Draft Periodic Review

BSB Property
8202 South 200th Street
Kent, Washington 98032

Facility Site ID#: 2105
Cleanup Site ID#: 58

Prepared by:
Northwest Region Office
Toxics Cleanup Program

November 2018

1.0 INTRODUCTION

This document is a review by the Washington State Department of Ecology (Ecology) of post-cleanup Site conditions and monitoring data to assure human health and the environment are being protected at the B.S.B. Diversified Company, Inc. (BSB) property (Property) in Kent, Washington (Site). Cleanup at this Site was implemented under the Model Toxics Control Act (MTCA) regulations, Chapter 173-340 Washington Administrative Code (WAC).

Cleanup activities at this Site were completed under Consent Decree No. 11-2-27288-5, which addressed cleanup of the shallow aquifer. Investigation of the deep aquifer is being conducted under Agreed Order No. DE 2551 and is not part of this review. The cleanup actions under the Consent Decree resulted in concentrations of trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), and vinyl chloride (VC) remaining at the Site that exceed MTCA cleanup levels. The MTCA cleanup levels for soil are established under WAC 173-340-740, and the MTCA cleanup levels for groundwater are established under WAC 173-340-720.

WAC 173-340-420(2) requires Ecology to conduct a periodic review of a Site every five years under the following conditions:

1. Whenever the department conducts a cleanup action,
2. Whenever the department approves a cleanup action under an order, agreed order or consent decree,
3. Or, as resources permit, whenever the department issues a no further action opinion,
4. And one of the following conditions exists at the site:
   (a) Institutional controls or financial assurance are required as part of the cleanup;
   (b) Where the cleanup level is based on a practical quantitation limit; or
   (c) Where, in the department's judgment, modifications to the default equations or assumptions using Site-specific information would significantly increase the concentration of hazardous substances remaining at the Site after cleanup or the uncertainty in the ecological evaluation or the reliability of the cleanup action is such that additional review is necessary to assure long-term protection of human health and the environment.

When evaluating whether human health and the environment are being protected, the factors Ecology shall consider include [WAC 173-340-420(4)]:

(a) The effectiveness of ongoing or completed cleanup actions, including the effectiveness of engineered controls and institutional controls in limiting exposure to hazardous substances remaining at the Site.
(b) New scientific information for individual hazardous substances of mixtures present at the Site.
(c) New applicable state and federal laws for hazardous substances present at the Site.
(d) Current and projected Site use.
(e) Availability and practicability of higher preference technologies; and.
(f) The availability of improved analytical techniques to evaluate compliance with cleanup levels.

Ecology shall publish a notice of all periodic reviews in the Site Register and provide an opportunity for public comment.

2.0 SUMMARY OF SITE CONDITIONS

2.1 Site History

The Property is located at 8202 S. 200th Street, Kent, Washington (Appendix 6.1). The 4.2-acre Property is currently a fenced, vacant lot that slopes gently to the north. The area surrounding the Property is topographically flat and is zoned "Limited Industrial." The Property is bounded on the north by South 200th Street and the Hexcel industrial facility. Commercial and industrial park properties are located to the west and south of the Property, and the Carr industrial facility is immediately to the east of the Property.

The Property was historically part of a metal finishing and electroplating plant located on the parcel immediately north of South 200th Street (now the Hexcel industrial facility). Historically, a variety of industrial and hazardous wastes that were generated on the parcel north of South 200th Street were transferred through pipes under South 200th Street to an equalizing lagoon located in the northeast corner of the Property, treated in four 22,000-gallon treatment tanks located to the immediate west of the equalizing lagoon, pumped into an unlined sludge settling lagoon nearby, and then pumped into the sanitary sewer (Appendix 6.2). Wet sludge was transferred into drying beds located on the southern part of the Property. The sludge settling lagoon was used until approximately 1965 when it was filled and paved over.

Between the early 1960s and 1979, a drum storage area formerly located in the central portion of the Property was used to store raw materials, store hazardous wastes awaiting shipment to disposal facilities or recyclers, and transfer chemicals waste. The hazardous materials stored in this area primarily consisted of degreasing and paint stripping chemicals, including methyl ethyl ketone, TCE, methylene chloride, phenol (in paint strips), hydrofluoric acid, nitric acid, and chromium and lead compounds. An unlined ditch running in an east-west direction was located near the fence line along the southern boundary of the northeastern waste treatment area. A parking lot occupied the northwest portion of the parcel. Waste handling reportedly occurred at the Property between the mid-1950s, when electroplating operations were begun on the parcel north of South 200th Street, and 1985, when waste handling activities ceased.

2.2 Site Investigations

A series of investigations at the Site began in the early 1980s (PES, 2008), both on and off the Property, and included drilling 147 temporary borings, installing 75 monitoring wells, conducting field hydraulic conductivity tests at 38 locations, collecting over 7,000 groundwater level measurements, testing the physical properties of 20 soil samples, analyzing 68 soil gas samples for volatile organic compounds (VOCs), and conducting laboratory chemical analysis of 8 sludge samples, 1 effluent sample, 228 soil samples, and over 1,900 groundwater samples (Appendix 6.3). Samples were collected at the Property to determine the hydrogeologic conditions, the nature and extent of contamination, and the potential locations for treatment. Samples were collected off Property to determine the extent of the Site.

Five hydrostratigraphic units (labeled by letter from shallowest to deepest) were identified at the Property (Appendix 6.4): two aquifers (referred to as Layers B and D) and three low-permeability zones (referred to as Layers A, C, and E/F). Layers A, C, E, and F are fine grained and exhibit low permeability. Layers B and D are composed of relatively high permeability sand. The uppermost portion of the shallowest unit (Layer A) is unsaturated or only seasonally saturated. The unit is laterally continuous and likely serves as a barrier to downward groundwater movement. The entire thickness of Layer B is saturated, and the Layer B sand forms the shallow aquifer at the Property. An intermediate silt largely divides Layer B into two subunits. For the purpose of assessing groundwater flow and the nature and extent of contamination, Layer B has historically been divided into two aquifer zones. The shallow aquifer zone is defined as the upper portion of Layer B, above the intermediate silt, and the intermediate aquifer zone is defined as the lower portion of Layer B, below the intermediate silt. Wells or piezometers at the Property monitor the shallow and/or intermediate aquifer zones. Both historical extraction wells at the Property intercepted the shallow aquifer zone and upper portion of the intermediate aquifer zone. The silt of Layer C was encountered throughout the Property. This unit serves as an aquitard to vertical groundwater flow and a restriction to the vertical transport of contaminants at the Property. No wells or piezometers at the Property are screened in Layer C. The saturated sand of Layer D and transitional Layer E form the deeper aquifer at the Property, with monitoring wells screened at multiple depths in this unit. Similar to the Layer C silt, the silt and clay of transitional Layer E and Layer F serve as an aquitard to vertical groundwater flow and a restriction to the vertical transport of contaminants at the Property.

Groundwater flow in the shallow, intermediate, and deep aquifer zones is generally toward the northeast, with generally higher hydraulic heads in the deep aquifer zone than in the shallow aquifer zone.

2.2.1 Soil Chemistry

The primary contaminants found during the Site investigations were three VOCs: TCE, cDCE, and VC. The highest concentrations of these VOCs were detected in the former drum storage area and near the former ditch, with TCE concentrations varying from 0.002 to 2,000 mg/kg, cDCE ranging from 0.034 to 77 mg/kg, and vinyl chloride concentrations ranging from 0.012 to 3.7 mg/kg. Locations with few and relatively low-concentration VOC detections included the small drying bed north of the southwestern drying bed, the southwestern and southeastern drying beds, the east end of the former ditch, and the area north of the former waste handling facility.

2.2.2 Groundwater Chemistry

TCE, cDCE, and VC were detected at the highest concentrations and were the most frequently detected compounds in groundwater samples collected in direct-push borings and monitoring wells. The highest concentrations of VOCs were in borings and monitoring wells located near and downgradient of the former drum storage area, at the north end of the former southeastern drying bed, and near the western (upgradient) boundary of the Property, with maximum concentrations of TCE, cDCE, and VC of 90,000, 59,000, and 7,500 µg/L, respectively, in the

10 years prior to implementation of the final cleanup action. TCE, cDCE, and VC concentrations have varied in each well over time, with much of the shorter-term variation likely due to seasonal changes. VOC concentrations in the shallow and intermediate aquifer zone monitoring wells decreased significantly during operation of the groundwater recovery system. The intermediate silt layer appears to have been effective in mitigating VOC migration into the lower portion of Layer B, with typically higher groundwater VOC concentrations above the intermediate silt layer than below it. Groundwater impacted with VOCs at the Property originates primarily near the former drum storage area and adjacent ditch, extending from the former drum storage area to the northeast, in the direction of local groundwater flow. Prior to implementation of the final remedy, the maximum extent of the VOC plume covered the northern half of the Property, the northwest corner of the Carr Property, and the southeastern portion of the Hexcel property. Historical operation of the six groundwater recovery wells at the Site resulted in a slightly smaller VOC plume footprint with considerably lower VOC concentrations in the plume.

2.3 Cleanup Levels and Points of Compliance

Consistent with MTCA, TCE, cDCE, and VC were selected as indicator hazardous substances based on frequency of detection, concentrations relative to background concentrations, and concentrations relative to published cleanup levels. MTCA provides several methods for determining cleanup levels for IHSs, including Method A (tables and applicable state and federal laws), Method B (universal method), and Method C (conditional method). Method C is typically used where Method A or B cleanup levels are impracticable to achieve or for certain industrial properties. The applicability of Method A is described in WAC 173-340-704(1). Method A may be used to establish cleanup levels at sites that have few hazardous substances and meet one of the following criteria:

- Sites undergoing a routine cleanup action as defined by WAC 173-340-200; or
- Sites where numerical standards are available either in the MTCA regulations or applicable state and federal laws for all IHSs.

The three IHSs for this Property have numerical standards. Furthermore, the selected final cleanup action for the Property is consistent with the criteria listed in WAC 173-340-200 under the definition of “routine cleanup action,” and there are a limited range of cleanup actions available. Therefore, cleanup levels for the Property remedy were determined using Method A.

Based on the potential future pathways for the Site, groundwater cleanup levels were identified for TCE, cDCE, and vinyl chloride for the groundwater-to-surface water pathway for the following receptor: protection of humans through consumption of aquatic organisms. Cleanup levels were not developed for the potential aquatic ecological receptors for these substances because there were no promulgated standards available and the human health standards were assumed to be protective. The selected cleanup levels were 30 µg/L for TCE, 70 µg/L for cDCE, and 2.4 µg/L for VC. The TCE and VC cleanup levels were from US Environmental Protection Agency’s water quality criteria established under the National Toxics Rule (40 CFR Part 131) for protection of human health from consumption of aquatic organisms. As there was no surface

water standard for cDCE, the lowest available human health-based standard of 70 µg/L was used (state MCL). To be more protective, Ecology further modified the VC cleanup level to be the MTCA Method A cleanup level for the protection of groundwater (0.2 µg/L). This cleanup level is based on the protection of drinking water beneficial uses.

Under the RCRA Post-closure Permit (WAD 07 665 5182) the point of compliance, the point or points where cleanup levels will be attained, is the downgradient property boundary. Given the nature of groundwater contamination on the Property, the source area at the Property does not lend itself to aggressive active treatment. Ecology thus determined that it is not practicable to attain cleanup levels throughout all groundwater on the Property and that the Property boundary will be used as the conditional point of compliance.

2.4 Cleanup Actions

2.4.1 Interim Cleanup Actions

Various soil and groundwater interim cleanup actions were conducted at the Property between late 1980s and implementation of the final cleanup action in 2011. These interim actions included:

- Removal and closure of solid and hazardous waste management units;
- Removal of contaminated solids from the former sludge settling lagoon and the former equalizing lagoon;
- Excavation of approximately 2,000 cubic yards of contaminated soil from the primary source area on the Property;
- Consolidation, stabilization, and isolation of dangerous waste solids in the former sludge drying beds;
- Capping of potentially impacted portions of the Property; and
- Installation and operation of a groundwater extraction and treatment corrective measures system (CMS).

The CMS operated between 1992 and 2011 and included six groundwater recovery wells located at the Property and at the Hexcel property north of South 200th Street. Recovered groundwater, was pretreated prior to discharge to the sanitary sewer between 1992 and 1995 and between 2010 and 2011, otherwise when it was discharged to the sanitary sewer without pretreatment. The system was separated by location of the recovery wells in April 2006, with BSB taking responsibility for the two recovery wells on the Property and Hexcel taking responsibility for the four recovery wells on its property. During operation of the CMS, off-Site migration was controlled and over 10,000 pounds of VOCs were removed from groundwater and treated.

2.4.2 Final Cleanup Action

The final cleanup action was constructed between 2009 and 2012, with the bulk of the work conducted in 2011 (PES, 2013). The cleanup action consists of (1) a soil-bentonite cutoff wall (SBCW) keyed into the Layer C silt aquitard to contain shallow aquifer halogenated VOCs (HVOCs) within the Property, (2) a subsurface reactor vault (vault) from which groundwater is pumped from the containment area to provide gradient control, (3) a groundwater treatment system for pretreating groundwater prior to discharge to the sanitary sewer and subsequent treatment at King County wastewater treatment plan, (4) an asphalt cap over all of the Property to reduce infiltration into the shallow aquifer inside the SBCW, and (5) 38 piezometers and monitoring wells used to monitor groundwater levels and groundwater quality. Appendix 6.5 provides a layout of the SBCW alignment, capped area, location of the vault, and compliance monitoring network. The SBCW generally follows the perimeter of the Property, and the vault is located within the northeast (i.e., downgradient) corner of the contained area. The SBCW prevents groundwater from passing into the contaminated area and contains groundwater within the Property boundary, the groundwater pretreatment system removes contaminants from the groundwater that is pumped from within the SBCW, and the cap minimizes surface water infiltration.

The perimeter SBCW is approximately 27 inches thick, 1,600 feet long, with an average depth of approximately 40 feet bgs. The SBCW is embedded at least 1 foot into Layer C along its entire length, with measured hydraulic conductivities of the in-place SBCW between 8×10^{-9} and 8×10^{-8} cm/sec. The surface component of the containment system consists of an asphalt cap. The cap is constructed of at least 2 to 3 inches of hot-mix asphalt underlain by 4 to 9 inches of crushed rock subbase.

The vault is used to collect groundwater from the shallow aquifer containment cell and then pump the groundwater through the pretreatment system before discharge to the sanitary sewer. The concrete vault is located in the northeastern corner of the containment cell (Appendix 6.5) and consists of a 29-foot-wide, 40-foot-long, 18-foot-deep, concrete vault divided into six internal cells. The vault collects water in perforated pipes around the outside of the vault, and the water then gravity flows into the first internal cell (Cell 1). The remaining 5 internal cells are not currently used. A dedicated, electrically-powered pump transfers groundwater from Cell 1 to the pretreatment system. The pump is controlled by a programmable logic controller with remote measurement and control capabilities. An in-line flow meter is used to document the volume of water pumped to the pretreatment system, and a pressure transducer in Cell 1 allows the automated measurement and recording of water levels on a regular interval.

The groundwater pretreatment system consists of an air stripper, a chemical dosing system, a control panel, and an optional vapor treatment system. The groundwater pretreatment system equipment is installed inside a prefabricated equipment building located adjacent to the vault. The chemical dosing system is used to reduce the amount of scale that forms in the air stripper trays. The low-profile, two-tray air stripper is constructed of perforated stainless steel, with a stainless steel mist eliminator above the top tray and view ports on the top tray and on the air stripper sump. A 3-horsepower regenerative blower provides the fresh air for stripping. The

blower is mounted next to the air stripper so that the blower exhaust piping is plumbed directly into the air stripper sump. The air stripper sump includes a high water level alarm switch, a low air pressure switch, and a high air pressure switch to ensure that groundwater is pumped from the vault only when the air stripper is operating. Water from the vault is plumbed into the top of air stripper using Schedule 80 PVC pipe, flexible hoses, and fittings, and water from the air stripper sump gravity drains through a Schedule 40 PVC pipe to a 4-inch-diameter side sewer pipe. The air stripper discharge includes a siphon break to prevent discharge of water when the blower is shut-off.

Operation of the cleanup action includes monitoring and maintenance of the groundwater extraction system, monitoring and maintenance of the groundwater pretreatment system, sampling of the groundwater pretreatment system, inspection of the asphalt cap and monitoring system, and periodic reporting (PES, 2015b).

2.4.3 Long-Term Compliance Monitoring

The final cleanup action included compliance monitoring to document the effectiveness of the remedy (PES, 2015a). The network has been monitored to evaluate whether or not the cleanup action is meeting the cleanup standard for the cleanup action, which ultimately is that TCE, cDCE, and VC concentrations in the conditional point of compliance (CPOC) wells meet the cleanup levels. Until that occurs, the performance standards are to:

1. Maintain lower groundwater elevations in most of the monitoring points inside the SBCW compared to the co-located monitoring points outside the SBCW (or beneath Layer C) most of the time.
2. Maintain generally neutral to decreasing TCE, cDCE, and VC concentration trends in the CPOC wells.

The network consists of 38 monitoring points, as follows:

- Five shallow piezometers (P-1, P-5, P-7, P-9, and P-13), five intermediate piezometers (P-2, P-6, P-8, P-10, and P-14), and three intermediate monitoring wells (HY-12i, HY-13i, and HYCP-3i) located inside the containment system;
- Three shallow piezometers (P-3, P-11, and P-15), six shallow monitoring wells (Gs, Hs, HY-1s, HY-11s, HYCP-2, and HYCP-7s), three intermediate piezometers (P-4, P-12, and P-16), and six intermediate monitoring wells (Gi, Hi, HY-1i, HY-11i, HYCP-2i, and HYCP-7i) located outside of the containment system;
- Four deep monitoring wells located within the footprint of the containment system (HY-108, HY-117, HY-122, and HY-125); and
- Three deep monitoring wells located outside the footprint of the containment system (HY-1d, HY-11d, and HYCP-7d).

The CPOC wells include HYCP-2 and HYCP-2i located along the Property boundary north of the northeastern corner of the SBCW, HYCP-7s and HYCP-7i located along the Property boundary north of the central portion of the northern SBCW, Gs and Gi located approximately 70 feet east of the northeastern Property corner in a location downgradient of the northeastern corner of the SBCW, and Hs and Hi located approximately 55 feet east of the eastern Property boundary in a location downgradient of the southeastern portion of the SBCW.

Groundwater levels were monitored continuously with transducers and data loggers in P-1 through P-4 and at least monthly between January 2012 and March 2017 in most other network piezometers and wells. In January 2017, BSB requested that the frequency of groundwater monitoring be reduced from monthly to quarterly. The request was made based on an analysis of the historical data showing no loss in the ability to evaluate compliance with the performance standard with less frequent data collection. Ecology granted the request, and since June 2017, groundwater levels have been monitored continuously in P-1 through P-4 and quarterly in all other network piezometers and wells. Groundwater quality samples were collected in the 15 shallow and intermediate monitoring wells in the network twice yearly since installation of containment system. Temperature, pH, specific conductance, dissolved oxygen, and oxidation-reduction potential were monitored during groundwater sampling, and each sample was submitted for laboratory analysis of HVOCs.

2.5 Environmental Covenant

Institutional controls were incorporated in the cleanup action since contaminants exceeding the MTCA Method B cleanup levels remain on the Property. The intent of the institutional controls is to preserve the integrity of the cleanup action (Ecology, 2011). The institutional controls include an Environmental Covenant (Covenant) in the real property records to notify potential purchasers of the Property of this Cleanup Action Plan (Ecology, 2012). The Covenant limits activities that may create a new exposure pathway (e.g., indoor air pathway or subsurface worker pathway), result in the release of hazardous substances, or interfere with the integrity of the Cleanup Action without Ecology's written approval. Any future development of the Property will have to consider the indoor air pathway and incorporate engineering controls (e.g., vapor barriers) as appropriate to control potential exposures, subject to Ecology's written approval. Specifically, the Covenant imposes the following limitations:

1. No groundwater may be taken for domestic or agricultural use from the Property. Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.
2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.
3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway (e.g., indoor air pathway or subsurface worker pathway), is prohibited without prior written approval from Ecology.

4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.
5. The Owner must restrict leases to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.
6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any use substantially inconsistent with the Remedial Action only after public notice and comment.
7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action, to take samples (provided that, upon request, Ecology allows the Owner to take split or duplicate samples, provided that doing so does not interfere with Ecology's sampling), to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.
8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

The Covenant is available in Appendix 6.6.

3.0 PERIODIC REVIEW

3.1 Effectiveness of completed cleanup actions

3.1.1 Institutional Controls

The Covenant for the Site was recorded and is in place. This Covenant prohibits activities that will result in the release of contaminants at the Site without Ecology's approval and prohibits any use of the property that is inconsistent with the Covenant. This Covenant serves to ensure the long-term integrity of the remedy. The asphalt cap at the Site continues to eliminate exposure to contaminated soil by ingestion and direct contact. The asphalt appears in satisfactory condition, with periodic maintenance conducted to maintain the long-term viability of the asphalt and limit surface infiltration of precipitation. No contingency actions have been required. The Site is currently used for vehicle parking. A photo log is available as Appendix 6.7.

3.1.2 Groundwater Levels in the Containment Area

Appendix 6.8 provides a table summarizing the groundwater elevations in the 20 piezometers and monitoring wells used to evaluate the groundwater elevations inside and outside of the containment area (PES, 2018). The data indicate that the performance standard for the groundwater extraction system in the containment area is being met, that is that lower groundwater elevations are being maintained in most of the monitoring points inside the SBCW compared to the co-located monitoring points outside the SBCW (or beneath Layer C) most of the time.

3.1.3 Groundwater Quality in CPOC Wells

Appendix 6.9 provides a table summarizing the groundwater TCE, cDCE, and VC concentrations in the eight CPOC wells (PES, 2018). The data indicate that the performance standard for groundwater TCE, cDCE, and VC concentrations in the CPOC wells is being met, namely that generally neutral to decreasing TCE, cDCE, and VC concentration trends are being maintained in the CPOC wells. TCE and cDCE concentrations are routinely below their respective cleanup levels in the eight CPOC wells, and VC concentrations are routinely below the VC cleanup level in six of the eight CPOC wells, with concentrations of VC at or within an order of magnitude of the VC cleanup level in the other two CPOC wells.

3.2 New scientific information for individual hazardous substances for mixtures present at the Site

There is no new scientific information for the contaminants related to the Site.

3.3 New applicable state and federal laws for hazardous substances present at the Site

As discussed in Section 2.3, the site-specific cleanup levels established in 2011 were based on protection of human health from consumption of aquatic organisms (TCE and VC) or the lowest human health-based criterion if no criterion was available that was based on protection of human health from consumption of aquatic organisms (cDCE). The cleanup levels established in 2011 were 30 µg/L for TCE, 70 µg/L for cDCE, and 2.4 µg/L for VC, with the latter lowered by Ecology to the MTCA Method A cleanup level for the protection of drinking water beneficial uses (0.2 µg/L). As noted in Section 3.1, the TCE and cDCE concentrations in all CPOC wells are routinely below these cleanup levels, and the VC concentrations in six of the eight CPOC wells are routinely below the VC cleanup levels.

Following is a summary of the changes to these TCE, cDCE, and VC criteria since 2011.

Criteria Changes Since 2011

Analyte	2011 Site-Specific Cleanup Levels (µg/L)	2015 MTCA Method B Surface Water Cleanup Levels (ppm)	2015 MTCA Method B Groundwater Cleanup Levels (µg/L)	2016 Ecology Surface Water Quality Standards (µg/L)	2016 EPA Clean Water Act – Effective Surface Water Criteria (µg/L)
TCE	30	30	0.54	0.86	0.7
cDCE	70	–	16	–	–
VC	0.2	–	0.29	0.26	0.18

MTCA = Model Toxics Control Act
2015 MTCA Method B Surface Water Cleanup Levels for human consumption of aquatic organisms only
2016 Ecology Surface Water Quality Standards for human consumption of aquatic organisms only
2016 EPA Clean Water Act – Effective Surface Water Criteria for human consumption of aquatic organisms only
µg/L = micrograms per liter (parts per billion)
– = no cleanup level, standard, or criterion listed

The cleanup at the Site was governed by Chapter 173-340 WAC (2007 edition). WAC 173-340-702(12)(c) provides that:

> "A release cleaned up under the cleanup levels determined in (a) or (b) of this subsection shall not be subject to further cleanup action due solely to subsequent amendments to the provisions in this chapter on cleanup levels, unless the department determines, on a case-

> by-case basis, that the previous cleanup action is no longer sufficiently protective of human health and the environment."

The site-specific cleanup levels established in 2011 are still protective of human health based on the consumption of aquatic organisms since the final cleanup action contains TCE, cDCE, and VC within the SBCW on the Property and the performance standards are being met for groundwater levels in the containment area and groundwater quality in the CPOC wells.

3.4 Current and projected Site use

The Site is currently used for vehicle parking. There have been no changes in current or projected future Site or resource uses.

3.5 Availability and practicability of higher preference technologies

The remedy implemented included containment of hazardous substances, and it continues to be protective of human health and the environment. While higher preference cleanup technologies may be available, they are still not practicable at this Site.

3.6 Availability of improved analytical techniques to evaluate compliance with cleanup levels

The analytical methods used at the time of the cleanup action were capable of detection below selected Site cleanup levels. The presence of improved analytical techniques would not affect decisions or recommendations made for the Site.

4.0 CONCLUSIONS

The following conclusions have been made based on this periodic review:

- The cleanup actions completed at the Site are protective of human health and the environment.

- Although soil and groundwater cleanup levels have not been met at the standard point of compliance for the Site, the cleanup action has been determined to comply with cleanup standards since the requirements for containment technologies are being met and the long-term integrity of the containment system is ensured, and

- Institutional controls in the form of an environmental covenant are in place at the Site and will be effective in protecting public health and the environment from exposure to hazardous substances and protecting the integrity of the cleanup action.

Based on this periodic review, Ecology has determined that the requirements of the Covenant are being followed. No additional cleanup actions are required by the property owner. It is the property owner's responsibility to continue to inspect the Site to assure that the integrity of the remedy is maintained.

4.1 Next Review

The next review for the Site will be scheduled five years from the date of this periodic review. In the event that additional cleanup actions or institutional controls are required, the next periodic review will be scheduled five years from the completion of those activities.

5.0 REFERENCES

PES Environmental, Inc. (PES). 2008. Final Focused Remedial Investigation Summary/Feasibility Study Report, BSB Property, Kent, Washington. Prepared for B.S.B. Diversified Company, Inc. March 6.

PES Environmental. 2013. Construction Report, Phase I and II Final Cleanup Action, BSB Property, Kent, Washington. Prepared for Washington State Department of Ecology. October.

PES Environmental. 2015a. Compliance Monitoring Plan, Shallow Aquifer Cleanup Action, BSB Property, Kent, Washington. Prepared for Washington State Department of Ecology. December 18.

PES Environmental. 2015b. Operations and Maintenance Plan, Shallow Aquifer Cleanup Action, BSB Property, Kent, Washington. Prepared for Washington State Department of Ecology. December 18.

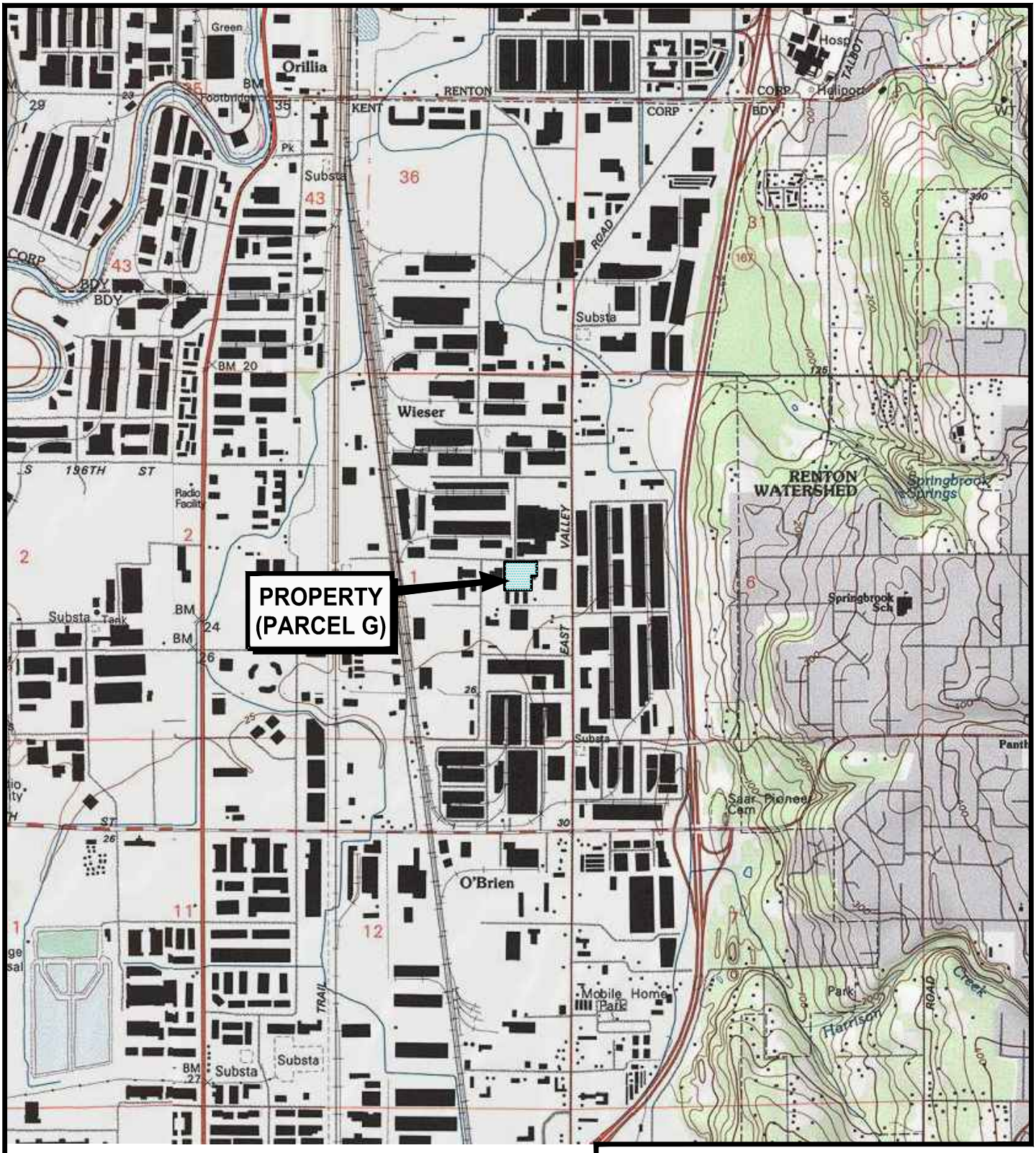
PES Environmental. 2018. Cleanup Progress Report, Second Quarter 2018, BSB Property, Kent, Washington. Prepared for Washington State Department of Ecology. July 19.

Washington State Department of Ecology (Ecology). 2011. Final Cleanup Action Plan, BSB Property, Kent, Washington. August 5.

Washington State Department of Ecology. 2012. Restrictive (Environmental) Covenant. March 7.

6.0 APPENDICES

6.1 Property Location Map



0 2000 4000

Scale in Feet

N

U.S.G.S. Topo Map - Renton, WA, 7.5-minute quadrangle.1949 revised 1994.

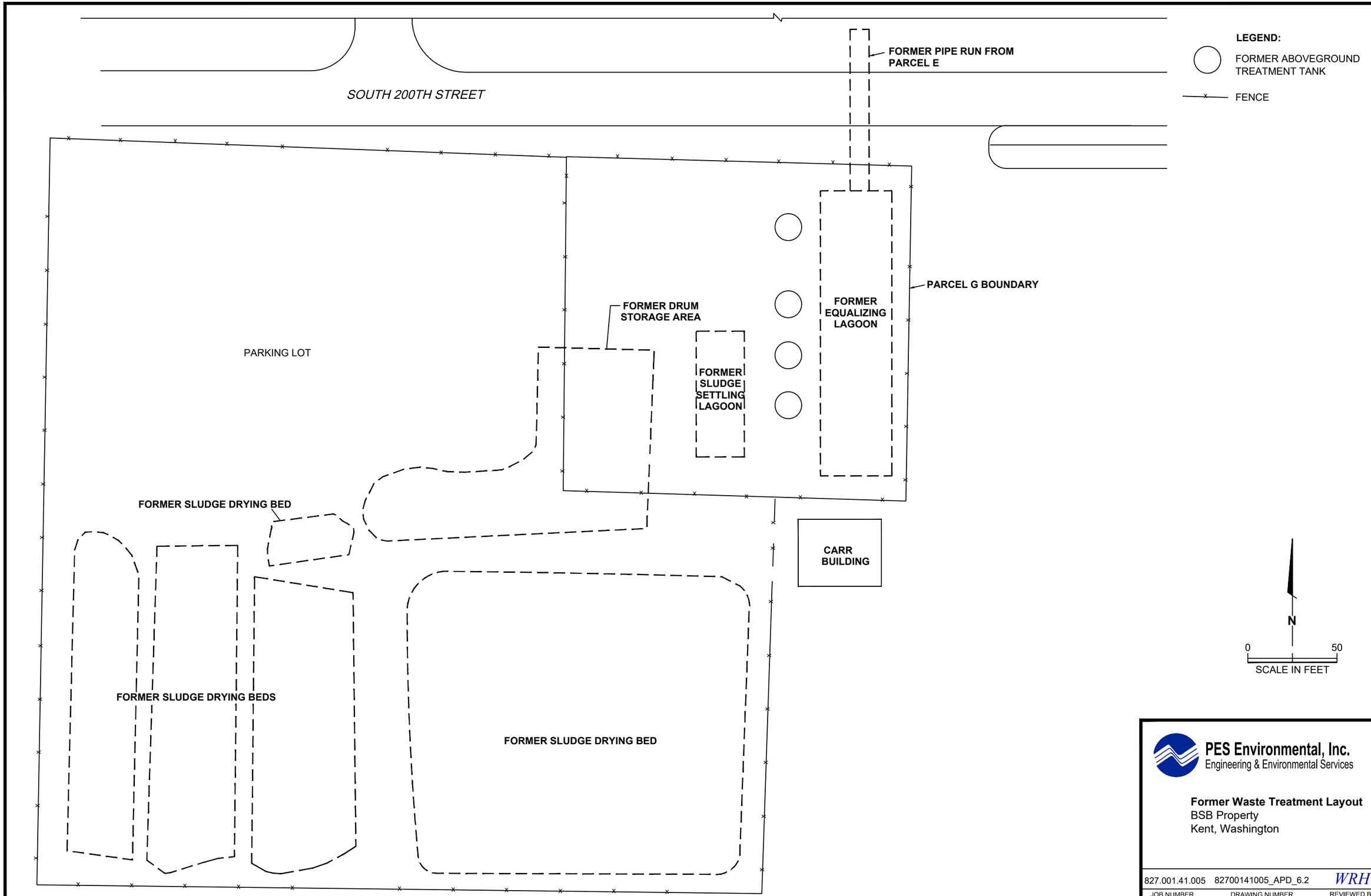
PES Environmental, Inc.
Engineering & Environmental Services

Property Location Map
BSB Property
Kent, Washington

APPENDIX
6.1

827.001.41.005	82700141005_APD_6.1	WRH	8/18
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

6.2 Former Waste Treatment System Layout



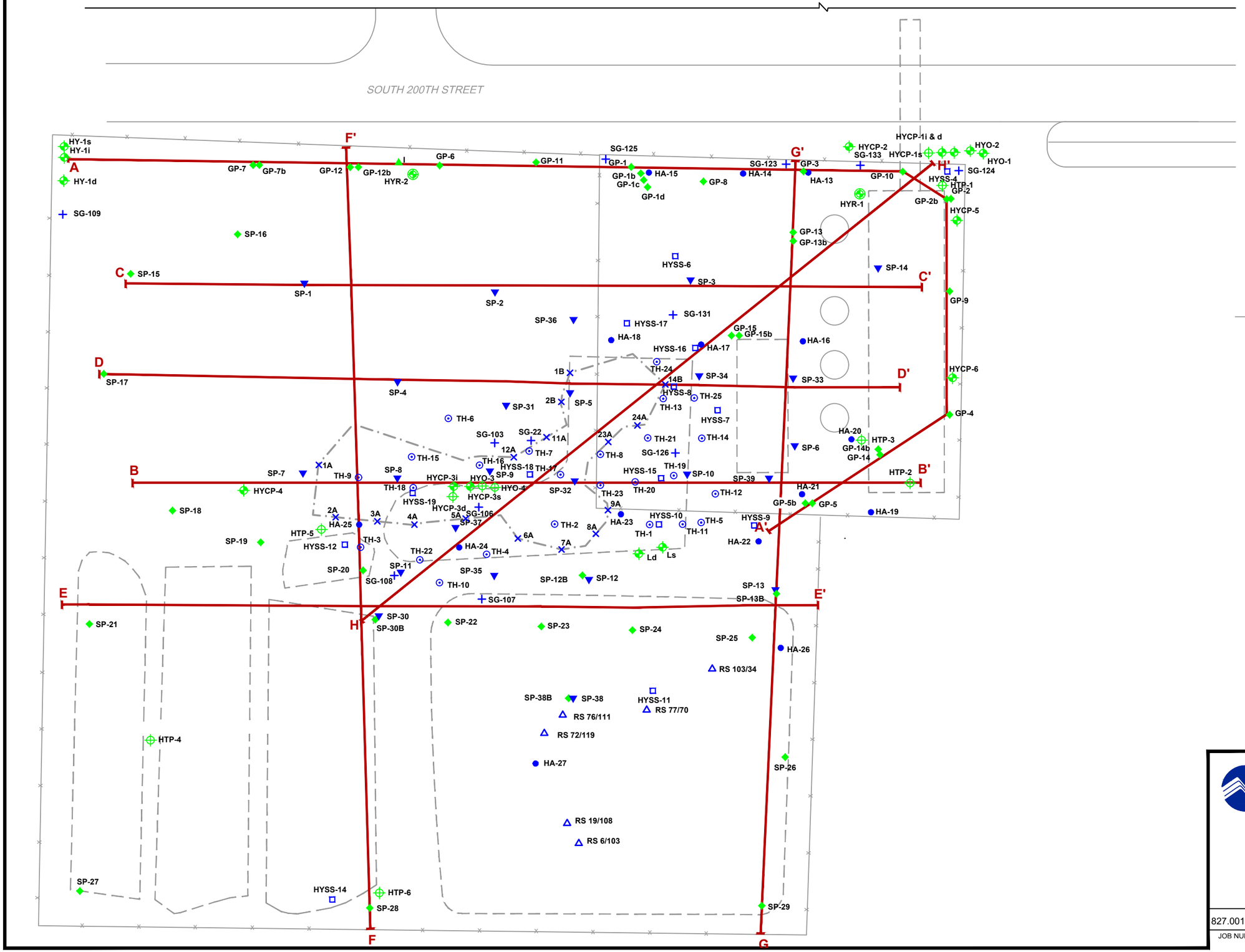
PES Environmental, Inc.
Engineering & Environmental Services

Former Waste Treatment Layout
BSB Property
Kent, Washington

APPENDIX
6.2

827.001.41.005	82700141005_APD_6.2	WRH	8/18
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

6.3 Property Sampling Location Map



LEGEND:

- RS 19/108 △ SLUDGE SAMPLE LOCATION
- SG-22 + SOIL GAS SAMPLE LOCATION
- TH-2 ⊙ UNSATURATED ZONE HAND AUGER BORING
- HA-17 ● HAND AUGER BORING
- HYSS-7 □ AUGER BORING
- SP-2 ▼ DIRECT-PUSH SOIL BORING
- 1A × EXCAVATION SOIL CONFIRMATION SAMPLE LOCATION
- SP-16 ◆ DIRECT-PUSH GROUNDWATER BORING
- HYR-1 ◉ RECOVERY WELL
- HYCP-4 ⊕ MONITORING WELL
- HTP-6 ⊕ ABANDONED MONITORING WELL
- I ▲ PIEZOMETER
- APPROXIMATE LOCATION OF UNSATURATED ZONE SOIL EXCAVATION
- ABOVEGROUND TANK
- F F' CROSS SECTION LOCATION
- FENCE

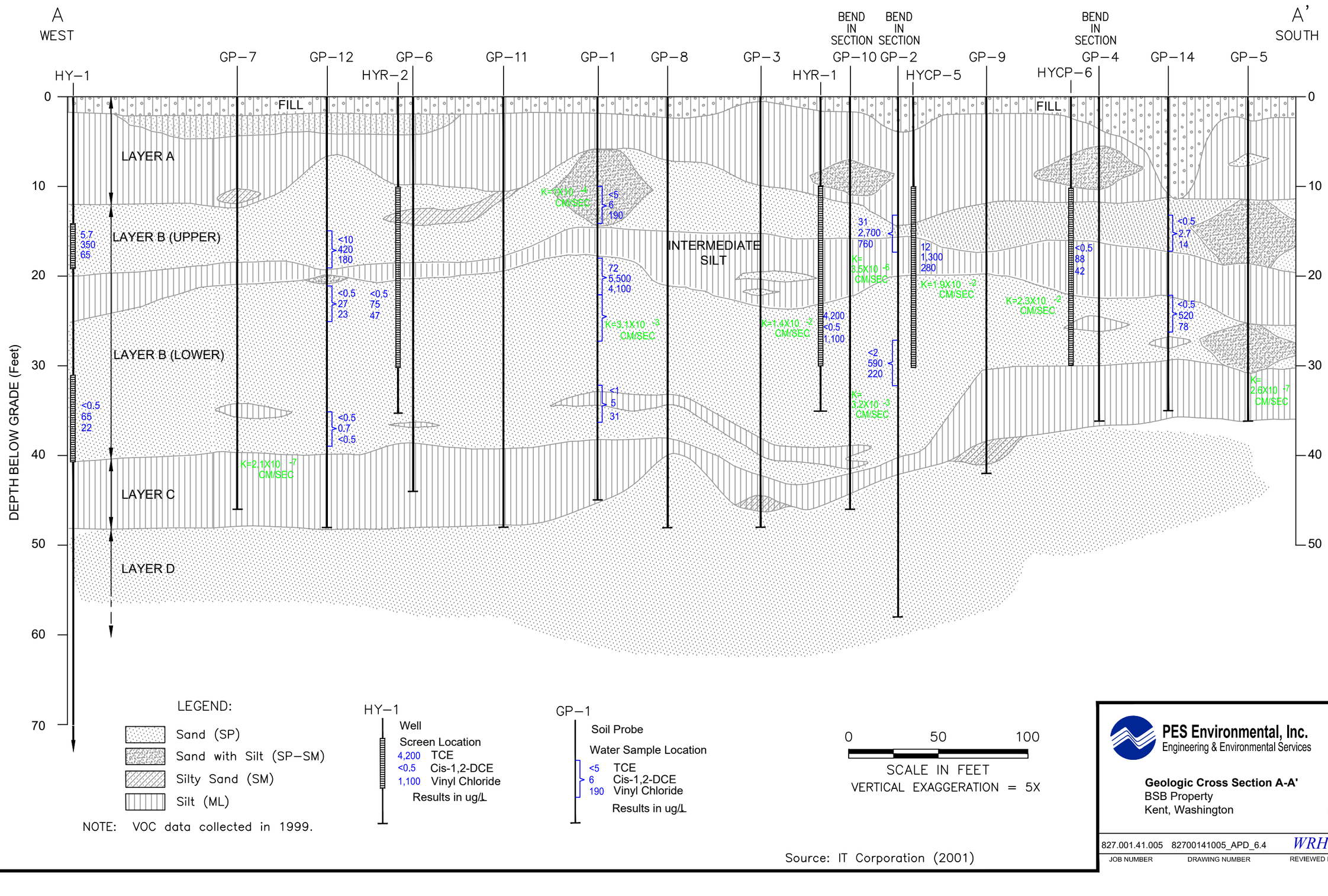
PES Environmental, Inc.
Engineering & Environmental Services

Property Sampling Location Map
BSB Property
Kent, Washington

APPENDIX
6.3

827.001.41.005	82700141005_APD_6.3	WRH	8/18
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

6.4 Geologic Cross Section A-A'



Source: IT Corporation (2001)

PES Environmental, Inc.
Engineering & Environmental Services

Geologic Cross Section A-A'
BSB Property
Kent, Washington

APPENDIX
6.4

827.001.41.005	82700141005_APD_6.4	WRH	8/18
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

6.5 Final Cleanup Action Components

SOUTH 200TH STREET

HY-1s
HY-1i
HY-1d
P-8
P-7
HYCP-7d
HYCP-7i
HYCP-7s
HYCP-2
HYCP-2i
Permitted Discharge Point
Approximate Property Boundary
Gate
Gi
Gs
HY-108
P-3
P-4
P-1
P-2
P-5
P-6
Groundwater Collection Vault
Groundwater Pretreatment System
Asphalt
HY-122
HY-12i
HY-125
P-13
P-14
P-16
P-15
HYCP-3i
HY-117
HY-13i
Hi
Hs
Grass
84TH AVENUE SOUTH
BSB Property
JH Carr Property
P-9
P-10
P-11
P-12
HY-11i
HY-11s
HY-11d

Explanation

- P-1 Piezometer
- HY-1s Shallow or Intermediate Monitoring Well
- HY-108 Upper Deep Aquifer Monitoring Well
- HY-1d Lower Deep Aquifer Monitoring Well
- Soil-Bentonite Cutoff Wall, Approximate Alignment
- x Fence

N

0 80

SCALE IN FEET

PES Environmental, Inc.
Engineering & Environmental Services

Final Remedial Action Compliance
BSB Shallow Aquifer Cleanup Action
Kent, Washington

APPENDIX
6.5

827.001.41.005	82700141005_APD_6.5	WRH	8/18
JOB NUMBER	DRAWING NUMBER	REVIEWED BY	DATE

6.6 Environmental Covenant

Restrictive (Environmental) Covenant

After Recording Return to:
Hideo Fujita
Department of Ecology
Northwest Regional Office
3190 - 160 Avenue SE
Bellevue, WA 98008-5452

Environmental Covenant

Grantor:	BSB Diversified Company, Inc.
Grantee:	State of Washington, Department of Ecology
Legal:	See Exhibit A
Tax Parcel Nos.:	0122049117

Grantor, BSB Diversified Company, Inc. hereby binds Grantor, its successors and assigns to the land use restrictions identified herein and grants such other rights described under this environmental covenant (hereafter "Covenant") made this 7th day of March, 2012 in favor of the State of Washington Department of Ecology and its successors and assigns (Ecology). Ecology shall have full right of enforcement of the rights conveyed under this Covenant pursuant to the Model Toxics Control Act, RCW 70.105D.030(1)(g), and the Uniform Environmental Covenants Act, Chapter 64.70 RCW.

This Declaration of Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by Grantor its successors and assigns, and Ecology.

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Covenant. The Remedial Action conducted at the property is described in the following documents:

[INSERT THE DATE AND TITLE FOR THE CONSENT DECREE AND CLEANUP ACTION PLAN].

These documents are on file at Ecology's Northwest Regional Office in Bellevue, Washington.

This Covenant is required because the Remedial Action resulted in residual concentrations of vinyl chloride, cis-1,2-dichloroethene, and trichloroethene which exceed the Model Toxics Control Act Cleanup Level(s) for soil and groundwater established for the Site in the Cleanup Action Plan.

The undersigned Grantor is the fee owner of real property (hereafter "Property") in the County of King, State of Washington, that is subject to this Covenant. The Property is legally described in Exhibit A of this covenant (and made a part hereof by reference).

Grantor makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of the Property (hereafter "Owner").

Section 1. No groundwater may be taken for domestic or agricultural use from the Property. Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology. Some examples of activities that are prohibited without Ecology approval in the capped area include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork.

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway (e.g., indoor air pathway or subsurface worker pathway), is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey the Property. No conveyance of title, easement, lease,

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any use substantially inconsistent with the Remedial Action only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples (provided that, upon request, Ecology allows the Owner to take split or duplicate samples, provided that doing so does not interfere with Ecology's sampling), to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

BSB Diversified Company, Inc

John H. FitzSimons
Vice President

Dated: March 7, 2012

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

K Seiler
Katherine Seiler
Program Manager
Hazardous Waste & Toxics Reduction Program

Dated: 3/20/12

STATE OF New York
COUNTY OF New York

On this 7 day of March, 2012 I certify that John H. FitzSimons personally appeared before me, acknowledged that he is the Vice President of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument for said corporation.

Linda L. Portner
Notary Public in and for the State of
New York, residing at 42 Farley Dr Stony Point NY 10980
My appointment expires 12/7/13.

Linda L. Portner
Notary Public, State of New York
No. 01PO6214523
Qualified in Rockland County
Commission Expires December 7, 2013

EXHIBIT A
LEGAL DESCRIPTION

PORTION N HALF NE QTR SE QTR STR 01-22-04 DAF BEG AT NE CORNER SAID SUBD TH SOUTH ALONG E LINE SAID SUBD 219.82 FT TH N89-24-44W 990.05 FT TH NORTH PARALLEL TO E LINE SAID SUBD TO N LINE SAID SUBD TH ELY ALONG SAID N LINE 990.11 FT MORE OR LESS TO TPOB EXC ROADS; TGW PORTION N HALF NE QTR SE QTR STR 01-22-04 DAF: BEG AT NE CORNER SAID SUBD TH SOUTH ALONG E LINE SAID SUBD 219.82 FT TO TPOB TH N89-24-44W 990.05 FT TH SOUTH PARALLEL TO E LINE SAID SUBD 224.18 FT TH S89-39-52E 990.02 FT TO E LINE SAID SUBD TH NORTH ALONG SAID E LINE 219.52 FT TO TPOB EXC ROADS EXC PORTION THEREOF DAF: BEG NE CORNER SAID SUBD TH N89-07-52W ALONG N LINE SAID SUBD 504.88 FT TH SOUTH PARALLEL TO E LINE SAID SUBD 222.30 FT TH N80-24-44W 77 FT TH SOUTH PARALLEL TO E LINE SAID SUBD 222.38 FT TH S89-39-52E 581.83 FT TO E LINE SAID SUBD TH NORTH ALONG SAID LINE 439.64 FT TO POB (AKA LOT 2 AS DELINEATED PER CITY OF KENT LOT LINE ADJUSTMENT NO LL-37-27 RECORDING NO 8712231186)

6.7 Photo Log

Photo 1: Asphalt Cap – Looking Southwest (Photo Taken 7/20/2018)

Photo 2: Vehicle Parking Along South Fence – Looking Southeast (Photo Taken 6/8/2018)

Photo 3: Asphalt Cap with Vehicle Parking – Looking Northeast (Photo Taken 6/8/2018)

Photo 4: Groundwater Pretreatment System Components – Looking Northeast (Photo Taken During Asphalt Cap Maintenance 7/16/2013)

6.8 Summary of Groundwater Elevations in Paired Monitoring Points

Appendix 6.8

Summary of Groundwater Elevations in Paired Monitoring Points
BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
Shallow																				
2/6/12	–	–	3.63	21.29	23.03	1.74	23.36	23.24	-0.12	24.84	24.71	-0.13	23.67	25.15	1.48	23.60	23.45	-0.15	–	–
2/24/12	–	–	–	20.47	23.20	2.73	22.53	24.52	1.99	24.15	24.82	0.67	22.88	25.19	2.31	19.75	23.60	3.85	–	–
3/13/12	–	–	7.20	23.69	23.51	-0.18	24.77	23.49	-1.28	25.83	25.35	-0.48	24.79	25.52	0.73	23.51	24.07	0.56	–	–
3/27/12	0.6	6	–	26.28	23.51	-2.77	26.53	22.91	-3.62	26.82	24.91	-1.91	26.20	25.32	-0.88	26.18	23.60	-2.58	–	–
4/9/12	2.0	6	2.68	25.76	23.13	-2.63	26.36	22.84	-3.52	26.82	23.90	-2.92	26.06	25.33	-0.73	25.59	23.57	-2.02	–	–
4/26/12	3.0	6	–	22.84	23.16	0.32	24.65	24.22	-0.43	25.89	24.89	-1.00	24.75	25.23	0.48	22.34	23.58	1.24	–	–
5/4/12	4.0	6	2.05	22.09	22.95	0.86	23.86	22.87	-0.99	25.27	24.92	-0.35	24.13	25.26	1.13	21.90	23.55	1.65	–	–
5/7/12	4.0	6	–	21.96	22.76	0.80	23.85	22.59	-1.26	25.17	24.66	-0.51	24.03	25.08	1.05	21.63	23.28	1.65	–	–
5/10/12	4.0	6	–	21.44	22.36	0.92	23.37	22.22	-1.15	24.75	24.37	-0.38	23.64	24.85	1.21	21.10	22.93	1.83	–	–
6/11/12	2.5	6	2.96	20.31	22.44	2.13	21.84	22.22	0.38	22.40	24.16	1.76	22.26	24.56	2.30	19.98	22.92	2.94	–	–
6/25/12	2.5	6	–	20.28	22.45	2.17	21.65	22.24	0.59	22.78	24.08	1.30	22.01	24.40	2.39	19.97	22.89	2.92	–	–
6/26/12	2.5	6	–	21.02	22.27	1.25	22.00	22.05	0.05	22.92	23.99	1.07	22.26	24.36	2.10	20.74	22.75	2.01	–	–
7/3/12	2.5	6	1.04	19.80	21.89	2.09	21.21	22.01	0.80	22.44	23.71	1.27	21.71	24.07	2.36	19.55	22.51	2.96	–	–
7/18/12	2.5	6	–	19.57	21.12	1.55	20.82	21.11	0.29	21.99	23.11	1.12	21.32	23.49	2.17	19.31	21.94	2.63	–	–
8/2/12	2.0	6	0.00	19.48	20.93	1.45	20.61	20.91	0.30	21.61	22.88	1.27	21.07	23.25	2.18	19.24	21.77	2.53	–	–
8/9/12	2.0	6	–	19.37	20.69	1.32	20.46	20.79	0.33	21.42	22.65	1.23	20.90	23.00	2.10	19.11	21.57	2.46	–	–
8/20/12	1.5	6	–	19.53	20.50	0.97	20.48	20.48	0.00	21.33	22.33	1.00	20.92	22.71	1.79	19.36	21.40	2.04	–	–
9/19/12	1.0	6	0.03	19.34	19.97	0.63	20.16	19.98	-0.18	20.85	21.65	0.80	20.52	22.02	1.50	19.23	20.90	1.67	–	–
10/8/12	1.0	6	6.71	19.74	19.83	0.09	20.43	19.91	-0.52	20.96	21.34	0.38	20.74	21.70	0.96	19.71	20.76	1.05	–	–
11/9/12	1.0	6	8.28	22.01	22.50	0.49	22.60	20.47	-2.13	22.93	23.27	0.34	22.56	23.60	1.04	21.84	22.45	0.61	–	–
12/3/12	1.0	6	6.85	23.95	23.38	-0.57	24.48	22.72	-1.76	24.69	25.10	0.41	24.12	25.39	1.27	24.08	23.82	-0.26	–	–
2012 Shallow Averages				**21.59**	**22.14**	**0.55**	**22.70**	**21.88**	**-0.82**	**23.51**	**23.73**	**0.21**	**22.88**	**24.17**	**1.29**	**21.66**	**22.71**	**1.05**	**–**	**–**
1/4/13	1.5	6	4.16	24.69	23.02	-1.67	25.34	22.79	-2.55	25.69	24.74	-0.95	25.07	25.11	0.04	24.63	23.29	-1.34	–	–
1/24/13	3.0	6	–	22.54	22.14	-0.40	23.78	22.18	-1.60	24.56	24.31	-0.25	23.92	24.76	0.84	22.38	22.96	0.58	–	–
2/1/13	2.0	6	1.58	23.99	22.89	-1.10	25.11	22.35	-2.76	25.73	24.76	-0.97	24.69	25.10	0.41	23.75	23.42	-0.33	–	–
3/1/13	3.0	1 & 6	2.74	21.48	22.44	0.96	23.08	22.40	-0.68	24.16	24.23	0.07	23.15	24.58	1.43	21.15	23.06	1.91	–	–
4/5/13	2.8	1 & 6	5.89	20.17	22.12	1.95	21.83	22.26	0.43	23.10	24.04	0.94	22.29	24.44	2.15	19.92	22.99	3.07	–	–
5/3/13	3.0	6	2.38	20.89	22.08	1.19	22.59	22.06	-0.53	23.76	24.08	0.32	22.91	24.61	1.70	20.53	22.92	2.39	–	–
5/14/13	0.6	6	–	21.33	21.88	0.55	22.44	21.88	-0.56	23.32	23.82	0.50	22.72	24.23	1.51	21.27	22.55	1.28	–	–
6/7/13	1.8	6	1.30	21.40	21.49	0.09	22.70	21.46	-1.24	23.63	23.56	-0.07	22.90	23.93	1.03	21.23	22.30	1.07	–	–
7/12/13	2.0	1	0.00	19.98	20.86	0.88	21.22	20.82	-0.40	22.24	22.77	0.53	21.62	23.13	1.51	19.83	21.75	1.92	–	–
8/6/13	1.5	1	1.35	20.10	20.29	0.19	21.09	20.29	-0.80	21.88	22.06	0.18	21.45	22.45	1.00	20.08	21.21	1.13	–	–

Appendix 6.8

Summary of Groundwater Elevations in Paired Monitoring Points
BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
9/9/13	1.5	1	6.17	19.55	21.16	1.61	20.51	20.83	0.32	21.25	22.50	1.25	20.88	22.97	2.09	19.46	21.76	2.30	–	–
10/11/13	1.0	1	1.54	20.12	22.09	1.97	20.91	21.24	0.33	21.61	23.49	1.88	21.25	23.88	2.63	20.05	22.55	2.50	–	–
11/8/13	1.0	1	3.79	20.45	21.87	1.42	21.16	21.78	0.62	21.69	23.40	1.71	21.46	23.78	2.32	20.48	22.57	2.09	–	–
12/6/13	1.0	1	1.66	20.85	21.40	0.55	21.55	21.58	0.03	22.04	23.01	0.97	21.70	23.53	1.83	20.82	22.14	1.32	–	–
2013 Shallow Averages				**21.14**	**21.81**	**0.67**	**22.26**	**21.66**	**-0.60**	**23.07**	**23.55**	**0.49**	**22.45**	**23.96**	**1.51**	**20.99**	**22.50**	**1.50**	**–**	**–**
1/13/14	1.0	1	3.70	21.69	22.28	0.59	22.61	21.69	-0.92	23.06	23.90	0.84	22.51	24.39	1.88	21.58	22.85	1.27	–	–
2/7/14	1.5	1	6.11	21.00	21.42	0.42	22.05	21.50	-0.55	22.76	22.49	-0.27	22.33	24.03	1.70	20.90	22.47	1.57	–	–
3/14/14	1.5	1	9.44	23.54	23.36	-0.18	24.64	23.36	-1.28	25.35	25.53	0.18	24.62	25.79	1.17	23.25	24.18	0.93	–	–
4/11/14	1.5	1	4.18	23.46	22.49	-0.97	24.60	22.48	-2.12	25.32	24.58	-0.74	24.57	25.05	0.48	23.35	23.29	-0.06	–	–
5/8/14	1.5	1	3.15	24.20	23.05	-1.15	26.07	22.92	-3.15	26.02	25.02	-1.00	25.22	25.41	0.19	23.98	23.86	-0.12	–	–
6/5/14	1.5	1	0.73	22.71	21.59	-1.12	23.87	21.59	-2.28	24.44	23.56	-0.88	23.88	24.12	0.24	22.63	22.45	-0.18	–	–
7/3/14	2.5	1	0.77	20.00	20.98	0.98	21.40	20.97	-0.43	22.51	22.85	0.34	21.88	23.27	1.39	19.95	21.80	1.85	–	–
8/6/14	1.75	1	1.81	19.48	20.50	1.02	20.60	20.47	-0.13	21.55	22.16	0.61	21.07	22.55	1.48	19.45	21.34	1.89	–	–
9/4/14	1.48	1	2.23	19.29	21.15	1.86	20.24	20.84	0.60	21.04	22.16	1.12	20.69	22.61	1.92	19.23	21.57	2.34	–	–
10/10/14	1.13	1	6.75	19.29	20.39	1.10	20.09	20.33	0.24	20.74	21.79	1.05	20.48	22.28	1.80	19.24	21.20	1.96	–	–
11/13/14	1.80	1	4.84	20.14	22.14	2.00	21.20	21.90	0.70	21.90	23.66	1.76	21.48	24.11	2.63	19.81	22.76	2.95	–	–
12/5/14	2.00	1	4.79	20.07	22.16	2.09	21.18	22.18	1.00	21.97	23.91	1.94	21.50	24.44	2.94	19.77	22.90	3.13	–	–
2014 Shallow Averages				**21.24**	**21.79**	**0.55**	**22.38**	**21.69**	**-0.69**	**23.06**	**23.47**	**0.41**	**22.52**	**24.00**	**1.49**	**21.10**	**22.56**	**1.46**	**–**	**–**
1/14/15	2.00	1	3.66	20.16	22.52	2.36	21.50	22.45	0.95	22.50	24.27	1.77	21.88	24.81	2.93	19.83	23.15	3.32	–	–
2/13/15	2.50	1	5.27	20.51	23.20	2.69	22.05	23.58	1.53	23.08	25.10	2.02	22.31	25.52	3.21	20.10	23.87	3.77	–	–
3/13/15	2.29	1	4.47	19.84	22.27	2.43	21.17	22.22	1.05	22.17	24.11	1.94	21.68	24.64	2.96	19.68	22.81	3.13	–	–
4/10/15	2.60	1	2.03	20.10	22.37	2.27	21.52	22.32	0.80	22.63	24.27	1.64	22.04	24.79	2.75	19.95	23.13	3.18	–	–
5/1/15	2.00	1	0.58	19.79	22.02	2.23	21.12	21.95	0.83	22.16	23.83	1.67	21.64	24.33	2.69	19.72	22.76	3.04	–	–
6/5/15	1.85	1	0.23	19.41	21.18	1.77	20.49	21.12	0.63	21.35	22.79	1.44	20.99	23.25	2.26	19.38	21.96	2.58	–	–
7/2/15	1.60	1	0.09	19.22	20.45	1.23	20.22	20.46	0.24	21.02	21.98	0.96	20.68	22.39	1.71	19.22	21.34	2.12	–	–
8/7/15	1.30	1	3.28	19.07	19.85	0.78	19.93	19.85	-0.08	20.61	21.11	0.50	20.34	21.54	1.20	19.05	20.75	1.70	–	–
9/4/15	1.09	1	0.83	19.04	20.69	1.65	19.78	20.41	0.63	20.37	21.44	1.07	20.14	21.88	1.74	19.02	21.22	2.20	–	–
10/16/15	0.92	1	4.81	18.88	20.98	2.10	19.59	20.67	1.08	20.13	21.53	1.40	19.99	22.03	2.04	18.88	21.50	2.62	–	–
11/6/15	1.20	1	8.37	19.02	21.71	2.69	19.68	21.36	1.68	20.20	22.48	2.28	20.04	23.02	2.98	18.91	22.09	3.18	–	–
12/4/15	1.67	1	11.21	19.61	22.58	2.97	20.50	22.47	1.97	21.07	24.10	3.03	20.91	24.57	3.66	19.39	23.33	3.94	–	–
2015 Shallow Averages				**19.55**	**21.65**	**2.10**	**20.63**	**21.57**	**0.94**	**21.44**	**23.08**	**1.64**	**21.05**	**23.56**	**2.51**	**19.43**	**22.33**	**2.90**	**–**	**–**
1/16/16	2.10	1	7.45	20.06	23.06	3.00	21.27	NM	–	22.06	24.90	2.84	21.71	25.32	3.61	19.82	NM	–	–	–
2/5/16	0.26	1	5.97	20.45	23.48	3.03	21.78	23.40	1.62	22.70	25.43	2.73	22.15	25.85	3.70	20.24	24.20	3.96	–	–

Appendix 6.8

Summary of Groundwater Elevations in Paired Monitoring Points
BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
3/4/16	2.46	1	5.52	20.50	23.67	3.17	22.15	23.56	1.41	23.17	25.61	2.44	22.48	26.00	3.52	20.12	24.37	4.25	–	–
4/1/16	1.69	1	1.19	20.07	22.80	2.73	21.59	22.78	1.19	22.75	24.73	1.98	22.12	25.22	3.10	19.91	23.52	3.61	–	–
5/6/16	1.94	1	0.94	19.62	21.82	2.20	20.82	21.80	0.98	21.76	23.55	1.79	21.39	24.02	2.63	19.56	22.61	3.05	–	–
6/2/16	1.61	1	1.77	19.40	21.57	2.17	20.47	21.59	1.12	21.34	22.88	1.54	21.02	23.32	2.30	19.40	22.25	2.85	–	–
7/7/16	1.47	1	0.72	19.21	21.20	1.99	20.25	21.06	0.81	21.04	22.34	1.30	20.78	22.80	2.02	19.18	21.95	2.77	–	–
8/5/16	1.40	1	0.17	19.18	20.68	1.50	20.14	20.59	0.45	20.86	21.84	0.98	20.74	22.20	1.46	19.22	21.48	2.26	–	–
9/26/16	1.20	1	1.05	18.98	20.33	1.35	NM	20.18	–	20.44	21.09	0.65	20.29	21.45	1.16	19.03	21.04	2.01	–	–
10/14/16	1.31	1	10.05	20.35	22.03	1.68	NM	21.71	–	20.61	21.87	1.26	20.49	22.24	1.75	19.24	22.64	3.40	–	–
11/11/16	1.60	1	6.48	19.97	22.70	2.73	NM	22.48	–	21.53	24.06	2.53	21.26	24.58	3.32	19.82	23.31	3.49	–	–
12/2/16	1.80	1	3.87	19.80	22.80	3.00	20.86	22.72	1.86	21.63	24.39	2.76	21.31	24.90	3.59	19.75	23.38	3.63	–	–
2016 Shallow Averages				**19.80**	**22.18**	**2.38**	**21.04**	**21.99**	**1.18**	**21.66**	**23.56**	**1.90**	**21.31**	**23.99**	**2.68**	**19.61**	**22.80**	**3.21**	**–**	**–**
1/13/17	2.00	1	4.22	19.84	22.43	2.59	20.96	22.21	1.25	21.74	24.06	2.32	21.29	24.51	3.22	19.67	22.95	3.28	–	–
2/3/17	2.07	1	8.85	19.88	22.69	2.81	21.51	22.68	1.17	22.64	24.59	1.95	22.05	25.13	3.08	19.83	23.52	3.69	–	–
3/3/17	3.30	1	7.31	20.40	23.41	3.01	21.95	23.51	1.56	23.06	25.59	2.53	22.33	25.77	3.44	20.02	24.26	4.24	–	–
4/6/17	1.96	1	3.27	–	–	–	22.92	23.76	0.84	–	–	–	–	–	–	–	–	–	–	–
5/4/17	3.33	1	2.28	20.64	23.37	2.73	22.39	23.29	0.90	23.78	24.94	1.16	22.95	25.38	2.43	20.34	23.88	3.54	–	–
6/27/17	2.01	1	1.52	19.52	21.69	2.17	20.62	21.77	1.15	21.50	23.16	1.66	21.20	23.50	2.30	19.55	22.37	2.82	–	–
7/13/17	1.55	1	0.00	19.56	21.21	1.65	20.78	21.19	0.41	–	–	–	–	–	–	–	–	–	–	–
9/25/17	1.05	1	0.59	19.56	20.67	1.11	20.99	20.26	-0.73	20.60	21.46	0.86	20.37	22.54	2.17	19.40	22.38	2.98	–	–
10/11/17	1.05	1	4.80	19.37	20.49	1.12	20.17	20.31	0.14	–	–	–	–	–	–	–	–	–	–	–
11/6/17	1.04	1	8.63	20.14	22.23	2.09	NM	21.87	–	–	–	–	–	–	–	–	–	–	–	–
12/14/17	1.70	1	5.43	20.61	22.15	1.54	21.56	22.11	0.55	22.17	23.90	1.73	21.99	24.43	2.44	20.62	22.94	2.32	–	–
2017 Shallow Averages				**19.95**	**22.03**	**2.08**	**21.39**	**22.09**	**0.72**	**22.21**	**23.96**	**1.74**	**21.74**	**24.47**	**2.73**	**19.92**	**23.19**	**3.27**	**–**	**–**
3/12/18	1.43	1	2.44	21.89	22.89	1.00	23.21	22.85	-0.36	24.04	24.41	0.37	23.49	24.66	1.17	21.69	23.40	1.71	–	–
6/30/18	1.40	1	0.63	19.35	21.10	1.75	NM	21.03	–	21.31	22.39	1.08	20.99	22.82	1.83	19.46	21.91	2.45	–	–
2018 Shallow Averages				**20.62**	**22.00**	**1.38**	**23.21**	**21.94**	**-0.36**	**22.68**	**23.40**	**0.73**	**22.24**	**23.74**	**1.50**	**20.58**	**22.66**	**2.08**	**–**	**–**
Intermediate																				
2/6/12	–	–	3.63	23.07	22.27	-0.80	23.34	22.55	-0.79	23.57	23.94	0.37	23.62	25.09	1.47	22.91	23.50	0.59	23.42	–
2/24/12	–	–	–	22.26	22.41	0.15	22.53	22.66	0.13	22.80	24.00	1.20	22.85	25.18	2.33	22.12	23.59	1.47	22.63	–
3/13/12	–	–	7.20	24.52	22.53	-1.99	24.64	22.45	-2.19	24.74	24.14	-0.60	24.79	25.54	0.75	24.46	23.82	-0.64	24.49	–
3/27/12	0.6	6	–	26.11	22.46	-3.65	26.14	22.71	-3.43	26.20	24.13	-2.07	26.18	25.28	-0.90	26.13	23.64	-2.49	26.14	–
4/9/12	2.0	6	2.68	25.85	22.32	-3.53	25.92	22.14	-3.78	26.02	24.10	-1.92	26.02	25.30	-0.72	25.86	23.58	-2.28	25.95	–
4/26/12	3.0	6	–	24.22	22.20	-2.02	24.43	22.18	-2.25	24.67	23.92	-0.75	24.70	25.24	0.54	24.11	23.47	-0.64	24.44	–

Appendix 6.8

Summary of Groundwater Elevations in Paired Monitoring Points
BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
5/4/12	4.0	6	2.05	23.42	21.83	-1.59	23.85	22.45	-1.40	24.05	23.88	-0.17	24.08	25.25	1.17	23.55	23.35	-0.20	23.92	–
5/7/12	4.0	6	–	23.27	21.79	-1.48	23.74	22.31	-1.43	23.95	23.82	-0.13	23.99	25.05	1.06	23.40	23.27	-0.13	23.81	–
5/10/12	4.0	6	–	22.87	21.54	-1.33	23.33	22.05	-1.28	23.56	23.58	0.02	23.59	24.81	1.22	22.99	22.95	-0.04	23.43	–
6/11/12	2.5	6	2.96	21.57	21.51	-0.06	22.01	21.95	-0.06	22.91	23.37	0.46	22.23	24.54	2.31	21.71	22.93	1.22	22.08	–
6/25/12	2.5	6	–	21.39	21.42	0.03	21.81	21.90	0.09	21.97	23.21	1.24	21.99	24.43	2.44	21.55	22.84	1.29	21.87	–
6/26/12	2.5	6	–	21.79	21.31	-0.48	22.13	21.80	-0.33	22.24	23.15	0.91	22.24	24.34	2.10	21.96	22.73	0.77	22.16	–
7/3/12	2.5	6	1.04	21.07	21.07	0.00	21.50	21.56	0.06	21.67	22.88	1.21	21.68	24.05	2.37	21.21	22.44	1.23	21.55	–
7/18/12	2.5	6	–	20.72	20.66	-0.06	21.12	21.13	0.01	21.29	22.39	1.10	21.29	23.48	2.19	20.87	21.99	1.12	21.18	–
8/2/12	2.0	6	0.00	20.53	20.46	-0.07	20.91	20.93	0.02	21.06	22.21	1.15	21.06	23.22	2.16	20.69	21.83	1.14	20.98	–
8/9/12	2.0	6	–	20.37	20.31	-0.06	20.75	20.75	0.00	20.89	21.97	1.08	20.88	22.99	2.11	20.51	21.65	1.14	20.81	–
8/20/12	1.5	6	–	20.44	20.11	-0.33	20.78	20.55	-0.23	20.90	21.72	0.82	20.90	22.69	1.79	20.61	21.50	0.89	20.85	–
9/19/12	1.0	6	0.03	20.11	19.71	-0.40	20.44	20.08	-0.36	20.52	21.06	0.54	20.54	22.02	1.48	20.29	21.03	0.74	20.47	–
10/8/12	1.0	6	6.71	20.37	19.64	-0.73	20.67	20.00	-0.67	20.75	20.84	0.09	20.70	21.68	0.98	20.58	20.90	0.32	20.69	–
11/9/12	1.0	6	8.28	22.24	21.12	-1.12	22.50	21.50	-1.00	22.58	22.50	-0.08	22.53	23.61	1.08	22.44	22.47	0.03	22.52	–
12/3/12	1.0	6	6.85	23.84	21.76	-2.08	24.15	22.28	-1.87	24.17	23.75	-0.42	24.10	25.39	1.29	24.15	23.56	-0.59	24.14	–
2012 Intermediate Averages				**22.42**	**21.29**	**-1.12**	**22.72**	**21.63**	**-1.09**	**22.91**	**22.97**	**0.06**	**22.85**	**24.15**	**1.30**	**22.53**	**22.67**	**0.14**	**22.75**	**–**
1/4/13	1.5	6	4.16	24.74	21.67	-3.07	24.95	22.21	-2.74	25.05	23.77	-1.28	25.07	25.06	-0.01	24.95	23.23	-1.72	24.99	–
1/24/13	3.0	6	–	23.39	21.46	-1.93	23.75	21.95	-1.80	23.88	23.48	-0.40	23.89	24.73	0.84	23.56	22.95	-0.61	23.81	–
2/1/13	2.0	6	1.58	24.28	21.83	-2.45	24.63	22.30	-2.33	24.71	23.82	-0.89	24.70	25.04	0.34	24.55	23.35	-1.20	24.60	–
3/1/13	3.0	1 & 6	2.74	22.54	21.43	-1.11	22.95	21.95	-1.00	23.10	23.32	0.22	23.11	24.56	1.45	22.69	22.95	0.26	23.10	–
4/5/13	2.8	1 & 6	5.89	21.66	21.29	-0.37	22.07	21.80	-0.27	22.26	23.13	0.87	22.27	24.43	2.16	21.76	22.81	1.05	22.13	–
5/3/13	3.0	6	2.38	22.28	21.46	-0.82	22.66	21.97	-0.69	22.85	23.39	0.54	22.87	24.62	1.75	22.38	22.93	0.55	22.75	–
5/14/13	0.6	6	–	22.26	21.14	-1.12	22.60	21.64	-0.96	22.71	23.05	0.34	22.70	24.20	1.50	22.43	22.55	0.12	22.63	–
6/7/13	1.8	6	1.30	22.40	20.88	-1.52	22.75	21.36	-1.39	22.87	22.78	-0.09	22.87	23.92	1.05	22.53	22.35	-0.18	22.79	–
7/12/13	2.0	1	0.00	21.13	20.44	-0.69	21.45	20.85	-0.60	21.70	22.06	0.36	21.62	23.13	1.51	21.37	21.83	0.46	21.51	–
8/6/13	1.5	1	1.35	21.01	19.95	-1.06	21.34	20.38	-0.96	21.44	21.40	-0.04	21.41	22.44	1.03	21.18	21.34	0.16	21.37	–
9/9/13	1.5	1	6.17	20.45	20.38	-0.07	20.76	20.80	0.04	20.87	21.79	0.92	20.85	22.93	2.08	20.62	21.81	1.19	20.82	–
10/11/13	1.0	1	1.54	20.88	21.09	0.21	21.10	21.51	0.41	21.29	22.65	1.36	21.25	23.90	2.65	21.06	22.47	1.41	21.21	–
11/8/13	1.0	1	3.79	21.12	20.81	-0.31	21.40	21.25	-0.15	21.47	22.46	0.99	21.43	23.76	2.33	21.31	22.40	1.09	21.43	–
12/6/13	1.0	1	1.66	21.41	20.77	-0.64	21.65	21.19	-0.46	21.71	22.39	0.68	21.72	23.51	1.79	21.60	22.15	0.55	21.70	–
2013 Intermediate Averages				**21.99**	**21.00**	**-0.99**	**22.31**	**21.46**	**-0.84**	**22.44**	**22.75**	**0.30**	**22.43**	**23.94**	**1.51**	**22.17**	**22.47**	**0.30**	**22.37**	**–**
1/13/14	1.0	1	3.70	22.18	21.14	-1.04	22.45	21.59	-0.86	22.52	22.96	0.44	22.48	24.43	1.95	22.35	22.74	0.39	22.48	–
2/7/14	1.5	1	6.11	22.03	20.97	-1.06	22.22	21.42	-0.80	22.33	22.77	0.44	22.30	24.01	1.71	22.07	22.52	0.45	22.25	–

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BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
3/14/14	1.5	1	9.44	24.23	22.43	-1.80	24.52	22.91	-1.61	24.61	24.41	-0.20	24.60	25.74	1.14	23.45	24.08	0.63	24.53	–
4/11/14	1.5	1	4.18	24.17	21.77	-2.40	24.50	22.27	-2.23	24.61	23.76	-0.85	24.59	25.01	0.42	24.36	23.30	-1.06	24.52	–
5/8/14	1.5	1	3.15	24.79	22.19	-2.60	25.13	22.66	-2.47	25.20	24.10	-1.10	25.21	25.37	0.16	24.98	23.82	-1.16	25.13	–
6/5/14	1.5	1	0.73	23.47	21.10	-2.37	23.65	21.55	-2.10	23.85	22.96	-0.89	23.85	24.09	0.24	23.61	22.50	-1.11	23.79	–
7/3/14	2.5	1	0.77	21.35	20.52	-0.83	21.72	20.94	-0.78	21.86	22.19	0.33	21.85	23.25	1.40	21.50	21.84	0.34	21.76	–
8/6/14	1.75	1	1.81	20.60	20.12	-0.48	20.94	20.51	-0.43	21.04	21.55	0.51	21.04	22.56	1.52	20.78	21.44	0.66	20.99	–
9/4/14	1.48	1	2.23	20.25	20.16	-0.09	20.56	18.55[a]	-2.01	20.66	21.53	0.87	20.64	22.61	1.97	20.42	21.60	1.18	20.60	–
10/10/14	1.13	1	6.75	20.12	19.94	-0.18	20.40	20.34	-0.06	20.50	21.26	0.76	20.45	22.27	1.82	20.29	21.29	1.00	20.44	–
11/13/14	1.80	1	4.84	21.04	21.34	0.30	21.37	21.74	0.37	21.47	22.94	1.47	21.46	24.11	2.65	21.20	22.76	1.56	21.42	–
12/5/14	2.00	1	4.79	21.09	21.45	0.36	21.42	21.88	0.46	21.51	23.18	1.67	21.55	24.44	2.89	21.23	22.86	1.63	21.46	–
2014 Intermediate Averages				**22.11**	**21.09**	**-1.02**	**22.41**	**21.62**	**-1.04**	**22.51**	**22.80**	**0.29**	**22.50**	**23.99**	**1.49**	**22.19**	**22.56**	**0.38**	**22.45**	**–**
1/14/15	2.00	1	3.66	21.37	21.77	0.40	21.72	22.22	0.50	21.87	23.51	1.64	21.86	24.67	2.81	21.51	23.11	1.60	21.79	–
2/13/15	2.50	1	5.27	21.80	22.38	0.58	22.17	22.34	0.17	22.32	24.21	1.89	22.31	25.49	3.18	21.92	23.80	1.88	22.23	–
3/13/15	2.29	1	4.47	21.17	21.64	0.47	21.53	22.11	0.58	21.66	23.44	1.78	21.65	24.64	2.99	21.11	22.97	1.86	21.57	–
4/10/15	2.60	1	2.03	21.53	21.80	0.27	21.88	22.26	0.38	22.01	23.58	1.57	22.00	24.76	2.76	21.68	23.10	1.42	21.94	–
5/1/15	2.00	1	0.58	21.16	21.41	0.25	21.51	21.85	0.34	21.63	23.15	1.52	21.62	24.29	2.67	21.33	22.75	1.42	21.55	–
6/5/15	1.85	1	0.23	20.55	20.71	0.16	20.85	21.12	0.27	20.98	22.21	1.23	21.00	23.24	2.24	20.75	21.98	1.23	20.92	–
7/2/15	1.60	1	0.09	20.27	20.21	-0.06	20.59	20.57	-0.02	20.65	21.46	0.81	20.70	22.39	1.69	20.48	21.40	0.92	20.64	–
8/7/15	1.30	1	3.28	19.95	19.67	-0.28	20.26	20.00	-0.26	20.33	20.71	0.38	20.30	21.54	1.24	20.14	20.87	0.73	20.28	–
9/4/15	1.09	1	0.83	19.80	19.94	0.14	20.08	20.28	0.20	20.14	20.94	0.80	20.10	21.88	1.78	20.00	21.23	1.23	20.11	–
10/16/15	0.92	1	4.81	19.65	20.26	0.61	19.93	20.56	0.63	20.00	21.12	1.12	19.97	22.04	2.07	19.86	21.56	1.70	19.96	–
11/6/15	1.20	1	8.37	19.69	20.70	1.01	19.98	21.02	1.04	20.04	21.86	1.82	20.01	23.02	3.01	19.90	22.07	2.17	20.02	–
12/4/15	1.67	1	11.21	20.52	21.64	1.12	20.84	22.04	1.20	20.79	23.19	2.40	20.90	24.59	3.69	20.68	23.13	2.45	20.86	–
2015 Intermediate Averages				**20.62**	**21.01**	**0.39**	**20.95**	**21.36**	**0.42**	**21.04**	**22.45**	**1.41**	**21.04**	**23.55**	**2.51**	**20.78**	**22.33**	**1.55**	**20.99**	**–**
1/6/16	2.10	1	7.45	21.27	22.29	1.02	21.62	22.73	1.11	21.70	24.09	2.39	21.69	25.29	3.60	21.42	23.69	2.27	21.68	–
2/5/16	0.26	1	5.97	21.66	22.61	0.95	22.04	23.09	1.05	22.13	24.47	2.34	22.11	25.80	3.69	21.84	25.08	3.24	22.84	–
3/4/16	2.46	1	5.52	21.94	22.82	0.88	22.34	23.30	0.96	22.47	24.65	2.18	22.46	25.99	3.53	22.08	24.23	2.15	22.39	–
4/1/16	1.69	1	1.19	21.61	22.20	0.59	21.98	22.67	0.69	22.10	23.99	1.89	22.11	25.20	3.09	21.78	23.45	1.67	22.03	–
5/6/16	1.94	1	0.94	20.93	21.36	0.43	21.28	21.81	0.53	21.37	22.94	1.57	21.37	23.98	2.61	21.12	22.62	1.50	21.31	–
6/2/16	1.61	1	1.77	20.65	21.01	0.36	20.95	21.41	0.46	21.02	22.34	1.32	21.00	23.29	2.29	20.80	22.25	1.45	20.95	–
7/7/16	1.47	1	0.72	20.37	20.74	0.37	20.70	21.10	0.40	20.76	21.86	1.10	20.69	22.83	2.14	20.55	21.95	1.40	20.72	–
8/5/16	1.40	1	0.17	20.23	20.34	0.11	20.54	20.69	0.15	20.62	21.37	0.75	20.60	22.23	1.63	20.43	21.55	1.12	20.57	–
9/26/16	1.20	1	1.05	19.87	19.93	0.06	20.16	20.25	0.09	20.23	20.71	0.48	20.19	21.46	1.27	20.06	21.14	1.08	20.19	–

Appendix 6.8

Summary of Groundwater Elevations in Paired Monitoring Points
BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
10/14/16	1.31	1	10.05	19.08	20.89	1.81	20.45	21.17	0.72	20.49	21.34	0.85	20.46	22.34	1.88	20.34	22.15	1.81	20.47	–
11/11/16	1.60	1	6.48	20.89	21.80	0.91	21.19	22.23	1.04	21.28	23.32	2.04	21.24	24.60	3.36	21.08	23.24	2.16	21.22	–
12/2/16	1.80	1	3.87	20.90	21.86	0.96	21.22	22.34	1.12	21.30	23.58	2.28	22.31	24.88	2.57	21.11	23.24	2.13	21.26	–
2016 Intermediate Averages				**20.78**	**21.49**	**0.70**	**21.21**	**21.90**	**0.69**	**21.29**	**22.89**	**1.60**	**21.35**	**23.99**	**2.64**	**21.05**	**22.88**	**1.83**	**21.30**	**–**
1/13/17	2.00	1	4.22	20.96	21.64	0.68	21.15	22.05	0.90	21.30	23.31	2.01	21.30	24.53	3.23	21.09	22.84	1.75	21.27	–
2/3/17	2.07	1	8.85	21.50	22.07	0.57	21.87	22.59	0.72	21.94	23.85	1.91	22.00	25.11	3.11	21.62	23.35	1.73	21.93	–
3/3/17	3.30	1	7.31	21.81	22.68	0.87	22.26	23.28	1.02	22.35	24.61	2.26	22.32	25.85	3.53	21.90	24.04	2.14	22.35	–
4/6/17	1.96	1	3.27	–	–	–	19.98	23.38	3.40	–	–	–	–	–	–	–	–	–	–	–
5/4/17	3.33	1	2.28	22.40	22.53	0.13	22.87	24.02	1.15	22.90	24.19	1.29	22.92	25.38	2.46	22.51	23.78	1.27	22.81	–
6/27/17	2.01	1	1.52	20.81	21.10	0.29	21.08	21.61	0.53	21.23	22.54	1.31	21.10	23.46	2.36	20.88	22.34	1.46	21.00	–
7/13/17	1.55	1	0.00	20.91	20.92	0.01	21.22	21.33	0.11	–	–	–	–	–	–	–	–	–	–	–
9/25/17	1.05	1	0.59	20.45	20.37	-0.08	20.84	20.30	-0.54	20.88	20.95	0.07	20.39	22.61	2.22	19.77	21.35	1.58	20.71	–
10/11/17	1.05	1	4.80	20.23	20.07	-0.16	20.49	20.39	-0.10	–	–	–	–	–	–	–	–	–	–	–
11/6/17	1.04	1	8.63	20.55	21.06	0.51	20.81	21.40	0.59	–	–	–	–	–	–	–	–	–	–	–
12/14/17	1.70	1	5.43	21.58	21.64	0.06	21.85	22.12	0.27	22.12	23.22	1.10	22.00	24.40	2.40	21.77	22.91	1.14	21.89	–
2017 Intermediate Averages				**21.12**	**21.41**	**0.29**	**21.31**	**22.04**	**0.73**	**21.82**	**23.24**	**1.42**	**21.72**	**24.48**	**2.76**	**21.36**	**22.94**	**1.58**	**–**	**–**
3/12/18	1.43	1	2.44	23.10	22.03	-1.07	NM	22.56	–	23.71	23.59	-0.12	23.50	24.99	1.49	23.26	23.23	-0.03	23.46	–
6/30/18	1.40	1	0.63	20.56	20.74	0.18	20.90	21.12	0.22	21.15	21.92	0.77	20.96	22.84	1.88	20.74	21.93	1.19	20.96	–
2018 Intermediate Averages				**21.83**	**21.39**	**-0.45**	–	**21.84**	**0.22**	**22.43**	**22.76**	**0.33**	**22.23**	**23.92**	**1.69**	**22.00**	**22.58**	**0.58**	**22.21**	–
Deep																				
2/6/12	–	–	3.63	–	23.94	1.67	–	24.06	1.51	–	24.44	0.50	–	25.03	-0.06	24.15	–	1.24	24.12	0.71
2/24/12	–	–	–	–	23.96	1.55	–	23.19	0.53	–	24.48	0.48	–	25.04	-0.14	24.15	–	2.03	24.14	1.51
3/13/12	–	–	7.20	–	24.13	1.60	–	24.30	1.85	–	24.64	0.50	–	25.13	-0.41	24.36	–	-0.10	24.34	-0.14
3/27/12	–	–	–	–	24.42	1.96	–	24.54	1.83	–	24.94	0.81	–	25.43	0.15	24.56	–	-1.57	24.56	-1.58
4/9/12	–	–	2.68	–	24.18	1.86	–	22.94	0.80	–	24.77	0.67	–	25.25	-0.05	24.40	–	-1.46	24.40	-1.54
5/4/12	–	–	2.05	–	23.73	1.90	–	23.91	1.46	–	24.24	0.36	–	24.87	-0.38	23.91	–	0.36	23.86	-0.06
5/7/12	–	–	–	–	23.71	1.92	–	23.86	1.55	–	24.27	0.45	–	24.83	-0.22	23.92	–	0.52	23.90	0.09
5/10/12	–	–	–	–	22.58	1.04	–	23.70	1.65	–	24.09	0.51	–	24.75	-0.06	23.73	–	0.74	23.72	0.29
6/11/12	–	–	2.96	–	23.44	1.93	–	23.62	1.67	–	23.98	0.61	–	24.57	0.03	23.66	–	1.95	23.65	1.57
6/25/12	–	–	–	–	23.36	1.94	–	23.53	1.63	–	23.90	0.69	–	23.49	-0.94	23.56	–	2.01	23.55	1.68
7/3/12	–	–	1.04	–	23.16	2.09	–	23.34	1.78	–	23.73	0.85	–	24.25	0.20	23.37	–	2.16	23.37	1.82
7/18/12	–	–	–	–	22.91	2.25	–	23.09	1.96	–	23.47	1.08	–	23.95	0.47	23.13	–	2.26	23.12	1.93

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Summary of Groundwater Elevations in Paired Monitoring Points
BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
8/9/12	–	–	0.00	–	22.59	2.28	–	22.75	2.00	–	23.04	1.07	–	23.62	0.63	22.74	–	2.23	22.72	1.91
9/19/12	–	–	0.03	–	21.93	2.22	–	22.05	1.97	–	22.37	1.31	–	22.78	0.76	22.10	–	1.81	22.09	1.62
10/8/12	–	–	6.71	–	21.91	2.27	–	22.06	2.06	–	22.33	1.49	–	22.71	1.03	22.05	–	1.47	22.05	1.36
11/9/12	–	–	8.28	–	22.79	1.67	–	22.45	0.95	–	23.19	0.69	–	23.69	0.08	22.95	–	0.51	22.94	0.42
12/3/12	–	–	6.85	–	23.44	1.68	–	23.48	1.20	–	23.87	0.12	–	24.49	-0.90	23.63	–	-0.52	23.64	-0.50
2012 Deep Averages				–	**23.20**	**1.92**	–	**23.18**	**1.57**	–	**23.69**	**0.74**	–	**24.22**	**0.08**	**23.39**	–	**0.88**	**23.38**	**0.65**
1/4/13	–	–	4.16	–	23.64	1.97	–	22.18	-0.03	–	24.14	0.37	–	24.72	-0.34	24.00	–	-0.95	23.91	-1.09
1/24/13	–	–	–	–	23.59	2.13	–	23.67	1.72	–	24.19	0.71	–	24.70	-0.03	23.81	–	0.25	23.83	0.02
2/1/13	–	–	1.58	–	23.57	1.74	–	23.45	1.15	–	24.09	0.27	–	24.58	-0.46	23.75	–	-0.80	23.80	-0.80
3/1/13	–	–	2.74	–	23.25	1.82	–	NM	–	–	23.80	0.48	–	24.33	-0.23	23.45	–	0.76	23.49	0.39
4/5/13	–	–	5.89	–	23.41	2.12	–	23.62	1.82	–	24.00	0.87	–	24.52	0.09	23.62	–	1.86	23.66	1.53
5/3/13	–	–	2.38	–	23.49	2.03	–	23.67	1.70	–	24.04	0.65	–	24.68	0.06	22.71	–	0.33	23.40	0.65
5/14/13	–	–	–	–	23.26	2.12	–	23.50	1.86	–	23.86	0.81	–	24.39	0.19	23.45	–	1.02	23.47	0.84
6/7/13	–	–	1.30	–	23.09	2.21	–	23.29	1.93	–	23.66	0.88	–	24.16	0.24	23.28	–	0.75	23.31	0.52
7/12/13	–	–	0.00	–	22.66	2.22	–	22.83	1.98	–	23.18	1.12	–	23.66	0.53	22.81	–	1.44	22.85	1.34
8/6/13	–	–	1.35	–	22.27	2.32	–	22.42	2.04	–	22.74	1.34	–	23.26	0.82	22.40	–	1.22	22.45	1.07
9/9/13	–	–	6.17	–	22.23	1.85	–	22.30	1.50	–	22.60	0.81	–	23.11	0.18	22.32	–	1.70	22.36	1.54
10/11/13	–	–	1.54	–	22.69	1.60	–	22.72	1.21	–	23.14	0.49	–	23.12	-0.78	22.82	–	1.76	22.86	1.64
11/8/13	–	–	3.79	–	22.61	1.80	–	22.75	1.50	–	23.06	0.60	–	23.60	-0.16	22.76	–	1.45	22.80	1.37
12/6/13	–	–	1.66	–	22.78	2.01	–	NM	–	–	23.40	1.01	–	23.67	0.16	22.95	–	1.35	22.99	1.29
2013 Deep Averages				–	**22.97**	**1.97**	–	**22.92**	**1.48**	–	**23.49**	**0.74**	–	**23.95**	**0.01**	**23.07**	–	**0.91**	**23.15**	**0.79**
1/13/14	–	–	3.70	–	22.87	1.73	–	NM	–	–	23.31	0.35	–	23.88	-0.55	23.08	–	0.73	23.05	0.57
2/7/14	–	–	6.11	–	23.24	2.27	–	23.43	2.01	–	23.85	1.08	–	–	–	23.49	–	1.42	23.51	1.26
3/14/14	–	–	9.44	–	24.18	1.75	–	24.42	1.51	–	23.74	-0.67	–	25.38	-0.36	24.45	–	1.00	24.45	-0.08
4/11/14	–	–	4.18	–	23.78	2.01	–	23.99	1.72	–	24.39	0.63	–	24.94	-0.07	24.08	–	-0.28	24.09	-0.43
5/8/14	–	–	3.15	–	24.08	1.89	–	24.29	1.63	–	24.67	0.57	–	25.24	-0.13	24.38	–	-0.60	24.38	-0.75
6/5/14	–	–	0.73	–	23.26	2.16	–	23.55	2.00	–	23.85	0.89	–	24.38	0.29	23.51	–	-0.10	23.52	-0.28
7/3/14	–	–	0.77	–	22.69	2.17	–	22.88	1.94	–	23.25	1.06	–	23.70	0.45	22.95	–	1.45	22.95	1.18
8/6/14	–	–	1.81	–	22.20	2.08	–	22.39	1.88	–	22.71	1.16	–	23.14	0.58	22.45	–	1.67	22.45	1.46
9/4/14	–	–	2.23	–	22.06	1.90	–	22.20	3.65	–	22.51	0.98	–	23.00	0.39	22.30	–	1.88	22.29	1.69
10/10/14	–	–	6.75	–	22.00	2.06	–	22.23	1.89	–	22.44	1.18	–	22.93	0.66	22.24	–	1.95	22.22	1.77
11/13/14	–	–	4.84	–	23.04	1.70	–	23.26	1.52	–	23.55	0.61	–	24.07	-0.04	23.28	–	2.08	23.29	1.87
12/5/14	–	–	4.79	–	23.25	1.80	–	23.49	1.61	–	23.81	0.63	–	24.38	-0.06	23.51	–	2.28	23.53	2.07

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Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
2014 Deep Averages				–	**23.05**	**1.96**	–	**23.28**	**1.94**	–	**23.51**	**0.71**	–	**24.09**	**0.11**	**23.31**	–	**1.12**	**23.31**	**0.86**
1/14/15	–	–	3.66	–	23.46	1.69	–	23.72	1.50	–	24.05	0.54	–	24.56	-0.11	23.71	–	2.20	23.73	1.94
2/13/15	–	–	5.27	–	23.93	1.55	–	24.15	1.81	–	24.47	0.26	–	25.12	-0.37	24.16	–	2.24	24.19	1.96
3/13/15	–	–	4.47	–	23.51	1.87	–	23.79	1.68	–	24.16	0.72	–	24.65	0.01	23.75	–	2.64	23.78	2.21
4/10/15	–	–	2.03	–	23.68	1.88	–	23.96	1.70	–	24.30	0.72	–	24.80	0.04	23.92	–	2.24	23.96	2.02
5/1/15	–	–	0.58	–	23.31	1.90	–	23.58	1.73	–	23.91	0.76	–	24.40	0.11	23.53	–	2.20	23.55	2.00
6/5/15	–	–	0.23	–	22.68	1.97	–	22.87	1.75	–	23.19	0.98	–	23.65	0.41	22.88	–	2.13	22.90	1.98
7/2/15	–	–	0.09	–	22.22	2.01	–	22.45	1.88	–	22.72	1.26	–	23.14	0.75	22.45	–	1.97	22.48	1.84
8/7/15	–	–	3.28	–	21.68	2.01	–	21.89	1.89	–	22.11	1.40	–	22.50	0.96	21.87	–	1.73	21.89	1.61
9/4/15	–	–	0.83	–	21.60	1.66	–	21.74	1.46	–	21.98	1.04	–	22.39	0.51	21.77	–	1.77	21.78	1.66
10/16/15	–	–	4.81	–	21.86	1.60	–	21.96	1.40	–	22.20	1.08	–	22.66	0.62	22.01	–	2.15	22.01	2.05
11/6/15	–	–	8.37	–	22.05	1.35	–	22.12	1.10	–	22.38	0.52	–	22.91	-0.11	22.19	–	2.29	22.19	2.17
12/4/15	–	–	11.21	–	23.17	1.53	–	23.18	1.14	–	23.64	0.45	–	24.16	-0.43	23.37	–	2.69	23.38	2.52
2015 Deep Averages				–	**22.76**	**1.75**	–	**22.95**	**1.59**	–	**23.26**	**0.81**	–	**23.75**	**0.20**	**22.97**	–	**2.19**	**22.98**	**2.00**
1/6/16	–	–	7.45	–	24.14	1.85	–	24.34	1.61	–	24.73	0.64	–	25.25	-0.04	24.33	–	2.91	24.37	2.69
2/5/16	–	–	5.97	–	24.19	1.58	–	24.41	1.32	–	24.75	0.28	–	25.31	-0.49	22.33	–	0.49	23.73	0.89
3/4/16	–	–	5.52	–	24.41	1.59	–	24.67	1.37	–	25.04	0.39	–	25.54	-0.45	23.62	–	1.54	24.34	1.95
4/1/16	–	–	1.19	–	23.96	1.76	–	24.20	1.53	–	24.54	0.55	–	25.04	-0.16	24.15	–	2.37	24.20	2.17
5/6/16	–	–	0.94	–	23.30	1.94	–	23.54	1.73	–	23.85	0.91	–	24.31	0.33	23.47	–	2.35	23.53	2.23
6/2/16	–	–	1.77	–	22.92	1.91	–	23.14	1.73	–	23.40	1.06	–	23.83	0.54	23.05	–	2.25	23.09	2.14
7/7/16	–	–	0.72	–	22.65	1.91	–	22.85	1.75	–	23.12	1.26	–	23.38	0.55	22.80	–	2.25	22.85	2.13
8/5/16	–	–	0.17	–	22.30	1.96	–	22.55	1.86	–	22.76	1.39	–	23.18	0.95	22.45	–	2.02	22.49	1.92
9/26/16	–	–	1.05	–	21.77	1.84	–	21.94	1.69	–	22.20	1.49	–	22.57	1.11	21.92	–	1.86	21.95	1.76
10/14/16	–	–	10.05	–	22.35	1.46	–	22.42	1.25	–	22.75	1.41	–	23.11	0.77	22.48	–	2.14	22.52	2.05
11/11/16	–	–	6.48	–	23.28	1.48	–	23.44	1.21	–	23.74	0.42	–	24.29	-0.31	23.45	–	2.37	23.49	2.26
12/2/16	–	–	3.87	–	23.41	1.55	–	23.57	1.23	–	23.89	0.31	–	24.48	-0.40	23.58	–	2.47	23.62	2.36
2016 Deep Averages				–	**23.22**	**1.74**	–	**23.42**	**1.52**	–	**23.73**	**0.84**	–	**24.19**	**0.20**	**23.14**	–	**2.09**	**23.35**	**2.05**
1/13/17	–	–	4.22	–	23.20	1.56	–	23.44	1.39	–	23.69	0.38	–	24.18	-0.35	23.35	–	2.26	23.38	2.11
2/3/17	–	–	8.85	–	23.82	1.75	–	24.10	1.51	–	24.52	0.67	–	25.03	-0.08	24.32	–	2.70	24.19	2.26
3/3/17	–	–	7.31	–	24.28	1.60	–	24.64	1.36	–	24.94	0.33	–	25.52	-0.33	23.50	–	1.60	24.21	1.87
5/4/17	–	–	3.27	–	24.25	1.72	–	24.43	0.41	–	24.80	0.61	–	25.80	0.42	24.38	–	1.87	24.43	1.62
6/27/17	–	–	1.52	–	23.10	2.00	–	23.29	1.68	–	23.55	1.01	–	23.97	0.51	23.22	–	2.34	23.25	2.25
9/25/17	–	–	0.59	–	21.89	1.52	–	22.86	2.56	–	22.39	1.44	–	23.55	0.94	22.20	–	2.43	22.12	1.41

Appendix 6.8

Summary of Groundwater Elevations in Paired Monitoring Points
BSB Property, Kent, Washington

Date	Pump Rate (gpm)	Cell Pumped	Monthly Rainfall (inches)	Groundwater Elevations																
				Northeast Corner			North Boundary			Northwest Corner			Southwest Corner			East Boundary			Center	
				Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	Outside	ΔH	Inside	ΔH
12/14/17	–	–	5.43	–	23.34	1.70	–	23.44	1.32	–	23.87	0.65	–	NM	–	23.69	–	1.92	23.63	1.74
2017 Deep Averages				–	**23.41**	**1.69**	–	**23.74**	**1.46**	–	**23.97**	**0.73**	–	**24.68**	**0.19**	**23.52**	–	**2.16**	**23.60**	**1.89**
3/12/18	–	–	2.44	–	23.86	1.83	–	NM	–	–	24.39	0.80	–	NM	–	24.15	–	0.89	24.12	0.66
6/30/18	–	–	0.63	–	22.69	1.95	–	22.85	1.73	–	NM	–	–	23.62	0.78	22.96	–	2.22	22.91	1.95
2018 Deep Averages				–	**23.28**	**1.89**	–	–	–	–	**24.39**	**0.80**	–	**23.62**	**0.78**	**23.56**	–	**1.56**	**23.52**	**1.31**

Notes:
1. Shallow and intermediate groundwater comparisons are for monitoring points installed across the soil-bentonite cutoff wall from each other.
2. Deep to intermediate groundwater comparisons are for co-located monitoring monitoring points installed above and below the Layer C aquitard.
3. All elevations in feet relative to the North American Vertical Datum (NAVD 88).
4. ΔH = groundwater elevation difference; positive = inward or upward gradient, which is shaded in blue, and negative = outward or downward gradient, which is shaded in red.
5. – = not available or not applicable; NM = not measured; gpm = gallons per minutes; precipitation measured at SeaTac airport (station 457473).
6. Northeast corner monitoring points = inside: P-1 (shallow), P-2 (intermediate); outside: P-3 (shallow), P-4 (intermediate), HY-108 (deep).
7. North boundary monitoring points = inside: P-5 (shallow), P-6 (intermediate); outside: HYCP-7s (shallow), HYCP-7i (intermediate), HYCP-7d (deep).
8. Northwest corner monitoring points = inside: P-7 (shallow), P-8 (intermediate); outside: HY-1s (shallow), HY-1i (intermediate), HY-1d (deep).
9. Southwest corner monitoring points = inside: P-9 (shallow), P-10 (intermediate); outside: P-11 (shallow), P-12 (intermediate), HY-11d (deep).
10. East boundary monitoring points = inside: P-13 (shallow), P-14 (intermediate), HY-125 (deep); outside: P-15 (shallow), P-16 (intermediate).
11. Center monitoring points = inside: HYCP-3i, HY-12i, and HY-13i (intermediate); outside: HY-117, HY-122, and HY-125 (deep).
12. Center groundwater elevations represent averages of HYCP-3i, HY-12i, and HY-13i (intermediate) and HY-117, HY-122, and HY-125 (deep).

[a] Groundwater elevation suspect based on change in groundwater elevation from previous month compared to other wells.

6.9 Groundwater Chemistry Data, 2010 through 2018

Appendix 6.9

Groundwater Chemistry Data, 2010 Through 2018
BSB Property, Kent, Washington

Well	Date	TCE	cDCE	VC	Well	Date	TCE	cDCE	VC
Cleanup Level		**30**	**70**	**0.2**	**Cleanup Level**		**30**	**70**	**0.2**
Monitoring Wells Upgradient of the Containment Area									
HY-11s	04/07/10	0.1 U	**0.120 J**	0.075 U	HY-11i	04/06/10	0.1 U	0.18 U	0.075 U
	12/03/10	0.5 U	0.5 U	0.2 U		12/03/10	0.5 U	0.5 U	0.2 U
	05/10/11	0.5 U	0.5 U	0.2 U		05/10/11	0.5 U	0.5 U	0.2 U
	12/21/11	0.5 U	**0.500**	0.2 U		12/21/11	0.5 U	0.5 U	0.2 U
	03/13/12	0.5 U	0.5 U	0.2 U		03/15/12	0.5 U	0.5 U	0.2 U
	06/19/12	0.5 U	0.5 U	0.2 U		06/16/12	0.5 U	0.5 U	0.2 U
	09/18/12	0.5 U	**1.87**	0.2 U		09/18/12	0.5 U	0.5 U	0.2 U
	12/21/12	0.5 U	0.5 U	0.2 U		12/21/12	0.5 U	0.5 U	0.2 U
	03/14/13	0.5 U	0.5 U	0.2 U		03/14/13	0.5 U	0.5 U	0.2 U
	06/13/13	0.5 U	0.5 U	0.2 U		06/13/13	0.5 U	0.5 U	0.2 U
	09/11/13	0.5 U	**4.07**	0.2 U		09/11/13	0.5 U	0.5 U	0.2 U
	12/27/13	0.5 U	0.5 U	0.2 U		12/27/13	0.5 U	0.5 U	0.2 U
	03/20/14	0.5 U	0.5 U	0.2 U		03/20/14	0.5 U	0.5 U	0.2 U
	06/25/14	0.5 U	0.5 U	0.2 U		06/25/14	0.5 U	0.5 U	0.2 U
	09/11/14	0.5 U	**1.48**	0.2 U		09/11/14	0.5 U	0.5 U	0.2 U
	12/10/14	0.5 U	0.5 U	0.2 U		12/10/14	0.5 U	**1.67**	**0.320**
	03/23/15	0.5 U	0.5 U	0.2 U		03/23/15	0.5 U	0.5 U	0.2 U
	06/29/15	0.5 U	0.5 U	**0.230**		06/29/15	0.5 U	0.5 U	0.2 U
	09/01/15	0.5 U	**7.01**	**0.620**		09/01/15	0.5 U	0.5 U	0.2 U
	12/07/15	0.5 U	0.5 U	0.2 U		12/07/15	0.5 U	0.5 U	0.2 U
	04/01/16	0.5 U	0.5 U	0.2 U		04/01/16	0.5 U	0.5 U	0.2 U
	09/23/16	0.5 U	0.5 U	0.2 U		09/15/16	0.5 U	0.5 U	0.2 U
	03/06/17	0.5 U	**0.824**	**0.249**		03/06/17	0.5 U	0.5 U	0.2 U
	10/03/17	0.5 U	0.5 U	0.2 U		10/03/17	0.5 U	0.5 U	0.2 U
	03/20/18	0.5 U	0.5 U	0.2 U		03/20/18	0.5 U	0.5 U	0.2 U
Trend Since CA		↔	↔	↔	Trend Since CA		↔	↔	↔
Monitoring Wells Cross-Gradient of the Containment Area									
HY-1s	04/07/10	**0.370 J**	**17.0**	**19.0**	HY-1i	04/07/10	0.1 U	**1.90**	**12.0**
	12/03/10	0.5 U	**0.5 U**	**0.730**		12/03/10	0.5 U	**0.910**	**8.69**
	05/12/11	0.5 U	**0.760**	0.2 U		05/12/11	0.5 U	**1.53**	**2.48**
	12/21/11	0.5 U	**2.77**	**15.8**		12/21/11	0.5 U	**1.05**	**5.34**
	03/12/12	0.5 U	**1.37**	**19.1**		03/14/12	0.5 U	**0.890**	**11.2**
	06/18/12	0.5 U	**1.39**	**20.4**		06/18/12	0.5 U	**1.14**	**9.62**
	09/17/12	0.5 U	**10.3**	**23.9**		09/17/12	0.5 U	**1.31**	**6.81**
	12/20/12	0.5 U	**1.56**	**16.4**		12/20/12	0.5 U	0.5 U	**4.84**
	03/12/13	0.5 U	**1.21**	**9.10**		03/12/13	0.5 U	**1.30**	**3.99**
	06/12/13	0.5 U	**4.39 J**	**15.9**		06/12/13	0.5 U	**1.15 J**	**3.50**
	09/06/13	0.5 U	**13.7**	**39.5**		09/06/13	0.5 U	**0.610**	**4.52**
	12/27/13	0.5 U	**4.89**	**22.9**		12/27/13	0.5 U	**0.716**	**4.44**
	03/18/14	0.5 U	**2.93**	**9.29**		03/18/14	0.5 U	**1.08**	**2.77**
	06/24/14	0.5 U	**3.01**	**15.6**		06/24/14	0.5 U	0.5 U	**2.85**
	09/10/14	0.5 U	**9.26**	**38.5**		09/10/14	0.5 U	**0.860**	**2.94**
	12/09/14	0.5 U	**0.810**	**2.90**		12/09/14	0.5 U	**1.16**	**3.16**
	03/19/15	0.5 U	**1.25**	**6.16**		03/19/15	0.5 U	**1.92**	**3.87**
	06/30/15	0.5 U	**2.47**	**30.3**		06/30/15	0.5 U	**0.840**	**4.19**
HY-1s	09/01/15	0.5 U	**5.74**	**36.4**	HY-1i	09/01/15	0.5 U	0.5 U	**2.53**
(continued)	12/07/15	0.5 U	**5.74**	0.2 U	(continued)	12/07/15	0.5 U	0.5 U	0.2 U

Appendix 6.9

Groundwater Chemistry Data, 2010 Through 2018
BSB Property, Kent, Washington

Well	Date	TCE	cDCE	VC	Well	Date	TCE	cDCE	VC
Cleanup Level		**30**	**70**	**0.2**	**Cleanup Level**		**30**	**70**	**0.2**
	03/24/16	0.5 U	**0.520**	**3.77**		03/24/16	0.5 U	**0.830**	**3.81**
	09/13/16	0.5 U	**2.07**	**23.5 J**		09/13/16	0.5 U	0.5 U	**4.97 J**
	03/07/17	0.5 U	**0.636**	**4.85**		03/07/17	0.5 U	**0.860**	**3.48**
	09/29/17	0.5 U	**1.71**	**14.4**		09/29/17	0.5 U	0.5 U	**3.51**
	03/21/18	0.5 U	**1.30**	**14.3**		03/21/18	0.5 U	0.5 U	0.2 U
Trend Since CA		↔	↔	↔	Trend Since CA		↔	↔	↔
Conditional Point of Compliance Monitoring Wells									
Gs	12/21/11	0.5 U	0.5 U	0.2 U	Gi	12/21/11	0.5 U	0.5 U	**0.230**
	03/12/12	0.5 U	0.5 U	**0.260**		03/14/12	0.5 U	0.5 U	0.2 U
	06/18/12	0.5 U	0.5 U	**0.370**		06/18/12	0.5 U	0.5 U	0.2 U
	09/17/12	0.5 U	0.5 U	0.2 U		09/17/12	0.5 U	0.5 U	0.2 U
	12/21/12	0.5 U	0.5 U	0.2 U		12/21/12	0.5 U	0.5 U	0.2 U
	03/13/13	0.5 U	0.5 U	0.2 U		03/13/13	0.5 U	0.5 U	0.2 U
	06/12/13	0.5 U	0.5 U	0.2 U		06/12/13	0.5 U	0.5 U	0.2 U
	09/06/13	0.5 U	0.5 U	0.2 U		09/06/13	0.5 U	0.5 U	0.2 U
	12/26/13	0.5 U	0.5 U	0.2 U		12/26/13	0.5 U	0.5 U	0.2 U
	03/19/14	0.5 U	0.5 U	**0.570**		03/19/14	0.5 U	0.5 U	0.2 U
	06/24/14	0.5 U	0.5 U	0.2 U		06/24/14	0.5 U	0.5 U	0.2 U
	09/10/14	0.5 U	0.5 U	0.2 U		09/10/14	0.5 U	0.5 U	0.2 U
	12/10/14	0.5 U	0.5 U	0.2 U		12/10/14	0.5 U	0.5 U	0.2 U
	03/23/15	0.5 U	0.5 U	0.2 U		03/23/15	0.5 U	0.5 U	0.2 U
	06/29/15	0.5 U	0.5 U	0.2 U		06/29/15	0.5 U	0.5 U	0.2 U
	09/02/15	0.5 U	0.5 U	0.2 U		09/02/15	0.5 U	0.5 U	0.2 U
	12/07/15	0.5 U	0.5 U	0.2 U		12/07/15	0.5 U	0.5 U	0.2 U
	03/25/16	0.5 U	0.5 U	0.2 U		03/26/16	0.5 U	0.5 U	0.2 U
	09/14/16	0.5 U	0.5 U	0.2 UJ		09/14/16	0.5 U	0.5 U	0.2 UJ
	03/06/17	0.5 U	0.5 U	0.2 U		03/06/17	0.5 U	0.5 U	0.2 U
	09/29/17	0.5 U	0.5 U	0.2 U		09/29/17	0.5 U	0.5 U	0.2 U
	03/20/18	0.5 U	0.5 U	0.2 U		03/20/18	0.5 U	0.5 U	0.2 U
Trend Since CA		↔	↔	↔	Trend Since CA		↔	↔	↔
Hs	04/09/10	–	–	–	Hi	04/09/10	0.1 U	0.067 U	**0.090 J**
	12/06/10	–	–	–		12/06/10	0.5 U	0.5 U	**0.360**
	05/12/11	–	–	–		05/12/11	0.5 U	0.5 U	0.2 U
	12/21/11	0.5 U	0.5 U	0.2 U		12/21/11	0.5 U	0.5 U	0.2 U
	03/12/12	0.5 U	0.5 U	0.2 U		03/15/12	0.5 U	0.5 U	0.2 U
	06/19/12	0.5 U	0.5 U	0.2 U		06/19/12	0.5 U	0.5 U	0.2 U
	09/18/12	0.5 U	0.5 U	0.2 U		09/18/12	0.5 U	0.5 U	0.2 U
	12/20/12	0.5 U	0.5 U	0.2 U		12/21/12	0.5 U	0.5 U	0.2 U
	03/14/13	0.5 U	0.5 U	0.2 U		03/14/13	0.5 U	0.5 U	0.2 U
	06/13/13	0.5 U	0.5 U	0.2 U		06/13/13	0.5 U	0.5 U	0.2 U
	09/11/13	0.5 U	0.5 U	0.2 U		09/11/13	0.5 U	0.5 U	0.2 U
	12/27/13	0.5 U	0.5 U	0.2 U		12/27/13	0.5 U	0.5 U	0.2 U
	03/20/14	0.5 U	0.5 U	0.2 U		03/20/14	0.5 U	0.5 U	0.2 U
	06/25/14	0.5 U	0.5 U	0.2 U		06/25/14	0.5 U	0.5 U	0.2 U
Hs (continued)	09/11/14	0.5 U	0.5 U	0.2 U	Hi (continued)	09/11/14	0.5 U	0.5 U	0.2 U
	12/11/14	0.5 U	0.5 U	0.2 U		12/10/14	0.5 U	0.5 U	0.2 U
	03/23/15	0.5 U	0.5 U	0.2 U		03/23/15	0.5 U	0.5 U	0.2 U
	06/29/15	0.5 U	0.5 U	0.2 U		06/29/15	0.5 U	0.5 U	0.2 U

Appendix 6.9

Groundwater Chemistry Data, 2010 Through 2018
BSB Property, Kent, Washington

Well	Date	TCE	cDCE	VC	Well	Date	TCE	cDCE	VC
Cleanup Level		**30**	**70**	**0.2**	**Cleanup Level**		**30**	**70**	**0.2**
	09/09/15	0.5 U	0.5 U	0.2 U		09/09/15	0.5 U	0.5 U	0.2 U
	12/07/15	0.5 U	0.5 U	0.2 U		12/07/15	0.5 U	0.5 U	0.2 U
	03/29/16	0.5 U	0.5 U	0.2 U		03/29/16	0.5 U	0.5 U	0.2 U
	09/14/16	0.5 U	0.5 U	0.2 UJ		09/14/16	0.5 U	0.5 U	0.2 UJ
	03/06/17	0.5 U	0.5 U	0.2 U		03/06/17	0.5 U	0.5 U	0.2 U
	09/29/17	0.5 U	0.5 U	0.2 U		09/29/17	0.5 U	0.5 U	0.2 U
	03/20/18	0.5 U	0.5 U	0.2 U		03/20/18	0.5 U	0.5 U	0.2 U
Trend Since CA		↔	↔	↔	Trend Since CA		↔	↔	↔
HYCP-2	04/08/10	0.1 U	**0.210 J**	**1.80**	HYCP-2i	04/08/10	0.1 U	**1.40**	**10.0**
	12/02/10	0.5 U	0.5 U	**4.12**		12/02/10	0.5 U	0.5 U	**0.790**
	05/11/11	0.5 U	**0.860**	0.2 U		05/11/11	0.5 U	0.5 U	0.2 U
	12/21/11	**1.97**	**4.60**	**2.31**		12/22/11	**0.850**	**1.82**	**1.81**
	03/14/12	0.5 U	0.5 U	**2.85**		03/14/12	0.5 U	0.5 U	0.2 U
	09/18/12	0.5 U	**4.93**	**28.2**		09/18/12	0.5 U	0.5 U	0.2 U
	12/21/12	0.5 U	0.5 U	**8.18**		12/21/12	0.5 U	0.5 U	0.2 U
	03/13/13	0.5 U	**1.00**	**25.4**		03/13/13	0.5 U	0.5 U	0.2 U
	06/13/13	0.5 U	**2.74 J**	**38.5**		06/12/13	0.5 U	0.5 U	0.2 U
	09/10/13	0.5 U	**0.580**	**8.56**		09/10/13	0.5 U	0.5 U	0.2 U
	12/26/13	0.5 U	0.5 U	**7.50**		12/26/13	0.5 U	0.5 U	0.2 U
	03/19/14	0.5 U	0.5 U	**4.40**		03/19/14	0.5 U	0.5 U	0.2 U
	06/24/14	0.5 U	0.5 U	**2.13**		06/24/14	0.5 U	0.5 U	0.2 U
	09/14/14	0.5 U	**0.890**	**2.10**		09/14/14	0.5 U	0.5 U	0.2 U
	12/11/14	0.5 U	**0.980**	**1.39**		12/10/14	0.5 U	0.5 U	0.2 U
	03/20/15	0.5 U	**1.21**	**1.99**		03/23/15	0.5 U	0.5 U	0.2 U
	06/30/15	0.5 U	**1.37**	**1.95**		06/30/15	0.5 U	0.5 U	0.2 U
	09/01/15	0.5 U	**0.890**	**1.90**		09/02/15	0.5 U	0.5 U	0.2 U
	12/07/15	0.5 U	0.500 U	0.2 U		12/07/15	0.5 U	0.5 U	0.2 U
	03/24/16	0.5 U	**1.04**	**1.44**		03/24/16	0.5 U	0.5 U	0.2 U
	09/13/16	0.5 U	**1.62**	**1.41 J**		09/13/16	0.5 U	0.5 U	0.2 UJ
	03/08/17	0.5 U	**1.15**	**0.994**		03/08/17	0.5 U	0.5 U	0.2 U
	09/28/17	0.5 U	**1.33**	**1.53**		09/28/17	0.5 U	0.5 U	0.2 U
	03/20/18	0.5 U	0.5 U	0.2 U		03/20/18	0.5 U	0.5 U	0.2 U
Trend Since CA		↔	↔	↓	Trend Since CA		↔	↔	↔
HYCP-7s	12/21/11	0.5 U	0.5 U	0.2 U	HYCP-7i	12/21/11	0.5 U	0.5 U	**0.990**
	03/14/12	0.5 U	0.5 U	0.2 U		03/14/12	0.5 U	0.5 U	**0.480**
	09/17/12	0.5 U	0.5 U	0.2 U		09/17/12	0.5 U	0.5 U	**0.720**
	12/21/12	0.5 U	0.5 U	0.2 U		12/21/12	0.5 U	0.5 U	0.2 U
	03/14/13	0.5 U	0.5 U	0.2 U		03/14/13	0.5 U	0.5 U	**0.460**
	06/13/13	0.5 U	0.5 U	0.2 U		06/13/13	0.5 U	0.5 U	**0.400**
	09/10/13	0.5 U	0.5 U	0.2 U		09/11/13	0.5 U	0.5 U	**0.420**
	12/26/13	0.5 U	0.5 U	0.2 U		12/26/13	0.5 U	0.5 U	0.2 U
	03/19/14	0.5 U	0.5 U	0.2 U		03/19/14	0.5 U	0.5 U	**1.09**
HYCP-7s	06/24/14	0.5 U	0.5 U	0.2 U	HYCP-7i	06/24/14	0.5 U	0.5 U	0.2 U
(continued)	09/14/14	0.5 U	0.5 U	0.2 U	(continued)	09/14/14	0.5 U	0.5 U	**0.480**
	12/11/14	0.5 U	0.5 U	0.2 U		12/11/14	0.5 U	0.5 U	**0.510**
	03/24/15	0.5 U	0.5 U	0.2 U		03/24/15	0.5 U	0.5 U	**0.530**
	06/29/15	0.5 U	0.5 U	0.2 U		06/29/15	0.5 U	0.5 U	**0.680**
	09/01/15	0.5 U	0.5 U	0.2 U		09/02/15	0.5 U	0.5 U	**0.600**

Appendix 6.9

Groundwater Chemistry Data, 2010 Through 2018
BSB Property, Kent, Washington

Well	Date	TCE	cDCE	VC	Well	Date	TCE	cDCE	VC
Cleanup Level		**30**	**70**	**0.2**	**Cleanup Level**		**30**	**70**	**0.2**
	12/07/15	0.5 U	0.5 U	0.2 U		12/07/15	0.5 U	0.5 U	0.2 U
	03/29/16	0.5 U	0.5 U	0.2 U		03/29/16	0.5 U	0.5 U	**0.470**
	09/14/16	0.5 U	0.5 U	0.2 UJ		09/14/16	0.5 U	0.5 U	**0.860 J**
	03/08/17	0.5 U	0.5 U	0.2 U		03/08/17	0.5 U	0.5 U	**0.621**
	10/02/17	0.5 U	0.5 U	0.2 U		10/02/17	0.5 U	0.5 U	0.2 U
	03/21/18	0.5 U	0.5 U	0.2 U		03/20/18	0.5 U	0.5 U	0.2 U
Trend Since CA		↔	↔	↔	Trend Since CA		↔	↔	↓
Monitoring Wells Within the Containment Area									
HY-12i	12/22/11	**2,300**	**3,400**	**154**	HY-13i	12/22/11	**2.11**	**4,190**	**2,590**
	03/14/12	**36.8**	**376**	**208**		03/14/12	**49.5**	**13,100**	**2,790**
	06/18/12	**2,030**	**42,200**	**19,000**		06/13/12	**3,640**	**24,000**	**3,970**
	09/18/12	**3,730**	**77,400**	**32,600**		09/17/12	**10,200**	**17,200**	**3,700**
	12/21/12	**5.38**	**774**	**288**		12/21/12	**90,600**	**138,000**	**4,150**
	03/12/13	**107**	**14,700**	**6,890**		03/14/13	**102,000**	**136,000**	**5,100**
	06/12/13	**15.6**	**15,700**	**4,460**		06/12/13	**31,900**	**59,300**	**5,890**
	09/05/13	**498**	**39,000**	**16,800**		09/05/13	**17,300**	**39,600**	**5,020**
	12/27/13	**1,580**	**116,000**	**36,900**		12/27/13	**13,900**	**31,500**	**7,260**
	03/18/14	**0.570**	**312**	**554**		03/19/14	**161,000**	**201,000**	**8,880**
	06/25/14	**432**	**9,620**	**4,340**		06/25/14	**89,800**	**128,000**	**5,720**
	09/10/14	**3,040**	**17,900**	**2,640**		09/10/14	**13,900**	**34,900**	**4,020**
	12/09/14	**2,920**	**134,000**	**31,900**		12/09/14	**5,900**	**22,000**	**3,000**
	03/17/15	**2,850**	**140,000**	**47,300**		03/17/15	**5,900**	**13,100**	**3,800**
	06/29/15	**2,180**	**147,000**	**58,800**		06/29/15	**3,590**	**13,600**	**3,150**
	09/11/15	**715**	**93,900**	**28,200**		09/01/15	**4,270**	**16,000**	**2,300**
	12/07/15	**1,090**	**136,000**	**50,500**		12/07/15	**1,470**	**7,780**	**2,170**
	03/26/16	**216**	**77,600**	**27,000**		03/26/16	**2,330**	**9,540**	**1,770**
	09/15/16	**114**	**136,000**	**46,200**		09/14/16	**2,580**	**11,900**	**2,660**
	03/07/17	**37.9**	**54,100**	**17,800**		03/07/17	**1,940**	**9,450**	**1,590**
	09/28/17	**2.31**	**44,800**	**14,100**		10/02/17	**1,300**	**8,850**	**2,110**
	03/21/18	**5.59**	**125,000**	**54,400**		03/21/18	**2,320**	**13,100**	**2,900**
Trend Since CA		↓	↑	↑	Trend Since CA		↔	↔	↔
HYCP-3i	04/07/10	**51,000**	**45,000**	**3,700**	–	–	–	–	–
	12/01/10	**25,000 E**	**20,000 E**	**3,510**		–	–	–	–
	05/10/11	**19,600**	**16,400**	**3,890**		–	–	–	–
	12/22/11	**22,400**	**31,000**	**2,980**		–	–	–	–
	03/14/12	**36,900**	**35,900**	**3,260**		–	–	–	–
	06/15/12	**36,200**	**33,100**	**2,630**		–	–	–	–
	09/18/12	**23,400**	**30,000**	**3,480**		–	–	–	–
	12/21/12	**11,400**	**20,400**	**1,930**		–	–	–	–
	03/14/13	**40,200**	**40,000**	**3,120**		–	–	–	–
HYCP-3i	06/12/13	**24,700**	**42,600**	**3,200**		–	–	–	–
(continued)	09/10/13	**14,400**	**35,100**	**4,380**		–	–	–	–
	12/27/13	**7,420**	**23,000**	**1,430**		–	–	–	–
	03/19/14	**16,300**	**32,100**	**4,380**		–	–	–	–
	06/25/14	**13,100**	**27,900**	**3,060**		–	–	–	–
	09/10/14	**4,110**	**26,000**	**4,590**		–	–	–	–
	12/10/14	**4,550**	**17,100**	**1,300**		–	–	–	–
	03/18/15	**7,410**	**25,900**	**4,160**		–	–	–	–

Appendix 6.9

Groundwater Chemistry Data, 2010 Through 2018
BSB Property, Kent, Washington

Well	Date	TCE	cDCE	VC	Well	Date	TCE	cDCE	VC
Cleanup Level		**30**	**70**	**0.2**	**Cleanup Level**		**30**	**70**	**0.2**
	06/29/15	**3,180**	**39,700**	**5,960**		–	–	–	–
	09/08/15	**20.2**	**2,150**	**437**		–	–	–	–
	03/26/16	**3,640**	**24,000**	**4,270**		–	–	–	–
	09/14/16	**523**	**12,400**	**2,660**		–	–	–	–
	03/07/17	**2,920**	**23,900**	**4,150**		–	–	–	–
	09/27/17	**2.43**	**20,300**	**11,300**		–	–	–	–
	03/21/18	**1,030**	**20,700**	**7,250**		–	–	–	–
Trend Since CA		↓	↔	↑		–	–	–	–

Notes:

1. Cleanup levels and all results in micrograms per liter (µg/L)
2. TCE = trichloroethene
3. cDCE = cis-1,2-dichloroethene
4. VC = vinyl chloride
5. U = not detected at or above the laboratory method reporting limit (MRL)
6. J = the identification of the analyte is acceptable, the reported value is an estimate
7. E = the analyte concentration exceeds the calibration range of the instrument used for the analysis
8. Results at or above the MRL shown in bold
9. Detections above the cleanup level highlighted in gray
10. – = well not sampled or not applicable
11. Trend Since CA = apparent trend in compound concentration since cleanup action implementation based on data inspection
12. – = well not sampled or not applicable
13. ↔ = no discernable trend
14. ↓ = apparent downward trend
15. ↑ = apparent upward trend