



ROBINSON<sup>SM</sup>  
NOBLE

HAVENS PROPERTY  
(aka) JOHNS AUTO WRECKING SITE  
411 93<sup>RD</sup> AVENUE SE, OLYMPIA, WASHINGTON  
DRAFT WORK PLAN  
FOR SUPPLEMENTAL SITE INVESTIGATION

FEBRUARY 2012

by

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<b>Overview of Site and Purpose of Work Plan</b> .....	<b>1</b>
<b>Task 1 Preconstruction Meeting and Site Clearing Support</b> .....	<b>1</b>
<b>Task 2 Site Characterization</b> .....	<b>2</b>
GENERAL FIELD PROCEDURES .....	2
AREA OF CONCERN DETERMINATIONS .....	3
<i>Area of Concern 1 – Body Shop/Auto Repair</i> .....	3
<i>Area of Concern 2 – Battery Storage</i> .....	4
<i>Area of Concern 3 – Radiator Shop/Auto Repair</i> .....	4
<i>Area of Concern 4 - Hazardous Waste Storage</i> .....	5
<i>Area of Concern 5 – Battery Storage Shed</i> .....	5
<i>Area of Concern 6 – Hazardous Material Storage (Bunker)</i> .....	6
<i>Area of Concern 7 and 8 - Petroleum Storage and Car Crushing</i> .....	7
<i>Area of Concern 9 - Car Crushing</i> .....	7
<i>Terrestrial Ecological Evaluation (TEE) – Data Considerations</i> .....	8
<b>Task 3 Meeting and Report</b> .....	<b>8</b>
<b>Task 4 VCP Support and EIM Submission</b> .....	<b>8</b>



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## **Overview of Site and Purpose of Work Plan**

The purpose of this document is to respond to the Washington State Department of Ecology's (Ecology) opinion letter dated August 23, 2011 concerning further cleanup actions at the subject site and also to propose a work plan for satisfying Ecology's requirements for supplemental site investigation and clean up.

The 15-acre subject site, which served as a wrecking yard and supported towing operations for approximately 22 years, was inspected by the Thurston County Environmental Health Division (County) in October 2001. The County identified nine distinct Areas of Concern (AOCs) for the site (Figure 1). A site hazard assessment was completed by the County, and the site was ranked as a "top priority" site. In 2005, the "Johns Auto Wrecking" site was listed in Ecology's Voluntary Cleanup Program (VCP) database as VCP Number SW1127. Figure 1 is a site plan layout showing the AOC and general site features.

The site has been characterized and sampled several times since 2001. To date, the only confirmed contaminant releases are TPH and PCBs in soil and several metals in both soil and groundwater. Other potential contaminants have not been detected in soil or groundwater. Souls previously identified with concentrations of target analytes which exceeded respective cleanup limits have been removed from the site. This work plan will be consistent with MTCA requirements (i.e., WAC 173-340-900 and Table 830-1) required testing for petroleum releases, but in light of the fact that considerable work has already been completed at the site, we are recommending a streamlined, abbreviated approach emphasizing known contaminants and the presence or absence of key "indicator" chemicals of concern. This plan also emphasizes further characterization of only a portion of the nine AOCs cited above.

The following discussion describes what tasks are being proposed for the site including each of the site AOC. Every effort has been made to streamline and combine tasks or AOCs where possible to eliminate unnecessary expenditure of cost or effort.

## **Task 1: Preconstruction Meeting and Site Clearing Support**

Prior to initiation of drilling activities, we advise a project status or pre-construction meeting to include Ecology. It is our recommendation, given the site's history within the VCP program, that we allow time for Ecology to provide comments regarding the plan as proposed. Depending on the input from Ecology, adjustments to the drilling and sampling may need to be addressed. Having a pre-construction meeting will allow a chance for those changes to be discussed, finalized, and incorporated. The goal of this work plan is to set a strong baseline of understanding at the site to provide a clear pathway to regulatory closure.

To facilitate the proposed investigation, it is recommended the site be cleared of most of the standing invasive vegetation (Himalayan blackberry and scotch broom). In addition, it is recom-

mended the remaining miscellaneous debris noted during our recent site visit be removed. It is anticipated that much, if not all, of the identified debris is considered solid waste rather than hazardous waste. As such, these removal activities can be performed by any suitable clearing and hauling company. While this material should be removed from the site, in general, it is not likely a source material. Special care should be taken to remove all debris, including timbers, metal roofing, and fencing, from the intermittent stream and wetland buffer. These materials, if left in place, could contribute to potential degradation of the stream and wetland ecosystems.

Ecology has requested that soil and groundwater samples be collected within the footprint of the main garage area on the northeast corner of the property. Therefore, it is recommended that the remaining structures on site be demolished and removed from the site. The buildings cover a large portion of the property that should be incorporated into the next phase of the investigation. While, in some cases, samples can be collected with the buildings in place, standing buildings will slow work progress and, in some cases, necessitate additional borings to be drilled to assess covered or inaccessible areas. Additionally, the buildings provide access and cover for the illegal dumping of material at the subject site. These illegal dumping activities have contributed several piles of solid waste and abandoned vehicle hulks in the northern portion of the property. It will be necessary, whether or not the buildings are removed, to better secure the site to prevent additional illegal dumping.

## **Task 2: Site Characterization**

### **General Field Procedures**

Field work described in this work plan should be completed in multiple phases or “tiers” to allow for a review of collected analytical data, thus allowing for more streamlined data collection for the remainder of the investigation. Given the nature of the sediments previously observed at the site, we plan to use a direct-push drilling rig for the advancement of soil borings, setting of temporary screens, and where proposed, the completion of monitoring wells. Given the relatively shallow nature of groundwater in the area, we propose that wells be completed with one- to two-inch PVC pre-packed screens. These screens will allow for proper well development and groundwater sample collection. Well screen diameter and length will be determined in the field depending on observed conditions and the capabilities of the drilling rig at each location. During groundwater sampling, field parameters including conductivity, DO, ORP, and pH will be measured using a field meter.

The direct-push drilling rig will provide a nearly continuous core of material encountered in each well bore. Soil sampling will generally be accomplished by selecting two soil samples from each bore hole. A shallow (near surface) sample above the vadose zone and a deeper sample from the top of the groundwater interface will be collected at each boring. Additional soil samples will be collected as and where field screening necessitates. Analysis of the samples will, in general, begin with analysis of the shallow sample, and depending on laboratory results, the deeper sample may or may not be analyzed. Again, this general plan will be adjusted where actual field conditions suggest running both is necessary for proper screening.

As a cost-savings measure going forward, we plan to use NWTPH-HCID as a semi-quantitative screening method for the presence or absence of petroleum hydrocarbons (PHCs) on site. This test will be employed prior to the completion and selection of either NWTPH Gx or NWTPH Dx. Depending on the results of the initial screening, additional analysis will or will not be necessary. We also plan to utilize a mobile laboratory for near real-time in-field analysis. Results col-

lected while in the field can be used to refine the drilling and sampling plan should unexpected material be identified. Additionally, considering a majority of the proposed target analytes are petroleum hydrocarbons, there is a laboratory cost savings using a mobile laboratory. Location-specific changes to this general sampling and analysis plan are presented below.

### **Area of Concern Determinations**

In response to Ecology's August 2011 response letter, we have reviewed the project file, including data collected to date, and propose the following series of investigations. Each of the following subtasks are associated with specific areas of concern as previously identified in our initial scope of work developed in 2008. Prior to our joining the investigation team, previous site activities included a site visit and collection of soil samples in 2002. According to Thurston County Health Department (TCHD) documents at that time, a series of four areas of concern were developed by another contractor in collaboration with TCHD personnel. The information presented in a January 27, 2004 TCHD worksheet (identified in Ecology files) suggests these areas were located on the southern half of the property near active car-crushing activities. It was suggested by TCHD that soil samples collected from the vicinity of these AOCs revealed elevated levels of gasoline-range hydrocarbons and gasoline additives. However, no report was ever submitted, and therefore, this work cannot be referenced or reviewed. Personal correspondence with Patrick Soderberg of TCHD identified these areas as AOCs 7 and 8 as shown in Figure 2 (attached).

Additional AOCs 1-6 and 9 (Figure 2) are located based on a review of previous work completed by AEG in 2006, the TCHD worksheet, and personal correspondence with Mr. Soderberg. During our initial site investigation, we adjusted the locations of some of the soil borings and test pits based on field observations and further discussions on site with Mr. Soderberg. For the purposes of this work plan, we will present the rationale for inclusion or removal of each AOC and subsequent target analytes on a case-by-case basis.

#### ***Area of Concern 1 – Body Shop/Auto Repair***

Our review of available documents suggests this area was utilized for general auto repair and limited body shop activities. During our initial site walk and subsequent source removal activities, we observed numerous five-gallon buckets with lids (used to store waste oil) stacked along a small area between the house and garage (or outbuilding). A small area of soil staining and distressed vegetation was observed near the location of an overturned bucket. Following the removal of these miscellaneous buckets, we completed a test pit (TP1A) in the area of observed soil staining. At that time, site logistics and overhead utilities prevented us from mobilizing the drill rig to this location for the collection of a water sample. A soil boring (B1) was advanced to the southeast of the observed soil staining on the opposite side of the outbuilding in an area of distressed vegetation. A second test pit was completed in the vicinity of AOC 1 at TP1B in an apparent burn pile area.

From these three sampling locations, four soil samples and one groundwater sample were analyzed for volatile organics, gasoline- and diesel-range hydrocarbons, and metals (arsenic, mercury, cadmium, chromium, lead, nickel, copper and zinc). Only the surface sample collected from TP1A indicated any target analytes above MTCA Method A cleanup limits. Oil was measured in the TP1A surface of 66,700 mg/kg, which is well above MTCA guidelines. A sample collected at the same location at a depth of one foot indicated an oil concentration of 140 mg/kg, which is below the respective MTCA cleanup limit. A second mobilization to the site was scheduled to remove the identified impacted soils from the TP1A area. During this field effort, a second ar-

ea of stained soil was identified on the south side of the outbuilding and subsequently removed. Two confirmation samples were collected from the base of each excavation area. Laboratory results indicated that impacted soils had been successfully removed.

In their opinion letter, Ecology suggested additional investigation in this area. Specifically, they have requested that a monitoring well be completed at the TP-1A area. We have proposed that at least three additional soil borings be advanced in the area mapped as AOC 1. Two borings will be completed at the locations of the minor soil excavations. These borings will be advanced to groundwater. Two soil and a single groundwater sample will be collected at each location. The groundwater sample will be collected through a temporary screen set in one of the boreholes. A third boring is proposed for the area within the adjacent garage where concrete staining was observed. Depending on the status of the building at the time of the investigation, this boring may or may not be advanced. Target analytes at this location will be limited to volatile organics (due to potential body work completed at this location), gasoline- and diesel-range petroleum hydrocarbons, and BTEX (from vehicle repair). Should diesel-range petroleum hydrocarbons be identified, we will submit the sample for cPAH analysis, a commonly occurring toxic by-product of petroleum combustion. Should any groundwater impacts be observed, a monitoring well will be recommended at that specific location.

### ***Area of Concern 2 – Battery Storage***

Area of Concern 2 has been previously identified as a potential battery storage area. The first reference to this area as being utilized for battery storage is a copy of a faxed document dated December 5, 2005 between Patrick Soderberg (TCHD) and Mike Blum (Ecology). The fax appears to be a series of notations made by Mr. Soderberg to Mr. Blum regarding the proposed AOCs and suspected site uses. This specific AOC is listed as "*Battery Storage?*". Discussions with Mr. Soderberg during our initial site walk did not specifically locate the battery storage area. Therefore, during our initial site investigation, TP2A and B2 were completed near observed distressed vegetation and areas where visual observations suggested a former structure may have stood.

Ecology suggests this area has not been fully characterized. Additionally, they request a groundwater monitoring well be advanced at AOC 2. A further review of historic aerial photos suggests that much of the area identified as AOC 2, as previously described, was covered in cars except for a tree-covered portion along the northern boundary of the AOC. Limiting the AOC to this area reduces its overall size. Therefore, we propose a soil boring be advanced in this tree-covered area, extending to groundwater and two hand augers be advanced to three feet. Two soil samples will be collected at each location with field screening for pH conducted in the field. We propose completing the boring as a two-inch, PVC, pre-packed groundwater monitoring well. Following well development, a groundwater sample will be collected. Target analytes for AOC 2 are limited to a standard suite of metals common to wrecking yard activities (lead, arsenic, cadmium, chromium, mercury, zinc, copper, and nickel) and pH. This well will also provide a greater level of detail for subsequent groundwater flow discussions.

### ***Area of Concern 3 – Radiator Shop/Auto Repair***

AOC 3 was previously identified as an "old" radiator shop and auto repair area. During our research, it was determined that this location, and its associated garage structure, was the entry point for many of the cars to the wrecking yard. The area was also used for miscellaneous vehicle repair. Our initial investigation identified areas of suspected petroleum staining on the gravel area east of the associated garage. A surface sample (TP3 surf B) collected from the

stained area revealed an oil concentration of 500 mg/kg, below the MTCA cleanup level of 2,000 mg/kg. Lead was detected in this sample at a concentration of 230 mg/kg. The MTCA cleanup levels for lead in soil are 250 mg/kg. Minor detections of zinc, copper, and nickel were also detected. A groundwater sample was collected from a temporary screen set in boring B3 at the location of TP 3B. Analytical results yielded no evidence of the target analytes above laboratory detection limits. Soil samples were analyzed for gasoline- and diesel-range hydrocarbons, metals, and volatile organics. In addition to the list above, the groundwater sample was analyzed for glycols.

Following our initial investigation, a separate field effort was conducted to remove the observed stained soils (even where identified concentrations did not exceed cleanup limits). During this second mobilization, shallow-stained soils were removed from AOC 3. Additionally, two trenches were completed along the edge of the western and southern edges of the concrete floor, beneath the garage structure. Field screening completed during the trench excavation did not identify any stained soils or petroleum odors associated with a potential release. During these excavations, a representative of TCHD was on site to observe the underlying site conditions. We did not collect a soil sample at this location due to an absence of field screening or other evidence of a suspected release to the observed soils.

Ecology requested additional soil samples be collected in response to observed stained concrete in the garage. Ecology requested at least one (preferably more) soil samples be collected beneath the concrete slab. Additionally, Ecology requests a monitoring well be completed at this location.

At this time, we recommend a series of three additional soil borings be advanced: the first to be advanced on the south side of the concrete floor, the second on the west side, and the third directly through the center of the floor. Depending on the status of the structure, this may not be possible until the building is demolished or stabilized. Two soil samples will be collected from each boring. Groundwater samples will be collected from each boring through temporary screens. Soil samples will be analyzed for gasoline- and diesel-range hydrocarbons, metals, and volatile organics. Groundwater samples will be analyzed for gasoline- and diesel-range hydrocarbons, metals, volatile organics, and glycols. Should diesel-range petroleum hydrocarbons be identified, we will submit the sample for cPAH analysis. A well will be recommended if any of the target analytes are found to exceed MTCA Method A cleanup limits in groundwater.

#### ***Area of Concern 4 – Hazardous Waste Storage***

Area of Concern 4 formerly contained a small shed used to store hazardous materials. Information provided by Mr. Soderberg estimated the actual area covered by the shed was approximately 96 square feet (shed footprint 8 by 12 feet). Test pit TP3A was completed within the footprint of the former shed. Two soil samples were collected at this location at one and four-feet below ground surface. The soil samples were analyzed for gasoline- and diesel-range hydrocarbons, metals, and volatile organics. The only observed concentration which exceeded the laboratory detection limit was for nickel at 20 mg/kg. Considering the size of this AOC and the testing already completed, we do not recommend additional investigation at this location.

#### ***Area of Concern 5 – Battery Storage Shed***

Area of Concern 5 is similar in area to AOC4 with a majority of the potential source material located within a small wooden shed or outbuilding. We conducted two test pits and a soil boring at this location. One test pit was completed on the back side of the shed near two large industrial lead acid batteries. The second was completed beneath the shed itself (the shed was ac-



cessible through one open side). The soil samples were analyzed for gasoline- and diesel-range hydrocarbons, metals, volatile organics, and PCBs. None of the analyzed samples were found to contain levels of target analytes above the respective cleanup limits. A surface soil sample collected at TP 5B was found to contain oil at a concentration of 340 mg/kg, below the applicable MTCA cleanup level. The sample was also analyzed for PCBs and results were below laboratory detection limits. The laboratory results from the groundwater sample collected from boring B5 did not contain any target analytes above applicable cleanup limits. Detections of lead and copper were found in the water at concentrations of 11 and 20 µg/L, respectively.

Ecology requests a monitoring well be placed at this location. However, considering the actual size of the potential source area and the results from the previous investigation, we do not consider the addition of a monitoring well at this location to be necessary. We propose that a single boring be advanced to groundwater on the east side of the existing shed for the collection of single soil and groundwater samples. The groundwater sample will be collected through a temporary screen. The soil and groundwater samples will be analyzed for diesel-range petroleum hydrocarbons, PCBs, and lead. Should diesel-range petroleum hydrocarbons be identified, we will submit the sample for cPAH analysis. As with AOC 2, we propose to collect soil pH values in the field during the drilling observations and field screening. If field screening suggests the presence of any target compounds or if laboratory results from an onsite mobile laboratory indicate the presence of target compounds the boring will be completed at a monitoring well. If field conditions and mobile laboratory results are not available and impacts are identified at this location a second mobilization and installation of a monitoring well may be necessary.

#### ***Area of Concern 6 – Hazardous Material Storage (Bunker)***

Area of Concern 6 formerly contained what appears to be a former covered outbuilding that was used to store hazardous materials. The concrete building foundations are all that remain at the location. During our investigation, we completed two test pits and borings on the east side of the concrete slab. The northern, southern, and western foundation walls were intact with the eastern side missing, presumably to allow access. Sampling was conducted on the east side, assuming any runoff would have infiltrated the ground at this location. Soil sampling completed at test pit TP6A detected both oil and PCBs at concentrations of 61,900 and 0.9 mg/kg, respectively. A deeper sample collected at four feet from this same test pit did not detect oil at concentrations exceeding the laboratory detection limits. Soil samples were analyzed for gasoline- and diesel-range hydrocarbons, metals, volatile organics, and PCBs. A groundwater sample was collected from boring B6 completed adjacent to TP6A. The groundwater results did not indicate any target analytes above laboratory detection limits. Groundwater samples were analyzed for gasoline- and diesel-range hydrocarbons, metals, and volatile organics. The groundwater sample was not analyzed for PCBs.

A second mobilization was completed to remove identified soil hot spots. While soil was being removed from test pit TP6A, a small sump was found in the floor of the concrete bunker. The sump contained a 55-gallon drum cut down to approximately three-quarters size. The drum was used presumably to collect runoff from the concrete slab. Using a backhoe, the excavation contractor removed the drum and approximately one and a half feet of stained “suspect” soil for disposal. Once field screening indicated the suspect impacted material had been removed, a confirmation soil sample was collected from both the sump area (TP6C) and the TP6A locations. The soil sample from TP6A was analyzed for diesel-range petroleum hydrocarbons, PCBs, and cPAHs. There were no detections from the TP6A confirmation sample. The soil sample from the sump area was analyzed for gasoline- and diesel-range hydrocarbons, metals, cPAHs,

PCBs, and volatile organics. The only target analytes detected above laboratory detection limits were copper and zinc, both well below applicable cleanup levels.

Ecology contends the soil boring completed at B6 is not at the same location as the material identified in TP6A. The boring was not completed in the excavation footprint of TP6A, but was completed between TP6A and TP6B which were 15 feet apart. We contend that the boring was as close as field conditions would allow. We do, however, propose that an additional groundwater sample be collected from the "sump" location at TP6C. We propose to field screen the observed soils and collect a groundwater sample from a temporary screen. The groundwater sample will be analyzed for gasoline- and diesel-range hydrocarbons, metals, PCBs, and volatile organics. Should diesel-range petroleum hydrocarbons be identified, we will submit the sample for cPAH analysis.

### ***Area of Concern 7 and 8 – Petroleum Storage and Car Crushing***

AOCs 7 and 8 were initially identified as areas with ongoing car-crushing activities and observed oil staining. Information provided by TCHD suggests soil sampling completed in the area identified that a release of petroleum hydrocarbons had occurred somewhere in the vicinity of AOCs 7 and 8. Our sampling in this area was limited to areas identified as potential locations for the car-crushing equipment areas where we observed distressed vegetation. Our initial investigation of the area identified potential metals contamination, and ultimately, a monitoring well was completed at the location of AOC 8. The well was installed and designed to assess metals contamination, as no other target analytes were identified at this location.

Ecology requests that additional soil and groundwater samples be collected from both AOC 7 and AOC 8. Considering the size of the AOCs as drawn, we concur. We propose that a series of three soil borings be completed as drawn on Figure 1. Two soil samples and a groundwater sample will be collected from each location. In addition to the three proposed borings, we propose that a series of four additional near-surface soil samples be collected using a hand auger. The depth of hand-auger drilling will be approximately three feet. Should the hand-auger samples from a particular location reveal target compounds exceeding applicable MTCA cleanup limits, a soil boring and or monitoring well will be completed at that location. Target compounds for these AOCs are gasoline- and diesel-range hydrocarbons and metals for both soil and groundwater. Should diesel-range petroleum hydrocarbons be identified, we will submit the sample for cPAH analysis.

### ***Area of Concern 9 – Car Crushing***

Area of Concern 9 was originally thought to be a site used for car-crushing activities. During our initial site walk, we thought evidence of these activities was readily observable. Our investigation was limited to one test pit and one soil boring at this location. Now additional information provided by TCHD records and Ecology files suggests that car-crushing activities may not have actually taken place at this location, but actually occurred further to the southwest. We have, therefore, adjusted the AOC to reflect this new information. Since there is still anecdotal evidence of car crushing at the original AOC 9 location, we have kept this site in the AOC. The AOC now contains two separate areas, which have been designated AOC 9A and AOC 9B.

Ecology requests that additional soil and groundwater samples be collected from this AOC. Considering the new size of AOC9 (A and B), and the numerous possible locations for the car crusher, we concur. We propose a series of four soil borings be completed as drawn on Figure 1, with at least one of the borings from AOC 9A being completed as a monitoring well. Two soil samples and a groundwater sample will be collected from each location. In addition to the four

proposed borings, we propose that a series of four additional near-surface soil samples be collected using a hand auger. Should the hand-auger samples from a particular location reveal target compounds exceeding applicable cleanup limits, a soil boring or monitoring well will be completed at that location. Target compounds for this AOC are gasoline- and diesel-range hydrocarbons and metals for both soil and groundwater. Should diesel-range petroleum hydrocarbons be identified, we will submit the sample for cPAH analysis. The monitoring well will provide an additional monitoring point for the site-specific TEE investigation discussed below.

### ***Terrestrial Ecological Evaluation – Data Considerations***

MTCA requires that a Terrestrial Ecological Evaluation (TEE) be conducted at the site to evaluate the potential for contaminant exposure and risk associated with terrestrial wildlife and avian (bird) receptors. Based on our understanding of the site, we believe that a site-specific TEE will be required to satisfy Ecology's requirements due to the fact that each of the 9 AOCs are independent, and some of these areas represent a higher potential for toxicity or risk than others. The supplemental data collection proposed in this work plan has focused on the types of environmental data we will need to complete a site-specific TEE. We will address the AOCs discussed in this work plan with more emphasis on areas of specific concern to ecological receptors. The southernmost portion of the property supports higher quality habitat, including a mapped intermittent stream, a small pond, a wetland area and associated wetland buffer, and a wooded area. Other portions of the site also support some high-quality ecological habitat.

The site-specific TEE will emphasize potential ecological exposure pathways occurring in the upper few inches of stream/wetland sediment and terrestrial soils. Thus we recommend that four stream and four wetland sediment samples (total of eight) be collected in the southern portion of the site using a hand-held (Ponar or Ekman) dredge which will sample the upper six inches or so of sediments. Specific locations will be shown on sampling maps in the final work plan. The streams and wetland area is the site of greatest potential ecological concern.

Regarding chemicals of concern, we recommend that long-lived persistent contaminants such as PAHs, TPH, and metals be emphasized rather than less persistent chemicals (e.g., VOCs or glycols), which are less likely to cause exposure and potential hazard to receptors.

When key indicator chemicals are found on site, we will characterize the specific areas where they are found in a more detailed manner to understand nature and extent of contamination and the potential for ecological exposures to occur. Findings and conclusions from the site-specific TEE will be valuable in identifying whether any further investigation or follow up will be required, or whether the site had been adequately characterized and/or remediated.

### **Task 3: Meeting and Report**

Upon completion of the site characterization, we recommend a project status meeting (potentially including Ecology) for the purpose of presenting our findings and recommendations toward a path forward. Following this meeting, we will provide a technical report detailing findings and conclusions from the data collected (as specified in this work plan) and planned future work (if necessary).

### **Task 4: VCP Support and EIM Submission**

Following the completion of each round of data gathering, we will provide guidance for data submissions within VCP including uploading all collected data to Ecology's Electronic Information Management system (EIM). As part of VCP, Ecology requires that all data collected on

site be submitted via their EIM portal prior to issuance of any closure determination. It is our recommendation to enter all data into EIM as it is collected, from this point forward. This will help prevent any lengthy delays or fees.

*The statements, conclusions, and recommendations provided in this report are to be exclusively used within the context of this document. They are based upon generally accepted hydrogeologic and environmental practices and are the result of analysis by Robinson Noble, Inc. staff. This report, and any attachments to it, is for the exclusive use of the Havens Estate. Unless specifically stated in the document, no warranty, expressed or implied, is made.*



