

## Construction Begins for Cleanup Actions at the B&L Woodwaste Site

### Background

The B&L Woodwaste landfill was used from the mid 1970's until the early 1980's. Woodwaste, mixed with soil and Asarco slag (byproduct of smelting operations), originating from log sort yards in Commencement Bay were taken to this site for disposal. The Asarco slag leached arsenic into the soils and groundwater.

In 1982, the Commencement Bay Nearshore/Tideflats area, including Hylebos Waterway and the B&L Woodwaste site, were added to Environmental Protection Agency's National Priorities List (Superfund site list). The B&L Woodwaste site, which includes the landfill and surrounding ditches and wetlands, was named as a source of arsenic, copper and lead.

In 1992, Ecology issued an Enforcement Order requiring Asarco, Inc. and other responsible parties (Murray Pacific, Louisiana-Pacific and Executive Bark) to do the following:

- Consolidate woodwaste on the 18 acre property into an 11 acre landfill.
- Construct a multi-layer capping system to prevent rain from flushing contamination from the waste.
- Install and operate a groundwater monitoring well system.
- Create a plan to address any failure of the remedy.

In the mid-1990s, Ecology discovered that arsenic was leaking from the landfill. In response to this discover, Ecology completed an extensive study and found:

- Dissolved arsenic levels in the groundwater in a nearby wetland were above cleanup standards.
- Some waste at the bottom of the landfill was in contact with the water table during the winter months.
- Plants and animals in the nearby wetland did not appear to be experiencing any toxic effects.

In 2002, Asarco's funds became unavailable and they were unable to complete the rest of the required cleanup actions (Cleanup Action Plan). In 2005, Ecology amended the original Enforcement Order and required the PLPs to complete:

### FOR MORE INFORMATION

**Dom Reale**

Site Manager  
Toxics Cleanup Program  
PO Box 47775  
Olympia, WA 98504-7775  
Phone: 360/407-6266  
Email: drea461@ecy.wa.gov

**Meg Bommarito**

Public Involvement  
Phone: 360/407-6255  
Email: mbom461@ecy.wa.gov

**Ecology's Web Site**

[http://www.ecy.wa.gov/  
programs/tcp/sites/  
B L Woodwaste/  
B L woodwaste hp.htm](http://www.ecy.wa.gov/programs/tcp/sites/B_L_Woodwaste/B_L_woodwaste_hp.htm)

**Upcoming Events:**

**Early July:**  
Site Preparation

**Early August:**  
Landfill Barrier Wall  
Construction

**Early September:**  
Landfill Cap Restoration

**Ecology will keep you posted as  
site construction moves forward!**

FS ID #1203

- Evaluation of potential remedies to contain the release of contaminated groundwater from the site.
- Investigation of the wetland area to determine what remedial action were needed.

In 2005, Asarco entered into bankruptcy proceedings. Murray Pacific continued to contribute to the evaluation of potential remedies and preparation of the draft Cleanup Action Plan.

The draft CAP was finalized after public comment in July 2007. After that, Ecology was involved in bankruptcy court proceedings with Asarco and settlement negotiations with Asarco, Murray Pacific, Wasser and Winters and Louisiana Pacific.

Asarco agreed to fund the majority of site cleanup. Murray Pacific and Louisiana Pacific also agreed to contribute additional funding. In 2008, the Ecology entered into a Consent Decree with Murray Pacific to begin implementing cleanup actions at the site. As a result of the settlement negotiations, a trust was set up to fund the cleanup. Ecology is managing cleanup activities with funding from this trust.

An Engineering Design Report (EDR) was developed to describe in detail how the first phase of the final cleanup actions would be implemented and maintained. The EDR for the first phase of cleanup went through a 30-day public comment period from May 4 - June 4, 2009. The document was finalized at the end of the comment period and Ecology has directed the liable parties to begin the cleanup actions.

## **Q: What actions have already been taken at the site to cleanup contamination?**

**A:** Several cleanup actions were taken on the site from 1992 to present. These include:

- Condensing the original 18-acre site into an 11-acre landfill.
- Installing a multi-layer capping system to prevent rain from flushing metals and contaminated groundwater out of the landfill.
- Installing a groundwater monitoring system to monitor contamination levels.
- Doing a study to examine potential impacts of the landfill to nearby wetlands.

## **Q: Why is more work necessary at the site?**

**A:** In the mid-1990s, Ecology discovered elevated levels of arsenic in the ditch system that surrounds the pile and increased levels of arsenic in the groundwater outside of the landfill containment system. An investigation revealed that:

- Dissolved arsenic levels in the groundwater in a nearby wetland were above state cleanup standards.

- Some waste from the bottom of the pile was in contact with the water table during the winter months.
- Plants and animals in the nearby wetland did not appear to be experiencing any toxic effects.

Ecology has been working with the Potentially Liable Parties since that time to:

- Create an underground containment system which will, along with the existing cap, fully contain the contamination.
- Clean up the contamination that leaked from the site.

### **Q: What is being done at the site?**

**A:** Cleanup activities will occur in three areas of the site in two phases (See Figure 1):

#### **In the landfill:**

- An underground barrier (slurry wall) will be installed around the edge of the landfill to prevent contaminated groundwater from leaving the landfill (Phase 1).
- A trench will be dug around the south and eastern boundaries of the landfill to allow a more natural groundwater flow (Phase 1)..
- Infiltration ponds will be created at the edge of the western and northwestern sides of the site to reroute groundwater and stormwater around the landfill and direct stormwater runoff from the landfill (Phase 1).
- Groundwater monitoring (Phases 1 and 2).
- Contaminated water will be removed from beneath the capped landfill and treated (Phase 2).
- Contaminated sediments will be removed from drainage ditches surrounding the site (Phase 2).

#### **At the end of the plume (Phase 1):**

- Treatment of contaminated groundwater to prevent arsenic from moving further towards the Hylebos Creek.
- Groundwater monitoring.

#### **In the wetlands next to the site (Phase 2):**

- Arsenic will be removed from the groundwater plume.
- Contaminated water and sediments will be removed.

The first phase of cleanup implementation will occur this year and include most of the work required in the landfill area (first part) and the end of plume area (second part). The objective of the first phase of the cleanup is to create a physical barrier around the landfill to control groundwater contamination and groundwater flow from beneath the landfill.

Additional cleanup actions will be taken in the wetlands and other areas of the site in 2010 and 2011 as Phase 2. More detail about the second phase of cleanup will be released before work begins.

### **Q: What is a slurry wall?**

**A:** A slurry wall is a form of underground barrier that is often used to contain contaminated or waste material. This type of wall can stop contaminants from moving through soil and into groundwater and beyond the area of contamination. It is one of the most commonly used types of subsurface barriers used. Slurry walls have been used as containment systems since the 1970s and are considered an effective method of pollution control.

Slurry walls can be made up of a combination of different materials including, cement, bentonite (type of clay), soil and plastic concrete. The slurry wall for the B&L Woodwaste site will be made from soil and bentonite mixed together. This mixture was chosen because it is an effective barrier against contaminated water.

The slurry wall at the B&L Woodwaste site will extend approximately 2,600 ft around the landfill (Figure 2). It will intersect and extend at least 2 ft into a naturally occurring silt layer which has served as a groundwater barrier below the landfill. This barrier, known as an aquitard, does not allow water to flow through it. The slurry wall will be connected to this natural barrier to enclose the landfill and minimize water flow beneath the landfill. In some areas, the slurry wall will extend to a maximum depth of 35 ft (average depth of 30 ft.) The wall will be a minimum of 2 ft thick (possibly as thick as 3 ft).

### **Q: How will the slurry wall be constructed?**

**A:** Construction will occur in segments and the operation will move along the edge of the landfill until it is completely enclosed. The existing landfill cap will be partially peeled back to create a workspace to mix the slurry wall materials (Figure 3).

To create the wall, a deep trench will be dug along the edge of the landfill and filled with a mixture of water and bentonite clay. The soil that was removed from the trench will be placed on a mixing pad and mixed with bentonite. This mixture will be placed back into the trench to form a wall around the entire site. When the wall is completed, it will be capped. The existing landfill cap will then be placed back over the landfill and an extension added to cover the new slurry wall.

### **Q: What type of treatment will be used for the end of the plume area?**

**A:** Ecology has done field and laboratory studies to identify a treatment to stop the movement of arsenic at the end of the plume (area of contamination). The treatment is a commercial product de-

signed to clean up groundwater contaminated with metals. It will be pumped into the ground at the end of the plume to stop movement of arsenic. The low levels of arsenic in the groundwater will be absorbed by the soil and remain in place. Monitoring wells will be used to make sure the levels of arsenic in soil will remain below state cleanup standards.

### **Q: Can people use the walking trails around the site during construction?**

**A:** Phase 1 work should not affect your access to the walking trails next to the site. Construction vehicle traffic will be restricted to the landfill property and a fence will prevent access to the landfill itself, where work is being done. People using the trails during the construction period may notice some noise and possibly a small amount of clay dust.

Ecology will make every effort to avoid impacting the walking trails during construction. It is possible, however, that during phase 2 of the cleanup, access to the trail might be temporarily restricted. More information about phase 2 construction will be released in 2010 before work begins.

### **Q: Will traffic increase around the site?**

**A:** Ecology does not anticipate construction activities to affect local traffic. Movement of machinery and trucks on and off site will be minimal during phase 1. Information about construction traffic related to the second phase of construction will be released before the work begins although Ecology does not anticipate increased traffic during the second phase either.

### **Q: How will Ecology make sure that contamination does not spread from the landfill during the construction?**

**A:** Ecology has taken several steps in order to protect the environment surrounding the landfill during construction. Before work can begin, a Stormwater Pollution Plan is required to control the spread of contaminants via stormwater. The plan outlines best management practices that will be used to manage the stormwater.

In addition, the slurry wall construction will not occur within the existing wetlands or environmentally sensitive areas. Construction is planned to be completed before the end of the dry season (before October 1).

**Q: How will the landfill cap be protected during construction?**

**A:** The landfill cap (already in place) will be extended so it will reach over the barrier wall. It will be constructed of the same materials as the existing landfill cap and will overlap it. A clean soil cover and grass hydroseed will be placed on top of the cap.

**Q: How will this affect properties next to the site?**

**A:** This work should not impact any of the adjacent properties. A fence will be installed around the landfill and work will only occur inside this area. Construction work will take place only from 7 am to 7 pm. Dust from construction work will be minimized. The only significant impact is expected to be the noise from the earth-moving equipment.

**Q: How long will the treatment system be in place?**

**A:** The containment system is designed to operate indefinitely. Groundwater will continue to be pumped from within the containment area as long as it is operating. The treatment in the wetland area will operate until state cleanup standards are met, approximately 20-30 years.

**Q: What happens next?**

**A:** Early stages of construction will begin in the next few weeks. In early July, equipment will be sent to the site and staging and storage areas will be set up. This pre-construction stage will include:

- Installation of temporary fencing around the planned construction area.
- Installation of Geotextile fabric on the fencing to protect the public from construction activities
- Improvements (road widening, etc) to the proposed staging area and access road to allow for construction traffic.
- Utility pole installation
- Creation of a stormwater berm along the fence and the perimeter of the landfill
- Removal of part of the existing landfill cap to create a work pad
- Installation of signage around the site to alert the public about construction activities.

In mid July, ten test trenches will be dug along the edges of the site. These trenches will be used to identify the boundaries of contaminated soil and to conduct archeological observations. If contamination is found, adjustments will be made to construction plans to enclose and contain these areas.

At the end of July, trenches will also be dug around the site to allow groundwater to be redirected around the landfill area. Once the staging and storage areas are set up and the test trenches are dug,

construction of the slurry wall will begin in early August 2009. The slurry wall and groundwater trench construction will be completed by the end of the dry season this year (October 1). Phase 2 will then begin, with design of groundwater and wetlands treatment systems, followed by Phase 2 construction.

**Q: How can I find out more about the site history and planned cleanup?**

**A:** More information about the site history and planned cleanup can be found on Ecology's Web site at [http://www.ecy.wa.gov/programs/tcp/sites/B\\_L\\_Woodwaste/B\\_L\\_woodwaste\\_hp.htm](http://www.ecy.wa.gov/programs/tcp/sites/B_L_Woodwaste/B_L_woodwaste_hp.htm). You can also contact the site manager, Dom Reale for technical questions and additional information about site cleanup at [drea461@ecy.wa.gov](mailto:drea461@ecy.wa.gov) or (360) 407-6266.

**Q: How will the community be kept informed about site progress?**

**A:** As construction progresses, Ecology will mail and email out postcards or fact sheets to the surrounding community. The Phase 2 Engineering Design Report availability will be announced in the Site Register. It will also be available online and in Ecology's Central Records Office in Lacey, WA. This document will not be available for public comment. Information will also be posted on the Web site. If you are not currently on the mailing list for this site and wish to be added, please contact Meg Bommarito at (360) 407-6255 or [mbom461@ecy.wa.gov](mailto:mbom461@ecy.wa.gov).

**Figure 1. Cleanup Action Areas:** Cleanup actions will be taken in three areas of the landfill. Work will be completed in two phases. The first phase is occurring in 2009. The second phase will occur in 2010 - 2011. Items in bold will be completed in Phase 1.



**Landfill and Surrounding Ditches:**

- An underground barrier (slurry wall) will be installed around the edge of the site to prevent contaminated groundwater from leaving the landfill (Phase 1).
- A trench will be dug around the south and eastern boundaries around the site to allow a more natural groundwater flow (Phase 1).
- Infiltration ponds will be created at the edge of the western and northwestern sides of the site to reroute groundwater and stormwater around the landfill and direct stormwater runoff from the landfill (Phase 1).
- Groundwater monitoring (Phases 1 and 2).
- Contaminated water will be removed from beneath the capped landfill and treated (Phase 2).
- Contaminated sediments will be removed from drainage ditches surrounding the site (Phase 2).

**Wetlands:**

- Arsenic will be removed from the groundwater plume
- Contaminated water and sediments will be removed

**End of Plume:**

- Treatment of contaminated groundwater to prevent arsenic from moving further towards the Hylebos Creek (Phase 1)
- Groundwater monitoring (Phase 1)

Figure 2. Slurry Wall Construction

**1** The entire process moves along the edge of the landfill until the entire landfill is enclosed.

**2** A trench is dug approximately 1-3 feet wide. It is filled with a mixture of bentonite (clay) and water to hold the trench open.

**3** The soil removed from the trench site is then mixed by a bulldozer with more bentonite clay.

The mixture of excavated soil and bentonite clay is then pushed into the trench. It solidifies and creates the slurry wall.

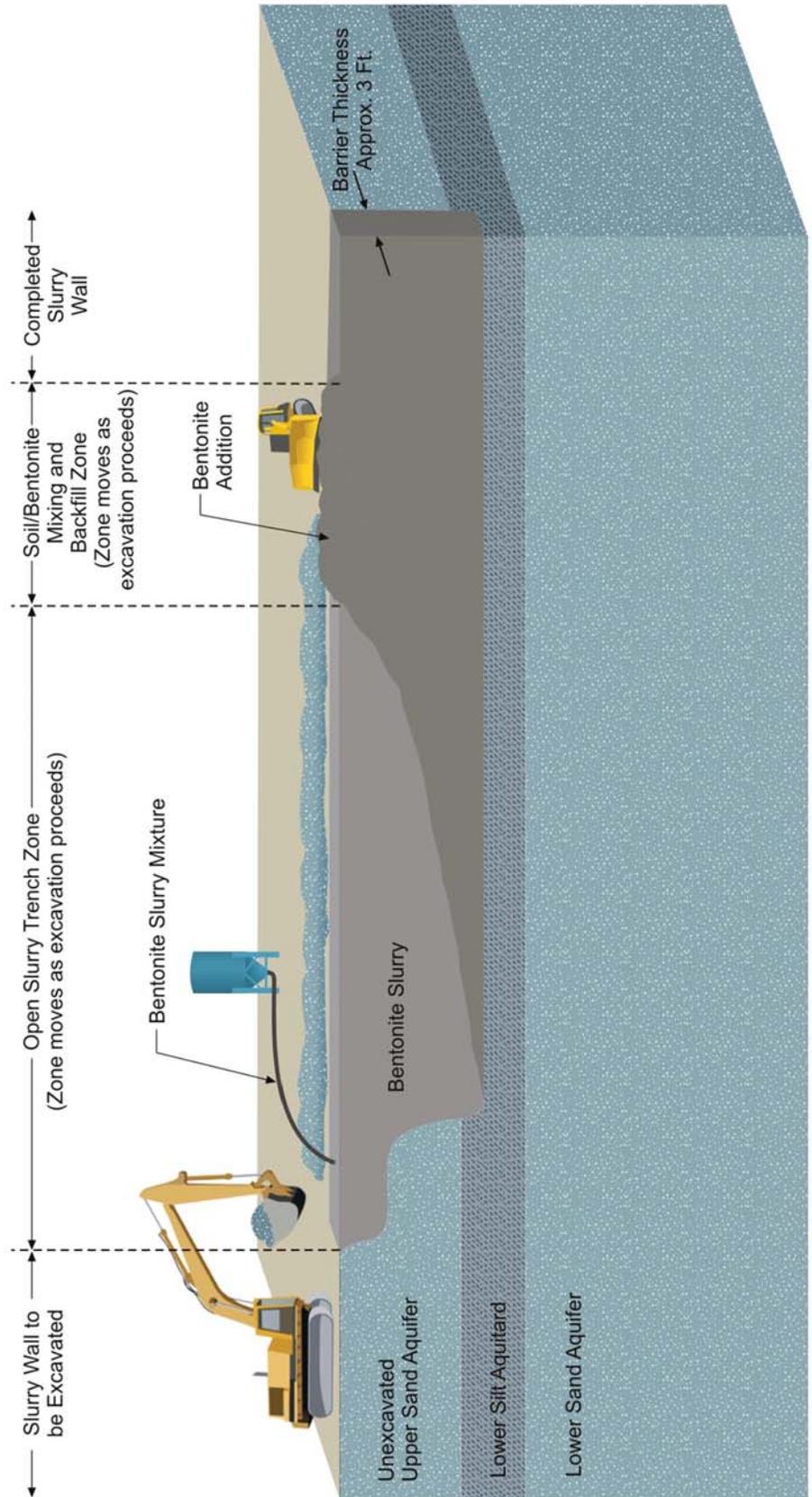
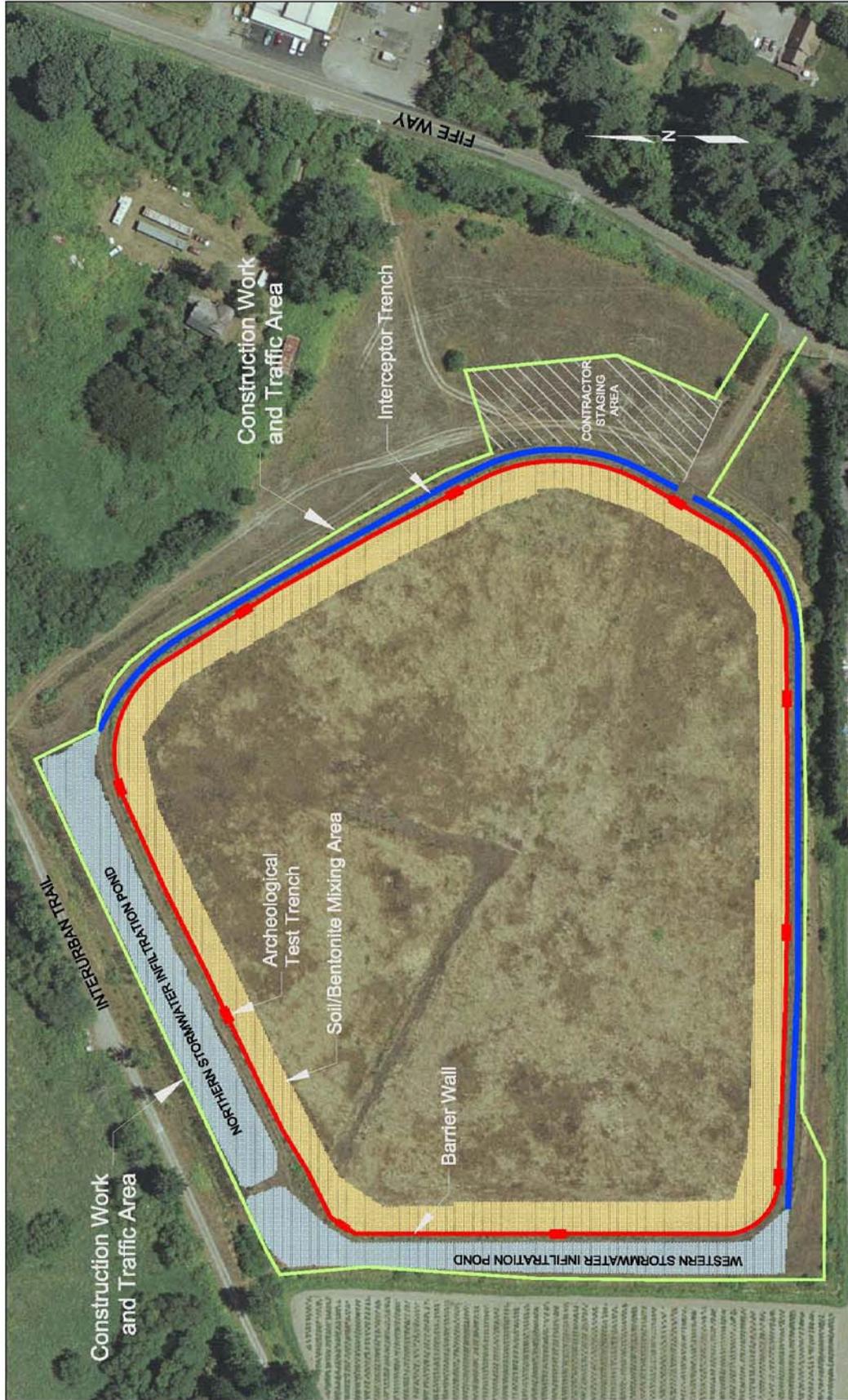


Figure 3. Aerial View of Planned Phase 1 Construction



<p><b>FLOYD   SNIDER</b> AMEC Geomatrix</p>	<p>Engineering Design Report B&amp;L Woodwaste Site Pierce County, Washington</p>	<p>Phase 1 Part 1 Construction</p>
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DEPARTMENT OF  
**ECOLOGY**  
State of Washington

PO Box 47775

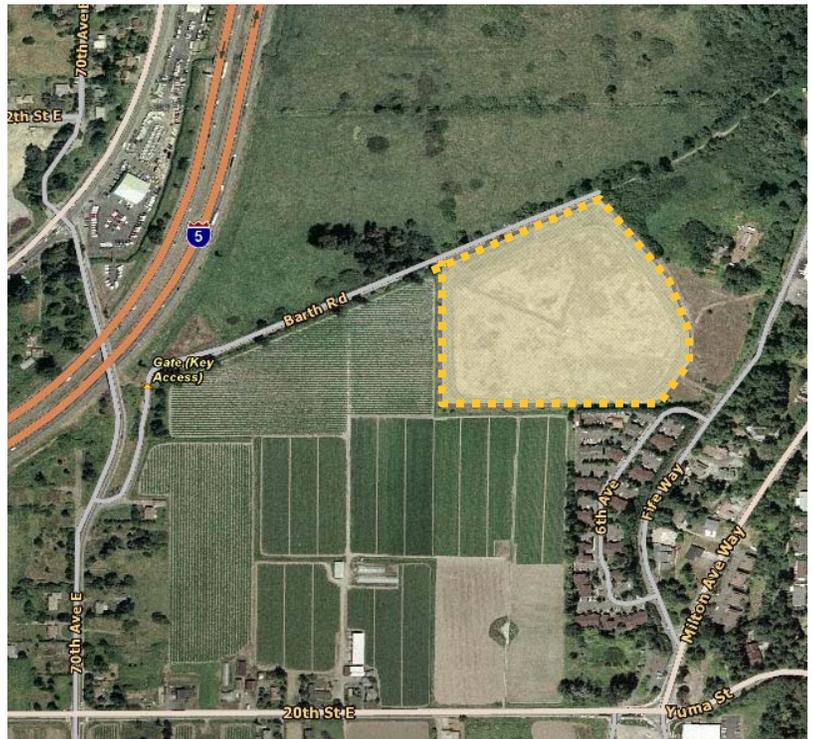
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## **B&L Woodwaste Milton, WA**

### **Construction Begins for Cleanup Actions at the B&L Woodwaste Site**

Facility Site ID #1203

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2201 6th Avenue, Milton