

**CAPPED LEAD-ARSENIC SOIL,  
REDEVELOPMENT  
OBSERVATIONS, AND TESTING  
SUMMARY  
REPORT**

**Apple Valley Elementary School  
7 North 88<sup>th</sup> Avenue  
Yakima, Washington 98908**

**Facility/ Site ID: 3464749  
Cleanup Site ID: 882**

Project Number: 192784.04

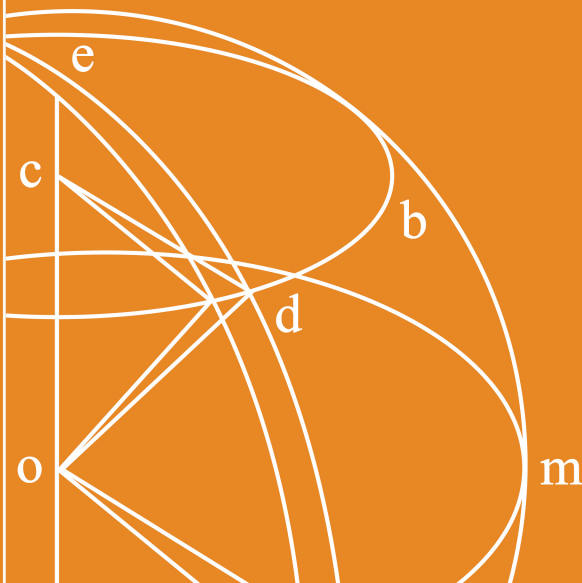
Date: November 22, 2022

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**Report Title:** Capped Lead-Arsenic Soil Redevelopment Observation, and Testing Summary Report  
**Project Number:** 192784.04  
**Date:** November 23, 2022  
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## 1.0 INTRODUCTION

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Fulcrum Environmental Consulting, Inc. (Fulcrum) was retained by the West Valley School District to complete soil remediation design, observation and testing services associated with lead-arsenic impacted soil encountered during renovation and new construction of the Apple Valley Elementary School campus located at 7 North 88<sup>th</sup> Avenue in Yakima, Washington (subject site or site). The property is identified by the Washington State Department of Ecology (Ecology) as Apple Valley with Facility/Site ID: 3464749 and Cleanup Site ID: 882. See Figure 1 for the general site location.

The planned soil remediation associated with the site redevelopment is consistent with Ecology's Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington (Publication 21-09-006). The planned construction project included the following soil-impacting activities:

- Demolition of former elementary school buildings and removal of old asphalt bus loops and parking lots.
- Re-grading of the site, including: segregation of previous protective clean soil cap for stockpiling for onsite reuse as a portion of replacement of the soil cap.
- Installation of new geotextile-type fabric and clean soil over existing contaminated soil.
- Construction of two new parking lots in the north and west portion of the property, and the main campus building.
- Excavation and construction of three underground stormwater features and one stormwater retention pond.
- Utility trench excavation and utility installation beneath the main campus building.
- Construction of walkways adjacent to and connecting the main campus building and a walkway along the perimeter of the site.

After initial redevelopment and placement of the protective barrier, a permit dispute was filed with the City of Yakima and the West Valley School District regarding the elevation of the play field in the southern portion of the site. In April 2022 a settlement agreement was approved to lower the grade of the playfield. The regrading of the southern playfield area occurred from July to August 2022 and included the following soil-impacting activities:

- Re-grading of the south playfield, including: removal of sod and segregation of previous protective clean soil cap for stockpiling for onsite reuse as a portion of replacement of the soil cap.
- Removing a portion of underlying contaminated soil to meet the new grade requirements. Excavated contaminated soils were taken offsite to a disposal facility.
- Importing additional clean soil to complete proper reconstruction of the playfield area.
- Installation of new geotextile-type fabric, clean soil, and sod to complete the reinstallation of the south playfield's protective barrier.

See Section 9.2 for a summary of the redevelopment.

Prior to Site redevelopment one historic investigation had been completed:



- A *Site Hazard Assessment* in 2006 that identified the overall hazard ranking and confirmed the presence of residual lead and arsenic concentrations associated with information collected by the Washington State Department of Ecology (Ecology) in 2005.

The purpose of this report is to summarize the site development activities, soil testing, site monitoring, analytical laboratory results, and remedial or interim actions used to manage agricultural chemical impacted soils as well as final site conditions.

## **2.0 SITE DESCRIPTION**

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The Apple Valley Elementary School campus is located at 7 North 88<sup>th</sup> Avenue in Yakima, Washington. The property is identified by Yakima County as Parcel Numbers 18131942022 and 18131942006. See Figure 1 in Appendix A for site location.

The Apple Valley Elementary School campus consists of two parking lots, the main campus building, a playground, and an athletic field (playfield). Three underground stormwater infiltration features are located in the southern and eastern portions of the property and a stormwater retention pond located in the northwest portion of the property.

### **2.1 Site Geology**

The subject site is located within the west portion of the City of Yakima and is west of the Yakima River. From a regional setting, the subject site is located within the Yakima Folds Geomorphic Province (YFGP) on the western margin of the Columbia River Plateau. The Yakima Fold Belt is generally characterized by anticlinal ridge and synclinal valley structures. The valley lowlands are composed of erosional sedimentary deposits including: alluvium, lacustrine, glacial, and glacial-fluvial materials with localized areas of windblown loess.

The Yakima River Basin (YRB) is located within the boundaries of the YFGP and extends from the northeastern slopes of the Cascade Mountain Range in Kittitas County to the confluence of the Yakima and Columbia Rivers in Benton County. The YRB consists of six structural aquifer basins and occupies 6,200 square miles (USGS, 2006). The network of Yakima Basin aquifers is supplied by the headwaters of the eastern slopes of Cascade Mountain Range.

The subject site is located within the northwest portion of the Yakima Basin aquifer, which is in the central portion of the Yakima River Basin and encompasses the area south of the Yakima Ridge and north of the Ahtanum Ridge. The basin is characterized by the east-west trending Ahtanum-Moxee Syncline. The basin fill deposit stratigraphy ranges in total thickness from 0 to 1,840-feet with the greatest thickness present in the northwestern portion of the basin. Basin fill deposits consist predominantly of alluvial, alluvial fan, loess, terrace, Thorp gravel, and Ellensburg Formation deposits.



According to the Washington Division of Geology and Earth Resources Open File Report 2005-3, Digital 1:100,000-scale geology of Washington State, the subject site lies on Quaternary age terraced stream deposits.

Two soil types were reported to be present at the site location and are identified as *Cowiche loam* and *Harwood loam* by the U.S. Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey (WSS).

*Cowiche loam* represents approximately 88.2% of the subject site and is described as not hydric and well drained with a moderately high to high infiltration rate with the following horizon profile:

- Loam – surface to 45-inches below ground surface (bgs)
- Loam fine sand, very fine sandy loam – 45 to 60-inches bgs

*Harwood loam* represents approximately 11.8% of the subject site and is described as not hydric and well drained with a very low to moderate infiltration rate with the following horizon profile:

- Loam – surface to 26-inches bgs
- Gravelly loam – 26 to 30-inches bgs
- Cemented material – 30 to 34-inches bgs

The elevation of the site is approximately 1,280 feet above mean sea level (msl). The property is bounded to the west by North 88<sup>th</sup> Avenue.

### **3.0 SCOPE OF WORK**

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The purpose of Fulcrum's observation and testing was to document work practices and final site conditions that were designed to prevent the exposure of staff, residents, the public, and the environment of lead and arsenic impacted soils. Remedial activities were completed pursuant to Ecology's Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington (Publication 21-09-006). Prior to site work, Fulcrum authored a site-specific Soil Remediation Plan to identify the appropriate Model Remedy and associated implementation of said methods for site remediation tasks that occurred during 2020, 2021 and 2022 construction activities.

Proposed remediation actions are designed to comply with applicable requirements under Ecology's Model Toxic Control Act (MTCA). The Soil Remediation Plan identified Model Remedy Number Three, Cap in Place, as the most appropriate remedy for the project. Fulcrum notified Jeff Newschwander with Ecology that the planned facility development activities would disturb contaminated soil onsite and that capping materials would be installed at the conclusion of the project. This report was prepared to demonstrate that contaminated site soils identified from previous investigations are currently being managed with a protective cap to eliminate exposure to the maximum extent practicable.



Fulcrum's scope of services for the completed construction and redevelopment activities for the property was limited to Ecology notification and coordination; periodic mitigation implementation observation during construction; confirmation sampling, analysis and reporting for stormwater infiltration locations; review of analytical results associated with soil importation; and post project reporting related to the presence of lead and arsenic and associated mitigation measures implemented.

During onsite redevelopment, landscape and near surface vegetation was removed from the site. Ground elevations were graded to new subgrade elevations to facilitate the construction of the new elementary school campus. Project design minimized site soil export to the extent feasible. A portion of site soils were exported during this project to the proper disposal facility; all contaminated soil will be capped beneath a protective barrier at the conclusion of the project.

At the conclusion of grading, the soil surfaces were finished with one of the following:

- Geotextile fabric and 12-inches or more of clean topsoil and sod
- 4-inches of gravel and 2-4 inches of concrete or asphalt
- Geotextile fabric and 4-inches of rock

Proposed remediation actions were designed to comply with applicable requirements under MTCA. After remediation, Fulcrum will submit necessary information to support a request for a No Further Action (NFA) determination from Ecology under the Voluntary Cleanup Program (VCP). An Environmental Covenant will be recorded on the site at the conclusion of the project.

#### **4.0 PROJECT BACKGROUND**

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Properties in Yakima Valley are commonly found to have elevated levels of arsenic and lead in site soils as a result of past apple and pear orchard land use. Historical aerial photographs do not indicate whether or not this site was used as orchard land prior to 1947. Depth of lead and arsenic contaminants typically extends from the surface to more than 4 feet below existing grade.

In 2005, Ecology evaluated site soil conditions with X-ray fluorescence (XRF) and laboratory analysis to screen for lead and arsenic presence in the top 6-inches of soil at 100 school campuses. West Valley School District campuses were included in Ecology's investigation and Apple Valley Elementary School was prioritized for Ecology cleanup because the levels of contamination were both above MTCA cleanup level standards and high relative to the other school sites sampled.

In 2012, Ecology capped areas of the site not covered with asphalt, concrete or building footprint with a fabric marker material overlain with approximately 8-inches of clean soil. As a result of site grading and development since orchard use, the lead and arsenic concentrations are inconsistent across the site and are assumed to be no longer confined to the areas historically containing orchards. Additionally, Ecology's 2005 screening evaluation was limited to the top 6-inches of soil and may not represent concentrations found in deeper soil horizons.



## 5.0 PROJECT DESCRIPTION

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The project consisted of the following tasks:

- Excavation and removal of identified contaminated soils within stormwater infiltration features.
- Site observations during construction activities.
- Completion of soil sampling to confirm stormwater infiltration features infiltrate into clean soil.
- Complete air sampling and particulate monitoring during construction activities to assure minimization of dust migration.

Table D-1 in Appendix D provides a summary of observations collected and site activities performed by Fulcrum during site visits.

In addition, Fulcrum completed monitoring of airborne particulate, arsenic, and lead concentrations during construction activities.

This report is limited to a summary of soil testing and remediation activities within the recent construction zone. Field work was completed by Nicole McPhee, Environmental Geologist and was overseen by Peggy Williamson, Certified Hazardous Materials Manager, all with Fulcrum. See Appendix B for Fulcrum's professional certifications. See Appendix C for the draft Soil Remediation Plan.

The West Valley School District retained Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract. A 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor was onsite during all soil impacting tasks.

## 6.0 APPLICABLE REGULATORY GUIDANCE

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From a regulatory perspective, there are two main groups of regulations governing management and handling of site soils containing residual quantities of agricultural chemicals:

- Worker Protection: Governing the threat to worker health including Washington State Department of Labor and Industries (L&I) Department of Occupational Safety and Health (DOSH) Washington Industrial Safety and Health Act (WISHA) regulations.
- Environmental Protection: Governing the threat to general human health and the environment, such as the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA), Dangerous Waste and Stormwater regulations.

Following is a summary discussion of these two broad regulatory groups.



## 6.1 Worker Protection

Worker exposure regulations provide specific requirements for communication of potential chemical hazards to employees, exposure prevention training, and permitted levels of employee exposure to particulate and specific chemicals. These regulations are applicable whenever there is potential for worker exposure to hazardous chemicals. For sites contaminated with residual agricultural chemicals, engineering controls such as dust suppression and personal protective equipment (such as respirators and coveralls) are used to reduce potential exposure. Air monitoring is used to verify regulatory compliance.

### 6.1.1 Worker Protection Selected Criteria

The Soil Remediation Plan anticipated implementation of contractual requirements specific to worker protection regulations. The Construction Contractor will be required to develop and submit a worker protection plan. At a minimum, the contractor submitted worker protection plan will be required to include awareness level training for all employees, subcontractors and site visitors accessing the site during soil impacting activities. For employees and subcontractors whose work tasks involve soil impacting tasks the contractor will be further required to conduct additional training specific to reducing potential personal and community exposure; personal and equipment decontamination; means of measuring potential exposure; and engineering and institutional controls that will be implemented during construction to control potential exposure.

## 6.2 Environmental Protection

Washington State environmental protection regulations governing the project include MTCA, Dangerous Waste regulations, and Stormwater regulations. These regulations are discussed below:

### 6.2.1 Model Toxics Control Act Regulations

In March of 1989, the MTCA was enacted in Washington State. The MTCA regulations set standards to ensure quality of cleanup and protection of human health and the environment. Media regulated under MTCA include soils, sediments, and groundwater. A major portion of the MTCA regulations (completed in 1991 and subsequently amended) was the development of numerical cleanup standards and requirements for cleanup actions. Three options were established under MTCA for site-specific cleanup levels: Method A, B, and C.

Method A defines cleanup levels for 25 of the most common hazardous substances found at sites. Method B levels are set using a site risk assessment, which enables consideration of site-specific characteristics to determine minimum appropriate cleanup. Method C is similar to Method B; however, the individual substance's cancer risk portion of the assessment is set at 1 in 100,000 rather than 1 in 1,000,000. Method A and Method B can be used for establishing cleanup levels for unrestricted land use.

Rule amendments to MTCA, proposed in 1999 and which became effective August 15, 2001, changed the cleanup levels of some contaminants of concern. Currently the MTCA Method B numeric cleanup values are periodically updated in Ecology's Cleanup Levels and Risk Calculation (CLARC) database.



## 6.2.2 Area-Wide Soil Contamination Task Force

Environmental protection guidance for the remediation and management of soils associated with area-wide soil contamination are provided primarily by the Area-Wide Soil Contamination Task Force Report (Task Force). This report provides a review of guidance associated with impacted soils and the evaluation of groundwater conditions.

The Task Force, comprised of various Washington State agencies and stakeholders, was convened in 2002 to evaluate and make recommendations for future management of low to moderate level contamination in large geographic areas. The Area-Wide Soil Contamination Task Force Report (Task Force 2003) defines area-wide contamination as low to moderate level soil contamination that is dispersed over a large geographic area. The first contaminants designated for assessment were arsenic and lead accumulations in specific geographic areas associated with two primary sources, smelter operations in Puget Sound and agricultural use, specifically fruit orchards, in Central and Eastern Washington.

Further, the Task Force focused on understanding the nature and extent of area-wide soil contamination and making recommendations about effective, practical, and affordable steps individuals and organizations can take to reduce their potential for exposure to impacted soil. While these recommendations have not been implemented into Ecology's regulatory framework, they have been applied to many sites and are considered appropriate risk management tools by Ecology.

The Task Force Report includes tools that are appropriate for evaluating the human health and environmental threat associated with varying concentrations for arsenic and lead in soils in differing land-use scenarios, including residential, commercial, and industrial. Additional specific detail was applied to child play areas at education and daycare facilities.

For commercial property, concentrations within the low to moderate range constitute the lower range of remediation action levels. Such levels may present health and environmental risks, but are generally lower than concentrations found in industrial wastes and/or present as a result of localized spills.





### 6.2.3 Model Remedies

In 2021, Ecology finalized the guidance document Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington (Model Remedies).<sup>1</sup> Under WAC 173-340-390: Model Remedies, for sites where the contaminants are well understood and industry standard remediation approaches are used, a streamlined and accelerated cleanup selection process can be used. The Draft Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington provides four model remedies from which to choose:

- Model Remedy 1 – Excavation and Removal
- Model Remedy 2 – Mixing
- Model Remedy 3 – Capping in Place
- Model Remedy 4 – Consolidation and Capping

Each of the model remedies provide remedial approaches that can result in full remediation (referred to as a permanent solution), by mixing to achieve presence of clean soils in the upper elevation of the soil, or use of soft and hard barriers to prevent access to contaminated soils.

As provided in the Model Remedies document, Site redevelopment will consist of implementation of Model Remedy 3 - Capping in Place as legacy pesticides are present above the MTCA Method A cleanup levels. Site redevelopment will consist of building demolition, careful removal of current clean capping materials, mass grading to achieve new grade elevations, installation of underground utilities, construction of road, sidewalk, buildings and other hard surfaces, installation of underground stormwater infiltration trenches, stabilization of disturbed soil and installation of new barrier fabric and a clean soil cap.

### 6.2.4 Groundwater

The Task Force Report stated that most lead and arsenic remains in near-surface soils. Investigation of the subject site is consistent with this finding and indicated that contaminants remain in the near-surface. As a result of the near surface lead and arsenic, Ecology reports that “there does not appear to be evidence of groundwater contamination associated with area-wide soil contamination” (Task Force 2003). Additionally, there are no reported findings of area-wide groundwater contamination associated with lead, arsenic use.

### 6.2.5 Dangerous Waste

Ecology’s Dangerous Waste regulations implement the Hazardous Waste Management Act of 1976 as amended in 1980 and 1983, and implements in part Subtitle C of the Resource Conservation and Recovery Act (RCRA) in Washington State. A major portion of the Dangerous Waste regulations is the differentiation between solid and dangerous waste. Surplus soil exported from this site may be considered, by definition, a solid waste. Materials that are classified as solid wastes require additional assessment to determine if they will characterize as dangerous waste prior to export offsite.

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<sup>1</sup> *Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington*, Washington State Department of Ecology, Publication 21-09-006, July 2021, <https://apps.ecology.wa.gov/publications/documents/2109006.pdf>





### 6.2.5 Stormwater

In 2001, a chartering meeting was held in Moses Lake and a steering committee was formed to work with Ecology and a consultant on the completion of a Stormwater Management Manual and a Model Municipal Stormwater Program for Eastern Washington. Stakeholder workshops, public meetings, and draft documents were conducted in 2002 and 2003. Comments resulting from these endeavors were incorporated into the final Manual which was released in October 2004. The Stormwater Management Manual of Eastern Washington (SWMMEW) has been updated every five years since. The current Manual was released in August 2019.

A Stormwater Pollution Prevention Plan (SWPPP) was developed for the project by Chervenell, and published under separate cover. Portions of the SWPPP overlapped with remediation tasks. To the extent feasible, the SWPPP and Soil Remediation Plan objectives were aligned to streamline contractor accountability during construction.

### 6.3 Selected Environmental Protection Criteria

During completion of the project two separate environmental protection criteria have been selected. The first for establishing cleanup levels to assist with site evaluation and the second to guide remediation efforts. These two criteria sets are present as follows:

#### 6.3.1 Cleanup Level Selected

The MTCA Method A Unrestricted Site Use levels defined in Ecology’s WAC 173-340, have been used as a threshold for determining the need for remediation or management of site soils. Ecology’s MTCA Method A contaminant concentrations are appropriate for unrestricted site use and are therefore appropriate for use as a screening criteria. Where Method A concentrations have not been established, Standard Method B Formula Values for Soil (Unrestricted Land Use) – Direct Contact (Ingestion Only) were utilized. The following table presents the applicable MTCA Method A and Method B values as presented in Ecology’s CLARC summary in June 2018. The screening thresholds selected are shown in **Bold**.

**Table 1: Site Screening Criteria for Residual Concentrations**

Contaminant of Concern	MTCA Threshold Method (A) ppm	MTCA Threshold Method B Carcinogen ppm	MTCA Threshold Method B Non-carcinogen ppm
Arsenic	<b>20</b>	0.67	24
Lead	<b>250</b>	NR	NR

NR Not Researched

Under the Remediation Plan, areas of the site where contaminant concentrations are below MTCA cleanup levels will not require remediation effort.



### 6.3.2 Remediation Level Selected

Remediation levels have been selected based on site-specific characteristics for application during this project and include criteria for site soils and offsite soil disposal.

#### Lead and Arsenic in Site Soil

Areas of the site with documented concentrations greater than the MTCA Method A concentrations for lead and arsenic, but within the Task Force Report defined low to moderate levels for commercial property, are considered appropriate for in-place management and onsite remediation. The following Table summarizes the low to moderate risk levels defined by the Task Force Report for commercial property.

**Table 2: Lead and Arsenic Soil Contamination Concentrations**

Contaminant of Concern	Task Force Commercial Property Low to Moderate Value
Arsenic	≤ 200
Lead	700 - 1000

Soils with concentrations greater than the Task Force low to moderate levels will be characterized as potential dangerous waste prior to being exported off site to applicable disposal facilities.

#### Waste Soil Disposal Criteria

Project planning includes maximum use and management of existing site soils at the site. However, soils that are determined to be surplus through existing site demolition and mass grading will require export from the site. Existing site soils determined to be suitable for compaction will be used for site leveling and to backfill new building foundations.

Although surplus soil was not anticipated to be generated from site demolition and mass grading activities and can be reasonably segregated, the Soil Remediation Plan anticipates that any surplus soil will be managed in one batch. Fulcrum completed waste characterization of site soils stockpiled for disposal, in July 2020. The *Dangerous Waste* threshold is 5 mg per Liter (mg/L) for both lead and arsenic as measured using the toxic characteristic leaching procedure (TCLP). Laboratory results of toxic characteristic leaching procedure (TCLP) analysis identified arsenic concentrations of 0.319 mg/L and lead concentrations of <0.100 mg/L from the soil samples with the highest initial concentrations of arsenic and lead in the stockpiled site soils. TCLP analysis determined site soils would not be considered *Dangerous Waste* as specified in WAC 173-303-090.

Based on the past waste characterization results, if generated during the project, soils will be disposed of as special solid waste at an appropriately permitted off-site landfill.



## **7.0 REMEDIAL DESIGN**

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The selected remedial plan was designed to effectively manage soils on-site. The intent of the design was to reduce potential future inhalation and ingestion exposure through placement of a barrier over impacted soils. Furthermore, future off-site migration of residual agricultural chemicals will be reduced through modifications to stormwater design and landscaping selection. See Appendix C for the draft Soil Remediation Plan.

The design team consists of the site owner, architects, engineers, environmental consultant, and contractor. The team's objective will be to evaluate the effectiveness, cost, and practical applicability of the various remedial design constraints. Through design team meetings, the following remedial design tasks were determined to be the most practical and effective means of achieving the remedial design intent.

### **7.1 Pre-Design Activities**

All soils present in the project area were assumed to be contaminated based on previous sampling.

Prior to construction activities, existing site soils were capped with existing building footprints, asphalt parking and driving areas, and in landscape areas fabric and about 10-inches of clean soil.

### **7.2 Pre-Construction Activities**

Prior to actual site construction activities, a dust control plan was developed by the selected contractor. The primary means of dust control was application of water prior to and during excavation activities. Other parameters that were used for dust control was work activity limits as a function of weather (low wind), and timely application of temporary or permanent barriers.

Effectiveness of dust control plan was assessed visually and periodically measured. Control measures were considered sufficient when equipment-generated dust did not extend beyond the impacting equipment by more than the length of the equipment. For example, given the impacting equipment is approximately 20 feet in length, resultant dust cloud did not extend more than 20 feet beyond equipment perimeter. Engineering controls were designed to prevent dust from drifting beyond property boundaries.

Two types of quantitative dust measurements were conducted. To assess effectiveness of the dust mitigation work practices, particulate, arsenic, and lead air samples were collected periodically from the project area perimeter by means of a personal sampling pump and filter cassette. A real-time dust detector was additionally periodically utilized to confirm compliance with the National Emission Standard for Hazardous Air Pollutants (NESHAPs) and Ecology and the Yakima Regional Clean Air Agency's environmental nuisance dust regulations. A discussion of particulate monitoring is discussed in Section 9.0.



### **7.3 Excavation Activities**

The intent of planned excavation elements was to keep all contaminated soils on-site and to minimize potential exposure by minimizing handling of soils. However, net export of soils was considered as a portion of remedial design and facilitated surplus soil generation during this project. All contaminated soil not designed for reuse onsite for site leveling and foundation backfill was placed under protective capping materials or was exported offsite to DTG Recycle Anderson Rock & Demolition Pit for disposal.

The existing site buildings were demolished prior to the site being mass graded to final contours. Gravel would be laid and compacted beneath areas of hard surface cover including paved areas associated with walking paths and parking areas. Timely covering of these areas with gravel would effectively reduce the potential for worker exposure during subsequent construction activities.

Following final grade and installation of concrete and asphalt, areas of the site not covered by impermeable materials would be final landscaped. Landscaped areas will be overlain with geotextile fabric and either approximately 10-inches of suitable topsoil free of residual agricultural chemicals and 2-inches of sod; 12-inches of clean topsoil and hydro-seeded grass, compacted gravel, or bark; or 4-inches of rock barrier. Remedial design included athletic fields and landscaped areas.

At this point the site will be effectively capped and the potential for inhalation and ingestion exposure effectively mitigated.

Further impact of agricultural chemical-impacted soils was not anticipated during subsequent construction activities

### **7.4 Institutional Controls**

Two institutional controls were chosen to augment engineering controls designed into the site development plan and include:

- An engineering control management plan will be developed in the form of an Operations and Maintenance Plan.
- A notification will be placed on public record in the form of a restrictive covenant on the property title.

Both the engineering control management plan and restrictive covenant placed on the property title will remain in effect.



## **8.0 CONSTRUCTION OBSERVATION AND SOIL TESTING**

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Construction activities were completed between April 2020 and October 2021. The regrading of the playfield area was completed during July and August 2022. Table D-1 in Appendix D contains a summary of events related to soil observations, testing, and remediation at the site.

### **8.1 Construction Observation**

Soil impacting work was periodically observed by Fulcrum to document that appropriate soil handling methods were being followed. The purpose of these observations was to ensure that the earthworks contractor was documenting site conditions, including soil impacting activities. Fulcrum's site visits were conducted as part of the environmental construction monitoring and documentation of site development activities (i.e. handling, stockpiling, and/or reuse of impacted soils on site). During Fulcrum's site visits the civil contractor's work practices were found to be consistent with the remedial design and industry standard of care for soil with agricultural chemical impact.

During field visits, Fulcrum documented the field activities occurring at the time including: any excavation, stockpiling, and disposition of soil, changes in site conditions from previous site visits, and conformance with the Soil Remediation Plan. Based on Fulcrum's observations of construction activities, soil impacting activities completed as part of site re-development were performed in conformance with the Remedial Design.

All soil excavated from stormwater infiltration areas, building footings, utility corridors, and other excavation grading activities were either staged adjacent to each excavation or consolidated in a stockpile located in the south portion of the property prior to reuse onsite. Building foundations and utility corridors were backfilled with existing site soils.

Soil sample collection in the construction areas was also performed to confirm lead (Pb) and Arsenic (As) concentrations at final stormwater infiltration feature design elevations. See Table D-1 in Appendix D for a summary of Fulcrum's site observations.

Samples collected from all stormwater features were documented to have lead and arsenic concentrations below MTCA Method A cleanup levels.

See Appendix E for a copy of soil testing memorandums issued by Fulcrum for each sampling event. Sampling locations, site figures, analytical results including laboratory reports, and results discussion are included with each memorandum.



## **8.2 Construction Observation – Playfield Regrading**

In October 2021, a dispute was filed with the City of Yakima and the West Valley School district regarding the elevation of the playfield in the southeast portion of the property. In April 2022, a settlement agreement was approved to lower the elevation of the playfield.

The settlement agreement approved the moving of the top of the slope in the southeast corner inward towards the school by approximately 20-feet and changing the slope from a 5:1 slope to an 8:1 slope. Construction for the regrading of the southern playfield area occurred from July through August, 2022. Fulcrum returned to site for weekly site inspections to document and observe the field activities occurring during the regrading of the playfield.

Soil impacting activities associated with the regrading of the playfield was limited to the southeast portion of the property. The sod from the protective barrier was removed and taken offsite for disposal. Underlying clean soil was stockpiled in the west portion of the construction area awaiting redistribution. Underlying contaminated soil and the geotextile fabric barrier was removed and stockpiled in the central portion of the regrading area for transport to DTG recycle facility in Yakima, Washington for disposal.

Following removal of the contaminated soil, new geotextile fabric was placed on the contaminated soil and clean soil was redistributed across the fabric. New sod was imported and placed on the clean soil barrier, completing the replacement of the protective barrier for the playfield regrade area in the southeast portion of the property.

## **8.3 Clean Soil Source**

About 1,100 cubic yards of clean soil for the redevelopment project, was imported to the site from the Summitview Elementary School campus located at 6305 West Chestnut Avenue in Yakima, Washington. Additional clean soil was imported from Caton's Landfill located at 1500 Naches Wenas Road in Naches, Washington, to the site to complete the site capping both for the redevelopment and the playfield regrading portions of the project.

See Appendix H for a copy of the soil analytical results for the clean soil sources identified for site import.



## **9.0 AIR MONITORING**

---

Fulcrum completed monitoring of particulate concentrations and lead and arsenic concentrations in air during construction activities in order to assure dust migration was minimized.

### **9.1 Particulate Monitoring**

Particulate monitoring of construction activities was completed on twenty three separate site visits.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 or a Particles Plus Model 8306 handheld particulate meter to measure airborne particulate concentrations. The sampling events consisted of two consecutive readings per sample location collected within a time duration of approximately 1 to 2 hours. Measurements were collected along the perimeter of the property and included upwind and downwind locations; wind direction shifts were noted during the sampling activity.

Immediately after particulate surveys, Fulcrum determined if dust suppression efforts were sufficient, or if additional modifications to the work practices and engineering controls would be required to lower concentrations of airborne particulates.

In general, measured particulate concentrations across the site were relatively consistent, with occasional inconsistencies identified as being attributed to wildfire smoke or vehicles/equipment moving near the particulate meter during the sample measurement.

See Appendix G for copies of site visit particulate monitoring memos.

### **9.2 Air Monitoring**

During air sampling, Fulcrum collected air samples from the perimeter of the property to evaluate airborne concentrations of arsenic, lead, and total particulates. All measured concentrations of lead, arsenic and total particulate were below the DOSH PELs. See Section 10.2 for air sampling analytical results.

See Appendix F for copies of site visit air monitoring memos.



## 10.0 LABORATORY ANALYTICAL RESULTS SUMMARY

Fulcrum completed both soil sampling and air sampling as a portion of construction activity monitoring. Prior to stormwater feature construction, soil samples were collected from the base design elevation of each infiltration facility planned for construction. Air samples were collected to evaluate dust migration during soil disturbing activities.

### 10.1 Laboratory Results – Soil Sampling

Fulcrum collected soil samples from site stormwater features during two events. The purpose of soil sampling was to confirm stormwater infiltrated into clean soil.

All soil samples were collected from the undisturbed soil by hand directly into laboratory provided borosilicate glass jars. Each sampling container was individually labeled with a unique sampling identifier. All project samples were shipped by commercial carrier under chain of custody to Fremont Analytical, Inc. (Fremont) in Seattle, Washington for analysis. All samples were analyzed by EPA 6020 series methods for total arsenic and total lead.

All results are presented in milligrams per Kilogram (mg/Kg). Results above applicable MTCA Method A cleanup levels are presented in bold. Depths are presented in approximate feet bgs. See Appendix E for Fulcrum’s summary memorandums including full laboratory reporting for each event.

**Table 3: Laboratory Analytical Results Summary for Soil Testing at Apple Valley Elementary.**

Sample ID	Location	Depth (ft) <sup>1</sup>	As	Pb
070620-01	Large Southwest Basin – Southeast corner	8	<b>32.2<sup>2</sup></b>	64.3
070620-02	Large Southwest Basin – South west corner	8	<i>6.04</i>	<i>6.29</i>
070620-03	Large Southwest Basin – Western side	8	<i>3.62</i>	<i>2.43</i>
070620-04	Large Southwest Basin – Northwest corner	8	<i>2.21</i>	3.48
070620-05	Large Southwest Basin – Northeast corner	8	<i>9.22</i>	30.3
071020-01	Small Southwest Basin – Western side	8	<i>10.3</i>	6.96
071020-02	Small Southwest Basin – Center	8	<i>8.02</i>	20.4
071020-03	Small Southwest Basin – Eastern side	8	<i>5.53</i>	2.65
072020-01	Northeast Basin – Southwest quadrant	6	<i>2.42</i>	3.57
072020-02	Northeast Basin – Northwest quadrant	6	<i>3.54</i>	8.05
072020-03	Northeast Basin – North central quadrant	6	<i>12.5</i>	8.92
072020-05	Northeast Basin – South central quadrant	6	<i>4.87</i>	5.89
072020-06	Northeast Basin – Northeast quadrant	6	<i>13.6</i>	5.24
072020-07	Northeast Basin – Southeast quadrant	6	<i>6.88</i>	8.49
<i>Yakima Basin Background Soil Concentrations</i>			<i>5</i>	<i>11</i>
<b>MTCA Method A Cleanup Levels</b>			<b>20</b>	<b>250</b>

<sup>1</sup> Depth below final grade.

<sup>2</sup> See Large southwest basin memorandum for a summary of the statistical analysis complete for this location.

All soil sampled at the design elevation of stormwater infiltration features was identified with lead and arsenic concentrations below MTCA cleanup levels. As a result, no stormwater features required over-excavation; All stormwater generated onsite will infiltrate into clean soils.





### 10.1.1 Laboratory QA/QC Review

Fulcrum completed a review of all laboratory Quality Assurance/Quality Control (QA/QC) for the site:

The following data qualifiers were identified for the following:

- Work order No. 2004419, 2006177, and 2007292 required dilution (D) prior to lead analysis.
- Word order No. 2007153 required dilution (D) prior to both lead and arsenic analysis.

No other qualifiers were identified for the remaining sampling events. All analytical quality assurance parameters were within acceptable ranges.

### 10.1.2 Fulcrum QA/QC Review

Fulcrum collected one duplicate samples for about every ten samples collected for quality assurance purposes. Duplicate samples collected from the May 12, 2020 event consist of sample 051220-08.05 as a duplicate of 051220-03.05.

**Table 4: Quality Assurance Sample Evaluation**

Sample ID	Arsenic	Arsenic Percent Difference	Lead	Lead Percent Difference
051220-03.05 (Source Sample)	1.98	1.53%	5.64	3.48%
051220-08.05 (Duplicate Sample)	1.95		5.84	

Values are presented in mg/Kg

A calculation of the percent difference between the source and duplicate samples shows detected concentrations and reporting limits are generally less than ten percent difference between original and duplicate analysis.

Fulcrum’s review of duplicate sample analysis demonstrates laboratory analysis is satisfactory and should not affect project data or objectives.

## 10.2 Laboratory Results – Air Sampling

Fulcrum collected air samples during three events. All samples were collected from the perimeter of the site. Wind speed and direction was recorded during sampling activities. Air samples were collected to evaluate the total dust being generated onsite and lead and arsenic concentrations within the dust.

Samples were packaged and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory (#C910-20b), for analysis of the following:

- Total Metals by Environmental Protection Agency Method 6020 - Arsenic (As) and Lead (Pb)
- Particulates by Gravimetric Determination



Calculated results are reported in Table 5 in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) of air. Results above the DOSH PEL are listed in bold in the table below. See Appendix F for full laboratory reporting for each event.

**Table 5: Laboratory Analytical Results Air Summary for Apple Valley Elementary**

Sample ID	Sample Description	Arsenic ( $\mu\text{g}/\text{m}^3$ )	Lead ( $\mu\text{g}/\text{m}^3$ )	Total Particulate ( $\mu\text{g}/\text{m}^3$ )
<i>April 16, 2020 Event</i>				
041620-01	South - downwind	<0.0150	<0.0150	-
041620-02	East - downwind	<0.0166	<0.0166	-
041620-03	North - upwind	<0.0134	<0.0134	-
<i>April 30, 2020 Event</i>				
043020-01	South - downwind	-	-	5,818
043020-02	East - downwind	-	-	2,661
043020-03	North - upwind	-	-	4,546
<i>May 20, 2020 Event</i>				
052020-01	South - downwind	0.0243	0.200	395.3
052020-02	East - downwind	<0.0125	0.0922	396.0
052020-03	North - upwind	<0.0126	<0.0126	201.2
<b>DOSH PEL</b>		<b>10 <math>\mu\text{g}/\text{m}^3</math></b>	<b>50 <math>\mu\text{g}/\text{m}^3</math></b>	<b>10,000 <math>\mu\text{g}/\text{m}^3</math></b>

Lead and arsenic concentrations were relatively consistent across the site. Downwind particulate concentrations were on average slightly higher than upwind. All total particulate, lead, and arsenic air concentrations were well below identified DOSH PELs for all events.

#### 10.2.1 Laboratory QA/QC Review

Fulcrum completed a review of all laboratory Quality Assurance/Quality Control (QA/QC) for air samples collected from the site. No data qualifiers were identified on any of the laboratory report. All analytical quality assurance parameters were within acceptable ranges.

## 11.0 SOIL DISPOSAL

Fulcrum completed waste characterization in accordance with the Washington State Department of Ecology Dangerous Waste regulatory criteria. See Appendix E, Request for Disposal of Contaminated Soil Memorandum (dated: September 23, 2020), for waste characterization information.

About 4,460 cubic yards of contaminated soils were transported offsite by Tri-Valley Construction for disposal at DTG Recycle in Yakima, Washington during the initial redevelopment project.

About 276 cubic yards of construction debris, primarily sod, and about 660 cubic yards of contaminated soil was transported offsite by Tri-Valley Construction for disposal at DTG Recycle in Yakima, Washington during the playfield regrading project.



## **12.0 CHANGE ORDERS**

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The following sections summarize changes to the contractor specifications that occurred during the project.

Prior to final capping, Chervenell initiated a design change to the grade of the play field in the east and southern portions of the subject site. Excess stockpiled contaminated soils were utilized to elevate the original grade before placement of the protective barrier.

## **13.0 FINAL SITE CONDITIONS**

---

The remedial design approached site conditions with an intent to keep all contaminated soils onsite, utilize site conditions to place contaminated soils where they are unlikely to be accessed by the public, and utilize easily maintained asphalt, concrete, grass, and landscaping barriers to provide long-term protection to site occupants and the environment. See Appendix I for the Operations and Maintenance Plan.

Figure 2 in Appendix A shows final capping conditions of the site.

### **13.1 Residual Agricultural Chemical Concentrations**

By remedial design, soils with arsenic and lead concentrations above the MTCA Method A cleanup level remain onsite and covered with protective cap consisting of hardscaped features, or geotextile fabric with an overlain clean soil cap, a mulch cap, or a rock cap.

At all grass lawn areas clean soils were the remaining arsenic and lead containing soil was overlain with a geotextile fabric, 10-inches of clean soil and 2-inches of grass sod. In other landscaped areas around the buildings and along site walking paths the remaining contaminated soil was overlain with geotextile fabric and 4-inches of rock or mulch. Concrete and asphalt, underlain by compacted gravels, effectively cap site soils in the remaining areas of the redevelopment.

Remedial design ensured all impacted soils are covered beneath protective barriers to cap site soils. Site capping prevents inadvertent surface contact and windborne or mechanical (physical relocation) migration.

### **13.2 Sensitive Species or Environments**

No sensitive species or environments have been identified at the site. All media at this site containing agricultural chemicals above remedial threshold levels has been covered with impermeable surfaces or capped with clean landscaping materials. These protective barriers are being managed through institutional controls as presented in the Restrictive Environmental Covenant. Therefore, no future sensitive species or environments are likely to be threatened by the residual concentrations.

### **13.3 Known Potential Threats to Public Health**



Since all media with concentrations above MTCA Method A cleanup levels have been managed to prevent contact or off-site migrations, there is no known or potential threat to public health.

#### **14.0 LIMITATIONS**

---

Fulcrum Environmental Consulting, Inc. has performed professional services in accordance with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. The conclusions and recommendations are based upon our field observations, field screening, and independent laboratory analysis. The scope of services for this project is limited to Fulcrum's oversight and sampling activities during the remediation of arsenic and lead contaminated soil from the Apple Valley Elementary School Campus. This document does not imply that the property is free of other environmental concerns. This report is solely for the use and information of our client. Any reliance on this report by a third party is at that party's sole risk.

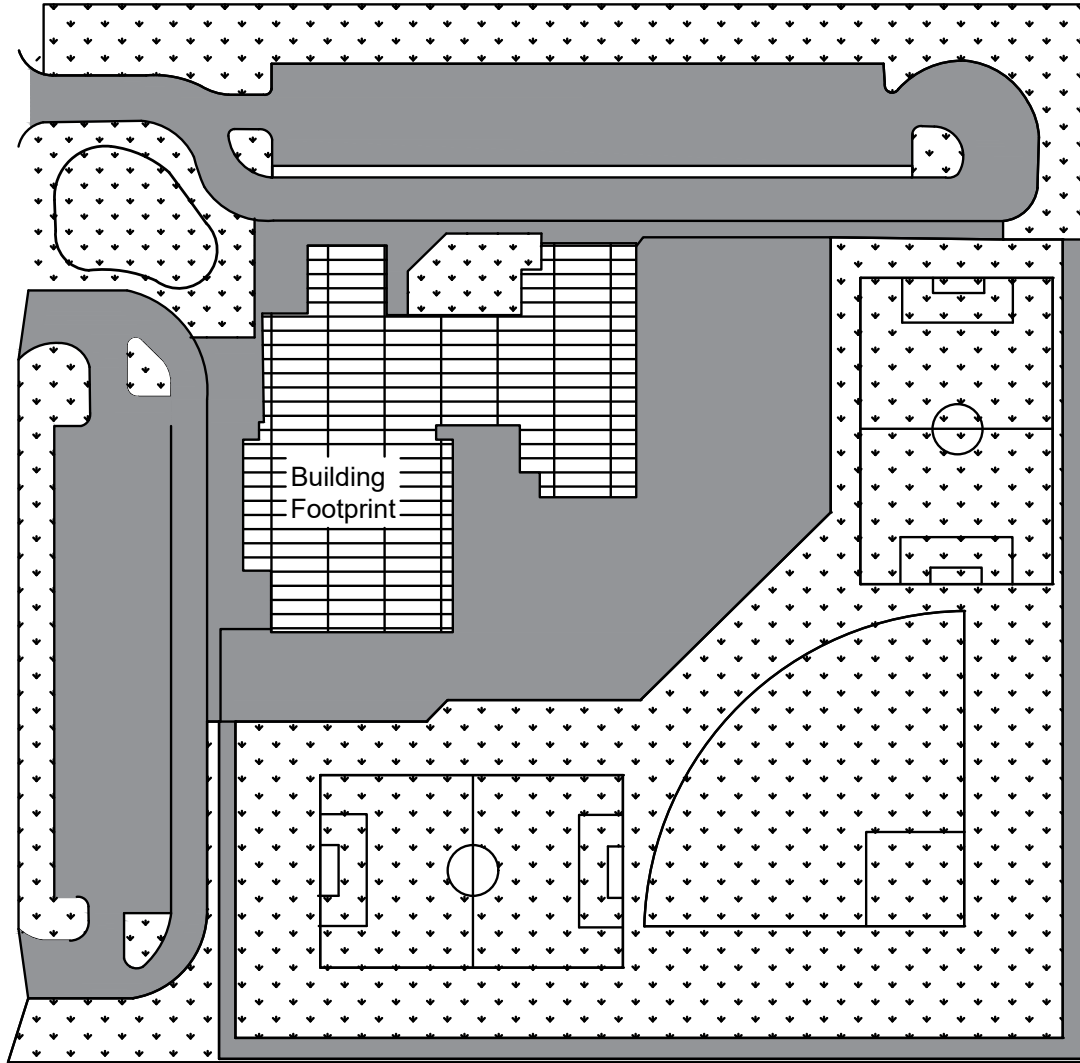
Opinions and recommendations contained in this report apply to conditions existing at the time services were performed. Fulcrum Environmental Consulting, Inc. is not responsible for the impact of changes in environmental standards, practices, or regulations subsequent to the performance of services. Fulcrum Environmental Consulting, Inc. does not warrant the accuracy of information supplied by others, or the use of segregated portions of this report. Fulcrum Environmental Consulting, Inc. assumes no liability for conditions that were not included in our scope of services, or conditions not generally recognized as predictable when services were performed.



## APPENDIX A

Figures





LEGEND



8 TO 10 INCHES OF CLEAN SOIL  
AND SOD OR LANDSCAPING



ASPHALT ROADWAYS, PARKING AREAS, AND SIDEWALKS



BUILDING FOOTPRINT





**APPENDIX B**

Fulcrum's Professional Certifications





THIS CERTIFIES THAT

Peggy S. Williamson

HAS SUCCESSFULLY MET ALL THE REQUIREMENTS OF EDUCATION, EXPERIENCE AND EXAMINATION, AND IS HEREBY DESIGNATED A

**CERTIFIED HAZARDOUS MATERIALS MANAGER®**  
**CHMM®**

05/01/1993

DATE OF CERTIFICATION

04189

CREDENTIAL NUMBER

05/31/2024

CERTIFICATION EXPIRES

  
EUGENE A. GUILFORD, JR.  
EXECUTIVE DIRECTOR



VERIFIABLE AS AUTHENTIC AT  
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Accredited by the American National Standards Institute and  
the Council of Engineering and Scientific Specialty Boards





# CERTIFICATE OF COMPLETION

This certifies that

**Nicole McPhee**

has successfully completed the course  
**HAZWOPER 8 hr Annual Refresher**



Course Duration  
8.0



Completion Date  
01/21/2022

Samantha Montalbano, Chief Operating Officer

5000 Plaza on the Lake, Suite 305 | Austin, TX 78746 | 877.881.2235 | www.360training.com

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(CUT HERE)

FOLD



This certifies that the person named below  
has successfully completed the

**Nicole McPhee**  
**HAZWOPER 8 hr Annual Refresher**

  
Samantha Montalbano, Chief Operating Officer

01/21/2022  
Completion date

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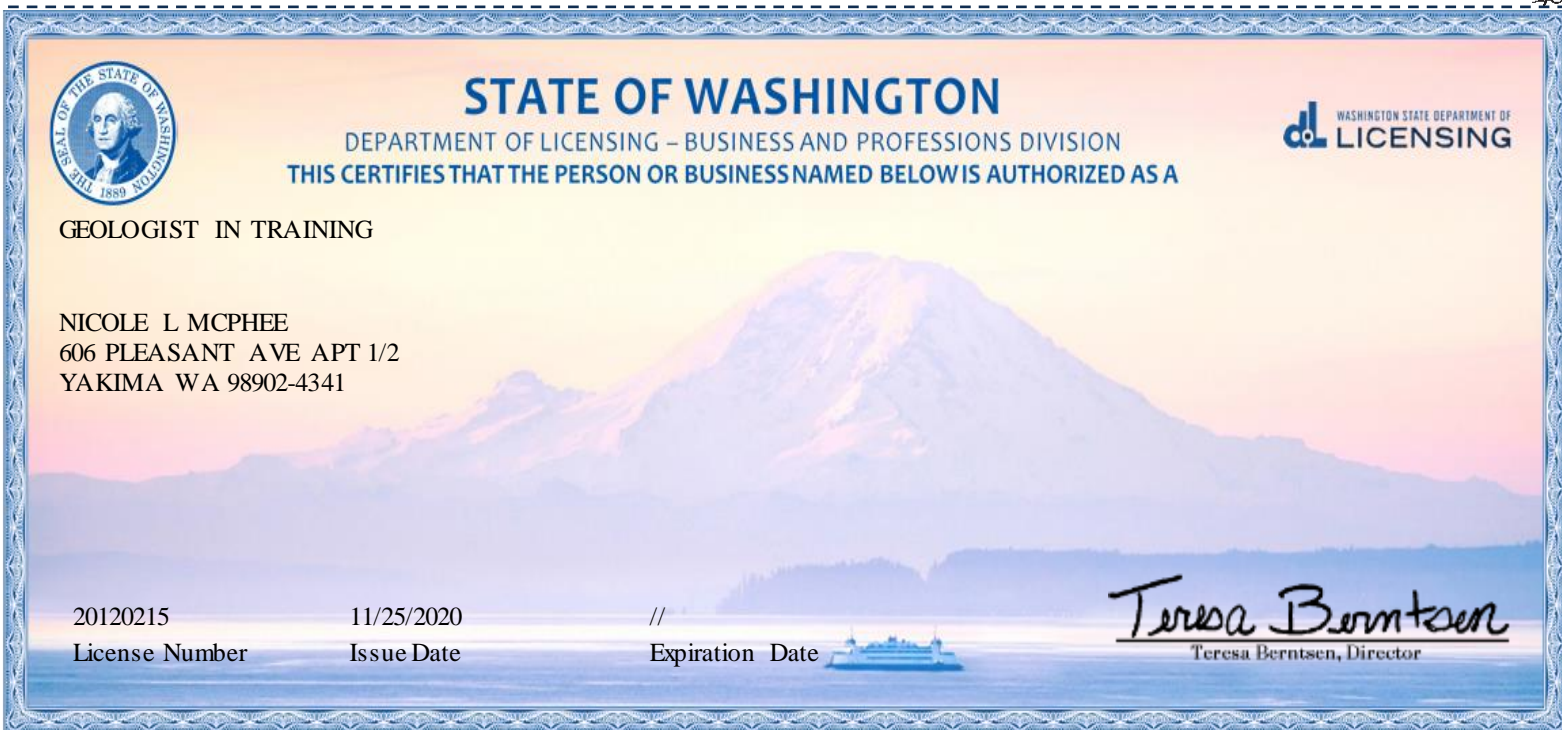
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**APPENDIX C**

Soil Remediation Plan



**LEAD AND ARSENIC**  
**CONTAMINATED SOIL**  
**REMEDiation**  
**DRAFT PLAN**

**Apple Valley Elementary School**  
**7 North 88<sup>th</sup> Avenue**  
**Yakima, Washington**

Project Number: 192784

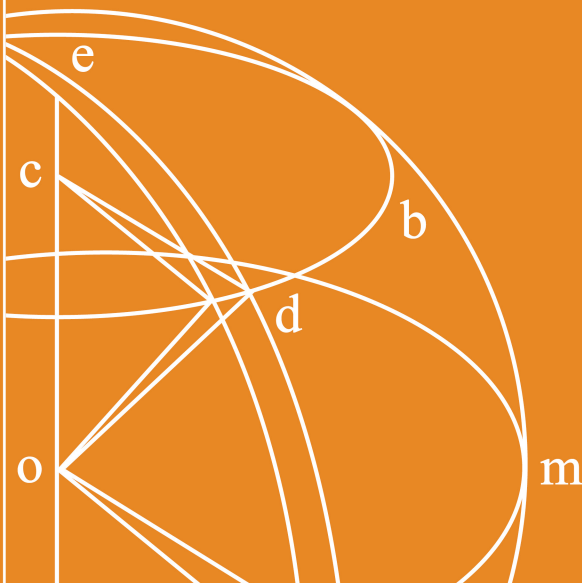
February 4, 2020

**Prepared for:**

West Valley School District  
Attn: Rob Gross  
8902 Zier Road  
Yakima, Washington 98908

**Prepared by:**

Fulcrum Environmental Consulting, Inc.  
406 North Second Street  
Yakima, Washington 98901





**Report Title:** Lead and Arsenic Contaminated Soil Remediation Draft Plan

**Project Number:** 192784

**Date:** February 4, 2020

**Site:** Apple Valley Elementary School  
7 North 88<sup>th</sup> Avenue  
Yakima, Washington 98908

**Prepared for:** West Valley School District  
Attn: Rob Gross  
8902 Zier Road  
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**Prepared by:** Fulcrum Environmental Consulting, Inc.  
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**Authored by:** \_\_\_\_\_ **Date:** 2.4.2020

Jeremy M. Lynn, LHG, PMP, Hydrogeologist  
Fulcrum Environmental Consulting, Inc.

**Reviewed by:** \_\_\_\_\_ **Date:** 2.4.2020

Peggy Williamson, CHMM, Principal  
Fulcrum Environmental Consulting, Inc.

**Report Integrity:**

*Fulcrum Environmental Consulting, Inc.'s scope of service for this project was limited to those services as established in the proposal, contract, verbal direction, and/or agreement. This report is subject to applicable federal, state, and local regulations governing project-specific conditions and was performed using recognized procedures and standards of the industry. Scientific data collected in situ may document conditions that may be specific to the time and day of service, and subject to change as a result of conditions beyond Fulcrum's control or knowledge. Fulcrum makes no warranties, expressed or implied as to the accuracy or completeness of other's work included herein. Fulcrum has performed these services in accordance with its contract with its client and with generally accepted environmental science standards of care at the time of the inspection. Except as provided in this paragraph and the client contract, no other warranty, expressed or implied, is made.*



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## 1.0 Introduction

The Apple Valley Elementary School campus is located east of 88<sup>th</sup> Avenue between Barge Street and West Chestnut Avenues in Yakima, Washington (site). Figure 1 in Appendix A shows the general site location. The West Valley School District (District) records indicate that the campus was constructed in 1950 with additions in 1962 and 1964. However, the site drawings are dated 1968 and were substantially consistent with the structure present in the photograph on this page.

The Apple Valley Elementary School campus was sampled in August 2005 as a portion of the Washington State Department of Ecology's (Ecology) area-wide lead and arsenic sampling program. Samples were collected from the upper six inches of soil using a core sampler and analyzed for lead (38 samples) and arsenic (40 samples) using X-Ray Fluorescence (XRF) Spectroscopy. The average arsenic concentration was 54 milligrams per kilogram (mg/kg) with a 95% upper confidence level (UCL) of 66 mg/kg and a maximum concentration of 124.2 mg/kg. Ecology's Model Toxic Cleanup Act (MTCA) Method A unrestricted site use value for arsenic is 20 mg/kg. The average lead concentration was 322 mg/kg with a 95% UCL of 465 mg/kg and a maximum concentration of 465 mg/kg. Ecology's Model Toxic Cleanup Act (MTCA) Method A unrestricted site use value for lead is 250 mg/kg.



*Aerial Photograph of General Site Layout*

### 1.1 Previous Ecology Remediation

In 2012 Ecology designed, supervised and funded an interim action at the Apple Valley Elementary School that consisted of capping existing soil with clean soil. The project included excavating contaminated soil at hardscape edges (pavement and foundations) to allow the soil cap to meet existing grade. The existing grass turf was then tilled to a depth of approximately six inches and flattened with a roller to form a base for the cap. Soil that was in excess of sub-base grade was exported for disposal at the Yakima County operated Terrace Heights landfill. A permeable geotextile fabric was then placed over the existing soil with 12-inch seam overlaps. A minimum of eight inches of clean soil from a previously tested offsite location was placed over the geotextile fabric and lightly compacted. Grass sod was placed as a finish over the fabric and soil cap. Play area pits were excavated to a depth of 16 inches and a four-inch layer of pea gravel was applied to the bottom as a drainage layer. The pits were then lined with geotextile fabric and filled to 2-inches below grade with engineered wood fiber. Bark mulch and rock gravel were used on other landscape areas. Also as a portion of the 2012 project modifications were made to the irrigation system and stormwater infiltration gallery.

### 1.2 Project Purpose and Description

The purpose of this soil remediation plan is to assist with demolition of the existing school buildings in the fall of 2019 and reconstruction of new elementary school buildings in the spring of 2020. The Apple Valley





Elementary School campus is identified as two separate parcels on the Yakima County Land Information Portal: parcel 18131942020 recorded as having three buildings of various sizes and totaling 1.49 acres; and parcel 18131942021 recorded as having one 1,726 square foot portable constructed in 2001 and totaling 6 acres. Design development construction drawings are presented in Appendix B.

In summary, planned soil mitigation will include excavation and removal of contaminated soils within stormwater infiltration features; and application of a cap of clean material meeting Ecology MTCA Method A cleanup levels for unrestricted land use within areas not covered in hard surfaces. Soils meeting these criteria are referenced as ‘clean’ soils within this remediation plan. Hard surfaces include building footprints, roadways, and sidewalks. Remaining areas will be covered in clean soil or fabric, and either sod, gravel, or landscaped surface. Groundwater investigation and/or remediation is not included within the scope of this remediation plan.

## **2.0 Characterization and Distribution of Soil Contaminants**

---

Ecology’s 2005 evaluation of lead and arsenic confirmed the presence of residual concentrations above the applicable MTCA Method A cleanup levels across the site from six inches to an unknown depth below ground surface (bgs). Lead averaged 322 mg/kg, exceeding the MTCA Method A cleanup level of 250 ppm by about 29 percent. Arsenic concentrations averaged 54 ppm and more than double the MTCA Method A cleanup level of 20 ppm. Lead and arsenic concentrations that are greater than MTCA Method A concentrations are common in historical orchard properties.

Due to the historical application of lead-arsenate pesticides on live trees, residual concentrations of pesticides in soils are typically not homogenous across a former orchard site. Additionally, site development into a school campus, as well as past maintenance operations contribute to heterogenous concentrations of contaminants across the site.

Vertical characterization contaminant concentrations were not completed beyond a maximum depth of six inches bgs. Residual lead and arsenic concentrations are assumed to extend beyond the 4-foot soil horizon.

## **3.0 Regulatory Discussion**

---

Washington State environmental protection regulations governing the project include MTCA, Area Wide Soil Contamination Task Force, Dangerous Waste regulations, Stormwater regulations, and Air Pollution Sources. These regulations are discussed below:

### **3.1 Model Toxics Control Act**

In March of 1989, the MTCA was enacted in Washington State. The MTCA regulations set standards to ensure quality of cleanup and protection of human health and the environment. Media regulated under MTCA include soils, sediments, and groundwater. A major portion of the MTCA regulations (completed in 1991 and subsequently amended) was the development of numerical cleanup standards and requirements



for cleanup actions. Three options were established under MTCA for site-specific cleanup levels: Method A, B, and C.

Method A defines cleanup levels for 25 of the most common hazardous substances found at sites. Method B levels are set using a site risk assessment, which enables consideration of site-specific characteristics to determine minimum appropriate cleanup. Method C is similar to Method B; however, the individual substance's cancer risk portion of the assessment is set at 1 in 100,000 rather than 1 in 1,000,000. Method A can be used for establishing cleanup levels for unrestricted land use.

### **3.2 Area-Wide Soil Contamination Task Force**

Environmental protection guidance for the remediation and management of soils associated with area-wide soil contamination are provided primarily by the Area-Wide Soil Contamination Task Force Report (Task Force 2003). This report provides a review of guidance associated with impacted soils and the evaluation of groundwater conditions.

The Area-Wide Soil Contamination Task Force (Task Force), comprised of various Washington State agencies and stakeholders, was convened in 2002 to evaluate and make recommendations for future management of low to moderate level contamination in large geographic areas. The Area-Wide Soil Contamination Task Force Report (Task Force 2003) defines area-wide contamination as low to moderate level soil contamination that is dispersed over a large geographic area. The first contaminants designated for assessment were arsenic and lead accumulations in specific geographic areas associated with two primary sources, smelter operations in Puget Sound and agricultural use, specifically fruit orchards, in Central and Eastern Washington. Average concentrations of lead and arsenic at the site are within the low to moderate level ranges for residential land use.

Further, the Task Force focused on understanding the nature and extent of area-wide soil contamination and making recommendations about effective, practical, and affordable steps individuals and organizations can take to reduce their potential for exposure to impacted soil. While these recommendations have not been implemented into Ecology's regulatory framework, they have been applied to many sites and are considered appropriate risk management tools by Ecology.

The Task Force Report includes tools that are appropriate for evaluating the human health and environmental threat associated with varying concentrations for arsenic and lead in soils in differing land-use scenarios, including residential, commercial, and industrial. Additional specific detail was applied to child play areas at education and daycare facilities.

### **3.3 Dangerous Waste**

Ecology's Dangerous Waste regulations implement the Hazardous Waste Management Act of 1976 as amended in 1980 and 1983 and implements in part Subtitle C of the Resource Conservation and Recovery Act (RCRA) in Washington State. A major portion of the Dangerous Waste regulations is the differentiation between solid and dangerous waste. Based on limited waste characterization results presented in The Phase



II ESA, surplus soil exported from this site may be considered, by definition, a solid waste. See Section 5.0 for additional detail.

### 3.4 Stormwater and Dust Control

In 2001, a chartering meeting was held in Moses Lake and a steering committee was formed to work with Ecology and a consultant on the completion of a Stormwater Management Manual and a Model Municipal Stormwater Program for Eastern Washington. Stakeholder workshops, public meetings, and draft documents were conducted in 2002 and 2003. Comments resulting from these endeavors were incorporated into the final Manual which was released in October 2004.

This Soil Remediation Plan does not include stormwater management criteria and a project stormwater pollution prevention plan (SWPPP) will be published under separate cover. Portions of the stormwater management plan will overlap with remedial tasks. To the extent feasible, stormwater management and soil remediation objectives will align.

Fugitive dust associated with construction projects are regulated by the Yakima Regional Clean Air Authority under Regulation 1 and largely reference Ecology’s General Regulations for Air Pollution Sources.

### 3.5 Selected Environmental Protection Criteria

The MTCA Method A Unrestricted Site Use levels defined in Ecology’s WAC 173-340, have been used as a threshold for determining the need for remediation or management of site soils. Ecology’s MTCA Method A contaminant concentrations are appropriate for unrestricted site use and are therefore appropriate for use as a screening criterion.

The following table presents the applicable MTCA Method A values as presented in Ecology’s Cleanup Level and Risk Calculation (CLARC) summary January 2020.

**Table 1: Site Screening Criteria for Remediation**

Contaminant of Concern	MTCA Threshold Method A (ppm)
Arsenic	20
Lead	250

The screening criteria will be used for evaluation of imported soils, sod and/or soil amendments; areas of clean fill and capping/cover; and remediation of stormwater infiltration areas.

## 4.0 Description of Remedial Action

The selected soil remediation design is intended to effectively manage soils onsite to the extent feasible. Impacted soil that cannot be used onsite will be transported off site to an appropriately permitted landfill.



The intent of the design is to reduce potential future inhalation and ingestion exposure by site occupants through placement of a barrier over impacted soils; and reduce potential future offsite migration through modifications to stormwater design and landscaping selection.

#### **4.1 Pre-Construction Planning**

As a portion of the general contractor's responsibilities, the contractor will be required to implement or facilitate implementation of this Soil Remediation Plan. In addition, the selected contractor will be responsible for providing the following pre-construction plans:

##### 4.1.1 Dust Control Plan

As required by the local regulatory authority, the contractor will be required to prepare and submit a Dust Control Plan for the project.

##### 4.1.2 Worker Protection Plan

Prior to beginning construction activities, the contractor is required under this Remediation Plan to develop a Worker Protection Plan. The contractor shall ensure that the Worker Protection Plan complies with health and safety requirements under applicable federal, state, and local laws and regulations. The contractor shall ensure that the Worker Protection Plan is correctly implemented.

Worker exposure regulations, specifically Washington Industrial Safety and Health Act (WISHA), provide specific requirements for communication of potential chemical hazards to employees, exposure prevention training, and permitted levels of employee exposure to particulate and specific chemicals. These regulations are applicable whenever there is potential for worker exposure to hazardous chemicals. For sites contaminated with residual agricultural chemicals, engineering controls such as dust suppression and personal protective equipment (such as wash stations, respirators, and coveralls) are used to reduce potential exposure. Air monitoring is used to verify regulatory compliance.

This Soil Remediation Plan anticipates implementation of contractual requirements specific to worker protection regulations. The Construction Contractor will be required to develop and submit a worker protection plan. At a minimum the contractor submitted worker protection plan will be required to include awareness level training for all employees, subcontractors and site visitors accessing the site during soil impacting activities. For employees and subcontractors whose work tasks involve soil impacting tasks the contractor will be further required to conduct additional training specific to reducing potential personal and community exposure; personal and equipment decontamination; means of measuring potential exposure; engineering and institutional controls that will be implemented during construction to control potential exposure; and the contents of this remediation plan.

##### 4.1.3 Stormwater Pollution Prevention Plan (SWPPP)

As required by the local regulatory authority, the contractor will be required to prepare and submit a SWPPP.



The SWPPP must include the contractor establish limited construction entry pathways such that mechanical translocation of soil is contained onsite. It is anticipated that the entry for construction activities will be constructed of a gravel and/or paved entry and should include gross dry removal of soil clinging to external equipment components prior to equipment leaving site. The gross removal will be confirmed by contractor's visual inspection of equipment and absence of soil in the adjacent paved roadways. The SWPPP must additionally include corrective action measures should soil be tracked out from the site.

## **4.2 Remedial Actions**

The following remedial activities will be completed as a portion of the site design and construction activities.

### 4.2.1 Vegetation Removal

The remedial process will commence with sod and vegetation removal. The contractor will cut the sod as close to ground surface as feasible, thereby reducing the comingling of site vegetation and soils. Following mowing, accumulated cut vegetation will be removed via raking, windrowing, bailing or similar methods designed to facilitate vegetation removal.

Surface skimming of soils containing high concentrations of organic material (grubbing) will be completed and staged onsite separate from other grading activities or removed from the site for disposal. These materials are typically determined unlikely to be suitable for compaction beneath site structures and can only be used for non-structural features, such as landscape.

All sod and grubbing material from shallow rooted plants (less than 8-inch depth) containing site soils will be managed and handled as clean soil.

Tree root systems and other plants with roots below the 8 inches of clean soil used for capping will be managed as lead and arsenic contaminated soil.

### 4.2.2 Clean Topsoil Recovery

The contractor will remove the topsoil present above the capping marker fabric and stockpile onsite for use during site restoration. The contractor will be required to avoid tearing the capping fabric to the extent feasible and cross contaminating the clean soil with the underlying soil containing elevated lead and arsenic. The clean soil will be stockpiled over other clean soil locations, on a concrete or asphalt surface, or over plastic. The clean topsoil stockpile will be marked in such a manner that it cannot be confused with any contaminated stockpiles that may be present onsite.

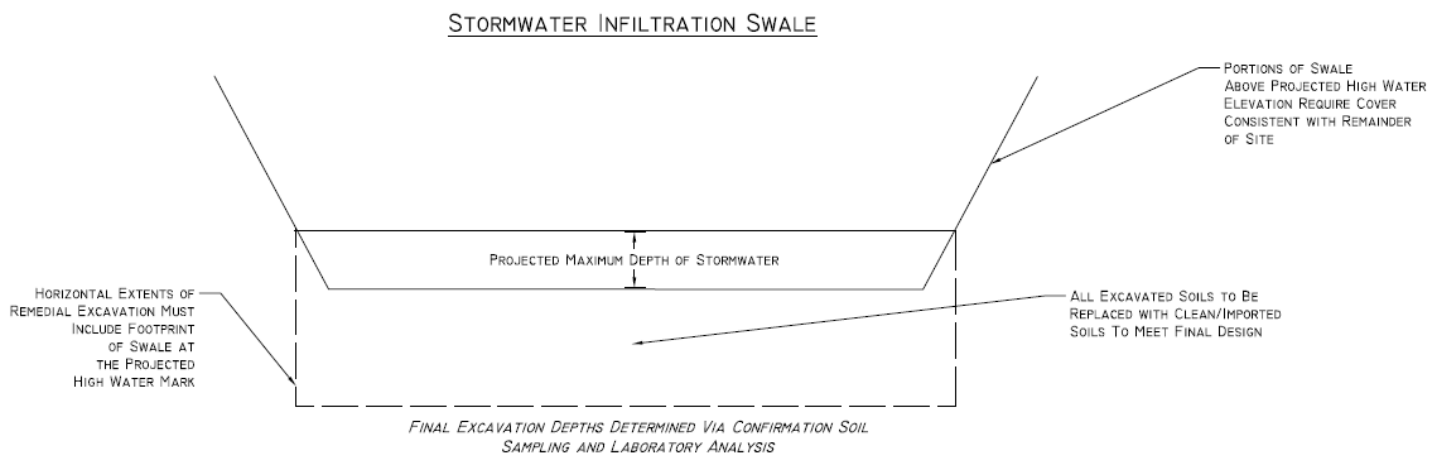
### 4.2.3 Gross Site Grading

To the extent feasible, the contractor will minimize the handling of site soils during gross site grading. During gross site grading, building pad, foundation areas, and stormwater features will also be excavated. All contaminated soils to remain onsite must be placed beneath a protective barrier as detailed in Section



4.2.4. Surplus soil from building pads, foundations, and stormwater swale excavation that is generated shall be either stockpiled for waste characterization testing, or exported to an approved landfill permitted to receive lead and arsenic containing soil. Surplus soil containing lead and arsenic concentrations greater than Ecology’s MTCA Method A cleanup values is prohibited from resale, or reuse at an alternate location.

Also, during gross grading, the contaminated soil horizons at specific stormwater infiltration zones will be removed entirely prior to final construction of stormwater infiltration features. For stormwater infiltration swales, this will require excavation to at least 4-feet below ground surface and may require excavation to more than 6-feet below ground surface at each location to remove the residual contaminated soils. The purpose of excavation of all contaminated soils at these locations is to prevent migration of contamination via an increased volume of stormwater infiltration through the contaminated soil horizons within these localized areas. Remediation via excavation to depth at these locations includes the infiltration swale bottom and sidewalls up to the projected maximum depth of water. Stormwater infiltration areas will require sampling of final cut elevations to ensure soils meet the selected project remedial concentrations as presented in Section 3.5. See Figure 1 for a representation of stormwater infiltration swale requirements.



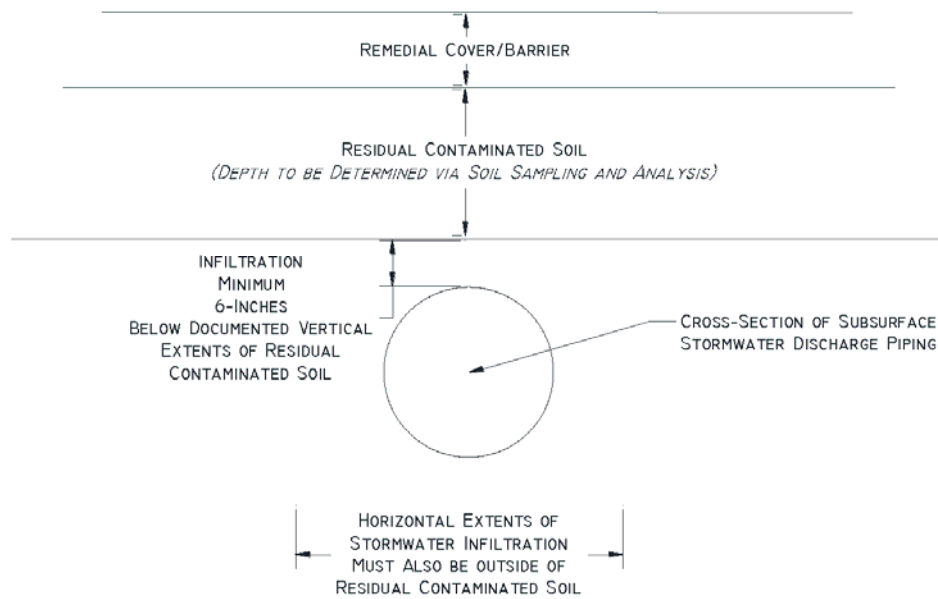
**Figure 1 – Stormwater Swale Requirements**

Alternatively, if subsurface infrastructure is used for stormwater infiltration, soils at and below the elevation of discharge, and all horizontal distances projected to convey stormwater must be documented to be free of lead and arsenic contamination. Consistent with the surface stormwater infiltration swales above, the zone of water infiltration, including both horizontal and vertical extents, needs to be within documented clean soils. To confirm clean soils, sampling and analysis of areas will be required during construction activities. See Figure 2 for a representation of infiltration gallery requirements.

To the extents feasible, all gross grading of contaminated soils should be completed prior to application of final cover. Segregation of residual onsite soils from imported clean soils will be required to be documented by the contractor throughout the project.



## SUBSURFACE INFILTRATION REMEDIAL REQUIREMENTS

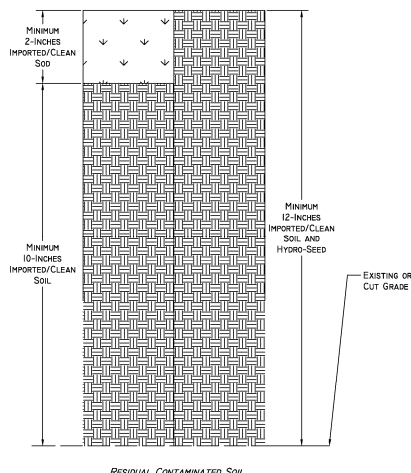


**Figure 2 – Subsurface Stormwater Infiltration Gallery Requirements**

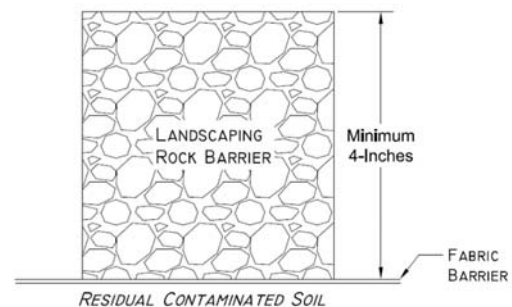
### 4.2.4 Final Cover

During redevelopment, impacted soils will be graded and then covered beneath building footprint, pavement, sidewalks, or other protective barriers. One or more of the following protective barriers will be used within all areas of the site:

- Gravel overlain with building footprint, concrete, or asphalt.
- Geotextile-type fabric overlain with 10-inches of clean soil overlain with 2-inches of sod (totaling 12-inches), or geotextile-type fabric 12-inches of clean soil and hydroseeded (*Figure 3*).
- Geotextile-type fabric overlain with a minimum 4-inches of rock or bark landscaping (*Figure 4*).



**Figure 3 – Sod/Hydro-Seed Barrier Requirements**



**Figure 4 – Rock Barrier Requirements**





If the building is completed with a crawlspace, then soils within the crawlspace area will include, at a minimum, installation of a vapor barrier fabric.

Child play areas will be covered with fabric and a minimum of 12-inches of clean soil, sand, or engineered material suitable for playgrounds, or an engineered hard surface to prevent access to underlying soils.

If gravel surfaced pedestrian or vehicle areas are incorporated into the final design, then an engineered gravel cross-section, with a minimum thickness of 6-inches will be used. The engineered cross-section will be designed to limit downward migration of gravel into the underlying contaminated soils.

Final cover in all areas will be maintained under a site-specific Operations and Maintenance (O&M) Plan. The plan will be issued under separate cover once final design and construction is complete. The plan will include criteria for visual inspection of the final cover, procedures for impacting soils for maintenance and repairs, and reporting requirements.

### 4.3 Confirmation Sampling and Reporting

Confirmation sampling will be conducted in the following areas during construction:

- Final excavation depths of stormwater infiltration areas.
- Representative sampling of clean soil cover.

Soils, sod, and soil amendments will be sampled or otherwise documented as being free of contamination prior to importing to the site. Once placed, representative soil samples will be collected from final cover areas to document final site conditions.

## 5.0 Waste Management

Results of waste characterization sampling are presented in the *[pending]*. In summary, site soils are unlikely to characterize as dangerous waste under WAC 173-303, *Dangerous Waste* criteria. The following table is an excerpt from the *[pending]* study and presents total leachable lead and arsenic concentrations completed for samples identified with the greatest total lead and arsenic concentrations.

**Table 2: Summary of Toxicity Characteristic Leaching Procedure Analytical Results**

Sample Name	Depth in Feet Below Ground Surface	Lead	Arsenic
<b>Dangerous Waste Criteria</b>		<b>5 mg/L</b>	<b>5 mg/L</b>

Export of soils from the site must be completed under approval by the Yakima County Health District. Deep root grubbing material and soils located beneath the capping fabric will require disposal at a solid waste landfill permitted to accept metals contamination. Soils will likely be authorized for disposal at one of the permitted local facilities, however, soil will likely only be permitted for disposal within a designated disposal cell and not for landfill cover material.





## **6.0 Post-Remediation Evaluation**

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Subsequent to site redevelopment activities the following will be incorporated into a final remediation report:

- As-built construction drawings documenting elevation of final cover in all areas of the site.
- Waste receipt and disposal documentation for any deep root grubbing material and/or soils transported offsite for disposal.
- Confirmation soil sample results documenting final site conditions.
- Site-specific Operations and Maintenance (O&M) plan for long-term site management.

The remediation report will be submitted to Ecology for review either as an independent cleanup action, or under Ecology's Voluntary Cleanup Program.

## **7.0 Limitations**

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Fulcrum Environmental Consulting, Inc. has performed professional services in accordance with generally accepted professional consulting principles and practices and the principles of the Report Integrity paragraph at the beginning of this report. No other warranty, expressed or implied, is made. The conclusions and recommendations are based upon our field observations, field screening and independent laboratory analysis.

Fulcrum makes no warranties expressed or implied as to the accuracy or completeness of other's work included or referenced herein, except as observed and described in this report. This document does not imply that the property is free of other environmental concerns. This report is solely for the use and information of our client. Any reliance on this report by a third party is at that party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing at the time services were performed. Fulcrum Environmental Consulting, Inc. is not responsible for the impact of changes in environmental standards, practices or regulations subsequent to the performance of services. Fulcrum Environmental Consulting, Inc. assumes no liability for conditions that were not included in our scope of services, or conditions not generally recognized as predictable when services were performed.



**APPENDIX D**

Soil Observations, Testing, and Remediation Summary



**Table D-1: Soil Observations, Testing, and Remediation Summary**

Site Visit Date	Onsite Soil-Related Tasks or Activities
April 9, 2020	<ul style="list-style-type: none"> <li>▪ Initial site walk.</li> <li>▪ No soil samples collected.</li> </ul>
April 16, 2020	<ul style="list-style-type: none"> <li>▪ Air samples collected.</li> <li>▪ Particulate data collected.</li> <li>▪ Grading southern and central portions of site.</li> </ul>
April 21, 2020	<ul style="list-style-type: none"> <li>▪ Grading north and south portions of the subject site.</li> <li>▪ Particulate data collected.</li> </ul>
April 24, 2020	<ul style="list-style-type: none"> <li>▪ Grading north and south portions.</li> <li>▪ Particulate data collected.</li> </ul>
April 28, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Grading north and south portions of the site.</li> </ul>
April 29, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected from building footprint.</li> <li>▪ Excavation of utility trenches below building footprint.</li> <li>▪ Grading north parking lot area.</li> </ul>
April 30, 2020	<ul style="list-style-type: none"> <li>▪ Air samples collected.</li> <li>▪ Particulate data collected.</li> <li>▪ Earthwork occurring.</li> </ul>
May 5, 2020	<ul style="list-style-type: none"> <li>▪ Earthwork occurring.</li> <li>▪ Particulate data collected.</li> </ul>
May 11, 2020	<ul style="list-style-type: none"> <li>▪ Building footprint actively being developed.</li> <li>▪ Earthwork occurring.</li> <li>▪ Particulate data collected.</li> </ul>
May 12, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected from north parking lot area.</li> <li>▪ Particulate data collected.</li> <li>▪ Site work mainly focused in building footprint.</li> </ul>
May 20, 2020	<ul style="list-style-type: none"> <li>▪ Air samples collected.</li> <li>▪ Particulate data collected.</li> <li>▪ Earthwork occurring in south and southwest portion of site.</li> </ul>
May 26, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected from northern cut bank.</li> <li>▪ Particulate data collected.</li> <li>▪ Site work focused on building development.</li> </ul>
May 29, 2020	<ul style="list-style-type: none"> <li>▪ Site work focused on building development.</li> <li>▪ Particulate data collected.</li> </ul>
June 2, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected from southern and eastern portions of the subject site.</li> </ul>
June 3, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> </ul>



Site Visit Date	Onsite Soil-Related Tasks or Activities
	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> </ul>
June 5, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected.</li> <li>▪ Particulate data collected.</li> <li>▪ Site work focused on building development.</li> </ul>
June 11, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ No earthwork occurring.</li> </ul>
June 19, 2020	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Particulate data collected.</li> </ul>
June 26, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Stormwater basins actively being excavated.</li> </ul>
July 2, 2020	<ul style="list-style-type: none"> <li>▪ Stormwater infiltration in southwest portion of site being excavated.</li> </ul>
July 6, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected from southwest stormwater infiltration pit.</li> </ul>
July 9, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected.</li> </ul>
July 10, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Soil samples collected from smaller southwest stormwater infiltration pit.</li> </ul>
July 17, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Excavation of the northeast infiltration pit occurring.</li> </ul>
July 20, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected from north east infiltration pit and from stockpiled soils.</li> </ul>
July 30, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Gravel being imported and stockpiled in eastern portion of site.</li> </ul>
August 7, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Earthwork occurring in northwest stormwater feature.</li> </ul>
August 14, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Gravel being placed under sidewalks and north and west parking lot areas.</li> </ul>
August 19, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ Parking lot areas actively being paved.</li> </ul>
August 26, 2020	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Particulate data collected.</li> </ul>
September 4, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ North and west parking lots paved.</li> <li>▪ Excavating utility trenches along western portion.</li> </ul>
September 11, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ No earthwork occurring.</li> </ul>
September 17, 2020	<ul style="list-style-type: none"> <li>▪ Grading southern portion of the site.</li> <li>▪ Particulate data collected.</li> </ul>
September 25, 2020	<ul style="list-style-type: none"> <li>▪ Stockpiled soils in southern portion being taken offsite for disposal.</li> </ul>



Site Visit Date	Onsite Soil-Related Tasks or Activities
	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> </ul>
October 2, 2020	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> </ul>
October 9, 2020	<ul style="list-style-type: none"> <li>▪ Utility trench excavated south of building.</li> </ul>
October 16, 2020	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Particulate data collected.</li> </ul>
October 23, 2020	<ul style="list-style-type: none"> <li>▪ Soil samples collected from northwest retention pond.</li> <li>▪ Particulate data collected.</li> </ul>
October 30, 2020	<ul style="list-style-type: none"> <li>▪ Excavating area in southern portion of site.</li> </ul>
November 6, 2020	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Particulate data collected.</li> </ul>
November 13, 2020	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> </ul>
December 11, 2020	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Particulate data collected.</li> </ul>
December 23, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ No earthwork occurring.</li> </ul>
January 6, 2020	<ul style="list-style-type: none"> <li>▪ Particulate data collected.</li> <li>▪ No earthwork occurring.</li> </ul>
January 15, 2021	<ul style="list-style-type: none"> <li>▪ No soil activities at time of inspection.</li> <li>▪ South portion of site was recently grade.</li> <li>▪ Clean soil stockpile in east and contaminated stockpile in south present.</li> </ul>
January 21, 2021	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Site activities focused on building construction.</li> <li>▪ No soil related developments observed.</li> </ul>
February 11, 2021	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Site activities focused on building construction.</li> <li>▪ No soil related developments observed.</li> </ul>
March 5, 2021	<ul style="list-style-type: none"> <li>▪ No earthwork occurring.</li> <li>▪ Site activities focused on building construction.</li> <li>▪ No soil related developments observed.</li> </ul>
April 21, 2021	<ul style="list-style-type: none"> <li>▪ A portion of the contaminated stockpile in the south of site actively being taken offsite for disposal.</li> <li>▪ Geotextile Fabric placed in southern portion of site; Clean soil from east stockpile actively being spread across fabric.</li> <li>▪ Remainder of contaminated stockpile was utilized to grade south and east portion of site.</li> <li>▪ East and southeast portion of site actively being graded utilizing contaminated stockpile before fabric is placed for protective barrier.</li> <li>▪ No soil samples collected.</li> </ul>
May 4, 2021	<ul style="list-style-type: none"> <li>▪ Southern portion has been placed with Tencate geotextile fabric and 10-inches of overlying clean soil.</li> </ul>



Site Visit Date	Onsite Soil-Related Tasks or Activities
	<ul style="list-style-type: none"> <li>▪ East portion of site continues to be graded, fabric has begun being placed in areas following completion of regrading.</li> </ul>
May 14, 2021	<ul style="list-style-type: none"> <li>▪ Clean soil cap still being placed in south and east portion of site.</li> <li>▪ Underlying gravel and sidewalks have been laid immediately south of the building and along the east and southern site extents.</li> <li>▪ No soil samples collected.</li> </ul>
June 23, 2021	<ul style="list-style-type: none"> <li>▪ Geotextile fabric has been placed up to asphalt play area continuing to the perimeter walking path in the east and south portion of site. Clean soil cap continues to be placed in the east portion of site.</li> <li>▪ Exposed Areas near the asphalt building footprint have not yet been placed with geotextile fabric.</li> <li>▪ No soil samples collected.</li> </ul>
September 3, 2021	<ul style="list-style-type: none"> <li>▪ Observed final areas of athletic fields being placed with sod for completion of protective cap.</li> </ul>
November 30, 2021	<ul style="list-style-type: none"> <li>▪ Final site photos collected.</li> </ul>
<b>Playfield Regrading – Site Activities</b>	
June 6, 2022	<ul style="list-style-type: none"> <li>▪ Pre-construction meeting</li> </ul>
July 11, 2022	<ul style="list-style-type: none"> <li>▪ Initial Site walk.</li> <li>▪ Particulate data collected.</li> </ul>
July 12, 2022	<ul style="list-style-type: none"> <li>▪ Site regrading began.</li> <li>▪ Southeast area grubbing removal.</li> </ul>
July 14, 2022	<ul style="list-style-type: none"> <li>▪ Removal of soil cap in southeast portion of site.</li> <li>▪ Soil stockpiled in west area of construction zone.</li> </ul>
July 19, 2022	<ul style="list-style-type: none"> <li>▪ Beginning removal of underlying contaminated soil to meet new grade.</li> <li>▪ Excess water observed.</li> </ul>
July 25, 2022	<ul style="list-style-type: none"> <li>▪ Clean soil import, stockpiled in southeast portion of site.</li> </ul>
August 1, 2022	<ul style="list-style-type: none"> <li>▪ Irrigation maintenance occurred.</li> <li>▪ Partial site placed with fabric and clean soil cap.</li> </ul>
August 3, 2022	<ul style="list-style-type: none"> <li>▪ Placement of backstop fence posts for athletic field.</li> </ul>
August 8, 2022	<ul style="list-style-type: none"> <li>▪ Backstop fence development continued.</li> </ul>
August 11, 2022	<ul style="list-style-type: none"> <li>▪ Backstop fence completed.</li> <li>▪ Spreading of clean soil cap continued, placed on the geotextile fabric.</li> </ul>
August 17, 2022	<ul style="list-style-type: none"> <li>▪ Majority of site completed with clean soil.</li> <li>▪ Areas of irrigation maintenance.</li> </ul>



Site Visit Date	Onsite Soil-Related Tasks or Activities
August 19, 2022	<ul style="list-style-type: none"><li data-bbox="464 228 1837 256">▪ Clean soil completely spread across regraded area. No clean soil stockpile remaining.</li></ul>
August 22, 2022	<ul style="list-style-type: none"><li data-bbox="464 287 1837 315">▪ Sod imported to site, landscaping work began.</li><li data-bbox="464 315 1837 342">▪ Sod began to be placed in south portion of regraded area.</li></ul>
August 25, 2022	<ul style="list-style-type: none"><li data-bbox="464 352 1837 380">▪ Sod placement completed.</li><li data-bbox="464 380 1837 407">▪ Protective barrier complete.</li></ul>



**APPENDIX E**

Soil Testing Memorandums



# MEMORANDUM

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DATE May 8, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On April 29, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect soil samples from the building footprint during soil impacting activities of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey included excavating sewer lines, leveling and grading in the north/northeast area of the site. A water truck was present on site for dust suppression.

A total of 8 soil samples were collected from the building footprint from depths of approximately 3 to 6 inches below ground surface (bgs). Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for sample locations.

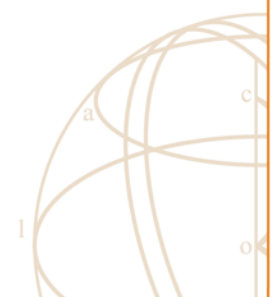
A duplicate sample was collected from sample location 042920-01.05 and labeled 042920-08.05.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used for each sample.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2004419. See the attached laboratory report.



**Table 1: Soil Sample Results – Building Footprint**

Sample ID	Arsenic (mg/Kg)	Lead (mg/Kg)
042920-01.05	<b>20.1</b>	31.1
042920-02.05	17.5	17.5
042920-03.05	16.9	5.10
042920-04.05	8.65	5.10
042920-05.05	<b>91.0</b>	7.85
042920-06.05	<b>33.2</b>	6.54
042920-07.05	<b>161</b>	<b>1,500</b>
042920-08.05 (Duplicate Sample of 01.05)	<b>31.4</b>	23.3
<b>MTCA Method A Cleanup Level</b>	<b>20 mg/Kg</b>	<b>250 mg/Kg</b>

All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

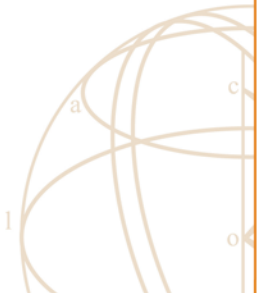
One data qualifier was identified during lead analysis of sample 07.05 and required dilution prior to analysis. In Fulcrum’s opinion, the data qualifier is unlikely to affect the reliability or usability of the laboratory result.

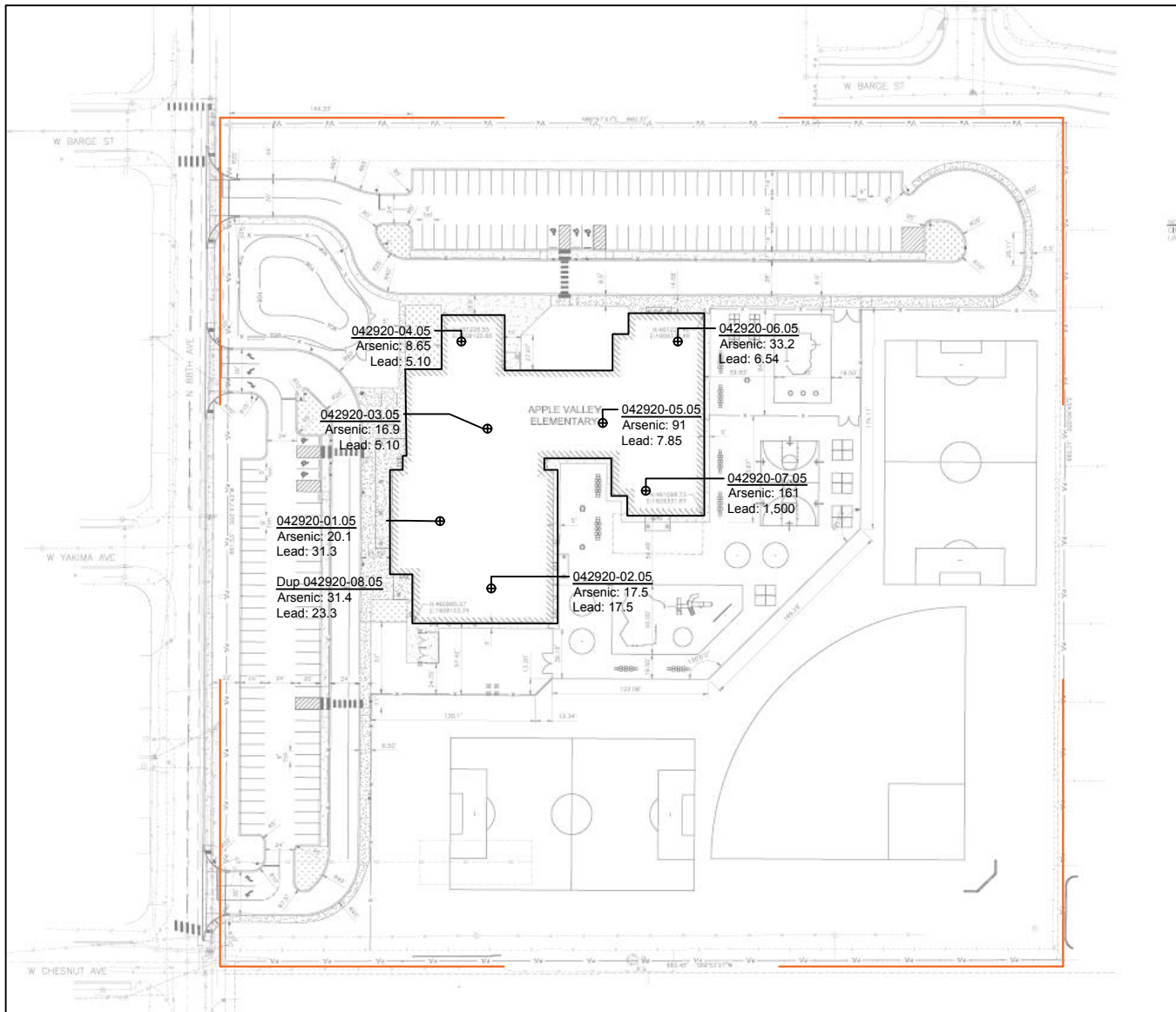
Laboratory results identified arsenic concentrations above the MTCA Method A CUL in five samples collected within the building footprint. Laboratory results identified lead above the MTCA Method A CUL in 1 of 7 samples.

In general, concentrations of lead and arsenic were lower in the northwest portion of the building footprint than in the east and south areas.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenel Construction**      **Tri-Valley Construction**  
 Tim Critchlow                              Ron Huylar                              Eric Kanzig





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**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2004419**

May 07, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 8 sample(s) on 4/30/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**

Nicole McPhee



Date: 05/07/2020

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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2004419

## Work Order Sample Summary

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Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2004419-001	042920-01.05	04/29/2020 11:00 AM	04/30/2020 9:00 AM
2004419-002	042920-02.05	04/29/2020 11:20 AM	04/30/2020 9:00 AM
2004419-003	042920-03.05	04/29/2020 11:25 AM	04/30/2020 9:00 AM
2004419-004	042920-04.05	04/29/2020 11:35 AM	04/30/2020 9:00 AM
2004419-005	042920-05.05	04/29/2020 11:40 AM	04/30/2020 9:00 AM
2004419-006	042920-06.05	04/29/2020 11:45 AM	04/30/2020 9:00 AM
2004419-007	042920-07.05	04/29/2020 11:50 AM	04/30/2020 9:00 AM
2004419-008	042920-08.05	04/29/2020 11:55 AM	04/30/2020 9:00 AM

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**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2004419-001

**Client Sample ID:** 042920-01.05

**Collection Date:** 4/29/2020 11:00:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28236 Analyst: CO

Arsenic	20.1	0.244		mg/Kg-dry	1	5/7/2020 11:15:19 AM
Lead	31.3	0.195		mg/Kg-dry	1	5/7/2020 11:15:19 AM

**Sample Moisture (Percent Moisture)**

Batch ID: R58955 Analyst: MM

Percent Moisture	18.2	0.500		wt%	1	5/4/2020 10:41:43 AM
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**Lab ID:** 2004419-002

**Client Sample ID:** 042920-02.05

**Collection Date:** 4/29/2020 11:20:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28236 Analyst: CO

Arsenic	17.5	0.261		mg/Kg-dry	1	5/7/2020 11:19:52 AM
Lead	17.5	0.209		mg/Kg-dry	1	5/7/2020 11:19:52 AM

**Sample Moisture (Percent Moisture)**

Batch ID: R58955 Analyst: MM

Percent Moisture	24.1	0.500		wt%	1	5/4/2020 10:41:43 AM
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**Lab ID:** 2004419-003

**Client Sample ID:** 042920-03.05

**Collection Date:** 4/29/2020 11:25:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28236 Analyst: CO

Arsenic	16.9	0.256		mg/Kg-dry	1	5/7/2020 11:24:25 AM
Lead	5.10	0.204		mg/Kg-dry	1	5/7/2020 11:24:25 AM

**Sample Moisture (Percent Moisture)**

Batch ID: R58955 Analyst: MM

Percent Moisture	24.2	0.500		wt%	1	5/4/2020 10:41:43 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2004419-004

**Collection Date:** 4/29/2020 11:35:00 AM

**Client Sample ID:** 042920-04.05

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28236		Analyst: CO
Arsenic	8.65	0.278		mg/Kg-dry	1	5/7/2020 11:33:32 AM
Lead	5.10	0.223		mg/Kg-dry	1	5/7/2020 11:33:32 AM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R58955		Analyst: MM
Percent Moisture	29.8	0.500		wt%	1	5/4/2020 10:41:43 AM

**Lab ID:** 2004419-005

**Collection Date:** 4/29/2020 11:40:00 AM

**Client Sample ID:** 042920-05.05

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28236		Analyst: CO
Arsenic	91.0	0.224		mg/Kg-dry	1	5/7/2020 11:38:05 AM
Lead	7.85	0.179		mg/Kg-dry	1	5/7/2020 11:38:05 AM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R58955		Analyst: MM
Percent Moisture	14.1	0.500		wt%	1	5/4/2020 10:41:43 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2004419-006

**Client Sample ID:** 042920-06.05

**Collection Date:** 4/29/2020 11:45:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28236 Analyst: CO

Arsenic	33.2	0.265		mg/Kg-dry	1	5/7/2020 11:57:20 AM
Lead	6.54	0.212		mg/Kg-dry	1	5/7/2020 11:57:20 AM

**Sample Moisture (Percent Moisture)**

Batch ID: R58955 Analyst: MM

Percent Moisture	25.3	0.500		wt%	1	5/4/2020 10:41:43 AM
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**Lab ID:** 2004419-007

**Client Sample ID:** 042920-07.05

**Collection Date:** 4/29/2020 11:50:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28236 Analyst: CO

Arsenic	161	0.211		mg/Kg-dry	1	5/7/2020 12:08:26 PM
Lead	1,500	16.9	D	mg/Kg-dry	100	5/7/2020 12:14:00 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R58955 Analyst: MM

Percent Moisture	12.2	0.500		wt%	1	5/4/2020 10:41:43 AM
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**Lab ID:** 2004419-008

**Client Sample ID:** 042920-08.05

**Collection Date:** 4/29/2020 11:55:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28236 Analyst: CO

Arsenic	31.4	0.236		mg/Kg-dry	1	5/7/2020 12:19:33 PM
Lead	23.3	0.189		mg/Kg-dry	1	5/7/2020 12:19:33 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R58980 Analyst: CJ

Percent Moisture	16.8	0.500		wt%	1	5/5/2020 9:42:24 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

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**Work Order:** 2004419  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28236</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>	Prep Date: <b>5/4/2020</b>	RunNo: <b>59000</b>							
Client ID: <b>MBLKS</b>	Batch ID: <b>28236</b>	Analysis Date: <b>5/5/2020</b>	SeqNo: <b>1178724</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead ND 0.154

Sample ID: <b>LCS-28236</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>	Prep Date: <b>5/4/2020</b>	RunNo: <b>59000</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>28236</b>	Analysis Date: <b>5/5/2020</b>	SeqNo: <b>1178725</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Lead 20.1 0.148 18.52 0 109 80 120

Sample ID: <b>MB-28236</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>	Prep Date: <b>5/4/2020</b>	RunNo: <b>59000</b>							
Client ID: <b>MBLKS</b>	Batch ID: <b>28236</b>	Analysis Date: <b>5/7/2020</b>	SeqNo: <b>1179498</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic ND 0.192  
 Lead ND 0.154

Sample ID: <b>LCS-28236</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>	Prep Date: <b>5/4/2020</b>	RunNo: <b>59000</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>28236</b>	Analysis Date: <b>5/7/2020</b>	SeqNo: <b>1179499</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 37.2 0.185 37.04 0 100 80 120  
 Lead 20.2 0.148 18.52 0 109 80 120

Sample ID: <b>2004381-017ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/4/2020</b>	RunNo: <b>59000</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28236</b>	Analysis Date: <b>5/7/2020</b>	SeqNo: <b>1179501</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 4.00 0.226 3.910 2.27 20  
 Lead 3.88 0.181 3.995 2.85 20

**Work Order:** 2004419  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2004381-017AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/4/2020</b>	RunNo: <b>59000</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28236</b>		Analysis Date: <b>5/7/2020</b>	SeqNo: <b>1179503</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	49.2	0.226	45.23	3.910	100	75	125				
Lead	25.6	0.181	22.62	3.995	95.6	75	125				

Sample ID: <b>2004381-017AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/4/2020</b>	RunNo: <b>59000</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28236</b>		Analysis Date: <b>5/7/2020</b>	SeqNo: <b>1179506</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	48.4	0.224	44.88	3.910	99.2	75	125	49.18	1.56	20	
Lead	26.6	0.180	22.44	3.995	101	75	125	25.61	3.72	20	

Client Name: **FE**  
 Logged by: **Carissa True**

Work Order Number: **2004419**  
 Date Received: **4/30/2020 9:00:00 AM**

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 5. Custody Seals present on shipping container/cooler?  
 (Refer to comments for Custody Seals not intact) Yes  No  Not Required   
 6. Was an attempt made to cool the samples? Yes  No  NA   
 7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA   
 8. Sample(s) in proper container(s)? Yes  No   
 9. Sufficient sample volume for indicated test(s)? Yes  No   
 10. Are samples properly preserved? Yes  No   
 11. Was preservative added to bottles? Yes  No  NA   
 12. Is there headspace in the VOA vials? Yes  No  NA   
 13. Did all samples containers arrive in good condition(unbroken)? Yes  No   
 14. Does paperwork match bottle labels? Yes  No   
 15. Are matrices correctly identified on Chain of Custody? Yes  No   
 16. Is it clear what analyses were requested? Yes  No   
 17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler 1	2.6
Sample 1	4.5

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



**Fremont**  
Analytical

3600 Fremont Ave N,  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

# Chain of Custody Record & Laboratory Services Agreement

Date: 4/29/20

Page: 1 of 1

Laboratory Project No (Internal):

2004419

Client: Fulcrum Environmental

Project Name: Apple Valley

Special Remarks:

Address: 406 North 2nd Street

Collected by: NLM

City, State, Zip: Yakima, Washington 98901

Location:

Telephone: 509.574.0839

Report To (PM): Peggy Williamson

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Fax:

PM Email:

pwilliamson@fulcrum.net cc: nicole.mcphree@fulcrum.net

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HClD)	Diesel/heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)**	EDB (8011)	Comments
1 042920-01.05	4/29/20	11:00	S														
2 042920-02.05		11:20															
3 042920-03.05		11:25															
4 042920-04.05		11:35															
5 042920-05.05		11:40															
6 042920-06.05		11:45															
7 042920-07.05		11:50															
8 042920-08.05		11:55															
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

\*\*Metals (Circle): MTCA-5 RCA-8 Priority Pollutants TAL Individual: Ag Al (As) B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Tl U V Zn

\*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and back of this Agreement.

Retrieved	Date/Time	Received	Date/Time
x <i>M. P. P.</i>	4/29/20	x <i>M. P. P.</i>	4/30/20
Retrieved	Date/Time	Received	Date/Time
x <i>M. P. P.</i>	4/29/20	x <i>M. P. P.</i>	4/30/20

Turn-around Time:

Standard

3 Day

2 Day

Next Day

Same Day  (specify) \_\_\_\_\_

# MEMORANDUM

---

DATE May 14, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On May 12, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect soil samples from the north portion of the site during soil impacting activities of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the construction of the building footprint and transferring soil from the north portion of the site to be graded in the southern portion.

A total of eight soil samples were collected from the area intended to be developed at the north parking lot from depths of approximately 3 to 6-inches below ground surface (bgs). Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. Samples were collected from the north portion of the site intended on being developed as a parking lot. See Figure 1 for sample locations.

A duplicate sample was collected from sample location 051220-03.05 and labeled 042920-08.05.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used for each sample.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2005121. See the attached laboratory report.



**Table 1: Soil Sample Results – Building Footprint**

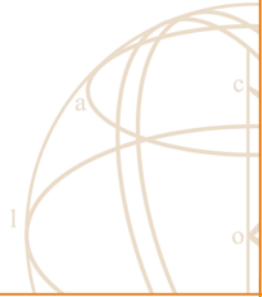
Sample ID	Arsenic (mg/Kg)	Lead (mg/Kg)
051220-01.05	<b>37.2</b>	8.42
051220-02.05	8.18	5.98
051220-03.05	1.98	5.64
051220-04.05	4.25	5.29
051220-05.05	3.27	5.79
051220-06.05	11.5	27.7
051220-07.05	<b>22.6</b>	4.97
042920-08.05 (Duplicate Sample of 03.05)	1.95	5.84
<b>MTCA Method A Cleanup Level</b>	<b>20</b>	<b>250</b>

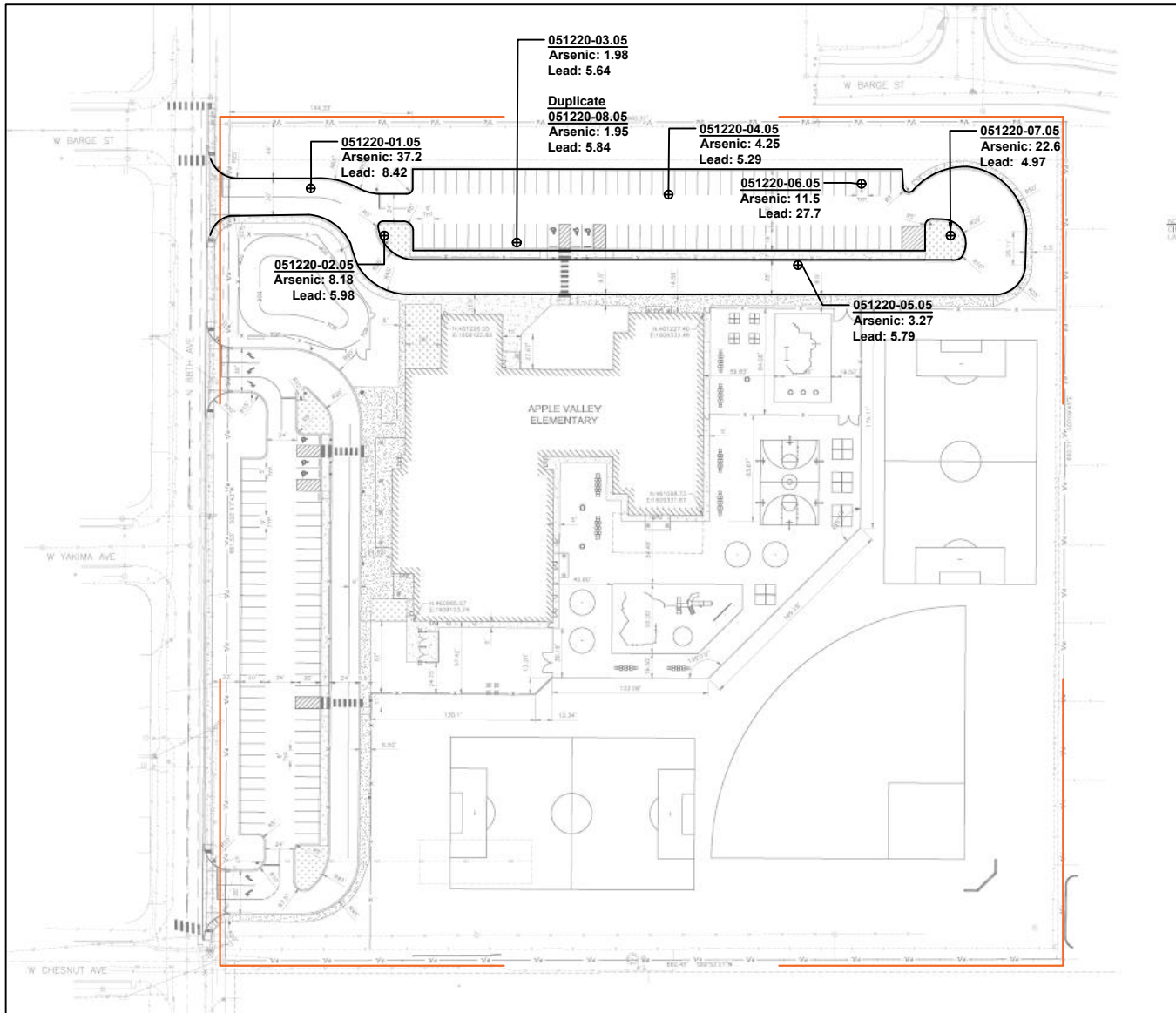
All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

No data qualifiers were identified on the laboratory analytical report. Laboratory results identified arsenic concentrations to be above MTCA Method A cleanup levels in two out of the seven locations. All seven of the samples were below the MTCA Method A cleanup level for lead.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenel Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig







**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**  
**Work Order Number: 2005121**

May 19, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 8 sample(s) on 5/13/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***  
***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**  
Nicole McPhee

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2005121

## Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2005121-001	051220-01.05	05/12/2020 11:00 AM	05/13/2020 9:27 AM
2005121-002	051220-02.05	05/12/2020 11:15 AM	05/13/2020 9:27 AM
2005121-003	051220-03.05	05/12/2020 11:25 AM	05/13/2020 9:27 AM
2005121-004	051220-04.05	05/12/2020 11:35 AM	05/13/2020 9:27 AM
2005121-005	051220-05.05	05/12/2020 11:50 AM	05/13/2020 9:27 AM
2005121-006	051220-06.05	05/12/2020 12:07 PM	05/13/2020 9:27 AM
2005121-007	051220-07.05	05/12/2020 12:20 PM	05/13/2020 9:27 AM
2005121-008	051220-08.05	05/12/2020 12:30 PM	05/13/2020 9:27 AM

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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 11:00:00 AM

**Project:** Apple Valley

**Lab ID:** 2005121-001

**Matrix:** Soil

**Client Sample ID:** 051220-01.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28309 Analyst: CO

Arsenic	37.2	0.224		mg/Kg-dry	1	5/13/2020 7:57:11 PM
Lead	8.42	0.179		mg/Kg-dry	1	5/13/2020 7:57:11 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59175 Analyst: EH

Percent Moisture	15.6	0.500		wt%	1	5/14/2020 9:58:14 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 11:15:00 AM

**Project:** Apple Valley

**Lab ID:** 2005121-002

**Matrix:** Soil

**Client Sample ID:** 051220-02.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28309		Analyst: CO
Arsenic	8.18	0.267		mg/Kg-dry	1	5/13/2020 8:01:45 PM
Lead	5.98	0.214		mg/Kg-dry	1	5/13/2020 8:01:45 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59175		Analyst: EH
Percent Moisture	26.9	0.500		wt%	1	5/14/2020 9:58:14 AM





**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 11:25:00 AM

**Project:** Apple Valley

**Lab ID:** 2005121-003

**Matrix:** Soil

**Client Sample ID:** 051220-03.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28309 Analyst: CO

Arsenic	1.98	0.276		mg/Kg-dry	1	5/13/2020 8:06:19 PM
Lead	5.64	0.221		mg/Kg-dry	1	5/13/2020 8:06:19 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59175 Analyst: EH

Percent Moisture	29.9	0.500		wt%	1	5/14/2020 9:58:14 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 11:35:00 AM

**Project:** Apple Valley

**Lab ID:** 2005121-004

**Matrix:** Soil

**Client Sample ID:** 051220-04.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28309 Analyst: CO

Arsenic	4.25	0.274		mg/Kg-dry	1	5/13/2020 8:10:53 PM
Lead	5.29	0.220		mg/Kg-dry	1	5/13/2020 8:10:53 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59229 Analyst: CJ

Percent Moisture	27.1	0.500		wt%	1	5/18/2020 1:58:08 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 11:50:00 AM

**Project:** Apple Valley

**Lab ID:** 2005121-005

**Matrix:** Soil

**Client Sample ID:** 051220-05.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28309 Analyst: CO

Arsenic	3.27	0.282		mg/Kg-dry	1	5/13/2020 8:15:27 PM
Lead	5.79	0.225		mg/Kg-dry	1	5/13/2020 8:15:27 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59229 Analyst: CJ

Percent Moisture	29.0	0.500		wt%	1	5/18/2020 1:58:08 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 12:07:00 PM

**Project:** Apple Valley

**Lab ID:** 2005121-006

**Matrix:** Soil

**Client Sample ID:** 051220-06.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28309 Analyst: CO

Arsenic	11.5	0.223		mg/Kg-dry	1	5/13/2020 8:20:01 PM
Lead	27.7	0.179		mg/Kg-dry	1	5/13/2020 8:20:01 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59229 Analyst: CJ

Percent Moisture	14.6	0.500		wt%	1	5/18/2020 1:58:08 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 12:20:00 PM

**Project:** Apple Valley

**Lab ID:** 2005121-007

**Matrix:** Soil

**Client Sample ID:** 051220-07.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28309		Analyst: CO
Arsenic	22.6	0.244		mg/Kg-dry	1	5/13/2020 8:24:35 PM
Lead	4.97	0.195		mg/Kg-dry	1	5/13/2020 8:24:35 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59229		Analyst: CJ
Percent Moisture	18.0	0.500		wt%	1	5/18/2020 1:58:08 PM



**Client:** Fulcrum Environmental

**Collection Date:** 5/12/2020 12:30:00 PM

**Project:** Apple Valley

**Lab ID:** 2005121-008

**Matrix:** Soil

**Client Sample ID:** 051220-08.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28309 Analyst: CO

Arsenic	1.95	0.272		mg/Kg-dry	1	5/13/2020 8:38:18 PM
Lead	5.84	0.218		mg/Kg-dry	1	5/13/2020 8:38:18 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59229 Analyst: CJ

Percent Moisture	28.9	0.500		wt%	1	5/18/2020 1:58:08 PM
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**Work Order:** 2005121  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28309</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>			Prep Date: <b>5/12/2020</b>	RunNo: <b>59177</b>					
Client ID: <b>MBLKS</b>	Batch ID: <b>28309</b>				Analysis Date: <b>5/13/2020</b>	SeqNo: <b>1182457</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.200									
Lead	ND	0.160									

Sample ID: <b>LCS-28309</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>			Prep Date: <b>5/12/2020</b>	RunNo: <b>59177</b>					
Client ID: <b>LCSS</b>	Batch ID: <b>28309</b>				Analysis Date: <b>5/13/2020</b>	SeqNo: <b>1182458</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	36.3	0.200	40.00	0	90.8	80	120				
Lead	19.3	0.160	20.00	0	96.7	80	120				

Sample ID: <b>2005078-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/Kg-dry</b>			Prep Date: <b>5/12/2020</b>	RunNo: <b>59177</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>28309</b>				Analysis Date: <b>5/13/2020</b>	SeqNo: <b>1182462</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	9.31	0.420						8.107	13.8	20	
Lead	629	0.336						357.9	54.9	20	ER

**NOTES:**

R - High RPD observed. The method is in control as indicated by the LCS.  
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID: <b>2005078-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>			Prep Date: <b>5/12/2020</b>	RunNo: <b>59177</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>28309</b>				Analysis Date: <b>5/13/2020</b>	SeqNo: <b>1182464</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	71.6	0.452	90.48	8.107	70.1	75	125				S
Lead	425	0.362	45.24	357.9	149	75	125				ES

**NOTES:**

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.  
E - Estimated value. The amount exceeds the linear working range of the instrument.

**Work Order:** 2005121  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2005078-001AMSD</b>		SampType: <b>MSD</b>		Units: <b>mg/Kg-dry</b>		Prep Date: <b>5/12/2020</b>		RunNo: <b>59177</b>			
Client ID: <b>BATCH</b>		Batch ID: <b>28309</b>				Analysis Date: <b>5/13/2020</b>		SeqNo: <b>1182465</b>			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	69.5	0.446	89.11	8.107	68.8	75	125	71.56	2.99	20	S
Lead	359	0.356	44.55	357.9	2.78	75	125	425.4	16.9	20	ES

**NOTES:**

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.  
 E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID: <b>2005078-001APDS</b>		SampType: <b>PDS</b>		Units: <b>mg/Kg-dry</b>		Prep Date: <b>5/12/2020</b>		RunNo: <b>59177</b>			
Client ID: <b>BATCH</b>		Batch ID: <b>28309</b>				Analysis Date: <b>5/13/2020</b>		SeqNo: <b>1182466</b>			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	96.8	0.470	94.1	8.11	94.2	75	125				
Lead	423	0.376	47.0	358	138	75	125				ES

**NOTES:**

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.  
 E - Estimated value. The amount exceeds the linear working range of the instrument.



Client Name: <b>FE</b>	Work Order Number: <b>2005121</b>
Logged by: <b>Clare Griggs</b>	Date Received: <b>5/13/2020 9:27:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete?      Yes       No       Not Present
2. How was the sample delivered?      UPS

### Log In

3. Coolers are present?      Yes       No       NA
4. Shipping container/cooler in good condition?      Yes       No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact)      Yes       No       Not Required
6. Was an attempt made to cool the samples?      Yes       No       NA
7. Were all items received at a temperature of >2°C to 6°C \*      Yes       No       NA
8. Sample(s) in proper container(s)?      Yes       No
9. Sufficient sample volume for indicated test(s)?      Yes       No
10. Are samples properly preserved?      Yes       No
11. Was preservative added to bottles?      Yes       No       NA
12. Is there headspace in the VOA vials?      Yes       No       NA
13. Did all samples containers arrive in good condition(unbroken)?      Yes       No
14. Does paperwork match bottle labels?      Yes       No
15. Are matrices correctly identified on Chain of Custody?      Yes       No
16. Is it clear what analyses were requested?      Yes       No
17. Were all holding times able to be met?      Yes       No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order?      Yes       No       NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler	4.9
Sample	5.1

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



**Fremont**  
Analytical

3600 Fremont Ave. N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Chain of Custody Record & Laboratory Services Agreement**

Date: 5.12.20 Page: 1 of 1

Project Name: Apple Valley

Project No: 192784.04

Collected by: NI.M

Location:

Report To (PM): Peggy Williamson

PM Email: pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Laboratory Project No (Internal): 2005121  
Special Remarks:

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Client: Fulcrum Environmental  
Address: 406 North 2nd Street  
City, State, Zip: Yakima, Washington 98901  
Telephone: 509.574.0839  
Fax:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DH)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)**	EDB (8011)	Comments
1 051220-01.05	5/12/20	11:08	S														
2 051220-02.05		11:15															
3 051220-03.05		11:25															
4 051220-04.05		11:35															
5 051220-05.05		11:50															
6 051220-06.05		12:07															
7 051220-07.05		12:20															
8 051220-08.05		12:30															
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCA-5 RCR-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sp Se Sr Sn Tl U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Retindusped Date/Time 5/12/20 Received Date/Time 5/13/20 @ 0924  
 Retindusped Date/Time 5/12/20 Received Date/Time 5/13/20 @ 0924

Turn-around Time:  Standard  3 Day  2 Day  Next Day  Same Day (Specify)

# MEMORANDUM

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DATE July 15, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling Activities – North Landscape Area**  
SUBJECT West Valley School District – Apple Valley Elementary

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On May 26, 2020, Nicole McPhee and Gillian Huylar, both environmental technicians with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect soil samples from the north landscape area to determine if lead and arsenic concentrations were above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey included leveling soil in the west parking lot area and CMU masonry building development.

A total of five soil samples were collected from the north landscape area from depths of approximately three to six inches below ground surface (bgs). A duplicate sample was collected from sample location 052620-05.05 and labeled 052620-06.06. Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for sample locations.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used to collect each sample.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2005356. See the attached laboratory report.

**Table 1: Soil Sample Results – North Landscape Area**

Sample ID	Arsenic	Lead
052620-01.05	<b>125</b>	46.9
052620-02.05	<b>24.2</b>	18.5
052620-03.05	<b>61.9</b>	17.8
052620-04.05	16.2	4.64
052620-05.05	<b>65.9</b>	6.34
052620-06.05	<b>64.3</b>	6.31
<b>MTCA Method A Cleanup Level</b>	<b>20</b>	<b>250</b>

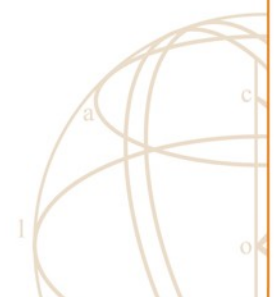
All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

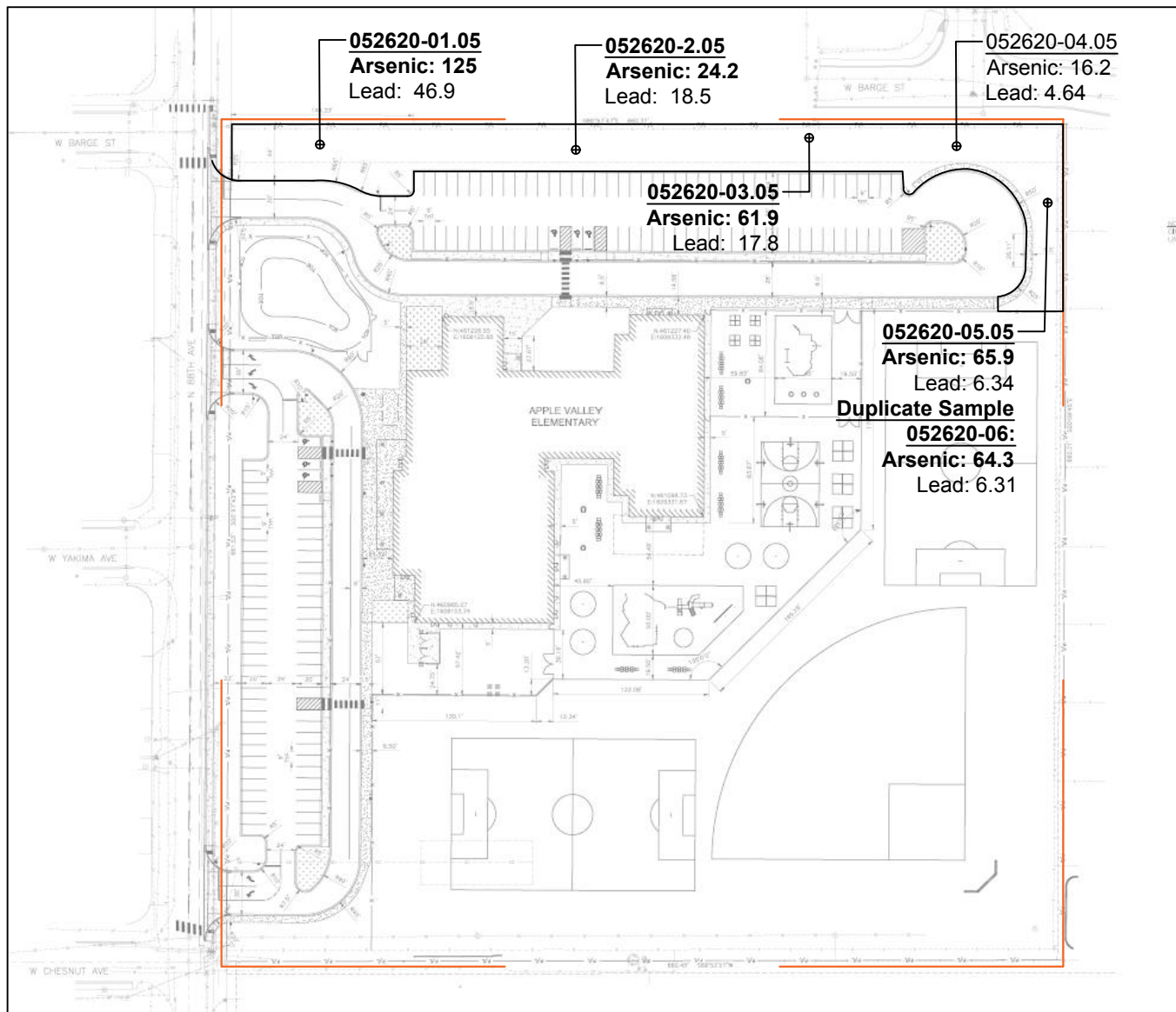
No data qualifiers were identified on the laboratory analytical report.

Laboratory results identified arsenic concentrations above the MTCA Method A CUL in in all five samples locations in the North Landscape Area. Laboratory results identified all lead concentrations to be below the MTCA Method A CUL.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig





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**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**  
**Work Order Number: 2005356**

June 04, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 6 sample(s) on 5/28/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***  
***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**  
Nicole McPhee



Date: 06/04/2020

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2005356

## Work Order Sample Summary

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Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2005356-001	052620-01.05	05/26/2020 12:00 PM	05/28/2020 10:25 AM
2005356-002	052620-02.05	05/26/2020 12:05 PM	05/28/2020 10:25 AM
2005356-003	052620-03.05	05/26/2020 12:10 PM	05/28/2020 10:25 AM
2005356-004	052620-04.05	05/26/2020 12:20 PM	05/28/2020 10:25 AM
2005356-005	052620-05.05	05/26/2020 12:30 PM	05/28/2020 10:25 AM
2005356-006	052620-06.05	05/26/2020 12:40 PM	05/28/2020 10:25 AM

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

---

**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2005356-001

**Client Sample ID:** 052620-01.05

**Collection Date:** 5/26/2020 12:00:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>					Batch ID: 28512	Analyst: CO
Arsenic	125	0.221		mg/Kg-dry	1	6/2/2020 6:44:50 PM
Lead	46.9	0.177		mg/Kg-dry	1	6/2/2020 6:44:50 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>					Batch ID: R59547	Analyst: CJ
Percent Moisture	12.2	0.500		wt%	1	6/3/2020 12:09:22 PM

**Lab ID:** 2005356-002

**Client Sample ID:** 052620-02.05

**Collection Date:** 5/26/2020 12:05:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>					Batch ID: 28512	Analyst: CO
Arsenic	24.2	0.256		mg/Kg-dry	1	6/2/2020 6:50:24 PM
Lead	18.5	0.205		mg/Kg-dry	1	6/2/2020 6:50:24 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>					Batch ID: R59547	Analyst: CJ
Percent Moisture	23.2	0.500		wt%	1	6/3/2020 12:09:22 PM

**Lab ID:** 2005356-003

**Client Sample ID:** 052620-03.05

**Collection Date:** 5/26/2020 12:10:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>					Batch ID: 28512	Analyst: CO
Arsenic	61.9	0.230		mg/Kg-dry	1	6/2/2020 6:55:58 PM
Lead	17.8	0.184		mg/Kg-dry	1	6/2/2020 6:55:58 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>					Batch ID: R59547	Analyst: CJ
Percent Moisture	14.3	0.500		wt%	1	6/3/2020 12:09:22 PM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2005356-004

**Client Sample ID:** 052620-04.05

**Collection Date:** 5/26/2020 12:20:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28512		Analyst: CO
Arsenic	16.2	0.221		mg/Kg-dry	1	6/2/2020 7:01:32 PM
Lead	4.64	0.177		mg/Kg-dry	1	6/2/2020 7:01:32 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59547 Analyst: CJ

Percent Moisture	12.4	0.500		wt%	1	6/3/2020 12:09:22 PM
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**Lab ID:** 2005356-005

**Client Sample ID:** 052620-05.05

**Collection Date:** 5/26/2020 12:30:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28512		Analyst: CO
Arsenic	65.9	0.212		mg/Kg-dry	1	6/2/2020 7:18:16 PM
Lead	6.34	0.170		mg/Kg-dry	1	6/2/2020 7:18:16 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59547 Analyst: CJ

Percent Moisture	13.4	0.500		wt%	1	6/3/2020 12:09:22 PM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2005356-006

**Client Sample ID:** 052620-06.05

**Collection Date:** 5/26/2020 12:40:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28512		Analyst: CO
Arsenic	64.3	0.228		mg/Kg-dry	1	6/2/2020 7:23:50 PM
Lead	6.31	0.183		mg/Kg-dry	1	6/2/2020 7:23:50 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59547		Analyst: CJ
Percent Moisture	13.0	0.500		wt%	1	6/3/2020 12:09:22 PM

**Work Order:** 2005356  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28512</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/2/2020</b>	RunNo: <b>59536</b>							
Client ID: <b>MBLKS</b>	Batch ID: <b>28512</b>	Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1190521</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.189									
Lead	ND	0.152									

Sample ID: <b>LCS-28512</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/2/2020</b>	RunNo: <b>59536</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>28512</b>	Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1190522</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	38.8	0.197	39.37	0	98.5	80	120				
Lead	20.3	0.157	19.69	0	103	80	120				

Sample ID: <b>2005312-013ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/2/2020</b>	RunNo: <b>59536</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28512</b>	Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1190524</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	58.4	0.216						64.87	10.5	20	
Lead	18.0	0.173						24.19	29.2	20	R

**NOTES:**

R - High RPD observed. The method is in control as indicated by the LCS.

Sample ID: <b>2005312-013AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/2/2020</b>	RunNo: <b>59536</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28512</b>	Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1190538</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	102	0.206	41.17	64.87	90.9	75	125				
Lead	41.9	0.165	20.58	24.19	85.9	75	125				

**Work Order:** 2005356  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2005312-013AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/2/2020</b>	RunNo: <b>59536</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28512</b>		Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1190539</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	106	0.214	42.80	64.87	95.4	75	125	102.3	3.28	20	
Lead	30.0	0.171	21.40	24.19	27.2	75	125	41.88	33.0	20	RS

**NOTES:**

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range (Pb).  
 R - High RPD observed. The method is in control as indicated by the LCS.

Client Name: <b>FE</b>	Work Order Number: <b>2005356</b>
Logged by: <b>Clare Griggs</b>	Date Received: <b>5/28/2020 10:25:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete?      Yes       No       Not Present
2. How was the sample delivered?      UPS

### Log In

3. Coolers are present?      Yes       No       NA
4. Shipping container/cooler in good condition?      Yes       No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact)      Yes       No       Not Present
6. Was an attempt made to cool the samples?      Yes       No       NA
7. Were all items received at a temperature of >2°C to 6°C \*      Yes       No       NA
8. Sample(s) in proper container(s)?      Yes       No
9. Sufficient sample volume for indicated test(s)?      Yes       No
10. Are samples properly preserved?      Yes       No
11. Was preservative added to bottles?      Yes       No       NA
12. Is there headspace in the VOA vials?      Yes       No       NA
13. Did all samples containers arrive in good condition(unbroken)?      Yes       No
14. Does paperwork match bottle labels?      Yes       No
15. Are matrices correctly identified on Chain of Custody?      Yes       No
16. Is it clear what analyses were requested?      Yes       No
17. Were all holding times able to be met?      Yes       No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order?      Yes       No       NA

Person Notified:	Nicole McPhee	Date:	5/28/2020
By Whom:	Clare Griggs	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	Confirming metals.		
Client Instructions:	As & Pb		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler	2.1
Sample	5.1

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

# Chain of Custody Record & Laboratory Services Agreement

Date: 5/27/20 Page: 1 of 1

Project Name: Apple Valley

Project No: 192784.04

Collected by: NLM

Address: 406 North 2nd Street  
City, State, zip: Yakima, Washington 98901

Telephone: 509.574.0839

PM Email: pwilliamson@fulcrum.net cc: nicole.mcphoe@fulcrum.net

Laboratory Project No (internal):  
Special Remarks:

20053510

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)**	EDB (8011)	Comments
1 052620-01.05	5/26/20	12:00	S														
2 052620-02.05		12:05															
3 052620-03.05		12:10															
4 052620-04.05		12:20															
5 052620-05.05		12:30															
6 052620-06.05		12:40															
7																	
8																	
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

\*\*Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn

\*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Retrieved Date/Time: 5/27/20 5/28/20 1025

Reinquired Date/Time: 5/27/20 1025

www.fremontanalytical.com



# MEMORANDUM

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DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling Activities – Athletic Fields**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On June 2 and June 5, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed site visits to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visits was to collect soil samples from the portion of the site intended to be athletic fields to determine if lead and arsenic concentrations at the cut grade were above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey remained focused on concrete masonry unit (CMU) building development.

A total of twenty-two sample locations were collected from the portion of the site intended to be developed as athletic fields, located within the eastern and southern portion of the site. A total of sixty-two samples were collected with three samples per location at approximate depth of 3-inches, 12-inches, and 24-inches below ground surface (bgs). A duplicate sample was collected from sample location 060520-03.05 and labeled 060520-23.05. Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for sample locations.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used to collect each sample.

Samples collected from near surface depths (3-inches bgs) were requested for analysis, the remaining samples were placed on hold pending laboratory pending analysis of the shallow samples.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2006064 and 2006177. See the attached laboratory reports.

**Table 1: Soil Sample Results**

Sample ID	Arsenic (mg/Kg)	Lead (mg/Kg)
060520-01.05	10.5	5.82
060520-02.05	6.43	10.6
060520-03.05	<b>70.0</b>	8.01
060520-04.05	<b>48.0</b>	143
060520-05.05	<b>49.3</b>	117
060520-06.05	<b>57.1</b>	<b>559</b>
060520-07.05	3.12	4.85
060520-08.05	<b>23.8</b>	54.4
060520-09.05	17.1	21.4
060520-10.05	<b>27.7</b>	48.0
062220-11.05	<b>45.6</b>	66.3
062220-12.05	<b>33.0</b>	80.8
062220-13.05	<b>29.3</b>	94.6
062220-14.05	<b>22.2</b>	43.1
062220-15.05	9.44	15.1
062220-16.05	11.0	9.09
062220-17.05	<b>24.6</b>	52.1
062220-18.05	<b>33.3</b>	80.9
062220-19.05	14.9	18.9
062220-20.05	18.0	33.4
062220-21.05	<b>44.8</b>	97.1
062220-22.05	3.66	6.64
060520-23.05 (duplicate of 060520-03.05)	<b>61.9</b>	6.83
<b>MTCA Method A Cleanup Level</b>	<b>20 mg/Kg</b>	<b>250 mg/Kg</b>

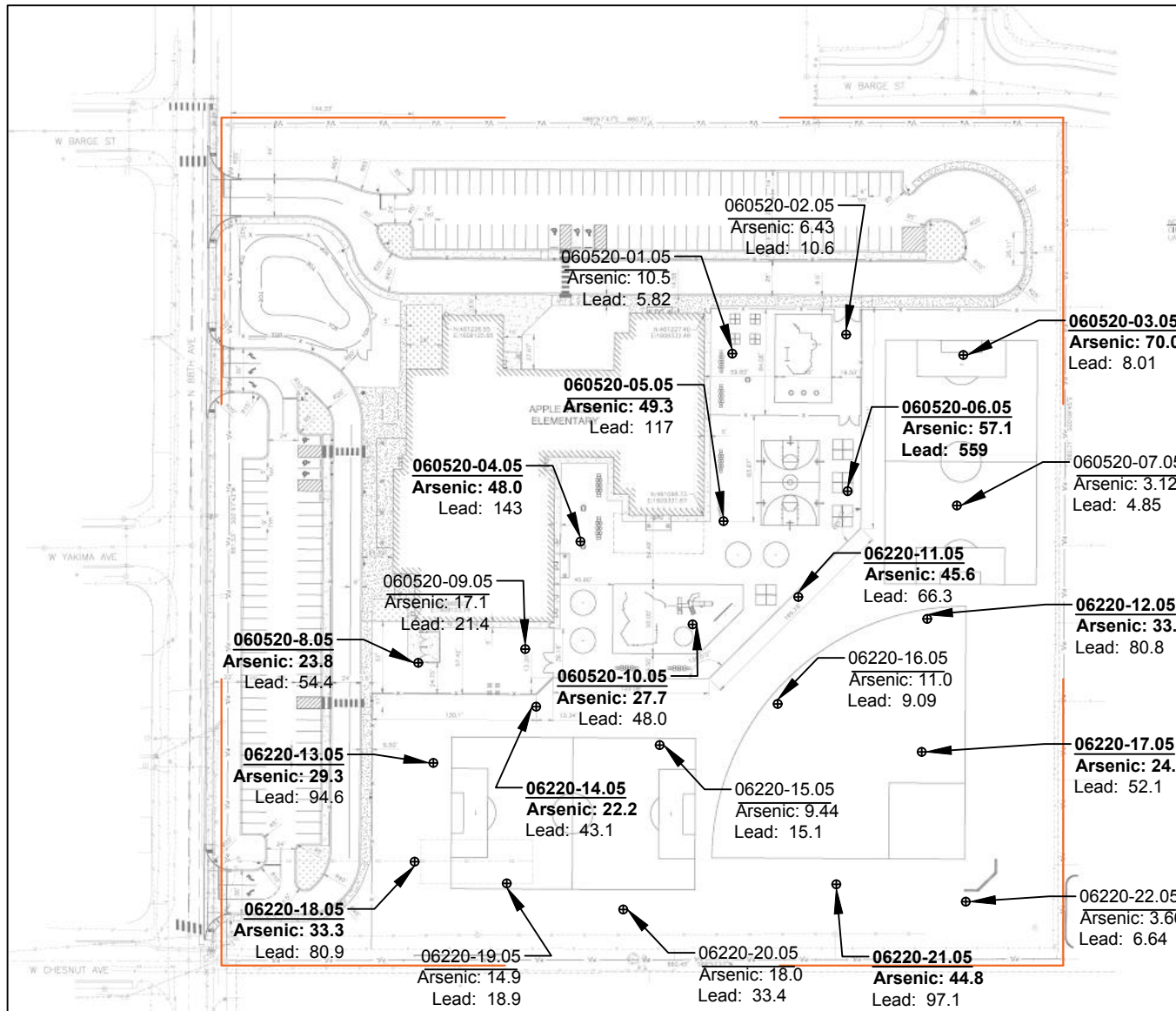
All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

One data qualifier was identified for lead analysis of sample 04.05 and 06.05 indicating that dilution was required prior to analysis. In Fulcrum’s opinion, the data qualifier is unlikely to affect the reliability or usability of the laboratory result.

Laboratory results identified arsenic concentrations to be above the MTCA Method A cleanup level in thirteen out of twenty-two locations in the area intended to be developed as athletic fields. Laboratory results identified one lead concentration to be above the MTCA Method A cleanup level.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
 Tim Critchlow                              Ron Huylar                              Eric Kanzig



\*results are reported in mg/Kg.



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2006064**

June 10, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 36 sample(s) on 6/3/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2006064

## Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2006064-001	06220-13.05	06/02/2020 11:00 AM	06/03/2020 10:34 AM
2006064-002	06220-13.1	06/02/2020 11:05 AM	06/03/2020 10:34 AM
2006064-003	06220-13.2	06/02/2020 11:10 AM	06/03/2020 10:34 AM
2006064-004	06220-18.05	06/02/2020 11:15 AM	06/03/2020 10:34 AM
2006064-005	06220-18.1	06/02/2020 11:20 AM	06/03/2020 10:34 AM
2006064-006	06220-18.2	06/02/2020 11:25 AM	06/03/2020 10:34 AM
2006064-007	06220-19.05	06/02/2020 11:30 AM	06/03/2020 10:34 AM
2006064-008	06220-19.1	06/02/2020 11:35 AM	06/03/2020 10:34 AM
2006064-009	06220-19.2	06/02/2020 11:40 AM	06/03/2020 10:34 AM
2006064-010	06220-20.05	06/02/2020 11:45 AM	06/03/2020 10:34 AM
2006064-011	06220-20.1	06/02/2020 9:10 AM	06/03/2020 10:34 AM
2006064-012	06220-20.2	06/02/2020 9:15 AM	06/03/2020 10:34 AM
2006064-013	06220-21.05	06/02/2020 9:20 AM	06/03/2020 10:34 AM
2006064-014	06220-21.1	06/02/2020 9:25 AM	06/03/2020 10:34 AM
2006064-015	06220-21.2	06/02/2020 9:30 AM	06/03/2020 10:34 AM
2006064-016	06220-22.05	06/02/2020 9:35 AM	06/03/2020 10:34 AM
2006064-017	06220-22.1	06/02/2020 9:40 AM	06/03/2020 10:34 AM
2006064-018	06220-22.2	06/02/2020 9:45 AM	06/03/2020 10:34 AM
2006064-019	06220-17.05	06/02/2020 9:50 AM	06/03/2020 10:34 AM
2006064-020	06220-17.1	06/02/2020 9:55 AM	06/03/2020 10:34 AM
2006064-021	06220-17.1.1	06/02/2020 12:00 PM	06/03/2020 10:34 AM
2006064-022	06220-16.05	06/02/2020 12:05 PM	06/03/2020 10:34 AM
2006064-023	06220-16.1	06/02/2020 12:10 PM	06/03/2020 10:34 AM
2006064-024	06220-16.2	06/02/2020 12:15 PM	06/03/2020 10:34 AM
2006064-025	06220-12.05	06/02/2020 12:20 PM	06/03/2020 10:34 AM
2006064-026	06220-12.1	06/02/2020 12:25 PM	06/03/2020 10:34 AM
2006064-027	06220-12.2	06/02/2020 12:30 PM	06/03/2020 10:34 AM
2006064-028	06220-11.05	06/02/2020 12:35 PM	06/03/2020 10:34 AM
2006064-029	06220-11.1	06/02/2020 12:40 PM	06/03/2020 10:34 AM
2006064-030	06220-11.2	06/02/2020 12:45 PM	06/03/2020 10:34 AM
2006064-031	06220-15.05	06/02/2020 10:00 AM	06/03/2020 10:34 AM
2006064-032	06220-15.1	06/02/2020 10:10 AM	06/03/2020 10:34 AM
2006064-033	06220-15.2	06/02/2020 10:20 AM	06/03/2020 10:34 AM
2006064-034	06220-14.05	06/02/2020 10:30 AM	06/03/2020 10:34 AM
2006064-035	06220-14.1	06/02/2020 10:35 AM	06/03/2020 10:34 AM
2006064-036	06220-14.2	06/02/2020 10:40 AM	06/03/2020 10:34 AM

---

**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

---

**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
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- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-001

**Client Sample ID:** 06220-13.05

**Collection Date:** 6/2/2020 11:00:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	29.3	0.237		mg/Kg-dry	1	6/9/2020 3:44:46 PM
Lead	94.6	0.189		mg/Kg-dry	1	6/9/2020 3:44:46 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	15.5	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-004

**Client Sample ID:** 06220-18.05

**Collection Date:** 6/2/2020 11:15:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	33.3	0.239		mg/Kg-dry	1	6/9/2020 3:50:20 PM
Lead	80.9	0.191		mg/Kg-dry	1	6/9/2020 3:50:20 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	17.7	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-007

**Client Sample ID:** 06220-19.05

**Collection Date:** 6/2/2020 11:30:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	14.9	0.234		mg/Kg-dry	1	6/9/2020 3:55:54 PM
Lead	18.9	0.187		mg/Kg-dry	1	6/9/2020 3:55:54 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	15.9	0.500		wt%	1	6/8/2020 11:50:51 AM





**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-010

**Client Sample ID:** 06220-20.05

**Collection Date:** 6/2/2020 11:45:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	18.0	0.216		mg/Kg-dry	1	6/9/2020 4:01:28 PM
Lead	33.4	0.173		mg/Kg-dry	1	6/9/2020 4:01:28 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	14.9	0.500		wt%	1	6/8/2020 11:50:51 AM
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**Lab ID:** 2006064-013

**Client Sample ID:** 06220-21.05

**Collection Date:** 6/2/2020 9:20:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	44.8	0.217		mg/Kg-dry	1	6/9/2020 4:07:02 PM
Lead	97.1	0.173		mg/Kg-dry	1	6/9/2020 4:07:02 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	13.2	0.500		wt%	1	6/8/2020 11:50:51 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-016

**Client Sample ID:** 06220-22.05

**Collection Date:** 6/2/2020 9:35:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	3.66	0.221		mg/Kg-dry	1	6/9/2020 4:12:36 PM
Lead	6.64	0.177		mg/Kg-dry	1	6/9/2020 4:12:36 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	11.7	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-019

**Client Sample ID:** 06220-17.05

**Collection Date:** 6/2/2020 9:50:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	24.6	0.247		mg/Kg-dry	1	6/9/2020 4:18:10 PM
Lead	52.1	0.197		mg/Kg-dry	1	6/9/2020 4:18:10 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	19.6	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-022

**Client Sample ID:** 06220-16.05

**Collection Date:** 6/2/2020 12:05:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	11.0	0.248		mg/Kg-dry	1	6/9/2020 4:23:44 PM
Lead	9.09	0.199		mg/Kg-dry	1	6/9/2020 4:23:44 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	23.1	0.500		wt%	1	6/8/2020 11:50:51 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-025

**Client Sample ID:** 06220-12.05

**Collection Date:** 6/2/2020 12:20:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	33.0	0.203		mg/Kg-dry	1	6/9/2020 4:29:17 PM
Lead	80.8	0.163		mg/Kg-dry	1	6/9/2020 4:29:17 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	5.36	0.500		wt%	1	6/8/2020 11:50:51 AM
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**Lab ID:** 2006064-028

**Client Sample ID:** 06220-11.05

**Collection Date:** 6/2/2020 12:35:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	45.6	0.257		mg/Kg-dry	1	6/9/2020 4:34:51 PM
Lead	66.3	0.206		mg/Kg-dry	1	6/9/2020 4:34:51 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	25.7	0.500		wt%	1	6/8/2020 11:50:51 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-031

**Client Sample ID:** 06220-15.05

**Collection Date:** 6/2/2020 10:00:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	9.44	0.250		mg/Kg-dry	1	6/9/2020 5:19:12 PM
Lead	15.1	0.200		mg/Kg-dry	1	6/9/2020 5:19:12 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	24.9	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-034

**Client Sample ID:** 06220-14.05

**Collection Date:** 6/2/2020 10:30:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	22.2	0.225		mg/Kg-dry	1	6/9/2020 5:24:47 PM
Lead	43.1	0.180		mg/Kg-dry	1	6/9/2020 5:24:47 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	15.9	0.500		wt%	1	6/8/2020 11:50:51 AM

**Work Order:** 2006064  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28586</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>MBLKS</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194527</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.192									
Lead	ND	0.154									

Sample ID: <b>LCS-28586</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>LCSS</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194529</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	40.2	0.198	39.68	0	101	80	120				
Lead	20.8	0.159	19.84	0	105	80	120				

Sample ID: <b>2006058-016ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194533</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	4.51	0.202						4.864	7.47	20	
Lead	3.12	0.162						2.994	3.98	20	

Sample ID: <b>2006058-016AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194537</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	43.2	0.204	40.74	4.864	94.0	75	125				
Lead	20.1	0.163	20.37	2.994	84.2	75	125				

Sample ID: <b>2006058-016AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194539</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	48.7	0.213	42.64	4.864	103	75	125	43.18	12.0	20	
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**Work Order:** 2006064  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2006058-016AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>			Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>	Analysis Date: <b>6/9/2020</b>			SeqNo: <b>1194539</b>						
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	22.6	0.171	21.32	2.994	92.0	75	125	20.14	11.5	20	

Client Name: <b>FE</b>	Work Order Number: <b>2006064</b>
Logged by: <b>Carissa True</b>	Date Received: <b>6/3/2020 10:34:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete?      Yes       No       Not Present
2. How was the sample delivered?      UPS

### Log In

3. Coolers are present?      Yes       No       NA
4. Shipping container/cooler in good condition?      Yes       No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact)      Yes       No       Not Present
6. Was an attempt made to cool the samples?      Yes       No       NA
7. Were all items received at a temperature of >2°C to 6°C \*      Yes       No       NA
- Approved by client.**
8. Sample(s) in proper container(s)?      Yes       No
9. Sufficient sample volume for indicated test(s)?      Yes       No
10. Are samples properly preserved?      Yes       No
11. Was preservative added to bottles?      Yes       No       NA
12. Is there headspace in the VOA vials?      Yes       No       NA
13. Did all samples containers arrive in good condition(unbroken)?      Yes       No
14. Does paperwork match bottle labels?      Yes       No
15. Are matrices correctly identified on Chain of Custody?      Yes       No
16. Is it clear what analyses were requested?      Yes       No
17. Were all holding times able to be met?      Yes       No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order?      Yes       No       NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler 1	1.9
Sample 1	7.8

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C













**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Chain of Custody Record & Laboratory Services Agreement**

Date: 6.2.20

Page: 4 of 4

Laboratory Project No (Internal):

2006064

Client: Fulcrum Environmental

Project Name: Apple Valley

Special Remarks:

Address: 406 North 2nd Street

Collected by: NIM

City, State, zip: Yakima, Washington 98901

Location:

Telephone: 509.574.0839

Report To (pm): Peggy Williamson

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Fax: PM Email: pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCS (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 D6220 - 15.05	6/2/20	10:00	S														
2 D6220 - 15.1		10:10															
3 D6220 - 15.2		10:20															
4 D6220 - 14.05		10:30															
5 D6220 - 14.1		10:35															
6 D6220 - 14.2		10:40															
7																	
8																	
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCA-5 RCA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished *[Signature]* Date/Time 6/2/20 Received *[Signature]* Date/Time 6/3/20 @ 1034  
 Relinquished *[Signature]* Date/Time Received *[Signature]* Date/Time

Turn-around Time:  
 Standard  
 3 Day  
 2 Day  
 Next Day  
 Same Day (specify) \_\_\_\_\_



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2006177**

June 17, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 26 sample(s) on 6/10/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2006177

## Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2006177-001	060520-01.05	06/05/2020 10:30 AM	06/10/2020 10:15 AM
2006177-002	060520-02.05	06/05/2020 10:35 AM	06/10/2020 10:15 AM
2006177-003	060520-03.05	06/05/2020 10:40 AM	06/10/2020 10:15 AM
2006177-004	060520-04.05	06/05/2020 10:45 AM	06/10/2020 10:15 AM
2006177-005	060520-05.05	06/05/2020 10:50 AM	06/10/2020 10:15 AM
2006177-006	060520-06.05	06/05/2020 10:55 AM	06/10/2020 10:15 AM
2006177-007	060520-07.05	06/05/2020 11:00 AM	06/10/2020 10:15 AM
2006177-008	060520-08.05	06/05/2020 11:05 AM	06/10/2020 10:15 AM
2006177-009	060520-09.05	06/05/2020 11:10 AM	06/10/2020 10:15 AM
2006177-010	060520-10.05	06/05/2020 11:15 AM	06/10/2020 10:15 AM
2006177-011	060520-23.05	06/05/2020 11:20 AM	06/10/2020 10:15 AM
2006177-012	060520-03.1	06/05/2020 11:25 AM	06/10/2020 10:15 AM
2006177-013	060520-03.2	06/05/2020 11:30 AM	06/10/2020 10:15 AM
2006177-014	060520-04.1	06/05/2020 11:35 AM	06/10/2020 10:15 AM
2006177-015	060520-04.2	06/05/2020 11:40 AM	06/10/2020 10:15 AM
2006177-016	060520-05.1	06/05/2020 11:45 AM	06/10/2020 10:15 AM
2006177-017	060520-05.2	06/05/2020 11:50 AM	06/10/2020 10:15 AM
2006177-018	060520-06.1	06/05/2020 11:55 AM	06/10/2020 10:15 AM
2006177-019	060520-07.1	06/05/2020 12:00 AM	06/10/2020 10:15 AM
2006177-020	060520-07.2	06/05/2020 12:05 AM	06/10/2020 10:15 AM
2006177-021	060520-08.1	06/05/2020 12:10 AM	06/10/2020 10:15 AM
2006177-022	060520-08.2	06/05/2020 12:15 AM	06/10/2020 10:15 AM
2006177-023	060520-09.1	06/05/2020 12:20 AM	06/10/2020 10:15 AM
2006177-024	060520-09.2	06/05/2020 12:25 AM	06/10/2020 10:15 AM
2006177-025	060520-10.1	06/05/2020 12:30 AM	06/10/2020 10:15 AM
2006177-026	060520-10.2	06/05/2020 12:35 AM	06/10/2020 10:15 AM

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**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-001  
**Client Sample ID:** 060520-01.05

**Collection Date:** 6/5/2020 10:30:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	10.5	0.229		mg/Kg-dry	1	6/15/2020 4:43:10 PM
Lead	5.82	0.183		mg/Kg-dry	1	6/15/2020 4:43:10 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59818		Analyst: CJ
Percent Moisture	14.6	0.500		wt%	1	6/15/2020 8:41:21 AM





**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-002  
**Client Sample ID:** 060520-02.05

**Collection Date:** 6/5/2020 10:35:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	6.43	0.226		mg/Kg-dry	1	6/15/2020 4:48:43 PM
Lead	10.6	0.181		mg/Kg-dry	1	6/15/2020 4:48:43 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59818		Analyst: CJ
Percent Moisture	12.2	0.500		wt%	1	6/15/2020 8:41:21 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-003  
**Client Sample ID:** 060520-03.05

**Collection Date:** 6/5/2020 10:40:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	70.0	0.242		mg/Kg-dry	1	6/15/2020 4:54:17 PM
Lead	8.01	0.194		mg/Kg-dry	1	6/15/2020 4:54:17 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59818		Analyst: CJ
Percent Moisture	23.5	0.500		wt%	1	6/15/2020 8:41:21 AM



**Client:** Fulcrum Environmental

**Collection Date:** 6/5/2020 10:45:00 AM

**Project:** Apple Valley

**Lab ID:** 2006177-004

**Matrix:** Soil

**Client Sample ID:** 060520-04.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28660 Analyst: CO

Arsenic	48.0	0.233		mg/Kg-dry	1	6/15/2020 4:59:51 PM
Lead	143	1.87	D	mg/Kg-dry	10	6/16/2020 1:04:30 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59818 Analyst: CJ

Percent Moisture	16.9	0.500		wt%	1	6/15/2020 8:41:21 AM
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**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-005  
**Client Sample ID:** 060520-05.05

**Collection Date:** 6/5/2020 10:50:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	49.3	0.235		mg/Kg-dry	1	6/15/2020 5:05:25 PM
Lead	117	0.188		mg/Kg-dry	1	6/15/2020 5:05:25 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	16.8	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-006  
**Client Sample ID:** 060520-06.05

**Collection Date:** 6/5/2020 10:55:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	57.1	0.217		mg/Kg-dry	1	6/15/2020 5:15:50 PM
Lead	559	1.74	D	mg/Kg-dry	10	6/16/2020 1:10:03 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	9.39	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-007  
**Client Sample ID:** 060520-07.05

**Collection Date:** 6/5/2020 11:00:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	3.12	0.210		mg/Kg-dry	1	6/15/2020 5:30:19 PM
Lead	4.85	0.168		mg/Kg-dry	1	6/15/2020 5:30:19 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	10.0	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-008  
**Client Sample ID:** 060520-08.05

**Collection Date:** 6/5/2020 11:05:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	23.8	0.230		mg/Kg-dry	1	6/15/2020 5:35:08 PM
Lead	54.4	0.184		mg/Kg-dry	1	6/15/2020 5:35:08 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	13.1	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-009  
**Client Sample ID:** 060520-09.05

**Collection Date:** 6/5/2020 11:10:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	17.1	0.261		mg/Kg-dry	1	6/15/2020 5:39:57 PM
Lead	21.4	0.209		mg/Kg-dry	1	6/15/2020 5:39:57 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	23.4	0.500		wt%	1	6/16/2020 10:15:04 AM





**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-010  
**Client Sample ID:** 060520-10.05

**Collection Date:** 6/5/2020 11:15:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	27.7	0.240		mg/Kg-dry	1	6/15/2020 5:44:46 PM
Lead	48.0	0.192		mg/Kg-dry	1	6/15/2020 5:44:46 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	18.5	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-011  
**Client Sample ID:** 060520-23.05

**Collection Date:** 6/5/2020 11:20:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	61.9	0.252		mg/Kg-dry	1	6/15/2020 5:49:35 PM
Lead	6.83	0.202		mg/Kg-dry	1	6/15/2020 5:49:35 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	20.7	0.500		wt%	1	6/16/2020 10:15:04 AM

Work Order: 2006177  
 CLIENT: Fulcrum Environmental  
 Project: Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28660</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>				Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>				
Client ID: <b>MBLKS</b>	Batch ID: <b>28660</b>					Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197647</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.192									
Lead	ND	0.154									

Sample ID: <b>LCS-28660</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>				Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>				
Client ID: <b>LCSS</b>	Batch ID: <b>28660</b>					Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197648</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	40.4	0.191	38.17	0	106	80	120				
Lead	20.5	0.153	19.08	0	107	80	120				

Sample ID: <b>2006167-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>					Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197650</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	2.25	0.219						2.738	19.5	20	
Lead	4.85	0.175						5.108	5.20	20	

Sample ID: <b>2006167-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>					Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197652</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	47.1	0.205	40.91	2.738	109	75	125				
Lead	23.7	0.164	20.45	5.108	90.8	75	125				

Sample ID: <b>2006167-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>					Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197653</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	50.2	0.221	44.15	2.738	107	75	125	47.12	6.33	20	
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**Work Order:** 2006177  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2006167-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>		Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197653</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	26.3	0.177	22.08	5.108	96.1	75	125	23.68	10.6	20	

Client Name: <b>FE</b>	Work Order Number: <b>2006177</b>
Logged by: <b>Carissa True</b>	Date Received: <b>6/10/2020 10:15:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact) Yes  No  Not Present
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is there headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

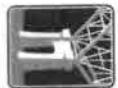
### Item Information

Item #	Temp °C
Cooler 1	5.8
Sample 1	4.9

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C







# Fremont Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

## Chain of Custody Record & Laboratory Services Agreement

Date: 6/5/20

Page: 2 of 3

Laboratory Project No (Internal): 20061737

Project Name: Apple Valley

Special Remarks:

Client: Fulcrum Environmental

Project No: 192784.04

Address: 406 North 2nd Street

Collected by: NLM

City, State, Zip: Yakima, Washington 98901

Location:

Telephone: 509.574.0839

Report To (PM): Peggy Williamson

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Fax:

PM Email: pwilliamson@fulcrum.net cc: nicole.mcphree@fulcrum.net

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GY/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HClD)	Diesel/Heavy Oil Range Organics (DW)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	ED8 (8011)	Comments	Turn-around Time:	
1 O6520-23.05	9/5/20	11:20	S															HOLD	<input checked="" type="checkbox"/> Standard
2 O6520-03.1		11:25																HOLD	<input type="checkbox"/> 3 Day
3 O6520-03.2		11:30																HOLD	<input type="checkbox"/> 2 Day
4 O6520-04.1		11:35																HOLD	<input type="checkbox"/> Next Day
5 O6520-04.2		11:40																HOLD	<input type="checkbox"/> Same Day
6 O6520-05.1		11:45																HOLD	(specify)
7 O6520-05.2		11:50																HOLD	
8 O6520-06.1		11:55																HOLD	
9 O6520-07.1		12:00																HOLD	
10 O6520-07.2		12:05																HOLD	

Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb So Se Sr Sn Tl U V Zn

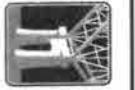
Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: *Nicole McPhree* Date/Time: 6/9/20 Received: *NLM* Date/Time: 6/19/20

Received: *NLM* Date/Time: 6/19/20

www.fremontanalytical.com



**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Chain of Custody Record & Laboratory Services Agreement**

Date: 6/3/20 Page: 3 of 3  
Project Name: Apple Valley  
Project No: 192784.04  
Laboratory Project No (Internal): 2506177

Client: Fulcrum Environmental  
Address: 406 North 2nd Street  
City, State, zip: Yakima, Washington 98901  
Telephone: 509.574.0839  
PM Email: pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Collected by: NLM  
Location:  
Report To (PM): Peggy Williamson  
Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCD)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 O6520-08.1	6/5/20	12:10	S														HOLD
2 O6520-08.2		12:15															HOLD
3 O6520-09.1		12:20															HOLD
4 O6520-09.2		12:25															HOLD
5 O6520-10.1		12:30															HOLD
6 O6520-10.2		12:35															
7																	
8																	
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, S<sub>s</sub> = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCA-5 RCA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished 6/9/20 Date/Time 6/9/20 Received 6/9/20 Date/Time 10/15 Date/Time  
 Relinquished 6/9/20 Date/Time 6/9/20 Received 6/9/20 Date/Time 10/15 Date/Time



# MEMORANDUM

---

DATE July 14, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling Activities – Southwest Stormwater Infiltration**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On July 6, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect soil samples from the stormwater infiltration in the southwest portion of the site to determine if lead and arsenic concentrations were above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey included building foundation and completing the excavation of the southwest stormwater infiltration.

The southwest stormwater infiltration total area was about 6,500 square feet (0.034 acres) and was estimated to be about eight feet in depth. The *Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington Sampling and Cleaning Up Arsenic – and Lead-Contaminated Soils*<sup>1</sup> (Model Remedy) Chapter 7: Performance Compliance Sampling states in Table 10 that four samples are the minimum number to be collected from areas with less than 0.25 acres where excavation and disposal is the selected model remedy. Fulcrum collected a total of 6 soil samples from the stormwater infiltration pit bottoms from depths of approximately 3 to 6 inches below ground surface (bgs). A duplicate sample was collected from sample location 070620-04 and labeled 070620-06. Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for sample locations.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used to collect each sample.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

---

<sup>1</sup> *Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington Sampling and Cleaning up Arsenic- and Lead-Contaminated Soil*, April 2021. [Model Remedies for Cleanup of Former Orchard Properties in Central and Eastern Washington](#)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2007089. See the attached laboratory report.

**Table 1: Soil Sample Results – Southwest Stormwater Infiltration**

Sample ID	Arsenic	Lead
070620-01	<b>32.2</b>	64.3
070620-02	6.04	6.29
070620-03	3.62	2.43
070620-04	2.21	3.48
070620-05	9.22	30.3
070620-06 (duplicate of -04)	2.22	3.26
<b>MTCA Method A Cleanup Level</b>	<b>20</b>	<b>250</b>

All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

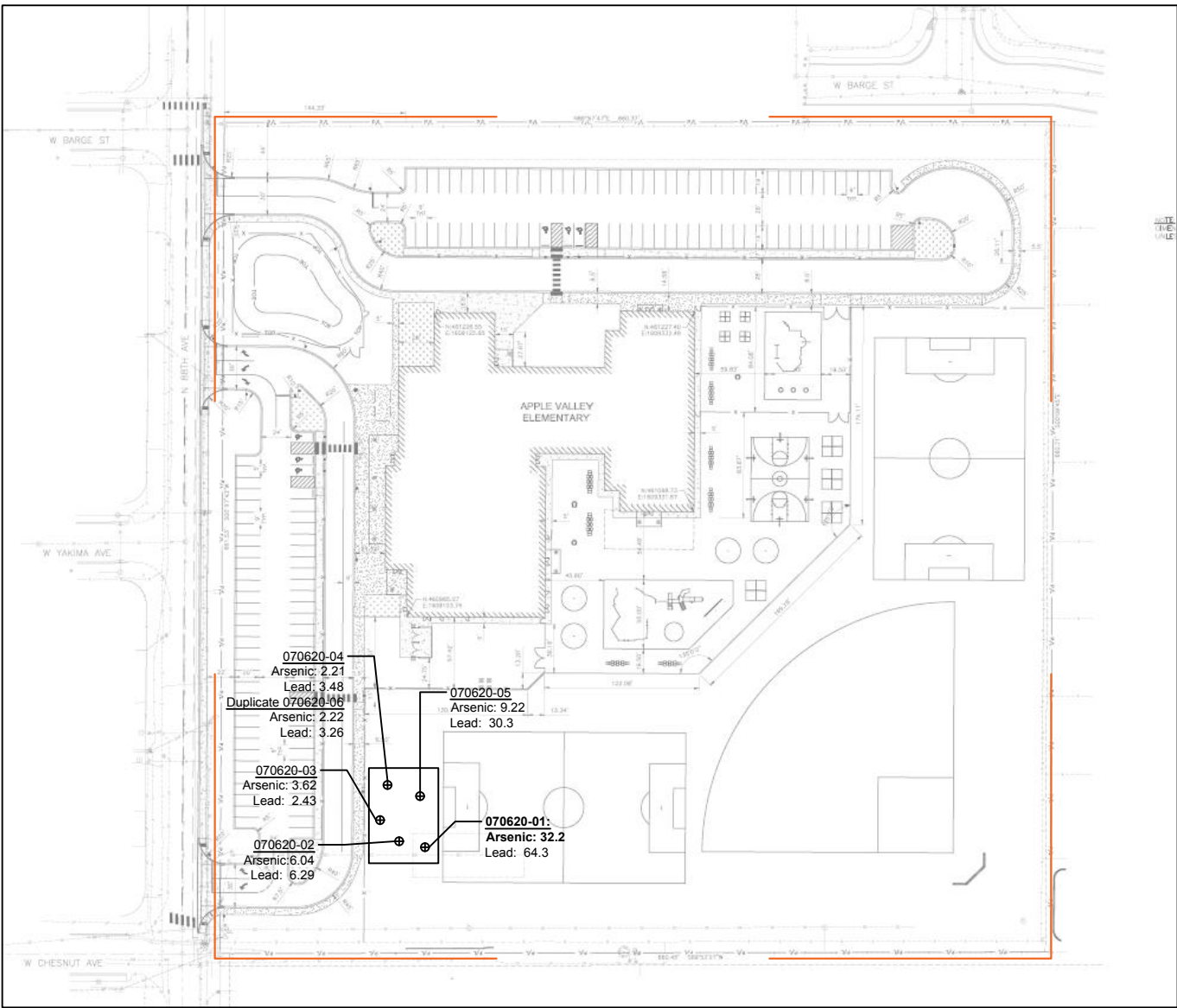
No data qualifiers were identified on the laboratory analytical report.

Laboratory results identified arsenic concentrations above the MTCA Method A CUL in one sample collected within the southeast portion of the stormwater infiltration pit bottom. Laboratory results identified no lead concentrations above the MTCA Method A CUL.

Fulcrum utilized the Department of Ecology’s MTCA Stat 97 Site Module to calculate the average arsenic concentration of the six soil samples collected. The average arsenic concentration was identified to be 9.25 mg/Kg, below the MTCA Method A cleanup level of 20 mg/Kg for arsenic. None of the individual sample analytical results were twice the MTCA CUL for arsenic. The calculated upper confidence limit for the event data set is 18.7 mg/Kg and is also below the MTCA Method A cleanup level for arsenic. See attached for MTCASAT results calculation. Fulcrum concluded that the southwest stormwater infiltration met the performance compliance sampling for excavation Model Remedy.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig



122

	A	B	C	D	E	F	G	H
1	<b>DATA</b>	<b>ID</b>	<b>MTCASat 97 Site Module</b>					
2	32.2	1	Number of samples		Uncensored values		Paste values	
3	6.04	2	Uncensored	6	Mean	9.252	Sort data	
4	3.62	3	Censored		Lognormal mean	9.493	<b>Calculate UCL</b>	
5	2.21	4	Detection limit or PQL		Std. devn.	11.556	Lognormal	<b>Finished</b> Exit MTCASat
6	9.22	5	Method detection limit		Median	4.83	Normal	
7	2.22	6	TOTAL		Min.	2.21	Neither	
8			<b>ENTER DATA</b>		Max	32.2		
9			<b>Distribution Decision</b>					
10			Probability plot method		W test	D'Agostino's test		
11			Lognormal distribution?		Normal distribution?		Clear messages	
12			r-squared is: 0.905		r-squared is: 0.673		Clear all	
13			<i>Recommendations:</i>				<b>Histogram</b>	
14			<b>Use lognormal distribution.</b>				5 10 20	
15							Create report	
16							Sample size	
17								
18								
19								
20			<b>Upper Confidence Limit (UCL)</b>					
21								
22			UCL (based on t-statistic) is 18.7577331084747					
23								
24								
25								
26								
27								
28								
29								

\* Extracted from Ecology's MTCASat 97 Site Module



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2007089**

July 08, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 6 sample(s) on 7/7/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**

Nicole McPhee

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2007089

## Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2007089-001	070620-01	07/06/2020 12:59 PM	07/07/2020 9:50 AM
2007089-002	070620-02	07/06/2020 1:05 PM	07/07/2020 9:50 AM
2007089-003	070620-03	07/06/2020 1:10 PM	07/07/2020 9:50 AM
2007089-004	070620-04	07/06/2020 1:15 PM	07/07/2020 9:50 AM
2007089-005	070620-05	07/06/2020 1:20 PM	07/07/2020 9:50 AM
2007089-006	070620-06	07/06/2020 1:25 PM	07/07/2020 9:50 AM

**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

---

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate





**Client:** Fulcrum Environmental

**Collection Date:** 7/6/2020 12:59:00 PM

**Project:** Apple Valley

**Lab ID:** 2007089-001

**Matrix:** Soil

**Client Sample ID:** 070620-01

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28912      Analyst: CO

Arsenic	32.2	0.221		mg/Kg-dry	1	7/8/2020 3:06:25 PM
Lead	64.3	0.177		mg/Kg-dry	1	7/8/2020 3:06:25 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60312      Analyst: SBM

Percent Moisture	17.0	0.500		wt%	1	7/7/2020 1:51:14 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 7/6/2020 1:05:00 PM

**Project:** Apple Valley

**Lab ID:** 2007089-002

**Matrix:** Soil

**Client Sample ID:** 070620-02

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28912 Analyst: CO

Arsenic	6.04	0.247		mg/Kg-dry	1	7/8/2020 3:12:59 PM
Lead	6.29	0.197		mg/Kg-dry	1	7/8/2020 3:12:59 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60312 Analyst: SBM

Percent Moisture	19.6	0.500		wt%	1	7/7/2020 1:51:14 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 7/6/2020 1:10:00 PM

**Project:** Apple Valley

**Lab ID:** 2007089-003

**Matrix:** Soil

**Client Sample ID:** 070620-03

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28912 Analyst: CO

Arsenic	3.62	0.234		mg/Kg-dry	1	7/8/2020 3:18:32 PM
Lead	2.43	0.187		mg/Kg-dry	1	7/8/2020 3:18:32 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60312 Analyst: SBM

Percent Moisture	18.4	0.500		wt%	1	7/7/2020 1:51:14 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 7/6/2020 1:15:00 PM

**Project:** Apple Valley

**Lab ID:** 2007089-004

**Matrix:** Soil

**Client Sample ID:** 070620-04

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28912 Analyst: CO

Arsenic	2.21	0.217		mg/Kg-dry	1	7/8/2020 3:24:06 PM
Lead	3.48	0.174		mg/Kg-dry	1	7/8/2020 3:24:06 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60312 Analyst: SBM

Percent Moisture	9.30	0.500		wt%	1	7/7/2020 1:51:14 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 7/6/2020 1:20:00 PM

**Project:** Apple Valley

**Lab ID:** 2007089-005

**Matrix:** Soil

**Client Sample ID:** 070620-05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28912 Analyst: CO

Arsenic	9.22	0.224		mg/Kg-dry	1	7/8/2020 3:29:41 PM
Lead	30.3	0.179		mg/Kg-dry	1	7/8/2020 3:29:41 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60312 Analyst: SBM

Percent Moisture	14.0	0.500		wt%	1	7/7/2020 1:51:14 PM
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**Client:** Fulcrum Environmental

**Collection Date:** 7/6/2020 1:25:00 PM

**Project:** Apple Valley

**Lab ID:** 2007089-006

**Matrix:** Soil

**Client Sample ID:** 070620-06

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28912		Analyst: CO
Arsenic	2.22	0.208		mg/Kg-dry	1	7/8/2020 3:35:14 PM
Lead	3.26	0.167		mg/Kg-dry	1	7/8/2020 3:35:14 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60312		Analyst: SBM
Percent Moisture	9.02	0.500		wt%	1	7/7/2020 1:51:14 PM

**Work Order:** 2007089  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28912</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/7/2020</b>	RunNo: <b>60359</b>							
Client ID: <b>MBLKS</b>	Batch ID: <b>28912</b>		Analysis Date: <b>7/8/2020</b>	SeqNo: <b>1209043</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.200									
Lead	ND	0.160									

Sample ID: <b>LCS-28912</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/7/2020</b>	RunNo: <b>60359</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>28912</b>		Analysis Date: <b>7/8/2020</b>	SeqNo: <b>1209044</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	37.4	0.189	37.88	0	98.7	80	120				
Lead	19.5	0.152	18.94	0	103	80	120				

Sample ID: <b>2007095-002AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2020</b>	RunNo: <b>60359</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28912</b>		Analysis Date: <b>7/8/2020</b>	SeqNo: <b>1209047</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	56.1	0.270	53.99	3.558	97.4	75	125				
Lead	27.3	0.216	26.99	4.168	85.6	75	125				

Sample ID: <b>2007095-002AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2020</b>	RunNo: <b>60359</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28912</b>		Analysis Date: <b>7/8/2020</b>	SeqNo: <b>1209048</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	58.3	0.274	54.79	3.558	99.9	75	125	56.12	3.78	20	
Lead	27.8	0.219	27.39	4.168	86.4	75	125	27.27	2.04	20	

Client Name: <b>FE</b>	Work Order Number: <b>2007089</b>
Logged by: <b>Gabrielle Coeulle</b>	Date Received: <b>7/7/2020 9:50:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete?      Yes       No       Not Present
2. How was the sample delivered?      UPS

### Log In

3. Coolers are present?      Yes       No       NA
4. Shipping container/cooler in good condition?      Yes       No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact)      Yes       No       Not Present
6. Was an attempt made to cool the samples?      Yes       No       NA
7. Were all items received at a temperature of >2°C to 6°C \*      Yes       No       NA

### Metals in Soil

8. Sample(s) in proper container(s)?      Yes       No
9. Sufficient sample volume for indicated test(s)?      Yes       No
10. Are samples properly preserved?      Yes       No
11. Was preservative added to bottles?      Yes       No       NA
12. Is there headspace in the VOA vials?      Yes       No       NA
13. Did all samples containers arrive in good condition(unbroken)?      Yes       No
14. Does paperwork match bottle labels?      Yes       No
15. Are matrices correctly identified on Chain of Custody?      Yes       No
16. Is it clear what analyses were requested?      Yes       No
17. Were all holding times able to be met?      Yes       No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order?      Yes       No       NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler 1	16.1
Sample 1	16.4
Temp Blank 1	3.7

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C





# MEMORANDUM

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DATE August 7, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling Activities – Smaller Southwest Stormwater Infiltration Feature**  
SUBJECT West Valley School District – Apple Valley Elementary

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On July 10, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect soil samples from the smaller southwest stormwater infiltration feature to determine if lead and arsenic concentrations at the pit bottom were above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels (CUL). West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey included building foundation development.

A total of four soil samples were collected from the stormwater infiltration pit bottom from depths of approximately three to six-inches below ground surface (bgs). A duplicate sample was collected from sample location 71020-02 and labeled 71020-04. Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for sample locations.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used for each sample.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2007200. See the attached laboratory report.

**Table 1: Soil Sample Results – Small Southwest Stormwater Feature**

Sample ID	Arsenic	Lead
71020-01	10.3	6.96
71020-02	8.02	20.4
71020-03	5.53	2.65
71020-04	7.79	16.8
<b>MTCA Method A Cleanup Level</b>	<b>20</b>	<b>250</b>

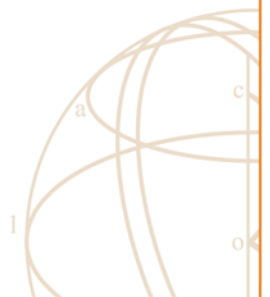
All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

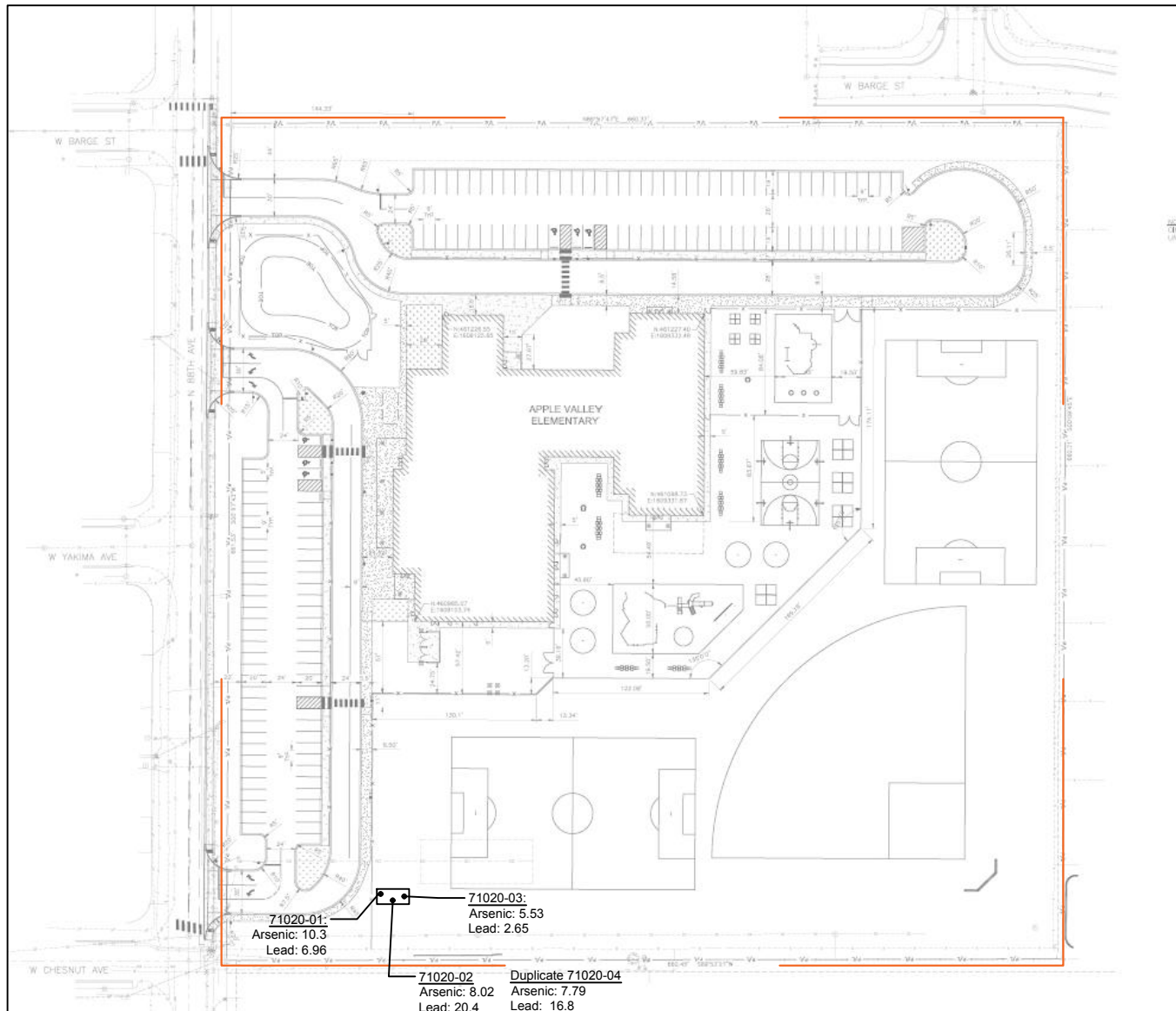
No data qualifiers were identified on the laboratory analytical report.

Laboratory results identified both arsenic and lead concentrations below the MTCA Method A CUL in all four samples collected within the smaller southwest stormwater infiltration pit bottom.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig





\*results are reported in mg/Kg.

727



**Fulcrum Environmental**

Nicole McPhee  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley Soil**

**Work Order Number: 2007200**

July 15, 2020

**Attention Nicole McPhee:**

Fremont Analytical, Inc. received 4 sample(s) on 7/14/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil  
**Work Order:** 2007200

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**Work Order Sample Summary**

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
2007200-001	71020-01	07/10/2020 10:50 AM	07/14/2020 9:38 AM
2007200-002	71020-02	07/10/2020 10:55 AM	07/14/2020 9:38 AM
2007200-003	71020-03	07/10/2020 11:00 AM	07/14/2020 9:38 AM
2007200-004	71020-04	07/10/2020 10:55 AM	07/14/2020 9:38 AM

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil

---

**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate





**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil

**Lab ID:** 2007200-001

**Client Sample ID:** 71020-01

**Collection Date:** 7/10/2020 10:50:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28986		Analyst: CO
Arsenic	10.3	0.239		mg/Kg-dry	1	7/14/2020 2:36:15 PM
Lead	6.96	0.191		mg/Kg-dry	1	7/14/2020 2:36:15 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R60473		Analyst: MM
Percent Moisture	19.5	0.500		wt%	1	7/14/2020 10:56:25 AM

**Lab ID:** 2007200-002

**Client Sample ID:** 71020-02

**Collection Date:** 7/10/2020 10:55:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28986		Analyst: CO
Arsenic	8.02	0.236		mg/Kg-dry	1	7/14/2020 3:04:04 PM
Lead	20.4	0.189		mg/Kg-dry	1	7/14/2020 3:04:04 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R60473		Analyst: MM
Percent Moisture	16.0	0.500		wt%	1	7/14/2020 10:56:25 AM

**Lab ID:** 2007200-003

**Client Sample ID:** 71020-03

**Collection Date:** 7/10/2020 11:00:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28986		Analyst: CO
Arsenic	5.53	0.226		mg/Kg-dry	1	7/14/2020 3:09:38 PM
Lead	2.65	0.181		mg/Kg-dry	1	7/14/2020 3:09:38 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R60473		Analyst: MM
Percent Moisture	12.2	0.500		wt%	1	7/14/2020 10:56:25 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil

**Lab ID:** 2007200-004

**Collection Date:** 7/10/2020 10:55:00 AM

**Client Sample ID:** 71020-04

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28986		Analyst: CO
Arsenic	7.79	0.217		mg/Kg-dry	1	7/14/2020 3:15:11 PM
Lead	16.8	0.174		mg/Kg-dry	1	7/14/2020 3:15:11 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60473		Analyst: MM
Percent Moisture	15.5	0.500		wt%	1	7/14/2020 10:56:25 AM

**Work Order:** 2007200  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28986</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>			Prep Date: <b>7/14/2020</b>	RunNo: <b>60486</b>					
Client ID: <b>MBLKS</b>	Batch ID: <b>28986</b>				Analysis Date: <b>7/14/2020</b>	SeqNo: <b>1211715</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.197									
Lead	ND	0.157									

Sample ID: <b>LCS-28986</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>			Prep Date: <b>7/14/2020</b>	RunNo: <b>60486</b>					
Client ID: <b>LCSS</b>	Batch ID: <b>28986</b>				Analysis Date: <b>7/14/2020</b>	SeqNo: <b>1211716</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	36.8	0.187	37.31	0	98.6	80	120				
Lead	18.6	0.149	18.66	0	99.8	80	120				

Sample ID: <b>2007200-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>			Prep Date: <b>7/14/2020</b>	RunNo: <b>60486</b>					
Client ID: <b>71020-01</b>	Batch ID: <b>28986</b>				Analysis Date: <b>7/14/2020</b>	SeqNo: <b>1211719</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	56.0	0.235	47.08	10.25	97.2	75	125				
Lead	31.4	0.188	23.54	6.960	104	75	125				

Sample ID: <b>2007200-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>			Prep Date: <b>7/14/2020</b>	RunNo: <b>60486</b>					
Client ID: <b>71020-01</b>	Batch ID: <b>28986</b>				Analysis Date: <b>7/14/2020</b>	SeqNo: <b>1211720</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	54.1	0.235	47.08	10.25	93.1	75	125	56.02	3.52	20	
Lead	27.2	0.188	23.54	6.960	86.0	75	125	31.36	14.2	20	

Client Name: <b>FE</b>	Work Order Number: <b>2007200</b>
Logged by: <b>Clare Griggs</b>	Date Received: <b>7/14/2020 9:38:00 AM</b>

**Chain of Custody**

1. Is Chain of Custody complete?      Yes       No       Not Present
2. How was the sample delivered?      UPS

**Log In**

3. Coolers are present?      Yes       No       NA
4. Shipping container/cooler in good condition?      Yes       No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact)      Yes       No       Not Present
6. Was an attempt made to cool the samples?      Yes       No       NA
7. Were all items received at a temperature of >2°C to 6°C \*      Yes       No       NA
8. Sample(s) in proper container(s)?      Yes       No
9. Sufficient sample volume for indicated test(s)?      Yes       No
10. Are samples properly preserved?      Yes       No
11. Was preservative added to bottles?      Yes       No       NA
12. Is there headspace in the VOA vials?      Yes       No       NA
13. Did all samples containers arrive in good condition(unbroken)?      Yes       No
14. Does paperwork match bottle labels?      Yes       No
15. Are matrices correctly identified on Chain of Custody?      Yes       No
16. Is it clear what analyses were requested?      Yes       No
17. Were all holding times able to be met?      Yes       No

**Special Handling (if applicable)**

18. Was client notified of all discrepancies with this order?      Yes       No       NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

**Item Information**

Item #	Temp °C
Cooler	2.9
Sample	4.3

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

# Chain of Custody Record & Laboratory Services Agreement

Date: 7/13/20 Page: 1 of 1

Project Name: Apple Valley Soil

Project No: 192784.04

Collected by: NM & GH

Location: Yakima, WA

Report To (PM): Nicole McPhee

PM Email: Nicole.mcphee@fulcrum.net

Laboratory Project No (Internal): 2007-200

Special Remarks:

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Client: Fulcrum Environmental  
406 N. 2nd St.  
Yakima, WA, 98901  
City, State, Zip:  
Telephone: 509-574-0839  
Fax:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GW/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 71020-01	7/10/20	10:50	S										✓	T			
2 71020-02	7/10/20	10:55	S										✓	T			
3 71020-03	7/10/20	11:00	S										✓	T			
4 71020-04	7/10/20	10:55	S										✓	T			
5																	
6																	
7																	
8																	
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): Individual (specify) Individual: Lead/Arsenic  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished  Date/Time 7/13/2020 @ 1600  
 Relinquished  Date/Time

Received  Date/Time 7/14/20  
 Received  Date/Time

Turn-around Time:  
 Standard  
 3 Day  
 2 Day  
 Next Day  
 Same Day (specify) 7/14



# MEMORANDUM

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DATE August 7, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling Activities – Northeast Stormwater Infiltration Feature**  
SUBJECT West Valley School District – Apple Valley Elementary

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On July 20, 2020, Nicole McPhee and Gillian Huylar, both environmental technicians with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect soil samples from the northeast stormwater infiltration feature to determine if lead and arsenic concentrations were above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels (CUL). West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey included continuing construction to the building frame and foundation.

A total of seven soil samples were collected from the pit bottom of the stormwater feature from depths of approximately three to six inches below ground surface (bgs). A duplicate sample was collected from sample location 072020-03 and labeled 072020-04. Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for Northeast Infiltration Feature Sample Locations.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used to collect each sample.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2007292. See the attached laboratory report.

**Table 1: Soil Sample Results – Northeast Stormwater Infiltration Feature**

Sample ID	Arsenic	Lead
072020-01	2.42	3.57
072020-02	3.54	8.05
072020-03	12.5	8.92
072020-04	10.3	7.36
072020-05	4.87	5.89
072020-06	13.6	5.24
072020-07	6.88	8.49
<b>MTCA Method A Cleanup Level</b>	<b>20</b>	<b>250</b>

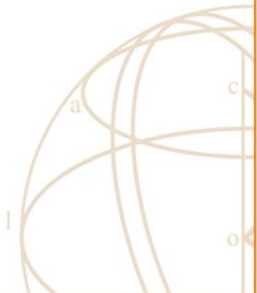
All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

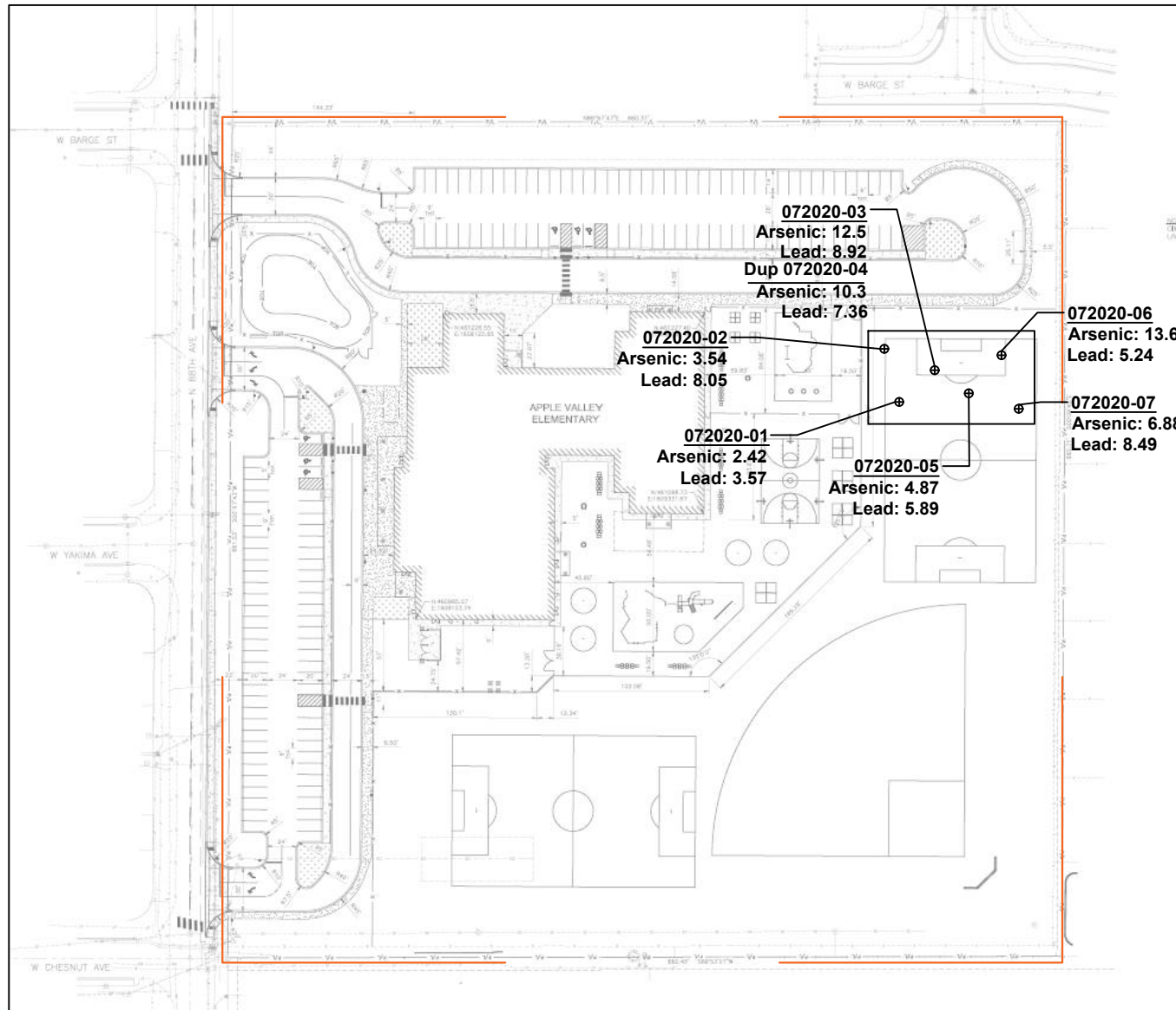
One data qualifier was identified during lead analysis of samples 072020-02, 072020-03, 072020-04, and 072020-07 indicating that dilution was prior to analysis. In Fulcrum’s opinion, the data qualifier is unlikely to affect the reliability or usability of the laboratory results.

Laboratory results identified arsenic and lead concentrations below the MTCA Method A CUL in in all seven samples locations from the northeast stormwater infiltration feature pit bottom.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
 Tim Critchlow                              Ron Huylar                              Eric Kanzig





\* results are reported in mg/Kg.





**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**  
**Work Order Number: 2007292**

July 23, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 7 sample(s) on 7/21/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***  
***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**  
Nicole McPhee

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2007292

---

**Work Order Sample Summary**

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
2007292-001	072020-01	07/20/2020 10:10 AM	07/21/2020 9:36 AM
2007292-002	072020-02	07/20/2020 10:20 AM	07/21/2020 9:36 AM
2007292-003	072020-03	07/20/2020 10:30 AM	07/21/2020 9:36 AM
2007292-004	072020-04	07/20/2020 10:40 AM	07/21/2020 9:36 AM
2007292-005	072020-05	07/20/2020 10:50 AM	07/21/2020 9:36 AM
2007292-006	072020-06	07/20/2020 11:00 AM	07/21/2020 9:36 AM
2007292-007	072020-07	07/20/2020 11:10 AM	07/21/2020 9:36 AM

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**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007292-001

**Client Sample ID:** 072020-01

**Collection Date:** 7/20/2020 10:10:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

**Total Metals by EPA Method 6020B**

Batch ID: 29073 Analyst: CO

Arsenic	2.42	0.224		mg/Kg-dry	1	7/22/2020 4:57:48 PM
Lead	3.57	0.179		mg/Kg-dry	1	7/22/2020 4:57:48 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60653 Analyst: EH

Percent Moisture	15.3	0.500		wt%	1	7/22/2020 8:31:13 AM
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**Lab ID:** 2007292-002

**Client Sample ID:** 072020-02

**Collection Date:** 7/20/2020 10:20:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29073 Analyst: CO

Arsenic	3.54	0.268		mg/Kg-dry	1	7/22/2020 5:03:22 PM
Lead	8.05	1.07	D	mg/Kg-dry	5	7/23/2020 10:55:34 AM

**Sample Moisture (Percent Moisture)**

Batch ID: R60653 Analyst: EH

Percent Moisture	27.2	0.500		wt%	1	7/22/2020 8:31:13 AM
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**Lab ID:** 2007292-003

**Client Sample ID:** 072020-03

**Collection Date:** 7/20/2020 10:30:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29073 Analyst: CO

Arsenic	12.5	0.281		mg/Kg-dry	1	7/22/2020 5:08:57 PM
Lead	8.92	1.12	D	mg/Kg-dry	5	7/23/2020 11:01:08 AM

**Sample Moisture (Percent Moisture)**

Batch ID: R60653 Analyst: EH

Percent Moisture	32.0	0.500		wt%	1	7/22/2020 8:31:13 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007292-004

**Client Sample ID:** 072020-04

**Collection Date:** 7/20/2020 10:40:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29073		Analyst: CO
Arsenic	10.3	0.277		mg/Kg-dry	1	7/22/2020 5:25:38 PM
Lead	7.36	1.11	D	mg/Kg-dry	5	7/23/2020 11:06:41 AM

**Sample Moisture (Percent Moisture)**

Batch ID: R60653 Analyst: EH

Percent Moisture	31.0	0.500		wt%	1	7/22/2020 8:31:13 AM
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**Lab ID:** 2007292-005

**Client Sample ID:** 072020-05

**Collection Date:** 7/20/2020 10:50:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29073		Analyst: CO
Arsenic	4.87	0.281		mg/Kg-dry	1	7/22/2020 5:31:12 PM
Lead	5.89	0.225		mg/Kg-dry	1	7/22/2020 5:31:12 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60653 Analyst: EH

Percent Moisture	31.1	0.500		wt%	1	7/22/2020 8:31:13 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007292-006

**Client Sample ID:** 072020-06

**Collection Date:** 7/20/2020 11:00:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29073		Analyst: CO
Arsenic	13.6	0.274		mg/Kg-dry	1	7/22/2020 5:36:45 PM
Lead	5.24	0.219		mg/Kg-dry	1	7/22/2020 5:36:45 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60653		Analyst: EH
Percent Moisture	28.7	0.500		wt%	1	7/22/2020 8:31:13 AM

**Lab ID:** 2007292-007

**Client Sample ID:** 072020-07

**Collection Date:** 7/20/2020 11:10:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29073		Analyst: CO
Arsenic	6.88	0.286		mg/Kg-dry	1	7/22/2020 5:42:19 PM
Lead	8.49	1.14	D	mg/Kg-dry	5	7/23/2020 11:12:14 AM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60653		Analyst: EH
Percent Moisture	31.2	0.500		wt%	1	7/22/2020 8:31:13 AM

**Work Order:** 2007292  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-29073</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>			Prep Date: <b>7/21/2020</b>	RunNo: <b>60664</b>					
Client ID: <b>MBLKS</b>	Batch ID: <b>29073</b>				Analysis Date: <b>7/22/2020</b>	SeqNo: <b>1215653</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.192									
Lead	ND	0.154									

Sample ID: <b>LCS-29073</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>			Prep Date: <b>7/21/2020</b>	RunNo: <b>60664</b>					
Client ID: <b>LCSS</b>	Batch ID: <b>29073</b>				Analysis Date: <b>7/22/2020</b>	SeqNo: <b>1215654</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	38.1	0.191	38.17	0	99.9	80	120				
Lead	18.6	0.153	19.08	0	97.7	80	120				

Sample ID: <b>2007291-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>			Prep Date: <b>7/21/2020</b>	RunNo: <b>60664</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>29073</b>				Analysis Date: <b>7/22/2020</b>	SeqNo: <b>1216022</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	46.0	0.285	56.95	3.099	75.4	75	125				
Lead	22.3	0.228	28.47	3.067	67.7	75	125				SI

**NOTES:**

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.  
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Sample ID: <b>2007291-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>			Prep Date: <b>7/21/2020</b>	RunNo: <b>60664</b>					
Client ID: <b>BATCH</b>	Batch ID: <b>29073</b>				Analysis Date: <b>7/22/2020</b>	SeqNo: <b>1216023</b>					
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	49.0	0.292	58.30	3.099	78.7	75	125	46.05	6.16	20	
Lead	23.9	0.233	29.15	3.067	71.5	75	125	22.33	6.81	20	SI

**NOTES:**

S - Outlying spike recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.  
I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.



**Work Order:** 2007292  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2007291-001APDS</b>	SampType: <b>PDS</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/21/2020</b>	RunNo: <b>60664</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>29073</b>	Analysis Date: <b>7/22/2020</b>	SeqNo: <b>1216024</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	25.5	0.235	29.4	3.07	76.4	75	125				I

**NOTES:**

I - Indicates an analyte with an internal standard that does not meet established acceptance criteria.

Client Name: <b>FE</b>	Work Order Number: <b>2007292</b>
Logged by: <b>Carissa True</b>	Date Received: <b>7/21/2020 9:36:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact) Yes  No  Not Present
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA
- Metals in soil**
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is there headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler 1	0.8
Sample 1	11.2

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Chain of Custody Record & Laboratory Services Agreement**

Date: 7.20.2020 Page: 1 of 1

Project Name: Apple Valley

Project No: 192784.04

Collected by: NLM

Location: NE Stormwater

Report To (PM): Peggy Williamson

PM Email: pwilliamson@fulcrum.net cc: nicole.mcphree@fulcrum.net

Laboratory Project No (Internal): 200709

Special Remarks:

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Client: Fulcrum Environmental  
Address: 406 North 2nd Street  
City, State, zip: Yakima, Washington 98901  
Telephone: 509.574.0839

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCD)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 072020-01	7/20/20	10:10	S														
2 072020-02		10:20															
3 072020-03		10:30															
4 072020-04		10:40															
5 072020-05		10:50															
6 072020-06		11:00															
7 072020-07		11:10															
8																	
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al (As) B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Tl Ti U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: *Nicole McPhee* Date/Time: 7/20/20  
 Received: *[Signature]* Date/Time: 7/20/20

Turn-around Time:  
 Standard  
 3 Day  
 2 Day  
 Next Day  
 Same Day (specify) \_\_\_\_\_

# TRANSMITTAL MEMORANDUM

DATE September 23, 2020  
 TO Ted Silvestri, Yakima Health District  
 FROM Peggy Williamson, CHMM, Fulcrum Environmental Consulting, Inc.  
 RE **Request for Disposal of Contaminated Soil**  
 SUBJECT West Valley School District – Apple Valley Elementary

Fulcrum Environmental Consulting, Inc. is requesting approval for disposal at Anderson’s Rock and Demolition Pits of arsenic (As) and lead (Pb) contaminated soils from Apple Valley Elementary located at 7 North 88<sup>th</sup> Avenue in Yakima, Washington. Contaminated soils were previously identified associated with former orchard land use. Enclosed please find analytical results from recently excavated soil.

Contaminated soil was excavated as a portion of site development activities and stockpiled onsite. Fulcrum collected twenty (20) samples from the soil stockpile for waste characterization purposes in accordance with the Washington State Department of Ecology (Ecology) Dangerous Waste regulatory criteria. See attached Figure 1 for sample locations.

Fulcrum submitted the samples for analysis of Total Metals by Environmental Protection Agency (EPA) Method 6020B (As and Pb) and Metals with Toxic Characteristic Leaching Procedure (TCLP) Extraction by EPA Method 1311. Analytical results are reported in milligrams per kilogram (mg/Kg) for total concentration and milligrams per liter (mg/L) for TCLP results and were reported under Fremont Work Order 2007293 (attached).

**Table 1: Total Arsenic and Lead Analytical Results**

Sample ID	Arsenic mg/Kg	Lead mg/Kg
SP-072020-01.05	15.7	6.80
SP-072020-02.05	<b>75.4</b>	<b>385</b>
SP-072020-03.1	<b>22.2</b>	113
SP-072020-04.2	<b>20.3</b>	77.3
SP-072020-05.1.5	8.33	5.75
SP-072020-06.2.5	6.94	5.77
SP-072020-07.3	<b>167</b>	<b>1,220</b>
SP-072020-08.3.5	14.2	10.9
SP-072020-09.05	18.0	13.8
SP-072020-10.2	<b>72.2</b>	367
SP-072020-11.1	<b>33.3</b>	98.1
SP-072020-12.1	<b>79.5</b>	354
SP-072020-13.1	<b>23.2</b>	58.9
SP-072020-14.2	<b>30.8</b>	10.6
SP-072020-15.05	13.7	7.45

Sample ID	Arsenic mg/Kg	Lead mg/Kg
SP-72020-16.2	13.9	15.0
SP-072020-17.1	9.75	6.70
SP-072020-18.05	<b>40.5</b>	103
SP-072020-19.2 (Duplicate of 14.2)	<b>27.9</b>	13.9
SP-072020-20.05 (Duplicate of 18.05)	<b>28.5</b>	56.2
<b>Average Concentration</b>	<b>36.07</b>	<b>146.46</b>
<b>MTCA Method A Cleanup Level</b>	<b>20</b>	<b>250</b>

Laboratory results document concentrations of arsenic above Ecology’s Model Toxics Control Act (MTCA) Method A cleanup level (CUL) in twelve of the twenty sample locations. Laboratory results identified concentrations of lead above the MTCA Method A CUL in two of the twenty sample locations.

**Table 2: Toxic Characteristic Leaching Procedure Analytical Results**

Leaching Concentration	Composite	Maximum Leaching Concentration
TCLP Arsenic	0.319	<b>5</b>
TCLP Lead	<0.200	<b>5</b>

< Means results were below the analytical method reporting limit.

Fulcrum requested all samples be composited by the laboratory prior to TCLP analysis. The laboratory reported sample SP-072020-Composite as non-detect for leachable lead and 0.319 mg/L for leachable arsenic. Both the lead and arsenic leachable concentrations are below the dangerous waste threshold for arsenic of 5.0 mg/L.

Fulcrum additionally completed the Washington State-Only Toxicity designation of the stockpile soil samples utilizing a calculated average concentration for both lead and arsenic. The Equivalent Concentration for the stockpile was calculated to be 0.0002%, which is below than the minimum Washington State-Only designation of 0.001%,

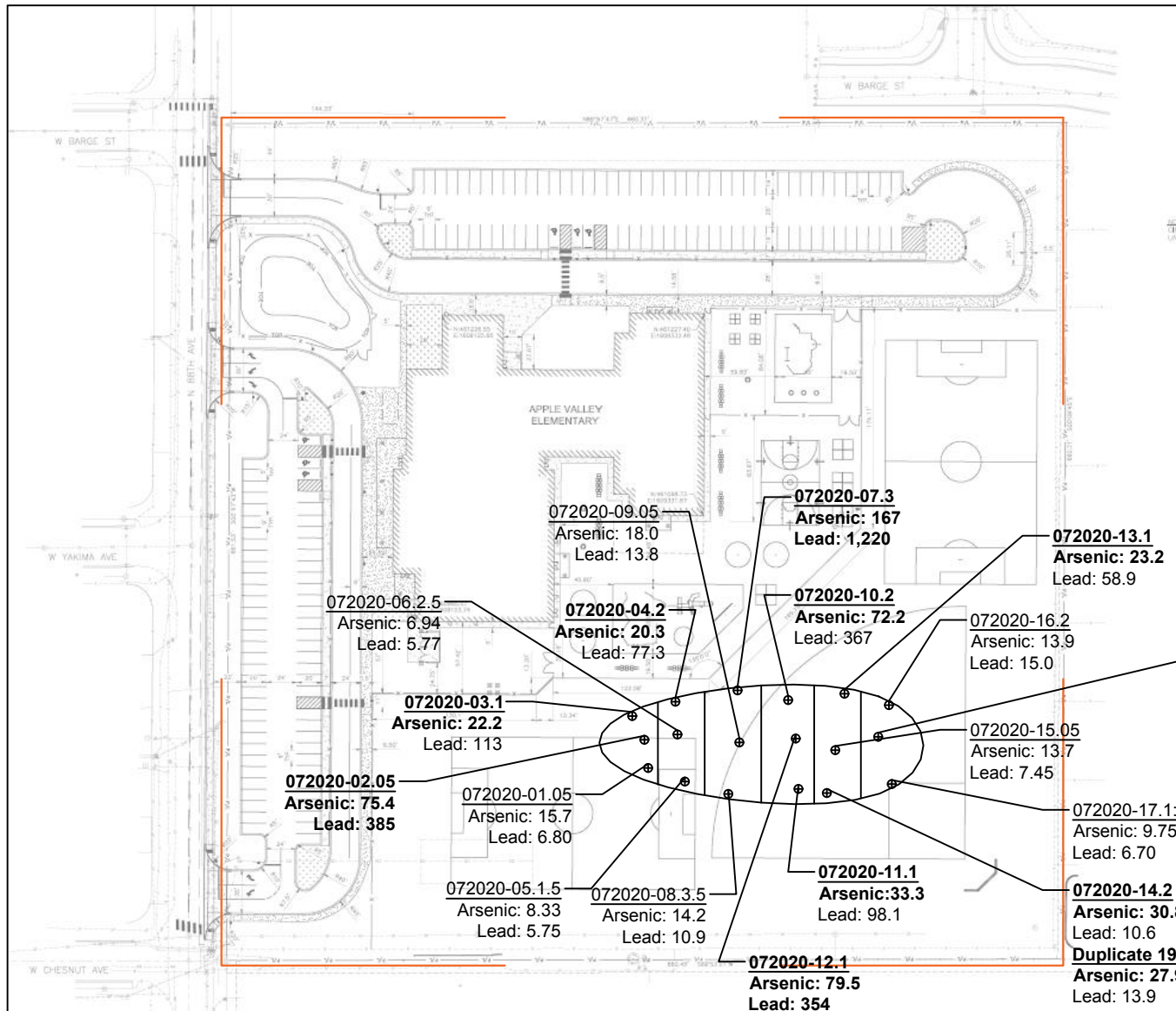
Based on the TCLP results and Washington State-Only Toxicity designation the soil stockpile is best characterized as solid waste.

Chervenell Construction, the general contractor, estimates approximately 7,800 to 8,400 yards of soil will require disposal. Fulcrum requests approval for soil disposal at Anderson’s Rock and Demolition Pit in Yakima, Washington. Soil disposal will be scheduled and transported by Tri-Valley Construction. All Yakima Health District review fees will be paid directly by Chervenell Construction.

If you have any questions, please feel free to contact me at (509) 574-0839.

cc:	<b>West Valley School District</b>	<b>Chervenell Construction</b>	<b>Tri-Valley Construction</b>
	Tim Critchlow	Ron Huylar	Eric Kanzig
	Rob Gross		





ANS

\*Concentrations detected above method reporting limits are presented in milligrams per kilograms of soil (mg/Kg)



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**  
**Work Order Number: 2007293**

August 03, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 21 sample(s) on 7/21/2020 for the analyses presented in the following report.

***Metals (EPA 200.8) with TCLP Extraction (EPA 1311)***  
***Sample Moisture (Percent Moisture)***  
***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**  
Nicole McPhee



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2007293

**Work Order Sample Summary**

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
2007293-001	SP-072020- Composite	07/20/2020 11:40 AM	07/21/2020 9:36 AM
2007293-002	SP-072020-01.05	07/20/2020 11:40 AM	07/21/2020 9:36 AM
2007293-003	SP-072020-02.05	07/20/2020 11:50 AM	07/21/2020 9:36 AM
2007293-004	SP-072020-03.1	07/20/2020 12:00 PM	07/21/2020 9:36 AM
2007293-005	SP-072020-04.2	07/20/2020 12:10 PM	07/21/2020 9:36 AM
2007293-006	SP-072020-05.1.5	07/20/2020 12:20 PM	07/21/2020 9:36 AM
2007293-007	SP-072020-06.2.5	07/20/2020 12:30 PM	07/21/2020 9:36 AM
2007293-008	SP-072020-07.3	07/20/2020 12:40 PM	07/21/2020 9:36 AM
2007293-009	SP-072020-08.3.5	07/20/2020 12:50 PM	07/21/2020 9:36 AM
2007293-010	SP-072020-09.05	07/20/2020 12:55 PM	07/21/2020 9:36 AM
2007293-011	SP-072020-10.2	07/20/2020 1:00 PM	07/21/2020 9:36 AM
2007293-012	SP-072020-11.1	07/20/2020 1:10 PM	07/21/2020 9:36 AM
2007293-013	SP-072020-12.1	07/20/2020 1:15 PM	07/21/2020 9:36 AM
2007293-014	SP-072020-13.1	07/20/2020 1:20 PM	07/21/2020 9:36 AM
2007293-015	SP-072020-14.2	07/20/2020 1:25 PM	07/21/2020 9:36 AM
2007293-016	SP-072020-15.05	07/20/2020 1:30 PM	07/21/2020 9:36 AM
2007293-017	SP-072020-16.2	07/20/2020 1:35 PM	07/21/2020 9:36 AM
2007293-018	SP-072020-17.1	07/20/2020 1:40 PM	07/21/2020 9:36 AM
2007293-019	SP-072020-18.05	07/20/2020 1:45 PM	07/21/2020 9:36 AM
2007293-020	SP-072020-19.2	07/20/2020 1:50 PM	07/21/2020 9:36 AM
2007293-021	SP-072020-20.05	07/20/2020 1:55 PM	07/21/2020 9:36 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned



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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Revision 1 includes additional analysis requested by client.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- DUP - Sample Duplicate
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- REP - Sample Replicate
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**Client:** Fulcrum Environmental

**Collection Date:** 7/20/2020 11:40:00 AM

**Project:** Apple Valley

**Lab ID:** 2007293-001

**Matrix:** Soil

**Client Sample ID:** SP-072020- Composite

<b>Analyses</b>	<b>Result</b>	<b>RL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>
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**Metals (EPA 200.8) with TCLP Extraction (EPA 1311)**

Batch ID: 29098

Analyst: CO

Arsenic	0.319	0.100		mg/L	1	7/23/2020 2:26:23 PM
Lead	ND	0.200		mg/L	1	7/23/2020 2:26:23 PM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-001      **Collection Date:** 7/20/2020 11:40:00 AM  
**Client Sample ID:** SP-072020- Composite      **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Lab ID:** 2007293-002      **Collection Date:** 7/20/2020 11:40:00 AM  
**Client Sample ID:** SP-072020-01.05      **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188      Analyst: CO

Arsenic	15.7	0.232		mg/Kg-dry	1	7/30/2020 4:26:00 PM
Lead	6.80	0.185		mg/Kg-dry	1	7/30/2020 4:26:00 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835      Analyst: CA

Percent Moisture	14.4	0.500		wt%	1	7/29/2020 12:21:42 PM
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**Lab ID:** 2007293-003      **Collection Date:** 7/20/2020 11:50:00 AM  
**Client Sample ID:** SP-072020-02.05      **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188      Analyst: CO

Arsenic	75.4	0.233		mg/Kg-dry	1	7/30/2020 4:53:47 PM
Lead	385	1.86	D	mg/Kg-dry	10	7/31/2020 1:20:28 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835      Analyst: CA

Percent Moisture	15.4	0.500		wt%	1	7/29/2020 12:21:42 PM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-004

**Client Sample ID:** SP-072020-03.1

**Collection Date:** 7/20/2020 12:00:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	22.2	0.241		mg/Kg-dry	1	7/30/2020 4:59:21 PM
Lead	113	0.192		mg/Kg-dry	1	7/30/2020 4:59:21 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835 Analyst: CA

Percent Moisture	17.5	0.500		wt%	1	7/29/2020 12:21:42 PM
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**Lab ID:** 2007293-005

**Client Sample ID:** SP-072020-04.2

**Collection Date:** 7/20/2020 12:10:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	20.3	0.215		mg/Kg-dry	1	7/30/2020 5:04:54 PM
Lead	77.3	0.172		mg/Kg-dry	1	7/30/2020 5:04:54 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835 Analyst: CA

Percent Moisture	13.3	0.500		wt%	1	7/29/2020 12:21:42 PM
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**Lab ID:** 2007293-006

**Client Sample ID:** SP-072020-05.1.5

**Collection Date:** 7/20/2020 12:20:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	8.33	0.231		mg/Kg-dry	1	7/30/2020 5:21:37 PM
Lead	5.75	0.185		mg/Kg-dry	1	7/30/2020 5:21:37 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835 Analyst: CA

Percent Moisture	14.3	0.500		wt%	1	7/29/2020 12:21:42 PM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-007

**Collection Date:** 7/20/2020 12:30:00 PM

**Client Sample ID:** SP-072020-06.2.5

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29188		Analyst: CO
Arsenic	6.94	0.247		mg/Kg-dry	1	7/30/2020 5:27:10 PM
Lead	5.77	0.197		mg/Kg-dry	1	7/30/2020 5:27:10 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60835		Analyst: CA
Percent Moisture	20.8	0.500		wt%	1	7/29/2020 12:21:42 PM

**Lab ID:** 2007293-008

**Collection Date:** 7/20/2020 12:40:00 PM

**Client Sample ID:** SP-072020-07.3

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29188		Analyst: CO
Arsenic	167	0.226		mg/Kg-dry	1	7/30/2020 5:32:44 PM
Lead	1,220	18.1	D	mg/Kg-dry	100	7/31/2020 1:26:02 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60835		Analyst: CA
Percent Moisture	15.7	0.500		wt%	1	7/29/2020 12:21:42 PM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-009

**Collection Date:** 7/20/2020 12:50:00 PM

**Client Sample ID:** SP-072020-08.3.5

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	14.2	0.230		mg/Kg-dry	1	7/30/2020 5:38:17 PM
Lead	10.9	0.184		mg/Kg-dry	1	7/30/2020 5:38:17 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835 Analyst: CA

Percent Moisture	13.7	0.500		wt%	1	7/29/2020 12:21:42 PM
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**Lab ID:** 2007293-010

**Collection Date:** 7/20/2020 12:55:00 PM

**Client Sample ID:** SP-072020-09.05

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	18.0	0.225		mg/Kg-dry	1	7/30/2020 5:43:51 PM
Lead	13.8	0.180		mg/Kg-dry	1	7/30/2020 5:43:51 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835 Analyst: CA

Percent Moisture	14.5	0.500		wt%	1	7/29/2020 12:21:42 PM
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**Lab ID:** 2007293-011

**Collection Date:** 7/20/2020 1:00:00 PM

**Client Sample ID:** SP-072020-10.2

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	72.2	0.235		mg/Kg-dry	1	7/30/2020 5:49:24 PM
Lead	367	1.88	D	mg/Kg-dry	10	7/31/2020 1:37:10 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60835 Analyst: CA

Percent Moisture	16.2	0.500		wt%	1	7/29/2020 12:21:42 PM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-012

**Collection Date:** 7/20/2020 1:10:00 PM

**Client Sample ID:** SP-072020-11.1

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 29188		Analyst: CO
Arsenic	33.3	0.229		mg/Kg-dry	1	7/30/2020 5:54:58 PM
Lead	98.1	0.183		mg/Kg-dry	1	7/30/2020 5:54:58 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	15.9	0.500		wt%	1	7/30/2020 1:15:43 PM
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**Lab ID:** 2007293-013

**Collection Date:** 7/20/2020 1:15:00 PM

**Client Sample ID:** SP-072020-12.1

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 29188		Analyst: CO
Arsenic	79.5	0.215		mg/Kg-dry	1	7/30/2020 6:00:31 PM
Lead	354	1.72	D	mg/Kg-dry	10	7/31/2020 1:42:44 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	10.0	0.500		wt%	1	7/30/2020 1:15:43 PM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-014

**Client Sample ID:** SP-072020-13.1

**Collection Date:** 7/20/2020 1:20:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	23.2	0.234		mg/Kg-dry	1	7/30/2020 6:06:05 PM
Lead	58.9	0.187		mg/Kg-dry	1	7/30/2020 6:06:05 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	16.4	0.500		wt%	1	7/30/2020 1:15:43 PM
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**Lab ID:** 2007293-015

**Client Sample ID:** SP-072020-14.2

**Collection Date:** 7/20/2020 1:25:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	30.8	0.238		mg/Kg-dry	1	7/30/2020 6:11:39 PM
Lead	10.6	0.191		mg/Kg-dry	1	7/30/2020 6:11:39 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	18.0	0.500		wt%	1	7/30/2020 1:15:43 PM
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**Lab ID:** 2007293-016

**Client Sample ID:** SP-072020-15.05

**Collection Date:** 7/20/2020 1:30:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	13.7	0.225		mg/Kg-dry	1	7/30/2020 6:28:21 PM
Lead	7.45	0.180		mg/Kg-dry	1	7/30/2020 6:28:21 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	13.9	0.500		wt%	1	7/30/2020 1:15:43 PM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-017

**Client Sample ID:** SP-072020-16.2

**Collection Date:** 7/20/2020 1:35:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29188		Analyst: CO
Arsenic	13.9	0.256		mg/Kg-dry	1	7/30/2020 6:33:55 PM
Lead	15.0	0.204		mg/Kg-dry	1	7/30/2020 6:33:55 PM

<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60871		Analyst: CA
Percent Moisture	23.6	0.500		wt%	1	7/30/2020 1:15:43 PM

**Lab ID:** 2007293-018

**Client Sample ID:** SP-072020-17.1

**Collection Date:** 7/20/2020 1:40:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 29188		Analyst: CO
Arsenic	9.75	0.254		mg/Kg-dry	1	7/30/2020 6:39:28 PM
Lead	6.70	0.203		mg/Kg-dry	1	7/30/2020 6:39:28 PM

<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R60871		Analyst: CA
Percent Moisture	22.5	0.500		wt%	1	7/30/2020 1:15:43 PM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2007293-019

**Client Sample ID:** SP-072020-18.05

**Collection Date:** 7/20/2020 1:45:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
----------	--------	----	------	-------	----	---------------

**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	40.5	0.219		mg/Kg-dry	1	7/30/2020 6:45:02 PM
Lead	103	0.175		mg/Kg-dry	1	7/30/2020 6:45:02 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	11.6	0.500		wt%	1	7/30/2020 1:15:43 PM
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**Lab ID:** 2007293-020

**Client Sample ID:** SP-072020-19.2

**Collection Date:** 7/20/2020 1:50:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	27.9	0.229		mg/Kg-dry	1	7/30/2020 6:50:35 PM
Lead	13.9	0.183		mg/Kg-dry	1	7/30/2020 6:50:35 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	18.6	0.500		wt%	1	7/30/2020 1:15:43 PM
------------------	------	-------	--	-----	---	----------------------

**Lab ID:** 2007293-021

**Client Sample ID:** SP-072020-20.05

**Collection Date:** 7/20/2020 1:55:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 29188 Analyst: CO

Arsenic	28.5	0.213		mg/Kg-dry	1	7/30/2020 6:56:09 PM
Lead	56.2	0.171		mg/Kg-dry	1	7/30/2020 6:56:09 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R60871 Analyst: CA

Percent Moisture	13.8	0.500		wt%	1	7/30/2020 1:15:43 PM
------------------	------	-------	--	-----	---	----------------------



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

---

**Work Order:** 2007293  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-29188</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>				Prep Date: <b>7/29/2020</b>	RunNo: <b>60903</b>				
Client ID: <b>MBLKS</b>	Batch ID: <b>29188</b>					Analysis Date: <b>7/30/2020</b>	SeqNo: <b>1220897</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.198									
Lead	ND	0.159									

Sample ID: <b>LCS-29188</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>				Prep Date: <b>7/29/2020</b>	RunNo: <b>60903</b>				
Client ID: <b>LCSS</b>	Batch ID: <b>29188</b>					Analysis Date: <b>7/30/2020</b>	SeqNo: <b>1220898</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	40.7	0.200	40.00	0	102	80	120				
Lead	20.7	0.160	20.00	0	104	80	120				

Sample ID: <b>2007293-002AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>7/29/2020</b>	RunNo: <b>60903</b>				
Client ID: <b>SP-072020-01.05</b>	Batch ID: <b>29188</b>					Analysis Date: <b>7/30/2020</b>	SeqNo: <b>1220901</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	65.2	0.234	46.70	15.74	106	75	125				
Lead	26.6	0.187	23.35	6.795	85.0	75	125				

Sample ID: <b>2007293-002AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>7/29/2020</b>	RunNo: <b>60903</b>				
Client ID: <b>SP-072020-01.05</b>	Batch ID: <b>29188</b>					Analysis Date: <b>7/30/2020</b>	SeqNo: <b>1220902</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	62.5	0.228	45.61	15.74	102	75	125	65.24	4.36	20	
Lead	25.8	0.182	22.80	6.795	83.2	75	125	26.65	3.38	20	

**Work Order:** 2007293  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Metals (EPA 200.8) with TCLP Extraction (EPA 1311)**

Sample ID: <b>MB-29098</b>	SampType: <b>MBLK</b>	Units: <b>mg/L</b>				Prep Date: <b>7/23/2020</b>	RunNo: <b>60700</b>				
Client ID: <b>MBLKS</b>	Batch ID: <b>29098</b>					Analysis Date: <b>7/23/2020</b>	SeqNo: <b>1216372</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.100									
Lead	ND	0.200									

Sample ID: <b>LCS-29098</b>	SampType: <b>LCS</b>	Units: <b>mg/L</b>				Prep Date: <b>7/23/2020</b>	RunNo: <b>60700</b>				
Client ID: <b>LCSS</b>	Batch ID: <b>29098</b>					Analysis Date: <b>7/23/2020</b>	SeqNo: <b>1216373</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	5.38	0.100	5.000	0	108	65	135				
Lead	2.49	0.200	2.500	0	99.5	65	135				

Sample ID: <b>2007291-002ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/L</b>				Prep Date: <b>7/23/2020</b>	RunNo: <b>60700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>29098</b>					Analysis Date: <b>7/23/2020</b>	SeqNo: <b>1216378</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.100						0		30	
Lead	ND	0.200						0		30	

Sample ID: <b>2007291-002AMS</b>	SampType: <b>MS</b>	Units: <b>mg/L</b>				Prep Date: <b>7/23/2020</b>	RunNo: <b>60700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>29098</b>					Analysis Date: <b>7/23/2020</b>	SeqNo: <b>1216379</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	5.29	0.100	5.000	0.04185	105	65	135				
Lead	2.45	0.200	2.500	0.06180	95.4	65	135				

Sample ID: <b>2007291-002AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/L</b>				Prep Date: <b>7/23/2020</b>	RunNo: <b>60700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>29098</b>					Analysis Date: <b>7/23/2020</b>	SeqNo: <b>1216380</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	5.34	0.100	5.000	0.04185	106	65	135	5.287	1.02	30	
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**Work Order:** 2007293  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Metals (EPA 200.8) with TCLP Extraction (EPA 1311)**

Sample ID: <b>2007291-002AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/L</b>	Prep Date: <b>7/23/2020</b>	RunNo: <b>60700</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>29098</b>		Analysis Date: <b>7/23/2020</b>	SeqNo: <b>1216380</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	2.45	0.200	2.500	0.06180	95.7	65	135	2.447	0.306	30	

Client Name: <b>FE</b>	Work Order Number: <b>2007293</b>
Logged by: <b>Carissa True</b>	Date Received: <b>7/21/2020 9:36:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact) Yes  No  Not Present
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA
- Metals in soil**
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is there headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler 1	0.8
Sample 1	11.2

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C





**Fremont**  
Analytical

3600 Fremont Ave. N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

### Chain of Custody Record & Laboratory Services Agreement

Date: 7.20.2020

Page: 1 of 2

Laboratory Project No (Internal):

Special Remarks:

*1007193*

Client: Fulcrum Environmental

Project Name: Apple Valley

Project No: 192784.04

Address: 406 North 2nd Street

Collected by: NLM

City, State, zip: Yakima, Washington 98901

Location: *STOCK PILE*

Telephone: 509.574.0839

Report To (PM): Peggy Williamson

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Fax: PM Email: *pwilliamson@fulcrum.net* cc: *nicole.mcphee@fulcrum.net*

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GY/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HClD)	Diesel/heavy Oil Range Organics (Dk)	SVOCS (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1. SP-072020-01.05	7/20/20	11:40	S														
2. SP-072020-02.05		11:50															
3. SP-072020-03.1		12:00															
4. SP-072020-04.2		12:10															
5. SP-072020-05.1.5		12:20															
6. SP-072020-06.2.5		12:30															
7. SP-072020-07.3		12:40															
8. SP-072020-08.3.5		12:50															
9. SP-072020-09.05		12:55															
10. SP-072020-10.2		1:00															

Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

Metals (Circle): MICA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn

Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Refined/Refrined: *7/20/20* Date/Time

Received: *7/20/20* Date/Time

Refined/Refrined: *7/21/20 @ 0130* Date/Time

Received: *7/21/20 @ 0130* Date/Time

Turn-around Time:  Standard  3 Day  2 Day  Next Day  Same Day (specify) \_\_\_\_\_



**Fremont**  
Analytical

3500 Fremont Ave. N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

### Chain of Custody Record & Laboratory Services Agreement

Date: 7.20.2020

Page: 2 of 2

Laboratory Project No (Internal): 2007993

Project Name: Apple Valley

Special Remarks:

Project No: 192784.04

Client: Fulcrum Environmental  
Address: 406 North 2nd Street  
City, State, zip: Yakima, Washington 98901

Collected by: NLM

Location: STACKPILE

Report To (PM): Peggy Williamson

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Telephone: 509.574.0839

Fax: PM Email: pwilliamson@fulcrum.net cc: nicole.mcphree@fulcrum.net

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DH)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)**	EDB (8011)	Comments
1 SP-072020-11.1	7/20/20	1:10	S														
2 SP-072020-12.1		1:15															
3 SP-072020-13.1		1:20															
4 SP-072020-14.2		1:25															
5 SP-072020-15.05		1:30															
6 SP-072020-16.2		1:35															
7 SP-072020-17.1		1:40															
8 SP-072020-18.05		1:45															
9 SP-072020-19.2		1:50															
10 SP-072020-20.05		1:55															

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al (As) B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni (Pb) Sb Se Sr Sn Tl Ti U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Iodide Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished *Michelle McPhree* Date/Time 7/20/20 Received *[Signature]* Date/Time 7/20/20 20936  
 Relinquished *[Signature]* Date/Time Received *[Signature]* Date/Time









### Chain of Custody Record & Laboratory Services Agreement

Date: 7.20.2020 Page: 2 of 2 Laboratory Project No (internal): 2007997

Project Name: Apple Valley Special Remarks:

Project No: 192784.04

Collected by: NLM

Location: STACKPILE

Report to (pm): Peggy Williamson

PM Email: pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)**	VOCS (EPA 8260 / 824)	GY/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (HX)	SVOCs (EPA 8270 / 825)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8062 / 608)	Metals** (EPA 6010 / 200.8)	Total (T) Dissolved (D)	Anions (IC)**	EOB (8011)	Comments
SP-072020-11.1	7/20/20	1:10	S														
SP-072020-12.1		1:15															
SP-072020-13.1		1:20															
SP-072020-14.2		1:25															
SP-072020-15.05		1:30															
SP-072020-16.2		1:35															
SP-072020-17.1		1:40															
SP-072020-18.05		1:45															
SP-072020-19.2		1:50															
SP-072020-20.05		1:55															

\*LAB COMPOSITE ALL 20 SAMPLES FOR 1 TELP ANALYSIS\*

Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual Ag As B Ba Br Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl Ti U V Zn  
 Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide Fluoride Nitrate-Nitrite O-Phosphate

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: Michelle M. Miller Date/Time: 7/20/20  
 Received: [Signature] Date/Time: 7/21/20 20936

Turn-around Time:  
 Standard  
 3 Day  
 2 Day  
 Next Day  
 Same Day (Specify)

## MEMORANDUM

---

DATE November 10, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling Activities – Northwest Retention Pond**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On October 23, 2020, Nicole McPhee an environmental technicians with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect soil samples from the northwest retention pond to determine if lead and arsenic concentrations were above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels (CUL). West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey included continuing construction to building development.

A total of six soil samples were collected from the pit bottom of the retention pond feature from depths of approximately three to six inches below ground surface (bgs). A duplicate sample was collected from sample location 102320-04.4 and labeled 102320-05.4. Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for Northwest Retention Pond Sample Locations.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used to collect each sample.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2010436. See the attached laboratory report.

**Table 1: Soil Sample Results – Northwest Retention Pond Feature**

Sample ID	Arsenic	Lead
102320-01.4	18.5	7.38
102320-02.4	14.6	11.8
102320-03.4	4.83	8.23
102320-04.4	16.9	14.5
102320-05.4 (Duplicate)	<b>20.7</b>	19.1
102320-06.4	9.90	6.79
<b>MTCA Method A Cleanup Level</b>	<b>20</b>	<b>250</b>

All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

**Table 2: QA/QC Evaluation**

Standard Deviation	4.98727	2.948
Variance	24.87286	8.69068
Relative Percent Difference	20.21277%	27.381%

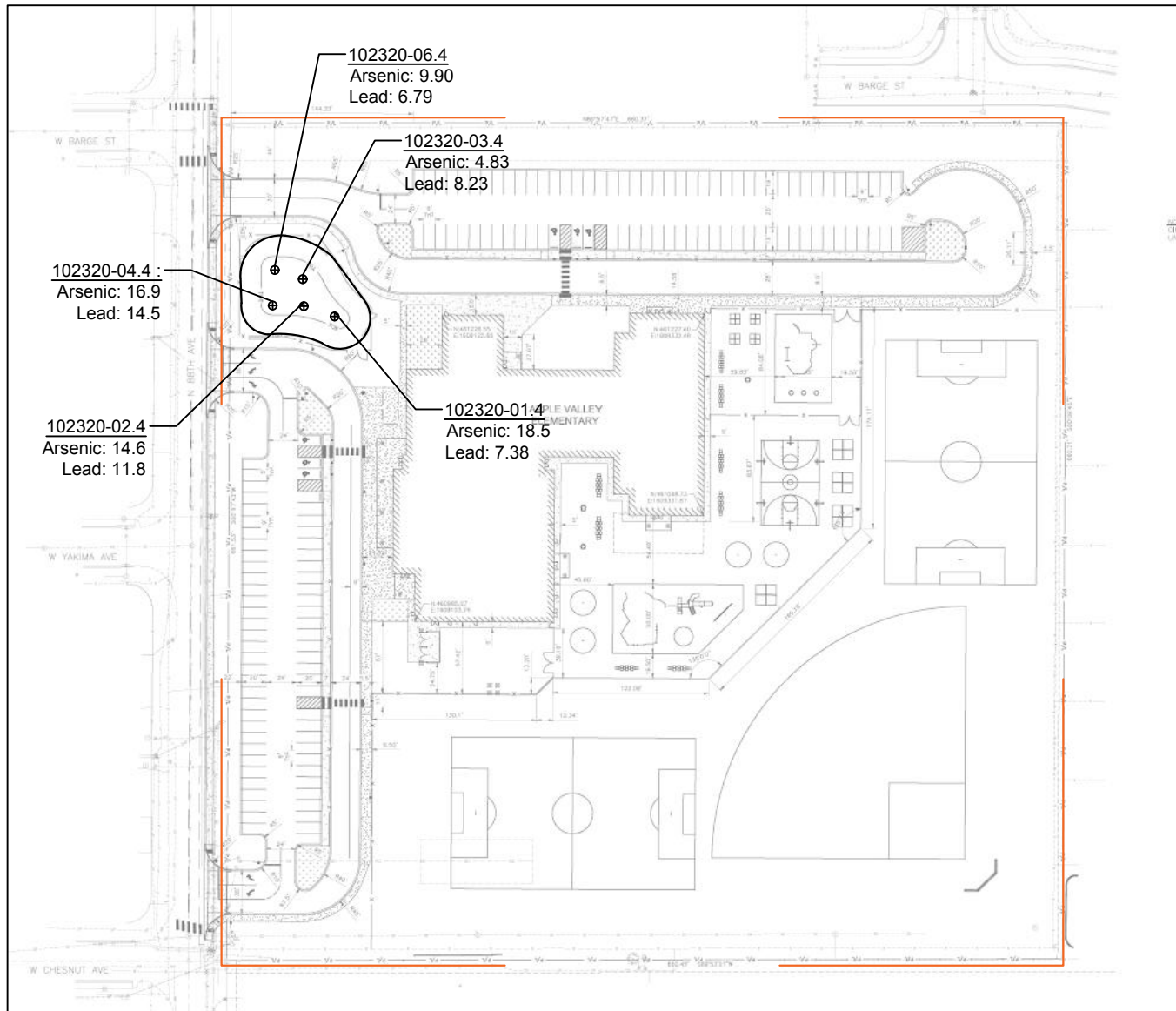
Results for the 5 collected confirmation samples are below the MTCA Method A cleanup levels for both Lead and Arsenic. Additionally, concentrations of lead are consistent with naturally occurring background concentrations for central Washington as presented by Ecology’s document titled, *Natural Background Soil Metals Concentrations in Washington State, Publications #94-115*, dated October 1994 (Ecology 1994).

During the confirmation sampling event, Fulcrum collected field duplicate samples 102320-05.4 concurrent with samples 102320-04.4. Field duplicate sample results for arsenic were 20.7 mg/Kg; and above both the MTCA Method A cleanup level of 20 mg/Kg and the corresponding sample concentration of 16.9 mg/Kg. Fulcrum reviewed the field duplicate concentration and concluded that the relative percent difference between sample 102320-04.4 and the field duplicate 102320-05.4 was 20.2-percent and below the population variance of about 24.9. As such, Fulcrum determined that the duplicate sample results are within acceptable data validation ranges and does not indicate an issue with sample collection. While the concentration of the field duplicate sample is above MTCA Method A cleanup level, the average concentration of samples 102320-04.4 and the field duplicate 102320-05.4 is 18.8 mg/Kg and below the MTCA Method A cleanup level. Further, while the data set sample number, inclusive of the field duplicate, is below the minimum 10 sample limit for statistical evaluation presented in Ecology’s Statistical Guidance for Site Managers (Ecology Publication #92-54, dated August 1993), the calculated upper confidence limit for the event data set is 19.1 mg/Kg and below the MTCA Method A cleanup level. See Attached MTCASAT results calculation.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
 Tim Critchlow                              Ron Huylar                              Eric Kanzig





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\*Concentrations detected above method reporting limits are presented in milligrams per kilograms of soil (mg/Kg)

DATA	ID	<b>MTCASat 97 Site Module</b>			
18.5	102320-01	<b>Number of samples</b>		<b>Uncensored values</b>	
14.6	102320-02	Uncensored	6	Mean	14.238
4.83	102320-03	Censored		Lognormal mean	14.904
16.9	102320-04	Detection limit or PQL		Std. devn.	5.907
20.7	102320-05	Method detection limit		Median	15.75
9.9	102320-06	TOTAL	6	Min.	4.83
		<b>ENTER DATA</b>		Max.	20.7
<b>Distribution Decision</b>					
<b>Probability plot method</b>		W test		D'Agostino's test	
Lognormal distribution?			Normal distribution?		
r-squared is:			r-squared is:		
<i>Recommendations:</i>					
<b>Upper Confidence Limit (UCL)</b>					
UCL (based on t-statistic) is 19.0976188557536					

Paste values

Sort data

Calculate UCL

Lognormal

Normal

Neither

Clear messages

Clear all

Histogram

5 10 20

Create report

Sample size

Time trends

Help

**Finished**

Exit MTCASat

\*Extracted from Ecology's MTCASat 97 Site Module





**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2010436**

November 03, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 6 sample(s) on 10/27/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2010436

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**Work Order Sample Summary**

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
2010436-001	102320-01.4	10/23/2020 11:20 AM	10/27/2020 10:18 AM
2010436-002	102320-02.4	10/23/2020 11:25 AM	10/27/2020 10:18 AM
2010436-003	102320-03.4	10/23/2020 11:30 AM	10/27/2020 10:18 AM
2010436-004	102320-04.4	10/23/2020 11:35 AM	10/27/2020 10:18 AM
2010436-005	102320-05.4	10/23/2020 11:35 AM	10/27/2020 10:18 AM
2010436-006	102320-06.4	10/23/2020 11:40 AM	10/27/2020 10:18 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

---

**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

---

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- DUP - Sample Duplicate
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- REP - Sample Replicate
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2010436-001

**Collection Date:** 10/23/2020 11:20:00 AM

**Client Sample ID:** 102320-01.4

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 30219		Analyst: CO
Arsenic	18.5	0.277		mg/Kg-dry	1	11/2/2020 3:37:15 PM
Lead	7.38	0.222		mg/Kg-dry	1	11/2/2020 3:37:15 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R63077		Analyst: RL
Percent Moisture	30.1	0.500		wt%	1	11/3/2020 9:45:13 AM

**Lab ID:** 2010436-002

**Collection Date:** 10/23/2020 11:25:00 AM

**Client Sample ID:** 102320-02.4

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 30219		Analyst: CO
Arsenic	14.6	0.258		mg/Kg-dry	1	11/2/2020 4:39:11 PM
Lead	11.8	0.206		mg/Kg-dry	1	11/2/2020 4:39:11 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R63077		Analyst: RL
Percent Moisture	27.6	0.500		wt%	1	11/3/2020 9:45:13 AM

**Lab ID:** 2010436-003

**Collection Date:** 10/23/2020 11:30:00 AM

**Client Sample ID:** 102320-03.4

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 30219		Analyst: CO
Arsenic	4.83	0.244		mg/Kg-dry	1	11/2/2020 4:44:45 PM
Lead	8.23	0.195		mg/Kg-dry	1	11/2/2020 4:44:45 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R63077		Analyst: RL
Percent Moisture	19.9	0.500		wt%	1	11/3/2020 9:45:13 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2010436-004

**Client Sample ID:** 102320-04.4

**Collection Date:** 10/23/2020 11:35:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 30219		Analyst: CO
Arsenic	16.9	0.246		mg/Kg-dry	1	11/2/2020 4:50:19 PM
Lead	14.5	0.197		mg/Kg-dry	1	11/2/2020 4:50:19 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R63077		Analyst: RL
Percent Moisture	21.1	0.500		wt%	1	11/3/2020 9:45:13 AM

**Lab ID:** 2010436-005

**Client Sample ID:** 102320-05.4

**Collection Date:** 10/23/2020 11:35:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 30219		Analyst: CO
Arsenic	20.7	0.234		mg/Kg-dry	1	11/2/2020 5:01:29 PM
Lead	19.1	0.188		mg/Kg-dry	1	11/2/2020 5:01:29 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R63077		Analyst: RL
Percent Moisture	21.0	0.500		wt%	1	11/3/2020 9:45:13 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2010436-006

**Collection Date:** 10/23/2020 11:40:00 AM

**Client Sample ID:** 102320-06.4

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 30219		Analyst: CO
Arsenic	9.90	0.231		mg/Kg-dry	1	11/2/2020 5:07:03 PM
Lead	6.79	0.185		mg/Kg-dry	1	11/2/2020 5:07:03 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R63077		Analyst: RL
Percent Moisture	22.9	0.500		wt%	1	11/3/2020 9:45:13 AM

**Work Order:** 2010436  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-30219</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>	Prep Date: <b>10/29/2020</b>	RunNo: <b>63054</b>							
Client ID: <b>MBLKS</b>	Batch ID: <b>30219</b>	Analysis Date: <b>11/2/2020</b>	SeqNo: <b>1265562</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.184									
Lead	ND	0.147									

Sample ID: <b>LCS-30219</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>	Prep Date: <b>10/29/2020</b>	RunNo: <b>63054</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>30219</b>	Analysis Date: <b>11/2/2020</b>	SeqNo: <b>1265563</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	37.0	0.181	36.23	0	102	80	120				
Lead	19.4	0.145	18.12	0	107	80	120				

Sample ID: <b>2010436-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>10/29/2020</b>	RunNo: <b>63054</b>							
Client ID: <b>102320-01.4</b>	Batch ID: <b>30219</b>	Analysis Date: <b>11/2/2020</b>	SeqNo: <b>1265566</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	64.9	0.259	51.86	18.53	89.5	75	125				
Lead	33.3	0.207	25.93	7.383	100	75	125				

Sample ID: <b>2010436-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>10/29/2020</b>	RunNo: <b>63054</b>							
Client ID: <b>102320-01.4</b>	Batch ID: <b>30219</b>	Analysis Date: <b>11/2/2020</b>	SeqNo: <b>1265567</b>								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	70.7	0.261	52.24	18.53	99.9	75	125	64.92	8.54	20	
Lead	35.1	0.209	26.12	7.383	106	75	125	33.33	5.05	20	



Client Name: <b>FE</b>	Work Order Number: <b>2010436</b>
Logged by: <b>Gabrielle Coeulle</b>	Date Received: <b>10/27/2020 10:18:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact) Yes  No  Not Present
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is there headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text" value="Peaav Williamson"/>	Date:	<input type="text" value="10/27/2020"/>
By Whom:	<input type="text" value="Gabrielle Coeulle"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="No sample date or times on COC."/>		
Client Instructions:	<input type="text" value="provided correct sample times"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Sample 1	2.9

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C





3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

# Chain of Custody Record & Laboratory Services Agreement

Date: 10/26/20 Page: 1 of 1  
Project Name: Apple Valley  
Project No: 192784.04

Laboratory Project No (Internal): 2610434  
Special Remarks: Changes per PW 10/27/20- gac

Client: Fulcrum Environmental  
Address: 406 North 2nd Street  
City, State, zip: Yakima, Washington 98901  
Telephone: 509.574.0839

Collected by: NMM  
Location:  
Report To (PM): Peggy Williamson  
PM Email: P.Williamson@Fulcrum.NET

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCS (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) / Dissolved (D)	Anions (IC)**	EDB (8011)	Comments
1 1023320-01.4	10/23	11:20															
2 1023320-02.4	10/23	11:25															
3 1023320-03.4	10/23	11:30															
4 1023320-04.4	10/23	11:35															
5 1023320-05.4	10/23	11:35															
6 1023320-06.4	10/23	11:40															
7																	
8																	
9																	
10																	

Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 Metals (Circle): MTCA-5 RCHA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn  
 Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished Date/Time: 10/27/20 10:15  
 Received Date/Time: 10/27/20 10:15  
 Turn-around Time:  Standard  3 Day  2 Day  Next Day  Same Day (specify) \_\_\_\_\_



**APPENDIX F**

Air Monitoring Memorandums



# MEMORANDUM

DATE May 8, 2020  
 TO Rob Gross, CBRE Heery  
 FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Air Sampling During Soil Impacting Activities**  
 SUBJECT West Valley School District – Apple Valley Elementary

On April 16, 2020, Nicole McPhee and Daniel Orozco, both employees with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect air samples during soil impacting activities of lead and arsenic contaminated soils for comparative evaluation analytical results will be compared with the Washington State Department of Labor and Industrial, Division of Occupational Safety and Health (DOSH) Personal Exposure Limits (PEL). West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during air sampling included leveling, clearing, and excavating in the north/northeast area of the site. A water truck was present on site and being utilized for dust suppression.

A total of three air samples were collected from the perimeter of the site: one upwind sample and two downwind samples. Samples were collected to evaluate the total metal concentrations of lead and arsenic in the airborne particulates. Samples were collected at a rate of 2 liters per minute utilizing a matched weight 0.8 micron 3- piece, 37-mm preloaded cassette. Sampling took place between 9:30 am and approximately 5:00 pm. See Figure 1 for sample location map.

Samples were packed and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020 - Arsenic (As) and Lead (Pb)

Calculated results are reported in Table 1 in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) of air. Results are compared to the DOSH PEL. Analytical Results were reported under Fremont Work Order 2004216. See the attached laboratory report.

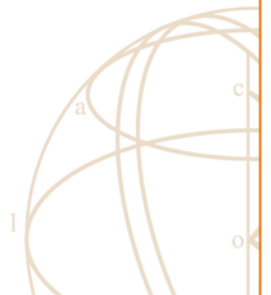
**Table 1: Air Sample Results**

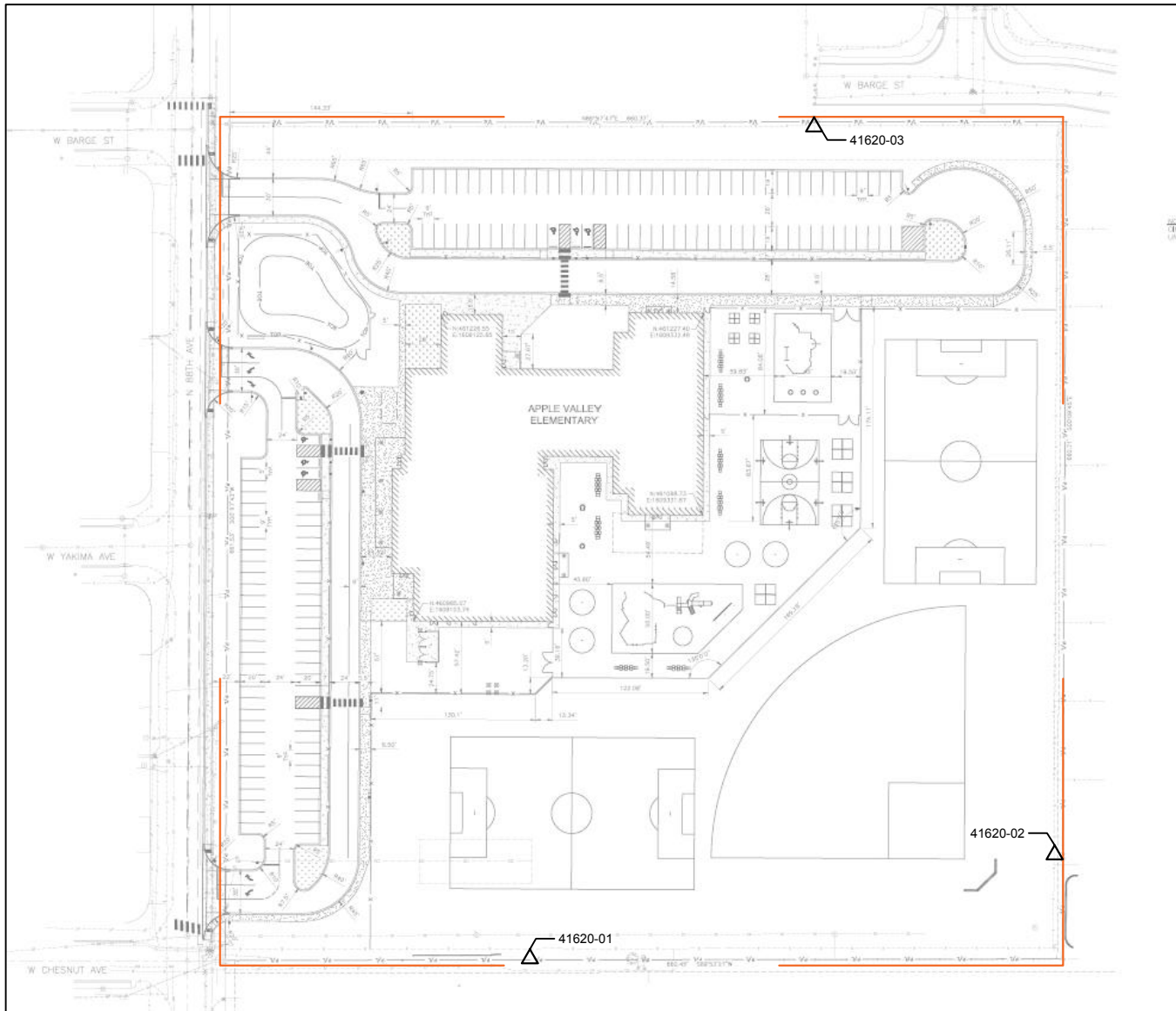
Sample ID	Arsenic ( $\mu\text{g}/\text{m}^3$ )	Lead ( $\mu\text{g}/\text{m}^3$ )
41620-01	<0.0150	<0.0150
41620-02	<0.0166	<0.0166
41620-03	<0.0134	<0.0134
<b>DOSH PEL</b>	<b>10 <math>\mu\text{g}/\text{m}^3</math></b>	<b>50 <math>\mu\text{g}/\text{m}^3</math></b>

Laboratory analysis identified no concentrations of lead or arsenic above reporting limits for any samples.

If you have any questions, please contact me at 509.574.0839.

cc:     **West Valley School District**     **Chervenel Construction**     **Tri-Valley Construction**  
          Tim Critchlow                      Ron Huylar                      Eric Kanzig





Legend:  
 ▲ Air Sample Locations

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**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley Soil Observation**

**Work Order Number: 2004216**

April 27, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 4 sample(s) on 4/20/2020 for the analyses presented in the following report.

***Total Metals by EPA Method 6020***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**

Nicole McPhee





Date: 04/27/2020

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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil Observation  
**Work Order:** 2004216

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## Work Order Sample Summary

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Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2004216-001	41620-01	04/16/2020 9:22 AM	04/20/2020 8:57 AM
2004216-002	41620-02	04/16/2020 9:25 AM	04/20/2020 8:57 AM
2004216-003	41620-03	04/16/2020 9:30 AM	04/20/2020 8:57 AM
2004216-004	41620-04 (Blank)	04/16/2020 12:00 AM	04/20/2020 8:57 AM

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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil Observation

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

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- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil Observation

**Lab ID:** 2004216-001

**Collection Date:** 4/16/2020 9:22:00 AM

**Client Sample ID:** 41620-01

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020**

Batch ID: 28143 Analyst: CO

Arsenic	ND	0.0150		µg/m <sup>3</sup>	1	4/27/2020 12:07:27 AM
Lead	ND	0.0150		µg/m <sup>3</sup>	1	4/27/2020 12:07:27 AM

**Lab ID:** 2004216-002

**Collection Date:** 4/16/2020 9:25:00 AM

**Client Sample ID:** 41620-02

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020**

Batch ID: 28143 Analyst: CO

Arsenic	ND	0.0166		µg/m <sup>3</sup>	1	4/27/2020 12:12:15 AM
Lead	ND	0.0166		µg/m <sup>3</sup>	1	4/27/2020 12:12:15 AM

**Lab ID:** 2004216-003

**Collection Date:** 4/16/2020 9:30:00 AM

**Client Sample ID:** 41620-03

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020**

Batch ID: 28143 Analyst: CO

Arsenic	ND	0.0134		µg/m <sup>3</sup>	1	4/27/2020 12:17:03 AM
Lead	ND	0.0134		µg/m <sup>3</sup>	1	4/27/2020 12:17:03 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley Soil Observation

**Lab ID:** 2004216-004

**Collection Date:** 4/16/2020

**Client Sample ID:** 41620-04 (Blank)

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020**

Batch ID: 28143

Analyst: CO

Arsenic	ND	12.5		µg, Total	1	4/27/2020 12:21:51 AM
Lead	ND	12.5		µg, Total	1	4/27/2020 12:21:51 AM

Work Order: 2004216  
 CLIENT: Fulcrum Environmental  
 Project: Apple Valley Soil Observation

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020**

Sample ID: <b>MB-28143</b>	SampType: <b>MBLK</b>	Units: <b>µg, Total</b>				Prep Date: <b>4/23/2020</b>	RunNo: <b>58807</b>				
Client ID: <b>MBLKW</b>	Batch ID: <b>28143</b>					Analysis Date: <b>4/26/2020</b>	SeqNo: <b>1174417</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	12.5									
Lead	ND	12.5									

**NOTES:**  
 Filter Blank

Sample ID: <b>LCS-28143</b>	SampType: <b>LCS</b>	Units: <b>µg/L</b>				Prep Date: <b>4/23/2020</b>	RunNo: <b>58807</b>				
Client ID: <b>LCSW</b>	Batch ID: <b>28143</b>					Analysis Date: <b>4/26/2020</b>	SeqNo: <b>1174418</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	75.8	0.500	100.0	0	75.8	75	125				
Lead	42.1	0.500	50.00	0	84.1	75	125				

Sample ID: <b>LCS-28143</b>	SampType: <b>LCS</b>	Units: <b>µg/L</b>				Prep Date: <b>4/23/2020</b>	RunNo: <b>58807</b>				
Client ID: <b>LCSW02</b>	Batch ID: <b>28143</b>					Analysis Date: <b>4/27/2020</b>	SeqNo: <b>1174419</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	80.5	0.500	100.0	0	80.5	75	125	75.76	6.01	30	
Lead	45.6	0.500	50.00	0	91.1	75	125	42.06	8.02	30	

Client Name: **FE**  
 Logged by: **Clare Griggs**

Work Order Number: **2004216**  
 Date Received: **4/20/2020 8:57:00 AM**

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA   
**Air Samples**  
 4. Shipping container/cooler in good condition? Yes  No   
 5. Custody Seals present on shipping container/cooler?  
 (Refer to comments for Custody Seals not intact) Yes  No  Not Required   
 6. Was an attempt made to cool the samples? Yes  No  NA   
 7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA   
 8. Sample(s) in proper container(s)? Yes  No   
 9. Sufficient sample volume for indicated test(s)? Yes  No   
 10. Are samples properly preserved? Yes  No   
 11. Was preservative added to bottles? Yes  No  NA   
 12. Is there headspace in the VOA vials? Yes  No  NA   
 13. Did all samples containers arrive in good condition(unbroken)? Yes  No   
 14. Does paperwork match bottle labels? Yes  No   
 15. Are matrices correctly identified on Chain of Custody? Yes  No   
 16. Is it clear what analyses were requested? Yes  No   
 17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Air Chain of Custody Record & Laboratory Services Agreement**

Date: 4.17.2020

Page: 1 of 1

Project Name: Apple Valley Soil Observation

Project No: 192784.04

Laboratory Project No (Internal):

2004216

Special Remarks:

Client: Fulcrum Environmental

Address: 406 North 2nd Street

City, State, zip: Yakima, Washington

Telephone: 509.574.0839

Location:

Collected by: NLM

Reports to (PM): Peggy Williamson

Email (PM): pwilliamson@fulcrum.net, cc: nicole.mcphee@fulcrum.net

Fax:

Sample Name	Canister / Flow Reg. Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal		Field Initial Sample Pressure ("Hg)	Field Final Sample Pressure ("Hg)	Analysis Requested	Internal	
								Initial Evacuation Pressure (torr)	Final Pressure ("Hg)				Receipt Date	Final Pressure ("Hg)
1 41620-01	CU37080MW Lot # 27451602-9165-JP	4.16.20 ON: 9:22 am OFF: 5:00 pm	AA	Matched Wt. 17mm, 0.8 µ MCE	833.45 L		Initial: 2.00 L/min Final: 1.95 L/min					Total Metals (As, Pb)		
2 41620-02	CU37080MW Lot # 27451602-9165-JP	4.16.20 ON: 9:25 am OFF: 5:05 pm	AA	Matched Wt. 17mm, 0.8 µ MCE	753.75 L		Initial: 2.00 L/min Final: 1.35 L/min					Total Metals (As, Pb)		
3 41620-03	CU37080MW Lot # 27451602-9165-JP	4.16.20 ON: 9:30 am OFF: 5:10 pm	AA	Matched Wt. 17mm, 0.8 µ MCE	933.8 L		Initial: 2.00 L/min Final: 2.06 L/min					Total Metals (As, Pb)		
4 41620-04 (Blank)	CU37080MW Lot # 27451602-9165-JP	4.16.20	AA	Matched Wt. 17mm, 0.8 µ MCE								Total Metals (As, Pb)		
5 Relinquished														

Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas  
 Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CVL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished Date/Time: 4.17.20  
 Received Date/Time: 4/12/20 0857  
 Relinquished Date/Time:   
 Received Date/Time:   
 Turn-Around Time:  Standard  3 Day  2 Day  Next Day  Same Day (specify)



# MEMORANDUM

---

DATE May 15, 2020  
 TO Rob Gross, CBRE Heery  
 FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
 RE **Airborne Particulate Measurements During Soil Impacting Activities**  
 SUBJECT West Valley School District – Apple Valley Elementary

---

On April 30, 2020, Nicole McPhee, an environmental technician, with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect air samples during soil impacting activities of lead and arsenic contaminated soils, for comparative evaluation, analytical results will be compared with the Washington State Department of Labor and Industrial, Division of Occupational Safety and Health (DOSH) Personal Exposure Limit (PEL). West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during air sampling included leveling and grading in the north and south portion of the site. A water truck was present on site for dust suppression.

A total of three air samples were collected from the perimeter of the site. One sample was collected upwind of the site and two samples were collected downwind. Samples were collected to evaluate the total dust being generated onsite. Samples were collected at a rate of 2 liters per minute utilizing a 37-mm matched weight, 5.0 micron, 3- piece preloaded cassette. Sampling took place between 9:30 am and approximately 5:15 pm. See Figure 1 for sample location map.

Samples were packaged and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020 - Arsenic (As) and Lead (Pb)

Calculated results are reported in Table 1 in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) of air. Results are compared to the DOSH PEL. Analytical Results were reported under Fremont Work Order 2005142. See the attached laboratory report.

**Table 1: Air Sample Results**

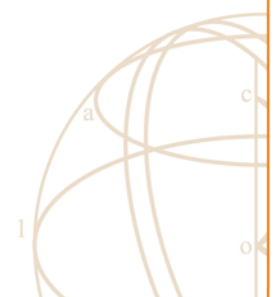
Sample ID	Arsenic ( $\mu\text{g}/\text{m}^3$ )	Lead ( $\mu\text{g}/\text{m}^3$ )
41620-01	<0.0150	<0.0150
41620-02	<0.0166	<0.0166
41620-03	<0.0134	<0.0134
<b>DOSH PEL</b>	<b>10 <math>\mu\text{g}/\text{m}^3</math></b>	<b>50 <math>\mu\text{g}/\text{m}^3</math></b>

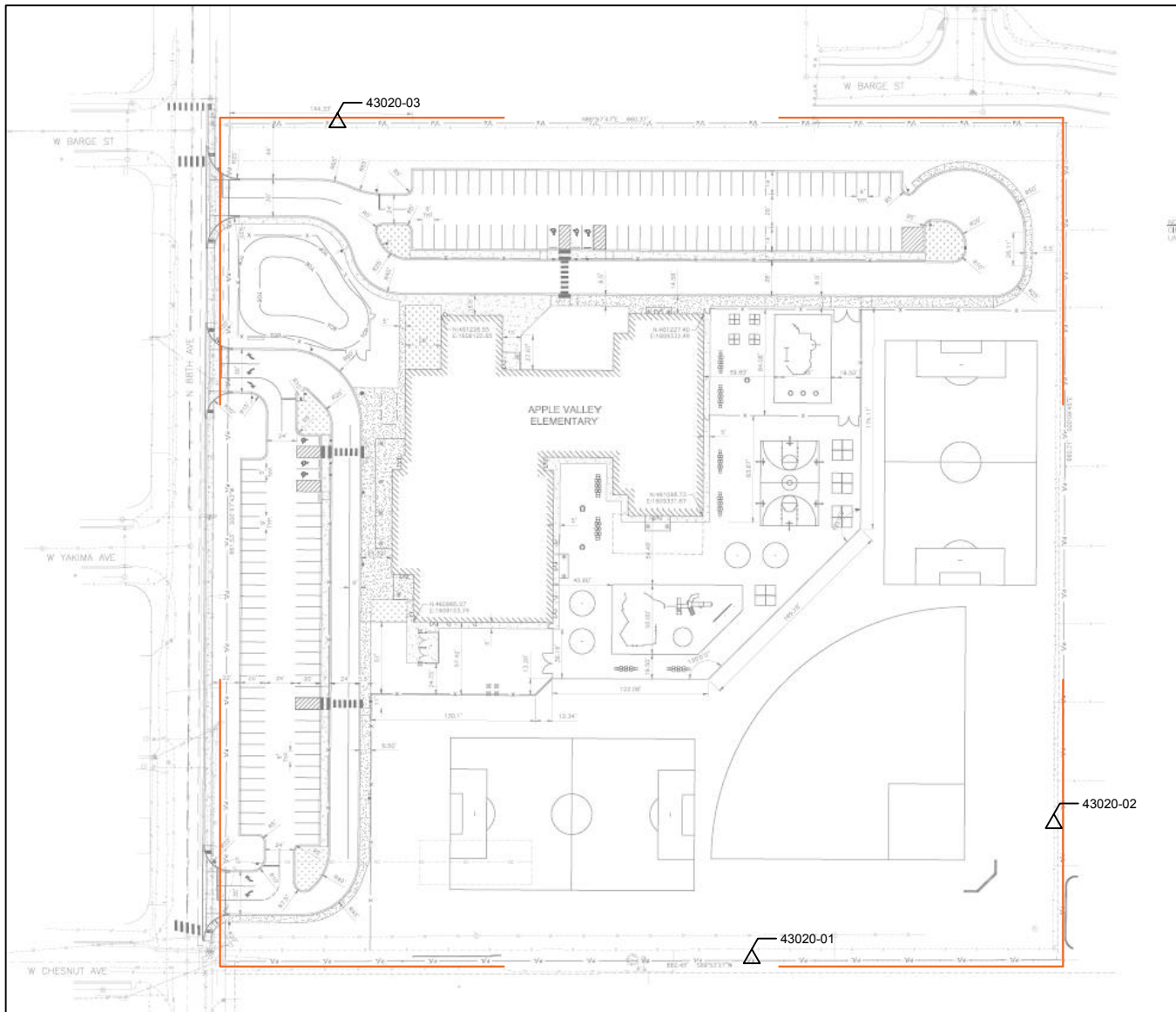
No data qualifiers were identified in the laboratory analytical report.

Laboratory results identified lead and arsenic concentrations to be below the reporting limit in all three air samples collected from the site boundaries.

If you have any questions, please contact me at 509.574.0839.

cc:     **West Valley School District**     **Chervenel Construction**     **Tri-Valley Construction**  
          Tim Critchlow                      Ron Huylar                      Eric Kanzig





Legend:  
 △ Air Sample Locations

*128*



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**  
**Work Order Number: 2005142**

May 26, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 3 sample(s) on 5/14/2020 for the analyses presented in the following report.

***Particulates by Gravimetric Determination***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**  
Nicole McPhee



Date: 05/26/2020

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2005142

## Work Order Sample Summary

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Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2005142-001	43020-01	04/30/2020 9:25 AM	05/14/2020 9:28 AM
2005142-002	43020-02	04/30/2020 9:30 AM	05/14/2020 9:28 AM
2005142-003	43020-03	04/30/2020 9:40 AM	05/14/2020 9:28 AM

---

**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Air particulate samples are reported in ug/m3.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2005142-001

**Client Sample ID:** 43020-01

**Collection Date:** 4/30/2020 9:25:00 AM

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Particulates by Gravimetric Determination**

Batch ID: R59306 Analyst: AD

Particulates, Total	5,818	32.93		µg/m <sup>3</sup>	1	5/21/2020 2:53:46 PM
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**Lab ID:** 2005142-002

**Client Sample ID:** 43020-02

**Collection Date:** 4/30/2020 9:30:00 AM

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Particulates by Gravimetric Determination**

Batch ID: R59306 Analyst: AD

Particulates, Total	2,661	33.26		µg/m <sup>3</sup>	1	5/21/2020 2:53:46 PM
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**Lab ID:** 2005142-003

**Client Sample ID:** 43020-03

**Collection Date:** 4/30/2020 9:40:00 AM

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Particulates by Gravimetric Determination**

Batch ID: R59306 Analyst: AD

Particulates, Total	4,546	30.31		µg/m <sup>3</sup>	1	5/21/2020 2:53:46 PM
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Client Name: <b>FE</b>	Work Order Number: <b>2005142</b>
Logged by: <b>Clare Griggs</b>	Date Received: <b>5/14/2020 9:28:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA
- Air Samples**
4. Shipping container/cooler in good condition? Yes  No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact) Yes  No  Not Present
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is there headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text" value="Nicole McPhee"/>	Date:	<input type="text" value="5/14/2020"/>
By Whom:	<input type="text" value="Clare Griggs"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Confirming COC/media. Only received media for particulates analysis."/>		
Client Instructions:	<input type="text" value="Run for particulates only. Metals analysis on hold."/>		

19. Additional remarks:

### Item Information

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Air Chain of Custody Record & Laboratory Services Agreement**

Date: 05/04/2020

Page: 1 of 1

Laboratory Project No (Internal):

200514

Project Name: Apple Valley

Project No: 192784.04

Special Remarks:

Client: Fulcrum Environmental

Address: 406 North 2nd Street

City, State, Zip: Yakima, Washington 98901

Telephone: 509.574.0839

Location: NLM

Collected by: Peggy Williamson

Reports to (PM): pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Fax:

Email (PM):

pwilliamson@fulcrum.net

Sample Name	Canister / Flow Reg. Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal		Field Initial Sample Pressure ("Hg)	Field Final Sample Pressure ("Hg)	Analysis Requested	Internal	
								Initial Evacuation Pressure (mtorr)	Sample Pressure ("Hg)				Receipt Date	Final Pressure ("Hg)
43020-01	2258202	04/30/20	AA	Matched Wt. 37mm, 5.0 µm	911		Initial: 2.00 mL Final: 2.08 mL					Total Metals (As, Pb) Total Particulate		
	5-118475	ON: 9:25AM OFF: 5:07PM												
43020-02	2258202	04/30/20	AA	Matched Wt. 37mm, 5.0 µm	902		Initial: 2.00 mL Final: 2.05 mL					Total Metals (As, Pb) Total Particulate		
	5-118480	ON: 9:30AM OFF: 5:10PM												
43020-03	2258202	04/30/20	AA	Matched Wt. 37mm, 5.0 µm	989.9		Initial: 2.00 mL Final: 2.02 mL					Total Metals (As, Pb) Total Particulate		
	5-118458	ON: 9:40AM OFF: 5:15PM												

\* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

\*\* Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CCL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: *Nick M...* Date/Time: 5/4/20  
Received: *Emily...* Date/Time: 5/14/20 @ 09:28

Turn-Around Time:

Standard

3 Day

2 Day

Next Day

Same Day (Specify)

# MEMORANDUM

---

DATE July 15, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE May 20, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On May 20, 2020, Nicole McPhee, an environmental technician, with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to collect air samples during lead and arsenic contaminated soil impacting activities, for comparative evaluation with the Washington State Department of Labor and Industrial, Division of Occupational Safety and Health (DOSH) Personal Exposure Limit (PEL). West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during air sampling included leveling and grading in the south portion of the site and building construction. A water truck was present on site for dust suppression.

A total of three air samples were collected from the perimeter of the site. One sample was collected upwind of the site and two samples were collected downwind. Samples were collected to evaluate the total dust being generated onsite. Samples were collected at a rate of 2 liters per minute utilizing a 37-mm matched weight, 5.0 micron, 3- piece preloaded cassette and a 37-mm matched weight, 0.8 micron, 3-piece preloaded cassette. Cassettes distinguished by a “D” were utilized for particulate analysis, cassettes identified by an “M” were utilized for total metal analysis. Sampling took place between 9:30 am and approximately 6:30 pm. See Figure 1 for sample location map.

Samples were packaged and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020 - Arsenic (As) and Lead (Pb)
- Particulates by Gravimetric Determination

Calculated results are reported in Table 1 in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) of air. Results are compared to the DOSH PEL. Analytical Results were reported under Fremont Work Order 2005363. See the attached laboratory report.

**Table 1: Air Sample Results**

Sample ID	Arsenic ( $\mu\text{g}/\text{m}^3$ )	Lead ( $\mu\text{g}/\text{m}^3$ )	Total Particulate ( $\mu\text{g}/\text{m}^3$ )
052020-01	0.0243	0.200	395.3
052020-02	<0.0125	0.0922	396.0
052020-03	<0.0126	<0.0126	201.2
<b>DOSH PEL</b>	<b>10 <math>\mu\text{g}/\text{m}^3</math></b>	<b>50 <math>\mu\text{g}/\text{m}^3</math></b>	<b>10,000 <math>\mu\text{g}/\text{m}^3</math></b>

No data qualifiers were identified in the laboratory analytical report.

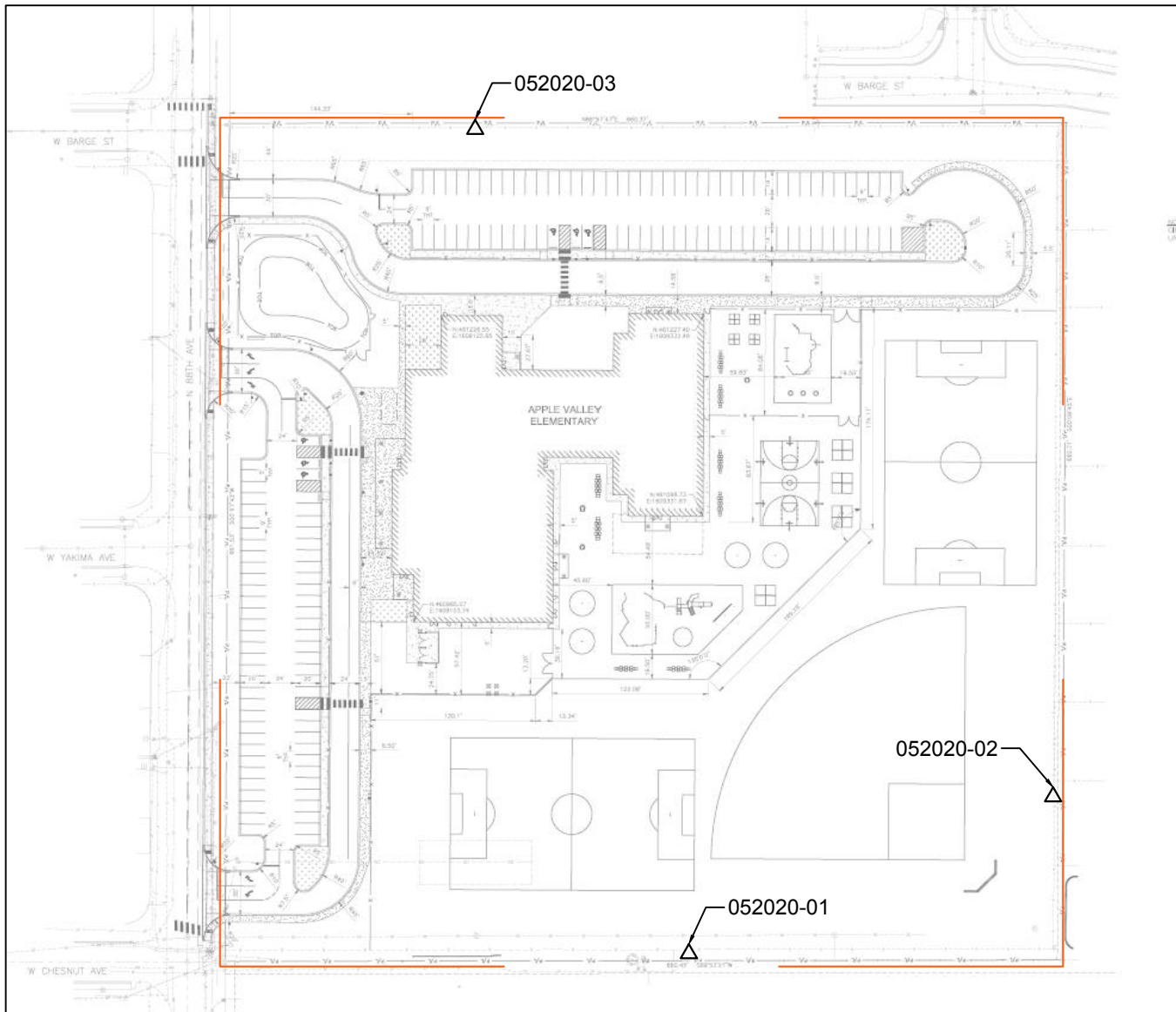
Laboratory results identified detectible arsenic in both downwind samples (052020-01 and 052020-02). Detectible lead was detected in one of the downwind samples (052020-02).

The laboratory identified lead and arsenic concentrations were below the comparable DOSH PEL in all three air samples collected from the site boundaries.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                                  Ron Huylar                                  Eric Kanzig





Legend:  
 △ Air Sample Locations

*AS*



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2005363**

June 04, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 6 sample(s) on 5/28/2020 for the analyses presented in the following report.

***Particulates by Gravimetric Determination***

***Total Metals by EPA Method 6020***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

**CC:**

Nicole McPhee

---

**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2005363

---

**Work Order Sample Summary**

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
2005363-001	052020-01D	05/20/2020 9:40 AM	05/28/2020 11:06 AM
2005363-002	052020-01M	05/20/2020 9:40 AM	05/28/2020 11:06 AM
2005363-003	052020-02D	05/20/2020 9:55 AM	05/28/2020 11:06 AM
2005363-004	052020-02M	05/20/2020 9:55 AM	05/28/2020 11:06 AM
2005363-005	052020-03D	05/20/2020 10:05 AM	05/28/2020 11:06 AM
2005363-006	052020-03M	05/20/2020 10:05 AM	05/28/2020 11:06 AM



**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

---

**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2005363-001  
**Client Sample ID:** 052020-01D

**Collection Date:** 5/20/2020 9:40:00 AM

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Particulates by Gravimetric Determination**

Batch ID: R59580 Analyst: AD

Particulates, Total	395.3	29.64		ug/m3	1	6/4/2020 10:40:27 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 5/20/2020 9:40:00 AM

**Project:** Apple Valley

**Lab ID:** 2005363-002

**Matrix:** Air

**Client Sample ID:** 052020-01M

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020**

Batch ID: 28511

Analyst: CO

Arsenic	0.0243	0.0190		µg/m <sup>3</sup>	1	6/2/2020 11:28:35 PM
Lead	0.200	0.0190		µg/m <sup>3</sup>	1	6/2/2020 11:28:35 PM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2005363-003  
**Client Sample ID:** 052020-02D

**Collection Date:** 5/20/2020 9:55:00 AM

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Particulates by Gravimetric Determination**

Batch ID: R59580 Analyst: AD

Particulates, Total	396.0	29.70		ug/m3	1	6/4/2020 10:40:27 AM
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**Client:** Fulcrum Environmental

**Collection Date:** 5/20/2020 9:55:00 AM

**Project:** Apple Valley

**Lab ID:** 2005363-004

**Matrix:** Air

**Client Sample ID:** 052020-02M

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020**

Batch ID: 28511

Analyst: CO

Arsenic	ND	0.0125		µg/m <sup>3</sup>	1	6/2/2020 11:45:18 PM
Lead	0.0922	0.0125		µg/m <sup>3</sup>	1	6/2/2020 11:45:18 PM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2005363-005  
**Client Sample ID:** 052020-03D

**Collection Date:** 5/20/2020 10:05:00 AM

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Particulates by Gravimetric Determination**

Batch ID: R59580      Analyst: AD

Particulates, Total	201.2	30.19		ug/m3	1	6/4/2020 10:40:27 AM
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**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2005363-006  
**Client Sample ID:** 052020-03M

**Collection Date:** 5/20/2020 10:05:00 AM

**Matrix:** Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020**

Batch ID: 28511

Analyst: CO

Arsenic	ND	0.0126		µg/m <sup>3</sup>	1	6/2/2020 11:50:52 PM
Lead	ND	0.0126		µg/m <sup>3</sup>	1	6/2/2020 11:50:52 PM

Work Order: 2005363  
 CLIENT: Fulcrum Environmental  
 Project: Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020**

Sample ID: <b>MB-28511</b>	SampType: <b>MBLK</b>	Units: <b>µg, Total</b>				Prep Date: <b>6/2/2020</b>	RunNo: <b>59563</b>				
Client ID: <b>MBLKW</b>	Batch ID: <b>28511</b>					Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1191128</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	12.5									
Lead	ND	12.5									

**NOTES:**  
 Filter Blank

Sample ID: <b>LCS-28511</b>	SampType: <b>LCS</b>	Units: <b>µg/L</b>				Prep Date: <b>6/2/2020</b>	RunNo: <b>59563</b>				
Client ID: <b>LCSW</b>	Batch ID: <b>28511</b>					Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1191129</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	86.4	0.500	100.0	0	86.4	75	125				
Lead	50.0	0.500	50.00	0	100	75	125				

Sample ID: <b>LCSD-28511</b>	SampType: <b>LCSD</b>	Units: <b>µg/L</b>				Prep Date: <b>6/2/2020</b>	RunNo: <b>59563</b>				
Client ID: <b>LCSW02</b>	Batch ID: <b>28511</b>					Analysis Date: <b>6/2/2020</b>	SeqNo: <b>1191130</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	86.8	0.500	100.0	0	86.8	75	125	86.43	0.407	30	
Lead	49.5	0.500	50.00	0	99.0	75	125	50.01	1.07	30	



Client Name: **FE**

 Work Order Number: **2005363**

 Logged by: **Clare Griggs**

 Date Received: **5/28/2020 11:06:00 AM**

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA

#### Air / Filter Samples

4. Shipping container/cooler in good condition? Yes  No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact) Yes  No  Not Present
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is there headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



**Fremont**  
Analytical

3600 Fremont Ave. N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Air Chain of Custody Record & Laboratory Services Agreement**

Laboratory Project No (Internal):

10053107

Special Remarks:

Date: 05/21/2020

Page: 1 of 2

Project Name: Apple Valley

Project No: 192784.04

Client: Fulcrum Environmental  
Address: 406 North 2nd Street  
City, State, Zip: Yakima, Washington 98901

Location: NLIM

Collected by: Peggy Williamson

Telephone: 509.574.0839

Reports to (PM):

Email (PM): pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Sample Name	Canister / Flow Reg. Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal		Analysis Requested	Internal	
								Initial Evacuation Pressure (in torr)	Field Initial Sample Pressure ("Hg)		Field Final Sample Pressure ("Hg)	Final Pressure (THg)
052020-01D	2258202	05/20/20	AA	Matched Wt. 37mm, 5.0 µm	1012		2.00 mL			Total Particulate		
	5-118461	ON: 9:40AM OFF: 6:15PM										
052020-01M	CU37080MW	05/20/20	AA	Matched Wt. 37mm, 0.8 µm MCE	658.7		2.00 mL			Total Metals (As, Pb)		
	27451602-9165-JP	ON: 9:40AM OFF: 5:29PM										
052020-02D	2258202	05/20/20	AA	Matched Wt. 37mm, 5.0 µm	1010		2.00 mL			Total Particulate		
	5-118457	ON: 9:55AM OFF: 6:17PM										
052020-02M	CU37080MW	05/20/20	AA	Matched Wt. 37mm, 0.8 µm MCE	1001		2.00 mL			Total Metals (As, Pb)		
	27451602-9165-JP	ON: 9:55AM OFF: 6:17PM										
052020-03D	2258202	05/20/20	AA	Matched Wt. 37mm, 5.0 µm	993.8		2.00 mL			Total Particulate		
	5-118505	ON: 10:05AM OFF: 6:20PM										

Turn-Around Time:

- Standard
- 3 Day
- 2 Day
- Next Day
- Same Day (Specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: *Nicole McPhee* Date/Time: 5/21/20

Received: *[Signature]* Date/Time: 5/25/20



**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Air Chain of Custody Record & Laboratory Services Agreement**

Date: 05/21/2020

Page: 2 of 2

Laboratory Project No (Internal):

10053107

Special Remarks:

Client: Fulcrum Environmental

Address: 406 North 2nd Street

City, State, Zip: Yakima, Washington 98901

Telephone: 509.574.0839

Location: 192784.04

Collected by: NLM

Reports to (PM): Peggy Williamson

Email (PM): pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Sample Name	Conister / Flow Reg Serial #	Sample Date & Time	Sample Type (Matrix) *	Container Type **	Sample Volume	Fill Time	Flow Rate	Internal		Field Initial Sample Pressure ("Hg)	Field Final Sample Pressure ("Hg)	Analysis Requested	Internal	
								Initial Evacuation Pressure (mtorr)	Final Evacuation Pressure (mtorr)				Receipt Date	Final Pressure ("Hg)
052020-03M	CU37080/MW	05/20/20	AA	Matched Wt 37mm, 0.8 lb MCE	992.5		2.00 mL					Total Metals (As, Pb)		
	Lot # 27451602-9165-1P	Q# 1005AM OPE: 6:20PM												

\* Matrix Codes: AA = Ambient Air IA = Indoor Air L = Landfill S = Subslab / Soil Gas

\*\* Container Codes: BV = 1 Liter Bottle Vac CAN = Canister CVL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished: *Nicole McPhee* Date/Time: 5/21/20

Received: *NLM* Date/Time: 5/28/20

Relinquished: *NLM* Date/Time: 10/6

Turn-Around Time:  
 Standard  
 3 Day  
 2 Day  
 Next Day  
 Same Day (specify)



**APPENDIX G**

Particulate Monitoring Memorandums

# MEMORANDUM

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DATE April 16, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On April 16, 2020, Nicole McPhee and Daniel Orozco, both employees with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey included leveling, clearing, and excavating in the north/northeast area of the site. A water truck was present on site and being utilizing for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of four consecutive readings per sample location collected between 8:30 AM and 12:30 PM. Wind direction was generally to the east and there were low amounts of visible dust particles in the air. Two sets of measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results. In general the second set of measurements were higher than the first.

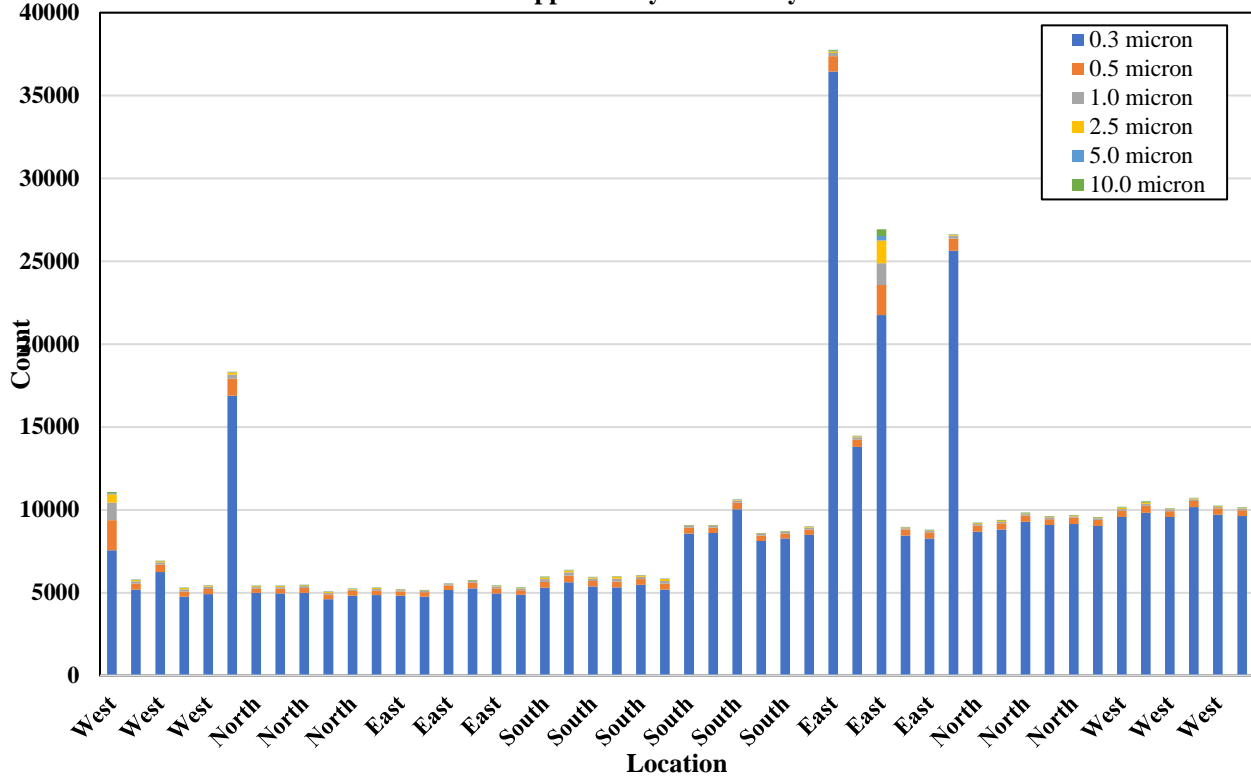
Total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the north, south, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, with the exception of one peak reading in the east, the number of particulate counts were generally higher in the south sample location at the time of the survey.

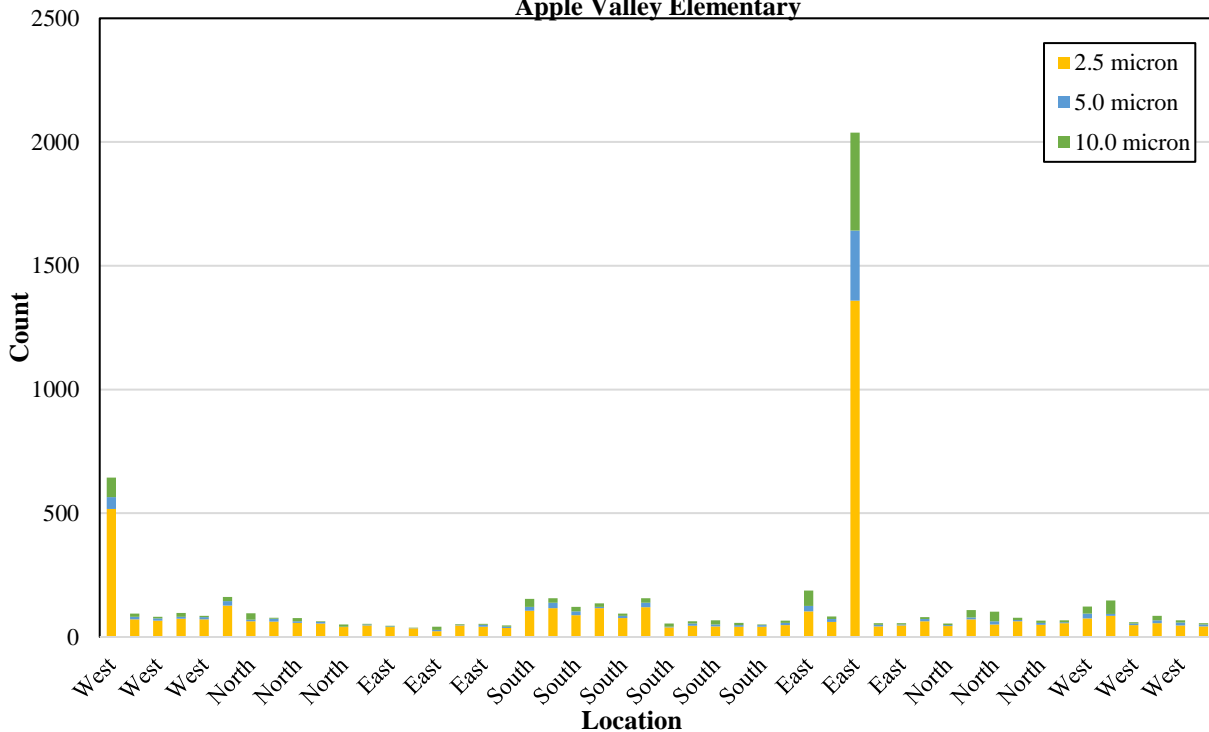
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenel Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, April 16, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, April 16, 2020**  
 Apple Valley Elementary





# MEMORANDUM

---

DATE April 28, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On April 24, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey included leveling, clearing, and excavating in the north and south portion of the site. A water truck was present on site for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:00 PM and 1:00 PM. Wind direction was generally to the north to northwest and there were low amounts of visible dust particles in the air. One set of measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

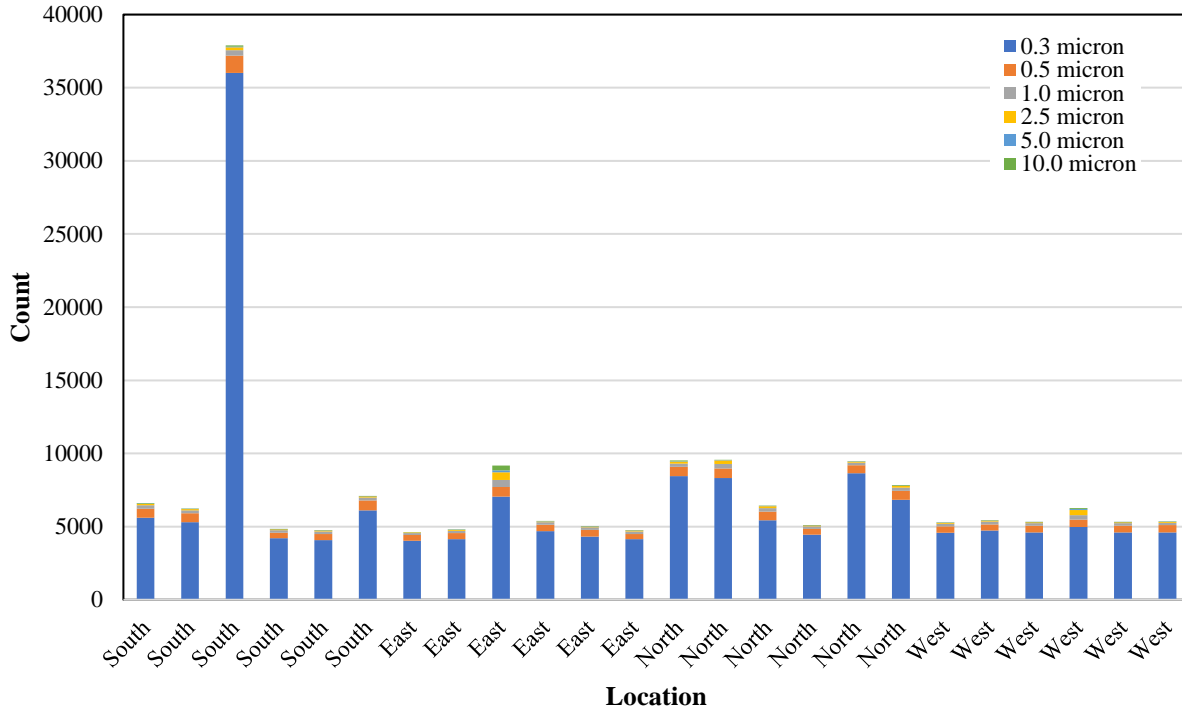
Total particulate concentrations were relatively consistent across the site with the measurements from the north construction area having slightly higher total particulate concentrations than the south, east, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample location at the time of the survey.

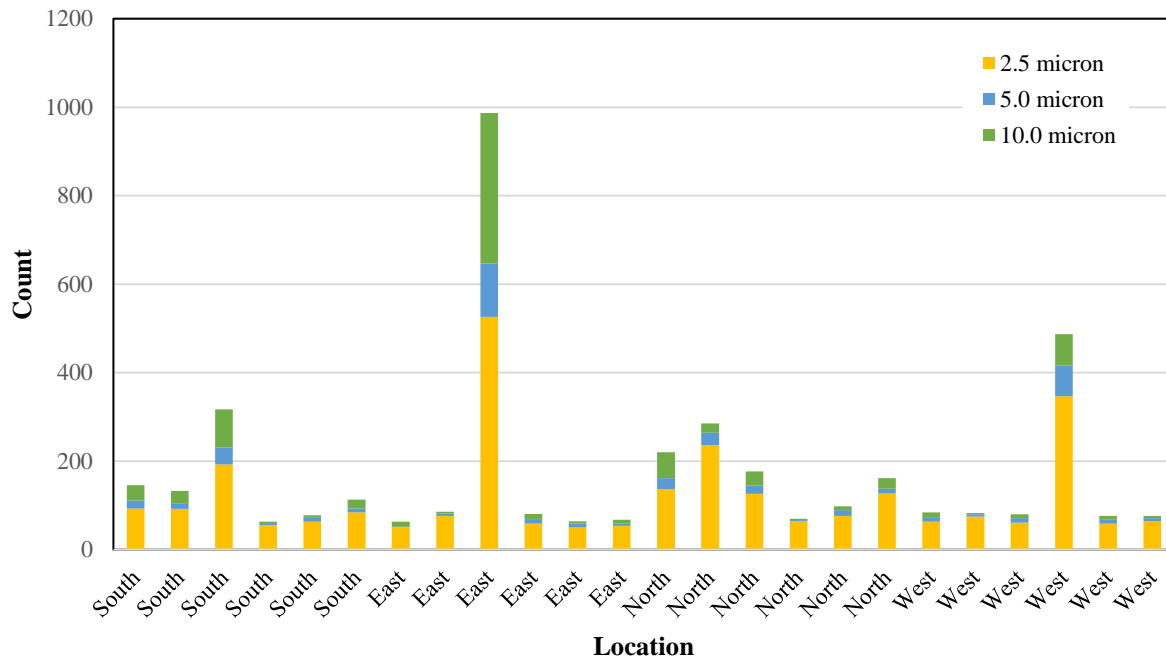
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenel Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig

**Graph 1: Total Particulate Data, April 24, 2020**  
 Apple Valley Elementary



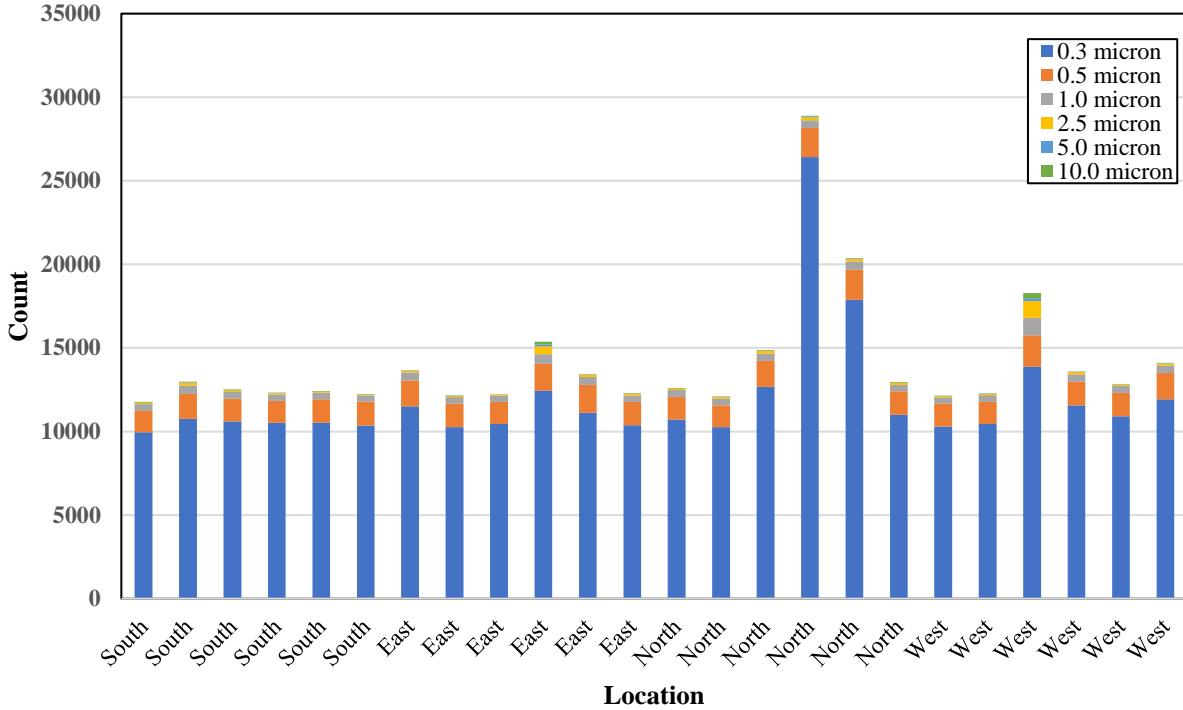
**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, April 24, 2020**  
 Apple Valley Elementary



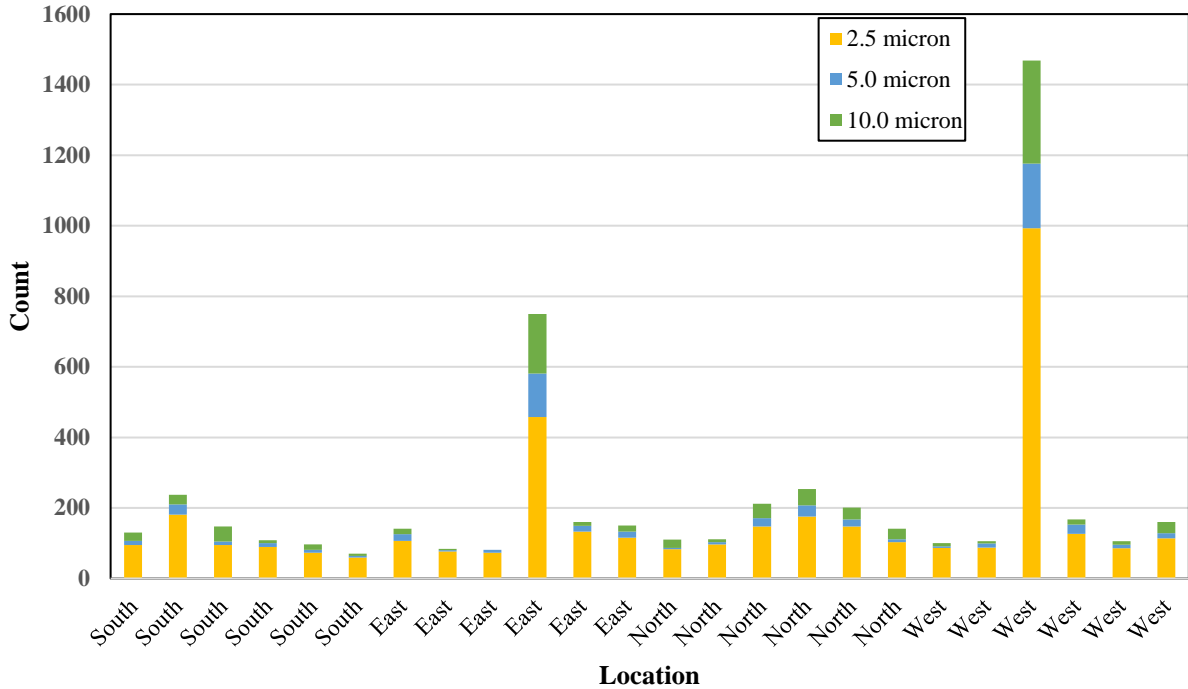




**Graph 1: Total Particulate Data, April 28, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, April 28, 2020**  
 Apple Valley Elementary



# MEMORANDUM

---

DATE May 1, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On April 29, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey included excavating sewer lines, leveling and grading in the north/northeast area of the site. A water truck was present on site for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 9:40 AM and 10:50 AM. Wind direction was generally from the north to northeast and there were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

Total particulate concentrations were relatively consistent across the site with the measurements from the south and west construction area having slightly higher total particulate concentrations than the north and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the south and west sample location at the time of the survey.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenel Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig



# MEMORANDUM

---

DATE May 1, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On April 30, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey included leveling and grading in the north and south portion of the site. A water truck was present on site for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 2:00 PM and 2:50 PM. Wind direction was generally from the northwest with wind speeds up to 10 mph. There were low to moderate amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

Total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the north, south, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenel Construction**    **Tri-Valley Construction**  
Tim Critchlow                                  Ron Huylar                                  Eric Eric Kanzig



# MEMORANDUM

---

DATE May 15, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On May 5, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the construction of the building footprint and transferring soil from the north portion of the site to be graded in the southern portion. A water truck was present on site for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 11:50 AM and 1:00 PM. Wind direction was swirling but the main direction was from the south to southeast ranging from 0 to 3 mph. There were low amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

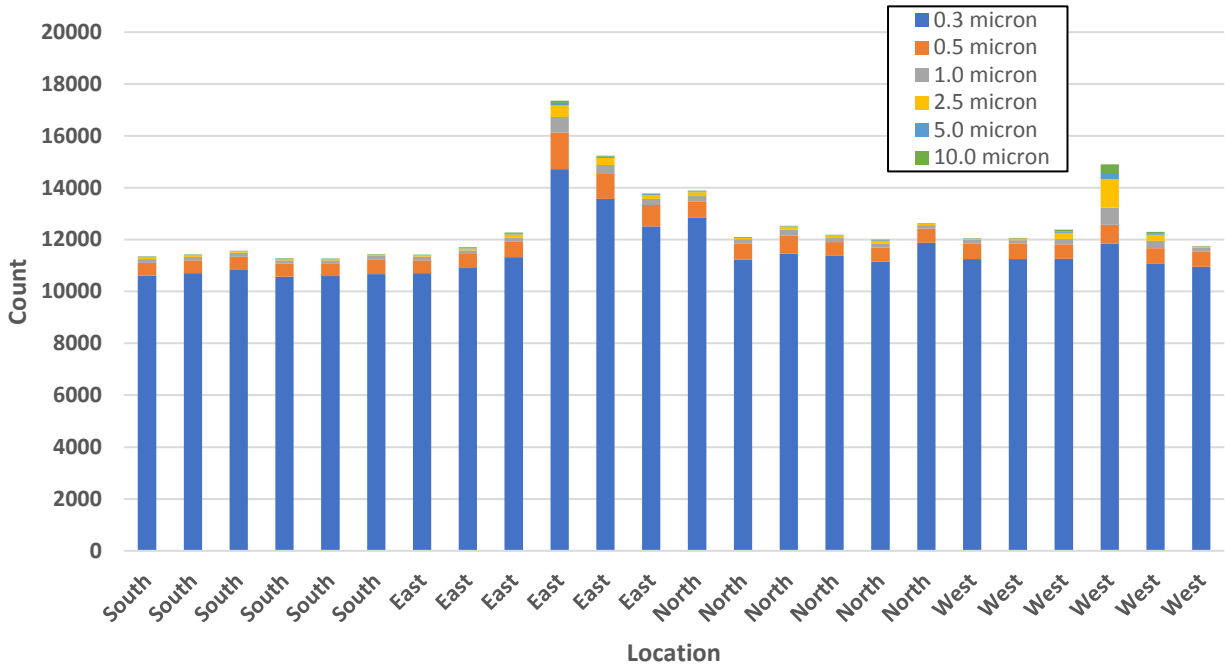
Total particulate concentrations were relatively consistent across the site with the measurements from the east and west construction area having slightly higher total particulate concentrations than the north and south portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

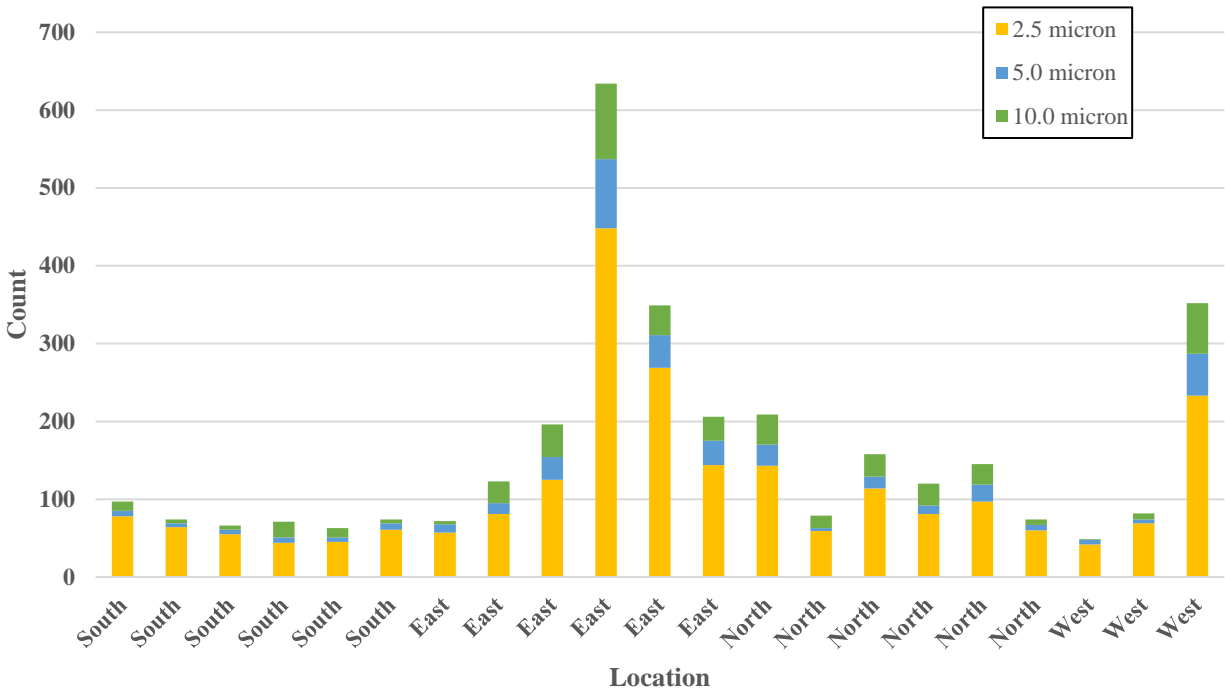
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenel Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data May 5, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data**  
**May 5, 2020**  
**Apple Valley Elementary**





# MEMORANDUM

---

DATE May 15, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

---

On May 11, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the construction of the building footprint and transferring soil from the north portion of the site to be graded in the southern portion. A water truck was present on site for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 10:20 AM and 11:00 AM. Wind direction was generally from the north to northeast ranging from 3 to 15 mph. There were low amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

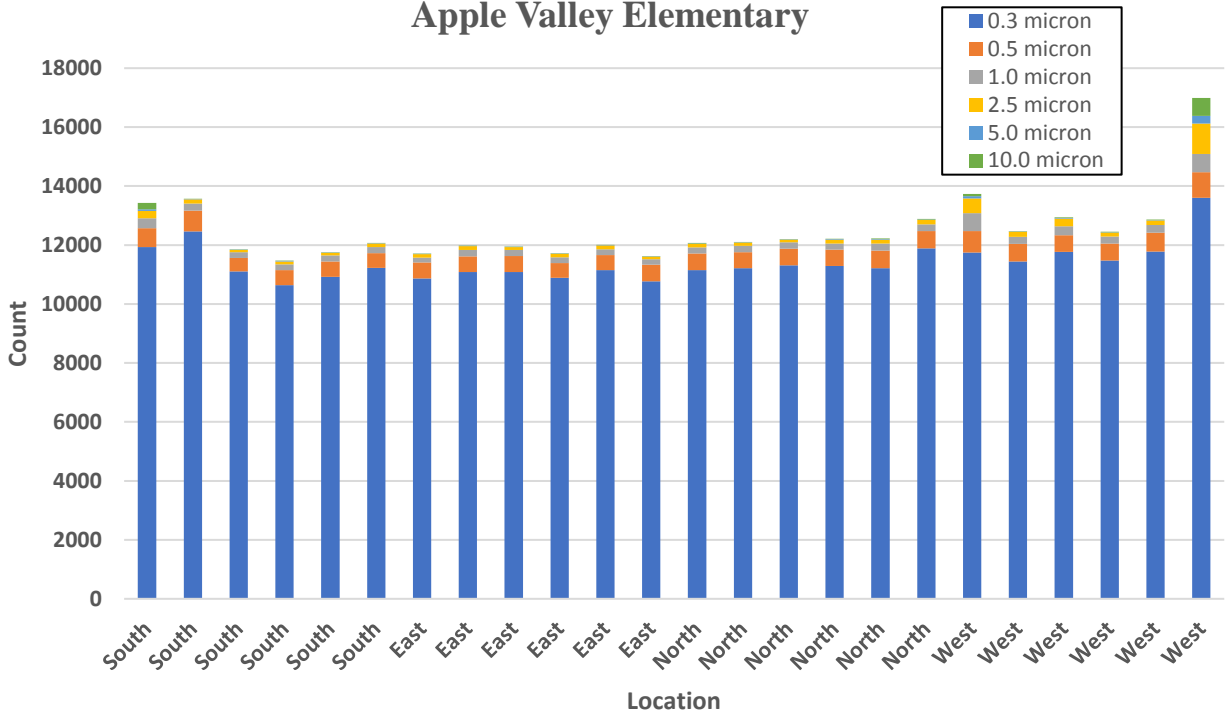
Total particulate concentrations were relatively consistent across the site with the measurements from the west and south construction area having slightly higher total particulate concentrations than the north and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the west sample location at the time of the survey.

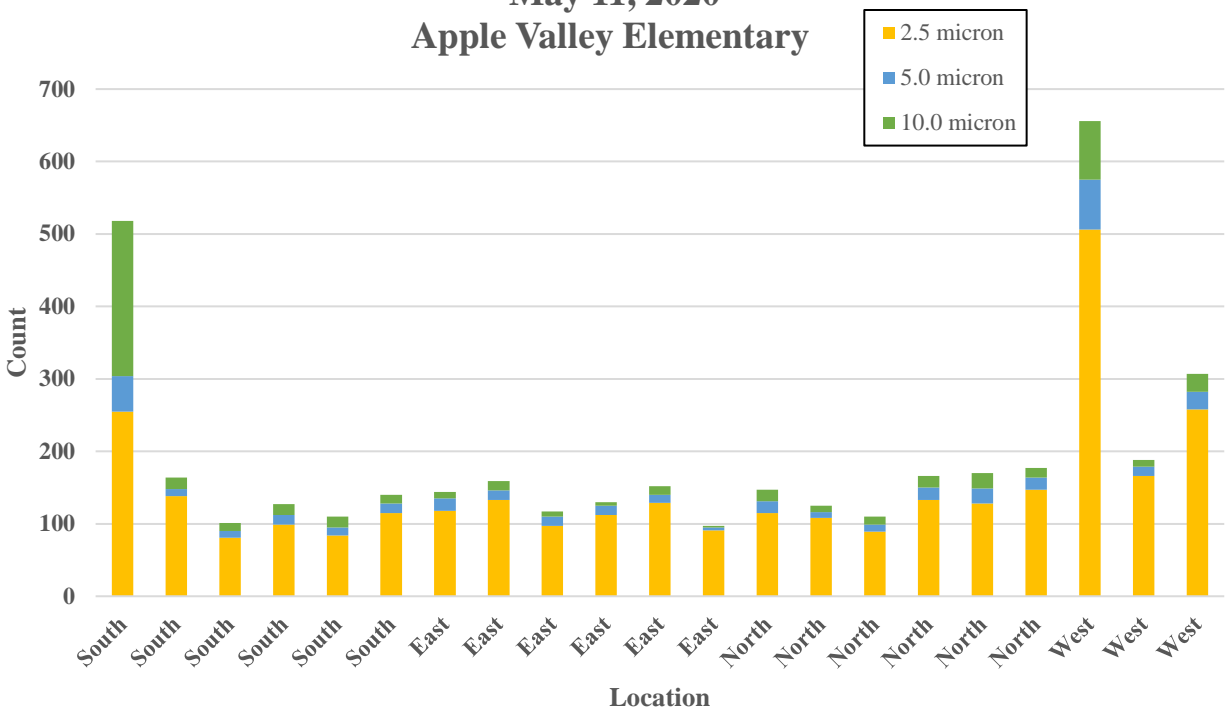
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenel Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data May 11, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data**  
**May 11, 2020**  
**Apple Valley Elementary**



# MEMORANDUM

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DATE May 15, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On May 12, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenel Construction, Inc. (Chervenel) as the General Contractor for the project. Chervenel selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the construction of the building footprint and transferring soil from the north portion of the site to be graded in the southern portion. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:40 PM and 1:05 PM. Wind direction was generally from the south to southeast ranging from 1 to 4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

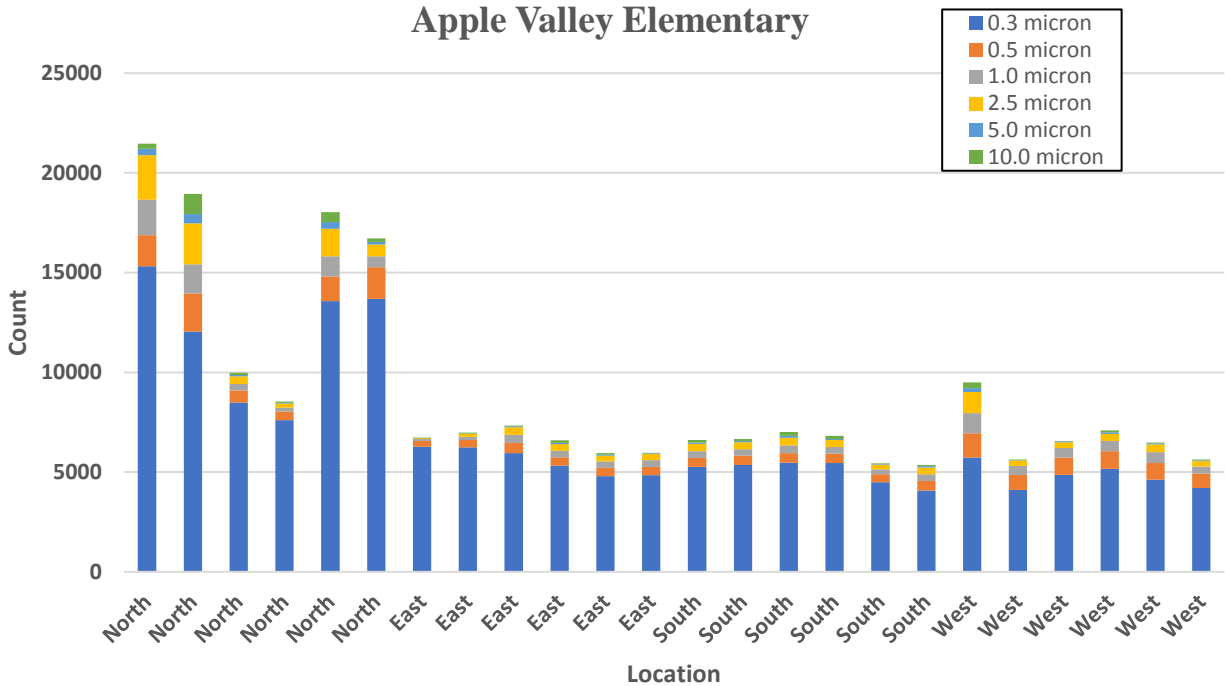
Total particulate concentrations were relatively consistent across the site with the measurements from the north construction area having slightly higher total particulate concentrations than the south, east, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample location at the time of the survey.

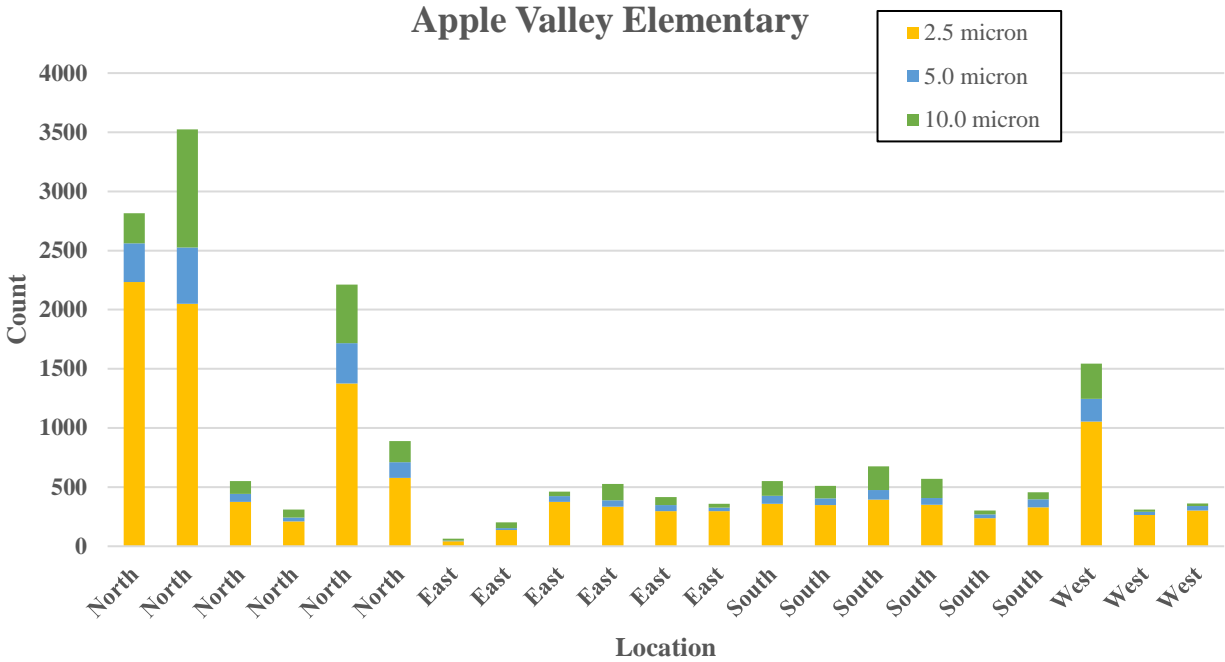
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenel Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data May 12, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data**  
**May 12, 2020**  
**Apple Valley Elementary**



# MEMORANDUM

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DATE July 14, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE May 20, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On May 20, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during air sampling included leveling and grading in the south portion of the site and building construction. A water truck was present on site and being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 1:15 PM and 2:00 PM. Wind direction was generally from the north to northwest ranging from 10 to 20 mph. There were moderate amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

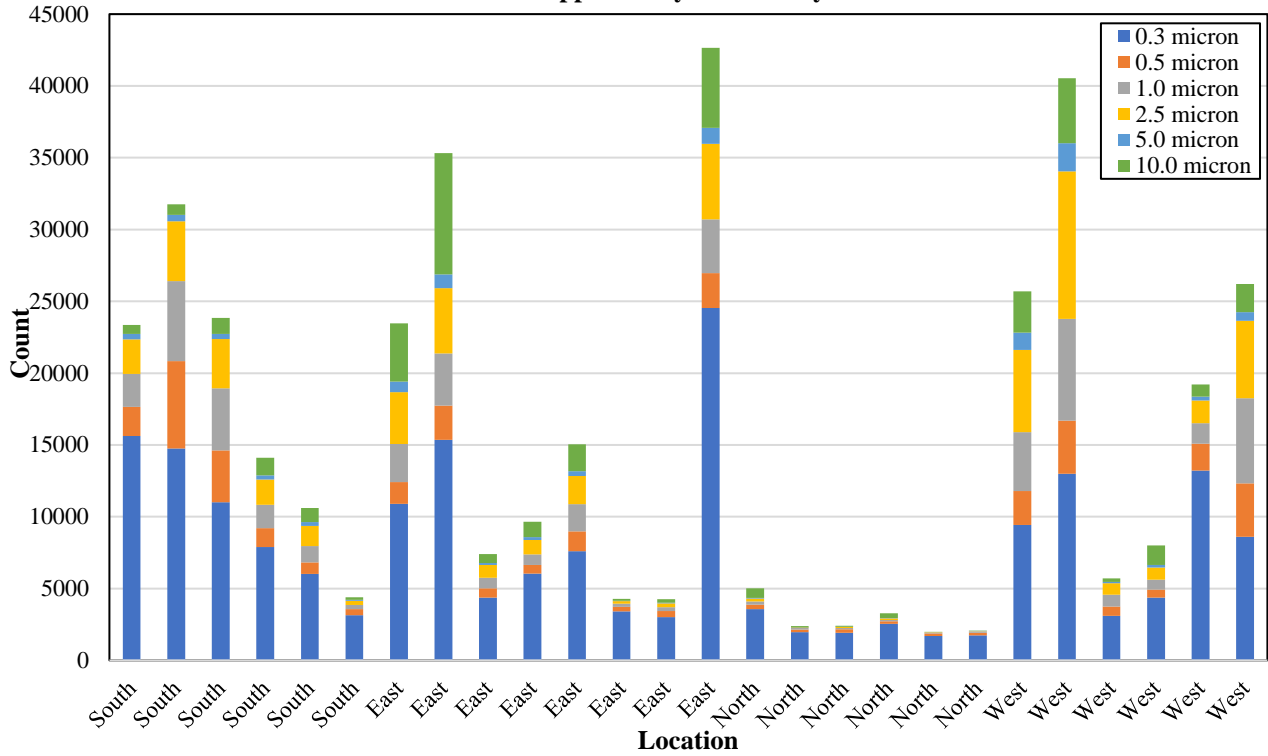
Total particulate concentrations were relatively consistent across the site with the measurements from the north construction area having lower total particulate concentrations than the south, west, and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were lowest in the northern sample location at the time of the survey.

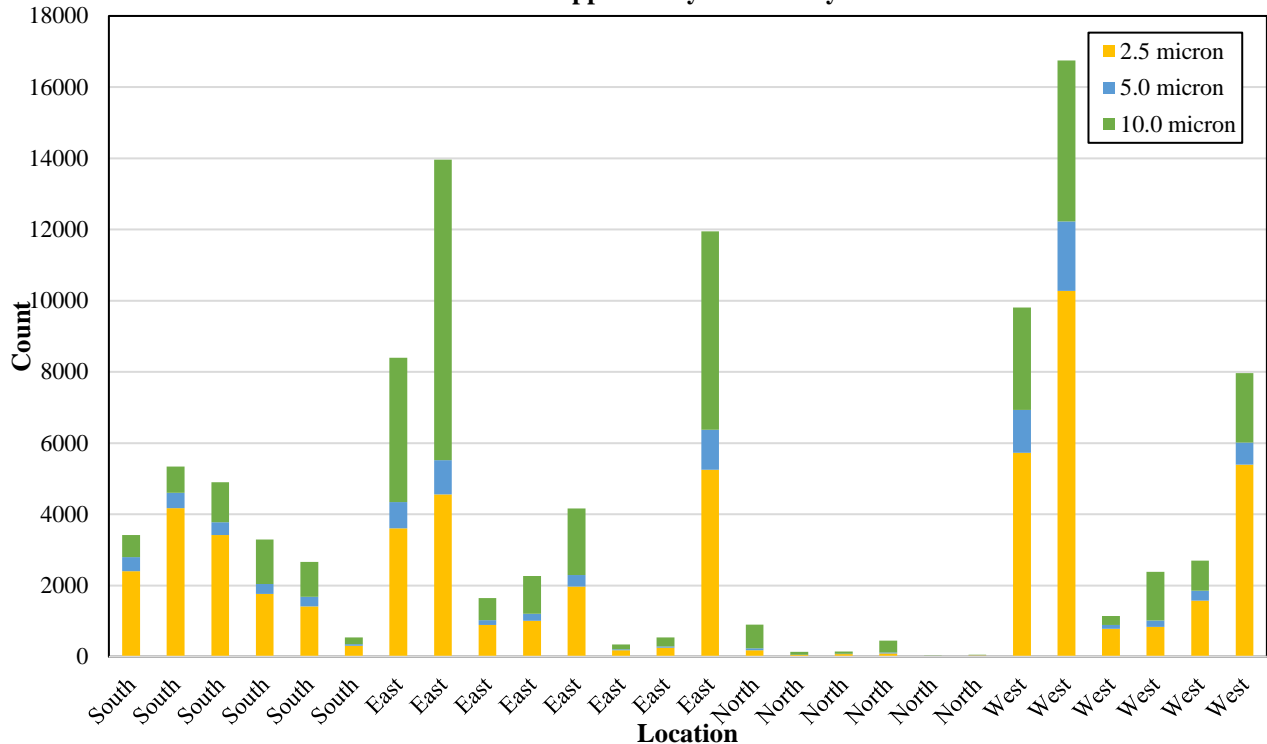
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, May 20, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, May 20, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE July 15, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE May 26, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On May 26, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during air sampling included leveling and grading in the west parking lot area, additional grading in the south and east portions of the site, and concrete masonry unit (CMU) building construction. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 11:50 AM and 12:30 PM. Wind direction was generally to the east to southeast with no visible dust. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

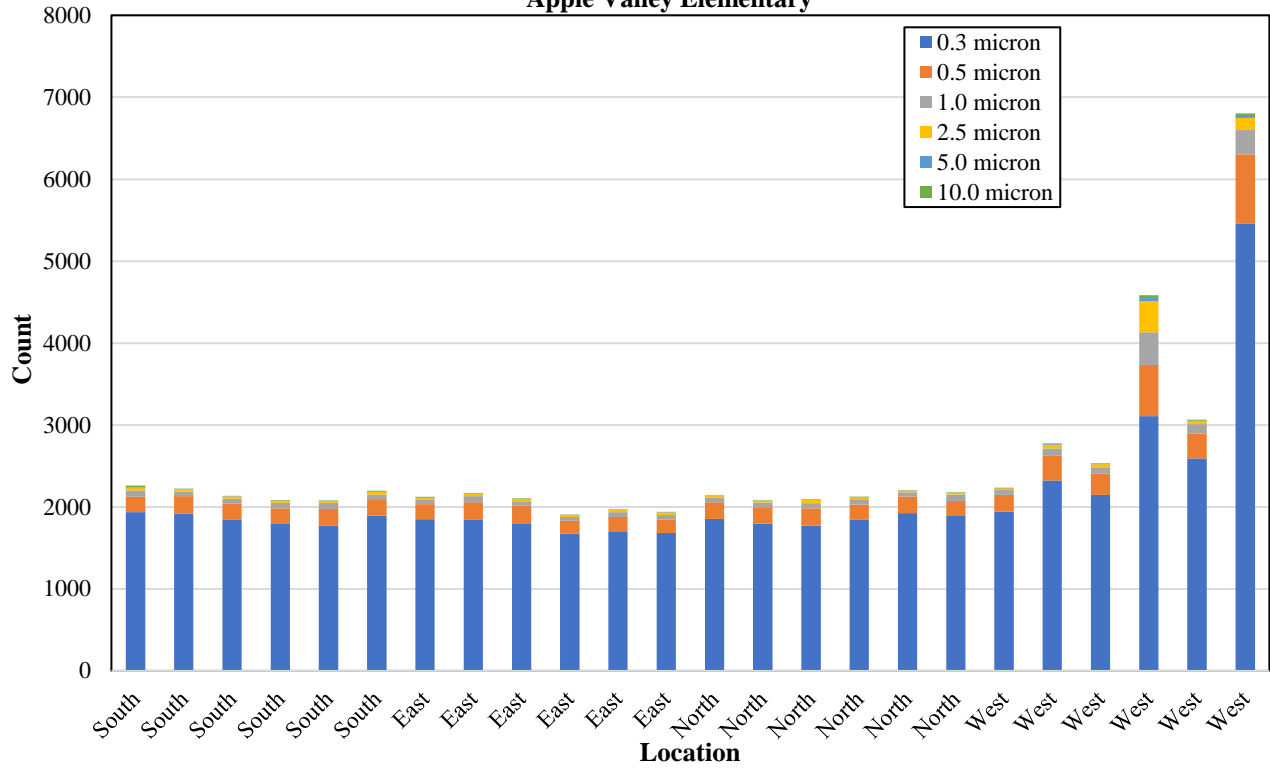
Total particulate concentrations were relatively consistent across the site with the measurements from the west construction area having slightly higher total particulate concentrations than the south, north, and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the west sample location at the time of the survey.

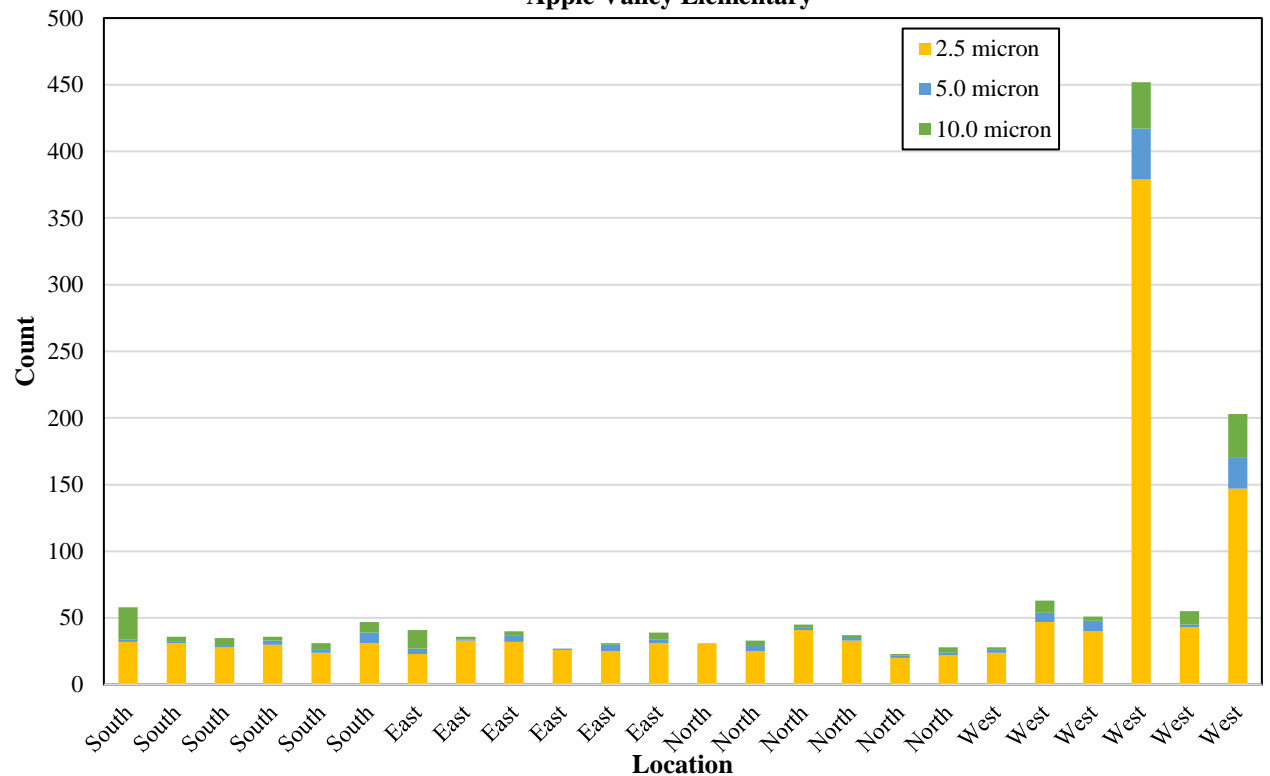
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, May 26, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, May 26, 2020**  
 Apple Valley Elementary





# MEMORANDUM

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DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE May 29, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On May 29, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey mainly included concrete masonry unit (CMU) building construction. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 11:00 AM and 12:00 PM. Wind direction was generally from the south to southeast ranging from 0 to 4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

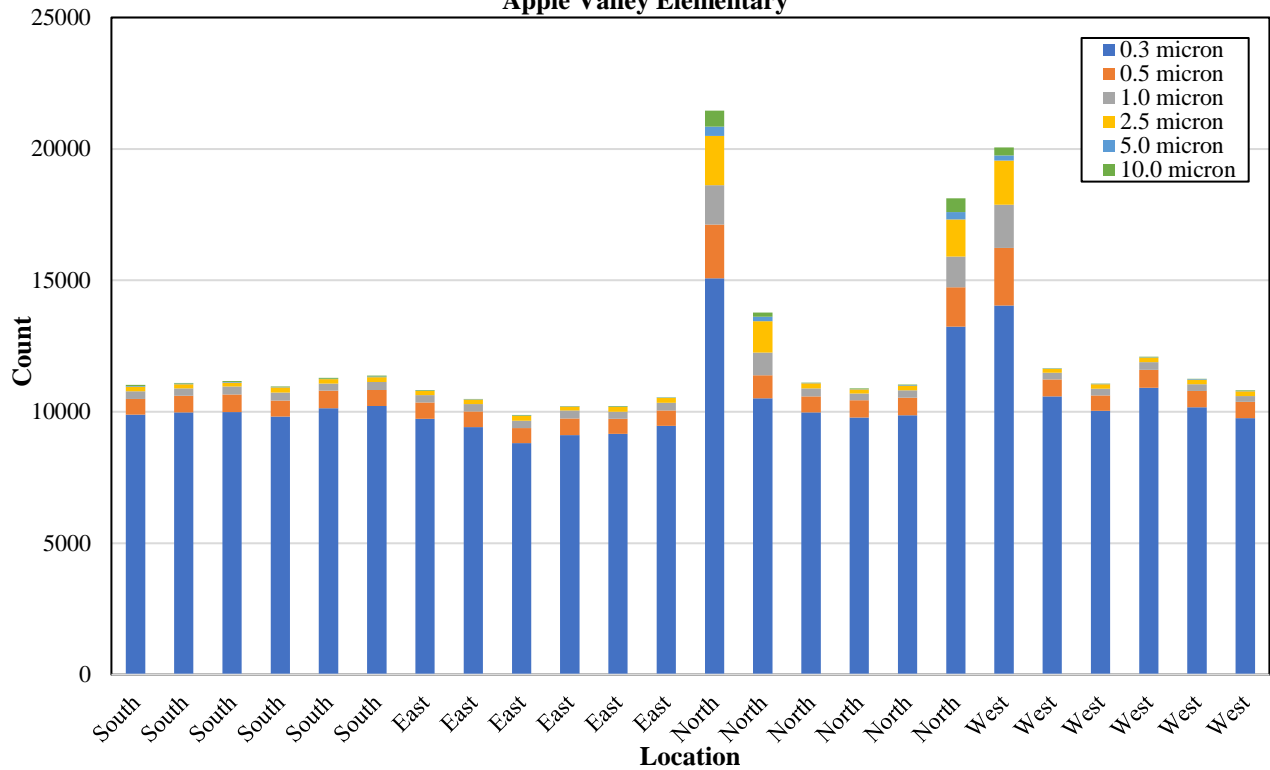
Total particulate concentrations were relatively consistent across the site with the measurements from the north and west construction area having slightly higher total particulate concentrations than the south, and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north and west sample locations at the time of the survey.

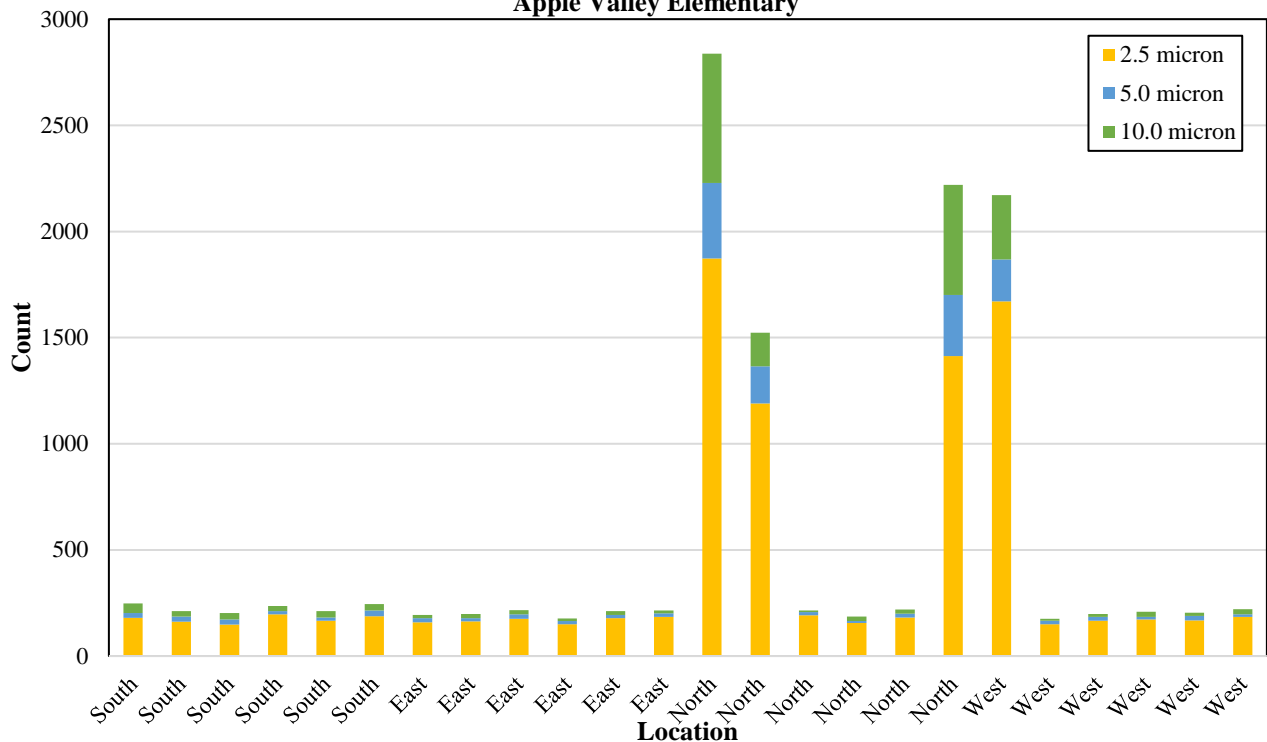
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, May 29, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, May 29, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE June 3, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On June 3, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the construction of the eastern building footprint. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:00 PM and 1:15 PM. Wind direction was generally from the south to southwest ranging from 1 to 4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

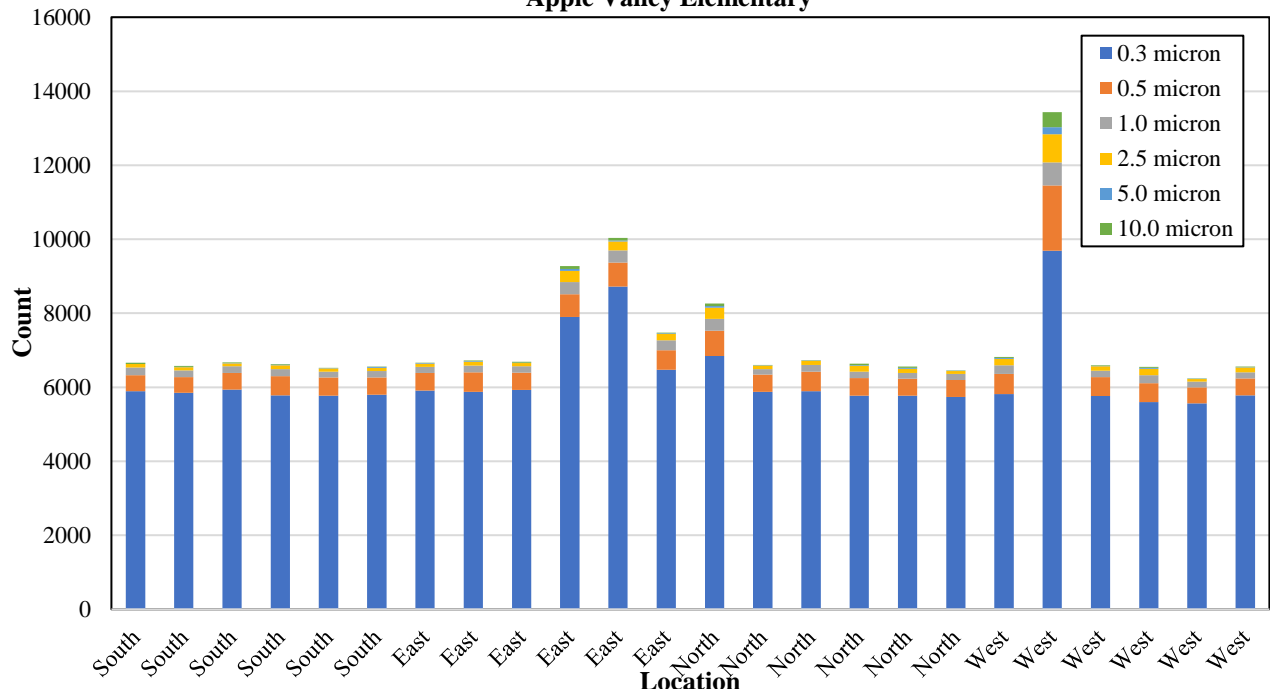
Except for one measurement on the West, total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the south, north, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

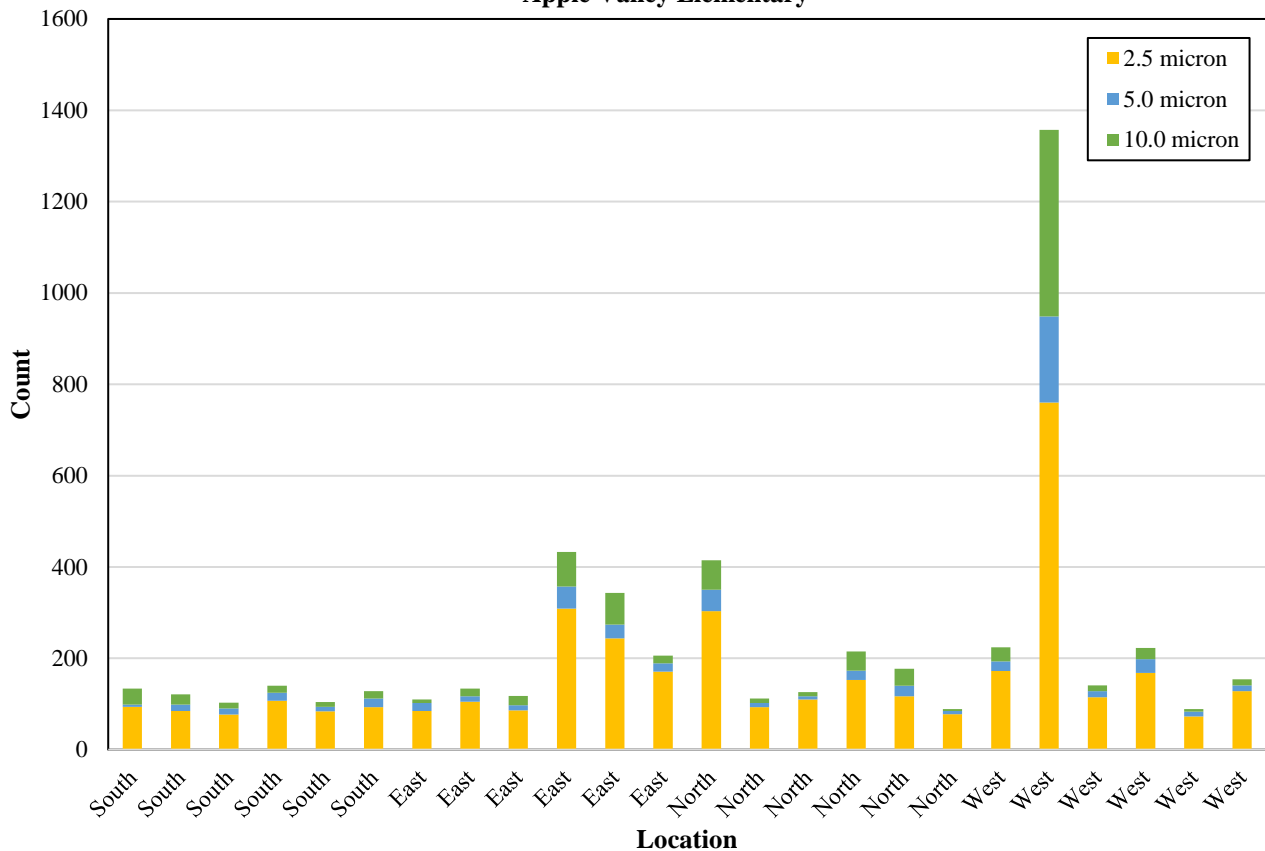
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, June 3, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, June 3, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE June 5, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On June 5, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in development of the building footprint. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 1:30 PM and 2:15 PM. Wind direction was generally from the east to northeast ranging from 1 to 3 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

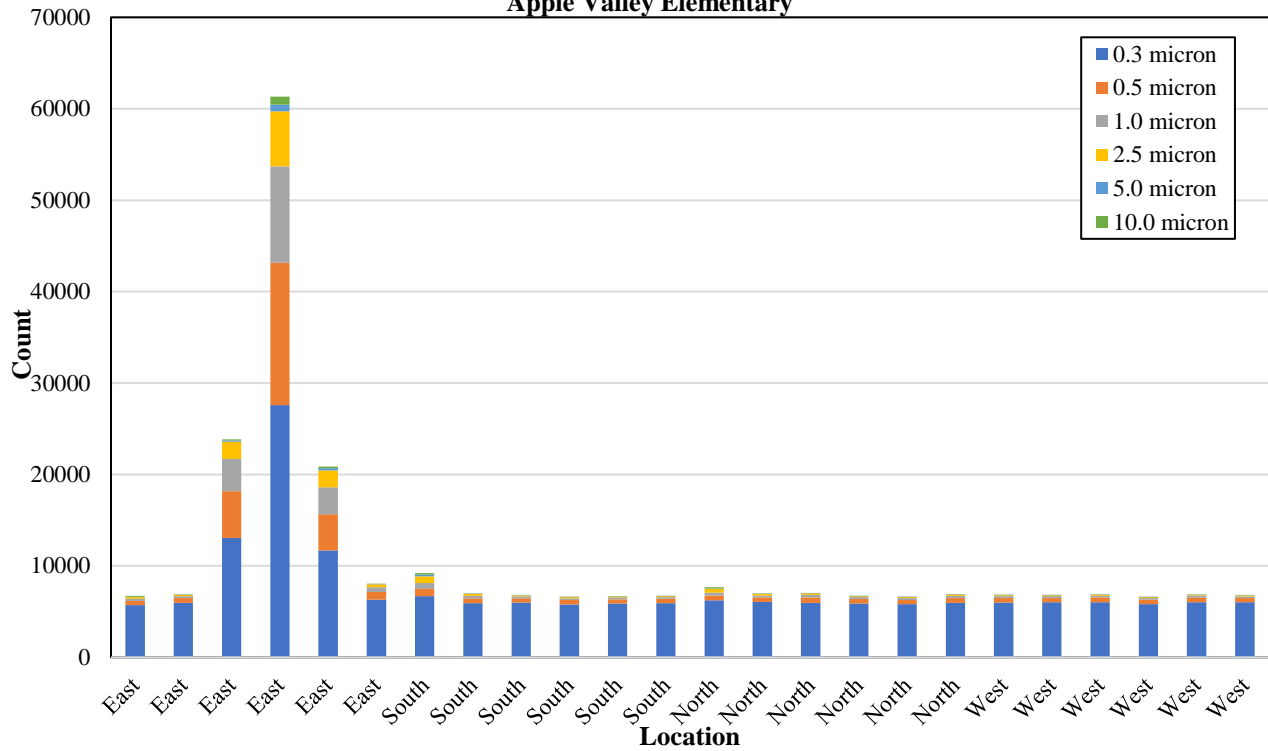
Total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the south, north, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

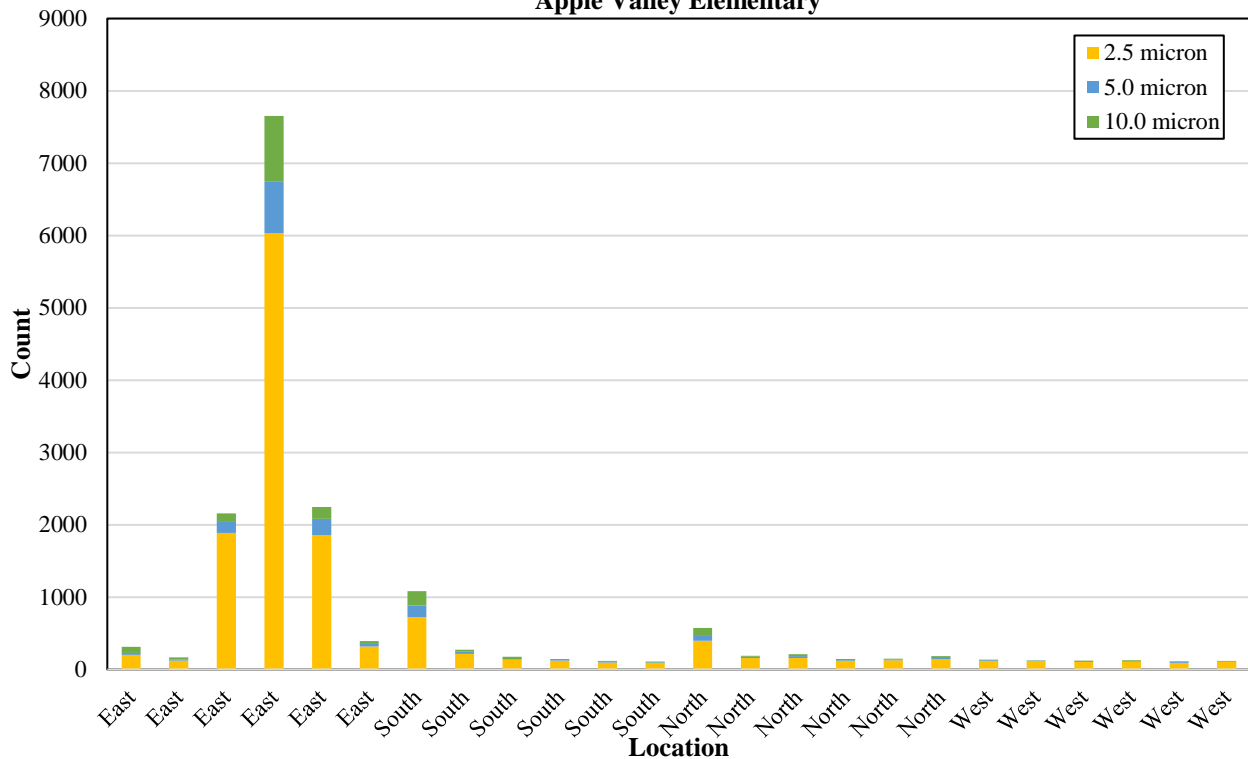
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig

**Graph 1: Total Particulate Data, June 5, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, June 5, 2020**  
**Apple Valley Elementary**



# MEMORANDUM

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DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE June 11, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On June 11, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly on building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 2:20 PM and 3:00 PM. Wind direction was generally from the east to southeast ranging from 1 to 3 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

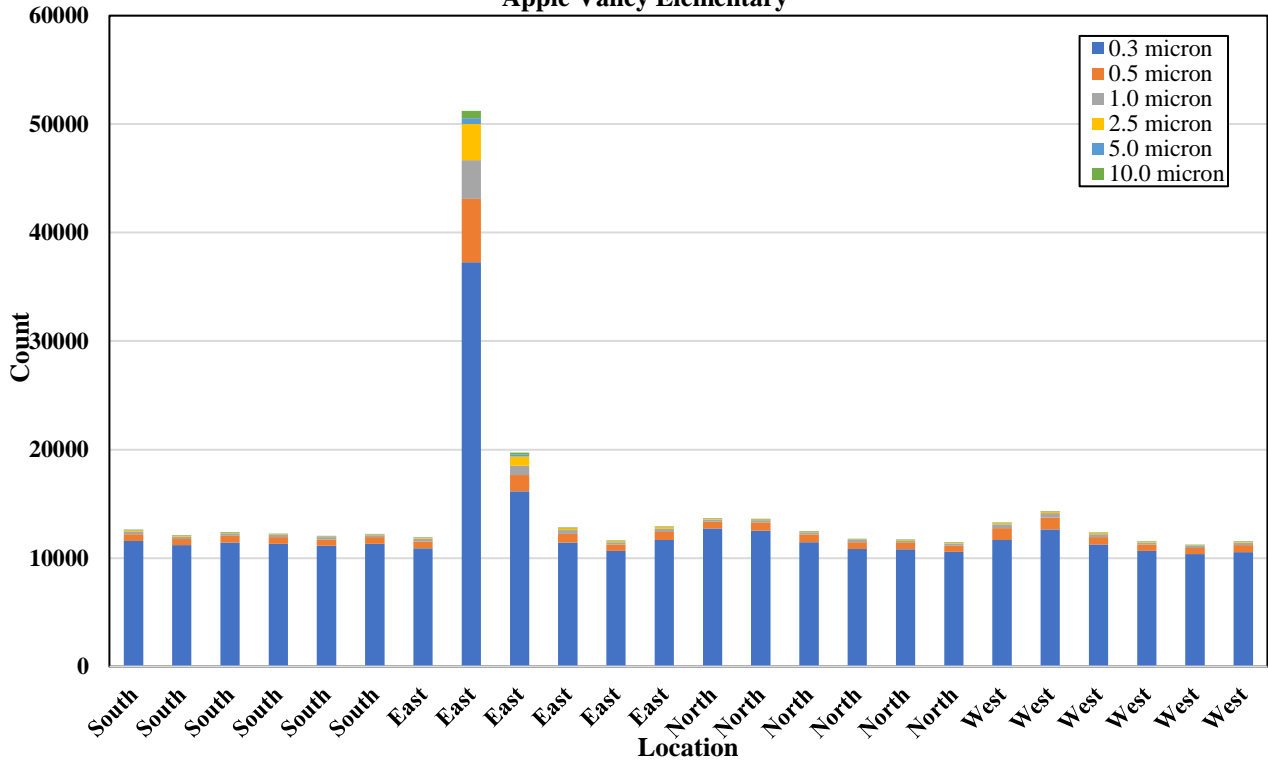
Total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the south, north, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

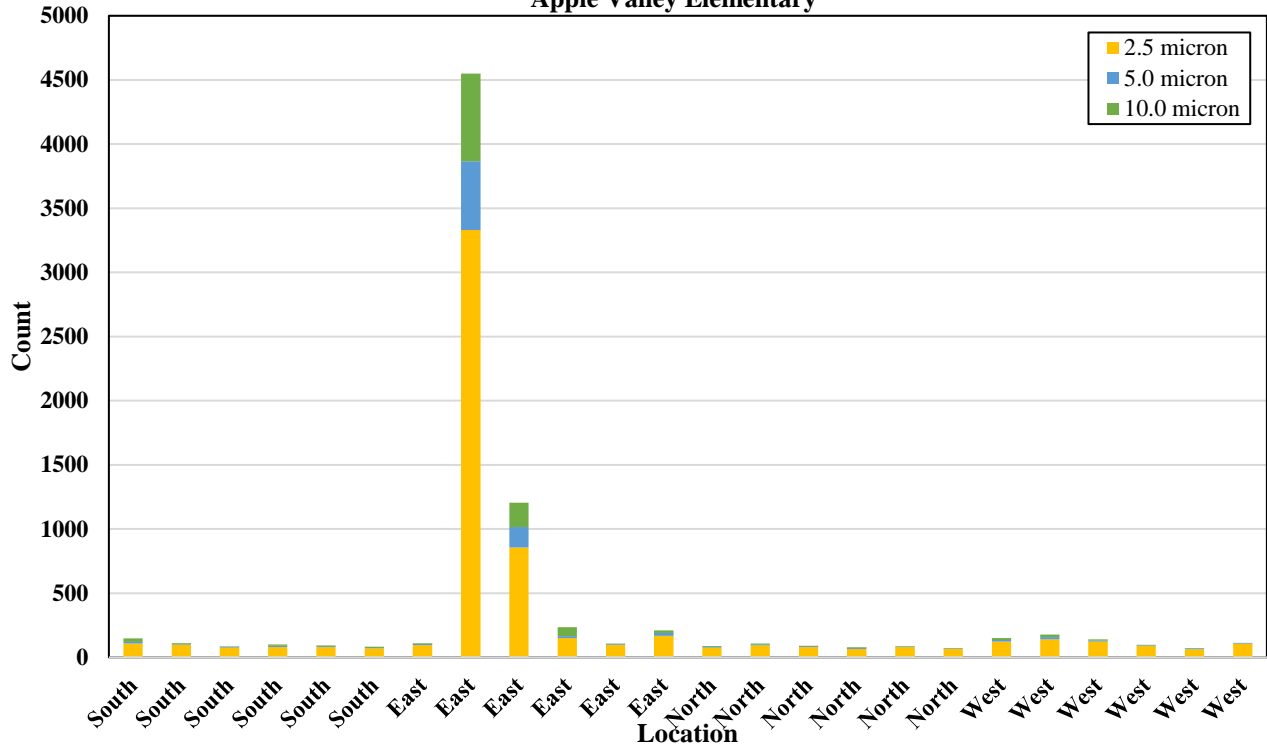
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig

**Graph 1: Total Particulate Data, June 11, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, June 11, 2020**  
 Apple Valley Elementary





# MEMORANDUM

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DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE June 19, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On June 19, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 1:30 PM and 2:30 PM. Wind direction was generally from the east to southeast ranging from 1 to 4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

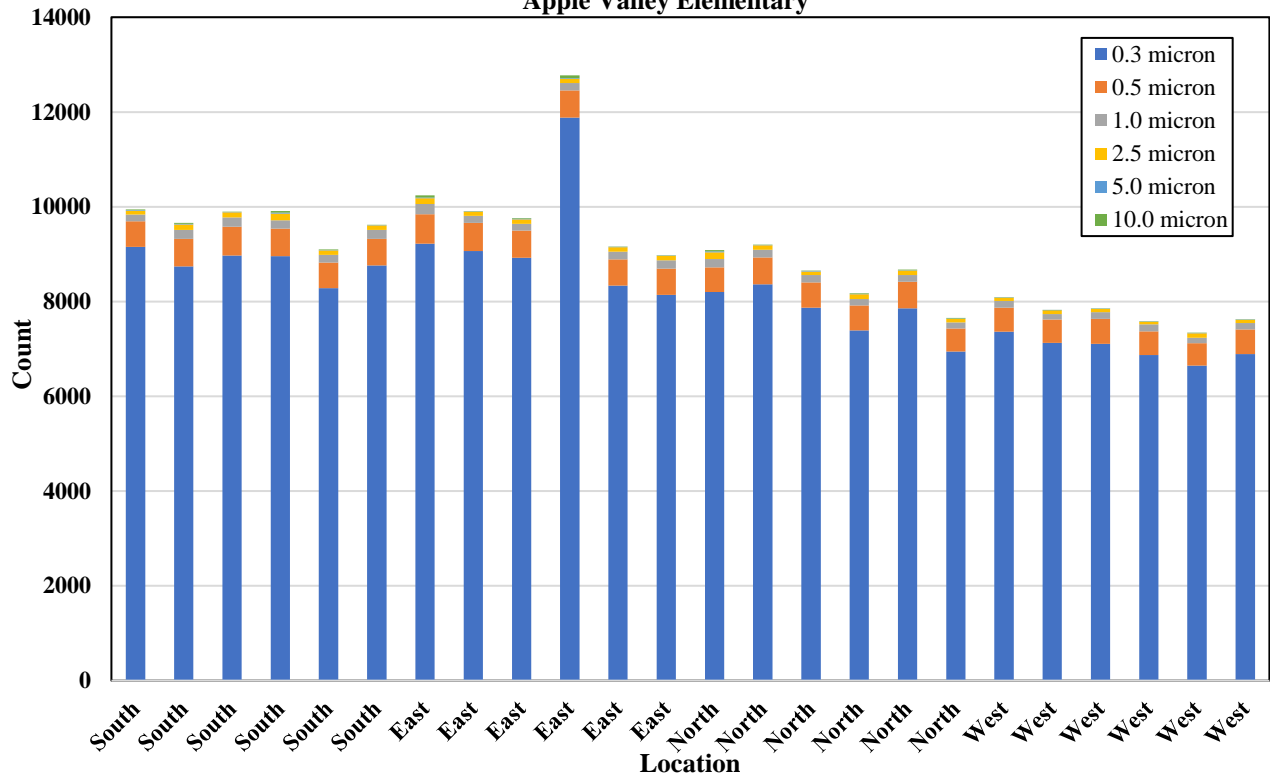
Total particulate concentrations were relatively consistent across the site with the measurements from the south and east construction area having slightly higher total particulate concentrations than the north, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the south and east sample locations at the time of the survey.

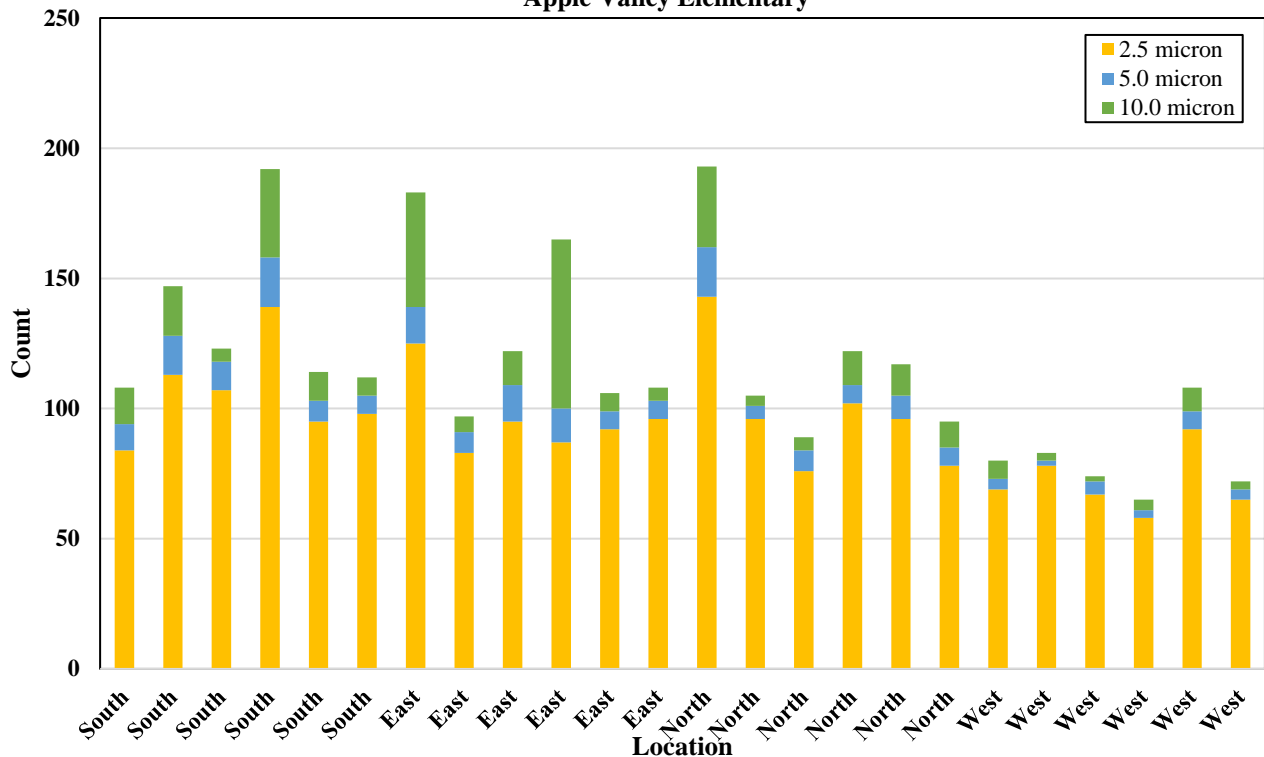
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig

**Graph 1: Total Particulate Data, June 19, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, June 19, 2020**  
 Apple Valley Elementary



# MEMORANDUM

---

DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE June 26, 2020 Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On June 26, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 11:20 AM and 12:15 PM. Wind direction was generally from the west to southwest ranging from 1 to 4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

With the exception of one reading from the North, total particulate concentrations were relatively consistent across the site with the measurements from the south construction area having slightly higher total particulate concentrations than the east, north, and south portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the south sample location at the time of the survey.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig



# MEMORANDUM

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DATE August 7, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On July 10, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 11:00 AM and 12:00 PM. Wind direction was generally from the north to northeast ranging from 1 to 5 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

Total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the south, north, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig



# MEMORANDUM

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DATE August 7, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On July 17, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the excavation of the northeast stormwater feature. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:10 PM and 1:00 PM. Wind direction was generally from the north to northwest ranging from 2 to 10 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

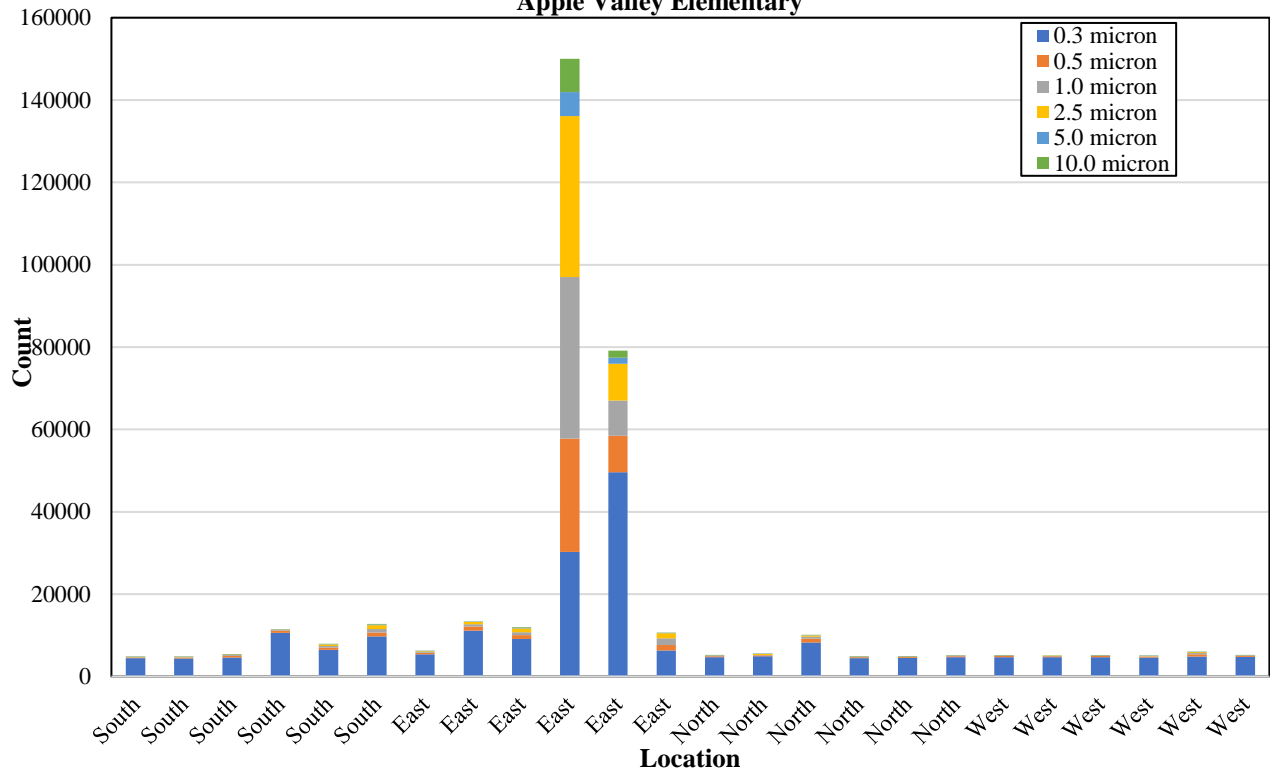
Total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the south, north, and south portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

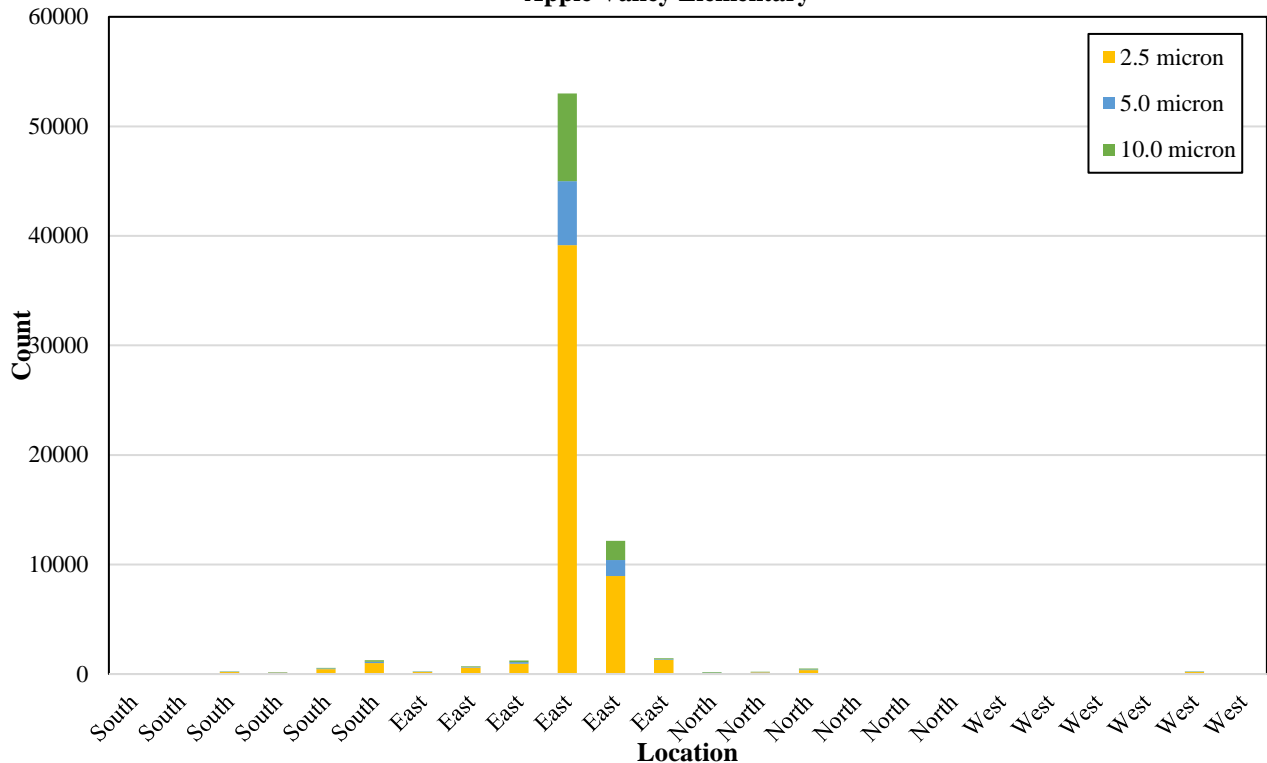
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, July 17, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, July 17, 2020**  
 Apple Valley Elementary





# MEMORANDUM

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DATE September 28, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On July 30, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the backfill of the northeast infiltration pit and building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 1:30 PM and 2:30 PM. Wind direction was generally from the south to southwest ranging from 0 to 3 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

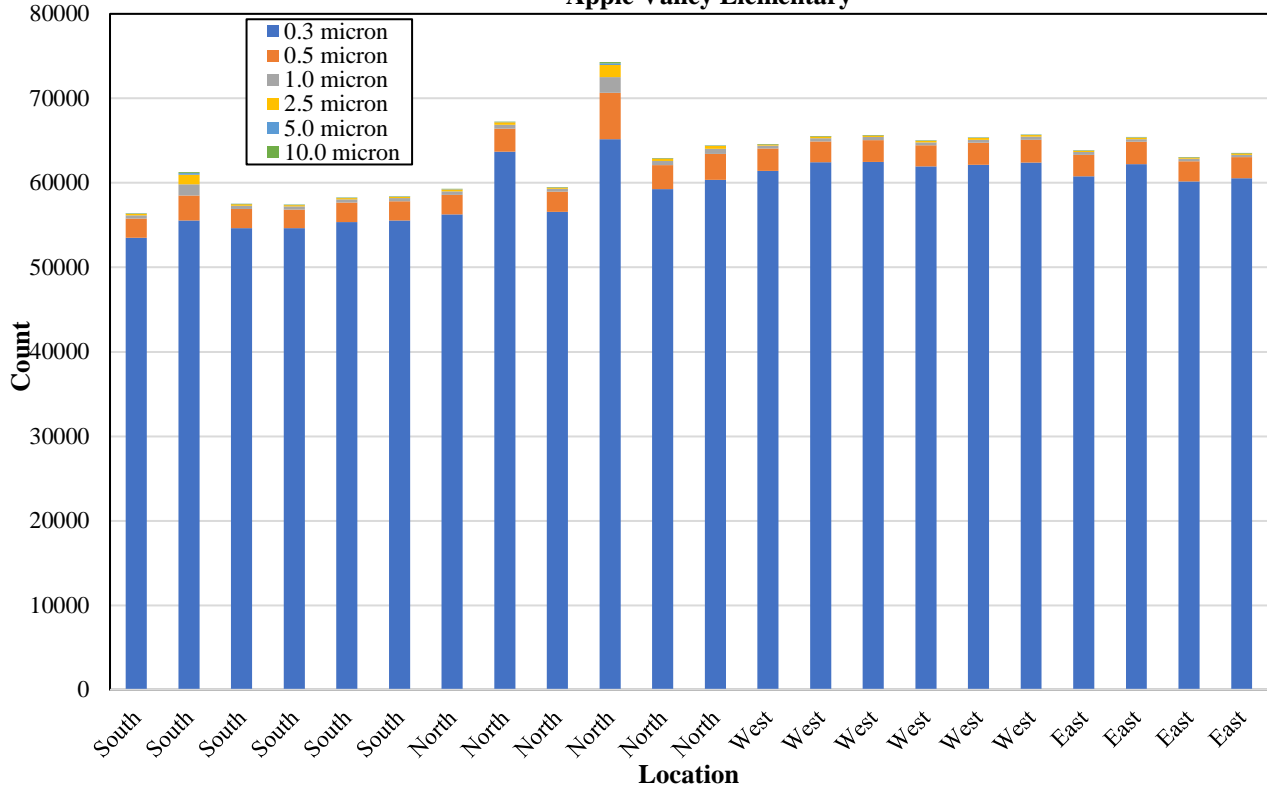
Total particulate concentrations were relatively consistent across the site with a select reading from the north and south showing peaks, and the measurements from the west construction area having slightly overall higher total particulate concentrations than the north, south, and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in select readings from the north and south sample locations at the time of the survey.

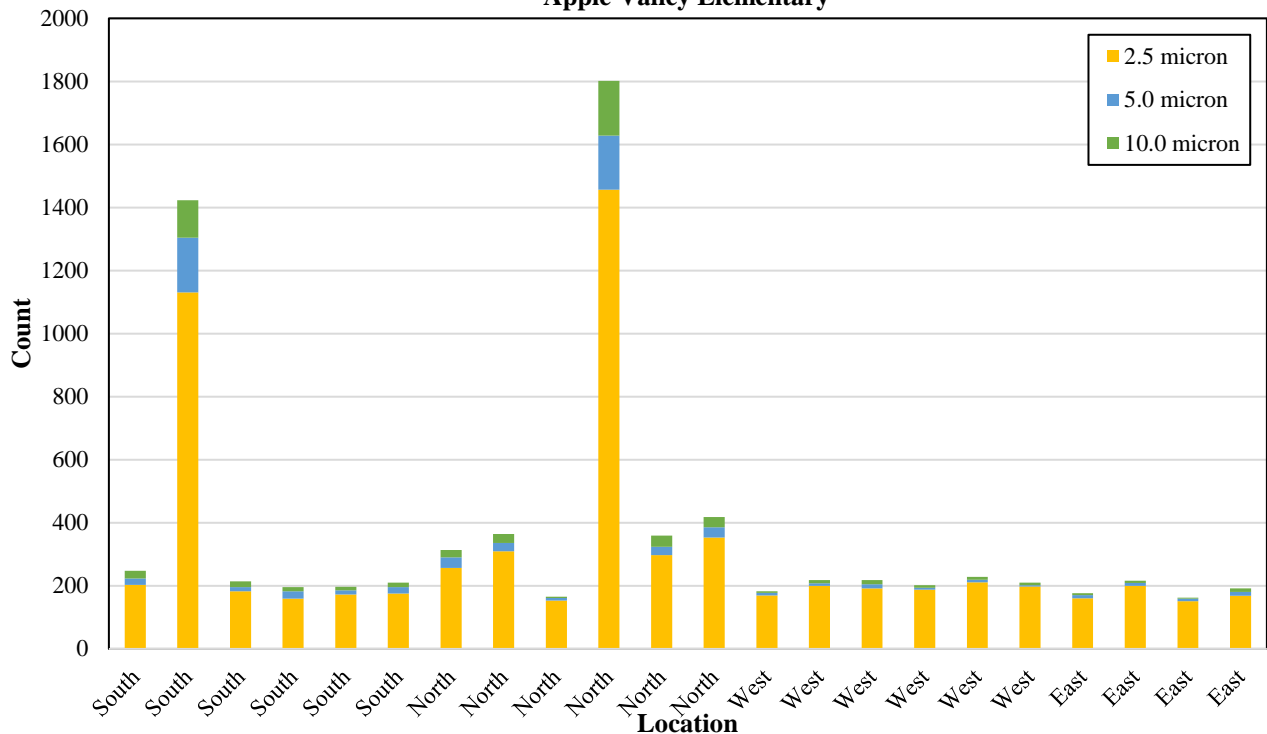
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, July 30, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, July 30, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE September 28, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On August 7, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the northeast stormwater infiltration feature and building construction. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:50 PM and 1:50 PM. Wind direction was generally from the west to southwest ranging from 0 to 5 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

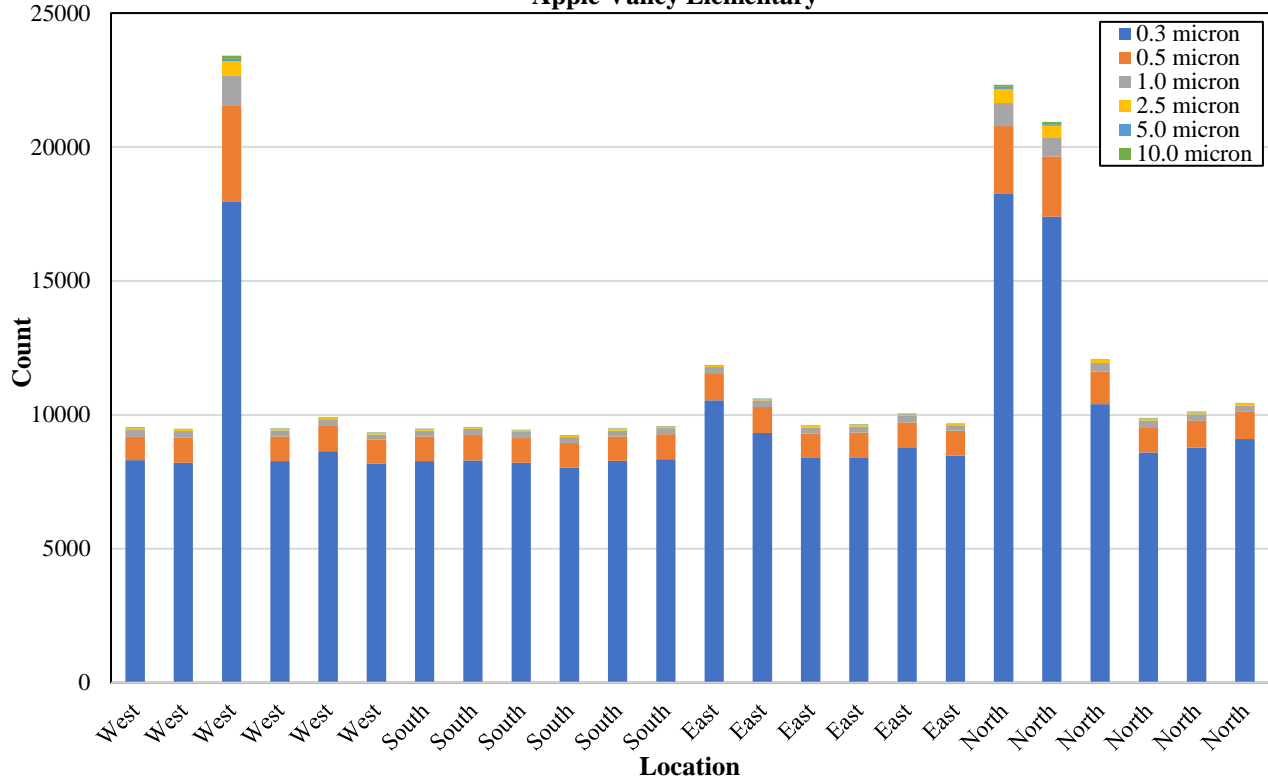
Total particulate concentrations were relatively consistent across the site with the measurements from the north construction area and one measurement from the west having slightly higher total particulate concentrations than the south, east, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample locations and one measurement from the west sample location at the time of the survey.

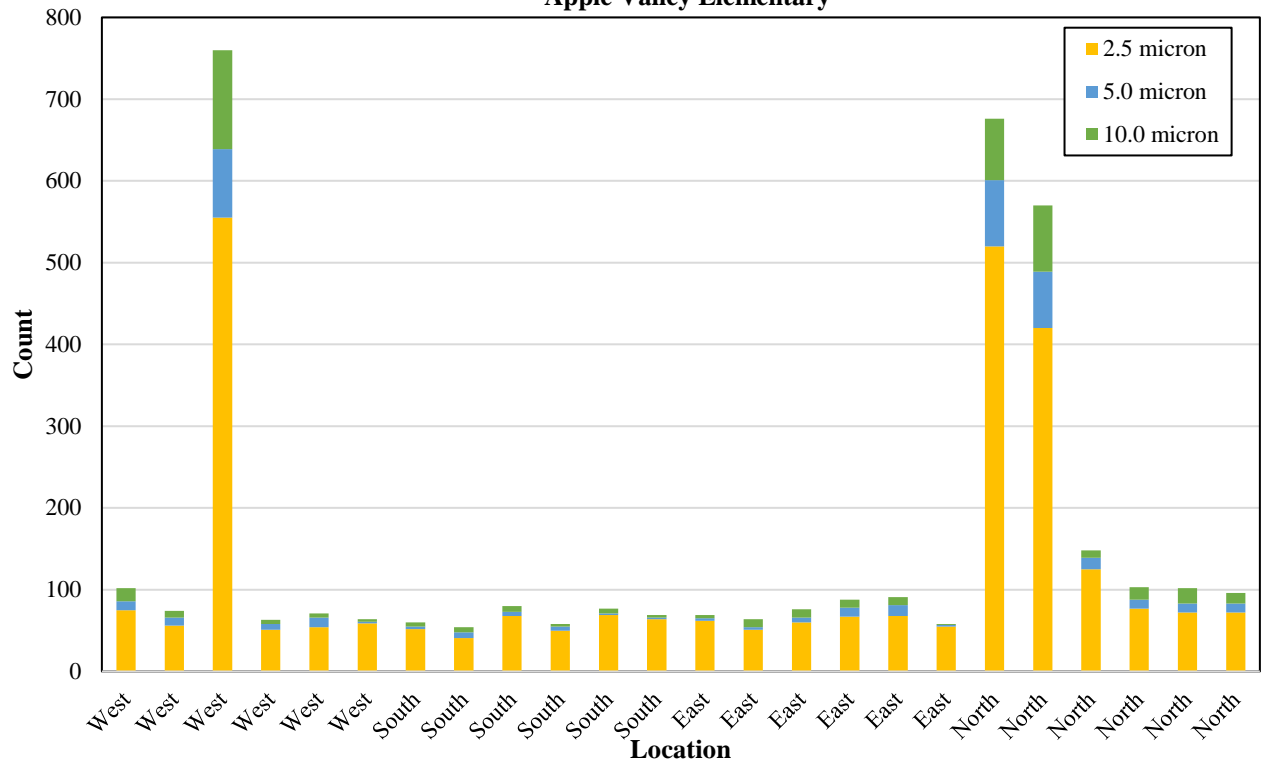
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, August 7, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, August 7, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE September 28, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On August 14, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the placement of sidewalks surrounding the north and west parking lot areas. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 9:00 AM and 11:50 AM. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

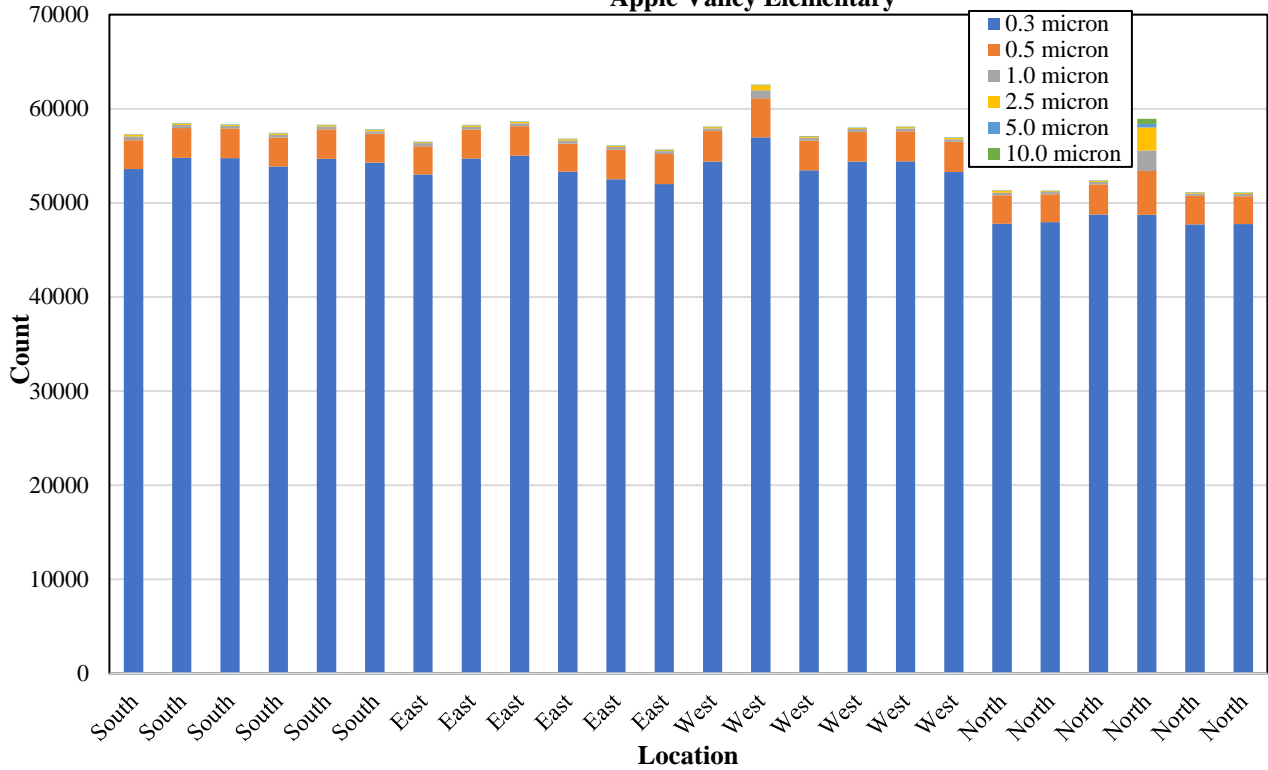
Total particulate concentrations were relatively consistent across the site with the measurements from the west and south construction area having slightly higher total particulate concentrations than the north and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, particulate counts were higher in one measurement from the north sample location and one measurement from the west sample location at the time of the survey.

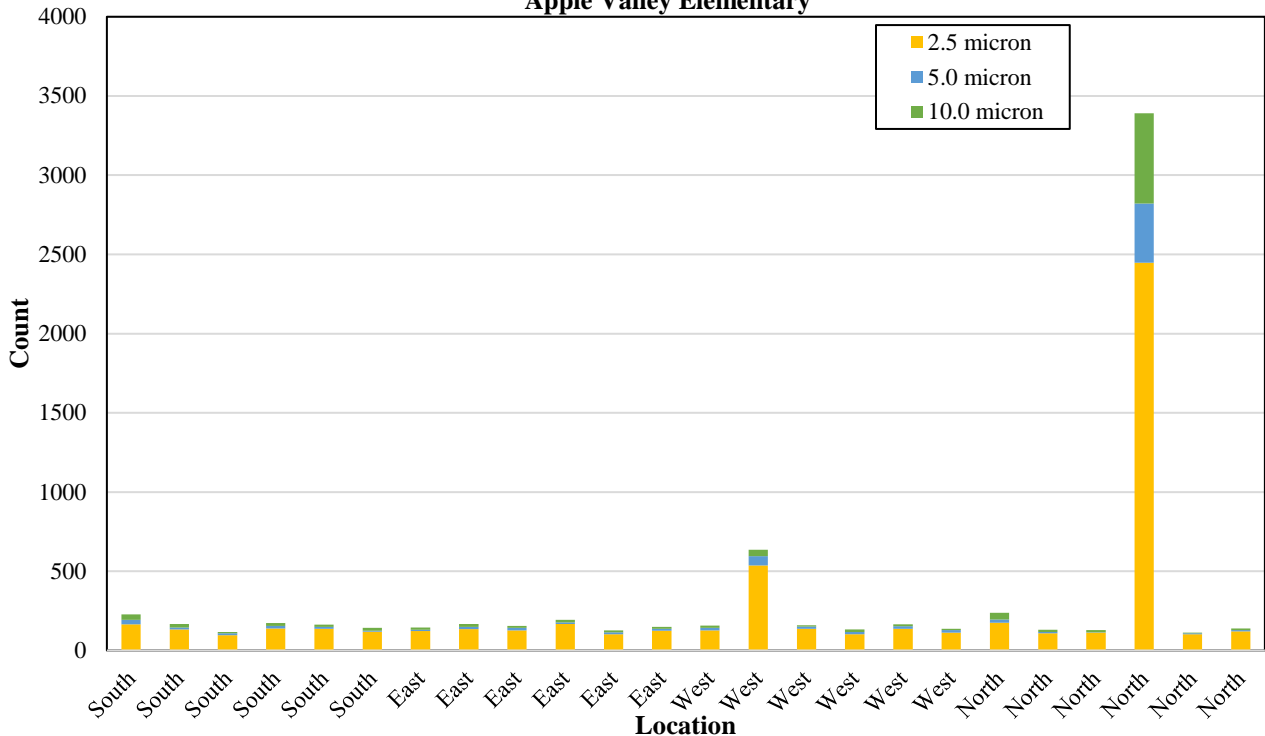
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                                  Ron Huylar                                  Eric Kanzig

**Graph 1: Total Particulate Data, August 14, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, August 14, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE September 28, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On August 19, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the pavement of the north and west parking lots. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 1:00 PM and 2:00 PM. Wind direction was generally from the north to northeast ranging from 0 to 2 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

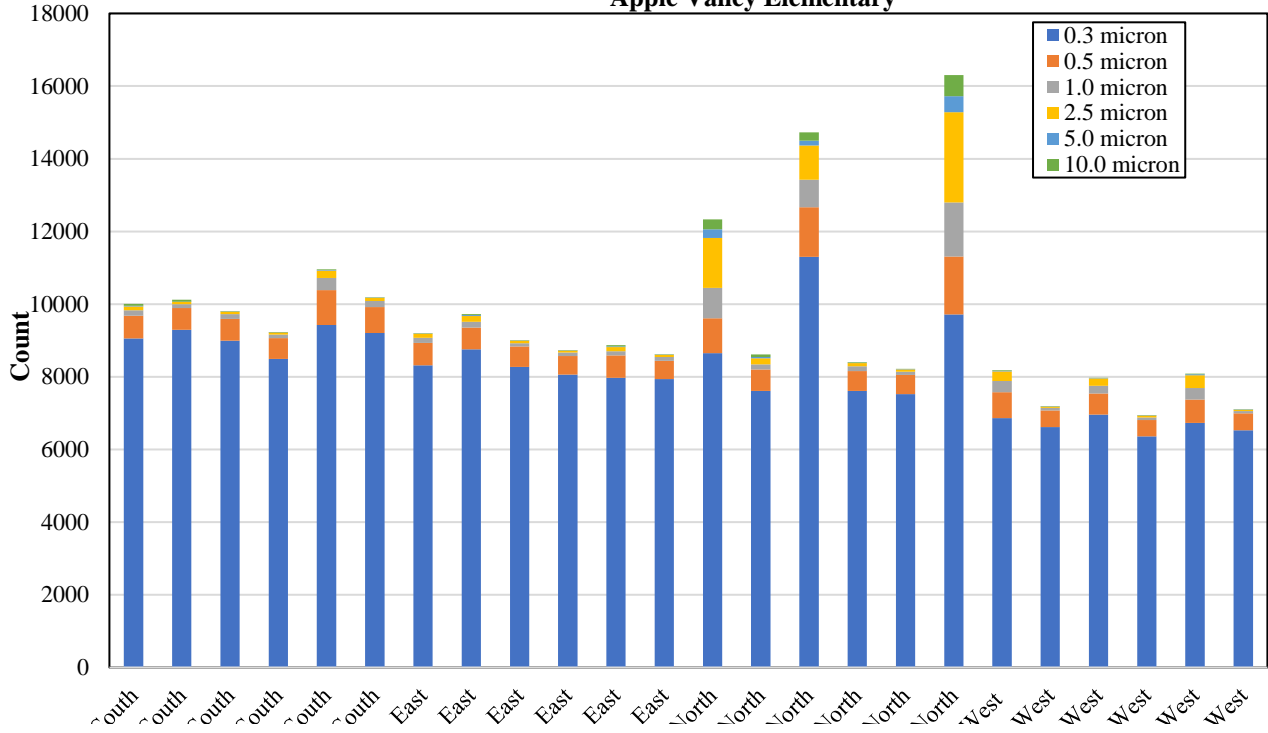
Total particulate concentrations from the south and east were generally higher than the north and west. However several elevated measurements from the north area were noted with higher elevations. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in select measurement collected from the north sample location at the time of the survey.

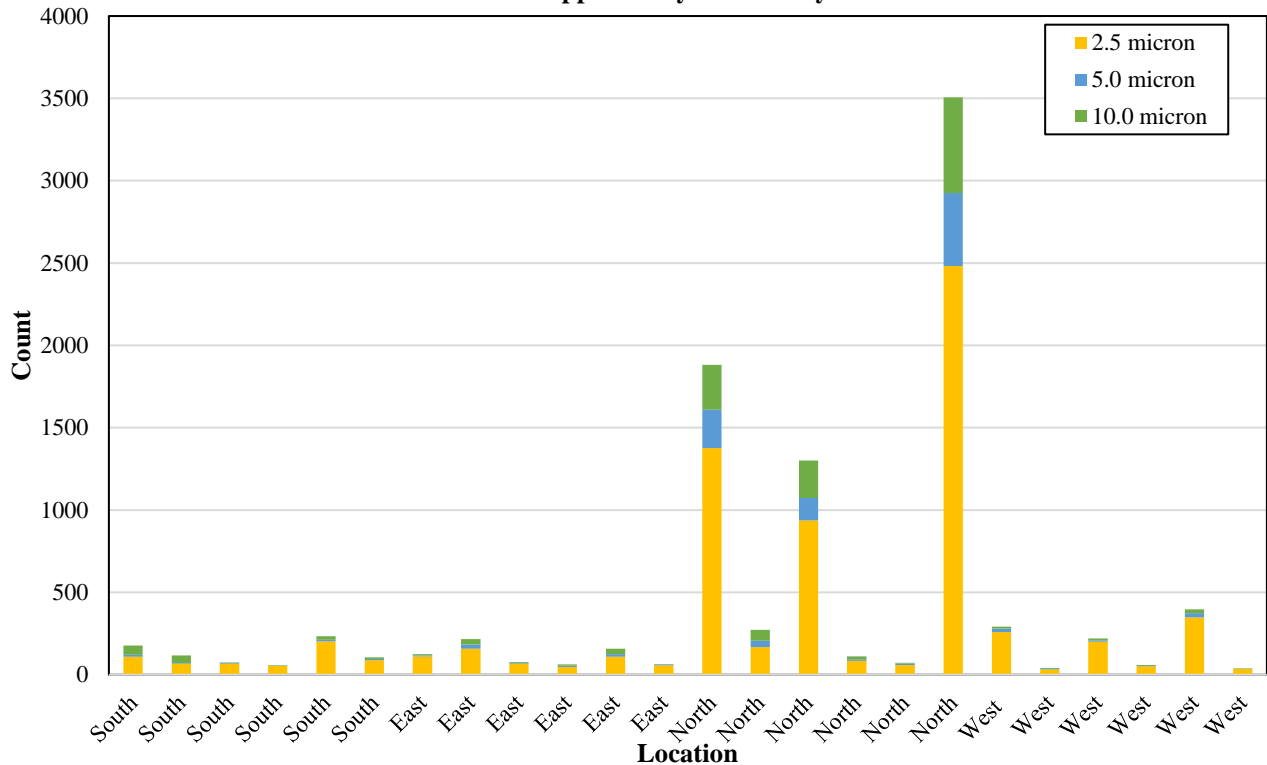
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, August 19, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, August 19, 2020**  
**Apple Valley Elementary**





# MEMORANDUM

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DATE September 28, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On August 26, 2020, Amanda Enbysk, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in digging a trench for utilities west of building. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 11:30 AM and 12:00 PM. Wind speed was generally ranging from 0 to 4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

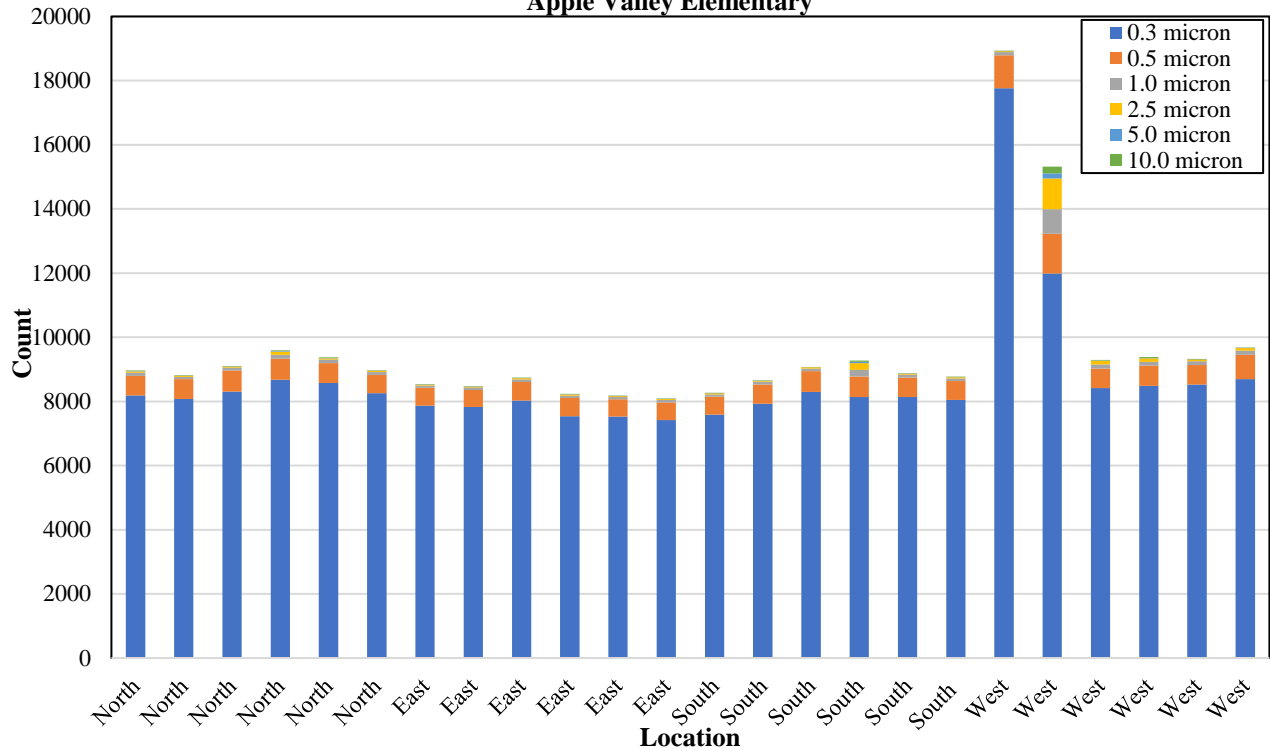
Total particulate concentrations were relatively consistent across the site with the measurements from select measurement in the west construction area having slightly higher total particulate concentrations than the south, north, and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in select measurements in the west sample location at the time of the survey.

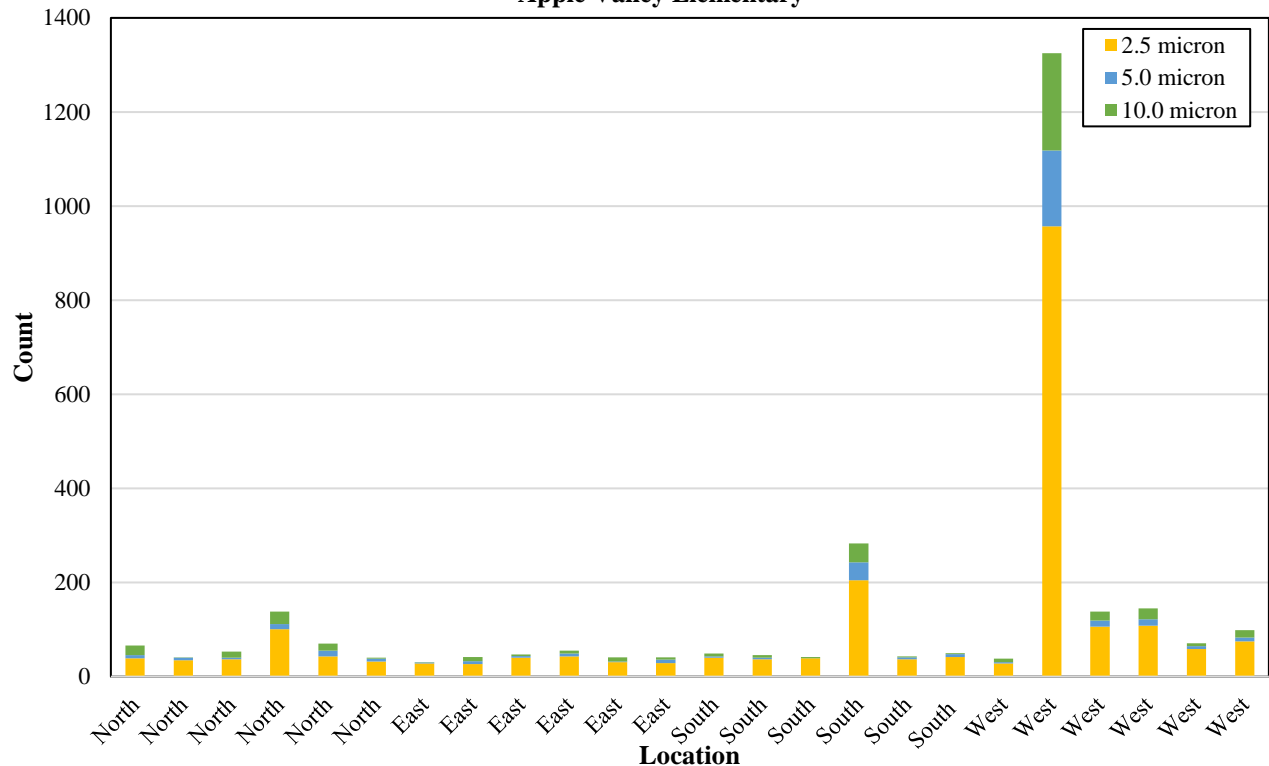
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, August 26, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, August 26, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE October 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On September 4, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly in the digging of electrical line east of the western parking lot. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:00 PM and 2:15 PM. Wind direction was generally from the south to southwest ranging from 1 to 2 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

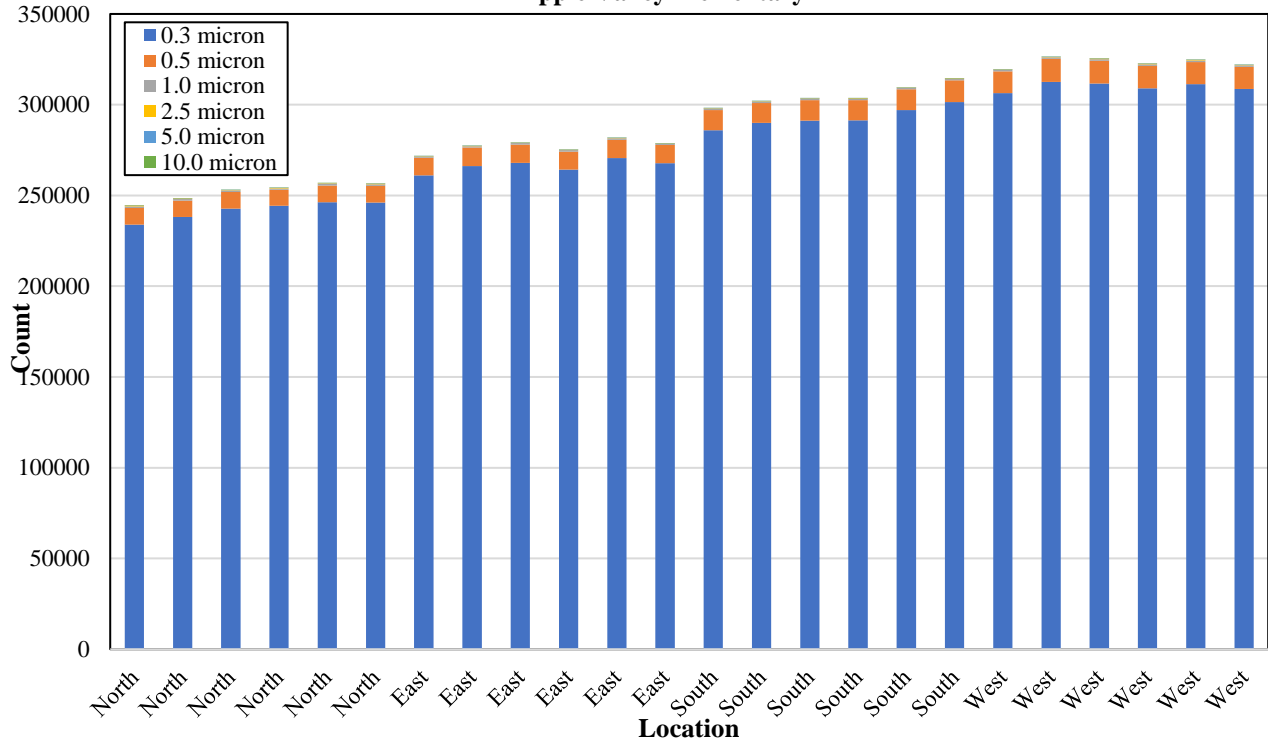
Total particulate concentrations were relatively consistent across the site with the measurements from the west construction area having slightly higher total particulate concentrations than the south, north, and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less. Active wildfires were present in the area and particulate measurements were higher due to general air quality in the area, not due to site activities.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample location at the time of the survey.

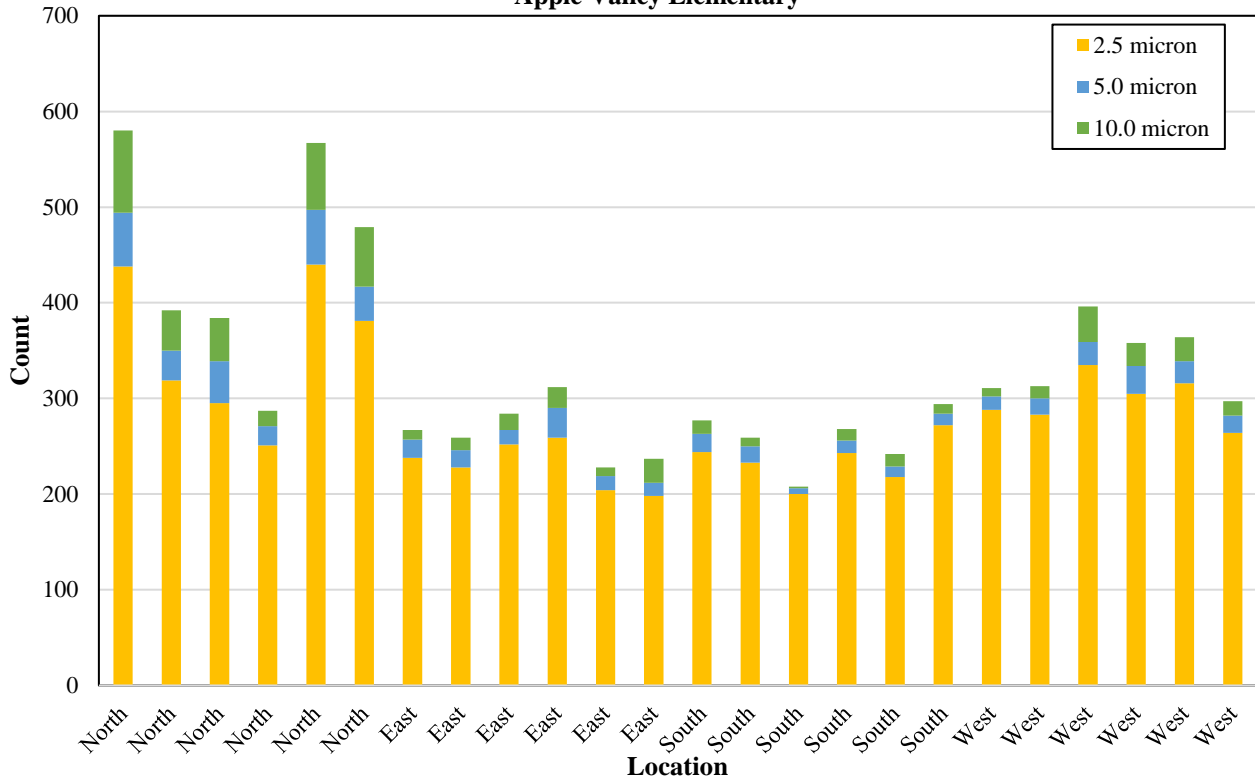
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig

**Graph 1: Total Particulate Data, September 4, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, September 4, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE September 16, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On September 11, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:00 PM and 2:00 PM. Wind direction was generally from the east to southeast ranging from 1 to 4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

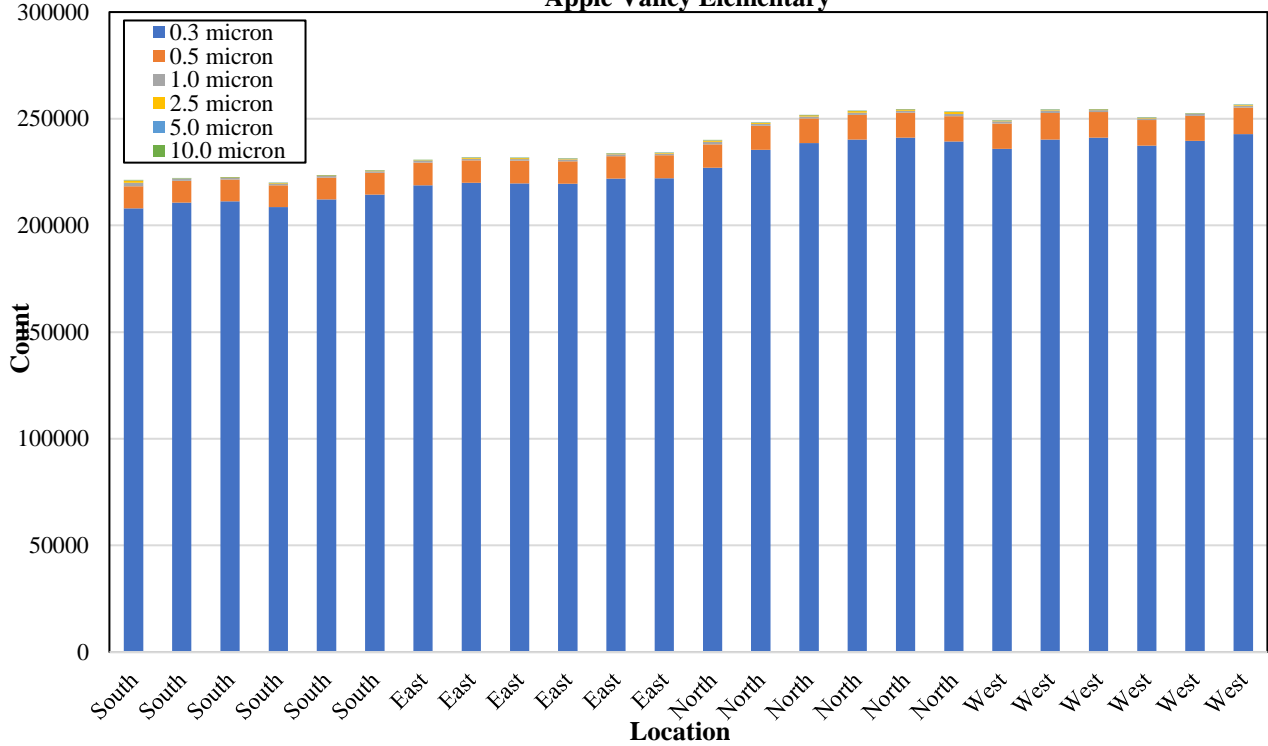
Total particulate concentrations were relatively consistent across the site with the measurements from the north and west construction area having slightly higher total particulate concentrations than the south and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less. Active wildfires were present in the area and particulate measurements were higher due to general air quality in the area, not due to site activities.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample location at the time of the survey.

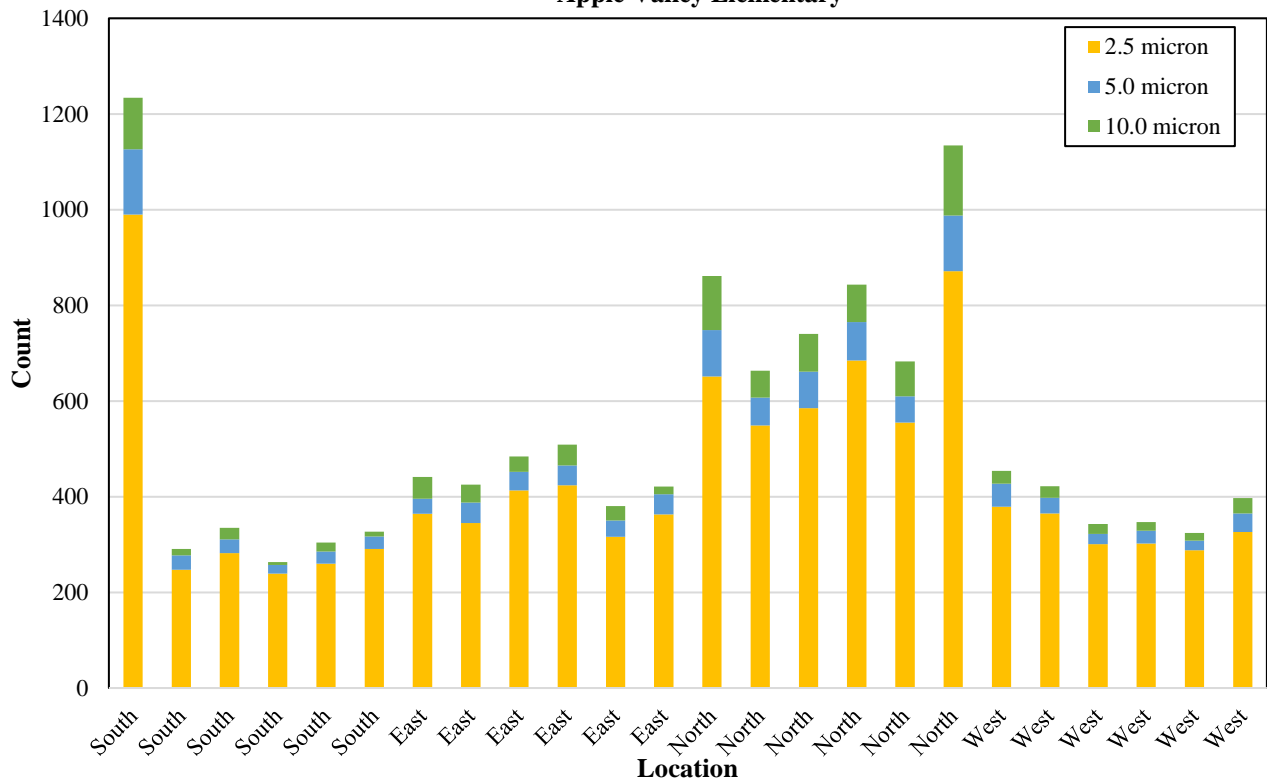
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, September 11, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, September 11, 2020**  
**Apple Valley Elementary**



# MEMORANDUM

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DATE October 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On September 17, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly building development and grading the southern portion of the subject site. A water truck was present on site and consistently being utilized for dust suppression.

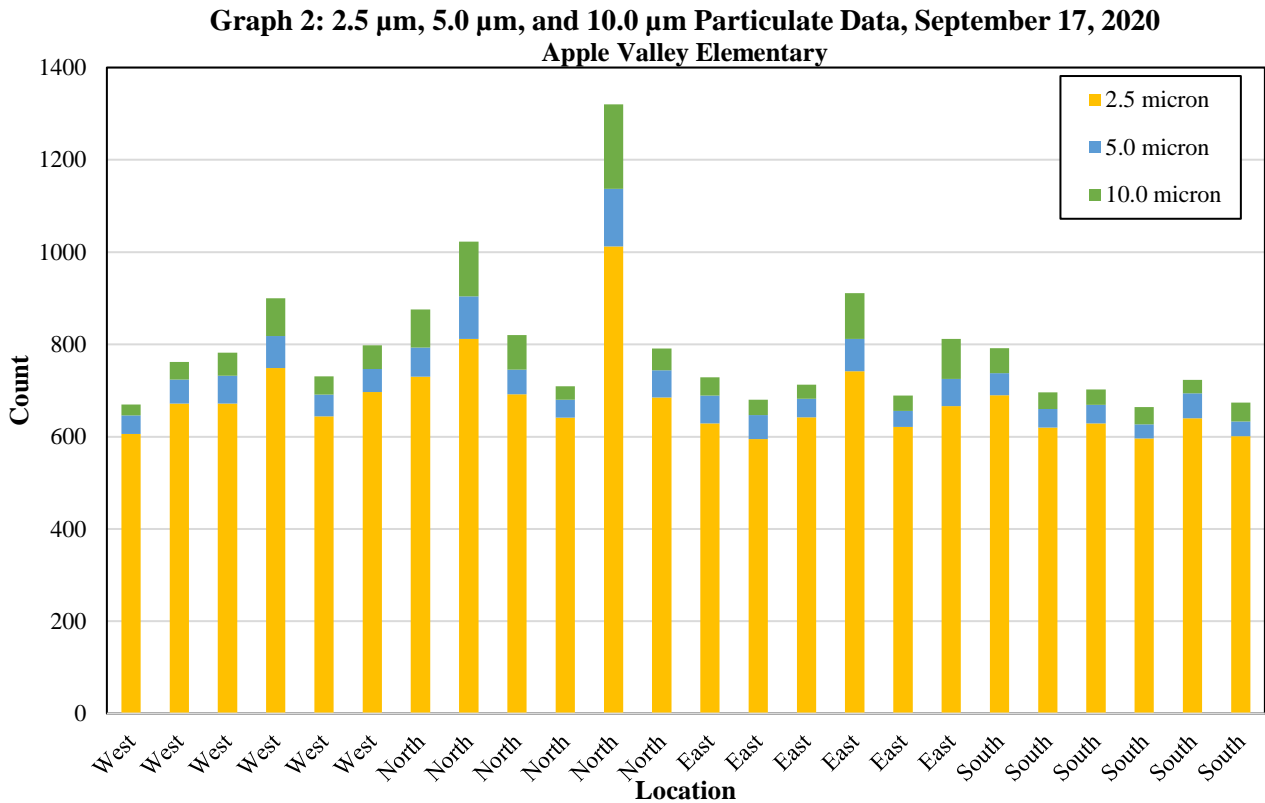
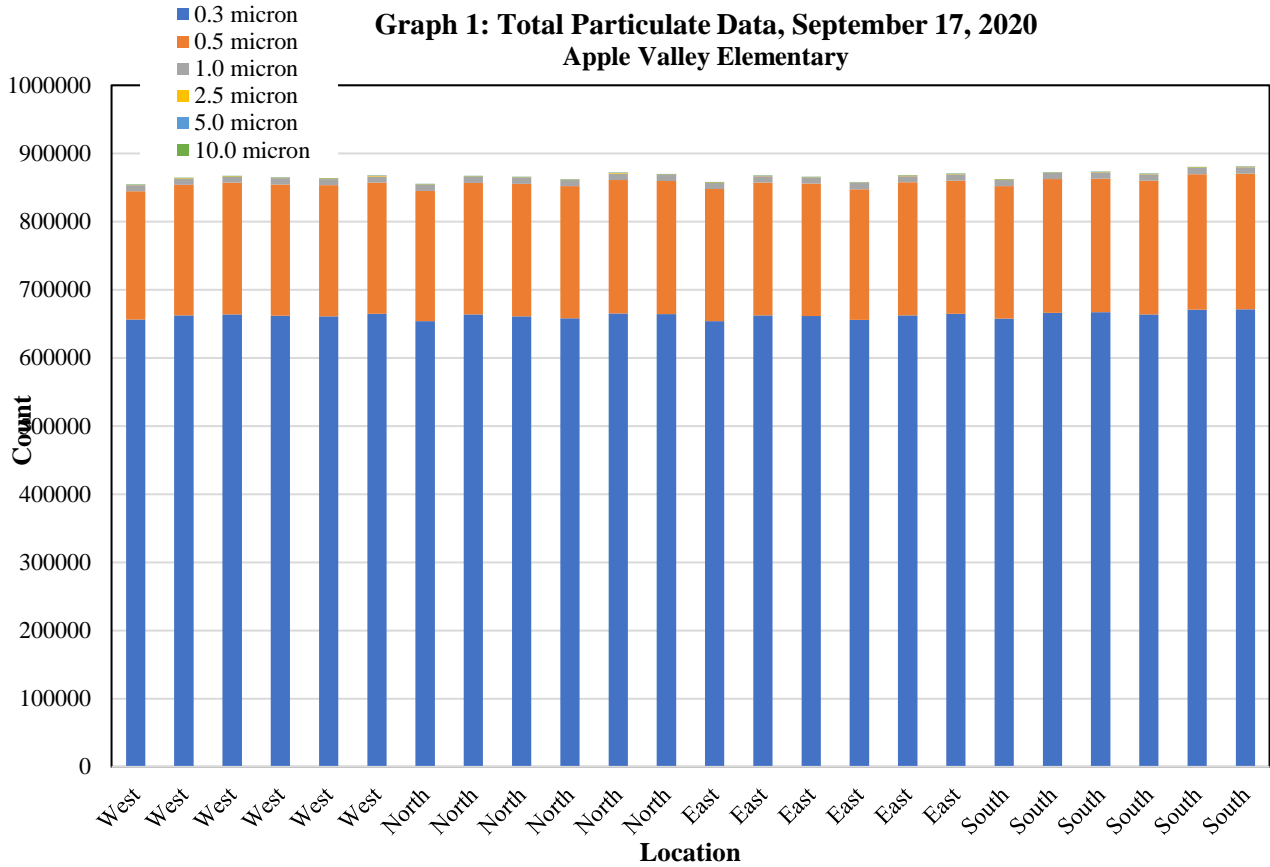
During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 10:00 AM and 11:30 PM. No wind was observed during the site inspection. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

Total particulate concentrations were relatively consistent across the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less. Active wildfires were present in the area and particulate measurements were higher due to general air quality, not due to site activities.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample location at the time of the survey.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig





# MEMORANDUM

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DATE October 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On September 25, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly building development and removing stockpiled soils offsite for disposal. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 1:00 PM and 2:30 PM. Wind direction was generally from the south to southwest ranging from 8-12 mph with gusts up to 20 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

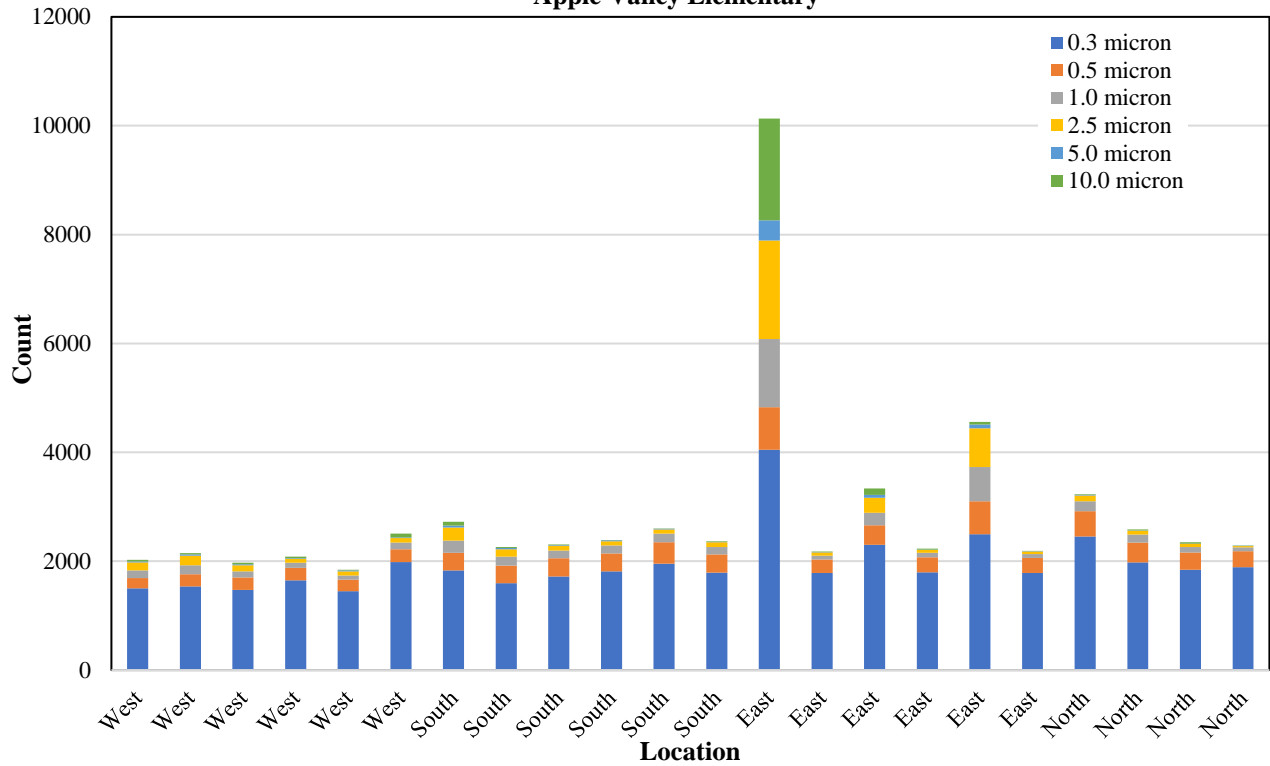
Total particulate concentrations were relatively consistent across the site with the measurements from the east and north construction area having slightly higher total particulate concentrations than the south and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the east sample location at the time of the survey.

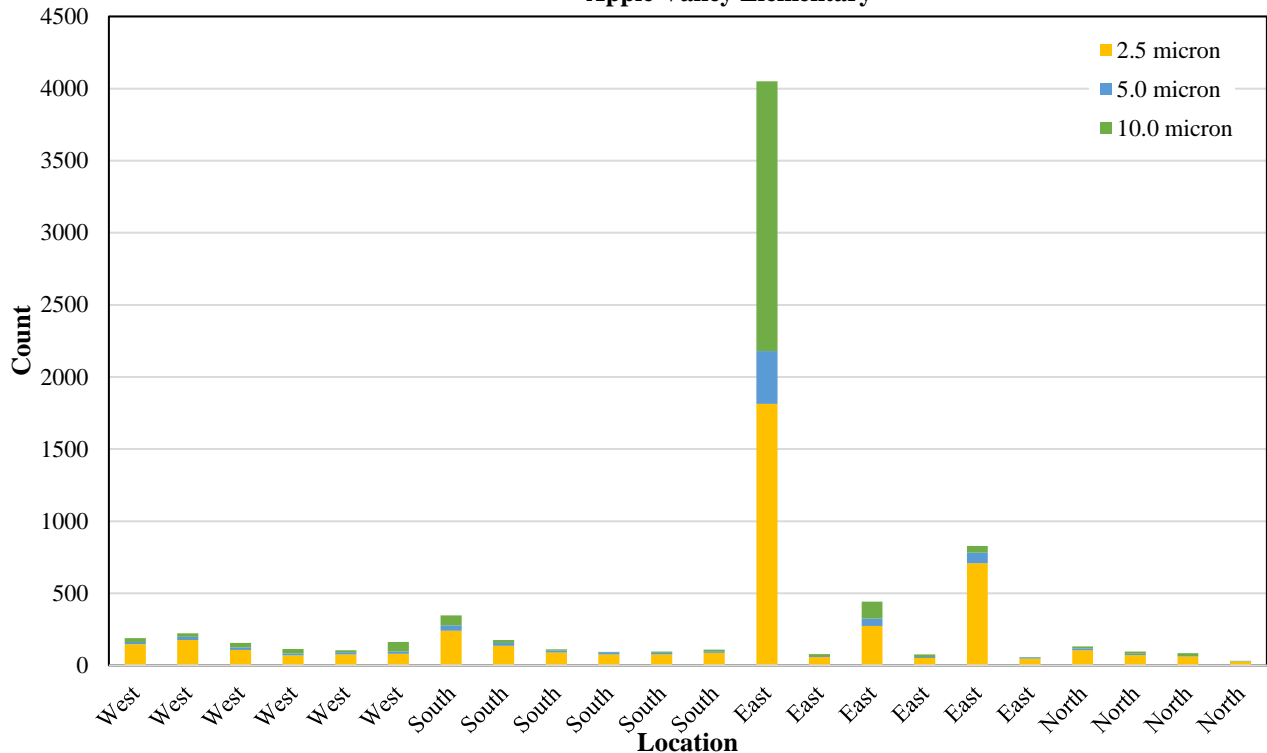
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, September 25, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, September 25, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE December 1 , 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On October 16, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly on building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns (µm)) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:30 PM and 1:30 PM. Wind direction was generally from the east to southeast ranging from 4-12 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

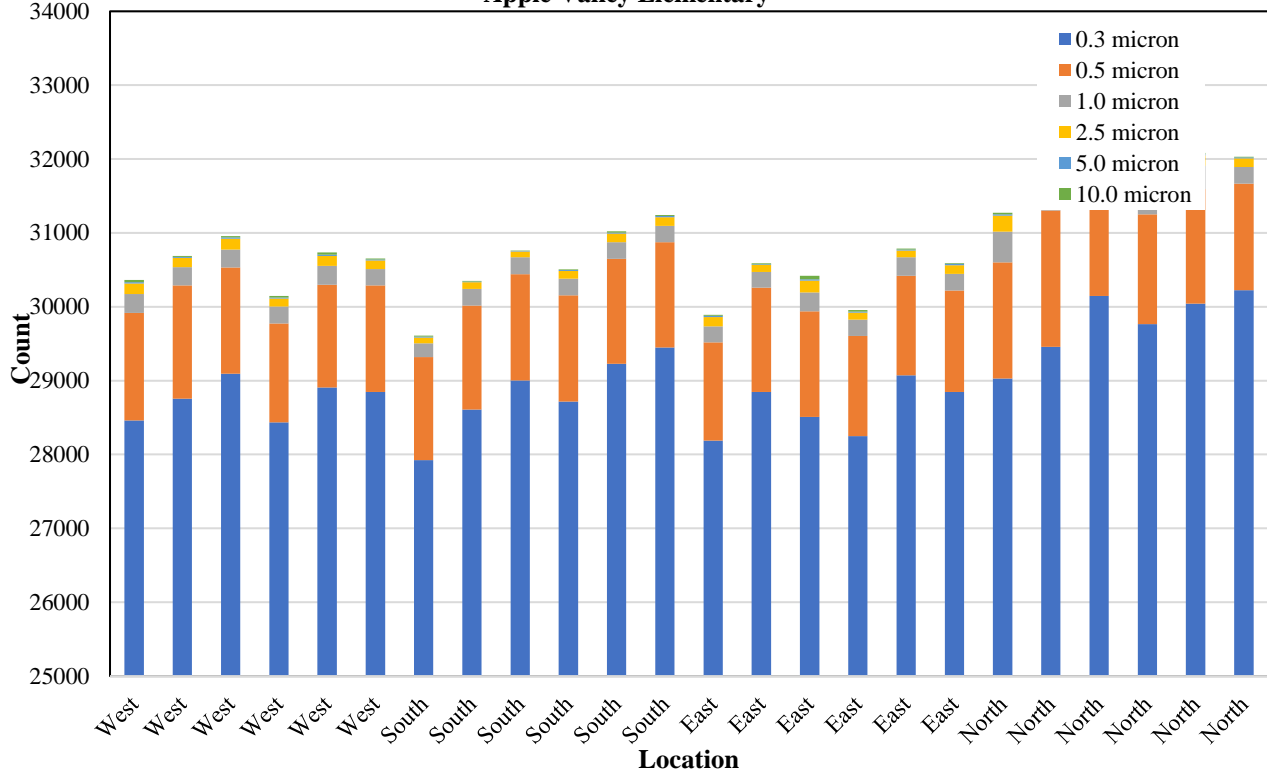
Total particulate concentrations were relatively consistent across the site with the measurements from the west construction area having slightly higher total particulate concentrations than the north, south, and east portions of the site. Most of the measured particulates were fine and 0.3 µm in diameter or less.

A review of 2.5 µm to 10.0 µm particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the west and north sample location at the time of the survey.

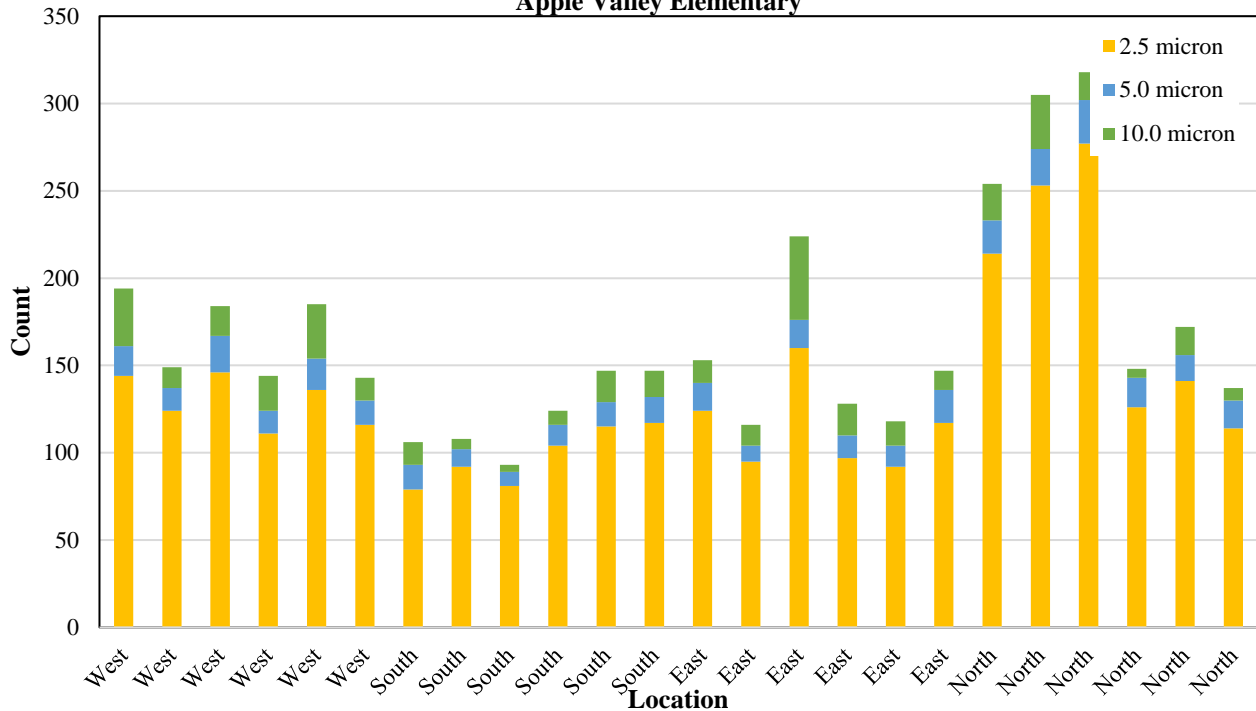
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                                  Ron Huylar                                  Eric Kanzig

**Graph 1: Total Particulate Data, October 16, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, October 16, 2020**  
**Apple Valley Elementary**



# MEMORANDUM

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DATE December 1, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On October 23, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly on building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:30 PM and 1:30 PM. Wind direction was generally from the south to southeast ranging from 1-4 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

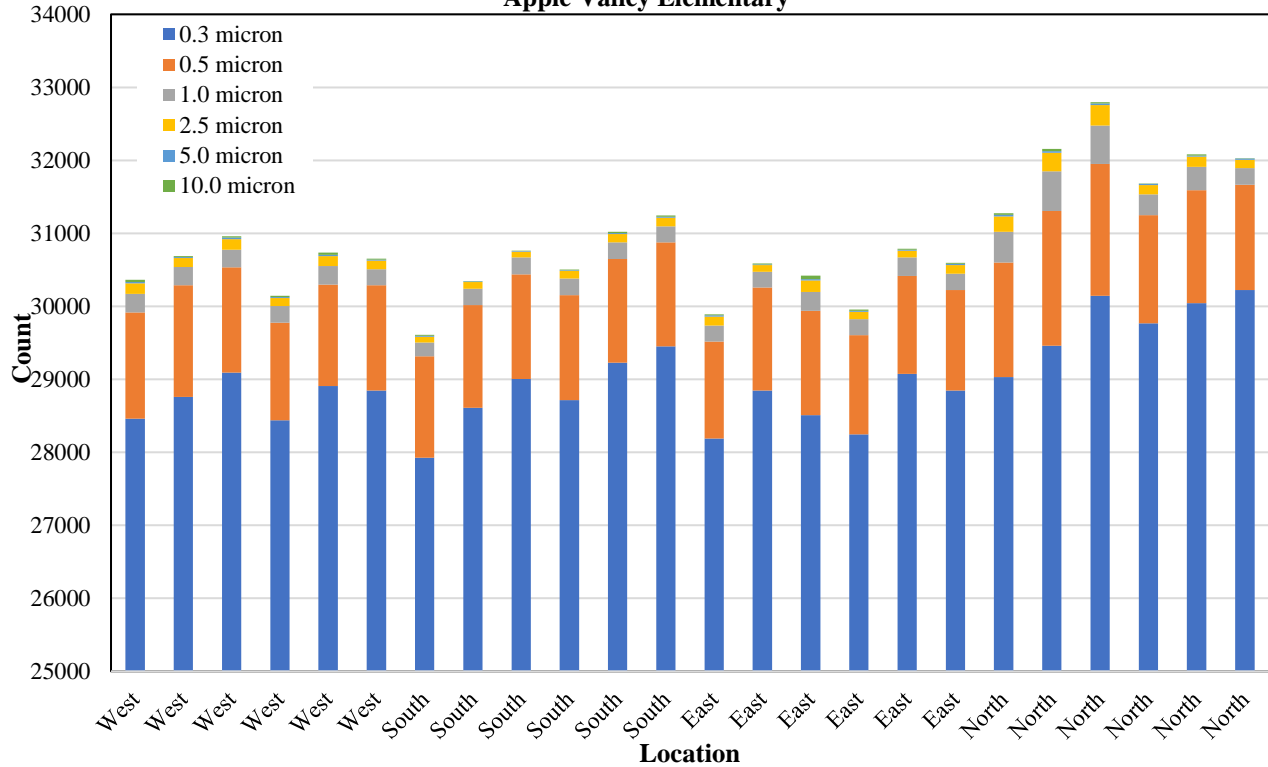
Total particulate concentrations were relatively consistent across the site with the measurements from the north construction area having slightly higher total particulate concentrations than the south, east, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample location at the time of the survey.

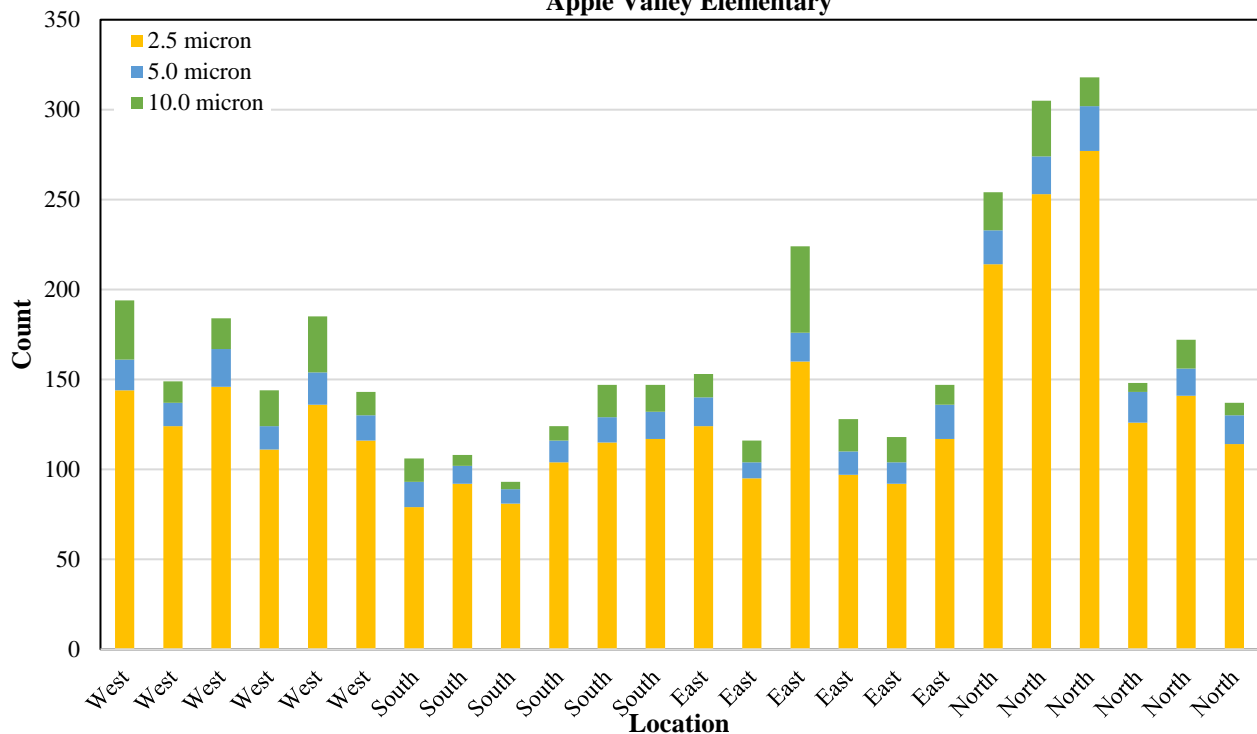
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                                  Ron Huylar                                  Eric Kanzig

**Graph 1: Total Particulate Data, October 23, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, October 23, 2020**  
**Apple Valley Elementary**



# MEMORANDUM

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DATE December 1, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On October 30, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly on building development and excavating a small area in the southern portion of the subject site. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 10:15 AM and 11:45 AM. Wind direction was generally from the west to southwest ranging from 10 to 15 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

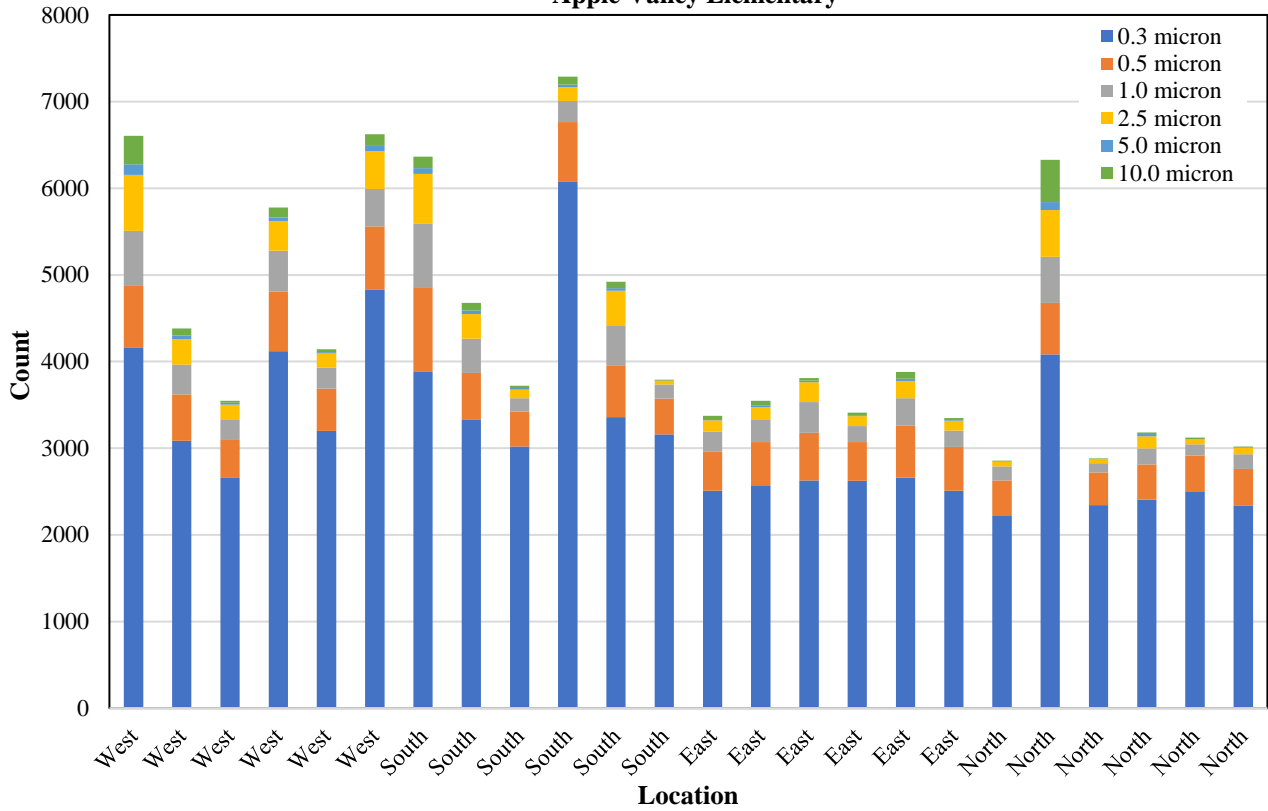
Total particulate concentrations were relatively consistent across the site with the measurements from the south and west construction areas having slightly higher total particulate concentrations than the north and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the south and west sample location at the time of the survey.

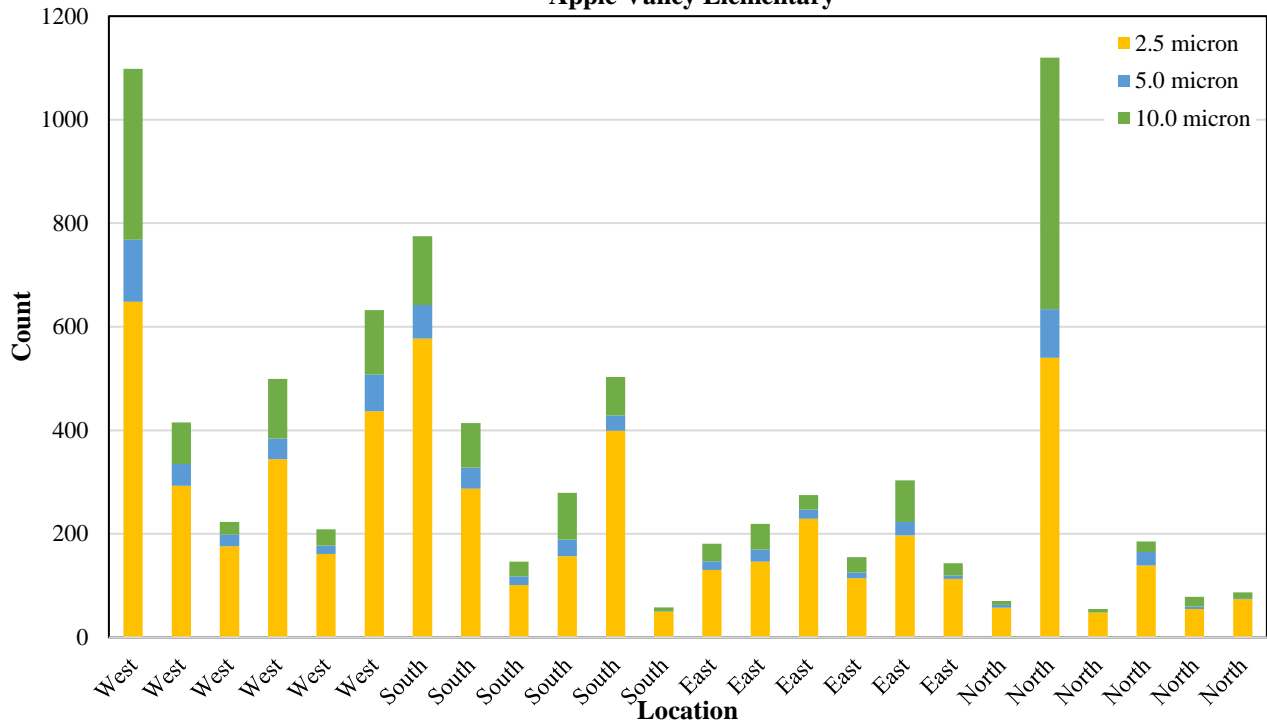
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, October 30, 2020**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, October 30, 2020**  
**Apple Valley Elementary**





# MEMORANDUM

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DATE December 1, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On November 6, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly on building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 12:00 PM and 1:50 PM. Wind direction was generally from the south to southwest ranging from 1-3 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

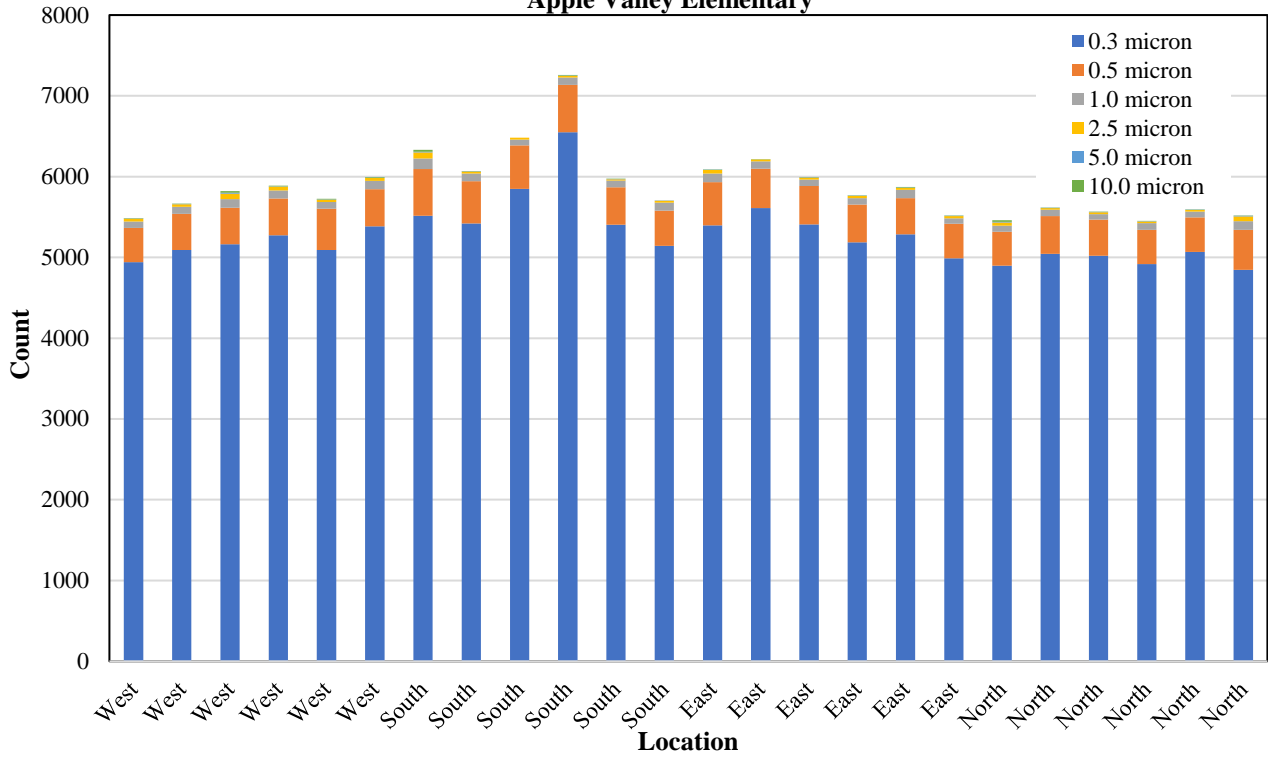
Total particulate concentrations were relatively consistent across the site with the measurements from the south construction area having slightly higher total particulate concentrations than the north, east, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the west sample location at the time of the survey.

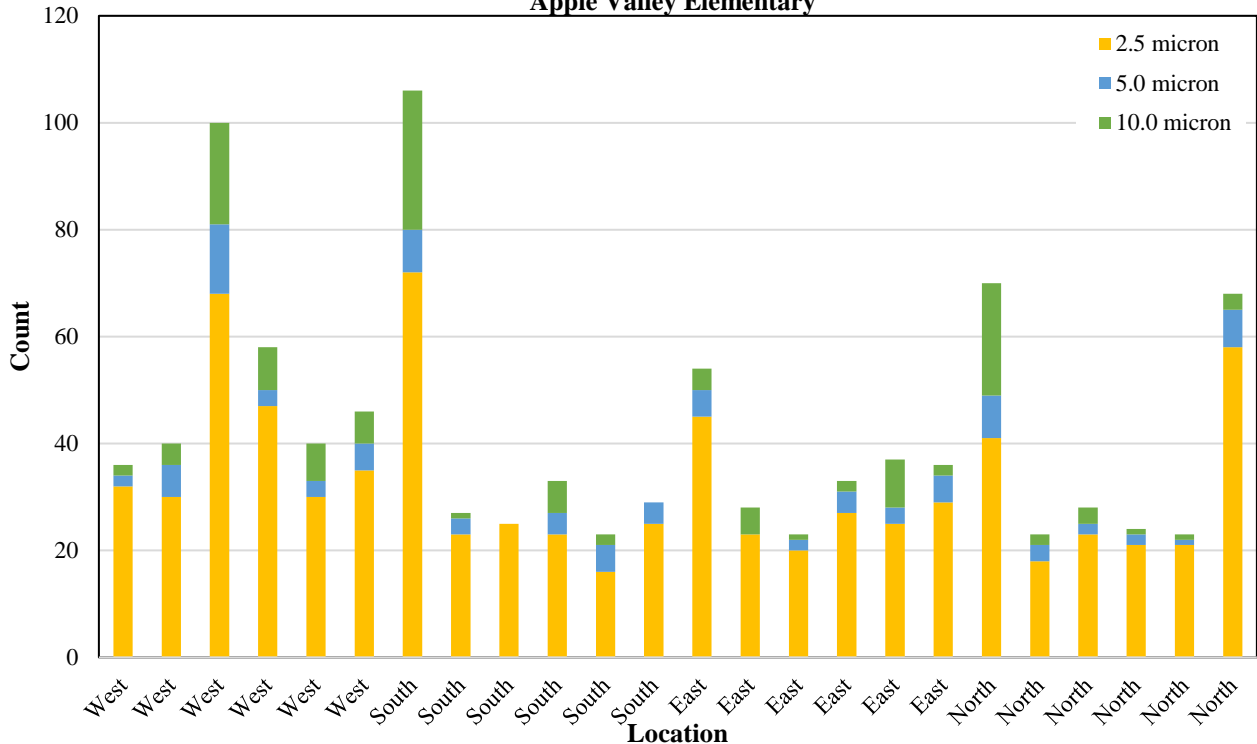
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                              Ron Huylar                              Eric Kanzig

**Graph 1: Total Particulate Data, November 6, 2020**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, November 6, 2020**  
 Apple Valley Elementary



# MEMORANDUM

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DATE March 24, 2021  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On December 11, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly on building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 10:30 AM and 11:50 PM. No wind was observed during site inspection. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

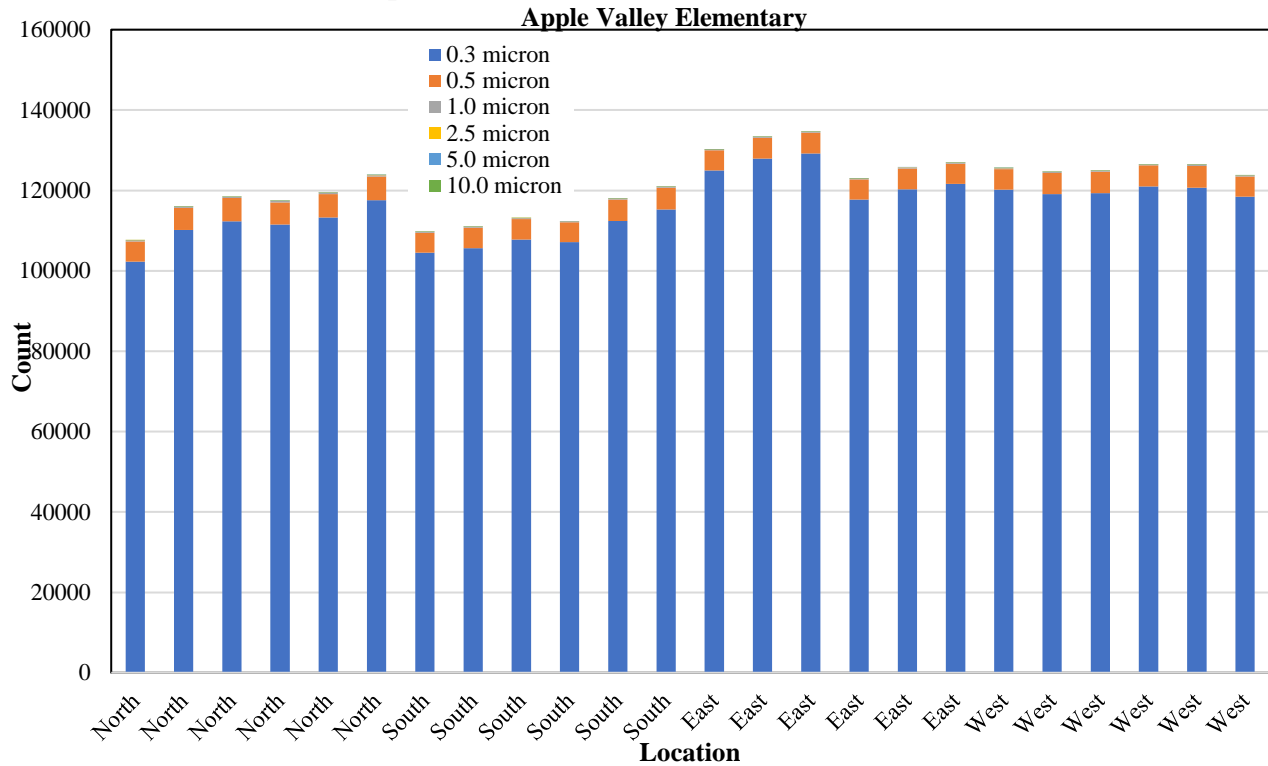
Total particulate concentrations were relatively consistent across the site with the measurements from the east construction area having slightly higher total particulate concentrations than the north, south, and west portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north sample location at the time of the survey.

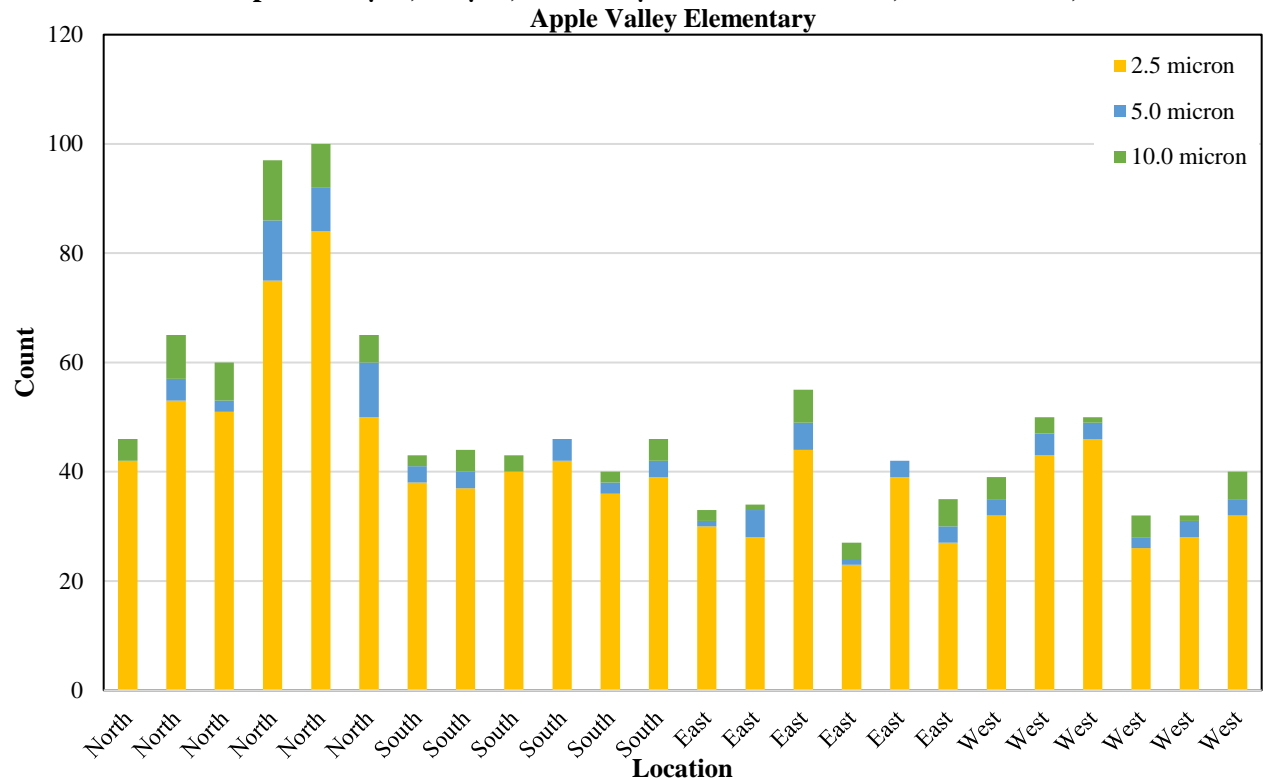
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig

**Graph 1: Total Particulate Data, December 11, 2020**

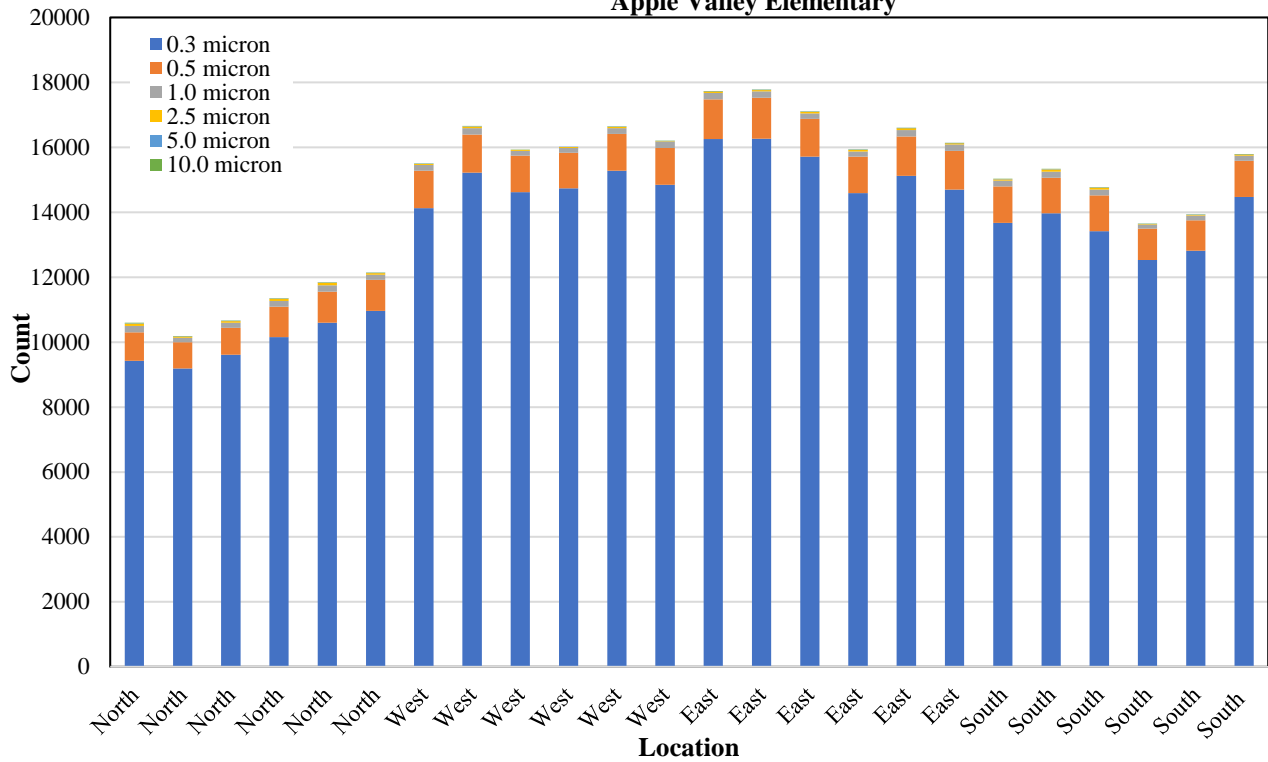


**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, December 11, 2020**

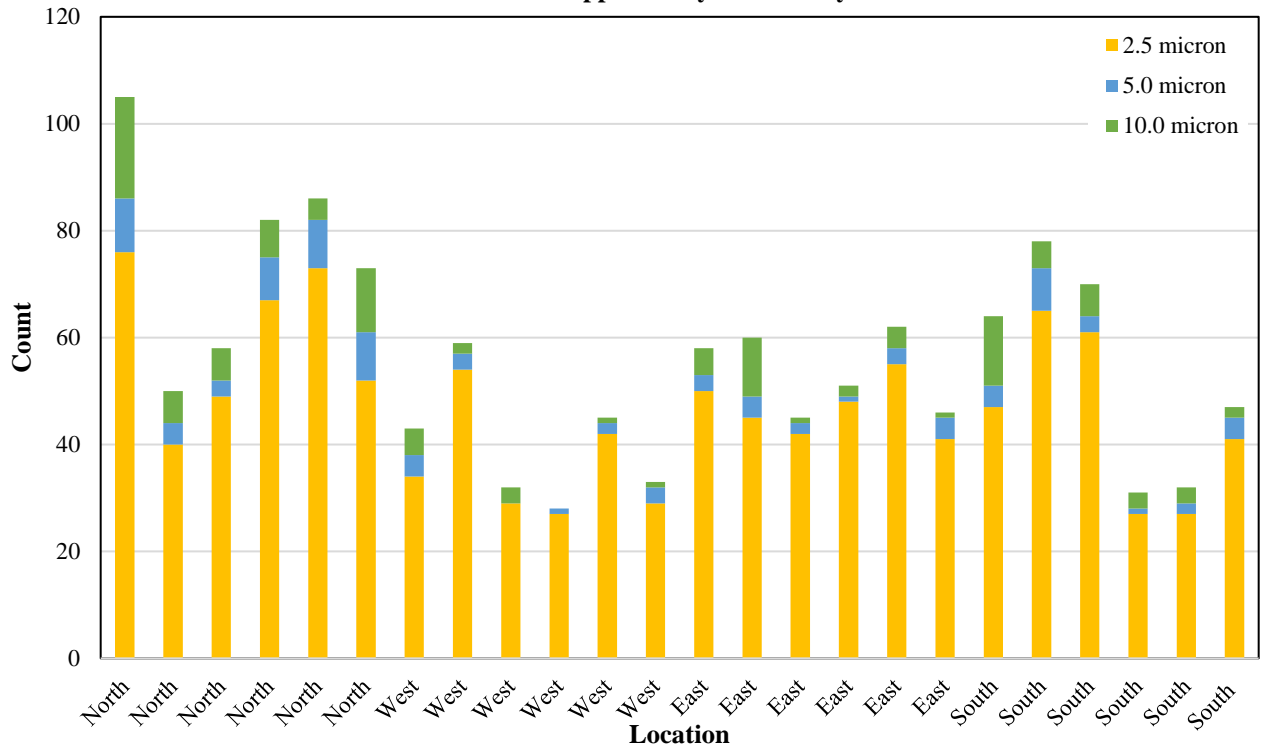




**Graph 1: Total Particulate Data, January 6, 2021**  
**Apple Valley Elementary**



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, January 6, 2021**  
**Apple Valley Elementary**



# MEMORANDUM

---

DATE March 24, 2021  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Airborne Particulate Measurements During Soil Impacting Activities**  
SUBJECT West Valley School District – Apple Valley Elementary

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On January 15, 2021, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed a site visit to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visit was to qualitatively monitor airborne particulate concentrations during soil impacting activities in areas of lead and arsenic contaminated soils. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the particulate survey focused mainly on building development. A water truck was present on site and consistently being utilized for dust suppression.

During site evaluation, Fulcrum used a six-channel (0.3, 0.5, 1.0, 2.5, 5.0, 10.0 microns ( $\mu\text{m}$ )) Lighthouse Worldwide Solutions Model 3016 handheld particulate meter to measure airborne particulate concentrations. The sampling event consisted of two consecutive readings per sample location collected between 1:30 PM and 2:50 PM. Wind directions was generally from the east ranging from 1 to 3 mph. There were low to no amounts of visible dust particles in the air. Measurements were collected from the north, south, east and west portions of the property. See the attached graphs for particulate results.

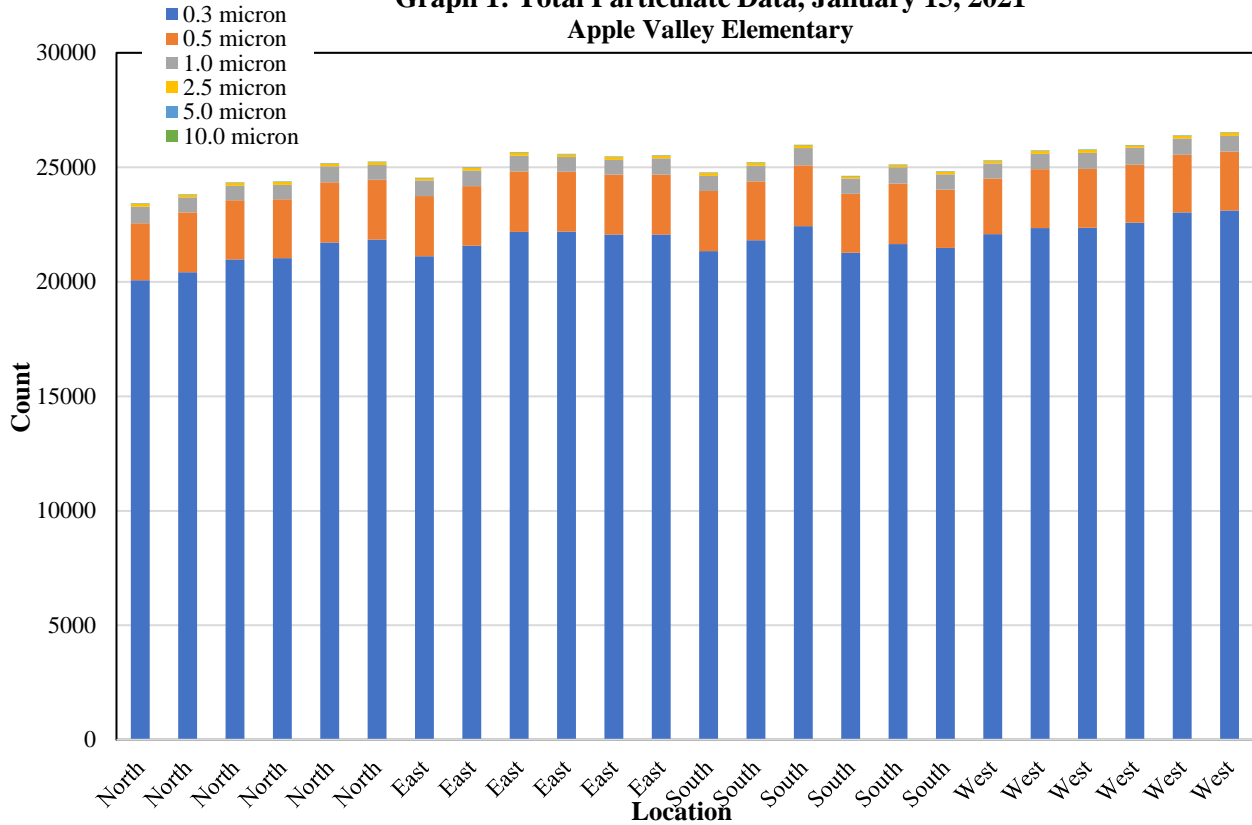
Total particulate concentrations were relatively consistent across the site with the measurements from the west construction area having slightly higher total particulate concentrations than the north, south, and east portions of the site. Most of the measured particulates were fine and 0.3  $\mu\text{m}$  in diameter or less.

A review of 2.5  $\mu\text{m}$  to 10.0  $\mu\text{m}$  particle size ranges identified variability between consecutive readings at most sample locations. However, in general, the number of particulate counts were higher in the north and south sample locations at the time of the survey.

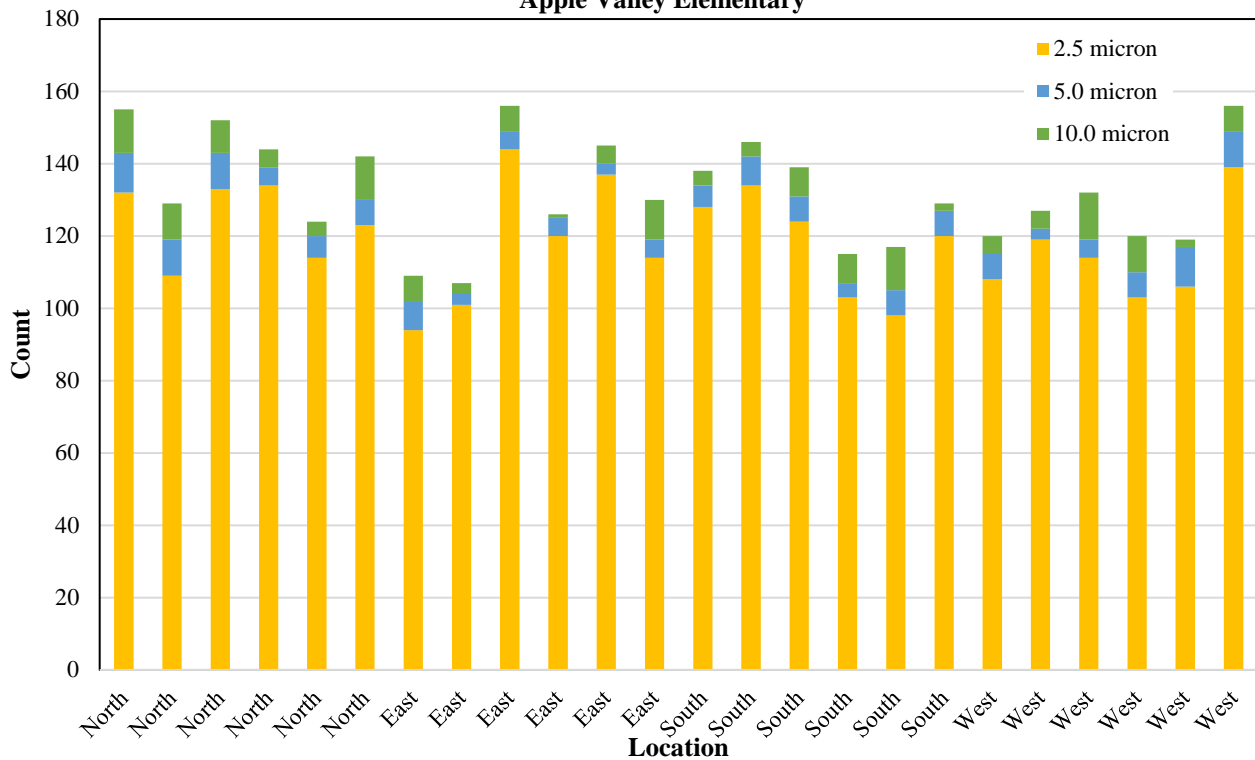
If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**    **Chervenell Construction**    **Tri-Valley Construction**  
Tim Critchlow                      Ron Huylar                      Eric Kanzig

**Graph 1: Total Particulate Data, January 15, 2021**  
 Apple Valley Elementary



**Graph 2: 2.5 µm, 5.0 µm, and 10.0 µm Particulate Data, January 15, 2021**  
 Apple Valley Elementary







**APPENDIX H**

Clean Soil Source Laboratory Report



Consulting Engineers Environmental Scientists Construction Materials Testing

December 19, 2019

**GNN Project No. 219-1129**

West Valley School District No. 208  
c/o CBRE|HEERY Construction Management  
8902 Zier Road  
Yakima, WA 98902

Attn: Rob Gross, Sr. Project Manager, CBRE|HEERY

**Subject: Report of Lead and Arsenic Sampling and Analytical Testing**  
Summitview Elementary School Replacement Project  
6305 W. Chestnut Avenue, Yakima, Washington

Reference: GN Northern, Inc., August 9, 2019. *Geotechnical Site Investigation Report, Summitview Elementary School Replacement Project, 6305 W. Chestnut Avenue, Yakima, Washington*, GNN Project No. 219-1129.

Dear Mr. Gross,

At your request, GN Northern (GNN) has prepared this report to present the results of lead and arsenic testing completed on near-surface soil samples collected at the Summitview Elementary School site. The purpose of sampling and testing was to perform near-surface and shallow subsurface characterization for the presence/concentration of lead and arsenic in soil to determine if the site had been impacted by historical land use since, prior to development, the site was in orchard use with pear and apple trees.

Our sampling and testing was completed in general accordance with our Proposal for Limited Soil Sampling & Analytical Testing for Lead and Arsenic Contaminants dated November 1, 2019. Notice to proceed was provided by West Valley School District in the form of a Professional Services Contract Modification No. 2 (P.O. No. 1319169) authorized on November 22, 2019.

We reviewed the grading plans dated 12/5/2019 prepared by JUB Engineers to establish the sampling locations and depths. In general, cut and fill grading across the site will be on the order of 1 to 2 feet, and sampling locations were focused across proposed landscape and play areas.

Sampling activities were coordinated with a representative of Chervenell Construction. A total of twenty-two (22) samples were collected on December 9, 2019 from shallow hand-auger holes at depths ranging from approximately 6 to 42 inches below existing grade (BEG). Samples ID, 1 and 2, were collected immediately outside the previously excavated test-pit (TP-2) where a sample from depth of 12

722 N 16<sup>th</sup> Avenue, Suite 31  
Yakima WA 98902  
509-248-9798

2618 W Kennewick Ave  
Kennewick WA 99336  
509-734-9320

11115 E. Montgomery, Suite C  
Spokane Valley WA 99206  
509-893-9400

PO Box 1922  
Hood River OR 97031  
541-387-3387

81006 HWY 395  
Hermiston OR 97838  
541/564-0991

Visit our website at [www.gnnorthern.com](http://www.gnnorthern.com)  
Email: [gnnorthern@gnnorthern.com](mailto:gnnorthern@gnnorthern.com)

inches had arsenic concentration above the Ecology Model Toxics Control Act (MTCA) Method A cleanup threshold. Sample locations are shown on the attached Figure 1.

Each sample was secured in a 4-ounce glass jar and shipped to Libby Environmental of Olympia, WA for analytical testing of lead and arsenic contamination in accordance with EPA Method 7010 Series. Results of analytical testing are attached to this report. The following table provides a summary of the analytical results along with the MTCA Method A cleanup levels (CUL) for lead and arsenic. Total lead and arsenic values are presented in mg/kg on the attached analytical testing report which is analogous to parts per million (ppm):

#### Analytical Laboratory Test Results

Sample ID	Approximate GPS Coordinates*	Sample Depth (inches)	Lead Detected (ppm)	Lead MTCA CUL	Arsenic Detected (ppm)	Arsenic MTCA CUL
1	46°35'50.70"N, 120°35'32.73"W	12	11	250	14	20
2	46°35'50.71"N, 120°35'32.65"W	12	8.7	250	14	20
3	46°35'48.70"N, 120°35'32.34"W	9	8.5	250	15	20
4	46°35'49.61"N, 120°35'31.80"W	18	26	250	15	20
5	46°35'50.21"N, 120°35'32.36"W	28	ND	250	12	20
6	46°35'50.93"N, 120°35'31.65"W	12	ND	250	ND	20
7	46°35'51.61"N, 120°35'32.18"W	20	ND	250	ND	20
8	46°35'52.22"N, 120°35'32.04"W	12	ND	250	ND	20
9	46°35'52.20"N, 120°35'32.80"W	10	ND	250	ND	20
10	46°35'52.22"N, 120°35'33.67"W	12	ND	250	ND	20
11	46°35'52.24"N, 120°35'34.75"W	12	ND	250	ND	20
12	46°35'52.23"N, 120°35'35.61"W	12	ND	250	ND	20
13	46°35'50.89"N, 120°35'35.74"W	9	ND	250	ND	20
14	46°35'48.35"N, 120°35'35.88"W	21	13	250	ND	20
15		42	ND	250	6.5	20
16	46°35'48.40"N, 120°35'37.35"W	12	6.6	250	ND	20
17	46°35'51.12"N, 120°35'37.34"W	12	ND	250	ND	20
18	46°35'52.04"N, 120°35'36.94"W	9	9.4	250	ND	20
19	46°35'56.97"N, 120°35'37.17"W	6	ND	250	ND	20
20	46°35'55.79"N, 120°35'33.43"W	6	ND	250	ND	20
21	46°35'53.74"N, 120°35'32.95"W	14	ND	250	ND	20
22	46°35'54.57"N, 120°35'36.02"W	12	13	250	ND	20

\*sampling locations recorded using a hand-held non-survey grade Global Positioning System (GPS) unit

CUL = clean-up level

ppm = parts per million

ND = non detect

***The analytical results indicate that lead and arsenic concentrations in the shallow subsurface soils tested at the sampling locations/depths are below the MTCA Method A cleanup levels.***

### **Limitations**

Sampling and testing conducted were limited in scope to lead and arsenic contaminants in shallow surficial soils at the selected locations within the school property. This study cannot completely eliminate the possibility of impacts due to other contaminants, or in areas not assessed, and also does not address any unknown or unreported releases and contamination, any future releases, or future migration of offsite contaminants. Our scope does not include any subsurface sampling or analysis of deeper soils or other unexplored areas of the site that may exist due to historical land use or site activities. If future site activities uncover contamination not revealed during our exploration and sampling, further characterization of the site may be required, including additional subsurface explorations and sample analyses.

This work was performed in accordance with the generally accepted practices of other consultants undertaking similar circumstances and conditions. GN Northern's findings must be considered not as scientific certainties, but as opinions based on our professional judgment concerning the significance of the data gathered at the site. Other than this, no warranty is implied or intended.

If you have any questions regarding this report, please contact us at 509-248-9798.

Respectfully submitted,

**GN Northern, Inc.**



M. Yousuf Memon, PE  
Geotechnical Engineer

### **Attachments:**

- *Sample Location Plan (Figure 1)*
- *Analytical Testing Results*





FIGURE 1: SAMPLE LOCATION PLAN





# Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

December 18, 2019

Max Barnett  
GN Northern, Inc.  
722 North 16<sup>th</sup> Avenue, Suite 31  
Yakima, WA 98902

Dear Mr. Barnett:

Please find enclosed the analytical data report for the Summitview Elementary School Renovation Project located in Yakima, Washington.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of in 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt  
*Senior Chemist*  
*Libby Environmental, Inc.*

# Libby Environmental, Inc.

# Chain of Custody Record

www.LibbyEnvironmental.com

3322 South Bay Road NE  
Olympia, WA 98506  
Ph: 360-352-2110  
Fax: 360-352-4154

Date: 12/10/2019 Page: 1 of 2

Client: GN Northern, Inc.

Project Manager: Max Barnett

Address: 722 N. 16th Ave, Ste 31

Project Name: Summitview Elementary School Renovation

City: Yakima State: WA Zip: 98902

Location: Summitview Elementary City, State: Yakima, WA

Phone: (509) 248-9798 Fax: \_\_\_\_\_

Collector: MB Date of Collection: 12/9/2019

Client Project # 219-1129

Email: [mbarnett@gnnorthern.com](mailto:mbarnett@gnnorthern.com)

Sample Number	Depth	Time	Sample Type	Container Type	Analytes												Field Notes				
					VOC 8260	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	Lead		Arsenic			
1	12"		Soil	Jar															X	X	
2	12"		Soil	Jar															X	X	
3	9"		Soil	Jar															X	X	
4	18"		Soil	Jar															X	X	
5	28"		Soil	Jar															X	X	
6	12"		Soil	Jar															X	X	
7	20"		Soil	Jar															X	X	
8	12"		Soil	Jar															X	X	
9	10"		Soil	Jar															X	X	
10	12"		Soil	Jar															X	X	
11	12"		Soil	Jar															X	X	
12	12"		Soil	Jar															X	X	
13	9"		Soil	Jar															X	X	
14	21"		Soil	Jar															X	X	
15	3.5'		Soil	Jar															X	X	
16	12"		Soil	Jar															X	X	
17	12"		Soil	Jar															X	X	

Relinquished by: _____ Date / Time: _____	Received by: _____ Date / Time: _____	<b>Sample Receipt</b> Good Condition? Y N Cooler Temp. °C Sample Temp. °C Total Number of Containers: <b>22</b>	Remarks:   <b>TAT: 24HR 48HR 5-DAY</b>
Relinquished by: _____ Date / Time: _____	Received by: _____ Date / Time: _____		
Relinquished by: _____ Date / Time: _____	Received by: _____ Date / Time: _____		







# Libby Environmental, Inc.

3322 South Bay Road NE

Olympia, WA 98506

## SUMMITVIEW ELEMENTARY SCHOOL RENOVATION PROJECT

Phone: (360) 352-2110

GN Northern, Inc.

FAX: (360) 352-4154

Yakima, Washington

Email: libbyenv@gmail.com

Libby Project # L191212-1

Client Project # 219-1129

### Analyses of Total Metals in Soil by EPA Method 7010 Series

Sample Number	Date Analyzed	Lead (mg/kg)	Arsenic (mg/kg)
Method Blank	12/17/19	nd	nd
1	12/17/19	11	13
1 Dup	12/17/19	11	14
2	12/17/19	8.7	14
3	12/17/19	8.2	15
4	12/17/19	26	15
5	12/17/19	nd	12
6	12/17/19	nd	nd
7	12/17/19	nd	nd
8	12/17/19	nd	nd
9	12/17/19	nd	nd
10	12/17/19	nd	nd
11	12/17/19	nd	nd
12	12/17/19	nd	nd
13	12/17/19	nd	nd
14	12/17/19	13	nd
15	12/17/19	nd	6.5
16	12/17/19	6.6	nd
17	12/17/19	nd	nd
18	12/17/19	9.4	nd
19	12/17/19	nd	nd
20	12/17/19	nd	nd
21	12/17/19	nd	nd
22	12/17/19	13	nd
22 Dup	12/17/19	13	nd
Practical Quantitation Limit		5.0	5.0

"nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Dirk Peterson

# Libby Environmental, Inc.

3322 South Bay Road NE

Olympia, WA 98506

SUMMITVIEW ELEMENTARY SCHOOL RENOVATION PROJECT

Phone: (360) 352-2110

GN Northern, Inc.

FAX: (360) 352-4154

Yakima, Washington

Email: libbyenv@gmail.com

Libby Project # L191212-1

Client Project # 219-1129

## QA/QC for Total Metals in Soil by EPA Method 7010 Series

Sample Number	Date Analyzed	Lead (% Recovery)	Arsenic (% Recovery)
LCS	12/17/19	102%	106%
1 MS	12/17/19	117%	113%
1 MSD	12/17/19	107%	115%
RPD	12/17/19	9%	2%

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%

ACCEPTABLE RPD IS 20%

ANALYSES PERFORMED BY: Dirk Peterson

# Libby Environmental, Inc.

3322 South Bay Road NE

Olympia, WA 98506

## SUMMITVIEW ELEMENTARY SCHOOL RENOVATION PROJECT

Phone: (360) 352-2110

GN Northern, Inc.

FAX: (360) 352-4154

Libby Project # L191212-1

Email: libbyenv@gmail.com

Date Received 12/12/2019

Time Received 12:34 PM

Received By EN

### Sample Receipt Checklist

#### Chain of Custody

1. Is the Chain of Custody complete?  Yes  No
2. How was the sample delivered?  Hand Delivered  Picked Up  Shipped

#### Log In

3. Cooler or Shipping Container is present.  Yes  No  N/A
4. Cooler or Shipping Container is in good condition.  Yes  No  N/A
5. Cooler or Shipping Container has Custody Seals present.  Yes  No  N/A
6. Was an attempt made to cool the samples?  Yes  No  N/A
7. Temperature of cooler (0°C to 8°C recommended) N/A °C
8. Temperature of sample(s) (0°C to 8°C recommended) 14.1 °C
9. Did all containers arrive in good condition (unbroken)?  Yes  No
10. Is it clear what analyses were requested?  Yes  No
11. Did container labels match Chain of Custody?  Yes  No
12. Are matrices correctly identified on Chain of Custody?  Yes  No
13. Are correct containers used for the analysis indicated?  Yes  No
14. Is there sufficient sample volume for indicated analysis?  Yes  No
15. Were all containers properly preserved per each analysis?  Yes  No
16. Were VOA vials collected correctly (no headspace)?  Yes  No  N/A
17. Were all holding times able to be met?  Yes  No

#### Discrepancies/ Notes

18. Was client notified of all discrepancies?  Yes  No  N/A

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: \_\_\_\_\_

Regarding: \_\_\_\_\_

19. Comments. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



(509) 662-1888  
 Fax: (509) 662-8183  
 3019 G. S. Center Road  
 Wenatchee, WA 98801

Batch: 122902  
 (509) 452-7707  
 Fax: (509) 452-7773  
 1008 W. Ahtanum Rd. Account: 13276  
 Union Gap, WA 98903  
 Sampler: Randy Caton  
 PO Number:

--- SOIL ANALYSIS RESULTS ---

Caton Landfill  
 1251 Humphrey RD  
 Tieton, WA 98947

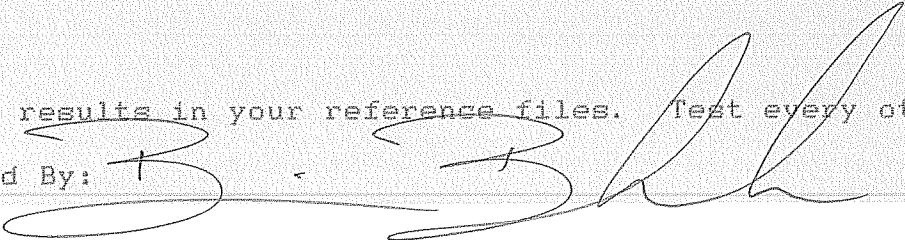
Report Date: 5/11/21  
 Date Received: 5/ 6/21  
 Date Sampled: 5/ 5/21

Lab Number: 21-5008803

Sample Id: Topsoil #1

Test Requested	Results	Relative Level	Optimum Range
Other Lab Number	21-508591		
Arsenic Solid	< 2.5 mg/Kg		EPA 6010D
Lead Solid	4.8 mg/Kg		EPA 6010D
Other Analysis	Pkg analyzed by SFC		

Please keep results in your reference files. Test every other year.

Approved By:  05/20/21

Calcium & Magnesium Ratio: Heavy (Clay) 10:1, Medium (loam) 5:1, Light (sandy) 2:1 The relative levels and optimum ranges are suggestions that have been established for tree fruits. Please consult your fieldstaff or county extension agent before using the guidelines for fertilizer application.

Cascade Analytical uses procedures established by SSSA-NAPT for soil analysis. Cascade Analytical makes no warranty of any kind and client assumes all risk & liability from the use of these results. Cascade Analytical, Inc.'s liability to the client as a result of use of Cascade's test results shall be limited to a sum equal to the fees paid by the client to Cascade Analytical, Inc. for analysis.

\* Added complete package. 05/20/21



(509) 662-1888  
 Fax: (509) 662-8183  
 3019 G. S. Center Road  
 Wenatchee, WA 98801

Batch: 122902  
 (509) 452-7707 Grower: Caton Landfill  
 Fax: (509) 452-7773 Account: 13276  
 1008 W. Ahtanum Rd. Sampler: Randy Caton  
 Union Gap, WA 98903 PO Number:

--- SOIL ANALYSIS RESULTS ---

Caton Landfill  
 1251 Humphrey RD  
 Tieton, WA 98947

Report Date: 5/11/21  
 Date Received: 5/ 6/21  
 Date Sampled: 5/ 5/21

Lab Number: 21-S008804

Sample Id: Subsoil #1

Test Requested	Results	Relative Level	Optimum Range
Other Lab Number	S21-08592		
Arsenic Solid	< 2.5 mg/Kg		EPA 6010D
Lead Solid	3.0 mg/Kg		EPA 6010D
Other Analysis	Pkg analyzed by SFC		

Please keep results in your reference files. Test every other year.

Approved By:

*[Handwritten Signature]* 05/20/21

Calcium & Magnesium Ratio: Heavy (Clay) 10:1, Medium (loam) 5:1, Light (sandy) 2:1 The relative levels and optimum ranges are suggestions that have been established for tree fruits. Please consult your fieldstaff or county extension agent before using the guidelines for fertilizer application.

Cascade Analytical uses procedures established by SSSA – NAPT for soil analysis. Cascade Analytical makes no warranty of any kind and client assumes all risk & liability from the use of these results. Cascade Analytical, Inc.'s liability to the client as a result of use of Cascade's test results shall be limited to a sum equal to the fees paid by the client to Cascade Analytical, Inc. for analysis.

\* Added complete package. 05/20/21

CASCADE ANALYTICAL  
 3019 G.S. CENTER RD  
 WENATCHEE, WA 98801  
 Laboratory #: S21-08591

Date Received: 5/18/2021  
 Grower: PO 051821  
 Field: 21-S008803  
 Sampled By:  
 Customer Account #:  
 Customer Sample ID:

**Soil Test Results**

Phosphorus	Olsen	mg/kg	16
Potassium	NH4OAc	mg/kg	638
Boron	DTPA	mg/kg	0.37
Zinc	DTPA	mg/kg	0.2
Manganese	DTPA	mg/kg	1.6
Copper	DTPA	mg/kg	0.8
Iron	DTPA	mg/kg	10
Calcium	NH4OAc	meq/100g	8.3
Magnesium	NH4OAc	meq/100g	4.8
Sodium	NH4OAc	meq/100g	0.31
Lime Req		Tons/Acre	0.0
Buffer pH	SMP		6.9
Total Bases	NH4OAc	meq/100g	15.0

Other Tests:

pH 1:1 7.2 CaCl2 pH 6.2  
 E.C. 1:1 m.mhos/cm 0.19  
 Est Sat Paste E.C. m.mhos/cm 0.49  
 Effervescence Lbs/Acre  
 Ammonium - N mg/kg  
 Organic Matter W.B. % 0.8 ENR: 17

Depth inches	Nitrate-N mg/kg	Sulfate-S mg/kg	Moisture Inches
0 - 12	0.7	2	3
<b>Totals</b>	<b>0.7</b>	<b>2</b>	<b>3</b>

**Sum of Tested N: 19 lbs/acre N**

We make every effort to provide an accurate analysis of your sample. For reasonable cause we will repeat tests, but because of factors beyond our control in sampling procedures and the inherent variability of soil, our liability is limited to the price of the tests. Recommendations are to be used as general guides and should be modified for specific field conditions and situations. Note: "u" indicates that the element was analyzed for but not detected

Account #: 142200

Reviewed by: B.Thyssen, CP

<b>CASCADE ANALYTICAL</b> 3019 G.S. CENTER RD  WENATCHEE, WA 98801 Laboratory #: S21-08592	Date Received: 5/18/2021 Grower: PO 051821 Field: 21-S008804 Sampled By: Customer Account #: Customer Sample ID:
--	---

**Soil Test Results**

Phosphorus	Olsen	mg/kg	20
Potassium	NH4OAc	mg/kg	288
Boron	DTPA	mg/kg	0.20
Zinc	DTPA	mg/kg	0.1
Manganese	DTPA	mg/kg	0.4
Copper	DTPA	mg/kg	1.1
Iron	DTPA	mg/kg	2
Calcium	NH4OAc	meq/100g	27.4
Magnesium	NH4OAc	meq/100g	10.8
Sodium	NH4OAc	meq/100g	7.95
Lime Req		Tons/Acre	0.0
Buffer pH	SMP		7.2
Total Bases	NH4OAc	meq/100g	46.9

pH 1:1 8.5 CaCl2 pH 7.8  
 E.C. 1:1 m.mhos/cm 0.97  
 Est Sat Paste E.C. m.mhos/cm 2.52  
 Effervescence Lbs/Acre  
 Ammonium - N mg/kg  
 Organic Matter W.B. % 0.3 ENR: 5

Depth inches	Nitrate-N mg/kg	Sulfate-S mg/kg	Moisture Inches
0 - 12	0.3	1	62
<b>Totals</b>	<b>0.3</b>	<b>1</b>	<b>62</b>

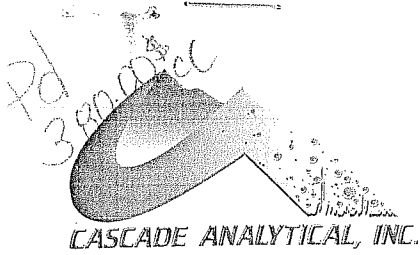
**Sum of Tested N: 6 lbs/acre N**

Other Tests:

We make every effort to provide an accurate analysis of your sample. For reasonable cause we will repeat tests, but because of factors beyond our control in sampling procedures and the inherent variability of soil, our liability is limited to the price of the tests. Recommendations are to be used as general guides and should be modified for specific field conditions and situations. Note: "u" indicates that the element was analyzed for but not detected

**Account #: 142200**

**Reviewed by: B.Thyssen, CP**



(509) 662-1888  
 Fax: (509) 662-8183  
 3019 G.S. Center Rd.  
 Wenatchee, WA 98801

(509) 452-7707  
 Fax: (509) 452-7773  
 1008 W. Ahtanum Rd.  
 Union Gap, WA 98903

# SOIL ANALYSIS ORDER FORM

SAMPLER'S NAME: Randy Cator

Fully complete shaded areas only

DATE OF SAMPLING

M	M	D	D	Y	Y
0	5	0	5	2	1

SEND RESULTS TO:  
 G. GROWER  
 A. BILLING ADDRESS  
 B. BOTH

G

GEOGRAPHIC ZONE (SEE REVERSE SIDE)

GROWER'S NAME/ADDRESS

Cator Landfill  
Randy Cator  
1251 Humphrey Rd  
Tieton WA 98947

BILLING NAME/ADDRESS

Randy Cator  
Randy@catorlandfill.com

PHONE NO. 509-728-8928

G	H	I	J	K	L	M	N	O	P
	CLIENT'S SAMPLE IDENTIFICATION	CROP/VARIETY (Enter selection from reverse side)	SOIL DEPTH 1=0-6" 2=6-12" 3=6-18" 4=12-24" 5=24-36"	TREE AGE (Years)	GROP LOAD N=non-producing L=light A=average H=heavy	PRUNING N=none L=light M=medium H=heavy	VIGOR 1=0 2=1-6" 3=7-18" 4=19-35" 5=36+	PREDOMINANT SOIL TYPE 1=sand 2=sandy loam 3=silt loam 4=clay	LAB REQUEST TYPE 1=EWI, 2=EWII 3=EWIII, 4=WWI 5=complete 6=garden 9=your selection
803	Topsoil #1		24"						9
804	Subsoil #1		10'						9
805	Topsoil #2		24"						9
806	Subsoil #2		10'						9

*Handwritten notes:* Lead & Arsenic only. Eucalyptus CAT (PIL)

TEST REQUEST	pH	E.C.	B	NO <sub>3</sub> -N	As	P	K	Ca	Mg	Zn	% OM	Lim Req pH 6.5	S <sub>0</sub>	Fe	Cu	Mn	Gyp Req	CEC	Exchangeable				Texture
																			K	CA	Mg	Na	
1 E WASH I	✓	✓	✓									✓											
2 E WASH II	✓	✓	✓	✓		✓	✓					✓											
3 E WASH III	✓	✓	✓	✓		✓	✓	✓	✓			✓	✓										
4 W WASH I	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓										
5 COMPLETE	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓							
6 GARDEN	✓			✓		✓	✓					✓	✓										
9 YOUR SELECTION																							
Sample 1																							
Sample 2																							
Sample 3																							
Sample 4																							
Sample 5																							

1 SAMPLE AREA COMMENT: ONLY TEST For LEAD & ARSENIC levels on ALL SOIL SAMPLES

2 SAMPLE AREA COMMENT: ONLY TEST For LEAD & ARSENIC levels on ALL SOIL SAMPLES

3 SAMPLE AREA COMMENT: PRC 5/6/21 17:25

4 SAMPLE AREA COMMENT: Batch # 122902

5 SAMPLE AREA COMMENT: EMMAILED 5-13-21



5/21/2021

Receipt

EUROFINS MICROBIOLOGY LAB CASC  
3019 GS CENTER RD  
WENATCHEE, WA 98801  
509-662-1888

EML CASCADE WENATCHEE  
0010560008035284093133

Date: 05/21/2021 09:22:16 AM

CREDIT CARD SALE

VISA

CARD NUMBER: \*\*\*\*\*5013 K

TOTAL AMOUNT: \$252.00

APPROVAL CD: 06492G

RECORD #: 000

CLERK ID: KBAKER

INVOICE #: prepaid/13276

X \_\_\_\_\_

I AGREE TO PAY THE ABOVE TOTAL AMOUNT  
ACCORDING TO THE CARD ISSUER AGREEMENT  
(MERCHANT AGREEMENT IF CREDIT VOUCHER)

Thank you for your business!



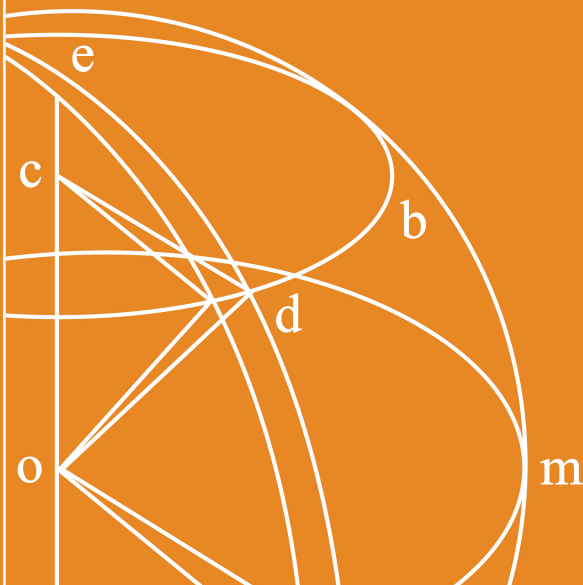
**APPENDIX I**

Operations and Maintenance Plan

**Operations and  
Maintenance Plan for  
Management of Arsenic and Lead  
Contaminated Soils**

**Apple Valley Elementary School  
7 North 88<sup>th</sup> Avenue  
Yakima, Washington 98908**

Project Number: 192784.04



**Prepared by:**

Fulcrum Environmental Consulting, Inc.  
406 North Second Street  
Yakima, Washington 98901



**Report Title:** Operations and Maintenance Plan for Management of Arsenic and Lead Contaminated Soils

**Project Number:** 192784.04

**Date of Report:** November 22, 2022

**Site:** Apple Valley Elementary School  
7 North 88<sup>th</sup> Avenue  
Yakima, WA 98908

**Prepared by:** Fulcrum Environmental Consulting, Inc.  
406 North Second Street  
Yakima, Washington 98901  
509.574.0839

The professionals who completed site services, prepared, and reviewed this report include but are not limited to:

**Authored by:**  **Date:** 11/22/2022

Nicole McPhee, GIT, Environmental Scientist  
Fulcrum Environmental Consulting, Inc.

**Reviewed by:**  **Date:** 11/22/2022

Peggy Williamson, Certified Hazardous Materials Manager  
Fulcrum Environmental Consulting, Inc.



**Report Integrity:**

*Fulcrum Environmental Consulting, Inc.'s scope of service for this project was limited to those services as established in the proposal, contract, verbal direction, and/or agreement. This report is subject to applicable federal, state, and local regulations governing project-specific conditions and was performed using recognized procedures and standards of the industry. Scientific data collected in situ may document conditions that may be specific to the time and day of service, and subject to change as a result of conditions beyond Fulcrum's control or knowledge. Fulcrum makes no warranties, expressed or implied as to the accuracy or completeness of other's work included herein. Fulcrum has performed these services in accordance with generally accepted environmental science standards of care at the time of the inspection. No warranty, expressed or implied, is made.*



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## **FIGURES**

Figure 1	Site Location
Figure 2	Final Capping Map

## **APPENDICES**

Appendix A	Laboratory Results
Appendix B	Semi-Annual Protective Barrier Inspection Form



## 1.0 Introduction

---

The purpose of this Operations and Maintenance Plan (O&M Plan) is to establish long-term onsite management of protective barriers overlying soils with arsenic and lead in excess of Washington State Department of Ecology (Ecology) Model Toxic Control Act (MTCA) Method A cleanup levels. Laboratory analysis confirmed the presence of elevated arsenic and lead concentrations in soils at Apple Valley Elementary School (Site) located at 7 North 88<sup>th</sup> Avenue in Yakima, Washington prior to site redevelopment. During redevelopment, arsenic and lead contaminated soils were placed below gravel and hardscape (asphalt, concrete, or buildings), orange geotextile fabric and 4-inches of rock, or orange geotextile fabric 10-inches of clean soil and 2-inches of sod (12-inch total depth). Site location of the site is shown in Figure 1. See Figure 2 for the general location of final capping conditions at the site.

Proper use of this O&M Plan is intended to reduce the risk that workers and residents may be exposed to impacted soils and to prevent contaminated soil from migrating beyond the current location. This O&M Plan describes the procedure for notifying tenants, maintenance workers, and repair contractors of site conditions. In addition, the O&M Plan describes the following:

- Protective barriers in place to prevent exposure and keep contaminated soils onsite.
- Inspection criteria and schedule.
- How site workers can protect themselves from exposure.
- What to do if impacted soils need to be excavated or protective barriers breached.

## 2.0 Background and Site Description

---

The Apple Valley Elementary School campus is located at 7 North 88<sup>th</sup> Avenue in Yakima, Washington. The property is identified by Yakima County with Property Identification Numbers 18131942022 and 18131942006. Figure 1 shows the site's location.

The Apple Valley Elementary School campus consists of two parking lots, the main campus building, a playground, and an athletic field. Three underground stormwater infiltration features are located in the southern and eastern portions of the property and a stormwater basin is located in the northwest portion of the property.

In 2005, Ecology evaluated site soil conditions with X-ray fluorescence (XRF) and laboratory analysis to screen for lead and arsenic presence in the top 6-inches of soil at 100 school campuses. West Valley School District campuses were included in Ecology's investigation and Apple Valley Elementary School was prioritized for Ecology cleanup because the levels of contamination were both above MTCA cleanup level standards and high relative to the other school sites sampled.

In 2012, Ecology capped areas of the site not covered with asphalt, concrete or building footprint with a fabric marker material overlain with approximately 8-inches of clean soil. As a result of site grading and development since orchard use, the lead and arsenic concentrations are inconsistent across the site and are assumed to no longer be confined to the areas historically containing orchards. Additionally, Ecology's



2005 screening evaluation was limited to the top 6-inches of soil and may not represent concentrations found in deeper soil horizons.

Prior to construction work, Fulcrum authored a site-specific Soil Remediation Plan that identified the appropriate methods and associated implementation of said methods for site remediation tasks that occurred during the 2020 to 2022 construction activities. Elements of the Soil Remediation plan were incorporated into Contractor plans and specifications for bidding and site inspection purposes.

See Appendix A for a summary of laboratory results for arsenic and lead contaminated soils that are present below protective barriers.

To meet regulatory criteria associated with impacted soil, Fulcrum recommended the following summary of elements be incorporated into the site management and redevelopment plans:

- Management of the area should be completed to prevent potential exposure of impacted soils to site residents. Management may include closure of the area from occupant use; completion of localized remediation; or placement of hardscapes, landscapes, and clean soil.
- Management of site-wide impacted soils through development and implementation of a site-specific operations and maintenance plan (O&M Plan). . The O&M Plan should include guidance for repair and maintenance activities and any additional elements required to prevent either worker or occupant exposure to impacted soil.
- Site-wide remediation activities may be managed as a portion of site redevelopment activities. Additional remedial investigation will be required and may be completed as a portion of project design and included within project specifications. Remediation should be completed in conformation with MTCA and Washington State’s Dangerous Waste regulations as presented in WAC 173-340 and 173-303 respectively. Additionally, the remedial design and project specifications will need to address potential worker exposure elements. Remedial options may include excavation and disposal of impacted soil at an appropriately permitted facility, or consolidation and/or capping of impacted soils onsite.

The presented elements were intended to provide the general steps for management of the impacted soils. Fulcrum recommended implementation of an O&M Plan.



## **3.0 Notification Procedures**

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Notifying personnel who may potentially disturb site soils is the best way to prevent inadvertent worker exposure, offsite migration of impacted soils, or destruction of protective barriers.

### **3.1 Maintenance and Landscape Workers**

It is unlikely that during routine maintenance and landscaping tasks workers will encounter contaminated soils. However, during non-routine tasks, such as replacement of large shrubs/trees or sprinkler line repair, maintenance and landscaping workers may encounter contaminated soils.

As part of a Hazard Communication program, employees or subcontractors who may be expected to encounter impacted soils should be notified of the presence, location, and expected concentrations of such soils. Employees should also be notified of how to protect themselves should they encounter impacted soils and how to replace barrier materials so that the integrity of the protective barriers remains sound.

### **3.2 Occasional Site Workers or Contractors**

Occasional site workers or contractors are those individuals or companies who are brought onsite to complete a specific task. Many tasks, such as painting or mowing, will not result in contact with impacted soil. However, some tasks, such as main water line or irrigation line replacement, will require careful excavation and replacement of barrier materials so that impacted soils do not end up near the surface or become washed or transported offsite.

As part of a Hazard Communication program, occasional site workers/contractors who may be expected to encounter impacted soils should be notified of the presence, location, and expected concentrations of such soils. Occasional site workers/contractors should also be notified of how their employees should protect themselves when they come in contact with impacted soils and how to replace barrier materials so that the integrity of the protective barriers remains sound.

### **3.3 Property Transfer**

When the owner conveys interest in the property (title, easement, lease, etc.) to a separate entity, provision for continued operations and maintenance of the protective barriers should be made by providing a copy of the current O&M Plan.

## **4.0 Site Controls**

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As part of development, protective barriers were constructed over impacted soils. The following subsections describe the protective barriers and suggest protective barrier inspection procedures summarized in Section 4.4. Refer to Figure 2 for the final capping map.





#### 4.1 Impermeable Surfaces

The impermeable surfaces at the site consists of building footprint and paved parking and drive areas, sidewalks, the playground, and other ancillary features such as curbs, underlain with 4-inches or more of compacted gravels. The compacted gravels form the hard capping system and are overlain by impermeable asphalt or concrete.

These impermeable materials are to be maintained in good condition for the life of the buildings and site operation. Refer to Section 4.4 for suggested protective barrier inspection procedures and associated responses. Impermeable surfaces should be inspected semi-annually to confirm that no significant cracks or voids have developed that would result in exposure of impacted soils. Should replacement of any of these materials or structures be required, an environmental professional, engineer, and/or other qualified professional should be contacted to assess and develop the appropriate procedures to be followed.

#### 4.2 Permeable Surfaces

Permeable surfaces consist of landscaping areas with orange fabric overlain with and 4-inches of gravel or rock, or grassy areas with 10-inches of clean soil and 2-inches of sod. Refer to Section 4.4 for suggested protective barrier inspection procedures and associated responses.

Near surface (less that 4-inches deep) planting can be replaced as desired. Planting at depths greater than 4-inches should be maintained as originally placed. Should replacement of deeper planting be required, the work procedures outlined in Section 5.0 should be followed. If required, landscape areas should be hand cultivated. Rototilling or other soil relocation activities that disturb materials at depths greater than 4-inches are prohibited.

#### 4.3 Utility Installation and/or Maintenance

Any repairs or maintenance to subsurface utilities at the site by maintenance or other workers/contractors can be accomplished by following the notification procedures outlined in Section 3.0 and work procedures outlined in Sections 4.4 and 5.0. An environmental professional, engineer, and/or other qualified professional should be contacted to assess and develop a work plan for major repairs to subsurface water or sewer conveying systems at the site.

#### 4.4 Protective Barrier Inspection Procedure

Area-wide soil contamination present at Apple Valley Elementary School is covered with an impervious surface or appropriate protective barrier. There is no immediate danger to human health. However, damage to the protective barrier could result in future exposure. The following contains protective barrier summary information and suggested inspection schedule, procedures, and associated responses that may be useful in assuring that protective barriers remain effective.

Low-to-moderate concentrations of arsenic and lead are covered with impermeable surfaces such as the



building footprint, asphalt parking areas, and concrete ancillary features. The remaining portion has been covered with permeable surfaces consisting of geotextile type fabric overlain by to 4-inches of gravel or rock landscaping used around buildings and grass landscape areas constructed with 2-inches sod and 10-inches of clean soil over orange colored geotextile fabric.

#### 4.4.1 Inspection Schedule

Protective barriers should be visually inspected semi-annually, ideally in the spring to verify that damage has not occurred during the winter and in the fall to assure that barriers are in good condition before winter storms commence. See Appendix B for the Semi-Annual Protective Barrier Inspection Form.

#### 4.4.2 Inspection Criteria

The following summary provides guidance for identifying damage criteria during an inspection and the associated response action and schedule.

- Impermeable Features: Inspection of concrete and asphalt surface should note cracks, voids, or other separations (surface imperfections) that are sufficient to allow exposure to underlying clean gravel or soils.
  - Minor surface imperfections, defined as routine surface cracking that does not penetrate the depth of the asphalt or concrete, do not require repair.
  - Moderate surface imperfections, defined as visual exposure to underlying clean crushed gravel, should be repaired before the following winter season.
  - Significant surface imperfections, defined as exposure of the underlying soil below the underlying crushed gravel, should be repaired as soon as feasible.
- Permeable/Porous Features: Inspect permeable features for damage to overlying sod, bark, or rock, and underlying fabric or clean soil materials. Inspect the landscaped area for indications of damaged sod materials or areas with dying vegetation. Inspect the overlying gravel and rock areas for indications of uneven distribution or material migration that could potentially result in exposure of underlying materials. Classify damage, if identified as minor, moderate, or significant using the following guidance.
  - Minor damage has less than 10 percent overall or less than 25-square feet in a localized area, provided the exposure to underlying soils is not present.
  - Moderate damage has between 10 and 20 percent overall damage or between 25 and 100-square feet in a localized area, or result in less than 10 percent overall or less than 25-square feet of exposure to the native soils underlying the clean soil cover.
  - Significant damage has more than 20 percent overall or more than 100-square feet in a localized area, or results in more than 10 percent overall or more than 25-square feet of exposure to the native soils underlying the clean soil cover.

Damage, if present, should be repaired in conformance with the original construction detail and consistent



with the following schedule.

- Minor damage should be replaced or repaired when feasible, but typically doesn't require repair for 18 or more months.
- Major damage should be replaced or repaired before the winter season (less than 9 months).
- Significant damage should be repaired as soon as feasible (within a month). Significant damage requires notifying Ecology within 48 hours of discovery of the damage. In addition, an environmental professional should be contacted to assess the extent of protective barrier impact, potential migration of contaminated soils, and develop a work plan for repairing or replacing the protective barrier.

## **5.0 Worker Protection**

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Several controls and work practices used singly or in combination, can be employed to reduce potential exposure to impacted soils when work requires breaking of the protective coverings (cap). Following is a summary of control measure and work practices to minimize the exposure during this type of work.

### **5.1 Work Area Setbacks**

If work will disturb contaminated soils, temporary fencing or other barriers to unauthorized access shall be erected. The length of time to complete the repair task and the area of contaminated soil exposed shall be considered in selecting the barriers to entry. A minor repair such as the replacement of a sprinkler which requires less than one hour and where the worker does not leave the immediate work area may not require any signage. A day long project may be best prepared with orange construction safety fence, while a week long project may use metal panel construction fencing.

### **5.2 Dust Suppression**

By keeping impacted soils moist during a work activity, dust is less likely to become suspended in the air causing potential worker exposure or offsite migration. Whenever feasible, the work area should be pre-moistened prior to soil impacting activities. Periodically during soil impacting activities where soils are stockpiled, the stockpiled soils and excavation area should be rewetted to enhance dust suppression. A surfactant can be added to dust suppression water to increase the water's effectiveness; however, any additives should be selected with consideration for potential environmental and worker impact.

Other factors that will aid dust suppression are weather conditions and work practices. Impacting materials on low wind days (generally less than 10-miles per hour) will decrease loss of soil moisture (drying) and the likelihood of site soils becoming airborne and migrating offsite or resulting in worker exposure. In addition to adequate wetting of site soils, work area containment and decontamination are additional work practices that will aid dust suppression.

### **5.3 Work Practices**



The goal of work practice implementation is to keep all contaminated soils within their containment area. Most maintenance and landscaping activities will not impact the in-place protective barriers. However, if maintenance and landscaping activities require excavation greater than 4-inches deep in rock surfaced areas or 10-inches deep in grass surfaced areas, but less than 100-square feet in surface area, the suggested work practices should be implemented:

1. Lay plastic sheeting on all sides of the proposed excavation ground surface. Sheeting should extend approximately 4 to 10-feet from the proposed excavation edge, depending on estimated amount of material removed. Lap plastic sheeting seams so that dust and soil cannot become lodged or migrate underneath the plastic. Repair plastic if it gets damaged.
2. Place traffic barriers or other identification around the perimeter of the work area to prevent inadvertent access to the area during excavation.
3. Place the sod or rock with the clean soil located above the orange geotextile fabric on one side of the excavation. This is the clean capping material.
4. Place the remaining subgrade soil excavated from below the orange geotextile fabric to facilitate the maintenance or landscaping activity on the side of the excavation opposite of the sod. This is the soil potentially impacted with agricultural chemicals.
5. Conduct the maintenance or landscaping activity.
6. Replace presumed contaminated soil.
7. Offsite disposal of excavated material is prohibited. Contact an environmental professional, engineer, or other qualified professional to determine disposal requirements of excess excavated soil.
8. Clean tools, equipment, and protective clothing of remaining soils by dry brushing damp soil followed by wet cleaning. Place the accumulated soil in the excavation.
9. Repair or install new orange geotextile fabric where present at the start of the work.
10. Replace the clean capping topsoil, compacting as necessary.
11. If the distance from the replaced soil surface to the ground surface exceeds the thickness of the sod, rock, or gravel, then place additional clean soil imported from offsite sources into the excavation until the depth discrepancy matches the sod, rock, or gravel thickness.
12. Replace sod; fabric and rock; or gravel.
13. Remove the plastic sheeting and dispose as solid waste.
14. Thoroughly wash hands and face to remove any remaining soil.

### **5.3 Decontamination**

Wet cleaning of tools, equipment, and workers will also reduce potential exposure and offsite migration of impacted soils. After completing the work task and replacing the impacted soil (soil excavated below the orange geotextile fabric), clean tools and equipment used during the project with the contaminated soils placed back into the ground at the repair location. Moist soil can be dry brushed from tools, equipment, personnel clothing, and plastic sheeting where the impacted soil was staged. Following dry brushing, complete the cleaning process by wet wiping or washing these items. Replace the marker fabric.



After replacement of the clean topsoil and ground cover (sod, gravel, or rock and fabric layers), site workers should proceed to a wash station/facility and thoroughly wash their hands and face to remove any potential remaining particles of soil with lead or arsenic above regulatory threshold concentrations.

## **6.0 Procedures for Breaching Protective Barriers**

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Planned and unplanned protective barrier breaches may occur at the site as part of operations consistent with developed site use.

A planned protective barrier breach is the result of a scheduled maintenance or construction activity. For example, installation of a new retaining wall is a planned event that may breach the protective barrier.

An unplanned protective barrier breach is the result of an accident or emergency repair activity. For example, the rapid repair of a broken main water line is an unplanned event that could result in a protective barrier breach.

Following is a procedure summary for each type of protective barrier breach.

### **6.1 Planned Protective Barrier Breach**

During the planning phase, the potential for the additional site development or maintenance activity to impact the protective barrier should be evaluated. For small projects (less than 100-square feet of protective barrier) where in-house employees or contractors will conduct the work performed, the feasibility of implementing the procedures outlined in Section 5.0 should be considered. If these procedures can be implemented, work can proceed as planned. If Section 5.0 work procedures cannot be feasibly implemented, work should be put on hold until an environmental professional, engineer, or other qualified professional can assess the planned work and recommend alternative work procedures.

For larger projects (greater than 100-square feet of protective barrier), an environmental professional, engineer, or other qualified professional should evaluate the proposed work and develop procedures during the project-planning phase that can be implemented during the actual work. Projects that require greater than 100-square feet of protective barrier breach will require notification to Ecology and written approval from Ecology prior to project completion.

### **6.2 Unplanned Protective Barrier Breach**

The first step when an unplanned protective barrier breach occurs is to control the event that caused the breach and then contain any offsite soil migration. Once the site is temporarily stabilized, an environmental professional, engineer, or other qualified professional should be contacted to assess the extent of protective barrier impact and potential migration of contaminated soils, develop a work plan for repairing or replacing the protective barrier, and determine whether to notify Ecology of the unplanned protective barrier breach.



Unplanned protective barrier breaches that exceed 100-square feet in area will require notification to Ecology within 48 hours of the breach.

## **7.0 Conclusion**

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Pre-construction investigation confirmed arsenic and lead in site soils at concentrations above the MTCA Method A cleanup levels as a result of previous orchard use.

Clean soils were preferentially used at all locations with grass areas, to a minimum layer of 10-inches clean soil with 2-inches of sod grass covering orange geotextile fabric overlying the arsenic and lead contaminated soils. A minimum of 4-inches of rock or mulch landscaping with underlying orange geotextile fabric were used in select areas around the buildings and sidewalks. Asphalt parking and fire lanes, concrete sidewalks, buildings, and other ancillary features also provide permanent features to effectively cap site soils.

Maintenance work is anticipated to impact localized areas of contaminated soil. This O&M Plan provides steps to inform workers, tools to plan soil impacting work, and directions to restore the proactive barriers during typical operations and maintenance tasks.

Consistent with Ecology practice, regular inspection of site conditions should be completed at least every five years to ensure institutional controls remain effective. Protective barriers should be visually inspected semi-annually by the site owner or operator, ideally in the spring to verify that damage has not occurred during the winter and in the fall to assure that barriers are in good condition before winter storms commence.



**Figures**

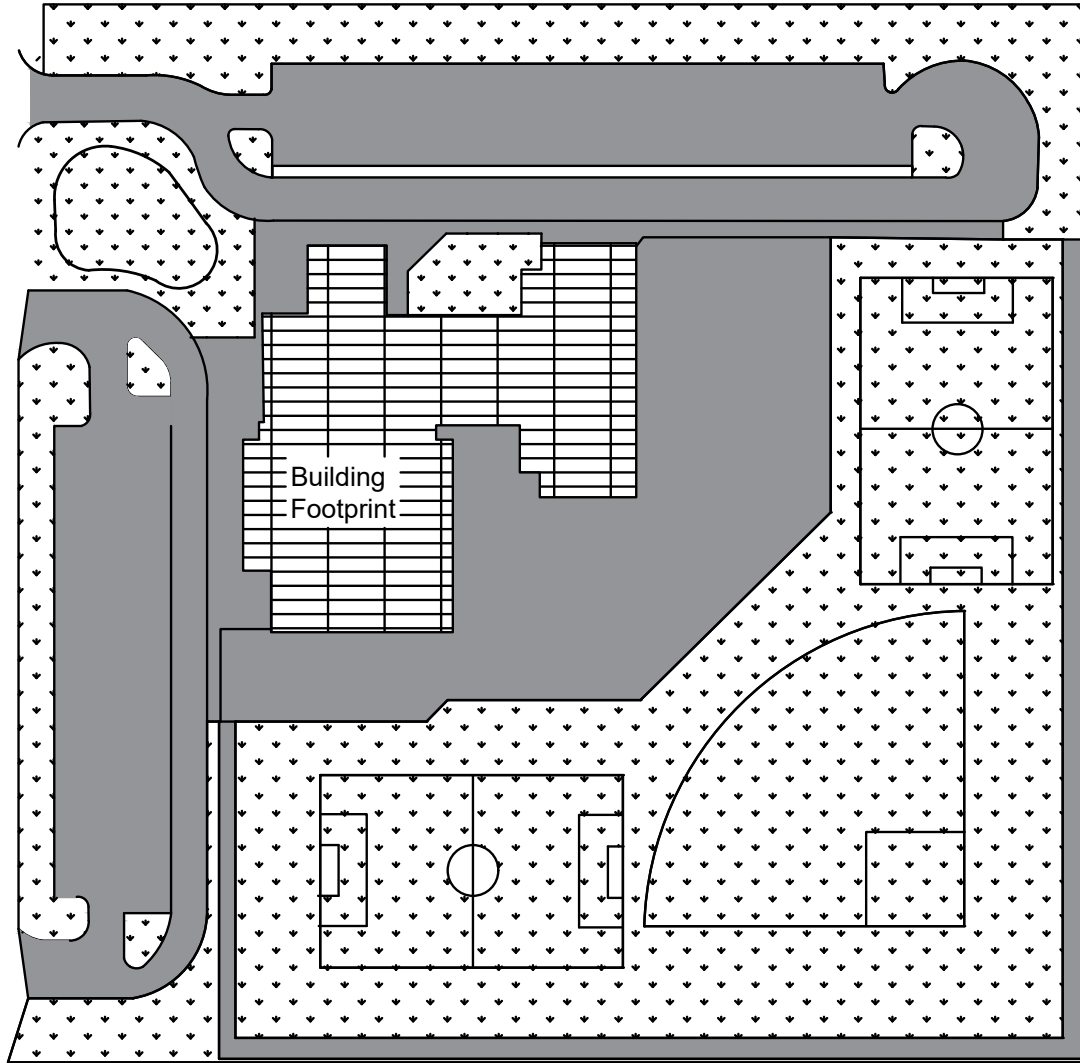
**Site Location Map**

**Final Protective Barrier Map**









LEGEND



8 TO 10 INCHES OF CLEAN SOIL  
AND SOD OR LANDSCAPING



ASPHALT ROADWAYS, PARKING AREAS, AND SIDEWALKS



BUILDING FOOTPRINT

N



## **Appendix A**

### **Laboratory Results**

# MEMORANDUM

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DATE July 20, 2020  
TO Rob Gross, CBRE Heery  
FROM Nicole McPhee, Fulcrum Environmental Consulting, Inc.  
**RE Soil Sampling Activities – Athletic Fields**  
SUBJECT West Valley School District – Apple Valley Elementary

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On June 2 and June 5, 2020, Nicole McPhee, an environmental technician with Fulcrum Environmental Consulting, Inc. (Fulcrum), completed site visits to the Apple Valley campus located at 7 North 88<sup>th</sup> Avenue, Yakima, Washington. The purpose of the visits was to collect soil samples from the portion of the site intended to be athletic fields to determine if lead and arsenic concentrations at the cut grade were above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels. West Valley School District (WVSD) selected Chervenell Construction, Inc. (Chervenell) as the General Contractor for the project. Chervenell selected Tri Valley Construction (Tri-Valley) for the earthworks subcontract and to provide a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) trained supervisor onsite during all soil impacting tasks. Work being completed during the soil sampling survey remained focused on concrete masonry unit (CMU) building development.

A total of twenty-two sample locations were collected from the portion of the site intended to be developed as athletic fields, located within the eastern and southern portion of the site. A total of sixty-two samples were collected with three samples per location at approximate depth of 3-inches, 12-inches, and 24-inches below ground surface (bgs). A duplicate sample was collected from sample location 060520-03.05 and labeled 060520-23.05. Sample locations were mapped with ESRI ArcCollector with a global positioning system (GPS) accuracy of about 2.3 meters. See Figure 1 for sample locations.

All soil samples were collected by hand and placed within 4-ounce borosilicate jars with Teflon-lined lids for each sample location. Sample containers were labeled with unique sample identification numbers. New, clean nitrile gloves were used to collect each sample.

Samples collected from near surface depths (3-inches bgs) were requested for analysis, the remaining samples were placed on hold pending laboratory pending analysis of the shallow samples.

Samples were packed on ice and shipped overnight via commercial carrier under chain-of-custody to Fremont Analytical, Inc. in Seattle, Washington, an Ecology accredited analytical laboratory, for analysis of the following:

- Total Metals by EPA Method 6020B - Arsenic (As) and Lead (Pb)

Analytical Results are reported in milligrams per kilogram (mg/Kg) and were reported under Fremont Work Order 2006064 and 2006177. See the attached laboratory reports.

**Table 1: Soil Sample Results**

Sample ID	Arsenic (mg/Kg)	Lead (mg/Kg)
060520-01.05	10.5	5.82
060520-02.05	6.43	10.6
060520-03.05	<b>70.0</b>	8.01
060520-04.05	<b>48.0</b>	143
060520-05.05	<b>49.3</b>	117
060520-06.05	<b>57.1</b>	<b>559</b>
060520-07.05	3.12	4.85
060520-08.05	<b>23.8</b>	54.4
060520-09.05	17.1	21.4
060520-10.05	<b>27.7</b>	48.0
062220-11.05	<b>45.6</b>	66.3
062220-12.05	<b>33.0</b>	80.8
062220-13.05	<b>29.3</b>	94.6
062220-14.05	<b>22.2</b>	43.1
062220-15.05	9.44	15.1
062220-16.05	11.0	9.09
062220-17.05	<b>24.6</b>	52.1
062220-18.05	<b>33.3</b>	80.9
062220-19.05	14.9	18.9
062220-20.05	18.0	33.4
062220-21.05	<b>44.8</b>	97.1
062220-22.05	3.66	6.64
060520-23.05 (duplicate of 060520-03.05)	<b>61.9</b>	6.83
<b>MTCA Method A Cleanup Level</b>	<b>20 mg/Kg</b>	<b>250 mg/Kg</b>

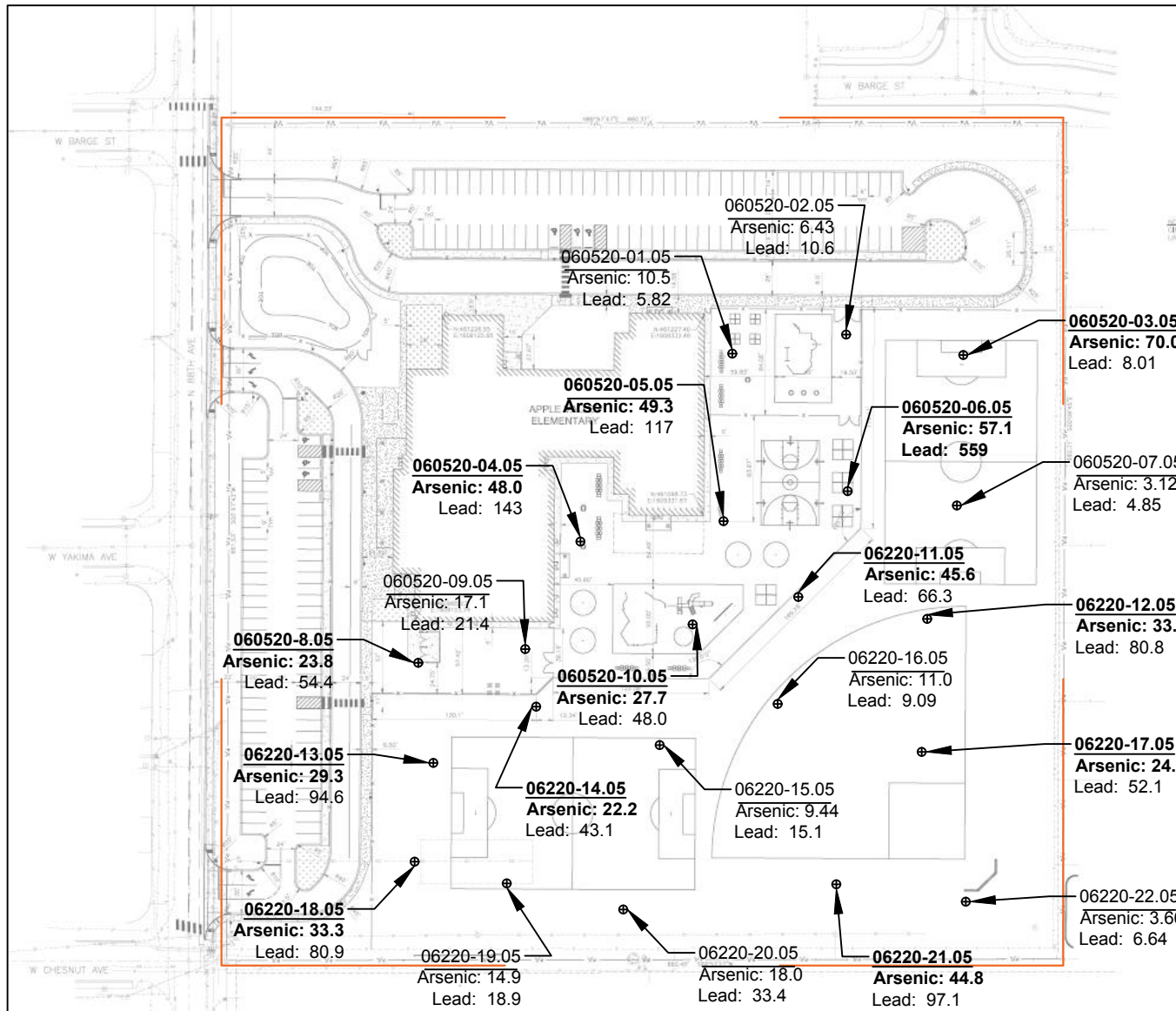
All values are presented in milligram of analyte per kilogram of soil (mg/Kg)  
**Bold** values represent concentrations above MTCA Method A cleanup levels

One data qualifier was identified for lead analysis of sample 04.05 and 06.05 indicating that dilution was required prior to analysis. In Fulcrum’s opinion, the data qualifier is unlikely to affect the reliability or usability of the laboratory result.

Laboratory results identified arsenic concentrations to be above the MTCA Method A cleanup level in thirteen out of twenty-two locations in the area intended to be developed as athletic fields. Laboratory results identified one lead concentration to be above the MTCA Method A cleanup level.

If you have any questions, please contact me at 509.574.0839.

cc: **West Valley School District**      **Chervenell Construction**      **Tri-Valley Construction**  
 Tim Critchlow                              Ron Huylar                              Eric Kanzig



\*results are reported in mg/Kg.



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2006064**

June 10, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 36 sample(s) on 6/3/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2006064

## Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2006064-001	06220-13.05	06/02/2020 11:00 AM	06/03/2020 10:34 AM
2006064-002	06220-13.1	06/02/2020 11:05 AM	06/03/2020 10:34 AM
2006064-003	06220-13.2	06/02/2020 11:10 AM	06/03/2020 10:34 AM
2006064-004	06220-18.05	06/02/2020 11:15 AM	06/03/2020 10:34 AM
2006064-005	06220-18.1	06/02/2020 11:20 AM	06/03/2020 10:34 AM
2006064-006	06220-18.2	06/02/2020 11:25 AM	06/03/2020 10:34 AM
2006064-007	06220-19.05	06/02/2020 11:30 AM	06/03/2020 10:34 AM
2006064-008	06220-19.1	06/02/2020 11:35 AM	06/03/2020 10:34 AM
2006064-009	06220-19.2	06/02/2020 11:40 AM	06/03/2020 10:34 AM
2006064-010	06220-20.05	06/02/2020 11:45 AM	06/03/2020 10:34 AM
2006064-011	06220-20.1	06/02/2020 9:10 AM	06/03/2020 10:34 AM
2006064-012	06220-20.2	06/02/2020 9:15 AM	06/03/2020 10:34 AM
2006064-013	06220-21.05	06/02/2020 9:20 AM	06/03/2020 10:34 AM
2006064-014	06220-21.1	06/02/2020 9:25 AM	06/03/2020 10:34 AM
2006064-015	06220-21.2	06/02/2020 9:30 AM	06/03/2020 10:34 AM
2006064-016	06220-22.05	06/02/2020 9:35 AM	06/03/2020 10:34 AM
2006064-017	06220-22.1	06/02/2020 9:40 AM	06/03/2020 10:34 AM
2006064-018	06220-22.2	06/02/2020 9:45 AM	06/03/2020 10:34 AM
2006064-019	06220-17.05	06/02/2020 9:50 AM	06/03/2020 10:34 AM
2006064-020	06220-17.1	06/02/2020 9:55 AM	06/03/2020 10:34 AM
2006064-021	06220-17.1.1	06/02/2020 12:00 PM	06/03/2020 10:34 AM
2006064-022	06220-16.05	06/02/2020 12:05 PM	06/03/2020 10:34 AM
2006064-023	06220-16.1	06/02/2020 12:10 PM	06/03/2020 10:34 AM
2006064-024	06220-16.2	06/02/2020 12:15 PM	06/03/2020 10:34 AM
2006064-025	06220-12.05	06/02/2020 12:20 PM	06/03/2020 10:34 AM
2006064-026	06220-12.1	06/02/2020 12:25 PM	06/03/2020 10:34 AM
2006064-027	06220-12.2	06/02/2020 12:30 PM	06/03/2020 10:34 AM
2006064-028	06220-11.05	06/02/2020 12:35 PM	06/03/2020 10:34 AM
2006064-029	06220-11.1	06/02/2020 12:40 PM	06/03/2020 10:34 AM
2006064-030	06220-11.2	06/02/2020 12:45 PM	06/03/2020 10:34 AM
2006064-031	06220-15.05	06/02/2020 10:00 AM	06/03/2020 10:34 AM
2006064-032	06220-15.1	06/02/2020 10:10 AM	06/03/2020 10:34 AM
2006064-033	06220-15.2	06/02/2020 10:20 AM	06/03/2020 10:34 AM
2006064-034	06220-14.05	06/02/2020 10:30 AM	06/03/2020 10:34 AM
2006064-035	06220-14.1	06/02/2020 10:35 AM	06/03/2020 10:34 AM
2006064-036	06220-14.2	06/02/2020 10:40 AM	06/03/2020 10:34 AM

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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-001

**Client Sample ID:** 06220-13.05

**Collection Date:** 6/2/2020 11:00:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	29.3	0.237		mg/Kg-dry	1	6/9/2020 3:44:46 PM
Lead	94.6	0.189		mg/Kg-dry	1	6/9/2020 3:44:46 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	15.5	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-004

**Client Sample ID:** 06220-18.05

**Collection Date:** 6/2/2020 11:15:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	33.3	0.239		mg/Kg-dry	1	6/9/2020 3:50:20 PM
Lead	80.9	0.191		mg/Kg-dry	1	6/9/2020 3:50:20 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	17.7	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-007

**Client Sample ID:** 06220-19.05

**Collection Date:** 6/2/2020 11:30:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	14.9	0.234		mg/Kg-dry	1	6/9/2020 3:55:54 PM
Lead	18.9	0.187		mg/Kg-dry	1	6/9/2020 3:55:54 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	15.9	0.500		wt%	1	6/8/2020 11:50:51 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-010

**Client Sample ID:** 06220-20.05

**Collection Date:** 6/2/2020 11:45:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	18.0	0.216		mg/Kg-dry	1	6/9/2020 4:01:28 PM
Lead	33.4	0.173		mg/Kg-dry	1	6/9/2020 4:01:28 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	14.9	0.500		wt%	1	6/8/2020 11:50:51 AM
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**Lab ID:** 2006064-013

**Client Sample ID:** 06220-21.05

**Collection Date:** 6/2/2020 9:20:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	44.8	0.217		mg/Kg-dry	1	6/9/2020 4:07:02 PM
Lead	97.1	0.173		mg/Kg-dry	1	6/9/2020 4:07:02 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	13.2	0.500		wt%	1	6/8/2020 11:50:51 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-016

**Client Sample ID:** 06220-22.05

**Collection Date:** 6/2/2020 9:35:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	3.66	0.221		mg/Kg-dry	1	6/9/2020 4:12:36 PM
Lead	6.64	0.177		mg/Kg-dry	1	6/9/2020 4:12:36 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	11.7	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-019

**Client Sample ID:** 06220-17.05

**Collection Date:** 6/2/2020 9:50:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	24.6	0.247		mg/Kg-dry	1	6/9/2020 4:18:10 PM
Lead	52.1	0.197		mg/Kg-dry	1	6/9/2020 4:18:10 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	19.6	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-022

**Client Sample ID:** 06220-16.05

**Collection Date:** 6/2/2020 12:05:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Total Metals by EPA Method 6020B</b>				Batch ID: 28586		Analyst: CO
Arsenic	11.0	0.248		mg/Kg-dry	1	6/9/2020 4:23:44 PM
Lead	9.09	0.199		mg/Kg-dry	1	6/9/2020 4:23:44 PM
<b>Sample Moisture (Percent Moisture)</b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	23.1	0.500		wt%	1	6/8/2020 11:50:51 AM



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-025

**Client Sample ID:** 06220-12.05

**Collection Date:** 6/2/2020 12:20:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	33.0	0.203		mg/Kg-dry	1	6/9/2020 4:29:17 PM
Lead	80.8	0.163		mg/Kg-dry	1	6/9/2020 4:29:17 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	5.36	0.500		wt%	1	6/8/2020 11:50:51 AM
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**Lab ID:** 2006064-028

**Client Sample ID:** 06220-11.05

**Collection Date:** 6/2/2020 12:35:00 PM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	45.6	0.257		mg/Kg-dry	1	6/9/2020 4:34:51 PM
Lead	66.3	0.206		mg/Kg-dry	1	6/9/2020 4:34:51 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59658 Analyst: SBM

Percent Moisture	25.7	0.500		wt%	1	6/8/2020 11:50:51 AM
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**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**Lab ID:** 2006064-031

**Client Sample ID:** 06220-15.05

**Collection Date:** 6/2/2020 10:00:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	9.44	0.250		mg/Kg-dry	1	6/9/2020 5:19:12 PM
Lead	15.1	0.200		mg/Kg-dry	1	6/9/2020 5:19:12 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	24.9	0.500		wt%	1	6/8/2020 11:50:51 AM

**Lab ID:** 2006064-034

**Client Sample ID:** 06220-14.05

**Collection Date:** 6/2/2020 10:30:00 AM

**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28586		Analyst: CO
Arsenic	22.2	0.225		mg/Kg-dry	1	6/9/2020 5:24:47 PM
Lead	43.1	0.180		mg/Kg-dry	1	6/9/2020 5:24:47 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59658		Analyst: SBM
Percent Moisture	15.9	0.500		wt%	1	6/8/2020 11:50:51 AM

Work Order: 2006064  
 CLIENT: Fulcrum Environmental  
 Project: Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28586</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>MBLKS</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194527</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.192									
Lead	ND	0.154									

Sample ID: <b>LCS-28586</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>LCSS</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194529</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	40.2	0.198	39.68	0	101	80	120				
Lead	20.8	0.159	19.84	0	105	80	120				

Sample ID: <b>2006058-016ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194533</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	4.51	0.202						4.864	7.47	20	
Lead	3.12	0.162						2.994	3.98	20	

Sample ID: <b>2006058-016AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194537</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	43.2	0.204	40.74	4.864	94.0	75	125				
Lead	20.1	0.163	20.37	2.994	84.2	75	125				

Sample ID: <b>2006058-016AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>				Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>				
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>					Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194539</b>				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	48.7	0.213	42.64	4.864	103	75	125	43.18	12.0	20	
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**Work Order:** 2006064  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2006058-016AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/8/2020</b>	RunNo: <b>59700</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28586</b>		Analysis Date: <b>6/9/2020</b>	SeqNo: <b>1194539</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	22.6	0.171	21.32	2.994	92.0	75	125	20.14	11.5	20	



Client Name: <b>FE</b>	Work Order Number: <b>2006064</b>
Logged by: <b>Carissa True</b>	Date Received: <b>6/3/2020 10:34:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete?      Yes       No       Not Present
2. How was the sample delivered?      UPS

### Log In

3. Coolers are present?      Yes       No       NA
4. Shipping container/cooler in good condition?      Yes       No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact)      Yes       No       Not Present
6. Was an attempt made to cool the samples?      Yes       No       NA
7. Were all items received at a temperature of >2°C to 6°C \*      Yes       No       NA
- Approved by client.**
8. Sample(s) in proper container(s)?      Yes       No
9. Sufficient sample volume for indicated test(s)?      Yes       No
10. Are samples properly preserved?      Yes       No
11. Was preservative added to bottles?      Yes       No       NA
12. Is there headspace in the VOA vials?      Yes       No       NA
13. Did all samples containers arrive in good condition(unbroken)?      Yes       No
14. Does paperwork match bottle labels?      Yes       No
15. Are matrices correctly identified on Chain of Custody?      Yes       No
16. Is it clear what analyses were requested?      Yes       No
17. Were all holding times able to be met?      Yes       No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order?      Yes       No       NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler 1	1.9
Sample 1	7.8

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



**Fremont**  
ANALYTICAL

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Chain of Custody Record & Laboratory Services Agreement**

Date: 6.2.20 Page: 1 of 4

Project Name: Apple Valley

Project No: 192784.04

Collected by: NLM

Location:

Report To (PM): Peggy Williamson

PM Email: pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Laboratory Project No (Internal): 2006064

Special Remarks:

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Client: Fulcrum Environmental  
Address: 406 North 2nd Street  
City, State, Zip: Yakima, Washington 98901  
Telephone: 509.574.0839  
Fax:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 / 625)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDR (801)	Comments
1 O62220-13.05	6/2/20	11:00	S														HOLD
2 O62220-13.1		11:05															HOLD
3 O62220-13.2		11:10															HOLD
4 O62220-18.05		11:15															HOLD
5 O62220-18.1		11:20															HOLD
6 O62220-18.2		11:25															HOLD
7 O62220-19.05		11:30															HOLD
8 O62220-19.1		11:35															HOLD
9 O62220-19.2		11:40															HOLD
10 O62220-20.05		11:45															HOLD

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCAS RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished Date/Time: 6/13/20 @ 1034  
 Received Date/Time: 6/13/20 @ 1034  
 Turn-around Time:  Standard  3 Day  2 Day  Next Day  Same Day (specify)









**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Chain of Custody Record & Laboratory Services Agreement**

Date: 6.2.20

Page: 4 of 4

Laboratory Project No (Internal):

2006064

Client: Fulcrum Environmental

Project Name: Apple Valley

Special Remarks:

Address: 406 North 2nd Street

Collected by: NIM

City, State, zip: Yakima, Washington 98901

Location:

Telephone: 509.574.0839

Report To (pm): Peggy Williamson

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Fax: PM Email: pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 D6220 - 15.05	6/2/20	10:00	S														
2 D6220 - 15.1		10:10															
3 D6220 - 15.2		10:20															
4 D6220 - 14.05		10:30															
5 D6220 - 14.1		10:35															
6 D6220 - 14.2		10:40															
7																	
8																	
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Tl U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished *[Signature]* Date/Time 6/2/20 Received *[Signature]* Date/Time 6/3/20 @ 1034  
 Relinquished *[Signature]* Date/Time Received *[Signature]* Date/Time

Turn-around Time:  
 Standard  
 3 Day  
 2 Day  
 Next Day  
 Same Day (specify) \_\_\_\_\_



**Fulcrum Environmental**

Peggy Williamson  
406 N. 2nd Street  
Yakima, WA 98901

**RE: Apple Valley**

**Work Order Number: 2006177**

June 17, 2020

**Attention Peggy Williamson:**

Fremont Analytical, Inc. received 26 sample(s) on 6/10/2020 for the analyses presented in the following report.

***Sample Moisture (Percent Moisture)***

***Total Metals by EPA Method 6020B***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager



**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley  
**Work Order:** 2006177

**Work Order Sample Summary**

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Date/Time Collected</b>	<b>Date/Time Received</b>
2006177-001	060520-01.05	06/05/2020 10:30 AM	06/10/2020 10:15 AM
2006177-002	060520-02.05	06/05/2020 10:35 AM	06/10/2020 10:15 AM
2006177-003	060520-03.05	06/05/2020 10:40 AM	06/10/2020 10:15 AM
2006177-004	060520-04.05	06/05/2020 10:45 AM	06/10/2020 10:15 AM
2006177-005	060520-05.05	06/05/2020 10:50 AM	06/10/2020 10:15 AM
2006177-006	060520-06.05	06/05/2020 10:55 AM	06/10/2020 10:15 AM
2006177-007	060520-07.05	06/05/2020 11:00 AM	06/10/2020 10:15 AM
2006177-008	060520-08.05	06/05/2020 11:05 AM	06/10/2020 10:15 AM
2006177-009	060520-09.05	06/05/2020 11:10 AM	06/10/2020 10:15 AM
2006177-010	060520-10.05	06/05/2020 11:15 AM	06/10/2020 10:15 AM
2006177-011	060520-23.05	06/05/2020 11:20 AM	06/10/2020 10:15 AM
2006177-012	060520-03.1	06/05/2020 11:25 AM	06/10/2020 10:15 AM
2006177-013	060520-03.2	06/05/2020 11:30 AM	06/10/2020 10:15 AM
2006177-014	060520-04.1	06/05/2020 11:35 AM	06/10/2020 10:15 AM
2006177-015	060520-04.2	06/05/2020 11:40 AM	06/10/2020 10:15 AM
2006177-016	060520-05.1	06/05/2020 11:45 AM	06/10/2020 10:15 AM
2006177-017	060520-05.2	06/05/2020 11:50 AM	06/10/2020 10:15 AM
2006177-018	060520-06.1	06/05/2020 11:55 AM	06/10/2020 10:15 AM
2006177-019	060520-07.1	06/05/2020 12:00 AM	06/10/2020 10:15 AM
2006177-020	060520-07.2	06/05/2020 12:05 AM	06/10/2020 10:15 AM
2006177-021	060520-08.1	06/05/2020 12:10 AM	06/10/2020 10:15 AM
2006177-022	060520-08.2	06/05/2020 12:15 AM	06/10/2020 10:15 AM
2006177-023	060520-09.1	06/05/2020 12:20 AM	06/10/2020 10:15 AM
2006177-024	060520-09.2	06/05/2020 12:25 AM	06/10/2020 10:15 AM
2006177-025	060520-10.1	06/05/2020 12:30 AM	06/10/2020 10:15 AM
2006177-026	060520-10.2	06/05/2020 12:35 AM	06/10/2020 10:15 AM



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**CLIENT:** Fulcrum Environmental

**Project:** Apple Valley

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.



### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-001  
**Client Sample ID:** 060520-01.05

**Collection Date:** 6/5/2020 10:30:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	10.5	0.229		mg/Kg-dry	1	6/15/2020 4:43:10 PM
Lead	5.82	0.183		mg/Kg-dry	1	6/15/2020 4:43:10 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59818		Analyst: CJ
Percent Moisture	14.6	0.500		wt%	1	6/15/2020 8:41:21 AM



**Client:** Fulcrum Environmental

**Collection Date:** 6/5/2020 10:35:00 AM

**Project:** Apple Valley

**Lab ID:** 2006177-002

**Matrix:** Soil

**Client Sample ID:** 060520-02.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28660 Analyst: CO

Arsenic	6.43	0.226		mg/Kg-dry	1	6/15/2020 4:48:43 PM
Lead	10.6	0.181		mg/Kg-dry	1	6/15/2020 4:48:43 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59818 Analyst: CJ

Percent Moisture	12.2	0.500		wt%	1	6/15/2020 8:41:21 AM
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**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-003  
**Client Sample ID:** 060520-03.05

**Collection Date:** 6/5/2020 10:40:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	70.0	0.242		mg/Kg-dry	1	6/15/2020 4:54:17 PM
Lead	8.01	0.194		mg/Kg-dry	1	6/15/2020 4:54:17 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59818		Analyst: CJ
Percent Moisture	23.5	0.500		wt%	1	6/15/2020 8:41:21 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-004  
**Client Sample ID:** 060520-04.05

**Collection Date:** 6/5/2020 10:45:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	48.0	0.233		mg/Kg-dry	1	6/15/2020 4:59:51 PM
Lead	143	1.87	D	mg/Kg-dry	10	6/16/2020 1:04:30 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59818		Analyst: CJ
Percent Moisture	16.9	0.500		wt%	1	6/15/2020 8:41:21 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-005  
**Client Sample ID:** 060520-05.05

**Collection Date:** 6/5/2020 10:50:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	49.3	0.235		mg/Kg-dry	1	6/15/2020 5:05:25 PM
Lead	117	0.188		mg/Kg-dry	1	6/15/2020 5:05:25 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	16.8	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental

**Collection Date:** 6/5/2020 10:55:00 AM

**Project:** Apple Valley

**Lab ID:** 2006177-006

**Matrix:** Soil

**Client Sample ID:** 060520-06.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Total Metals by EPA Method 6020B**

Batch ID: 28660 Analyst: CO

Arsenic	57.1	0.217		mg/Kg-dry	1	6/15/2020 5:15:50 PM
Lead	559	1.74	D	mg/Kg-dry	10	6/16/2020 1:10:03 PM

**Sample Moisture (Percent Moisture)**

Batch ID: R59852 Analyst: MM

Percent Moisture	9.39	0.500		wt%	1	6/16/2020 10:15:04 AM
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**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-007  
**Client Sample ID:** 060520-07.05

**Collection Date:** 6/5/2020 11:00:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	3.12	0.210		mg/Kg-dry	1	6/15/2020 5:30:19 PM
Lead	4.85	0.168		mg/Kg-dry	1	6/15/2020 5:30:19 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	10.0	0.500		wt%	1	6/16/2020 10:15:04 AM





**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-008  
**Client Sample ID:** 060520-08.05

**Collection Date:** 6/5/2020 11:05:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	23.8	0.230		mg/Kg-dry	1	6/15/2020 5:35:08 PM
Lead	54.4	0.184		mg/Kg-dry	1	6/15/2020 5:35:08 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	13.1	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental

**Collection Date:** 6/5/2020 11:10:00 AM

**Project:** Apple Valley

**Lab ID:** 2006177-009

**Matrix:** Soil

**Client Sample ID:** 060520-09.05

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	17.1	0.261		mg/Kg-dry	1	6/15/2020 5:39:57 PM
Lead	21.4	0.209		mg/Kg-dry	1	6/15/2020 5:39:57 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	23.4	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-010  
**Client Sample ID:** 060520-10.05

**Collection Date:** 6/5/2020 11:15:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	27.7	0.240		mg/Kg-dry	1	6/15/2020 5:44:46 PM
Lead	48.0	0.192		mg/Kg-dry	1	6/15/2020 5:44:46 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	18.5	0.500		wt%	1	6/16/2020 10:15:04 AM



**Client:** Fulcrum Environmental  
**Project:** Apple Valley  
**Lab ID:** 2006177-011  
**Client Sample ID:** 060520-23.05

**Collection Date:** 6/5/2020 11:20:00 AM  
**Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Total Metals by EPA Method 6020B</u></b>				Batch ID: 28660		Analyst: CO
Arsenic	61.9	0.252		mg/Kg-dry	1	6/15/2020 5:49:35 PM
Lead	6.83	0.202		mg/Kg-dry	1	6/15/2020 5:49:35 PM
<b><u>Sample Moisture (Percent Moisture)</u></b>				Batch ID: R59852		Analyst: MM
Percent Moisture	20.7	0.500		wt%	1	6/16/2020 10:15:04 AM

Work Order: 2006177  
 CLIENT: Fulcrum Environmental  
 Project: Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>MB-28660</b>	SampType: <b>MBLK</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>							
Client ID: <b>MBLKS</b>	Batch ID: <b>28660</b>		Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197647</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	ND	0.192									
Lead	ND	0.154									

Sample ID: <b>LCS-28660</b>	SampType: <b>LCS</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>							
Client ID: <b>LCSS</b>	Batch ID: <b>28660</b>		Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197648</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	40.4	0.191	38.17	0	106	80	120				
Lead	20.5	0.153	19.08	0	107	80	120				

Sample ID: <b>2006167-001ADUP</b>	SampType: <b>DUP</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>		Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197650</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	2.25	0.219						2.738	19.5	20	
Lead	4.85	0.175						5.108	5.20	20	

Sample ID: <b>2006167-001AMS</b>	SampType: <b>MS</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>		Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197652</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	47.1	0.205	40.91	2.738	109	75	125				
Lead	23.7	0.164	20.45	5.108	90.8	75	125				

Sample ID: <b>2006167-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>		Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197653</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	50.2	0.221	44.15	2.738	107	75	125	47.12	6.33	20	
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**Work Order:** 2006177  
**CLIENT:** Fulcrum Environmental  
**Project:** Apple Valley

**QC SUMMARY REPORT**  
**Total Metals by EPA Method 6020B**

Sample ID: <b>2006167-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2020</b>	RunNo: <b>59837</b>							
Client ID: <b>BATCH</b>	Batch ID: <b>28660</b>		Analysis Date: <b>6/15/2020</b>	SeqNo: <b>1197653</b>							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	26.3	0.177	22.08	5.108	96.1	75	125	23.68	10.6	20	

Client Name: <b>FE</b>	Work Order Number: <b>2006177</b>
Logged by: <b>Carissa True</b>	Date Received: <b>6/10/2020 10:15:00 AM</b>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
5. Custody Seals present on shipping container/cooler?  
(Refer to comments for Custody Seals not intact) Yes  No  Not Present
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all items received at a temperature of >2°C to 6°C \* Yes  No  NA
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is there headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

19. Additional remarks:

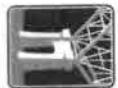
### Item Information

Item #	Temp °C
Cooler 1	5.8
Sample 1	4.9

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C







# Fremont Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

## Chain of Custody Record & Laboratory Services Agreement

Date: 6/5/20

Page: 2 of 3

Laboratory Project No (Internal): 20061737

Project Name: Apple Valley

Project No: 192784.04

Special Remarks:

Client: Fulcrum Environmental

Address: 406 North 2nd Street

Collected by: NLM

City, State, Zip: Yakima, Washington 98901

Location:

Telephone: 509.574.0839

Report To (PM): Peggy Williamson

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Fax:

PM Email: pwilliamson@fulcrum.net cc: nicole.mcphree@fulcrum.net

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GY/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HClD)	Diesel/Heavy Oil Range Organics (DW)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	ED8 (8011)	Comments	Turn-around Time:		
1 O6520-23.05	9/5/20	11:20	S															HOLD	<input checked="" type="checkbox"/> Standard	
2 O6520-03.1		11:25																	HOLD	<input type="checkbox"/> 3 Day
3 O6520-03.2		11:30																		<input type="checkbox"/> 2 Day
4 O6520-04.1		11:35																		<input type="checkbox"/> Next Day
5 O6520-04.2		11:40																		<input type="checkbox"/> Same Day (specify)
6 O6520-05.1		11:45																		
7 O6520-05.2		11:50																		
8 O6520-06.1		11:55																		
9 O6520-07.1		12:00																		
10 O6520-07.2		12:05																		

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

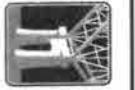
\*\*Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb So Se Sr Sn Tl U V Zn

\*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-phosphate Fluoride Nitrate+Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished  Date/Time: 6/9/20 Received  Date/Time: 6/19/20

Received  Date/Time: 6/19/20



**Fremont**  
Analytical

3600 Fremont Ave N.  
Seattle, WA 98103  
Tel: 206-352-3790  
Fax: 206-352-7178

**Chain of Custody Record & Laboratory Services Agreement**

Date: 6/3/20 Page: 3 of 3  
Project Name: Apple Valley  
Project No: 192784.04  
Laboratory Project No (Internal): 2806177

Client: Fulcrum Environmental

Address: 406 North 2nd Street

City, State, zip: Yakima, Washington 98901

Telephone: 509.574.0839

Fax: \_\_\_\_\_  
Report To (PM): Peggy Williamson  
PM Email: pwilliamson@fulcrum.net cc: nicole.mcphee@fulcrum.net

Collected by: NLM

Location: \_\_\_\_\_

Sample Disposal:  Return to client  Disposal by lab (after 30 days)

Special Remarks: \_\_\_\_\_

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GV/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCD)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)   Dissolved (D)	Anions (IC)***	EDB (8011)	Comments
1 <u>06520-08.1</u>	<u>6/5/20</u>	<u>12:10</u>	<u>S</u>														<u>HOLD</u>
2 <u>06520-08.2</u>		<u>12:15</u>															<u>HOLD</u>
3 <u>06520-09.1</u>		<u>12:20</u>															<u>HOLD</u>
4 <u>06520-09.2</u>		<u>12:25</u>															<u>HOLD</u>
5 <u>06520-10.1</u>		<u>12:30</u>															<u>HOLD</u>
6 <u>06520-10.2</u>		<u>12:35</u>															<u>HOLD</u>
7																	
8																	
9																	
10																	

\*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, S<sub>s</sub> = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water  
 \*\*Metals (Circle): MTCA-5 RCA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn  
 \*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate-Nitrite

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished 6/9/20 Date/Time 6/9/20 Received 6/9/20 Date/Time 6/9/20  
 Relinquished 6/9/20 Date/Time 6/9/20 Received 6/9/20 Date/Time 6/9/20



**Appendix B**

**Semi-Annual Protective Barrier Inspection Form**

## Semi-Annual Arsenic and Lead Contaminated Soil Capping Inspection

Inspector: \_\_\_\_\_ Date: \_\_\_\_\_

Twice each year (spring and fall) inspect the site and document the condition of protective barriers. The spring inspection should be completed after the snow has melted (usually March or April) to find any damage that occurred during the winter. The fall inspection should be completed prior to snow (usually September or early October) and to make sure all of the protective barriers are in good condition before winter. Take photographs of any areas of damage or concern.

**Asphalt, Concrete, and Buildings:** Inspect asphalt and concrete surfaces for cracks, voids, or other separations (surface imperfections) where you can see the material is cracked. Estimate the width and length of the largest crack you see and note in the comments. Place a check mark next to the most appropriate category:

\_\_\_\_\_ **No Damage**

\_\_\_\_\_ **Minor surface imperfections** – small surface cracking that does not penetrate the depth of the asphalt or concrete, does not require repair.

\_\_\_\_\_ **Moderate surface imperfections** – a crack where you can see the crushed gravel or soil below the asphalt or concrete. This should be repaired before winter.

\_\_\_\_\_ **Significant surface damage** – a crack or when a piece of asphalt or concrete is missing and you can see the soil below the crushed gravel. This should be repaired as soon as feasible (usually within a month).

Comments: \_\_\_\_\_

**Landscaping and Grass:** Inspect landscaping and for damage to grass lawns or areas of crushed rock landscaping. Note all areas where the grass has worn or the crushed rock has moved and exposed geotextile fabric. Inspect stormwater features for any areas of standing water, dead grass, mud or exposed soil. Inspect the landscaped area for indications of damaged sod materials or areas with dying vegetation. Classify damage, if identified as minor, major or significant using the following guidance.

\_\_\_\_\_ **No Damage**

\_\_\_\_\_ **Minor damage** – less than 10 % overall or less than 25 square feet in a localized area, provided the exposure to underlying soils is not present.

\_\_\_\_\_ **Major damage** – between 10 and 20 % overall or between 25 and 100 square feet in a localized area, or result in less than 10 percent overall or less than 25 square feet of soil is visible.

\_\_\_\_\_ **Significant damage** – more than 20% overall or more than 100 square feet in a localized area, or result in more than 10 percent overall or more than 25 square feet of soil is visible.

Comments: \_\_\_\_\_