		**10.8**	--	--	--	--	**80.6**	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	**1.32**	--	--	--	--	**2.47**	--	--	--
Chromium	ug/l		**2.98**	--	--	--	--	**5.04**	--	--	--
Chromium, Hexavalent	ug/l		5 U	--	--	--	--	5 U	--	--	--
Copper	ug/l	2.4	**57.6**	--	--	--	--	**4.82**	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**1.53**	**2.99**	**4.09**	**5.2**	**6.46**	**5.23**	**1.09**	**11**	**98.8**
Lube Oil-range Hydrocarbons	mg/l		**0.75**	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	2.5 U	**1.82**
BTEX											
Benzene	ug/l	2.4	0.5 U	--	--	--	--	**5.13**	--	--	--
Ethylbenzene	ug/l	2100	**1.76**	--	--	--	--	**161**	--	--	--
Toluene	ug/l	15000	1 U	--	--	--	--	1 U	--	--	--
Total Xylenes	ug/l	310	1 U	--	--	--	--	1 U	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		**3860**	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		**71.5**	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		25 U	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		**329**	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		25 U	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		**100**	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		25 U	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		**43.4**	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		25 U	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		25 U	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		25 U	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		25 U	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		25 U	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		5 U	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		5 U	--	--	--	--	--	--	--	--
OCDD	pg/l		**19700**	--	--	--	--	--	--	--	--
OCDF	pg/l		**297**	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		**117.0541 T**	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	**97.9**	**492**	**798**	**658**	--	**575**	**34.2**	**760**	**1480**
Acenaphthene	ug/l	3.3	**4.28**	**25.7**	**20.2**	**9.58**	--	**5.29**	**9.64**	**17.7**	**39.3**
Acenaphthylene	ug/l	13	**0.772**	0.5 U	**4.59**	0.1 U	--	**1.4**	0.2 U	**4.39**	0.1 UJ
Anthracene	ug/l	9.6	**0.0472**	0.5 U	0.1 U	0.1 U	--	0.01 U	0.2 U	0.1 U	0.1 U
Benzo(ghi)perylene	ug/l	0.016	0.1 U	5 U	1 U	1 U	--	0.1 U	2 U	1 U	1 U
Benzo(k)fluoranthene	ug/l	0.018	0.01 U	0.5 U	**0.233**	0.1 U	--	0.01 U	**0.805 J**	**0.376**	**0.47**

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ANALYTE	Unit	Screening Levels	Pre-2012 Samples HS-MW-10-062304 6/23/04	Pre-2012 Samples HS-MW-11-091505 9/15/05	Pre-2012 Samples HS-MW-11-040105 4/01/05	Pre-2012 Samples HS-MW-11-120904 12/09/04	Pre-2012 Samples HS-MW-11-092304 9/23/04	Pre-2012 Samples HS-MW-11-062304 6/23/04	Pre-2012 Samples HS-MW-13-091505 9/15/05	Pre-2012 Samples HS-MW-13-040105 4/01/05	Pre-2012 Samples HS-MW-13-120904 12/09/04
Fluoranthene	ug/l	3.3	0.01 U	1.94	1.51	0.176	--	0.246	0.921	2.19	5.01
Fluorene	ug/l	3	3.48	16.5	16.5	8.84	--	2.36	5.44	16.7	48.8
Naphthalene	ug/l	83	17.4	8.5	36.6	11.7	--	25.9	5.48	55.3	77.4
Phenanthrene	ug/l	6	0.466	28	29.9	9.32	--	0.01 U	6.34	38.9	88.1
Pyrene	ug/l	15	0.01 U	4.05	2.01	0.238	--	0.01 U	0.998	3.64	9.81
CPAHs											
Benzo(a)anthracene	ug/l	0.018	0.01 U	0.5 U	0.259	0.1 U	--	0.01 U	0.384	0.483	1.09
Benzo(a)pyrene	ug/l	0.018	0.01 U	0.5 U	0.259	0.1 U	--	0.01 U	0.415 J	0.471	0.888
Benzo(b)fluoranthene	ug/l	0.018	0.01 U	0.5 U	0.183	0.1 U	--	0.01 U	0.21 J	0.409	0.811
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	0.01 U	0.5 U	0.444	0.1 U	--	0.01 U	0.469	0.792	1.69
Dibenzo(a,h)anthracene	ug/l	0.01	0.01 U	0.5 U	0.1 U	0.1 U	--	0.01 U	0.2 U	0.101	0.205
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.01 U	0.5 U	0.132	0.1 U	--	0.01 U	0.2 U	0.27	0.425
cPAH TEQ	ug/l	0.018	0.00755 UT	0.3775 UT	0.34914 T	0.0755 UT	--	0.00755 UT	0.57959 T	0.64282 T	1.205 T
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		0.5 U	25 U	5 U	5 U	--	0.5 U	10 U	5 U	5 UJ
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	0.5 U	25 U	5 U	5 U	--	0.5 U	10 U	5 U	5 UJ
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		0.05 U	2.5 U	0.5 U	0.5 U	--	0.0638	1 U	0.5 U	0.5 UJ
2,4,6-Trichlorophenol	ug/l	5	0.0552	2.5 U	0.5 UJ	0.5 U	--	0.171	1 U	0.5 U	0.5 UJ
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	1.29	6.21	2.39	3.33	--	1.7	0.2 U	4.29	0.1 UJ
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-10-062304 6/23/04	Pre-2012 Samples HS-MW-11-091505 9/15/05	Pre-2012 Samples HS-MW-11-040105 4/01/05	Pre-2012 Samples HS-MW-11-120904 12/09/04	Pre-2012 Samples HS-MW-11-092304 9/23/04	Pre-2012 Samples HS-MW-11-062304 6/23/04	Pre-2012 Samples HS-MW-13-091505 9/15/05	Pre-2012 Samples HS-MW-13-040105 4/01/05	Pre-2012 Samples HS-MW-13-120904 12/09/04
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	0.02 U	1 U	0.2 U	0.2 UJ	--	0.02 U	0.4 U	15.7	0.2 UJ
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	0.141 J	4.26	4.02	0.5 UJ	--	0.05 U	2.1	4.04 J	0.5 UJ
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-13-092304 9/23/04	Pre-2012 Samples HS-MW-13-062304 6/23/04	Pre-2012 Samples HS-MW-15-091605 9/16/05	Pre-2012 Samples HS-MW-15-033105 3/31/05	Pre-2012 Samples HS-MW-15-120804 12/08/04	Pre-2012 Samples HS-MW-15-092404 9/24/04	Pre-2012 Samples HS-MW-15-062204 6/22/04	Pre-2012 Samples HS-MW-16-062204 6/22/04	Pre-2012 Samples IZ-B-1 11/11/85
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	**94.2**	--	--	--	--	**20.5**	**14**	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	**1.15**	--	--	--	--	--	--	--
Chromium	ug/l		--	**1.74**	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	5 U	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	**3.7**	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**3.95**	**2.91**	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	--
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	--
BTEX											
Benzene	ug/l	2.4	--	**1.64**	--	--	--	--	--	--	--
Ethylbenzene	ug/l	2100	--	**8.55**	--	--	--	--	--	--	--
Toluene	ug/l	15000	--	1 U	--	--	--	--	--	--	--
Total Xylenes	ug/l	310	--	1 U	--	--	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	--	**281**	0.1 U	0.1 U	0.1 U	--	0.1 U	**1.44**	--
Acenaphthene	ug/l	3.3	--	**3.3**	0.01 U	0.01 U	0.01 U	--	0.01 U	**0.0743**	--
Acenaphthylene	ug/l	13	--	**0.286**	0.01 U	0.01 U	0.01 U	--	0.01 U	**0.0114**	--
Anthracene	ug/l	9.6	--	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--
Benzo(ghi)perylene	ug/l	0.016	--	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	--
Benzo(k)fluoranthene	ug/l	0.018	--	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples HS-MW-13-092304 9/23/04	Pre-2012 Samples HS-MW-13-062304 6/23/04	Pre-2012 Samples HS-MW-15-091605 9/16/05	Pre-2012 Samples HS-MW-15-033105 3/31/05	Pre-2012 Samples HS-MW-15-120804 12/08/04	Pre-2012 Samples HS-MW-15-092404 9/24/04	Pre-2012 Samples HS-MW-15-062204 6/22/04	Pre-2012 Samples HS-MW-16-062204 6/22/04	Pre-2012 Samples IZ-B-1 11/11/85
Fluoranthene	ug/l	3.3	--	**0.193**	**0.0201**	0.01 U	0.01 U	--	0.01 U	0.01 U	--
Fluorene	ug/l	3	--	0.1 U	0.01 U	0.01 U	0.01 U	--	0.01 U	**0.0323**	--
Naphthalene	ug/l	83	--	**54.2**	**0.0174 X**	**0.0132**	**0.0102**	--	**0.025**	**0.84**	--
Phenanthrene	ug/l	6	--	0.01 U	0.01 U	**0.0172**	0.01 U	--	0.01 U	0.01 U	--
Pyrene	ug/l	15	--	0.01 U	**0.0152**	**0.0113**	**0.0101**	--	0.01 U	0.01 U	--
CPAHs											
Benzo(a)anthracene	ug/l	0.018	--	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--
Benzo(a)pyrene	ug/l	0.018	--	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--
Benzo(b)fluoranthene	ug/l	0.018	--	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	--	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--
Dibenzo(a,h)anthracene	ug/l	0.01	--	0.01 U	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--
Indeno(1,2,3-cd)pyrene	ug/l	0.01	--	**0.0135**	0.01 U	0.01 U	0.01 U	--	0.01 U	0.01 U	--
cPAH TEQ	ug/l	0.018	--	**0.0084 T**	0.00755 UT	0.00755 UT	0.00755 UT	--	0.00755 UT	0.00755 UT	--
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	--	5 U	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	--
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		--	0.5 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	50 U
2,4,6-Trichlorophenol	ug/l	5	--	0.5 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U	10 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	10 U
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	10 U
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	10 U
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	--	0.1 U	0.01 U	0.01 U	0.01 U	--	0.01 U	**0.0166**	10 U
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

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Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	--	0.02 U	0.02 U	0.02 U	0.02 U	--	0.02 U	0.02 U	10 U
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	10 U
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	10 U
Pentachlorophenol	ug/l	3	--	0.05 U	**0.144**	--	0.05 U	--	0.05 U	0.05 U	50 U
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples IZ-B-2 11/11/85	Pre-2012 Samples IZ-B-3 11/11/85	Pre-2012 Samples IZ-B-4 11/11/85	Pre-2012 Samples IZ-MW-1-091505 9/15/05	Pre-2012 Samples IZ-MW-1-033005 3/30/05	Pre-2012 Samples IZ-MW-1-120904 12/09/04	Pre-2012 Samples IZ-MW-1-092304 9/23/04	Pre-2012 Samples IZ-MW-1-062204 6/22/04	Pre-2012 Samples IZ-MW-2-091505 9/15/05
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	--	--	--	--	--	57.2	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		--	--	--	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Lube Oil-range Hydrocarbons	mg/l		--	--	--	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	--	--	--	--	0.5 U	--
Ethylbenzene	ug/l	2100	--	--	--	--	--	--	--	0.5 U	--
Toluene	ug/l	15000	--	--	--	--	--	--	--	1 U	--
Total Xylenes	ug/l	310	--	--	--	--	--	--	--	1 U	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	--	--	--	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U
Acenaphthene	ug/l	3.3	--	--	--	0.01 U	**0.0939**	0.01 U	--	**0.0125**	0.01 U
Acenaphthylene	ug/l	13	--	--	--	0.01 U	0.01 U	0.01 U	--	**0.0105**	0.01 U
Anthracene	ug/l	9.6	--	--	--	0.01 U	**0.081**	0.01 U	--	**0.0228**	**0.0183**
Benzo(ghi)perylene	ug/l	0.016	--	--	--	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U
Benzo(k)fluoranthene	ug/l	0.018	--	--	--	0.01 U	0.01 U	0.01 U	--	**0.0258**	0.01 U

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples IZ-B-2 11/11/85	Pre-2012 Samples IZ-B-3 11/11/85	Pre-2012 Samples IZ-B-4 11/11/85	Pre-2012 Samples IZ-MW-1-091505 9/15/05	Pre-2012 Samples IZ-MW-1-033005 3/30/05	Pre-2012 Samples IZ-MW-1-120904 12/09/04	Pre-2012 Samples IZ-MW-1-092304 9/23/04	Pre-2012 Samples IZ-MW-1-062204 6/22/04	Pre-2012 Samples IZ-MW-2-091505 9/15/05
Fluoranthene	ug/l	3.3	--	--	--	**0.0106**	**0.0279**	0.01 U	--	**0.0587**	0.01 U
Fluorene	ug/l	3	--	--	--	0.01 U	**0.12**	0.01 U	--	**0.0215**	0.01 U
Naphthalene	ug/l	83	--	--	--	**0.0462 X**	**0.0154**	**0.0402 J**	--	**0.217**	**0.139**
Phenanthrene	ug/l	6	--	--	--	**0.0126**	**0.398**	**0.0152 J**	--	**0.0666**	**0.0501**
Pyrene	ug/l	15	--	--	--	**0.0103**	**0.0844**	--	--	**0.0562**	**0.0345**
CPAHs											
Benzo(a)anthracene	ug/l	0.018	--	--	--	0.01 U	**0.0182**	0.01 U	--	**0.0196**	**0.0171**
Benzo(a)pyrene	ug/l	0.018	--	--	--	0.01 U	**0.0101**	**0.0146 J**	--	**0.016**	0.01 U
Benzo(b)fluoranthene	ug/l	0.018	--	--	--	0.01 U	**0.0102**	0.01 U	--	**0.0121**	0.01 U
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	--	--	--	0.01 U	**0.028**	0.01 U	--	**0.0233**	**0.0148**
Dibenzo(a,h)anthracene	ug/l	0.01	--	--	--	0.01 U	0.01 U	**0.0222 J**	--	**0.0258**	0.01 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	--	--	--	0.01 U	0.01 U	**0.0242 J**	--	**0.0196**	0.01 U
cPAH TEQ	ug/l	0.018	--	--	--	0.00755 UT	**0.01472 T**	0.02079 UT	--	**0.026523 T**	**0.008858 T**
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	--	--	--	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		50 U	50 U	50 U	0.05 U	0.05 U	0.05 U	--	0.05 U	0.05 U
2,4,6-Trichlorophenol	ug/l	5	10 U	10 U	10 U	0.05 U	0.05 UJ	0.05 U	--	0.05 U	0.05 U
2,4-Dichlorophenol	ug/l		10 U	10 U	10 U	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		10 U	10 U	10 U	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		10 U	10 U	**4 J**	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	10 U	10 U	10 U	0.01 U	**0.0383**	0.01 U	--	0.01 U	0.01 U
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level
Blue Fill indicates the reporting limit > the screening level
Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples IZ-B-2 11/11/85	Pre-2012 Samples IZ-B-3 11/11/85	Pre-2012 Samples IZ-B-4 11/11/85	Pre-2012 Samples IZ-MW-1-091505 9/15/05	Pre-2012 Samples IZ-MW-1-033005 3/30/05	Pre-2012 Samples IZ-MW-1-120904 12/09/04	Pre-2012 Samples IZ-MW-1-092304 9/23/04	Pre-2012 Samples IZ-MW-1-062204 6/22/04	Pre-2012 Samples IZ-MW-2-091505 9/15/05
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	10 U	10 U	**77**	0.02 U	**0.231**	0.02 U	--	0.02 U	0.02 U
o-Cresol (2-methylphenol)	ug/l	79	10 U	10 U	10 U	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		10 U	10 U	10 U	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	50 U	50 U	**21 J**	**0.0822**	**0.25**	0.05 UJ	--	**0.147**	0.05 U
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples IZ-MW-2-033005 3/30/05	Pre-2012 Samples IZ-MW-2-120904 12/09/04	Pre-2012 Samples IZ-MW-2-092304 9/23/04	Pre-2012 Samples IZ-MW-2-062204 6/22/04	Pre-2012 Samples IZ-MW-3-091505 9/15/05	Pre-2012 Samples IZ-MW-3-033005 3/30/05	Pre-2012 Samples IZ-MW-3-120904 12/09/04	Pre-2012 Samples IZ-MW-3-092304 9/23/04	Pre-2012 Samples IZ-MW-3-062204 6/22/04
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	--	57	--	--	--	--	**46.6**
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		0.25 U	0.25 U	0.25 U	0.25 U	**5.66**	0.25 U	--	0.25 U	**0.332**
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	0.5 U	0.5 U	**16.4**	0.5 U	--	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	0.5 U	--	--	--	--	0.5 U
Ethylbenzene	ug/l	2100	--	--	--	0.5 U	--	--	--	--	0.5 U
Toluene	ug/l	15000	--	--	--	1 U	--	--	--	--	1 U
Total Xylenes	ug/l	310	--	--	--	1 U	--	--	--	--	1 U
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	**28.2**	**802**	**713**	--	**4800**
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	14.2 U	209 U	**188**	--	**1210**
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	25 U	25 U	**10.3 J**	--	**89.8**
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	25 U	**20.3 J**	25 U	--	25 U
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	25 U	25 U	**11.1 J**	--	**48.5**
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	25 U	**2.24 J**	**25.7**	--	**136**
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	25 U	25 U	25 U	--	**48.1**
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	25 U	25 U	25 U	--	25 U
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	25 U	25 U	25 U	--	25 U
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	25 U	25 U	25 U	--	25 U
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	25 U	25 U	25 U	--	25 U
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	25 U	25 U	25 U	--	**27.8**
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	25 U	25 U	25 U	--	25 U
2,3,7,8-TCDD	pg/l		--	--	--	--	5 U	5 U	5 U	--	5 U
2,3,7,8-TCDF	pg/l		--	--	--	--	5 U	5 U	5 U	--	5 U
OCDD	pg/l		--	--	--	--	**261**	**11000**	**8500**	--	**86800**
OCDF	pg/l		--	--	--	--	**53.7**	**1120**	**1070**	--	**6860**
Dioxin TEQ	pg/l		--	--	--	--	**28.69741 T**	**40.705 T**	**41.289 T**	--	**138.261 T**
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	**0.189 J**	--	0.1 U
Acenaphthene	ug/l	3.3	0.01 U	0.01 U	--	0.01 U	0.01 U	**0.12**	**0.451 J**	--	**1.66**
Acenaphthylene	ug/l	13	0.01 U	0.01 U	--	**0.0196**	**0.0772**	0.01 U	**0.122 J**	--	**0.301**
Anthracene	ug/l	9.6	**0.0236**	0.01 U	--	**0.0375**	**0.0937**	0.01 U	0.01 U	--	**0.0335**
Benzo(ghi)perylene	ug/l	0.016	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	--	0.1 U
Benzo(k)fluoranthene	ug/l	0.018	**0.016**	0.01 U	--	**0.0131**	0.01 U	0.01 U	0.01 U	--	0.01 U

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples IZ-MW-2-033005 3/30/05	Pre-2012 Samples IZ-MW-2-120904 12/09/04	Pre-2012 Samples IZ-MW-2-092304 9/23/04	Pre-2012 Samples IZ-MW-2-062204 6/22/04	Pre-2012 Samples IZ-MW-3-091505 9/15/05	Pre-2012 Samples IZ-MW-3-033005 3/30/05	Pre-2012 Samples IZ-MW-3-120904 12/09/04	Pre-2012 Samples IZ-MW-3-092304 9/23/04	Pre-2012 Samples IZ-MW-3-062204 6/22/04
Fluoranthene	ug/l	3.3	**0.0546**	0.01 U	--	**0.137**	0.01 U	0.01 U	0.01 U	--	0.01 U
Fluorene	ug/l	3	0.01 U	0.01 U	--	**0.0258**	0.01 U	0.01 U	0.01 U	--	**0.453**
Naphthalene	ug/l	83	**0.131**	0.01 U	--	**0.279**	**0.0367 X**	0.01 U	0.01 U	--	0.01 U
Phenanthrene	ug/l	6	**0.0439**	0.01 U	--	**0.124**	0.01 U	0.01 U	0.01 U	--	**0.121**
Pyrene	ug/l	15	**0.0555**	0.01 U	--	**0.115**	**0.0241**	0.01 U	**0.0327 J**	--	0.01 U
CPAHs											
Benzo(a)anthracene	ug/l	0.018	**0.0165**	0.01 U	--	**0.019**	0.01 U	0.01 U	0.01 U	--	0.01 U
Benzo(a)pyrene	ug/l	0.018	**0.0207**	0.01 U	--	**0.0218**	0.01 U	0.01 U	0.01 U	--	0.01 U
Benzo(b)fluoranthene	ug/l	0.018	**0.0134**	0.01 U	--	**0.0151**	0.01 U	0.01 U	0.01 U	--	0.01 U
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	**0.0174**	0.01 U	--	**0.0208**	0.01 U	0.01 U	0.01 U	--	0.01 U
Dibenzo(a,h)anthracene	ug/l	0.01	0.01 U	**0.0334 J**	--	0.01 U	0.01 U	0.01 U	**0.0295 J**	--	0.01 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.01 U	**0.0382 J**	--	**0.0128**	0.01 U	0.01 U	**0.0281 J**	--	0.01 U
cPAH TEQ	ug/l	0.018	**0.026464 T**	0.01371 UT	--	**0.028508 T**	0.00755 UT	0.00755 UT	0.01231 UT	--	0.00755 UT
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	--	0.5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		0.05 U	0.05 U	--	0.05 U	0.05 U	0.05 U	0.05 U	--	0.05 U
2,4,6-Trichlorophenol	ug/l	5	0.05 U	0.05 U	--	0.05 U	**0.0894**	0.05 U	0.05 U	--	0.05 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	0.01 U	0.01 U	--	**0.0231**	0.01 U	0.01 U	0.01 U	--	**0.305**
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples IZ-MW-2-033005 3/30/05	Pre-2012 Samples IZ-MW-2-120904 12/09/04	Pre-2012 Samples IZ-MW-2-092304 9/23/04	Pre-2012 Samples IZ-MW-2-062204 6/22/04	Pre-2012 Samples IZ-MW-3-091505 9/15/05	Pre-2012 Samples IZ-MW-3-033005 3/30/05	Pre-2012 Samples IZ-MW-3-120904 12/09/04	Pre-2012 Samples IZ-MW-3-092304 9/23/04	Pre-2012 Samples IZ-MW-3-062204 6/22/04
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	0.02 U	0.02 U	--	0.02 U	0.02 U	0.02 UJ	0.02 U	--	0.02 U
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	**0.411 J**	0.05 UJ	--	**0.0603**	0.05 U	**1.4 J**	0.05 UJ	--	**0.115**
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value ANALYTE	Unit	Screening Levels	Pre-2012 Samples IZ-MW-4-091505 9/15/05	Pre-2012 Samples IZ-MW-4-033005 3/30/05	Pre-2012 Samples IZ-MW-4-120904 12/09/04	Pre-2012 Samples IZ-MW-4-092304 9/23/04	Pre-2012 Samples IZ-MW-4-062204 6/22/04	Pre-2012 Samples TL-MW-1-041300 4/13/00	Pre-2012 Samples TL-MW-3-041400 4/14/00	Pre-2012 Samples TL-MW-9-091405 9/14/05	Pre-2012 Samples TL-MW-9-033105 3/31/05
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	--	--	**65.4**	--	--	--	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		**1.42**	0.25 U	0.25 U	0.25 U	0.25 U	**0.336**	**4.94**	**1.48**	**1.01**
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	--	0.5 U	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	--	0.5 U	--	--	--	--
Toluene	ug/l	15000	--	--	--	--	1 U	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	--	1 U	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	0.1 U	0.1 U	0.1 U	--	0.1 U	--	--	**1.28**	0.1 U
Acenaphthene	ug/l	3.3	0.01 U	0.01 U	0.01 U	--	**0.0137**	**5.39**	**16.4**	**2.8**	**2.29**
Acenaphthylene	ug/l	13	**0.0259**	0.01 U	0.01 U	--	**0.0217**	**1.16**	**3.07**	0.01 U	**0.42**
Anthracene	ug/l	9.6	**0.0528**	**0.0483**	0.01 U	--	**0.0419**	**0.343**	**1.04**	0.01 U	**0.83**
Benzo(ghi)perylene	ug/l	0.016	0.1 U	0.1 U	0.1 U	--	0.1 U	0.1 U	0.1 U	0.1 U	**0.277**
Benzo(k)fluoranthene	ug/l	0.018	**0.127**	**0.0557**	0.01 U	--	**0.0162**	0.1 U	0.1 U	**0.0936**	**0.295**

Yellow fill indicates the result > the screening level
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Bold = detected concentrations
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J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples IZ-MW-4-091505 9/15/05	Pre-2012 Samples IZ-MW-4-033005 3/30/05	Pre-2012 Samples IZ-MW-4-120904 12/09/04	Pre-2012 Samples IZ-MW-4-092304 9/23/04	Pre-2012 Samples IZ-MW-4-062204 6/22/04	Pre-2012 Samples TL-MW-1-041300 4/13/00	Pre-2012 Samples TL-MW-3-041400 4/14/00	Pre-2012 Samples TL-MW-9-091405 9/14/05	Pre-2012 Samples TL-MW-9-033105 3/31/05
Fluoranthene	ug/l	3.3	0.122	0.0894	0.01 U	--	0.0908	0.114	0.307	0.465	0.404
Fluorene	ug/l	3	0.0296	0.0119	0.01 U	--	0.01 U	5.12	15.6	0.629	1.2
Naphthalene	ug/l	83	0.163	0.107	0.0199	--	0.133	133	220	0.01 U	0.01 U
Phenanthrene	ug/l	6	0.0943	0.0648	0.01 U	--	0.0765	6.77	10.4	0.01 U	1.56
Pyrene	ug/l	15	0.156	0.109	0.01 U	--	0.0851	0.1 U	0.461	0.981	0.534
CPAHs											
Benzo(a)anthracene	ug/l	0.018	0.0975	0.056	0.01 U	--	0.0186	0.1 U	0.1 U	0.175	0.323
Benzo(a)pyrene	ug/l	0.018	0.0953	0.0638	0.01 U	--	0.02	0.1 U	0.1 U	0.0864	0.293
Benzo(b)fluoranthene	ug/l	0.018	0.0715	0.0408	0.01 U	--	0.0174	0.1 U	0.1 U	0.0778	0.284
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	0.113	0.0648	0.01 U	--	0.0226	0.1 U	0.1 U	0.232	0.329
Dibenzo(a,h)anthracene	ug/l	0.01	0.0206	0.01 U	0.0368	--	0.0127	0.1 U	0.1 U	0.0231	0.273
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.0558	0.0325	0.0385	--	0.0128	0.1 U	0.1 U	0.0454	0.27
cPAH TEQ	ug/l	0.018	0.13367 T	0.083448 T	0.01408 T	--	0.027996 T	0.0755 UT	0.0755 UT	0.13021 T	0.44079 T
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		0.5 U	0.5 U	0.5 U	--	0.5 U	1 U	1 U	0.5 U	0.5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	0.5 U	0.5 U	0.5 U	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		0.05 U	0.05 U	0.05 U	--	0.05 U	0.5 U	0.5 U	0.05 U	0.05 U
2,4,6-Trichlorophenol	ug/l	5	0.05 U	0.05 U	0.05 U	--	0.05 U	0.5 U	0.5 U	0.05 U	0.05 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	0.0113	0.01 U	0.01 U	--	0.0101	--	--	0.01 U	0.646
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples IZ-MW-4-091505 9/15/05	Pre-2012 Samples IZ-MW-4-033005 3/30/05	Pre-2012 Samples IZ-MW-4-120904 12/09/04	Pre-2012 Samples IZ-MW-4-092304 9/23/04	Pre-2012 Samples IZ-MW-4-062204 6/22/04	Pre-2012 Samples TL-MW-1-041300 4/13/00	Pre-2012 Samples TL-MW-3-041400 4/14/00	Pre-2012 Samples TL-MW-9-091405 9/14/05	Pre-2012 Samples TL-MW-9-033105 3/31/05
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	0.02 U	0.02 U	0.02 U	--	0.02 U	--	--	0.02 U	**1.8 J**
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	0.05 U	**0.436 J**	0.05 UJ	--	0.05 U	**1.37**	**0.94**	**1.81**	**1.46 J**
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples TL-MW-9-120904 12/09/04	Pre-2012 Samples TL-MW-9-092304 9/23/04	Pre-2012 Samples TL-MW-9-062304 6/23/04	Pre-2012 Samples TL-MW-10-091405 9/14/05	Pre-2012 Samples TL-MW-10-040105 4/01/05	Pre-2012 Samples TL-MW-10-120904 12/09/04	Pre-2012 Samples TL-MW-10-092304 9/23/04	Pre-2012 Samples TL-MW-10-062304 6/23/04	Pre-2012 Samples TL-MW-11-091405 9/14/05
CONVENTIONALS											
Ammonia-Nitrogen	mg/l		--	--	--	--	--	--	--	--	--
Cyanide	mg/l		--	--	--	--	--	--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--	--	--	--	--	--
Total Organic Carbon	mg/l		--	--	41.9	--	--	--	--	98.5	--
UN-ionized Ammonia	mg/l		--	--	--	--	--	--	--	--	--
METALS											
Arsenic	ug/l	5	--	--	--	--	--	--	--	--	--
Chromium	ug/l		--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--	--	--	--	--	--
Copper	ug/l	2.4	--	--	--	--	--	--	--	--	--
Iron	ug/l		--	--	--	--	--	--	--	--	--
Lead	ug/l	8.1	--	--	--	--	--	--	--	--	--
Manganese	ug/l	100	--	--	--	--	--	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--	--	--	--	--	--
Nickel	ug/l		--	--	--	--	--	--	--	--	--
Zinc	ug/l	81	--	--	--	--	--	--	--	--	--
TPH											
Gasoline-range hydrocarbons	mg/l		--	--	--	--	--	--	--	--	--
Diesel-range hydrocarbons	mg/l		1.27	1.78	0.541	2470	288	151	79.8	2.51	0.335
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	0.5 U	622	65.4	50 U	10.4	0.5 U	0.5 U
BTEX											
Benzene	ug/l	2.4	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/l	2100	--	--	--	--	--	--	--	--	--
Toluene	ug/l	15000	--	--	--	--	--	--	--	--	--
Total Xylenes	ug/l	310	--	--	--	--	--	--	--	--	--
D/F_COMBINED											
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--	--	--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--	--	--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--	--	--	--	--	--
OCDD	pg/l		--	--	--	--	--	--	--	--	--
OCDF	pg/l		--	--	--	--	--	--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--	--	--	--	--	--
PAHs											
1-Methylnaphthalene	ug/l	15	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	ug/l	15	1 U	--	0.445	1450	165	200	--	16.9	6.64
Acenaphthene	ug/l	3.3	2.32	--	0.984	3460	327	171	--	1.6	1.01
Acenaphthylene	ug/l	13	0.1 U	--	0.113	1 U	96.1	1 U	--	1 U	0.01 U
Anthracene	ug/l	9.6	0.39	--	0.01 U	2890	175	109	--	1 U	0.01 U
Benzo(ghi)perylene	ug/l	0.016	1 U	--	0.1 U	75	10 U	10 U	--	0.1 U	--
Benzo(k)fluoranthene	ug/l	0.018	0.1 U	--	0.01 U	78.8 J	3.52	1 U	--	0.01 U	0.07

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples TL-MW-9-120904 12/09/04	Pre-2012 Samples TL-MW-9-092304 9/23/04	Pre-2012 Samples TL-MW-9-062304 6/23/04	Pre-2012 Samples TL-MW-10-091405 9/14/05	Pre-2012 Samples TL-MW-10-040105 4/01/05	Pre-2012 Samples TL-MW-10-120904 12/09/04	Pre-2012 Samples TL-MW-10-092304 9/23/04	Pre-2012 Samples TL-MW-10-062304 6/23/04	Pre-2012 Samples TL-MW-11-091405 9/14/05
Fluoranthene	ug/l	3.3	0.1 U	--	0.01 U	**737**	**59.9**	**21**	--	1 U	**0.175**
Fluorene	ug/l	3	**1.12**	--	**0.239**	**2500**	**458**	**186**	--	1 U	**0.621**
Naphthalene	ug/l	83	0.1 U	--	**0.205**	1 U	**41.6**	**49.5**	--	**7.58**	**0.281**
Phenanthrene	ug/l	6	**1.24**	--	0.01 U	**15400**	**1150**	**542**	--	1 U	**1.06**
Pyrene	ug/l	15	**0.118**	--	0.01 U	**2050**	**185**	**56.6**	--	0.01 U	**0.211**
CPAHs											
Benzo(a)anthracene	ug/l	0.018	0.1 U	--	0.01 U	**509**	**35.8**	**15.9**	--	0.01 U	**0.0499**
Benzo(a)pyrene	ug/l	0.018	0.1 U	--	0.01 U	**135 J**	**10.6**	**6.7**	--	**0.0201**	**0.0571**
Benzo(b)fluoranthene	ug/l	0.018	0.1 U	--	0.01 U	**57.7 J**	**7.39**	1 U	--	**0.013**	**0.0494**
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--	--	--	--	--	--
Chrysene	ug/l	0.018	0.1 U	--	0.01 U	**619**	**50.4**	**22.4**	--	0.01 U	**0.0558**
Dibenzo(a,h)anthracene	ug/l	0.01	0.1 U	--	0.01 U	1 U	**1.85**	1 U	--	0.01 U	0.01 U
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.1 U	--	0.01 U	1 U	**2.63**	1 U	--	0.01 U	**0.0199**
cPAH TEQ	ug/l	0.018	0.0755 UT	--	0.00755 UT	**205.84 T**	**16.223 T**	**8.714 T**	--	**0.02345 T**	**0.077078 T**
SVOCs											
1,2,4-Trichlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		5 U	--	0.5 U	50 U	50 U	50 U	--	50 U	0.5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--	--	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	5 U	--	0.5 U	50 U	50 U	50 U	--	50 U	0.5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	ug/l		0.5 U	--	0.05 U	5 U	5 U	5 U	--	5 U	0.05 U
2,4,6-Trichlorophenol	ug/l	5	0.5 U	--	0.05 U	5 U	5 U	5 U	--	5 U	0.05 U
2,4-Dichlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--	--	--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--	--	--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--	--	--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--	--	--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--	--	--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--	--	--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--	--	--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--	--	--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--	--	--	--	--	--
Aniline	ug/l		--	--	--	--	--	--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--	--	--	--	--	--
Benzidine	ug/l		--	--	--	--	--	--	--	--	--
Benzoic Acid	ug/l		--	--	--	--	--	--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--	--	--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--	--	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/l	1.6	0.1 U	--	**0.109**	1 U	**92.2**	1 U	--	1 U	0.01 U
Dibutyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--	--	--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--	--	--	--	--	--

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Blue Fill indicates the reporting limit > the screening level
Bold = detected concentrations
U = Not Detected
J = Estimated
T = Calculated "Total" Value

ANALYTE	Unit	Screening Levels	Pre-2012 Samples TL-MW-9-120904 12/09/04	Pre-2012 Samples TL-MW-9-092304 9/23/04	Pre-2012 Samples TL-MW-9-062304 6/23/04	Pre-2012 Samples TL-MW-10-091405 9/14/05	Pre-2012 Samples TL-MW-10-040105 4/01/05	Pre-2012 Samples TL-MW-10-120904 12/09/04	Pre-2012 Samples TL-MW-10-092304 9/23/04	Pre-2012 Samples TL-MW-10-062304 6/23/04	Pre-2012 Samples TL-MW-11-091405 9/14/05
Hexachlorobenzene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--	--	--	--	--	--
Hexachloroethane	ug/l		--	--	--	--	--	--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--	--	--	--	--	--
Isophorone	ug/l		--	--	--	--	--	--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--	--	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--	--	--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	0.2 UJ	--	0.02 U	2 U	824 J	2 UJ	--	2 U	0.02 U
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--	--	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--	--	--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--	--	--	--	--	--
Pentachlorophenol	ug/l	3	**0.5 R**	--	0.05 U	**1350**	5 U	5 UJ	--	5 U	0.05 U
Phenol	ug/l	580	--	--	--	--	--	--	--	--	--
Pyridine	ug/l		--	--	--	--	--	--	--	--	--
VOCs											
1,1,1-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--	--	--	--	--	--
Bromomethane	ug/l		--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--	--	--	--	--	--
Chloroethane	ug/l		--	--	--	--	--	--	--	--	--
Chloroform	ug/l		--	--	--	--	--	--	--	--	--
Chloromethane	ug/l		--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--	--	--	--	--	--
Methylene Chloride	ug/l		--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--	--	--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--	--	--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--	--	--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value ANALYTE	Unit	Screening Levels	Pre-2012 Samples TL-MW-11-033105 3/31/05	Pre-2012 Samples TL-MW-11-120804 12/08/04	Pre-2012 Samples TL-MW-11-092404 9/24/04	Pre-2012 Samples TL-MW-11-062204 6/22/04
CONVENTIONALS						
Ammonia-Nitrogen	mg/l		--	--	--	--
Cyanide	mg/l		--	--	--	--
Cyanide (Post Chlorination)	mg/l		--	--	--	--
Total Organic Carbon	mg/l		--	--	--	37
UN-ionized Ammonia	mg/l		--	--	--	--
METALS						
Arsenic	ug/l	5	--	--	--	--
Chromium	ug/l		--	--	--	--
Chromium, Hexavalent	ug/l		--	--	--	--
Copper	ug/l	2.4	--	--	--	--
Iron	ug/l		--	--	--	--
Lead	ug/l	8.1	--	--	--	--
Manganese	ug/l	100	--	--	--	--
Mercury	ug/l	0.025	--	--	--	--
Nickel	ug/l		--	--	--	--
Zinc	ug/l	81	--	--	--	--
TPH						
Gasoline-range hydrocarbons	mg/l		--	--	--	--
Diesel-range hydrocarbons	mg/l		0.462	0.861	0.535	1.23
Lube Oil-range Hydrocarbons	mg/l		0.5 U	0.5 U	0.5 U	0.5 U
BTEX						
Benzene	ug/l	2.4	--	--	--	0.5 U
Ethylbenzene	ug/l	2100	--	--	--	1.81
Toluene	ug/l	15000	--	--	--	1 U
Total Xylenes	ug/l	310	--	--	--	1.52
D/F_COMBINED						
1,2,3,4,6,7,8-HpCDD	pg/l		--	--	--	--
1,2,3,4,6,7,8-HpCDF	pg/l		--	--	--	--
1,2,3,4,7,8,9-HpCDF	pg/l		--	--	--	--
1,2,3,4,7,8-HxCDD	pg/l		--	--	--	--
1,2,3,4,7,8-HxCDF	pg/l		--	--	--	--
1,2,3,6,7,8-HxCDD	pg/l		--	--	--	--
1,2,3,6,7,8-HxCDF	pg/l		--	--	--	--
1,2,3,7,8,9-HxCDD	pg/l		--	--	--	--
1,2,3,7,8,9-HxCDF	pg/l		--	--	--	--
1,2,3,7,8-PeCDD	pg/l		--	--	--	--
1,2,3,7,8-PeCDF	pg/l		--	--	--	--
2,3,4,6,7,8-HxCDF	pg/l		--	--	--	--
2,3,4,7,8-PeCDF	pg/l		--	--	--	--
2,3,7,8-TCDD	pg/l		--	--	--	--
2,3,7,8-TCDF	pg/l		--	--	--	--
OCDD	pg/l		--	--	--	--
OCDF	pg/l		--	--	--	--
Dioxin TEQ	pg/l		--	--	--	--
PAHs						
1-Methylnaphthalene	ug/l	15	--	--	--	--
2-Methylnaphthalene	ug/l	15	7.27	20	--	127
Acenaphthene	ug/l	3.3	0.641	1.73	--	5.21
Acenaphthylene	ug/l	13	0.143	0.1 U	--	1.44
Anthracene	ug/l	9.6	0.01 U	0.586	--	0.413
Benzo(ghi)perylene	ug/l	0.016	0.1 U	1 U	--	0.1 U
Benzo(k)fluoranthene	ug/l	0.018	0.0151	0.1 U	--	0.0628

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples TL-MW-11-033105 3/31/05	Pre-2012 Samples TL-MW-11-120804 12/08/04	Pre-2012 Samples TL-MW-11-092404 9/24/04	Pre-2012 Samples TL-MW-11-062204 6/22/04
Fluoranthene	ug/l	3.3	0.0776	0.562	--	0.467
Fluorene	ug/l	3	0.529	1.71	--	4.88
Naphthalene	ug/l	83	0.01 U	0.604	--	13.8
Phenanthrene	ug/l	6	0.776	3.41	--	5.82
Pyrene	ug/l	15	0.0801	0.62	--	0.64
CPAHs						
Benzo(a)anthracene	ug/l	0.018	0.0192	0.243	--	0.108
Benzo(a)pyrene	ug/l	0.018	0.0203	0.272	--	0.0991
Benzo(b)fluoranthene	ug/l	0.018	0.0176	0.1 U	--	0.0751
Benzo(j,k)fluoranthene	ug/l	0.018	--	--	--	--
Chrysene	ug/l	0.018	0.0235	0.325	--	0.167
Dibenzo(a,h)anthracene	ug/l	0.01	0.01 U	0.1 U	--	0.0405
Indeno(1,2,3-cd)pyrene	ug/l	0.01	0.0112	0.1 U	--	0.072
cPAH TEQ	ug/l	0.018	0.027345 T	0.31955 T	--	0.13661 T
SVOCs						
1,2,4-Trichlorobenzene	ug/l		--	--	--	--
1,2-Diphenylhydrazine	ug/l		--	--	--	--
1,3-Dinitrobenzene	ug/l		--	--	--	--
2,3,4,5-Tetrachlorophenol	ug/l		0.5 U	5 U	--	0.5 U
2,3,4,6-Tetrachlorophenol	ug/l	320	--	--	--	--
2,3,5,6-Tetrachlorophenol	ug/l	320	0.5 U	5 U	--	0.5 U
2,3-DICHLOROANILINE	ug/l		--	--	--	--
2,4,5-Trichlorophenol	ug/l		0.05 U	0.5 U	--	0.05 U
2,4,6-Trichlorophenol	ug/l	5	0.05 U	0.5 U	--	0.05 U
2,4-Dichlorophenol	ug/l		--	--	--	--
2,4-Dimethylphenol	ug/l		--	--	--	--
2,4-Dinitrophenol	ug/l		--	--	--	--
2,4-Dinitrotoluene	ug/l		--	--	--	--
2,6-Dinitrotoluene	ug/l		--	--	--	--
2-Chloronaphthalene	ug/l		--	--	--	--
2-Chlorophenol	ug/l		--	--	--	--
2-Nitroaniline	ug/l		--	--	--	--
2-Nitrophenol	ug/l		--	--	--	--
3,3'-Dichlorobenzidine	ug/l		--	--	--	--
3-Nitroaniline	ug/l		--	--	--	--
4,6-Dinitro-2-Methylphenol	ug/l		--	--	--	--
4-Bromophenyl phenyl ether	ug/l		--	--	--	--
4-Chloro-3-Methylphenol	ug/l		--	--	--	--
4-Chloroaniline	ug/l		--	--	--	--
4-Chlorophenyl-Phenylether	ug/l		--	--	--	--
4-Nitroaniline	ug/l		--	--	--	--
4-Nitrophenol (p-Nitrophenol)	ug/l		--	--	--	--
Aniline	ug/l		--	--	--	--
Benzene, 1,4-Dinitro-	ug/l		--	--	--	--
Benzidine	ug/l		--	--	--	--
Benzoic Acid	ug/l		--	--	--	--
Benzyl Alcohol	ug/l		--	--	--	--
Bis(2-Chloroethoxy)Methane	ug/l		--	--	--	--
Bis(2-Chloroethyl)Ether	ug/l		--	--	--	--
Bis(2-chloroisopropyl) ether	ug/l		--	--	--	--
Bis(2-Ethylhexyl) Phthalate	ug/l	1	--	--	--	--
Butyl benzyl phthalate	ug/l		--	--	--	--
Carbazole	ug/l	1.6	--	--	--	--
Dibenzofuran	ug/l	1.6	0.147	0.1 U	--	1.55
Dibutyl phthalate	ug/l		--	--	--	--
Diethyl phthalate	ug/l		--	--	--	--
Dimethyl phthalate	ug/l		--	--	--	--
Di-N-Octyl Phthalate	ug/l		--	--	--	--

Yellow fill indicates the result > the screening level Blue Fill indicates the reporting limit > the screening level **Bold** = detected concentrations U = Not Detected J = Estimated T = Calculated "Total" Value **ANALYTE**	Unit	Screening Levels	Pre-2012 Samples TL-MW-11-033105 3/31/05	Pre-2012 Samples TL-MW-11-120804 12/08/04	Pre-2012 Samples TL-MW-11-092404 9/24/04	Pre-2012 Samples TL-MW-11-062204 6/22/04
Hexachlorobenzene	ug/l		--	--	--	--
Hexachlorobutadiene	ug/l		--	--	--	--
Hexachlorocyclopentadiene	ug/l		--	--	--	--
Hexachloroethane	ug/l		--	--	--	--
Hexanedioic Acid, Bis(2-Ethylhexyl) Ester	ug/l		--	--	--	--
Isophorone	ug/l		--	--	--	--
m,p-Cresol	ug/l	79	--	--	--	--
Nitrobenzene	ug/l		--	--	--	--
N-Nitrosodimethylamine	ug/l		--	--	--	--
N-Nitrosodi-n-propylamine	ug/l		--	--	--	--
N-Nitrosodiphenylamine	ug/l	6	**0.231 J**	**2.4 J**	--	0.02 U
o-Cresol (2-methylphenol)	ug/l	79	--	--	--	--
O-DINITROBENZENE	ug/l		--	--	--	--
p-Cresol (4-methylphenol)	ug/l		--	--	--	--
Pentachlorophenol	ug/l	3	**0.348 J**	0.5 U	--	**0.278 J**
Phenol	ug/l	580	--	--	--	--
Pyridine	ug/l		--	--	--	--
VOCs						
1,1,1-Trichloroethane	ug/l		--	--	--	--
1,1,2,2-Tetrachloroethane	ug/l		--	--	--	--
1,1,2-Trichloroethane	ug/l		--	--	--	--
1,1-Dichloroethane	ug/l		--	--	--	--
1,1-Dichloroethene	ug/l		--	--	--	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	ug/l	1300	--	--	--	--
1,2-Dichloroethane (EDC)	ug/l		--	--	--	--
1,2-Dichloropropane	ug/l		--	--	--	--
1,3-Dichlorobenzene (m-Dichlorobenzene)	ug/l		--	--	--	--
1,4-Dichlorobenzene (p-Dichlorobenzene)	ug/l	5	--	--	--	--
Bromochloromethane	ug/l		--	--	--	--
Bromodichloromethane	ug/l		--	--	--	--
Bromoform (Tribromomethane)	ug/l		--	--	--	--
Bromomethane	ug/l		--	--	--	--
Carbon Tetrachloride	ug/l		--	--	--	--
Chlorobenzene	ug/l	100	--	--	--	--
Chloroethane	ug/l		--	--	--	--
Chloroform	ug/l		--	--	--	--
Chloromethane	ug/l		--	--	--	--
cis-1,2-Dichloroethene	ug/l		--	--	--	--
Cis-1,3-Dichloropropene	ug/l		--	--	--	--
Dibromochloromethane	ug/l		--	--	--	--
Methylene Chloride	ug/l		--	--	--	--
Tetrachloroethene	ug/l		--	--	--	--
Trans-1,2-Dichloroethene	ug/l		--	--	--	--
Trans-1,3-Dichloropropene	ug/l		--	--	--	--
Trichloroethene (TCE)	ug/l		--	--	--	--
Trichlorofluoromethane (CFC-11)	ug/l		--	--	--	--
Vinyl Chloride	ug/l		--	--	--	--

Table B-4

Pre-2012 Groundwater Analytical Data - EPH

R.G. Haley Site

Bellingham, Washington

Analyte	Constituent	Sample I.D.	HS-MW-10	HS-MW-11	HS-MW-13	TL-MW-10	TL-MW-11	IZ-MW-1	IZ-MW-2	IZ-MW-3	IZ-MW-4
		Sample Date	06/23/04	06/23/04	06/23/04	06/23/04	06/22/04	06/22/04	06/22/04	06/22/04	06/22/04
		Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)	(ug/l)
EPH	ALIPHATICS EC10-EC12		50 UJ	282 J	50 UJ	3,950 JD	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
	ALIPHATICS EC12-EC16		50 UJ	953 J	50 UJ	45,800 JD	60.9 J	50 UJ	50 UJ	50 UJ	50 UJ
	ALIPHATICS EC16-EC21		139	434	50 UJ	35,600 JD	50 UJ	50 U	50 U	50 U	50 U
	ALIPHATICS EC21-EC34		695	67	50 UJ	16,100 JD	50 UJ	50 U	50 U	50 U	50 U
	ALIPHATICS EC8-EC10		50 UJ	165 J	50 UJ	292 JD	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
	AROMATICS EC10-EC12		73 J	418 J	98.1 J	461 JD	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
	AROMATICS EC12-EC16		411 J	2,980 J	564 J	14,700 JD	205 J	50 UJ	50 UJ	137 J	50 UJ
	AROMATICS EC16-EC21		212	1,090	74.7 J	40,300 JD	98.2 J	50 U	50 U	79.5	50 U
	AROMATICS EC21-EC34		454	84.2	50 UJ	7,740 JD	50 UJ	50 U	50 U	50 U	50 U
	AROMATICS EC8-EC10		50 UJ	151 J	50 UJ	250 URD	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ
	TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS		1,980 J	6,620 J	662 J	165,000 JD	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ

Notes:

EPH = extractable petroleum hydrocarbons

U = Not Detected

D = Diluted

J = Estimated

Table B-5

Well Construction for Monitoring Wells Decommissioned or Not Located as of 2012

R.G. Haley Site

Bellingham, Washington

Monitoring Well	Date Installed	Total Depth (feet bgs)	Screen Information			
			Slot Size (inches)	Well Diameter (inches)	Total Length (feet)	Well Screen Depth Interval (feet bgs)
HS-MW-2	3/13/86	15	0.02	2	5	8.5-13.5
HS-MW-3	4/4/00	14	0.02	2	10	4-14
HS-MW-10	6/16/04	13	0.01	1	3	10-13
HS-MW-11	6/16/04	11	0.01	1	3	8-11
IZ-MW-1	6/17/04	5	0.01	1	3	2-5
IZ-MW-2	6/17/04	5	0.01	1	3	2-5
IZ-MW-3	6/17/04	5	0.01	1	3	2-5
IZ-MW-4	6/17/04	5	0.01	1	3	2-5
CL-MW-1S	6/16/04	10	0.01	1	3	7-10
CL-MW-1D	6/16/04	15	0.01	1	3	12-15
CL-MW-2	6/25/98	16.5	0.02	2	10	3-14
CL-MW-3	6/25/98	16.5	0.02	2	10	5-15
CL-MW-4	6/25/98	16.5	0.02	2	10	5-15
CL-MW-5	6/26/98	15.2	0.02	2	10	3-13
CL-MW-7	6/27/03	15	0.02	2	4	11-15
CL-MW-8	6/27/03	15	0.02	2	4	11-15
CL-MW-10	6/27/03	15	0.02	2	4	11-15

Table B-6

Summary of Groundwater Elevation and LNAPL Data 2004 to Present

R.G. Haley Site

Bellingham, Washington

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
CL-MW-1	13.68	9/22/2004	--	4.89	0.00	8.79
CL-MW-1	13.68	12/9/2004	--	4.45	0.00	9.23
CL-MW-1	13.68	3/30/2005	--	3.54	0.00	10.14
CL-MW-1	13.68	9/14/2005	--	6.34	0.00	7.34
CL-MW-1	13.68	5/3/2012	--	4.49	0.00	9.19
CL-MW-1	13.68	5/8/2012	--	4.73	0.00	8.95
CL-MW-1	13.68	7/17/2012	--	5.74	0.00	7.94
CL-MW-1	13.68	8/9/2012	--	6.33	0.00	7.35
CL-MW-1D	14.6	9/22/2004	--	4.41	0.00	10.19
CL-MW-1D	14.6	12/9/2004	--	4.10	0.00	10.50
CL-MW-1D	14.6	3/30/2005	--	4.06	0.00	10.54
CL-MW-1D	14.6	9/14/2005	--	6.69	0.00	7.91
CL-MW-1H	17.89	9/22/2004	6.79	6.84	0.05	11.10
CL-MW-1H	17.89	12/9/2004	6.01	6.09	0.08	11.87
CL-MW-1H	17.89	3/30/2005	5.96	6.07	0.11	11.92
CL-MW-1H	17.89	9/14/2005	10.04	10.08	0.04	7.85
CL-MW-1H	17.89	5/3/2012	--	6.25	0.00	11.64
CL-MW-1H	17.89	5/8/2012	--	6.55	0.00	11.34
CL-MW-1H	17.89	7/17/2012	--	8.67	0.00	9.22
CL-MW-1H	17.89	8/9/2012	--	9.45	0.00	8.44
CL-MW-1S	14.6	9/22/2004	4.42	4.43	0.01	10.18
CL-MW-1S	14.6	12/9/2004	--	4.11	0.00	10.49
CL-MW-1S	14.6	3/30/2005	--	4.04	0.00	10.56
CL-MW-1S	14.6	9/14/2005	--	6.85	0.00	7.75
CL-MW-2	14.8	12/9/2004	--	7.01	0.00	7.79
CL-MW-2	14.8	3/30/2005	--	7.01	0.00	7.79
CL-MW-2	14.8	9/14/2005	--	8.93	0.00	5.87
CL-MW-3	14.4	12/9/2004	--	6.09	0.00	8.31
CL-MW-3	14.4	3/30/2005	--	5.51	0.00	8.89
CL-MW-3	14.4	9/14/2005	--	7.85	0.00	6.55
CL-MW-6	15.89	9/22/2004	--	4.89	0.00	11.00
CL-MW-6	15.89	12/9/2004	--	4.10	0.00	11.79
CL-MW-6	15.89	3/30/2005	--	4.01	0.00	11.88
CL-MW-6	15.89	9/14/2005	--	7.67	0.00	8.22
CL-MW-6	15.89	5/3/2012	--	4.51	0.00	11.38
CL-MW-6	15.89	5/8/2012	--	4.78	0.00	11.11
CL-MW-6	15.89	7/17/2012	--	6.78	0.00	9.11
CL-MW-6	15.89	8/9/2012	--	7.50	0.00	8.39
CL-MW-7	15.8	9/22/2004	--	8.20	0.00	7.60
CL-MW-7	15.8	12/9/2004	--	7.08	0.00	8.72
CL-MW-7	15.8	3/30/2005	--	7.07	0.00	8.73
CL-MW-7	15.8	9/14/2005	--	9.55	0.00	6.25
CL-MW-8	17	9/22/2004	--	9.53	0.00	7.47

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
CL-MW-8	17	12/9/2004	--	9.06	0.00	7.94
CL-MW-8	17	3/30/2005	--	8.33	0.00	8.67
CL-MW-8	17	9/14/2005	--	11.35	0.00	5.65
CL-MW-9	13.62	12/9/2004	--	3.47	0.00	10.15
CL-MW-9	13.62	3/30/2005	--	2.21	0.00	11.41
CL-MW-9	13.62	9/14/2005	--	6.03	0.00	7.59
CL-MW-9	13.62	5/3/2012	--	4.39	0.00	9.23
CL-MW-9	13.62	5/8/2012	--	4.62	0.00	9.00
CL-MW-9	13.62	7/17/2012	--	5.41	0.00	8.21
CL-MW-9	13.62	8/9/2012	--	6.40	0.00	7.22
CL-MW-10	14.2	9/22/2004	--	6.13	0.00	8.07
CL-MW-10	14.2	12/9/2004	--	5.68	0.00	8.52
CL-MW-10	14.2	3/30/2005	--	5.22	0.00	8.98
CL-MW-10	14.2	9/14/2005	--	7.47	0.00	6.73
CL-MW-101	13.06	7/11/2012	--	4.52	0.00	8.54
CL-MW-101	13.06	7/17/2012	--	4.76	0.00	8.30
CL-MW-101	13.06	8/9/2012	--	5.39	0.00	7.67
CL-MW-102	14.27	7/11/2012	--	5.31	0.00	8.96
CL-MW-102	14.27	7/17/2012	--	5.51	0.00	8.76
CL-MW-102	14.27	8/9/2012	--	5.83	0.00	8.44
CL-MW-103	14.41	7/11/2012	--	5.03	0.00	9.38
CL-MW-103	14.41	7/17/2012	--	5.31	0.00	9.10
CL-MW-103	14.41	7/30/2012	--	5.77	0.00	8.64
CL-MW-103	14.41	8/9/2012	--	6.09	0.00	8.32
HS-MW-3	15.4	3/5/2004	--	6.37	0.00	9.03
HS-MW-3	15.4	6/21/2004	--	7.44	0.00	7.96
HS-MW-3	15.4	9/22/2004	--	7.19	0.00	8.21
HS-MW-3	15.4	12/9/2004	--	6.38	0.00	9.02
HS-MW-3	15.4	3/30/2005	--	6.73	0.00	8.67
HS-MW-3	15.4	9/14/2005	--	8.90	0.00	6.50
HS-MW-4	15.64	3/5/2004	--	6.97	0.00	8.67
HS-MW-4	15.64	6/21/2004	--	7.68	0.00	7.96
HS-MW-4	15.64	9/22/2004	--	7.43	0.00	8.21
HS-MW-4	15.64	12/9/2004	--	6.73	0.00	8.91
HS-MW-4	15.64	3/30/2005	--	6.98	0.00	8.66
HS-MW-4	15.64	9/14/2005	--	8.45	0.00	7.19
HS-MW-4	15.64	5/3/2012	--	6.91	0.00	8.73
HS-MW-4	15.64	5/8/2012	--	7.10	0.00	8.54
HS-MW-4	15.64	7/17/2012	--	7.82	0.00	7.82
HS-MW-4	15.64	7/30/2012	--	7.97	0.00	7.67
HS-MW-4	15.64	8/9/2012	--	8.18	0.00	7.46
HS-MW-5	14.39	3/5/2004	--	6.14	0.00	8.25
HS-MW-5	14.39	6/21/2004	--	6.86	0.00	7.53
HS-MW-5	14.39	9/22/2004	--	6.63	0.00	7.76
HS-MW-5	14.39	12/9/2004	--	5.92	0.00	8.47
HS-MW-5	14.39	3/30/2005	--	6.18	0.00	8.21
HS-MW-5	14.39	9/14/2005	--	8.10	0.00	6.29
HS-MW-5	14.39	5/3/2012	--	6.07	0.00	8.32
HS-MW-5	14.39	5/8/2012	--	6.26	0.00	8.13

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
HS-MW-5	14.39	7/17/2012	--	7.01	0.00	7.38
HS-MW-5	14.39	8/9/2012	--	7.52	0.00	6.87
HS-MW-6	11.81	3/5/2004	--	4.23	0.00	7.58
HS-MW-6	11.81	6/21/2004	--	5.88	0.00	5.93
HS-MW-6	11.81	9/22/2004	--	4.43	0.00	7.38
HS-MW-6	11.81	12/9/2004	--	3.98	0.00	7.83
HS-MW-6	11.81	3/30/2005	--	5.18	0.00	6.63
HS-MW-6	11.81	6/9/2005	--	5.88	0.00	5.93
HS-MW-6	11.81	9/14/2005	--	7.17	0.00	4.64
HS-MW-6	11.81	12/16/2005	--	4.57	0.00	7.24
HS-MW-6	11.81	3/31/2006	--	5.11	0.00	6.70
HS-MW-6	11.81	6/6/2006	--	5.44	0.00	6.37
HS-MW-6	11.81	9/29/2006	--	6.11	0.00	5.70
HS-MW-6	11.81	12/8/2006	--	3.98	0.00	7.83
HS-MW-6	11.81	3/30/2007	--	5.05	0.00	6.76
HS-MW-6	11.81	7/6/2007	--	5.68	0.00	6.13
HS-MW-6	11.81	9/28/2007	--	6.14	0.00	5.67
HS-MW-6	11.81	11/30/2007	--	4.89	0.00	6.92
HS-MW-6	11.81	4/9/2008	--	4.97	0.00	6.84
HS-MW-6	11.81	7/8/2008	--	5.55	0.00	6.26
HS-MW-6	11.81	11/3/2008	--	4.62	0.00	7.19
HS-MW-6	11.81	2/5/2009	--	4.64	0.00	7.17
HS-MW-6	11.81	6/1/2009	--	5.71	0.00	6.10
HS-MW-6	11.81	12/14/2010	--	3.13	0.00	8.68
HS-MW-6	11.81	3/21/2011	5.15	5.21	0.06	6.65
HS-MW-6	11.81	9/22/2011	--	7.07	0.00	4.74
HS-MW-6	11.81	12/13/2011	--	4.76	0.00	7.05
HS-MW-6	11.81	5/3/2012	--	5.01	0.00	6.80
HS-MW-6	11.81	5/8/2012	--	5.37	0.00	6.44
HS-MW-6	11.81	7/17/2012	--	6.05	0.00	5.76
HS-MW-6	11.81	7/30/2012	--	5.31	0.00	6.50
HS-MW-6	11.81	8/9/2012	--	5.71	0.00	6.10
HS-MW-6	11.81	9/24/2012	--	6.23	0.00	5.58
HS-MW-6	11.81	12/12/2012	--	3.52	0.00	8.29
HS-MW-6	11.81	1/22/2013	--	4.28	0.00	7.53
HS-MW-7	15.22	3/5/2004	--	6.97	0.00	8.25
HS-MW-7	15.22	6/21/2004	--	7.75	0.00	7.47
HS-MW-7	15.22	9/22/2004	--	7.54	0.00	7.68
HS-MW-7	15.22	12/9/2004	--	6.76	0.00	8.46
HS-MW-7	15.22	3/30/2005	--	7.06	0.00	8.16
HS-MW-7	15.22	9/14/2005	--	9.15	0.00	6.07
HS-MW-7	15.22	5/3/2012	--	6.82	0.00	8.40
HS-MW-7	15.22	5/8/2012	--	7.01	0.00	8.21
HS-MW-7	15.22	7/17/2012	--	7.93	0.00	7.29
HS-MW-7	15.22	8/9/2012	--	8.57	0.00	6.65
HS-MW-8	14.33	3/5/2004	6.10	6.27	0.17	8.22
HS-MW-8	14.33	6/21/2004	6.90	7.37	0.47	7.39
HS-MW-8	14.33	9/22/2004	6.69	6.70	0.01	7.64
HS-MW-8	14.33	12/9/2004	5.63	5.64	0.01	8.70

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
HS-MW-8	14.33	3/30/2005	--	6.55	0.00	7.78
HS-MW-8	14.33	9/14/2005	--	8.21	0.00	6.12
HS-MW-8	14.33	7/17/2012	7.13	7.29	0.16	7.19
HS-MW-8	14.33	7/30/2012	--	7.52	0.00	6.81
HS-MW-8	14.33	8/9/2012	7.75	7.94	0.19	6.56
HS-MW-9	14.05	3/5/2004	--	6.14	0.00	7.91
HS-MW-9	14.05	6/21/2004	--	6.57	0.00	7.48
HS-MW-9	14.05	9/22/2004	--	6.59	0.00	7.46
HS-MW-9	14.05	12/9/2004	--	6.16	0.00	7.89
HS-MW-9	14.05	3/30/2005	--	6.42	0.00	7.63
HS-MW-9	14.05	9/14/2005	--	7.80	0.00	6.25
HS-MW-9	14.05	5/3/2012	--	5.79	0.00	8.26
HS-MW-9	14.05	5/8/2012	--	5.89	0.00	8.16
HS-MW-9	14.05	7/17/2012	--	6.43	0.00	7.62
HS-MW-9	14.05	8/9/2012	--	7.11	0.00	6.94
HS-MW-10	15.4	9/22/2004	--	5.80	0.00	9.60
HS-MW-10	15.4	12/9/2004	--	5.30	0.00	10.10
HS-MW-10	15.4	3/30/2005	--	5.38	0.00	10.02
HS-MW-10	15.4	9/14/2005	--	7.56	0.00	7.84
HS-MW-11	14.2	9/22/2004	--	6.59	0.00	7.61
HS-MW-11	14.2	12/9/2004	--	5.83	0.00	8.37
HS-MW-11	14.2	3/30/2005	--	6.08	0.00	8.12
HS-MW-11	14.2	9/14/2005	--	8.20	0.00	6.00
HS-MW-13	13.44	9/22/2004	--	5.92	0.00	7.52
HS-MW-13	13.44	12/9/2004	--	4.87	0.00	8.57
HS-MW-13	13.44	3/30/2005	--	5.04	0.00	8.40
HS-MW-13	13.44	9/14/2005	--	7.73	0.00	5.71
HS-MW-13	13.44	5/3/2012	--	5.02	0.00	8.42
HS-MW-13	13.44	5/8/2012	--	5.32	0.00	8.12
HS-MW-13	13.44	7/17/2012	--	6.26	0.00	7.18
HS-MW-13	13.44	8/9/2012	--	6.85	0.00	6.59
HS-MW-15	11.88	9/22/2004	--	4.52	0.00	7.36
HS-MW-15	11.88	12/9/2004	--	4.03	0.00	7.85
HS-MW-15	11.88	3/30/2005	--	4.91	0.00	6.97
HS-MW-15	11.88	9/14/2005	--	5.37	0.00	6.51
HS-MW-15	11.88	5/3/2012	--	4.82	0.00	7.06
HS-MW-15	11.88	5/8/2012	--	4.87	0.00	7.01
HS-MW-15	11.88	7/17/2012	--	5.12	0.00	6.76
HS-MW-15	11.88	7/30/2012	--	5.40	0.00	6.48
HS-MW-15	11.88	8/9/2012	--	5.99	0.00	5.89
HS-MW-16	11.76	9/22/2004	--	4.26	0.00	7.50
HS-MW-16	11.76	12/9/2004	--	3.98	0.00	7.78
HS-MW-16	11.76	3/30/2005	--	4.81	0.00	6.95
HS-MW-16	11.76	9/14/2005	--	5.11	0.00	6.65
HS-MW-16	11.76	5/3/2012	--	4.28	0.00	7.48
HS-MW-16	11.76	5/8/2012	--	4.35	0.00	7.41
HS-MW-16	11.76	7/17/2012	--	4.46	0.00	7.30
HS-MW-16	11.76	8/9/2012	--	5.15	0.00	6.61
HS-MW-17	13.11	7/11/2012	--	5.32	0.00	7.79

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
HS-MW-17	13.11	7/17/2012	--	5.52	0.00	7.59
HS-MW-17	13.11	7/30/2012	--	8.33	0.00	4.78
HS-MW-17	13.11	8/9/2012	--	6.19	0.00	6.92
HS-MW-19	16.06	7/12/2012	--	7.16	0.00	8.90
HS-MW-19	16.06	7/17/2012	--	7.40	0.00	8.66
HS-MW-19	16.06	8/9/2012	--	8.06	0.00	8.00
RW-1	15.14	3/5/2004	--	6.88	0.00	8.26
RW-1	15.14	6/21/2004	--	8.40	0.00	6.74
RW-1	15.14	9/22/2004	7.74	7.75	0.01	7.40
RW-1	15.14	12/9/2004	--	7.30	0.00	7.84
RW-1	15.14	3/30/2005	--	7.14	0.00	8.00
RW-1	15.14	6/9/2005	--	8.27	0.00	6.87
RW-1	15.14	9/14/2005	--	9.74	0.00	5.40
RW-1	15.14	12/16/2005	--	8.51	0.00	6.63
RW-1	15.14	3/31/2006	--	8.06	0.00	7.08
RW-1	15.14	6/6/2006	--	8.23	0.00	6.91
RW-1	15.14	9/29/2006	--	9.14	0.00	6.00
RW-1	15.14	12/8/2006	--	7.31	0.00	7.83
RW-1	15.14	3/30/2007	--	7.64	0.00	7.50
RW-1	15.14	7/6/2007	--	9.16	0.00	5.98
RW-1	15.14	9/28/2007	--	9.36	0.00	5.78
RW-1	15.14	11/30/2007	--	8.21	0.00	6.93
RW-1	15.14	4/9/2008	--	7.85	0.00	7.29
RW-1	15.14	7/8/2008	--	8.90	0.00	6.24
RW-1	15.14	11/3/2008	--	7.69	0.00	7.45
RW-1	15.14	2/5/2009	--	8.24	0.00	6.90
RW-1	15.14	6/1/2009	--	8.43	0.00	6.71
RW-1	15.14	12/14/2010	5.42	5.43	0.01	9.72
RW-1	15.14	3/21/2011	--	6.74	0.00	8.40
RW-1	15.14	6/15/2011	--	8.42	0.00	6.72
RW-1	15.14	9/22/2011	--	9.62	0.00	5.52
RW-1	15.14	12/13/2011	8.19	8.20	0.01	6.95
RW-2	15.39	3/5/2004	--	6.70	0.00	8.69
RW-2	15.39	6/21/2004	8.14	8.23	0.09	7.24
RW-2	15.39	9/22/2004	7.65	7.66	0.01	7.74
RW-2	15.39	12/9/2004	7.21	7.22	0.01	8.18
RW-2	15.39	3/30/2005	7.10	7.25	0.15	8.28
RW-2	15.39	6/9/2005	8.02	8.30	0.28	7.35
RW-2	15.39	9/14/2005	9.54	9.82	0.28	5.83
RW-2	15.39	12/16/2005	8.34	8.41	0.07	7.04
RW-2	15.39	3/31/2006	8.10	8.13	0.03	7.29
RW-2	15.39	6/6/2006	8.07	8.09	0.02	7.32
RW-2	15.39	9/29/2006	9.00	9.05	0.05	6.39
RW-2	15.39	12/8/2006	7.22	7.25	0.03	8.17
RW-2	15.39	3/30/2007	7.40	7.41	0.01	7.99
RW-2	15.39	7/6/2007	9.00	9.03	0.03	6.39
RW-2	15.39	9/28/2007	9.40	9.42	0.02	5.99
RW-2	15.39	11/30/2007	8.00	8.03	0.03	7.39
RW-2	15.39	4/9/2008	7.72	7.73	0.01	7.67

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RW-2	15.39	7/8/2008	8.67	8.70	0.03	6.72
RW-2	15.39	11/3/2008	7.80	8.00	0.20	7.57
RW-2	15.39	2/5/2009	8.01	8.23	0.22	7.36
RW-2	15.39	6/1/2009	8.22	8.25	0.03	7.17
RW-2	15.39	12/14/2010	5.71	5.82	0.11	9.67
RW-2	15.39	3/21/2011	6.70	6.85	0.15	8.68
RW-2	15.39	6/15/2011	8.11	9.20	1.09	7.19
RW-2	15.39	9/22/2011	9.52	9.95	0.43	5.83
RW-2	15.39	12/13/2011	7.90	8.25	0.35	7.46
RW-3	16.14	3/5/2004	7.66	7.67	0.01	8.48
RW-3	16.14	9/22/2004	8.37	8.50	0.13	7.76
RW-3	16.14	12/9/2004	7.97	8.06	0.09	8.16
RW-3	16.14	3/30/2005	7.85	8.10	0.25	8.27
RW-3	16.14	6/9/2005	8.81	9.25	0.44	7.29
RW-3	16.14	9/14/2005	10.27	10.53	0.26	5.85
RW-3	16.14	12/16/2005	9.01	9.12	0.11	7.12
RW-3	16.14	3/31/2006	8.85	9.12	0.27	7.27
RW-3	16.14	6/6/2006	9.03	9.20	0.17	7.10
RW-3	16.14	9/29/2006	9.79	9.97	0.18	6.33
RW-3	16.14	12/8/2006	7.68	7.88	0.20	8.44
RW-3	16.14	3/30/2007	7.96	8.22	0.26	8.16
RW-3	16.14	7/6/2007	9.79	9.87	0.08	6.34
RW-3	16.14	9/28/2007	10.17	10.20	0.03	5.97
RW-3	16.14	11/30/2007	8.82	8.85	0.03	7.32
RW-3	16.14	4/9/2008	8.51	8.66	0.15	7.62
RW-3	16.14	7/8/2008	--	9.40	0.00	6.74
RW-3	16.14	11/3/2008	--	8.91	0.00	7.23
RW-3	16.14	2/5/2009	--	8.78	0.00	7.36
RW-3	16.14	6/1/2009	--	8.95	0.00	7.19
RW-3	16.14	12/14/2010	6.35	6.40	0.05	9.79
RW-3	16.14	3/21/2011	--	7.55	0.00	8.59
RW-3	16.14	6/15/2011	8.85	8.87	0.02	7.29
RW-3	16.14	9/22/2011	10.19	10.25	0.06	5.94
RW-3	16.14	12/13/2011	--	8.72	0.00	7.42
RW-4	14.24	3/5/2004	6	6.40	0.40	8.21
RW-4	14.24	6/21/2004	7.71	8.08	0.37	6.50
RW-4	14.24	9/22/2004	6.65	7.34	0.69	7.53
RW-4	14.24	12/9/2004	6.38	6.89	0.51	7.82
RW-4	14.24	3/30/2005	6.49	6.93	0.44	7.71
RW-4	14.24	6/9/2005	7.36	7.55	0.19	6.86
RW-4	14.24	9/14/2005	8.73	8.87	0.14	5.50
RW-4	14.24	12/16/2005	7.16	7.55	0.39	7.05
RW-4	14.24	3/31/2006	6.96	7.12	0.16	7.27
RW-4	14.24	6/6/2006	7.04	7.30	0.26	7.18
RW-4	14.24	9/29/2006	8.02	8.05	0.03	6.22
RW-4	14.24	12/8/2006	6.16	6.20	0.04	8.08
RW-4	14.24	3/30/2007	6.40	6.45	0.05	7.84
RW-4	14.24	7/6/2007	7.92	8.00	0.08	6.31
RW-4	14.24	9/28/2007	8.31	8.33	0.02	5.93

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RW-4	14.24	11/30/2007	7.03	7.22	0.19	7.19
RW-4	14.24	4/9/2008	6.60	6.80	0.20	7.62
RW-4	14.24	7/8/2008	7.53	7.74	0.21	6.69
RW-4	14.24	11/3/2008	6.94	7.15	0.21	7.28
RW-4	14.24	2/5/2009	6.88	7.01	0.13	7.35
RW-4	14.24	6/1/2009	7.14	7.35	0.21	7.08
RW-4	14.24	12/14/2010	4.59	5.62	1.03	9.56
RW-4	14.24	3/21/2011	5.82	6.08	0.26	8.40
RW-4	14.24	6/15/2011	7.19	7.28	0.09	7.04
RW-4	14.24	9/22/2011	8.50	8.78	0.28	5.72
RW-4	14.24	12/13/2011	6.91	7.10	0.19	7.31
RW-5	14.88	3/5/2004	6.34	6.35	0.01	8.54
RW-5	14.88	9/22/2004	7.14	7.36	0.22	7.72
RW-5	14.88	12/9/2004	6.74	6.93	0.19	8.12
RW-5	14.88	3/30/2005	6.79	6.86	0.07	8.08
RW-5	14.88	6/9/2005	7.65	8.02	0.37	7.20
RW-5	14.88	9/14/2005	9.03	9.23	0.20	5.83
RW-5	14.88	12/16/2005	7.78	8.09	0.31	7.07
RW-5	14.88	3/31/2006	7.61	7.90	0.29	7.25
RW-5	14.88	6/6/2006	7.65	7.80	0.15	7.22
RW-5	14.88	9/29/2006	8.50	8.74	0.24	6.36
RW-5	14.88	12/8/2006	6.67	7.00	0.33	8.18
RW-5	14.88	3/30/2007	6.85	7.10	0.25	8.01
RW-5	14.88	7/6/2007	8.58	8.90	0.32	6.27
RW-5	14.88	9/28/2007	8.89	9.02	0.13	5.98
RW-5	14.88	11/30/2007	7.57	7.80	0.23	7.29
RW-5	14.88	4/9/2008	7.20	7.40	0.20	7.66
RW-5	14.88	7/8/2008	8.13	8.40	0.27	6.73
RW-5	14.88	11/3/2008	7.70	7.90	0.20	7.16
RW-5	14.88	2/5/2009	7.51	7.60	0.09	7.36
RW-5	14.88	6/1/2009	7.75	8.00	0.25	7.11
RW-5	14.88	12/14/2010	5.25	5.72	0.47	9.59
RW-5	14.88	3/21/2011	6.43	6.64	0.21	8.43
RW-5	14.88	6/15/2011	7.77	7.83	0.06	7.10
RW-5	14.88	9/22/2011	9.10	9.38	0.28	5.76
RW-5	14.88	12/13/2011	7.51	7.59	0.08	7.36
RW-6	13.45	3/5/2004	5.05	5.95	0.90	8.32
RW-6	13.45	9/22/2004	5.77	5.94	0.17	7.67
RW-6	13.45	12/9/2004	5.28	5.45	0.17	8.16
RW-6	13.45	3/30/2005	5.49	6.59	1.10	7.87
RW-6	13.45	6/9/2005	6.29	6.55	0.26	7.14
RW-6	13.45	9/14/2005	7.69	8.07	0.38	5.73
RW-6	13.45	12/16/2005	6.27	7.32	1.05	7.09
RW-6	13.45	3/31/2006	6.18	6.92	0.74	7.21
RW-6	13.45	6/6/2006	6.45	6.66	0.21	6.98
RW-6	13.45	9/29/2006	7.19	7.49	0.30	6.23
RW-6	13.45	12/8/2006	5.07	7.30	2.23	8.19
RW-6	13.45	3/30/2007	5.40	6.70	1.30	7.94
RW-6	13.45	7/6/2007	7.11	7.40	0.29	6.32

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
RW-6	13.45	9/28/2007	7.47	7.80	0.33	5.95
RW-6	13.45	11/30/2007	6.98	7.00	0.02	6.47
RW-6	13.45	4/9/2008	--	5.90	0.00	7.55
RW-6	13.45	7/8/2008	--	6.80	0.00	6.65
RW-6	13.45	11/3/2008	--	5.20	0.00	8.25
RW-6	13.45	2/5/2009	--	6.13	0.00	7.32
RW-6	13.45	6/1/2009	--	6.35	0.00	7.10
RW-6	13.45	12/14/2010	2.85	11.10	8.25	9.90
RW-6	13.45	3/21/2011	4.65	4.70	0.05	8.80
RW-6	13.45	6/15/2011	--	6.41	0.00	7.04
RW-6	13.45	9/22/2011	--	7.56	0.00	5.89
RW-6	13.45	12/13/2011	--	6.01	0.00	7.44
TL-MW-1	13.7	3/5/2004	--	6.23	0.00	7.47
TL-MW-1	13.7	9/22/2004	--	7.01	0.00	6.69
TL-MW-1	13.7	12/9/2004	--	6.20	0.00	7.50
TL-MW-1	13.7	3/30/2005	--	6.89	0.00	6.81
TL-MW-1	13.7	6/9/2005	--	7.22	0.00	6.48
TL-MW-1	13.7	9/14/2005	--	8.91	0.00	4.79
TL-MW-1	13.7	12/16/2005	--	7.37	0.00	6.33
TL-MW-1	13.7	3/31/2006	--	7.00	0.00	6.70
TL-MW-1	13.7	6/6/2006	--	7.60	0.00	6.10
TL-MW-1	13.7	9/29/2006	--	8.40	0.00	5.30
TL-MW-1	13.7	12/8/2006	--	6.54	0.00	7.16
TL-MW-1	13.7	3/30/2007	--	6.82	0.00	6.88
TL-MW-1	13.7	7/6/2007	--	8.02	0.00	5.68
TL-MW-1	13.7	9/28/2007	--	8.31	0.00	5.39
TL-MW-1	13.7	11/30/2007	--	7.50	0.00	6.20
TL-MW-1	13.7	4/9/2008	--	6.96	0.00	6.74
TL-MW-1	13.7	7/8/2008	--	7.73	0.00	5.97
TL-MW-1	13.7	11/3/2008	--	7.59	0.00	6.11
TL-MW-1	13.7	2/5/2009	--	7.41	0.00	6.29
TL-MW-1	13.7	6/1/2009	--	7.15	0.00	6.55
TL-MW-1	13.7	12/14/2010	--	5.57	0.00	8.13
TL-MW-1	13.7	3/21/2011	--	6.35	0.00	7.35
TL-MW-1	13.7	6/15/2011	--	7.33	0.00	6.37
TL-MW-1	13.7	9/22/2011	--	8.49	0.00	5.21
TL-MW-1	13.7	12/13/2011	--	6.89	0.00	6.81
TL-MW-1	13.7	3/26/2012	--	6.04	0.00	7.66
TL-MW-1	13.7	5/3/2012	--	6.49	0.00	7.21
TL-MW-1	13.7	5/8/2012	--	6.64	0.00	7.06
TL-MW-1	13.7	7/17/2012	--	7.33	0.00	6.37
TL-MW-1	13.7	7/30/2012	--	7.78	0.00	5.92
TL-MW-1	13.7	8/9/2012	--	7.82	0.00	5.88
TL-MW-1	13.7	9/24/2012	--	8.54	0.00	5.16
TL-MW-1	13.7	12/12/2012	--	6.15	0.00	7.55
TL-MW-1	13.7	1/10/2013	--	5.97	0.00	7.73
TL-MW-1	13.7	1/15/2013	--	6.40	0.00	7.30
TL-MW-1	13.7	1/22/2013	--	6.50	0.00	7.20
TL-MW-1	13.7	1/29/2013	--	6.62	0.00	7.08

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
TL-MW-1	13.7	2/6/2013	--	6.45	0.00	7.25
TL-MW-1	13.7	2/14/2013	--	7.02	0.00	6.68
TL-MW-1	13.7	2/20/2013	--	7.05	0.00	6.65
TL-MW-2	14.93	3/5/2004	6.71	9.70	2.99	7.97
TL-MW-2	14.93	6/21/2004	7.77	11.89	4.12	6.81
TL-MW-2	14.93	9/22/2004	7.36	10.35	2.99	7.32
TL-MW-2	14.93	12/9/2004	7.37	9.50	2.13	7.38
TL-MW-2	14.93	3/30/2005	7.11	13.25	6.14	7.30
TL-MW-2	14.93	6/9/2005	8.14	8.70	0.56	6.74
TL-MW-2	14.93	9/14/2005	9.36	11.58	2.22	5.38
TL-MW-2	14.93	12/16/2005	7.93	9.52	1.59	6.87
TL-MW-2	14.93	3/31/2006	7.97	8.54	0.57	6.91
TL-MW-2	14.93	6/6/2006	8.19	9.60	1.41	6.62
TL-MW-2	14.93	9/29/2006	8.88	11.00	2.12	5.87
TL-MW-2	14.93	12/8/2006	6.65	11.90	5.25	7.83
TL-MW-2	14.93	3/30/2007	7.00	13.00	6.00	7.42
TL-MW-2	14.93	7/6/2007	8.76	10.70	1.94	6.01
TL-MW-2	14.93	9/28/2007	9.08	11.80	2.72	5.62
TL-MW-2	14.93	11/30/2007	8.02	8.20	0.18	6.89
TL-MW-2	14.93	4/9/2008	7.50	10.90	3.40	7.14
TL-MW-2	14.93	7/8/2008	8.40	10.02	1.62	6.39
TL-MW-2	14.93	11/3/2008	8.20	8.40	0.20	6.71
TL-MW-2	14.93	2/5/2009	7.90	9.85	1.95	6.86
TL-MW-2	14.93	6/1/2009	7.99	11.62	3.63	6.63
TL-MW-2	14.93	12/14/2010	5.64	7.86	2.22	9.10
TL-MW-2	14.93	3/21/2011	6.74	12.95	6.21	7.66
TL-MW-2	14.93	6/15/2011	8.14	11.83	3.69	6.48
TL-MW-2	14.93	9/22/2011	9.26	10.23	0.97	5.59
TL-MW-2	14.93	12/13/2011	7.75	8.79	1.04	7.09
TL-MW-2	14.93	5/3/2012	6.74	11.73	4.99	7.77
TL-MW-2	14.93	6/29/2012	8.17	8.41	0.24	6.74
TL-MW-2	14.93	8/9/2012	8.29	11.22	2.93	6.39
TL-MW-2	14.93	9/24/2012	9.02	11.40	2.38	5.71
TL-MW-2	14.93	12/12/2012	6.23	11.09	4.86	8.29
TL-MW-2	14.93	1/10/2013	5.87	11.42	5.55	8.59
TL-MW-2	14.93	1/15/2013	6.30	12.22	5.92	8.13
TL-MW-2	14.93	1/22/2013	6.80	10.61	3.81	7.81
TL-MW-2	14.93	1/29/2013	6.68	11.72	5.04	7.82
TL-MW-2	14.93	2/6/2013	6.73	10.63	3.90	7.87
TL-MW-2	14.93	2/14/2013	7.23	11.70	4.47	7.32
TL-MW-2	14.93	2/20/2013	7.33	11.62	4.29	7.24
TL-MW-3	12.43	3/5/2004	4.25	5.50	1.25	8.07
TL-MW-3	12.43	9/22/2004	5.24	6.03	0.79	7.12
TL-MW-3	12.43	12/9/2004	4.86	5.23	0.37	7.54
TL-MW-3	12.43	3/30/2005	4.91	5.35	0.44	7.48
TL-MW-3	12.43	6/9/2005	5.7	6.80	1.10	6.64
TL-MW-3	12.43	9/14/2005	7.18	7.56	0.38	5.22
TL-MW-3	12.43	12/16/2005	5.76	7.42	1.66	6.53
TL-MW-3	12.43	3/31/2006	5.68	6.11	0.43	6.71

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TL-MW-3	12.43	6/6/2006	5.88	6.01	0.13	6.54
TL-MW-3	12.43	9/29/2006	6.65	6.96	0.31	5.75
TL-MW-3	12.43	12/8/2006	4.66	5.40	0.74	7.71
TL-MW-3	12.43	3/30/2007	4.8	6.40	1.60	7.49
TL-MW-3	12.43	7/6/2007	6.57	7.40	0.83	5.79
TL-MW-3	12.43	9/28/2007	6.9	7.30	0.40	5.50
TL-MW-3	12.43	11/30/2007	5.7	6.00	0.30	6.70
TL-MW-3	12.43	4/9/2008	5.31	6.42	1.11	7.03
TL-MW-3	12.43	7/8/2008	6.18	7.03	0.85	6.18
TL-MW-3	12.43	11/3/2008	6.00	6.20	0.20	6.41
TL-MW-3	12.43	2/5/2009	5.50	6.50	1.00	6.85
TL-MW-3	12.43	6/1/2009	5.78	6.90	1.12	6.56
TL-MW-3	12.43	12/14/2010	3.33	3.90	0.57	9.05
TL-MW-3	12.43	3/21/2011	4.49	5.35	0.86	7.87
TL-MW-3	12.43	6/15/2011	5.88	6.50	0.62	6.50
TL-MW-3	12.43	9/22/2011	7.11	8.16	1.05	5.23
TL-MW-3	12.43	12/13/2011	5.55	6.21	0.66	6.82
TL-MW-3	12.43	5/3/2012	4.51	5.20	0.69	7.86
TL-MW-3	12.43	8/9/2012	6.16	7.18	1.02	6.18
TL-MW-3	12.43	9/24/2012	6.89	7.40	0.51	5.50
TL-MW-3	12.43	12/12/2012	4.08	4.32	0.24	8.33
TL-MW-4	11.62	3/5/2004	4.39	5.80	1.41	7.11
TL-MW-4	11.62	6/21/2004	7.08	7.87	0.79	4.47
TL-MW-4	11.62	9/22/2004	4.92	6.41	1.49	6.57
TL-MW-4	11.62	12/9/2004	4.26	5.61	1.35	7.25
TL-MW-4	11.62	3/30/2005	6.41	7.82	1.41	5.09
TL-MW-4	11.62	6/9/2005	7.10	7.70	0.60	4.47
TL-MW-4	11.62	9/14/2005	8.03	8.11	0.08	3.58
TL-MW-4	11.62	12/16/2005	5.06	5.22	0.16	6.55
TL-MW-4	11.62	3/31/2006	5.32	5.71	0.39	6.27
TL-MW-4	11.62	6/6/2006	6.18	6.40	0.22	5.42
TL-MW-4	11.62	9/29/2006	6.96	7.00	0.04	4.66
TL-MW-4	11.62	12/8/2006	4.20	5.20	1.00	7.34
TL-MW-4	11.62	3/30/2007	5.07	7.40	2.33	6.35
TL-MW-4	11.62	7/6/2007	6.39	6.60	0.21	5.21
TL-MW-4	11.62	9/28/2007	6.38	6.40	0.02	5.24
TL-MW-4	11.62	11/30/2007	5.45	5.47	0.02	6.17
TL-MW-4	11.62	4/9/2008	5.10	6.38	1.28	6.41
TL-MW-4	11.62	7/8/2008	6.00	6.30	0.30	5.59
TL-MW-4	11.62	11/3/2008	5.05	5.25	0.20	6.55
TL-MW-4	11.62	2/5/2009	4.70	5.48	0.78	6.85
TL-MW-4	11.62	6/1/2009	5.88	7.12	1.24	5.63
TL-MW-4	11.62	12/14/2010	2.49	4.98	2.49	8.92
TL-MW-4	11.62	3/21/2011	4.61	9.20	4.59	6.62
TL-MW-4	11.62	6/15/2011	6.44	9.96	3.52	4.88
TL-MW-4	11.62	9/22/2011	7.17	8.65	1.48	4.32
TL-MW-4	11.62	12/13/2011	4.89	5.90	1.01	6.64
TL-MW-4	11.62	5/3/2012	4.40	5.21	0.81	7.15
TL-MW-4	11.62	6/29/2012	5.18	5.72	0.54	6.39

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
TL-MW-4	11.62	8/9/2012	5.60	6.21	0.61	5.97
TL-MW-4	11.62	9/24/2012	--	8.25	0.00	3.37
TL-MW-4	11.62	12/12/2012	3.28	4.15	0.87	8.27
TL-MW-5A	12.49	3/5/2004	4.85	5.00	0.15	7.63
TL-MW-5A	12.49	9/22/2004	5.48	5.49	0.01	7.01
TL-MW-5A	12.49	12/9/2004	--	4.65	0.00	7.84
TL-MW-5A	12.49	3/30/2005	5.72	5.91	0.19	6.75
TL-MW-5A	12.49	6/9/2005	6.6	6.75	0.15	5.88
TL-MW-5A	12.49	9/14/2005	8.04	8.13	0.09	4.44
TL-MW-5A	12.49	12/16/2005	5.91	6.30	0.39	6.55
TL-MW-5A	12.49	3/31/2006	5.81	6.07	0.26	6.66
TL-MW-5A	12.49	6/6/2006	6.15	6.80	0.65	6.28
TL-MW-5A	12.49	9/29/2006	7.09	7.50	0.41	5.37
TL-MW-5A	12.49	12/8/2006	4.95	4.97	0.02	7.54
TL-MW-5A	12.49	3/30/2007	5.36	7.70	2.34	6.93
TL-MW-5A	12.49	7/6/2007	6.8	7.75	0.95	5.61
TL-MW-5A	12.49	9/28/2007	--	7.16	0.00	5.33
TL-MW-5A	12.49	11/30/2007	5.92	6.30	0.38	6.54
TL-MW-5A	12.49	4/9/2008	5.52	6.35	0.83	6.90
TL-MW-5A	12.49	7/8/2008	6.48	6.90	0.42	5.97
TL-MW-5A	12.49	11/3/2008	5.68	5.88	0.20	6.79
TL-MW-5A	12.49	2/5/2009	--	5.66	0.00	6.83
TL-MW-5A	12.49	6/1/2009	6.27	7.36	1.09	6.13
TL-MW-5A	12.49	12/14/2010	3.33	4.30	0.97	9.08
TL-MW-5A	12.49	3/21/2011	4.89	6.09	1.20	7.50
TL-MW-5A	12.49	6/15/2011	6.38	8.51	2.13	5.93
TL-MW-5A	12.49	9/22/2011	7.35	8.52	1.17	5.04
TL-MW-5A	12.49	12/13/2011	5.76	5.90	0.14	6.72
TL-MW-5A	12.49	5/3/2012	5.01	5.74	0.73	7.42
TL-MW-5A	12.49	6/29/2012	5.95	6.41	0.46	6.50
TL-MW-5A	12.49	8/9/2012	6.34	7.12	0.78	6.08
TL-MW-5A	12.49	9/24/2012	7.10	7.65	0.55	5.34
TL-MW-5A	12.49	12/12/2012	4.04	4.29	0.25	8.43
TL-MW-6	11.72	3/5/2004	5.28	5.80	0.52	6.40
TL-MW-6	11.72	9/22/2004	5.1	5.11	0.01	6.62
TL-MW-6	11.72	12/9/2004	--	4.31	0.00	7.41
TL-MW-6	11.72	3/30/2005	8.78	8.81	0.03	2.94
TL-MW-6	11.72	6/9/2005	9.50	10.05	0.55	2.17
TL-MW-6	11.72	9/14/2005	--	9.82	0.00	1.90
TL-MW-6	11.72	12/16/2005	4.53	4.55	0.02	7.19
TL-MW-6	11.72	3/31/2006	6.22	6.95	0.73	5.44
TL-MW-6	11.72	6/6/2006	7.22	7.37	0.15	4.49
TL-MW-6	11.72	9/29/2006	--	7.62	0.00	4.10
TL-MW-6	11.72	12/8/2006	--	4.23	0.00	7.49
TL-MW-6	11.72	3/30/2007	6.84	7.85	1.01	4.79
TL-MW-6	11.72	7/6/2007	7.10	7.50	0.40	4.59
TL-MW-6	11.72	9/28/2007	--	6.91	0.00	4.81
TL-MW-6	11.72	11/30/2007	--	5.44	0.00	6.28
TL-MW-6	11.72	4/9/2008	6.90	8.25	1.35	4.71

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
TL-MW-6	11.72	7/8/2008	6.98	7.40	0.42	4.70
TL-MW-6	11.72	11/3/2008	4.56	4.57	0.01	7.16
TL-MW-6	11.72	2/5/2009	4.45	4.67	0.22	7.25
TL-MW-6	11.72	6/1/2009	7.90	8.80	0.90	3.74
TL-MW-6	11.72	12/14/2010	3.36	3.37	0.01	8.36
TL-MW-6	11.72	3/21/2011	8.02	9.25	1.23	3.60
TL-MW-6	11.72	6/15/2011	10.12	12.04	1.92	1.44
TL-MW-6	11.72	9/22/2011	9.14	9.36	0.22	2.56
TL-MW-6	11.72	12/13/2011	--	5.22	0.00	6.50
TL-MW-6	11.72	5/3/2012	7.92	8.78	0.86	3.73
TL-MW-6	11.72	8/9/2012	6.68	6.71	0.03	5.04
TL-MW-6	11.72	9/24/2012	--	7.00	0.00	4.72
TL-MW-6	11.72	12/12/2012	--	3.82	0.00	7.90
TL-MW-6	11.72	1/22/2013	5.23	5.28	0.05	6.49
TL-MW-6	11.72	1/29/2013	5.46	5.50	0.04	6.26
TL-MW-6	11.72	2/6/2013	--	4.56	0.00	7.16
TL-MW-6	11.72	2/14/2013	5.74	5.83	0.09	5.97
TL-MW-6	11.72	2/20/2013	5.73	5.88	0.15	5.98
TL-MW-7	12.21	3/5/2004	--	4.55	0.00	7.66
TL-MW-7	12.21	6/21/2004	--	5.70	0.00	6.51
TL-MW-7	12.21	9/22/2004	--	5.20	0.00	7.01
TL-MW-7	12.21	12/9/2004	--	4.41	0.00	7.80
TL-MW-7	12.21	3/30/2005	--	5.22	0.00	6.99
TL-MW-7	12.21	6/9/2005	--	5.68	0.00	6.53
TL-MW-7	12.21	9/14/2005	--	7.30	0.00	4.91
TL-MW-7	12.21	12/16/2005	--	5.69	0.00	6.52
TL-MW-7	12.21	3/31/2006	--	5.32	0.00	6.89
TL-MW-7	12.21	6/6/2006	--	5.78	0.00	6.43
TL-MW-7	12.21	9/29/2006	--	7.76	0.00	4.45
TL-MW-7	12.21	12/8/2006	--	4.80	0.00	7.41
TL-MW-7	12.21	3/30/2007	--	5.03	0.00	7.18
TL-MW-7	12.21	7/6/2007	--	6.35	0.00	5.86
TL-MW-7	12.21	9/28/2007	--	6.69	0.00	5.52
TL-MW-7	12.21	11/30/2007	--	5.80	0.00	6.41
TL-MW-7	12.21	4/9/2008	--	5.19	0.00	7.02
TL-MW-7	12.21	7/8/2008	--	6.04	0.00	6.17
TL-MW-7	12.21	11/3/2008	5.3	5.70	0.40	6.88
TL-MW-7	12.21	2/5/2009	--	5.33	0.00	6.88
TL-MW-7	12.21	6/1/2009	--	5.88	0.00	6.33
TL-MW-7	12.21	12/14/2010	--	3.84	0.00	8.37
TL-MW-7	12.21	3/21/2011	4.75	4.77	0.02	7.46
TL-MW-7	12.21	6/15/2011	--	6.04	0.00	6.17
TL-MW-7	12.21	9/22/2011	--	7.03	0.00	5.18
TL-MW-7	12.21	12/13/2011	--	5.42	0.00	6.79
TL-MW-7	12.21	5/3/2012	--	4.75	0.00	7.46
TL-MW-7	12.21	5/8/2012	--	4.99	0.00	7.22
TL-MW-7	12.21	8/9/2012	6.19	6.21	0.02	6.02
TL-MW-7	12.21	9/24/2012	--	7.02	0.00	5.19
TL-MW-7	12.21	12/12/2012	--	4.68	0.00	7.53

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
TL-MW-8	14.56	3/5/2004	--	6.88	0.00	7.68
TL-MW-8	14.56	9/22/2004	--	7.67	0.00	6.89
TL-MW-8	14.56	12/9/2004	--	6.87	0.00	7.69
TL-MW-8	14.56	3/30/2005	--	7.35	0.00	7.21
TL-MW-8	14.56	6/9/2005	--	8.08	0.00	6.48
TL-MW-8	14.56	9/14/2005	--	9.57	0.00	4.99
TL-MW-8	14.56	12/16/2005	--	8.10	0.00	6.46
TL-MW-8	14.56	3/31/2006	--	7.91	0.00	6.65
TL-MW-8	14.56	6/6/2006	--	8.32	0.00	6.24
TL-MW-8	14.56	9/29/2006	--	8.99	0.00	5.57
TL-MW-8	14.56	12/8/2006	--	6.93	0.00	7.63
TL-MW-8	14.56	3/30/2007	--	7.19	0.00	7.37
TL-MW-8	14.56	7/6/2007	--	8.86	0.00	5.70
TL-MW-8	14.56	9/28/2007	--	9.22	0.00	5.34
TL-MW-8	14.56	11/30/2007	--	8.02	0.00	6.54
TL-MW-8	14.56	4/9/2008	--	7.59	0.00	6.97
TL-MW-8	14.56	7/8/2008	8.5	8.70	0.20	6.04
TL-MW-8	14.56	11/3/2008	8.22	8.30	0.08	6.33
TL-MW-8	14.56	2/5/2009	--	7.81	0.00	6.75
TL-MW-8	14.56	6/1/2009	8.1	8.20	0.10	6.45
TL-MW-8	14.56	12/14/2010	--	5.61	0.00	8.95
TL-MW-8	14.56	3/21/2011	6.65	6.93	0.28	7.89
TL-MW-8	14.56	6/15/2011	8.11	8.52	0.41	6.42
TL-MW-8	14.56	9/22/2011	9.94	10.05	0.11	4.61
TL-MW-8	14.56	12/13/2011	7.83	7.97	0.14	6.72
TL-MW-8	14.56	5/3/2012	6.85	7.91	1.06	7.62
TL-MW-8	14.56	8/9/2012	8.39	8.84	0.45	6.13
TL-MW-8	14.56	9/24/2012	9.12	9.71	0.59	5.39
TL-MW-8	14.56	12/12/2012	6.23	6.26	0.03	8.33
TL-MW-8	14.56	1/10/2013	5.50	5.59	0.09	9.05
TL-MW-8	14.56	1/15/2013	--	6.51	0.00	8.05
TL-MW-8	14.56	1/22/2013	--	6.99	0.00	7.57
TL-MW-8	14.56	1/29/2013	6.62	6.64	0.02	7.94
TL-MW-8	14.56	2/6/2013	--	6.91	0.00	7.65
TL-MW-8	14.56	2/14/2013	--	7.50	0.00	7.06
TL-MW-8	14.56	2/20/2013	--	7.57	0.00	6.99
TL-MW-9	13.73	3/5/2004	--	6.90	0.00	6.83
TL-MW-9	13.73	6/21/2004	--	7.92	0.00	5.81
TL-MW-9	13.73	9/22/2004	--	6.85	0.00	6.88
TL-MW-9	13.73	12/9/2004	--	6.39	0.00	7.34
TL-MW-9	13.73	3/30/2005	--	7.41	0.00	6.32
TL-MW-9	13.73	6/9/2005	7.63	7.66	0.03	6.10
TL-MW-9	13.73	9/14/2005	9.07	9.11	0.04	4.66
TL-MW-9	13.73	12/16/2005	--	6.53	0.00	7.20
TL-MW-9	13.73	3/31/2006	--	6.93	0.00	6.80
TL-MW-9	13.73	6/6/2006	--	7.66	0.00	6.07
TL-MW-9	13.73	9/29/2006	--	8.54	0.00	5.19
TL-MW-9	13.73	12/8/2006	--	5.23	0.00	8.50
TL-MW-9	13.73	3/30/2007	--	7.15	0.00	6.58

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
TL-MW-9	13.73	7/6/2007	--	7.92	0.00	5.81
TL-MW-9	13.73	9/28/2007	--	8.17	0.00	5.56
TL-MW-9	13.73	11/30/2007	--	6.90	0.00	6.83
TL-MW-9	13.73	4/9/2008	--	6.97	0.00	6.76
TL-MW-9	13.73	7/8/2008	--	7.69	0.00	6.04
TL-MW-9	13.73	11/3/2008	--	6.35	0.00	7.38
TL-MW-9	13.73	2/5/2009	--	6.69	0.00	7.04
TL-MW-9	13.73	6/1/2009	--	7.63	0.00	6.10
TL-MW-9	13.73	12/14/2010	--	4.83	0.00	8.90
TL-MW-9	13.73	3/21/2011	--	5.50	0.00	8.23
TL-MW-9	13.73	6/15/2011	--	8.10	0.00	5.63
TL-MW-9	13.73	9/22/2011	--	5.96	0.00	7.77
TL-MW-9	13.73	12/13/2011	--	5.90	0.00	7.83
TL-MW-9	13.73	3/26/2012	--	5.78	0.00	7.95
TL-MW-9	13.73	5/3/2012	--	7.13	0.00	6.60
TL-MW-9	13.73	5/8/2012	--	7.22	0.00	6.51
TL-MW-9	13.73	7/17/2012	--	7.73	0.00	6.00
TL-MW-9	13.73	7/30/2012	--	7.16	0.00	6.57
TL-MW-9	13.73	8/9/2012	--	7.81	0.00	5.92
TL-MW-9	13.73	9/24/2012	--	8.56	0.00	5.17
TL-MW-9	13.73	12/12/2012	--	6.02	0.00	7.71
TL-MW-9	13.73	1/10/2013	--	6.13	0.00	7.60
TL-MW-9	13.73	1/15/2013	--	6.71	0.00	7.02
TL-MW-9	13.73	1/22/2013	--	6.83	0.00	6.90
TL-MW-9	13.73	1/29/2013	--	6.63	0.00	7.10
TL-MW-9	13.73	2/6/2013	--	6.33	0.00	7.40
TL-MW-9	13.73	2/14/2013	--	7.12	0.00	6.61
TL-MW-9	13.73	2/20/2013	--	7.32	0.00	6.41
TL-MW-10	13.01	9/22/2004	7.07	7.08	0.01	5.94
TL-MW-10	13.01	12/9/2004	--	6.26	0.00	6.75
TL-MW-10	13.01	3/30/2005	--	11.54	0.00	1.47
TL-MW-10	13.01	9/14/2005	--	9.35	0.00	3.66
TL-MW-10	13.01	3/31/2006	8.43	8.50	0.07	4.57
TL-MW-10	13.01	6/6/2006	8.4	8.70	0.30	4.58
TL-MW-10	13.01	9/29/2006	8.9	8.91	0.01	4.11
TL-MW-10	13.01	12/8/2006	--	5.30	0.00	7.71
TL-MW-10	13.01	3/30/2007	--	8.37	0.00	4.64
TL-MW-10	13.01	7/6/2007	8.5	8.52	0.02	4.51
TL-MW-10	13.01	9/28/2007	7.85	7.87	0.02	5.16
TL-MW-10	13.01	11/30/2007	--	6.30	0.00	6.71
TL-MW-10	13.01	4/9/2008	--	8.74	0.00	4.27
TL-MW-10	13.01	7/8/2008	--	8.63	0.00	4.38
TL-MW-10	13.01	11/3/2008	--	5.88	0.00	7.13
TL-MW-10	13.01	2/5/2009	--	5.81	0.00	7.20
TL-MW-10	13.01	6/1/2009	--	9.00	0.00	4.01
TL-MW-10	13.01	12/14/2010	--	5.08	0.00	7.93
TL-MW-10	13.01	3/21/2011	9.13	9.21	0.08	3.87
TL-MW-10	13.01	12/13/2011	6.85	6.98	0.13	6.15
TL-MW-10	13.01	5/3/2012	9.38	9.44	0.06	3.62

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
TL-MW-10	13.01	8/9/2012	7.93	8.12	0.19	5.06
TL-MW-10	13.01	9/24/2012	10.20	10.55	0.35	2.78
TL-MW-10	13.01	12/12/2012	6.73	7.12	0.39	6.25
TL-MW-10	13.01	1/10/2013	6.64	6.96	0.32	6.34
TL-MW-10	13.01	1/15/2013	7.20	7.80	0.60	5.76
TL-MW-10	13.01	1/22/2013	6.66	7.10	0.44	6.31
TL-MW-10	13.01	1/29/2013	7.05	7.10	0.05	5.96
TL-MW-10	13.01	2/6/2013	--	6.45	0.00	6.56
TL-MW-10	13.01	2/14/2013	7.10	7.15	0.05	5.91
TL-MW-10	13.01	2/20/2013	7.19	7.21	0.02	5.82
TL-MW-11	14.93	9/22/2004	--	9.40	0.00	5.53
TL-MW-11	14.93	12/9/2004	--	8.58	0.00	6.35
TL-MW-11	14.93	3/30/2005	--	11.01	0.00	3.92
TL-MW-11	14.93	6/9/2005	--	12.52	0.00	2.41
TL-MW-11	14.93	9/14/2005	--	12.22	0.00	2.71
TL-MW-11	14.93	12/16/2005	--	7.99	0.00	6.94
TL-MW-11	14.93	3/31/2006	--	9.80	0.00	5.13
TL-MW-11	14.93	6/6/2006	--	10.04	0.00	4.89
TL-MW-11	14.93	9/29/2006	--	10.54	0.00	4.39
TL-MW-11	14.93	12/8/2006	--	7.14	0.00	7.79
TL-MW-11	14.93	3/30/2007	--	9.78	0.00	5.15
TL-MW-11	14.93	7/6/2007	--	10.23	0.00	4.70
TL-MW-11	14.93	9/28/2007	--	9.93	0.00	5.00
TL-MW-11	14.93	11/30/2007	--	8.54	0.00	6.39
TL-MW-11	14.93	4/9/2008	--	9.00	0.00	5.93
TL-MW-11	14.93	7/8/2008	--	10.12	0.00	4.81
TL-MW-11	14.93	11/3/2008	--	8.12	0.00	6.81
TL-MW-11	14.93	2/5/2009	--	7.62	0.00	7.31
TL-MW-11	14.93	6/1/2009	--	10.59	0.00	4.34
TL-MW-11	14.93	12/14/2010	--	6.42	0.00	8.51
TL-MW-11	14.93	3/21/2011	--	10.52	0.00	4.41
TL-MW-11	14.93	6/15/2011	--	12.71	0.00	2.22
TL-MW-11	14.93	9/22/2011	--	11.38	0.00	3.55
TL-MW-11	14.93	12/13/2011	--	8.44	0.00	6.49
TL-MW-11	14.93	5/3/2012	--	10.69	0.00	4.24
TL-MW-11	14.93	5/8/2012	--	11.74	0.00	3.19
TL-MW-11	14.93	7/17/2012	--	12.23	0.00	2.70
TL-MW-11	14.93	8/9/2012	--	9.82	0.00	5.11
TL-MW-11	14.93	9/24/2012	--	10.42	0.00	4.51
TL-MW-11	14.93	12/12/2012	--	7.12	0.00	7.81
TL-MW-12	14.66	7/11/2012	--	8.70	0.00	5.96
TL-MW-12	14.66	7/17/2012	--	9.34	0.00	5.32
TL-MW-12	14.66	7/30/2012	--	9.02	0.00	5.64
TL-MW-12	14.66	8/9/2012	9.14	9.17	0.03	5.52
TL-MW-12	14.66	1/10/2013	7.09	7.45	0.36	7.54
TL-MW-12	14.66	1/15/2013	7.64	8.12	0.48	6.98
TL-MW-12	14.66	1/22/2013	7.70	8.00	0.30	6.93
TL-MW-12	14.66	1/29/2013	7.78	8.36	0.58	6.83
TL-MW-12	14.66	2/6/2013	7.48	7.64	0.16	7.17

Well	Elevation Top of Casing (TOC) (feet NAVD88)	Date	Depth to LNAPL (feet below TOC)	Depth to Water (feet below TOC)	LNAPL Thickness (feet)	Groundwater Elevation (Corrected for LNAPL Thickness If Present) (feet NAVD88)
TL-MW-12	14.66	2/14/2013	8.17	8.90	0.73	6.43
TL-MW-12	14.66	2/20/2013	8.26	8.62	0.36	6.37
TL-MW-13	14.6	7/12/2012	--	9.98	0.00	4.62
TL-MW-13	14.6	7/17/2012	--	9.51	0.00	5.09
TL-MW-13	14.6	7/30/2012	--	8.31	0.00	6.29
TL-MW-13	14.6	8/9/2012	--	8.64	0.00	5.96
TL-MW-13	14.6	1/10/2013	--	6.79	0.00	7.81
TL-MW-13	14.6	1/15/2013	--	7.75	0.00	6.85
TL-MW-13	14.6	1/22/2013	--	7.19	0.00	7.41
TL-MW-13	14.6	1/29/2013	--	7.20	0.00	7.40
TL-MW-13	14.6	2/6/2013	--	7.19	0.00	7.41
TL-MW-13	14.6	2/14/2013	--	6.71	0.00	7.89
TL-MW-13	14.6	2/20/2013	--	7.37	0.00	7.23
TL-MW-14	13.9	7/12/2012	--	7.86	0.00	6.04
TL-MW-14	13.9	7/17/2012	--	8.24	0.00	5.66
TL-MW-14	13.9	7/30/2012	--	8.38	0.00	5.52
TL-MW-14	13.9	8/9/2012	--	8.36	0.00	5.54
TL-MW-15	14.85	7/12/2012	--	8.36	0.00	6.49
TL-MW-15	14.85	7/17/2012	--	9.27	0.00	5.58
TL-MW-15	14.85	7/30/2012	--	8.49	0.00	6.36
TL-MW-15	14.85	8/9/2012	--	8.91	0.00	5.94
TL-MW-16	12.99	7/12/2012	--	6.35	0.00	6.64
TL-MW-16	12.99	7/17/2012	--	7.29	0.00	5.70
TL-MW-16	12.99	7/30/2012	--	6.23	0.00	6.76
TL-MW-16	12.99	8/9/2012	--	6.81	0.00	6.18
TL-MW-16	12.99	1/10/2013	--	5.41	0.00	7.58
TL-MW-16	12.99	1/15/2013	--	5.75	0.00	7.24
TL-MW-16	12.99	1/22/2013	--	5.60	0.00	7.39
TL-MW-16	12.99	1/29/2013	--	5.83	0.00	7.16
TL-MW-16	12.99	2/6/2013	--	6.41	0.00	6.58
TL-MW-16	12.99	2/14/2013	--	6.05	0.00	6.94
TL-MW-16	12.99	2/20/2013	--	6.12	0.00	6.87

Notes:

Top of casing elevations and groundwater elevations for wells existing as of 2012 are relative to NAVD88 based on the 2012 survey of the top of well casing elevations.

Top of casing rim and groundwater elevations for wells abandoned as of 2012 were estimated in NAVD88 based on a conversion of -1.2 feet (Old Elevation -1.2 Feet = Elevation in NAVD 88). This number was established based on a comparison of the surveyed NAVD88 elevations for existing wells to the reported previous top of casing elevations. This conversion is assumed accurate to approximately 0.2 feet and therefore values have been rounded up or down to the nearest 0.20 feet. These potential inaccuracies apply ONLY to historical data for wells that are no longer in existance as of 2012.

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-2

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
08/28/02	0.12	0.12
09/06/02	0.11	0.23
01/21/03	0.75	0.98
02/04/03	2	2.98
02/11/03	1	3.98
02/17/03	0.25	4.23
02/26/03	0.75	4.98
03/04/03	1	5.98
03/17/03	1.25	7.23
03/26/03	1	8.23
04/16/03	1	9.23
04/29/03	1	10.23
05/09/03	1.25	11.48
05/22/03	1	12.48
08/22/03	0.75	13.23
11/03/03	1	14.23
11/26/03	1	15.23
12/11/03	1	16.23
12/22/03	0.75	16.98
01/09/04	0.5	17.48
01/23/04	1.5	18.98
02/06/04	0.5	19.48
02/19/04	0.5	19.98
03/05/04	0.75	20.73
03/19/04	1	21.73
04/02/04	0.3	22.03
04/29/04	0.25	22.28
05/27/04	1.5	23.78
06/14/04	0.75	24.53
08/27/04	0.25	24.78
09/10/04	0.5	25.28
10/19/04	0.25	25.53
11/05/04	1	26.53
11/19/04	2.5	29.03
12/03/04	1	30.03
12/17/04	1.5	31.53
12/28/04	1.75	33.28
01/14/05	1	34.28
01/28/05	2	36.28
02/11/05	2	38.28
03/04/05	0.25	38.53
04/15/05	1.75	40.28
04/29/05	1	41.28
05/11/05	1	42.28
05/25/05	1	43.28
06/09/05	0.25	43.53
06/24/05	0.5	44.03

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-2

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
07/05/05	0.5	44.53
07/22/05	0.75	45.28
08/05/05	1	46.28
08/19/05	0.5	46.78
09/02/05	0.5	47.28
10/07/05	0.5	47.78
11/04/05	0.5	48.28
11/18/05	1.75	50.03
12/02/05	1	51.03
12/16/05	0.5	51.53
01/06/06	1	52.53
01/19/06	2	54.53
02/03/06	1.75	56.28
02/17/06	2.75	59.03
03/09/06	0.5	59.53
03/31/06	0.5	60.03
04/27/06	1.5	61.53
05/11/06	1.5	63.03
05/25/06	0.5	63.53
06/06/06	0.5	64.03
07/07/06	0.5	64.53
07/21/06	0.5	65.03
08/02/06	0.30	65.33
08/15/06	0.25	65.58
09/01/06	0.75	66.33
09/15/06	0.5	66.83
09/29/06	0.5	67.33
10/21/06	0.5	67.83
12/08/06	1.5	69.33
01/18/07	1	70.33
03/30/07	2	72.33
04/13/07	1	73.33
04/25/07	0.75	74.08
07/27/07	0.38	74.46
08/07/07	0.38	74.84
08/24/07	0.38	75.22
09/07/07	0.38	75.6
09/28/07	0.38	75.98
01/04/08	0.75	76.73
04/09/08	1	77.73
07/08/08	0.25	77.98
11/03/08	0.25	78.23
02/05/09	0.5	78.73
06/01/09	1	79.73
12/14/10	0.3	80.03
03/21/11	1.53	81.56
06/15/11	0.77	82.33

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-2

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
09/22/11	0.51	82.84
12/13/11	0.34	83.18
03/26/12	0.94	84.12
09/24/12	1	85.12
12/12/12	0.85	85.97
01/15/13	3	88.97
01/22/13	0	88.97
01/29/13	0	88.97
02/06/13	0	88.97
02/14/13	0	88.97
02/20/13	0	88.97

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-3

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
05/22/02	0	0
05/28/02	22.44	22.44
06/03/02	1	23.44
06/14/02	0	23.44
06/17/02	2.78	26.22
06/21/02	0.02	26.24
07/02/02	0	26.24
07/05/02	0.94	27.18
07/18/02	0	27.18
07/31/02	0.25	27.43
08/09/02	0.27	27.70
08/22/02	0.27	27.97
08/28/02	1.00	28.97
09/06/02	0.11	29.08
11/27/02	1.25	30.33
01/06/03	1.5	31.83
01/21/03	0.75	32.58
02/04/03	1	33.58
02/11/03	1	34.58
02/17/03	0.25	34.83
02/26/03	0.75	35.58
03/04/03	0.75	36.33
03/17/03	0.5	36.83
03/26/03	0.75	37.58
04/16/03	1	38.58
04/29/03	0.75	39.33
05/09/03	1.25	40.58
05/22/03	1.25	41.83
06/06/03	0.5	42.33
08/22/03	0.5	42.83
10/24/03	3	45.83
11/03/03	1	46.83
11/26/03	1	47.83
12/11/03	0.75	48.58
12/22/03	0.5	49.08
01/23/04	0.5	49.58
02/06/04	1.75	51.33
02/19/04	0.25	51.58
03/05/04	0.5	52.08
03/19/04	0.25	52.33
04/02/04	0.25	52.58
04/29/04	0.5	53.08
06/14/04	0.75	53.83
07/09/04	0.25	54.08
07/22/04	0.25	54.33
09/10/04	0.25	54.58
11/05/04	0.25	54.83

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-3

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
11/19/04	1	55.83
12/17/04	1	56.83
12/28/04	2	58.83
01/14/05	0.75	59.58
01/28/05	0.5	60.08
02/11/05	1	61.08
04/15/05	0.5	61.58
04/29/05	0.5	62.08
05/11/05	1	63.08
05/25/05	0.5	63.58
06/09/05	0.75	64.33
06/24/05	0.75	65.08
07/05/05	1	66.08
11/04/05	0.5	66.58
11/18/05	1	67.58
12/02/05	1	68.58
12/16/05	0.5	69.08
01/06/06	0.75	69.83
01/19/06	1	70.83
02/03/06	0.75	71.58
02/17/06	1	72.58
04/27/06	0.5	73.08
05/11/06	0.25	73.33
07/07/06	0.25	73.58
12/08/06	0.5	74.08
01/18/07	0.5	74.58
03/30/07	0.5	75.08
04/13/07	0.5	75.58
07/27/07	0.38	75.96
01/04/08	0.25	76.21
04/09/08	0.5	76.71
07/08/08	0.33	77.04
11/03/08	0.25	77.29
02/05/09	0.25	77.54
06/01/09	0.75	78.29
12/14/10	0.3	78.59
03/21/11	0.3	78.89
06/15/11	0.26	79.15
09/22/11	0.34	79.49
12/13/11	0.26	79.75
03/26/12	0.26	80.01
09/24/12	0.5	80.51
12/12/12	0	80.51
01/15/13	0	80.51
01/22/13	0	80.51
01/29/13	0	80.51
02/06/13	0	80.51

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-3

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
02/14/13	0	80.51
02/20/13	0	80.51

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-4

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
04/30/02	0	0
05/03/02	4.67	4.67
05/06/02	0	4.67
05/13/02	1.89	6.56
05/14/02	0.9	7.46
05/15/02	0	7.46
05/16/02	0	7.46
05/17/02	4.69	12.15
05/20/02	5.61	17.76
06/10/02	3.68	21.44
06/25/02	0.94	22.38
06/26/02	0	22.38
07/09/02	0	22.38
08/09/02	0.17	22.55
08/28/02	2.23	24.78
09/06/02	0.75	25.53
11/27/02	2.25	27.78
12/13/02	0.2	27.98
01/06/03	2.5	30.48
01/21/03	0.75	31.23
02/04/03	0.5	31.73
02/11/03	1	32.73
02/26/03	0.5	33.23
3/17/2003	1	34.23
3/26/2003	0.5	34.73
4/16/2003	0.75	35.48
4/29/2003	0.5	35.98
5/9/2003	0.5	36.48
6/6/2003	0.5	36.98
10/24/2003	1	37.98
11/3/2003	0.5	38.48
12/11/2003	0.5	38.98
1/9/2004	0.5	39.48
1/23/2004	0.25	39.73
2/6/2004	0.25	39.98
2/19/2004	0.25	40.23
3/5/2004	0.5	40.73
3/19/2004	0.25	40.98
4/29/2004	0.25	41.23
5/27/2004	0.5	41.73
6/14/2004	0.5	42.23
8/27/2004	0.25	42.48
9/10/2004	0.25	42.73
10/19/2004	0.25	42.98
11/5/2004	0.25	43.23
11/19/2004	0.5	43.73
12/17/2004	0.75	44.48

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-4

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
1/14/2005	1	45.48
1/31/2005	0.5	45.98
2/11/2005	0.5	46.48
3/4/2005	0.5	46.98
4/15/2005	0.75	47.73
4/29/2005	0.25	47.98
5/11/2005	0.5	48.48
6/9/2005	0.25	48.73
11/18/2005	0.5	49.23
1/19/2006	0.25	49.48
2/3/2006	0.5	49.98
2/17/2006	0.25	50.23
3/9/2006	0.25	50.48
4/14/2006	0.5	50.98
4/27/2006	0.5	51.48
5/11/2006	0.5	51.98
7/21/2006	0.25	52.23
12/8/2006	0.5	52.73
1/18/2007	1	53.73
3/30/2007	1	54.73
4/9/2008	0.5	55.23
11/3/2008	0.25	55.48
2/5/2009	0.25	55.73
6/1/2009	0.25	55.98
12/14/2010	0.67	56.65
3/21/2011	0.85	57.5
6/15/2011	0.77	58.27
9/22/2011	0.68	58.95
12/13/2011	0.43	59.38
3/26/2012	0.34	59.72
9/24/2012	0	59.72
12/12/2012	0.25	59.97
01/15/13	0	59.97
01/22/13	0	59.97
01/29/13	0	59.97
02/06/13	0	59.97
02/14/13	0	59.97
02/20/13	0	59.97

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-5A

R.G. Haley Site
Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
08/28/02	0.22	0.22
06/06/03	0.25	0.47
06/19/03	0.25	0.72
08/22/03	0.75	1.47
03/04/05	0.3	1.77
05/11/05	0.25	2.02
02/17/06	1	3.02
06/06/06	0.25	3.27
07/07/06	0.25	3.52
07/21/06	0.25	3.77
03/30/07	0.5	4.27
04/13/07	0.25	4.52
04/25/07	0.25	4.77
04/09/08	0.25	5.02
11/03/08	0.25	5.27
06/02/09	0.5	5.77
12/14/10	0.3	6.07
03/21/11	0.3	6.37
06/15/11	0.94	7.31
09/22/11	0.51	7.82
12/13/11	0	7.82
03/26/12	0	7.82
09/24/12	0.5	8.32
12/12/12	0	8.32
01/15/13	0	8.32
01/22/13	0	8.32
01/29/13	0	8.32
02/06/13	0	8.32
02/14/13	0	8.32
02/20/13	0	8.32

Table B-7

Historic LNAPL Recovery 2002 to 2013 TL-MW-6

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
1/21/2003	0.5	0.5
2/4/2003	0.25	0.75
2/11/2003	0.25	1
2/26/2003	0.5	1.5
3/26/2003	0.25	1.75
5/22/2003	0.25	2
6/19/2003	0.25	2.25
1/9/2004	0.25	2.5
3/5/2004	0.25	2.75
3/19/2004	0.1	2.85
4/29/2004	0.14	2.99
5/27/2004	0.25	3.24
1/31/2005	0.25	3.49
2/11/2005	0.25	3.74
3/4/2005	0.25	3.99
4/15/2005	0.25	4.24
4/29/2005	0.25	4.49
5/11/2005	0.25	4.74
6/9/2005	0.25	4.99
2/17/2006	0.75	5.74
3/31/2006	0.25	5.99
4/14/2006	0.25	6.24
4/27/2006	0.25	6.49
5/11/2006	0.5	6.99
7/21/2006	0.25	7.24
3/30/2007	0.5	7.74
4/13/2007	0.25	7.99
4/25/2007	0.25	8.24
4/9/2008	0.25	8.49
6/1/2009	0.25	8.74
3/21/2011	0.3	9.04
6/15/2011	0.51	9.55
9/22/2011	0	9.55
12/13/2011	0	9.55
3/26/2012	0.26	9.81
9/24/2012	0	9.81
12/12/2012	0	9.81
01/15/13	0	9.81
01/22/13	0.1	9.94
01/29/13	0	9.94
02/06/13	0	9.94
02/14/13	0.4	10.32
02/20/13	0.5	10.77

Table B-7

Historic LNAPL Recovery 2002 to 2013 RW-1

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
08/28/02	2.23	2.23
09/06/02	1	3.23
01/15/13	0	3.23
01/22/13	0	3.23
01/29/13	0	3.23
02/06/13	0	3.23
02/14/13	0	3.23
02/20/13	0	3.23

Table B-7

Historic LNAPL Recovery 2002 to 2013 RW-2

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
6/15/2011	0.43	0.43
9/22/2011	0	0.43
12/12/2012	0.17	0.6
01/15/13	0	0.6
01/22/13	0	0.6
01/29/13	0	0.6
02/06/13	0	0.6
02/14/13	0	0.6
02/20/13	0	0.6

Table B-7

Historic LNAPL Recovery 2002 to 2013 RW-3

R.G. Haley Site
Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
09/06/02	1.25	1.25
11/07/02	2.5	3.75
07/09/04	2.5	6.25
12/17/04	0.25	6.5
06/24/05	5	11.5
08/05/05	4	15.5
05/11/06	3	18.5
07/07/06	2	20.5
01/15/13	0	20.5
01/22/13	0	20.5
01/29/13	0	20.5
02/06/13	0	20.5
02/14/13	0	20.5
02/20/13	0	20.5

Table B-7

Historic LNAPL Recovery 2002 to 2013 RW-4

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
2/4/2003	1.25	1.25
3/17/2003	2	3.25
4/16/2003	2.5	5.75
10/24/2003	2	7.75
3/19/2004	0.5	8.25
10/19/2004	0.25	8.5
11/5/2004	1	9.5
11/19/2004	2.5	12
4/29/2005	0.75	12.75
7/21/2006	0.5	13.25
12/14/2010	0.3	13.55
3/21/2011	0	13.55
6/15/2011	0	13.55
9/22/2011	0	13.55
12/13/2011	0	13.55
3/26/2012	0	13.55
9/24/2012	0	13.55
12/12/2012	0	13.55
01/15/13	0	13.55
01/22/13	0	13.55
01/29/13	0	13.55
02/06/13	0	13.55
02/14/13	0	13.55
02/20/13	0	13.55

Table B-7

Historic LNAPL Recovery 2002 to 2013 RW-5

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
08/28/02	1.00	1.00
09/06/02	1.75	2.75
01/21/03	0.75	3.50
02/04/03	1.50	5.00
02/11/03	3.50	8.50
02/26/03	1.00	9.50
03/04/03	0.75	10.25
03/17/03	1.00	11.25
04/16/03	3.00	14.25
04/29/03	2.75	17.00
05/09/03	0.75	17.75
05/22/03	2.50	20.25
06/06/03	0.75	21.00
08/22/03	2.00	23.00
03/19/04	2.25	25.25
04/02/04	3.50	28.75
04/29/04	8.00	36.75
06/14/04	1.50	38.25
07/09/04	0.75	39.00
01/14/05	2.00	41.00
03/04/05	2.00	43.00
04/29/05	1.00	44.00
05/11/05	2.00	46.00
05/25/05	2.00	48.00
07/22/05	2.00	50.00
02/17/06	1.00	51.00
03/09/06	1.25	52.25
04/27/06	1.00	53.25
05/11/06	2.00	55.25
04/13/07	1.25	56.50
08/24/07	1.50	58.00
11/03/08	0.25	58.25
02/05/09	1.00	59.25
12/12/12	0.25	59.50
01/15/13	0	59.50
01/22/13	0	59.50
01/29/13	0	59.50
02/06/13	0	59.50
02/14/13	0	59.50
02/20/13	0	59.50

Table B-7

Historic LNAPL Recovery 2002 to 2013 RW-6

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
05/07/02	0.00	0.00
05/08/02	0.94	0.94
05/09/02	0.00	0.94
05/10/02	0.00	0.94
02/04/03	2.00	2.94
02/11/03	1.75	4.69
02/17/03	1.00	5.69
03/04/03	0.75	6.44
04/16/03	1.00	7.44
04/29/03	0.50	7.94
11/03/03	1.00	8.94
11/26/03	2.00	10.94
12/11/03	1.50	12.44
12/22/03	1.50	13.94
01/23/04	2.50	16.44
02/06/04	2.00	18.44
02/19/04	1.50	19.94
03/05/04	1.25	21.19
03/19/04	2.00	23.19
04/02/04	1.50	24.69
04/29/04	0.75	25.44
06/14/04	1.00	26.44
11/19/04	1.75	28.19
12/03/04	1.00	29.19
12/17/04	3.00	32.19
12/28/04	1.50	33.69
01/14/05	3.00	36.69
01/28/05	3.00	39.69
02/11/05	2.00	41.69
03/04/05	2.00	43.69
04/15/05	2.75	46.44
04/29/05	2.00	48.44
05/11/05	1.50	49.94
05/25/05	1.00	50.94
11/18/05	1.50	52.44
12/02/05	1.00	53.44
12/16/05	1.00	54.44
01/06/06	1.00	55.44
01/19/06	4.00	59.44
02/03/06	3.00	62.44
02/17/06	5.00	67.44
03/09/06	1.50	68.94
03/31/06	1.50	70.44
12/08/06	1.50	71.94
01/18/07	2.50	74.44
03/30/07	2.00	76.44
04/13/07	1.00	77.44

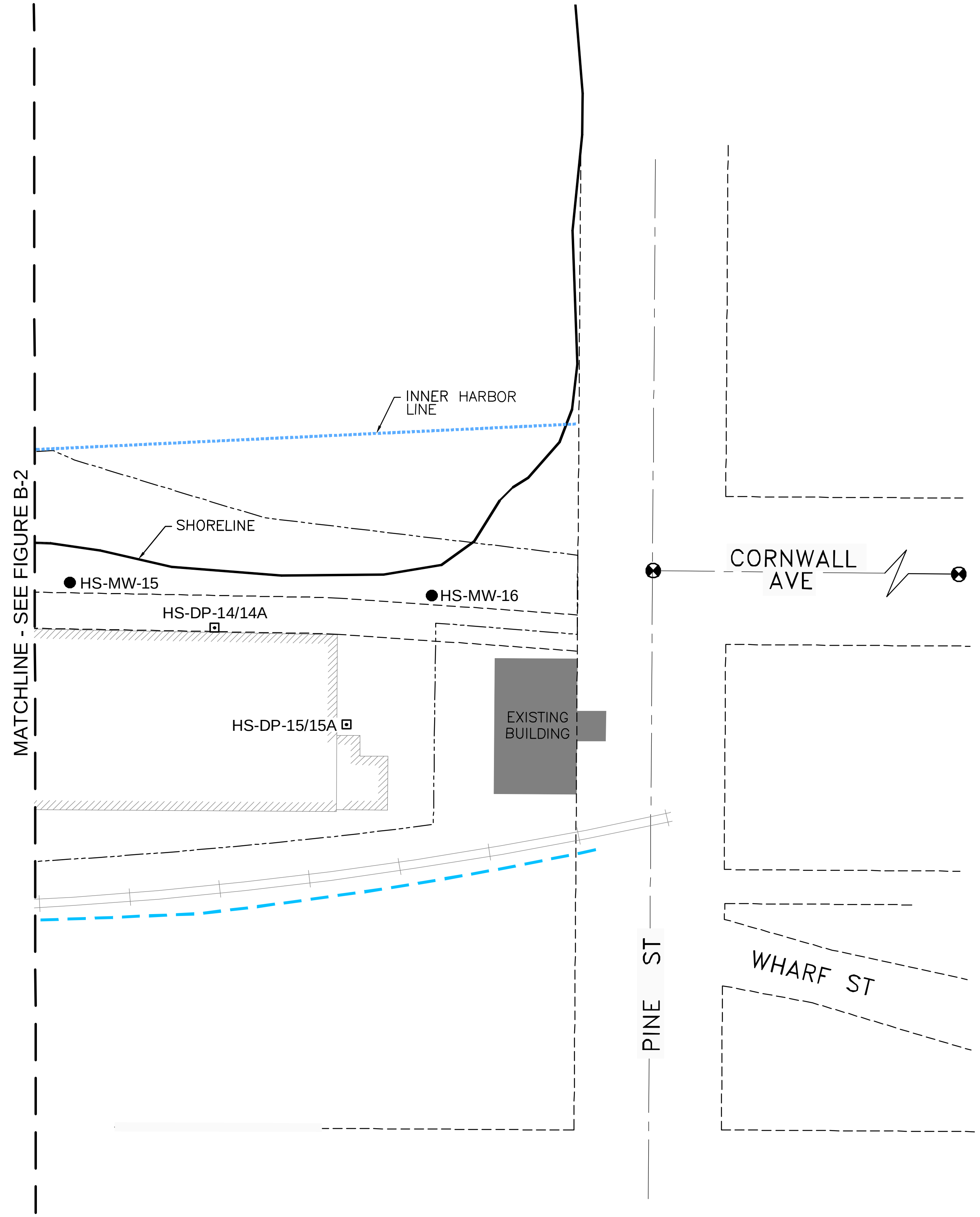
Table B-7

Historic LNAPL Recovery 2002 to 2013 RW-6

R.G. Haley Site

Bellingham, Washington

Date	Volume Product Recovered (gallons)	Cumulative Volume
04/25/07	0.75	78.19
01/15/13	0	78.19
01/22/13	0	78.19
01/29/13	0	78.19
02/06/13	0	78.19
02/14/13	0	78.19
02/20/13	0	78.19



Legend

SRI-1	Supplemental Remedial Sediment Investigation Sampling Location
PS-1	Preliminary Sediment Quality Assessment Sampling Location
RI-1	September 2004 Sediment Sample Location
HS-MW-1	Monitoring Well
HS/SB/SP	Boring
HS-DP-4	Direct Push Boring
HS-SV-1	Soil Vapor Sample Location
HS-HA-1	Hand Auger/Surface Soil Sample
RW-1	Oil Recovery Well
HS-MW-13	Grayed Monitoring Wells are Abandoned as of 2012
B-1	Temporary Groundwater Sampling Point
TP-15	Test Pit
UST	Underground Storage Tank
	Existing Sheet Pile Barrier
	Estimated Extent of Upland Refuse
	Former Buildings and Structures
	2001 Sediment Removal Area
	Sheen Emerging from Sediment (2012/2013)
	Sheen Emerging from Sediment (2006)
	2000 Petroleum Seep
	City Owned Property, Former R.G. Haley International
	Cornwall Property
	Inner Harbor Line
	Drainage Ditch

Notes

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Reference: CAD files "R2000geoeng_haleybase50x" revised 07/28/04 by Pacific Survey & Engineering Inc., file "Fig3-8" dated August 2002 by Landau Associates, and files "027500201T1LM" and "027500201T1A" dated 03/29/04 by GeoEngineers.

W S N E True North Project North

80 0 80 Feet

Previous Sample Locations - North

R.G. Haley Site
Bellingham, Washington

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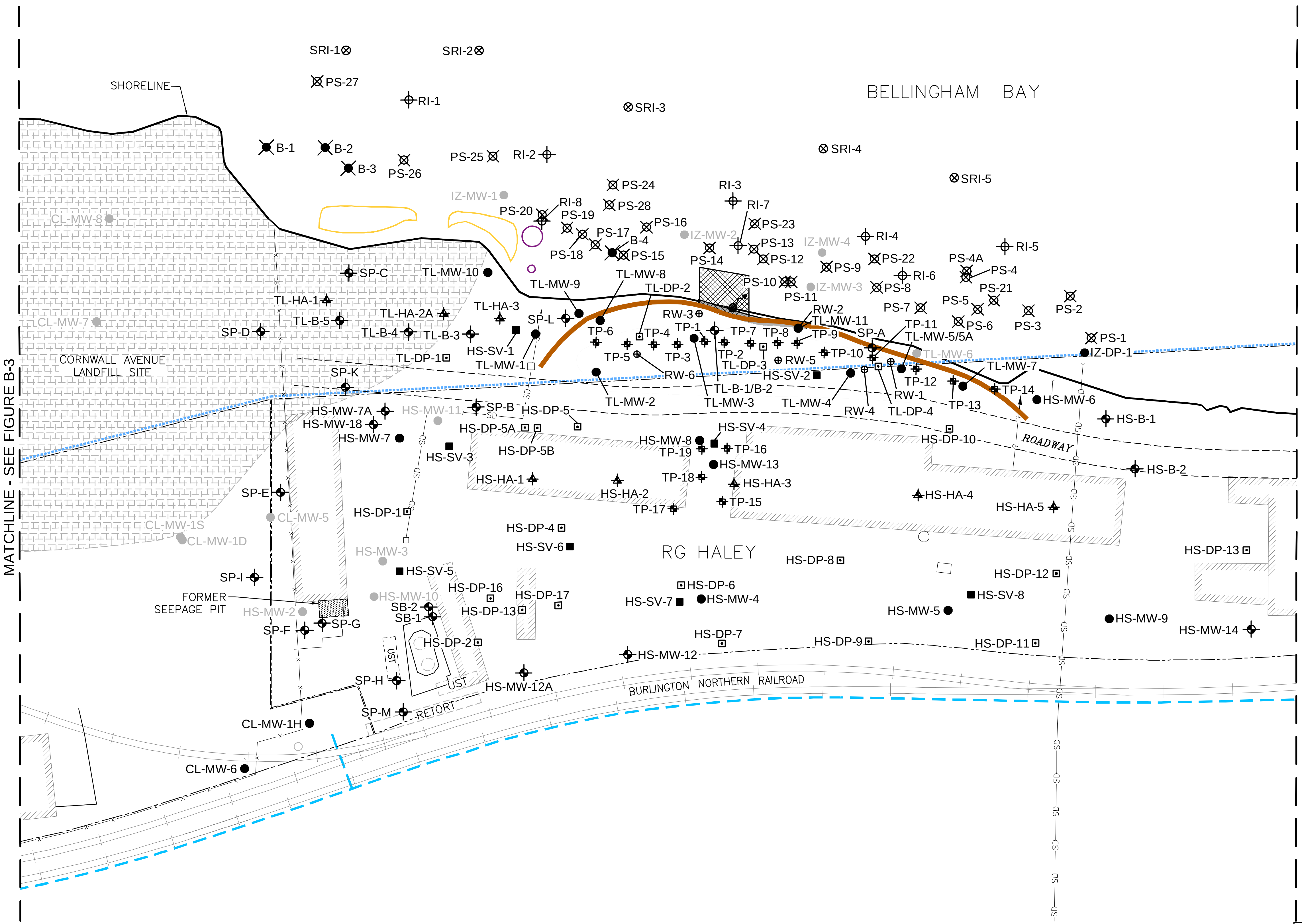
Figure B-1

P:\0\0356114\06\CAD\RI_FS Figures\Figure B-1 B-2 B-3 Previous Sample Locations.dwg\TAB:B-1 Upland North modified on Feb 19, 2015 - 9:40am

SEAT:JL : TJM



Legend

SRI-1	Supplemental Remedial Sediment Investigation Sampling Location
PS-1	Preliminary Sediment Quality Assessment Sampling Location
RI-1	September 2004 Sediment Sample Location
HS-MW-1	Monitoring Well
HS/SB/SP	Boring
HS-DP-4	Direct Push Boring
HS-SV-1	Soil Vapor Sample Location
HS-HA-1	Hand Auger/Surface Soil Sample
RW-1	Oil Recovery Well
HS-MW-13	Grayed Monitoring Wells are Abandoned as of 2012
B-1	Temporary Groundwater Sampling Point
TP-15	Test Pit
UST	Underground Storage Tank
	Existing Sheet Pile Barrier
	Estimated Extent of Upland Refuse
	Former Buildings and Structures
	2001 Sediment Removal Area
	Sheen Emerging from Sediment (2012/2013)
	Sheen Emerging from Sediment (2006)
	2000 Petroleum Seep
	City Owned Property, Former R.G. Haley International
	Cornwall Property
	Inner Harbor Line
	Drainage Ditch

Notes

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W S N E True North Project North

80 0 80

Feet

Previous Sample Locations - Central

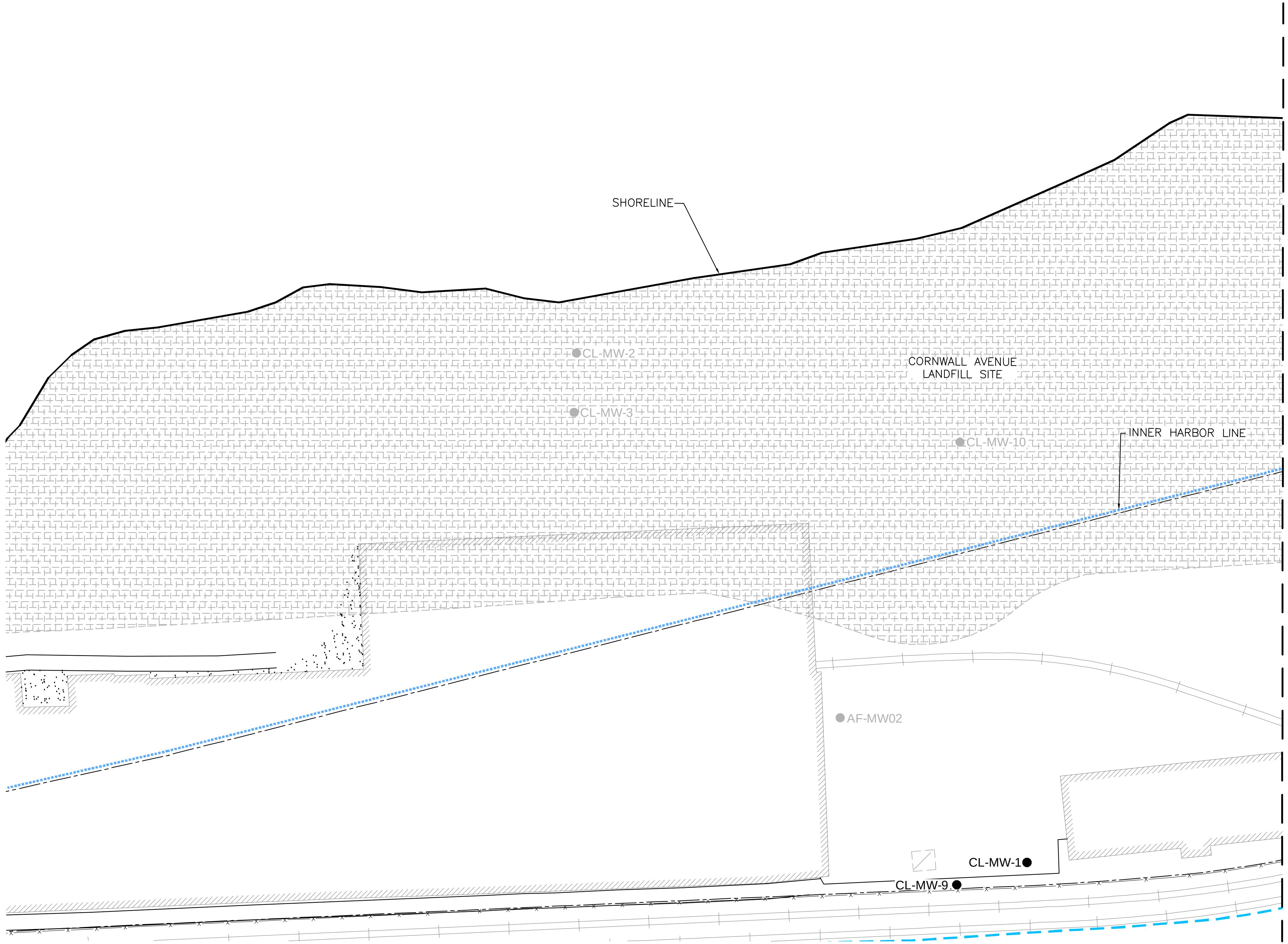
R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

Figure B-2

SEAT:JL : TJM

P:\0\0356114\06\CAD\RI_FS Figures\Figure B-1 B-2 B-3 Previous Sample Locations.dwg\TAB:B-2 Upland Central modified on Feb 19, 2015 - 9:39am



Legend

- SRI-1 Supplemental Remedial Sediment Investigation Sampling Location
- PS-1 Preliminary Sediment Quality Assessment Sampling Location
- RI-1 September 2004 Sediment Sample Location
- HS-MW-1 Monitoring Well
- HS/SB/SP Boring
- HS-DP-4 Direct Push Boring
- HS-SV-1 Soil Vapor Sample Location
- HS-HA-1 Hand Auger/Surface Soil Sample
- RW-1 Oil Recovery Well
- HS-MW-13 Grayed Monitoring Wells are Abandoned as of 2012
- B-1 Temporary Groundwater Sampling Point
- TP-15 Test Pit
- UST Underground Storage Tank
- Existing Sheet Pile Barrier
- Estimated Extent of Upland Refuse
- Former Buildings and Structures
- 2001 Sediment Removal Area
- Sheen Emerging from Sediment (2012/2013)
- Sheen Emerging from Sediment (2006)
- 2000 Petroleum Seep
- City Owned Property, Former R.G. Haley International
- Cornwall Property
- Inner Harbor Line
- Drainage Ditch

Notes

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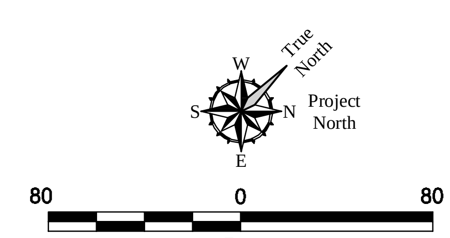


Previous Sample Locations - South

R.G. Haley Site
Bellingham, Washington

GeoEngineers

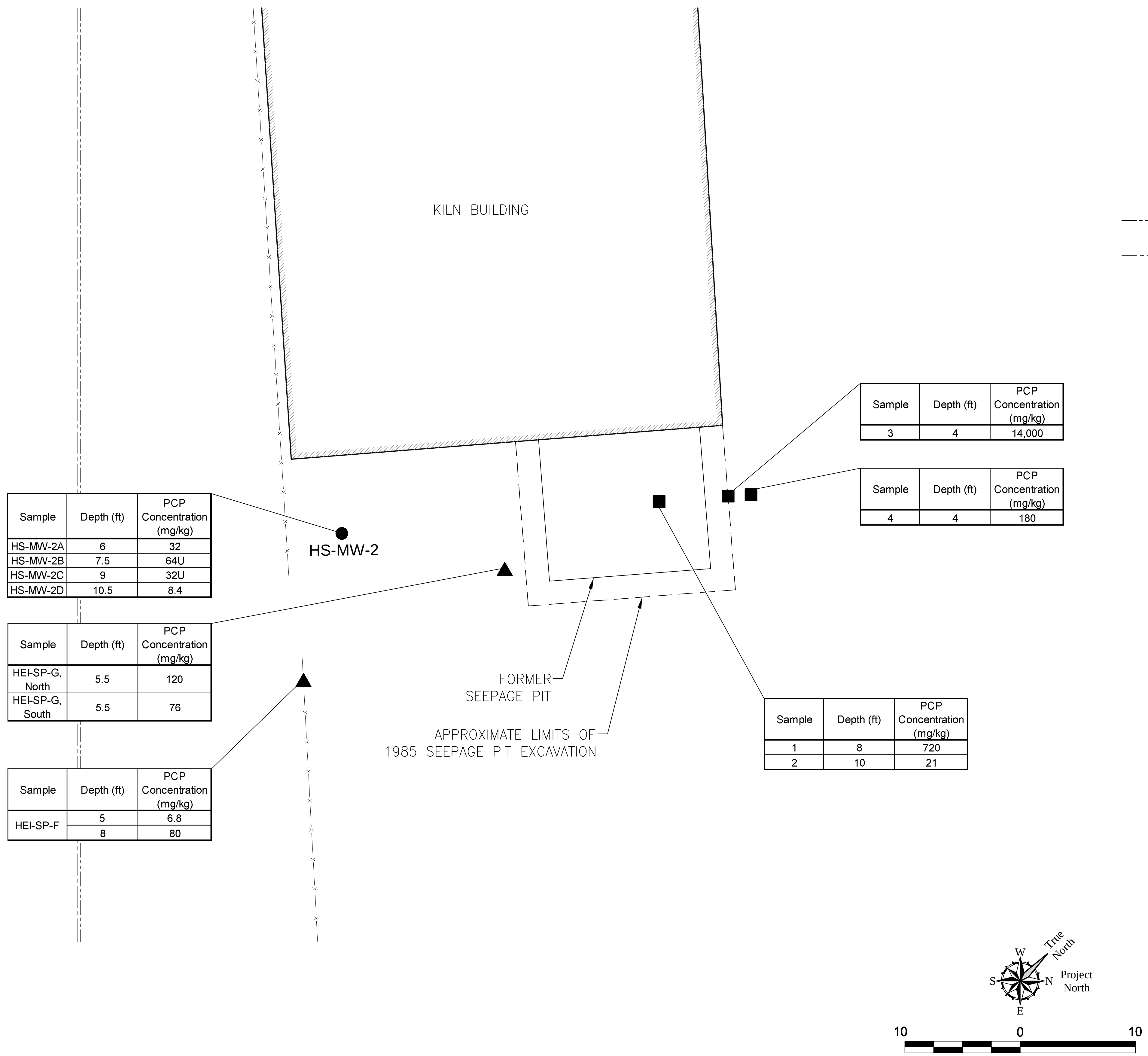
Figure B-3

P:\0\0356114\06\CAD\RI_FS Figures\Figure B-1 B-2 B-3 Previous Sample Locations.dwg\TAB:B-3 Upland South modified on Feb 19, 2015 - 9:38am

SEAT:JL : TJM

Legend

- ● Monitoring well soil sample by E&E (1985)
- ■ Excavation Sidewall or Base Soil Sample by R.G. Haley (July 1985)
- ▲ Test Pit or Hand Auger Soil Sample by Howard Edde, Inc. (1984)
- AST — Aboveground Storage Tank
- UST — Underground Storage Tank
- PCP — Pentachlorophenol
- U — Not Detected, Analytical Detection Limit Noted
- — · — · — City Owned Property, Former R.G. Haley International
- — · — — · — Cornwall Property



Sample	Depth (ft)	PCP Concentration (mg/kg)
HS-MW-2A	6	32
HS-MW-2B	7.5	64U
HS-MW-2C	9	32U
HS-MW-2D	10.5	8.4

Sample	Depth (ft)	PCP Concentration (mg/kg)
HEI-SP-G, North	5.5	120
HEI-SP-G, South	5.5	76

Sample	Depth (ft)	PCP Concentration (mg/kg)
HEI-SP-F	5	6.8
	8	80

Sample	Depth (ft)	PCP Concentration (mg/kg)
3	4	14,000

Sample	Depth (ft)	PCP Concentration (mg/kg)
4	4	180

Sample	Depth (ft)	PCP Concentration (mg/kg)
1	8	720
2	10	21

Notes

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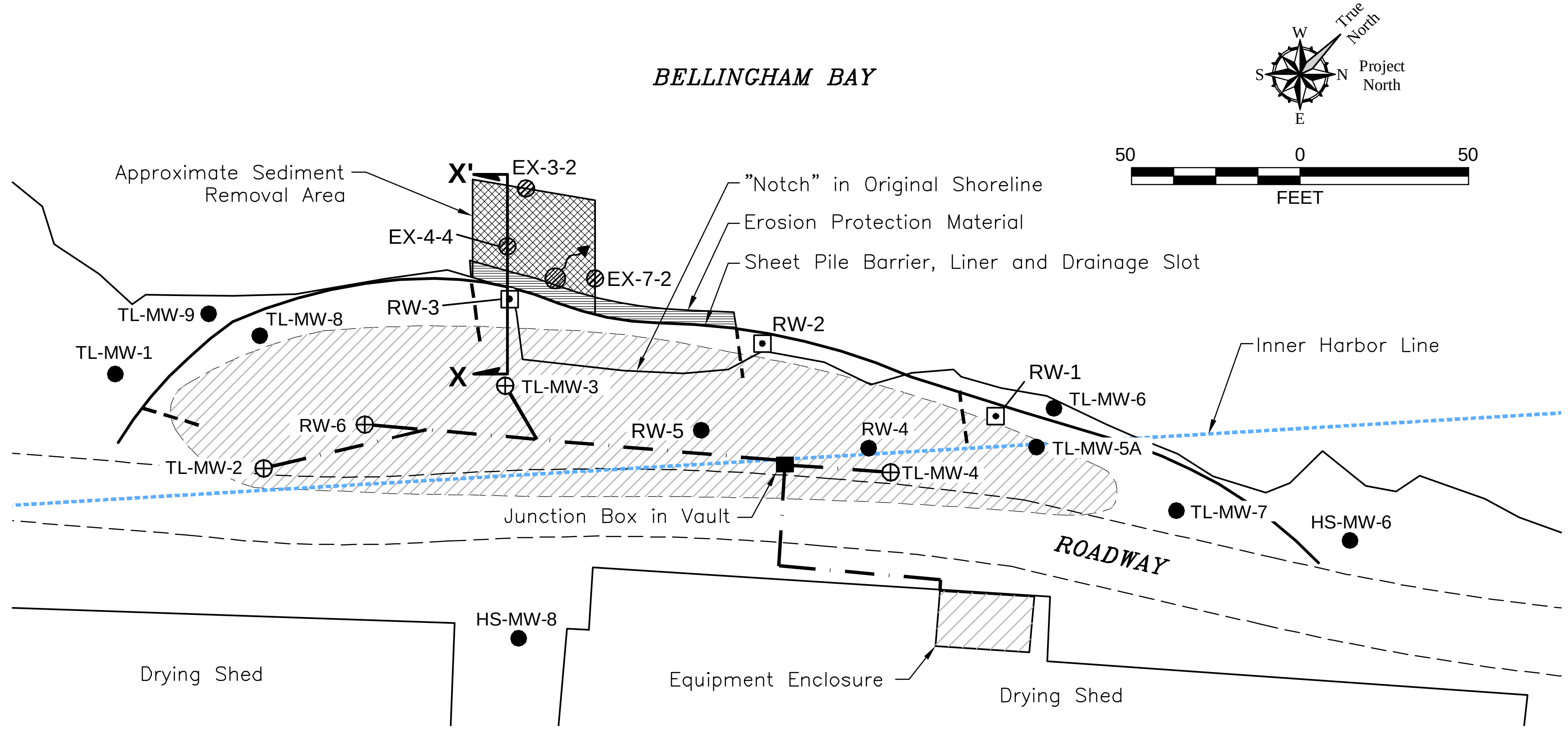
References: Ecology and Environment, May 1986, Howard Edde Inc., 1985.

1985 Seepage Pit Excavation and Soil Sample Data

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure B-4



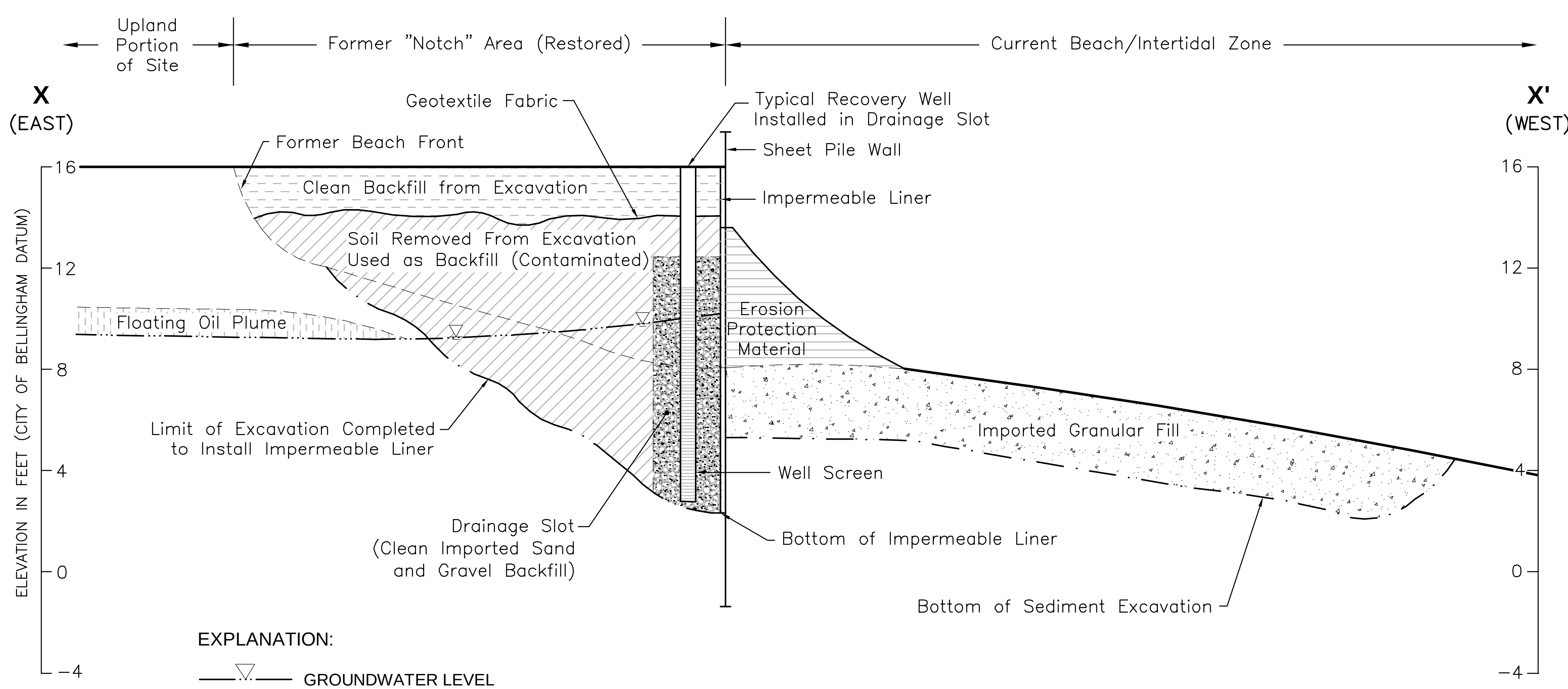
PLAN VIEW

Legend

- MW-1 ● Monitoring Well
- RW-6 ⊕ Oil Recovery Well Originally Connected to System
- RW-1 ⊡ Oil Recovery Well Originally Not Connected to System
- EX-7-2 Sediment Sample
- Lateral Oil Collection Gallery
- Conduit for Air, Product and Electric Lines
- Estimated Extent of Floating Oil Plume
- Former Oil Seep

Sediment Removal Area Excavation Soil Samples

Sample Number	Sample Date	Sample Location	Sample Depth (feet below original beach surface)	Field Screening Results (sheen)	Total Petroleum Hydrocarbons (mg/kg) Diesel-Range	Total Petroleum Hydrocarbons (mg/kg) Lube Oil-Range
EX-3-2	07/18/2001	Northwest Sidewall	2.0	HS	752	311
EX-4-4	07/18/2001	Excavation Base	4.0	NS	150	135
EX-7-2	07/18/2001	Northeast Sidewall	2.0	MS	890	617



APPROXIMATE HORIZONTAL AND VERTICAL SCALE: 1" = 4'

CROSS-SECTION X-X'

Notes

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Reference: Plan View "Figure 2 - Site Plan Interim Cleanup Action Components", Section View "Figure 11 - Interim Cleanup Action Cross Section", and Analytical Data "Table 1 - Summary of Chemical Analytical Data Sediment Excavation Samples" taken from the report "Interim Cleanup Action Report" dated May 20, 2002 by GeoEngineers for Perkins Coie LLP.

2000-2001 Independent Cleanup Action

R.G. Haley Site
Bellingham, Washington

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Figure B-5

P:\0\0356114\106\CAD\RI_FS Figures\Figure B-5 2000-2001 Independent Cleanup Action.dwg\TAB:Landscape modified by TMichaud on Feb 19, 2015 - 9:42

EXHIBIT B-1
Table 13 from "Interim Cleanup Action Plan," July 6, 2000

TABLE 13
SEDIMENT
CHEMICAL ANALYTICAL RESULTS SUMMARY[1]
FORMER HALEY WOOD TREATING SITE/DNR PROPERTY

Sample Identification [2]	BS-01
Date Sampled	29-Feb-00
Units	mg/kg
Phenolic Compounds (EPA SW-846 8270)	
Pentachlorophenol	<1.0
Polycyclic Aromatic Hydrocarbons (PAHs) (EPA SW-846 8270)	
Acenaphthene	2.84
Acenaphthylene	<0.2
Anthracene	<0.2
Benzo(g,h,i)perylene	<0.2
Fluoranthene	0.524
Fluorene	3.52
2-Methylnaphthalene	33.9
Naphthalene	2.09
Phenanthrene	7.68
Pyrene	0.786
Benzo(a)anthracene [3]	<0.2
Benzo(b)fluoranthene [3]	<0.2
Benzo(k)fluoranthene [3]	<0.2
Benzo(a)pyrene [3]	<0.2
Chrysene [3]	0.222
Dibenzo(a,h)anthracene [3]	<0.2
Indeno(1,2,3-cd)pyrene [3]	<0.2
Metals (EPA SW-846 6020)	
Arsenic	5.59
Chromium	30.8
Total Petroleum Hydrocarbons (NWTPH-Dx)	
Diesel-Range	2,600
Lube Oil-Range	130
Total Organic Carbon (EPA SW-846 9060)	
Total Organic Carbon--Average	61,000
Other (EPA SW-846 8270)	
Bis (2-ethylhexyl)phthalate	0.394

Notes:

[1] Chemical analysis by North Creek Analytical.

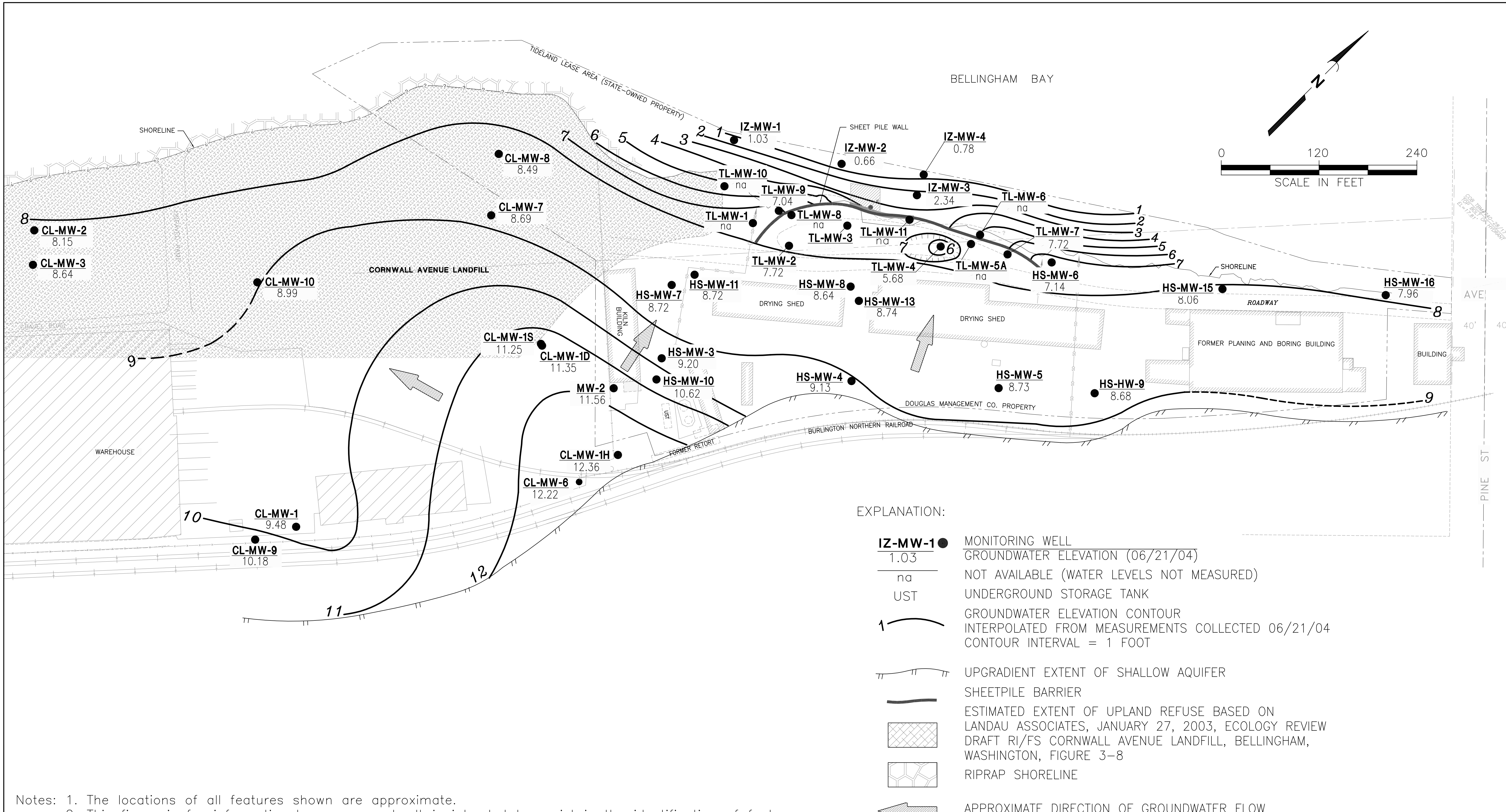
[2] The sediment sample was collected adjacent to the intertidal oil seep. The approximate seep location is shown on Figure 2.

[3] Probable carcinogenic PAH.

mg/kg = milligrams per kilogram

EXHIBIT B-2

Groundwater Elevation Contour Maps 2004 and 2005 from GeoEngineers 2007



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 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.
3. Groundwater contours and elevations are relative to City of Bellingham datum.
4. The groundwater elevations shown are interpreted using available information. The elevation and location of contours are considered approximate.

References: CAD files "R2000geoeng_haleybase50x" revised 07/28/04 by Pacific Survey & Engineering Inc., file "Fig3-8" dated August 2002 by Landau Associates, and files "027500201T1LM" and "027500201T1A" dated 03/29/04 by GeoEngineers.

GROUNDWATER ELEVATIONS 6/21/04

R.G. Haley International Corporation Site
Bellingham, Washington

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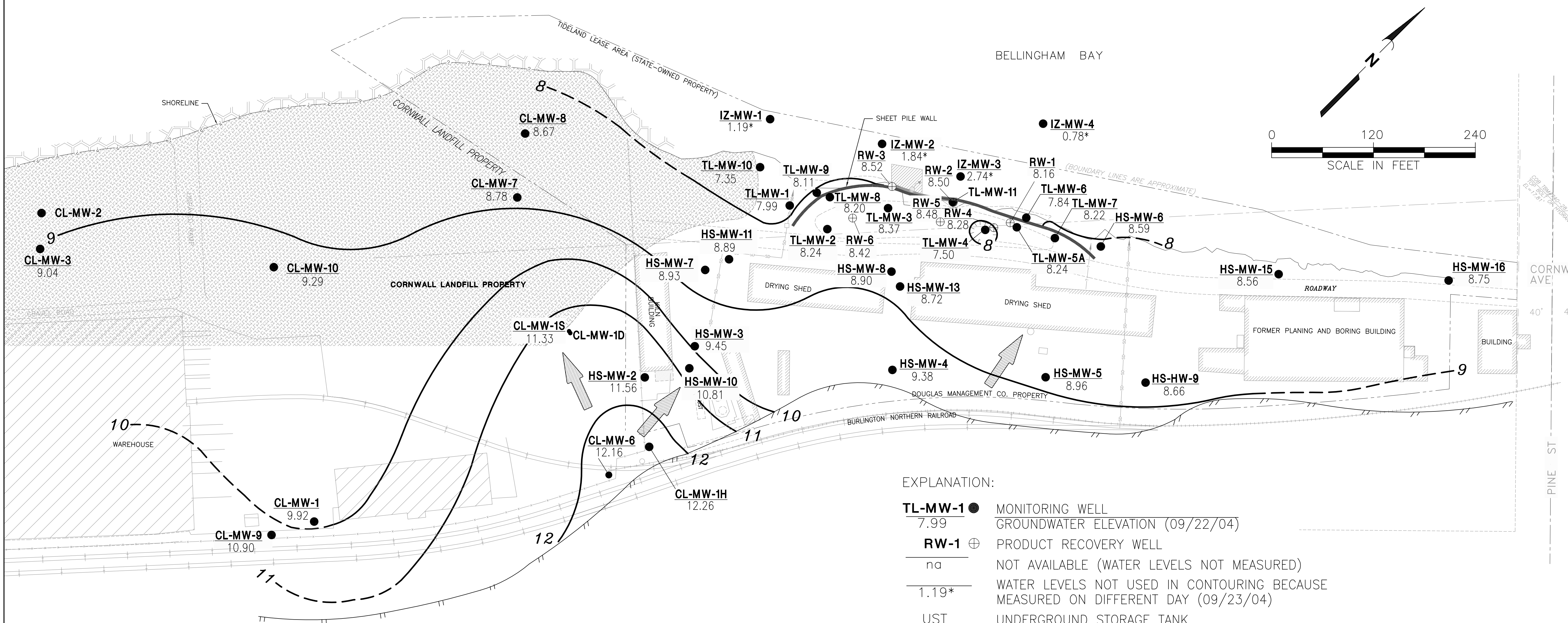
Figure 12

SEAT\P:\0275002\01\CAD\T5\F12-ECOL-027500201T5M.DWG JCL:BMK 02/13/06



EXPLANATION:

TL-MW-1 ● 7.99	MONITORING WELL / GROUNDWATER ELEVATION (09/22/04)
RW-1 ⊕	PRODUCT RECOVERY WELL
na	NOT AVAILABLE (WATER LEVELS NOT MEASURED)
1.19*	WATER LEVELS NOT USED IN CONTOURING BECAUSE MEASURED ON DIFFERENT DAY (09/23/04)
UST	UNDERGROUND STORAGE TANK
9	GROUNDWATER ELEVATION CONTOUR INTERPOLATED FROM MEASUREMENTS COLLECTED 09/22/04 CONTOUR INTERVAL = 1 FOOT
	UPGRADIENT EXTENT OF SHALLOW AQUIFER
	SHEETPILE BARRIER
	ESTIMATED EXTENT OF UPLAND REFUSE BASED ON LANDAU ASSOCIATES, JANUARY 27, 2003, ECOLOGY REVIEW DRAFT RI/FS CORNWALL AVENUE LANDFILL, BELLINGHAM, WASHINGTON, FIGURE 3-8
	RIPRAP SHORELINE
	APPROXIMATE DIRECTION OF GROUNDWATER FLOW

Notes:
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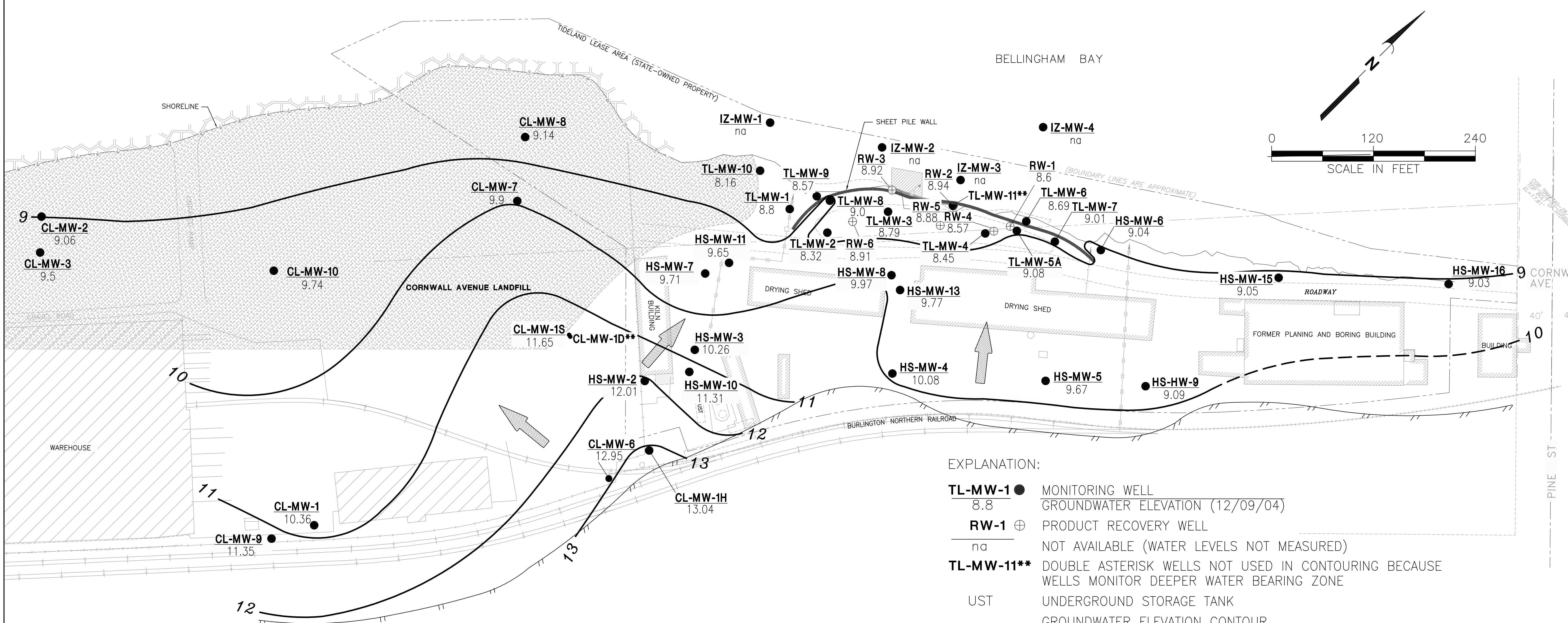
GROUNDWATER ELEVATIONS 09/22/04

R.G. Haley International Corporation Site
Bellingham, Washington

GEOENGINEERS

Figure 13

SEAT\P:\0275002\01\CAD\T5\F13-ECOL-027500201T5N.DWG JCL:BMK 02/13/06



EXPLANATION:

TL-MW-1 ● 8.8	MONITORING WELL GROUNDWATER ELEVATION (12/09/04)
RW-1 ⊕	PRODUCT RECOVERY WELL
na	NOT AVAILABLE (WATER LEVELS NOT MEASURED)
TL-MW-11**	DOUBLE ASTERISK WELLS NOT USED IN CONTOURING BECAUSE WELLS MONITOR DEEPER WATER BEARING ZONE
UST	UNDERGROUND STORAGE TANK
9	GROUNDWATER ELEVATION CONTOUR INTERPOLATED FROM MEASUREMENTS COLLECTED 12/09/04 CONTOUR INTERVAL = 1 FOOT
	UPGRADIENT EXTENT OF SHALLOW AQUIFER
	SHEETPILE BARRIER
	ESTIMATED EXTENT OF UPLAND REFUSE BASED ON LANDAU ASSOCIATES, JANUARY 27, 2003, ECOLOGY REVIEW DRAFT RI/FS CORNWALL AVENUE LANDFILL, BELLINGHAM, WASHINGTON, FIGURE 3-8
	RIPRAP SHORELINE
	APPROXIMATE DIRECTION OF GROUNDWATER FLOW

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References: CAD files "R2000geoeng_haleybase50x" revised 07/28/04 by Pacific Survey & Engineering Inc., file "Fig3–8" dated August 2002 by Landau Associates, and files "027500201T1LM" and "027500201T1A" dated 03/29/04 by GeoEngineers.

GROUNDWATER ELEVATIONS 12/09/04

R.G. Haley International Corporation Site
Bellingham, Washington

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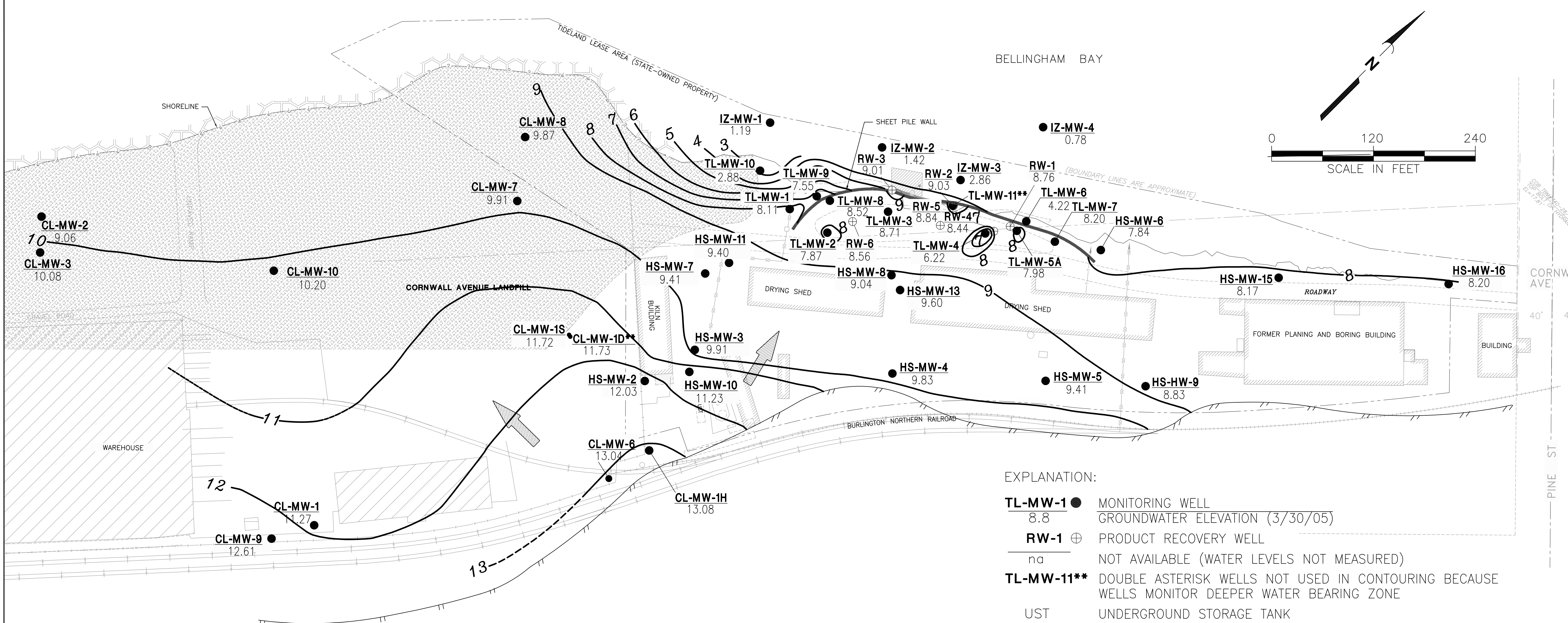
Figure 14

SEAT\P:\0275002\01\CAD\T5\F14-ECOL-027500201T5o.DWG JCL:BMK 02/13/06



EXPLANATION:

TL-MW-1 ● / 8.8	MONITORING WELL / GROUNDWATER ELEVATION (3/30/05)
RW-1 ⊕	PRODUCT RECOVERY WELL
na	NOT AVAILABLE (WATER LEVELS NOT MEASURED)
TL-MW-11**	DOUBLE ASTERISK WELLS NOT USED IN CONTOURING BECAUSE WELLS MONITOR DEEPER WATER BEARING ZONE
UST	UNDERGROUND STORAGE TANK
9	GROUNDWATER ELEVATION CONTOUR INTERPOLATED FROM MEASUREMENTS COLLECTED 03/30/05 CONTOUR INTERVAL = 1 FOOT
	UPGRADIENT EXTENT OF SHALLOW AQUIFER
	SHEETPILE BARRIER
	ESTIMATED EXTENT OF UPLAND REFUSE BASED ON LANDAU ASSOCIATES, JANUARY 27, 2003, ECOLOGY REVIEW DRAFT RI/FS CORNWALL AVENUE LANDFILL, BELLINGHAM, WASHINGTON, FIGURE 3-8
	RIPRAP SHORELINE
	APPROXIMATE DIRECTION OF GROUNDWATER FLOW

Notes:
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GROUNDWATER ELEVATIONS 3/30/05

R.G. Haley International Corporation Site
Bellingham, Washington

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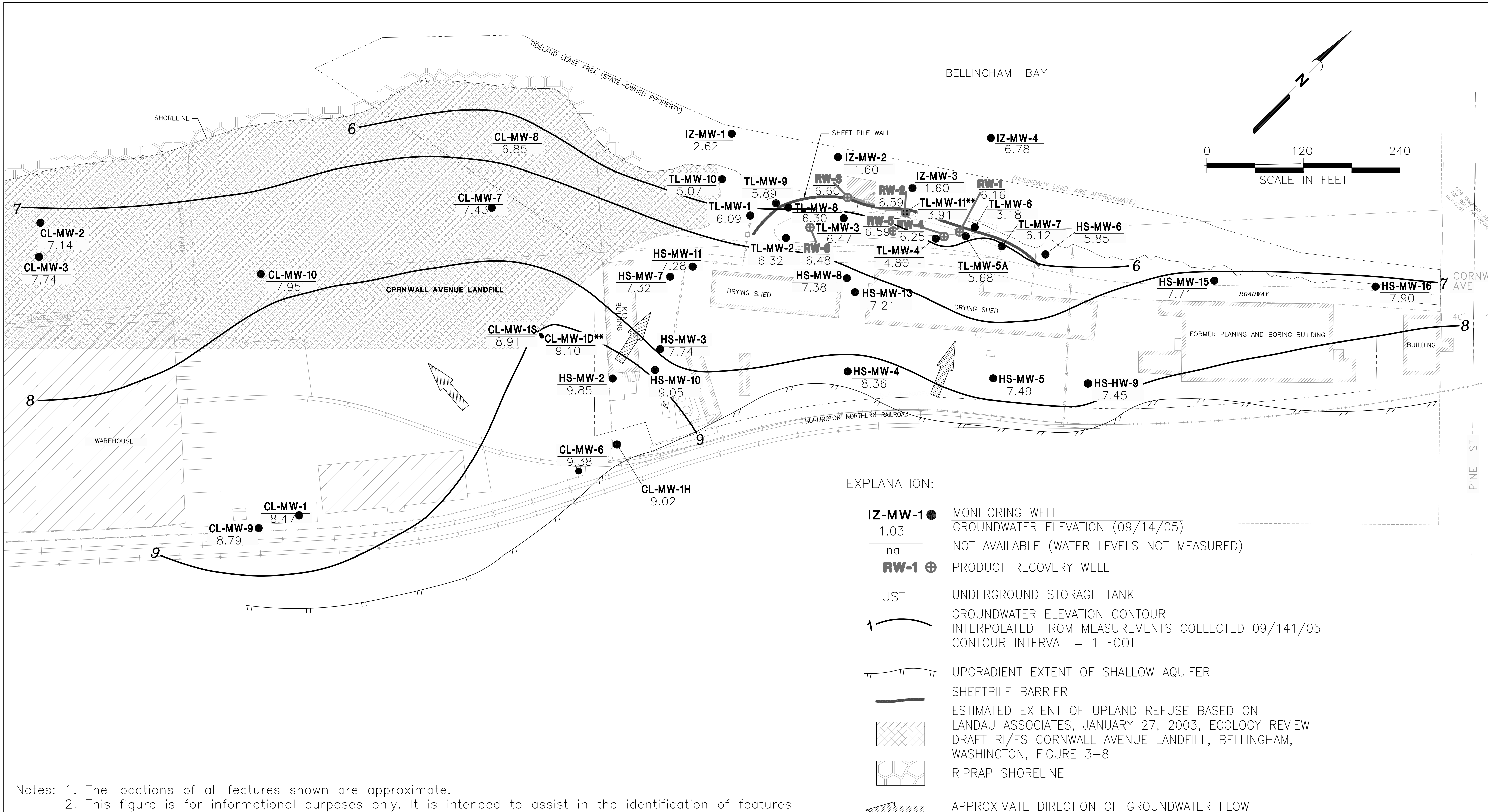
Figure 15



Notes:
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GROUNDWATER ELEVATIONS 9/14/05

R.G. Haley International Corporation Site
Bellingham, Washington

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Figure 16

SEAT\P:\0275002\01\CAD\T5\027500201T5_FIG-16.DWG JCL:BMK 02/13/06

APPENDIX C
Analytical Schedules

Table C-1

Analytical Program for Groundwater Samples
R.G. Haley Site
Bellingham, Washington

Well	Sample Date	Conventionals	Metals	TPH	BETX	Dioxins/Furans	PAHs	PCBs	SVOCs	VOCs
AF-MW01	7/26/04		X	X			X		X	
AF-MW02	7/26/04		X	X			X		X	
CL-MW-1	7/13/98		X	X			X		X	
CL-MW-1	7/17/02			X	X			X		
CL-MW-1	6/24/04	X		X						
CL-MW-1	5/09/12			X			X		X	X
CL-MW-1D	6/22/04	X		X						
CL-MW-1D	9/23/04			X						
CL-MW-1D	12/09/04			X						
CL-MW-1D	3/31/05			X						
CL-MW-1D	9/14/05			X						
CL-MW-1H	11/11/85								X	
CL-MW-1H	6/24/04	X		X			X		X	
CL-MW-1H	9/24/04			X						
CL-MW-1H	12/09/04			X			X		X	
CL-MW-1H	3/31/05			X			X		X	
CL-MW-1H	9/15/05			X			X		X	
CL-MW-1H	5/09/12			X			X		X	X
CL-MW-1S	6/22/04	X		X			X		X	
CL-MW-1S	9/24/04			X						
CL-MW-1S	12/09/04			X			X		X	
CL-MW-1S	3/31/05			X			X		X	
CL-MW-1S	9/14/05			X			X		X	
CL-MW-2	7/16/02							X		
CL-MW-3	7/16/02			X	X			X		
CL-MW-4	7/17/02							X		
CL-MW-5	7/13/98			X			X		X	
CL-MW-5	7/16/02				X			X		
CL-MW-6	7/16/02			X	X					
CL-MW-6	6/24/04	X		X			X		X	
CL-MW-6	9/24/04			X						
CL-MW-6	12/09/04			X			X		X	
CL-MW-6	3/31/05			X			X		X	
CL-MW-6	9/14/05			X			X		X	
CL-MW-6	5/09/12			X			X		X	X
CL-MW-7	7/17/02			X	X			X		
CL-MW-7	6/24/04	X		X			X		X	
CL-MW-7	9/23/04			X						
CL-MW-7	12/09/04			X			X		X	
CL-MW-7	3/31/05			X			X		X	
CL-MW-7	9/14/05			X			X		X	
CL-MW-8	7/16/02			X	X			X		
CL-MW-9	7/17/02			X	X			X		
CL-MW-9	5/09/12			X			X		X	X
CL-MW-9	5/09/12			X			X		X	X
CL-MW-10	7/17/02			X	X			X		
CL-MW-101	7/18/12			X		X	X		X	X
CL-MW-102	7/18/12			X			X		X	X
CL-MW-102	7/18/12			X			X		X	X
CL-MW-103	7/18/12			X			X		X	X
HS-MW-2	4/14/00			X			X		X	
HS-MW-2	6/24/04	X		X			X		X	
HS-MW-3	4/13/00			X			X		X	
HS-MW-4	4/13/00			X			X		X	
HS-MW-4	6/23/04	X		X			X		X	
HS-MW-4	9/23/04			X						
HS-MW-4	12/09/04			X			X		X	
HS-MW-4	4/01/05			X			X		X	
HS-MW-4	9/15/05			X			X		X	
HS-MW-4	5/09/12			X			X		X	X
HS-MW-5	4/13/00			X			X		X	
HS-MW-5	6/23/04	X		X			X		X	
HS-MW-5	9/23/04			X						
HS-MW-5	12/09/04			X			X		X	
HS-MW-5	3/31/05			X			X		X	
HS-MW-5	9/15/05			X			X		X	
HS-MW-5	5/09/12			X			X		X	X
HS-MW-6	4/13/00			X			X		X	
HS-MW-6	6/24/04	X		X			X		X	
HS-MW-6	9/24/04			X						
HS-MW-6	12/09/04			X			X		X	
HS-MW-6	3/31/05			X			X		X	
HS-MW-6	9/14/05			X			X		X	
HS-MW-6	5/08/12			X			X		X	X
HS-MW-7	4/14/00			X			X		X	
HS-MW-7	5/09/12		X	X	X		X		X	X
HS-MW-8	4/14/00			X			X		X	
HS-MW-9	4/13/00			X			X		X	
HS-MW-9	6/23/04	X		X			X		X	
HS-MW-9	9/23/04			X						
HS-MW-9	12/09/04			X			X		X	
HS-MW-9	3/31/05			X			X		X	
HS-MW-9	9/15/05			X			X		X	
HS-MW-9	5/09/12			X			X		X	X
HS-MW-10	6/23/04	X	X	X	X	X	X		X	
HS-MW-10	9/23/04			X						
HS-MW-10	12/09/04			X			X		X	
HS-MW-10	3/31/05			X			X		X	
HS-MW-10	9/15/05			X			X		X	
HS-MW-11	6/23/04	X	X	X	X		X		X	
HS-MW-11	9/23/04			X						
HS-MW-11	12/09/04			X			X		X	
HS-MW-11	4/01/05			X			X		X	
HS-MW-11	9/15/05			X			X		X	
HS-MW-13	6/23/04	X	X	X	X		X		X	
HS-MW-13	9/23/04			X						
HS-MW-13	12/09/04			X			X		X	
HS-MW-13	4/01/05			X			X		X	
HS-MW-13	9/15/05			X			X		X	
HS-MW-13	5/09/12		X	X	X	X	X		X	X
HS-MW-15	6/22/04	X		X			X		X	
HS-MW-15	9/24/04			X						
HS-MW-15	12/08/04			X			X		X	

Well	Sample Date	Conventionals	Metals	TPH	BETX	Dioxins/Furans	PAHs	PCBs	SVOCs	VOCs
HS-MW-15	3/31/05			X			X		X	
HS-MW-15	9/16/05			X			X		X	
HS-MW-15	5/09/12			X		X	X		X	X
HS-MW-16	6/22/04	X		X			X		X	
HS-MW-16	5/09/12			X			X		X	X
HS-MW-17	7/18/12		X	X			X		X	X
HS-MW-19	7/17/12			X			X		X	X
IZ-B-1	11/11/85								X	
IZ-B-2	11/11/85								X	
IZ-B-3	11/11/85								X	
IZ-B-4	11/11/85								X	
IZ-MW-1	6/22/04	X		X	X		X		X	
IZ-MW-1	9/23/04			X						
IZ-MW-1	12/09/04			X			X		X	
IZ-MW-1	3/30/05			X			X		X	
IZ-MW-1	9/15/05			X			X		X	
IZ-MW-2	6/22/04	X		X	X		X		X	
IZ-MW-2	9/23/04			X						
IZ-MW-2	12/09/04			X			X		X	
IZ-MW-2	3/30/05			X			X		X	
IZ-MW-2	9/15/05			X			X		X	
IZ-MW-3	6/22/04	X		X	X	X	X		X	
IZ-MW-3	9/23/04			X						
IZ-MW-3	12/09/04					X	X		X	
IZ-MW-3	3/30/05			X		X	X		X	
IZ-MW-3	9/15/05			X		X	X		X	
IZ-MW-4	6/22/04	X		X	X		X		X	
IZ-MW-4	9/23/04			X						
IZ-MW-4	12/09/04			X			X		X	
IZ-MW-4	3/30/05			X			X		X	
IZ-MW-4	9/15/05			X			X		X	
MW-11D	7/31/12	X	X		X		X		X	X
MW-11D	9/24/12	X	X		X		X		X	X
MW-11S	7/31/12	X	X		X		X		X	X
MW-12D	7/31/12	X	X		X		X		X	X
MW-12D	9/24/12	X	X		X		X		X	X
MW-12S	7/31/12	X	X		X		X		X	X
MW-12S	9/24/12	X	X		X		X		X	X
MW-13D	7/30/12	X	X		X		X		X	X
MW-13D	9/24/12	X	X	X	X		X		X	X
MW-13S	7/30/12	X	X		X		X		X	X
MW-13S	9/24/12	X	X		X		X		X	X
MW-14D	7/30/12	X	X		X		X		X	X
MW-14D	9/24/12	X	X	X	X		X		X	X
MW-14S	7/30/12	X	X	X	X		X		X	X
MW-14S	9/24/12	X	X	X	X		X		X	X
MW-15D	7/30/12	X	X	X	X		X		X	X
MW-15D	9/24/12	X	X	X	X		X		X	X
MW-15S	7/30/12	X	X	X	X		X		X	X
MW-15S	9/24/12	X	X	X	X		X		X	X
MW-16D	7/31/12	X	X	X	X		X		X	X
MW-16D	9/24/12	X	X	X	X		X		X	X
MW-16S	7/30/12	X	X	X	X		X		X	X
MW-16S	9/24/12	X	X	X	X		X		X	X
TL-MW-1	4/13/00			X			X		X	
TL-MW-1	5/08/12		X	X			X		X	X
TL-MW-3	4/14/00			X			X		X	
TL-MW-7	5/09/12			X			X		X	X
TL-MW-9	6/23/04	X		X			X		X	
TL-MW-9	9/23/04			X						
TL-MW-9	12/09/04			X			X		X	
TL-MW-9	3/31/05			X			X		X	
TL-MW-9	9/14/05			X			X		X	
TL-MW-9	5/08/12			X			X		X	X
TL-MW-10	6/23/04	X		X			X		X	
TL-MW-10	9/23/04			X						
TL-MW-10	12/09/04			X			X		X	
TL-MW-10	4/01/05			X			X		X	
TL-MW-10	9/14/05			X			X		X	
TL-MW-11	6/22/04	X		X	X		X		X	
TL-MW-11	9/24/04			X						
TL-MW-11	12/08/04			X			X		X	
TL-MW-11	3/31/05			X			X		X	
TL-MW-11	9/14/05			X			X		X	
TL-MW-11	5/08/12			X		X	X		X	X
TL-MW-12	7/18/12			X			X		X	X
TL-MW-13	7/17/12			X	X		X		X	X
TL-MW-14	7/17/12			X			X		X	X
TL-MW-15	7/18/12		X	X			X		X	X
TL-MW-16	7/17/12			X		X	X		X	X

Notes:

Acronyms are explained in the Abbreviations and Acronyms list in the RI Report.

Table C-2

Analytical Program for Soil Samples

R.G. Haley Site

Bellingham, Washington

Soil Boring	Sample Depth (in feet bgs)	Metals	TPH	BETX	Dioxins/Furans	PAHs	SVOCs	VOCs	EPH
AF-MW01	10 - 11.5	X	X	X		X	X		
AF-MW01	2.5 - 4	X	X	X		X	X		
AF-MW02	10 - 11.5	X	X	X		X	X		
AF-MW02	15 - 16.5	X	X	X		X	X		
AF-MW02	5 - 6.5	X	X	X			X		
AF-SB01	4 - 8	X	X	X					
AF-SB02	0 - 4	X	X	X		X	X		
AF-SB04	0 - 4	X	X						
AF-SB04	4 - 8		X	X		X	X		
AF-SB04	8 - 12	X	X	X		X	X		
CL-MW-1D	12 - 13		X						
CL-MW-1D	8 - 10					X	X		
CL-MW-1H	10.5 - 12.5						X		
CL-MW-1H	6 - 7.5						X		
CL-MW-1H	7.5 - 9						X		
CL-MW-1H	9 - 10.5						X		
CL-MW-101	6 - 7		X			X	X	X	
CL-MW-102	6 - 7		X			X	X	X	
CL-MW-103	10 - 11.5		X			X	X	X	
CL-MW-103	12.5 - 14		X			X	X	X	
CL-MW-103	5 - 6.5		X			X	X	X	
CL-SB-101	4.3 - 5		X			X	X	X	
CL-SB-101	6.3 - 7		X			X	X	X	
CL-SB-102	13.3 - 14		X			X	X	X	
CL-SB-102	4.3 - 5		X			X	X	X	
CL-SB-102	9.3 - 10		X			X	X	X	
CL-SB-103	14 - 14.7		X			X	X	X	
CL-SB-103	4.3 - 5		X			X	X	X	
CL-SB-103	8 - 8.7		X			X	X	X	
HEI-SP-A	4 - 4						X		
HEI-SP-A	7 - 7						X		
HEI-SP-B	3 - 3						X		
HEI-SP-B	6 - 6						X		
HEI-SP-C	4 - 4						X		
HEI-SP-C	7 - 7						X		
HEI-SP-D	3 - 3						X		
HEI-SP-D	7 - 7						X		
HEI-SP-E	4 - 4						X		
HEI-SP-E	5.5 - 5.5						X		
HEI-SP-F	5 - 5						X		
HEI-SP-F	8 - 8						X		
HEI-SP-G	5.5 - 5.5						X		
HEI-SP-H	3 - 3						X		
HEI-SP-H	6 - 6						X		
HEI-SP-I	2 - 2						X		
HEI-SP-J	.5 - .5						X		
HEI-SP-K	3 - 3						X		
HEI-SP-K	6.5 - 6.5						X		
HEI-SP-L	3 - 3						X		
HEI-SP-L	9 - 9						X		
HEI-SP-M	2 - 2						X		
HEI-SP-M	4 - 4						X		
HS-B-1	5 - 5		X			X	X		
HS-B-2	6.5 - 6.5		X			X	X		
HS-DP-1	12 - 14	X	X			X	X		
HS-DP-1	4 - 6	X							
HS-DP-1	8 - 10	X	X			X	X		
HS-DP-4	12 - 14		X			X	X		
HS-DP-4	8 - 11		X			X	X		X
HS-DP-5B	0 - 2	X							
HS-DP-5B	12 - 16	X	X						
HS-DP-5B	16 - 19		X			X	X		
HS-DP-5B	8 - 10	X	X			X	X		
HS-DP-6	8 - 10		X	X				X	
HS-DP-8	8 - 10		X			X	X		X
HS-DP-9	8 - 9		X			X	X		
HS-DP-10	7 - 8		X						
HS-DP-10	8 - 10								
HS-DP-12	8 - 9		X		X	X	X		
HS-DP-13	8 - 9								
HS-DP-14/14A	4 - 8							X	
HS-DP-15/15A	4.5 - 8.5								
HS-HA-1	0 - 1		X						
HS-HA-2	0 - 1		X						
HS-HA-3	0 - 1		X						
HS-HA-4	0 - 1		X			X	X		
HS-HA-5	0 - 1		X						
HS-MW-2	10.5 - 12.5						X		
HS-MW-2	6 - 7.5						X		
HS-MW-2	7.5 - 9						X		
HS-MW-2	9 - 10.5						X		
HS-MW-3	6.5 - 6.5		X		X	X	X		
HS-MW-4	7 - 7		X		X	X	X		
HS-MW-5	6.5 - 6.5		X			X	X		
HS-MW-6	29 - 29		X						
HS-MW-6	6.5 - 6.5		X			X	X		
HS-MW-7	9 - 9		X			X	X		
HS-MW-8	6.5 - 6.5		X			X	X		
HS-MW-9	9 - 9		X			X	X		
HS-MW-10	12 - 13		X	X		X	X	X	X
HS-MW-11	12 - 16		X			X	X		
HS-MW-11	4 - 8		X			X	X		
HS-MW-11	8 - 12		X			X	X		
HS-MW-13	8 - 10		X			X	X		X
HS-MW-15	8 - 10					X	X		
HS-MW-16	9 - 10		X						
HS-MW-17	16 - 17		X			X	X	X	
HS-MW-17	4 - 5		X			X	X	X	
HS-MW-19	1.5 - 2.5				X				

Soil Boring	Sample Depth (in feet bgs)	Metals	TPH	BETX	Dioxins/Furans	PAHs	SVOCs	VOCs	EPH
HS-MW-19	10 - 11.5	X	X			X	X	X	
HS-MW-19	12.5 - 14		X			X	X	X	
HS-SB-18	10 - 11.5		X			X	X	X	
HS-SB-18	15 - 16.5		X			X	X	X	
HS-SB-18	7.5 - 9		X			X	X	X	
HS-SB-101	13 - 14		X			X	X	X	
HS-SB-101	17 - 18		X			X	X	X	
HS-SB-101	4 - 5		X			X	X	X	
HS-SB-101	9 - 10		X			X	X	X	
HS-SB-102	.5 - 1				X				
HS-SB-102	9.3 - 10		X			X	X	X	
HS-SB-103	13 - 13.7		X			X	X	X	
HS-SB-103	4.3 - 5		X			X	X	X	
HS-SB-103	8 - 8.7		X			X	X	X	
HS-SB-104	.5 - 1				X				
HS-SB-104	4.3 - 5		X			X	X	X	
HS-SB-104	8 - 8.7		X			X	X	X	
HS-SS-104	0 - .8				X				
SB-1	1.5 - 2						X		
SB-1	2.5 - 3						X		
SB-1	3.3 - 3.8						X		
SB-2	5 - 5.5						X		
SB-2	7 - 7.5						X		
SB-2	8.5 - 9						X		
TL-B-3	9 - 9		X			X	X		
TL-B-4	6.5 - 6.5		X			X	X		
TL-B-5	5 - 5		X			X	X		
TL-DP-2	12 - 15		X			X	X		
TL-DP-2	2 - 4					X	X		
TL-DP-2	6 - 8		X			X	X		
TL-DP-2	8 - 10		X	X		X	X		X
TL-DP-4	10 - 12		X			X	X		
TL-HA-1	0 - 1		X		X	X	X		
TL-HA-2A	0 - 1		X			X	X		
TL-HA-3	0 - 1		X			X	X		
TL-MW-1	29 - 29		X						
TL-MW-1	9 - 9		X			X	X		
TL-MW-2	9 - 9				X				
TL-MW-5A	9 - 9				X				
TL-MW-10	12 - 13		X	X		X	X	X	X
TL-MW-10	16 - 18		X						
TL-MW-10	20 - 22								
TL-MW-10	5.5 - 8		X						
TL-MW-10	8 - 12		X						
TL-MW-11	17 - 18		X			X	X		
TL-MW-13	11 - 12		X			X	X	X	
TL-MW-13	18 - 19		X			X	X	X	
TL-MW-13	23 - 24		X			X	X	X	
TL-MW-13	33 - 34		X			X	X	X	
TL-MW-13	43 - 44		X			X	X	X	
TL-MW-14	11 - 12		X			X	X	X	
TL-MW-14	15 - 16		X		X	X	X	X	
TL-MW-14	23 - 24		X			X	X	X	
TL-MW-14	28 - 29		X		X	X	X	X	
TL-MW-15	10 - 11		X			X	X	X	
TL-MW-15	14 - 15		X			X	X	X	
TL-MW-15	22 - 23		X			X	X	X	
TL-MW-15	29 - 30		X			X	X	X	
TL-MW-16	14 - 15		X			X	X	X	
TL-MW-16	20 - 21		X			X	X	X	
TL-MW-16	31 - 32		X		X	X	X	X	
TL-MW-16	8 - 9		X			X	X	X	
TL-SB-101	14 - 15		X			X	X	X	
TL-SB-101	19 - 20		X			X	X	X	
TL-SB-101	24 - 25		X			X	X	X	
TL-SB-101	28 - 29		X			X	X	X	
TL-SB-101	4 - 5		X			X	X	X	
TL-SB-101	9 - 10		X			X	X	X	
TP-2	7.5 - 7.5		X			X	X	X	
TP-3	8 - 8		X			X	X	X	
TP-6	6 - 6		X			X	X	X	
TP-9	4 - 4		X			X	X	X	
TP-12	5 - 5		X			X	X	X	
TP-14	7 - 7		X			X	X	X	

Notes:

Sample dates are included in the data tables in Section 6.

Table C-3

Analytical Program for Sediment Samples

R.G. Haley Site

Bellingham, Washington

Sediment Sample	Sample Depth (in feet bgs)	Conventionals	Metals	HPAH	LPAH	Dioxins/Furans	Chlorinated Organics	Phenol	Phthalate	TPH	Bioassay
6B-01-DC	1 - 2		X								
6B-01-DC	2 - 3		X								
6B-02-DC	1 - 2	X	X	X	X		X	X	X		
6B-02-DC	2 - 3	X		X	X		X	X	X		
6B-03-SS	0 - .39	X	X	X	X		X	X	X		X
6B-04-SS	0 - .39	X	X	X	X		X	X	X		X
RGHSC01	0 - 2	X	X	X	X	X	X	X	X	X	
RGHSC01	2 - 4	X	X	X	X	X	X	X	X	X	
RGHSC01	4 - 6	X	X	X	X		X	X	X	X	
RGHSC02	0 - 2	X	X	X	X	X	X	X	X	X	
RGHSC02	2 - 4	X	X	X	X	X	X	X	X	X	
RGHSC02	4 - 6	X	X	X	X		X	X	X	X	
RGH-SC03	0 - 2	X	X	X	X	X	X	X	X	X	
RGH-SC03	2 - 4	X	X	X	X		X	X	X	X	
RGH-SC03	4 - 6	X	X	X	X		X	X	X	X	
RGHSC04	0 - 2	X	X	X	X	X	X	X	X	X	
RGHSC04	2 - 4	X	X	X	X		X	X	X	X	
RGHSC04	4 - 6	X	X	X	X		X	X	X	X	
RGHSC05	0 - 2	X	X	X	X	X	X	X	X	X	
RGHSC05	2 - 4	X	X	X	X		X	X	X	X	
RGHSC05	4 - 6	X	X	X	X		X	X	X	X	
RGHSC06	0 - 2	X	X	X	X	X	X	X	X	X	
RGHSC06	2 - 4	X	X	X	X	X	X	X	X	X	
RGHSC06	4 - 6	X	X	X	X		X	X	X	X	
RGHSC07	0 - 2	X	X	X	X		X	X	X	X	
RGHSC07	2 - 4	X	X	X	X		X	X	X	X	
RGHSC07	4 - 6.8	X	X	X	X		X	X	X	X	
RGHSC08	0 - 2	X	X	X	X		X	X	X	X	
RGHSC08	2 - 4	X	X	X	X		X	X	X	X	
RGHSC08	4 - 5.5	X	X	X	X		X	X	X	X	
RGHSC09	0 - 2	X	X	X	X		X	X	X	X	
RGHSC09	2 - 4	X	X	X	X		X	X	X	X	
RGHSC09	4 - 5.5	X	X	X	X		X	X	X	X	
RGHSS01	0 - .39	X	X	X	X	X	X	X	X	X	X
RGHSS02	0 - .39	X	X	X	X	X	X	X	X	X	
RGHSS03	0 - .39	X	X	X	X	X	X	X	X	X	X
IZ-DP-1	3 - 4	X		X	X			X		X	
IZ-MW-1	4 - 5	X		X	X			X		X	
IZ-MW-2	2 - 4	X		X	X			X		X	
IZ-MW-3	2 - 4	X		X	X	X		X		X	
IZ-MW-4	1 - 4	X		X	X			X		X	
PS-2	.25 - .5	X		X	X		X	X	X	X	
PS-4	.25 - .5	X		X	X		X	X	X	X	
PS-7	.25 - .5	X		X	X		X	X	X	X	
PS-13	.25 - .5	X		X	X		X	X	X	X	
PS-16	.25 - .5	X		X	X		X	X	X	X	
PS-20	.25 - .5	X		X	X		X	X	X	X	
RI-1	0 - .33	X	X	X	X	X	X	X	X		X
RI-2	0 - .33	X		X	X		X	X	X		X
RI-3	0 - .33	X		X	X		X	X	X		X
RI-4	0 - .33	X	X	X	X	X	X	X	X		X
RI-5	0 - .33	X	X	X	X	X	X	X	X		X
RI-6	3.5 - 4.5	X		X	X		X	X	X		
RI-7	3 - 4	X		X	X		X	X	X		
RI-8	4.5 - 5.5	X		X	X		X	X	X		
SRI-1	0 - .5	X		X	X		X	X	X		
SRI-2	0 - .5	X		X	X		X	X	X		
SRI-3	0 - .5	X		X	X		X	X	X		
SRI-4	0 - .5	X		X	X		X	X	X		
SRI-5	0 - .5	X		X	X		X	X	X		
WHARD02 AN-SS-29	0 - .39	X									X
COB-SC-01	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-01	10.5 - 12	X		X	X	X	X	X	X	X	
COB-SC-01	2 - 4	X		X	X	X	X	X	X	X	
COB-SC-01	4 - 6	X		X	X	X	X	X	X	X	
COB-SC-02	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-02	12.5 - 14.5	X		X	X	X	X	X	X	X	
COB-SC-02	2 - 4	X		X	X	X	X	X	X	X	
COB-SC-02	4 - 6	X		X	X		X	X	X	X	
COB-SC-02	8 - 10	X		X	X	X	X	X	X	X	
COB-SC-03	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-03	2 - 4	X		X	X		X	X	X	X	
COB-SC-03	4 - 6	X		X	X	X	X	X	X	X	
COB-SC-03	9.5 - 11.55	X		X	X	X	X	X	X	X	
COB-SC-04	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-04	11 - 13	X		X	X		X	X	X	X	
COB-SC-04	18 - 20	X	X	X	X	X	X	X	X	X	
COB-SC-04	2 - 4	X		X	X		X	X	X	X	
COB-SC-04	4 - 6	X		X	X	X	X	X	X	X	
COB-SC-05	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-05	12.2 - 14.2	X		X	X		X	X	X	X	
COB-SC-05	2 - 4	X		X	X	X	X	X	X	X	
COB-SC-05	4 - 6	X		X	X	X	X	X	X	X	
COB-SC-06	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-06	16 - 18	X		X	X		X	X	X	X	
COB-SC-06	18 - 20	X		X	X	X	X	X	X	X	
COB-SC-06	2 - 4	X		X	X	X	X	X	X	X	
COB-SC-06	4 - 6	X		X	X	X	X	X	X	X	
COB-SC-07	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-07	2 - 4	X		X	X	X	X	X	X	X	
COB-SC-07	4 - 6	X		X	X	X	X	X	X	X	
COB-SC-07	8 - 10	X		X	X	X	X	X	X	X	
COB-SC-08	0 - 2	X	X	X	X	X	X	X	X	X	
COB-SC-08	10 - 12	X		X	X	X	X	X	X	X	
COB-SC-08	4 - 6	X		X	X	X	X	X	X	X	
COB-SC-09	0 - 2	X		X	X	X	X	X	X	X	
COB-SC-09	2 - 4	X		X	X	X	X	X	X	X	

Sediment Sample	Sample Depth (in feet bgs)	Conventionals	Metals	HPAH	LPAH	Dioxins/Furans	Chlorinated Organics	Phenol	Phthalate	TPH	Bioassay
COB-SC-09	4 - 6	X		X	X		X	X	X	X	
COB-SS-01		X	X	X	X	X	X	X	X	X	
COB-SS-02		X	X	X	X	X	X	X	X	X	X
COB-SS-03		X	X	X	X	X	X	X	X	X	X
COB-SS-04		X	X	X	X	X	X	X	X	X	X
COB-SS-05		X	X	X	X	X	X	X	X	X	X
COB-SS-06		X				X					
COB-SS-07		X				X					
COB-SS-08		X				X					
COB-SS-09		X									
COB-SS-10		X									
COB-SS-11		X	X	X	X	X	X	X	X	X	
CL-RIS-1		X								X	
CL-RIS-2		X								X	
CL-RIS-3		X									

Notes:

Sample dates are included in the data tables in Section 6.

Table C-4

Analytical Program for Stormwater Sample

R.G. Haley Site

Bellingham, Washington

Sample ID	Date	Conventionals	TPH	PAHs	SVOCs
30" OUTFALL-032613	3/26/13	X	X	X	X

Table C-5

Analytical Program for Soil Vapor Samples

R.G. Haley Site

Bellingham, Washington

Sample ID	BETX	C5-C8 Aliphatic Hydrocarbons	C9 to C12 Aliphatic Hydrocarbons	C9 to C10 Aromatic Hydrocarbons	2-Methylnaphthalene	Naphthalene	1,3-Butadiene	Methyl tert-butyl ether
HS-SV-1	X	X	X	X	X	X	X	X
HS-SV-2	X	X	X	X	X	X	X	X
HS-SV-3	X	X	X	X	X	X	X	X
HS-SV-4	X	X	X	X	X	X	X	X
HS-SV-5	X	X	X	X	X	X	X	X
HS-SV-6	X	X	X	X	X	X	X	X
HS-SV-7	X	X	X	X	X	X	X	X
HS-SV-8	X	X	X	X	X	X	X	X

Notes:

Sample dates are included in the data tables in Section 6.

APPENDIX D
Exploration Logs

EXHIBIT D-1
2012 GeoEngineers Logs

List of Contents for 2012 GeoEngineers Logs:

- Log of Monitoring Well TL-MW-12
- Log of Monitoring Well TL-MW-13
- Log of Monitoring Well TL-MW-14
- Log of Monitoring Well TL-MW-15
- Log of Monitoring Well TL-MW-16
- Log of Monitoring Well TL-MW-17
- Log of Monitoring Well TL-MW-19
- Log of Boring CL-SB-101
- Log of Boring CL-SB-102
- Log of Boring CL-SB-103
- Log of Boring HS-SB-101
- Log of Boring HS-SB-102
- Log of Boring HS-SB-103
- Log of Boring HS-SB-104
- Log of Boring TL-SB-101
- Log of Monitoring Well CL-MW-101
- Log of Monitoring Well CL-MW-102
- Log of Monitoring Well CL-MW-103
- Log of Boring HS-SB-18
- Log of Boring COB-SC-01
- Log of Boring COB-SC-02
- Log of Boring COB-SC-03
- Log of Boring COB-SC-04
- Log of Boring COB-SC-05
- Log of Boring COB-SC-06
- Log of Boring COB-SC-07
- Log of Boring COB-SC-08
- Log of Boring COB-SC-09

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Groundwater Contact

Measured groundwater level in exploration, well, or piezometer

Groundwater observed at time of exploration

Perched water observed at time of exploration

Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Material Description Contact

Distinct contact between soil strata or geologic units

Approximate location of soil strata change within a geologic soil unit

Sampler Symbol Descriptions

2.4-inch I.D. split barrel

Standard Penetration Test (SPT)

Shelby tube

Piston

Direct-Push

Bulk or grab

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PP	Pocket penetrometer
PPM	Parts per million
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GEOENGINEERS

FIGURE A-1

Drilled	Start 7/11/2012	End 7/11/2012	Total Depth (ft)	13.5	Logged By CTB Checked By CEB	Driller	Boart Longyear	Drilling Method	Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75	DOE Well I.D.: BHK 960 A 2 (in) well was installed on 7/11/2012 to a depth of 13.5 (ft).
Surface Elevation (ft) Vertical Datum	15.1 NAVD88	Top of Casing Elevation (ft)	14.66	
Easting (X) Northing (Y)	639325.93 1239936.68	Horizontal Datum	NAD83/98	

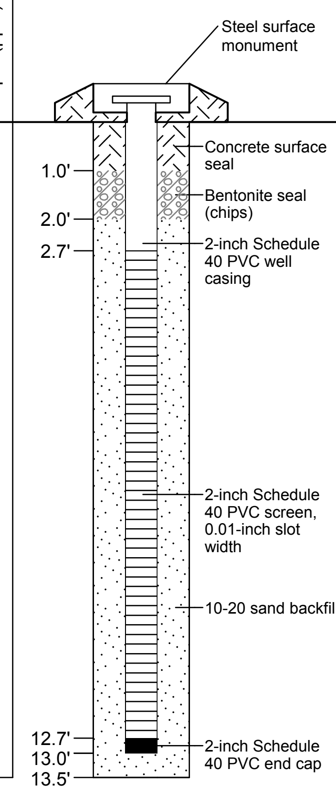
Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
7/11/2012	8.7	6.4

Notes: Auger Data: 4¼-inch I.D.

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0									See TL-MW-13		
10	5											
							▼					
5	10											

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well TL-MW-12

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start	End	Total Depth (ft)	Logged By	Driller	Drilling Method
	7/3/2012	7/3/2012	46.3	RNM; Checked By CEB	Cascade Drilling, L.P.	Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75	DOE Well I.D.: BHE 984 A 2 (in) well was installed on 7/3/2012 to a depth of 46.1 (ft).	
Surface Elevation (ft) Vertical Datum	15.06 NAVD88	Top of Casing Elevation (ft)	14.60		
Easting (X) Northing (Y)	639332.11 1239940.56	Horizontal Datum	NAD83/98		

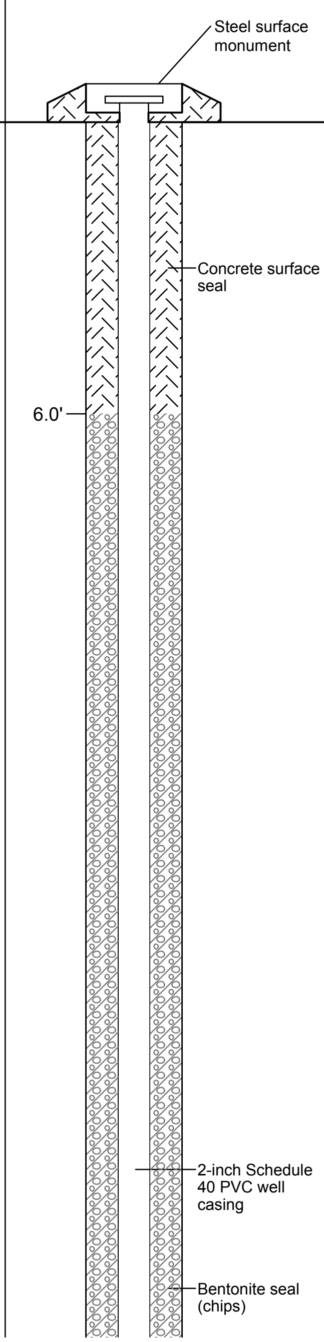
Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
7/3/2012	10.0	5.1

Notes: Auger Data: 4¼-inch I.D.

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name	Water Level	Group Classification	Material Description	Sheen	Headspace Vapor (ppm)
	0					SM	Silty sand with gravel (50/30/20), fine to medium sand, fine to coarse gravel, dark brown, moist, loose		
		12	8					NS	<1
		16	10			ML	Sandy silt with gravel (50/30/20), fine to medium sand, fine to coarse gravel, glass fragments, dark brown with orange mottling, moist, medium stiff	NS	<1
10	5					SM ML			
		18	10				Silty sand with gravel (50/30/20), fine to medium sand, fine to coarse gravel, brown occasional wood fragments and black glassy gravel, moist, loose	NS	<1
		8	50/6"			SM	Sandy silt (60/40), fine sand, green-gray with orange mottling, white shell fragments, moist, medium stiff	NS	<1
						Wood	Silty sand (60/40), fine to medium sand, trace fine gravel, gray with orange mottling, occasional fresh brown wood fragments, moist, dense		
		0	5						
5	10	6	5	TL-MW-13-11-12 CA	∇	SM	Fresh brown wood fragments	HS	74
		16	10				Silty sand (70/20/10 gravel), fine to medium sand, fine gravel, dark brown to black, occasional wood fragments and shavings, wet, loose, brown NAPL on sampler, staining and petroleum-like odor	HS	58
		18	17			SP-SM	Poorly graded sand with silt (90/10), fine to medium sand, gray, occasional brown wood fragments, wet, medium dense, petroleum-like odor	MS	23
0	15	6	4			SM	Silty sand with gravel (45/35/20), fine to medium sand, fine to coarse gravel, dark brown to black, occasional brown to black wood fragments and shavings, wet, medium dense	NS	2
		2	4			SP-SM	Poorly graded sand with gravel and silt (70/20/10), fine to medium sand, fine to coarse gravel, dark gray, occasional wood, shell and brick fragments, wet, loose	SS	<1
		10	10	TL-MW-13-18-19 CA				NS	<1
		6	12					NS	<1
-5	20								
						Wood	Wood fragments and shavings, tan, orange-brown and dark brown		
		10	14	TL-MW-13-23-24 CA				NS	25
	25								

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well TL-MW-13

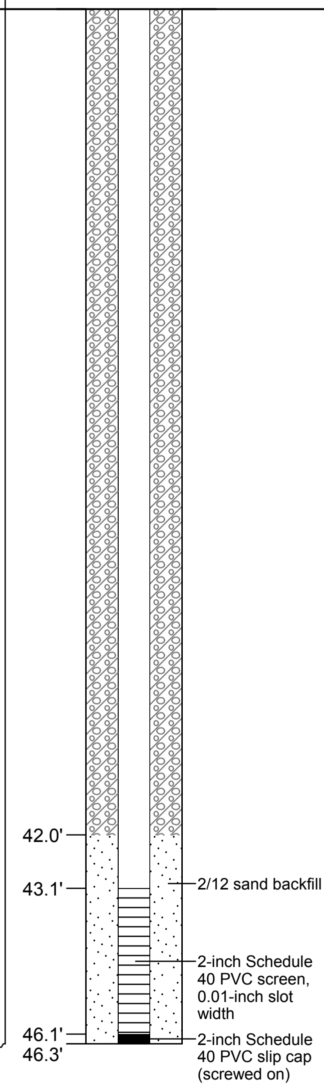
GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name	Sheen	Headspace Vapor (ppm)
	25	6	7		SS	1
		2	7		NS	<1
-15	30	18	2		SS	2
					NS	<1
		18	13	TL-MW-13-33-34 CA	NS	<1
-20	35	18	10		NS	<1
		17	15		NS	<1
-25	40	6	15		NS	3
		6	21		NS	1
-30	45	6	50/6"	TL-MW-13-45-46 CA	NS	<1
		2	50/3"		NS	<1

Group Classification	Material Description
SM	Silty sand (65/35), fine sand, gray, occasional brown fresh wood fragments, wet, very loose
Wood	Wood fragments and shavings, 35% silt, dark brown, occasional white shell fragments, moist
SM	Silty sand (65/30/5 shells), fine to medium sand, white shell fragments, gray, wet, very loose
SP-SM	Poorly graded sand with silt (90/10), fine to medium sand, gray, occasional brown wood fragments and white shell fragments, wet, medium dense
SM	Silty sand (80/20), fine to medium sand, gray, occasional white shell fragments, wet, medium dense
SP-SM	Poorly graded sand with gravel (55-75 sand/15-35 gravel/10 silt), fine to medium sand, fine to coarse gravel, gray, occasional brown wood fragments and white shell fragments, wet, medium dense
GM	Silty gravel with sand (50/30/20), fine to coarse gravel, fine to medium sand, gray to brown, moist, very dense
Siltstone	Gray to brown siltstone

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well TL-MW-13 (continued)

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/2/2012	7/2/2012	32.3	RNM	CEB	Cascade Drilling, L.P.	Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75
Surface Elevation (ft)	14.41	Top of Casing Elevation (ft)	
Vertical Datum	NAVD88		
Easting (X)	639521.3	Horizontal Datum	NAD83/98
Northing (Y)	1240226.18		

DOE Well I.D.: BHE 980
A 2 (in) well was installed on 7/2/2012 to a depth of 30.3 (ft).

Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
7/2/2012	8.0	6.4

Notes: Auger Data: 4¼-inch I.D.

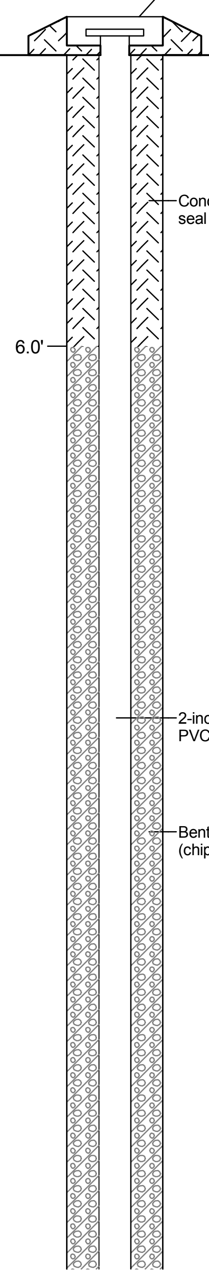
FIELD DATA

Recovered (in)	Blows/foot	Collected Sample / Sample Name	Sheen	Headspace Vapor (ppm)
12	11		SS	<1
0	11		SS	<1
2	9		SS	<1
1	13		MS	5
4	6		HS	100
16	10	TL-MW-14-11-12 CA	HS	85
18	5		HS	11
17	9		HS	70
14	12	TL-MW-14-15-16 CA	MS	43
8	7		MS	16
6	50/3"		SS	1
3	50/3"		NS	<1
12	50/3"		NS	3
0	4			
16	4	TL-MW-14-23-24 CA	NS	2
12	10		NS	<1

MATERIAL DESCRIPTION

Group Classification	Material Description
SP-SM	Brown poorly graded sand with silt and gravel (70/20/10), fine to medium sand, fine to coarse gravel, dark brown, occasional wood fragments, moist, medium dense
ML	Sandy silt (65/30/5 gravel), fine to coarse gravel, fine sand, brown, moist, medium stiff
GP	Poorly graded gravel with sand and silt (70/25/5), fine gravel, fine to medium sand, dark brown, moist, loose
GP-GM	Poorly graded gravel with sand and silt (50/40/10), fine gravel, fine to medium sand, dark brown, moist to wet, medium dense, staining and petroleum-like odor
SM	Silty sand with gravel (60/25/15), fine to medium sand, fine to coarse gravel, dark brown to black, occasional wood fragments, wet, loose, staining and petroleum-like odor
SP-SM	Poorly graded sand with gravel and silt (70/20/10), fine to medium sand, fine to coarse gravel, dark gray, occasional brown fresh wood fragments and white shell fragments, wet, medium dense, staining and petroleum-like odor
SM	Silty sand (80/20), fine to medium sand, dark gray, occasional brown to black wood fragments and white shell fragments, wet, loose, staining and petroleum-like odor
SP-SM	Poorly graded sand with silt (90/10), fine to medium sand, dark gray, occasional wood fragments and shavings and shell fragments, wet, medium dense, petroleum-like odor
SM	Silty sand (80/20), fine to medium sand, gray, occasional wood and shell fragments, wet, loose, petroleum-like odor
Wood	Wood fragments and shavings, orange-brown, tan and black fresh to decomposed, wet, occasional white shell fragments
SM	Silty sand (75 - 85% sand; 15 - 25% silt), fine to medium sand, gray, occasional brown fresh wood fragments and white shell fragments, wet, loose

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

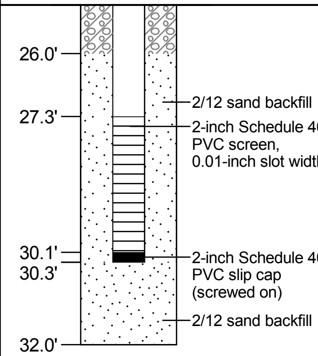
Log of Monitoring Well TL-MW-14

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	25		8	10							NS	<1
			10	15		TL-MW-14-28-29					NS	<1
-15												
	30		10	34					ML	Sandy silt (60/30/10 gravel), fine sand, fine to medium gravel, gray, occasional brown fresh wood fragments and white shell fragments, moist, very stiff	NS	<1
			3	65/3"					Siltstone	Gray siltstone	NS	<1

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well TL-MW-14 (continued)

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	6/27/2012	6/27/2012	32.3	RNM	CEB	Cascade Drilling, L.P.	Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75
Surface Elevation (ft)	15.4	Top of Casing Elevation (ft)	14.85
Vertical Datum	NAVD88		
Easting (X)	639484.496	Horizontal Datum	NAD83/98
Northing (Y)	1240148.15		

DOE Well I.D.: BHE 981
A 2 (in) well was installed on 6/27/2012 to a depth of 30.3 (ft).

Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
6/28/2012	6.0	9.4

Notes: Auger Data: 4¼-inch I.D.

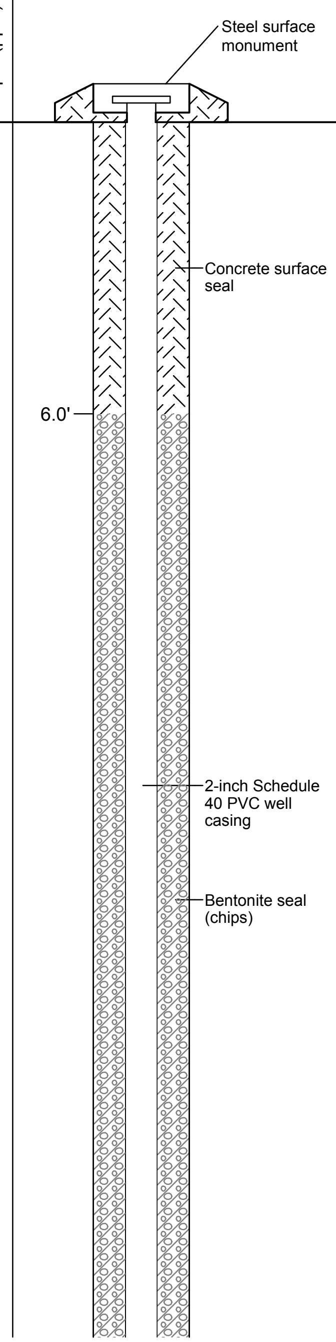
FIELD DATA

Recovered (in)	Blows/foot	Sample Name	Sheen	Headspace Vapor (ppm)
16	10		SS	<1
9	10		SS	<1
12	12		SS	<1
15	22		SS	<1
18	27		NS	<1
2	12		HS	7
3	9	TL-MW-15-10-11 CA	MS	<1
			HS	2
13	9		HS	8
18	17	TL-MW-15-14-15 CA	SS	1
12	8		SS	<1
14	44		NS	1
13	6		NS	<1
6	6	TL-MW-15-22-23 CA	NS	<1
0	6			

Water level: ▽ at 6.0 ft

Group Classification	MATERIAL DESCRIPTION
SP-SM	Poorly graded sand with gravel and silt (50/40/10), fine to medium sand, fine to coarse gravel, dark brown, loose, moist
SM	Silty sand with gravel (50/30/20), dark brown with orange mottling, dark brown, moist, medium dense, occasional orange-red brick fragments
SP-SM	Poorly graded sand with silt (80/10/10), fine to medium sand, fine gravel, brown to black with orange mottling, moist, medium dense, occasional brown wood fragments
Wood	Wood fragments, stained and petroleum-like odor
SM	Silty sand (50/35/10 gravel/5 wood), fine to medium sand, fine gravel, dark brown, moist to wet, medium dense, staining and petroleum-like odor
Wood	Wood fragments, dark brown, wet, stained and petroleum-like odor
SP-SM	Poorly graded sand with silt (90/10), medium sand, wet, loose, occasional white shell fragments and brown wood fragments, staining and petroleum-like odor
SP	Poorly graded sand (95/5% silt), medium sand, wet, medium dense, occasional white shell and brown wood fragments
Wood	Tan to orange-brown fresh wood shavings, moist to wet, loose

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well TL-MW-15

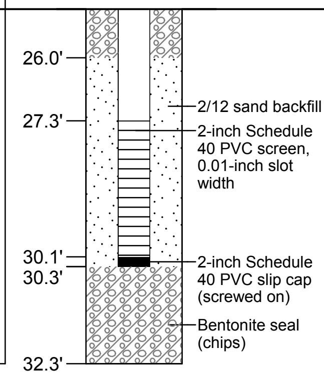
GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name	Sheen	Headspace Vapor (ppm)
-10	25					
		18	6		NS	<1
		12	17	TL-MW-15-29-30	NS	<1
-15	30					
		15	52/9"		NS	<1

Group Classification	MATERIAL DESCRIPTION
SP-SM	Poorly graded sand with gravel and silt (75/15/10), medium sand, fine to coarse gravel, gray, wet, loose, occasional white shell fragments and brown to tan fresh wood fragments
SM	Silty sand with gravel (60/20/20), fine to medium sand, fine to coarse gravel, wet, medium dense, occasional shell fragments
ML	Silt with sand (80/20), fine sand, trace fine gravel, gray, moist, stiff
SM	Silty sand (55/25/20 gravel), fine to coarse sand, fine to coarse gravel, gray, moist to wet, medium dense, occasional white shell fragments
ML	Silt (80/10 sand/10 gravel), fine sand, fine gravel, gray, moist, stiff
Siltstone	Siltstone

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Seattle: Date:2/4/13 Path:C:\USERS\CVOSS\DESKTOP\035611406 HALEY.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Log of Monitoring Well TL-MW-15 (continued)

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	6/28/2012	6/28/2012	33.3	RNM	CEB	Cascade Drilling, L.P.	Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75
Surface Elevation (ft) / Vertical Datum	13.53 / NAVD88	Top of Casing Elevation (ft)	12.99
Easting (X) / Northing (Y)	639409.89 / 1240016.04	Horizontal Datum	NAD83/98

DOE Well I.D.: BHE 979
A 2 (in) well was installed on 6/28/2012 to a depth of 32.7 (ft).

Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
6/28/2012	6.0	7.5

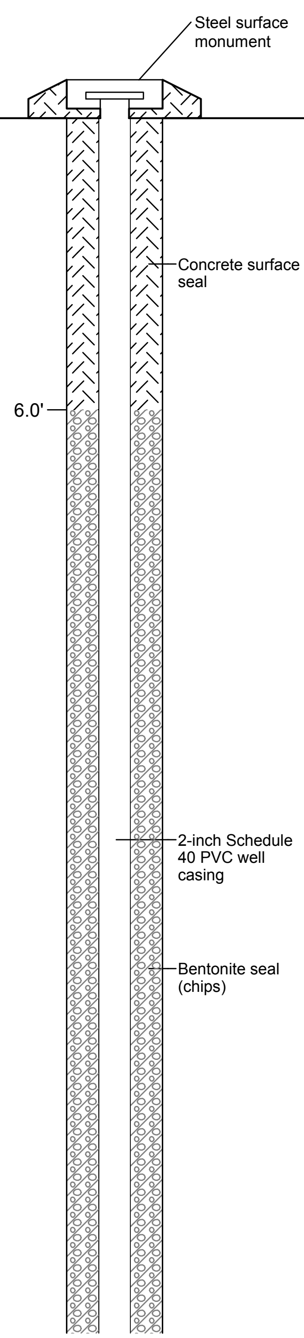
Notes: Auger Data: 4¼-inch I.D.

FIELD DATA

Depth (feet)	Recovered (in)	Blows/foot	Sample Name	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
0	15	10		SM	Silty sand with gravel (50/25/25), fine to medium sand, fine gravel, black to dark brown, trace brown fresh and black decomposed wood fragments and shavings, moist, loose, staining	SS	<1
				ML	Sandy silt (70/30), fine sand, trace fine gravel, brown with orange mottling, moist, medium stiff	SS	<1
	4	5				NS	<1
	6	8				NS	<1
				SM	Silty sand (60/40), fine to medium sand, trace fine gravel, tan to brown with orange mottling, moist, loose		
5	6	9				NS	<1
				Wood	Wood, orange-brown fresh fragments and black to dark brown fragments and shavings in fine to medium sand (~10%) and silt (~10%), trace fine gravel, staining and petroleum-like odor throughout	NS	<1
	2	4				MS	<1
	6	4	TL-MW-16-8-9 CA			MS	1
	1	6				MS	1
10	4	2				MS	1
	12	8				MS	7
	16	5	TL-MW-16-14-15 CA	SM	Silty sand (60/30/10 gravel), fine to medium sand, fine gravel, dark gray, wet, loose, occasional wood fragments and white shell fragments, staining and petroleum-like odor	MS	<1
				SP-SM	Poorly graded sand with silt (90/10), fine to medium sand, dark gray, wet, loose, occasional white shell fragments (15-17 feet), petroleum-like odor (14-15 feet)		
15	18	8				SS	<1
	17	3				NS	<1
				SM	Silty sand (70/30), fine to medium sand, gray, wet, very loose, occasional white shell fragments		
				ML	Sandy silt (70/30), fine sand, gray, wet, soft, occasional white shell fragments, sulfur-like odor		
	18	5	TL-MW-16-20-21 CA	SP-SM	Poorly graded sand with silt (90/10), fine to medium sand, gray, wet, loose, occasional white shell fragments	SS	<1
20				Wood	Wood fragments and shavings, tan to brown, wet, with 10% fine to medium sand and 5% silt from 24.5-25 feet		
	<1	5					
	0	4					
25	15	3				NS	<1

Elevation (feet): 10, 5, 0, -5, -10

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

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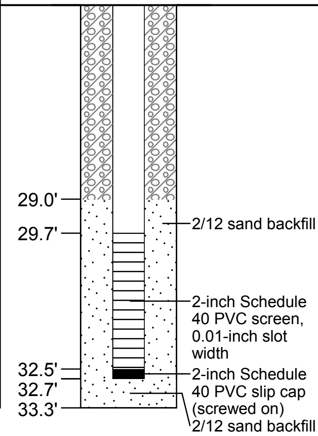
Log of Monitoring Well TL-MW-16

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	25								SM	Silty sand (70/30), fine to medium sand, gray, wet, very loose, occasional white shell fragments and wood fragments		
			18	22					SM	-with 10% fine to coarse gravel (70/20/10), at 27.5 feet; medium dense, no wood fragments		
-15			18	37					SP	Poorly graded sand with gravel (75/20/5 silt), fine to medium sand, fine to coarse gravel, gray, wet, dense, occasional white shell fragments	NS	<1
	30											
			18	36		TL-MW-16-30-31 CA			SP-SM	Poorly graded sand with gravel and silt (70/20/10), gray, wet, dense, occasional white shell fragments	NS	<1
			9	65/9"		TL-MW-16-31-32 CA			SP	Poorly graded sand (85/10 gravel/5 silt), medium sand, fine gravel, gray, wet, dense	NS	<1
									Siltstone	Siltstone		

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well TL-MW-16 (continued)

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	6/27/2012	6/27/2012	16.8	RNM	CEB	Cascade Drilling, L.P.	Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75
Surface Elevation (ft)	13.38	Top of Casing Elevation (ft)	13.11
Vertical Datum	NAVD88		
Easting (X)	639679.55	Horizontal Datum	NAD83/98
Northing (Y)	1240520.65		

DOE Well I.D.: BHE 985
A 2 (in) well was installed on 6/27/2012 to a depth of 13.5 (ft).

Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
6/27/2012	7.5	5.9

Notes: Auger Data: 4¼-inch I.D.

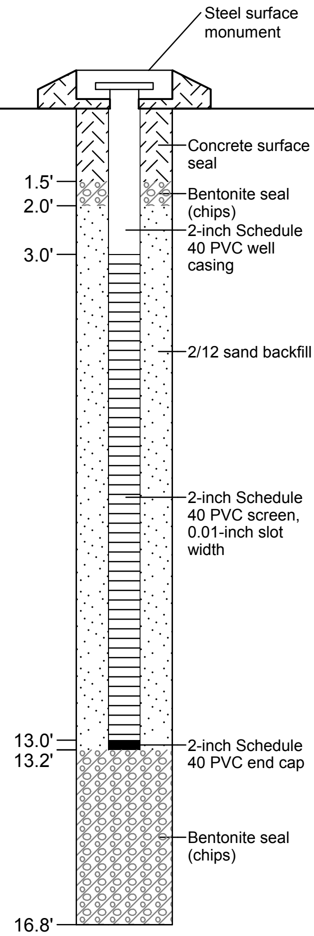
FIELD DATA

Recovered (in)	Blows/foot	Sample Name	Sheen	Headspace Vapor (ppm)
12	21		NS	<1
10	14		SS	<1
12	10		SS	<1
10	7	HS-MW-17-4-5 CA	SS	<1
4	4		SS	<1
16	3		SS	8
			MS	400
6	4		MS	150
			NS	22
6	4		NS	50
4	5		NS	8
4	6		NS	<1
8	15	HS-MW-17-16-17 CA	NS	<1
2	65/3"		NS	<1

MATERIAL DESCRIPTION

Group Classification	Material Description
SP-SM	Poorly graded sand with gravel and silt, (50/40/10), fine to medium sand, fine to coarse gravel, dark brown, medium dense, moist. Grades to loose (65/25/10)
SM	Silty sand with gravel, (75/20/5), medium to coarse sand, fine to coarse gravel, dark brown, occasional black and glassy gravel, loose, moist, slight staining
SP-SM	Poorly graded sand with gravel and silt, (75/15/10), fine to medium sand, fine gravel, gray to brown, occasional black and glassy gravel and shell fragments, moist, loose, slight staining
SM	Silty sand, (70/30), fine to medium sand, dark gray to black, occasional wood fragments and shavings, complete staining, strong petroleum-like odor
Wood	Black decomposed (8.5 to 9 feet) to orange-brown fresh (9 to 16 feet) wood fragments and shavings, moist to wet, strong petroleum-like odor
GP	Poorly graded gravel with sand, (70/30), fine to coarse gravel, fine sand, gray, wet, medium dense
Sandstone	Sandstone bedrock, gray

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well HS-MW-17

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 7/10/2002	End 7/10/2002	Total Depth (ft)	14	Logged By CTB Checked By CEB	Driller Boart Longyear	Drilling Method Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75
Surface Elevation (ft) / Vertical Datum	16.42 / NAVD88	Top of Casing Elevation (ft)	16.06
Easting (X) / Northing (Y)	639175.74 / 1240111.72	Horizontal Datum	NAD83/98

DOE Well I.D.: BHK 962
A 2 (in) well was installed on 7/11/2012 to a depth of 13 (ft).

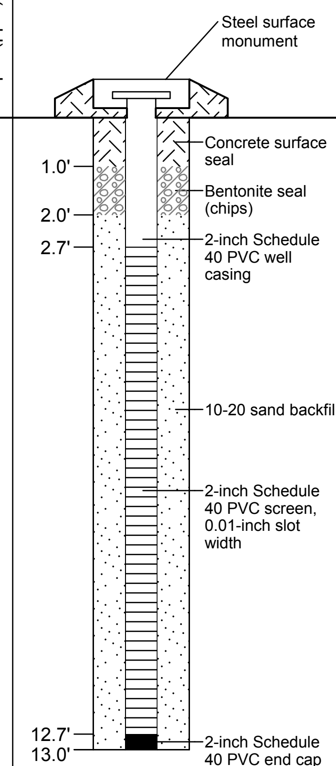
Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
7/11/2012	7.1	9.3

Notes: Auger Data: 4¼-inch I.D.; 8½-inch O.D.

FIELD DATA / MATERIAL DESCRIPTION / WELL LOG

Elevation (feet)	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0				HS-MW-19-1.5-2.5 CA			SP-SM	Poorly graded sand with gravel and silt (65/25/10), fine to coarse sand, fine gravel, black-brown, very loose, moist, occasional red brick fragments, slight petroleum-like odor		
15		5	1							NS	<1
	5	6	3							HS	<1
10								SP	Poorly graded sand with gravel (70/25/5), fine to coarse sand, fine gravel, brown to black, very loose, moist, occasional red brick fragments, strong petroleum-like odor		
			3		HS-MW-19-10-11.5 CA			ML	Sandy silt (70/30), fine to medium sand, with 10% wood fragments, gray with olive mottling, soft, moist, black petroleum-looking substance and petroleum-like odor	HS	<1
	10	4	2							MS	<1
5		4	21		HS-MW-19-12.5-14 CA			ML	Sandy silt (70/30), fine to medium sand, trace fine gravel, with 30% wood fragments, dark gray, soft, moist to wet	SS	<1



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well HS-MW-19

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/25/2012	End 6/25/2012	Total Depth (ft)	7.5	Logged By RNM Checked By CEB	Driller	Cascade Drilling, L.P.	Drilling Method	Direct Push

Surface Elevation (ft) Vertical Datum	15.23 NAVD88	Hammer Data	140 (lbs) / 30 (in) Drop	Drilling Equipment	GeoProbe 6600
Easting (X) Northing (Y)	638967.38 1240106.26	System Datum	NAD83/98	Groundwater	
Notes: 5 foot by 1½-inch core with poly liner				Date Measured: 6/25/2012	Depth to Water (ft): 4.5; Elevation (ft): 10.7

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
15	0		32						GP	Poorly graded gravel (100), fine to coarse gravel, gray, moist			
									GP	Poorly graded gravel with sand (60/35/5 silt), fine to coarse gravel, fine to medium sand, brown, moist	NS	<1	
							∇		SM	Silty sand (70/30), fine to medium, gray, occasional wood shavings, moist			
10	5		29			CL-SB-101-4-5 CA			SP-SM	Poorly graded sand with gravel and silt (60/30/10) gray, occasional brown wood fragments, wet	SS	<1	
											MS	2	
						CL-SB-101-6-7 CA					MS	<1	
									Siltstone	Siltstone	NS	<1	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring CL-SB-101

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/25/2012	End 6/25/2012	Total Depth (ft) 15	Logged By RNM / Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push

Surface Elevation (ft) / Vertical Datum: 15.01 / NAVD88	Hammer Data: 140 (lbs) / 30 (in) Drop	Drilling Equipment: GeoProbe 6600	
Easting (X) / Northing (Y): 639061.86 / 1240059.79	System Datum: NAD83/98	Groundwater	

Notes: 5 foot by 1½-inch core with poly liner

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
6/25/2012	10.0	5.0

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0	54				GP	Poory graded gravel with sand (50/45/5 silt), fine to coarse gravel, fine to medium sand, brown, moist	SS	<1	
						GP	Poorly graded gravel (90/10 sand), fine to medium sand, gray, moist	NS	<1	
						SP-SM	Poorly graded sand with gravel and silt (50/40/10), medium to coarse sand, fine to coarse gravel, gray to brown, occasional red-orange brick fragments and black staining, moist	NS	<1	
10	5	48		CL-SB-102-4-5 CA		SM	Silty sand (50/45/5 gravel), fine to medium sand, fine to coarse gravel, brown, occasional brown fresh wood shavings and roots, moist	NS, NS, NS	<1, <1, <1	
						SP-SM	Poorly graded sand with gravel and silt (50/40/10), medium to coarse sand, fine to coarse gravel, gray to brown, occasional red-orange brick fragments, moist	NS	<1	
						SM	Silty sand with gravel (50/30/20), fine to medium sand, fine to coarse gravel, gray, occasional brown fresh wood fragments and roots, moist	MS, MS	4	
5	10	50		CL-SB-102-9-10 CA	∇	Wood	Silt and wood (50% silt, 50% wood), fresh brown to decomposed black wood fragments and shavings, moist to wet, petroleum-like odor	HS	27	
						Wood	Fresh orange-brown wood fragments and shavings, wet	MS	3	
				CL-SB-102-13-14 CA		ML	Silt with sand (80/20), fine sand, gray, occasional fine gravel, wet to moist	NS, NS	<1, <1	
						Siltstone	Siltstone	NS	<1	
	15									

Note: Please see Figure A-1 for explanation of symbols

Log of Boring CL-SB-102

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled — Start: 6/25/2012; End: 6/25/2012	Total Depth (ft): 15	Logged By: RNM; Checked By: CEB	Driller: Cascade Drilling, L.P.	Drilling Method: Direct Push	
Surface Elevation (ft): 15.06; Vertical Datum: NAVD88	Hammer Data: 140 (lbs) / 30 (in) Drop		Drilling Equipment: GeoProbe 6600		
Easting (X): 638969.79; Northing (Y): 124002.83	System Datum: NAD83/98		Groundwater — Date Measured: 6/25/2012	Depth to Water (ft): 8.5	Elevation (ft): 6.6
Notes: 5 foot by 1½-inch core with poly liner					

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0	50				AC	Asphalt concrete			
						GP	Poorly graded gravel with sand (70/25/5 silt) fine to coarse gravel, fine to medium sand, gray to brown, moist	SS	<1	
								NS	<1	
10	5	36		CL-SB-103-4-5 CA		SM	Silty sand (50/40/10 gravel), fine to medium sand, fine gravel, dark gray, occasional red-orange brick fragments and greenish-gray staining, moist	MS	7	
						SP-SM	Poorly graded sand with gravel and silt (70/20/10), fine to medium sand, fine gravel, dark gray to black, moist to wet, petroleum-like odor and staining	MS	12	
				CL-SB-103-8-9 CA	▽			HS	30	
5	10	48				Wood	Fresh brown to decomposed black wood fragments and shavings, wet, NAPL, petroleum-like odor and staining	HS	28	
						SM	Silty sand (70/20/10 gravel), fine to medium sand, fine to coarse gravel, gray, wet			
						SP-SM	Poorly graded sand with gravel and silt (70/20/10), medium to coarse sand, fine gravel, dark gray to black, occasional red-orange brick fragments, white shells and fresh brown wood fragments, wet	SS	<1	
				CL-SB-103-14-15 CA				NS	<1	
	15					Siltstone	Gray siltstone			

Note: Please see Figure A-1 for explanation of symbols

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Log of Boring CL-SB-103

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/26/2012	End 6/26/2012	Total Depth (ft) 18	Logged By RNM / Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push

Surface Elevation (ft) 13.16 / Vertical Datum NAVD88	Hammer Data 300 (lbs) / 30 (in) Drop	Drilling Equipment GeoProbe 6600
Easting (X) 639592.47 / Northing (Y) 1240420.1	System Datum NAD83/98	Groundwater

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
6/26/2012	7.0	6.2

Notes: 5 foot by 1½-inch core with poly liner

FIELD DATA

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		41						SP-SM	Poorly graded sand with gravel and silt (50/40/10), fine to medium sand, fine gravel, moist	SS	<1	
10									SP-SM	Poorly graded sand with gravel and silt (70/20/10), medium to coarse sand, fine to coarse gravel, occasional black and glassy gravel and wood fragments, moist, complete staining	NS	<1	
	5		46			HS-SB-101-4-5 / CA					SS	<1	
											SS	<1	
5							∇		SP-SM	Poorly graded sand with gravel and silt (75/15/10), medium to coarse sand, fine gravel, black, occasional wood fragments, wet, complete staining	NS	<1	
	10		23			HS-SB-101-9-10 / CA			Wood	Fresh tan, gray and orange-brown wood fragments and shavings, occasional fine to medium sand and silt (<5%), wet	NS	<1	
0						HS-SB-101-13-14 / CA					NS	<1	
	15		24								NS	<1	
						HS-SB-101-17-18 / CA			SP-SM	Poorly graded sand with silt (55/35/10 gravel), fine to medium sand, gray, occasional wood fragments and shell fragments, wet	NS	<1	
									Sandstone	Gray sandstone			

Note: Please see Figure A-1 for explanation of symbols

Log of Boring HS-SB-101

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/25/2012	End 6/25/2012	Total Depth (ft) 12	Logged By RNM / Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push

Surface Elevation (ft) / Vertical Datum	15.67 / NAVD88	Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	GeoProbe 6600
Easting (X) / Northing (Y)	639350.77 / 1240273.55	System Datum	NAD83/98		

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
6/25/2012	10.0	5.7

Notes: 5 foot by 1½-inch core with poly liner

Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	40		HS-SB-102-0-1 CA		GP	Poorly graded gravel with sand (60/35/5 silt), fine to coarse gravel, fine to medium sand, brown, moist	NS	<1	
					SP	Poorly graded sand with gravel (75/20/5 silt), medium to coarse sand, fine gravel, black, moist, staining	SS	<1	
					CL	Lean clay, light gray, trace gravel and occasional brown to black wood fragments	NS	<1	
5	32								
					SM	Silty sand (60/40), fine to medium sand, gray, occasional fresh brown wood fragments, moist	SS	<1	
					Siltstone	Siltstone cobble/boulder	NS	<1	
			HS-SB-102-9-10 CA		SM	Silty sand (55/45), fine to medium sand, trace fine gravel, gray, occasional fresh brown wood fragments, moist to wet	NS	<1	
10	22			∇	SP-SM	Poorly graded sand with gravel and silt (60/30/10), fine to medium sand, fine to coarse gravel, gray to brown, wet, staining	HS / MS	4 / <1	
					Siltstone	Siltstone	NS	<1	

Note: Please see Figure A-1 for explanation of symbols

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Log of Boring HS-SB-102

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/25/2012	End 6/25/2012	Total Depth (ft) 15	Logged By RNM Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push

Surface Elevation (ft) 13.6 Vertical Datum NAVD88	Hammer Data 300 (lbs) / 30 (in) Drop	Drilling Equipment GeoProbe 6600	
Easting (X) 639457.68 Northing (Y) 1240281.73	System Datum NAD83/98	Groundwater	
Notes: 5 foot by 1½-inch core with poly liner		Date Measured: 6/25/2012	Depth to Water (ft): 8.0; Elevation (ft): 5.6

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36						GP	Poorly graded gravel with sand and silt (60/30/10), fine to coarse gravel, fine to medium sand, dark brown to gray, occasional roots and black staining, moist	SS	<1	
									SM	Silty sand (60/40), fine to medium sand, trace fine gravel, brown, occasional red-orange brick fragments and brown wood fragments, moist	NS	<1	
10													
	5		38			HS-SB-103-4-5 CA			SP-SM	Poorly graded fine sand with silt (90/10), medium sand, trace gravel, black, occasional fresh brown wood fragments, moist, staining	SS	<1	
									SM	Silty sand with gravel (50/35/15), fine to medium sand, fine gravel, gray to brown, moist	SS	<1	
5						HS-SB-103-8-9 CA	∇		SP-SM	Poorly graded sand with gravel and silt (60/30/10), medium sand, fine gravel, dark gray to black, occasional fresh brown to decomposed black wood fragments and shavings, moist to wet, NAPL, petroleum-like odor and staining	HS	58	
	10		55						Wood	Orange-brown fresh wood fragments, wet	NS	<1	
									SM	Silty sand with gravel (40/30/30), fine to medium sand, fine to coarse gravel, gray to black, wet, petroleum-like odor and staining	HS	37	
0						HS-SB-103-13-14 CA			Wood	Brown to orange fresh wood fragments, 20% silt, 10% fine to medium sand, occasional white shells, wet, petroleum-like odor and staining	MS	10	
	15								Sandstone	Sandstone	NS	<1	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring HS-SB-103

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/25/2012	End 6/25/2012	Total Depth (ft) 10.5	Logged By RNM Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push

Surface Elevation (ft) Vertical Datum	14.32 NAVD88	Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	GeoProbe 6600
Easting (X) Northing (Y)	639554.43 1240507.94	System Datum	NAD83/98	Groundwater	

Notes: 5 foot by 1½-inch core with poly liner

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
6/25/2012	9.0	5.3

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		53						AC	4 inches asphalt concrete			
						HS-SB-104-0-1 CA			GP	Poorly graded gravel with sand (60/40), fine to coarse gravel, fine to medium sand, gray, moist	SS	<1	
									SP-SM	Poorly graded sand with gravel and silt (65/25/10), medium sand, fine gravel, dark gray to black, occasional fresh brown to decomposed black wood fragments and shavings, moist, staining	SS	<1	
10	5		36			HS-SB-104-4-5 CA					SS	<1	
											SS	<1	
						HS-SB-104-8-9 CA	∇		ML	Silt with wood (80/20), fresh brown to decomposed black wood fragments and shavings, dark gray, wet, staining	SS	<1	
5									Wood	Fresh tan to orange-brown wood fragments, wet	NS	<1	
	10								Siltstone	Siltstone	NS	<1	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring HS-SB-104

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/26/2012	End 6/26/2012	Total Depth (ft) 29	Logged By RNM Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Direct Push

Surface Elevation (ft) 12.06 Vertical Datum NAVD88	Hammer Data 300 (lbs) / 30 (in) Drop	Drilling Equipment GeoProbe 6600	
Easting (X) 639666.24 Northing (Y) 1230412.82	System Datum NAD83/98	Groundwater	
Notes: Auger Data: 4¼-inch I.D.		Date Measured: 6/26/2012	Depth to Water (ft): 8.0 — Elevation (ft): 4.1

FIELD DATA

Depth (feet)	Recovered (in)	Sample Name / Testing	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	45		GP-GM	Poorly graded gravel with sand and silt (60/30/10), fine to coarse gravel, fine to medium sand, dark brown, moist			
			SP-SM	Poorly graded sand with gravel and silt (60/30/10), fine to medium sand, fine to coarse gravel, brown to tan, moist			
			SP-SM	Poorly graded sand with gravel and silt (60/30/10), medium sand, fine to coarse gravel, dark brown to black, moist, staining	SS	<1	
			ML	Sandy silt (70/30), fine sand, trace fine gravel and occasional wood fragments, tan to brown, moist			
		TL-SB-101-4-5 CA	GP	Poorly graded gravel with sand (70/30), fine to coarse gravel, medium sand, gray to white, moist	NS	<1	
5	33		SM	Silty sand (60/40), fine to medium sand, trace fine gravel, gray, moist	NS	<1	
			GP	Poorly graded gravel with sand (70/30), fine to coarse gravel, fine to medium sand, tan to gray, moist	NS	<1	
					NS	<1	
			SP-SM	Poorly graded sand with silt (80/10/10), fine to medium sand, fine gravel, brown to black, occasional wood fragments, complete staining, moist to wet	SS	<1	
		TL-SB-101-9-10 CA					
10	41		Wood	Dark gray to orange-brown fresh wood fragments and shavings with 20% fine to medium sand and 10% silt, wet, complete staining, petroleum-like and sulfur-like odors	SS	10	
		TL-SB-101-14-15 CA			SS	4	
15	47		Wood	Tan to orange-brown fresh wood fragments and shavings, wet, sulfur-like odor	NS	<1	
		TL-SB-101-19-20 CA	SP-SM	Poorly graded sand with silt (90/10), fine to medium sand, occasional brown wood fragments and white shell fragments, wet			
20	57				NS	1	
			SM	Silty sand (80/20), fine to medium sand, gray, trace fine gravel and occasional white shell fragments, wet	NS	<1	
		TL-SB-101-22-23 CA					
		TL-SB-101-24-25 CA			NS	<1	
25							

Elevation (feet): 10, 5, 0, -5, -10

Note: Please see Figure A-1 for explanation of symbols

Log of Boring TL-SB-101

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
-15	25		45			TL-SB-101-28-29 CA			GP	Poorly graded gravel with sand (80/20), fine gravel, gray, wet	NS NS	<1 <1	

Refusal on bedrock at 29 feet

Note: Please see Figure A-1 for explanation of symbols

Log of Boring TL-SB-101 (continued)

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/29/2012	End 6/29/2012	Total Depth (ft) 9.5	Logged By RNM Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Hollow-stem Auger

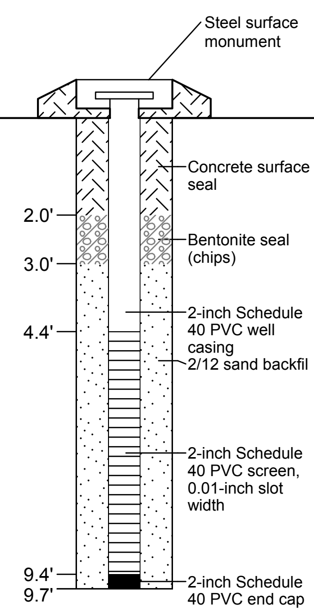
Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75	DOE Well I.D.: BHE 982 A 2 (in) well was installed on 6/29/2012 to a depth of 9.7 (ft).	
Surface Elevation (ft) Vertical Datum	13.65 NAVD88	Top of Casing Elevation (ft)	13.06	Groundwater	
Easting (X) Northing (Y)	638936.68 1239888.2	Horizontal Datum	NAD83/98	Date Measured: 6/29/2012	Depth to Water (ft): 5.3 — Elevation (ft): 8.4

Notes: Auger Data: 4¼-inch I.D.

FIELD DATA

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0								SM	Silty sand with gravel (55/25/20), fine to medium sand, fine gravel, brown, moist, loose		
10												
			10	5							SS	<1
	5						∇		ML	Gravelly silt with sand (60/25/15), fine gravel, fine sand, moist, medium stiff		
			12	3		CL-MW-101-6-7 CA					NS	<1
			12	3					Wood	Wood fragments and shavings, black to brown, 15% silt between 7 and 7.5 feet, wet at 7.5 feet	NS	<1
5												

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Seattle: Date:2/4/13 Path:C:\USERS\CVOSS\DESKTOP\035611406 HALEY.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Log of Monitoring Well CL-MW-101

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 6/29/2012	End 6/29/2012	Total Depth (ft) 9	Logged By RNM / Checked By CEB	Driller Cascade Drilling, L.P.	Drilling Method Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75
Surface Elevation (ft)	14.58	Top of Casing Elevation (ft)	14.27
Vertical Datum	NAVD88		
Easting (X)	638879.53	Horizontal Datum	NAD83/98
Northing (Y)	1230037.41		

DOE Well I.D.: BHE 983
A 2 (in) well was installed on 6/29/2012 to a depth of 8.2 (ft).

Groundwater

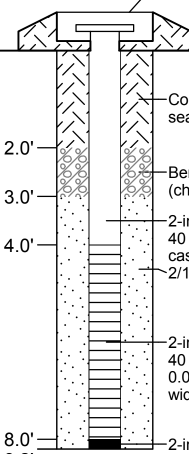
Date Measured	Depth to Water (ft)	Elevation (ft)
6/29/2012	7.0	7.6

Notes: Auger Data: 4¼-inch I.D.

FIELD DATA

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0								AC	3 inches asphalt concrete		
									SM	Silty sand with gravel (60/25/15), fine to medium sand, fine gravel, dark gray, moist, loose		
10			14	6							SS	<1
	5								ML	Sandy silt with gravel (50/30/20), fine to medium sand, fine gravel, brown to green-gray, moist, medium stiff	MS	7
											MS	10
			16	10		CL-MW-102-6-7 CA			Wood	Wood fragments and shavings, black to dark brown, 25% silt, moist to wet, staining and petroleum-like odor	NS	<1
							∇		SM	Silty sand with gravel (50/30/20), fine to coarse sand, fine to coarse gravel, black, occasional orange-red brick fragments and white shell fragments, wet, medium dense		
			9	72/9"		CL-MW-102-7-8			Siltstone	Siltstone	NS	<1

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Seattle: Date:2/4/13 Path:C:\USERS\CVOSS\DESKTOP\035611406 HALEY.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_WELL

Log of Monitoring Well CL-MW-102

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	7/10/2012	7/10/2012	16.5	CTB	CEB	Boart Longyear	Hollow-stem Auger

Hammer Data	300 (lbs) / 30 (in) Drop	Drilling Equipment	Truck-mounted CME 75
Surface Elevation (ft)	14.8	Top of Casing Elevation (ft)	14.41
Vertical Datum	NAVD88		
Easting (X)	639109.99	Horizontal Datum	NAD83/98
Northing (Y)	1240003.47		

DOE Well I.D.: BHK 961
A 2 (in) well was installed on 7/10/2012 to a depth of 15 (ft).

Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)
7/10/2012	6.5	8.3

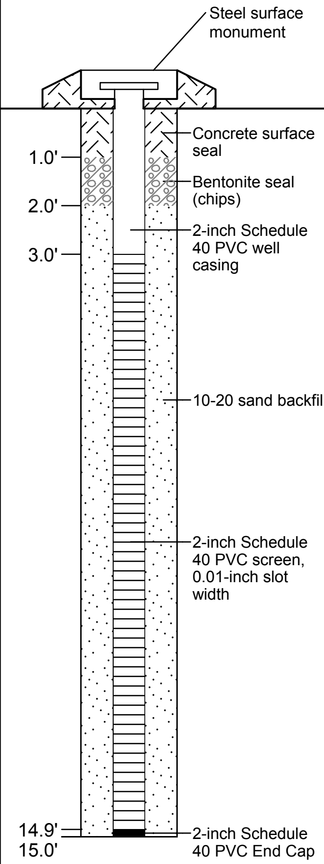
Notes: Auger Data: 4¼-inch I.D.; 8½-inch O.D.

FIELD DATA

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Sample Name / Testing	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0				Wood	Wood fragments with 10% sand with silt, black, moist to wet, petroleum-like odor		
10	5	2	3	CL-MW-103-5-6.5 CA			MS	1
		5	4		Wood	Wood fragments with <5% silty sand, black, wet, petroleum-like odor, NAPL	HS	<1
5	10	4	2	CL-MW-103-10-11.5 CA	SM	Silty sand (60/40), fine to coarse sand, with 30% wood fragments, gray-black, very loose, wet, petroleum-like odor, NAPL	HS	<1
		6	12	CL-MW-103-12.5-14			HS	<1
0	15	4	50/6"				SS	<1
					ML	Sandy silt (70/30), fine to medium sand, gray, hard, moist		

Refusal on bedrock at 16.5 feet

WELL LOG



Note: Please see Figure A-1 for explanation of symbols

Log of Monitoring Well CL-MW-103

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 7/11/2012	End 7/11/2012	Total Depth (ft) 20	Logged By CTB / Checked By CEB	Driller Boart Longyear	Drilling Method Hollow-stem Auger

Surface Elevation (ft) / Vertical Datum	13.16 / NAVD88	Hammer Data: 300 (lbs) / 30 (in) Drop	Drilling Equipment: Truck-mounted CME 75
Easting (X) / Northing (Y)	639592.47 / 1240420.1	System Datum: NAD83/98	Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)

Notes: HS-MW-18 well was not constructed. Auger Data: 4¼-inch I.D.; 8½-inch O.D.

Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0								GP	Coarse gravel (logged based on cuttings)			
5		18	2						No recovery			
		6	6		HS-MW-18-7.5-9 CA			Wood	Cored with 30% silty sand, petroleum-like odor, moist	SS	<1	
10		6	7		HS-MW-18-10-11.5 CA			Wood	Wood fragments with 5% silty sand, fine to coarse sand, dark gray, moist to wet	MS	<1	
15		6	5		HS-MW-18-15-16.5 CA			Wood	Wood fragments and shavings with 5% organic silt, black, wet	SS	<1	
20									Refusal at 20 feet on bedrock			

Elevation (feet): 10, 5, 0, -5

Note: Please see Figure A-1 for explanation of symbols

Log of Boring HS-SB-18

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 7/31/2012	End 7/31/2012	Total Depth (ft)	14	Logged By GRL Checked By SBS	Driller Cascade Drilling, L.P.	Drilling Method Sonic

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A - Sonic Drilling	Drilling Equipment	GeoProbe 8140 LS
Easting (X) Northing (Y)	639453.1832 1240010.959	System Datum		Groundwater	Date Measured / Depth to Water (ft) / Elevation (ft)

Notes: 5 foot core barrel, 3-inch liner

FIELD DATA

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48			COB-SC-01-00-02			Wood	Brown wood with silt, sand and gravel (wood ~75% by volume, splinters up to 3-inch-diameter pieces)			Wood odor
									RBL	Tan concrete and/or brick pieces (sand to gravel size)	MS	39.5	Petroleum odor
						COB-SC-01-02-04			SP	Gray fine to medium sand with trace silt and trace wood (wood <5% by volume)	NS	24.6	No odor
									Wood	Brown wood (100% by volume; sawdust to pieces ~3-inch diameter)	NS	4	Wood odor
						COB-SC-01-04-06			SP	Gray fine to medium sand with trace silt and trace wood (wood <5% by volume)	NS	<1	No odor
	5		60			COB-SC-01-06-7.5					NS	5.2	Hydrogen sulfide odor from 5 to 10 feet bgs
										With trace shell fragments (one intact half clam shell at 6.6 feet bgs)	NS	4.1	
						COB-SC-01-08-10			SM/ML	Gray sandy silt to silty sand with trace wood and trace shell fragments (wood is <5% by volume; consists of chips and splinters; one wood piece ~3"x2"x½")	NS	2.9	
											NS	1.3	
	10		24			COB-SC-01-10.5-12			Wood	Light brown wood (100% by volume) (wood = sawdust)	NS	1.3	
											NS	1.89	Wood odor
						COB-SC-01-12.6-14			Wood	Brown wood with sand and silt (wood ~90% by volume) (wood = sawdust to one sawed end)	NS	2.01	No odor
									SM	Gray silty fine to coarse sand with occasional gravel (very dense, moist) (native)	NS		Difficult drilling
											NS	<1	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring COB-SC-01

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 8/27/2012	End 8/27/2012	Total Depth (ft)	20	Logged By GRL / Checked By SBS	Driller	Cascade Drilling, L.P.	Drilling Method	Sonic

Surface Elevation (ft) / Vertical Datum	4 / NAVD88	Hammer Data	N/A - Sonic Drilling	Drilling Equipment	GeoProbe 8140 LS
Easting (X) / Northing (Y)	639563.3014 / 1240177.913	System Datum	NAD83/98	Groundwater	Date Measured / Depth to Water (ft) / Elevation (ft)
Notes: 5 foot core barrel, 3-inch liner					

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		46.8			COB-SC-02-00-02			SM	Brown silty fine to coarse sand with gravel and occasional debris (debris = glass and brick fragments) (debris <5% by volume)			No odor
											NS	<1	
						COB-SC-02-02-04			Wood	Wood (wood >90% by volume; sawdust up to 2 inches long)			
											SS	1.9	Petroleum odor
											NS	12.5	
0						COB-SC-02-04-06				(wood content decreases to ~50% by volume, becomes dark brown)			No odor
											MS	12.9	
	5		45.6								NS	8.5	
										(wood content increases to >90% by volume, becomes light brown)			
											NS	3.5	
											NS		
						COB-SC-02-08-10							
-5										Wood becomes dark brown	NS	3.2	
	10		44.4								NS	1.8	
										Trace glass and brick fragments	NS	1.8	
									SM	Gray silty fine sand with abundant clam shell fragments (native)			
						COB-SC-02-12.5-14.5							
											NS	3.1	
-10													
	15		58.8							Grades to with gravel	NS	0.8	
											NS	1.3	
						COB-SC-02-17-19			GM	Gray silty fine to coarse gravel with sand			
											NS	3.3	
-15													
											NS	1.0	
	20												

Note: Please see Figure A-1 for explanation of symbols

Log of Boring COB-SC-02

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 8/1/2012	End 8/1/2012	Total Depth (ft)	20	Logged By GRL Checked By SBS	Driller	Cascade Drilling, L.P.	Drilling Method	Sonic

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A - Sonic Drilling	Drilling Equipment	GeoProbe 8140 LS
Easting (X) Northing (Y)	639540.3372 1239971.388	System Datum		Groundwater	Date Measured / Depth to Water (ft) / Elevation (ft)

Notes: 5 foot core barrel, 3-inch liner

Depth (feet)	Recovered (in)	Collected Sample / Sample Name	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
0	60	COB-SC-03-00-02	ML	Gray silt with trace sand and trace wood (wood 75% by volume; wood is splintered/pieces up to 1-inch long, 0.4-inch diameter)	NS	1.3	No odor
		COB-SC-03-02-04	ML	Light gray silt with trace sand	NS	2.0	
				Grades to gray	NS	2.10	
		COB-SC-03-04-06	ML	Gray silt with wood (wood consists of sawdust; generally 25% by volume [90% at 3.2 to 3.4 feet bgs]), trace shell pieces	MS	2.5	
5	60				NS	2.1	
					NS	<1	
		COB-SC-03-07-09			NS	<1	
					NS	1.91	
			Wood	Wood with silt Trace shell pieces from 8.5 to 9.2 feet bgs	NS		Slight hydrogen sulfide odor from 8.5 to 10.5 feet bgs
					NS	20.1	
		COB-SC-03-9.5-11.5	SM	Gray silty fine sand with trace shells (native)	NS	20.2	
10	58				NS		No odor
			ML	Gray silt with trace sand and trace shells	NS	3.1	
					NS	5.2	
			SM	Gray silty fine sand with trace shells	NS	5.0	
		COB-SC-03-14-16		Wood piece at 14 feet bgs (~½-inch thick, 3-inch diameter)	NS	1.8	
15	60				NS	1.8	Slight hydrogen sulfide odor
				Grades to silty fine to medium sand with trace shells	NS	5.7	
					NS	2.8	
					NS	5.8	
20							

Note: Please see Figure A-1 for explanation of symbols

Log of Boring COB-SC-03

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 8/2/2012	End 8/2/2012	Total Depth (ft)	20	Logged By GRL Checked By SBS	Driller	Cascade Drilling, L.P.	Drilling Method	Sonic

Surface Elevation (ft) Vertical Datum	-5.5 NAVD88	Hammer Data	N/A - Sonic Drilling	Drilling Equipment	GeoProbe 8140 LS
Easting (X) Northing (Y)	639624.2097 1240162.12	System Datum	NAD83/98	Groundwater	Date Measured / Depth to Water (ft) / Elevation (ft)

Notes: 5 foot core barrel, 3-inch liner

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60			COB-SC-04-00-02			Wood	Wood with silt and trace shells (wood ~75%, sawdust to 3-inch long pieces); one blade eel grass at surface	NS		Slight hydrogen sulfide odor
										Fine gravel at 1.4 feet bgs	NS	3.8	
						COB-SC-04-02-04					SS	8.9	
									SM	Gray silty fine sand with trace shell pieces			
-10						COB-SC-04-04-06				1 wood piece at 3.6 feet bgs (3"x1"x½")	NS		
	5		60						ML	Gray silt	NS	3.0	
											NS		
											NS	5.81	
						COB-SC-04-08-10			Wood	Gray silt with wood (50% wood, sawdust) Clear plastic piece at 7.8 feet bgs	NS	7.04	
-15											SS	7.1	Moderate hydrogen sulfide odor
	10		60						SM	Gray silty fine sand and trace shells (native)	NS	2.8	
						COB-SC-04-11-13					NS	2.09	
											NS		
-20											NS	2.0	
	15		60								NS		
						COB-SC-04-16-18			SM	Gray silty fine to coarse sand with gravel and trace shells	NS	3.1	
-25											NS	2.0	
	20												

Note: Please see Figure A-1 for explanation of symbols

Seattle: Date:6/25/13 Path:P:\0\0356114\06\GINT\035611406 HALEY.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Log of Boring COB-SC-04

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 8/1/2012	End 8/1/2012	Total Depth (ft) 25	Logged By GRL / Checked By SBS	Driller Cascade Drilling, L.P.	Drilling Method Sonic

Surface Elevation (ft) / Vertical Datum	Undetermined	Hammer Data	N/A - Sonic Drilling	Drilling Equipment	GeoProbe 8140 LS
Easting (X) / Northing (Y)	639641.1136 / 1239922.987	System Datum		Groundwater: Date Measured / Depth to Water (ft) / Elevation (ft)	

Notes: 5 foot core barrel, 3-inch liner

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		49			COB-SC-05-00-02			ML	Gray silt with trace wood (less than 5% by volume) (wood = small splinters up to 1-inch long, up to 0.01-inch diameter) and trace shell pieces	NS	4.9	Slight hydrogen sulfide odor from 0 to 1.5 feet bgs
											NS	6.5	
						COB-SC-05-02-04				Grades to no wood, no shell pieces at 1.8 feet bgs	NS	<1	No odor
											NS		
						COB-SC-05-04-06				Dark gray silt layer from 4.6 to 4.8 feet bgs	SS	<1	
	5		50								NS		
										Dark gray silt layer from 6.1 to 6.2 feet bgs	NS	3.8	
										Dark gray silt layer from 6.7 to 6.8 feet bgs	NS	3.5	
										Grades to trace wood (<5% by volume) (wood = same as above), trace shell pieces below 6.8 feet (potential native)	NS	1.8	
										Silt is slightly stiffer below 8.6 feet (potential native)	NS	2.0	
	10		60							Shell content increase from 10 to 11.7 feet bgs	NS	1.3	
											NS		Moderate hydrogen sulfide odor from 11 to 22 feet bgs
						COB-SC-05-12.2-14.2			SM	Gray silty fine to medium sand with shell and shell pieces (native)	NS	1.6	
											NS	2.4	
										Grades to trace shell pieces at 14 feet			
	15		60								NS	3.8	
									SP-SM	Gray fine to medium sand with silt and trace shell pieces	NS	1.8	
											NS	2.0	
						COB-SC-05-18-20			SP	Gray fine to medium sand with trace silt, shell pieces and organics	NS	2.1	
											NS	2.1	
	20		60							Grades to gray medium to coarse sand with trace shells			
											NS		Slight hydrogen sulfide odor
									SM	Gray silty fine sand with trace shells and shell pieces			
											NS		
	25												

Note: Please see Figure A-1 for explanation of symbols

Log of Boring COB-SC-05

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/2/2012	8/2/2012	20	GRL	SBS	Cascade Drilling, L.P.	Sonic

Surface Elevation (ft) / Vertical Datum	-14 / NAVD88	Hammer Data	N/A - Sonic Drilling
Drilling Equipment	GeoProbe 8140 LS		
Easting (X) / Northing (Y)	639704.6617 / 1240130.407	System Datum	NAD83/98

Groundwater: Date Measured | Depth to Water (ft) | Elevation (ft)

Notes: 5 foot core barrel, 3-inch liner

FIELD DATA

Elevation (feet)	Depth (feet)	Recovered (in)	Blows/foot	Collected Sample / Sample Name / Testing	Water Level	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0	60		COB-SC-06-00-02		ML	Gray silt	NS	2.5	No odor
-15							Grades to dark gray	NS		
				COB-SC-06-02-04			Corner of plastic bag at 2.4 feet (plastic is clear and heavier than 'grocery bag', lighter than 'heavy duty garbage bag')	NS	2.3	
				COB-SC-06-04-06		Wood	Wood with silt (wood is sawdust, wood pieces up to 2 inches long) and trace shells	NS	3.8	
	5	60				SM	Gray silty fine sand with trace shell pieces (native)	NS	3.1	Slight hydrogen sulfide odor from 5 to 17 feet bgs
-20								NS	1.09	
								NS	7.09	
								NS		
	10	60					Grades to silty fine to medium sand with trace shell pieces	NS	1.93	
-25								NS	8.9	
								NS		
								NS	9.1	
								NS		
	15	60						NS	3.8	
-30				COB-SC-06-16-18		SP-SM	Gray fine to medium sand with silt with shell pieces	NS	2.8	
								NS	8.6	Moderate hydrogen sulfide odor
								NS	1.9	Slight hydrogen sulfide odor
	20									

Note: Please see Figure A-1 for explanation of symbols

Log of Boring COB-SC-06

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 8/27/2012	End 8/27/2012	Total Depth (ft)	10	Logged By GRL / Checked By SBS	Driller	Cascade Drilling, L.P.	Drilling Method	Sonic

Surface Elevation (ft) / Vertical Datum	Undetermined	Hammer Data	N/A - Sonic Drilling	Drilling Equipment	GeoProbe 8140 LS
Easting (X) / Northing (Y)	639369.4179 / 1239878.118	System Datum		Groundwater: Date Measured	Depth to Water (ft) / Elevation (ft)

Notes: 5 foot core barrel, 3-inch liner

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60			COB-SC-07-00-02			CH	Gray clay with trace organics			No odor
											NS	1.0	
						COB-SC-07-02-04			SP-SM	Plastic at 1.8 feet bgs Black fine to coarse sand with silt and occasional gravel with trace wood and trace glass	SS	1.6	Strong petroleum odor
										Grades gray			
						COB-SC-07-04-06			SP	Gray fine to medium sand with trace silt and trace shell fragments (potential native)	MS	4.11	
	5		60										
											SS		Slight petroleum odor
											SS	10.0	No odor
											NS		
						COB-SC-07-08-10				Silt lense ~1-inch thick at 8.2 feet bgs Silt lense 0.4-inch thick at 8.5 feet bgs	NS	1.3	
										Grades to trace shell fragments	NS	1.0	
	10												

Note: Please see Figure A-1 for explanation of symbols

Log of Boring COB-SC-07

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 8/3/2012	End 8/3/2012	Total Depth (ft)	20	Logged By GRL Checked By SBS	Driller Cascade Drilling, L.P.	Drilling Method Sonic

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A - Sonic Drilling
Drilling Equipment	GeoProbe 8140 LS		
Easting (X) Northing (Y)	639691.4383 1240379.862	System Datum	
Groundwater	Date Measured	Depth to Water (ft)	Elevation (ft)

Notes: 5 foot core barrel, 3-inch liner

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		30			COB-SC-08-00-02			SM	Gray silty fine to coarse sand with occasional gravel, trace debris (glass), and trace wood (wood <5% by volume, = several pieces up to 1-inch)	NS		No odor
											NS		
			30			COB-SC-08-02-04			Wood	Wood with trace silt and sand (wood>90% by volume, = large "stringy" pieces [drilling might have disturbed wood]) (wood pieces up to 3-inches long)	NS		Wood odor
											NS		
						COB-SC-08-04-06			Wood	Wood (100% by volume), sawdust with some "stringy" pieces	SS		
	5		60								NS		Slight petroleum odor
											NS		Wood odor
									Wood	Wood with trace silt and sand (wood >90% by volume, large 'stringy' pieces) (wood pieces up to 3-inches long)	NS		
											NS		Wood odor
											NS		
											NS		Slight hydrogen sulfide odor
	10		60			COB-SC-08-10-12			SM	Gray silty fine sand with abundant shell fragments with occasional gravel (native)	NS		
											NS		
											NS		
						COB-SC-08-14-16							
	15		60								NS		
											NS		
						COB-SC-08-18-20			GM	Gray silty fine to coarse gravel	NS		
									CL	Gray silty clay with trace sand	NS		
	20												

Note: Please see Figure A-1 for explanation of symbols

Seattle: Date:7/29/13 Path:C:\USERS\TNASH\DESKTOP\035611406 HALEY.GPJ DBTemplate/LibTemplate:GEOENGINEERS8.GDT/GEI8_ENVIRONMENTAL_STANDARD

Log of Boring COB-SC-08

GEOENGINEERS

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

Drilled	Start 8/1/2012	End 8/1/2012	Total Depth (ft)	10	Logged By GRL Checked By SBS	Driller	Cascade Drilling, L.P.	Drilling Method	Sonic

Surface Elevation (ft) Vertical Datum	Undetermined	Hammer Data	N/A - Sonic Drilling
Easting (X) Northing (Y)	639489.7267 1239751.825	System Datum	

Drilling Equipment: GeoProbe 8140 LS

Groundwater

Date Measured	Depth to Water (ft)	Elevation (ft)

Notes: 5 foot core barrel, 3-inch liner

FIELD DATA

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		60			COB-SC-09-00-02			ML	Gray silt with trace wood (<5% by volume) (wood = splinters)	NS	1.3	Moderate hydrogen sulfide odor from 0 to 5 feet bgs
											NS	1.9	
						COB-SC-09-02-04			ML	One piece of clamshell at 1.7 feet bgs Gray silt (native)	NS	1.3	
						COB-SC-09-04-06				Trace organic material at 3.6 feet bgs	NS	1.0	
	5		60								NS	1.8	Slight hydrogen sulfide odor from 5 to 10 feet bgs
										1 clam shell at 6 feet bgs Trace clam shell pieces to 10 feet bgs	NS	<1	
											NS	<1	
						COB-SC-09-08-10					NS	<1	
	10										NS	<1	

Note: Please see Figure A-1 for explanation of symbols

Log of Boring COB-SC-09

GeoEngineers

Project: R.G. Haley Site
Project Location: Bellingham, Washington
Project Number: 0356-114-06

EXHIBIT D-2
2012 Landau Associates Logs

List of Contents for 2012 Landau Associates Logs:

- Log of MW-11D
- Log of MW-11S
- Log of MW-12D
- Log of MW-12S
- Log of MW-13D
- Log of MW-13S
- Log of MW-14D
- Log of MW-14S
- Log of MW-15D
- Log of MW-15S
- Log of MW-16D
- Log of MW-16S

MW-11D

SAMPLE DATA / SOIL PROFILE / GROUNDWATER

Drilling Method: Geoprobe™

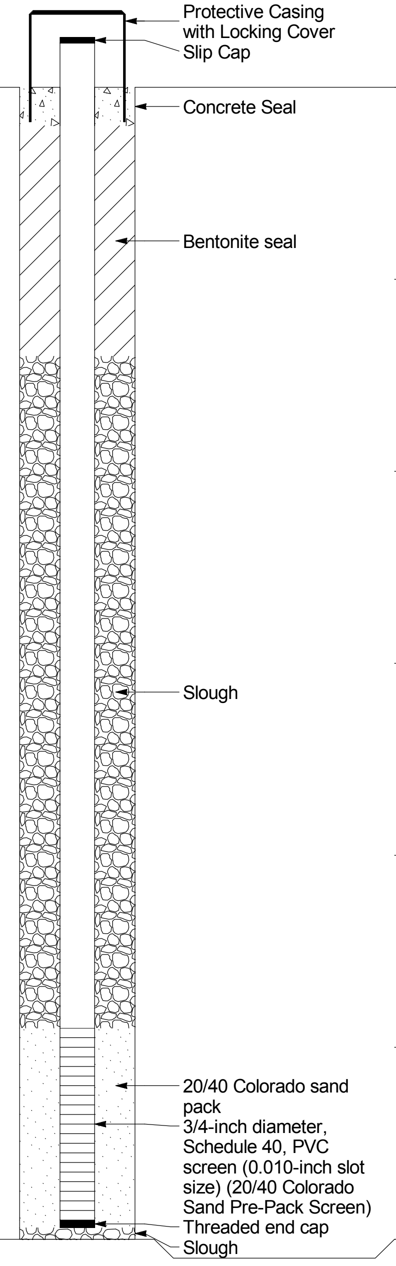
Ground Elevation (ft):

Drilled By: Northwest Probe and Drilling

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	USCS Symbol	Description
0					GP/GM	Gray brown, fine to coarse sandy GRAVEL with silt (loose, moist) (FILL)
	S-1	i4			SM	Gray, silty, gravelly, fine to medium SAND (loose, moist to wet) (FILL)
					SM	Mottled brown and yellow brown, gravelly, very silty, fine SAND (medium dense, damp) (FILL)
5	S-2	i4			SM	Gray brown, gravelly, silty, fine to medium SAND with trace refuse (glass and wood) (medium dense, wet) (FILL)
10	S-3	i4			SM	Black to dark gray, very silty, fine to medium SAND with trace refuse (blue and brown glass, plastic lid, and wood) (loose, wet) (FILL)
	S-4	i4			SM	Mottled brown and yellow brown, gravelly, silty, fine to medium SAND with abundant refuse (newspaper, glass, and wood) (medium dense, wet) (FILL)
15						
	S-5	i4				- Drilling More Difficult 16 to 24 Feet - (No Recovery 16 to 30 Feet)
20	S-6	i4				
25	S-7	i4				Difficult to interpret fill/native contact. Bottom of well screen set at 30 feet as per Ecology recommendation.
30						
35						

Water Level: ▽ (approx. 5.5 ft)

Detail



Boring Completed 07/18/12
Total Depth of Boring = 30.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **Generalized log of MW-11D and MW-11S is shown here.**

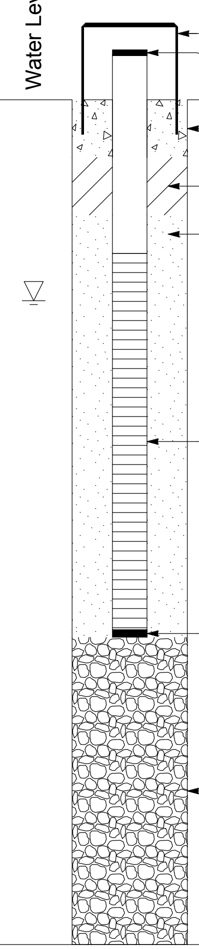
1020.400.510 11/26/12 N:\PROJECTS\1020.400.510.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI Bellingham, WA	Log of MW-11D	Figure B-1

MW-11S

SAMPLE DATA					SOIL PROFILE			GROUNDWATER	
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Northwest Probe and Drilling	Water Level	Detail
	S-1	i4					See Generalized Soil Description on MW-11D Boring Log		
	S-2	i4							
	S-3	i4							
	S-4	i4							
	S-5	i4							
	S-6	i4							



Depth (ft): 0, 5, 10, 15, 20, 25, 30, 35

Boring Completed 07/16/12
Total Depth of Boring = 22.0 ft.

Notes: 1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1020.400.510 11/26/12 N:\PROJECTS\1020.400.510.GPJ WELL LOG

LANDAU ASSOCIATES

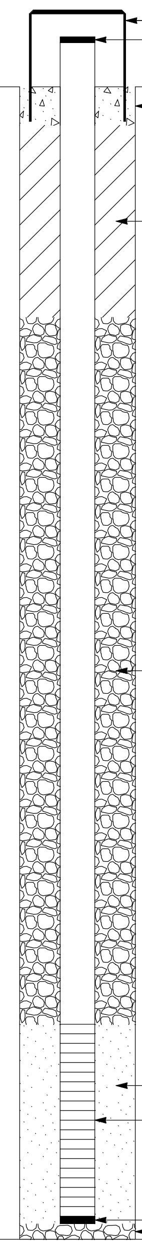
Cornwall Landfill Supplemental RI Bellingham, WA	Log of MW-11S	Figure B-2

MW-12D

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Northwest Probe and Drilling	Water Level
S-1	i4				GP/ GM	Gray brown, fine to coarse sandy GRAVEL with silt (loose, moist) (FILL)	
S-2	i4				SM	Brown to gray, silty, fine to medium SAND with gravel and abundant wood (loose, moist) (FILL) - with abundant refuse (wood, plastic, glass, and metal)	
S-3	i4				ML	Black to gray, sandy SILT with interbedded wood (soft to medium stiff, moist to wet) (FILL)	∇
S-4	i4				WD	Black, WOOD debris with abundent glass and trace gravel and sand (loose, wet) (FILL)	
S-5	i4				SP	Black to brown, fine to medium SAND with abundant refuse (wood and glass) (loose, wet) (FILL)	
S-6 S-7 S-8	i4 i4 i4				WD	Black, WOOD debris with trace refuse (glass, shell fragment, and painted pottery?) (loose, wet) (FILL) - with trace sand and gravel Difficult to interpret fill/native contact. Bottom of well screen set at 30 feet as per Ecology recommendation.	

Depth (ft): 0, 5, 10, 15, 20, 25, 30, 35

Detail



Boring Completed 07/18/12
Total Depth of Boring = 30.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **Generalized log of MW-12D and MW-12S is shown here.**

1020.400.510 11/26/12 N:\PROJECTS\1020.400.510.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI Bellingham, WA	Log of MW-12D	Figure B-3

MW-12S

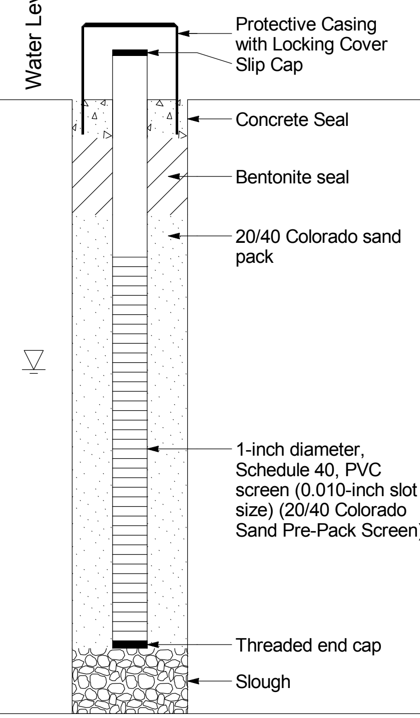
SAMPLE DATA				SOIL PROFILE			GROUNDWATER	
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Water Level	Detail
	S-1	i4						
	S-2	i4						
	S-3	i4						
	S-4	i4						

Drilling Method: Geoprobe™

Ground Elevation (ft):

Drilled By: Northwest Probe and Drilling

See Generalized Soil Description on MW-12D Boring Log



Boring Completed 07/18/12
Total Depth of Boring = 16.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI
Bellingham, WA

Log of MW-12S

Figure B-4

MW-13D

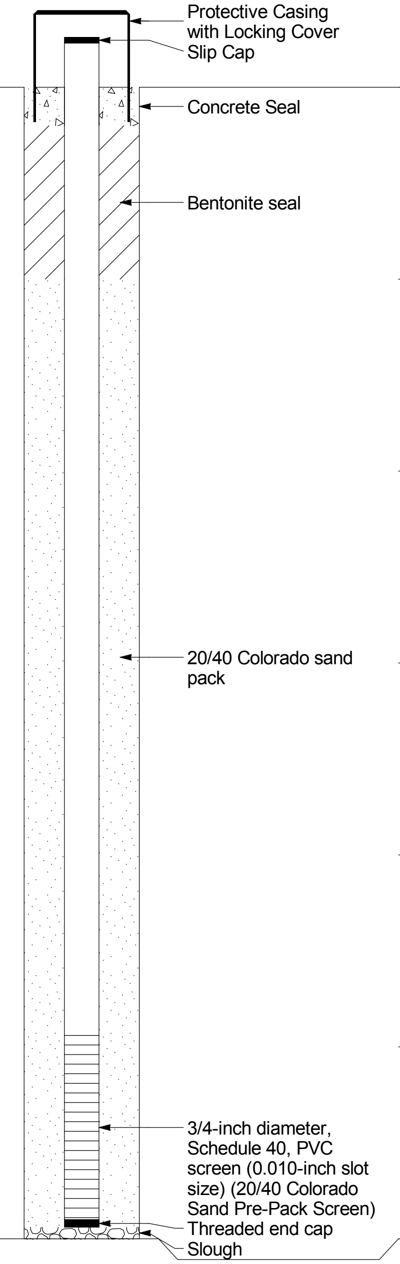
SAMPLE DATA / SOIL PROFILE / GROUNDWATER

Drilling Method: Geoprobe™
Ground Elevation (ft):
Drilled By: Northwest Probe and Drilling

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	USCS Symbol	Description
0					GP/ GM	Gray brown, fine to coarse sandy GRAVEL with silt (loose, damp) (FILL)
	S-1	i4			GM	Dark gray brown, silty, sandy GRAVEL with some wood debris (medium dense, moist) (FILL)
5	S-2	i4			GM	Brown, gray, and light brown interbedded sandy, silty GRAVEL and silty, gravelly SAND with some wood debris (medium dense, moist to wet) (FILL)
10	S-3	i4				- with refuse (brown glass and plastic)
	S-4	i4				- No Recovery 12 to 16 Feet
15	S-5	i4			WD	Black, WOOD and sawdust debris with interbedded fine gravelly, silty, fine to medium SAND with trace refuse (red rubber, clear plastic, and clear glass) (loose, wet) (FILL)
20	S-6	i4				
25	S-7	i4			WD	Yellow and light brown, PAPER refuse (news print or phone book) and trace silty fine to medium SAND to sandy SILT interbeds (loose, wet) (FILL)
	S-8	i4				- No Recovery Below 28 Feet Difficult to interpret fill/native contact. Bottom of well screen set at 30 feet as per Ecology recommendation.
30						
35						

Boring Completed 07/16/12
Total Depth of Boring = 30.0 ft.

Water Level / Detail



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **Generalized log of MW-13D and MW-13S is shown here.**

1020.400.510 11/26/12 N:\PROJECTS\1020.400.510.GPJ WELL LOG

Landau Associates

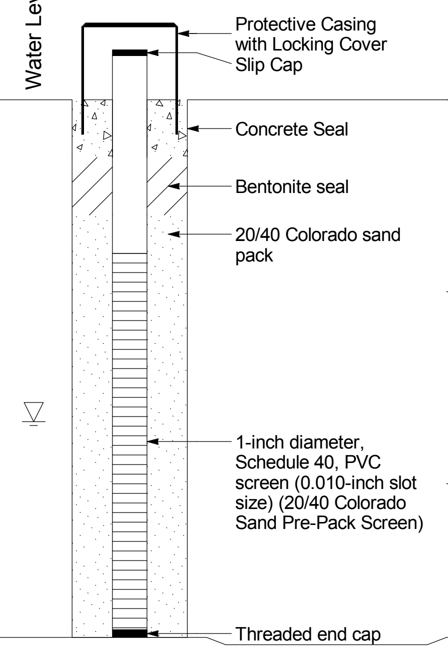
Cornwall Landfill Supplemental RI
Bellingham, WA

Log of MW-13D

Figure B-5

MW-13S

SAMPLE DATA				SOIL PROFILE			GROUNDWATER	
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Northwest Probe and Drilling	Water Level / Detail
0–14							See Generalized Soil Description on MW-13D Boring Log	



Boring Completed 07/16/12
Total Depth of Boring = 14.0 ft.

Notes: 1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI
Bellingham, WA

Log of MW-13S

Figure B-6

MW-14D

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Water Level

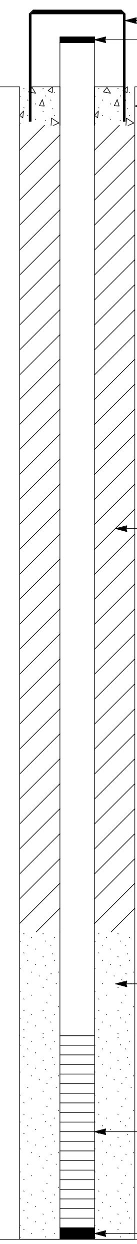
Drilling Method: Geoprobe™

Ground Elevation (ft):

Drilled By: Northwest Probe and Drilling

Depth (ft)	Sample Number	Sampler Type	USCS Symbol	Description
0			GP/GM	Gray brown, fine to coarse sandy GRAVEL with silt (loose, damp) (Recent FILL)
	S-1	i4	SM	Black to brown, silty SAND with trace gravel and sandy SILT with abundant wood debris with some brick (loose and medium stiff, moist to wet) (FILL)
5	S-2	i4		
			ML	Gray to black, sandy SILT with abundant refuse (glass, wood, and metal shavings)
10	S-3	i4		- Drilling Refusal at 9 Feet (moved and re-drilled)
	S-4	i4		
15				- No Recovery 12 to 24 Feet
	S-5	i4		
20				
	S-6	i4		
25			SM	Black, silty, fine to medium SAND with trace gravel with abundant refuse (wood, glass, fabric, newpaper, and charcoal) (loose, wet) (FILL)
	S-7	i4		Difficult to interpret fill/native contact. Bottom of well screen set at 30 feet as per Ecology recommendation.
30				
35				

Detail



Boring Completed 07/17/12
Total Depth of Boring = 30.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **Generalized log of MW-14D and MW-14S is shown here.**

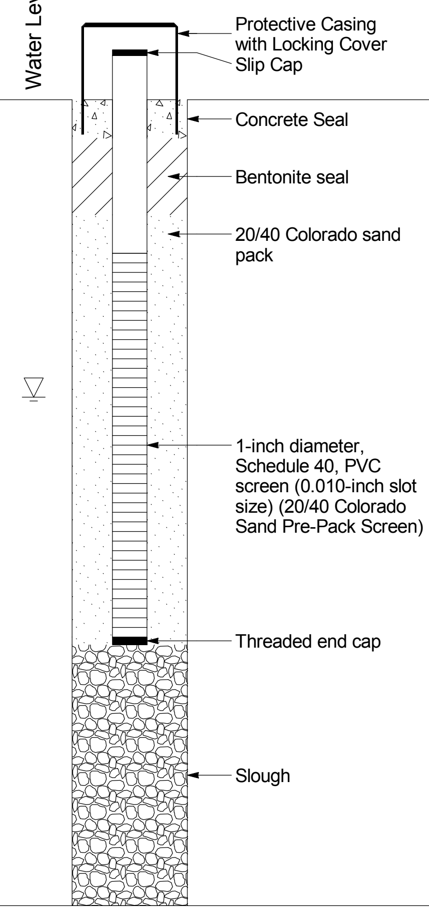
1020.400.510 11/26/12 N:\PROJECTS\1020.400.510.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI Bellingham, WA	Log of MW-14D	Figure B-7

MW-14S

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Northwest Probe and Drilling	Water Level / Detail
0–3	S-1	i4					See Generalized Soil Description on MW-14D Boring Log - Drilling Refusal at 4 Feet (moved and re-drilled)	
5–7	S-2	i4						
10	S-3	i4						
15	S-4	i4						
20	S-5	i4						



Boring Completed 07/17/12
Total Depth of Boring = 21.0 ft.

Depth (ft): 0, 5, 10, 15, 20, 25, 30, 35

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI Bellingham, WA	Log of MW-14S	Figure B-8

MW-15D

SAMPLE DATA | SOIL PROFILE | GROUNDWATER

Drilling Method: Geoprobe™

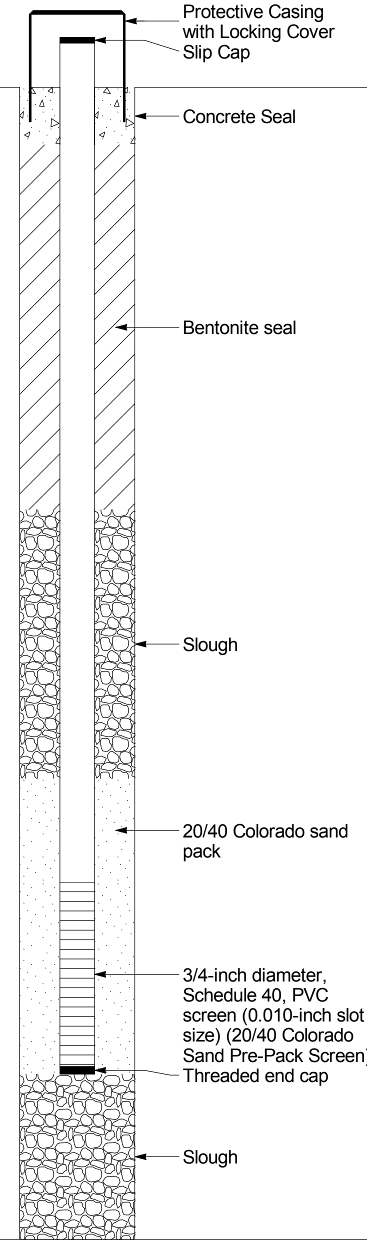
Ground Elevation (ft):

Drilled By: Northwest Probe and Drilling

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	USCS Symbol	Description
0					GP/ GM	Gray brown, fine to coarse sandy GRAVEL with silt (loose, damp) (recent FILL)
	S-1	i4			WD	Brown, silty, WOOD (sawdust) with gravel (loose, moist to wet) (FILL)
5						
	S-2	i4			ML	Black, sandy SILT with abundant refuse (brick, wood, and charcoal) (medium stiff, moist to wet)
10					GM	Black, silty, sandy GRAVEL (medium dense, wet)
	S-3	i4				
15						- No Recovery 15 to 20 Feet
	S-4	i4				
20					SM	Black, very silty, fine to medium SAND with trace fine gravel and some refuse (clear glass, wood, and charcoal) (loose, wet) (FILL)
	S-5	i4				
25					SP-SM	Dark gray, medium SAND with silt and abundant shell fragments and wood (small branches) (loose to medium dense, wet) (BEACH DEPOSITS)
	S-6	i4			SM	Gray brown, silty, fine to medium SAND with wood and trace shells (loose, wet) (BEACH DEPOSITS)
30					ML/ CL	Gray brown, silty CLAY with black staining and thinly laminated and trace shell fragments (medium stiff, wet) (BEACH DEPOSITS)
35						

Boring Completed 07/17/12
Total Depth of Boring = 30.0 ft.

Water Level



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **Generalized log of MW-15D and MW-15S is shown here.**

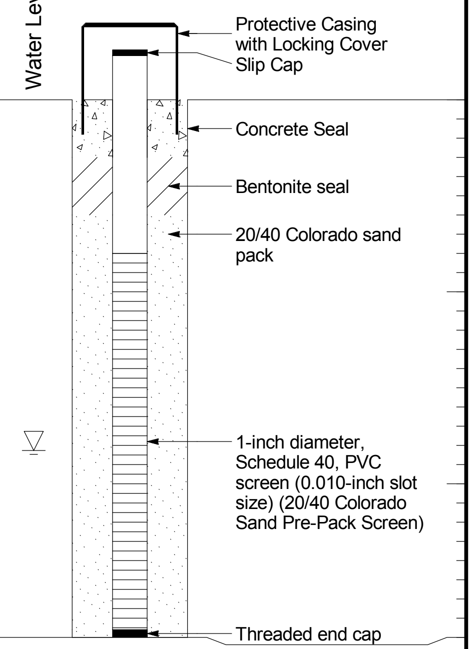
1020.400.510 11/26/12 N:\PROJECTS\1020.400.510.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI Bellingham, WA	Log of MW-15D	Figure B-9

MW-15S

SAMPLE DATA				SOIL PROFILE			GROUNDWATER	
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Northwest Probe and Drilling	Water Level	Detail
0–14							See Generalized Soil Description on MW-15D Boring Log	▽ (approx. 9 ft)	



Boring Completed 07/16/12
Total Depth of Boring = 14.0 ft.

Depth scale: 0, 5, 10, 15, 20, 25, 30, 35

Notes: 1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

LANDAU ASSOCIATES	Cornwall Landfill Supplemental RI Bellingham, WA	Log of MW-15S	Figure B-10

MW-16D

SAMPLE DATA / SOIL PROFILE / GROUNDWATER

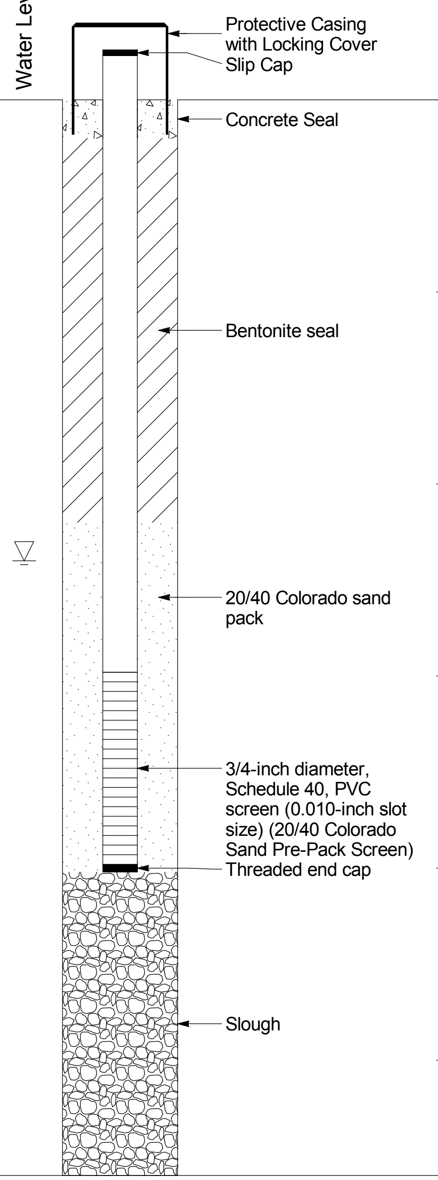
Drilling Method: Geoprobe™

Ground Elevation (ft):

Drilled By: Northwest Probe and Drilling

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	USCS Symbol	Description
0	S-1	i4			ML	Brown and gray, SILT with sand and gravel; and fine to medium SAND with silt (soft and loose, moist to wet) (Recent FILL)
5	S-2	i4			ML	Brown, SILT with sand and gravel (soft to medium stiff, moist to wet) (FILL)
10	S-3	i4			ML	Gray brown, SILT with trace sand and gravel with abundant wood debris (medium stiff, wet) (FILL)
	S-4	i4			SM	Gray to black, fine to medium SAND with silt and abundant refuse (wood, nails, brick?) (loose, wet) (FILL)
15	S-5	i4			ML	Black, sandy SILT with abundant wood debris and shell fragments (loose, wet) (FILL)
					SP	Gray to black, SAND with abundant shells (loose, wet) (BEACH DEPOSITS)
20	S-6	i4			CL-ML	Gray brown, silty CLAY with trace shell fragments (medium stiff, wet) (BEACH DEPOSITS) - No Recovery 20 to 24 Feet
25	S-7	i4			SP	Black, fine to medium SAND with trace shell fragments (loose to medium dense, wet) (BEACH DEPOSITS)

Water Level



Boring Completed 07/17/12
Total Depth of Boring = 28.0 ft.

30

35

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **Generalized log of MW-16D and MW-16S is shown here.**

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI
Bellingham, WA

Log of MW-16D

Figure B-11

MW-16S

SAMPLE DATA | SOIL PROFILE | GROUNDWATER

Drilling Method: Geoprobe™

Ground Elevation (ft):

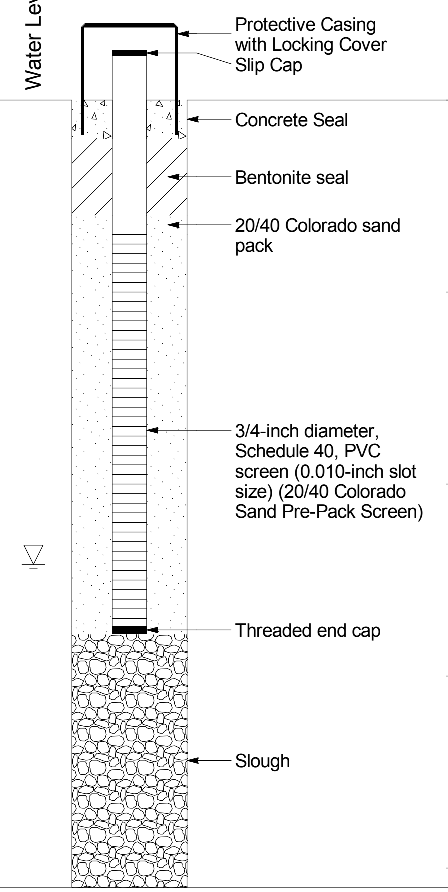
Drilled By: Northwest Probe and Drilling

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Description
0							
	S-1	i4					See Generalized Soil Description on MW-16D Boring Log
5	S-2	i4					
10	S-3	i4					
15	S-4	i4					
	S-5	i4					- Drilling Refusal at 20.5 Feet
20	S-6	i4					

Boring Completed 07/17/12
Total Depth of Boring = 20.5 ft.

Water Level

Detail



25

30

35

Notes: 1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1020.400.510 11/26/12 N:\PROJECTS\1020.400.510.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Landfill Supplemental RI
Bellingham, WA

Log of MW-16S

Figure B-12

EXHIBIT D-3
Pre-2012 GeoEngineers Logs

List of Contents for Pre-2012 GeoEngineers Logs:

- Log of Test Pit TP-01
- Log of Test Pit TP-02
- Log of Test Pit TP-03
- Log of Test Pit TP-04
- Log of Test Pit TP-05
- Log of Test Pit TP-06
- Log of Test Pit TP-07
- Log of Test Pit TP-08
- Log of Test Pit TP-09
- Log of Test Pit TP-10
- Log of Test Pit TP-11
- Log of Test Pit TP-12
- Log of Test Pit TP-13
- Log of Test Pit TP-14
- Log of Test Pit TP-15
- Log of Test Pit TP-16
- Log of Test Pit TP-17
- Log of Test Pit TP-18
- Log of Test Pit TP-19
- Log of Boring B-01 (TL-B-01)
- Log of Boring B-02 (TL-B-02)
- Log of Monitoring Well TL-MW-1
- Log of Monitoring Well TL-MW-2
- Log of Monitoring Well TL-MW-3
- Log of Monitoring Well TL-MW-4
- Log of Monitoring Well TL-MW-5
- Log of Monitoring Well TL-MW-5A
- Log of Monitoring Well TL-MW-6
- Log of Monitoring Well TL-MW-7
- Log of Monitoring Well TL-MW-8
- Log of Monitoring Well TL-MW-9
- Log of Monitoring Well TL-MW-10
- Log of Monitoring Well TL-MW-11
- Log of Monitoring Well HS-MW-3
- Log of Monitoring Well HS-MW-4
- Log of Monitoring Well HS-MW-5
- Log of Monitoring Well HS-MW-6
- Log of Monitoring Well HS-MW-7
- Log of Boring Well HS-MW-7A
- Log of Monitoring Well HS-MW-8
- Log of Monitoring Well HS-MW-9
- Log of Monitoring Well HS-MW-10
- Log of Boring HS-MW-11D
- Log of Monitoring Well HS-MW-11D A
- Log of Boring HS-MW-12
- Log of Boring HS-MW-12A
- Log of Monitoring Well HS-MW-13D
- Log of Boring HS-MW-14
- Log of Boring HS-MW-14A
- Log of Monitoring Well HS-MW-15
- Log of Boring HS-MW-15A
- Log of Monitoring Well HS-MW-16
- Log of Boring HS-B-1
- Log of Boring HS-B-2
- Log of Boring TL-B-3
- Log of Boring TL-B-4
- Log of Boring TL-B-5
- Log of Monitoring Well RW-4
- Log of Monitoring Well RW-5
- Log of Monitoring Well RW-6
- Log of Monitoring Well CL-MW-1D
- Log of Monitoring Well CL-MW-1S
- Log of Hand Boring HS-HA-1
- Log of Hand Boring HS-HA-2
- Log of Hand Boring HS-HA-3
- Log of Hand Boring HS-HA-4
- Log of Hand Boring HS-HA-5
- Log of Hand Boring TL-HA-1
- Log of Hand Boring TL-HA-2
- Log of Hand Boring TL-HA-3
- Log of Boring HS-DP-1
- Log of Boring HS-DP-2
- Log of Boring HS-DP-3
- Log of Boring HS-DP-4
- Log of Boring HS-DP-5
- Log of Boring HS-DP-5A
- Log of Boring HS-DP-5B
- Log of Boring HS-DP-6
- Log of Boring HS-DP-7
- Log of Boring HS-DP-8
- Log of Boring HS-DP-9
- Log of Boring HS-DP-10
- Log of Boring HS-DP-11
- Log of Boring HS-DP-12
- Log of Boring HS-DP-13
- Log of Boring HS-DP-14
- Log of Boring HS-DP-14A
- Log of Boring HS-DP-15
- Log of Boring HS-DP-15A
- Log of Boring HS-DP-16
- Log of Boring HS-DP-17
- Log of Boring IZ-DP-1
- Log of Monitoring Well IZ-MW-1
- Log of Monitoring Well IZ-MW-2
- Log of Monitoring Well IZ-MW-3
- Log of Monitoring Well IZ-MW-4
- Log of Boring TL-DP-1
- Log of Boring TL-DP-2
- Log of Boring TL-DP-3
- Log of Boring TL-DP-4

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% RETAINED ON NO. 200 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
				SP	POORLY-GRADED SANDS, GRAVELLY SAND
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	TS	Topsoil/ Forest Duff/Sod

Groundwater Contact

- Measured groundwater level in exploration, well, or piezometer
- Groundwater observed at time of exploration
- Perched water observed at time of exploration
- Measured free product in well or piezometer

Graphic Log Contact

- Distinct contact between soil strata or geologic units
- Approximate location of soil strata change within a geologic soil unit

Material Description Contact

- Distinct contact between soil strata or geologic units
- Approximate location of soil strata change within a geologic soil unit

Sampler Symbol Descriptions

- 2.4-inch I.D. split barrel
- Standard Penetration Test (SPT)
- Shelby tube
- Piston
- Direct-Push
- Bulk or grab

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

A "P" indicates sampler pushed using the weight of the drill rig.

Laboratory / Field Tests

%F	Percent fines
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PP	Pocket penetrometer
PPM	Parts per million
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen
NT	Not Tested

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

KEY TO EXPLORATION LOGS

GEOENGINEERS

FIGURE A-1

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Brown gravelly fine to coarse sand with trace of silt (loose, moist) (fill)		
					SP	Black gravelly fine to coarse sand with trace of silt, shells and wood (loose, moist) (fill)		
	5							
					WD	Woody debris (moist) (fill)		
					SP	Gray fine sand (loose, moist) (fill)		
			1		SP-SM	Gray fine sand with silt interbedded with a trace of shells (loose, moist) (fill)		
	10							

Test pit completed at a depth of 10.0 feet on 03/20/00.
No ground water seepage observed.
Minor caving observed at a depth of 6.0 feet.
Disturbed soil sample obtained at a depth of 7.5 feet.

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-01

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-83
Sheet 1 of 1

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Orangish brown gravelly coarse sand with trace of silt (loose, moist) (fill)		
					SP	Black gravelly coarse sand with trace of silt, shells and wood (loose, moist) (fill)		
	5							
					SP	Gray fine sand with a trace of shells and wood (loose, moist) (fill)		
			1					
	10							

Test pit completed at a depth of 12.0 feet on 03/20/00.
Slow ground water seepage observed at a depth of 12.0 feet.
Moderate caving observed at a depth of 12.0 feet.
Disturbed soil sample obtained at a depth of 7.5 feet.

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-02

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-84
Sheet 1 of 1

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SM	Brown silty coarse sand with occasional gravel and a trace of garbage and wood (loose, moist) (fill)		
	5				SP	Light gray fine sand with a trace of silt, wood, shells and metal (loose, moist) (fill)		
			1					
			2					
	10							

Test pit completed at a depth of 12.0 feet on 03/20/00.
Slow ground water seepage observed at a depth of 12.0 feet.
Moderate caving observed at a depth of 10.0 feet.
Disturbed soil samples obtained at depths of 6.5 and 8.0 feet.

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-03

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-85
Sheet 1 of 1

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Brown gravelly coarse sand with trace of silt and occasional concrete (loose, moist) (fill)		
					ML	Bluish gray silty clay with sand, and occasional sandstone, cobbles and wood (medium stiff, moist) (fill)		
	5							
			1		SP	Gray fine sand with shells and a trace of wood (loose, moist) (fill)		
	10							

Test pit completed at a depth of 10.0 feet on 03/20/00.
No ground water seepage observed.
Moderate caving observed at a depth of 7.0 feet.
Disturbed soil sample obtained at a depth of 7.0 feet.

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT TP-04

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-86
Sheet 1 of 1

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SM	Brown silty coarse sand with gravel (loose, moist) (fill)		
					SM	Brownish gray silty sand with occasional gravel and a trace of clay, concrete and wood (loose, moist) (fill)		
	5							
			1					
						Grades with wood at 6.5 feet		
	10							

Test pit completed at a depth of 9.0 feet on 03/20/00.
No ground water seepage observed.
Slight caving observed at a depth of 6.0 feet.
Disturbed soil sample obtained at a depth of 6.0 feet.

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT TP-05

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SM	Brown medium silty sand with occasional gravel with a trace of brick, metal and concrete (loose, moist) (fill)		
					ML	Brown clayey silt with occasional gravel, wood and concrete (medium stiff, moist) (fill)		
	5							
			1					
					SP	Dark gray fine sand with a trace of shells (loose, moist) (fill)		
			2					
	10							
	15							
	20							
	25							

Test pit completed at a depth of 10.0 feet on 03/20/00.
Slow ground water seepage observed at a depth of 10.0 feet.
Moderate caving observed at a depth of 7.0 feet.
Disturbed soil samples obtained at depths of 6.0 and 10.0 feet.

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-06

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Brown silty coarse sand (loose, moist) (fill)		
			1		ML	Brownish gray clayey silt (medium stiff, moist) (fill)		
			2			Wood at 4.0 feet		
	5							
			3		SP	Dark gray fine sand (loose, wet) (fill)		

Depth scale: 0, 5, 10, 15, 20, 25

Test pit completed at a depth of 8.0 feet on 03/20/00.
Slow ground water seepage observed at a depth of 6.0 feet.
Moderate caving observed at a depth of 6.0 feet.
Disturbed soil samples obtained at depths of 2.0, 4.0 and 7.0 feet.

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT TP-07

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-89
Sheet 1 of 1

Date Excavated: 03/20/00 | Logged by: SBS
Equipment: Rubber-Tired Backhoe | Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Gray coarse sand with trace of silt (loose, moist) (fill)		
					ML	Bluish gray clayey silt with occasional wood, sand and gravel (medium stiff, moist) (fill)		
	5		1		SP	Brownish gray gravelly sand with trace of silt and wood (loose, moist) (fill)		

Test pit completed at a depth of 8.0 feet on 03/20/00.
Slow product seepage observed at a depth of 6.0 feet.
Moderate caving observed at a depth of 6.0 feet.
Disturbed soil sample obtained at a depth of 6.0 feet.

Depth scale: 0, 5, 10, 15, 20, 25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT TP-08

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-90
Sheet 1 of 1

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Brown sandy gravel with trace of silt (loose, moist) (fill)		
					SP-SM	Dark gray sandy gravel with silt, wood and cobbles (loose, moist) (fill)		
			1					
	5					Product seep at 4.7 feet		

Test pit completed at a depth of 6.0 feet on 03/20/00.
No ground water seepage observed.
Moderate caving observed at a depth of 6.0 feet.
Disturbed soil sample obtained at a depth of 4.0 feet.

10

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-09

GeoEngineers

Project: R.G. Haley

Project Location: Bellingham

Project Number: 0275-002-01

FIGURE A-91

Date Excavated: 03/20/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Brown fine sand (loose, moist) (fill)		
					SM	Black silty fine sand (loose, moist) (fill)		
					SP	Brown and gray coarse sand with occasional gravel, silt and concrete (loose, moist) (fill)		
	5		1			Wood debris		

Test pit completed at a depth of 6.0 feet on 03/21/00.
No ground water seepage observed.
Moderate caving observed at a depth of 5.5 feet.
Disturbed soil sample obtained at a depth of 5.5 feet.

Depth scale: 0, 5, 10, 15, 20, 25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-10

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-92
Sheet 1 of 1

Date Excavated: 03/21/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SM	Brownish gray silty medium sand with occasional gravel (loose, moist) (fill) Large concrete and brick rubble between 1.0 and 2.0 feet (fill)		
					GP	Gray sandy gravel with occasional cobbles, concrete and brick (loose, moist) (fill)		
	5				SP	Gray fine sand with shells (loose, wet)		
			1					

Test pit completed at a depth of 8.0 feet on 03/21/00.
Slow ground water seepage observed at a depth of 7.0 feet.
Moderate caving observed at a depth of 4.0 feet.
Disturbed soil sample obtained at a depth of 8.0 feet.

10

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-11

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

Date Excavated: 03/21/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Brownish gray gravelly sand with occasional silt (loose, moist) (fill)		
						Wood, brick and concrete rubble at a depth of 4.0 feet		
	5		1			Oily material at 5.0 feet		

Test pit completed at a depth of 7.0 feet on 03/21/00.
No ground water seepage observed.
Moderate caving observed at a depth of 4.0 feet.
Disturbed soil sample obtained at a depth of 5.0 feet.

10

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The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-12

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-94
Sheet 1 of 1

Date Excavated: 03/21/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Brown sandy gravel with occasional silt (loose, moist) (fill)		
					SM	Gray silty sand with occasional gravel (loose, moist) (fill)		
	5							
			1					

Test pit completed at a depth of 6.5 feet on 03/21/00.
Slow ground water seepage observed at a depth of 6.0 feet.
Moderate caving observed at a depth of 6.0 feet.
Disturbed soil sample obtained at a depth of 6.0 feet.

10

15

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The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-13

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-95
Sheet 1 of 1

Date Excavated: 03/21/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				GP-GM	Brown sandy gravel with silt (loose, moist) (fill)		
					SM	Gray silty sand with occasional gravel, cobbles, brick and wood (loose, moist) (fill)		
	5							
					SP	Dark gray fine sand with trace of silt (loose, moist to wet)		
			1					

Test pit completed at a depth of 7.5 feet on 03/21/00.
No ground water seepage observed.
Moderate caving observed at a depth of 6.0 feet.
Disturbed soil sample obtained at a depth of 7.0 feet.

10

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-14

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-96
Sheet 1 of 1

Date Excavated: 03/21/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Dark brown gravelly sand with trace of silt (loose, moist) (fill)		
					ML	Brown to bluish gray clay with silt and occasional sand, trace of gravel (medium stiff, moist) (fill)		
	5							

Test pit completed at a depth of 5.5 feet on 03/21/00.
No ground water seepage observed.
No caving observed.

Depth scale: 0, 5, 10, 15, 20, 25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT TP-15

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-97
Sheet 1 of 1

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

Date Excavated: 03/21/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				SP	Dark brown gravelly sand with trace of silt (loose, moist) (fill)		
					ML	Brown to bluish gray clayey silt with occasional sand and gravel (medium stiff, moist)		
	5							
						Ground water with brown floating oil at 7.0 feet		

Test pit completed at a depth of 7.5 feet on 03/21/00.
Moderate ground water seepage observed at a depth of 7.0 feet.
No caving observed.

10

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT TP-16

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-98
Sheet 1 of 1

Date Excavated: 03/30/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				CONCRETE			
					SM/ML	Grayish brown and black silty sand and sandy silt with gravel, concrete and wood debris (loose, moist) (fill)		
	5							
						Grades to wet		

Test pit completed at a depth of 8.0 feet on 03/30/00.
Slow ground water seepage observed at a depth of 6.0 feet.
Moderate caving observed below 4.0 feet.

Depth scale: 0, 5, 10, 15, 20, 25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-17

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-99
Sheet 1 of 1

Date Excavated: 03/30/00

Logged by: SBS

Equipment: Rubber-Tired Backhoe

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				CONCRETE			
					SM	Brown silty sand with gravel (medium dense, moist) (fill)		
					SM	Gray silty sand with gravel (medium dense, moist) (fill)		
					SM	Black silty sand with coal, occasional debris (medium dense, moist) (fill)		
					SM/ML	Gray silty sand and fine sandy silt with gravel, occasional debris (loose, moist) (fill)		
	5							
						Grades to wet		

Test pit completed at a depth of 8.0 feet on 03/30/00.
Slow ground water seepage observed at a depth of 6.0 feet.
Moderate caving observed below 4.0 feet.

10

15

20

25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-18

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

Date Excavated: 03/30/00

Equipment: Rubber-Tired Backhoe

Logged by: SBS

Surface Elevation (ft): Not Measured

Elevation feet	Depth feet	Sample	Sample Number	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Moisture Content %	OTHER TESTS AND NOTES
	0				CONCRETE			
					SM	Gray silty sand with gravel (medium dense, moist) (fill)		
					SP/SM	Dark gray and black fine to coarse sand, silty sand and sandy silt with brick and wood debris (medium dense, moist) (fill and coal fines))		
					SM/ML	Gray silty fine to medium sand and fine sandy silt with gravel, concrete, wood and brick debris (medium dense, moist) (fill)		
	5							

Test pit completed at a depth of 8.0 feet on 03/30/00.
Moderate ground water seepage observed with some oil product at a depth of 6.5 feet.
Minor caving observed below 6.0 feet.

10

15

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25

The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

V6_GTTPIT R:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/4/13

LOG OF TEST PIT TP-19

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-101
Sheet 1 of 1

Date(s) Drilled	03/21/00	Logged By	SBS	Checked By	
Drilling Contractor	Gregory	Drilling Method	HSA 4.25" ID/8.5" OD	Sampling Methods	SPT
Auger/Bit Data		Hammer Data	140 (lb) hammer/ 30 (in) drop 140 lb Hammer/30" drop	Drilling Equipment	Truck Mounted CME 85
Total Depth (ft)	40.3	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	10
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	Pocket Pen	NOTES
0							SM	Brown fine silty sand with occasional gravel (very loose, moist) (fill)				
			3	1			COAL	Coal with occasional gravel, sand and silt (very loose, moist) (fill)	NS			
5			2	2				Grades with a trace of wood	SS			
			5	3			SM	Black fine silty sand with occasional shells (very loose, wet) (fill)	MS			
10			4	4		▼						
			2	5								
15			3	6			SM	Dark gray silty fine sand with occasional shells (very loose, wet) (fill)	MS			
			5	7			WD	Woody debris (wet)				
20			48	8					NS			
			5	9			SP	Dark gray fine sand with occasional wood and trace of silt and shells (loose, wet)				
25			10	10				Wood grades out (medium dense)				
			12	11			ML	Dark gray clayey silt with occasional sand and a trace of gravel (stiff to very stiff, wet)				
30			20	12								
			23	13								
35			29	14			GP	Gray sandy gravel with trace of silt (medium dense, wet)				
			57	15			ML	Gray clayey silt with occasional sand and a trace of gravel (hard, moist)				
40			50/3"	16			ML	Gray silt (hard, moist)				

Boring completed at a depth of 40.3 feet on 03/21/00.
Ground water encountered at a depth of 10.0 feet during drilling.
Boring backfilled with bentonite chips.

LOG OF BORING B-01 (TL-B-01)

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-2
Sheet 1 of 1

Date(s) Drilled	03/21/00	Logged By	SBS	Checked By	
Drilling Contractor	Gregory	Drilling Method	HSA 4.25" ID/8.5" OD	Sampling Methods	SPT
Auger/Bit Data		Hammer Data	140 (lb) hammer/ 30 (in) drop 140 lb Hammer/30" drop	Drilling Equipment	Truck Mounted CME 85
Total Depth (ft)	21.5	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	10
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	Pocket Pen	NOTES
0									Undifferentiated overburden (see Boring B-01 for details) (fill)				
7.5				1				GW	Brown sandy gravel with trace of silt and wood (very loose, moist) (fill)	HS			
9.5				2		▼		SP	Gray fine sand with trace of silt, shells, wood and gravel (very loose, wet) (fill)				
12.5				3				ML	Gray sandy silt with a trace of shells (very soft, wet) (fill)				
15			3	4				WD	Sawdust (wet) (fill)	SS			
17			6	5				SP	Gray fine sand with a trace of silt and shells (loose, wet)				
20			10	6				WD	Woody debris (wet)	NS			

Boring completed at a depth of 21.5 feet on 03/21/00.
Ground water encountered at a depth of 10.0 feet during drilling.
Boring backfilled with bentonite chips.

LOG OF BORING B-02 (TL-B-02)

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

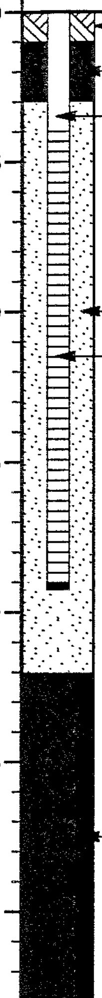
FIGURE A-3
Sheet 1 of 1

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

Project	Job Number	Location
Douglas Management	0275-002-00	DNR Property

Date Drilled	04/03/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2" SPT/Split Spoon	Hammer Data	140 lb hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	33	Elevation (ft)	15.57	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	15.05

WELL SCHEMATIC



Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SM	Brown silty sand with gravel (loose, moist) (fill)			
			SP-SM	Brown fine to medium sand with silt and occasional gravel (loose, moist) (fill)			
	1	7			0	SS	
5	2	9		∇	0	SS	
			SP-SM	Dark gray fine to medium sand with silt and a trace of shells (very loose, wet)			
	3	2			0	MS	
10			SP	Dark gray fine sand with occasional large woody debris and shells (very loose, wet)			
	4	3			0	SS	
	5	5			0	SS	
15			SP	Dark gray fine to medium sand with occasional shells (medium dense, wet)			
	6	18			0	SS	
			SP	Dark gray fine to medium sand with medium woody debris and occasional shells (loose, wet)			
	7	6			0	SS	
20	8	7			0	NS	
			SP	Dark gray fine to medium sand with occasional medium woody debris, shells and gravel (medium dense, wet)			
	9	16			0	NS	
25			GP-GM	Dark gray sandy fine to coarse gravel with occasional shells and a trace of silt (medium dense, wet)			
	10	12			0	NS	
			SM	Dark gray silty fine to medium sand with gravel and a trace of medium to large woody debris (medium dense to dense, wet)			
	11	28			0	NS	
30			ML	Dark gray silt with gravel and occasional shells (medium dense, wet)			
	12	20					
	13	50/5"	ML	Dark gray silt with occasional gravel and shells (hard, moist to wet)	0	NS	
35				Boring completed at a depth of 33.0 feet on 04/03/00. Ground water encountered at a depth of 7.0 feet during drilling.			
40							

GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

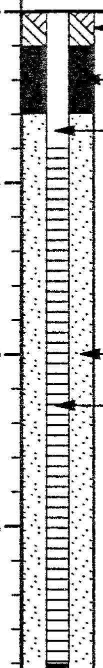
GeoEngineers

LOG OF MONITORING WELL TL-MW-1

FIGURE B-21

Project	Job Number	Location
Douglas Management	0275-002-00	DNR Property

Date Drilled	04/04/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	19	Elevation (ft)	17.07	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	16.77



WELL SCHEMATIC

- Steel flush monument in concrete
- Bentonite seal
- 2-inch Schedule 40 PVC well casing
- 2/12 Lone Star sand backfill
- 2-inch Schedule 40 PVC screen, 0.020-inch slot width
- Base of well at 19.0 feet

DEPTH IN FEET	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SP-SM	Brown fine to medium sand with silt, occasional gravel, brick and concrete (loose to medium dense, moist) (fill)			
4.5			ML	Bluish gray sandy silt with large woody debris (medium stiff, moist)			
8	1	15	SP	Dark brownish black fine to medium sand with occasional large woody debris and a trace of silt (medium dense, wet)	109	HS	
10	2	27	SP	Dark brownish black fine to medium sand with occasional medium to large woody debris and shells (medium dense, wet)	64	HS	
	3	16			4	SS	
16			SP	Dark gray fine to medium sand with occasional shells, large woody debris and a trace of silt (very dense, wet)			
19	4	50/4"			0	NS	

Boring completed at a depth of 19.0 feet on 04/04/00.
Ground water encountered at a depth of 7.5 feet during drilling.

GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

GeoEngineers

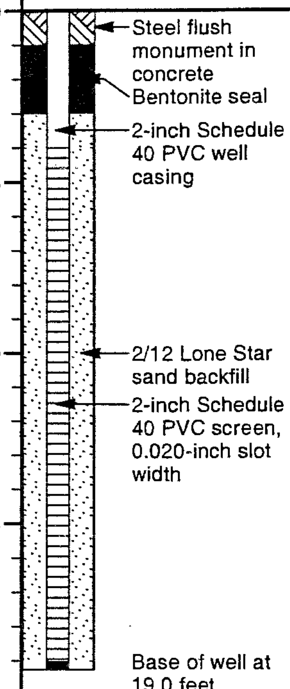
LOG OF MONITORING WELL TL-MW-2

FIGURE B-22

Project	Job Number	Location
Douglas Management	0275-002-00	DNR Property

Date Drilled	04/04/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	N/A	Hammer Data	N/A	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	19	Elevation (ft)	15.64	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	15.29

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0							Blind drill to 19.0 feet See Log of Boring B-1/B-2 for details				0
5											5
10											10
15											15
20							Boring completed at a depth of 19.0 feet on 04/04/00. Ground water encountered at a depth of 7.5 feet during drilling.				20
25											25
30											30
35											35



GeoEngineers

LOG OF MONITORING WELL TL-MW-3

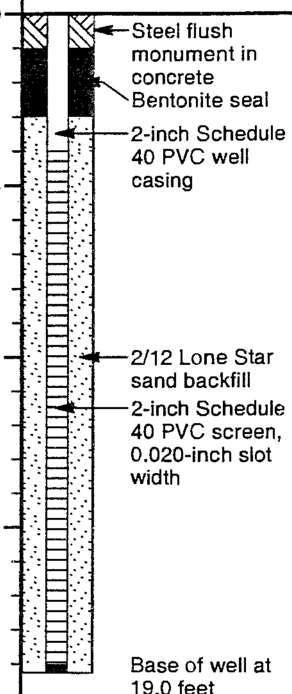
FIGURE B-23

GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

Project	Job Number	Location
Douglas Management	0275-002-00	DNR Property

Date Drilled	04/03/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	19	Elevation (ft)	14.87	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	14.62

WELL SCHEMATIC



Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SP-SM	Brown fine to medium sand with silt, occasional gravel, bricks and wood (medium dense, moist) (fill)			
5			SP	Dark gray fine to medium sand with occasional shells (loose, wet)			
9	1	4			35	HS	
10			ML	Dark gray silt with shells and large woody debris (medium stiff, wet)			
11	2	50/4"			0	NS	
13	3	20	SP-SM	Dark gray fine to medium sand with silt and occasional shells (medium dense, wet)	0	SS	
18	4	65/6"	SP-SM	Dark gray fine to medium sand with silt, occasional shells and medium woody debris (very dense, wet)	0	NS	

Boring completed at a depth of 19.0 feet on 04/03/00.
Ground water encountered at a depth of 7.0 feet during drilling.

GeoEngineers

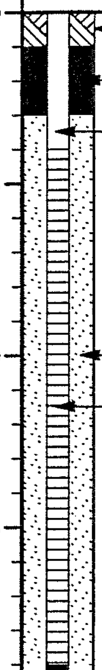
LOG OF MONITORING WELL TL-MW-4

FIGURE B-24

Project	Job Number	Location
Douglas Management	0275-002-00	DNR Property

Date Drilled	04/03/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	19	Elevation (ft)	14.07	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	13.47

WELL SCHEMATIC



Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SP-SM	Brown fine to medium sand with silt and occasional gravel (loose to medium dense, moist) (fill)			
7			SP-SM	Dark gray fine to medium sand with silt and occasional shells (loose, wet) ∇			
9	1	4			62	HS	
11	2	4			7	MS/HS	
11.5			ML	Dark gray silt with fine sand, shells and medium woody debris (stiff, wet)			
14	3	20			0	MS	
16			SP-SM	Dark gray fine to medium sand with silt, occasional gravel and shells, and large woody debris (dense, wet)			
19	4	36			0	SS	

Boring completed at a depth of 19.0 feet on 04/03/00.
Ground water encountered at a depth of 7.0 feet during drilling.

GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

GeoEngineers

LOG OF MONITORING WELL TL-MW-5

FIGURE B-25

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	03/07/01	Logged By	RMB	Contractor	Cascade
Drill Method	Hollow-Stem Auger	Equipment	Truck Mounted CME 55	Drill Bit	
Sample Method	2.5-inch ID Split Spoon	Hammer Data	140 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	20	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	19	Monument Elevation (ft) Stickup (ft)	Flush mounted	Casing Elevation (ft) Stickup (ft)	13.50

WELL SCHEMATIC: Concrete surface seal; Bentonite seal; 2-inch Schedule 40 PVC well casing; 2-inch Schedule 40 PVC screen, .010-inch slot width; 2/12 Lonestar sand backfill

Depth in Feet	Sample No.	Blows per foot	Sample	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0				ML	Gray and black silt with sand, occasional gravel (medium stiff, moist) (fill)			
6	1	10	☒		∇	<100	MS	
9.5				ML	Gray silt, occasional shells (medium stiff, moist)			
11	2	8	☒			<100	NS	
15					Refusal on wood			
19	3	6	☒		No recovery			
20					Boring completed at a depth of 20.0 feet on 03/07/01. Ground water encountered at a depth of 6.0 feet during drilling.			

Note: See Figure B-2 for explanation of symbols

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LOG OF MONITORING WELL TL-MW-5A

FIGURE B-3

GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 4/29/02 0275-002-00

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	03/12/01	Logged By	RMB	Contractor	Cascade
Drill Method	Hollow-Stem Auger	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.5-inch ID Split Spoon	Hammer Data	140 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	15	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	14	Monument Elevation (ft) Stickup (ft)	Flush mounted	Casing Elevation (ft) Stickup (ft)	13.04

WELL SCHEMATIC

- Concrete surface seal
- Bentonite seal
- 2-inch Schedule 40 PVC well casing
- 2-inch Schedule 40 PVC screen, .020-inch slot width
- 2/12 Lonestar sand backfill

Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
		SM	Brown silty fine to medium sand, occasional wood (loose, moist) (fill)			
1	24			<100	NS	
2	11	SM	Gray and green silty fine to medium sand (loose, moist) (fill)	<100	HS	
3	10	WD	Brown sawdust (loose, moist) (fill)	<100	HS	
		WD	Brown sawdust with sand (loose, wet) (fill)			
4	20		Free product appeared to be present in the sample matrix	<100	HS	

Boring completed at a depth of 15.0 feet on 03/12/01.
Ground water encountered at a depth of 13.5 feet during drilling.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

Note: See Figure B-2 for explanation of symbols

GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 4/29/02 0275-002-00

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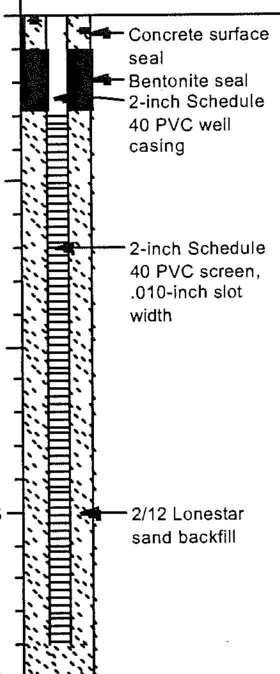
LOG OF MONITORING WELL TL-MW-6

FIGURE B-4

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	03/07/01	Logged By	RMB	Contractor	Cascade
Drill Method	Hollow-Stem Auger	Equipment	Truck Mounted CME 55	Drill Bit	
Sample Method	2.5-inch ID Split Spoon	Hammer Data	140 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	20	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	19	Monument Elevation (ft) Stickup (ft)	Flush mounted	Casing Elevation (ft) Stickup (ft)	13.47



Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
		SM	Gray silty sand, occasional gravel (medium dense, moist) (fill)			
1				<100	NS	
		RK	Brown sandstone fragments, sawdust (very dense, dry) (fill)			
2	50/6"			<100	SS	
			Wood in bit			
		SP-SM	Gray fine to medium sand with silt, occasional wood (medium dense, wet)			
3	12			<100	SS	
		ML	Brown silt with sand, occasional wood (stiff, wet) (fill)			
			Wood encountered during drilling at 15.0 feet.			
4	14			<100	MS	

Boring completed at a depth of 20.0 feet on 03/07/01.
Ground water encountered at a depth of 7.0 feet during drilling.

Note: See Figure B-2 for explanation of symbols

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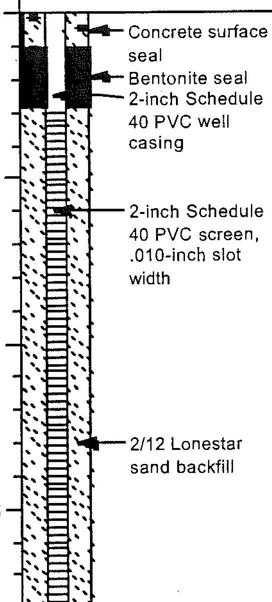
LOG OF MONITORING WELL TL-MW-7

FIGURE B-5

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	03/07/01	Logged By	RMB	Contractor	Cascade
Drill Method	Hollow-Stem Auger	Equipment	Truck Mounted CME 55	Drill Bit	
Sample Method	2.5-inch ID Split Spoon	Hammer Data	140 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	18	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	18	Monument Elevation (ft) Stickup (ft)	Flush mounted	Casing Elevation (ft) Stickup (ft)	15.92

WELL SCHEMATIC



Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SM	Brown silty sand, occasional gravel (medium dense, moist) (fill)			
2	1		SP-SM	Gray fine to medium sand with silt (loose, moist)	<100	SS	
5.5	2	13			<100	SS	
10.5	3	22	SM	Gray silty fine to medium sand, occasional shells (loose, wet)	<100	MS	
15.5	4	11			<100	NS	

Boring completed at a depth of 18.0 feet on 03/07/01.
Ground water encountered at a depth of 7.5 feet during drilling.

Note: See Figure B-2 for explanation of symbols

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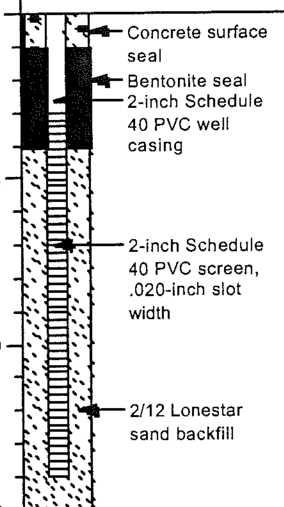
LOG OF MONITORING WELL TL-MW-8

FIGURE B-6

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	03/12/01	Logged By	RMB	Contractor	Cascade
Drill Method	Hollow-Stem Auger	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.5-inch ID Split Spoon	Hammer Data	140 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	15	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	14	Monument Elevation (ft) Stickup (ft)	Flush mounted	Casing Elevation (ft) Stickup (ft)	15.01



Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SM	Brown silty fine to medium sand, occasional gravel (very dense, moist) (fill)			
	1	50/6"		Note: Blows per foot overstated because of sampler obstruction	<100	NS	
	2	14			<100	NS	
10				(Ground water ▽ at 10 ft)			
	3	36	SM	Gray silty fine to medium sand with occasional shells (medium dense, wet)	<100	NS	
	4	90	SM-SP	Gray fine to medium sand with silt (dense, wet)	<100	SS	
15				Boring completed at a depth of 15.0 feet on 03/12/01. Ground water encountered at a depth of 10.0 feet during drilling.			

Note: See Figure B-2 for explanation of symbols

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LOG OF MONITORING WELL TL-MW-9

FIGURE B-7

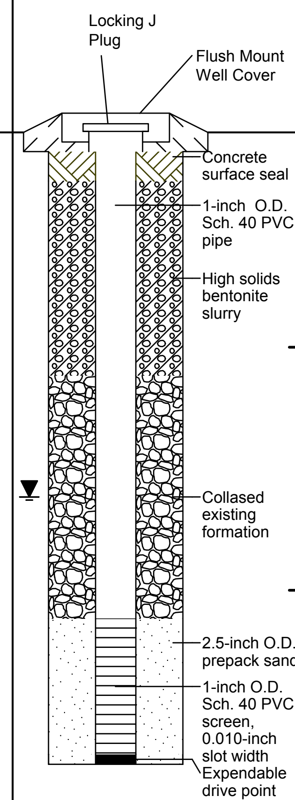
GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 4/29/02 0275-002-00

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	24	Ground Surface Elevation (ft)	14.42	Groundwater Elevation (ft. bgs)	6.92
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0	36	P			TS	Topsoil		
			0'-2'		SM	Dark brown silty fine to medium sand with occasional gravel and coal fragments (moist) (fill)	NS	--
			2'-4'		SP	Brown fine to medium sand with silt (moist) (fill)	NS	--
					AC	Concrete		
	24	P			SM	Brown silty fine sand (moist) (fill)		
5			4'-5.5'				NS	--
					WD	Wood fragments		
			5.5'-8'	CA	ML	Brown silt with sand and occasional gravel and brick fragments (moist) (fill)	SS	--
	18	P			SP	Gray fine to medium sand with occasional brick fragments (wet) (fill)		
10			8'-12'	CA	WD	Black saw dust with sand and occasional wood fragments (wet) (fill) (free product in sleeve)	MS	--
	24	P	12'-13'	CA			HS	--
15			13'-16'		SM	Gray silty fine to medium sand with occasional shells (wet) (fill)	MS	--
	36	P	16'-18'	CA			SS	--
			18'-20'		ML	Gray silt with sand and occasional shells (wet) (fill)	NS	--
20	24	P	20'-22'	CA	WD	Brown saw dust (wet) (fill)	NS	--
25						Boring completed at 24 feet below ground surface		

All sample numbers are prefixed with TL-MW-10-(sample number)

WELL CONSTRUCTION



LOG OF MONITORING WELL TL-MW-10

GeoEngineers

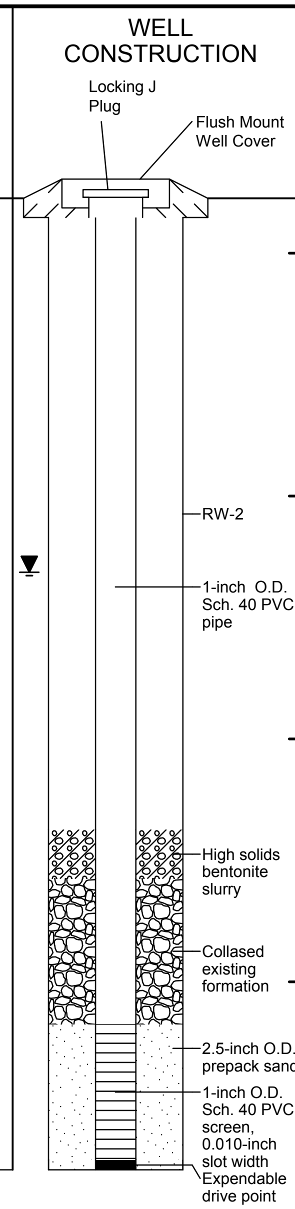
Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-80
Sheet 1 of 1

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	20	Ground Surface Elevation (ft)	16.13	Groundwater Elevation (ft. bgs)	8.43
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0							C	RW- 2 Well Casing		
14		36	P	14'-17'			ML	Gray silt with occasional shell fragments (wet) (fill)	SS	--
17		5	P	17'-18'			WD	Brown coarse saw dust with occasional wood fragments (wet) (fill)	SS	--
18				18'-20'				Grades to with gray sand	SS	--
20								Refusal on wood at 20 feet below ground surface		



All sample numbers are prefixed with TL-MW-11-(sample number)
Boring and well were completed inside RW-2

LOG OF MONITORING WELL TL-MW-11

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-81
Sheet 1 of 1

Project	Job Number	Location
Douglas Management	0275-002-00	Haley Property

Date Drilled	04/04/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	14	Elevation (ft)	16.95	Datum: / System:	City / Not Determined
Total Well Depth (ft)	14	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	16.65

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0	Steel flush monument in concrete			ASPHALT				
				SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist) (fill)			
	Bentonite seal			SP	Black and bluish gray medium to coarse sand with a trace of silt and sandstone fragmented fill (very dense, moist) (wood, brick)			
	2-inch Schedule 40 PVC well casing	1	80			0	SS	
5				ML	Brown bluish gray silt with medium woody debris and shale fragments (medium dense, wet)			
	2/12 Lone Star sand backfill	2	16			21	HS	
	2-inch Schedule 40 PVC screen, 0.020-inch slot width	3	11			16	MS/HS	
10								
		4				2	SS	
		5	50/4"	RX	Gray silt (hard, moist)	0	NS	
	Base of well at 14.0 feet							
15					Boring completed at a depth of 14.0 feet on 04/04/00. Ground water encountered at a depth of 6.0 feet during drilling.			
20								
25								
30								

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LOG OF MONITORING WELL HS-MW-3

FIGURE B-26

Project	Job Number	Location
Douglas Management	0275-002-00	Haley Property

Date Drilled	04/04/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	13	Elevation (ft)	17.02	Datum: / System:	City / Not Determined
Total Well Depth (ft)	13	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	16.84

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Sheen
0	Steel flush monument in concrete			CONCRETE		
	Bentonite seal			SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist) (fill)	
	2-inch Schedule 40 PVC well casing			OL/SM	Dark grayish black coal shavings and small wood debris with occasional sand (loose, moist) (sawdust fill)	
		1	37	ML	Bluish gray gravelly silt with occasional sand (very stiff, moist)	SS
5			24			
		2	13	ML	Gray silt with occasional gravel and shale fragments (stiff to very stiff, wet)	MS/HS
	2-inch Schedule 40 PVC screen, 0.020-inch slot width	3	28			HS
10	2/12 Lone Star sand backfill					
		4	50/3"	RX	Gray silt (hard, moist)	NS
	Base of well at 13.0 feet					

Boring completed at a depth of 13.0 feet on 04/04/00.
Ground water encountered at a depth of 6.5 feet during drilling.

Columns also headed: Sample, Graphic Log, Headspace Vapor (ppm), Other Tests And Notes. Depth scale 0 to 30.

GEI WELL LOG 027502HS.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

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LOG OF MONITORING WELL HS-MW-4

FIGURE B-27

Project	Job Number	Location
Douglas Management	0275-002-00	Haley Property

Date Drilled	04/04/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	13	Elevation (ft)	15.99	Datum: / System:	City / Not Determined
Total Well Depth (ft)	13	Monument Elevation / Stickup (ft)	Flush mounted	Casing Elevation / Stickup (ft)	15.59

WELL SCHEMATIC

- Steel flush monument in concrete
- Bentonite seal
- 2-inch Schedule 40 PVC well casing
- 2-inch Schedule 40 PVC screen, 0.020-inch slot width
- 2/12 Lone Star sand backfill
- Base of well at 13.0 feet

DEPTH IN FEET	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			ASPHALT				
			SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist) (fill)			
			ML	Bluish gray silt with fine sand and a trace of organic roots (medium stiff, moist) (fill)			
	1	13			0	NS	
5			OL/SM	Dark brownish black small woody debris, coal shavings with medium to coarse sand (loose, wet) (sawdust fill)			
	2	10		⊻	81	HS	
			GM	Gray silty gravel with occasional sand (dense, wet)			
10							
	3	41	RX	Gray silt with occasional sand (hard, moist)	0	SS	
	4	50/3"			0	NS	
15							
20							
25							
30							

Boring completed at a depth of 13.0 feet on 04/04/00.
Ground water encountered at a depth of 6.0 feet during drilling.

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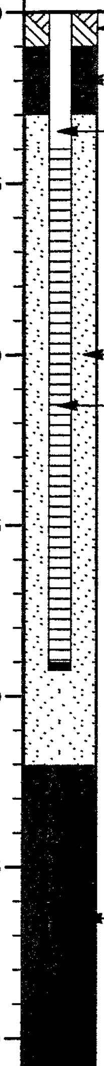
LOG OF MONITORING WELL HS-MW-5

FIGURE B-28

Project	Job Number	Location
Douglas Management	0275-002-00	Haley Property

Date Drilled	04/03/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	31	Elevation (ft)	13.51	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	13.19

WELL SCHEMATIC



Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SP-SM	Brown fine to medium sand with gravel and silt (loose, moist) (fill)			
			ML	Bluish gray silt with gravel and brick (loose, moist) (fill)			
	1	7			0	SS	
			SP-SM	Bluish gray brown mottled fine to medium sand with silt and medium to large woody debris (loose, wet) ∇			
5	2	7			0	SS	
			SP	Dark gray medium sand with medium to large woody debris (loose, wet)			
	3	7			0	NS	
10	4	20	WD	Large woody debris (wet)	0	NS	
	5	11			0	NS	
15			SP-SM	Dark gray fine to medium sand with occasional gravel, shells and medium to large woody debris (medium dense, wet)			
	6	12			0	NS	
	7	100/4"			0	NS	
20			SP-SM	Dark gray fine to medium sand with silt, shells and occasional gravel (medium dense, wet)			
	8	18			0	NS	
	9	10			0	NS	
25			SP	Dark gray fine to medium sand with occasional gravel, shells, medium woody debris and a trace of silt (medium dense, wet)			
	10	26			0	NS	
	11	39	SM/ML	Dark gray silty fine to medium sand with occasional shells (very stiff, wet)	0	NS	
30	12	43	ML	Dark gray silt with a trace of fine sand (very stiff, moist)			
				Boring completed at a depth of 31.0 feet on 04/03/00. Ground water encountered at a depth of 4.5 feet during drilling.			
35							

GEI WELL LOG 027502HS.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

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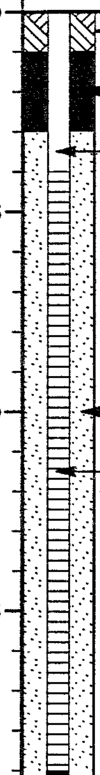
LOG OF MONITORING WELL HS-MW-6

FIGURE B-29

Project	Job Number	Location
Douglas Management	0275-002-00	Haley Property

Date Drilled	04/05/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID D&M/SPT Split Spoon	Hammer Data	300 lb/140 Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	19	Elevation (ft)	16.79	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	16.46

WELL SCHEMATIC



DEPTH IN FEET	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			ASPHALT				
0–2			SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist) (fill)			
2–9			ML	Bluish gray silt with sand, gravel, occasionl coal shavings and small woody debris (stiff, moist) (sawdust fill)			
3.5	1	35			0	SS	
6	2	100/3"			0	SS	
7 (▽)							
8.5	3	15			28	HS	
9–11			WD	Dark brown small to medium woody debris with a trace of silt (medium stiff, wet) (fill)			
11–16.5			WD	Large woody debris (wet)			
13.5	4	19				SS	
16.5–19			GM	Gray silty gravel with occasional cobbles (very dense, wet)			
18	5	100/5"			0	NS	

Boring completed at a depth of 19.0 feet on 04/05/00.
Ground water encountered at a depth of 7.0 feet during drilling.

GEI WELL LOG 027502HS.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

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LOG OF MONITORING WELL HS-MW-7

FIGURE B-30

Date(s) Drilled	04/04/00	Logged By	JJO/SLM	Checked By	
Drilling Contractor	Cascade	Drilling Method	4.25" ID HSA	Sampling Methods	2.4" ID Split Barrel
Auger Data		Hammer Data	300 (lb) hammer/ 30 (in) drop 300 lb Hammer/30" drop	Drilling Equipment	Truck Mounted CME 75
Total Depth (ft)	10	Ground Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	7
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Sample Number	SAMPLES: Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0							ASPHALT			
							SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist) (fill)		
							ML	Bluish gray sandy silt with occasional gravel and cobbles		
5										
		18	18	1					NS	0
							WD	Large woody debris (wet)		
		18	10	2					NS	
10										

Boring terminated at 10.0 feet due to auger refusal on 04/04/00.
Ground water encountered at a depth of 7.0 feet during drilling.

15

20

25

V6_ENVWELL P:\0027500201\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF BORING HS-MW-7A

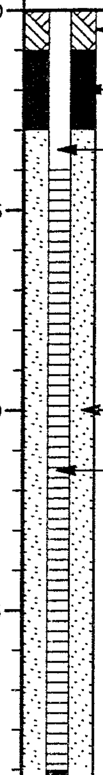
GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-39
Sheet 1 of 1

Project	Job Number	Location
Douglas Management	0275-002-00	Haley Property

Date Drilled	04/04/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	19	Elevation (ft)	15.83	Datum: / System:	City / Not Determined
Total Well Depth (ft)	19	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	15.61



DEPTH IN FEET	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			CONCRETE	Reinforced concrete			
			OL/SM	Black coal shavings and small woody debris (loose, moist) (sawdust fill)			
			ML	Bluish gray gravelly silt with occasional brick (fill) (loose, moist)			
	1	9			0	SS	
	2	16			28	MS/HS	
	3	8	WD	Dark brownish black small wood debris with a trace of silt (loose, wet) (sawdust fill)	9	HS	
	4	11			0	SS	
			SP	Gray medium sand with occasional shells and a trace of silt (very dense, wet)			
	5	60/6"			0	NS	

Boring completed at a depth of 19.0 feet on 04/04/00.
Ground water encountered at a depth of 7.0 feet during drilling.

GEI WELL LOG 027502HS.GPJ GEI_CORP.GDT 5/30/00 0275-002-00

GeoEngineers

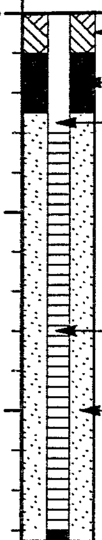
LOG OF MONITORING WELL HS-MW-8

FIGURE B-31

Project	Job Number	Location
Douglas Management	0275-002-00	Haley Property

Date Drilled	04/05/00	Logged By	JJO/SLM	Contractor	Cascade
Drill Method	4.25" ID HSA	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	2.4" ID Split Barrel	Hammer Data	300 lb Hammer/30" drop	X-coordinate: / Y-coordinate:	Not Determined / Not Determined
Total Depth (ft)	13	Elevation (ft)	15.61	Datum: / System:	City / Not Determined
Total Well Depth (ft)	13	Monument Elevation Stickup (ft)	Flush mounted	Casing Elevation Stickup (ft)	15.25

WELL SCHEMATIC



Graphic Log

Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			ASPHALT				
			SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist) (fill)			
			SP-SM	Bluish gray fine to medium sand with silt and gravel (loose, moist)			
	1	9			0	NS	
5	2	7	WD	Large woody debris (wet) ∇	0	NS	
	3	18			0	NS	
10	4	100/6"	RX	Gray silt (hard, moist)	0	NS	

Boring completed at a depth of 13.0 feet on 04/05/00.
Ground water encountered at a depth of 6.0 feet during drilling.

Depth scale: 0, 5, 10, 15, 20, 25, 30

GeoEngineers

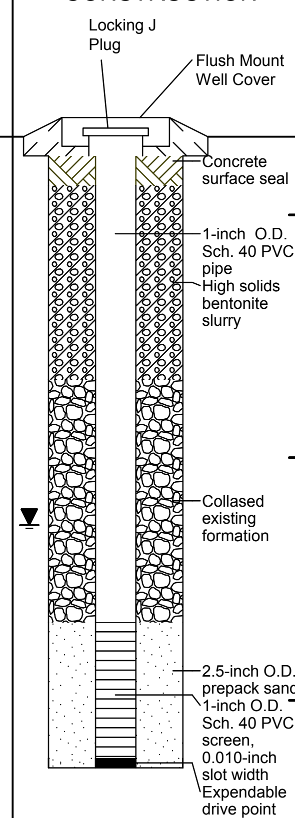
LOG OF MONITORING WELL HS-MW-9

FIGURE B-32

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	15	Ground Surface Elevation (ft)	16.61	Groundwater Elevation (ft. bgs)	8.61
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0	36	P			AC	3" Asphalt		
			0'-2'		GP	Brown fine to medium gravel (dry) (fill)	NS	--
					ML	Brown silt with sand and occasional gravel (moist) (fill)		
			2'-4'				NS	--
	30	P			SM	Brown silty fine to medium sand with occasional gravel (wet) (fill)		
5			4'-6'				MS	--
			6'-8'				MS	--
	36	P				Material becomes black coal (wet) (fill)		
			8'-10'				MS	--
10					ML	Brown silt with sand and occasional wood		
			10'-12'		WD	Brown and black wood fragments with silt (wet) (fill) Wood buried horizontal	SS	--
	36	P						
			12'-13'	CA			MS	--
					RX	Gray weathered siltstone (dry)		
			13'-15'				NS	--
15						Refusal at 15 feet below ground surface		
20								
25								

WELL CONSTRUCTION



All sample numbers are prefixed with HS-MW-10-(sample number)

LOG OF MONITORING WELL HS-MW-10

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-42
Sheet 1 of 1

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	Grab
Auger Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	16	Ground Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		36	P				AC	6" asphalt		
				0'-2'			GP	Fine to medium gravel (medium dense, dry) (fill)	SS	--
							ML	Brown to gray silt with sand and occasional gravel (moist) (fill)		
				2'-4'			SM	Brown to gray silty fine to medium sand with occasional gravel (moist) (fill)		
		6	P							
5				4'-8'					SS	--
		6	P				SM	Dark brown silty fine to medium sand with occasional gravel and wood fragments(wet) (fill)		
10				8'-12'					MS	--
		0	P				WD	Dark brown wood fragments with vertical grain orientation		
15										
								Refusal at 16 feet in wood		
20										
25										

All sample numbers are prefixed with HS-MW-10-(sample number)

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF BORING HS-MW-11D

GeoEngineers

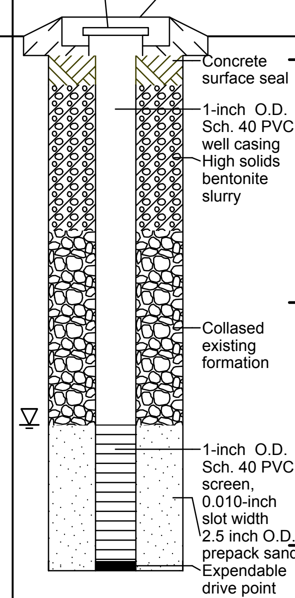
Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-43
Sheet 1 of 1

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	Grab
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	16	Ground Surface Elevation (ft)	15.48	Groundwater Elevation (ft. bgs)	7.48
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0							AC	6" asphalt		
							GP	Fine to medium gravel (dry) (fill)		
								Probe advanced through zero to four feet		
4		12	P				SM	Brown and gray silty fine to medium sand with occasional gravel (moist) (fill)		
6				4'-8'	CA				SS	--
8		6	P				WD	Dark brown wood dust with silt and occasional gravel (wet) (fill)		
10				8'-12'	CA				MS	--
12		12	P				WD	Dark brown wood with horizontal grain orientation		
14				12'-16'	CA				NS	--

WELL CONSTRUCTION



All sample numbers are prefixed with HS-MW-11D A-(sample number)

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF MONITORING WELL HS-MW-11D A

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-44
Sheet 1 of 1

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	7.5	Ground Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		24	P				AC	6 inches of concrete		
				0'-2'			GP	Gray fine to coarse gravel (dry) (fill)	NS	--
							SM	Dark brown silty fine to medium sand with occasional gravel (moist) (fill)		
				2'-4'			RBL	Red brick fragments with fine to medium sand (dry) (fill)	SS	--
		24	P				ML	Brown silt with brick fragments and sand (moist) (fill)		
5				4'-6.5'					NS	--
				6.5'-7.5'			RX	Gray weathered sandstone (dry)	NS	--

Refusal on bedrock at 7 feet below ground surface

NO WELL CONSTRUCTED

10

15

20

25

All sample numbers are prefixed with HS-MW-12-(sample number)

V6_ENVWELL P:\00275002\GINT\0275002001.GPJ GEIV6_1.GDT 3/14/06

LOG OF BORING HS-MW-12

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	6	Ground Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		48	P				AC	6 inches of concrete		
				0'-2'			SM	Gray silty fine to medium sand (moist) (fill)	NS	--
							ML	Gray silt with sand and occasional gravel (moist) (fill)		
				2'-3'			GP	Black coarse gravel (coal) with brick fragments (moist) (fill)	NS	--
				3'-4'			RX	Gray siltstone	NS	--
		24	P							
5				4'-6'					NS	--

Refusal on bedrock at 6 feet below ground surface

NO WELL CONSTRUCTED

10

15

20

25

All sample numbers are prefixed with HS-MW-12A-(sample number)

LOG OF BORING HS-MW-12A

GeoEngineers

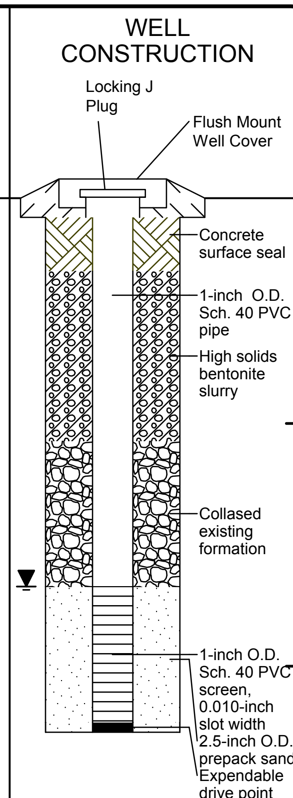
Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-46
Sheet 1 of 1

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	15	Ground Surface Elevation (ft)	14.64	Groundwater Elevation (ft. bgs)	6.64
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0	36	P	0'-1'		AC	6 inches of concrete	NS	--
					SP	Brown fine to medium sand with occasional gravel (moist) (fill)		
					GP	Black fine to coarse gravel (coal) (moist) (fill)		
			1'-4'		ML	Brown-gray silt with sand and occasional wood fragments (moist) (fill)	NS	--
	24	P			GP	Black fine to coarse gravel (coal) (moist) (fill)		
5			4'-6'		ML	Brown-gray silt with sand and occasional gravel (moist) (fill)	NS	--
			6'-8'				SS	--
	24	P				Grades to black with increasing wood fragments		
			8'-10'	CA			MS	--
10					WD	Black fine saw dust with occasional wood fragments (wet) (fill)		
			10'-12'				NS	--
	12	P						
			12'-15'				NS	--
15						Refusal in bedrock at 15 feet below ground surface		
20								
25								



All sample numbers are prefixed with HS-MW-13D-(sample number)

LOG OF MONITORING WELL HS-MW-13D

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-47
Sheet 1 of 1

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	7.5	Ground Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	6.5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		24	P				AC	6 inches of concrete		
				0'-2'			GP	Gray fine to coarse gravel	NS	--
							SM	Gray silty fine to medium sand with occasional gravel (moist) (fill)		
				2'-4'				Grades to dark brown	NS	--
		24	P							
5				4'-7'					NS	--
								Becomes wet		
				7'-7.5'			RX	Gray siltstone	NS	--
								Refusal on bedrock at 7.5 feet below ground surface		
								NO WELL CONSTRUCTED		
10										
15										
20										
25										

All sample numbers are prefixed with HS-MW-14-(sample number)

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF BORING HS-MW-14

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-48
Sheet 1 of 1

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	7	Ground Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	6.5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0							AC	6 inches of concrete		
							GP	Gray fine to coarse gravel		
							SM	Gray silty fine to medium sand with occasional gravel (moist) (fill)		
								Grades to dark brown		
		18	P							
5				BD	BD					
							RX	Becomes wet		
								Gray siltstone Refusal on bedrock at 7.5 feet below ground surface NO WELL CONSTRUCTED		
10										
15										
20										
25										

All sample numbers are prefixed with HS-MW-14A-(sample number)

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF BORING HS-MW-14A

GeoEngineers

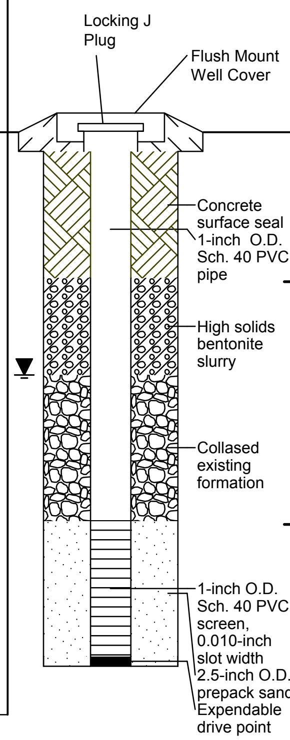
Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-49
Sheet 1 of 1

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	12	Ground Surface Elevation (ft)	13.08	Groundwater Elevation (ft. bgs)	8.08
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		36	P				GP	3 inches gravel		
				0'-1.5'			SM	Brown silty medium to coarse sand with occasional gravel (moist) (fill)	NS	--
				1.5'-4'					NS	--
		6	P							
5										
							XX	No recovery, drilled down to 12 feet to install well		
10										
								Boring completed at 12 feet below ground surface		
15										
20										
25										

WELL CONSTRUCTION



All sample numbers are prefixed with HS-MW-15-(sample number)

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF MONITORING WELL HS-MW-15

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-50
Sheet 1 of 1

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	10	Ground Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0								Probe advanced to 4-8' interval		
		6	P	4'-8'			GM	Brown silty fine to coarse gravel (wet) (fill)	NS	--
5										
		6	P	8'-10'	CA				NS	--
10								Refusal on concrete at 10 feet below ground surface		
								NO WELL CONSTRUCTED		
15										
20										
25										

All sample numbers are prefixed with HS-MW-15A-(sample number)

LOG OF BORING HS-MW-15A

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

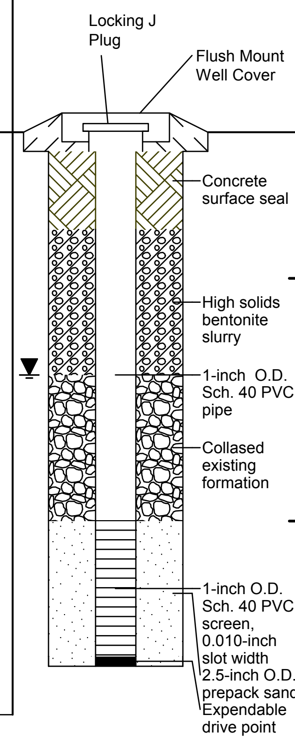
FIGURE A-51
Sheet 1 of 1

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

Date(s) Drilled	06/17/2004 - 06/17/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	12	Ground Surface Elevation (ft)	13.01	Groundwater Elevation (ft. bgs)	8.01
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		24	P				GP	Fine to coarse gravel		
				0'-2'			ML	Brown silt with sand and occasional gravel and brick fragments (moist) (fill)	NS	--
				2'-4'			SP-SM	Brown fine to medium sand with silt (moist) (fill)	NS	--
		12	P							
5				4'-8'			GM	Brown silty fine to coarse gravel (wet) (fill)	NS	--
		48	P				SP	Brown fine to medium sand with occasional gravel (wet) (fill)		
				9'-10'	CA		GM	Brown silty fine to coarse gravel (wet) (fill)	NS	--
10							WD	Dark brown wood fragments with silt and sand (wet) (fill)		
				10'-12'			SP	Gray fine to medium sand (wet)	NS	--
								Boring completed at 12 feet below ground surface		
15										
20										
25										

WELL CONSTRUCTION



All sample numbers are prefixed with HS-MW-16-(sample number)

V6_ENVWELL P:\00275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF MONITORING WELL HS-MW-16

GEOENGINEERS

Project:	R.G. Haley
Project Location:	Bellingham
Project Number:	0275-002-01

FIGURE A-52
Sheet 1 of 1

Date(s) Drilled	04/05/00	Logged By	JJO/SLM	Checked By	
Drilling Contractor	Cascade	Drilling Method	4.25" ID HSA	Sampling Methods	2.4" ID Split Barrel
Auger/Bit Data		Hammer Data	300 (lb) hammer/ 30 (in) drop 300 lb Hammer/30" drop	Drilling Equipment	Truck Mounted CME 75
Total Depth (ft)	14	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	7
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0								SP-SM	Brown fine to medium sand with silt and occasional gravel (medium dense, moist) (fill)			
								ML	Brown silt with sand and gravel (loose, moist)			
5								SP	Bluish gray medium to coarse sand with occasional gravel (dense, moist)			
		18	44	1						NS	0	
7						▼						
								SP	Brown medium to coarse sand with occasional gravel (very dense, moist)			
		18	51	2						NS	0	
10								GP-GM	Dark gray fine to coarse gravel with silt, occasional sand and medium wood debris (dense, wet)			
		18	30	3						NS	0	
		18	25	4						NS	0	
15												
20												
25												

Boring completed at a depth of 14.0 feet on 04/05/00.
Ground water encountered at a depth of 7.0 feet during drilling.

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING HS-B-1

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-6
Sheet 1 of 1

Date(s) Drilled	04/05/00	Logged By	JJO/SLM	Checked By	
Drilling Contractor	Cascade	Drilling Method	4.25" ID HSA	Sampling Methods	2.4" ID Split Barrel
Auger/Bit Data		Hammer Data	300 (lb) hammer/ 30 (in) drop 300 lb Hammer/30" drop	Drilling Equipment	Truck Mounted CME 75
Total Depth (ft)	14	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	7
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0								SP-SM	Brown fine to medium sand with silt and occasional gravel (medium dense, moist) (fill)			
								SP	Dark brown medium to coarse sand with coal shavings and small to large woody debris (loose, moist) (sawdust fill)			
5												
		18	9	1						NS/SS		
						▼		WD	Large woody debris (wet)			
		3	100/3"	2						NS		
10												
		18	24	3						NS		
		3	100/3"	4						NS		
15												
20												
25												

Boring completed at a depth of 14.0 feet on 04/05/00.
Ground water encountered at a depth of 7.0 feet during drilling.

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING HS-B-2

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-7
Sheet 1 of 1

Date(s) Drilled	04/05/00	Logged By	JJO/SLM	Checked By	
Drilling Contractor	Cascade	Drilling Method	4.25" ID HSA	Sampling Methods	2.4-inch ID Split Barrel
Auger/Bit Data		Hammer Data	300 (lb) hammer/ 30 (in) drop 300 lb. Hammer/30-inch Drop	Drilling Equipment	Truck Mounted CME 75
Total Depth (ft)	9	Surface Elevation (ft)	15.66	Groundwater Elevation	8.66
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0								SP-SM	Brown fine to medium sand with silt, occasional gravel, concrete and brick (fill) (medium dense, moist)			
								ML	Bluish gray silt with gravel, a trace of sand, medium to large woody debris and brick fragments (medium stiff, moist) (fill)			
5												
	■	6	19	1						NS	0	
						▼		SP	Dark brownish black fine to medium sand with a trace of silt and large woody debris (medium dense, wet)			
	■	6	20	2						HS	128	
10												
15												
20												
25												

Boring completed at a depth of 9.0 feet on 04/05/00.
Ground water encountered at a depth of 7.0 feet during drilling.

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING TL-B-3

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-61
Sheet 1 of 1

Date(s) Drilled	04/05/00	Logged By	JJO/SLM	Checked By	
Drilling Contractor	Cascade	Drilling Method	4.25" ID HSA	Sampling Methods	2.4-inch ID Split Barrel
Auger/Bit Data		Hammer Data	300 (lb) hammer/ 30 (in) drop 300 lb. Hammer/30-inch Drop	Drilling Equipment	Truck Mounted CME 75
Total Depth (ft)	11.5	Surface Elevation (ft)	16.81	Groundwater Elevation	9.31
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0								SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist)			
								SM	Brownish blue and gray silty sand with gravel, plastic, glass and ceramics (medium dense, moist) (fill))			
5								ML	Brownish blue and gray sandy silt with gravel, brick, plastic, glass and ceramics (medium stiff, moist) (fill))			
		0	17	1						SS	0	
						▼		WD	Large woody debris (wet)			
		0	100/3"	2						SS	0	
10		6	35	3						MS	0	

Boring completed at a depth of 11.5 feet on 04/05/00.
Ground water encountered at a depth of 7.5 feet during drilling.

15

20

25

LOG OF BORING TL-B-4

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-62

Date(s) Drilled	04/05/00	Logged By	JJO/SLM	Checked By	
Drilling Contractor	Cascade	Drilling Method	4.25" ID HSA	Sampling Methods	2.4-inch ID Split Barrel
Auger/Bit Data		Hammer Data	300 (lb) hammer/ 30 (in) drop 300 lb. Hammer/30-inch Drop	Drilling Equipment	Truck Mounted CME 75
Total Depth (ft)	11.5	Surface Elevation (ft)	16.20	Groundwater Elevation	8.2
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0								SP-SM	Brown fine to medium sand with silt and gravel (medium dense, moist)			
								SM	Dark brown silty fine to medium sand with occasional gravel, brick and wood (fill)			
5												
	■	6	6	1					Grades to large woody debris	SS	0	
	■	0	100/3"	2		▼		SP-SM	Dark brownish black fine to medium sand with silt and large woody debris (wet)	NS	0	
10	■	6	18	3								

Boring completed at a depth of 11.5 feet on 04/05/00.
Ground water encountered at a depth of 8.0 feet during drilling.

Depth scale: 15, 20, 25

LOG OF BORING TL-B-5

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-63
Sheet 1 of 1

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	02/06/02	Logged By	RMB	Contractor	Cascade
Drill Method	6.25-inch Hollow-Stem Auger	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	SPT	Hammer Data	300 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	15	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	15	Monument Elevation (ft) Stickup (ft)		Casing Elevation (ft) Stickup (ft)	15.03

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0	2/12 Lonestar sand backfill; 4-inch Schedule 40 PVC well casing			SM	Brown silty fine to medium sand with gravel (very loose, moist) (fill)			
		1	2				NS	
	Bentonite seal			ML	Dark brown silt with sand, brick fragments (very loose, moist) (fill)			
5		2	1				HS	
	4-inch Schedule 40 PVC screen, .020-inch slot width			SC	Brown clayey fine to medium sand, brick fragments, black coal dust (very loose, wet) (fill)			
		3	3				HS	
				SP	Dark gray-black fine to medium sand, occasional brick fragments (very loose, wet) (fill)			
10		4	1				MS	
	2/12 Lonestar sand backfill	5	1				HS	
15		6	0				HS	

Boring completed at a depth of 15.0 feet on 02/06/02.
Ground water encountered at a depth of 7.0 feet during drilling.

Note: See Figure B-2 for explanation of symbols

GEI WELL LOG 027502TL.GPJ GEI_CORP.GDT 4/4/02 0275-002-00

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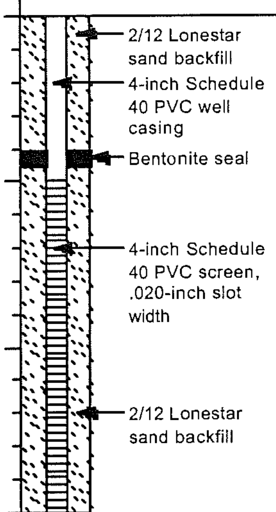
LOG OF MONITORING WELL RW-4

FIGURE B-8

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	02/06/02	Logged By	RMB	Contractor	Cascade
Drill Method	6.25-inch Hollow-Stem Auger	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	SPT	Hammer Data	300 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	15	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	15	Monument Elevation (ft) Stickup (ft)		Casing Elevation (ft) Stickup (ft)	15.70



Depth in Feet	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			ML	Dark brown and green silt with fine to medium sand, occasional gravel (medium stiff, moist) (fill)			
	1	8				SS	
5	2	3				MS	
			SP	Dark gray fine to medium sand (loose to very loose, wet) (fill)	▽		
	3	2				HS	
10	4	2				HS	
	5	1				HS	
15	6	7				HS	

Boring completed at a depth of 15.0 feet on 02/06/02.
Ground water encountered at a depth of 7.5 feet during drilling.

Depth scale: 0, 5, 10, 15, 20, 25, 30, 35

Note: See Figure B-2 for explanation of symbols

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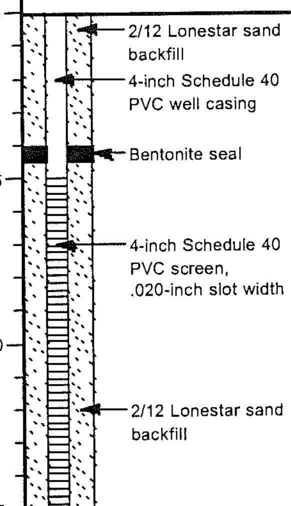
LOG OF MONITORING WELL RW-5

FIGURE B-9

Project	Job Number	Location
Douglas Management	0275-002-00	Bellingham, WA

Date Drilled	02/06/02	Logged By	RMB	Contractor	Cascade
Drill Method	6.25-inch Hollow-Stem Auger	Equipment	Truck Mounted CME 75	Drill Bit	
Sample Method	SPT	Hammer Data	300 lb. Hammer/30-inch Drop	Location	
Total Depth (ft)	15	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	15	Monument Elevation (ft) Stickup (ft)		Casing Elevation (ft) Stickup (ft)	



DEPTH IN FEET	Sample No.	Blows per foot	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0			SM	Brown silty fine to medium sand (loose, moist) (fill)			
	1	6				NS	
5	2	5				NS	
	3	3				HS	
			SP	Dark gray fine to medium sand with shells (very loose, wet) (dredge fill)			
10	4	1				HS	
	5	1				HS	
15	6	6				HS	

Boring completed at a depth of 15.0 feet on 02/06/02.
Ground water encountered at a depth of 7.5 feet during drilling.

Note: See Figure B-2 for explanation of symbols

GEI WELL LOG 027502TL.GPJ GEI CORP.GDT 4/4/02 0275-002-00

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LOG OF MONITORING WELL RW-6

FIGURE B-10

Date Excavated: 06/16/2004 - 06/16/2004

Logged by: RMB

Equipment: 4' MicroCore

Surface Elevation (ft): 15.79

Elevation feet	Depth feet	Sample	Sample Number	Analytical Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	OTHER TESTS AND NOTES
	0		0'-2'			AC	Asphalt	SS	--	
15						SM	Gray silty fine to medium sand (moist) (fill)			
			2'-4'			ML	Brown silt with occasional gravel, coal and brick fragments (moist) (fill)	SS	--	
			4'-6'			GP	Gray fine to coarse gravel (moist) (fill)	MS	--	
	5						becomes wet			
10			6'-8'			WD	Brown saw dust with sand and silt and occasional brick fragments (wet) (fill)	MS	--	
			8'-10'					HS	--	
	10		10'-12'	CA		ML	Gray silt with sand and occasional gravel and shell fragments (wet) (fill)	MS	--	
5										
			12'-13'	CA				MS	--	
			13'-15'				Free product globs observed on inside of plastic sample liner	MS	--	
	15						Refusal on bedrock at 15 feet below ground surface			
0										
	20									
-5										
	25									

All sample numbers are prefixed with CL-MW-1D-(sample number)

LOG OF MONITORING WELL CL-MW-1D

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Project: R.G. Haley

Project Location: Bellingham

Project Number: 0275-002-01

FIGURE A-4

Sheet 1 of 1

Date Excavated: 06/18/2004 - 06/18/2004

Logged by: RMB

Equipment: 4' MicroCore

Surface Elevation (ft): 15.76

Elevation feet	Depth feet	Sample	Sample Number	Analytical Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	OTHER TESTS AND NOTES
	0					AC	Asphalt			
15						SM	Gray silty fine to medium sand (moist) (fill)	SS	--	
						ML	Brown silt with occasional gravel, coal and brick fragments (moist) (fill)	SS	--	
						GP	Gray fine to coarse gravel (moist) (fill)			
10	5						becomes wet	MS	--	
						WD	Brown saw dust with sand and silt and occasional brick fragments (wet) (fill)	MS	--	
								HS	--	
5	10						Boring completed to 10 feet below ground surface			
0	15									
-5	20									
	25									

All sample numbers are prefixed with CL-MW-1S-(sample number)

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LOG OF MONITORING WELL CL-MW-1S

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Project: R.G. Haley

Project Location: Bellingham

Project Number: 0275-002-01

FIGURE A-5

Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A	0'-1'	CA			CL	Brown clay with sand and occasional gravel (moist) (fill)	SS	--	
5												

All sample numbers are prefixed with HS-HA-1-(sample number)

LOG OF HAND BORING HS-HA-1

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-29
Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A	0'-1'	CA				Brown clay with sand and occasional gravel (moist) (fill)	NS	--	
5												

All sample numbers are prefixed with HS-HA-2-(sample number)

LOG OF HAND BORING HS-HA-2

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-30
Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A	0'-1'	CA			SP	Dark brown medium to coarse sand with gravel and trace silt (moist) (fill)	SS	--	
5												

All sample numbers are prefixed with HS-HA-3-(sample number)

LOG OF HAND BORING HS-HA-3

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-31
Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A					SP	Black and brown medium to coarse sand with occasional gravel, coal, and wood fragments (moist) (fill)			
				0'-1'	CA					SS	--	
								CL	Gray and black clay with occasional wood fragments (moist) (fill)			
5												

All sample numbers are prefixed with HS-HA-4-(sample number)

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LOG OF HAND BORING HS-HA-4

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-32
Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A	0'-1'	CA			SM	Brown silty fine to medium sand with occasional gravel and wood fragments (moist) (fill)	SS	--	
5												

All sample numbers are prefixed with HS-HA-5-(sample number)

LOG OF HAND BORING HS-HA-5

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-33
Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	MR4	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	SAMPLES Recovered (in)	SAMPLES Blows/foot	SAMPLES Sub-Sample Number	SAMPLES Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A	0'-1'	CA			SP	Brown fine to medium sand with fine to coarse gravel (moist) (fill)	SS	--	
5												

All sample numbers are prefixed with TL-HA-1-(sample number)

LOG OF HAND BORING TL-HA-1

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-68
Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	MR4	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A	0'-1'	CA			SM	Dark brown silty fine to coarse sand with fine gravel and coarse angular gravel (moist) (fill)	NS	--	
5												

All sample numbers are prefixed with TL-HA-2-(sample number)

LOG OF HAND BORING TL-HA-2

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-69
Sheet 1 of 1

Date(s) Drilled	06/14/2004 - 06/14/2004	Logged By	MR4	Checked By	BES
Drilling Contractor	N/A	Drilling Method	Hand Auger	Sampling Methods	Grab
Auger/Bit Data	3"	Hammer Data	N/A	Drilling Equipment	Stainless Steel
Total Depth (ft)	1	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	N/A	0'-1'	CA			SM	Brown silty fine to coarse sand with fine gravel (moist) (fill)	NS	--	
5												

All sample numbers are prefixed with TL-HA-3-(sample number)

LOG OF HAND BORING TL-HA-3

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-70
Sheet 1 of 1

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Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	16	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	11
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	42	P				AC	2-inch asphalt			
			0'-2'			SP	Brown fine to medium sand with silt and occasional gravel (moist) (fill)	SS	--	
						ML	Brown-gray silt with sand (moist) (fill)			
			2'-4'			SP	Brown-gray fine to medium sand with occasional gravel (moist) (fill)	NS	--	
	24	P								
5			4'-6'	CA				MS	--	
			6'-8'			ML	Brown silt with sand and occasional wood fragments (moist) (fill)	MS	--	
	24	P								
			8'-10'	CA		WD	Black wood debris with sand and silt (moist) (fill)	MS	--	At 8 feet hit refusal, moved boring over 1 foot and continued from this depth
10							Wood debris becomes wet and mixed with saw dust			
			10'-12'		▼			MS	--	
	24	P								
			12'-14'	CA				NS	--	
						GM	Gray silty fine to coarse gravel with occasional wood fragments (wet) (fill)			
15			14'-16'			ML	Blue-gray silt with sand and occasional gravel (moist) (appears to be glaciomarine drift)	NS	--	
							Refusal at 16 feet below ground surface			
20										
25										

All sample numbers are prefixed with HS-DP-1-(sample number)

LOG OF BORING HS-DP-1

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-8
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	7	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		24	P	0'-2'				AC	7" Asphalt and concrete			
								ML	Blue-gray silt with sand and occasional gravel with trace brick fragments (moist) (fill)	SS	--	
				2'-4'						NS	--	
		12	P					RBL	Red brick fragments with occasional wood and silty sand (dry) (fill)			
5										MS	--	No sample collected
		12	P									

Refusal at 7 feet below ground surface

All sample numbers are prefixed with HS-DP-2-(sample number)

LOG OF BORING HS-DP-2

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-9
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	4	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		24	P	0'-2'				AC	6 inches of concrete			
								ML	Dark brown silt with sand and occasional gravel and brick fragments (moist) (fill)	SS	--	
								RBL	Red brick and concrete with trace wood (dry) (fill)			
4									Refusal on concrete at 4 feet below ground surface			
5												
10												
15												
20												
25												

All sample numbers are prefixed with HS-DP-3-(sample number)

LOG OF BORING HS-DP-3

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-10
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	14	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		42	P				AC	6 inches of concrete			
				0'-2'			ML	Brown silt with occasional gravel and coal fragments (moist) (fill)	NS	--	
				2'-4'			RBL	Red brick and concrete fragments (dry) (fill)	NS	--	
		24	P								
5				4'-8'					HS	--	
		24	P			▼ (8)	WD	Black and brown wood fragments and saw dust (wet) (fill)			
10				8'-11'	CA				HS	--	free product in sample matrix
				11'-12'			ML	Gray silt with occasional gravel and wood fragments (moist) (fill) (free product in sample)	SS	--	
		24	P								
				12'-14'	CA				HS	--	

Refusal at 14 feet below ground surface

15

20

25

All sample numbers are prefixed with HS-DP-4-(sample number)

LOG OF BORING HS-DP-4

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-11
Sheet 1 of 1

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	8	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		24	P					TS	Topsoil			
				0'-2'				SM	Dark brown silty fine to medium sand with occasional gravel and wood fragments (moist) (fill_	SS	--	
				2'-4'						SS	--	
		24	P					SP	Brown fine to medium sand with occasional gravel (moist) (fill)			
5				4'-6'						SS	--	
				6'-8'					Refusal at 6 feet, moved the boring and began recording from this depth	HS	--	free product in sample matrix
									Refusal at 8 feet below ground surface			
10												
15												
20												
25												

All sample numbers are prefixed with HS-DP-5-(sample number)

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING HS-DP-5

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-12
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	14	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	9
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	36	P				TS	Topsoil			
			0'-2'			SM	Brown silty fine to medium sand with occasional gravel (moist) (fill)	NS	--	
			2'-4'					SS	--	
	18	P								
5							Begins to contain wood fragments			
			4'-8'					--	--	
	24	P				WD	Wood debris			
					▼	SP	Gray fine to medium sand with silt (wet) (fill)			
			8'-11'					HS	--	
10										
						WD	Brown wood (logs)			
	0	P								

Refusal at 14 feet below ground surface

All sample numbers are prefixed with HS-DP-5A-(sample number)

LOG OF BORING HS-DP-5A

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Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-13
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	19	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	24	P				TS	Topsoil			
			0'-2'	CA		SP	Brown fine to medium sand with silt and occasional gravel, wood fragments (moist) (fill)	SS	--	
			2'-4'			WD	Solid fresh wood, not stained	NS	--	
	24	P				ML	Brown silt with sand and occasional gravel (moist) (fill)			
5			4'-6'					SS	--	
			6'-8'			SC	Dark brown clayey fine sand with sandstone fragments (moist) (fill)	SS	--	
	24	P			▼	SP	Gray fine to medium sand with silt (wet) (fill) (free product observed on sleeve)			
			8'-10'	CA				HS	--	
10			10'-12'					HS	--	
	6	P				WD	Dark brown wood fragments with silt and occasional sandstone fragments (wet) (fill)			
			12'-16'	CA				MS	--	
15	12	P								
			16'-19'	CA				NS	--	

Refusal on bed rock at 19 feet below ground surface

20

25

All sample numbers are prefixed with HS-DP-5B-(sample number)

LOG OF BORING HS-DP-5B

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Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-14
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	12	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	9
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	42	P	0'-2'			AC	6 inches of concrete	SS	--	
						GP	Gray fine to medium gravel with sand (dry) (fill)			
						GP	Black fine to coarse coal fragments with sand (moist) (fill)			
			2'-4'			ML	Brown silt with sand (moist) (fill)	NS	--	
	36	P				WD	Wood fragments and coal (burned)			
5			4'-6'			ML	Brown silt with fine sand and occasional coal fragments (moist) (fill)	SS	--	
			6'-8'					SS	--	
	24	P	8'-10'	CA	▼	RX	Gray fractured siltstone with silt (moist)	HS	--	Free product in sample matrix
10			10'-12'				Becomes dry siltstone bedrock	NS	--	
							Refusal at 12 feet below ground surface			
15										
20										
25										

All sample numbers are prefixed with HS-DP-6-(sample number)

LOG OF BORING HS-DP-6

GeoEngineers

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Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-15
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	8	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		32	P						Topsoil			
				0'-2'				SP	Brown fine to medium sand with occasional gravel and trace silt (moist) (fill)	NS	--	
				2'-4'						NS	--	
		32	P									
5				4'-6'				ML	Dark brown silt with sand and occasional brick fragments (moist) (fill)	SS	--	
				6'-8'						SS	--	

Refusal on bedrock at 8 feet below ground surface

All sample numbers are prefixed with HS-DP-7-(sample number)

LOG OF BORING HS-DP-7

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Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-16
Sheet 1 of 1

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	12	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	9
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	48	P	0'-2'			AC	6 inches asphalt	NS	--	
						GP	Gray fine gravel with sand (dry) (fill)			
			2'-4'			ML	Brown and gray-blue silt with sand and occasional wood fragments (moist) (fill)	SS	--	
5	12	P	4'-8'			SM	Dark brown silty fine to medium sand with wood fragments (moist) (fill)	MS	--	
						WD	Brown saw dust			
10	24	P	8'-11'	CA	▼	SM	Dark brown silty fine to medium sand with fine coal fragments (wet) (fill)	MS	--	
			11'-12'			RX	Gray siltstone (dry)	NS	--	

Refusal on bedrock at 12 feet below ground surface

15

20

25

All sample numbers are prefixed with HS-DP-8-(sample number)

LOG OF BORING HS-DP-8

GEOENGINEERS

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Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-17
Sheet 1 of 1

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

Date(s) Drilled	06/15/2004 - 06/15/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	12	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		24	P					TS	Topsoil			
								WD	Dark brown wood debris			
				0-2				SP	Brown fine to medium sans with occasional gravel and trace silt (moist) (fill)	NS	--	
				2-4						NS	--	
		24	P									
5				4-6				SM	Siltstone fragments encountered Dark brown silty fine to medium sand with occasional coal and brick fragments (moist) (fill)	NS	--	
				6-8						NS	--	
		48	P	8-9	CA	▼		SP	Brown fine to medium sand (wet) (fill)	NS	--	
								RX	Brown weathered siltstone with gray and brown siltstone bedrock (weathered, fractured)			
10				9-12						NS	--	

Refusal at 12 feet below ground surface

15

20

25

All sample numbers are prefixed with HS-DP-9-(sample number)

LOG OF BORING HS-DP-9

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-18
Sheet 1 of 1

Date(s) Drilled	06/21/2004 - 06/21/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	16	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	24	P				AC	6 inches asphalt			
			0'-2'			GM	Brown silty fine to coarse gravel with sand (moist) (fill)	NS	--	
						SP	Black fine to medium coal fragments (moist) (fill)			
			2'-4'			ML	Gray silt with sand and occasional gravel (moist) (fill)	SS	--	
	32	P								
5			4'-7'					NS	--	
			7'-8'			WD	Dark brown saw dust with wood fragments	SS	--	
	32	P			▼	SM	Dark gray silty fine to medium sand with occasional wood and shell fragments (wet) (fill)			
			8'-10'	CA				NS	--	
10			10'-12'					NS	--	
	24	P				WD	Brown coarse saw dust with occasional wood fragments			
			12'-16'					NS	--	
15										

Boring completed to 16 feet below ground surface

20

25

All sample numbers are prefixed with HS-DP-10-(sample number)

LOG OF BORING HS-DP-10

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-19
Sheet 1 of 1

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	9	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	7
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		32	P					TS	Topsoil			
								WD	Railroad tie			
				1'-4'				SP	Brown fine to medium sand with silt and occasional gravel (moist) (fill)	SS	--	
5		18	P	4'-8'		▼ (7)		SM	Dark brown and black silty fine to medium sand with occasional gravel (moist) (fill)	SS	--	
		12	P	8'-9'				GM	Dark brown silty fine to coarse gravel (wet) (fill)	HS	--	

Refusal on cobbles at 9 feet below ground surface

All sample numbers are prefixed with HS-DP-11-(sample number)

LOG OF BORING HS-DP-11

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Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-20
Sheet 1 of 1

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	14	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	9
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	42	P	0'-2'			AC	3 inches asphalt	NS	--	
						GP	6 inches fine to coarse gravel			
						GP	Black fine to medium gravel (coal) with sand (moist) (fill)			
			2'-4'			SP	Brown and black fine to medium sand with fine to coarse coal fragments (moist) (fill)	NS	--	
	24	P								
5			4'-6'					SS	--	
			6'-8'			SM	Black silty fine to medium sand with coal fragments, gravel and wood fragments, and trace brick fragments (moist) (fill)	SS	--	
	18	P	8'-9'	CA	▼	GM	Black silty fine to coarse gravel with fine coal fragments (wet) (fill)	SS	--	
						WD	Brown saw dust with occasional wood fragments (wet) (fill)			
10			9'-12'					NS	--	
	24	P	12'-13'			RX	Gray weathered sandstone (moist)	NS	--	
			13'-14'					NS	--	
							Refusal on bedrock at 14 feet below ground surface			
15										
20										
25										

All sample numbers are prefixed with HS-DP-12-(sample number)

LOG OF BORING HS-DP-12

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-21

Date(s) Drilled	06/16/2004 - 06/16/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	16	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	36	P				AC	6 inches of concrete			
			0'-2'			GP	Gray fine to coarse gravel with silt (dry) (fill)	NS	--	
						SP	Brown fine to medium sand with silt and occasional gravel (moist) (fill)			
			2'-4'					NS	--	
	24	P	4'-5'					NS	--	
5						WD	Black saw dust with wood fragments (moist) (fill)			
			5'-8'				Saw dust becomes brown	SS	--	
	24	P	8'-9'	CA	▼	GM	Brown silty fine to coarse gravel with sand (wet) (fill)	SS	--	
						WD	Brown wood fragments (wet) (fill)			
10			9'-12'					NS	--	
	6	P					Wood fragments become larger			
			12'-16'					NS	--	
15										

Refusal on bedrock at 16 feet below ground surface

20

25

All sample numbers are prefixed with HS-DP-13-(sample number)

LOG OF BORING HS-DP-13

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-22
Sheet 1 of 1

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	12	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		12	P					AC	3 inches asphalt			
								GM	Brown silty fine to coarse gravel with sand (moist) (fill)			
				0'-4'						SS	--	
		6	P									
5						▼						
				4'-8'						NS	--	
		0	P									
10												
									Boring completed at 12 feet below ground surface due to poor sample recovery.			
15												
20												
25												

All sample numbers are prefixed with HS-DP-14-(sample number)

LOG OF BORING HS-DP-14

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-23
Sheet 1 of 1

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	16	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		24	P					AC	3 inches asphalt			
				0'-2'				GM	Brown silty fine to coarse gravel with sand (moist) (fill)	SS	--	
				2'-4'						NS	--	
		12	P									
5						▼						
				4'-8'	CA				becomes wet	NS	--	
		18	P									
				8'-10'						SS	--	
10								WD	Dark brown saw dust with occasional wood fragments (wet) (fill)			
				10'-12'						SS	--	
		6	P					SP	Brown medium to coarse sand with gravel (wet) (fill)			
				12'-16'						NS	--	
15												

Boring completed to 16 feet below ground surface

20

25

All sample numbers are prefixed with HS-DP-14A-(sample number)

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING HS-DP-14A

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Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-24
Sheet 1 of 1

Date(s) Drilled	06/21/2004 - 06/21/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	10	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	5.5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0								WD	3-inch wood floor			
								AIR	Air void between wood floor and ground surface			
5		18	P			▼		WD	Red-brown saw dust (moist) (fill)			
				4.5'-8.5'	CA				Becomes dark brown (wet)	NS	--	
		18	P	8.5'-10'						NS	--	
10									Refusal on wood at 10 feet below wood floor			
15												
20												
25												

All sample numbers are prefixed with HS-DP-15-(sample number)

LOG OF BORING HS-DP-15

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-25
Sheet 1 of 1

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

Date(s) Drilled	06/21/2004 - 06/21/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	6.5	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	5.5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Number	SAMPLES: Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0								WD	3-inch wood floor			
								AIR	Air void between wood floor and ground surface			
4–6.5		6	P	4'-6.5'		▼ (5.5)		WD	Dark brown saw dust with occasional wood fragments (wet) (fill)	NS	--	
6.5									Refusal on wood at 6.5 feet below wood floor			

Depth scale: 0, 5, 10, 15, 20, 25

All sample numbers are prefixed with HS-DP-15A-(sample number)

LOG OF BORING HS-DP-15A

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-26
Sheet 1 of 1

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	4	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		24	P	0'-3'				AC	6 inches of concrete	NS	--	
								GP	Gray fine to coarse gravel			
								ML	Gray silt with occasional sand, gravel and wood fragments (moist) (fill)			
								RBL	Red brick fragments (dry) (fill)			
									Refusal on concrete at 4 feet below ground surface			
5												
10												
15												
20												
25												

All sample numbers are prefixed with HS-DP-16-(sample number)

LOG OF BORING HS-DP-16

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-27
Sheet 1 of 1

Date(s) Drilled	06/18/2004 - 06/18/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	4.5	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	Not Encountered
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		24	P					AC	6 inches of concrete			
				0'-2'				GP	Gray fine to coarse gravel	NS	--	
								ML	Gray silt with sand and occasional gravel (moist) (fill)			
				2'-4'						NS	--	
								RBL	Red brick fragments (dry) (fill)			
5									Refusal on concrete at 4.5 feet below ground surface			
10												
15												
20												
25												

All sample numbers are prefixed with HS-DP-17-(sample number)

LOG OF BORING HS-DP-17

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-28
Sheet 1 of 1

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

Date(s) Drilled	06/17/2004 - 06/17/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	12	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	2
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0		36	P	0'-2'				SP	Brown medium sand with occasional brick and glass fragments (moist) (fill)	NS	--	
						▼		SM	Black silty fine to medium sand with occasional gravel (wet) (fill)			
				2'-3'						SS	--	
				3'-4'						MS	--	
		12	P	4'-5'				WD	Black wood fragments with sand (wet) (fill)	MS	--	
5												
				5'-8'						SS	--	
									Grades to dark brown saw dust with wood fragments			
		24	P									
				8'-10'						NS	--	
10												
				10'-12'						NS	--	

Boring completed at 12 feet below ground surface

15

20

25

All sample numbers are prefixed with I2-DP-1-(sample number)

LOG OF BORING IZ-DP-1

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

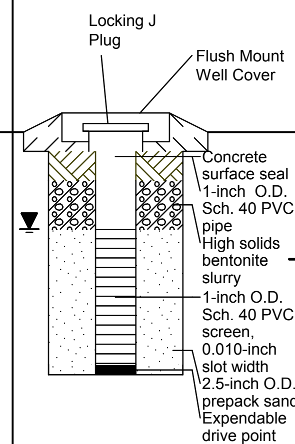
FIGURE A-53
Sheet 1 of 1

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

Date(s) Drilled	06/17/2004 - 06/17/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	8	Ground Surface Elevation (ft)	2.62	Groundwater Elevation (ft. bgs)	0.62
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		12	P	0'-4'			GP	3-inches fine to medium gravel with sand, bricks, and glass		
							WD	Dark brown coarse wood fragments with sand (wet) (fill)	SS	--
		36	P	4'-5'			SM	Gray silty fine sand with occasional shell fragments (wet)	SS	--
5				5'-8'					NS	--
								Boring completed at 8 feet below ground surface		
10										
15										
20										
25										

WELL CONSTRUCTION



All sample numbers are prefixed with IZ-MW-1-(sample number)

V6_ENVWELL P:\00\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF MONITORING WELL IZ-MW-1

GeoEngineers

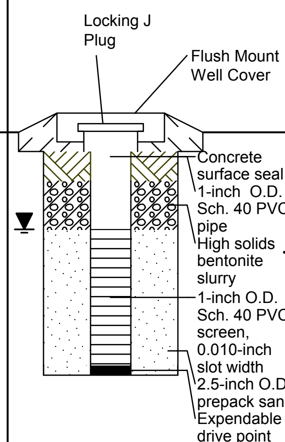
Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-54
Sheet 1 of 1

Date(s) Drilled	06/17/2004 - 06/17/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	8	Ground Surface Elevation (ft)	2.47	Groundwater Elevation (ft. bgs)	0.47
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	SAMPLES: Recovered (in)	SAMPLES: Blows/foot	SAMPLES: Sub-Sample Sample Number	SAMPLES: Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		24	P				GP	3-inches fine to medium gravel with cobbles and bricks		
				0'-2'			WD	Dark brown saw dust with wood fragments (wet) (fill)	SS	--
				2'-4'					SS	--
		24	P	4'-5'					SS	--
5								Grades to brown coarse wood fragments (wet) (fill)		
				5'-8'					NS	--
								Boring completed at 8 feet below ground surface		
10										
15										
20										
25										

WELL CONSTRUCTION



All sample numbers are prefixed with IZ-MW-2-(sample number)

LOG OF MONITORING WELL IZ-MW-2

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

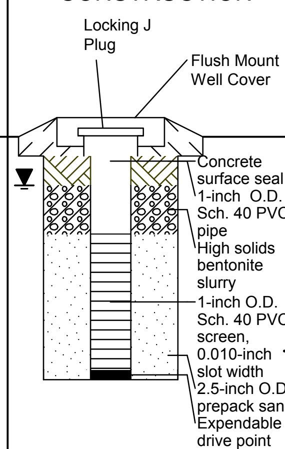
FIGURE A-55
Sheet 1 of 1

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

Date(s) Drilled	06/17/2004 - 06/17/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	8	Ground Surface Elevation (ft)	4.41	Groundwater Elevation (ft. bgs)	3.41
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		24	P	0'-1'			GP	3-inches fine to coarse gravel with cobbles and glass shards	SS	--
				1'-2'			SP	Brown fine to medium sand with silt and occasional gravel (wet) (fill)	MS	--
				2'-4'	CA		WD	Wood fragments and debris	MS	--
4		24	P	4'-6'			SM	Dark brown silty fine to medium sand with wood fragments (wet) (fill)	NS	--
				6'-8'					NS	--
8								Boring completed at 8 feet below ground surface		

WELL CONSTRUCTION



All sample numbers are prefixed with IZ-MW-3-(sample number)

LOG OF MONITORING WELL IZ-MW-3

GEOENGINEERS

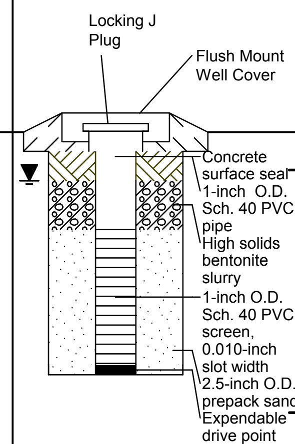
Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-56
Sheet 1 of 1

Date(s) Drilled	06/17/2004 - 06/17/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger Data	3.25"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	8	Ground Surface Elevation (ft)	0.78	Groundwater Elevation (ft. bgs)	-0.22
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Interval	Recovered (in)	Blows/foot	Sub-Sample Sample Number	Testing	Graphic Log	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)
0		24	P	0'-1'			GP	3-inches fine to coarse gravel with cobbles, bricks, and glass	NS	--
							GP	Black fine to coarse gravel (coal) with sand (wet) (fill)		
				1'-4'	CA		ML	Gray silt with wood fragments (wet) (fill)	SS	--
							WD	Black saw dust with wood fragments (wet) (fill)		
		18	P							
5								Grades to brown coarse saw dust		
				4'-8'					NS	--
								Boring completed at 8 feet below ground surface		
10										
15										
20										
25										

WELL CONSTRUCTION



All sample numbers are prefixed with IZ-MW-4-(sample number)

V6_ENVWELL P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/14/06

LOG OF MONITORING WELL IZ-MW-4

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-57
Sheet 1 of 1

Date(s) Drilled	06/21/2004 - 06/21/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	16	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8.5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES: Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	36	P				GP	Gray fine to coarse gravel with silt			
			0'-2'			SM	Dark brown silty fine to medium sand with occasional gravel (moist) (fill)	SS	--	
			2'-4'					SS	--	
	36	P				ML	Gray silt with sand and occasional gravel (moist) (fill)			
5			4'-6'					NS	--	
			6'-8'					SS	--	
	36	P			▼	SM	Dark gray silty fine to medium sand with occasional shell fragments (wet) (fill)			
			8'-10'					HS	--	
10			10'-12'					HS	--	
	24	P				SP	Dark gray medium to coarse sand with occasional shell fragments and silt (wet) (fill)			
			12'-14'					NS	--	
15			14'-16'			SM	Gray silty fine to medium sand with occasional shell fragments (wet) (fill)	NS	--	

Boring completed to 16 feet below ground surface

20

25

All sample numbers are prefixed with TL-DP-1-(sample number)

V6_ENVBORING P:\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING TL-DP-1

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-64
Sheet 1 of 1

Date(s) Drilled	06/21/2004 - 06/21/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	20	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	36	P	0'-2'		SM	Brown silty fine to medium sand with occasional gravel (moist) (fill)	NS	--	
			2'-4'	CA			SS	--	
	36	P	4'-6'		ML	Dark brown silt with sand and occasional gravel (moist) (fill)	NS	--	
			6'-8'	CA			MS	--	
	36	P	8'-10'		SM	Dark gray silty fine to medium sand with occasional shell fragments (wet) (fill)	HS	--	
10			10'-12'	CA			HS	--	
	36	P	12'-15'	CA			SS	--	
15	12	P	15'-16'		ML	Gray silt with occasional shell fragments (wet) (fill)	NS	--	
			16'-19'				SS	--	
					SM	Gray silty fine to medium sand with occasional shell fragments (wet) (fill)			
			19'-20'		WD	Brown wood fragments with saw dust (wet) (fill)	SS	--	
20						Boring completed to 20 feet below ground surface			
25									

All sample numbers are prefixed with TL-DP-2-(sample number)

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING TL-DP-2

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-65
Sheet 1 of 1

Date(s) Drilled	06/21/2004 - 06/21/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	20	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8.5
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	SAMPLES Recovered (in)	Blows/foot	Sub-Sample Number	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	36	P	0'-2'		SM	Brown silty fine to medium sand with occasional gravel (moist) (fill)	NS	--	
			2'-4'				NS	--	
5	36	P	4'-6'				SS	--	
			6'-8'		GM	Dark brown silty gravel with sand and occasional brick fragments (moist) (fill)	SS	--	
	36	P	8'-9'	▼			SS	--	
10			9'-10'		SM	Dark gray silty fine to medium sand with occasional shell fragments (wet) (fill)	HS	--	
			10'-12'				HS	--	
	48	P	12'-13'				SS	--	
			13'-15.5		ML	Gray silt with occasional shell fragments (wet) (fill)	NS	--	
15	0	P			WD	Brown saw dust with wood fragments (wet) (fill)			
			15.5'-20				NS	--	
20						Boring completed to 20 feet below ground surface			
25									

All sample numbers are prefixed with TL-DP-3-(sample number)

V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

LOG OF BORING TL-DP-3

GEOENGINEERS

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-66
Sheet 1 of 1

Date(s) Drilled	06/21/2004 - 06/21/2004	Logged By	RMB	Checked By	BES
Drilling Contractor	Cascade Drilling	Drilling Method	Direct Push	Sampling Methods	1.4" plastic sleve
Auger/Bit Data	2.5"	Hammer Data	N/A	Drilling Equipment	4' MicroCore
Total Depth (ft)	20	Surface Elevation (ft)	Not Measured	Groundwater Level (ft. bgs)	8
Vertical Datum	City	Datum/ System	N/A N/A	Easting(x): Northing(y):	

Depth feet	Recovered (in)	Blows/foot	Sub-Sample Number	Testing	Water Level	Group Symbol	MATERIAL DESCRIPTION	Sheen	Headspace Vapor PID (ppm)	NOTES
0	36	P	0'-2'			SM	Brown silty fine to medium sand with occasional gravel (moist) (fill)	NS	--	
			2'-4'					SS	--	
	24	P				ML	Gray sandy silt with occasional gravel (moist) (fill)			
5			4'-6'			SM	Brown silty fine to medium sand with occasional gravel and black wood fragments (moist) (fill)	MS	--	
			6'-8'					HS	--	
	48	P			▼					
			8'-10'					HS	--	
10						ML	Gray silt with occasional shell fragments (wet) (fill)			
			10'-12'	CA				NS	--	
	36	P				SM	Gray silty fine to medium sand with occasional shell fragments (wet) (fill)			
			12'-15'					NS	--	
15						WD	Black saw dust (wet) (fill)			
	6	P								
							Grades to brown			
			15'-20'					NS	--	
20							Boring completed to 20 feet below ground surface			
25										

All sample numbers are prefixed with TL-DP-4-(sample number)

LOG OF BORING TL-DP-4

GeoEngineers

Project: R.G. Haley
Project Location: Bellingham
Project Number: 0275-002-01

FIGURE A-67
Sheet 1 of 1

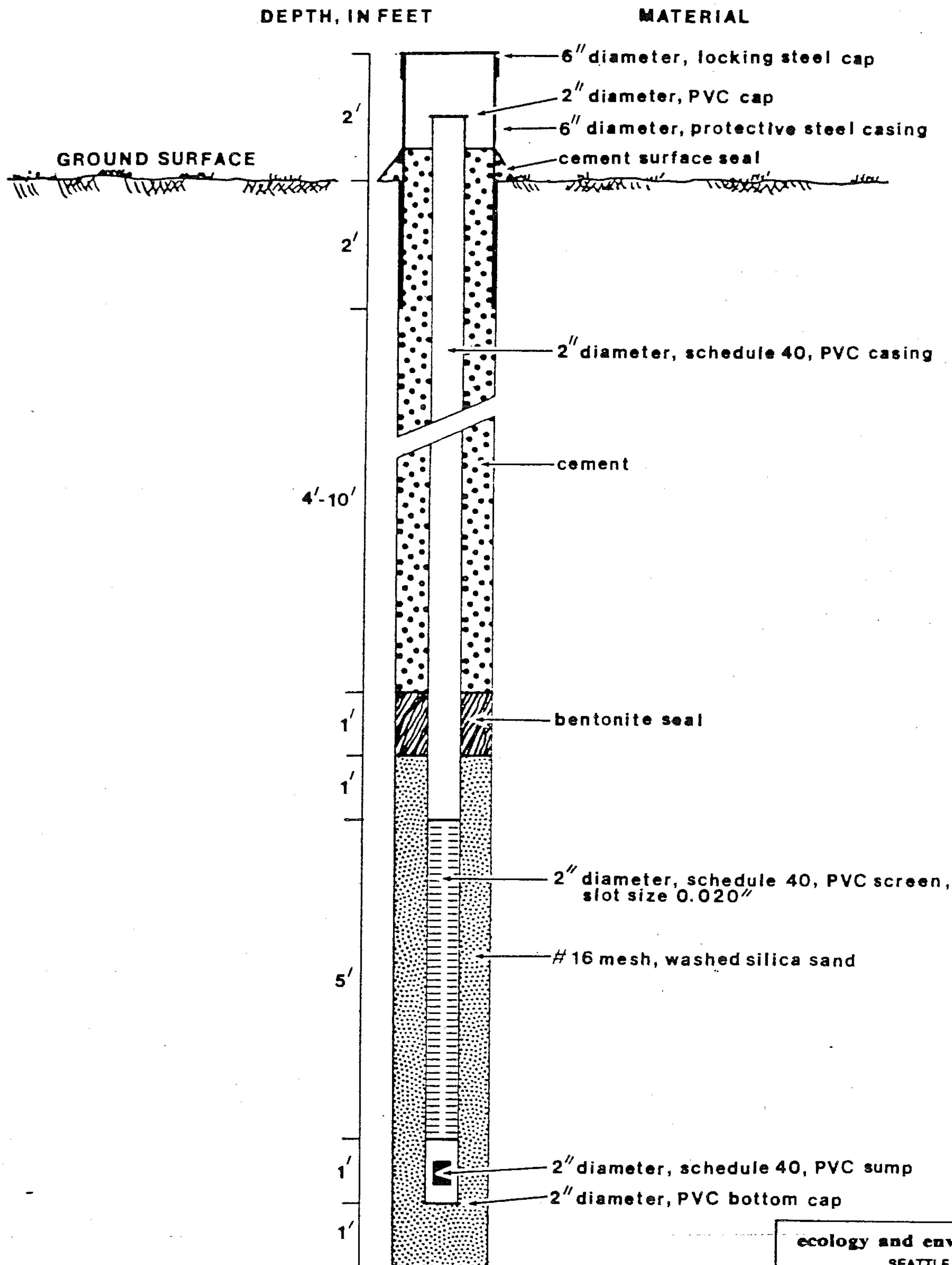
V6_ENVBORING P:\0\0275002\GINT\027500201.GPJ GEIV6_1.GDT 3/13/06

EXHIBIT D-4
Pre-2012 Haley Logs

List of Contents for Pre-2012 Haley Logs:

- Appendix H Typical Well Installation
- HS-MW-2
- CL-MW-1H

APPENDIX H



ecology and environment, inc. SEATTLE, WA	
JOB #: R10-8510-86	
Drawn by: L.Jowise	Date: 5-21-86

Typical well installation used at R. G. Haley International Corporation.

Project: R.G. Haley S.I.
Boring Contr.: Holt Drilling
Boring Method: Cable Tool*
Logged by: Chris Nadler
Date Completed: 13 March 1986
*Bucyrus-Erie 22W series three

Job No: R10-8510-16B Boring No: BH#2 **(HS-MW-2)**
Location: 10 feet E. of southeast corner of kiln
Surface Elev: N/A Datum:
Casing Elev: N/A Datum:
Total Depth: 15.0 ft. Datum: Ground surface
Groundwater: 6.0 ft. below ground surface 13-03-86

DEPTH (Ft.)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE	REMARKS
0–6		FILL - Bricks, variable-sized cobbles and gravel; Clay matrix, moderate brown, soft, slightly moist, moderately to very plastic.	Soil samples collected with split spoon sampler.	No recovery of drill cuttings, pushed out end of working casing, no water used to bail hole. - Well Construction - 2" diameter Schedule 40 PVC casing 0.0'-8.5' below ground surface (bgs). 2" diameter, 20 slot, Schedule 40 PVC screen 8.5'-13.5' bgs. 2" diameter Schedule 40 PVC sump 13.5'-14.5' bgs. Cement with bentonite grout 0.0'-6.0' bgs. Bentonite pellet plug seal 4.0'-6.0' bgs. #16 mesh sand envelope 6.0'-15.0' bgs.
6	CL	SILT WITH BRICKS - Silt, 70%, moderate brown, moderately plastic, soft, slightly moist; Bricks, 30%, red.	BH 2A 6.0'-7.5'	HNU reading of 5.0 ppm.
7	GC	GRAVELLY SILT - Silt, 70%, grey black, moderately plastic, soft, slightly moist; Gravel, 30%, grey black, pea to 1/2" b-axis; Sand, trace. Sample wet with oil.		Static water at 7.0' bgs. 03/12/86.
			BH 2B 7.5'-9.0'	HNU reading of 20.0 ppm.
9			BH 2C 9.0'-10.5'	HNU reading of 9.0 ppm. Encountered water at 9.0' bgs. Difficult to determine what soil matrix is due to high oil content; appears to be wood chips with gravel and silt.
10				

Project: R.G. Haley, S.I. Job No: R10-8510-16B Boring No: BH#2 **(HS-MW-2)**

DEPTH (Ft.)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE	REMARKS
10	GC			HNu reading of 10.0 ppm.
			BH 2D 10.5-12.5'	Sample is similar to previous one, a slight decrease in oil content. End of sampler had wood chips that weren't coloured with oil stuck in it.
11				
12				
				Very poor recovery. It appears to be tan coloured wood chips. No oil.
13				
	SM	SILT - 100%, black, soft, slightly moist, very fine sand grains and shell fragments.		
14		SILTSTONE - 100%, dark grey, friable, crumbles easily, very firm, dry.		Looks like same material as rock outcrop east of railroad tracks.
15				Bottom of boring - 15.0 feet bgs.
16				
17				
18				
20				

Project:	R.G. Haley S.I.	Job No:	R10-8510-168
Boring No:	BH#1 (CL-MW-1H)		
Boring Contr.:	Holt Drilling	Location:	South end of retort, "background" well
Boring Method:	Cable Tool*	Surface Elev:	N/A
		Datum:	
Logged by:	Chris Nadler	Casing Elev:	N/A
		Datum:	
Date Completed:	12 March 1986	Total Depth:	13.0 ft.
		Datum:	Ground surface
*Bucyrus-Erie 22W series three		Groundwater:	6.83 ft. below ground surface 13-03-86

DEPTH (Ft.)	SYMBOL	LITHOLOGICAL DESCRIPTION	SAMPLE	REMARKS
		Top 3-inches are asphalt.	Soil samples collected with split spoon sampler.	- Well Construction -
1	GM	SILTY GRAVELLY SAND - Sand, 50%, variable colour, very fine- to coarse-grained, subrounded, poorly sorted, dry. Gravel, 25%, variable colour, fine-grained to 1/4" b-axis, subrounded, poorly sorted. Silt, 25%, moderate brown. Occasional cobble.		2" diameter Schedule 40 PVC casing 0.0'-8.7' below ground surface (bgs). 2" diameter, 20 slot, Schedule 40 PVC screen 8.7'-11.7' bgs. 2" diameter Schedule 40 PVC sump 11.7'-12.7' bgs.
2	SW	SAND - 100%, greyish black, very fine- to coarse-grained, subrounded to subangular, poorly sorted.		Cement with bentonite grout 0.0'-6.0' bgs. Bentonite pellet plug seal 6.0'-8.0' bgs. #16 mesh sand envelope 8.0'-13.0' bgs.
3				
4				2-6 feet-very poor recovery. Cuttings are being pushed out bottom of hole.
5				
6	SW	SAND - 100%, greyish black w/occasional quartz, very fine- to coarse-grained, subrounded to subangular, poorly sorted, very slightly moist. Occasional clay bleb.	BH 1A 6.0'-7.5'	HNU reading equal to background. Oil sheen on sample.
7			BH 1B 7.5'-9.0'	Static water level at 7.5' bgs on 12 March 1986.
8	CH	CLAY - 100%, moderate brown, plastic, firm, slightly moist.		HNU reading of 5.0ppm. Oil sheen on sample.
	GC	CLAYEY SANDY GRAVEL - Gravel, 60%, moderate grey, fine-grained to 1/4" b-axis, subangular, moderately sorted, wet. Sand, 35%, grey, fine- to coarse-grained, subangular; Clay, 5%.		Water encountered at 8.5' bgs.
9	CL	Clay layer, 9.0-9.5 feet.	BH 1C 9.0'-10.5'	Logging under artificial lights.
10	CH	CLAYEY GRAVELLY SAND - Sand, 60%, greyish black, very fine- to coarse-grained, subangular, wet; Gravel, 20%, greyish black, fine-grained to 1/4" b-axis, moderately sorted; Clay, 20%, greyish black.		

Project: R.G. Haley, S.I. Job No: R10-8510-16B Boring No: BH#1 **(CL-MW-1H)**

DEPTH (Ft.)	SYMBOL		LITHOLOGICAL DESCRIPTION	SAMPLE	REMARKS
10	CH		CLAY - 100%, medium, dark grey, plastic, soft, moist. SILTSTONE - 100%, dark grey, friable, crumbles easily, very firm, dry. Cracks with rust coloured veins.	BH 1D 10.5-11.0'	HNU reading equal to background. Hard to drive sampler. Looks like same material as rock outcrop on east side o railroad tracks.
11					
12					
13					Bottom of boring - 13.0 feet bgs.
14					
15					
16					
17					
18					
20					

EXHIBIT D-5
Pre-2012 Cornwall Logs

List of Contents for Pre-2012 Cornwall Logs:

- Log of Monitoring Well CL-MW-1
- Log of Monitoring Well CL-MW-6
- Log of Monitoring Well CL-MW-8
- Log of Monitoring Well CL-MW-9
- Log of Boring AF-MW01
- Log of Boring AF-MW02
- Log of Boring AF-SB01
- Log of Boring AF-SB02
- Log of Boring AF-SB03
- Log of Boring AF-SB04

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL[1]	TYPICAL DESCRIPTIONS[2][3]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. USCS letter symbols correspond to the symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM) for a sand or gravel indicate a soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.
2. Soil descriptions are based on the general approach presented in the *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*, as outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the *Standard Test Method for Classification of Soils for Engineering Purposes*, as outlined in ASTM D 2487.
3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50% - "GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50% - "very gravelly," "very sandy," "very silty," etc.
	> 15% and ≤ 30% - "gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 15% - "with gravel," "with sand," "with silt," etc.
	≤ 5% - "trace gravel," "trace sand," "trace silt," etc., or not noted.

Drilling and Sampling Key

SAMPLE NUMBER & INTERVAL

- Sample Identification Number
- Recovery Depth Interval
- Sample Depth Interval
- Portion of Sample Retained for Archive or Analysis

SAMPLER TYPE

Code	Description
a	3.25-inch O.D., 2.42-inch I.D. Split Spoon
b	2.00-inch O.D., 1.50-inch I.D. Split Spoon
c	Shelby Tube
d	Grab Sample
e	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Other - See text if applicable

Groundwater

▽ ATD — Approximate water elevation at time of drilling (ATD) or on date noted. Groundwater levels can fluctuate due to precipitation, seasonal conditions, and other factors.

Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

MW-1

SAMPLE DATA / SOIL PROFILE / GROUNDWATER

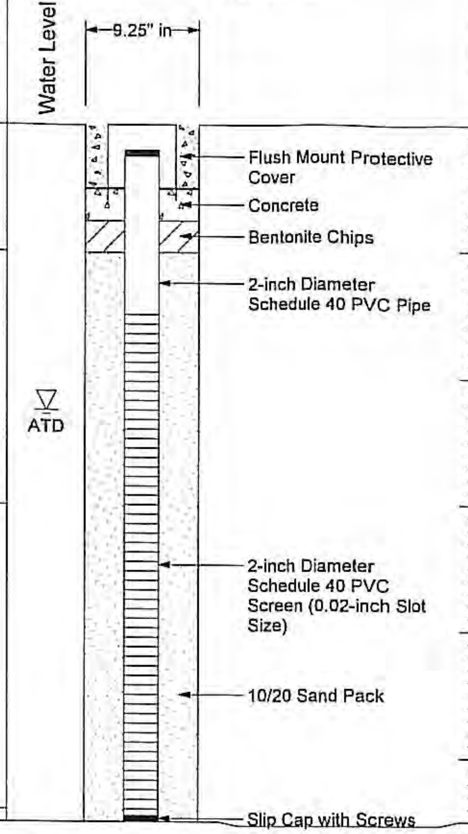
Drilling Method: HSA

Ground Elevation (ft): 15.9 (MLLW)

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot		USCS Symbol	Description	Water Level
0–2					GP	Light gray, silty, sandy, GRAVEL (dense, moist)	
2–6				21.1	WD	Black WOOD, chips and larger pieces (very stiff, wet) (heavy sheen, strong hydrocarbon odor)	ATD (between 4 and 6 ft)
~5.5	1	b2	26				
6–10.9				0.0	ML	Gray, very gravelly, SILT, gravel is shale fragments (hard, moist) (no sheen, slight hydrocarbon odor) (weathered bedrock)	
~10.5	2	b2	50/ 4"				
10.9–11					RK	Gray, fine sandy SILTSTONE (Chuckanut Formation)	

Boring Completed
Total Depth of Boring = 11.0 ft.

Well Detail



Well Completed 06/26/98
Total Depth of Well = 11.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

1020.60 10/9/03 \\EDMNAS\GINT\GINTWPROJECTS\CORNWALL.GPJ WELL LOG

Log of Well MW-1 (CL-MW-1)

Figure C-2

MW-6

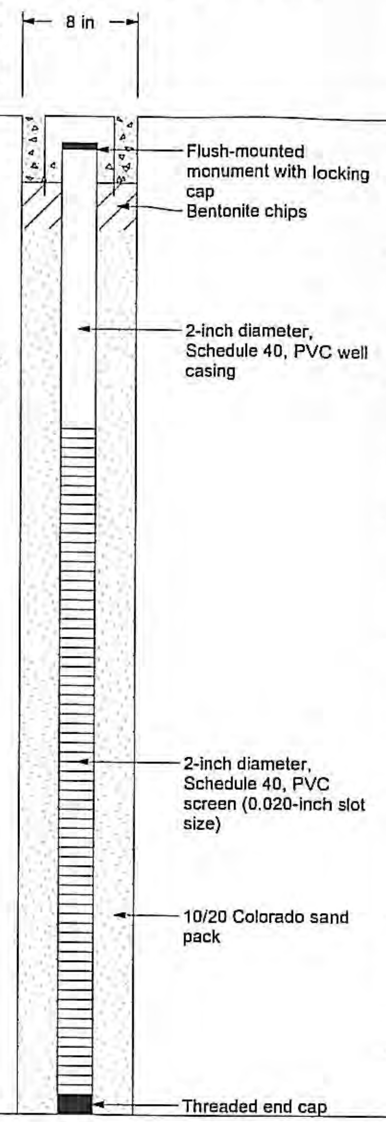
SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Description	Water Level
0						GP	Black, 2-inch, crushed rock (dense, dry)	
						SP-SM	Gray, fine SAND with silt and gravel (medium dense to dense, moist)	
3		a2	50/ 6"	26.9		DB	Pink, angular, 1/8 to 1/4 inch long, inorganic debris of unknown composition (loose to dense, moist) (very heavy petroleum sheen)	
						SM	Gray, silty, fine SAND with gravel (medium dense, wet) (moderate to heavy petroleum sheen)	ATD ▽
8		a2	77	88		DB	Black, 1/4 inch long COAL fragments with pink, angular, inorganic debris of unknown composition (medium dense to dense, wet) (moderate to heavy petroleum sheen)	
						ML	Gray SILT (hard, moist) (moderate petroleum sheen)	
12.5		a2	50/ 3"	35				

Drilling Method: Hollow-stem Auger

Ground Elevation (ft): 18.63 (MLLW)

Drilled By: Cascade Drilling Inc.

Monitoring Well Detail



Boring Completed 06/27/02
Total Depth of Boring = 15.0 ft.

Monitoring Well Completed 06/27/02
Elevation at Top of Monitoring Well Casing = 18.42 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. Densities in units containing refuse are based on drilling action instead of blow counts. Refuse over represented unit density at point of sampling.

1020.22 10/9/03 \\EDMNAS\GINT\GINTW\PROJECTS\001020.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Avenue Landfill
Bellingham, Washington

Log of Monitoring Well MW-6
(CL-MW-6)

Figure D-2

MW-8

SAMPLE DATA | SOIL PROFILE | GROUNDWATER

Drilling Method: Hollow-stem Auger

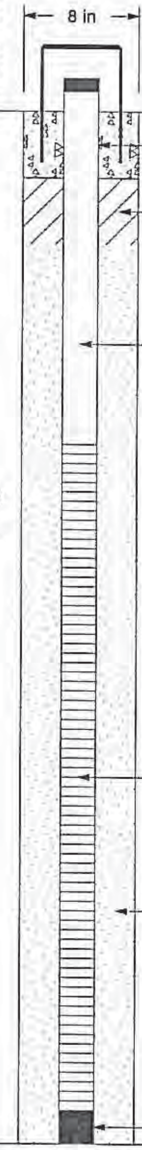
Ground Elevation (ft): 16.33 (MLLW)

Drilled By: Cascade Drilling Inc.

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Description	Water Level
0						SM	Dark brown, silty, fine to medium SAND with gravel (medium dense to dense, moist)	
~3		a2	50/ 6"					
~4.5						DB	Black, silty, fine SAND with gravel and refuse (medium dense, wet) (slight, refuse-associated petroleum sheen)	
~6								ATD ▽
~8		a2	37	15.4				
~13		a2	76/ 3"	2.5				

Boring Completed 06/27/02
Total Depth of Boring = 15.5 ft.

Monitoring Well Detail



Monitoring Well Completed 06/27/02
Elevation at Top of Monitoring Well Casing = 18.53 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. Densities in units containing refuse are based on drilling action instead of blow counts. Refuse over represented unit density at point of sampling.

1020.22 10/9/03 \\EDMNAS\GINT\GINTW\PROJECTS\001020.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Avenue Landfill
Bellingham, Washington

Log of Monitoring Well MW-8

Figure D-4

MW-9

SAMPLE DATA / SOIL PROFILE / GROUNDWATER

Drilling Method: Hollow-stem Auger

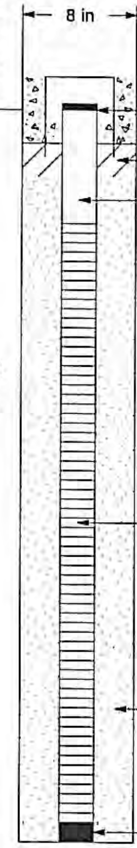
Ground Elevation (ft): 15.71 (MLLW)

Drilled By: Cascade Drilling Inc.

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	USCS Symbol	Description
0					GP	Black, 1/4-inch, crushed rock (dense, moist)
					SP-SM	Brown, gravelly, fine SAND with silt (medium dense, moist)
~2.5					SM	Dark gray, silty, fine SAND with gravel and organics (loose, wet)
~3		a2	12	3.3		
~6					SP-SM	Gray, fine SAND with silt and trace gravel (very dense, wet)
~7.5		a2	50/ 3"	3.6		
~11					RK	Gray SANDSTONE, medium hard, slightly weathered (Chuckanut Formation)
~12.5		a2	50/ 3"			

Water Level: ATD ∇ (approx. 4 ft)

Monitoring Well Detail



Boring Completed 06/28/02
Total Depth of Boring = 13.0 ft.

Monitoring Well Completed 06/28/02
Elevation at Top of Monitoring Well Casing = 15.34 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. Densities in units containing refuse are based on drilling action instead of blow counts. Refuse over represented unit density at point of sampling.

1020.22 10/9/03 \\EDMNAS\GINT\GINTW\PROJECTS\001020.GPJ WELL LOG

LANDAU ASSOCIATES

Cornwall Avenue Landfill
Bellingham, Washington

Log of Monitoring Well MW-9
(CL-MW-9)

Figure D-5

Major Divisions			Group Symbol	Description
Coarse-Grained Soils - More than 50%[1] Retained on No. 200 Sieve	Gravels - More than 50%[1] of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines[5]	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		≥15% Fines[5]	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands - 50%[1] or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines[5]	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		≥15% Fines[5]	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine-Grained Soils - 50%[1] or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay
			OL	Organic clay or silt of low plasticity
	Silts and Clays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt
			CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

	Density	SPT[2] blows/foot
Coarse-Grained Soils	Very Loose	0 to 4
	Loose	4 to 10
	Medium Dense	10 to 30
	Dense	30 to 50
	Very Dense	>50

	Consistency	SPT[2] blows/foot
Fine-Grained Soils	Very Soft	0 to 2
	Soft	2 to 4
	Medium Stiff	4 to 8
	Stiff	8 to 15
	Very Stiff	15 to 30
	Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

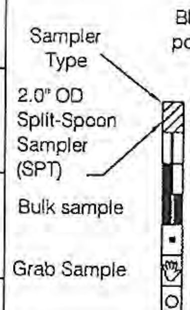
[3] Estimated Percentage

Percentage by Weight	Modifier
<5	Trace
5 to 15	Slightly (sandy, silty, clayey, gravelly)
15 to 30	Sandy, silty, clayey, gravelly)
34 to 49	Very (sandy, silty, clayey, gravelly)

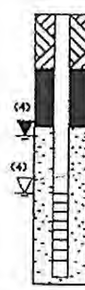
Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols



Sampler Type Description
3.0" OD Split-Spoon Sampler
3.25" OD Split-Spoon Ring Sampler
3.0" OD Thin-Wall Tube Sampler (including Shelby tube)
Portion not recovered



(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of groundwater — ▼ ATD = At time of drilling; ▽ Static water level (date)
(5) Combined USCS symbols used for fines between 5% and 15% as estimated in General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

Aspect consulting
IN-DEPTH PERSPECTIVE
179 Madrone Lane North, Bainbridge Island, WA 98110, (206) 780-9370
811 First Avenue #480, Seattle, WA 98104, (206) 328-7443

Exploration Log Key

DATE	PROJECT NO.
DESIGNED BY	
DRAWN BY	FIGURE NO.
REVISED BY	A-1

Q:_ACAD Standards\Drawings\Exploration Log Key.dwg

Aspect consulting
IN-DEPTH PERSPECTIVE

Soil Boring Log

Project Number	Boring Number	Sheet
040088	AF-MW01	1 of 1

Project Name: Georgia Pacific Bellingham
Location: Bellingham, Washington
Drilling Method: HSA
Sampling Method: D&M sampler
Drilling Contractor: Holt Drilling
Ground surface elevation (NAVD88)
Static water level (ft bgs)
Start Date: July 19, 2004
Finish Date: July 19, 2004

Depth/ Elevation (ft)	Well Construction	Sample ID	ST	Feet driven/ recovered	Sample Interval	Description
	Monument 6" ags, with thermos-cap; Concrete seal 0'-1.5'	AF-MW01-1 CA		1.5/1.25	0-1.5	Very dense, moist, tan to light brown, gravelly, silty SAND (SM); sand fine to medium, predominantly medium, gravel fine
	Bentonite chip seal 1.5'-3.0'	AF-MW01-2		1.5/0.58	2.5-4	Brown, very gravelly; concrete tile, metal encountered
5	2" I.D. PVC riser pipe	AF-MW01-3		1.5/0.25	5-6.5	Medium dense, wet, olive gray to brown, silty, sandy GRAVEL (GM); gravel fine to coarse; wood in tip of sampler
	10/20 Sand filterpack 3.0'-16.5'	AF-MW01-4		1.5/0	7.5-9	No recovery
10	2" I.D., PVC, 20-slot screen 5'-15'	AF-MW01-5 CA		1.5/1.33	10-11.5	WOOD debris with dark brown, wet, sandy silt, trace gravel; sand predominantly fine to medium
		AF-MW01-6		1.5/0.42	12.5-14	Sand portion predominantly medium
						Sand portion medium to coarse, slightly gravelly
15		AF-MW01-7		1.5/0.25	15-16.5	
						Bottom of boring at 16.5 feet.

Sampler Type (ST):
- Continuous Core
- SPT 2" Split Spoon
- Dames & Moore 3"
- No Recovery

Water Level ATD
Static Water Level

Logged by: ILE
Approved by: ME

Figure No. A - 2

GP-BELLINGHAM PROBE GP-BELLINGHAM.GPJ August 13, 2004

Aspectconsulting
IN-DEPTH PERSPECTIVE

Soil Boring Log

Project Number	Boring Number	Sheet
040088	AF-MW02	1 of 1

Project Name	Georgia Pacific Bellingham	Ground surface elevation (NAVD88)	
Location	Bellingham, Washington	Static water level (ft bgs)	
Drilling Method	HSA	Start Date	July 19, 2004
Sampling Method	D&M sampler; Drilling Contractor: Holt Drilling	Finish Date	July 19, 2004

Depth/ Elevation (ft)	Well Construction	Sample ID	ST	Feet driven/ recovered	Sample Interval	Description
	Monument 10" ags, with thermos-cap; Concrete seal 0'-1.5'	AF-MW02-1		1.5/1.0	0-1.5	Dense, moist, brown to gray, silty, sandy GRAVEL (GM); gravel fine to coarse, sand fine to coarse
	Bentonite chip seal 1.5'-3.0'	AF-MW02-2		1.5/0.58	2.5-4	Very sandy
5	2" I.D. PVC riser pipe	AF-MW02-3 CA		1.5/0.67	5-6.5	Loose, wet, olive gray, slightly silty, sandy GRAVEL (GP-GM); creosote-like odor and sheen; gravel predominantly fine, sand fine to coarse
	10/20 Sand filterpack 3.0'-16.5'	AF-MW02-4		1.5/1.25	7.5-9	Wet, dark gray, slightly silty, gravelly SAND (SW-SM); sand fine to coarse, predominantly coarse, gravel fine; creosote-like odor and sheen
						Dark gray-green, sandy, gravelly SILT (ML) in tip of sampler
10	2" I.D., PVC, 20-slot screen 5'-15'	AF-MW02-5 CA		1.5/0.33	10-11.5	Medium dense, wet, dark gray to black, silty, gravelly SAND (SM) and WOOD; sand fine to coarse, predominantly coarse, gravel fine, creosote-like odor and sheen
		AF-MW02-6		1.5/0.1	12.5-14	WOOD and dark gray, silty GRAVEL (GM); sample 90% wood
15		AF-MW02-7 CA		1.5/0.42	15-16.5	Wet, dark gray to black, silty, slightly gravelly SAND (SM), abundant shell and wood fragments; sand predominantly medium to coarse, gravel fine, strong creosote-like odor
						Bottom of boring at 16.5 feet.

Sampler Type (ST):
- Continuous Core
- SPT 2" Split Spoon
- Dames & Moore 3"
- No Recovery

Water Level ATD
Static Water Level

Logged by: ILE
Approved by: ME
Figure No. A - 3

Aspect consulting
IN-DEPTH PERSPECTIVE

Soil Boring Log

Project Number	Boring Number	Sheet
040088	AF-SB01	1 of 1

Project Name: Georgia Pacific Bellingham
Location: Bellingham, Washington
Drilling Method: Direct push soil probe
Sampling Method: 1-1/2" core
Drilling Contractor: Holt Drilling

Ground surface elevation (NAVD88):
Static water level (ft bgs):
Start Date: July 19, 2004
Finish Date: July 19, 2004

Depth/ Elevation (ft)	Well Construction	Sample ID	ST	Feet driven/ recovered	Sample Interval	Mtl. Graphic	Description
0	Probe backfilled with granular bentonite	AF-SB01-1	Continuous Core	4.0/0	0-4		Silty, sandy GRAVEL (GM), charred wood debris, organics - very low recovery throughout boring
4		AF-SB01-2 CA	Continuous Core	4.0/0.2	4-8		
5							
8							Bottom of boring at 8 feet.
10							
15							

Sampler Type (ST):
- Continuous Core
- SPT 2" Split Spoon
- Dames & Moore 3"
- No Recovery

Water Level ATD
Static Water Level

Logged by: JWC
Approved by: ME

Figure No. A - 4

Aspect consulting
IN-DEPTH PERSPECTIVE

Soil Boring Log

Project Number	Boring Number	Sheet
040088	AF-SB02	1 of 1

Project Name: Georgia Pacific Bellingham
Location: Bellingham, Washington
Drilling Method: Direct push soil probe
Sampling Method: 1-1/2" core
Drilling Contractor: Holt Drilling
Ground surface elevation (NAVD88):
Static water level (ft bgs):
Start Date: July 19, 2004
Finish Date: July 19, 2004

Depth/ Elevation (ft)	Well Construction	Sample ID	ST	Feet driven/ recovered	Sample Interval	Mtl. Graphic	Description
		AF-SB02-1 CA		4.0/1.0	0-4		Loose, moist, sandy GRAVEL (GP), trace organics, trace silt, charred wood chips
5		AF-SB02-2 CA		4.0/2.0	4-8		Wet at 6'
	Probe backfilled with granular bentonite	AF-SB02-3		4.0/1.0	8-12		
10							
		AF-SB02-4		4.0/1.0	12-16		Increasing silt content
15							
							Bottom of boring at 16 feet.

Sampler Type (ST):
- Continuous Core
- SPT 2" Split Spoon
- Dames & Moore 3"
- No Recovery

Water Level ATD
Static Water Level

Logged by: JWC
Approved by: ME
Figure No. A - 5

GP-BELLINGHAM PROBE GP-BELLINGHAM.GPJ August 13, 2004

Aspect consulting
IN-DEPTH PERSPECTIVE

Soil Boring Log

Project Number	Boring Number	Sheet
040088	AF-SB03	1 of 1

Project Name: Georgia Pacific Bellingham
Location: Bellingham, Washington
Drilling Method: Direct push soil probe
Sampling Method: 1-1/2" core
Drilling Contractor: Holt Drilling
Ground surface elevation (NAVD88):
Static water level (ft bgs):
Start Date: July 19, 2004
Finish Date: July 19, 2004

Depth/ Elevation (ft)	Well Construction	Sample ID	ST	Feet driven/ recovered	Sample Interval	Mtl. Graphic	Description
	Probe backfilled with granular bentonite	AF-SB03-1 CA		4.0/1.0	0-4		Loose to medium dense, dry to slightly moist, brown to gray-brown, very gravelly, fine to coarse SAND (SW)
5		AF-SB03-2		4.0/2.0	4-8		Soft, slightly moist to moist, gray to brown, silty, sandy PEAT (PT)
10		AF-SB03-3 CA		4.0/4.0	8-12		Moist, gray to brown, sand, silt, gravel and organics
							Sandy GRAVEL (GP), heavy oil
15							Bottom of boring at 12 feet.

Sampler Type (ST):
- Continuous Core
- SPT 2" Split Spoon
- Dames & Moore 3"
- No Recovery

Water Level ATD
Static Water Level

Logged by: JWC
Approved by: ME
Figure No. A - 6

Aspect consulting — IN-DEPTH PERSPECTIVE

Soil Boring Log

Project Number	Boring Number	Sheet
040088	AF-SB04	1 of 1

Project Name: Georgia Pacific Bellingham
Location: Bellingham, Washington
Drilling Method: Direct push soil probe
Sampling Method: 1-1/2" core
Drilling Contractor: Holt Drilling
Ground surface elevation (NAVD88):
Static water level (ft bgs):
Start Date: July 22, 2004
Finish Date: July 22, 2004

Depth/Elevation (ft)	Well Construction	Sample ID	ST	Feet driven/recovered	Sample Interval	Mtl. Graphic	Description
		AF-SB04-1		4.0/1.0	0-4		Gray and red-brown, slightly silty, sandy GRAVEL (GW-GM); gravel fine to coarse, sand fine to coarse
5		AF-SB04-2		4.0/0.5	4-8		Moist, olive gray and red-brown, gravelly, very silty SAND, abundant wood fragments (SM); sand fine to medium, gravel fine to coarse
	Probe backfilled with granular bentonite	AF-SB04-3		4.0/2.0	8-12		Wet, dark reddish-brown, slightly gravelly, silty SAND, abundant wood, glass, metal and brick fragments (SM); creosote odor, sand predominantly fine to medium
10							Dark brown to olive gray, very sandy SILT, abundant organics (ML); sand fine to medium, creosote odor
							Dark gray, slightly silty, medium SAND (SP-SM)
							Olive gray to gray-green, very sandy SILT, trace gravel, abundant organics (ML); sand medium to coarse, gravel fine
15		AF-SB04-4		4.0/0	12-16		No recovery 12'-16'
							Bottom of boring at 16 feet.

Sampler Type (ST):
- Continuous Core
- SPT 2" Split Spoon
- Dames & Moore 3"
- No Recovery

Water Level ATD
Static Water Level

Logged by: ILE/JWC
Approved by: ME

Figure No. A - 7

EXHIBIT D-6
2008 Hart Crowser Logs

List of Contents for 2008 Hart Crowser Logs:

- Log of Boring RGH-SC-01
- Log of Boring RGH-SC-02
- Log of Boring RGH-SC-03
- Log of Boring RGH-SC-04
- Log of Boring RGH-SC-05
- Log of Boring RGH-SC-06
- Log of Boring RGH-SC-07
- Log of Boring RGH-SC-08

Key to Exploration Logs

Sample Description

Classification of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.

Soil descriptions consist of the following:
Density/consistency, moisture, color, minor constituents, MAJOR CONSTITUENT, additional remarks.

Density/Consistency

Soil density/consistency in borings is related primarily to the Standard Penetration Resistance. Soil density/consistency in test pits and probes is estimated based on visual observation and is presented parenthetically on the logs.

SAND or GRAVEL Density	Standard Penetration Resistance (N) in Blows/Foot	SILT or CLAY Consistency	Standard Penetration Resistance (N) in Blows/Foot	Approximate Shear Strength in TSF
Very loose	0 to 4	Very soft	0 to 2	<0.125
Loose	4 to 10	Soft	2 to 4	0.125 to 0.25
Medium dense	10 to 30	Medium stiff	4 to 8	0.25 to 0.5
Dense	30 to 50	Stiff	8 to 15	0.5 to 1.0
Very dense	>50	Very stiff	15 to 30	1.0 to 2.0
		Hard	>30	>2.0

Sampling Test Symbols

- 1.5" I.D. Split Spoon
- Grab (Jar)
- 3.0" I.D. Split Spoon
- Shelby Tube (Pushed)
- Bag
- Cuttings
- Core Run

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Moisture

Dry	Little perceptible moisture
Damp	Some perceptible moisture, likely below optimum
Moist	Likely near optimum moisture content
Wet	Much perceptible moisture, likely above optimum

Minor Constituents

Minor Constituents	Estimated Percentage
Trace	<5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

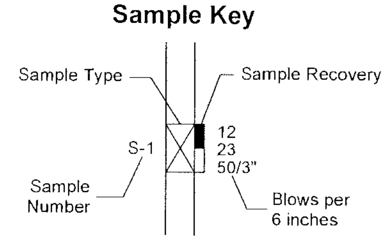
Laboratory Test Symbols

GS	Grain Size Classification
CN	Consolidation
UU	Unconsolidated Undrained Triaxial
CU	Consolidated Undrained Triaxial
CD	Consolidated Drained Triaxial
QU	Unconfined Compression
DS	Direct Shear
K	Permeability
PP	Pocket Penetrometer Approximate Compressive Strength in TSF
TV	Torvane Approximate Shear Strength in TSF
CBR	California Bearing Ratio
MD	Moisture Density Relationship
AL	Atterberg Limits Water Content in Percent Liquid Limit Natural Plastic Limit
PID	Photoionization Detector Reading
CA	Chemical Analysis
DT	In Situ Density in PCF
OT	Tests by Others

Groundwater Indicators

- Groundwater Level on Date or (ATD) At Time of Drilling
- Groundwater Seepage (Test Pits)

Sample Key



HARTCROWSER

17330-17 *8/08*

Figure A-1

KEY SHEET 1733017BL.GPJ HC_CORP.GDT 1/27/09

Vibracore Log RGH-SC-01

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -8.7 Feet
Water Depth in Feet: 8.8 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639752.2
Easting: 1240402.8
Logged By: M. Herrenkohl   Reviewed By: G. Both

USCS Class	Soil Descriptions	Depth in Feet	Sample	LAB TESTS
GM	3-inches of cobbles over (very loose), saturated, black, sandy GRAVEL with small cobbles and abundant fine debris (glass fragments) and silt, 2-inch polychaete, and moderate sulfide-like odor, trace sheen.	0	SC-01-0-2	CA
			SC-01-2-4	CA
SM	(Very loose), wet, gray-black, silty SAND with scattered gravel and debris (brick fragments) grading to (very loose to loose), moist to wet, gray to black, silty SAND with pockets of wood debris, chips, dust, and moderate sulfur-like odor, visible sheen. 2-inch wood chip layer.		SC-01-4-6	CA
	Bottom of Sediment in Core Tube.	5		
	Bottom of Core Tube at 6.0 Feet. Drive Length: 6 feet; Recovery Length: 4.5 feet. Date/Time: 08/26/08 16:54	10		

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

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Figure A-4

Vibracore Log RGH-SC-02

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -6.2 Feet
Water Depth in Feet: 8.2 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639717.7
Easting: 1240352
Logged By: M. Herrenkohl Reviewed By: G. Both

USCS Class	Soil Descriptions	Sample	LAB TESTS
ML	(Very soft), saturated, black, anoxic, sandy SILT with moderate sulfide-like odor.		
SM	Trace sheen and 1 cm Cockle over (very loose), saturated, silty SAND with scattered debris fragments (brick, wood fragments) and moderate sulfide-like odor.	SC-02-0-2	CA
GW-GM	(Very loose), wet, black, sandy GRAVEL with silt and abundant debris (brick, glass fragments), no obvious odor.	SC-02-2-4	CA
SM	(Very loose), wet, black, gravelly SAND with silt and abundant debris (brick, woodchips, and glass), no obvious odor or sheen.	SC-02-4-6	CA
	Bottom of Sediment in Core Tube.		

Depth in Feet: 0, 5, 10

Sediment Recovery in Core Tube

Bottom of Core Tube at 6.0 Feet.

Drive Length: 6 feet; Recovery Length: 5.2 feet.

Date/Time: 08/26/08 18:02

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

Vibracore Log RGH-SC-03

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -5.3 Feet
Water Depth in Feet: 9 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639695.2
Easting: 1240299.8
Logged By: C. Rust Reviewed By: G. Both

USCS Class	Soil Descriptions	Depth in Feet	Sample	LAB TESTS
ML	4-inch angular rock over (soft), wet, black, sandy SILT with gravel pieces and abundant wood (sticks 0.5 to 4 inches long), sulfide-like odor.	0	SC-03-0-2	CA
	Large angular gravel (1- to 4-inch) throughout, shell fragments and wood chips.			
	Layer of abundant wood chips.		SC-03-2-4	CA
ML	(Soft), wet, black-gray, sandy SILT with abundant wood chips and sticks and strong sulfide-like odor.		SC-03-4-6	CA
		5		
	Bottom of Sediment in Core Tube.			
	Bottom of Core Tube at 6.0 Feet. Drive Length: 6 feet; Recovery Length: 5.7 feet. Date/Time: 08/27/08 12:12			
		10		

Column headings also printed: Graphic Log; Sediment Recovery in Core Tube

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

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Figure A-6

Vibracore Log RGH-SC-04

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -2.0 Feet
Water Depth in Feet: 6.5 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639805.1
Easting: 1240421.3
Logged By: C. Rust Reviewed By: G. Both

USCS Class	Soil Descriptions	Depth in Feet	Sample	LAB TESTS
SM	(Very loose), saturated, black, silty SAND with shell fragments. Slight sheen present at surface. Planton in water column. Becomes (loose) with abundant shell hash (1- to 5-mm), wood pieces (0.5- to 2-inch), and sulfide-like odor.	0	SC-04-0-2	CA
SM	(Loose), wet, gray, silty SAND with abundant shell hash and wood pieces (0.5- to 1-inch).			
ML	(Soft), wet, olive-gray, clayey SILT with fine wood chips, bivalves, and sulfide-like odor. Wood chip layer.		SC-04-2-4	CA
			SC-04-4-6	CA
	Wood chip layer.	5		
GM	(Loose), wet, olive-gray, slightly sandy, silty GRAVEL with abundant wood chips and shell hash.			
	Bottom of Sediment in Core Tube.			
	Bottom of Core Tube at 6.0 Feet.			
	Drive Length: 6 feet; Recovery Length: 5.7 feet.			
	Date/Time: 08/27/08 11:50			
		10		

Graphic Log; Sediment Recovery in Core Tube

VIBROCORE LOG 1733017BL.GPJ HC_CORP.GDT 1/27/09

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

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Figure A-7

Vibracore Log RGH-SC-05

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -3.3 Feet
Water Depth in Feet: 8.3 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639800.8
Easting: 1240362
Logged By: C. Rust   Reviewed By: G. Both

USCS Class	Soil Descriptions
SM	(Loose), wet, black, silty SAND with shell fragments, wood piece, and slight sheen at surface.
ML	(Soft), wet, olive gray, clayey, sandy SILT with wood and shell fragments and sulfide-like odor, slight plasticity in silt.
	No wood or shell fragments from 1.5 to 3 feet. Sulfide-like odor, moderate plasticity in silt.
	Wood chips (0.25- to 0.5-inch) from 3 to 3.5 feet.
	Abundant wood chips with sulfide-like odor from 3.5 to 4.3 feet.
	Shell fragments with wood chips at 4.5 feet.
	Bottom of Sediment in Core Tube.

Bottom of Core Tube at 6.0 Feet.

Drive Length: 6 feet; Recovery Length: 4.6 feet.

Date/Time: 08/27/08 11:27

Depth in Feet: 0, 5, 10

Sample	Lab Tests
SC-05-0-2	CA
SC-05-2-4	CA
SC-05-4-6	CA

Sediment Recovery in Core Tube

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

Vibracore Log RGH-SC-06

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -1.6 Feet
Water Depth in Feet: 8.4 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639777.6
Easting: 1240293.1
Logged By: M. Herrenkohl Reviewed By: G. Both

USCS Class	Graphic Log	Soil Descriptions	Depth in Feet	Sample	Sediment Recovery in Core Tube	LAB TESTS
ML		(Very soft), wet, black, sandy SILT with moderate root/wood fragments, shell hash, worms, and sulfide-like odor.	0			
ML		(Very soft to soft), wet, olive to gray, clayey SILT with fine sand and scattered root fragments.		SC-06-0-2		CA
		Layers of wood chips/fragments (1- to 3-cm thick), shell hash, clay increasing with depth, and moderate to strong sulfide-like odor from 2.75 to 3.25 feet.		SC-06-2-4		CA
		Wood chip layers increase from 3.5 to 5.25 feet with some layers of shell hash and strong sulfide-like odor.		SC-06-4-6		CA
			5			
		Bottom of Sediment in Core Tube.				
		Bottom of Core Tube at 6.0 Feet.				
		Drive Length: 6 feet; Recovery Length: 5.25 feet.				
		Date/Time: 08/27/08 10:17				
			10			

VIBROCORE LOG 1733017BL.GPJ HC_CORP.GDT 1/27/09

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

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Figure A-9

Vibracore Log RGH-SC-07

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -3.0 Feet
Water Depth in Feet: 12 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639473.3
Easting: 1239872.9
Logged By: C. Rust   Reviewed By: G. Both

USCS Class	Soil Descriptions	Depth in Feet	Sample	Lab Tests
ML	(Soft), saturated, black-gray, sandy SILT with bivalve shells, and sulfur-like odor.	0	SC-07-0-2	CA
PT	(Soft), wet, light brown, slightly silty PEAT with Gravels (1-1/2 inches), sulfur-like odor, and well-preserved wood chips.			
SM	(Loose), wet, gray to black, silty SAND, with wood chips, and strong sulfur-like odor, layers of silt, fine sand with organic material increasing with depth, and layers of wood chips.		SC-07-2-4	CA
ML	(Soft), moist, gray to black, sandy, clayey SILT with strong sulfur-like odor, with slight plasticity.		SC-07-4-6.8	CA
PT	(Soft), moist, light brown-yellow PEAT with wood sawdust.	5		
	Bottom of Sediment in Core Tube.			
	5-inch piece of black plastic in shoe. Bottom of Core Tube at 6.8 Feet. Drive Length: 6.8 feet; Recovery Length: 4.92 feet. Date/Time: 09/24/08 14:03	10		

Sediment Recovery in Core Tube

VIBROCORE LOG 1733017BL.GPJ HC_CORP.GDT 1/27/09

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

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17330-17 9/08

Figure A-10

Vibracore Log RGH-SC-08

Location: See Figure 2.
Mudline Elevation in Feet (MLLW): -5.7 Feet
Water Depth in Feet: 18 Feet

Type of Sample: Vibracore
Core Diameter: 4 inches
Northing: 639591.4
Easting: 1240010.2
Logged By: C. Rust   Reviewed By: G. Both

USCS Class	Soil Descriptions	Depth in Feet	Sample	LAB TESTS
ML	(Soft), saturated, gray-black, sandy SILT with some wood chips and strong sulfur-like odor.	0	SC-08-0-2	CA
	Wood increasing with depth.			
OL	(Soft), saturated, gray-black, sandy SILT (organic) with strong sulfur-like odor.		SC-08-2-4	CA
	Increased wood chips/sawdust with depth.			
PT	(Soft), saturated, gray-brown, silty PEAT with strong sulfur-like odor and wood pieces (0.5- to 2-inch).		SC-08-4-5.5	CA
	Bottom of Sediment in Core Tube.	5		

Plastic syringe in shoe.
Bottom of Core Tube at 5.5 Feet.

Drive Length: 5.5 feet; Recovery Length: 4.8 feet.

Date/Time: 09/24/08 16:39

Sediment Recovery in Core Tube

10

VIBROCORE LOG 1733017BL.GPJ HC_CORP.GDT 1/27/09

1. Refer to Figure A-1 for explanation of descriptions and symbols.
2. Soil descriptions and stratum lines are interpretive and actual changes may be gradual.
3. USCS designations are based on visual manual classification (ASTM D 2488) unless otherwise supported by laboratory testing (ASTM D 2487).
4. Groundwater level, if indicated, is at time of drilling (ATD) or for date specified. Level may vary with time.
5. Sample intervals for chemical analysis were corrected for percent recovery.

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Figure A-11

EXHIBIT E
Field Procedures

Table of Contents

APPENDIX E. FIELD PROCEDURES FOR 2012 SUPPLEMENTAL INVESTIGATION

APPENDIX E
FIELD PROCEDURES FOR 2012 SUPPLEMENTAL INVESTIGATION

1.0 UPLAND

This appendix describes field procedures for the 2012 Upland Supplemental Investigation. Sampling completed for the upland portion of the supplemental investigation was conducted in general accordance with the Work Plan (GeoEngineers 2012a) except where modified based on field conditions. Upland explorations completed in 2012 are shown in Figures 3-1.

1.1. Exceptions/Deviations from Work Plan

Supplemental upland investigations were completed according to the February 2012 Work Plan, with the following exceptions:

- Visual and metal detector reconnaissance was conducted in April/May 2012 to confirm accessible monitoring wells. The following wells could not be found and/or well casings were damaged, full of soil or otherwise unusable for sampling: IZ-MW-1 through IZ-MW-4, HS-MW-2, HS-MW-3, HS-MW-10, HS-MW-11, CL-MW-1S, CL-MW-1D, CL-MW-5 and AF-MW02.
- Two additional monitoring wells were installed during the supplemental investigation to provide sampling locations in areas where previous monitoring wells were found to be destroyed or damaged as noted above:
  - Monitoring well HS-MW-19 was installed to monitor groundwater conditions in the area of previous monitoring wells HS-MW-2, HS-MW-3 and HS-MW-10.
  - Monitoring well CL-MW-103 was installed on the Cornwall site to monitor groundwater conditions in the area of previous monitoring wells CL-MW-1S and CL-MW-1D. The analysis of a groundwater samples for dioxins/furans proposed at CL-MW-1S was obtained instead from CL-MW-101.
- The boring completed at the proposed location of HS-MW-18 was renamed HS-SB-18 for the purpose of the RI report. A monitoring well was not installed in soil boring HS-SB-18 because nearby monitoring well HS-MW-7, which intercepts groundwater shallower than 19 feet bgs, is considered to be sufficient to monitor groundwater conditions at this location.
  - Monitoring wells were constructed as indicated in the Work Plan with the following exceptions: Monitoring well CL-MW-103, installed on the Cornwall property as a replacement well for monitoring well CL-MW-1S that could not be located, was installed with a screened interval from 3 to 15 feet bgs; bedrock was encountered at a depth of 16.5 feet bgs in the boring advanced for the construction of monitoring well CL-MW-103.
  - Monitoring well HS-MW-19, also installed as a replacement well, was installed with a screened interval from 3 to 13 feet bgs.
- Soil samples anticipated to be collected from proposed soil boring locations HS-SB-103 and CL-SB-104 were instead collected from soil borings HS-MW-19 and CL-MW-103, respectively, installed in corresponding locations nearby to the originally proposed locations.
- The soil boring location identified in the Work Plan as HS-SB-104 was completed at the location proposed, but is identified as HS-SB-103.

- The soil boring location identified in the Work Plan as HS-SB-105 was completed at the location proposed, but is identified as HS-SB-104.
- Surface soil samples HS-SS-101 through HS-SS-103 were not collected because the ground surface at these proposed sample locations was discovered to be covered with concrete and the locations could therefore not be accessed using a hand auger as proposed in the Work Plan. Instead, shallow discrete depth soil samples were collected from less than 3 feet bgs at soil borings HS-MW-19, HS-SB-102 and HS-SB-104 located in the same general area as the corresponding proposed surface soil samples. For clarity, we note that sample HS-SS-104 was collected as proposed in the Work Plan.
- Soil samples for UV photography and petrophysical testing were collected from soil borings TL-MW-14 and TL-MW-15, instead of soil borings TL-MW-15 and TL-MW-16 as proposed in the Work Plan. The soil samples were collected from soil boring TL-MW-14 instead of TL-MW-16 due to insufficient sample core recovery within the wood unit and LNAPL-impacted area in soil boring TL-MW-16.
- Soil sampling intervals in the hollow-stem auger borings were modified in the field in some cases because of poor recovery within the wood unit and heaving sands at depth. Generally, soil samples for lithologic description, field screening, and potential chemical analysis were collected beginning at either 2.5- or 5-feet below ground surface and continuing at 2.5-foot intervals to the total depth of the soil boring. Soil samples for lithologic description and field screening were collected through continuous cores at soil borings TL-MW-12, TL-MW-13, TL-MW-14, TL-MW-15 and TL-MW-16 within the LNAPL-impacted area, as indicated by sheen, petroleum-like odors, staining, and visible NAPL.
- Slug tests were not performed at monitoring wells HS-MW-2, HS-MW-8, TL-MW-7, HS-MW-17, HS-MW-18, TLMW-12 and TL-MW-13 for the following reasons: monitoring well HS-MW-2 could not be located during the supplemental investigation; monitoring well HS-MW-18 was not installed as noted above; measurable LNAPL was identified in monitoring wells HS-MW-8, TL-MW-7, TL-MW-12; TL-MW-13 was incorporated into the tidal study and HS-MW-17 was planned for the tidal study but could not be monitored at that time due to equipment malfunction.
- LNAPL bail-down tests were performed at monitoring wells TL-MW-2, TL-MW-4, TL-MW-5A, and TL-MW-6 as presented in the Work Plan. After a review of the bail-down data obtained, the LNAPL transmissivity was estimated only for TL-MW-2. The data obtained from the remaining monitoring wells were not evaluated because LNAPL recovery did not occur quickly enough relative to tidal fluctuations in the monitoring wells.
- The duration of the tidal monitoring study was expanded from three days to seven days. The tidal monitoring study included installing pressure transducers in three additional monitoring wells (for a total of 13 monitoring wells) and one tidal monitoring station installed on the Port of Bellingham Georgia Pacific Dock. In some cases, the monitoring wells used in the study were modified from the planned locations based on field conditions and equipment. Manual water level measurements were obtained at the beginning of the tidal monitoring survey.
- A groundwater sample from TLMW-10 was not analyzed for BETX or metals because LNAPL was present in this well; as an alternate, nearby wells TL-MW-13 to the west was analyzed for BETX and TLMW-1 was analyzed for metals.

- TLMW-15 was added to the list of wells analyzed for metals to better define the extent of copper in groundwater.
- HS-MW-11 was not analyzed for BETX and metals because this well could not be located. As an alternate, a groundwater sample from nearby well HS-MW-7 to the west was analyzed for BETX and metals.
- Equipment rinseate blanks to represent field QC procedures were obtained during upland soil sampling activities only on May 8 and May 9, 2012 and were determined to be sufficient for evaluating sampling handling variability based on field procedures.
- Groundwater and LNAPL samples were not collected for relative permeability analysis which was identified as potentially applicable for the FS. If these data are needed, samples will be obtained during the FS to assist remedy evaluation, or prior to remedial design to refine design parameters for the selected remedy.

1.2. Sample Identification

Soil samples were collected from soil borings completed using hollow-stem auger drill methods, direct-push drill methods, and hand auger (for surface soil samples). The soil samples collected from explorations were assigned a unique sample identifier in accordance with the following naming scheme.

- A prefix of HS- for borings advanced on Haley property.
- A prefix of TL- for borings advanced west of the Inner Harbor Line, on the State-owned portions of the Haley Site.
- A prefix of CL- for borings advanced on Cornwall Site.
- The naming sequence includes MW- for samples obtained from borings that were converted to monitoring wells, SB- for subsurface soil samples collected from soil borings not completed as wells, and SS- for surface soil samples collected from hand-augered borings.
- The numbered boring identification is followed by sample depth interval in feet for soil samples, or sample date (MMDDYEAR) for groundwater samples.

Sample identifications were recorded in the field notes, on the sample label and on the Chain of Custody forms.

1.3. Drilling and Sampling Procedures

1.3.1. General

Exploration locations were marked in the field using stakes, white marking paint or similar techniques. Location coordinates were determined using a portable global positioning system (GPS) unit. Any underground utilities in the vicinity of the exploration were marked by utility locate services. Drilling activities were performed in general accordance with State and local regulations including WAC 173-160, "Minimum Standards for Construction and Maintenance of Wells."

Soil borings were advanced using direct-push methods to hydraulically drive a probe from the ground surface to bedrock where the direct-push borings were terminated at the depth bedrock was encountered. Soil samples were collected continuously throughout the total depth of the boring by driving a 4-foot long probe rod through the desired sample interval. The probe rod was lined with a disposable acetate sleeve which was removed and opened to reveal the sample after each 4-foot sample interval was driven.

Soil borings advanced using hollow-stem auger drilling methods used an 18-inch-diameter split-spoon sampler for soil sampling. Monitoring wells were constructed in the hollow-stem auger borings. Well construction is summarized in Table 3-2 and well construction logs are included in Appendix D. Monitoring wells that were not targeted to be constructed at the total depth of a boring were backfilled to the target base depth for the monitoring well at that location. To reduce the potential for LNAPL and heavily contaminated soils to be transported deeper into the subsurface during drilling, temporary conductor casing was installed from ground surface through the smear zone prior to advancing boring that extended to bedrock. The conductor casing was removed once the monitoring wells were constructed and a seal was emplaced across the LNAPL smear zone.

The lithology/stratigraphy encountered in drilled borings was logged by the field geologist or engineer on field forms. Information on the field logs included: the exploration location; general information about drilling field activities; sampling information such as sample intervals/depths, sample recoveries and drilling hammer blow counts (when available); and sample description information. Lithologies encountered were generally described in accordance with ASTM International (ASTM) D 2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). In addition, identification of the Unified Soil Classification System (USCS) group symbol was recorded on the field logs.

A hand auger was used to collect the surface soil sample at one location, by compositing soil from the ground surface to approximately 12 inches bgs in a dedicated vessel or decontaminated stainless steel bowl to create a homogenous sample prior to transfer to a laboratory-supplied sample container.

1.3.2. Field Screening

Soil samples were field-screened for evidence of possible contamination using the following methods: 1) visual screening, 2) water sheen screening, and 3) headspace vapor screening.

VISUAL SCREENING

The soil was observed for unusual color or staining that may be indicative of contamination.

WATER SHEEN SCREENING

This is a qualitative field screening method that can help identify the presence or absence of petroleum hydrocarbons. A portion of the soil sample was placed in a pan containing distilled water. The water surface was observed for signs of sheen. The following sheen classifications were used:

Classification	Identifier	Description
No Sheen	(NS)	No visible sheen on the water surface
Slight Sheen	(SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly
Moderate Sheen	(MS)	Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on the water surface
Heavy Sheen	(HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen

HEADSPACE VAPOR SCREENING

This is a semi-quantitative field screening method that can help identify the presence or absence of volatile chemicals. A portion of the sample is placed in a resealable plastic bag for headspace vapor screening as soon as possible after collecting the soil sample. Ambient air is captured in the bag; the bag is sealed and then shaken gently for approximately 10 seconds to expose the soil to the air trapped in the bag. Vapors present within the sample bag headspace are measured by inserting the probe of a calibrated photoionization detector (PID) through a small opening in the bag. The PID measures the concentration of organic vapors ionizable by a 10.6 electron volt lamp (standard) in parts per million (ppm) and quantifies organic vapor concentrations in the range between 0.1 ppm and 2,000 ppm (isobutylene-equivalent) with an accuracy of 1 ppm between 0 ppm and 100 ppm. A lower threshold of significance of 1 ppm is used in this application. The maximum ppm value was recorded on the field report for each sample.

1.3.3. Soil Sampling

Soil samples were collected from borings using either a decontaminated split-barrel sampler or dedicated acetate liner. Soil samples submitted for chemical analysis were removed from the sampler/liner, placed into laboratory-supplied containers, lightly packed and capped with a plastic lid. The sand-sized and finer fractions of the soil were targeted for collection. The sample containers were kept in an iced cooler and delivered under chain-of-custody to the analytical laboratory.

1.3.4. Samples for Digital Photography and Petrophysical Testing

Undisturbed core samples submitted for digital imaging, UV photography and petrophysical testing were collected using a decontaminated split-barrel sampler with sleeves, wrapped with saran wrap, secured with clear box tape and immediately placed in a cooler containing dry ice for transport to the analytical laboratory under chain-of-custody.

1.4. Monitoring Well Construction

Monitoring wells were installed using hollow-stem auger drilling methods. The monitoring wells are constructed with 2-inch diameter, Schedule 40, threaded (not glued), PVC installed in a vertical alignment. Monitoring wells screened across the water table utilized well screens a maximum of 5 or 10 feet in length. Deep wells were constructed with 3-foot long screens. Well screens consist of 2-inch diameter, Schedule 40, 0.010-inch machine-slotted, PVC well screens. PVC end caps are installed on the bottom of the well screens. The filter packs consist of silica sand with the appropriate grain size distribution to limit entry of fine-grained particulates from the surrounding formation into the wells (e.g., 10/20 or 20/40 sand). The filter packs extend from the bottom of the well screen to at least 1 foot above the top of the well screen. The annular seals consist of a minimum 1-foot thick layer of hydrated bentonite pellets or chips installed between the filter pack and the concrete surface seal. Wells were completed using either flush or aboveground monuments installed in a concrete surface seal to prevent surface water from entering the well. Monitoring wells are secured with corrosion-resistant locks. The upland monitoring wells were surveyed by Pacific Surveying and Engineering in July 2012 relative to NAD 83/98 Horizontal datum and NAVD88 vertical reference datum.

1.5. Monitoring Well Development and Sampling

The new monitoring wells were developed 24 hours or more after installation using a combination of surging and purging until at least five well casing volumes were removed and turbidity was stabilized to less than the target of approximately 10 nephelometric turbidity units (NTU). Water quality parameters (e.g., temperature, pH, conductivity, turbidity) were measured and recorded during purging. Existing wells were redeveloped using similar methods to remove accumulated sediment as needed.

1.5.1. LNAPL Thickness/Groundwater Level Measurement

LNAPL checks and LNAPL thickness, if present, were measured and recorded using a decontaminated interface probe. The groundwater level and thickness of LNAPL in the well was measured to the nearest 0.01 feet using the interface probe. Water levels were measured relative to the surveyed point at the top of each monitoring well casing rim. LNAPL thickness and water level measuring equipment was decontaminated before use at each well.

1.5.2. Conductivity Vertical Profiling

A vertical profile of groundwater conductivity was measured in four wells using the downhole probe of a calibrated YSI conductivity meter. The measurements referenced in this RI were corrected based on actual groundwater temperature (standard conductivity measurements refer to 25 ºC). The conductivity of the adjacent surface water body was measured at three locations along the shoreline by submerging the probe of the meter at least 6 inches below the water surface and recording the value.

1.5.3. Groundwater Sampling

Monitoring wells were purged prior to sampling using low-flow methods to remove stagnant water in the well casing. Well purging was accomplished using new dedicated tubing and a portable peristaltic pump, submersible pump, or bladder pump. The pump intake was placed near the middle of the well screen interval, and the well was purged at a target rate of 250 to 500 milliliters (mL) per minute. A flow-through cell and calibrated portable water quality meter(s) were used to monitor water quality parameters during purging. The wells were purged until water quality parameters stabilized to the following approximate targets:

- Temperature ± 1°C
- pH ± 0.1 pH units
- Salinity and/or conductivity/specific conductance ± 3 percent

- Dissolved oxygen ± 0.3 milligrams per liter
- Redox potential (Eh) ± 10 mV
- Turbidity <10 NTU (if 10 NTU cannot be achieved, then ± 10 percent)

Groundwater samples were obtained after water quality parameters stabilized. Groundwater samples were collected from each well using a peristaltic pump, submersible pump, or bladder pump. The groundwater samples collected for laboratory analysis of dissolved copper were filtered at the analytical laboratory prior to analysis. Groundwater samples were collected directly from the pump discharge tubing after disconnecting the tubing from the flow-through cell. Groundwater samples were collected in labeled, pre-cleaned sample bottles provided by the analytical laboratory. The sample containers were retained on ice and delivered to the analytical laboratory under chain-of-custody. Reusable sampling equipment was decontaminated before use at each well.

1.5.4. Aquifer Testing

Field procedures for slug testing and the tidal study are presented in Appendices F and G, respectively.

1.6. City Storm Drain Outfall Sampling

A water sample from the City's 30-inch-diameter CMP storm drain pipe outfall was obtained by directly filling laboratory-prepared sample bottles, taking care to not overfill laboratory-prepared bottles containing preservative. Temperature, pH, conductivity, dissolved oxygen, ReDox potential, salinity and turbidity of the water from the outfall and in groundwater at monitoring well HS-MW-6 were measured using hand-held instruments at the time of the outfall was sampled.

1.7. Decontamination Procedures

Drilling equipment was pressure-washed before use and scrubbed as needed to remove visible debris. The equipment was then rinsed with potable water. Sampling equipment was cleaned with an aqueous Alconox® or Liqui-Nox® solution and a distilled water rinse before sample collection.

Whenever possible, disposable sampling equipment was used to minimize the need for decontaminating equipment. Reusable sampling equipment including split-barrel soil samplers, hand augers, groundwater sampling pumps, interface probes, sounding tapes, trowels, spoons, and other hand tools or sampling/measuring devices were decontaminated before use with either a pressure-washer or an aqueous Alconox® or Liqui-Nox® detergent solution and a brush followed by a distilled water rinse. If residual LNAPL was present or had been encountered, equipment was pre-cleaned with acetone or isopropyl alcohol and rinsed with hexane followed by the detergent wash and rinse.

1.8. Investigation Derived Waste (IDW)

IDW was placed in labeled storage containers on the upland portion of the Haley property in the designated containment area located within the area bounded by Ecology blocks.

2.0 SEDIMENT SAMPLING

Sediment supplemental investigations were performed from July 30 through August 4, and August 27 and 28, 2012. Sediment supplemental investigations were conducted in general accordance with the February 2012 Work Plan except where modified based on field conditions, as described in below.

2.1. Exception/Deviations from the Work Plan

Supplemental sediment investigations were completed according to the Work Plan, with the following exceptions:

- Core sample COB-SC-01 from depths below approximately 10 feet bgs were not collected using disposable acetate liners because dense subsurface sediment was encountered at that location. The dense material caused the acetate liners to deform in two separate drilling attempts, rendering them unrecoverable from the core barrel. Sediment was instead extruded from a decontaminated core barrel (drilled during a third attempt) into a dedicated plastic bag designed for such purposes. The sample bag was processed immediately for sediment logging and sampling.
- The target depth of coring into native sediment at COB-SC-07 was likely not achieved. The boring could only be completed to 10 feet bgs due to a short tidal window on the day of drilling.

2.2. Collection Methods

2.2.1. Surface Sediment

Surface sediment samples were collected using a modified Van Veen sediment sampler deployed from a vessel provided by the EPA. Equipment was decontaminated before sampling. The general procedures for collecting surface sediment samples were identified in the Sediment SAP, as follows:

1. Maneuver the sampling vessel to the proposed sampling location, steady the vessel, and verify location control using the GPS.
2. Record the location of the sample.
3. Prepare the sampler for deployment.
4. Deploy the sampler through the water column to the mudline at approximately 1 foot per second (fps). Verify that the sampler cable is plumb.
5. Record the sampling time and the depth to mudline below the water surface (using the lead-line).
6. Release the sampler and raise it to the vessel at approximately 1 fps.
7. Place the sampler on the work surface of the vessel. Avoid jostling the sampler and/or disturbing the sample.
8. Examine the sample for the following sediment acceptance criteria:
    a. The sampler jaw is closed.

   b. The sampler is not overfilled so that the sediment surface presses against the top of the sampler.
   c. Minimal leakage has occurred, as evidenced by overlying water on the sediment surface.
   d. Minimal sample disturbance has occurred, as evidenced by limited turbidity in the overlying water.
   e. A penetration of at least 13 cm has been achieved. 13 cm shall be the target penetration depth in order to sample sediment that has not come into contact with the side of the sampler.
   f. If any of the sediment acceptance criteria are not achieved, the sample will be rejected and the location resampled. If the proposed sampling location cannot be achieved after four deployments, notify the Project Manager to determine an appropriate alternative location.
9. Siphon off standing water from the surface of the sediment using a hose primed with Site saltwater. Do not disturb the surface of the sediment.
10. Visually classify sediment in accordance with ASTM International D 2488 methods and the Unified Soil Classification System (ASTM D 2487) and record on the field form. In addition to the visual classification, sediment samples shall be field screened (see Appendix E Section 1.3.2). Qualitative descriptive parameters including biota, debris, and presence of petroleum product/staining shall also be recorded.
11. Photograph the sediment. Include in the camera's field of view a sheet of paper or white board with the sample name written in large black print; use care not to touch the sediment with the paper/whiteboard.
12. Collect the upper 12 cm of sediment from the sampler using a decontaminated stainless steel spoon. Do not collect sediment that has been in contact with the side of the sampler. Place the sediment into a decontaminated stainless steel homogenization bowl. Cover the container with a new sheet of aluminum foil and dispose after use.
13. Thoroughly rinse the interior of the sampler until all loose sediment has been washed off. Excess sediment will be returned to the water surface in the approximate location where the sample was collected.
14. If sufficient sample volume was not collected, repeat the sampling process until sufficient volume is achieved. Successive deployments should be within an approximate 10-foot radius of the initial deployment.
15. Homogenize the sediment (from one deployment if adequate sediment volume was achieved, or from multiple deployments if multiple deployments were required) in the stainless steel bowl using the stainless steel spoon until the sediment appears generally uniform in color and texture.
16. Distribute the sample to appropriate sample containers identified in the QAPP and ensure that the samples are properly labeled and tightly closed.
17. Clean the exterior of the sample containers and store them in a cooler with ice.
18. Decontaminate all equipment.

19. Double check that field collection forms are completely filled out.

2.2.2. Near-Surface and Subsurface Sediment

Near-surface and subsurface sediment samples were collected using sonic drilling techniques. The majority of samples were collected using a sonic drill rig utilizing a five-foot-long, 3-inch diameter core barrel containing dedicated (disposable) acetate liners. Several sampling runs were performed without dedicated (disposable) acetate liners due to encountering dense materials (see deviations from the Work Plan). Investigation locations in the intertidal zone (i.e., COB-SC-01, COB-SC-02, COB-SC-07, and COB-SC-08) were collected from land using a track-mounted sonic drill rig during low tide. The remaining locations (i.e., COB-SC-03, COB-SC-04, COB-SC-05, COB-SC-06, and COB-SC-09) were collected using the sonic drill rig located on a barge.

The general procedures for collecting surface sediment samples were identified in the Sediment SAP, as follows:

1. Maneuver the track rig or sampling vessel to the proposed sampling location, steady the vessel (for over-water sampling), and verify location control using the GPS.
2. Record the location of the sample.
3. Record the sampling time and depth to mudline below the water surface (using the lead-line) for over-water sampling.
4. Drive the sampler into the sediment surface in five foot intervals or until refusal.
5. Collect a continuous subsurface sample to the target depth or until refusal.
6. For each sample interval, record the penetration depth on the field form.
7. Extract the core barrel, extract the acetate liner, cap the liner, and examine the sample relative to the following acceptance criteria:
    a. Overlying water is present and the surface is intact (for the first five-foot run only);
    b. Calculated compaction is not greater than 25 percent; and/or
    c. The sampling device appears intact without obstructions or blocking.

If inspection of the sample recovery meets the criteria then proceed with sample processing. Samples were processed in the field unless field conditions precluded processing. If sample processing was not performed in the field, the samples were labeled and kept at approximately 4°C during storage and shipment.

Subsurface samples were processed either immediately after collection or placed on ice and processed within 24 hours of collection. All equipment was decontaminated prior to initiating sample processing. The general procedure was:

1. Measure and record the recovered length of sediment in the core (and compare to field records when sample is not being processed in the field).
2. Calculate sediment compaction and establish compaction-corrected depths for the entire length of the sample.

3. Visually classify sediment in accordance with ASTM D 2488 methods and the Unified Soil Classification System (ASTM D 2487) and record on the field form. In addition to the visual classification, field screen sediment samples (see Appendix E, Section 1.3.2). Record qualitative descriptive parameters including biota, debris, and presence of product/staining.
4. Photograph the sediment. Include in the camera's field of view a sheet of paper or white board with the sample name written in large black print; use care not to touch the sediment with the paper/whiteboard.
5. Collect sediment from the liner using a decontaminated stainless steel spoon. Sediment that has contacted the side of the liner was not collected. Sediment was placed into a decontaminated stainless steel homogenization bowl and covered with a new sheet of aluminum foil that was disposed after use.
6. Homogenize the sediment in the stainless steel bowl using the stainless steel spoon until the sediment appears generally uniform in color and texture.
7. Distribute the sample to appropriate sample containers identified in the QAPP and ensure that the samples are properly labeled and tightly closed.
8. Clean the exterior of the sample containers and store them in a cooler with ice (dry ice for VOC analyses).
9. Decontaminate all equipment.
10. Double check that field collection forms are completely filled out.

If adequate sample volume was not obtained in a particular interval in cores, adjacent cores were attempted within an approximate 10-foot radius of the original core.

2.3. Navigation and Positioning

The majority of sample locations were determined in the field to the nearest 0.1 second (North American Datum 83) using a hand-held or boat-mounted differential global positioning system (DGPS) unit. Several locations were estimated using line-of-site visual estimation of features located on land. Location control accuracy for the samples was approximately within +/- 3 meters (approximately 10 feet) of the planned sampling locations. The locations where samples were collected were recorded on field logs. Where over-water sampling was performed, vessel was steadied using anchors placed outside eel grass areas.

Where over-water sampling was performed, water depths at sediment sampling locations were measured directly using a lead-line and converted to mudline elevations using National Oceanic and Atmospheric Administration (NOAA) tide information. Lead-line measurements matched the predicted depth at the location within approximately 1 foot based on a previously completed hydrographic survey.

2.4. Equipment Decontamination

Field sampling equipment, including the sediment samplers (i.e., Van Veen sampler, core barrel and drive head) as well as stainless steel bowls and spoons, were cleaned prior to sampling and between each sampling location. Equipment for reuse was decontaminated according to the procedure below:

1. Seawater was sprayed over equipment to dislodge and remove any sediment (deionized water was used for the samples collected on land).
2. Surfaces of equipment contacting sample material were scrubbed with a brush using an Alconox solution.
3. Scrubbed equipment was rinsed and scrubbed with deionized water.
4. Equipment was sprayed a final time with a rinse of deionized water.

Solvents (i.e., acetone and hexane) were not used during sample collection activities. Decontamination water from steps 2 through 4 was stored on Site in labeled, secure drums for proper disposal.

Field personnel changed gloves frequently during and between sampling events.

2.5. Field Documentation

Sample documentation included the following information:

- Sample location.
- Sampler's name(s).
- Date and time of sample collection.
- Water depth (for over-water samples).
- Sampling equipment penetration, sample material recovery depth, and sample interval.
- Gross characteristics of the sediment including:
  - Presence or absence of stratification,
    - Texture,
    - Color,
    - Presence of biota or biological structures,
    - Presence of debris including wood,
    - Field screening results
- Description of wood presence, type, and quantity of wood, if observed, including:
  - Type of wood (e.g., sawdust, bark, processed lumber, stick)
  - Location of wood (e.g., on the surface, beneath the surface, in a layer, mixed throughout)
- Visually based volumetric estimate of wood (i.e., <25%, between 25% and 50%, and >50%) in the sediment and/or in discernible sediment horizons (preferably using percentage diagrams available on soil classification charts).
- Gross characteristics of the vertical profile including:
  - Presence of a redox layer and redox layer thickness, if present
  - Changes in material characteristics.

The following information was also recorded in the field log for each day of sampling:

- Deviations from the SAP, HASP or QAPP.
- Decontamination procedures
- Calibration readings for equipment used.

2.6. Sample containers and labeling

Sediment samples obtained were placed in appropriate laboratory-prepared containers. Sample containers were labeled with the following information at the time of collection:

- Project name and/or number;
- Sample name, which will include a reference to depth interval if appropriate; and
- Date and time of collection.

Sample naming conventions are shown below.

Surface Samples:

COB-SS-##, SS refers to "surface sediment", and ## indicates a two-digit location code.

Near-surface and subsurface samples:

COB-SC-##-beginning depth-ending depth, SC refers to "sediment core," ## indicates the two-digit location code, followed by the approximate top and bottom depths of the sample interval.

2.7. Sample Storage and Shipping

Samples were placed in a cooler with wet ice (dry ice for VOC analyses) immediately after they were collected. The samples were transported and delivered to the analytical laboratories in coolers. Transport and delivery were performed by field personnel who transported and deliver samples.

2.8. Field Instrumentation

Field equipment was calibrated and adjusted in general accordance with the manufacturer's recommendations. Methods and intervals of calibration and maintenance were based on the type of equipment, stability characteristics, required accuracy, intended use, and environmental conditions.

2.9. Field Measurement Evaluation

Field data was reviewed at the end of each day by following the quality control checks outlined below and procedures in the QAPP. Field data documentation was checked against the applicable criteria as follows:

- Correct sample collection information.
- Correct field instrumentation and calibration.
- Correct sample collection protocol.
- Correct sample containers, preservation and volume.

- Field Quality Control (QC) samples collected at the frequency specified.
- Sample documentation and chain-of-custody protocols performed correctly.

2.10. Disposal of IDW

All disposable sampling material and personal protective equipment (i.e., disposable coveralls, gloves, and paper towels) used in sample processing was placed in garbage bags or other appropriate containers. Disposal supplies were removed from the site by sampling personnel and placed in a normal refuse container for disposal at a solid waste landfill. Sediment remaining after surface sample collection was returned to the water surface; sediment remaining after cores were processed was placed in drums. Decontamination water was stored in separate drums. All drums were labeled, secured and temporarily stored in the on-site waste containment area. EPA subsequently collected the waste for off-site disposal at an approved facility.

3.0 HABITAT SURVEYS

3.1. Intertidal Habitat Survey

An intertidal habitat survey was performed at the Site on June 4 and June 5, 2012 when tides were below 0 feet MLLW. The survey was conducted along ten transects extending from approximately +10 feet to -2 feet MLLW. Surveys were performed on foot. Substrate as well as plant and animal species were documented, including species zones.

3.2. Benthic Habitat Survey

A benthic habitat survey was performed on September 25 and September 27, 2012 using SSS and SCUBA diving as described further in Appendix M.

4.0 SAMPLE HANDLING

Environmental samples were delivered to the laboratory by field personnel or courier under chain of custody. Custody seals were used on sample coolers. Samples submitted for digital photography and petrophysical testing were kept frozen until received by PTS Laboratories. The condition and temperature of the samples were recorded upon receipt at the laboratory.

5.0 2005 SOIL VAPOR SAMPLING FIELD PROCEDURES

Field procedures for the 2005 soil vapor sampling are included in this appendix because the field procedures have not been documented in prior reports. Soil vapor sampling on the Haley upland was conducted in general accordance with the Work Plan dated July 8, 2005 (GeoEngineers 2005b) with two minor deviations: six additional compounds (benzene, ethylbenzene, toluene, xlyenes, 1,3-butadiene, and MTBE) were analyzed in the samples; and initial and final vacuum readings were measured using the vacuum gauges on the flow controllers rather than vacuum gauges on the sample canisters.

Soil vapor samples were collected using Geoprobe's Post-Run Tubing (PRT) system. The PRT tip configuration was driven into the ground to a depth of approximately 5-feet. After the PRT tip configuration reached the require depth, the PRT tubing and PRT adapter were inserted down the inside of the probe rod(s) and the adapter was connected with an expendable point holder at the bottom of the rod. After the tubing was connected to the expendable point holder, the probe was retracted approximately 6-inches to allow soil vapor to enter the sampling device. Soil vapor was allowed to equilibrate in the void space, and soil vapor was purged from the system using a syringe prior to sample collection. Soil vapor samples were then collected using 6-liter Summa canisters, which were under a vacuum, and a one-half hour flow controller that reduced the flow rate to less than 200 milliliters per minute (mL/min). The final vacuum on the canisters was between 4 and 7 inches mercury. New sample tubing was used for each sample. The direct push equipment was decontaminated before sample collection. The soil vapor samples were submitted to ENSR International's Air Toxics Specialty Laboratory in Harvard, Massachusetts.

APPENDIX F
Slug Test Field Procedures, Methodology, Analysis

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APPENDIX F. SLUG TEST FIELD PROCEDURES, METHODOLOGY, ANALYSIS

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APPENDIX F
SLUG TEST FIELD PROCEDURES, METHODOLOGY, ANALYSIS

1.0 SLUG TESTING

A subset of the monitoring wells was selected for slug testing to measure the hydraulic conductivity of the deposits in which each well is completed. Slug testing was performed on four wells (HS-MW-5, HS-MW-6, HS-MW-7, and HS-MW-9) at the Site on June 8, 2012, to evaluate hydraulic conductivity within the shallow fill unit. Hydraulic conductivity was calculated using the Bouwer and Rice (1976) method. Plots of the slug test response and type curves analyzed are presented in Figures F-1 through F-4.

1.1. Field Procedures

Each slug test was performed in two stages, resulting in a falling head stage, followed by a rising head stage:

1. A slug (weighted 5-foot length of sealed PVC casing) of known volume was rapidly lowered into the well, causing displacement of the water level, which rose almost instantaneously above its initial level, and the water level in the well was monitored until it returned (fell) to the approximate initial water level.
2. The slug was then rapidly removed, causing the water level to fall instantaneously below its initial level and the water level in the well was monitored until it returned (rose) to the approximate initial water level.

Groundwater levels were measured as hydrostatic pressures by using a 15-psi PT2X vented water-level sensor comprising a piezoelectric pressure transducer and combined datalogger. The datalogger was programmed to record hydrostatic submergence pressure at 1-second intervals, supplemented with manual electronic water-level meter readings before, during and after each aquifer slug test.

1.2. Data Interpretation

The wells generally exhibited an over-damped response typical of moderately permeable formations. The falling head test data were not analyzed because the wells were screened across the water table and the falling-head response can be adversely affected by outflow into the vadose zone. In each of these instances, the falling head response occurred faster than the corresponding rising head response, and appeared to be affected by increased flow of well water into the vadose zone above the water table, which would tend to overestimate the apparent hydraulic conductivity. Therefore, only the rising head test data was used to calculate the hydraulic conductivity.

Inspection of the rising head response in each test, as depicted on Figures F-1 through F-4, shows an early period of rapid head change, which was interpreted as drainage of the filter pack into the well during the first 15 to 50 seconds of each rising head slug test (Bouwer 1989). A volumetric analysis using the method of Binkhorst & Robbins (1998) confirmed that rapid drainage of the filter pack would explain this portion of the data, with a calculated specific yield or drainable porosity for the filter pack material of around 20 percent (±4 percent).

The period of rapid filter pack drainage was followed in each case by a longer and relatively consistent log-linear reduction in the displacement head (y_t) with increasing time (t) as the water level recovered toward its static condition. This second phase in each rising head test was interpreted to represent inflow to the well form the surrounding aquifer formation and was selected for analysis to provide an estimate of the hydraulic conductivity.

1.3. Data Analysis

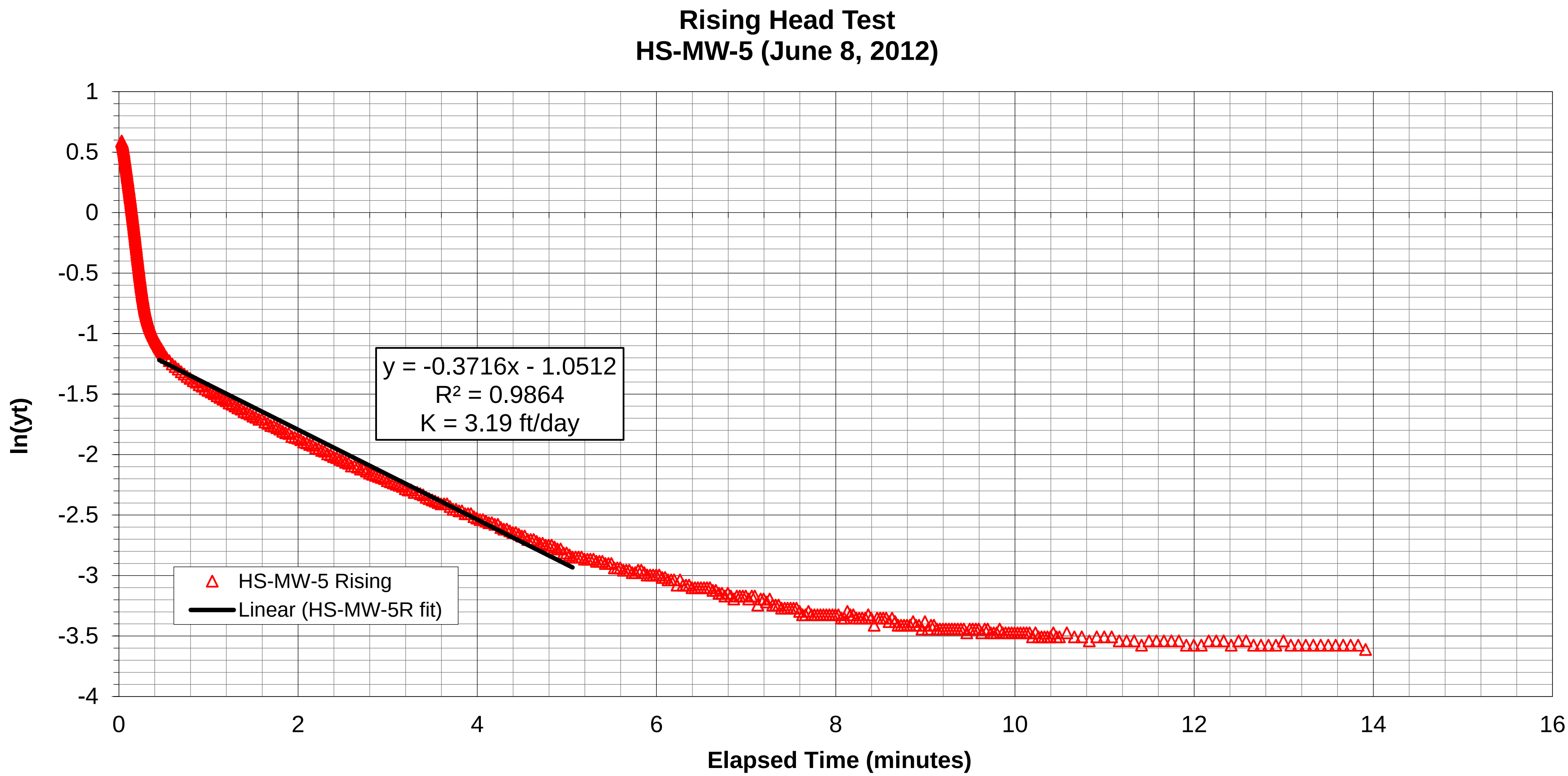
The log-linear slope of the second phase of each rising heads test was determined from the data plots (Figures F-1 through F-4) and used in the method of Bouwer & Rice (1976) to calculate the average hydraulic conductivity of the formation below the water table at each well, assuming unconfined aquifer conditions, and taking into account the partial submergence of the well screen and acknowledging that rapid drainage of the filter pack is affecting the early slug test response data.

The effective casing radius was modified in accordance with Bouwer (1989) except that the assumed value of porosity Bouwer suggests was replaced with the average value for filter pack specific yield (20 percent), as recommended by Binkhorst & Robbins (1998), to account for rapid drainage of the filter pack. Dimensionless parameters A, B, and C used in the analysis to characterize the geometry of each test based on the well construction and soil conditions, as depicted on the original well logs (Appendix D) were calculated from polynomial expressions developed by Yang and Yeh (2004).

Given the relatively small slug volume used to create the displacement, the radius of influence calculated in the Bouwer & Rice method is limited, indicating that flow in the formation typically extended to a zone within 3 to 5 feet of the well. As a result, the wells were assumed to be fully penetrating, with the hydraulic conductivity calculated as an average value over the length of submerged well screen below the water table.

1.4. Results

The results of the slug test analyses are shown on the Figures F-1 through F-4. Hydraulic conductivity values for slug tests range between 1.2 and 17.9 ft/day, which is typical for medium to coarse sand and fine gravel and appears to correlate with the sand, gravel, and woody debris in which the tested wells were screened.



Notes:

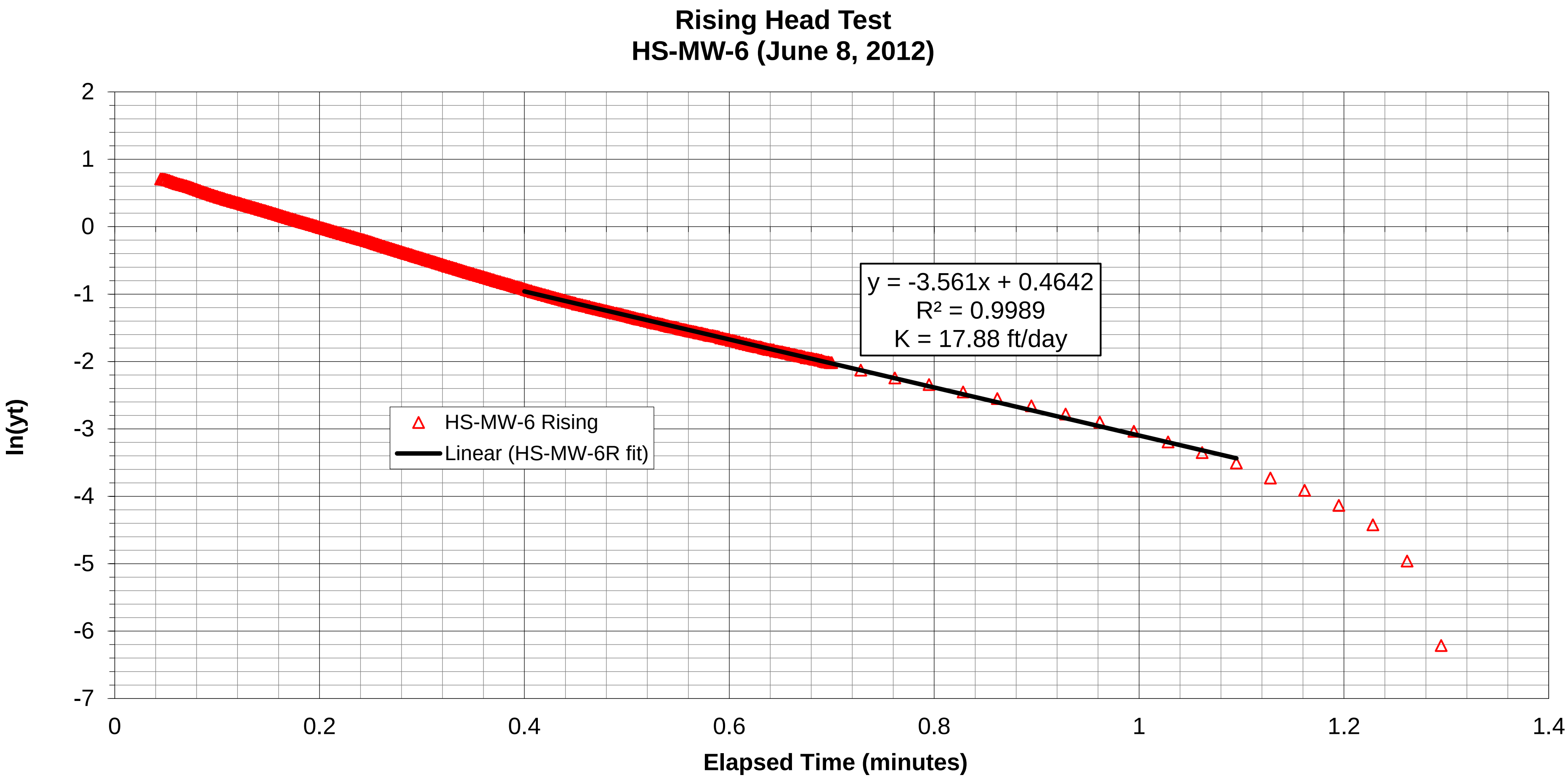
1. Displacement of the recovering water level after slug removal is plotted as the natural logarithm, ln(yt).
2. The initial displacement is interpreted to represent rapid drainage of the filter pack .
3. The calculated value for hydraulic conductivity is proportional to the slope of the fitted line.
4. The hydraulic conductivity is averaged over the submerged length of the well screen below the water table.

Aquifer Slug Test at HS-MW-5

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure F-1



Notes:

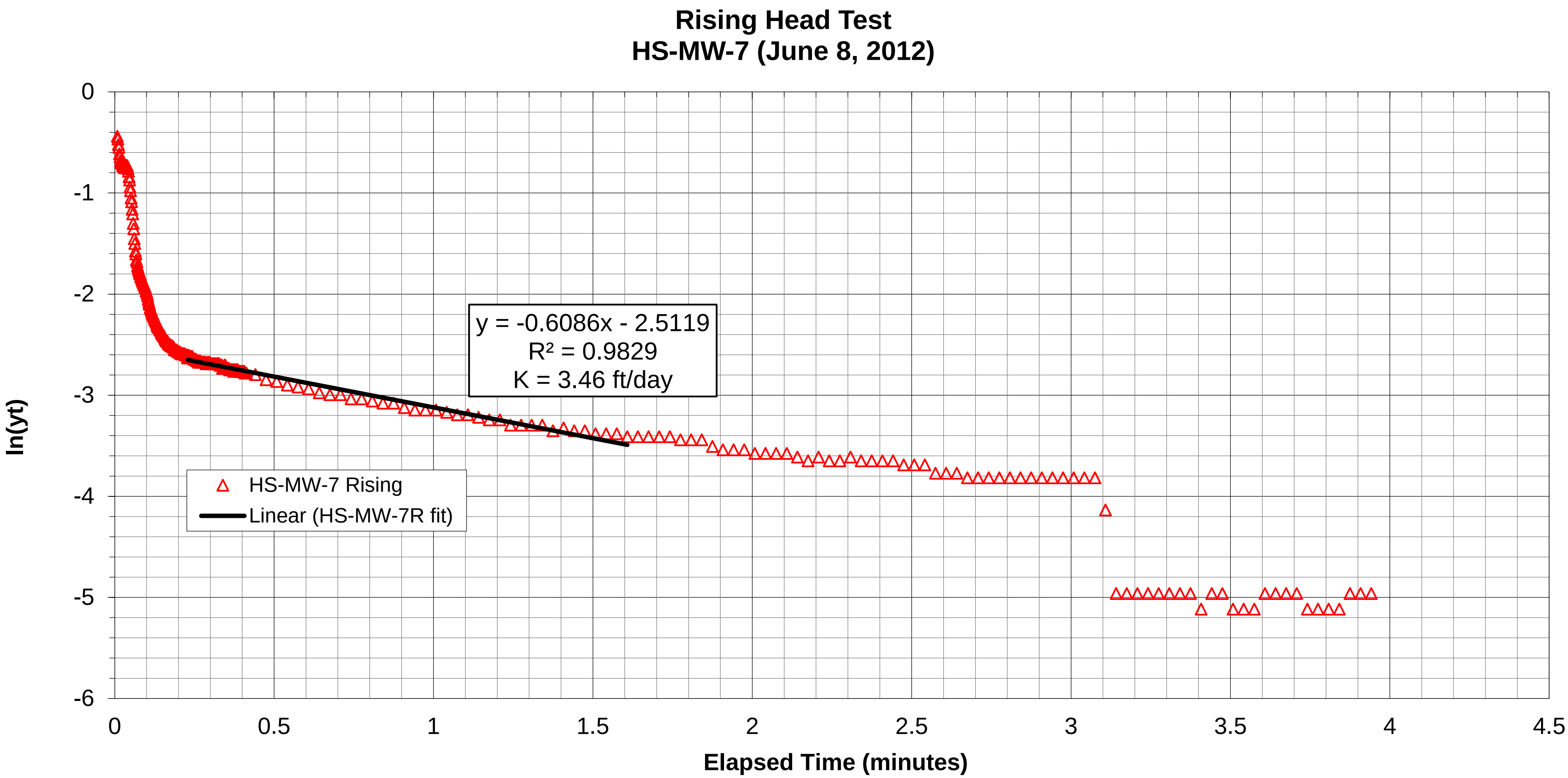
1. Displacement of the recovering water level after slug removal is plotted as the natural logarithm, ln(yt).
2. The initial displacement is interpreted to represent rapid drainage of the filter pack .
3. The calculated value for hydraulic conductivity is proportional to the slope of the fitted line.
4. The hydraulic conductivity is averaged over the submerged length of the well screen below the water table.

Aquifer Slug Test at HS-MW-6

R.G. Haley Site
Bellingham, Washington

GEOENGINEERS

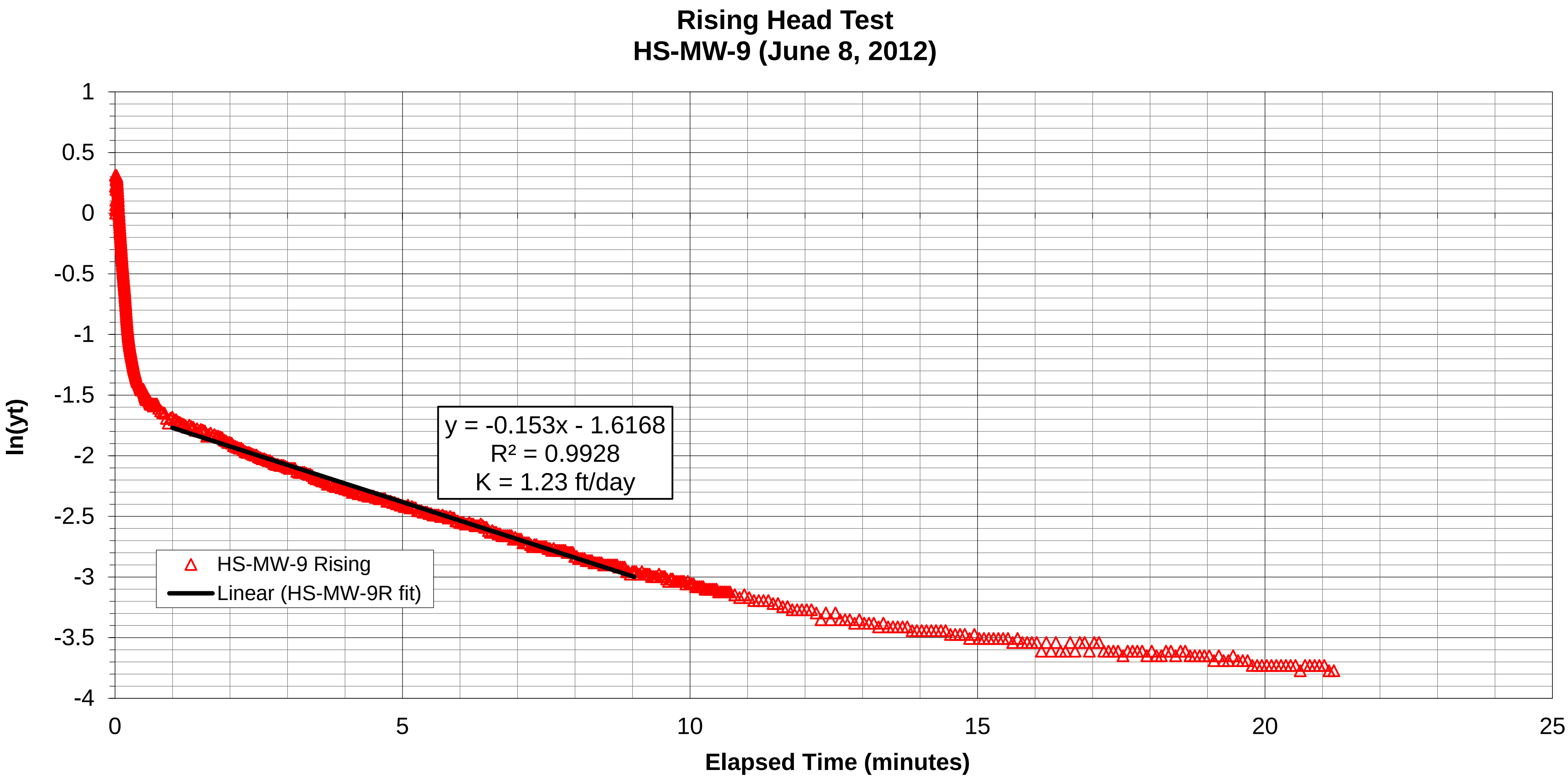
Figure F-2



Notes:

1. Displacement of the recovering water level after slug removal is plotted as the natural logarithm, ln(yt).
2. The initial displacement is interpreted to represent rapid drainage of the filter pack .
3. The calculated value for hydraulic conductivity is proportional to the slope of the fitted line.
4. The hydraulic conductivity is averaged over the submerged length of the well screen below the water table.

Aquifer Slug Test at HS-MW-7	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	**Figure F-3**



Notes:

1. Displacement of the recovering water level after slug removal is plotted as the natural logarithm, ln(yt).
2. The initial displacement is interpreted to represent rapid drainage of the filter pack .
3. The calculated value for hydraulic conductivity is proportional to the slope of the fitted line.
4. The hydraulic conductivity is averaged over the submerged length of the wellscreen below the water table.

Aquifer Slug Test at HS-MW-9	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	**Figure F-4**

APPENDIX G
Tidal Study

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APPENDIX G. TIDAL STUDY

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TIDAL STUDY

This document presents the field procedures, methods of analyses and findings from the 2012 tidal study.

1.1. Purpose and Objectives

The purpose of the 2012 tidal study was to evaluate the influence of tidal fluctuations on groundwater conditions to support the hydrogeologic CSM. Specific objectives included:

- Identifying and analyzing hydrogeologic variables based on well responses in relation to tidal conditions.
- Providing a better understanding of the relative degree of variation in measured groundwater levels under tidal influence.
- Estimating values for aquifer hydraulic parameters such as diffusivity, transmissivity and conductivity.
- Providing transient calibration data for comparative assessment with groundwater heads to be simulated using numerical groundwater flow modeling.

1.2. Field Procedures

A subset of the existing monitoring wells was selected for inclusion in the tidal study (Table G-1, Figure 3-1). A representative range of different types of well completions were selected; however, wells containing measurable LNAPL were excluded to avoid additional complexity in analyzing results. Well completions covered a range of depths, including shallow well completions that should exhibit water table conditions, and deeper completions including some just above bedrock that may show confined or leaky confined aquifer responses.

TABLE G-1. MONITORING WELLS SELECTED FOR TIDAL STUDY

Well Identification (Well Locations Shown in Figure 3-1)	Total Depth (ft bgs)
CL-MW-103	15
HS-MW-4	13
HS-MW-6	19
HS-MW-8	19
HS-MW-15	11
TL-MW-1	19
TL-MW-9	14
TL-MW-11	20
TL-MW-12	12.7
TL-MW-13	46.1
TL-MW-14	30.3
TL-MW-15	30.3
TL-MW-16	32.7

The tidal study was conducted over a period of 9 days from July 30, 2012 through August 8, 2012.

Groundwater levels in selected wells were monitored using automated water-level sensors comprised of a piezoelectric pressure transducer and programmable datalogger, together with a barometric sensor for recording atmospheric pressure. Prior to installation in the monitoring wells, the water-level sensors were synchronized and programmed to take pressure readings every 60 seconds for the duration of the tidal study. Depth to groundwater in each well was measured manually with an electrical water-level indicator at the beginning of the tidal study. The manual measurements were used to establish a conversion for pressure data to water level elevation (in NAVD88). A hydrograph plot of each data set for the tidal study period was developed and adjusted for sensor drift as appropriate. Data were reviewed and checked as a QA/QC step.

One sensor was installed in a tidal gauge that was placed on a piling at the GP West dock and used for direct measurement of the tide levels in Bellingham Bay.

1.3. Observed Tidal Groundwater Responses

The groundwater elevation data were graphed in comparison to a graph of contemporaneous tide heights measured at the dock in Bellingham Bay (Figures G-1 through G-15). The time lag and stage ratio for tidal fluctuations in each monitoring well were determined over a three-day cycle in the middle of the study period (Table G-2). Time Lag was determined by shifting the Date/Time scale (x-axis) of the groundwater record backwards relative to the tidal record from Bellingham Bay, until the respective peaks and troughs matched. The value of time (in hours and minutes) indicated on the secondary (upper) axis represents the time lag or phase shift. Stage ratio was determined by expanding and shifting the elevation scale (y-axis) of the groundwater plot relative to the tidal plot from Bellingham Bay, until the respective amplitudes matched. The value of stage ratio is then calculated as the ratio of secondary (right-hand) axis length (in feet), divided by the primary (left-hand) axis length (14 feet) and expressed as a percentage.

Mean groundwater levels calculated at each of the wells (based on Serfes 1991) were used to calculate hydraulic gradients between wells with all tidal components of groundwater level fluctuation removed from the data. The mean groundwater elevations listed in Table G-3 are all higher than the corresponding mean tide elevation (calculated from the Bellingham Bay data based on Serfes 1991) of 4.42 feet NAVD88. The higher groundwater levels are reflective of the difference in density between non-saline groundwater and seawater in Bellingham Bay and recharge to the landward aquifer.

TABLE G-2. TIME LAG AND STAGE RATIO AND MEAN GROUNDWATER LEVEL

Well ID	Screen Elevation (midpoint) (ft NAVD88)	Well Screen Length (ft)	Distance from Shoreline (ft)	Estimated Time Lag (mins)	Estimated Stage Ratio (%)	Mean GW Elevation (ft NAVD88)
TL-MW-11	-2.8	3	5	72	49 (Note 1)	5.18
TL-MW-16	-17.7	3	20	0	16	5.85
TL-MW-15	-13.4	3	25	28	15	5.54
HS-MW-6	0.9	15	21	100	15	5.96
TL-MW-13	-29.5	3	25	43	14	5.68
TL-MW-12	7.4	10	28.5	100	13	5.52
TL-MW-14	-14.4	3	38	172	11	5.49
TL-MW-9	5.6	11	20	64	17	6.20
HS-MW-15	2.6	3	20	115	12	6.18
TL-MW-1	2.7	15	27	216	4.3	5.20
CL-MW-103	5.9	12	250	Note 2	0.8	8.26
HS-MW-8	3.0	15	100	Note 2	0.71	6.44
HS-MW-4	7.8	10	210	Note 2	0.63	7.55

Notes:

[1] The lower portion of the groundwater cycle was truncated due to high placement of the sensor.

[2] The time lag could not be determined accurately for these more distant wells.

1.4. Findings

Conclusions based on the relationships between time lag and distance to shoreline and between stage ratio and distance to shoreline (Figure G-16a and G-16b) were as follows:

- The response to tidal forcing is confined to a relatively narrow strip parallel to the shoreline that is no more than 50 feet wide, with tidal fluctuations rapidly attenuating with increasing distance inland from the shoreline. Wells more than 50 feet from the shoreline showed very small tidal influence. The limited lateral extent of the tidal influence inland is generally indicative of an aquifer with low to moderate transmissivity.
- Within the tidal zone, the magnitude of the tidal response is small — generally between 10 and 20 percent of the full tidal range — suggesting that the response may be attenuated by leaky or unconfined aquifer conditions that tend to dissipate the tidal response more rapidly.
- The four deepest wells (TL-MW-13, TL-MW-14, TL-MW-15, and TL-MW-16) and one shallow well (TL-MW-12) responded more rapidly to tidal effects. The deeper wells generally show higher stage ratios than the shallower wells, which is consistent with a confined (or leaky confined) transient response with smaller storativity. The deeper well completions, especially those extending to the top of the bedrock, tend to show a shorter time lag than the shallower wells, which appear to more closely resemble an unconfined response as noted below.

- Four shallow wells (TL-MW-1, TL-MW-9, HS-MW-6, and HW-MW-15) and one deep well that is screened in the upper fill unit (TL-MW-11) had longer time lags, interpreted as a reflection of higher storativity for unconfined conditions. TL-MW-11 located behind the sheetpile wall has a more shallow well screen compared to the four deep wells; this well position may extend the flowpath of the tidal response. The extended time lag response at HS-MW-6, a shallow well located north of the sheetpile wall, in comparison to other wells at similar distances from the shoreline may be explained by the well log for HS-MW-6 which shows a silt and fine silty sand layer at the water table elevation which may create confined conditions local to this well.
- Using the Ferris approach (Ferris 1952), estimates for aquifer diffusivity (*T*/*S*) and hydraulic conductivity were calculated for each well individually, adjusting for the aquifer thickness and storativity based on an interpretation of soil conditions (Table G-3).

TABLE G-3. AQUIFER PROPERTIES BASED ON INDIVIDUAL WELL CONDITIONS

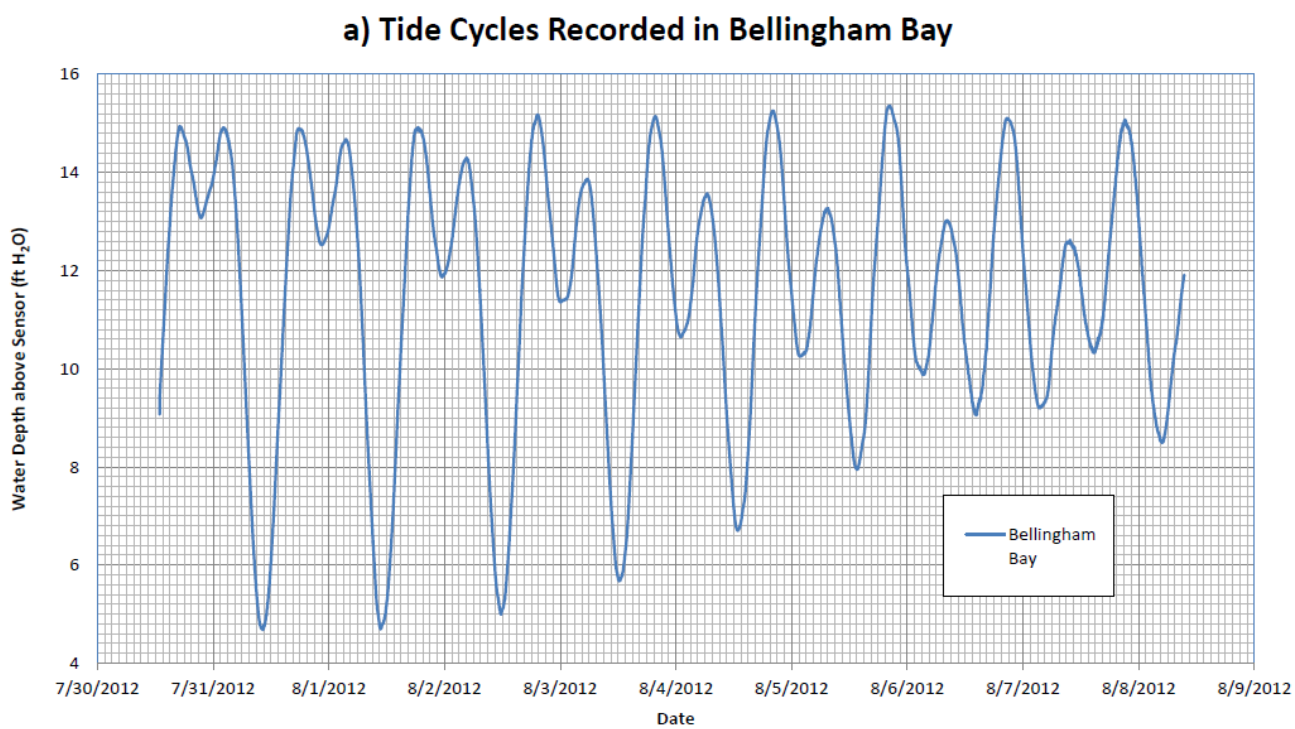
Well ID	Aquifer Thickness at Well (ft)	Assumed Aquifer Storativity (—)	Time Lag Method		Stage Ratio Method	
			Aquifer Diffusivity (ft^2/day)	Hydraulic Conductivity (ft/day)	Aquifer Diffusivity (ft^2/day)	Hydraulic Conductivity (ft/day)
Faster Responding Group of Monitoring Wells						
TL-MW-16	4.5	0.08	NA	NA	30.02	6.7
TL-MW-15	5.0	0.08	NA	NA	43.77	8.8
TL-MW-13	7.0	0.08	4,450	197	40.75	5.8
TL-MW-12	12.0	0.15	2,005	85.3	92.21	7.7
TL-MW-14	8.0	0.08	643	58.4	74.70	9.3
Slower Responding Group of Monitoring Wells						
TL-MW-11	8.0	0.15	119	6.6	21.93	2.7
HS-MW-6	5.0	0.15	1,089	66	57.90	11.6
TL-MW-9	20.0	0.15	2,410	107	60.20	3.0
HS-MW-15	3.0	0.15	747	32	42.05	14.0
TL-MW-1	17.0	0.15	386	35	34.79	2.0

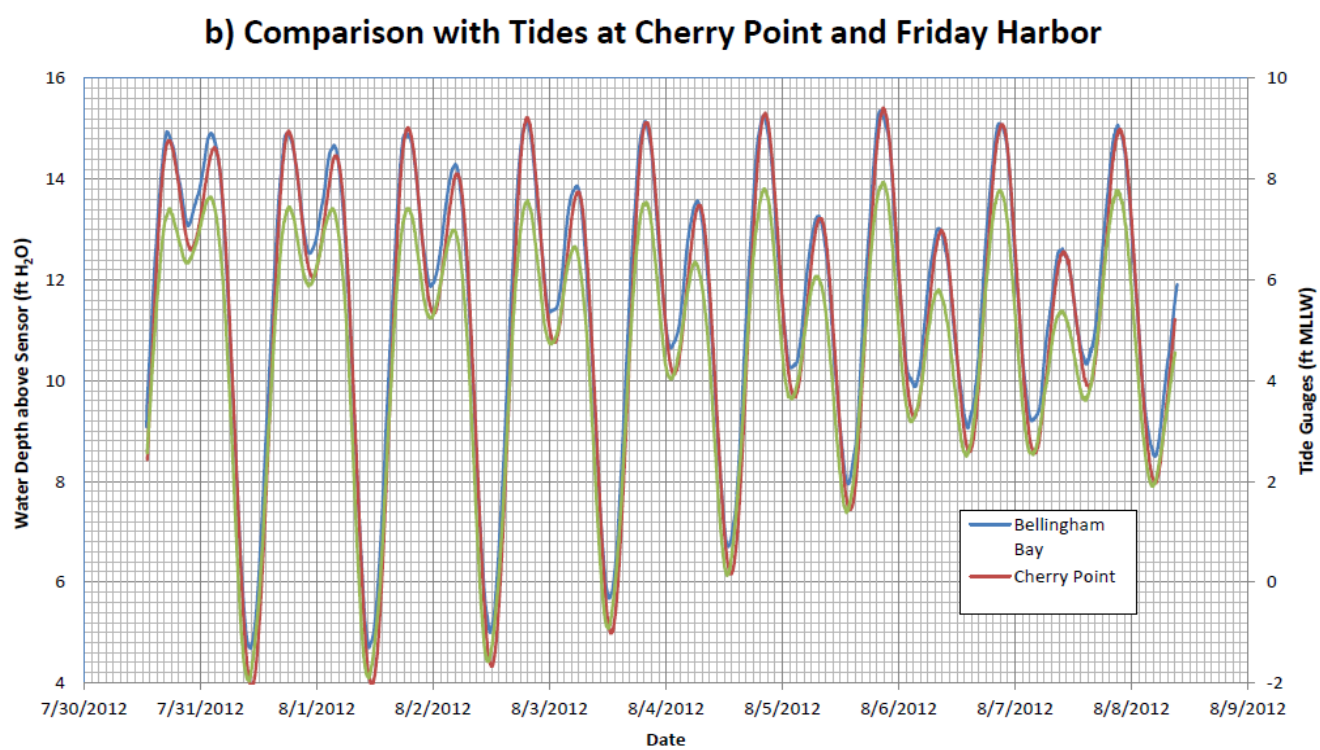
Notes:

NA is shown where the values resulting from this method of analysis appeared significantly anomalous. The storativity value used for the shallow wells was selected for TL-MW-12 due to the shallow well completion of TL-MW-12 in the Fill Unit.

None of these analysis assumptions produced a consistent set of results, although the values calculated from the stage ratio method appear to be more consistent than the time lag method; therefore, data from the time lag method were not considered further. The results are strongly dependent on assumptions made about aquifer storativity and aquifer thickness but wide disparity among some of the results suggests that the assumed analytical model which is predicated on idealized, uniform homogeneous confined aquifer conditions, does not fully match the data (Figure G-17).

The groundwater conditions at the Haley site are highly heterogeneous and clearly differ markedly from the idealized uniform homogenous confined aquifer conditions that form the basis for the Ferris (1952) method of analysis, which should (in theory) yield the same results for both time lag and stage ratio data (Figure G-17). A number of published technical papers on tidal studies in the literature acknowledge unexplained differences among the results between stage ratio and time lag data for the same group of monitoring wells, and some mention that aquifer heterogeneity may provide an explanation.





Legend

— Tidal curve

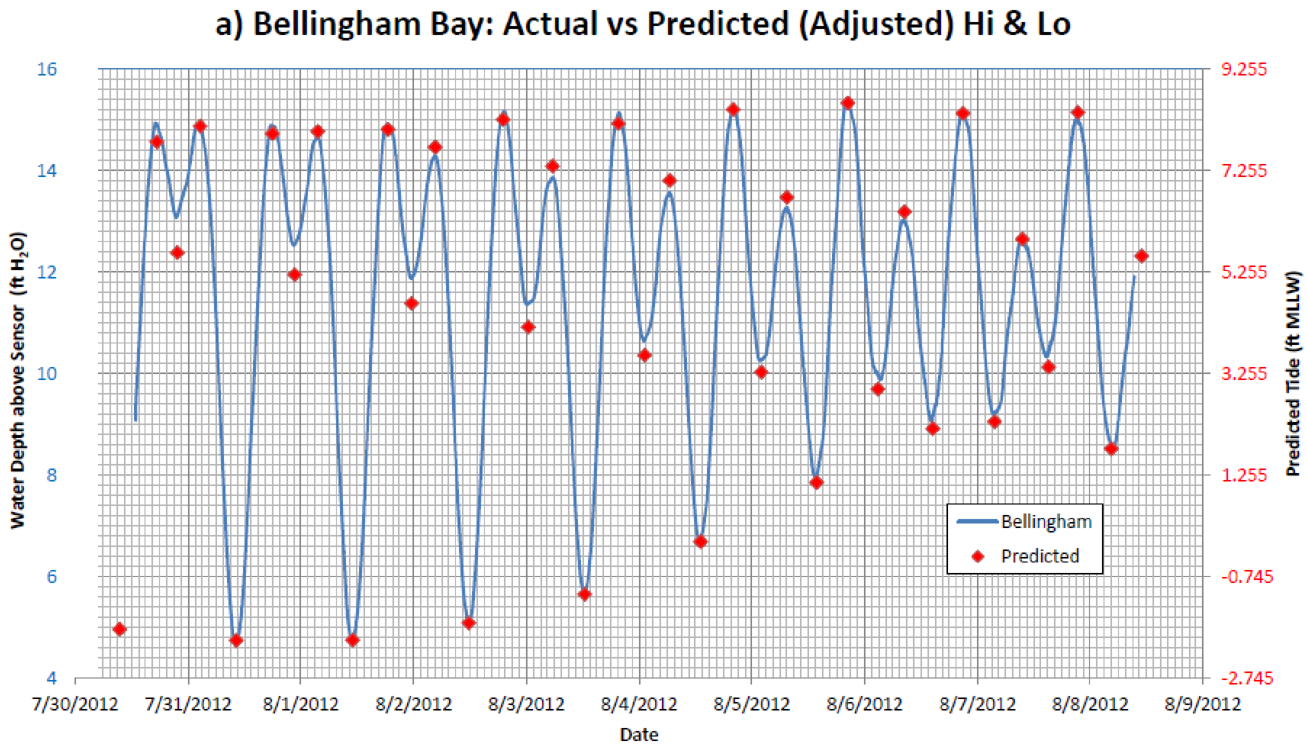
Bellingham Tide Data

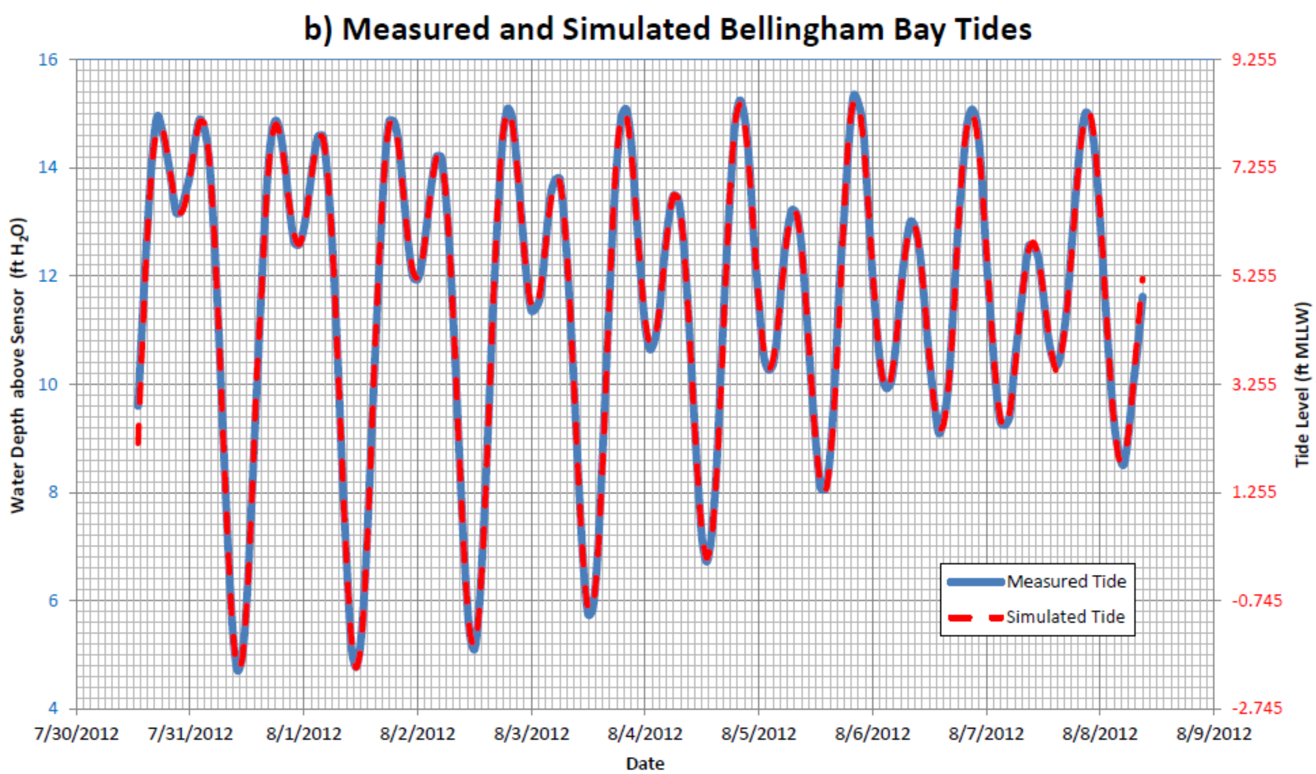
R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure G-1

projects/sites/0035611406/default.aspx mm/dd/yy





Legend

Tidal curve

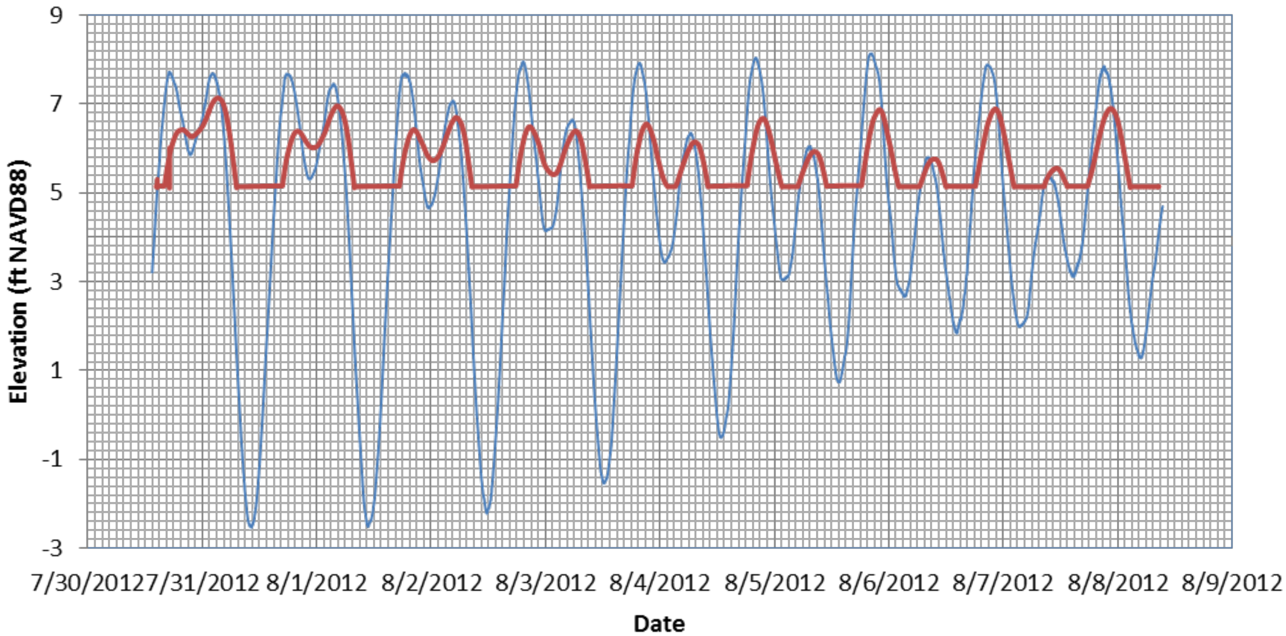
Bellingham Tide Analysis & Synthesis

R.G. Haley Site
Bellingham, Washington

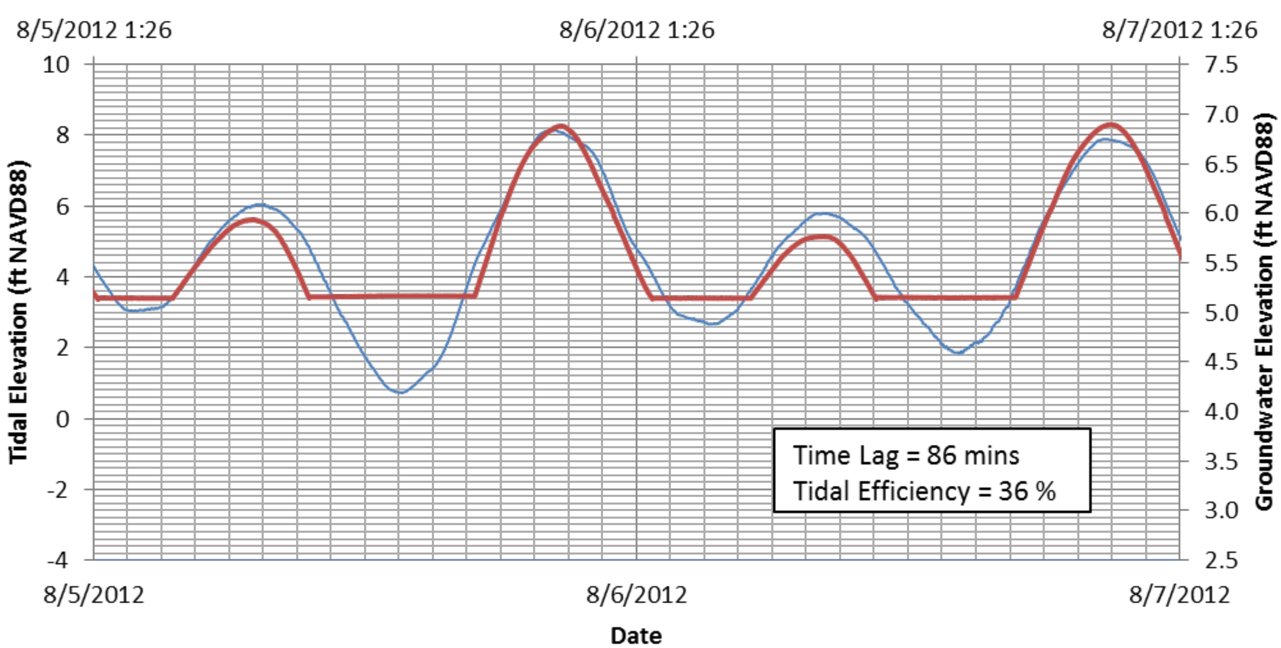
GeoEngineers

Figure G-2

(a) TL-MW-11 Hydrograph & Bellingham Tide



(b) Ferris Tidal Analysis of TL-MW-11



Legend

— Tidal curve.

— Measured groundwater elevation.

Tidal Analysis at TL-MW-11	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-3

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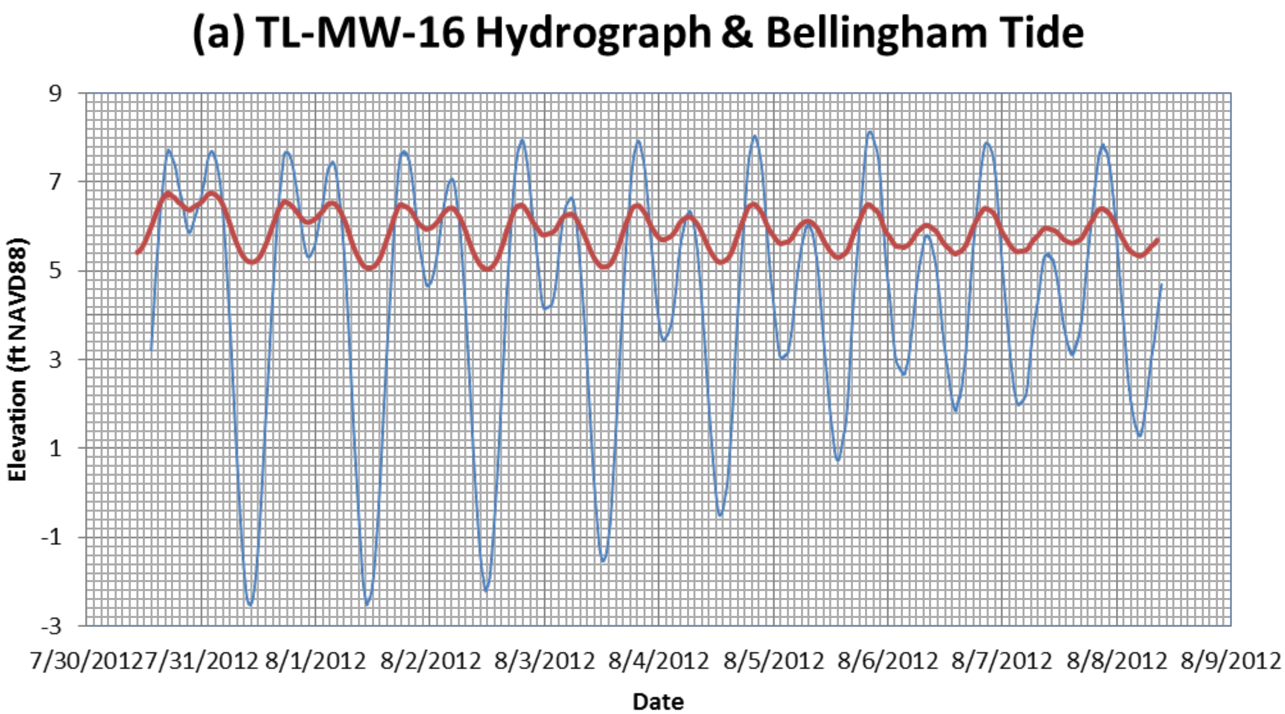
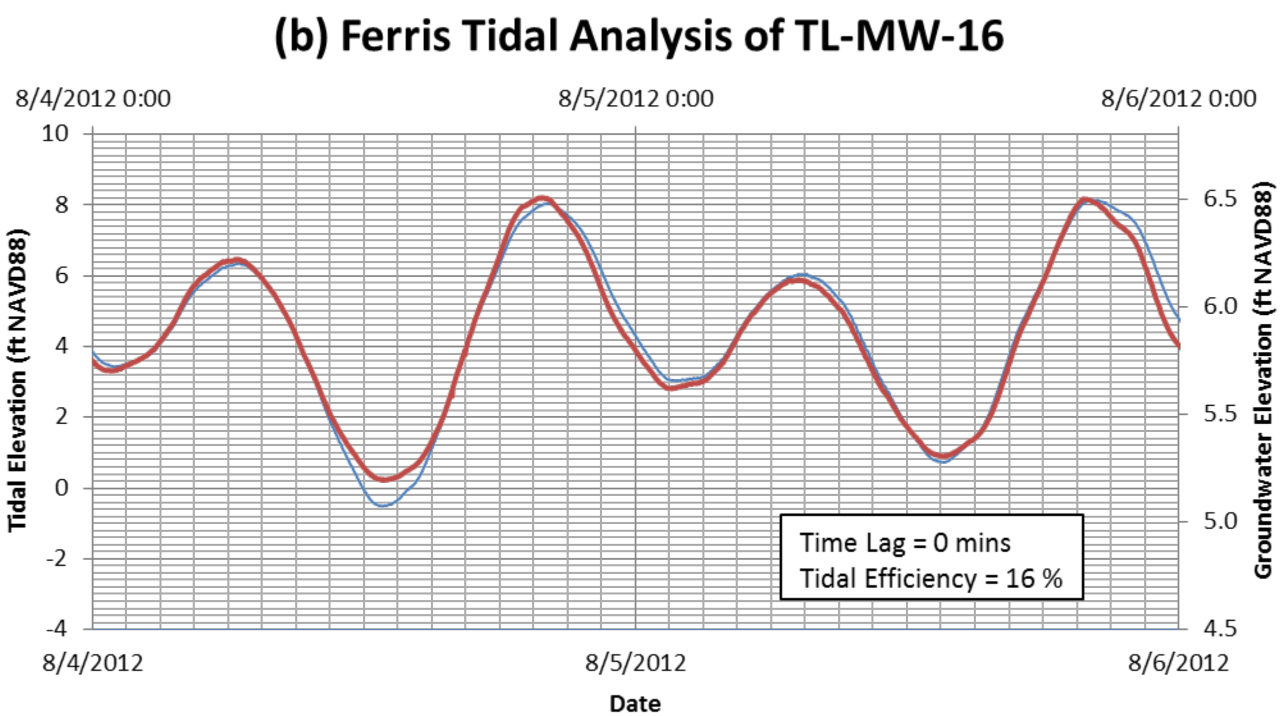
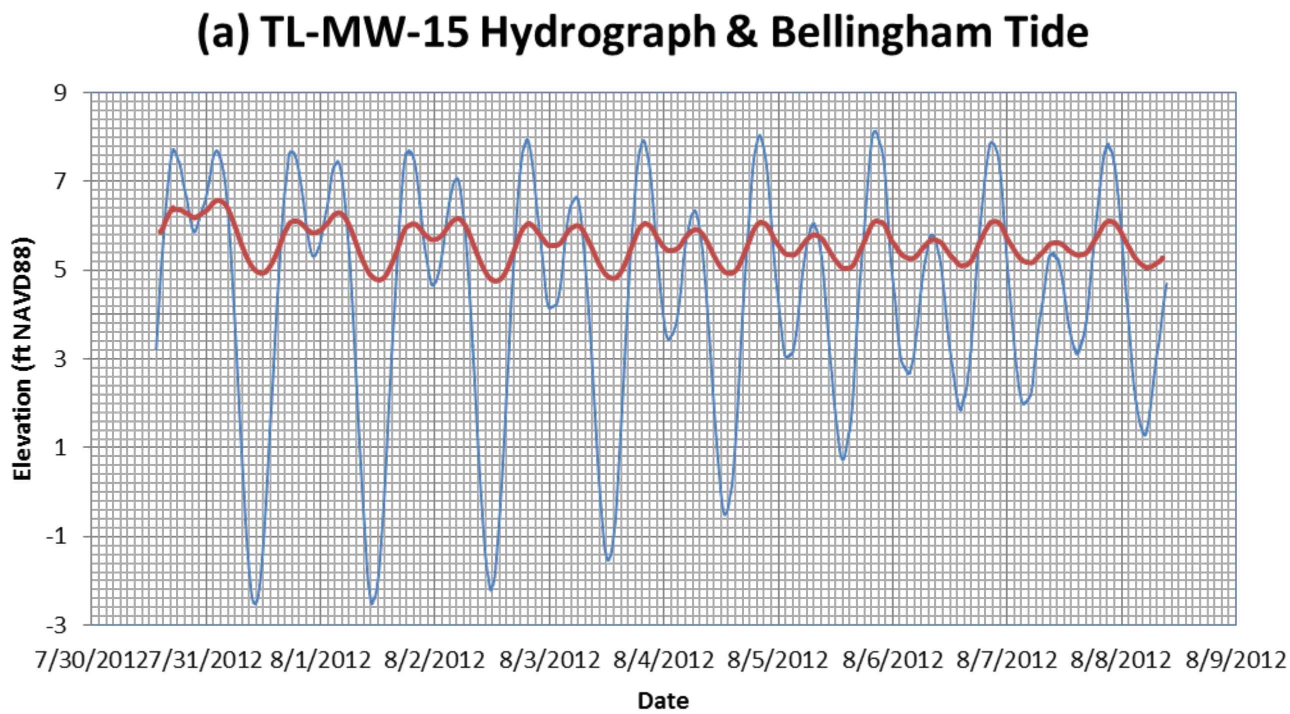


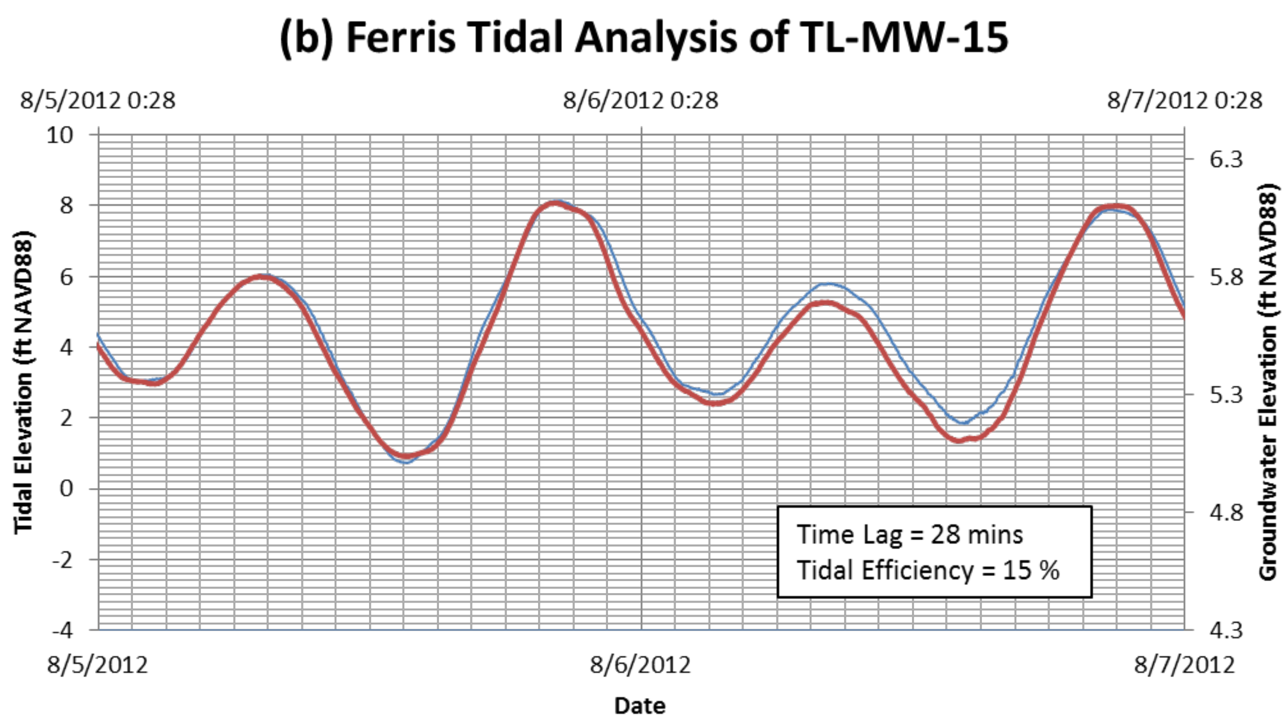


Legend

- Tidal curve.
- Measured groundwater elevation.

Tidal Analysis at TL-MW-16	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-4



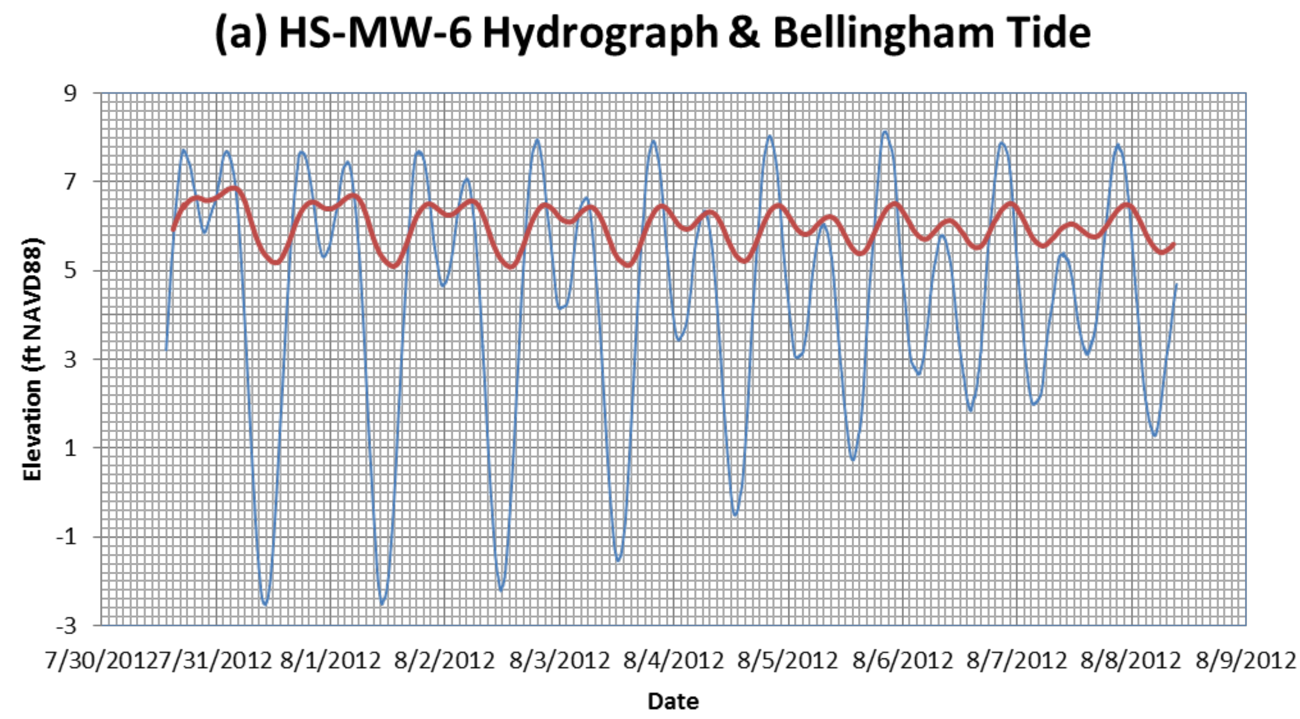


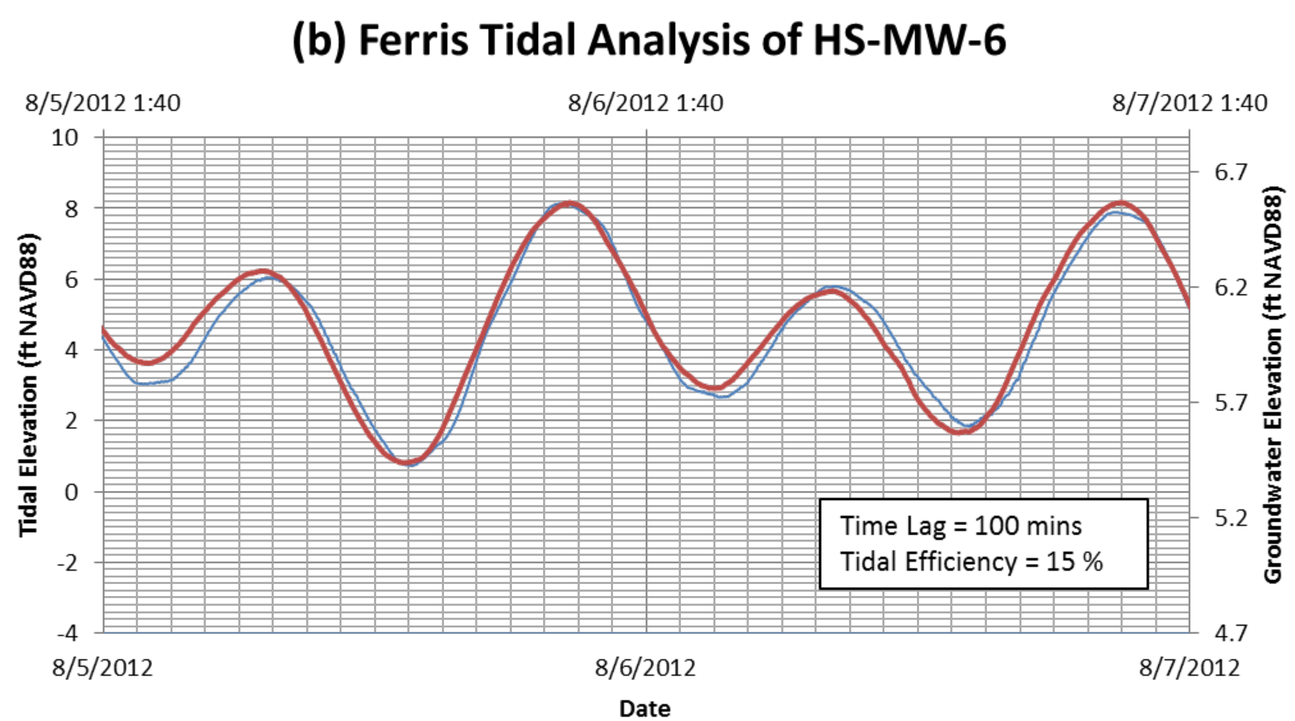
projects/sites/0035611406/default.aspx mm/dd/yy

Legend

- Tidal curve.
- Measured groundwater elevation.

Tidal Analysis at TL-MW-15	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-5

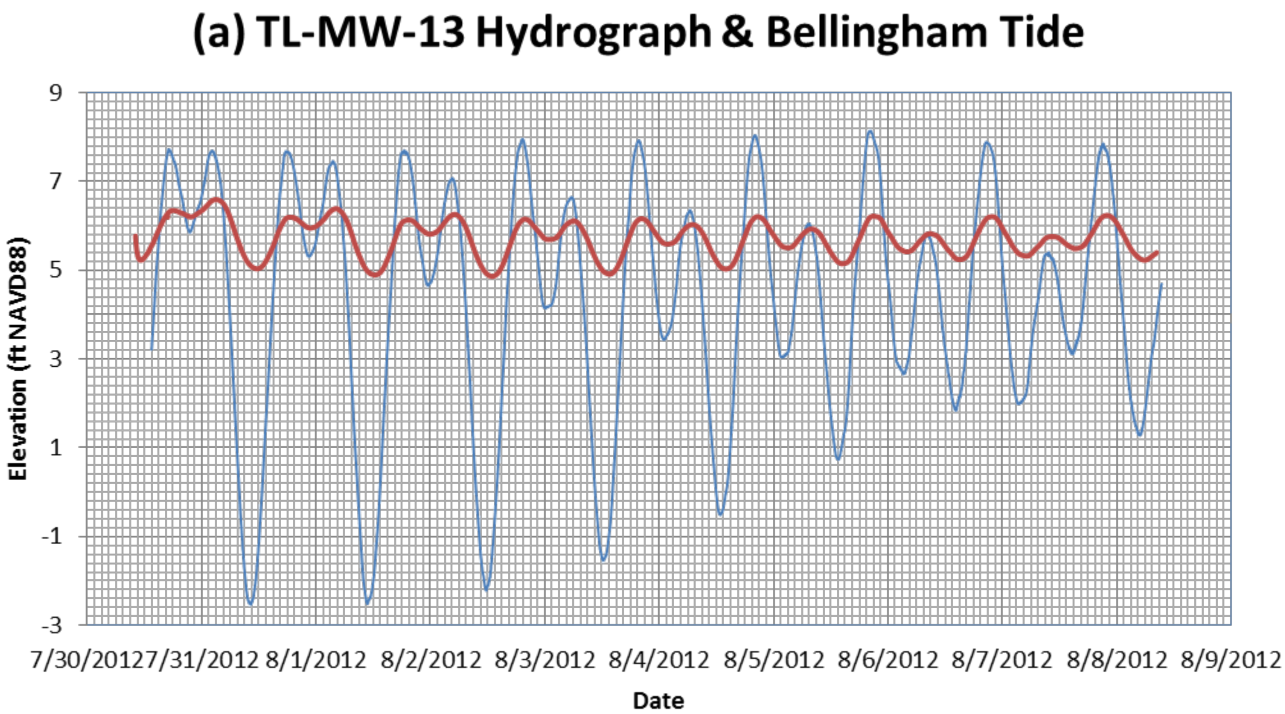


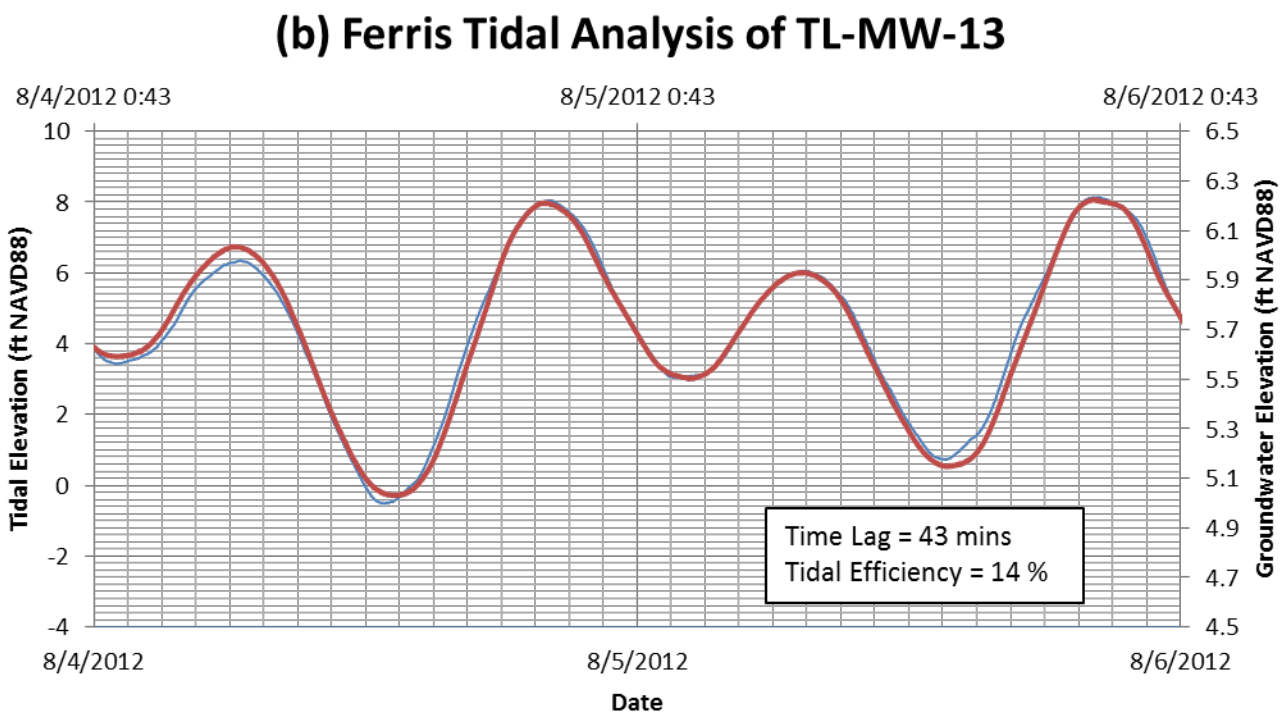


Legend

- Tidal curve.
- Measured groundwater elevation.

Tidal Analysis at HS-MW-6	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-6





Legend

— Tidal curve.

— Measured groundwater elevation.

Tidal Analysis at TL-MW-13	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-7

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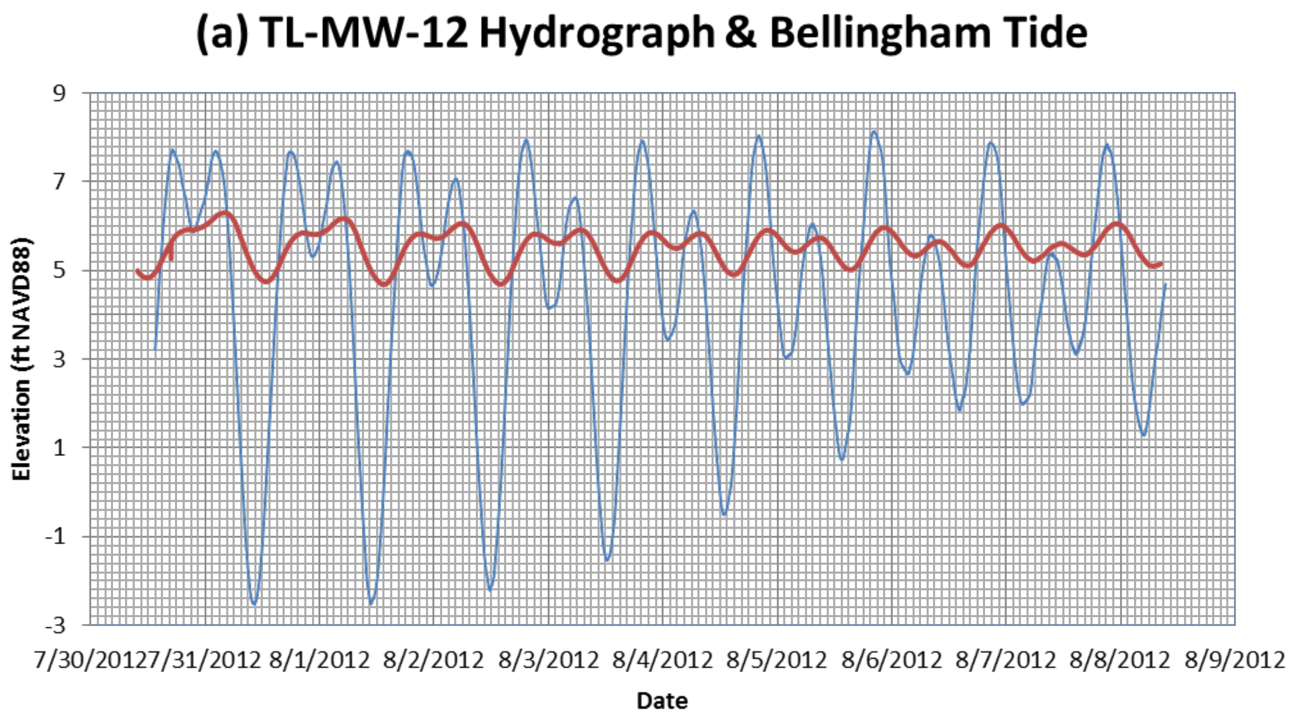
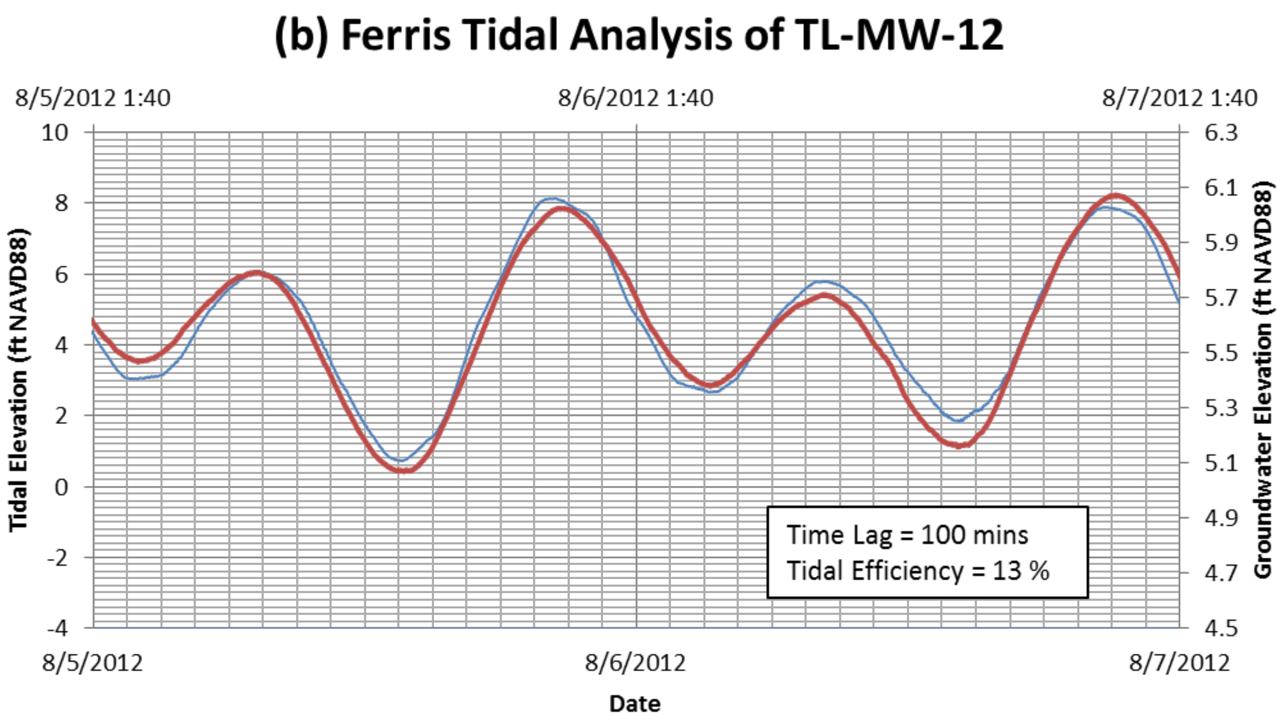




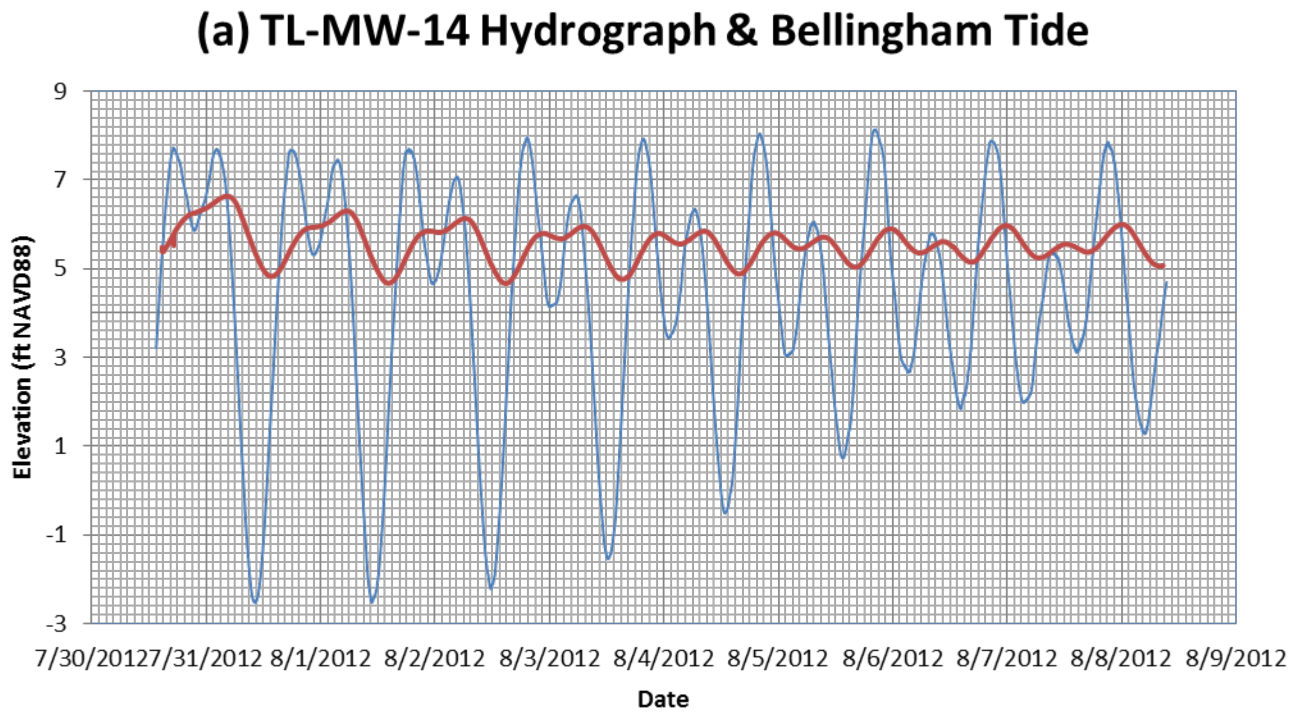
projects/sites/0035611406/default.aspx mm/dd/yy

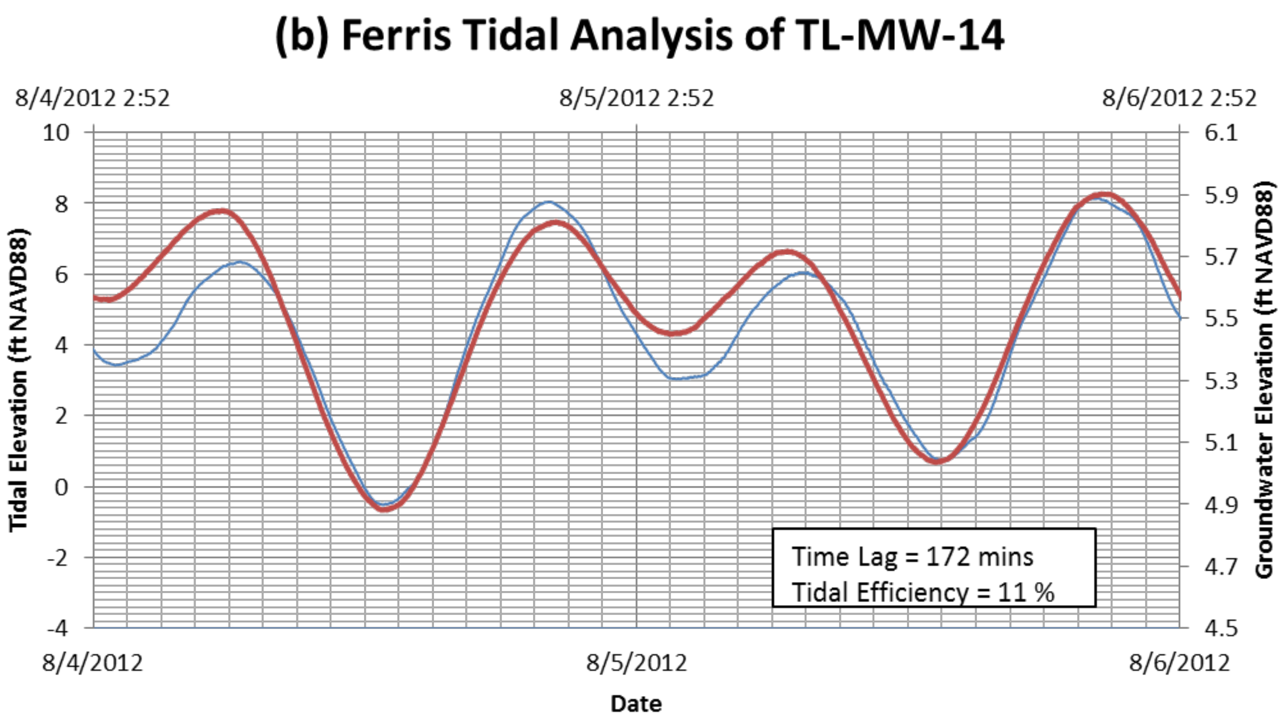
Legend

— Tidal curve.

— Measured groundwater elevation.

Tidal Analysis at TL-MW-12	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-8





Legend

— Tidal curve.

— Measured groundwater elevation.

Tidal Analysis at TL-MW-14

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure G-9

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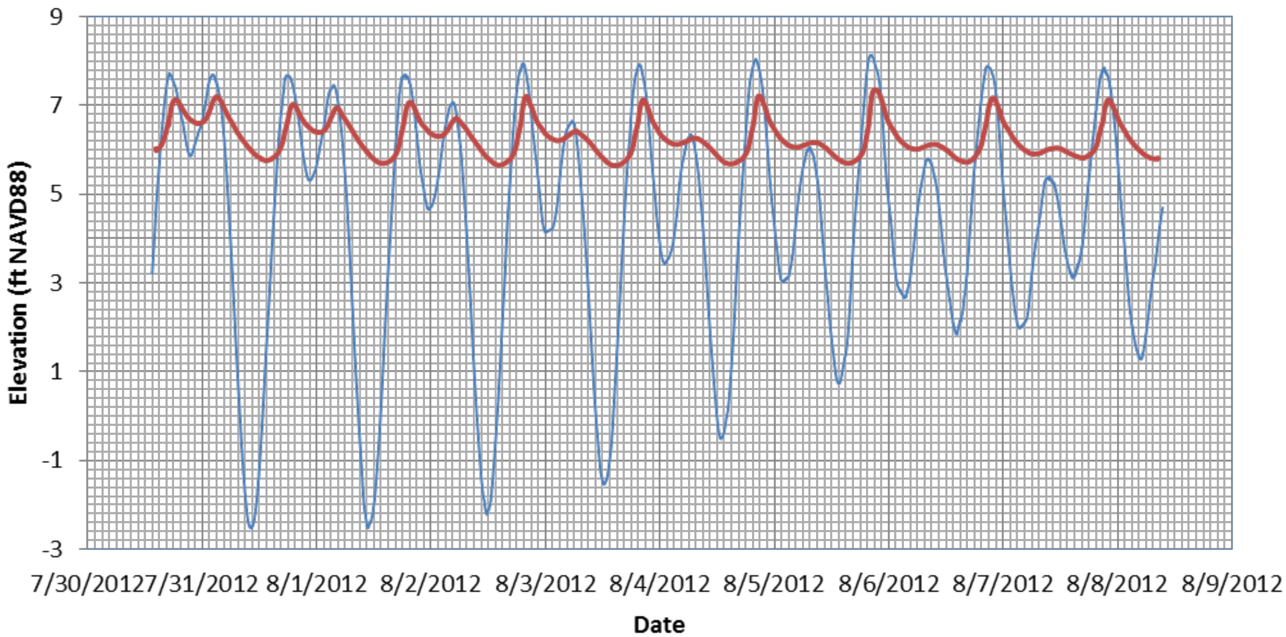
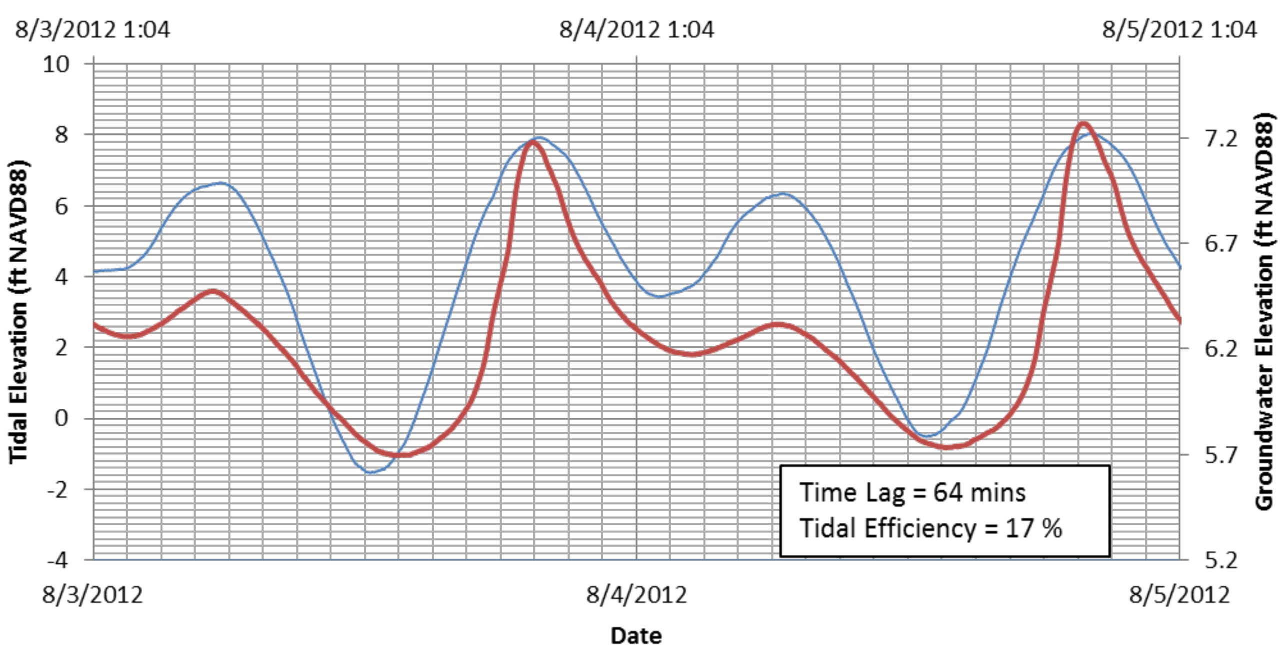
(a) TL-MW-9 Hydrograph & Bellingham Tide



(b) Ferris Tidal Analysis of TL-MW-9



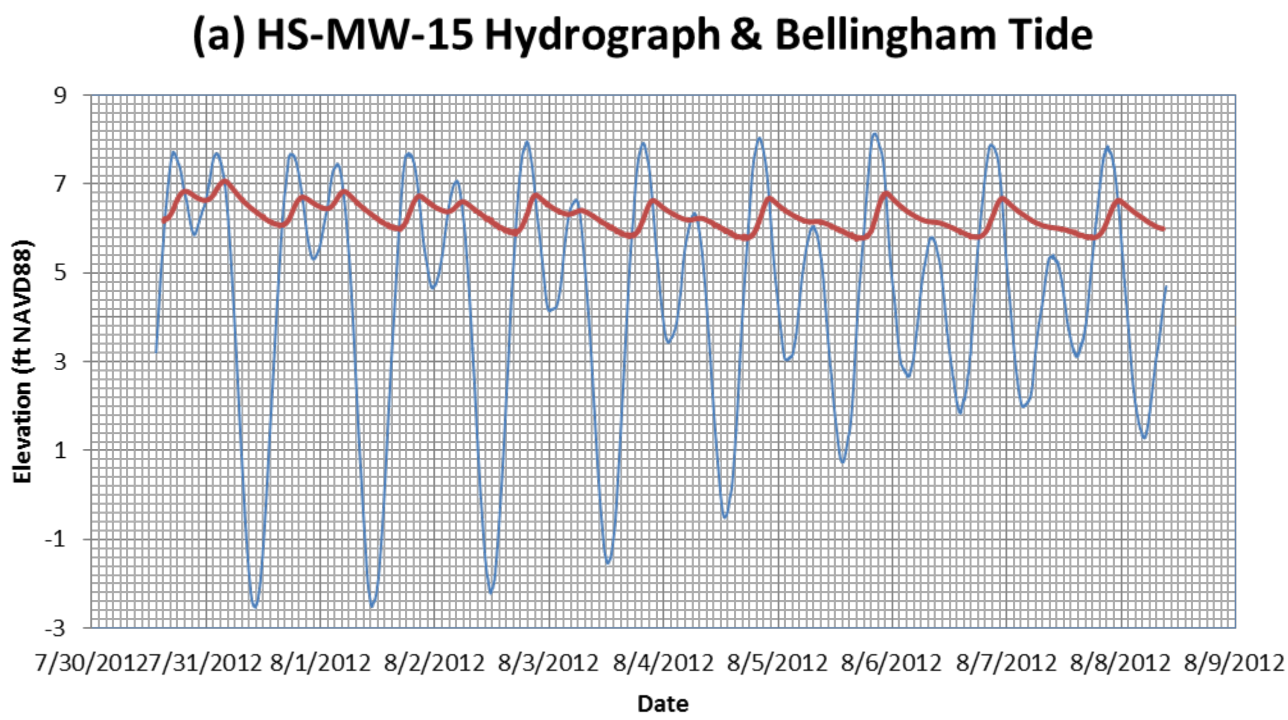
Legend

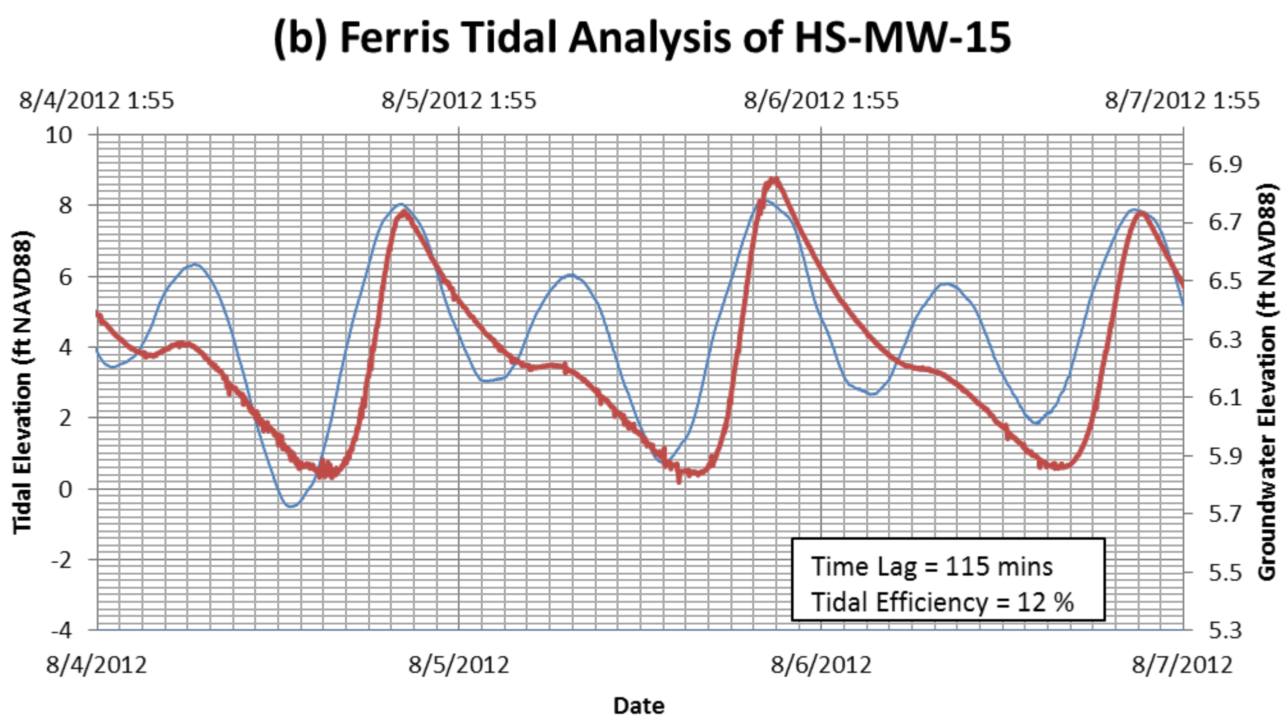
— Tidal curve.

— Measured groundwater elevation.

Tidal Analysis at TL-MW-9	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-10

projects/sites/0035611406/default.aspx mm/dd/yy





Legend

— Tidal curve.

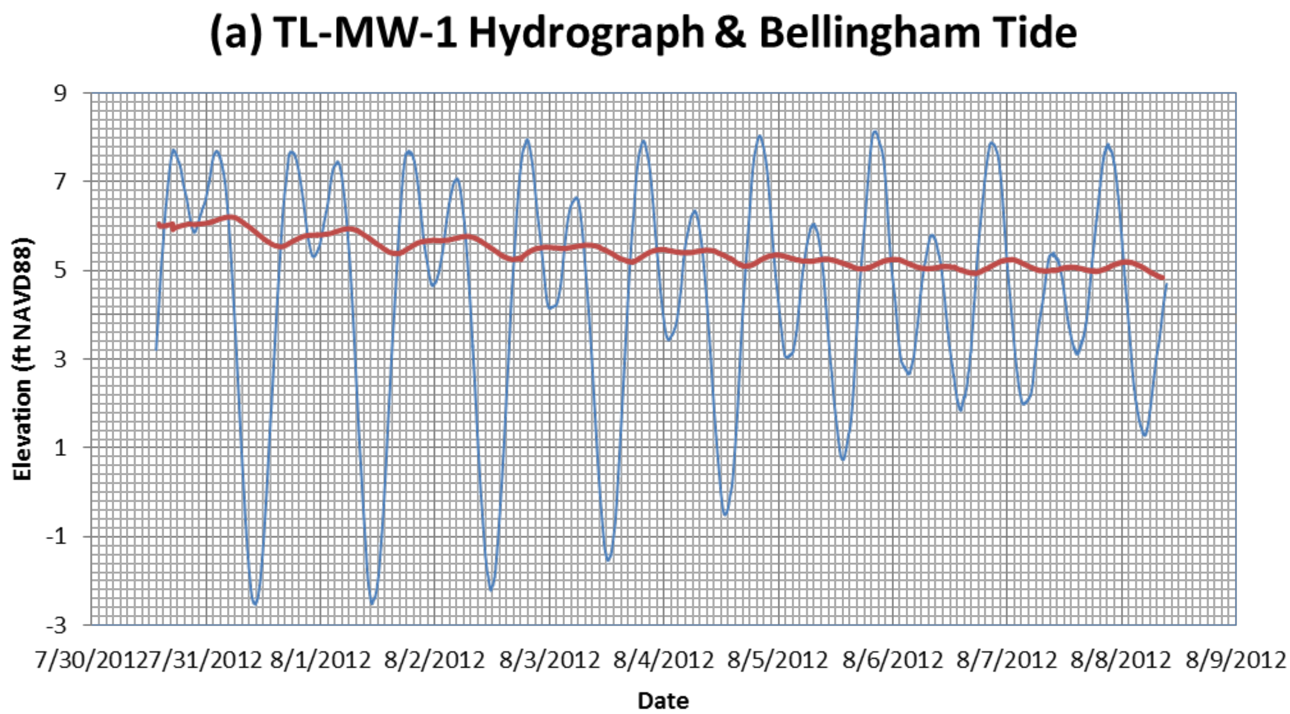
— Measured groundwater elevation.

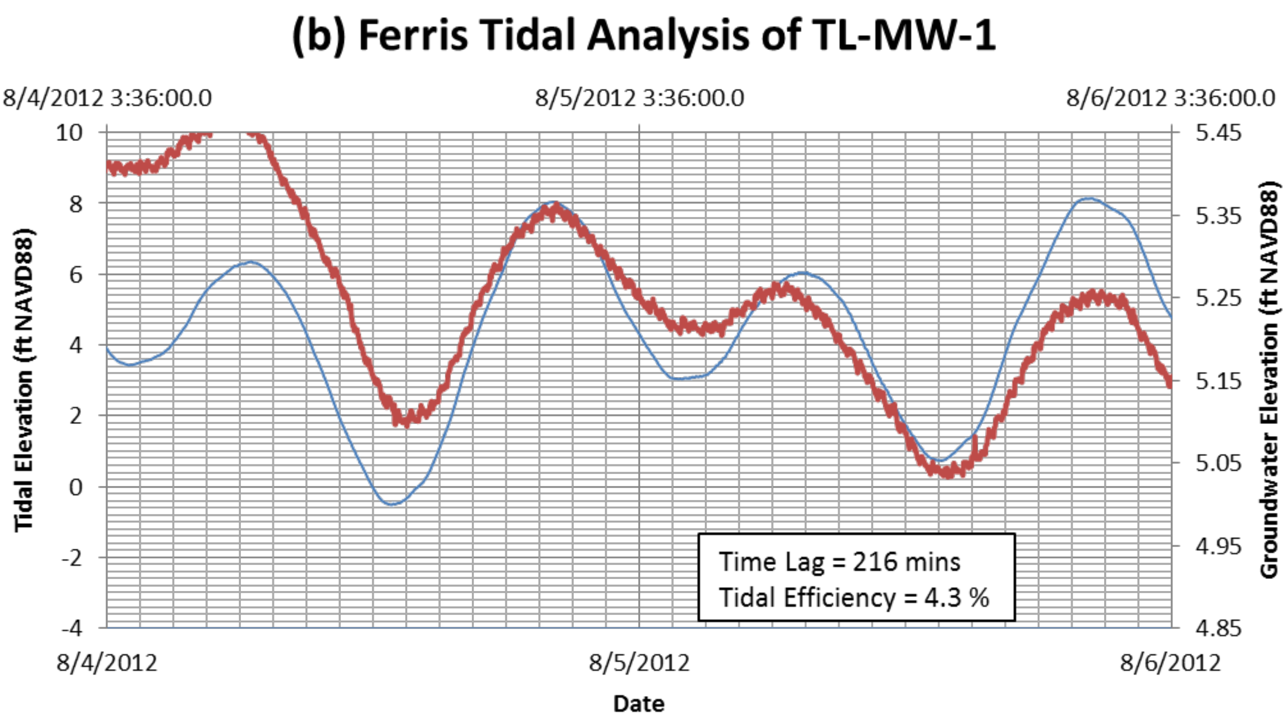
Tidal Analysis at HS-MW-15

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure G-11





Legend

- Tidal curve.
- Measured groundwater elevation.

Tidal Analysis at TL-MW-1	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-12

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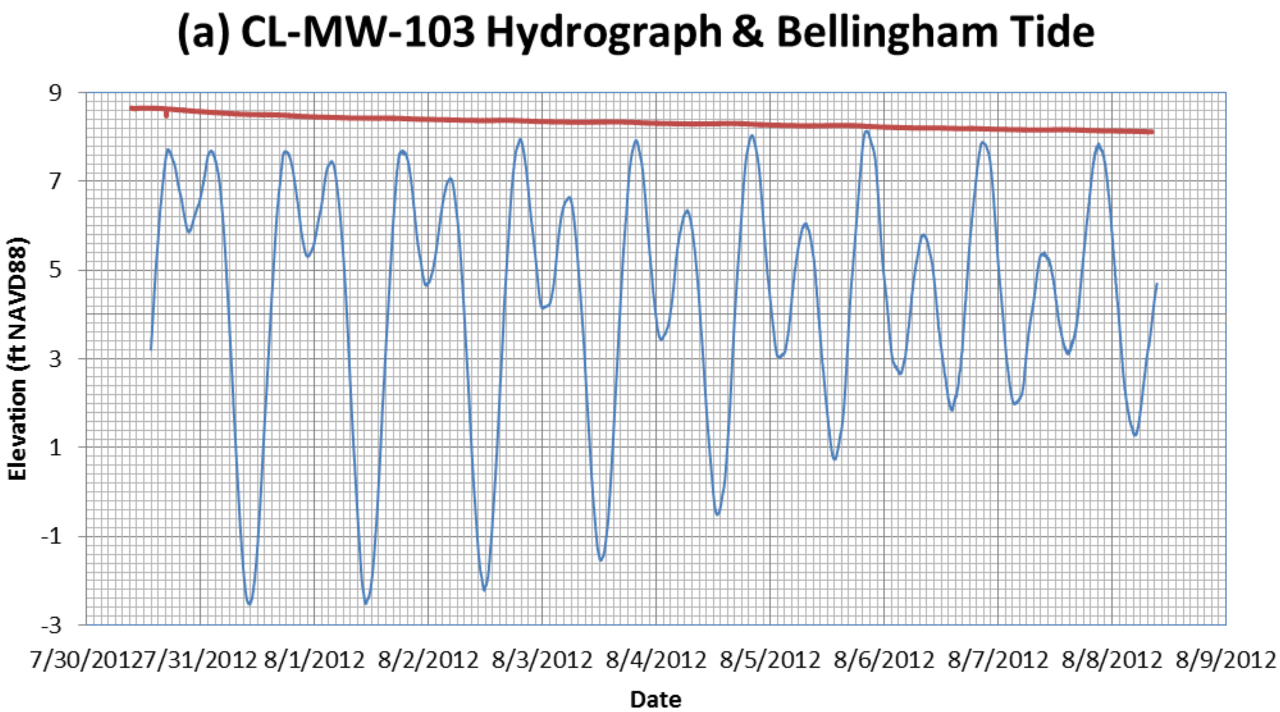
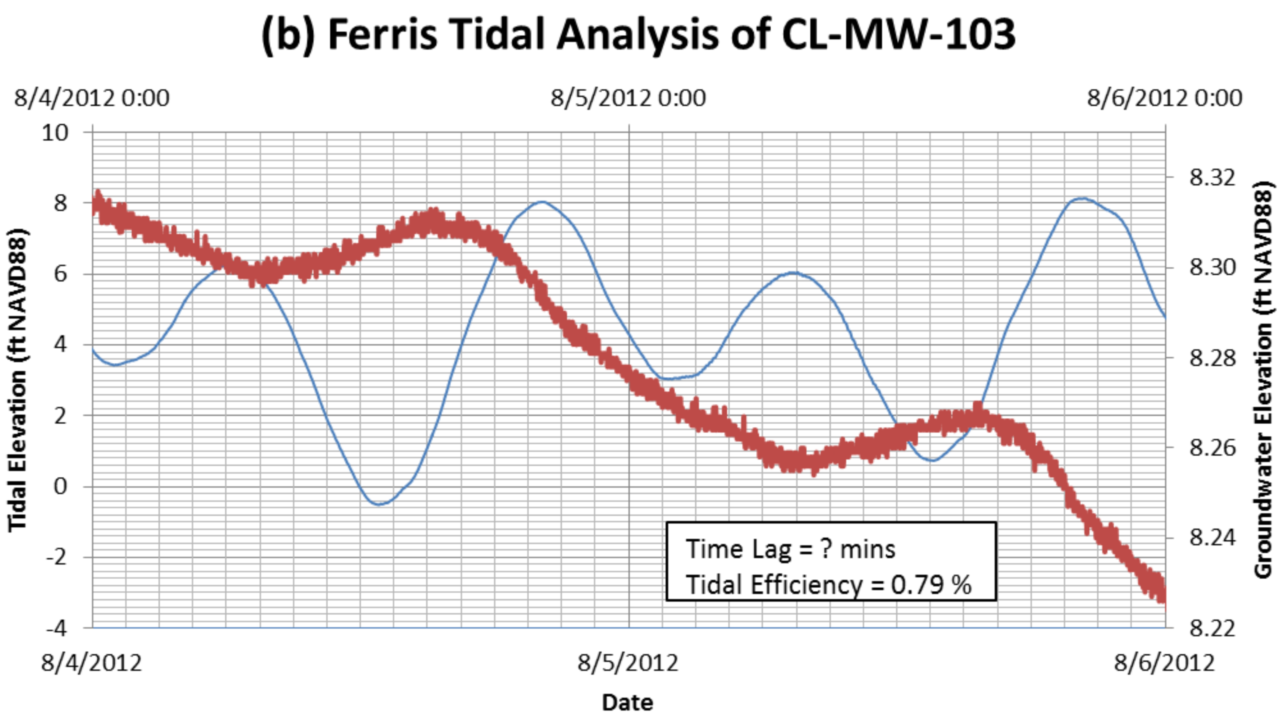


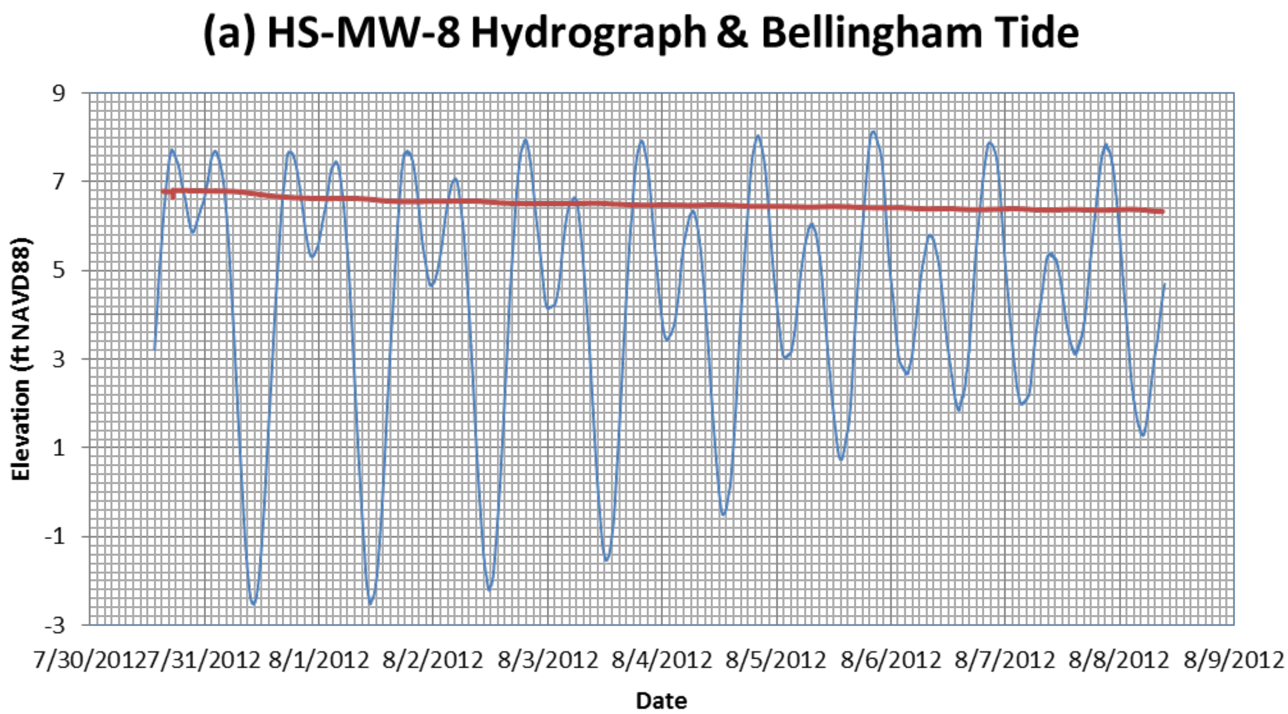


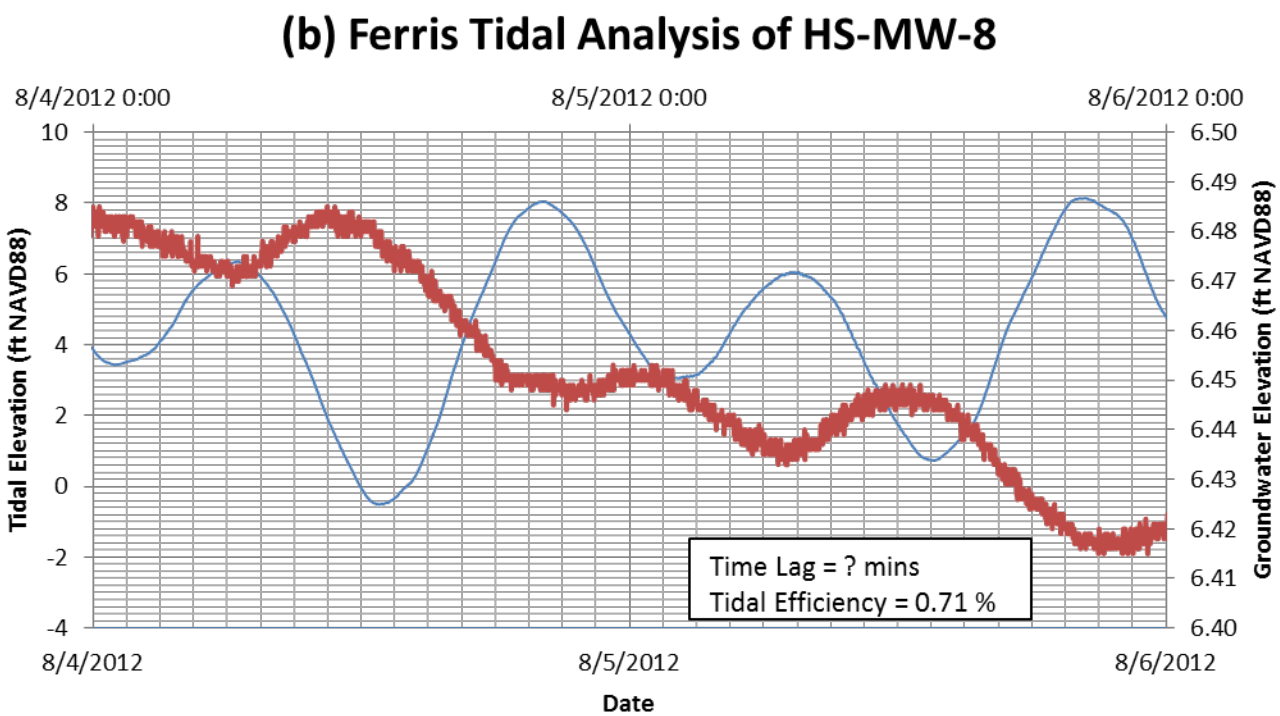
Legend

— Tidal curve.

— Measured groundwater elevation.

Tidal Analysis at CL-MW-103	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	**Figure G-13**





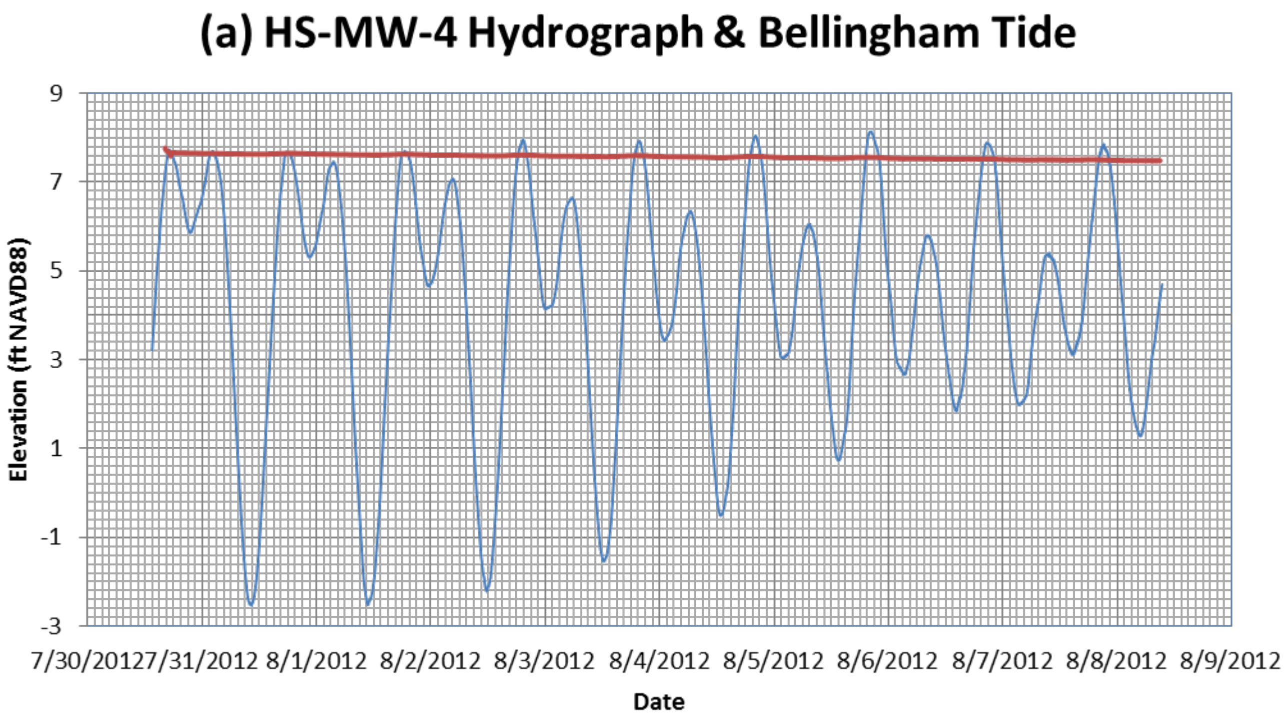
Legend

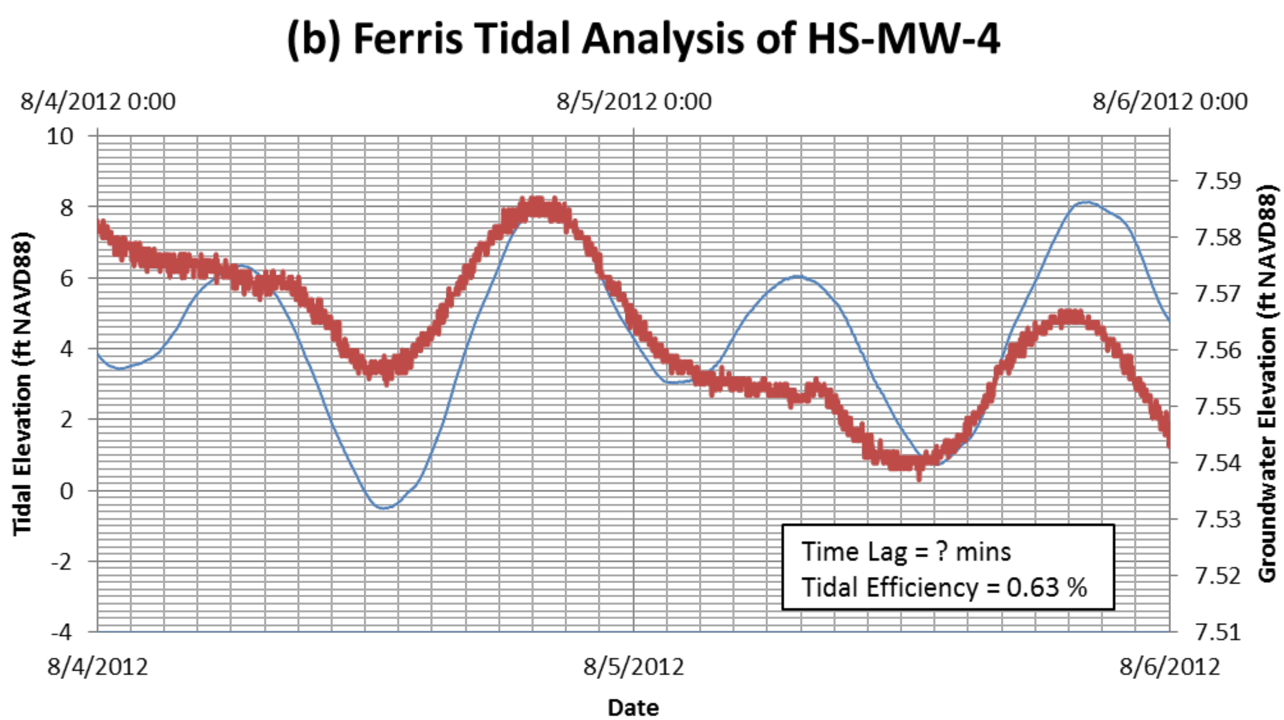
Tidal curve.

Measured groundwater elevation.

Tidal Analysis at HS-MW-8	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-14

projects/sites/0035611406/default.aspx mm/dd/yy

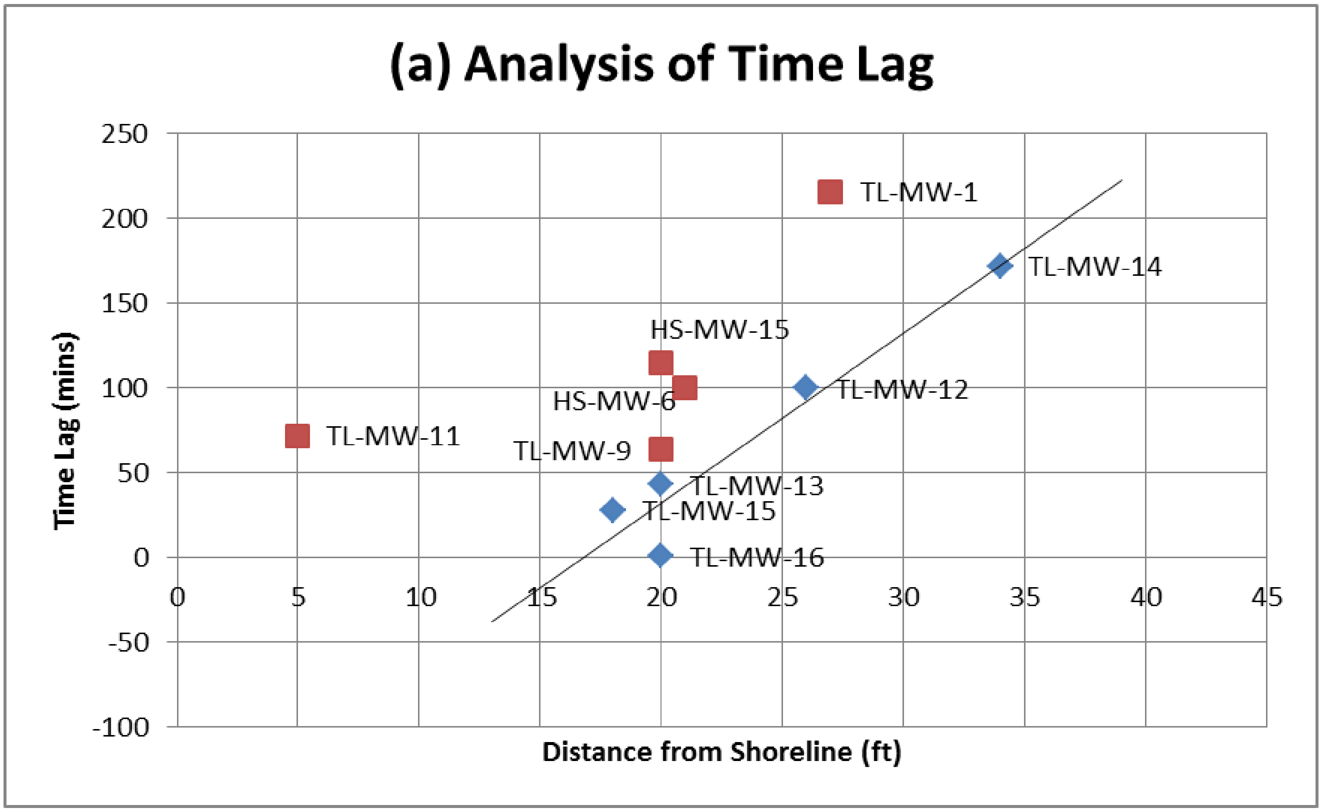


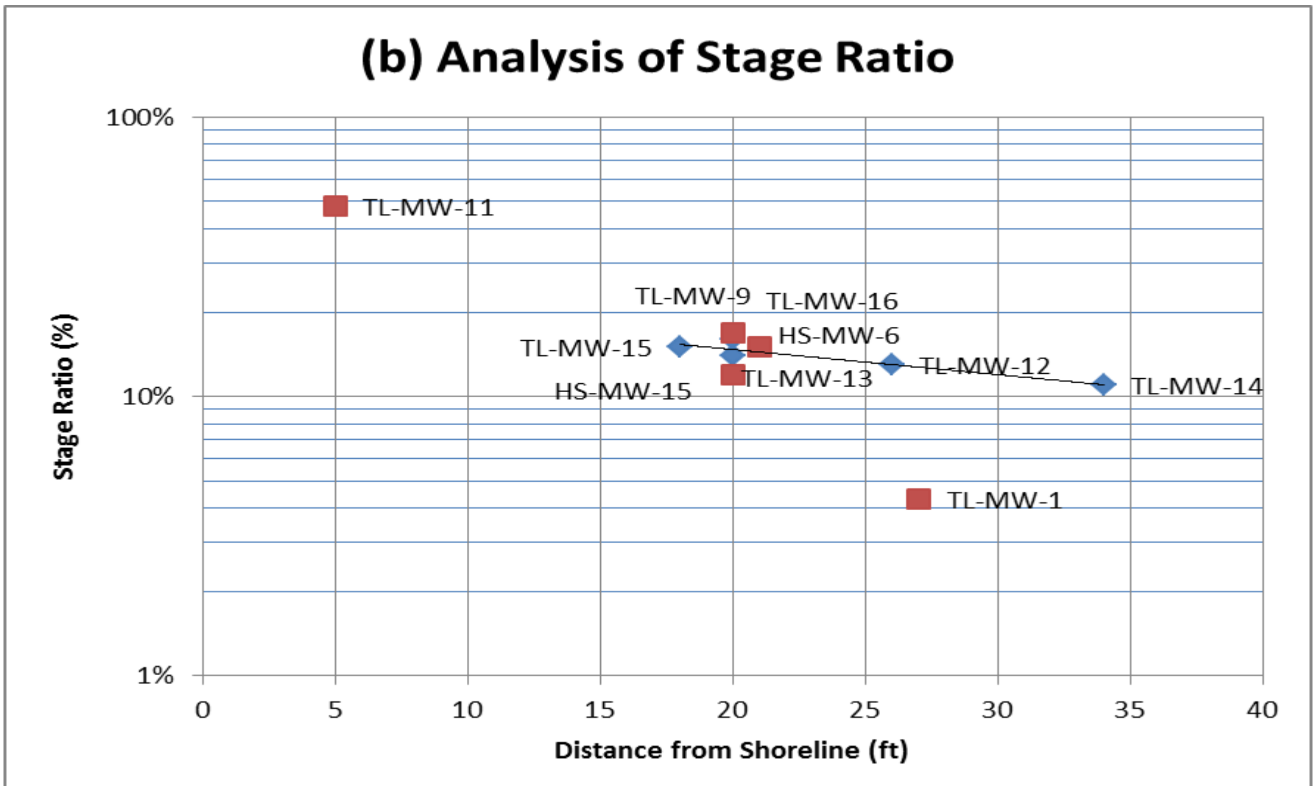


Legend

- Tidal curve.
- Measured groundwater elevation.

Tidal Analysis at HS-MW-4	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure G-15





Legend

- Faster Responding Wells
- Slower Responding Wells

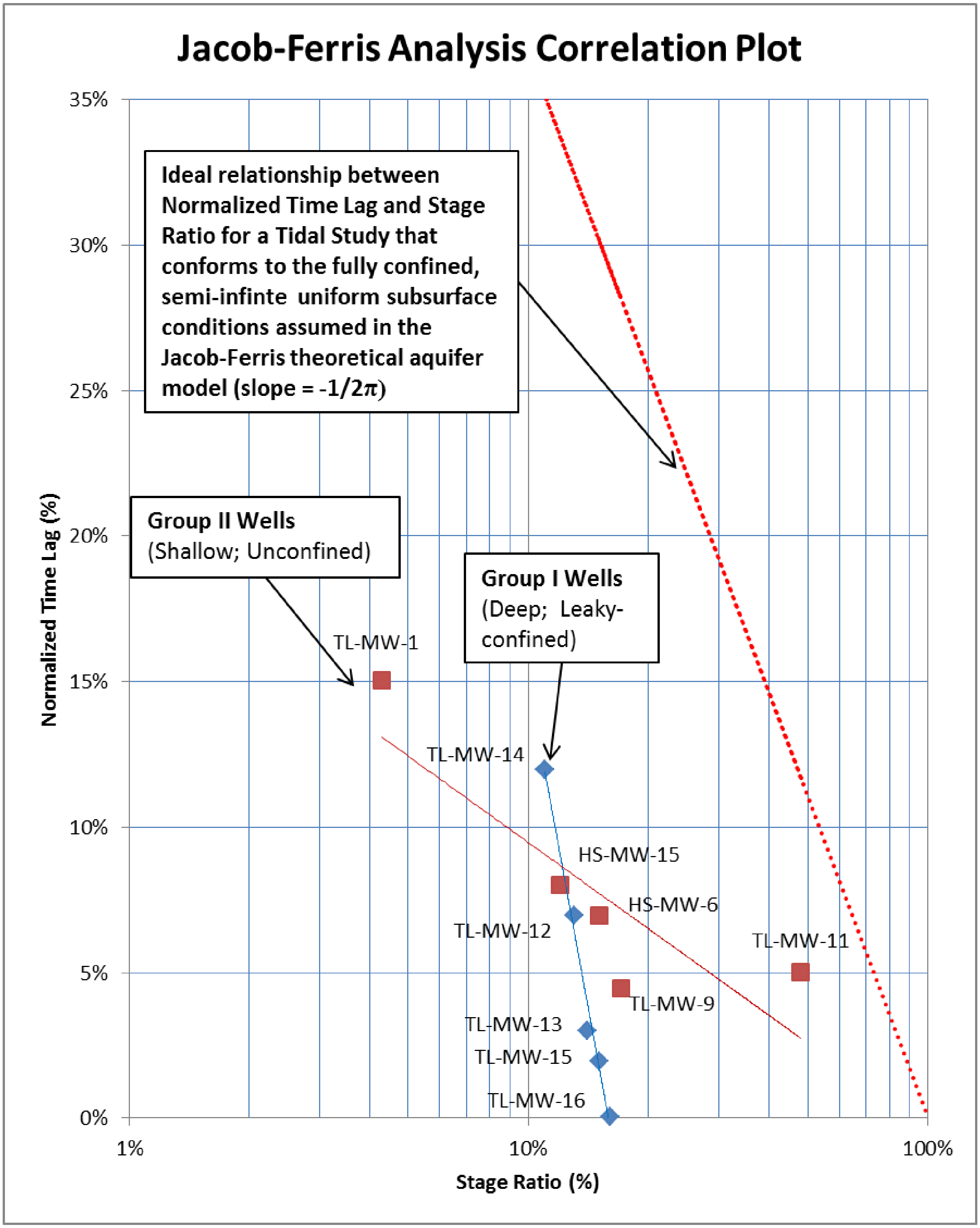
Well Response Comparison for Time Lag and Stage Ratio

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure G-16

projects/sites/0035611406/default.aspx mm/dd/yy



Legend

Faster Responding Wells

Slower Responding Wells

Well Response Compared to Homogenous Uniform Conditions

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure G-17

projects/sites/0035611406/default.aspx mm/dd/yy

APPENDIX H
Groundwater Model Figures and Tables

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APPENDIX H. GROUNDWATER MODEL FIGURES AND TABLES

LIST OF TABLES

LIST OF FIGURES

Table H-1

PEST Generated Hydraulic Conductivity Statistics

R.G. Haley Site

Bellingham, Washington

Statistic	Field Measurements	PEST Predicted
Minimum Hydraulic Conductivity (ft/d)	1.2	0.1
Maximum Hydraulic Conductivity (ft/d)	27.7	120.3
Range Hydraulic Conductivity (ft/d)	26.5	120.2
Arithmetic Mean Hydraulic Conductivity (ft/d)	10.5	6.9
Geometric Mean Hydraulic Conductivity (ft/d)	7.2	4.9
Median Hydraulic Conductivity (ft/d)	7	7.5
Standard Deviation Hydraulic Conductivity (ft/d)	8.8	7.0

Table H-2

Calibration Statistics for July 17, 2012 Measured Head Elevations

R.G. Haley Site

Bellingham, Washington

Calibration Well Identification #	Observed Head (ft)	Computed Head (ft)	Head Residual (ft)
CL-MW-103	9.10	8.92	0.18
CL-MW-1H	9.22	9.21	0.01
HS-MW-13	7.18	7.24	-0.06
HS-MW-17	7.59	7.50	0.09
HS-MW-4	7.82	7.90	-0.08
HS-MW-5	7.38	7.38	0.00
HS-MW-7	7.29	7.29	0.00
HS-MW-9	7.62	7.65	-0.03
TL-MW-1	6.37	6.36	0.01
CL-MW-101	8.30	8.33	-0.03
CL-MW-102	8.76	8.68	0.08
HS-MW-19	8.66	8.79	-0.13
Statistic			
Mean Residual Head (ft)			0.0016
Mean Absolute Residual Head (ft)			0.0590
Root Mean Squared Residual Head (ft)			0.0794

Notes:

Heads relative to NAVD 88

Table H-3

Comparison of Predicted to Modeled Head Elevations for May 3, 2012 and August 9, 2012

R.G. Haley Site

Bellingham, Washington

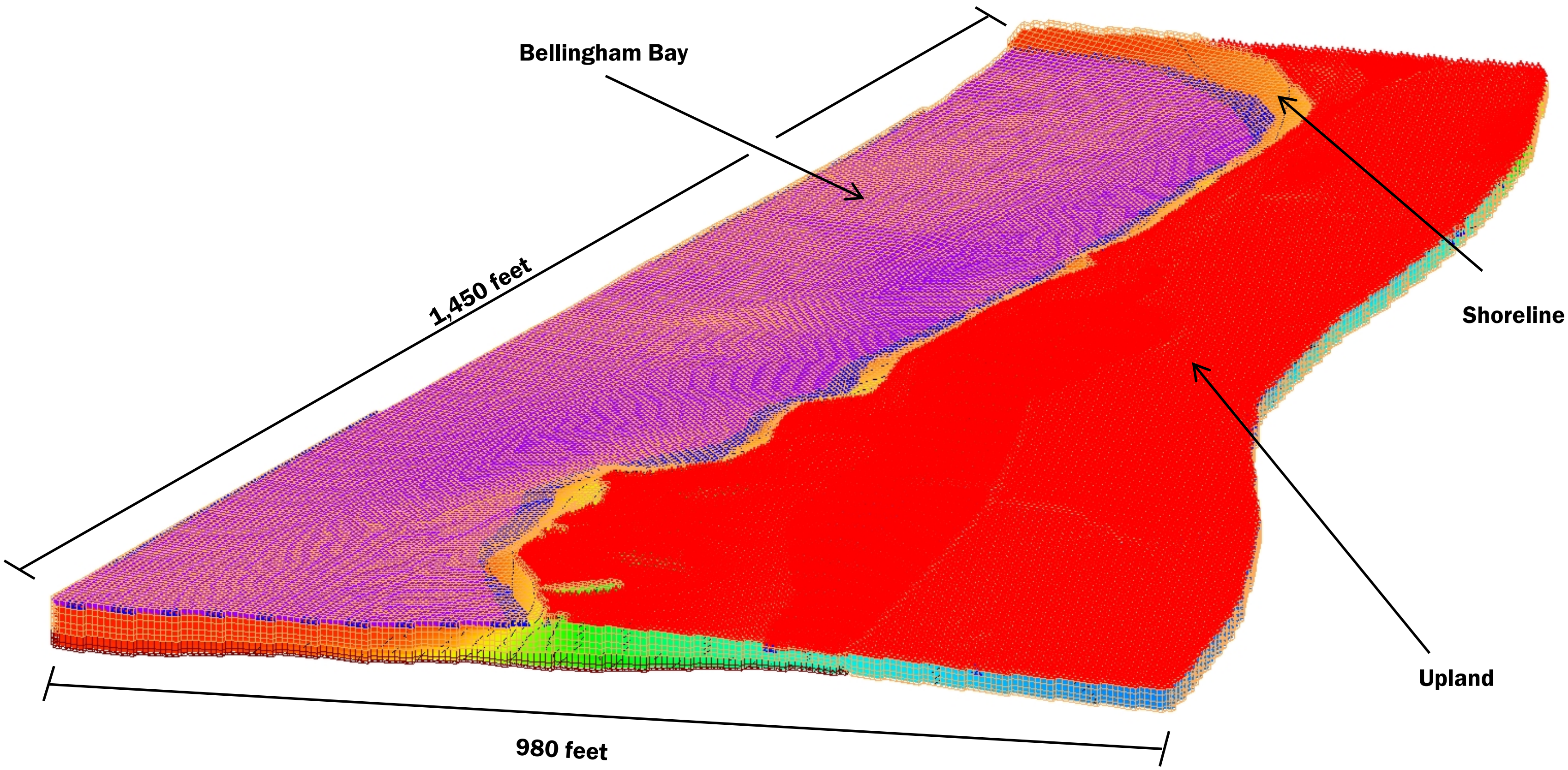
	Calibration Well Identification #												Average Absolute Residual (ft)
	CL-MW-1H	CL-MW-101	CL-MW-102	CL-MW-103	TL-MW-1	HS-MW-4	HS-MW-5	HS-MW-7	HS-MW-9	HS-MW-13	HS-MW-17	HS-MW-19	
May 3, 2012 Measured Head (ft)	11.64	NA	NA	NA	7.21	8.73	8.32	8.4	8.26	8.42	NA	NA	
May 2012 Computed Head (ft)	10.71	9.61	10.06	10.36	7.01	9.07	8.36	8.25	8.71	8.16	8.51	10.17	
Residuals (ft)	0.93	NC	NC	NC	0.2	-0.34	-0.04	0.15	-0.45	0.26	NC	NC	0.34
August 9, 2012 Measured Head (ft)	8.44	7.67	8.44	8.32	5.88	7.46	6.87	6.65	6.94	6.59	6.92	8	
August 2012 Computed Head (ft)	8.72	7.91	8.22	8.45	6.14	NC	NC	6.95	7.29	6.93	7.16	NC	
Residuals (ft)	-0.28	-0.24	0.22	-0.13	-0.26	NC	NC	-0.3	-0.35	-0.34	-0.24	NC	0.27

Notes:

NA = Not Available

NC = Not Calculated

Heads relative to NAVD 88



Notes:

Red = Upland

Tan = Shoreline

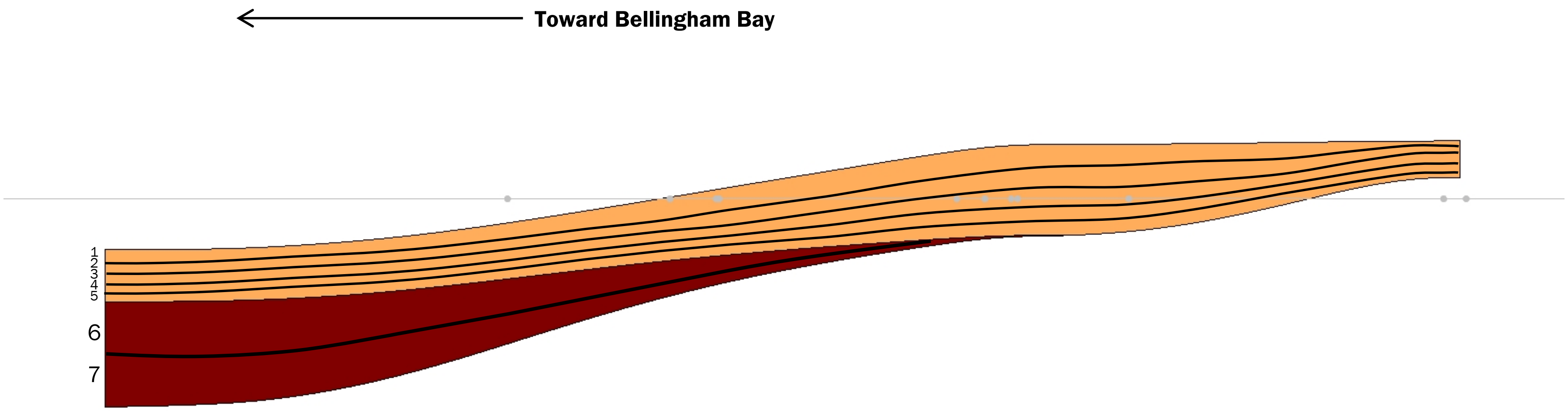
Purple = Bellingham Bay

Three-Dimensional Model Grid

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure H-1



Notes:

Layers 1 through 5 = Beach Fill

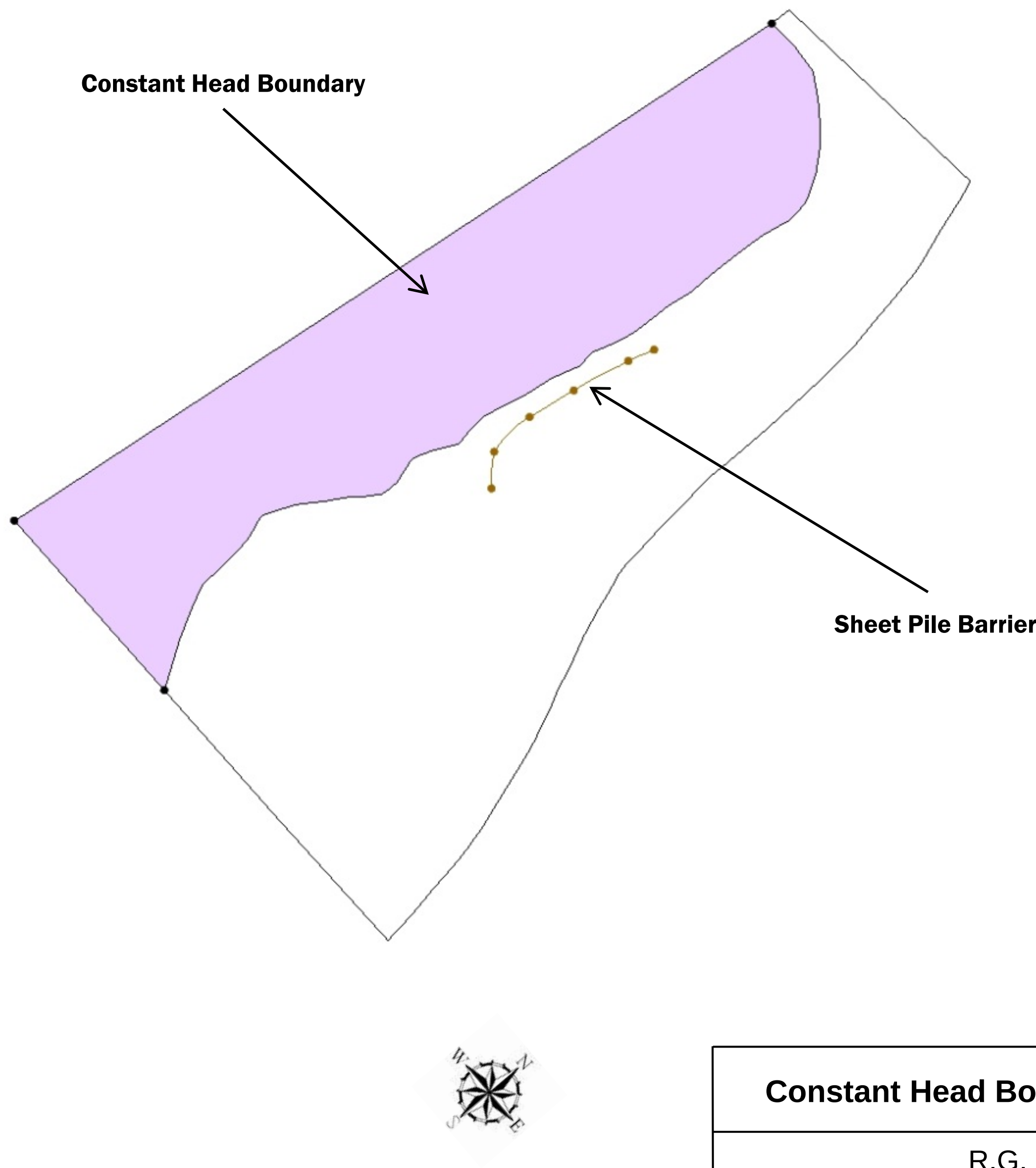
Layers 6 through 7 = Native Marine

Typical Seven Layer Grid Cross Section

R.G. Haley Site
Bellingham, Washington

GeoEngineers

Figure H-2



Constant Head Boundary and Sheet Pile

R.G. Haley Site
Bellingham, Washington

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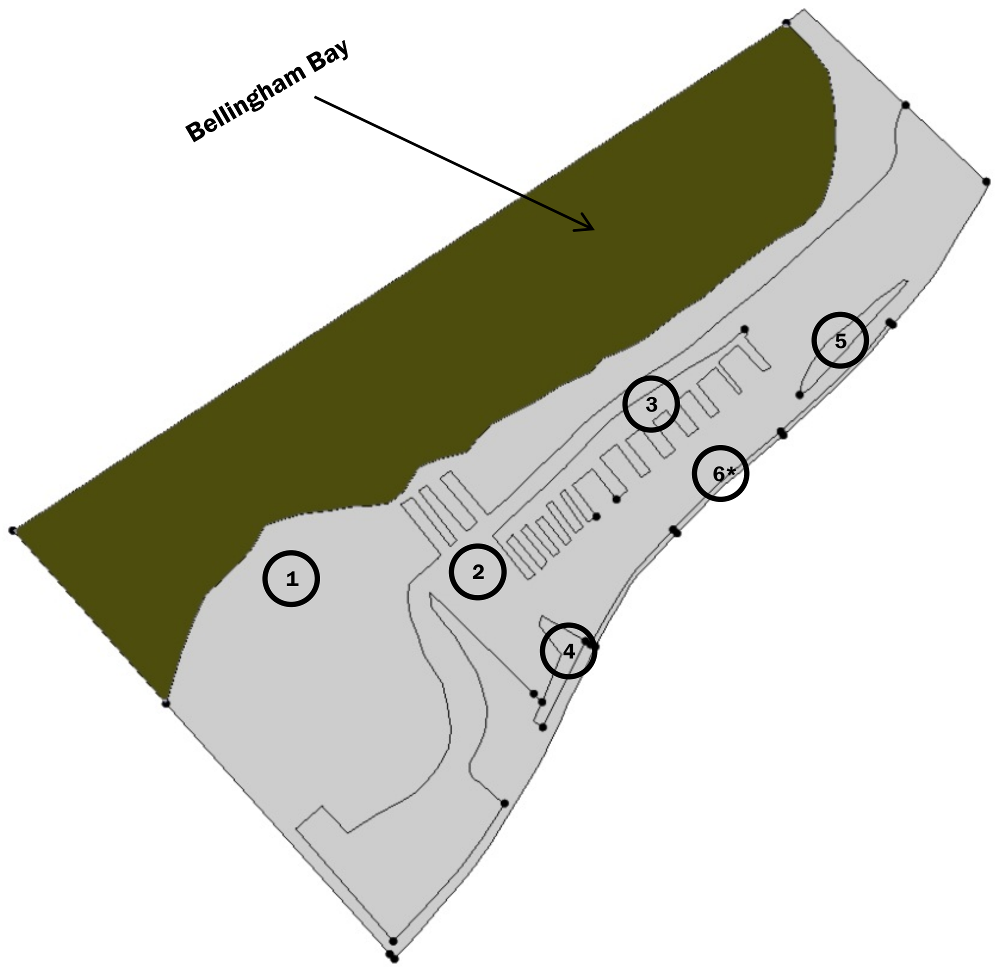
Figure H-3



Notes:

* Precipitation recharge Zone 6 is intended to represent a segment of the small drainage ditch west of the BNSF tracks.

Precipitation Recharge Zones

R.G. Haley Site
Bellingham, Washington

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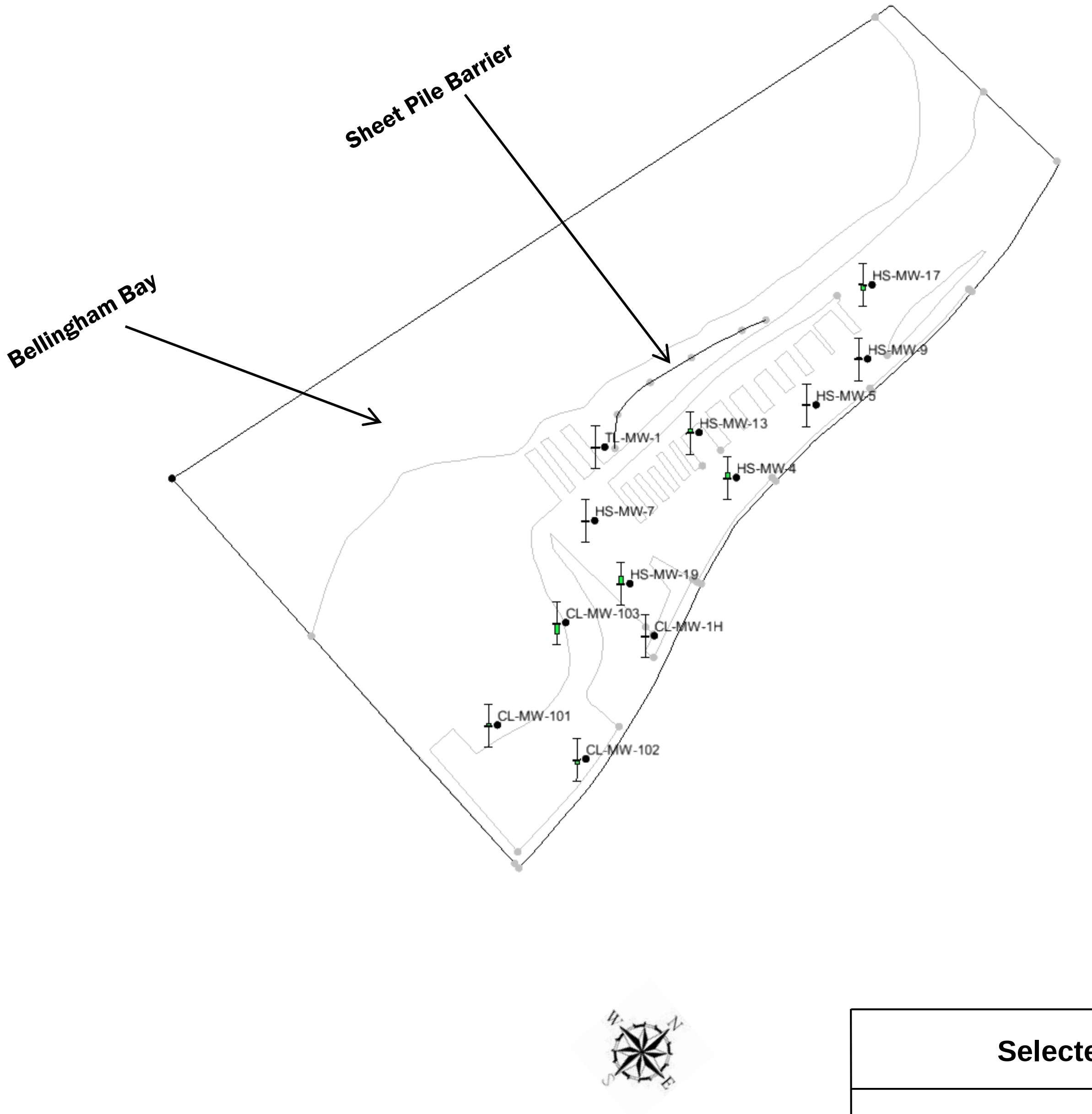
Figure H-4



Selected Calibration Wells

R.G. Haley Site
Bellingham, Washington

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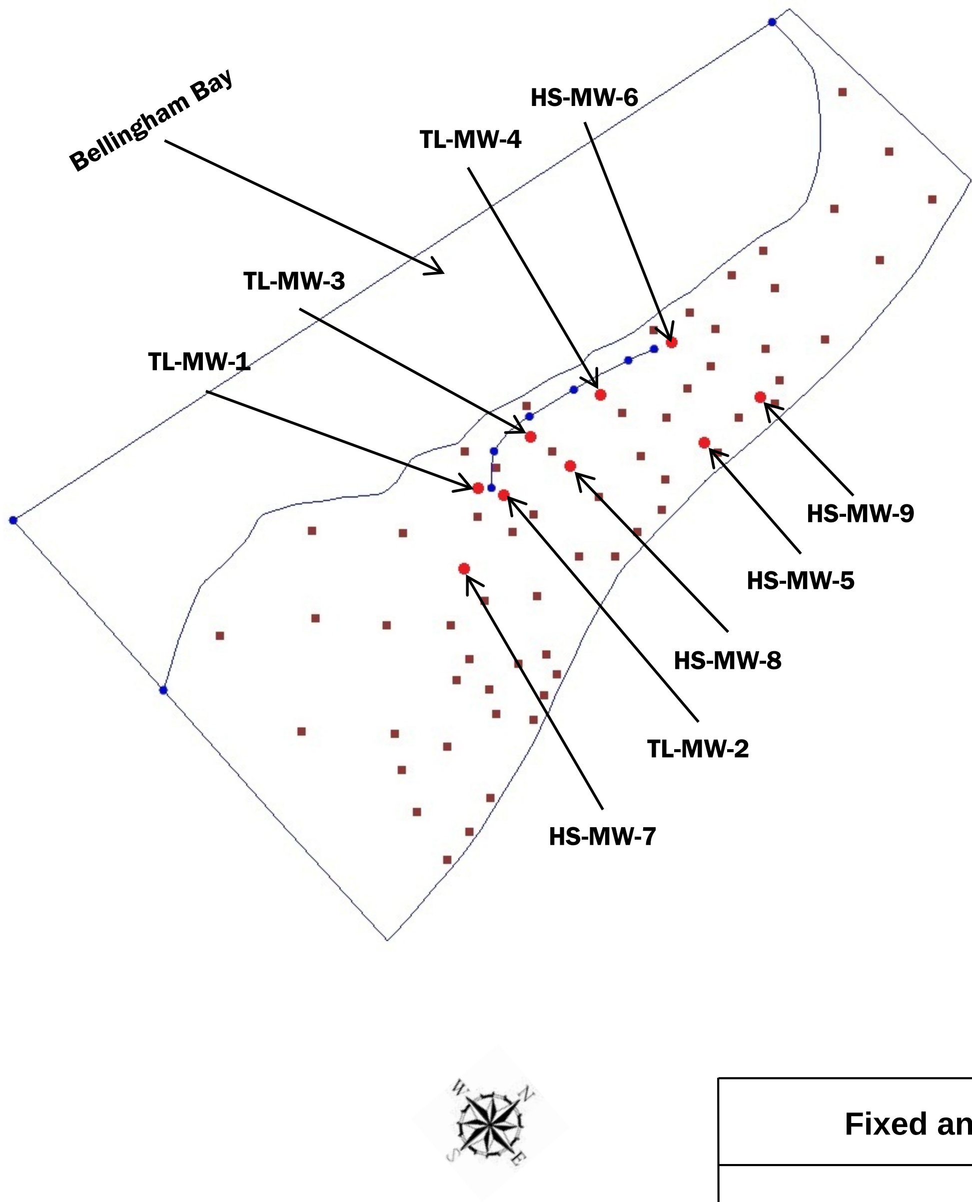
Figure H-5



Fixed and Variable Pilot Points

R.G. Haley Site
Bellingham, Washington

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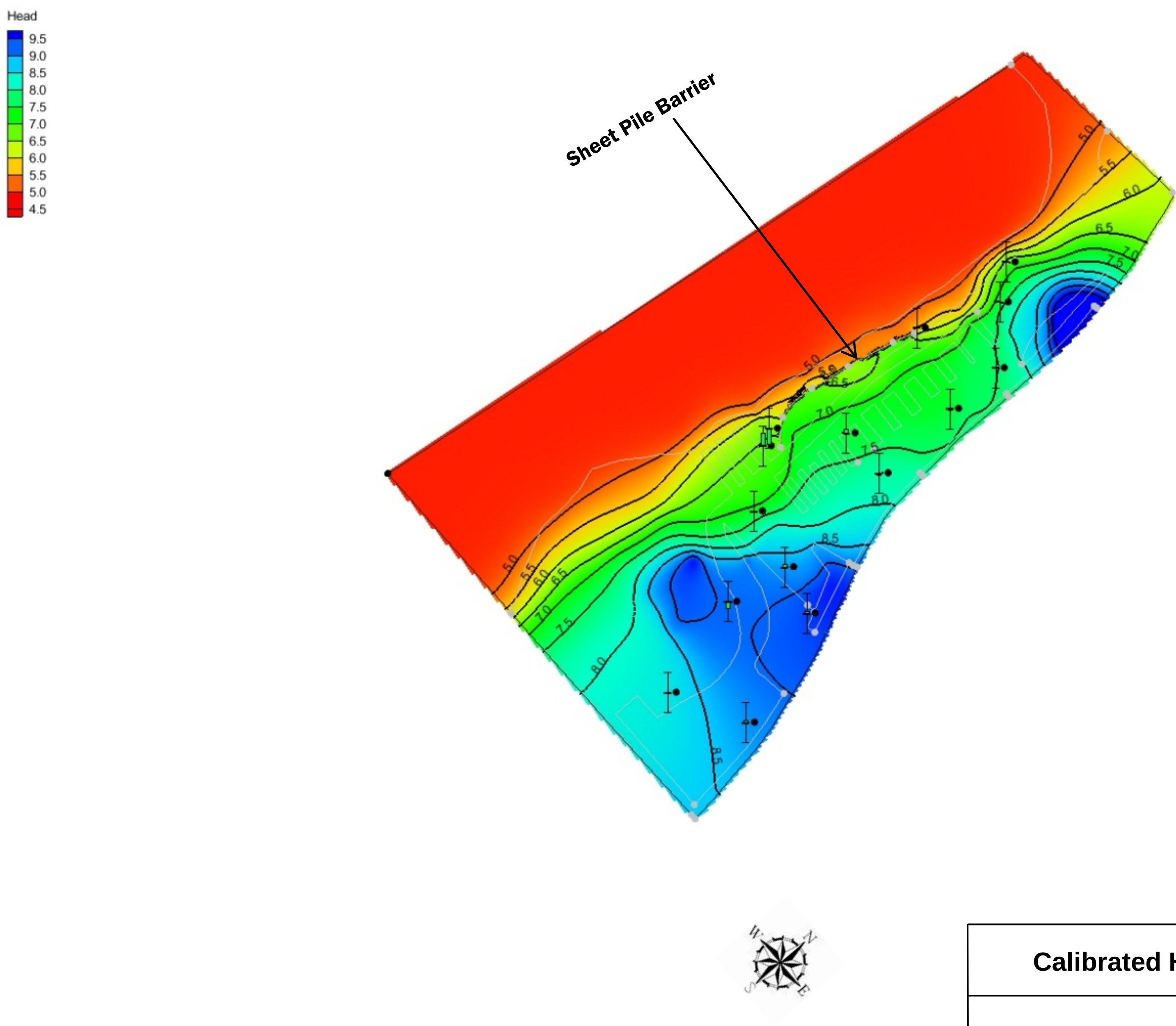
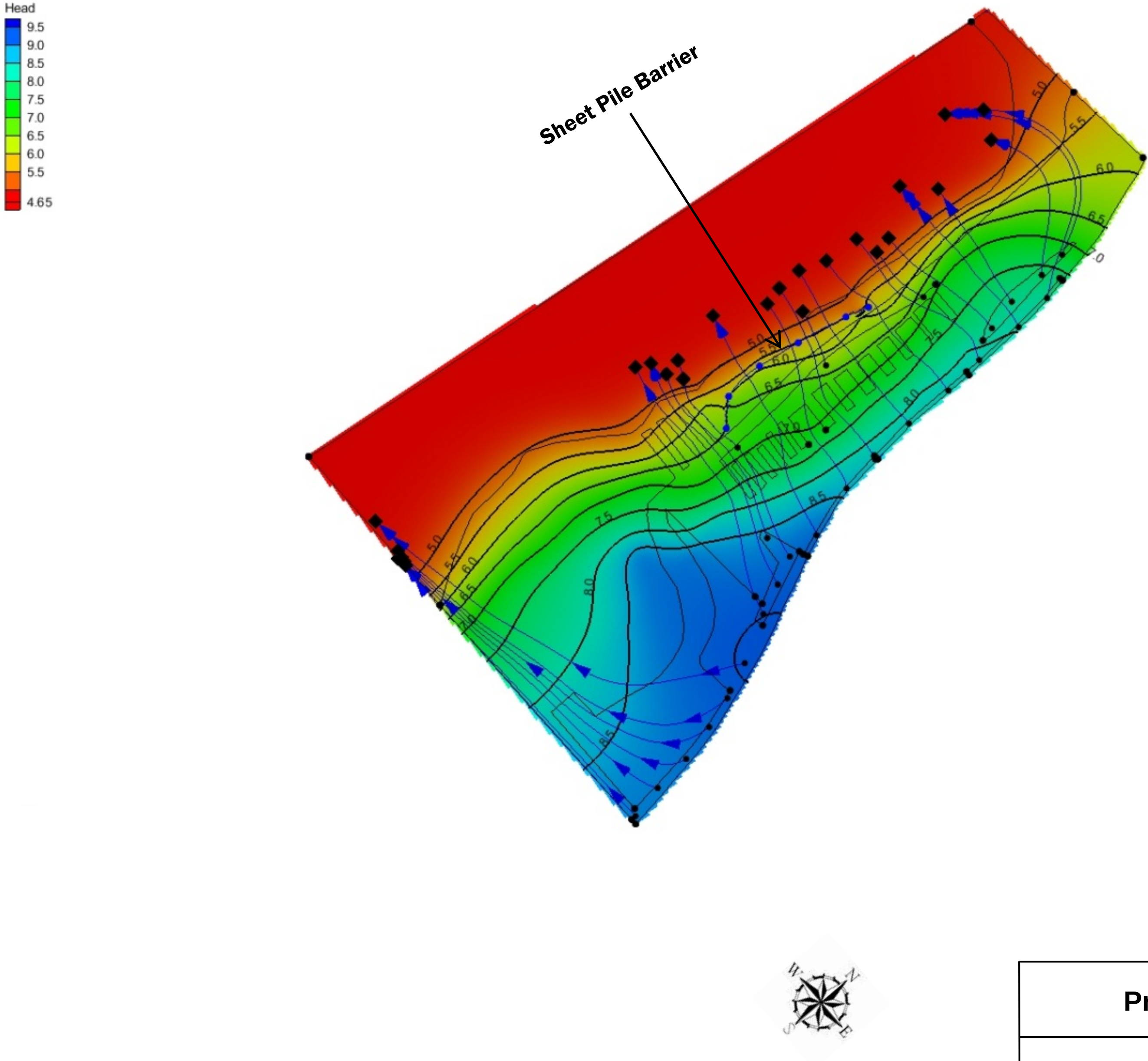
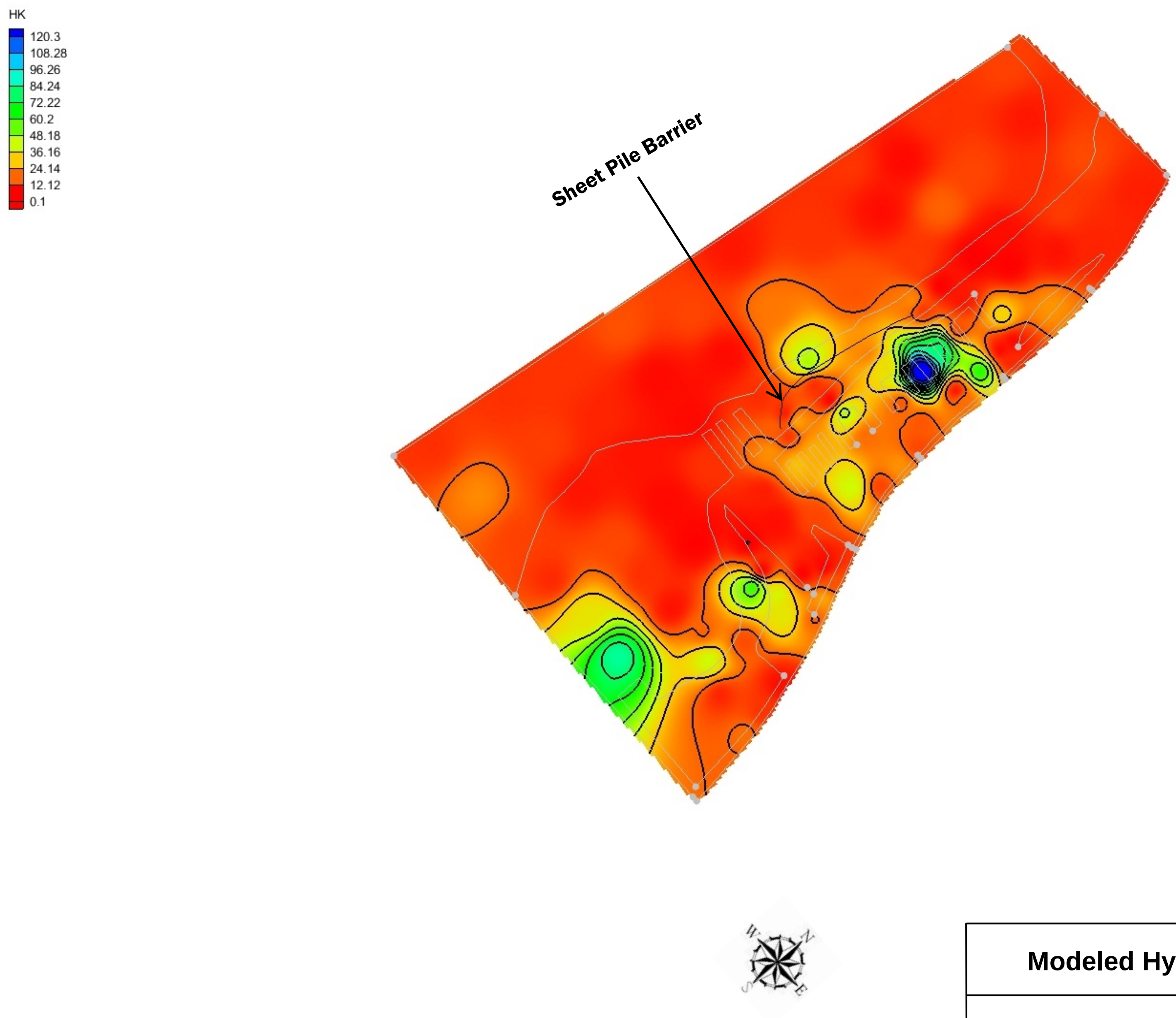
Figure H-6



Calibrated Horizontal Head Contours	
R.G. Haley Site Bellingham, Washington	
GEOENGINEERS	Figure H-7



Predicted Horizontal Flowpaths	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure H-8



Modeled Hydraulic Conductivity Field

R.G. Haley Site
Bellingham, Washington

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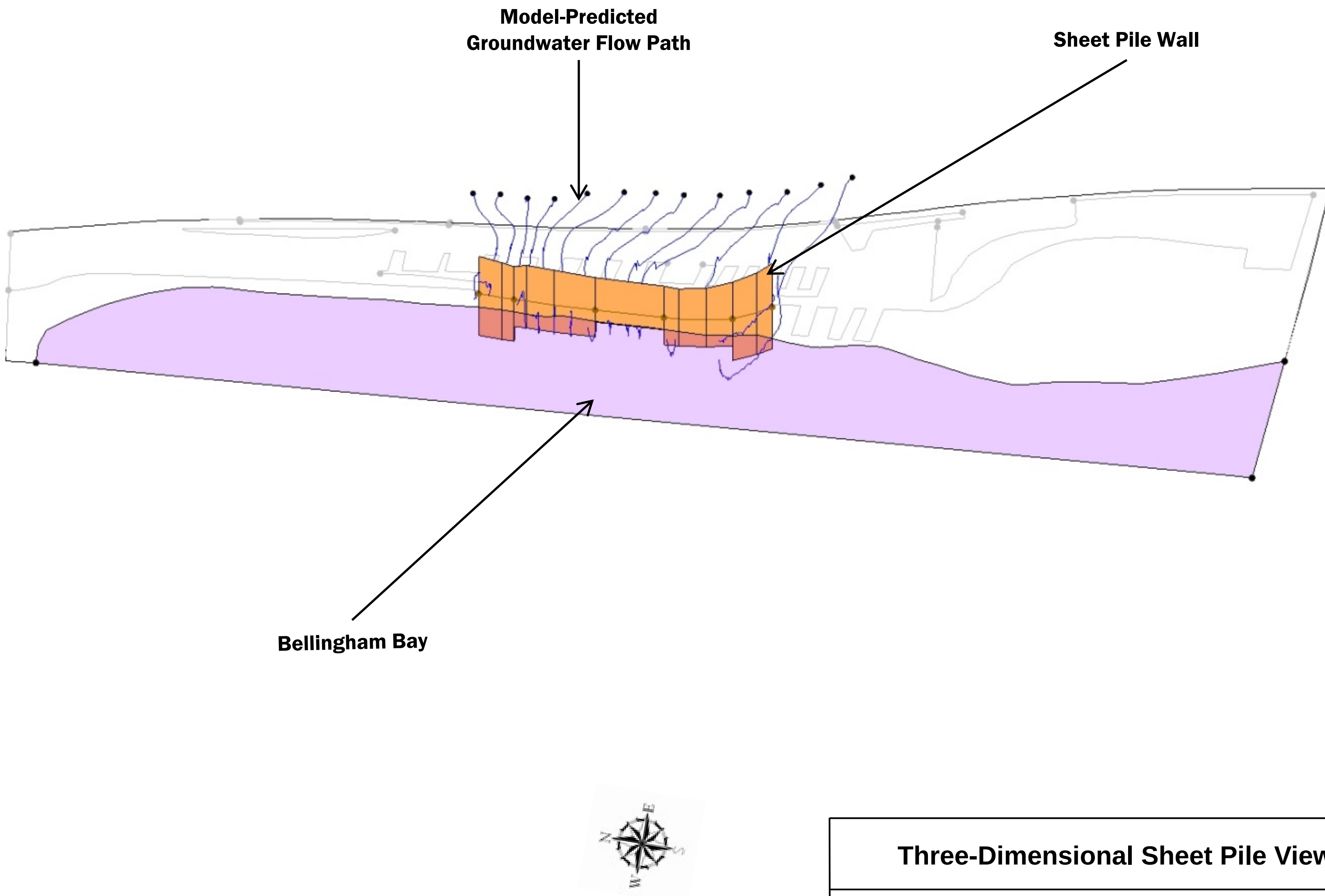
Figure H-9



Three-Dimensional Sheet Pile View 1

R.G. Haley Site
Bellingham, Washington

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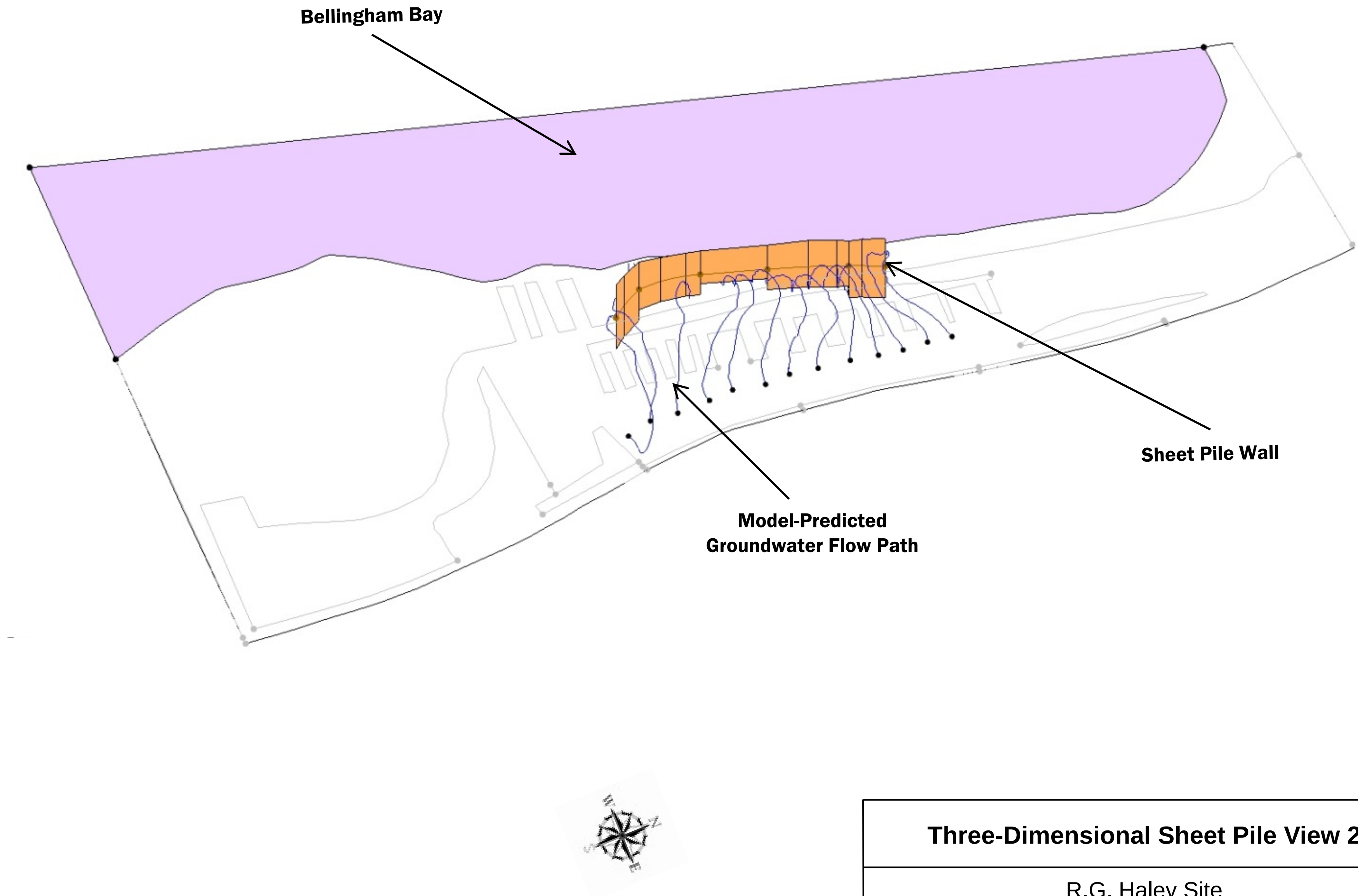
Figure H-10



Three-Dimensional Sheet Pile View 2

R.G. Haley Site
Bellingham, Washington

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Figure H-11

Three-Dimensional Sheet Pile View 3	
R.G. Haley Site Bellingham, Washington	
GeoEngineers	Figure H-12