

AGREEMENT FOR ENVIRONMENTAL MONITORING AND FOCUSED SITE
INVESTIGATION ACTIVITIES OF NEWBERG LANDFILL
(Yamhill County and Hahn and Associates Inc.)

THIS AGREEMENT, effective the last date set forth adjacent to the signatures of the parties below, is between Yamhill County, a political subdivision of the State of Oregon, acting through its Planning Department and Board of Commissioners (herein, "County") and Hahn and Associates Inc., 434 NW 6th Ave., Suite 203, Portland, OR 97209, doing business as a corporation (herein, "Consultant") for Environmental Monitoring and Focused Site Investigation and Activities at Newberg Landfill (referred to in this Agreement as the "Project").

STATEMENT OF PURPOSE AND IDENTIFICATION OF CONTRACT DOCUMENTS

This Agreement is made to specify the obligations of County and Consultant for completion of the Project. In consideration of the covenants contained below, County and Consultant hereby agree as follows:

1. **Scope of work.** The Project is described in the attached June 5, 2015 "Proposal and Cost Estimate for Environmental Monitoring and Focused Site Investigation Activities, Newberg Landfill, Newberg, Oregon." The Proposal outlines five environmental monitoring tasks, and seven focused site evaluation tasks to be performed by Consultant during the years 2015, 2016 and 2017. Unless extended by written agreement between the parties, this agreement will expire at the close of county business on December 31, 2017.
2. **Compensation.** As set forth in Section 3.0 of the attached Proposal, the total estimated cost of environmental monitoring for the three-year period of this agreement is \$22,000, and the total estimated cost for the focused site investigation and risk assessment is \$71,900. The services will be billed on a time and materials basis according to the attached Schedule of Fees, but will not exceed the estimated costs listed herein without written agreement, signed by both parties.
3. **Independent Contractor.** Consultant is an independent contractor. Consultant will furnish all of the materials, supplies, tools, equipment, labor, and other services necessary to provide the services described in the attached Proposal.
4. **Termination.** County may terminate this Agreement if the Consultant fails to comply with a material term of this Agreement. If this Agreement is terminated, the County will pay for all work accepted by the Project Supervisor prior to termination.
5. **Compliance with Law.** Consultant shall comply with all requirements of any applicable federal, national, state or local law, rule or regulation. Consultant represents that it has all licenses and other authorizations required to enable it to perform the tasks outlined in the attached Proposal.
6. **Professional Responsibility.** (a) Consultant agrees to provide, in connection with performance of all services under this Agreement, the standards of care, skill and diligence

Environmental Monitoring and Focused Site Investigation Activities- Newberg Landfill

normally provide by competent professionals in the performance of services similar to those contemplated by this Agreement; and (b) Consultant represents that it has no conflicts of interest in rendering professional services to the County.

7. Incorporation of statutory provisions required for public contracts. Consultant shall comply with all applicable Public Contract Laws which may include, but are not limited to, ORS 279B.200 through 279B.240 and ORS 279C.500 through 279C.530. These Public Contract Laws are incorporated into this Agreement by reference.

8. Workers' Compensation. Consultants, its subcontractors, if any, and all employers working under this agreement are subject employers under the Oregon Workers' Compensation Law and shall comply with ORS 656.017, which requires them to provide workers' compensation coverage for all their subject workers.

9. Work Made for Hire. Services rendered by Consultant under this agreement are "work made for hire" by an independent contractor. Ownership to works covered by a copyright and all products and data produced by Consultant under this Agreement are the sole and exclusive property of the County. If for any reason the work would not be considered a work made for hire under applicable law, Consultant does hereby sell, assign, and transfer to the County the entire right, title and interest in and to the copyright in the work and any registrations and copyright applications relating thereto and any renewals and extensions thereof, and in and to all works based upon such work.

10. Status of the Project Supervisor. Mike Brandt, Yamhill County Planning Director, is the Project Supervisor (the "Supervisor"). The Supervisor or his designee shall perform technical inspections of work and shall have authority to stop the work whenever such stoppage shall be necessary to insure proper execution of the contract. The Supervisor or his designee may reject all work and materials that do not conform to the contract and shall decide questions that arise in the execution of the work. The Supervisor has authority to reject or accept the work.

11. Prohibition of Discrimination. In hiring employees for performance of work under this contract, no contractor, subcontractor or any person acting on their behalf shall, by reason of race, religion, age, color, creed, physical handicap, sex or sexual orientation, discriminate against a person who is qualified and available to perform work to which employment relates.

12. Indemnification. The Consultant shall indemnify, defend and save harmless County from and against any suits, actions, legal or administrative proceedings, demands, claims, liabilities, fines, penalties, losses, injuries, damages, expenses or costs, including interest and attorney fees, in any way connected with any injury to any person or damage to any property occasioned in any way by Consultant's or Consultant's subcontractors' prosecution of work under this agreement.

13. Nonwaiver. No waiver of any breach of this contract shall be held to be a waiver of any other or subsequent breach. All remedies afforded in this contract shall be taken and construed as cumulative, that is, in addition to every other remedy provided therein or by law. The failure of County to enforce at any time any of the terms of this contract, or to exercise any option

which is provided, or to require at any time performance by Consultant of any of the provisions, shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of any part of this contract, or the right of County to thereafter enforce each and every provision.

14. Severability. Should any clause or section of this Contract be declared by a court of competent jurisdiction to be void or voidable, the remainder of this Contract shall remain in full force and effect.

15. Dispute resolution through mediation and arbitration. Any dispute between the parties to this Agreement shall be resolved according to the following process:

(a) The parties first shall submit to mediation of the dispute to be conducted by a mutually acceptable mediator. If the parties cannot agree on a mediator, they shall request a mediator to be appointed by the U.S. Mediation and Arbitration service in Portland, Oregon. The mediator's charges and expenses shall be borne equally by the parties. All other expenses, including attorney fees and costs, shall be borne exclusively by the party requiring the service or for which payment is to be made.

(b) If the dispute is not resolved in mediation, the parties shall then submit the dispute to binding arbitration. Arbitration shall be conducted in accordance with the rules set forth in the Oregon International Commercial Arbitration and Conciliation Act, ORS 36.450 to 36.558, 2007 replacement part. The decision of the arbitrator shall be final and binding on the parties. The party that does not prevail, as determined by the arbitrator, shall pay the arbitrator's fees and expenses in arbitration. All other expenses, including attorney fees and costs, shall be borne exclusively by the party requiring the service or for which payment is to be made.

16. Attorney fees and costs. In the event that either party to this Agreement shall take any action, judicial or otherwise, to enforce or interpret any of the terms of this contract, each party shall be wholly responsible for its own expenses which it may incur in taking such action, including costs and attorney fees, whether incurred in a suit or action or appeal from a judgment or decree therein or in connection with any non-judicial action.

17. Applicable laws. This Agreement is executed in the State of Oregon and is subject to Oregon law and jurisdiction in Yamhill County.

18. Subcontractors. The Consultant may not engage any subcontractor(s) to perform work under this Agreement without the express written consent of the County. If the County does grant consent, the Consultant covenants and agrees to bind any and all Subcontractor(s) for performance of work under this Agreement. Any reference to Consultant shall include any and all Subcontractor(s) ad infinitum.

19. Written changes required. The rights and duties under this Contract shall not be modified, delegated, transferred, or assigned, except upon written signed consent of both parties.

20. Successors bound. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

THIS AGREEMENT AND THE ATTACHED PROPOSAL CONSTITUTE THE ENTIRE AGREEMENT BETWEEN THE PARTIES. NO WAIVER, CONSENT, MODIFICATION OR CHANGE IN TERMS OF THIS CONTRACT SHALL BIND EITHER PARTY UNLESS IN WRITING AND SIGNED BY BOTH PARTIES. SUCH WAIVER, CONSENT, MODIFICATION OR CHANGE, IF MADE, SHALL BE EFFECTIVE ONLY FOR THE SPECIFIC INSTANCE AND FOR THE SPECIFIC PURPOSE GIVEN. THERE ARE NO UNDERSTANDINGS, AGREEMENTS OR REPRESENTATIONS, ORAL OR WRITTEN NOT SPECIFIED HEREIN REGARDING THIS CONTRACT. THE CONSULTANT, BY SIGNATURE OF ITS AUTHORIZED REPRESENTATIVE, HEREBY ACKNOWLEDGES THAT IT HAS READ THIS CONTRACT, UNDERSTANDS IT, AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed on the date indicated by their duly authorized officials, this Agreement singularly or in duplicate and if in duplicate, each of which shall be deemed an original on the date executed by all parties.

HAHN AND ASSOCIATES INC.

YAMHILL COUNTY, OREGON

By: Gary W. Hahn
(signature)

Allen Springer
ALLEN SPRINGER, Chair

Date: August 4, 2015

Date: 8-4-15

GARY W. HAHN
Printed name)

Mike Brandt
MIKE BRANDT

Title: President

Yamhill County Planning Director
Date: 8/19/15

Fed. Tax I.D. No: 93-0942954

FORM APPROVED BY:

Contractor
Registration No: 71414

By: T. Sadlo
TIMOTHY S. SADLO

Senior Assistant County Counsel

Accepted by Yamhill County
Board of Commissioners on
8.16.15 by Board Order
15-324

HAHN AND ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS

June 6, 2015

Sherrie Mathison
Yamhill County Department of Planning & Development
Solid Waste Department
401 NE Evans Street
McMinnville, Oregon 97128

HAI File No. 8798

**SUBJECT: Proposal and Cost Estimate for Environmental Monitoring and
Focused Site Investigation Activities, Newberg Landfill, Newberg,
Oregon**

Dear Ms. Mathison:

1.0 Introduction

At the request of the Yamhill County Department of Planning & Development, Hahn and Associates, Inc. (HAI) has prepared this proposal and cost estimate to provide environmental monitoring activities and a focused site investigation at the Newberg Solid Waste Landfill, located in Newberg, Oregon.

As background, the following information as obtained from the Department of Environmental Quality (DEQ) *Permit Evaluation Report*, dated November 14, 2014 is provided.

The Newberg Landfill is owned by Yamhill County and borders the Willamette River and Chehalem Creek and is adjacent to rural residential and agricultural land at the southern end of the City of Newberg. The landfill occupies about 30 acres of the County's 40 acre property and was operated as a privately-owned municipal solid waste disposal site from approximately 1965 to 1984. Yamhill County assumed ownership of the site as a donation in 1985, upon which the DEQ issued a closure permit for the site on February 7, 1985. During the landfill's active phase the operators accepted domestic and industrial wastes and used boiler ash and clarifier sludge from a nearby paper mill for cover material over the mixed waste materials. Like most landfills of that era, Newberg Landfill did not have modern engineering controls such as a bottom liner or a leachate collection system. After closure in 1985-1986, the landfill was capped with low to moderate permeability soil material. Six groundwater monitoring wells were installed at the landfill in 1979 and groundwater quality monitoring has been conducted since that time. Two of the original six wells, W-2D and W-3D remain functional and a fairly complete set of historical data is available for only those two wells. Background monitoring wells were never installed at this site because site conditions preclude their construction. In addition, the landfill has seven gas monitoring probes located at the site perimeter.

The City of Newberg and Yamhill County have considered developing park amenities on the landfill property including a public access trail and other features. The proposed trail would run east-west connecting dead end legs of the existing Willamette Greenway trail system. Yamhill County established a task force to evaluate the landfill reuse options. This group met for several years but disbanded. The Oregon Department of Transportation

(ODOT) is currently involved in constructing the first phase of the Newberg-Dundee Bypass project. Construction of the bypass will impact the northwest corner of the landfill property and has resulted in the decommissioning of the on-site water supply well. The bypass construction will not encroach on the landfill footprint itself.

In accordance with the Solid Waste Disposal Site Closure Permit (SWDP) (No. 97), Yamhill County is required to perform environmental monitoring to verify that no landfill-related harm to human health or the environment occurs.

In addition to environmental monitoring, Section 10.0 of the permit requires the county to conduct a focused site investigation to determine the landfill's environmental effects on groundwater, surface water, and sediment in Chehalem Creek and nearby wetlands. The work plan for the required focused site investigation was jointly prepared by Mathlot and Associates, LLC. (M&A) and Evren Northwest, Inc. (Evren) in March 2015¹.

2.0 Scope of Work

The scoping for the environmental monitoring and focused site investigation activities is based on information provided by Yamhill County and monitoring and reporting requirements of the Newberg Landfill Solid Waste Disposal Site Closure Permit, issued February 20, 2015. It is understood the necessary work activities will include environmental monitoring (Section 2.1) related tasks over a three year period (2015-2017). Also, work activities will include focused site investigation tasks (Section 2.2) as described in the 2015 work plan (M&A 2015).

2.1 Environmental Monitoring

As described in the SWDP, the county is required to update the Newberg Landfill Environmental Monitoring Plan (EMP) for DEQ approval by February 28, 2016 (see section 2.1.5). Environmental monitoring activities prior to February 28, 2016 will be conducted in accordance with the current EMP titled "Environmental Monitoring Plan, Newberg Landfill, Newberg, Oregon", dated February 26, 1997² and in accordance with the Newberg Landfill SWDP (No. 97). Sampling activities prior to February 28, 2016 will be conducted as per the *Sampling and Analysis Plan (SAP), Newberg Landfill, Newberg, Oregon*, dated October 14, 1996³.

Environmental monitoring activities at the Newberg Landfill involve the following tasks: 1) groundwater monitoring; 2) seep and surface water inspections and sampling; 3) landfill gas monitoring; 4) reporting; and 5) EMP preparation.

2.1.1 Task 1 - Groundwater Monitoring

Six groundwater monitoring wells were installed at the landfill in 1979 and groundwater quality monitoring has been conducted since that time. Two of the original six wells, W-2D and W-3D remain functional and a fairly complete set of historical data is available for only those two wells. The remaining four monitoring wells were consistently considered dry or

¹ Mathlot and Associates, LLC (M&A, LLC) and EVREN Northwest, Inc. (2015). *Work Plan, Focused Site Investigation, Closed Newberg Landfill, 1820 S Waterfront Street, Newberg, Oregon*. March 30, 2015.

² EMCON (1997). *Environmental Monitoring Plan, Newberg Landfill, Newberg, Oregon*. February 26, 1997.

³ EMCON (1996). *Sampling and Analysis Plan, Newberg Landfill, Newberg, Oregon*. October 14, 1996.

damaged. Background monitoring wells were never installed at this site because site conditions preclude their construction. Groundwater monitoring is conducted every five years at the Newberg Landfill and was last completed during July 2014. Therefore, no groundwater sampling is anticipated during the 2016 to 2017 contract period and related costs are not included in this proposal.

2.1.2 Task 2 - Seep Inspections and Sampling

Historically leachate seeps have been observed at a number of locations at the landfill, most notably along the southwest facing slope near the site's southwest boundary and at the landfill's eastern boundary near the wetland/pond feature. Yamhill County monitors leachate seeps at two locations if sufficient flow is present (at L-1 near east pond and L-2 near the toe of the east slope) and conducts surface water monitoring annually at the following locations: SW-1 (the wetland / pond); SW-2 (Chehalem Creek); SW- 5 (stormwater drainage from east side of landfill); and SW-6 (stormwater drainage from west side of landfill).

According to the November 14, 2014 DEQ Permit Evaluation, water quality in Chehalem Creek has been fairly constant over time and does not appear to be impacted by landfill contaminants. At monitoring station SW-1 most indicator parameters have higher concentrations than at Chehalem Creek and some parameters show slight increasing trends including conductivity, hardness, total alkalinity, bicarbonate alkalinity, calcium, magnesium, iron, and potassium (DEQ 2014).

Seep and surface water inspections (monthly) and sampling (annually if sufficient flow) have historically been, and it is understood will continue to be, conducted by Yamhill County during the 2016 to 2017 contract period. As such, costs for these activities are not included in this proposal.

2.1.3 Task 3 - Landfill Gas Monitoring

As stated in Section 14.0 of the permit, the County is required to monitor the seven gas monitoring probes at the site which include deep, intermediate, and shallow screened intervals to address the variability of site topography and hydrogeologic characteristics. Elevated methane has consistently been detected in shallow probe GP-3 located near the southwest corner of the landfill site, however no structures or confined spaces are located near GP-3 (DEQ 2014). Landfill gas monitoring will occur on a semi-annual basis during the 2016 to 2017 contract period as required by the permit. All landfill gas monitoring activities will be performed in accordance with the current and future EMP and consistent with previous methods.

2.1.4 Task 4 - Reporting

Prior to September 15 of each year, HAI on behalf of Yamhill County, will submit an annual environmental monitoring report (AEMR) for the previous calendar year's monitoring period. The report will conform to the format detailed in the DEQ-approved EMP and be prepared and stamped by a Registered Geologist or a Certified Engineering Geologist, with current Oregon registration.

The report will be prepared such that a draft will be available for review by Yamhill County prior to DEQ submittal. The Annual Environmental Monitoring Report (AEMR) will contain a description of the work activities and a tabular summary of the analytical results. The

appendix of each report will include copies of field data sheets. The AEMR will be prepared in accordance with the SWDP for the Newberg Landfill.

2.1.5 Task 5 – Environmental Monitoring Plan Preparation

According to Section 12.0 of the SWDP, DEQ is requiring Yamhill County to update the Newberg Landfill EMP, to ensure the environmental monitoring program will adequately characterize potential facility impacts. During the 2016 environmental monitoring period, HAI, on behalf of Yamhill County, will prepare an updated EMP to include the following contents:

- Evaluation and recommendation for improvements to the monitoring network design and construction for groundwater, surface water and landfill gas;
- A sampling and analysis plan;
- Methodology to assess ecological risk associated with seeps and impacted groundwater;
- Field QA/QC procedures;
- Lab QA/QC procedures;
- Data analysis and evaluation.

HAI will also propose, for DEQ's review and approval, groundwater concentration limits that are protective of the environment. HAI on behalf of Yamhill County will submit the updated EMP to DEQ for approval by Feb. 28, 2016. The updated EMP will include the results of the focused site investigation (see section 2.2) required in Section 10.0 of the permit.

A summary of costs related to the above-described environmental monitoring activities is presented in Section 3. Costs for 2016 and 2017 assume that monitoring activities under the new EMP (to be developed in 2016) will be similar in scope to that of the current EMP.

2.2 Focused Site Investigation

As stated in Section 10 of the SWDP, HAI on behalf of Yamhill County will implement a focused site investigation to assess the effects of the landfill leachate from the landfill and landfill gas on the surrounding environment including site groundwater quality and surface water quality, pore water quality, and sediment quality of Chehalam Creek and nearby wetlands. All focused site investigation activities will be performed in accordance with the DEQ-approved work plan (DEQ approved May 20, 2015) titled "*Work Plan, Focused Site Investigation, Closed Newberg Landfill, 1820 S Waterfront Street, Newberg, Oregon*", dated March 30, 2015⁴.

As specified in the referenced work plan, focused site investigation activities at the Newberg Landfill involve the following tasks: 1) beneficial use update; 2) historical groundwater quality review; 3) landfill facilities inspection; 4) surface water, sediment, and pore water sampling; 5) laboratory testing; 6) preliminary risk assessment; and 7) reporting.

⁴ Mathlot and Associates, LLC (M&A, LLC) and EVREN Northwest, Inc. (2015). *Work Plan, Focused Site Investigation, Closed Newberg Landfill, 1820 S Waterfront Street, Newberg, Oregon*. March 30, 2015.

2.2.1 Task 1 - Beneficial Use Update

The beneficial use of groundwater in the area was evaluated by M&A in 2011 and the findings were discussed in the 2011 Hydrogeologic Conceptual Model Report. During the focused site investigation HAI will research the Oregon Water Resource Department (OWRD) water and well right data bases to determine if new water wells have been completed within one quarter mile of the landfill since 2011, and to establish the number of surface water right points of appropriation (if any) located within one quarter mile of the landfill. Additional tasks that will be completed as part of the updated beneficial use are:

- More detailed information concerning the number, production rates, and water quality history of the City of Newberg municipal water supply wells located across the Willamette River from the landfill will be obtained and compiled;
- A door-to-door survey will be conducted to establish the number, locations, and status, of water supply wells located on properties adjacent to the landfill.

2.2.2 Task 2 - Historical Groundwater Quality Review

In accordance with the focused site investigation work plan (M&A 2015), HAI will conduct a historical groundwater quality review for the landfill in order to assess landfill leachate and landfill gas impacts on groundwater. Groundwater quality data tables, time-series plots, and various geotechnical plots will be prepared and evaluated. In addition, a statistical evaluation of select groundwater quality parameters will be performed to determine if trends or patterns in groundwater quality can be identified.

2.2.3 Task 3 - Landfill Facilities Inspection

As specified in the work plan (M&A 2015), a thorough ground-based, visual inspection of the landfill soil cover and storm water management system (berms, dikes, ditches, bio-swales, and discharge points) will be conducted. The current condition of these features will be observed and documented, and critical or problematic features will be clearly marked and their location coordinates determined and recorded. Features to be marked include:

- areas of extensive soil erosion;
- areas of soil saturation or water/leachate seepage;
- areas with evidence of landfill gas venting;
- anomalous surface depressions or mounds;
- axes of berms, dikes, and ditches;
- points of storm water discharge to surface waters.

HAI proposes a site visit to investigate for the above-described features. It is anticipated that County personnel will survey the horizontal coordinates and elevations of these features, and that the survey data will be used to determine if modifications to the soil cover or stormwater management system are appropriate.

An inspection of monitoring wells and landfill gas probes will be conducted during the focused site investigation. The physical condition, functionality, location, and accessibility of each of the four existing and two decommissioned groundwater monitoring wells and the seven landfill gas probes will be observed and documented. Documentation will include taking and recording detailed measurements, and photographing each well and probe. A

written summary of the findings. Along with detailed recommendations for the repair, abandonment, or replacement of any damaged or dysfunctional well or probe will be provided.

2.2.4 Task 4 – Surface Water, Sediment, and Pore-water Sampling

Surface water, sediment, and pore-water sampling will be performed as part of the focused site investigation. The sampling will be performed to assess the potential effect of landfill leachate and landfill gas on surface water, sediment, and pore-water in the vicinity of the landfill. Collocated surface water, sediment, and pore-water samples are proposed at six locations, three in Chehalem Creek and three in the pond northeast of the landfill. A set of samples will consist of one surface water, one sediment, (0-1 foot depth) and one pore-water sample. All locations will be as per the DEQ-approved *M&A, LLC and EVREN Northwest Focused Site Investigation Work Plan (Mathlot 2015)*, as follows:

- One set of samples at each of the two locations (COSAM1 at SW-1 and COSAM2 at SW-2) routinely used for the collection of historical surface water quality samples;
- Two sets of samples (COSAM3 and COSAM4) along the west edge of the pond/welland located at the northeast end of the landfill;
- One set of samples (COSAM5) from Chehalem Creek at the southwest edge of the Filbert orchard property located southwest and upstream of the landfill;
- One set of samples (COSAM6) from Chehalem Creek along the south edge of the landfill near W-3.

2.2.5 Task 5 - Laboratory Testing

All surface water, sediment, and pore-water samples will be submitted under chain-of-custody (COC) to Apex Laboratories, LLC, an Oregon-accredited laboratory based in Tigard, Oregon. Laboratory testing will be performed using standard EPA quality assurance/quality control (QA/QC) procedures.

Selections of analytical testing on samples will be based on parameters identified in the Site Investigation Work Plan and the Sampling and Analysis Plan (M&A 2015).

Costs for analytical testing will be directly billed to Yamhill County, however pricing for the analytical testing is included as a reference.

As specified in the project work plan, it is anticipated that 6 sediment, surface water, and pore-water samples will be collected for analytical testing with one duplicate sample collected from each media for laboratory testing. In addition, one equipment blank sample will be collected for laboratory analysis. The analytical parameters for laboratory testing are summarized below.

- **Six Sediment samples:** Volatile organic compounds (VOCs) by EPA Method 8260B, semi volatile organic compounds (SVOCs) including phenols by EPA Method 8270, amenable cyanide by EPA Method 9010, and 23 total metals by EPA Method 6000/7000 series (plus 1 duplicate sample).
- **Six Surface water samples:** VOCs by EPA Method 8260B, SVOCs including phenols by EPA Method 8270, weak acid dissociable (WAD) cyanide by EPA Method 9010, 23 dissolved metals by EPA Method 6000/7000 series, leachate

Indicator parameters, common anions and cations, and surface water and leachate parameters (plus 1 duplicate sample).

- *Six Pore-water samples:* VOCs by EPA Method 8260B, SVOCs including phenols by EPA Method 8270, weak acid dissociable (WAD) cyanide by EPA Method 8010, 23 total metals by EPA Method 6000/7000 series, leachate Indicator parameters, and common anions and cations (plus 1 duplicate sample).
- *Equipment blank sample:* Polyaromatic hydrocarbons (PAHs) by EPA Method 8270, VOCs by EPA 8260B, and total metals by EPA Method 6000/7000 series

2.2.6 Task 6 Preliminary Risk Assessment

As part of the focused site investigation, a preliminary human health and ecological risk assessment (ERA) will be performed. HAI proposes to team with GeoEngineers, Inc., a firm that has the experience and ecological risk evaluation expertise necessary for completion of this task. Landfill-related chemicals of interest (COIs) will be identified from among the comprehensive suite of chemical constituents detected through analysis in various media sampled at the site. Existing (historical) and new groundwater quality, surface water, sediment, and pore water data sets will be utilized.

2.2.6.1 Human Health Risk Assessment

With regard to human health, a conceptual site model will be developed to describe migration pathways and exposure scenarios through which exposure to contaminants of potential concern could occur. Two different DEQ programs address human health risk at cleanup sites: 1) the Underground Storage Tank (UST) program, which oversees releases of petroleum products from USTs and provides risk-based concentrations (RBCs) that are protective of human health under a number of exposure conditions [DEQ, 1999 Risk Based Decision Making (RBDM)]; and 2) the cleanup program, which oversees the cleanup of hazardous substance releases, has guidance documents which specifically address deterministic human health risk assessment and ecological risk assessment and utilizes Environmental Protection Agency (EPA) Region 9 Screening Levels (RSLs), which are also protective of human health, in the screening step of deterministic human health risk assessments.

The equations and exposure factors used in the RBDM document are generally consistent with those discussed in "Human Health Risk Assessment Guidance" (DEQ 2010). This document was developed for risk assessments being carried out under the DEQ Hazardous Substance Action Rules (OAR 340-122-0010 through 340-122-0115) and includes more exposure routes than are typical for sites limited to releases of petroleum-related constituents. The equations in the deterministic risk assessment guidance are written in a format that calculates average daily doses, whereas the equations included in the RBDM guidance document are rearranged to RBCs that are protective of human health. As long as the constituents of potential concern are petroleum-related, the RBDM guidance may be applicable at the Newberg Landfill. However, should constituents be identified that are not petroleum-related, then Oregon's deterministic risk assessment guidance and other related EPA documents will need to be used to evaluate risk on a site specific basis. The human health evaluation will be composed of four distinct elements:

1. Data evaluation and identification of constituents of potential concern (COPCs);
2. Exposure assessment;
3. Toxicity assessment;
4. Risk characterization.

Risk levels will be calculated for each COPC individually and cumulatively under each exposure pathway/receptor scenario, including overall risk for cases where a receptor has potential to be exposed via multiple pathways simultaneously.

2.2.6.2 Ecological Risk Assessment (Combined Level I and Level II)

A baseline Risk Assessment will be conducted for the Site to determine potential ecological and human health risks from exposure to hazardous substances present in environmental media at the Site. The Level I and II ERAs will focus on the groundwater, sediment and porewater quality of Chehalis Creek and nearby wetlands, adjacent to the closed Newberg Landfill. The Level I Scoping ERA will be completed in accordance with the DEQ's Guidance for Ecological Risk Assessment, Level I – Scoping (DEQ, 1998) and will consist of a conservative qualitative determination of whether there is any reason to believe that ecological receptors and/or exposure pathways are present or potentially present at or in the locality of facility (LOF). The Level I Scoping ERA will include: 1) research U.S. Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW) and Oregon Natural Heritage Program (ONHP) databases for threatened and endangered species in the site vicinity; 2) conduct a site visit to observe potential habitat and species; and 3) complete the Level I Scoping ERA Checklist.

The Level II Screening ERA will be conducted in accordance with updated DEQ guidance for Level II (DEQ, 2001) and will include the following primary tasks:

- Identification of candidate ecological assessment endpoints;
- Identification of appropriate screening criteria [DEQ screening level values (SLVs) or others];
- Screening and identification of contaminants of potential ecological concern (CPEC);
- Identify areas of the LOF where CPECs are detected and whether active exposure pathways are present; and
- Make an initial evaluation of the potential for site-related risk through comparison of contaminant concentrations to appropriate SLVs.

When completing the Level II screening, the 90 percent upper confidence limit (UCL) of the arithmetic mean will be used, if sufficient data are available, as the exposure point concentration (EPC) for terrestrial wildlife, fish and other identified aquatic species. The maximum concentration will serve as the EPC for plants and sessile benthic invertebrates. In cases where no SLVs are available for a particular exposure assessment endpoint and contaminant, the contaminant will be retained in a separate category for assessment of whether contaminant-specific toxicity information should be obtained and used to derive an SLV.

2.2.7 Task 7 -- Reporting

Upon completion of identified activities and receipt of final analytical results, a report will be prepared summarizing the focused site investigation tasks. The site investigation report will include documentation of field activities, analytical results, and conclusions. The report will be prepared in accordance with Section 5.0 of the Focused Site Investigation Work Plan. A Registered Geologist with current Oregon registration will oversee report production and stamp the report.

3.0 Estimated Costs

The estimated costs for environmental monitoring and site investigation activities as detailed in this proposal are itemized below. The services will be billed on a time and materials basis according to the attached Schedule of Fees, but will not exceed the estimated costs listed below without prior approval of the Client.

3.1 Environmental Monitoring (2015 - 2017)

A summary of costs related to the above-described environmental monitoring activities is presented in Section 3. Costs for 2016 and 2017 assume that monitoring activities under the new EMP (to be developed in 2016) will be similar in scope to that of the current EMP.

2015 Environmental Monitoring

<u>Activity</u>	<u>Estimated Costs</u>
Task 1 - Groundwater Monitoring.....	NA
Task 2 - Seep and Surface Water Inspections and Sampling.....	NA
Task 3 - Semi-Annual Landfill Gas Monitoring.....	\$3,400
Task 4 - Annual Reporting.....	\$2,000
Total Estimated Costs (2015)	\$5,400

2016 Environmental Monitoring and EMP Preparation

<u>Activity</u>	<u>Estimated Costs</u>
Task 1 - Groundwater Monitoring.....	NA
Task 2 - Seep and Surface Water Inspections and Sampling.....	NA
Task 3 - Semi-Annual Landfill Gas Monitoring	\$3,400
Task 4 - Annual Reporting.....	\$2,000
Task 5 - Environmental Monitoring Plan Preparation.....	\$5,800
Total Estimated Costs (2016)	\$11,200

2017 Environmental Monitoring

<u>Activity</u>	<u>Estimated Costs</u>
Task 1 - Groundwater Monitoring.....	NA
Task 2 - Seep and Surface Water Inspections and Sampling.....	NA
Task 3 - Semi-Annual Landfill Gas Monitoring.....	\$3,400
Task 4 - Annual Reporting.....	\$2,000
Total Estimated Costs (2017)	\$5,400

The total estimated cost for environmental monitoring activities (3 years) is \$22,000.

3.2. Focused Site Investigation Costs

<u>Activity</u>	<u>Estimated Costs</u>
Task 1 – Beneficial Use Update.....	\$2,500
Task 2 – Historical Groundwater Quality Review.....	\$1,800
Task 3 – Landfill Facilities Inspection.....	\$1,600
Task 4 – Surface Water, Sed., and Pore-Water Sampling.....	\$9,000
Task 5 – Laboratory Testing.....	\$25,300
(Billed directly to Yamhill County by Apex Laboratories)	
Task 6 – Preliminary Risk Assessment.....	\$22,700
Human Health Risk Assessment.....	\$9,300
Ecological Risk Assessment.....	\$13,400
Task 7 – Reporting.....	\$9,000

The total estimated cost for the focused site investigation and risk assessment is \$71,900.

4.0 Project Team and Relevant Experience

HAI is a Portland-based firm with approximately 85% of its projects performed in the state of Oregon. HAI employs a total of 13 individuals, of whom three have been selected, based on their expertise, to team together such that the needs of Yamhill County will be satisfied. The proposed HAI team will consist of the following personnel: 1) Mr. Rob Ede, R.G., Vice President; 2) Mr. Ben Uhl, R.G., Field Manager; and 3) Ms. Jane-Claire Kerlin, R.G., Project Manager.

The expertise of the HAI team is very well suited to meet Yamhill County's needs and covers in-depth all of the services required at the Newberg Solid Waste Landfill. As identified in the personnel summaries below, HAI team members have been involved with the Whiteson Landfill monitoring program (similar to the Newberg Landfill) and/or a number of projects that are similar in scope as that described for the Newberg Landfill.

Over the past fifteen years, HAI has demonstrated that our experience and capabilities are a good match for Yamhill County's environmental monitoring and reporting needs with regard to the Whiteson Landfill and would like to have the opportunity to display our skills with regard to the Newberg Landfill environmental monitoring and focused site investigation.

Since acquiring management of groundwater monitoring activities at the Whiteson Landfill in 1999, HAI has demonstrated efficient completion of all aspects of the environmental monitoring program. Since HAI has been involved with the landfill monitoring program, all HAI-prepared reports have been approved by the Oregon Department of Environmental Quality (DEQ) without the need for revision. In addition to groundwater sampling and reporting, HAI has also prepared the most current DEQ-approved Environmental Monitoring Plan (EMP) for the Whiteson Landfill, dated September 26, 2013. All work at the Newberg Landfill will be conducted under the supervision of an Oregon Registered Geologist (R.G.).

Mr. Robert B. Ede, R.G., Principal (M.S. Earth Resource Management),

is an Oregon-Registered Professional Geologist with 24 years of experience in the fields of geology and hydrogeology. Rob is responsible for a wide range of projects, including soil and groundwater investigations, Remedial Investigations (RIs), and regulatory site closure reporting for a variety of commercial, industrial, and Brownfield properties. Rob has been lead on the Whiteson landfill monitoring project for HAI since 1999, and since that time has been involved with all aspects of the Whiteson landfill monitoring project, including field sampling, regulatory interface, report preparation, quality assurance, and overall project management (client interface, scheduling, budget tracking, and invoice review). For the 2015 through 2017 contract period, Rob would serve as the primary point-of-contact, and would be overall technical lead for the Newberg Landfill site.

Mr. Ben Uhl, R.G., Field Manager, (B.S. Geology), has approximately 13 years of experience in sampling active and closed landfills. His experience includes leachate, groundwater, landfill gas, and air sampling at numerous landfills of varying status. Ben also has over 13 years of experience collecting and validating data for the preparation of soil and groundwater investigative and routine monitoring reports. Ben would perform data validation, tabulation, field sampling support, and report writing for the Newberg Landfill project.

Ms. Jane-Claire Kerlin, R.G., Project Manager (M.S. Geology), is a registered Geologist with 8 years of experience conducting environmental field sampling related to soil gas, soil, and groundwater, and providing data quality assurance activities, as well as Phase I and Phase II environmental site assessment (ESA) projects. Ms. Kerlin is experienced in environmental field methods, including field sampling methods. Jane is also experienced in hydrology, soil science, remote sensing, geochemistry, igneous petrography, instrumental analysis of geologic data, site assessment and remediation, GIS, satellite image analysis, and statistical analysis of geographic data. Jane would provide field sampling support for the Newberg Landfill project.

If you have any comments or questions regarding this proposal and cost estimate, please contact the undersigned.

Thank you for the opportunity to present this information.

Sincerely,

Ben Uhl, R.G.
Field Manager
benu@hahnenv.com

cc: Rob Ede, Hahn and Associates, Inc.

attachment (1):
Schedule of Fees

HAHN AND ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS
Assessment Investigation Remediation

Schedule of Fees

**Technical and Professional Services
and Reimbursable Expenses**
(Effective 06/01/16)

Principal	\$195/hr.
Senior Associate	\$165/hr.
Associate	\$145/hr.
Senior Project Manager	\$125/hr.
Project Manager/Field Manager	\$105/hr.
Senior Environmental Scientist	\$ 95/hr.
Environmental Scientist	\$ 85/hr.
Environmental Technician	\$ 75/hr.
Administrative/Clerical	\$ 55/hr.
Travel and Subsistence	Cost plus 15%
Outside Services and Subcontractors	Cost plus 15%
Copies	\$0.25 each
Mileage	\$0.90/ml.
Field Vehicle	\$90/day

Schedule of Fees and Standard Equipment Rates subject to change without notice.

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503.798.0717 Telephone • 503.227.2200 Facsimile • www.hahnorv.com Website

B.O. 15-324

HAHN AND ASSOCIATES, INC.
ENVIRONMENTAL CONSULTANTS

Standard Equipment Rates
(Effective 04/01/14)

Aquifer Testing	
Data Logger	\$150/day
Pressure Transducer	\$75/day
Flow Cell	\$25/day
Generator	\$50/day
Global Positioning System (GPS) Unit	\$25/day
Hand Auger	\$25/day
Meters	
Conductivity/pH/Temperature	\$25/day
Dissolved Oxygen	\$25/day
Hellum	\$125/day
Interface Probe	\$25/day
MultiProbe (5 parameter)	\$100/day
Organic Vapor Analyzer (PID)	\$100/day
Redox	\$25/day
Turbidity	\$25/day
Water Level Indicator	\$25/day
Power Tools	\$25/day
Pumps	
Air Pump (Sensidyne)	\$25/day
Bladder & Control Box	\$125/day
Inertial	\$100/day
Peristaltic	\$50/day
Purge	\$25/day
Sump	\$25/day
Soil Gas Sampling	
Leak Detection Gas	\$25/day
Manifold	\$50/day
Vacuum Box	\$25/day