Report
Redevelopment Activities: Stabilized Soil Mound Removal and Stormwater System Upgrades Boeing Isaacson Property Tukwila, Washington

March 24, 2009

Prepared for

The Boeing Company
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1.0 INTRODUCTION

This report has been prepared by Landau Associates at the request of The Boeing Company (Boeing), to document redevelopment activities conducted at the Boeing Isaacson property located on East Marginal Way South in Tukwila, Washington (subject property; Figure 1). The redevelopment project was conducted by Clearcreek Contractors of Everett, Washington (Boeing's contractor). The project involved removal of a mound of previously stabilized soil (including the removal and disposal of the asphalt/concrete cap over the excavated area), installation of additional stormwater conveyance and treatment facilities on site, and the repaving of the project area. In addition, this report outlines the permitting and design elements that were completed for the project to comply with the requirements of the Federal Clean Water Act, Chapter 90.48 Revised Code of Washington (RCW), Chapter 173.201A Washington Administrative Code (WAC), Chapter 16.82 King County Code (KCC), and Chapter 16.54 City of Tukwila Municipal Code (TMC).

1.1 SITE BACKGROUND AND DESCRIPTION

The subject property is located at 8625 East Marginal Way South in Tukwila, Washington, in an area of commercial/industrial activity located west of Boeing Field and east of the Duwamish Waterway. The subject property is bounded by Port of Seattle-owned land on the west, followed by the Duwamish Waterway, the Boeing Thompson facility to the south, East Marginal Way South to the east, followed by Boeing Field, and by the Jorgensen Forge Corporation site to the north.

Prior to the excavation activities and stormwater improvements, the subject property was used by Boeing for temporary trailer and container storage. An asphalt-capped soil mound was located in the north-central portion of the property, with an elevation of 20.35 feet (ft) above mean sea level at its highest point. Areas of the subject property outside of the soil mound ranged in elevation between 13 ft and 16 ft above mean sea level. The soil mound resulted from the 1991 excavation and treatment of soil that contained elevated levels of arsenic. The soil was treated using a stabilization process to reduce the leachability of the arsenic. Prior to stabilization, the excavated soil at the subject property was designated as a characteristic waste for arsenic (D004) because toxicity characteristic leaching procedure (TCLP) test results indicated it contained concentrations of arsenic in excess of 5 milligrams per liter (mg/L). The soil did not exhibit any other hazardous waste characteristics and did not contain any listed wastes (ERM 2001). After stabilization, the TCLP arsenic results for the soil were less than the characteristic waste limits. Sampling and analysis of stabilized soil from the mound conducted in January 2008 by Landau Associates confirmed that TCLP arsenic concentrations in the stabilized soil were below the universal treatment standard of 5 mg/L (Landau Associates 2008a).

1.2 SITE GEOLOGY AND HYDROGEOLOGY

The Duwamish River delta changed significantly during the past century, with the most notable changes including the extensive filling of intertidal marsh areas and the channelization of the Duwamish River. Most of the Duwamish Valley marsh area, including the river channel, was filled with material hydraulically dredged to create the Duwamish Waterway. Based on available historical information, including topographic maps, aerial photographs, and Sanborn fire insurance maps, a meander of the Duwamish River formerly flowed in an east-west direction along the southern boundary of the subject property. After channelization of the Duwamish River, a portion of the river channel known as Slip 5 remained on the subject property. The slip was filled in the 1950s and 1960s to support development of the Isaacson property and expansion of the adjacent property to the south (Landau Associates 2008b).

Based on subsurface explorations completed at and in the area of the Isaacson property, soil conditions at the subject property consist of approximately 6.5 to 17.5 ft of fill overlying native tideflat and river deposits, with the thickest layers of fill occurring in the area of the former Slip 5. The fill generally consists of silty sand to sandy gravel. Fill materials within the former Slip 5 area include bricks, wood debris, and slag material (ERM 2002). The native deposits typically consist of fine sand and silty fine sand with silt lenses. The native surficial deposits are characterized by the presence of small in-place roots, wood fragments, and peat, which are indicators of the original ground surface elevation prior to filling. Underlying the silt and silty fine sand is a series of interbedded alluvial sand and silt layers that were deposited within the floodplain of the Duwamish River. Beneath the interbedded alluvial silt and fine sand is a layer of very dark to black, fine to medium sand. This naturally deposited sand is found throughout the Duwamish River Valley and was likely deposited from flood waters (Landau Associates 2008b).

The near-surface groundwater regime within the Duwamish River Valley is generally characterized as a shallow, single aquifer system. The subject property is located approximately 60 ft east of the eastern bank of the Duwamish Waterway, at approximately 14 ft above mean sea level (USGS 1983). Shallow groundwater (generally less than 10 ft below ground surface) is present throughout the Isaacson property area. Based on topography and groundwater investigations conducted in the area of the Isaacson property by Landau Associates and others, the groundwater gradient is generally to the west toward the Duwamish Waterway. Based on previous investigations, the groundwater gradient at the subject property is tidally influenced (ERM 2002; Landau Associates 2008b).

1.3 PROJECT OBJECTIVE

The primary objective of the project was to level the subject property in order to make it suitable for lease, divestiture, redevelopment, or Boeing use. The excavation portion of the project consisted of the removal and disposal of a portion of the stabilized soil mound material and surface soil surrounding the mound to reduce the grade. After the excavation of the mound and surrounding surface soil, the excavation area (including remaining stabilized soil) was recapped with asphalt. Stabilized soil was removed from the subject property only as was required to reduce the mound to the planned grade; therefore, not all stabilized soil was removed from the site. New stormwater treatment and conveyance system improvements were installed as required by the *King County Surface Water Design Manual* (KCDNRP 2005).

2.0 PERMITTING AND DESIGN

The following permitting and design elements were required prior to, during, and after the completion of construction activities:

- State Environmental Policy Act (SEPA) compliance
- City of Tukwila (City) Grading Permit
- Construction Stormwater General Permit.

Additional details on the permitting requirements and the design elements that were required for the project are discussed below.

2.1 STATE ENVIRONMENTAL POLICY ACT CHECKLIST

The mound removal and stormwater improvement project at the subject property met the criteria to qualify for a "planned action" option, which is a streamlined SEPA review process. The SEPA "planned action" review process was available for this project due to a programmatic environmental impact statement (EIS) that was prepared for the redevelopment of Boeing properties within the City's manufacturing industrial center. Landau Associates prepared the documentation required to comply with the SEPA planned action in conformance with WAC 197-11-960 and TMC 21.04, and submitted it to the City. The City issued a notice of decision on September 16, 2008 indicating the project was designated as a SEPA planned action.

2.2 GRADING PERMIT

The grading permit (permit number PW08-140) was issued by the City and became effective on September 24, 2008. A copy of the grading permit is provided in Appendix A. As part of the application for the grading permit, Landau Associates submitted the following elements:

- Stormwater Pollution Prevention Plan (SWPPP)
- Technical Information Report
- Grading and stormwater facility design plans.

These elements are discussed in the following sections.

2.2.1 STORMWATER POLLUTION PREVENTION PLAN

The SWPPP was prepared for this project as required under the National Pollutant Discharge Elimination System (NPDES) construction stormwater general permit. The purpose of the SWPPP was to describe the proposed construction activities and all temporary and permanent erosion and sediment control measures, pollution prevention measures, inspection/ monitoring activities, and recordkeeping that would be implemented during the course of the project.

The SWPPP was designed to:

- Implement Best Management Practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate, or prevent stormwater contamination and water pollution from construction activity
- Prevent violations of surface water quality, groundwater quality, or sediment management standards
- Prevent, during the construction phase, adverse water quality impacts including impacts on beneficial uses of the receiving water by controlling peak flow rates and volumes of stormwater runoff at the Boeing Isaacson property outfalls and downstream of the outfalls.

The SWPPP was prepared by Landau Associates using the Washington State Department of Ecology (Ecology) SWPPP template (Ecology website 2008). The SWPPP was prepared based on the requirements set forth in Ecology's *Stormwater Management Manual for Western Washington* (Ecology 2005). A Transfer of Coverage was submitted to Ecology for the SWPPP on October 8, 2008, transferring control and responsibility of the SWPPP from Boeing/Landau Associates to Boeing/ Clearcreek (the earthwork contractor for the project).

2.2.2 TECHNICAL INFORMATION REPORT

The Technical Information Report prepared by Landau Associates for this project included analyses, evaluations, and modeling results that supported the design for management of stormwater quality (Landau Associates 2008c). The Technical Information Report also presented data and evaluations that meet the requirements of the *King County Surface Water Design Manual* (KCDNRP 2005).

Excavation activities on the subject property were classified by the City as a "redevelopment" project because the project involved altering existing site grades; therefore, upgrades to the stormwater treatment and conveyance system were required per the *King County Surface Water Design Manual*. Stormwater system upgrades are discussed in Section 4.3.

2.2.3 GRADING AND STORMWATER PLANS/ DESIGN

The grading and stormwater design plans (construction drawings) for the project were prepared by Landau Associates, detailing the grading plan and the specifications for the installation of the stormwater treatment and conveyance facilities. The construction drawings were submitted to the City as part of the application for the grading permit on August 4, 2008. The grading permit was issued by the City, effective September 24, 2008. After the completion of construction activities, as-built drawings of the subject property were prepared by Landau Associates. The drawings are provided in Appendix B.

2.3 CONSTRUCTION STORMWATER GENERAL PERMIT

A Construction Stormwater General Permit (CSGP) was required for the project because land disturbing/grading activities were planned for more than 1 acre of land on the subject property. The CSGP coverage became effective on September 18, 2008. The CSGP coverage ended on January 9, 2009. A copy of the CSGP is provided in Appendix C. The steps that were taken to obtain, follow, and close out the CSGP are as follows:

- **Submit a Notice of Intent application to Ecology**. A Notice of Intent (NOI) is the official CSGP application. The NOI was submitted to Ecology by Boeing on July 14, 2008.

- **Publish two public notices indicating project details**. The first public notice was published on July 15, 2008 and the second public notice was published on July 23, 2008; both public notices were published in *The Seattle Times*. There were no public comments received during the 30-day public comment period, which ended on August 22, 2008.

- **Prepare a SWPPP before the start of construction**. As discussed in Section 2.2.1, the SWPPP was prepared by Landau Associates prior to the start of construction.

- **Submit a Transfer of Coverage notice to Ecology**. As discussed in Section 2.2.1., a notice of Transfer of Coverage was submitted to Ecology on October 8, 2008, to transfer control and responsibility of the SWPPP from Boeing/Landau Associates to Boeing/Clearcreek.

- **Conduct monitoring, recordkeeping, and submit reports to Ecology**. The designated Certified Erosion and Sediment Control Lead (CESCL) was provided by Clearcreek. The CESCL's responsibilities included the monitoring of stormwater (pH, turbidity, and total arsenic content), inspection of BMPs, recording and reporting the results, and sending Discharge Monitoring Reports to Ecology on a monthly basis. The weekly monitoring records are provided in Appendix D. Laboratory data are provided in Appendix E.

- **Submit a Notice of Termination to Ecology**. A Notice of Termination was submitted to Ecology on January 9, 2009, after all paving activities had been completed, all construction-related stormwater had been discharged or disposed of, and all temporary BMPs had been removed.

3.0 SITE PREPARATION ACTIVITIES

Prior to the start of excavation activities associated with the mound removal and stormwater conveyance upgrades, the following activities were completed:

- Underground utility locate
- Perimeter soil characterization
- Monitoring well abandonment
- Water treatment system installation.

These site preparation activities are discussed further below.

3.1 UNDERGROUND UTILITY LOCATE

Prior to excavation activities, Clearcreek arranged for public and private underground utility locates to identify potential subsurface utilities within the excavation area. With the exception of the King County storm drain line on the northern side of the excavation (Figure 2), no utilities were identified within the excavation area.

3.2 PERIMETER SOIL CHARACTERIZATION

Prior to construction activities, 20 shallow soil samples were collected from portions of the planned construction area located outside of the stabilized soil mound (sample locations are shown on Figure 2). The samples were collected using direct-push sampling methodology. The samples were analyzed for total arsenic and TCLP arsenic to determine if the non-stabilized soil would meet requirements for disposal as non-hazardous solid waste. As indicated in Table 1, the maximum detected concentration of TCLP arsenic was 0.76 mg/L, which is below the 5.0 mg/L toxicity threshold criterion for classification as dangerous waste. It was therefore determined that soil removed from outside of the stabilized soil mound area could be disposed of as solid waste along with the stabilized soil.

3.3 MONITORING WELL ABANDONMENT

Groundwater monitoring well PZ-5, located within the planned excavation limits, was permanently abandoned on August 20, 2008. The former location of PZ-5 is shown on the Storm Drainage Plan and Profile (Appendix B). Abandonment activities were performed by a licensed well driller (ESN Northwest) and overseen by a Landau Associates field representative under the direction of a professional engineer, in accordance with WAC 173-160-460. The monitoring well was abandoned by

removing the PVC pipe and backfilling the hole with bentonite chips. A copy of the well abandonment log was submitted to Ecology and is provided in Appendix F.

3.4 WATER TREATMENT SYSTEM INSTALLATION

Prior to excavation of the stabilized soil mound, a water treatment system was installed to temporarily contain and treat stormwater originating on site during construction activities. Stormwater flowing into the onsite catch basins during construction activities was tested and, if necessary, treated before being discharged to the storm drain outlet, as described in the SWPPP. All stormwater collected during construction activities was tested for pH, turbidity, and total arsenic prior to discharge to ensure compliance with all applicable regulations. Initially, the treatment system included two separate treatment components, one for treating stormwater that originated from the eastern side of the subject property and one for treating stormwater that originated from the western side of the property. Both treatment components were comprised of the following elements: multiple catch basins (with Ultra-DrainGuard® inserts) connected to a CONTECH® Vortechs® vault (Vortechs vault) with an inflatable plug to prevent unintended discharges to the storm drain inlet; a Pioneer pump to transfer water from the Vortechs vault to the first Baker tank (used for sedimentation and the location where samples were taken to conduct pH and turbidity tests); and another Pioneer pump to transfer water from the first Baker tank to the second Baker tank (where arsenic samples were collected) after sedimentation was successful. Following the first turbidity tests on samples from the first batch of stormwater (in the first Baker tank on both the eastern and western side of the subject property), it became apparent that additional treatment would be necessary to meet the turbidity threshold requirements detailed in the SWPPP. Additional Baker tanks were also needed for increased stormwater storage capacity; due to rainfall events, the initial temporary stormwater storage capacity was nearly reached.

In order to meet turbidity threshold requirements, Clearcreek installed a new treatment system, which, like the first treatment system, was comprised of multiple catch basins connected to two Vortechs vaults (an eastern Vortechs vault and a western Vortechs vault). However, the new treatment system varied from the first system in that all stormwater pumped from the eastern and western vaults was pumped to a common set of eight Baker tanks. The first five Baker tanks were used for the initial storage of stormwater. All five Baker tanks were plumbed together to allow stormwater to rise and fall in all five tanks simultaneously. Stormwater was then pumped through a Rain For Rent filtration system (to reduce turbidity) into the sixth Baker tank, where it was then tested for turbidity and pH. If additional tests indicated that the turbidity of the stormwater was still above the turbidity threshold, then the stormwater was cycled between the sixth Baker tank and the Rain For Rent filtration system for 3 to 7 hours in order to pass the turbidity requirements outlined in the SWPPP. The Rain For Rent filtration system included

one 1-micron filter and two 0.5-micron filters. Stormwater was then pumped to the seventh or eighth Baker tanks for temporary storage until the analytical results for total arsenic were available. Once analytical results indicated that total arsenic was below the threshold detailed in the SWPPP, stormwater was discharged to the storm drain inlet, where it ultimately flowed out to the Duwamish Waterway via an outfall on the western side of the Boeing Thompson property (adjacent to the southern boundary of the Isaacson property).

4.0 CONSTRUCTION ACTIVITIES

Construction activities at the subject property included the following elements:

- Mound removal activities
- Post-excavation soil sampling
- Stormwater system upgrades.

4.1 MOUND REMOVAL

As described below, activities involved with the removal of stabilized, mounded material included excavation of material, material disposal, and air quality monitoring.

4.1.1 EXCAVATION ACTIVITIES

Soil excavation was conducted by Clearcreek and commenced on September 29, 2008. Clearcreek used one Hitachi 330 and two Hitachi 200 excavators to load treated material, soil, and pavement into dump trucks and shipping containers. Clearcreek used D-8 and D-9 Caterpillar bulldozers to break up the treated material, the Hitachi excavators to break up the asphalt, and a hydraulic breaker mounted on a Caterpillar 236B skid steer loader to break up concrete so that it could be loaded into the dump trucks and shipping containers. Boeing contracted with Philip Services Corporation (PSC) to provide transportation and coordinate disposal of treated and untreated soil, asphalt, and concrete. The area of the excavation was 4.6 acres and the lateral limits of the excavation are shown on Figure 2. In the area of the stabilized soil mound, soil was removed to a maximum depth of approximately 6 ft below ground surface (BGS). In the area surrounding the mound, only the asphalt or concrete and base course material was removed, with the exception of the areas where soil was excavated to install the two Vortechs vaults, the three new catch basins, and the new stormwater conveyance lines. A total of 25,116 tons of soil (5,626 tons of unstabilized soil and 19,490 tons of treated/stabilized material) were excavated from the subject property. In addition, 60 loads of concrete and 179 loads of asphalt were removed from the surface of the excavated area and recycled off site.

As previously stated, the treated material was stabilized in 1991 to prevent leaching of arsenic into the underlying soil and groundwater. The stabilization process resulted in the material being extremely hard and difficult to break up. Initially, the rippers of a D-8 Caterpillar bulldozer (D-8) were used to break up the stabilized material so that it could be loaded into the dump trucks and/or shipping containers; however, after the first week of excavation it became apparent that the D-8 was not powerful

enough to efficiently break up the material. Beginning the week of October 6, 2008, a D-9 Caterpillar bulldozer (D-9) was delivered to the subject property to replace the D-8.

Clearcreek stripped and loaded the asphalt and concrete directly into dump trucks. Once a significant area of treated material was exposed, bulldozers were used to break up and loosen the treated material. The treated material and soil were then loaded by one of the three excavators into the dump trucks or shipping containers. The pavement was stripped in approximately 20-ft-wide sections, starting from the western side of the project area and moving toward the east. This excavation plan allowed trucks to travel up the slope of the mound at a safe angle that prevented trucks from rolling over. In addition, this excavation plan allowed trucks to remain on paved surfaces at all times, thereby reducing the amount of soil tracked around and off the site, and minimized the amount of soil exposed at any given time.

A vein of tar-like substance was excavated from the project area. The tar-like substance was discovered outside of the stabilized soil perimeter on the northern side of the excavation for the eastern Vortechs vault, at a depth of approximately 1.5 ft BGS (Figure 2). The extent of the tar-like substance is not known, as excavation of the material was completed before the substance was identified; however, the vein appeared to be approximately 6 inches thick and approximately 3 ft wide. A sample of the tar-like substance (IMR-1-081003) was collected and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and extended diesel-range total petroleum hydrocarbons (TPH-Dx). Polycyclic aromatic hydrocarbons (PAHs) and diesel-range and motor oil-range petroleum hydrocarbons (TPH) were detected at concentrations above the laboratory reporting limits. The analytical data are included in Appendix E. No excavation other than that required for installation of the Vortechs vault was conducted in this area.

4.1.2 MATERIALS DISPOSAL

Asphalt, concrete, soil, and treated material were transported for disposal by trucking companies (ISI Trucking and PGH Trucking) that had been subcontracted by PSC. Daily, before entering the subject property, the truck drivers and their trucks and trailers or shipping containers were subject to Boeing inspection protocols at the inspection gate. Excavated material was transported to Lafarge, Inc. (soil), located at 5400 West Marginal Way SW, Seattle, Washington; Stoneway Rock and Recycling, Inc. (asphalt and concrete), located at 510 Monster Road in Renton, Washington; and Rabanco Company's Allied Waste Recycling Center (stabilized soil), located at 2733 3rd Avenue South, Seattle, Washington. The number of dump trucks and/or shipping containers used on any given day depended on the available capacity for material at the Allied Waste Recycling Center.

4.1.3 AIR QUALITY MONITORING

Clearcreek conducted air monitoring at downwind perimeter locations at the subject property. In addition, personal protective air monitoring was conducted on all Clearcreek personnel that performed activities within the excavation area. Samples were analyzed for arsenic by National Institute of Occupational Safety and Health (NIOSH) Method 7300 by NVL Labratories, Inc. Laboratory analytical results for perimeter air monitoring and personal protective air monitoring all indicated that levels of arsenic were below the reporting limit (Table 2; Appendix E).

Throughout the course of the project, a Landau Associates field representative and Clearcreek personnel monitored onsite dust levels. As needed, Clearcreek personnel swept the site to control dust. In addition, Clearcreek subcontracted a large vacuum sweeper to clean the paved surfaces, as needed. Clearcreek also provided a water truck to dampen the paved surfaces and excavated material, as needed, to prevent dust plumes. The water truck was filled with water from the fire hydrant located on the Boeing Thompson property (adjacent to the south).

4.2 POST-EXCAVATION SOIL SAMPLING

Soil samples were taken at 16 locations evenly distributed throughout the excavated area to document soil conditions at the surface of the finished grade of the excavated area. All soil samples were analyzed for total Resource Conservation and Recovery Act (RCRA) metals. In addition, although no field indications of petroleum contamination were observed during excavation, one soil sample was analyzed for TPH-Dx because diesel-range petroleum hydrocarbons were detected in samples from test pits in the soil mound area prior to mound removal. The locations of the soil samples are indicated on Figure 2. The analytical results are presented in Table 3 and the laboratory analytical reports are included in Appendix E.

4.3 STORMWATER SYSTEM UPGRADES

As described in Section 2.2.2, excavation activities on the subject property were classified by the City as a “redevelopment”; therefore, upgrades to the stormwater treatment and conveyance system were required. All stormwater system upgrades were completed at the beginning of the project (October 2008) to control and treat stormwater runoff during construction activities. The upgrades included the installation of two Vortechs vaults, one on the southeastern side of the project area and the other on the western side of the project area (Figure 2). The size and placement of the vaults were chosen based on estimated calculations for peak stormwater flow through the vaults (refer to the Technical Information Report for further details on analyses, evaluations, and modeling results; Landau Associates 2008c).

Additional stormwater upgrades included three new catch basins; three new sections of stormwater conveyance line (a total of approximately 497 linear ft) connecting all onsite catch basins to the eastern or western Vortechs vaults; and the removal of approximately 320 linear ft of stormwater conveyance lines and catch basin number (CB No.) 15 associated with the old stormwater conveyance system based on the previous grade of the site. Prior to placement of the stormwater system components, the base of excavations and trenches was compacted to meet design specifications. Compaction testing was conducted by Mayes Testing Engineers, Inc. (Mayes). Installation of the stormwater system components was observed by the City. For design specifications of the new Vortechs vaults, catch basins, and stormwater conveyance lines refer to the Technical Information Report (Landau Associates 2008c). For a description of locations of the Vortechs vaults and catch basins and installation specifications for the stormwater conveyance lines, refer to the Storm Drainage Plan and Profile in Appendix B.

5.0 SITE RESTORATION

Final restoration of the project area involved filling with gravel base course material, grading and compacting the base course, and then repaving the excavated area. Gravel base course material was transported to the site by Clearcreek. At least 9 inches of base course was placed over the surface of the excavated area. Clearcreek then roughly leveled the base course using a Deere 650 bulldozer and compacted the base course using a Vibromax VM 116 roller. Final leveling and compacting were performed by Lakeside Industries, Inc. (Lakeside), subcontracted by Clearcreek. Lakeside personnel first leveled the excavated area using a Champion C86A grader and then compacted the excavated area using a Vibromax roller. After final leveling and compacting, compaction testing was conducted by Mayes to ensure that at least 95 percent compaction was achieved, in accordance with the construction plans. After Clearcreek received notification from Mayes that the compaction results indicated at least 95 percent compaction, Lakeside personnel used a Caterpillar track asphalt paver to apply the first and second layers of asphalt. Lakeside completed the paving in two 2-inch lifts for a total of 4 inches of asphalt. A total of five paving events were conducted to cap the excavated area with asphalt and apply the second layer. Multiple paving events minimized the amount of soil that was exposed to stormwater runoff; thereby reducing the amount of temporary stormwater holding capacity needed.

Three King County storm drain manholes are present within the northern side of the excavated area. All excavation and site restoration activities were performed around the perimeter of the manholes to avoid impact to the manholes.

6.0 SUMMARY AND CONCLUSIONS

Construction activities at the subject property included the installation of stormwater treatment and conveyance system upgrades and the leveling of the site in order to make it suitable for lease, divestiture, redevelopment, or Boeing use. All stormwater system upgrades and site grading activities were completed in accordance with the construction plans.

The stormwater upgrades included the installation of two CONTECH Vortechs vaults, three new catch basins, three new sections of stormwater conveyance line (a total of approximately 497 linear ft), and the removal of approximately 320 linear ft of stormwater conveyance lines and catch basin number (CB No.) 15 associated with the old stormwater conveyance system.

A total of 25,116 tons of material (5,626 tons of unstabilized soil and 19,490 tons of treated/ stabilized material) was excavated and transported off site for disposal. In addition, 60 loads of concrete and 179 loads of asphalt were removed and transported off site for recycling. Following excavation activities, post-excavation soil samples were collected and analyzed to document soil conditions at the base of the excavation and the project area was repaved. The final grade of the project area and the current stormwater system configuration are shown on the as-built drawings in Appendix B.

7.0 USE OF THIS REPORT

This summary report has been prepared for the exclusive use of Boeing for specific application to the Isaacson property in Tukwila, Washington. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

This document has been prepared under the supervision and direction of the following key staff.

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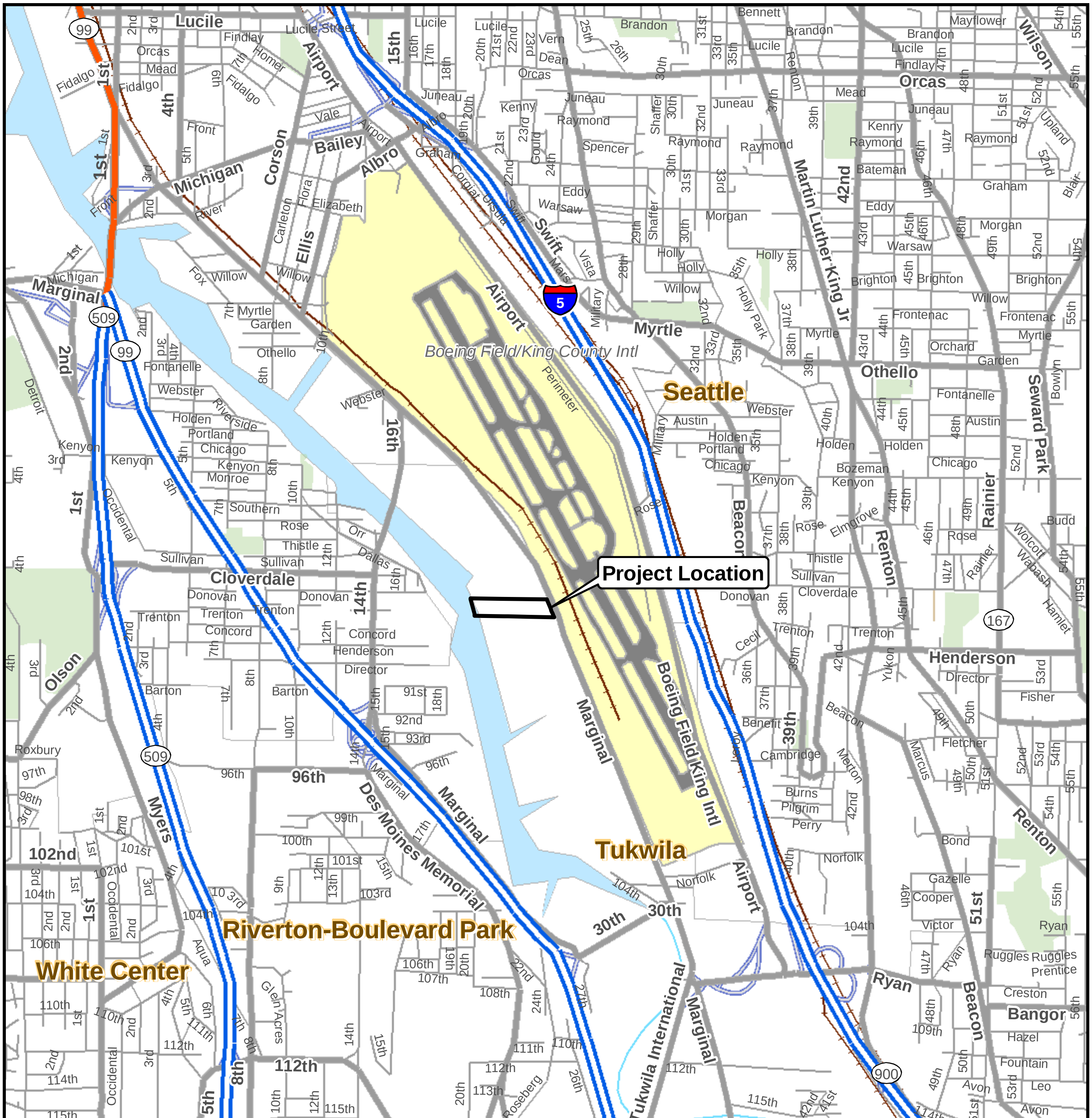

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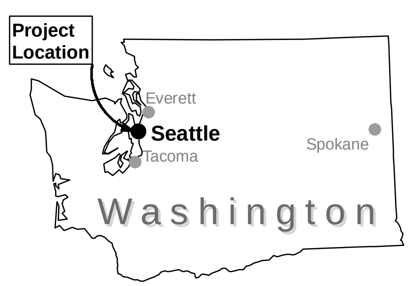

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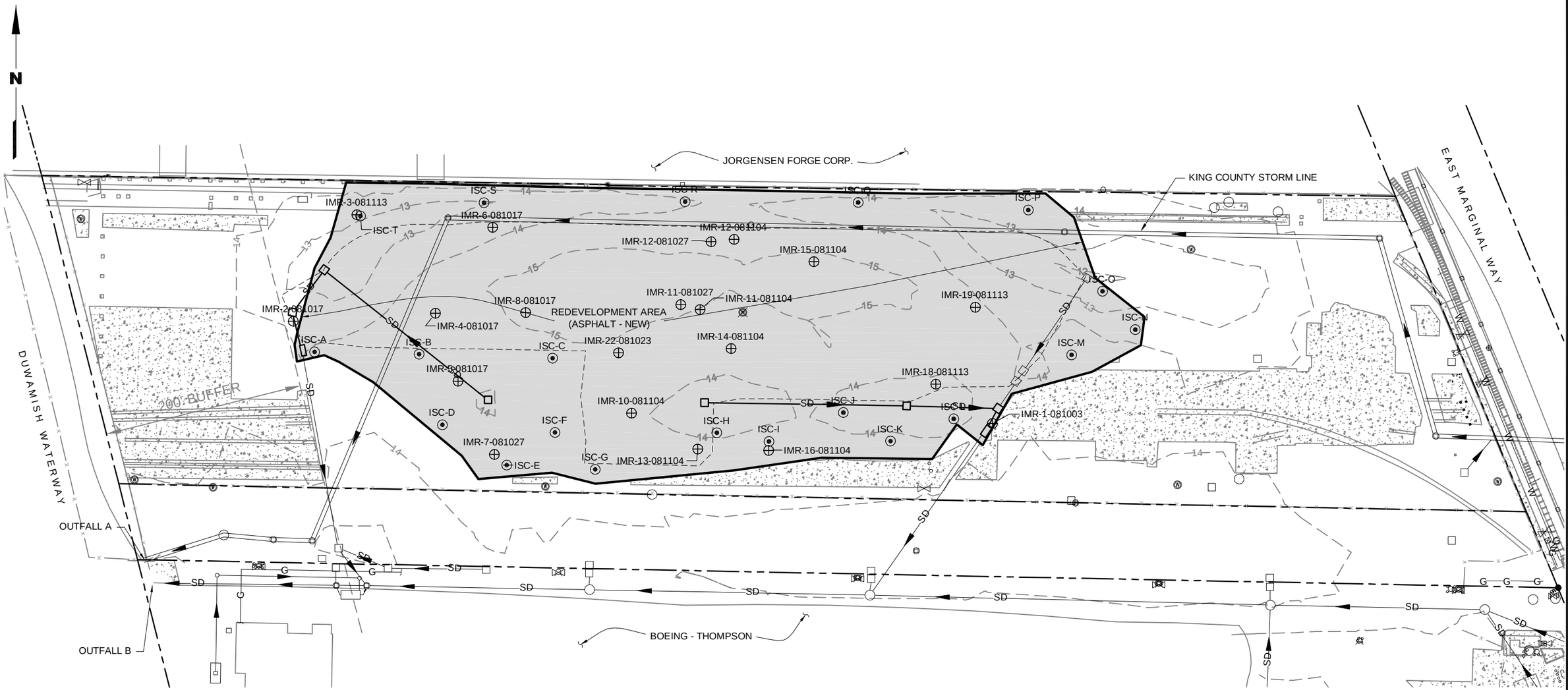
Boeing Isaacson Mound Removal Tukwila, Washington	**Vicinity Map**	Figure 1



LEGEND

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- MONITORING WELL
- MONITORING WELL (ABANDONED)
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- ASPHALT CAPPED MOUND (REMOVED)
- CONTOURS
- ASPHALT (NEW)

Adapted from: Storm Drainage Plan (As-Built) Dwg No. 14-YD-C454, 1/21/2009

0 100 200
Scale in Feet

LANDAU ASSOCIATES

Boeing Isaacson Mound Removal Tukwila, Washington	**Site and Exploration Plan**	Figure **2**

Report | V:\0251\173080\Fig2.dwg (A) "Figure 2" 3/24/2009

TABLE 1
PERIMETER SOIL ANALYTICAL RESULTS
BOEING ISAACSON PROPERTY
TUKWILA, WASHINGTON

Location	Lab ID	Date Collected	Total Arsenic (mg/kg)	TCLP Arsenic (mg/L)
ISC-A	0808104-01	8/20/2008	5.0 U	0.04 U
ISC-B	0808104-02	8/20/2008	5.0 U	0.04 U
ISC-C	0808104-03	8/20/2008	5.0 U	0.04 U
ISC-D	0808104-04	8/20/2008	5.0 U	0.04 U
ISC-E	0808104-05	8/20/2008	5.0 U	0.04 U
ISC-F	0808104-06	8/20/2008	5.5	0.04 U
ISC-G	0808104-07	8/20/2008	6.2	0.04 U
ISC-H	0808104-08	8/20/2008	160	0.43
ISC-I	0808104-09	8/20/2008	14	0.04 U
ISC-J	0808104-10	8/20/2008	120	0.26
ISC-K	0808104-11	8/20/2008	150	0.34
ISC-L	0808104-12	8/20/2008	390	0.72
ISC-M	0808104-13	8/20/2008	5.0 U	0.04 U
ISC-N	0808104-14	8/20/2008	5.0 U	0.04 U
ISC-O	0808104-15	8/20/2008	270	0.67
ISC-P	0808104-16	8/20/2008	9.2	0.04 U
ISC-Q	0808104-17	8/20/2008	63	0.04 U
ISC-R	0808104-18	8/20/2008	5.0 U	0.04 U
ISC-S	0808104-19	8/20/2008	13	0.04 U
ISC-T	0808104-20	8/20/2008	480	0.76

U = Indicates the compound was undetected at the reported concentration.

TABLE 2
PERIMETER AIR QUALITY AND PERSONAL AIR MONITOR ANALYTICAL RESULTS
BOEING ISAACSON PROPERTY
TUKWILA, WASHINGTON

Date	Method	COC	Type	Air Volume (L)	Time (min)	Results (µg/m^3)
9/29/2008	NIOSH 7300	Arsenic	Personal	443	300	4.5 U
9/30/2008	NIOSH 7300	Arsenic	Personal	623	420	3.2 U
10/6/2008	NIOSH 7300	Arsenic	Personal	927	450	2.2 U
10/6/2008	NIOSH 7300	Arsenic	Personal	689	450	2.9 U
10/8/2008	NIOSH 7500	Silica	Personal	758	450	BDL
10/8/2008	NIOSH 7300	Arsenic	Area	794	450	2.5 U

U = Indicates the compound was undetected at the reported concentration.

BDL = Below detection limit.

TABLE 3
POST-EXCAVATION SOIL SAMPLE ANALYTICAL RESULTS
BOEING ISAACSON PROPERTY
TUKWILA, WASHINGTON

	IMR-2 NVO7A 10/17/2008	IMR-3 OA02A 11/13/2008	IMR-4 NVO7B 10/17/2008	IMR-5 NVO7C 10/17/2008	IMR-6 NVO7D 10/17/2008	IMR-7 NW45A 10/27/2008	IMR8 NVO7E 10/17/2008	IMR-10 NY11A 11/4/2008	IMR-11 NW45B 10/27/2008	IMR-11 NY11B 11/4/2008	IMR-12 NW45C 10/27/2008
TOTAL METALS (mg/kg)											
Arsenic	5 U	**294**	**1,120**	**8**	**2,440**	5 U	**253**	**38**	**524**	**439**	**1,780**
Barium	**48.0**	**95.5**	**153**	**61.5**	**78.6**	**31.4**	**57.8**	**30.1**	**85.0**	**46.6**	**93**
Cadmium	0.2 U	**1.6**	**3.1**	**0.6**	**5.6**	0.2 U	**1.0**	**0.3**	**1.4**	**1.6**	**3.1**
Chromium	**19.5**	**65.8**	**55**	**41.2**	**19.7**	**21.3**	**26.4**	**24.4**	**38.6**	**22.9**	**116**
Lead	2 U	**126**	**136**	**56**	**26**	2 U	**44**	2 U	**114**	**40**	**46**
Mercury	0.04 U	**1.44**	**0.46**	**0.10**	**0.68**	0.05 U	**0.81**	0.04 U	**1.82**	**1.12**	**0.70**
Selenium	5 U	6 U	20 U	5 U	6 U	5 U	5 U	5 U	6 U	6 U	20 U
Silver	0.3 U	0.4 U	0.9 U	0.3 U	0.4 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1 U
NWTPH-Dx (mg/kg)											
Diesel	NA	NA	NA	NA	**17**	NA	NA	NA	NA	NA	NA
Motor Oil	NA	NA	NA	NA	**61**	NA	NA	NA	NA	NA	NA

TABLE 3
POST-EXCAVATION SOIL SAMPLE ANALYTICAL RESULTS
BOEING ISAACSON PROPERTY
TUKWILA, WASHINGTON

	IMR-12 NY11C 11/4/2008	IMR-13 NY11D 11/4/2008	IMR-14 NY11E 11/4/2008	IMR-15 NY11F 11/4/2008	IMR-16 NY11G 11/4/2008	IMR-18 OA02B 11/13/2008	IMR-19 OA02C 11/13/2008
TOTAL METALS (mg/kg)							
Arsenic	**485**	**77**	**70**	**919**	**30**	**397**	**383**
Barium	**61.4**	**75.1**	**157**	**84.2**	**253**	**40.8**	**78.5**
Cadmium	**1.6**	**1.3**	**1.9**	**3.0**	**15**	**1.5**	**1.8**
Chromium	**25.1**	**52.0**	**109**	**19.5**	**536**	**14.6**	**30.9**
Lead	**36**	**86**	**273**	**51**	**1210**	**24**	**87**
Mercury	**0.12**	**0.21**	**0.33**	**0.80**	**0.06**	**0.16**	**0.69**
Selenium	6 U	6 U	10 U	7 U	30 U	6 U	6 U
Silver	0.4 U	0.3 U	0.9 U	0.4 U	**2**	0.3 U	0.4 U
NWTPH-Dx (mg/kg)							
Diesel	NA	NA	NA	NA	NA	NA	NA
Motor Oil	NA	NA	NA	NA	NA	NA	NA

Bold indicates detected compound.
U = Indicates the compound was undetected at the reported concentration.
NA = Not analyzed.

APPENDIX A

Grading Permit

City of Tukwila

Department of Public Works
6300 Southcenter Boulevard, Suite #100
Tukwila, Washington 98188
Phone: 206-433-0179
Fax: 206-431-3665
Web site: *http://www.ci.tukwila.wa.us*

PUBLIC WORKS CONSTRUCTION PERMIT

Parcel No.: **0001600014**
Address: **8811 EAST MARGINAL WY S TUKW**
Suite No:
Location:

Permit Number: PW08-140
Issue Date: 09/24/2008
Permit Expires On: 03/23/2009

Tenant:
Name: **THE BOEING COMPANY**
Address: 8811 EAST MARGINAL WY S ,

Owner:
Name: **BOEING COMPANY THE** Phone:
Address: PROPERTY TAX DEPT , PO BOX 3707 M/C 20-00 98124

Contact Person:
Name: **KATIE LEWIS, BOEING ENVIRONMENT H&S** Phone: (206)579-2110
Address: PO BOX 3707 M/C 86-34 , SEATTLE WA 98124

Contractor:
Name: **CLEARCREEK CONTRACTORS INC** Phone: (425)252-5800
Address: 3203 15TH STREET , EVERETT WA 98201
Contractor License No: CLEARCI997K1 **Expiration Date:** **05/24/2010**

DESCRIPTION OF WORK:
Boeing Issacson site :REMOVAL OF ASPHALT-CAPPED SOIL MOUND OF TREATED ARSENIC-IMPACTED SOIL, TOGETHER WITH HAULING, STORM DRAINAGE IMPROVEMENTS AND REPAVING. THE SOIL IN THE MOUNT WAS PREVIOUSLY STABILIZED TO PREVENT LEACHING OF ARSENIC, AND TEST RESULTS INDICATE THAT THE SOIL IS A NON-HAZARDOUS SOLID WASTE. ACCESS IS PROVIDED VIA GATE 14-11 ON THE BOEING THOMPSON PROPERTY (KC PARCEL No. 0007400033) @ 8811 E MARGINAL WAY SOUTH WHICH IS IMMEDIATELY TO THE SOUTH OF THE ISAACSON PROPERTY.

Value of Construction: $0.00 Fees Collected: $47,797.25

Public Works Activities:

Channelization / Striping:	N				
Curb Cut / Access / Sidewalk / CSS:	N				
Fire Loop Hydrant:	N	Number:	0	Size (Inches):	0
Flood Control Zone:	N				
Hauling:	Y	Start Time:		End Time:	
Land Altering:	Y	Volumes:	Cut 20350 c.y.	Fill 4350 c.y.	
Landscape Irrigation:	N				
Moving Oversize Load:	N	Start Time:		End Time:	
Sanitary Side Sewer:	N	Number:	0		
Sewer Main Extension:	N	Private:	N	Public:	N
Storm Drainage:	Y				
Street Use:	N	Profit:	N	Non-Profit:	N
Water Main Extension:	N	Private:	N	Public:	N
Water Meter:	N				

** Continued Next Page **

City of Tukwila

Department of Public Works
6300 Southcenter Boulevard, Suite #100
Tukwila, Washington 98188
Phone: 206-433-0179
Fax: 206-431-3665
Web site: *http://www.ci.tukwila.wa.us*

Permit Number: PW08-140
Issue Date: 09/24/2008
Permit Expires On: 03/23/2009

Permit Center Authorized Signature: Tammie Wall Date: 09/24/08

I hereby certify that I have read and examined this permit and know the same to be true and correct. All provisions of law and ordinances governing this work will be complied with, whether specified herein or not.

The granting of this permit does not presume to give authority to violate or cancel the provisions of any other state or local laws regulating construction or the performance of work. I am authorized to sign and obtain this construction permit.

Signature: Tim L. Syverson Date: 9/24/08

Print Name: Tim L. Syverson

This permit shall become null and void if the work is not commenced within 180 days from the date of issuance, or if the work is suspended or abandoned for a period of 180 days from the last inspection.

City of Tukwila

Department of Community Development
6300 Southcenter Boulevard, Suite #100
Tukwila, Washington 98188
Phone: 206-431-3670
Fax: 206-431-3665
Web site: *http://www.ci.tukwila.wa.us*

PERMIT CONDITIONS

Parcel No.:	**0001600014**	Permit Number:	**PW08-140**
Address:	**8811 EAST MARGINAL WY S TUKW**	Status:	**ISSUED**
Suite No:		Applied Date:	**08/04/2008**
Tenant:	**THE BOEING COMPANY**	Issue Date:	**09/24/2008**

1: ***PUBLIC WORKS DEPARTMENT CONDITIONS***

2: Minimum 48 hours in advance applicant and/or contractor shall call Public Works Department at (206)433-0179 to schedule a pre-construction meeting.
The applicant must notify the City Utility Inspector at (206)433-0179 upon commencement and completion of work at least 24 hours in advance. All inspection requests for utility work must also be made 24 hours in advance.

3: Contractor shall notify Public Works Utility Inspector at (206)433-0179 of commencement and completion of work at least 24 hours in advance.

4: Flagging, signing and coning shall be in accordance with MUTCD for Traffic Control. Contractor shall provide certified flagmen for traffic control. Sweep or otherwise clean streets to the satisfaction of Public Works each night around hauling route (No flushing allowed). Notify City Inspector before 12:00 Noon on Friday preceding any weekend work.

5: Any material spilled onto any street shall be cleaned up immediately.

6: A $2,000 bond made out to the City of Tukwila for possible property damages caused by activities.

7: A copy of the Certificate of Insurance Coverage (minimum of $1,000,000 naming the City of Tukwila as additionally insured) shall be submitted to Public Works before permit can be isued.

8: The hauling contractor shall have a valid Business License with the City of Tukwila

9: Temporary erosion control measures shall be implemented as the first order of business to prevent sedimentation off-site or into existing drainage facilities.

10: From October 1 through April 30, cover any slopes and stockpiles that are 3H:1V or steeper and have a vertical rise of 10 feet or more and will be unworked for greater than 12 hours. During this time period, cover or mulch other disturbed areas, if they will be unworked more than 2 days. Covered material must be stockpiled on site at the beginning of this period. Inspect and maintain this stabilization weekly and immediately before, during and following storms.

11: From May 1 through September 30, inspect and maintain temporary erosion prevention and sediment at least monthly. All disturbed areas of the site shall be permanently stabilized prior to final construction approval.

12: The site shall have permanent erosion control measures in place as soon as possible after final grading has been completed and prior to the Final Inspection.

13: PRIOR TO Final permit sign-off the owner/agent shall submit a record drawing on Mylar (24" by 36") and in AutoCAD format on CD. Each drawing, except for the digital file, shall bear the engineer and the surveyor stamps, signed and dated.

continued on next page

City of Tukwila

Department of Community Development
6300 Southcenter Boulevard, Suite #100
Tukwila, Washington 98188
Phone: 206-431-3670
Fax: 206-431-3665
Web site: *http://www.ci.tukwila.wa.us*

I hereby certify that I have read these conditions and will comply with them as outlined. All provisions of law and ordinances governing this work will be complied with, whether specified herein or not.

The granting of this permit does not presume to give authority to violate or cancel the provision of any other work or local laws regulating construction or the performance of work.

Signature: _____ Date: 9/24/08

Print Name: Tim L. Syverson

City of Tukwila

INSPECTION RECORD

COPY

Building and Planning Inspection Request Line – 206-431-2451
Fire Department Inspection Request Line – 206-575-4407
Public Works Inspection Request Line – 206-433-0179

(8811 EMWS)

PERMIT NO.: PW08-140

24 hours in advance notice is required to schedule, cancel, or reschedule inspections.

All permits, inspection records, and approved plans shall be available at the job site prior to the start of any construction. These documents are to be maintained and available to the inspector until final inspection approval is granted.

Req'd	Insp Code	Inspection Type	Status	Insp Initials	Date	Comments
MISCELLANEOUS INSPECTIONS						
	0101	Pre-construction/Pre-demolition				
	0103	Pre-reroof				
	0104	Remove Stop Work Order				
FOUNDATION INSPECTIONS						
	0201	Footing				
	0200	Foundation Wall				
	0301	Concrete slab perimeter insulation				
	0202	Footing drains				
	0203	Tiedown (mobile home)				
FRAMING INSPECTIONS						
	0401	Roof sheathing				
	0412	Underfloor framing				
	0413	Wall sheathing/shear				
	0406	Suspended ceiling				
	0407	Marriage line (mobile homes)				
	0408	Masonry chimney – reinf/anchorage				
	0409	Framing**				
	0606	Glazing				
LATH OR GYPSUM BOARD INSPECTIONS						
	0501	Interior wallboard fastening (shear walls or fire rated assemblies only)				
ENERGY EFFICIENCY INSPECTIONS						
	0601	Wall insulation				
	0602	Floor insulation				
	0603	Roof/ceiling insulation				
	0605	Exterior roof insulation				
	0608	Pipe insulation				
	0611	Emergency Lighting				
MECHANICAL INSPECTIONS						
	0701	Rough-in mechanical				
	0702	Smoke detector shut-off (test)				
	0609	Duct insulation				
	0704	Smoke control acceptance (test)				
	0705	Refrigeration equipment (test)				
	0706	Chimney and vent				
	0707	Wood stove				
	0708	Gas fireplace inserts				
ELECTRICAL INSPECTIONS						
	7001	Underground/slab				
	7002	Service				
	7003	Rough-in/cover				
PLUMBING INSPECTIONS						
	8001	Pre-glue				
	8004	Ground work				
	8005	Rough-in plumbing				

**Framing inspection approval is subject to the installation of adequate weather protection for products sensitive to adverse weather.

City of Tukwila

INSPECTION RECORD

Building and Planning Inspection Request Line – 206-431-2451
Fire Department Inspection Request Line – 206-575-4407
Public Works Inspection Request Line – 206-433-0179

GAS PIPING INSPECTIONS

	9001	Underground				
	9002	Rough-in gas piping				

SPECIAL INSPECTIONS – NOTIFY CITY 24 HRS PRIOR TO COMMENCING*

	4000	SI – Concrete				
	4022	SI – Masonry Level 1				
	4023	SI – Masonry Level 2				

*A final letter from the Special Inspection Test Lab shall be required upon completion of Special Inspections noted above.

PUBLIC WORKS INSPECTIONS

	5000	Curb cut, access, sidewalk				
	5010	Channelization, striping				
	5020	Fire loop hydrant				
	5030	Flood Zone Control				
X	5040	Land altering				
X	5050	Hauling, moving oversized load				
	5060	Landscape irrigation				
	5070	Sanitary side sewer				
	5080	Sewer main extension				
X	5090	Storm drainage				
	5100	Street use				
	5110	Water main extension				
	5120	Water meter – exempt				
	5130	Water meter – permanent				
	5140	Water meter – temporary				
X	5160	Public Works pre-inspection				
	5170	Backflow – irrigation				
	5180	Backflow – fire				
	5190	Backflow – water				
	5200	Erosion measures – install				
	5210	Erosion measures – final stabilization				
	5220	Grease interceptor				
	5230	Paving, pavement restoration				
	5240	Traffic signal				
	5250	Illumination				

FIRE INSPECTIONS

	6000	Sprinklers				
	6005	Sprinkler Cover				
	6010	Fire Alarm				
	6020	Hood and Duct				
	6030	Halon				
	6040	Monitor				
	6050	Smoke Dampers				

PLANNING INSPECTIONS

	1200	Landscape				
	1210	Parking				
	1220	Screening				

FINAL INSPECTIONS

	1400	Fire Final				
	1500	Planning Final				
	1510	Sign Final				
X	1600	Public Works Final				
	1800	Mechanical Final				
	1900	Plumbing Final				
	2000	Gas Piping Final				
	2100	Electrical Final				
	1700	Building Final*				

*ALL REQUIRED FINAL INSPECTIONS MUST BE APPROVED PRIOR TO SCHEDULING A FINAL INSPECTION (1700) BY BUILDING DIVISION.

CITY OF TUKWILA
Community Development Department
Public Works Department
Permit Center
6300 Southcenter Blvd., Suite 100
Tukwila, WA 98188
http://www.ci.tukwila.wa.us

Building Permit No. _____
Mechanical Permit No. _____
Plumbing/Gas Permit No. _____
Public Works Permit No. PW08-140
Project No. _____
(For office use only)

Applications and plans must be complete in order to be accepted for plan review.
Applications will not be accepted through the mail or by fax.
Please Print

SITE LOCATION

King Co Assessor's Tax No.: 000160-0014

Site Address: 8811 East Marginal Way, Seattle WA 98108 Suite Number: _____ Floor: _____

Tenant Name: _____ **New Tenant:** ☐ .....Yes ☐ ..No

Property Owners Name: The Boeing Company

Mailing Address: P.O. Box 3707, M/C 86-34, Seattle, WA 98124
City State Zip

CONTACT PERSON – who do we contact when your permit is ready to be issued

Name: Katie Lewis, Boeing Environment, H & S Day Telephone: 206-579-2110

Mailing Address: P.O. Box 3707, M/C 86-34, Seattle, WA 98124
City State Zip

E-Mail Address: kathryn.l.lewis2@boeing.com Fax Number: 425-865-7998

GENERAL CONTRACTOR INFORMATION –
(Contractor Information for Mechanical (pg 4) for Plumbing and Gas Piping (pg 5))

Company Name: _____

Mailing Address: _____
City State Zip

Contact Person: _____ Day Telephone: _____

E-Mail Address: _____ Fax Number: _____

Contractor Registration Number: _____ Expiration Date: _____

ARCHITECT OF RECORD – All plans must be wet stamped by Architect of Record

Company Name: N/A

Mailing Address: _____
City State Zip

Contact Person: _____ Day Telephone: _____

E-Mail Address: _____ Fax Number: _____

ENGINEER OF RECORD – All plans must be wet stamped by Engineer of Record

Company Name: Landau Associates, Inc.

Mailing Address: 130 2nd Avenue S, Edmonds, WA 98020
City State Zip

Contact Person: Kelley Wrigg Day Telephone: 425-778-0907

E-Mail Address: kwrigg@landauinc.com Fax Number: 425-778-6409

PUBLIC WORKS PERMIT INFORMATION – 206-433-0179

Scope of Work (please provide detailed information): Removal of asphalt-capped soil mound, together with storm drainage improvements and repaving.

Call before you Dig: 1-800-424-5555

Please refer to Public Works Bulletin #1 for fees and estimate sheet.

Water District

☐ ...Tukwila ☐ ... Water District #125 ☐ .. Highline ☐ .. Renton
☐ ...Water Availability Provided

Sewer District

☐ ...Tukwila ☐ ... ValVue ☐ .. Renton ☒ .. Seattle
☐ ...Sewer Use Certificate ☐ ...Sewer Availability Provided

Septic System:

☐ On-site Septic System – For on-site septic system, provide 2 copies of a current septic design approved by King County Health Department.

Submitted with Application (mark boxes which apply):

☒ ...Civil Plans **(Maximum Paper Size – 22" x 34")**
☐ ...Technical Information Report (Storm Drainage) ☐ .. Geotechnical Report ☐ ...Traffic Impact Analysis
☐ ...Bond ☐ .. Insurance ☐ .. Easement(s) ☐ .. Maintenance Agreement(s) ☒ ...Hold Harmless – (SAO)
☐ ...Hold Harmless – (ROW)

Proposed Activities (mark boxes that apply):

☐ ...Right-of-way Use - Nonprofit for less than 72 hours ☐ .. Right-of-way Use - Profit for less than 72 hours
☒ ...Right-of-way Use - No Disturbance ☐ .. Right-of-way Use – Potential Disturbance
☒ ...Construction/Excavation/Fill - Right-of-way _____
Non Right-of-way X

☒ ...Total Cut: 20,350 cubic yards ☐ .. Work in Flood Zone
☒ ...Total Fill: 4,350 cubic yards ☒ .. Storm Drainage

☐ ...Sanitary Side Sewer ☐ .. Abandon Septic Tank ☐ .. Grease Interceptor
☐ ...Cap or Remove Utilities ☐ .. Curb Cut ☐ .. Channelization
☐ ...Frontage Improvements ☐ .. Pavement Cut ☒ .. Trench Excavation
☐ ...Traffic Control ☐ .. Looped Fire Line ☐ .. Utility Undergrounding
☐ ...Backflow Prevention - Fire Protection _____"
Irrigation _____"
Domestic Water _____"

☐ ...Permanent Water Meter Size..._____" WO #_____
☐ ...Temporary Water Meter Size .._____" WO #_____
☐ ...Water Only Meter Size....._____" WO #_____ ☐ ...Deduct Water Meter Size _____"
☐ ...Sewer Main Extension.....Public ____ Private ____
☐ ...Water Main Extension.....Public ____ Private ____

FINANCE INFORMATION

Fire Line Size at Property Line _____ Number of Public Fire Hydrant(s) _____

☐ ...Water ☐ ...Sewer ☐ ...Sewage Treatment

Monthly Service Billing to:

Name:_____ Day Telephone:_____

Mailing Address:_____
City State Zip

Water Meter Refund/Billing:

Name:_____ Day Telephone:_____

Mailing Address:_____
City State Zip

PERMIT APPLICATION NOTES – Applicable to all permits in this application

Value of Construction – In all cases, a value of construction amount should be entered by the applicant. This figure will be reviewed and is subject to possible revision by the Permit Center to comply with current fee schedules.

Expiration of Plan Review – Applications for which no permit is issued within 180 days following the date of application shall expire by limitation.

Building and Mechanical Permit
The Building Official may grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated. Section 105.3.2 International Building Code (current edition).

Plumbing Permit
The Building Official may grant one extension of time for an additional period not exceeding 180 days. The extension shall be requested in writing and justifiable cause demonstrated. Section 103.4.3 Uniform Plumbing Code (current edition).

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE UNDER PENALTY OF PERJURY BY THE LAWS OF THE STATE OF WASHINGTON, AND I AM AUTHORIZED TO APPLY FOR THIS PERMIT.

BUILDING OWNER OR AUTHORIZED AGENT:

Signature: _____ Date: 8/4/08

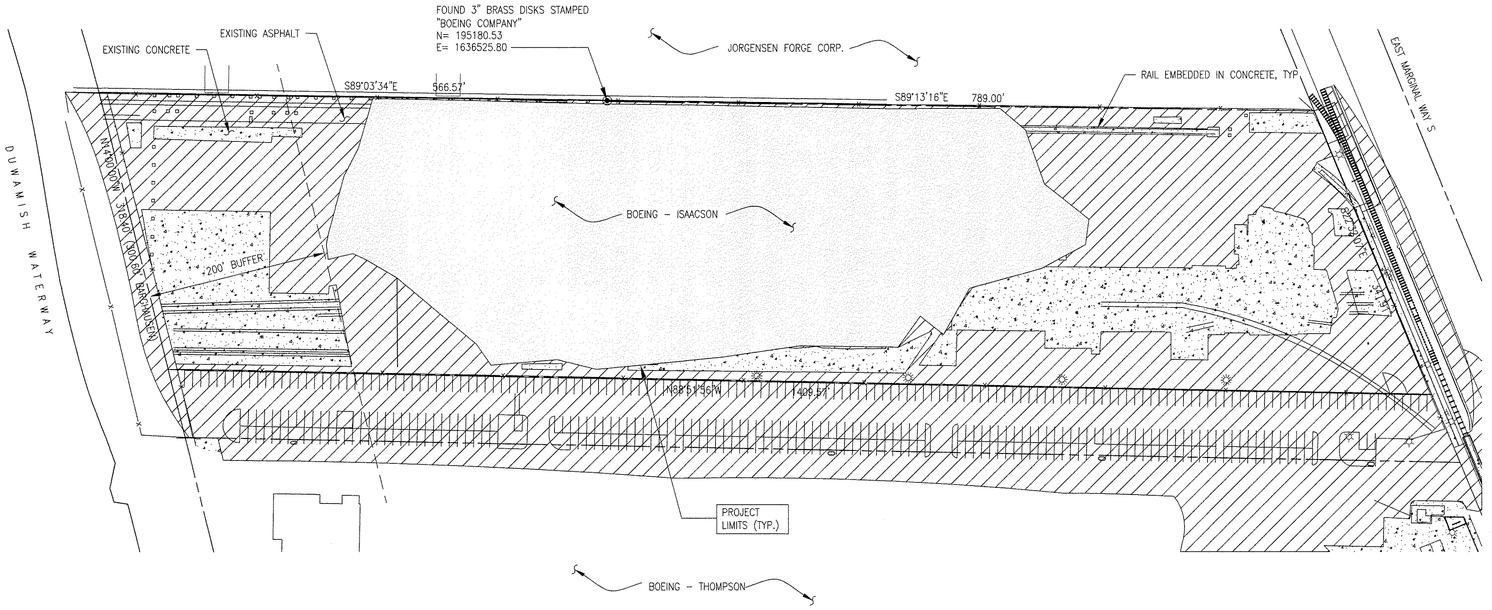
Print Name: Kathryn Lewis Day Telephone: 206 5792110

Mailing Address: P.O. Box 3707, M/C 86-34, Seattle, WA 98124
City State Zip

Date Application Accepted:	Date Application Expires:	Staff Initials:
08/04/08	02/04/09	LW

APPENDIX B

As-Built Drawings



PLAN

SCALE: 1" = 80'

80' 0 40' 80' 160' 320'

SCALE: 1"=80'

DEVELOPER ☐ CONTRACT ☐ OWNER ☒ LEASE

THE BOEING COMPANY, A DELAWARE CORPORATION — NAME — PHONE

8625 EAST MARGINAL WAY, SEATTLE, WA. 98108 — ADDRESS AND ZIP CODE

☒ A CORPORATION ☐ A PARTNERSHIP ☐ AN INDIVIDUAL

OWNERSHIP CONTACT ☐ ☐ ☒

KATIE LEWIS, BOEING ENVIRONMENT, H & S — NAME — 206-579-2110 PHONE

M/C 86-34
8625 EAST MARGINAL WAY, SEATTLE, WA. 98108 — ADDRESS AND ZIP CODE

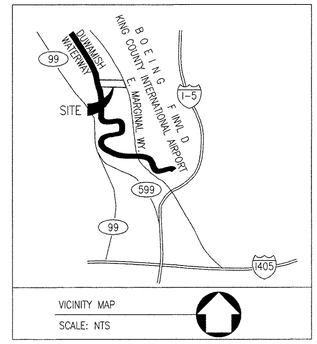
☒ A CORPORATION ☐ A PARTNERSHIP ☐ AN INDIVIDUAL

CERTIFIED SURVEYOR OR ENGINEER ☐ ☐ ☒

LANDAU ASSOCIATES, INC. — NAME — (425) 778-0907 PHONE

130 2ND AVE SOUTH EDMONDS, WA 98020 — ADDRESS AND ZIP CODE

	PHONE
BOEING FIELD AIRPORT ENGINEER	206-344-7380
CITY OF TUKWILA PERMIT CENTER	206-431-3670
CITY OF TUKWILA FIRE MARSHAL	206-431-3670
SEATTLE SEWER UTILITY STORM SEWER / SANITARY SEWER	206-684-3362
SEATTLE WATER DEPARTMENT WATER DISTRICT	206-684-5800
PUGET SOUND ENERGY GAS / POWER COMPANY	888-321-7794
CITY OF SEATTLE 24HR WATER / SEWER DRAINAGE EMERGENCY	206-386-1800
CALL BEFORE YOU DIG DIAL-A-DIG	1-800-424-5555



VICINITY MAP

SCALE: NTS

SECTION	TOWNSHIP	RANGE	TAX PARCEL
33	24	04	000160-0014

PROJECT INFORMATION

TAX LOT NUMBER	SITE ADDRESS	AREA
000160-0014	8811 EAST MARGINAL WAY SEATTLE, WA 98108	59,489 SQUARE YARDS

CURRENT OWNER

THE BOEING COMPANY, A DELAWARE CORPORATION
LAND USE GOVERNING JURISDICTION: CITY OF TUKWILA, WASHINGTON

FLOOD INFORMATION

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INFORMATION: FIRM (FLOOD INSURANCE RATE MAP) NO. 53033C0645 F PANEL 645 OF 1725, DATED MAY 16, 1995. THE SUBJECT PROPERTY IS IN ZONE X (AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN) AND ADJOINS ZONE AE ALONG THE WEST BOUNDARY LINE (BASE FLOOD ELEVATION DETERMINED AT 8 FEET)

NOTE

TRANSNATION TITLE INSURANCE COMPANY COMMITMENT NO. 868382, (DATED MARCH 11, 1999 AT 8:00 A.M.) WAS RELIED UPON FOR TITLE INFORMATION AND SUPPORTING DOCUMENTS. PLEASE REFER TO THAT REPORT FOR FURTHER INFORMATION REGARDING FINANCIAL MATTERS BEYOND THE SCOPE OF THAT SURVEY.

ALTA / ACSM LAND TITLE SURVEY

AMERICAN LAND TITLE ASSOCIATION / AMERICAN CONGRESS ON SURVEYING & MAPPING AND NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS

BOEING PROPERTIES

PORTIONS OF THE N.W.1/4 & S.W.1/4 OF SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, WILLAMETTE MERIDIAN
CITY OF TUKWILA
KING COUNTY
STATE OF WASHINGTON
THE SOUTH HALF OF SECTION 28, TOWNSHIP 23 NORTH, RANGE 6 EAST, WILLAMETTE MERIDIAN, SITUATE IN THE COUNTY OF KING, THE STATE OF WASHINGTON.

THE SUBJECT PROPERTY INCLUDES THE FOLLOWING
KING COUNTY TAX PARCEL NUMBERS:
TAX LOT NO. 282306-9009 (PORTION)

CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR OBTAINING PERMITS FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES FOR REMOVING AND REPLACING ALL SURVEY MONUMENTATION THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITY, PURSUANT TO WAC 332-120. APPLICATIONS MUST BE COMPLETED BY A REGISTERED LAND SURVEYOR. APPLICATIONS FOR PERMITS TO REMOVE MONUMENTS MAY BE OBTAINED FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES, OR BY CONTACTING THEIR OFFICE BY TELEPHONE AT (206) 902-1190.

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
PUBLIC LAND SURVEY OFFICE
1111 WASHINGTON STREET S.E.
P.O. BOX 47060
OLYMPIA, WASHINGTON 98504-7060

UPON COMPLETION OF CONSTRUCTION, ALL MONUMENTS DISPLACED, REMOVED, OR DESTROYED SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR, AT THE COST AND AT THE DIRECTION OF THE CONTRACTOR, PURSUANT TO THESE REGULATIONS. THE APPROPRIATE FORMS FOR REPLACEMENT OF SAID MONUMENTATION SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHEET INDEX

PROJECT STATISTICS

IMPACTED AREA:	22,150 SQUARE YARDS
CUT VOLUME:	20,350 CUBIC YARDS

LEGEND

- LUMINAIRE (LUM.)
- POWER POLE
- JUNCTION BOX (AS NOTED)
- TELEPHONE MANHOLE
- CATCH BASIN (CB)
- STORM MANHOLE (SDMH)
- SANITARY SEWER MANHOLE (SSMH)
- GAS METER
- GAS VALVE
- WATER VALVE (WV)
- FIRE HYDRANT (FH)
- WATER METER
- SIGN
- MONITORING WELL
- ASPHALT (EXISTING)
- CONCRETE
- W — W — WATER LINE
- SD — SD — STORM LINE
- G — G — GAS LINE
- P(UG) — P(UG) — POWER UNDERGROUND
- P(OH) — P(OH) — POWER OVERHEAD
- X — X — CHAIN LINK FENCE
- RAIL SEGMENT
- PROPERTY LINE
- 15 — 15 — CONTOURS
- SURFACE WATER FLOW DIRECTION
- ASPHALT (NEW)

DEVELOPMENT GUIDELINES AND DESIGN AND CONSTRUCTION STANDARDS
B-2
CONSTRUCTION

1. ALL WORK PERFORMED SHALL BE PER APPROVED PLANS AND SPECIFICATIONS ONLY. THE PERMITTEE IS REQUIRED TO MAINTAIN A SET OF APPROVED PLANS, SPECIFICATIONS, AND ASSOCIATED PERMITS ON THE JOB SITE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS. PERMITTEE SHALL APPLY FOR A REVISION FOR ANY WORK NOT ACCORDING TO THE APPROVED PLANS.
2. PERMITTEE/CONTRACTOR SHALL ARRANGE A PRECONSTRUCTION CONFERENCE WITH THE CITY'S INSPECTOR(S) PRIOR TO BEGINNING ANY WORK.
3. WORK IN ROADWAYS
   A. ALL WORK IN ROADWAYS SHALL MEET TMC 11 AND THE FOLLOWING:
   B. PRIOR TO ANY ACTIVITY IN CITY RIGHT-OF-WAY, THE PERMITTEE SHALL PROVIDE THE CITY A TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL. THE TRAFFIC CONTROL PLAN SHALL INCLUDE THE LOCATION, ADDRESS AND DESCRIPTION OF TRAFFIC FLOW DURING THE WORK AND SHALL MEET MUTCD REQUIREMENTS.
   C. ALL WORK REQUIRING LANE CLOSURES MUST BE BY PERMIT ONLY.
   D. FIRE, PEDESTRIAN, AND VEHICULAR ACCESS TO BUILDINGS SHALL BE MAINTAINED AT ALL TIMES, EXCEPT WHEN PERMITTEE HAS PERMISSION FROM THE BUILDING OWNER AND THE DIRECTOR TO CLOSE AN ACCESS.
   E. ALL ROADWAYS SHALL BE KEPT FREE OF DIRT AND DEBRIS USING STREET SWEEPERS. USE OF WATER TRUCKS FOR CLEANING ROADWAYS REQUIRES PREAPPROVAL FROM THE DIRECTOR.
   F. INSTALL STEEL PLATES OVER ANY TRENCH, AT ANY TIME WORK IS STOPPED AND THE TRENCH IS LEFT OPEN.

SPECIAL NOTES:

1. THE EXISTING TOPOGRAPHY SHOWN ON THESE DRAWINGS WAS PRODUCED BY BARGHAUSEN CONSULTING ENGINEERS, INC. DATED 1/14/00 (OUTSIDE OF REDEVELOPMENT AREA)
2. THE AS-BUILT TOPOGRAPHY SHOWN ON THESE DRAWINGS WAS PRODUCED BY CLEARCREEK CONTRACTORS, DATED 12/12/08 (INSIDE THE REDEVELOPMENT AREA)

NOTICE REQUIRED

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR BLASTING AT LEAST TWO BUSINESS DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION IN ACCORDANCE WITH RCW TITLE 19. NAMES AND TELEPHONE NUMBERS OF THE OPERATORS OF UNDERGROUND UTILITY LINES IN THIS PROJECT APPEAR ON THIS SHEET. THESE NUMBERS SHALL ALSO BE USED TO SERVE IN AN EMERGENCY CONDITIONS AS REQUIRED.

UTILITY CONFLICT NOTE:

CAUTION:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-424-5555 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT LANDAU ASSOCIATES, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

STANDARD CONSTRUCTION NOTES

PRIOR TO STARTING CONSTRUCTION, CONTACT ONE-CALL (1-800-424-5555) FOR UTILITY LOCATIONS.

CONTACTS

DESIGN ENGINEER: LANDAU ASSOCIATES 425-778-0907
OWNER: BOEING FIELD ENGINEER 206-344-7380
OTHER: KATIE LEWIS, BOEING

GENERAL

1. LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE.
2. AT LEAST 48 HOURS BEFORE STARTING PROJECT SITE WORK, NOTIFY THE UTILITIES INSPECTOR AT 206-433-0179.
3. REQUEST A PUBLIC WORKS UTILITY INSPECTION AT LEAST 24 HOURS IN ADVANCE BY CALLING 206-433-0179.
4. THE CONTRACTOR ASSUMES SOLE RESPONSIBILITY FOR WORKER SAFETY, AND DAMAGE TO STRUCTURES AND IMPROVEMENTS RESULTING FROM CONSTRUCTION OPERATIONS.
5. THE CONTRACTOR SHALL HAVE THE PERMIT(S) AND CONDITIONS, THE APPROVED PLANS, AND A CURRENT COPY OF CITY OF TUKWILA DEVELOPMENT GUIDELINES AND DESIGN AND CONSTRUCTION STANDARDS AVAILABLE AT THE JOB SITE.
6. ALL WORK SHALL CONFORM TO THESE APPROVED DRAWINGS. ANY CHANGES FROM THE APPROVED PLANS REQUIRE PRE-APPROVAL FROM THE OWNER, THE ENGINEER, AND THE CITY OF TUKWILA.
7. ALL METHODS AND MATERIALS SHALL MEET CITY OF TUKWILA DEVELOPMENT GUIDELINES AND DESIGN AND CONSTRUCTION STANDARDS, UNLESS OTHERWISE APPROVED BY THE PUBLIC WORKS DIRECTOR.
8. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF RECORD DRAWINGS ON-SITE.
9. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS PRIOR TO PROJECT FINAL APPROVAL.
10. PROVIDE TRAFFIC CONTROL AND STREET MAINTENANCE PLAN FOR PUBLIC WORKS APPROVAL BEFORE IMPLEMENTATION.
11. ALL SURVEYING FOR PUBLIC FACILITIES SHALL BE DONE UNDER THE DIRECTION OF A WASHINGTON LICENSED LAND SURVEYOR. VERTICAL DATUM SHALL BE NAVD 1988. HORIZONTAL DATUM SHALL BE WASHINGTON STATE (GRID) COORDINATES, NORTH ZONE, USING NAD 83/91 SURVEY CONTROL AND TIED TO ANY TWO CITY OF TUKWILA HORIZONTAL CONTROL MONUMENTS. FOR PROJECTS WITHIN A FLOOD CONTROL ZONE, THE PERMITTEE SHALL PROVIDE CONVERSION CALCULATIONS TO NGVD 1929.
12. REPLACE OR RELOCATE ALL SIGNS DAMAGED OR REMOVED DUE TO CONSTRUCTION.
13. RETAIN, REPLACE OR RESTORE EXISTING VEGETATION IN RIGHTS-OF-WAY, EASEMENTS, AND ACCESS TRACTS.

CONSTRUCTION SEQUENCE:

1. MOVE EQUIPMENT AND MATERIALS TO THE SITE.
2. MARK GRADING LIMITS AND INSTALL CATCH BASIN FILTERS.
3. EXCAVATE PIT FOR AND INSTALL VORTECHS VAULTS
4. INSTALL PUMPS AND CONTROLS.
5. BEGIN DEMOLITION.
6. INSTALL NEW CATCH BASINS AND PIPING
7. PLACE SUBGRADE
8. PAVE SITE
9. REMOVE TESC FACILITIES.

LEGAL DESCRIPTION

[AS PER TITLE REPORT]

THAT PORTION OF THE JOHN BUCKLEY DONATION CLAIM NO. 42 IN TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M., AND OF ABANDONED CHANNEL OF THE DUWAMISH RIVER DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTH LINE OF THE HENRY VAN ASSELT DONATION CLAIM NO. 50 WITH THE SOUTHWESTERLY LINE OF EAST MARGINAL WAY. SAID POINT OF INTERSECTION BEING 2,470.01 FEET, MEASURED ALONG SAID SOUTH LINE, WESTERLY OF THE EAST LINE OF SECTION 33, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M.; THENCE NORTH 23° 40' 40" WEST ALONG SAID SOUTHWESTERLY LINE 379.39 FEET TO THE SOUTHEAST CORNER OF A TRACT OF LAND DEEDED TO ISAACSON IRON WORKS BY DEED RECORDED UNDER AUDITOR'S FILE NO. 4739857, AND THE TRUE POINT OF BEGINNING;
THENCE NORTH 23° 40' 40" WEST ALONG SAID SOUTHWESTERLY LINE 987.259 FEET, MORE OR LESS, TO AN INTERSECTION WITH THE SOUTHERLY LINE OF A TRACT OF LAND DEEDED TO BETHLEHEM PACIFIC COAST STEEL CORPORATION BY DEED RECORDED UNDER AUDITOR'S FILE NO. 3935187;
THENCE ALONG THE SOUTHERLY LINE OF SAID DEEDED TRACT ON THE FOLLOWING COURSES AND DISTANCES: NORTH 64° 49' 45" WEST 186.84 FEET;
THENCE SOUTH 89° 39' 25" WEST 434.79 FEET;
THENCE SOUTH 00° 20' 35" EAST 348.52 FEET;
THENCE SOUTH 89° 39' 25" WEST 490.00 FEET;
THENCE SOUTH 00° 20' 35" EAST 80.82 FEET;
THENCE SOUTH 89° 39' 25" WEST 85.43 FEET TO THE EASTERLY LINE OF THE RIGHT-OF-WAY OF COMMERCIAL WATERWAY NO. 1, KNOWN AS DUWAMISH WATERWAY, AND THE SOUTHWEST CORNER OF SAID DEEDED TRACT;
THENCE SOUTHEASTERLY ALONG SAID EASTERLY LINE TO THE WESTERLY PRODUCTION OF THE SOUTH LINE OF SAID TRACT DEEDED UNDER AUDITOR'S FILE NO. 4739857;
THENCE EAST ALONG SAID SOUTH LINE AND ITS PRODUCTION TO THE TRUE POINT OF BEGINNING;

EXCEPT THEREFROM THAT PORTION OF THE JOHN BUCKLEY DONATION LAND CLAIM IN TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M., DESCRIBED AS FOLLOWS:
BEGINNING ON THE WEST LINE OF EAST MARGINAL WAY AT ITS POINT OF INTERSECTION WITH A LINE PARALLEL WITH AND 1,497.9 FEET SOUTH OF THE NORTH LINE OF SAID LAND CLAIM AND RUNNING THENCE ALONG THE WEST LINE OF SAID EAST MARGINAL WAY
NORTH 23° 40' 40" WEST 562.84 FEET;
THENCE NORTH 64° 49' 45" WEST 186.84 FEET;
THENCE SOUTH 89° 39' 25" WEST 434.79 FEET;
THENCE SOUTH 00° 20' 35" EAST 348.52 FEET;
THENCE SOUTH 89° 39' 25" WEST 490 FEET;
THENCE SOUTH 00° 20' 35" EAST 80.82 FEET;
THENCE SOUTH 89° 39' 25" WEST 85.43 FEET TO A POINT ON THE EASTERLY LINE OF THE RIGHT-OF-WAY OF COMMERCIAL WATERWAY NO. 1, KNOWN AS DUWAMISH WATERWAY;
THENCE SOUTHEASTERLY ALONG SAID EASTERLY LINE BY A CURVE TO THE RIGHT WITH A RADIUS OF 1,969.12 FEET, FOR A CHORD DISTANCE SOUTH 18° 21' 22" EAST 174.49 FEET;
THENCE NORTH 89° 45' 34" EAST 558.82 FEET;
THENCE SOUTH 00° 20'35" EAST, 1.00 FOOT;
THENCE NORTH 89° 39' 25" EAST 789.00 FEET, MORE OR LESS, TO THE TRUE POINT OF BEGINNING;

SITUATE IN THE CITY OF TUKWILA, COUNTY OF KING, STATE OF WASHINGTON.

LANDAU ASSOCIATES
130 2ND AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

SYM	REVISION	BY	APPROVED	DATE
-	AS-BUILT DRAWING	B. TAYLOR	K. WRIGG	1.21.2009

BOEING®

KELLEY E. WRIGG — STATE OF WASHINGTON — 35715 — REGISTERED PROFESSIONAL ENGINEER — 22 JAN 09

ACCEPTABILITY
THIS DESIGN AND/OR SPECIFICATION IS APPROVED

APPROVED BY	DEPT.	DATE

		DATE
DRAWN	B. TAYLOR	
CHECKED	K. WRIGG	
ENGINEER	D. PISCHER	
CHECKED		
APPROVED		
APPROVED		

SUBTITLE: COVER SHEET (AS-BUILT)

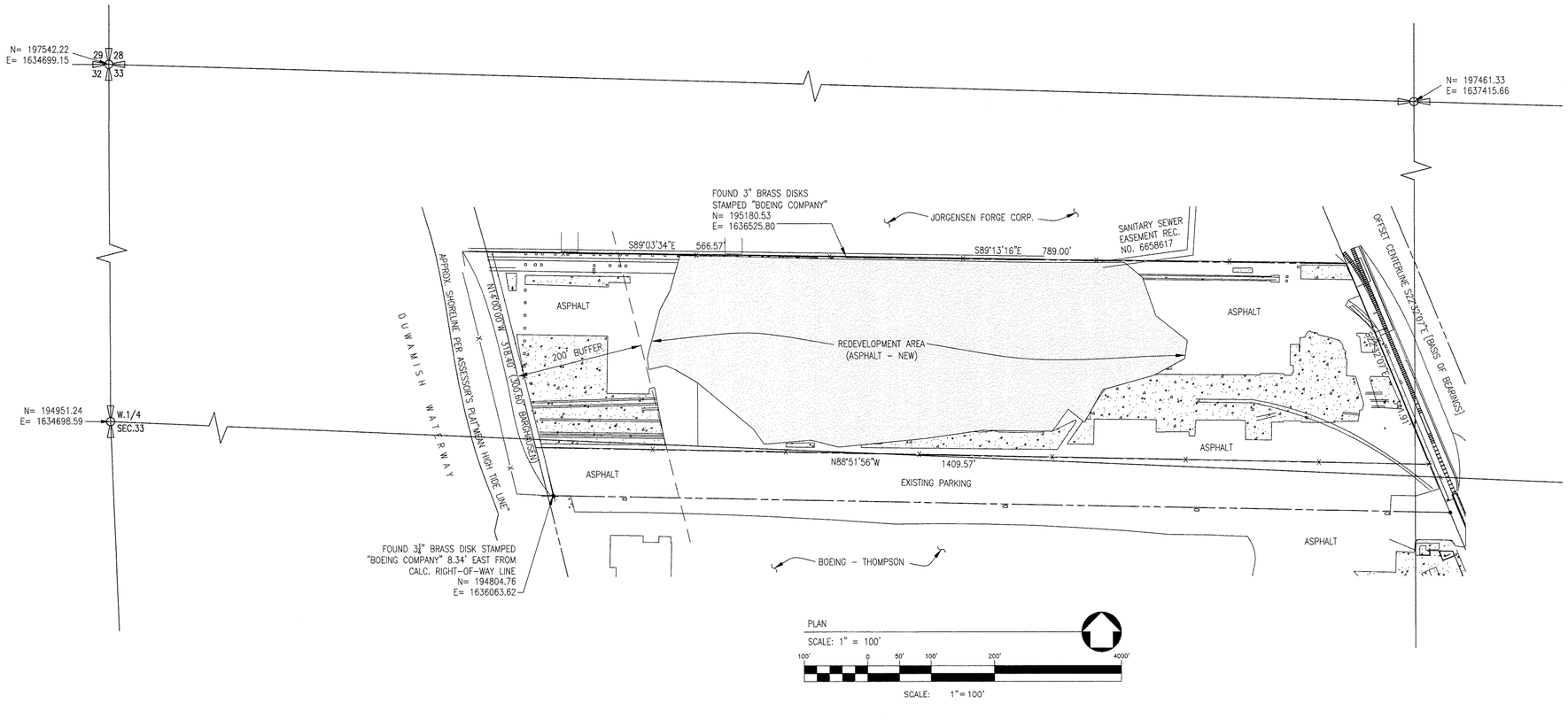
TITLE: ISAACSON MOUND REMOVAL
THOMPSON - SITE YARD
CIVIL MASTER YARD THOMPSON, WA

CURRENT REVISION	SYMBOL	DATE
		1.21.2009

SHEET: C0

JOB NO. | COMP NO.

DWG NO. 14-YD-C0



LEGEND

- CHAIN LINK FENCE
- RAIL SEGMENT
- PROPERTY LINE
- CONCRETE
- ASPHALT (NEW)

SURVEY INFORMATION (FROM BARGHAUSEN)

PROCEDURE / NARRATIVE
A FIELD TRAVERSE USING A "SOKKIA 3100" TOTAL STATION, AND "SDR-33" DATA COLLECTOR SUPPLEMENTED WITH FIELD NOTES WAS PERFORMED, ESTABLISHING THE ANGULAR, DISTANCE, AND VERTICAL RELATIONSHIPS BETWEEN THE MONUMENTS, PROPERTY LINES, AND TOPOGRAPHIC FEATURES AS SHOWN HEREON. A "LIETZ B-2A" AUTOMATIC LEVEL WAS USED TO CHECK AND ESTABLISH THE ELEVATION OF BENCHMARKS AND CONTROL POINTS. THE RESULTING DATA MEETS OR EXCEEDS THE STANDARDS FOR LAND BOUNDARY SURVEYS AS SET FORTH IN WAC 332-130-090.

DATES OF SURVEYS
FIELD SURVEYS BY BARGHAUSEN CONSULTING ENGINEERS, INC. CONDUCTED NOVEMBER, 1999, AND JANUARY, 2000. ALL MONUMENTS SHOWN AS FOUND WERE VISITED AT THAT TIME. THIS DRAWING DEPICTS FIELD CONDITIONS AS OF THOSE DATES, PRIOR CONDITIONS ARE NOT SHOWN, UNLESS NOTED OTHERWISE.

HORIZONTAL DATUM - BASIS OF BEARINGS
NORTH AMERICAN DATUM OF 1927 NAD-27
WASHINGTON STATE PLANE COORDINATE SYSTEM - NORTH ZONE
THE (OFFSET) CENTERLINE OF EAST MARGINAL WAY TAKEN AS NORTH 22°32'07" WEST, AS PER BOOK 72, OF SURVEYS, PAGE 222, KING COUNTY RECORDS.

NOTES:

1. UNDERGROUND UTILITIES AND FEATURES DEPICTED HEREON ARE BASED ON FIELD OBSERVATION, MARKINGS, DEVELOPMENT PLANS, AND/OR AVAILABLE RECORD DOCUMENTS ONLY. THE TRUE LOCATION, NATURE AND/OR EXISTENCE OF BELOW GROUND FEATURES, DETECTED OR UNDETECTED, SHOULD BE VERIFIED.

2. NO DETERMINATION WAS MADE BY BARGHAUSEN CONSULTING ENGINEERS WITH REGARD TO SOILS CONDITION AND SUBSURFACE MATERIALS.

SURVEY NOTES

THE EXISTING DUWAMISH RIVER CHANNEL IS AN IMPROVED, ARTIFICIALLY CONSTRUCTED, NAVIGABLE WATERWAY, SUBJECT TO TIDAL INFLUENCE, AND IS LOCATED WITHIN A STRIP-OF-LAND 500 FT. IN WIDTH. THE WESTERLY BOUNDARY OF THE SUBJECT PARCEL IS NOT A WATER BOUNDARY AND TITLE TO THIS PROPERTY DOES NOT NECESSARILY INCLUDE ANY LITTORAL OR RIPARIAN RIGHTS TO THE WATERWAY OR THE SHORELINE.

TITLE REPORT SPECIAL EXCEPTIONS

TYPE OF DOCUMENT & RECORDING INFORMATION	SURVEYOR'S COMMENTS
STORM DRAINAGE EASEMENT FOR: KING COUNTY REC. NO. 5738283 (MAY 1964)	12 FT. WIDTH STRIP-OF-LAND FOR DRAINAGE (STORM SEWER) CONNECTS TO DRAINAGE EASEMENTS RECORDED UNDER KING COUNTY REC. NO. 3655381 (TO UNITED STATE OF AMERICA) REC. NO. 5737082 & REC. NO. 5738282 (TO KING COUNTY) AFFECTS SOUTHERLY PORTIONS OF SUBJECT PROPERTY
KING COUNTY SUPERIOR COURT CAUSE K.C.S.C.C. NO. 569496 (SEPT. 1963)	JUDGEMENT DENYING KING COUNTY (PLAINTIFF) THE RIGHT TO DISCHARGE DRAINAGE FROM KING COUNTY AIRPORT ONTO SOUTHWESTERLY PORTIONS OF SUBJECT PROPERTY
DESCRIPTION OF EASEMENT REC. NO. 665817 (APRIL 1970)	10 FT. WIDTH STRIP-OF-LAND FOR SEWER LINE AFFECTS NORTHERLY PORTION OF SUBJECT PROPERTY
PRIVATE ROADWAY LICENSE & AGREEMENT REC. NO. 7612210676	FOR ROADWAY CROSSING RAILROAD TRACKS MAY AFFECT NORTHEASTERLY CORNER OF SUBJECT PROPERTY
RECORD OF SURVEY FOR BOEING CORPORATION BK. 37, SURVEYS, PGS. 200 & 200-A RECORDING NO. 8310049007	BOUNDARY SURVEY OF SUBJECT PROPERTY & OTHERS ACCEPTED SURVEY MONUMENTS TO ESTABLISH NORTHERLY & SOUTHERLY BOUNDARY LINES.
RECORD OF SURVEY FOR JORGENSEN CORPORATION BK. 72, SURVEYS, PG 222; REC. NO. 9004309031	BOUNDARY SURVEY NORTH OF SUBJECT PROPERTY DEPICTS NORTH PROPERTY LINE 1 FT. ± SOUTH FROM FOUND MONUMENTS (NOT ACCEPTED).

AS-BUILT SURVEY INFORMATION AS SUPPLIED BY CLEARCREEK CONTRACTORS, EVERETT, WASHINGTON 12/12/2008

SURVEYORS NOTE:

THE AS-BUILT INFORMATION SHOWN ON THESE PLANS ARE FROM A FIELD SURVEY AND INSPECTION PERFORMED BY PACIFIC GEOMATIC SERVICES, INC. ON 12/09/2008, AND SHOWS THE CONDITIONS AS THEY EXISTED ON THAT DATE. THE PROPERTY BOUNDARY SHOWN WAS PROVIDED BY OTHERS, THE SURVEYOR HAS NOT VERIFIED THE BOUNDARY DATA AND CERTIFIES TO THE AS-BUILT INFORMATION ONLY.

BASIS OF BEARING:

THE BASIS OF BEARING FOR THIS SURVEY IS THE DESIGN DRAWINGS FOR THE ISSACSON MOUND REMOVAL, THOMPSON SITE YARD DATED 07/24/2008 AND SURVEY MONUMENTS FOUND ON SITE AS SHOWN.

VERTICAL DATUM:

THE VERTICAL DATUM FOR THIS SURVEY IS BASED ON TIES TO EXISTING FEATURES ON SITE AS SHOWN ON THE DESIGN DRAWINGS FOR THE ISSACSON MOUND REMOVAL, THOMPSON SITE YARD DATED 07/24/2008. ELEVATIONS ON EXISTING CB NO. 12 (ELEV. 13.96) AND EXISTING CB NO. 11 (ELEV. 13.87) WERE HELD TO ESTABLISH THE VERTICAL DATUM FOR THIS AS-BUILT SURVEY.

SURVEY TO THE CITY OF SEATTLE BENCHMARK DESIGNATION SNV-5292, POINT ALIAS 5292 WITH A PUBLISHED ELEVATION OF 18.903 FEET ON NAVD 88 VERTICAL DATUM REVEALED THE CONVERSION FROM THE PROJECT DATUM TO NAVD 88 AS SHOWN BELOW.

PROJECT + 3.83 FEET = NAVD 88

LANDAU ASSOCIATES
130 2ND AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

STAMPS INTENDED ONLY FOR RESPONSIBILITY FOR GRADING INFORMATION.
ALL SURVEY INFORMATION EXCLUDED.

22 JAN 09

SYM	REVISION	BY	APPROVED	DATE
-	AS-BUILT DRAWING	B. TAYLOR	K. WRIGG	1.21.2009

BOEING

KELLEY E. WRIGG
STATE OF WASHINGTON
35715
REGISTERED
PROFESSIONAL ENGINEER

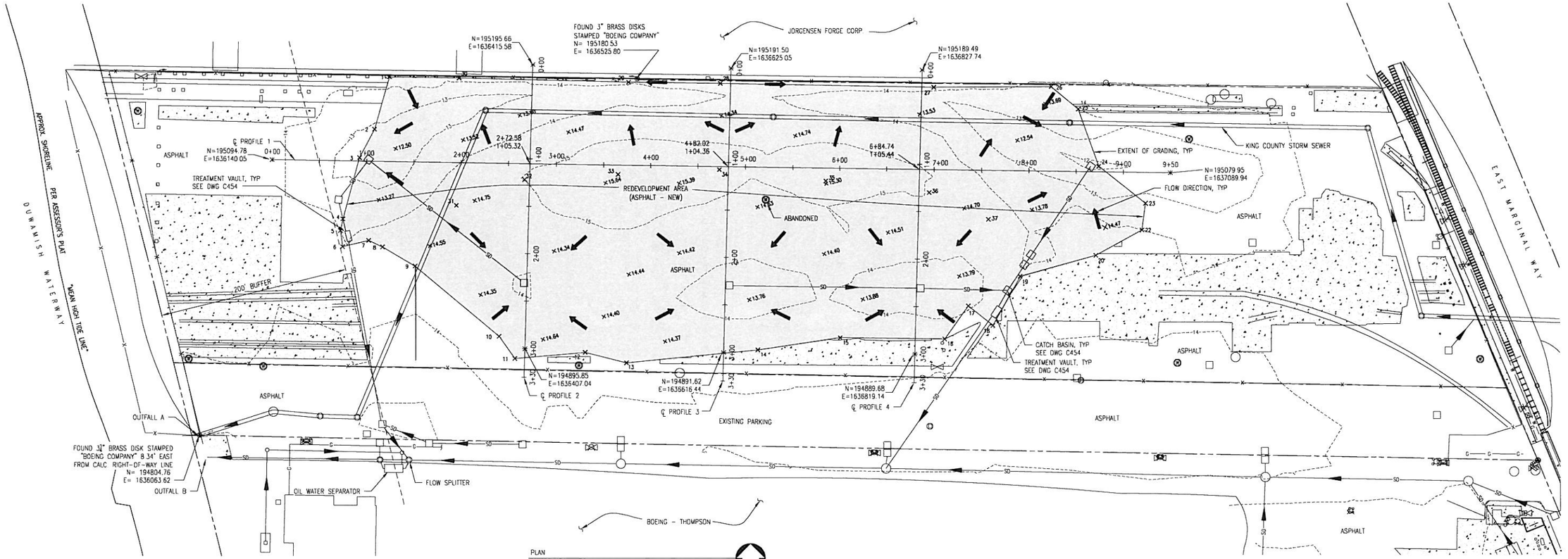
ACCEPTABILITY
THIS DESIGN AND/OR SPECIFICATION IS APPROVED

APPROVED BY	DEPT.	DATE

		DATE
DRAWN	B. TAYLOR	
CHECKED	K. WRIGG	
ENGINEER	D. PISCHER	
CHECKED		
APPROVED		
APPROVED		

SUBTITLE: HORIZONTAL CONTROL PLAN (AS-BUILT)
TITLE: ISAACSON MOUND REMOVAL
THOMPSON - SITE YARD
CIVIL MASTER YARD THOMPSON, WA

CURRENT REVISION	SYMBOL	DATE
		1.21.2009
SHEET	C452	
JOB NO.		COMP NO.
DWG NO.	14-YD-C452	



LEGEND

- JUNCTION BOX (AS NOTED)
- TELEPHONE MANHOLE
- CATCH BASIN (CB)
- STORM MANHOLE (SDMH)
- SANITARY SEWER MANHOLE (SSMH)
- GAS METER
- GAS VALVE
- WATER VALVE (WV)
- FIRE HYDRANT (FH)
- WATER METER
- SIGN
- MONITORING WELL
- CONCRETE
- W — WATER LINE
- SD — STORM LINE
- G — GAS LINE
- SURFACE WATER FLOW DIRECTION
- X — CHAIN LINK FENCE
- RAIL SEGMENT
- PROPERTY LINE
- 15 CONTOURS
- ASPHALT (NEW)

PAVEMENT SECTION RECOMMENDATIONS

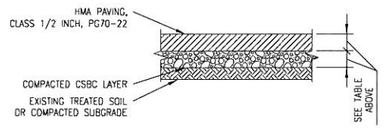
MATERIAL DESCRIPTION	RECOMMENDED MINIMUM THICKNESSES (INCHES)			WSDOT STANDARD SPECIFICATION
	TREATED SOIL SUBGRADE AREAS	NATIVE SOIL SUBGRADE AREAS	EXISTING RCC PAVED AREAS	
HMA	4	4	4	5.04
CSBC	9	9	9*	9-03.9(3)

* BACKFILL WITH ADDITIONAL CSBC WHERE CONCRETE REMOVAL IS THICKER THAN PROPOSED PAVEMENT SECTION.

HMA = HOT MIX ASPHALT, PLANT-MIXED

CSBC = CRUSHED SURFACING BASE COURSE.

WSDOT = WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, 2008 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION.



NOTE: PAVING SECTION REPRODUCED FROM TECHNICAL INFORMATION REPORT BY LANDAU ASSOCIATES (JULY 2008).

ASPHALT PAVING TYPICAL SECTION (REDEVELOPMENT AREA ONLY)

NTS

GRADING VOLUMES (PROPOSED)

	CUT (CY)	FILL (CY)
SOIL	14,800	0
CONCRETE OR ASPHALT	1,850	1,850
CSBC	3,700	2,500
TOTAL	20,350	4,350

NOTES

1. AUTOCAD GENERATED USING SURFACE TO SURFACE VOLUME COMPARISON (EXISTING GROUND TO FINISHED GROUND)
2. CONCRETE SECTION UNKNOWN.
3. ENTIRE DISTURBED AREA TO BE PAVED, SEE PAVEMENT SECTION

Point Table (AS-BUILT)

NAME	NORTHING	EASTING	ELEVATION
1	195182.73	1636264.12	
2	195127.33	1636248.36	12.92
3	195097.01	1636232.47	12.97
4	195032.38	1636215.00	13.95
5	195020.11	1636212.45	13.97
6	195003.17	1636214.69	14.00
7	195009.65	1636242.22	14.00
8	195002.84	1636256.68	14.00
9	194982.74	1636291.06	14.00
10	194908.83	1636379.88	14.00
11	194885.52	1636396.33	14.00
12	194891.85	1636470.10	14.00
13	194880.85	1636513.75	14.00
14	194894.31	1636652.47	14.00
15	194907.11	1636740.00	14.00
16	194905.54	1636850.53	14.00
17	194940.15	1636875.33	13.98
18	194919.61	1636901.19	14.00

Point Table (AS-BUILT)

NAME	NORTHING	EASTING	ELEVATION
19	194971.06	1636930.21	14.00
20	194993.02	1637010.58	14.04
21	195019.65	1637059.51	14.00
22	195047.88	1637063.32	13.27
23	195088.94	1637014.00	12.00
24	195147.50	1636992.63	13.92
25	195171.48	1636963.88	13.97
26	195171.16	1636839.90	14.00
27	195175.48	1636613.74	14.00
28	195177.01	1636516.52	
29	195181.51	1636338.11	
30	195046.73	1636334.98	14.34
31	195073.98	1636406.89	15.00
32	195079.27	1636505.05	15.50
33	195084.30	1636612.50	15.00
34	195072.19	1636725.01	15.28
35	195059.64	1636834.63	14.96
36	195031.30	1636896.79	14.00

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SYM	REVISION	BY	APPROVED	DATE
-	AS-BUILT DRAWING	B. TAYLOR	K. WRIGG	1.21.2009
-	WELL NOTED AS ABANDONED	B. TAYLOR	K. WRIGG	3.13.2009

BOEING

KELLEY E. WRIGG, STATE OF WASHINGTON, 35710, REGISTERED PROFESSIONAL ENGINEER

ACCEPTABILITY
THIS DESIGN AND/OR SPECIFICATION IS APPROVED

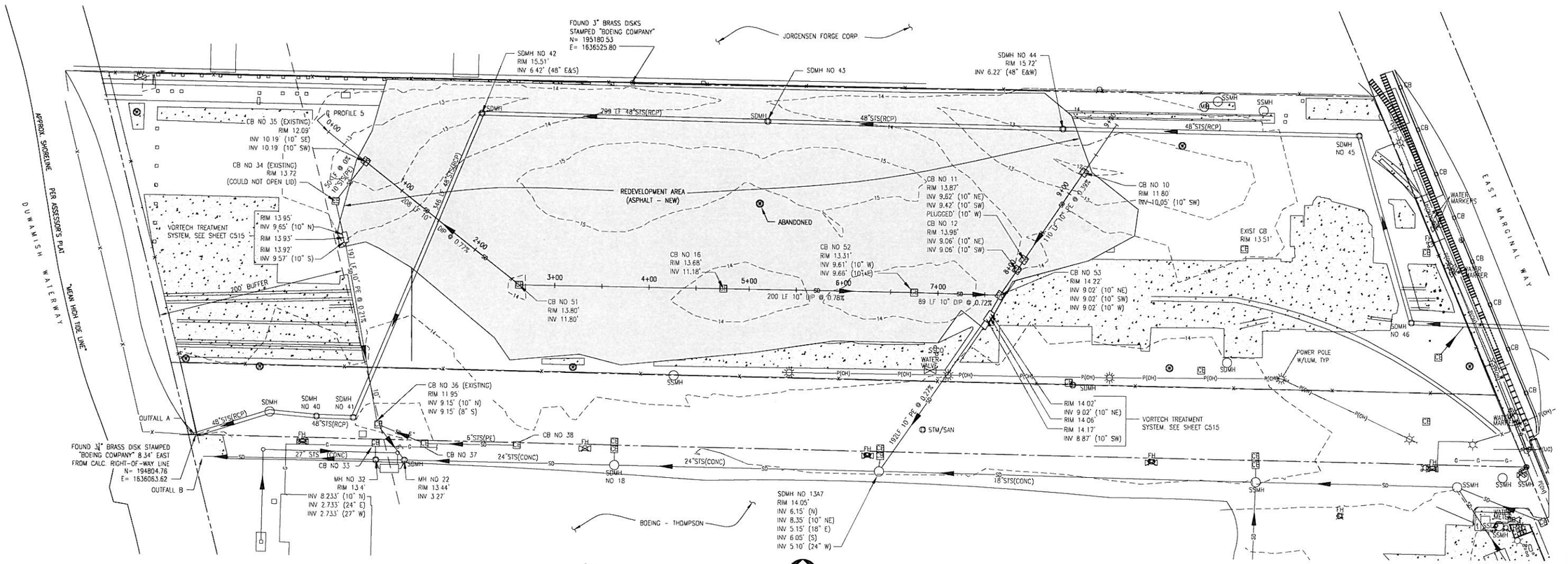
APPROVED BY	DEPT.	DATE

		DATE
DRAWN	B TAYLOR	
CHECKED	K WRIGG	
ENGINEER	D PISCHER	
CHECKED		
APPROVED		
APPROVED		

SUBTITLE: GRADING PLAN (AS-BUILT)
TITLE: ISAACSON MOUND REMOVAL
THOMPSON - SITE YARD
CIVIL MASTER YARD THOMPSON, WA

CURRENT REVISION: SYMBOL: DATE: 3.13.2009
SHEET: C453
JOB NO: COMP NO:
DWG NO: 14-YD-C453

TDM0179 05/02/07 07:41



PLAN

SCALE: 1" = 50'

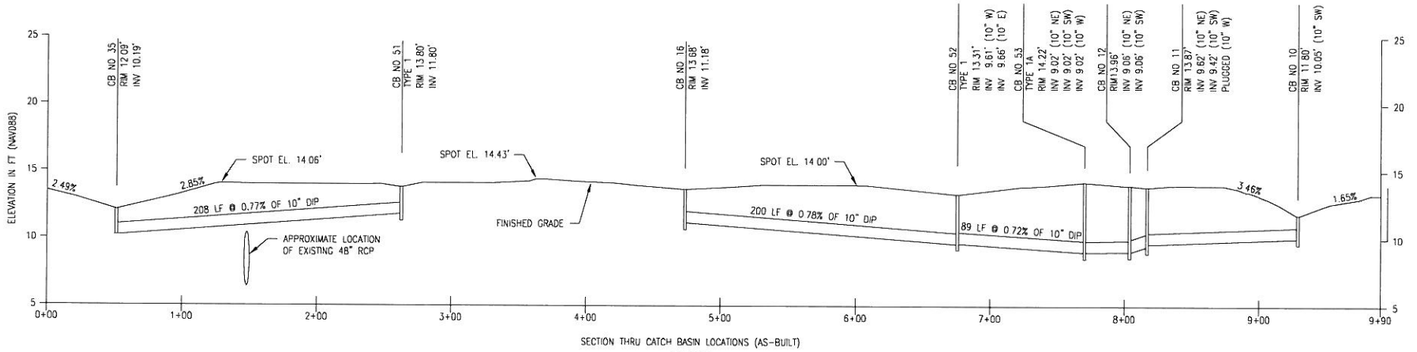
SCALE. 1"=50'

LEGEND

- LUMINAIRE (LUM.)
- POWER POLE
- JUNCTION BOX (AS NOTED)
- TELEPHONE MANHOLE
- CATCH BASIN (CB)
- STORM MANHOLE (SDMH)
- SANITARY SEWER MANHOLE (SSMH)
- GAS METER
- GAS VALVE
- WATER VALVE (WV)
- FIRE HYDRANT (FH)
- WATER METER
- SIGN
- MONITORING WELL
- CONCRETE
- W WATER LINE
- SD STORM LINE
- G GAS LINE
- P(UG) POWER UNDERGROUND
- P(OH) POWER OVERHEAD
- X CHAIN LINK FENCE
- RAIL SEGMENT
- PROPERTY LINE
- 15 CONTOURS
- ASPHALT (NEW)

NEW CATCH BASIN LOCATION TABLE (AS-BUILT)

NAME	TYPE	NOTES	NORTHING	EASTING	RIM E.	INV
CB NO 51	TYPE 1		194954.95	1636406.00	13.80	11.80
CB NO 52	TYPE 1		194958.89	1636825.21	13.31	9.61
CB NO 53	TYPE 1A	CONNECT TO EXISTING	194956.32	1636916.68	14.22	9.02



SECTION THRU CATCH BASIN LOCATIONS (AS-BUILT)

PROFILE 5

HORIZ SCALE 1" = 50'
VERT SCALE" 1"=5'

STORM DRAINAGE NOTES

1. ALL METHODS AND MATERIALS SHALL MEET CITY OF TUKWILA DEVELOPMENT GUIDELINES AND DESIGN AND CONSTRUCTION STANDARDS AND THE CURRENT KING COUNTY SURFACE WATER DESIGN MANUAL, UNLESS OTHERWISE APPROVED
2. MARK ALL STORM DRAIN INLETS WITH "DUMP NO WASTE" AND "DRAINS TO STREAMS".

UTILITY NOTES

1. ALL TRENCH EXCAVATION OPERATIONS SHALL MEET OR EXCEED ALL APPLICABLE SHORING LAWS FOR TRENCHES OVER 4-FEET DEEP. ALL TRENCH SAFETY SYSTEMS SHALL MEET WISHA REQUIREMENTS.
2. ADJUST ALL MANHOLES, CATCH BASINS, AND VALVES.
3. VORTECH VAULTS TO BE INSTALLED "IN-LINE" OVER EXISTING PVC PIPING. SAWCUT & REMOVE EXISTING PVC LINE AT PROPOSED VAULT LOCATIONS. PLACE VAULT, THEN RECONNECT PIPE TO VAULT INLET & OUTLET. USE STUB SECTIONS CUT FROM PIECES OF ORIGINAL PIPE WHEN POSSIBLE

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SYM	REVISION	BY	APPROVED	DATE
-	AS-BUILT DRAWING	B. TAYLOR	K WRIGG	1.21.2009
-	WELL NOTED AS ABANDONED	B. TAYLOR	K WRIGG	3.13.2009

BOEING

16 MAR 09

KELLEY E WRIGG, STATE OF WASHINGTON, 35715, REGISTERED PROFESSIONAL ENGINEER

ACCEPTABILITY
THIS DESIGN AND/OR SPECIFICATION IS APPROVED

APPROVED BY	DEPT	DATE

DRAWN	B. TAYLOR
CHECKED	K. WRIGG
ENGINEER	D. PISCHER
CHECKED	
APPROVED	
APPROVED	

SUBTITLE: STORM DRAINAGE PLAN AND PROFILE (AS-BUILT)

TITLE: ISAACSON MOUND REMOVAL
THOMPSON - SITE YARD
CIVIL MASTER YARD THOMPSON, WA

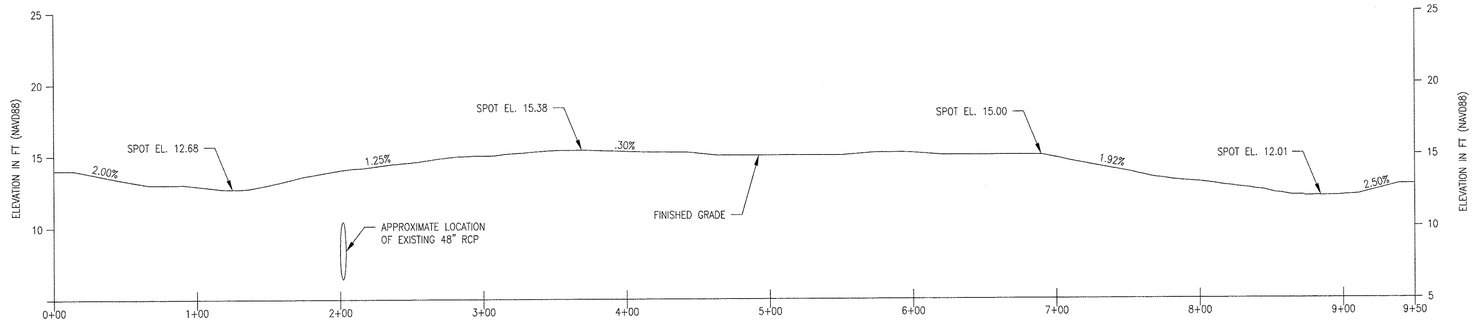
CURRENT REVISION	SYMBOL	DATE
		3.13.2009

SHEET: C454

JOB NO | COMP NO

DWG NO: 14-YD-C454

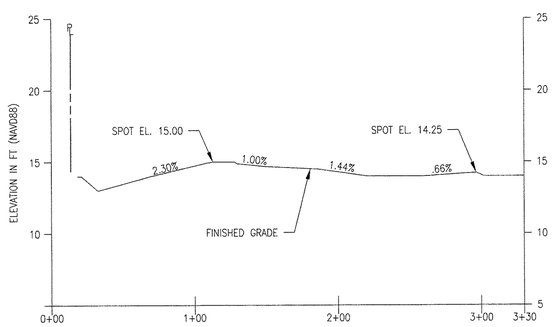
TDM0179, 05/02/07 07:41



EAST / WEST SECTION THRU CROWN OF MOUND (AS-BUILT)

PROFILE 1

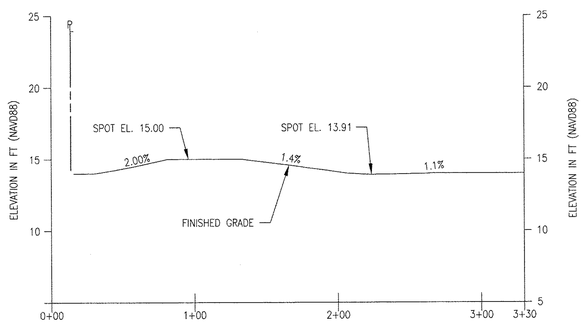
HORIZ SCALE: 1" = 50'
VERT SCALE" 1"=5'



NORTH / SOUTH SECTION THRU CATCH BASIN NO 51 (AS-BUILT)

PROFILE 2

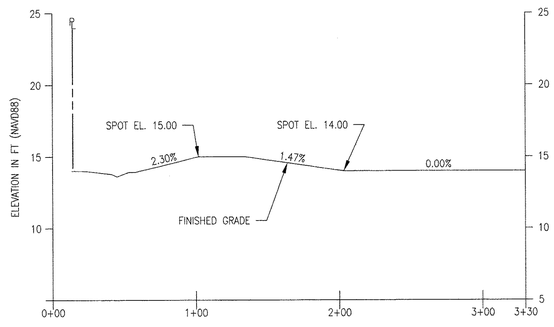
HORIZ SCALE: 1" = 50'
VERT SCALE" 1"=5'



NORTH / SOUTH SECTION THRU CATCH BASIN NO 16 (AS-BUILT)

PROFILE 3

HORIZ SCALE: 1" = 50'
VERT SCALE" 1"=5'



NORTH / SOUTH SECTION THRU CATCH BASIN NO 52 (AS-BUILT)

PROFILE 4

HORIZ SCALE: 1" = 50'
VERT SCALE" 1"=5'

GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2008 EDITION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION," WASHINGTON STATE DEPARTMENT OF TRANSPORTATION; AND THE CITY OF TUKWILA DEVELOPMENT GUIDELINES AND DESIGN CONSTRUCTION STANDARDS. ADDITIONALLY ALL SITE WORK MUST COMPLY WITH THE 2006 IBC.
2. AN APPROVED COPY OF CONSTRUCTION PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
3. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND ANY OTHER RELATED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE CITY RIGHT-OF-WAY.
4. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CITY OF TUKWILA MUST BE CONTACTED FOR A PRE-CONSTRUCTION MEETING.
5. ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS, AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES WHICH MAY BE AFFECTED BY ITS WORK. THE CONTRACTOR SHALL CONTACT THE UTILITIES UNDERGROUND LOCATION SERVICE (1-800-424-5555) PRIOR TO CONSTRUCTION. THE OWNER OR ITS REPRESENTATIVE SHALL BE IMMEDIATELY CONTACTED IF A UTILITY CONFLICT EXISTS. A FEE OF $35.00 WILL BE CHARGED FOR EACH RE-LOCATE REQUEST.
6. ALL MATERIALS SHALL BE NEW AND UNDAMAGED, OF AN APPROVED BRAND, WITH REPLACEMENT AND REPAIR PARTS READILY AVAILABLE FROM THE GENERAL SEATTLE AREA.
7. SIGNING, FLAGGING AND TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE FOLLOWING STANDARDS, (SEE STANDARD TRAFFIC CONTROL PLANS IN SECTION 4) THE WSDOT TRAFFIC MANUAL, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
8. STREET SURFACES SHALL BE CLEANED AT THE END OF EACH DAY'S OPERATION WITH A POWER BROOM OR OTHER APPROVED MEANS. NO OPEN CUT CROSSING OF COUNTY ROADS OR STREETS SHALL BE MADE WITHOUT THE PRIOR APPROVAL OF THE COUNTY.
9. THE PERMITTEE WILL BE RESPONSIBLE TO COORDINATE WITH THE STATE DEPARTMENT OF NATURAL RESOURCES FOR ANY CONFLICT BETWEEN PERMIT WORK AND EXISTING MONUMENTATION.
10. TRENCH BACKFILL OF NEW UTILITIES SHALL BE COMPACTED TO 95% RELATIVE COMPACTION UNDER PAVED AREAS AND 90% RELATIVE COMPACTION OF UNPAVED AREAS, PER COMPACTION TESTING AS SPECIFIED IN STANDARD SPECIFICATIONS.
11. STOCKPILES ARE TO BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED BY TEMPORARY SEEDING AND MULCHING. HYDRO-SEED PREFERRED.
12. EXISTING ASPHALT SURFACES DAMAGED AS A RESULT OF SITE WORK, SHALL BE SAW CUT AT LEAST 6" BEYOND EDGE AT DAMAGE & REPAIRED TO A CONDITION MATCHING OR EXCEEDING THE PRE-EXISTING CONDITION.
13. THE CONTRACTOR IS RESPONSIBLE FOR WATER QUALITY.
14. ALL PIPE SHALL BE PLACED ON STABLE EARTH, OR IF IN THE OPINION OF THE ENGINEER THE EXISTING FOUNDATION IS UNSATISFACTORY, THEN IT SHALL BE EXCAVATED BELOW GRADE AND BACKFILLED TO GRADE WITH SAND-GRAVEL, CRUSHED ROCK OR OTHER SUITABLE MATERIAL. NEVER INSTALL PIPE ON SOD, FROZEN EARTH, LARGE BOULDERS OR ROCK.
15. THE BACKFILL SHALL BE PLACED EQUALLY ON BOTH SIDES OF THE PIPE OR PIPE-ARCH IN LAYERS WITH A LOOSE AVERAGE DEPTH OF 6", MAXIMUM DEPTH 8", THOROUGHLY TAMPING EACH LAYER. THESE COMPACTED LAYERS MUST EXTEND FOR ONE DIAMETER ON EACH SIDE OF THE PIPE OR TO THE SIDE OF THE TRENCH. MATERIALS TO COMPLETE THE FILL OVER PIPE SHALL BE THE SAME AS DESCRIBED. (REFER TO WSDOT STD. SPEC).
16. ALL FILLS SHALL BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DENSITY BY MODIFIED PROCTOR TEST.

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SYM	REVISION	BY	APPROVED	DATE	SYM	REVISION	BY	APPROVED	DATE
-	AS-BUILT DRAWING	B. TAYLOR	K. WRIGG	1.21.2009					

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KELLEY E. WRIGG — STATE OF WASHINGTON — 35715 — REGISTERED PROFESSIONAL ENGINEER

22 JAN 09

ACCEPTABILITY
THIS DESIGN AND/OR SPECIFICATION IS APPROVED

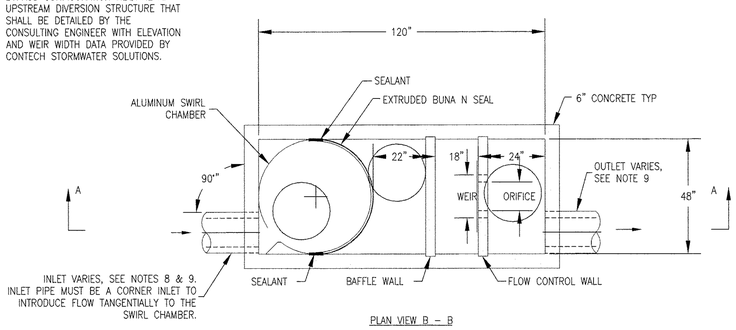
APPROVED BY	DEPT.	DATE

		DATE
DRAWN	B. TAYLOR	
CHECKED	K. WRIGG	
ENGINEER	D. PISCHER	
CHECKED		
APPROVED		
APPROVED		

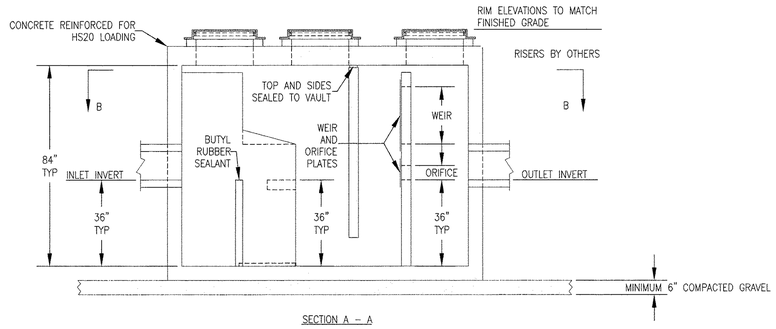
SUBTITLE: GRADING PLAN SECTIONS (AS-BUILT)
TITLE: ISAACSON MOUND REMOVAL
THOMPSON - SITE YARD
CIVIL MASTER YARD THOMPSON, WA

CURRENT REVISION	SYMBOL	DATE
		1.21.2009
SHEET	C514	
JOB NO.		COMP NO.
DWG NO.	14-YD-C514	

NOTE:
VORTECHS SYSTEMS INSTALLED IN A BYPASS CONFIGURATION REQUIRE AN UPSTREAM DIVERSION STRUCTURE THAT SHALL BE DETAILED BY THE CONSULTING ENGINEER WITH ELEVATION AND WEIR WIDTH DATA PROVIDED BY CONTECH STORMWATER SOLUTIONS.



PLAN VIEW B – B



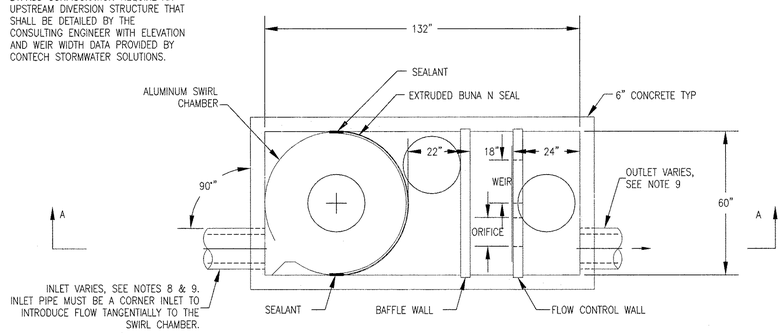
SECTION A – A

NOTES:
1. STORMWATER TREATMENT SYSTEM (SWTS) SHALL HAVE:
   PEAK TREATMENT CAPACITY: 2.8 CFS
   SEDIMENT STORAGE: 1.2 CU YD
   SEDIMENT CHAMBER DIA: 4' MIN
2. SWTS SHALL BE CONTAINED IN ONE RECTANGULAR STRUCTURE
3. SWTS REMOVAL EFFICIENCY SHALL BE DOCUMENTED BASED ON PARTICLE SIZE
4. SWTS SHALL RETAIN FLOATABLES AND TRAPPED SEDIMENT UP TO AND INCLUDING PEAK TREATMENT CAPACITY
5. SWTS INVERTS IN AND OUT ARE TYPICALLY AT THE SAME ELEVATION
6. SWTS SHALL NOT BE COMPROMISED BY EFFECTS OF DOWNSTREAM TAILWATER
7. SWTS SHALL HAVE NO INTERNAL COMPONENTS THAT OBSTRUCT MAINTENANCE ACCESS
8. INLET PIPE MUST BE PERPENDICULAR TO THE STRUCTURE
9. PIPE ORIENTATION MAY VARY; SEE SITE PLAN FOR SIZE AND LOCATION
10. PURCHASER SHALL NOT BE RESPONSIBLE FOR ASSEMBLY OF UNIT
11. MANHOLE FRAMES AND PERFORATED COVERS SUPPLIED WITH SYSTEM, NOT INSTALLED
12. PURCHASER TO PREPARE EXCAVATION AND PROVIDE CRANE FOR OFF-LOADING AND SETTING AT TIME OF DELIVERY
13. VORTECHS SYSTEMS BY CONTECH STORMWATER SOLUTIONS; PORTLAND, OR (800) 548-4667; SCARBOROUGH, ME (877) 907-8676; LINTHICUM, MD (866) 740-3318.

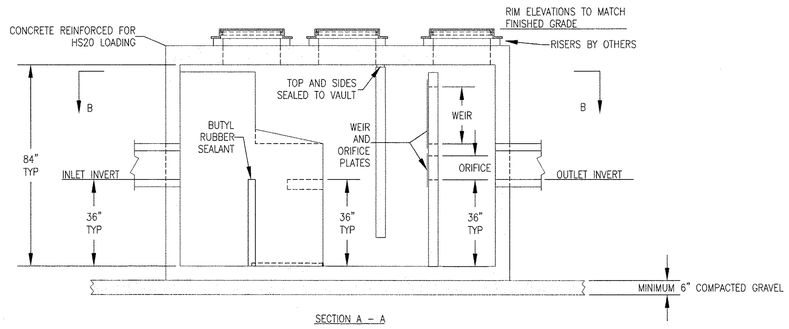
CONTECH® STORMWATER SOLUTIONS™
contechstormwater.com

STANDARD DETAIL
STORMWATER TREATMENT SYSTEM
VORTECHS® MODEL 2000

NOTE:
VORTECHS SYSTEMS INSTALLED IN A BYPASS CONFIGURATION REQUIRE AN UPSTREAM DIVERSION STRUCTURE THAT SHALL BE DETAILED BY THE CONSULTING ENGINEER WITH ELEVATION AND WEIR WIDTH DATA PROVIDED BY CONTECH STORMWATER SOLUTIONS.



PLAN VIEW B – B



SECTION A – A

NOTES:
1. STORMWATER TREATMENT SYSTEM (SWTS) SHALL HAVE:
   PEAK TREATMENT CAPACITY: 4.5 CFS
   SEDIMENT STORAGE: 1.8 CU YD
   SEDIMENT CHAMBER DIA: 5' MIN
2. SWTS SHALL BE CONTAINED IN ONE RECTANGULAR STRUCTURE
3. SWTS REMOVAL EFFICIENCY SHALL BE DOCUMENTED BASED ON PARTICLE SIZE
4. SWTS SHALL RETAIN FLOATABLES AND TRAPPED SEDIMENT UP TO AND INCLUDING PEAK TREATMENT CAPACITY
5. SWTS INVERTS IN AND OUT ARE TYPICALLY AT THE SAME ELEVATION
6. SWTS SHALL NOT BE COMPROMISED BY EFFECTS OF DOWNSTREAM TAILWATER
7. SWTS SHALL HAVE NO INTERNAL COMPONENTS THAT OBSTRUCT MAINTENANCE ACCESS
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STANDARD DETAIL
STORMWATER TREATMENT SYSTEM
VORTECHS® MODEL 3000

LANDAU ASSOCIATES
130 2ND AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

NOTE:
THE INFORMATION ON THIS SHEET RELATES TO VORTECH STORMWATER TREATMENT EQUIPMENT FURNISHED BY CONTECH STORMWATER SOLUTIONS AND INSTALLED AT THE LOCATION INDICATED ON SHEET C454.

SYM	REVISION	BY	APPROVED	DATE
–	AS-BUILT DRAWING	B. TAYLOR	K. WRIGG	1.21.2009

SYM	REVISION	BY	APPROVED	DATE

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22 JAN 09
KELLEY E.WRIGG STATE OF WASHINGTON 35715 REGISTERED PROFESSIONAL ENGINEER

ACCEPTABILITY
THIS DESIGN AND/OR SPECIFICATION IS APPROVED

APPROVED BY	DEPT.	DATE

		DATE
DRAWN	B. TAYLOR	
CHECKED	K. WRIGG	
ENGINEER	D. FISCHER	
CHECKED		
APPROVED		
APPROVED		

SUBTITLE: STORMWATER TREATMENT SYSTEM DETAILS
TITLE: ISAACSON MOUND REMOVAL
THOMPSON – SITE YARD
CIVIL MASTER YARD THOMPSON, WA

CURRENT REVISION	SYMBOL	DATE
		1.21.2009
SHEET	C515	
JOB NO.		COMP NO.
DWG NO.	14-YD-C515	

APPENDIX C

Construction Stormwater General Permit

WAR-010943
Isaacson Soil Removal
8811 E Marginal Way S
Tukwila King County

Issuance Date: November 16, 2005
Effective Date: December 16, 2005
Expiration Date: December 16, 2010

CONSTRUCTION STORMWATER GENERAL PERMIT

National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated With Construction Activity

State of Washington
Department of Ecology
Olympia, Washington 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions which follow.

David C. Peeler, Manager
Water Quality Program
Washington State Department of Ecology

TABLE OF CONTENTS

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S5.A	High Turbidity/Transparency Phone Reporting	As Necessary	Within 24 hours
S5.B	Discharge Monitoring Report	Monthly	Within 15 days after the applicable monitoring period
S5.F	Noncompliance Notification	As necessary	Immediately
S5.F	Noncompliance Notification – Written Report	As necessary	Within 5 Days of non-compliance
G2.	Notice of Change in Authorization	As necessary	
G6.	Permit Application for Substantive Changes to the Discharge	As necessary	
G8.	Application for Permit Renewal	1/permit cycle	No later than 180 days before expiration
G9.	Notice of Permit Transfer	As necessary	
G20.	Notice of Planned Changes	As necessary	
G22.	Reporting Anticipated Non-compliance	As necessary	

SUMMARY OF REQUIRED ON SITE DOCUMENTATION

Permit Conditions	Document Title
Conditions S2, S5	Permit Coverage Letter
Conditions S2, S5	Construction Stormwater General Permit
Conditions S4, S5	Site Log Book
Conditions S9, S5	Stormwater Pollution Prevention Plan (SWPPP)

SPECIAL CONDITIONS

S1. PERMIT COVERAGE

A. Permit Area

This general permit covers all areas of Washington State, except for federal and tribal lands specified in S1.D.3.

B. Operators Required to Seek Coverage Under this General Permit:

1. *Operators* of the following *construction activities* are required to seek coverage under this permit:

   a. Clearing, grading and/or excavation which results in the disturbance of one or more acres, and discharges *stormwater* to *surface waters of the state*; and clearing, grading and/or excavation on *sites* smaller than one acre which are part of a larger *common plan of development or sale*, if the common plan of development or sale will ultimately disturb one acre or more, and discharges stormwater to surface waters of the state.

      i. This includes forest practices that are part of a construction activity that will result in the disturbance of one or more acres, and discharges to surface waters of the state (i.e., forest practices which are preparing a site for construction activities); and

   b. Any size construction activity discharging stormwater to waters of the state which the Department of Ecology (Ecology):

      i. Determines to be a *significant contributor of pollutants* to waters of the state of Washington, or

      ii. Reasonably expects to cause a violation of any water quality standard.

2. Operators of the following activities are not required to seek coverage under this permit, unless specifically required under Condition S1.B.1.b. (Significant Contributor):

   a. Construction activities which discharge all stormwater and non-stormwater to *ground water*, and have no *point source* discharge to surface water or a *storm sewer system* that drains to surface waters of the state;

   b. Construction activities covered under an Erosivity Waiver (Condition S2.C);

   c. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

C. Authorized Discharges:

1. Stormwater Associated with Construction Activity. Subject to compliance with the terms and conditions of this permit, *Permittees* are authorized to discharge stormwater associated with construction activity to surface waters of the state or to a storm sewer system that drains to surface waters of the state.

2. Stormwater Associated with Construction Support Activity. This permit also authorizes stormwater discharges from support activities related to the permitted construction site (e.g., off-site equipment staging yards, material storage areas, borrow areas, etc.) provided:

   a. The support activity is directly related to the permitted construction site that is required to have an NPDES permit; and

   b. The support activity is not a commercial operation serving multiple unrelated construction projects, and does not operate beyond the completion of the construction activity; and

   c. Appropriate controls and measures are identified in the *Stormwater Pollution Prevention Plan* (SWPPP)for the discharges from the support activity areas.

3. Non-Stormwater Discharges. The categories and sources of non-stormwater discharges identified below are conditionally authorized, provided the discharge is consistent with the terms and conditions of this permit:

   a. Discharges from fire fighting activities;

   b. Fire hydrant system flushing;

   c. Potable water including uncontaminated water line flushing (de-chlorinated);

   d. Pipeline hydrostatic test water;

   e. Uncontaminated air conditioning or compressor condensate;

   f. Uncontaminated ground water or spring water;

   g. Uncontaminated excavation *de-watering* (in accordance with S9.D.10)

   h. Uncontaminated discharges from foundation or footing drains;

   i. Water used to control dust;

   j. Routine external building wash down that does not use detergents; and

   k. Landscape irrigation.

All authorized non-stormwater discharges, except for discharges from fire fighting activities, shall be adequately addressed in the SWPPP and comply with Special Condition S3.

D. Limitations on Coverage

The *Director* may require any *discharger* to apply for and obtain coverage under an individual permit or another more specific general permit. Such alternative coverage will be required when Ecology determines that this general permit does not provide adequate assurance that *water quality* will be protected; or there is a reasonable potential for the project to cause or contribute to a violation of water quality standards.

The following stormwater discharges are not covered by this permit:

1. Post-construction stormwater discharges that originate from the site after construction activities have been completed and the site has undergone *final stabilization.*

2. Nonpoint source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from which there is natural runoff as excluded in 40 CFR Subpart 122.27.

3. Stormwater from any federal project or project on federal land or land within an Indian Reservation except for the Puyallup Reservation. Within the Puyallup Reservation, any project that discharges to surface water on land held in trust by the federal government may be covered by this permit.

4. Stormwater from any site covered under an existing NPDES individual permit in which stormwater management and/or treatment requirements are included for all stormwater discharges associated with construction activity.

5. Where an applicable Total Maximum Daily Load (TMDL) specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.

S2. APPLICATION REQUIREMENTS

A. Permit Application Forms

1. Notice of Intent Form/Timeline

a. Operators of new or previously unpermitted construction activities shall submit a complete and accurate permit application form [*Notice of Intent* (NOI)] to Ecology. *Applicants* are encouraged to use Ecology's internet-based electronic NOI to apply for permit coverage.

b. The NOI shall be submitted on or before the date of the first public notice (see Condition S2.B below) and at least 60 days prior to the discharge of stormwater

from construction activities. The 30-day public comment period required by WAC 173-226-130(5) begins on the publication date of the second public notice. Unless Ecology responds to the complete application in writing, based on public comments, or any other relevant factors, coverage under the general permit will automatically commence on the thirty-first day following receipt by Ecology of a completed NOI, or the issuance date of this permit, whichever is later; unless a later date is specified by Ecology in writing.

c. Applicants that discharge to a storm sewer system operated by Seattle, King County, Snohomish County, Tacoma, Pierce County, or Clark County shall also submit a copy of the NOI to the appropriate jurisdiction.

2. Transfer of Coverage Form
Current coverage under this permit may be transferred to one or more new operators, including operators of sites within a Common Plan of Development, by submitting a Transfer of Coverage Form in accordance with Condition G9. Transfers do not require public notice.

B. Public Notice

For new or previously unpermitted sites, the applicant shall publish a public notice at least one time each week for two consecutive weeks, with a 7-day time span between dates, in a newspaper that has general circulation in the county in which the construction is to take place. The notice shall contain the following:

1. A statement that "The applicant is seeking coverage under the Washington State Department of Ecology's Construction Stormwater NPDES and State Waste Discharge General Permit";

2. The name, address and location of the construction site;

3. The name and address of the applicant;

4. The type of construction activity that will result in a discharge, (e.g., residential construction, commercial construction, etc.) and the number of acres to be disturbed;

5. The name of the receiving water(s) (i.e., the surface water(s) that the site will discharge to), or if the discharge is through a storm sewer system, the name of the operator of the storm sewer; and

6. The statement: "Any person desiring to present their views to the Department of Ecology regarding this application, or interested in the Department's action on this application may notify the Department of Ecology in writing within 30 days of the last date of publication of this notice. Comments can be submitted to: Department of Ecology, P.O. Box 47696, Olympia, WA 98504-7696, Attn: Water Quality Program, Construction Stormwater".

C. Erosivity Waiver

Operators may qualify for a waiver from the permit if the following conditions are met:

1. The site will result in the disturbance of less than 5 acres; and the site is not a portion of a common plan of development or sale that will disturb 5 acres or greater.

2. Calculation of Erosivity "R" Factor and Regional Timeframe:

   a. The project's rainfall erosivity factor ("R" Factor) must be less than 5 during the period of construction activity, as calculated using the Texas A&M University online rainfall erosivity calculator at: http://ei.tamu.edu/. The period of construction activity begins at initial earth disturbance and ends with *final stabilization*; and, in addition:

   b. The entire period of construction activity must fall within the following timeframes:

      i. For sites west of the Cascades Crest: June 15 – September 15; or

      ii. For sites east of the Cascades Crest, excluding the Central Basin: June 15 – October 15; or

      iii. For sites east of the Cascades Crest, within the Central Basin*: no additional timeframe restrictions apply.

      *Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

3. Operators must submit a complete Erosivity Waiver Certification Form at least one week prior to commencing land disturbing activities. Certification must include:

   a. A statement that the operator will comply with applicable local stormwater requirements; and

   b. A statement that the operator will implement appropriate *erosion and sediment control BMPs* to prevent violations of water quality standards.

4. This waiver is not available for facilities declared a significant contributor of *pollutants* as defined in Condition S1.B.1.b.

5. This waiver does not apply to construction activity which includes non-stormwater discharges listed in S1.C.3.

6. If construction activity extends beyond the certified waiver period for any reason, the operator shall either:

a. Recalculate the rainfall erosivity "R" factor using the original start date and a new projected ending date and, if the "R" factor is still under 5 and the entire project falls within the applicable regional timeframe in S2.C.2.b, complete and submit an amended waiver certification form before the original waiver expires; or

b. Submit a complete permit application to Ecology in accordance with Condition S2.A and B before the end of the certified waiver period.

S3. COMPLIANCE WITH STANDARDS

A. Discharges shall not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), *sediment* management standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR Part 131.36). Discharges that are not in compliance with these standards are not authorized.

B. Prior to the discharge of stormwater and non-stormwater to *waters of the state*, the Permittee shall apply all known, available, and reasonable methods of prevention, control, and treatment (*AKART*). This includes the preparation and implementation of an adequate Stormwater Pollution Prevention Plan (SWPPP), with all appropriate *best management practices* (BMPs) installed and maintained in accordance with the SWPPP and the terms and conditions of this permit.

C. Compliance with water quality standards shall be presumed, unless discharge monitoring data or other site specific information demonstrates that a discharge causes or contributes to a violation of water quality standards, when the Permittee is:

1. In full compliance with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions; and

2. Fully implementing stormwater BMPs contained in *stormwater management manuals* published or approved by Ecology, or BMPs that are *demonstrably equivalent* to BMPs contained in stormwater technical manuals published or approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site *pollution* control.

D. For sites that discharge to both surface water and ground water, all ground water discharges are also subject to the terms and conditions of this permit. Permittees who discharge to ground water through an *injection well* shall comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.

S4. MONITORING REQUIREMENTS

The primary monitoring requirements are summarized in Table 3 (below):

Table 3. Summary of Monitoring Requirements[1]

Size of Soil Disturbance[2]	Weekly Site Inspections	Weekly Sampling w/ Turbidity Meter	Weekly Sampling w/ Transparency Tube	Weekly pH sampling[3]
Sites which disturb less than 1 acre	Required	Not Required	Not Required	Not Required
Sites which disturb 1 acre or more, but less than 5 acres	Required	Sampling Required – either method[4]		Required
Sites which disturb 5 acres or more	Required	Required	Not Required[5]	Required

A. Site Log Book

The Permittee shall maintain a site log book that contains a record of the implementation of the SWPPP and other permit requirements including the installation and maintenance of BMPs, site inspections, and stormwater monitoring.

B. Site Inspections

1. Site inspections shall include all areas disturbed by construction activities, all BMPs, and all stormwater discharge points. Stormwater shall be visually examined for the

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[1] Additional monitoring requirements may apply for: 1) discharges to 303(d) listed waterbodies and waterbodies with applicable TMDLs for turbidity, fine sediment, high pH, or phosphorus - see Condition S8; and 2) sites required to perform additional monitoring by Ecology order – see Condition G13.

[2] Soil disturbance is calculated by adding together all areas affected by construction activity. Construction Activity means clearing, grading, excavation, and any other activity which disturbs the surface of the land, including ingress/egress from the site.

[3] Beginning October 1, 2006, if construction activity involves significant concrete work or the use of engineered soils, and stormwater from the affected area drains to a stormwater collection system or other surface water, the Permittee shall conduct pH sampling in accordance with Condition S4.D.

[4] Beginning October 1, 2008, sites with one or more acres, but less than 5 acres of soil disturbance, shall conduct turbidity or transparency sampling in accordance with Condition S4.C.

[5] Beginning October 1, 2006, sites greater than or equal to 5 acres of soil disturbance shall conduct turbidity sampling using a turbidity meter in accordance with Condition S4.C.

presence of suspended sediment, turbidity, discoloration, and oil sheen. Inspectors shall evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

Based on the results of the inspection, the Permittee shall correct the problems identified as follows:

a. Review the SWPPP for compliance with Condition S9 and make appropriate revisions within 7 days of the inspection; and

b. Fully implement and maintain appropriate *source control* and/or *treatment BMPs* as soon as possible, but no later than 10 days of the inspection; and

c. Document BMP implementation and maintenance in the site log book.

2. The site inspections shall be conducted at least once every *calendar week* and within 24 hours of any discharge from the site. The inspection frequency for temporarily stabilized, inactive sites may be reduced to once every calendar month.

3. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. The inspector shall have the skills to:

   a. Assess the site conditions and construction activities that could impact the quality of stormwater, and

   b. Assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

4. Beginning October 1, 2006, construction sites one acre or larger that discharge stormwater to surface waters of the state, shall have site inspections conducted by a *Certified Erosion and Sediment Control Lead* (CESCL). The CESCL shall be identified in the SWPPP and shall be present on-site or on-call at all times. Certification shall be obtained through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the Manual).

5. The inspector shall summarize the results of each inspection in an inspection report or checklist and be entered into, or attached to, the site log book. At a minimum, each inspection report or checklist shall include:

   a. Inspection date and time.

   b. Weather information; general conditions during inspection and approximate amount of precipitation since the last inspection, and within the last 24 hours.

   c. A summary or list of all BMPs which have been implemented, including observations of all erosion/sediment control structures or practices.

   d. The following shall be noted:

      i. locations of BMPs inspected,

ii. locations of BMPs that need maintenance,

iii. the reason maintenance is needed,

iv. locations of BMPs that failed to operate as designed or intended, and

v. locations where additional or different BMPs are needed, and the reason(s) why.

e. A description of stormwater discharged from the site. The inspector shall note the presence of suspended sediment, turbid water, discoloration, and/or oil sheen, as applicable.

f. Any water quality monitoring performed during inspection.

g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made as a result of the inspection.

h. A statement that, in the judgment of the person conducting the site inspection, the site is either in compliance or out of compliance with the terms and conditions of the SWPPP and the permit. If the site inspection indicates that the site is out of compliance, the inspection report shall include a summary of the remedial actions required to bring the site back into compliance, as well as a schedule of implementation.

i. Name, title, and signature of the person conducting site inspection; and the following statement: "I certify that this report is true, accurate, and complete, to the best of my knowledge and belief".

C. Turbidity/Transparency Sampling Requirements

1. Sampling Methods/Effective Dates

a. Beginning October 1, 2006, if construction activity will involve the disturbance of 5 acres or more, the Permittee shall conduct *turbidity* sampling per Condition S4.C.

b. Beginning October 1, 2008, if construction activity will involve greater than or equal to 1 acre, but less than 5 acres of soil disturbance, the Permittee shall conduct *transparency* sampling **or** turbidity sampling per Condition S4.C.

2. Sampling Frequency

a. Sampling shall be conducted at least once every calendar week, when there is a discharge of stormwater (or authorized non-stormwater) from the site. Samples shall be *representative* of the flow and characteristics of the discharge.

b. When there is no discharge during a calendar week, sampling is not required.

c. Sampling is not required outside of normal working hours or during unsafe conditions. If a Permittee is unable to sample during a monitoring period, the Discharge Monitoring Report (DMR) shall include a brief explanation.

3. Sampling Locations

   a. Sampling is required at all discharge points where stormwater (or authorized non-stormwater) is discharged off-site.

   b. All sampling point(s) shall be identified on the SWPPP site map and be clearly marked in the field with a flag, tape, stake or other visible marker.

4. Sampling and Analysis Methods

   a. Turbidity analysis shall be performed with a calibrated turbidity meter (turbidimeter), either on-site or at an accredited lab. The results shall be recorded in the site log book in Nephelometric Turbidity Units (NTU).

   b. Transparency analysis shall be performed on-site with a 1 ¾ inch diameter, 60 centimeter (cm) long Transparency Tube. The results shall be recorded in the site log book in centimeters (cm). Transparency Tubes are available from: http://watermonitoringequip.com/pages/stream.html

Parameter	Units	Analytical Method	Sampling Frequency	Benchmark Value
Turbidity	NTU	SM2130 or EPA180.1	Weekly, if discharging	25 NTU
Transparency	cm	Manufacturer instructions, or Ecology Guidance	Weekly, if discharging	31 cm

5. Turbidity/Transparency Benchmark Values

   The benchmark value for turbidity is 25 NTU (Nephelometric Turbidity Units); and the benchmark value for transparency is 31 cm.

   a. Turbidity 26 – 249 NTU, or Transparency 30 – 7 cm:

      If discharge turbidity is greater than 25 NTU, but less than 250 NTU; or if discharge transparency is less than 31 cm, but greater than 6 cm, the CESCL shall:

      i. Review the SWPPP for compliance with Condition S9 and make appropriate revisions within 7 days of the discharge that exceeded the benchmark; and

      ii. Fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, but within 10 days of the discharge that exceeded the benchmark; and

      iii. Document BMP implementation and maintenance in the site log book.

   b. Turbidity 250 NTU or greater, or Transparency 6 cm or less:

If discharge turbidity is greater than or equal to 250 NTU; or if discharge transparency is less than or equal to 6 cm, the CESCL shall:

i. Notify Ecology by phone in accordance with Condition S5.A.; and

ii. Review the SWPPP for compliance with Condition S9 and make appropriate revisions within 7 days of the discharge that exceeded the benchmark; and

iii. Fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, but within 10 days of the discharge that exceeded the benchmark;

iv. Document BMP implementation and maintenance in the site log book; and

v. Continue to sample discharges daily until:

1. turbidity is 25 NTU (or lower); or

2. transparency is 31 cm (or greater); or

3. the CESCL has demonstrated compliance with the water quality standard for turbidity:

a. no more than 5 NTU over background turbidity, if background is less than 50 NTU, or

b. no more than 10% over background turbidity, if background is 50 NTU or greater; or

4. the discharge stops or is eliminated.

D. pH Monitoring: Sites with Significant Concrete Work or Engineered Soils

Beginning October 1, 2006, if construction activity will result in the disturbance of 1 acre or more, **and** involves *significant concrete work* or the use of *engineered soils*, **and** stormwater from the affected area drains to surface waters of the state or to a storm sewer system that drains to surface waters of the state, the Permittee shall conduct *pH* monitoring as set forth below:

1. For sites with significant concrete work, the *pH monitoring period* shall commence when the concrete is first exposed to precipitation and continue weekly until stormwater pH is 8.5 or less.

a. "Significant concrete work" means greater than 1000 cubic yards poured concrete or recycled concrete.

2. For sites with engineered soils, the pH monitoring period shall commence when the soil amendments are first exposed to precipitation and shall continue until the area of engineered soils is *fully stabilized.*

a. "Engineered soils" means soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash.

3. During the pH monitoring period, the Permittee shall obtain a representative sample of stormwater and conduct pH analysis at least once per week.

4. The Permittee shall monitor pH in the sediment trap/pond(s) or other locations that receive stormwater runoff from the area of significant concrete work or engineered soils prior to discharge to surface waters.

5. The benchmark value for pH is 8.5 standard units. Any time sampling indicates that pH is 8.5 or greater, the Permittee shall:

   a. Prevent the high pH water (8.5 or above) from entering storm sewer systems or surface waters; and

   b. If necessary, adjust or neutralize the high pH water using an appropriate treatment BMP such as CO_2 sparging or dry ice. The Permittee shall obtain written approval from Ecology prior to using any form of chemical treatment other than CO_2 sparging or dry ice.

6. The Permittee shall perform pH analysis on-site with a calibrated pH meter, pH test kit, or wide range pH indicator paper. The Permittee shall record pH monitoring results in the site log book.

S5. REPORTING AND RECORDKEEPING REQUIREMENTS

A. High Turbidity Phone Reporting

Any time sampling performed in accordance with Special Condition S4.C indicates turbidity is 250 NTU or greater (or transparency is 6 cm or less) the Permittee shall notify the appropriate Ecology regional office by phone within 24 hours of analysis.

B. Discharge Monitoring Reports

1. Permittees required to conduct water quality sampling in accordance with Special Conditions S.4.C (Turbidity/Transparency), S4.D (pH) and/or S8 [303(d)/TMDL sampling] shall submit the results to Ecology monthly on Discharge Monitoring Report (DMR) forms provided by Ecology.

   Permittees are authorized and encouraged to submit electronic DMRs using the "E-DMR Form" on Ecology's Construction Stormwater web site: http://www.ecy.wa.gov/programs/wq/stormwater/construction/.

2. The Permittee shall submit DMR forms electronically or by mail to be received by Ecology within 15 days following the end of each month. If there was no discharge during a given monitoring period, the Permittee shall submit the form as required with the words "no discharge" entered in place of the monitoring results. If the Permittee is unable to submit discharge monitoring reports electronically, the Permittee may mail reports to the address listed below:

Department of Ecology
Water Quality Program - Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

C. Records Retention

The Permittee shall retain records of all monitoring information (site log book, sampling results, inspection reports/checklists, etc.), Stormwater Pollution Prevention Plan, and any other documentation of compliance with permit requirements during the life of the construction project and for a minimum of three years following the termination of permit coverage. Such information shall include all calibration and maintenance records, and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

D. Recording of Results

For each measurement or sample taken, the Permittee shall record the following information:

1. Date, place, method, and time of sampling or measurement;
2. The individual who performed the sampling or measurement;
3. The dates the analyses were performed;
4. The individual who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of all analyses.

E. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Condition S4 of this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Permittee's DMR.

F. Noncompliance Notification

In the event the Permittee is unable to comply with any of the terms and conditions of this permit which may cause a threat to human health or the environment, the Permittee shall:

1. Immediately notify Ecology of the failure to comply.
2. Immediately take action to prevent the discharge/pollution, or otherwise stop or correct the noncompliance, and, if applicable, repeat sampling and analysis of any noncompliance immediately and submit the results to Ecology within five (5) days after becoming aware of the violation.

3. Submit a detailed written report to Ecology within five (5) days, unless requested earlier by Ecology. The report shall contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

   Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

G. Access to Plans and Records

1. The Permittee shall retain the following permit documentation (plans and records) on-site, or within reasonable access to the site, for use by the operator; or on-site review by Ecology or the local *jurisdiction*:

   a. General Permit;

   b. Permit Coverage Letter;

   c. Stormwater Pollution Prevention Plan (SWPPP); and

   d. Site Log Book

2. The Permittee(s) shall address written requests for plans and records listed above (Condition S5.G.1) as follows:

   a. A copy of plans and records shall be provided to Ecology within 14 days of receipt of a written request from Ecology.

   b. A copy of plans and records shall be provided to the public when requested in writing. Upon receiving a written request from the public for the Permittee's plans and records, the Permittee shall either:

      i. Provide a copy of the plans and records to the requestor within 14 days of a receipt of the written request; or

      ii. Notify the requestor within 10 days of receipt of the written request of the location and times within normal business hours when the plans and records may be viewed, and provide access to the plans and records within 14 days of receipt of the written request; or

      iii. Within 14 days of receipt of the written request, the Permittee may submit a copy of the plans and records to Ecology for viewing and/or copying by the requestor at an Ecology office, or a mutually agreed upon location. If plans and records are viewed and/or copied at a location other than at an Ecology office, the Permittee will provide reasonable access to copying services for which a reasonable fee may be charged. The Permittee shall notify the

requestor within 10 days of receipt of the request where the plans and records may be viewed and/or copied.

S6. PERMIT FEES

The Permittee shall pay permit fees assessed by Ecology. Fees for stormwater discharges covered under this permit shall be established by Chapter 173-224 WAC. Permit fees will continue to be assessed until the permit is terminated in accordance with Special Condition S10 or revoked in accordance with General Condition G5.

S7. SOLID AND LIQUID WASTE DISPOSAL

Solid and liquid wastes generated by construction activity such as demolition debris, construction materials, contaminated materials, and waste materials from maintenance activities, including liquids and solids from cleaning catch basins and other stormwater facilities, shall be handled and disposed of in accordance with:

1. Special Condition S3, Compliance with Standards, and

2. WAC 173-216-110, and other applicable regulations.

S8. DISCHARGES TO 303(D) OR TMDL WATERBODIES

A. Sampling and Numeric Effluent Limitations For Discharges to 303(d)-listed Waterbodies

1. 1.Permittees that discharge to water bodies listed as impaired by the State of Washington under Section 303(d) of the *Clean Water Act* for turbidity, fine sediment, high pH, or phosphorus, shall conduct water quality sampling according to the requirements of this section.

2. All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current listing by Ecology of impaired waters that exists on November 16, 2005, or the date when the operator's complete permit application is received by Ecology, whichever is later.

B. Discharges to 303(d)-Listed Waterbodies (Turbidity, Fine Sediment, or Phosphorus)

1. Permittees which discharge to waterbodies on the 303(d) list for turbidity, fine sediment, or phosphorus shall conduct turbidity sampling at the following locations to evaluate compliance with the water quality standard for turbidity:

   a. Background turbidity shall be measured in the 303(d)-listed *receiving water* immediately upstream (upgradient) or outside the area of influence of the discharge; and

   b. Discharge turbidity shall be measured at the point of discharge into the 303(d) listed receiving waterbody, inside the area of influence of the discharge; **or**

Alternatively, discharge turbidity may be measured at the point where the discharge leaves the construction site, rather than in the receiving waterbody.

2. Based on sampling, if the discharge turbidity exceeds the water quality standard for turbidity (more than 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or more than a 10% increase in turbidity when the background turbidity is more than 50 NTU), all future discharges shall comply with a numeric effluent limit which is equal to the water quality standard for turbidity.

3. If a future discharge exceeds the water quality standard for turbidity, the Permittee shall:

   a. Review the SWPPP for compliance with Condition S9 and make appropriate revisions within 7 days of the discharge that exceeded the standard;

   b. Fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, but within 10 days of the discharge that exceeded the standard;

   c. Document BMP implementation and maintenance in the site log book;

   d. Notify the appropriate Ecology Regional Office by phone within 24 hours of analysis;

   e. Continue to sample daily until discharge turbidity meets the water quality standard for turbidity.

C. Discharges to waterbodies on the 303(d) list for High pH

1. Permittees which discharge to waterbodies on the 303(d) list for high pH shall conduct sampling at one of the following locations to evaluate compliance with the water quality standard for pH (in the range of 6.5 – 8.5):

   a. pH shall be measured at the point of discharge into the 303(d) listed waterbody, inside the area of influence of the discharge; or

   b. Alternatively, pH may be measured at the point where the discharge leaves the construction site, rather than in the receiving water.

2. Based on the sampling set forth above, if the pH exceeds the water quality standard for pH (in the range of 6.5 – 8.5), all future discharges shall comply with a numeric effluent limit which is equal to the water quality standard for pH.

3. If a future discharge exceeds the water quality standard for pH, the Permittee shall:

   a. Review the SWPPP for compliance with Condition S9 and make appropriate revisions within 7 days of the discharge that exceeded the water quality standard;

b. Fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, but within 10 days of the discharge that exceeded the standards;

c. Document BMP implementation and maintenance in the site log book;

d. Notify the appropriate Ecology Regional Office by phone within 24 hours of analysis; and

e. Continue to sample daily until discharge meets the water quality standard for pH (in the range of 6.5 – 8.5) or the discharge stops or is eliminated.

Parameter identified in 303(d) listing	Parameter/Units	Analytical Method	Sampling Frequency	Water Quality Standard
Turbidity Fine Sediment Phosphorus	Turbidity/NTU	SM2130 or EPA180.1	Weekly, if discharging	If background is 50 NTU or less: 5 NTU over background; or If background is more than 50 NTU: 10% over background
High pH	pH/Standard Units	pH meter	Weekly, if discharging	In the range of 6.5 – 8.5

D. Sampling and Limitations For Sites Discharging to Applicable TMDLs

1. Discharges to a waterbodies subject to an applicable Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus, shall be consistent with the assumptions and requirements of the TMDL.

   a. Where an *applicable TMDL* sets specific *waste load allocations* or requirements for discharges covered by this permit, discharges shall be consistent with any specific waste load allocations or requirements established by the applicable TMDL.

      ii. The Permittee shall sample discharges weekly, or as otherwise specified by the TMDL, to evaluate compliance with the specific waste load allocations or requirements.

      iii. Analytical methods used to meet the monitoring requirements shall conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136. Turbidity and pH methods

need not be accredited or registered unless conducted at a laboratory which must otherwise be accredited or registered.

b. Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but no specific requirements have been identified, compliance with Conditions S4 (Monitoring) and S9 (SWPPPs) will be assumed to be consistent with the approved TMDL.

c. Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with Conditions S4 (Monitoring) and S9 (SWPPPs) will be assumed to be consistent with the approved TMDL.

d. Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.

2. Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus, which has been completed and approved by EPA prior to November 16, 2005, or prior to the date the operator's complete permit application is received by Ecology, whichever is later. TMDLs completed after the operator's complete permit application is received by Ecology become applicable to the Permittee only if they are imposed through an administrative order by Ecology, or through a modification of permit coverage.

S9. STORMWATER POLLUTION PREVENTION PLAN

An adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity shall be prepared and implemented in accordance with the requirements of this permit beginning with initial soil disturbance and until *final stabilization*.

A. The SWPPP shall meet the following objectives:

1. To implement Best Management Practices (BMPs) to prevent erosion and *sedimentation*, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.
2. To prevent violations of surface water quality, ground water quality, or sediment management standards.
3. To control peak volumetric flow rates and velocities of stormwater discharges.

B. General Requirements

1. The SWPPP shall include a narrative and drawings. All BMPs shall be clearly referenced in the narrative and marked on the drawings.

   The SWPPP narrative shall include documentation to explain and justify the pollution prevention decisions made for the project. Documentation shall include:

   a. Information about existing site conditions (topography, drainage, soils, vegetation, etc.);

b. Potential erosion problem areas;

c. The 12 elements of a SWPPP in S9.D.1-12, including BMPs used to address each element;

d. Construction phasing/sequence and general BMP implementation schedule;

e. The actions to be taken if BMP performance goals are not achieved; and

f. Engineering calculations for ponds and any other designed structures.

2. The Permittee shall modify the SWPPP if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Permittee shall take the following actions:

   a. Review the SWPPP for compliance with Condition S9 and make appropriate revisions within 7 days of the inspection or investigation;

   b. Fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, but no later than 10 days from the inspection or investigation; and

   c. Document BMP implementation and maintenance in the site log book.

3. The Permittee shall modify the SWPPP whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

C. Stormwater Best Management Practices (BMPs)

BMPs shall be consistent with:

1. Stormwater Management Manual for Western Washington (most recent edition), for sites west of the crest of the Cascade Mountains;

2. Stormwater Management Manual for Eastern Washington (most recent edition), for sites east of the crest of the Cascade Mountains; or

3. Other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention and are approved by Ecology; or

4. Documentation in the SWPPP that the BMPs selected provides an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:

a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs being selected; and

b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

D. SWPPP – Narrative Contents and Requirements

The Permittee shall include each of the 12 elements below in S9.D.1-12 in the narrative of the SWPPP and ensure that they are implemented unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP.

1. Preserve Vegetation/Mark Clearing Limits

   a. Prior to beginning land disturbing activities, including clearing and grading, clearly mark all clearing limits, *sensitive areas* and their *buffers*, and trees that are to be preserved within the construction area.

   b. The duff layer, native top soil, and natural vegetation shall be retained in an undisturbed state to the maximum degree practicable.

2. Establish Construction Access

   a. Construction vehicle access and exit shall be limited to one route, if possible.

   b. Access points shall be stabilized with a pad of quarry spalls, crushed rock, or other *equivalent BMP*, to minimize the tracking of sediment onto public roads.

   c. Wheel wash or tire baths shall be located on site, if the stabilized construction entrance is not effective in preventing sediment from being tracked onto public roads.

   d. If sediment is tracked off site, public roads shall be cleaned thoroughly at the end of each day, or more frequently during wet weather. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area.

   e. Street washing is allowed only after sediment is removed in accordance with S9.D.2.d. Street wash wastewater shall be controlled by pumping back on site or otherwise be prevented from discharging into systems tributary to waters of the state.

3. Control Flow Rates

   a. Properties and waterways downstream from development sites shall be protected from erosion due to increases in the velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.

b. Where necessary to comply with S9.D.3.a., stormwater retention or *detention* facilities shall be constructed as one of the first steps in grading. Detention facilities shall be functional prior to construction of site improvements (e.g., impervious surfaces).

c. If permanent infiltration ponds are used for flow control during construction, these facilities shall be protected from siltation during the construction phase.

4. Install Sediment Controls

a. Stormwater runoff from disturbed areas shall pass through a sediment pond or other appropriate sediment removal BMP, prior to leaving a construction site or prior to discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but shall meet the flow control performance standard of S9.D.3.a.

b. Sediment control BMPs (sediment ponds, traps, filters, etc.) shall be constructed as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.

c. BMPs intended to trap sediment on site shall be located in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.

5. Stabilize Soils

a. Exposed and unworked soils shall be stabilized by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide (PAM), the early application of gravel base on areas to be paved, and dust control.

b. Depending on the geographic location of the project, no soils shall remain exposed and unworked for more than the time periods set forth below to prevent erosion:

West of the Cascade Mountains Crest
During the dry season (May 1 - Sept. 30): 7 days
During the wet season (October 1 - April 30): 2 days

East of the Cascade Mountains Crest, except for Central Basin*
During the dry season (July 1 - September 30): 10 days
During the wet season (October 1 - June 30): 5 days

The Central Basin*, East of the Cascade Mountains Crest
During the dry Season (July 1 - September 30): 30 days
During the wet season (October 1 - June 30): 15 days

*Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

The time period may be adjusted by a local jurisdiction, if the jurisdiction can show that local precipitation data justify a different standard.

c. Soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

d. Soil stockpiles shall be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from *storm drain* inlets, waterways, and drainage channels.

6. Protect Slopes

a. Design and construct cut and fill slopes in a manner that will minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (e.g., track walking).

b. Off-site stormwater (run-on) or groundwater shall be diverted away from slopes and disturbed areas with interceptor dikes, pipes, and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.

c. At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.

i. West of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the peak 10-minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis shall use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis shall use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Temporary pipe slope drains shall handle the expected peak flow velocity from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

d. Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.

e. Check dams shall be placed at regular intervals within constructed channels that are cut down a slope.

7. Protect Drain Inlets

a. All storm drain inlets made operable during construction shall be protected so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.

b. Inlet protection devices shall be cleaned or removed and replaced when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

8. Stabilize Channels and Outlets

a. All temporary on-site conveyance channels shall be designed, constructed, and stabilized to prevent erosion from the following expected peak flows:

i. West of the Cascade Mountains Crest: Channels shall handle the peak 10 minute velocity of flow from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis shall use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis shall use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Channels shall handle the expected peak flow velocity from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

b. *Stabilization*, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches shall be provided at the outlets of all conveyance systems.

9. Control Pollutants

a. All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater.

b. Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks shall include secondary containment.

c. Maintenance, fueling, and repair of heavy equipment and vehicles shall be conducted using spill prevention and control measures. Contaminated surfaces shall be cleaned immediately following any spill incident.

d. Wheel wash or tire bath wastewater shall be discharged to a separate on-site treatment system or to the *sanitary sewer* with local sewer district approval.

e. Application of fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' label requirements for application rates and procedures shall be followed.

f. BMPs shall be used to prevent or treat contamination of stormwater runoff by pH modifying sources. These sources include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete pumping and mixer washout waters. Permittees shall adjust the pH of stormwater if necessary to prevent violations of water quality standards.

g. Permittees shall obtain written approval from Ecology prior to using chemical treatment, other than CO_2 or dry ice to adjust pH.

10. Control De-Watering

a. Foundation, vault, and trench de-watering water, which have similar characteristics to stormwater runoff at the site, shall be discharged into a controlled conveyance system prior to discharge to a sediment trap or sediment pond.

b. Clean, non-turbid de-watering water, such as well-point ground water, can be discharged to systems tributary to, or directly into surface waters of the state, as specified in S9.D.8, provided the de-watering flow does not cause erosion or flooding of receiving waters. Clean de-watering water should not be routed through stormwater sediment ponds.

c. Other de-watering disposal options may include:

i. infiltration

ii. transport offsite in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters,

iii. Ecology-approved on-site chemical treatment or other suitable treatment technologies,

iv. sanitary sewer discharge with local sewer district approval, if there is no other option, or

v. use of a sedimentation bag with *outfall* to a ditch or swale for small volumes of localized de-watering.

d. Highly turbid or contaminated dewatering water shall be handled separately from stormwater.

11. Maintain BMPs

a. All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function in accordance with BMP specifications.

b. All temporary erosion and sediment control BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

12. Manage the Project

    a. Development projects shall be phased to the maximum degree practicable and shall take into account seasonal work limitations.

    b. Inspection and Monitoring

       All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections and monitoring shall be conducted in accordance with S4.

    c. Maintaining an Updated Construction SWPPP

       The SWPPP shall be maintained, updated, and implemented in accordance with Conditions S3, S4 and S9.

E. SWPPP – Map Contents and Requirements

The SWPPP shall also include a vicinity map or general location map (e.g. USGS Quadrangle map, a portion of a county or city map, or other appropriate map) with enough detail to identify the location of the construction site and receiving waters within one mile of the site.

The SWPPP shall also include a legible site map (or maps) showing the entire construction site. The following features shall be identified, unless not applicable due to site conditions:

1. The direction of north, property lines, and existing structures and roads;
2. Cut and fill slopes indicating the top and bottom of slope catch lines;
3. Approximate slopes, contours, and direction of stormwater flow before and after major grading activities;
4. Areas of soil disturbance and areas that will not be disturbed;
5. Locations of structural and nonstructural controls (BMPs) identified in the SWPPP
6. Locations of off-site material, stockpiles, waste storage, borrow areas, and vehicle/equipment storage areas;
7. Locations of all surface water bodies, including wetlands;
8. Locations where stormwater or non-stormwater discharges off-site and/or to a surface water body, including wetlands;
9. Location of water quality sampling station(s), if sampling is required by state or local permitting authority; and

10. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

S10. NOTICE OF TERMINATION

A. The site is eligible for termination when either of the following conditions have been met:

1. The site has undergone final stabilization, all temporary BMPs have been removed, and all stormwater discharges associated with construction activity have been eliminated; or

2. All portions of the site which have not undergone final stabilization per S10.A.1 have been sold and/or transferred (per Condition G9), and the Permittee no longer has operational control of the construction activity.

B. When the site is eligible for termination, the Permittee shall submit a complete and accurate *Notice of Termination* (NOT) form, signed in accordance with General Condition G2, to:

Department of Ecology
Water Quality Program - Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

C. The termination is effective on the date the NOT form was received by Ecology, unless the Permittee is notified by Ecology within 30 days that termination request is denied because the eligibility requirements in Condition S10.A have not been met.

GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this general permit shall be consistent with the terms and conditions of this general permit. Any discharge of any pollutant more frequent than or at a level in excess of that identified and authorized by the general permit shall constitute a violation of the terms and conditions of this permit.

G2. SIGNATORY REQUIREMENTS

A. All permit applications shall bear a certification of correctness to be signed:

1. In the case of corporations, by a responsible corporate officer of at least the level of vice president of a corporation;

2. In the case of a partnership, by a general partner of a partnership;

3. In the case of sole proprietorship, by the proprietor; or

4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

B. All reports required by this permit and other information requested by Ecology shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Ecology.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

C. Changes to authorization. If an authorization under paragraph G2.B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph G2.B.2 above shall be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated

the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G3. RIGHT OF INSPECTION AND ENTRY

The Permittee shall allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records shall be kept under the terms and conditions of this permit.

B. To have access to and copy - at reasonable times and at reasonable cost - any records required to be kept under the terms and conditions of this permit.

C. To inspect - at reasonable times - any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor - at reasonable times - any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G4. GENERAL PERMIT MODIFICATION AND REVOCATION

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification, revocation and reissuance, or termination include, but are not limited to, the following:

A. When a change which occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this permit;

B. When effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of dischargers covered under this permit;

C. When a water quality management plan containing requirements applicable to the category of dischargers covered under this permit is approved; or

D. When information is obtained which indicates that cumulative effects on the environment from dischargers covered under this permit are unacceptable.

G5. REVOCATION OF COVERAGE UNDER THE PERMIT

Pursuant with Chapter 43.21B RCW and Chapter 173-226 WAC, the Director may terminate coverage for any discharger under this permit for cause. Cases where coverage may be terminated include, but are not limited to, the following:

A. Violation of any term or condition of this permit;

B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts;

C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

D. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090;

E. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations;

F. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC;

G. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

The Director may require any discharger under this permit to apply for and obtain coverage under an individual permit or another more specific general permit. Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

G6. REPORTING A CAUSE FOR MODIFICATION

The Permittee shall submit a new application, or a supplement to the previous application, whenever a material change to the construction activity or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application shall be submitted at least sixty (60) days prior to any proposed changes. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G7. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G8. DUTY TO REAPPLY

The Permittee shall apply for permit renewal at least 180 days prior to the specified expiration date of this permit.

G9. TRANSFER OF GENERAL PERMIT COVERAGE

Coverage under this general permit is automatically transferred to a new discharger, including operators of lots/parcels within a common plan of development or sale, if:

A. A written, signed agreement (Transfer of Coverage Form) between the current discharger (Permittee) and new discharger containing a specific date for transfer of permit responsibility, coverage, and liability is submitted to the Director; and

B. The Director does not notify the current discharger and new discharger of the Director's intent to revoke coverage under the general permit. If this notice is not given, the transfer is effective on the date specified in the written agreement.

When a current discharger (Permittee) transfers a portion of a permitted site, the current discharger shall also submit an updated application form (NOI) to the Director indicating the remaining permitted acreage after the transfer. When a current discharger (Permittee) transfers all portions of a permitted site to one or more new dischargers, the current discharger shall also submit a notice of termination (NOT) form to the Director.

G10. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater shall not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee shall submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also submit to Ecology upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten

thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G15. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in condition S5.F; and 4) the Permittee complied with any remedial measures required under this permit.

In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment shall be a fine of not more than $20,000 per day of violation, or imprisonment of not more than four (4) years, or both.

G20. REPORTING PLANNED CHANGES

The Permittee shall, as soon as possible, give notice to Ecology of planned physical alterations, modifications or additions to the permitted construction activity, which will result in:

A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b);

B. A significant change in the nature or an increase in quantity of pollutants discharged, including but not limited to: for sites 5 acres or larger, a 20% or greater increase in acreage disturbed by construction activity;

C. A change in or addition of surface water(s) receiving stormwater or non-stormwater from the construction activity; or

D. A change in the construction plans and/or activity that affects the Permittee's monitoring requirements in Special Condition S4.

Following such notice, permit coverage may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G21. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to Ecology, it shall promptly submit such facts or information.

G22. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee shall give advance notice to Ecology by submission of a new application or supplement thereto at least forty-five (45) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate

unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during non-critical water quality periods and carried out in a manner approved by Ecology.

G23. REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER THE PERMIT

Any discharger authorized by this permit may request to be excluded from coverage under the general permit by applying for an individual permit. The discharger shall submit to the Director an application as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons shall fully document how an individual permit will apply to the applicant in a way that the general permit cannot. Ecology may make specific requests for information to support the request. The Director shall either issue an individual permit or deny the request with a statement explaining the reason for the denial. When an individual permit is issued to a discharger otherwise subject to the construction stormwater general permit, the applicability of the construction stormwater general permit to that Permittee is automatically terminated on the effective date of the individual permit.

G24. APPEALS

A. The terms and conditions of this general permit, as they apply to the appropriate class of dischargers, are subject to appeal by any person within 30 days of issuance of this general permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.

B. The terms and conditions of this general permit, as they apply to an individual discharger, are appealable in accordance with Chapter 43.21B RCW within 30 days of the effective date of coverage of that discharger. Consideration of an appeal of general permit coverage of an individual discharger is limited to the general permit's applicability or nonapplicability to that individual discharger.

C. The appeal of general permit coverage of an individual discharger does not affect any other dischargers covered under this general permit. If the terms and conditions of this general permit are found to be inapplicable to any individual discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.

G25. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

G26. BYPASS PROHIBITED

A. Bypass Procedures
Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited for stormwater events below the design criteria for

stormwater management. Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, 3 or 4) is applicable.

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable stormwater management manual.

2. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health.

3. Bypass of stormwater is unavoidable, unanticipated, and results in noncompliance of this permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass;

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility; and

   c. Ecology is properly notified of the bypass as required in Special Condition S5.F of this permit.

4. A planned action that would cause bypass of stormwater and has the potential to result in noncompliance of this permit during a storm event.

   The Permittee shall notify Ecology at least thirty (30) days before the planned date of bypass. The notice shall contain:

   a. a description of the bypass and its cause;

   b. an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing;

   c. a cost-effectiveness analysis of alternatives including comparative resource damage assessment;

   d. the minimum and maximum duration of bypass under each alternative;

   e. a recommendation as to the preferred alternative for conducting the bypass;

f. the projected date of bypass initiation;

g. a statement of compliance with *SEPA*;

h. a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and

i. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

5. For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the Stormwater Pollution Prevention Plan (SWPPP) and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

   Ecology will consider the following prior to issuing an administrative order for this type bypass:

   a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

   b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

   c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

   After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve, conditionally approve, or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under RCW 90.48.120.

B. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

APPENDIX A – DEFINITIONS

AKART is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants and controlling pollution associated with a discharge.

Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus, which has been completed and approved by EPA prior to November 16, 2005, or prior to the date the operator's complete permit application is received by Ecology, whichever is later.

Applicant means an *operator* seeking coverage under this permit.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: stormwater associated with construction activity, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Buffer means an area designated by a local jurisdiction that is contiguous to and intended to protect a sensitive area

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Calendar Week (same as *Week*) means a period of seven consecutive days starting on Sunday.

Certified Erosion and Sediment Control Lead (CESCL) means a person who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the SWMM).

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

Combined Sewer means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.

Common plan of development or sale means a site where multiple separate and distinct construction activities may be taking place at different times on different schedules, but still under a single plan. Examples include: 1) phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g., a development where lots are sold to separate builders); 2) a development plan that may be phased over multiple years, but is still under a consistent plan for long-term development; and 3) projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility.

If the project is part of a common plan of development or sale, the disturbed area of the entire plan shall be used in determining permit requirements.

Composite Sample A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increases while maintaining a constant time interval between the aliquots.

Construction Activity means land disturbing operations including clearing, grading or excavation which disturbs the surface of the land. Such activities may include road construction, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Demonstrably Equivalent means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:

1. The method and reasons for choosing the stormwater BMPs selected;
2. The pollutant removal performance expected from the BMPs selected;
3. The technical basis supporting the performance claims for the BMPs selected, including any available data concerning field performance of the BMPs selected;
4. An assessment of how the selected BMPs will comply with state water quality standards; and
5. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

Department means the Washington State Department of Ecology.

Detention means the temporary storage of stormwater to improve quality and/or to reduce the mass flow rate of discharge.

De-watering means the act of pumping ground water or stormwater away from an active construction site.

Director means the Director of the Washington Department of Ecology or his/her authorized representative.

Discharger means an owner or operator of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

Engineered soils The use of soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics.

Equivalent BMPs means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to surface water or to ground water than BMPs selected from the SWMM.

Erosion means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Erosion and Sediment Control BMPs means BMPs that are intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, sediment traps, and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

Final Stabilization (same as *fully stabilized* or *full stabilization*) means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions or geotextiles) which prevents erosion.

Ground Water means water in a saturated zone or stratum beneath the land surface or a surface water body.

Injection well means a "well" that is used for the subsurface emplacement of fluids. (see *Well*)

Jurisdiction means a political unit such as a city, town or county; incorporated for local self-government.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.

Notice of Intent (NOI) means the application for, or a request for coverage under this general permit pursuant to WAC 173-226-200.

Notice of Termination (NOT) means a request for termination of coverage under this general permit as specified by Special Condition S10 of this permit.

Operator means any party associated with a construction project that meets either of the following two criteria:
1. The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

2. The party has day-to-day operational control of those activities at a project which are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

Outfall means the location where stormwater leaves the site. It also includes the location where stormwater is discharged to a surface waterbody within a site, but does not include discharges to on-site stormwater treatment/infiltration devices or storm sewer systems.

Permittee means individual or entity that receives notice of coverage under this general permit.

pH means a liquid's acidity or alkalinity. A pH of 7 is defined as neutral. Large variations above or below this value are considered harmful to most aquatic life.

pH Monitoring Period means the time period in which the pH of stormwater runoff from a site shall be tested a minimum of once every seven days to determine if stormwater is above pH 8.5.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which pollutants are or may be discharged to surface waters of the state. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the CWA, nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the CWA.

Pollution means contamination or other alteration of the physical, chemical, or biological properties of waters of the state; including change in temperature, taste, color, turbidity, or odor of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Receiving Water means the waterbody at the point of discharge. If the discharge is to a storm sewer system, either surface or subsurface, the receiving water is the waterbody that the storm sewer system discharges to. Systems designed primarily for other purposes such as for ground water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return flows that coincidentally convey stormwater are considered the receiving water.

Representative means a stormwater or wastewater sample which represents the flow and characteristics of the discharge. Representative samples may be a grab sample, a time-proportionate *composite sample*, or a flow proportionate sample. Ecology's Construction Stormwater Monitoring Manual provides guidance on representative sampling.

Sanitary Sewer means a sewer which is designed to convey *domestic wastewater.*

Sediment means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation means the depositing or formation of sediment.

Sensitive area means a waterbody, wetland, stream, aquifer recharge area, or channel migration zone.

SEPA (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Significant Amount means an amount of a pollutant in a discharge that is amenable to available and reasonable methods of prevention or treatment; or an amount of a pollutant that has a reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

Significant Concrete Work means greater than 1000 cubic yards poured concrete or recycled concrete.

Significant Contributor of Pollutants means a facility determined by Ecology to be a contributor of a *significant amount*(s) of a pollutant(s) to waters of the state of Washington.

Site means the land or water area where any "facility or activity" is physically located or conducted.

Source Control BMPs means physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

Stabilization means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

Storm Drain means any drain which drains directly into a *storm sewer system*, usually found along roadways or in parking lots.

Storm Sewer System means a means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains designed or used for collecting or conveying stormwater. This does not include systems which are part of a *combined sewer* or Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Stormwater means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Stormwater Management Manual (SWMM) or Manual means the technical manual published by Ecology for use by local governments that contain descriptions of and design criteria for BMPs to prevent, control, or treat pollutants in stormwater.

Stormwater Pollution Prevention Plan (SWPPP) means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

Surface Waters of the State includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDL calculations shall include a "margin of safety" to ensure that the waterbody can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation shall also account for seasonable variation in water quality.

Treatment BMPs means BMPs that are intended to remove pollutants from stormwater. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

Transparency means a measurement of water clarity in centimeters (cm), using a 60 cm. transparency tube. The transparency tube is used to estimate the relative clarity or transparency of water by noting the depth at which a black and white Secchi disc becomes visible when water is released from a value in the bottom of the tube. A transparency tube is sometimes referred to as a "turbidity tube".

Turbidity The clarity of water expressed as nephelometric turbidity units (NTU) and measured with a calibrated turbidimeter.

Waste Load Allocation (WLA) means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2(h)).

Water Quality means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Waters of the State includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the state" as

defined in Chapter 90.48 RCW which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Well means a bored, drilled or driven shaft, or dug hole whose depth is greater than the largest surface dimension. (see *Injection Well*)

APPENDIX B – ACRONYMS

AKART	All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment
BMP	Best Management Practice
CESCL	Certified Erosion and Sediment Control Lead
CFR	Code of Federal Regulations
CKD	Cement Kiln Dust
cm	Centimeters
CTB	Cement Treated Base
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
ESC	Erosion and Sediment Control
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SWMM	Stormwater Management Manual
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UIC	Underground Injection Control
USC	United States Code
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code
WQ	Water Quality
WWHM	Western Washington Hydrology Model

APPENDIX D

Stormwater Monitoring Records

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal
Inspector Name: TONY MARTIN **Title:** CESCL
CESCL #:
Date: 30 SEPT 09 **Time:** 10.25 AM
Inspection Type: □ After a rain event
☒ Weekly
□ Turbidity/transparency benchmark exceedance
□ Other
Weather OVERCAST & COOL
Precipitation Since last inspection Ø In last 24 hours Ø
Description of General Site Conditions:
SITE CONDITIONS

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE NEEDED

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 2: Establish Construction Access

BMP: C107 (ALTERNATE)

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
BOTH ENTRANCES/ EXITS	✓		✓			NONE NOTED

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 3: Control Flow Rates

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		N/A			REASON NOT INSPECTED ~~Problem/Corrective Action~~ PIPING FOR PUMPS NOT SET UP YET PARTS TO ARRIVE TODAY 30 SEPT 08

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 4: Install Sediment Controls

BMP C220, C150, C152

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE NOTED • MATERIALS ON HAND • DRAIN PROTECTION IN • TANKS ON SITE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Y N | Y | N | NIP

Element 5: Stabilize Soils

BMP C 123

Location	Inspected Y N	Functioning Y	N	NIP	~~Problem/Corrective Action~~ NOTES
ENTIRE SITE	✓	✓			• LIMITED SOIL DISTURBANCE • STOCKPILE PROTECTION BEING UTILIZED

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

Element 6: Protect Slopes

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action
ENTIRE SITE	✓	N/A			

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

Element 7: Protect Drain Inlets

BMP CRO

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE NOTED

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

Element 8: Stabilize Channels and Outlets

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE NOTED

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE NOTED

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		N/A			

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site				
	Observed? Y	Observed? N	~~Problem/Corrective Action~~ NOTES	
Location				
Turbidity				
Discoloration				
Sheen				

NO STORMWATER COLLECTED / STORED / OR PUMPED

Location	
Turbidity	☐
Discoloration	☐
Sheen	☐

Tony Mark

Water Quality Monitoring	
Was any water quality monitoring conducted?	☐ Yes ☒ No
If water quality monitoring was conducted, record results here	
If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs?	☐ Yes ☐ No
If Ecology was notified, indicate the date, time, contact name and phone number below Date Time Contact Name: Phone #	

General Comments and Notes	
Include BMP repairs, maintenance, or installations made as a result of the inspection	
Were Photos Taken?	☐ Yes ☒ No
If photos taken, describe photos below	

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal
Inspector Name: TOM MARTIN **Title:** CESCL
CESCL # :
Date: 7 Oct 08 **Time:** 10:30
Inspection Type: □ After a rain event
☒ Weekly
□ Turbidity/transparency benchmark exceedance
□ Other
Weather WINDY, PARTLY CLOUDY
Precipitation Since last inspection 1.05 In last 24 hours .52
Description of General Site Conditions:
EXCAVATION IS IN PROGRESS.

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP:

Location	Inspected Y	N	Functioning Y	N	NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP:

Location	Inspected Y	N	Functioning Y	N	NIP	Problem/Corrective Action

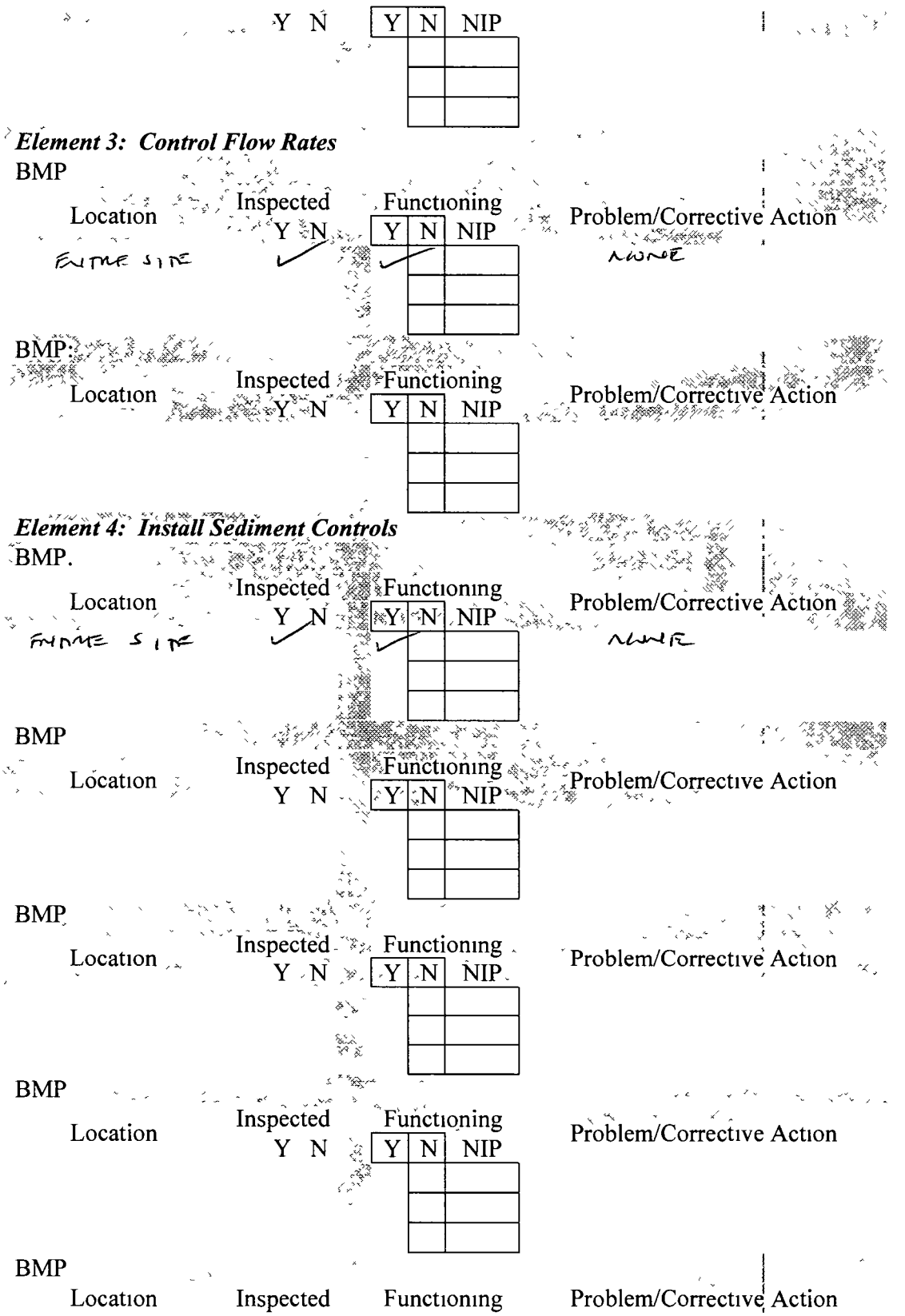
Element 2: Establish Construction Access

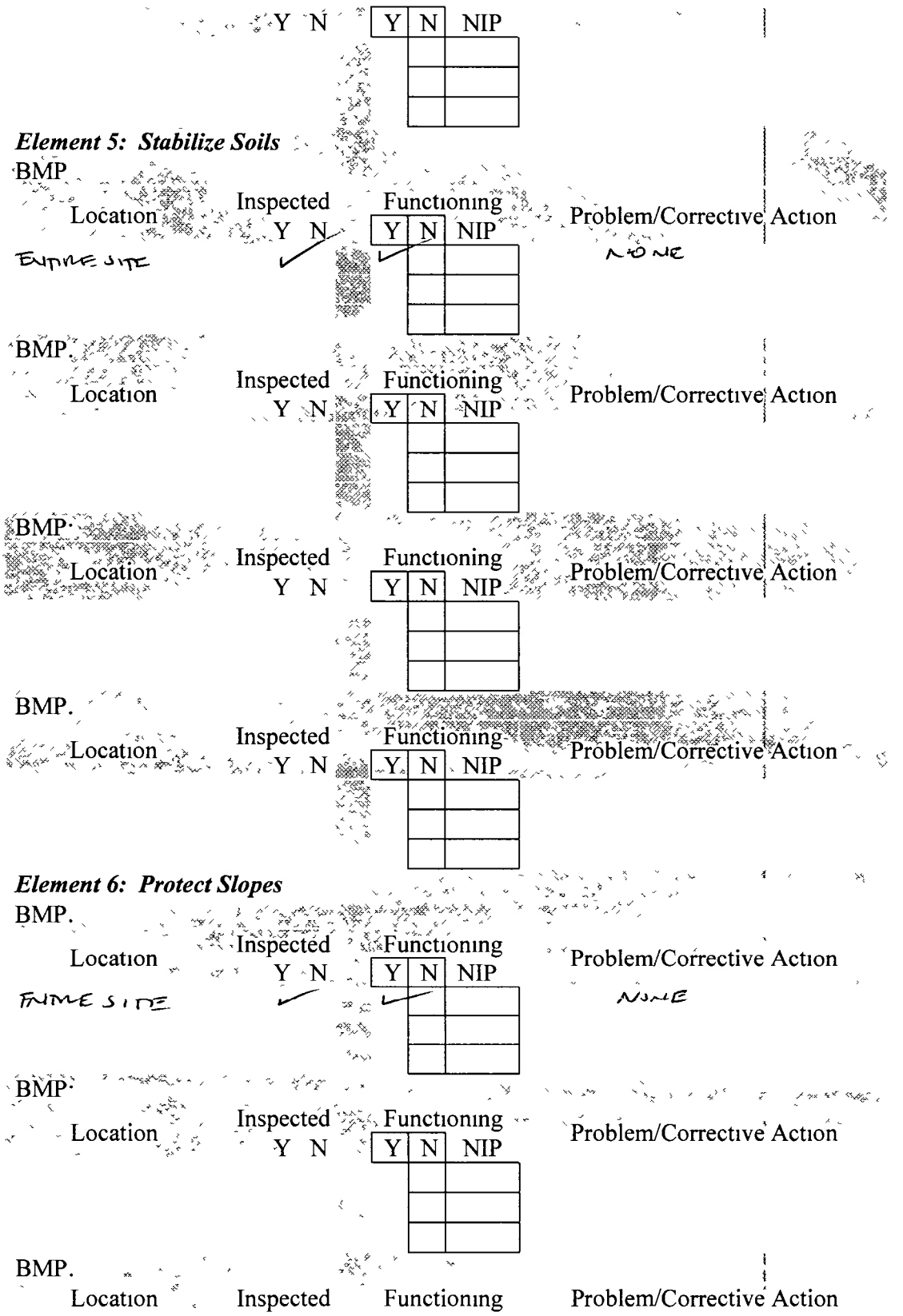
BMP:

Location	Inspected Y	N	Functioning Y	N	NIP	Problem/Corrective Action
ALL ~~BOTH~~ ENTRANCE/EXIT	✓		✓			NONE

BMP.

Location	Inspected	Functioning	Problem/Corrective Action


Y N
Y N NIP
Element 3: Control Flow Rates
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 4: Install Sediment Controls
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action


Y N
Y N NIP
Element 5: Stabilize Soils
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 6: Protect Slopes
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP.
Location
Inspected
Functioning
Problem/Corrective Action

Y N | Y | N | NIP

Element 7: Protect Drain Inlets

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ALL INLETS	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 8: Stabilize Channels and Outlets

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site

	Observed? Y	Observed? N	Problem/Corrective Action
Location		(N)	NO DISCHARGE FROM TANKS HAS OCCURRED FROM SITE
Turbidity			
Discoloration			
Sheen			

Location	
Turbidity	
Discoloration	
Sheen	

Water Quality Monitoring

Was any water quality monitoring conducted? ☑ Yes ☐ No

If water quality monitoring was conducted, record results here

WATER QUALITY IN WAHIS WAS CHECKED

EAST = PH = 7.2 TURBITITY 83 3

WEST = PH = 7.5 TURBITITY 106.01

NO WATER WAS DISCHARGED

If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs?

☐ Yes ☐ No

If Ecology was notified, indicate the date, time, contact name and phone number below

Date
Time:
Contact Name:
Phone #

General Comments and Notes

Include BMP repairs, maintenance, or installations made as a result of the inspection

Were Photos Taken? ☐ Yes ☒ No

If photos taken, describe photos below

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal

Inspector Name: TOM/ MARTIN **Title:** CESCL

CESCL #:

Date: 14 OCT **Time:** 0900 - 1000

Inspection Type:
- ☐ After a rain event
- ☒ Weekly
- ☐ Turbidity/transparency benchmark exceedance
- ☐ Other

Weather CLOUDY & COOL

Precipitation Since last inspection .51 In last 24 hours .01

Description of General Site Conditions:

AREA SLIGHTLY DAMP INCREASED AREA OF DISTURBED SOIL BUT ALL BMP'S IN PLACE INCLUDING CONSTANT COVERING OF SOIL AREA DISTURBED. TREATMENT SYSTEM IS NOT UP & OPERATIONAL. WE WILL TEST TODAY FOR PH, TURBIDITY & ARSENIC BUT NOT DISCHARGE.

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
						NONE

Element 2: Establish Construction Access

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
N/E SIDE ONLY MUCK INGRESS & EGRESS	✓		✓			NONE

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Inspected Y	Inspected N	Functioning Y	Functioning N	NIP

Element 3: Control Flow Rates

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

Element 4: Install Sediment Controls

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action
	✓		✓			NEED TO ADD CB SOCKS TO NEW CATCH BASINS & TO CATCH SEDIMENT

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

BMP:

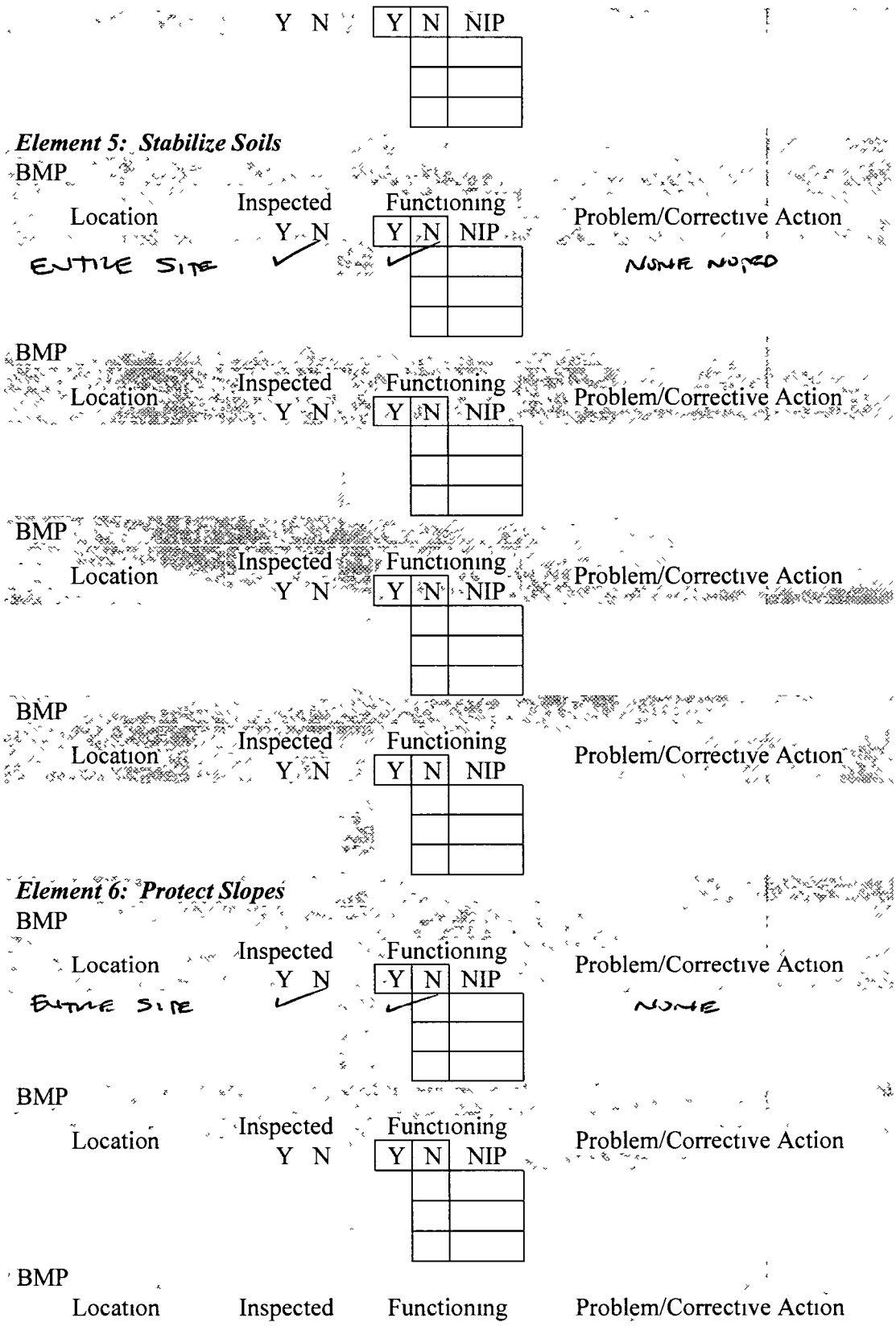
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

BMP:

Location Inspected Functioning Problem/Corrective Action


Y N
Y N NIP
Element 5: Stabilize Soils
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE NOTED
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 6: Protect Slopes
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action

	Y N	Y	N	NIP

Element 7: Protect Drain Inlets

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action
ALL OF SITE	✓	✓			NEED TO ADD NEW CB SOCKS TO NEW INLETS
					ADD 1 ADDITIONAL CB SOCK TO EXISTING CB

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

Element 8: Stabilize Channels and Outlets

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action
ENTIRE SITE	✓	✓			NONE NOTED

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

BMP

Location	Inspected Y N	Functioning Y	N	NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NEED TO CLEAN-UP GENERAL TRASH / DEBRIS

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site

	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity		✓	NO DISCHARGE
Discoloration		✓	
Sheen		✓	

Location		
Turbidity		
Discoloration		
Sheen		

Water Quality Monitoring
Was any water quality monitoring conducted? ☒ Yes ☐ No If water quality monitoring was conducted, record results here. NOT DISCHARGED
If water quality monitoring indicated turbidity 250 NTU or greater; or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? ☐ Yes ☐ No
If Ecology was notified, indicate the date, time, contact name and phone number below. Date Time Contact Name Phone #
General Comments and Notes Include BMP repairs, maintenance, or installations made as a result of the inspection.
Were Photos Taken? ☐ Yes ☒ No If photos taken, describe photos below
TANK #49 LEAKING EDGE OF EXCAVATION IS COVERED NIGHTLY SOCKS NEEDED TO BE ADDED

CLIMATOLOGICAL REPORT (DAILY)

CDUS46 KSEW 150838
CLISEW

CLIMATE REPORT
NATIONAL WEATHER SERVICE SEATTLE WA
130 AM PDT WED OCT 15 2008

. . . . . .

. THE SEATTLE WA WFO CLIMATE SUMMARY FOR OCTOBER 14 2008 ..

CLIMATE NORMAL PERIOD 1986 TO 2000
CLIMATE RECORD PERIOD 1986 TO 2008

WEATHER ITEM	OBSERVED VALUE	TIME (LST)	RECORD VALUE	YEAR	LAST YEAR
TEMPERATURE (F)					
YESTERDAY					
MAXIMUM	56	1244 PM	73	1991	68
MINIMUM	41R	1153 PM	41	2002	43
AVERAGE	49				56
PRECIPITATION (IN)					
YESTERDAY	0.01				0 00
MONTH TO DATE	1.56				0 71
SINCE OCT 1	1.56				0 71
SINCE JAN 1	20.19				18 12
SNOWFALL (IN)					
YESTERDAY	0.0				
DEGREE DAYS					
HEATING					
YESTERDAY	16				9
MONTH TO DATE	151				156
SINCE JUL 1	343				316
COOLING					
YESTERDAY	0				0
MONTH TO DATE	0				0
SINCE JAN 1	152				172

. . . . . .

Adtl Resources

Miscellaneous
SEW webcam
Products and Services Guide
Education

Contact Us
Webmaster E-mail


```
WIND (MPH)
 HIGHEST GUST SPEED    15   HIGHEST GUST DIRECTION    NW (330)
 AVERAGE WIND SPEED     5 1

WEATHER CONDITIONS
 THE FOLLOWING WEATHER WAS RECORDED YESTERDAY
  LIGHT RAIN


-  INDICATES NEGATIVE NUMBERS
R  INDICATES RECORD WAS SET OR TIED
MM INDICATES DATA IS MISSING.
T  INDICATES TRACE AMOUNT
```

Webmaster
US Dept of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Seattle Weather Forecast Office
7600 Sandpoint Way NE
Seattle Washington 98115-6349

Tel (206) 526-6087

Disclaimer
Information Quality
Credits
Glossary

Privacy Policy
Freedom of Information Act
About Us
Career Opportunities

National Weather Service Mission "The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community "

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal
Inspector Name: TONY MAUND **Title:** CESCL
CESCL # :
Date: 21 OCT 08 **Time:** 10.35
Inspection Type:
- □ After a rain event
- ☒ Weekly
- □ Turbidity/transparency benchmark exceedance
- □ Other

Weather
Precipitation Since last inspection .41 In last 24 hours 2.00
Description of General Site Conditions:
STANDING PUDDLES ON ASPHALT
25% OF PROPOSED AREA OF DISTURBANCE IS DISTURBED

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE: LIMITS REVERIFIED	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 2: Establish Construction Access

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
SWEEPING PROGRESS	✓		✓			NONE

BMP

Location	Inspected	Functioning	Problem/Corrective Action

	Y	N	Y	N	NIP

Element 3: Control Flow Rates

BMP Location | Inspected Y N | Functioning Y N | NIP | Problem/Corrective Action

ENTIRE SITE ✓ ✓ NONE NOTED

BMP Location | Inspected Y N | Functioning Y N | NIP | Problem/Corrective Action

Element 4: Install Sediment Controls

BMP Location | Inspected Y N | Functioning Y N | NIP | Problem/Corrective Action

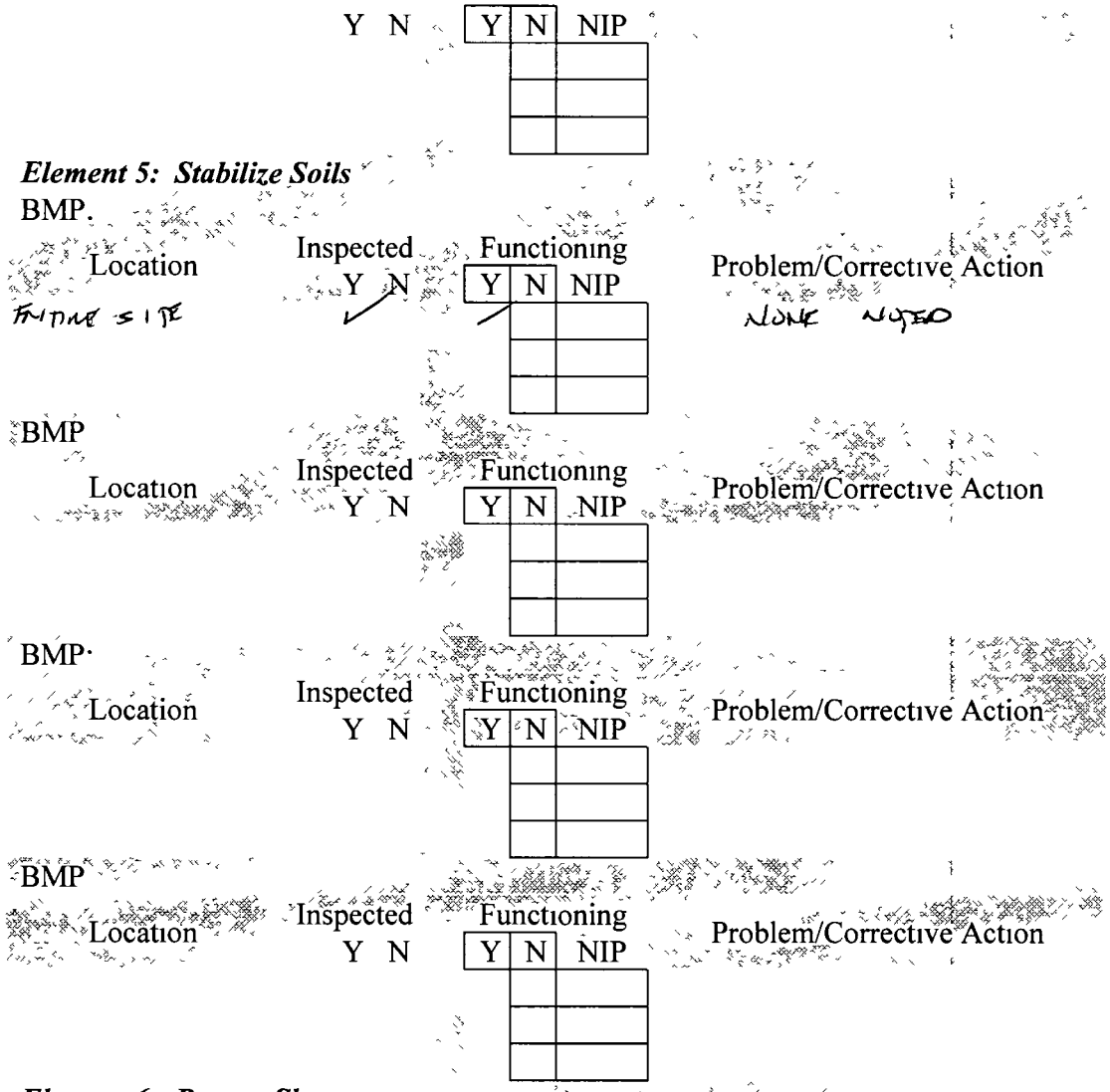
ENTIRE SITE ✓ ✓ NONE NEEDED

BMP Location | Inspected Y N | Functioning Y N | NIP | Problem/Corrective Action

BMP Location | Inspected Y N | Functioning Y N | NIP | Problem/Corrective Action

BMP Location | Inspected Y N | Functioning Y N | NIP | Problem/Corrective Action

BMP. Location | Inspected | Functioning | Problem/Corrective Action



Y N | Y | N | NIP

Element 5: Stabilize Soils

BMP.

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

FUTURE SITE ✓ ✓ NONE NOTED

BMP

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

Element 6: Protect Slopes

BMP:

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

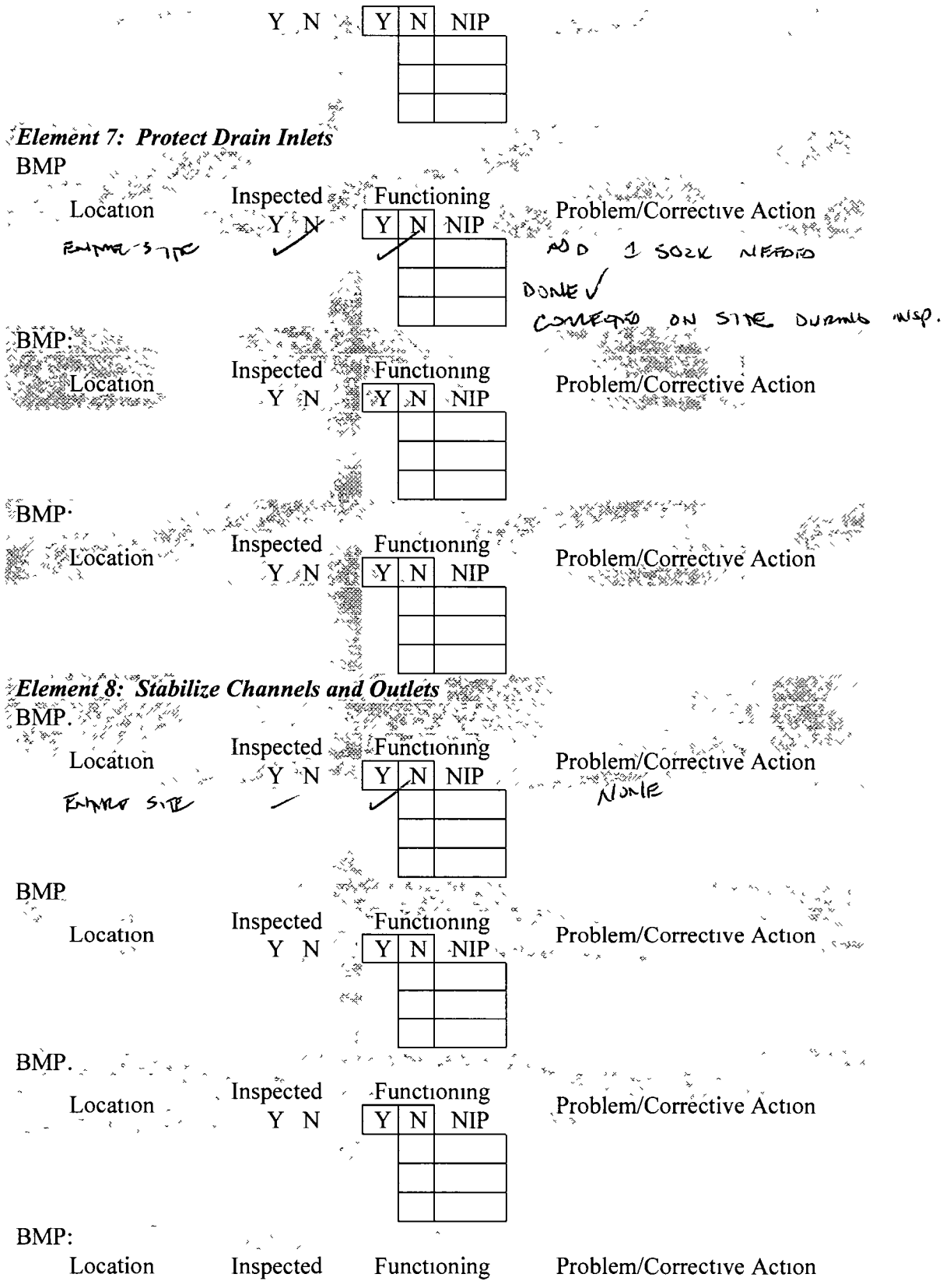
FUTURE SITE ✓ ✓ NONE NOTED

BMP.

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP.

Location | Inspected | Functioning | Problem/Corrective Action


Y N
Y N NIP
Element 7: Protect Drain Inlets
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
ADD 1 SOCK NEEDED
DONE
CORRECTED ON SITE DURING INSP.
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 8: Stabilize Channels and Outlets
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Functioning
Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site			
	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity			NO DISCHARGE
Discoloration			
Sheen			

Location	
Turbidity	
Discoloration	
Sheen	

Water Quality Monitoring

Was any water quality monitoring conducted? ☒ Yes ☐ No

If water quality monitoring was conducted, record results here:

8.79 NTUs
7.76 PH
15 ARSENIC
AWAITING LAB

If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? ☐ Yes ☐ No

If Ecology was notified, indicate the date, time, contact name and phone number below

Date
Time
Contact Name
Phone #

General Comments and Notes

Include BMP repairs, maintenance, or installations made as a result of the inspection.

Were Photos Taken? ☐ Yes ☒ No

If photos taken, describe photos below

LABORATORY REPORT

ENVIRONMENTAL ANALYSIS LABORATORY
BOEING INTEGRATED DEFENSE SYSTEMS
18-61 BLDG MC 8Y-55 PHONE (253) 773-8934

Report No 9-464C-LAB-18251

Report Date 21-OCT-2008

To Kathryn L Lewis Orgn 2-N410 MC 6R4-26

Please find enclosed the set of analytical results for the 1 sample(s) listed below and submitted to the Environmental Analysis Laboratory on 20-OCT-2008 by Brunner

EAL ID	Sample Description
123145	Issacson Property BT8-081020

All samples were received in good condition with proper paperwork, unless otherwise indicated

The samples indicated in this report will be discarded in 41 days These samples may be held for longer periods upon request

Method References

GFAA	Standard Methods SM 3113 B (Atomic Absorption, furnace technique)

All raw data and copies of results are kept on file in the Environmental Analysis Laboratory Sample results are reported to 2 significant figures except where indicated If you have any questions or require additional information, please contact the Environmental Analysis Laboratory on 773-8934

Reviewed by

Teresa Dunn
Orgn 7-14E1

EAL# 123145 Matrix AQUEOUS
Description Issacson Property BT8-081020
Sampling Site Non-standard sample sites
Sample Date 20-OCT-2008 at 10 30
Received by lab 20-OCT-2008 at 12 23 Status Authorized

Test Name	Component Name	Result
GFAA	**Arsenic**	**15 ug/L**

CLIMATOLOGICAL REPORT (DAILY)

CDUS46 KSEW 220829
CLISEW

CLIMATE REPORT
NATIONAL WEATHER SERVICE SEATTLE WA
128 AM PDT WED OCT 22 2008

THE SEATTLE WA WFO CLIMATE SUMMARY FOR OCTOBER 21 2008

CLIMATE NORMAL PERIOD 1986 TO 2000
CLIMATE RECORD PERIOD 1986 TO 2008

WEATHER ITEM	OBSERVED VALUE	TIME (LST)	RECORD VALUE	YEAR	LAST YEAR
TEMPERATURE (F)					
YESTERDAY					
MAXIMUM	56	1206 PM	69	2005	54
MINIMUM	42	411 AM	39	1997	49
AVERAGE	49				52
PRECIPITATION (IN)					
YESTERDAY	0 00				0 19
MONTH TO DATE	1 97				2 12
SINCE OCT 1	1 97				2 12
SINCE JAN 1	20 60				19 53
SNOWFALL (IN)					
YESTERDAY	0 0				
DEGREE DAYS					
HEATING					
YESTERDAY	16				13
MONTH TO DATE	251				251
SINCE JUL 1	443				411
COOLING					
YESTERDAY	0				0
MONTH TO DATE	0				0
SINCE JAN 1	152				172

WIND (MPH)
HIGHEST GUST SPEED 12 HIGHEST GUST DIRECTION S (180)
AVERAGE WIND SPEED 2 1

WEATHER CONDITIONS
THE FOLLOWING WEATHER WAS RECORDED YESTERDAY
NO SIGNIFICANT WEATHER WAS OBSERVED

- INDICATES NEGATIVE NUMBERS
R INDICATES RECORD WAS SET OR TIED
MM INDICATES DATA IS MISSING
T INDICATES TRACE AMOUNT

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal
Inspector Name: TROY MURRAY **Title:** CESCL
CESCL # :
Date: 28 OCT 08 **Time:** 1030 AM
Inspection Type: ☐ After a rain event
☒ Weekly
☐ Turbidity/transparency benchmark exceedance
☐ Other
Weather PARTLY CLOUDY
Precipitation Since last inspection 0.5 In last 24 hours 0.00
Description of General Site Conditions:
• SITE SEMI-DRY
• HAYBALING BEING USED FOR DUST CONTROL
• SITE CONSTANTLY BEING SWEPT

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP:

Location	Inspected Y	N	Functioning Y	N	NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	N	Functioning Y	N	NIP	Problem/Corrective Action

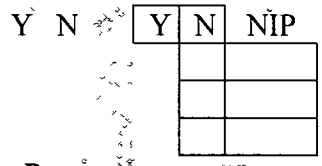
Element 2: Establish Construction Access

BMP.

Location	Inspected Y	N	Functioning Y	N	NIP	Problem/Corrective Action
ENTIRE SITE (ONE PRIMARY ENTRANCE & EXIT)	✓		✓			NONE

BMP

Location	Inspected	Functioning	Problem/Corrective Action



Element 3: Control Flow Rates

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 4: Install Sediment Controls

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓					NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP.

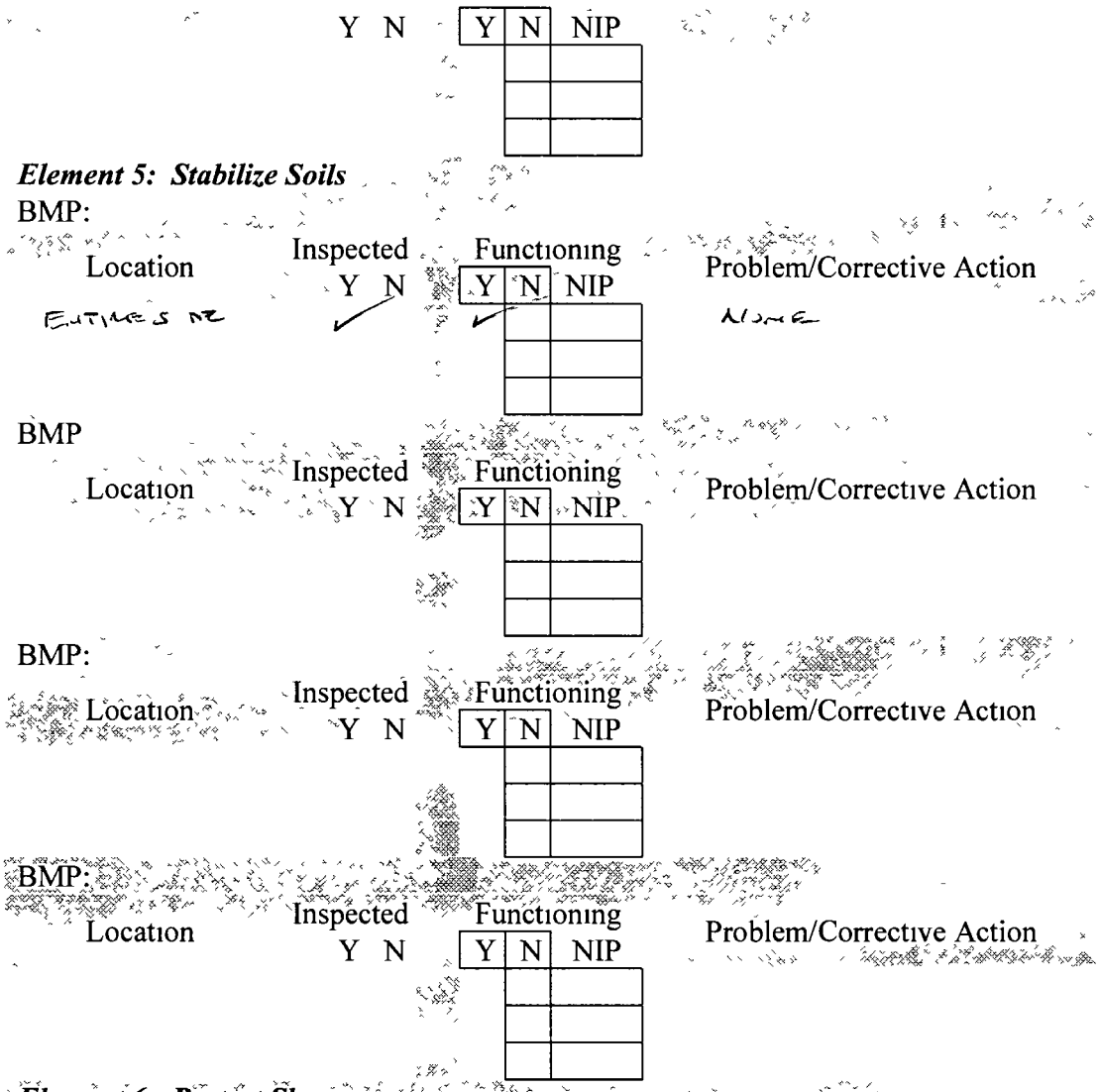
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action



Y N | Y | N | NIP

Element 5: Stabilize Soils

BMP:

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP:

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP:

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

Element 6: Protect Slopes

BMP

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP:

Location | Inspected Y N | Functioning Y | N | NIP | Problem/Corrective Action

BMP

Location | Inspected | Functioning | Problem/Corrective Action

	Y	N	Y	N	NIP

Element 7: Protect Drain Inlets

BMP Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP: Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP: Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 8: Stabilize Channels and Outlets

BMP: Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP: Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP: Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
FINE SILT	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
FINE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site			
	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity		✓	
Discoloration		✓	
Sheen		✓	

Location	
Turbidity	
Discoloration	
Sheen	

Water Quality Monitoring

Was any water quality monitoring conducted? ☒ Yes ☐ No

If water quality monitoring was conducted, record results here

Turbidity 8.79

pH 7.76

Arsenic 15 ug/L

If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? ☐ Yes ☐ No

If Ecology was notified, indicate the date, time, contact name and phone number below

Date:

Time

Contact Name:

Phone #

General Comments and Notes

Include BMP repairs, maintenance, or installations made as a result of the inspection

Were Photos Taken? ☐ Yes ☒ No

If photos taken, describe photos below

CLIMATOLOGICAL REPORT (DAILY)

CDUS46 KSEW 290827
CLISEW

CLIMATE REPORT
NATIONAL WEATHER SERVICE SEATTLE WA
127 AM PDT WED OCT 29 2008

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. THE SEATTLE WA WFO CLIMATE SUMMARY FOR OCTOBER 28 2008. .

CLIMATE NORMAL PERIOD 1986 TO 2000
CLIMATE RECORD PERIOD 1986 TO 2008

WEATHER ITEM	OBSERVED VALUE	TIME (LST)	RECORD VALUE	YEAR	LAST YEAR
TEMPERATURE (F)					
YESTERDAY					
MAXIMUM	57	303 PM	64	1986	59
MINIMUM	41	434 AM	35	2001	38
AVERAGE	49				49
PRECIPITATION (IN)					
YESTERDAY	0.00				0 00
MONTH TO DATE	2.00				2 52
SINCE OCT 1	2.00				2 52
SINCE JAN 1	20.63				19 93
SNOWFALL (IN)					
YESTERDAY	0.0				
DEGREE DAYS					
HEATING					
YESTERDAY	16				16
MONTH TO DATE	355				351
SINCE JUL 1	547				511
COOLING					
YESTERDAY	0				0
MONTH TO DATE	0				0
SINCE JAN 1	152				172

Current Warnings
RSS XML
local or USA
Mt St Helens
NOAA Watch
Tsunami Info

Current Conditions
RSS XML
Observations
State Obs Map
Pgt Sound Obs Map
Satellite
Radar XML
AHPS Rivers/Lks
Air Quality
WA | OR | CA

Forecasts
Wrn Wa Zone Fcst
Fcst Discussion
Text | Graphical
Discussion/Text
Model Forecasts
Aviation
Marine
Fire Weather
Activity Planner
Mountains
Hydrology
Miscellaneous
Canada / Int'l

Experimental
Digital / Gridded
Wx Point Matrix
Marine /Fire Wx
Precip Estimates

Climate
Local
National
NowData
More

Weather Safety
Weather Radio
Safety Tips/Info
Weather Safety
StormReady

Outreach
Educational
Spotters
NOAA Careers
NWS Info Center
COOP Observer
CoCoRaHS

Reports
Recent Records
Local Storm Report
Public Information

Printer Friendly | Go Back | Version Current 1 2 3 4 5 6 7 8 9 10 | Font A A A |

CLIMATOLOGICAL REPORT (MISC, INC MONTHLY REPORTS)

CXUS56 KSEW 011033
CLMSEW

CLIMATE REPORT
NATIONAL WEATHER SERVICE SEATTLE WA
331 AM PDT SAT NOV 1 2008

. . . . . .

.. THE SEATTLE WFO CLIMATE SUMMARY FOR THE MONTH OF OCTOBER 2008 .

CLIMATE NORMAL PERIOD 1986 TO 2000
CLIMATE RECORD PERIOD 1986 TO 2008

WEATHER	OBSERVED VALUE	DATE(S)	NORMAL VALUE	DEPART FROM NORMAL	LAST YEAR VALUE	S DATE(S)
TEMPERATURE (F)						
RECORD						
HIGH	87	10/01/1987				
LOW	29	10/30/1991				
HIGHEST	73	10/01	MM	MM	71	10/23
LOWEST	37	10/15	MM	MM	35	10/26
AVG. MAXIMUM	59 2		60 2	-1 0	58 3	
AVG MINIMUM	45 1		46 3	-1.2	44 7	
MEAN	52 2		53 3	-1.1	51 5	
DAYS MAX >= 90	0		MM	MM	0	
DAYS MAX <= 32	0		MM	MM	0	
DAYS MIN <= 32	0		MM	MM	0	
DAYS MIN <= 0	0		MM	MM	0	
PRECIPITATION (INCHES)						
RECORD						
MAXIMUM	MM	MM				
MINIMUM	MM	MM				
TOTALS	2 34		3 32	-0 98	2 52	
DAILY AVG.	0 08		0 11	-0 03	0 08	
DAYS >= 01	16		MM	MM	17	
DAYS >= 1.00	0		MM	MM	0	
SNOWFALL (INCHES)						
TOTALS	0.0					

DEGREE_DAYS

Current Warnings
RSS XML
local or USA
Mt St Helens
NOAA Watch
Tsunami Info

Current Conditions
RSS XML
Observations
State Obs Map
Pgt Sound Obs Map
Satellite
Radar KML
AHPS Rivers/Lks
Air Quality
WA | OR | CA

Forecasts
Wrn Wa Zone Fcst
Fcst Discussion
Text | Graphical
Discussion/Text
Model Forecasts
Aviation
Marine
Fire Weather
Activity Planner
Mountains
Hydrology
Miscellaneous
Canada / Int'l

Experimental
Digital / Gridded
Wx Point Matrix
Marine /Fire Wx
Precip Estimates

Climate
Local
National
NowData
More

Weather Safety
Weather Radio
Safety Tips/Info
Weather Safety
StormReady

Outreach
Educational
Spotters
NOAA Careers
NWS Info Center
COOP Observer
CoCoRaHS

Reports
Recent Records
Local Storm Report
Public Information

Printer Friendly | Go Back | Version Current 1 2 3 4 5 6 7 8 9 10 | Font A A A |
This version is NOT current and may no longer be valid!

CLIMATOLOGICAL REPORT (DAILY)

CDUS46 KSEW 030127
CLISEW

CLIMATE REPORT
NATIONAL WEATHER SERVICE SEATTLE WA
526 PM PST SUN NOV 2 2008

. . . . . .

. .THE SEATTLE WA WFO CLIMATE SUMMARY FOR NOVEMBER 2 2008. .
VALID TODAY AS OF 0500 PM LOCAL TIME

CLIMATE NORMAL PERIOD 1986 TO 2000
CLIMATE RECORD PERIOD 1986 TO 2008

WEATHER ITEM	OBSERVED VALUE	TIME (LST)	RECORD VALUE	YEAR	LAST YEAR
TEMPERATURE (F)					
TODAY					
MAXIMUM	59R	1201 PM	59	1998	51
MINIMUM	50	118 AM	27	2002	33
AVERAGE	55				42
PRECIPITATION (IN)					
TODAY	0 17				0 00
MONTH TO DATE	0.49				0 00
SINCE OCT 1	2.83				2 52
SINCE JAN 1	21.46				19 93
SNOWFALL (IN)					
TODAY	0 0				
DEGREE DAYS					
HEATING					
TODAY	10				23
MONTH TO DATE	20				43
SINCE JUL 1	603				613
COOLING					
TODAY	0				0
MONTH TO DATE	0				0

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal

Inspector Name: TONY MARTIN **Title:** CESCL

CESCL #:

Date: NOV 4 2008 **Time:** 1000

Inspection Type:
- ☐ After a rain event
- ☒ Weekly
- ☐ Turbidity/transparency benchmark exceedance
- ☐ Other

Weather CLOUDY SIGNIFICANT RAINFALL IN LAST 24 HOURS

Precipitation Since last inspection 1.52 In last 24 hours .52

Description of General Site Conditions:

PUDDLES AND [redacted] STANDING WATER ON ASPHALT SURFACES IS EVAPORATING AND EXPORT IS ONGOING SITE HAS LOWER RISK OF DOWNGRADE BUT IT IS BEING MANAGED WELL AND COVERED DURING RAINFALL.

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 2: Establish Construction Access

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
INGRESS/EGRESS POINTS	✓		✓			NONE

BMP:

Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 3: Control Flow Rates

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 4: Install Sediment Controls

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

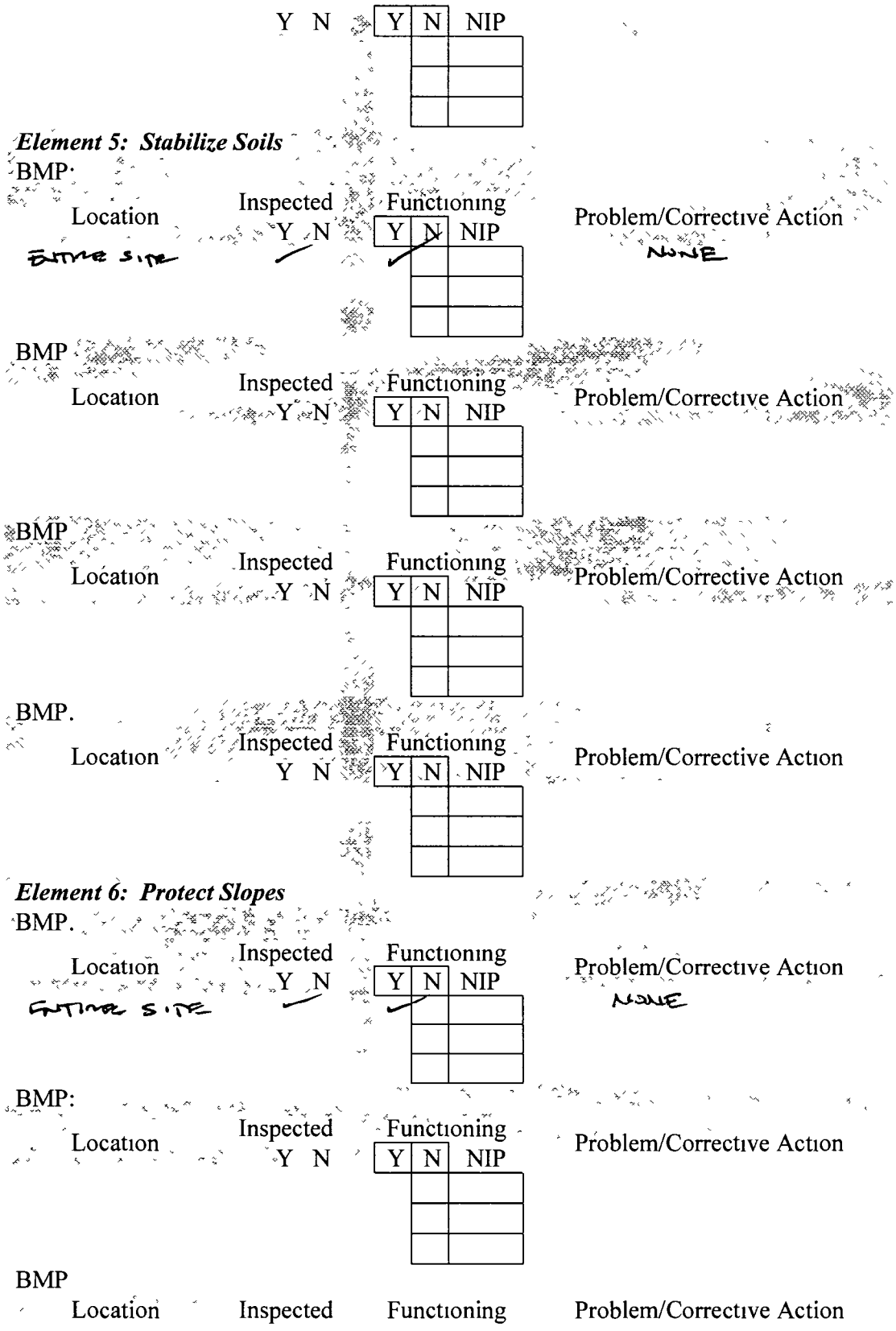
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

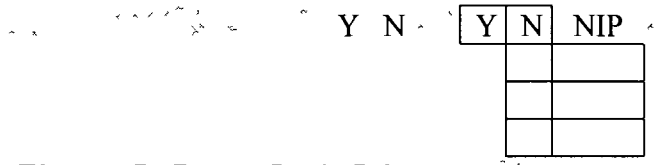
BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action


Y N
Y N NIP
Element 5: Stabilize Soils
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 6: Protect Slopes
BMP.
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ENTIRE SITE
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action



Element 7: Protect Drain Inlets

BMP

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

ENTIRE SITE ✓ ✓ NONE

BMP

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

BMP

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

Element 8: Stabilize Channels and Outlets

BMP:

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

ENTIRE SITE ✓ ✓ NONE

BMP

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

BMP

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

BMP

Location | Inspected | Functioning | Problem/Corrective Action

	Y	N	NIP

Element 9: Control Pollutants

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action
ENTIRE SITE	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	NIP	Problem/Corrective Action

Stormwater Discharges From the Site			
	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity			NO DISCHARGE
Discoloration			
Sheen			

Location		
Turbidity		
Discoloration		
Sheen		

Water Quality Monitoring

Was any water quality monitoring conducted? ☒ Yes ☐ No

If water quality monitoring was conducted, record results here.

PH = 7.81

TURBIDITY = 24.17

ARSENIC = AWAITING RESULTS

NO DISCHARGE WAS CONDUCTED BY MANIC HAS RESUMED

If water quality monitoring indicated turbidity 250 NTU or greater; or transparency 6 cm or less, was Ecology notified by phone within 24 hrs?

☐ Yes ☐ No

If Ecology was notified, indicate the date, time, contact name and phone number below:

Date

Time:

Contact Name.

Phone #

General Comments and Notes

Include BMP repairs, maintenance, or installations made as a result of the inspection

Were Photos Taken? ☐ Yes ☒ No

If photos taken, describe photos below

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal
Inspector Name: PAT MARTIN **Title:** CESCL
CESCL # :
Date: 11 NOV 08 **Time:** 1000
Inspection Type: ☐ After a rain event
☒ Weekly
☐ Turbidity/transparency benchmark exceedance
☐ Other
Weather CLOUDY DRIZZLING
Precipitation Since last inspection 1.55 In last 24 hours 0.27
Description of General Site Conditions:
WET, PUDDLES, LARGE AREA COVERED WITH PLASTIC SHEETING NEARING END OF SOIL DISPOSAL.

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP:
ES = ENTIRE SITE

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

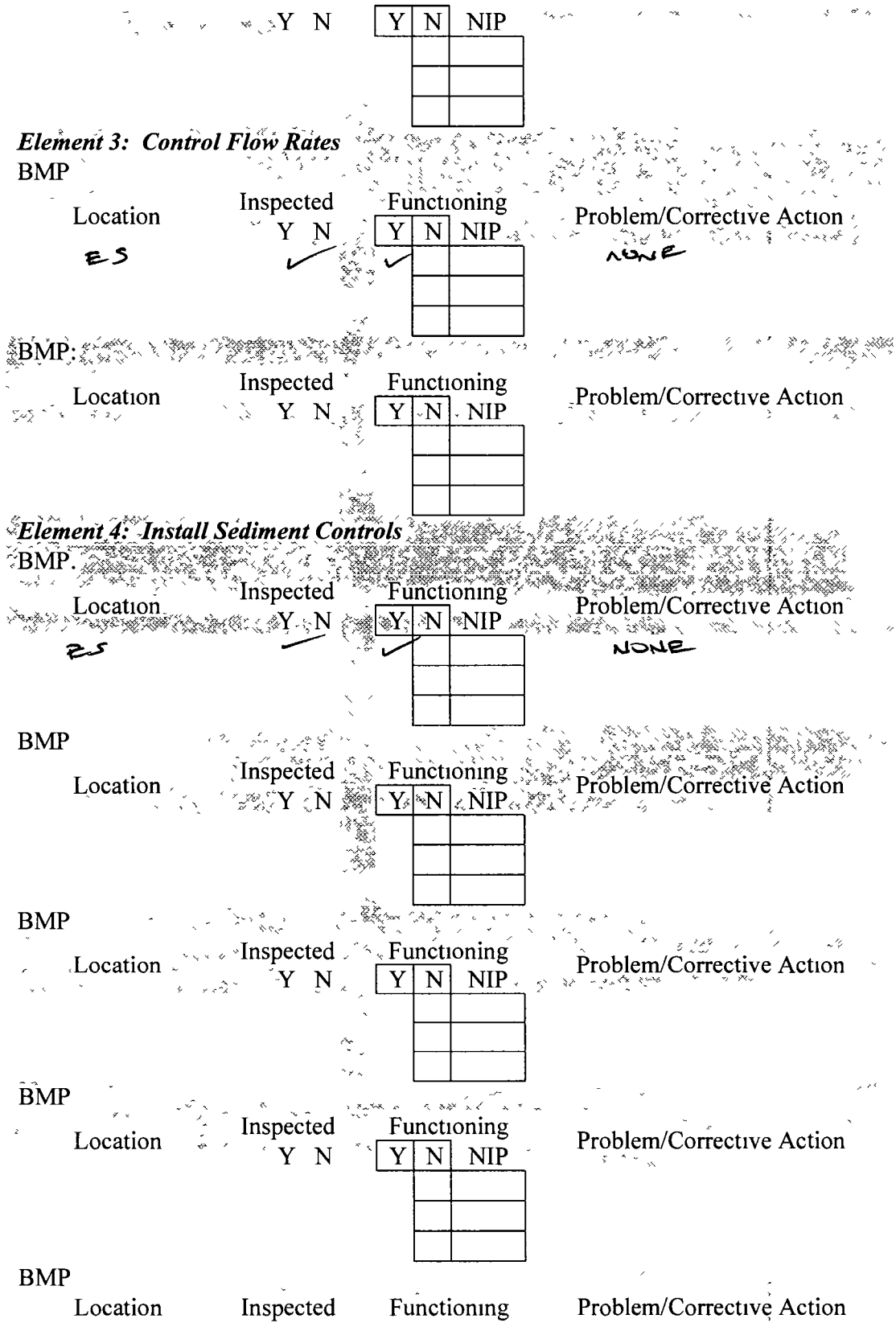
Element 2: Establish Construction Access

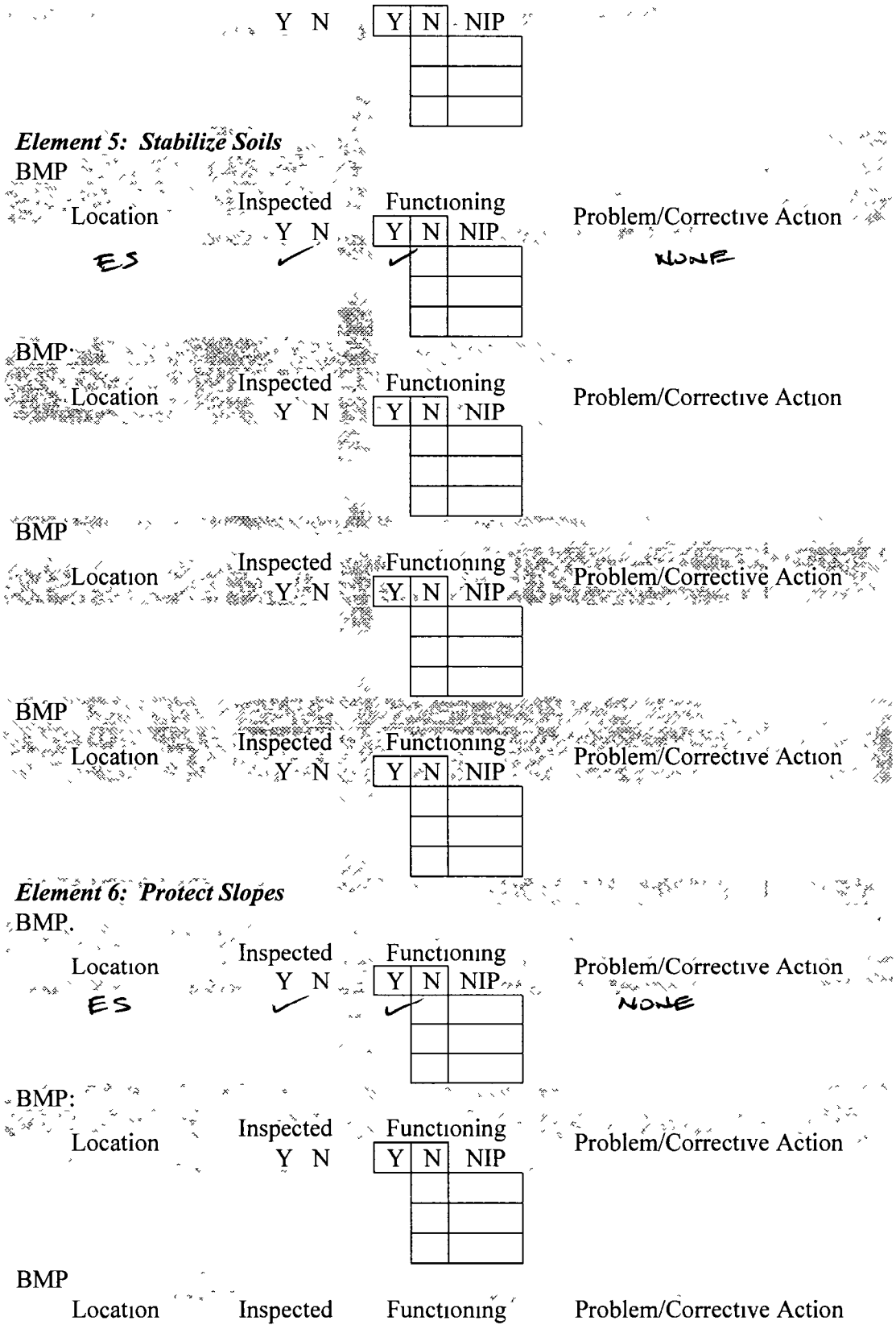
BMP

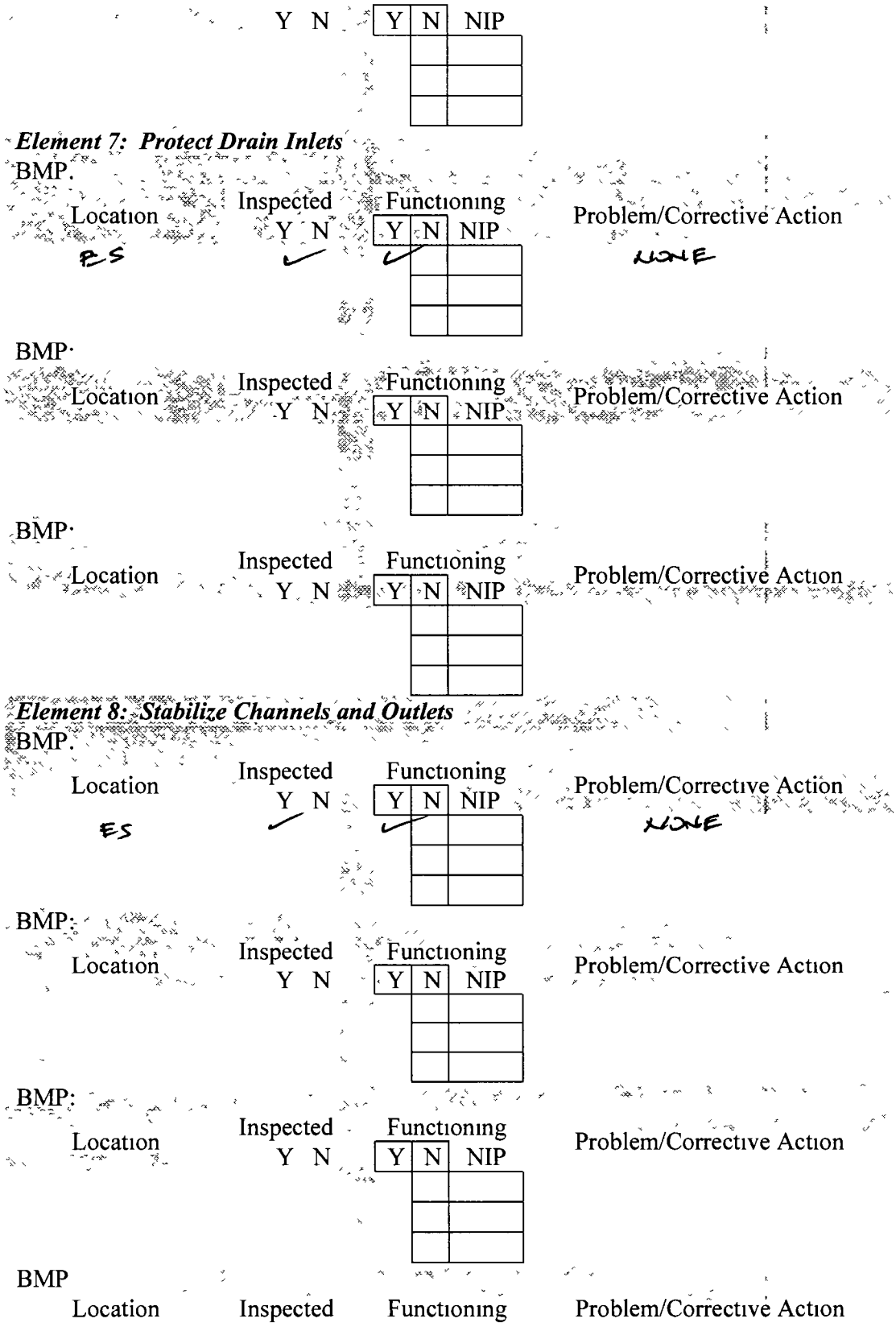
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES 2 x EXIT/ENTRANCES	✓		✓			NONE

BMP.

Location	Inspected	Functioning	Problem/Corrective Action


Y N
Y N NIP
Element 3: Control Flow Rates
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 4: Install Sediment Controls
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action


Y N
Y N NIP
Element 5: Stabilize Soils
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 6: Protect Slopes
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action


Y N
Y N NIP
Element 7: Protect Drain Inlets
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
✓
✓
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 8: Stabilize Channels and Outlets
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
✓
✓
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site			
	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity		✓	
Discoloration		✓	
Sheen		✓	

Location	
Turbidity	
Discoloration	
Sheen	

Water Quality Monitoring
Was any water quality monitoring conducted? ☒ Yes ☐ No If water quality monitoring was conducted, record results here PH = 7.31 TURBIDITY = 24.11 ARSANIC = 19
If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? ☐ Yes ☐ No
If Ecology was notified, indicate the date, time, contact name and phone number below Date Time: Contact Name Phone #
General Comments and Notes Include BMP repairs, maintenance, or installations made as a result of the inspection
Were Photos Taken? ☐ Yes ☒ No If photos taken, describe photos below

CLIMATOLOGICAL REPORT (DAILY)

```
CDUS46 KSEW 110830
CLISEW

CLIMATE REPORT
NATIONAL WEATHER SERVICE SEATTLE WA
1228 AM PST TUE NOV 11 2008


. ........ ..... . .. .. ... ......

. .THE SEATTLE WA WFO CLIMATE SUMMARY FOR NOVEMBER 10 2008..

CLIMATE NORMAL PERIOD 1986 TO 2000
CLIMATE RECORD PERIOD 1986 TO 2008


WEATHER ITEM   OBSERVED TIME   RECORD YEAR     LAST
                 VALUE   (LST)  VALUE          YEAR
.... .... .. .. . . . . ... . .... .. .  ... ... ... .
TEMPERATURE (F)
 YESTERDAY
  MAXIMUM         56    332 PM  64    1997    54
  MINIMUM         49    438 AM  33    1992    43
  AVERAGE         53                          49

PRECIPITATION (IN)
  YESTERDAY        0 01                        0.06
  MONTH TO DATE    3 59                        0.35
  SINCE OCT 1      5 93                        2.87
  SINCE JAN 1     24 56                       20 28

SNOWFALL (IN)
  YESTERDAY        0 0

DEGREE DAYS
 HEATING
  YESTERDAY       12                          16
  MONTH TO DATE  123                         161
  SINCE JUL 1    706                         731

 COOLING
  YESTERDAY        0                           0
  MONTH TO DATE    0                           0
  SINCE JAN 1    152                         172
 . . . . . . . . . . . . .   . . .   . . . . . .
```

Adtl Resources

Miscellaneous
SEW webcam
Products and Services Guide
Education

Contact Us
Webmaster E-mail


```
WIND (MPH)
  HIGHEST GUST SPEED     31   HIGHEST GUST DIRECTION     S (200)
  AVERAGE WIND SPEED      8.7


WEATHER CONDITIONS
 THE FOLLOWING WEATHER WAS RECORDED YESTERDAY
  LIGHT RAIN


-  INDICATES NEGATIVE NUMBERS
R  INDICATES RECORD WAS SET OR TIED
MM INDICATES DATA IS MISSING.
T  INDICATES TRACE AMOUNT.
```

Webmaster
US Dept of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Seattle Weather Forecast Office
7600 Sandpoint Way NE
Seattle Washington 98115-6349

Tel (206) 526-6087

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National Weather Service Mission "The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community "

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal

Inspector Name: TONY MANTUF **Title:** CESCL

CESCL # :

Date: 13 NOV 08 **Time:** 1000

Inspection Type:
- □ After a rain event
- ☒ Weekly
- □ Turbidity/transparency benchmark exceedance
- □ Other

Weather CLOUDY LIGHT INTERMITENT DRIZZLE

Precipitation Since last inspection _____ In last 24 hours _____

Description of General Site Conditions:

NEARING COMPLETION OF SOIL DISPOSAL.
SWEEPER ON SKID STEER IS WORKING.

BMPS ARE STILL BEING PLACED AND LESS OF SITE IS DISTURBED AS ASPHALTING IS IN OPERATION

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP.

BS = FENCE SITE

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

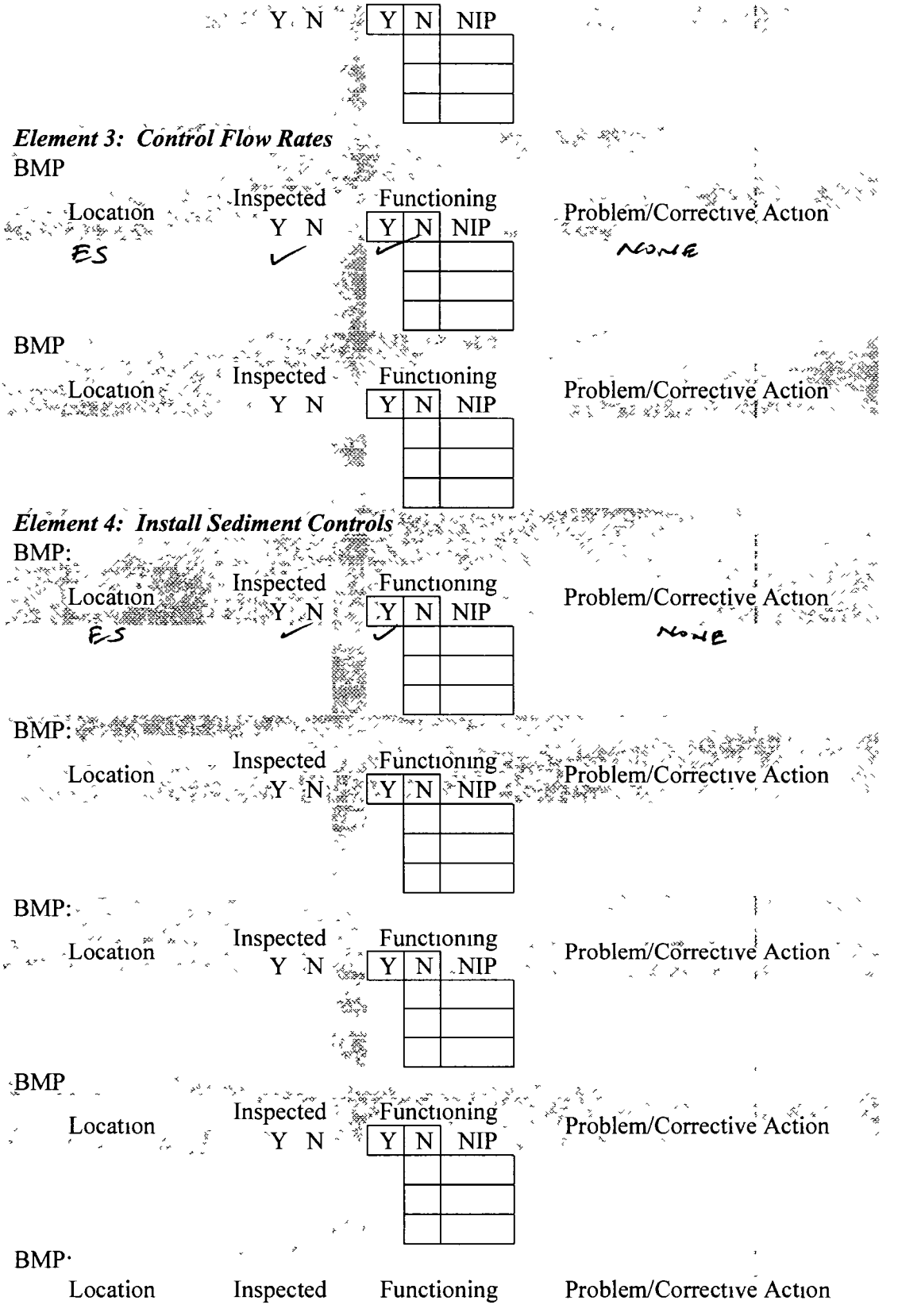
Element 2: Establish Construction Access

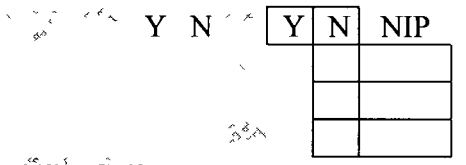
BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

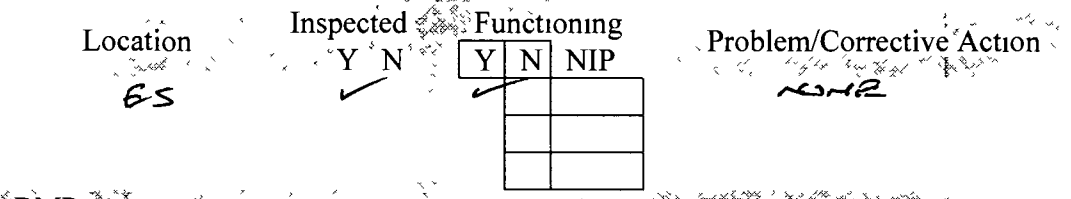
Location	Inspected	Functioning	Problem/Corrective Action


Y N
Y N NIP
Element 3: Control Flow Rates
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 4: Install Sediment Controls
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action



Element 5: Stabilize Soils

BMP



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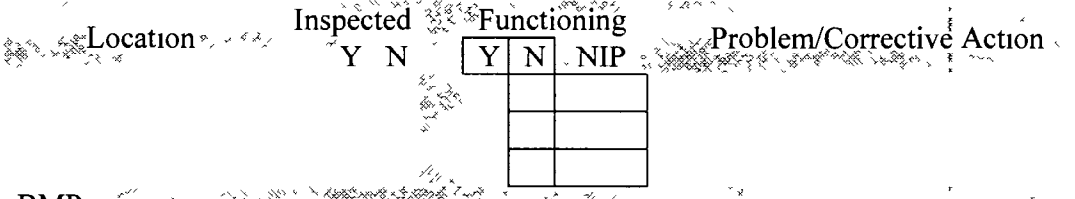
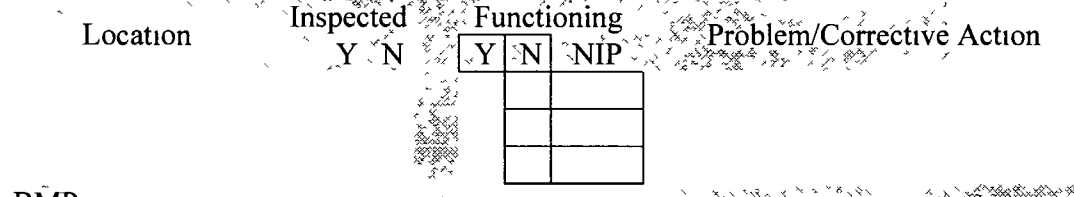
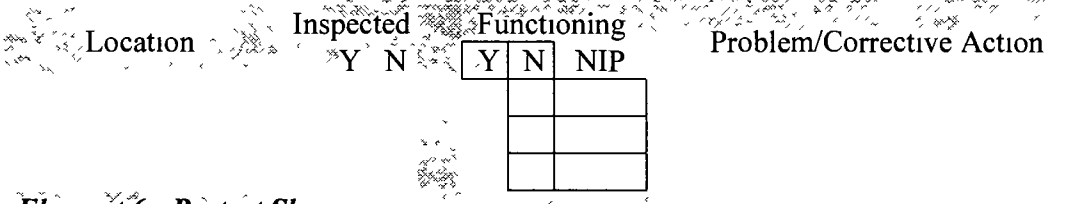


BMP

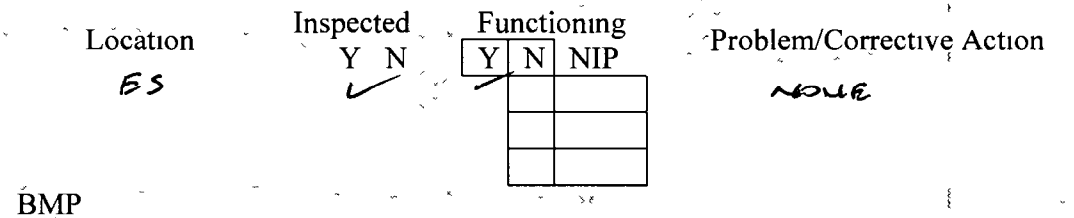


BMP

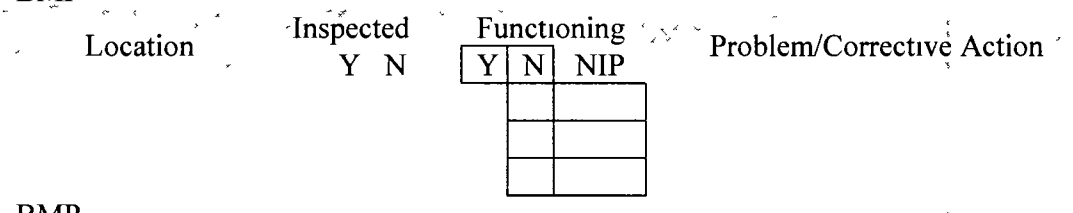


Element 6: Protect Slopes

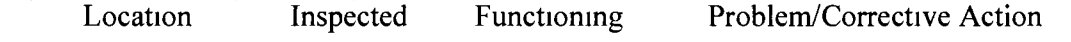
BMP

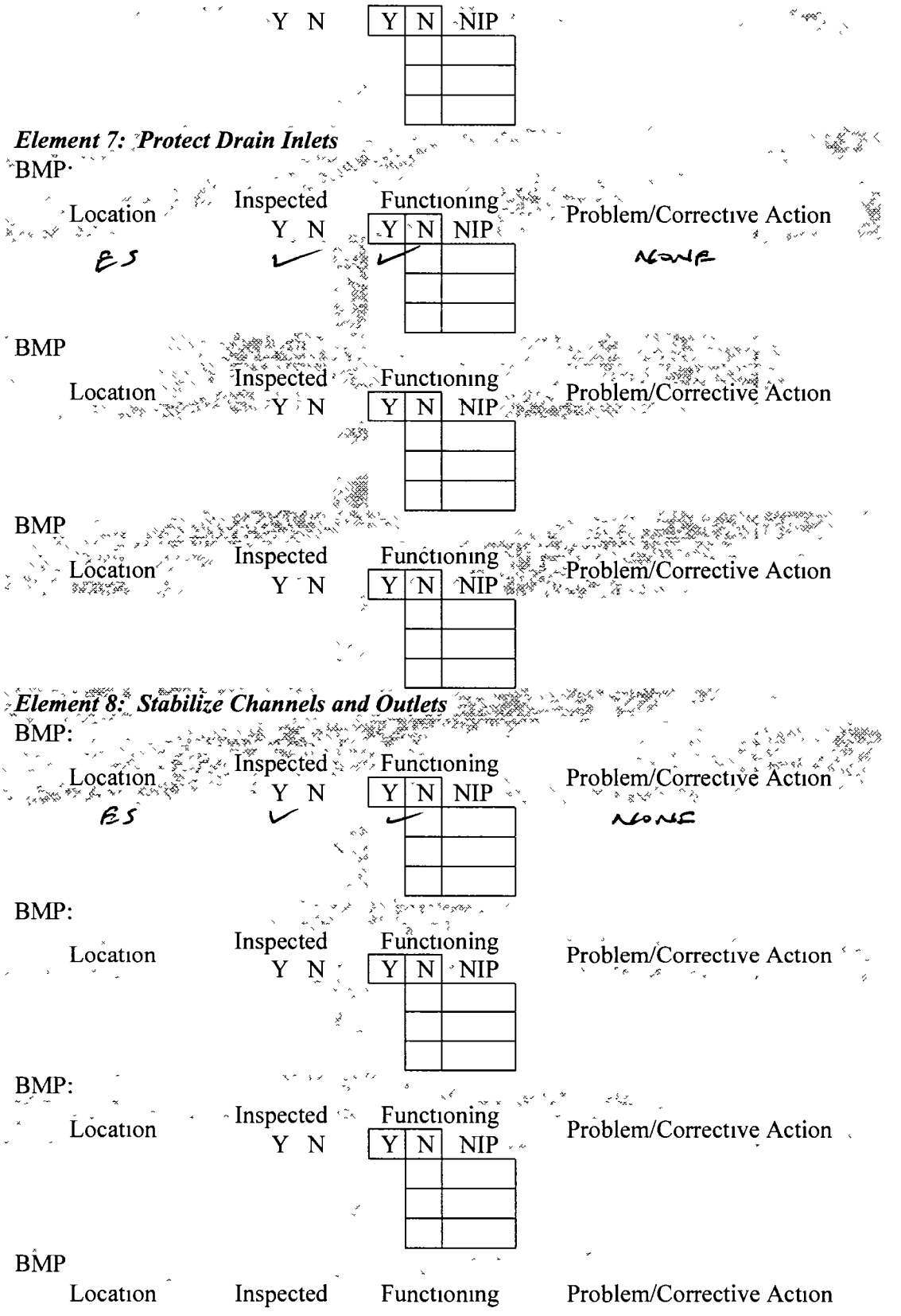


BMP



BMP




Y N
Y N NIP
Element 7: Protect Drain Inlets
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 8: Stabilize Channels and Outlets
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
NONE
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site			
	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity			NO DISCHARGE
Discoloration			
Sheen			

Location		
Turbidity		
Discoloration		
Sheen		

Water Quality Monitoring
Was any water quality monitoring conducted? ☒ Yes ☐ No If water quality monitoring was conducted, record results here PH IN FINAL TANK 23 NTU IN FINAL TANK WILL CYCLE THROUGH ADDITIONAL TIMES TESTED BUT - NO DISCHARGE WAS DONE
If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? ☐ Yes ☐ No
If Ecology was notified, indicate the date, time, contact name and phone number below Date Time Contact Name Phone #
General Comments and Notes Include BMP repairs, maintenance, or installations made as a result of the inspection.
Were Photos Taken? ☐ Yes ☒ No If photos taken, describe photos below

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal
Inspector Name: TONY MANN **Title:** CESCL
CESCL # :
Date: 25 NOV 08 **Time:**
Inspection Type:
- ☐ After a rain event
- ☒ Weekly
- ☐ Turbidity/transparency benchmark exceedance
- ☐ Other

Weather
Precipitation Since last inspection _____ In last 24 hours _____
Description of General Site Conditions:
INITIAL LIFT OF ASPHALT NEARLY COMPLETE WITH OTHER MAJOR AREAS ALREADY WITH TWO LIFTS AND COMPLETE.

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP:
ENTIRE SITE = ES

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

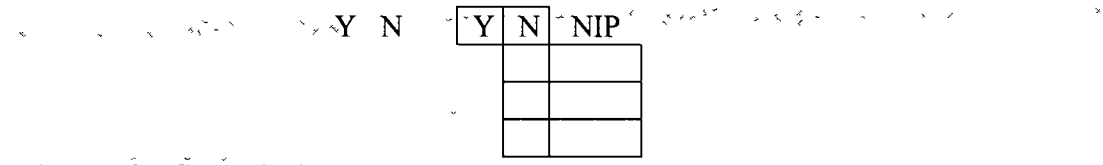
Element 2: Establish Construction Access

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected	Functioning	Problem/Corrective Action



Element 3: Control Flow Rates

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 4: Install Sediment Controls

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

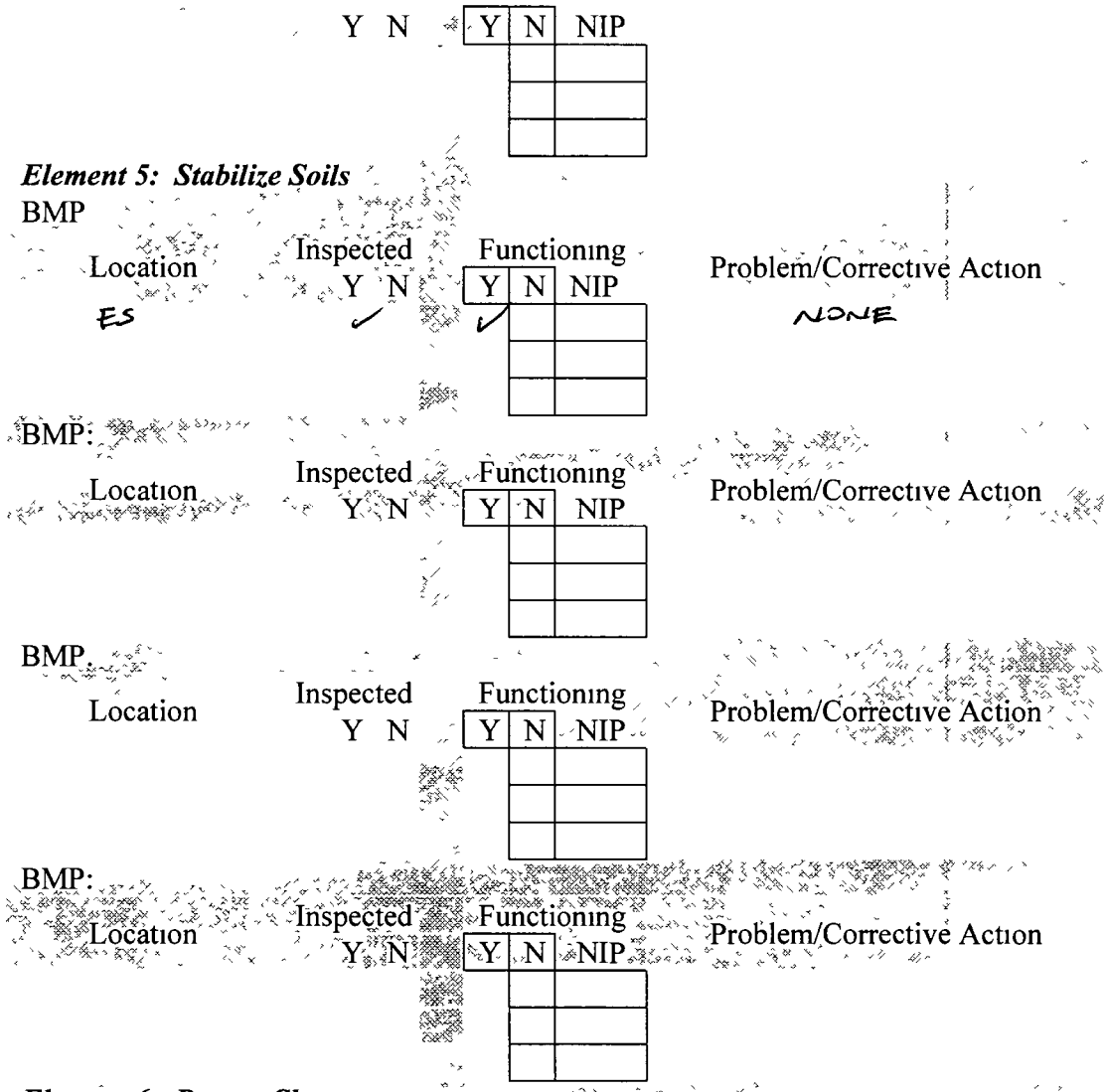
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action



Y N | Y | N | NIP

Element 5: Stabilize Soils

BMP

Location: ES | Inspected Y ✓ N | Functioning Y ✓ N NIP | Problem/Corrective Action: NONE

BMP:

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

BMP:

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

BMP:

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

Element 6: Protect Slopes

BMP:

Location: ES | Inspected Y ✓ N | Functioning Y ✓ N NIP | Problem/Corrective Action: NONE

BMP:

Location | Inspected Y N | Functioning Y N NIP | Problem/Corrective Action

BMP:

Location | Inspected | Functioning | Problem/Corrective Action

Y	N	Y	N	NIP

Element 7: Protect Drain Inlets

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 8: Stabilize Channels and Outlets

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			NONE

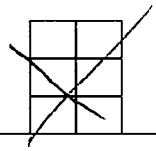
BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site			
	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity		✓	NO BELOW 25 NTU'S
Discoloration		✓	
Sheen		✓	

Location Turbidity Discoloration Sheen	 N/A

Water Quality Monitoring
Was any water quality monitoring conducted? ☒ Yes ☐ No If water quality monitoring was conducted, record results here PH = 7.6 TURBIDITY = 24.12 ARSENIC = 170
If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? ☐ Yes ☐ No
If Ecology was notified, indicate the date, time, contact name and phone number below. Date Time Contact Name Phone #.
General Comments and Notes Include BMP repairs, maintenance, or installations made as a result of the inspection
Were Photos Taken? ☐ Yes ☒ No If photos taken, describe photos below.

(206) 346-7484 CHRIS
1800 754-0806

Site Inspection Form

General Information

Project Name: Boeing Isaacson Mound Removal
Inspector Name: TONY MIANI **Title:** CESCL
CESCL # :
Date: 3 DEC 08 **Time:** 1200
Inspection Type:
- □ After a rain event
- ☒ Weekly
- □ Turbidity/transparency benchmark exceedance
- □ Other

Weather
Precipitation Since last inspection ____ In last 24 hours ____
Description of General Site Conditions:
FINAL ASPHALTING TOMORROW

ES = ENTIRE SITE

Inspection of BMPs

Element 1: Mark Clearing Limits

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
	✓		✓			

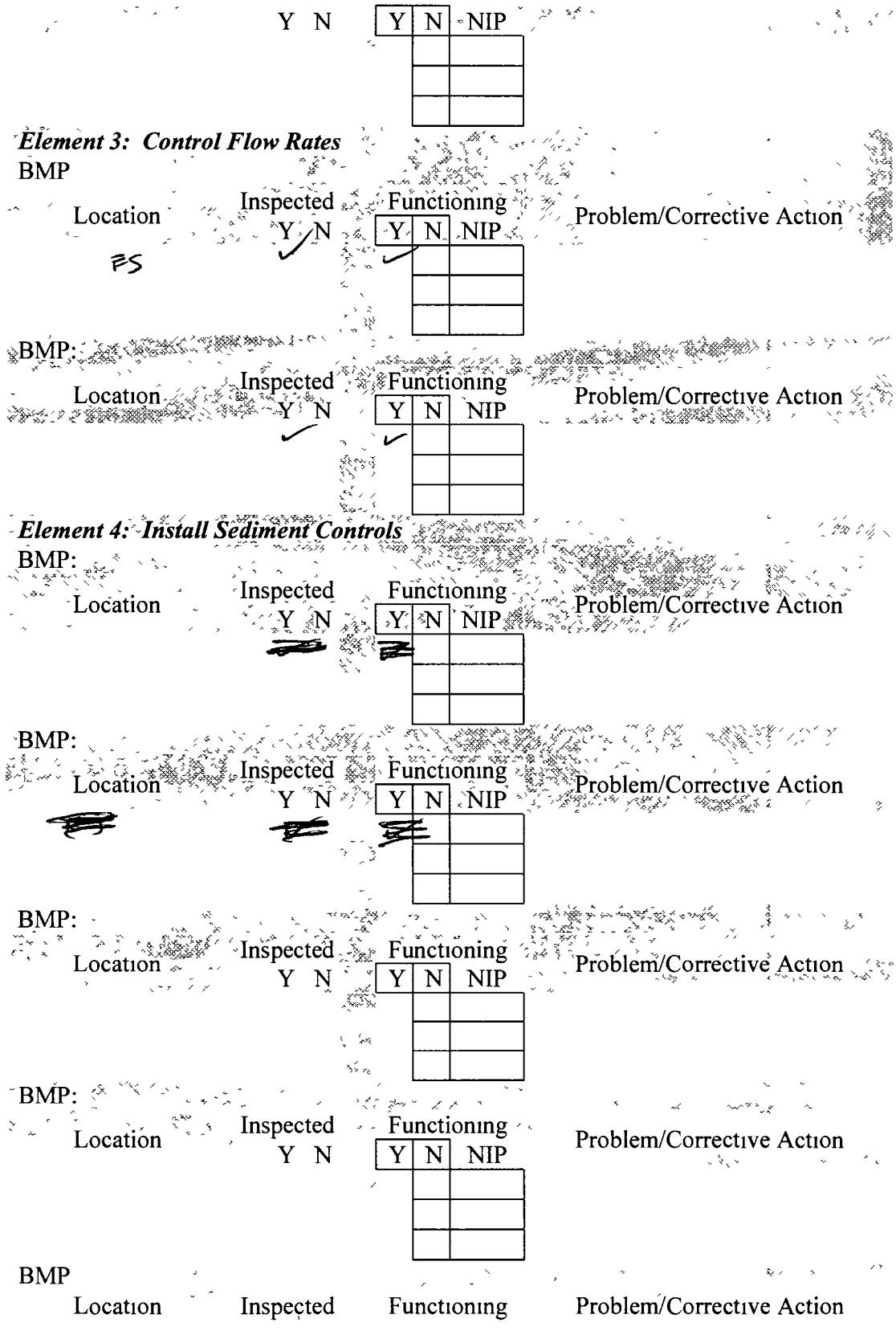
Element 2: Establish Construction Access

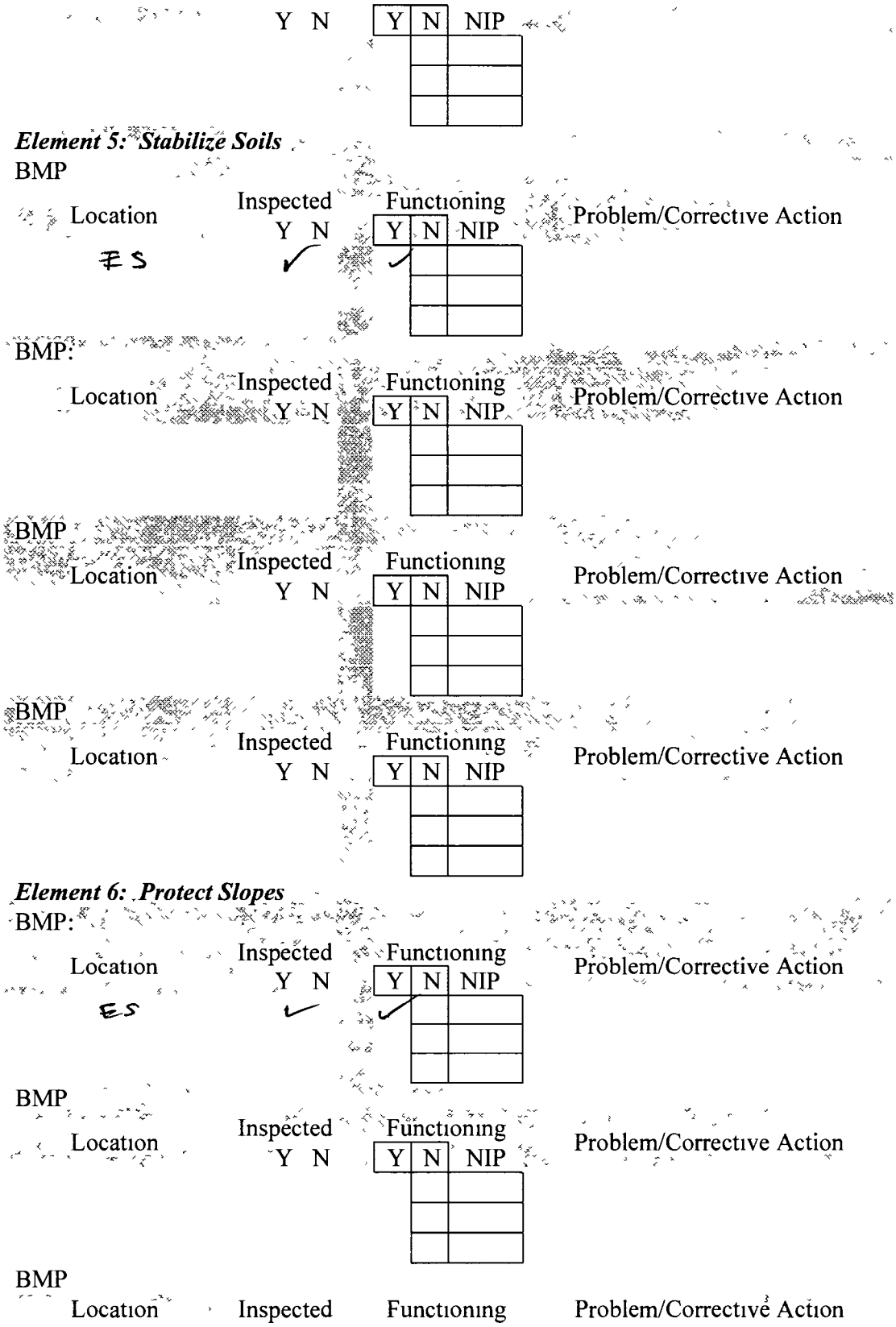
BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			

BMP

Location	Inspected	Functioning	Problem/Corrective Action


Y N
Y N NIP
Element 3: Control Flow Rates
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
FS
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 4: Install Sediment Controls
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action


Y N
Y N NIP
Element 5: Stabilize Soils
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
Element 6: Protect Slopes
BMP:
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
ES
BMP
Location
Inspected
Y N
Functioning
Y N NIP
Problem/Corrective Action
BMP
Location
Inspected
Functioning
Problem/Corrective Action

Y	N	Y	N	NIP

Element 7: Protect Drain Inlets

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 8: Stabilize Channels and Outlets

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

Location	Inspected	Functioning	Problem/Corrective Action

Y	N	Y	N	NIP

Element 9: Control Pollutants

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			

BMP

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Element 10: Control Dewatering

BMP:

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
ES	✓		✓			

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP.

Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

Stormwater Discharges From the Site			
	Observed? Y	Observed? N	Problem/Corrective Action
Location			
Turbidity			NO DISCHARGE
Discoloration			
Sheen			

Location		
Turbidity		
Discoloration		
Sheen		

Water Quality Monitoring
Was any water quality monitoring conducted? ☒ Yes ☐ No If water quality monitoring was conducted, record results here. TO BE DETERMINED
If water quality monitoring indicated turbidity 250 NTU or greater, or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? ☐ Yes ☐ No
If Ecology was notified, indicate the date, time, contact name and phone number below: Date: Time: Contact Name Phone #
General Comments and Notes Include BMP repairs, maintenance, or installations made as a result of the inspection
Were Photos Taken? ☐ Yes ☒ No If photos taken, describe photos below

APPENDIX E

Laboratory Analytical Results

Analytical Resources, Incorporated
Analytical Chemists and Consultants

September 11, 2008

Kathryn Hartley
Landau Associates
130 Second Avenue South
Edmonds, WA 98020

RE: Project: Boeing Isaacson
ARI Job: NL33

Dear Kathryn,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the project referenced above. Analytical Resources, Inc. accepted twenty soil samples in good condition on August 20, 2008. The samples were sub-contracted to CCI Analytical Laboratories.

The samples were analyzed for Total and TCLP Arsenic, as requested on the COC.

A copy of this report and all associated raw data will be kept on file electronically at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211

Enclosures

CCI
ANALYTICAL
LABORATORIES

August 26, 2008

Ms. Kelly Bottem
Analytical Resources Inc.
4611 South 134th Place
Tukwila, WA 98168

Dear Ms. Bottem,

On August 21st, 20 soil samples were received by our laboratory and assigned our laboratory project number 808104. The project was identified as your Boeing-Isaacson project. The sample identification and requested analyses are outlined on the attached chain of custody record.

No abnormalities or nonconformances were observed during the analyses of the project samples.

Please do not hesitate to call me if you have any questions or if I can be of further assistanee.

Sincerely

CCI Analytical Laboratories

Rick Bagan
Laboratory Director

NL33

LANDAU ASSOCIATES

- [x] Seattle (Edmonds) (425) 778-0907
- [ ] Tacoma (253) 926-2493
- [ ] Spokane (509) 327-9737
- [ ] Portland (Tigard) (503) 443-6010
- [ ] _____

Chain-of-Custody Record

Date 8-20-08

Page 1 of 2

Project Name Boeing - Isaacson Project No. 025173.080

Project Location/Event Tukwila, WA

Sampler's Name Brett Borgeson

Project Contact Tim Syverson

Send Results To Above + Katie Lewis & Kathryn Hartley

Turnaround Time ~~10~~
- [x] ~~Standard~~
- [ ] Accelerated
- [x] ~~48 hr~~ TAT
72 hr TAT

Testing Parameters

Sample I.D.	Date	Time	Matrix	No. of Containers	Total Arsenic	TCLP Arsenic
ISC-A-080820	8-20-08	1150	Soil	1	X	X
ISC-B-080820		1225				
ISC-C-080820		1235				
ISC-D-080820		1400				
ISC-E-080820		1410				
ISC-F-080820		1420				
ISC-G-080820		1430				
ISC-H-080820		1255				
ISC-I-080820		1320				
ISC-J-080820		1245				
ISC-K-080820		1445				
ISC-L-080820		1340				
ISC-M-080820		1010				
ISC-N-080820		1020				
ISC-O-080820		1035				
ISC-P-080820		1100				
ISC-Q-080820		1110				
ISC-R-080820		1120				

Observations/Comments

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Special Shipment/Handling or Storage Requirements Store below 4°C

Method of Shipment Delivery

Relinquished by	Received by	Relinquished by	Received by
Signature Brett Borgeson	Signature Kelly Bolton	Signature	Signature
Printed Name Brett Borgeson	Printed Name Kelly Bolton	Printed Name	Printed Name
Company Landau	Company ARI	Company	Company
Date 8-20-08 Time 1540	Date 8/20/08 Time 4:00	Date _____ Time _____	Date _____ Time _____

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

NL 33

LANDAU ASSOCIATES

☒ Seattle (Edmonds) (425) 778-0907
☐ Tacoma (253) 926-2493
☐ Spokane (509) 327-9737
☐ Portland (Tigard) (503) 443-6010
☐ _____

Date 8-20-08
Page 2 of 2

Chain-of-Custody Record

Project Name Boeing-Isaacson Project No 0025173.080
Project Location/Event Tukwila, WA
Sampler's Name Brett Borgeson
Project Contact Tim Syverson
Send Results To Abbe + Katie Lewis & Kathryn Hartley

Turnaround Time
☒ Standard
☐ Accelerated
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters: Total Arsenic	Testing Parameters: TCLP Arsenic	Observations/Comments
ISC-5-080820	8-20-08	1205	Soil	1	X	X	
ISC-T-080820	8-20-08	1135	Soil	1	X	X	

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Special Shipment/Handling or Storage Requirements Store below 4°C

Method of Shipment Delivery

Relinquished by	Received by	Relinquished by	Received by
Signature: Brett Borgeson	Signature: Bill Bolton	Signature	Signature
Printed Name: Brett Borgeson	Printed Name: Bill Bolton	Printed Name	Printed Name
Company: Landau	Company: KPFF	Company	Company
Date: 8-20-08 Time: _____	Date: 8/20/08 Time: 4:00	Date: _____ Time: _____	Date: _____ Time: _____

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Boeing
COC No: _____
Assigned ARI Job No: NL33

Project Name: Isaacson
Delivered by: Hand
Tracking No: _____

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Record cooler temperature (recommended 2.0-6.0 °C for chemistry	4	°C

Cooler Accepted by: Ruth Bott Date: 8/20/08 Time: 4:00

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?	YES	(NO)
What kind of packing material was used?	Ice	
Was sufficient ice used (if appropriate)?	(YES)	NO
Were all bottles sealed in individual plastic bags?	YES	(NO)
Did all bottle arrive in good condition (unbroken)?	(YES)	NO
Were all bottle labels complete and legible?	(YES)	NO
Did all bottle labels and tags agree with custody papers?	(YES)	NO
Were all bottles used correct for the requested analyses?	(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation checklist)	YES	(NO)
Were all VOC vials free of air bubbles? (NA)	YES	NO
Was sufficient amount of sample sent in each bottle?	(YES)	NO

Samples Logged by: JL Date: 8/21/08 Time: 735

*** Notify Project Manager of discrepancies or concerns ****

Explain discrepancies or negative responses:

By: Date:

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LABORATORIES
A Division of DataChem Laboratories, Inc.

CERTIFICATE OF ANALYSIS

CLIENT: ANALYTICAL RESOURCES, INC.
4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

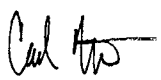
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20947-NL33A
CCIL SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

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4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

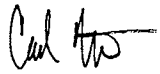
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20947-NL33A
CCIL SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



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4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

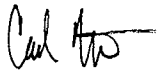
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20948-NL33B
CCIL SAMPLE #: -02

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



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ANALYTICAL
LABORATORIES
A Division of DataChem Laboratories, Inc.

CERTIFICATE OF ANALYSIS

CLIENT: ANALYTICAL RESOURCES, INC.
4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

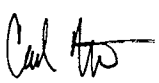
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20948-NL33B
CCIL SAMPLE #: -02

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



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4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20949-NL33C
CCIL SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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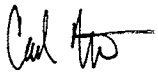

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CERTIFICATE OF ANALYSIS

CLIENT: ANALYTICAL RESOURCES, INC.
4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20949-NL33C
CCIL SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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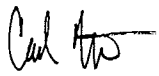

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TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20950-NL33D
CCIL SAMPLE #: -04

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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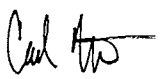

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DATE: 8/26/2008
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DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20950-NL33D
CCIL SAMPLE #: -04

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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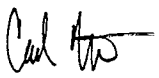

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CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20951-NL33E
CCIL SAMPLE #: -05

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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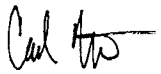

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DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20951-NL33E
CCIL SAMPLE #: -05

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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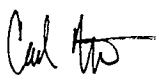

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CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20952-NL33F
CCIL SAMPLE #: -06

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	5.5	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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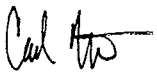

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CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20952-NL33F
CCIL SAMPLE #: -06

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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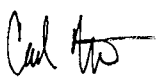

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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20953-NL33G
CCIL SAMPLE #: -07

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	6.2	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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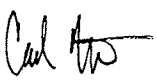

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TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20953-NL33G
CCIL SAMPLE #: -07

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

*"ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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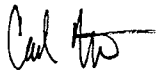

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TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20954-NL33H
CCIL SAMPLE #: -08

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	160	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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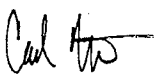

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DATE RECEIVED: 8/21/2008
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CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20954-NL33H
CCIL SAMPLE #: -08

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	0.43	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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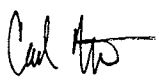

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DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20955-NL33I
CCIL SAMPLE #: -09

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	14	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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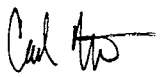

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CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20955-NL33I
CCIL SAMPLE #: -09

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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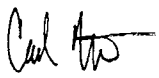

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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20956-NL33J
CCIL SAMPLE #: -10

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	120	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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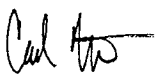

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CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20956-NL33J
CCIL SAMPLE #: -10

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	0.26	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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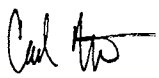

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CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20957-NL33K
CCIL SAMPLE #: -11

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	150	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

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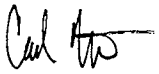

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CERTIFICATE OF ANALYSIS

CLIENT: ANALYTICAL RESOURCES, INC.
4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20957-NL33K
CCIL SAMPLE #: -11

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	0.34	0.08	2	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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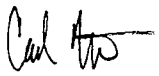

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DATE: 8/26/2008
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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20958-NL33L
CCIL SAMPLE #: -12

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	390	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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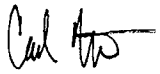

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CCIL JOB #: 0808104
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CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20958-NL33L
CCIL SAMPLE #: -12

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	0.72	0.04	1	MG/L	8/26/2008	BAM

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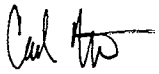

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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20959-NL33M
CCIL SAMPLE #: -13

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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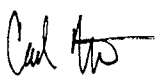

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DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20959-NL33M
CCIL SAMPLE #: -13

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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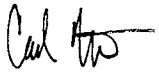

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DATE: 8/26/2008
CCIL JOB #: 0808104
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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20960-NL33N
CCIL SAMPLE #: -14

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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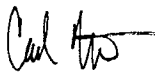

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CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20960-NL33N
CCIL SAMPLE #: -14

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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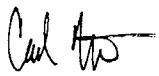

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DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20961-NL33O
CCIL SAMPLE #: -15

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	270	5.0	4	MG/KG	8/26/2008	BAM

*"ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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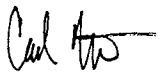

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DATE: 8/26/2008
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DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20961-NL33O
CCIL SAMPLE #: -15

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	0.67	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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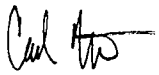

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TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20962-NL33P
CCIL SAMPLE #: -16

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	9.2	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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APPROVED BY:

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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20962-NL33P
CCIL SAMPLE #: -16

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

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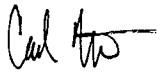

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DATE: 8/26/2008
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DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20963-NL33Q
CCIL SAMPLE #: -17

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	63	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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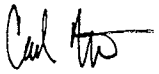

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CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20963-NL33Q
CCIL SAMPLE #: -17

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

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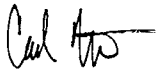

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DATE: 8/26/2008
CCIL JOB #: 0808104
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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20964-NL33R
CCIL SAMPLE #: -18

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	ND	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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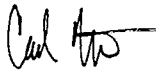

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WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20964-NL33R
CCIL SAMPLE #: -18

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
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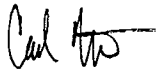

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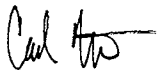
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20965-NL33S
CCIL SAMPLE #: -19

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	13	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

CCI
ANALYTICAL
LABORATORIES
A Division of DataChem Laboratories, Inc.

CERTIFICATE OF ANALYSIS

CLIENT: ANALYTICAL RESOURCES, INC.
4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

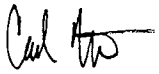
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20965-NL33S
CCIL SAMPLE #: -19

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	ND	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



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TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

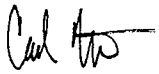
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20966-NL33T
CCIL SAMPLE #: -20

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Arsenic	EPA-6010	480	5.0	4	MG/KG	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



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4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

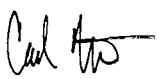
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON
CLIENT SAMPLE ID: 8/20/2008 08-20966-NL33T
CCIL SAMPLE #: -20

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
TCLP-Arsenic	EPA-1311/6010	0.76	0.04	1	MG/L	8/26/2008	BAM

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMIT. REPORTING LIMIT IS GIVEN IN PARENTHESES.
** UNITS FOR ALL NON LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS

APPROVED BY:



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4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON

QUALITY CONTROL RESULTS

BLANK RESULTS

METHOD	RESULT	ASSOCIATED SAMPLES
EPA-6010 (Arsenic)	ND(<5.0)	0808104 -01-20
EPA-1311/6010 (TCLP-Arsenic)	ND(<0.04)	0808104 -15
EPA-1311/6010 (TCLP-Arsenic)	ND(<0.04)	0808104 -01-14, 16-20

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CLIENT: ANALYTICAL RESOURCES, INC.
4611 SOUTH 134TH PLACE SUITE 100
TUKWILA, WA 98168

DATE: 8/26/2008
CCIL JOB #: 0808104
DATE RECEIVED: 8/21/2008
WDOE ACCREDITATION #: C1336

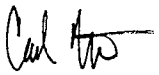
CLIENT CONTACT: KELLY BOTTEM
CLIENT PROJECT ID: BOEING-ISAACSON

QUALITY CONTROL RESULTS

SPIKE/SPIKE DUPLICATE RESULTS

METHOD	ANALYTE	ASSOCIATED SAMPLES	SPIKE AMOUNT	DILUTION FACTOR	SPIKE RECOVERY	SPIKE DUP RECOVERY	RPD
EPA-6010	Arsenic	0808104 -01-20	20 MG/KG	1	101 %	102 %	1
EPA-1311/6010	TCLP-Arsenic	0808104 -15	1 MG/L	1	106 %	107 %	1
EPA-1311/6010	TCLP-Arsenic	0808104 -01-14, 16-20	1 MG/L	1	112 %	114 %	2

APPROVED BY:



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CCI Analytical Laboratories
Sample Receiving Checklist

Client: ART CCI Job #: 808104

Project: Boeing - Isaacson

Received Date: 8/21/08 Received Time: 12:06 By: SA

Type of shipping container: Cooler ☒ Box ☐ Other _____

Shipped via: UPS/Fed Ex ☐ US Postal Service ☐ Courier ☐ Hand Delivered ☒

	Yes	No	N/A
Were custody seals on outside of sample?	☐	☐	☒
If yes, how many? _____ Where? _____			
Custody seal date: _____ Seal name: _____			
Was Chain of Custody properly filled out (ink, signed, dated, etc.)? They brought own COC	☒	☐	☐
Did all bottles have labels?	☒	☐	☐
Did all bottle labels and tags agree with Chain of Custody?	☒	☐	☐
Were samples received within hold time?	☒	☐	☐
Did all bottles arrive in good condition (unbroken, etc.)?	☒	☐	☐
Was sufficient amount of sample sent for the tests indicated?	☒	☐	☐
Was correct preservation added to samples?	☐	☐	☒

If no, Sample Control added preservative to the following:

Sample Number	Reagent	Analyte

Were VOA vials checked for absence of air bubbles? ☐ ☐ ☒

Bubbles present in sample #: _____

Temperature of cooler upon receipt: 12.1 °C Cold Cool Ambient N/A

Explain any discrepancies: _____

Was client contacted? _____ Who was called? _____ By whom? _____ Date: _____

Outcome of call: _____

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 08/21/08

ANALYTICAL RESOURCES INCORPORATED

~~ARI Project:~~ NL33
808104

Laboratory: Bagan, Rick (CCI)
Lab Contact: Rick Bagan
Lab Address: 8620 Holly Drive
Everett, WA 98208
Phone: 206-292-9059
Fax: 425-356-2626

ARI Client: The ~~Boeing Company~~
Project ID: BOEING-ISAACSON
ARI PM: Kelly Bottem
Phone: 206-695-6211
Fax: 206-695-6201

Analytical Protocol: In-house
Special Instructions:

Requested Turn Around: 08/~~24~~26/08
Fax Results (Y/N): Yes

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Subcontractor.*

	ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
1	08-20947-NL33A	ISC-A-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
2	08-20948-NL33B	ISC-B-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
3	08-20949-NL33C	ISC-C-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
4	08-20950-NL33D	ISC-D-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
5	08-20951-NL33E	ISC-E-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
6	08-20952-NL33F	ISC-F-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
7	08-20953-NL33G	ISC-G-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
8	08-20954-NL33H	ISC-H-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					

Carrier	Airbill	Date	
Courier			
Relinquished by: Eric Kasada	Company: ARI	Date: 08/21/08	Time: 12:06
Received by: Shawn Peterson	Company: CCI AL	Date: 8/21/08	Time: 12:06

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 08/21/08

ANALYTICAL RESOURCES INCORPORATED

ARI Project: NL33
808104

Laboratory: Bagan, Rick (CCI)
Lab Contact: Rick Bagan

ARI Client: The Boeing Company
Project ID: 0025173.080

	ARI Sample ID	Client Sample ID/ Add'l Sample ID	Sampled	Matrix	Bottles	Analyses
9	08-20955-NL33I	ISC-I-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
10	08-20956-NL33J	ISC-J-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
11	08-20957-NL33K	ISC-K-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
12	08-20958-NL33L	ISC-L-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
13	08-20959-NL33M	ISC-M-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
14	08-20960-NL33N	ISC-N-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
15	08-20961-NL33O	ISC-O-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
16	08-20962-NL33P	ISC-P-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
17	08-20963-NL33Q	ISC-Q-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
18	08-20964-NL33R	ISC-R-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
19	08-20965-NL33S	ISC-S-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					
20	08-20966-NL33T	ISC-T-080820	08/20/08	Soil	1	Metals (Sub)
	Special Instructions: TOTAL As (ICPMS),TCLP As					

Carrier	Airbill		Date
Courier			
Relinquished by: Eric Kasowski	Company: ARI	Date: 08/21/08	Time: 12:00
Received by	Company	Date	Time

NVL Laboratories, Inc.

4708 Aurora Ave. N., Seattle, WA 98103
Tel: 206.547.0100, Fax: 206.634.1936
www.nvllabs.com

Analysis Report

AIHA - IH # 101861
WA - DOE # C1765

AIHA Environmental Lead and Industrial Hygiene ACCREDITED LABORATORY

Total Metals

Client: Clearcreek Contractors
Address: 3203 15th Street
Everett, WA 98201

Attention: MR Mark McCullough
Project Location: Boeing Isaacson

Batch #: 2812475.00
Matrix: Air Filter
Method: NIOSH 7300
Client Project #: 208099
Date Received: 09/30/2008
Samples Received: 3
Samples Analyzed: 3

Lab ID	Client Sample #	Elements	Vol (L)	RL ug/m^3	Results in ug/filter	Results in ug/m^3
28079829	**208099-01**	Arsenic (As)	443	4.5	< 2.0	< 4.5
28079830	**208099-02**	Arsenic (As)	0		< 2.0	
28079831	**208099-03**	Arsenic (As)	0		< 2.0	

Sampled by: Client
Analyzed by: Michael Dougherty
Reviewed by: Nick Ly

Date Analyzed: 09/30/2008
Date Issued: 09/30/2008

Nick Ly, Technical Director

ug/ m^3 = Micrograms per cubicmeter
ug/filter = Micrograms per filter

RL = Reporting Limit
'<' = Below the reporting Limit

Note : Method QC results are acceptable unless stated otherwise. Concentration (ug/m^3) not reported if sample volume is zero. Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 28-0930-08

NVL Laboratories, Inc.

4708 Aurora Ave. N., Seattle, WA 98103
Tel: 206.547.0100, Fax: 206.634.1936
www.nvllabs.com

Analysis Report

AIHA - IH # 101861
WA - DOE # C1765

AIHA Environmental Lead and Industrial Hygiene ACCREDITED LABORATORY

Total Metals

Client: Clearcreek Contractors
Address: 3203 15th Street
Everett, WA 98201

Attention: Ms. Jennifer Brown
Project Location: Boeing Isaacson

Batch #: 2812567.00
Matrix: Air Filter
Method: NIOSH 7300
Client Project #: 208099
Date Received: 10/02/2008
Samples Received: 3
Samples Analyzed: 3

Lab ID	Client Sample #	Elements	Vol (L)	RL ug/m^3	Results in ug/filter	Results in ug/m^3
28080256	**208099-04**	Arsenic (As)	623	3.2	< 2.0	< 3.2
28080257	**208099-05**	Arsenic (As)	0		< 2.0	
28080258	**208099-06**	Arsenic (As)	0		< 2.0	

Sampled by: Client
Analyzed by: Michael Dougherty
Reviewed by: Nick Ly

Date Analyzed: 10/02/2008
Date Issued: 10/02/2008

Nick Ly, Technical Director

ug/ m^3 = Micrograms per cubicmeter
ug/filter = Micrograms per filter

RL = Reporting Limit
'<' = Below the reporting Limit

Note : Method QC results are acceptable unless stated otherwise. Concentration (ug/m^3) not reported if sample volume is zero. Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 28-1002-02

NVL Laboratories, Inc.

4708 Aurora Ave. N., Seattle, WA 98103
Tel: 206.547.0100, Fax: 206.634.1936
www.nvllabs.com

Analysis Report

AIHA - IH # 101861
WA - DOE # C1765

AIHA Environmental Lead and Industrial Hygiene ACCREDITED LABORATORY

Total Metals

Client: Clearcreek Contractors
Address: 3201 15th Street
Everett, WA 98201

Attention: Ms. Jennifer Brown
Project Location: Boeing Issacson

Batch #: 2812894.00
Matrix: Air Filter
Method: NIOSH 7300
Client Project #: 208099
Date Received: 10/08/2008
Samples Received: 4
Samples Analyzed: 4

Lab ID	Client Sample #	Elements	Vol (L)	RL ug/m^3	Results in ug/filter	Results in ug/m^3
28082487	**208099-11**	Arsenic (As)	927	2.2	< 2.0	< 2.2
28082488	**208099-12**	Arsenic (As)	689	2.9	< 2.0	< 2.9
28082489	**208099-13**	Arsenic (As)	0		< 2.0	
28082490	**208099-14**	Arsenic (As)	0		< 2.0	

Sampled by: Client
Analyzed by: Tanveer Khan
Reviewed by: Nick Ly

Date Analyzed: 10/09/2008
Date Issued: 10/09/2008

Nick Ly, Technical Director

ug/ m^3 = Micrograms per cubicmeter
ug/filter = Micrograms per filter

RL = Reporting Limit
'<' = Below the reporting Limit

Note : Method QC results are acceptable unless stated otherwise. Concentration (ug/m^3) not reported if sample volume is zero. Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 28-1009-1

Lab/Cor, Inc.
7619 6th Ave NW
Seattle, WA 98117

Final Report

Phone: (206) 781-0155
Fax: (206) 789-8424
http://www.labcor.net

A Professional Service Corporation in the Northwest

NIOSH 7500: XRD - Air

Job Number: 081834
Client: NVL Laboratories Inc.
Project Name: 2813116.00
Project No.:

Report Number: 081834R01
Date Received: 10/14/2008

Lab/Cor Sample No.: S1
Client Sample No.: 28083564
Description: 208099-15
Sample Note:

Sample Volume: 785 L
Sample Weight[1]: mg
Detection Limit: 0.006 mg / m^3

	Intensity	Silica Weight (ug/sample)	Concentration (mg/m3)	Concentration[1] (weight %)
alpha-Quartz	0	BDL	BDL	NA
Cristobalite	0	BDL	BDL	NA
Tridymite	0	BDL	BDL	NA
Silver (Ag)	216853			

Reviewed by:

x Eryn Knaack
Eryn Knaack
Analyst

[1] - Requires filter weight Prior to sampling.
BDL - Below Detectable Limits NA - Not Applicable

NVL Laboratories, Inc.
4708 Aurora Ave. N., Seattle, WA 98103
Tel: 206.547.0100, Fax: 206.634.1936
www.nvllabs.com

Analysis Report

AIHA - IH # 101861
WA - DOE # C1765

ACCREDITED LABORATORY

Total Metals

Client: Clearcreek Contractors
Address: 3201 15th Street
Everett, WA 98201

Attention: Ms. Jennifer Brown
Project Location: Boeing Isaacson

Batch #: 2813115.00
Matrix: Air Filter
Method: NIOSH 7300
Client Project #: 208099
Date Received: 10/14/2008
Samples Received: 2
Samples Analyzed: 2

Lab ID	Client Sample #	Elements	Vol (L)	RL ug/m^3	Results in ug/filter	Results in ug/m^3
28083562	**208099-16**	Arsenic (As)	794	2.5	< 2.0	< 2.5
28083563	**208099-18**	Arsenic (As)	0		< 2.0	

Sampled by: Client
Analyzed by: Michael Dougherty Date Analyzed: 10/15/2008

Draft

ug/ m^3 = Micrograms per cubicmeter
ug/filter = Micrograms per filter

RL = Reporting Limit
'<' = Below the reporting Limit

Note : Method QC results are acceptable unless stated otherwise. Concentration (ug/m^3) not reported if sample volume is zero. Unless otherwise indicated, the condition of all samples was acceptable at time of receipt. Results are not blank corrected.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 9, 2008

Kathryn Hartley
Landau Associates
130 Second Avenue South
Edmonds, WA 98020

RE: Project: Boeing Isaacson
ARI Job: NV07

Dear Kathryn,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the project referenced above. Analytical Resources, Inc. accepted five soil samples in good condition on October 17, 2008.

The samples were analyzed for Total RCRA Metals and NWTPH-Dx, as requested on the COC.

A copy of this report and all associated raw data will be kept on file electronically at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211

Enclosures

LANDAU ASSOCIATES

☒ **Seattle (Edmonds)** (425) 778-0907
☐ **Tacoma** (253) 926-2493
☐ **Spokane** (509) 327-9737
☐ **Portland (Tigard)** (503) 443-6010
☐ _____

Chain-of-Custody Record

Date 10/17/2008

Page 1 of 1

Project Name Isaacson Mound Removal Project No. 025173.080.082

Project Location/Event Boeing Isaacson Property

Sampler's Name Mark Brunner

Project Contact Tim Syverson

Send Results To Tim Syverson (Landau Associates)

Testing Parameters

Turnaround Time
☒ Standard
☐ Accelerated
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Total RCRA metals	TPH-Dx														Observations/Comments
IMR-2-081017	10/17/08	0800	Soil	1	X															___ Allow water samples to settle, collect aliquot from clear portion
IMR-4-081017		0815		1	X															
IMR-5-081017		0948		1	X															NWTPH-Dx:
IMR-6-081017		0945		1	X	X														X run acid wash/silica gel cleanup
IMR-8-081017		0900		1	X															___ run samples standardized to _____ product
																				___ Analyze for EPH if no specific product identified
																				VOC/BTEX/VPH (soil):
																				___ non-preserved
																				___ preserved w/methanol
																				___ preserved w/sodium bisulfate
																				___ Freeze upon receipt
																				___ Dissolved metal water samples field filtered
																				Other _____

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature Kimberly Rigg	Signature	Signature
Printed Name Mark Brunner	Printed Name Kimberly Rigg	Printed Name	Printed Name
Company Landau Associates	Company ARI	Company	Company
Date 10/17/08 Time 1000	Date 10/17/08 Time 1020	Date _____ Time _____	Date _____ Time _____

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Boeing Landau
COC No:
Assigned ARI Job No: NV07

Project Name: Isaacson Mound Removal
Delivered by: hand
Tracking No:

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Record cooler temperature (recommended 2.0-6.0 °C for chemistry	amb	°C

Cooler Accepted by: KR Date: 10/17/08 Time: 1020

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?	YES	(NO)
What kind of packing material was used?	—	
Was sufficient ice used (if appropriate)?	YES	NO
Were all bottles sealed in individual plastic bags?	YES	(NO)
Did all bottle arrive in good condition (unbroken)?	(YES)	NO
Were all bottle labels complete and legible?	(YES)	NO
Did all bottle labels and tags agree with custody papers?	(YES)	NO
Were all bottles used correct for the requested analyses?	(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation checklist)	YES	(NO)
Were all VOC vials free of air bubbles? (NA)	YES	NO
Was sufficient amount of sample sent in each bottle?	(YES)	NO

Samples Logged by: JW Date: 10/17/08 Time: 1300

*** Notify Project Manager of discrepancies or concerns ***

Explain discrepancies or negative responses:

By: Date:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1
Matrix: Soil

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082

Data Release Authorized:
Reported: 10/30/08

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-102208	Method Blank	10/22/08	10/27/08	1.00	Diesel	5.0	< 5.0 U
08-28216	HC ID: ---		FID3A	1.0	Motor Oil	10	< 10 U
					o-Terphenyl		71.1%
NV07D	IMR-6-081017	10/22/08	10/27/08	1.00	**Diesel**	**6.7**	**17**
08-28216	HC ID: **DRO/MOTOR OIL**		FID3A	1.0	**Motor Oil**	**13**	**61**
					o-Terphenyl		70.9%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel quantitation on total peaks in the range from C12 to C24.
Motor Oil quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082

Client ID	OTER	TOT OUT
MB-102208	71.1%	0
LCS-102208	79.3%	0
LCSD-102208	76.4%	0
IMR-6-081017	70.9%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(62-118)	(49-125)

Prep Method: SW3546
Log Number Range: 08-28216 to 08-28216

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1

Sample ID: LCS-102208
LCS/LCSD

Lab Sample ID: LCS-102208
LIMS ID: 08-28216
Matrix: Soil
Data Release Authorized:
Reported: 10/30/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

Date Extracted LCS/LCSD: 10/22/08

Date Analyzed LCS: 10/27/08 21:06
LCSD: 10/27/08 21:36
Instrument/Analyst LCS: FID/PKC
LCSD: FID/PKC

Sample Amount LCS: 10.0 g
LCSD: 10.0 g
Final Extract Volume LCS: 1.0 mL
LCSD: 1.0 mL
Dilution Factor LCS: 1.0
LCSD: 1.0

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	90.1	150	60.1%	92.1	150	61.4%	2.2%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	79.3%	76.4%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: NV07
Matrix: Soil
Project: ISAACSON MOUND REMOVAL
Date Received: 10/17/08
025173.080.082

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
08-28216-102208MB1	Method Blank	10.0 g	1.00 mL	-	10/22/08
08-28216-102208LCS1	Lab Control	10.0 g	1.00 mL	-	10/22/08
08-28216-102208LCSD1	Lab Control Dup	10.0 g	1.00 mL	-	10/22/08
08-28216-NV07D	IMR-6-081017	7.46 g	1.00 mL	D	10/22/08

Basis: D=Dry Weight W=As Received

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-2-081017
SAMPLE

Lab Sample ID: NV07A
LIMS ID: 08-28213
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

Percent Total Solids: 93.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/20/08	6010B	11/06/08	7440-38-2	Arsenic	5	5	U
3050B	10/20/08	6010B	11/06/08	**7440-39-3**	**Barium**	0.3	**48.0**	
3050B	10/20/08	6010B	11/06/08	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/20/08	6010B	11/06/08	**7440-47-3**	**Chromium**	0.5	**19.5**	
3050B	10/20/08	6010B	11/06/08	7439-92-1	Lead	2	2	U
CLP	10/20/08	7471A	10/24/08	7439-97-6	Mercury	0.04	0.04	U
3050B	10/20/08	6010B	11/06/08	7782-49-2	Selenium	5	5	U
3050B	10/20/08	6010B	11/06/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: IMR-2-081017
DUPLICATE

Lab Sample ID: NV07A
LIMS ID: 08-28213
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010B	5 U	5 U	0.0%	+/- 5	L
Barium	6010B	48.0	48.0	0.0%	+/- 20%	
Cadmium	6010B	0.2 U	0.2 U	0.0%	+/- 0.2	L
Chromium	6010B	19.5	19.2	1.6%	+/- 20%	
Lead	6010B	2 U	2 U	0.0%	+/- 2	L
Mercury	7471A	0.04 U	0.04 U	0.0%	+/- 0.04	L
Selenium	6010B	5 U	5 U	0.0%	+/- 5	L
Silver	6010B	0.3 U	0.3 U	0.0%	+/- 0.3	L

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: IMR-2-081017
MATRIX SPIKE

Lab Sample ID: NV07A
LIMS ID: 08-28213
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010B	5 U	204	206	99.0%	
Barium	6010B	48.0	234	206	90.3%	
Cadmium	6010B	0.2 U	48.4	51.4	94.2%	
Chromium	6010B	19.5	69.3	51.4	96.9%	
Lead	6010B	2 U	193	206	93.7%	
Mercury	7471A	0.04 U	0.50	0.434	115%	
Selenium	6010B	5 U	197	206	95.6%	
Silver	6010B	0.3 U	50.6	51.4	98.4%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-4-081017
SAMPLE

Lab Sample ID: NV07B
LIMS ID: 08-28214
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

Percent Total Solids: 77.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/20/08	6010B	11/07/08	**7440-38-2**	**Arsenic**	20	**1,120**	
3050B	10/20/08	6010B	11/07/08	**7440-39-3**	**Barium**	0.9	**153**	
3050B	10/20/08	6010B	11/07/08	**7440-43-9**	**Cadmium**	0.6	**3.1**	
3050B	10/20/08	6010B	11/07/08	**7440-47-3**	**Chromium**	2	**55**	
3050B	10/20/08	6010B	11/07/08	**7439-92-1**	**Lead**	6	**136**	
CLP	10/20/08	7471A	10/24/08	**7439-97-6**	**Mercury**	0.06	**0.46**	
3050B	10/20/08	6010B	11/07/08	7782-49-2	Selenium	20	20	U
3050B	10/20/08	6010B	11/07/08	7440-22-4	Silver	0.9	0.9	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-5-081017
SAMPLE

Lab Sample ID: NV07C
LIMS ID: 08-28215
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

Percent Total Solids: 93.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/20/08	6010B	11/06/08	**7440-38-2**	**Arsenic**	5	**8**	
3050B	10/20/08	6010B	11/06/08	**7440-39-3**	**Barium**	0.3	**61.5**	
3050B	10/20/08	6010B	11/06/08	**7440-43-9**	**Cadmium**	0.2	**0.6**	
3050B	10/20/08	6010B	11/06/08	**7440-47-3**	**Chromium**	0.5	**41.2**	
3050B	10/20/08	6010B	11/06/08	**7439-92-1**	**Lead**	2	**56**	
CLP	10/20/08	7471A	10/24/08	**7439-97-6**	**Mercury**	0.04	**0.10**	
3050B	10/20/08	6010B	11/06/08	7782-49-2	Selenium	5	5	U
3050B	10/20/08	6010B	11/06/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-6-081017
SAMPLE

Lab Sample ID: NV07D
LIMS ID: 08-28216
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

Percent Total Solids: 72.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/20/08	6010B	11/06/08	**7440-38-2**	**Arsenic**	6	**2,440**	
3050B	10/20/08	6010B	11/06/08	**7440-39-3**	**Barium**	0.4	**78.6**	
3050B	10/20/08	6010B	11/06/08	**7440-43-9**	**Cadmium**	0.3	**5.6**	
3050B	10/20/08	6010B	11/06/08	**7440-47-3**	**Chromium**	0.6	**19.7**	
3050B	10/20/08	6010B	11/06/08	**7439-92-1**	**Lead**	3	**26**	
CLP	10/20/08	7471A	10/24/08	**7439-97-6**	**Mercury**	0.05	**0.68**	
3050B	10/20/08	6010B	11/06/08	7782-49-2	Selenium	6	6	U
3050B	10/20/08	6010B	11/06/08	7440-22-4	Silver	0.4	0.4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-8-081017
SAMPLE

Lab Sample ID: NV07E
LIMS ID: 08-28217
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: 10/17/08
Date Received: 10/17/08

Percent Total Solids: 92.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/20/08	6010B	11/06/08	**7440-38-2**	**Arsenic**	5	**253**	
3050B	10/20/08	6010B	11/06/08	**7440-39-3**	**Barium**	0.3	**57.8**	
3050B	10/20/08	6010B	11/06/08	**7440-43-9**	**Cadmium**	0.2	**1.0**	
3050B	10/20/08	6010B	11/06/08	**7440-47-3**	**Chromium**	0.5	**26.4**	
3050B	10/20/08	6010B	11/06/08	**7439-92-1**	**Lead**	2	**44**	
CLP	10/20/08	7471A	10/24/08	**7439-97-6**	**Mercury**	0.05	**0.81**	
3050B	10/20/08	6010B	11/06/08	7782-49-2	Selenium	5	5	U
3050B	10/20/08	6010B	11/06/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: NV07MB
LIMS ID: 08-28214
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL 025173.080.082
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/20/08	6010B	11/06/08	7440-38-2	Arsenic	5	5	U
3050B	10/20/08	6010B	11/06/08	7440-39-3	Barium	0.3	0.3	U
3050B	10/20/08	6010B	11/06/08	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/20/08	6010B	11/06/08	7440-47-3	Chromium	0.5	0.5	U
3050B	10/20/08	6010B	11/06/08	7439-92-1	Lead	2	2	U
CLP	10/20/08	7471A	10/24/08	7439-97-6	Mercury	0.05	0.05	U
3050B	10/20/08	6010B	11/06/08	7782-49-2	Selenium	5	5	U
3050B	10/20/08	6010B	11/06/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: LAB CONTROL

Lab Sample ID: NV07LCS
LIMS ID: 08-28214
Matrix: Soil
Data Release Authorized:
Reported: 11/07/08

QC Report No: NV07-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080.082
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010B	210	200	105%	
Barium	6010B	190	200	95.0%	
Cadmium	6010B	49.5	50.0	99.0%	
Chromium	6010B	48.8	50.0	97.6%	
Lead	6010B	203	200	102%	
Mercury	7471A	1.11	1.00	111%	
Selenium	6010B	210	200	105%	
Silver	6010B	51.8	50.0	104%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 17, 2008

Tim Syverson
Landau Associates
130 Second Avenue South
Edmonds, WA 98020

RE: Project: Boeing Isaacson
ARI Job: NW45

Dear Tim,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the project referenced above. Analytical Resources, Inc. accepted three soil samples in good condition on October 27, 2008.

The samples were analyzed for Total Metals, as requested on the COC.

A copy of this report and all associated raw data will be kept on file electronically at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211

Enclosures

NW45

AMB

LANDAU ASSOCIATES

☑ **Seattle (Edmonds)** (425) 778-0907
☐ **Tacoma** (253) 926-2493
☐ **Spokane** (509) 327-9737
☐ **Portland (Tigard)** (503) 443-6010
☐ _____

Chain-of-Custody Record

Date 10/27/2008

Page 1 of 1

Project Name Isaacson Mound Removal Project No. 025173.080

Project Location/Event Isaacson Property (Boeing)

Sampler's Name Mark Brunner

Project Contact Tim Syverson

Send Results To Tim Syverson

Testing Parameters

Turnaround Time
☑ Standard
☐ Accelerated
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Total RCRA metals	Observations/Comments
IMR-7-081027	10/27/08	1210	Soil	1	X	
IMR-11-081027	10/27/08	1315	Soil	1	X	
IMR-12-081027	10/27/08	1300	Soil	1	X	

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	**Received by**	**Relinquished by**	**Received by**
Signature	Signature	Signature	Signature
Mark Brunner	S DUNNIGAN		
Printed Name	Printed Name	Printed Name	Printed Name
Landau Associates	ACE		
Company	Company	Company	Company
Date 10/27/08 Time 1320	Date 10/27/08 Time 1320	Date _____ Time _____	Date _____ Time _____

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: BOEING (LATI)

COC No: NA

Assigned ARI Job No: NW45

Project Name: Isaacson Mound Removal

Delivered by: HAND

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES (NO)
Were custody papers included with the cooler?	(YES) NO
Were custody papers properly filled out (ink, signed, etc.)	(YES) NO
Record cooler temperature (recommended 2.0-6.0 °C for chemistry	AMB °C

Cooler Accepted by: [signature] Date: 10/27/08 Time: 13:20

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?	YES (NO)
What kind of packing material was used?	NA
Was sufficient ice used (if appropriate)?	YES (NO)
Were all bottles sealed in individual plastic bags?	YES (NO)
Did all bottle arrive in good condition (unbroken)?	(YES) NO
Were all bottle labels complete and legible?	YES NO
Did all bottle labels and tags agree with custody papers?	YES NO
Were all bottles used correct for the requested analyses?	(YES) NO
Do any of the analyses (bottles) require preservation? (attach preservation checklist)	YES (NO)
Were all VOC vials free of air bubbles?	(NA) YES NO
Was sufficient amount of sample sent in each bottle?	(YES) NO

Samples Logged by: [signature] Date: 10/27/08 Time: 1500

***** Notify Project Manager of discrepancies or concerns *****

Explain discrepancies or negative responses:

By: Date:

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-7-081027
SAMPLE

Lab Sample ID: NW45A
LIMS ID: 08-29126
Matrix: Soil
Data Release Authorized:
Reported: 11/14/08

QC Report No: NW45-Boeing
Project: Isaacson Mound Removal
025173.080
Date Sampled: 10/27/08
Date Received: 10/27/08

Percent Total Solids: 95.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/28/08	6010B	11/12/08	7440-38-2	Arsenic	5	5	U
3050B	10/28/08	6010B	11/12/08	**7440-39-3**	**Barium**	0.3	**31.4**	
3050B	10/28/08	6010B	11/12/08	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/28/08	6010B	11/12/08	**7440-47-3**	**Chromium**	0.5	**21.3**	
3050B	10/28/08	6010B	11/12/08	7439-92-1	Lead	2	2	U
CLP	10/28/08	7471A	10/31/08	7439-97-6	Mercury	0.05	0.05	U
3050B	10/28/08	6010B	11/12/08	7782-49-2	Selenium	5	5	U
3050B	10/28/08	6010B	11/12/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: IMR-11-081027
SAMPLE

Lab Sample ID: NW45B
LIMS ID: 08-29127
Matrix: Soil
Data Release Authorized:
Reported: 11/14/08

QC Report No: NW45-Boeing
Project: Isaacson Mound Removal
025173.080
Date Sampled: 10/27/08
Date Received: 10/27/08

Percent Total Solids: 84.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/28/08	6010B	11/12/08	**7440-38-2**	**Arsenic**	6	**524**	
3050B	10/28/08	6010B	11/12/08	**7440-39-3**	**Barium**	0.3	**85.0**	
3050B	10/28/08	6010B	11/12/08	**7440-43-9**	**Cadmium**	0.2	**1.4**	
3050B	10/28/08	6010B	11/12/08	**7440-47-3**	**Chromium**	0.6	**38.6**	
3050B	10/28/08	6010B	11/12/08	**7439-92-1**	**Lead**	2	**114**	
CLP	10/28/08	7471A	10/31/08	**7439-97-6**	**Mercury**	0.05	**1.82**	
3050B	10/28/08	6010B	11/12/08	7782-49-2	Selenium	6	6	U
3050B	10/28/08	6010B	11/12/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-12-081027
SAMPLE

Lab Sample ID: NW45C
LIMS ID: 08-29128
Matrix: Soil
Data Release Authorized:
Reported: 11/14/08

QC Report No: NW45-Boeing
Project: Isaacson Mound Removal
025173.080
Date Sampled: 10/27/08
Date Received: 10/27/08

Percent Total Solids: 73.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/28/08	6010B	11/13/08	**7440-38-2**	**Arsenic**	20	**1,780**	
3050B	10/28/08	6010B	11/13/08	**7440-39-3**	**Barium**	1	**93**	
3050B	10/28/08	6010B	11/13/08	**7440-43-9**	**Cadmium**	0.7	**3.1**	
3050B	10/28/08	6010B	11/13/08	**7440-47-3**	**Chromium**	2	**116**	
3050B	10/28/08	6010B	11/13/08	**7439-92-1**	**Lead**	7	**46**	
CLP	10/28/08	7471A	10/31/08	**7439-97-6**	**Mercury**	0.06	**0.70**	
3050B	10/28/08	6010B	11/13/08	7782-49-2	Selenium	20	20	U
3050B	10/28/08	6010B	11/13/08	7440-22-4	Silver	1	1	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: NW45MB
LIMS ID: 08-29126
Matrix: Soil
Data Release Authorized:
Reported: 11/14/08

QC Report No: NW45-Boeing
Project: Isaacson Mound Removal 025173.080
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	10/28/08	6010B	11/11/08	7440-38-2	Arsenic	5	5	U
3050B	10/28/08	6010B	11/11/08	7440-39-3	Barium	0.3	0.3	U
3050B	10/28/08	6010B	11/11/08	7440-43-9	Cadmium	0.2	0.2	U
3050B	10/28/08	6010B	11/11/08	7440-47-3	Chromium	0.5	0.5	U
3050B	10/28/08	6010B	11/11/08	7439-92-1	Lead	2	2	U
CLP	10/28/08	7471A	10/31/08	7439-97-6	Mercury	0.05	0.05	U
3050B	10/28/08	6010B	11/11/08	7782-49-2	Selenium	5	5	U
3050B	10/28/08	6010B	11/11/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: NW45LCS
LIMS ID: 08-29126
Matrix: Soil
Data Release Authorized:
Reported: 11/14/08

QC Report No: NW45-Boeing
Project: Isaacson Mound Removal
025173.080
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010B	203	200	102%	
Barium	6010B	197	200	98.5%	
Cadmium	6010B	50.6	50.0	101%	
Chromium	6010B	50.2	50.0	100%	
Lead	6010B	204	200	102%	
Mercury	7471A	1.08	1.00	108%	
Selenium	6010B	202	200	101%	
Silver	6010B	53.5	50.0	107%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 21, 2008

Tim Syverson
Landau Associates
130 Second Avenue South
Edmonds, WA 98020

RE: Project: Boeing Isaacson
ARI Job: NY11

Dear Tim,

Please find enclosed the original Chain of Custody (COC) record and analytical results for the project referenced above. Analytical Resources, Inc. accepted seven soil samples in good condition on November 14, 2008.

The samples were analyzed for Total RCRA Metals, as requested on the COC.

A copy of this report and all associated raw data will be kept on file electronically at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211

Enclosures

LANDAU ASSOCIATES

☒ Seattle (Edmonds) (425) 778-0907
☐ Tacoma (253) 926-2493
☐ Spokane (509) 327-9737
☐ Portland (Tigard) (503) 443-6010
☐ _____

3.2

Date 11/4/08
Page 1 of 1

Chain-of-Custody Record

Project Name Isaacson Mound Removal Project No. 025173.080
Project Location/Event Boeing Isaacson Property
Sampler's Name Mark Brunner
Project Contact Tim Syverson (Landau Associates)
Send Results To " "

Testing Parameters: Total RCRA Metals

Turnaround Time
☐ Standard
☐ Accelerated
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Total RCRA Metals	Observations/Comments
IMR-10-081104	11/4/08	1045	Soil	1	X	
IMR-11-081104	"	1050	"	1	X	
IMR-12-081104	"	1055	"	1	X	
IMR-13-081104	"	1100	"	1	X	
IMR-14-081104	"	1105	"	1	X	
IMR-15-081104	"	1115	"	1	X	
IMR-16-081104	"	1110	"	1	X	

Observations/Comments

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
Mark Brunner	Elizabeth Pace	Elizabeth Pace	Kimberly Rigg
Printed Name	Printed Name	Printed Name	Printed Name
Landau Associates	LAI	LAI	ARI
Company	Company	Company	Company
Date 11/4/08 Time 1500	Date 11/4/08 Time 1500	Date 11/14/08 Time 1550	Date 11/4/08 Time 1550

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Boeing
COC No: _____
Assigned ARI Job No: NY11

Project Name: Isaacson Mound Removal
Delivered by: Ground
Tracking No: _____

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Record cooler temperature (recommended 2.0-6.0 °C for chemistry	3.2 °C	

Cooler Accepted by: KR Date: 11/4/08 Time: 1550

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?	YES	(NO)
What kind of packing material was used?	ice	
Was sufficient ice used (if appropriate)?	(YES)	NO
Were all bottles sealed in individual plastic bags?	(YES)	(NO)
Did all bottle arrive in good condition (unbroken)?	(YES)	NO
Were all bottle labels complete and legible?	(YES)	NO
Did all bottle labels and tags agree with custody papers?	(YES)	NO
Were all bottles used correct for the requested analyses?	(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation checklist)	YES	(NO)
Were all VOC vials free of air bubbles?	(NA) YES	NO
Was sufficient amount of sample sent in each bottle?	(YES)	NO

Samples Logged by: JH Date: 11.5.08 Time: 10:35

** *Notify Project Manager of discrepancies or concerns* **

Explain discrepancies or negative responses:

By: Date:

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: IMR-10-081104
SAMPLE

Lab Sample ID: NY11A
LIMS ID: 08-30018
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/04/08
Date Received: 11/05/08

Percent Total Solids: 93.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/18/08	**7440-38-2**	**Arsenic**	5	**38**	
3050B	11/10/08	6010B	11/18/08	**7440-39-3**	**Barium**	0.3	**30.1**	
3050B	11/10/08	6010B	11/18/08	**7440-43-9**	**Cadmium**	0.2	**0.3**	
3050B	11/10/08	6010B	11/18/08	**7440-47-3**	**Chromium**	0.5	**24.4**	
3050B	11/10/08	6010B	11/18/08	7439-92-1	Lead	2	2	U
CLP	11/10/08	7471A	11/14/08	7439-97-6	Mercury	0.04	0.04	U
3050B	11/10/08	6010B	11/18/08	7782-49-2	Selenium	5	5	U
3050B	11/10/08	6010B	11/18/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-11-081104
SAMPLE

Lab Sample ID: NY11B
LIMS ID: 08-30019
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/04/08
Date Received: 11/05/08

Percent Total Solids: 84.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/18/08	**7440-38-2**	**Arsenic**	6	**439**	
3050B	11/10/08	6010B	11/18/08	**7440-39-3**	**Barium**	0.3	**46.6**	
3050B	11/10/08	6010B	11/18/08	**7440-43-9**	**Cadmium**	0.2	**1.6**	
3050B	11/10/08	6010B	11/18/08	**7440-47-3**	**Chromium**	0.6	**22.9**	
3050B	11/10/08	6010B	11/18/08	**7439-92-1**	**Lead**	2	**40**	
CLP	11/10/08	7471A	11/14/08	**7439-97-6**	**Mercury**	0.05	**1.12**	
3050B	11/10/08	6010B	11/18/08	7782-49-2	Selenium	6	6	U
3050B	11/10/08	6010B	11/18/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-12-081104
SAMPLE

Lab Sample ID: NY11C
LIMS ID: 08-30020
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/04/08
Date Received: 11/05/08

Percent Total Solids: 72.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/18/08	**7440-38-2**	**Arsenic**	6	**485**	
3050B	11/10/08	6010B	11/18/08	**7440-39-3**	**Barium**	0.4	**61.4**	
3050B	11/10/08	6010B	11/18/08	**7440-43-9**	**Cadmium**	0.3	**1.6**	
3050B	11/10/08	6010B	11/18/08	**7440-47-3**	**Chromium**	0.6	**25.1**	
3050B	11/10/08	6010B	11/18/08	**7439-92-1**	**Lead**	3	**36**	
CLP	11/10/08	7471A	11/14/08	**7439-97-6**	**Mercury**	0.06	**0.12**	
3050B	11/10/08	6010B	11/18/08	7782-49-2	Selenium	6	6	U
3050B	11/10/08	6010B	11/18/08	7440-22-4	Silver	0.4	0.4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: IMR-13-081104
SAMPLE

Lab Sample ID: NY11D
LIMS ID: 08-30021
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/04/08
Date Received: 11/05/08

Percent Total Solids: 82.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/18/08	**7440-38-2**	**Arsenic**	6	**77**	
3050B	11/10/08	6010B	11/18/08	**7440-39-3**	**Barium**	0.3	**75.1**	
3050B	11/10/08	6010B	11/18/08	**7440-43-9**	**Cadmium**	0.2	**1.3**	
3050B	11/10/08	6010B	11/18/08	**7440-47-3**	**Chromium**	0.6	**52.0**	
3050B	11/10/08	6010B	11/18/08	**7439-92-1**	**Lead**	2	**86**	
CLP	11/10/08	7471A	11/14/08	**7439-97-6**	**Mercury**	0.05	**0.21**	
3050B	11/10/08	6010B	11/18/08	7782-49-2	Selenium	6	6	U
3050B	11/10/08	6010B	11/18/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-14-081104
SAMPLE

Lab Sample ID: NY11E
LIMS ID: 08-30022
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/04/08
Date Received: 11/05/08

Percent Total Solids: 80.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/19/08	**7440-38-2**	**Arsenic**	10	**70**	
3050B	11/10/08	6010B	11/19/08	**7440-39-3**	**Barium**	0.9	**157**	
3050B	11/10/08	6010B	11/19/08	**7440-43-9**	**Cadmium**	0.6	**1.9**	
3050B	11/10/08	6010B	11/19/08	**7440-47-3**	**Chromium**	1	**109**	
3050B	11/10/08	6010B	11/19/08	**7439-92-1**	**Lead**	6	**273**	
CLP	11/10/08	7471A	11/14/08	**7439-97-6**	**Mercury**	0.04	**0.33**	
3050B	11/10/08	6010B	11/19/08	7782-49-2	Selenium	10	10	U
3050B	11/10/08	6010B	11/19/08	7440-22-4	Silver	0.9	0.9	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-15-081104
SAMPLE

Lab Sample ID: NY11F
LIMS ID: 08-30023
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/04/08
Date Received: 11/05/08

Percent Total Solids: 71.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/18/08	**7440-38-2**	**Arsenic**	7	**919**	
3050B	11/10/08	6010B	11/18/08	**7440-39-3**	**Barium**	0.4	**84.2**	
3050B	11/10/08	6010B	11/18/08	**7440-43-9**	**Cadmium**	0.3	**3.0**	
3050B	11/10/08	6010B	11/18/08	**7440-47-3**	**Chromium**	0.7	**19.5**	
3050B	11/10/08	6010B	11/18/08	**7439-92-1**	**Lead**	3	**51**	
CLP	11/10/08	7471A	11/14/08	**7439-97-6**	**Mercury**	0.06	**0.80**	
3050B	11/10/08	6010B	11/18/08	7782-49-2	Selenium	7	7	U
3050B	11/10/08	6010B	11/18/08	7440-22-4	Silver	0.4	0.4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-16-081104
SAMPLE

Lab Sample ID: NY11G
LIMS ID: 08-30024
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/04/08
Date Received: 11/05/08

Percent Total Solids: 82.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/19/08	**7440-38-2**	**Arsenic**	30	**30**	
3050B	11/10/08	6010B	11/19/08	**7440-39-3**	**Barium**	2	**253**	
3050B	11/10/08	6010B	11/19/08	**7440-43-9**	**Cadmium**	1	**15**	
3050B	11/10/08	6010B	11/19/08	**7440-47-3**	**Chromium**	3	**536**	
3050B	11/10/08	6010B	11/19/08	**7439-92-1**	**Lead**	10	**1,210**	
CLP	11/10/08	7471A	11/14/08	**7439-97-6**	**Mercury**	0.06	**0.06**	
3050B	11/10/08	6010B	11/19/08	7782-49-2	Selenium	30	30	U
3050B	11/10/08	6010B	11/19/08	**7440-22-4**	**Silver**	2	**2**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: NY11MB
LIMS ID: 08-30018
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/10/08	6010B	11/18/08	7440-38-2	Arsenic	5	5	U
3050B	11/10/08	6010B	11/18/08	7440-39-3	Barium	0.3	0.3	U
3050B	11/10/08	6010B	11/18/08	7440-43-9	Cadmium	0.2	0.2	U
3050B	11/10/08	6010B	11/18/08	7440-47-3	Chromium	0.5	0.5	U
3050B	11/10/08	6010B	11/18/08	7439-92-1	Lead	2	2	U
CLP	11/10/08	7471A	11/14/08	7439-97-6	Mercury	0.05	0.05	U
3050B	11/10/08	6010B	11/18/08	7782-49-2	Selenium	5	5	U
3050B	11/10/08	6010B	11/18/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: NY11LCS
LIMS ID: 08-30018
Matrix: Soil
Data Release Authorized:
Reported: 11/20/08

QC Report No: NY11-Landau Associates, Inc.
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010B	193	200	96.5%	
Barium	6010B	180	200	90.0%	
Cadmium	6010B	46.0	50.0	92.0%	
Chromium	6010B	45.5	50.0	91.0%	
Lead	6010B	192	200	96.0%	
Mercury	7471A	0.99	1.00	99.0%	
Selenium	6010B	192	200	96.0%	
Silver	6010B	49.8	50.0	99.6%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

November 26, 2008

Tim Syverson
Landau Associates
130 Second Avenue South
Edmonds, WA 98020

RE: Project: Isaacson Mound Removal, 025173.080
ARI Job: OA02

Dear Mr. Syverson:

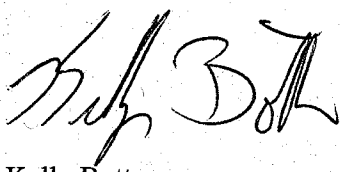
Enclosed, please find the original Chain-of-Custody (COC) record, sample receipt documentation, and final data report for the samples from the project referenced above. Analytical Resources, Inc. (ARI) accepted three soil samples in good condition on November 13, 2008. For further details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for Total Metals, as requested on the COC.

There were no anomalies associated with the analysis of these samples.

Quality control analysis results are included for your review. An electronic copy of this report and all associated raw data will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,
ANALYTICAL RESOURCES, INC



Kelly Bottem
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KB/co

Enclosures

LANDAU ASSOCIATES

☒ **Seattle (Edmonds)** (425) 778-0907
☐ **Tacoma** (253) 926-2493
☐ **Spokane** (509) 327-9737
☐ **Portland (Tigard)** (503) 443-6010
☐ _____

0A02

Date 11/13/08
Page 1 of 1

Chain-of-Custody Record

Project Name Isaacson Round Removal Project No. 025173.080
Project Location/Event Boeing - Isaacson Property
Sampler's Name Mark Brunner (Landau Associates)
Project Contact Tim Syverson (Landau Associates)
Send Results To Tim Syverson

Testing Parameters

Turnaround Time
☒ Standard
☐ Accelerated
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Total RCRA Metals	Observations/Comments
IMR-3-081113	11/13/08	1530	Soil	1	X	
IMR-18-081113	11/13/08	1540	Soil	1	X	
IMR-19-081113	11/13/08	1550	Soil	1	X	

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	**Received by**	**Relinquished by**	**Received by**
Signature	Signature	Signature	Signature
Mark Brunner	Jami Hayes		
Printed Name	Printed Name	Printed Name	Printed Name
Landau Associates	ARI		
Company	Company	Company	Company
Date 11/13/08 Time 1600	Date 11.13.08 Time 1600	Date _____ Time _____	Date _____ Time _____

WHITE COPY - Project File **YELLOW COPY - Laboratory** **PINK COPY - Client Representative**

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau
COC No:
Assigned ARI Job No: OA02

Project Name: Isaacson Mound Removal
Delivered by: Hand
Tracking No:

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Record cooler temperature (recommended 2.0-6.0 °C for chemistry	11.0 °C	

Cooler Accepted by: JH Date: 11.13.08 Time: 1600

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?			
Was sufficient ice used (if appropriate)?		YES	(NO)
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottle arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation checklist)		YES	(NO)
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO

Samples Logged by: AV Date: 11/14/08 Time: 1251

*** Notify Project Manager of discrepancies or concerns ***

Explain discrepancies or negative responses:

By: Date:

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: IMR-3-081113
SAMPLE

Lab Sample ID: OA02A
LIMS ID: 08-31009
Matrix: Soil
Data Release Authorized:
Reported: 11/26/08

QC Report No: OA02-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/13/08
Date Received: 11/13/08

Percent Total Solids: 81.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/18/08	6010B	11/26/08	**7440-38-2**	**Arsenic**	6	**294**	
3050B	11/18/08	6010B	11/26/08	**7440-39-3**	**Barium**	0.4	**95.5**	
3050B	11/18/08	6010B	11/26/08	**7440-43-9**	**Cadmium**	0.2	**1.6**	
3050B	11/18/08	6010B	11/26/08	**7440-47-3**	**Chromium**	0.6	**65.8**	
3050B	11/18/08	6010B	11/26/08	**7439-92-1**	**Lead**	2	**126**	
CLP	11/18/08	7471A	11/21/08	**7439-97-6**	**Mercury**	0.05	**1.44**	
3050B	11/18/08	6010B	11/26/08	7782-49-2	Selenium	6	6	U
3050B	11/18/08	6010B	11/26/08	7440-22-4	Silver	0.4	0.4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: IMR-18-081113
SAMPLE

Lab Sample ID: OA02B
LIMS ID: 08-31010
Matrix: Soil
Data Release Authorized:
Reported: 11/26/08

QC Report No: OA02-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/13/08
Date Received: 11/13/08

Percent Total Solids: 83.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/18/08	6010B	11/26/08	**7440-38-2**	**Arsenic**	6	**397**	
3050B	11/18/08	6010B	11/26/08	**7440-39-3**	**Barium**	0.3	**40.8**	
3050B	11/18/08	6010B	11/26/08	**7440-43-9**	**Cadmium**	0.2	**1.5**	
3050B	11/18/08	6010B	11/26/08	**7440-47-3**	**Chromium**	0.6	**14.6**	
3050B	11/18/08	6010B	11/26/08	**7439-92-1**	**Lead**	2	**24**	
CLP	11/18/08	7471A	11/21/08	**7439-97-6**	**Mercury**	0.05	**0.16**	
3050B	11/18/08	6010B	11/26/08	7782-49-2	Selenium	6	6	U
3050B	11/18/08	6010B	11/26/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: IMR-19-081113
SAMPLE

Lab Sample ID: OA02C
LIMS ID: 08-31011
Matrix: Soil
Data Release Authorized:
Reported: 11/26/08

QC Report No: OA02-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: 11/13/08
Date Received: 11/13/08

Percent Total Solids: 78.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/18/08	6010B	11/26/08	**7440-38-2**	**Arsenic**	6	**383**	
3050B	11/18/08	6010B	11/26/08	**7440-39-3**	**Barium**	0.4	**78.5**	
3050B	11/18/08	6010B	11/26/08	**7440-43-9**	**Cadmium**	0.3	**1.8**	
3050B	11/18/08	6010B	11/26/08	**7440-47-3**	**Chromium**	0.6	**30.9**	
3050B	11/18/08	6010B	11/26/08	**7439-92-1**	**Lead**	3	**87**	
CLP	11/18/08	7471A	11/21/08	**7439-97-6**	**Mercury**	0.06	**0.69**	
3050B	11/18/08	6010B	11/26/08	7782-49-2	Selenium	6	6	U
3050B	11/18/08	6010B	11/26/08	7440-22-4	Silver	0.4	0.4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: OA02LCS
LIMS ID: 08-31009
Matrix: Soil
Data Release Authorized:
Reported: 11/26/08

QC Report No: OA02-The Boeing Company
Project: ISAACSON MOUND REMOVAL
025173.080
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010B	203	200	102%	
Barium	6010B	184	200	92.0%	
Cadmium	6010B	46.7	50.0	93.4%	
Chromium	6010B	47.5	50.0	95.0%	
Lead	6010B	204	200	102%	
Mercury	7471A	1.06	1.00	106%	
Selenium	6010B	200	200	100%	
Silver	6010B	53.7	50.0	107%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: OA02MB
LIMS ID: 08-31009
Matrix: Soil
Data Release Authorized:
Reported: 11/26/08

QC Report No: OA02-The Boeing Company
Project: ISAACSON MOUND REMOVAL 025173.080
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	11/18/08	6010B	11/26/08	7440-38-2	Arsenic	5	5	U
3050B	11/18/08	6010B	11/26/08	7440-39-3	Barium	0.3	0.3	U
3050B	11/18/08	6010B	11/26/08	7440-43-9	Cadmium	0.2	0.2	U
3050B	11/18/08	6010B	11/26/08	7440-47-3	Chromium	0.5	0.5	U
3050B	11/18/08	6010B	11/26/08	7439-92-1	Lead	2	2	U
CLP	11/18/08	7471A	11/21/08	7439-97-6	Mercury	0.05	0.05	U
3050B	11/18/08	6010B	11/26/08	7782-49-2	Selenium	5	5	U
3050B	11/18/08	6010B	11/26/08	7440-22-4	Silver	0.3	0.3	U

U-Analyte undetected at given RL
RL-Reporting Limit

APPENDIX F

PZ-5 Groundwater Monitoring Well Abandonment Log

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. AE03784

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☒ Construction

☒ Decommission

ORIGINAL INSTALLATION Notice of Intent Number: R49774

Type of Well *("x in box)*

☒ Resource Protection

☐ Geotech Soil Boring

Consulting Firm Land America

Unique Ecology Well IDTag No. AFS852

Property Owner The Boeing Company

Site Address 8811 east MArginal Way S

City Seattle County King

Location NE1/4-1/4 SW1/4 Sec 33 Twn 24 R 04

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____

Long Deg ____ Min ____ Sec ____

Tax Parcel No. 0007400033

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☐ Engineer ☒ Trainee

Name (Print Last, First Name) GOGAN, SCOTT

Driller/Engineer /Trainee Signature

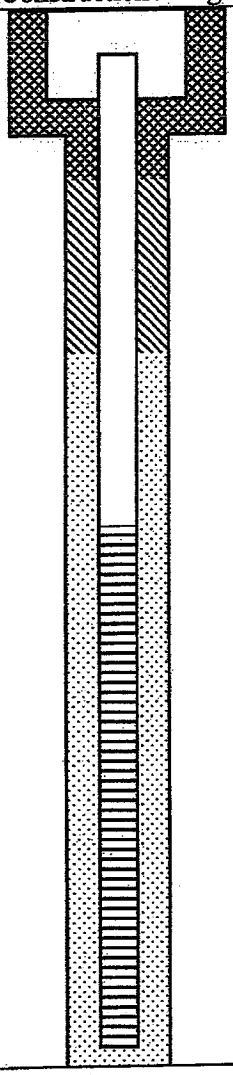
Driller or Trainee License No. 2877 T

Cased or Uncased Diameter 2" Static Level ____

Work/Decommission Start Date 8/20/08

Work/Decommission Completed Date 8/20/08

If trainee, licensed driller's Signature and License Number: 2508

Construction Design	Well Data	Formation Description
	MONUMENT TYPE: 8" FLUSH CONCRETE SURFACE SEAL: 0-2 ANNULAR SPACE: ____ BACKFILL: ____ TYPE: ____ PVC BLANK: 0-15' SCREEN: 15'-25' SLOT SIZE: .010 TYPE: 2" Sch 40 SAND PACK: ____ MATERIAL: ____ DRILLING METHOD: ____ WELL DEPTH: 25' BORING DIAMETER: ____	Removed Monument Grout from Bottom up. Topped with Concrete Removed PVC

SCALE: 1"= ____ PAGE 1 OF 1

ECY 050-12 (Rev. 7/06)

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