DRAFT

Interim Action Scope of Work

Everett Smelter Cleanup Site
Everett, Washington

for
Washington Department of Ecology

February 20, 2014

GeoEngineers

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Everett Smelter Cleanup Site
Everett, Washington

File No. 0504-068-01

February 20, 2014

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Table of Contents

1.0 INTRODUCTION 1

2.0 BACKGROUND 1

2.1. Site History 1
2.2. Upland Area Cleanup 2
2.3. Lowland Area Investigations 3
2.4. Evidence of Potential Source Material 3
2.4.1. Historical and Physical Conditions 3
2.4.2. Soil and Groundwater Quality 4
2.5. Coordination With Final Cleanup Action 5

3.0 DESCRIPTION OF INTERIM ACTION 5

3.1. Interim Action Objectives 5
3.2. Cleanup Requirements 5
3.3. Interim Action Components 6
3.3.1. Site Access and Traffic Control 6
3.3.2. Pre-Design Characterization 7
3.3.3. Environmental Protection During Construction 7
3.3.4. Excavation 7
3.3.5. Excavated Material Handling and Disposal 9
3.3.6. Site Restoration and Roadway Repairs 9
3.3.7. Compliance Monitoring 9

4.0 PERMITTING AND SUBSTANTIVE REQUIREMENTS 10

5.0 PROPOSED CONSTRUCTION SCHEDULE 10

6.0 ECOLOGY PROJECT CONTACTS 11

7.0 REFERENCES 11

LIST OF FIGURES

Figure 1. Vicinity Map
Figure 2. Everett Smelter Site
Figure 3. Historical Features
Figure 4. Lowland Area Groundwater Analytical Data for Deep Aquifer
Figure 5. Conditions During and After Fenced Area Cleanup
Figure 6. Soil Analytical Data
Figure 7. Proposed Interim Action Excavation Area

1.0 INTRODUCTION

This plan presents the proposed Interim Action (IA), partial cleanup for the Everett Smelter Lowland Area (*Lowland* or *Lowland Area)* located in northeast Everett, Washington (Figure 1). The Everett Smelter Lowland Area is generally situated between Marine View Drive and the Snohomish River and is located east of the Everett Smelter Upland Area where a former lead smelter and an associated arsenic extraction facility operated from approximately 1892 to 1912 (Hydrometrics, 1995). The general location of the former smelter is shown in relation to the Upland and Lowland areas in Figure 2. The Upland Area and Lowland Area comprise the Everett Smelter Cleanup Site. The Washington State Department of Ecology (Ecology) is planning to perform an IA near the intersection of E. Marine View Drive and Riverside Road to remove potential source material that may be present in this area of the Site. The proposed IA is intended to remove contaminated source material that may be contributing to arsenic contamination in Lowland Area groundwater. The IA will be implemented in advance of the final cleanup action for the Lowland Area and in accordance with regulations for Model Toxics Control Act (MTCA) interim actions (Washington Administrative Code [WAC] 173-340-430). The IA will not preclude the evaluation or selection of alternatives for the final cleanup action.

2.0 BACKGROUND

2.1. Site History

Operations at the former smelter facility resulted in soil and groundwater contamination of the Lowland Area. Smelter-related contaminant sources can be generally grouped into three categories:

- Slag that was poured from the Upland Area down a slope east of the smelter onto the Lowland Area during smelter operations;
- Fallout from smelter “smokestack” (stack) emissions; and
- Residual contaminated materials that were left in the ground at the time the smelter was demolished.

Metals are the chemicals of concern for the Smelter Site. Due to its prevalence in the source materials at the site, arsenic has been determined to be the indicator hazardous substance resulting from smelter operations (Ecology, 1999).

Key events and activities in the history of the smelter development, operation and closure include the following (Hydrometrics, 1995):

Year(s)	Events/Activities
1892	Land for the smelter was purchased from Everett Land Company by Puget Sound Reduction Company and construction of the smelter began.
1894	Lead smelting initiated.
1898	Arsenic extraction facilities were added to the smelter, the first in the United States, and arsenic extraction began.
1901	The smelter was expanded to produce more arsenic than was previously produced. Arsenic production was 1,353 tons in 1902.
1902	The smelter was sold to the Federal Mining and Smelting Company and then to American Smelting and Refining Company (ASARCO).
April 1902	The smelter was temporarily closed (Mining American, 1904).
February or March 1904	1904 the smelter was re-opened (Hydrometrics, 1995; Mining American, 1904).
May 1904 to January 1908	119,495 tons of ore was smelted and 30,733 tons of lead was produced.
February 1908	Lead smelting ceased at the smelter but arsenic extraction continued.
February 1912	Arsenic extraction was shut down and the smelter began being dismantled. Some in-ground materials such as foundations, parts of flues and waste products were left in the ground.
1915	Everett smelter stacks were toppled for brick recovery.
1917	Dismantling completed.
1920s – 1930s	ASARCO sold the smelter properties. The last property was sold in 1936.
1930s – 1940s	Former smelter property developed for residential purposes.
1956	The E. Marine View Drive/Pacific Highway interchange was constructed.

2.2. Upland Area Cleanup

After identification of the Everett Smelter as a Site in the 1990s, the Upland Area was studied extensively. The Upland Area of the Smelter Site was divided into the Former Arsenic Trioxide Processing Area (also known as the "Fenced Area") and the Peripheral Area. Soil in the Fenced Area was found to be contaminated with metals and smelter residuals such as demolition debris and arsenic trioxide. Arsenic trioxide (As_2O_3) is approximately 76 percent arsenic or approximately 760,000 milligrams per kilogram (mg/kg) arsenic. The Peripheral Area included the less contaminated area generally surrounding the Fenced Area. Groundwater and surface water in the Upland Area were also identified to be contaminated with metals. The concentrations of arsenic in groundwater and seep water in the Upland Area have been measured to concentrations up to 47,000 micrograms per liter (µg/L) and 14,000 µg/L, respectively (ASARCO, 2000).

Other metals that have been detected at the Site include lead, cadmium, antimony, thallium and mercury and are considered to be contaminants of concern. A remedial investigation of the Upland Area (Hydrometrics, 1995) concluded that arsenic was the primary contaminant of concern and that remedial actions to address arsenic contamination would address contamination by other metals (Ecology, 1999). ASARCO began purchasing the residential properties within the Fenced Area after identification of the Smelter Site in 1990. Ecology began cleaning up residential

properties in the Upland Area in 1999. Ecology has performed or overseen cleanup since that time. Cleanup began with the most contaminated residential properties and continues at this time.

The Fenced Area cleanup was performed by ASARCO and Ecology in 2002 through 2006 and included the following (ASARCO, 2004):

- Removing highly contaminated material containing greater than 3,000 mg/kg arsenic within the Former Arsenic Trioxide Processing Area and disposal of the removed material in a hazardous waste landfill. The most highly contaminated areas were detected along the flue and stack structures as shown in Figure 3.
- Removing approximately 60,000 cubic yards of soil with arsenic concentrations between 150 and 3,000 mg/kg and transport of the soil to be used as subgrade below a capped area in Tacoma at the ASARCO On-site Containment Facility.
- Installing a clean fill cap over the entire Fenced Area at least 2 feet thick.

The remedial actions currently being performed in the Upland Area include the following:

- Removing accessible soil with arsenic concentrations greater than 20 mg/kg that is within 12 inches of the surface and backfilling the excavations with clean soil.
- Removing accessible soil from depths greater than 12 inches with arsenic concentrations greater than specific remediation levels and backfilling with clean soil.

Cleanup of residential properties in the Upland Area surrounding the former arsenic extraction facility is currently being performed by Ecology and is expected to be complete over the next several years.

2.3. Lowland Area Investigations

Multiple investigations have been performed that provide data to characterize the Lowland Area. Ecology is currently developing a Supplemental Remedial Investigation (RI) Report for the Lowland Area based on historic and new data that has been collected. Data collected to support the Supplemental RI Report indicates that an area of highly contaminated groundwater is present in the deep aquifer on the western portion of the Lowland Area. Figure 4 presents groundwater data collected in the deep aquifer on the western portion of the Lowland Area. The groundwater data and groundwater flow gradient indicates that a source of arsenic to groundwater may be present near the intersection of E. Marine View Drive and Riverside Road. The location of previous smelter structures and results of previous soil sampling also indicates that a source of arsenic to groundwater may be present near the intersection of E. Marine View Drive and Riverside Road as discussed in the Section 2.4.

2.4. Evidence of Potential Source Material

2.4.1. Historical and Physical Conditions

Early investigations of the Upland Area identified that elevated arsenic concentrations were associated with structures within and adjacent to the Fenced Area.

Figure 3 presents the approximate location of the former smelter structures. The former smelter had a flue that transferred emissions from the furnace to a stack along the current alignment of E. Marine View Drive. The flue made a 90 degree turn to the west near the existing southwest portion of the intersection at E. Marine View Drive and Riverside Road. Demolition of the smelter structures began in 1912. The roadway section of the current E. Marine View Drive was constructed in 1956. There are no records identified that indicate that potentially impacted soil below E. Marine View Drive was removed.

Design reports and additional supplemental information for the Fenced Area cleanup identifies that material below or in the right-of-way (ROW) adjacent to E. Marine View Drive near the intersection of Riverside Road was likely not disturbed by the cleanup actions or construction of the roadway. Key evidence is as follows.

- Fenced Area cleanup generally extended to or slightly beyond the former fence line as shown in Figure 5.
- Monitoring well EV-13 was installed in the roadway and is now located in the sidewalk, outside the Fenced Area and within the footprint of the historical flue structure. The concentrations of arsenic detected in soil and groundwater samples collected from EV-13 were high and consistent with the pattern of contamination associated with the flue structure and adjacent areas.
- The aerial photo from 2005, presented in Figure 5, corresponds to the timeframe of the Fenced Area cleanup and shows the approximate excavation activities being conducted in the Fenced Area. Consistent with the Fenced Area cleanup design reports and supplemental information, the 2005 aerial photo also shows that the area near EV-13 was not excavated at that time.
- The 2009 aerial photograph (Figure 5) shows E. Marine View Drive ROW after a roadway improvement project was completed after Fenced Area cleanup that included a new sidewalk. Monitoring well EV-13, which was constructed in 1996 prior to the Fenced Area cleanup, is currently located in the sidewalk along E. Marine View Drive.

The continued presence of this monitoring well suggests that cleanup activities and roadway improvement construction likely did not include removal of potentially contaminated soil located in the vicinity of the monitoring well.

2.4.2. Soil and Groundwater Quality

Recent and historical soil and groundwater data provide evidence that potential source material may be located near monitoring well EV-13. Figure 6 presents soil data in the vicinity of EV-13. Soil and groundwater data provide the following evidence that potential source material remains in this area:

- Arsenic in a soil sample collected in February 1996 from 2 feet deep during installation of monitoring well EV-13 was elevated with a concentration greater than 11,000 mg/kg.

- Soil samples to the north, south and east of EV-13 are elevated, but not to the same extent as EV-13 (see Figure 6). This suggests that a relatively narrow band of potential source material may exist and is likely located along the footprint of the former flue structure.
- Arsenic was detected at a concentration of 25,000 µg/L in groundwater collected from EV-13 in the spring of 1997. Groundwater in wells directly downgradient of EV-13, including EV-20 and BP-5 (see Figure 4), contain elevated arsenic concentrations ranging from 13,000 to over 17,000 µg/L. Concentrations of arsenic in groundwater are substantially lower in monitoring wells located to the north and south of EV-13. (This evidence also suggests that the area where the former flue structure turned to the west may be a source of arsenic to groundwater.)

Based on these data it is likely that source material may be located under the sidewalk and roadway at the southwest corner of the intersection of E. Marine View Drive and Riverside Road. Removal of the source material from this area is the focus the proposed IA.

2.5. Coordination With Final Cleanup Action

Ecology is currently preparing a supplemental Remedial Investigation (RI) and a Feasibility Study (FS) in accordance with MTCA (Chapter 173-340 WAC) to identify the appropriate cleanup action for the Lowland Area. The supplemental RI is currently scheduled to be completed in 2014.

This proposed IA will be implemented in advance of the FS for the Site and will not preclude reasonable alternatives for the final cleanup action (WAC 173-340-430(3)(b)). The FS will identify appropriate alternatives for the final cleanup of the Lowland Area. The final cleanup action will take in to account the results of the IA including the amount of contaminated soil encountered and removed.

3.0 DESCRIPTION OF INTERIM ACTION

The proposed IA consists of excavation and disposal of potentially contaminated soil located within an area of the E. Marine View Drive ROW including the vehicle roadway and the adjacent sidewalk within the approximate area shown in Figure 7.

3.1. Interim Action Objectives

The objectives of the IA include:

- Pre-design characterization of soil in the vicinity of the former flue structure.
- Remove and dispose of potential soil and debris, with elevated arsenic concentrations that may remain in the vicinity of the former smelter flue structure.
- Remove and dispose of offsite, material that may be an ongoing source to groundwater contamination in the Lowland Area.

3.2. Cleanup Requirements

Based on the evidence presented in Section 2.4, it is anticipated that residual material from the former flue structure or arsenic trioxide processing area is currently present in the subsurface materials located outside of and adjacent to part of the Fenced Area cleanup.

The horizontal extent of the excavation will be limited to the area where evidence suggests source material is likely to be present as shown in Figure 7. Within these limits, soil and other materials will be excavated and disposed of to achieve remediation levels used for the Fenced Area cleanup. The *Everett Smelter Site, Integrated Final Cleanup Action Plan* (Ecology, 1999) identified arsenic as the indicator chemical for soil and established remediation levels for soil that vary based on the depth below ground surface (bgs).

SOIL REMEDIATION LEVELS

Depth	Average Arsenic (mg/kg)	Maximum Arsenic (mg/kg)
0 to 1 feet	20	40
1 to 2 feet	60	150
2 to 15 feet	150	500

Source: Table 1-5 Interim Action Report, Fenced Area Cleanup (Asarco, 2002)

Average remediation levels are compared to composite sample results and maximum remediation levels are compared to discrete sample results.

Based on the existing Site data, most of the potential contamination for this IA is expected to be greater than 2 feet bgs. For areas excavated outside the sidewalk or roadway, remediation levels will be used based on depth of contamination. For areas located below the existing sidewalk and/or roadway at E. Marine View Drive the remediation levels for depth 2 to 15 feet will be used even if contamination is found at shallower depths because the sidewalk and roadway paving provide a barrier to potential contaminants exposure.

The remedial action is targeting residual contaminated materials that were left in the ground at the time the smelter was demolished and will only extend beyond the limits identified if evidence of source material is encountered. Source material would include soil with high concentrations of arsenic, significant deposits of smelter debris, residual arsenic trioxide and/or flue dust with elevated levels of arsenic. If source material is encountered at or outside the IA limits, additional excavation may be conducted to remove source material to the extent practicable.

Outside the limits of the targeted area (identified in Figure 7) material above remediation levels that is not considered source material will be left in place.

Locations with soil containing arsenic below remediation levels but above the cleanup levels will be addressed in a final cleanup action that will be developed in the forthcoming FS for the Lowlands Area.

3.3. Interim Action Components

3.3.1. Site Access and Traffic Control

Site access and traffic control measures will be implemented to maintain safe working conditions and protect the public during the IA. During IA construction work, area access will be limited to site

workers only including the Contractor and construction observation and oversight personnel. All site workers will be required to have hazardous waste training (29 CFR 1910 OSHA).

A portion of the excavation will take place in the roadway of E. Marine View Drive. It is expected that the southbound lanes will be closed off for a period of time. During lane closures, traffic will be modified and/or rerouted to accommodate vehicles. The Contractor will have proper signage and flaggers to safely move traffic through the IA construction area. A traffic control plan that details temporary lane closures and rerouting of vehicles during construction activities will be developed in coordination with the City of Everett and Washington State Department of Transportation (WSDOT). It is not expected that the road will need to be fully closed in either direction during construction.

3.3.2. Pre-Design Characterization

Prior to completing the design for the IA, pre-design characterization will be conducted in the area of the proposed work. Characterization will consist of completing direct push soil borings in a grid pattern to:

- Delineate the approximate horizontal and vertical extent of source material with concentrations exceeding remediation levels using an X-ray Fluorescence (XRF) instrument (Innov-X Systems XRF or similar) to analyze for arsenic; and
- Collect and analyze soil samples to characterize the material to be excavated for offsite disposal at a landfill. Samples for waste characterization will be collected and analyzed following procedures identified in the existing Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) for the Lowland Area supplemental remedial investigation. The results of waste characterization sample analyses will be compared to Washington State Dangerous Waste Regulations and requirements of potential disposal facilities.

This characterization effort will provide information to support preparation of the remedial design and specifications for the IA excavation work. The information will be used to further define the excavation limits and for characterization of the soil to be excavated to minimize the need for stockpiling on site.

3.3.3. Environmental Protection During Construction

The construction contractor will implement environmental protection measures consisting of Best Management Practices (BMPs) for stormwater and erosion control, spill prevention and pollution control, and all other controls, as needed, to protect environmental quality. The environmental protection measures will be implemented for the duration of the IA construction, which is anticipated to be between two and four weeks. Environmental protection measures including a Spill Prevention and Control Plan will be detailed in the contractor's Construction Quality Control Plan. Required environmental protection measures will include BMPs, as necessary, to control erosion and potential contaminant transport out of the IA area.

3.3.4. Excavation

Prior to any groundbreaking activities public and private utility locates will be completed. If utilities are identified in the proposed excavation area, alternate methods such as air knifing and/or hand digging will be used to expose the utility and it will be protected in place or re-routed during

construction. Utility structures (i.e., stoplight pole) located within the excavation area will be protected in place or temporarily re-located. Monitoring well EV-13 will be decommissioned in accordance with WAC 173-160 because extensive excavation is expected at the location of this well. Sidewalk, curbs and roadways located within the excavation area will be demolished prior to excavation.

Excavation activities will be conducted in accordance with applicable health and safety procedures to protect workers from potential physical and chemical hazards. Sequencing of excavation will be conducted to minimize the lane closures and impacts to E. Marine View Drive traffic.

The limits of the IA excavation based on existing information are illustrated in Figure 7. However, the excavation limits will be further defined based on data collected as part of the pre-design characterization (see Section 3.3.2) and detailed in the design. Within the defined limits of the IA excavation, soil and debris will be excavated to achieve remediation levels.

Visual field screening will be conducted during excavation activities to identify smelter debris (ex. bricks, concrete, etc.), potential flue dust, and residual arsenic trioxide in the excavation area. An X-ray Fluorescence (XRF) instrument (Innov-X Systems XRF or similar) will be used to analyze samples for arsenic. XRF has been used during investigation and cleanup of the Everett Smelter Site to analyze soils for arsenic contamination. The results from XRF measurements have shown a good correlation to laboratory arsenic analysis results and XRF has been a useful tool for field measurement of arsenic concentrations.

The XRF will be used to analyze soil and debris observed in the excavation to identify soil and debris that are source material with arsenic concentrations greater than remediation levels. The presence of soil and debris that is source material will be used to identify the lateral and vertical extent of the excavation during the IA. The results of XRF analyses will be used to document final conditions at the limits of excavation. If smelter debris, flue dust, arsenic trioxide or other source material are observed outside the defined limits of the IA and confirmed to have elevated arsenic concentrations by the XRF analyses, the excavation may follow the source material to the extent practicable.

It may not be feasible to achieve remediation levels or remove all source material due to physical constraints within the IA area. For example, there are physical constraints for the depth of the excavation because stable side slopes must be maintained for protection of site workers and lateral constraints due to property boundaries and topography. In the case that not all contaminated material can be removed from a given location within the excavation, a visual barrier such as a geotextile fabric will be placed to separate the contaminated material from imported backfill that is placed in the excavation.

The volume of soil that is anticipated to be excavated is approximately 1,300 cubic yards based on the approximate limits of the IA excavation shown on Figure 7. The volume of soil to be excavated will be further refined based on information from the pre-design characterization. The actual excavated volume will be determined based on field analysis and presence of source material observed during the IA work.

3.3.5. Excavated Material Handling and Disposal

Surficial concrete and asphalt from sidewalk, curb and roadway demolition will be disposed of at a construction debris disposal facility approved by Ecology.

Characterization of excavated material will be completed during design of the IA to allow for the Contractor to excavate soil and load it directly on trucks to haul to an appropriate permitted landfill facility. Stockpiling of excavated material should be limited during construction. If temporary stockpiles are needed, all stockpiles will be placed in a lined and bermed stockpile area and covered to contain the excavated material prior to off-site disposal and to prevent precipitation and other materials from contacting the stockpiled material.

Contaminated debris and soil will be loaded and hauled off site for disposal at an appropriate permitted landfill based on the waste characterization results. The permitted disposal facility will be identified by the contractor and approved by Ecology prior to disposal. If treatment of contaminated soil is required prior to disposal, treatment will be conducted on site or at an off-site facility in accordance with Washington State Dangerous Waste Regulations. Waste manifest procedures and disposal receipts will be documented in the IA cleanup report.

3.3.6. Site Restoration and Roadway Repairs

The excavation will be backfilled and compacted with structural fill upon completion of the IA. Portions of the sidewalk, curb and roadway disturbed by the IA will be repaired to meet City of Everett and WSDOT requirements. Vegetated areas that are disturbed during the IA will be restored through plantings and/or hydroseed.

3.3.7. Compliance Monitoring

In accordance with WAC 173-340-410, compliance monitoring for a cleanup action includes the following elements:

- Protection monitoring - confirms that human health and the environment are adequately protected during the cleanup action.
- Performance monitoring - confirms that the cleanup action has been completed to meet the remediation action objectives and requirements and has met other performance standards, such as permit requirements.
- Confirmation monitoring - confirms the long-term effectiveness of the cleanup action once cleanup requirements and other performance standards have been reached.

For this IA, protection and performance monitoring will be conducted during construction. Confirmation monitoring may be required if source material is encountered and removed during the IA work. The compliance monitoring requirements for the IA are outlined below.

Protection monitoring will be implemented during the work activities by requiring that on-site workers be appropriately trained in hazardous waste operations as well as follow a site-specific health and safety plan prepared specifically for the IA project. The contractor that is selected to perform the IA construction will be required to develop a site-specific health and safety plan for their employees.

Performance monitoring will consist of documenting the removal of source material within the IA area. As previously stated, investigations of the Upland Area identified that elevated arsenic concentrations were associated with structures present within and adjacent to the Fenced Area. Photographs of observed source materials will be taken and presented in an IA Completion Report. If physical constraints do not allow for remediation levels to be met a visual barrier will be placed prior to backfilling. The location of where contaminated material remains will be documented. Documentation will include photographs, measurements of where contaminated material and visual barriers remain, and the locations and results of samples analyzed by XRF.

The XRF will be used to document arsenic concentrations of soil and debris removed from the excavation and the arsenic concentrations of soil remaining in the base and sidewalls of the excavation. Soil samples from the base of the excavation will be collected and analyzed by XRF at a minimum frequency of one per 625 square feet (25 feet by 25 feet) of remedial excavation base area. If the area of the base is less than 625 square feet, a minimum of one base sample will be obtained. Soil samples will be collected along the sidewalls at a minimum frequency of one sample per 40 linear feet of sidewall. If the length of an excavation sidewall is less than 40 feet, a minimum of one sample will be obtained per sidewall. Sidewall samples will be collected at a vertical location at the elevation where source material or the highest concentration of arsenic in soil is encountered.

The design will specify the performance monitoring requirements for backfill and road base material quality and compaction and sidewalk, curb and roadway repair to ensure construction is completed consistent with the design and City of Everett and WSDOT standards.

If source material is encountered during the IA, post-action confirmation monitoring of metals in groundwater at existing monitoring wells located downgradient of the IA target area will be required to evaluate the effectiveness of the IA cleanup. Based on the available information concerning Site conditions, it is anticipated that groundwater leaving the interim action area will take more than one year to reach the existing downgradient monitoring wells. Confirmation monitoring for the IA will be combined with other groundwater monitoring efforts being conducted as part of the Lowland Area cleanup action.

4.0 PERMITTING AND SUBSTANTIVE REQUIREMENTS

The IA will be performed pursuant to MTCA (WAC 173-340-430). Accordingly, the Interim Action meets the permit exemption provisions of MTCA, obviating the need to follow most procedural requirements of the various local and State regulations that would otherwise apply to the action. Ecology completed an environmental determination under the State Environmental Policy Act (SEPA; RCW 43.21) as part of the *Integrated Final Cleanup Action Plan and Final Environmental Impact Statement (FCAP/FEIS) for the Upland Area* (Ecology, 1999). The FCAP/FEIS also lists applicable, relevant and appropriate requirements that apply to this IA.

5.0 PROPOSED CONSTRUCTION SCHEDULE

Pending public review of the proposed IA, the IA construction is scheduled to begin in the summer of 2014. A detailed construction schedule will be determined after Ecology's selection of a contractor.

6.0 ECOLOGY PROJECT CONTACTS

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Email: jawh461@ecy.wa.gov

Ecology's website: http://www.ecy.wa.gov/programs/tcp/sites_brochure/asarco/es_main.html

7.0 REFERENCES

ASARCO Inc. 2000. Comprehensive Lowland Area Remedial Investigation Report, Everett Smelter Site, Everett, Washington, Draft. January 2000.

ASARCO Consulting, Inc. 2002. Interim Action Report, Fenced Area Cleanup, Everett Smelter Site; Public Review Draft. December 2002.

ASARCO Consulting, Inc. 2004. Final Design Report, Everett Smelter Site. March 29, 2004.

Ecology, 1999. Everett Smelter Site, Integrated Final Cleanup Action Plan and Final Environmental Impact Statement for the Upland Area. November 19, 1999.

Ecology. 2011. Ecological Soil Screening Levels for Arsenic and Lead in the Tacoma Smelter Plume Footprint and Hanford Site Old Orchards, Publication No. 11-03-006. February 2011.

Hydrometrics, 1995: RI Everett Smelter, Hydrometrics. September 1995.

SAIC, 2010, "Soil Conditions and Data Gap Report, Everett Smelter Site – Lowland Area, Everett, Washington," prepared by Science Applications International Corporation (SAIC) for Ecology, dated September 29, 2010.

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

Projection: NAD 1983 UTM Zone 10N

Vicinity Map

Everett Smelter
Interim Action

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Figure 1

Map Revised: 12 February 2014 cgonzales

Path: \\sea\projects\0\0504068\GIS\MXDs\Report\InterimAction\Figure_1.mxd

Path: \\sea\projects\0\0504068\GIS\MXDs\Report\InterimAction\Figure_2.mxd Map Revised: 12 February 2014 cgonzales

Legend

- Everett Smelter Lowland Area
- Everett Smelter Upland Area
- Former Everett Smelter Facility Boundary

N
W E
S

700 0 700

Feet

Notes:
1. The locations of all features shown are approximate.
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Data Source: GoogleEarth Pro, 2013. Snohomish County GIS, 2012.

Everett Smelter Site

Everett Smelter
Interim Action

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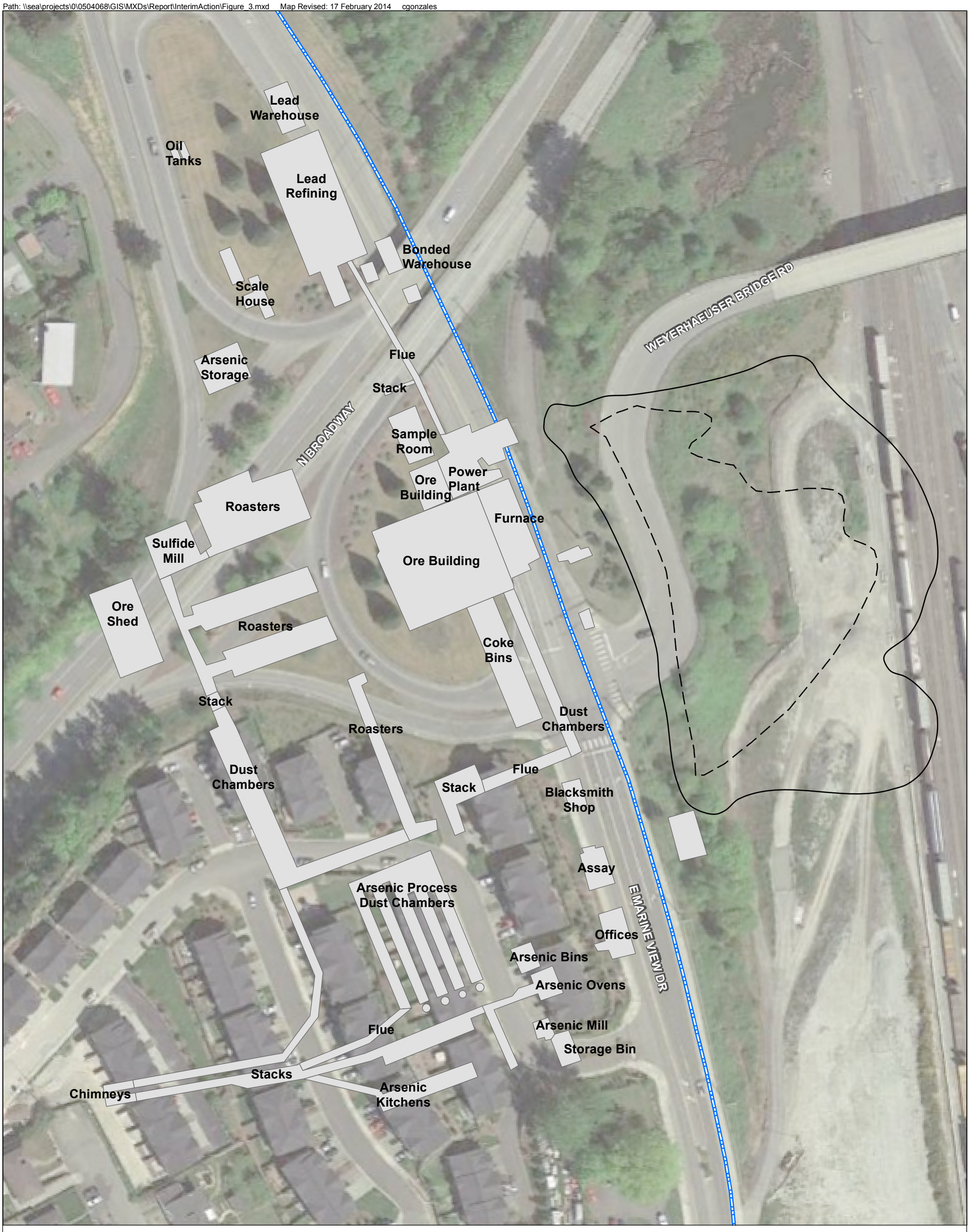
Figure 2

Path: \\sea\projects\0\0504068\GIS\MXDs\Report\InterimAction\Figure_3.mxd Map Revised: 17 February 2014 cgonzales



Legend

- Lowland Area
- Historical Smelter Facility Structure[1]
- Approximate Extent of Slag (1913 Survey by Cutter & Tegtmeier, as shown in Hydrometrics, 1995)[2]
- Approximate Extent of Slag (Estimate by Hydrometrics, 2000)[3]

N
W E
S

100 0 100
Feet

Historical Features

Everett Smelter
Interim Action

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Figure 3

Notes:
1. Based on Sheet 1-2 of the September 1995 "Remedial Investigation Everett Smelter Site," Hydrometrics.
2. Based on Exhibit 4-1 in the January 2000 "Comprehensive Lowland Area Remedial Investigation Report for the Everett Smelter Site," Hydrometrics.
3. The locations of all features shown are approximate.
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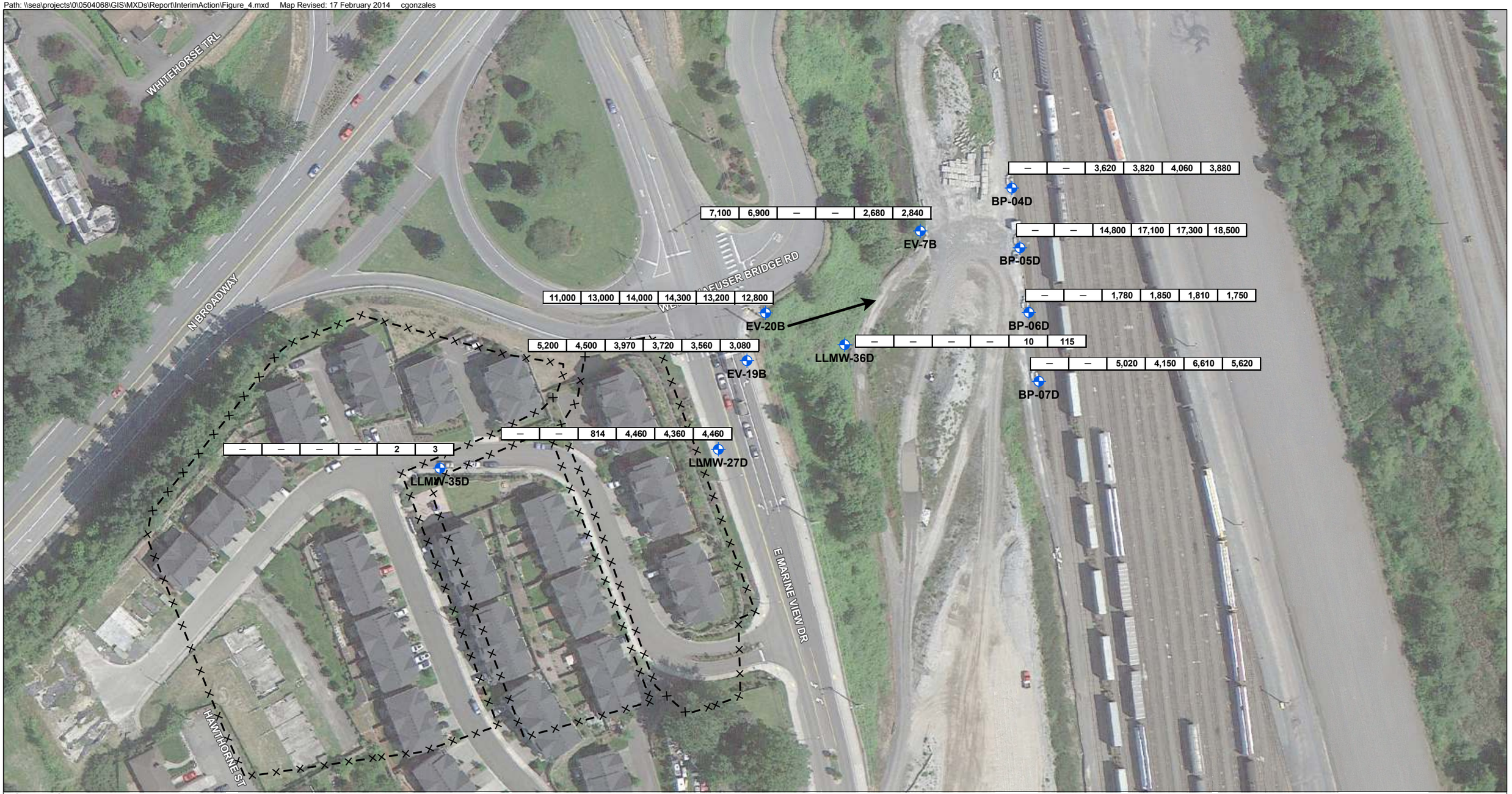
Data Source: GoogleEarth Pro, 2013. Snohomish County GIS, 2012. City of Everett GIS. Washington State Department of Ecology.

Path: \\sea\projects\0\0504068\GIS\MXDs\Report\InterimAction\Figure_4.mxd Map Revised: 17 February 2014 cgonzales



Legend

- Monitoring Well
- Former Fenceline
- Groundwater Flow Direction

Mar-99	Jun-99	Jan-13	Apr-13	Aug-13	Nov-13
5,200	4,500	3,970	3,720	3,560	12,800

Month and Year of Sample
Arsenic in Groundwater (µg/L)

"–" No Sample Collected

Notes:
1.Aerial photo from 2012.
2. Based on Exhibit 4-1 in the January 2000 "Comprehensive Lowland Area Remedial Investigation Report for the Everett Smelter Site," Hydrometrics.
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

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N W E S

100 0 100
Feet

Lowland Area Groundwater Analytical Data for Deep Aquifer

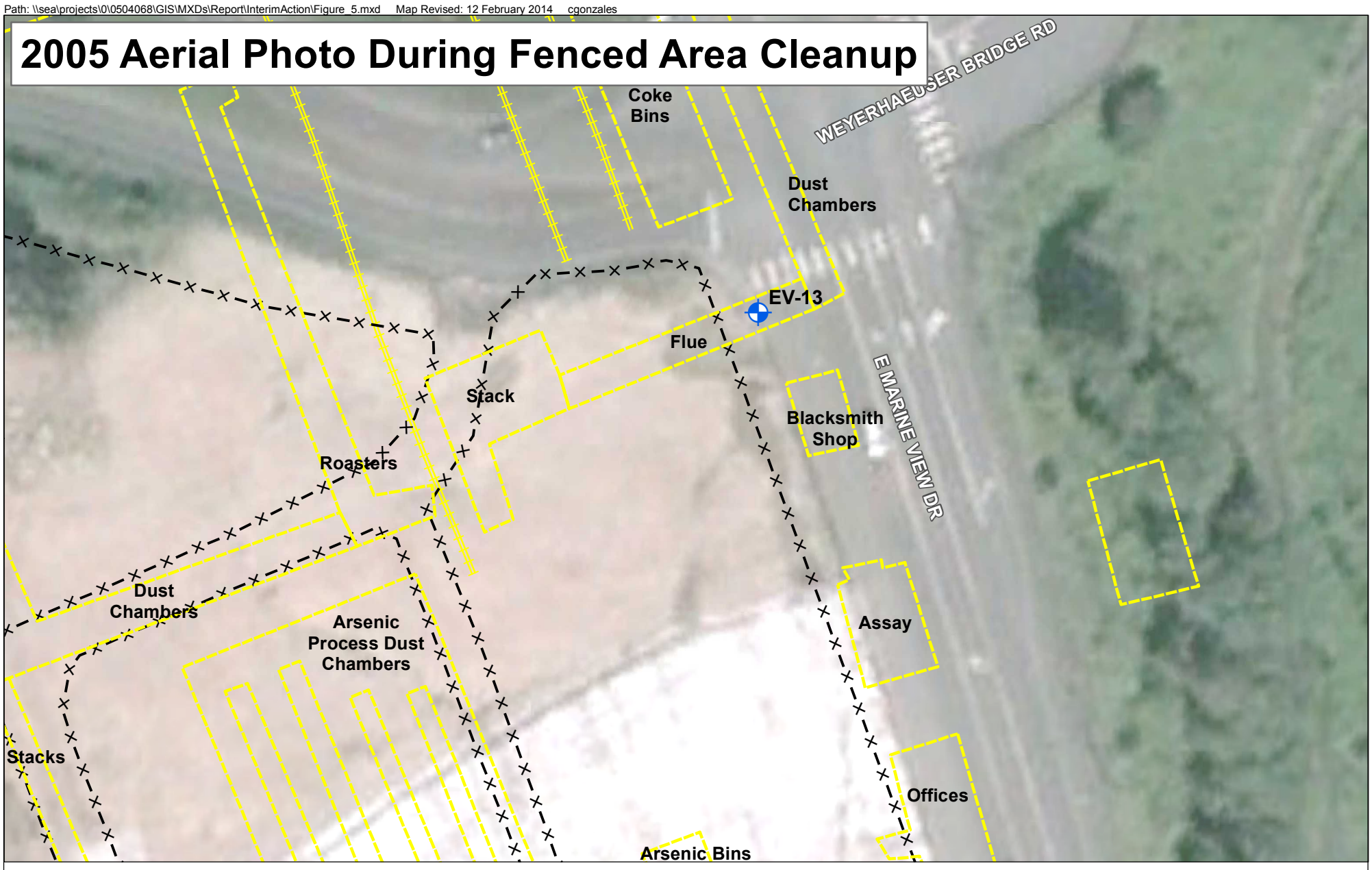
Everett Smelter
Interim Action

GeoEngineers

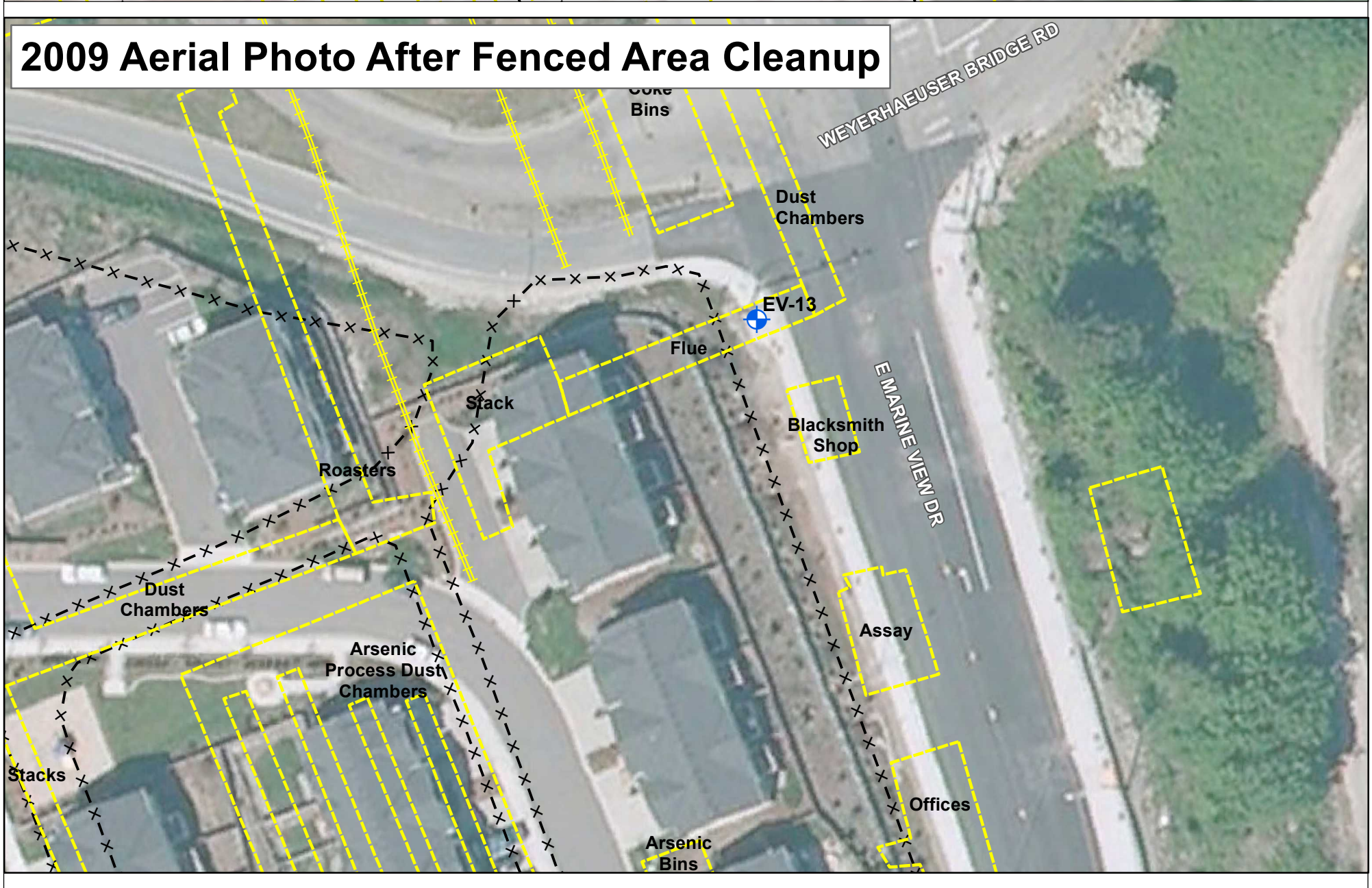
Figure 4

Path: \\sea\projects\0\0504068\GIS\MXDs\Report\InterimAction\Figure_5.mxd Map Revised: 12 February 2014 cgonzales

2005 Aerial Photo During Fenced Area Cleanup



2009 Aerial Photo After Fenced Area Cleanup



Legend

- Monitoring Well
- Former Fenceline
- Historical Structures

N W E S

50 0 50

Feet

Notes:
1. Aerial photos from 2005 shows the extent of Excavation adjacent to E. Marine View Dr. within the Fenced Area. Constistent with the cleanup action reports, the area outside the Fenced Area was not excavated.
2. Aerial photo from 2009 shows road resurfacing and new sidewalk in the general vicinity of monitoring well EV-13.
3. Based on Exhibit 4-1 in the January 2000 "Comprehensive Lowland Area Remedial Investigation Report for the Everett Smelter Site," Hydrometrics.
4. The locations of all features shown are approximate.
5. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

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Conditions During and After Fenced Area Cleanup

Everett Smelter
Interim Action

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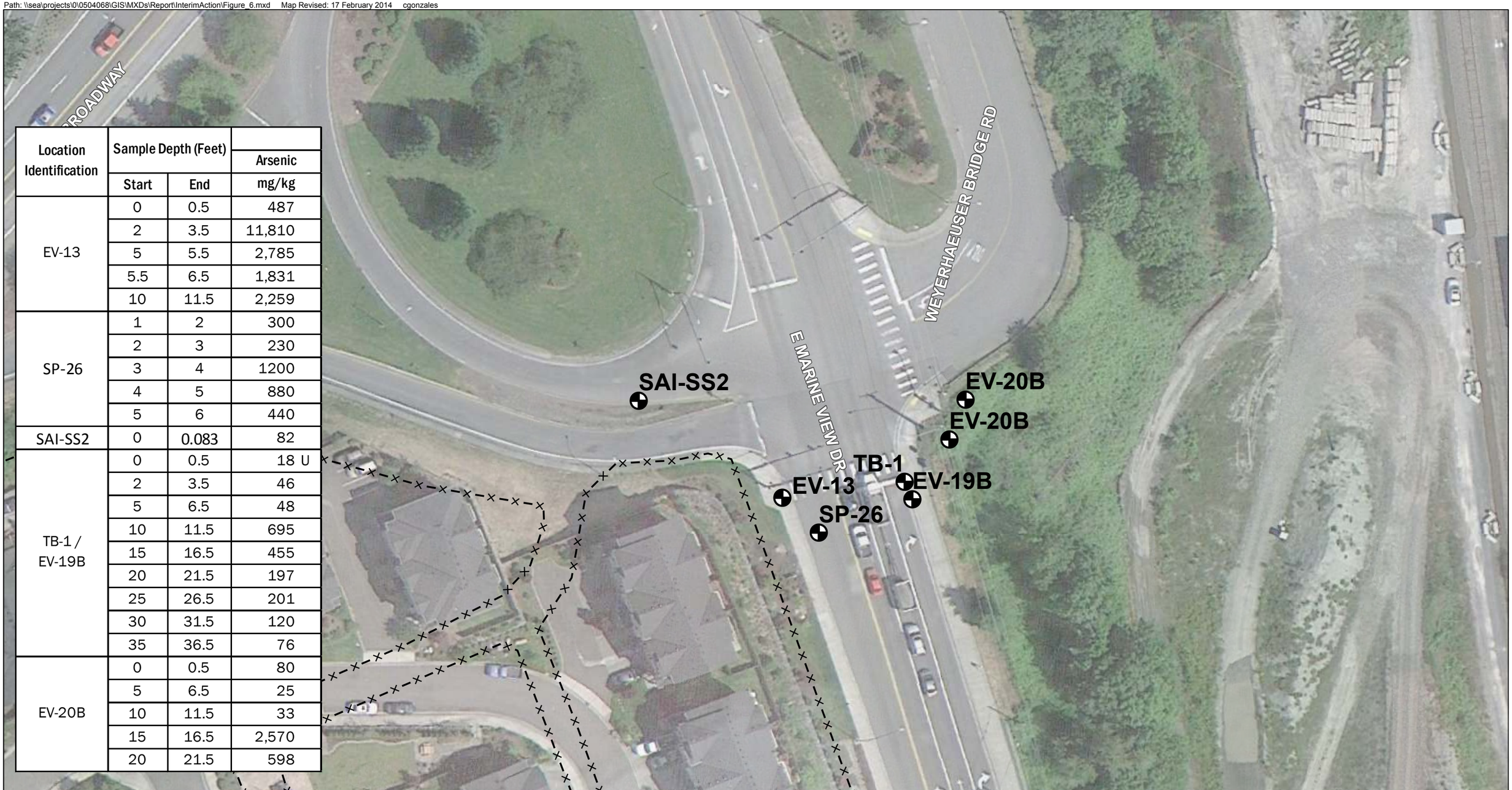
Figure 5

Path: \\sea\projects\0\0504068\GIS\MXDs\Report\InterimAction\Figure_6.mxd Map Revised: 17 February 2014 cgonzales

Location Identification	Sample Depth (Feet)		Arsenic
	Start	End	mg/kg
EV-13	0	0.5	487
	2	3.5	11,810
	5	5.5	2,785
	5.5	6.5	1,831
	10	11.5	2,259
SP-26	1	2	300
	2	3	230
	3	4	1200
	4	5	880
	5	6	440
SAI-SS2	0	0.083	82
TB-1 / EV-19B	0	0.5	18 U
	2	3.5	46
	5	6.5	48
	10	11.5	695
	15	16.5	455
	20	21.5	197
	25	26.5	201
	30	31.5	120
	35	36.5	76
EV-20B	0	0.5	80
	5	6.5	25
	10	11.5	33
	15	16.5	2,570
	20	21.5	598



Legend

Soil Sample Location

Former Fenceline

Notes:
1.Aerial photo from 2012.
2. Based on Exhibit 4-1 in the January 2000 "Comprehensive Lowland Area Remedial Investigation Report for the Everett Smelter Site," Hydrometrics.
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4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

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N W E S

50 0 50
Feet

Soil Analytical Data

Everett Smelter
Interim Action

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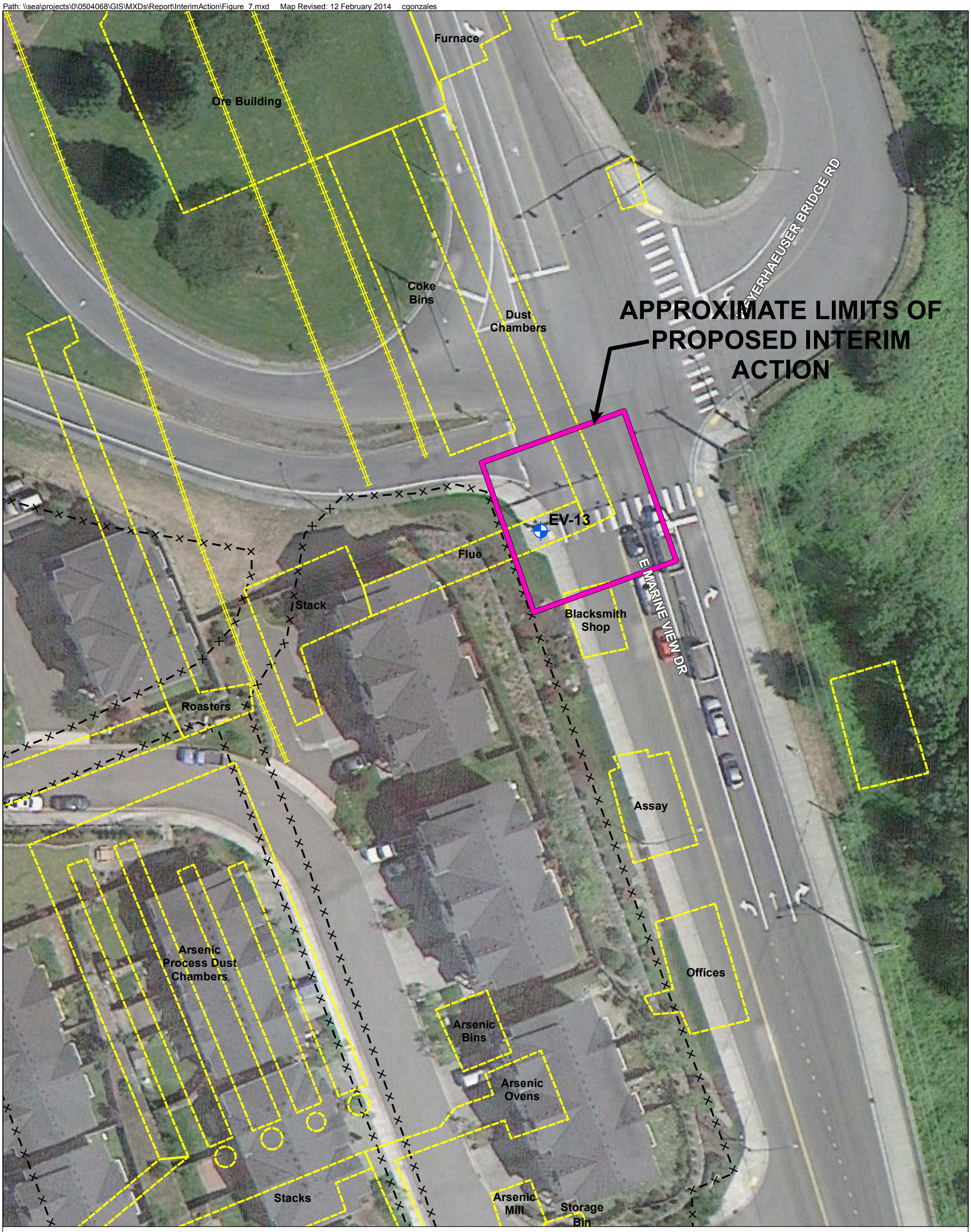
Figure 6

Path: \\sea\projects\0\0504068\GIS\MXDs\Report\InterimAction\Figure_7.mxd Map Revised: 12 February 2014 cgonzales



Legend

- Monitoring Well
- Historical Structures
- Former Fenceline

N W E S

40 0 40

Feet

Notes:
1. Aerial photo from 2012.
2. Based on Exhibit 4-1 in the January 2000 "Comprehensive Lowland Area Remedial Investigation Report for the Everett Smelter Site," Hydrometrics.
3. The locations of all features shown are approximate.
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Proposed Interim Action Excavation Area

Everett Smelter
Interim Action

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Figure 7