Work Plan

Updated Remedial Action Work Plan Union Pacific Railroad – Ashland Former SP Yard Ashland, Oregon

Prepared for

Union Pacific Railroad Company

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CH2MHILL®

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SECTION 1

Introduction

At the request of the Union Pacific Railroad Company (UPRR), CH2M HILL has prepared this Remedial Action Work Plan for the UPRR Ashland – Former SP yard (the Site) located in Ashland, Oregon, as shown in Figure 1-1. The remedial actions included in this work plan are intended to address risks to human health posed by shallow soil contaminated with arsenic, polynuclear aromatic hydrocarbons (PAHs) and residual petroleum nonaqueous-phase liquid (NAPL). The remedial alternative selected in the *Final Remedial Investigation Report* (RI) (Environmental Resource Management (ERM) 1999) and a *Feasibility Study Report* (ERM 2001) (FS), as specified in the Record of Decision (ROD) prepared by the Oregon Department of Environmental Quality (ODEQ, 2001) includes excavation of materials exceeding residential cleanup goals and offsite disposal.

Aspects of the remedy were reassessed following the submittal of a Remedial Design/Remedial Action Work Plan (RD/RA WP) by Kennedy/Jenks in June 2006, and prior to commencing cleanup activities. Excavation and off-site disposal of impacted soil to residential cleanup standards raised concerns with the background level for arsenic presented in the ROD, and public resistance to the passage of numerous large trucks to and from the Site prevented the project from moving forward.

In 2010, UPRR re-opened the prospect of completing the remedial action using rail to transport the excavated soil. A revised excavation approach was presented (CH2M HILL, August 24, 2011) that was based on current risk-based concentrations (RBCs) for the contaminants of concern (COCs), and utilized the 90 percent upper confidence limit (90% UCL) approach to site cleanup as described in ODEQ guidance (ODEQ, 2009). ODEQ approved the revised approach in 2011, and concluded that it remained consistent with the remedy specified in the ROD.

A Remedial Action Work Plan (RAWP) was submitted to ODEQ and approved in February 2013 (CH2M HILL, 2013). However, the project was never implemented. In 2016, the Ashland City Council and UPRR agreed to a full-site cleanup and removal of contaminated soil by rail.

Upon completion of the remedial action, UPRR expects that the site will meet ODEQ standards for residential use. Since the future use and potential subdivision of the property is unknown, the future use scenario used in the 90% UCL cleanup evaluation considered that the property would remain as a single parcel. An Easement and Equitable Servitudes (E&ES) agreement between UPRR and ODEQ will be filed with the property title and will document any land use restrictions based on overall residual risk remaining upon completion of the remedial action. Should additional risk be identified based upon confirmation sampling results or a potential future subdivision of the property parcel, then a prospective purchaser may be required to conduct additional remedial actions at a future time.

1.1 Soil Excavation Scope

This section describes the areas of soil contamination to be addressed in this remedial action.

1.1.1 Shallow Soil Excavation

The approved 90% UCL cleanup approach treats the entire 20-acre parcel as a single exposure area. UPRR has no indication at this time as to how or if the property will ever be divided in the future. An effective exposure concentration for the whole Site is calculated based on the assumption that exposure occurs randomly over the Site as a whole and is not focused on individual locations. An approved statistical program (ProUCL) is used to establish if the resulting exposure concentration for the Site is below established RBCs. In the assessment, all surface soil data (0-3 feet depth) was compared to residential RBC values, and surface/subsurface soil (0-15 foot depth) was compared to construction/excavation worker RBC values. COCs evaluated included metals, total petroleum hydrocarbons (TPH), and polynuclear aromatic hydrocarbons (PAHs) in soil.

The process for determining soil excavation areas consisted of removing the sample points with the highest concentrations one at a time and replacing the concentration values with those representative of clean backfill materials. Sample points were removed until the residential residual excess lifetime cancer risk (ELCR) for the entire 20-acre parcel was below $1x10^{-6}$ for all carcinogens and the hazard quotient (HQ) was below 1 for all noncarcinogens. After removal of the selected sample points, the cumulative ELCR was below $1x10^{-5}$. To set the boundaries of soil excavation, two polygons (east and west) were drawn around the sample points identified for removal to meet the risk and hazard quotient targets (Figure 1-1). The polygon boundaries that depict the proposed excavation limits were extended approximately 50 feet beyond historic sample locations selected for removal.

None of the sample points flagged for excavation were located below 2 feet depth. Therefore, the proposed excavation is set at a uniform depth of 2.5 feet across all areas marked for excavation to ensure sufficient removal of contaminated soil. Deeper soil excavations will be required to address the NAPL-impacted areas described in Section 1.1.2 below.

Survey activities were conducted onsite on September 11th, and October 1st-2nd, 2012. The Site survey activities included:

- Cross-checking of key site features and elevations and superposition of existing CADD base maps on aerial photography, and setting to current datums. Coordinates = Oregon State Plane, South Zone, NAD83(CORS96)(Epoch2002.000), International Feet. Elevation datum = NGVD29.
- Elevations within the east and west polygons were surveyed to 1 foot intervals.
- The corners of the east and west polygons were staked.
- The rail spur alignment was staked.
- The site perimeter fence location was surveyed.
- Four control points were set near the excavation areas to be used to confirm target depths during the RA.

It is possible that some of the stakes have been removed and/or lost since 2012. Additional survey verifications will be conducted, if necessary.

1.1.2 NAPL Remediation

Three locations at the Site are impacted by NAPL impacted soil as Bunker C (see Figure 1-1). A field investigation was conducted in September 2012 (*Bunker C Field Investigation Report* [CH2M HILL, October 2012]) to better establish the horizontal and vertical extent of NAPL within these areas, and new boundaries were drawn based on this study. All soil found to contain visible staining and/or NAPL is included within these borders. Part or all of each of these areas is contained in the east polygon. However, the NAPL areas require deeper excavation than the 2.5 feet specified for the east polygon.

1.1.3 Asbestos Abatement

During the Bunker C field investigation, two areas were encountered that potentially contained asbestos-containing material (ACM) (see blue symbols on Figure 1-1). The ACM encountered appeared to pieces of what appeared to be shingles or something similar. Samples of the material were collected from each area and submitted for asbestos analysis. Analytical results confirmed that the samples contained asbestos at concentrations greater than 20%. The occurrence of ACM appeared to be isolated and sporadic, and therefore is not expected to represent any significant material quantities during excavation. However, during the soil excavation, care will be taken in these areas to segregate and contain ACM as an interim remedial action. Details are included in this work plan.

1.2 Remedial Action Objectives

The Remedial Action Objectives (RAOs) presented in the FS and ROD included:

- Remove contaminated soil in order to achieve human exposure (via ingestion, dermal contact, and/ or inhalation) below acceptable risk levels.
- Prevent human exposure to the Bunker C/TPH impacts in the former landfill area.

Achievement of the RAOs will determine the success of the remedial action and serve as a basis for potential DEQ letter of No Further Action (NFA).

1.3 Summary of Selected Remedy

The remedial action for the Site includes:

- Excavation and off-site disposal of surface soils exceeding the 90% UCL (two polygon areas described above).
- Excavation and off-site disposal of soil visually impacted with petroleum in areas associated with the former drip slab foundation.
- ACM abatement, as necessary as an interim remedial action during excavation as noted above and is outside the remedy selected in the 2001 Record of Decision.

Several additional components of the selected remedy are described in the ROD:

- Removal and disposal of an oil/water separator and product recovery tank, including affected soils, removal and disposal of tank saddles near the oil/water separator. (Note that these features were removed as part of a debris removal and cleanup conducted in 2013).
- Abandoning the oil collection culverts. (Note that the recovery wells, free-product observation probes, piezometers and monitoring wells have already been removed from the site as part of other interim actions).
- Removal and disposal of man-made Ponds A and B, and subsequent backfilling. Any water remaining in the ponds will be drained prior to excavation and managed appropriately (See Section 3.7).
- Removal and disposal of residual petroleum-impacted areas associated with the former drip slab.

As proposed in the letter to the City of Ashland (CH2M HILL, September 10, 2012), the site remedy will be completed in five distinct phases of work:

- Phase I – Installation of a temporary rail spur to the central portion of the site.
- Phase II – Removal of NAPL-impacted soil from three locations to various depths, and removal of surface features (ballast materials, former car repair shed foundation, and a portion of the former drip slab foundation).
- Phase III -- Removal of soil to 2.5 feet in depth from the west polygon
- Phase IV – Removal of soil to 2.5 feet in depth from the east polygon.
- Phase V – Remove temporary rail spur and final grading.

Phases will be completed in sequence and the details of each phase are discussed in Section 3 this document. A schedule for the work is presented in Section 6.

SECTION 2
Background

This section provides a description and history of the Site and summarizes site characteristics.

2.1 Project Setting and History

2.1.1 Project Setting

The former Ashland Railyard consists of approximately 20 acres located at 536 A Street in the city of Ashland (City), Jackson County, Oregon. Ashland lies within the Bear Valley in southwestern Oregon at an elevation of approximately 2,000 feet above mean sea level. The legal description is Tax Lot 2000 within Section 9, Township 39 South, Range 1 East of the Willamette Baseline and Meridian. The Site and surrounding area are shown on Figure 1-1.

As a former UPRR railyard, the Site is primarily inactive and is being considered for sale and/or redevelopment. The adjacent properties to the north are a mixture of residential, industrial, and commercial land uses. Adjacent parcels to the east (formerly owned by UPRR) are currently under development. Agricultural and residential properties border the Site to the west, and residential and commercial properties border the Site to the south. A mainline track and rail spur operated by Central Oregon & Pacific Railroad, Inc. (CORP) are located along the Site's southern boundary. Note that CORP is a subsidiary of Genesee & Wyoming Railroad, which acquired the railroad as part of its acquisition with RailAmerica in late 2012.

The only structures and features currently remaining on the Site are the former drip slab foundation, former car repair shed foundation, former roundhouse foundation, and retention Ponds A and B (Drawing EC-1). An interior fence surrounds the former oil/water separator location and Ponds A and B. An outer chain-link fence secures the Site.

2.1.2 Site History

The former Ashland Railyard operated as a locomotive maintenance, service, and railcar repair facility between 1887 and 1986. Various structures (including a hotel/passenger station, a freight station, a car repair shed, a turntable, a roundhouse, and miscellaneous work and storage buildings) were once present. A steel, 55,000-barrel (3 million gallon) aboveground, Bunker C oil tank, used for fueling steam locomotives, was installed at the Site around the turn of the century, and removed in the late 1940s.

Development of the former Ashland Railyard reached its peak in the early 1900s, with some additional construction performed during the 1920s. Light locomotive maintenance and car repair functions were performed by the Southern Pacific Transportation Company (SPTCo), UPRR's predecessor, from the 1900s until the early 1970s. Most locomotive maintenance and fueling facilities were decommissioned before 1960. Diesel and steam locomotive fueling operations were performed in the same location and, similar to car repair activities, were limited to a relatively small area of the Site. No railroad maintenance activities were performed west of the car repair shed, or east of the drip slab. UPRR acquired SPTCo and many of its assets, including the former Ashland Railyard in 1997. Since the acquisition, UPRR has not operated or performed any railroad related activities at the Site.

2.2 Site Geology and Stratigraphy

Descriptions of geology and local hydrogeology in the following subsections are modified from the RI and the FS previously prepared by ERM. They are included here as a context for the conceptual site model of the Site. More detailed descriptions of the regional geology can be found in the Final RI Report, the FS and the primary references cited within those documents.

The soil at the Site has been characterized by previous investigations based on the results from the cone penetrometer testing (CPT) survey, soil borehole drilling, and soil physical testing results obtained during the Phase I and Phase II RI field investigations.

The geology beneath the Site has been observed via 72 soil borings, drilled to depths between 6.5 and 31 feet bgs, and 25 CPT points, completed to depths of between 7.8 and 34.3 feet bgs. Based on the borehole data, the shallow geology beneath the Site has been divided into four units, each with a unique lithologic character. These units include a surface soil unit, a silt/clay unit, a discontinuous sand unit, and an underlying dense sandy silt unit. Each of these units is described in detail below.

2.2.1 Surface Soil Unit

Surface soil is composed of either native sandy clay or an imported fill material. The sandy clay is usually moist and typically dark brown. The native sandy clay is found across the Site; however, fill material overlies the sandy clay in several developed areas, including the former drip slab, roundhouse, the holding ponds, and downslope of the holding pond area. The fill material is composed of variable mixtures of coarse, granular soil, including railroad ballast composed of red-brown volcanic rock (scoria). Bricks and other debris are occasionally found within this material. The sandy clay and fill material extend to depths of approximately 3 to 4 feet bgs, with the fill material increasing in thickness to the north (downslope).

2.2.2 Silt/Clay Unit

Underlying surface soil is a silt/clay unit. This unit is encountered from approximately 3 to 4 feet bgs (beneath the surface soil), and extends to between approximately 20 and 25 feet bgs. This unit ranges from silty clay/clayey silt to a sandy silt/clay, and generally acts as a confining layer for water and NAPL across the site.

The silt/clay unit is generally olive gray in color; however, discolored intervals are dark gray to black near the upper contact with the overlying surface soil. The unit is generally medium stiff, moist to wet, and contains occasional thin, typically saturated, stringers of sand and fine gravel (typically less than 5 inches thick) that appear to be laterally discontinuous. At locations where the discontinuous sand unit (described below) is encountered, the silt/clay unit typically grades to a sandy clay/sandy silt material at the interface of the two units.

2.2.3 Discontinuous Sand Unit

The discontinuous sand unit has been encountered within the silt/clay unit described above. This sand unit varies from olive to yellowish brown, consists of sand to silty and clayey sand, is typically saturated, and is laterally discontinuous beneath the Site. This unit is typically saturated and encountered at depths of between approximately 10 and 15 feet bgs, and is generally 1 to 5 feet thick, although it appears to be thicker in the eastern section of the Site. This unit was encountered at shallower depths (less than 10 feet bgs) in the southern portion of the Site.

2.2.4 Dense Sandy Silt Unit

Very dense-to-hard sandy silt is encountered at approximately 18 to 30 feet bgs, and beneath the silt/clay and sand units described above. This material is a tan to dark brown, moderately to poorly indurated, partially or completely cemented silt to siltstone. The material is commonly fractured with iron oxide staining present along fracture planes. Where encountered, this material was dry. Only the top 1 to 2 feet of this unit was observed during the RI fieldwork. However, the log for a water well located approximately 200 feet south of the Site, indicates a gray siltstone was encountered from approximately 14 feet bgs to a total depth at 499 feet bgs. Granite bedrock was encountered at total depth.

2.3 Surface Water Hydrology

The existing surface water characteristics at the Site are shown on Drawing EC-1. One pond is present in the north-central portion of the Site outside of the excavation areas. The pond consists of a topographic depression that occasionally collects surface water via precipitation. A drainage ditch originates at the SW corner of the Site and drains into the pond. There are currently no surface water drainage pathways offsite. Two man-made ponds, Pond A and Pond B, are located north of the former drip slab foundation and oil/water separator. No surface water drains from these bermed ponds

Several creeks and areas of surface water drainage originate in the upland foothills to the south, and flow generally northward to Bear Creek, a tributary to the Rogue River. None of these creeks or drainages traverses the Site.

SECTION 3

Field Activities

This section describes the work phases and requirements for implementation of the remedial action. All field activities will be conducted in accordance with the CH2M HILL site-specific Health and Safety Plan and the Health and Safety Plan provided by UPRR's excavation subcontractor (Contractor). Based on discussions with DEQ and the City of Ashland, a fact sheet for public information will be drafted by ODEQ prior to implementing the remedy.

3.1 Phase I – Rail Spur Construction

Phase I includes the installation of a temporary rail spur to be installed in the central portion of the Site to allow for loading gondolas away from the townhouses that are in close proximity to the main line (Drawing EC-2). The rail spur will tie into the existing track system operated by CORP. One of two options will be use for the rail spur alignment:

> **Option 1.** This is consistent with the 2013 RAWP and the design drawings attached to this updated RAWP. The soil under the proposed temporary rail spur within the east polygon will be excavated prior to installing the rail spur. The section of concrete (former drip slab foundation) within the east polygon will be removed first, and broken concrete moved to a concrete and debris stockpile. The area beneath the temporary rail spur is within the NAPL Area 1 and will be excavated to approximately 4.5 feet below grade (to be confirmed based on visual observation). Proposed confirmation soil samples (see Section 3.10) will be collected from native soil at this time. Backfilling of the area beneath the temporary rail spur will occur in a consistent manner with the rest of the east polygon and the final grading plan described below. The excavated soil will be stockpiled onsite for loading and transportation during Phase II (Section 3.2.2). Management of soil is described in Section 3.6.

> **Option 2.** A new switch will be installed that brings the rail spur in between the east and west polygons. This approach would eliminate the need to excavate any contaminated soil from beneath the rail spur before installation. For this reason, Option 2 would be the preferred approach. However, before this approach can be implemented it must be first confirmed with CORP that a new switch can be installed in this portion of the track, and that the cost of a new switch will not be prohibitive.

The City of Ashland requires that deflection testing be conducted on the roadways used to bring clean backfill to the site by truck to replace the contaminated soil being excavated and disposed. The deflection testing will be conducted before work begins (Phase I) and after work is complete (Phase V) in order to assess potential damage to the roadway. UPRR will be responsible for road repair costs, if road damage is identified. The City of Ashland has specified that the best access route to the site from Interstate 5 is via Oak Street and Clear Creek Drive, and that defection testing is required on both roads.

Delivery of clean backfill to the site by trucks will begin after the initial deflection testing is complete during Phase I. Backfill specifics are described in Section 3.11. A large stockpile of clean backfill will be maintained onsite. Because of the large quantity of backfill required for the overall project, the backfill will need to be delivered by trucks in phases in order to prevent the stockpile from becoming excessively large and interfering with work on site. The number of backfill delivery phases will be minimized to the extent practicable due to the inconvenience to the businesses on Clear Creek Drive. Parking on Clear Creek Drive will need to be restricted during days when trucks are accessing the site.

3.2 Phase II – Removal of Surface Features and NAPL Contaminated Soil

3.2.1 Surface Feature Removal and Site Preparation

The removal of several surface features will be completed prior to soil excavation (see Drawing EC-2). Removal of the oil/water separator and tank saddles was completed as part of the 2013 debris removal action conducted at the site. The impacted soils beneath the former oil/water separator and tank saddles will be excavated and disposed during the NAPL remediation. The berms and soil around the three ponds will be pushed into the ponds and the surface sloped in order to prevent the accumulation of water into the former ponds. This will minimize the need to manage water in the ponds during final excavation and grading.

Excavation areas will be grubbed to remove woody vegetation such as blackberries and other shrubs. Additional grubbing of the site outside of the excavation areas will be performed as needed, and will be completed prior to final grading. Any significant trees located outside of the excavation areas will be left in place.

The former car repair shed foundation will be removed to allow excavation of the subsurface soil in the west polygon. Broken concrete from the foundation will be stockpiled. Foundations that are not within the excavation areas will be left in place, but any features that are above grade will be removed. This includes any remaining berms, piles of soil and debris, electrical supply lines and poles, fire hydrants, hose racks, and any other remaining above-ground features. Debris stockpiling procedures are described in Section 3.6.

A portion of the perimeter fence crosses the southwest corner of the west polygon. This portion of fence will be removed and re-installed outside of the excavation area to maintain Site security.

During excavation activities, silt fencing will be installed inside the perimeter fence and along the drainage ditch for erosion control. Erosion control and storm water management are described in Section 3.7.

3.2.2 NAPL Soil Removal and Backfill

Based on the results of test pitting conducted in September 2012, excavation of the three NAPL areas is expected to proceed laterally to the limits shown on Drawing EC-3, and vertically to the following depths: Area 1 = 4.5 feet, Area 2 = 3.5 feet, Area 3 = 9 feet. Excavation will proceed as follows:

1. In each area, soil will be removed by an excavator and loaded into dump trucks and transported to the stockpile for railcar loading. Management of the soil stockpile is described in Section 3.6. The dump trucks will be loaded in such a way that they will not be driven through contaminated soil from the loading point to the stockpile. Excavation sidewalls will be sloped as necessary to prevent subsidence. Should weather conditions result in the accumulation of any standing water in the excavation, it will be managed as described in Section 3.7.
2. Visual observations will be used to guide excavation. The excavation extents shown in Drawing EC-3 are approximate, and the excavation will be extended beyond (or short of) the proposed boundaries or depths if necessary, based on the presence of visibly impacted soil visible on the sidewalls or floor of each excavated area. Based on the results of the previous Bunker C investigation (CH2M HILL, October 2012), it is anticipated that all visually impacted soil will be removed. It is possible that these boundaries will change slightly based on actual field observations, but the excavation boundaries will not be extended significantly outside of the specified boundaries. Confirmatory soil sampling will be conducted in the NAPL areas for TPH at the completion of excavation. Soil confirmation sampling will be conducted as described in Section 3.10.
3. Clean soil will be used to backfill each excavation. Backfill specifics are provided in Section 3.11. In areas outside of the east polygon excavation area, the NAPL excavation areas will be backfilled to grade. However, the portions of the NAPL excavations within the east polygon will be backfilled to within 2.5 feet of the surface only, to simplify the subsequent excavation of the east polygon during Phase III. The total volume of NAPL contaminated soil to be excavated and disposed is estimated to be 5,440 yd^3 or 9,250

tons (assuming 1.7 tons/ yd^3). Assuming 95 tons per gondola, this phase will require approximately 97 gondolas for transport. Excavation volumes for each phase are listed in Table 3-1.

All vaults, pipelines, conduits, debris, etc. encountered within the excavation will be removed, stockpiled and disposed appropriately. Soil and debris stockpiling procedures are described in Section 3.6. If suspected ACM is encountered, abatement procedures are outlined in Section 3.9.

3.3 Phase III – Soil Removal from East Polygon

3.3.1 Soil Removal

Surface soil in the east polygon will be excavated to 2.5 feet bgs. Excavation will not extend beyond the boundaries of the polygon as shown on Drawing EC-3. Note that during Phase II, the surrounding berms will be pushed into Ponds A and B increasing the local elevation, thus the excavation depth in the Pond A and B areas will be extended to 2.5 feet below the original bottom depth of the ponds (refer to Drawing EC-4). The excavation sidewalls will be sloped as needed to prevent subsidence during excavation.

All vaults, pipelines, conduits, debris, etc. encountered within the 2.5 foot excavation will be removed, stockpiled and disposed appropriately. Soil and debris stockpiling and loading procedures are described in Section 3.6. If suspected ACM is encountered, abatement procedures are outlined in Section 3.9. Soil confirmation sampling will be conducted as described in Section 3.10.

The total volume of contaminated soil to be excavated and disposed from the east polygon is estimated to be 7,500 yd^3 or 12,700 tons (subtracting the NAPL areas), requiring approximately 134 gondolas for transport. Excavation volumes for each phase are listed in Table 3-1.

After excavation and confirmation sampling is completed, the east polygon will be backfilled with clean soil, bringing the entire area, including the NAPL areas and Ponds A and B, up to grade. Backfill specifics are provided in Section 3.11.

3.4 Phase IV – Soil Removal from West Polygon

3.4.1 Soil Removal

Surface soil in the west polygon will be excavated to 2.5 feet bgs. The bottom and sides the ditch along the west boundary, and any other depressions within the polygon, will also be excavated to 2.5 feet bgs. Excavation will not extend beyond the boundaries of the polygon as shown on Drawing EC-3. Sidewalls will be sloped as needed to prevent subsidence.

The total volume of contaminated soil to be excavated and disposed from the west polygon is estimated to be 5,800 yd^3 or 9,900 tons, requiring approximately 104 gondolas for transport. Excavation volumes for each phase are listed in Table 3-1.

All vaults, pipelines, conduits, debris, etc. encountered within the 2.5 foot excavation will be removed, stockpiled and disposed appropriately. Soil and debris stockpiling and loading procedures are described in Section 3.6. If suspected ACM is encountered, abatement procedures are outlined in Section 3.9. Soil confirmation sampling will be conducted as described in Section 3.10.

After excavation and confirmation sampling is completed, the west polygon will be backfilled with clean soil, bringing the entire area up to grade. Backfill specifics are provided in Section 3.11. The drainage ditch along the west boundary will be restored to drain surface water as shown on Drawing EC-3.

Table 3-1
Excavation Volume Estimates
UPRR Ashland

Location	Area (ft^2)	Depth (ft)	Yd^3	Tons[1]	# Gondolas[2]
NAPL Area 1	22,500	4.5	3,700	6,300	66
NAPL Area 2	5,600	3.5	700	1,200	13
NAPL Area 3	2,900	9.0	1,000	1,700	18
Sub Total			**5,400**	**9,300**	**97**
East Polygon (minus NAPL Area 1)	80,900	2.5	7,500	12,700	134
West Polygon	62,700	2.5	5,800	9,900	104
Total			**18,700**	**31,900**	**335**

[1]Assume 1 yd^3 = 1.7 tons
[2]Assume 95 tons per gondola capacity

3.5 Phase V – Rail Spur Removal, Final Excavation and Grading

The temporary rail spur will be removed and track bed graded and restored to current conditions. Soil confirmation samples will be obtained from the railcar loading area after the track has been removed as described in Section 3.10. Final grading will be completed as described in Section 3.8. At completion of Phase V, final deflection testing will be conducted on Oak Street and Clear Creek Drive. The data will be submitted to the City of Ashland for assessment of potential damage to the roadways.

3.6 Stockpile Management and Railcar Loading

All excavated soil will be stockpiled prior to loading. The stockpiles will serve as a staging area to await available railcars and segregation area for the different types of materials. After excavation, the soil and debris will be loaded into dump trucks and brought to a primary stockpiles for sorting. The excavated material will then be segregated into three different sub-stockpiles, based on different disposal pricing and transport requirements. These three sub-stockpiles will include:

1. Contaminated soil and debris – This includes both NAPL-contaminated soil and contaminated soil from the east and west polygons. The NAPL-contaminated soil will be mixed with other, relatively dry, contaminated soil in the stockpile in order to absorb and control any potential free-product. Any heavily contaminated debris (such as oil coated concrete or metal) would be included in this stockpile.
2. Clean debris – This includes concrete, metal, and woody debris that is not contaminated with oil or other contaminants.
3. Potential ACM – This includes any materials that appear to potentially be ACM. This would include any suspect pieces of flooring material, fibrous insulation, and cementatious pipe.

The anticipated stockpile locations are shown on Drawing EC-3. The soil delivered to the staging area with dump trucks will be segregated and inspected prior to loading onto railcars. A licensed Asbestos Abatement Contractor and Project Engineer will monitor the segregation of materials between the individual sub-stockpiles. See Section 3.9 for further details on asbestos abatement procedures. All stockpiles, with the exception of the clean debris stockpile, will be covered and bermed at the end of each work day to prevent potential erosion and transport of contaminants. Any full stockpiles will remain covered and bermed until the material is to be loaded onto railcars.

The stockpiled soil and debris will be loaded into appropriate railcars and removed from the site. All contaminated material will be loaded into low-sided gondolas and secured in “burrito wrap liners” to prevent any material from dropping out the cars during transport. Clean debris will be placed in HX high-sided cars. Any material suspected of being ACM will be packed into Intermodal Boxes. All railcars will be loaded below the top of the cars to prevent any spillage during transport.

Empty railcars will be delivered to the Site by the Central Oregon and Pacific Railroad (CORP). CORP manages the Class II railroad operating east of the Interstate 5 corridor between Northern California and Eugene, Oregon. CORP will bring the empty cars from Eugene in batches as they become available. The empty rail cars will be staged on the side-tracks located adjacent to the Site. Periodically, CORP will move empty rail cars to the refurbished switch located on the Site’s southeastern boundary and onto the temporary spur and the railcar loading area. Once loaded, these railcars will be moved back to the side-tracks and staged until a sufficient number of cars are available for transport back to Eugene. It is estimated that the numbers of cars delivered to/from Eugene to the Site in each batch will be between 30 and 100 at a time depending on availability. Once the loaded cars are delivered to Eugene, they will be hauled by UPRR to their final destination for disposal.

3.7 Erosion and Storm Water Management

Erosion and storm water management is important since much of the earthwork will be conducted during wet months in order to minimize the potential for dust generation.

The potential to deal with existing pond water will be managed as part of Phase II when the ponds are filled with soil from the surrounding berms. During excavation activities, any water that may accumulate in the excavation areas and interfere with work activities will pumped as needed into storage tanks at the site. The storage tanks will also be used to store any wash water that may be required. The water in the storage tanks will subsequently be used for dust suppression during backfill operations. Any water remaining in the tanks at construction completion will be sampled and disposed of appropriately.

All stockpiles, with the exception of the clean debris and backfill stockpiles, will be covered and/or bermed in order to prevent potential erosion and transport of contaminants. During all construction activities, silt fencing will be installed inside the perimeter fence where the potential for transport exists. Any surface drainage pathways from the site will be modified to prevent the potential for surface water to be transported from areas where construction is occurring. A 1200-C construction permit is required by ODEQ (per management of storm water) since the construction area is greater than 1 acre in size.

3.8 Grading Plan

All excavation areas will be backfilled to match the existing grade as described in Section 4.6.2. The only exceptions are that Ponds A and B and the third pond located between the east and west polygons will be filled in such that the surrounding grade is matched, eliminating the potential for water to accumulate. Therefore, clean backfill will represent at least the upper 2.5 feet of soil within the East and West Polygon areas. The final elevation grade will be verified by site survey to the Final Grading Plan (Drawing EC-4). The final grading will establish drainage such that no standing water is present and establish a reasonably smooth surface to facilitate future annual mowing of the Site for fire control. The ditch along the west boundary of the Site will be restored to original dimensions and depth.

The Site will be grubbed to remove blackberries and other shrubs. Mature trees outside of the excavation areas will not be disturbed. Hydroseed (drought tolerant grasses appropriate to site conditions) will be applied across the excavated areas and other non-vegetated areas. The hydroseed will be applied prior to, or during, the wet season so that additional water does need to be applied.

3.9 Asbestos Abatement

Some pieces of asbestos-containing material (ACM) were identified at two locations during the Bunker C investigation and were determined to contain 20% asbestos (Drawing EC-3). These pieces of ACM appeared to be isolated in occurrence. However, these observations illustrate that ACM may be encountered at times during excavation activities. The Project Engineer and Contractor will carefully observe the excavation progress and take the proper precautions if suspected ACM is uncovered. The Contractor will be licensed by ODEQ as an Asbestos Abatement Contractor, and will conduct the asbestos abatement in accordance with ODEQ Asbestos Requirements (OAR 340-248-0005 to 340-248-0290). Only workers or supervisors certified for asbestos abatement will be involved in this activity. Any material suspected of being ACM will be packed into Intermodal Boxes, labeled, and transported to ECDC, which is permitted for asbestos waste, and requires 24 hours notice prior to disposal.

The Project Engineer will complete the Asbestos Checklist (Appendix A) before and after the field activity to ensure that all procedures have been followed, and all paperwork properly filed.

3.10 Confirmation Sampling

The Project Engineer will perform soil confirmation sampling of remaining soil in the excavation and loading areas. The limits of the soil excavation were defined by the residual risk assessment. Although some contamination will remain onsite that exceeds individual RBCs, the 90% UCL based cleanup methodology is based on the residual risk for the soil remaining onsite remaining below $1x10^{-6}$ for individual contaminants and the cumulative ELCR for the entire parcel remaining below $1x10^{-5}$ (CH2M HILL, August 24, 2012). Confirmation sampling is only required to verify concentrations remaining onsite; additional excavation will not be conducted.

Confirmation samples will be collected from the floor of the excavations at a frequency of one sample per 10,000 square feet, and from the sidewalls of the excavations at a frequency of one sample per 200 linear feet. This sample density is similar to that used in the remedial investigation, which was on approximately a 100 foot grid. Samples will be submitted to Pace Analytical for BTEX, PAHs, TPH, and metals analyses from the east and west polygon areas. Samples will be submitted for TPH and PAHs from the NAPL areas. Refer to the Sampling and Analysis Plan, Appendix B for details[1]. Results will be documented in the Remedial Action Completion Report.

Upon removal of the rail spur in Phase V, samples will be obtained at a frequency of every 100 feet from the railcar loading area and submitted for BTEX, PAH, TPH, and metals analyses.

3.11 Backfill Material

All excavations will be backfilled with clean imported soil as each excavation phase is completed. A local source of clean backfill is preferred. If a local backfill source cannot be identified (Jackson County), then confirmation samples will be obtained to confirm that the backfill arsenic concentration is below 10 milligrams per kilogram. An estimated 32,000 tons of fill will be needed for backfilling to compensate for the contaminated soil removed. Additional backfill will be needed to fill in Ponds A and B and the third pond. The fill will be brought to the Site via truck. Assuming a 30 ton capacity for each truck and pup, this would require approximately 1,100 truck deliveries, in addition to what is required to fill in the ponds. The clean fill will be brought on to the site starting in Phase I and stockpiled until needed. Because of the large quantity of backfill required for the overall project, the backfill will need to be delivered in phases in order to prevent the stockpile from becoming excessively large and interfering with work on site. The number of backfill delivery phases will be minimized to the extent practicable to minimize inconvenience to the businesses on Clear Creek Drive. The clean ballast material that has been stockpiled at the site will be used in addition to the imported soil as backfill for the excavations (see Figure EC-1).

[1] ODEQ requested that some additional samples be collected before/during the excavation of the east and west polygons and the NAPL areas. Details are provided in the Sampling and Analysis Plan.

3.12 Transportation Plan

All contaminated soil will be transported by rail to an appropriate disposal facility (anticipated to be either ECDC in East Carbon, Utah or ChemWaste at Arlington, Oregon). A temporary rail spur will be in place in the central portion of the Site, and rail cars will be brought to the Site as they become available. Rail cars will be transported to and from Eugene, Oregon by CORP, where they will be switched on to UPRR track for transport to the disposal facility.

A total of approximately 335 gondolas (see Table 3-1) will be needed to transport the contaminated soil. CH2M HILL will be responsible for securing and coordinating the delivery and removal of rail cars from the Site.

3.13 Roles and Responsibilities

The following are the primary entities involved in this project and their roles and responsibilities:

- ODEQ is the agency overseeing the implementation of the remedial actions in order to ensure their effectiveness and adherence to agency requirements.
- UPRR is the site owner and is responsible for project scope, completion, and adherence to local, state, and federal regulations.
- CH2M HILL is the project engineer. CH2M HILL will oversee and document field activities and coordinate communication between UPRR, ODEQ, and the Contractor. CH2M HILL will provide third-party utility locates and construction oversight. CH2M HILL will be responsible for visually inspecting, directing, and documenting excavation activities, and confirming that manifests are being included as necessary as part of waste removal, transportation, and disposal activities.
- The Contractor will perform field activities as described in this work plan. The Contractor will report any problems or concerns to CH2M HILL for resolution.

3.14 Required Permits

A review has been completed and the following permits are necessary to complete Phase II through Phase V. Phase I will not be required to complete Phase I:

- A construction/excavation permit from the City of Ashland.
- A 1200-C construction permit is required by ODEQ (per management of storm water) since the construction area is greater than 1 acre in size.
- Asbestos abatement permit (to be obtained by the licensed Contractor).

3.15 Soil Removal Specifications

This section summarizes the excavation activities required for the soil removal. This section, in combination with the design drawings, specifies the requirements for the remedial action and establishes limitations to the Contractor's scope of work. The general scope of work for the selected Contractor is described as follows:

- Preparation and submission of submittals to CH2M HILL for review and comment
- Preparation and implementation of health and safety plans
- Mobilization and site preparation
- Excavation of impacted soil from marked areas
- Stockpiling soil and debris
- Loading of excavated soil into railcars for disposal

- Performance of dust control measures, including application of water as needed
- Performance of debris segregation to separate and properly dispose of all waste generated during the removal action
- Implementing proper procedures for excavation of ACM, if encountered
- Backfilling and compaction of excavation areas
- Decontamination of equipment
- Demobilization, final cleanup, site restoration

SECTION 4
Technical Specifications

4.1 Contractor Submittals

The Contractor will complete the following tasks:

- Prepare a Health and Safety Plan that conforms to the applicable Occupational Safety and Health Administration (OSHA) requirements (Code of Federal Regulations [CFR] 1910.120) and includes the training certificates of the Contractor's onsite personnel. For the duration of the project, the Contractor will be responsible for the onsite health and safety of their workers, as well as follow Federal Railroad Administration (FRA) requirements with regard to working in an active railyard.
- Provide proof of all required licenses, certifications, permits, and plans necessary for asbestos abatement. Contractor will provide ODEQ with written notification and notification fee at least 10 days prior to commencement of field work. Contractor will provide written proof of total amount of asbestos received and buried by the landfill, and the completed original Asbestos Waste Shipment Report Form.
- If a non-local (outside of Jackson County) source of clean fill material must be used, provide data verifying that the arsenic concentration in the material is less than 10 milligrams per kilogram.
- Deflection test results on Oak Street and Clear Creek Drive conducted both before and after starting work. The deflection test results will be provided to the City of Ashland upon receipt from the subcontractor for evaluation of potential damage to the roadways.

4.2 Site Management Plan

During the excavation and removal activities, site security will be the responsibility of the Contractor and will be maintained during the entire construction period. The perimeter fence will be repaired prior to starting work and maintained to secure the Site until remediation activities are completed. Interior fences will be removed as necessary in order to complete the work within the outer perimeter fence. The Contractor will establish the bounds of the excavation area and exclusion zone and will protect this area during nonworking hours. To the extent possible, excavations will be backfilled following soil removal and open excavations will be minimized.

UPRR anticipates that the Contractor will utilize standard excavation equipment at the site, which will include front-end loaders, back hoe excavators, bulldozers, dump trucks, and water trucks. Based on discussions with the City, there is not a decibel-related noise limit for excavation/construction occurring within the daily work period of 7:00 a.m. and 9:00 p.m. The Contractor will use personal protective noise abatement measures during work activities. Local requirements are described in Section 6.1.

In general, waste water generation is expected to be minimal at the site. The Contractor will use dry brush methods if possible to clean equipment before removing it from the site and vehicles used to transport fill material to the site will not enter the excavations. Fill will be delivered from the clean fill stockpile (Drawing EC-3) to the excavation areas on clean soil or temporary roads constructed over contaminated areas. Therefore, minimal waste water is from wheel wash is expected. These waste water minimization processes are part of the green remediation techniques to be used as part of remedial action implementation.

It is anticipated that the excavation activities will take place during the winter months. Because the soil will already be damp, it is anticipated that dust control measures will be minimal. However, the Contractor will prepare a dust control plan, and have water readily available to be used as needed. Dewatering operations may be required to address shallow groundwater or potential storm water runoff into the excavations. The Contractor will provide a plan for controlling and disposing of all excess water in accordance with all applicable federal, state and local regulations.

4.3 Mobilization, Site Preparation, Demobilization

The Contractor will complete the following tasks during mobilization, site preparation and demobilization activities:

- Clear and grub the surface of obstructions within the area noted on the drawings as needed. This may include patches of asphalt and vegetation.
- Manage rubbish and trash produced by the work activities.
- Restore Site perimeter fencing and repair any existing sections of damaged fencing.
- Final cleanup and demobilization.

4.4 Excavation and Backfilling

The Contractor will complete the following tasks during excavation and backfilling activities:

- Excavate contaminated soil and associated materials.
- Move and stockpile soil and debris onsite.
- Procure and take delivery of import fill material to the site.
- Stockpile and cover import fill until needed.
- Load the impacted soil and debris for transportation and offsite disposal.
- Place and compact backfill material.
- Control groundwater and storm water during construction, if applicable.
- Control dust during excavation, loading, and grading activities by misting, spraying, or the application of water.
- Provide appropriate facilities to decontaminate equipment and personnel, and contain associated wastewater.

CH2M HILL will complete the following tasks:

- Record the condition of the excavated and remaining soil, such as staining or debris, in order to document excavation of impacted soil areas.
- Obtain confirmation samples from the sidewalls and bottoms of the east and west polygon excavation areas.
- Coordinate the movement of railcars to and from the site.
- Maintain the option to sample any import fill.

4.5 Waste Management

The Contractor will transport and dispose of all wastes in accordance with federal, state and local regulations and specifications, employing procedures to minimize dust generation, and observing applicable regulations regarding weight of the transport vehicle.

4.5.1 Excavated Soil and Debris

The Contractor will be responsible for the storing and loading of all impacted excavated soils. The Contractor will be responsible for the disposal of asphalt, vegetation, or other debris. The Contractor will properly dispose of materials in accordance with applicable state and local regulations. Based on the soil sample results, all soil is non-hazardous.

Soil will be transported by rail minimizing truck traffic and greenhouse gas emissions associated with this remedial action implementation. CH2M HILL will maintain a log of the number of railcars transported to the nonhazardous waste disposal facility and the manifests and weight tickets received from the disposal facility.

4.5.2 Water Control

The Contractor will be responsible for storing, managing, treating, or transporting and properly disposing of all impacted water. The Contractor will be responsible for obtaining and complying with all permits associated with water quality, including groundwater, storm water, wash water, decontamination water and any other applicable waters generated during, or as a result of remediation construction. The Contractor will also be responsible for the disposal of non-impacted wash water.

4.5.3 Asbestos

Contractor will be responsible for all planning and paperwork associated with ACM removal and disposal, and for conducting all ACM related activities in accordance with DEQ asbestos requirements (OAR 340-248-0005 to 340-248-0290).

4.6 Construction Quality Assurance

CH2M HILL will be UPRR’s onsite representative during the remedial action. It will be CH2M HILL’s responsibility to periodically monitor the Contractor’s construction activities for conformance with the design and maintain a log of construction activities.

4.6.1 Excavation and Fill

The Contractor will be responsible for excavating and removing impacted soils and related materials as outlined in this work plan. Contaminated soil will be removed and properly disposed of at the disposal facility. The NAPL excavation areas will be backfilled to within 2.5 feet of the pre-existing ground surface.

Clean imported fill material will be transported to the Site by truck and placed in the clean soil stockpile prior to use. If a non-local source of clean fill cannot be identified, then analytical data to verify that the arsenic concentration is less than 10 milligrams per kilogram will be obtained for fill material prior to placement.

4.6.2 Backfill Placement

All backfill material will be placed in 6-inch-thick horizontal lifts and compacted with a roller. The thickness of the fill materials will be field measured prior to compaction as directed in the field by the CH2M HILL representative. Final fill thickness (2.5 feet across both the east and west excavation areas) will be confirmed by burying 2.5 foot-high measurement gauges every 100 within the excavation areas. Additionally, the final elevation grade will be verified by site survey to the Final Grading Plan (Drawing EC-4).

CH2M HILL will inspect the fill as it is delivered to the excavation area to monitor for visible changes in the type or consistency of the fill and verify the final.

SECTION 5

Remedial Action Completion Report

At completion of the remedial actions associated with this work plan, a final inspection will be conducted and a Remedial Action Completion Report will be prepared by CH2M HILL for submittal to ODEQ. The Remedial Action Completion Report will include the following:

- Copies of manifests and weigh tickets
- Confirmation sampling data
- Copies of analytical results for fill material, if applicable
- Documentation of the E&ES recorded with Jackson County
- Description of any variations from this work plan

SECTION 6
Schedule

The anticipated timing of the 5 phases of work is summarized below.

- Phase I – Installation of the rail spur and street deflection testing – Early 2017
- Phase II – Removal of NAPL Areas (Bunker C) –Fall 2017
- Phase III - Removal of soil to 2.5 feet in depth from the west end of the site –Winter 2017.
- Phase IV – Removal of soil to 2.5 feet from the east end of the site – Spring 2018.
- Phase V – Remove temporary rail spur and final grading, and street deflection testing – Fall 2018.

Control over the schedule will be largely dependent on the availability of rail cars during the Phase III and V portions of the work.

6.1 Time of Operation

It is anticipated that UPRR's Contractor will work 5 to 6 days per week during excavation and loading activities. Hours of operation are normally 7am to 4:30pm.[2]

6.2 Security

The Site is currently fenced with entrance and egress gates on the west and east end of the site. The fencing and locked gates will be maintained throughout the duration of the remedy implementation. Equipment used during the remedy will be stored onsite within the fenced area.

[2] From Ashland municipal code: Construction or Repair of Buildings, Excavation of Streets and Highways. The construction, demolition, alteration or repair of any building or the excavation of streets and highways other than between the hours of 7:00 a.m. and 7:00 p.m., on weekdays, and 8:00 a.m. and 6:00 p.m. on weekends and holidays, except in the case of an emergency in the interest of the public welfare and safety.

SECTION 7

References

CH2M HILL 2012. *90% UCL Soil Excavation Methodology, Ashland, OR – Former SP Yard*. Letter to Oregon Department of Environmental Quality, August 24, 2012.

CH2M HILL, October 2012. *Bunker C Field Investigation Report. Union Pacific Railroad Company, Ashland Oregon.*

CH2M HILL, February 2013. *Remedial Action Work Plan. Union Pacific Railroad Company, Ashland Oregon.*

ERM 1999*. Final Remedial Investigation Report.* Environmental Resource Management.

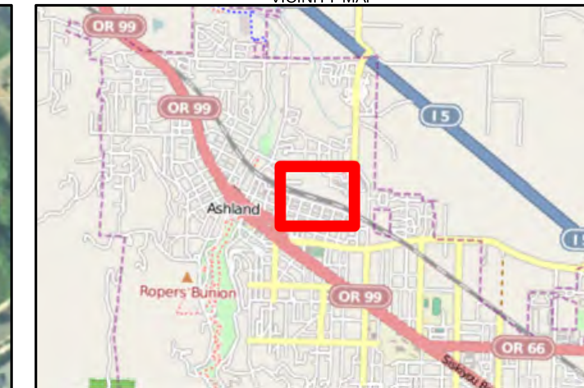
ERM 2001. *Feasibility Study Report*. Environmental Resource Management.

K/J 2006. *Ashland Railyard Remedial Design/Remedial Action Work Plan. Union Pacific Railroad Company, Ashland Oregon.* Kennedy/Jenks Consultants.

ODEQ 2001. *Record of Decision for Union Pacific Railroad Rail Yard Site, Ashland, Oregon*. Oregon Department of Environmental Quality, Western Region Cleanup Program.

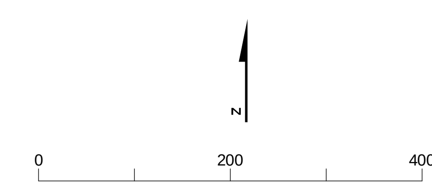
ODEQ, 2003. *Risk-Based Decision Making for Petroleum-Contaminated Sites.* Oregon Department of Environmental Quality, revised September 2009).

Figures



LEGEND

Property Boundary

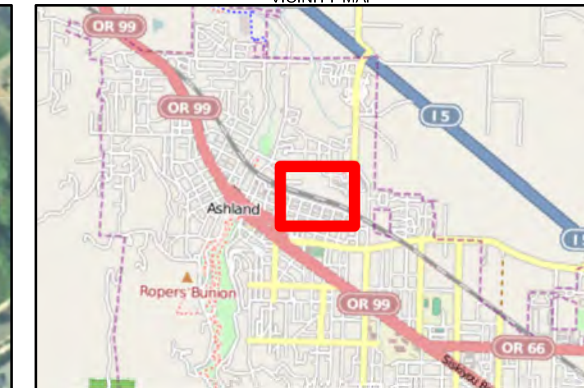


1 inch = 200 feet

FIGURE 1-1
Site Location
Union Pacific Railroad
Ashland, Oregon

CH2MHILL.

VICINITY MAP



LEGEND

- Possible Asbestos Location
- Proposed NAPL Excavation Area
- Excavation Area
- Property Boundary

N

0 200 400
Feet

1 inch = 200 feet

FIGURE 1-2
Excavation Areas
Union Pacific Railroad
Ashland, Oregon

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CH2MHILL.

Design Drawings

PRELIMINARY

NOT FOR CONSTRUCTION

LEGEND

— - — PROPERTY BOUNDARY

0 50 100 150

SCALE: 1"=50'

Note - Some of the features shown have been removed as part of various activities conducted between 2013 and 2016.

DSGN	R STRAUSS					
DR	A STEPHENSON					
CHK	M NIEMET					
APVD	M OCHSNER	NO.	DATE	REVISION	BY	APVD

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ASHLAND RAIL YARD

OVERALL SITE PLAN

SHEET	EC-1
DWG	1 OF 4
DATE	JANUARY 2013
PROJ	361427

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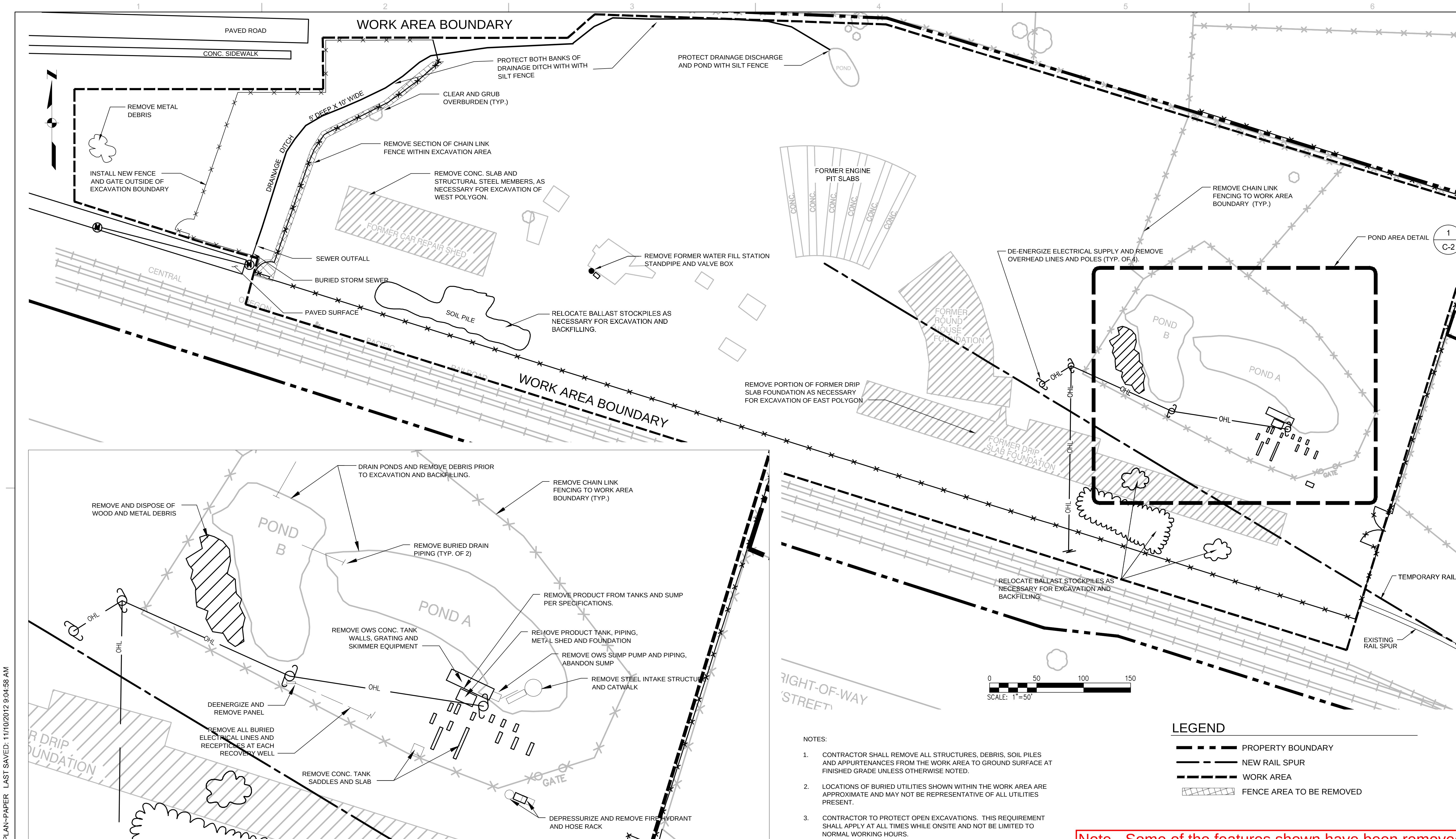

1 POND AREA DETAIL
1" = 30'

NOTES:

1. CONTRACTOR SHALL REMOVE ALL STRUCTURES, DEBRIS, SOIL PILES AND APPURTENANCES FROM THE WORK AREA TO GROUND SURFACE AT FINISHED GRADE UNLESS OTHERWISE NOTED.
2. LOCATIONS OF BURIED UTILITIES SHOWN WITHIN THE WORK AREA ARE APPROXIMATE AND MAY NOT BE REPRESENTATIVE OF ALL UTILITIES PRESENT.
3. CONTRACTOR TO PROTECT OPEN EXCAVATIONS. THIS REQUIREMENT SHALL APPLY AT ALL TIMES WHILE ONSITE AND NOT BE LIMITED TO NORMAL WORKING HOURS.
4. REMOVE CHAINLINK FENCE IN EXCAVATION AREA (WEST SIDE), REPLACE WITH NEW FENCE OUTSIDE OF EXCAVATION AREA.

LEGEND

- PROPERTY BOUNDARY
- NEW RAIL SPUR
- WORK AREA
- FENCE AREA TO BE REMOVED

Note - Some of the features shown have been removed as part of various activities conducted between 2013 and 2016.

PRELIMINARY
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DR	A STEPHENSON				
CHK	M NIEMET				
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ASHLAND RAIL YARD

DEMOLITION PLAN

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DWG	2 OF 4
DATE	JANUARY 20
PROJ	361427

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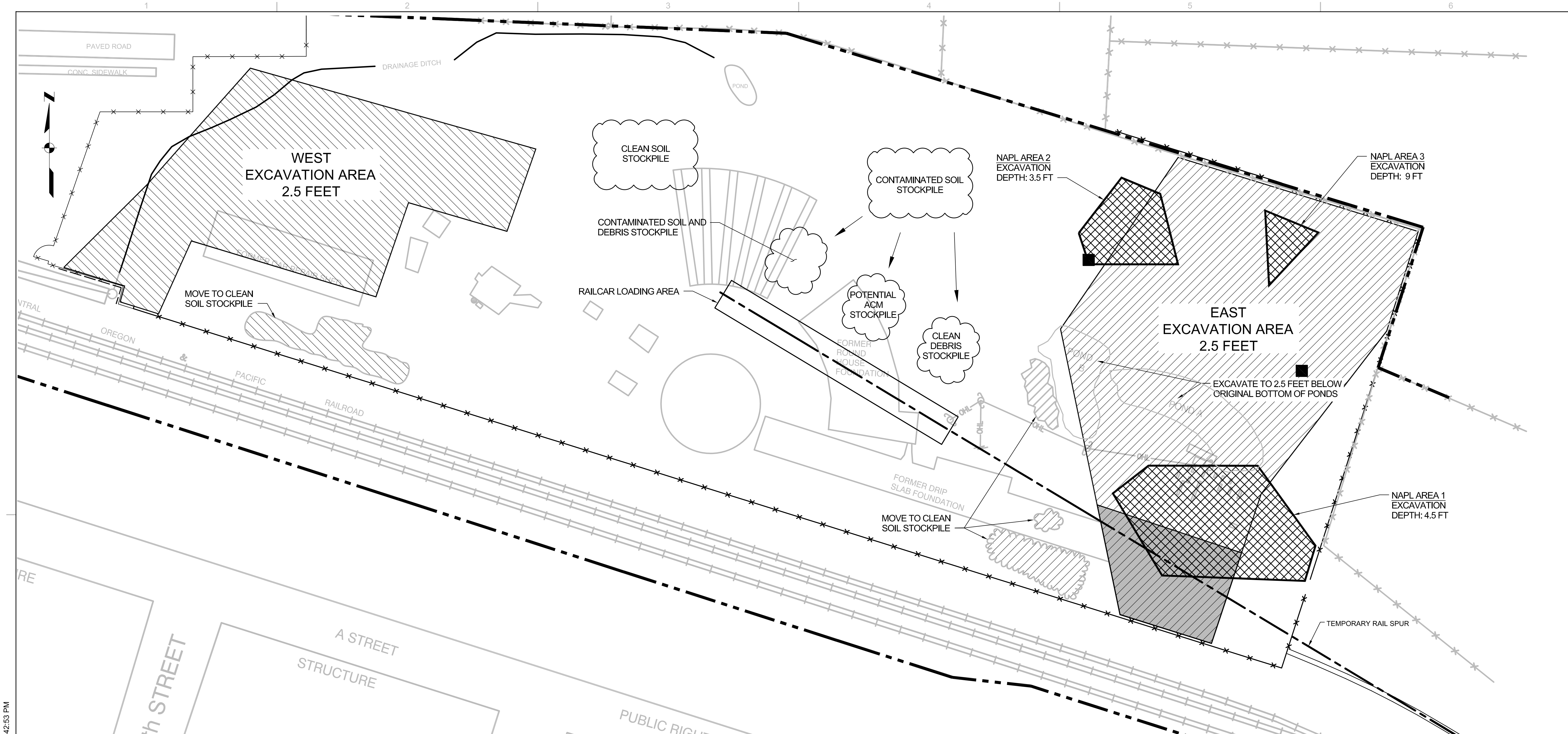

PHASE I AND II NOTES

1. VISUAL OBSERVATIONS TO GUIDE EXCAVATION.
2. CONTAMINATED SOIL UNDER THE TEMPORARY RAIL SPUR TO BE REMOVED PRIOR TO INSTALLATION.
3. BACKFILL EACH EXCAVATION, TO WITHIN 2.5 FEET OF THE SURFACE.

Note - Some of the features shown have been removed as part of various activities conducted between 2013 and 2016.

PHASE III EAST AREA NOTES:

1. ALL SOIL WITHIN POLYGON TO BE EXCAVATED TO 2.5 FEET BGS INCLUDING BOTTOM AND SIDES OF PONDS A & B, AND ALL OTHER DEPRESSIONS. EXCAVATION NOT TO EXTEND BEYOND POLYGON BOUNDARIES. SLOPE SIDEWALLS TO PREVENT SUBSIDENCE. PLACE SOIL IN TEMPORARY STOCKPILE.
2. REMOVE, STOCKPILE AND DISPOSE ALL VAULTS, PIPELINES, CONDUITS, DEBRIS, ETC. ENCOUNTERED WITHIN THE 2 ½ FOOT EXCAVATION.
3. WORK NORTH OF RAIL SPUR BED.
4. ACM HAS BEEN IDENTIFIED AT LOCATION SHOWN, BUT MAY ALSO OCCUR AT OTHER LOCATIONS. ACM CERTIFIED PERSONNEL (ONLY) TO EXAMINE ALL SUSPICIOUS LOOKING MATERIAL. IF FURTHER INVESTIGATION WARRANTED, FOLLOW ALL WORK PRACTICES AND PROCEDURES DEFINED IN OAR 340-248-0270 FOR REMOVAL, STOCKPILING, AND DISPOSAL.
5. CONFIRMATION SAMPLES TO BE COLLECTED FROM EXCAVATION FLOOR EVERY 10,000 SQUARE FEET, AND FROM SIDEWALLS EVERY 200 LINEAR FEET. SEE SAMPLING AND ANALYSIS PLAN.

PHASE IV WEST AREA NOTES:

1. FORMER CAR REPAIR SHED FOUNDATION REMOVED AND PORTION OF PERIMETER FENCE CROSSING THE POLYGON RELOCATED DURING PHASE II.
2. ALL SOIL WITHIN POLYGON TO BE EXCAVATED TO 2.5 FEET BGS. EXCAVATION NOT TO EXTEND BEYOND POLYGON BOUNDARIES. SLOPE SIDEWALLS TO PREVENT SUBSIDENCE. PLACE SOIL IN TEMPORARY STOCKPILE NEXT TO RAIL SPUR.
3. REMOVE, STOCKPILE AND DISPOSE ALL VAULTS, PIPELINES, CONDUITS, DEBRIS, ETC. ENCOUNTERED WITHIN THE 2 ½ FOOT EXCAVATION.
4. EXCAVATE 2.5 FEET FROM BOTTOM AND SIDES OF DITCH WITHIN EXCAVATION AREA.
5. WORK AROUND STORM SEWER AND OUTFALL, LEAVE UNDISTURBED AND INTACT.
6. ACM MAY BE ENCOUNTERED WITHIN THIS POLYGON. ACM CERTIFIED PERSONNEL (ONLY) TO EXAMINE ALL SUSPICIOUS LOOKING MATERIAL. IF FURTHER INVESTIGATION WARRANTED, FOLLOW ALL WORK PRACTICES AND PROCEDURES DEFINED IN OAR 340-248-0270 FOR REMOVAL, STOCKPILING, AND DISPOSAL.
7. CONFIRMATION SAMPLES TO BE COLLECTED FROM EXCAVATION FLOOR EVERY 10,000 SQUARE FEET, AND FROM SIDEWALLS EVERY 200 LINEAR FEET. SEE SAMPLING AND ANALYSIS PLAN.

LEGEND

- PROPERTY BOUNDARY
- NEW RAIL SPUR
- PHASE I
- PHASE II
- PHASE III
- PHASE IV
- POSSIBLE ASBESTOS LOCATION

SCALE: 1"=50' (0, 50, 100, 150)

PRELIMINARY
NOT FOR CONSTRUCTION

DSGN	R STRAUSS					
DR	A STEPHENSON					
CHK	M NIEMET					
APVD	M OCHSNER	NO.	DATE	REVISION	BY	APVD

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CH2MHILL

ASHLAND RAIL YARD

EXCAVATION PLAN

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DWG	3 OF 4
DATE	JANUARY 2013
PROJ	361427

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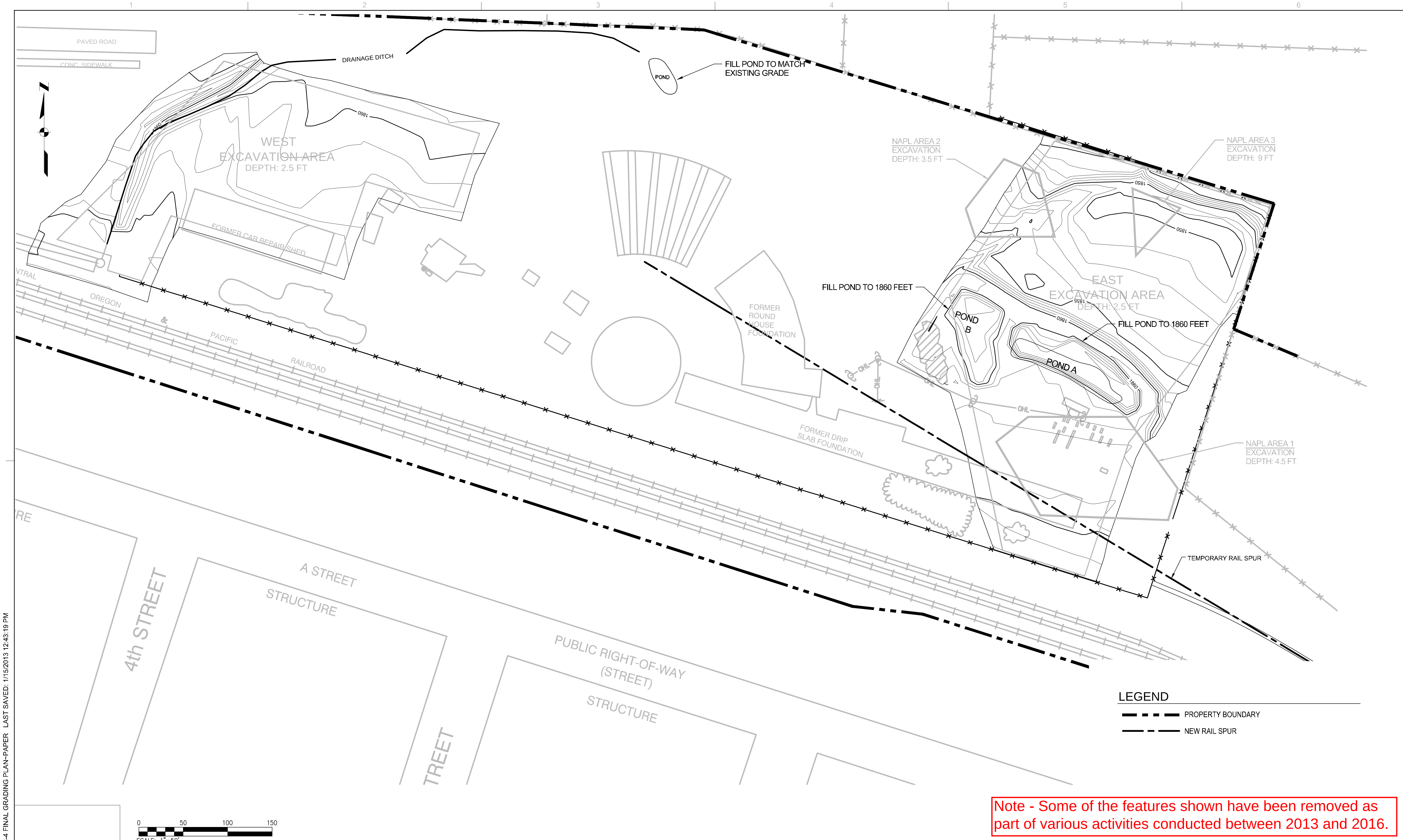

Note - Some of the features shown have been removed as part of various activities conducted between 2013 and 2016.

PRELIMINARY

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CHK	M NIEMET		
APVD	M OCHSNER		

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ASHLAND RAIL YARD

FIGURE 4
FINAL GRADING PLAN

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DWG	4 OF 4
DATE	JANUARY 2013
PROJ	361427

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Appendix A
Asbestos Checklist

ASBESTOS ABATEMENT – CHECK LIST

Start Date: ____________________________ Ending Date: __________________________
Contractor Name: ____
Contract No: ____
Contract Name: ____
Location: ____

Type of Asbestos:	TSI		Surfacing		Floor Tile		Transite	
	Roof		Spray-On		Mastic		Other	
Description of ACM:								
Quantities:	Sq Ft:		Ln Ft:		Other			
Containment Type:	Full Containment		Mini Enclosure		Glovebag			
	Other:							

PRE-ABATEMENT CHECKLIST

✓	CHECKLIST ITEM DESCRIPTION	REFERENCE	NOTES
	1. Has the contractor obtained state licenses and permits, where necessary?	Section 13281 Para. 1.3.4	
	2. Has the contractor notified the EPA, or the appropriate state or local regulatory agency, 10 days prior to the commencement of work?	Section 13281 Para. 1.3.4 40 CFR 61.145 (b)	
	3. Has the contractor provided proof that all asbestos workers and supervisors are trained in the proper removal procedures of asbestos?	Section 13281 Para. 1.3.3 29 CFR 1926.1101 (k)(9), (o)(3)(i) 40 CFR 763.121 (k)(3)	
	4. Has the contractor provided the name of the “competent” or “qualified” person?	Section 13281 Para. 1.3.7 29 CFR 1926.1101 (o)(4)	
	5. Has the contractor provided proof that the supervisor, remaining on-site during all abatement operations, is trained in the requirements of NESHAP?	Section 13281 Para. 1.3.7 40 CFR 61.145 (c)(8)	
	6. Has the contractor provided proof that all of the employees have received medical examinations and that medical records are kept?	Section 13281 Para. 1.3.12 29 CFR 1926.1101 (m), (n)(3)(i) 40 CFR 763.121 (n)(3)(i)	
	7. Has the contractor provided proof that all of the employees are respirator trained and fit tested?	Section 13281 Para. 1.3.3 29 CFR 1910.134 (e)(5)(I) 29 CFR 1926.1101 (h)(4)	
	8. Has the contractor provided the name, address, and phone number of the Private Qualified Person responsible for the exposure monitoring program and air sampling?	Section 13281 Para. 1.5.1	
	9. Has documented evidence the PQP has completed training in and is accredited and where required is certified as a Building Inspector, Contractor/Supervisor Abatement Worker and Asbestos Project Designer and successfully completed the National Institute of Occupational Safety and Health (NIOSH) 582 course “Sampling and Evaluating airborne Asbestos Dust” or equivalent?	Section 13281 Para. 1.5.1	
	10. Has the contractor provided the name, address, and phone number and state license of the testing laboratory for all asbestos sampling analysis?	Section 13281 Para. 1.3.10	
	11. Has the laboratory shown proof of participation in a Proficiency Analytical Testing (PAT) program, accredited by the American Industrial Hygiene Association (AIHA) and judged proficient by the current inclusion on the AIHA Asbestos Analysis Registry (ARR)?	Section 13281 Para. 1.3.10 29 CFR 1926.1101 App. A	
	12. Has the contractor provided the name and the location of certified waste disposal site?	Section 13281 Para. 1.3.11 40 CFR 61.145 (b)(4)(xii)	

ASBESTOS ABATEMENT – CHECK LIST

	13. Has the contractor submitted a written program manual or operating procedure including methods of compliance regulatory statues?	Section 13281 Para. 1.2.6	
	14. Has the contractor provide a copy of the Material Safety Data Sheets (MSDS) for all materials brought to the site?	Section 13281 Para. 1.2.6	
	15. Has the contractor provided product data?	Section 13281 Para. 1.4 (SD-03)	

ASBESTOS HAZARD ABATEMENT PLAN CHECKLIST	
✓	**CHECKLIST ITEM DESCRIPTION** (Section 13281 Para. 1.3.9)
	1. Is the plan prepared, signed, and sealed by the Private Qualified Person, including certification number and certification date?
	2. Does the plan include a drawing showing the location, size, and details of asbestos regulated areas, including the following: - location of the clean and dirty areas - buffer zones - showers - storage areas - change rooms - local exhaust equipment
	3. Does the plan include a planned air monitoring strategies?
	4. Does the plan include the precise personal protective equipment to be used?
	5. Does the plan include step-by-step details for the sequencing of asbestos-related work?
	6. Does the plan include a disposal plan?
	7. Does the plan specify the type of wetting agent to be used?
	8. Does the plan include both Fire and Medical Emergency response plans?
	9. Does the plan include a detailed description of the environmental pollution control method?

POST-ABATEMENT CHECKLIST	
✓	**CHECKLIST ITEM DESCRIPTION**
	1. Have copies of all appropriate environmental monitoring documents been supplied to the OICC/ROICC or the Navy Consultant?
	2. Has the Asbestos Program Manager been informed the removal has been completed?
	3. Has the contractor provided written proof of the total amount of asbestos received and buried by the landfill?
	4. Has the original Waste Shipment Record been forwarded to the Environmental Department?

NOTES:

Appendix B
Sampling and Analysis Plan

Sampling and Analysis Plan

Updated Remedial Action Soil Confirmation

Union Pacific Railroad – Ashland Former SP Yard Ashland, Oregon

Prepared for

Union Pacific Railroad Company

July 2016

CH2MHILL®

SECTION 1

Introduction

At the request of the Union Pacific Railroad Company (UPRR), CH2M HILL has prepared this Sampling and Analysis Plan (SAP) for the UPRR Ashland – Former SP yard (the Site) located in Ashland, Oregon, as shown in Figure 1. A remedial action (RA) is planned to begin in late 2016 at this site (*Updated Remedial Action Work Plan/UPRR Ashland Former SP Yard*, CH2M HILL, July 2016), and this SAP has been prepared to guide the confirmation sampling that will be conducted during the RA.

The excavation approach described in the Updated Remedial Action Work Plan (RAWP) is based on current risk-based concentrations for the contaminants of concern (COCs), and utilizes the 90 percent upper confidence limit (90% UCL) approach to site cleanup as described in ODEQ guidance (ODEQ, 2009). Using this methodology, the entire soil dataset for the Site was evaluated to determine which locations should be excavated to decrease the 90% UCL for all COCs to below their respective risk-based concentrations (RBCs). Two polygons (east and west) were drawn around the sample points identified for removal to meet the risk and hazard quotient targets (Figure 2).

Removal of these two excavation areas will reduce the 90% UCL, calculated for soil remaining onsite, below residential RBCs, and bring the cumulative ELCR for the entire parcel below $1x10^{-5}$. However, some contamination will remain that may exceed the RBCs at specific locations. As described in this SAP, confirmation sampling is being conducted only to document contaminant levels that remain; additional excavation based on confirmation sample results will not be performed as part of this remedial action. An Easement and Equitable Servitudes (E&ES) agreement between UPRR and ODEQ will be filed with the property title and will document any land use restrictions based on overall residual risk remaining upon completion of the remedial action. Should additional site risk be identified based upon confirmation sampling results or a potential future subdivision of the property parcel, then the prospective purchaser may be required to conduct additional remedial actions at a future time.

In addition, the RAWP specifies the collection of confirmation samples from the three NAPL-contaminated areas and from the soil beneath the temporary loading rail spur once it has been removed.

1.1 Site Background

The Site consists of approximately 20 acres located at 536 A Street in the city of Ashland (City), Jackson County, Oregon. Ashland lies within the Bear Valley in southwestern Oregon at an elevation of approximately 2,000 feet above mean sea level. The Site and surrounding area are shown on Figure 1.

The former Ashland Railyard operated as a locomotive maintenance, service, and railcar repair facility between 1887 and 1986. Various structures (including a hotel/passenger station, a freight station, a car repair shed, a turntable, a roundhouse, and miscellaneous work and storage buildings) were once present. A steel, 55,000-barrel (3.025-million gallon) aboveground, Bunker C oil tank, used for fueling steam locomotives, was installed at the Site (near the Former Drip Slab foundation) around the turn of the century, and removed in the late 1940s.

Light locomotive maintenance and car repair functions were performed by the Southern Pacific Transportation Company (SPTCo), UPRR’s predecessor, from the 1900s until the early 1970s. Most locomotive maintenance and fueling facilities were decommissioned before 1960. UPRR acquired SPTCo and many of its assets, including the former Ashland Railyard, in 1997. Since the acquisition, UPRR has not operated or performed any railroad related activities at the Site. The Site is currently inactive and is being considered for sale and/or redevelopment.

1.2 Site Geology and Stratigraphy

The shallow soil beneath the Site consists of three units: surface soil unit, a silt/clay unit, and a discontinuous sand unit. Each of these units is described below.

1.2.1 Surface Soil Unit

Surface soil is composed of either native sandy clay or an imported fill material. The sandy clay is usually moist and typically dark brown. The native sandy clay is found across the Site; however, fill material overlies the sandy clay in several developed areas, including the former drip slab, roundhouse, the holding ponds, and downslope of the holding pond area. The fill material is composed of variable mixtures of coarse, granular soil, including railroad ballast composed of red-brown volcanic rock (scoria). Bricks and other debris are occasionally found within this material. The sandy clay and fill material extend to depths of approximately 3 to 4 feet below ground surface (bgs), with the fill material increasing in thickness to the north (downslope).

1.2.2 Silt/Clay Unit

Underlying surface soil is a silt/clay unit. This unit is encountered from approximately 3 to 4 feet bgs (beneath the surface soil), and extends to between approximately 20 and 25 feet bgs. This unit ranges from silty clay/clayey silt to a sandy silt/clay and generally acts as a confining layer for water and NAPL across the site.

The silt/clay unit is generally olive gray in color; however, discolored intervals are dark gray to black near the upper contact with the overlying surface soil. The unit is generally medium stiff, moist to wet, and contains occasional thin, typically saturated, stringers of sand and fine gravel (typically less than 5 inches thick) that appear to be laterally discontinuous. At locations where the discontinuous sand unit (described below) is encountered, the silt/clay unit typically grades to a sandy clay/sandy silt material at the interface of the two units.

1.2.3 Discontinuous Sand Unit

The discontinuous sand unit has been encountered within the silt/clay unit described above. This sand unit varies from olive to yellowish brown, consists of sand to silty and clayey sand, is typically saturated, and is laterally discontinuous beneath the Site. This unit is typically saturated and encountered at depths of between approximately 10 and 15 feet bgs, and is generally 1 to 5 feet thick, although it appears to be thicker in the eastern section of the Site. This unit was encountered at shallower depths (less than 10 feet bgs) in the southern portion of the Site.

SECTION 2

Sampling and Analysis Procedures

2.1 Field Preparation

The NAPL areas will be excavated during Phase II. The East and West Polygons will be excavated during Phase III and Phase IV respectively. The temporary rail spur will be removed during Phase V. Confirmation sampling will be conducted in each area soon after each respective Phase is complete. All samples will be collected by hand from the respective areas.

2.2 Soil Sampling Procedures and Locations

2.2.1 EPH/VPH Samples

At the request of ODEQ, EPH/VPH samples will be collected from the surface soil at select locations pre- and post-excavation. Samples will also be collected for VOCs at these locations. Approximate locations (plan view) are shown on Figure 2. Table 1 shows the number of samples to be collected from each area.

TABLE 1
Number of EPH/VPH Soil Samples
Confirmation Sampling and Analysis Plan

	Pre	Post	Total
East Area	1	1	**2**
West Area	1	1	**2**
NAPL Areas	3	3	**6**

Soil samples will be collected using a clean steel trowel. The surface soil will be scraped away to allow sampling of undisturbed soil. Rocks or vegetation will be avoided. The sample location, descriptions (soil texture, moisture, odor, and color), and field screening observations will be recorded in the field note book.

At each sample location, about 500 grams of soil will be collected and placed in a clean bowl. The soil will be homogenized using a new, clean, stainless steel spoon. The soil will be transferred to appropriate sample containers provided by the analytical laboratory and filled to minimize headspace. The analytes for each sample location are provided on Figure 2. Sample jars will be sealed after wiping the threads and rim of the sample jars. Field personnel will wear disposable gloves during all soil-handling activities. The samples will be labeled and placed on ice in a clean cooler. The soil analytical requirements are described in Section 2.3.

2.2.2 Post-Excavation Samples

Confirmation samples will be collected from the floor of the excavations at a frequency of approximately one sample per 10,000 square feet, from the sidewalls of the excavations at a frequency of one sample per 200 linear feet, and from beneath the temporary rail spur at a frequency of one sample per 100 linear feet. Approximate locations (plan view) are shown on Figure 2. Table 2 shows the number of samples to be collected from each area.

TABLE 2
Number of Confirmation Soil Samples
Confirmation Sampling and Analysis Plan

	Sidewall	Floor	Total
East Area	6	9	**15**
West Area	6	6	**12**
NAPL Areas	5	4	**9**
Rail Spur Area	NA	4	**4**

Sidewall samples will be collected between 15 and 20 inches from the top of the excavation.

Soil samples will be collected using a clean steel trowel. The surface soil will be scraped away to allow sampling of undisturbed soil. Rocks or vegetation will be avoided. The sample location, descriptions (soil texture, moisture, odor, and color), and field screening observations will be recorded in the field note book.

At each sample location, about 500 grams of soil will be collected and placed in a clean bowl. The soil will be homogenized using a new, clean, stainless steel spoon. The soil will be transferred to appropriate sample containers provided by the analytical laboratory and filled to minimize headspace. The analytes for each sample location are provided on Figure 2. Sample jars will be sealed after wiping the threads and rim of the sample jars. Field personnel will wear disposable gloves during all soil-handling activities. The samples will be labeled and placed on ice in a clean cooler. The soil analytical requirements are described in Section 2.3.

2.3 Laboratory Analysis

Selected laboratory analyses, preservation, reporting limits and holding times for each method are presented in Table 3.

TABLE 3
Required Sample Methods, Containers, Preservation, Method Reporting Limits and Holding Times
Confirmation Sampling and Analysis Plan

Analysis	Analytical Method	Sample Matrix	Container	East Area Qty[a]	West Area Qty[a]	NAPL Areas Qty[a]	Rail Spur Area Qty[a]	Preservative	Holding Time (days)
ICP Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag)	SW6010B	Soil	1-4oz Jar	15	12	0	4	<6C, None	6 Months
NWTPH-Dx	NWTPH-Dx	Soil	1-8oz Jar	15	12	9	4	<6C, None	14/40 Days[c]
EPH/VPH	Washington Ecology (1997)	Soil	1-8oz Jar	2	2	6	0	<6C, None	14/40 Days[c]
VOCs [d]	SW8260-B	Soil	1- Terracore Kit[b]	17	14	6	0	<6C MeOH/Na Bisulfate	14 Days
PAHs	SW 8270-SIM	Soil	1-8oz Jar	15	12	11	4	<6C, None	14/40 Days

Note: Sample container, volume requirements etc. have been specified by the Pace Analytical Laboratory.
[a] One duplicate and one equipment blank will be collected for each analysis type.
[b] Terracore kits include one sampler within each kit
[c] 14 days to extract and 40 days to analyze after extraction
[d] Benzene, toluene, ethylbenzene, xylenes, naphthalene, isopropylbenzene, n-propylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

2.4 Quality Assurance

This section provides details on quality control, equipment decontamination, and handling.

2.4.1 Equipment and Trip Blanks

One equipment blank for each analyte will be collected for each analysis type for non-disposable equipment. Equipment blanks will be collected by pouring DI water over a decontaminated trowel, new spoon, and a decontaminated stainless steel bowl. The water will then be transferred into sample containers.

One trip blank will be included for VOC analysis.

2.4.2 Field Duplicate Samples

One field duplicate sample will be collected for each analysis type. Twice as much soil will be needed to fill two jars for each duplicate analysis.

2.4.3 Decontamination Procedures

All non-disposable sampling equipment such as trowels, spoons, and bowls will be decontaminated prior to sample collection, between sample locations, and after the sampling event is complete. Disposable gloves will be changed between sample locations. Dispose of unused soil at the sampling location.

The following decontamination procedures will be used:

- Wash (using a scrub brush) with a dilute solution of Alconox and tap water
- Rinse with tap water

- Rinse with distilled or deionized water
- Rinse with methanol
- Rinse with distilled or deionized water

2.5 Investigation Derived Waste

The waste streams associated with confirmation sampling activities may include:

- Personal protective equipment (Tyvek coveralls, gloves, etc.)
- Disposable sampling items (spoons, tape, packing materials, etc.)
- Rinse water from decontamination

Solid waste (personal protective equipment [PPE] or sampling materials) will be collected in a plastic garbage bag and disposed in a municipal solid waste dumpster.

The volume of water produced from decontamination during this field sampling effort will be minimal and will be disposed of to the sanitary sewer.

2.6 Field Records

Records of the field activities will be kept for documentation purposes. A description of the records used during the investigation effort is summarized below.

2.6.1 Documentation

Field notes, sketches, and observations will be documented in dedicated, water-resistant field notebooks using permanent pens. Notes will include sample locations, visual and olfactory characteristics of the soil sampled, time of sample collection, and other relevant visual observations or information. Field notebooks will be retained in the project file after the sampling effort is completed.

2.6.2 Photographs

Photographs will be taken of each sample location and at other locations where important observations are made, if any. A photo log will be kept that details the location and identification number for each photograph taken.

2.6.3 Sample Identification, Handling, Storage, and Delivery

Samples will be labeled so the analytical data can be easily matched with location data. Sample locations will be placed on the site maps using measurements made from the existing staked excavation survey corners.

Filled sample containers will be labeled with the following:

- Project name
- Project number
- Sample identification
- Analysis to be performed
- Date and time of collection

Sample jars will be sealed in Ziploc bags, placed on ice in a cooler, and packed with bubble wrap to prevent container breakage.

A chain-of-custody form will be completed and placed in a sealed bag and taped to the inside of the ice chest. The chest will then be sealed shut with tape and shipped or delivered to the laboratory within 24 hours of sample collection. To retain sample custody, samples will remain in possession of field personnel or in a locked location until they are shipped to the laboratory.

2.6.4 Laboratory

The laboratory that will be used for these analyses is Pace Analytical Services, Inc.:

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

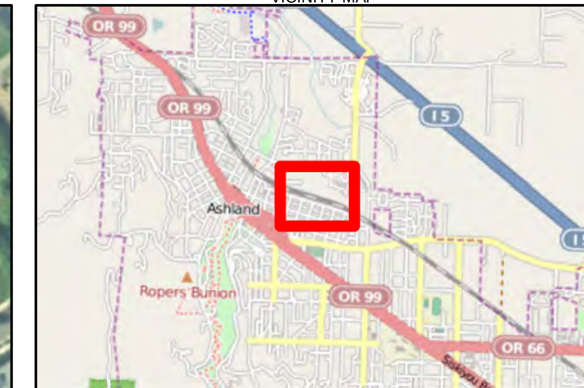
2.6.5 Key Contacts

Table 3 presents the names, responsibilities, and contact information of key project personnel that will be involved in the sampling effort.

TABLE 3
Project Personnel
Confirmation Sampling and Analysis Plan

Name	Title	Phone
Mike Niemet/CH2M HILL	Project Manager	541-768-3726 541-602-4760 (cell)
Brandon Jones-Stanley/CH2M HILL	Field Team Leader and Site Safety Coordinator	541-768-3226
Tim Clemen/UPRR	Engineer in Charge	541-892-3056 (cell)
Jennifer Gross/Pace Analytical	Laboratory Contact	206-957-2426 206-767-5060 (Main office)

VICINITY MAP



LEGEND

Property Boundary

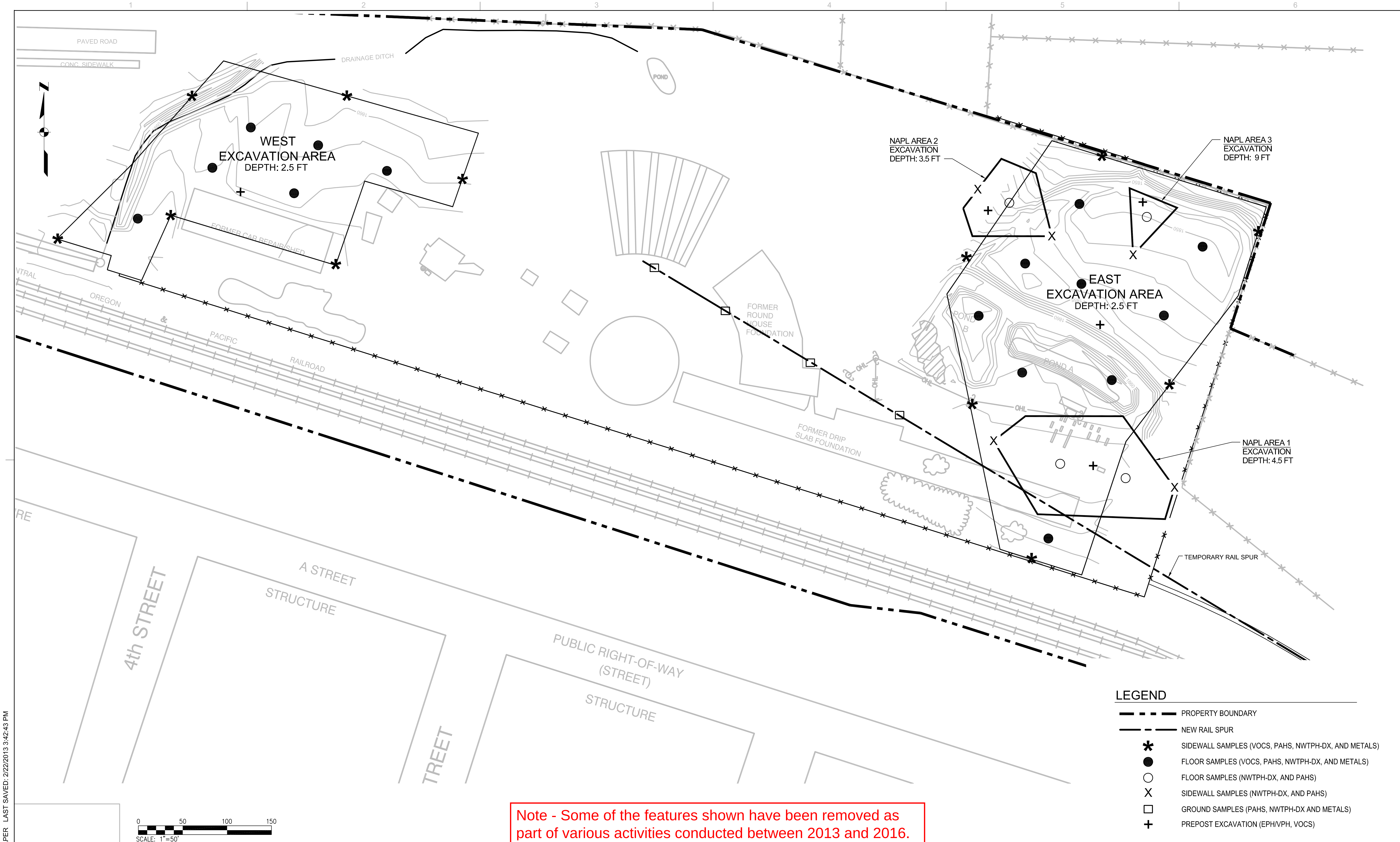
0 200 400

Feet

1 inch = 200 feet

FIGURE 1
Site Location
Union Pacific Railroad
Ashland, Oregon

CH2MHILL.



Note - Some of the features shown have been removed as part of various activities conducted between 2013 and 2016.

PRELIMINARY

NOT FOR CONSTRUCTION

DSGN	R STRAUSS	NO.	DATE	REVISION	BY	APVD
DR	A STEPHENSON					
CHK	M NIEMET					
APVD	M OCHSNER					

VERIFY SCALE

BAR IS ONE HALF INCH ON ORIGINAL DRAWING. 0 1/2"

IF NOT ONE HALF INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

CH2MHILL

ASHLAND RAIL YARD

FIGURE 2
SAMPLING PLAN

SHEET	1
DWG	1 OF 1
DATE	FEBRUARY 2013
PROJ	361427

USER: 5543 TAB: PAPER LAST SAVED: 2/22/2013 3:42:43 PM

FILENAME: \\MIDWAY\PROJ\UNIONPACIFICRAILROAD\361427ASHLAND\K-J REMEDIATION\PLANS AND SPECIFICATIONS\CURRENT SET\FIGURE 2 - SAMPLING PLAN.DWG PLOT DATE: 22-Feb-13 PLOT TIME: 3:44:30 PM