DRAFT CONTAMINATED SOIL INVESTIGATION REPORT
CEDAR HILLS REGIONAL LANDFILL
SOUTH SOLID WASTE AREA

Prepared for

King County Solid Waste Division

Prepared by

Anchor QEA, LLC

April 2016

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Prepared for

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TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

LIST OF ACRONYMS AND ABBREVIATIONS

µg/kg	microgram per kilogram
ARI	Analytical Resources, Inc.
bgs	below ground surface
BPA	Bonneville Power Administration
CHRL	Cedar Hills Regional Landfill
COC	chain-of-custody
Ecology	Washington State Department of Ecology
GRO	gasoline-range organics
KCSWD	King County Solid Waste Division
MTCA	Model Toxics Control Act
NAD	North American Datum
NGVD	National Geodetic Vertical Datum
NWTPH-Gx	Northwest Total Petroleum Hydrocarbons – Gasoline Range Organics
PCE	tetrachloroethene
PID	photoionization detector
profile	Hazardous Waste Profile Certification
Public Health	King County Public Health
QA	quality assurance
QC	quality control
Report	Contaminated Soil Investigation Report
RL	reporting limit
SAP	Sampling and Analysis Plan
SSWA	South Solid Waste Area
SVOC	semivolatile organic compound
TCAL	Total Constituent Analysis Limit
TCE	trichloroethylene
TCLP	toxicity characteristic leaching procedure

USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1 INTRODUCTION

This Contaminated Soil Investigation Report (Report) has been prepared by Anchor QEA, LLC, on behalf of the King County Solid Waste Division (KCSWD), to support planned removal of contaminated soils identified during confirmation sampling activities performed in 2015 during the Cedar Hills Regional Landfill (CHRL) South Solid Waste Area (SSWA) Excavation construction project. This Report presents the results of the focused contaminated soil investigation and provides recommendations for removal and disposal of the impacted soils within the area of investigation. The work performed in support of this Report was conducted in accordance with the *Sampling and Analysis Plan* (SAP; Anchor QEA 2016).

1.1 Background

The CHRL has operated since 1965 as a municipal solid waste (MSW) landfill and is owned and operated by KCSWD. The landfill is located in unincorporated King County, north of the City of Maple Valley, and occupies a 940-acre parcel, 406 acres of which are allocated for waste disposal. The CHRL site is located 20 miles southeast of Seattle, at 16645 228th Avenue SE in Maple Valley, Washington. A vicinity map is presented in Figure 1. The project site plan is presented in Figure 2.

The SSWA is located along the south side of the CHRL property, within the Bonneville Power Administration (BPA) easement. The SSWA contained a historical unlined MSW landfill cell that operated from the mid-1960s to mid-1980s. The SSWA was closed and capped in 1988 with a geomembrane and vegetative cover system.

The SSWA Excavation project, which was completed in December 2015, involved the removal and relocation of approximately 750,000 cubic yards of MSW (refuse) and soils from the SSWA. Confirmation sampling conducted during removal of the refuse revealed an area within the north portion of the SSWA containing surface soil concentrations of trichloroethylene (TCE) and gasoline-range organics (GRO) exceeding Model Toxics Control Act (MTCA) Method A – Industrial screening levels. A limited investigation was conducted at the time of construction in response to the confirmation sampling results. The limited investigation included collection and analyses of eight additional surface and test pit soil

samples. Results from these additional analyses indicated the presence of soils exceeding dangerous waste criteria for TCE. As a result, it was determined that an additional focused investigation was needed to characterize the soil for disposal as well as for determining the lateral and vertical extents of contamination. Based on the limited 2015 investigation results, the impacted soils appeared to be contained within an area approximately 120 feet by 80 feet.

KCSWD and their design consultants are currently in the process of procuring a contractor for the next phase of construction within the SSWA, which is currently planned for summer 2016 and includes excavation of soils within the SSWA to construct a new stormwater pond. The remaining area of previously identified soil contamination is planned to be removed as part of excavation for the new stormwater pond.

1.2 Purpose and Overview

The purpose of this Report is to provide guidance and recommendations for planning and executing the removal and disposal of remaining contaminated soils within the identified area of the SSWA.

This Report was prepared consistent with the Washington State Department of Ecology's (Ecology's) MTCA cleanup regulations (Ecology 2007), the U.S. Environmental Protection Agency's (USEPA's) protocols for sampling and analysis (Ecology 2011; USEPA 1993), and *Test Methods for the Evaluation of Solid Waste: Physical/Chemical Methods, 3rd Edition* (USEPA 1986).

1.3 Document Organization

This Report is organized into the following sections:

- **Section 2 – Summary of Work Performed**: Describes the subsurface investigation, modifications from the SAP, sample locations, and procedures.
- **Section 3 – Summary of Analytical Results**: Summarizes the investigation analytical results.
- **Section 4 – Data Review, Verification, and Validation**: Summarizes the investigation data quality review.

- **Section 5 – Summary and Recommendations**: Describes recommendations for impacted soil removal and disposal.
- **Section 6 – References**: Provides references identified in the Report.

2 SUMMARY OF WORK PERFORMED

The Contaminated Soil Investigation field exploration and sampling was conducted from March 7 to 11, 2016, and included advancing 20 sonic borings to a maximum vertical depth of 28 feet below ground surface (bgs). Soil and quality assurance (QA) samples were collected and submitted for laboratory analysis in accordance with the SAP. The borings were staked out at the locations identified in the SAP prior to beginning the field exploration, with the primary objective to determine the lateral and vertical extent of TCE in soil greater than the MTCA Method A – Industrial cleanup level of 30 micrograms per kilogram (µg/kg). A summary of the work performed is presented in the following subsections.

2.1 Scope of Work

The field program for the Contaminated Soil Investigation was conducted in accordance with the SAP and the February 4, 2016, scope of work approved by KCSWD, and included the following:

- Advancing up to 20 borings to depths of up to 20 feet using sonic drilling methods
- Characterizing and logging encountered soils
- Collecting soil samples at 3-foot intervals for laboratory analysis
- Preparing this summary report

A description of the field activities is provided in the following subsections.

2.2 Field Activities

The borings were completed using a Geoprobe 8140LS track-mounted sonic drill rig operated by Cascade Drilling, L.P., of Woodinville, Washington. A total of 20 borings were advanced to vertical depths between 10 and 26 feet bgs. Three of the borings (B-01A, B-02A, and B-03A) were drilled at an angle of 41 degrees from horizontal to penetration lengths between 30 and 39 feet measured along the drilled angle from ground surface. Boring locations are shown in Figure 3. Coordinates of the boring locations are provided in Table 1, along with a summary of the boring depths, sampling intervals, and laboratory analyses performed.

In accordance with the SAP, soil samples from the borings were generally collected at 3-foot intervals, beginning at the native ground surface interface. The depth to the native interface varied between borings depending on the depth of road embankment fill. Depths to the native interface were pre-determined based on as-built survey data from the SSWA Excavation project. Adjustments to the predetermined depths were made in the field as needed based on the actual interface contact observed in the extracted cores. Table 1 reflects the field-adjusted sample depths and intervals.

Soil borings were collected using a track-mounted sonic drill rig with a 4-inch-diameter steel core barrel. The core barrel was rinsed clean of soil and decontaminated before each use, including between stations, to eliminate the possibility of cross-contamination. To the extent possible, borings were drilled in the anticipated order of highest to lowest concentrations to minimize the likelihood of cross-contamination between boring locations. A steel catcher (drill shoe) was used, as necessary, to retain the soil within the core at some boring locations. Cores were generally advanced in 3- to 5-foot segments depending on the soil conditions, and retrieved upon full penetration of the core tube segment. Soil within the core tube was extruded out of the core barrel and into a disposable plastic liner (sleeve) using a low-frequency sonic vibration (i.e., to minimize sample disturbance). The plastic sleeved cores were laid out on tables adjacent to the boring location. Following retrieval, the plastic sleeved cores were placed on disposable plastic sheeting within the sample processing location and opened with a knife. Soil cores were digitally photographed prior to sample collection with their boring identification and sample depths. Discrete soil samples were taken directly from the selected depth intervals listed in Table 1.

Discrete samples for volatile organic compound (VOC) analysis were collected directly from the exposed soil within the sleeves using USEPA Method 5035A protocols. Composite samples for semivolatile organic compounds (SVOCs), metals, and toxicity characteristic leaching procedure (TCLP) were collected by removing soil in the specified sample interval from the plastic sleeves using disposable trowels and mixing the soil in a decontaminated stainless steel bowl. Both composite and discrete soil samples were placed into appropriate laboratory-prepared sample containers, labeled, and placed on ice in a cooler. Upon completion, each boring was abandoned by backfilling with hydrated bentonite. The analytical testing scheme for each soil sample is listed in Table 1.

Soil samples were described in accordance with the Unified Soil Classification System and were screened in the field for potential evidence of contamination using visual observations and notations of odor and sheen, and by conducting headspace analysis using a photoionization detector (PID) to detect the presence of volatile organic vapors. Headspace analysis was conducted by placing soil from each sample interval into a resalable plastic bag and allowing the sample to equilibrate for several minutes. The probe of the PID was then inserted into the bag and the highest reading obtained during an approximately 30-second interval was recorded. Levels of volatile organic vapors measured in soil ranged from 0 to 52.7 parts per million. Some slightly elevated PID readings were not coincident with observations of odor. The Unified Soil Classification System along with any visual and/or olfactory notations of interest and PID reading results were recorded on boring log forms, which are provided in Appendix A. Soil core photographs are provided in Appendix B.

Reusable field sampling equipment was decontaminated before sampling activities were initiated, between sampling locations, and after sampling activities were completed. Reusable field sampling equipment was decontaminated using the following procedure:

1. Pre-wash/rinse with tap water to remove most of the soil from equipment.
2. Wash with solution of tap water and Alconox soap.
3. Rinse with tap water.
4. Rinse three times with distilled water.
5. Cover (no contact) all decontaminated items with aluminum foil.
6. Store in clean, closed container for next use.

At the end of each day, samples were transported under standard chain-of-custody (COC) protocols to Analytical Resources, Inc. (ARI), of Tukwila, Washington, for archival and/or laboratory analysis. In accordance with the SAP, the first sample interval from each boring was analyzed for the full list of VOCs, SVOCs, mercury, and GRO. Subsequent intervals from each boring were analyzed for a short list of VOCs and GRO in accordance with the SAP. The laboratory analytical results for all soil samples collected are summarized in Section 3. QA duplicates, rinse blank, and field blank samples were collected at the frequency prescribed in the SAP as discussed further in Section 4.

2.3 Sampling and Analysis Plan Modifications

During the field activities, several modifications to the SAP scope of work were implemented based on encountered field conditions. Modifications to the SAP were as follows:

- Elimination of borings C-01 through C-05.
- Addition of borings F-01 and F-02.
- Addition of angled borings B-01A, B-02A, and B-03A.

Each modification is discussed in the following sections.

2.3.1 Elimination of Borings C-01 through C-05

Wet conditions encountered on the surface of the upper portions of the slope within the investigation area prevented the drill rig from safely accessing the C-01 through C-05 boring locations. Heavy rainfall during the preceding months and the field investigation resulted in saturated surface conditions. Access to the C borings was not foreseeable until the summer months, so a field decision was made to eliminate those borings and add three angled borings as described in the following subsection.

2.3.2 Addition of Borings B-01A, B-02A, and B-03A

In order to address the subsurface information gap resulting from elimination of borings C-01 through C-05, three angled borings drilled at 41 degrees from horizontal were added along the top of the slope between the B row borings. The lengths of each of the angled borings was extended in order to reach a similar subsurface area as the C borings.

2.3.3 Addition of Borings F-01 and F-02

Borings F-01 and F-02 were added along the south side of the investigation area in response to unanticipated hydrocarbon-like odors noted in boring E-03. Borings F-01 and F-02 were located approximately 30 feet south of the E-03 and E-04 borings in an attempt to bound the south lateral extents of contamination.

2.4 Subsurface Soil Conditions

Sonic drilling methods allowed for collection of continuous soil cores from each boring. Subsurface conditions encountered were generally consistent between borings and consisted primarily of silty sand with varying amounts of gravel. Some lenses of poorly graded fine sands and poorly graded gravels were noted in some of the borings. Some cobbles were also noted during drilling. Groundwater was not encountered during drilling. Boring logs are included in Appendix A.

Review of the *Surficial geologic map of the Maple Valley quadrangle* (Booth 1995) indicates that the SSWA and CHRL is underlain by glacial till deposits of the Vashon stade of the Fraser glaciation. Glacial till is primarily comprised of dense silty sands with varying amounts gravel, which is consistent with the subsurface conditions encountered during this investigation.

2.5 Groundwater Conditions

While groundwater was not encountered at the depth of borings advanced for this exploration, groundwater data from nearby monitoring wells are available. King County conducts quarterly groundwater monitoring and reporting for the CHRL. Based on review of the *Cedar Hills Regional Landfill Quarterly Environmental Monitoring Report, Second Quarter 2015* (King County 2015), the site is underlain by a deep regional aquifer and shallower discontinuous perched groundwater zones.

Table 2 summarizes the groundwater elevation data for monitoring wells located within or adjacent to the SSWA limits. Monitoring well locations are shown in Figure 2. MW-96 is the closest well to the investigation area and is located approximately 250 feet east and 40 feet north of boring A-03. Groundwater monitoring data indicate that the depth to the shallow perched groundwater zone near the area of this investigation is on the order of 100 feet bgs. The depth to water in the deeper regional aquifer is on the order of 200 feet bgs.

3 SUMMARY OF ANALYTICAL RESULTS

The following sections summarize the analytical results of the Contaminated Soils Investigation and 2015 SSWA Excavation confirmation sampling as presented in Tables 3 and 4. Figure 3 depicts the investigation boring and confirmation sampling locations. All samples collected were analyzed by ARI. As specified in the SAP, soils were analyzed for VOCs by USEPA Method 8260C (collected by USEPA Method 5035), SVOCs by USEPA Method 8270D, total mercury by USEPA Method 7471, and gasoline-range hydrocarbons by Northwest Total Petroleum Hydrocarbons – Gasoline Range Organics (NWTPH-Gx) Method. Copies of the investigation laboratory analytical reports for the soil samples are provided in Appendix C.

3.1 Screening Levels

The soil analytical results were compared to the MTCA Method A – Industrial cleanup levels. For parameters in which there are no listed Method A – Industrial cleanup levels, MTCA Method B Soil Protective of Groundwater Vadose at 25 °C cleanup levels were used. Table 3 summarizes the analytical results for VOCs, mercury, and GRO, and highlights results that exceed the screening levels. Table 4 summarizes the analytical results for SVOCs.

3.2 Volatile Organic Compounds

A total of 21 samples from the 2016 Contaminated Soils Investigation were analyzed for the full list of VOCs, and a total of 78 samples were analyzed for the short list of VOCs. Nine samples from the 2015 SSWA Excavation confirmation sampling within the area of investigation were analyzed for TCE; benzene, toluene, ethylbenzene, and xylene (BTEX); and GRO. In all, a total of 108 samples were analyzed for VOCs. The following VOCs were detected at concentrations exceeding the screening levels:

- TCE
- Tetrachloroethene (PCE)
- Vinyl chloride
- *Cis*-1,2-Dichloroethene
- Bromomethane (methyl bromide)
- BTEX

Figures 4 through 9 present inverse distance weighted concentration maps for the parameters of main concern in evaluating lateral and vertical extents of contamination. Toluene, benzene, ethylbenzene, and bromomethane were detected at some locations but were not widespread throughout the investigation area. TCE was detected throughout the investigation area with the highest concentrations located at and surrounding borings D-03 and E-03. PCE was primarily detected in borings D-03 and E-03. VOC analytical results indicate that the contamination source was likely located within the refuse above the D-03 and E-03 boring locations.

3.3 Semivolatile Organic Compounds

A total of 11 samples from 11 selected borings at the initial depth interval were analyzed for the full list of SVOCs. No SVOCs were detected at concentrations exceeding screening levels. Preliminary SVOC analytical results were provided to Ecology and King County Public Health (Public Health) for review and guidance on testing for SVOCs at lower depth intervals. Based on guidance from Ecology and Public Health, subsequent sampling depth intervals were not analyzed for SVOCs.

3.4 Metals

The initial sample interval at each boring location was analyzed for mercury (total of 21 samples). Mercury was detected in each sample, but at concentrations significantly lower than the screening level.

3.5 Toxicity Characteristic Leaching Procedure

Analytical results for VOCs, SVOCs, and mercury were compared to the Total Constituent Analysis Limits (TCALs) listed in the SAP. A TCLP analysis was ran for each parameter that exceeded the corresponding TCAL. Five samples collected from the 2016 investigation borings and two samples collected during the 2015 confirmation sampling exceeded the TCAL for TCE and were selected for TCLP testing. Samples E-03-C and SA03SWN both exceeded the dangerous waste criteria. Table 5 summarizes the TCLP testing results.

3.6 Quality Assurance Samples

The QA field homogenization duplicates were generally of similar magnitude and showed relatively low homogenization variability. VOCs and SVOCs were not detected above reporting limits (RLs) in the field blank and rinsate blank QA samples, indicating the decontamination procedures were successful. Further data quality assessment is presented in Section 4.

4 DATA REVIEW, VERIFICATION, AND VALIDATION

Soil sampling and analysis was performed in accordance with the SAP and conformed to USEPA guidance regarding sampling, QA/quality control (QC), data validation, and COC procedures. The following subsections provide further detail on data quality.

4.1 Field Quality Control Sample Collection

Field QC samples were collected at the frequency required in the SAP, including one equipment rinsate blank, two trip blanks, and five duplicate samples. Field duplicates were collected for the following boring and sample intervals:

- B-03-B
- B-03A-C
- D-03-B
- D-04-A
- F-01-B

Duplicates are identified by adding 50 to the boring identification number (i.e., B-53-B is the duplicate sample for B-03-B). Analytical results for duplicate samples are provided in Tables 3 and 4, as well as in the validation reports included in Appendix D.

4.2 Data Quality Review and Validation

Laboratory data were generated by ARI, and validated by Anchor QEA using USEPA Stage 2A validation guidelines (USEPA 2009). The validations are summarized in four separate data validation reports. Each report was reviewed and approved by Anchor QEA's QA Manager and are included as Appendix D.

The data validation verified the analytical accuracy and precision of the chemical analyses performed during this sampling effort and no data were rejected. The data may have been qualified as estimated for a particular analysis based on method or technical criterion. Data qualified with a "J" indicates that the associated numerical value is the approximate concentration of the analyte. Data qualified with a "UJ" indicates the approximate RL above which the analyte was not detected.

All soil data were determined to be useable as reported from the laboratory or as qualified in this Report to support the characterization of the nature and extent of contaminated soils.

5 SUMMARY AND RECOMMENDATIONS

This section summarizes the investigation results and provides recommendations for a soil removal and disposal plan to support upcoming construction of new stormwater and contaminated stormwater ponds within the SSWA.

5.1 Removal Plan Objectives

As discussed in Section 1, KCSWD is planning to construct a new stormwater pond within the west portion of the SSWA beginning in June 2016. In order to facilitate construction of the new pond, the remaining contaminated soils exceeding cleanup levels within the investigation area will require removal and disposal at a permitted Subtitle C or Subtitle D landfill, depending on whether the soil is characterized as hazardous or non-hazardous contaminated soil. The main objectives of this removal plan are as follows:

- Target removal of contaminated soils exceeding applicable MTCA Method B cleanup levels. For purposes of developing a removal plan to be implemented in the near term, Method B Soil Protective of Groundwater Vadose at 25 °C cleanup levels are targeted.
- Manage non-hazardous contaminated soils on site through disposal within the active landfill cell at CHRL.
- Remove and dispose of hazardous contaminated soils off site at an approved Subtitle C landfill.

5.2 Soil Contamination Extents

Figures 4 through 9 present the interpolated concentrations at all depths for the main contaminants of concern (TCE, vinyl chloride, *cis*-1,2-Dichloroethene, PCE, total xylenes, and GRO). Concentrations were interpolated through inverse distance weighting using the maximum concentration reported at each boring location. As shown in the figures, the investigation borings bounded the lateral extents for TCE, PCE, and total xylenes. At the Method B screening levels used, the lateral extents for vinyl chloride and *cis*-1,2-Dichloroethene were not bounded laterally to the west. GRO were bounded laterally with the exception of shallow screening level exceedances at borings E-01 and B-01.

The vertical extents of contamination were not bounded by the investigation borings within the source area and several outlying boundary borings. When looking at the analytical results for TCE only, the vertical extents were not bounded at A-03, B-03, D-02, E-02, E-03, B-01A, and B-02A. TCE concentrations were found to be decreasing with depth, with the exception of boring B-03. The highest TCE concentrations were found at the shallower depth intervals within the source area. Figures 10 through 18 present plan and sections for the investigation area showing TCE concentrations for each sample depth interval.

While the investigation borings did not completely bound the extents of non-hazardous contamination exceeding screening levels, the extent of hazardous contaminated soil was bounded both vertically and laterally. Overall, the investigation was successful in defining the source area and surrounding impacted soils, and shows declining concentrations vertically and laterally. Sufficient data have been collected to develop a removal plan.

5.3 Soil Removal Plan

Given some of the uncertainty in the vertical and lateral extents of contamination, a conservative soil removal plan was developed. Figures 10 through 18 present the proposed removal limits for clean soil, hazardous contaminated soil, and non-hazardous contaminated soil. The lateral and vertical removal extents for non-hazardous contaminated soils were selected to achieve removal of contaminants exceeding MTCA Method B – Protective of Groundwater cleanup levels.

The hazardous contaminated soil removal extents were selected to include the sample results, which exceeded the dangerous waste limits for TCLP, as well as TCE soil concentration sample results exceeding 2,000 µg/kg. These extents include removal of all soil to an elevation of 505.00 feet within the source area (borings D-03 and E-03). The lateral extents for hazardous soil removal were conservatively extended a minimum distance of halfway to the nearest adjacent boring showing TCE concentrations less than 2,000 µg/kg. Given that only two TCLP samples exceeded the dangerous waste criteria, and the relatively tight spacing between boring locations, this approach is considered to be conservative. As shown in Table 5, the two samples that exceeded TCLP dangerous waste criteria had TCE soil

concentrations in excess of 30,000 µg/kg. The 2,000 µg/kg limit used in determining removal extents is also five times less than the TCAL of 10,000 µg/kg for TCE.

Implementation of the soil removal plan should occur in the following sequence:

1. Remove and stockpile clean embankment fill located above the impacted soils. Figure 11 shows the proposed clean soil removal limits and depths.
2. Following removal of clean soil, the hazardous contaminated soils should be removed to the extents and depth shown in Figure 12. All hazardous soils shall be loaded directly into trucks for off-site transport and disposal at an approved Subtitle C landfill.
3. After removal of all hazardous soils, the non-hazardous soils should be removed to the extents and depths shown in Figure 13. Non-hazardous contaminated soils can be disposed of within the active cell at the CHRL. To the extent possible, soils should be loaded directly into trucks for transport and disposal on-site.
4. Following removal of non-hazardous contaminated soils to the limits shown on Figure 13, confirmation sampling shall be conducted to determine if the lateral or vertical limits need to be extended.

5.4 Soil Disposal

5.4.1 Hazardous Contaminated Soil

Approximately 770 cubic yards (in-place volume) of hazardous contaminated soil is proposed for removal and disposal. Hazardous soil will require transport and disposal at an off-site Subtitle C landfill. KCSWD's selected contractor should be required to coordinate with an approved landfill to obtain a Hazardous Waste Profile Certification (profile) for disposal of the soil. The information contained in this Report can be used by the contractor in obtaining an approved profile. KCSWD is the waste generator for the soil and will be required to sign the profile as the generator, and will also be required to provide a USEPA generator identification number. Each truck transporting hazardous soil will also be required to carry a hazardous waste manifest. Each manifest will require a signature by an authorized representative from KCSWD. Hazardous waste material profile and manifest requirements should be clearly communicated to the bidders or selected contractor.

5.4.2 Non-hazardous Contaminated Soil

Contaminated soil outside of the hazardous soil limits can be handled as non-hazardous contaminated soil for disposal at CHRL within the active cell. Approximately 7,550 cubic yards (in-place volume) of non-hazardous contaminated soil is proposed for removal and disposal. Soil outside of the hazardous limits does not designate as a Federal Dangerous Waste and was evaluated to determine if it designates as a "state only" dangerous waste using the Washington State Toxicity Designation Tool. Analytical results from the investigation and existing toxicity data for each detected contaminant was entered into the designation tool. The calculation results show that the soil is non-toxic and does not designate as Washington State dangerous or special waste. The input and output summary table from the designation tool is included as Appendix E.

5.5 Confirmation Sampling

Confirmation sampling of the excavation bottom and sidewalls will be required to determine if the cleanup levels were achieved following soil removal. Confirmation sampling should be conducted in accordance with the *Guidance on Sampling and Data Analysis Methods* (Ecology 1995). For the proposed removal plan, a sampling grid spacing of 30 feet is recommended. This grid spacing would result in approximately 22 confirmation samples. Samples should be analyzed for the following VOCs collected by USEPA Method 5035. Samples should also be analyzed for GRO using Method NWTPH-Gx.

- TCE
- PCE
- Vinyl chloride
- *Cis*-1,2-Dichloroethene
- Bromomethane (methyl bromide)
- BTEX
- GRO (NWTPH-Gx)

Preparation of a SAP is outside the scope of this Report. Prior to soil removal activities, a detailed SAP should be developed and submitted to Ecology and Public Health for review and comment.

5.6 Other Considerations

The targeted Method B soil cleanup levels are low and may be difficult to achieve in the event that VOC contamination has migrated deeper than the proposed removal limits. Following receipt and analysis of analytical results from confirmation samples collected at the initial planned removal limits, the cleanup levels should be re-evaluated as necessary and in consultation with Ecology and Public Health. If soil contamination exceeding cleanup levels needs to remain in place due to site constraints, extension of the proposed geomembrane liner for the overlying stormwater pond may be a potential approach for capping the remaining soil.

KCSWD and their selected contractor should plan for a minimum 15-working-day delay period between collection of initial confirmation samples and start of excavation backfill placement. This delay time is also intended to allow for additional excavation following receipt of the initial confirmation sample results. Anchor QEA recommends that KCSWD require their contractor to include this 15-working-day delay as an activity within their project critical path method schedule.

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TABLES

Table 1
Boring and Sample Collection Data Summary

Station ID	Sample Collection Date	Location (NAD27 WAN)[a]		Elevation (NVGD29)	Penetration Depth (feet)	Recovery Measurement (feet)	Sample Intervals	Sample Collection Interval (feet bgs)	Sample ID	Analyses
		X Coordinate	Y Coordinate							
A-01	3/7/2016	1699097.8	168626.1	530.98	25	25	A	12.8 to 13.8	CHRL-A-01-A-160307	Total Mercury, VOC (Full), GRO
							B	15.8 to 16.8	CHRL-A-01-B-160307	VOC (Short), GRO
							C	18.8 to 19.8	CHRL-A-01-C-160307	VOC (Short), GRO
							D	21.8 to 22.8	CHRL-A-01-D-160307	--
A-02	3/7/2016	1699137.7	168626.1	532.976	25	23.1	A	11.5 to 12.5	CHRL-A-02-A-160307	Total Mercury, VOC (Full), GRO
							B	14.5 to 15.5	CHRL-A-02-B-160307	VOC (Short), GRO
							C	17.5 to 18.5	CHRL-A-02-C-160307	VOC (Short), GRO
							D	20.5 to 21.5	CHRL-A-02-D-160307	VOC (Short), GRO
							E	23.5 to 24.5	CHRL-A-02-E-160307	VOC (Short), GRO
A-03	3/10/2016	1699177.7	168626.1	535.067	22	19.5	A	11.2 to 12.2	CHRL-A-03-A-160310	Total Mercury, VOC (Full), GRO
							B	14.9 to 15.9	CHRL-A-03-B-160310	VOC (Short), GRO
							C	17.9 to 18.9	CHRL-A-03-C-160310	VOC (Short), GRO
							D	20.9 to 21.9	CHRL-A-03-D-160310	VOC (Short), GRO
B-01	3/10/2016	1699107.7	168606.1	528.455	28	26	A	12 to 13	CHRL-B-01-A-160310	Total Mercury, VOC (Full), GRO
							B	14.7 to 15.7	CHRL-B-01-B-160310	VOC (Short), GRO
							C	17.7 to 18.7	CHRL-B-01-C-160310	VOC (Short), GRO
							D	20.7 to 21.7	CHRL-B-01-D-160310	VOC (Short), GRO
							E	23.7 to 24.7	CHRL-B-01-E-160310	VOC (Short), GRO
							F	26.7 to 27.7	CHRL-B-01-F-160310	VOC (Short), GRO

Table 1
Boring and Sample Collection Data Summary

Station ID	Sample Collection Date	Location (NAD27 WAN)[a]		Elevation (NVGD29)	Penetration Depth (feet)	Recovery Measurement (feet)	Sample Intervals	Sample Collection Interval (feet bgs)	Sample ID	Analyses
		X Coordinate	Y Coordinate							
B-01A	3/9/2016	1699122.7	168606.1	529.3667	36	30.3	A	17.5 to 18.5	CHRL-B-01A-A-160309	Total Mercury, VOC (Full), GRO, SVOC
							B	18.5 to 19.5	CHRL-B-01A-B-160309	VOC (Short), GRO
							C	22.5 to 23.5	CHRL-B-01A-C-160309	VOC (Short), GRO
							D	26.5 to 27.5	CHRL-B-01A-D-160309	VOC (Short), GRO
							E	30.5 to 31.5	CHRL-B-01A-E-160309	VOC (Short), GRO
							F	35.5 to 36	CHRL-B-01A-F-160309	VOC (Short), GRO
B-02	3/10/2016	1699137.7	168606.1	530.172	25	23.4	A	10 to 11	CHRL-B-02-A-160310	Total Mercury, VOC (Full), GRO, SVOC
							B	11.3 to 12.3	CHRL-B-02-B-160310	VOC (Short), GRO
							C	14.3 to 15.3	CHRL-B-02-C-160310	VOC (Short), GRO
							D	17.3 to 18.3	CHRL-B-02-D-160310	VOC (Short), GRO
							E	20.3 to 21.3	CHRL-B-02-E-160310	VOC (Short), GRO
							F	23.3 to 24.3	CHRL-B-02-F-160310	VOC (Short), GRO
B-02A	3/10/2016	1699152.7	168606.1	530.8445	39	31.6	A	14.4 to 15.4	CHRL-B-02A-A-160310	Total Mercury, VOC (Full), GRO, SVOC
							B	18 to 19	CHRL-B-02A-B-160310	VOC (Short), GRO
							C	22 to 23	CHRL-B-02A-C-160310	VOC (Short), GRO
							D	26 to 27	CHRL-B-02A-D-160310	VOC (Short), GRO
							E	30 to 31	CHRL-B-02A-E-160310	VOC (Short), GRO
							F	34 to 35	CHRL-B-02A-F-160310	VOC (Short), GRO
							G	38.5 to 39	CHRL-B-02A-G-160310	VOC (Short), GRO

Table 1
Boring and Sample Collection Data Summary

Station ID	Sample Collection Date	Location (NAD27 WAN)[a]		Elevation (NVGD29)	Penetration Depth (feet)	Recovery Measurement (feet)	Sample Intervals	Sample Collection Interval (feet bgs)	Sample ID	Analyses
		X Coordinate	Y Coordinate							
B-03	3/11/2016	1699167.7	168606.1	531.1	25.0	25.1	A	9.2 to 10.2	CHRL-B-03-A-160311	Total Mercury, VOC (Full), GRO
							B	10.7 to 11.7	CHRL-B-03-B-160311	VOC (Short), GRO
							B	10.7 to 11.7	CHRL-B-53-B-160311	VOC (Short), GRO
							C	13.7 to 14.7	CHRL-B-03-C-160311	VOC (Short), GRO
							D	16.7 to 17.7	CHRL-B-03-D-160311	VOC (Short), GRO
							E	19.7 to 20.7	CHRL-B-03-E-160311	VOC (Short), GRO
							F	22.7 to 23.7	CHRL-B-03-F-160311	VOC (Short), GRO
B-03A	3/11/2016	1699182.7	168606.1	532.3794	36	32.4	A	16.2 to 17	CHRL-B-03A-A-160311	Total Mercury, VOC (Full), GRO
							B	17 to 18	CHRL-B-03A-B-160311	VOC (Short), GRO
							C	21 to 22	CHRL-B-03A-C-160311	VOC (Short), GRO
							C	21 to 22	CHRL-B-53A-C-160311	VOC (Short), GRO
							D	25 to 26	CHRL-B-03A-D-160311	VOC (Short), GRO
							E	29 to 30	CHRL-B-03A-E-160311	VOC (Short), GRO
							F	34.5 to 35	CHRL-B-03A-F-160311	VOC (Short), GRO
D-01	3/9/2016	1699098.4	168565.7	516.088	15	15.5	A	1.3 to 2.3	CHRL-D-01-A-160309	Total Mercury, VOC (Full), GRO, SVOC
							B	4.3 to 5.3	CHRL-D-01-B-160309	VOC (Short), GRO
							C	7.3 to 8.3	CHRL-D-01-C-160309	--
							D	10.3 to 11.3	CHRL-D-01-D-160309	--
D-02	3/8/2016	1699117.9	168565.6	516.8194	15	14.7	A	0.5 to 1.5	CHRL-D-02-A-160308	Total Mercury, VOC (Full), GRO, SVOC
							B	3.5 to 4.5	CHRL-D-02-B-160308	VOC (Short), GRO
							C	6.5 to 7.5	CHRL-D-02-C-160308	VOC (Short), GRO
							D	9.5 to 10.5	CHRL-D-02-D-160308	VOC (Short), GRO
							E	12.5 to 13.5	CHRL-D-02-E-160308	VOC (Short), GRO

Table 1
Boring and Sample Collection Data Summary

Station ID	Sample Collection Date	Location (NAD27 WAN)[a]		Elevation (NVGD29)	Penetration Depth (feet)	Recovery Measurement (feet)	Sample Intervals	Sample Collection Interval (feet bgs)	Sample ID	Analyses
		X Coordinate	Y Coordinate							
D-03	3/8/2016	1699137.5	168565.9	518.0928	15	14.7	A	0.3 to 1.3	CHRL-D-03-A-160308	Total Mercury, VOC (Full), GRO, SVOC
							B	3.3 to 4.3	CHRL-D-03-B-160308	VOC (Short), GRO, TCLP
							B	3.3 to 4.3	CHRL-D-53-B-160308	VOC (Short), GRO, TCLP
							C	6.3 to 7.3	CHRL-D-03-C-160308	VOC (Short), GRO
							D	9.3 to 10.3	CHRL-D-03-D-160308	VOC (Short), GRO
							E	12.3 to 13.3	CHRL-D-03-E-160308	VOC (Short), GRO
D-04	3/8/2016	1699157.3	168564.7	518.6424	15	14.5	A	0.2 to 1.2	CHRL-D-04-A-160308	Total Mercury, VOC (Full), GRO, SVOC
							A	0.2 to 1.2	CHRL-D-54-A-160308	Total Mercury, VOC (Full), GRO, SVOC
							B	3.2 to 4.2	CHRL-D-04-B-160308	VOC (Short), GRO
							C	6.2 to 7.2	CHRL-D-04-C-160308	VOC (Short), GRO
							D	9.2 to 10.2	CHRL-D-04-D-160308	VOC (Short), GRO
							E	12.2 to 13.2	CHRL-D-04-E-160308	VOC (Short), GRO
D-05	3/8/2016	1699177.1	168564.5	519.7154	10	10	A	0.7 to 1.7	CHRL-D-05-A-160308	Total Mercury, VOC (Full), GRO, SVOC
							B	3 to 4	CHRL-D-05-B-160308	VOC (Short), GRO
							C	6 to 7	CHRL-D-05-C-160308	VOC (Short), GRO
							D	9 to 10	CHRL-D-05-D-160308	VOC (Short), GRO
E-01	3/7/2016	1699107.7	168546.1	513.637	10	9.6	A	0.5 to 1.5	CHRL-E-01-A-160307	Total Mercury, VOC (Full), GRO
							B	3 to 4	CHRL-E-01-B-160307	VOC (Short), GRO
							C	6 to 7	CHRL-E-01-C-160307	VOC (Short), GRO
							D	9 to 10	CHRL-E-01-D-160307	VOC (Short), GRO
E-02	3/7/2016	1699127.8	168546.0	514.385	10	9.7	A	0.5 to 1.5	CHRL-E-02-A-160308	Total Mercury, VOC (Full), GRO, SVOC
							B	3 to 4	CHRL-E-02-B-160308	VOC (Short), GRO
							C	6 to 7	CHRL-E-02-C-160308	VOC (Short), GRO
							D	9 to 10	CHRL-E-02-D-160308	VOC (Short), GRO

Table 1
Boring and Sample Collection Data Summary

Station ID	Sample Collection Date	Location (NAD27 WAN)[a]		Elevation (NVGD29)	Penetration Depth (feet)	Recovery Measurement (feet)	Sample Intervals	Sample Collection Interval (feet bgs)	Sample ID	Analyses
		X Coordinate	Y Coordinate							
E-03	3/8/2016	1699147.7	168546.1	515.089	10	9.3	A	0.5 to 1.5	CHRL-E-03-A-160308	Total Mercury, VOC (Full), GRO, TCLP
							B	3 to 4	CHRL-E-03-B-160308	VOC (Short), GRO, TCLP
							C	6 to 7	CHRL-E-03-C-160308	VOC (Short), GRO, TCLP
							D	9 to 10	CHRL-E-03-D-160308	VOC (Short), GRO
E-04	3/8/2016	1699167.7	168546.1	515.833	10	9.4	A	0.5 to 1.5	CHRL-E-04-A-160308	Total Mercury, VOC (Full), GRO
							B	3 to 4	CHRL-E-04-B-160308	VOC (Short), GRO
							C	6 to 7	CHRL-E-04-C-160308	VOC (Short), GRO
							D	9 to 10	CHRL-E-04-D-160308	VOC (Short), GRO
F-01	3/9/2016	1699144.1	168514.0	511.6982	12	12	A	0.5 to 1	CHRL-F-01-A-160309	Total Mercury, VOC (Full), GRO
							B	3.5 to 4.5	CHRL-F-01-B-160309	VOC (Short), GRO
							B	3.5 to 4.5	CHRL-F-51-B-160309	VOC (Short), GRO
							C	6.5 to 7.5	CHRL-F-01-C-160309	VOC (Short), GRO
							D	10.5 to 11.5	CHRL-F-01-D-160309	VOC (Short), GRO
F-02	3/9/2016	1699177.6	168512.8	512.1918	12	11.2	A	0.5 to 1	CHRL-F-02-A-160309	Total Mercury, VOC (Full), GRO
							B	3.5 to 4.5	CHRL-F-02-B-160309	VOC (Short), GRO
							C	6.5 to 7.5	CHRL-F-02-C-160309	VOC (Short), GRO
							D	10.5 to 11.5	CHRL-F-02-D-160309	VOC (Short), GRO

Notes:
a. Coordinates are in NAD27 Washington State Plane North, U.S. Feet.
bgs = below ground surface
GRO = gasoline-range organics
NAD27 = North American Datum of 1927
NVGD29 = National Geodetic Vertical Datum of 1929
SVOC = semivolatile organic compound
VOC = volatile organic compound

Table 2
South Solid Waste Area Groundwater Elevation Data

Well Number	Aquifer	Date	Reference Elevation (feet)	Measured Depth to Water	Ground Water Elevation
MW-96	Perched	4/1/2015	547.74	99.13	448.61
MW-97	Perched	4/1/2015	564.54	112.89	451.65
MW-70	Regional	4/1/2015	530.57	204.48	326.09
MW-77	Regional	4/1/2015	552.67	226.09	326.58
MW-78	Regional	4/1/2015	537.35	211.86	325.49

Source: Second Quarter 2015 Cedar Hills Landfill Monitoring Report (King County 2015)

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	A-01_201603	A-01_201603	A-01_201603	A-02_201603	A-02_201603	A-02_201603	A-02_201603	A-02_201603	A-03_201603
Sample ID	CHRL-A-01-A-160307	CHRL-A-01-B-160307	CHRL-A-01-C-160307	CHRL-A-02-A-160307	CHRL-A-02-B-160307	CHRL-A-02-C-160307	CHRL-A-02-D-160307	CHRL-A-02-E-160307	CHRL-A-03-A-160310
Sample Date	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/10/2016
Depth	12.8 - 13.8 feet	15.8 - 16.8 feet	18.8 - 19.8 feet	11.5 - 12.5 feet	14.5 - 15.5 feet	17.5 - 18.5 feet	20.5 - 21.5 feet	23.5 - 24.5 feet	11.2 - 12.2 feet
Metals (mg/kg)									
Mercury	**0.03**	--	--	**0.03**	--	--	--	--	**0.0197 J**
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	1 U	--	--	0.9 U	--	--	--	--	1 U
1,1,1-Trichloroethane	1 U	--	--	0.9 U	--	--	--	--	1 U
1,1,2,2-Tetrachloroethane	1 U	--	--	0.9 U	--	--	--	--	1 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	2 U	--	--	1.8 U	--	--	--	--	2.1 U
1,1,2-Trichloroethane	1 U	--	--	0.9 U	--	--	--	--	1 U
1,1-Dichloroethane	**0.6 J**	--	--	0.9 U	--	--	--	--	1 U
1,1-Dichloroethene	1 U	--	--	0.9 U	--	--	--	--	1 U
1,1-Dichloropropene	1 U	--	--	0.9 U	--	--	--	--	1 U
1,2,3-Trichlorobenzene	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
1,2,3-Trichloropropane	2 U	--	--	1.8 U	--	--	--	--	2.1 U
1,2,4-Trichlorobenzene	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
1,2,4-Trimethylbenzene	**2.2**	--	--	0.9 U	--	--	--	--	**1.9**
1,2-Dibromo-3-chloropropane	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
1,2-Dichlorobenzene	1 U	--	--	0.9 U	--	--	--	--	1 U
1,2-Dichloroethane	1 U	--	--	0.9 U	--	--	--	--	1 U
1,2-Dichloroethene, cis-	**32**	**67 J**	**34 J**	0.9 U	**18 J**	**52 J**	**30 J**	**44 J**	**8.3**
1,2-Dichloroethene, trans-	1 U	--	--	0.9 U	--	--	--	--	1 U
1,2-Dichloropropane	1 U	--	--	0.9 U	--	--	--	--	1 U
1,3,5-Trimethylbenzene (Mesitylene)	**0.9 J**	--	--	0.9 U	--	--	--	--	**0.7 J**
1,3-Dichlorobenzene	1 U	--	--	0.9 U	--	--	--	--	1 U
1,3-Dichloropropane	1 U	--	--	0.9 U	--	--	--	--	1 U
1,3-Dichloropropene, cis-	1 U	--	--	0.9 U	--	--	--	--	1 U
1,3-Dichloropropene, trans-	1 U	--	--	0.9 U	--	--	--	--	1 U
1,4-Dichloro-2-butene, trans-	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
1,4-Dichlorobenzene	**0.5 J**	--	--	0.9 U	--	--	--	--	1 U
2,2-Dichloropropane	1 U	--	--	0.9 U	--	--	--	--	1 U
2-Butanone (MEK)	**16**	**110 J**	**6.6 J**	4.6 U	**44 J**	**560 J**	**660 J**	**1300 J**	**15**
2-Chloroethylvinyl ether	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
2-Chlorotoluene	1 U	--	--	0.9 U	--	--	--	--	1 U
2-Hexanone (Methyl butyl ketone)	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
4-Chlorotoluene	1 U	--	--	0.9 U	--	--	--	--	1 U
Acetone	**82**	--	--	**20**	--	--	--	--	**100**
Acrolein	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
Acrylonitrile	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
Benzene	**2**	--	--	0.9 U	--	--	--	--	**0.8 J**
Bromobenzene	1 U	--	--	0.9 U	--	--	--	--	1 U
Bromochloromethane	1 U	--	--	0.9 U	--	--	--	--	1 U

Table 3

Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	A-01_201603	A-01_201603	A-01_201603	A-02_201603	A-02_201603	A-02_201603	A-02_201603	A-02_201603	A-03_201603
Sample ID	CHRL-A-01-A-160307	CHRL-A-01-B-160307	CHRL-A-01-C-160307	CHRL-A-02-A-160307	CHRL-A-02-B-160307	CHRL-A-02-C-160307	CHRL-A-02-D-160307	CHRL-A-02-E-160307	CHRL-A-03-A-160310
Sample Date	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/10/2016
Depth	12.8 - 13.8 feet	15.8 - 16.8 feet	18.8 - 19.8 feet	11.5 - 12.5 feet	14.5 - 15.5 feet	17.5 - 18.5 feet	20.5 - 21.5 feet	23.5 - 24.5 feet	11.2 - 12.2 feet
Bromodichloromethane	1 U	--	--	0.9 U	--	--	--	--	1 U
Bromoform (Tribromomethane)	1 U	--	--	0.9 U	--	--	--	--	1 U
Bromomethane (Methyl bromide)	1 U	1.1 UJ	1 UJ	0.9 U	1.1 UJ	**0.4 J**	1 UJ	1 UJ	1 U
Carbon disulfide	**1.4**	--	--	0.9 U	--	--	--	--	**4.1**
Carbon tetrachloride (Tetrachloromethane)	1 U	--	--	0.9 U	--	--	--	--	1 U
Chlorobenzene	1 U	--	--	0.9 U	--	--	--	--	1 U
Chloroethane	1 U	--	--	0.9 U	--	--	--	--	1 U
Chloroform	1 U	--	--	0.9 U	--	--	--	--	1 U
Chloromethane	1 U	--	--	0.9 U	--	--	--	--	1 U
Cymene, p- (4-Isopropyltoluene)	**1.9**	--	--	0.9 U	--	--	--	--	1 U
Dibromochloromethane	1 U	--	--	0.9 U	--	--	--	--	1 U
Dibromomethane	1 U	--	--	0.9 U	--	--	--	--	1 U
Dichloromethane (Methylene chloride)	2 U	2.2 UJ	2.1 UJ	1.8 U	2.3 UJ	2.5 UJ	2.6 UJ	2.3 UJ	2.1 U
Ethyl bromide (Bromoethane)	2 U	--	--	1.8 U	--	--	--	--	2.1 U
Ethylbenzene	**3.3**	--	--	0.9 U	--	--	--	--	**0.9 J**
Ethylene dibromide (1,2-Dibromoethane)	1 U	--	--	0.9 U	--	--	--	--	1 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
Isopropylbenzene (Cumene)	**1**	--	--	0.9 U	--	--	--	--	**0.3 J**
m,p-Xylene	**7.7**	**15 J**	**7.3 J**	**0.6 J**	**10 J**	**13 J**	**8.1 J**	**4.6 J**	**2.3**
Methyl iodide (Iodomethane)	1 U	--	--	0.9 U	--	--	--	--	1 U
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
Naphthalene	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
n-Butylbenzene	1 U	--	--	0.9 U	--	--	--	--	1 U
n-Propylbenzene	**0.9 J**	--	--	0.9 U	--	--	--	--	**0.4 J**
o-Xylene	**2.1**	**4.7 J**	**2.2 J**	0.9 U	**4.5 J**	**5 J**	**2.9 J**	**1.8 J**	**1.3**
sec-Butylbenzene	1 U	--	--	0.9 U	--	--	--	--	1 U
Styrene	1 U	--	--	0.9 U	--	--	--	--	1 U
tert-Butylbenzene	1 U	--	--	0.9 U	--	--	--	--	1 U
Tetrachloroethene (PCE)	1 U	1.1 UJ	1 UJ	0.9 U	1.1 UJ	0.9 UJ	1 UJ	1 UJ	1 U
Toluene	**6.6**	--	--	**0.7 J**	--	--	--	--	**1.8**
Trichloroethene (TCE)	**2.2**	**4.6 J**	**2.6 J**	0.9 U	**3.1 J**	**3.5 J**	**2.3 J**	**2.1 J**	**3**
Trichlorofluoromethane (Fluorotrichloromethane)	1 U	--	--	0.9 U	--	--	--	--	1 U
Vinyl acetate	5.1 U	--	--	4.6 U	--	--	--	--	5.2 U
Vinyl chloride	**12**	**2.3 J**	**1.1 J**	0.9 U	1.1 UJ	**11 J**	**5.1 J**	**6.7 J**	1 U
Total Xylene (U = 1/2)	**9.8**	**19.7 J**	**9.5 J**	**1.1 J**	**14.5 J**	**18 J**	**11 J**	**6.4 J**	**3.6**
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	**6**	5.7 UJ	6.1 UJ	5.7 U	7 UJ	4.9 UJ	4.7 UJ	5.9 UJ	7.4 U
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	A-03_201603	A-03_201603	A-03_201603	B-01_201603	B-01_201603	B-01_201603	B-01_201603	B-01_201603	B-01_201603
Sample ID	CHRL-A-03-B-160310	CHRL-A-03-C-160310	CHRL-A-03-D-160310	CHRL-B-01-A-160310	CHRL-B-01-B-160310	CHRL-B-01-C-160310	CHRL-B-01-D-160310	CHRL-B-01-E-160310	CHRL-B-01-F-160310
Sample Date	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016
Depth	14.9 - 15.9 feet	17.9 - 18.9 feet	20.9 - 21.9 feet	12 - 13 feet	14.7 - 15.7 feet	17.7 - 18.7 feet	20.7 - 21.7 feet	23.7 - 24.7 feet	26.7 - 27.7 feet
Metals (mg/kg)									
Mercury	--	--	--	**0.023 J**	--	--	--	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	--	--	63 U	--	--	--	--	--
1,1,1-Trichloroethane	--	--	--	63 U	--	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	63 U	--	--	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	130 U	--	--	--	--	--
1,1,2-Trichloroethane	--	--	--	63 U	--	--	--	--	--
1,1-Dichloroethane	--	--	--	63 U	--	--	--	--	--
1,1-Dichloroethene	--	--	--	63 U	--	--	--	--	--
1,1-Dichloropropene	--	--	--	63 U	--	--	--	--	--
1,2,3-Trichlorobenzene	--	--	--	320 U	--	--	--	--	--
1,2,3-Trichloropropane	--	--	--	130 U	--	--	--	--	--
1,2,4-Trichlorobenzene	--	--	--	320 U	--	--	--	--	--
1,2,4-Trimethylbenzene	--	--	--	**110**	--	--	--	--	--
1,2-Dibromo-3-chloropropane	--	--	--	320 U	--	--	--	--	--
1,2-Dichlorobenzene	--	--	--	63 U	--	--	--	--	--
1,2-Dichloroethane	--	--	--	63 U	--	--	--	--	--
1,2-Dichloroethene, cis-	**60 J**	**93 J**	**140 J**	**1200**	**110**	**1.7**	**1.3**	**7.7**	**8.2**
1,2-Dichloroethene, trans-	--	--	--	63 U	--	--	--	--	--
1,2-Dichloropropane	--	--	--	63 U	--	--	--	--	--
1,3,5-Trimethylbenzene (Mesitylene)	--	--	--	**38 J**	--	--	--	--	--
1,3-Dichlorobenzene	--	--	--	63 U	--	--	--	--	--
1,3-Dichloropropane	--	--	--	63 U	--	--	--	--	--
1,3-Dichloropropene, cis-	--	--	--	63 U	--	--	--	--	--
1,3-Dichloropropene, trans-	--	--	--	63 U	--	--	--	--	--
1,4-Dichloro-2-butene, trans-	--	--	--	320 U	--	--	--	--	--
1,4-Dichlorobenzene	--	--	--	63 U	--	--	--	--	--
2,2-Dichloropropane	--	--	--	63 U	--	--	--	--	--
2-Butanone (MEK)	**3.7 J**	**6.5 J**	**11 J**	320 U	**5.1 J**	**5.2**	5.4 U	5.6 U	**5.2**
2-Chloroethylvinyl ether	--	--	--	320 U	--	--	--	--	--
2-Chlorotoluene	--	--	--	63 U	--	--	--	--	--
2-Hexanone (Methyl butyl ketone)	--	--	--	**160 J**	--	--	--	--	--
4-Chlorotoluene	--	--	--	63 U	--	--	--	--	--
Acetone	--	--	--	**370**	--	--	--	--	--
Acrolein	--	--	--	320 U	--	--	--	--	--
Acrylonitrile	--	--	--	320 U	--	--	--	--	--
Benzene	--	--	--	63 U	--	--	--	--	--
Bromobenzene	--	--	--	63 U	--	--	--	--	--
Bromochloromethane	--	--	--	63 U	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	A-03_201603	A-03_201603	A-03_201603	B-01_201603	B-01_201603	B-01_201603	B-01_201603	B-01_201603	B-01_201603
Sample ID	CHRL-A-03-B-160310	CHRL-A-03-C-160310	CHRL-A-03-D-160310	CHRL-B-01-A-160310	CHRL-B-01-B-160310	CHRL-B-01-C-160310	CHRL-B-01-D-160310	CHRL-B-01-E-160310	CHRL-B-01-F-160310
Sample Date	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016
Depth	14.9 - 15.9 feet	17.9 - 18.9 feet	20.9 - 21.9 feet	12 - 13 feet	14.7 - 15.7 feet	17.7 - 18.7 feet	20.7 - 21.7 feet	23.7 - 24.7 feet	26.7 - 27.7 feet
Bromodichloromethane	--	--	--	63 U	--	--	--	--	--
Bromoform (Tribromomethane)	--	--	--	63 U	--	--	--	--	--
Bromomethane (Methyl bromide)	1 UJ	0.9 UJ	**0.8 J**	**100 J**	1.2 UJ	1 U	1.1 U	1.1 U	1 U
Carbon disulfide	--	--	--	63 U	--	--	--	--	--
Carbon tetrachloride (Tetrachloromethane)	--	--	--	63 U	--	--	--	--	--
Chlorobenzene	--	--	--	63 U	--	--	--	--	--
Chloroethane	--	--	--	63 U	--	--	--	--	--
Chloroform	--	--	--	63 U	--	--	--	--	--
Chloromethane	--	--	--	63 U	--	--	--	--	--
Cymene, p- (4-Isopropyltoluene)	--	--	--	63 U	--	--	--	--	--
Dibromochloromethane	--	--	--	63 U	--	--	--	--	--
Dibromomethane	--	--	--	63 U	--	--	--	--	--
Dichloromethane (Methylene chloride)	2.1 UJ	1.9 UJ	3.2 UJ	130 U	2.4 U	2.1 U	2.2 U	2.3 U	2.1 U
Ethyl bromide (Bromoethane)	--	--	--	130 U	--	--	--	--	--
Ethylbenzene	--	--	--	**83**	--	--	--	--	--
Ethylene dibromide (1,2-Dibromoethane)	--	--	--	63 U	--	--	--	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	--	--	320 U	--	--	--	--	--
Isopropylbenzene (Cumene)	--	--	--	63 U	--	--	--	--	--
m,p-Xylene	**2.7 J**	**1.8 J**	**2.3 J**	**310**	**13**	**8.9**	**6.5**	**10**	**2.7**
Methyl iodide (Iodomethane)	--	--	--	**150 J**	--	--	--	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	--	--	320 U	--	--	--	--	--
Naphthalene	--	--	--	320 U	--	--	--	--	--
n-Butylbenzene	--	--	--	63 U	--	--	--	--	--
n-Propylbenzene	--	--	--	63 U	--	--	--	--	--
o-Xylene	**2.1 J**	**2.6 J**	**1.6 J**	**100**	**3.9**	**3**	**2.5**	**4.7**	**1.3**
sec-Butylbenzene	--	--	--	63 U	--	--	--	--	--
Styrene	--	--	--	63 U	--	--	--	--	--
tert-Butylbenzene	--	--	--	63 U	--	--	--	--	--
Tetrachloroethene (PCE)	1 UJ	0.9 UJ	1.2 UJ	63 U	1.2 U	1 U	1.1 U	1.1 U	1 U
Toluene	--	--	--	**670**	--	--	--	--	--
Trichloroethene (TCE)	**33 J**	**55 J**	**86 J**	63 U	**5.4**	**0.8 J**	1.1 U	**0.3 J**	**0.7 J**
Trichlorofluoromethane (Fluorotrichloromethane)	--	--	--	63 U	--	--	--	--	--
Vinyl acetate	--	--	--	320 U	--	--	--	--	--
Vinyl chloride	1 UJ	0.9 UJ	1.2 UJ	63 U	1.2 U	**5.3**	**2.3**	**8.5**	**3.4**
Total Xylene (U = 1/2)	**4.8 J**	**4.4 J**	**3.9 J**	**410**	**16.9**	**11.9**	**9**	**14.7**	**4**
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	5.1 UJ	7.2 UJ	7.9 UJ	**47**	6.2 U	5.8 U	6.3 U	5.8 U	5.2 U
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-01A-A_201603	B-01A-B_201603	B-01A-C_201603	B-01A-D_201603	B-01A-E_201603	B-01A-F_201603	B-02_201603	B-02_201603	B-02_201603
Sample ID	CHRL-B-01A-A-160309	CHRL-B-01A-B-160309	CHRL-B-01A-C-160309	CHRL-B-01A-D-160309	CHRL-B-01A-E-160309	CHRL-B-01A-F-160309	CHRL-B-02-A-160310	CHRL-B-02-B-160310	CHRL-B-02-C-160310
Sample Date	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/10/2016	3/10/2016	3/10/2016
Depth	7.3 - 7.9 feet	7.9 - 8.5 feet	9.6 - 10.2 feet	11.2 - 11.8 feet	13 - 13.6 feet	15.4 - 15.7 feet	10 - 11 feet	11.3 - 12.3 feet	14.3 - 15.3 feet
Metals (mg/kg)									
Mercury	**0.03**	--	--	--	--	--	**0.015 J**	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	63 U	--	--	--	--	--	0.9 U	--	--
1,1,1-Trichloroethane	63 U	--	--	--	--	--	0.9 U	--	--
1,1,2,2-Tetrachloroethane	63 U	--	--	--	--	--	0.9 U	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	130 U	--	--	--	--	--	1.8 U	--	--
1,1,2-Trichloroethane	63 U	--	--	--	--	--	0.9 U	--	--
1,1-Dichloroethane	63 U	--	--	--	--	--	**0.7 J**	--	--
1,1-Dichloroethene	63 U	--	--	--	--	--	0.9 U	--	--
1,1-Dichloropropene	63 U	--	--	--	--	--	0.9 U	--	--
1,2,3-Trichlorobenzene	320 U	--	--	--	--	--	4.6 U	--	--
1,2,3-Trichloropropane	130 U	--	--	--	--	--	1.8 U	--	--
1,2,4-Trichlorobenzene	320 U	--	--	--	--	--	4.6 U	--	--
1,2,4-Trimethylbenzene	**250**	--	--	--	--	--	**20**	--	--
1,2-Dibromo-3-chloropropane	320 U	--	--	--	--	--	4.6 U	--	--
1,2-Dichlorobenzene	63 U	--	--	--	--	--	0.9 U	--	--
1,2-Dichloroethane	63 U	--	--	--	--	--	0.9 U	--	--
1,2-Dichloroethene, cis-	**310**	**120**	**130**	--	--	--	**17**	--	--
1,2-Dichloroethene, trans-	63 U	--	--	--	--	--	0.9 U	--	--
1,2-Dichloropropane	63 U	--	--	--	--	--	0.9 U	--	--
1,3,5-Trimethylbenzene (Mesitylene)	**85**	--	--	--	--	--	**6.6**	--	--
1,3-Dichlorobenzene	63 U	--	--	--	--	--	0.9 U	--	--
1,3-Dichloropropane	63 U	--	--	--	--	--	0.9 U	--	--
1,3-Dichloropropene, cis-	63 U	--	--	--	--	--	0.9 U	--	--
1,3-Dichloropropene, trans-	63 U	--	--	--	--	--	0.9 U	--	--
1,4-Dichloro-2-butene, trans-	320 U	--	--	--	--	--	4.6 U	--	--
1,4-Dichlorobenzene	63 U	--	--	--	--	--	0.9 U	--	--
2,2-Dichloropropane	63 U	--	--	--	--	--	0.9 U	--	--
2-Butanone (MEK)	**300 J**	**130**	**13**	**120**	**1000**	**850**	**13**	**12**	**12**
2-Chloroethylvinyl ether	320 U	--	--	--	--	--	4.6 U	--	--
2-Chlorotoluene	63 U	--	--	--	--	--	0.9 U	--	--
2-Hexanone (Methyl butyl ketone)	**290 J**	--	--	--	--	--	**7.7**	--	--
4-Chlorotoluene	63 U	--	--	--	--	--	0.9 U	--	--
Acetone	320 U	--	--	--	--	--	**47**	--	--
Acrolein	320 U	--	--	--	--	--	4.6 U	--	--
Acrylonitrile	320 U	--	--	--	--	--	4.6 U	--	--
Benzene	63 U	--	--	--	--	--	**0.5 J**	--	--
Bromobenzene	63 U	--	--	--	--	--	0.9 U	--	--
Bromochloromethane	63 U	--	--	--	--	--	0.9 U	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-01A-A_201603	B-01A-B_201603	B-01A-C_201603	B-01A-D_201603	B-01A-E_201603	B-01A-F_201603	B-02_201603	B-02_201603	B-02_201603
Sample ID	CHRL-B-01A-A-160309	CHRL-B-01A-B-160309	CHRL-B-01A-C-160309	CHRL-B-01A-D-160309	CHRL-B-01A-E-160309	CHRL-B-01A-F-160309	CHRL-B-02-A-160310	CHRL-B-02-B-160310	CHRL-B-02-C-160310
Sample Date	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/10/2016	3/10/2016	3/10/2016
Depth	7.3 - 7.9 feet	7.9 - 8.5 feet	9.6 - 10.2 feet	11.2 - 11.8 feet	13 - 13.6 feet	15.4 - 15.7 feet	10 - 11 feet	11.3 - 12.3 feet	14.3 - 15.3 feet
Bromodichloromethane	63 U	--	--	--	--	--	0.9 U	--	--
Bromoform (Tribromomethane)	63 U	--	--	--	--	--	0.9 U	--	--
Bromomethane (Methyl bromide)	**30 J**	1.4 U	1 U	--	--	--	0.9 U	--	--
Carbon disulfide	63 U	--	--	--	--	--	**1.7**	--	--
Carbon tetrachloride (Tetrachloromethane)	63 U	--	--	--	--	--	0.9 U	--	--
Chlorobenzene	63 U	--	--	--	--	--	0.9 U	--	--
Chloroethane	63 U	--	--	--	--	--	0.9 U	--	--
Chloroform	63 U	--	--	--	--	--	0.9 U	--	--
Chloromethane	63 U	--	--	--	--	--	0.9 U	--	--
Cymene, p- (4-Isopropyltoluene)	**61 J**	--	--	--	--	--	**5.6**	--	--
Dibromochloromethane	63 U	--	--	--	--	--	0.9 U	--	--
Dibromomethane	63 U	--	--	--	--	--	0.9 U	--	--
Dichloromethane (Methylene chloride)	130 U	2.7 U	2 U	--	--	--	1.8 U	--	--
Ethyl bromide (Bromoethane)	130 U	--	--	--	--	--	1.8 U	--	--
Ethylbenzene	**120**	--	--	--	--	--	**10**	--	--
Ethylene dibromide (1,2-Dibromoethane)	63 U	--	--	--	--	--	0.9 U	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	320 U	--	--	--	--	--	4.6 U	--	--
Isopropylbenzene (Cumene)	63 U	--	--	--	--	--	**1.3**	--	--
m,p-Xylene	**520**	**72**	**70**	--	--	--	**34**	--	--
Methyl iodide (Iodomethane)	**50 J**	--	--	--	--	--	0.9 U	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	320 U	--	--	--	--	--	4.6 U	--	--
Naphthalene	320 U	--	--	--	--	--	**11**	--	--
n-Butylbenzene	**36 J**	--	--	--	--	--	**2.4**	--	--
n-Propylbenzene	**42 J**	--	--	--	--	--	**3**	--	--
o-Xylene	**190**	**27**	**23**	--	--	--	**14**	--	--
sec-Butylbenzene	63 U	--	--	--	--	--	**1.6**	--	--
Styrene	63 U	--	--	--	--	--	0.9 U	--	--
tert-Butylbenzene	63 U	--	--	--	--	--	0.9 U	--	--
Tetrachloroethene (PCE)	63 U	1.4 U	**1 J**	1 U	**1.1**	58 U	0.9 U	1.1 U	1.1 U
Toluene	**960**	--	--	--	--	--	**39**	--	--
Trichloroethene (TCE)	63 U	**4.5**	**26**	**8.1**	**62**	**540**	**11**	**9.1**	**6.8**
Trichlorofluoromethane (Fluorotrichloromethane)	63 U	--	--	--	--	--	0.9 U	--	--
Vinyl acetate	320 U	--	--	--	--	--	4.6 U	--	--
Vinyl chloride	63 U	**6.4**	**5**	**9.3**	**14**	58 U	0.9 U	1.1 U	1.1 U
Total Xylene (U = 1/2)	**710**	**99**	**93**	--	--	--	**48**	--	--
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	**28**	7.4 U	5.7 U	**9.3**	**8.4**	6.2 U	**30**	**2.8 J**	5.7 U
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-02_201603	B-02_201603	B-02_201603	B-02A-A_201603	B-02A-B_201603	B-02A-C_201603	B-02A-D_201603	B-02A-E_201603	B-02A-F_201603
Sample ID	CHRL-B-02-D-160310	CHRL-B-02-E-160310	CHRL-B-02-F-160310	CHRL-B-02A-A-160310	CHRL-B-02A-B-160310	CHRL-B-02A-C-160310	CHRL-B-02A-D-160310	CHRL-B-02A-E-160310	CHRL-B-02A-F-160310
Sample Date	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016
Depth	17.3 - 18.3 feet	20.3 - 21.3 feet	23.3 - 24.3 feet	6.4 - 7 feet	8 - 8.6 feet	9.7 - 10.3 feet	11.4 - 12 feet	13.1 - 13.7 feet	14.9 - 15.5 feet
Metals (mg/kg)									
Mercury	--	--	--	**0.0199 J**	--	--	--	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	--	--	2.7 U	--	--	--	--	--
1,1,1-Trichloroethane	--	--	--	2.7 U	--	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	2.7 U	--	--	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	5.4 U	--	--	--	--	--
1,1,2-Trichloroethane	--	--	--	2.7 U	--	--	--	--	--
1,1-Dichloroethane	--	--	--	2.7 U	--	--	--	--	--
1,1-Dichloroethene	--	--	--	2.7 U	--	--	--	--	--
1,1-Dichloropropene	--	--	--	2.7 U	--	--	--	--	--
1,2,3-Trichlorobenzene	--	--	--	14 U	--	--	--	--	--
1,2,3-Trichloropropane	--	--	--	5.4 U	--	--	--	--	--
1,2,4-Trichlorobenzene	--	--	--	14 U	--	--	--	--	--
1,2,4-Trimethylbenzene	--	--	--	**6.1**	--	--	--	--	--
1,2-Dibromo-3-chloropropane	--	--	--	14 U	--	--	--	--	--
1,2-Dichlorobenzene	--	--	--	2.7 U	--	--	--	--	--
1,2-Dichloroethane	--	--	--	2.7 U	--	--	--	--	--
1,2-Dichloroethene, cis-	**4500 J**	**170**	**420**	**110**	**150**	**88**	--	--	--
1,2-Dichloroethene, trans-	--	--	--	2.7 U	--	--	--	--	--
1,2-Dichloropropane	--	--	--	2.7 U	--	--	--	--	--
1,3,5-Trimethylbenzene (Mesitylene)	--	--	--	**2.1 J**	--	--	--	--	--
1,3-Dichlorobenzene	--	--	--	2.7 U	--	--	--	--	--
1,3-Dichloropropane	--	--	--	2.7 U	--	--	--	--	--
1,3-Dichloropropene, cis-	--	--	--	2.7 U	--	--	--	--	--
1,3-Dichloropropene, trans-	--	--	--	2.7 U	--	--	--	--	--
1,4-Dichloro-2-butene, trans-	--	--	--	14 U	--	--	--	--	--
1,4-Dichlorobenzene	--	--	--	2.7 U	--	--	--	--	--
2,2-Dichloropropane	--	--	--	2.7 U	--	--	--	--	--
2-Butanone (MEK)	330 UJ	4.8 U	360 U	**9.3 J**	**3.5 J**	**7**	290 U	**240**	**410**
2-Chloroethylvinyl ether	--	--	--	14 U	--	--	--	--	--
2-Chlorotoluene	--	--	--	2.7 U	--	--	--	--	--
2-Hexanone (Methyl butyl ketone)	--	--	--	14 U	--	--	--	--	--
4-Chlorotoluene	--	--	--	2.7 U	--	--	--	--	--
Acetone	--	--	--	**66**	--	--	--	--	--
Acrolein	--	--	--	14 U	--	--	--	--	--
Acrylonitrile	--	--	--	14 U	--	--	--	--	--
Benzene	--	--	--	2.7 U	--	--	--	--	--
Bromobenzene	--	--	--	2.7 U	--	--	--	--	--
Bromochloromethane	--	--	--	2.7 U	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-02_201603	B-02_201603	B-02_201603	B-02A-A_201603	B-02A-B_201603	B-02A-C_201603	B-02A-D_201603	B-02A-E_201603	B-02A-F_201603
Sample ID	CHRL-B-02-D-160310	CHRL-B-02-E-160310	CHRL-B-02-F-160310	CHRL-B-02A-A-160310	CHRL-B-02A-B-160310	CHRL-B-02A-C-160310	CHRL-B-02A-D-160310	CHRL-B-02A-E-160310	CHRL-B-02A-F-160310
Sample Date	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016	3/10/2016
Depth	17.3 - 18.3 feet	20.3 - 21.3 feet	23.3 - 24.3 feet	6.4 - 7 feet	8 - 8.6 feet	9.7 - 10.3 feet	11.4 - 12 feet	13.1 - 13.7 feet	14.9 - 15.5 feet
Bromodichloromethane	--	--	--	2.7 U	--	--	--	--	--
Bromoform (Tribromomethane)	--	--	--	2.7 U	--	--	--	--	--
Bromomethane (Methyl bromide)	67 UJ	1 U	72 U	2.7 U	1.1 UJ	1 UJ	--	--	--
Carbon disulfide	--	--	--	**4.3**	--	--	--	--	--
Carbon tetrachloride (Tetrachloromethane)	--	--	--	2.7 U	--	--	--	--	--
Chlorobenzene	--	--	--	2.7 U	--	--	--	--	--
Chloroethane	--	--	--	2.7 U	--	--	--	--	--
Chloroform	--	--	--	2.7 U	--	--	--	--	--
Chloromethane	--	--	--	2.7 U	--	--	--	--	--
Cymene, p- (4-Isopropyltoluene)	--	--	--	**4.3**	--	--	--	--	--
Dibromochloromethane	--	--	--	2.7 U	--	--	--	--	--
Dibromomethane	--	--	--	2.7 U	--	--	--	--	--
Dichloromethane (Methylene chloride)	150 UJ	1.9 U	140 U	5.4 U	2.2 U	1.9 U	--	--	--
Ethyl bromide (Bromoethane)	--	--	--	5.4 U	--	--	--	--	--
Ethylbenzene	--	--	--	**4.4**	--	--	--	--	--
Ethylene dibromide (1,2-Dibromoethane)	--	--	--	2.7 U	--	--	--	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	--	--	14 U	--	--	--	--	--
Isopropylbenzene (Cumene)	--	--	--	2.7 U	--	--	--	--	--
m,p-Xylene	**1100 J**	**16**	**63 J**	**17**	**14**	**16**	--	--	--
Methyl iodide (Iodomethane)	--	--	--	2.7 U	--	--	--	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	--	--	14 U	--	--	--	--	--
Naphthalene	--	--	--	**5.6 J**	--	--	--	--	--
n-Butylbenzene	--	--	--	2.7 U	--	--	--	--	--
n-Propylbenzene	--	--	--	2.7 U	--	--	--	--	--
o-Xylene	**430 J**	**6.2**	72 U	**6.7**	**5.6**	**5.9**	--	--	--
sec-Butylbenzene	--	--	--	2.7 U	--	--	--	--	--
Styrene	--	--	--	2.7 U	--	--	--	--	--
tert-Butylbenzene	--	--	--	2.7 U	--	--	--	--	--
Tetrachloroethene (PCE)	67 UJ	1 U	72 U	2.7 U	1.1 U	1 U	57 U	**1**	72 U
Toluene	--	--	--	**30**	--	--	--	--	--
Trichloroethene (TCE)	**1900 J**	**57**	**270**	**14**	**49**	**22**	**690**	**380**	**590**
Trichlorofluoromethane (Fluorotrichloromethane)	--	--	--	2.7 U	--	--	--	--	--
Vinyl acetate	--	--	--	14 U	--	--	--	--	--
Vinyl chloride	**50 J**	**9.1**	72 U	2.7 U	1.1 U	1 U	57 U	**7.6**	72 U
Total Xylene (U = 1/2)	**1530 J**	**22.2**	**99 J**	**23.7**	**19.6**	**21.9**	--	--	--
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	**10**	6.1 U	8.2 U	5.4 U	5.5 U	6.1 U	6.1 U	5.5 U	6 U
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-02A-G_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03A-A_201603
Sample ID	CHRL-B-02A-G-160310	CHRL-B-03-A-160311	CHRL-B-03-B-160311	CHRL-B-03-C-160311	CHRL-B-03-D-160311	CHRL-B-03-E-160311	CHRL-B-03-F-160311	CHRL-B-53-B-160311	CHRL-B-03A-A-160311
Sample Date	3/10/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016
Depth	16.7 - 17 feet	9.2 - 10.2 feet	10.7 - 11.7 feet	13.7 - 14.7 feet	16.7 - 17.7 feet	19.7 - 20.7 feet	22.7 - 23.7 feet	10.7 - 11.7 feet	6.6 - 7 feet
Metals (mg/kg)									
Mercury	--	**0.0155 J**	--	--	--	--	--	--	**0.03**
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,1,1-Trichloroethane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,1,2,2-Tetrachloroethane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	2.4 U	--	--	--	--	--	--	2.2 U
1,1,2-Trichloroethane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,1-Dichloroethane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,1-Dichloroethene	--	1.2 U	--	--	--	--	--	--	1.1 U
1,1-Dichloropropene	--	1.2 U	--	--	--	--	--	--	1.1 U
1,2,3-Trichlorobenzene	--	5.9 U	--	--	--	--	--	--	5.5 U
1,2,3-Trichloropropane	--	2.4 U	--	--	--	--	--	--	2.2 U
1,2,4-Trichlorobenzene	--	5.9 U	--	--	--	--	--	--	5.5 U
1,2,4-Trimethylbenzene	--	**0.8 J**	--	--	--	--	--	--	**0.9 J**
1,2-Dibromo-3-chloropropane	--	5.9 U	--	--	--	--	--	--	5.5 U
1,2-Dichlorobenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
1,2-Dichloroethane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,2-Dichloroethene, cis-	--	**27**	--	**39**	**100**	**470**	**430**	--	**8.3**
1,2-Dichloroethene, trans-	--	1.2 U	--	--	--	--	--	--	1.1 U
1,2-Dichloropropane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,3,5-Trimethylbenzene (Mesitylene)	--	1.2 U	--	--	--	--	--	--	1.1 U
1,3-Dichlorobenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
1,3-Dichloropropane	--	1.2 U	--	--	--	--	--	--	1.1 U
1,3-Dichloropropene, cis-	--	1.2 U	--	--	--	--	--	--	1.1 U
1,3-Dichloropropene, trans-	--	1.2 U	--	--	--	--	--	--	1.1 U
1,4-Dichloro-2-butene, trans-	--	5.9 U	--	--	--	--	--	--	5.5 U
1,4-Dichlorobenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
2,2-Dichloropropane	--	1.2 U	--	--	--	--	--	--	1.1 U
2-Butanone (MEK)	**540**	5.9 U	**2.5 J**	4.3 U	5 U	300 U	330 U	**2.6 J**	**3 J**
2-Chloroethylvinyl ether	--	5.9 U	--	--	--	--	--	--	5.5 U
2-Chlorotoluene	--	1.2 U	--	--	--	--	--	--	1.1 U
2-Hexanone (Methyl butyl ketone)	--	5.9 U	--	--	--	--	--	--	5.5 U
4-Chlorotoluene	--	1.2 U	--	--	--	--	--	--	1.1 U
Acetone	--	**17**	--	--	--	--	--	--	**22**
Acrolein	--	5.9 U	--	--	--	--	--	--	5.5 U
Acrylonitrile	--	5.9 U	--	--	--	--	--	--	5.5 U
Benzene	--	1.2 U	--	--	--	--	--	--	1.1 U
Bromobenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
Bromochloromethane	--	1.2 U	--	--	--	--	--	--	1.1 U

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-02A-G_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03_201603	B-03A-A_201603
Sample ID	CHRL-B-02A-G-160310	CHRL-B-03-A-160311	CHRL-B-03-B-160311	CHRL-B-03-C-160311	CHRL-B-03-D-160311	CHRL-B-03-E-160311	CHRL-B-03-F-160311	CHRL-B-53-B-160311	CHRL-B-03A-A-160311
Sample Date	3/10/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016
Depth	16.7 - 17 feet	9.2 - 10.2 feet	10.7 - 11.7 feet	13.7 - 14.7 feet	16.7 - 17.7 feet	19.7 - 20.7 feet	22.7 - 23.7 feet	10.7 - 11.7 feet	6.6 - 7 feet
Bromodichloromethane	--	1.2 U	--	--	--	--	--	--	1.1 U
Bromoform (Tribromomethane)	--	1.2 U	--	--	--	--	--	--	1.1 U
Bromomethane (Methyl bromide)	--	1.2 UJ	--	0.9 U	1 U	60 U	66 U	--	1.1 UJ
Carbon disulfide	--	1.2 U	--	--	--	--	--	--	**1.7**
Carbon tetrachloride (Tetrachloromethane)	--	1.2 U	--	--	--	--	--	--	1.1 U
Chlorobenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
Chloroethane	--	1.2 U	--	--	--	--	--	--	1.1 U
Chloroform	--	1.2 U	--	--	--	--	--	--	1.1 U
Chloromethane	--	1.2 U	--	--	--	--	--	--	1.1 U
Cymene, p- (4-Isopropyltoluene)	--	1.2 U	--	--	--	--	--	--	**1.7**
Dibromochloromethane	--	1.2 U	--	--	--	--	--	--	1.1 U
Dibromomethane	--	1.2 U	--	--	--	--	--	--	1.1 U
Dichloromethane (Methylene chloride)	--	2.4 U	--	1.7 U	2 U	120 U	130 U	--	2.2 U
Ethyl bromide (Bromoethane)	--	2.4 U	--	--	--	--	--	--	2.2 U
Ethylbenzene	--	1.2 U	--	--	--	--	--	--	**1.5**
Ethylene dibromide (1,2-Dibromoethane)	--	1.2 U	--	--	--	--	--	--	1.1 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	5.9 U	--	--	--	--	--	--	5.5 U
Isopropylbenzene (Cumene)	--	1.2 U	--	--	--	--	--	--	1.1 U
m,p-Xylene	--	**1.4**	--	**1.3**	**1.2**	60 U	66 U	--	**3**
Methyl iodide (Iodomethane)	--	1.2 UJ	--	--	--	--	--	--	1.1 UJ
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	5.9 U	--	--	--	--	--	--	5.5 U
Naphthalene	--	5.9 U	--	--	--	--	--	--	5.5 U
n-Butylbenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
n-Propylbenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
o-Xylene	--	**1 J**	--	**1.5**	**2.9**	60 U	66 U	--	**1.4**
sec-Butylbenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
Styrene	--	1.2 U	--	--	--	--	--	--	1.1 U
tert-Butylbenzene	--	1.2 U	--	--	--	--	--	--	1.1 U
Tetrachloroethene (PCE)	57 U	1.2 U	0.9 U	0.9 U	1 U	60 U	66 U	1 U	1.1 U
Toluene	--	**3.6**	--	--	--	--	--	--	**3.6**
Trichloroethene (TCE)	**480**	**8.1**	**16**	**15**	**45**	**310**	**450**	**19**	**0.8 J**
Trichlorofluoromethane (Fluorotrichloromethane)	--	1.2 U	--	--	--	--	--	--	1.1 U
Vinyl acetate	--	5.9 U	--	--	--	--	--	--	5.5 U
Vinyl chloride	57 U	1.2 U	0.9 U	**0.4 J**	**1 J**	60 U	66 U	1 U	1.1 U
Total Xylene (U = 1/2)	--	**2.4 J**	--	**2.8**	**4.1**	60 U	66 U	--	**4.4**
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	**6.7**	5.4 U	6 U	5.5 U	5.6 U	6.6 U	5.7 U	5.8 U	5.4 U
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-03A-B_201603	B-03A-C_201603	B-03A-C_201603	B-03A-D_201603	B-03A-E_201603	B-03A-F_201603	D-01_201603	D-01_201603	D-02_201603
Sample ID	CHRL-B-03A-B-160311	CHRL-B-03A-C-160311	CHRL-B-53A-C-160311	CHRL-B-03A-D-160311	CHRL-B-03A-E-160311	CHRL-B-03A-F-160311	CHRL-D-01-A-160309	CHRL-D-01-B-160309	CHRL-D-02-A-160308
Sample Date	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/9/2016	3/9/2016	3/8/2016
Depth	7 - 7.6 feet	8.8 - 9.4 feet	8.8 - 9.4 feet	10.5 - 11.1 feet	12.2 - 12.8 feet	14.8 - 15.1 feet	1.3 - 2.3 feet	4.3 - 5.3 feet	0.5 - 1.5 feet
Metals (mg/kg)									
Mercury	--	--	--	--	--	--	**0.04**	--	**0.03**
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	--	--	--	--	--	1 U	--	65 U
1,1,1-Trichloroethane	--	--	--	--	--	--	1 U	--	65 U
1,1,2,2-Tetrachloroethane	--	--	--	--	--	--	1 U	--	65 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	--	--	--	1.9 U	--	130 U
1,1,2-Trichloroethane	--	--	--	--	--	--	1 U	--	65 U
1,1-Dichloroethane	--	--	--	--	--	--	**7.1**	--	65 U
1,1-Dichloroethene	--	--	--	--	--	--	1 U	--	65 U
1,1-Dichloropropene	--	--	--	--	--	--	1 U	--	65 U
1,2,3-Trichlorobenzene	--	--	--	--	--	--	4.8 U	--	330 U
1,2,3-Trichloropropane	--	--	--	--	--	--	1.9 U	--	130 U
1,2,4-Trichlorobenzene	--	--	--	--	--	--	4.8 U	--	330 U
1,2,4-Trimethylbenzene	--	--	--	--	--	--	**2.7**	--	**580**
1,2-Dibromo-3-chloropropane	--	--	--	--	--	--	4.8 U	--	330 U
1,2-Dichlorobenzene	--	--	--	--	--	--	1 U	--	65 U
1,2-Dichloroethane	--	--	--	--	--	--	1 U	--	65 U
1,2-Dichloroethene, cis-	--	--	--	--	--	--	**120**	**12**	**7500**
1,2-Dichloroethene, trans-	--	--	--	--	--	--	**1.2**	--	**120**
1,2-Dichloropropane	--	--	--	--	--	--	1 U	--	65 U
1,3,5-Trimethylbenzene (Mesitylene)	--	--	--	--	--	--	**1.7**	--	**190**
1,3-Dichlorobenzene	--	--	--	--	--	--	1 U	--	65 U
1,3-Dichloropropane	--	--	--	--	--	--	1 U	--	65 U
1,3-Dichloropropene, cis-	--	--	--	--	--	--	1 U	--	65 U
1,3-Dichloropropene, trans-	--	--	--	--	--	--	1 U	--	65 U
1,4-Dichloro-2-butene, trans-	--	--	--	--	--	--	4.8 U	--	330 U
1,4-Dichlorobenzene	--	--	--	--	--	--	1 U	--	65 U
2,2-Dichloropropane	--	--	--	--	--	--	1 U	--	65 U
2-Butanone (MEK)	**11**	4.8 U	5.1 U	3.8 U	**2.6 J**	5.5 U	**10**	**19**	330 U
2-Chloroethylvinyl ether	--	--	--	--	--	--	4.8 U	--	330 U
2-Chlorotoluene	--	--	--	--	--	--	1 U	--	65 U
2-Hexanone (Methyl butyl ketone)	--	--	--	--	--	--	4.8 U	--	330 U
4-Chlorotoluene	--	--	--	--	--	--	1 U	--	65 U
Acetone	--	--	--	--	--	--	**38**	--	330 U
Acrolein	--	--	--	--	--	--	4.8 U	--	330 U
Acrylonitrile	--	--	--	--	--	--	4.8 U	--	330 U
Benzene	--	--	--	--	--	--	**1.3**	--	65 U
Bromobenzene	--	--	--	--	--	--	1 U	--	65 U
Bromochloromethane	--	--	--	--	--	--	1 U	--	65 U

Table 3

Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	B-03A-B_201603	B-03A-C_201603	B-03A-C_201603	B-03A-D_201603	B-03A-E_201603	B-03A-F_201603	D-01_201603	D-01_201603	D-02_201603
Sample ID	CHRL-B-03A-B-160311	CHRL-B-03A-C-160311	CHRL-B-53A-C-160311	CHRL-B-03A-D-160311	CHRL-B-03A-E-160311	CHRL-B-03A-F-160311	CHRL-D-01-A-160309	CHRL-D-01-B-160309	CHRL-D-02-A-160308
Sample Date	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/11/2016	3/9/2016	3/9/2016	3/8/2016
Depth	7 - 7.6 feet	8.8 - 9.4 feet	8.8 - 9.4 feet	10.5 - 11.1 feet	12.2 - 12.8 feet	14.8 - 15.1 feet	1.3 - 2.3 feet	4.3 - 5.3 feet	0.5 - 1.5 feet
Bromodichloromethane	--	--	--	--	--	--	1 U	--	65 U
Bromoform (Tribromomethane)	--	--	--	--	--	--	1 U	--	65 U
Bromomethane (Methyl bromide)	--	--	--	--	--	--	1 U	1 U	65 U
Carbon disulfide	--	--	--	--	--	--	**1.9**	--	65 U
Carbon tetrachloride (Tetrachloromethane)	--	--	--	--	--	--	1 U	--	65 U
Chlorobenzene	--	--	--	--	--	--	1 U	--	65 U
Chloroethane	--	--	--	--	--	--	**3**	--	65 U
Chloroform	--	--	--	--	--	--	1 U	--	65 U
Chloromethane	--	--	--	--	--	--	1 U	--	65 U
Cymene, p- (4-Isopropyltoluene)	--	--	--	--	--	--	**0.5 J**	--	**96**
Dibromochloromethane	--	--	--	--	--	--	1 U	--	65 U
Dibromomethane	--	--	--	--	--	--	1 U	--	65 U
Dichloromethane (Methylene chloride)	--	--	--	--	--	--	1.9 U	2 U	130 U
Ethyl bromide (Bromoethane)	--	--	--	--	--	--	1.9 U	--	130 U
Ethylbenzene	--	--	--	--	--	--	1 U	--	**230**
Ethylene dibromide (1,2-Dibromoethane)	--	--	--	--	--	--	1 U	--	65 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	--	--	--	--	--	4.8 U	--	330 U
Isopropylbenzene (Cumene)	--	--	--	--	--	--	**1.5**	--	**33 J**
m,p-Xylene	--	--	--	--	--	--	**9.7**	**25**	**1000**
Methyl iodide (Iodomethane)	--	--	--	--	--	--	1 U	--	**44 J**
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	--	--	--	--	--	4.8 U	--	330 U
Naphthalene	--	--	--	--	--	--	4.8 U	--	330 U
n-Butylbenzene	--	--	--	--	--	--	**0.7 J**	--	**68**
n-Propylbenzene	--	--	--	--	--	--	**1.3**	--	**90**
o-Xylene	--	--	--	--	--	--	**14**	**9.4**	**420**
sec-Butylbenzene	--	--	--	--	--	--	**0.8 J**	--	**40 J**
Styrene	--	--	--	--	--	--	1 U	--	65 U
tert-Butylbenzene	--	--	--	--	--	--	1 U	--	65 U
Tetrachloroethene (PCE)	0.9 U	1 U	1 U	0.8 U	0.7 U	1.1 U	1 U	1 U	65 U
Toluene	--	--	--	--	--	--	**8.6**	--	**2600**
Trichloroethene (TCE)	**0.7 J**	**1.8**	**2.2**	**7.8**	**3.9**	**9.7**	**1.3**	**0.7 J**	**120**
Trichlorofluoromethane (Fluorotrichloromethane)	--	--	--	--	--	--	1 U	--	65 U
Vinyl acetate	--	--	--	--	--	--	4.8 U	--	330 U
Vinyl chloride	0.9 U	1 U	1 U	**4.2**	**2.8**	**3.9**	**5.3**	1 U	**27 J**
Total Xylene (U = 1/2)	--	--	--	--	--	--	**23.7**	**34.4**	**1420**
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	5 U	5.5 U	5.6 U	5.1 U	5.5 U	5.5 U	7.2 U	6.3 U	**90**
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	D-02_201603	D-02_201603	D-02_201603	D-02_201603	D-03_201603	D-03_201603	D-03_201603	D-03_201603	D-03_201603
Sample ID	CHRL-D-02-B-160308	CHRL-D-02-C-160308	CHRL-D-02-D-160308	CHRL-D-02-E-160308	CHRL-D-03-A-160308	CHRL-D-03-B-160308	CHRL-D-03-C-160308	CHRL-D-03-D-160308	CHRL-D-03-E-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016
Depth	3.5 - 4.5 feet	6.5 - 7.5 feet	9.5 - 10.5 feet	12.5 - 13.5 feet	0.3 - 1.3 feet	3.3 - 4.3 feet	6.3 - 7.3 feet	9.3 - 10.3 feet	12.3 - 13.3 feet
Metals (mg/kg)									
Mercury	--	--	--	--	**0.04**	--	--	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	--	--	--	75 U	--	--	--	--
1,1,1-Trichloroethane	--	--	--	--	75 U	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	75 U	--	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	--	150 U	--	--	--	--
1,1,2-Trichloroethane	--	--	--	--	75 U	--	--	--	--
1,1-Dichloroethane	--	--	--	--	75 U	--	--	--	--
1,1-Dichloroethene	--	--	--	--	75 U	--	--	--	--
1,1-Dichloropropene	--	--	--	--	75 U	--	--	--	--
1,2,3-Trichlorobenzene	--	--	--	--	370 U	--	--	--	--
1,2,3-Trichloropropane	--	--	--	--	150 U	--	--	--	--
1,2,4-Trichlorobenzene	--	--	--	--	370 U	--	--	--	--
1,2,4-Trimethylbenzene	--	--	--	--	**810**	--	--	--	--
1,2-Dibromo-3-chloropropane	--	--	--	--	370 U	--	--	--	--
1,2-Dichlorobenzene	--	--	--	--	75 U	--	--	--	--
1,2-Dichloroethane	--	--	--	--	75 U	--	--	--	--
1,2-Dichloroethene, cis-	**330 J**	**260 J**	--	--	**3200**	**790 J**	**1200**	--	--
1,2-Dichloroethene, trans-	--	--	--	--	75 U	--	--	--	--
1,2-Dichloropropane	--	--	--	--	75 U	--	--	--	--
1,3,5-Trimethylbenzene (Mesitylene)	--	--	--	--	**230**	--	--	--	--
1,3-Dichlorobenzene	--	--	--	--	75 U	--	--	--	--
1,3-Dichloropropane	--	--	--	--	75 U	--	--	--	--
1,3-Dichloropropene, cis-	--	--	--	--	75 U	--	--	--	--
1,3-Dichloropropene, trans-	--	--	--	--	75 U	--	--	--	--
1,4-Dichloro-2-butene, trans-	--	--	--	--	370 U	--	--	--	--
1,4-Dichlorobenzene	--	--	--	--	75 U	--	--	--	--
2,2-Dichloropropane	--	--	--	--	75 U	--	--	--	--
2-Butanone (MEK)	**850**	**930**	**2000**	**2100**	370 U	**1100 J**	**460**	**2200**	**1300**
2-Chloroethylvinyl ether	--	--	--	--	370 U	--	--	--	--
2-Chlorotoluene	--	--	--	--	75 U	--	--	--	--
2-Hexanone (Methyl butyl ketone)	--	--	--	--	370 U	--	--	--	--
4-Chlorotoluene	--	--	--	--	75 U	--	--	--	--
Acetone	--	--	--	--	370 U	--	--	--	--
Acrolein	--	--	--	--	370 U	--	--	--	--
Acrylonitrile	--	--	--	--	370 U	--	--	--	--
Benzene	--	--	--	--	75 U	--	--	--	--
Bromobenzene	--	--	--	--	75 U	--	--	--	--
Bromochloromethane	--	--	--	--	75 U	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	D-02_201603	D-02_201603	D-02_201603	D-02_201603	D-03_201603	D-03_201603	D-03_201603	D-03_201603	D-03_201603
Sample ID	CHRL-D-02-B-160308	CHRL-D-02-C-160308	CHRL-D-02-D-160308	CHRL-D-02-E-160308	CHRL-D-03-A-160308	CHRL-D-03-B-160308	CHRL-D-03-C-160308	CHRL-D-03-D-160308	CHRL-D-03-E-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016
Depth	3.5 - 4.5 feet	6.5 - 7.5 feet	9.5 - 10.5 feet	12.5 - 13.5 feet	0.3 - 1.3 feet	3.3 - 4.3 feet	6.3 - 7.3 feet	9.3 - 10.3 feet	12.3 - 13.3 feet
Bromodichloromethane	--	--	--	--	75 U	--	--	--	--
Bromoform (Tribromomethane)	--	--	--	--	75 U	--	--	--	--
Bromomethane (Methyl bromide)	0.9 U	1 U	--	--	**33 J**	1400 U	53 U	--	--
Carbon disulfide	--	--	--	--	75 U	--	--	--	--
Carbon tetrachloride (Tetrachloromethane)	--	--	--	--	75 U	--	--	--	--
Chlorobenzene	--	--	--	--	75 U	--	--	--	--
Chloroethane	--	--	--	--	75 U	--	--	--	--
Chloroform	--	--	--	--	75 U	--	--	--	--
Chloromethane	--	--	--	--	75 U	--	--	--	--
Cymene, p- (4-Isopropyltoluene)	--	--	--	--	**130**	--	--	--	--
Dibromochloromethane	--	--	--	--	75 U	--	--	--	--
Dibromomethane	--	--	--	--	75 U	--	--	--	--
Dichloromethane (Methylene chloride)	1.8 U	2 U	--	--	150 U	2800 U	110 U	--	--
Ethyl bromide (Bromoethane)	--	--	--	--	150 U	--	--	--	--
Ethylbenzene	--	--	--	--	**360**	--	--	--	--
Ethylene dibromide (1,2-Dibromoethane)	--	--	--	--	75 U	--	--	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	--	--	--	370 U	--	--	--	--
Isopropylbenzene (Cumene)	--	--	--	--	**51 J**	--	--	--	--
m,p-Xylene	**28**	**26**	--	--	**1400**	**23000**	**400**	--	--
Methyl iodide (Iodomethane)	--	--	--	--	**70 J**	--	--	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	--	--	--	370 U	--	--	--	--
Naphthalene	--	--	--	--	370 U	--	--	--	--
n-Butylbenzene	--	--	--	--	**110**	--	--	--	--
n-Propylbenzene	--	--	--	--	**150**	--	--	--	--
o-Xylene	**13**	**11**	--	--	**550**	**8100**	**140**	--	--
sec-Butylbenzene	--	--	--	--	**58 J**	--	--	--	--
Styrene	--	--	--	--	75 U	--	--	--	--
tert-Butylbenzene	--	--	--	--	75 U	--	--	--	--
Tetrachloroethene (PCE)	**0.3 J**	1 U	**2.2**	**1.9**	**47 J**	**660 J**	53 U	62 U	52 U
Toluene	--	--	--	--	**1500**	--	--	--	--
Trichloroethene (TCE)	**41**	**130**	**1300 J**	**1000 J**	**1900**	**25000**	**4200**	**4300**	**2400**
Trichlorofluoromethane (Fluorotrichloromethane)	--	--	--	--	75 U	--	--	--	--
Vinyl acetate	--	--	--	--	370 U	--	--	--	--
Vinyl chloride	**0.8 J**	**0.6 J**	**9.3**	**8.7**	75 U	1400 U	53 U	62 U	52 U
Total Xylene (U = 1/2)	**41**	**37**	--	--	**1950**	**31100**	**540**	--	--
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	6.2 U	5.8 U	**11**	**7.5**	**130**	**1500**	**16**	**9.7**	**6.5**
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	D-03_201603	D-04_201603	D-04_201603	D-04_201603	D-04_201603	D-04_201603	D-04_201603	D-05_201603	D-05_201603
Sample ID	CHRL-D-53-B-160308	CHRL-D-04-A-160308	CHRL-D-04-B-160308	CHRL-D-04-C-160308	CHRL-D-04-D-160308	CHRL-D-04-E-160308	CHRL-D-54-A-160308	CHRL-D-05-A-160308	CHRL-D-05-B-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016
Depth	3.3 - 4.3 feet	0.2 - 1.2 feet	3.2 - 4.2 feet	6.2 - 7.2 feet	9.2 - 10.2 feet	12.2 - 13.2 feet	0.2 - 1.2 feet	0.7 - 1.7 feet	3 - 4 feet
Metals (mg/kg)									
Mercury	--	**0.0124 J**	--	--	--	--	**0.0114 J**	**0.0197 J**	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,1,1-Trichloroethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,1,2,2-Tetrachloroethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	2.3 U	--	--	--	--	2.2 U	2.1 U	--
1,1,2-Trichloroethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,1-Dichloroethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,1-Dichloroethene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,1-Dichloropropene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,2,3-Trichlorobenzene	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
1,2,3-Trichloropropane	--	2.3 U	--	--	--	--	2.2 U	2.1 U	--
1,2,4-Trichlorobenzene	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
1,2,4-Trimethylbenzene	--	**4.6**	--	--	--	--	**7.8**	**7.7**	--
1,2-Dibromo-3-chloropropane	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
1,2-Dichlorobenzene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,2-Dichloroethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,2-Dichloroethene, cis-	--	**34**	--	--	--	--	**42**	**2.3**	--
1,2-Dichloroethene, trans-	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,2-Dichloropropane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,3,5-Trimethylbenzene (Mesitylene)	--	**1.5**	--	--	--	--	**2.5**	**2.9**	--
1,3-Dichlorobenzene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,3-Dichloropropane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,3-Dichloropropene, cis-	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,3-Dichloropropene, trans-	--	1.2 U	--	--	--	--	1.1 U	1 U	--
1,4-Dichloro-2-butene, trans-	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
1,4-Dichlorobenzene	--	**0.6 J**	--	--	--	--	**0.9 J**	1 U	--
2,2-Dichloropropane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
2-Butanone (MEK)	320 U	**6.6**	**48**	**700**	**260**	**680**	**4 J**	**25**	**28**
2-Chloroethylvinyl ether	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
2-Chlorotoluene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
2-Hexanone (Methyl butyl ketone)	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
4-Chlorotoluene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Acetone	--	**30**	--	--	--	--	**24**	5.2 U	--
Acrolein	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
Acrylonitrile	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
Benzene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Bromobenzene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Bromochloromethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	D-03_201603	D-04_201603	D-04_201603	D-04_201603	D-04_201603	D-04_201603	D-04_201603	D-05_201603	D-05_201603
Sample ID	CHRL-D-53-B-160308	CHRL-D-04-A-160308	CHRL-D-04-B-160308	CHRL-D-04-C-160308	CHRL-D-04-D-160308	CHRL-D-04-E-160308	CHRL-D-54-A-160308	CHRL-D-05-A-160308	CHRL-D-05-B-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016
Depth	3.3 - 4.3 feet	0.2 - 1.2 feet	3.2 - 4.2 feet	6.2 - 7.2 feet	9.2 - 10.2 feet	12.2 - 13.2 feet	0.2 - 1.2 feet	0.7 - 1.7 feet	3 - 4 feet
Bromodichloromethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Bromoform (Tribromomethane)	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Bromomethane (Methyl bromide)	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Carbon disulfide	--	**1 J**	--	--	--	--	1.1 U	**1.5**	--
Carbon tetrachloride (Tetrachloromethane)	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Chlorobenzene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Chloroethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Chloroform	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Chloromethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Cymene, p- (4-Isopropyltoluene)	--	**2.2**	--	--	--	--	**2.7**	**3.2**	--
Dibromochloromethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Dibromomethane	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Dichloromethane (Methylene chloride)	--	2.3 U	--	--	--	--	2.2 U	2.1 U	--
Ethyl bromide (Bromoethane)	--	2.3 U	--	--	--	--	2.2 U	2.1 U	--
Ethylbenzene	--	**2.7**	--	--	--	--	**4.4**	**1.6**	--
Ethylene dibromide (1,2-Dibromoethane)	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
Isopropylbenzene (Cumene)	--	1.2 U	--	--	--	--	1.1 U	1 U	--
m,p-Xylene	--	**10**	--	--	--	--	**18**	**5.8**	--
Methyl iodide (Iodomethane)	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	5.9 U	--	--	--	--	**3.6 J**	5.2 U	--
Naphthalene	--	5.9 U	--	--	--	--	5.6 U	**6.6**	--
n-Butylbenzene	--	1.2 U	--	--	--	--	**0.7 J**	**4.4**	--
n-Propylbenzene	--	**0.6 J**	--	--	--	--	**1.1 J**	**0.9 J**	--
o-Xylene	--	**4**	--	--	--	--	**6.8**	**2**	--
sec-Butylbenzene	--	1.2 U	--	--	--	--	1.1 U	**1.1**	--
Styrene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
tert-Butylbenzene	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Tetrachloroethene (PCE)	**990**	**1.8**	**1.6**	**1.8**	0.9 U	**0.6 J**	**2.2**	**0.6 J**	**0.6 J**
Toluene	--	**22**	--	--	--	--	**31**	**10**	--
Trichloroethene (TCE)	**41000**	**42**	**110**	**200**	**4.2**	**23**	**62**	**2.6**	**1.1 J**
Trichlorofluoromethane (Fluorotrichloromethane)	--	1.2 U	--	--	--	--	1.1 U	1 U	--
Vinyl acetate	--	5.9 U	--	--	--	--	5.6 U	5.2 U	--
Vinyl chloride	65 U	1.2 U	**1.4**	**5.2**	**9.1**	**7.1**	1.1 U	1 U	1.1 U
Total Xylene (U = 1/2)	--	**14**	--	--	--	--	**24.8**	**7.8**	--
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	**1400**	6.3 U	7.5 U	6 U	5.4 U	7.3 U	8.1 U	6 U	6.2 U
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	D-05_201603	D-05_201603	E-01_201603	E-01_201603	E-01_201603	E-01_201603	E-02_201603	E-02_201603	E-02_201603
Sample ID	CHRL-D-05-C-160308	CHRL-D-05-D-160308	CHRL-E-01-A-160307	CHRL-E-01-B-160307	CHRL-E-01-C-160307	CHRL-E-01-D-160307	CHRL-E-02-A-160308	CHRL-E-02-B-160308	CHRL-E-02-C-160308
Sample Date	3/8/2016	3/8/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/8/2016	3/8/2016	3/8/2016
Depth	6 - 7 feet	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet
Metals (mg/kg)									
Mercury	--	--	**0.0186 J**	--	--	--	**0.0186 J**	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	--	56 U	--	--	--	0.9 U	--	--
1,1,1-Trichloroethane	--	--	56 U	--	--	--	**3.7**	--	--
1,1,2,2-Tetrachloroethane	--	--	56 U	--	--	--	0.9 U	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	110 U	--	--	--	1.8 U	--	--
1,1,2-Trichloroethane	--	--	56 U	--	--	--	0.9 U	--	--
1,1-Dichloroethane	--	--	56 U	--	--	--	**1.6**	--	--
1,1-Dichloroethene	--	--	56 U	--	--	--	0.9 U	--	--
1,1-Dichloropropene	--	--	56 U	--	--	--	0.9 U	--	--
1,2,3-Trichlorobenzene	--	--	280 U	--	--	--	4.5 U	--	--
1,2,3-Trichloropropane	--	--	110 U	--	--	--	1.8 U	--	--
1,2,4-Trichlorobenzene	--	--	280 U	--	--	--	4.5 U	--	--
1,2,4-Trimethylbenzene	--	--	**30 J**	--	--	--	**4.7**	--	--
1,2-Dibromo-3-chloropropane	--	--	280 U	--	--	--	4.5 U	--	--
1,2-Dichlorobenzene	--	--	56 U	--	--	--	0.9 U	--	--
1,2-Dichloroethane	--	--	56 U	--	--	--	0.9 U	--	--
1,2-Dichloroethene, cis-	**5.2 J**	**0.3 J**	**160**	**20**	**120 J**	**1700 J**	**52**	--	--
1,2-Dichloroethene, trans-	--	--	56 U	--	--	--	0.9 U	--	--
1,2-Dichloropropane	--	--	56 U	--	--	--	0.9 U	--	--
1,3,5-Trimethylbenzene (Mesitylene)	--	--	56 U	--	--	--	**1.4**	--	--
1,3-Dichlorobenzene	--	--	56 U	--	--	--	0.9 U	--	--
1,3-Dichloropropane	--	--	56 U	--	--	--	0.9 U	--	--
1,3-Dichloropropene, cis-	--	--	56 U	--	--	--	0.9 U	--	--
1,3-Dichloropropene, trans-	--	--	56 U	--	--	--	0.9 U	--	--
1,4-Dichloro-2-butene, trans-	--	--	280 U	--	--	--	4.5 U	--	--
1,4-Dichlorobenzene	--	--	56 U	--	--	--	**0.6 J**	--	--
2,2-Dichloropropane	--	--	56 U	--	--	--	0.9 U	--	--
2-Butanone (MEK)	**37 J**	**180 J**	280 U	**2.8 J**	**5.7 J**	260 UJ	**6.3**	340 U	**440**
2-Chloroethylvinyl ether	--	--	280 U	--	--	--	4.5 U	--	--
2-Chlorotoluene	--	--	56 U	--	--	--	0.9 U	--	--
2-Hexanone (Methyl butyl ketone)	--	--	280 U	--	--	--	4.5 U	--	--
4-Chlorotoluene	--	--	56 U	--	--	--	0.9 U	--	--
Acetone	--	--	310 U	--	--	--	**38**	--	--
Acrolein	--	--	280 U	--	--	--	4.5 U	--	--
Acrylonitrile	--	--	280 U	--	--	--	4.5 U	--	--
Benzene	--	--	56 U	--	--	--	0.9 U	--	--
Bromobenzene	--	--	56 U	--	--	--	0.9 U	--	--
Bromochloromethane	--	--	56 U	--	--	--	0.9 U	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	D-05_201603	D-05_201603	E-01_201603	E-01_201603	E-01_201603	E-01_201603	E-02_201603	E-02_201603	E-02_201603
Sample ID	CHRL-D-05-C-160308	CHRL-D-05-D-160308	CHRL-E-01-A-160307	CHRL-E-01-B-160307	CHRL-E-01-C-160307	CHRL-E-01-D-160307	CHRL-E-02-A-160308	CHRL-E-02-B-160308	CHRL-E-02-C-160308
Sample Date	3/8/2016	3/8/2016	3/7/2016	3/7/2016	3/7/2016	3/7/2016	3/8/2016	3/8/2016	3/8/2016
Depth	6 - 7 feet	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet
Bromodichloromethane	--	--	56 U	--	--	--	0.9 U	--	--
Bromoform (Tribromomethane)	--	--	56 U	--	--	--	0.9 U	--	--
Bromomethane (Methyl bromide)	1 UJ	0.9 UJ	**31 J**	0.8 U	0.9 UJ	51 UJ	0.9 U	--	--
Carbon disulfide	--	--	56 U	--	--	--	**0.6 J**	--	--
Carbon tetrachloride (Tetrachloromethane)	--	--	56 U	--	--	--	0.9 U	--	--
Chlorobenzene	--	--	56 U	--	--	--	0.9 U	--	--
Chloroethane	--	--	56 U	--	--	--	0.9 U	--	--
Chloroform	--	--	56 U	--	--	--	0.9 U	--	--
Chloromethane	--	--	56 U	--	--	--	0.9 U	--	--
Cymene, p- (4-Isopropyltoluene)	--	--	56 U	--	--	--	**0.5 J**	--	--
Dibromochloromethane	--	--	56 U	--	--	--	0.9 U	--	--
Dibromomethane	--	--	56 U	--	--	--	0.9 U	--	--
Dichloromethane (Methylene chloride)	5.4 UJ	1.9 UJ	110 U	1.6 U	1.7 UJ	100 UJ	1.8 U	--	--
Ethyl bromide (Bromoethane)	--	--	110 U	--	--	--	1.8 U	--	--
Ethylbenzene	--	--	**40 J**	--	--	--	**3.1**	--	--
Ethylene dibromide (1,2-Dibromoethane)	--	--	56 U	--	--	--	0.9 U	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	--	280 U	--	--	--	4.5 U	--	--
Isopropylbenzene (Cumene)	--	--	56 U	--	--	--	0.9 U	--	--
m,p-Xylene	**8.1 J**	**7.2 J**	**84**	**7.1**	**23 J**	**360 J**	**12**	--	--
Methyl iodide (Iodomethane)	--	--	56 U	--	--	--	0.9 U	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	--	280 U	--	--	--	4.5 U	--	--
Naphthalene	--	--	280 U	--	--	--	4.5 U	--	--
n-Butylbenzene	--	--	56 U	--	--	--	**0.5 J**	--	--
n-Propylbenzene	--	--	56 U	--	--	--	**0.9 J**	--	--
o-Xylene	**2.7 J**	**3 J**	**37 J**	**2.3**	**6.5 J**	**110 J**	**4.4**	--	--
sec-Butylbenzene	--	--	56 U	--	--	--	0.9 U	--	--
Styrene	--	--	56 U	--	--	--	0.9 U	--	--
tert-Butylbenzene	--	--	56 U	--	--	--	0.9 U	--	--
Tetrachloroethene (PCE)	1 UJ	0.9 UJ	56 U	0.8 U	0.9 UJ	51 UJ	**0.5 J**	68 U	66 U
Toluene	--	--	**190**	--	--	--	**28**	--	--
Trichloroethene (TCE)	**0.8 J**	0.9 UJ	**29 J**	**8.9**	**17 J**	51 UJ	**24**	**450**	**190**
Trichlorofluoromethane (Fluorotrichloromethane)	--	--	56 U	--	--	--	0.9 U	--	--
Vinyl acetate	--	--	280 U	--	--	--	4.5 U	--	--
Vinyl chloride	**0.8 J**	0.9 UJ	56 U	0.8 U	**4.4 J**	51 UJ	**1**	68 U	66 U
Total Xylene (U = 1/2)	**10.8 J**	**10.2 J**	**121 J**	**9.4**	**29.5 J**	**470 J**	**16.4**	--	--
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	6.4 UJ	6 UJ	**200**	**6.4**	**7.8 J**	**8.2 J**	**7.2**	**7.9**	**28**
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	E-02_201603	E-03_201603	E-03_201603	E-03_201603	E-03_201603	E-04_201603	E-04_201603	E-04_201603	E-04_201603
Sample ID	CHRL-E-02-D-160308	CHRL-E-03-A-160308	CHRL-E-03-B-160308	CHRL-E-03-C-160308	CHRL-E-03-D-160308	CHRL-E-04-A-160308	CHRL-E-04-B-160308	CHRL-E-04-C-160308	CHRL-E-04-D-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016
Depth	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet	9 - 10 feet
Metals (mg/kg)									
Mercury	--	**0.05**	--	--	--	**0.03**	--	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	1100 U	--	--	--	1 U	--	--	--
1,1,1-Trichloroethane	--	1100 U	--	--	--	1 U	--	--	--
1,1,2,2-Tetrachloroethane	--	1100 U	--	--	--	1 U	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	2200 U	--	--	--	1.9 U	--	--	--
1,1,2-Trichloroethane	--	1100 U	--	--	--	1 U	--	--	--
1,1-Dichloroethane	--	1100 U	--	--	--	1 U	--	--	--
1,1-Dichloroethene	--	1100 U	--	--	--	1 U	--	--	--
1,1-Dichloropropene	--	1100 U	--	--	--	1 U	--	--	--
1,2,3-Trichlorobenzene	--	5500 U	--	--	--	4.8 U	--	--	--
1,2,3-Trichloropropane	--	2200 U	--	--	--	1.9 U	--	--	--
1,2,4-Trichlorobenzene	--	5500 U	--	--	--	4.8 U	--	--	--
1,2,4-Trimethylbenzene	--	**5500**	--	--	--	**9.4**	--	--	--
1,2-Dibromo-3-chloropropane	--	5500 U	--	--	--	4.8 U	--	--	--
1,2-Dichlorobenzene	--	1100 U	--	--	--	1 U	--	--	--
1,2-Dichloroethane	--	1100 U	--	--	--	1 U	--	--	--
1,2-Dichloroethene, cis-	--	**950 J**	**8500**	**7000**	--	**1.6**	--	**4.9 J**	**1.3 J**
1,2-Dichloroethene, trans-	--	1100 U	--	--	--	1 U	--	--	--
1,2-Dichloropropane	--	1100 U	--	--	--	1 U	--	--	--
1,3,5-Trimethylbenzene (Mesitylene)	--	**4000**	--	--	--	**3.1**	--	--	--
1,3-Dichlorobenzene	--	1100 U	--	--	--	1 U	--	--	--
1,3-Dichloropropane	--	1100 U	--	--	--	1 U	--	--	--
1,3-Dichloropropene, cis-	--	1100 U	--	--	--	1 U	--	--	--
1,3-Dichloropropene, trans-	--	1100 U	--	--	--	1 U	--	--	--
1,4-Dichloro-2-butene, trans-	--	5500 U	--	--	--	4.8 U	--	--	--
1,4-Dichlorobenzene	--	1100 U	--	--	--	1 U	--	--	--
2,2-Dichloropropane	--	1100 U	--	--	--	1 U	--	--	--
2-Butanone (MEK)	**300**	**1100 J**	**2300 J**	30000 U	**8000**	**16**	**27**	**480 J**	**330 J**
2-Chloroethylvinyl ether	--	5500 U	--	--	--	4.8 U	--	--	--
2-Chlorotoluene	--	1100 U	--	--	--	1 U	--	--	--
2-Hexanone (Methyl butyl ketone)	--	5500 U	--	--	--	4.8 U	--	--	--
4-Chlorotoluene	--	1100 U	--	--	--	1 U	--	--	--
Acetone	--	**4500 J**	--	--	--	**110**	--	--	--
Acrolein	--	5500 U	--	--	--	4.8 U	--	--	--
Acrylonitrile	--	5500 U	--	--	--	4.8 U	--	--	--
Benzene	--	1100 U	--	--	--	1 U	--	--	--
Bromobenzene	--	1100 U	--	--	--	1 U	--	--	--
Bromochloromethane	--	1100 U	--	--	--	1 U	--	--	--

Table 3

Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	E-02_201603	E-03_201603	E-03_201603	E-03_201603	E-03_201603	E-04_201603	E-04_201603	E-04_201603	E-04_201603
Sample ID	CHRL-E-02-D-160308	CHRL-E-03-A-160308	CHRL-E-03-B-160308	CHRL-E-03-C-160308	CHRL-E-03-D-160308	CHRL-E-04-A-160308	CHRL-E-04-B-160308	CHRL-E-04-C-160308	CHRL-E-04-D-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016	3/8/2016
Depth	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet	9 - 10 feet	0.5 - 1.5 feet	3 - 4 feet	6 - 7 feet	9 - 10 feet
Bromodichloromethane	--	1100 U	--	--	--	1 U	--	--	--
Bromoform (Tribromomethane)	--	1100 U	--	--	--	1 U	--	--	--
Bromomethane (Methyl bromide)	--	1100 U	1000 U	5900 U	--	1 U	--	0.9 UJ	0.9 UJ
Carbon disulfide	--	1100 U	--	--	--	**0.8 J**	--	--	--
Carbon tetrachloride (Tetrachloromethane)	--	1100 U	--	--	--	1 U	--	--	--
Chlorobenzene	--	1100 U	--	--	--	1 U	--	--	--
Chloroethane	--	1100 U	--	--	--	1 U	--	--	--
Chloroform	--	1100 U	--	--	--	1 U	--	--	--
Chloromethane	--	1100 U	--	--	--	1 U	--	--	--
Cymene, p- (4-Isopropyltoluene)	--	**1100**	--	--	--	**1.8**	--	--	--
Dibromochloromethane	--	1100 U	--	--	--	1 U	--	--	--
Dibromomethane	--	1100 U	--	--	--	1 U	--	--	--
Dichloromethane (Methylene chloride)	--	2200 U	2100 U	12000 U	--	1.9 U	--	1.8 UJ	1.9 UJ
Ethyl bromide (Bromoethane)	--	2200 U	--	--	--	1.9 U	--	--	--
Ethylbenzene	--	**2300**	--	--	--	**2.7**	--	--	--
Ethylene dibromide (1,2-Dibromoethane)	--	1100 U	--	--	--	1 U	--	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	5500 U	--	--	--	4.8 U	--	--	--
Isopropylbenzene (Cumene)	--	1100 U	--	--	--	1 U	--	--	--
m,p-Xylene	--	**10000**	**350000 J**	**260000**	--	**10**	--	**22 J**	**8 J**
Methyl iodide (Iodomethane)	--	1100 U	--	--	--	1 U	--	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	5500 U	--	--	--	4.8 U	--	--	--
Naphthalene	--	5500 U	--	--	--	4.8 U	--	--	--
n-Butylbenzene	--	1100 U	--	--	--	1 U	--	--	--
n-Propylbenzene	--	1100 U	--	--	--	**1.1**	--	--	--
o-Xylene	--	**4100**	**120000 J**	**82000**	--	**3.4**	--	**5.9 J**	**2.4 J**
sec-Butylbenzene	--	1100 U	--	--	--	**0.7 J**	--	--	--
Styrene	--	1100 U	--	--	--	1 U	--	--	--
tert-Butylbenzene	--	1100 U	--	--	--	1 U	--	--	--
Tetrachloroethene (PCE)	**1.1**	1100 U	**4800**	**2300 J**	72 U	**0.6 J**	1.5 U	0.9 UJ	0.9 UJ
Toluene	--	**34000**	--	--	--	**24**	--	--	--
Trichloroethene (TCE)	**150**	**450 J**	**64000**	**31000**	72 U	**3.3**	**1.7**	**1.5 J**	0.9 UJ
Trichlorofluoromethane (Fluorotrichloromethane)	--	1100 U	--	--	--	1 U	--	--	--
Vinyl acetate	--	5500 U	--	--	--	4.8 U	--	--	--
Vinyl chloride	**22**	1100 U	1000 U	5900 U	72 U	1 U	1.5 U	0.9 UJ	0.9 UJ
Total Xylene (U = 1/2)	--	**14100**	**470000 J**	**342000**	--	**13.4**	--	**27.9 J**	**10.4 J**
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	**16**	**3300**	**17000**	**15000**	**8.4**	**71**	5.2 U	**13 J**	6 UJ
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	F-01_201603	F-01_201603	F-01_201603	F-01_201603	F-01_201603	F-02_201603	F-02_201603	F-02_201603	F-02_201603
Sample ID	CHRL-F-01-A-160309	CHRL-F-01-B-160309	CHRL-F-01-C-160309	CHRL-F-01-D-160309	CHRL-F-51-B-160309	CHRL-F-02-A-160309	CHRL-F-02-B-160309	CHRL-F-02-C-160309	CHRL-F-02-D-160309
Sample Date	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016
Depth	0.5 - 1 feet	3.5 - 4.5 feet	6.5 - 7.5 feet	10.5 - 11.5 feet	3.5 - 4.5 feet	0.5 - 1 feet	3.5 - 4.5 feet	6.5 - 7.5 feet	10.5 - 11.5 feet
Metals (mg/kg)									
Mercury	**0.03**	--	--	--	--	**0.05**	--	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,1,1-Trichloroethane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,1,2,2-Tetrachloroethane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	2.4 U	--	--	--	--	2.2 U	--	--	--
1,1,2-Trichloroethane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,1-Dichloroethane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,1-Dichloroethene	1.2 U	--	--	--	--	1.1 U	--	--	--
1,1-Dichloropropene	1.2 U	--	--	--	--	1.1 U	--	--	--
1,2,3-Trichlorobenzene	5.9 U	--	--	--	--	5.4 U	--	--	--
1,2,3-Trichloropropane	2.4 U	--	--	--	--	2.2 U	--	--	--
1,2,4-Trichlorobenzene	5.9 U	--	--	--	--	5.4 U	--	--	--
1,2,4-Trimethylbenzene	**5.8**	--	--	--	--	**1.1**	--	--	--
1,2-Dibromo-3-chloropropane	5.9 U	--	--	--	--	5.4 U	--	--	--
1,2-Dichlorobenzene	1.2 U	--	--	--	--	1.1 U	--	--	--
1,2-Dichloroethane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,2-Dichloroethene, cis-	**0.7 J**	--	0.8 U	1 U	--	1.1 U	--	0.9 U	0.9 U
1,2-Dichloroethene, trans-	1.2 U	--	--	--	--	1.1 U	--	--	--
1,2-Dichloropropane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,3,5-Trimethylbenzene (Mesitylene)	**1.6**	--	--	--	--	1.1 U	--	--	--
1,3-Dichlorobenzene	1.2 U	--	--	--	--	1.1 U	--	--	--
1,3-Dichloropropane	1.2 U	--	--	--	--	1.1 U	--	--	--
1,3-Dichloropropene, cis-	1.2 U	--	--	--	--	1.1 U	--	--	--
1,3-Dichloropropene, trans-	1.2 U	--	--	--	--	1.1 U	--	--	--
1,4-Dichloro-2-butene, trans-	5.9 U	--	--	--	--	5.4 U	--	--	--
1,4-Dichlorobenzene	**1.6**	--	--	--	--	1.1 U	--	--	--
2,2-Dichloropropane	1.2 U	--	--	--	--	1.1 U	--	--	--
2-Butanone (MEK)	**4.3 J**	**4.8 J**	**4.8**	4.8 U	**5.7**	**4.4 J**	**4.4 J**	4.7 U	4.3 U
2-Chloroethylvinyl ether	5.9 U	--	--	--	--	5.4 U	--	--	--
2-Chlorotoluene	1.2 U	--	--	--	--	1.1 U	--	--	--
2-Hexanone (Methyl butyl ketone)	5.9 U	--	--	--	--	5.4 U	--	--	--
4-Chlorotoluene	1.2 U	--	--	--	--	1.1 U	--	--	--
Acetone	**50**	--	--	--	--	**52**	--	--	--
Acrolein	5.9 U	--	--	--	--	5.4 U	--	--	--
Acrylonitrile	5.9 U	--	--	--	--	5.4 U	--	--	--
Benzene	1.2 U	--	--	--	--	1.1 U	--	--	--
Bromobenzene	1.2 U	--	--	--	--	1.1 U	--	--	--
Bromochloromethane	1.2 U	--	--	--	--	1.1 U	--	--	--

Table 3

Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	F-01_201603	F-01_201603	F-01_201603	F-01_201603	F-01_201603	F-02_201603	F-02_201603	F-02_201603	F-02_201603
Sample ID	CHRL-F-01-A-160309	CHRL-F-01-B-160309	CHRL-F-01-C-160309	CHRL-F-01-D-160309	CHRL-F-51-B-160309	CHRL-F-02-A-160309	CHRL-F-02-B-160309	CHRL-F-02-C-160309	CHRL-F-02-D-160309
Sample Date	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016	3/9/2016
Depth	0.5 - 1 feet	3.5 - 4.5 feet	6.5 - 7.5 feet	10.5 - 11.5 feet	3.5 - 4.5 feet	0.5 - 1 feet	3.5 - 4.5 feet	6.5 - 7.5 feet	10.5 - 11.5 feet
Bromodichloromethane	1.2 U	--	--	--	--	1.1 U	--	--	--
Bromoform (Tribromomethane)	1.2 U	--	--	--	--	1.1 U	--	--	--
Bromomethane (Methyl bromide)	1.2 U	--	0.8 U	1 U	--	**0.4 J**	--	**0.7 J**	**0.2 J**
Carbon disulfide	1.2 U	--	--	--	--	1.1 U	--	--	--
Carbon tetrachloride (Tetrachloromethane)	1.2 U	--	--	--	--	1.1 U	--	--	--
Chlorobenzene	1.2 U	--	--	--	--	1.1 U	--	--	--
Chloroethane	1.2 U	--	--	--	--	1.1 U	--	--	--
Chloroform	1.2 U	--	--	--	--	1.1 U	--	--	--
Chloromethane	1.2 U	--	--	--	--	1.1 U	--	--	--
Cymene, p- (4-Isopropyltoluene)	1.2 U	--	--	--	--	**1.1 J**	--	--	--
Dibromochloromethane	1.2 U	--	--	--	--	1.1 U	--	--	--
Dibromomethane	1.2 U	--	--	--	--	1.1 U	--	--	--
Dichloromethane (Methylene chloride)	2.4 U	--	**1.3 J**	1.9 U	--	2.2 U	--	**1.2 J**	**0.9 J**
Ethyl bromide (Bromoethane)	2.4 U	--	--	--	--	2.2 U	--	--	--
Ethylbenzene	**3.7**	--	--	--	--	**1.7**	--	--	--
Ethylene dibromide (1,2-Dibromoethane)	1.2 U	--	--	--	--	1.1 U	--	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	5.9 U	--	--	--	--	5.4 U	--	--	--
Isopropylbenzene (Cumene)	1.2 U	--	--	--	--	1.1 U	--	--	--
m,p-Xylene	**12**	--	**43**	**24**	--	**4.7**	--	**19**	**14**
Methyl iodide (Iodomethane)	1.2 U	--	--	--	--	1.1 U	--	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	5.9 U	--	--	--	--	5.4 U	--	--	--
Naphthalene	5.9 U	--	--	--	--	5.4 U	--	--	--
n-Butylbenzene	1.2 U	--	--	--	--	1.1 U	--	--	--
n-Propylbenzene	**0.8 J**	--	--	--	--	1.1 U	--	--	--
o-Xylene	**1.1 J**	--	**6**	**5.8**	--	**1.5**	--	**1.4**	**1.3**
sec-Butylbenzene	1.2 U	--	--	--	--	1.1 U	--	--	--
Styrene	1.2 U	--	--	--	--	1.1 U	--	--	--
tert-Butylbenzene	1.2 U	--	--	--	--	1.1 U	--	--	--
Tetrachloroethene (PCE)	1.2 U	1.1 U	0.8 U	1 U	1 U	1.1 U	1.1 U	0.9 U	0.9 U
Toluene	**3.5**	--	--	--	--	**2.2**	--	--	--
Trichloroethene (TCE)	1.2 U	**0.9 J**	**0.4 J**	1 U	**0.5 J**	1.1 U	1.1 U	0.9 U	0.9 U
Trichlorofluoromethane (Fluorotrichloromethane)	1.2 U	--	--	--	--	1.1 U	--	--	--
Vinyl acetate	5.9 U	--	--	--	--	5.4 U	--	--	--
Vinyl chloride	1.2 U	1.1 U	0.8 U	1 U	1 U	1.1 U	1.1 U	0.9 U	0.9 U
Total Xylene (U = 1/2)	**13.1 J**	--	**49**	**29.8**	--	**6.2**	--	**20.4**	**15.3**
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	--	--	--	--	--	--	--	--	--
Gasoline range hydrocarbons	6.6 U	5.8 U	5.5 U	5.2 U	6 U	7 U	7 U	5.8 U	5.6 U
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	A03_SA0300	A03_SA0302	A03_SA03SWE	A03_SA03SWN	A03_SA03SWS	A03_SA03SWW	A03_TPA03N109	A03_TPA03N112	A03_TPA03N207
Sample ID	SA0300	SA0302	SA03SWE	SA03SWN	SA03SWS	SA03SWW	TPA03N109	TPA03N112	TPA03N207
Sample Date	9/3/2015	9/14/2015	9/14/2015	9/14/2015	9/14/2015	9/14/2015	9/24/2015	9/24/2015	9/24/2015
Depth	0 - 0.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	8.5 - 9.5 feet	11.5 - 12.5 feet	6.5 - 7.5 feet
Metals (mg/kg)									
Mercury	--	--	--	--	--	--	--	--	--
Volatile Organics (µg/kg)									
1,1,1,2-Tetrachloroethane	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	--	--	--	--	--
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--
1,1-Dichloropropene	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	--	--	--	--	--	--	--	--	--
1,2,4-Trichlorobenzene	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene, cis-	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene, trans-	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene (Mesitylene)	--	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	--
1,3-Dichloropropane	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, cis-	--	--	--	--	--	--	--	--	--
1,3-Dichloropropene, trans-	--	--	--	--	--	--	--	--	--
1,4-Dichloro-2-butene, trans-	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	--
2,2-Dichloropropane	--	--	--	--	--	--	--	--	--
2-Butanone (MEK)	--	--	--	--	--	--	--	--	--
2-Chloroethylvinyl ether	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	--	--	--	--	--	--	--	--	--
2-Hexanone (Methyl butyl ketone)	--	--	--	--	--	--	--	--	--
4-Chlorotoluene	--	--	--	--	--	--	--	--	--
Acetone	--	--	--	--	--	--	--	--	--
Acrolein	--	--	--	--	--	--	--	--	--
Acrylonitrile	--	--	--	--	--	--	--	--	--
Benzene	1200 U	**94 J**	9.4 U	**710 J**	11 U	11 U	12 U	14 U	11 U
Bromobenzene	--	--	--	--	--	--	--	--	--
Bromochloromethane	--	--	--	--	--	--	--	--	--

Table 3
Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Location ID	A03_SA0300	A03_SA0302	A03_SA03SWE	A03_SA03SWN	A03_SA03SWS	A03_SA03SWW	A03_TPA03N109	A03_TPA03N112	A03_TPA03N207
Sample ID	SA0300	SA0302	SA03SWE	SA03SWN	SA03SWS	SA03SWW	TPA03N109	TPA03N112	TPA03N207
Sample Date	9/3/2015	9/14/2015	9/14/2015	9/14/2015	9/14/2015	9/14/2015	9/24/2015	9/24/2015	9/24/2015
Depth	0 - 0.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	1.5 - 2.5 feet	8.5 - 9.5 feet	11.5 - 12.5 feet	6.5 - 7.5 feet
Bromodichloromethane	--	--	--	--	--	--	--	--	--
Bromoform (Tribromomethane)	--	--	--	--	--	--	--	--	--
Bromomethane (Methyl bromide)	--	--	--	--	--	--	--	--	--
Carbon disulfide	--	--	--	--	--	--	--	--	--
Carbon tetrachloride (Tetrachloromethane)	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--
Chloroethane	--	--	--	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--	--	--	--
Chloromethane	--	--	--	--	--	--	--	--	--
Cymene, p- (4-Isopropyltoluene)	--	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--
Dibromomethane	--	--	--	--	--	--	--	--	--
Dichloromethane (Methylene chloride)	--	--	--	--	--	--	--	--	--
Ethyl bromide (Bromoethane)	--	--	--	--	--	--	--	--	--
Ethylbenzene	**45000**	**17000**	**30**	**50000**	11 U	**210**	**22**	**24**	11 U
Ethylene dibromide (1,2-Dibromoethane)	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	--	--	--	--	--	--	--	--	--
Isopropylbenzene (Cumene)	--	--	--	--	--	--	--	--	--
m,p-Xylene	**230000**	**72000**	**110**	**210000**	22 U	**820**	**100**	**130**	**23**
Methyl iodide (Iodomethane)	--	--	--	--	--	--	--	--	--
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIBK))	--	--	--	--	--	--	--	--	--
Naphthalene	--	--	--	--	--	--	--	--	--
n-Butylbenzene	--	--	--	--	--	--	--	--	--
n-Propylbenzene	--	--	--	--	--	--	--	--	--
o-Xylene	**78000**	**25000**	**49**	**70000**	11 U	**260**	**38**	**52**	11 U
sec-Butylbenzene	--	--	--	--	--	--	--	--	--
Styrene	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	--	--	--	--	--	--	--	--	--
Toluene	**340000**	**160000**	**180**	**640000**	**52**	**2600**	**520**	**690**	11 U
Trichloroethene (TCE)	**160000**	**87000**	**270**	**600000**	**28**	**3.4**	**1000**	--	1 U
Trichlorofluoromethane (Fluorotrichloromethane)	--	--	--	--	--	--	--	--	--
Vinyl acetate	--	--	--	--	--	--	--	--	--
Vinyl chloride	--	--	--	--	--	--	--	--	--
Total Xylene (U = 1/2)	**308000**	**97000**	**159**	**280000**	22 U	**1080**	**138**	**182**	**28.5**
Total Petroleum Hydrocarbons (mg/kg)									
Diesel range hydrocarbons	**870**	**120**	5.3 U	**1100**	5.4 U	**5.6**	5.2 U	5.6 U	5.5 U
Gasoline range hydrocarbons	**8600**	**4300**	**15**	**19000**	**6.7**	**28**	**9.4**	**12**	**8.3**
Gasoline range hydrocarbons	--	--	--	--	--	--	--	--	--
Motor oil range hydrocarbons	**1400**	**200**	11 U	**2400**	11 U	**12**	10 U	11 U	11 U

Table 3

Soil Analytical Results - Volatile Organic Compounds, Gasoline-range Organics, and Metals

Notes:

= Detected concentration is greater than MTCA Method A Indust screening level

= Detected concentration is greater than MTCA Method B Soil Protect GW V25C screening level

= Detected concentration is greater than WA_DANGEROUS_WASTE_MAX_X_20 screening level

Bold = Detected result

J = Estimated value
U = Compound analyzed, but not detected above detection limit
UJ = Compound analyzed, but not detected above estimated detection limit
R = Rejected
-- = Not analyzed

µg/kg = microgram per kilogram
mg/kg = milligram per kilogram
MTCA = Model Toxics Control Act

Table 4
Soil Analytical Results - Semivolatile Organic Compounds

Location ID	B-01A-A_201603	B-02_201603	B-02A-A_201603	B-03A-A_201603	D-01_201603	D-02_201603	D-03_201603	D-04_201603
Sample ID	CHRL-B-01A-A-160309	CHRL-B-02-A-160310	CHRL-B-02A-A-160310	CHRL-B-03A-A-160311	CHRL-D-01-A-160309	CHRL-D-02-A-160308	CHRL-D-03-A-160308	CHRL-D-04-A-160308
Sample Date	3/9/2016	3/10/2016	3/10/2016	3/11/2016	3/9/2016	3/8/2016	3/8/2016	3/8/2016
Depth	7.3 - 7.9 feet	10 - 11 feet	6.4 - 7 feet	6.6 - 7 feet	1.3 - 2.3 feet	0.5 - 1.5 feet	0.3 - 1.3 feet	0.2 - 1.2 feet
Semivolatile Organics (µg/kg)								
1,2,4-Trichlorobenzene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
1,2-Dichlorobenzene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
1,3-Dichlorobenzene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
1,4-Dichlorobenzene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
1-Methylnaphthalene	18 U	**7.9 J**	20 U	20 U	19 U	19 U	19 U	20 U
2,2'-Oxybis (1-chloropropane)	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
2,4,5-Trichlorophenol	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
2,4,6-Trichlorophenol	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
2,4-Dichlorophenol	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
2,4-Dimethylphenol	92 U	98 U	98 U	98 U	93 UJ	95 U	94 U	98 U
2,4-Dinitrophenol	180 U	200 U	200 U	200 U	190 U	190 U	190 U	200 U
2,4-Dinitrotoluene	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
2,6-Dinitrotoluene	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
2-Chloronaphthalene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
2-Chlorophenol	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
2-Methylnaphthalene	**10 J**	**23**	20 U	20 U	19 U	**7.6 J**	**7.6 J**	20 U
2-Methylphenol (o-Cresol)	**23**	20 U	20 U	20 U	19 UJ	**17 J**	19 U	20 U
2-Nitroaniline	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
2-Nitrophenol	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
3,3'-Dichlorobenzidine	92 UJ	98 UJ	98 U	98 UJ	**-- R**	95 UJ	94 UJ	98 UJ
3-Nitroaniline	92 U	98 UJ	98 U	98 U	93 UJ	95 U	94 U	98 U
4-Bromophenyl-phenyl ether	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
4-Chloro-3-methylphenol	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
4-Chloroaniline	92 U	98 UJ	98 U	98 UJ	**-- R**	95 U	94 U	98 U
4-Chlorophenyl phenyl ether	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
4-Methylphenol (p-Cresol)	**350**	**53**	20 U	20 U	19 U	**44**	**25**	20 U
4-Nitroaniline	92 U	98 UJ	98 U	98 UJ	93 UJ	95 U	94 U	98 U
4-Nitrophenol	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
Acenaphthene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Acenaphthylene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Anthracene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Benzo(a)anthracene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Benzo(a)pyrene	18 U	20 U	20 U	20 U	**6.5 J**	19 U	19 U	20 U
Benzo(b,j,k)fluoranthenes	37 U	39 U	39 U	39 U	37 U	38 U	38 U	39 U
Benzo(g,h,i)perylene	18 U	20 U	20 U	20 U	**7.4 J**	19 U	19 U	20 U
Benzoic acid	**1200**	**100 J**	**60 J**	200 U	**480**	190 U	190 U	**64 J**
Benzyl alcohol	18 U	**-- R**	20 U	20 UJ	19 U	19 U	19 U	20 U
bis(2-Chloroethoxy)methane	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
bis(2-Chloroethyl)ether	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
bis(2-Ethylhexyl)phthalate	**81**	170 U	64 U	49 U	**120**	**210**	**240**	49 U
Butylbenzyl phthalate	18 U	**16 J**	20 U	20 U	19 U	19 U	19 U	20 U

Table 4
Soil Analytical Results - Semivolatile Organic Compounds

Location ID	B-01A-A_201603	B-02_201603	B-02A-A_201603	B-03A-A_201603	D-01_201603	D-02_201603	D-03_201603	D-04_201603
Sample ID	CHRL-B-01A-A-160309	CHRL-B-02-A-160310	CHRL-B-02A-A-160310	CHRL-B-03A-A-160311	CHRL-D-01-A-160309	CHRL-D-02-A-160308	CHRL-D-03-A-160308	CHRL-D-04-A-160308
Sample Date	3/9/2016	3/10/2016	3/10/2016	3/11/2016	3/9/2016	3/8/2016	3/8/2016	3/8/2016
Depth	7.3 - 7.9 feet	10 - 11 feet	6.4 - 7 feet	6.6 - 7 feet	1.3 - 2.3 feet	0.5 - 1.5 feet	0.3 - 1.3 feet	0.2 - 1.2 feet
Carbazole	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Chrysene	18 U	20 U	20 U	20 U	**7.4 J**	19 U	19 U	20 U
Dibenzo(a,h)anthracene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Dibenzofuran	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Diethyl phthalate	18 U	22 U	20 U	20 U	19 U	19 U	19 U	20 U
Dimethyl phthalate	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Di-n-butyl phthalate	18 U	**7.9 J**	20 U	20 U	19 U	19 U	**8.5 J**	20 U
Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	180 U	200 U	200 U	200 U	190 U	190 U	190 U	200 U
Di-n-octyl phthalate	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Fluoranthene	18 U	20 U	20 U	**13 J**	**8.4 J**	19 U	19 U	20 U
Fluorene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Hexachlorobenzene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Hexachlorocyclopentadiene	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
Hexachloroethane	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Indeno(1,2,3-c,d)pyrene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Isophorone	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
Naphthalene	**27**	**64**	**6.9 J**	20 U	**8.4 J**	**20**	**15 J**	**5.9 J**
Nitrobenzene	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
n-Nitrosodi-n-propylamine	18 U	20 U	20 U	20 U	19 U	19 U	19 U	20 U
n-Nitrosodiphenylamine	18 U	20 U	20 U	20 U	19 UJ	19 U	19 U	20 U
Pentachlorophenol	92 U	98 U	98 U	98 U	93 U	95 U	94 U	98 U
Phenanthrene	18 U	**6.9 J**	**5.9 J**	**8.8 J**	**6.5 J**	19 U	19 U	20 U
Phenol	**66**	**13 J**	**13 J**	20 U	**15 J**	**11 J**	19 U	20 U
Pyrene	18 U	20 U	20 U	**9.8 J**	**8.4 J**	19 U	19 U	20 U
Total Cresol (o,m,p) (U = 1/2)	**373**	**63**	20 U	20 U	19 UJ	**61 J**	**34.5**	20 U

Table 4
Soil Analytical Results - Semivolatile Organic Compounds

Location ID	D-04_201603	D-05_201603	E-02_201603
Sample ID	CHRL-D-54-A-160308	CHRL-D-05-A-160308	CHRL-E-02-A-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016
Depth	0.2 - 1.2 feet	0.7 - 1.7 feet	0.5 - 1.5 feet
Semivolatile Organics (µg/kg)			
1,2,4-Trichlorobenzene	19 U	19 U	18 U
1,2-Dichlorobenzene	19 U	19 U	18 U
1,3-Dichlorobenzene	19 U	19 U	18 U
1,4-Dichlorobenzene	19 U	19 U	18 U
1-Methylnaphthalene	19 U	19 U	18 U
2,2'-Oxybis (1-chloropropane)	19 U	19 U	18 U
2,4,5-Trichlorophenol	97 U	97 U	93 U
2,4,6-Trichlorophenol	97 U	97 U	93 U
2,4-Dichlorophenol	97 U	97 U	93 U
2,4-Dimethylphenol	97 U	97 U	93 U
2,4-Dinitrophenol	190 U	190 U	180 U
2,4-Dinitrotoluene	97 U	97 U	93 U
2,6-Dinitrotoluene	97 U	97 U	93 U
2-Chloronaphthalene	19 U	19 U	18 U
2-Chlorophenol	19 U	19 U	18 U
2-Methylnaphthalene	19 U	19 U	18 U
2-Methylphenol (o-Cresol)	19 U	19 U	18 U
2-Nitroaniline	97 U	97 U	93 U
2-Nitrophenol	19 U	19 U	18 U
3,3'-Dichlorobenzidine	97 UJ	97 UJ	93 UJ
3-Nitroaniline	97 U	97 UJ	93 U
4-Bromophenyl-phenyl ether	19 U	19 U	18 U
4-Chloro-3-methylphenol	97 U	97 U	93 U
4-Chloroaniline	97 U	97 UJ	93 U
4-Chlorophenyl phenyl ether	19 U	19 U	18 U
4-Methylphenol (p-Cresol)	19 U	**66**	**14 J**
4-Nitroaniline	97 U	97 U	93 U
4-Nitrophenol	97 U	97 U	93 U
Acenaphthene	19 U	19 U	18 U
Acenaphthylene	19 U	19 U	18 U
Anthracene	19 U	19 U	18 U
Benzo(a)anthracene	19 U	19 U	18 U
Benzo(a)pyrene	19 U	19 U	18 U
Benzo(b,j,k)fluoranthenes	39 U	39 U	37 U
Benzo(g,h,i)perylene	19 U	19 U	**9.3 J**
Benzoic acid	190 U	**660 J**	**210**
Benzyl alcohol	19 U	19 UJ	18 U
bis(2-Chloroethoxy)methane	19 U	19 U	18 U
bis(2-Chloroethyl)ether	19 U	19 U	18 U
bis(2-Ethylhexyl)phthalate	48 U	**34 J**	**110**
Butylbenzyl phthalate	19 U	19 U	18 U

Table 4
Soil Analytical Results - Semivolatile Organic Compounds

Location ID	D-04_201603	D-05_201603	E-02_201603
Sample ID	CHRL-D-54-A-160308	CHRL-D-05-A-160308	CHRL-E-02-A-160308
Sample Date	3/8/2016	3/8/2016	3/8/2016
Depth	0.2 - 1.2 feet	0.7 - 1.7 feet	0.5 - 1.5 feet
Carbazole	19 U	19 U	18 U
Chrysene	19 U	19 U	18 U
Dibenzo(a,h)anthracene	19 U	19 U	18 U
Dibenzofuran	19 U	19 U	18 U
Diethyl phthalate	19 U	19 U	18 U
Dimethyl phthalate	19 U	19 U	18 U
Di-n-butyl phthalate	19 U	19 U	18 U
Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	190 U	190 U	180 U
Di-n-octyl phthalate	19 U	19 U	18 U
Fluoranthene	19 U	19 U	18 U
Fluorene	19 U	19 U	18 U
Hexachlorobenzene	19 U	19 U	18 U
Hexachlorobutadiene (Hexachloro-1,3-butadiene)	19 U	19 U	18 U
Hexachlorocyclopentadiene	97 U	97 U	93 U
Hexachloroethane	19 U	19 U	18 U
Indeno(1,2,3-c,d)pyrene	19 U	19 U	18 U
Isophorone	19 U	19 U	18 U
Naphthalene	19 U	19 U	**7.4 J**
Nitrobenzene	19 U	19 U	18 U
n-Nitrosodi-n-propylamine	19 U	19 U	18 U
n-Nitrosodiphenylamine	19 U	19 U	18 U
Pentachlorophenol	97 U	97 U	93 U
Phenanthrene	19 U	19 U	18 U
Phenol	19 U	**12 J**	18 U
Pyrene	19 U	19 U	18 U
Total Cresol (o,m,p) (U = 1/2)	19 U	**75.5**	**23 J**

Table 4
Soil Analytical Results - Semivolatile Organic Compounds

Notes:
= Detected concentration is greater than MTCA Method A Indust screening level
= Detected concentration is greater than MTCA Method B Soil Protect GW V25C screening level
= Detected concentration is greater than WA_DANGEROUS_WASTE_MAX_X_20 screening level

Bold = Detected result

J = Estimated value
U = Compound analyzed, but not detected above detection limit
UJ = Compound analyzed, but not detected above estimated detection limit
R = Rejected
-- = Not analyzed

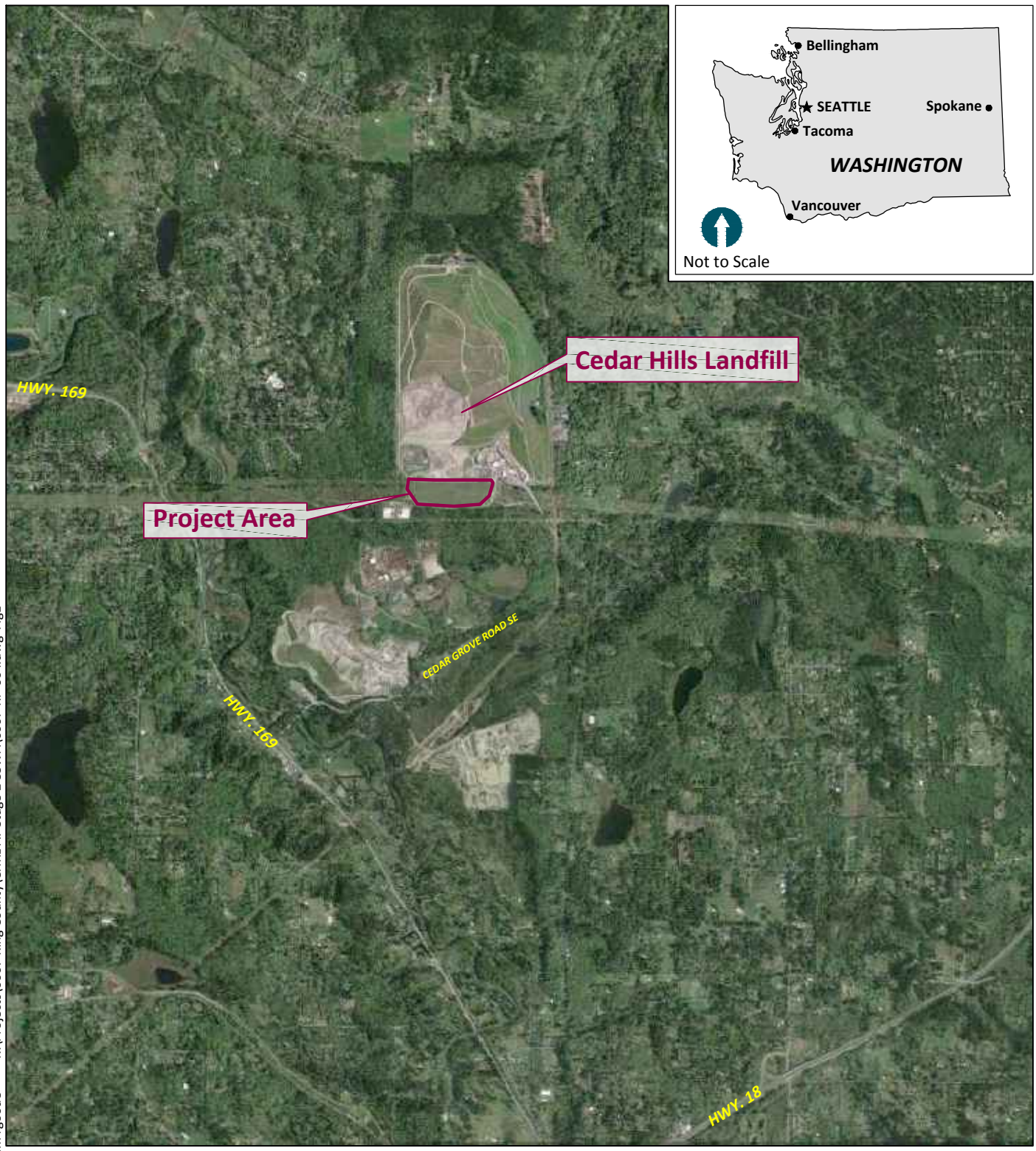
µg/kg = microgram per kilogram
MTCA = Model Toxics Control Act

Table 5
Toxicity Characteristic Leaching Procedure Testing Results

Sample ID	TCE Concentration in Soil (µg/kg)	TCE Concentration from TCLP (mg/L)	Dangerous Waste Limit (mg/L)
SA0302	87,000	ND	0.5
SA03SWN	600,000	2.1	0.5
CHRL-D-03-B-160308	25,000	0.0052	0.5
CHRL-D-53-B-160308	41,000	ND	0.5
CHRL-E-03-A-160308	450	0.09	0.5
CHRL-E-03-B-160308	64,000	0.01	0.5
CHRL-E-03-C-160308	31,000	1.2	0.5

Notes:
ND = Non detect
µg/kg = microgram per kilogram
mg/L = milligram per liter
TCE = trichloroethylene
TCLP = toxicity characteristic leaching procedure

FIGURES



K:\Projects\0067-King County\CHRL A7 Stage 2-SSWA\0067-RP-004.dwg Fig1

Apr 22, 2016 11:39am rgoode

AERIAL SOURCE: Google Earth Pro, 2015.

0 3500

Scale in Feet

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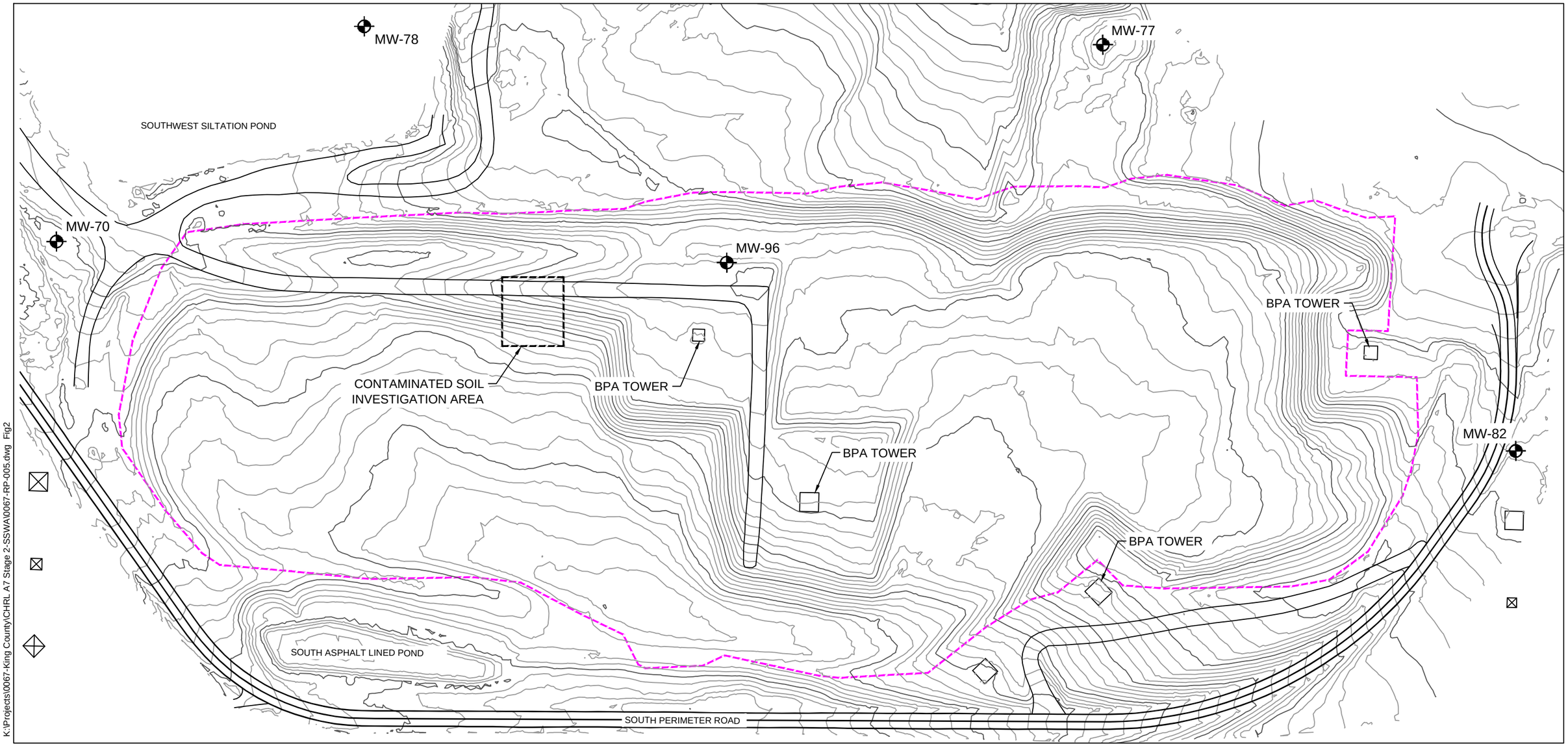
Figure 1
Site Vicinity Map
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD



K:\Projects\0067-King County\CHRL A7 Stage 2-SSWA\0067-RP-005.dwg Fig2

Apr 22, 2016 11:39am rgoode

SOURCE: Drawing prepared from electronic AutoCad file provided by Lin & Associates Inc., dated February 22, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

LEGEND:

5 — Existing Contours (2015, 1 ft Intervals)

2015 SSWA Excavation Limits

MW-96 — Monitoring well location and ID

0 150
Scale in Feet

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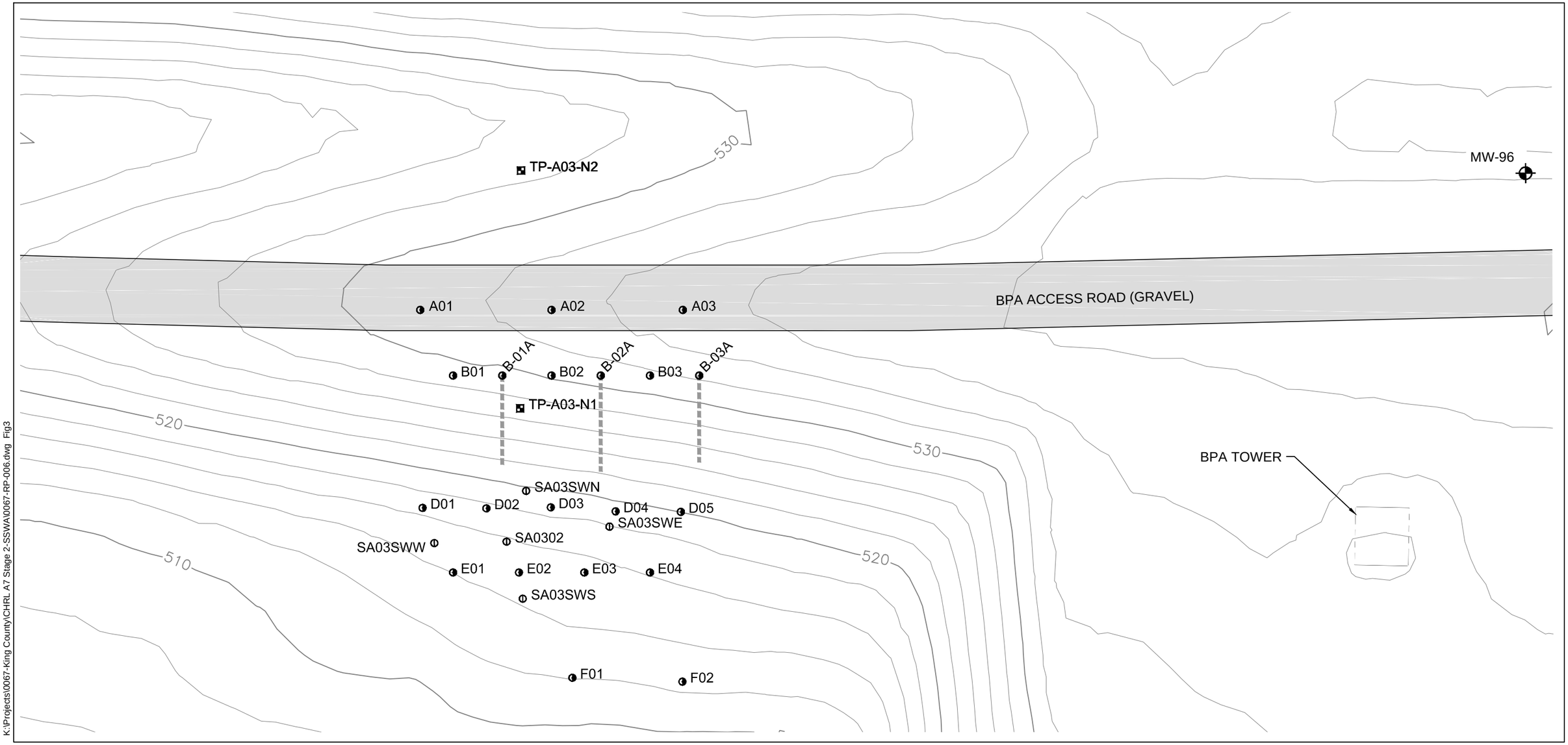
ANCHOR QEA

Figure 2
Site Location Plan
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD



K:\Projects\0067-King County\CHRL A7 Stage 2-SSWA\0067-RP-006.dwg Fig3

Apr 22, 2016 11:40am rgoode

SOURCE: Drawing prepared from electronic topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

E01	2016 Boring Location and ID
SA0300	2015 Surface Sample Location and ID
TP-A03-N1	2015 Test Pit Location and ID
	Boring drilled at 41° from horizontal
5	Existing Contours (2 ft Intervals)
MW-96	Existing Monitoring Well Location and ID

0 30
Scale in Feet

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ANCHOR QEA

Figure 3
Boring and Test Pit Location Plan
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

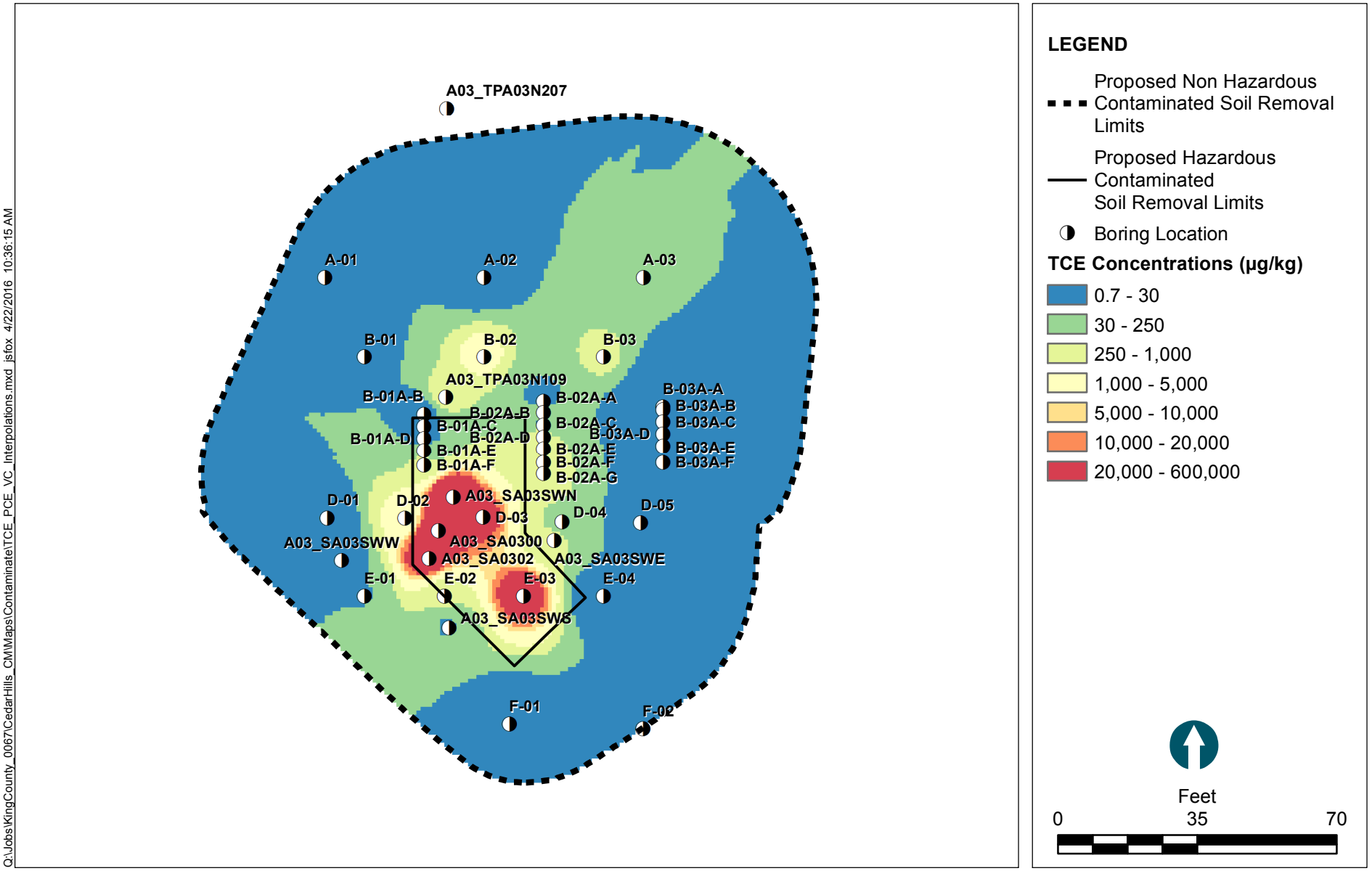

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Figure 4
Interpolated Max TCE Concentrations All Depths
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

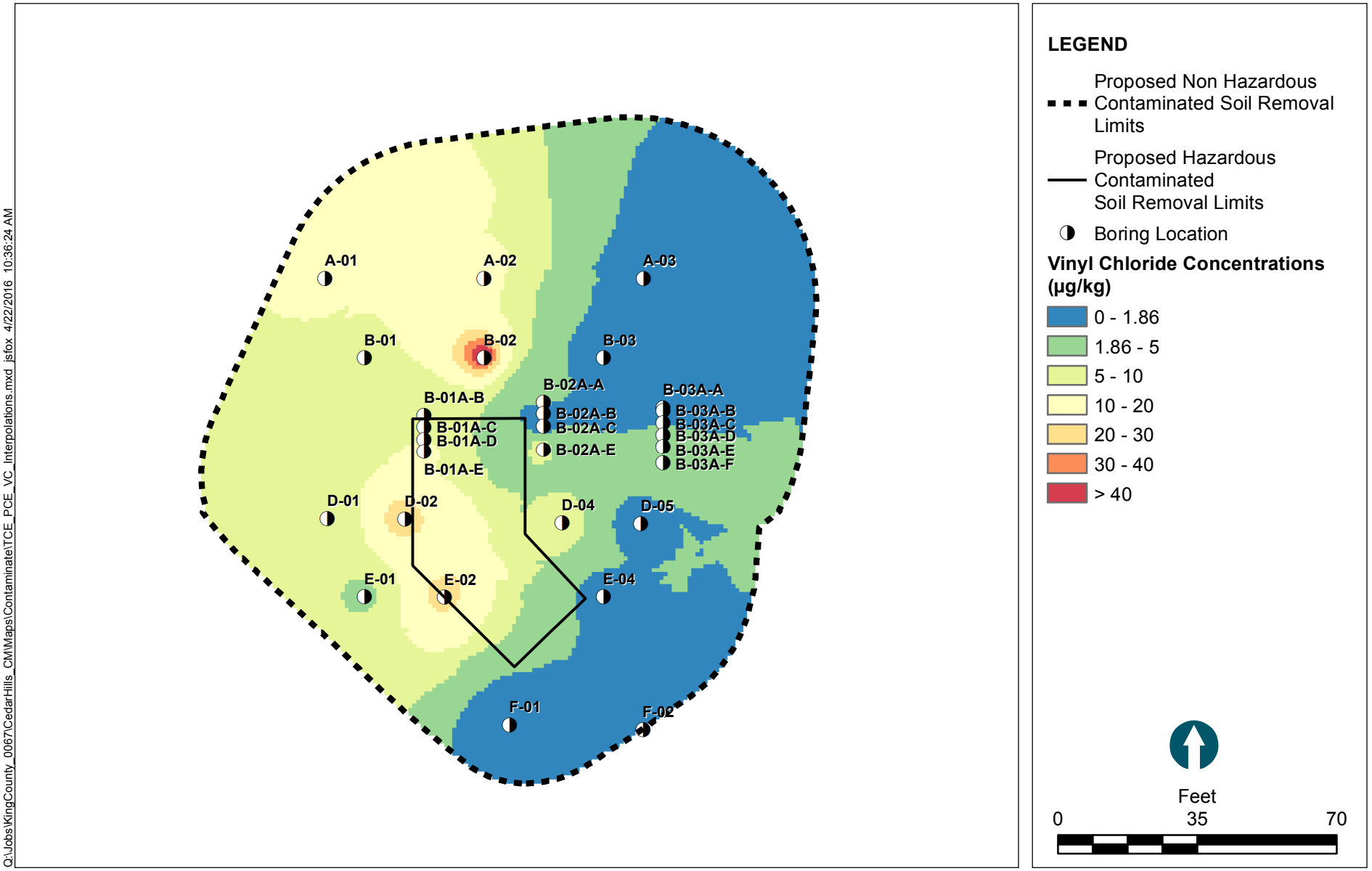

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Figure 5
Interpolated Max Vinyl Chloride Concentrations All Depths
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

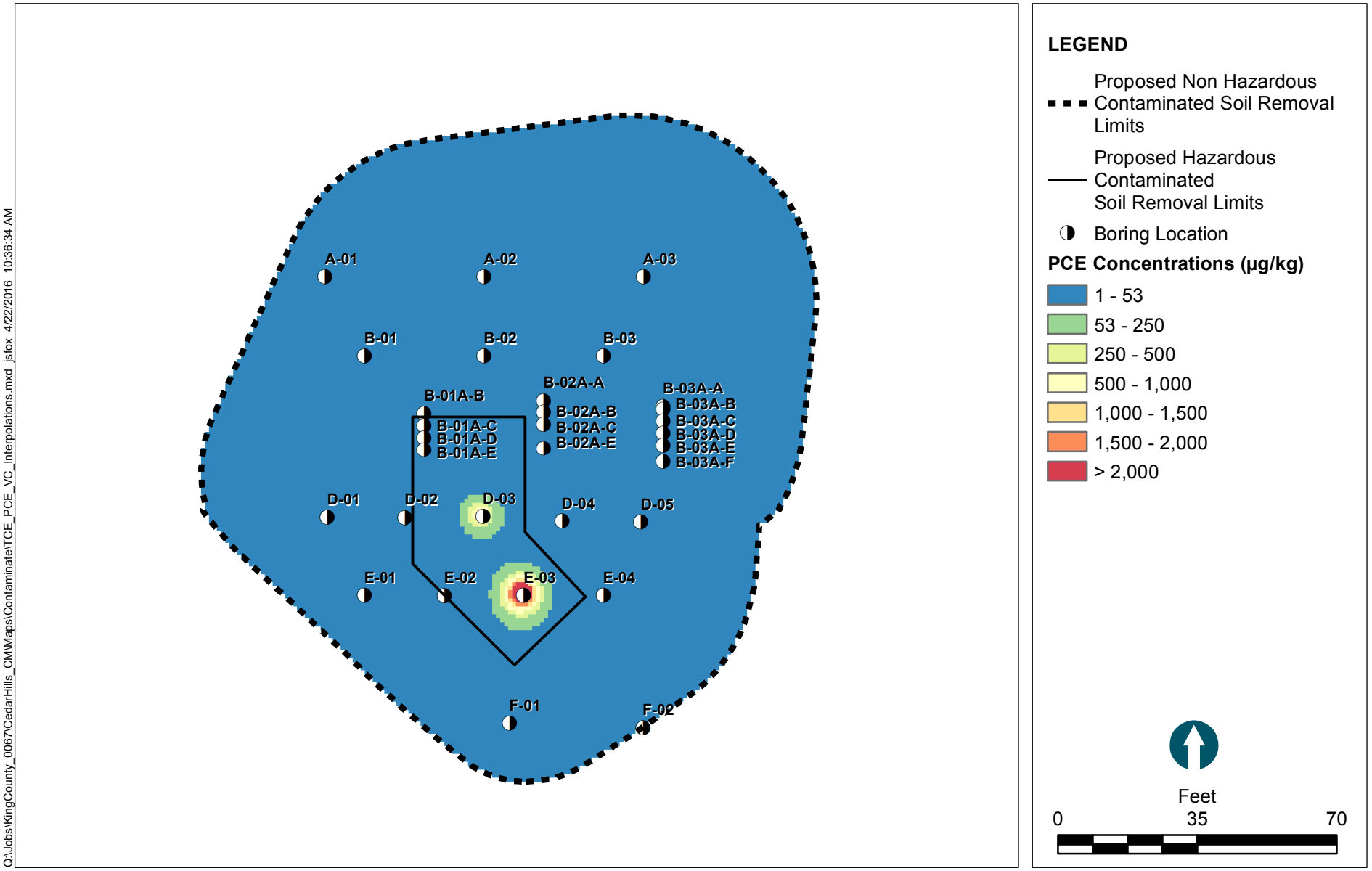

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Figure 6
Interpolated Max PCE Concentrations All Depths
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

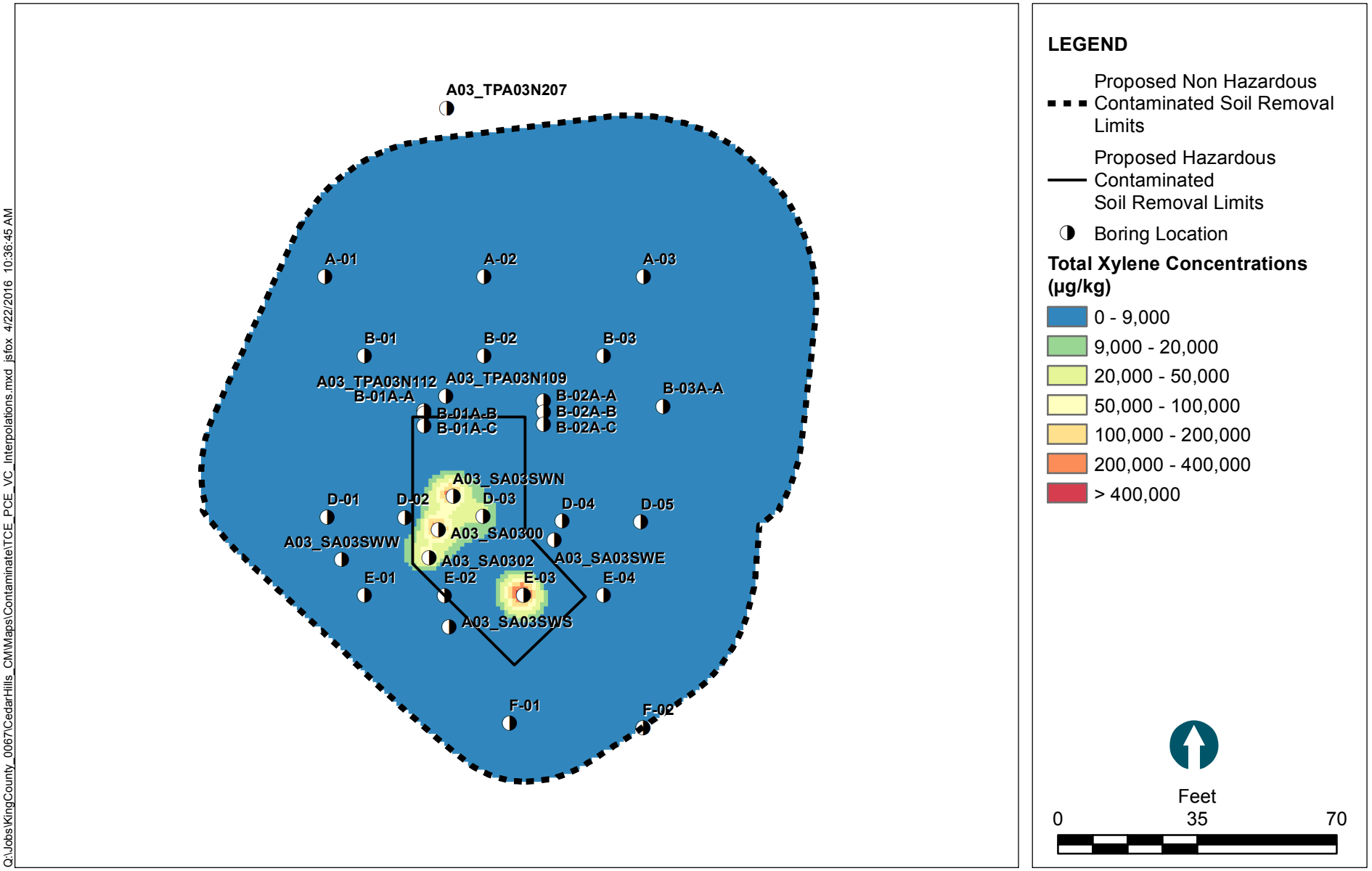

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Figure 7
Interpolated Max Total Xylene Concentrations All Depths
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

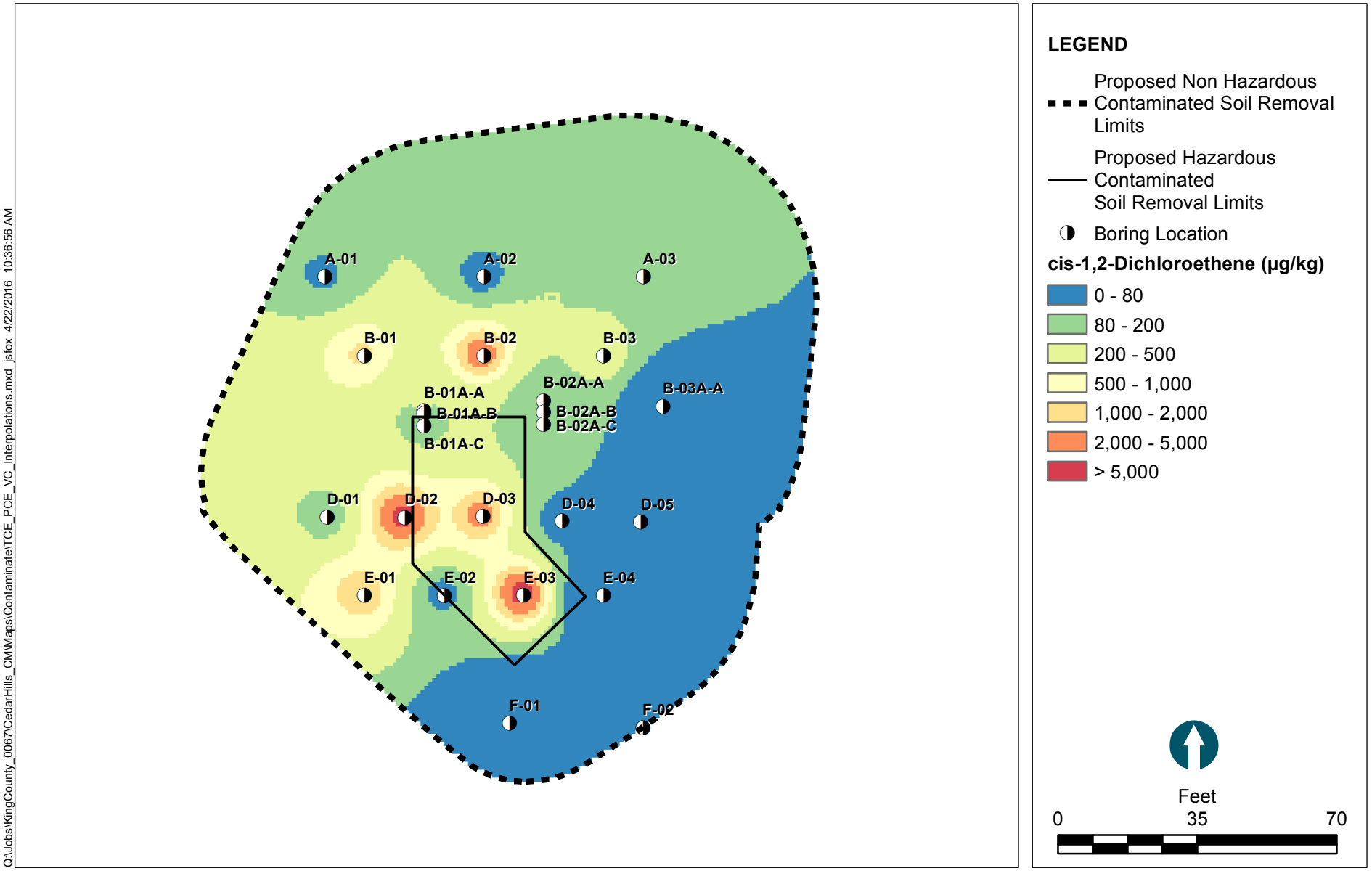

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Figure 8
Interpolated Max cis-1,2-Dichloroethene Concentrations All Depths
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

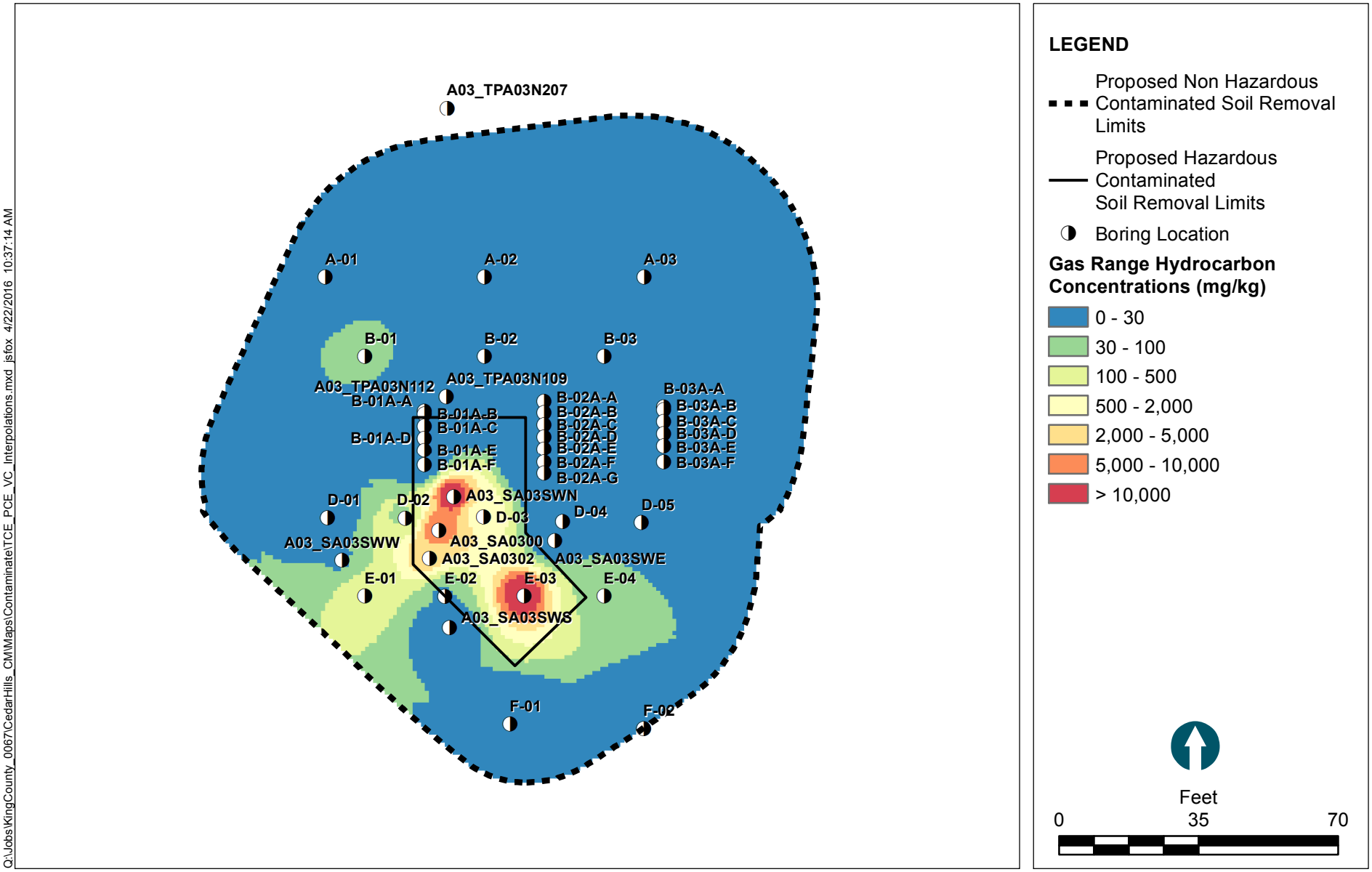

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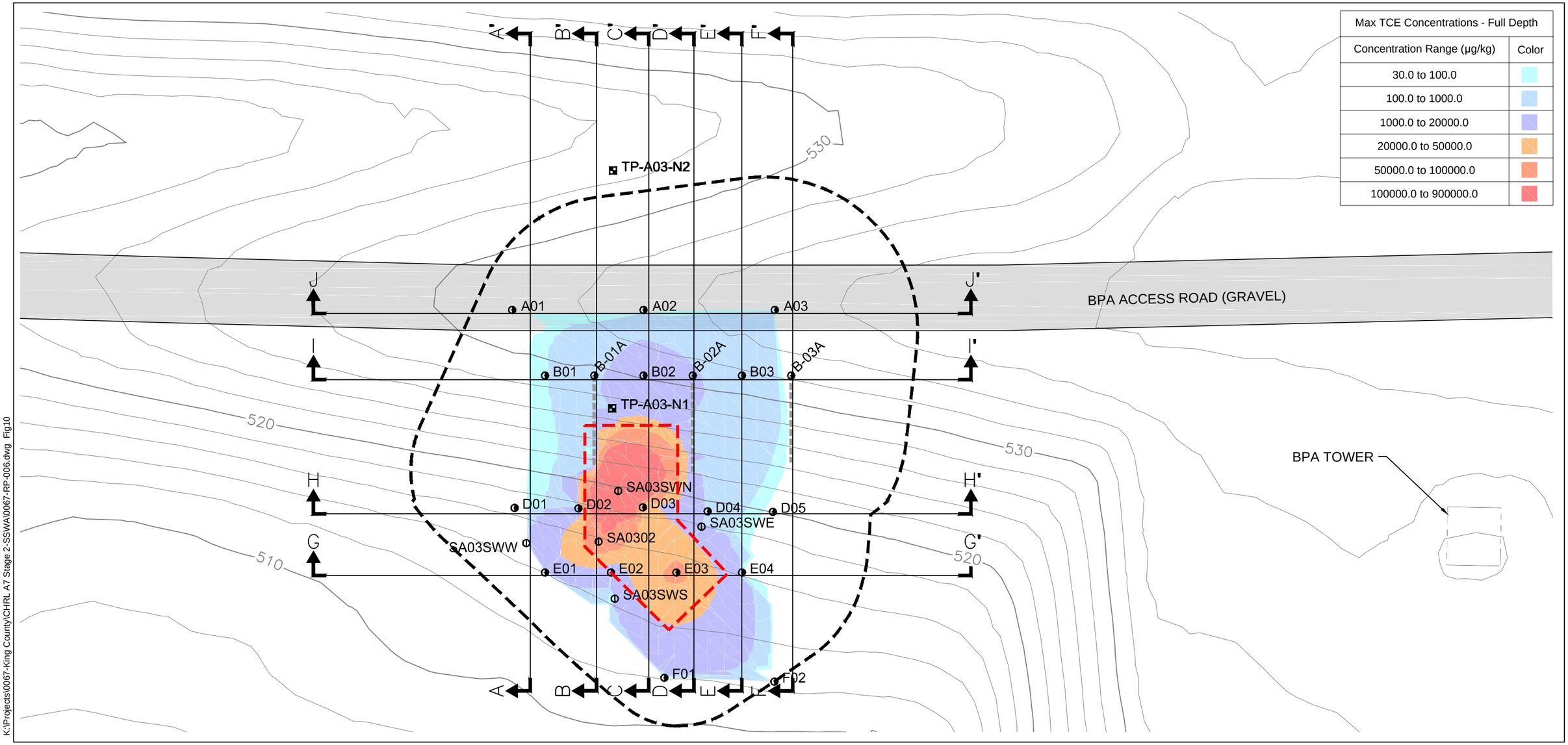
Figure 9
Interpolated Max Gas Range Hydrocarbon Concentrations All Depths
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

Max TCE Concentrations - Full Depth	
Concentration Range (µg/kg)	Color
30.0 to 100.0	
100.0 to 1000.0	
1000.0 to 20000.0	
20000.0 to 50000.0	
50000.0 to 100000.0	
100000.0 to 900000.0	



SOURCE: Drawing prepared from electronic topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- E01 — 2016 Boring Location and ID
- SA0300 — 2015 Surface Sample Location and ID
- TP-A03-N1 — 2015 Test Pit Location and ID
- Boring drilled at 41° from horizontal
- 5 — Existing Contours (2 ft Intervals)
- A — Cross Section Location and Designation
- Proposed Hazardous contaminated soil excavation limits
- Proposed Non-hazardous contaminated soil excavation limits

0 30
Scale in Feet

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Apr 22, 2016 11:40am rgoode

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Figure 10
Natural Neighbor Interpolated TCE Concentrations All Depths
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

Excavation Control Point Table			
Point	Northing	Easting	Elevation
A	168667.61	1699054.00	519.75
B	168667.87	1699231.53	529.76
C	168568.45	1699053.93	514.11
D	168567.83	1699232.65	524.14

Access Road Embankment
Soil Removal
Volume = 5,220 cy (in-place)

BPA ACCESS ROAD (GRAVEL)

BPA TOWER

TP-A03-N2
TP-A03-N1
A01
A02
A03
B01
B-01A
B02
B-02A
B03
B-03A
SA03SWN
SA03SWE
SA03SWW
SA03SWS
SA0302
D01
D02
D03
D04
D05
E01
E02
E03
E04
F01
F02

2:1
2:1

SOURCE: Drawing prepared from electronic topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- **E01** — 2016 Boring Location and ID
- SA0300 — 2015 Surface Sample Location and ID
- TP-A03-N1 — 2015 Test Pit Location and ID
- Boring drilled at 41° from horizontal
- Existing Contours (2 ft Intervals)
- Proposed Contours (2 ft Intervals)
- Proposed Hazardous contaminated soil excavation limits
- Proposed Non-hazardous contaminated soil excavation limits
- A — Excavation control point

0 30
Scale in Feet

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Apr 22, 2016 11:40am rgoode

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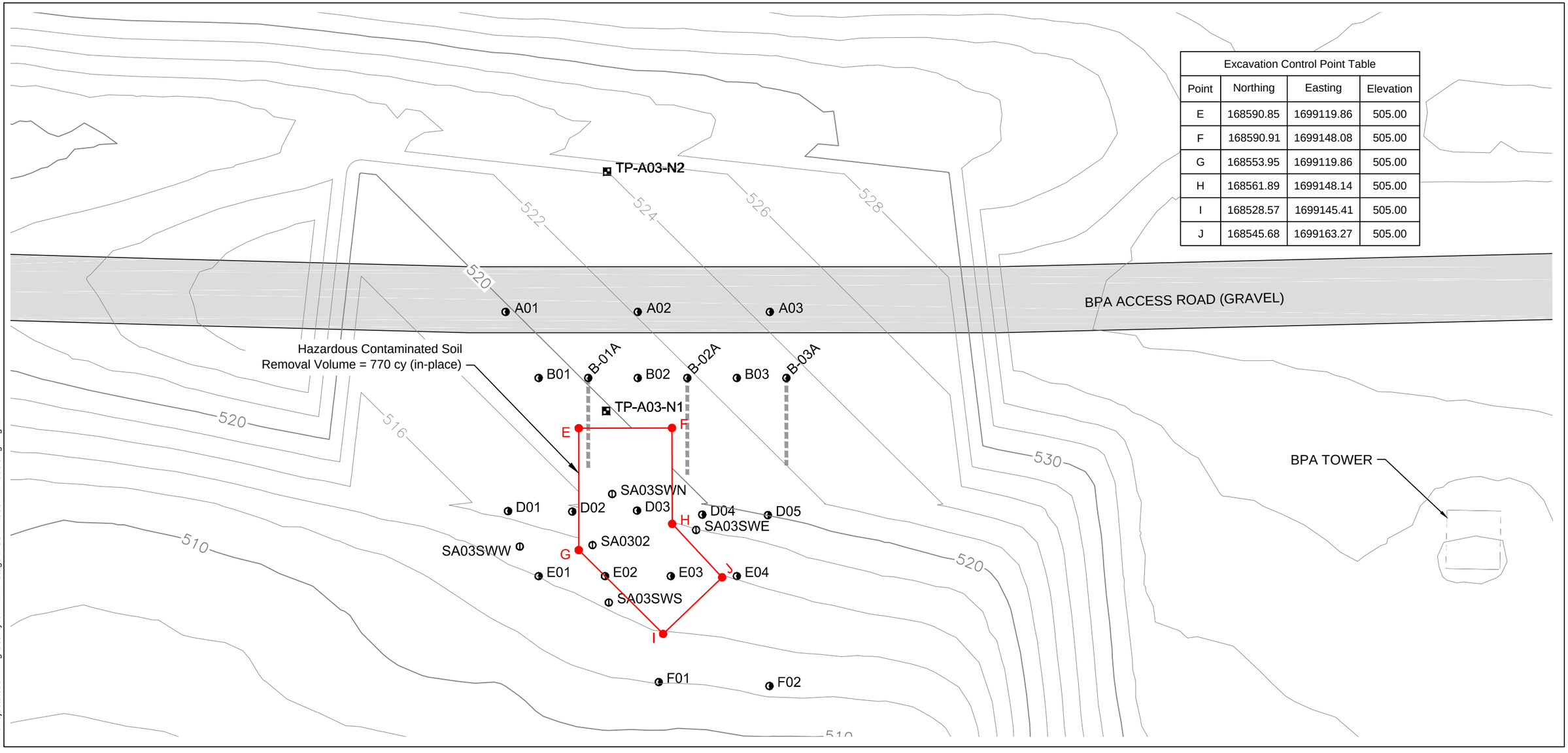
ANCHOR QEA

Figure 11
BPA Access Road Embankment Removal Plan
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

Excavation Control Point Table			
Point	Northing	Easting	Elevation
E	168590.85	1699119.86	505.00
F	168590.91	1699148.08	505.00
G	168553.95	1699119.86	505.00
H	168561.89	1699148.14	505.00
I	168528.57	1699145.41	505.00
J	168545.68	1699163.27	505.00



SOURCE: Drawing prepared from electronic topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- **E01** — 2016 Boring Location and ID
- SA0300 — 2015 Surface Sample Location and ID
- TP-A03-N1 — 2015 Test Pit Location and ID
- Boring drilled at 41° from horizontal
- Existing Contours (2 ft Intervals)
- Proposed Contours (2 ft Intervals)
- Proposed Hazardous contaminated soil excavation limits
- A — Excavation control point

0 30
Scale in Feet

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Apr 22, 2016 11:41am rgoode

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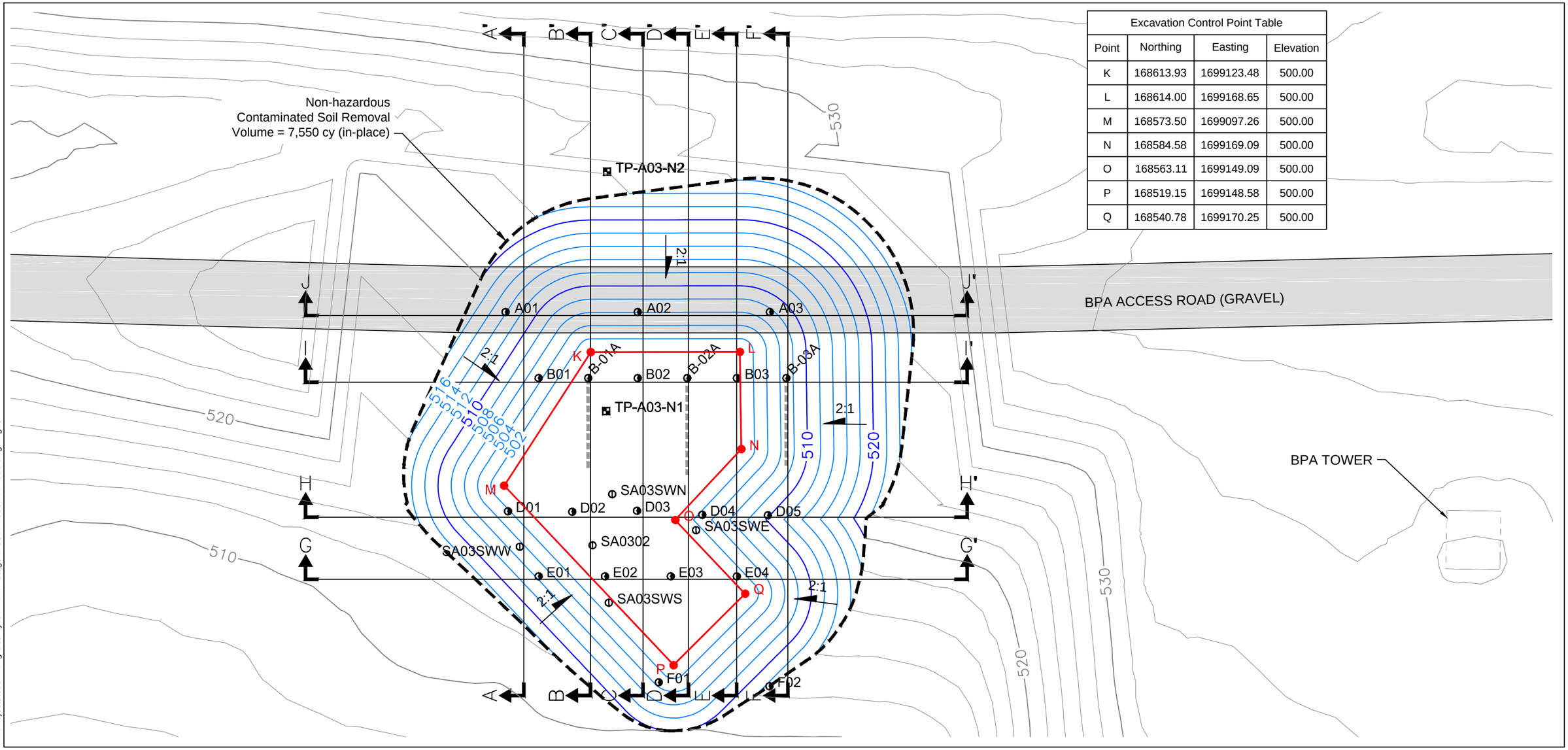
Figure 12
Hazardous Contaminated Soil Removal Plan
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

Excavation Control Point Table			
Point	Northing	Easting	Elevation
K	168613.93	1699123.48	500.00
L	168614.00	1699168.65	500.00
M	168573.50	1699097.26	500.00
N	168584.58	1699169.09	500.00
O	168563.11	1699149.09	500.00
P	168519.15	1699148.58	500.00
Q	168540.78	1699170.25	500.00



SOURCE: Drawing prepared from electronic topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- E01 — 2016 Boring Location and ID
- SA0300 — 2015 Surface Sample Location and ID
- TP-A03-N1 — 2015 Test Pit Location and ID
- Boring drilled at 41° from horizontal
- 5 — Existing Contours (2 ft Intervals)
- 5 — Proposed Contours (2 ft Intervals)
- A — Cross Section Location and Designation
- Proposed Non-hazardous contaminated soil excavation bottom
- Proposed Non-hazardous contaminated soil excavation limits
- A — Excavation control point

0 30
Scale in Feet

K:\Projects\0067-King County\CHRL A7 Stage 2-SSWA\0067-RP-006.dwg Fig13
Apr 22, 2016 11:41am rgoode

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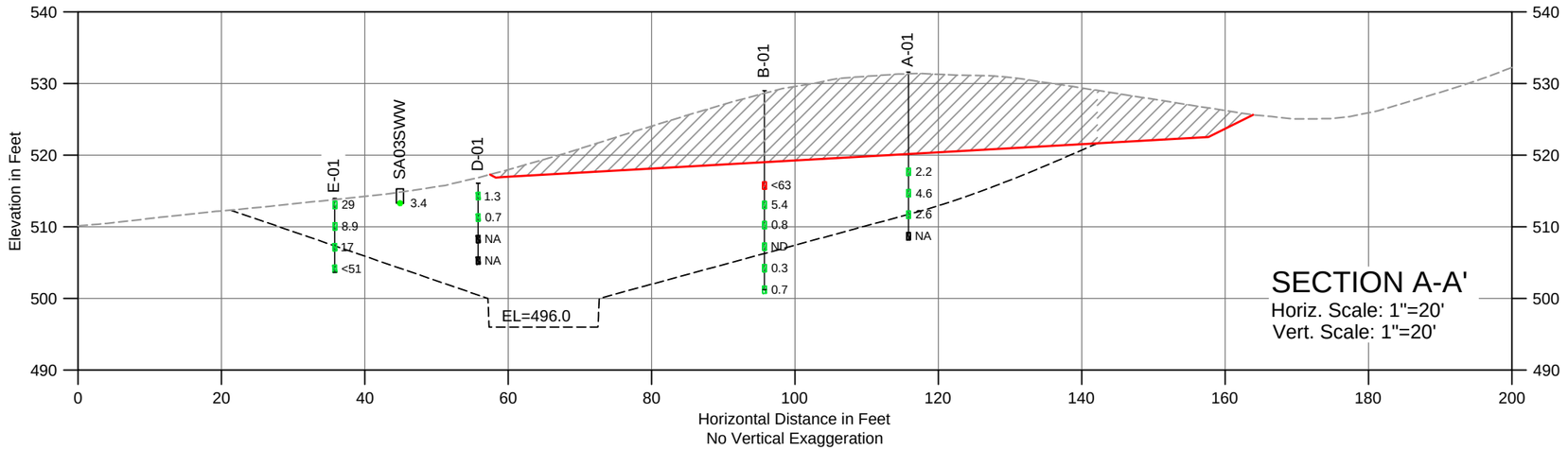
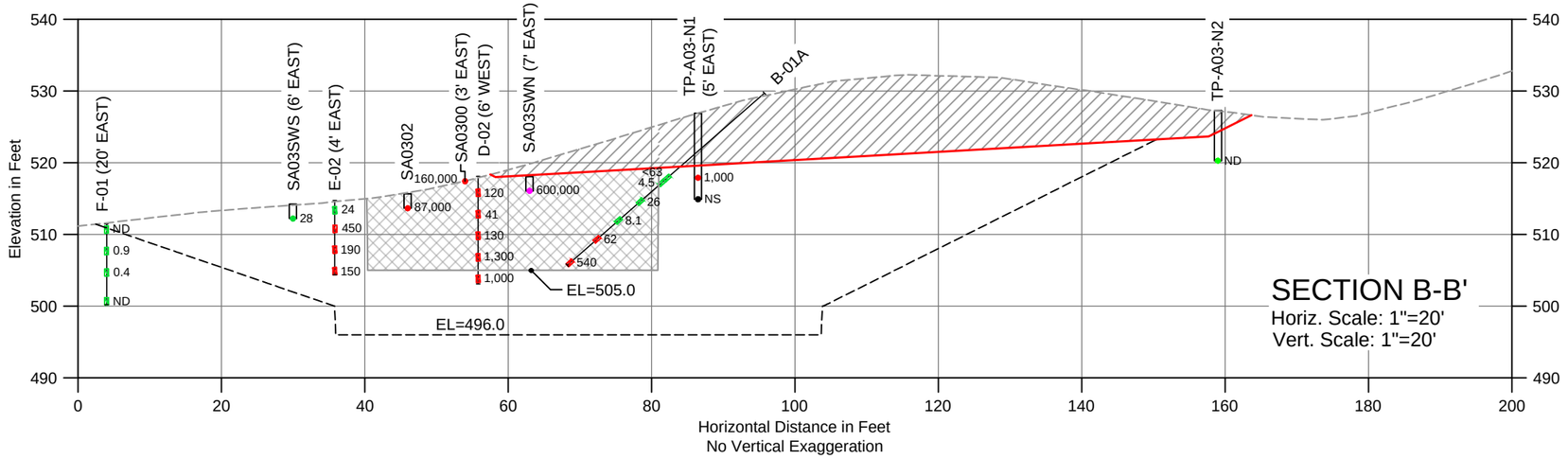
ANCHOR QEA

Figure 13
Non-hazardous Contaminated Soil Removal Plan
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD





SOURCE: Drawing prepared from preliminary topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- Excavation limits of soil meeting dangerous waste criteria (Hazardous)
- Clean embankment fill material
- 1,900 — Boring sample showing TCE concentration in µg/kg, exceeding cleanup level
- 8.1 — Boring sample showing TCE concentration in µg/kg, less than cleanup level
- 1,000 — Surface or Test Pit sample showing TCE concentration in µg/kg, exceeding cleanup level
- 3.4 — Surface or Test Pit sample showing TCE concentration in µg/kg, less than cleanup level
- Existing ground surface
- Clean embankment soil removal limit line
- Non-hazardous contaminated soil removal limit line
- 1,900 — Sample exceeding TCLP dangerous waste criteria, showing TCE soil concentration in µg/kg
- 2016 soil boring
- 2015 test pit

ND	Non-detect
NS	Not sampled
NA	Not analyzed
<51	Non detect showing elevated method detection limit

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Apr 22, 2016 11:41am rgoode

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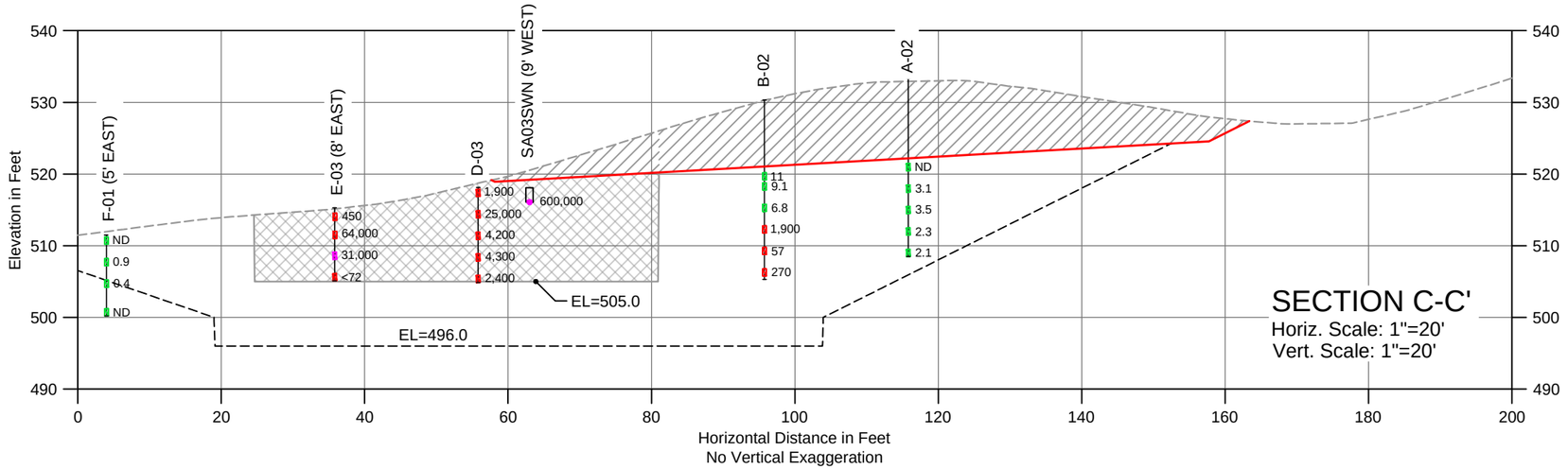
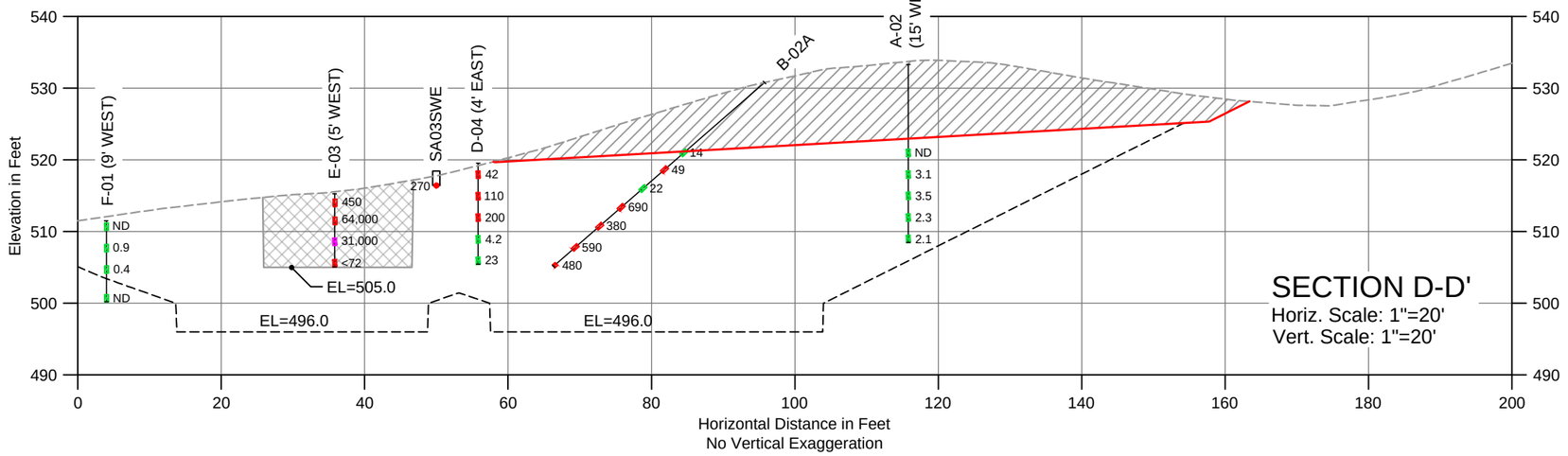
ANCHOR QEA

Figure 14
Sections A and B
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD





SOURCE: Drawing prepared from preliminary topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- Excavation limits of soil meeting dangerous waste criteria (Hazardous)
- Clean embankment fill material
- 1,900 — Boring sample showing TCE concentration in µg/kg, exceeding cleanup level
- 8.1 — Boring sample showing TCE concentration in µg/kg, less than cleanup level
- 1,000 — Surface or Test Pit sample showing TCE concentration in µg/kg, exceeding cleanup level
- 3.4 — Surface or Test Pit sample showing TCE concentration in µg/kg, less than cleanup level
- Existing ground surface
- Clean embankment soil removal limit line
- Non-hazardous contaminated soil removal limit line
- 1,900 — Sample exceeding TCLP dangerous waste criteria, showing TCE soil concentration in µg/kg
- 2016 soil boring
- 2015 test pit
- ND Non-detect
- NS Not sampled
- NA Not analyzed
- <51 Non detect showing elevated method detection limit

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Apr 22, 2016 11:42am rgoode

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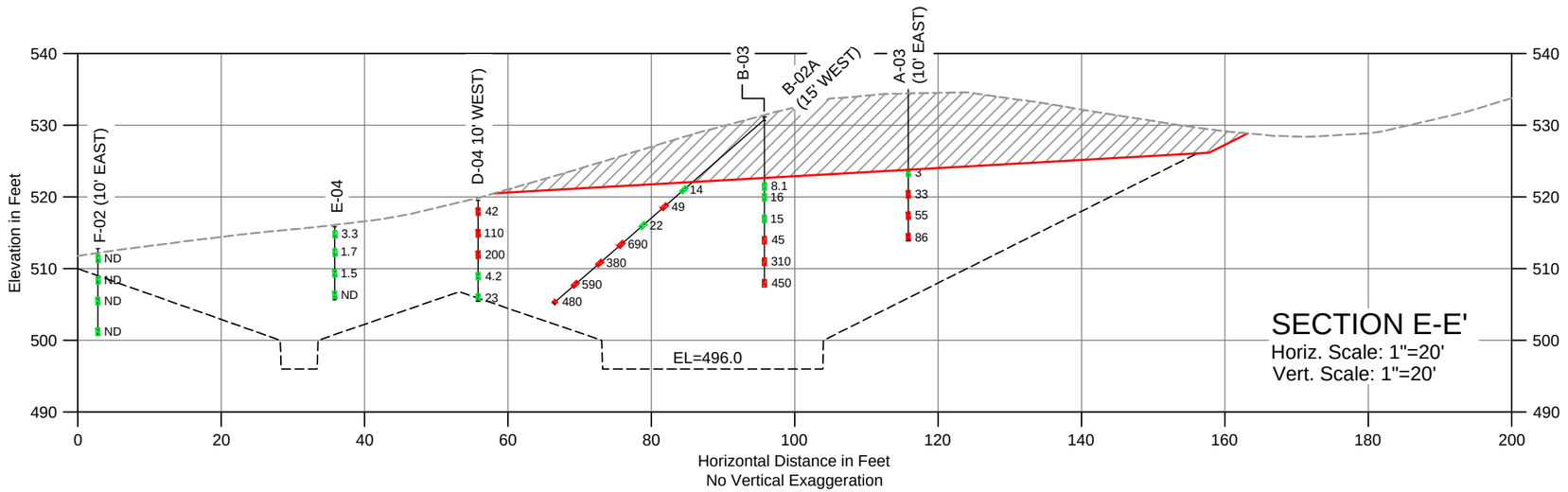
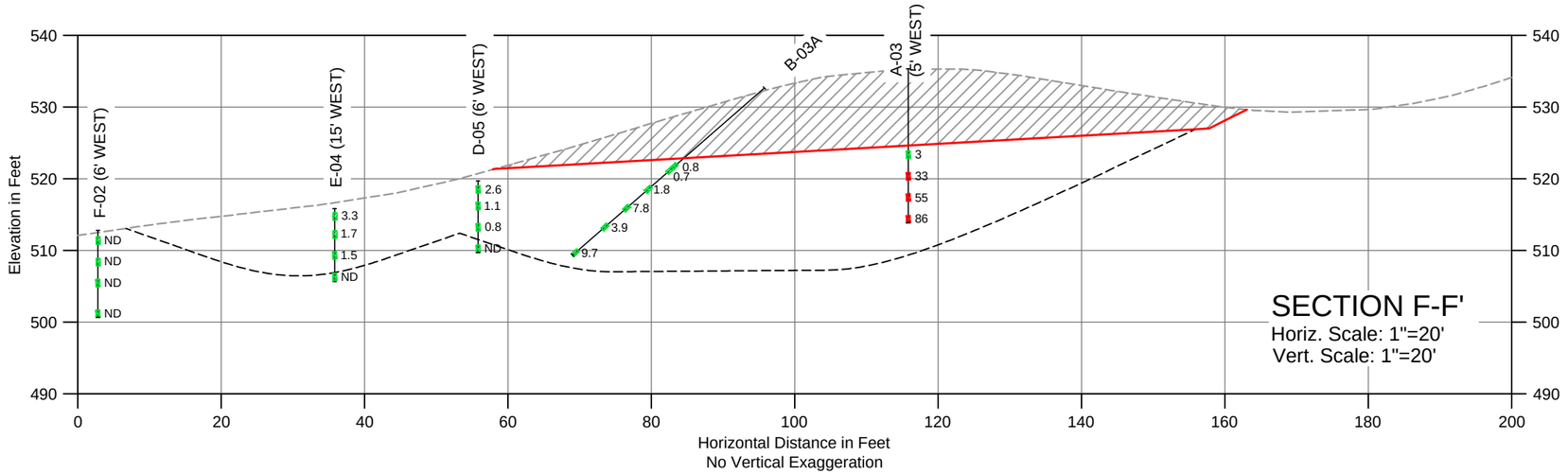
ANCHOR QEA

Figure 15
Sections C and D
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD





SOURCE: Drawing prepared from preliminary topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- Clean embankment fill material
- 1,900 — Boring sample showing TCE concentration in µg/kg, exceeding cleanup level
- 8.1 — Boring sample showing TCE concentration in µg/kg, less than cleanup level
- 1,000 — Surface or Test Pit sample showing TCE concentration in µg/kg, exceeding cleanup level
- 3.4 — Surface or Test Pit sample showing TCE concentration in µg/kg, less than cleanup level
- Existing ground surface
- Clean embankment soil removal limit line
- Non-hazardous contaminated soil removal limit line
- 2016 soil boring
- 2015 test pit

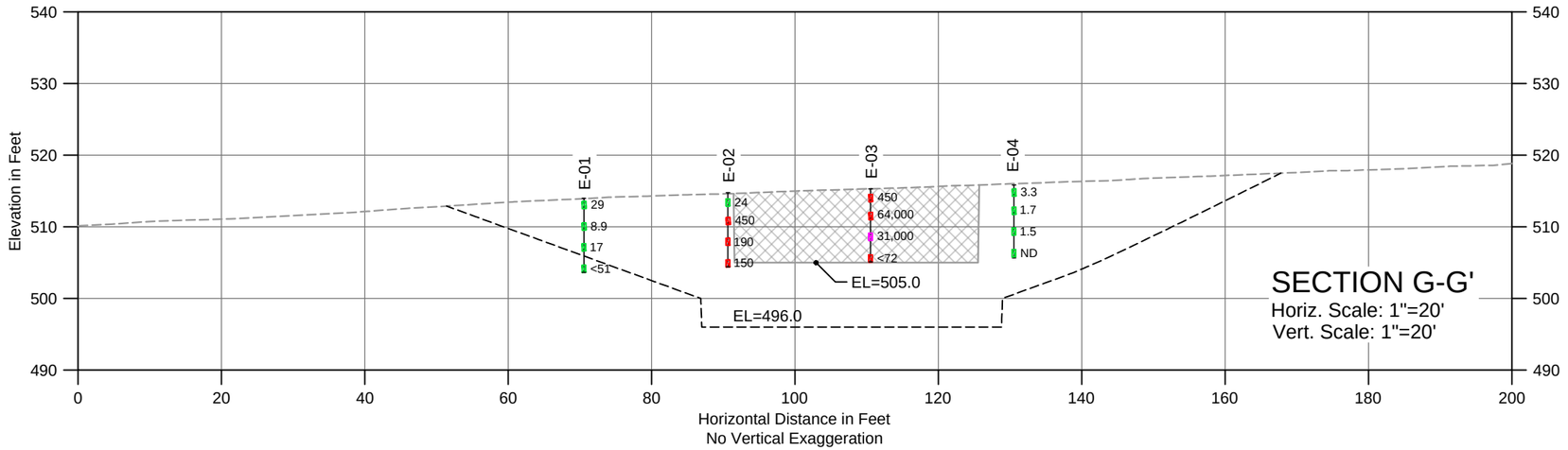
ND	Non-detect
NS	Not sampled
NA	Not analyzed
<51	Non detect showing elevated method detection limit

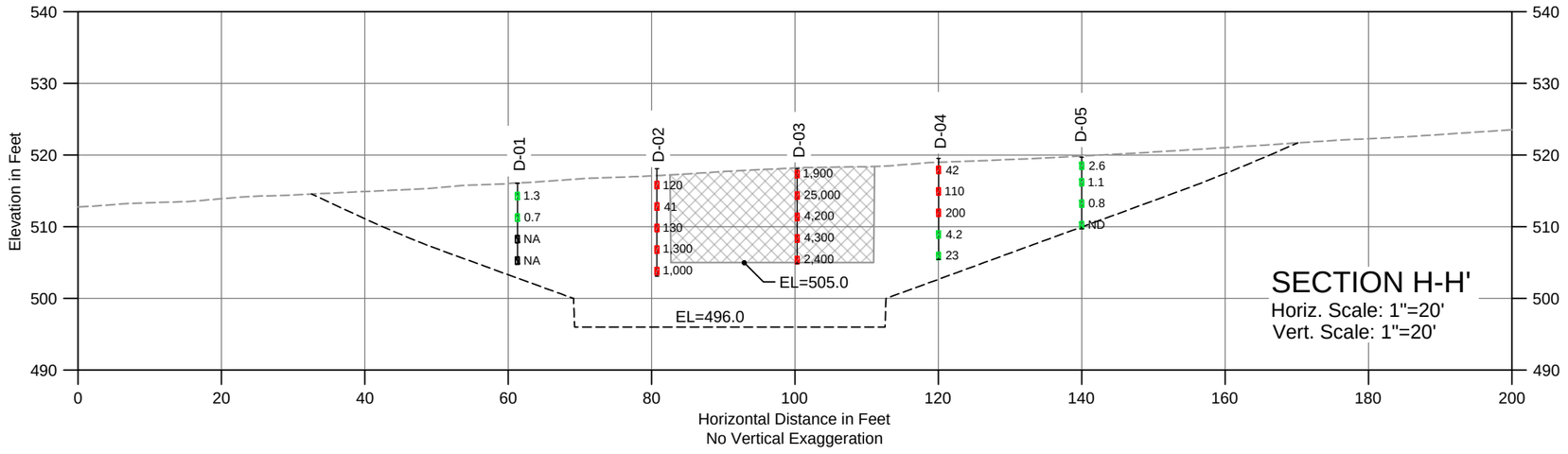
K:\Projects\0067-King County\CHRL A7 Stage 2-SSWA\0067-RP-006.dwg Fig16
Apr 22, 2016 11:42am rgoode

DRAFT

ANCHOR QEA

Figure 16
Sections E and F
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD





K:\Projects\0067-King County\CHRL A7 Stage 2-SSWA\0067-RP-006.dwg Fig17

Apr 22, 2016 11:42am rgoode

SOURCE: Drawing prepared from preliminary topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- Excavation limits of soil meeting dangerous waste criteria (Hazardous)
- Clean embankment fill material
- 1,900 — Boring sample showing TCE concentration in µg/kg, exceeding cleanup level
- 8.1 — Boring sample showing TCE concentration in µg/kg, less than cleanup level
- 1,000 — Surface or Test Pit sample showing TCE concentration in µg/kg, exceeding cleanup level
- 3.4 — Surface or Test Pit sample showing TCE concentration in µg/kg, less than cleanup level
- Existing ground surface
- Clean embankment soil removal limit line
- Non-hazardous contaminated soil removal limit line
- 1,900 — Sample exceeding TCLP dangerous waste criteria, showing TCE soil concentration in µg/kg
- 2016 soil boring
- 2015 test pit

ND Non-detect
NS Not sampled
NA Not analyzed
<51 Non detect showing elevated method detection limit

DRAFT

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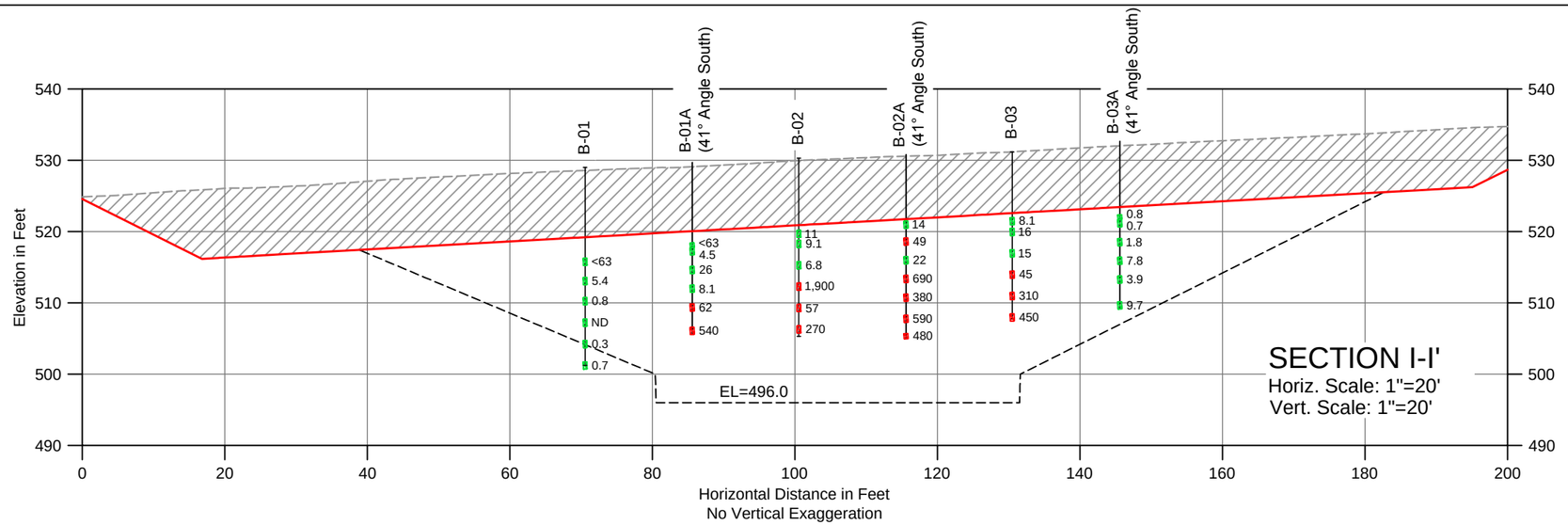
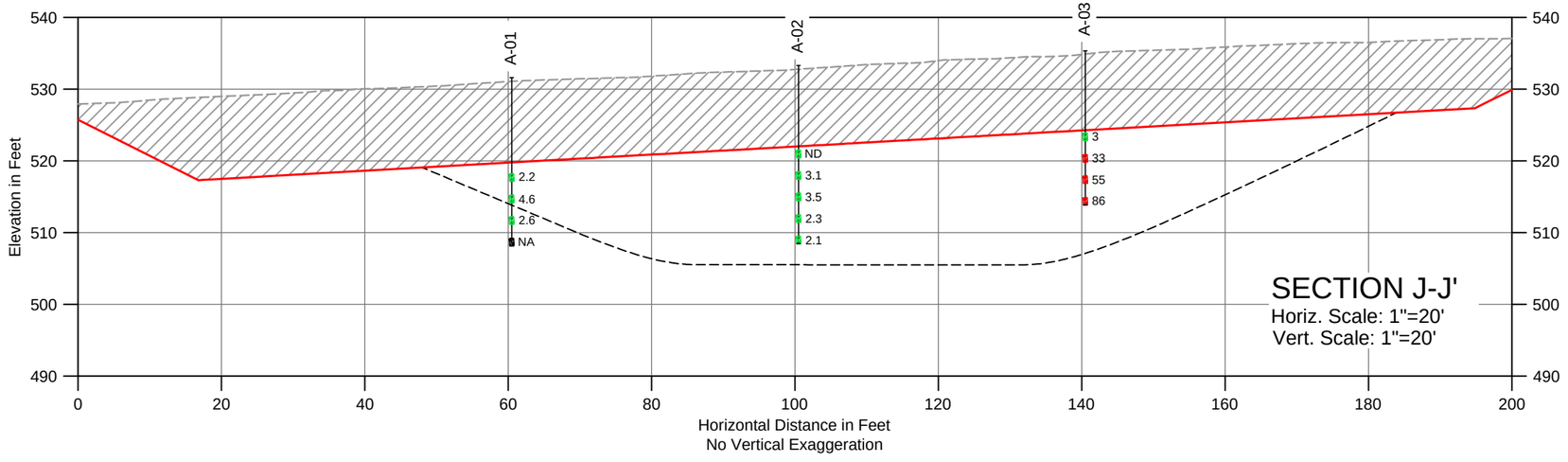
Figure 17
Sections G and H
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD





K:\Projects\0067-King County\CHRL A7 Stage 2-SSWA\0067-RP-006.dwg Fig18
Apr 22, 2016 11:43am rgoode

SOURCE: Drawing prepared from preliminary topographic survey provided by Lin and Associates, Inc., dated December 8, 2015.
HORIZONTAL DATUM: Washington State Plane North, NAD27(29), U.S. Feet.
VERTICAL DATUM: NGVD29.

NOTES: Soil concentrations shown indicate laboratory analytical results from SSWA confirmation sampling conducted by Anchor QEA between 8-6-2015 and 3-10-2016.

LEGEND:

- Clean embankment fill material
- 1,900 — Boring sample showing TCE concentration in µg/kg, exceeding cleanup level
- 8.1 — Boring sample showing TCE concentration in µg/kg, less than cleanup level
- 1,000 — Surface or Test Pit sample showing TCE concentration in µg/kg, exceeding cleanup level
- 3.4 — Surface or Test Pit sample showing TCE concentration in µg/kg, less than cleanup level
- Existing ground surface
- Clean embankment soil removal limit line
- Non-hazardous contaminated soil removal limit line
- 2016 soil boring
- 2015 test pit

ND Non-detect
NS Not sampled
NA Not analyzed
<51 Non detect showing elevated method detection limit

DRAFT

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Figure 18
Sections I and J
Contaminated Soil Investigation Report
CHRL SSWA Contaminated Soil Investigation/KCSWD

APPENDIX A
BORING LOGS

Soil Boring Log
A-01

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **531.0**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **25.0**
Project #: **150067-01.01**	Northing: **168626.08**	Field Recovery Length (ft): **24.9**
Client: **KCSWD**	Easting: **1699097.77**	Collection Date: **3/7/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/7/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--	@0-12.8ft: SILTY GRAVEL WITH SAND (GM), dense, brown gray, 50% fine to coarse gravel, 30% fines, 20% medium sand; trace non hydrocarbon-like odor.	N/A See Note 3	
5					
10			@11.0ft: Large cobble fragment up to 0.4ft. @12.6ft: Layer of organics (wood fragments).		
	CHRL-A-01-A-160307	Mercury, VOCs, GRO	NATIVE CONTACT @12.8-14.0ft: SILTY GRAVEL WITH SAND (GM), dense, gray, 50% fine to coarse gravel, 30% fines, 20% medium sand. @13.7ft: 0.3ft cobble.		
15	--	--	@14.0-20.5ft: POORLY GRADED SAND WITH GRAVEL (SP), medium dense, gray, 65% fine sand, 30% fine to coarse gravel, 5% fines; occasional cobble up to 4 inches.		
	CHRL-A-01-B-160307	VOCs (short list), GRO			
	--	--			
	CHRL-A-01-C-160307	VOCs (short list), GRO			
20	--	--	@20.5-25.0ft: GRAVELLY SILT WITH SAND (ML), stiff, gray, 50% fines, 30% fine to coarse gravel, 20% fine sand; occasional cobble up to 4 inches.		
	CHRL-A-01-D-160307	Archive			
	--	--			
25			End of core @ 25.0ft.		
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. PID readings were unable to be taken at time of sampling due to PID malfunction.

Calculated Recovery
Recovery Length/Penetration Depth:
100%

Soil Boring Log
A-02

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **533.0**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **25.0**
Project #: **150067-01.01**	Northing: **168626.05**	Field Recovery Length (ft): **23.1**
Client: **KCSWD**	Easting: **1699137.70**	Collection Date: **3/7/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/7/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--	@0-11.5ft: SILTY GRAVEL WITH SAND (GM), dense, brown gray, 50% fine to coarse gravel, 30% fines, 20% fine to medium sand; occasional organics (wood fragments).	N/A See Note 3	
5					
10	CHRL-A-02-A-160307	Mercury, VOCs, GRO	NATIVE CONTACT @11.5-15.0ft: SILTY GRAVEL WITH SAND (GM), dense, gray, 50% fine to coarse gravel, 30% fines, 20% fine sand; trace non hydrocarbon-like odor.		
	--	--	@14.5-15.0ft: Cobble.		
15	CHRL-A-02-B-160307	VOCs (short list), GRO	@15.0-20.0ft: POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), loose to medium dense, gray, 65% fine to medium sand, 25% fine to coarse gravel, 10% fines.		
	--	--			
	CHRL-A-02-C-160307	VOCs (short list), GRO	@18.5ft: Grades to very dense; moderate non hydrocarbon-like odor.		
20	--	--			
	CHRL-A-02-D-160307	VOCs (short list), GRO	@20.0-22.5ft: SILTY GRAVEL WITH SAND (GM), medium dense to very dense, 60% fine to coarse gravel, 20% fine sand, 20% fines; moderate non hydrocarbon-like odor.		
	--	--	@22.5-25.0ft: POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM), medium dense, brown gray, 65% medium sand, 25% fine to coarse gravel, 10% fines; moderate non hydrocarbon-like odor.		
	CHRL-A-02-E-160307	VOCs (short list), GRO			
25	--	--	End of core @ 25.0ft.		
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. PID readings were unable to be taken at time of sampling due to PID malfunction.

Calculated Recovery
Recovery Length/Penetration Depth:
92%

Soil Boring Log
A-03

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **535.1**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **22.0**
Project #: **150067-01.01**	Northing: **168626.07**	Field Recovery Length (ft): **19.5**
Client: **KCSWD**	Easting: **1699177.66**	Collection Date: **3/10/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/10/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0			@0-0.7ft: POORLY GRADED GRAVEL WITH SAND (GP), moist, medium dense, gray brown, 80% fine gravel, 15% medium sand, 5% fines. [Fill Material]		
			@0.7-11.2ft: SILTY SAND WITH GRAVEL (SM), moist, dense, gray brown, 50% medium sand, 30% fine to coarse gravel, 20% fines. [Fill Material]		
			@4.0ft: Cobble (6 inches).		
5	--	--			
10			@11.0-11.2ft: Transition zone to native contact @11.2ft.		
	CHRL-A-03-A-160310	Mercury, VOCs, GRO	NATIVE CONTACT @11.2-22.0ft: SILTY SAND WITH GRAVEL (SM), dry, medium dense, gray brown, 55% medium sand, 25% fine to coarse gravel, 20% fines; occasional cobble up to 3 inches; trace non hydrocarbon-like odor throughout.	0.0	
	--	--			
15	CHRL-A-03-B-160310	VOCs (short list), GRO	@15.5-16.0ft: Pocket of gravel with sand.	0.0	
	--	--			
	CHRL-A-03-C-160310	VOCs (short list), GRO		0.0	
20	--	--	@20.0ft: Grades to very dense.		
	CHRL-A-03-D-160310	VOCs (short list), GRO		0.0	
			End of core @ 22.0ft.		
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
89%

Soil Boring Log

B-01

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **528.5**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **28.0**
Project #: **150067-01.01**	Northing: **168606.10**	Field Recovery Length (ft): **26.0**
Client: **KCSWD**	Easting: **1699107.73**	Collection Date: **3/10/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/10/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0					
			@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, stiff, brown. 80% fines, 20% medium sand; substantial organic matter (grass and roots). [Soil Amendment]		
			@0.5-3.0ft: SILTY SAND WITH GRAVEL (SM), moist, dense, gray, 55% medium sand, 25% fine to coarse gravel, 20% fines. [Fill Material]		
			@3.0-5.0ft: SILTY SAND WITH GRAVEL (SM), stiff, brown, 45% fines, 30% medium sand, 25% fine to coarse gravel; occasional organic matter (roots and wood fragments).		
5	--	--	@5.0-12.0ft: SILTY SAND WITH GRAVEL (SM), moist, dense, gray, 55% medium sand, 25% fine to coarse gravel, 20% fines. [Fill Material]		
			@9.7ft: Cobble (3 inches).		
10			@11.5ft: Layer of organic matter (wood fragments up to 2.5 inches); grades to native contact.		
	CHRL-B-01-A-160310	Mercury, VOCs, GRO	NATIVE CONTACT @12.0-28.0ft: SILTY SAND WITH GRAVEL (SM), dry, medium dense to dense, gray, 55% medium sand, 25% fine to coarse gravel, 20% fines.	4.2	
	--	--			
15	CHRL-B-01-B-160310	VOCs (short list), GRO		0.8	
	--	--			
	CHRL-B-01-C-160310	VOCs (short list), GRO	@18.0ft: Grades to dense to very dense.	0.0	
20	--	--			
	CHRL-B-01-D-160310	VOCs (short list), GRO		0.0	
	--	--			
	CHRL-B-01-E-160310	VOCs (short list), GRO	@24.2ft: Cobble (3 inches).	1.6	
25	--	--			
	CHRL-B-01-F-160310	VOCs (short list), GRO		0.7	
	--	--			
			End of core @ 28.0ft.		
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
93%

Soil Boring Log

B-01A

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **525.6**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **36.0**
Project #: **150067-01.01**	Northing: **168592.46**	Field Recovery Length (ft): **30.3**
Client: **KCSWD**	Easting: **1699122.71**	Collection Date: **3/9/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/9/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--	@0.0-1.0ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 80% fines, 20% medium sand; substantial organic matter (roots and grass). [Soil Amendment] @1.0-17.0ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense to dense, gray, 50% medium sand, 30% fines, 20% fine to coarse gravel; trace organic matter (roots). [Fill Material] @16.0ft: 1 piece of anthropogenic debris (aluminum-like can fragment). @17.0-17.5ft: Grades to native contact.		
5	CHRL-B-01A-A-160309	Mercury, VOCs, SVOCs, GRO	NATIVE CONTACT	1.0	
10	CHRL-B-01A-B-160309	VOCs (short list), GRO	@17.5-36.0ft: SILTY SAND WITH GRAVEL (SM), dry, loose to medium dense, brown gray, 50% medium sand, 30% fine to coarse gravel, 20% fines; trace non hydrocarbon-like odor throughout.	0.6	
15	--	--	@21.5ft: Grades to gray.		
20	CHRL-B-01A-C-160309	VOCs (short list), GRO		0.1	
25	--	--	@25.0ft: Grades to dense, 50% medium sand, 25% fine to coarse gravel, 25% fines.		
30	CHRL-B-01A-D-160309	VOCs (short list), GRO		2.1	
	--	--			

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. Drilled at 41 degrees vertically from horizontal plane.

Calculated Recovery
Recovery Length/Penetration Depth:
84%

Soil Boring Log
B-01A

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **525.6**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **36.0**
Project #: **150067-01.01**	Northing: **168592.46**	Field Recovery Length (ft): **30.3**
Client: **KCSWD**	Easting: **1699122.71**	Collection Date: **3/9/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/9/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
30	--	--	@17.5-36.0ft: SILTY SAND WITH GRAVEL (SM), dry, dense, gray, 50% medium sand, 25% fine to coarse gravel, 25% fines; trace non hydrocarbon-like odor throughout.	38.1	
	CHRL-B-01A-E-160309	VOCs (short list), GRO			
	--	--	@35.0ft: Grades to very dense.		
35	CHRL-B-01A-F-160309	VOCs (short list), GRO		24.3	
			End of core @ 36.0ft.		
40					
45					
50					
55					
60					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. Drilled at 41 degrees vertically from horizontal plane.

Calculated Recovery
Recovery Length/Penetration Depth:
84%

Soil Boring Log
B-02

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **530.2**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **25.0**
Project #: **150067-01.01**	Northing: **168606.08**	Field Recovery Length (ft): **23.4**
Client: **KCSWD**	Easting: **1699137.71**	Collection Date: **3/10/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/10/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0			@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff to stiff, brown, 80% fines, 20% medium sand; substantial organic matter (roots and grass). [Soil Amendment]		
			@0.5-10.0ft: SILTY SAND WITH GRAVEL (SM), moist, dense, brown gray, 50% medium sand, 30% fines, 20% fine to coarse gravel; occasional organic matter (roots); occasional cobble (up to 3 inches). [Fill Material]		
5	--	--			
			@9.5-10.0ft: Layer of medium sand, geotextile fabric underneath sand.		
10	CHRL-B-02-A-160310	Mercury, VOCs, SVOCs, GRO	NATIVE CONTACT @10.0-25.0ft: SILTY SAND WITH GRAVEL (SM), dry, medium dense to dense, gray, 55% medium sand, 30% fine to coarse gravel, 15% fines.	0.0	
	--	--			
	CHRL-B-02-B-160310	VOCs (short list), GRO		0.0	
	--	--			
15	CHRL-B-02-C-160310	VOCs (short list), GRO		0.0	
	--	--			
	CHRL-B-02-D-160310	VOCs (short list), GRO		0.0	
	--	--			
20			@20.0ft: Pockets of very dense material.		
	CHRL-B-02-E-160310	VOCs (short list), GRO		0.0	
	--	--			
	CHRL-B-02-F-160310	VOCs (short list), GRO		0.0	
	--	--			
25			End of core @ 25.0ft.		
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
94%

Soil Boring Log
B-02A

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **527.7**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **39.0**
Project #: **150067-01.01**	Northing: **168594.96**	Field Recovery Length (ft): **0-14ft: 6.5, 14-39ft: 25.1**
Client: **KCSWD**	Easting: **1699152.71**	Collection Date: **3/10/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/10/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--	@0.0-0.6ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 80% fines, 20% medium sand; substantial organic matter (roots and grass). [Soil Amendment] @0.6-14.4ft: SILTY SAND WITH GRAVEL (SM), moist, dense, gray brown, 50% medium sand, 30% fine to coarse gravel, 20% fines; occasional organic matter (roots); occasional cobble (up to 3 inches). [Fill Material]		
15	CHRL-B-02A-A-160310	Mercury, VOCs, SVOCs, GRO	NATIVE CONTACT @14.4-39.0ft: SILTY SAND WITH GRAVEL (SM), dry, dense, gray, 60% medium sand, 25% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor throughout.	0.0	
	--	--			
	CHRL-B-02A-B-160310	VOCs (short list), GRO		1.8	
20	--	--	@21.0ft: Grades to moist.		
	CHRL-B-02A-C-160310	VOCs (short list), GRO		1.1	
25	--	--			
	CHRL-B-02A-D-160310	VOCs (short list), GRO		12.8	
30	--	--	@28.0ft: Grades to dry, dense to very dense, gray brown.	20.5	

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. Drilled at 41 degrees vertically from horizontal plane.

Calculated Recovery
Recovery Length/Penetration Depth:
0-14ft: 46%, 14-39ft: 100%

Soil Boring Log

B-02A

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **527.7**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **39.0**
Project #: **150067-01.01**	Northing: **168594.96**	Field Recovery Length (ft): **0-14ft: 6.5, 14-39ft: 25.1**
Client: **KCSWD**	Easting: **1699152.71**	Collection Date: **3/10/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/10/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
30					
	CHRL-B-02A-E-160310	VOCs (short list), GRO	@14.4-39.0ft: SILTY SAND WITH GRAVEL (SM), dry, very dense, gray brown, 60% medium sand, 25% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor throughout.	30.4	
	--	--			
	CHRL-B-02A-F-160310	VOCs (short list), GRO		20.3	
35	--	--			
	CHRL-B-02A-G-160310	VOCs (short list), GRO		8.5	
			End of core @ 39.0ft.		
40					
45					
50					
55					
60					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. Drilled at 41 degrees vertically from horizontal plane.

Calculated Recovery
Recovery Length/Penetration Depth:
0-14ft: 46%, 14-39ft: 100%

Soil Boring Log
B-03

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **531.1**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **25.0**
Project #: **150067-01.01**	Northing: **168606.06**	Field Recovery Length (ft): **25.1**
Client: **KCSWD**	Easting: **1699167.71**	Collection Date: **3/11/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/11/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0					
	--	--	@0.0-9.2ft: SILTY SAND WITH GRAVEL (SM), moist, stiff, gray brown, 50% medium sand, 30% fine to coarse gravel, 20% fines. [Fill Material]		
5					
			@8.7ft: Cobble (3-4 inches); Grades to native contact.		
	CHRL-B-03-A-160311	Mercury, VOCs, GRO	NATIVE CONTACT	0.0	
10	--	--	@9.2-25.7ft: SILTY SAND WITH GRAVEL (SM), dry, medium dense to dense, gray brown, 55% medium sand, 25% fine to coarse gravel, 20% fines; trace non hydrocarbon-like odor throughout.		
	CHRL-B-03-B-160311 CHRL-B-53-B-160311	VOCs (short list), GRO		0.0	
	--	--	@10.0ft: Grades to dense to very dense, gray.		
	CHRL-B-03-C-160311	VOCs (short list), GRO		0.0	
15	--	--			
	CHRL-B-03-D-160311	VOCs (short list), GRO		3.5	
	--	--			
20	CHRL-B-03-E-160311	VOCs (short list), GRO		3.2	
	--	--			
	CHRL-B-03-F-160311	VOCs (short list), GRO	@23.0ft: Grades to medium dense	6.0	
	--	--			
25			End of core @ 25.7ft.		
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
100%

Soil Boring Log

B-03A

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **524.6**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **36.0**
Project #: **150067-01.01**	Northing: **168593.56**	Field Recovery Length (ft): **32.4**
Client: **KCSWD**	Easting: **1699182.71**	Collection Date: **3/11/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/11/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0			@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 80% fines, 20% medium sand; moderate organic matter (roots and grass). [Soil Amendment]		
			@0.5-16.2ft: SILTY SAND WITH GRAVEL (SM), moist, dense, gray brown, 60% medium sand, 20% fine to coarse gravel, 20% fines. [Fill Material]		
5					
	--	--			
10					
			@13.0-14.0ft: Layer of coarse gravel.		
15			@16.0ft: Cobble (2 x 4 inches).		
	CHRL-B-03A-A-160311	Mercury, VOCs, GRO	NATIVE CONTACT	0.0	
	CHRL-B-03A-B-160311	VOCs (short list), GRO	@16.2-36.0ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense to dense, gray, 50% medium sand, 35% fine to coarse gravel, 15% fines.	0.0	
	--	--			
20					
	CHRL-B-03A-C-160311 CHRL-B-53A-C-160311	VOCs (short list), GRO		0.0	
			@22.0ft: Grades to dry to moist, dense; trace non hydrocarbon-like odor.		
	--	--			
			@24.0-27.0ft: Layer grades to moist; moderate non hydrocarbon-like odor.		
25					
	CHRL-B-03A-D-160311	VOCs (short list), GRO		0.0	
	--	--			
	CHRL-B-03A-E-160311	VOCs (short list), GRO		0.0	
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. Drilled at 41 degrees vertically from horizontal plane.

Calculated Recovery
Recovery Length/Penetration Depth:
90%

Soil Boring Log
B-03A

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **524.6**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **36.0**
Project #: **150067-01.01**	Northing: **168593.56**	Field Recovery Length (ft): **32.4**
Client: **KCSWD**	Easting: **1699182.71**	Collection Date: **3/11/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/11/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
30					
	--	--	@16.2-36.0ft: SILTY SAND WITH GRAVEL (SM), dry to moist, dense, gray, 50% medium sand, 35% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor.		
			@34.0-35.0ft: Cobble.	0.2	
35	CHRL-B-03A-F-160311	VOCs (short list), GRO	@34.0-35.0ft: Layer grades to very dense.	0.2	
	--	--	@35.0-36.0ft: Cobble.	0.0	
			End of core @ 36.0ft.		
40					
45					
50					
55					
60					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. Drilled at 41 degrees vertically from horizontal plane.

Calculated Recovery
Recovery Length/Penetration Depth:
90%

Soil Boring Log
D-01

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **516.1**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **15.0**
Project #: **150067-01.01**	Northing: **168565.75**	Field Recovery Length (ft): **15.5**
Client: **KCSWD**	Easting: **1699098.44**	Collection Date: **3/9/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/9/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--	@0.0-15.0ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray brown, 60% medium sand, 25% fine to coarse gravel, 15% fines; occasional organic matter (roots); trace non hydrocarbon-like odor throughout.		
	CHRL-D-01-A-160309	Mercury, VOCs, SVOCs, GRO	@1.2ft: Grades to dry, brown gray; no organic matter.	1.0	
	--	--	@4.0ft: Grades to gray.		
5	CHRL-D-01-B-160309	VOCs (short list), GRO		12.0	
	--	--	@6.0ft: Grades to dense.		
	CHRL-D-01-C-160309	Archive	@8.1-8.4ft: Cobble (4 inches). @8.5ft: Grades to moist.	2.3	
	--	--			
10	CHRL-D-01-D-160309	Archive	@10.0ft: Grades to dry, dense, gray, 55% medium sand, 25% fine to coarse gravel, 20% fines; trace non hydrocarbon-like odor.	1.4	
	--	--			
15			End of core @ 15.0ft.		
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
103%

Soil Boring Log
D-02

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **516.8**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **15.0**
Project #: **150067-01.01**	Northing: **168565.60**	Field Recovery Length (ft): **14.7**
Client: **KCSWD**	Easting: **1699117.88**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--			
	CHRL-D-02-A-160308	Mercury, VOCs, SVOCs, GRO	@0.0-1.4ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray brown, 65% medium sand, 30% fine to coarse gravel, 15% fines.	17.8	
	--	--	@1.4-4.2ft: POORLY GRADED SAND WITH GRAVEL (SP), moist, loose, brown orange, 75% medium sand, 20% fine to coarse gravel, 5% fines; trace non hydrocarbon-like odor.		
	CHRL-D-02-B-160308	VOCs (short list), GRO	@3.3ft: Grades to gray.	9.2	
5	--	--	@4.2-15.0ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray, 65% medium sand, 30% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor.		
	CHRL-D-02-C-160308	VOCs (short list), GRO	@7.3ft: Cobble (4 inches).	9.6	
	--	--	@9.0ft: Grades to dense.		
10	CHRL-D-02-D-160308	VOCs (short list), GRO		22.6	
	--	--			
	CHRL-D-02-E-160308	VOCs (short list), GRO	@13.0ft: Grades to dry, brown gray.	12.8	
	--	--			
15			End of core @ 15.0ft.		
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
98%

Soil Boring Log
D-03

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **518.1**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **15.0**
Project #: **150067-01.01**	Northing: **168565.90**	Field Recovery Length (ft): **14.7**
Client: **KCSWD**	Easting: **1699137.50**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	CHRL-D-03-A-160308	Mercury, VOCs, SVOCs, GRO	@0.0-0.3ft: Mixture of SILTY CLAY WITH SAND (CL/ML) and unit described @0.3ft.	2.0	
	--	--	@0.3-15.0ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense to dense, brown gray, 65% medium sand, 20% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor.		
	CHRL-D-03-B-160308 CHRL-D-53-B-160308	VOCs (short list), GRO, TCLP	@3.0-4.0ft: Layer grades to orange brown; moderate non hydrocarbon-like odor.	52.7	
5	--	--	@5.7ft: Grades to gray; trace non hydrocarbon-like odor.		
	CHRL-D-03-C-160308	VOCs (short list), GRO		7.1	
	--	--			
10	CHRL-D-03-D-160308	VOCs (short list), GRO		14.5	
	--	--	@10.3ft: Grades to dry, dense to very dense, brown gray.		
	CHRL-D-03-E-160308	VOCs (short list), GRO		15.5	
15	--	--			
			End of core @ 15.0ft.		
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
98%

Soil Boring Log
D-04

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **518.6**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **15.0**
Project #: **150067-01.01**	Northing: **168564.68**	Field Recovery Length (ft): **14.5**
Client: **KCSWD**	Easting: **1699157.25**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0					
	CHRL-D-04-A-160308 CHRL-D-54-A-160308	Mercury, VOCs, SVOCs, GRO	@0.0-2.0ft: POORLY GRADED SAND WITH GRAVEL (SP), dry, medium dense, gray, 75% medium sand, 20% fine to coarse gravel, 5% fines.	0.4	
	--	--	@2.0-15.0ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense to dense, gray, 65% medium sand, 20% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor.		
	CHRL-D-04-B-160308	VOCs (short list), GRO		1.8	
5	--	--			
	CHRL-D-04-C-160308	VOCs (short list), GRO		6.1	
	--	--	@7.5ft: Grades to gray.		
10	CHRL-D-04-D-160308	VOCs (short list), GRO		3.1	
	--	--	@11.0ft: Grades to very dense, dry. @12.0ft: Grades to brown gray.		
	CHRL-D-04-E-160308	VOCs (short list), GRO	@13.0ft: Grades to dense.	12.3	
15	--	--			
			End of core @ 15.0ft.		
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
97%

Soil Boring Log
D-05

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **519.7**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **10.0**
Project #: **150067-01.01**	Northing: **168564.52**	Field Recovery Length (ft): **10.0**
Client: **KCSWD**	Easting: **1699177.11**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--	@0.0-0.7ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 70% fines, 20% medium sand, 10% fine gravel; moderate organic matter (grass and roots). [Soil Amendment]	2.2	
	CHRL-D-05-A-160308	Mercury, VOCs, SVOCs, GRO			
	--	--	@0.7-2.0ft: POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM), moist to dry, loose, gray, 75% coarse gravel, 15% medium sand, 10% fines.		
	CHRL-D-05-B-160308	VOCs (short list), GRO	@2.0-9.0ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense to dense, gray, 65% fine to medium sand, 20% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor.	0.8	
5	--	--			
	CHRL-D-05-C-160308	VOCs (short list), GRO	@6.7ft: Cobble (4 inches).	0.8	
	--	--			
	CHRL-D-05-D-160308	VOCs (short list), GRO	@9.0-10.0ft: POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM), dry, medium dense, gray, 70% fine to coarse gravel, 20% medium sand, 10% fines.	2.1	
10			End of core @ 10.0ft.		
15					
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
100%

Soil Boring Log

E-01

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **513.6**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **10.0**
Project #: **150067-01.01**	Northing: **168546.11**	Field Recovery Length (ft): **9.6**
Client: **KCSWD**	Easting: **1699107.73**	Collection Date: **3/7/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/7/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--			
	CHRL-E-01-A-160307	Mercury, VOCs, GRO	@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium dense, dark brown, 75% fines, 25% medium sand; substantial organic matter (grass and roots). [Soil Amendment]	N/A See Note 3	
	--	--	@0.5-6.3ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray, 60% medium sand, 20% fines, 20% fine to coarse gravel, trace cobble (4 inches).		
	CHRL-E-01-B-160307	VOCs (short list), GRO	@3.0ft: Moisture content increases.		
5	--	--			
	CHRL-E-01-C-160307	VOCs (short list), GRO	@6.3-10.3ft: SILTY SAND WITH GRAVEL (SM), dry, medium dense to dense, gray, 40% fine sand, 30% fines, 30% fine to coarse gravel, trace cobble (4 inches); trace non hydrocarbon-like odor.		
	--	--			
	CHRL-E-01-D-160307	VOCs (short list), GRO			
10	--	--			
			End of core @ 10.3ft.		
15					
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. PID readings were unable to be taken at time of sampling due to PID malfunction.

Calculated Recovery
Recovery Length/Penetration Depth:
96%

Soil Boring Log
E-02

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **514.4**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **10.0**
Project #: **150067-01.01**	Northing: **168546.04**	Field Recovery Length (ft): **9.7**
Client: **KCSWD**	Easting: **1699127.79**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--			
	CHRL-E-02-A-160308	Mercury, VOCs, SVOCs, GRO	@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 65% fines, 20% medium sand, 15% coarse gravel; occasional organic matter (leaf and roots). [Soil Amendment]	N/A See Note 3	
	--	--	@0.5-10.5ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray, 60% medium sand, 25% fine to coarse gravel, 15% fines.		
	CHRL-E-02-B-160308	VOCs (short list), GRO			
5	--	--	@5.0-5.4ft: Pocket of dry white gray sand. @5.4ft: Grades to trace non hydrocarbon-like odor.		
	CHRL-E-02-C-160308	VOCs (short list), GRO			
	--	--	@7.0ft: Grades to dense.		
	CHRL-E-02-D-160308	VOCs (short list), GRO	@9.5ft: Grades to dry.		
10	--	--			
			End of core @ 10.5ft.		
15					
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. PID readings were unable to be taken at time of sampling due to PID malfunction.

Calculated Recovery
Recovery Length/Penetration Depth:
97%

Soil Boring Log
E-03

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **515.1**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **10.0**
Project #: **150067-01.01**	Northing: **168546.07**	Field Recovery Length (ft): **9.3**
Client: **KCSWD**	Easting: **1699147.71**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--			
	CHRL-E-03-A-160308	Mercury, VOCs, GRO, TCLP	@0.0-0.4ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 65% fines, 20% medium sand, 15% fine gravel; moderate organic matter (roots). [Soil Amendment]	N/A See Note 3	
	--	--	@0.4-10.2ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray brown, 60% fine to medium sand, 25% fine to coarse gravel, 15% fines.		
	CHRL-E-03-B-160308	VOCs (short list), GRO, TCLP	@1.0ft: Grades to trace hydrocarbon-like odor.		
5	--	--			
	CHRL-E-03-C-160308	VOCs (short list), GRO, TCLP	@6.0-6.5ft: Moderate hydrocarbon-like odor.		
	--	--	@8.0ft: Grades to trace non hydrocarbon-like odor.		
	CHRL-E-03-D-160308	VOCs (short list), GRO	@9.0ft: Grades to dry, very dense.		
10	--	--	End of core @ 10.2ft.		
15					
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. PID readings were unable to be taken at time of sampling due to PID malfunction.

Calculated Recovery
Recovery Length/Penetration Depth:
93%

Soil Boring Log
E-04

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **515.8**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **10.0**
Project #: **150067-01.01**	Northing: **168546.07**	Field Recovery Length (ft): **9.4**
Client: **KCSWD**	Easting: **1699167.73**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--			
	CHRL-E-04-A-160308	Mercury, VOCs, GRO	@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 80% fines, 20% fine to medium sand; moderate organic matter (grass and roots). [Soil Amendment]	N/A See Note 3	
	--	--	@0.5-10.4ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray, 65% fine to medium sand, 20% fine to coarse gravel, 15% fines; trace non hydrocarbon-like odor.		
	CHRL-E-04-B-160308	VOCs (short list), GRO			
5	--	--			
	CHRL-E-04-C-160308	VOCs (short list), GRO			
	--	--			
	CHRL-E-04-D-160308	VOCs (short list), GRO	@9.0ft: Grades to dry, gravel content increased down core.		
10	--	--			
			End of core @ 10.4ft.		
15					
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.
3. PID readings were unable to be taken at time of sampling due to PID malfunction.

Calculated Recovery
Recovery Length/Penetration Depth:
94%

Soil Boring Log

F-01

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **511.7**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **12.0**
Project #: **150067-01.01**	Northing: **168513.97**	Field Recovery Length (ft): **12**
Client: **KCSWD**	Easting: **1699144.07**	Collection Date: **3/8/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/8/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--			
	CHRL-F-01-A-160309	Mercury, VOCs, GRO	@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 80% fines, 20% fine to medium sand; moderate organic matter (grass and roots). [Soil Amendment]	0.5	
	--	--	@0.5-12ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, brown gray, 55% medium sand, 25% fine to coarse gravel, 20% fines.		
	CHRL-F-01-B-160309 CHRL-F-51-B-160309	VOCs (short list), GRO	@3.5ft: Grades to dark gray. @4.2ft: Grades to gray.	0.5	
5	--	--			
	CHRL-F-01-C-160309	VOCs (short list), GRO		0.6	
	--	--	@8.0ft: Grades to dry, dense, brown gray.		
10					
	CHRL-F-01-D-160309	VOCs (short list), GRO		1.3	
	--	--			
			End of core @ 12.0ft.		
15					
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
100%

Soil Boring Log
F-02

Sheet 1 of 1

Project: **CHRL SSWA Contaminated Soil Investigation Maple Valley, Washington**	Ground Surface Elevation (ft) : **512.2**	Method/Core Diameter: **Sonic / 4"**
	Logged By: **EM**	Penetration Depth (ft): **12.0**
Project #: **150067-01.01**	Northing: **168512.79**	Field Recovery Length (ft): **11.2**
Client: **KCSWD**	Easting: **1699177.59**	Collection Date: **3/9/2016**
Contractor: **Cascade Drilling**	Horizontal Datum: **NAD 27 WA State Plane North**	Process Date: **3/9/2016**
Equipment: **Geoprobe 8140LS**	Vertical Datum: **NGVD 29**	

Recovered Depth (ft)	Sample	Chemical Analysis	Sediment Description Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS	PID	Lithology Interval
0	--	--			
	CHRL-F-02-A-160309	Mercury, VOCs, GRO	@0.0-0.5ft: CLAYEY SILT WITH SAND (CL/ML), moist, medium stiff, brown, 80% fines, 20% fine to medium sand; moderate organic matter (grass and roots). [Soil Amendment]	0.7	
	--	--	@0.5-12.4ft: SILTY SAND WITH GRAVEL (SM), moist, medium dense, gray, 60% medium sand, 20% fine to coarse gravel, 20% fines. @2.6ft: Grades to moist to wet, soft; trace organic matter (roots).		
	CHRL-F-02-B-160309	VOCs (short list), GRO		1.3	
5	--	--	@5.4ft: Grades to same as above @ 0.5ft.		
	CHRL-F-02-C-160309	VOCs (short list), GRO		1.3	
	--	--	@8.5ft: Grades to dense.		
10			@10.5ft: Grades to dry, brown gray; trace cobble (up to 3 inches).		
	CHRL-F-02-D-160309	VOCs (short list), GRO		1.3	
	--	--			
			End of core @ 12.4ft.		
15					
20					
25					
30					

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Notes: 1. Attempt 1 of 1.
2. -- = No Sample, GRO = Gasoline Range Organics, SVOCs = Semi-Volatile Organic Compounds, TCLP = Toxicity Characteristic Leaching Procedure, VOCs = Volatile Organic Compounds.

Calculated Recovery
Recovery Length/Penetration Depth:
93%

APPENDIX B
SOIL CORE PHOTOGRAPHS (ON DVD)

APPENDIX C
ANALYTICAL REPORTS (ON DVD)

APPENDIX D
DATA VALIDATION REPORTS

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DATA VALIDATION REVIEW REPORT – EPA STAGE 2A

Project:	Cedar Hills Regional Landfill – South Solid Waste Area Contaminated Soil Investigation
Project Number:	150067-01.01
Date:	March 29, 2016

This report summarizes the review of analytical results for 41 soil samples collected March 7-11, 2016. The samples were collected by Anchor QEA, LLC, and submitted to Analytical Resources Inc. (ARI) in Tukwila, Washington. The samples were analyzed for the following parameters:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) method 8260C
- Gasoline range hydrocarbons (GRO) by Washington State Department of Ecology method Northwest Total Petroleum Hydrocarbons – Gasoline Range Extended (NWTPH-Gx)
- Total solids (TS) by Standard Method (SM) 2540B

ARI sample data group (SDG) numbers AXQ9, AXR7, AXV3, AXZ3, AYA7, and AYC6 were reviewed in this report. Sample IDs, matrices, and analyses conducted are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Lab Sample ID	Matrix	Analyses
CHRL-D-02-D-160308	AXQ9A, AXQ9B	Soil	VOCs, GRO
CHRL-D-02-E-160308	AXQ9C, AXQ9D	Soil	VOCs, GRO
CHRL-B-03A-D-160311	AXR7A, AXR7K	Soil	VOCs, GRO
CHRL-B-03A-E-160311	AXR7B, AXR7L	Soil	VOCs, GRO
CHRL-B-03A-F-160311	AXR7C, AXR7M	Soil	VOCs, GRO
CHRL-B-01A-D-160309	AXR7D, AXR7N	Soil	VOCs, GRO
CHRL-B-01A-E-160309	AXR7E, AXR7O	Soil	VOCs, GRO
CHRL-B-01A-F-160309	AXR7F, AXR7P	Soil	VOCs, GRO
CHRL-B-02A-D-160310	AXR7G, AXR7Q	Soil	VOCs, GRO
CHRL-B-02A-E-160310	AXR7H, AXR7R	Soil	VOCs, GRO
CHRL-B-02A-F-160310	AXR7I, AXR7S	Soil	VOCs, GRO

Sample ID	Lab Sample ID	Matrix	Analyses
CHRL-B-02A-G-160310	AXR7J, AXR7T	Soil	VOCs, GRO
CHRL-E-02-D-160308	AXV3A, AXV3G	Soil	VOCs, GRO
CHRL-E-03-D-160308	AXV3B, AXV3H	Soil	VOCs, GRO
CHRL-D-04-D-160308	AXV3C, AXV3I	Soil	VOCs, GRO
CHRL-D-04-E-160308	AXV3D, AXV3J	Soil	VOCs, GRO
CHRL-D-03-D-160308	AXV3E, AXV3K	Soil	VOCs, GRO
CHRL-D-03-E-160308	AXV3F, AXV3L	Soil	VOCs, GRO
CHRL-F-02-C-160309	AXZ3A,, AXZ3E	Soil	VOCs, GRO
CHRL-F-02-D-160309	AXZ3B, AXZ3F	Soil	VOCs, GRO
CHRL-F-01-C-160309	AXZ3C, AXZ3G	Soil	VOCs, GRO
CHRL-F-01-D-160309	AXZ3D, AXZ3H	Soil	VOCs, GRO
CHRL-E-01-C-160307	AYA7A, AYA7R	Soil	VOCs, GRO
CHRL-E-01-D-160307	AYA7B, AYA7S	Soil	VOCs, GRO
CHRL-E-04-C-160308	AYA7C, AYA7T	Soil	VOCs, GRO
CHRL-E-04-D-160308	AYA7D, AYA7U	Soil	VOCs, GRO
CHRL-D-05-C-160308	AYA7E, AYA7V	Soil	VOCs, GRO
CHRL-D-05-D-160308	AYA7F, AYA7W	Soil	VOCs, GRO
CHRL-B-01-C-160310	AYA7G, AYA7X	Soil	VOCs, GRO
CHRL-B-01-D-160310	AYA7H, AYA7Y	Soil	VOCs, GRO
CHRL-B-01-E-160310	AYA7I, AYA7Z	Soil	VOCs, GRO
CHRL-B-01-F-160310	AYA7J, AYA7AA	Soil	VOCs, GRO
CHRL-B-02-D-160310	AYA7K, AYA7AB	Soil	VOCs, GRO
CHRL-B-02-E-160310	AYA7L, AYA7AC	Soil	VOCs, GRO
CHRL-B-02-F-160310	AYA7M, AYA7AD	Soil	VOCs, GRO
CHRL-B-03-C-160311	AYA7N, AYA7AE	Soil	VOCs, GRO
CHRL-B-03-D-160311	AYA7O, AYA7AF	Soil	VOCs, GRO
CHRL-B-03-E-160311	AYA7P, AYA7AG	Soil	VOCs, GRO
CHRL-B-03-F-160311	AYA7Q, AYA7AH	Soil	VOCs, GRO
CHRL-A-01-B-160307	AYC6A, AYC6C	Soil	VOCs, GRO
CHRL-A-01-C-160307	AYC6B, AYC6D	Soil	VOCs, GRO

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the analytical procedures and data quality objective sections of the Sampling and Analysis Plan (SAP; Anchor QEA 2016). Laboratory results were reviewed using the following guidelines:

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004)
- *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999)

- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008)

Laboratory and method QC criteria were also used as stated in USEPA 1986 (SW-846, Third Edition), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, update 1, August 1993; update II, January 1995; update IIA, February 1994; update IIB, August 1995; update III, June 1997; update IIIA, May 1999; update IIIB, June 2008; update IVA and IVB, January 2008. Unless noted in this report, laboratory results for the samples listed above were within QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by ARI at the time of sample receipt; the samples were received and chilled to within the correct temperature range and in good condition.

Holding Times and Sample Preservation

Samples were appropriately preserved and analyzed within holding times with the exceptions of nine samples for VOC analyses and eight samples for GRO analyses. The samples were analyzed between one and seven days past the 14-day hold times. Associated sample results have been qualified "J" or "UJ" to indicate a potentially low bias.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes with the exception of methylene chloride in the all three method blanks reported in SDG AYA7 and the method blank reported in SDG AYC6. Three associated sample results were above detection and not significantly greater than (>5x) the level detected in the method blank and have been qualified as non-detects. See Table 2 for qualified data.

Field Quality Control

Rinse Blanks

No rinse blanks were collected in association with these sample sets.

Field Duplicates

No field duplicates were collected in association with these sample sets..

Surrogate Recoveries

All surrogate recoveries were within the laboratory control limits with the following exceptions:

- SDG AXZ3 VOCs - 1,2-Dichloroethane-d4 recovered below the control limit in the analyses of samples CHRL-F-02-C-160309 and CHRL-F-01-D-160309. The samples were reanalyzed and resulted in surrogate recoveries within control limits. Since results were similar between the two analyses and all other surrogates recovered within control limits, no data were qualified. Results were reported from the initial analyses since the reanalyses were conducted past the hold time.
- SDG AYA7 and AYC6 VOCs – 1,2-Dichloroethane-d4 recovered above the control limit in the analyses of five samples. The samples were reanalyzed and resulted in surrogate recoveries within control limits. Since results were similar between both analyses and all other surrogate recoveries were within control limits, no data were qualified.

Laboratory Control Sample and Laboratory Control Sample Duplicate

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed at the required frequency. All LCS/LCSD analyses resulted in recoveries and/or RPD values within project-required control limits with the exception of 2-butanone in the VOC LCSD analyzed on March 25th and reported in SDGs AYA7 and AYC6. The associated detected results have been qualified "J" to indicate a potentially high bias.

Matrix Spike and Matrix Spike Duplicate

Matrix spike (MS) and matrix spike duplicate (MSD) samples were analyzed at the required frequency or LCS/LCSD analyses were analyzed in place of MS/MSDs. No MS/MSDs were analyzed in association with the VOC analyses due to insufficient sample mass submitted. All MS/MSD recoveries and/or RPD values were within project-required control limits.

Laboratory Duplicates

Laboratory duplicates were required to be analyzed with the total solids analyses but were not conducted. Results are not expected to be affected so no data were qualified.

Calibration Range

The VOC analyses in SDG AXQ9 resulted in trichloroethene (TCE) results above the calibration range. The samples were diluted and reanalyzed and the diluted analyses results were below detection for this analyte. Mass for the diluted analyses was taken from the jar designated for total solids analyses so the TCE may have been lost in the headspace of the jar. Results have been reported from the initial analyses and have been qualified "J" to indicate they are estimated.

Method Reporting Limits

Reporting limits were acceptable as reported. All values were reported using the laboratory reporting limits. Values were reported as undiluted, or when reported as diluted, the reporting limit accurately reflects the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the surrogate, SRM, LCS/LCSD, and MS/MSD recovery values, with the exceptions noted above. Precision was also acceptable as demonstrated by the MS/MSD and LCS/LCSD RPD values. Most data were acceptable as reported; two results were qualified due to calibration range exceedance. Table 2 summarizes the qualifiers applied to sample results reviewed in this report.

Data Qualifier Definitions

U Indicates the compound or analyte was analyzed for but not detected at or above the specified limit.

J Indicates an estimated value.

UJ Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Table 2
Data Qualification Summary

Sample ID	Parameter	Analyte	Reported	Qualified	Reason
CHRL-A-01-B-160307	TPH	GRO	5.7U mg/kg	5.7UJ mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	
		2-Butanone	110 µg/kg	110J µg/kg	LCSD %R above control limit
CHRL-A-01-C-160307	TPH	GRO	6.1U mg/kg	6.1UJ mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	
		2-Butanone	6.6 µg/kg	6.6J µg/kg	LCSD %R above control limit
CHRL-B-02-D-160310	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
		Methylene chloride	150B µg/kg	150U µg/kg	Method blank contamination
CHRL-D-02-D-160308	VOCs	Trichloroethene	1300E µg/kg	1300J µg/kg	Result above calibration range
CHRL-D-02-E-160308	VOCs	Trichloroethene	1000E µg/kg	1000J µg/kg	Result above calibration range
CHRL-D-05-C-160308	TPH	GRO	6.4U mg/kg	6.4UJ mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	
		Methylene chloride	5.4B µg/kg	5.4U µg/kg	Method blank contamination
CHRL-D-05-D-160308	TPH	GRO	6U mg/kg	6UJ mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	
		Methylene chloride	1.9B µg/kg	1.9U µg/kg	Method blank contamination
CHRL-E-01-C-160307	TPH	GRO	7.8 mg/kg	7.8J mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	
		2-Butanone	5.7 µg/kg	5.7J µg/kg	LCSD %R above control limit
CHRL-E-01-D-160307	TPH	GRO	8.2 mg/kg	8.2J mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	
CHRL-E-04-C-160308	TPH	GRO	13 mg/kg	13J mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	
CHRL-E-04-D-160308	TPH	GRO	6U mg/kg	6UJ mg/kg	Analyzed past hold time
	VOCs	All TCL analytes	Various	"J" or "UJ"	

Notes:
TCL = Target analyte list

REFERENCES

Anchor QEA, LLC, 2016. Sampling and Analysis Plan, Cedar Hills Regional Landfill South Solid Waste Area, Contaminated Soil Investigation. February.

USEPA (U.S. Environmental Protection Agency), 1986. Test methods for Evaluating Solid Waste: Physical/Chemical Methods. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 530/SW-846.

USEPA, 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). EPA 540-R-04-004. October.

USEPA, 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. USEPA 540/R-99/008. October.

USEPA, 2008. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. USEPA 540-R-08-01. June.

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DATA VALIDATION REVIEW REPORT – EPA STAGE 2A

Project:	Cedar Hills Regional Landfill – South Solid Waste Area Initial Contaminated Soil Investigation
Project Number:	150067-01.01
Date:	March 31, 2016

This report summarizes the review of analytical results for 32 soil samples collected August 6, 8, 12, 15, 16, 27, and September 3, 14, 15, and 24, 2015. The samples were collected by Anchor QEA, LLC, and submitted to Analytical Resources, Inc. (ARI), in Tukwila, Washington. The samples were analyzed for the following parameters:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) method 8260C
- Diesel range organics (DRO) and oil range organics (ORO) by Northwest Total Petroleum Hydrocarbons – Diesel Range Extended (NWTPH-Dx)
- Gasoline range organics (GRO) by Northwest Total Petroleum Hydrocarbons – Gasoline Range Extended (NWTPH-Gx)
- Semivolatile organic compounds (SVOCs) by USEPA method 8270D
- Total metals by USEPA method 6010C
- Mercury by USEPA method 7471B
- Polychlorinated biphenyls (PCBs) by USEPA method 8082A

ARI sample data group (SDG) numbers AKJ2, AKU0, AKY6, ALI3, ALK8, AMC2, AML2, AMO8, and ANC8 were reviewed in this report. IDs of samples reviewed in this report are presented in Table 1.

Table 1
Samples Reviewed

Sample ID	Lab ID	Matrix	Analyses
SC0500	AKJ2A	Soil	VOCs, SVOCs, PCBs, Metals, DRO, ORO
	ALI3B		
SC0600	AKJ2B	Soil	VOCs, SVOCs, PCBs, Metals, DRO, ORO
	ALI3A		
SA0200	AKY6A	Soil	VOCs, DRO, ORO
	AKY6M		
SB0100	AKY6U	Soil	VOCs, DRO, ORO
	AKY6I		
	AKU0A		
SB0200	AKY6B	Soil	VOCs, DRO, ORO
	AKY6N		
SB0300	AKY6L	Soil	VOCs, DRO, ORO
	AKY6X		
	AKU0D		
SB0400	AKY6D	Soil	VOCs, DRO, ORO
	AKY6P		
SB0500	AKY6E	Soil	VOCs, DRO, ORO
	AKY6Q		
SB0600	AKY6F	Soil	VOCs, DRO, ORO
	AKY6R		
SC0200	AKY6J	Soil	VOCs, DRO, ORO
	AKY6V		
	AKU0B		
SC0300	AKY6K	Soil	VOCs, DRO, ORO
	AKY6W		
	AKU0C		
SC0400	AKY6C	Soil	VOCs, DRO, ORO
	AKY6O		
SC0700	AKY6G	Soil	VOCs, DRO, ORO
	AKY6S		
SC0800	AKY6H	Soil	VOCs, DRO, ORO
	AKY6T		
SC0316	ALK8A	Soil	VOCs, DRO, ORO, GRO
	ALK8C		
SC03SW11	ALK8B	Soil	VOCs, DRO, ORO, GRO
	ALK8D		
SA0300	AMC2A	Soil	VOCs, DRO, ORO, GRO

Sample ID	Lab ID	Matrix	Analyses
SB0700	AMC2B	Soil	VOCs, DRO, ORO, GRO
	AMC2D		
SA0302	AML2A	Soil	VOCs, DRO, ORO, GRO
SA03SWE	AML2E	Soil	VOCs, DRO, ORO, GRO
SA03SWN	AML2D	Soil	VOCs, DRO, ORO, GRO
SA03SWS	AML2C	Soil	VOCs, DRO, ORO, GRO
	AML2H		
SA03SWW	AML2B	Soil	VOCs, DRO, ORO, GRO
	AML2G		
SA0500	AMO8E	Soil	VOCs, DRO, ORO, GRO
	AMO8J		
SA0600	AMO8D	Soil	VOCs, DRO, ORO, GRO
	AMO8I		
SA0700	AMO8A	Soil	VOCs, DRO, ORO, GRO
	AMO8F		
SA0800	AMO8B	Soil	VOCs, DRO, ORO, GRO
	AMO8G		
SB0800	AMO8C	Soil	VOCs, DRO, ORO, GRO
	AMO8H		
SA0400	ANC8D	Soil	VOCs, DRO, ORO, GRO
	ANC8G		
TPA03N109	ANC8B	Soil	VOCs, DRO, ORO, GRO
	ANC8F		
TPA03N112	ANC8C	Soil	VOCs, DRO, ORO, GRO
TPA03N207	ANC8A	Soil	VOCs, DRO, ORO, GRO
	ANC8E		

Notes:
DRO = diesel range organics
GRO = gasoline range organics
ORO = oil range organics
PCB = polychlorinated biphenyl
SVOC = semivolatile organic compound
VOC = volatile organic compound

Data Validation and Qualifications

Laboratory results were reviewed using the following guidelines:

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004)

- *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999)
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008)

Laboratory and method QC criteria were also used as stated in USEPA 1986 (SW-846, Third Edition), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, update 1, August 1993; update II, January 1995; update IIA, February 1994; update IIB, August 1995; update III, June 1997; update IIIA, May 1999; update IIIB, June 2008; update IVA and IVB, January 2008. Unless noted in this report, laboratory results for the samples listed previously were within QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by ARI at the time of sample receipt; the samples were received in good condition. Samples were received within the recommended temperature range with the following exceptions:

- SDG ALK8 – The samples were received slightly above the recommended temperature range at 6.9 °C. The samples were received the same day of collection so data are not expected to be impacted and no results were qualified.
- SDG AMO8 - Samples SA0700, SA0800, SB0800, SA0600, and SA0500 arrived at the laboratory with a cooler temperature of 10.8 °C. The samples were received within 24 hours of collection and were stored on ice so results are not expected to be significantly impacted and no data were qualified.

Holding Times and Sample Preservation and Analytical Methods

Samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes with the exception phenol, which was detected in the SVOC method blank analyzed in AKJ2. The associated sample results were not significantly greater

than (more than 5 times) the level detected in the method blank and have been qualified as non-detects. Qualified data are summarized in Table 2.

Field Quality Control

No field quality control samples were collected in association with these samples sets.

Surrogate Recoveries

All surrogate recoveries were within the laboratory control limits.

Laboratory Control Sample and Laboratory Control Sample Duplicate

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed at the required frequencies. All LCS/LCSD analyses resulted in recoveries and/or relative percent difference (RPD) values within project-required control limits with the exception of several analytes that recovered below the control limit in the LCS and/or LCSD reported in SDG AKJ2. Additionally, 3,3'-dichlorobenzidine and 4-nitrophenol RPD values were above the control limit. Associated sample results were non-detect and have been qualified "UJ" to indicate a potentially low bias with the exception of benzyl alcohol which did not recover in the LCSD and has been rejected. Qualified data are summarized in Table 2.

Matrix Spike and Matrix Spike Duplicate

Matrix spike (MS) and matrix spike duplicate (MSD) samples were not analyzed in association with these sample sets. Accuracy and precision were instead demonstrated in the LCS/LCSD samples.

Laboratory Duplicates

Laboratory duplicates were not analyzed in association with these sample sets.

Method Reporting Limits

Reporting limits were acceptable as reported. All values were reported using the laboratory reporting limits. Values were reported as undiluted, or when reported as diluted, the reporting limit accurately reflected the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. In the case where samples were reanalyzed due to laboratory procedure, the most technically acceptable results have been reported. Accuracy was acceptable as demonstrated by the surrogate and LCS/LCSD recovery values, with the exceptions noted above. Precision was also acceptable as demonstrated by the LCS/LCSD RPD values, with the exceptions noted previously. Most data were acceptable as reported; all other data are acceptable as qualified. Table 3 summarizes the qualifiers applied to sample results reviewed in this report.

Data Qualifier Definitions

J Indicates an estimated value.

R Indicates data is rejected and unusable.

U Indicates the compound or analyte was analyzed for but not detected at or above the specified limit.

UJ Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Table 2
Data Qualification Summary

Sample ID	Parameter	Analyte	Reported Result	Qualified Results	Reason
SC0500	SVOCs	Benzyl alcohol	19U µg/kg	R	LCSD did not recover
		1,4-Dichlorobenzene	19U µg/kg	19UJ µg/kg	LCS/LSCD %R below control limit
		4-Chloroaniline	96U µg/kg	96UJ µg/kg	
		1,2,4-Trichlorobenzene	19U µg/kg	19UJ µg/kg	
		1,3-Dichlorobenzene	19U µg/kg	19UJ µg/kg	
		Hexachloroethane	19U µg/kg	19UJ µg/kg	
		Nitrobenzene	19U µg/kg	19UJ µg/kg	
		3-Nitroaniline	96U µg/kg	96UJ µg/kg	
		Isophorone	19U µg/kg	19UJ µg/kg	LCS %R below control limit
		2,4-Dimethylphenol	96U µg/kg	96UJ µg/kg	LCSD %R below control limit
		Hexachlorobutadiene	19U µg/kg	19UJ µg/kg	
		2-Chloronaphthalene	19U µg/kg	19UJ µg/kg	

Sample ID	Parameter	Analyte	Reported Result	Qualified Results	Reason
		3,3'-Dichlorobenzidine	96U µg/kg	96UJ µg/kg	LCS/LSCD %R below control limit and RPD above control limit
		4-Nitrophenol	96U µg/kg	96UJ µg/kg	LSCD %R below control limit and RPD above control limit
		Phenol	20B µg/kg	20U µg/kg	Method blank contamination
SC0600	SVOCs	Benzyl alcohol	20U µg/kg	R	LCSD did not recover
		1,4-Dichlorobenzene	20U µg/kg	20UJ µg/kg	LCS/LSCD %R below control limit
		4-Chloroaniline	99U µg/kg	99UJ µg/kg	
		1,2,4-Trichlorobenzene	20U µg/kg	20UJ µg/kg	
		1,3-Dichlorobenzene	20U µg/kg	20UJ µg/kg	
		Hexachloroethane	20U µg/kg	20UJ µg/kg	
		Nitrobenzene	20U µg/kg	20UJ µg/kg	
		3-Nitroaniline	99U µg/kg	99UJ µg/kg	
		2,4-Dimethylphenol	99U µg/kg	99UJ µg/kg	LCS %R Below control limits
		Hexachlorobutadiene	20U µg/kg	20UJ µg/kg	LCSD %R Below control limits
		2-Chloronaphthalene	20U µg/kg	20UJ µg/kg	
		Isophorone	20U µg/kg	20UJ µg/kg	
		3,3'-Dichlorobenzidine	99U µg/kg	99UJ µg/kg	LCS/LSCD %R below control limit and RPD above control limit
		4-Nitrophenol	99U µg/kg	99UJ µg/kg	LSCD %R below control limit and RPD above control limit
		Phenol	20B µg/kg	20U µg/kg	Method blank contamination

Notes:

µg/kg = microgram per kilogram

LCS = Laboratory control sample

LCSD = laboratory control sample duplicate

RPD = relative percent difference

SVOC = semivolatile organic compound

REFERENCES

USEPA (U.S. Environmental Protection Agency), 1986. Test methods for Evaluating Solid Waste: Physical/Chemical Methods. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 530/SW-846.

USEPA, 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. USEPA 540/R-99/008. October.

USEPA, 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). EPA 540-R-04-004. October.

USEPA, 2008. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. USEPA 540-R-08-01. June.

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DATA VALIDATION REVIEW REPORT – EPA STAGE 2A

Project:	Cedar Hills Regional Landfill – South Solid Waste Area Contaminated Soil Investigation
Project Number:	150067-01.01
Date:	April 11, 2016

This report summarizes the review of analytical results for 7 soil samples collected March 7 and 10, 2016. The samples were collected by Anchor QEA, LLC, and submitted to Analytical Resources, Inc. (ARI), in Tukwila, Washington. The samples were analyzed for the following parameters:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) method 8260C
- Gasoline range hydrocarbons (GRO) by Washington State Department of Ecology method Northwest Total Petroleum Hydrocarbons – Gasoline Range Extended (NWTPH-Gx)
- Total solids (TS) by Standard Method (SM) 2540B

ARI sample data group (SDG) number AYL5 was reviewed in this report. Sample IDs, matrices, and analyses conducted are presented in Table 1.

Table 1
Sample IDs, Matrices, and Analyses

Sample ID	Lab ID	Matrix	Analyses
CHRL-A-02-B-160307	AYL5A, AYL5H	Soil	VOCs, GRO, TS
CHRL-A-02-C-160307	AYL5B, AYL5I	Soil	VOCs, GRO, TS
CHRL-A-02-D-160307	AYL5C, AYL5J	Soil	VOCs, GRO, TS
CHRL-A-02-E-160307	AYL5D, AYL5K	Soil	VOCs, GRO, TS
CHRL-A-03-B-160310	AYL5E, AYL5L	Soil	VOCs, GRO, TS
CHRL-A-03-C-160310	AYL5F, AYL5M	Soil	VOCs, GRO, TS
CHRL-A-03-D-160310	AYL5G, AYL5N	Soil	VOCs, GRO, TS

Notes:
GRO = gasoline range organics TS = total solid VOC = volatile organic compound

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the analytical procedures and data quality objective sections of the Sampling and Analysis Plan (SAP; Anchor QEA 2016). Laboratory results were reviewed using the following guidelines:

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004)
- *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999)
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008)

Laboratory and method QC criteria were also used as stated in USEPA 1986 (SW-846, Third Edition), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, update 1, August 1993; update II, January 1995; update IIA, February 1994; update IIB, August 1995; update III, June 1997; update IIIA, May 1999; update IIIB, June 2008; update IVA and IVB, January 2008. Unless noted in this report, laboratory results for the samples listed above were within QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by ARI at the time of sample receipt; the samples were received chilled to within the correct temperature range and in good condition.

Holding Times and Sample Preservation

Samples were appropriately preserved but analyzed between 7 and 15 days past the 14-day hold time. All sample results have been qualified "J" or "UJ" to indicate a potentially low bias. Additionally, total solids were analyzed past hold times. However, as this analysis was used to correct for moisture present in samples during the VOC extraction process, no additional data are affected.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes with the exception of methylene chloride in all three method blanks reported. The associated sample results that were above detection and not significantly greater than (more than 5 times) the level detected in the method blank have been qualified as non-detects. See Table 2 for qualified data.

Field Quality Control

Rinse Blanks

No rinse blanks were collected in association with these sample sets.

Field Duplicates

No field duplicates were collected in association with these sample sets.

Surrogate Recoveries

All surrogate recoveries were within the laboratory control limits with the exception of bromofluorobenzene, which recovered above the control limit in the VOC analyses of samples CHRL-A-02-C-160307, CHRL-A-02-D-160307, and CHRL-A-02-E-160307. The samples were diluted and reanalyzed and resulted in surrogate recoveries within control limits. However, results were reported from the initial analyses since the re-analyses were conducted even further past hold time. Associated detected sample results have been qualified "J" to indicate they are estimated.

Laboratory Control Sample and Laboratory Control Sample Duplicate

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed at the required frequency. All LCS/LCSD analyses resulted in recoveries and/or relative percent difference (RPD) values within project-required control limits.

Matrix Spike and Matrix Spike Duplicate

No MS/MSDs were analyzed in association with the VOC analyses due to insufficient sample mass submitted. LCS/LCSD were analyzed in place of MS/MSDs.

Laboratory Duplicates

Laboratory duplicates were required to be analyzed with the total solids analyses but were not conducted. Results are not expected to be affected, so no data were qualified.

Calibration Range

The VOC analyses yielded 2-butanone results above the calibration range in samples CHRL-A-02-D-160307 and CHRL-A-02-E-160307. The samples were diluted and reanalyzed and results were within calibration range. Results have been reported from the diluted analyses.

Method Reporting Limits

Reporting limits were acceptable as reported. All values were reported using the laboratory reporting limits. Values were reported as undiluted, or when reported as diluted, the reporting limit accurately reflected the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable as demonstrated by the surrogate and LCS/LCSD recovery values, with the exceptions noted previously. Precision was also acceptable as demonstrated by the LCS/LCSD RPD values. All data were qualified due to hold time exceedance and are acceptable as qualified. Table 2 summarizes the qualifiers applied to sample results reviewed in this report.

Data Qualifier Definitions

U Indicates the compound or analyte was analyzed for but not detected at or above the specified limit.

J Indicates an estimated value.

UJ Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Table 2
Data Qualification Summary

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
CHRL-A-02-B-160307	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
	TPH	GRO	7U mg/kg	7UJ mg/kg	Analyzed past hold time
CHRL-A-02-C-160307	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
		Methylene chloride	2.5B µg/kg	2.5U µg/kg	Method blank contamination
		m,p-Xylene	13 µg/kg	13J µg/kg	Surrogate %R above control limits
		o-Xylene	5 µg/kg	5J µg/kg	
	TPH	GRO	4.9U mg/kg	4.9UJ mg/kg	Analyzed past hold time
CHRL-A-02-D-160307	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
		Methylene chloride	2.6B µg/kg	2.6U µg/kg	Method blank contamination
		m,p-Xylene	8.1 µg/kg	8.1J µg/kg	Surrogate %R above control limits
		o-Xylene	2.9 µg/kg	2.9J µg/kg	
	TPH	GRO	4.7U mg/kg	4.7UJ mg/kg	Analyzed past hold time
CHRL-A-02-E-160307	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
		Methylene chloride	2.3B µg/kg	2.3U µg/kg	Method blank contamination
		m,p-Xylene	4.6 µg/kg	4.6J µg/kg	Surrogate %R above control limits
		o-Xylene	1.8 µg/kg	1.8J µg/kg	
	TPH	GRO	5.9U mg/kg	5.9UJ mg/kg	Analyzed past hold time
CHRL-A-03-B-160310	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
	TPH	GRO	5.1U mg/kg	5.1UJ mg/kg	Analyzed past hold time
CHRL-A-03-C-160310	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
		Methylene chloride	1.9B µg/kg	1.9U µg/kg	Method blank contamination
	TPH	GRO	7.2U mg/kg	7.2UJ mg/kg	Analyzed past hold time
CHRL-A-03-D-160310	VOCs	All TCL analytes	Various	"J" or "UJ"	Analyzed past hold time
		Methylene chloride	3.2B µg/kg	3.2U µg/kg	Method blank contamination
	TPH	GRO	7.9U mg/kg	7.9UJ mg/kg	Analyzed past hold time

Notes:
%R = percent recovery
µg/kg = micrograms per kilogram
GRO = gasoline range organics
mg/kg = milligrams per kilogram
TCL = Target analyte list
VOC = volatile organic compound

REFERENCES

Anchor QEA, LLC, 2016. *Sampling and Analysis Plan, Cedar Hills Regional Landfill South Solid Waste Area, Contaminated Soil Investigation*. February.

USEPA (U.S. Environmental Protection Agency), 1986. Test methods for Evaluating Solid Waste: Physical/Chemical Methods. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 530/SW-846.

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USEPA, 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). EPA 540-R-04-004. October.

USEPA, 2008. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. USEPA 540-R-08-01. June.

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DATA VALIDATION REVIEW REPORT – EPA STAGE 2A

Project:	Cedar Hills Regional Landfill – South Solid Waste Area Contaminated Soil Investigation
Project Number:	150067-01.01
Date:	April 12, 2016

This report summarizes the review of analytical results for 46 soil samples, 5 field duplicates, 1 rinse blank, and 2 trip blanks collected March 7 through 11, 2016. The samples were collected by Anchor QEA, LLC, and submitted to Analytical Resources, Inc. (ARI), in Tukwila, Washington. The samples were analyzed for the following parameters:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) method 8260C
- Gasoline range organics (GRO) by Northwest Total Petroleum Hydrocarbons – Gasoline Range Extended (NWTPH-Gx)
- Semivolatile organic compounds (SVOCs) by USEPA method 8270D
- Mercury (Hg) by USEPA method 7471B
- Total solids (TS) by Standard Method (SM) 2540B

ARI sample data group (SDG) numbers AXD4, AXF3, AXF4, AXH4, AXK4, AXM8 and AYF2 were reviewed in this report. IDs of samples reviewed in this report are presented in Table 1.

Table 1
Samples Reviewed

Sample ID	Lab ID	Matrix	Analyses				
			Hg	VOC	GRO	TS	SVOC
CHRL-A-01-A-160307	AXD4A, AXD4E	Soil	X	X	X	X	--
CHRL-A-02-A-160307	AXD4B, AXD4F	Soil	X	X	X	X	--
CHRL-A-03-A-160310	AXK4D, AXK4O	Soil	X	X	X	X	--

Sample ID	Lab ID	Matrix	Analyses				
			Hg	VOC	GRO	TS	SVOC
CHRL-B-01-A-160310	AXK4C, AXK4J	Soil	X	X	X	X	--
CHRL-B-01-B-160310	AXK4E, AXK4K, AYF2K	Soil	X	--	X	X	--
CHRL-B-01A-A-160309	AXH4B, AXH4R	Soil	X	X	X	X	X
CHRL-B-01A-B-160309	AXH4I, AXH4S, AYF2I	Soil	X	--	X	X	--
CHRL-B-01A-C-160309	AXH4J, AXH4T, AYF2J	Soil	X	--	X	X	--
CHRL-B-02-A-160310	AXK4B, AXK4P	Soil	X	X	X	X	X
CHRL-B-02-B-160310	AXK4H, AXK4Q	Soil	X	--	X	X	--
CHRL-B-02-C-160310	AXK4I, AXK4R	Soil	X	--	X	X	--
CHRL-B-02A-A-160310	AXK4A, AXK4L	Soil	X	X	X	X	X
CHRL-B-02A-B-160310	AXK4F, AXK4M, AYF2L	Soil	X	--	X	X	--
CHRL-B-02A-C-160310	AXK4G, AXK4N, AYF2M	Soil	X	--	X	X	--
CHRL-B-03-A-160311	AXM8B, AXM8H	Soil	X	X	X	X	--
CHRL-B-03-B-160311	AXM8C, AXM8I	Soil	X	--	X	X	--
CHRL-B-53-B-160311	AXM8D, AXM8J	Soil	X	--	X	X	--
CHRL-B-03A-A-160311	AXM8A, AXM8K	Soil	X	X	X	X	--
CHRL-B-03A-B-160311	AXM8E, AXM8L	Soil	X	--	X	X	--
CHRL-B-03A-C-160311	AXM8F, AXM8M	Soil	X	--	X	X	--
CHRL-B-53A-C-160311	AXM8G, AXM8N	Soil	X	--	X	X	--
CHRL-D-01-A-160309	AXH4A, AXH4K	Soil	X	X	X	X	X
CHRL-D-01-B-160309	AXH4E, AXH4L, AYF2H	Soil	X	--	X	X	--

Sample ID	Lab ID	Matrix	Analyses				
			Hg	VOC	GRO	TS	SVOC
CHRL-D-02-A-160308	AXF3F, AXF3AM	Soil	X	X	X	X	X
CHRL-D-02-B-160308	AXF3R, AXF3AN, AYF2F	Soil	X	--	X	X	--
CHRL-D-02-C-160308	AXF4A, AXF4B, AYF2G	Soil	X	--	X	X	--
CHRL-D-03-A-160308	AXF3E, AXF3AI	Soil	X	X	X	X	X
CHRL-D-03-B-160308	AXF3O, AXF3AJ, AYF2D	Soil	X	--	X	X	--
CHRL-D-53-B-160308	AXF3Q, AXF3AL	Soil	X	--	X	X	--
CHRL-D-03-C-160308	AXF3P, AXF3AK, AYF2E	Soil	X	--	X	X	--
CHRL-D-04-A-160308	AXF3C, AXF3AE	Soil	X	X	X	X	X
CHRL-D-54-A-160308	AXF3D, AXF3AF	Soil	X	X	X	X	X
CHRL-D-04-B-160308	AXF3M, AXF3AG	Soil	X	--	X	X	--
CHRL-D-04-C-160308	AXF3N, AXF3AH	Soil	X	--	X	X	--
CHRL-D-05-A-160308	AXF3B, AXF3AC	Soil	X	X	X	X	X
CHRL-D-05-B-160308	AXF3L, AXF3AD	Soil	X	--	X	X	--
CHRL-E-01-A-160307	AXD4C, AXD4G	Soil	X	X	X	X	--
CHRL-E-01-B-160307	AXD4D, AXD4H, AYF2A	Soil	X	--	X	X	--
CHRL-E-02-A-160308	AXF3A, AXF3U	Soil	X	X	X	X	X
CHRL-E-02-B-160308	AXF3G, AXF3V	Soil	X	--	X	X	--
CHRL-E-02-C-160308	AXF3H, AXF3W	Soil	X	--	X	X	--
CHRL-E-03-A-160308	AXF3S, AXF3X	Soil	X	X	X	X	--
CHRL-E-03-B-160308	AXF3I, AXF3Y, AYF2B	Soil	X	--	X	X	--

Sample ID	Lab ID	Matrix	Analyses				
			Hg	VOC	GRO	TS	SVOC
CHRL-E-03-C-160308	AXF3J, AXF3Z, AYF2C	Soil	X	--	X	X	--
CHRL-E-04-A-160308	AXF3T, AXF3AA	Soil	X	X	X	X	--
CHRL-E-04-B-160308	AXF3K, AXF3AB	Soil	X	--	X	X	--
CHRL-F-01-A-160309	AXH4D, AXH4O	Soil	X	X	X	X	--
CHRL-F-01-B-160309	AXH4G, AXH4P	Soil	X	--	X	X	--
CHRL-F-51-B-160309	AXH4H, AXH4Q	Soil	X	--	X	X	--
CHRL-F-02-A-160309	AXH4C, AXH4M	Soil	X	X	X	X	--
CHRL-F-02-B-160309	AXH4F, AXH4N	Soil	X	--	X	X	--
CHRL-RB-160309	AXH4U	Water	X	--	--	--	X
TRIP BLANK-160310	AXK4S	Water	--	X	X	--	--
TRIP BLANK-160311	AXM8O	Water	--	X	X	--	--

Notes:
GRO = gasoline range organics
Hg = mercury
SVOC = semivolatile organic compound
TS = total solids
VOC = volatile organic compound

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the analytical procedures and data quality objective sections of the Sampling and Analysis Plan (SAP; Anchor QEA 2016). Laboratory results were reviewed using the following guidelines:

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004)

- *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999)
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2008)

Laboratory and method QC criteria were also used as stated in USEPA 1986 (SW-846, Third Edition), *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, update 1, August 1993; update II, January 1995; update IIA, February 1994; update IIB, August 1995; update III, June 1997; update IIIA, May 1999; update IIIB, June 2008; update IVA and IVB, January 2008. Unless noted in this report, laboratory results for the samples listed previously were within QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by ARI at the time of sample receipt; the samples were received chilled within the correct temperature range and in good condition.

Holding Times and Sample Preservation

Samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes with some exceptions. Several analytes were detected in the VOC method blanks but associated results were not detected or were significantly greater than (more than 5 times) the method blank concentration. No data were qualified in these instances. Detections in method blanks that resulted in sample data qualifications are as follows:

- 1,2,3-Trichlorobenzene and acetone were detected between the method detection limit (MDL) and the method reporting limit (MRL) in the VOC method blank reported in SDG AXD4.
- Mercury was detected in the method blank associated with CHRL-RB-160309.

- Methylene chloride, naphthalene, and 1,2,3-trichlorobenzene were detected in the VOC method blanks reported in SDG AXK4.
- GRO was detected in the method blank associated with TRIP BLANK-160310.
- The method blank analyzed for SVOCs in AXK4 resulted in detections of diethyl phthalate, dimethyl phthalate and bis(2-ethylhexyl)phthalate.

Associated detected sample results that were not significantly greater than (more than 5 times) the level detected in the method blank have been qualified as non-detects. Qualified data are summarized in Table 3.

Field Quality Control

Rinse Blanks

One rinse blank was collected in association with these sample sets. The rinse blank was free of target analytes with the exception of mercury, which was detected between the MDL and MRL. However, this result has been qualified as a non-detect due to method blank contamination. Qualified data are summarized in Table 3.

Trip Blanks

Two trip blanks were analyzed in association with these sample sets. The trip blanks were free of target analytes with the following exceptions:

- Chloromethane was detected between the MDL and MRL in both trip blanks. However, this analyte was not detected in sample results so no data were qualified.
- Methylene chloride was detected in TRIP BLANK-160311. However, this is a common laboratory contaminant and the result has been qualified as a non-detect due to method blank contamination.
- GRO was detected in TRIP BLANK-160310, but the result has been qualified as a non-detect due to method blank contamination.

See Table 3 for qualified data.

Field Duplicates

Five field duplicates were collected in association with these sample sets. Detected results are summarized in Table 2.

Table 2
Field Duplicate Summary

Analyte	CHRL-B-03A-C-160311	CHRL-B-53A-C-160311	RPD
Trichloroethene (TCE)	1.8 µg/kg	2.2 µg/kg	20%

Analyte	CHRL-B-03-B-160311	CHRL-B-53-B-160311	RPD
2-Butanone (MEK)	2.5 µg/kg	2.6 µg/kg	4%
Trichloroethene (TCE)	16 µg/kg	19 µg/kg	17%

Analyte	CHRL-D-04-A-160308	CHRL-D-54-A-160308	RPD
Mercury	0.0124 J mg/kg	0.0114J mg/kg	8%
1,2,4-Trimethylbenzene	4.6 µg/kg	7.8 µg/kg	52%
1,2-Dichloroethene, cis-	34 µg/kg	42 µg/kg	21%
1,3,5-Trimethylbenzene (Mesitylene)	1.5 µg/kg	2.5 µg/kg	50%
1,4-Dichlorobenzene	0.6J µg/kg	0.9J µg/kg	40%
2-Butanone (MEK)	6.6 µg/kg	4J µg/kg	49%
Acetone	30 µg/kg	24 µg/kg	22%
Carbon disulfide	1J µg/kg	1.1U µg/kg	200%
Cymene, p- (4-Isopropyltoluene)	2.2 µg/kg	2.7 µg/kg	20%
Ethylbenzene	2.7 µg/kg	4.4 µg/kg	48%
m,p-Xylene	10 µg/kg	18 µg/kg	57%
Methyl isobutyl ketone	5.9U µg/kg	3.6J µg/kg	200%
n-Butylbenzene	1.2U µg/kg	0.7J µg/kg	200%
n-Propylbenzene	0.6J µg/kg	1.1J µg/kg	59%
o-Xylene	4 µg/kg	6.8 µg/kg	52%
Tetrachloroethene (PCE)	1.8 µg/kg	2.2 µg/kg	20%
Toluene	22 µg/kg	31 µg/kg	34%
Trichloroethene (TCE)	42 µg/kg	62 µg/kg	38%
Benzoic acid	64J µg/kg	190U µg/kg	200%
Naphthalene	5.9J µg/kg	19U µg/kg	200%

Analyte	CHRL-D-03-B-160308	CHRL-D-53-B-160308	RPD
2-Butanone (MEK)	1,100J µg/kg	320U µg/kg	200%
Tetrachloroethene (PCE)	660J µg/kg	990 µg/kg	40%
Trichloroethene (TCE)	25,000 µg/kg	41,000 µg/kg	48%
Gasoline range hydrocarbons	1500 mg/kg	1,400 mg/kg	7%

Analyte	CHRL-F-01-B-160309	CHRL-F-51-B-160309	RPD
2-Butanone (MEK)	4.8J µg/kg	5.7 µg/kg	17%
Trichloroethene (TCE)	0.9J µg/kg	0.5J µg/kg	57%

Results at or near the reporting limit (RL) may have exaggerated relative percent difference (RPD) values. No data were qualified based on field duplicate results.

Surrogate Recoveries

All surrogate recoveries were within the laboratory control limits, with the exception of the following VOC surrogates:

- Bromofluorobenzene recovered high in CHRL-D-53-B-160308, in SDG AXF3. However, as only four analytes were reported for CHRL-D-53-B-160308 and none of these analytes were associated with the surrogate bromofluorobenzene, no data were qualified.
- Bromofluorobenzene recovered above the control limits in sample CHRL-E-03-B-160308 analyzed in AYF2. Associated detected sample results have been qualified "J" to indicate a potentially high bias.

Qualified data are summarized in Table 3.

Laboratory Control Sample and Laboratory Control Sample Duplicate

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed at the required frequencies. Where LCSDs were not analyzed, MSD or lab duplicate samples were analyzed instead.

All LCS/LCSD analyses resulted in recoveries and/or RPD values within project-required control limits with the following exceptions:

- 3,3'-Dichlorobenzidine recovered below the control limit in the SVOC LCSs reported in AXF3, AXH4, AXK4 and AXM8. Associated sample results were non-detect and have been qualified "UJ" to indicate a potentially low bias.
- 4-Nitrophenol recovered above the control limit in the SVOC LCS reported in SDG AXH4. However, all associated samples results were non-detect, so no data were qualified.
- Bromomethane and iodomethane recovered below the control limit in the soil VOC LCS/LCSD analyzed for AXK4 and AXM8. Associated results were qualified "J" or "UJ" to indicate a potentially low bias.
- Iodomethane recovered above the control limit in the LCS/LCSD analyzed in association with Trip Blank-20160310 and Trip Blank-160311. The associated results were below detection so no data were qualified.
- Bromomethane recovered below the control limit in the soil VOC LCS/LCSD analyzed in AYF2. Associated sample results were non-detect and were qualified "UJ" to indicate a potentially low bias.

Qualified data are summarized in Table 3.

Matrix Spike and Matrix Spike Duplicate

Matrix spike (MS) and matrix spike duplicate (MSD) samples were not analyzed at required frequencies due to insufficient sample volume. Where limited sample volume existed, accuracy and precision were demonstrated in the LCS/LCSD samples. MS/MSD samples resulted in recoveries and/or RPD values within project-required control limits, with the following exceptions:

- The results for the SVOC MS/MSD analyzed on CHRL-D-05-A-160308 were below the control limit for benzyl alcohol, 4-chloroaniline, and 3,3'-dichlorobenzidene. The 3-nitroaniline MS result was below the control limit as well. Parent sample results were all non-detect, and have been qualified "UJ" to indicate a potentially low bias.

- 2,4-Dimethylphenol, 2-methylphenol, 3,3'-dichlorobenzidine, 3-nitroaniline, 4-chloroaniline, and 4-nitroaniline recovered below the control limits in the SVOC MS/MSD analyzed on CHRL-D-01-A-160309. N-nitrosodiphenylamine also recovered below the control limit in the MSD. Additionally, the RPD for 2-methylphenol was outside the control limits. Associated parent sample results were non-detect and have been qualified "UJ" to indicate a potentially low bias. 3,3'-dichlorobenzidine and 4-chloroaniline percent recoveries were less than 10% and results have been rejected.
- Several results were outside the control limits in the SVOC MS/MSD analyzed on CHRL-B-02-A-160310. 3,3'-Dichlorobenzidine, benzyl alcohol and 4-chloroaniline results were below the control limits in the MS and MSD. 3-Nitroaniline and 4-nitroaniline recovered below the control limit in the MS. The RPD for 4-chloroaniline was above the control limit. Associated parent sample results were non-detect and have been qualified “UJ” to indicate a potentially low bias.
- The SVOC MS/MSD analyzed on CHRL-B-03A-A-160311 recovered below the control limit for 3,3’-dichlorobenzidine, 4-chloroaniline, and 4-nitroaniline. The benzyl alcohol MS/MSD recovered below the control limit and the MS/MSD RPD was above the control limit. Parent sample results were non-detect and have been flagged “UJ” to indicate a potentially low bias.

Qualified data are summarized in Table 3.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequency with the exception of the total solids analyses. No duplicates were analyzed in association with this analysis. Results are not expected to be affected however, so no data were qualified. If the sample or duplicate result is less than five times the method reporting limit (MRL), than the RPD control limit is no longer appropriate. Sample results within ± 2 times the MRL is the control limit in these situations. All duplicate results were within required limits.

Sample Analyses

The laboratory flagged the benzoic acid result as estimated with a low spectral match in the SVOC analysis of sample CHRL-D-05-A-160308. This result has been qualified "J" to indicate it is estimated.

Calibration Range

The VOC analyses in AYF2 yielded cis-1,2-dichloroethene results above the calibration range in samples CHRL-D-02-B-160308 and CHRL-D-02-C-160308. The results have been qualified "J" to indicate they are estimated.

Method Reporting Limits

Reporting limits were acceptable as reported. All values were reported using the laboratory reporting limits. Values were reported as undiluted, or when reported as diluted, the reporting limit accurately reflected the dilution factor.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. In the case where samples were reanalyzed due to laboratory procedure, the most technically acceptable results have been reported. Accuracy was acceptable as demonstrated by the surrogate, LCS/LCSD, and MS/MSD recovery values, with the exceptions noted previously. Precision was also acceptable as demonstrated by the laboratory duplicate, MS/MSD, and LCS/LCSD RPD values, with the exceptions noted previously. Most data were acceptable as reported; all other data are acceptable as qualified. Table 3 summarizes the qualifiers applied to sample results reviewed in this report.

Data Qualifier Definitions

J Indicates an estimated value.

R Indicates data is rejected and unusable.

U Indicates the compound or analyte was analyzed for but not detected at or above the specified limit.

UJ Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated

Table 3
Data Qualification Summary

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
CHRL-A-03-A-160310	VOCs	Dichloromethane (Methylene chloride)	1.2JB µg/kg	2.1U µg/kg	Method blank contamination
		Naphthalene	1.3JB µg/kg	5.2U µg/kg	
CHRL-B-01-A-160310	VOCs	Bromomethane (Methyl bromide)	100Q µg/kg	100J µg/kg	LCS/LCSD %R below control limit
		Methyl iodide (Iodomethane)	150Q µg/kg	150J µg/kg	
		Dichloromethane (Methylene chloride)	68JB µg/kg	130U µg/kg	Method blank contamination
		1,2,3-Trichlorobenzene	36JB µg/kg	320U µg/kg	
		Naphthalene	170JB µg/kg	320U µg/kg	
CHRL-B-01-B-160310	VOCs	Bromomethane (Methyl bromide)	1.2U µg/kg	1.2UJ µg/kg	LCS/LCSD %R below control limit
CHRL-B-01A-A-160309	SVOCs	3,3'-Dichlorobenzidine	92U µg/kg	92UJ µg/kg	LCS %R below control limit
CHRL-B-02-A-160310	VOCs	Dichloromethane (Methylene chloride)	1J µg/kg	1.8U µg/kg	Method blank contamination
	SVOCs	3,3'-Dichlorobenzidine	98U µg/kg	98UJ µg/kg	MS/MSD and LCS %R below control limit
		Benzyl alcohol	20U µg/kg	R	MS/MSD %R below control limit
		3-Nitroaniline	98U µg/kg	98UJ µg/kg	MS %R below control limit
		4-Nitroaniline	98U µg/kg	98UJ µg/kg	
		4-Chloroaniline	98U µg/kg	98UJ µg/kg	MS/MSD %R below control limits and RPD above limit
		bis(2-Ethylhexyl)phthalate	170B µg/kg	170U µg/kg	Method blank contamination
		Diethyl phthalate	22B µg/kg	22U µg/kg	
		Dimethyl phthalate	15JB µg/kg	20U µg/kg	
CHRL-B-02A-A-160310	SVOCs	bis(2-Ethylhexyl)phthalate	64B µg/kg	64U µg/kg	Method blank contamination
		Dimethyl phthalate	17JB µg/kg	20U µg/kg	
		Diethyl phthalate	20B µg/kg	20U µg/kg	
		3,3'-Dichlorobenzidine	98U µg/kg	98UJ µg/kg	LCS %R below

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
					control limit
CHRL-B-02A-B-160310	VOCs	Bromomethane (Methyl bromide)	1.1U µg/kg	1.1UJ µg/kg	LCS/LCSD %R below control limit
CHRL-B-02A-C-160310	VOCs	Bromomethane (Methyl bromide)	1.0U µg/kg	1.0UJ µg/kg	LCS/LCSD %R below control limit
CHRL-B-03-A-160311	VOCs	Bromomethane (Methyl bromide)	1.2U µg/kg	1.2UJ µg/kg	LCS/LCSD %R below control limit
		Methyl iodide (Iodomethane)	1.2U µg/kg	1.2UJ µg/kg	
CHRL-B-03A-A-160311	VOCs	Bromomethane (Methyl bromide)	1.1U µg/kg	1.1UJ µg/kg	LCS/LCSD %R below control limit
		Methyl iodide (Iodomethane)	1.1U µg/kg	1.1UJ µg/kg	
	SVOCs	3,3'-Dichlorobenzidine	98U µg/kg	98UJ µg/kg	MS/MSD and LCS %R below control limit
		4-Chloroaniline	98U µg/kg	98UJ µg/kg	MS/MSD %R below control limit
		4-Nitroaniline	98U µg/kg	98UJ µg/kg	
		Benzyl alcohol	20U µg/kg	20UJ µg/kg	MS/MSD %R below control limits and RPD above limit
CHRL-D-01-A-160309	SVOCs	2,4-Dimethylphenol	93U µg/kg	93UJ µg/kg	MS/MSD %R below control limit
		3-Nitroaniline	93U µg/kg	93UJ µg/kg	
		4-Nitroaniline	93U µg/kg	93UJ µg/kg	
		3,3'-Dichlorobenzidine	93U µg/kg	R	
		4-Chloroaniline	93U µg/kg	R	
		2-Methylphenol	19U µg/kg	19UJ µg/kg	MS/MSD %R below control limits and RPD above limit
		N-Nitrosodiphenylamine	19U µg/kg	19UJ µg/kg	MSD %R below control limit
CHRL-D-02-A-160308	SVOCs	3,3'-Dichlorobenzidine	95U µg/kg	95UJ µg/kg	LCS %R below control limit
CHRL-D-02-B-160308	VOCs	cis-1,2-Dichloroethene	330E µg/kg	330J µg/kg	Result above calibration range
CHRL-D-02-C-160308	VOCs	cis-1,2-Dichloroethene	260E µg/kg	260J µg/kg	Result above calibration range
CHRL-D-03-A-160308	SVOCs	3,3'-Dichlorobenzidine	94U µg/kg	94UJ µg/kg	LCS %R below control limit
CHRL-D-04-A-160308	SVOCs	3,3'-Dichlorobenzidine	98U µg/kg	98UJ µg/kg	LCS %R below control limit
CHRL-D-54-A-	SVOCs	3,3'-Dichlorobenzidine	97U µg/kg	97UJ µg/kg	LCS %R below

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
160308					control limit
CHRL-D-05-A-160308	SVOCs	Benzyl alcohol	19U ug/kg	19UJ ug/kg	MS/MSD %R below control limit
		4-Chloroaniline	97U ug/kg	97UJ ug/kg	
		3-Nitroaniline	97U ug/kg	97UJ ug/kg	MS %R below control limit
		3,3'-Dichlorobenzidine	97U µg/kg	97UJ µg/kg	LCS %R below control limit
		Benzoic acid	660M µg/kg	660J µg/kg	Peak resolution
CHRL-E-01-A-160307	VOCs	1,2,3-Trichlorobenzene	43J µg/kg	280U µg/kg	Method blank contamination
		Acetone	310B µg/kg	310U µg/kg	
CHRL-E-02-A-160308	SVOCs	3,3'-Dichlorobenzidine	93U µg/kg	93UJ µg/kg	LCS %R below control limit
CHRL-E-03-B-160308	VOCs	m,p-Xylene	350,000 µg/kg	350,000J µg/kg	Surrogate %R above control limit
		o-Xylene	120,000 µg/kg	120,000J µg/kg	
CHRL-RB-160309	Metals	Mercury	0.00001J mg/L	0.0001U mg/L	Method blank contamination
TRIP BLANK-160310 CHRL-RB-160309	VOCs	Bromomethane (Methyl bromide)	1U µg/L	1UJ µg/L	LCS/LCSD %R below control limit
		Methyl iodide (Iodomethane)	1U µg/L	1UJ µg/L	
		Gasoline range hydrocarbons	0.03J µg/L	0.1U µg/L	Method blank contamination
TRIP BLANK-160310	VOCs	Bromomethane (Methyl bromide)	0.12J µg/L	0.12J µg/L	LCS/LCSD %R below control limit
		Methyl iodide (Iodomethane)	1U µg/L	1UJ µg/L	

Notes:

%R = percent recovery

µg/L = microgram per liter

SVOC = semivolatile organic compound

VOC = volatile organic compound

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APPENDIX E
WASHINGTON STATE TOXICITY DESIGNATION TOOL SUMMARY

Washington State-Only Toxicity Designation Tool

This table is included in the full designation tool. Use this if you are only interested in the WA state-only toxicity designation of your waste. Only enter text in yellow fields.

Cedar Hills Landfill TCE Soil Removal

<- Start Here

Applicable State-Only Toxicity Waste Codes

Chemical	CAS No.	Concentration Weight %	Reference	Fish LC_{50} mg/L	Rat Oral LD_{50} mg/kg	Rat Inhalation LC_{50} mg/L	Rabbit Dermal LD_{50} mg/kg	Toxic Category
Input Chemical Name	Input CAS number must include dashes, e.g., 108-88-3	Input as a percent. Include the % sign, e.g., 15.5%. To convert mg/kg to percentage, divide mg/kg by 10,000 (input with % sign).	Cite toxicity data source, e.g., RTECS or EcoTox	< 0.01	< 0.5	< 0.02	< 2	X
				0.01 - < 0.1	0.5 - < 5	0.02 - < 0.2	2 - < 20	A
				0.1 - < 1	5 - < 50	0.2 - < 2	20 - < 200	B
				1 - < 10	50 - < 500	2 - < 20	200 - < 2,000	C
				10 - 100	500 - 5,000	20 - 200	2,000 - 20,000	D
1,1,1-Trichloroethane	71-55-6	0.00000037%	TOXNET		10,300.0			
1,1-Dichloroethane	75-34-3	0.00000071%	TOXNET		14,100.0			
1,2,3-Trichlorobenzene	87-61-6	0.0000043%	TOXNET		756.0			D
1,2,4-Trimethylbenzene	95-63-6	0.000058%	TOXNET			2,000.00		
1,2-Dichloroethene, cis-	156-59-2	0.00075%	TOXNET	135.00				
1,2-Dichloroethene, trans-	156-60-5	0.000012%	TOXNET		1,235.0			D
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	0.000019%	TOXNET	20.57				D
1,4-Dichlorobenzene	106-46-7	0.00000016%	TOXNET		6,000.0			
2-Butanone (MEK)	78-93-3	0.00021%	TOXNET			5,000.00		
2-Hexanone (Methyl butyl ketone)	591-78-6	0.000029%	TOXNET		2,590.0			D
Acetone	67-64-1	0.000037%	TOXNET		10.7			B
Benzene	71-43-2	0.0000002%	TOXNET		3,306.0			D
Bromomethane (Methyl bromide)	74-83-9	0.00001%	TOXNET			0.63		B
Carbon disulfide	75-15-0	0.00000043%	TOXNET		3,188.0			D
Chloroethane	75-00-3	0.0000003%	TOXNET			152.00		D
Cymene, p- (4-Isopropyltoluene)	99-87-6	0.0000096%	TOXNET		4,750.0			D
Dichloromethane (Methylene chloride)	75-09-2	0.000015%	TOXNET		1,600.0			D
Ethylbenzene	100-41-4	0.000023%	TOXNET		3,500.0			D
Isopropylbenzene (Cumene)	98-82-8	0.0000033%	TOXNET			8,000.00		
m,p-Xylene	179601-23-1	0.00011%	TOXNET					
m-Xylene	108-38-3	0.00011%	TOXNET	8.40				C
p-Xylene	106-42-3	0.00011%	TOXNET	2.60				C
Methyl iodide (Iodomethane)	74-88-4	0.000015%	TOXNET		76.0			C
Methyl isobutyl ketone (4-Methyl-2-pentanone or (MIB	108-10-1	0.00000036%	TOXNET			8.20		C
Naphthalene	91-20-3	0.000017%	TOXNET		26.0			B
n-Butylbenzene	104-51-8	0.0000068%	TOXNET		1,994.5			D
n-Propylbenzene	103-65-1	0.000009%	TOXNET		6,040.0			
o-Xylene	95-47-6	0.000058%	TOXNET			6,350.00		
sec-Butylbenzene	135-98-8	0.000004%	TOXNET		2,240.0			D
Tetrachloroethene (PCE)	127-18-4	0.000099%	TOXNET		2,400.0			D
Toluene	108-88-3	0.00026%	TOXNET		2,600.0			D
Trichloroethene (TCE)	79-01-6	0.00025%	TOXNET		1,282.0	12,000.00		D
Vinyl chloride	75-01-4	0.0000076%	TOXNET			390.00		
Gasoline range hydrocarbons	8006-61-9	0.00002%	TOXNET		14,063.0			
Mercury	7439-97-6	0.000000005%	TOXNET	0.35				B
		0.000000%						

Equivalent Concentration

$$\frac{0.00\%}{1}\ \text{X} + \frac{0.00\%}{10}\ \text{A} + \frac{0.00\%}{100}\ \text{B} + \frac{0.00\%}{1{,}000}\ \text{C} + \frac{0.00\%}{10{,}000}\ \text{D}$$

0.0000%
Waste Code: NA
Designation: Non-toxic

Waste Code	Designation	Min %
WT01	EHW	1%
WT02	DW	0.01%
WT02	DW or Special Waste	0.001%